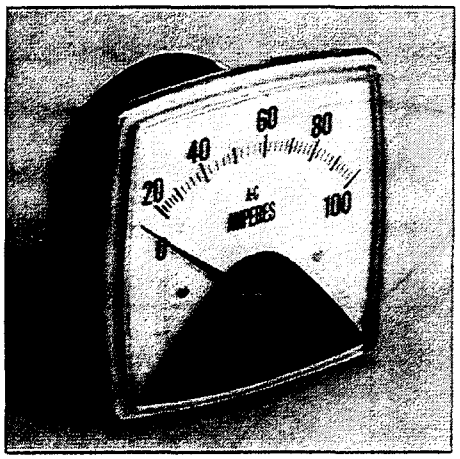
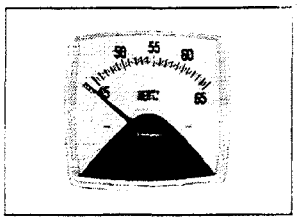
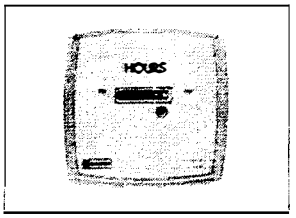
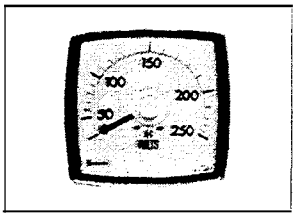
CROMPTON PANEL METERS TYPE FIESTA

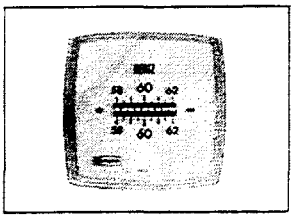
Model 016











Construction

The case and viewing window are molded using U.L. Recognized thermo-plastic. The crystal clear Acrylic window is contoured to minimize external light reflections, ensuring good visibility from wide viewing angles. An 'O' ring sealed, front adjustable 360 degree zero corrector is provided on all pointer type meters. Pointers are of the spear type with black printed white dial plates as standard.

Additionally the dust and weather proof integrity of the meter is maintained by a gasket between the window and the case flange, this being fixed by a swagged silver (or black on request) aluminum bezel. The gasket is seen around the front edge of the meter and can be colored for function coding (white is standard, red, blue or green optional). To complete the meter to panel seal, an optional panel gasket is available. The front lower mask is black as standard (white optional), and can be printed with custom logo or special function nomencleature.

Enclosure Code

IP55 (IEC 529)

System Frequencies

AC Ammeters	50, 60 or 400Hz
AC Voltmeters	50, 60 or 400Hz
AC Wattmeters	50 or 60Hz
Elapsed Time Meters	50, 60 or 400Hz

System Voltages

Pointer Type Freq	100/125, 200/250 or 480V
Vib. Reed Type Freq	100/125, 200/250 or 480V
Elapsed Time	100/125, 200/250 or 480V

Input Ratings Available (Self-Contained)

AC Ammeters (iron vane)	100mA to 150A 30A max on 250 deg meters
AC Voltmeters (iron vane)	10 to 800V
AC Ammeters (rectifier)	100uA to 1A
AC Voltmeters (rectifier)	10 to 600V
DC Ammeters (moving coil)	50uA to 50A
DC Voltmeters (moving coil)	50mV to 800V
AC Wattmeter (1 phase)	120V 5A (other ratings on request)
Transducer Indicators	To suit transducer output i.e. 0/1mA 1/5V 4/20mA

Scale Angle

Short scale pointer types	AC	102 degrees
	DC	96 degrees
Long scale pointer types	AC	250 degrees
	DC	250 degrees

Scale Length

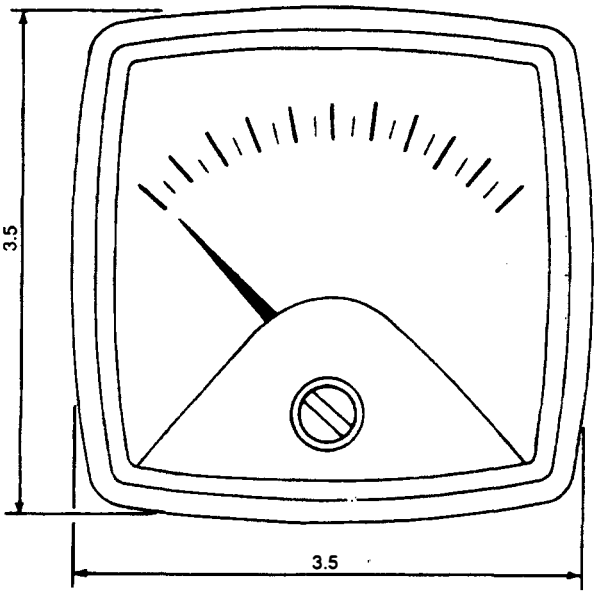
Short scale pointer types	AC	3" (76mm)
	DC	2.8" (72mm)
Long Scale pointer types	AC	5" (125mm)
	DC	5" (125mm)

A
V
Hz
W
Hrs

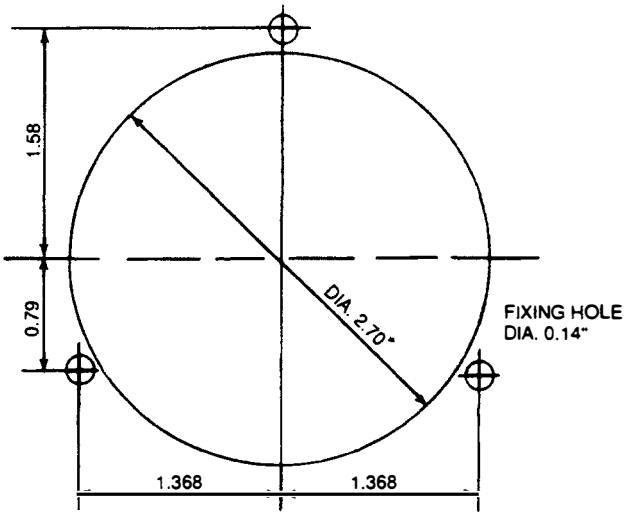
Crompton INSTRUMENTS

Fiesta

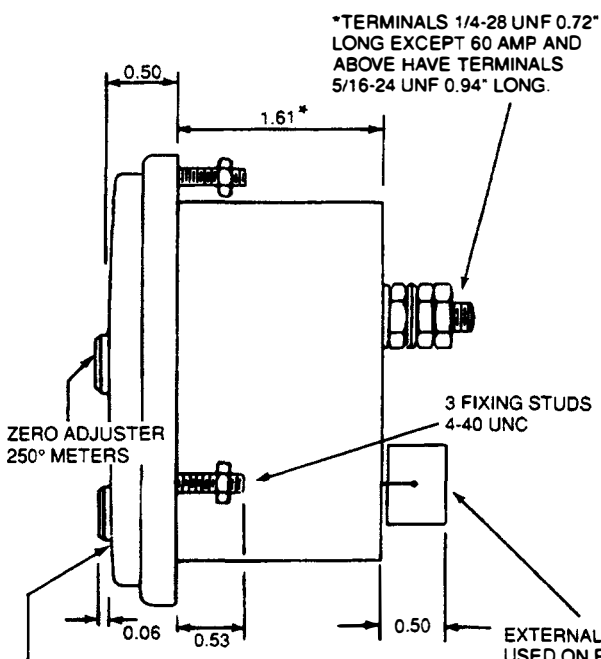
PANEL METERS



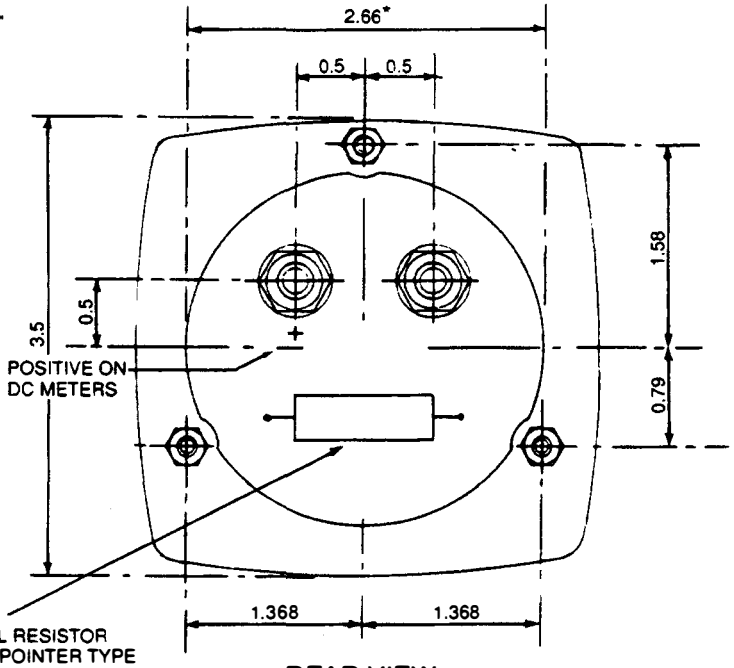
FRONT VIEW



CUT OUT DIMENSIONS



SIDE VIEW



REAR VIEW

EXTERNAL RESISTOR USED ON POINTER TYPE FREQUENCY METERS AND 250° AC VOLTMETERS ONLY.

*Reed Frequency Meters and 250° Meters–case dia. 2.79". Cut-out dia. 2.81".

Key To Catalog Numbering System

016 **01** **A** **A** **LS** **PZ**

Model

016—Fiesta
060—Challenger
170—Edgewise
210—Celebrity
220—Clearvu
230—Amerint
549—MiniMeters

Function

A—Ammeter
B—Rectified Ammeter
C—Center Zero Ammeter
N—Center Zero Voltmeter
O—1 ph Watts
R—Suppressed Zero Ammeter
S—Frequency Meter
V—Voltmeter
W—Rectified Volt
X—VU

Measuring Input

LS—5
PZ—150
RX—300
FA—1 Milliamp
** —Special

Movement Code

01—Short Scale DC
02—Short Scale AC
03—Long Scale AC
05—Long Scale DC
15—Elapsed Time
19—Vibrating Reed
21—Self Contained Watts
41—Pointer Frequency Meter

National Standard

A—ANSI C39.1
B—BS 89-IEC 51
G—DIN
Y—ANSI C16.5

Scale

LS—0/5
PZ—0/150
RX—0/300
FA—0/1 Milliamp
** —Special

The above is intended as an explanation to the Crompton catalog numbering system, and should be used for guidance only. For full definitions and catalog numbers see price sheets.

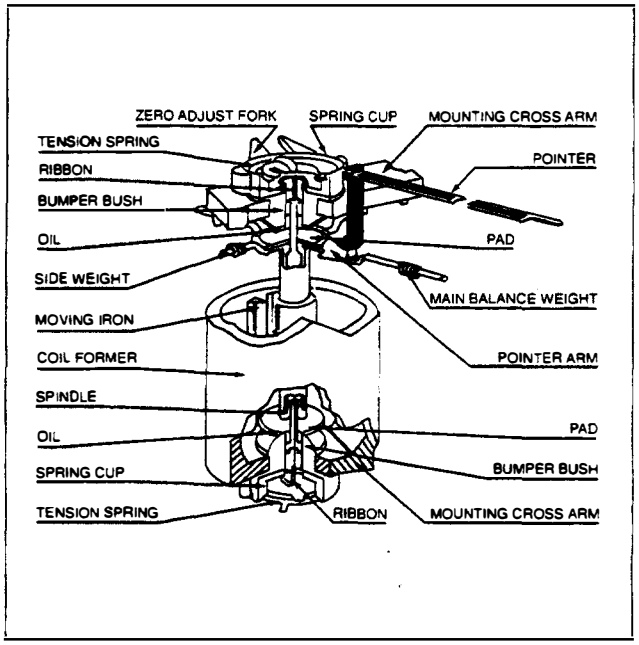
U.L. Recognized Models

The majority of the devices detailed in this brochure have been fully tested by Underwriters Laboratories and as such are "Recognized" components. As part of that Recognition and it's maintenance Crompton Instruments Inc is periodically inspected by Underwriters Laboratories Inspectors, both at the manufacturing plant's and the Sales and Service Center's. This is a testamentary to the commitment that Crompton has in producing, not only fine quality but also completely safe and reliable products.

For a complete guide to those products which are Recognized, see the relevant price sheets for each model, they will be indicated by the U.L. symbol or see U.L. file number E87815 (N).

Movement Systems

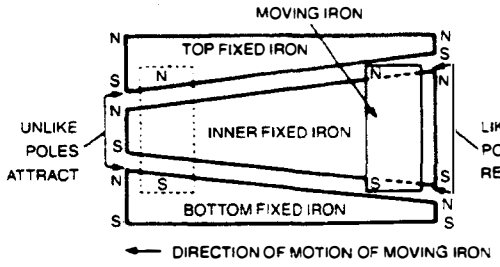
AC Current and Voltage



Iron Vane

The most widely used movement system is of the Iron Vane type, sometimes referred to as moving iron. This utilizes the principles of attraction and repulsion created by the magnetic field around a fixed coil and the sympathetic fields induced in specially shaped iron's within that field. The polarities of the magnetic field then provide the rotation of the moving element, consisting of a central spindle with the moving iron and the index pointer attached. This system is renowned for it's basic simplicity and rugged construction.

The Iron Vane system has the added advantage of indicating true RMS values and is virtually insensitive to system waveform distortion. The printed scales are in a non-linear form with some compression of the calibrated divisions at each end of the range. This gives the advantage of an expanded scale over the normal reading area, typically between 20 and 80% of the overall value.

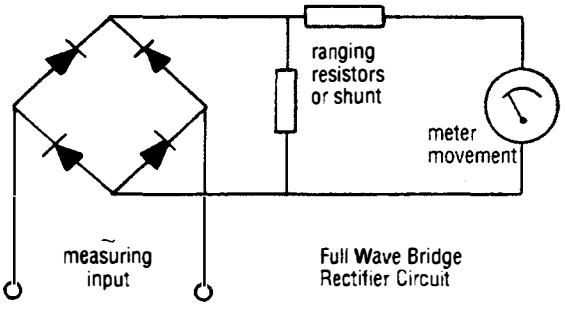


Principle of the long-scale iron vane movement.

Rectified Moving Coil

This system of AC measurement utilizes a DC moving coil movement with the input signal ranged through a full wave rectifier bridge. This allows a more sensitive measurement to be made, down to 100 microamperes, but is restricted on the maximum by the rating of the rectifier, typically 1 ampere. Conversely the minmum volt measurement range is limited to 10 volts due to the minimum voltage required to trigger the rectifier. However, the operating frequency range is far greater than for iron vane systems, 25Hz to 3kHz.

Crompton rectified moving coil meter's sense average values and are calibrated to indicate true RMS. Non-sinusoidal waveforms will introduce reading errors. Scales are linear, except on low range voltmeters, where the low end of the range will be influenced by the rectifier triggering voltage.



Movement Systems

DC Current and Voltage (Moving Coil)

Crompton Instruments uses d'Arsonval type permanent magnet movements in all DC applications. The designs of these mechanisms make full use of the latest techniques and materials available today. Development of these designs has resulted in a series of robust and highly stable meter movements. This is enhanced by the rugged Taut Band suspension and Crompton Fluid Damping system.

Pointer Type Frequency Meters

A compact self contained device with a solid state frequency to DC converter circuit mounted within the meter enclosure. Frequency indication is by way of a DC moving coil movement.

A full range of frequency spans is available, covering the normal 50, 60 and 400Hz nominals. These can also be produced to operate on any of the popular system voltages of 120, 240 or 480 volts. The voltage ranging resistor is mounted externally, making it possible to field range, if required, by simply changing resistor value (consult factory for value and rating).

Vibrating Reed Frequency Meters

A less expensive method of frequency indication, achieved by use of a coil wound and ranged to suit the system voltage, being mounted between iron pole-pieces. The magnetic field created when the coil is energized influences the hardened steel reeds that are adjacent to the coil. The resonant frequency of the reeds are individually tuned to vibrate at the corresponding frequency and amplitude of the measured system.

Elapsed Time Meters

All Crompton ETM's (except model 549) use a continually running cyclometer register, a "running" indicator is displayed.

Maximum accumulation is 99999.99 hours after which the register re-cycles to 0. The reading is non-resetable.

Model 549 uses a time base solid state circuit to drive an impulse counter to a maximum accumulation of 99999.99 hours. The reading re-cycles to 0 and is non-resetable.

Single Phase Wattmeters (Self Contained)

A completely self contained device incorporating the "time division multiplication" method of measurement direct from current and potential transformer secondaries. RMS indication is via a DC d'Arsonval movement, scaled to suit the measured system. This meter is for use on 1 phase 2 wire systems, using L_1 to L_2 voltage and L_1 current. Scale values should be rounded off to give a convenient figured range and calculated from primary values.

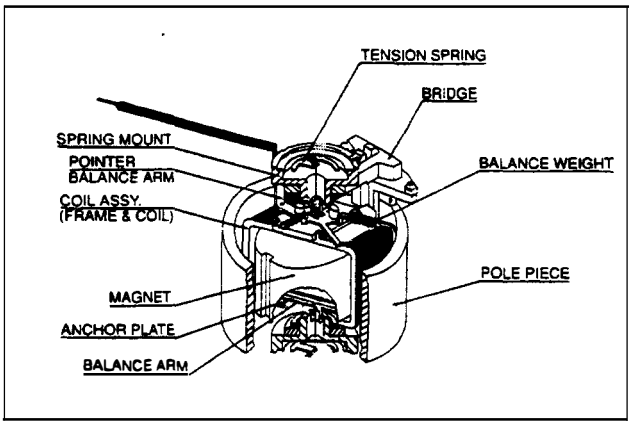
i.e. Amps × Volts = Watts
600 × 120 = 72,000
round off to 70 kW

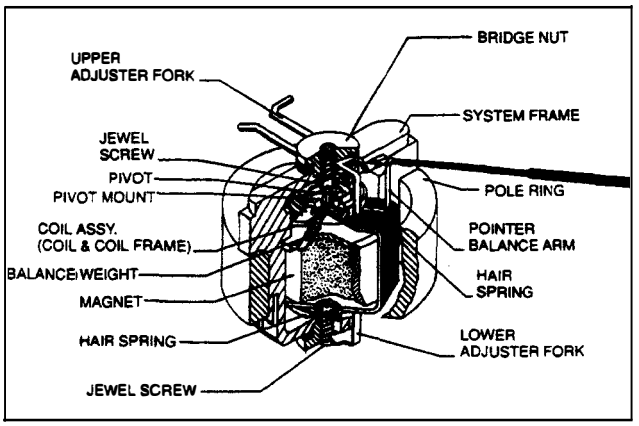
World Patents

Crompton Instruments incorporate one or more of the following patents:

U.S.A.: 3,439,273; 3,590,375; 845032
Canada: 792,902; 846,338
Great Britain: 1,124,667; 1,295,935
Germany: 1,591,864; P1,591,864,6; P274796.8; G7732975.0
Australia: 415, 321

Suspension Systems





Taut Band

The Crompton Taut Band suspension system has been developed over many years.The current system has been included in the design of most Crompton movements, both Iron Vane and d'Arsonval types, for at least the last decade and is currently being employed in adverse situations, both industrial and military throughout the world.

The Taut Band is produced from a high quality alloy of platinum and nickel, giving it high strength and durability. The quality of the Taut Band, which is "memory free", also ensures that the movement maintains it's accuracy over the entire life of the meter. A unique method of limit stops is included in the design to prevent the over stressing of the Taut Band, when under shock condition. This feature is then extended and utilized to provide an exclusive method of fluid damping.

Fluid Damping

The Crompton Fluid Damping System has been a major development in providing today's movements with a consistent, controllable method of damping. Giving control of response times and of overshoot. Both of which have always presented engineers with design problems when using eddy current systems, vanes and magnets, air vanes, coil formers or any other of the cumbersome systems previously used.

Crompton uses a temperature stable fluid, of specific viscosity, injected in precise amounts into specially contoured "pads" at each end of the moving element. The surface tension of the fluid gives the movement damping through surface shear. This also gives the added bonus of a cushion at each end of the moving element, which provides added protection when under shock or vibration conditions.

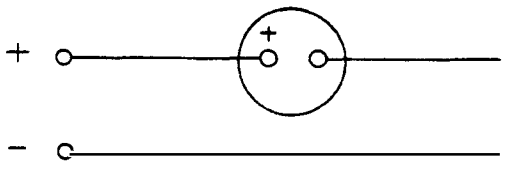
Pivot and Jewel

A large number of the Crompton range of panel meters are available with either Taut Band suspension systems, as described above, or alternatively they can be supplied with the traditional pivot and jewel system.

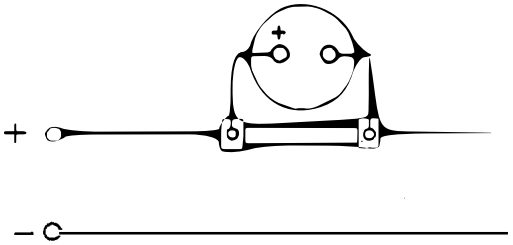
Specially hardened steel pivots and spring loaded jeweled bearings are employed in these mechanism designs, and are durable enough to stand up to todays tough environments.

Note: All part numbers contained within this catalog refer to taut band type meters, unless otherwise stated. These will be supplied as standard. If your preference is for a pivot and jewel mechanism please enquire at your local Sales and Service Center for availability.

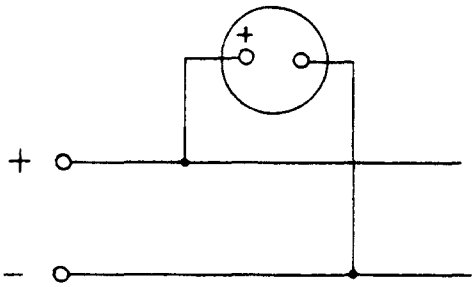
Connection Diagrams



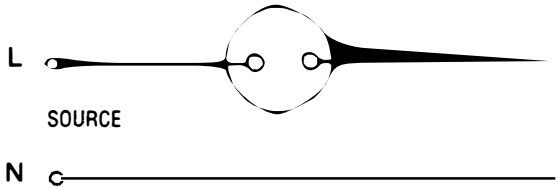
DC AMPERES
Self Contained 50mA to 50A DC



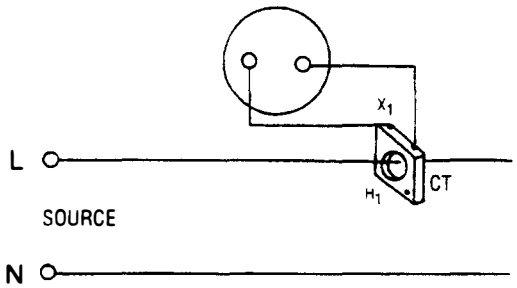
DC AMPERES
For use with external shunt
(Supplied Separate). 50mV standard.



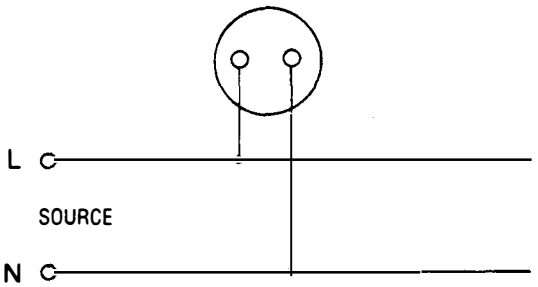
DC VOLTS 50mV to 800V DC



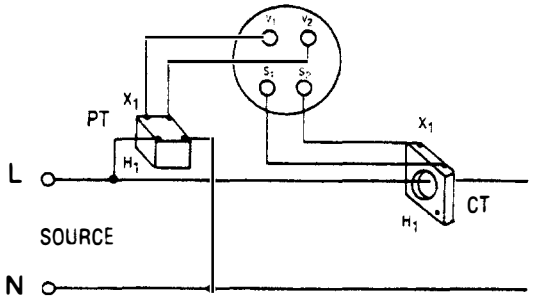
AC AMPERES
100mA to 150A Self Contained



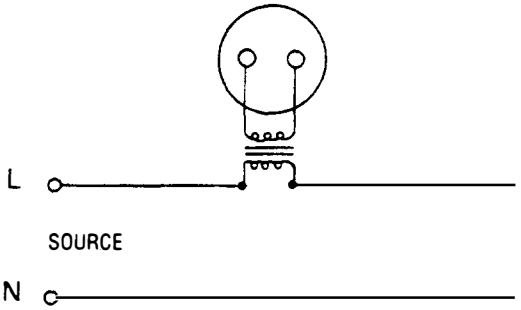
AC AMPERES 5A AC Standard.
For use with Current Transformer
(Supplied Separate).



AC VOLTS
30-800 V AC



AC WATTMETER
Self Contained 1 phase 2 wire



AC AMPERES
For use with separate wound
primary current transformer.