

Technology of Measurement...

defined

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Digital Panel Meters

- Ammeter
- Frequency Meter
- Voltmeter
- Kilo Watt Meter
- Power Factor Meter
- 3 Phase Power Meter



HPL brings to you a wide range of digital panel meters which measure the basic electrical parameters using state-of-the-art technology.



METERING



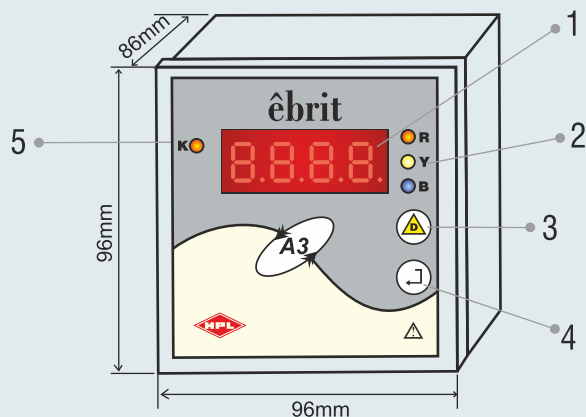
Unique Features

- Accuracy Maintained through out the range
- Universal auxiliary supply : 80 to 300V AC/DC
- Push button based site programming of CT/PT ratio
- Network selections for star (3 phase 4 wire) and delta (3 phase 3 wire)
- Coloured indication for R, Y & B phases
- Bright 4 Digit 14mm LED display
- Auto scroll facility & scroll lock facility (for 3 Phase meter)
- Auto adjustable decimal point
- Same model for A & kA
- Same model for V & kV
- Push buttons for phase selection in 3 phase meters
- Password protected programming
- In Power meter kW, kVA, kVAh on a same meter - Site selectable

Applications

- Electrical Panels - Industrial HT & LT panels
- Motor Control Centres, Distribution Control Relay Panels
- Air Conditioning and Refrigeration Panels
- Genset Panels
- Generation, Transmission and Distribution Panels
- Test Benches and Laboratory Equipment
- Uninterrupted Power Supply
- Special OEM Applications

Front View



1. Display
2. Phase Indications
3. Scroll Key
4. Enter Key
5. Kilo / Mega Indication



Ammeter

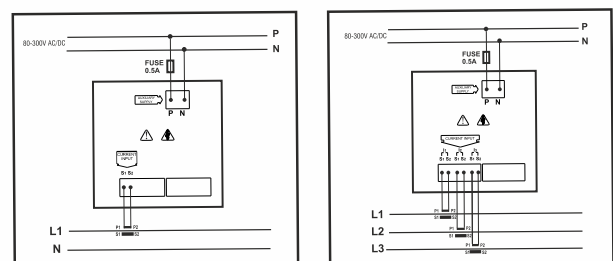
Technical Specification

- Available in Single Phase Two Wire & Three Phase Four Wire
- CT Primary : Programable upto 9999A (in steps of 5A & 1A)
- CT Secondary: 5/1A (Selectable)
- Auxiliary Burden: <2.5VA at 230V
- Voltage & Current Circuit burden : <0.5VA
- Resolution (Direct Measurement) : 0.001A
- Measurement Range (Direct Measurement) : 0 -7A AC
- Class : 1.0,0.5

Features

- Push button based site programming of CT ratio
- Bright 4 digit 14mm LED display
- Colour indication for R,Y & B phases
- Universal Auxiliary Supply -80 to 300V AC/DC
- Same model for A & kA.
- Auto scroll facility & scroll lock facility (For 3 Phase meter)
- LED indication for Kilo

Ammeter Wiring Diagram



Single Phase Ammeter

Three Phase Ammeter





Frequency Meter

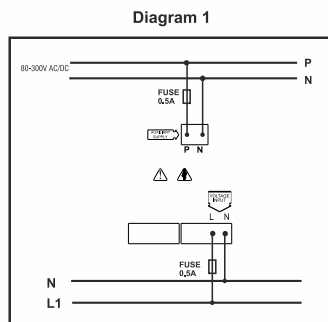
Technical Specification

- Suitable For - Single Phase Two wire
- Measurement Range : 40.00-99.99Hz,
- Auxiliary Burden: <2.5VA at 230V
- Voltage & Current Circuit burden : <0.5VA
- Resolution : 0.01Hz
- Class : 0.2

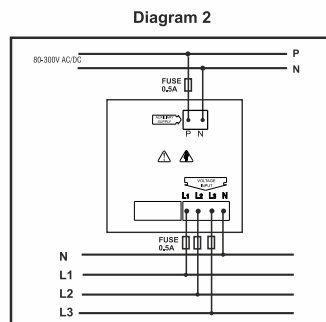
Features

- Bright 4 Digit 14mm LED Display
- Universal Auxiliary Supply -80 to 300V AC/DC.

Wiring Diagram of Single Phase & Three Phase Volt Meter & Frequency Meter



Single Phase Volt Meter/ Frequency Meter



Three Phase Volt Meter

Voltmeter

Technical Specification

- Available in Single Phase Two Wire & Three Phase Four Wire
- PT Primary: 110V, 1.1kV, 6.6kV, 11kV, 33kV, 66kV, 132kV, 220kV & 440kV (Selectable)
- PT Secondary : 110V (Fixed)
- Auxiliary Burden: <2.5VA at 230V
- Voltage & Current Circuit burden : <0.5VA
- Resolution (Direct Measurement): 0.1V
- Measurement Range (Direct Measurement) : 0-750V AC
- Class : 1.0,0.5

Features

- Push button based site programming of PT ratio
- Network selection for star (3 Phase 4 Wire) and delta (3 Phase 3 wire)
- Bright 4 digit 14mm LED Display
- Colour indication for R, Y & B phase
- Universal Auxiliary Supply -80 to 300V AC/DC
- Same model for V & kV.
- Auto scroll facility & scroll lock facility (For 3 Phase Meter)

Note:

- Diagram 1 consider for single phase Volt Meter & Frequency Meter
- Diagram 2 consider only for Three phase Volt Meter.



Kilo Watt Meter

Technical Specification

- Suitable For - Single Phase Two wire
- CT Primary : Programable upto 9999A (in steps of 5A & 1A)
- CT Secondary: 5/1A (Selectable)
- PT Primary: 110V, 1.1kV, 6.6kV, 11kV, 33kV, 66kV, 132kV, 220kV & 440kV (Selectable)
- PT Secondary : 110V (Fixed)
- Resolution (Direct Measurement) : 0.001kW
- Measurement Range(Direct Measurement): 0-3.000kW
- Auxiliary Burden: <2.5VA at 230V
- Voltage & Current Circuit burden : <0.5VA
- Class: 1.0, 0.5

Features

- Push button based site programming of CT & PT Ratio
- Bright 4 digit 14mm LED Display
- Universal Auxiliary Supply -80 to 300V AC/DC
- Same model for kW & MW
- LED indication for Mega



Power Factor Meter

Technical Specification

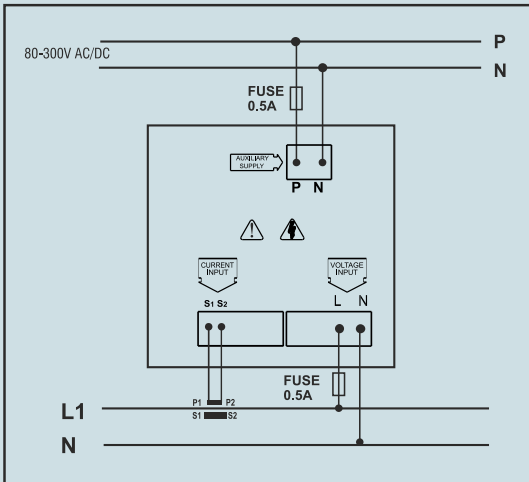
- Available in Single Phase Two Wire & Three Phase Four Wire
- Measurement Range - Zero Lag -Unity- Zero Lead
- Auxiliary Burden: <2.5VA at 230V
- Voltage & Current Circuit burden : <0.5VA
- Accuracy : $\pm 0.01\%$
- Resolution : 0.01 (For Single phase P.F. Meter)
0.001 (For Three phase P.F. Meter)

Features

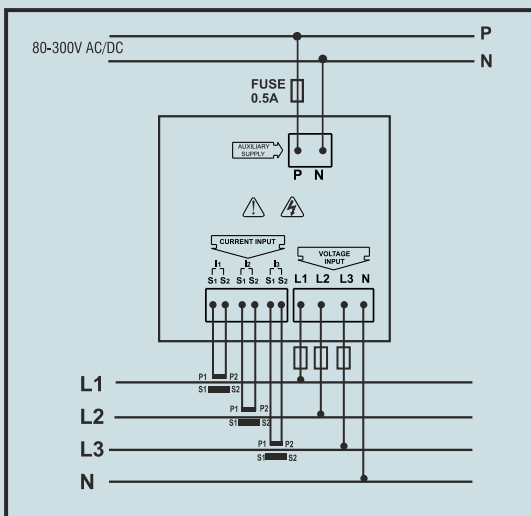
- Lag/Lead indication on the display
- Bright 4 Digit 14mm LED display.
- Universal Auxiliary Supply -80 to 300V AC/DC.



Wiring Diagram of Single Phase P.F. Meter & Kilo Watt Meter



Wiring Diagram of Three Phase P.F. Meter



Front view of Kilo Watt Meter



Front view of Power Factor Meter





Three Phase POWER METER

Technical Specifications

DISPLAY

Display	14mm Seven segment LED Display
Display Range	0000 to 9999
Decimal	Auto adjust depending on CT ratio

ACCURACY

Class 1.0	± 1.0% of measured value
Class 0.5	± 0.5% of measured value

PROGRAMMING

CT Primary	5 to 6550A for CT secondary 5A 1 to 6550A for CT secondary 1A
CT Secondary	5 / 1A (Selectable)

MECHANICAL

Dimensions	96mm x 96mm x 86mm
Weight	< 320g
Protection Index	IP54 (front panel)
Panel Cutout	92mm x 92mm

UNIT OF MEASUREMENT

Active Power	kW
Reactive Power	kVAr
Apparent Power	kVA

DEFAULT FACTORY SETTING

CT Primary	5A
CT Secondary	5A
Power Selection	Active

ELECTRICAL SPECIFICATION

Auxiliary Power Supply	80-300V AC/DC, 50 Hz
Auxiliary Burden	<2.5 VA at 230V (Rated Voltage)
Voltage Circuit Burden	<0.5 VA
Current Circuit Burden	<0.5 VA
Input Voltage	0-450V AC per phase
Input Current	0-7.5A per phase



MEASURING RANGE (For CT Ratio = 1)

Phase wise power	0.000 - 3.300
Total Power	0.000 - 9.900
Total Active power is the absolute sum of all three phase active powers	
Total Apparent power is the absolute sum of all three phase apparent powers	
Total Reactive power is the algebraic sum of all three phase reactive powers	

Resolution

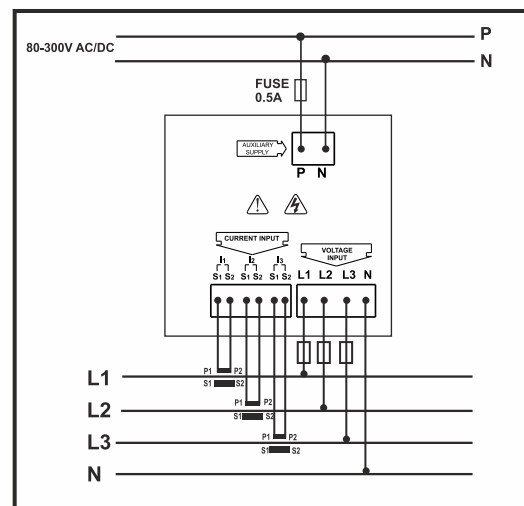
0.001 Unit	for CT Ratio 1
0.01 Unit	for CT Ratio between 1 & 10
0.1 Unit	for CT Ratio between 10 & 100
1 Unit	for CT Ratio > 100

ENVIRONMENTAL

Operational temperature	0 to 60°C
Storage temperature	-20 to 70°C
Relative humidity	0 to 95%

Measurement Category	Category III
Standards of Conformity	IEC 61010 - 1 IEC 61326 - 1

Wiring Diagram of Power Meter



Front View of Power Meter



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Ordering Information

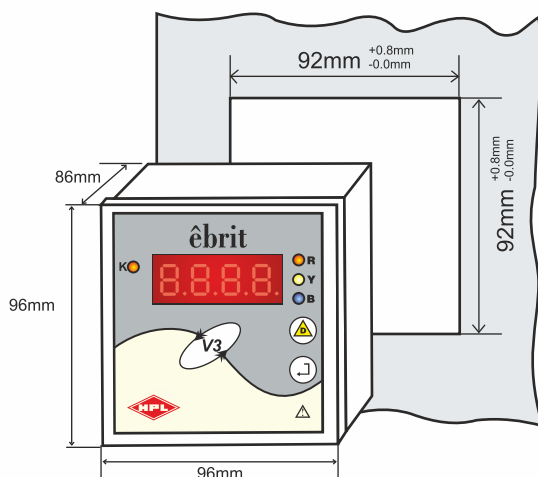
Model	Description	CAT. Code
êbrit A1	Single Phase Ammeter	NPAMEBRITA1*
êbrit A3	Three Phase Ammeter	NPAMEBRITA3*
êbrit V1	Single Phase Volt Meter	NPAMEBRITV1*
êbrit V3	Three Phase Volt Meter	NPAMEBRITV3*
êbrit F	Single Phase Freq. Meter	NPAMEBRITF1*
êbrit PF	Single Phase PF Meter	NPAMEBRITP1*
êbrit PF	Three Phase PF Meter	NPAMEBRITP3*
êbrit kW	Single Phase KW Meter	NPAMEBRITW1*
êbrit PM	Three Phase Power Meter	PAMEBRITPM3*

Note:

- * Code relate to Class accuracy
- 1 Stands for CL 1.0 accuracy
- 2 Stands for CL 0.5 accuracy
- 3 Stands for CL 0.2 accuracy

Meter Cutout Details

- The Panel Meter is to be firmly secured using the 4 transparent fixing clips.
- Use 0.5 mm² to 2.5mm² Cable for Voltage terminals.
- Use 3 mm² to 6 mm² Cable for Current terminals.



Same cutout details applicable for all êbrit meters

Display Parameters

Single Phase Meters

Single Phase Voltmeter / Ammeter / Frequency Meter / PF Meter / Kilo Watt Meter will show the respective parameter on the screen.

Three Phase Meters

Voltmeter

Star Connection

- R Phase to Neutral Voltage
- Y Phase to Neutral Voltage
- B Phase to Neutral Voltage
- R-Y Phase to Phase Voltage
- Y-B Phase to Phase Voltage
- R-B Phase to Phase Voltage

Delta Connection

- R-Y Phase to Phase Voltage
- Y-B Phase to Phase Voltage
- R-B Phase to Phase Voltage

Three Phase Ammeter

- R Phase Current
- Y Phase Current
- B Phase Current

Three Phase PF Meter

- R Phase PF
- Y Phase PF
- B Phase PF
- System PF

Three Phase Power Meter

Parameter Display for Active & Apparent Power

- R Phase Power
- Y Phase Power
- B Phase Power
- Total Power

Parameter Display for Reactive Power

- R Phase Power Sign
- R Phase Power
- Y Phase Power Sign
- Y Phase Power
- B Phase Power Sign
- B Phase Power
- Total Power Sign
- Total Power

HEP/EBRIT/0817



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