Selection and Application Guide
2005

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WL Low Voltage Power Circuit Breaker ANSI / UL 1066 & UL 489

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WL Circuit Breaker

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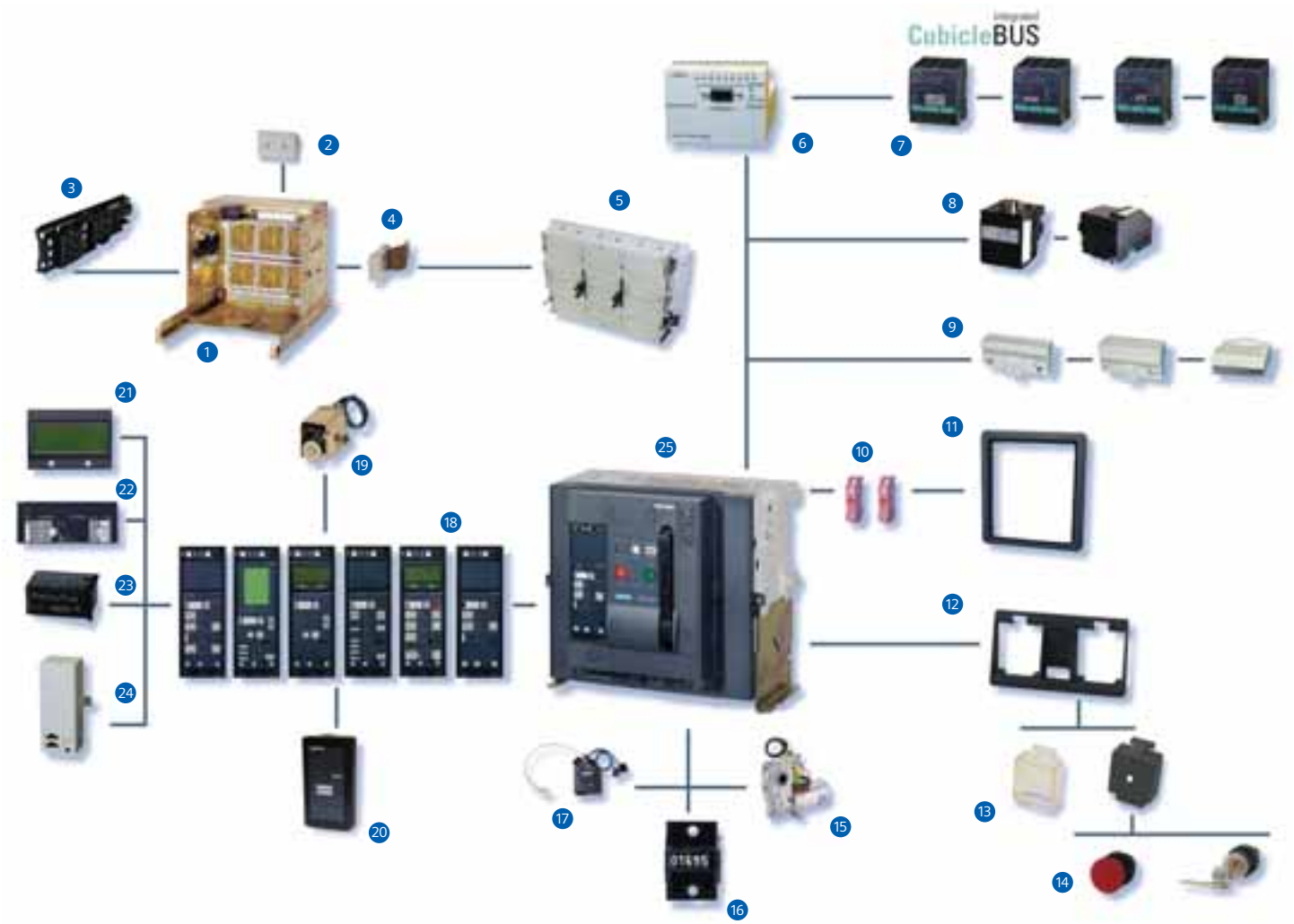
WL Circuit Breakers and Non-Automatic Switches 1

WL Communication-Capable Circuit Breakers 2

Standards and Certificates 3

WL Circuit Breaker:
Superior individual products for low-voltage power distribution systems



1. Guide Frame (for drawout version only)
2. Vertical to Horizontal BUS Connector
3. Position Signaling Switch
4. Breaker / Guide Frame Grounding Contact
5. Shutter (locking)
6. MODBUS or PROFIBUS Communications
7. External CubicleBUS I/O Module
8. Plug-In Open and Closed Solenoids
9. Multiple Secondary Connections
10. Auxiliary Switch Block
11. Door Sealing Frame
12. Interlocking Set Base Plate
13. Protective Cover for OPEN/CLOSE Buttons
14. Multiple Key Locking Accessories
15. Single Bolt Motor Operator Installation
16. Operations Counter
17. Breaker Status Sensor (BSS)
18. Complete Trip Unit Family
19. Remote Reset
20. Breaker Data Adapter (BDA) for Internet Connection
21. Multi Angle LCD Module
22. Ground Fault Protection Module
23. Rating Plug
24. Metering Function (+ wave forms and harmonics)
25. Circuit Breaker

WL Circuit Breaker

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Selection and Ordering Data

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WL Circuit Breaker

3 pole, up to 5000A

Breaker Description

The ever-increasing use of plant and energy management systems has intensified the demand for circuit breakers supporting multiple open protocols to monitor and control the flow of energy in the power system.
The extensive and modular WL family of circuit breakers and accessories provides this for applications from 200A to 5000A.

Applications
WL breakers can be applied as main, tie, feeder or distribution breakers in low-voltage electrical power systems.

Versions
- Frame ratings: 800A to 5000A
- 3 physical frame sizes
- Rated nominal operating voltage up to 600V AC
- Seven interrupting classes from 50kA to 200kA at 480V
- Circuit breaker or non-automatic switch
- WL Circuit Breakers are delivered as complete assembled breakers or individual frames, guide frames and accessories

Installation Types
Fixed-mounted or Draw-out version

Standards
- WL ANSI / UL 1066 Circuit Breakers will satisfy: C37.13, C37.16, C37.17, C37.50, NEMA SG3
- WL UL 489 Circuit Breakers will satisfy: UL 489 CSA C22.2 No. 5-02 NMX-J-266-ANCE-2002
- WL Circuit Breakers are suitable for use in UL 1558 LV Switchgear and UL 891 LV Switchboards.

Conditions of Application
WL Circuit Breakers are designed to meet standard Industrial and Commercial application requirements.

Uniform Dimensions
WL Circuit Breaker dimensions differ only in the device width, which varies by frame size. With the exception of the 200kA ANSI Frame Size II which has an additional 5" in depth to accommodate integral fuses and the UL 489 Frame Size I which measures only 15" in height to allow six-high stacking in switchboards.

Minimal Space Requirements
The WL design is extremely compact without sacrificing performance and does not use energy-wasting heat sinks.

Trip Units
The electronic, microprocessor-based trip unit is auxiliary voltage-independant for all protective functions and enables adaptation to the different protection requirements of distribution systems, motors, transformers and generators.

Non-Automatic Switch
A special version of the circuit breaker is used as a non-automatic switch. The non-automatic switch is constructed without a trip unit and has no protective function. A possible application is for use as a tie-in system with parallel feeds.

Main Bus Connectors
Breakers are equipped with standard vertical main bus connections. Horizontal bus connections are available as an option in Frame Size 1 and 2 up to 2000A.

Communication Capability
MODBUS or PROFIBUS communications transmit the acquired and metered data, such as current values, breaker status, trip log, etc. to a central monitoring computer. When the optional metering function is installed, the WL acquires data useful for power management and can contribute to a significant savings in energy costs.
A new, internal circuit breaker bus enables the expansion of breaker functionality through the integration of many secondary functions which were previously separate, including:
- Control of analog displays
- Options for testing the communication setup
- Display of breaker status and reason for trip
- Input modules for reading other external signals and transmitting these signals via PROFIBUS or MODBUS communication
- A selection of output modules to provide contact closures based on events or measured-value setpoints. It is not only possible to monitor the breaker remotely, it is also possible to open and close the breaker as well as setting parameters remotely.

Operating Mechanisms
Circuit breakers can be optionally delivered with different operating mechanisms, including:
- Manual operating mechanism with mechanical closing (standard)
- Manual operating mechanism with mechanical and electrically interlocked closing
- Motorized operating mechanism with mechanical and electrically interlocked closing. Operating mechanisms with electrically interlocked closing are suitable for synchronizing tasks.

Auxiliary Contacts
Auxiliary switches can be added according to the type of installation. They are easily mounted via front, top mounted terminal blocks.

Modularity
Common guide frames for the draw-out version make them completely interchangeable between the UL 489 and ANSI / UL 1066 rated circuit breakers.

Components, such as auxiliary releases, motorized operating mechanisms, trip units, current sensors, auxiliary signal switches, automatic reset devices or interlocks can be used to modify or retrofit any circuit breaker to meet changing requirements.
The main contacts can be replaced to extend the life of the circuit breaker and feature integrated contact wear indicators.

Electronic Trip Unit Modularity
Modularity is the outstanding feature of the new WL Circuit Breakers. The trip units themselves can be retrofitted with special LCDs, ground fault modules, rating plugs and communication modules.

100% Rated Circuit Breaker
WL circuit breakers are designed for continuous operation at 100% of their current rating without the need for external heat sinks.

Conditions of Application
WL Circuit Breakers are designed to meet standard Industrial and Commercial application requirements.

Rating Plug
It is no longer necessary to replace the current transformer to change the rated current of the breaker. Instead, you simply replace the rating plug which is easily accessible on the front of the trip unit. The circuit breaker is set to the new rated current quickly and is already correctly labeled.

Long Time Overcurrent Protection with Switchable I^2t / I^4t Characteristics
The long time overcurrent protection in the ETU745, ETU755 and ETU776 trip units can be switched between an I^2t and I^4t characteristic to improve coordination between upstream circuit breakers and fuses.

Front Panel
The front panel is designed so that it can be accessed through a cutout in the door, which means that all controls and displays are accessible even when the cubicle door is closed. The front panels of all Frame Size II and Frame Size III circuit breakers are identical, and allow for two different through-door access designs: Trip unit and front panel controls or front panel controls only. The degree of protection of the front panel is IP 20.

Environmental Protection
The plastics used are halogen-free and recycleable.

Safety and Reliability
In order to help protect the electrical distribution system and circuit breaker against unauthorized breaker operations, a wide range of locking devices can be installed or retrofit, including:
- Lockable drawout version to protect against unauthorized removal (standard)
- High degree of protection through Plexiglas cover
- Mechanical reclosing lockout after long-time, short-time or instantaneous trip (optional)
- Devices with trip unit ETU745 or higher are equipped with temperature sensors on the BSS and COM15/COM16 (standard)
- Lock provision for locking the breaker in the OPEN position
- Lockable covers for the CLOSE button
- Lockable racking handle prevents moving the breaker
- Lockable charging handle prevents charging the springs

Standard Version Features
WL Circuit Breakers have the following standard equipment:
- Mechanical CLOSE and mechanical OPEN push buttons
- Manual operating mechanism with mechanical closing
- Contact position indicator
- Front panel ready-to-close indicator
- Spring charge indicator
- Rear vertical main contacts
- Main contact replacement flag
- Auxiliary plug system with bare wire pressure screw terminals. Delivery includes all auxiliary plugs necessary for both factory installed and future field installed accessories
- Mechanical trip indicator of the overcurrent release system
- Automatic reset after trip
- The front panel cannot be removed if the circuit breaker is closed
- Laminated main contact fingers as part of the breaker contact strip on the drawout circuit breaker
- Breaker position display in the operator's panel
- Captive crank handle for racking out the breaker
- Guide frame with guide rails for easy handling of draw-out version
- Breaker cannot be moved in the CLOSED state
- Rated current coding between the guide frame and the breaker
- Suitable for reverse feed applications
- The breaker is always equipped with the required number of secondary disconnect blocks

Exclusive Features

Generator/Utility Protection Sets
24/7/365 power availability is critical for some systems. On-site generation capability is growing more and more common in many systems. All of the WL digital electronic trip units allow the system designer to precisely tailor trip settings for the most demanding requirements. However, the 755 and 776 trip units allow one set of trip settings for a fully loaded utility feed and with a simple contact closure, the trip unit toggles to a second trip set tailored to provide optimal generator protection. The wide range of settings allows the WL to provide protection for a minimal generator capacity for only essential loads, through full backup for an entire facility. This dual utility/generator protection capability in a single circuit breaker allows the system designer unparalleled, cost-effective flexibility.

Dynamic Arc-Flash Sentry (Patent Pending)
A unique feature of the WL trip unit allows the system designer to achieve lower levels of arc flash energy and delayed tripping for selective trip coordination purposes.

Dynamic Arc-Flash Sentry (DAS) employs the unique dual protective setting capability of the 755 and 776 trip units, coupled with the ability to easily toggle to a lower arc flash parameter set. A normal operation parameter set can be optimized for selective trip coordination, while the second set is optimized for lower arc flash energy levels. The dynamic action comes from the ability to switch from the normal operation set to the arc flash limiting set based on the presence of personnel as they approach the flash protection boundary. A wide variety of switching methods may be used based on the needs of a particular facility. The capabilities range from fully automatic switching using appropriate occupancy sensors to manual switching via a key operation.

Extended Instantaneous Protection (Patent Pending)
Extended Instantaneous protection (EIP), another unique feature of the WL trip unit, allows the system designer to achieve full selective trip coordination up to the short-time rating of the frame while also allowing application of the breaker up to the interrupting rating of the frame. The typical power circuit breaker with an 'LS' trip unit, or when the instantaneous function is switched off on an 'LSI' trip unit, can only be applied up to it's short-time rating, commonly 85kA or less. For application on systems with levels of available fault current above the short-time rating, the typical 'LS' power circuit breaker cannot be applied or must employ an instantaneous override. This instantaneous override is set at as much as 20% below the short-time rating and can seriously compromise selective trip coordination with downstream breakers.

The WL, equipped with EIP, overcomes these limitations by providing full withstand capability, and full coordination, with a minus 0% short-time band tolerance up to 85kA on frame Size II and 100kA on Size III. Above fault currents of 20% higher than the full short-time rating, the WL breaker is self-protecting, and the EIP function will trip the breaker instantly to protect the frame and the system from these extremely high currents, as high as 150kA on frame Size III. One added benefit is that arc flash energy is greatly reduced in this high current region due to the instantaneous trip response that EIP provides.

Trip Unit Functions

Selection criteria for WL Circuit Breakers

The basic criteria for selecting circuit breakers is:

Maximum Available Short-Circuit at the installation point. This value determines the short-circuit current interrupting rating or short-circuit current withstand rating of the circuit breaker.

Rated Current I_n which is to flow through the respective circuit breaker continuously. This value may not be greater than the maximum rated current of the circuit breaker. The rated current for the WL is determined by the rating plug, up to the maximum frame rating.

Ambient Temperature of the circuit breaker. This is usually the temperature inside the cubicle.

Design of the circuit breaker.

Protective Functions of the circuit breaker. These are determined by selection of the appropriate trip unit.

Basic Protective Functions		ETU725	ETU727
Long-time overcurrent protection	L	●	●
Short-time delayed overcurrent protection	S	●	●
Instantaneous overcurrent protection	I	●	●
Neutral conductor protection	N	–	●
Ground fault protection	G	–	●
Additional Functions			
Selectable neutral protection		–	●
Defeatable short-time protection		●	●
Defeatable instantaneous protection		–	–
Selectable thermal memory		–	–
Zone selective interlocking		–	–
Selectable I^2t or fixed short-time delay		– ①	– ①
Adjustable instantaneous pick-up		–	–
Selectable I^2t or I^4t long-time delay		–	–
Adjustable short-time delay and pick-up		●	●
Selectable and adjustable neutral protection		–	–
Dual protective setting capability		–	–
Dynamic arc-flash sentry		–	–
Extended instantaneous protection		●	●
Parameterization and Displays			
Parameterization by rotary switches (10 steps)		●	●
Parameterization by communication (absolute values)		–	–
Parameterization by menu/keypad (absolute values)		–	–
Remote parameterization of the basic functions		–	–
Remote parameterization of the additional functions		–	–
Alphanumeric LCD		–	–
Graphical LCD		–	–
Metering Function			
Metering function *Plus*		–	–
Communication			
CubicleBUS		–	–
Communication via PROFIBUS-DP		–	–
Communication via the MODBUS		–	–
Communication via the Ethernet (BDA)		–	–

● standard – not available ❍ optional ① Fixed short-time delay only

For detailed information on the electronic trip unit functions see pages 1/36 thru 1/39

Basic Protective Functions		ETU745	ETU748	ETU755	ETU776
Long-time overcurrent protection	L	●	●	●	●
Short-time delayed overcurrent protection	S	●	●	●	●
Instantaneous overcurrent protection	I	●	–	●	●
Neutral conductor protection	N	●	●	●	●
Ground fault protection	G	❍	❍	❍	❍
Additional Functions					
Selectable neutral protection		●	●	●	●
Defeatable short-time protection		●	–	●	●
Defeatable instantaneous protection		●	–	●	●
Selectable thermal memory		●	●	●	●
Zone selective interlocking		●	●	●	●
Selectable I^2t or fixed short-time delay		●	●	●	●
Adjustable instantaneous pick-up		●		●	●
Selectable I^2t or I^4t long-time delay		●	●	●	●
Adjustable short-time delay and pick-up		●	●	●	●
Selectable and adjustable neutral protection		●	●	●	●
Dual protective setting capability		–	–	●	●
Dynamic arc-flash sentry		–	–	●	●
Extended instantaneous protection		●	●	●	●
Parameterization and Displays					
Parameterization by rotary switches (10 steps)		●	●	–	–
Parameterization by communication (absolute values)		–	●	●	●
Parameterization by menu/keypad (absolute values)		–	–	–	●
Remote parameterization of the basic functions		–		●	●
Remote parameterization of the additional functions		–		●	●
Alphanumeric LCD		❍	❍	–	–
Graphical LCD		–	–	–	●
Metering Function					
Metering function *Plus*		❍	❍	❍	❍
Communication					
CubicleBUS		●	●	●	●
Communication via PROFIBUS-DP		❍	❍	❍	❍
Communication via the MODBUS		❍	❍	❍	❍
Communication via the Ethernet (BDA)		❍	❍	❍	❍

● standard – not available ❍ optional

For detailed information on the electronic trip unit functions see pages 1/36 thru 1/39

WL Circuit Breaker

UL 489 Only
ANSI / UL 1066 Only
Valid for both

Assembled Breaker Catalog Numbering System

Primary Catalog No. 1 2 3 4 5 6 7 8

Common Accessories P1 P2 P3 P4 P5 P6 Z

Interrupting Rating

N - Class: 50kA at 240V, 480V, 600V
S - Class: 65kA at 240V, 480V, 600V
H - Class: 85kA at 240V, 480V – 85kA at 600V (FSIII), 65kA at 600V (FSI & FSII)
L - Class: 100kA at 240V, 480V – 85kA at 600V (FSII & FSIII), 65kA at 600V (FSI)
M - Class: 150kA at 240V, 480V – 85kA at 600V
C Class: 150kA at 240V, 480V – 100kA at 600V
F - Class: 200kA at 240V, 480V, 600V (with fuses) ①

Frame Size

1 : Frame Size I (FSI)
2 : Frame Size II (FSII)
3 : Frame Size III (FSIII)

Breaker Type

A : ANSI (UL1066) Drawout Breaker (Guide Frame not included)
S : ANSI (UL1066) Drawout Non-Automatic Switch (Guide Frame not included)
F : UL 489 Fixed Mount Breaker②
D : UL 489 Drawout (Guide Frame not included)
Y : UL 489 Fixed Mount Non-Automatic Switch②
Z : UL 489 Drawout Non-Automatic Switch (Guide Frame not included)

Number of Poles

3 : 3-Pole

Frame Rating (as labeled on breaker)

(Amps/ 100)

Rating Plug

Trip Unit Type

Common Accessories③

Breaker Examples: L 2 A 3 3 2 W V X X X X X X Z

Interrupting Rating kAIC

N - Class: 50kA at 240V, 480V, 600V — N
S - Class: 65kA at 240V, 480V, 600V — S
H - Class: 85kA at 240V, 480V – 85kA at 600V (FSIII), 65kA at 600V (FSI & FSII) — H
L - Class: 100kA at 240V, 480V – 85kA at 600V (FSII & FSIII), 65kA at 600V (FSI) — L
M - Class: 150kA at 240V, 480V – 85kA at 600V — M
C - Class: 150kA at 240V, 480V – 100kA at 600V — C
F - Class: 200kA at 240V, 480V, 600V (with fuses)① — F

Frame Size

Frame Size I, 1200 max amps — 1
Frame Size II, 3200 max amps (3000A for UL 489) — 2
Frame Size III, 5000 max amps — 3

Breaker Type

ANSI / UL1066 Drawout Breaker (Guide Frame not included) — A
ANSI / UL1066 Drawout Non-Automatic Switch (Guide Frame not included)④ — S
UL 489 Fixed Mount Breaker② — F
UL 489 Drawout (Guide Frame not included) — D
UL 489 Fixed Mount Non-Automatic Switch② — Y
UL 489 Drawout Non-Automatic Switch (Guide Frame not included) — Z

Number of Poles

3 — 3

① Includes open fuse lock-out WLOFLO2 for Frame Size II breaker or switch. Includes open fuse lock-out WLOFLO3, fuse carriage WLFCAR50, and fuses for Frame Sizes III breaker or switch. Guide frame for the breaker or switch and the guide frame for the fuse carriage must be ordered separately.
② With standard pressure wire terminal secondary connectors.
③ All 15 character spaces must be utilized for a valid catalog number. An "N" should be used when additional components are not required. All primary catalog number characters must be selected.
④ All non-automatic switches are H, L or F-Class, therefore "H", "L" or "F" must be chosen for position 1 in the catalog number. Breaking capacity is equal to the short time rating. Reference Technical Data on pages 1/26 thru 1/29.

WL Circuit Breaker

UL 489 Only
ANSI / UL 1066 Only
Valid for both

WL Circuit Breaker
Non-Automatic Switch

Assembled Breaker Catalog Numbering System

Primary Catalog No.: 1 2 3 4 5 6 7 8

Common Accessories: P1 P2 P3 P4 P5 P6 Z

Frame Rating (Amps / 100) as labeled on breaker

800A Frame Size I, II	0 8
1200A Frame Size I, II	1 2
1600A Frame Size II	1 6
2000A Frame Size II	2 0
2500A Frame Size II	2 5
3000A Frame Size II	3 0
3200A Frame Size II, III	3 2
4000A Frame Size III	4 0
5000A Frame Size III	5 0

Rating Plug (I_n)

	Includes the following component:	
None (for Non-Automatic Switch)①		S
200A for Frame Size I, II	WLRP200	A
225A for Frame Size I, II	WLRP225	B
250A for Frame Size I, II	WLRP250	C
300A for Frame Size I, II	WLRP300	D
315A for Frame Size I, II	WLRP315	E
350A for Frame Size I, II	WLRP350	F
400A for Frame Size I, II	WLRP400	G
450A for Frame Size I, II	WLRP450	H
500A for Frame Size I, II	WLRP500	J
600A for Frame Size I, II	WLRP600	K
630A for Frame Size I, II	WLRP630	L
700A for Frame Size I, II	WLRP700	M
800A for Frame Size I, II, III	WLRP800	N
1000A for Frame Size I, II, III	WLRP1000	P
1200A for Frame Size I, II, III	WLRP1200	Q
1250A for Frame Size II, III	WLRP1250	R
1600A for Frame Size II, III	WLRP1600	T
2000A for Frame Size II, III	WLRP2000	U
2500A for Frame Size II, III	WLRP2500	V
3000A for Frame Size II, III	WLRP3000	W
3200A for Frame Size II, III	WLRP3200	Y
4000A for Frame Size III	WLRP4000	Z
5000A for Frame Size III	WLRP5000	1

Trip Unit Types

	Includes the following component(s):②	
None (for Non-Automatic Switch)①		S
ETU725:		
Protective functions L(S)I	WLETU725	A
ETU727:		
Protective functions L(S)IG	WLETU727	B
ETU745:		
Protective functions L(S)(I)	WLETU745	C
Protective functions L(S)(I) with LCD display	WLETU745 + WLLCD48	D
Protective functions L(S)(I)(A) with Ground fault module (alarm only)	WLETU745 + WLGFA48	E
Protective functions L(S)(I)(A) with LCD display and ground fault module (alarm only)	WLETU745 + WLLCD48 + WLGFA48	F
Protective functions L(S)(I)(G) with Ground fault module (alarm and trip)	WLETU745 + WLGFM48	G
Protective functions L(S)(I)(G) with LCD display and ground fault module (alarm and trip)	WLETU745 + WLLCD48 + WLGFM48	H
ETU748:		
Protective functions LS	WLETU748	J
Protective functions LS with LCD display	WLETU748 + WLLCD48	K
Protective functions LS(A) with ground fault module (alarm only)	WLETU748 + WLGFA48	L
Protective functions LS(A) with LCD display and ground fault module (alarm only)	WLETU748 + WLLCD48 + WLGFA48	N
Protective functions LS(G) with ground fault module (alarm and trip)	WLETU748 + WLGFM48	P
Protective functions LS(G) with LCD display and ground fault module (alarm and trip)	WLETU748 + WLLCD48 + WLGFM48	Q

① This is not a valid choice when ordering a circuit breaker.
② Trip units include clear plastic front cover WLTUSC55 as standard.

Assembled Breaker Catalog Numbering System

Primary Catalog No. 1 2 3 4 5 6 7 8

Common Accessories P1 P2 P3 P4 P5 P6 Z

Trip Unit Types *(continued)*

Includes the following component(s): ①

ETU755:		
Protective functions L(S)(I)	**WLETU755**	R
Protective functions L(S)(I)(A) with ground fault module (alarm only)	**WLETU755 + WLGFA76**	T
Protective functions L(S)(I)(G) with ground fault module (alarm and trip)	**WLETU755 + WLGFM76**	U
ETU776:		
Protective functions L(S)(I)	**WLETU776**	V
Protective functions L(S)(I)(A) with ground fault module (alarm only)	**WLETU776 + WLGFA76**	W
Protective functions L(S)(I)(G) with ground fault module (alarm and trip)	**WLETU776 + WLGFM76**	Y

Signaling Configurations

Remote Reset for Bell Alarm & Trip Indicator, Bell Alarm Contact, Ready-to-Close Contact, Internal Auxiliary Contacts

Possible Combinations								
Control Voltage for Remote Reset		Remote Reset	Bell Alarm	Ready-to-Close	Aux Contacts		*Includes the following component(s):*	
AC	DC				2NO+2NC	4NO+4NC		
		–	–	–	–		**None**	X
			✓				**WLBA**	A
				✓			**WLRTCS**	B
					✓		**WLAS2**	C
						✓	**WLAS4**	D
			✓	✓			**WLBA + WLRTCS**	E
			✓		✓		**WLBA + WLAS2**	F
			✓			✓	**WLBA + WLAS4**	G
				✓	✓		**WLRTCS + WLAS2**	H
				✓		✓	**WLRTCS + WLAS4**	I
			✓	✓	✓		**WLBA + WLRTCS + WLAS2**	J
				✓	✓	✓	**WLBA + WLRTCS + WLAS4**	K
	24	✓	✓				**WLRSET24 + WLBA**	L
	48	✓	✓				**WLRSET48 + WLBA**	M
120	125	✓	✓				**WLRSET120 + WLBA**	N
240	250	✓	✓				**WLRSET240 + WLBA**	O
	24	✓	✓	✓			**WLRSET24 + WLBA + WLRTCS**	P
	48	✓	✓	✓			**WLRSET48 + WLBA + WLRTCS**	Q
120	125	✓	✓	✓			**WLRSET120 + WLBA + WLRTCS**	R
240	250	✓	✓	✓			**WLRSET240 + WLBA + WLRTCS**	S
	24	✓	✓		✓		**WLRSET24 + WLBA + WLAS2**	T
	48	✓	✓		✓		**WLRSET48 + WLBA + WLAS2**	U
120	125	✓	✓		✓		**WLRSET120 + WLBA + WLAS2**	V
240	250	✓	✓		✓		**WLRSET240 + WLBA + WLAS2**	W
	24	✓	✓			✓	**WLRSET24 + WLBA + WLAS4**	Y
	48	✓				✓	**WLRSET48 + WLBA + WLAS4**	Z
120	125	✓	✓			✓	**WLRSET120 + WLBA + WLAS4**	1
240	250	✓	✓			✓	**WLRSET240 + WLBA + WLAS4**	2
	24	✓	✓	✓	✓		**WLRSET24 + WLBA + WLRTCS + WLAS2**	3
	48	✓	✓	✓	✓		**WLRSET48 + WLBA + WLRTCS + WLAS2**	4
120	125	✓	✓	✓	✓		**WLRSET120 + WLBA + WLRTCS + WLAS2**	5
240	250	✓	✓	✓	✓		**WLRSET240 + WLBA + WLRTCS + WLAS2**	6
	24	✓	✓	✓		✓	**WLRSET24 + WLBA + WLRTCS + WLAS4**	7
	48	✓	✓	✓		✓	**WLRSET48 + WLBA + WLRTCS + WLAS4**	8
120	125	✓	✓	✓		✓	**WLRSET120 + WLBA + WLRTCS + WLAS4**	9
240	250	✓	✓	✓		✓	**WLRSET240 + WLBA + WLRTCS + WLAS4**	0

① Trip units include clear plastic front cover WLTUSC55 or WLTUSC76 as standard.

Assembled Breaker Catalog Numbering System

UL 489 Only

Primary Catalog No. 1 2 3 4 5 6 7 8

Common Accessories P1 P2 P3 P4 P5 P6 Z

1st Shunt Trip and Shunt Trip Signal Contact

	Control Voltage AC	Control Voltage DC	Includes the following component(s):	
None				X
Shunt Trip		24	WLST24	A
Shunt Trip		48	WLST48	B
Shunt Trip	120	125	WLST120	C
Shunt Trip	240	250	WLST240	D
Shunt Trip with Signal Contact (1 NO)①		24	WLST24 + WLSTC	E
Shunt Trip with Signal Contact (1 NO)①		48	WLST48 + WLSTC	F
Shunt Trip with Signal Contact (1 NO)①	120	125	WLST120 + WLSTC	G
Shunt Trip with Signal Contact (1 NO)①	240	250	WLST240 + WLSTC	H
Interlock Shunt Trip (Continous Duty)		24	WLSTCD24	J
Interlock Shunt Trip (Continous Duty)		48	WLSTCD48	K
Interlock Shunt Trip (Continous Duty)	120	125	WLSTCD120	L
Interlock Shunt Trip (Continous Duty)	240	250	WLSTCD240	M
Interlock Shunt Trip (Continous Duty) with Signal Contact (1 NO)①		24	WLSTCD24 + WLSTC	N
Interlock Shunt Trip (Continous Duty) with Signal Contact (1 NO)①		48	WLSTCD48 + WLSTC	P
Interlock Shunt Trip (Continous Duty) with Signal Contact (1 NO)①	120	125	WLSTCD120 + WLSTC	R
Interlock Shunt Trip (Continous Duty) with Signal Contact (1 NO)①	240	250	WLSTCD240 + WLSTC	S

Undervoltage Release (with or without time delay), 2nd Shunt Trip, Signal Contact for UVR or 2nd Shunt Trip

Possible Combinations

Control Voltage AC	Control Voltage DC	UVR	UVR with Delay	2nd Shunt Trip②	2nd Shunt Trip② (Interlock)	Signal Contact①	Includes the following component(s):	
		–	–	–	–		None	X
	24	✓					WLUV24	A
	48	✓					WLUV48	B
120	125	✓					WLUV120	C
240	250	✓					WLUV240	D
	48		✓				WLUVD48	E
120	125		✓				WLUVD120	F
240	250		✓				WLUVD240	G
	24			✓			WLST24	H
	48			✓			WLST48	J
120	125			✓			WLST120	K
240	250			✓			WLST240	L
	24	✓			✓		WLUV24 + WLUVRC	M
	48	✓			✓		WLUV48 + WLUVRC	N
120	125	✓			✓		WLUV120 + WLUVRC	P
240	250	✓			✓		WLUV240 + WLUVRC	Q
	48		✓		✓		WLUVD48 + WLUVRC	R
120	125		✓		✓		WLUVD120 + WLUVRC	S
240	250		✓		✓		WLUVD240 + WLUVRC	T
	24			✓	✓		WLST24 + WLSTC	U
	48			✓	✓		WLST48 + WLSTC	V
120	125			✓	✓		WLST120 + WLSTC	W
240	250			✓	✓		WLST240 + WLSTC	Y
					✓		WLSTCD24	Z
					✓		WLSTCD48	1
					✓		WLSTCD120	2
					✓		WLSTCD240	3
					✓	✓	WLSTCD24 + WLSTC	4
					✓	✓	WLSTCD48 + WLSTC	5
					✓	✓	WLSTCD120 + WLSTC	6
					✓	✓	WLSTCD240 + WLSTC	7

① Not available if the COM15 or COM16 communication module is ordered.
② The 2nd shunt trip is not available unless the 1st shunt trip is also ordered.

Assembled Breaker Catalog Numbering System

Primary Catalog No. 1 2 3 4 5 6 7 8

Common Accessories P1 P2 P3 P4 P5 P6 Z

Motor Operator, Motor Cut-off Switch, Operations Counter, and Local Electric Close (LEC)

Possible Combinations

Control Voltage AC	Control Voltage DC	Motor Operator	Motor Cut off Switch	Operations Counter	LEC Sealable ①②	Includes the following component(s):	
		–	–	–	–	None	X
	24	✓				WLELCMTR24	A
	48	✓				WLELCMTR48	B
120	125	✓				WLELCMTR120	C
240	250	✓				WLELCMTR240	D
	24	✓	✓			WLELCMTR24S	E
	48	✓	✓			WLELCMTR48S	F
120	125	✓	✓			WLELCMTR120S	G
240	250	✓	✓			WLELCMTR240S	H
	24	✓		✓		WLELCMTR24 + WLNUMCNT	J
	48	✓		✓		WLELCMTR48 + WLNUMCNT	K
120	125	✓		✓		WLELCMTR120 + WLNUMCNT	L
240	250	✓		✓		WLELCMTR240 + WLNUMCNT	M
	24	✓	✓	✓		WLELCMTR24S + WLNUMCNT	N
	48	✓	✓	✓		WLELCMTR48S + WLNUMCNT	P
120	125	✓	✓	✓		WLELCMTR120S + WLNUMCNT	Q
240	250	✓	✓	✓		WLELCMTR240S + WLNUMCNT	R
	24	✓			✓	WLELCMTR24 + WLLECS	S
	48	✓			✓	WLELCMTR48 + WLLECS	T
120	125	✓			✓	WLELCMTR120 + WLLECS	U
240	250	✓			✓	WLELCMTR240 + WLLECS	V
					✓	WLLECS	W
	24	✓		✓	✓	WLELCMTR24 + WLNUMCNT + WLLECS	2
	48	✓		✓	✓	WLELCMTR48 + WLNUMCNT + WLLECS	3
120	125	✓		✓	✓	WLELCMTR120 + WLNUMCNT + WLLECS	4
240	250	✓		✓	✓	WLELCMTR240 + WLNUMCNT + WLLECS	5

Remote Close Coil, Metering Function, and Communications

Possible Combinations

Control Voltage AC	Control Voltage DC	Remote Close Coil	Metering Function Plus ③	MODBUS Comm COM 16 ④	PROFIBUS Comm COM 15 ④	Includes the following component(s):	
		–	–	–	–	None	X
	24	✓				WLRCS24	A
	48	✓				WLRCS48	B
120	125	✓				WLRCS120	C
240	250	✓				WLRCS240	D
			✓			WLMETERP	F
				✓		WLCM16MD + BSS	G
					✓	WLCM15M + BSS	H
			✓	✓		WLMETERP + WLCM16MD + BSS	L
			✓		✓	WLMETERP + WLCM15M + BSS	M
	24	✓		✓		WLRCS24 + WLCM16MD + BSS	N
	24	✓			✓	WLRCS24 + WLCM15M + BSS	P
	24	✓	✓	✓		WLRCS24 + WLMETERP + WLCM16MD + BSS	Q
	24	✓	✓		✓	WLRCS24 + WLMETERP + WLCM15M + BSS	R
	48	✓		✓		WLRCS48 + WLCM16MD + BSS	S
	48	✓			✓	WLRCS48 + WLCM15M + BSS	T
	48	✓	✓	✓		WLRCS48 + WLMETERP + WLCM16MD + BSS	U
	48	✓	✓		✓	WLRCS48 + WLMETERP + WLCM15M + BSS	V
120	125	✓		✓		WLRCS120 + WLCM16MD + BSS	W
120	125	✓			✓	WLRCS120 + WLCM15M + BSS	Y
120	125	✓	✓	✓		WLRCS120 + WLMETERP + WLCM16MD + BSS	Z
120	125	✓	✓		✓	WLRCS120 + WLMETERP + WLCM15M + BSS	1
240	250	✓		✓		WLRCS240 + WLCM16MD + BSS	2
240	250	✓			✓	WLRCS240 + WLCM15M + BSS	3
240	250	✓	✓	✓		WLRCS240 + WLMETERP + WLCM16MD + BSS	4
240	250	✓	✓		✓	WLRCS240 + WLMETERP + WLCM15M + BSS	5
	24	✓	✓			WLRCS24 + WLMETERP	6
	48	✓	✓			WLRCS48 + WLMETERP	7
120	125	✓	✓			WLRCS120 + WLMETERP	8
240	250	✓	✓			WLRCS240 + WLMETERP	9

① Sealable cover for the local electric close is provided as standard.
② Local electric close must be ordered with the remote close coil.
③ Requires external voltage potential transformers with 120V AC secondary output.
④ The Breaker Status Sensor (BSS) comes as standard when you order the COM15 or COM16. Remote open and close via communications is possible.

Note: To order a Remote Close Coil plus Metering Function without a COM15/16 - OR - to order a Remote Close Coil plus a COM15/16 Module without a Metering Function, order the Remote Close Coil here and then order the Metering Function or the COM15/16 Module as a Z-parameter.

UL 489 Only

Assembled Breaker Catalog Numbering System

Primary Catalog No. 1 2 3 4 5 6 7 8

Common Accessories P1 P2 P3 P4 P5 P6 Z

Breaker Front Panel Locking Devices

(1) Lock Breaker in OPEN Position, KIRK Key
(2) Lock Breaker in OPEN Position, 4 padlock provision (This lock is supplied as standard on all ANSI / UL1066 circuit breakers.)
(3) Lock Kit, Sealable/Padlockable covers, cheat-hole covers, CES lock for CLOSE or OPEN button
(4) Lock against Moving Breaker, locks racking handle, KIRK Key
(5) Lock Charging Handle, prevents charging springs, padlock provision

Possible Combinations

(1) Breaker OPEN Locking Device (KIRK Key)	(2) Breaker OPEN Locking Device (padlock)	(3) Lock Kit	(4) Racking Handle Locking Device	(5) Charging Handle Locking Device	*Includes the following component(s):*	
–	–	–	–	–	None	X
✓	–	–	–	–	WLLKOFFKRK	A
–	✓	–	–	–	WLLKNP	B
–	–	✓	–	–	WLLKKT	C
–	–	–	✓	–	WLLKCLKRK	D
–	–	–	–	✓	WLHANDLC	E
✓	✓	–	–	–	WLLKOFFKRK + WLLKNP	F
✓	–	✓	–	–	WLLKOFFKRK + WLLKKT	G
–	✓	✓	–	–	WLLKNP + WLLKKT	H
✓	✓	✓	–	–	WLLKOFFKRK + WLLKNP + WLLKKT	J
✓	–	–	✓	–	WLLKOFFKRK + WLLKCLKRK	K
–	✓	–	✓	–	WLLKNP + WLLKCLKRK	L
✓	✓	–	✓	–	WLLKOFFKRK + WLLKNP + WLLKCLKRK	M
–	–	✓	✓	–	WLLKKT + WLLKCLKRK	N
✓	–	✓	✓	–	WLLKOFFKRK + WLLKKT + WLLKCLKRK	P
–	✓	✓	✓	–	WLLKNP + WLLKKT + WLLKCLKRK	Q
✓	✓	✓	✓	–	WLLKOFFKRK + WLLKNP + WLLKKT + WLLKCLKRK	R
✓	–	–	–	✓	WLLKOFFKRK + WLHANDLC	S
–	✓	–	–	✓	WLLKNP + WLHANDLC	T
✓	✓	–	–	✓	WLLKOFFKRK + WLLKNP + WLHANDLC	U
–	–	✓	–	✓	WLLKKT + WLHANDLC	V
✓	–	✓	–	✓	WLLKOFFKRK + WLLKKT + WLHANDLC	W
–	✓	✓	–	✓	WLLKNP + WLLKKT + WLHANDLC	Y
✓	✓	✓	–	✓	WLLKOFFKRK + WLLKNP + WLLKKT + WLHANDLC	Z
–	–	–	✓	✓	WLLKCLKRK + WLHANDLC	1
✓	–	–	✓	✓	WLLKOFFKRK + WLLKCLKRK + WLHANDLC	2
–	✓	–	✓	✓	WLLKNP + WLLKCLKRK + WLHANDLC	3
✓	✓	–	✓	✓	WLLKOFFKRK + WLLKNP + WLLKCLKRK + WLHANDLC	4
–	–	✓	✓	✓	WLLKKT + WLLKCLKRK + WLHANDLC	5
✓	–	✓	✓	✓	WLLKOFFKRK + WLLKKT + WLLKCLKRK + WLHANDLC	6
–	✓	✓	✓	✓	WLLKNP + WLLKKT + WLLKCLKRK + WLHANDLC	7
✓	✓	✓	✓	✓	WLLKOFFKRK + WLLKNP + WLLKKT + WLLKCLKRK + WLHANDLC	8

Z-Parameter

Z-Parameter indicates additional components are included as part of the assembled breaker order. A

Possible Z-Parameter components can be found on pages 1/20 - 1/23 and can be identified by the BZ symbol.

N - In this position indicates no additional components.

WL Circuit Breaker

UL 489 Only
ANSI / UL 1066 Only
Valid for both

Guide Frame Catalog Numbering System

Primary Catalog No.② Common Accessories

G 1 2 3 4 5 P1 P2 P3 P4 P5 P6 P7 P8 Z

Guide Frame

Breaker Interrupting Rating ①

N - Class: 50kA at 240V, 480V, 600V
S - Class: 65kA at 240V, 480V, 600V
H - Class: 85kA at 240V, 480V -- 85kA at 600V (FSIII), 65kA at 600V (FSI & FSII)
L - Class: 100kA at 240V, 480V -- 85kA at 600V (FSII & FSIII), 65kA at 600V (FSI)
M- Class: 150kA at 240V, 480V -- 85kA at 600V
C - Class: 150kA at 240V, 480V -- 100kA at 600V
F - Class: 200kA at 240V, 480V, 600V
(for fused breakers)

Frame Size

1 : Frame Size I (FSI)
2 : Frame Size II (FSII)
3 : Frame Size III (FSIII)

Number of Poles

3 : 3-Pole

Frame Rating (as labeled on breaker)
(Amps/ 100)

Common Accessories ②

G L 2 3 3 2 X X X X X X X X Z

Breaker Interrupting Rating

N - Class: 50kA at 240V, 480V, 600V	N
S - Class: 65kA at 240V, 480V, 600V	S
H - Class: 85kA at 240V, 480V -- 85kA at 600V (FSIII), 65kA at 600V (FSI & FSII)	H
L - Class: 100kAat 240V, 480V -- 85kA at 600V (FSII & FSIII), 65kA at 600V (FSI)	L
M- Class: 150kAat 240V, 480V -- 85kA at 600V	M
C - Class: 150kAat 240V, 480V -- 100kA at 600V	C
F - Class: 200kAat 240V, 480V, 600V	F

(for fused breakers)

Frame Size

Frame Size I, 1200 max amps	1
Frame Size II, 3200 max amps (3000A for UL 489)	2
Frame Size III, 5000 max amps	3

Number of Poles

3 Pole	3

Max Current (Amps / 100) as labeled on breaker

800A Frame Size I, II	0 8
1200A Frame Size I, II	1 2
1600A Frame Size II	1 6
2000A Frame Size II	2 0
2500A Frame Size II	2 5
3000A Frame Size II	3 0
3200A Frame Size II, III	3 2
4000A Frame Size III	4 0
5000A Frame Size III	5 0

① Breaker coding provided as standard.
② All 15 character spaces must be utilized for a valid catalog number.
An "N" should be used when additional components are not required.
All primary catalog number characters must be selected.

WL Circuit Breaker

UL 489 Only
ANSI / UL 1066 Only
Valid for both

Guide Frame Catalog Numbering System

Primary Catalog No. Common Accessories

G 1 2 3 4 5 X X X X X X X X Z

Type of Secondary Terminal Connection ①

	Includes the following component:	
ANSI / UL1066 Circuit Breaker		
Screw Connection for Bare Wire (SIGUT)	WLGAUXPLUGP	P
Tension Spring Connection for Bare Wire	WLGAUXPLUGT	T
Screw Connection for Ring Terminals	WLGAUXPLUGR	R
UL489 Circuit Breaker		
Screw Connection for Bare Wire (SIGUT)	WLGAUXPLUGP	A
Tension Spring Connection for Bare Wire	WLGAUXPLUGT	B
Screw Connection for Ring Terminals	WLGAUXPLUGR	C
ANSI / UL1066 Non-Automatic Switch		
Screw Connection for Bare Wire (SIGUT)	WLGAUXPLUGP	D
Tension Spring Connection for Bare Wire	WLGAUXPLUGT	E
Screw Connection for Ring Terminals	WLGAUXPLUGR	F
UL489 Non-Automatic Switch		
Screw Connection for Bare Wire (SIGUT)	WLGAUXPLUGP	G
Tension Spring Connection for Bare Wire	WLGAUXPLUGT	H
Screw Connection for Ring Terminals	WLGAUXPLUGR	J

Guide Frame Position Signal Contacts (TOC)

Breaker Position Signaling Switch available in these contact configurations	Includes the following component:	
None	-	X
1-Connected, 1-Test - 1-Disconnected Form C	WLGSGSW111	1
3-Connected, 2-Test - 1-Disconnected Form C	WLGSGSW321	3
6-Connected, Form C	WLGSGSW6	6

Guide Frame Mounted Locking Device against closing the breaker ②

	Includes the following component:	
None	-	X
Lock Breaker in OPEN position (KIRK Key)	WLDLKRK	A
Lock Breaker in OPEN position (Superior Lock)	WLDLSUP	B
Double Lock Breaker in OPEN position (KIRK Key)	WLDLDKRK	C
Double Lock Breaker in OPEN position (Superior Lock)	WLDLDSUP	D
Provision Only - Lock Breaker in OPEN position	WLDLPR	E
Provision Only - Double Lock Breaker in OPEN position	WLDLDPR	F

Guide Frame Mounted Shutters

	Includes the following component:	
None	-	X
Lockable Shutters for Frame Size I	WLGSHUT1UL	D
Lockable Shutters for Frame Size II, except M or C-Class	WLGSHUT2	A
Lockable Shutters for Frame Size II, C-Class only	WLGSHUTM2	E
Lockable Shutters for Frame Size III, except M or C-Class	WLGSHUT3	B
Lockable Shutters for Frame Size III, M or C-Class only	WLGSHUTM3	C

Arc Chute Covers

	Includes the following component:	
None	-	X
Arc Chute Covers for Frame Size I	WLGARC1UL	C
Arc Chute Covers for Frame Size II (except F-Class)	WLGARC2	A
Arc Chute Covers for Frame Size II, for UL 489 device	WLGARC2UL	D
Arc Chute Covers for Frame Size III (except F, M & C-Class)	WLGARC3	B

① All necessary terminal blocks (X5, X6, X8, X9) are installed as standard.
② All guide frame mounted locks are for Frame Size II and Frame Size III only.

continued on the next page

Guide Frame Catalog Numbering System

Primary Catalog No. Common Accessories

G 1 2 3 4 5 X X X X X X X X Z

Door Locks and Mechanical Interlock

Mutual Mechanical Interlock with 2.0 m bowden wire	Locking device against opening the cubicle door, when breaker is in connect position (for FSII or FS III)	Locking device against opening the cubicle door, when breaker is in connect position (for FSI)	Locking device against racking the breaker if the cubicle door is open (for FSII or FS III)	*Includes the following component(s):*	
–	–	–	–	None	X
✓		–	–	WLNTLK	M
	✓	–	–	WLDRLC1	A
		✓		WLDRLC	B
		–	✓	WLDRLC5UL	C
✓	✓	–	–	WLNTLK + WLDRLC1	D
✓	✓		✓	WLNTLK + WLDRLC1 + WLDRLC5UL	E
✓		✓		WLNTLK + WLDRLC	F
✓			✓	WLNTLK + WLDRLC5UL	G
	✓		✓	WLDRLC1 + WLDRLC5UL	H

Mechanism Driven Additional Breaker Auxillary Contacts (MOC)

	Includes the following component:	
None	-	X
Mechanism Operated Auxiliary Contacts - Test and Connect position, for Frame Size I and II	WLMOC	M
Mechanism Operated Auxiliary Contacts - Connect position, for Frame Size I and II	WLMOCC	N
Mechanism Operated Auxiliary Contacts - Test and Connect position, for Frame Size III	WLMOC3	P
Mechanism Operated Auxiliary Contacts - Connect position, for Frame Size III	WLMOCC3	Q

Additional Grounding on the Guide Frame and Guide Frame Heater

	Includes the following component(s):	
None	-	X
Additional Ground Protection, Frame Size II	WLEF2	E
Additional Ground Protection, Frame Size III	WLEF3	B
Guide Frame Heater, for Frame Size II & III	WLGHEAT	H
Additional Ground Protection, Frame Size II and Guide Frame Heater	WLEF2 + WLGHEAT	A
Additional Ground Protection, Frame Size III and Guide Frame Heater	WLEF3 + WLGHEAT	C

Z-Parameter

Z-Parameter indicates additional components are included as part of the guide frame order. A

Possible Z-Parameter components can be found on pages 1/18 - 1/19 and can be identified by the (GZ) symbol.

N - In this position indicates no additional components.

UL 489 Fixed Mount Circuit Breaker Frames ①

Description	Max Ampere Rating A	Interrupting Rating kA	Catalog Number	List Price $
S-Class				
Frame Size I	800	65	**WLS1F308**	**8,157**
Frame Size I	1200	65	**WLS1F312**	**9,462**
Frame Size II	800	65	**WLS2F308**	**8,157**
Frame Size II	1200	65	**WLS2F312**	**9,462**
Frame Size II	1600	65	**WLS2F316**	**9,462**
Frame Size II	2000	65	**WLS2F320**	**10,173**
H-Class				
Frame Size I	800	85	**WLH1F308**	**8,619**
Frame Size I	1200	85	**WLH1F312**	**9,702**
L-Class				
Frame Size I	800	100	**WLL1F308**	**8,773**
Frame Size I	1200	100	**WLL1F312**	**9,783**
Frame Size II	800	100	**WLL2F308**	**8,773**
Frame Size II	1200	100	**WLL2F312**	**9,783**
Frame Size II	1600	100	**WLL2F316**	**9,783**
Frame Size II	2000	100	**WLL2F320**	**10,477**
Frame Size II	2500	100	**WLL2F325**	**17,566**
Frame Size II	3000	100	**WLL2F330**	**22,732**
Frame Size III	4000	100	**WLL3F340**	**34,185**
Frame Size III	5000	100	**WLL3F350**	**53,498**
C-Class				
Frame Size II ②	800	150	**WLC2F308**	**10,695**
Frame Size II ②	1200	150	**WLC2F312**	**10,695**
Frame Size II ②	1600	150	**WLC2F316**	**10,695**
Frame Size II ②	2000	150	**WLC2F320**	**12,392**
Frame Size II ②	2500	150	**WLC2F325**	**28,447**
Frame Size II ②	3000	150	**WLC2F330**	**28,447**
Frame Size III	4000	150	**WLC3F340**	**42,369**
Frame Size III	5000	150	**WLC3F350**	**64,305**

UL 489 Drawout Circuit Breaker Frames ①

S-Class				
Frame Size I	800	65	**WLS1D308**	**9,498**
Frame Size I	1200	65	**WLS1D312**	**11,820**
Frame Size II	800	65	**WLS2D308**	**9,498**
Frame Size II	1200	65	**WLS2D312**	**11,820**
Frame Size II	1600	65	**WLS2D316**	**11,820**
Frame Size II	2000	65	**WLS2D320**	**14,400**
H-Class				
Frame Size I	800	85	**WLH1D308**	**10,151**
Frame Size I	1200	85	**WLH1D312**	**12,025**
L-Class				
Frame Size I	800	100	**WLL1D308**	**10,368**
Frame Size I	1200	100	**WLL1D312**	**12,094**
Frame Size II	800	100	**WLL2D308**	**10,368**
Frame Size II	1200	100	**WLL2D312**	**12,094**
Frame Size II	1600	100	**WLL2D316**	**12,094**
Frame Size II	2000	100	**WLL2D320**	**14,804**
Frame Size II	2500	100	**WLL2D325**	**20,870**
Frame Size II	3000	100	**WLL2D330**	**26,918**
Frame Size III	4000	100	**WLL3D340**	**42,067**
Frame Size III	5000	100	**WLL3D350**	**66,559**
C-Class				
Frame Size II ②	800	150	**WLC2D308**	**14,432**
Frame Size II ②	1200	150	**WLC2D312**	**14,578**
Frame Size II ②	1600	150	**WLC2D316**	**14,578**
Frame Size II ②	2000	150	**WLC2D320**	**16,273**
Frame Size II ②	2500	150	**WLC2D325**	**25,893**
Frame Size II ②	3000	150	**WLC2D330**	**33,184**
Frame Size III	4000	150	**WLC3D340**	**51,211**
Frame Size III	5000	150	**WLC3D350**	**78,628**

① Circuit Breaker and Non-Automatic Switch Frames must be ordered as part of an assembled catalog number as defined on pages 1/6 through 1/11.

② Available January 2006

ANSI / UL 1066 Drawout Circuit Breaker Frames ①

Description	Max Ampere Rating A	Interrupting Rating kA	Catalog Number	List Price $
N-Class				
Frame Size II	800	50	**WLN2A308**	**7,631**
Frame Size II	1600	50	**WLN2A316**	**9,122**
S-Class				
Frame Size II	800	65	**WLS2A308**	**8,682**
Frame Size II	1600	65	**WLS2A316**	**10,904**
Frame Size II	2000	65	**WLS2A320**	**15,600**
Frame Size II	3200	65	**WLS2A332**	**17,828**
H-Class				
Frame Size II	800	85	**WLH2A308**	**10,006**
Frame Size II	1600	85	**WLH2A316**	**12,655**
Frame Size II	2000	85	**WLH2A320**	**18,501**
Frame Size II	3200	85	**WLH2A332**	**22,721**
Frame Size III	4000	85	**WLH3A340**	**32,488**
Frame Size III	5000	85	**WLH3A350**	**41,253**
L-Class				
Frame Size II	800	100	**WLL2A308**	**10,693**
Frame Size II	1600	100	**WLL2A316**	**15,165**
Frame Size II	2000	100	**WLL2A320**	**19,440**
Frame Size II	3200	100	**WLL2A332**	**29,060**
Frame Size III	4000	100	**WLL3A340**	**38,305**
Frame Size III	5000	100	**WLL3A350**	**47,983**
M-Class				
Frame Size III	3200	150	**WLM3A332**	**30,099**
Frame Size III	4000	150	**WLM3A340**	**44,659**
Frame Size III	5000	150	**WLM3A350**	**55,931**
F-Class (with fuses)				
Frame Size II	800	200	**WLF2A308**	**11,076**
Frame Size II	1600	200	**WLF2A316**	**17,181**
Frame Size II	2000	200	**WLF2A320**	**20,049**
Frame Size III	3200	200	**WLF3A332** ②	**29,122**
Frame Size III	4000	200	**WLF3A340** ②	**45,857**
Frame Size III	5000	200	**WLF3A350** ②	**58,722**

UL 489 Fixed Mount Non-Automatic Switches ①

		Breaking Capacity kA ③		
H-Class				
Frame Size I	800	85	**WLH1Y308**	**8,619**
Frame Size I	1200	85	**WLH1Y312**	**9,702**
L-Class				
Frame Size II	1600	100	**WLL2Y316**	**9,783**
Frame Size II	2000	100	**WLL2Y320**	**10,477**
Frame Size II	2500	100	**WLL2Y325**	**17,568**
Frame Size II	3000	100	**WLL2Y330**	**22,732**
Frame Size III	4000	100	**WLL3Y340**	**34,185**
Frame Size III	5000	100	**WLL3Y350**	**53,498**

① Circuit Breaker and Non-Automatic Switch Frames must be ordered as part of an assembled catalog number as defined on pages 1/6 through 1/11.
② Includes WLFCAR50 fuse carriage
③ Breaking capacity with external relay is equal to the short-time rating.

WL Circuit Breaker

UL 489 Drawout Non-Automatic Switches ①

Description	Max Ampere Rating A	Interrupting Rating kA	Catalog Number	List Price $
H-Class				
Frame Size I	800	85	**WLH1Z308**	**10,151**
Frame Size I	1200	85	**WLH1Z312**	**12,025**
L-Class				
Frame Size II	1600	100	**WLL2Z316**	**12,094**
Frame Size II	2000	100	**WLL2Z320**	**14,804**
Frame Size II	2500	100	**WLL2Z325**	**20,870**
Frame Size II	3000	100	**WLL2Z330**	**26,918**
Frame Size III	4000	100	**WLL3Z340**	**42,067**
Frame Size III	5000	100	**WLL3Z350**	**66,559**

ANSI / UL 1066 Drawout Non-Automatic Switches ①

		Breaking Capacity kA ③		
L-Class				
Frame Size II	800	100	**WLL2S308**	**9,870**
Frame Size II	1600	100	**WLL2S316**	**13,252**
Frame Size II	2000	100	**WLL2S320**	**17,771**
Frame Size II	3200	100	**WLL2S332**	**23,292**
Frame Size III	4000	100	**WLL3S340**	**33,086**
Frame Size III	5000	100	**WLL3S350**	**41,939**
F-Class (with fuses)				
Frame Size II	800	20 ④	**WLF2S308**	**11,133**
Frame Size II	1600	20 ④	**WLF2S316**	**13,743**
Frame Size II	2000	20 ④	**WLF2S320**	**19,738**
Frame Size III	3200	40 ④	**WLF3S332** ②	**24,537**
Frame Size III	4000	40 ④	**WLF3S340** ②	**41,299**
Frame Size III	5000	40 ④	**WLF3S350** ②	**54,301**

Circuit Breaker / Non-Automatic Switch Guide Frames and Accessories

Guide Frames for UL 489 Drawout Circuit Breakers and Non-Automatic Switches

S-Class				
Frame Size I	800	65	**WLGS1308**	**1,850**
Frame Size I	1200	65	**WLGS1312**	**1,850**
Frame Size II	800	65	**WLGS2308**	**1,850**
Frame Size II	1200	65	**WLGS2312**	**1,850**
Frame Size II	1600	65	**WLGS2316**	**1,850**
Frame Size II	2000	65	**WLGS2320**	**2,138**
H-Class				
Frame Size I	800	85	**WLGH1308**	**1,850**
Frame Size I	1200	85	**WLGH1312**	**1,850**
L-Class				
Frame Size I	800	100	**WLGL1308**	**1,850**
Frame Size I	1200	100	**WLGL1312**	**1,850**
Frame Size II	800	100	**WLGL2308**	**1,850**
Frame Size II	1200	100	**WLGL2312**	**1,850**
Frame Size II	1600	100	**WLGL2316**	**1,850**
Frame Size II	2000	100	**WLGL2320**	**2,138**
Frame Size II	2500	100	**WLGL2325**	**3,312**
Frame Size II	3000	100	**WLGL2330**	**3,312**
Frame Size III	4000	100	**WLGL3340**	**6,451**
Frame Size III	5000	100	**WLGL3350**	**6,451**
C-Class				
Frame Size II ⑤	800	150	**WLGC2308**	**2,639**
Frame Size II ⑤	1200	150	**WLGC2312**	**2,639**
Frame Size II ⑤	1600	150	**WLGC2316**	**2,639**
Frame Size II ⑤	2000	150	**WLGC2320**	**2,639**
Frame Size II ⑤	2500	150	**WLGC2325**	**4,111**
Frame Size II ⑤	3000	150	**WLCG2330**	**4,111**
Frame Size III	4000	150	**WLGC3340**	**6,451**
Frame Size III	5000	150	**WLGC3350**	**6,451**

① Circuit Breaker and Non-Automatic Switch Frames must be ordered as part of an assembled catalog number as defined on pages 1/6 through 1/11.
② Includes WLFCAR50 fuse carriage.
③ Breaking capacity with external relay is equal to the short-time rating.
④ Interrupting rating is equal to 200kA based on the rating of the fuse.
⑤ Available January 2006

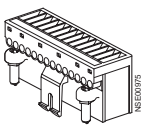
Circuit Breaker / Non-Automatic Switch Guide Frames and Accessories

Guide Frames for ANSI / UL 1066 Drawout Circuit Breakers and Non-Automatic Switches①

Description	Max Ampere Rating A	Interupting Rating kA	Catalog Number	List Price $
N-Class				
Frame Size II	800	50	**WLGN2308**	**1,850**
Frame Size II	1600	50	**WLGN2316**	**1,850**
S-Class				
Frame Size II	800	65	**WLGS2308**	**1,850**
Frame Size II	1600	65	**WLGS2316**	**1,850**
Frame Size II	2000	65	**WLGS2320**	**2,138**
Frame Size II	3200	65	**WLGS2332**	**3,312**
H-Class				
Frame Size II	800	85	**WLGH2308**	**1,850**
Frame Size II	1600	85	**WLGH2316**	**1,850**
Frame Size II	2000	85	**WLGH2320**	**2,138**
Frame Size II	3200	85	**WLGH2332**	**3,312**
Frame Size III	4000	85	**WLGH3340**	**6,451**
Frame Size III	5000	85	**WLGH3350**	**6,451**
L-Class				
Frame Size II	800	100	**WLGL2308**	**1,850**
Frame Size II	1600	100	**WLGL2316**	**1,850**
Frame Size II	2000	100	**WLGL2320**	**2,138**
Frame Size II	3200	100	**WLGL2332**	**3,312**
Frame Size III	4000	100	**WLGL3340**	**6,451**
Frame Size III	5000	100	**WLGL3350**	**6,451**
M-Class				
Frame Size III	3200	150	**WLGM3332**	**6,451**
Frame Size III	4000	150	**WLGM3340**	**6,451**
Frame Size III	5000	150	**WLGM3350**	**6,451**
F-Class				
Frame Size II	800	200	**WLGF2308**	**1,850**
Frame Size II	1600	200	**WLGF2316**	**1,850**
Frame Size II	2000	200	**WLGF2320**	**2,676**
Frame Size III	3200	200	**WLGF3332** ②	**11,607**
Frame Size III	4000	200	**WLGF3340** ②	**11,607**
Frame Size III	5000	200	**WLGF3350** ②	**11,607**

Fuse Carriage③

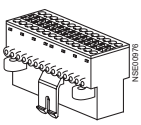
Fuse Carriage for use with 3200A / 4000A / 5000A
Frame Size III F-Class Breakers and Switches — **WLFCAR50** — **5,156**



WLGAUXPLUGP

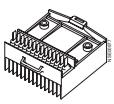
Guide Frame Accessories

Rotateable T-Connector for Frame Size II, not for use with C-Class circuit breakers
For vertical to horizontal bus conversion④
800A / 1600A / 2000A — **WLG20TCN** (GZ) — **225**



WLGAUXPLUGT

Removeable Secondary Wire Auxiliary Connectors	Screw connection for ring terminals	**WLGAUXPLUGR**	**100**
	Tension spring connection for bare wire	**WLGAUXPLUGT**	**115**
	Screw connection for bare wire	**WLGAUXPLUGP**	**89**
Sliding Disconnect Secondary Auxiliary on Guide Frame		**WLGDSCN**	**185**
Sliding Disconnect Secondary Auxiliary on Guide Frame (dummy block)		**WLGBDSCN**	**50**


WLGDSCN

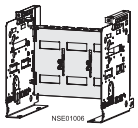
Breaker Position Signaling Switch (all contacts are Form C)

1-Connect, 1-Test,1-Disconnect, Truck Operated Contact (TOC)	**WLGSGSW111**	**375**
3-Connect, 2-Test,1-Disconnect, Truck Operated Contact (TOC)	**WLGSGSW321**	**450**
6-Connect, Truck Operated Contact (TOC)	**WLGSGSW6**	**475**

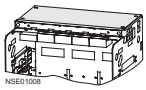
① All guide frames with Vertical Bus configuration, horizontal optional.
② Includes guide frame for the fuse carriage.
③ Includes fuses. Does not include guide frame for the fuse carriage.
④ Factory installed only, order as a guide frame Z-Parameter.
(GZ) Guide frame Z-Parameter accessory. This component can be added to an assembled guide frame catalog number order.

Circuit Breaker / Non-Automatic Switch Guide Frames and Accessories

Guide Frame Accessories



WLGSHUT2



WLGARC2

Description				Catalog Number	List Price $
Shutter					
Field installable and lockable with padlock provision	Frame Size I	UL 489	S, H, L-Class	**WLGSHUT1UL**	**450**
	Frame Size II	ANSI / UL 489	N, S, L, F-Class	**WLGSHUT2**	**515**
		UL 489	C-Class	**WLGSHUTM2**	**515**
	Frame Size III	ANSI / UL 489	H, L, F-Class	**WLGSHUT3**	**575**
	Frame Size III	ANSI / UL 489	M, C-Class	**WLGSHUTM3**	**575**
Guide Frame Arc Chute Cover	Frame Size I	UL 489	S, H, L-Class	**WLGARC1UL**	**295**
	Frame Size II	ANSI	N, S, H, L-Class	**WLGARC2**	**337**
		UL 489	S, L-Class	**WLGARC2UL**	**337**
		ANSI / UL 489	H, L-Class	**WLGARC3**	**425**
Mechanism Operated Auxiliary Contacts (MOC) Mounted on the Guide Frame (drawout breakers only)					
4NO+4NC, Test and Connect position		FSI & FSII		**WLMOC**	**800**
4NO+4NC, Connect position only		FSI & FSII		**WLMOCC**	**700**
4NO+4NC, Test and Connect position		FSIII		**WLMOC3**	**800**
4NO+4NC, Connect position only		FSIII		**WLMOCC3**	**700**
For fixed mount breakers					
4NO+4NC		FSI		**WLMOCUL1**	**700**
4NO+4NC		FSII		**WLMOCUL**	**700**
Guide Frame Heater				**WLGHEAT**	**62**

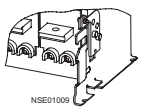
Locking Devices Mounted on the Guide Frame

Lock Breaker in OPEN position, KIRK Key	**WLDLKRK**	**750**
Lock Breaker in OPEN position, Superior Lock	**WLDLSUP**	**675**
Double Lock Breaker in OPEN position, KIRK Key	**WLDLDKRK**	**1,450**
Double Lock Breaker in OPEN position, Superior Lock	**WLDLDSUP**	**1,305**
Provision Only - Lock Breaker in OPEN position	**WLDLPR**	**247**
Provision Only - Double Lock Breaker in OPEN position	**WLDLDPR**	**350**
Locking Device against opening the cubicle door if breaker is in connect position, FSII & FSIII	**WLDRLC1** (GZ)	**180**
Locking Device against opening the cubicle door if breaker is in connect position, FSI	**WLDRLC**	**180**
Locking Device against closing the breaker if the cubicle door is open and breaker is in the connect position (UL 489 only)	**WLDRLC5UL**	**237**

3-Phase Metering CTs, Guide Frame mounted (3 windows per CT)

	Rating		
Frame Size I & II	100:5	**WLG1005MCT2** (GZ)	**1,158**
	150:5	**WLG1505MCT2** (GZ)	**1,158**
	200:5	**WLG2005MCT2** (GZ)	**1,158**
	250:5	**WLG2505MCT2** (GZ)	**1,158**
	300:5	**WLG3005MCT2** (GZ)	**1,158**
	400:5	**WLG4005MCT2** (GZ)	**1,158**
	500:5	**WLG5005MCT2** (GZ)	**1,158**
	600:5	**WLG6005MCT2** (GZ)	**1,158**
	800:5	**WLG8005MCT2** (GZ)	**1,158**
	1000:5	**WLG10005MCT2** (GZ)	**1,158**
	1200:5	**WLG12005MCT2** (GZ)	**1,158**
	1500:5	**WLG15005MCT2** (GZ)	**1,158**
	1600:5	**WLG16005MCT2** (GZ)	**1,158**
	2000:5	**WLG20005MCT2** (GZ)	**1,158**
	2500:5	**WLG25005MCT2** (GZ)	**1,158**
	3000:5	**WLG30005MCT2** (GZ)	**1,158**
	3200:5	**WLG32005MCT2** (GZ)	**1,158**
Frame Size III	2000:5	**WLG20005MCT3** (GZ)	**1,623**
	2500:5	**WLG25005MCT3** (GZ)	**1,623**
	3000:5	**WLG30005MCT3** (GZ)	**1,623**
	3200:5	**WLG32005MCT3** (GZ)	**1,623**
	4000:5	**WLG40005MCT3** (GZ)	**1,623**
	5000:5	**WLG50005MCT3** (GZ)	**1,623**

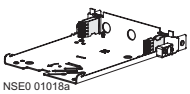
Coding Kit for Drawout Breakers (1)



WLBCK2

Breaker Coding Kit for different breaker styles	Frame Size I (UL 489 only)	**WLBCK1**	**120**
	Frame Size II	**WLBCK2**	**120**
	Frame Size III	**WLBCK3**	**120**

Additional Grounding Between Breaker and Guide Frame



WLEF2

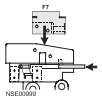
Additional ground protection for the Guide Frame	Frame Size II	**WLEF2**	**86**
	Frame Size III	**WLEF3**	**86**

(1) Breakers are coded for frame rating and interrupting capacity standard from the factory.

(GZ) Guide Frame Z-Parameter accessory. This component can be added to an assembled guide frame catalog number order.

Internal Accessories

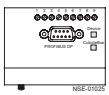
Electronic Trip Units ① Description	Protective Functions	Catalog Number	List Price $
ETU725	L(S)I	WLETU725	1,375
ETU727	L(S)IG	WLETU727	2,145
ETU745	L(S)(I) G ②	WLETU745	1,600
ETU748	LS G ②	WLETU748	1,550
ETU755	L(S)(I) G ②	WLETU755	1,900
ETU776	L(S)(I) G ②	WLETU776	3,600
( ) indicates a Defeatable function			



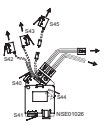
WLRSET24

WLTUSC55

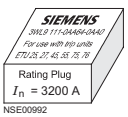
WLGFM48



WLCM15M



WLBSS



WLRP3200

Electronic Trip Unit Accessories

Metering Function Plus (not including voltage transformers) ④		WLMETERP	1,600
Non-Automatic Reset (Reclosing is locked out after trip)		WLNOAUTRSET (BZ)	300
Remote Reset Solenoid for the Trip Indicator and the Bell Alarm	24V DC	WLRSET24	400
	48V DC	WLRSET48	400
	120V DC	WLRSET120	400
	240V DC	WLRSET240	400
Sealing Cover for the electronic trip unit	ETU725 - 755	WLTUSC55	50
	ETU776	WLTUSC76	50
LCD Display	ETU745 & 748	WLLCD48	780

Optional Ground Fault Modules for Electronic Trip Units

Ground Fault Trip and Alarm for ETU745 & 748		WLGFM48	770
Ground Fault Trip and Alarm for ETU755 & 776		WLGFM76	770
Ground Fault Alarm Only for ETU745 & 748		WLGFA48	400
Ground Fault Alarm Only for ETU755 & 776		WLGFA76	400

Communication Accessories

COM15 PROFIBUS Module		WLCM15M	1,700
COM15 PROFIBUS Retrofit Kit with BSS ③		WLCM15RET	1,950
COM16 MODBUS Module		WLCM16MD	1,700
COM16 MODBUS Retrofit Kit with BSS ③		WLCM16RET	1,950
BSS (Breaker Status Sensor)		WLBSS	600

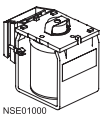
Rating Plugs

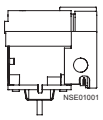
	Amp Rating		
Frame Size I & II	200	WLRP200	100
	225	WLRP225	100
	250	WLRP250	100
	300	WLRP300	100
	315	WLRP315	100
	350	WLRP350	100
	400	WLRP400	100
	450	WLRP450	100
	500	WLRP500	100
	600	WLRP600	100
	630	WLRP630	100
	700	WLRP700	100
Frame Size I, II & III	800	WLRP800	100
	1000	WLRP1000	100
	1200	WLRP1200	100
Frame Size II & III	1250	WLRP1250	100
	1600	WLRP1600	100
	2000	WLRP2000	100
	2500	WLRP2500	100
	3000	WLRP3000	100
	3200	WLRP3200	100
Frame Size III	4000	WLRP4000	100
	5000	WLRP5000	100

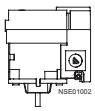
Closing Coils

Remote Close Solenoid (3-cycle close)	24V DC	WLRCS24	350
	48V DC	WLRCS48	350
	120V AC / 125V DC	WLRCS120	350
	240V AC / 250V DC	WLRCS240	350

① Trip units include clear plastic front sealing covers as standard.
② Optional Ground Fault Module can be ordered separately. It is field installable and not removable once installed.
③ For use if communications is not originally installed.
④ Requires external voltage potential transformers with 120V AC secondary output.
(BZ) Circuit Breaker Z-Parameter accessory. This component can be added to an assembled breaker or switch catalog number order.


WLST240


WLUV24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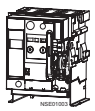
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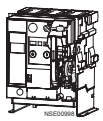
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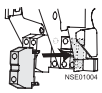
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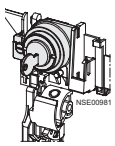
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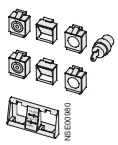
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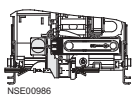
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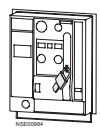

WLHANDLC

Internal Accessories

Shunt Trips

Description		Catalog Number	List Price $
	24V DC	**WLST24**	**350**
	48V DC	**WLST48**	**350**
	120V AC / 125V DC	**WLST120**	**350**
	240V DC / 250V DC	**WLST240**	**350**
Interlock Shunt Trip			
Continous Duty, for UL 489 only	24V DC	**WLSTCD24**	**350**
	48V DC	**WLSTCD48**	**350**
	120V AC / 125V DC	**WLSTCD120**	**350**
	240V AC / 250V DC	**WLSTCD240**	**350**
Undervoltage Release			
UVR	24V DC	**WLUV24**	**550**
	48V DC	**WLUV48**	**550**
	120V AC / 125V DC	**WLUV120**	**550**
	240V AC / 250V DC	**WLUV240**	**550**
UVR with time delay	48V DC	**WLUVD48**	**1,650**
	120V AC / 125V DC	**WLUVD120**	**1,650**
	240V AC / 250V DC	**WLUVD240**	**1,650**
Motor Operator			
Electric Spring Charging Motor	24V DC	**WLELCMTR24**	**2,159**
	48V DC	**WLELCMTR48**	**2,159**
	120V AC / 125V DC	**WLELCMTR120**	**2,159**
	240V AC / 250V DC	**WLELCMTR240**	**2,159**
with main cut-off switch option	24V DC	**WLELCMTR24S**	**2,230**
	48V DC	**WLELCMTR48S**	**2,230**
	120V AC / 125V DC	**WLELCMTR120S**	**2,230**
	240V AC / 250V DC	**WLELCMTR240S**	**2,230**
Internal Auxiliary Contacts			
Auxiliary Contact Block	2 NO + 2 NC	**WLAS2**	**275**
	4 NO + 4 NC	**WLAS4**	**450**
Signaling Contacts			
Signaling Contact for UVR		**WLUVRC**	**95**
Signal Contact for 1st Shunt Trip		**WLSTC**	**95**
Open Fuse Trip Kit (ANSI only)	Frame Size II	**WLOFLO2**	**300**
	Frame Size III	**WLOFLO3**	**300**
Bell Alarm	1 Form C contact	**WLBA**	**540**
Remote Trip Kit		**WLRTK** (BZ)	**400**
Ready to Close Signal Contact	1 NO contact	**WLRTCS**	**225**
Locking Devices & Provisions - Breaker Front Panel Mounted			
Locking device against opening the cubicle door when the breaker is closed	UL 489 fixed mount Frame Size I	**WLLKOFFDRUL1** (BZ)	**150**
	UL 489 fixed mount Frame Size II, III	**WLLKOFFDRUL3** (BZ)	**150**
Lock breaker in the OPEN position	KIRK	**WLLKOFFKRK**	**900**
	Superior	**WLLKOFFSUP** (BZ)	**810**
	4 Padlock Provision	**WLLKNP**	**150**
	Key Lock Provision	**WLLKOFFPR** (BZ)	**150**
Lock Kit - field installable	Transparent protective covers for OPEN or CLOSE buttons(2) (Padlock or Sealable option), OPEN or CLOSE button covers with cheat-hole, CES lock for OPEN or CLOSE button	**WLLKKT**	**250**
Locking Device against moving a Drawout Breaker in all 3 positions by locking the racking handle	KIRK UL 489 Frame Size I	**WLLKCLKRK1** (BZ)	**858**
	KIRK ANSI / UL 489 Frame Size II, III	**WLLKCLKRK**	**858**
	Superior UL 489 Frame Size I	**WLLKCLSUP1** (BZ)	**858**
	Superior ANSI / UL 489 Frame Size II, III	**WLLKCLSUP** (BZ)	**858**
	Key Lock Provision, for Frame Size II, III	**WLLKCKPR** (BZ)	**150**
Locking Device for charging handle, prevents charging the springs	1 Padlock Provision	**WLHANDLC**	**120**
Locking Device against moving the breaker if the cubicle door is open	for UL 489 Frame Size II or III only	**WLDRLC5UL**	**150**
Miscellaneous Internal Accessories			
Operations Counter ①		**WLNUMCNT**	**433**
Local electric CLOSE pushbutton with sealing cap, front panel mounting (including wiring and microswitch)		**WLLECS**	**150**
Mushroom Head Emergency OPEN Button		**WLEPEN**	**140**
Secondary Disconnect Adapter for Contact Module for Drawout Breaker (ANSI / UL 1066 only)		**WLCNMDA** (BZ)	**120**

① Operations counter is not available without the electric motor operator.

(BZ) Circuit Breaker Z-Parameter accessory. This component can be added to an assembled breaker or switch catalog number order.

External Accessories

UL 489 Fixed Mount Circuit Breaker External Bus Connectors

Description			Catalog Number	List Price $
Front Mount Bus Connector				
	Frame Size I, 85kA max	800A, 1200A	WLH1F12CONUL BZ	120
	Frame Size II, 100kA max	1600A	WLL2F16CONUL BZ	120
		2000A	WLL2F20CONUL BZ	120
		2500A, 3000A	WLL2F30CONUL BZ	200
	Frame Size III, 100KA max	4000A, 5000A	WLL3F50CONUL BZ	600
Pressure Wire Main Connector				
	Frame Size I & II, 65kA max	800A, 1200A	WLS2P12CONUL BZ	90
	Frame Size II, 65kA max	1600A, 2000A	WLS2P20CONUL BZ	120
Rear Vertical Bus Connector				
	Frame Size I, 85kA max	800A, 1200A	WLH1R12CONUL BZ	120
	Frame Size II, 100kA max	1600A	WLL2R16CONUL BZ	120
		2000A	WLL2R20CONUL BZ	120
		2500A, 3000A	WLL2R30CONUL BZ	200
	Frame Size II, 150kA max	1600A, 2000A, 2500A, 3000A	WLC2R30CONUL BZ	200
	Frame Size III, 150kA max	4000A, 5000A	WLC3R50CONUL BZ	600

Neutral Sensors for Metering, 5A Secondary

		Rating		
For Frame Size I, II or III		100:5	WLG100NMCT23 BZ	835
		150:5	WLG150NMCT23 BZ	835
		200:5	WLG200NMCT23 BZ	835
		250:5	WLG250NMCT23 BZ	835
		300:5	WLG300NMCT23 BZ	835
		400:5	WLG400NMCT23 BZ	835
		500:5	WLG500NMCT23 BZ	835
		600:5	WLG600NMCT23 BZ	835
		800:5	WLG800NMCT23 BZ	835
		1000:5	WLG1000NMCT23 BZ	835
		1200:5	WLG1200NMCT23 BZ	835
		1500:5	WLG1500NMCT23 BZ	835
		1600:5	WLG1600NMCT23 BZ	835
		2000:5	WLG2000NMCT23 BZ	835
		2500:5	WLG2500NMCT23 BZ	835
		3000:5	WLG3000NMCT23 BZ	835
		3200:5	WLG3200NMCT23 BZ	835
		4000:5	WLG4000NMCT23 BZ	835
		5000:5	WLG5000NMCT23 BZ	835
Replacement Mounting Bracket for Neutral Sensor		Frame Size II, III	WLNMCTMB23 BZ	60

Neutral Sensors for Modified Differential GF or Source Gnd Return

For Modified Differential GF	Frame Size II	1200:1	WLGMDGFCT2 BZ	1,350
	Frame Size III	1200:1	WLGMDGFCT3 BZ	1,500
For Source Ground Return	Frame Size I, II, III	1200:1	WLGNMDGCT23 BZ	800

External Neutral Sensors for 4-wire Residual Ground Fault

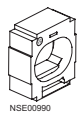
without copper bus adapters (pass-thru mount)			
	for 3" max bus bar	WLNCT2 BZ	1,000
	for 3" - 5" bus bar	WLNCT3 BZ	1,300
with copper bus adapters for bus bar connection			
	for 3" max bus bar	WLNCT2CB BZ	1,050
	for 3" - 5" bus bar	WLNCT3CB BZ	1,350

Door Sealing Frame & Covers

Door Sealing Frame (for Frame Size II or III only)	WLDSF	220
Plexiglas Breaker Cover	WLPGC	450

External Communication Devices

BDA (Breaker Data Adapter) Electronic Trip Unit parameterization interface for PC connection	WLBDA	1,230
BDA PLUS, Electronic Trip Unit parameterization interface for PC and Ethernet connection	WLBDAP	1,593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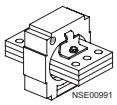
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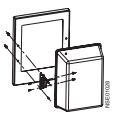
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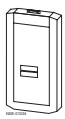
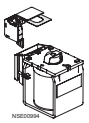

WLBDA

BZ Circuit Breaker Z-Parameter accessory. This component can be added to an assembled breaker or switch catalog number order.

External Accessories

External I/O CubicleBus Modules

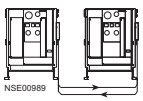
Description		Catalog Number	List Price $
Zone Selective Interlocking (ZSI) Module		**WLZSIMD**	**395**
Analog Output Module		**WLANLGCUB**	**532**
Digital Output Opto-coupler Module with Rotary Switch		**WLDGSCUB**	**495**
Digital Output Relay Module with Rotary Switch		**WLRLYCUB**	**672**
Digital Output Opto-coupler Module, configurable		**WLDGSCCUB**	**602**
Digital Output Relay Module, configurable		**WLRLYCCUB**	**567**
Digital Input Module		**WLDGNCUB**	**532**
Preassembled Cables for CubicleBUS Modules	0.2 meter long	**WLCBUSCABLE02**	**24**
	1.0 meter long	**WLCBUSCABLE1**	**40**
	2.0 meters long	**WLCBUSCABLE2**	**80**
	4.0 meters long	**WLCBUSCABLE4**	**120**
	9.0 meters long	**WLCBUSCABLE9**	**180**



WLSTC

Testing Equipment for Electronic Trip Unit

Handheld Tester for Electronic Trip Unit, Fixed LSIG pickup		**WLTS**	**2,050**
Replacement Cables for Handheld Tester		**WLTSC**	**150**
Handheld Tester for Electronic Trip Unit, Adjustable LSIG pickup		**WLPTS801**	**CSO**



WLNTLK

Mechanical Interlocks

Mutual Mechanical Interlocking (includes 2.0 m Bowden wire)			
For drawout breaker with Guide Frame	Frame Size I, II, III	**WLNTLK**	**680**
For fixed mounted breaker	Frame Size I	**WLNTLKF1** (BZ)	**680**
	Frame Size II, III	**WLNTLKF23** (BZ)	**680**
Bowden wire, connection cable, alternate lengths for Mutual Mechanical Interlocking	2.0 m	**WLNTLWIRE2**	**145**
	3.0 m	**WLNTLWRE3**	**180**
	4.5 m	**WLNTLWRE4**	**250**
	6.0 m	**WLNTLWRE5**	**325**

Miscellaneous External Accessories

Crimp Lugs for 10#AWG secondary wiring (package of 70) (1)		**WL10RL** (BZ)	**30**
Blank Auxiliary Plug		**WLGDAUXPLUG**	**27**
Secondary Disconnect Coding Kit for UL 489 fixed mount		**WLCODEKITUL**	**120**
Pull Apart Terminal Block with 1.0 m leads for UL 489 Fix Mount		**WLTERMBLKUL**	**115**
Auxiliary Contact on drawout breaker (knife block)		**WLCNMD**	**86**
24V DC Trip Unit & Communications Power Supply, 2.5A SITOP Power, Class 2		**WLSITOP25**	**330**
24V DC Trip Unit & Communications Power Supply, 3.8A SITOP Power, Class 2		**WLSITOP1**	**600**
Optional Metric Inserts and Bolts for Breaker Mains (4 each)	M8x25 for Frame Size I, II	**WLMETRC**	**125**
	M10x25 for Frame Size II, III	**WLMETRC3**	**150**
Electronic Trip Unit Configuration Software Kit		**WLCONFIG**	**495**

(1) For use with WLGAUXPLUGR ring terminal secondary auxiliary connector.
(BZ) Indicates a Circuit Breaker Assembled Catalog Number Z-Parameter.
This component can be added to an assembled breaker or switch catalog number order.

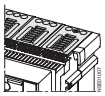
Spare Parts and Miscellaneous Accessories

Main Breaker Contacts Replacement Kit (ANSI only)①

Description			Interrupting Rating Class	Catalog Number	List Price $
Includes fixed and moveable contact arm for 1 pole	Frame Size II	10 mm bus for 800A, 1600A	N - Class	RCS2N10	1,200
			S - Class	RCS2S10	1,310
			H - Class	RCS2H10	1,455
			L - Class	RCS2L10	1,530
		15 mm bus for 2000A	S - Class	RCS2S15	2,100
			H & F - Class	RCS2HF15	2,420
			L - Class	RCS2L15	2,525
		30 mm bus for 3200A	S - Class	RCS2S30	2,470
			H - Class	RCS2H30	3,015
			L - Class	RCS2L30	3,710
	Frame Size III	30 mm bus for 4000A, 5000A	H & F - Class	RCS3HF30	4,430
			L - Class	RCS3L30	5,070
			M - Class	RCS3M30	5,770

Replacement Fuse Kits (ANSI only)

Current Limiting Fuses Kit, 200kAIC	Frame Size II	3000A	WLCLFUSE2002	1,045
	Frame Size III	6000A	WLCLFUSE2003	1,800



WLARC2

Replacement Arc Chute Kits

	ANSI Frame Size II		WLARC2	106
	ANSI Frame Size III		WLARC3	177
	ANSI Frame Size III M-Class only		WLARCM3	204

Finger Cluster Replacement Kit

	UL 489 Frame Size I	800A, 1200A		WLFNGR1UL	190
	UL 489 Frame Size II				
	S & L-Class	1600A	10 mm	WLFNGR10UL	250
		2000A	15 mm	WLFNGR15UL	250
		2500A, 3000A	30 mm	WLFNGR30UL	405
	UL 489 Frame Size II C-Class				
		1600A, 2000A, 2500A, 3000A	30 mm	WLFNGR30ULC	450
	ANSI Frame Size II	800A, 1600A	10 mm	WLFNGR10	250
		2000A	15 mm	WLFNGR15	250
		3200A	30 mm	WLFNGR30	405
	Frame Size III	4000A, 5000A	30 mm	WLFCK3	650

Internal 3-phase CT Spare Part Kit

UL 489 Frame Size I	WLCT1UL	175
UL 489 Frame Size II	WLCT2UL	225
UL 489 Frame Size III	WLCT3UL	275
ANSI Frame Size II	WLCT2	275
ANSI Frame Size III	WLCT3	240

WLLFT

Miscellaneous Accessories

Breaker Lifting Device	WLLFT	585
Circuit Breaker Hoist	WLHOIST	3,400

①It is recommended that arc chutes and main contacts are changed at the same time.

WL Circuit Breakers ANSI / UL 1066

Breaker Ratings

Frame Rating		Frame Size II																
		800					1600					2000				3200		
Rating Class		N	S	H	L	F	N	S	H	L	F	S	H	L	F	S	H	L
Interrupting Current I_{cs} (kAIR RMS) 50/60 Hz	254V AC	50	65	85	100	200	50	65	85	100	200	65	85	100	200	65	85	100
	508V AC	50	65	85	100	200	50	65	85	100	200	65	85	100	200	65	85	100
	635V AC	50	65	65	85	200	50	65	65	85	200	65	65	85	200	65	65	85
Short-time Withstand Current I_{cw} (kA RMS) 50/60 Hz	0.5 s	50	65	65	85	20	50	65	65	85	20	65	65	85	20	65	65	85
Extended Instantaneous Protection (kA RMS)	285-508V AC	50	65	85	100	200	50	65	85	100	200	65	85	100	200	65	85	100
	635V AC	50	65	65	85	200	50	65	65	85	200	65	65	85	200	65	65	85
Close and Latch Ratings (kA RMS) 50/60 Hz		50	65	65	85	75	50	65	65	85	75	65	65	85	75	65	65	85
Rating Plug Range		200A to 800A					200A to 1600A					200A to 2000A				200A to 3200A		
Endurance Rating (switching operations with maintenance)①	Mechanical	15,000					15,000					15,000				15,000		
	Electrical	15,000					15,000					15,000				15,000		

Frame Rating		Frame Size III									
		3200		4000				5000			
Rating Class		M	F	H	L	M	F	H	L	M	F
Interrupting Current I_{cs} (kAIR RMS) 50/60 Hz	254V AC	150	200	85	100	150	200	85	100	150	200
	508V AC	150	200	85	100	150	200	85	100	150	200
	635V AC	85	200	85	85	85	200	85	85	85	200
Short-time Withstand Current I_{cw} (kA RMS) 50/60 Hz	0.5 s	100②	40	85	100②	100②	40	85	100②	100②	40
Extended Instantaneous Protection (kA RMS)	254V AC										
	508V AC	150	200	85	100	150	200	85	100	150	200
	635V AC	85	200	85	85	85	200	85	85	85	200
Close and Latch Ratings (kA RMS) 50/60 Hz		100②	40	85	100②	100②	40	85	100②	100②	40
Rating Plug Range		800A to 3200A		800A to 4000A				800A to 5000A			
Endurance Rating (switching operations with maintenance)①	Mechanical	10,000		10,000				10,000			
	Electrical	10,000		10,000				10,000			

① Maintenance means: replacing main contacts and arc chutes (see operating instructions).
M-Class main contacts can be replaced by Siemens personnel only.
② Do not apply breaker at 635V AC on a system with available fault current > 85kA RMS.

WL Non-Automatic Switches ANSI / UL 1066

Ratings

Frame Rating		Frame Size II							Frame Size III				
		800		1600		2000		3200	3200	4000		5000	
Rating Class		L	F①	L	F①	L	F①	L	F①	L	F①	L	F①
Short-time Withstand Current (kA RMS) 50/60 Hz	0.5 s	85	20	85	20	85	20	85	40	100②	40	100②	40
Breaking Capacity with External Relay (kA RMS) 50/60 Hz, instantaneous trip	254V AC	100	20	100	20	100	20	100	40	100	40	100	40
	506V AC	100	20	100	20	100	20	100	40	100	40	100	40
	635V AC	85	20	85	20	85	20	85	40	85	40	85	40

WL Circuit Breakers ANSI / UL 1066

Frame Rating		Frame Size II				Frame Size III		
		800	1600	2000	3200	3200	4000	5000
Rated current I_n at 40°C, at 50/60Hz	A	800	1600	2000	3200	3200	4000	5000
Rated operational voltage	V AC	600	600	600	600	600	600	600
IEC Rated insulation voltage (U_i)	V AC	690	690	690	690	690	690	690
IEC 60-947-1 Rated impulse withstand voltage U_{imp}								
Main conducting paths	kV	8	8	8	8	8	8	8
Auxiliary circuits	kV	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Permissible ambient temperature operation (for operation with LCD max. 55°C)	°C	-25 / +70	-25 / +70	-25 / +70	-25 / +70	-25 / +70	-25 / +70	-25 / +70
Storage (observe special conditions for LCD)	°C	-40 / +70	-40 / +70	-40 / +70	-40 / +70	-40 / +70	-40 / +70	-40 / +70
Power loss at I_n with 3-phase symmetrical load	W	85 130 (fused)	320 520 (fused)	500 850 (fused)	1150	700③	1100③	1650③
Operating times								
Make-time	ms	35	35	35	35	35	35	35
Break-time	ms	34	34	34	34	34	34	34
Make-time, electrical (via closing solenoid)	ms	50	50	50	50	50	50	50
Break-time, electrical (via shunt trip)	ms	40	40	40	40	40	40	40
Break-time, electrical (via instantaneous UVR)	ms	73	73	73	73	73	73	73

① Interrupting rating is equal to 200kA based on the rating of the fuse.
② Do not apply switch at 635V AC on a system with available fault current > 85kA RMS.
③ Consult factory for fuse carriage power loss.

WL Circuit Breakers ANSI / UL 1066

		Frame Size II				Frame Size III		
Frame Rating		**800**	**1600**	**2000**	**3200**	**3200**	**4000**	**5000**
Endurance								
Mechanical (without maintenance)	operating cycles	12,500	12,500	10,000	10,000	5,000	5,000	5,000
Mechanical (with maintenance)①	operating cycles	15,000	15,000	15,000	15,000	10,000	10,000	10,000
Electrical (without maintenance)	operating cycles	7,500	7,500	4,000	4,000	2,000	2,000	2,000
Electrical (with maintenance)①	operating cycles	15,000	15,000	15,000	15,000	10,000	10,000	10,000
Switching frequency	1/h	60	60	60	60	60	60	60
Minimum interval between breaker trip and next closing of the circuit breaker (when used with the automatic mechanical reset of the reclosing lockout	ms	80	80	80	80	80	80	80
Mounting position								
Auxiliary secondary wire size (Cu) max # of aux. connecting leads x cross section (solid or stranded)	Bare wire pressure terminal (standard)	1 x AWG 14 or 2 x AWG 16	1 x AWG 14 or 2 x AWG 16	1 x AWG 14 or 2 x AWG 16	1 x AWG 14 or 2 x AWG 16	1 x AWG 14 or 2 x AWG 16	1 x AWG 14 or 2 x AWG 16	1 x AWG 14 or 2 x AWG 16
	Tension spring terminal	2 x AWG 14	2 x AWG 14	2 x AWG 14	2 x AWG 14	2 x AWG 14	2 x AWG 14	2 x AWG 14
	Ring tongue terminal	2 x AWG 14 1 x AWG 10② 2 x AWG 16	2 x AWG 14 1 x AWG 10② 2 x AWG 16	2 x AWG 14 1 x AWG 10② 2 x AWG 16	2 x AWG 14 1 x AWG 10② 2 x AWG 16	2 x AWG 14 1 x AWG 10② 2 x AWG 16	2 x AWG 14 1 x AWG 10② 2 x AWG 16	2 x AWG 14 1 x AWG 10② 2 x AWG 16
TOC wire connection size (Cu) max # of aux. connecting leads x cross section (solid or stranded)	Bare wire pressure terminal	1 x AWG 14	1 x AWG 14	1 x AWG 14	1 x AWG 14	1 x AWG 14	1 x AWG 14	1 x AWG 14
Weight③								
Circuit Breaker	kg/lb	72/159	72/159	75/165	95/209	118/260	118/260	118/260
Guide Frame	kg/lb	51/112	51/112	60/132	69/152	139/306	139/306	139/306
MOC wire connection size (Cu) max # of aux. connecting leads x cross section (solid or stranded)	Bare wire pressure terminal	1 x AWG 14	1 x AWG 14	1 x AWG 14	1 x AWG 14	1 x AWG 14	1 x AWG 14	1 x AWG 14

① Maintenance consists of replacing main contacts and arc chutes (see operating instructions.)
M-Class main contacts can be replaced by Siemens personnel only.
② For use only with Siemens supplied ring terminals (WL10RL).
③ Fused Breaker Weights

(kg/lb)	Frame Size II (fused)	Frame Size III (fused)
Breaker	103/227	same as table above
Guide Frame	68/150	130/275
Fuse Carriage	–	102/225

WL UL 489 Insulated Case Circuit Breakers

Breaker Ratings

Frame Rating		Frame Size I					
		800			1200		
Rating Class		S	H	L	S	H	L
Interrupting Current I_{cs} (kAIR RMS) 50/60 Hz	240V	65	85	100	65	85	100
	480V	65	85	100	65	85	100
	600V	65	65	65	65	65	65
Short-time Withstand Current I_{cw} (kA RMS) 50/60 Hz	0.5 s	65	65	65	65	65	65
Extended Instantaneous Protection (kA RMS)	240-480V	65	85	100	65	85	100
	600V	65	65	65	65	65	65
Close and Latch Ratings (kA RMS) 50/60 Hz		65	65	65	65	65	65
Rating Plug Range		200A to 800A			200A to 1200A		
Minimum switchboard cubicle dimensions (fixed or draw-out version)	width (in.)	22.0			22.0		
	height (in.)	15.0			15.0		
	depth (in.)	19.5			19.5		

Frame Rating		Frame Size II															
		800			1200			1600			2000			2500		3000	
Rating Class		S	L	C①	S	L	C①	S	L	C①	S	L	C①	L	C①	L	C①
Interrupting Current I_{cs} (kAIR RMS) 50/60 Hz	240V	65	100	150	65	100	150	65	100	150	65	100	150	100	150	100	150
	480V	65	100	150	65	100	150	65	100	150	65	100	150	100	150	100	150
	600V	65	85	100	65	85	100	65	85	100	65	85	100	85	100	85	100
Short-time Withstand Current I_{cw} (kA RMS) 50/60 Hz	0.5 s	65	85	100	65	85	100	65	85	100	65	85	100	85	100	85	100
Extended Instantaneous Protection (kA RMS)	240-480V	65	100	150	65	100	150	65	100	150	65	100	150	100	150	100	150
	600V	65	85	100	65	85	50	65	85	100	65	85	100	85	100	85	100
Close and Latch Ratings (kA RMS) 50/60 Hz		65	85	100	65	85	100	65	85	100	65	85	100	85	100	85	100
Rating Plug Range		200A to 800A			200A to 1200A			200A to 1600A			200A to 2000A			200 to 2500A		200 to 3000A	
Minimum switchboard cubicle dimensions (fixed or draw-out version)	width (in.)	22.0			22.0			22.0			22.0			22.0		22.0	
	height (in.)	22.5			22.5			22.5			22.5			22.5		22.5	
	depth (in.)	19.5			19.5			19.5			19.5			19.5		19.5	

Frame Rating		Frame Size III			
		4000		5000	
Rating Class		L	C	L	C
Interrupting Current I_{cs} (kAIR RMS) 50/60 Hz	240V	100	150	100	150
	480V	100	150	100	150
	600V	85	100	85	100
Short-time Withstand Current I_{cw} (kA RMS) 50/60 Hz	0.5 s	85	100	85	100
Extended Instantaneous Protection (kA RMS)	240-480V	100	150	100	150
	600V	85	100	85	100
Close and Latch Ratings (kA RMS) 50/60 Hz		85	100	85	100
Rating Plug Range		800A to 4000A		800A to 5000A	
Minimum switchboard cubicle dimensions (fixed or draw-out version)	width (in.)	32.0		32.0	
	height (in.)	22.5		22.5	
	depth (in.)	19.5		19.5	

① Available in 2006

WL Non-Automatic Switches UL 489

Ratings

Rating Nominal Current		Frame Size I		Frame Size II				Frame Size III	
		800	1200	1600	2000	2500	3000	4000	5000
Rating Class		H	H	L	L	L	L	L	L
Short-time Withstand Current (kA RMS) 50/60 Hz	0.5 s	65	65	85	85	85	85	85	85
Breaking Capacity with External Relay (kA RMS) 50/60 Hz, instantaneous trip	240V	85	85	100	100	100	100	100	100
	480V	85	85	100	100	100	100	100	100
	600V	65	65	85	85	85	85	85	85

Frame Rating			Frame Size I	
Rated Current at 50/60 Hz		A	800	1200
Rated voltage		V AC	600	600
Permissible ambient temperature	Operation (for operation with LCD max 55°C)	C	-25 / +70	-25 / +70
	Storage (observe special conditions for LCD)	C	-40 / +70	-40 / +70
Power loss at rated current I_n (with 3-phase symetrical load)	Drawout version	W	80	180
	Fixed mount version	W	60	120
Operating times	Make-time	ms	35	35
	Break-time	ms	34	34
	Make-time, electrical (via closing solenoid)	ms	50	50
	Break-time, electrical (via shunt trip)	ms	40	40
	Break-time, electrical (via instantaneous UVR)	ms	73	73
Endurance	Mechanical (without maintenance)	operating cycles	7,500	7,500
	Electrical (without maintenance)	operating cycles	7,500	7,500
Switching frequency		operations/ hour	60	60
Minimum interval between breaker trip and next closing of the circuit breaker (when used with the automatic mechanical reset of the reclosing lockout)		ms	80	80
Mounting position				
Dimensions	Fixed-mounted Circuit Breaker	width	18.1	
		height	14.6	
		depth	9.5	
	Guide Frame (for draw-out version)	width	18.1	
		height	15.0	
		depth	18.6	
Weight	Fixed-mounted Circuit Breaker (w/o main busbar connectors)	lb/kg	86 / 39	86 / 39
	Drawout Circuit Breaker	lb/kg	137 / 62	137 / 62
	Guide Frame	lb/kg	108 / 49	108 / 49
Auxiliary secondary wire size (Cu) max # of aux. connecting leads x cross section (solid or stranded)	Bare wire pressure terminal (standard)		1 x AWG 14 or 2 x AWG 16	
	Tension spring terminal		2 x AWG 14	
	Ring tongue terminal		2 x AWG 14 1 x AWG 10 ① 2 x AWG 16	
	Pigtail leads (fixed mount breaker only)		1 x AWG 14, 40" long	
TOC wire connection size (Cu) max # of aux. connecting leads x cross section (solid or stranded)	Bare wire pressure terminal		1 x AWG 14	
MOC wire connection size (Cu) max # of aux. connecting leads x cross section (solid or stranded)	Bare wire pressure terminal		1 x AWG 14	

① for use only with Siemens supplied ring terminals (WL10RL)

Frame Rating			Frame Size II		
Rated Current at 50/60 Hz		A	800	1200	1600
Rated voltage		V AC	600	600	600
Permissible ambient temperature	Operation (for operation with LCD max 55°C)	C	-25 / +70	-25 / +70	-25 / +70
	Storage (observe special conditions for LCD)	C	-40 / +70	-40 / +70	-40 / +70
Power loss at rated current I_n (with 3-phase symetrical load)	Drawout version	W	85	150	320
	Fixed mount version	W	40	80	120
Operating times	Make-time	ms	35	35	35
	Break-time	ms	34	34	34
	Make-time, electrical (via closing solenoid)	ms	50	50	50
	Break-time, electrical (via shunt trip)	ms	40	40	40
	Break-time, electrical (via instantaneous UVR)	ms	73	73	73
Endurance	Mechanical (without maintenance)	operating cycles	10,000 5,000 (C-Class)	10,000 5,000 (C-Class)	10,00 5,000 (C-Class)
	Electrical (without maintenance)	operating cycles	7,500 5,000 (C-Class)	7,500 5,000 (C-Class)	7,500 5,000 (C-Class)
Switching frequency		operations/ hour	60	60	60
Minimum interval between breaker trip and next closing of the circuit breaker (when used with the automatic mechanical reset of the reclosing lockout)		ms	80	80	80
Mounting position					
Dimensions	Fixed-mounted Circuit Breaker	width	18.1		
		height	18.7		
		depth	9.5		
	Guide Frame (for draw-out version)	width	18.1		
		height	20.3		
		depth	18.6		
Weight	Fixed-mounted Circuit Breaker (w/o main busbar connectors)	lb/kg	124 / 56 148 / 67 (C-Class)	124 / 56 148 / 67 (C-Class)	124 / 56 148 / 67 (C-Class)
	Drawout Circuit Breaker	lb/kg	159 / 72 220 / 100 (C-Class)	159 / 72 220 / 100 (C-Class)	159 / 72 220 / 100 (C-Class)
	Guide Frame	lb/kg	112 / 51 163 / 74 (C-Class)	112 / 51 163 / 74 (C-Class)	112 / 51 163 / 74 (C-Class)
Auxiliary secondary wire size (Cu) max # of aux. connecting leads x cross section (solid or stranded)	Bare wire pressure terminal (standard)		1 x AWG 14 or 2 x AWG 16		
	Tension spring terminal		2 x AWG 14		
	Ring tongue terminal		2 x AWG 14 1 x AWG 10 ① 2 x AWG 16		
	Pigtail leads (fixed mount breaker only)		1 x AWG 14, 40" long		
TOC wire connection size (Cu) max # of aux. connecting leads x cross section (solid or stranded)	Bare wire pressure terminal		1 x AWG 14		
MOC wire connection size (Cu) max # of aux. connecting leads x cross section (solid or stranded)	Bare wire pressure terminal		1 x AWG 14		

① for use only with Siemens supplied ring terminals (WL10RL)

WL Circuit Breaker

Technical Data

Frame Rating			Frame Size II		
Rated Current at 50/60 Hz		A	2000	2500	3000
Rated voltage		V AC	600	600	600
Permissible ambient temperature	Operation (for operation with LCD max 55°C)	C	-25 / +70	-25 / +70	-25 / +70
	Storage (observe special conditions for LCD)	C	-40 / +70	-40 / +70	-40 / +70
Power loss at rated current I_n (with 3-phase symetrical load)	Drawout version	W	500	680	1000
	Fixed mount version	W	230	320	450
Operating times	Make-time	ms	35	35	35
	Break-time	ms	34	34	34
	Make-time, electrical (via closing solenoid)	ms	50	50	50
	Break-time, electrical (via shunt trip)	ms	40	40	40
	Break-time, electrical (via instantaneous UVR)	ms	73	73	73
Endurance	Mechanical (without maintenance)	operating cycles	10,000 5,000 (C-Class)	10,000 5,000 (C-Class)	10,00 5,000 (C-Class)
	Electrical (without maintenance)	operating cycles	4,000	4,000	4,000
Switching frequency		operations/ hour	60	60	60
Minimum interval between breaker trip and next closing of the circuit breaker (when used with the automatic mechanical reset of the reclosing lockout)		ms	80	80	80
Mounting position					
Dimensions	Fixed-mounted Circuit Breaker	width	18.1		
		height	18.7		
		depth	9.5		
	Guide Frame (for draw-out version)	width	18.1		
		height	20.3		
		depth	18.6		
Weight	Fixed-mounted Circuit Breaker (w/o main busbar connectors)	lb/kg	130 / 59 148 / 67 (C-Class)	141 / 64 148 / 67 (C-Class)	141 / 64 148 / 67 (C-Class)
	Drawout Circuit Breaker	lb/kg	177 / 80 220 / 100 (C-Class)	209 / 95 220 / 100 (C-Class)	209 / 95 220 / 100 (C-Class)
	Guide Frame	lb/kg	128 / 58 163 / 74 (C-Class)	152 / 69 163 / 74 (C-Class)	152 / 69 163 / 74 (C-Class)
Auxiliary secondary wire size (Cu) max # of aux. connecting leads x cross section (solid or stranded)	Bare wire pressure terminal (standard)		1 x AWG 14 or 2 x AWG 16		
	Tension spring terminal		2 x AWG 14		
	Ring tongue terminal		2 x AWG 14 1 x AWG 10 ① 2 x AWG 16		
	Pigtail leads (fixed mount breaker only)		1 x AWG 14, 40" long		
TOC wire connection size (Cu) max # of aux. connecting leads x cross section (solid or stranded)	Bare wire pressure terminal		1 x AWG 14		
MOC wire connection size (Cu) max # of aux. connecting leads x cross section (solid or stranded)	Bare wire pressure terminal		1 x AWG 14		

① for use only with Siemens supplied ring terminals (WL10RL)

Frame Rating			Frame Size III	
Rated Current at 50/60 Hz		A	4000	5000
Rated voltage		V AC	600	600
Permissible ambient temperature	Operation (for operation with LCD max 55°C)	C	-25 / +70	-25 / +70
	Storage (observe special conditions for LCD)	C	-40 / +70	-40 / +70
Power loss at rated current I_n (with 3-phase symetrical load)	Drawout version	W	1100	1650
	Fixed mount version	W	580	950
Operating times	Make-time	ms	35	35
	Break-time	ms	34	34
	Make-time, electrical (via closing solenoid)	ms	50	50
	Break-time, electrical (via shunt trip)	ms	40	40
	Break-time, electrical (via instantaneous UVR)	ms	73	73
Endurance	Mechanical (without maintenance)	operating cycles	5,000	5,000
	Electrical (without maintenance)	operating cycles	2,000	2,000
Switching frequency		operations/ hour	60	60
Minimum interval between breaker trip and next closing of the circuit breaker (when used with the automatic mechanical reset of the reclosing lockout)		ms	80	80
Mounting position				
Dimensions	Fixed-mounted Circuit Breaker	width	26.8	
		height	20.7	
		depth	9.5	
	Guide Frame (for draw-out version)	width	27.7	
		height	20.3	
		depth	18.6	
Weight	Fixed-mounted Circuit Breaker (w/o main busbar connectors)	lb/kg	181 / 82 200 / 90 (C-Class)	181 / 82 200 / 90 (C-Class)
	Drawout Circuit Breaker	lb/kg	278 / 126	278 / 126
	Guide Frame	lb/kg	306 / 139	306 / 139
Auxiliary secondary wire size (Cu) max # of aux. connecting leads x cross section (solid or stranded)	Bare wire pressure terminal (standard)		1 x AWG 14 or 2 x AWG 16	
	Tension spring terminal		2 x AWG 14	
	Ring tongue terminal		2 x AWG 14 1 x AWG 10 ① 2 x AWG 16	
	Pigtail leads (fixed mount breaker only)		1 x AWG 14, 40" long	
TOC wire connection size (Cu) max # of aux. connecting leads x cross section (solid or stranded)	Bare wire pressure terminal		1 x AWG 14	
MOC wire connection size (Cu) max # of aux. connecting leads x cross section (solid or stranded)	Bare wire pressure terminal		1 x AWG 14	

① for use only with Siemens supplied ring terminals (WL10RL)

WL Circuit Breaker Accessory Ratings

Manual Operating Mechanism with Mechanical Closing				
Closing/charging stored energy mechanism				
	Maximum actuating force required on hand lever			52 lbs
	Number of hand lever strokes required			9
Manual Operating Mechanism with Mechanical and Electrical Closing				
Charging stored-energy mechanism				
Closing solenoid and Shunt Trip	Coil voltage tolerance		24V DC	14 - 28V DC
			48V DC	28 - 56V DC
			120V AC / 125V DC	70 - 140V DC
				104 - 127V AC
			240V AC / 250V DC	140 - 280V DC
				208 - 254V AC
				180Y / 104V AC
				220Y / 127V AC
	Power consumption (5% duty cycle)			120 W for 50 ms
	Minimum closing solenoid actuation signal required			50 ms
Motor Operating Mechanism with Mechanical and Electrical Closing				
Spring charging motor				
	Motor voltage tolerance at 120V AC, 240V AC			85 - 110%
	Extended tolerance for battery operation at 24V DC, 48V DC, 125V DC, 250V DC			70 - 126%
	Power consumption of the motor			110 W
	Time required for charging the stored-energy mechanism			≤ 10 s
For motor and closing solenoid short-circuit protection				
	Short-circuit protection			
	Standard slow-blow cartridge fuse		24 - 60 V	6A
			110 - 250 V	3A
Auxiliary Release				
Undervoltage release (UVR)	Operating values		≥ 85% (circuit breaker can be closed)	
			35 - 70% (circuit breaker opens)	
	AC Coil voltage tolerance at 120V AC, 240V AC			85 - 110%
	DC Extended tolerance for battery operation at 24V DC, 48V DC, 125V DC, 250V DC			85 - 126%
	Rated control supply voltage	AC 50/60Hz	V	120, 240
		DC	V	24, 48, 125, 250
	Power consumption (inrush / continuous)	AC	VA	200 / 5
		DC	W	200 / 5
	Opening time of the circuit breaker for AC / DC		ms	200
	UVR (no time delay), 2 settings			
	Setting 1		ms	80
	Setting 2		ms	200
	UVR (with time delay)			
	Adjustable delay		s	0.2 to 3.2
	Reset by additional NC direct opening		ms	≤ 100
Interlock Shunt Trip (100% continuous duty)				
	Operating range			85 - 110%
	Extended tolerance for battery operation at 24V DC, 48V DC, 125V DC, 250V DC			70 - 126%
	Rated voltage	AC 50/60Hz	V	110, 230
		DC	V	24, 30, 48, 60, 110, 220
	Power consumption	AC / DC	VA / W	15 / 15
	Minimum shunt trip actuation signal at rated voltage		ms	60
	Opening time of the circuit breaker at rated voltage		ms	80
	Short circuit protection			1 A
	Smallest permissible fuse			

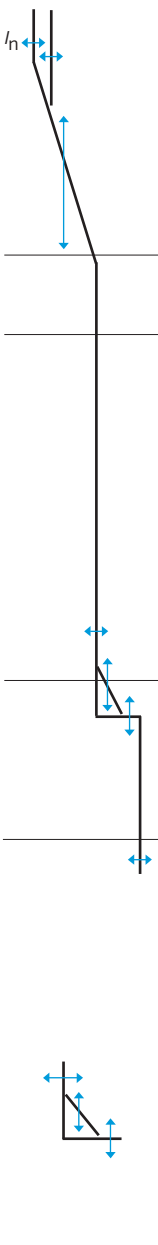
WL Circuit Breaker Accessory Ratings

Auxiliary Contacts and Mechanism Operated Contacts (MOC)					
Contact rating	Alternating current				
	50/60 Hz	Rated operational voltage	240V		
		Rated operational current, continuous	10A		
		Rated operational current, making	30A		
		Rated operational current, breaking	3A		
	Direct current	Rated operational voltage	24V, 125V, 250V		
		Rated operational current, continuous	5A		
		Rated operational current, making	1.1A at 24V, 1.1A at 125V, 0.55A at 250V		
		Rated operational current, breaking	1.1A at 24V, 1.1A at 125V, 0.55A at 250V		
Bell Alarm Switch and Ready-to-Close Signal Contact					
Contact rating	Alternating current				
	50/60 Hz	Rated operational voltage	240V		
		Rated operational current, continuous	5A		
		Rated operational current, making	8A		
		Rated operational current, breaking	5A		
	Direct current	Rated operational voltage	24V, 48V, 125V	250V DC ①	
		Rated operational current, continuous	0.4A	0.2A	
		Rated operational current, making	0.4A	0.2A	
		Rated operational current, breaking	0.4A	0.2A	
Shunt Trip, UVR and Blown Fuse Signaling Contacts					
Contact rating	Alternating current				
	50/60 Hz	Rated operational voltage	127V, 240V		
		Rated operational current, continuous	3A		
		Rated operational current, making	5A		
		Rated operational current, breaking	6A		
	Direct current	Rated operational voltage	24V, 48V, 125V	125V DC (IEC Rating Only)	
		Rated operational current, making	1.0A	0.5A	
		Rated operational current, breaking	1.0A	0.5A	
Position Signal Contact on the Guide Frame (TOC)					
Breaker position:	Connected position		3 form C	1 form C	6 form C
	Test position		2 form C or	1 form C or	0 form C
	Disconnected position		1 form C	1 form C	0 form C
Contact rating	Alternating current				
	50/60 Hz	Rated operational voltage	120V	240V	
		Rated operational current, continuous	10A	10A	
		Rated operational current, making	6A	3A	
		Rated operational current, breaking	6A	3A	
	Direct current	Rated operational voltage	24V	48V, 125V	250V
		Rated operational current, continuous	6A	1A	1A
		Rated operational current, making	6A	0.22A	0.11A
		Rated operational current, breaking	6A	0.22A	0.11A

① Available July 2005

WL Circuit Breaker

Function Overview of the Electronic Trip Units



Basic Functions		ETU725	ETU727	ETU745
L	**Long-time overcurrent protection**	✔	✔	✔
	Function can be switched ON/OFF	–	–	–
	Setting range $I_R = I_n$ x ...	0.4, 0.45, 0.5, 0.55, 0.6, 0.65, 0.7, 0.8, 0.9, 1	0.4, 0.45, 0.5, 0.55, 0.6, 0.65, 0.7, 0.8, 0.9, 1	0.4, 0.45, 0.5, 0.55, 0.6, 0.65, 0.7, 0.8, 0.9, 1
	Switch-selectable overload protection (I^2t or I^4t dependent function)	–	–	✔
	Setting range of time delay class t_R at I^2t (seconds)	10s, fixed at 6 x I_r	10s, fixed at 6 x I_r	2, 3.5, 5.5, 8, 10, 14, 17, 21, 25, 30
	Setting range of time delay t_R at I^4t (seconds)	–	–	1, 2, 3, 4, 5
	Thermal memory	–	–	✔ (via slide switch)
	Phase loss sensitivity	at t_{sd}=20 ms (M)	at t_{sd}=20 ms (M)	at t_{sd}=20 ms (M)
N	**Neutral protection**	–	✔	✔
	Function can be switched ON/OFF	–	✔ (via slide switch)	✔ (via slide switch)
	N-conductor setting range $I_N = I_n$ x ...	–	1	0.5... 1
S	**Short-time delayed overcurrent protection**	✔	✔	✔
	Function can be switched ON/OFF	–	–	✔ (via rotary switch)
	Setting range $I_{sd} = I_n$ x ...	1.25, 1.5, 2, 2.5, 3, 4, 6, 8, 10, 12	1.25, 1.5, 2, 2.5, 3, 4, 6, 8, 10, 12	1.25, 1.5, 2, 2.5, 3, 4, 6, 8, 10, 12
	Setting range of time delay t_{sd}, fixed (seconds)	0, 0.02 (M), 0.1, 0.2, 0.3, 0.4	0, 0.02 (M), 0.1, 0.2, 0.3, 0.4	0.02 (M), 0.1, 0.2, 0.3, 0.4, OFF
	Switch-selectable short-time delay short-circuit protection (I^2t dependent function)	– fixed only	– fixed only	✔ (via rotary switch)
	Setting range of time delay t_{sd} at I^2t (seconds)	–	–	0.1, 0.2, 0.3, 0.4
	Zone Selective Interlocking (ZSI) function	–	–	per CubicleBUS module
I	**Instantaneous overcurrent protection**	✔	✔	✔
	Function can be switched ON/OFF, Extended Instantaneous Protection is enabled when OFF	–	–	✔ (via rotary switch)
	Setting range $I_i = I_n$ x ...	I_i = 0.8 x I_{cw} 50kA max	I_i = 0.8 x I_{cw} 50kA max	1.5, 2.2, 3, 4, 6, 8, 10, 12 0.8 x I_{cw} = max, OFF = I_{cw} = EIP ①
G	**Ground fault protection** ②	–	✔ (standard)	o (field installable module)
	Trip and alarm function	–	–	✔
	Detection of the ground fault current by residual summing method	–	✔	✔
	Detection of the ground fault current by direct summing method	–	–	✔
	Setting range of the I_g for trip	–	A, B, C, D, E	A, B, C, D, E
	Setting range of the I_g for alarm	–	–	A, B, C, D, E
	Setting range of the time delay t_g (seconds)	–	0.1, 0.2, 0.3, 0.4, 0.5	0.1, 0.2, 0.3, 0.4, 0.5
	Switch-selectable ground fault protection (I^2t / fixed)	–	–	✔
	Setting range time delay t_g at I^2t	–	–	0.1, 0.2, 0.3, 0.4, 0.5
	ZSI ground function	–	–	per CubicleBUS module

① Extended Instantaneous Protection (EIP) allows the WL breaker to be applied at the withstand rating of the breaker with minus 0% tolerance; that means no instantaneous override whatsoever. EIP further enables the circuit breaker to be applied up to the full instantaneous rating of the breaker on systems where the available fault current exceeds the withstand rating.

② Ground Fault Module cannot be removed after installation.

✔ available
– not available
o optional

WL Circuit Breaker

Function Overview of the Electronic Trip Units

Basic Functions		ETU725	ETU727	ETU745
Parameter sets				
	Selectable between parameter set A and B	–	–	–
LCD				
	LCD, alphanumeric (4-line)	–	–	o
	LCD, graphic	–	–	–
Communication				
	CubicleBUS integrated	–	–	✔
	Communication capability via MODBUS or PROFIBUS	–	–	✔
Metering function				
	Metering function capability with Metering Function or Metering Function PLUS	–	–	✔
Display by LED				
	Trip unit active	✔	✔	✔
	Alarm	✔	✔	✔
	ETU error	✔	✔	✔
	L trip	✔	✔	✔
	S trip	✔	✔	✔
	I trip	✔	✔	✔
	N trip	–	✔	✔
	G trip	–	✔	✔ (only with ground fault module)
	G alarm	–	–	✔ (only with ground fault module)
	Tripped by extended protection or protective relay function	–	–	✔
	Communication	–	–	✔
Signal contacts with external CubicleBUS modules (Opto or relay)				
	Overcurrent warning	–	–	✔
	Load shedding OFF/ON	–	–	✔
	Early signal of long time trip (200 ms)	–	–	✔
	Temperature alarm	–	–	✔
	Phase unbalance	–	–	✔
	Instantaneous trip	–	–	✔
	Short-time trip	–	–	✔
	Long-time trip	–	–	✔
	Neutral conductor trip	–	–	✔
	Ground fault protection trip	–	–	✔ (only with ground fault module)
	Ground fault alarm	–	–	✔ (only with ground fault module)
	Auxiliary relay	–	–	✔
	ETU error	–	–	✔

Step for Settings via Communications or ETU Key Pad

from ... to	step	from ... to	step
0... 1	0.1	1000... 1600	50
1... 100	1	1600... 10000	100
100... 500	5	10000... max	1000
500... 1000	10		

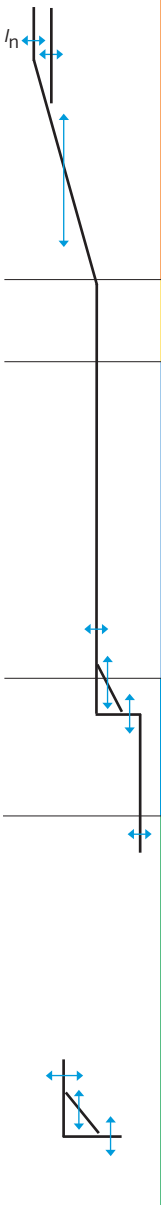
Setting range of the I_g

	Frame Size II	Frame Size III
A	100A	400A
B	300A	600A
C	600A	800A
D	900A	1000A
E	1200A	1200A

✔ available
– not available
o optional

WL Circuit Breaker

Function Overview of the Electronic Trip Units



Basic Functions		ETU748	ETU755	ETU776
L	**Long-time overcurrent protection**	✔	✔	✔
	Function can be switched ON/OFF	–	–	–
	Setting range $I_R = I_n$ x ...	0.4, 0.45, 0.5, 0.55, 0.6, 0.65, 0.7, 0.8, 0.9, 1	0.4... 1 (step: 1A)	0.4... 1 (step: 1A)
	Switch-selectable overload protection (I^2t or I^4t dependent function)	✔	✔(via communications)	✔
	Setting range of time delay class t_R at I^2t (seconds)	2, 3.5, 5.5, 8, 10, 14, 17, 21, 25, 30	2... 30 (step: 0.1s)	2... 30 (step: 0.1s)
	Setting range of time delay t_R at I^4t (seconds)	1, 2, 3, 4, 5	1... 5 (step: 0.1s)	1... 5 (step: 0.1s)
	Thermal memory	✔ (via slide switch)	✔ (on/off via communications)	✔ (on/off via key pad or communications)
	Phase loss sensitivity	at t_{sd}=20 ms (M)	✔ (on/off via communications)	✔ (on/off via key pad or communications)
N	**Neutral protection**	–	✔	✔
	Function can be switched ON/OFF	✔ (via slide switch)	✔ (via communications)	✔ (via key pad or communications)
	N-conductor setting range $I_N = I_n$ x ...	0.5, 1, OFF	0.5, 1, OFF	0.5... 2, OFF
S	**Short-time delayed overcurrent protection**	✔	✔	✔
	Function can be switched ON/OFF	✔ (via rotary switch)	✔ (via communications)	✔ (via key pad or communications)
	Setting range $I_{sd} = I_n$ x ...	1.25, 1.5, 2, 2.5, 3, 4, 6, 8, 10, 12	1.25... 0.8 x I_{cw} = max (step: 10A)	1.25... 0.8 x I_{cw} = max (step: 10A)
	Setting range of time delay t_{sd}, fixed (seconds)	M, 0.1, 0.2, 0.3, 0.4	M, 0.08... 0.4, OFF (step: 0.001s)	M, 0.08... 0.4, OFF (step: 0.001s)
	Switch-selectable short-time delay short-circuit protection (I^2t dependent function)	✔ (via rotary switch)	✔ (via communications)	✔ (via key pad or communications)
	Setting range of time delay t_{sd} at I^2t (seconds)	0.1, 0.2, 0.3, 0.4	0.1... 0.4 (step: 0.001s)	0.1... 0.4 (step: 0.001s)
	Zone Selective Interlocking (ZSI) function	per CubicleBUS module	per CubicleBUS module	per CubicleBUS module
I	**Instantaneous overcurrent protection**	✔	✔	✔
	Function can be switched ON/OFF, Extended Instantaneous Protection is enabled when OFF	–	✔ (via communications)	✔ (via key pad or communications)
	Setting range $I_i = I_n$ x ...	– $I_i = I_{cw}$ = EIP①	1.5 x I_n... 0.8 x I_{cs} = max, OFF = I_{cw} = EIP①	1.5 x I_n... 0.8 x I_{cs} = max, OFF = I_{cw} = EIP
G	**Ground fault protection**②	o (field installable module)	o (field installable module)	o (field installable module)
	Trip and alarm function	✔	✔ (via communications)	✔ (via key pad or communications)
	Detection of the ground fault current by residual summing method	✔	✔	✔
	Detection of the ground fault current by direct summing method	✔	✔	✔
	Setting range of the I_g for trip	A, B, C, D, E	A... E (step: 1A)	A... E (step: 1A)
	Setting range of the I_g for alarm	A, B, C, D, E	A... E (step: 1A)-	A... E (step: 1A)
	Setting range of the time delay t_g (seconds)	0.1, 0.2, 0.3, 0.4, 0.5	0.1... 0.5 (step: 0.001s)	0.1... 0.5 (step: 0.001s)
	Switch-selectable ground fault protection (I^2t / fixed)	✔	✔	✔
	Setting range time delay t_g at I^2t	0.1, 0.2, 0.3, 0.4, 0.5	0.1... 0.5 (step: 0.001s)	0.1... 0.5 (step: 0.001s)
	ZSI ground function	per CubicleBUS module	per CubicleBUS module	per CubicleBUS module

① Extended Instantaneous Protection (EIP) allows the WL breaker to be applied at the withstand rating of the breaker with minus 0% tolerance; that means no instantaneous override whatsoever. EIP further enables the circuit breaker to be applied up to the full instantaneous rating of the breaker on systems where the available fault current exceeds the withstand rating.
② Ground Fault Module cannot be removed after installation.

✔ available
– not available
o optional

Notes:
M = Indicates phase loss sensitivity is enabled. LT pick-up reduced 80% when phase unbalance > 50%. ST = 20 ms
Communications = Setting the parameters of the trip unit via the Breaker Data Adapter, MODBUS, or PROFIBUS
Key pad = Direct input at the trip unit

WL Circuit Breaker

Function Overview of the Electronic Trip Units

Basic Functions		ETU748	ETU755	ETU776
Parameter sets				
	Selectable between parameter set A and B	–	✔	✔
LCD				
	LCD, alphanumeric (4-line)	o	–	–
	LCD, graphic	–	–	✔
Communication				
	CubicleBUS integrated	✔	✔	✔
	Communication capability via MODBUS or PROFIBUS	✔	✔	✔
Metering function				
	Metering function capability with Metering Function or Metering Function PLUS	✔	✔	✔
Display by LED				
	Trip unit active	✔	✔	✔
	Alarm	✔	✔	✔
	ETU error	✔	✔	✔
	L trip	✔	✔	✔
	S trip	✔	✔	✔
	I trip	-	✔	✔
	N trip	✔	✔	✔
	G trip	✔ (only with ground fault module)	✔ (only with ground fault module)	✔ (only with ground fault module)
	G alarm	✔ (only with ground fault module)	✔ (only with ground fault module)	✔ (only with ground fault module)
	Tripped by extended protection or protective relay function	✔	✔	✔
	Communication	✔	✔	✔
Signal contacts with external CubicleBUS modules (Opto or relay)				
	Overcurrent warning	✔	✔	✔
	Load shedding OFF/ON	✔	✔	✔
	Early signal of long time trip (200 ms)	✔	✔	✔
	Temperature alarm	✔	✔	✔
	Phase unbalance	✔	✔	✔
	Instantaneous trip	✔	✔	✔
	Short-time trip	✔	✔	✔
	Long-time trip	✔	✔	✔
	Neutral conductor trip	✔	✔	✔
	Ground fault protection trip	✔ (only with ground fault module)	✔ (only with ground fault module)	✔ (only with ground fault module)
	Ground fault alarm	✔ (only with ground fault module)	✔ (only with ground fault module)	✔ (only with ground fault module)
	Auxiliary relay	✔	✔	✔
	ETU error	✔	✔	✔

Metering and Protective Relaying Accuracies

Protective Relaying	Pick-up Accuracy	Metering Values	Accuracy
Phase Unbalance (I)	2% (5... 50% I_n)	(I) at 1 x I_n	+/- 1%
Phase Unbalance (V)	2% (5... 50% V_n)	(V) at 1 x V_n	+/- 0.5%
THD (I) (up to 29th)	+/- 3% (80... 120% V_n)	(P) at 1x I_n	+/- 3%
THD (V) (up to 29th)	+/- 3% (80... 120% V_n)	(S) at 1 x I_n	+/- 2%
Overvoltage	+/- 2% (80... 120% V_n)	(Q) at 1 x I_n	+/- 3%
Undervoltage	+/- 2% (80... 120% V_n)		
Under/Over Frequency	+/- 0.1 Hz		

✔ available
– not available
o optional

Electronic Trip Unit

During development of our electronic trip units, we have consistently striven to ensure modularity. The following are just some of the modules that are simple to retrofit at any time:

- Ground fault protection
- Communication
- Metering function
- Displays
- Rating plugs

This enables fast local adaptation to new system conditions. At the same time, the ETUs are provided with new, innovative functions, and all trip units are completely interchangeable independent of breaker ratings.

Rating Plug

The Rating Plug is a replaceable module that enables users to reduce the rated device current for optimum adaptation to the system; e.g. during startup of a plant section. The Rating Plug should be selected so that it corresponds to the rated current of the system.

Switch-selectable I^2t or I^4t Characteristic Curve Improved Overload Protection

The best possible protection is assured when all protective devices in the system are optimally coordinated. To achieve optimum selectivity and coordination, the long-time characteristic can be switched between I^2t and I^4t.

Switchable Parameter Sets

To allow the protection to adapt to changes in system needs such as switching between utility and generator feeds, WL Circuit Breakers support ETUs with two independent parameter sets. Switching between the parameter sets occurs in less than 100 ms and can be done remotely or via a contact input to an optional CubicleBUS module.

Dynamic Arc-Flash Sentry (DAS) employs the unique dual protective setting capability of the 755 and 776 trip units, coupled with the ability to easily toggle to a lower arc flash parameter set. A normal operation parameter set can be optimized for selective trip coordination while the second set is optimized for lower arc flash energy levels.

Sample configuration of an ETU745

Extended Instantaneous Protection

The electronic trip units designed for use with the WL low voltage power circuit breaker provide a feature we call "Extended Instantaneous Protection" (Patent Pending). It allows the WL breaker, as a family, across the entire range of ampacities to be applied at the withstand rating of the breaker with minus 0% tolerance; that means no instantaneous override whatsoever. EIP further enables the circuit breaker to be applied up to the full interrupting rating of the breaker on systems where the available fault current exceeds the withstand rating, even with LS-only trip units. Why is this feature important? The answer is reliable power.

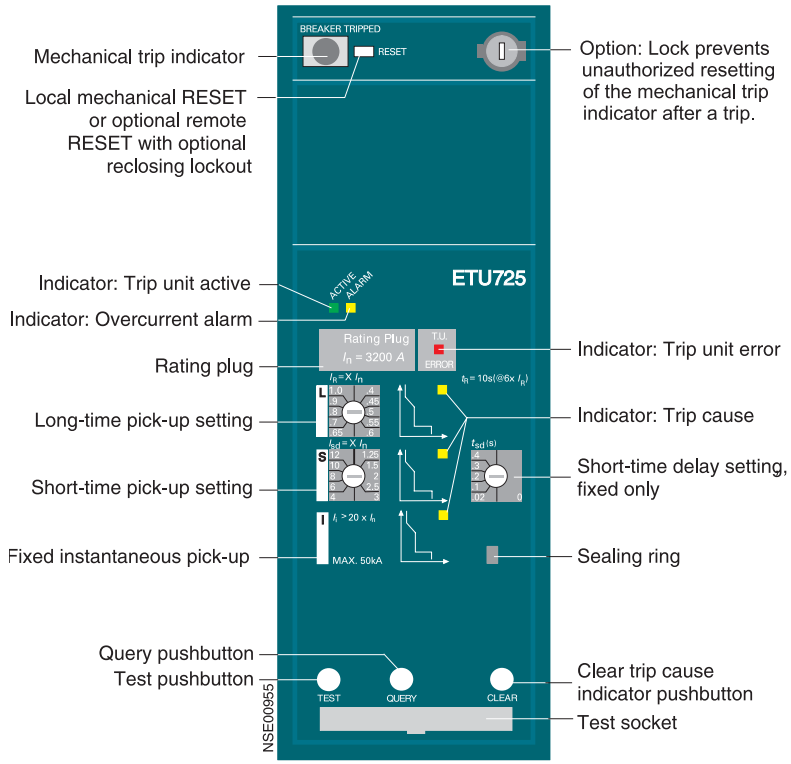
The coordination of the main breaker and the first level of feeder breakers is especially important because of the wide spread outage that will occur if one of these breakers trips unnecessarily. Conventional practice is to specify electronic trip beakers with "LS" type trip units in critical power systems. These 'Long-Time' and 'Short-Time' only trip units forgo the fast tripping times given by an 'Instantaneous' function. The justification for this delay is the benefit of allowing a downstream breaker to open first to clear a high magnitude fault. The main or feeder stays closed to keep the remainder of the loads operating.

However, a circuit breaker with an LS-only trip unit may never be applied on a system capable of delivering fault current higher than the breaker's withstand rating, commonly 85kA or less. Where the available fault current is above this level, a breaker with an additional function must be used - an instantaneous override. This instantaneous override function trips the breaker instantly when the fault current reaches a pre-determined level below the withstand rating, usually around 20% lower. The benefit of this override is to allow application of the breaker up to the interrupting rating, which may be as high as 150kA. The disadvantage is that it compromises the coordination benefit because the main will probably trip at the same time as a downstream branch breaker in that 20% lower override window.

This is where the Extended Instantaneous Protection feature of the WL can offer the next level of coordination and protection functionality. Unlike an instantaneous override, Extended Instantaneous Protection (EIP) allows the full withstand rating - in fact up to the tolerance of plus 20% higher. Of course, EIP still provides the ability of the breaker to be applied at the interrupting level, as high as 150kA in a Frame Size III, non-fused breaker. This unique combination enables the system designer to achieve the highest possible level of coordination in the industry and also allows application of the WL on modern power systems with extremely high levels of available fault current.

A further benefit offered by EIP, over a standard LS trip unit equipped breaker, is that it provides an extra measure of protection in the event that the available fault current increases at some time during the life of the system beyond the withstand level. This would typically be due to a utility transformer change but could also be due to the addition of generators or large motors that contribute fault current. EIP provides the breaker the ability to react in an instantaneous fashion to a high level fault instead of having to rely on the slower reaction time of the short-time function.

Electronic Trip Unit ETU725



Application:

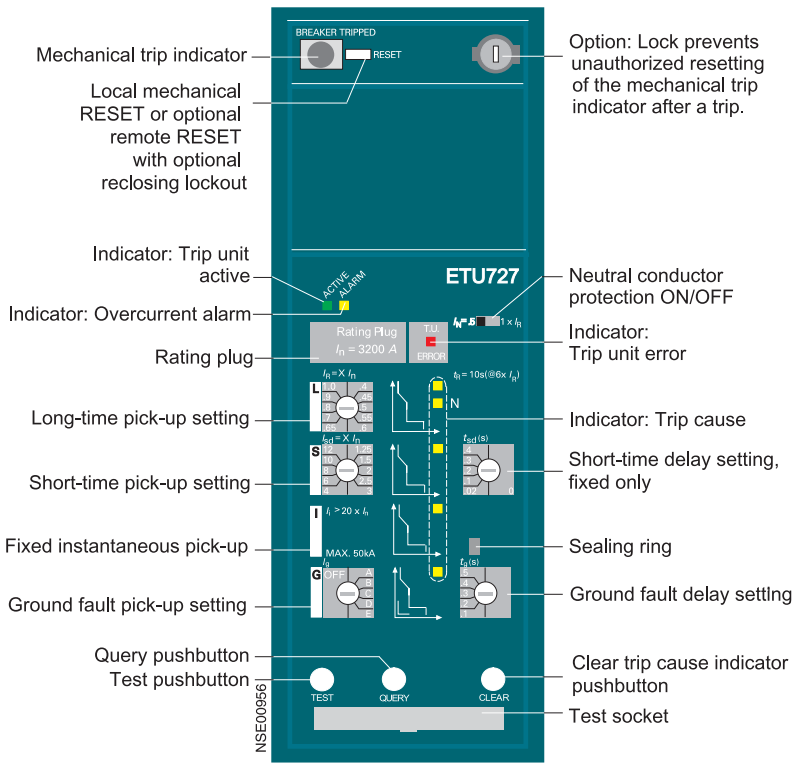
Low-cost building, motor and plant protection up to 5000A.

Features:

- Adjustable long-time overload protection with I^2t characteristic time delay Long-time delay fixed at tR=10 seconds at 6 x I R
- Short-time delay short-circuit protection, adjustable from 1.25... 12 x In
- Instantaneous short-circuit protection fixed at 20 x In. 50kA max
- Replaceable Rating Plug allows instant adaptability to the required plant currents, thus ensuring overload protection of 200A to 5000A
- Overcurrent alarm indicator
- LED trip cause indicator
- Option for testing the trip unit
- Protective parameters set via rotary switch

For technical details, see table on pages 1/36 and 1/37.

Electronic Trip Unit ETU727



Application:

Low-cost building, motor and plant protection up to 5000A.

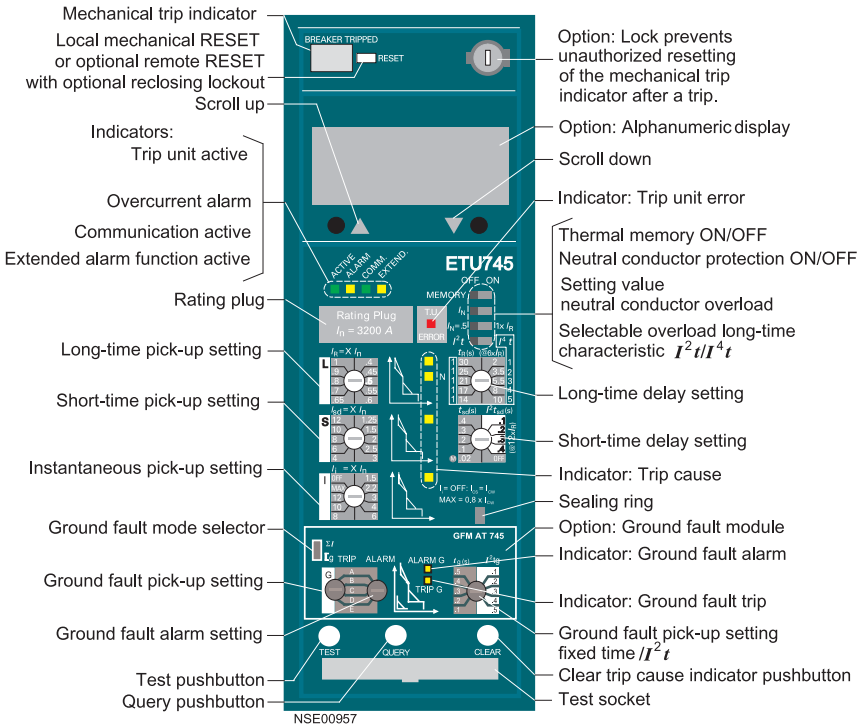
Features:

Same as for ETU725 plus the following:

- Selectable neutral conductor protection
- Integrated ground fault protection, 3- or 4- wire residual only

For technical details, see table on pages 1/36 and 1/37.

Electronic Trip Unit ETU745



Application:

Cost-effective standard model for intelligent building and all types of industrial applications – CubicleBUS integrated.

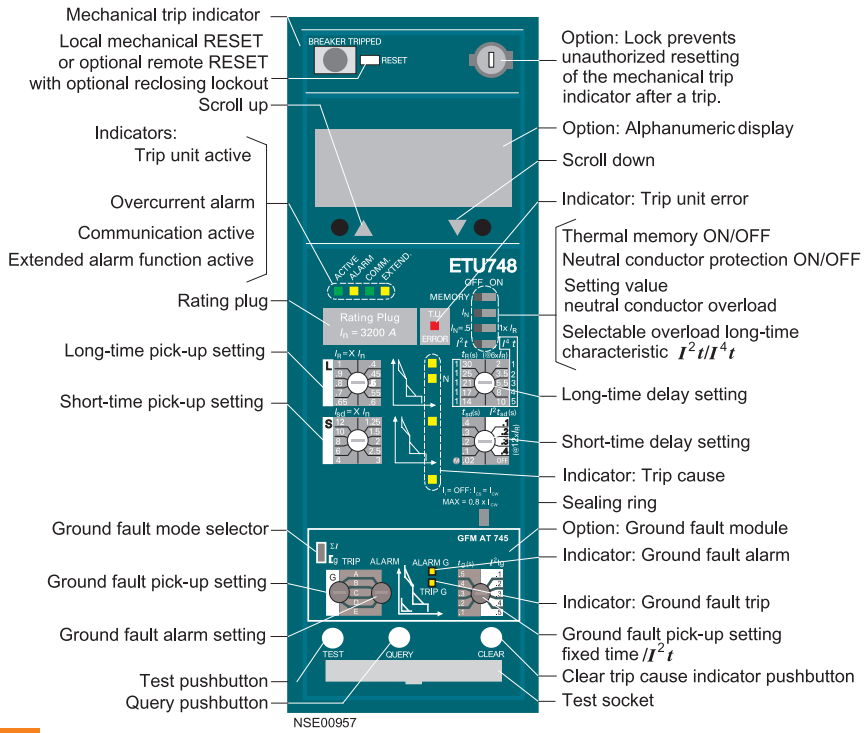
Features:

Same as for ETU727 plus the following:

- Adjustable long time delay
- Selectable I^2t / I^4t for long time delay
- Selectable fixed time / I^2t for short time delay for better coordination with downstream protection and fuses
- Thermal memory for improved protection of motor loads
- Selectable neutral conductor protection using external neutral sensor
- Modular ground fault protection, with separately adjustable alarm and trip function (option)
- Communication interface, for optional metering function (PLUS), connection of external modules as option or retrofit
- Optional high contrast display with viewing angle adjustment
- Setting of protective functions by means of rotary or slide switch

For technical details, see table on pages 1/36 and 1/37.

Electronic Trip Unit ETU748



Application:

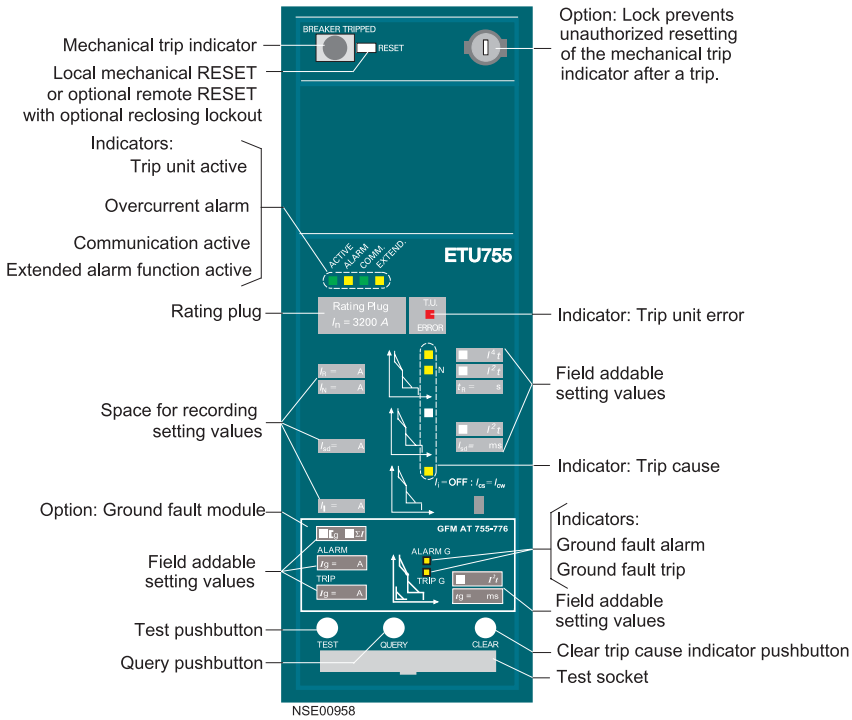
Cost-effective standard model for intelligent building and all types of industrial applications – CubicleBUS integrated.

Features:

Same as for ETU745 without the Instantaneous short-circuit trip function.

For technical details, see table on pages 1/38 and 1/39.

Electronic Trip Unit ETU755



NSE00958

Application:

Trip unit with remote-only parameter setting for special application demands. CubicleBUS integrated.

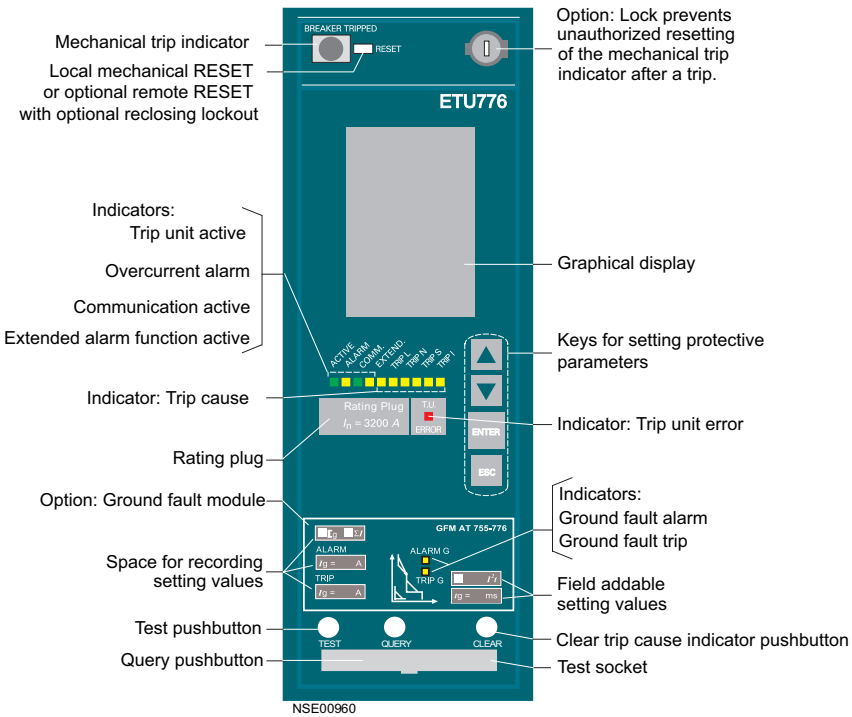
Features:

Same as for ETU745 plus the following:

- Detection of the energy flow direction
- Two independent sets of protective parameters, selectable via remote control or via optional external input module
- Overload protection that can be switched off for use with modern operating mechanism technology
- Adjustable short-time delay up to 4000 ms
- Neutral conductor protection adjustable to $I_N = 2 \times I_n$
- Protective functions settable via Communications (COM15/16) or Breaker Data Adapter (BDA)

For technical details, see table on pages 1/38 and 1/39.

Electronic Trip Unit ETU776



NSE00960

Application:

Premium model with graphical display for system analysis – CubicleBUS integrated.

Features:

Same as for ETU755 plus the following

- Graphical display of all parameters and event/curve characteristics
- Storage of events and causes of release for specific error analysis
- High contrast, background-lit graphical display with sleep mode
- Easy-to-use keypad entry of all parameters

For technical details, see table on pages 1/38 and 1/39.

Ground Fault Protection

When optional ground fault is selected, the trip unit detects fault currents that flow to ground and represent a fire hazard to the system. The adjustable time delay allows selective staggering of consecutively arranged circuit breakers.

When setting the parameters of the trip unit, a selection can be made between alarm and trip if the set current value is exceeded. The cause of the trip is displayed on an LED when the query button is pressed.

Modules

The trip unit versions ETU745, ETU478, ETU755 and ETU776 can be retrofitted with a ground fault protection module. In the case of overcurrent release ETU727, this module is permanently installed.

Two versions of the optional ground fault module can be ordered:

- Trip and Alarm
- Alarm only

Ground Fault Measuring Methods

Residual sensing of the ground fault current

The trip unit calculates the ground fault current by vectorial current summation of the 3-phase currents and the neutral conductor current.

Direct measurement of the ground fault current

A current transformer with the transformer ratio 1200A : 1A is used to measure the ground fault current. The transformer can be installed directly in the grounded star point of a transformer.

Setting

The ground fault module can be set depending on the measuring method (see above):

Measuring method 1:
in position sum I
Measuring method 2:
in position G.

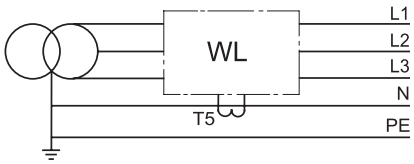
With trip units ETU755 and ETU776, this setting is implemented via the display and key pad or communications.

Ground Fault Protection with I^2t Characteristic Curve

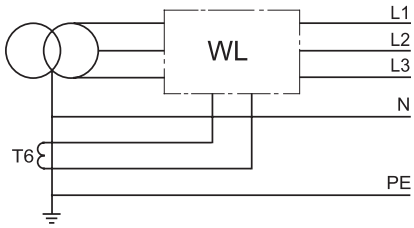
With the exception of the trip unit ETU727, all versions of the ground fault modules are delivered with an I^2t or fixed delay.

Modules are available in either Alarm only or Alarm and Trip functions.

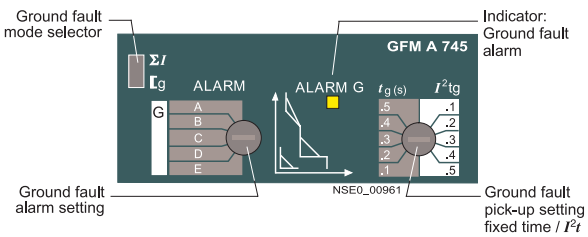
Residual sensing of the ground fault current



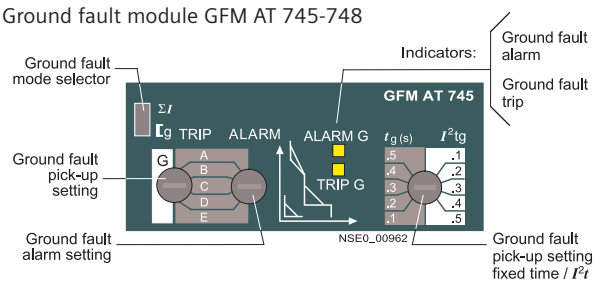
Direct measurement of the ground fault current



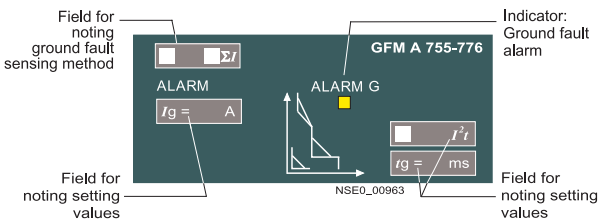
Ground fault module GFM A 745-748



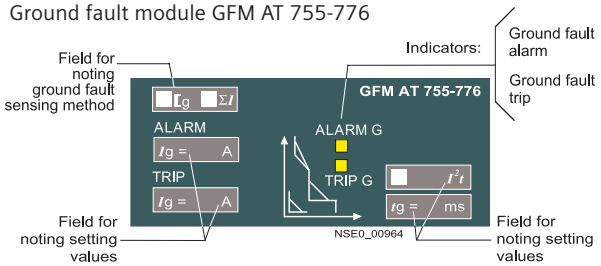
Ground fault module GFM AT 745-748



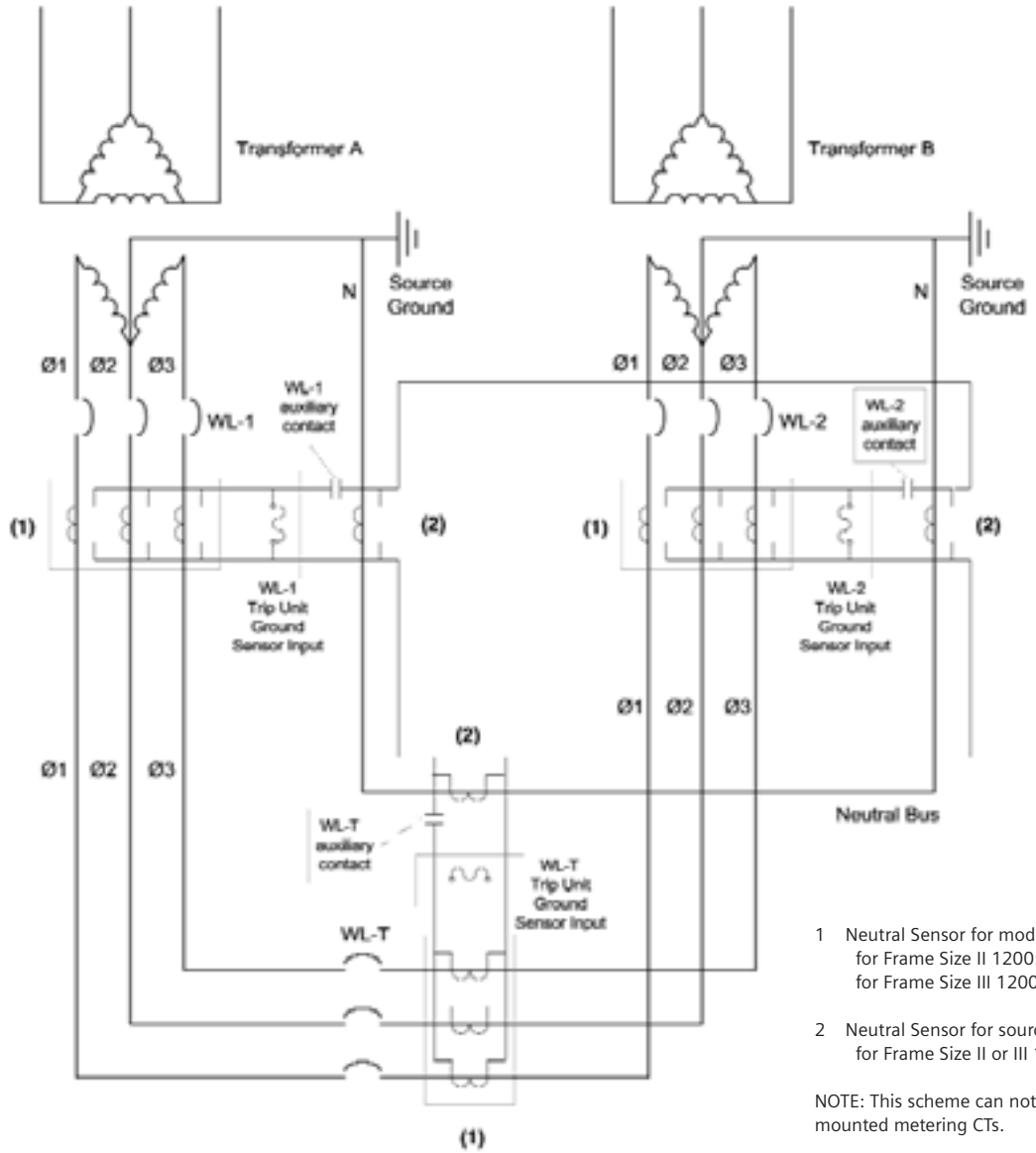
Ground fault module GFM A 755-776



Ground fault module GFM AT 755-776



Modified Differential Ground Fault Protection using WL Circuit Breakers and extra iron-core CTs

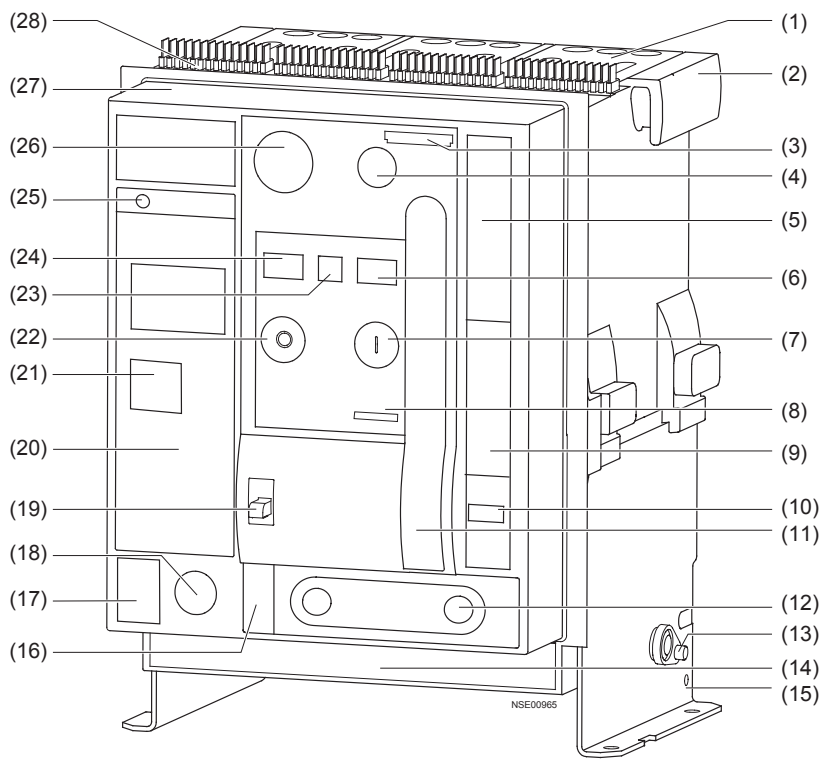


1 Neutral Sensor for modified differential ground fault
for Frame Size II 1200:1 WLGMDGFCT2
for Frame Size III 1200:1 WLGMDGFCT3

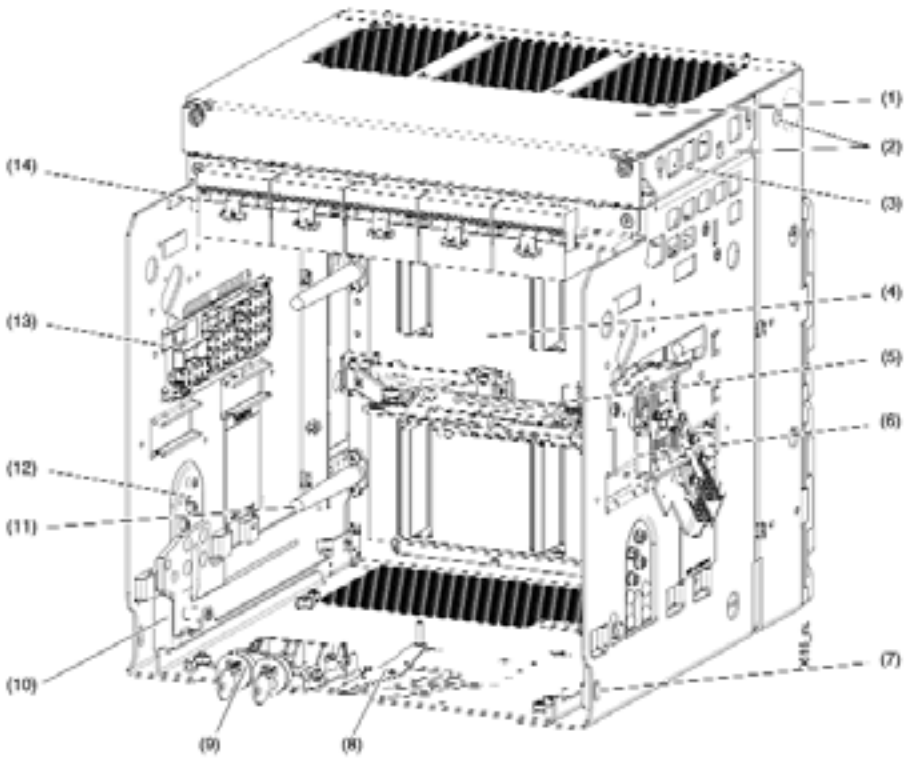
2 Neutral Sensor for source ground return
for Frame Size II or III 1200:1 WLGNMDGCT23

NOTE: This scheme can not be used with guide frame mounted metering CTs.

Circuit Breaker



1 Arc chute
2 Handle
3 ID label
4 Motor switch (optional) or "electrical CLOSE" (optional)
5 Type label of circuit breaker
6 Spring charge indicator
7 "Mechanical CLOSE" button
8 Rated current data
9 Racking handle operation diagram
10 Operations counter (optional)
11 Charging lever
12 Racking handle
13 Transport shaft for drawout unit
14 Equipment label
15 Grounding terminal
16 Position indicator
17 Ground fault protection table
18 Racking handle safety lock (optional)
19 Mechanical interlock release of racking handle (optional)
20 Electronic trip unit
21 Rating plug
22 "Mechanical OPEN" button or "emergency OPEN" mushroom head pushbutton (optional)
23 Ready-to-close indicator
24 Contact position indicator
25 Trip indicator (reset button)
26 Locking device - Breaker OFF (optional)
27 Front panel
28 Terminal strip for auxiliary contacts



1 Arc chute cover (option)
2 Hole for crane hook
3 Arc vent openings
4 Shutter (option)
5 Locking device shutter (option)
6 Mutual mechanical circuit breaker interlocking (option)
7 Locking device guide rail
8 Door interlocking guide frame (option)
9 Locking device in DISCONNECT position (option)
10 Guide rail
11 Shutter operating device (option)
12 Interlocks (option)
13 Position signaling switch (option)
14 Secondary disconnects

Auxiliary Release

Up to two auxiliary releases can be installed at the same time. The following combinations are available:

- 1 shunt trip
- 1 undervoltage trip
- 2 shunt trips
- 1 shunt trip and 1 undervoltage trip

Shunt Trips

The shunt trip opens the circuit breaker when the working voltage is applied. The shunt trip is available in 5% duty cycle and provides 40 ms clearing time.

Interlock Shunt Trip

A unique accessory for the WL, it serves as a standard shunt trip to open a closed breaker when the coil is energized. In addition, if the coil is energized with the breaker open, it acts as an interlock or lockout device to prevent the breaker from closing. It is rated for 100% continuous duty energization. This device should not be used for remote ground fault tripping.

Undervoltage Release

The undervoltage release opens the circuit breaker when the working voltage falls below a specific value. The circuit breaker cannot be closed manually or by means of an electrical close command if the rated voltage is not applied to the undervoltage release. The undervoltage release is without time delay as standard and the customer can switch between t_d>80 ms and t_d <200 ms.

An additional version is available; undervoltage release with 0.2 to 3.2 s delay.

Signal Contact for Auxiliary Release

One signal contact per auxiliary release is available to interrogate the switching positions of the auxiliary release. These are not available when communications is installed.

Closing Solenoid

Serves to electrically close the circuit breaker by means of a local electrical "CLOSE" button or remote signal.

Motorized Operating Mechanism

For automatic charging of the stored energy mechanism. It is switched on when the stored energy mechanism is released and the control voltage is available. It automatically switches off after charging. The springs can still be charged manually if required.

Lock Kit (WLLKKT)

The lock kit is required when the operation of the mechanical CLOSE and OPEN buttons needs to be adapted to special demands of the switchgear operation by retrofitting various accessories (e.g. locks, access lock-outs preventing tool operation, seals).

Motor Switch

Knob operated switch for turning off the motorized operating mechanism.

Operations Counter (WLNUMCNT)

A 5-digit operating cycle counter is available with the motor operator.

Resetting the Manual Trip Signal

If the circuit breaker has been tripped, this is indicated by the protruding red RESET button on the ETU. Actuation of the RESET button resets the trip solenoid and the trip signal. If this manual indicator is to be remotely reset, the option is available to equip the RESET button with a reset solenoid.

With this option, the circuit breaker trip indicator can be reset both manually and electrically.

Automatic Reset of the Reclosing Lockout

With the optional reclosing lock-out (WLNOAUTRSET), if the breaker is tripped the circuit breaker cannot be reclosed until the trip indicator has been either electrically or manually reset.

With the standard "automatic reset of the reclosing lockout", the circuit breaker is ready-to-close immediately after a trip. The reset of the manual trip indicator is not required.

Remote Trip Signal Switch (WLRTK)

Consists of a secondary maglatch and signal switch disconnect. It is used to remotely trip and lock out the breaker. It is not available for fused breakers. It is actuated by applying a 24V DC pulse for 0.5 sec.

Ready-to-Close Signal Contact (WLRTCS)

WL Circuit Breakers are equipped with a visual ready-to-close front panel indicator as standard. The option to transmit this readiness to close over a signal contact is also available. If the circuit breaker is operated through communication, this signal switch is fitted as standard.

Locking devices

Locking Device in OPEN Position, Front Panel Mounted (WLLKOFFKRK, WLLKOFFSUP, WLLKNP)

This function prevents closing of the circuit breaker. This lock only actuates on this circuit breaker.

Locking Device for "Mechanical CLOSE" (included in the WLLKKT Lock Kit)

Prevents unauthorized mechanical closing. The mechanical CLOSE button can only be actuated if the key is inserted (key operation). Closing through the "electrical CLOSE" or remote closing are still possible.

Locking Device in OPEN Position, Mounted through the Cubicle Door (WLDLKRK, WLDLPR, WLDLSUP, WLDLDKRK, WLDLDPR, WLDLSUP)

This special function for drawout circuit breakers prevents closing, independent of the circuit breaker. Unauthorized closing is also not possible after circuit breaker replacement.

Locking Device for Racking Handle (WLLKCLKRK, WLLKCLSUP)

Prevents withdrawal of the racking handle. The circuit breaker is protected against moving. The blocking is only effective if the key is withdrawn.

Locking Device for "Mechanical OPEN" (included in the WLLKKT Lock Kit)

Prevents unauthorized mechanical disconnection at the front panel. The mechanical OPEN button can only be actuated if the key is inserted (key operation). Remote disconnection is still possible. The blocking is only effective if the key is withdrawn.

Locking Device for Charging Lever (WLHANDLC)

The charging lever can be locked with a padlock to prevent manually charging the stored energy mechanism.

Locking Device Against Resetting the Trip Indicator (included with WLTUSC55 and WLTUSC76)

A lockable cover prevents the manual resetting of the trip indicator after a tripping. This locking device is delivered together with the optional transparent cover for trip unit.

Sealing Devices

Sealing Cap over "Electrical CLOSE" Button (included with WLLECS)

The "electrical CLOSE button" is fitted with a sealing cap as standard.

Sealing Cap over "mechanical CLOSE" and "OPEN" button (included in the WLLKKT lock kit)

The lock kit includes blanking caps that can be sealed.

Sealing Cover for Electronic Trip Unit (WLTUSC55, WLTUSC76)

The transparent cover can be sealed. The areas of the parameter setting are covered against unauthorized access. Openings enable access to the query and test button.

Locking Devices

Closing Lockout with Open Cubicle Door (WLDRLC5)

The ready-to-close indicator is mechanically deactivated if the cubicle door is open. The circuit breaker cannot be closed either mechanically or electrically. Transmission of the locking signal is by means of the Bowden wire.

Interlocking of Cubicle Door
The cubicle door cannot be opened if the drawout circuit breaker is in connected position.

Access Locking through the "Mechanical CLOSE" and "OPEN" Button (included in the WLLKKT Lock Kit)

The mechanical "CLOSE" and "OPEN" buttons are protected by a cover that only permits actuation with a tool. These caps are components of the interlocking set.

Additional Equipment for Guide Frames

Shutter

The cover strips of the shutter lock the laminated contacts of the guide frame if the drawout circuit breaker is withdrawn so that they fulfill the function of a touch guard.

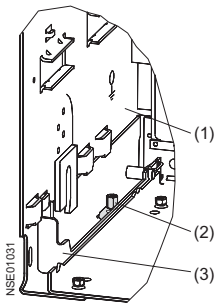
The cover strips can be manually opened with the strip lifter.

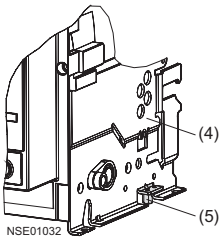
The cover strips can be fixed in different positions with padlocks and protected from unauthorized manipulation.

Rated Current Coding between Circuit Breaker and Guide Frame

Drawout circuit breakers and guide frames are equipped with a rated current coding as standard.

This ensures that in a guide frame only those circuit breakers can be inserted whose contact strips match the laminated contacts of the guide frame (see picture above).





(1) Guide Frame, inside left; inside right are the same
(2) Coding Bolt on the Guide Rail in the Guide Frame
(3) Guide Rail
(4) Drawout Circuit Breaker right side; left side are the same
(5) Coding Bolt on Guide Frame

Option Related Coding (WLBCK2, WLBCK3)

Drawout circuit breakers and guide frames can be retrofitted with an option related coding.

This permits the unique assignment of circuit breakers and guide frames, taking into account different equipment. If circuit breakers and guide frames do not have the same coding, it is not possible to insert the circuit breaker. There are 36 selectable coding options.

Position Signal Contact for Guide Frame
Position signal contacts can be retrofitted to the guide frame. These can be used to indicate the position of the circuit breaker in the guide frame.

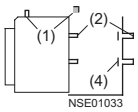
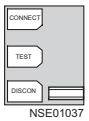
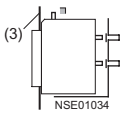
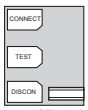
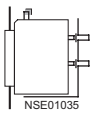
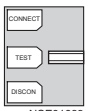
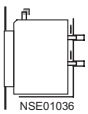
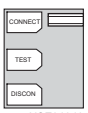
The position signal switches are preassembled with 1.5 m connecting cables and are mounted on the mounting plate. There are three contact configurations available (see adjacent table).

Mutual Mechanical Circuit Breaker Interlocking (WLNTLK)

The module for mutual mechanical interlocking can be implemented for two or three WL Circuit Breakers.

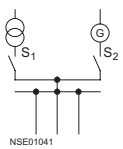
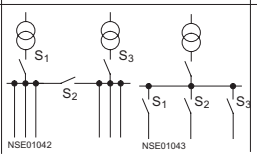
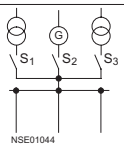
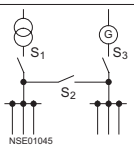
The circuit breakers can be installed either next to one another or on top of one another, whereby the distance between the circuit breakers is determined only by the length of the Bowden wire. The Bowden wires are available in the standard length of 2 m. Alternate Bowden wire lengths of 3 m (WLNTLWRE3), 4.5 m (WLNTLWRE4), or 6 m (WLNTLWRE5) can be ordered separately. Lockout signals are forwarded over the Bowden wires. With withdrawable circuit breakers, the interlocking is only effective in connected position. The mechanical service life of the Bowden wires is 10,000 operating cycles. For the mutual mechanical interlocking of circuit breakers, also see the adjacent table.

Positions of the drawout circuit breaker in the guide frame

	Representation	Position indicator	Main circuit	Auxiliary circuit	Cubicle door	Shutter
Maintenance position			discon-nected	discon-nected	open	closed
Disconnected position			discon-nected	discon-nected	closed	closed
Test position			discon-nected	con-nected	closed	closed
Connected position			con-nected	con-nected	closed	open

(1) Auxiliary circuit
(2) Main circuit
(3) Cubicle door
(4) Shutter

Mutual mechanical interlocking of circuit breakers - examples

Interlocking of two mutual circuit breakers	Interlocking of three non-mutual circuit breakers	Interlocking of three mutual circuit breakers	Interlocking of three circuit breakers, two of which are mutual
			

Phase Barriers

Plant manufacturers can make phase barriers out of insulation material as a protection against internal arcs. Guiding grooves are fitted at the rear of the fixed-mounted circuit breaker or guide frame.

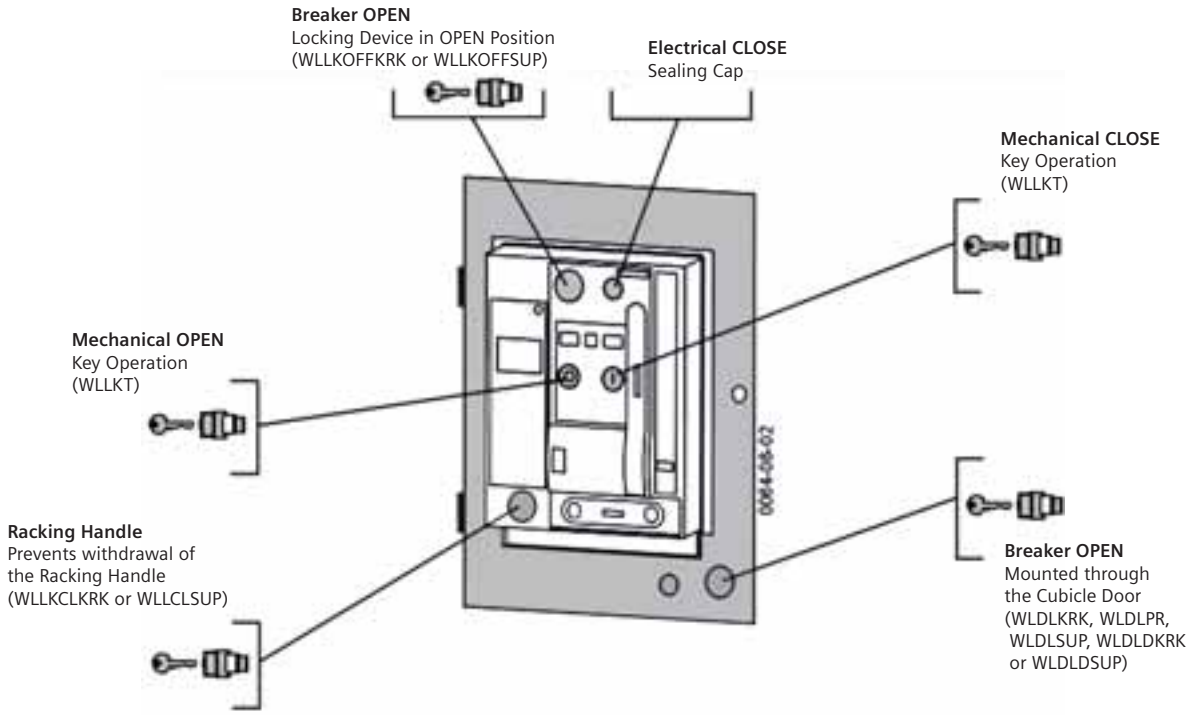
Arc Chute Cover

The arc chute cover is available as an option for the guide frame. It serves to protect switchgear parts that are located directly next to the circuit breaker.

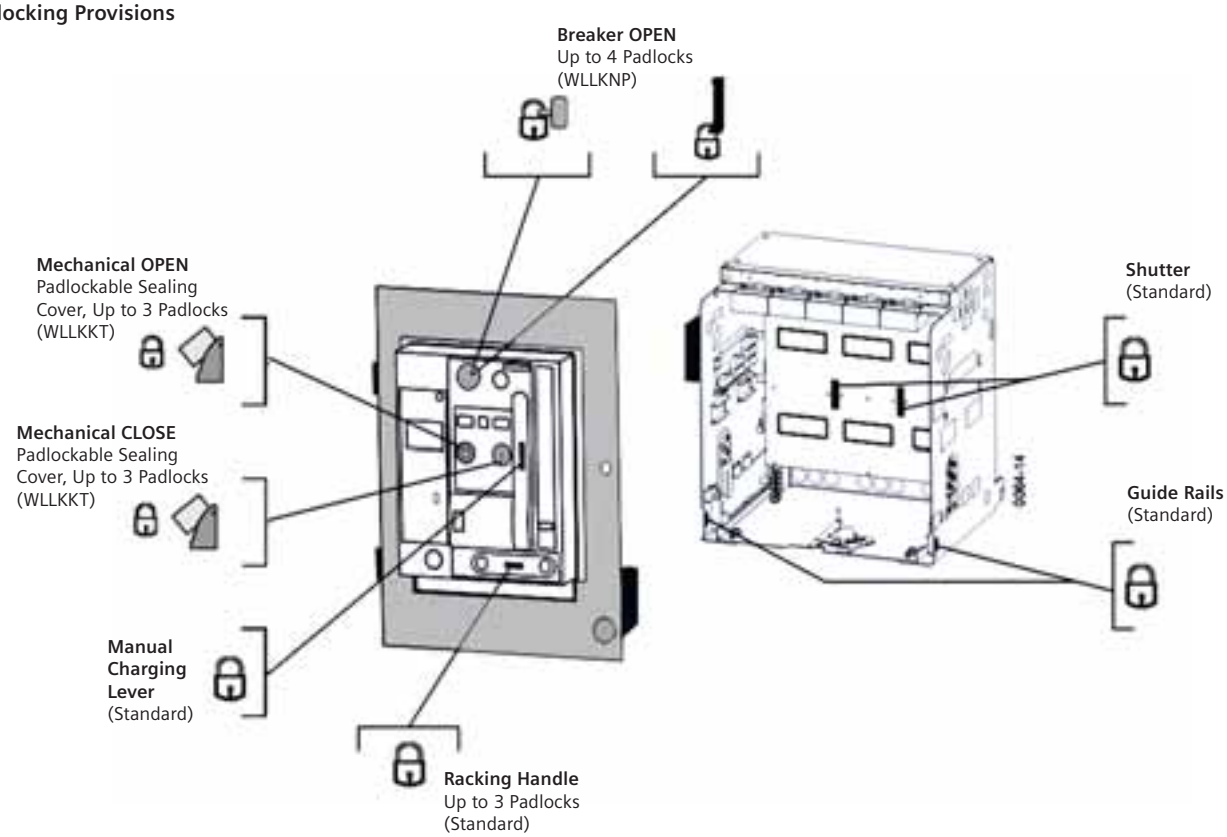
Door Sealing Frame and Plexiglas Cover

As standard, the WL Circuit Breakers have IP 20 degree of protection. However, if the switchgear assembly is to be provided with a higher degree of protection, a door sealing frame and a Plexiglas cover are available for Frame Size II and Frame Size III circuit breakers.

Locking Devices and Sealing Caps



Padlocking Provisions



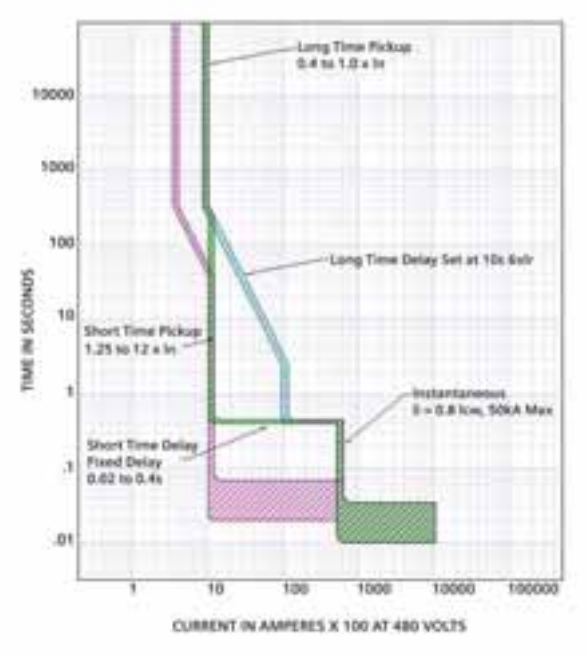
Tripping Characteristics

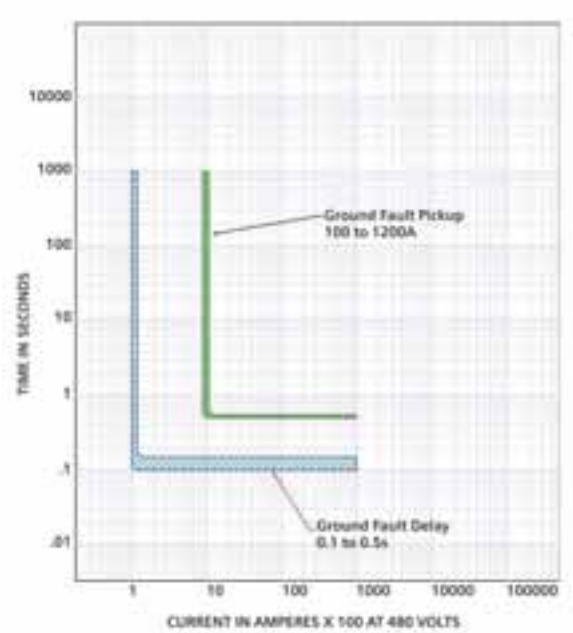
Every trip unit and every trip function has its own characteristic. You will find just a small section of these illustrated below. The characteristics show the respective greatest and smallest setting range of WL Circuit Breakers.

To obtain a complete release characteristic, the appropriate characteristic functions must be determined.

The characteristics show the behavior of the overcurrent release when it is activated by a current already flowing before tripping. If the overcurrent trip takes place immediately after closing and the overcurrent release is therefore not yet activated, the opening time is prolonged by about 3 to 10 ms, depending on the value of the overcurrent.

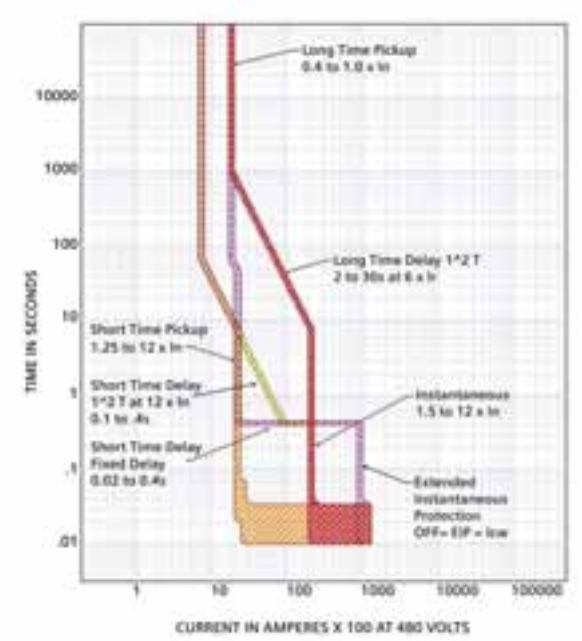
ETU725 and ETU727

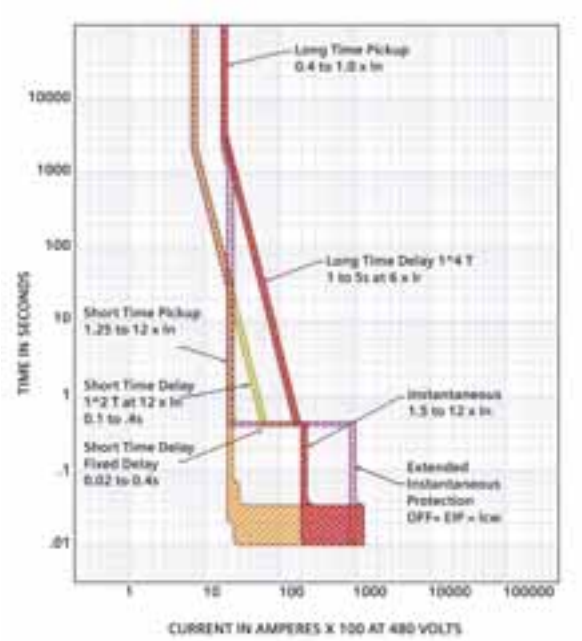




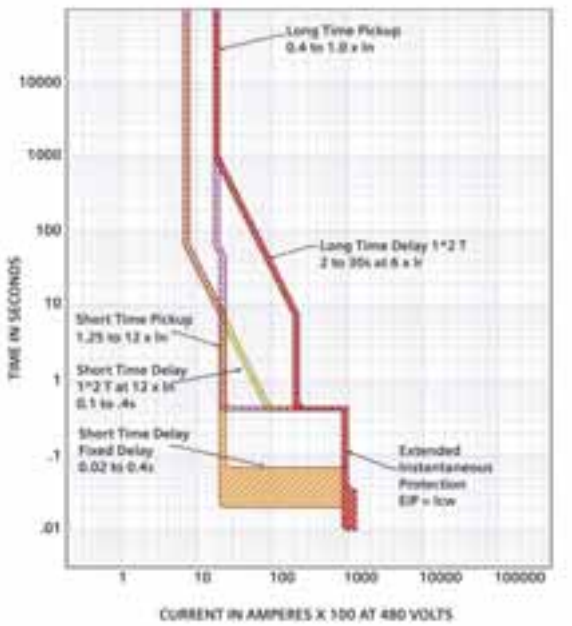
Tripping Characteristics

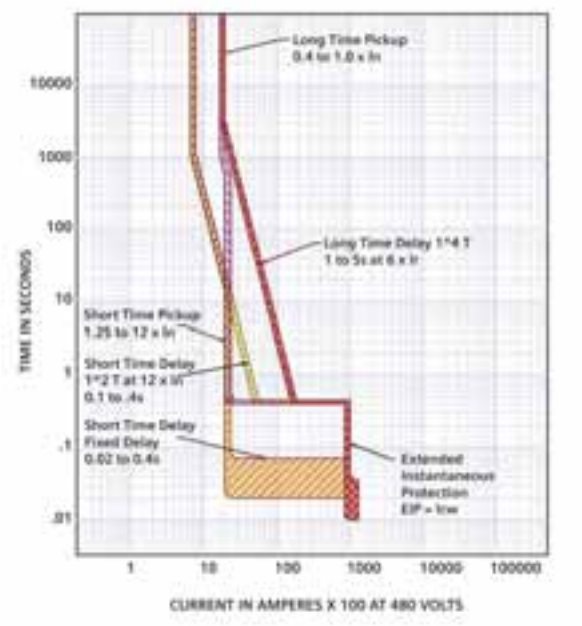
ETU745





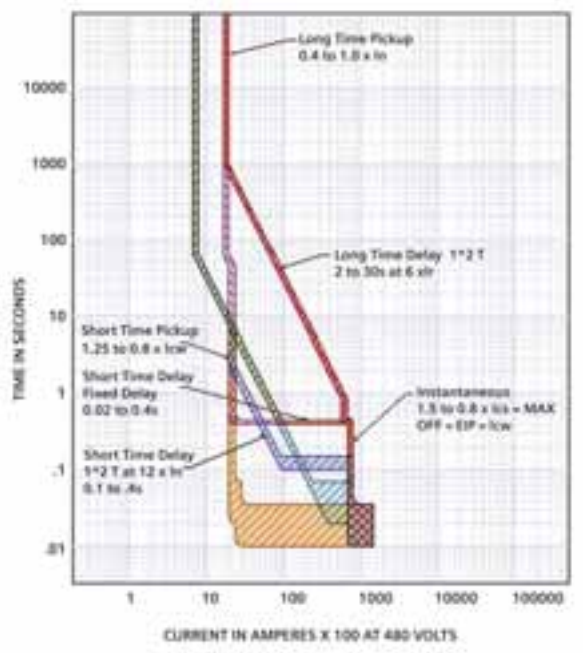
ETU748

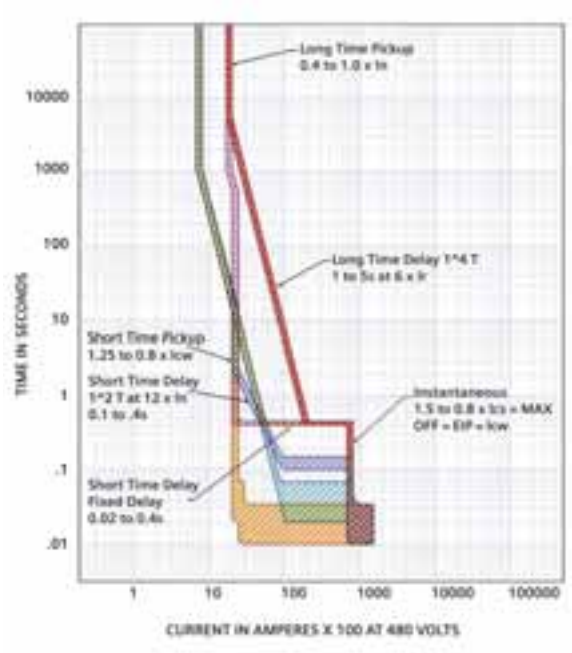




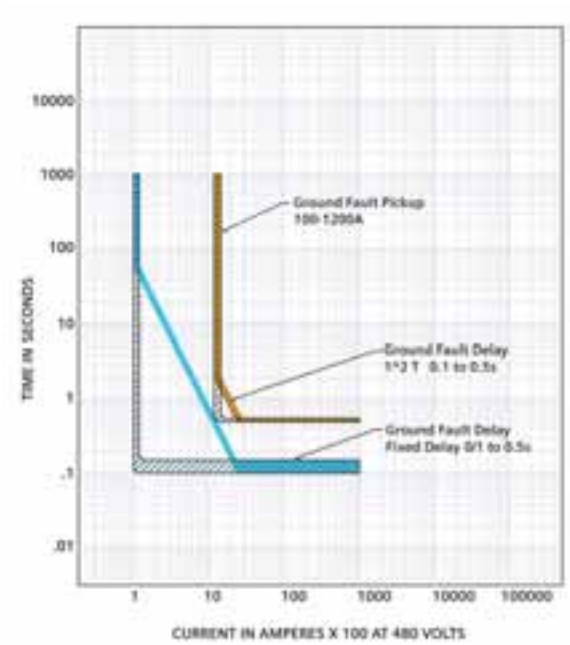
Tripping Characteristics

ETU776

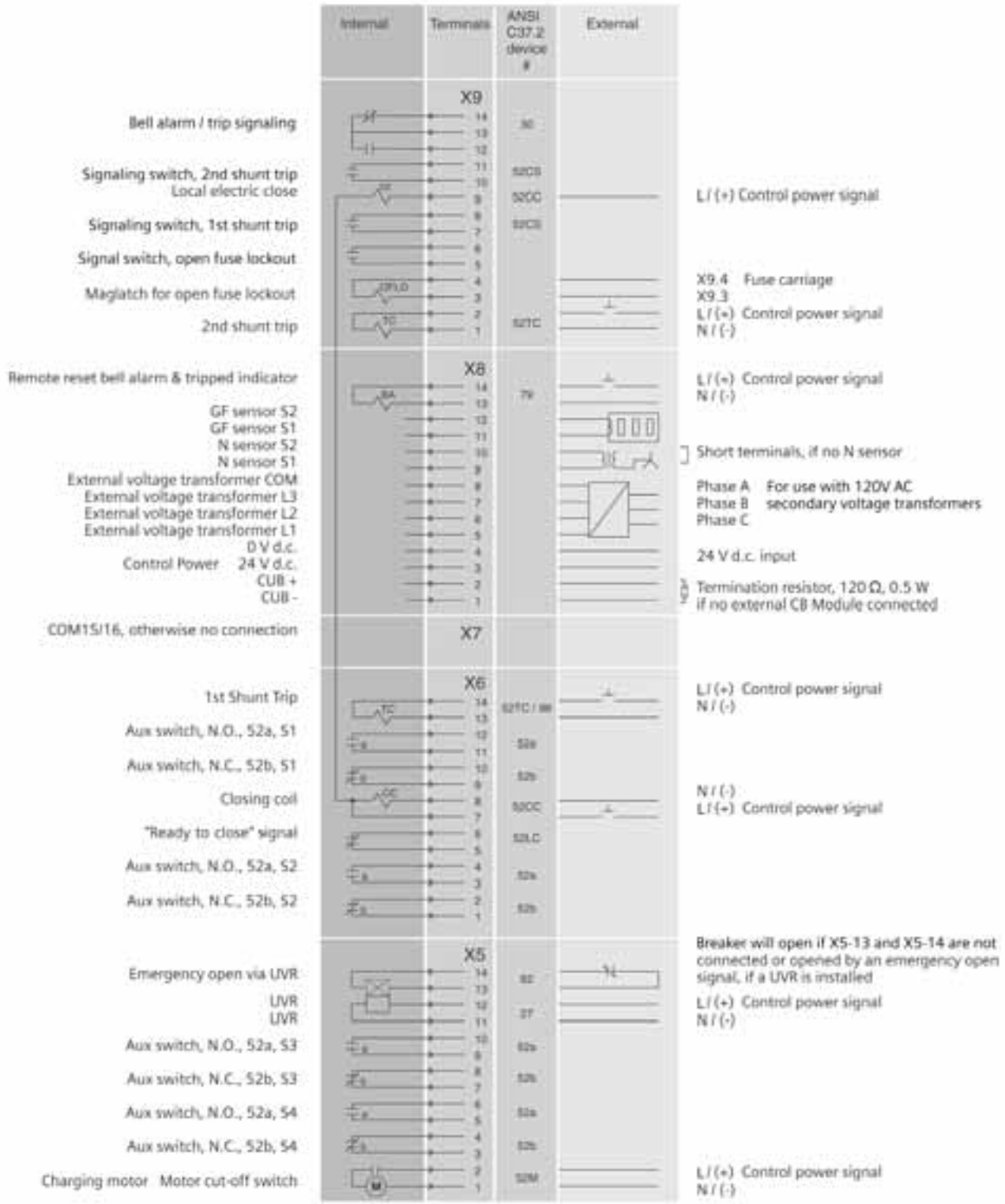




Ground Fault Curve for ETU745, 748, 755 and 776

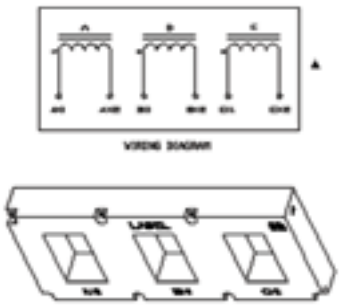


WL Secondary Terminal Assignments



3-Phase Metering CTs, Guide Frame Mounted
Frame Size I & II

Catalog Number	Current Ratio	ANSI Metering @ 60 Hz					Relay Accuracy	Secondary Winding Resistance (ohms @ 75° C	Thermal S/T kA - 1 sec
		B-0.1	B-0.2	B-0.5	B-0.9	B-1.8			
WLG1005MCT3	100:5	1.2	–	–	–	–	C5	0.011	12
WLG1505MCT3	150:5	1.2	–	–	–	–	C7	0.019	16
WLG2005MCT3	200:5	1.2	–	–	–	–	C9	0.030	18
WLG2505MCT3	250:5	1.2	–	–	–	–	C12	0.038	22
WLG3005MCT3	300:5	0.6	0.6	–	–	–	C15	0.045	28
WLG4005MCT3	400:5	0.6	0.6	1.2	–	–	C20	0.060	36
WLG5005MCT3	500:5	0.6	0.6	1.2	–	–	C25	0.075	46
WLG6005MCT3	600:5	0.3	0.3	0.6	1.2	1.2	C21	0.178	28
WLG8005MCT3	800:5	0.3	0.3	0.6	0.6	1.2	C29	0.237	36
WLG10005MCT3	1000:5	0.3	0.3	0.6	0.6	1.2	C35	0.296	46
WLG12005MCT3	1200:5	0.3	0.3	0.3	0.6	0.6	C20	0.241	70
WLG15005MCT3	1500:5	0.3	0.3	0.3	0.3	0.6	C25	0.301	88
WLG16005MCT3	1600:5	0.3	0.3	0.3	0.3	0.6	C27	0.321	94
WLG20005MCT3	2000:5	0.3	0.3	0.3	0.3	0.3	C34	0.402	100
WLG25005MCT3	2500:5	0.3	0.3	0.3	0.3	0.3	C20	0.468	100
WLG30005MCT3	3000:5	0.3	0.3	0.3	0.3	0.3	C21	0.524	100
WLG32005MCT3	3200:5	0.3	0.3	0.3	0.3	0.3	C20 ▲	0.560	100



Frequency: 50 - 400 Hz

Insulation Level:
0.6 kV; BIL 10 kV full wave

Insulation System:
Cast in polyurethane resin, red or black, Temperature Class 130° C

Continuous Thermal Current Rating Factor:
1.33 @ 30° C ambient; 1.00 @ 55° C ambient

Thermal Short-time Rating: (see table)

Regulatory Agency Approvals:
UL & CUL

Flexible Leads:
UL 1015, CSA approved, #16 AWG, 36" long (minimum), with wire markers

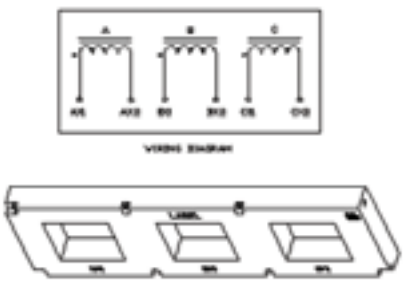
Approximate Weight: 20 lbs.

Tolerance on Dimension (unless otherwise noted):
± 0.06 for dimension under 6"
± 0.09 for dimension between 6" & 18"

Notes:
For external metering.
Up to 2 CTs per guide frame (one load side, one line side)
Mounts inside the guide frame.

3-Phase Metering CTs, Guide Frame Mounted
Frame Size III

Catalog Number	Current Ratio	Metering Accuracy	Relay Accuracy	Secondary Winding Resistance (ohms @ 75° C	Thermal S/T kA - 1 sec
WLG20005MCT3	2000:5	0.3 B1.8	C20	0.27	188
WLG25005MCT3	2500:5	0.3 B1.8	C20	0.34	236
WLG30005MCT3	3000:5	0.3 B1.8	C20	0.62	178
WLG32005MCT3	3200:5	0.3 B1.8	C20	0.67	190
WLG40005MCT3	4000:5	0.3 B1.8	C20	0.84	237
WLG50005MCT3	5000:5	0.3 B1.8	C20	1.05	297



Frequency: 50 - 400 Hz

Insulation Level:
0.6 kV; BIL 10 kV full wave

Insulation System:
Cast in polyurethane resin, red or black, Temperature Class 130° C

Continuous Thermal Current Rating Factor:
1.33 @ 30° C ambient; 1.00 @ 55° C ambient

Regulatory Agency Approval:
UL and CUL

Flexible Leads:
UL 1015, CSA approved, #16 AWG, 36" long (minimum), with wire markers

Approximate Weight: 33 lbs.

Tolerance on Dimension (unless otherwise noted):
± 0.06 for dimension under 6"
± 0.09 for dimension between 6" & 18"
± 0.125 for dimension over 18"

Notes:
For external metering.
Up to 2 CTs per guide frame (one load side, one line side)
Mounts inside the guide frame.

Neutral Sensors for Modified Differential Ground Fault Frame Size I & II

Catalog Number	Current Ratio	Accuracy	Secondary Winding Resistance (ohms @ 75° C	Thermal S/T kA - 1 sec
WLGMDGFCT2	3200:2.67	0.3% at 45VA resistive burden	3.10	

Frequency: 50 - 400 Hz

Insulation Level:
0.6 kV; BIL 10 kV full wave

Insulation System:
Cast in polystyrene resin, red or black, Temperature Class 130° C

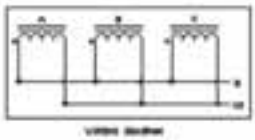
Continuous Thermal Current Rating Factor:
1.33 @ 30° C ambient; 1.00 @ 55° C ambient

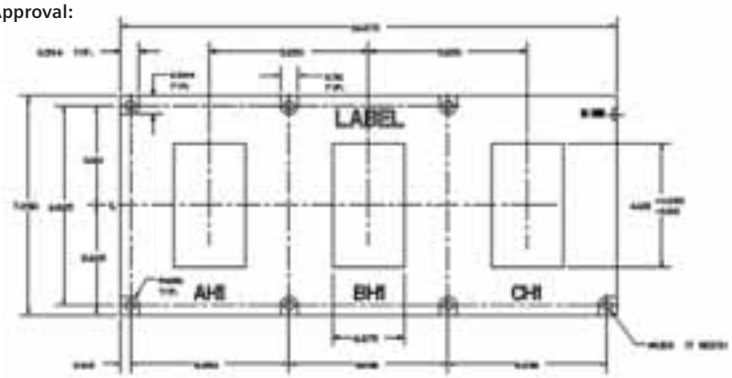
Regulatory Agency Approval:
UL and CUL

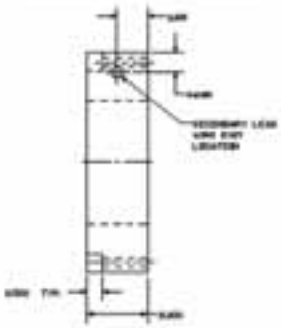
Flexible Leads:
UL-1015, CSA approved, #16 AWG, 36" long (minimum), with wire markers

Approximate Weight: 20 lbs.

Tolerance on Dimension (unless otherwise noted):
± 0.06 for dimension under 6"
± 0.09 for dimension between 6" & 18"







Neutral Sensors for Modified Differential Ground Fault Frame Size III

Catalog Number	Current Ratio	Accuracy	Secondary Winding Resistance (ohms @ 75° C	Thermal S/T kA - 1 sec
WLGMDGFCT3	5000:4.17	0.3% at 45VA resistive burden	1.94	224

Frequency: 50 - 400 Hz

Insulation Level:
0.6 kV; BIL 10 kV full wave

Insulation System:
Cast in polyurethane resin, red or black, Temperature Class 130° C

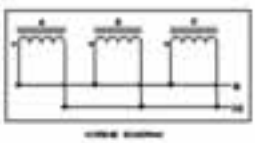
Continuous Thermal Current Rating Factor:
1.33 @ 30° C ambient; 1.00 @ 55° C ambient

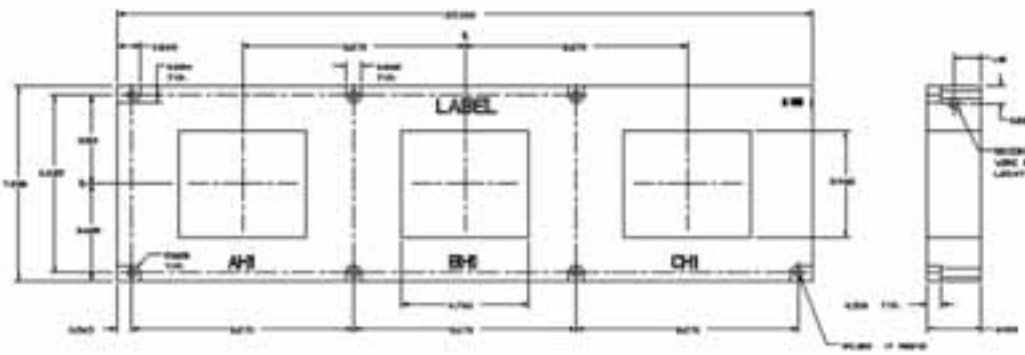
Regulatory Agency Approval:
UL and CUL

Flexible Leads:
UL 1015, CSA approved, #16 AWG, 36" long (minimum), with wire markers

Approximate Weight: 33 lbs.

Tolerance on Dimension (unless otherwise noted):
± 0.06 for dimension under 6"
± 0.09 for dimension between 6" & 18"
± 0.125 for dimension over 18"





Neutral Sensors for Metering, 5A Secondary

Catalog Number	Current Ratio	ANSI Metering @ 60 Hz					Relay Accuracy	Secondary Winding Resistance (ohms @ 75° C	Thermal S/T kA - 1 sec
		B-0.1	B-0.2	B-0.5	B-0.9	B-1.8			
WLG100NMCT23	100:5	1.2	–	–	–	–	C5	0.011	12
WLG150NMCT23	150:5	1.2	–	–	–	–	C7	0.019	16
WLG200NMCT23	200:5	1.2	–	–	–	–	C9	0.030	18
WLG250NMCT23	250:5	1.2	–	–	–	–	C12	0.038	22
WLG300NMCT23	300:5	0.6	0.6	–	–	–	C15	0.045	28
WLG400NMCT23	400:5	0.6	0.6	1.2	–	–	C20	0.060	36
WLG500NMCT23	500:5	0.6	0.6	1.2	–	–	C25	0.075	46
WLG600NMCT23	600:5	0.3	0.3	0.6	1.2	1.2	C21	0.178	28
WLG800NMCT23	800:5	0.3	0.3	0.6	0.6	1.2	C29	0.237	36
WLG1000NMCT23	1000:5	0.3	0.3	0.6	0.6	1.2	C35	0.296	46
WLG1200NMCT23	1200:5	0.3	0.3	0.3	0.6	0.6	C20	0.241	70
WLG1500NMCT23	1500:5	0.3	0.3	0.3	0.3	0.6	C25	0.301	88
WLG1600NMCT23	1600:5	0.3	0.3	0.3	0.3	0.6	C27	0.321	94
WLG2000NMCT23	2000:5	0.3	0.3	0.3	0.3	0.3	C34	0.402	100
WLG2500NMCT23	2500:5	0.3	0.3	0.3	0.3	0.3	C20	0.468	100
WLG3000NMCT23	3000:5	0.3	0.3	0.3	0.3	0.3	C21	0.524	100
WLG3200NMCT23	3200:5	0.3	0.3	0.3	0.3	0.3	C24	0.560	100
WLG4000NMCT23	4000:5	0.3	0.3	0.3	0.3	0.3	C20	1.000	150
WLG5000NMCT23	5000:5	0.3	0.3	0.3	0.3	0.3	C20	1.600	150

Frequency: 50 - 400 Hz

Insulation Level:
0.6 kV; BIL 10 kV full wave

Insulation System:
Cast in polyurethane resin, red or black, Temperature Class 130° C

Continuous Thermal Current Rating Factor:
1.33 @ 30° C ambient; 1.00 @ 55° C ambient

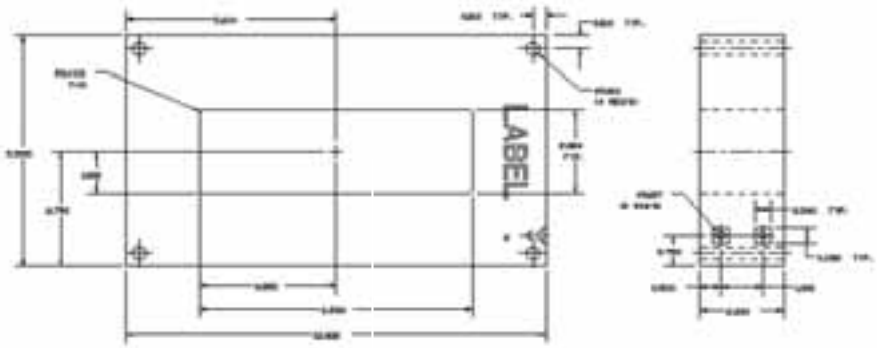
Thermal Short-time Rating:
(see table)

Regulatory Agency Approval:
UL and CUL

Terminals are brass screws No. 10-32
with one flatwasher and lockwasher

Approximate Weight: 7.5 lbs.

Tolerance on Dimension (unless otherwise noted):
± 0.06 for dimension under 6"
± 0.09 for dimension between 6" & 18"



VT / PT Connections for the WL Breaker when equipped with Metering (WLMETER, WLMETERP)

The metering module ("Meter Function") can be set to expect 3W or 4W (LL/LG) connections and will adjust the amplitude and phase of the signal as necessary.
The trip unit settings which must be made are:

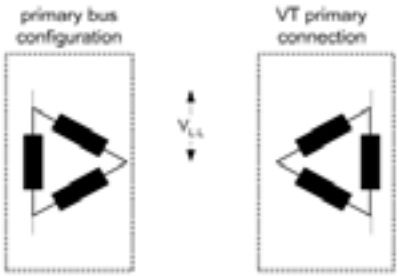
1) VT Primary Voltage (240V, 480V, 600V)
2) VT Secondary Voltage (100V, 110V, 120V)
3) VT Connection (Wye / LG, Delta / LL)

Three VTs must be used at all times.

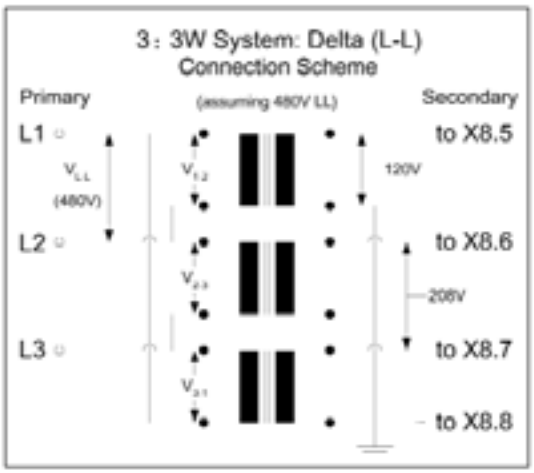
All three VTs should be rated for the nominal system L-L voltage (e.g. 480V) and may have either 100V, 110V or 120V secondary voltages.

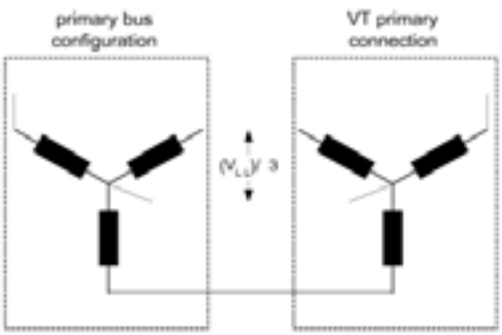
The following ratios and suggested and equivalent VTs can be used:
240:120 = 2:1
(ITI Part # 460-240 or 468-240)
480:120 = 4:1
(ITI Part # 460-480 or 468-480)
600:120 = 5:1
(ITI Part # 460-600 or 468-600)

VT Accuracy:
Each Metering Module presents a purely resistive (unity power factor) load to the transformer. Assuming no other devices connected to the VT, a ITI type 486 VT can safely feed 10 metering modules and and still maintain 0.6% accuracy assuming the wiring from the VT to the individual metering modules is twisted pair and kept to a minimum length.

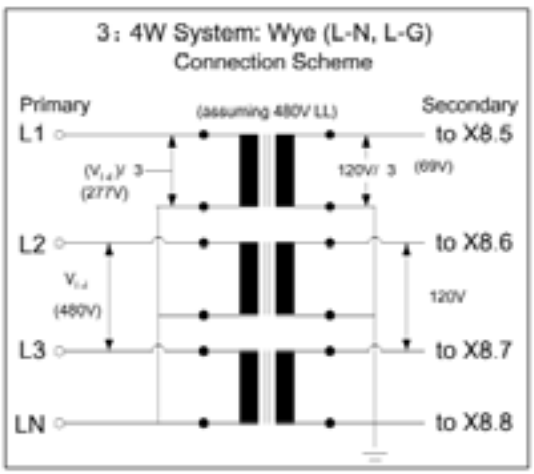


Metering VT Settings:
Delta/Wye : Delta
VT Primary: 480 (for example)
VT Secondary: 120 (for example)



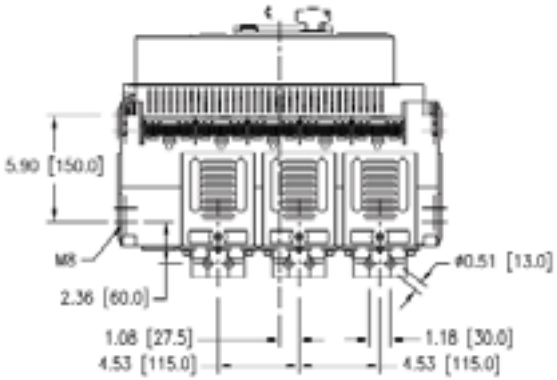


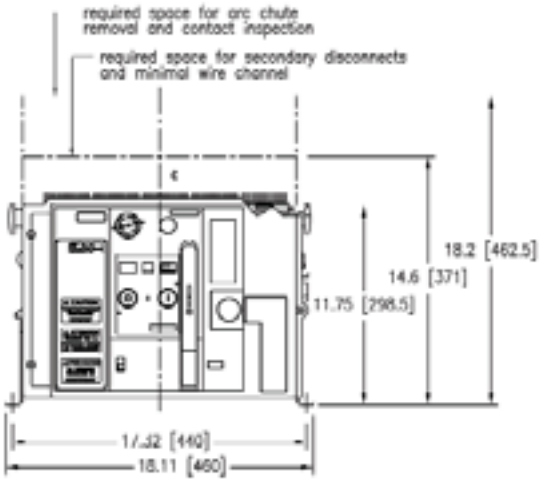
Metering VT Settings:
Delta/Wye : Delta
VT Primary: 480 (for example)
VT Secondary: 120 (for example)

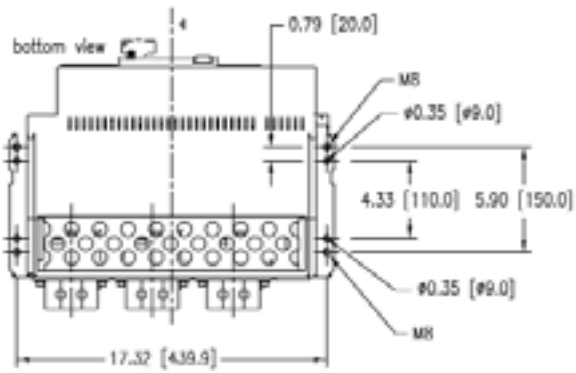


Note: Required primary and secondary overcurrent protection (fusing) not shown for clarity.

Frame Size I
Fixed Mounted Circuit Breaker

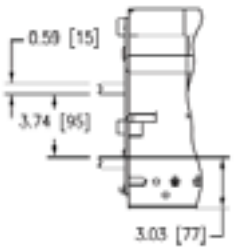




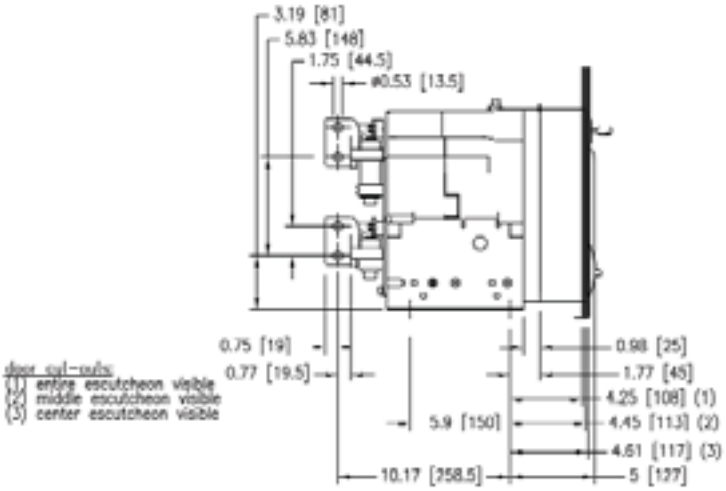


Outline Drawings

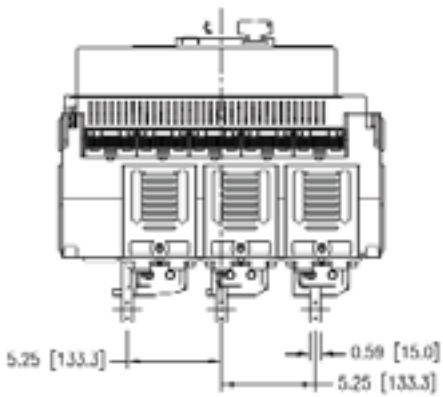
Frame Size I
Fixed Mounted Circuit Breakers
Vertical Bus Connectors



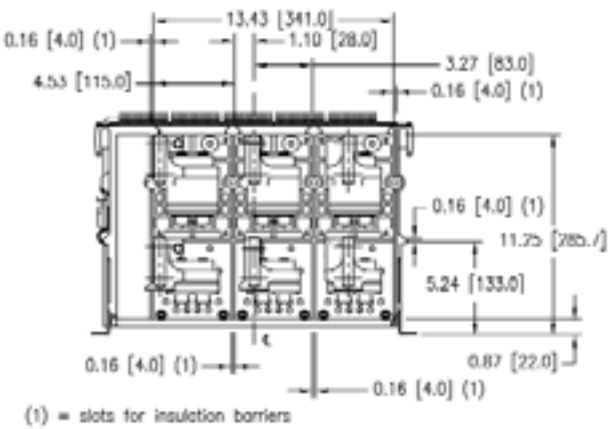
Bus Stubs (standard)



Vertical Bus Connectors (optional)

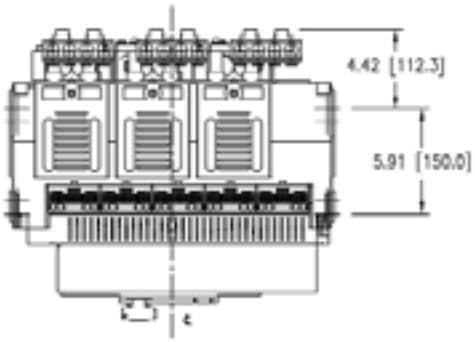


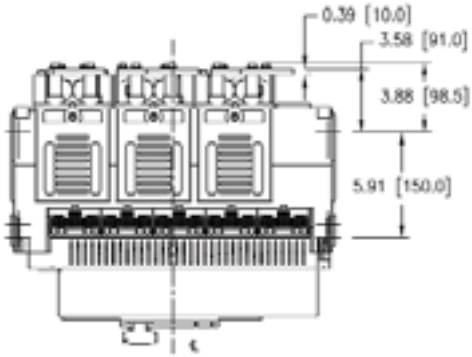
Top View
(with optional vertical connectors)

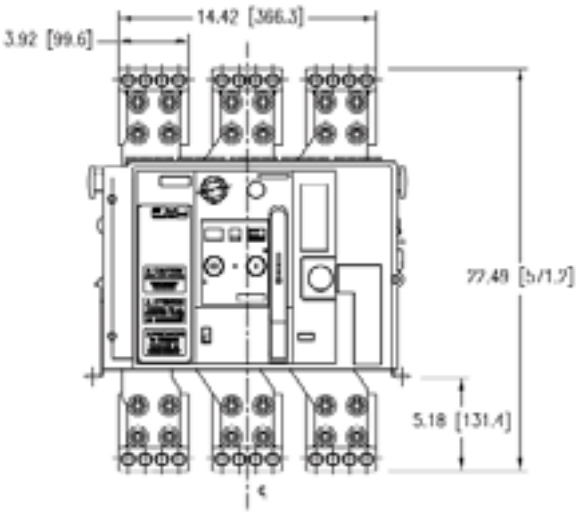


Back View
(with optional vertical connectors)

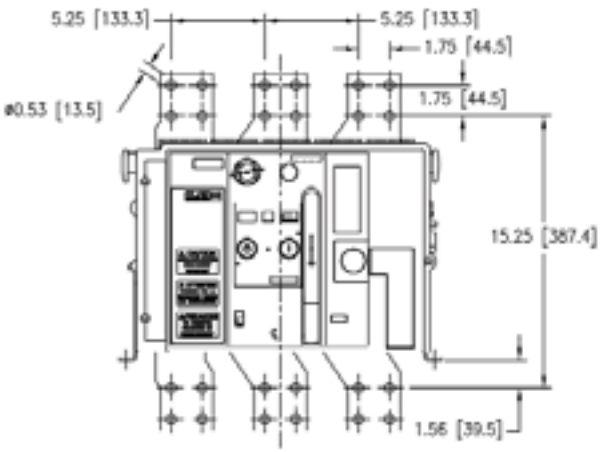
Frame Size I
Fixed Mounted Circuit Breakers
Front Connectors







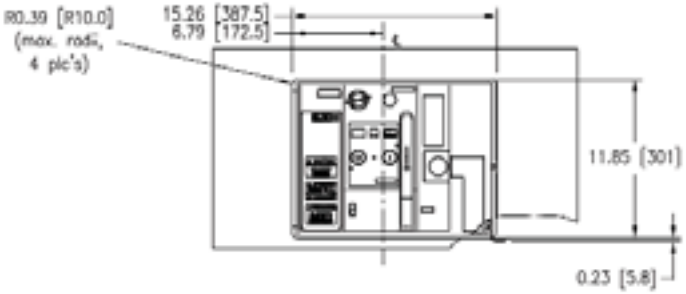
Front Connectors with Pressure Wire Main Connectors



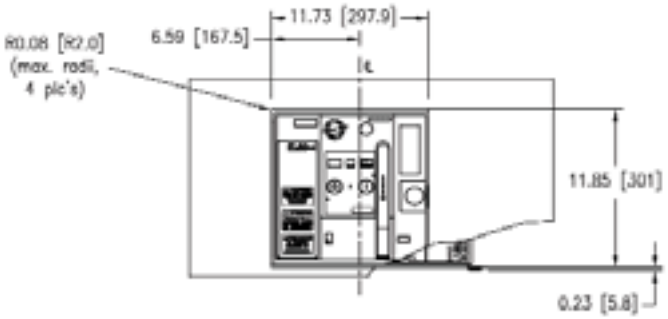
Front Connectors

Outline Drawings

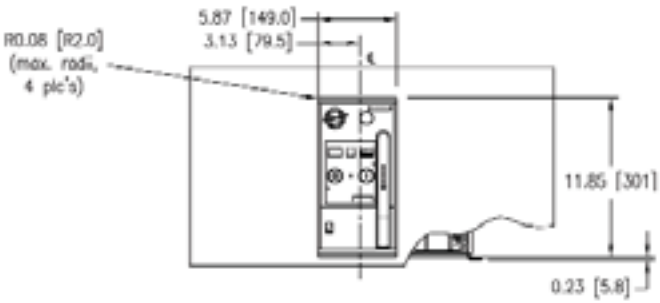
Frame Size I
Fixed Mounted Circuit Breakers
Door Cut-outs



Door Cut-out



Door Cut-out
(middle escutcheon visible)

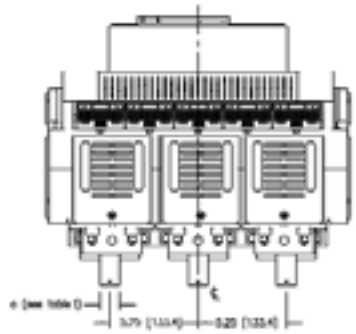


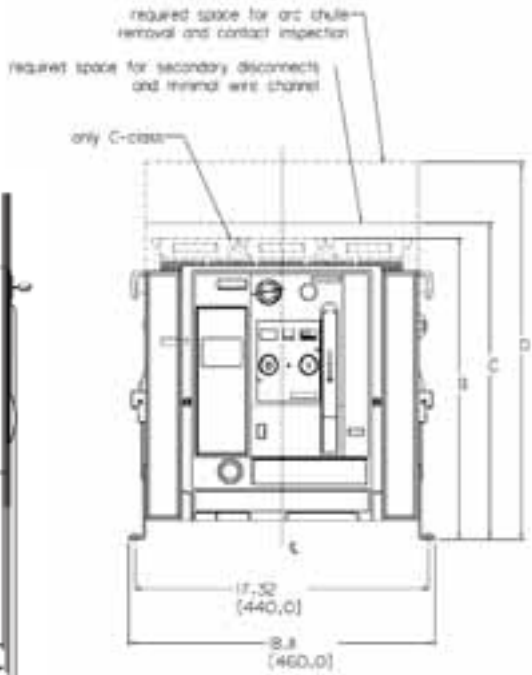
Door Cut-out
(center escutcheon visible)

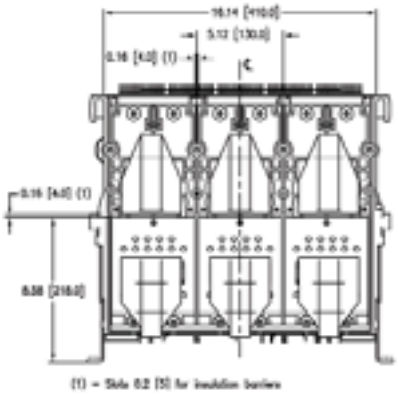
Frame Size II
Fixed Mounted Circuit Breaker
(with optional vertical bus connectors)

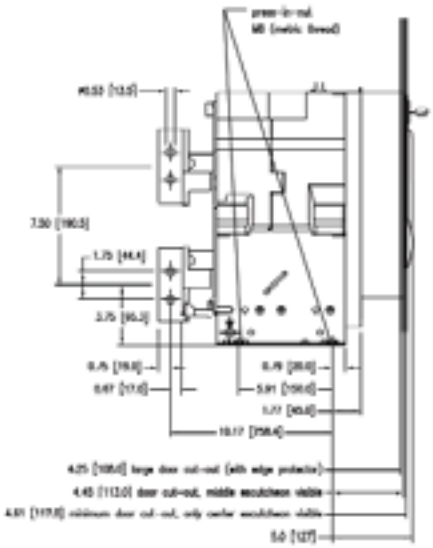
interrupting class	rated current	dimension A
S/L	max. 1600 A	0.39 [10]
S/L	max. 2000 A	0.59 [15]
S/L	max. 3000 A	1.18 [30]
C	800 - 3000 A	1.18 [30]

Table 1



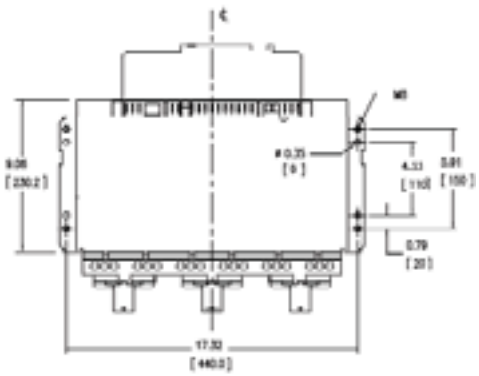






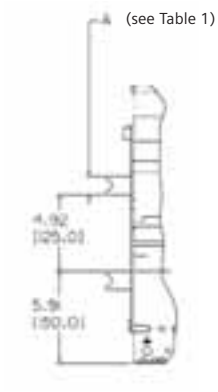
interrupting class	Dimension B	Dimension C	Dimension D
S/L	15.85 [402.5]	18.70 [475.0]	22.30 [566.5]
C	17.80 [452.0]	18.70 [475.0]	25.20 [640.0]

Table 2

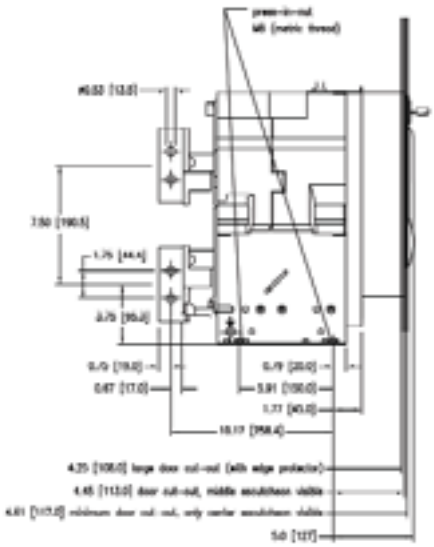


Outline Drawings

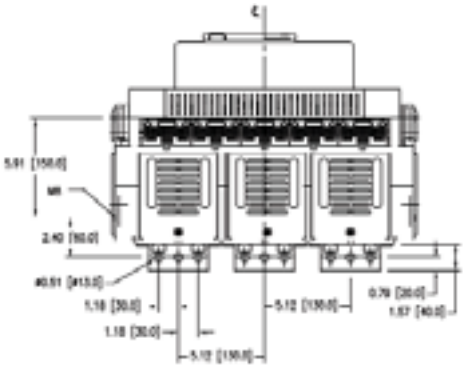
Frame Size II
Fixeded Mounted Circuit Breaker
Alternate Bus Connectors



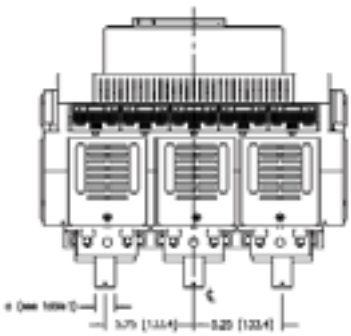
Bus Stubs (Standard)



Vertical Bus Connectors (optional)



Bus Stubs (standard)

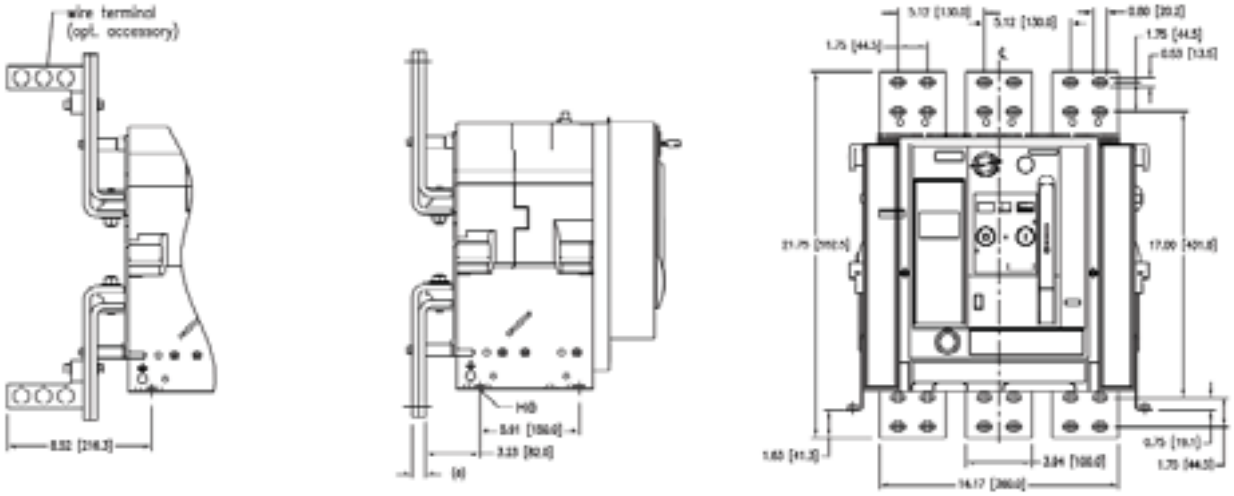


Vertical Bus Connectors (optional)

interrupting class	rated current	dimension A
S/L	max. 1600 A	0.39 [10]
S/L	max. 2000 A	0.59 [15]
S/L	max. 3000 A	1.18 [30]
C	800 - 3000 A	1.18 [30]

Table 1

Frame Size II
Fixed Mounted Circuit Breaker
Front Connectors



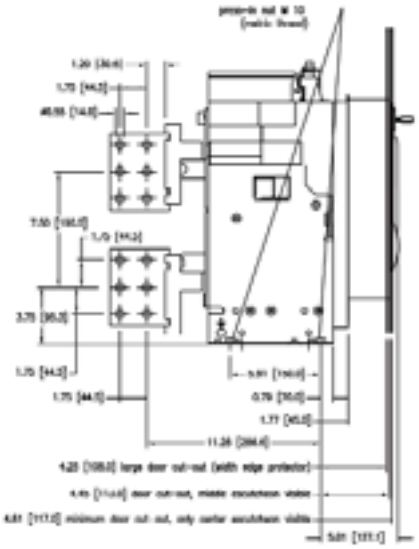
Front Connectors with Pressure
Wire Main Connectors

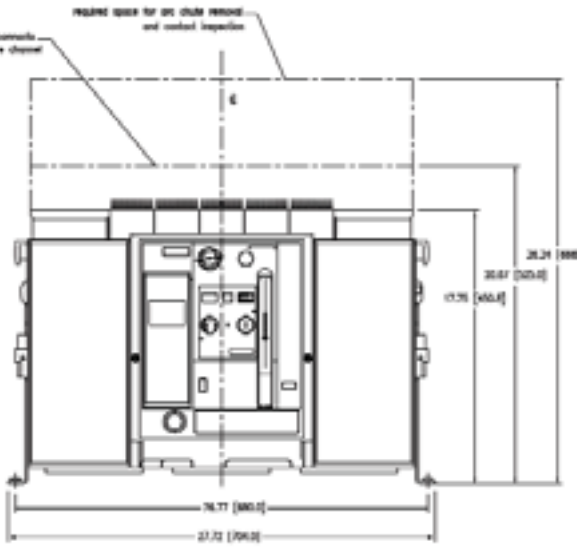
rated current	dimension a
max. 1600 A	0.39 [10]
max. 2000 A	0.59 [15]
max. 3000 A	1.18 [30]

Outline Drawings

Frame Size III
Fixed Mounted Circuit Breaker

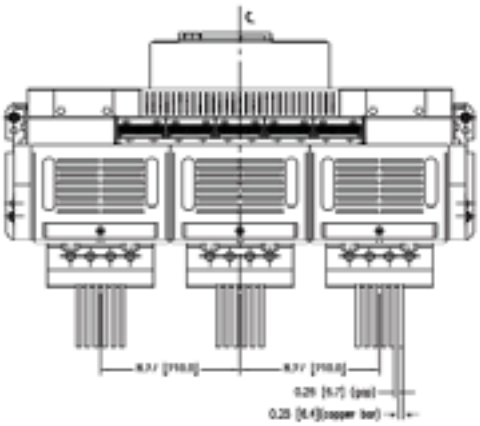
Bus Stubs (Standard)



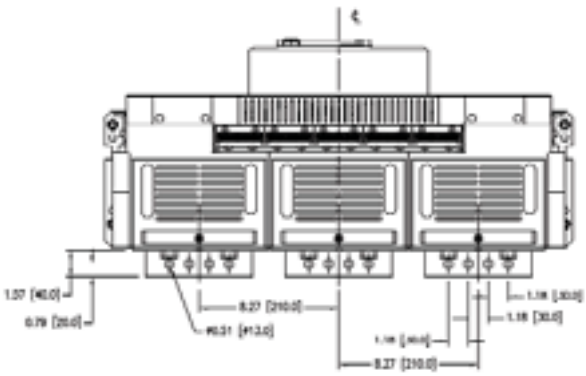


Vertical Bus Connectors (optional)

Frame Size III
Fixed Mounted Circuit Breaker
Alternate Bus Connectors



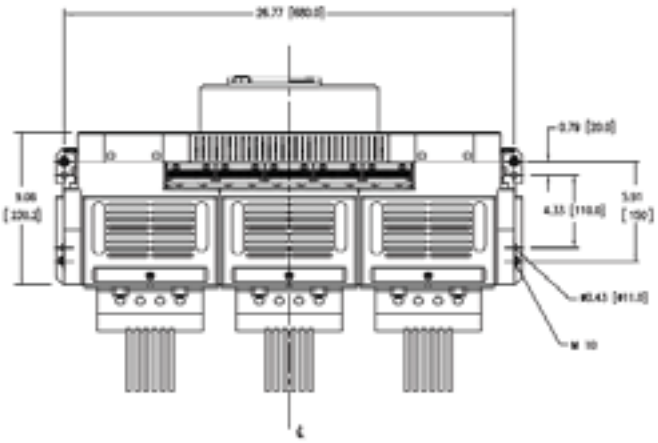
Top View
(with optional vertical connectors)

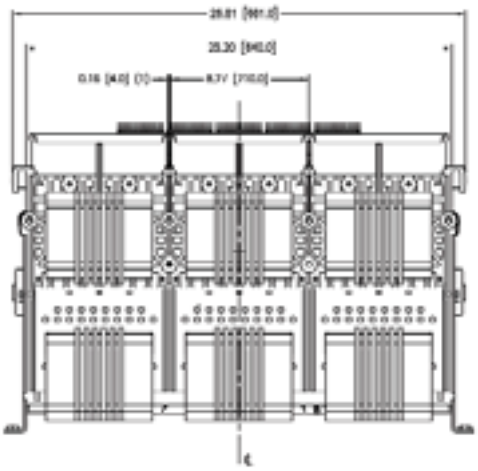


Top View
(with standard bus stubs)

Outline Drawings

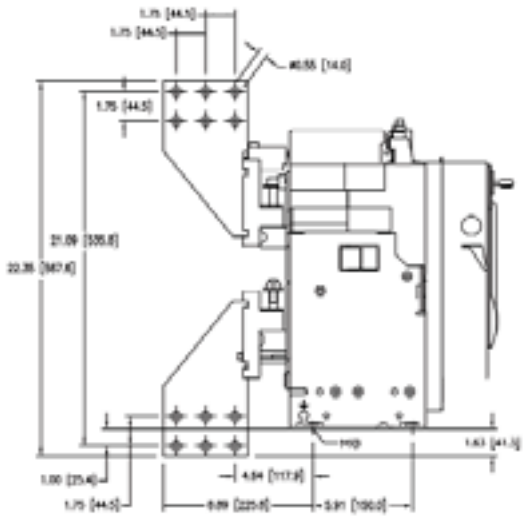
Frame Size III
Fixed Mounted Circuit Breaker

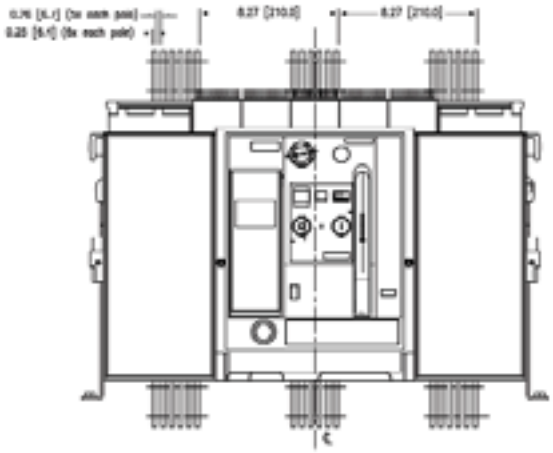




(1) = Slots 0.2 [5] for insulation barriers

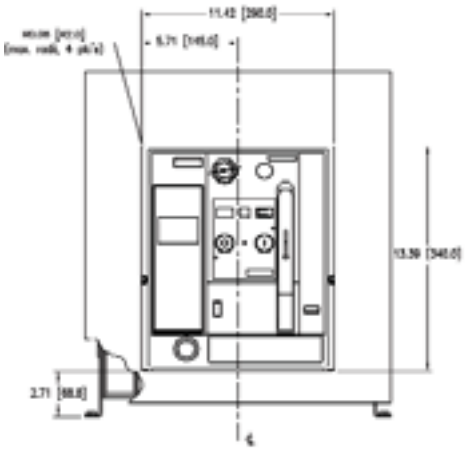
Frame Size III
Fixed Mounted Circuit Breaker
Front Connectors



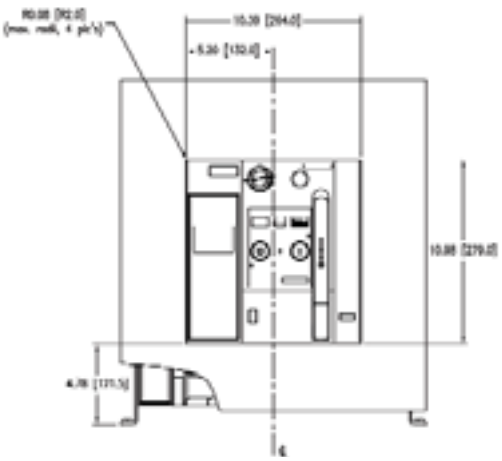


Outline Drawings

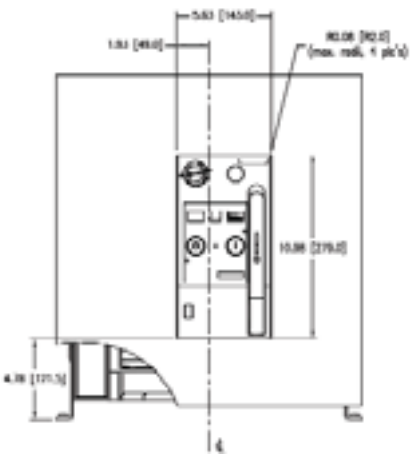
Frame Size II & Frame Size III
Fixed Mounted Circuit Breaker
Door Cut-outs



Door Cut-out with Edge Protector
(cut-out dimensions shown are with the edge protector installed)

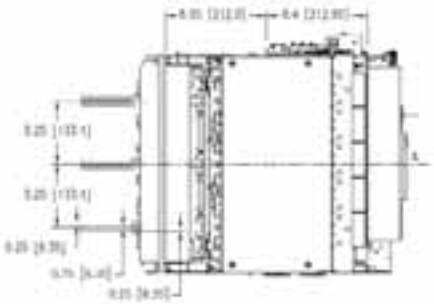


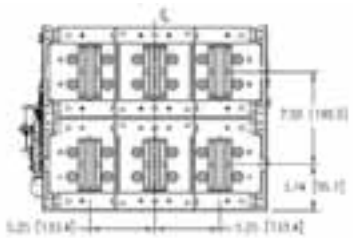
Door Cut-out
(middle escutcheon visible)

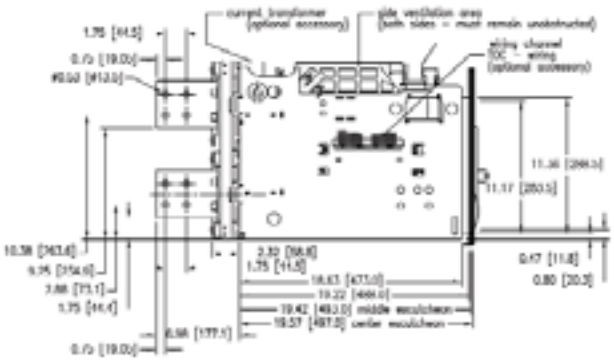


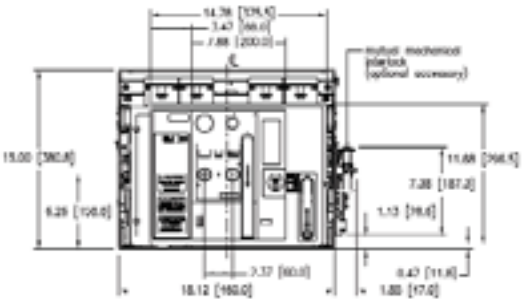
Door cut-out
(center escutcheon visible)

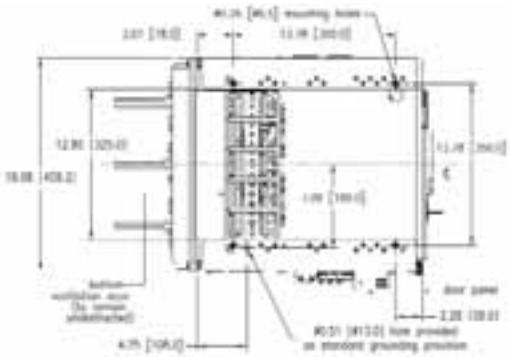
Frame Size I
UL 489 Draw-out Circuit Breaker







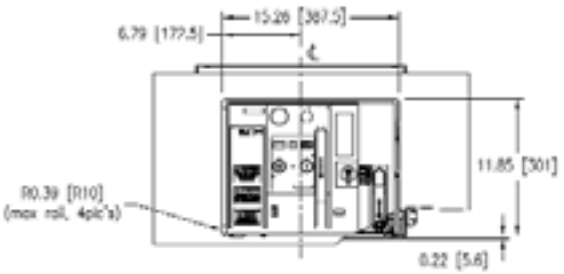




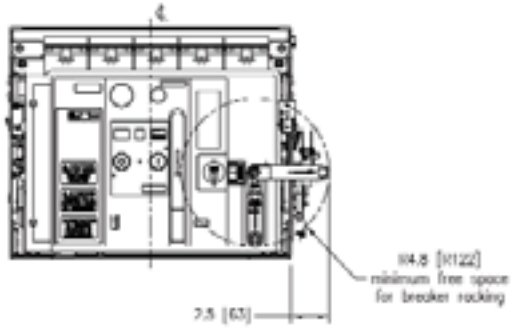
WL Circuit Breaker

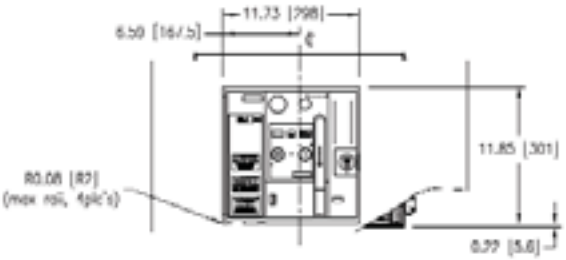
Outline Drawings

Frame Size I
UL 489 Draw-out Circuit Breaker

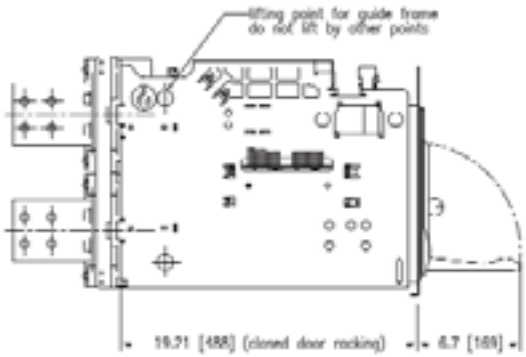


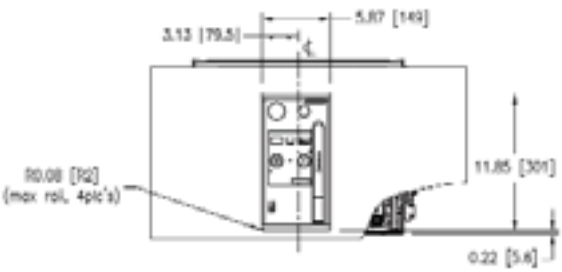
Door Cut-out with Edge Protector
(cut-out dimensions shown are with the edge protector installed)



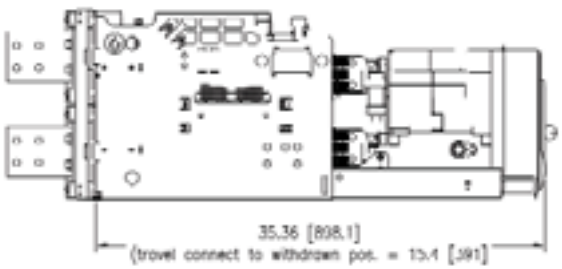


Door Cut-out
(middle escutcheon visible)

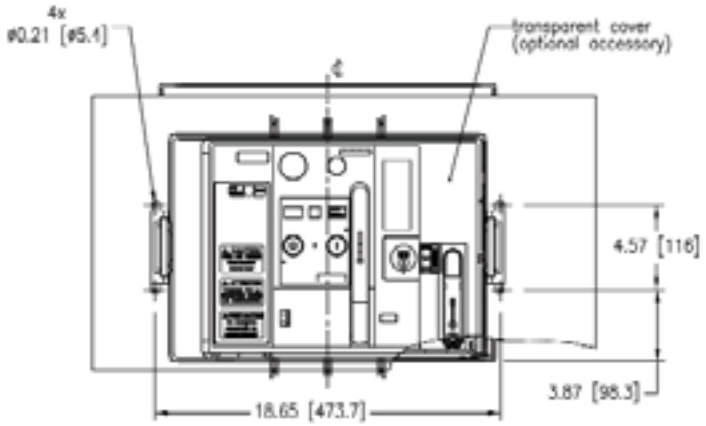


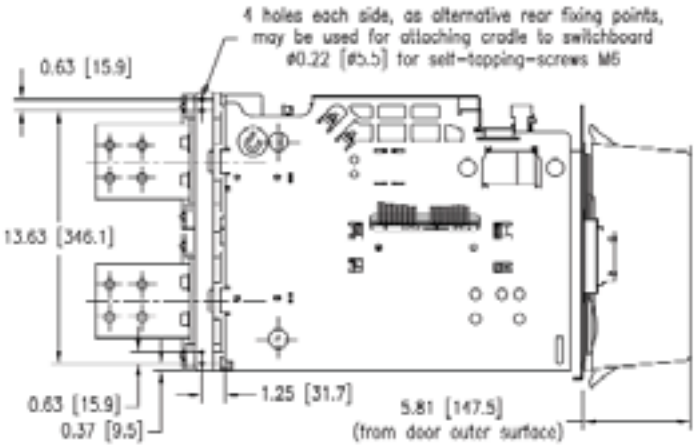


Door cut-out
(center escutcheon visible)



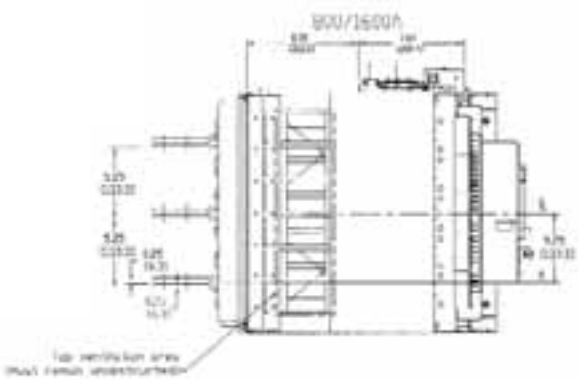
Frame Size I
UL 489 Draw-out Circuit breaker
Plexiglas Cover



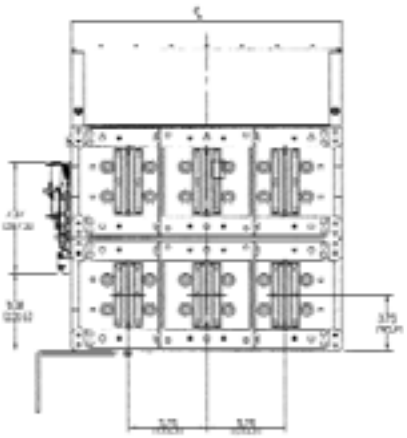


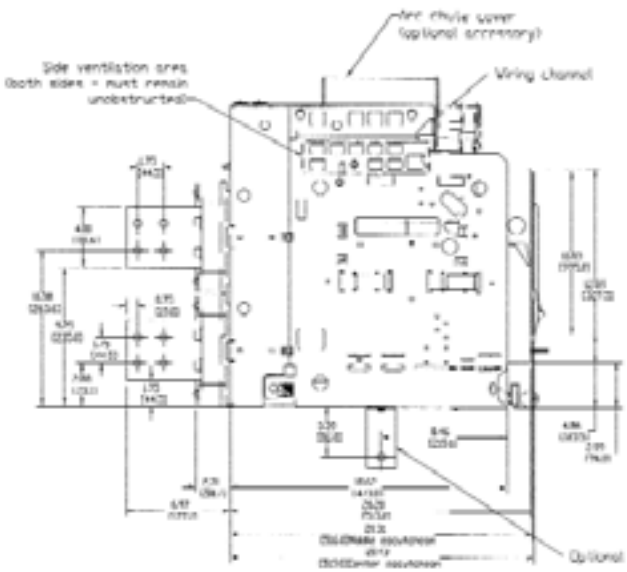
Outline Drawings

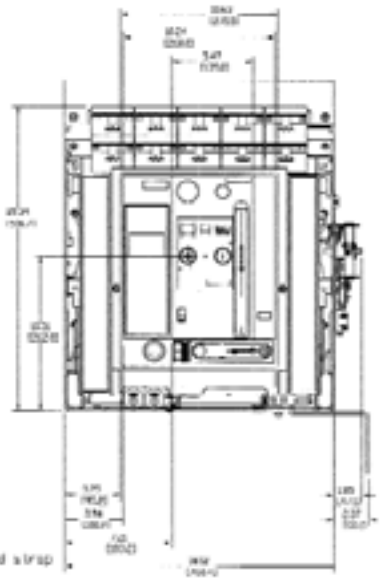
Frame Size II
800A,1600A, 2000A, 3200A
N, S, H and L-Class

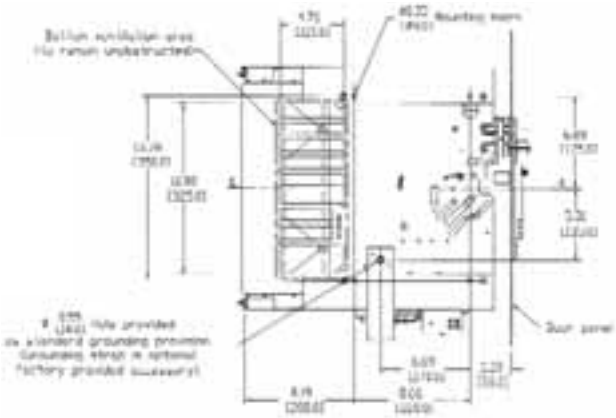


Note: The main bus stabs shown here are for the 800A and 1600A Frame Size II breakers.
See page 1/33 for other frame ratings and horizontal bus configuration.



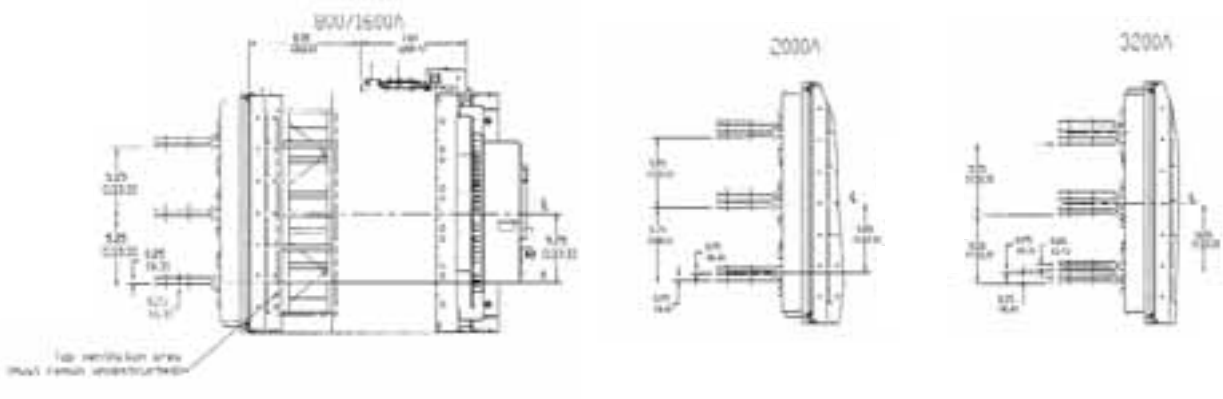




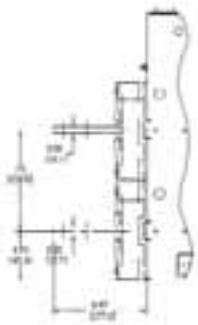


Frame Size II
800A, 1600A, 2000A, 3200A

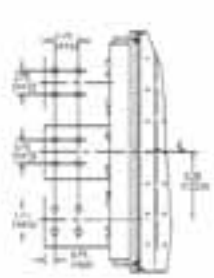
Vertical Main Bus Stabs



Horizontal Main Bus Stabs ①



Side View



Top View

Main bus stabs

Independant of installation type, vertical main bus stabs are provided as standard. Horizontal main bus stabs are available as an option, up to 2000A.

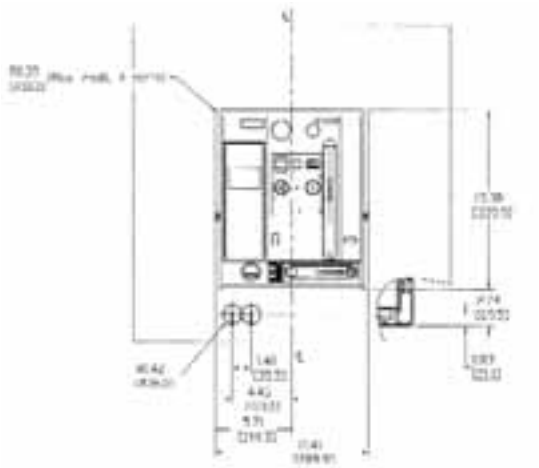
As standard, the main stabs are up to 5000A with vertical mounting.

① Horizontal Main Bus Connectors are only available for N, S, or H-Class breakers and can only be ordered as a factory installed Z-Parameter as part of an assembled guide frame catalog number order.

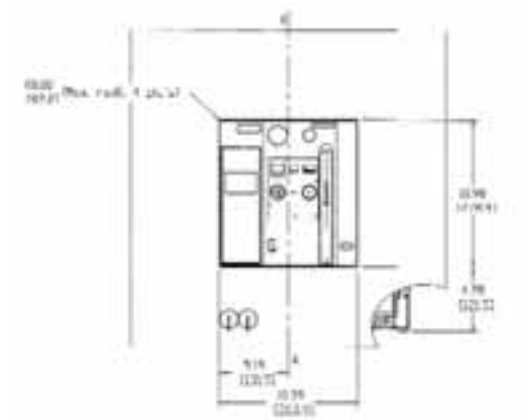
WL Circuit Breaker

Outline Drawings

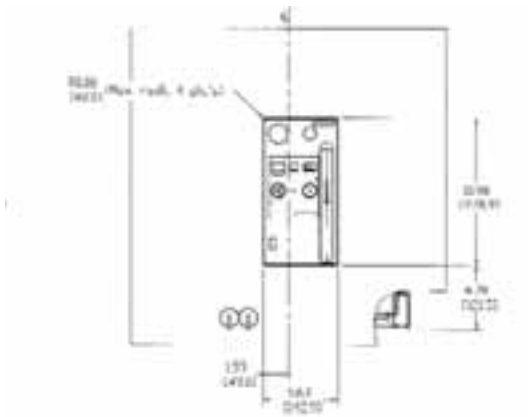
Frame Size II
800A, 1600A, 2000A, 3200A
N, S, H and L-Class



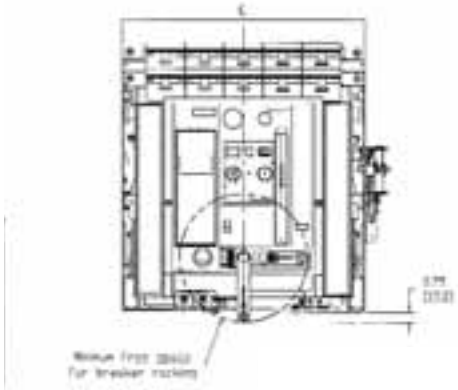
Door Cut-out with Edge Protector
(Cut-out dimensions shown are with the Edge Protector installed)

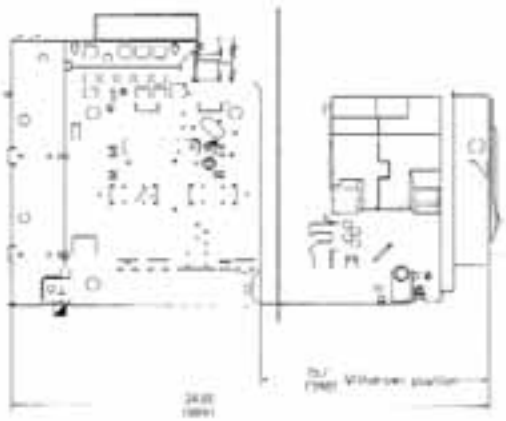


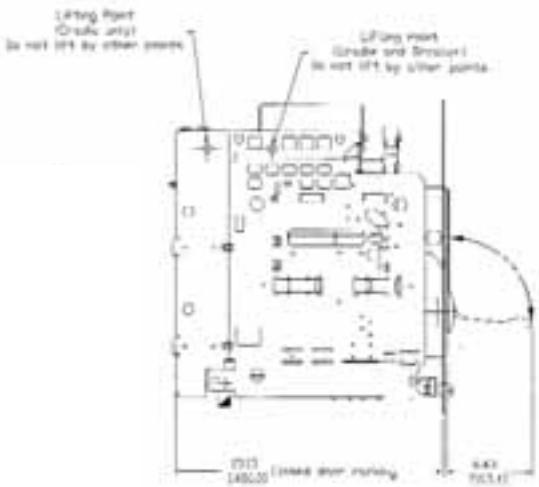
Door Cut-out with the Middle Escutacheon Visible



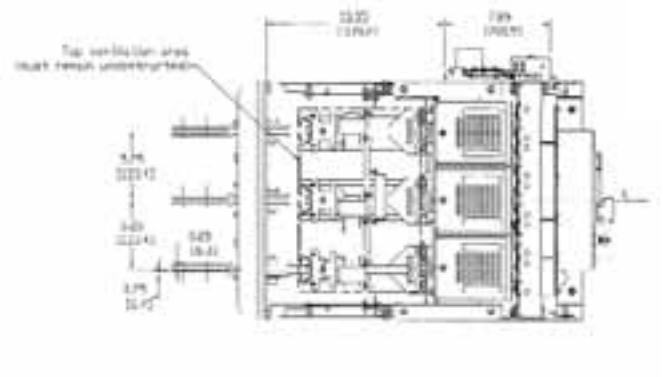
Minimal Door Cut-out
(Only the center escutacheon is visible)

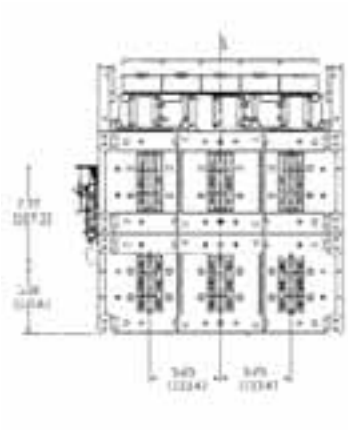


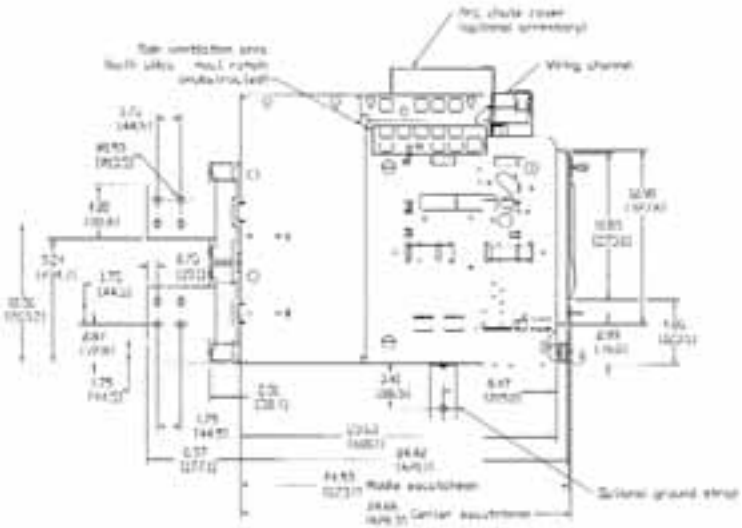


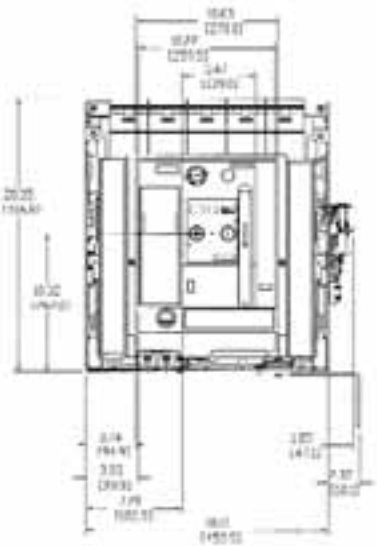


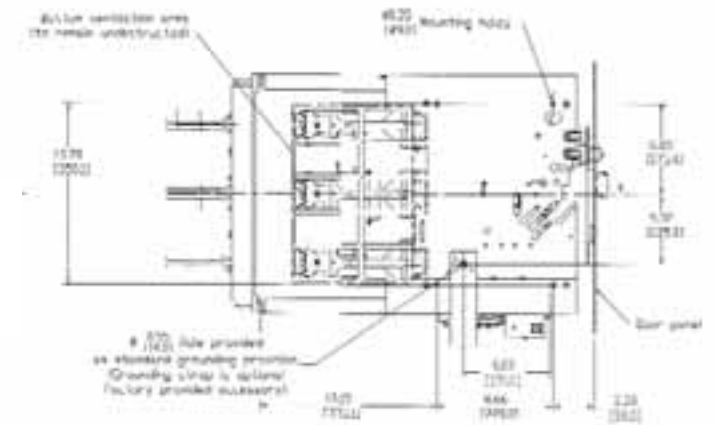
Frame Size II
800A, 1600A, 2000A
F-Class (with fuses)





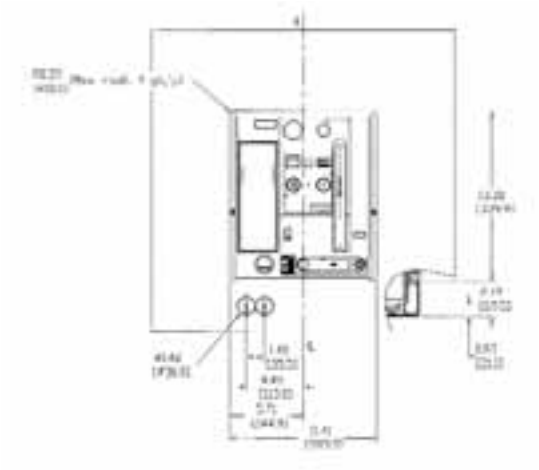




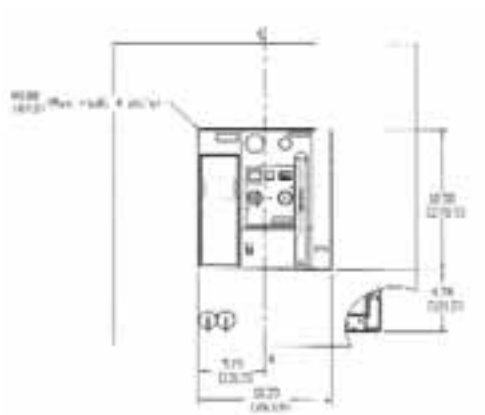


Outline Drawings

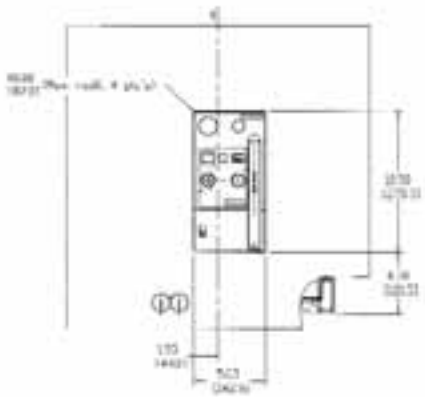
Frame Size II
800A, 1600A, 2000A
F-Class (with fuses)



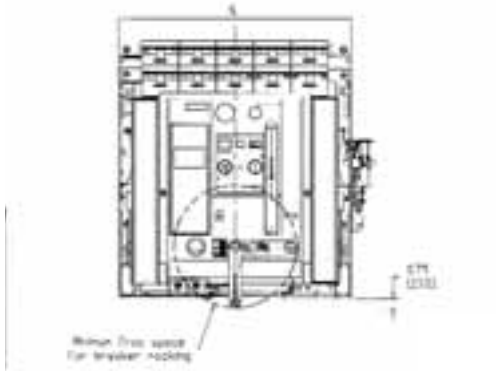
Door Cut-out with Edge Protector
(Cut-out dimensions shown are with the Edge Protector installed)

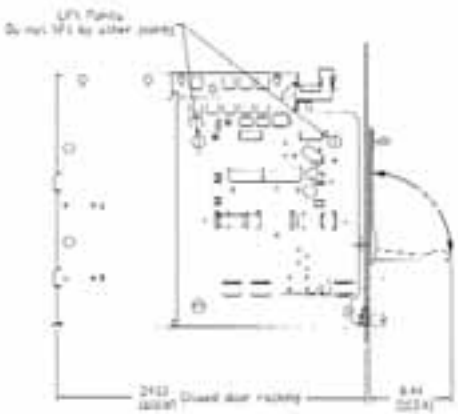


Door Cut-out with the Middle Escutcheon Visible

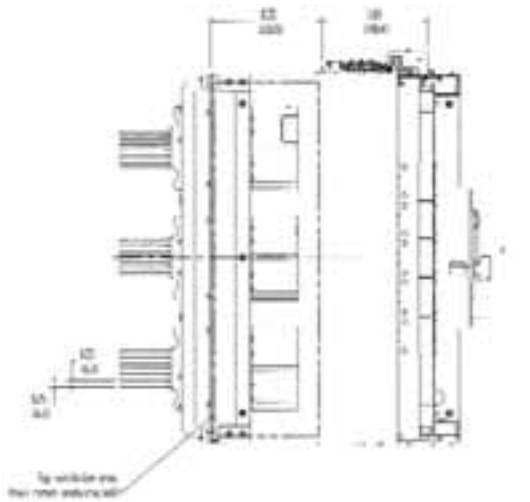


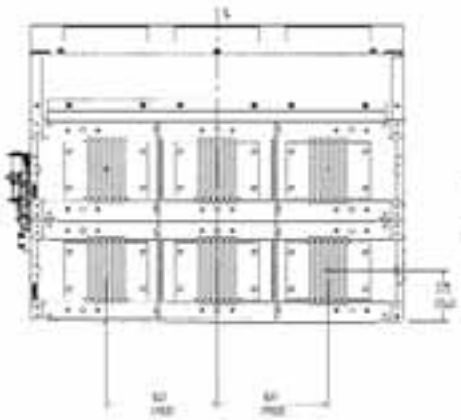
Minimal Door Cut-out
(Only the center escutcheon is visible)

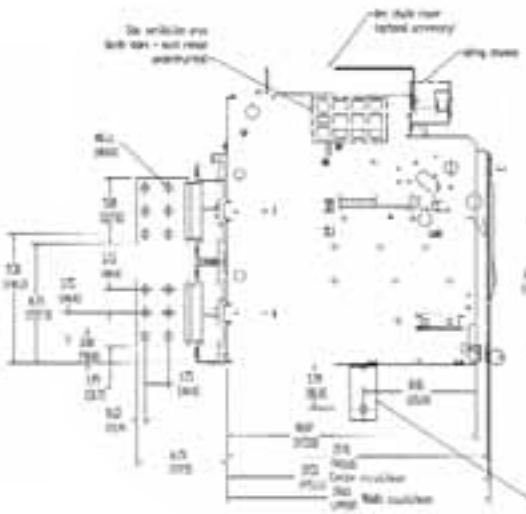


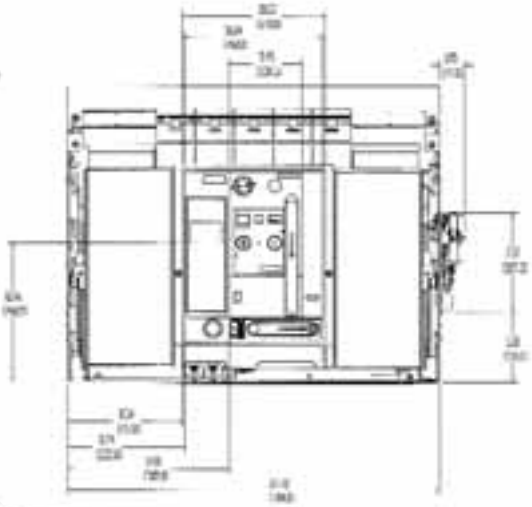


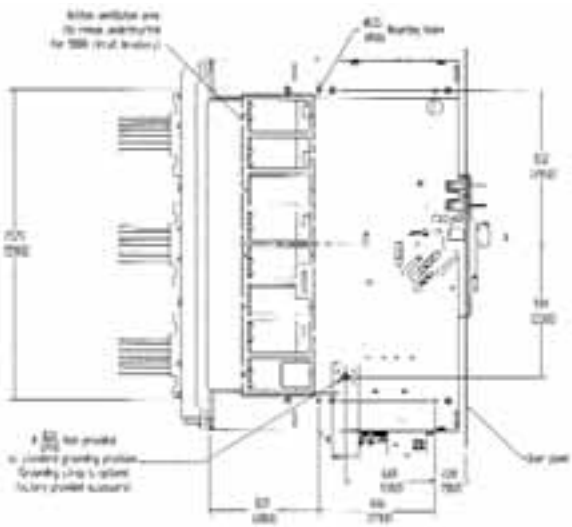
Frame Size III
3200A, 4000A, 5000A
H, L and M-Class







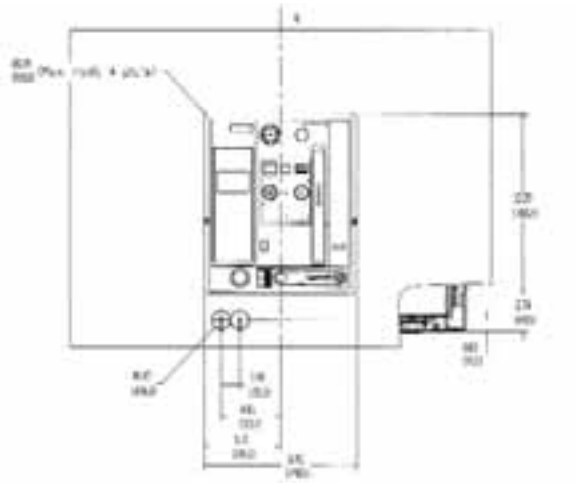




WL Circuit Breaker

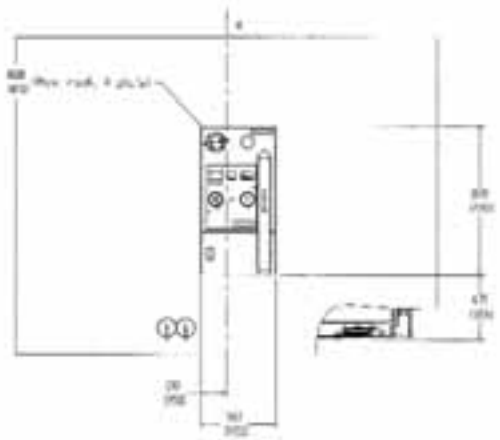
Outline Drawings

Frame Size III
3200A, 4000A, 5000A
H, L and M-Class

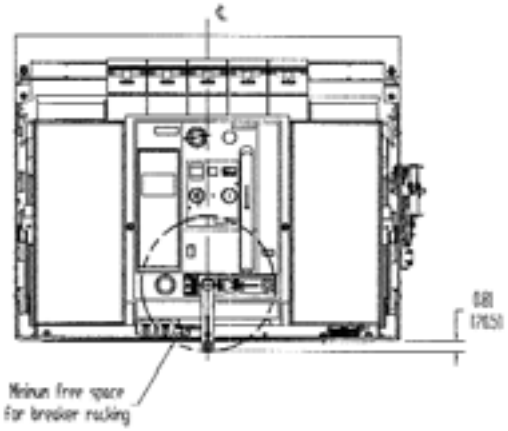


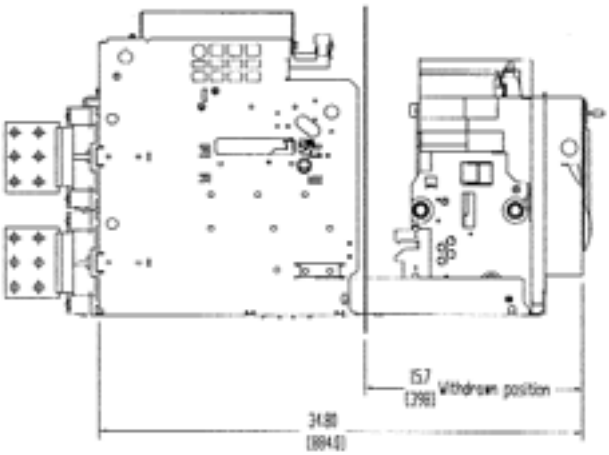
Door Cut-out with Edge Protector
(Cut-out dimensions shown are with the Edge Protector installed)

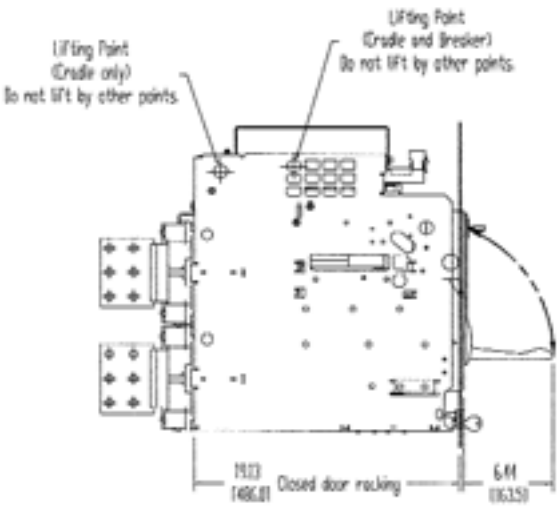
Door Cut-out with the Middle Escutcheon Visible



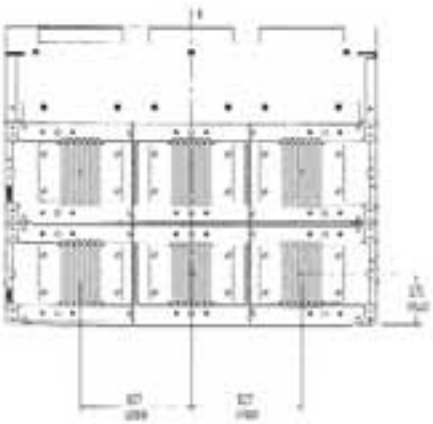
Minimal Door Cut-out
(Only the center escutcheon is visible)

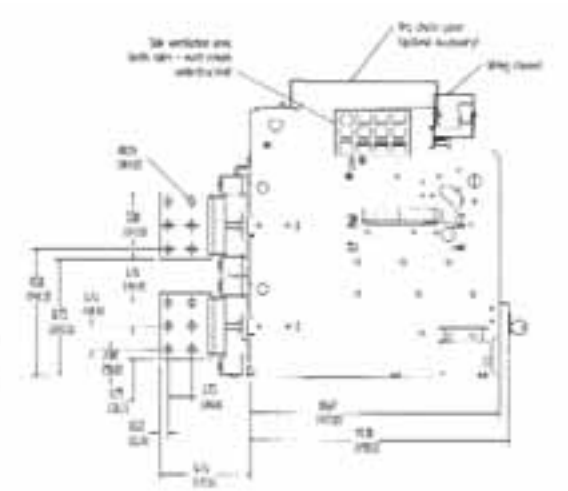


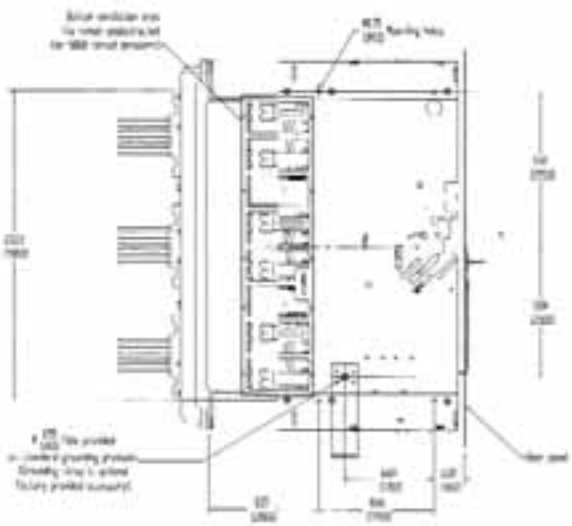




Frame Size III - Fuse Carriage and Fuse Carriage Guide Frame 3200A, 4000A, 5000A F-Class

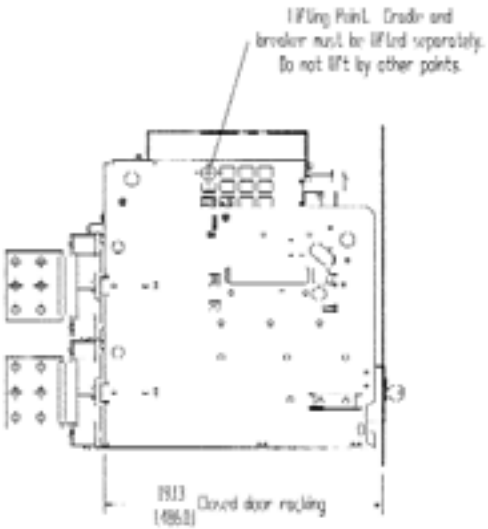


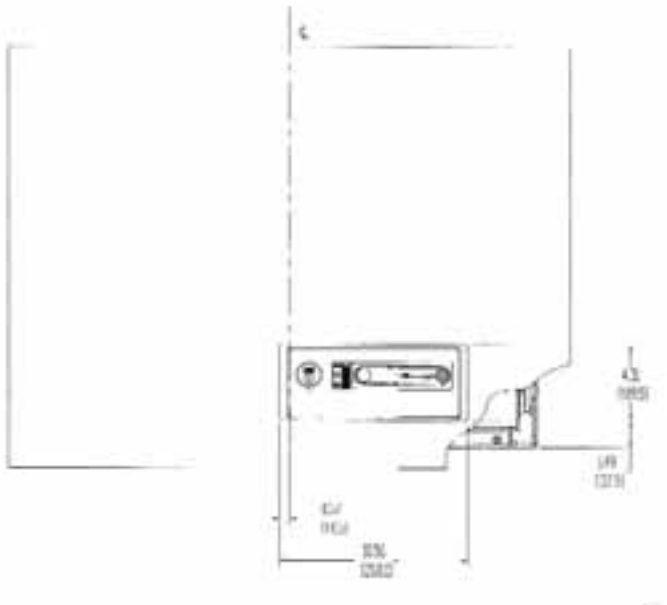




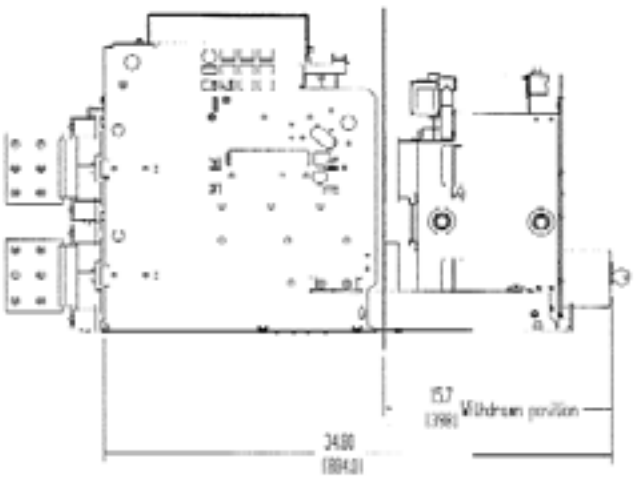
Outline Drawings

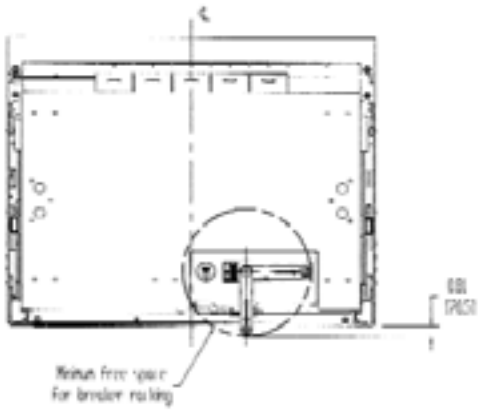
Frame Size III - Fuse Carriage and Fuse Carriage Guide Frame 3200A, 4000A, 5000A F-Class





Door Cut-out with Edge Protector





Communication-capable Circuit Breaker

2

Advantages through Communication	2/2
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Breaker Data Adapter	2/8
Supervisory Software WinPM.Net™	2/10

WL Communication-capable Circuit Breaker

Advantages through communication

Modern circuit breakers with integrated communications open up new opportunities to simplify commissioning, plant startup, remote configuration, diagnostics, testing, maintenance and power management.

This results in a range of savings and productivity improvements in industrial plants, buildings and infrastructure projects. The following describes the main advantages.

Start-up and Configuration
- Minimize plant downtimes for necessary expansions.
- Simple start-up test
- Simplified commissioning and start-up with good documentation options
- Fast and reliable local configuration via PROFIBUS, MODBUS or the Ethernet/Intranet/Internet with intelligent configuration software (see picture, top right)
- Communication enables faster and more reliable connection than conventional point-to-point wiring

Operator Control and Monitoring
- Increased transparency in power distribution through transmission of breaker status information, alarm signals and setpoints (e.g. overcurrent, overvoltage, phase unbalance –see picture, right)
- Fault management enables a fast response to critical events. With additional components, key messages (e.g. trip signals and diagnostics) can be transmitted by SMS* to the cell phone of plant personnel
- Option for the central readout of parameters and their automatic transmission to interchangeable circuit breakers minimizes fault liability and shortens downtimes
- Effective diagnostics management, by determination of the precise cause of a fault and recording of the phase current.
- Remote control of the circuit breaker enables both the manual and automatic switching on and off of plant equipment

Power Management
- Balancing demand peaks and valleys helps minimize energy costs. Remote breaker control enables efficient power management and demand-based load curtailment.
- Analysis of the archived power values (trending) enables creation of a power consumption profile. This can be the basis for future power procurement (see picture on the bottom right)
- The quality of the delivered power (power factor, harmonics, voltage disturbances) can be logged and documented.
  This enables effective power quality management.
- Cost allocation makes power consumption more transparent for commercial analysis. Energy costs can be clearly assigned and optimized.
- Information on plant capacity utilization and network quality serve as the basis for sensible plant expansions.
- Power costs can be divided among cost centers, which permits more accurate allocation of costs to individual production sectors

Maintenance and Service
- Standard and optional features provide information for maintenance (e.g. number of breaker operations, operating hours, contact erosion estimations) enables timely and calculated planning of necessary maintenance. When used in conjunction with a preventative maintenance program, reduces the risk of costly plant failures and permanent damage to sensitive plant equipment
- The central control of maintenance work and the ability to SMS* key information has the capability to significantly reduce maintenance and service costs.

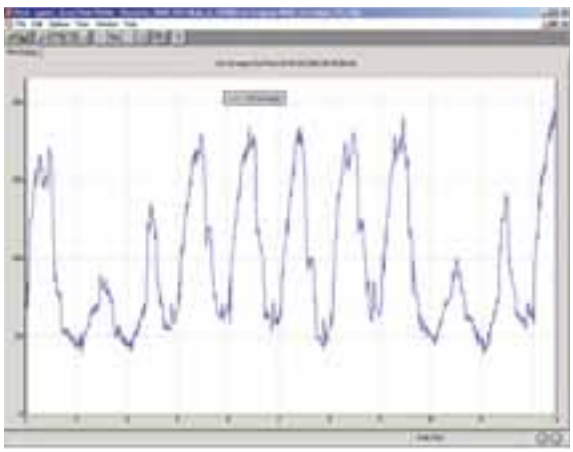
You can now communicate important fault and maintenance information to the cell phones of plant personnel using optional components and a PLC or computer.

*Short Message Service (SMS) is the transmission of short text messages to and from a mobile phone, fax machine, and/or IP address.

Simple startup and configuration of circuit breaker with web browser-based configuration software

Integration of the circuit-breaker in operator control and monitoring system produces transparency in power distribution

Circuit breakers with communication capability deliver data for a wide range of power management applications



WL Communication-capable Circuit Breaker

Connection Diagram

1. Breaker Data Adapter (BDA)
2. Browser-capable input and output device (e.g. notebook)
3. WL Circuit Breaker
4. COM16 MODBUS module or COM 15 PROFIBUS module
5. Breaker Status Sensor (BSS)
6. Electronic Trip Unit
7. Metering function or Metering function PLUS
8. Zone Selective Interlocking (ZSI) module
9. Digital output module with relay or optocoupler outputs
10. Digital output module with relay or optocoupler outputs, remotely configurable
11. Analog output module
12. Digital input module
13. WinPM.Net on PC
14. PLC (e.g. SIMATIC S7)
15. BDA Plus

Features

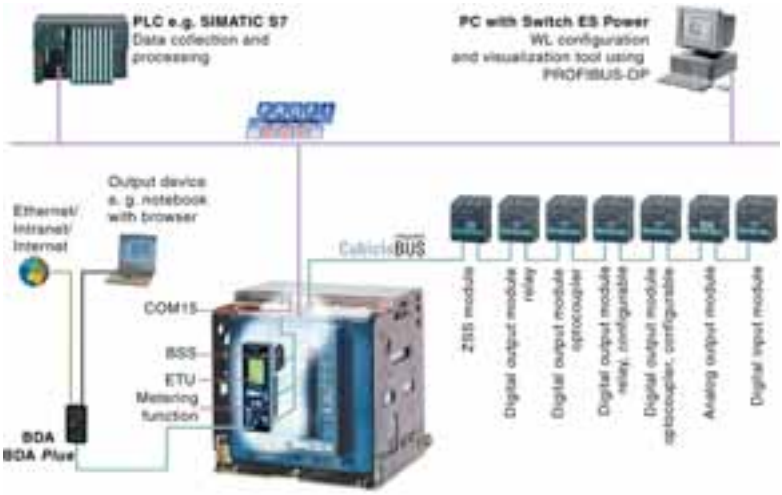
- Industry standard MODBUS or PROFIBUS communication available on all WL breakers from 200A to 5000A.
- The high modularity of the WL Circuit Breakers and accessories allows simple retrofitting of all communication components.
- The ability to connect additional input and output modules to the breaker-internal CubicleBUS of the WL opens up a range of opportunities to reduce secondary device count and wiring and to increase functionality implemented in switchgear.
- Innovative software products for local configuration, operation, monitoring and diagnostics of WL Circuit Breakers using MODBUS, PROFIBUS or via Ethernet/Intranet/Internet.
- Complete integration of WL Circuit Breakers in all Totally Integrated Power and Totally Integrated Automation Solutions.

WL Communication-capable Circuit Breaker

Communication Modules

General

The demands on power distribution with regard to communication capability, data transparency, flexibility and integration are constantly on the increase. In order to ensure that WL Circuit Breakers are able to fulfill these demands, WL Circuit Breakers have a consistent and modular communication architecture.



CubicleBUS forms the backbone of this architecture. CubicleBUS is a breaker-internal system bus that connects all intelligent components in the WL Circuit Breaker and enables easy connection of external components to the circuit breaker. **Cubicle**BUS is already incorporated and connected in all complete circuit breakers with ETU745, ETU748, ETU755, and ETU776 trip units.

The modular design of the system allows the retrofitting of communication functions at any time. This also allows trouble-free and local upgrading of a WL Circuit Breaker that does not yet have communication capability. All modules on the CubicleBUS directly access the available data of the circuit breaker, thus ensuring the fastest possible access to information and response to events. The connection of additional CubicleBUS modules to the CubicleBUS allows implementation of cost-effective solutions in the switchgear.

Breaker Status Sensor (BSS)

The switches that sense the status of the circuit breaker are mounted on or connected to the Breaker Status Sensor (BSS). The BSS provides the following data on the CubicleBUS:

- OPEN / CLOSE
- Trip Status
- Closing Spring Charged
- Ready to close
- Undervoltage release

In addition, the BSS contains a temperature sensor which measures and communicates the temperature in the circuit breaker.

If optional communications is specified, the BSS is already integrated in the circuit breaker and is connected and fully operational. As a retrofit part, the BSS is a simple Click & Place device that can be easily inserted in the correct position and connected to the preassembled cable.

Metering Function/ Metering Function PLUS

The integrated metering function can be installed on all ETU745, ETU748, ETU755, and ETU776 trip units and provides a viable alternative to external multi-function measuring instruments in many applications.

Metering Function can measure the following:
- Currents
- Voltages
- Power
- Energy
- Power Factor
- Frequency

All metered quantities are delivered as real time values with min/max recording. The metering module also contains additional alarm setpoint and protective relay functions (e.g. trip on overfrequency or undervoltage, and alarm on reverse power or over ampere demand).

The Metering Function PLUS has two additional wave form buffers and supports harmonic analysis. With the two independent wave form buffers, the current and voltage waveforms can be recorded, and allows detailed diagnostic triggering on events.

If the Metering Function / Metering Function *PLUS* is ordered together with the circuit breaker, it is already installed and ready for operation. As a retrofit part, the metering function is simply attached to the ETU and connected to the CubicleBUS.

COM16 MODBUS Module or COM15 PROFIBUS Module

The COM16 MODBUS module or COM15 PROFIBUS module enables direct connection of the circuit breaker to MODBUS and PROFIBUS systems.

With the COM15 or COM16, ETU parameters can be changed and the breaker can be open and closed remotely.

The position of the circuit breaker (connected, test, disconnected) is detected by switches on the COM15/16 and communicated.

A temperature sensor integrated in the COM15/16 measures and communicates the temperature around the circuit breaker. An integrated clock adds a time stamp to all events and min/max values and can be synchronized via communications. If communications is specified, the module (and the breaker status sensor) are already installed, connected and fully functional. As a retrofit part the COM15/16 simply needs to be snapped into position in the secondary disconnect block mounting rail and wired into the system.

WL Communication-capable Circuit Breaker

Data that can be Transmitted via MODBUS, PROFIBUS or the Breaker Data Adapter (BDA)

Transmittable Circuit Breaker Data	All WL Circuit Breakers with ETU745, ETU748, ETU755, ETU776 (**Cubicle**BUS Integrated)			
	BSS	BDA	BSS	COM16/15
Application Options				
Transmission of Circuit Breaker Data to MODBUS via COM16 or PROFIBUS via COM15 and Integration in Higher-level Visualization Systems Possible e.g. Power Management Systems, such as WinPM.Net, etc.	-		●	
Transmission of Circuit Breaker Data and Software (i.e. HTML Pages incl. Data) to a Local Output Device or Remotely Controlled via the Ethernet/Intranet/Internet (No Integration Option in Higher-level Visualization Systems) e.g. for monitoring, diagnostics, maintenance and configuration of individual circuit breakers	●		-	
Use of the Functionality of all CubicleBUS **Modules** e.g. programming of the configurable digital output modules, status interrogation of digital input modules, diagnostics, testing	●		●	
Communicated Circuit Breaker Data when No Metering Function is Installed				
Device Identification: Communication address, circuit breaker order no., circuit breaker characteristic data (Size, no. of poles, rated current module etc.), ID numbers, trip unit type, free text for equipment identifier and comments	● ●①		● ●	
Breaker Status: Open/closed signal, spring store mechanism, tripped, ready-to-close, Circuit breaker position (connected, test, disconnected and removed) for drawout circuit breakers, MODBUS / PROFIBUS write protection on/off, free user input	● ●① ●①		● ● ●	
Control Commands Open/closed circuit breakers, enable/disable free user output Reset trip signal Clear event and trip log Reset the min/max measured values, reset maintenance information	●① ● ●① ●		● ● ● ●	
History Readout of event log, readout of trip log	●①		●	
Maintenance Information Number of L, S, I trips and total trips, estimate of contact erosion Number of switch operations under load and total operations, operating hours	● ●①		● ●	
Event Signaling Trip signal with identification of the current causing the trip Alarm signaling (e.g. overload) with incoming / outgoing information All named event signaling with time stamp	● ● -		● ● ●	
Configuration of Protective Functions Readout of protective function parameters Change the settings of the protective function parameters through communication Parameter set changeover option (set A to set B)	● ●② ●②		● ●② ●②	
Metered Values Phase currents, each with min/max value Temperature in the circuit breaker with min/max value Temperature in the cubicle with min/max value All named measured values with time stamp	● ● - -		● ● ● ●	
Additional Circuit Breaker Data Transmitted when the Metering Function is Installed	Metering Function		Metering Function *PLUS*	
Additional Event Signaling Setpoint signaling (e.g. over / underfrequency, over / undervoltage)	●		●	
Configuration of the Extended Protective Functions and Setpoints: Readout parameters of the extended protective functions Change the settings of the extended protective functions Readout and set setpoint values	● ● ●		● ● ●	
Additional Metered Values Voltages, power, energy, power factor, frequency each with min/max value Harmonic analysis Recording of currents and voltages by triggered events in the waveform buffer	● - -		● ● ●	

① Only possible in connection with the COM16 / COM15 module (MODBUS or PROFIBUS connection not required).
② Only possible with ETU755 and ETU776.

I/O CubicleBUS Modules

Digital Output Module with Rotary Switch

6 binary signals based on the breaker status (causes of trip and warnings) can be output using this module to external signaling devices or used to control other specific plant equipment.

Digital output modules are available with or without rotary switches. With rotary switch modules, you can choose between two signal blocks each with 6 defined assignments and an additional response delay.

All digital output modules are available either as an optocoupler output (NO contact, 150 mA) or a relay output version (Form C, up to12 A). Two modules of this type may be connected to a WL Circuit Breaker.

Digital Output Module, Configurable

The configurable output module is available for more sophisticated applications.

With this module, many protective or setpoint events can be configured to actuate one of the six available outputs. Three of the outputs can be assigned up to six events in a logical-OR operation. The module can be configured either with the WL configuration software, BDA/BDA Plus or via WinPM.Net.

As with the output modules with rotary switch, an optocoupler and a relay version are available. One module of this type can be connected to a WL Circuit Breaker.

Analog Output Module

The analog output module can be used to output the following measured values of the circuit breaker to analog display devices on the cubicle door:

- amps
- volts
- power
- power factor
- average, Hz, volts, power

Four 4-20-mA/0-10V interfaces are available for this purpose. The measured values to be output are selected with a rotary switch. This analog output module means there is no need for additional transformers requiring conventional installation and wiring in the main bus. Two modules of this type may be connected to a WL Circuit Breaker.

Digital Input Module

The digital input module supports connection of 6 additional binary signals (24V DC) within the circuit breaker system. This enables the status of a switch or a cubicle door to be communicated.

With the digital input module on the CubicleBUS, it is also possible to automatically switch the two different protective parameter sets held in the ETU755 and ETU776 trip units very quickly. This allows, the automatic changing of the parameters of a tie breaker in the event of a power supply failure.

One module each of this type can be implemented for the input of the six digital signals and for the automatic switchover of the parameters.

ZSI Module

If WL Circuit Breakers are arranged in several levels and minimal delays are desired, it is advisable to use the ZSI module.

The circuit breakers are interconnected by these modules. In the event of a short circuit, all circuit breakers communicate to determine and isolate the exact short circuit location. Thus, only the closest upstream circuit breaker will be opened.

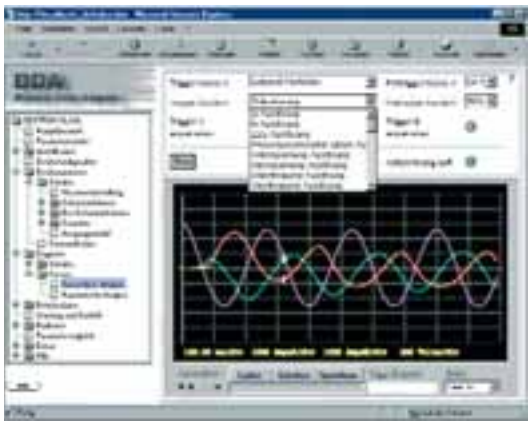
Breaker Data Adapter

Breaker Data Adapter (BDA)

Breaker Data Adapter Plus (BDA Plus)

Breaker Data Adapter – device parameters

Breaker Data Adapter – diagnostics



Breaker Data Adapter (BDA) and Breaker Data Adapter Plus (BDA Plus) ①

The BDA is the first circuit breaker configuration device based on an integrated web server for the configuration, operation and monitoring of WL Circuit Breakers.

Since the configuration software and web pages are embedded in the BDA, the full communications functionality of the WL breaker can be used with a web browser (running on a laptop or PC) to access the user interface embedded in the BDA. With the BDA connected to the breaker via CubicleBUS, the web server accesses the data in the breaker and puts it into a web-based format for display in the browser.

The BDA comes equipped with a magnet that mounts on the rear of the device that allows it to be temporarily attached to a metal surface such as a cubicle door. This makes the BDA ideally suited for use as a portable "online" configuration & diagnostic tool. In addition, the BDA can also be used "offline" to create parameter files that can be downloaded into the ETU. The BDA includes a parameter documentation function making it simple to print a listing of all WL system parameters.

The BDA Plus has all the functions of the BDA as well as having a 10-Base-T Ethernet interface for direct connection to a local-area network. Depending on the local network configuration, the BDA allows access to the all WL Breaker parameters through a plant or corporate intranet. With a correctly configured firewall, the BDA can be accessed from anywhere on Earth via the Internet. This opens up virtually unlimited geographic options for the remote configuration and diagnostics of WL Circuit Breakers. The BDA comes equipped with DIN-rail mounting hardware for more permanent installations.

The ways of connecting and using the BDA are detailed below.

BDA in Offline Mode (or BDA Plus)

In offline mode, the BDA is connected to the laptop PC via the RS232 connection or via a "crossover" ethernet cable. In this mode, all the WL Breaker parameters can be set and stored in files on the PC for later download into the circuit breaker.

Since no power is supplied through the COM interface of the notebook, the BDA needs to be connected to an external power supply (24V DC).

① PC requirements: Microsoft® Internet Explorer version 5.0 or 6.0 with Java.

®Microsoft is a registered trademark of the Microsoft Corporation

Breaker Data Adapter

BDA as Local WL Circuit Breaker Interface (or BDA Plus)

In this mode the BDA is used as the local interface to the WL Breaker by temporarily connecting it directly to the ETU.

With a single BDA you can configure all WL Circuit Breakers in a system one after another and store the configuration data on a notebook for further processing. The BDA can also be used to read out all diagnostic data of the circuit breaker.

An additional class 2, 24V DC power supply is necessary to power the BDA should the WL Breaker not be supplied with auxiliary power (24V DC supply on the CubicleBUS).

BDA Plus as Interface to the Ethernet

With the BDA Plus, it is possible to access the circuit breaker data over a 10-Base T Ethernet connection. Circuit breaker data is delivered to a PC formatted in dynamic HTML web pages. If it is desired to display data from more than one breaker is a lineup of switchgear "24/7" over a local area network or Intranet, a BDA Plus is required for each WL Breaker, and each BDA Plus needs its own unique IP address. Each individual breaker can be accessed by entering the BDA-specific IP address in the address line of the browser. Settings via the BDA and BDA Plus are password protected to protect against unauthorized access.

When placed behind a correctly configured firewall, the BDA can be accessed from anywhere on Earth via the Internet.

Supervisory Software WinPM.net

General

WinPM.Net web-enabled software is a complete energy information management solution for your business allowing you to process, analyze, store and share energy usage and power quality data across your entire enterprise. It offers control capabilities, comprehensive power quality and reliability analysis and can help you reduce energy-related costs. WinPM.Net allows you to manage intelligent metering and protective devices, analyze data, and decide on new courses of action. Its cutting-edge flexibility and compatibility means you can add one piece at a time, at your own pace, while still maintaining your original investments. Interface to your existing systems through industry-standard protocols and add components as needed. You can access information from any desktop workstation, locally or around the world.

Applications Summary

Power Quality and Reliability Analysis
Pinpoint the sources of transients, harmonics, or sags –whether external or internal to your facility – and decide on the best corrective actions. By monitoring circuits 24 hours a day, you can develop strategies to avoid interruptions.

Cost Allocation and Sub-billing
Track energy-related costs by building, feeder, or tool. Match virtually any billing structure and use comprehensive multi-year scheduling and time-of-use activity profiles.

Load Studies and Asset Management
Trend and track power usage data to take full advantage of your electrical distribution system capacity and avoid over-design. Create usage profiles so you can distribute loads and avoid demand peaks.

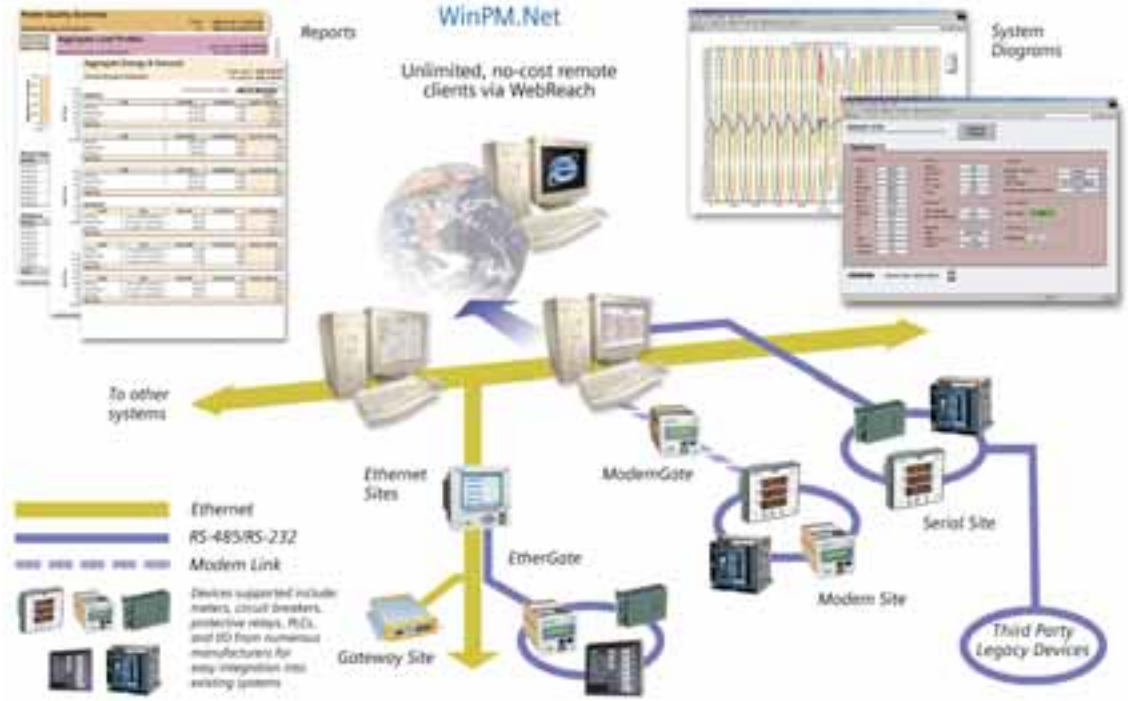
Demand and Power Factor Control
Eliminate penalties through automated power factor correction, load shedding, or peak shaving.

Equipment Monitoring and Control
Meter all your utilities including gas, steam, air and water. Set up alarms for pending problems, pre-alarm on impending or imminent conditions. Interface with other energy management and SCADA systems through multiple communication channels and protocols.

Preventive Maintenance
Base your maintenance schedule on actual operating history.

WinPM.Net –customizable graphics screen depicting generator status

One-Line diagrams are easy to create for meaningful visualization of system and component status and control



Notes

WL Circuit Breaker

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Standards and Certificates 3/2

Standards and Certificates

WL Low Voltage Power Circuit Breakers are designed to comply with the following standards:

ANSI / IEEE: C37.13, C37.16/ 16A, C37.17, C37.50, C37.100, C37.90, C37.90.1, C37.90.2

ANSI / UL: 1066

Note: In this document, "ANSI certified" means the product meets the requirements of UL1066 and ANSI C37.

WL Insulated Case Circuit Breakers are designed to comply with the following standards:

The circuit breaker frame, trip unit, and guide frame are in conforminty with the standards:

UL 489
CSA C22.2 No. 5-02
NMX-J-266-ANCE-2002

The accessories are in conformity with the standards:

UL 489
NMX-J-266-ANCE-2002

The molded case switches are in conformity with the standards:

UL 489
NMX-J-266-ANCE-2002

Circuit breakers should be installed per the National Electric Code® (NEC®), NFPA 70 and/or other local installation codes.

Contact your local Siemens Sales Office for more information about applicable standards and certificates.

NEC and National Electric Code are registered trademarks of the National Fire Protection Association.

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