



## Digital Panel Meters



Larsen & Toubro (L&T) is a technology-driven company that infuses engineering with imagination. The Company offers a wide range of advanced solutions, in the fields of Engineering, Construction, Electrical & Automation, Machinery and Information Technology.

L&T Switchgear, which forms part of the Electrical & Automation business, is India's largest manufacturer of low voltage switchgear, with the scale, sophistication and range to meet global benchmarks. With over five decades of experience in this field, the Company today enjoys a leadership position in the Indian market with growing presence in International markets.

It offers a complete range of products including: controlgear, powergear, motor starters, energy meters, wires and host of other accessories. Most of our products conform to International standards, carry  $\text{C}\epsilon$  markings and are *KEMA* certified.

L&T manufactures and markets a comprehensive range of high quality electronic energy meters and metering solutions for utilities, industries and commercial establishments.

L&T products are designed and developed in-house and conform to relevant Indian and International standards. The products are manufactured at L&T's Mysore Campus, which is equipped with latest test facilities.

L&T through its emphasis on innovation, technology and quality is committed to support its customers with accurate, reliable and easy to use electronic metering solutions.

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## Single Function Digital Panel Meter | VEGA

- Wide operating range of auxiliary supply
- Field programmable CT/PT ratio with password protection
- Auto scaling of Kilo and Mega
- Displays average and phase quantities\*
- Ergonomic design
- Ease of installation and usage
- Standard size of 96 x 96 mm
- Auto and manual scrolling\*
- Phase indication of displayed parameter through LED\*
- Ammeter with secondary currents of 1 A and 5 A

\* Applicable to 3 Phase Meters



## VAF Digital Panel Meters | VEGA

- 3 line LED display
- Measures V, A, f and RPM
- Models with secondary current of 5 A and 1 A
- Password protected programming mode through keypad includes
  - RPM : Number of poles programmable from 2 to 16
  - CT/PT ratio
- Suitable for 50/60 Hz electrical systems
- Auto scaling of Kilo & Mega LEDs
- Rugged design for industrial use
- Compact size of 96 x 96 mm



## Multifunction Digital Panel Meters | VEGA

- 3 Line LED display
- Parameters measured - V, A, f, pf, neutral Current, phase angle, power, energy, MD kVA, MD kW, average load
- Models with secondary currents of 5 A and 1 A
- Unidirectional / bidirectional recording
- Cumulative import & export and recording of reset parameters
- Current reversal indications
- Total Harmonic Distortion (THD) display
- Programmability and communication through RS485 port
- Easy programmability through key pad
- Field programmable CT & PT ratios with password protection
- Two relays provided for tripping fault circuits on preprogrammed abnormal system conditions (Optional)
- Available in three ranges - Model A, B, C
- Auto scaling of Kilo, Mega & Giga LEDs
- Standard size of 96 x 96 mm
- Rugged design for industrial use



## Technical Specifications:

(Common for Single Function, VAF & Multi-Function Panel Meters)

Model	VEGA	
Auxiliary Supply	Auxiliary voltage	Single function : 90 to 300 V AC
		VAF : 90 to 300 V AC
		Multifunction : 80 to 300 V AC
	Auxiliary burden	< 4 VA
	Frequency range	50 Hz $\pm$ 5%
Measuring Circuit (Parameters as applicable to individual meters)	Class of accuracy	For voltage, current and energy : Class 1.0
		For frequency : 0.2% of mid frequency
		(Parameters as applicable to individual meters)
	Measurement circuit burden	< 0.2 VA per phase
	Input voltage measurement range	10 V to 300 V (P-N)
		17.32 V (P-P) to 520 V (P-P)
	Basic current	-5 A, -1 A
	Input current measurement range	2% to 120% of basic current
	Voltage range for class of accuracy	57.7 V (P-N) to 277 V (P-N) 100 V (P-P) to 480 V (P-P)
Insulation Properties	Current range for class of accuracy	5% to 120% of basic current
	Input frequency range	45 Hz to 65 Hz
	Impulse voltage test	$\pm$ 4 kV as per IEC 62053-21
Electrical Requirements	AC voltage test	4 kV double insulation as per IEC62053-21
	Insulation resistance	500 V DC as per IS 13779
	Test of power consumption	as per IEC 62053-21
	Voltage dips and interrupts	as per IEC 61326-1
Electro-Magnetic Compatibility (EMC)	Short time over current protection	For Multifunction, VAF and Ammeter :
		20 times of $I_{max}$ for half a second as per 7.2 of IEC 62053-21 (Not applicable for Voltmeter and Frequency meter)
	Fast transients burst test	$\pm$ 4 kV as per IEC 61000-4-4
	Immunity to electrostatic discharge	$\pm$ 8 kV air discharge, $\pm$ 6kV contact discharge as per IEC 61000-4-2
	Radiated, radio-frequency, electromagnetic field immunity test	10 V/m as per 61000-4-3
	Immunity to electromagnetic HF fields through conducted lines	3 V as per IEC 61000-4-6
	Surge immunity test	$\pm$ 4 kV as per IEC 61000-4-5
Operating Conditions	Rated power frequency magnetic fields	1 A/m as per IEC 61000-4-8
	Emission	Class B as per CISPR 22
	Operating temperature	0°C to +55°C
Mechanical Tests	Storage temperature	-20°C to +70°C
	Humidity	0 to 95% relative humidity non-condensing
	Shock	40 g in 3 planes
	Vibration	10 to 55 Hz, 0.15 mm amplitude
Dimensions	Casing	Plastic mould protected to IP51 from front side
Dimensions	Weight	Single function : 255 g (approx.)
		VAF : 350 g (approx.)
		Multifunction : 400 g (approx.)
Dimensions	Dimensions	Single Function : 96* 96* 45 mm (approx.)
		VAF : 96* 96* 45 mm (approx.)
		Multifunction : 96* 96* 65 mm (approx.)

## Display Parameters

### Single Function Digital Panel Meter

Display parameter list		1Phase Voltmeter	3 phase Voltmeter	1Phase Ammeter	3Phase Ammeter	Frequency Meter
Voltage	R Phase	✓	✓			
	Y Phase		✓			
	B Phase		✓			
	Line voltage		✓			
	Average		✓			
Current	R Phase			✓	✓	
	Y Phase				✓	
	B Phase				✓	
	Average				✓	
Frequency						✓

### VAF Digital Panel Meter

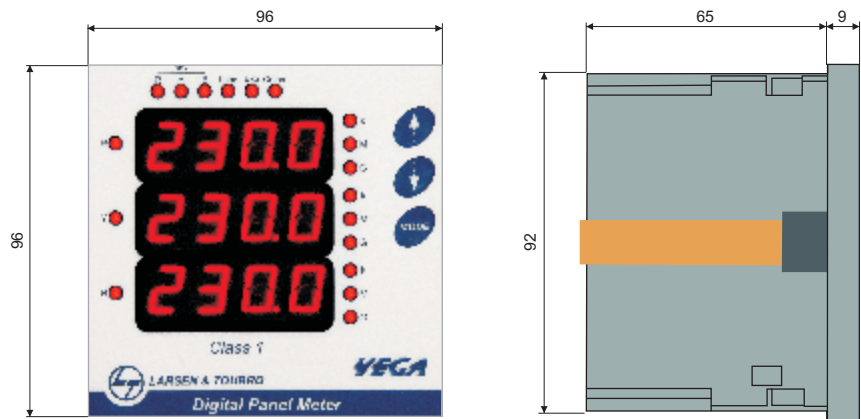
Display Parameter List		VAF Meter
Voltage	R Phase	✓
	Y Phase	✓
	B Phase	✓
	Line voltage	✓
	Average	✓
Current	R Phase	✓
	Y Phase	✓
	B Phase	✓
	Average	✓
Frequency		✓
RPM (Rotations per minute)		✓

## Multifunction Digital Panel Meter

	Parameters	Model A	Model B	Model C
Instantaneous Parameters	V1 V2 V3 $V_{avg}$ V12 V23 V31	✓	✓	✓
	A1 A2 A3 $A_{avg}$	✓	✓	✓
	$A_n$		✓	✓
	F	✓	✓	✓
	% Load		✓	✓
	% A Unbal, % V Unbal	✓	✓	✓
	PF-1 PF-2 PF-3	✓	✓	✓
	RPM (Rotations per minute)	✓	✓	✓
	Phase Angle $A^\circ 1 A^\circ 2 A^\circ 3$	✓	✓	✓
	W1 W2 W3 $W_{sum}$	✓	✓	✓
	VA1 VA2 VA3 $VA_{sum}$	✓	✓	✓
	VAR1 VAR2 VAR3 $VAR_{sum}$	✓	✓	✓
Demand/ Load Parameters	Maximum demand MD VA, MD W, Max Avg A		✓	✓
	Rising demand RD VA (Import & Export), RD W, Avg A		✓	✓
	Time remaining (Import & Export) for VA		✓	✓
	Hr MD/Max occurred (VA, W, A)		✓	✓
Cumulative Parameters	Import Wh	✓	✓	✓
	Import Vah	✓	✓	✓
	Import VARh (Lead & Lag)	✓	✓	✓
	Import run hours	✓	✓	✓
	Export Wh			✓
	Export Vah			✓
	Export Varh (Lead & Lag)			✓
	Export run hours			✓
	ON hours	✓	✓	✓
	INTR	✓	✓	✓
	No. of Resets	✓	✓	✓
Reset MD	Reset MD VA		✓	✓
	Reset MD W		✓	✓
	Reset Max Avg A		✓	✓
Reset Cumulative Parameters	Import Wh	✓	✓	✓
	Import Vah	✓	✓	✓
	Import Varh (Lead & Lag)	✓	✓	✓
	Import run hours	✓	✓	✓
	Export Wh			✓
	Export Vah			✓
	Export Varh (Lead & Lag)			✓
	Export run hours			✓
Harmonic	V V1 V2 V3 - harmonic			✓
	AA1 A2 A3 - harmonic			✓
Modbus	Modbus slave ID	✓	✓	✓
	Baud rate value	✓	✓	✓
Relays (Optional)	2 Relays for fault tripping	✓	✓	✓



Overall Dimensions (mm)  
(Common for Single Function, VAF & Multi-Function Panel Meters)



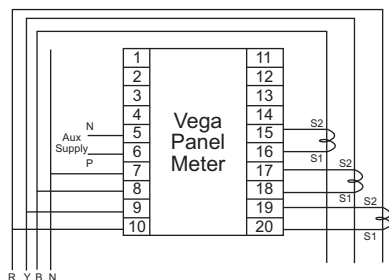
Panel Cutout Dimensions 92 mm x 92 mm  
All Dimensions are in mm

Connection Details  
Single Function Meters

Single Phase Voltmeter	Three Phase Voltmeter
Single Phase Ammeter	Three Phase Ammeter
Frequency Meter	

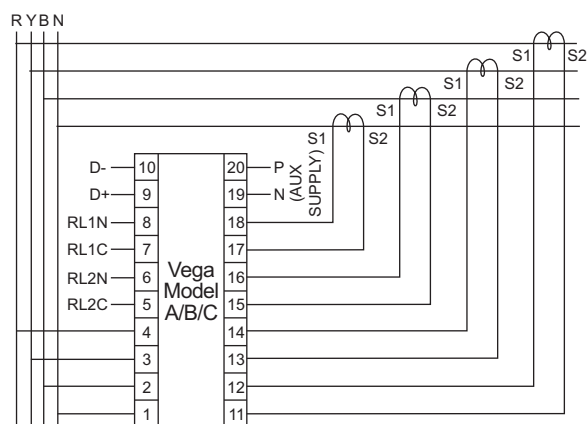


## VAF Meters

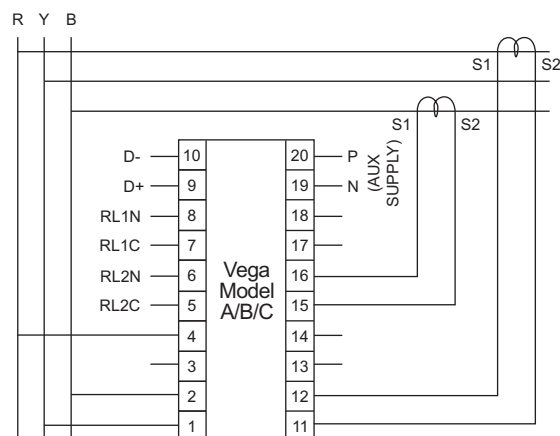


## Multifunction Meters

### 3 Phase 4 Wire



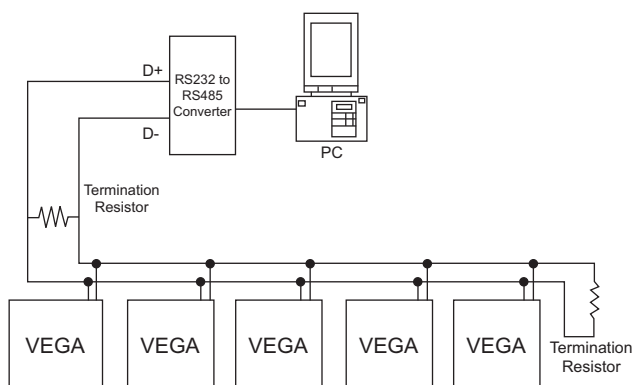
### 3 Phase 3 Wire



### Note:

- Connection of point 17 and 18 is not applicable for Model A
- D- and D+ are for communication using RS485
- RL1 and RL2 are relay connections

## RS485 Connection Diagram



## Ordering Information

### Single Function Meters

Type of Meter	1 Phase / 3 Phase	Cat. No.
<b>Voltmeter</b>	1 Phase Meters	WDS101FEV00
	3 Phase Meters	WDS301FEV00
<b>Ammeter (5 A secondary)</b>	1 Phase Meters	WDS101FCA00
	3 Phase Meters	WDS301FCA00
<b>Ammeter (1 A secondary)</b>	1 Phase Meters	WDS101OCA00
	3 Phase Meters	WDS301OCA00
<b>Frequency Meter</b>		WDS121FCF00

### VAF Meters

Type	Current Rating	Cat. No.
<b>VAF Meters 90-300 V Aux. Supply</b>	5 A	WDV303FC000
	1 A	WDV303OC000

### Multifunction Meters

Type of Meter	Current Rating	Relay	Cat. No.
<b>Model A</b>	<b>5 A</b>	With Relay	WDM303FDWA0
		Without Relay	WDM303FDWA1
	<b>1 A</b>	With Relay	WDM303ODWA0
		Without Relay	WDM303ODWA1
<b>Model B</b>	<b>5 A</b>	With Relay	WDM303FDNB0
		Without Relay	WDM303FDNB1
	<b>1 A</b>	With Relay	WDM303ODNB0
		Without Relay	WDM303ODNB1
<b>Model C</b>	<b>5 A</b>	With Relay	WDM303FDNC0
		Without Relay	WDM303FDNC1
	<b>1 A</b>	With Relay	WDM303ODNC0
		Without Relay	WDM303ODNC1

## Intelligent Panel Meter | QUASAR

The meter is designed with DSP technology to combine measurement of both instantaneous and cumulative values in an electrical feeder. The parameters are displayed over 22 screens that can be scrolled up & down by front panel push buttons.

- Class 0.5 & 1.0 as per IS & IEC standards
- kWh, kVarh & kVAh
- LCD with back light
- CT/PT ratio programming
- RS485 communication
- Phase sequence
- Harmonic measurement



## Technical Specifications:

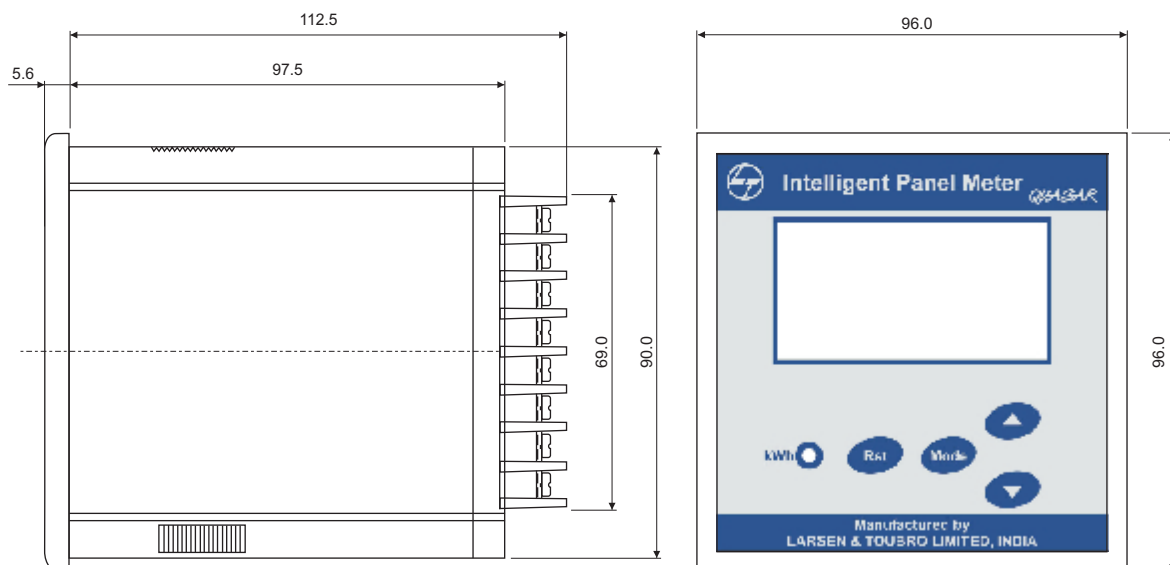
Model	QUASAR	
Accuracy	For power	Class 1.0
	IEC 62052-11, 62053-21/ IS 13779	
	For voltage	±10%
	For current	0.5% of readout ± 2 digits
Voltage (Vn)	3 Ph 4 W- 415 V AC (-40% to +20%)	
	3 Ph 4 W- 110 V AC (-40% to +20%)	
	3 Ph 3 W- 110 V AC (-40% to +20%)	
Current (In)	5 A or 1 A ( $I_{\max} = 2I_n$ )	
Starting Current	0.2% in (Class 1.0)	
Frequency	50 Hz ±5%	
Load Characteristics	< 8 VA in potential circuit	
	< 0.5 VA in current circuit	
Electromagnetic Compatibility:		
Electrical Fast Transient	As Per IEC 62052-11, 62053-21, Test Level: 4 kV, 5k Hz	
Surge Immunity	As Per IEC 62052-11, 62053-21, Test Level: 4 kV	
Influence of Short Time Over Currents	20 times $I_{\max}$ for 0.5 sec at rated frequency. As per IEC 62053-21	
Case Material	Plastic moulded protected to IP51- IEC 62052-11, 62053-21/IS 13779 (Class 1.0) (with panel)	
Insulation Properties:		
Insulation Resistance	As per IEC 62052-11, 62053-21 / IS 13779 (Class 1.0)	
AC voltage Test	2 kV AC RMS, 50 Hz for 1 minute as per IEC 62052-11	
Impulse Voltage	6 kV, 1.2/50μ sec, as per IEC 62052-11	
Voltage Dips and Interrupts	As per IEC 61000-4-11	
Display	Backlit LCD, 10 mm height digits	
Pulse Output	Pulses/kWh	Voltage/Current
	2,500 / (external CT* PT)	3 Ph 4 W 415 V (L-L) / 5 A
	12,500 / (external CT* PT)	3 Ph 4 W 415 V (L-L) / 1 A
	10,000 / (external CT* PT)	3 Ph 4 W / 3 W 110 V (L-L) / 5 A
	50,000 / (external CT* PT)	3 Ph 4 W / 3 W 110 V (L-L) / 1 A
Temperature	-10°C to 60°C for operation	
	-20°C to 70°C for storage	
Humidity	95% RH non condensing	
Dimension	96 x 96 mm - depth 105 mm	
Weight	< 600 gms	

## Display Parameters:

Screen 1	-----	V, A, kW
Screen 2	-----	R-Y-B Voltages
Screen 3	-----	R-Y-B Currents
Screen 4	-----	R-Y-B kW
Screen 5	-----	R-Y-B kVAr
Screen 6	-----	R-Y-B kVA
Screen 7	-----	R-Y-B pF
Screen 8	-----	R-Y-B Volt angles
Screen 9	-----	R-Y-B Phase angles
Screen 10	-----	kW+kVAr+kVA
Screen 11	-----	Pd+pF+F
Screen 12	-----	kWh
Screen 13	-----	kVArh (L)
Screen 14	-----	kVArh (C)
Screen 15	-----	kVAh
Screen 16	-----	R ph. Voltage - Harmonics
Screen 17	-----	Y ph. Voltage - Harmonics
Screen 18	-----	B ph. Voltage - Harmonics
Screen 19	-----	R ph. Current - Harmonics
Screen 20	-----	Y ph. Current - Harmonics
Screen 21	-----	B ph. Current - Harmonics

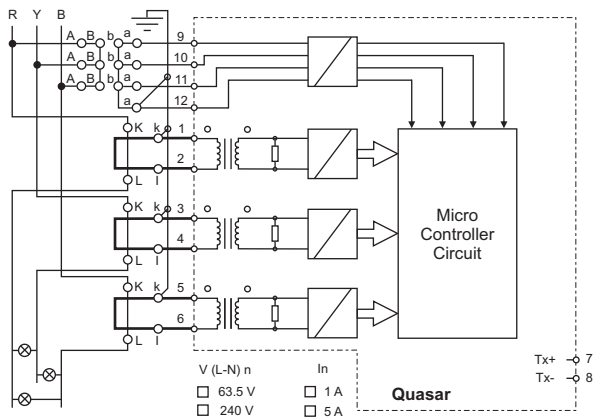
## Overall Dimensions (mm)

### Panel Cutout 92 x 92 mm

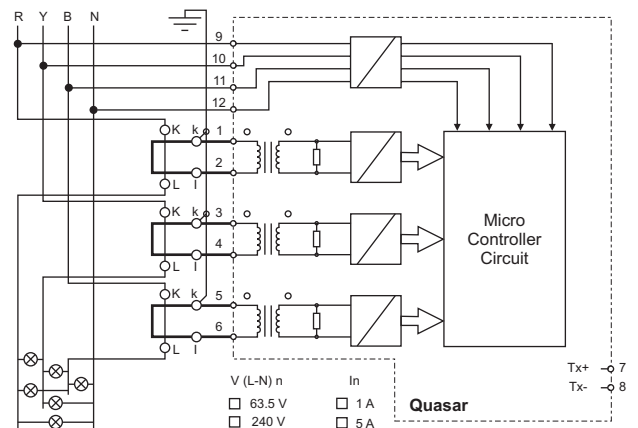


## Connection Details (Wiring Diagram)

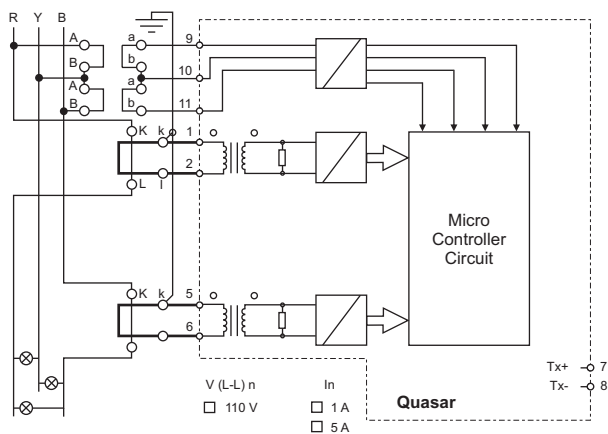
### 3 Ph. 4 Wire with CT & PT



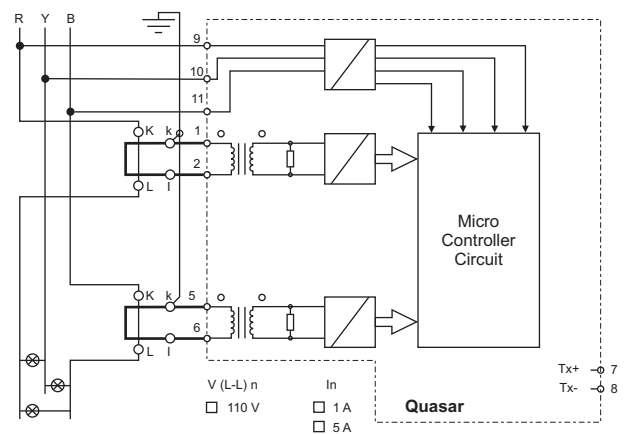
### 3 Ph. 4 Wire with CT & without PT



### 3 Ph. 3 Wire with CT & PT



### 3 Ph.3 Wire with CT & without PT



## Ordering Information

Accuracy	Type	Voltage	Secondary Current	RS485	Cat. No.
Class 1	3 Ph, 4 W	240 V ( L-N)	1 A		WI300FC1300
				✓	WI300FC13RS
			5 A		WI300FC5300
				✓	WI300FC53RS
	3 Ph, 3 W	110 V ( L-L)	1 A		WI301FC1300
				✓	WI301FC13RS
			5 A		WI301FC5300
				✓	WI301FC53RS
	3 Ph, 4 W		1 A		WI300FB1300
				✓	WI300FB13RS
			5 A		WI300FB5300
				✓	WI300FB53RS
Class 0.5	3 Ph, 4 W	240 V ( L-N)	1 A		WI300FC1200
				✓	WI300FC12RS
			5 A		WI300FC5200
				✓	WI300FC52RS
	3 Ph, 3 W	110 V ( L-L)	1 A		WI301FC1200
				✓	WI301FC12RS
			5 A		WI301FC5200
				✓	WI301FC52RS
	3 Ph, 4 W		1 A		WI300FB1200
				✓	WI300FB12RS
			5 A		WI300FB5200
				✓	WI300FB52RS

## Three phase MFM | NOVA

Nova is a compact, digital, panel mount meter for kWh measurement. Nova is flush mount 3 Phase 4 Wire CT operated kWh meter with RS485 MODBUS communication.

- Accuracy class - 1.0
- Measures kWh & kW
- Forwarded energy registration in case of current reversal
- Phase wise Voltage, Current & Power on display
- Average Voltage & Current on display
- Phase sequence on display
- RS485 MODBUS communication
- Auto & manual display mode
- User friendly menu driven LCD display
- Field programmable CT/PT ratio
- Customised LCD display & Push Button navigation
- Scroll lock feature for locking of a desired parameter on display
- Low CT/PT burden
- High resolution energy
- Auxiliary supply 88 V to 300 V AC/DC



## Technical Specifications:

Model	NOVA
Enclosure	Engineering plastic complying to IP51
Dimension	96 x 96 mm x 105 mm (HxWxD) Panel cutout: 92 x 92 mm
Connection	3P 4W
Display	Backlit LCD
Type	kWh Meter
Measurements	kWh / kW / Frequency / Voltage / Current
Starting Current	0.2% of rated current (5 A)
Class of Accuracy	Class 1.0
Current	5 A (rated), 10 A (max)
Voltage (P-N)	3 x 240 V (-30 % to +20 % of V Ref)
Frequency	50 Hz $\pm$ 5%
Auxiliary Supply	88 V to 300 V AC/DC
Weight	450 gm $\pm$ 5%
Weight with Packaging	610 gm $\pm$ 5%

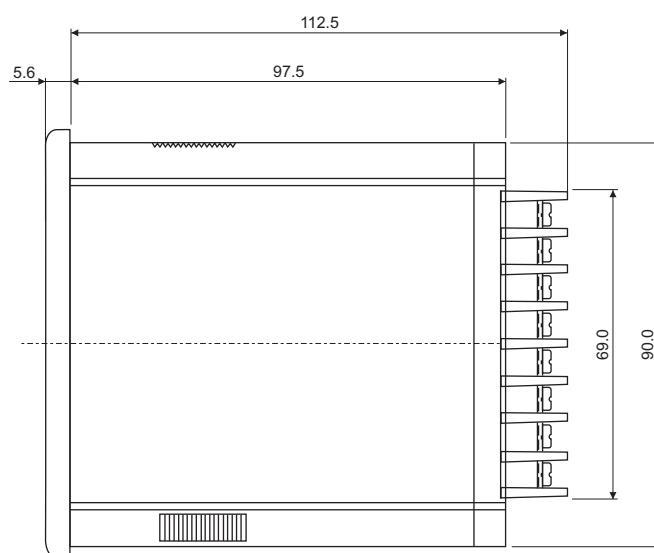
## Display Parameters:

- Cumulative EB energy kWh
- Average voltage
- Average current
- Total active power
- Frequency
- Power factor
- R Phase voltage
- Y Phase voltage
- B Phase voltage
- R Phase current
- Y Phase current
- B Phase current
- R Phase active power
- Y Phase active power
- B Phase active power
- Phase sequence

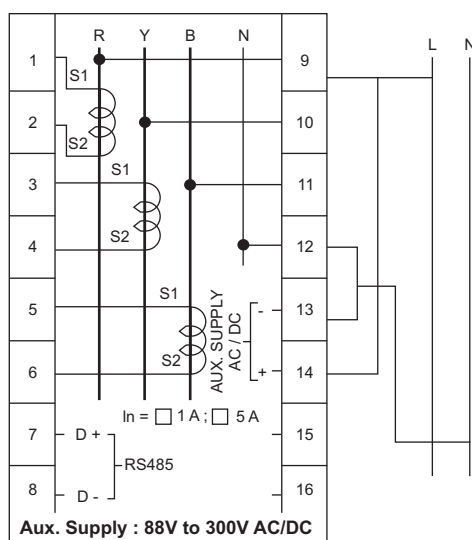


## Overall Dimensions (mm)

Panel Cutout 92 x 92 mm



## Connection Details



- Meter connection should be done exactly as shown in above diagrams
- Make the CT connections on terminals 1-2 (R-Ph), 3-4 (Y-Ph) and 5-6 (B-Ph)
- Make the PT connections on the terminals 9 (R), 10 (Y), 11 (B) and 12 (N)
- Connect the Auxiliary Supply (88 V to 300 V AC/DC) to the terminals 13 (-ve) and 14 (+ve) to power ON the meter; it can be done by shorting one phase with auxiliary as shown in the above picture

## Ordering Information

Cat. No.	Description
WM30KFC3CRS	3 Ph 4 W 240 V 5 A with RS485 ( kWh meter with RS485 port ) - Nova

## Counter Type kWh Meter | ACRUX

This is an ideal product for control panels to measure kWh energy. Compactness of the meter ensures that it will fit in smartly into any panel. L&T offers this product in 3 phase 4 wire.

- Class 1.0 accuracy
- Active energy measurement
- Stepper motor counter display
- Pulse output LED
- Terminal covers with sealing provision



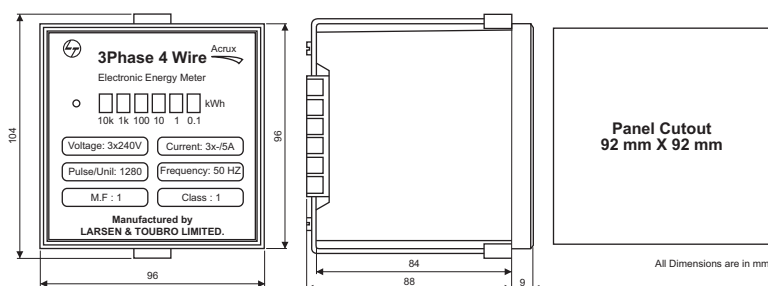
## Technical Specifications:

Model	ACRUX
Accuracy	Class 1.0 as per IS 13779
Voltage Rating	240 V (3 Phase 4 Wire)
Current Rating (Ib)	5 A & 1 A
Frequency	50 Hz $\pm$ 5%
Maximum Current	200% of Ib
Starting Current	0.4% of Ib
Operating Temperature	0 to 55°C
Display	6 Digit stepper motor counter
Enclosure	Polycarbonate
Weight	500 g (approximate)
Mounting	Flush mounting

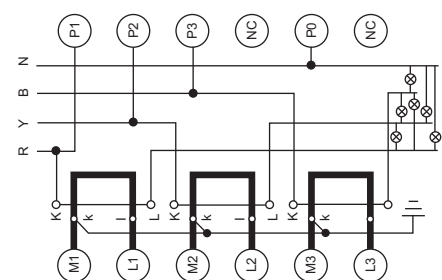
## Display Parameters:

Cumulative Energy kWh

## Overall Dimensions (mm)



## Connection Details



3 P 4 W with CT 240 V-1 A & 5 A

## Ordering Information

Cat. No.	Description
WM301FC1C10	3 Ph 4 W 240 V 1 A (kWh meter counter type) - Acrux
WM301FC3C10	3 Ph 4 W 240 V 5 A (kWh meter counter type) - Acrux

## Dual Source Meter | GEMiNi

An innovative panel meter designed for dual source energy measurement. It serves as a replacement for two separate energy meters necessary for metering same application with dual energy sources.

- Class 1.0 accuracy as per IS & IEC standards
- Dual energy register for dual energy source
- RS485 MODBUS communication
- Field programmable CT, PT Values & Meter ID



## Technical Specifications:

Model	GEMiNi
Enclosure	Engineering plastic complying to IP51
Dimension	96 x 96 mm x 105 mm (HxWxD) Panel cutout: 92 x 92 mm
Connection	3 P 4 W
Display	Backlit LCD
Type	kWh Meter
Measurements	kWh / kW / Frequency / Voltage / Current
Starting Current	0.2% of rated current (5 A)
Class of Accuracy	Class 1.0
Current	5 A (rated), 10 A (max)
Voltage (P-N)	3 x 240 V (-30 % to +20 % of V Ref)
Frequency	50 Hz $\pm$ 5%
Auxiliary Supply	88 V to 300 V AC/DC
DG Sensing Input	18 V-60 V DC/80 V-300 V AC
Weight	470 gm $\pm$ 5%
Weight with Packaging	630 gm $\pm$ 5%

## Dual Energy Registers:

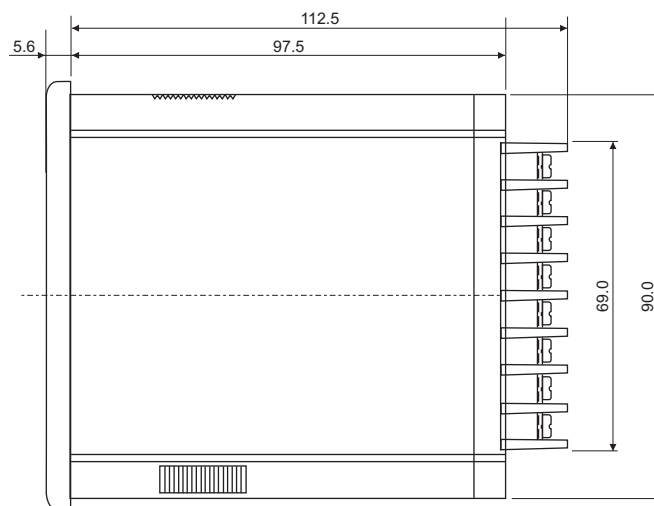
Two separate energy registers are provided, one for EB (Electricity Board supply) and another for G (Generator Supply). Normally meter accumulates energy in EB register. Whenever the DG sensing signal (18 to 60 V DC / 80 to 300 V AC) is present, meter accumulates energy in G register. Separate LED indication is provided on the meter front Panel, which glows when DG sensing signal is present.

## Display Parameters:

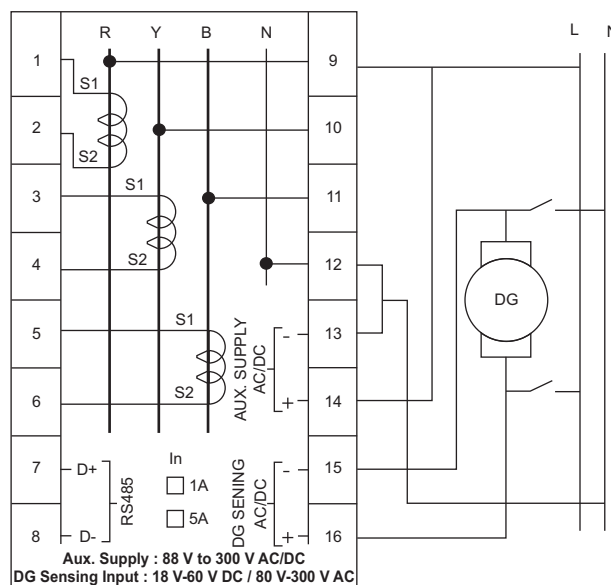
- Cumulative EB energy kWh
- Cumulative gen. energy kWh
- Average voltage
- Average current
- Total active power
- Frequency
- R Phase voltage
- Y Phase voltage
- B Phase voltage
- R Phase current
- Y Phase current
- B Phase current
- R Phase active power
- Y Phase active power
- B Phase active power
- Phase sequence

## Overall Dimensions (mm)

Panel Cutout 92 x 92 mm



## Connection Details



- Meter connection should be done exactly as shown in above diagram
- Make the CT connections on terminals 1-2 (R-Ph), 3-4 (Y-Ph) and 5-6 (B-Ph)
- Make the PT connections on the terminals 9 (R), 10 (Y), 11 (B) and 12 (N)
- Connect the Auxiliary Supply (88 V to 300 V AC/DC) to the terminals 13 (-ve) and 14 (+ve) to power ON the meter; it can be done by shorting one phase with auxiliary as shown in the above picture
- Connect the DG sensing input (18 V-60 V DC/80 V-300 V AC) on terminal 15 (-ve) & 16 (+ve)

## Ordering Information

Cat. No.	Description
WM30DFC3CRS	3 Ph 4 W 240 V 5 A with RS485 (Dual source kWh meter) - GEMiNi

## mi-ENERGY

mi-ENERGY is L&T's DIN rail mounted meter. Available in 3 phase and 1 phase models, these meters can be mounted inside distribution boxes to monitor electric consumption of identified loads, circuits and areas.

- LCD display
  - Class 2 accuracy
  - Displays day, week, month and push-to-push kWh consumption
  - Push Button for parameter scrolling
  - Low starting current
  - Reverse current indication\*
  - Compact size and easy mounting
- \* For 3 Phase Meter



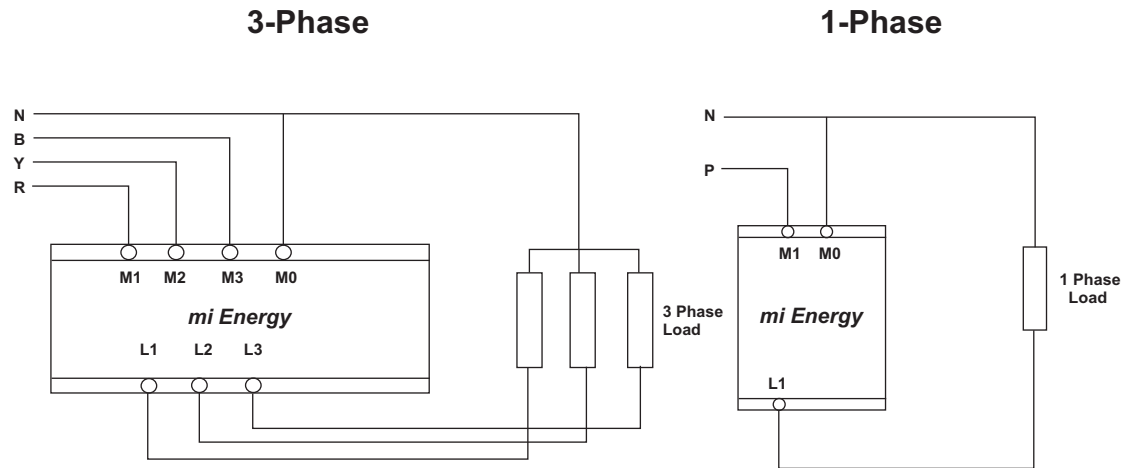
## Display Parameters

Parameters		3-Phase Meter	1-Phase Meter
Instantaneous Parameters	Phase voltage	✓	✓
	Phase current	✓	✓
	Power factor	✓	
	Active power	✓	✓
	Reactive power	✓	
	Apparent power	✓	
	Frequency	✓	
Maximum Demand	Present month	✓	
	Previous month	✓	
kWh Consumption	Total	✓	✓
	Present day	✓	✓
	Present week	✓	✓
	Present month	✓	✓
	Push-to-push	✓	✓
	Previous day	✓	✓
	Previous week	✓	✓
	Previous month	✓	✓

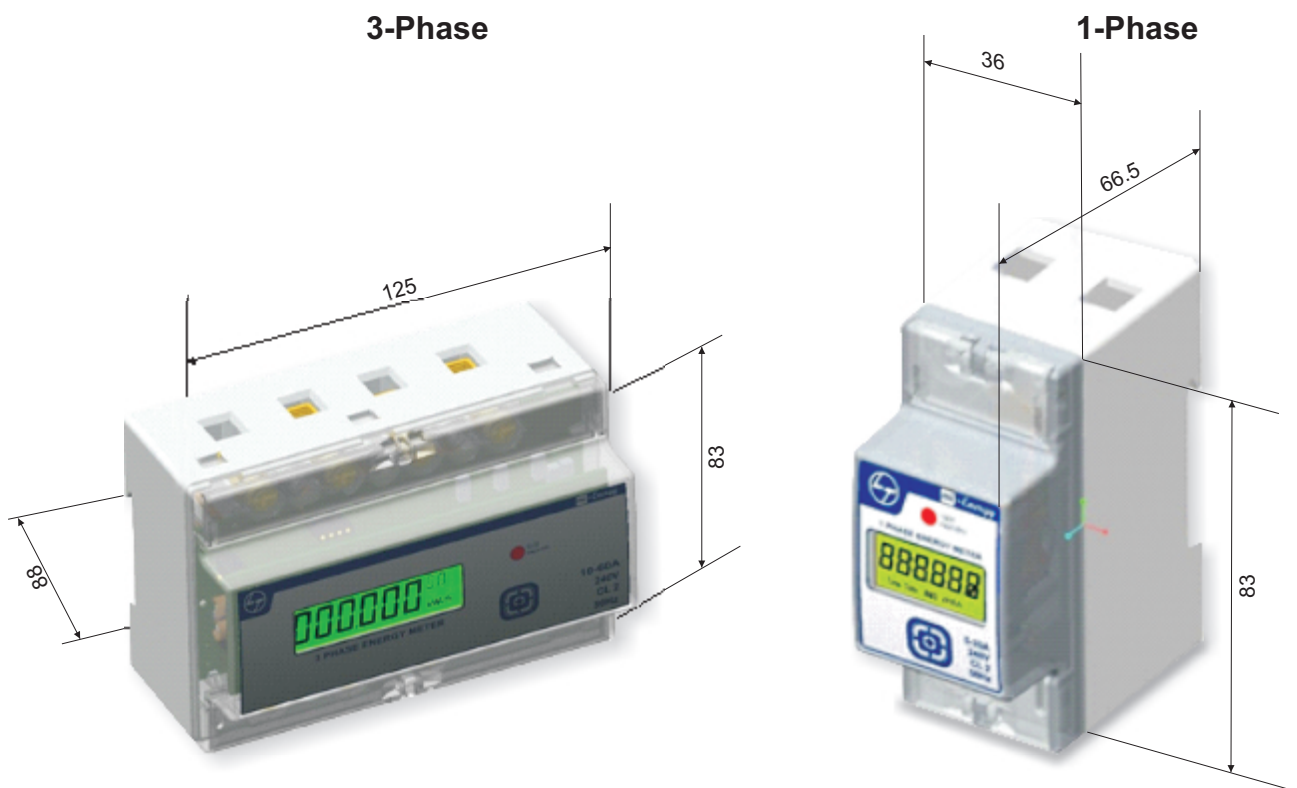
## Technical Specifications:

Display	Type	6 digit LCD
	Height	6 mm (10 mm in case of 3 Phase meter)
Measuring Circuit	Class of accuracy	Class 2 as per IEC 62053-21
	Measurement circuit burden	<1 W, <8 VA
	Rated Voltage	240 V
	Current	3 phase: 10-60 A 1 phase: 5-30 A
	Starting current	3 phase: 40 mA 1 phase: 20 mA
	Voltage range for class of accuracy	-30% to +20% of rated voltage
	Current range for class of accuracy	5% $I_b$ to $I_{max}$
	Input frequency range	50 Hz $\pm 5\%$
Insulation Properties	Impulse voltage test	$\pm 6$ kV as per IEC 62052-11
	AC voltage test	4 kV double insulation as per IEC 62053-21
	Insulation resistance	500 V DC as per IS 13779
Electrical Requirements	Test of power consumption	IEC 62053-21
	Voltage dips and interrupts	IEC 62052-11
	Short timeover current protection	20 times of $I_{max}$ for half a second as per IEC 62053-21
Electro-Magnetic Compatibility (EMC)	Fast transients burst test	IEC 61000-4-4
	Immunity to electrostatic discharge	IEC61000-4-2
	Immunity to electromagnetic HF fields	IEC61000-4-3
	Immunity to conducted disturbances by RF field	IEC61000-4-6
	Surge immunity test	$\pm 4$ kV as per IEC 61000-4-5
Climatic Test	Dry heat test	IS 9000 (part 3)
	Cold test	IS 9000 (part 2)
	Damp heat cyclic test	IS 9000 (part 5)
Operating Conditions	Operating temperature	-10°C to +55°C
	Storage temperature	-20°C to +70°C
Mechanical Tests	Shock	IS 9000 (part 7)
	Vibration	IS 9000 (part 8)
	Resistance to dust and water	IP20
Dimensions	Weight	3 phase: 460 g (approx.) 1 phase: 150 g (approx.)
	Dimensions	3 phase: 125 mm x 83 mm x 63.5 mm (approx.) 1 Phase: 36 mm x 83 mm x 66.73 mm (approx.)

## Wiring Diagram



## Dimensional Details



All Dimensions in mm

## Ordering Information

3 phase 4 wire 240 V 10-60 A	<b>W4DLD100600</b>
1 phase 2 wire 240 V 5-30 A	<b>W2DLD050600</b>



L&T's manufacturing facility at Mysore is equipped with the latest test equipment including environmental test chambers, comprehensive EMI/EMC setups and high energy lightning surge test facilities. Here our products are constantly tested for function, accuracy, insulation, response to climatic conditions, EMI/EMC and mechanical requirements. Incoming inspection of electrical and mechanical components, field failure analysis, calibration of in-house equipment, outgoing inspection and validation of meter software & base computer software is done at the lab.

## TEST SETUPS

- Dry Heat Chamber
- Rain Chamber
- Climatic Chamber
- Dust Chamber
- Electrostatic Discharge Simulator
- Electrical Fast Transient Simulator
- Lighting Surge Simulator
- Damped Oscillator Simulator
- Conducted Wave Simulator
- Vibration Shaker System
- AC Voltage Tester
- Glow Wire Test
- Insulation Resistance Tester
- Mechanical Shock Simulator
- Impulse Voltage Test
- Radio Interference Test
- Radiated Susceptibility Test
- Damp Heat Cyclic Test
- CT/PT Tester
- MMD Calibrator
- Magnetic Test



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Product improvement is a continuous process. For the latest information and special applications, please contact any of our offices listed here.



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