



MiCOM C232

Compact Bay Unit for Control and Monitoring with Protection Functions

Version -302-401/402/403/404-603

Technical Manual
C232/EN M/A23

Volume 2

Appendix

A Glossary

B List of Signals

C List of Bay Types

D Terminal Connection Diagrams

E Address Lists

(Available only as a PDF file. Not included in the printed manual.)

A	Glossary	A-1
A 1	Function Groups	A-1
A 2	Modules	A-2
A 3	Symbols	A-3
A 4	Examples of Signal Names	A-10
A 5	Symbols Used	A-11
B	List of Signals	B-1
B 1	Internal Signal Names	B-1
B 2	Telecontrol Interface per EN 60870-5-101 or IEC 870-5-101 (Companion Standard)	B-3
B 2.1	Interoperability	B-3
B 2.1.1	Network Configuration (Network-Specific Parameters)	B-3
B 2.1.2	Physical Layer (Network-Specific Parameters)	B-4
B 2.1.3	Link Layer (Network-Specific Parameters)	B-5
B 2.1.4	Application Layer	B-6
B 2.1.5	Basic Application Functions	B-12
B 3	Communication Interface per IEC 60870-5-103	B-15
B 3.1	Interoperability	B-15
B 3.1.1	Physical Layer	B-15
B 3.1.1.1	Electrical Interface	B-15
B 3.1.1.2	Optical Interface	B-15
B 3.1.1.3	Transmission Rate	B-15
B 3.1.2	Link Layer	B-16
B 3.1.3	Application Layer	B-16
B 3.1.3.1	Transmission Mode for Application Data	B-16
B 3.1.3.2	Common Address of ASDU	B-16
B 3.1.3.3	Selection of Standard Information Numbers in Monitor Direction	B-16
B 3.1.3.3.1	System Functions in Monitor Direction	B-16
B 3.1.3.3.2	Status Indications in Monitor Direction	B-17
B 3.1.3.3.3	Monitoring Signals (Supervision Indications) in Monitor Direction	B-18
B 3.1.3.3.4	Earth Fault Indications in Monitor Direction	B-19
B 3.1.3.3.5	Fault Indications in Monitor Direction	B-20
B 3.1.3.3.6	Auto-Reclosure Indications in Monitor Direction	B-22
B 3.1.3.3.7	Measurands in Monitor Direction	B-22
B 3.1.3.3.8	Generic Functions in Monitor Direction	B-23
B 3.1.3.4	Selection of Standard Information Numbers in Control Direction	B-24
B 3.1.3.4.1	System Functions in Control Direction	B-24
B 3.1.3.4.2	General Commands in Control Direction	B-24
B 3.1.3.4.3	Generic Functions in Control Direction	B-25
B 3.1.3.5	Basic Application Functions	B-26
B 3.1.3.6	Miscellaneous	B-26
B 4	Communication Interface per DNP3.0	B-27
B 4.1	Device Profile Px30	B-27
B 4.2	Implementation Table	B-29
B 4.3	Data Objects	B-31
B 4.3.1	Binary Input Points	B-31
B 4.3.2	Binary Output Points and Control Relay Output Blocks	B-31
B 4.3.3	Counters	B-33
B 4.3.4	Analog Inputs	B-34
B 4.3.5	Analog Output Status and Analog Output Control Blocks	B-35
B 4.3.6	Internal Indications	B-36

Appendix

(continued)

B 5	Communication Interface per MODBUS	B-37
B 5.1	Protocol	B-37
B 5.2	Serial Transmission Modes	B-37
B 5.2.1	RTU Mode	B-37
B 5.2.2	RTU Framing	B-37
B 5.3	Function Codes	B-38
B 5.4	Mapping	B-39
C	List of Bay Types	C-1
D 1	Terminal Connection Diagrams	D-1
D 1.1	Model 1	D-1
D 1.2	Model 2	D-3
D 1.3	Model 3	D-6
D 1.4	Model 4	D-9
E	Address List	E-1
E 1	Parameters	E-3
E 1.1	Device Identification	E-3
E 1.2	Configuration Parameters	E-8
E 1.3	Function Parameters	E-46
E 1.3.1	Global	E-46
E 1.3.2	General Functions	E-53
E 1.3.3	Parameter Subsets	E-105
E 1.3.4	Control	E-119
E 2	Operation	E-143
E 2.1	Cyclic Values	E-143
E 2.1.1	Measured Operating Data	E-143
E 2.1.2	Physical State Signals	E-149
E 2.1.3	Logic State Signals	E-156
E 2.2	Control and Testing	E-198
E 2.3	Operating Data Recording	E-201
E 3	Events	E-202
E 3.1	Event Counters	E-202
E 3.2	Measured Fault Data	E-204
E 3.3	Fault Data Acquisition	E-205
E 4	Selection Tables	E-206
E 4.1	Selection Table 'Binary Outputs und LEDs'	E-206
E 4.2	Selection Table 'Binary Inputs'	E-212
E 4.3	Selection Table K1	E-214
E 4.4	Selection Table K2	E-215
E 4.5	Selection Table K4	E-216
E 4.6	Selection Table K5	E-216
E 4.7	Selection Table K6	E-218
E 4.8	Selection Table K7	E-219
E 4.9	Selection Table K8	E-219
E 4.10	Selection Table K9	E-220
E 4.11	Selection Table K10	E-220
E 4.12	Selection Table K11	E-221
E 4.13	Selection Table K13	E-221
E 4.14	Selection Table K14	E-221
E 4.15	Selection Table K15	E-222
E 4.16	Selection Table K16	E-223
E 4.17	Selection Table K17	E-225
E 4.18	Selection Table K18	E-226

E 4.19	Selection Table K19	E-227
E 4.20	Selection Table K20	E-227
E 4.21	Selection Table K22	E-228
E 4.22	Selection Table K23	E-229
E 4.23	Selection Table K24	E-230
E 4.24	Selection Table K25	E-230
E 4.25	Selection Table K26	E-230
E 4.26	Selection Table K30	E-230
E 4.27	Selection Table K99	E-231
E 4.28	Selection Table K101	E-235
E 4.29	Selection Table K 102	E-239
E 4.30	Selection Table K 103	E-247
E 4.31	Selection Table K 104	E-249
E 4.32	Selection Table F 479	E-267
E 4.33	Selection Table F 481	E-268
E 4.34	Selection Table F 497	E-268
E 4.35	Selection Table F 571	E-268
E 4.36	Selection Table F 670	E-269
E 4.37	Selection Table F 729	E-269
E 4.38	Selection Table F 730	E-270
E 4.39	Selection Table F 738	E-271
E 5	Possible Entries into Memory	E-272
E 5.1	Fault Memory	E-272
E 5.2	Operating Data Memory	E-276
E 5.3	Monitoring Signal Memory	E-281

Appendix A - Glossary

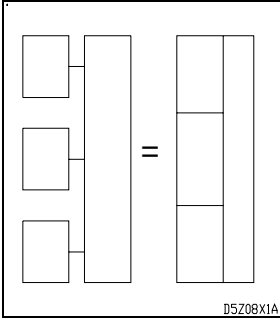
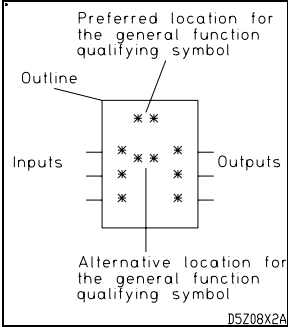
A 1 Function Groups

CMD_1:	Signale pole commands
COMM1:	Communication link 1
COMM2:	Communication link 2
COUNT:	Binary counts
DEV01:	Device 01 to Device 10
to	
DEV10:	
DTOC:	Definite-time overcurrent protection
DVICE:	Device
FT_DA:	Fault data acquisition
FT_RC:	Fault recording
IDMT:	Inverse-time overcurrent protection
ILOCK:	Interlocking logic
INP:	Binary input
LED:	LED indicators
LIMIT:	Limit monitoring
LOC:	Local control panel
LOGIC:	Logic
MAIN:	Main function
MEASI:	Measured data input
MT_RC:	Monitoring signal recording
OP_RC:	Operating data recording
OUTP:	Binary and analog output
PC:	PC link
PSS:	Parameter subset selection
SFMON:	Self-monitoring
SIG_1:	Signale pole signals
TAPCH:	Tap changer control

A 2
Symbols

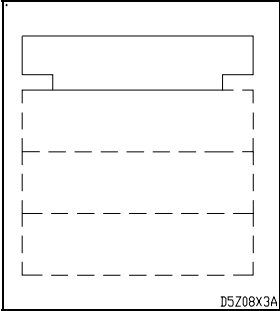
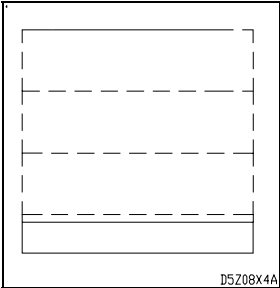
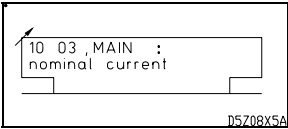
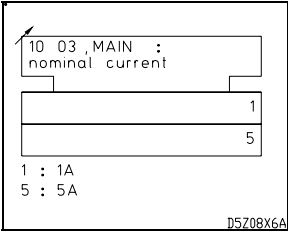
Graphic symbols for block diagrams
Binary elements according to DIN 40900 Part 12, September 1992,
IEC 617-12: amended 1991
Analog information processing according to DIN 40900 Part 13, January 1981

To document the linking of analog and binary signals, additional symbols have been used, taken from several DIN documents.
As a rule, direction of the signal flow is from left to right and from top to bottom. Other flow directions are marked by an arrow. Input signals are listed on the left side of the signal flow, output signals on the right side.

Symbol	Description
	To obtain more space for representing a group of related elements, contours of the elements may be joined or cascaded if the following rules are met: There is no functional linkage between elements whose common contour line is oriented in the signal flow direction. Note: This rule does not necessarily apply to configurations with two or more signal flow directions, such as for symbols with a control block and an output block. There exists at least one logical link between elements whose common contour line runs perpendicularly to the signal flow direction.
	<u>Components of a symbol</u> A symbol consists of a contour or contour combination and one or more qualifiers.

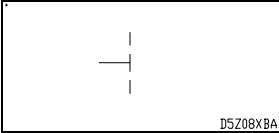
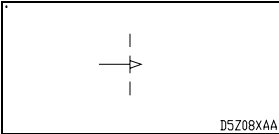
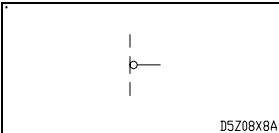
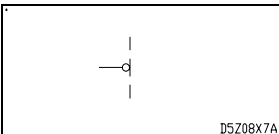
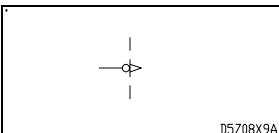
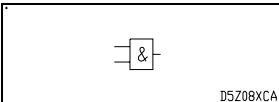
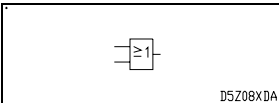
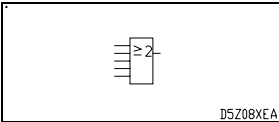
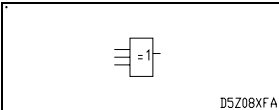
Appendix A - Glossary

(continued)

Symbol	Description
	<u>Control block</u> A control block contains an input function common to several symbols. It is used for the collective setting of several trigger elements, for example.
	<u>Output block</u> An output block contains an output function common to several symbols.
	<u>Settable control block</u> The four digits represent the address under which the function shown in the text after the colon may be set via the local control panel.
	<u>Settable control block with function blocks</u> The digits in the function block show the settings that are possible at this address. The text below the symbol shows the setting and the corresponding unit or meaning.

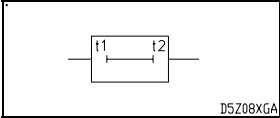
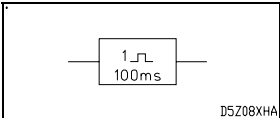
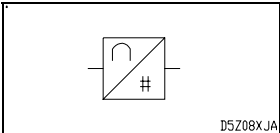
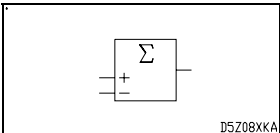
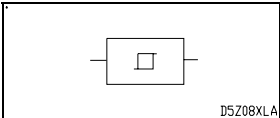
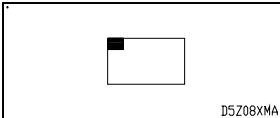
Appendix A - Glossary

(continued)

Symbol	Description
 DSZ08XBA	<u>Static input</u> Only the state of the binary input variable is effective.
 DSZ08XAA	<u>Dynamic input</u> Only the transition from value 0 to value 1 is effective.
 DSZ08X8A	<u>Negation of an output</u> The value up to the border line is negated at the output.
 DSZ08X7A	<u>Negation of an input</u> The input value is negated before the border line.
 DSZ08X9A	<u>Dynamic input with negation</u> Only the transition from value 1 to value 0 is effective.
 DSZ08XCA	<u>AND element</u> The output variable will be 1 only if all input variables are 1.
 DSZ08XDA	<u>OR element</u> The output variable will be 1 only if at least one input variable is 1.
 DSZ08XE A	<u>Threshold element</u> The output variable will be 1 only if at least two input variables are 1. The number in the symbol may be replaced by any other number.
 DSZ08XFA	<u>(m out of n) element</u> The output variable will be 1 only if just one input variable is 1. The number in the symbol may be replaced by any other number if the number of inputs is increased or decreased accordingly.

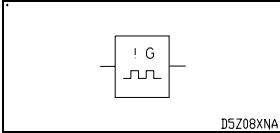
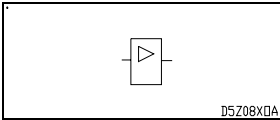
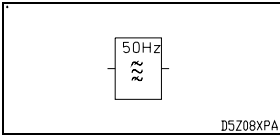
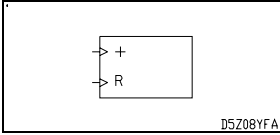
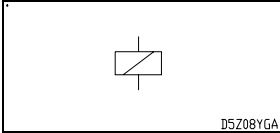
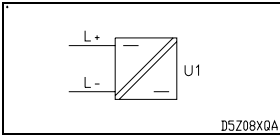
Appendix A - Glossary

(continued)

Symbol	Description
 D5Z08XGA	<u>Delay element</u> The transition from value 0 to 1 at the output occurs after a time delay of t1 relative to the corresponding transition at the input. The transition from value 1 to 0 at the output occurs after a time delay of t2 relative to the corresponding transition at the input. t1 and t2 may be replaced by the actual delay values (in seconds or strobe ticks).
 D5Z08XHA	<u>Monostable flip-flop</u> The output variable will be 1 only if the input variable changes to 1. The output variable will remain 1 for 100 ms, independent of the duration of the input value 1 (non-retriggerable). Without a 1 in the function block the monostable flip-flop is retriggerable. The time is 100 ms in this example, but it may be changed to any other duration.
 D5Z08XJA	<u>Analog-digital converter</u> An analog input signal is converted to a binary signal.
 D5Z08XKA	<u>Subtractor</u> The output variable is the difference between the two input variables. A <i>summing element</i> is obtained by changing the minus sign to a plus sign at the symbol input.
 D5Z08XLA	<u>Schmitt Trigger with binary output signal</u> The binary output variable will be 1 if the input signal exceeds a specific threshold. The output variable remains 1 until the input signal drops below the threshold again.
 D5Z08XMA	<u>Memory, general</u> Storage of a binary or analog signal.

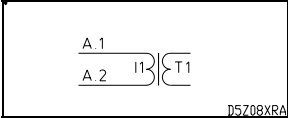
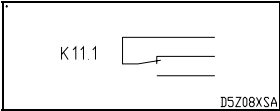
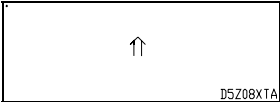
Appendix A - Glossary

(continued)

Symbol	Description
	<u>Non-stable flip-flop</u> When the input variable changes to 1, a pulse sequence is generated at the output. The ! to the left of the G indicates that the pulse sequence starts with the input variable transition (synchronized start). If there is a ! to the right of the G, the pulse sequence ends with the ending of the 1 signal at the input (synchronized stop).
	<u>Amplifier</u> The output variable is 1 only if the input variable is also 1.
	<u>Band pass filter</u> The output only transmits the 50 Hz component of the input signals. All other frequencies (above and below 50 Hz) are attenuated.
	<u>Counter</u> At the + input the input variable transitions from 0 to 1 are counted and stored in the function block. At the R(reset) input a transition of the input variable from 0 to 1 resets the counter to 0.
	<u>Electromechanical drive</u> in general, here a relay, for example.
	<u>Signal level converter</u> with electrical isolation between input and output. L+ = pos. voltage input L- = neg. voltage input U1 = device identifier

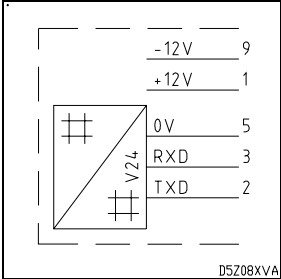
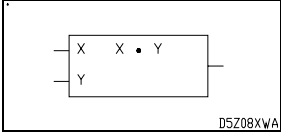
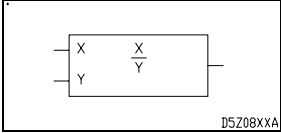
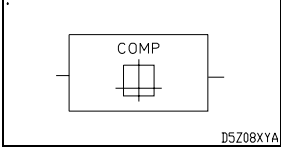
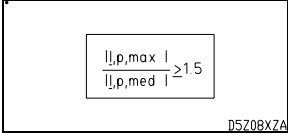
Appendix A - Glossary

(continued)

Symbol	Description
	<u>Input transformer</u> <u>with phase and item identifiers</u> (according to DIN EN 60445) Phase identifiers for current inputs: for A: A1 and A2 for B: B1 and B2 for C: C1 and C2 for N: N1 and N2 Phase identifiers for voltage inputs via transformer 1: for A: 1U for B: 1V for C: 1W for N: 1N via transformer 2: for A: 2U for B: 2V Item identifiers for current transformers: for A: T1 for B: T2 for C: T3 for N: T4 for voltage transformer 1: for A: T5 for B: T6 for C: T7 for N: T8 for V_{G-N} transformer: T90 for voltage transformer 2: for A: T15
	<u>Change-over contact</u> <u>with item identifier</u>
	<u>Special symbol</u> Output relay in normally-energized arrangement (‘closed-circuit operation’).

Appendix A - Glossary

(continued)

Symbol	Description
 DSZ08XVA	<u>PC interface</u> with pin connections
 DSZ08XWA	<u>Multiplier</u> The output variable is the result of the multiplication of the two input variables.
 DSZ08XXA	<u>Divider</u> The output variable is the result of the division of the two input variables.
 DSZ08XYA	<u>Comparator</u> The output variable becomes 1 only if the input variable(s) are equal to the function in the function block.
 DSZ08XZA	<u>Formula block</u> The output variable becomes 1 only if the input variable(s) satisfy the equation in the function block

Appendix A - Glossary

(continued)

A 3 Examples of Signal Names

All settings and signals relevant for protection are shown in the block diagrams of Chapter 3 as follows:

Signal Name	Description
◆ FT_RC: Fault recording n 305 100	<u>Internal signal names</u> are not coded by a data model address. In the block diagrams they are marked with a diamond. The small figure underneath the signal name represents a code that is irrelevant to the user. The internal signal names used and their origins are listed in Appendix B.
DIST: VNG>> triggered [036 015]	Signal names coded by a data model address are represented by their address (shown in square brackets). Their origin is given in Chapters 7 and 8.
MAIN: General reset [003 002] ➤ 1: Execute	A specific setting to be used later on is shown with its signal name, address, and the setting preceded by the setting arrow.

Appendix A - Glossary

(continued)

A 4 Symbols Used

Symbol	Meaning
t	Time duration
V	Voltage, potential difference
$\underline{V}$	Complex voltage
I	Electrical current
$\underline{I}$	Complex current
$\underline{Z}$	Complex impedance
$ \underline{Z} $	Modulus of complex impedance
f	Frequency
δ	Temperature in °C
Σ	Sum, result
Ω	Unit of electrical resistance
α	Angle
φ	Phase angle. With subscripts: specific angle between a defined current and a defined voltage.
τ	Time constant
ΔT	Temperature difference in K

Appendix B - List of Signals

B 1 Internal Signal Names

COMM1: Communication error	Fig. 3-8, 3-9, 3-10, 3-11, 3-12
COMM1: Debounced signal	Fig. 3-25
COMM1: Selected protocol	Fig. 3-7
DEV01: Close cmd. rejection	Fig. 3-107
DEV01: Close request	Fig. 3-106
DEV01: Enable BI close	Fig. 3-107
DEV01: Enable BI open	Fig. 3-107
DEV01: Enable SI Close	Fig. 3-108
DEV01: Enable SI Open	Fig. 3-108
DEV01: End close command	Fig. 3-111
DEV01: End open command	Fig. 3-111
DEV01: Latching time elaps.	Fig. 3-106
DEV01: Latching time runn.	Fig. 3-106
DEV01: Open cmd. rejection	Fig. 3-107
DEV01: Open request	Fig. 3-106
DEV01: Protect. close cmd.	Fig. 3-109
DEV01: Protection trip cmd.	Fig. 3-109
DEV01: Start runn.time mon.	Fig. 3-112
DEV01: Switch. device runn.	Fig. 3-111
DTOC: IN	Fig. 3-75
DTOC: Starting A	Fig. 3-73
DTOC: Starting B	Fig. 3-73
DTOC: Starting C	Fig. 3-73
DTOC: Starting N	Fig. 3-76
DTOC: t2 N	Fig. 3-78
DTOC: Pulse prolong. Runn.	Fig. 3-78
FT_DA: Output meas. values	Fig. 3-67
IDMT: IN	Fig. 3-89
IDMT: Starting A	Fig. 3-86
IDMT: Starting B	Fig. 3-86
IDMT: Starting C	Fig. 3-86
LOC: Remote & local control	Fig. 3-5
LOC: Return t. selec. trg.	Fig. 3-2

Appendix B - List of Signals

(continued)

MAIN: End Command	Fig. 3-112
MAIN: Block tim.st. IN,neg	Fig. 3-47
MAIN: DEVxx is a C.B.	Fig. 3-28
MAIN: Direct motor control	Fig. 3-28
MAIN: Enable IA	Fig. 3-29
MAIN: Enable IB	Fig. 3-29
MAIN: Enable IC	Fig. 3-29
MAIN: Enable I	Fig. 3-29
MAIN: Enable I, 3p	Fig. 3-29
MAIN: Enable VA-G	Fig. 3-29
MAIN: Enable VB-G	Fig. 3-29
MAIN: Enable VC-G	Fig. 3-29
MAIN: Enable VA-B	Fig. 3-29
MAIN: Enable VB-C	Fig. 3-29
MAIN: Enable VC-A	Fig. 3-29
MAIN: Enable VPG	Fig. 3-29
MAIN: Enable VPG, 3p	Fig. 3-29
MAIN: Enable VPP	Fig. 3-29
MAIN: Enable VPP, 3p	Fig. 3-29
MAIN: Blck.1 sel.functions	Fig. 3-42
MAIN: Blck.2 sel.functions	Fig. 3-42
MAIN: Block start. signal	Fig. 3-47
MAIN: Block. I>,klref,P>	Fig. 3-48
MAIN: Block. IN>,klref,N>	Fig. 3-48
MAIN: General starting int.	Fig. 3-48
MAIN: Inrush stabil. trigg	Fig. 3-40
MAIN: Protection active	Fig. 3-37
MAIN: Reset LED	Fig. 3-59
MAIN: Starting A int.	Fig. 3-47
MAIN: Starting B int.	Fig. 3-47
MAIN: Starting C int.	Fig. 3-47
MAIN: Starting Ineg	Fig. 3-47
MAIN: Starting N int.	Fig. 3-47
MAIN: Time tag	Fig. 3-58

Appendix B - List of Signals

(continued)

B 2 Telecontrol Interface per EN 60870-5-101 or IEC 870-5-101 (Companion Standard)

This section incorporates Section 8 of EN 60870-5-101 (1996), which includes a general definition of the telecontrol interface for substation control systems.

B 2.1 Interoperability

This application-based standard (companion standard) specifies parameter sets and other options from which subsets are to be selected in order to implement specific telecontrol systems. Certain parameters such as the number of octets in the COMMON ADDRESS of the ASDU are mutually exclusive. This means that only one value of the defined parameter is allowed per system. Other parameters, such as the listed set of different process information in the command and monitor direction, permit definition of the total number or of subsets that are suitable for the given application. This section combines the parameters given in the previous sections in order to facilitate an appropriate selection for a specific application. If a system is made up of several system components supplied by different manufacturers ("equipment stemming"), then it is necessary for all partners to agree on the selected parameters.

The boxes for the selected parameters should be checked.

Note: The overall definition of a system may also require individual selection of certain parameters for specific parts of a system such as individual selection of scaling factors for individually addressable measured values.

B 2.1.1 Network Configuration (Network-Specific Parameters)

- | | |
|---|---|
| ☒ Point-to-point configuration | ☒ Multipoint-party line configuration |
| ☒ Multiple point-to-point configuration | ☐ Multipoint-star configuration |

Appendix B - List of Signals

(continued)

B 2.1.2 Physical Layer (Network-Specific Parameters)

Transmission Rate (Control Direction) ¹

Unbalanced interface V.24/V.28 Standardized	Unbalanced interface V.24/V.28 Recommended with > 1 200 bit/s	Balanced interface X.24/X.27
☐ 100 bit/s	☒ 2 400 bit/s	☐ 2 400 bit/s ☐ 56 000 bit/s
☐ 200 bit/s	☒ 4 800 bit/s	☐ 4 800 bit/s ☐ 64 000 bit/s
☐ 300 bit/s	☒ 9 600 bit/s	☐ 9 600 bit/s ☐
☒ 600 bit/s		☐ 19 200 bit/s ☐
☒ 1 200 bit/s		☐ 38 400 bit/s ☐

Transmission Rate (Monitor Direction) ²

Unbalanced interface V.24/V.28 Standardized	Unbalanced interface V.24/V.28 Recommended with > 1 200 bit/s	Balanced interface X.24/X.27
☐ 100 bit/s	☒ 2 400 bit/s	☐ 2 400 bit/s ☐ 56 000 bit/s
☐ 200 bit/s	☒ 4 800 bit/s	☐ 4 800 bit/s ☐ 64 000 bit/s
☐ 300 bit/s	☒ 9 600 bit/s	☐ 9 600 bit/s ☐
☒ 600 bit/s		☐ 19 200 bit/s ☐
☒ 1 200 bit/s		☐ 38 400 bit/s ☐

¹ The transmission rates for control direction and monitor direction must be identical.

Appendix B - List of Signals

(continued)

B 2.1.3 Link Layer (Network-Specific Parameters)

Frame format FT 1.2, single character 1, and the fixed time-out interval are used exclusively in this companion standard.

Link Transmission Procedure	Address Field of the Link
☒ Balanced transmission	☒ Not present (balanced transmission only)
☒ Unbalanced transmission	☒ One octet
	☒ Two octets ¹
<u>Frame Length</u>	☒ Structured
240 Maximum length L (number of octets)	☒ Unstructured

¹ Balanced only.

Appendix B - List of Signals

(continued)

B 2.1.4 Application Layer

Transmission mode for application data

Mode 1 (least significant octet first), as defined in clause 4.10 of IEC 870-5-4, is used exclusively in this companion standard.

Common Address of ASDU (System-Specific Parameter)

- | | |
|---|--|
| ☒ One octet | ☒ Two octets |
|---|--|

Information Object Address (System-Specific Parameter)

- | | |
|--|--|
| ☒ One octet | ☒ Structured |
| ☒ Two octets | ☒ Unstructured |
| ☒ Three octets | ☐ |

Cause of Transmission (System-Specific Parameter)

- | | |
|---|--|
| ☒ One octet | ☒ Two octets (with originator address) |
|---|--|

Appendix B - List of Signals

(continued)

Selection of Standard ASDUs

Process Information in Monitor Direction (Station-Specific Parameter)

☒	<1>	=	Single-point information	M_SP_NA_1
☒	<2>	=	Single-point information with time tag	M_SP_TA_1
☒	<3>	=	Double-point information	M_DP_NA_1
☒	<4>	=	Double-point information with time tag	M_DP_TA_1
		=		
☒	<5>	=	Step position information	M_ST_NA_1
☒	<6>	=	Step position information with time tag	M_ST_TA_1
☒	<7>	=	Bit string of 32 bit	M_BO_NA_1
☒	<8>	=	Bit string of 32 bit with time tag	M_BO_TA_1
☒	<9>	=	Measured value, normalized value	M_ME_NA_1
☒	<10>	=	Measured value, normalized value with time tag	M_ME_TA_1
☒	<11>	=	Measured value, scaled value	M_ME_NB_1
☒	<12>	=	Measured value, scaled value with time tag	M_ME_TB_1
☐	<13>	=	Measured value, short floating point value	M_ME_NC_1
☐	<14>	=	Measured value, short floating point value with time tag	M_ME_TC_1
☒	<15>	=	Integrated totals	M_IT_NA_1
☒	<16>	=	Integrated totals with time tag	M_IT_TA_1
☒	<17>	=	Event of protection equipment with time tag	M_EP_TA_1

Appendix B - List of Signals

(continued)

☒	<18>	=	Packed start events of protection equipment with time tag	ME_EP_TB_1
☒	<19>	=	Packed output circuit information of protection equipment with time tag	M_EP_TC_1
☐	<20>	=	Packed single-point information with status change detection	M_PS_NA_1
☐	<21>	=	Measured value, normalized value without quality descriptor	M_ME_ND_1

Appendix B - List of Signals

(continued)

Process Information in Monitor Direction ¹ (Station-Specific Parameter)

☒	<45>	=	Single command	C_SC_NA_1
☒	<46>	=	Double command	C_DC_NA_1
☒	<47>	=	Regulating step command	C_IT_NA_1
☐	<48>	=	Set point command, normalized value	C_RC_NA_1
☐	<49>	=	Set point command, scaled value	C_SE_NB_1
☐	<50>	=	Set point command, short floating point value	C_SE_NC_1
☐	<51>	=	Bit string of 32 bit	C_BO_NA_1

System Information in Monitor Direction (Station-Specific Parameter)

☒	<70>	=	End of initialization	ME_EI_NA_1
-------------------------------------	------	---	-----------------------	------------

¹ Incorrectly identified with control direction in IEC 870-5-101.

Appendix B - List of Signals

(continued)

System Information in Control Direction (Station-Specific Parameter)

☒	<100>	=	Interrogation command	C_IC_NA_1
☒	<101>	=	Counter interrogation command	C_CI_NA_1
☒	<102>	=	Read command	C_RD_NA_1
☒	<103>	=	Clock synchronization command ¹	C_CS_NA_1
☒	<104>	=	Test command	C_TS_NB_1
☐	<105>	=	Reset process command	C_RP_NC_1
☐	<106>	=	Delay acquisition command	C_CD_NA_1

¹ The command procedure is formally processed, but there is no change in the local time in the station.

Appendix B - List of Signals

(continued)

Parameter in Control Direction (Station-Specific Parameter)

☒	<110>	=	Parameter of measured value, normalized value	P_ME_NA_1
☒	<111>	=	Parameter of measured value, scaled value	P_ME_NB_1
☐	<112>	=	Parameter of measured value, short floating point value	P_ME_NC_1
☐	<113>	=	Parameter activation	P_AC_NA_1

File Transfer (Station-Specific Parameter)

☐	<120>	=	File ready	F_FR_NA_1
☐	<121>	=	Section ready	F_SR_NA_1
☐	<122>	=	Call directory, select file, call file, call section	F_SC_NA_1
☐	<123>	=	Last section, last segment	F_LS_NA_1
☐	<124>	=	Ack file, ack section	F_AF_NA_1
☐	<125>	=	Segment	F_SG_NA_1
☐	<126>	=	Directory	F_DR_TA_1

Appendix B - List of Signals

(continued)

B 2.1.5 Basic Application Functions

Station Initialization (Station-Specific Parameter)

☒ Remote initialization

General Interrogation (System- or Station-Specific Parameter)

☒ Global

☒ Group 1

☒ Group 7

☒ Group 13

☒ Group 2

☒ Group 8

☒ Group 14

☒ Group 3

☒ Group 9

☒ Group 15

☒ Group 4

☒ Group 10

☒ Group 16

☒ Group 5

☒ Group 11

☒ Group 6

☒ Group 12

Addresses per group have to be defined.

Clock Synchronization (Station-Specific Parameter)

☒ Clock synchronization

Appendix B - List of Signals

(continued)

Command Transmission (Object-Specific Parameter)

☒	Direct command transmission	☒	Select and execute command
☐	Direct set point command transmission	☐	Select and execute set point command
		☐	C_SE ACTTERM used
☐	No additional definition		
☒	Short pulse duration (Execution duration determined by a system parameter in the outstation)		
☒	Long pulse duration (Execution duration determined by a system parameter in the outstation)		
☒	Persistent output		

Transmission of Integrated Totals (Station- or Object-Specific Parameter)

☐	Counter request	☒	General request counter
☒	Counter freeze without reset	☒	Request counter group 1
☐	Counter freeze with reset	☒	Request counter group 2
☐	Counter reset	☒	Request counter group 3
Addresses per group have to be specified		☒	Request counter group 4

Appendix B - List of Signals

(continued)

Parameter Loading (Object-Specific Parameter)

- ☒ Threshold value
- ☐ Smoothing factor
- ☐ Low limit for transmission of measured value
- ☐ High limit for transmission of measured value

Parameter Activation (Object-Specific Parameter)

- ☐ Act/deact of persistent cyclic or periodic transmission of the addressed object

File Transfer (Station-Specific Parameter)

- | | | |
|--------------------------|-------------------------------------|-----------|
| ☐ | File transfer in monitor direction] | F_FR_NA_1 |
| ☐ | File transfer in control direction] | F_FR_NA_1 |

Appendix B - List of Signals

(continued)

B 3 Communication Interface per IEC 60870-5-103

This section incorporates Section 8 of IEC 60870-5-103, including definitions applicable to the C232.

B 3.1 Interoperability

B 3.1.1 Physical Layer

B 3.1.1.1 Electrical Interface

- ☒ EIA RS 485
- ☒ No. of loads 32 for one device

Note: EIA RS 485 defines the loads in such a way that 32 of them can be operated on one line. For detailed information see EIA RS 485, Section 3.

B 3.1.1.2 Optical Interface

- ☒ Glass fiber
- ☒ Plastic fiber
- ☒ ¹ F-SMA connector
- ☒ ² BFOC/2.5 connector

B 3.1.1.3 Transmission Rate

- ☒ 9 600 bit/s
- ☒ 19 200 bit/s

¹ F-SMA connector to be used with plastic fiber

² BFOC/2.5 connector to be used with glass fiber

Appendix B - List of Signals

(continued)

B 3.1.2 Link Layer

There are no selection options for the link layer.

B 3.1.3 Application Layer

B 3.1.3.1 Transmission Mode for Application Data

Mode 1 (least significant octet first) as defined in clause 4.10 of IEC 60870-5-4 is used exclusively in this companion standard.

B 3.1.3.2 Common Address of ASDU

- ☒ One COMMON ADDRESS of ASDU (identical to the station address)
- ☐ More than one COMMON ADDRESS of ASDU

B 3.1.3.3 Selection of Standard Information Numbers in Monitor Direction

B 3.1.3.3.1 System Functions in Monitor Direction

	INF	Description
☒	<0>	End of general interrogation
☒	<0>	Time synchronization
☒	<2>	Reset FCB
☒	<3>	Reset CU
☒	<4>	Start / restart
☐	<5>	Power on

Appendix B - List of Signals

(continued)

B 3.1.3.3.2 Status Indications in Monitor Direction

Designations as in IEC 60870-5-103 Section 8 ¹			Designations as in the Device Address List	
INF	Semantics		Address	Descriptor
☐	<16>	Auto-recloser active	015 064	ARC: Enabled
☐	<17>	Teleprotection active	015 008	PSIG: Enabled
☒	<18>	Protection active	003 030	MAIN: Protection enabled
☒	<19>	LED reset	021 010	MAIN: Reset indicat. USER
☒	<20>	Monitor direction blocked	037 075	COMM1: Sig./meas.val.block.
☒	<21>	Test mode	037 071	MAIN: Test mode
☐	<22>	Local parameter setting		
☒	<23>	Characteristic 1	036 090	PSS: PS 1 active
☒	<24>	Characteristic 2	036 091	PSS: PS 2 active
☒	<25>	Characteristic 3	036 092	PSS: PS 3 active
☒	<26>	Characteristic 4	036 093	PSS: PS 4 active
☒	<27>	Auxiliary input 1	034 000	LOGIC: Input 1 EXT
☒	<28>	Auxiliary input 2	034 001	LOGIC: Input 2 EXT
☒	<29>	Auxiliary input 3	034 002	LOGIC: Input 3 EXT
☒	<30>	Auxiliary input 4	034 003	LOGIC: Input 4 EXT

¹ Different designations are used, for example, in IEC 60870-5-103 Annex A (phase A rather than L1).

Appendix B - List of Signals

(continued)

B 3.1.3.3.3 Monitoring Signals (Supervision Indications) in Monitor Direction

Designations as in IEC 60870-5-103 Section 8			Designations as in the Device Address List	
INF	Semantics		Address	Descriptor
☐	<32> Measurand supervision I		040 087	MCMON: Meas. circ. I faulty
☐	<33> Measurand supervision V		040 087	MCMON: Meas. circ. V faulty
☐	<35> Phase sequence supervision		038 049	MCMON: Phase sequ. V faulty
☒	<36> ¹ Trip circuit supervision		041 200	SFMON: Relay Kxx faulty
☐	<37> I>> back-up operation			
☐	<38> VT fuse failure		004 061	MAIN: M.c.b. trip V EXT
☐	<39> Teleprotection disturbed		036 060	PSIG: Telecom. faulty
☒	<46> Group warning		036 100	SFMON: Warning (relay)
☒	<47> Group alarm		004 065	MAIN: Blocked/faulty

¹ The message content is formed from the OR operation of the individual signals

Appendix B - List of Signals

(continued)

B 3.1.3.3.4 Earth Fault Indications in Monitor Direction

Designations as in IEC 60870-5-103 Section 8 ¹			Designations as in the Device Address List	
INF	Semantics		Address	Descriptor
☐	<48>	Earth fault L1	041 054	MAIN: Ground fault A
☐	<49>	Earth fault L2	041 055	MAIN: Ground fault B
☐	<50>	Earth fault L3	041 056	MAIN: Ground fault C
☐	<51>	Earth fault forward, i.e. line	041 088	MAIN: Gnd. fault forw./LS
☐	<52>	Earth fault reverse, i.e. busbar	041 089	MAIN: Gnd. fault backw./BS

¹ Different designations are used, for example, in IEC 60870-5-103 Annex A (phase A rather than L1).

Appendix B - List of Signals

(continued)

B 3.1.3.3.5 Fault Indications in Monitor Direction

Designations as in IEC 60870-5-103 Section 8 ¹			Designations as in the Device Address List	
	INF	Semantics	Address	Descriptor
☒	<64>	Start /pick-up L1	040 005	MAIN: Starting A
☒	<65>	Start /pick-up L2	040 006	MAIN: Starting B
☒	<66>	Start /pick-up L3	040 007	MAIN: Starting C
☒	<67>	Start /pick-up N	040 008	MAIN: Starting GF
☒	<68>	General trip	036 071	MAIN: Gen. trip command 1
☐	<69>	Trip L1		
☐	<70>	Trip L2		
☐	<71>	Trip L3		
☐	<72>	Trip I>> (back-up operation)		
☐	<73>	Fault location X in ohms	004 029	FT_DA: Fault react., prim.
☐	<74>	Fault forward/line	036 018	SCDD: Fault P forward
☐	<75>	Fault reverse/busbar	036 019	SCDD: Fault P backward
☐	<76>	Teleprotection signal transmitted	036 035	PSIG: Send (signal)
☐	<77>	Teleprotection signal received	037 029	PSIG: Receive (signal)
☐	<78>	Zone 1		
☐	<79>	Zone 2		
☐	<80>	Zone 3		
☐	<81>	Zone 4		
☐	<82>	Zone 5		

¹ Different designations are used, for example, in IEC 60870-5-103 Annex A (phase A rather than L1).

Appendix B - List of Signals

(continued)

Designations as in IEC 60870-5-103 Section 8 ¹			Designations as in the Device Address List	
	INF	Semantics	Address	Descriptor
☐	<83>	Zone 6		
☒	<84>	General start/pick-up	036 000	MAIN: General starting
☐	<85>	Breaker failure	036 017	CBF: CB failure
☐	<86>	Trip measuring system L1		
☐	<87>	Trip measuring system L2		
☐	<88>	Trip measuring system L3		
☐	<89>	Trip measuring system E		
☒	<90>	Trip I>	040 042	MAIN: TripSig. tI>/tIrefP>
☒	<91>	Trip I>>	040 011	MAIN: Trip signal tI>>
☒	<92>	Trip IN>	040 043	MAIN: TripSig tIN>/tIrefN>
☒	<93>	Trip IN>>	040 028	MAIN: Trip signal tIN>>

Appendix B - List of Signals

(continued)

B 3.1.3.3.6 Auto-Reclosure Indications in Monitor Direction

Designations as in IEC 60870-5-103 Section 8			Designations as in the Device Address List	
INF	Semantics		Address	Descriptor
☐	<128>	CB 'on' by AR	037 007	ARC: (Re)close signal HSR
☐	<129>	CB 'on' by long-time AR	037 006	ARC: (Re)close signal TDR
☐	<130>	AR blocked	037 008	ARC: Not ready

B 3.1.3.3.7 Measurands in Monitor Direction

Designations as in IEC 60870-5-103 Section 8			Designations as in the Device Address List	
INF	Semantics		Address	Descriptor
☒	<144> ¹	Measurand I	006 041	MAIN: Current B p.u.
☒	<145> ²	Measurands I, V	006 041	MAIN: Current B p.u.
			005 045	MAIN: Voltage A-B p.u.
☒	<146> ³	Measurands I, V, P, Q	006 041	MAIN: Current B p.u.
			005 045	MAIN: Voltage A-B p.u.
			004 051	MAIN: Active power P p.u.
			004 053	MAIN: Reac. power Q p.u.
☒	<147> ⁴	Measurands I _N , V _{EN}	005 011	MAIN: Current Σ(IP) p.u.
			005 013	MAIN: Volt. Σ(VPG)/√3 p.u.
☒	<148> ⁵	Measurands I _{L1,2,3} , V _{L1,2,3} , P, Q, f	005 041	MAIN: Current A p.u.
			006 041	MAIN: Current B p.u.
			007 041	MAIN: Current C p.u.
			005 043	MAIN: Voltage A-G p.u.
			006 043	MAIN: Voltage B-G p.u.
			007 043	MAIN: Voltage C-G p.u.
			004 051	MAIN: Active power P p.u.
			004 053	MAIN: Reac. power Q p.u.
			004 040	MAIN: Frequency f

¹ Only when COMM1: Transm. enab. cycl. data is set at "ASDU 3.1 per IEC"
² Only when COMM1: Transm. enab. cycl. data is set at "ASDU 3.2 per IEC"
³ Only when COMM1: Transm. enab. cycl. data is set at "ASDU 3.3 per IEC"
⁴ Only when COMM1: Transm. enab. cycl. data is set at "ASDU 3.4 per IEC"
⁵ Only when COMM1: Transm. enab. cycl. data is set at "ASDU 9 per IEC"

Appendix B - List of Signals

(continued)

B 3.1.3.3.8 Generic Functions in Monitor Direction

Designations as in IEC 60870-5-103 Section 8

INF	Semantics
☐	<240> Read headings of all defined groups
☐	<241> Read values or attributes of all entries of one group
☐	<243> Read directory of a single entry
☐	<244> Read value or attribute of a single entry
☐	<245> End of general interrogation of generic data
☐	<249> Write entry with confirmation
☐	<250> Write entry with execution
☐	<251> Write entry aborted

Appendix B - List of Signals

(continued)

B 3.1.3.4 Selection of Standard Information Numbers in Control Direction

B 3.1.3.4.1 System Functions in Control Direction

Designations as in IEC 60870-5-103 Section 8

INF	Semantics
☒ <0>	Initiation of general interrogation
☒ <0>	Time synchronization

B 3.1.3.4.2 General Commands in Control Direction

Designations as in IEC 60870-5-103 Section 8		Designations as in the Device Address List	
INF	Semantics	Address	Descriptor
☐ <16>	Auto-recloser on/off	015 060	ARC: General enable USER
☐ <17>	Teleprotection on/off	015 004	PSIG: General enable USER
☒ <18>	Protection on/off	003 030	MAIN: Protection enabled
☒ <19>	LED reset	021 010	MAIN: Reset indicat. USER
☒ <23> ¹	Activate characteristic 1	003 060	PSS: Param.subs.sel. USER
☒ <24> ²	Activate characteristic 2	003 060	PSS: Param.subs.sel. USER
☒ <25> ³	Activate characteristic 3	003 060	PSS: Param.subs.sel. USER
☒ <26> ⁴	Activate characteristic 4	003 060	PSS: Param.subs.sel. USER

¹ Switches PSS: Select PS USER to "Parameter set 1"
² Switches PSS: Select PS USER to "Parameter set 2"
³ Switches PSS: Select PS USER to "Parameter set 3"
⁴ Switches PSS: Select PS USER to "Parameter set 4"

Appendix B - List of Signals

(continued)

B 3.1.3.4.3 Generic Functions in Control Direction

Designations as in IEC 60870-5-103 Section 8

INF	Semantics
☐	<240> Read headings of all defined groups
☐	<241> Read values or attributes of all entries of one group
☐	<243> Read directory of a single entry
☐	<244> Read value or attribute of a single entry
☐	<245> General interrogation of generic data
☐	<248> Write entry
☐	<249> Write entry with confirmation
☐	<250> Write entry with execution
☐	<251> Write entry abort

Appendix B - List of Signals

(continued)

B 3.1.3.5 Basic Application Functions

- ☒ Test mode
- ☒ Blocking of monitor direction
- ☒ Disturbance data
- ☐ Generic services
- ☒ Private data

B 3.1.3.6 Miscellaneous

Measured values are transmitted both with ASDU 3 and ASDU 9. As defined in Sec. 7.2.6.8, the maximum MVAL can be either 1.2 or 2.4 times the rated value. In ASDU 3 and ASDU 9, different ratings may not be used; in other words, there is only one choice for each measurand.

Measurand	Measured value	Max. MVAL = nom. value multiplied by	
		1.2	or 2.4
Designations as in IEC 60870-5-103 Section 8 ¹	Designations as in the Device Address List		
Current L1	Current A	☐	☒
Current L2	Current B	☐	☒
Current L3	Current C	☐	☒
Voltage L1-E	Voltage A-G	☐	☒
Voltage L2-E	Voltage B-G	☐	☒
Voltage L3-E	Voltage C-G	☐	☒
Active power P	Active power P	☐	☒
Reactive power Q	Reactive power Q	☐	☒
Frequency f	Frequency f	☐	☒
Voltage L1-L2	Voltage A-B	☐	☒

¹ IEC 60870-5-103 Annex also uses phase A rather than L1.

Appendix B - List of Signals

(continued)

B 4 Communication Interface per DNP3.0

B 4.1 Device Profile Px30

DNP V3.00 DEVICE PROFILE DOCUMENT	
Vendor Name: AREVA Energietechnik GmbH.	
Device Name: Px30 Protective Relays Series	
Highest DNP Level Supported: For Requests: Level 2 For Responses: Level 2	Device Function: Master ✓ Slave
Notable objects, functions, and/or qualifiers supported in addition to the Highest DNP Levels Supported (the complete list is described in the attached table): • For static object requests, request qualifier codes 00 and 01 (start-stop), 07 and 08 (limited quantity), and 17 and 28 (index) are supported in addition to request qualifier code 06 (no range) • Static object requests sent with qualifiers 00, 01, 06, 07, or 08, will be responded with qual. 00 or 01. • Static object requests sent with qualifiers 17 or 28 will be responded with qualifiers 17 or 28. • Object 34, Analog Input Reporting Dead band read and write is supported • For Objects 30, 32, 34, 40, 41 short floating point variations are supported. • For change-event object requests, qualifiers 17 or 28 are always responded. • 16-bit, 32-bit or short floating point Analog Change Events with Time may be requested. • Assign Class function is supported for Binary- and Analog Input Events. • The read function code for Object 50 (Time and Date), variation 1, is supported.	
Maximum Data Link Frame Size (octets): Transmitted: 292 Received: 292	Maximum Application Fragment Size (octets): Transmitted: 2048 Received: 2048
Maximum Data Link Re-tries: ☐ None ☐ Fixed at 2 ✓ Configurable	Maximum Application Layer Re-tries: ✓ None ☐ Configurable
Requires Data Link Layer Confirmation: ☐ Never ☐ Always ☐ Sometimes ✓ Configurable	
Requires Application Layer Confirmation: ☐ Never (*) ☐ Always (not recommended) ✓ When reporting Event Data ✓ When sending multi-fragment responses ☐ Sometimes ☐ Configurable	

(continued)

B-28

Appendix B - List of Signals

(continued)

B 4.2 Implementation Table

Object			REQUEST		RESPONSE	
Object Number	Variation Number	Description	Function Codes (dec)	Qualifier Codes (hex)	Function Codes (dec)	Qualifier Codes (hex)
1	0	Binary Input - Any Variation	1, 22	0,001,06,07,08,17,28		
1	1	Binary Input	1, 22	00,01,06,07,08,17,28	129	00,01,17,28
1	2	Binary Input with Status	1, 22	00,01,06,07,08,17,28	129	00,01,17,28
2	0	Binary Input Change - Any Variation	1	06,07,08	129	
2	1	Binary Input Change without Time	1	06,07,08	129	17,28
2	2	Binary Input Change with Time	1	06,07,08	129	17,28
10	0	Binary Output - All Variations	1	00,01,06,07, 08,17,28		
10	2	Binary Output Status	1	00,01,06,07, 08,17,28	129	00,01,17,28
12	1	Control Relay Output Block	3,4,5,6	00,01,07,08, 17,28	129	echo
20	0	Binary Counter	1,7,8	00,01,06,07, 08,17,28		
20	1	32-Bit Binary Counter with Flag	1,7,8	00,01,06,07, 08,17,28	129	00,01,17,28
20	2	16-Bit Binary Counter with Flag	1,7,8	00,01,06,07, 08,17,28	129	00,01,17,28
20	5	32-Bit Binary Counter without Flag	1,7,8	00,01,06,07, 08,17,28	129	00,01,17,28
20	6	16-Bit Binary Counter Without Flag	1,7,8	00,01,06,07, 08,17,28	129	00,01,17,28
21	0	Frozen Counter	1	00,01,06,07, 08,17,28		
21	1	32-Bit Frozen Counter with Flag	1	00,01,06,07, 08,17,28	129	00,01,17,28
21	2	16-Bit Frozen Counter with Flag	1	00,01,06,07, 08,17,28	129	00,01,17,28
21	9	32-Bit Frozen Counter without Flag	1	00,01,06,07, 08,17,28	129	00,01,17,28
21	10	16-Bit Frozen Counter without Flag	1	00,01,06,07, 08,17,28	129	00,01,17,28
30	0	Analog Input - All Variations	1	00,01,06,07, 08,17,28		
30	1	32-Bit Analog Input	1	00,01,06,07, 08,17,28	129	00,01,17,28
30	2	16-Bit Analog Input	1	00,01,06,07, 08,17,28	129	00,01,17,28
30	3	32-Bit Analog Input without Flag	1	00,01,06,07, 08,17,28	129	00,01,17,28
30	4	16-Bit Analog Input without Flag	1	00,01,06,07, 08,17,28	129	00,01,17,28
30	5	Short Float Analog Input	1	00,01,06,07, 08,17,28	129	00,01,17,28
32	0	Analog Change Event - All Variations	1, 22	06,07,08		
32	1	32-Bit Analog Change Event without Time	1, 22	06,07,08	129	17,28
32	2	16-Bit Analog Change Event without Time	1, 22	06,07,08	129	17,28
32	3	32-Bit Analog Change Event with Time	1, 22	06,07,08	129	17,28
32	4	16-Bit Analog Change Event with Time	1, 22	06,07,08	129	17,28
32	5	Short Float Ana. Change Ev. without Time	1	06,07,08	129	17,28
32	7	Short Float Ana. Change Event with Time	1	06,07,08	129	17,28

Appendix B - List of Signals

(continued)

Object			REQUEST		RESPONSE	
Object Number	Variation Number	Description	Function Codes (dec)	Qualifier Codes (hex)	Function Codes (dec)	Qualifier Codes (hex)
34	0	Analog Input Reporting Dead band – All V.	1	06,07,08	129	
34	1	16 Bit Analog Input Reporting Dead band	1,2	00,01,06,07,08	129	00,01,17,28
34	2	32 Bit Analog Input Reporting Dead-end	1,2	00,01,06,07,08	129	00,01,17,28
34	3	Short Float Analog Input Rep. Dead band	1,2	00,01,06,07,08	129	00,01,17,28
40	0	Analog Output Status – All Variations	1	06,07,08		
40	1	32-Bit Analog Output Status	1	06,07,08	129	00,01,17,28
40	2	16-Bit Analog Output Status	1	06,07,08	129	00,01,17,28
40	3	Short Float Analog Output Status	1	06,07,08	129	00,01,17,28
41	1	32-Bit Analog Output Block	3,4,5,6	00,01,07,08, 17,28	129	echo
41	2	16-Bit Analog Output Block	3,4,5,6	00,01,07,08, 17,28	129	echo
41	3	Short Float Analog Output Block	3,4,5,6	00,01,07,08, 17,28	129	echo
50	0	Time and Date - All Variations	1	00,01,06,07, 08,17,28		00,01,17,28
50	1	Time and Date	1,2	00,01,06,07, 08,17,28	129	00,01,17,28
52	2	Time Delay Fine			129	7
60	0	Class 0,1,2,3 Data	1	06		
60	1	Class 0 Data	1	06	129	00,01
60	2	Class 1 Data	1, 22	06,07,08	129	17, 28
60	3	Class 2 Data	1, 22	06,07,08	129	17,28
60	4	Class 3 Data	1, 22	06,07,08	129	17,28
80	1	Internal Indications	2	00 (index = 7)		
		No Object (function code only)	13 Cold Restart			
		No Object (function code only)	14 Warm Restart			
		No Object (function code only)	23 Delay Measure.			

Appendix B - List of Signals

(continued)

B 4.3 Data Objects

B 4.3.1 Binary Input Points

Static (Steady-State)	
Static (Steady-State) Object Number	1
Change Event Object Number	2
Request Function Codes supported	1 (read), 22 (assign class)
Static Variation reported when variation 0 requested	1 (Binary Input without status)
Change Event Variation reported when variation 0 requested	2 (Binary Input Change with Time)
Maximum Number of Binary Input Points	64, may depends on device type
Assignment of Signals to Index	Configurable, the user may select the wanted binary inputs from a table with all offered binary inputs; the index arises from the order
Data Class Of Change Event	Configurable for every datapoint, alterable by the master with the assign class function

B 4.3.2 Binary Output Points and Control Relay Output Blocks

Binary Output Status Points	
Object Number	10
Request Function Codes supported	1 (read)
Default Variation reported when variation 0 requested	2 (Binary Output Status)
Control Relay Output Blocks	
Object Number	12
Request Function Codes supported	3 (select), 4 (operate), 5 (direct operate), 6 (direct operate, noack)
Maximum Number of Binary Output Points	32, may depends on device type
Assignment of Signals to Index	configurable, the user may select the wanted binary outputs from a table with all offered binary outputs; the index arises from the order

Appendix B - List of Signals

(continued)

There are two types of binary outputs:

1. binary outputs to coils;
These outputs may be controlled by pulses. The state of the output is not reflected in the Binary Output object.
2. logical binary outputs;
These outputs reflect memory contents (settings). The state of these signals can be read in the Binary Output Object.

In addition we distinguish:

1. unipolar electrical device
Unipolar devices have one contact and can be controlled with latch on/off or pulse on.
2. bipolar electrical device
Bipolar electrical devices have two contacts: one to switch e.g. the breaker on and another to switch it off. Bipolar electrical devices are represented by two indexes in Binary Outputs and the state of the device by two indexes in Binary Input.

Rules:

- Only one control operation is accepted per request;
- Pulse Off, Queued, Clear, Count and Off Time are not supported (Count always 1);
- If On Time $\leq$ 2000ms the short time parameter in the device is used (default 2000ms) else the long time parameter is used (default 20000ms);
- If the Trip/Close field is used, all other fields are don't care. The standard control procedure to control a (air) circuit-breaker is used (terminate command when the return information or timeout occurred).
- The Trip/Close command can be send either to the index of the on-contact or the off-contact of a bipolar device, the control operation performed depends only on the Trip/Close field. This makes the slave compatible to both addressing issues of a master: 2 and 1 Point(s) Per Address.
- In addition a bipolar Device can be controlled by Latch On/Pulse On commands to the corresponding index of the contact to be compatible to masters that don't use Trip/Close operations.

The following table illustrates the performed control operations:

Operation	Destination			
	index unipolar device	index logical output (e.g. setting)	index off-contact of a bipolar device / transformer raise	index on-contact of a bipolar device / transformer lower
Pulse ON	pulse on	set persistent to logical 1	switch off / raise	switch on / lower
Pulse OFF	not supported	not supported	not supported	not supported
Latch ON	Persistent output on	set persistent to logical 1	switch off / raise	switch on / lower
Latch OFF	Persistent output off	set persistent to logical 0	not supported	not supported
Trip/Raise	not supported	not supported	switch off / raise	switch off/ raise
Close/Lower	not supported	not supported	switch on / lower	switch on / lower

Appendix B - List of Signals

(continued)

B 4.3.3 Counters

The following table lists both Binary Counters (Object 20) and Frozen Counters (Object 21). When a freeze function is performed on a Binary Counter point, the frozen value is available in the corresponding Frozen Counter point.

Binary Counters	
Static (Steady-State) Object Number	20
Request Function Codes supported	1 (read), 7 (freeze), 8 (freeze noack)
Static Variation reported when variation 0 requested	6 (16-Bit Binary Counter without Flag)
Data Class	Binary Counters belong to class 0
Frozen Counters	
Static (Steady-State) Object Number	21
Request Function Codes supported	1 (read)
Static Variation reported when variation 0 requested	10 (16-Bit Frozen Binary without Flag)
Maximum Number of Counters	16, may depends on device type
Assignment of Counters to Index	configurable, the user may select the wanted binary inputs from a table with all offered counters; the index arises from the order

Appendix B - List of Signals

(continued)

B 4.3.4 Analog Inputs

Analog Inputs	
Static (Steady-State) Object Number	30
Change Event Object Number	32
Reporting Dead band Object Number	34
Request Function Codes supported	1 (read), 2 (write, dead bands only), 22 (assign class)
Static Variation reported when variation 0 requested	2 (16-Bit Analog Input)
Change Event Variation reported when variation 0 requested	2 (Analog Change Event w/o Time)
Reporting Dead band Variation reported when variation 0 requested	1 (16-Bit Reporting Dead band)
Maximum Number of Analog Input Points	32, may depends on device type
Assignment of Signals to Index	configurable, the user may select the wanted binary inputs from a table with all offered analog inputs; the index arises from the order
Data Class Of Change Event	configurable for every datapoint, alterable by the master with the assign class function

Regarding the event handling there are two types of measurements:

1. Continuous measurements;
For this measurement only the latest change is queued.
2. Disturbance measurements;
For these measurements every change is queued.

Appendix B - List of Signals

(continued)

B 4.3.5 Analog Output Status and Analog Output Control Blocks

Analog Output Status Points	
Object Number	40
Request Function Codes supported	1 (read)
Default Variation reported when variation 0 requested	2 (16-Bit Analog Output Status)
Analog Output Blocks	
Object Number	41
Request Function Codes supported	3 (select), 4 (operate), 5 (direct operate), 6 (direct operate, noack)
Maximum Number of Analog Output Points	16, may depends on device type
Assignment of Signals to Index	configurable, the user may select the wanted binary inputs a table with all offered analog outputs; the index arises from the order

The Analog Output Status object is used for analog settings. The actual values are reflected in the Analog Output Status object.

More than one Analog Output Block operations are accepted per request.

Appendix B - List of Signals

(continued)

B 4.3.6 Internal Indications

The following table lists Internal Indications (IINs), and the conditions that would cause them. Standard DNP3 IINs are reported in every response message

Internal Indications	
Object Number	80
Request Function Codes supported	1 (read), 2 (write)

Point Index	Descriptions and Conditions	Writeable ?
0	IIN1-0 All Stations – set after a broadcast message (any message using a destination address of 0xffff0 or above) has been received.	No
1	IIN1-1 Class 1 event data available.	No
2	IIN1-2 Class 2 event data available.	No
3	IIN1-3 Class 3 event data available.	No
4	IIN1-4 Time synchronization required.	No
5	IIN1-5 Local mode. Set when control is in local mode or command direction is blocked.	No
6	IIN1-6 Device Trouble. Set when the group alarm condition is active.	No
7	IIN1-7 Device restart. Set after device restart.	Yes
8	IIN2-0 Function Unknown. Generally means that the function code (octet 2 of the request header) cannot be processed.	No
9	IIN2-1 Object Unknown. Generally means that the function code could be processed but the object group / variation could not be processed.	No
10	IIN2-2 Parameter Error. Generally indicates that both the function code and object group / variation could be processed but that the qualifier / range field is in error.	No
11	IIN2-3 Buffer Overflow. Indicates that an event buffer has overflowed, and that change events, of at least one type, have been lost.	No
12	IIN2-4 Already Executing. – not supported, always 0	No
13	IIN2-5 Bad configuration. – not supported, always 0	No
14	IIN2-6 Reserved. Always 0.	No
15	IIN2-7 Reserved. Always 0.	No

Appendix B - List of Signals

(continued)

B 5 Communication Interface per MODBUS

This section is based on "Communication's Rules for AREVA devices on a MODBUS network", Issue E, 04/01/2000.

B 5.1 Protocol

Master	Device which could initiate transactions (called 'queries')
Slave	Devices which return a message (called a 'response') to queries send by the master
Response	Message returned by slaves
Broadcast	Command to all slaves

B 5.2 Serial Transmission Modes

C232 is supporting RTU Mode.

B 5.2.1 RTU Mode

Coding System	8-bit binary, hexadecimal 0-9, A-F Two hexadecimal characters contained in each 8-bit field of a message
Bits per Byte	1 start bit 8 data bit, least significant bit sent first 1 bit for even/ odd parity; no bit for no parity 1 stop bit if parity is used; 2 bits if no parity
Error Check Field	Cyclical Redundancy Check (CRC)

B 5.2.2 RTU Framing

START	ADDRESS	FUNCTION	DATA	CRC CHECK	END
T1-T2-T3-T4	8 Bits	8 Bits	n x 8 Bits	16 Bits	T1-T2-T3-T4

START	Silent interval of at least 3,5 character times
ADDRESS	Address field, Slave device addresses 1 to 247, Address 0 is used for broadcast address
FUNCTION	Function field
DATA	Optional data field constructed using sets of two hexadecimal digits depending on function code
CRC CHECK	16 Bit CRC value
END	Silent interval of at least 3,5 character times

Appendix B - List of Signals

(continued)

B 5.3 Function Codes

Function Code (hex)	Subfunction Code (hex)	Name	Description
01		Read Coil Status	Reads binary information
02		Read Input Status	Reads binary information (refer to function code 01 hex)
03		Read Holding register	Reads binary information, analog information (measurements), events and records
04		Read Holding register	Reads binary information, analog information (measurements), events and records (refer to function code 03 hex)
05		Force Single Coil	Writes binary information
06		Preset Register	Writes analog commands and acknowledges events and transmission of records
07		Read Exception Status	Reads status information
08		Diagnostics	Diagnostic functions
	00	Return Query Data	The data passed in the query data field is to be returned (looped back) in the response
	01	Restart Communications Option	Restarts slaves communication port Resets all event logs, brings port out of 'Listen Only' mode.
	04	Force Listen Only Mode	Forces slave to 'Listen Only' mode: Isolates slave from the communication network. No response is returned. Only function "Restart Communication option" (Function code 8, Subfunction 1) will be processed.
	10	Clear Counters and Diagnostic Register	Clears all counters and diagnostic registers
	11	Return Bus Message Count	Quantity of messages detected by the slave
	12	Return Bus Communication Error	Quantity of CRC errors encountered by the slave since last restart
	13	Return Bus Exception Count	Quantity of MODBUS Exception Responses.
	14	Return Slave Message Count	Quantity of messages addressed to the slave
	15	Return Slave No Response Count	Quantity of messages addressed to the slave without response
	17	Return Slave Busy Count	Quantity of messages addressed to the slave which returned a Slave Device Busy exception response
	18	Return Bus Character Overrun Count	Quantity of messages addressed to the slave which could not be managed due to character overrun condition
16		Preset Multiple Registers	Time synchronisation

Appendix B - List of Signals

(continued)

B 5.4 Mapping

The “AREVA” mapping of the MODBUS protocol implementation as of “\Parameters\Config.Parameters\COMM1\MODBUS Prot. Variant” is given below:

MODBUS Addresses (hex)	Description	Function codes
0401	System information	FC 03, FC 04
0401	Acknowledgment (events, disturbance records, long-term recording)	FC 06
0801	Time synchronisation	FC 16
1001 ... 2000	Binary information Binary commands	FC 01, FC 02, FC 03, FC 04, FC 05
3601 ... 4000	Event transmission	FC 03, FC 04
4001 ... 5000	Analog information Analog commands	FC 03, FC 04, FC 06

In addition the mapping of variant “AREVA D” as of “\Parameter\Config.Parameter\COMM1\ MODBUS Prot. Variant” is given below:

MODBUS AdDresses (hex)	0XXXX	1XXXX	3XXXX	4XXXX
X0001...X0100	rfu	rfu	Operating data measurments acc. to IEC 60870-5-103	Time, Date Event menagement
X0101...X0200	rfu	rfu	Events	Registers for control and monitoring of switchgear devices
X0201...X0300	rfu	rfu	Events	Reserved for registers for control and monitoring of switchgear devices
X0301...X0400	Commands and signals acc. to 'm -out of-n' selection	Signals acc. to 'm -out of-n' selection	Parameter (read only) acc. to 'm -out of-n' selection	Parameter (read/ write) acc. to 'm -out of-n' selection
X0401...X0800	Single-pole commands and signals	Information on LOC commands (single-pole commands)	rfu	rfu
X0801...X1000	rfu	rfu	rfu	rfu
X1001...X1700	rfu	Single-pole information	rfu	rfu

Appendix B - List of Signals

(continued)

Appendix C - List of Bay Types

Key

Sorting the Bay Types

The bay types are sorted by the criteria listed below. These criteria are encoded in the first three characters of the bay type code (example: A11.100.R01) given in brackets after the Bay Type No. (example: 2). Sorting is first by "Type of bay" in the order given below, then within each group by the second and third character in ascending order.

- Type of bay
 - A - Feeder bays
 - L - Bus sectionalizer bay
 - Q - Bus coupler bay
 - K - Bus coupler and sectionalizer bay
 - M - Busbar measurement bay
 - E - Busbar grounding bay
 - X - Other bay type
- Number of busbars
 - 1 - Single busbar
 - 2 - Double busbar
 - 9 - Without busbar / other configurations
- Equipment
 - 1 - Bays with switch truck or withdrawable switchgear assembly
 - 2 - Bays with two circuit breakers or switch disconnectors on switch trucks or withdrawable switchgear assembly
 - 3 - Bays with stationary switchgear units
 - 5 - Bays with stationary switchgear units and three-position disconnector
 - 9 - Other bay types

Bay Type No.: This number indicates the value to be set at MAIN: Type of bay (folder "Para/Conf") in order to configure the unit for the selected bay type.

Special Designations for External Devices:

Mot.relay:	Motor relay
Shunt wd.	Shunt winding

Appendix C - List of Bay Types

(continued)

Table "Assignment of Binary Inputs and Output Relays"

Column "Switchgear unit"	This column begins with the designation for the external device (switchgear unit). The function group follows in brackets. The function group encompasses all setting options for monitoring the switchgear unit and its signals. "Open" and "Close(d)" indicate the signal message or control direction of the switchgear unit.
Column "Binary Input":	The "Open" or "Closed" signal should be connected to the binary input U xxxx. The connection points of the binary input U xxxx are shown in the terminal connection diagrams.
Column "Output relay"	The "Open" or "Close" control of the switchgear unit is effected via output relay K xxxx. The connection points of the output relay K xxxx are shown in the terminal connection diagrams.

Assignment of the designators to the binary inputs

Model 1	Model 2	Model 3	Model 4	Model 4 with additional I/O	Binary inputs
U 201	U 201	U 201	U 201	U 201	U 2A
U 202	U 202	U 202	U 202	U 202	U 2B
U 203	U 203	U 203	U 203	U 203	U 2C
U 204	U 204	U 204	U 204	U 204	U 2D
U 205	U 205	U 205	U 205	U 205	U 2E
U 206	U 206	U 206	U 206	U 206	U 2F
U 213	U 207	U 207	U 213	U 207	U 2G
U 214	U 208	U 208	U 214	U 208	U 2H
U 215	U 209	U 209	U 215	U 209	U 2I
U 216	U 210	U 210	U 216	U 210	U 2J
-	U 213	U 211	U 220	U 211	U 2K
-	U 214	U 212	-	U 212	U 2L
-	U 215	U 213	-	U 213	U 2M
-	U 216	U 214	-	U 214	U 2N
-	U 217	U 215	-	U 215	U 2O
-	U 218	U 216	-	U 216	U 2P
-	U 219	U 217	-	U 217	U 2Q
-	-	U 218	-	U 218	U 2R
-	-	U 219	-	U 219	U 2S
-	-	U 220	-	U 220	U 2T

Appendix C - List of Bay Types

(continued)

Assignment of the designators to the binary inputs

Model 1	Model 2	Model 3	Model 4	Model 4 with additional I/O	Output relais
K 201	K 201	K 201	K 201	K 201	K 2A
K 202	K 202	K 202	K 202	K 202	K 2B
-	K 203	K 203	K 207	K 203	K 2C
-	K 204	K 204	K 208	K 204	K 2D
-	K 205	K 205	K 209	K 205	K 2E
-	K 206	K 206	K 210	K 206	K 2F
-	-	K 207	K 211	K 207	K 2G
-	-	K 208	K 212	K 208	K 2H
-	-	K 209		K 209	K 2I
-	-	K 210		K 210	K 2J
-	-	K 211		K 211	K 2K
-	-	K 212		K 212	K 2L

Table "Bay Interlock Equations for Operation without Station Interlocking"

Note!

The interlock equations are stored at substation control level, not at unit level.

Symbols used in the Boolean interlock equations:

/: Negation

O: Switchgear unit "Open"

I: Switchgear unit "Closed"

X: Switchgear unit in intermediate position

FctBl1: Function block 1, configuration at MAIN: Fct.asg. fct.block.1 (Folder "Para/Func/Ctrl")

FctBl2: Function block 2, configuration at MAIN: Fct.asg. fct.block.2 (Folder "Para/Func/Ctrl")

Appendix C - List of Bay Types

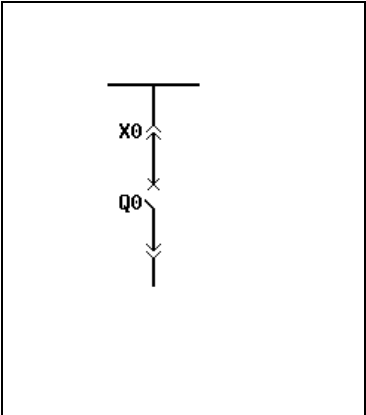
(continued)

Bay Type No. 2 (A11.100.R01)

Feeder bay with circuit breaker, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
X0 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X0=X) \ \& \ \neg(FctB11=I) \ \& \ \neg(FctB12=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X0=X) \ \& \ \neg(FctB11=I) \ \& \ \neg(FctB12=I)$

Appendix C - List of Bay Types

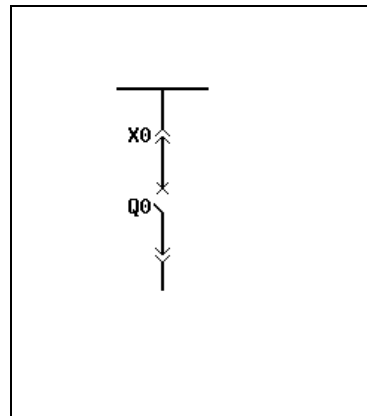
(continued)

Bay Type No. 3 (A11.100.R02)

Feeder bay with circuit breaker, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
X0 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
X0	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
X0	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$

Appendix C - List of Bay Types

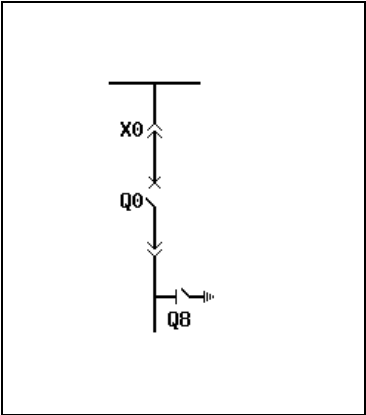
(continued)

Bay Type No. 546 (A11.101.M03)

Feeder bay with circuit breaker, single busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q8 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
X0 (DEV03)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg (X0=X) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$
Q8	Close(d)	$(X0=0)$
X0	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg (X0=X) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$
Q8	Close(d)	$(X0=0)$
X0	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$

Appendix C - List of Bay Types

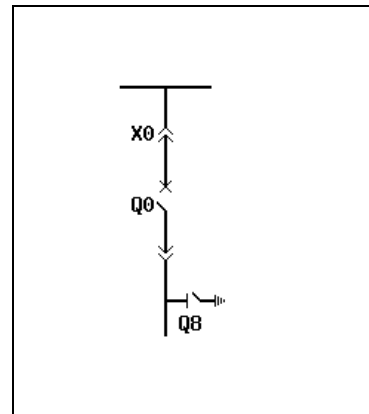
(continued)

Bay Type No. 4 (A11.101.R01)

Feeder bay with circuit breaker, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
X0 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/
Q8 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

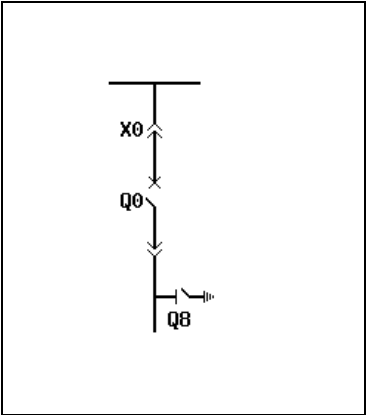
(continued)

Bay Type No. 5 (A11.101.R02)

Feeder bay with circuit breaker, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
X0 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q8 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg (X0=X) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$
X0	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg (X0=X) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$
X0	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$

Appendix C - List of Bay Types

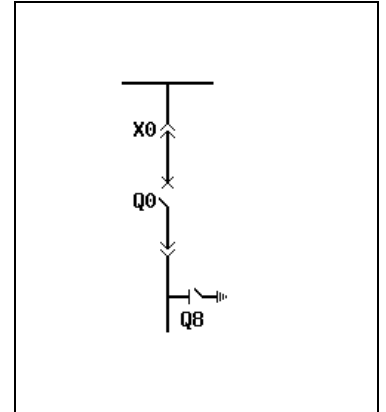
(continued)

Bay Type No. 6 (A11.101.R03)

Feeder bay with circuit breaker, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
X0 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q8 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q8	Close(d)	$(X0=0)$
X0	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q8	Close(d)	$(X0=0)$
X0	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$

Appendix C - List of Bay Types

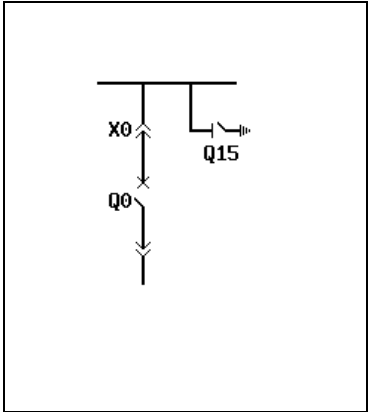
(continued)

Bay Type No. 523 (A11.108.R01)

Feeder bay with circuit breaker, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
X0 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/
Q15 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg (X0=X) \ \& \ (Q15=0) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg (X0=X) \ \& \ (Q15=0) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$

Appendix C - List of Bay Types

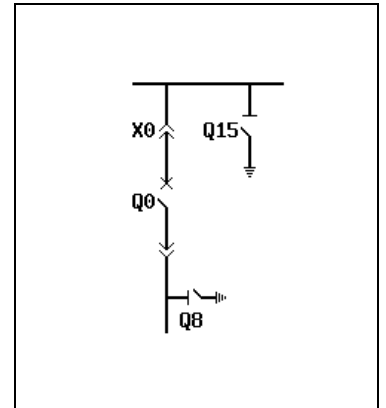
(continued)

Bay Type No. 549 (A11.109.M03)

Feeder bay with circuit breaker, single busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q8 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
X0 (DEV03)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Q15 (DEV04)	Open	U 2I	/
	Close(d)	U 2J	/
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X0=X) \ \& \ (Q15=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q8	Close(d)	$(X0=0)$
X0	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0) \ \& \ (Q15=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X0=X) \ \& \ (Q15=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q8	Close(d)	$(X0=0)$
X0	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0) \ \& \ (Q15=0)$

Appendix C - List of Bay Types

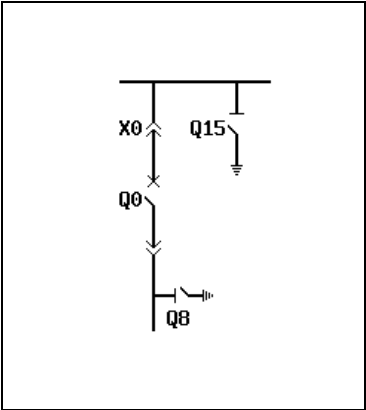
(continued)

Bay Type No. 244 (A11.109.R01)

Feeder bay with circuit breaker, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
X0 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/
Q8 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/
Q15 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg (X0=X) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg (X0=X) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$

Appendix C - List of Bay Types

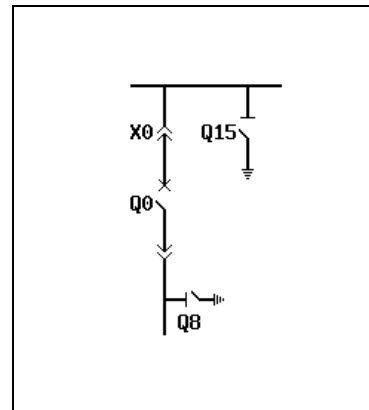
(continued)

Bay Type No. 544 (A11.109.R03)

Feeder bay with circuit breaker, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
X0 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q8 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q15 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X0=X) \ \& \ (Q15=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q8	Close(d)	$(X0=0)$
X0	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0) \ \& \ (Q15=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X0=X) \ \& \ (Q15=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q8	Close(d)	$(X0=0)$
X0	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0) \ \& \ (Q15=0)$

Appendix C - List of Bay Types

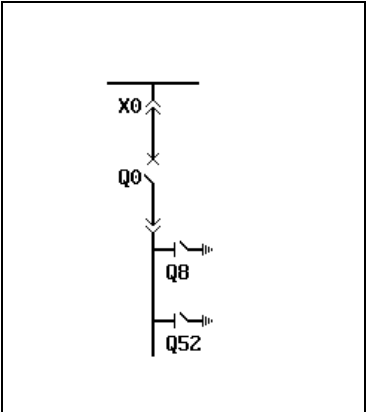
(continued)

Bay Type No. 567 (A11.132.R01)

Feeder bay with circuit breaker, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
X0 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/
Q8 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/
Q52 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg (X0=X) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg (X0=X) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$

Appendix C - List of Bay Types

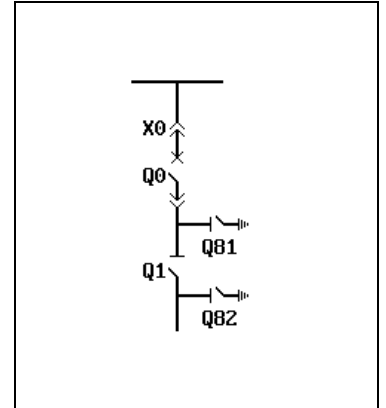
(continued)

Bay Type No. 521 (A11.134.R02.1)

Feeder bay with circuit breaker, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
X0 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/
Q1 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q81 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/
Q82 (DEV05)	Open	U 2I	/
	Close(d)	U 2J	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X0=X) \ \& \ \neg(Q1=X) \ \& \ (Q82=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q81=0) \ \& \ (Q82=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X0=X) \ \& \ \neg(Q1=X) \ \& \ (Q82=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q81=0) \ \& \ (Q82=0)$

Appendix C - List of Bay Types

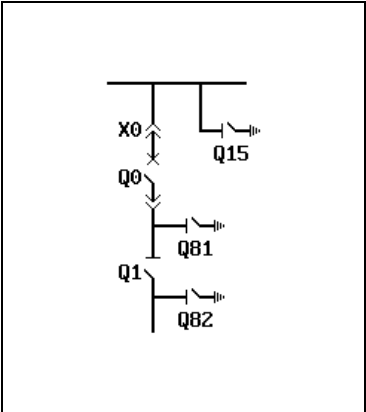
(continued)

Bay Type No. 519 (A11.135.R02.1)

Feeder bay with circuit breaker, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
X0 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/
Q1 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q81 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/
Q82 (DEV05)	Open	U 2I	/
	Close(d)	U 2J	/
Q15 (DEV06)	Open	U 2K	/
	Close(d)	U 2L	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg (X0=X) \ \& \ \neg (Q1=X) \ \& \ (Q15=0) \ \& \ (Q82=0) \ \& \ \neg (FctB1=I) \ \& \ \neg (FctB2=I)$
Q1	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q81=0) \ \& \ (Q82=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg (X0=X) \ \& \ \neg (Q1=X) \ \& \ (Q15=0) \ \& \ (Q82=0) \ \& \ \neg (FctB1=I) \ \& \ \neg (FctB2=I)$
Q1	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q81=0) \ \& \ (Q82=0)$

Appendix C - List of Bay Types

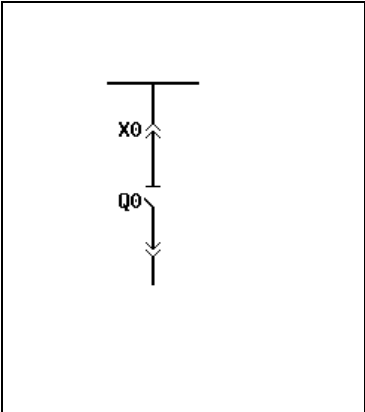
(continued)

Bay Type No. 7 (A11.200.R01)

Feeder bay with switch disconnecter, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
X0 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

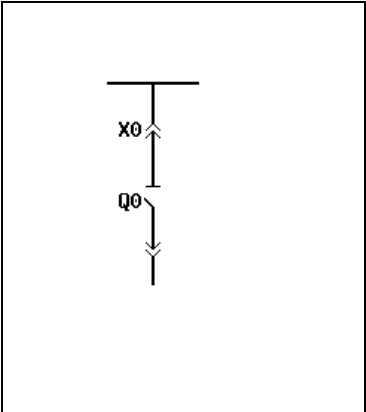
(continued)

Bay Type No. 8 (A11.200.R02)

Feeder bay with switch disconnecter, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
X0 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$
X0	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$
X0	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$

Appendix C - List of Bay Types

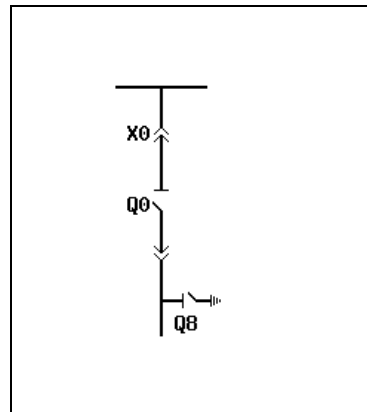
(continued)

Bay Type No. 9 (A11.201.R01)

Feeder bay with switch disconnecter, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
X0 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/
Q8 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

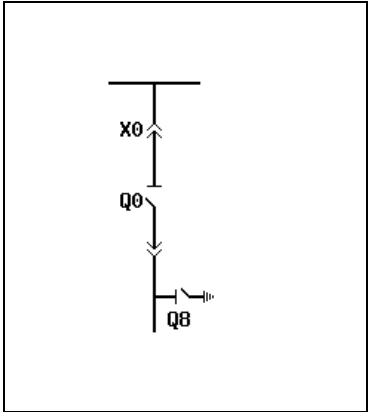
(continued)

Bay Type No. 10 (A11.201.R02)

Feeder bay with switch disconnecter, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
X0 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q8 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg (X0=X) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$
X0	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg (X0=X) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$
X0	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$

Appendix C - List of Bay Types

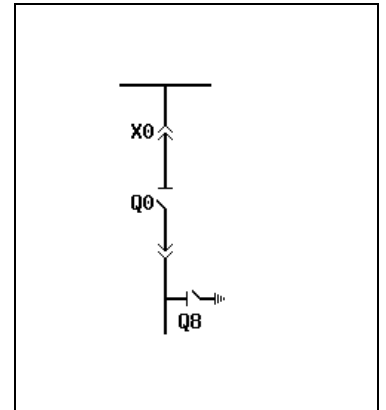
(continued)

Bay Type No. 11 (A11.201.R03)

Feeder bay with switch disconnecter, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
X0 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q8 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q8	Close(d)	$(X0=0)$
X0	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q8	Close(d)	$(X0=0)$
X0	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$

Appendix C - List of Bay Types

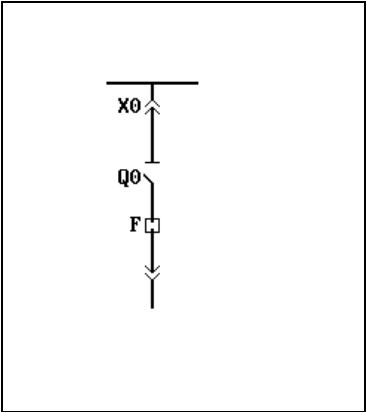
(continued)

Bay Type No. 12 (A11.400.R01)

Feeder bay with switch disconnecter / fuse unit, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
X0 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/
F (SIG_1: Signal S011)		U 2K	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

(continued)

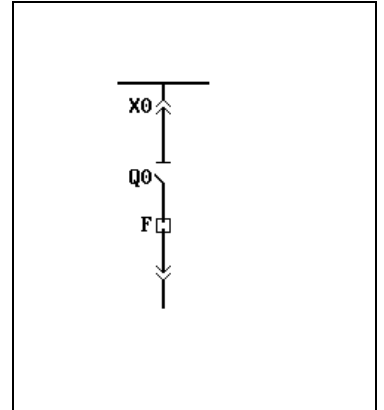
Bay Type No. 13

(A11.400.R02)

Feeder bay with switch disconnecter / fuse unit, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
X0 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
F (SIG_1: Signal S011)		U 2K	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
X0	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
X0	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$

Appendix C - List of Bay Types

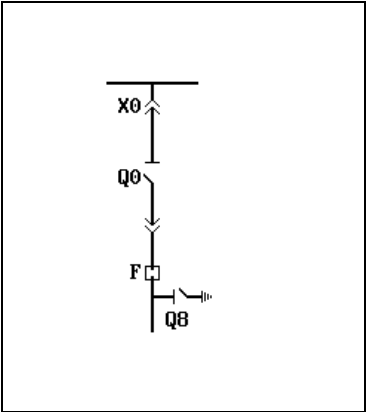
(continued)

Bay Type No. 14 (A11.401.R01)

Feeder bay with switch disconnecter / fuse unit, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
X0 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/
Q8 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/
F (SIG_1: Signal S011)		U 2K	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg (X0=X) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg (X0=X) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$

Appendix C - List of Bay Types

(continued)

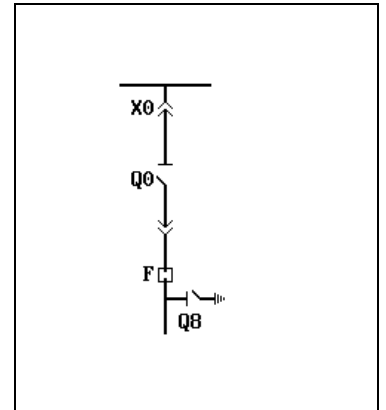
Bay Type No. 15

(A11.401.R02)

Feeder bay with switch disconnecter / fuse unit, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
X0 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q8 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/
F (SIG_1: Signal S011)		U 2K	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
X0	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
X0	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$

Appendix C - List of Bay Types

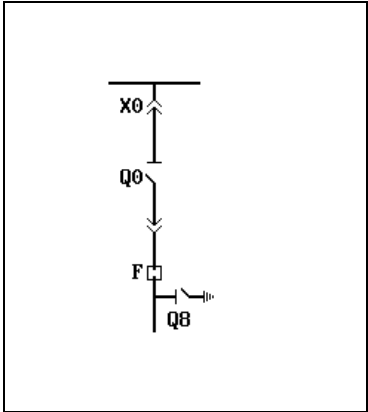
(continued)

Bay Type No. 16 (A11.401.R03)

Feeder bay with switch disconnecter / fuse unit, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
X0 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q8 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
F (SIG_1: Signal S011)		U 2K	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg (X0=X) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$
Q8	Close(d)	$(X0=0)$
X0	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg (X0=X) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$
Q8	Close(d)	$(X0=0)$
X0	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$

Appendix C - List of Bay Types

(continued)

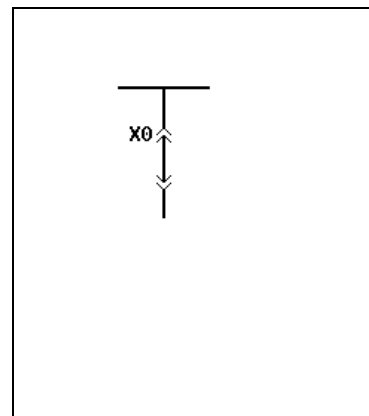
Bay Type No. 17

(A11.900.R01)

Feeder bay with other switchgear unit, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit	Binary input	Output relay
X0 (DEV01) Open Close(d)	U 2A U 2B	K 2A K 2B



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Appendix C - List of Bay Types

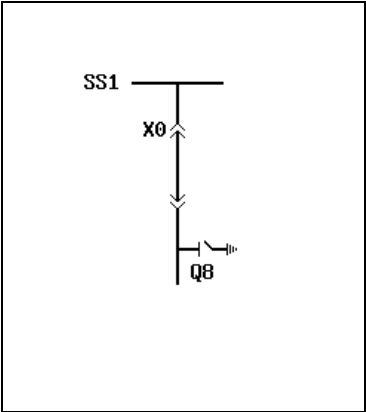
(continued)

Bay Type No. 504 (A11.901.R00)

Feeder bay with other switchgear unit, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
X0 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/
Q8 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Appendix C - List of Bay Types

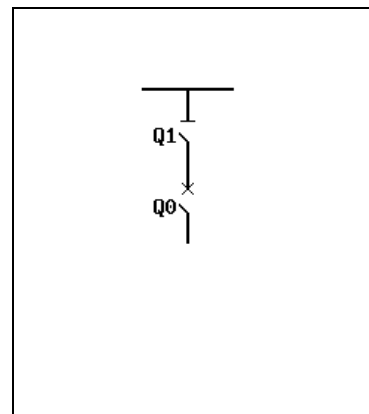
(continued)

Bay Type No. 541 (A13.104.R01)

Feeder bay with circuit breaker, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(\text{FctBl1}=\text{I}) \ \& \ \neg(\text{FctBl2}=\text{I})$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(\text{FctBl1}=\text{I}) \ \& \ \neg(\text{FctBl2}=\text{I})$

Appendix C - List of Bay Types

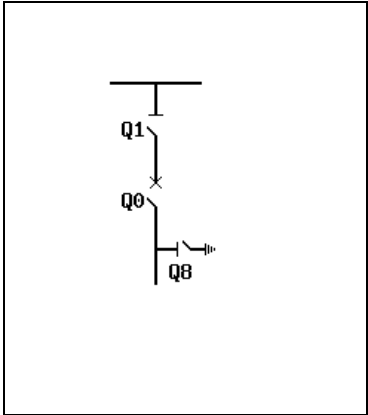
(continued)

Bay Type No. 18 (A13.105.M03)

Feeder bay with circuit breaker, single busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q8 (DEV03)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ (Q8=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$
Q8	Close(d)	$(Q0=0) \ \& \ (Q1=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ (Q8=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$
Q8	Close(d)	$(Q0=0) \ \& \ (Q1=0)$

Appendix C - List of Bay Types

(continued)

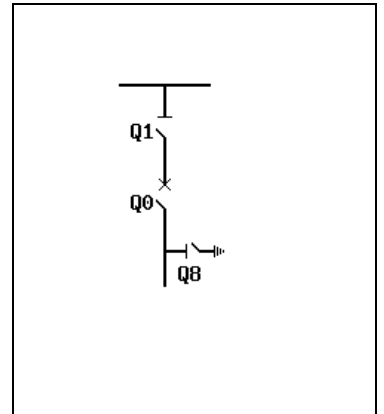
Bay Type No. 19

(A13.105.R01)

Feeder bay with circuit breaker, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/
Q8 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ (Q8=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ (Q8=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

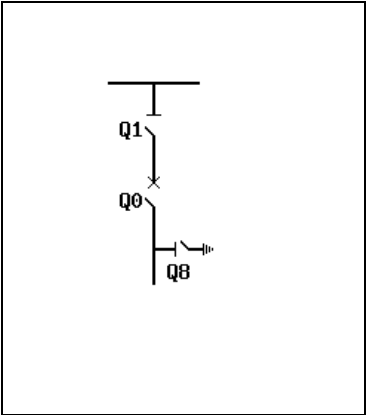
(continued)

Bay Type No. 20 (A13.105.R02)

Feeder bay with circuit breaker, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q8 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ (Q8=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ (Q8=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$

Appendix C - List of Bay Types

(continued)

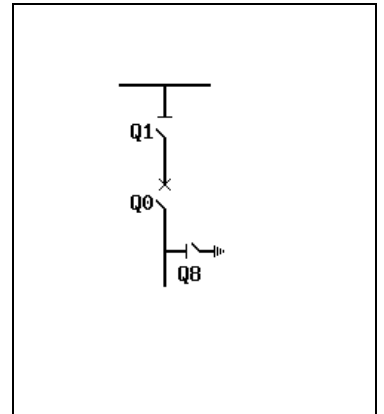
Bay Type No. 21

(A13.105.R03)

Feeder bay with circuit breaker, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q8 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ (Q8=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$
Q8	Close(d)	$(Q0=0) \ \& \ (Q1=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ (Q8=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$
Q8	Close(d)	$(Q0=0) \ \& \ (Q1=0)$

Appendix C - List of Bay Types

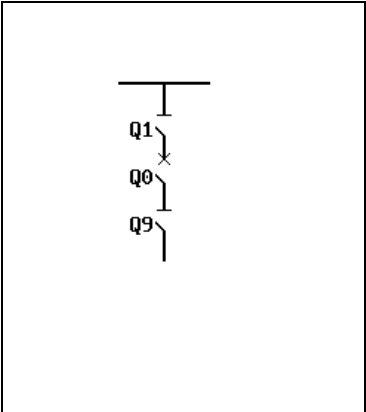
(continued)

Bay Type No. 557 (A13.106.R03)

Feeder bay with circuit breaker, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q9 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q9=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$
Q9	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q9=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$
Q9	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$

Appendix C - List of Bay Types

(continued)

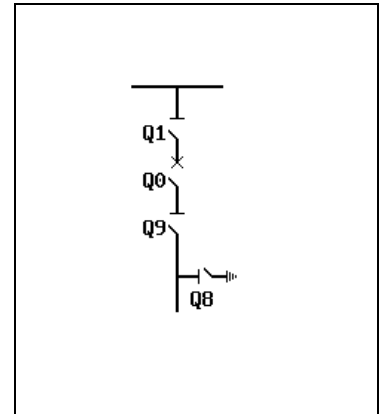
Bay Type No. 22

(A13.107.M04)

Feeder bay with circuit breaker, single busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q9 (DEV03)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Q8 (DEV04)	Open	U 2I	K 2I
	Close(d)	U 2J	K 2J
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q9=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$
Q8	Close(d)	$(Q9=0)$
Q9	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q9=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$
Q8	Close(d)	$(Q9=0)$
Q9	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$

Appendix C - List of Bay Types

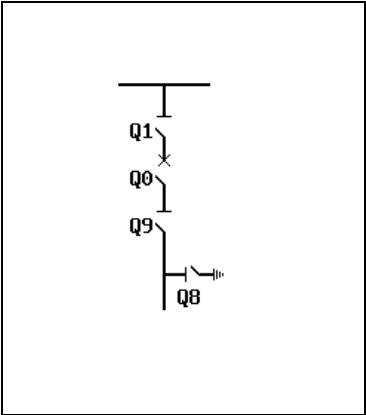
(continued)

Bay Type No. 23 (A13.107.R01)

Feeder bay with circuit breaker, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/
Q9 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/
Q8 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q9=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q9=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

(continued)

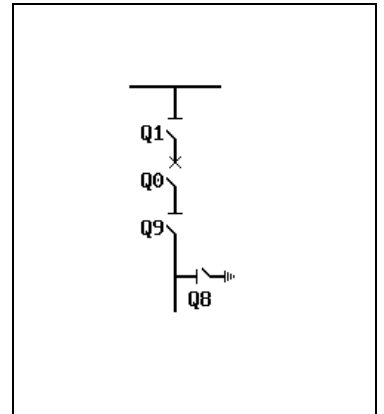
Bay Type No. 24

(A13.107.R03)

Feeder bay with circuit breaker, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q9 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q8 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q9=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$
Q9	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q9=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$
Q9	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$

Appendix C - List of Bay Types

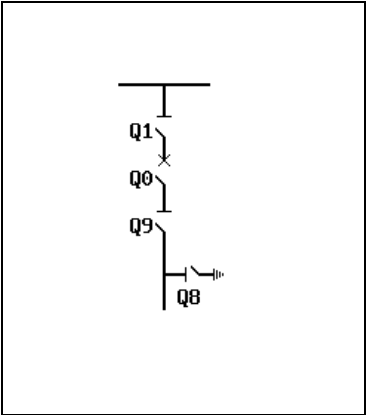
(continued)

Bay Type No. 25 (A13.107.R04)

Feeder bay with circuit breaker, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q9 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q8 (DEV04)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q9=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$
Q8	Close(d)	$(Q9=0)$
Q9	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q9=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$
Q8	Close(d)	$(Q9=0)$
Q9	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$

Appendix C - List of Bay Types

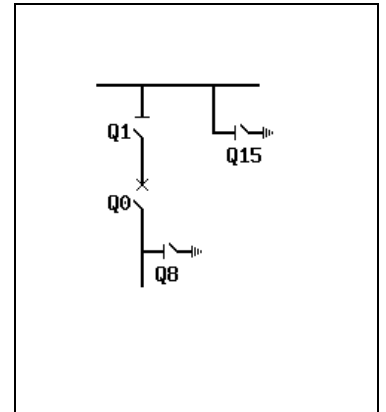
(continued)

Bay Type No. 508 (A13.111.R03)

Feeder bay with circuit breaker, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q8 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q15 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ (Q8=0) \ \& \ (Q15=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0) \ \& \ (Q15=0)$
Q8	Close(d)	$(Q0=0) \ \& \ (Q1=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ (Q8=0) \ \& \ (Q15=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0) \ \& \ (Q15=0)$
Q8	Close(d)	$(Q0=0) \ \& \ (Q1=0)$

Appendix C - List of Bay Types

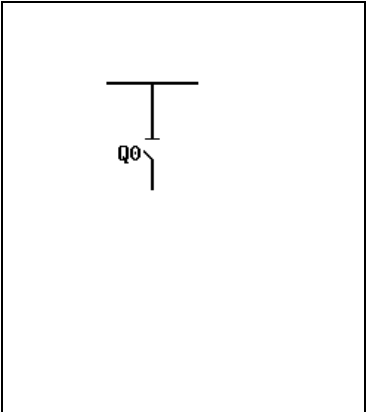
(continued)

Bay Type No. 26 (A13.200.R01)

Feeder bay with switch disconnector, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open Close(d)	U 2A U 2B	K 2A K 2B



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Appendix C - List of Bay Types

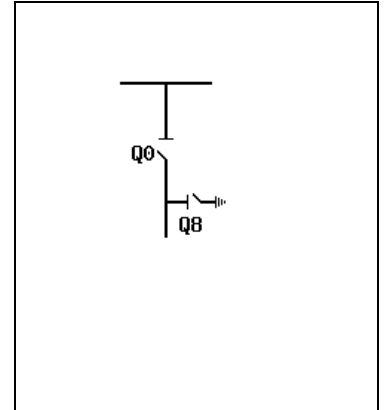
(continued)

Bay Type No. 27 (A13.201.M02)

Feeder bay with switch disconnecter, single busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q8 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$(Q8=0) \ \& \ /(FctBl1=I) \ \& \ /(FctBl2=I)$
Q8	Close(d)	$(Q0=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$(Q8=0) \ \& \ /(FctBl1=I) \ \& \ /(FctBl2=I)$
Q8	Close(d)	$(Q0=0)$

Appendix C - List of Bay Types

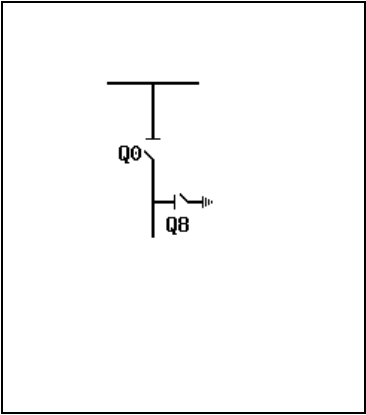
(continued)

Bay Type No. 28 (A13.201.R01)

Feeder bay with switch disconnecter, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q8 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$(Q8=0) \ \& \ /(FctBl1=I) \ \& \ /(FctBl2=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$(Q8=0) \ \& \ /(FctBl1=I) \ \& \ /(FctBl2=I)$

Appendix C - List of Bay Types

(continued)

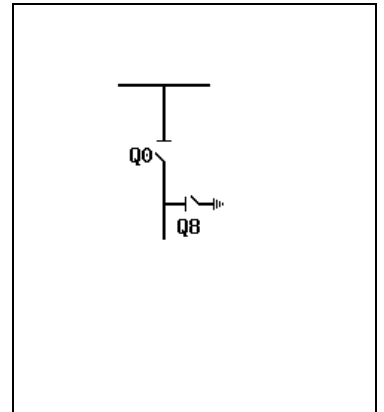
Bay Type No. 29

(A13.201.R02)

Feeder bay with switch disconnecter, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q8 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$(Q8=0) \ \& \ /(FctBl1=I) \ \& \ /(FctBl2=I)$
Q8	Close(d)	$(Q0=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$(Q8=0) \ \& \ /(FctBl1=I) \ \& \ /(FctBl2=I)$
Q8	Close(d)	$(Q0=0)$

Appendix C - List of Bay Types

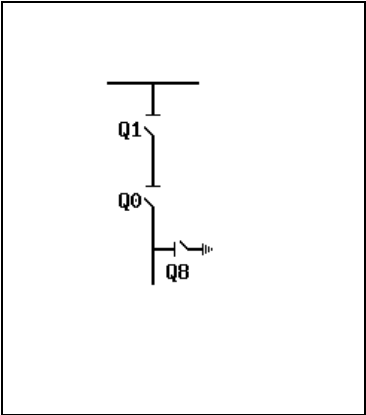
(continued)

Bay Type No. 30 (A13.205.M03)

Feeder bay with switch disconnecter, single busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q8 (DEV03)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ (Q8=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$
Q8	Close(d)	$(Q0=0) \ \& \ (Q1=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ (Q8=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$
Q8	Close(d)	$(Q0=0) \ \& \ (Q1=0)$

Appendix C - List of Bay Types

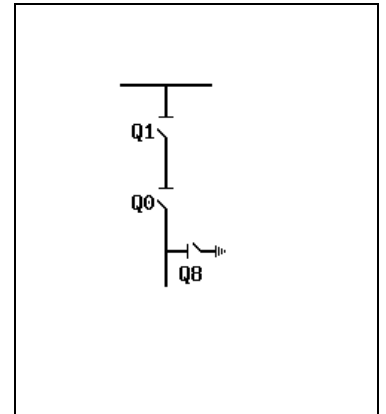
(continued)

Bay Type No. 31 (A13.205.R01)

Feeder bay with switch disconnect, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/
Q8 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ (Q8=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ (Q8=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

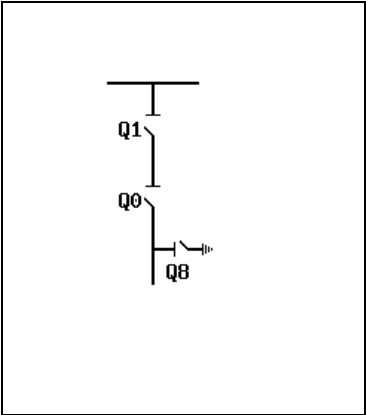
(continued)

Bay Type No. 32 (A13.205.R02)

Feeder bay with switch disconnecter, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q8 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ (Q8=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ (Q8=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$

Appendix C - List of Bay Types

(continued)

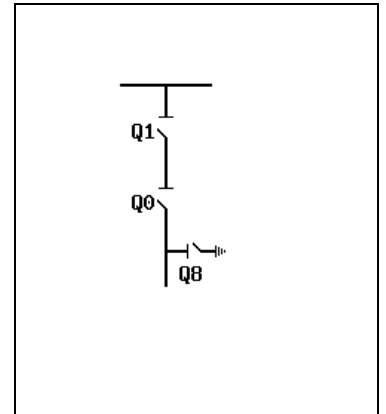
Bay Type No. 33

(A13.205.R03)

Feeder bay with switch disconnecter, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q8 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ (Q8=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$
Q8	Close(d)	$(Q0=0) \ \& \ (Q1=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ (Q8=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$
Q8	Close(d)	$(Q0=0) \ \& \ (Q1=0)$

Appendix C - List of Bay Types

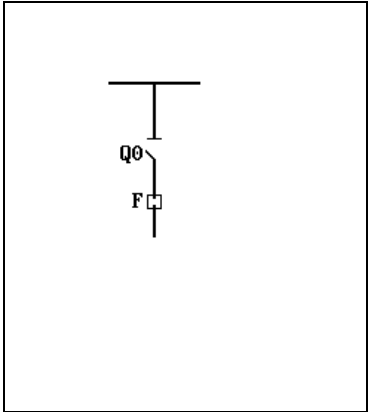
(continued)

Bay Type No. 34 (A13.400.R01)

Feeder bay with switch disconnecter / fuse unit, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
F (SIG_1: Signal S011)		U 2K	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Appendix C - List of Bay Types

(continued)

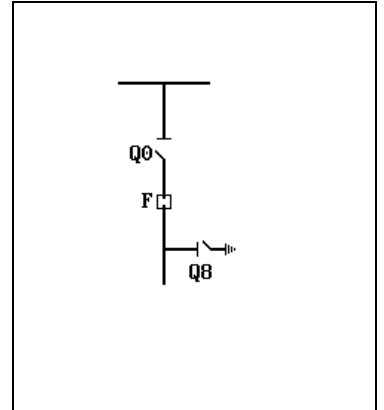
Bay Type No. 35

(A13.401.M02)

Feeder bay with switch disconnecter / fuse unit, single busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q8 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
F (SIG_1: Signal S011)		U 2K	/
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$(Q8=0) \ \& \ /(FctB11=I) \ \& \ /(FctB12=I)$
Q8	Close(d)	$(Q0=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$(Q8=0) \ \& \ /(FctB11=I) \ \& \ /(FctB12=I)$
Q8	Close(d)	$(Q0=0)$

Appendix C - List of Bay Types

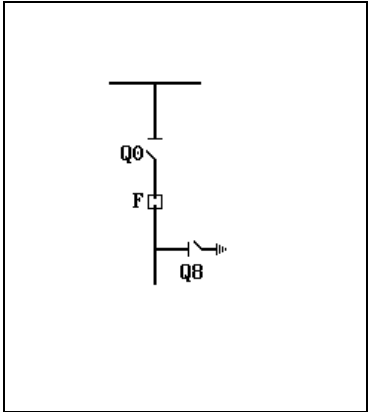
(continued)

Bay Type No. 36 (A13.401.R01)

Feeder bay with switch disconnecter / fuse unit, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q8 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/
F (SIG_1: Signal S011)		U 2K	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	(Q8=0) & /(FctBl1=I) & /(FctBl2=I)

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	(Q8=0) & /(FctBl1=I) & /(FctBl2=I)

Appendix C - List of Bay Types

(continued)

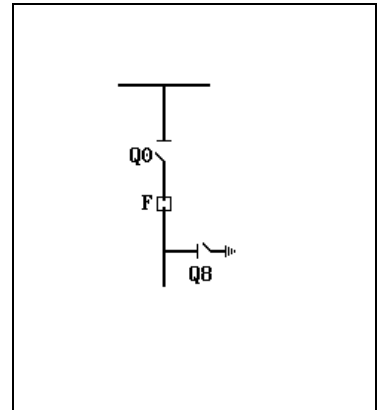
Bay Type No. 37

(A13.401.R02)

Feeder bay with switch disconnecter / fuse unit, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q8 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
F (SIG_1: Signal S011)		U 2K	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$(Q8=0) \ \& \ /(FctB11=I) \ \& \ /(FctB12=I)$
Q8	Close(d)	$(Q0=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$(Q8=0) \ \& \ /(FctB11=I) \ \& \ /(FctB12=I)$
Q8	Close(d)	$(Q0=0)$

Appendix C - List of Bay Types

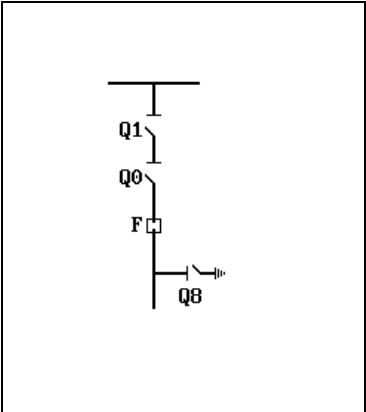
(continued)

Bay Type No. 38 (A13.405.M03)

Feeder bay with switch disconnecter / fuse unit, single busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q8 (DEV03)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
F (SIG_1: Signal S011)		U 2K	/
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ (Q8=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$
Q8	Close(d)	$(Q0=0) \ \& \ (Q1=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ (Q8=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$
Q8	Close(d)	$(Q0=0) \ \& \ (Q1=0)$

Appendix C - List of Bay Types

(continued)

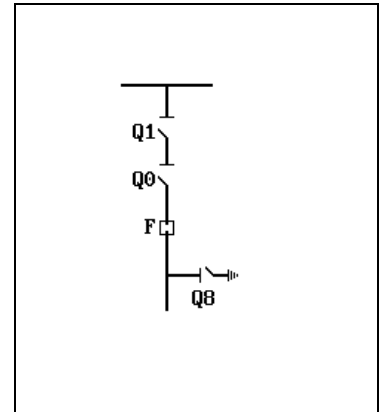
Bay Type No. 39

(A13.405.R01)

Feeder bay with switch disconnecter / fuse unit, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/
Q8 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/
F (SIG_1: Signal S011)		U 2K	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ (Q8=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ (Q8=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

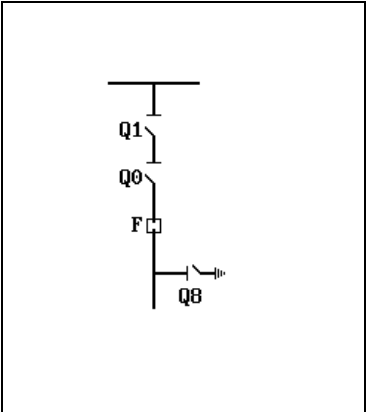
(continued)

Bay Type No. 40 (A13.405.R02)

Feeder bay with switch disconnecter / fuse unit, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q8 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/
F (SIG_1: Signal S011)		U 2K	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ (Q8=0) \ \& \ \neg(FctB11=I) \ \& \ \neg(FctB12=I)$
Q1	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ (Q8=0) \ \& \ \neg(FctB11=I) \ \& \ \neg(FctB12=I)$
Q1	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$

Appendix C - List of Bay Types

(continued)

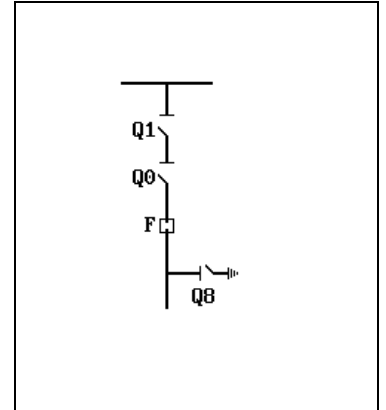
Bay Type No. 41

(A13.405.R03)

Feeder bay with switch disconnecter / fuse unit, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q8 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
F (SIG_1: Signal S011)		U 2K	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ (Q8=0) \ \& \ \neg(FctB1=I) \ \& \ \neg(FctB2=I)$
Q1	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$
Q8	Close(d)	$(Q0=0) \ \& \ (Q1=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ (Q8=0) \ \& \ \neg(FctB1=I) \ \& \ \neg(FctB2=I)$
Q1	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$
Q8	Close(d)	$(Q0=0) \ \& \ (Q1=0)$

Appendix C - List of Bay Types

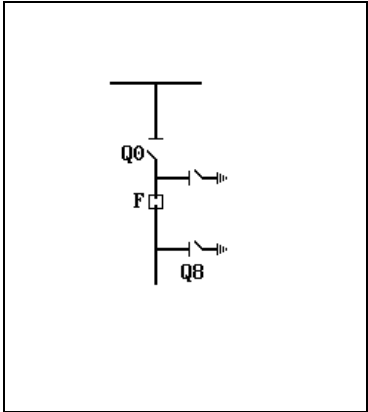
(continued)

Bay Type No. 503 (A13.432.R02)

Feeder bay with switch disconnecter / fuse unit, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q8 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
F (SIG_1: Signal S011)		U 2K	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	(Q8=0) & /(FctBl1=I) & /(FctBl2=I)
Q8	Close(d)	(Q0=0)

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	(Q8=0) & /(FctBl1=I) & /(FctBl2=I)
Q8	Close(d)	(Q0=0)

Appendix C - List of Bay Types

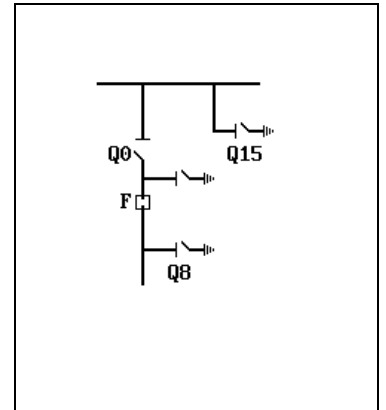
(continued)

Bay Type No. 507 (A13.433.R02)

Feeder bay with switch disconnecter / fuse unit, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q8 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q15 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/
F (SIG_1: Signal S011)		U 2G	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$(Q8=0) \ \& \ (Q15=0) \ \& \ /(FctBl1=I) \ \& \ /(FctBl2=I)$
Q8	Close(d)	$(Q0=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$(Q8=0) \ \& \ (Q15=0) \ \& \ /(FctBl1=I) \ \& \ /(FctBl2=I)$
Q8	Close(d)	$(Q0=0)$

Appendix C - List of Bay Types

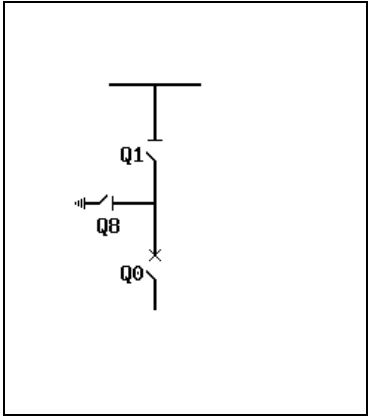
(continued)

Bay Type No. 220 (A15.105.M02)

Feeder bay with circuit breaker, single busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q8 (DEV03)	Open	U 2G	/
	Close(d)	U 2H	/
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	(Q8=0)
	Close(d)	/(Q1=X) & (Q8=0) & /(FctBl1=I) & /(FctBl2=I)
Q1	Open	(Q0=0)
	Close(d)	(Q0=0) & (Q8=0)

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	(Q8=0)
	Close(d)	/(Q1=X) & (Q8=0) & /(FctBl1=I) & /(FctBl2=I)
Q1	Open	(Q0=0)
	Close(d)	(Q0=0) & (Q8=0)

Appendix C - List of Bay Types

(continued)

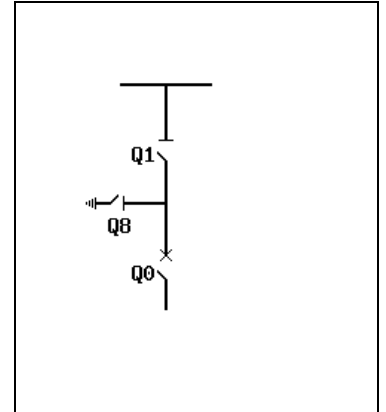
Bay Type No. 42

(A15.105.M03)

Feeder bay with circuit breaker, single busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q8 (DEV03)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	(Q8=0)
	Close(d)	/(Q1=X) & (Q8=0) & /(FctBl1=I) & /(FctBl2=I)
Q1	Open	(Q0=0)
	Close(d)	(Q0=0) & (Q8=0)
Q8	Open	(Q0=I)
	Close(d)	(Q0=0) & (Q1=0) & /(FctBl1=I) & /(FctBl2=I)

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	(Q8=0)
	Close(d)	/(Q1=X) & (Q8=0) & /(FctBl1=I) & /(FctBl2=I)
Q1	Open	(Q0=0)
	Close(d)	(Q0=0) & (Q8=0)
Q8	Open	(Q0=I)
	Close(d)	(Q0=0) & (Q1=0) & /(FctBl1=I) & /(FctBl2=I)

Appendix C - List of Bay Types

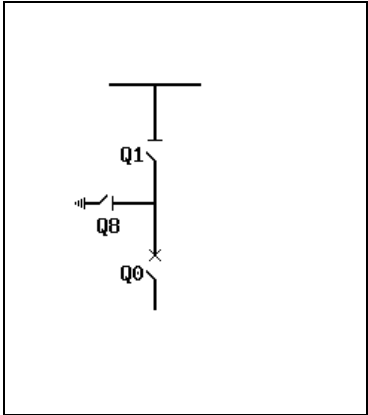
(continued)

Bay Type No. 43 (A15.105.R01)

Feeder bay with circuit breaker, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/
Q8 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	(Q8=0)
	Close(d)	/(Q1=X) & (Q8=0) & /(FctB11=I) & /(FctB12=I)

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	(Q8=0)
	Close(d)	/(Q1=X) & (Q8=0) & /(FctB11=I) & /(FctB12=I)

Appendix C - List of Bay Types

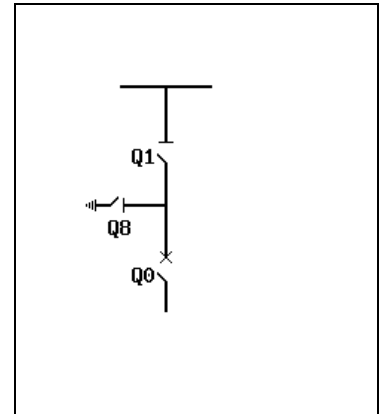
(continued)

Bay Type No. 221 (A15.105.R02)

Feeder bay with circuit breaker, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q8 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	(Q8=0)
	Close(d)	/(Q1=X) & (Q8=0) & /(FctB11=I) & /(FctB12=I)
Q1	Open	(Q0=0)
	Close(d)	(Q0=0) & (Q8=0)

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	(Q8=0)
	Close(d)	/(Q1=X) & (Q8=0) & /(FctB11=I) & /(FctB12=I)
Q1	Open	(Q0=0)
	Close(d)	(Q0=0)

Appendix C - List of Bay Types

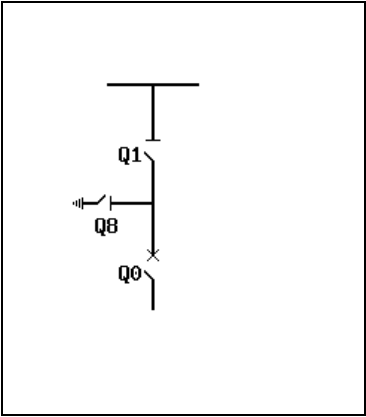
(continued)

Bay Type No. 44 (A15.105.R03)

Feeder bay with circuit breaker, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q8 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	(Q8=0)
	Close(d)	/(Q1=X) & (Q8=0) & /(FctBl1=I) & /(FctBl2=I)
Q1	Open	(Q0=0)
	Close(d)	(Q0=0) & (Q8=0)
Q8	Open	(Q0=I)
	Close(d)	(Q0=0) & (Q1=0) & /(FctBl1=I) & /(FctBl2=I)

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	(Q8=0)
	Close(d)	/(Q1=X) & (Q8=0) & /(FctBl1=I) & /(FctBl2=I)
Q1	Open	(Q0=0)
	Close(d)	(Q0=0)
Q8	Open	(Q0=I)
	Close(d)	(Q0=0) & (Q1=0) & /(FctBl1=I) & /(FctBl2=I)

Appendix C - List of Bay Types

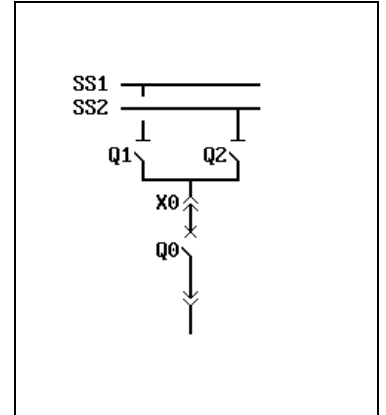
(continued)

Bay Type No. 45 (A21.104.M04)

Feeder bay with circuit breaker, double busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q2 (DEV03)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
X0 (DEV04)	Open	U 2I	K 2I
	Close(d)	U 2J	K 2J
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q2=0)$
Q2	Open	$(Q0=0) \ \& \ (Q1=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0)$
X0	Open	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
X0	Open	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$

Appendix C - List of Bay Types

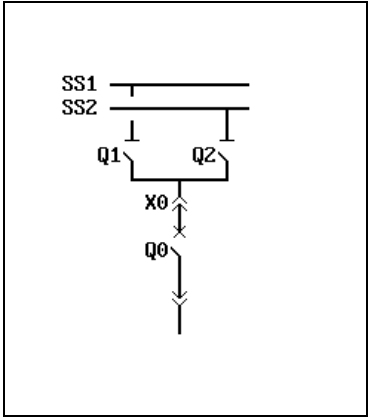
(continued)

Bay Type No. 46 (A21.104.R01)

Feeder bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/
Q2 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/
X0 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

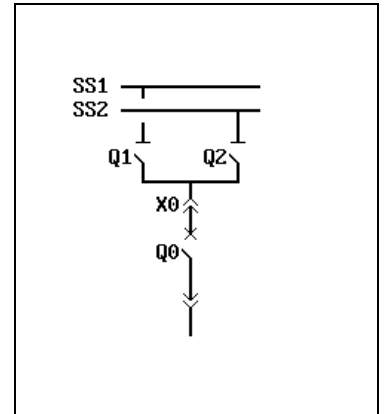
(continued)

Bay Type No. 47 (A21.104.R03)

Feeder bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q2 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
X0 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q2=0)$
Q2	Open	$(Q0=0) \ \& \ (Q1=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

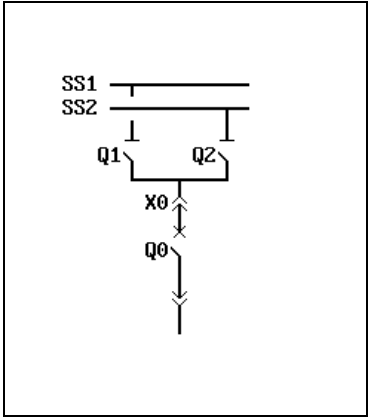
(continued)

Bay Type No. 48 (A21.104.R04)

Feeder bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q2 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
X0 (DEV04)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q2=0)$
Q2	Open	$(Q0=0) \ \& \ (Q1=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0)$
X0	Open	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
X0	Open	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$

Appendix C - List of Bay Types

(continued)

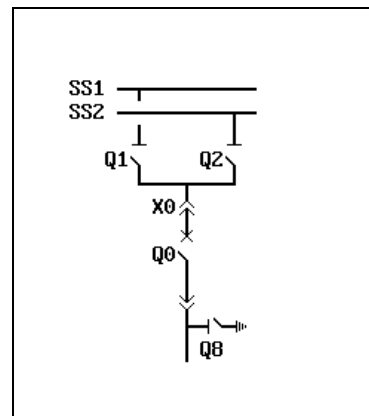
Bay Type No. 49

(A21.105.M05)

Feeder bay with circuit breaker, double busbar, direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q2 (DEV03)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
X0 (DEV04)	Open	U 2I	K 2I
	Close(d)	U 2J	K 2J
Q8 (DEV05)	Open	U 2K	K 2K
	Close(d)	U 2L	K 2L
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q2=0)$
Q2	Open	$(Q0=0) \ \& \ (Q1=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0)$
Q8	Close(d)	$(X0=0)$
X0	Open	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0) \ \& \ (Q8=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q8	Close(d)	$(X0=0)$
X0	Open	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0) \ \& \ (Q8=0)$

Appendix C - List of Bay Types

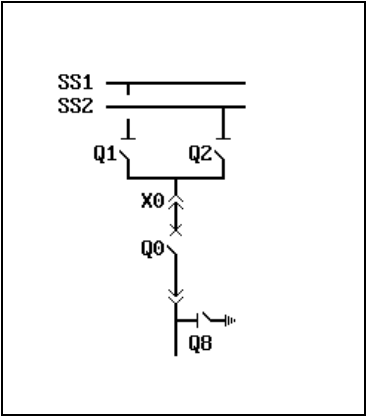
(continued)

Bay Type No. 50 (A21.105.R01)

Feeder bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/
Q2 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/
X0 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/
Q8 (DEV05)	Open	U 2I	/
	Close(d)	U 2J	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

(continued)

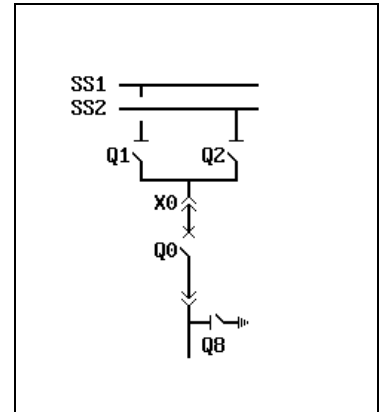
Bay Type No. 51

(A21.105.R03)

Feeder bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q2 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
X0 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/
Q8 (DEV05)	Open	U 2I	/
	Close(d)	U 2J	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q2=0)$
Q2	Open	$(Q0=0) \ \& \ (Q1=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

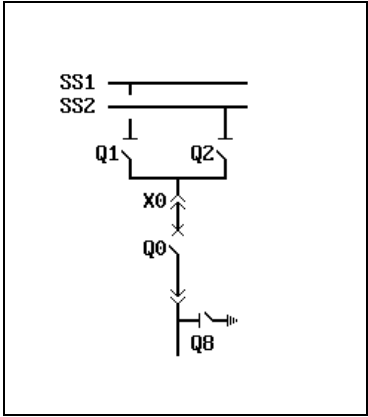
(continued)

Bay Type No. 52 (A21.105.R04)

Feeder bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q2 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
X0 (DEV04)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Q8 (DEV05)	Open	U 2I	/
	Close(d)	U 2J	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q2=0)$
Q2	Open	$(Q0=0) \ \& \ (Q1=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0)$
X0	Open	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0) \ \& \ (Q8=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
X0	Open	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0) \ \& \ (Q8=0)$

Appendix C - List of Bay Types

(continued)

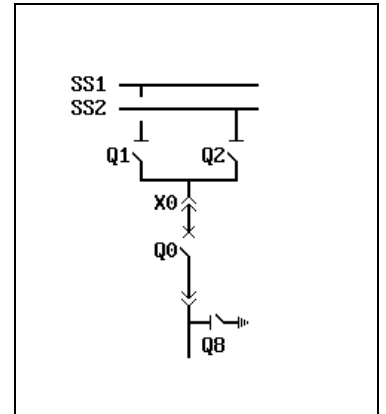
Bay Type No. 53

(A21.105.R05)

Feeder bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q2 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
X0 (DEV04)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Q8 (DEV05)	Open	U 2I	K 2I
	Close(d)	U 2J	K 2J



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q2=0)$
Q2	Open	$(Q0=0) \ \& \ (Q1=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0)$
Q8	Close(d)	$(X0=0)$
X0	Open	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0) \ \& \ (Q8=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q8	Close(d)	$(X0=0)$
X0	Open	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0) \ \& \ (Q8=0)$

Appendix C - List of Bay Types

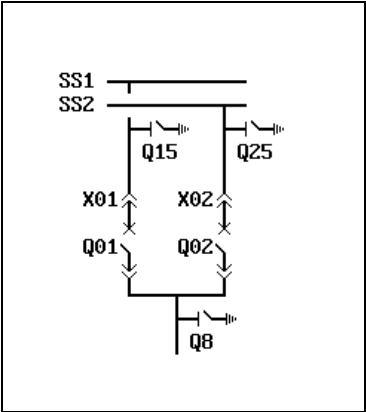
(continued)

Bay Type No. 526 (A21.125.R02)

Feeder bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q01 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q02 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
X01 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/
X02 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/
Q8 (DEV05)	Open	U 2I	/
	Close(d)	U 2J	/
Q15 (DEV06)	Open	U 2K	/
	Close(d)	U 2L	/
Q25 (DEV07)	Open	U 2M	/
	Close(d)	U 2N	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q01	Close(d)	$\neg(X01=X) \ \& \ \neg(X02=X) \ \& \ (Q15=0) \ \& \ (Q25=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q02	Close(d)	$\neg(X01=X) \ \& \ \neg(X02=X) \ \& \ (Q15=0) \ \& \ (Q25=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q01	Close(d)	$\neg(X01=X) \ \& \ \neg(X02=X) \ \& \ (Q15=0) \ \& \ (Q25=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q02	Close(d)	$\neg(X01=X) \ \& \ \neg(X02=X) \ \& \ (Q15=0) \ \& \ (Q25=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

(continued)

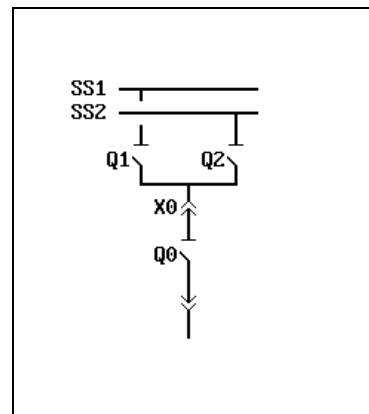
Bay Type No. 54

(A21.204.M04)

Feeder bay with switch disconnecter, double busbar, direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q2 (DEV03)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
X0 (DEV04)	Open	U 2I	K 2I
	Close(d)	U 2J	K 2J
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q2=0)$
Q2	Open	$(Q0=0) \ \& \ (Q1=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0)$
X0	Open	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
X0	Open	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$

Appendix C - List of Bay Types

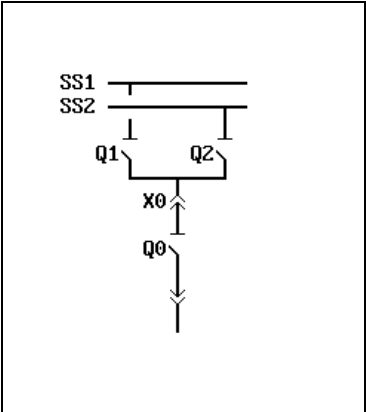
(continued)

Bay Type No. 55 (A21.204.R01)

Feeder bay with switch disconnecter, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/
Q2 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/
X0 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

(continued)

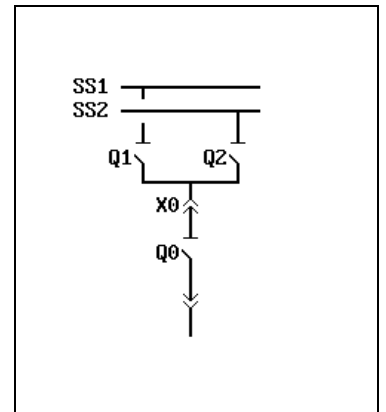
Bay Type No. 56

(A21.204.R03)

Feeder bay with switch disconnecter, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q2 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
X0 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q2=0)$
Q2	Open	$(Q0=0) \ \& \ (Q1=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

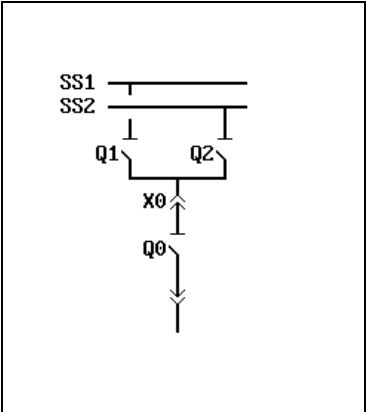
(continued)

Bay Type No. 57 (A21.204.R04)

Feeder bay with switch disconnector, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q2 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
X0 (DEV04)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q2=0)$
Q2	Open	$(Q0=0) \ \& \ (Q1=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0)$
X0	Open	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
X0	Open	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$

Appendix C - List of Bay Types

(continued)

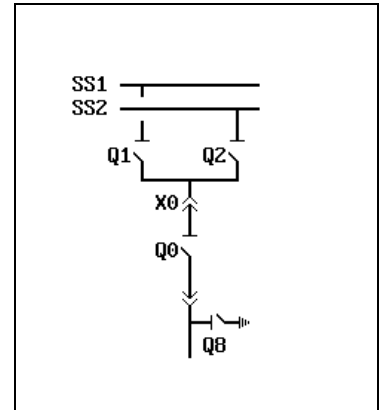
Bay Type No. 58

(A21.205.M05)

Feeder bay with switch disconnecter, double busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q2 (DEV03)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
X0 (DEV04)	Open	U 2I	K 2I
	Close(d)	U 2J	K 2J
Q8 (DEV05)	Open	U 2K	K 2K
	Close(d)	U 2L	K 2L
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q2=0)$
Q2	Open	$(Q0=0) \ \& \ (Q1=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0)$
Q8	Close(d)	$(X0=0)$
X0	Open	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0) \ \& \ (Q8=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q8	Close(d)	$(X0=0)$
X0	Open	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0) \ \& \ (Q8=0)$

Appendix C - List of Bay Types

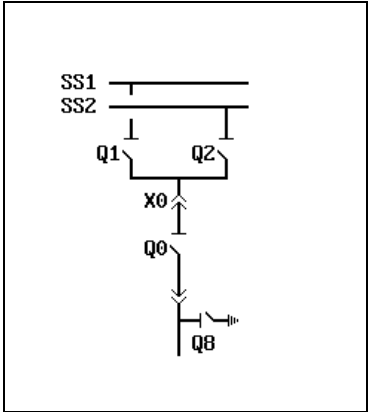
(continued)

Bay Type No. 59 (A21.205.R01)

Feeder bay with switch disconnecter, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/
Q2 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/
X0 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/
Q8 (DEV05)	Open	U 2I	/
	Close(d)	U 2J	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

(continued)

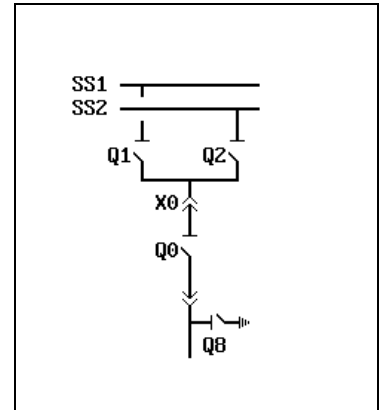
Bay Type No. 60

(A21.205.R03)

Feeder bay with switch disconnecter, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q2 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
X0 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/
Q8 (DEV05)	Open	U 2I	/
	Close(d)	U 2J	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q2=0)$
Q2	Open	$(Q0=0) \ \& \ (Q1=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

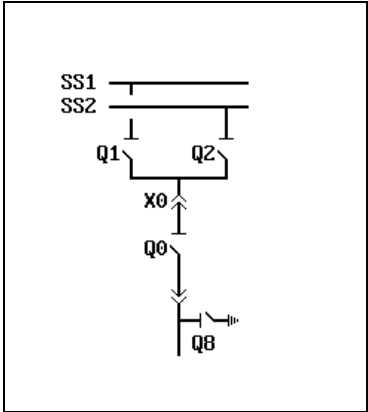
(continued)

Bay Type No. 61 (A21.205.R04)

Feeder bay with switch disconnector, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q2 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
X0 (DEV04)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Q8 (DEV05)	Open	U 2I	/
	Close(d)	U 2J	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \wedge \neg(Q2=X) \wedge \neg(X0=X) \wedge \neg(FctBl1=I) \wedge \neg(FctBl2=I)$
Q1	Open	$(Q0=0) \wedge (Q2=0)$
	Close(d)	$(Q0=0) \wedge (Q2=0)$
Q2	Open	$(Q0=0) \wedge (Q1=0)$
	Close(d)	$(Q0=0) \wedge (Q1=0)$
X0	Open	$(Q0=0) \wedge (Q1=0) \wedge (Q2=0)$
	Close(d)	$(Q0=0) \wedge (Q1=0) \wedge (Q2=0) \wedge (Q8=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \wedge \neg(Q2=X) \wedge \neg(X0=X) \wedge \neg(FctBl1=I) \wedge \neg(FctBl2=I)$
X0	Open	$(Q0=0) \wedge (Q1=0) \wedge (Q2=0)$
	Close(d)	$(Q0=0) \wedge (Q1=0) \wedge (Q2=0) \wedge (Q8=0)$

Appendix C - List of Bay Types

(continued)

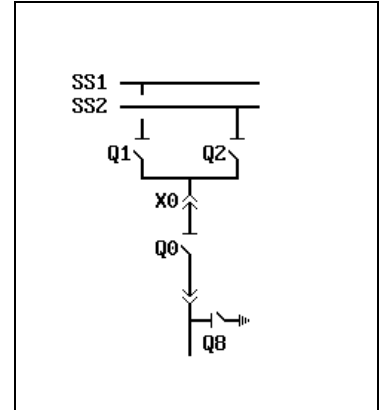
Bay Type No. 62

(A21.205.R05)

Feeder bay with switch disconnecter, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q2 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
X0 (DEV04)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Q8 (DEV05)	Open	U 2I	K 2I
	Close(d)	U 2J	K 2J



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q2=0)$
Q2	Open	$(Q0=0) \ \& \ (Q1=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0)$
Q8	Close(d)	$(X0=0)$
X0	Open	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0) \ \& \ (Q8=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q8	Close(d)	$(X0=0)$
X0	Open	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0) \ \& \ (Q8=0)$

Appendix C - List of Bay Types

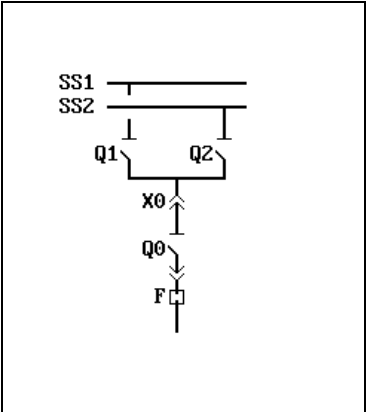
(continued)

Bay Type No. 63 (A21.404.M04)

Feeder bay with switch disconnecter / fuse unit, double busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q2 (DEV03)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
X0 (DEV04)	Open	U 2I	K 2I
	Close(d)	U 2J	K 2J
F (SIG_1: Signal S011)		U 2K	/
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q2=0)$
Q2	Open	$(Q0=0) \ \& \ (Q1=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0)$
X0	Open	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
X0	Open	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$

(continued)

(A21.404.R01)

Assignment of Binary Inputs and Output Relays

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$/(Q1=X) \ \& \ /(Q2=X) \ \& \ /(X0=X) \ \& \ /(FctB1=I) \ \& \ /(FctB12=I)$

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$/(Q1=X) \ \& \ /(Q2=X) \ \& \ /(X0=X) \ \& \ /(FctB1=I) \ \& \ /(FctB12=I)$

Appendix C - List of Bay Types

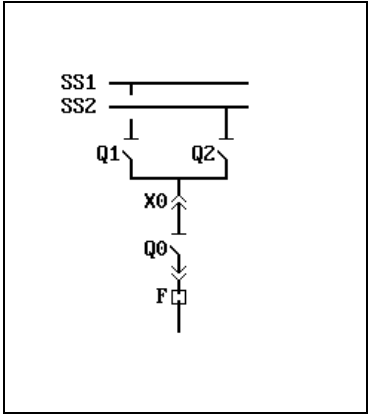
(continued)

Bay Type No. 65 (A21.404.R03)

Feeder bay with switch disconnecter / fuse unit, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q2 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
X0 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/
F (SIG_1: Signal S011)		U 2K	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q2=0)$
Q2	Open	$(Q0=0) \ \& \ (Q1=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

(continued)

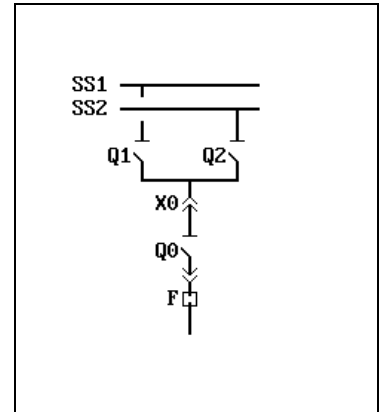
Bay Type No. 66

(A21.404.R04)

Feeder bay with switch disconnecter / fuse unit, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q2 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
X0 (DEV04)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
F (SIG_1: Signal S011)		U 2K	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q2=0)$
Q2	Open	$(Q0=0) \ \& \ (Q1=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0)$
X0	Open	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
X0	Open	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$

Appendix C - List of Bay Types

(continued)

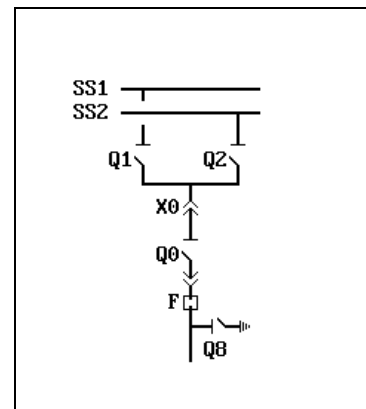
Bay Type No. 67

(A21.405.M05)

Feeder bay with switch disconnector / fuse unit, double busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q2 (DEV03)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
X0 (DEV04)	Open	U 2I	K 2I
	Close(d)	U 2J	K 2J
Q8 (DEV05)	Open	U 2K	K 2K
	Close(d)	U 2L	K 2L
F (SIG_1: Signal S011)		U 2D	/
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q2=0)$
Q2	Open	$(Q0=0) \ \& \ (Q1=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0)$
Q8	Close(d)	$(X0=0)$
X0	Open	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0) \ \& \ (Q8=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q8	Close(d)	$(X0=0)$
X0	Open	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0) \ \& \ (Q8=0)$

Appendix C - List of Bay Types

(continued)

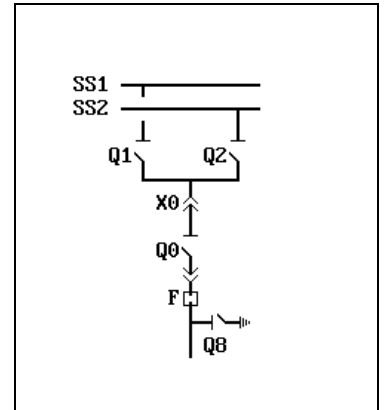
Bay Type No. 68

(A21.405.R01)

Feeder bay with switch disconnecter / fuse unit, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/
Q2 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/
X0 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/
Q8 (DEV05)	Open	U 2I	/
	Close(d)	U 2J	/
F (SIG_1: Signal S011)		U 2K	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

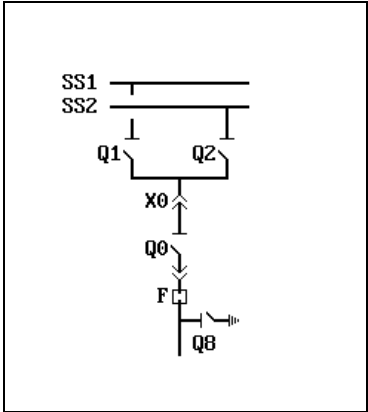
(continued)

Bay Type No. 69 (A21.405.R03)

Feeder bay with switch disconnecter / fuse unit, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q2 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
X0 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/
Q8 (DEV05)	Open	U 2I	/
	Close(d)	U 2J	/
F (SIG_1: Signal S011)		U 2K	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q2=0)$
Q2	Open	$(Q0=0) \ \& \ (Q1=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

(continued)

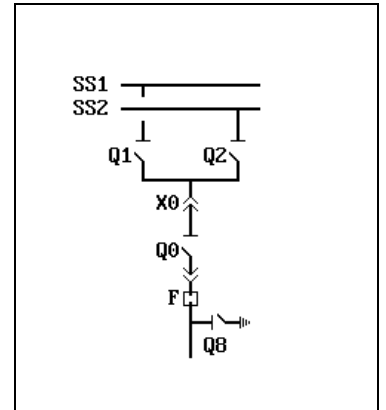
Bay Type No. 70

(A21.405.R04)

Feeder bay with switch disconnecter / fuse unit, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q2 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
X0 (DEV04)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Q8 (DEV05)	Open	U 2I	/
	Close(d)	U 2J	/
F (SIG_1: Signal S011)		U 2K	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q2=0)$
Q2	Open	$(Q0=0) \ \& \ (Q1=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0)$
X0	Open	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0) \ \& \ (Q8=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
X0	Open	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0) \ \& \ (Q8=0)$

Appendix C - List of Bay Types

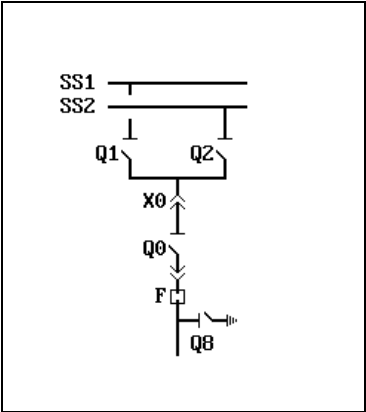
(continued)

Bay Type No. 71 (A21.405.R05)

Feeder bay with switch disconnecter / fuse unit, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q2 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
X0 (DEV04)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Q8 (DEV05)	Open	U 2I	K 2I
	Close(d)	U 2J	K 2J
F (SIG_1: Signal S011)		U 2K	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \wedge \neg(Q2=X) \wedge \neg(X0=X) \wedge \neg(FctBl1=I) \wedge \neg(FctBl2=I)$
Q1	Open	$(Q0=0) \wedge (Q2=0)$
	Close(d)	$(Q0=0) \wedge (Q2=0)$
Q2	Open	$(Q0=0) \wedge (Q1=0)$
	Close(d)	$(Q0=0) \wedge (Q1=0)$
Q8	Close(d)	$(X0=0)$
X0	Open	$(Q0=0) \wedge (Q1=0) \wedge (Q2=0)$
	Close(d)	$(Q0=0) \wedge (Q1=0) \wedge (Q2=0) \wedge (Q8=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \wedge \neg(Q2=X) \wedge \neg(X0=X) \wedge \neg(FctBl1=I) \wedge \neg(FctBl2=I)$
Q8	Close(d)	$(X0=0)$
X0	Open	$(Q0=0) \wedge (Q1=0) \wedge (Q2=0)$
	Close(d)	$(Q0=0) \wedge (Q1=0) \wedge (Q2=0) \wedge (Q8=0)$

Appendix C - List of Bay Types

(continued)

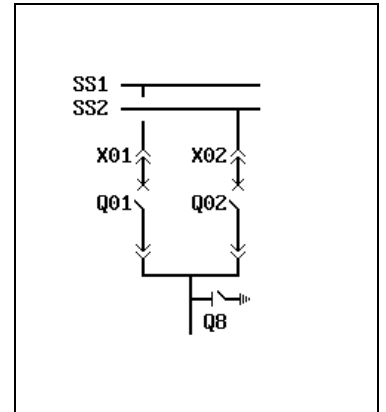
Bay Type No. 72

(A22.101.R02)

Feeder bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q01 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q02 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
X01 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/
X02 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/
Q8 (DEV05)	Open	U 2I	/
	Close(d)	U 2J	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q01	Close(d)	$(Q02=0) \ \& \ /(X01=X) \ \& \ /(X02=X) \ \& \ /(FctBl1=I) \ \& \ /(FctBl2=I)$
Q02	Close(d)	$(Q01=0) \ \& \ /(X01=X) \ \& \ /(X02=X) \ \& \ /(FctBl1=I) \ \& \ /(FctBl2=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q01	Close(d)	$/(X01=X) \ \& \ /(X02=X) \ \& \ /(FctBl1=I) \ \& \ /(FctBl2=I)$
Q02	Close(d)	$/(X01=X) \ \& \ /(X02=X) \ \& \ /(FctBl1=I) \ \& \ /(FctBl2=I)$

Appendix C - List of Bay Types

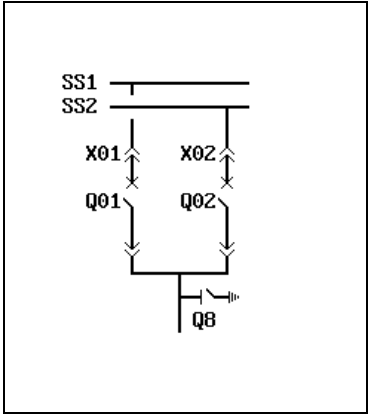
(continued)

Bay Type No. 73 (A22.101.R04)

Feeder bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q01 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q02 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
X01 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
X02 (DEV04)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Q8 (DEV05)	Open	U 2I	/
	Close(d)	U 2J	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q01	Close(d)	$(Q02=0) \ \& \ /(X01=X) \ \& \ /(X02=X) \ \& \ /(FctBl1=I) \ \& \ /(FctBl2=I)$
Q02	Close(d)	$(Q01=0) \ \& \ /(X01=X) \ \& \ /(X02=X) \ \& \ /(FctBl1=I) \ \& \ /(FctBl2=I)$
X01	Open	$(Q01=0)$
	Close(d)	$(Q01=0) \ \& \ (Q8=0)$
X02	Open	$(Q02=0)$
	Close(d)	$(Q02=0) \ \& \ (Q8=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q01	Close(d)	$/(X01=X) \ \& \ /(X02=X) \ \& \ /(FctBl1=I) \ \& \ /(FctBl2=I)$
Q02	Close(d)	$/(X01=X) \ \& \ /(X02=X) \ \& \ /(FctBl1=I) \ \& \ /(FctBl2=I)$
X01	Open	$(Q01=0)$
	Close(d)	$(Q01=0) \ \& \ (Q8=0)$
X02	Open	$(Q02=0)$
	Close(d)	$(Q02=0) \ \& \ (Q8=0)$

Appendix C - List of Bay Types

(continued)

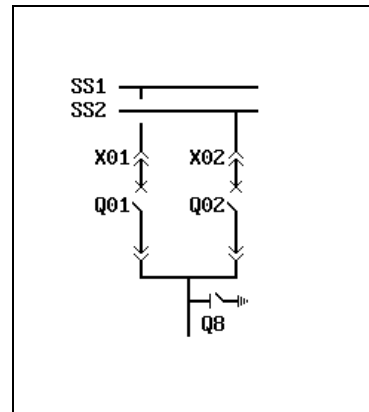
Bay Type No. 74

(A22.101.R05)

Feeder bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q01 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q02 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
X01 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
X02 (DEV04)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Q8 (DEV05)	Open	U 2I	K 2I
	Close(d)	U 2J	K 2J



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q01	Close(d)	$(Q02=0) \ \& \ /(X01=X) \ \& \ /(X02=X) \ \& \ /(FctBl1=I) \ \& \ /(FctBl2=I)$
Q02	Close(d)	$(Q01=0) \ \& \ /(X01=X) \ \& \ /(X02=X) \ \& \ /(FctBl1=I) \ \& \ /(FctBl2=I)$
Q8	Close(d)	$(X01=0) \ \& \ (X02=0)$
X01	Open	$(Q01=0)$
	Close(d)	$(Q01=0) \ \& \ (Q8=0)$
X02	Open	$(Q02=0)$
	Close(d)	$(Q02=0) \ \& \ (Q8=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q01	Close(d)	$/(X01=X) \ \& \ /(X02=X) \ \& \ /(FctBl1=I) \ \& \ /(FctBl2=I)$
Q02	Close(d)	$/(X01=X) \ \& \ /(X02=X) \ \& \ /(FctBl1=I) \ \& \ /(FctBl2=I)$
Q8	Close(d)	$(X01=0) \ \& \ (X02=0)$
X01	Open	$(Q01=0)$
	Close(d)	$(Q01=0) \ \& \ (Q8=0)$
X02	Open	$(Q02=0)$
	Close(d)	$(Q02=0) \ \& \ (Q8=0)$

Appendix C - List of Bay Types

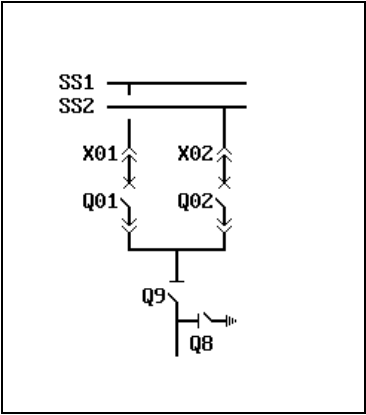
(continued)

Bay Type No. 75 (A22.103.R02)

Feeder bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q01 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q02 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
X01 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/
X02 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/
Q9 (DEV05)	Open	U 2I	/
	Close(d)	U 2J	/
Q8 (DEV06)	Open	U 2K	/
	Close(d)	U 2L	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q01	Close(d)	$(Q02=0) \ \& \ /(Q9=X) \ \& \ /(X01=X) \ \& \ /(X02=X) \ \& \ /(FctBl1=I) \ \& \ /(FctBl2=I)$
Q02	Close(d)	$(Q01=0) \ \& \ /(Q9=X) \ \& \ /(X01=X) \ \& \ /(X02=X) \ \& \ /(FctBl1=I) \ \& \ /(FctBl2=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q01	Close(d)	$/(Q9=X) \ \& \ /(X01=X) \ \& \ /(X02=X) \ \& \ /(FctBl1=I) \ \& \ /(FctBl2=I)$
Q02	Close(d)	$/(Q9=X) \ \& \ /(X01=X) \ \& \ /(X02=X) \ \& \ /(FctBl1=I) \ \& \ /(FctBl2=I)$

Appendix C - List of Bay Types

(continued)

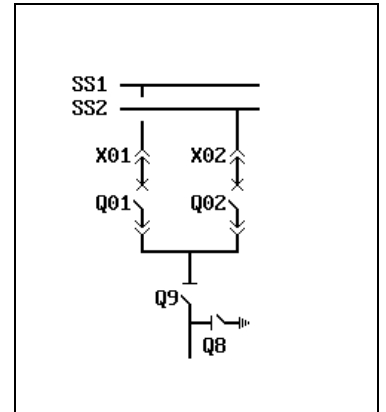
Bay Type No. 76

(A22.103.R03)

Feeder bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q01 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q02 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
X01 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/
X02 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/
Q9 (DEV05)	Open	U 2I	K 2I
	Close(d)	U 2J	K 2J
Q8 (DEV06)	Open	U 2K	/
	Close(d)	U 2L	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q01	Close(d)	$(Q02=0) \ \& \ /(Q9=X) \ \& \ /(X01=X) \ \& \ /(X02=X) \ \& \ /(FctBl1=I) \ \& \ /(FctBl2=I)$
Q02	Close(d)	$(Q01=0) \ \& \ /(Q9=X) \ \& \ /(X01=X) \ \& \ /(X02=X) \ \& \ /(FctBl1=I) \ \& \ /(FctBl2=I)$
Q9	Open	$(Q01=0) \ \& \ (Q02=0)$
	Close(d)	$(Q01=0) \ \& \ (Q02=0) \ \& \ (Q8=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q01	Close(d)	$/(Q9=X) \ \& \ /(X01=X) \ \& \ /(X02=X) \ \& \ /(FctBl1=I) \ \& \ /(FctBl2=I)$
Q02	Close(d)	$/(Q9=X) \ \& \ /(X01=X) \ \& \ /(X02=X) \ \& \ /(FctBl1=I) \ \& \ /(FctBl2=I)$
Q9	Open	$(Q01=0) \ \& \ (Q02=0)$
	Close(d)	$(Q01=0) \ \& \ (Q02=0) \ \& \ (Q8=0)$

Appendix C - List of Bay Types

(continued)

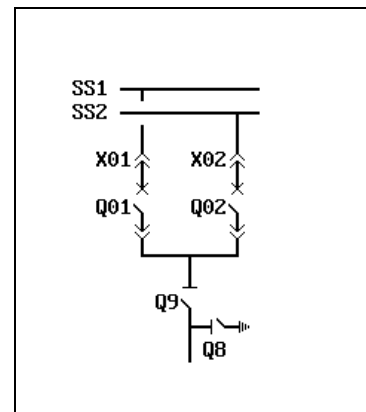
Bay Type No. 77

(A22.103.R05)

Feeder bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q01 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q02 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
X01 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
X02 (DEV04)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Q9 (DEV05)	Open	U 2I	K 2I
	Close(d)	U 2J	K 2J
Q8 (DEV06)	Open	U 2K	/
	Close(d)	U 2L	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q01	Close(d)	$(Q02=0) \ \& \ /(Q9=X) \ \& \ /(X01=X) \ \& \ /(X02=X) \ \& \ /(FctB1=I) \ \& \ /(FctB2=I)$
Q02	Close(d)	$(Q01=0) \ \& \ /(Q9=X) \ \& \ /(X01=X) \ \& \ /(X02=X) \ \& \ /(FctB1=I) \ \& \ /(FctB2=I)$
Q9	Open	$(Q01=0) \ \& \ (Q02=0)$
	Close(d)	$(Q01=0) \ \& \ (Q02=0) \ \& \ (Q8=0)$
X01	Open	$(Q01=0)$
	Close(d)	$(Q01=0)$
X02	Open	$(Q02=0)$
	Close(d)	$(Q02=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q01	Close(d)	$/(Q9=X) \ \& \ /(X01=X) \ \& \ /(X02=X) \ \& \ /(FctB1=I) \ \& \ /(FctB2=I)$
Q02	Close(d)	$/(Q9=X) \ \& \ /(X01=X) \ \& \ /(X02=X) \ \& \ /(FctB1=I) \ \& \ /(FctB2=I)$
Q9	Open	$(Q01=0) \ \& \ (Q02=0)$
	Close(d)	$(Q01=0) \ \& \ (Q02=0) \ \& \ (Q8=0)$
X01	Open	$(Q01=0)$
	Close(d)	$(Q01=0)$
X02	Open	$(Q02=0)$
	Close(d)	$(Q02=0)$

Appendix C - List of Bay Types

(continued)

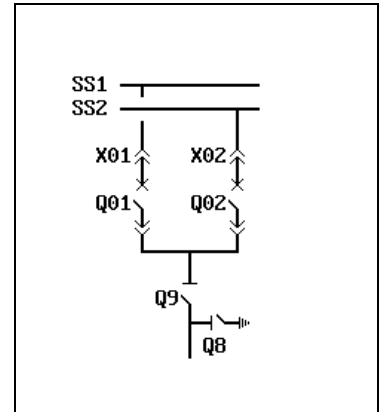
Bay Type No. 78

(A22.103.R06)

Feeder bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q01 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q02 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
X01 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
X02 (DEV04)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Q9 (DEV05)	Open	U 2I	K 2I
	Close(d)	U 2J	K 2J
Q8 (DEV06)	Open	U 2K	K 2K
	Close(d)	U 2L	K 2L



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q01	Close(d)	$(Q02=0) \ \& \ /(Q9=X) \ \& \ /(X01=X) \ \& \ /(X02=X) \ \& \ /(FctBl1=I) \ \& \ /(FctBl2=I)$
Q02	Close(d)	$(Q01=0) \ \& \ /(Q9=X) \ \& \ /(X01=X) \ \& \ /(X02=X) \ \& \ /(FctBl1=I) \ \& \ /(FctBl2=I)$
Q8	Close(d)	$(Q9=0)$
Q9	Open	$(Q01=0) \ \& \ (Q02=0)$
	Close(d)	$(Q01=0) \ \& \ (Q02=0) \ \& \ (Q8=0)$
X01	Open	$(Q01=0)$
	Close(d)	$(Q01=0)$
X02	Open	$(Q02=0)$
	Close(d)	$(Q02=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q01	Close(d)	$/(Q9=X) \ \& \ /(X01=X) \ \& \ /(X02=X) \ \& \ /(FctBl1=I) \ \& \ /(FctBl2=I)$
Q02	Close(d)	$/(Q9=X) \ \& \ /(X01=X) \ \& \ /(X02=X) \ \& \ /(FctBl1=I) \ \& \ /(FctBl2=I)$
Q8	Close(d)	$(Q9=0)$
Q9	Open	$(Q01=0) \ \& \ (Q02=0)$
	Close(d)	$(Q01=0) \ \& \ (Q02=0) \ \& \ (Q8=0)$
X01	Open	$(Q01=0)$
	Close(d)	$(Q01=0)$
X02	Open	$(Q02=0)$
	Close(d)	$(Q02=0)$

Appendix C - List of Bay Types

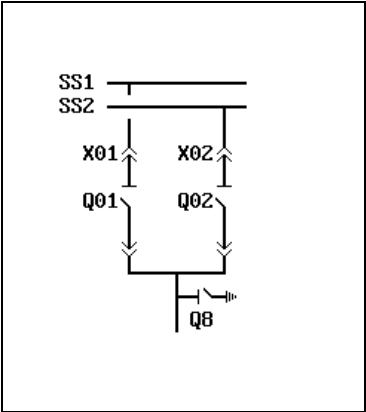
(continued)

Bay Type No. 79 (A22.201.R02)

Feeder bay with switch disconnector, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q01 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q02 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
X01 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/
X02 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/
Q8 (DEV05)	Open	U 2I	/
	Close(d)	U 2J	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q01	Close(d)	$(Q02=0) \ \& \ /(X01=X) \ \& \ /(X02=X) \ \& \ /(FctBl1=I) \ \& \ /(FctBl2=I)$
Q02	Close(d)	$(Q01=0) \ \& \ /(X01=X) \ \& \ /(X02=X) \ \& \ /(FctBl1=I) \ \& \ /(FctBl2=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q01	Close(d)	$/(X01=X) \ \& \ /(X02=X) \ \& \ /(FctBl1=I) \ \& \ /(FctBl2=I)$
Q02	Close(d)	$/(X01=X) \ \& \ /(X02=X) \ \& \ /(FctBl1=I) \ \& \ /(FctBl2=I)$

Appendix C - List of Bay Types

(continued)

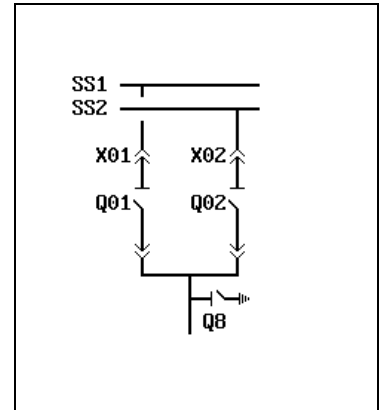
Bay Type No. 80

(A22.201.R04)

Feeder bay with switch disconnecter, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q01 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q02 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
X01 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
X02 (DEV04)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Q8 (DEV05)	Open	U 2I	/
	Close(d)	U 2J	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q01	Close(d)	$(Q02=0) \ \& \ /(X01=X) \ \& \ /(X02=X) \ \& \ /(FctBl1=I) \ \& \ /(FctBl2=I)$
Q02	Close(d)	$(Q01=0) \ \& \ /(X01=X) \ \& \ /(X02=X) \ \& \ /(FctBl1=I) \ \& \ /(FctBl2=I)$
X01	Open	$(Q01=0)$
	Close(d)	$(Q01=0) \ \& \ (Q8=0)$
X02	Open	$(Q02=0)$
	Close(d)	$(Q02=0) \ \& \ (Q8=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q01	Close(d)	$/(X01=X) \ \& \ /(X02=X) \ \& \ /(FctBl1=I) \ \& \ /(FctBl2=I)$
Q02	Close(d)	$/(X01=X) \ \& \ /(X02=X) \ \& \ /(FctBl1=I) \ \& \ /(FctBl2=I)$
X01	Open	$(Q01=0)$
	Close(d)	$(Q01=0) \ \& \ (Q8=0)$
X02	Open	$(Q02=0)$
	Close(d)	$(Q02=0) \ \& \ (Q8=0)$

Appendix C - List of Bay Types

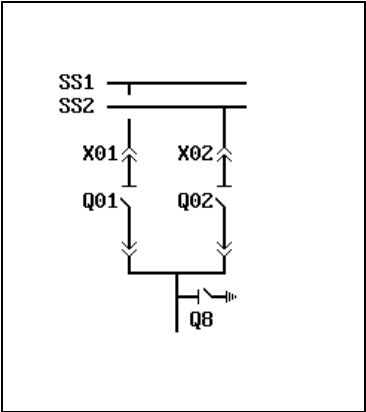
(continued)

Bay Type No. 81 (A22.201.R05)

Feeder bay with switch disconnector, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q01 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q02 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
X01 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
X02 (DEV04)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Q8 (DEV05)	Open	U 2I	K 2I
	Close(d)	U 2J	K 2J



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q01	Close(d)	$(Q02=0) \ \& \ /(X01=X) \ \& \ /(X02=X) \ \& \ /(FctBl1=I) \ \& \ /(FctBl2=I)$
Q02	Close(d)	$(Q01=0) \ \& \ /(X01=X) \ \& \ /(X02=X) \ \& \ /(FctBl1=I) \ \& \ /(FctBl2=I)$
Q8	Close(d)	$(X01=0) \ \& \ (X02=0)$
X01	Open	$(Q01=0)$
	Close(d)	$(Q01=0) \ \& \ (Q8=0)$
X02	Open	$(Q02=0)$
	Close(d)	$(Q02=0) \ \& \ (Q8=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q01	Close(d)	$/(X01=X) \ \& \ /(X02=X) \ \& \ /(FctBl1=I) \ \& \ /(FctBl2=I)$
Q02	Close(d)	$/(X01=X) \ \& \ /(X02=X) \ \& \ /(FctBl1=I) \ \& \ /(FctBl2=I)$
Q8	Close(d)	$(X01=0) \ \& \ (X02=0)$
X01	Open	$(Q01=0)$
	Close(d)	$(Q01=0) \ \& \ (Q8=0)$
X02	Open	$(Q02=0)$
	Close(d)	$(Q02=0) \ \& \ (Q8=0)$

Appendix C - List of Bay Types

(continued)

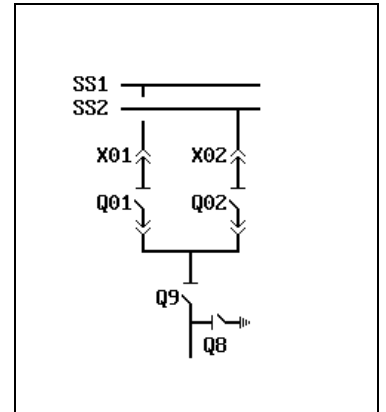
Bay Type No. 82

(A22.203.R02)

Feeder bay with switch disconnecter, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q01 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q02 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
X01 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/
X02 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/
Q9 (DEV05)	Open	U 2I	/
	Close(d)	U 2J	/
Q8 (DEV06)	Open	U 2K	/
	Close(d)	U 2L	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q01	Close(d)	$(Q02=0) \ \& \ /(Q9=X) \ \& \ /(X01=X) \ \& \ /(X02=X) \ \& \ /(FctBl1=I) \ \& \ /(FctBl2=I)$
Q02	Close(d)	$(Q01=0) \ \& \ /(Q9=X) \ \& \ /(X01=X) \ \& \ /(X02=X) \ \& \ /(FctBl1=I) \ \& \ /(FctBl2=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q01	Close(d)	$/(Q9=X) \ \& \ /(X01=X) \ \& \ /(X02=X) \ \& \ /(FctBl1=I) \ \& \ /(FctBl2=I)$
Q02	Close(d)	$/(Q9=X) \ \& \ /(X01=X) \ \& \ /(X02=X) \ \& \ /(FctBl1=I) \ \& \ /(FctBl2=I)$

Appendix C - List of Bay Types

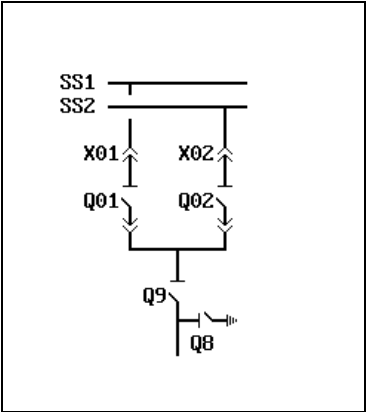
(continued)

Bay Type No. 83 (A22.203.R03)

Feeder bay with switch disconnector, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q01 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q02 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
X01 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/
X02 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/
Q9 (DEV05)	Open	U 2I	K 2I
	Close(d)	U 2J	K 2J
Q8 (DEV06)	Open	U 2K	/
	Close(d)	U 2L	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q01	Close(d)	$(Q02=0) \ \& \ /(Q9=X) \ \& \ /(X01=X) \ \& \ /(X02=X) \ \& \ /(FctB1=I) \ \& \ /(FctB2=I)$
Q02	Close(d)	$(Q01=0) \ \& \ /(Q9=X) \ \& \ /(X01=X) \ \& \ /(X02=X) \ \& \ /(FctB1=I) \ \& \ /(FctB2=I)$
Q9	Open	$(Q01=0) \ \& \ (Q02=0)$
	Close(d)	$(Q01=0) \ \& \ (Q02=0) \ \& \ (Q8=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q01	Close(d)	$/(Q9=X) \ \& \ /(X01=X) \ \& \ /(X02=X) \ \& \ /(FctB1=I) \ \& \ /(FctB2=I)$
Q02	Close(d)	$/(Q9=X) \ \& \ /(X01=X) \ \& \ /(X02=X) \ \& \ /(FctB1=I) \ \& \ /(FctB2=I)$
Q9	Open	$(Q01=0) \ \& \ (Q02=0)$
	Close(d)	$(Q01=0) \ \& \ (Q02=0) \ \& \ (Q8=0)$

Appendix C - List of Bay Types

(continued)

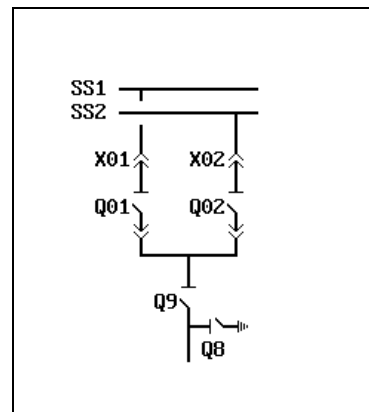
Bay Type No. 84

(A22.203.R05)

Feeder bay with switch disconnecter, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q01 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q02 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
X01 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
X02 (DEV04)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Q9 (DEV05)	Open	U 2I	K 2I
	Close(d)	U 2J	K 2J
Q8 (DEV06)	Open	U 2K	/
	Close(d)	U 2L	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q01	Close(d)	$(Q02=0) \ \& \ /(Q9=X) \ \& \ /(X01=X) \ \& \ /(X02=X) \ \& \ /(FctBl1=I) \ \& \ /(FctBl2=I)$
Q02	Close(d)	$(Q01=0) \ \& \ /(Q9=X) \ \& \ /(X01=X) \ \& \ /(X02=X) \ \& \ /(FctBl1=I) \ \& \ /(FctBl2=I)$
Q9	Open	$(Q01=0) \ \& \ (Q02=0)$
	Close(d)	$(Q01=0) \ \& \ (Q02=0) \ \& \ (Q8=0)$
X01	Open	$(Q01=0)$
	Close(d)	$(Q01=0)$
X02	Open	$(Q02=0)$
	Close(d)	$(Q02=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q01	Close(d)	$/(Q9=X) \ \& \ /(X01=X) \ \& \ /(X02=X) \ \& \ /(FctBl1=I) \ \& \ /(FctBl2=I)$
Q02	Close(d)	$/(Q9=X) \ \& \ /(X01=X) \ \& \ /(X02=X) \ \& \ /(FctBl1=I) \ \& \ /(FctBl2=I)$
Q9	Open	$(Q01=0) \ \& \ (Q02=0)$
	Close(d)	$(Q01=0) \ \& \ (Q02=0) \ \& \ (Q8=0)$
X01	Open	$(Q01=0)$
	Close(d)	$(Q01=0)$
X02	Open	$(Q02=0)$
	Close(d)	$(Q02=0)$

Appendix C - List of Bay Types

(continued)

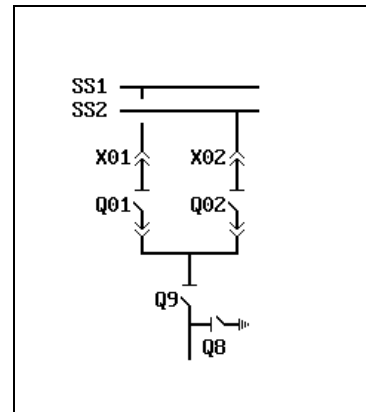
Bay Type No. 85

(A22.203.R06)

Feeder bay with switch disconnector, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q01 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q02 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
X01 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
X02 (DEV04)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Q9 (DEV05)	Open	U 2I	K 2I
	Close(d)	U 2J	K 2J
Q8 (DEV06)	Open	U 2K	K 2K
	Close(d)	U 2L	K 2L



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q01	Close(d)	$(Q02=0) \ \& \ /(Q9=X) \ \& \ /(X01=X) \ \& \ /(X02=X) \ \& \ /(FctB1=I) \ \& \ /(FctB2=I)$
Q02	Close(d)	$(Q01=0) \ \& \ /(Q9=X) \ \& \ /(X01=X) \ \& \ /(X02=X) \ \& \ /(FctB1=I) \ \& \ /(FctB2=I)$
Q8	Close(d)	$(Q9=0)$
Q9	Open	$(Q01=0) \ \& \ (Q02=0)$
	Close(d)	$(Q01=0) \ \& \ (Q02=0) \ \& \ (Q8=0)$
X01	Open	$(Q01=0)$
	Close(d)	$(Q01=0)$
X02	Open	$(Q02=0)$
	Close(d)	$(Q02=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q01	Close(d)	$/(Q9=X) \ \& \ /(X01=X) \ \& \ /(X02=X) \ \& \ /(FctB1=I) \ \& \ /(FctB2=I)$
Q02	Close(d)	$/(Q9=X) \ \& \ /(X01=X) \ \& \ /(X02=X) \ \& \ /(FctB1=I) \ \& \ /(FctB2=I)$
Q8	Close(d)	$(Q9=0)$
Q9	Open	$(Q01=0) \ \& \ (Q02=0)$
	Close(d)	$(Q01=0) \ \& \ (Q02=0) \ \& \ (Q8=0)$
X01	Open	$(Q01=0)$
	Close(d)	$(Q01=0)$
X02	Open	$(Q02=0)$
	Close(d)	$(Q02=0)$

Appendix C - List of Bay Types

(continued)

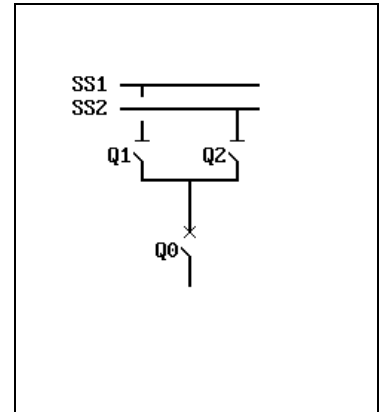
Bay Type No. 86

(A23.104.M03)

Feeder bay with circuit breaker, double busbar, direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q2 (DEV03)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q2=0)$
Q2	Open	$(Q0=0) \ \& \ (Q1=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

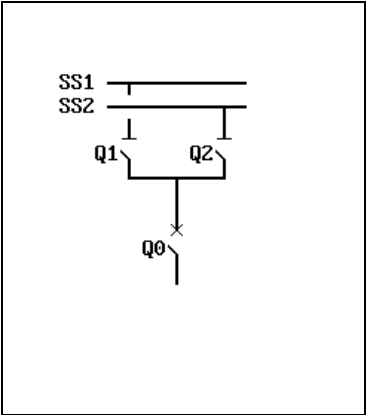
(continued)

Bay Type No. 87 (A23.104.R01)

Feeder bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/
Q2 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

(continued)

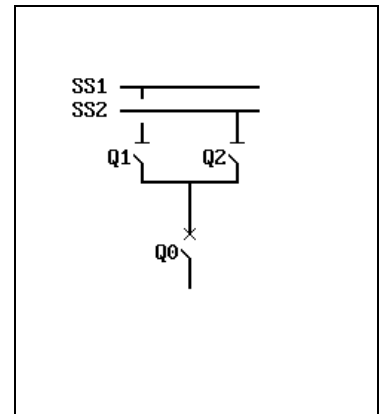
Bay Type No. 88

(A23.104.R03)

Feeder bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q2 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q2=0)$
Q2	Open	$(Q0=0) \ \& \ (Q1=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

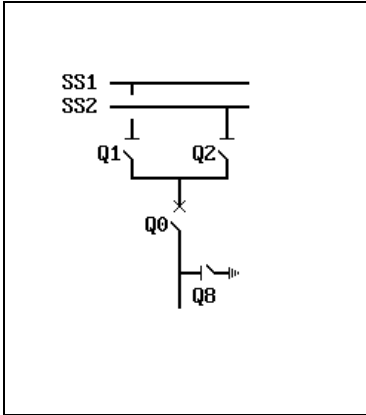
(continued)

Bay Type No. 89 (A23.105.M04)

Feeder bay with circuit breaker, double busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q2 (DEV03)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Q8 (DEV04)	Open	U 2I	K 2I
	Close(d)	U 2J	K 2J
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ (Q8=0) \ \& \ \neg(FctB1=I) \ \& \ \neg(FctB2=I)$
Q1	Open	$(Q0=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q2=0) \ \& \ (Q8=0)$
Q2	Open	$(Q0=0) \ \& \ (Q1=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q8=0)$
Q8	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ (Q8=0) \ \& \ \neg(FctB1=I) \ \& \ \neg(FctB2=I)$
Q1	Close(d)	$(Q8=0)$
Q2	Close(d)	$(Q8=0)$
Q8	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$

Appendix C - List of Bay Types

(continued)

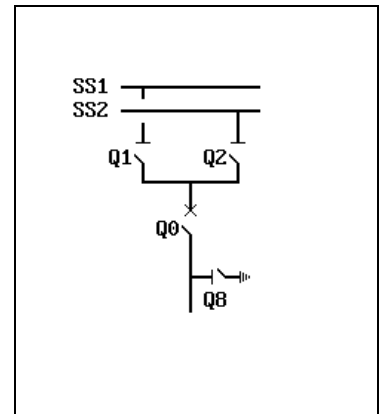
Bay Type No. 90

(A23.105.R01)

Feeder bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/
Q2 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/
Q8 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ (Q8=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ (Q8=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

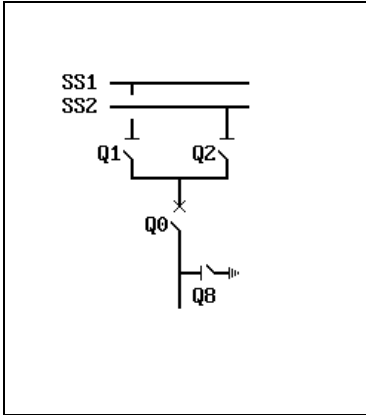
(continued)

Bay Type No. 91 (A23.105.R03)

Feeder bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q2 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q8 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ (Q8=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q2=0) \ \& \ (Q8=0)$
Q2	Open	$(Q0=0) \ \& \ (Q1=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q8=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ (Q8=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Close(d)	$(Q8=0)$
Q2	Close(d)	$(Q8=0)$

Appendix C - List of Bay Types

(continued)

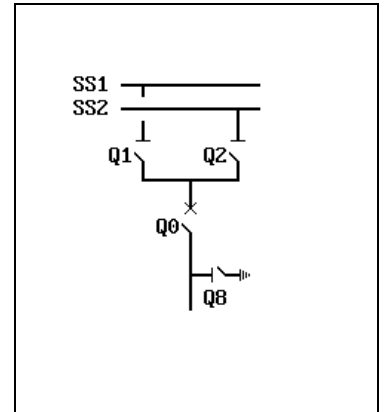
Bay Type No. 92

(A23.105.R04)

Feeder bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q2 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q8 (DEV04)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ (Q8=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q2=0) \ \& \ (Q8=0)$
Q2	Open	$(Q0=0) \ \& \ (Q1=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q8=0)$
Q8	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ (Q8=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Close(d)	$(Q8=0)$
Q2	Close(d)	$(Q8=0)$
Q8	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$

Appendix C - List of Bay Types

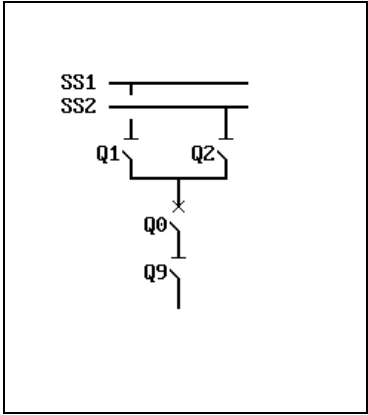
(continued)

Bay Type No. 93 (A23.106.M04)

Feeder bay with circuit breaker, double busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q2 (DEV03)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Q9 (DEV04)	Open	U 2I	K 2I
	Close(d)	U 2J	K 2J
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(Q9=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q2=0)$
Q2	Open	$(Q0=0) \ \& \ (Q1=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0)$
Q9	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(Q9=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q9	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$

Appendix C - List of Bay Types

(continued)

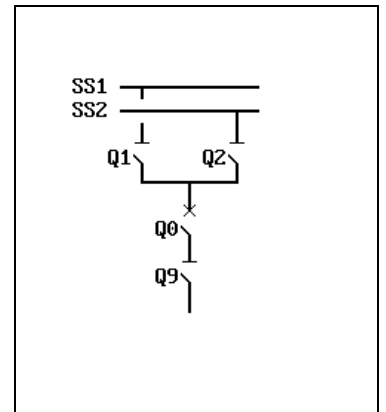
Bay Type No. 94

(A23.106.R01)

Feeder bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/
Q2 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/
Q9 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(Q9=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(Q9=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

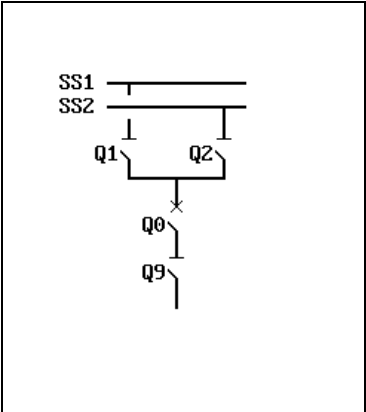
(continued)

Bay Type No. 95 (A23.106.R04)

Feeder bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q2 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q9 (DEV04)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(Q9=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q2=0)$
Q2	Open	$(Q0=0) \ \& \ (Q1=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0)$
Q9	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(Q9=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q9	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$

Appendix C - List of Bay Types

(continued)

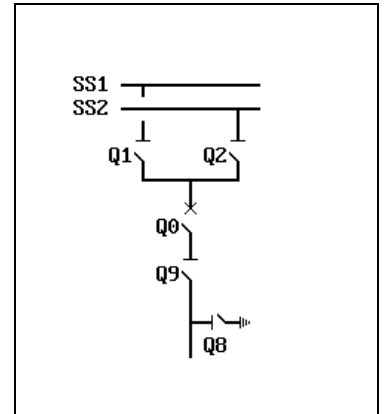
Bay Type No. 96

(A23.107.M05)

Feeder bay with circuit breaker, double busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q2 (DEV03)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Q9 (DEV04)	Open	U 2I	K 2I
	Close(d)	U 2J	K 2J
Q8 (DEV05)	Open	U 2K	K 2K
	Close(d)	U 2L	K 2L
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(Q9=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q2=0)$
Q2	Open	$(Q0=0) \ \& \ (Q1=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0)$
Q8	Close(d)	$(Q9=0)$
Q9	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(Q9=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q8	Close(d)	$(Q9=0)$
Q9	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$

Appendix C - List of Bay Types

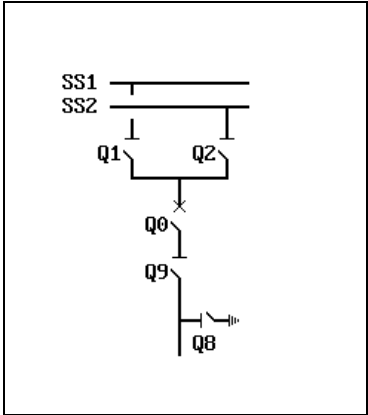
(continued)

Bay Type No. 97 (A23.107.R01)

Feeder bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/
Q2 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/
Q9 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/
Q8 (DEV05)	Open	U 2I	/
	Close(d)	U 2J	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(Q9=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(Q9=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

(continued)

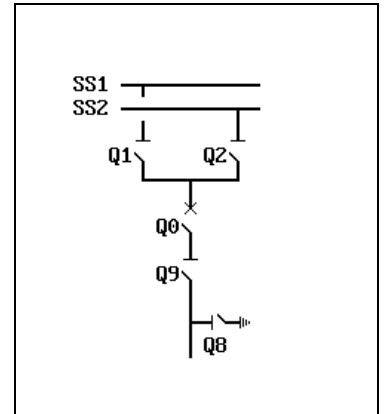
Bay Type No. 98

(A23.107.R04)

Feeder bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q2 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q9 (DEV04)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Q8 (DEV05)	Open	U 2I	/
	Close(d)	U 2J	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(Q9=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q2=0)$
Q2	Open	$(Q0=0) \ \& \ (Q1=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0)$
Q9	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(Q9=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q9	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$

Appendix C - List of Bay Types

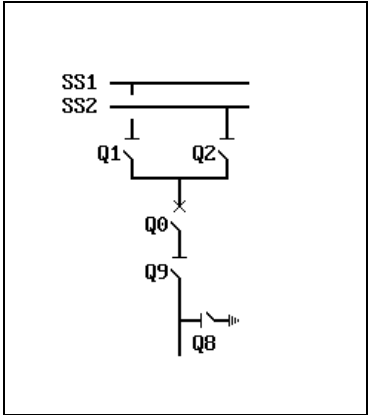
(continued)

Bay Type No. 99 (A23.107.R05)

Feeder bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q2 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q9 (DEV04)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Q8 (DEV05)	Open	U 2I	K 2I
	Close(d)	U 2J	K 2J



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(Q9=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q2=0)$
Q2	Open	$(Q0=0) \ \& \ (Q1=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0)$
Q8	Close(d)	$(Q9=0)$
Q9	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(Q9=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q8	Close(d)	$(Q9=0)$
Q9	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$

Appendix C - List of Bay Types

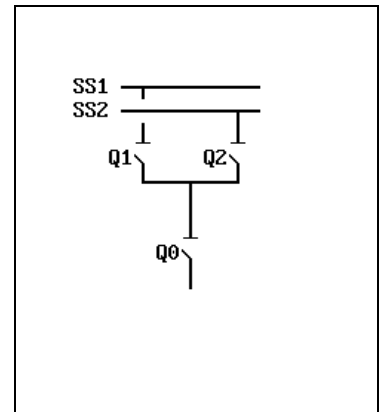
(continued)

Bay Type No. 100 (A23.204.M03)

Feeder bay with switch disconnecter, double busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q2 (DEV03)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q2=0)$
Q2	Open	$(Q0=0) \ \& \ (Q1=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

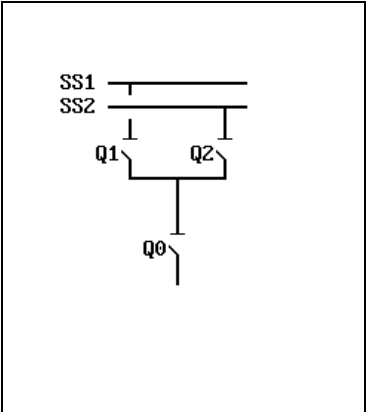
(continued)

Bay Type No. 101 (A23.204.R01)

Feeder bay with switch disconnecter, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/
Q2 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

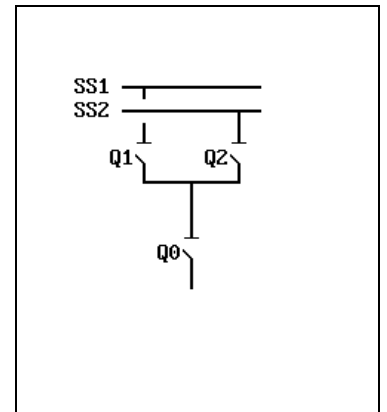
(continued)

Bay Type No. 102 (A23.204.R03)

Feeder bay with switch disconnecter, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q2 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q2=0)$
Q2	Open	$(Q0=0) \ \& \ (Q1=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

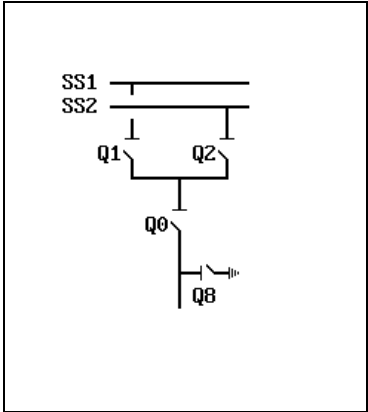
(continued)

Bay Type No. 103 (A23.205.M04)

Feeder bay with switch disconnecter, double busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q2 (DEV03)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Q8 (DEV04)	Open	U 2I	K 2I
	Close(d)	U 2J	K 2J
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ (Q8=0) \ \& \ \neg(FctB1=I) \ \& \ \neg(FctB12=I)$
Q1	Open	$(Q0=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q2=0) \ \& \ (Q8=0)$
Q2	Open	$(Q0=0) \ \& \ (Q1=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q8=0)$
Q8	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ (Q8=0) \ \& \ \neg(FctB1=I) \ \& \ \neg(FctB12=I)$
Q1	Close(d)	$(Q8=0)$
Q2	Close(d)	$(Q8=0)$
Q8	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$

Appendix C - List of Bay Types

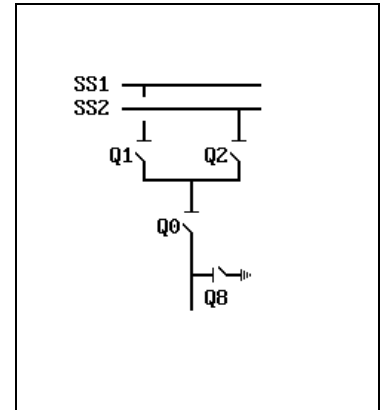
(continued)

Bay Type No. 104 (A23.205.R01)

Feeder bay with switch disconnect, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/
Q2 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/
Q8 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ (Q8=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ (Q8=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

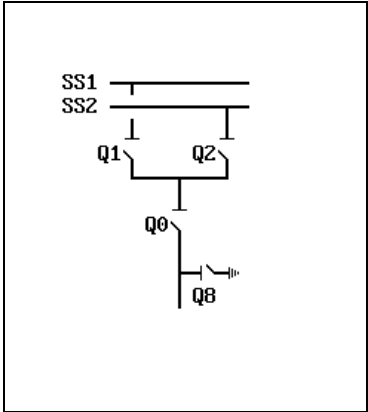
(continued)

Bay Type No. 105 (A23.205.R03)

Feeder bay with switch disconnector, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q2 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q8 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ (Q8=0) \ \& \ \neg(FctB1=I) \ \& \ \neg(FctB2=I)$
Q1	Open	$(Q0=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q2=0) \ \& \ (Q8=0)$
Q2	Open	$(Q0=0) \ \& \ (Q1=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q8=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ (Q8=0) \ \& \ \neg(FctB1=I) \ \& \ \neg(FctB2=I)$
Q1	Close(d)	$(Q8=0)$
Q2	Close(d)	$(Q8=0)$

Appendix C - List of Bay Types

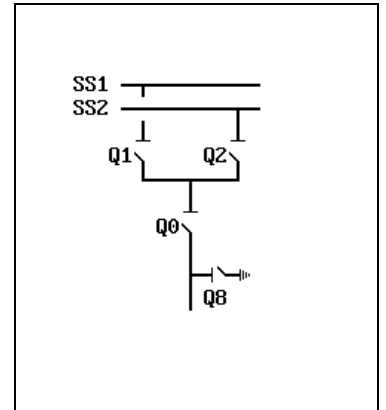
(continued)

Bay Type No. 106 (A23.205.R04)

Feeder bay with switch disconnecter, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q2 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q8 (DEV04)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ (Q8=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q2=0) \ \& \ (Q8=0)$
Q2	Open	$(Q0=0) \ \& \ (Q1=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q8=0)$
Q8	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg((Q1=X) \ \& \ \neg(Q2=X) \ \& \ (Q8=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I))$
Q1	Close(d)	$(Q8=0)$
Q2	Close(d)	$(Q8=0)$
Q8	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$

Appendix C - List of Bay Types

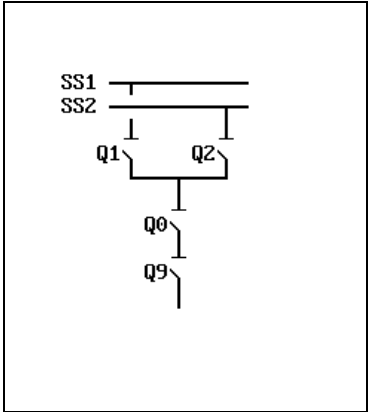
(continued)

Bay Type No. 107 (A23.206.M04)

Feeder bay with switch disconnecter, double busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q2 (DEV03)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Q9 (DEV04)	Open	U 2I	K 2I
	Close(d)	U 2J	K 2J
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(Q9=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q2=0)$
Q2	Open	$(Q0=0) \ \& \ (Q1=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0)$
Q9	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(Q9=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q9	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$

Appendix C - List of Bay Types

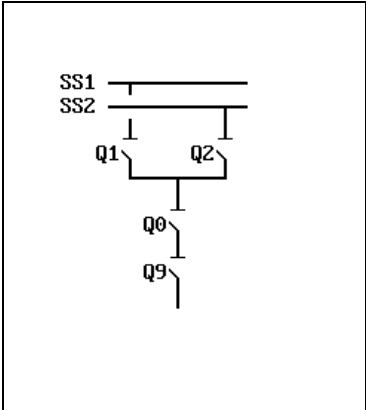
(continued)

Bay Type No. 108 (A23.206.R01)

Feeder bay with switch disconnecter, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/
Q2 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/
Q9 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(Q9=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(Q9=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

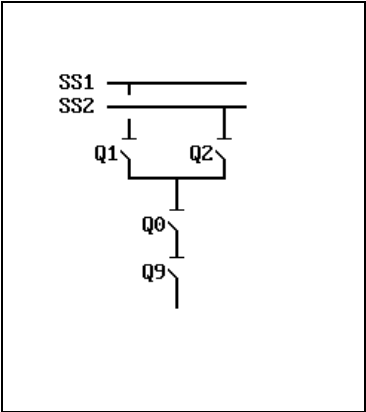
(continued)

Bay Type No. 109 (A23.206.R04)

Feeder bay with switch disconnector, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q2 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q9 (DEV04)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(Q9=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q2=0)$
Q2	Open	$(Q0=0) \ \& \ (Q1=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0)$
Q9	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(Q9=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q9	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$

(continued)

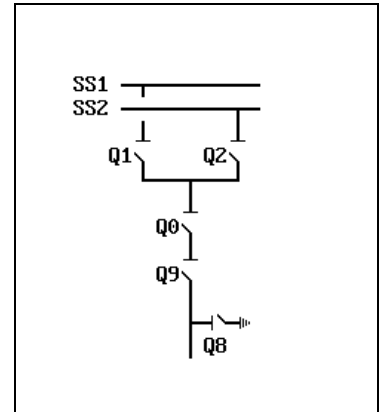
Bay Type No. 110

(A23.207.M05)

Feeder bay with switch disconnecter, double busbar, direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open Close(d)	U 2A U 2B	K 2A K 2B
Q1 (DEV02)	Open Close(d)	U 2E U 2F	K 2E K 2F
Q2 (DEV03)	Open Close(d)	U 2G U 2H	K 2G K 2H
Q9 (DEV04)	Open Close(d)	U 2I U 2J	K 2I K 2J
Q8 (DEV05)	Open Close(d)	U 2K U 2L	K 2K K 2L
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$/(Q1=X) \ \& \ /(Q2=X) \ \& \ /(Q9=X) \ \& \ /(FctB1=I) \ \& \ /(FctB2=I)$
Q1	Open	$(Q0=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q2=0)$
Q2	Open	$(Q0=0) \ \& \ (Q1=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0)$
Q8	Close(d)	$(Q9=0)$
Q9	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(Q9=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q8	Close(d)	$(Q9=0)$
Q9	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$

Appendix C - List of Bay Types

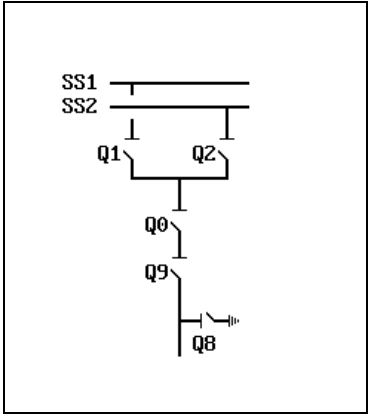
(continued)

Bay Type No. 111 (A23.207.R01)

Feeder bay with switch disconnecter, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/
Q2 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/
Q9 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/
Q8 (DEV05)	Open	U 2I	/
	Close(d)	U 2J	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(Q9=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(Q9=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

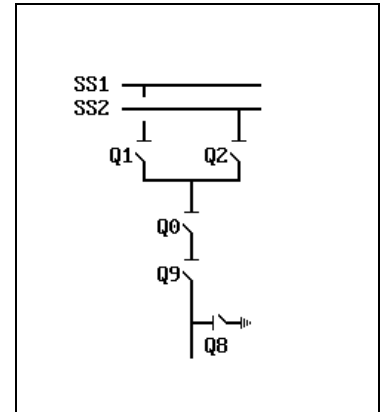
(continued)

Bay Type No. 112 (A23.207.R04)

Feeder bay with switch disconnecter, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q2 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q9 (DEV04)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Q8 (DEV05)	Open	U 2I	/
	Close(d)	U 2J	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(Q9=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q2=0)$
Q2	Open	$(Q0=0) \ \& \ (Q1=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0)$
Q9	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(Q9=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q9	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$

Appendix C - List of Bay Types

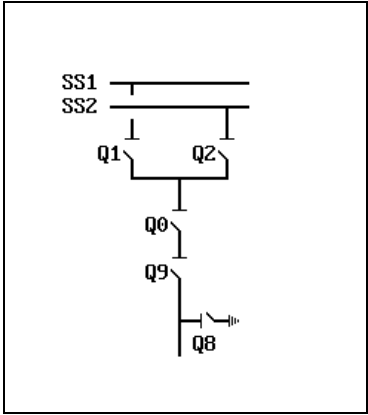
(continued)

Bay Type No. 113 (A23.207.R05)

Feeder bay with switch disconnector, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q2 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q9 (DEV04)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Q8 (DEV05)	Open	U 2I	K 2I
	Close(d)	U 2J	K 2J



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(Q9=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q2=0)$
Q2	Open	$(Q0=0) \ \& \ (Q1=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0)$
Q8	Close(d)	$(Q9=0)$
Q9	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(Q9=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q8	Close(d)	$(Q9=0)$
Q9	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$

Appendix C - List of Bay Types

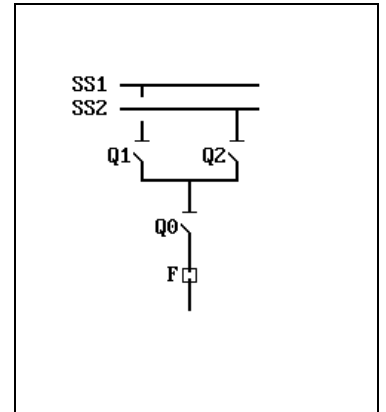
(continued)

Bay Type No. 114 (A23.404.M03)

Feeder bay with switch disconnecter / fuse unit, double busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q2 (DEV03)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
F (SIG_1: Signal S011)		U 2K	/
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q2=0)$
Q2	Open	$(Q0=0) \ \& \ (Q1=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

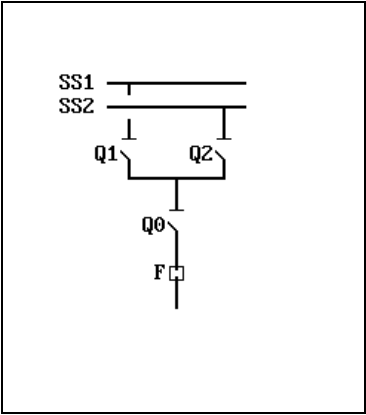
(continued)

Bay Type No. 115 (A23.404.R01)

Feeder bay with switch disconnecter / fuse unit, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/
Q2 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/
F (SIG_1: Signal S011)		U 2K	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

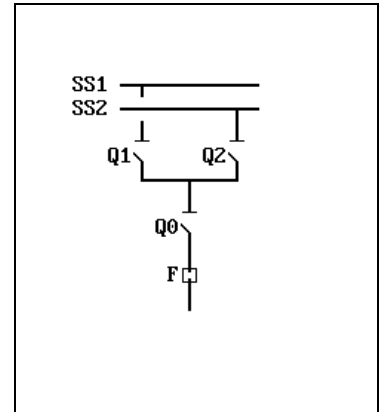
(continued)

Bay Type No. 116 (A23.404.R03)

Feeder bay with switch disconnecter / fuse unit, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q2 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
F (SIG_1: Signal S011)		U 2K	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q2=0)$
Q2	Open	$(Q0=0) \ \& \ (Q1=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

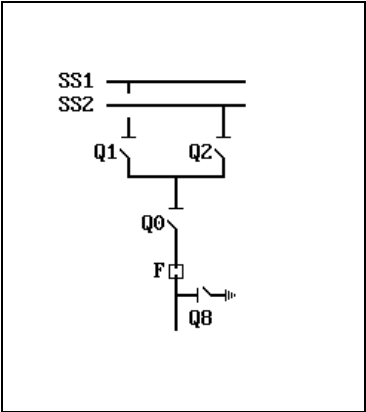
(continued)

Bay Type No. 117 (A23.405.M04)

Feeder bay with switch disconnecter / fuse unit, double busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q2 (DEV03)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Q8 (DEV04)	Open	U 2I	K 2I
	Close(d)	U 2J	K 2J
F (SIG_1: Signal S011)		U 2K	/
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ (Q8=0) \ \& \ \neg(FctB1=I) \ \& \ \neg(FctB12=I)$
Q1	Open	$(Q0=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q2=0) \ \& \ (Q8=0)$
Q2	Open	$(Q0=0) \ \& \ (Q1=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q8=0)$
Q8	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ (Q8=0) \ \& \ \neg(FctB1=I) \ \& \ \neg(FctB12=I)$
Q1	Close(d)	$(Q8=0)$
Q2	Close(d)	$(Q8=0)$
Q8	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$

Appendix C - List of Bay Types

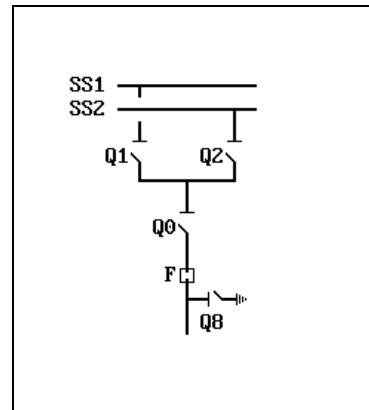
(continued)

Bay Type No. 118 (A23.405.R01)

Feeder bay with switch disconnecter / fuse unit, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/
Q2 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/
Q8 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/
F (SIG_1: Signal S011)		U 2K	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ (Q8=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ (Q8=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

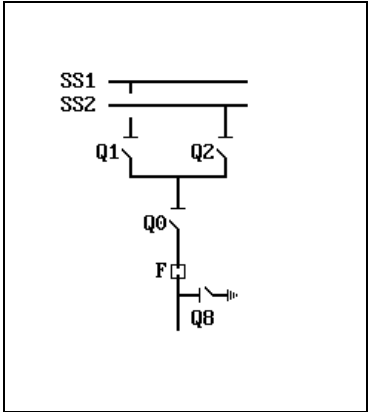
(continued)

Bay Type No. 119 (A23.405.R03)

Feeder bay with switch disconnecter / fuse unit, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q2 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q8 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/
F (SIG_1: Signal S011)		U 2K	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ (Q8=0) \ \& \ \neg(FctB1=I) \ \& \ \neg(FctB2=I)$
Q1	Open	$(Q0=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q2=0) \ \& \ (Q8=0)$
Q2	Open	$(Q0=0) \ \& \ (Q1=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q8=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ (Q8=0) \ \& \ \neg(FctB1=I) \ \& \ \neg(FctB2=I)$
Q1	Close(d)	$(Q8=0)$
Q2	Close(d)	$(Q8=0)$

Appendix C - List of Bay Types

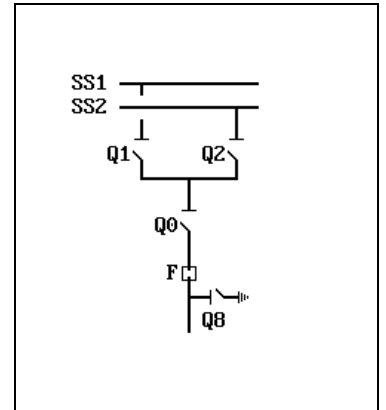
(continued)

Bay Type No. 120 (A23.405.R04)

Feeder bay with switch disconnecter / fuse unit, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q2 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q8 (DEV04)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
F (SIG_1: Signal S011)		U 2K	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ (Q8=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q2=0) \ \& \ (Q8=0)$
Q2	Open	$(Q0=0) \ \& \ (Q1=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q8=0)$
Q8	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg((Q1=X) \ \& \ \neg(Q2=X) \ \& \ (Q8=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I))$
Q1	Close(d)	$(Q8=0)$
Q2	Close(d)	$(Q8=0)$
Q8	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$

Appendix C - List of Bay Types

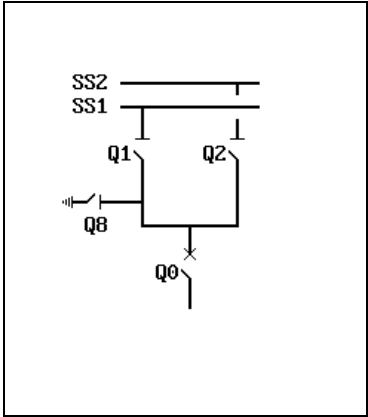
(continued)

Bay Type No. 222 (A25.105.M03.1)

Feeder bay with circuit breaker, double busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q2 (DEV03)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Q8 (DEV04)	Open	U 2I	/
	Close(d)	U 2J	/
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	(Q8=0)
	Close(d)	/((Q1=X) & /(Q2=X) & (Q8=0) & /(FctB11=I) & /(FctB12=I)
Q1	Open	(Q0=0) & (Q2=0)
	Close(d)	(Q0=0) & (Q2=0) & (Q8=0)
Q2	Open	(Q0=0) & (Q1=0)
	Close(d)	(Q0=0) & (Q1=0) & (Q8=0)

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	(Q8=0)
	Close(d)	/((Q1=X) & /(Q2=X) & (Q8=0) & /(FctB11=I) & /(FctB12=I)
Q1	Close(d)	(Q8=0)
Q2	Close(d)	(Q8=0)

Appendix C - List of Bay Types

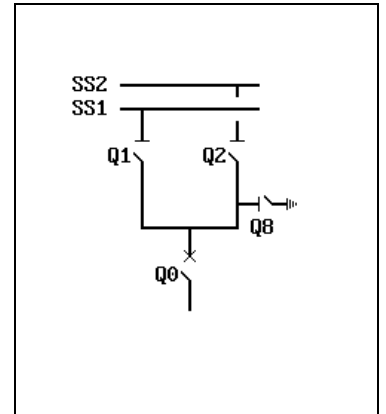
(continued)

Bay Type No. 223 (A25.105.M03.2)

Feeder bay with circuit breaker, double busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q2 (DEV03)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Q8 (DEV04)	Open	U 2I	/
	Close(d)	U 2J	/
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	(Q8=0)
	Close(d)	/(Q1=X) & /(Q2=X) & (Q8=0) & /(FctBl1=I) & /(FctBl2=I)
Q1	Open	(Q0=0) & (Q2=0)
	Close(d)	(Q0=0) & (Q2=0) & (Q8=0)
Q2	Open	(Q0=0) & (Q1=0)
	Close(d)	(Q0=0) & (Q1=0) & (Q8=0)

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	(Q8=0)
	Close(d)	/(Q1=X) & /(Q2=X) & (Q8=0) & /(FctBl1=I) & /(FctBl2=I)
Q1	Close(d)	(Q8=0)
Q2	Close(d)	(Q8=0)

Appendix C - List of Bay Types

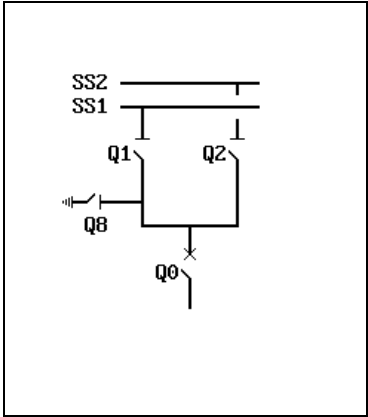
(continued)

Bay Type No. 121 (A25.105.M04.1)

Feeder bay with circuit breaker, double busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q2 (DEV03)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Q8 (DEV04)	Open	U 2I	K 2I
	Close(d)	U 2J	K 2J
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	(Q8=0)
	Close(d)	/((Q1=X) & /(Q2=X) & (Q8=0) & /(FctB11=I) & /(FctB12=I)
Q1	Open	(Q0=0) & (Q2=0)
	Close(d)	(Q0=0) & (Q2=0) & (Q8=0)
Q2	Open	(Q0=0) & (Q1=0)
	Close(d)	(Q0=0) & (Q1=0) & (Q8=0)
Q8	Open	(Q0=I) & (Q1=0) & (Q2=0)
	Close(d)	(Q0=0) & (Q1=0) & (Q2=0) & /(FctB11=I) & /(FctB12=I)

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	(Q8=0)
	Close(d)	/((Q1=X) & /(Q2=X) & (Q8=0) & /(FctB11=I) & /(FctB12=I)
Q1	Close(d)	(Q8=0)
Q2	Close(d)	(Q8=0)
Q8	Open	(Q0=I) & (Q1=0) & (Q2=0)
	Close(d)	(Q0=0) & (Q1=0) & (Q2=0) & /(FctB11=I) & /(FctB12=I)

Appendix C - List of Bay Types

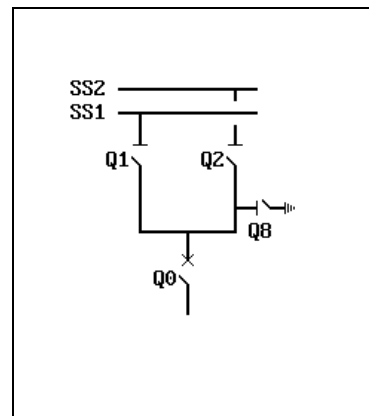
(continued)

Bay Type No. 122 (A25.105.M04.2)

Feeder bay with circuit breaker, double busbar, direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q2 (DEV03)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Q8 (DEV04)	Open	U 2I	K 2I
	Close(d)	U 2J	K 2J
Mot. relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot. relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	$(Q8=0)$
	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ (Q8=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q2=0) \ \& \ (Q8=0)$
Q2	Open	$(Q0=0) \ \& \ (Q1=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q8=0)$
Q8	Open	$(Q0=I) \ \& \ (Q1=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	$(Q8=0)$
	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ (Q8=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Close(d)	$(Q8=0)$
Q2	Close(d)	$(Q8=0)$
Q8	Open	$(Q0=I) \ \& \ (Q1=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

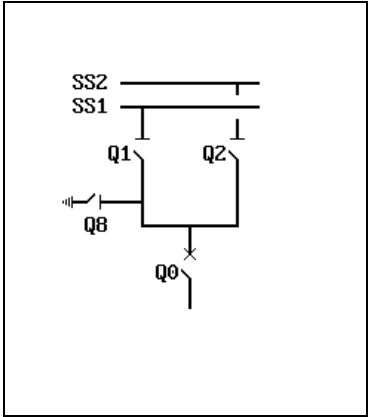
(continued)

Bay Type No. 123 (A25.105.R01.1)

Feeder bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/
Q2 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/
Q8 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	(Q8=0)
	Close(d)	/((Q1=X) & /(Q2=X) & (Q8=0) & /(FctB11=I) & /(FctB12=I)

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	(Q8=0)
	Close(d)	/((Q1=X) & /(Q2=X) & (Q8=0) & /(FctB11=I) & /(FctB12=I)

Appendix C - List of Bay Types

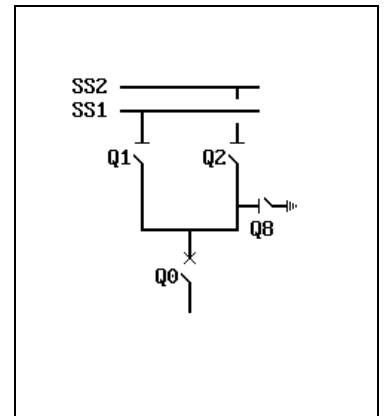
(continued)

Bay Type No. 124 (A25.105.R01.2)

Feeder bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/
Q2 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/
Q8 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	(Q8=0)
	Close(d)	/(Q1=X) & /(Q2=X) & (Q8=0) & /(FctBl1=I) & /(FctBl2=I)

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	(Q8=0)
	Close(d)	/(Q1=X) & /(Q2=X) & (Q8=0) & /(FctBl1=I) & /(FctBl2=I)

Appendix C - List of Bay Types

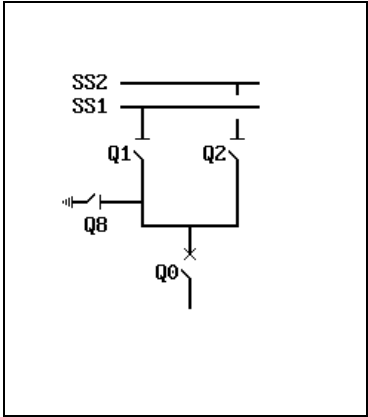
(continued)

Bay Type No. 224 (A25.105.R03.1)

Feeder bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q2 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q8 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	(Q8=0)
	Close(d)	/(Q1=X) & /(Q2=X) & (Q8=0) & /(FctB1=I) & /(FctB12=I)
Q1	Open	(Q0=0) & (Q2=0)
	Close(d)	(Q0=0) & (Q2=0) & (Q8=0)
Q2	Open	(Q0=0) & (Q1=0)
	Close(d)	(Q0=0) & (Q1=0) & (Q8=0)

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	(Q8=0)
	Close(d)	/(Q1=X) & /(Q2=X) & (Q8=0) & /(FctB1=I) & /(FctB12=I)
Q1	Close(d)	(Q8=0)
Q2	Close(d)	(Q8=0)

Appendix C - List of Bay Types

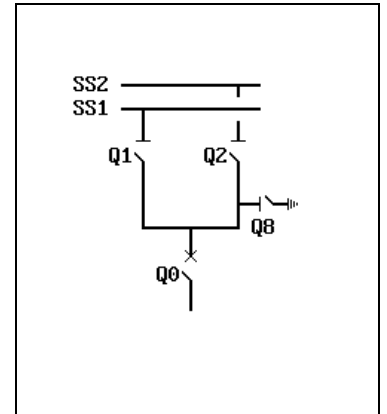
(continued)

Bay Type No. 225 (A25.105.R03.2)

Feeder bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q2 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q8 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	$(Q8=0)$
	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ (Q8=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q2=0) \ \& \ (Q8=0)$
Q2	Open	$(Q0=0) \ \& \ (Q1=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q8=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	$(Q8=0)$
	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ (Q8=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Close(d)	$(Q8=0)$
Q2	Close(d)	$(Q8=0)$

Appendix C - List of Bay Types

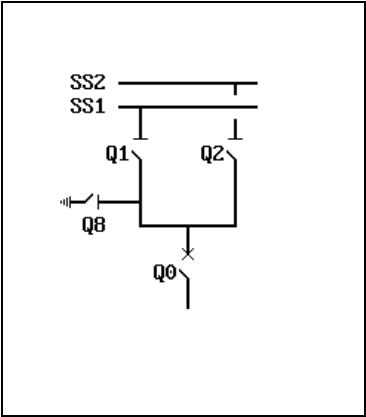
(continued)

Bay Type No. 125 (A25.105.R04.1)

Feeder bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q2 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q8 (DEV04)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	(Q8=0)
	Close(d)	/((Q1=X) & /(Q2=X) & (Q8=0) & /(FctB11=I) & /(FctB12=I)
Q1	Open	(Q0=0) & (Q2=0)
	Close(d)	(Q0=0) & (Q2=0) & (Q8=0)
Q2	Open	(Q0=0) & (Q1=0)
	Close(d)	(Q0=0) & (Q1=0) & (Q8=0)
Q8	Open	(Q0=I) & (Q1=0) & (Q2=0)
	Close(d)	(Q0=0) & (Q1=0) & (Q2=0) & /(FctB11=I) & /(FctB12=I)

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	(Q8=0)
	Close(d)	/((Q1=X) & /(Q2=X) & (Q8=0) & /(FctB11=I) & /(FctB12=I)
Q1	Close(d)	(Q8=0)
Q2	Close(d)	(Q8=0)
Q8	Open	(Q0=I) & (Q1=0) & (Q2=0)
	Close(d)	(Q0=0) & (Q1=0) & (Q2=0) & /(FctB11=I) & /(FctB12=I)

Appendix C - List of Bay Types

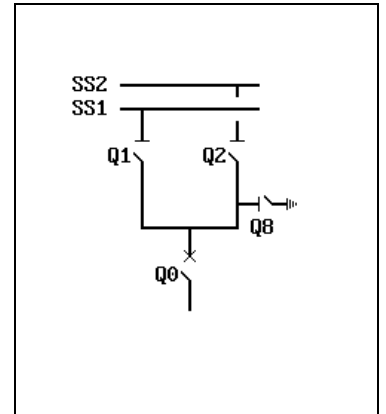
(continued)

Bay Type No. 126 (A25.105.R04.2)

Feeder bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q2 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q8 (DEV04)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	$(Q8=0)$
	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ (Q8=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q2=0) \ \& \ (Q8=0)$
Q2	Open	$(Q0=0) \ \& \ (Q1=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q8=0)$
Q8	Open	$(Q0=I) \ \& \ (Q1=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	$(Q8=0)$
	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ (Q8=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Close(d)	$(Q8=0)$
Q2	Close(d)	$(Q8=0)$
Q8	Open	$(Q0=I) \ \& \ (Q1=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

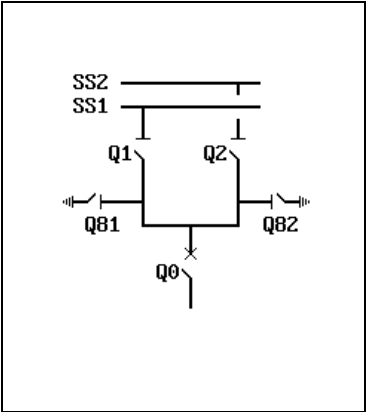
(continued)

Bay Type No. 127 (A25.128.R01)

Feeder bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/
Q2 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/
Q81 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/
Q82 (DEV05)	Open	U 2I	/
	Close(d)	U 2J	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	(Q81=0) & (Q82=0)
	Close(d)	/(Q1=X) & /(Q2=X) & (Q81=0) & (Q82=0) & /(FctB11=I) & /(FctB12=I)

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	(Q81=0) & (Q82=0)
	Close(d)	/(Q1=X) & /(Q2=X) & (Q81=0) & (Q82=0) & /(FctB11=I) & /(FctB12=I)

Appendix C - List of Bay Types

(continued)

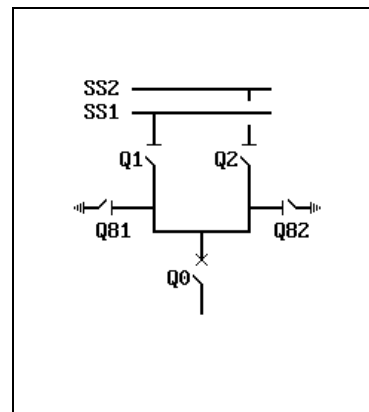
Bay Type No. 128

(A25.128.R05)

Feeder bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q2 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q81 (DEV04)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Q82 (DEV05)	Open	U 2I	K 2I
	Close(d)	U 2J	K 2J



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	$(Q81=0) \ \& \ (Q82=0)$
	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ (Q81=0) \ \& \ (Q82=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q2=0) \ \& \ (Q81=0) \ \& \ (Q82=0)$
Q2	Open	$(Q0=0) \ \& \ (Q1=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q81=0) \ \& \ (Q82=0)$
Q81	Open	$(Q0=I) \ \& \ (Q1=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q82	Open	$(Q0=I) \ \& \ (Q1=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	$(Q81=0) \ \& \ (Q82=0)$
	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ (Q81=0) \ \& \ (Q82=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Close(d)	$(Q81=0) \ \& \ (Q82=0)$
Q2	Close(d)	$(Q81=0) \ \& \ (Q82=0)$
Q81	Open	$(Q0=I) \ \& \ (Q1=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q82	Open	$(Q0=I) \ \& \ (Q1=0) \ \& \ (Q2=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

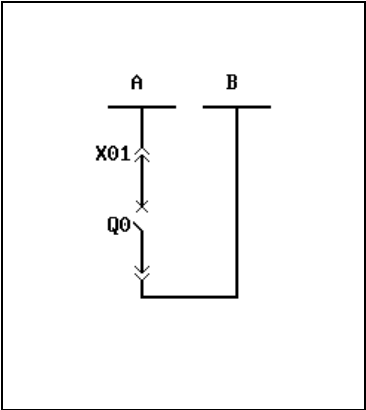
(continued)

Bay Type No. 133 (L11.100.R01)

Bus sectionalizer bay with circuit breaker, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
X01 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X01=X) \ \& \ \neg(FctB11=I) \ \& \ \neg(FctB12=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X01=X) \ \& \ \neg(FctB11=I) \ \& \ \neg(FctB12=I)$

Appendix C - List of Bay Types

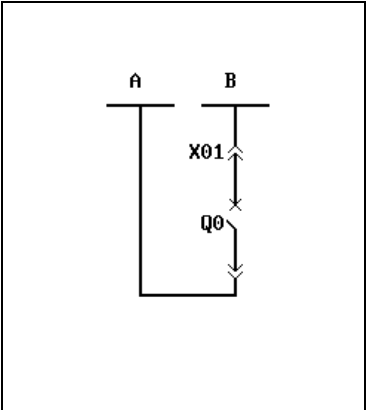
(continued)

Bay Type No. 553 (L11.100.R01.2)

Bus sectionalizer bay with circuit breaker, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
X01 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X01=X) \ \& \ \neg(FctB11=I) \ \& \ \neg(FctB12=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X01=X) \ \& \ \neg(FctB11=I) \ \& \ \neg(FctB12=I)$

Appendix C - List of Bay Types

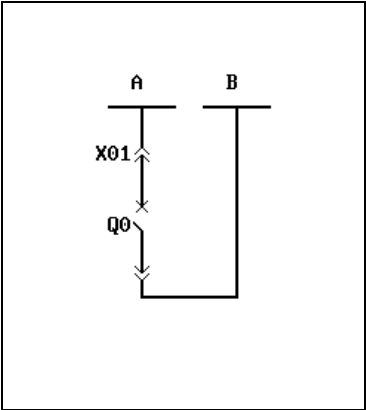
(continued)

Bay Type No. 134 (L11.100.R02)

Bus sectionalizer bay with circuit breaker, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
X01 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg (X01=X) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$
X01	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg (X01=X) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$
X01	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$

Appendix C - List of Bay Types

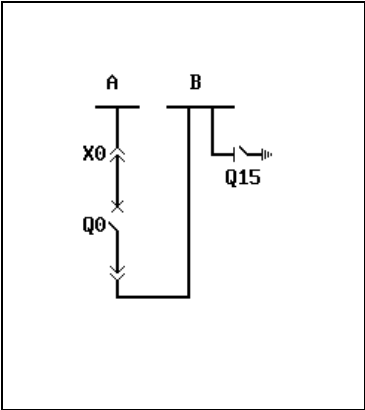
(continued)

Bay Type No. 528 (L11.102.R01)

Bus sectionalizer bay with circuit breaker, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
X0 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/
Q15 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X0=X) \ \& \ (Q15=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X0=X) \ \& \ (Q15=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

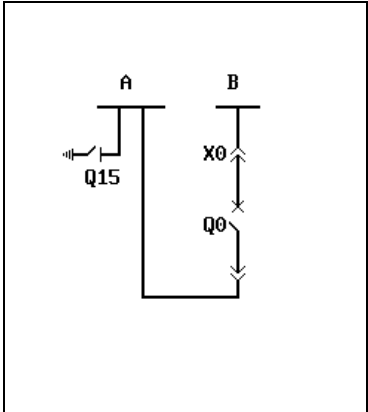
(continued)

Bay Type No. 542 (L11.102.R01.2)

Bus sectionalizer bay with circuit breaker, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
X0 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/
Q15 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X0=X) \ \& \ (Q15=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X0=X) \ \& \ (Q15=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

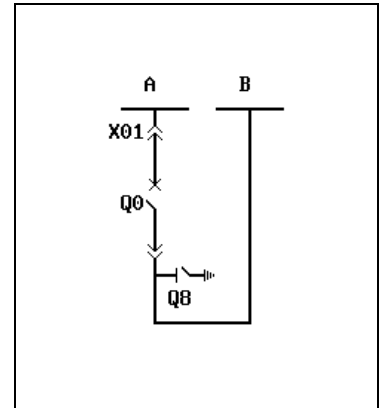
(continued)

Bay Type No. 135 (L11.104.R01)

Bus sectionalizer bay with circuit breaker, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
X01 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/
Q8 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X01=X) \ \& \ \neg(FctB11=I) \ \& \ \neg(FctB12=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X01=X) \ \& \ \neg(FctB11=I) \ \& \ \neg(FctB12=I)$

Appendix C - List of Bay Types

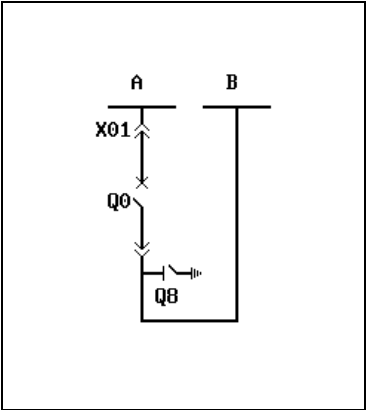
(continued)

Bay Type No. 136 (L11.104.R02)

Bus sectionalizer bay with circuit breaker, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
X01 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q8 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X01=X) \ \& \ \neg(FctB11=I) \ \& \ \neg(FctB12=I)$
X01	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X01=X) \ \& \ \neg(FctB11=I) \ \& \ \neg(FctB12=I)$
X01	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$

Appendix C - List of Bay Types

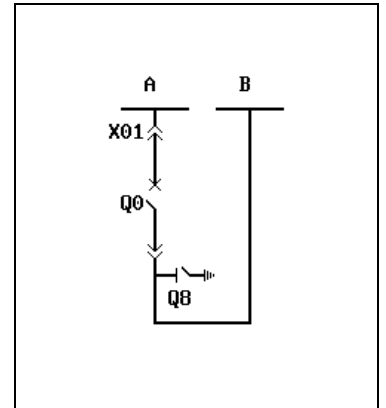
(continued)

Bay Type No. 137 (L11.104.R03)

Bus sectionalizer bay with circuit breaker, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
X01 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q8 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X01=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q8	Close(d)	$(X01=0) \ \& \ (Q8=I)$
X01	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X01=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q8	Close(d)	$(X01=0)$
X01	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$

Appendix C - List of Bay Types

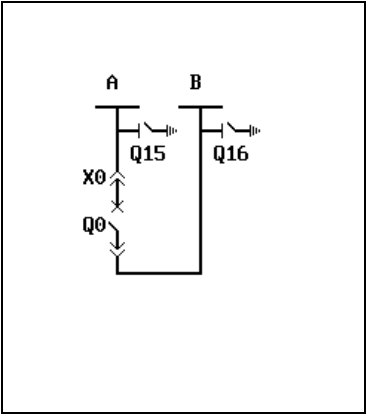
(continued)

Bay Type No. 547 (L11.112.M04)

Bus sectionalizer bay with circuit breaker, single busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
X0 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q15 (DEV03)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Q16 (DEV04)	Open	U 2I	K 2I
	Close(d)	U 2J	K 2J
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg (X0=X) \ \& \ (Q15=0) \ \& \ (Q16=0) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$
Q15	Close(d)	$(Q15=I)$
Q16	Close(d)	$(Q16=I)$
X0	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q15=0) \ \& \ (Q16=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg (X0=X) \ \& \ (Q15=0) \ \& \ (Q16=0) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$
X0	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q15=0) \ \& \ (Q16=0)$

Appendix C - List of Bay Types

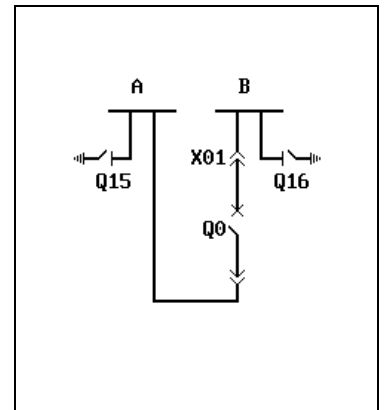
(continued)

Bay Type No. 564 (L11.112.R01.2)

Bus sectionalizer bay with circuit breaker, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
X01 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/
Q15 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/
Q16 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X01=X) \ \& \ (Q15=0) \ \& \ (Q16=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X01=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

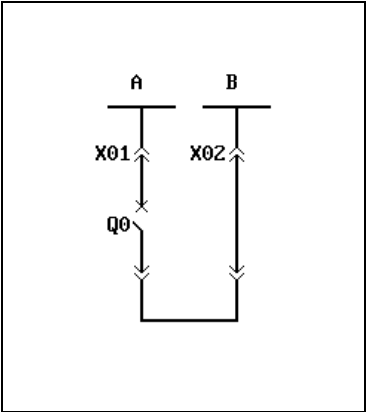
(continued)

Bay Type No. 138 (L11.116.R01)

Bus sectionalizer bay with circuit breaker, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
X01 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/
X02 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X01=X) \ \& \ \neg(X02=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X01=X) \ \& \ \neg(X02=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

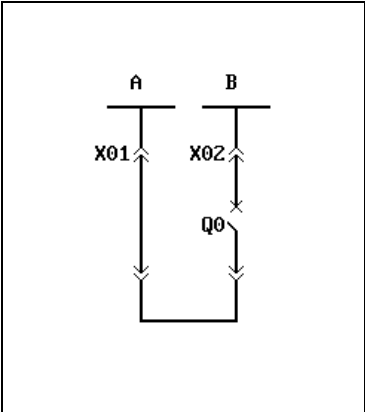
(continued)

Bay Type No. 545 (L11.116.R01.2)

Bus sectionalizer bay with circuit breaker, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
X01 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/
X02 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X01=X) \ \& \ \neg(X02=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X01=X) \ \& \ \neg(X02=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

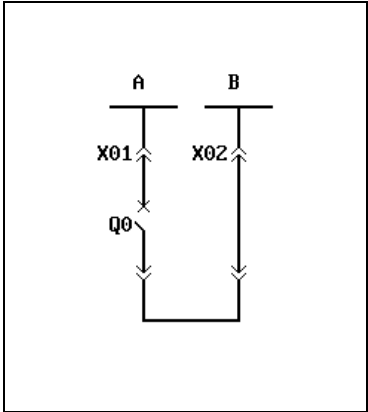
(continued)

Bay Type No. 139 (L11.116.R03)

Bus sectionalizer bay with circuit breaker, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
X01 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
X02 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg (X01=X) \ \& \ \neg (X02=X) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$
X01	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$
X02	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg (X01=X) \ \& \ \neg (X02=X) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$
X01	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$
X02	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$

Appendix C - List of Bay Types

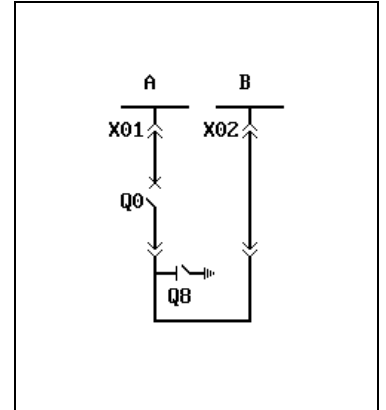
(continued)

Bay Type No. 548 (L11.120.M03)

Bus sectionalizer bay with circuit breaker, single busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q8 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
X01 (DEV03)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
X02 (DEV04)	Open	U 2I	/
	Close(d)	U 2J	/
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X01=X) \ \& \ \neg(X02=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q8	Close(d)	$(X01=0) \ \& \ (X02=0)$
X01	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X01=X) \ \& \ \neg(X02=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q8	Close(d)	$(X01=0) \ \& \ (X02=0)$
X01	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$

Appendix C - List of Bay Types

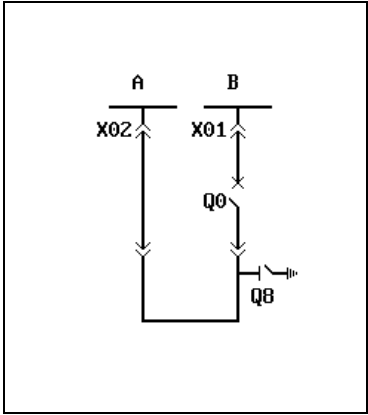
(continued)

Bay Type No. 552 (L11.120.M03.2)

Bus sectionalizer bay with circuit breaker, single busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q8 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
X01 (DEV03)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
X02 (DEV04)	Open	U 2I	/
	Close(d)	U 2J	/
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg (X01=X) \ \& \ \neg (X02=X) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$
Q8	Close(d)	$(X01=0) \ \& \ (X02=0)$
X01	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg (X01=X) \ \& \ \neg (X02=X) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$
Q8	Close(d)	$(X01=0) \ \& \ (X02=0)$
X01	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$

Appendix C - List of Bay Types

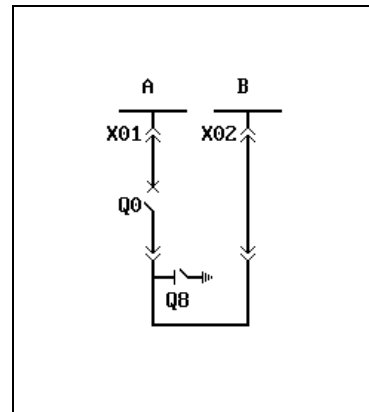
(continued)

Bay Type No. 140 (L11.120.R01)

Bus sectionalizer bay with circuit breaker, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
X01 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/
X02 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/
Q8 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X01=X) \ \& \ \neg(X02=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X01=X) \ \& \ \neg(X02=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

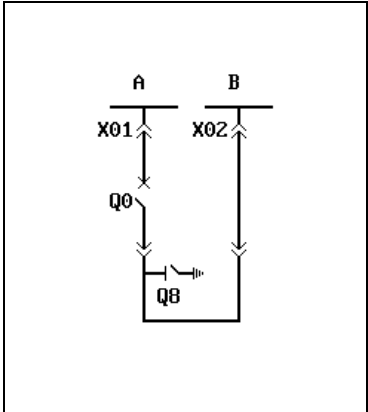
(continued)

Bay Type No. 543 (L11.120.R03)

Bus sectionalizer bay with circuit breaker, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
X01 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
X02 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/
Q8 (DEV04)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg (X01=X) \ \& \ \neg (X02=X) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$
Q8	Close(d)	$(X01=0) \ \& \ (X02=0)$
X01	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg (X01=X) \ \& \ \neg (X02=X) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$
Q8	Close(d)	$(X01=0) \ \& \ (X02=0)$
X01	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$

Appendix C - List of Bay Types

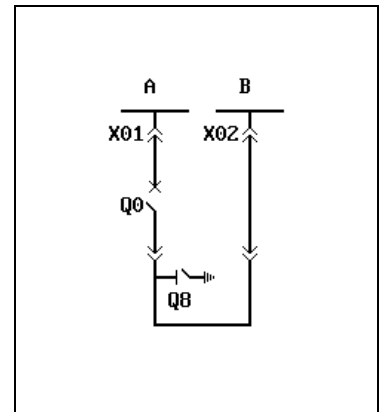
(continued)

Bay Type No. 141 (L11.120.R03)

Bus sectionalizer bay with circuit breaker, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
X01 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
X02 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q8 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X01=X) \ \& \ \neg(X02=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
X01	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$
X02	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X01=X) \ \& \ \neg(X02=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
X01	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$
X02	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$

Appendix C - List of Bay Types

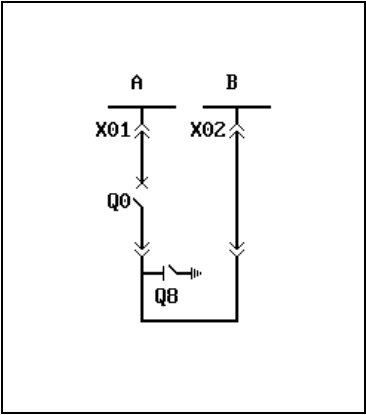
(continued)

Bay Type No. 142 (L11.120.R04)

Bus sectionalizer bay with circuit breaker, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
X01 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
X02 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q8 (DEV04)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg (X01=X) \ \& \ \neg (X02=X) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$
Q8	Close(d)	$(X01=0) \ \& \ (X02=0)$
X01	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$
X02	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg (X01=X) \ \& \ \neg (X02=X) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$
Q8	Close(d)	$(X01=0) \ \& \ (X02=0)$
X01	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$
X02	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$

Appendix C - List of Bay Types

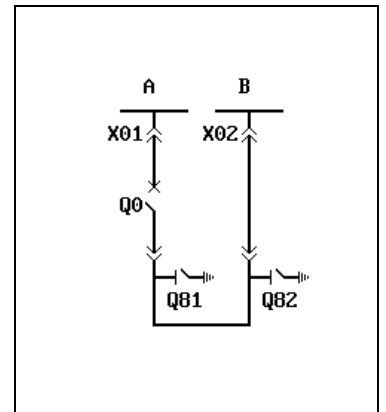
(continued)

Bay Type No. 558 (L11.128.R01)

Bus sectionalizer bay with circuit breaker, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
X01 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/
X02 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/
Q81 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/
Q82 (DEV05)	Open	U 2I	/
	Close(d)	U 2J	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X01=X) \ \& \ \neg(X02=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X01=X) \ \& \ \neg(X02=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

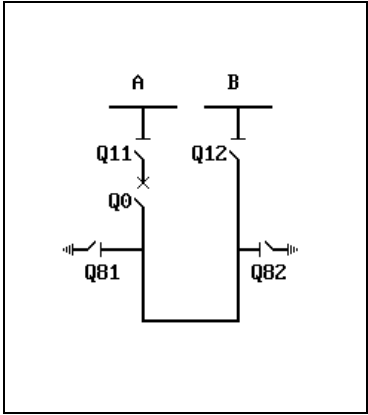
(continued)

Bay Type No. 143 (L13.113.M03)

Bus sectionalizer bay with circuit breaker, single busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q11 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q12 (DEV03)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Q81 (DEV04)	Open	U 2I	/
	Close(d)	U 2J	/
Q82 (DEV05)	Open	U 2K	/
	Close(d)	U 2L	/
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q11=X) \wedge \neg(Q12=X) \wedge (Q81=0) \wedge (Q82=0) \wedge \neg(FctBl1=I) \wedge \neg(FctBl2=I)$
Q11	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \wedge (Q81=0) \wedge (Q82=0)$
Q12	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \wedge (Q81=0) \wedge (Q82=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q11=X) \wedge \neg(Q12=X) \wedge (Q81=0) \wedge (Q82=0) \wedge \neg(FctBl1=I) \wedge \neg(FctBl2=I)$
Q11	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \wedge (Q81=0) \wedge (Q82=0)$
Q12	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \wedge (Q81=0) \wedge (Q82=0)$

Appendix C - List of Bay Types

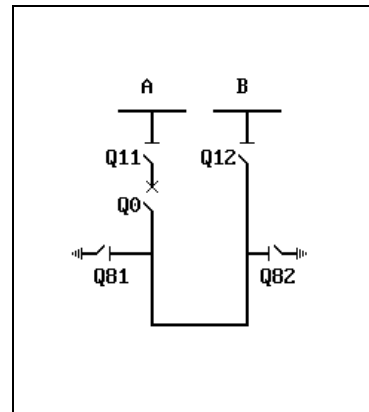
(continued)

Bay Type No. 144 (L13.113.M05)

Bus sectionalizer bay with circuit breaker, single busbar, direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q11 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q12 (DEV03)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Q81 (DEV04)	Open	U 2I	K 2I
	Close(d)	U 2J	K 2J
Q82 (DEV05)	Open	U 2K	K 2K
	Close(d)	U 2L	K 2L
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q11=X) \ \& \ \neg(Q12=X) \ \& \ (Q81=0) \ \& \ (Q82=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q11	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q81=0) \ \& \ (Q82=0)$
Q12	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q81=0) \ \& \ (Q82=0)$
Q81	Close(d)	$(Q0=0) \ \& \ (Q11=0) \ \& \ (Q12=0)$
Q82	Close(d)	$(Q0=0) \ \& \ (Q11=0) \ \& \ (Q12=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q11=X) \ \& \ \neg(Q12=X) \ \& \ (Q81=0) \ \& \ (Q82=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q11	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q81=0) \ \& \ (Q82=0)$
Q12	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q81=0) \ \& \ (Q82=0)$
Q81	Close(d)	$(Q0=0) \ \& \ (Q11=0) \ \& \ (Q12=0)$
Q82	Close(d)	$(Q0=0) \ \& \ (Q11=0) \ \& \ (Q12=0)$

Appendix C - List of Bay Types

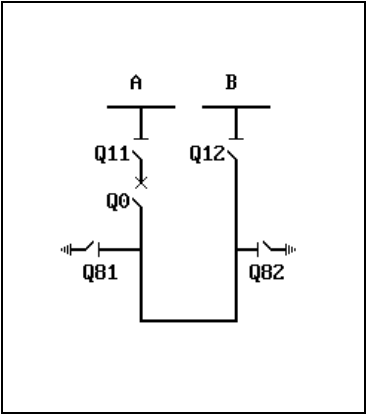
(continued)

Bay Type No. 145 (L13.113.R01)

Bus sectionalizer bay with circuit breaker, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q11 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/
Q12 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/
Q81 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/
Q82 (DEV05)	Open	U 2I	/
	Close(d)	U 2J	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q11=X) \ \& \ \neg(Q12=X) \ \& \ (Q81=0) \ \& \ (Q82=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q11=X) \ \& \ \neg(Q12=X) \ \& \ (Q81=0) \ \& \ (Q82=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

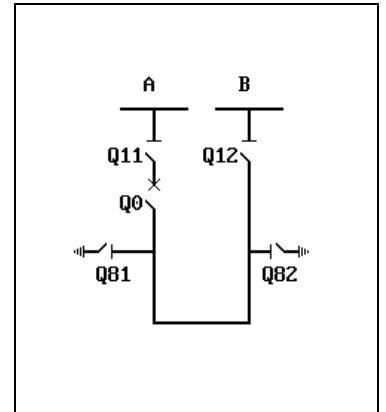
(continued)

Bay Type No. 146 (L13.113.R03)

Bus sectionalizer bay with circuit breaker, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q11 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q12 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q81 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/
Q82 (DEV05)	Open	U 2I	/
	Close(d)	U 2J	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q11=X) \ \& \ \neg(Q12=X) \ \& \ (Q81=0) \ \& \ (Q82=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q11	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q81=0) \ \& \ (Q82=0)$
Q12	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q81=0) \ \& \ (Q82=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q11=X) \ \& \ \neg(Q12=X) \ \& \ (Q81=0) \ \& \ (Q82=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q11	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q81=0) \ \& \ (Q82=0)$
Q12	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q81=0) \ \& \ (Q82=0)$

Appendix C - List of Bay Types

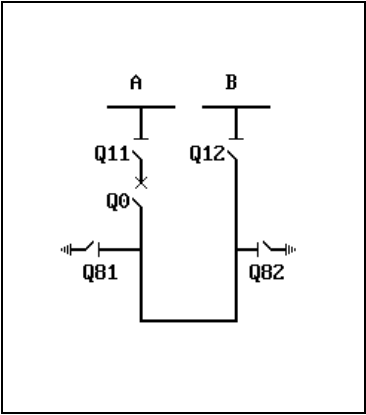
(continued)

Bay Type No. 517 (L13.113.R03.2)

Bus sectionalizer bay with circuit breaker, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q11 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q12 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/
Q81 (DEV04)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Q82 (DEV05)	Open	U 2I	/
	Close(d)	U 2J	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q11=X) \wedge \neg(Q12=X) \wedge (Q81=0) \wedge (Q82=0) \wedge \neg(FctBl1=I) \wedge \neg(FctBl2=I)$
Q11	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \wedge (Q81=0) \wedge (Q82=0)$
Q81	Close(d)	$(Q0=0) \wedge (Q11=0) \wedge (Q12=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q11=X) \wedge \neg(Q12=X) \wedge (Q81=0) \wedge (Q82=0) \wedge \neg(FctBl1=I) \wedge \neg(FctBl2=I)$
Q11	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \wedge (Q81=0) \wedge (Q82=0)$
Q81	Close(d)	$(Q0=0) \wedge (Q11=0) \wedge (Q12=0)$

Appendix C - List of Bay Types

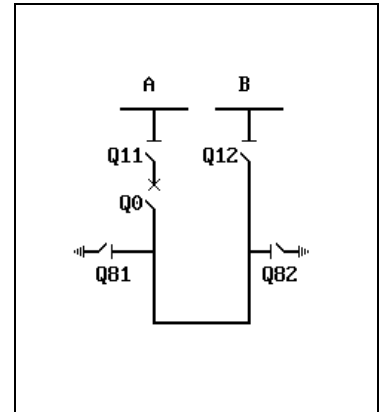
(continued)

Bay Type No. 147 (L13.113.R05)

Bus sectionalizer bay with circuit breaker, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q11 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q12 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q81 (DEV04)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Q82 (DEV05)	Open	U 2I	K 2I
	Close(d)	U 2J	K 2J



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q11=X) \ \& \ \neg(Q12=X) \ \& \ (Q81=0) \ \& \ (Q82=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q11	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q81=0) \ \& \ (Q82=0)$
Q12	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q81=0) \ \& \ (Q82=0)$
Q81	Close(d)	$(Q0=0) \ \& \ (Q11=0) \ \& \ (Q12=0)$
Q82	Close(d)	$(Q0=0) \ \& \ (Q11=0) \ \& \ (Q12=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q11=X) \ \& \ \neg(Q12=X) \ \& \ (Q81=0) \ \& \ (Q82=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q11	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q81=0) \ \& \ (Q82=0)$
Q12	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q81=0) \ \& \ (Q82=0)$
Q81	Close(d)	$(Q0=0) \ \& \ (Q11=0) \ \& \ (Q12=0)$
Q82	Close(d)	$(Q0=0) \ \& \ (Q11=0) \ \& \ (Q12=0)$

Appendix C - List of Bay Types

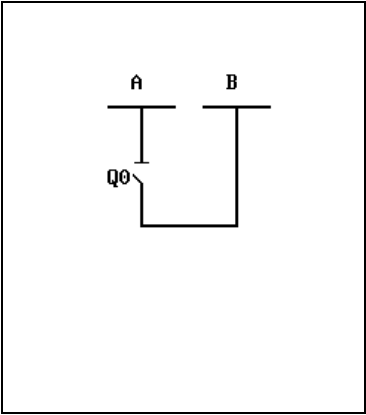
(continued)

Bay Type No. 148 (L13.200.R01)

Bus sectionalizer bay with switch disconnecter, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open Close(d)	U 2A U 2B	K 2A K 2B



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Appendix C - List of Bay Types

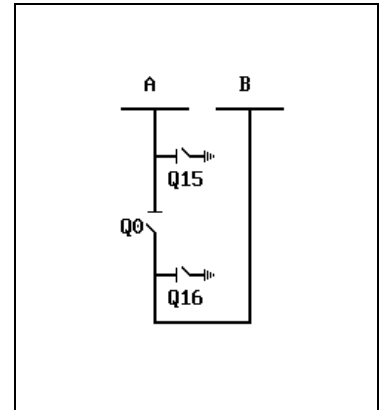
(continued)

Bay Type No. 149 (L13.202.R01)

Bus sectionalizer bay with switch disconnector, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q15 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/
Q16 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$(Q15=0) \ \& \ (Q16=0) \ \& \ /(FctBl1=I) \ \& \ /(FctBl2=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$(Q15=0) \ \& \ (Q16=0) \ \& \ /(FctBl1=I) \ \& \ /(FctBl2=I)$

Appendix C - List of Bay Types

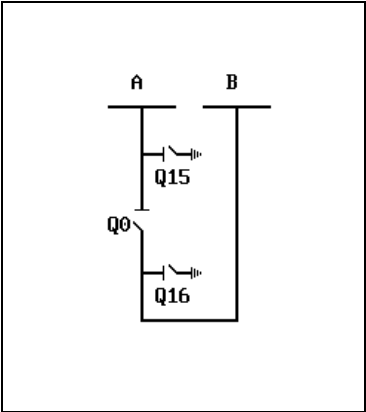
(continued)

Bay Type No. 150 (L13.202.R03)

Bus sectionalizer bay with switch disconnecter, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q15 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q16 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$(Q15=0) \ \& \ (Q16=0) \ \& \ /(FctBl1=I) \ \& \ /(FctBl2=I)$
Q15	Close(d)	$(Q0=0) \ \& \ (Q15=I)$
Q16	Close(d)	$(Q0=0) \ \& \ (Q16=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$(Q15=0) \ \& \ (Q16=0) \ \& \ /(FctBl1=I) \ \& \ /(FctBl2=I)$
Q15	Close(d)	$(Q0=0)$
Q16	Close(d)	$(Q0=0)$

Appendix C - List of Bay Types

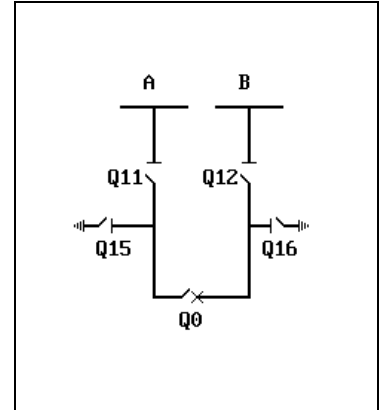
(continued)

Bay Type No. 226 (L15.113.M03)

Bus sectionalizer bay with circuit breaker, single busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q11 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q12 (DEV03)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Q15 (DEV04)	Open	U 2I	/
	Close(d)	U 2J	/
Q16 (DEV05)	Open	U 2K	/
	Close(d)	U 2L	/
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	$(Q15=0) \ \& \ (Q16=0)$
	Close(d)	$\neg(Q11=X) \ \& \ \neg(Q12=X) \ \& \ (Q15=0) \ \& \ (Q16=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q11	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q15=0)$
Q12	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q16=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	$(Q15=0) \ \& \ (Q16=0)$
	Close(d)	$\neg(Q11=X) \ \& \ \neg(Q12=X) \ \& \ (Q15=0) \ \& \ (Q16=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q11	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q15=0)$
Q12	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q16=0)$

Appendix C - List of Bay Types

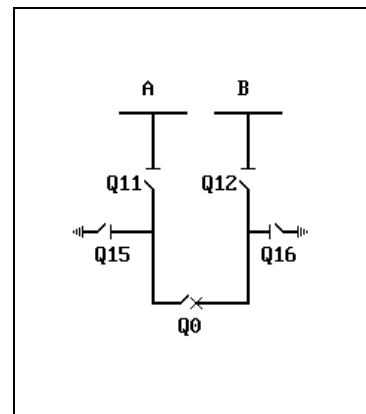
(continued)

Bay Type No. 151 (L15.113.M05)

Bus sectionalizer bay with circuit breaker, single busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q11 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q12 (DEV03)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Q15 (DEV04)	Open	U 2I	K 2I
	Close(d)	U 2J	K 2J
Q16 (DEV05)	Open	U 2K	K 2K
	Close(d)	U 2L	K 2L
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	$(Q15=0) \ \& \ (Q16=0)$
	Close(d)	$\neg(Q11=X) \ \& \ \neg(Q12=X) \ \& \ (Q15=0) \ \& \ (Q16=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q11	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q15=0)$
Q12	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q16=0)$
Q15	Open	$(Q0=I) \ \& \ (Q12=I)$
	Close(d)	$(Q0=0) \ \& \ (Q11=0) \ \& \ (Q12=I) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I) \ \& \ (Q15=I)$
Q16	Open	$(Q0=I) \ \& \ (Q11=I)$
	Close(d)	$(Q0=0) \ \& \ (Q12=0) \ \& \ (Q11=I) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I) \ \& \ (Q16=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	$(Q15=0) \ \& \ (Q16=0)$
	Close(d)	$\neg(Q11=X) \ \& \ \neg(Q12=X) \ \& \ (Q15=0) \ \& \ (Q16=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q11	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q15=0)$
Q12	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q16=0)$
Q15	Open	$(Q0=I) \ \& \ (Q12=I)$
	Close(d)	$(Q0=0) \ \& \ (Q11=0) \ \& \ (Q12=I) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q16	Open	$(Q0=I) \ \& \ (Q11=I)$
	Close(d)	$(Q0=0) \ \& \ (Q12=0) \ \& \ (Q11=I) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

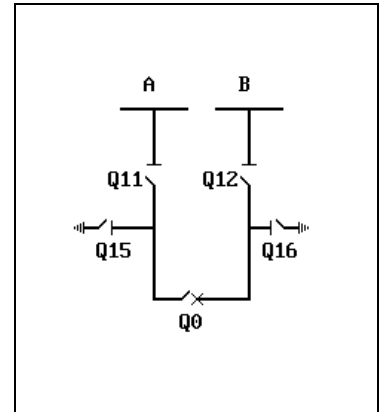
(continued)

Bay Type No. 152 (L15.113.R01)

Bus sectionalizer bay with circuit breaker, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q11 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/
Q12 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/
Q15 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/
Q16 (DEV05)	Open	U 2I	/
	Close(d)	U 2J	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	$(Q15=0) \ \& \ (Q16=0)$
	Close(d)	$\neg(Q11=X) \ \& \ \neg(Q12=X) \ \& \ (Q15=0) \ \& \ (Q16=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	$(Q15=0) \ \& \ (Q16=0)$
	Close(d)	$\neg(Q11=X) \ \& \ \neg(Q12=X) \ \& \ (Q15=0) \ \& \ (Q16=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

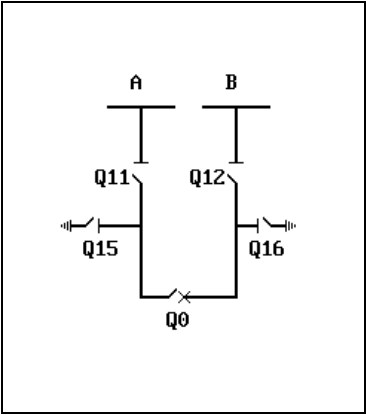
(continued)

Bay Type No. 227 (L15.113.R03)

Bus sectionalizer bay with circuit breaker, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q11 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q12 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q15 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/
Q16 (DEV05)	Open	U 2I	/
	Close(d)	U 2J	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	(Q15=0) & (Q16=0)
	Close(d)	/((Q11=X) & /(Q12=X) & (Q15=0) & (Q16=0) & /(FctBl1=I) & /(FctBl2=I)
Q11	Open	(Q0=0)
	Close(d)	(Q0=0) & (Q15=0)
Q12	Open	(Q0=0)
	Close(d)	(Q0=0) & (Q16=0)

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	(Q15=0) & (Q16=0)
	Close(d)	/((Q11=X) & /(Q12=X) & (Q15=0) & (Q16=0) & /(FctBl1=I) & /(FctBl2=I)
Q11	Open	(Q0=0)
	Close(d)	(Q0=0) & (Q15=0)
Q12	Open	(Q0=0)
	Close(d)	(Q0=0) & (Q16=0)

Appendix C - List of Bay Types

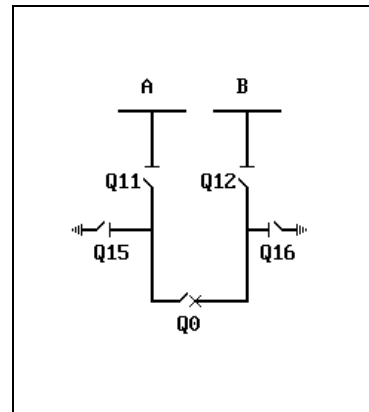
(continued)

Bay Type No. 153 (L15.113.R05)

Bus sectionalizer bay with circuit breaker, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q11 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q12 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q15 (DEV04)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Q16 (DEV05)	Open	U 2I	K 2I
	Close(d)	U 2J	K 2J



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	$(Q15=0) \ \& \ (Q16=0)$
	Close(d)	$\neg(Q11=X) \ \& \ \neg(Q12=X) \ \& \ (Q15=0) \ \& \ (Q16=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q11	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q15=0)$
Q12	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q16=0)$
Q15	Open	$(Q0=I) \ \& \ (Q12=I)$
	Close(d)	$(Q0=0) \ \& \ (Q11=0) \ \& \ (Q12=I) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I) \ \& \ (Q15=I)$
Q16	Open	$(Q0=I) \ \& \ (Q11=I)$
	Close(d)	$(Q0=0) \ \& \ (Q12=0) \ \& \ (Q11=I) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I) \ \& \ (Q16=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	$(Q15=0) \ \& \ (Q16=0)$
	Close(d)	$\neg(Q11=X) \ \& \ \neg(Q12=X) \ \& \ (Q15=0) \ \& \ (Q16=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q11	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q15=0)$
Q12	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q16=0)$
Q15	Open	$(Q0=I) \ \& \ (Q12=I)$
	Close(d)	$(Q0=0) \ \& \ (Q11=0) \ \& \ (Q12=I) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q16	Open	$(Q0=I) \ \& \ (Q11=I)$
	Close(d)	$(Q0=0) \ \& \ (Q12=0) \ \& \ (Q11=I) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

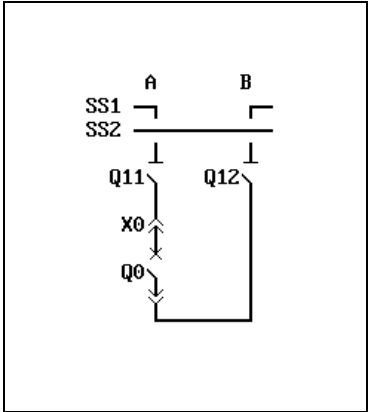
(continued)

Bay Type No. 154 (L21.101.M04.1)

Bus sectionalizer bay with circuit breaker, double busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q11 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q12 (DEV03)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
X0 (DEV04)	Open	U 2I	K 2I
	Close(d)	U 2J	K 2J
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q11=X) \ \& \ \neg(Q12=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q11	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$
Q12	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$
X0	Open	$(Q0=0) \ \& \ (Q11=0) \ \& \ (Q12=0)$
	Close(d)	$(Q0=0) \ \& \ (Q11=0) \ \& \ (Q12=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q11=X) \ \& \ \neg(Q12=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q11	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$
Q12	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$
X0	Open	$(Q0=0) \ \& \ (Q11=0) \ \& \ (Q12=0)$
	Close(d)	$(Q0=0) \ \& \ (Q11=0) \ \& \ (Q12=0)$

Appendix C - List of Bay Types

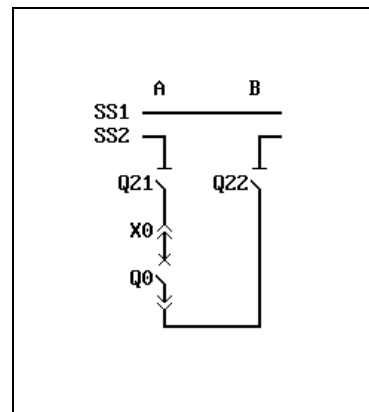
(continued)

Bay Type No. 155 (L21.101.M04.2)

Bus sectionalizer bay with circuit breaker, double busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q21 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q22 (DEV03)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
X0 (DEV04)	Open	U 2I	K 2I
	Close(d)	U 2J	K 2J
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q21=X) \ \& \ \neg(Q22=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q21	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$
Q22	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$
X0	Open	$(Q0=0) \ \& \ (Q21=0) \ \& \ (Q22=0)$
	Close(d)	$(Q0=0) \ \& \ (Q21=0) \ \& \ (Q22=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q21=X) \ \& \ \neg(Q22=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q21	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$
Q22	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$
X0	Open	$(Q0=0) \ \& \ (Q21=0) \ \& \ (Q22=0)$
	Close(d)	$(Q0=0) \ \& \ (Q21=0) \ \& \ (Q22=0)$

Appendix C - List of Bay Types

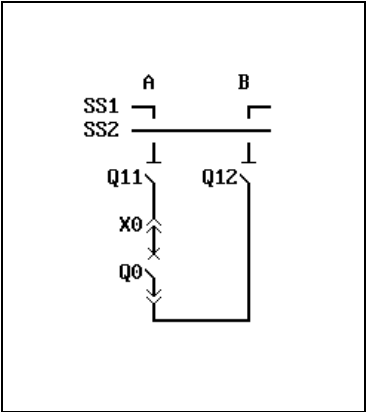
(continued)

Bay Type No. 156 (L21.101.R01.1)

Bus sectionalizer bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q11 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/
Q12 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/
X0 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q11=X) \ \& \ \neg(Q12=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q11=X) \ \& \ \neg(Q12=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

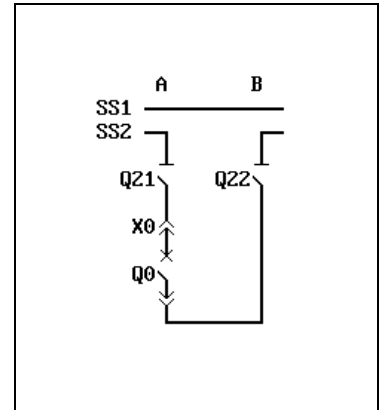
(continued)

Bay Type No. 157 (L21.101.R01.2)

Bus sectionalizer bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q21 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/
Q22 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/
X0 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q21=X) \ \& \ \neg(Q22=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q21=X) \ \& \ \neg(Q22=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

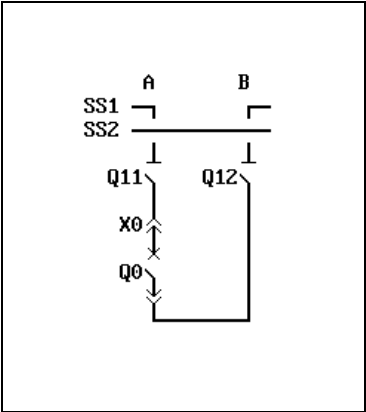
(continued)

Bay Type No. 158 (L21.101.R03.1)

Bus sectionalizer bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q11 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q12 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
X0 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q11=X) \ \& \ \neg(Q12=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q11	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$
Q12	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q11=X) \ \& \ \neg(Q12=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q11	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$
Q12	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$

Appendix C - List of Bay Types

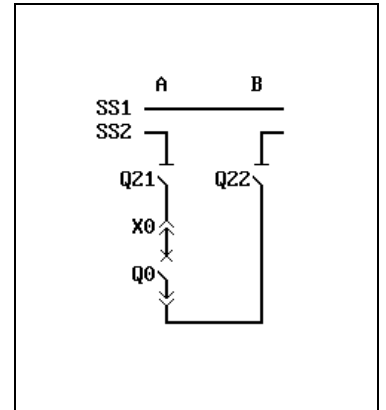
(continued)

Bay Type No. 159 (L21.101.R03.2)

Bus sectionalizer bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q21 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q22 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
X0 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q21=X) \ \& \ \neg(Q22=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q21	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$
Q22	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q21=X) \ \& \ \neg(Q22=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q21	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$
Q22	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$

Appendix C - List of Bay Types

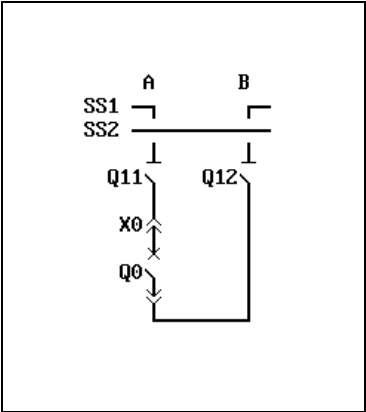
(continued)

Bay Type No. 160 (L21.101.R04.1)

Bus sectionalizer bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q11 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q12 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
X0 (DEV04)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q11=X) \ \& \ \neg(Q12=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q11	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$
Q12	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$
X0	Open	$(Q0=0) \ \& \ (Q11=0) \ \& \ (Q12=0)$
	Close(d)	$(Q0=0) \ \& \ (Q11=0) \ \& \ (Q12=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q11=X) \ \& \ \neg(Q12=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q11	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$
Q12	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$
X0	Open	$(Q0=0) \ \& \ (Q11=0) \ \& \ (Q12=0)$
	Close(d)	$(Q0=0) \ \& \ (Q11=0) \ \& \ (Q12=0)$

Appendix C - List of Bay Types

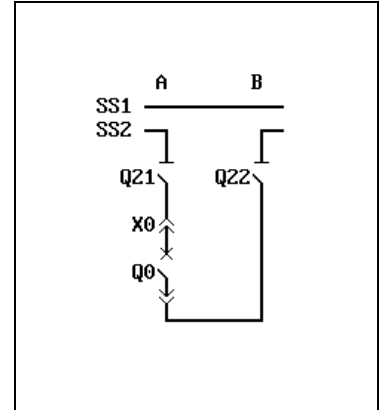
(continued)

Bay Type No. 161 (L21.101.R04.2)

Bus sectionalizer bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q21 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q22 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
X0 (DEV04)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q21=X) \ \& \ \neg(Q22=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q21	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$
Q22	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$
X0	Open	$(Q0=0) \ \& \ (Q21=0) \ \& \ (Q22=0)$
	Close(d)	$(Q0=0) \ \& \ (Q21=0) \ \& \ (Q22=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q21=X) \ \& \ \neg(Q22=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q21	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$
Q22	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$
X0	Open	$(Q0=0) \ \& \ (Q21=0) \ \& \ (Q22=0)$
	Close(d)	$(Q0=0) \ \& \ (Q21=0) \ \& \ (Q22=0)$

Appendix C - List of Bay Types

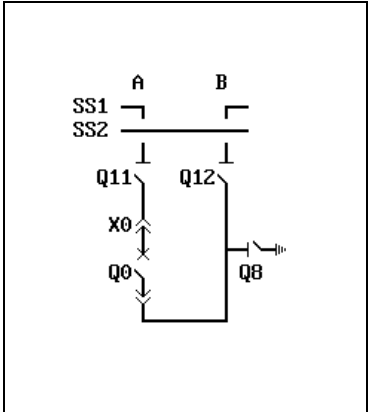
(continued)

Bay Type No. 513 (L21.109.R03.1)

Bus sectionalizer bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q11 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q12 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
X0 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/
Q8 (DEV05)	Open	U 2I	/
	Close(d)	U 2J	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q11=X) \wedge \neg(Q12=X) \wedge \neg(X0=X) \wedge (Q8=0) \wedge \neg(FctBl1=I) \wedge \neg(FctBl2=I)$
Q11	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \wedge (Q8=0)$
Q12	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \wedge (Q8=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q11=X) \wedge \neg(Q12=X) \wedge \neg(X0=X) \wedge (Q8=0) \wedge \neg(FctBl1=I) \wedge \neg(FctBl2=I)$
Q11	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \wedge (Q8=0)$
Q12	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \wedge (Q8=0)$

Appendix C - List of Bay Types

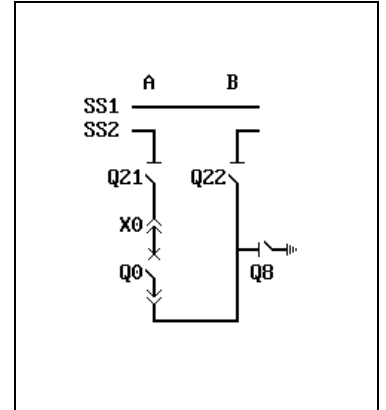
(continued)

Bay Type No. 514 (L21.109.R03.2)

Bus sectionalizer bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q21 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q22 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
X0 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/
Q8 (DEV05)	Open	U 2I	/
	Close(d)	U 2J	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q21=X) \ \& \ \neg(Q22=X) \ \& \ \neg(X0=X) \ \& \ (Q8=0) \ \& \ \neg(FctB11=I) \ \& \ \neg(FctB12=I)$
Q21	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$
Q22	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q21=X) \ \& \ \neg(Q22=X) \ \& \ \neg(X0=X) \ \& \ (Q8=0) \ \& \ \neg(FctB11=I) \ \& \ \neg(FctB12=I)$
Q21	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$
Q22	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q8=0)$

Appendix C - List of Bay Types

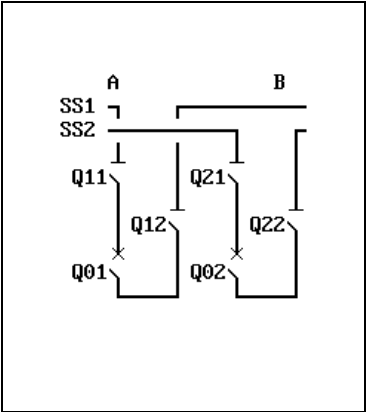
(continued)

Bay Type No. 162 (L23.101.R02)

Bus sectionalizer bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q01 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q02 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q11 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/
Q12 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/
Q21 (DEV05)	Open	U 2I	/
	Close(d)	U 2J	/
Q22 (DEV06)	Open	U 2K	/
	Close(d)	U 2L	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q01	Close(d)	$\neg(Q11=X) \ \& \ \neg(Q12=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q02	Close(d)	$\neg(Q21=X) \ \& \ \neg(Q22=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q01	Close(d)	$\neg(Q11=X) \ \& \ \neg(Q12=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q02	Close(d)	$\neg(Q21=X) \ \& \ \neg(Q22=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

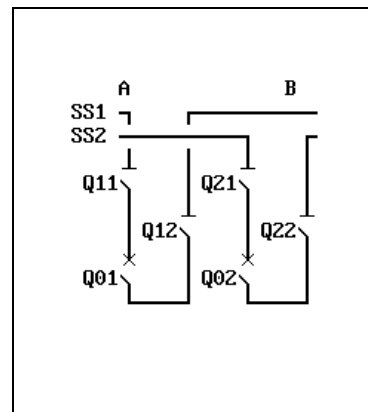
(continued)

Bay Type No. 163 (L23.101.R06)

Bus sectionalizer bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q01 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q02 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q11 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q12 (DEV04)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Q21 (DEV05)	Open	U 2I	K 2I
	Close(d)	U 2J	K 2J
Q22 (DEV06)	Open	U 2K	K 2K
	Close(d)	U 2L	K 2L



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q01	Close(d)	$\neg(Q11=X) \ \& \ \neg(Q12=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q02	Close(d)	$\neg(Q21=X) \ \& \ \neg(Q22=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q11	Open	$(Q01=0)$
	Close(d)	$(Q01=0)$
Q12	Open	$(Q01=0)$
	Close(d)	$(Q01=0)$
Q21	Open	$(Q02=0)$
	Close(d)	$(Q02=0)$
Q22	Open	$(Q02=0)$
	Close(d)	$(Q02=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q01	Close(d)	$\neg(Q11=X) \ \& \ \neg(Q12=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q02	Close(d)	$\neg(Q21=X) \ \& \ \neg(Q22=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q11	Open	$(Q01=0)$
	Close(d)	$(Q01=0)$
Q12	Open	$(Q01=0)$
	Close(d)	$(Q01=0)$
Q21	Open	$(Q02=0)$
	Close(d)	$(Q02=0)$
Q22	Open	$(Q02=0)$
	Close(d)	$(Q02=0)$

Appendix C - List of Bay Types

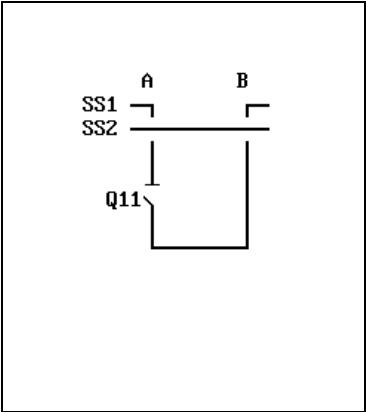
(continued)

Bay Type No. 554 (L23.901.M01.1)

Bus sectionalizer bay with other switchgear unit, double busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q11 (DEV01)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Appendix C - List of Bay Types

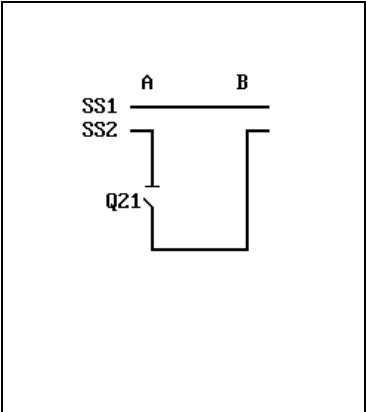
(continued)

Bay Type No. 555 (L23.901.M01.2)

Bus sectionalizer bay with other switchgear unit, double busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q21 (DEV01)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Appendix C - List of Bay Types

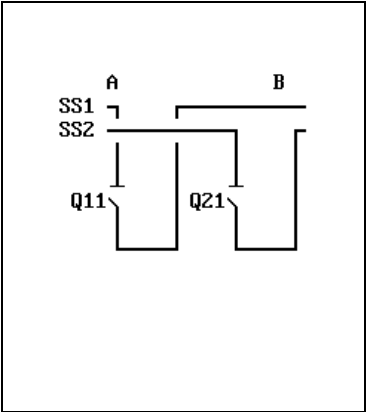
(continued)

Bay Type No. 164 (L23.901.R02)

Bus sectionalizer bay with other switchgear unit, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q11 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q21 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q11	Open	(Q11=0)
	Close(d)	(Q11=I)
Q21	Open	(Q21=0)
	Close(d)	(Q21=I)

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Appendix C - List of Bay Types

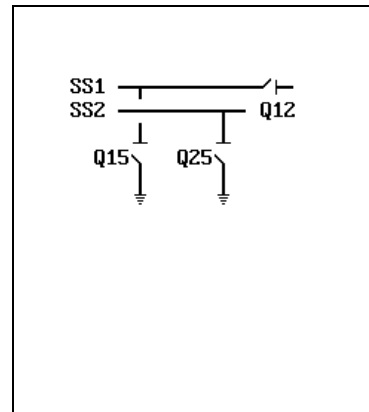
(continued)

Bay Type No. 242 (L23.903.M01.3)

Bus sectionalizer bay with other switchgear unit, double busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q12 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q15 (DEV02)	Open	U 2E	/
	Close(d)	U 2F	/
Q25 (DEV03)	Open	U 2G	/
	Close(d)	U 2H	/
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q12	Open	(Q12=0)
	Close(d)	(Q12=I)

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Appendix C - List of Bay Types

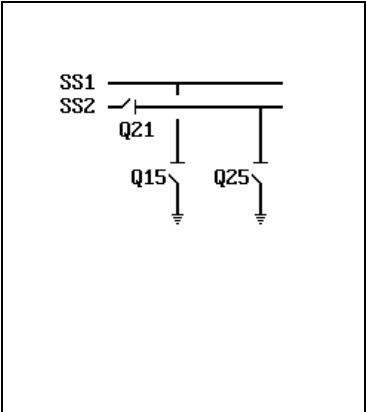
(continued)

Bay Type No. 243 (L23.903.M01.4)

Bus sectionalizer bay with other switchgear unit, double busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q21 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q15 (DEV02)	Open	U 2E	/
	Close(d)	U 2F	/
Q25 (DEV03)	Open	U 2G	/
	Close(d)	U 2H	/
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q21	Open	(Q21=0)
	Close(d)	(Q21=I)

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Appendix C - List of Bay Types

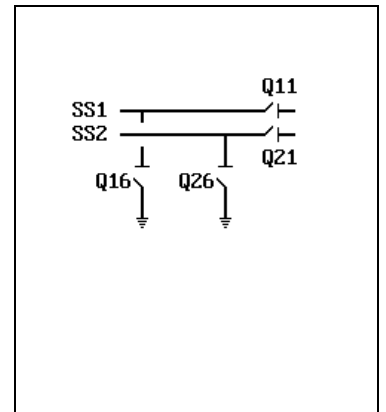
(continued)

Bay Type No. 511 (L23.903.M02)

Bus sectionalizer bay with other switchgear unit, double busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q11 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q21 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q16 (DEV03)	Open	U 2G	/
	Close(d)	U 2H	/
Q26 (DEV04)	Open	U 2I	/
	Close(d)	U 2J	/
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q11	Open	(Q11=0)
	Close(d)	(Q11=I)
Q21	Open	(Q21=0)
	Close(d)	(Q21=I)

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Appendix C - List of Bay Types

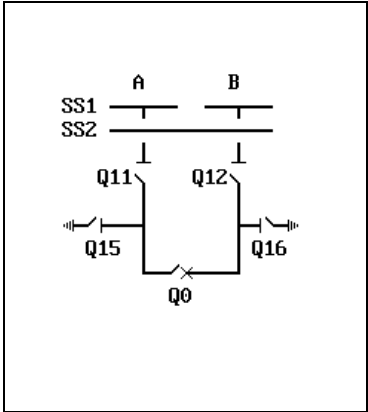
(continued)

Bay Type No. 228 (L25.113.M03.1)

Bus sectionalizer bay with circuit breaker, double busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q11 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q12 (DEV03)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Q15 (DEV04)	Open	U 2I	/
	Close(d)	U 2J	/
Q16 (DEV05)	Open	U 2K	/
	Close(d)	U 2L	/
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	(Q15=0) & (Q16=0)
	Close(d)	/((Q11=X) & /(Q12=X) & (Q15=0) & (Q16=0) & /(FctBl1=I) & /(FctBl2=I)
Q11	Open	(Q0=0)
	Close(d)	(Q0=0) & (Q15=0)
Q12	Open	(Q0=0)
	Close(d)	(Q0=0) & (Q16=0)

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	(Q15=0) & (Q16=0)
	Close(d)	/((Q11=X) & /(Q12=X) & (Q15=0) & (Q16=0) & /(FctBl1=I) & /(FctBl2=I)
Q11	Open	(Q0=0)
	Close(d)	(Q0=0) & (Q15=0)
Q12	Open	(Q0=0)
	Close(d)	(Q0=0) & (Q16=0)

Appendix C - List of Bay Types

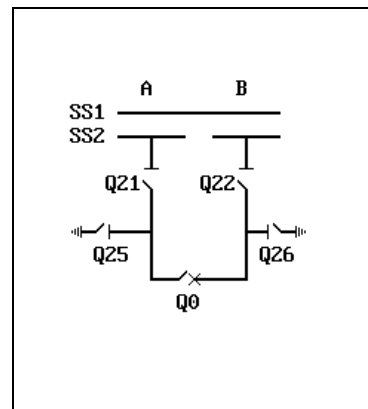
(continued)

Bay Type No. 229 (L25.113.M03.2)

Bus sectionalizer bay with circuit breaker, double busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q21 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q22 (DEV03)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Q25 (DEV04)	Open	U 2I	/
	Close(d)	U 2J	/
Q26 (DEV05)	Open	U 2K	/
	Close(d)	U 2L	/
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	$(Q25=0) \ \& \ (Q26=0)$
	Close(d)	$\neg(Q21=X) \ \& \ \neg(Q22=X) \ \& \ (Q25=0) \ \& \ (Q26=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q21	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q25=0)$
Q22	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q26=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	$(Q25=0) \ \& \ (Q26=0)$
	Close(d)	$\neg(Q21=X) \ \& \ \neg(Q22=X) \ \& \ (Q25=0) \ \& \ (Q26=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q21	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q25=0)$
Q22	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q26=0)$

Appendix C - List of Bay Types

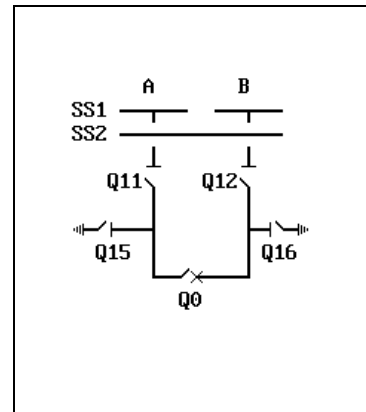
(continued)

Bay Type No. 165 (L25.113.M05.1)

Bus sectionalizer bay with circuit breaker, double busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q11 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q12 (DEV03)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Q15 (DEV04)	Open	U 2I	K 2I
	Close(d)	U 2J	K 2J
Q16 (DEV05)	Open	U 2K	K 2K
	Close(d)	U 2L	K 2L
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	$(Q15=0) \ \& \ (Q16=0)$
	Close(d)	$\neg(Q11=X) \ \& \ \neg(Q12=X) \ \& \ (Q15=0) \ \& \ (Q16=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q11	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q15=0)$
Q12	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q16=0)$
Q15	Open	$(Q0=I) \ \& \ (Q12=I)$
	Close(d)	$(Q0=0) \ \& \ (Q11=0) \ \& \ (Q12=I) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I) \ \& \ (Q15=I)$
Q16	Open	$(Q0=I) \ \& \ (Q11=I)$
	Close(d)	$(Q0=0) \ \& \ (Q12=0) \ \& \ (Q11=I) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I) \ \& \ (Q16=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	$(Q15=0) \ \& \ (Q16=0)$
	Close(d)	$\neg(Q11=X) \ \& \ \neg(Q12=X) \ \& \ (Q15=0) \ \& \ (Q16=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q11	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q15=0)$
Q12	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q16=0)$
Q15	Open	$(Q0=I) \ \& \ (Q12=I)$
	Close(d)	$(Q0=0) \ \& \ (Q11=0) \ \& \ (Q12=I) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q16	Open	$(Q0=I) \ \& \ (Q11=I)$
	Close(d)	$(Q0=0) \ \& \ (Q12=0) \ \& \ (Q11=I) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

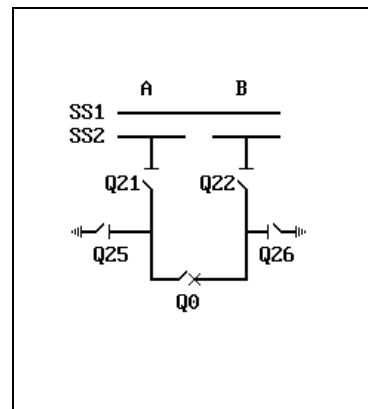
(continued)

Bay Type No. 166 (L25.113.M05.2)

Bus sectionalizer bay with circuit breaker, double busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q21 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q22 (DEV03)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Q25 (DEV04)	Open	U 2I	K 2I
	Close(d)	U 2J	K 2J
Q26 (DEV05)	Open	U 2K	K 2K
	Close(d)	U 2L	K 2L
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	$(Q25=0) \ \& \ (Q26=0)$
	Close(d)	$\neg(Q21=X) \ \& \ \neg(Q22=X) \ \& \ (Q25=0) \ \& \ (Q26=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q21	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q25=0)$
Q22	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q26=0)$
Q25	Open	$(Q0=I) \ \& \ (Q22=I)$
	Close(d)	$(Q0=0) \ \& \ (Q21=0) \ \& \ (Q22=I) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I) \ \& \ (Q25=I)$
Q26	Open	$(Q0=I) \ \& \ (Q21=I)$
	Close(d)	$(Q0=0) \ \& \ (Q22=0) \ \& \ (Q21=I) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I) \ \& \ (Q26=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	$(Q25=0) \ \& \ (Q26=0)$
	Close(d)	$\neg(Q21=X) \ \& \ \neg(Q22=X) \ \& \ (Q25=0) \ \& \ (Q26=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q21	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q25=0)$
Q22	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q26=0)$
Q25	Open	$(Q0=I) \ \& \ (Q22=I)$
	Close(d)	$(Q0=0) \ \& \ (Q21=0) \ \& \ (Q22=I) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q26	Open	$(Q0=I) \ \& \ (Q21=I)$
	Close(d)	$(Q0=0) \ \& \ (Q22=0) \ \& \ (Q21=I) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

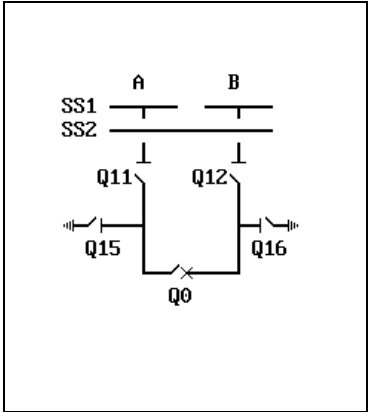
(continued)

Bay Type No. 167 (L25.113.R01.1)

Bus sectionalizer bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q11 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/
Q12 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/
Q15 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/
Q16 (DEV05)	Open	U 2I	/
	Close(d)	U 2J	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	$(Q15=0) \ \& \ (Q16=0)$
	Close(d)	$\neg((Q11=X) \ \& \ \neg(Q12=X) \ \& \ (Q15=0) \ \& \ (Q16=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I))$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	$(Q15=0) \ \& \ (Q16=0)$
	Close(d)	$\neg((Q11=X) \ \& \ \neg(Q12=X) \ \& \ (Q15=0) \ \& \ (Q16=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I))$

Appendix C - List of Bay Types

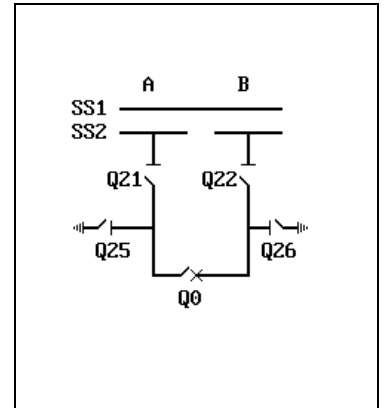
(continued)

Bay Type No. 168 (L25.113.R01.2)

Bus sectionalizer bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q21 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/
Q22 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/
Q25 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/
Q26 (DEV05)	Open	U 2I	/
	Close(d)	U 2J	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	$(Q25=0) \ \& \ (Q26=0)$
	Close(d)	$\neg(Q21=X) \ \& \ \neg(Q22=X) \ \& \ (Q25=0) \ \& \ (Q26=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	$(Q25=0) \ \& \ (Q26=0)$
	Close(d)	$\neg(Q21=X) \ \& \ \neg(Q22=X) \ \& \ (Q25=0) \ \& \ (Q26=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

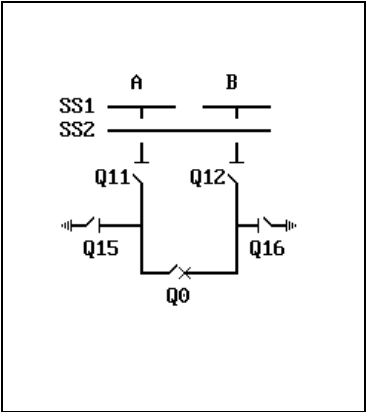
(continued)

Bay Type No. 230 (L25.113.R03.1)

Bus sectionalizer bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q11 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q12 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q15 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/
Q16 (DEV05)	Open	U 2I	/
	Close(d)	U 2J	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	$(Q15=0) \ \& \ (Q16=0)$
	Close(d)	$\text{!}((Q11=X) \ \& \ \text{!}(Q12=X) \ \& \ (Q15=0) \ \& \ (Q16=0) \ \& \ \text{!}(\text{FctBl1}=I) \ \& \ \text{!}(\text{FctBl2}=I))$
Q11	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q15=0)$
Q12	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q16=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	$(Q15=0) \ \& \ (Q16=0)$
	Close(d)	$\text{!}((Q11=X) \ \& \ \text{!}(Q12=X) \ \& \ (Q15=0) \ \& \ (Q16=0) \ \& \ \text{!}(\text{FctBl1}=I) \ \& \ \text{!}(\text{FctBl2}=I))$
Q11	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q15=0)$
Q12	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q16=0)$

Appendix C - List of Bay Types

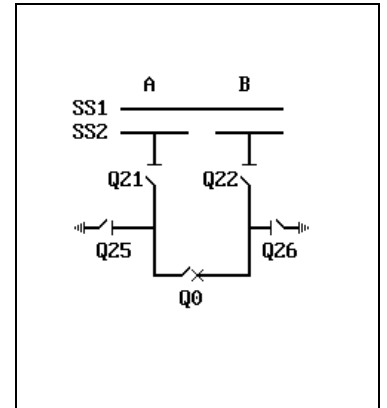
(continued)

Bay Type No. 231 (L25.113.R03.2)

Bus sectionalizer bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q21 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q22 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q25 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/
Q26 (DEV05)	Open	U 2I	/
	Close(d)	U 2J	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	$(Q25=0) \ \& \ (Q26=0)$
	Close(d)	$\neg(Q21=X) \ \& \ \neg(Q22=X) \ \& \ (Q25=0) \ \& \ (Q26=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q21	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q25=0)$
Q22	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q26=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	$(Q25=0) \ \& \ (Q26=0)$
	Close(d)	$\neg(Q21=X) \ \& \ \neg(Q22=X) \ \& \ (Q25=0) \ \& \ (Q26=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q21	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q25=0)$
Q22	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q26=0)$

Appendix C - List of Bay Types

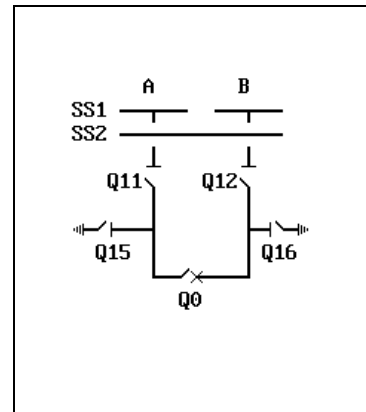
(continued)

Bay Type No. 169 (L25.113.R05.1)

Bus sectionalizer bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q11 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q12 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q15 (DEV04)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Q16 (DEV05)	Open	U 2I	K 2I
	Close(d)	U 2J	K 2J



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	$(Q15=0) \ \& \ (Q16=0)$
	Close(d)	$\neg((Q11=X) \ \& \ \neg(Q12=X) \ \& \ (Q15=0) \ \& \ (Q16=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I))$
Q11	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q15=0)$
Q12	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q16=0)$
Q15	Open	$(Q0=I) \ \& \ (Q12=I)$
	Close(d)	$(Q0=0) \ \& \ (Q11=0) \ \& \ (Q12=I) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I) \ \& \ (Q15=I)$
Q16	Open	$(Q0=I) \ \& \ (Q11=I)$
	Close(d)	$(Q0=0) \ \& \ (Q12=0) \ \& \ (Q11=I) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I) \ \& \ (Q16=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	$(Q15=0) \ \& \ (Q16=0)$
	Close(d)	$\neg((Q11=X) \ \& \ \neg(Q12=X) \ \& \ (Q15=0) \ \& \ (Q16=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I))$
Q11	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q15=0)$
Q12	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q16=0)$
Q15	Open	$(Q0=I) \ \& \ (Q12=I)$
	Close(d)	$(Q0=0) \ \& \ (Q11=0) \ \& \ (Q12=I) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q16	Open	$(Q0=I) \ \& \ (Q11=I)$
	Close(d)	$(Q0=0) \ \& \ (Q12=0) \ \& \ (Q11=I) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

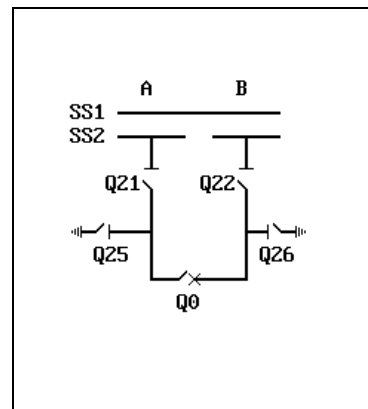
(continued)

Bay Type No. 170 (L25.113.R05.2)

Bus sectionalizer bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q21 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q22 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q25 (DEV04)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Q26 (DEV05)	Open	U 2I	K 2I
	Close(d)	U 2J	K 2J



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	$(Q25=0) \ \& \ (Q26=0)$
	Close(d)	$\neg(Q21=X) \ \& \ \neg(Q22=X) \ \& \ (Q25=0) \ \& \ (Q26=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q21	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q25=0)$
Q22	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q26=0)$
Q25	Open	$(Q0=I) \ \& \ (Q22=I)$
	Close(d)	$(Q0=0) \ \& \ (Q21=0) \ \& \ (Q22=I) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I) \ \& \ (Q25=I)$
Q26	Open	$(Q0=I) \ \& \ (Q21=I)$
	Close(d)	$(Q0=0) \ \& \ (Q22=0) \ \& \ (Q21=I) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I) \ \& \ (Q26=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	$(Q25=0) \ \& \ (Q26=0)$
	Close(d)	$\neg(Q21=X) \ \& \ \neg(Q22=X) \ \& \ (Q25=0) \ \& \ (Q26=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q21	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q25=0)$
Q22	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q26=0)$
Q25	Open	$(Q0=I) \ \& \ (Q22=I)$
	Close(d)	$(Q0=0) \ \& \ (Q21=0) \ \& \ (Q22=I) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q26	Open	$(Q0=I) \ \& \ (Q21=I)$
	Close(d)	$(Q0=0) \ \& \ (Q22=0) \ \& \ (Q21=I) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

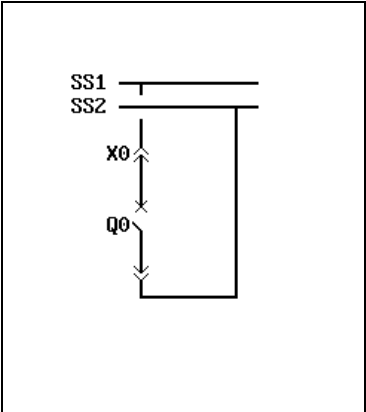
(continued)

Bay Type No. 505 (Q21.100.R01)

Bus coupler bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
X0 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

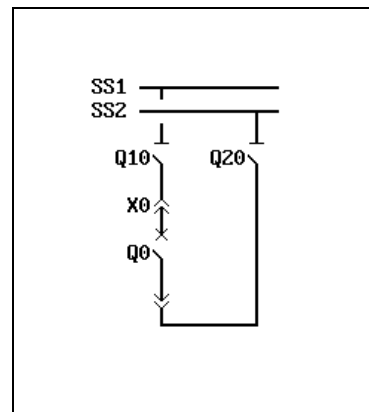
(continued)

Bay Type No. 197 (Q21.101.M04)

Bus coupler bay with circuit breaker, double busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q10 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q20 (DEV03)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
X0 (DEV04)	Open	U 2I	K 2I
	Close(d)	U 2J	K 2J
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q10=X) \ \& \ \neg(Q20=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q10	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$
Q20	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$
X0	Open	$(Q0=0) \ \& \ (Q10=0) \ \& \ (Q20=0)$
	Close(d)	$(Q0=0) \ \& \ (Q10=0) \ \& \ (Q20=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q10=X) \ \& \ \neg(Q20=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q10	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$
Q20	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$
X0	Open	$(Q0=0) \ \& \ (Q10=0) \ \& \ (Q20=0)$
	Close(d)	$(Q0=0) \ \& \ (Q10=0) \ \& \ (Q20=0)$

Appendix C - List of Bay Types

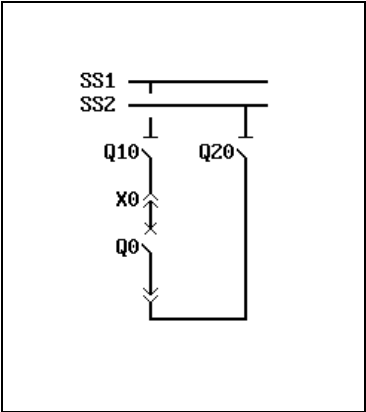
(continued)

Bay Type No. 198 (Q21.101.R01)

Bus coupler bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q10 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/
Q20 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/
X0 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q10=X) \ \& \ \neg(Q20=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q10=X) \ \& \ \neg(Q20=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

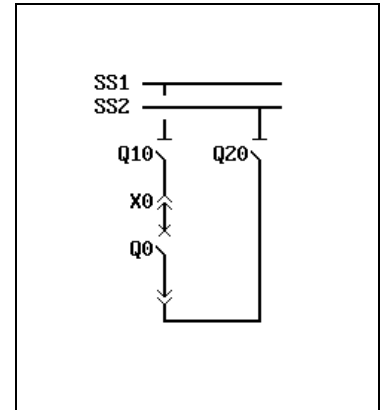
(continued)

Bay Type No. 199 (Q21.101.R03)

Bus coupler bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q10 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q20 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
X0 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q10=X) \ \& \ \neg(Q20=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q10	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$
Q20	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q10=X) \ \& \ \neg(Q20=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q10	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$
Q20	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$

Appendix C - List of Bay Types

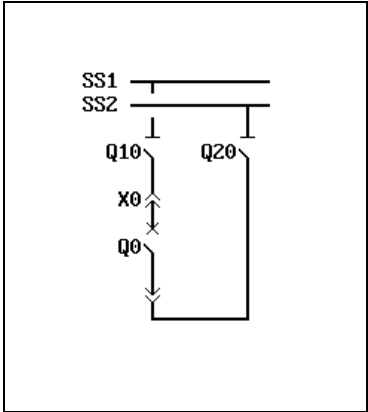
(continued)

Bay Type No. 200 (Q21.101.R04)

Bus coupler bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q10 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q20 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
X0 (DEV04)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q10=X) \ \& \ \neg(Q20=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q10	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$
Q20	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$
X0	Open	$(Q0=0) \ \& \ (Q10=0) \ \& \ (Q20=0)$
	Close(d)	$(Q0=0) \ \& \ (Q10=0) \ \& \ (Q20=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q10=X) \ \& \ \neg(Q20=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q10	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$
Q20	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$
X0	Open	$(Q0=0) \ \& \ (Q10=0) \ \& \ (Q20=0)$
	Close(d)	$(Q0=0) \ \& \ (Q10=0) \ \& \ (Q20=0)$

Appendix C - List of Bay Types

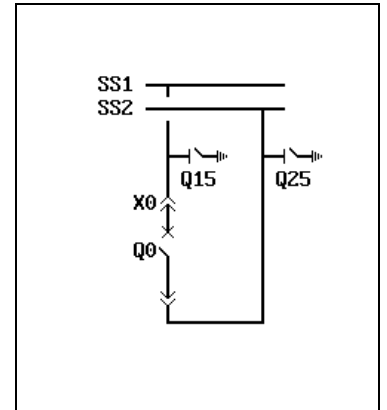
(continued)

Bay Type No. 556 (Q21.112.M04)

Bus coupler bay with circuit breaker, double busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q15 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q25 (DEV03)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
X0 (DEV04)	Open	U 2I	K 2I
	Close(d)	U 2J	K 2J
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg (X0=X) \ \& \ (Q15=0) \ \& \ (Q25=0) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$
Q15	Close(d)	$(Q15=I)$
Q25	Close(d)	$(Q25=I)$
X0	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg (X0=X) \ \& \ (Q15=0) \ \& \ (Q25=0) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$
X0	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$

Appendix C - List of Bay Types

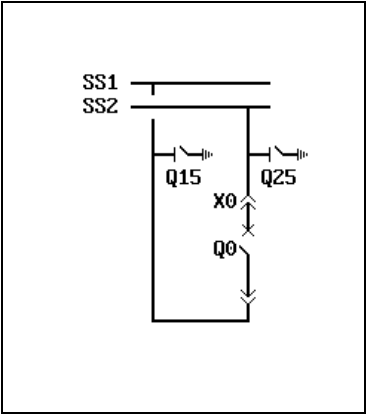
(continued)

Bay Type No. 565 (Q21.112.M04.2)

Bus coupler bay with circuit breaker, double busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q15 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q25 (DEV03)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
X0 (DEV04)	Open	U 2I	K 2I
	Close(d)	U 2J	K 2J
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg (X0=X) \ \& \ (Q15=0) \ \& \ (Q25=0) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$
Q15	Close(d)	$(Q15=I)$
Q25	Close(d)	$(Q25=I)$
X0	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg (X0=X) \ \& \ (Q15=0) \ \& \ (Q25=0) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$
X0	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$

Appendix C - List of Bay Types

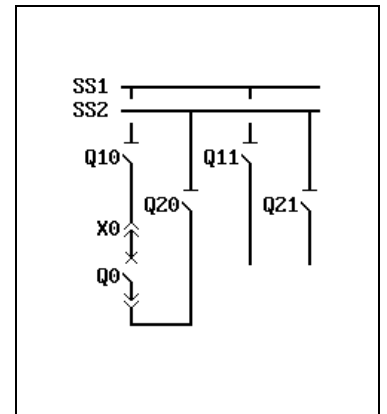
(continued)

Bay Type No. 201 (Q21.117.R01)

Bus coupler bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q10 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/
Q20 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/
Q11 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/
Q21 (DEV05)	Open	U 2I	/
	Close(d)	U 2J	/
X0 (DEV06)	Open	U 2K	/
	Close(d)	U 2L	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q10=X) \ \& \ \neg(Q20=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q10=X) \ \& \ \neg(Q20=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

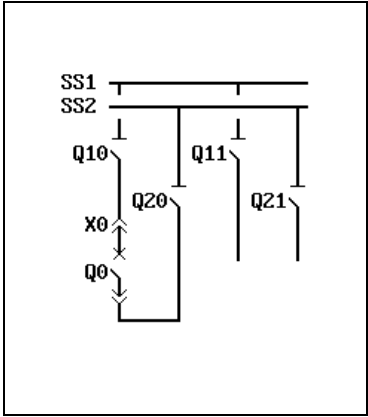
(continued)

Bay Type No. 202 (Q21.117.R05)

Bus coupler bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q10 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q20 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q11 (DEV04)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Q21 (DEV05)	Open	U 2I	K 2I
	Close(d)	U 2J	K 2J
X0 (DEV06)	Open	U 2K	/
	Close(d)	U 2L	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q10=X) \ \& \ \neg(Q20=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q10	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$
Q20	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q10=X) \ \& \ \neg(Q20=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q10	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$
Q20	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$

Appendix C - List of Bay Types

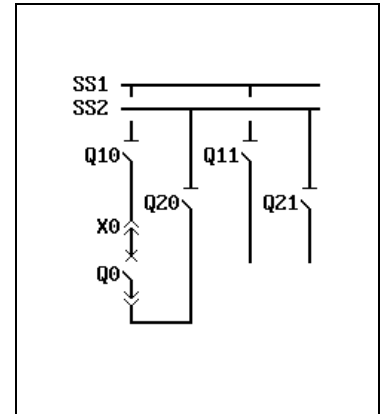
(continued)

Bay Type No. 203 (Q21.117.R06)

Bus coupler bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q10 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q20 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q11 (DEV04)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Q21 (DEV05)	Open	U 2I	K 2I
	Close(d)	U 2J	K 2J
X0 (DEV06)	Open	U 2K	K 2K
	Close(d)	U 2L	K 2L



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q10=X) \ \& \ \neg(Q20=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q10	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$
Q20	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$
X0	Open	$(Q0=0) \ \& \ (Q10=0) \ \& \ (Q20=0)$
	Close(d)	$(Q0=0) \ \& \ (Q10=0) \ \& \ (Q20=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q10=X) \ \& \ \neg(Q20=X) \ \& \ \neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q10	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$
Q20	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$
X0	Open	$(Q0=0) \ \& \ (Q10=0) \ \& \ (Q20=0)$
	Close(d)	$(Q0=0) \ \& \ (Q10=0) \ \& \ (Q20=0)$

Appendix C - List of Bay Types

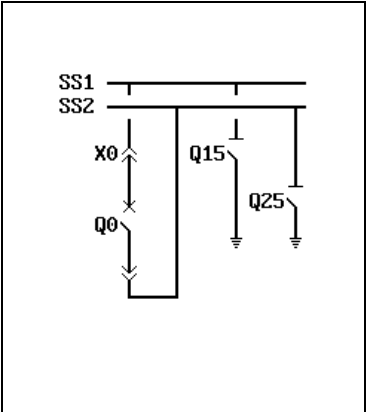
(continued)

Bay Type No. 245 (Q21.132.R01)

Bus coupler bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
X0 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/
Q15 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/
Q25 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X0=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

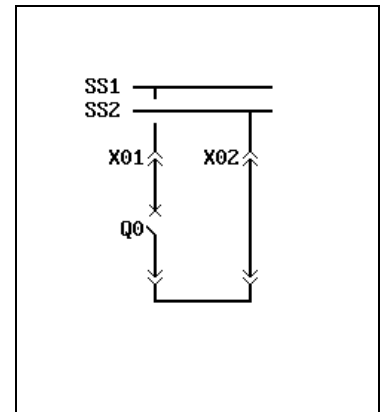
(continued)

Bay Type No. 563 (Q21.133.R01)

Bus coupler bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
X01 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/
X02 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X01=X) \ \& \ \neg(X02=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(X01=X) \ \& \ \neg(X02=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

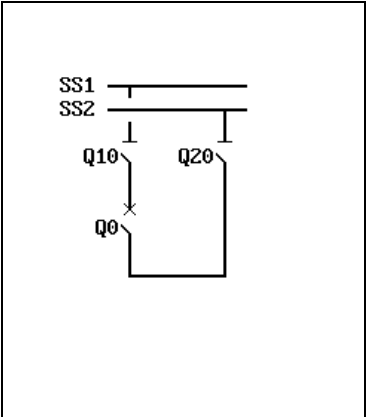
(continued)

Bay Type No. 204 (Q23.101.M03)

Bus coupler bay with circuit breaker, double busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q10 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q20 (DEV03)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q10=X) \ \& \ \neg(Q20=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q10	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$
Q20	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q10=X) \ \& \ \neg(Q20=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q10	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$
Q20	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$

Appendix C - List of Bay Types

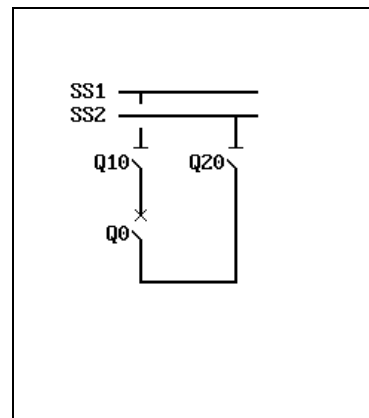
(continued)

Bay Type No. 205 (Q23.101.R01)

Bus coupler bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q10 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/
Q20 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q10=X) \ \& \ \neg(Q20=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q10=X) \ \& \ \neg(Q20=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

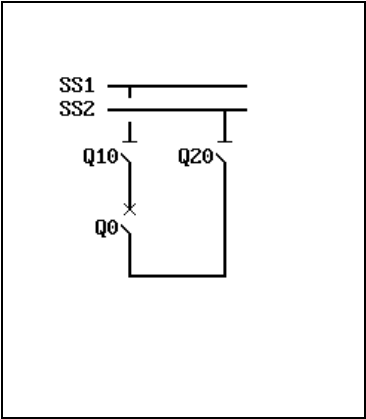
(continued)

Bay Type No. 206 (Q23.101.R03)

Bus coupler bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q10 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q20 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q10=X) \ \& \ \neg(Q20=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q10	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$
Q20	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q10=X) \ \& \ \neg(Q20=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q10	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$
Q20	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$

Appendix C - List of Bay Types

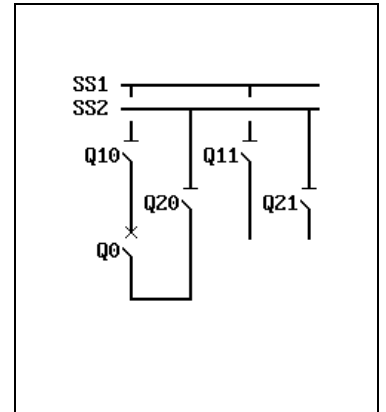
(continued)

Bay Type No. 207 (Q23.117.R01)

Bus coupler bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q10 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/
Q20 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/
Q11 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/
Q21 (DEV05)	Open	U 2I	/
	Close(d)	U 2J	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q10=X) \ \& \ \neg(Q20=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q10=X) \ \& \ \neg(Q20=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

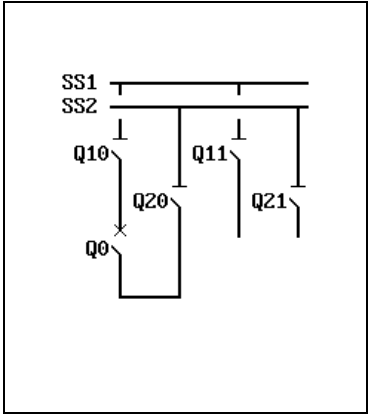
(continued)

Bay Type No. 208 (Q23.117.R05)

Bus coupler bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q10 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q20 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q11 (DEV04)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Q21 (DEV05)	Open	U 2I	K 2I
	Close(d)	U 2J	K 2J



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg((Q10=X) \ \& \ \neg(Q20=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I))$
Q10	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$
Q20	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg((Q10=X) \ \& \ \neg(Q20=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I))$
Q10	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$
Q20	Open	$(Q0=0)$
	Close(d)	$(Q0=0)$

Appendix C - List of Bay Types

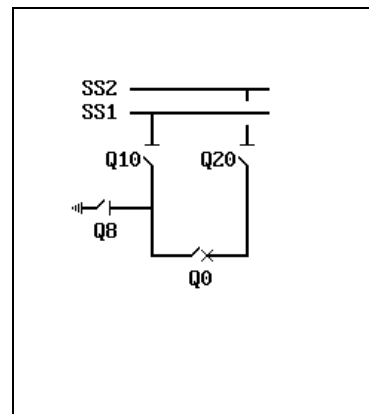
(continued)

Bay Type No. 236 (Q25.105.M03)

Bus coupler bay with circuit breaker, double busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q10 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q20 (DEV03)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Q8 (DEV04)	Open	U 2I	/
	Close(d)	U 2J	/
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	(Q8=0)
	Close(d)	/(Q10=X) & /(Q20=X) & (Q8=0) & /(FctBl1=I) & /(FctBl2=I)
Q10	Open	(Q0=0)
	Close(d)	(Q0=0) & (Q8=0)
Q20	Open	(Q0=0)
	Close(d)	(Q0=0) & (Q8=0)

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	(Q8=0)
	Close(d)	/(Q10=X) & /(Q20=X) & (Q8=0) & /(FctBl1=I) & /(FctBl2=I)
Q10	Open	(Q0=0)
	Close(d)	(Q0=0) & (Q8=0)
Q20	Open	(Q0=0) & (Q8=0)
	Close(d)	(Q0=0) & (Q8=0)

Appendix C - List of Bay Types

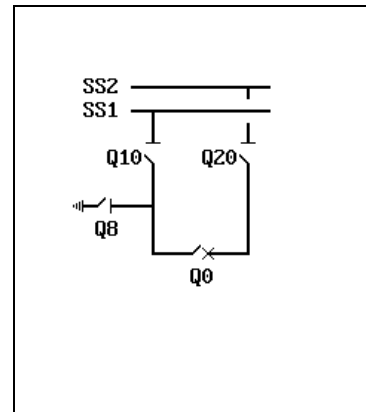
(continued)

Bay Type No. 209 (Q25.105.M04)

Bus coupler bay with circuit breaker, double busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q10 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q20 (DEV03)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Q8 (DEV04)	Open	U 2I	K 2I
	Close(d)	U 2J	K 2J
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	(Q8=0)
	Close(d)	/(Q10=X) & /(Q20=X) & (Q8=0) & /(FctB11=I) & /(FctB12=I)
Q10	Open	(Q0=0)
	Close(d)	(Q0=0) & (Q8=0)
Q20	Open	(Q0=0)
	Close(d)	(Q0=0) & (Q8=0)
Q8	Open	(Q0=I) & (Q20=I)
	Close(d)	(Q0=0) & (Q10=0) & (Q20=I) & /(FctB11=I) & /(FctB12=I) & (Q8=I)

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	(Q8=0)
	Close(d)	/(Q10=X) & /(Q20=X) & (Q8=0) & /(FctB11=I) & /(FctB12=I)
Q10	Open	(Q0=0)
	Close(d)	(Q0=0) & (Q8=0)
Q20	Open	(Q0=0) & (Q8=0)
	Close(d)	(Q0=0) & (Q8=0)
Q8	Open	(Q0=I) & (Q20=I)
	Close(d)	(Q0=0) & (Q10=0) & (Q20=I) & /(FctB11=I) & /(FctB12=I)

Appendix C - List of Bay Types

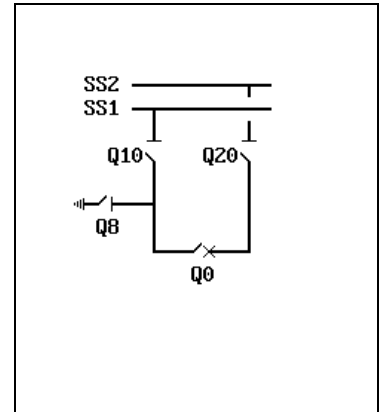
(continued)

Bay Type No. 210 (Q25.105.R01)

Bus coupler bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q10 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/
Q20 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/
Q8 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	(Q8=0)
	Close(d)	/(Q10=X) & /(Q20=X) & (Q8=0) & /(FctBl1=I) & /(FctBl2=I)

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	(Q8=0)
	Close(d)	/(Q10=X) & /(Q20=X) & (Q8=0) & /(FctBl1=I) & /(FctBl2=I)

Appendix C - List of Bay Types

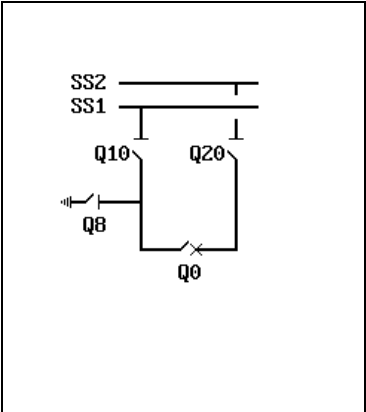
(continued)

Bay Type No. 237 (Q25.105.R03)

Bus coupler bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q10 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q20 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q8 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	(Q8=0)
	Close(d)	/(Q10=X) & /(Q20=X) & (Q8=0) & /(FctB11=I) & /(FctB12=I)
Q10	Open	(Q0=0)
	Close(d)	(Q0=0) & (Q8=0)
Q20	Open	(Q0=0)
	Close(d)	(Q0=0) & (Q8=0)

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	(Q8=0)
	Close(d)	/(Q10=X) & /(Q20=X) & (Q8=0) & /(FctB11=I) & /(FctB12=I)
Q10	Open	(Q0=0)
	Close(d)	(Q0=0) & (Q8=0)
Q20	Open	(Q0=0)
	Close(d)	(Q0=0) & (Q8=0)

Appendix C - List of Bay Types

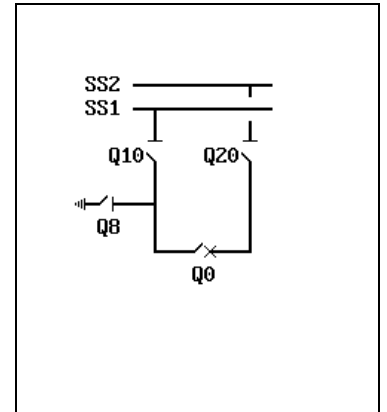
(continued)

Bay Type No. 211 (Q25.105.R04)

Bus coupler bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q10 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q20 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q8 (DEV04)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	(Q8=0)
	Close(d)	/(Q10=X) & /(Q20=X) & (Q8=0) & /(FctBl1=I) & /(FctBl2=I)
Q10	Open	(Q0=0)
	Close(d)	(Q0=0) & (Q8=0)
Q20	Open	(Q0=0)
	Close(d)	(Q0=0) & (Q8=0)
Q8	Open	(Q0=I) & (Q20=I)
	Close(d)	(Q0=0) & (Q10=0) & (Q20=I) & /(FctBl1=I) & /(FctBl2=I) & (Q8=I)

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	(Q8=0)
	Close(d)	/(Q10=X) & /(Q20=X) & (Q8=0) & /(FctBl1=I) & /(FctBl2=I)
Q10	Open	(Q0=0)
	Close(d)	(Q0=0) & (Q8=0)
Q20	Open	(Q0=0)
	Close(d)	(Q0=0) & (Q8=0)
Q8	Open	(Q0=I) & (Q20=I)
	Close(d)	(Q0=0) & (Q10=0) & (Q20=I) & /(FctBl1=I) & /(FctBl2=I)

Appendix C - List of Bay Types

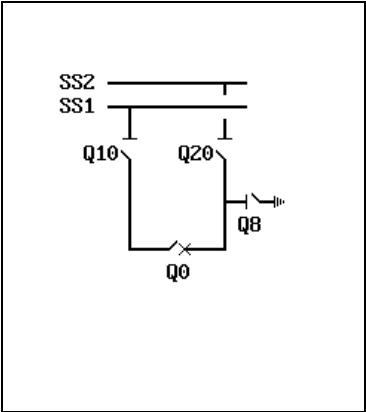
(continued)

Bay Type No. 238 (Q25.109.M03)

Bus coupler bay with circuit breaker, double busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q10 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q20 (DEV03)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Q8 (DEV04)	Open	U 2I	/
	Close(d)	U 2J	/
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	(Q8=0)
	Close(d)	/((Q10=X) & /(Q20=X) & (Q8=0) & /(FctB11=I) & /(FctB12=I)
Q10	Open	(Q0=0)
	Close(d)	(Q0=0) & (Q8=0)
Q20	Open	(Q0=0)
	Close(d)	(Q0=0) & (Q8=0)

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	(Q8=0)
	Close(d)	/((Q10=X) & /(Q20=X) & (Q8=0) & /(FctB11=I) & /(FctB12=I)
Q10	Open	(Q0=0)
	Close(d)	(Q0=0) & (Q8=0)
Q20	Open	(Q0=0)
	Close(d)	(Q0=0) & (Q8=0)

Appendix C - List of Bay Types

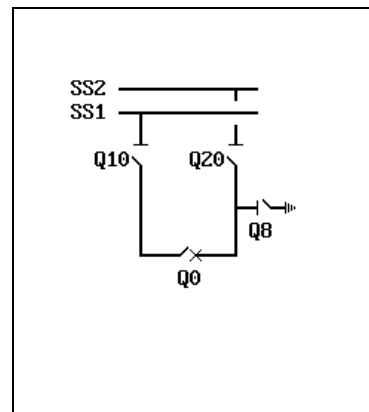
(continued)

Bay Type No. 212 (Q25.109.M04)

Bus coupler bay with circuit breaker, double busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q10 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q20 (DEV03)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Q8 (DEV04)	Open	U 2I	K 2I
	Close(d)	U 2J	K 2J
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	(Q8=0)
	Close(d)	/(Q10=X) & /(Q20=X) & (Q8=0) & /(FctBl1=I) & /(FctBl2=I)
Q10	Open	(Q0=0)
	Close(d)	(Q0=0) & (Q8=0)
Q20	Open	(Q0=0)
	Close(d)	(Q0=0) & (Q8=0)
Q8	Open	(Q0=I) & (Q10=I)
	Close(d)	(Q0=0) & (Q20=0) & (Q10=I) & /(FctBl1=I) & /(FctBl2=I) & (Q8=I)

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	(Q8=0)
	Close(d)	/(Q10=X) & /(Q20=X) & (Q8=0) & /(FctBl1=I) & /(FctBl2=I)
Q10	Open	(Q0=0)
	Close(d)	(Q0=0) & (Q8=0)
Q20	Open	(Q0=0)
	Close(d)	(Q0=0) & (Q8=0)
Q8	Open	(Q0=I) & (Q10=I)
	Close(d)	(Q0=0) & (Q20=0) & (Q10=I) & /(FctBl1=I) & /(FctBl2=I)

Appendix C - List of Bay Types

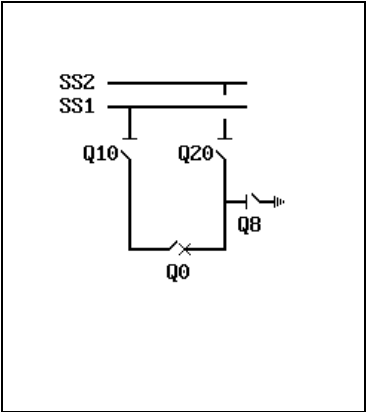
(continued)

Bay Type No. 213 (Q25.109.R01)

Bus coupler bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q10 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/
Q20 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/
Q8 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	(Q8=0)
	Close(d)	!((Q10=X) & !(Q20=X) & (Q8=0) & !(FctBl1=I) & !(FctBl2=I)

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	(Q8=0)
	Close(d)	!((Q10=X) & !(Q20=X) & (Q8=0) & !(FctBl1=I) & !(FctBl2=I)

Appendix C - List of Bay Types

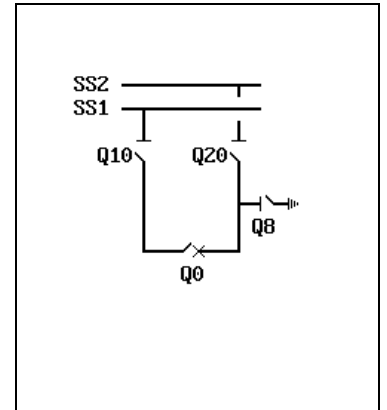
(continued)

Bay Type No. 239 (Q25.109.R03)

Bus coupler bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q10 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q20 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q8 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	(Q8=0)
	Close(d)	/(Q10=X) & /(Q20=X) & (Q8=0) & /(FctBl1=I) & /(FctBl2=I)
Q10	Open	(Q0=0)
	Close(d)	(Q0=0) & (Q8=0)
Q20	Open	(Q0=0)
	Close(d)	(Q0=0) & (Q8=0)

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	(Q8=0)
	Close(d)	/(Q10=X) & /(Q20=X) & (Q8=0) & /(FctBl1=I) & /(FctBl2=I)
Q10	Open	(Q0=0)
	Close(d)	(Q0=0) & (Q8=0)
Q20	Open	(Q0=0)
	Close(d)	(Q0=0) & (Q8=0)

Appendix C - List of Bay Types

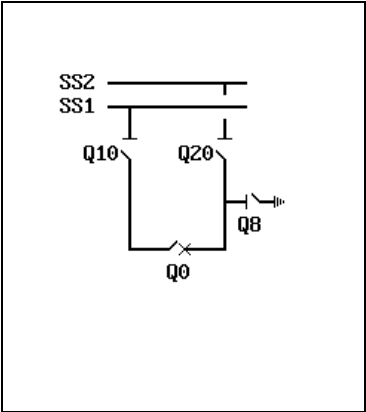
(continued)

Bay Type No. 214 (Q25.109.R04)

Bus coupler bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q10 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q20 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q8 (DEV04)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	(Q8=0)
	Close(d)	/(Q10=X) & /(Q20=X) & (Q8=0) & /(FctB11=I) & /(FctB12=I)
Q10	Open	(Q0=0)
	Close(d)	(Q0=0) & (Q8=0)
Q20	Open	(Q0=0)
	Close(d)	(Q0=0) & (Q8=0)
Q8	Open	(Q0=I) & (Q10=I)
	Close(d)	(Q0=0) & (Q20=0) & (Q10=I) & /(FctB11=I) & /(FctB12=I) & (Q8=I)

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	(Q8=0)
	Close(d)	/(Q10=X) & /(Q20=X) & (Q8=0) & /(FctB11=I) & /(FctB12=I)
Q10	Open	(Q0=0)
	Close(d)	(Q0=0) & (Q8=0)
Q20	Open	(Q0=0)
	Close(d)	(Q0=0) & (Q8=0)
Q8	Open	(Q0=I) & (Q10=I)
	Close(d)	(Q0=0) & (Q20=0) & (Q10=I) & /(FctB11=I) & /(FctB12=I)

Appendix C - List of Bay Types

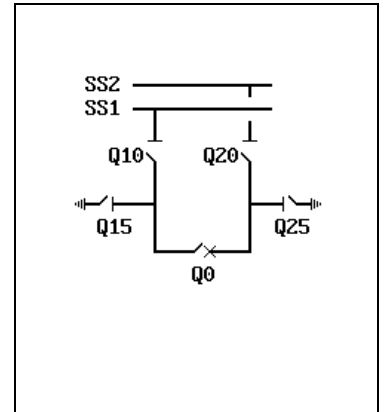
(continued)

Bay Type No. 240 (Q25.113.M03)

Bus coupler bay with circuit breaker, double busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q10 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q20 (DEV03)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Q15 (DEV04)	Open	U 2I	/
	Close(d)	U 2J	/
Q25 (DEV05)	Open	U 2K	/
	Close(d)	U 2L	/
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	$(Q15=0) \ \& \ (Q25=0)$
	Close(d)	$\neg(Q10=X) \ \& \ \neg(Q20=X) \ \& \ (Q15=0) \ \& \ (Q25=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q10	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q15=0)$
Q20	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q25=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	$(Q15=0) \ \& \ (Q25=0)$
	Close(d)	$\neg(Q10=X) \ \& \ \neg(Q20=X) \ \& \ (Q15=0) \ \& \ (Q25=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q10	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q15=0)$
Q20	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q25=0)$

Appendix C - List of Bay Types

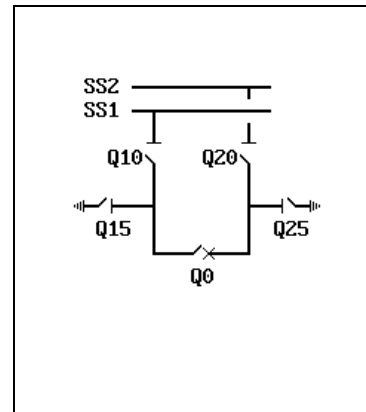
(continued)

Bay Type No. 215 (Q25.113.M05)

Bus coupler bay with circuit breaker, double busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q10 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q20 (DEV03)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Q15 (DEV04)	Open	U 2I	K 2I
	Close(d)	U 2J	K 2J
Q25 (DEV05)	Open	U 2K	K 2K
	Close(d)	U 2L	K 2L
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	$(Q15=0) \ \& \ (Q25=0)$
	Close(d)	$\neg(Q10=X) \ \& \ \neg(Q20=X) \ \& \ (Q15=0) \ \& \ (Q25=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q10	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q15=0)$
Q15	Open	$(Q0=I) \ \& \ (Q20=I)$
	Close(d)	$(Q0=0) \ \& \ (Q10=0) \ \& \ (Q20=I) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I) \ \& \ (Q15=I)$
Q20	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q25=0)$
Q25	Open	$(Q0=I) \ \& \ (Q10=I)$
	Close(d)	$(Q0=0) \ \& \ (Q20=0) \ \& \ (Q10=I) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I) \ \& \ (Q25=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	$(Q15=0) \ \& \ (Q25=0)$
	Close(d)	$\neg(Q10=X) \ \& \ \neg(Q20=X) \ \& \ (Q15=0) \ \& \ (Q25=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q10	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q15=0)$
Q15	Open	$(Q0=I) \ \& \ (Q20=I)$
	Close(d)	$(Q0=0) \ \& \ (Q10=0) \ \& \ (Q20=I) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q20	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q25=0)$
Q25	Open	$(Q0=I) \ \& \ (Q10=I)$
	Close(d)	$(Q0=0) \ \& \ (Q20=0) \ \& \ (Q10=I) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

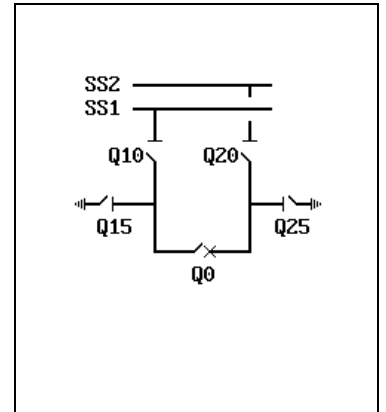
(continued)

Bay Type No. 216 (Q25.113.R01)

Bus coupler bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q10 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/
Q20 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/
Q15 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/
Q25 (DEV05)	Open	U 2I	/
	Close(d)	U 2J	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	$(Q15=0) \ \& \ (Q25=0)$
	Close(d)	$\neg(Q10=X) \ \& \ \neg(Q20=X) \ \& \ (Q15=0) \ \& \ (Q25=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	$(Q15=0) \ \& \ (Q25=0)$
	Close(d)	$\neg(Q10=X) \ \& \ \neg(Q20=X) \ \& \ (Q15=0) \ \& \ (Q25=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

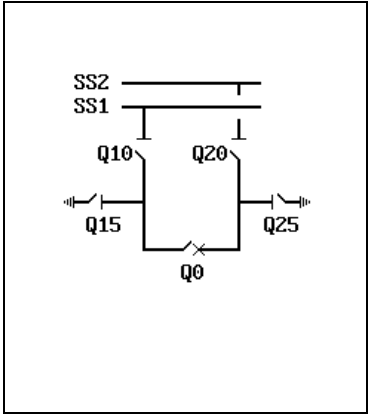
(continued)

Bay Type No. 241 (Q25.113.R03)

Bus coupler bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q10 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q20 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q15 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/
Q25 (DEV05)	Open	U 2I	/
	Close(d)	U 2J	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	$(Q15=0) \ \& \ (Q25=0)$
	Close(d)	$\neg((Q10=X) \ \& \ \neg(Q20=X) \ \& \ (Q15=0) \ \& \ (Q25=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I))$
Q10	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q15=0)$
Q20	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q25=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	$(Q15=0) \ \& \ (Q25=0)$
	Close(d)	$\neg((Q10=X) \ \& \ \neg(Q20=X) \ \& \ (Q15=0) \ \& \ (Q25=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I))$
Q10	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q15=0)$
Q20	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q25=0)$

Appendix C - List of Bay Types

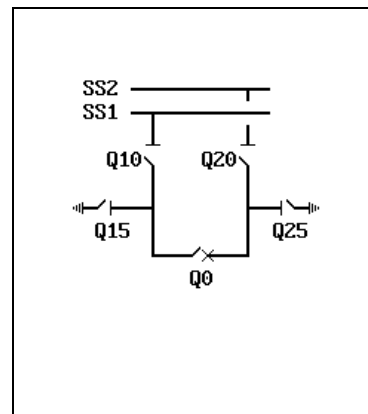
(continued)

Bay Type No. 217 (Q25.113.R05)

Bus coupler bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q10 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q20 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q15 (DEV04)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Q25 (DEV05)	Open	U 2I	K 2I
	Close(d)	U 2J	K 2J



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	$(Q15=0) \ \& \ (Q25=0)$
	Close(d)	$\neg(Q10=X) \ \& \ \neg(Q20=X) \ \& \ (Q15=0) \ \& \ (Q25=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q10	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q15=0)$
Q15	Open	$(Q0=I) \ \& \ (Q20=I)$
	Close(d)	$(Q0=0) \ \& \ (Q10=0) \ \& \ (Q20=I) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I) \ \& \ (Q15=I)$
Q20	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q25=0)$
Q25	Open	$(Q0=I) \ \& \ (Q10=I)$
	Close(d)	$(Q0=0) \ \& \ (Q20=0) \ \& \ (Q10=I) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I) \ \& \ (Q25=I)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Open	$(Q15=0) \ \& \ (Q25=0)$
	Close(d)	$\neg(Q10=X) \ \& \ \neg(Q20=X) \ \& \ (Q15=0) \ \& \ (Q25=0) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q10	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q15=0)$
Q15	Open	$(Q0=I) \ \& \ (Q20=I)$
	Close(d)	$(Q0=0) \ \& \ (Q10=0) \ \& \ (Q20=I) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q20	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q25=0)$
Q25	Open	$(Q0=I) \ \& \ (Q10=I)$
	Close(d)	$(Q0=0) \ \& \ (Q20=0) \ \& \ (Q10=I) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$

Appendix C - List of Bay Types

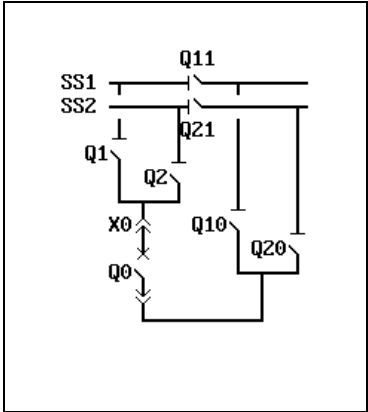
(continued)

Bay Type No. 218 (K29.101.R02)

Bus coupler and sectionalizer bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	/
	Close(d)	U 2B	/
Q10 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q20 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q11 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/
Q21 (DEV05)	Open	U 2I	/
	Close(d)	U 2J	/
X0 (DEV06)	Open	U 2K	/
	Close(d)	U 2L	/
Q1 (DEV07)	Open	U 2M	/
	Close(d)	U 2N	/
Q2 (DEV08)	Open	U 2O	/
	Close(d)	U 2P	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q10	Open	(Q0=0)
	Close(d)	(Q0=0) & (Q20=0)
Q20	Open	(Q0=0)
	Close(d)	(Q0=0) & (Q10=0)

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q10	Open	(Q0=0)
	Close(d)	(Q0=0) & (Q20=0)
Q20	Open	(Q0=0)
	Close(d)	(Q0=0) & (Q10=0)

Appendix C - List of Bay Types

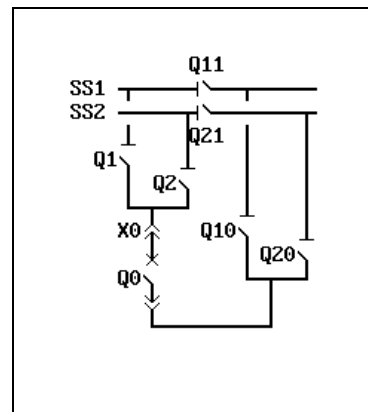
(continued)

Bay Type No. 219 (K29.101.R06)

Bus coupler and sectionalizer bay with circuit breaker, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q1 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q2 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q11 (DEV04)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Q21 (DEV05)	Open	U 2I	K 2I
	Close(d)	U 2J	K 2J
X0 (DEV06)	Open	U 2K	K 2K
	Close(d)	U 2L	K 2L
Q10 (DEV07)	Open	U 2M	/
	Close(d)	U 2N	/
Q20 (DEV08)	Open	U 2O	/
	Close(d)	U 2P	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(X0=X) \ \& \ \neg(Q10=X) \ \& \ \neg(Q20=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q2=0)$
Q11	Open	$(Q0=I) \ \& \ (Q1=I) \ \& \ (Q10=I) \ \& \ (X0=I)$
	Close(d)	$(Q0=I) \ \& \ (Q1=I) \ \& \ (Q10=I) \ \& \ (X0=I)$
Q2	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0)$
Q21	Open	$(Q0=I) \ \& \ (Q2=I) \ \& \ (Q20=I) \ \& \ (X0=I)$
	Close(d)	$(Q0=I) \ \& \ (Q2=I) \ \& \ (Q20=I) \ \& \ (X0=I)$
X0	Open	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0) \ \& \ (Q10=0) \ \& \ (Q20=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0) \ \& \ (Q10=0) \ \& \ (Q20=0)$

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q0	Close(d)	$\neg(Q1=X) \ \& \ \neg(Q2=X) \ \& \ \neg(X0=X) \ \& \ \neg(Q10=X) \ \& \ \neg(Q20=X) \ \& \ \neg(FctBl1=I) \ \& \ \neg(FctBl2=I)$
Q1	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q2=0)$
Q11	Open	$(Q0=I) \ \& \ (Q1=I) \ \& \ (Q10=I) \ \& \ (X0=I)$
	Close(d)	$(Q0=I) \ \& \ (Q1=I) \ \& \ (Q10=I) \ \& \ (X0=I)$
Q2	Open	$(Q0=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0)$
Q21	Open	$(Q0=I) \ \& \ (Q2=I) \ \& \ (Q20=I) \ \& \ (X0=I)$
	Close(d)	$(Q0=I) \ \& \ (Q2=I) \ \& \ (Q20=I) \ \& \ (X0=I)$
X0	Open	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0) \ \& \ (Q10=0) \ \& \ (Q20=0)$
	Close(d)	$(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0) \ \& \ (Q10=0) \ \& \ (Q20=0)$

Appendix C - List of Bay Types

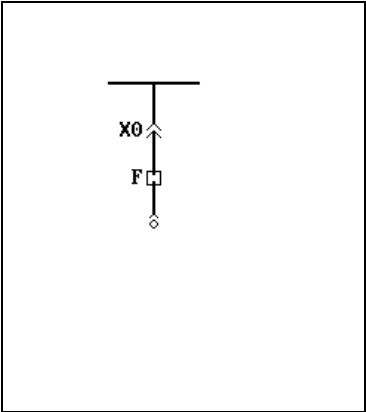
(continued)

Bay Type No. 171 (M11.300.R00)

Busbar measurement bay with fuse unit, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
X0 (DEV01)	Open	U 2A	/
	Close(d)	U 2B	/
F (SIG_1: Signal S011)		U 2K	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Appendix C - List of Bay Types

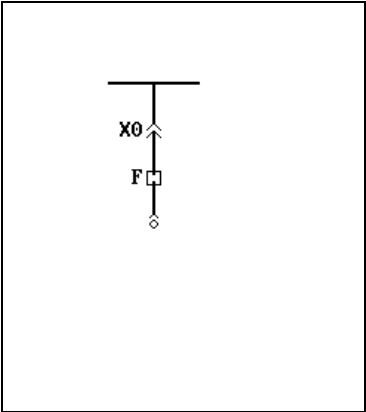
(continued)

Bay Type No. 172 (M11.300.R01)

Busbar measurement bay with fuse unit, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
X0 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
F (SIG_1: Signal S011)		U 2K	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Appendix C - List of Bay Types

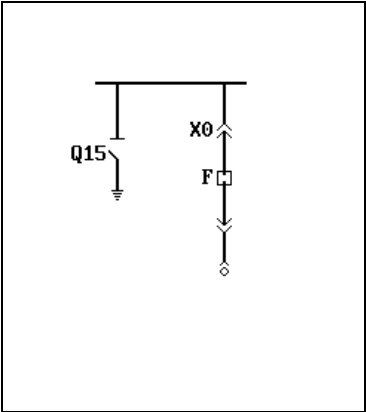
(continued)

Bay Type No. 540 (M11.304.R02)

Busbar measurement bay with fuse unit, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q15 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
X0 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
F (SIG_1: Signal S011)		U 2K	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q15	Close(d)	(Q15=I)

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Appendix C - List of Bay Types

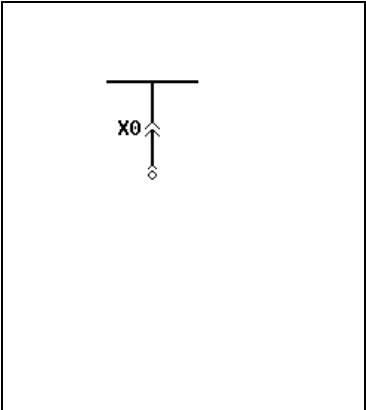
(continued)

Bay Type No. 173 (M11.900.R00)

Busbar measurement bay with other switchgear unit, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit	Binary input	Output relay
X0 (DEV01) Open Close(d)	U 2A U 2B	/ /



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Appendix C - List of Bay Types

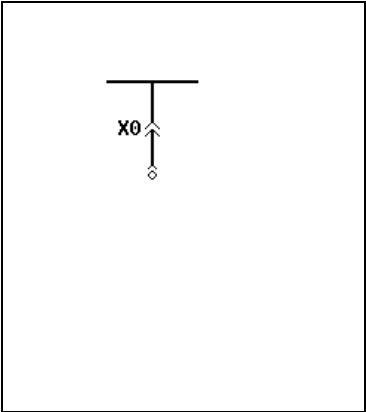
(continued)

Bay Type No. 174 (M11.900.R01)

Busbar measurement bay with other switchgear unit, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
X0 (DEV01)	Open Close(d)	U 2A U 2B	K 2A K 2B



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Appendix C - List of Bay Types

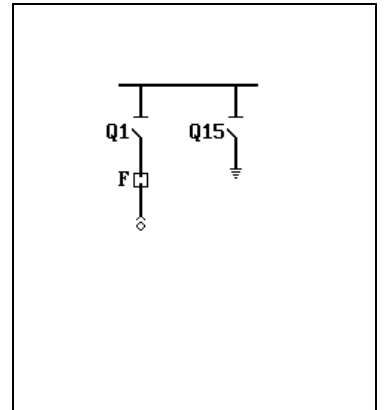
(continued)

Bay Type No. 175 (M13.312.M02)

Busbar measurement bay with fuse unit, single busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q1 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q15 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
F (SIG_1: Signal S011)		U 2K	/
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q15	Close(d)	(Q15=I)

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Appendix C - List of Bay Types

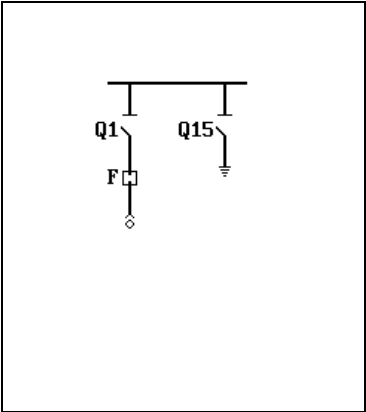
(continued)

Bay Type No. 176 (M13.312.R01)

Busbar measurement bay with fuse unit, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q1 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q15 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/
F (SIG_1: Signal S011)		U 2K	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Appendix C - List of Bay Types

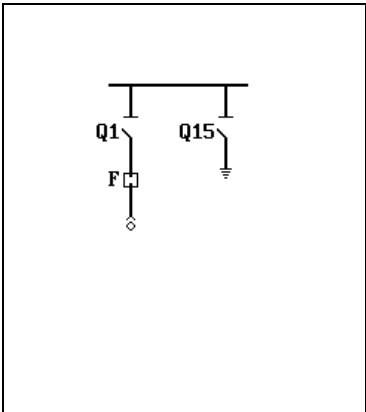
(continued)

Bay Type No. 177 (M13.312.R02)

Busbar measurement bay with fuse unit, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q1 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q15 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
F (SIG_1: Signal S011)		U 2K	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q15	Close(d)	(Q15=I)

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Appendix C - List of Bay Types

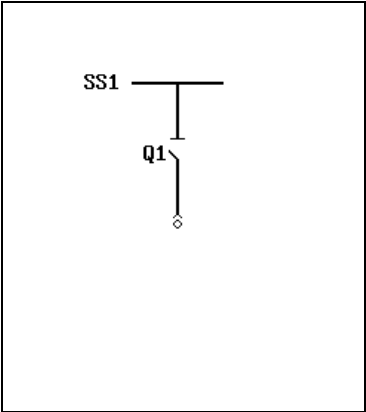
(continued)

Bay Type No. 506 (M13.902.R00)

Busbar measurement bay with other switchgear unit, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q1 (DEV01)	Open Close(d)	U 2A U 2B	/ /



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Appendix C - List of Bay Types

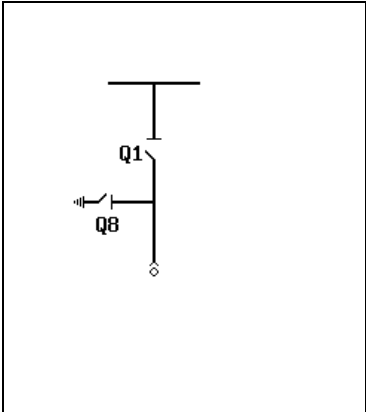
(continued)

Bay Type No. 232 (M15.903.M01)

Busbar measurement bay with other switchgear unit, single busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q1 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q8 (DEV02)	Open	U 2E	/
	Close(d)	U 2F	/
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q1	Close(d)	(Q8=0)

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q1	Close(d)	(Q8=0)

Appendix C - List of Bay Types

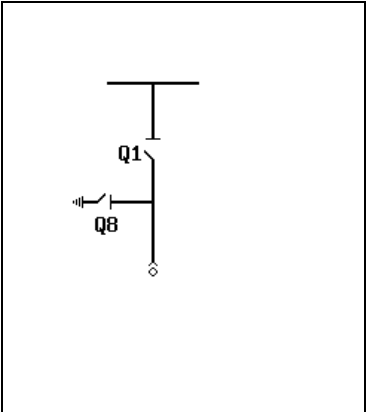
(continued)

Bay Type No. 178 (M15.903.M02)

Busbar measurement bay with other switchgear unit, single busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q1 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q8 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q1	Close(d)	(Q8=0)
Q8	Close(d)	(Q1=0)

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q1	Close(d)	(Q8=0)
Q8	Close(d)	(Q1=0)

Appendix C - List of Bay Types

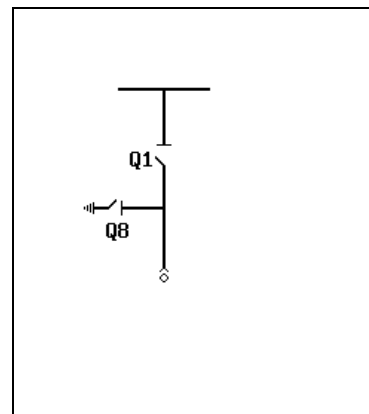
(continued)

Bay Type No. 233 (M15.903.R01)

Busbar measurement bay with other switchgear unit, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q1 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q8 (DEV02)	Open	U 2C	/
	Close(d)	U 2D	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q1	Close(d)	(Q8=0)

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q1	Close(d)	(Q8=0)

Appendix C - List of Bay Types

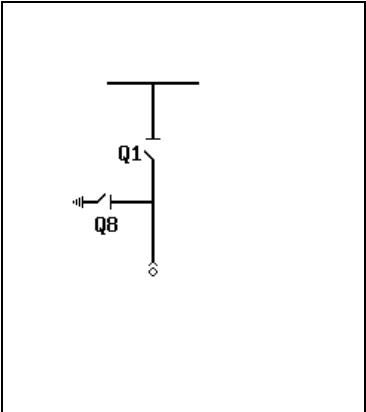
(continued)

Bay Type No. 179 (M15.903.R02)

Busbar measurement bay with other switchgear unit, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q1 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q8 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q1	Close(d)	(Q8=0)
Q8	Close(d)	(Q1=0)

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q1	Close(d)	(Q8=0)
Q8	Close(d)	(Q1=0)

Appendix C - List of Bay Types

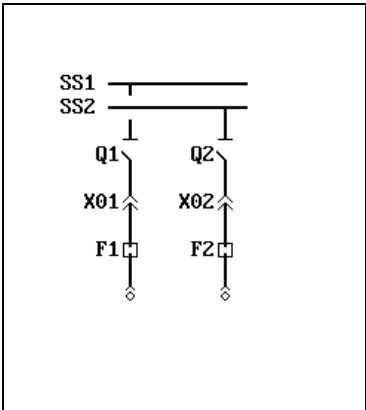
(continued)

Bay Type No. 180 (M21.302.R02)

Busbar measurement bay with fuse unit, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q1 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q2 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
X01 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/
X02 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/
F1 (SIG_1: Signal S011)		U 2K	/
F2 (SIG_1: Signal S012)		U 2L	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Appendix C - List of Bay Types

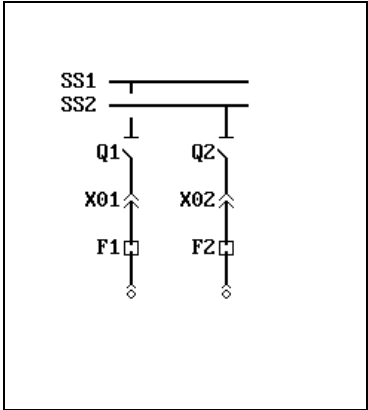
(continued)

Bay Type No. 181 (M21.302.R04)

Busbar measurement bay with fuse unit, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q1 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q2 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
X01 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
X02 (DEV04)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
F1 (SIG_1: Signal S011)		U 2K	/
F2 (SIG_1: Signal S012)		U 2L	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
X01	Open	(Q1=0)
	Close(d)	(Q1=0)
X02	Open	(Q2=0)
	Close(d)	(Q2=0)

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
X01	Open	(Q1=0)
	Close(d)	(Q1=0)
X02	Open	(Q2=0)
	Close(d)	(Q2=0)

Appendix C - List of Bay Types

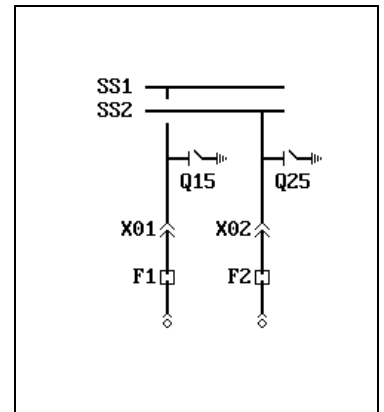
(continued)

Bay Type No. 182 (M21.312.R02)

Busbar measurement bay with fuse unit, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q15 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q25 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
X01 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/
X02 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/
F1 (SIG_1: Signal S011)		U 2K	/
F2 (SIG_1: Signal S012)		U 2L	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q15	Close(d)	((Q15=I)
Q25	Close(d)	((Q25=I)

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Appendix C - List of Bay Types

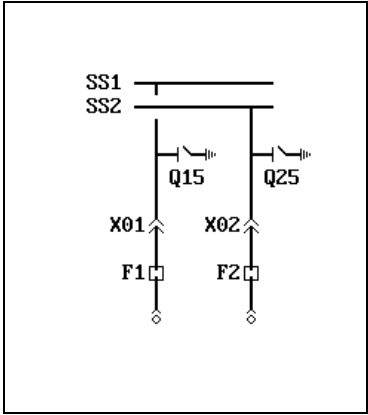
(continued)

Bay Type No. 183 (M21.312.R04)

Busbar measurement bay with fuse unit, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q15 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q25 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
X01 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
X02 (DEV04)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
F1 (SIG_1: Signal S011)		U 2K	/
F2 (SIG_1: Signal S012)		U 2L	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q15	Close(d)	(Q15=I)
Q25	Close(d)	(Q25=I)

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Appendix C - List of Bay Types

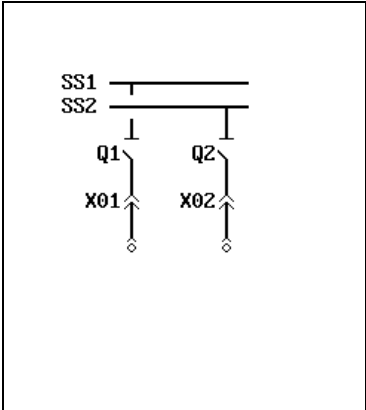
(continued)

Bay Type No. 184 (M21.902.R02)

Busbar measurement bay with other switchgear unit, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q1 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q2 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
X01 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/
X02 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Appendix C - List of Bay Types

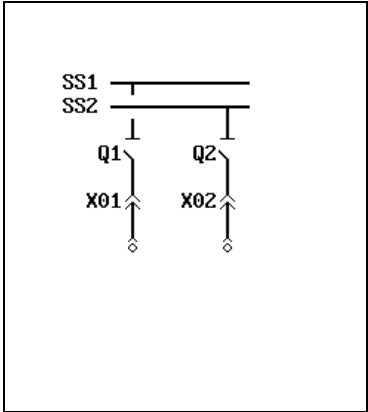
(continued)

Bay Type No. 185 (M21.902.R04)

Busbar measurement bay with other switchgear unit, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q1 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q2 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
X01 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
X02 (DEV04)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
X01	Open	(Q1=0)
	Close(d)	(Q1=0)
X02	Open	(Q2=0)
	Close(d)	(Q2=0)

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
X01	Open	(Q1=0)
	Close(d)	(Q1=0)
X02	Open	(Q2=0)
	Close(d)	(Q2=0)

Appendix C - List of Bay Types

(continued)

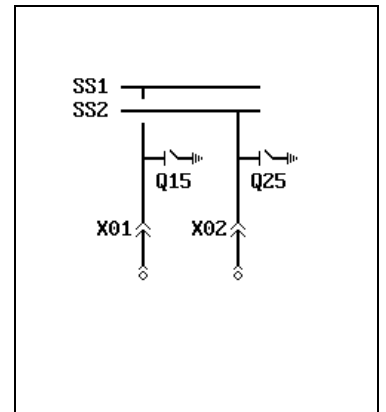
Bay Type No. 186

(M21.912.R02)

Busbar measurement bay with other switchgear unit, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q15 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q25 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
X01 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/
X02 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q15	Close(d)	(Q15=I)
Q25	Close(d)	(Q25=I)

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Appendix C - List of Bay Types

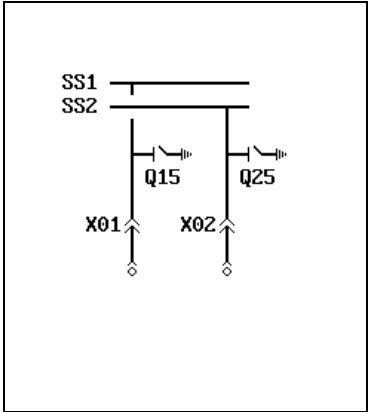
(continued)

Bay Type No. 187 (M21.912.R04)

Busbar measurement bay with other switchgear unit, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q15 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q25 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
X01 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
X02 (DEV04)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q15	Close(d)	(Q15=I)
Q25	Close(d)	(Q25=I)

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Appendix C - List of Bay Types

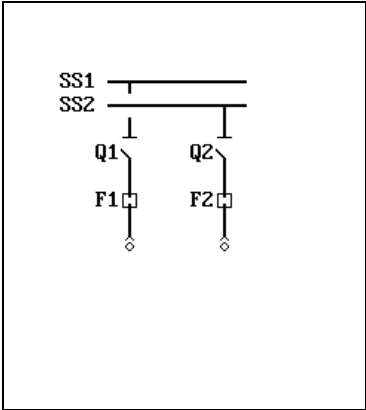
(continued)

Bay Type No. 188 (M23.302.R02)

Busbar measurement bay with fuse unit, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q1 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q2 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
F1 (SIG_1: Signal S011)		U 2K	/
F2 (SIG_1: Signal S012)		U 2L	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Appendix C - List of Bay Types

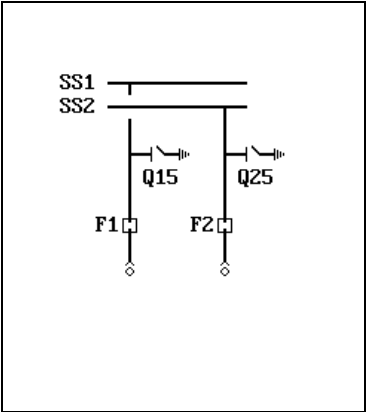
(continued)

Bay Type No. 189 (M23.312.R02)

Busbar measurement bay with fuse unit, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q15 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q25 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
F1 (SIG_1: Signal S011)		U 2K	/
F2 (SIG_1: Signal S012)		U 2L	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q15	Close(d)	(Q15=I)
Q25	Close(d)	(Q25=I)

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Appendix C - List of Bay Types

(continued)

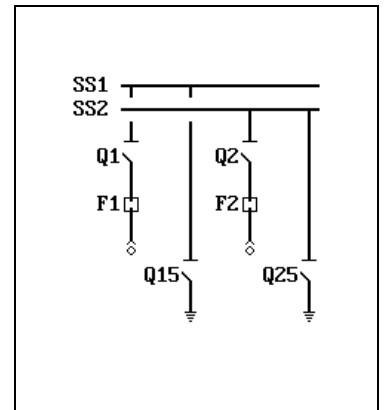
Bay Type No. 190

(M23.328.M04)

Busbar measurement bay with fuse unit, double busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q1 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q2 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q15 (DEV03)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Q25 (DEV04)	Open	U 2I	K 2I
	Close(d)	U 2J	K 2J
F2 (SIG_1: Signal S010)		U 2L	/
F1 (SIG_1: Signal S011)		U 2K	/
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q15	Close(d)	(Q15=I)
Q25	Close(d)	(Q25=I)

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Appendix C - List of Bay Types

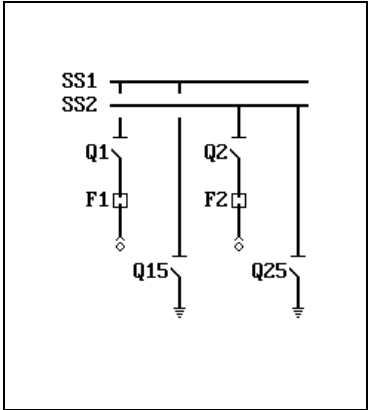
(continued)

Bay Type No. 191 (M23.328.R02)

Busbar measurement bay with fuse unit, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q1 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q2 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q15 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/
Q25 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/
F1 (SIG_1: Signal S011)		U 2K	/
F2 (SIG_1: Signal S012)		U 2L	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Appendix C - List of Bay Types

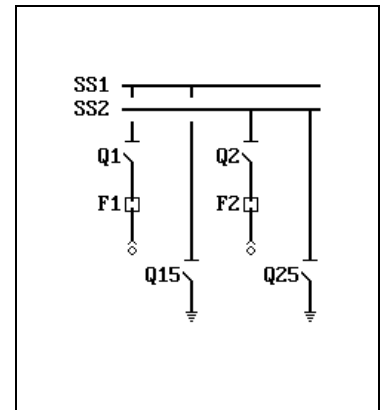
(continued)

Bay Type No. 192 (M23.328.R04)

Busbar measurement bay with fuse unit, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q1 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q2 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q15 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q25 (DEV04)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
F1 (SIG_1: Signal S011)		U 2K	/
F2 (SIG_1: Signal S012)		U 2L	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q15	Close(d)	(Q15=I)
Q25	Close(d)	(Q25=I)

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Appendix C - List of Bay Types

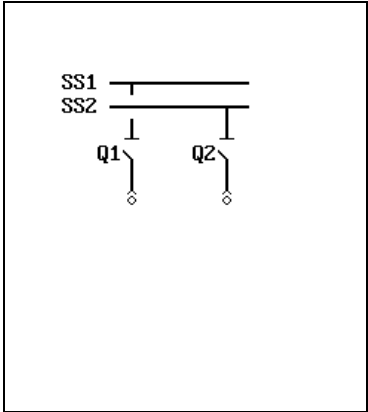
(continued)

Bay Type No. 193 (M23.902.R02)

Busbar measurement bay with other switchgear unit, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q1 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q2 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Appendix C - List of Bay Types

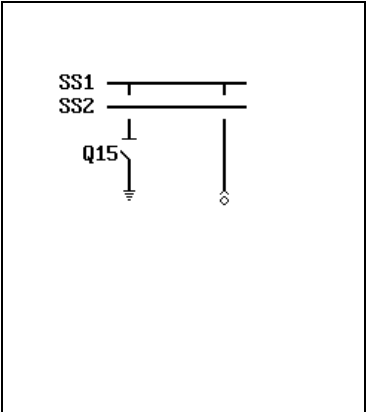
(continued)

Bay Type No. 559 (M23.904.R00)

Busbar measurement bay with other switchgear unit, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q15 (DEV01)	Open Close(d)	U 2A U 2B	/ /



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Appendix C - List of Bay Types

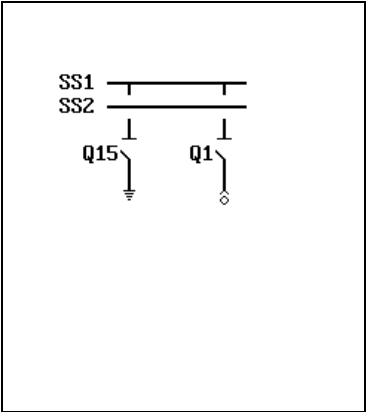
(continued)

Bay Type No. 509 (M23.906.M01)

Busbar measurement bay with other switchgear unit, double busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q1 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q15 (DEV02)	Open	U 2E	/
	Close(d)	U 2F	/
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Appendix C - List of Bay Types

(continued)

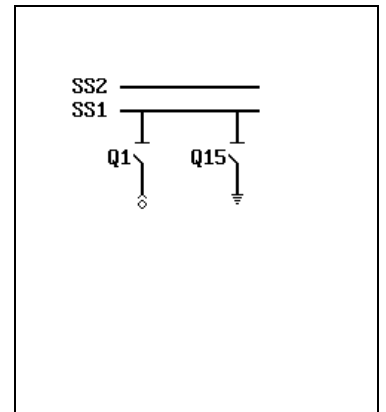
Bay Type No. 529

(M23.906.M02)

Busbar measurement bay with other switchgear unit, double busbar, direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q1 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q15 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2G
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q15	Close(d)	(Q15=I)

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Appendix C - List of Bay Types

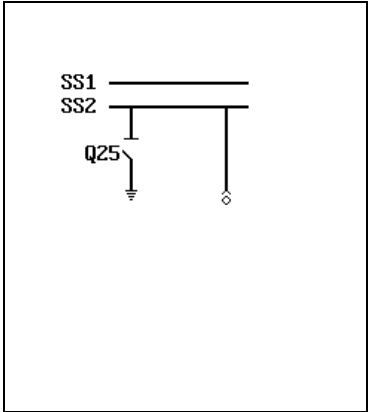
(continued)

Bay Type No. 560 (M23.908.R00)

Busbar measurement bay with other switchgear unit, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q25 (DEV01)	Open Close(d)	U 2A U 2B	/ /



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

(continued)

(M23.910.M01)

Assignment of Binary Inputs and Output Relays

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Appendix C - List of Bay Types

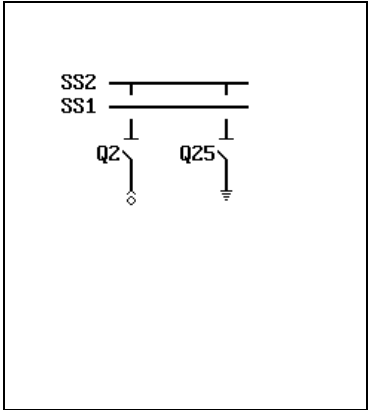
(continued)

Bay Type No. 530 (M23.910.M02)

Busbar measurement bay with other switchgear unit, double busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q2 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q25 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2G
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q25	Close(d)	(Q25=I)

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Appendix C - List of Bay Types

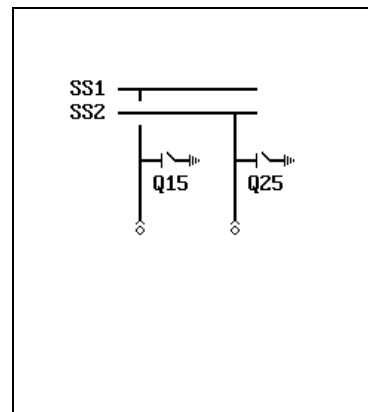
(continued)

Bay Type No. 194 (M23.912.R02)

Busbar measurement bay with other switchgear unit, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q15 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q25 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q15	Close(d)	(Q15=I)
Q25	Close(d)	(Q25=I)

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Appendix C - List of Bay Types

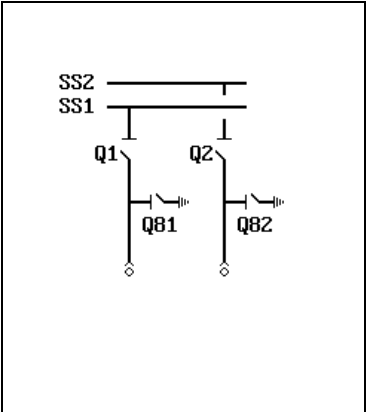
(continued)

Bay Type No. 234 (M25.903.M02)

Busbar measurement bay with other switchgear unit, double busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q1 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q2 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q81 (DEV03)	Open	U 2G	/
	Close(d)	U 2H	/
Q82 (DEV04)	Open	U 2I	/
	Close(d)	U 2J	/
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q1	Close(d)	(Q81=0)
Q2	Close(d)	(Q82=0)

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q1	Close(d)	(Q81=0)
Q2	Close(d)	(Q82=0)

Appendix C - List of Bay Types

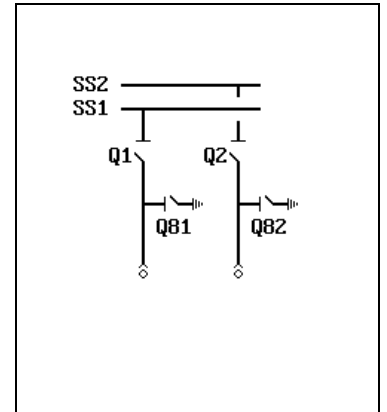
(continued)

Bay Type No. 195 (M25.903.M04)

Busbar measurement bay with other switchgear unit, double busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q1 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q2 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q81 (DEV03)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H
Q82 (DEV04)	Open	U 2I	K 2I
	Close(d)	U 2J	K 2J
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q1	Close(d)	(Q81=0)
Q2	Close(d)	(Q82=0)
Q81	Close(d)	(Q1=0)
Q82	Close(d)	(Q2=0)

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q1	Close(d)	(Q81=0)
Q2	Close(d)	(Q82=0)
Q81	Close(d)	(Q1=0)
Q82	Close(d)	(Q2=0)

Appendix C - List of Bay Types

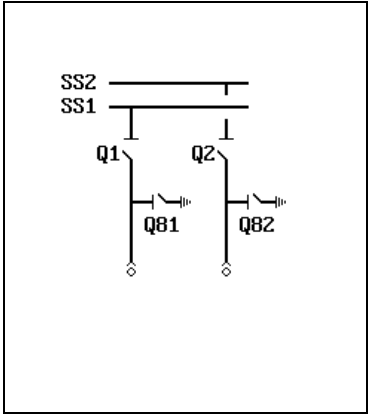
(continued)

Bay Type No. 235 (M25.903.R02)

Busbar measurement bay with other switchgear unit, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q1 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q2 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q81 (DEV03)	Open	U 2E	/
	Close(d)	U 2F	/
Q82 (DEV04)	Open	U 2G	/
	Close(d)	U 2H	/



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q1	Close(d)	(Q81=0)
Q2	Close(d)	(Q82=0)

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q1	Close(d)	(Q81=0)
Q2	Close(d)	(Q82=0)

Appendix C - List of Bay Types

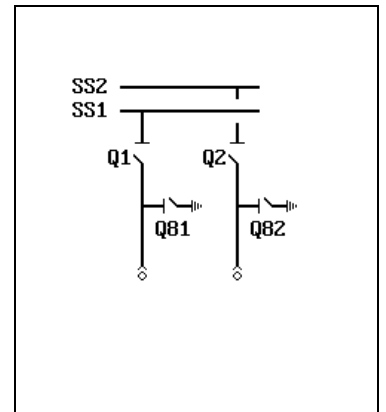
(continued)

Bay Type No. 196 (M25.903.R04)

Busbar measurement bay with other switchgear unit, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q1 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q2 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D
Q81 (DEV03)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Q82 (DEV04)	Open	U 2G	K 2G
	Close(d)	U 2H	K 2H



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q1	Close(d)	(Q81=0)
Q2	Close(d)	(Q82=0)
Q81	Close(d)	(Q1=0)
Q82	Close(d)	(Q2=0)

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q1	Close(d)	(Q81=0)
Q2	Close(d)	(Q82=0)
Q81	Close(d)	(Q1=0)
Q82	Close(d)	(Q2=0)

Appendix C - List of Bay Types

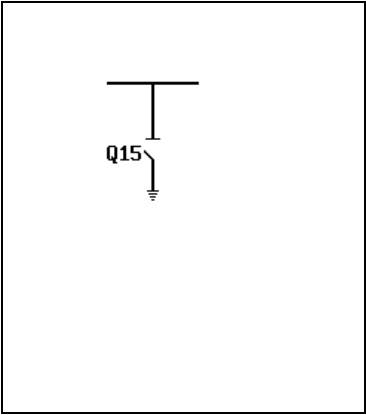
(continued)

Bay Type No. 129 (E13.901.M01)

Busbar grounding bay with other switchgear unit, single busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q15 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q15	Close(d)	(Q15=I)

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Appendix C - List of Bay Types

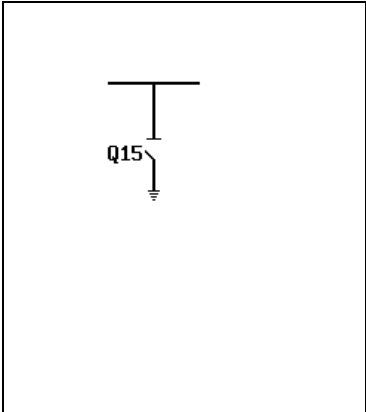
(continued)

Bay Type No. 130 (E13.901.R01)

Busbar grounding bay with other switchgear unit, single busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q15 (DEV01)	Open Close(d)	U 2A U 2B	K 2A K 2B



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q15	Close(d)	((Q15=I)

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Appendix C - List of Bay Types

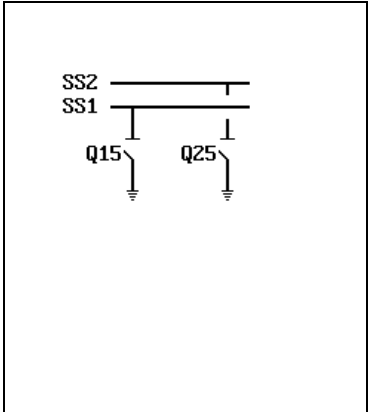
(continued)

Bay Type No. 131 (E23.903.M02)

Busbar grounding bay with other switchgear unit, double busbar,direct motor control

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q15 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q25 (DEV02)	Open	U 2E	K 2E
	Close(d)	U 2F	K 2F
Mot.relay (SIG_1: Signal S012)		U 2C	/
Shunt wd. (CMD_1: Command C011)		/	K 2D
Mot.relay (CMD_1: Command C012)		/	K 2C



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q15	Close(d)	(Q15=I)
Q25	Close(d)	(Q25=I)

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Appendix C - List of Bay Types

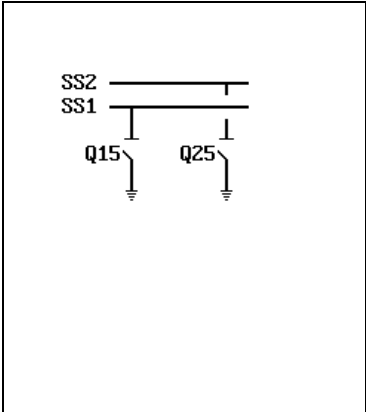
(continued)

Bay Type No. 132 (E23.903.R02)

Busbar grounding bay with other switchgear unit, double busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit		Binary input	Output relay
Q15 (DEV01)	Open	U 2A	K 2A
	Close(d)	U 2B	K 2B
Q25 (DEV02)	Open	U 2C	K 2C
	Close(d)	U 2D	K 2D



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Q15	Close(d)	(Q15=I)
Q25	Close(d)	(Q25=I)

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
Interlock equations not defined		

Appendix C - List of Bay Types

(continued)

Bay Type No. 1 (X99.901.R00)

Other bay type with other switchgear unit, without busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit	Binary input	Output relay

Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Appendix C - List of Bay Types

(continued)

Bay Type No. 984 (X99.910.R02)

Other bay type with other switchgear unit, without busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit	Binary input	Output relay
M001 (SIG_1: Signal S001)	U 2A	/
M002 (SIG_1: Signal S002)	U 2B	/
M003 (SIG_1: Signal S003)	U 2C	/
M004 (SIG_1: Signal S004)	U 2D	/
M005 (SIG_1: Signal S005)	U 2E	/
M006 (SIG_1: Signal S006)	U 2F	/
M007 (SIG_1: Signal S007)	U 2M	/
M008 (SIG_1: Signal S008)	U 2N	/
M009 (SIG_1: Signal S009)	U 2O	/
M010 (SIG_1: Signal S010)	U 2P	/
B001 (CMD_1: Command C001)	/	K 2A
B002 (CMD_1: Command C002)	/	K 2B

I				O	
1	□	13	□	1	□
2	□	14	□	2	□
3	□	15	□	3	
4	□	16	□	4	
5	□	17	□	5	
6	□	18		6	
7		19		7	
8		20		8	
9				9	
10				10	
11				11	
12				12	

Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Appendix C - List of Bay Types

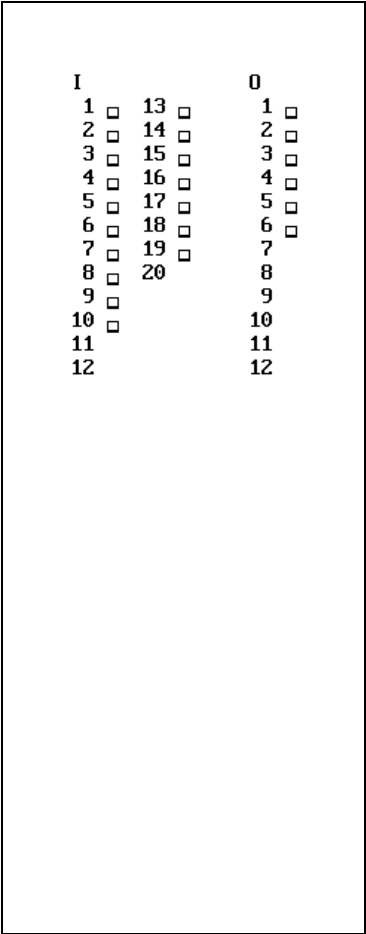
(continued)

Bay Type No. 985 (X99.911.R06)

Other bay type with other switchgear unit, without busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit	Binary input	Output relay
M001 (SIG_1: Signal S001)	U 2A	/
M002 (SIG_1: Signal S002)	U 2B	/
M003 (SIG_1: Signal S003)	U 2C	/
M004 (SIG_1: Signal S004)	U 2D	/
M005 (SIG_1: Signal S005)	U 2E	/
M006 (SIG_1: Signal S006)	U 2F	/
M007 (SIG_1: Signal S007)	U 2G	/
M008 (SIG_1: Signal S008)	U 2H	/
M009 (SIG_1: Signal S009)	U 2I	/
M010 (SIG_1: Signal S010)	U 2J	/
M011 (SIG_1: Signal S011)	U 2M	/
M012 (SIG_1: Signal S012)	U 2N	/
M013 (SIG_1: Signal S013)	U 2O	/
M014 (SIG_1: Signal S014)	U 2P	/
M015 (SIG_1: Signal S015)	U 2Q	/
M016 (SIG_1: Signal S016)	U 2R	/
M017 (SIG_1: Signal S017)	U 2S	/
B001 (CMD_1: Command C001)	/	K 2A
B002 (CMD_1: Command C002)	/	K 2B
B003 (CMD_1: Command C003)	/	K 2C
B004 (CMD_1: Command C004)	/	K 2D
B005 (CMD_1: Command C005)	/	K 2E
B006 (CMD_1: Command C006)	/	K 2F



Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

(continued)

(X99.912.R12)

Assignment of Binary Inputs and Output Relays

I		0
1	☐	1 ☐
2	☐	2 ☐
3	☐	3 ☐
4	☐	4 ☐
5	☐	5 ☐
6	☐	6 ☐
7	☐	7 ☐
8	☐	8 ☐
9	☐	9 ☐
10	☐	10 ☐
11	☐	11 ☐
12	☐	12 ☐

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

C232-302-401/402/403/404-603 / C232/EN M/A23

Appendix C - List of Bay Types

(continued)

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Appendix C - List of Bay Types

(continued)

Bay Type No. 987 (X99.913.R08)

Other bay type with other switchgear unit, without busbar

Assignment of Binary Inputs and Output Relays

Switchgear unit	Binary input	Output relay
M001 (SIG_1: Signal S001)	U 2A	/
M002 (SIG_1: Signal S002)	U 2B	/
M003 (SIG_1: Signal S003)	U 2C	/
M004 (SIG_1: Signal S004)	U 2D	/
M005 (SIG_1: Signal S005)	U 2E	/
M006 (SIG_1: Signal S006)	U 2F	/
M007 (SIG_1: Signal S007)	U 2M	/
M008 (SIG_1: Signal S008)	U 2N	/
M009 (SIG_1: Signal S009)	U 2O	/
M010 (SIG_1: Signal S010)	U 2P	/
M011 (SIG_1: Signal S011)	U 2T	/
B001 (CMD_1: Command C001)	/	K 2A
B002 (CMD_1: Command C002)	/	K 2B
B003 (CMD_1: Command C003)	/	K 2G
B004 (CMD_1: Command C004)	/	K 2H
B005 (CMD_1: Command C005)	/	K 2I
B006 (CMD_1: Command C006)	/	K 2J
B007 (CMD_1: Command C007)	/	K 2K
B008 (CMD_1: Command C008)	/	K 2L

I			O
1	☐	13	☐
2	☐	14	☐
3	☐	15	☐
4	☐	16	☐
5	☐	17	
6	☐	18	
7		19	☐
8		20	☐
9			
10			
11			
12			

Bay Interlock Equations for Operation without Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

Bay Interlock Equations for Operation with Station Interlocking

Switchgear unit	Control O/C	Interlock equation
		Interlock equations not defined

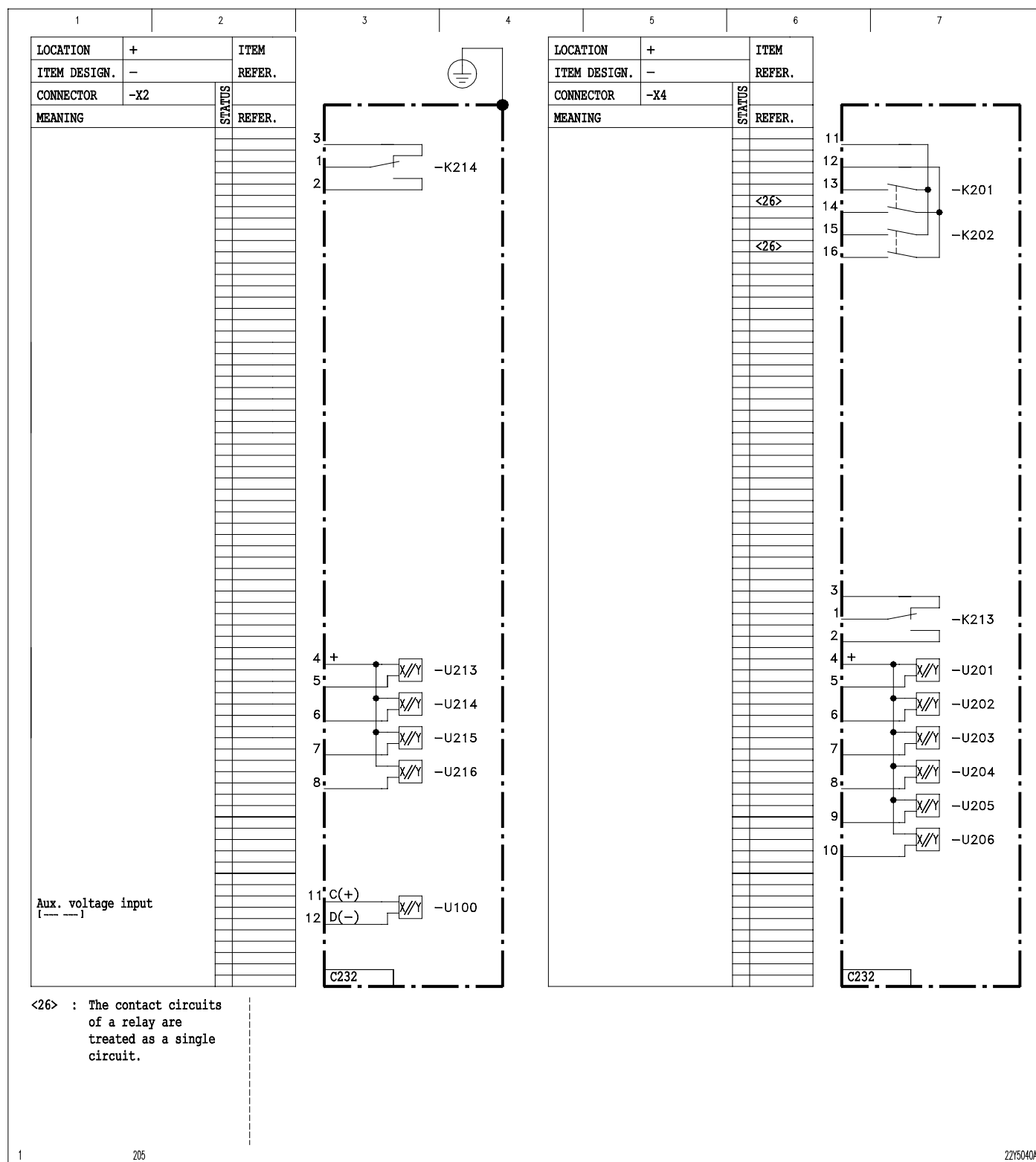
Appendix C - List of Bay Types

(continued)

Appendix D - Terminal Connection Diagrams

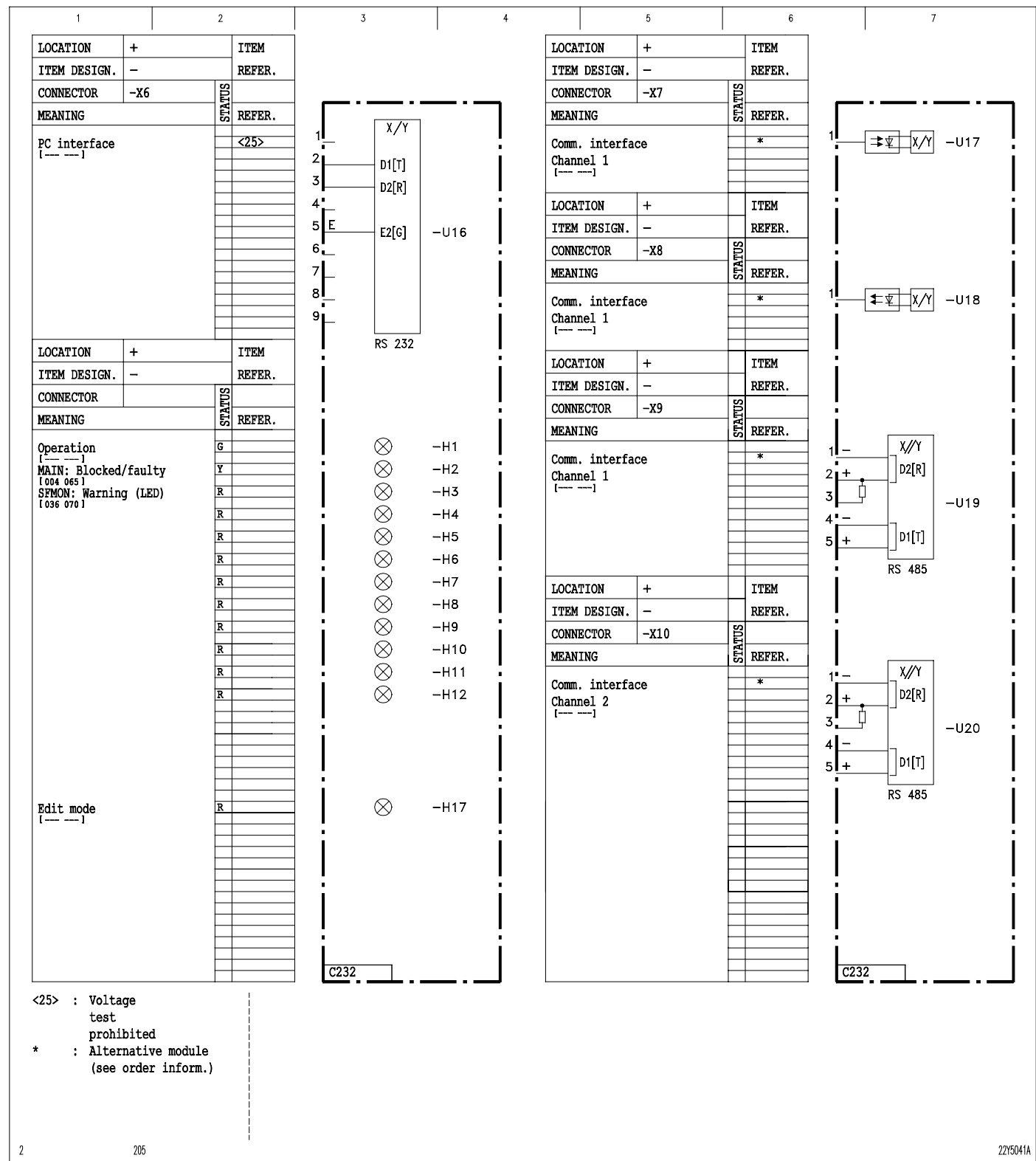
D 1 Terminal Connection Diagrams

D 1.1 Model 1



D-1 Terminal connection diagram C232, diagram C232.401 (part 1 of 2)

Appendix D - Terminal Connection Diagrams
(continued)

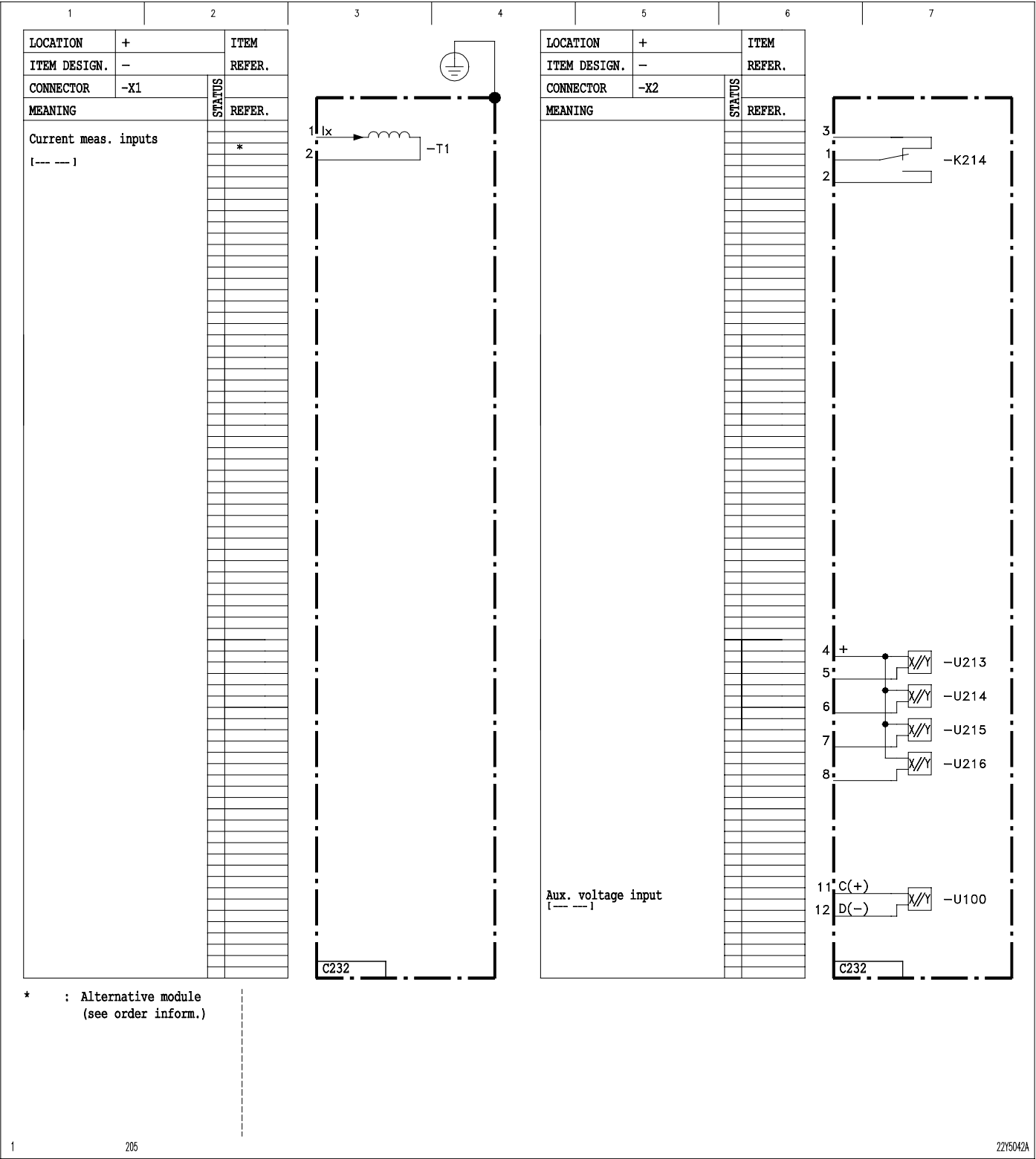


D-2 Terminal connection diagram C232, diagram C232.401 (part 2 of 2)

Appendix D - Terminal Connection Diagrams

(continued)

D 1.2 Model 2

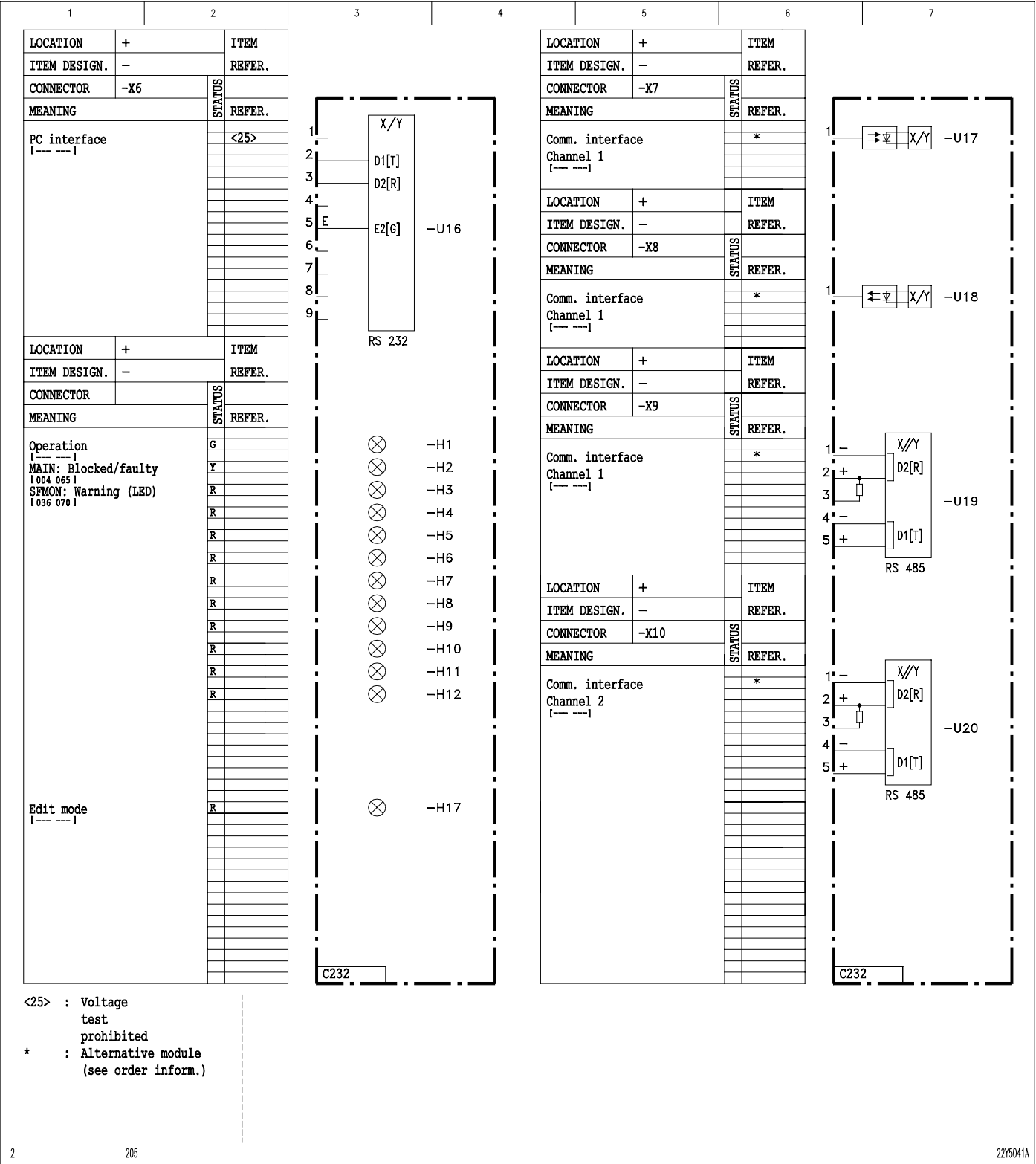


D-3 Terminal connection diagram C232, diagram C232.402 (part 1 of 3)

(continued)

C232-302-401/402/403/404-603 / C232/EN M/A23

Appendix D - Terminal Connection Diagrams
(continued)



D-5 Terminal connection diagram C232, diagram C232.402 (part 3 of 3)

(continued)

LOCATION	+	ITEM	STATUS	REFER.
ITEM DESIGN.	-	REFER.		
CONNECTOR	-X1			
MEANING				
Current meas. inputs		*		
[---]				
Meas. inputs V or I		*		
[---]				
Meas. inputs V or I		*		
[---]				
Voltage meas. inputs		*		
[---]				

C232

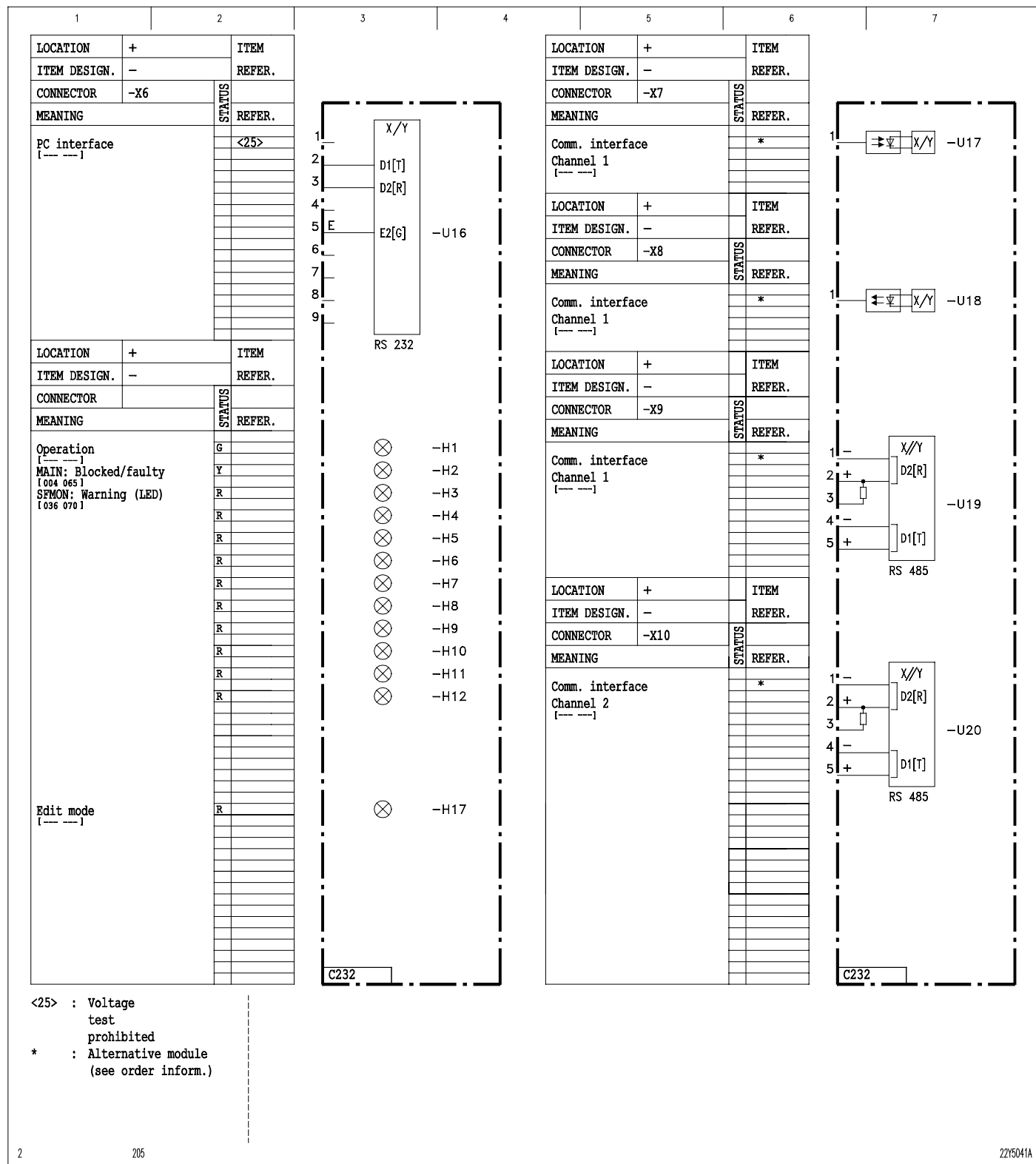
LOCATION	+	ITEM	STATUS	REFER.
ITEM DESIGN.	-	REFER.		
CONNECTOR	-X2			
MEANING				
Aux. voltage input				
[---]				

C232

(continued)

D-7 Terminal connection diagram C232, diagram C232.403 (part 2 of 3)

Appendix D - Terminal Connection Diagrams
(continued)

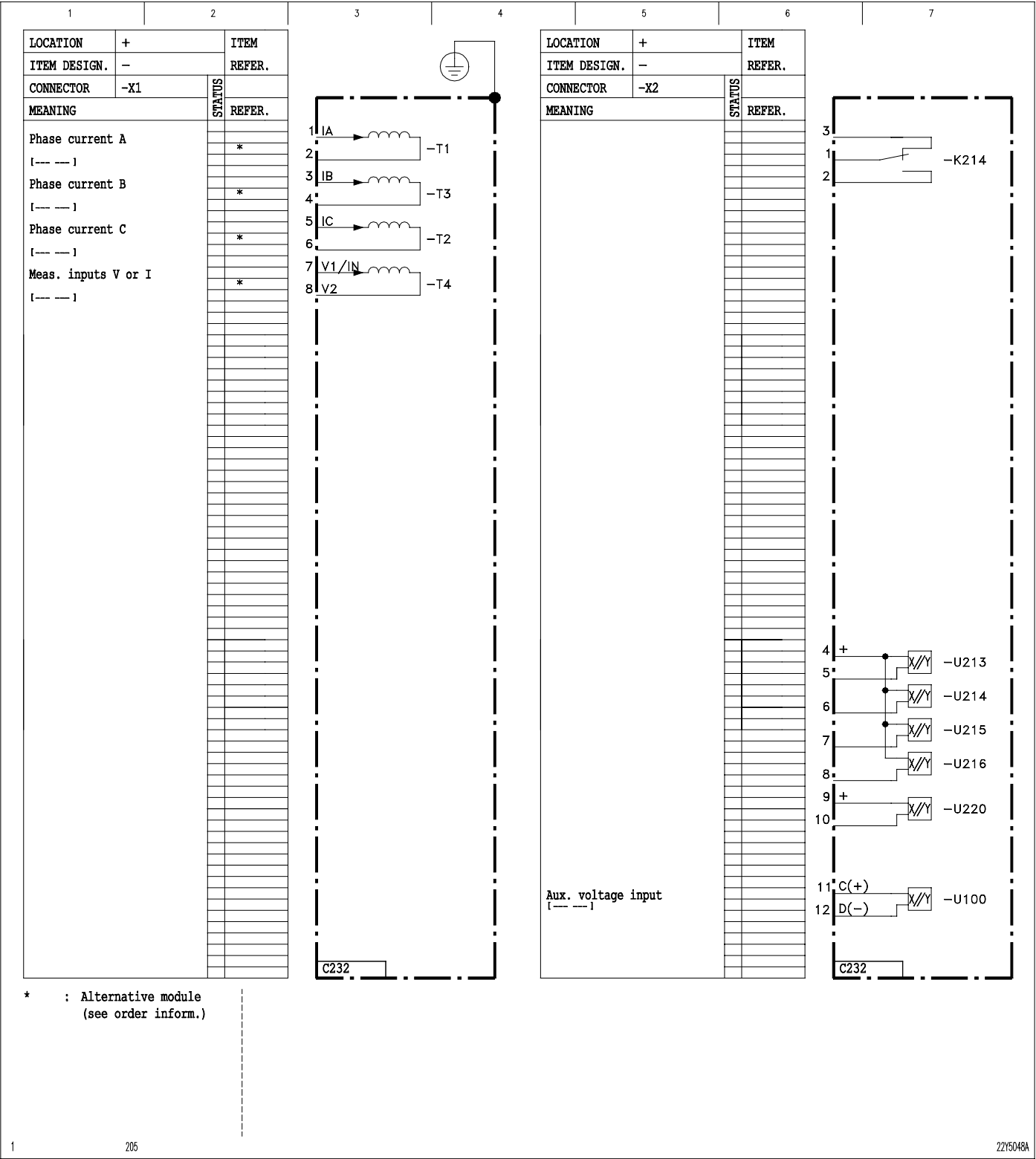


D-8 Terminal connection diagram C232, diagram C232.403 (part 3 of 3)

Appendix D - Terminal Connection Diagrams

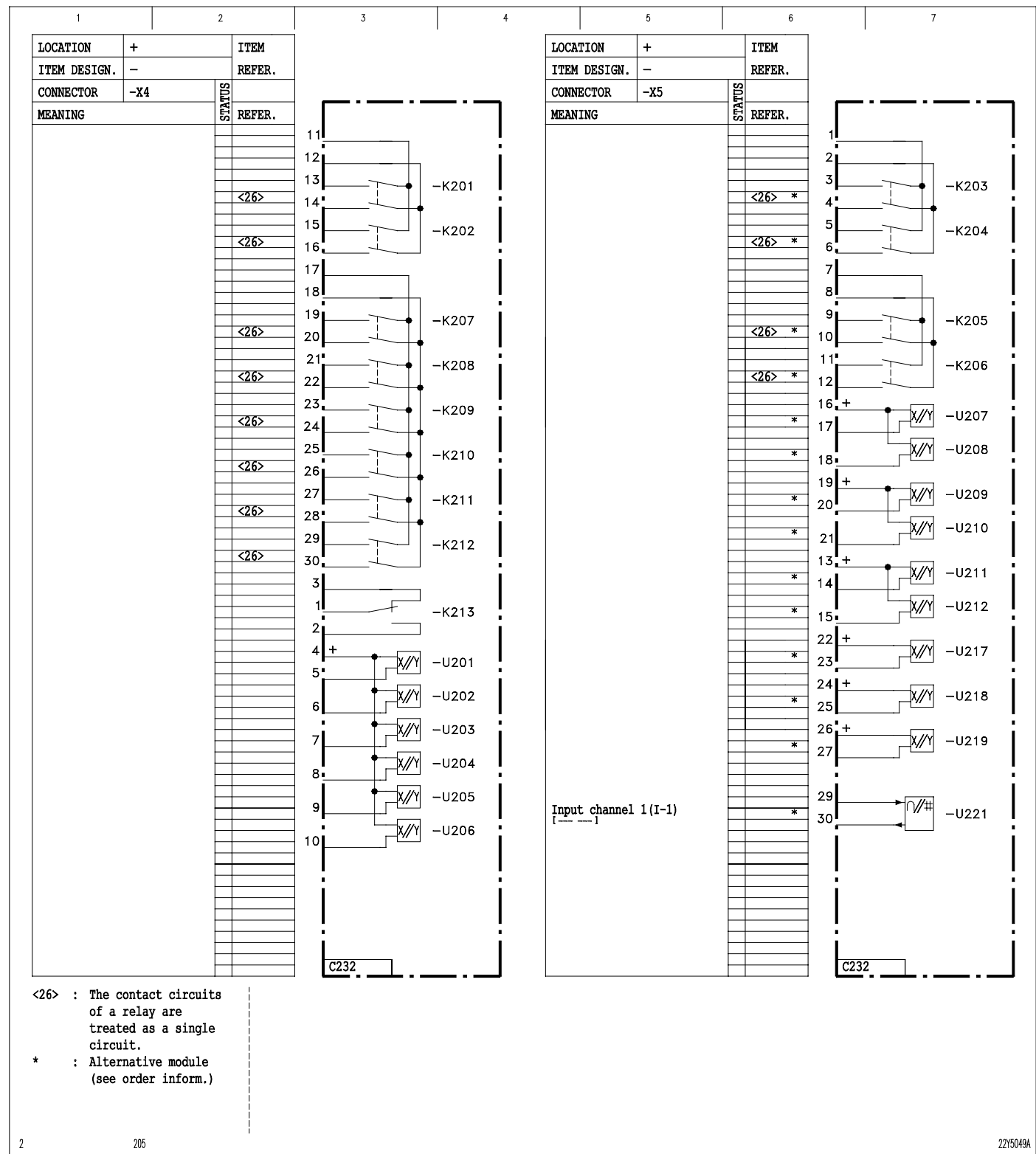
(continued)

D 1.4 Model 4



D-9 Terminal connection diagram C232, diagram C232.404 (part 1 of 3)

Appendix D - Terminal Connection Diagrams
(continued)



D-10 Terminal connection diagram C232, diagram C232.404 (part 2 of 3)

(continued)

D-11

Appendix D - Terminal Connection Diagrams

(continued)



Region Your Contact:

South East Asia
Tel. : +65 67 49 07 77
Fax : +65 68 41 95 55

Pacific
Tel. : +65 67 49 07 77
Fax: +65 68 46 17 95

China | |
Tel. : +86 10 64 10 62 88
Fax : +86 10 6410 62 64

India
Tel. : +91 44 2431 7100
Fax : +91 44 2434 1297

North America
Tel. : +1 (484) 766-8100
Fax : +1 (484) 766-8650

Central America
Tel. : +52 55 11 01 10 00
Fax : +52 55 26 24 04 93

South America
Tel. : +55 11 3491 7469
Fax : +55 11 3491 7476

France
Tel. : +33 (0)1 40 89 66 00
Fax : +33 (0)1 40 89 67 19

British Isles
Tel. : +44 (0) 1785 27 41 08
Fax : +44 (0) 1785 27 45 74

Northern Europe
Tel. : +49 69 66 32 11 51
Fax : +49 69 66 32 21 54

Central Europe & Western Asia
Tel. : +48 22 850 96 96
Fax : +48 22 654 55 88

Near & Middle East
Tel. : +971-6-556 0559
Fax : +971-6-556 5133

Mediterranean, North & West Africa
Tel. : +33 (0)1 41 49 88 38
Fax : +33 (0)1 41 49 24 23

Southern & Eastern Africa
Tel. : +27 11 82 05 111
Fax : +27 11 82 05 220

