



**BLACK
CURRANT**

LE ELECTRONICS Pvt. Ltd.

Monitoring Relays:

- **LVM – Line Voltage Monitors**
- **LCM - Line Current Monitors**
- **VMR – Voltage Monitoring Relays**
- **CMR – Current Monitoring Relays**
- **VCMR – Voltage Current Monitoring Relays**
- **LFM – Line Frequency Monitors**



Signal Converters:

- **Signal Isolators**
- **Transmitters**



VOCT- Voltage Output Current Transformers



Meters:

- **DPM – Digital Panel Meters**
- **VAF – Voltage Ampere Frequency Meters**
- **Multifunction Meters**



Relay cards:



Timers:



LVM – Line Voltage Monitors
LCM - Line Current Monitors
LFM – Line Frequency Monitors

Features:

- True rms measurement
- Upto 4 parameter settings through presets
- Fault indication for UV, OV, UBV, RPV, SPPV , UC, OC, UBC, RPC, SPPC , UF, OF
- True phase difference measurement
- Compact, robust and light weight design
- In built trip relay
- Auto / Manual / Remote reset with onboard reset switch
- Universal range auxiliary supply
- *Smart* load switch off detection

Supply Voltage Range:

110 , 115, 220, 230, 240, 380, 415, 440

Rated Input Current :

5A

Electrical Input Type:

Single Phase (2 wire) & Three Phase (3wire / 4 wire) Models

Programmable Parameters:

UV- Under Voltage,
OV- Over Voltage,
UBV- Unbalanced Voltage,
RPV- Reverse phase Voltage,
SPPV- Single Phase Voltage Protection,
UC- Under Current,
OC- Over Current, Current
UBC- Unbalanced Current,
RPC- Reverse phase Current,
SPPC- Single Phase Current Protection

Available Sizes: 22.5 mm, 45 mm

Mounting:

35mm Din Rail Mounting.

Number of presets: 2,3,4

Reset Switches: Auto / Manual / Remote

Relay Outputs: Single Changeover, Two Changeover

Mounting:

35mm Din Rail Mounting.

VMR – Voltage Monitoring Relays
CMR – Current Monitoring Relays
VCMR – Voltage Current Monitoring Relays

Features:

- True rms.
- CT ratio programmable
- Fault indication for UV, OV, UBV, RPV, SPPV, UC, OC, UBC, RPC, SPPC*
- True phase difference measurement
- Programmable display scan speed
- 32- bit microcontroller based design
- 12-bit ADC
- Compact, robust and light weight design
- Universal range auxiliary supply
- 3 Seven Segment Displays to display voltage and current of the three phases
- In built trip relay
- Individual delay settings for each fault
- *Smart* load switch off detection
- Selectable Single phase or 3 phase operation
- Manual / Remote reset with onboard reset switch

Supply Voltage Range:

110 , 115, 220, 230, 240, 380, 415, 440

Rated Input Current:

5A

Electrical Input Type:

Single Phase (2 wire) & Three Phase (3wire / 4 wire) Models

Programmable Parameters:

UV- Under Voltage,
OV- Over Voltage,
UBV- Unbalanced Voltage,
RPV- Reverse phase Voltage,
SPPV- Single Phase Voltage Protection,
UC- Under Current,
OC- Over Current, Current
UBC- Unbalanced Current,
RPC- Reverse phase Current,
SPPC- Single Phase Current Protection

Dimensions (L x B x H mm): 110 mm, 45 mm, 75 mm
Approximately

Mounting:

35mm Din Rail Mounting.

Display Type: 0.3” height, 3 digit, 7 segment

Settings: From Onboard Keys

Relay Outputs: Single Changeover.

Signal Isolators

Features:

- Compact, robust and light weight design
- 3 seven segment display
- All combinations of Inputs and Outputs are available from
Inputs: 0-75mV / +/-75mV / 0-5V / 1-5V / 0-10V / 0-10mA / 0-20mA / 4-20mA
Outputs: 0-5V / 0-10V / 0-20mA / 4-20mA
- Universal range auxiliary supply
- Isolation between supply, input and outputs
- Relay for Alarm output

Number of output Channels: Single Channel output and Dual Channel output.

Type of Inputs in Signal Isolators (AC &DC):
Voltage (mV &V) and Current (mA)

Type of Outputs in Signal Isolators:
Voltage and Current

Display Type: 3 Seven Segment Displays to display input parameters. (Display in selected models).

LV Supply Model: 12V-72V DC or 12V-48 VAC

HV Supply Model: 90 VAC to 270VAC - 50/60 Hz

Available Sizes: 7.5mm, 22.5 mm, 45 mm.

Mounting:
35mm Din Rail Mounting.

Alarm Outputs: 1 change over Relay for under limit and over limit.

Universal TRANSMITTER ISOLATED.

2-WIRE TECHNOLOGY, UNIVERSAL INPUT, PC-PROGRAMMABLE

Features:

- Universal Input Type: Thermocouple, RTD, Ohms, mA, mV, V
- True 2-wire operation
- Isolation between input and loop supply.
- Output Type: 4-20mA, **20~4 mA**.
- Compact, robust and light weight design
- Loop powered
- Screw mounting or DIN rail mounting

Technical Specifications.

INPUT: Thermocouple : B, E, J, K, N, R, S, T
RTD : Pt100, Pt50, Pt200, Pt500,
Pt1000, Cu50,
Cu100, Ni500, Ni 1000,
Ohm: 0 to 10k ohm.
Linear : 0~50 mV, 0~100 mV,
0~500 mV, 1 V

OUTPUT CURRENT: 4~20 mA, 20~4 mA.

Unit : °C, °F, EU

Output scale: 4.0~20.0

Sensor break: Upscale/Downscale Indication.

ACCURACY : ±0.5% of span

Resolution:

POWER SUPPLY

Supply voltage: 9 to 32 VDC loop supply.

ISOLATION: Between input output and supply.

CALIBRATION:

Zero & span Through PC Configuration.

Dimensions (L x B x H mm): 110 mm, 22.5 mm, 75 mm
Approximately.

Mounting: 35 mm Din Rail Mounting and Screw Mounting.

<p>VOCT- Voltage Output Current Transformers</p> <p>Features:</p> <ul style="list-style-type: none"> • Hermetically sealed • Self powered excitation • Cost effective and compact design <p>Technical specification:</p> <ul style="list-style-type: none"> • Primary Rating: 25A, 50A, 100A, 200A, 300A, 500A, 750A, 1000A • Secondary Outputs: 0 to 5 VDC (Linear after 10%) • Frequency: 50 Hz +/-10% • Over Load Withstand: 10 times for 0.1Sec, +10% steady state • Maximum Load: 100K • Accuracy class: 0.5% • Secondary Terminals: Screw type <p>Applications:</p> <ul style="list-style-type: none"> • Switchgear • Distribution Systems • Generator Sets • Control Panels • Over Load Protection. • Control Devices 	<p>DPM – Digital Panel Meters</p> <p>Features:</p> <ul style="list-style-type: none"> • True rms measurement • Compact, robust and light weight design • True phase difference measurement • Programmable display scan speed • Universal range auxiliary supply • Upto 4 Seven Segment Displays to display parameters of the three phases • Selectable Single phase or 3 phase operation • Red LED super bright display. (Blue, Green - optional) • Excellent long term stability <p>Types of DPM. Voltage, Current and Frequency.</p> <p>DC Supply Voltage Range: Universal DC /12-24VDC</p> <p>AC Supply Voltage Range : 90 to 270 VAC , 50/60 Hz universal.</p> <p>Measuring Voltage Range : 750 V AC Max. / 1000 VDC Max.</p> <p>Rated Input Current: 5A x1000 CT Ratio.</p> <p>Power Factor: 1%</p> <p>Electrical Input Type: Single Phase (2 wire) & Three Phase (3wire / 4 wire) Models</p> <p>Available Sizes: 48 mm x 96mm , 96mm x 96mm</p> <p>Display Type: 0.5 height ", 4 digit, 7 segment</p>
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VAF – Voltage Ampere Frequency Meters

Features:

- True rms or Average selectable
- CT and PT ratio programmable
- Colour LED indication for R, Y, B, N
- True phase difference measurement
- Programmable display scan speed
- 32-bit microcontroller based design
- 12-bit ADC
- Compact, robust and light weight design
- Universal range auxiliary supply
- RPM and run-hour data for DG Set
- Selectable Single phase or 3 phase operation

Single phase Parameters:

(L N) Line Neutral

Three Phase Parameters Voltage:

RY (Phase – Phase)

YB (Phase – Phase)

BR (Phase – Phase)

RN (Phase – Neutral)

YN (Phase – Neutral)

BN (Phase – Neutral)

Three Phase Parameters Current:

R (Phase)

Y (Phase)

B (Phase)

Electrical Input Type:

Single Phase (2 wire) & Three Phase 4 wire Models

AC Auxiliary supply:

90V AC to 270V AC, 50/60 Hz

Input Voltage Measurement :

50 V AC to 550 V AC

Input Frequency:

30 to 90 Hz.

Rated Input Current:

Nominal 5A

CT Primary:

5 to 5000 A Programmable

Resolution:

0.01, 0.1, 1 (depending on Auto range).

Display Type: 0.5 height", 3 digit, 3 line, 7 segment Display.

Digits: 3 rows of 3 digits

Dimensions (D x B x H mm): 45mm, 96 mm , 96 mm
Approximately.

Multifunction Meters

Features:

- State of the Art 32 Bit Microcontroller based Design
- Ultra bright 3 line 3 digits LED Display
- Shows phase wise accurate measurement
- True RMS measurements
- 96 x 96 mm Housing
- Site Programmable of CT Ratio
- Accuracy of 0.5%
- Onsite selection of Auto scroll / fixed screen
- Programmable 3Ph 4Wire
- 3 touch switch for adjustments, Password Protection

Display parameters:

3 Phase Voltage (L-L, L-N)

3 Phase Current, Frequency

Power Factor per phase

Power per phase, system power

Active and Apparent power

AC Auxiliary supply: 90VAC to 270VAC - 50/60 Hz.

SMPS Based Power Supply

Input Voltage Measurement :

50 V AC to 550 V AC

Input Current Range:

5A Max

CT Primary:

5 to 5000 Programmable

Input Voltage Range: 100 VAC to 600V AC

Frequency Measurement: 30 Hz to 90 Hz

Resolution:

0.01, 0.1, 1 (depending on Auto range).

Communication Options: RS 485 - Modbus RTU Protocol

Electrical Input Type:

Single Phase (2 wire) & Three Phase 4 wire Models

Display Type: 0.5 height", 3 digit, 3 line, 7 segment Display.

Optional : 4 Digit, 3 line 7 segment Display.

Dimensions (D x B x H mm): 45mm, 96 mm , 96 mm
Approximately.

<p>Relay cards</p> <p>Features:</p> <ul style="list-style-type: none"> • Compact, robust and light weight design • Power ON and fuse blown indication • Plugging connectors • Relay ON indication • DIN rail mounting enclosure <p>No of Relays: 4, 5, 8, 12</p> <p>Relay types: <i>single NO connection</i> <i>single changeover</i> <i>dual NO connection</i> <i>dual changeover</i></p> <p>Relay Voltages: <i>12VDC, 24 VDC, 110 VAC, 230 VAC</i></p> <p>Fuses: <i>Internal / External /Fusible</i></p> <p>Dimensions (L x B x H mm): 120mm, 22.5 mm, 100mm Approximately.</p>	<p>Timers</p> <p>Features:</p> <ul style="list-style-type: none"> • Upto 20 operating modes including On delay, Off delay, Sequential mode and Cyclic mode • Programmable On time, Off time and Fixed Dead time • Upto 5 trigger modes including pulse and level trigger • Upto 3 types of memory functions • 22.5 mm Standard DIN rail or screw mounting • Compact, robust and light weight design <p>No of Presets: 1,2,3,4</p> <p>No of Relay: 1,2,3</p> <p>Trigger Types Supply, 1 External, 2 External, 3 External</p> <p>Relay Contact rating: 230VAC, 5A Max, NO-C-NC</p> <p>Types of supply: 12VAC/DC, 24 VAC / DC, 110/115VAC, 230 VAC, 380/415/440VAC</p> <p>Display Type: 0.3", 3 digit, 7 segment</p> <p>Dimensions (L x B x H mm): 110 mm, 22.5 mm, 75 mm Approximately.</p>
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<p>Multiple Signal Source</p> <p>Features:</p> <ul style="list-style-type: none"> • Compact, robust and light weight design • Battery operated • 16x2 line LCD display • 10000 counts for measurements • Built in measure while source • 5 preset coarse settings on keyboard <p>Input Voltage Range: 0-50 V DC range 0-100 mV DC range</p> <p>Input Current Range: 0-30 mA DC</p> <p>Output Voltage Range: 0-12 V DC range 0-100 mV DC range</p> <p>Output Current Range: 0-24 mA DC range</p> <p>Display Type: 16x2 line LCD display</p>	<p>Signal Isolators</p> <p>Features:</p> <ul style="list-style-type: none"> • Ultra Compact, robust and light weight design • Bar Graph Display • All combinations of Inputs and Outputs are available from Inputs: 0-75mV / +-75mV / 0-5V / 1-5V / 0-10V / 0-10mA / 0-20mA / 4-20mA Outputs: 0-5V / 0-10V / 0-20mA / 4-20mA • Isolation between supply and input <p>Type of Inputs in Signal Isolators (AC &DC): Voltage (mV &V) and Current (mA)</p> <p>Type of Outputs in Signal Isolators: Voltage and Current</p> <p>Display Type: Bar Graph Displays to display input parameters</p> <p>LV Supply Model: 12V-72V DC or 12V-48 VAC</p> <p>Dimensions (L x B x H mm): 100mm, 7.5 mm, 90mm Approximately.</p>
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Range of Products:- *Digital Panel meter, Energy meter, VAF meter, Signal Converter (Signal Isolators), Voltage Monitoring Relay, Current Monitoring Relay, Frequency Monitoring Relay, Combined Voltage and current monitoring relay, AC Power saver, Geyser Controller, Fire Damper Controller, Data Logger, Data Scanner, SMPS, Temperature Controller, Generator Controller, Timer, Counters, Temperature Transmitter (RTD, Thermocouple), Load Cell, CT to V & mA Converter, relay card , Mod bus relay. etc.*

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