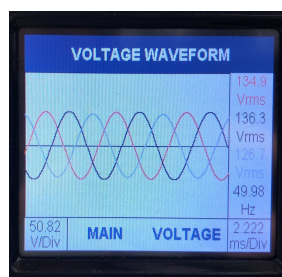
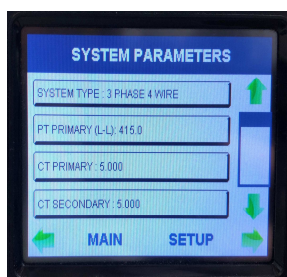
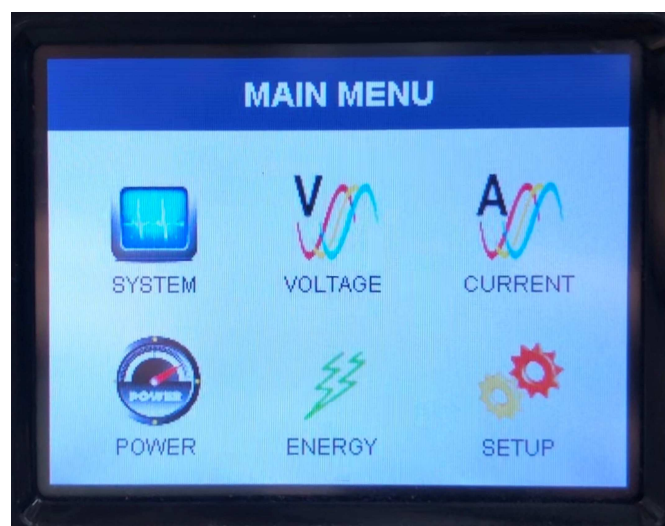


Multifunctional Power Meters with Touchscreen-Display



WPM 800 - Touch



| Phase | THD Value | Unit |
|-------|-----------|------|
| L1 | 1.430 | % |
| L2 | 1.397 | % |
| L3 | 1.619 | % |

Parameter Measurement and Display

| Sr No | Displayed Parameters | 3Phase 4 Wire | 3Phase 3 Wire |
|-------|-----------------------------------|---------------|---------------|
| 1 | System Volts | ✓ | ✓ |
| 2 | System Current | ✓ | ✓ |
| 3 | Volts L1 – N | ✓ | x |
| 4 | Volts L2 – N | ✓ | x |
| 5 | Volts L3 – N | ✓ | x |
| 6 | Volts L1 – L2 | ✓ | ✓ |
| 7 | Volts L2 – L3 | ✓ | ✓ |
| 8 | Volts L3 – L1 | ✓ | ✓ |
| 9 | Current L1 | ✓ | ✓ |
| 10 | Current L2 | ✓ | ✓ |
| 11 | Current L3 | ✓ | ✓ |
| 12 | Neutral Current | ✓ | x |
| 13 | Frequency | ✓ | ✓ |
| 14 | System Active Power (kW) | ✓ | ✓ |
| 15 | Active Power L1 (kW) | ✓ | x |
| 16 | Active Power L2 (kW) | ✓ | x |
| 17 | Active Power L3 (kW) | ✓ | x |
| 18 | System Re-active Power (kVa) | ✓ | ✓ |
| 19 | Re-active Power L1(kVar) | ✓ | x |
| 20 | Re-active Power L2 (kVar) | ✓ | x |
| 21 | Re-active Power L3 (kVar) | ✓ | x |
| 22 | System Apparent Power (kVa) | ✓ | ✓ |
| 23 | Apparent Power L1 (kVa) | ✓ | x |
| 24 | Apparent Power L2 (kVa) | ✓ | x |
| 25 | Apparent Power L3 (kVa) | ✓ | x |
| 26 | System Power Factor | ✓ | ✓ |
| 27 | Power Factor L1 | ✓ | x |
| 28 | Power Factor L2 | ✓ | x |
| 29 | Power Factor L3 | ✓ | x |
| 30 | Phase Angle L1 | ✓ | x |
| 31 | Phase Angle L2 | ✓ | x |
| 32 | Phase Angle L3 | ✓ | x |
| 33 | Import kWh (8 digit resolution) | ✓ | ✓ |
| 34 | Export kWh (8 digit resolution) | ✓ | ✓ |
| 35 | Import kVarh (8 digit resolution) | ✓ | ✓ |
| 36 | Export kVarh (8 digit resolution) | ✓ | ✓ |
| 37 | kVah (8 digit resolution) | ✓ | ✓ |
| 38 | KAh (8 digit resolution) | ✓ | ✓ |
| 39 | Current Demand | ✓ | ✓ |
| 40 | KVA Demand | ✓ | ✓ |
| 41 | KW Import Demand | ✓ | ✓ |
| 42 | KW Export Demand | ✓ | ✓ |
| 43 | Max Current Demand | ✓ | ✓ |
| 44 | Max KVA Demand | ✓ | ✓ |
| 45 | Max KW Import Demand | ✓ | ✓ |
| 46 | Max KW Export Demand | ✓ | ✓ |
| 47 | Run Hour | ✓ | ✓ |
| 48 | On Hour | ✓ | ✓ |
| 49 | Number of Interruptions | ✓ | ✓ |
| 50 | Phase Reversal Indication | ✓ | ✓ |
| 51 | THD Volts L1 – N | ✓ | x |
| 52 | THD Volts L2 – N | ✓ | x |
| 53 | THD Volts L3 – N | ✓ | x |
| 54 | THD Volts L1 – L2 | x | ✓ |
| 55 | THD Volts L2 – L3 | x | ✓ |
| 56 | THD Volts L3 – L1 | x | ✓ |
| 57 | THD Current L1 | ✓ | ✓ |
| 58 | THD Current L2 | ✓ | ✓ |
| 59 | THD Current L3 | ✓ | ✓ |
| 60 | THD Voltage Mean | ✓ | ✓ |
| 61 | THD Current Mean | ✓ | ✓ |

Technical Specifications

| | |
|-------------------------------------|---|
| Input Voltage | |
| Nominal input voltage (AC RMS) | Phase – Neutral 57.7 – 346 V _{L-N} Line – Line 100 – 600 V _{L-L} |
| System PT primary values | 100VLL to 629kVLL programmable on site * |
| Max continuous input voltage | 120% of rated value |
| Input Current | |
| Nominal input current | 1A / 5A AC RMS |
| System CT secondary values | 1A & 5A programmable on site |
| System CT primary values | From 1A up to 9999A* (for 1 or 5 Amp.) |
| Max continuous input current | 120% of rated value |
| Auxiliary Supply | |
| AC/DC Auxiliary Supply | 65 – 300 VAC/DC for Ethernet Option OR |
| AC Auxiliary supply frequency range | 45 to 66 Hz |
| VA Burden | |
| Nominal input voltage burden | < 0.35 VA approx. per phase |
| Nominal input current burden | < 0.3 VA approx. per phase |
| Auxiliary Supply burden | < 6.5 VA approx. < 8 VA approx. for Analog/Ethernet option |
| Overload Withstand | |
| Voltage | 2 x rated value for 1 second, repeated 10 times at 10 second intervals |
| Current | 20x for 1 second, repeated 5 times at 5 min |
| Operating Measuring Ranges | |
| Voltage | 10 ... 120% of rated value |
| Current | 5 ... 120% of rated value |
| Frequency | 40 ... 70 Hz |
| Power Factor | 0.5 Lag ... 1 ... 0.8 Lead |
| Display update rate | |
| Response time to step input | 1 sec approx. |

Application

WPM 800 – TOUCH measures important electrical parameters and replaces the multiple analog panel meters. It measures electrical parameters like AC current, voltage, frequency, power, energy (active / reactive / apparent) and harmonic distortion. The instrument has optional output as one pulse output or two pulse output for energy measurement.

Product Features

Touch screen graphics LCD

WPM 800 – TOUCH has touch sensible color graphics LCD display with resolution of 320x240.

Phasor Diagram

Pictorial representation of all 3 Phases (Voltage & Current) in terms of vectors.

Custom color setting

Through the device individual color for each phase can be set as per the application requirement through display.

WaveForm

Pictorial representation of all 3 phases – Current & voltage in terms of sinusoidal waveform.

Energy measurement (Import and Export)

Active energy (kWh), reactive energy (kVArh) and apparent energy (kVAh). Any of the parameters can be freely assigned to two optional pulse outputs.

Energy Count storage

In case of power failure, the instrument memorizes the last energy count.

Min Max storage of parameters possible

The instrument stores minimum and maximum values for System Voltage and System Current. Every 40 sec minimum and maximum readings are updated.

Run hour, ON hour, Number of Interruptions

Run hour records the number of hours load is connected. ON hour is the period for which the auxiliary supply is ON. Number of Interruptions indicates the number of times the Auxiliary Supply was interrupted.

True RMS measurement

The instrument measures distorted waveform up to 15th Harmonic.

Phase reversal indication

The instrument can detect wrong phase sequence or failure of one of the input voltages and displays error message.

Programmable Energy format & Energy rollover count

The format for energy display can be assigned on MODBUS-Interface (RS485) in terms of Wh, kWh or MWh.

Optional MODBUS (RS485) Output (with optical isolation)

The optional ModBus output enables the instrument to transmit all the measured parameters over standard MODBUS (RS485).

Ethernet Interface (Modbus TCP/IP Protocol)

The optional Ethernet Interface output transmits all the measured parameters on Modbus TCP/IP. Also user can configure their instrument via Ethernet Interface.

Optional Pulse Output (1 or 2 Relay output) / Limit switch

The instrument can be programmed as pulse output or limit switch.

Pulse Output : The optional pulse output is a potential free, very fast acting relay contact which can be used to drive an external mechanical counter for energy measurement.

Limit switcher : The instrument will trip the one or two relays if the programmed parameter exceeds the programmed High & Low Limits.

Energy Pulsed Output Option

| | | | |
|---------------------------------------|----------------------------|-----------------------------|-----------------------------|
| Relay contact | 1 NO + 1 NC | | |
| Switching Voltage & Current for Relay | 240 VDC, 5A | | |
| Default pulse rate divisor | | | |
| 1 | 1 per Wh (up to 3600W) | 1 per kWh (up to 3600W) | 1 per MWh (up to 3600W) |
| 10 | 1 per 10Wh (up to 3600W) | 1 per 10kWh (up to 3600W) | 1 per 10MWh (up to 3600W) |
| 100 | 1 per 100Wh (up to 3600W) | 1 per 100kWh (up to 3600W) | 1 per 100MWh (up to 3600W) |
| 1000 | 1 per 1000Wh (up to 3600W) | 1 per 1000kWh (up to 3600W) | 1 per 1000MWh (up to 3600W) |

Other Pulse rate divisors (applicable only when Energy on RS485 is in WH)

Pulse duration : 60ms, 100ms or 200ms

Note: Above conditions are also applicable for Reactive and Apparent Energy.

Optional Analog Output

(2 Outputs – 4-20mA or 0-1mA): 2 Analog outputs can be programmed from a list of input parameters.

Technical Specifications

| Accuracy | Class 1.0 (Standard) |
|---------------------------|--------------------------|
| Voltage | ± 0.5% of Nominal value |
| Current | ± 0.5% of Nominal value |
| Frequency | ± 0.15% of mid frequency |
| Active Power | ± 0.5% of Nominal value |
| Re-Active Power | ± 0.5% of Nominal value |
| Apparent Power | ± 0.5% of Nominal value |
| Active energy (kWh) | ± 1.0% of Nominal value |
| Re-Active energy (kVArh) | ± 1.0% of Nominal value |
| Apparent energy (kVAh) | ± 1.0% of Nominal value |
| Accuracy of Analog Output | 1.0% of Output end value |
| Power Factor | ± 1.0% of Unity |
| Angle | ± 1.0% of range |
| Total Harmonic Distortion | ± 1.0% |

Note: Measurement error is normally much less than the error specified above. Variation due to influence quantity is less than twice the error allowed for reference condition.

Reference conditions for Accuracy

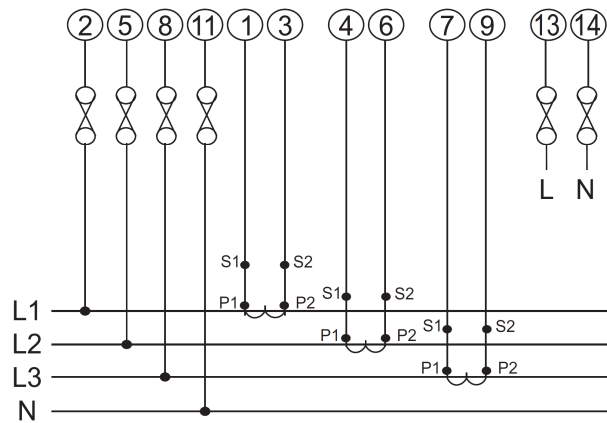
| | |
|----------------------------|---|
| Reference temperature | 23°C +/- 2°C |
| Input waveform | Sinusoidal (distortion factor 0.005) |
| Input frequency | 50 or 60 Hz ±2.0% |
| Auxiliary supply voltage | Rated Value ±1.0% |
| Auxiliary supply frequency | Rated Value ±1.0% |
| Voltage Range | 50 ... 100% of Nominal Value 60 ... 100% of Nominal Value for THD |
| Current Range | 10 ... 100% of Nominal Value 20 ... 100% of Nominal Value for THD |
| Power | Cos phi / sin phi = 1 for Active / Reactive Power & Energy 10 ... 100% of Nominal Current & 50 ... 100% of Nominal Voltage |
| Power Factor / Phase Angle | 40 ... 100% of Nominal Current & 50 ... 100% of Nominal Voltage |

Environmental

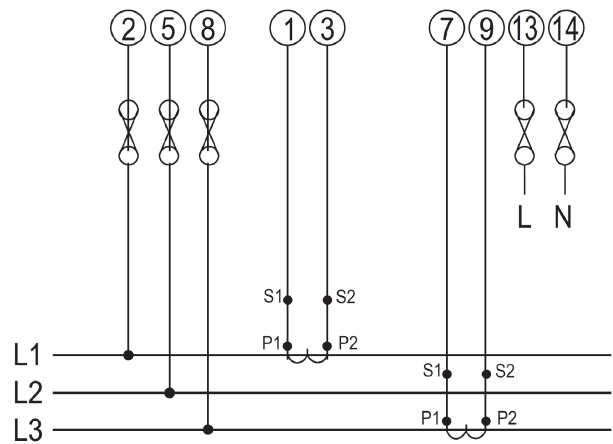
| | |
|-----------------------|--------------------------------|
| Operating temperature | -10 ... +55°C |
| Storage temperature | -20 ... +65°C |
| Relative humidity | 0 ... 90% non condensing |
| Warm up time | Minimum 3 minutes |
| Shock | 15g in 3 planes |
| Vibration | 10 ... 55 Hz, 0.15mm amplitude |
| Enclosure | IP54 (front face only) |

Connections

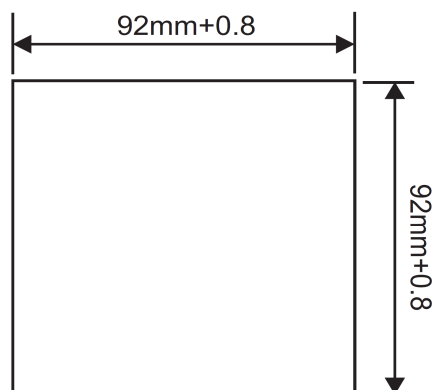
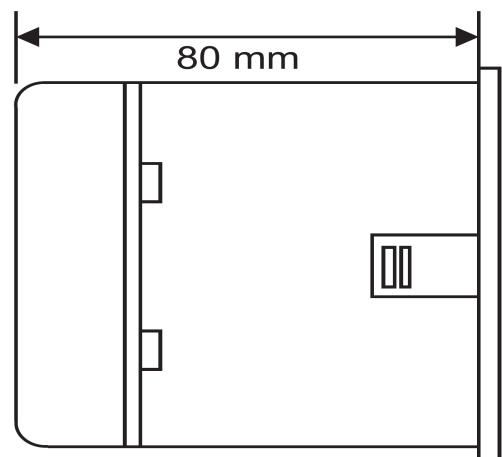
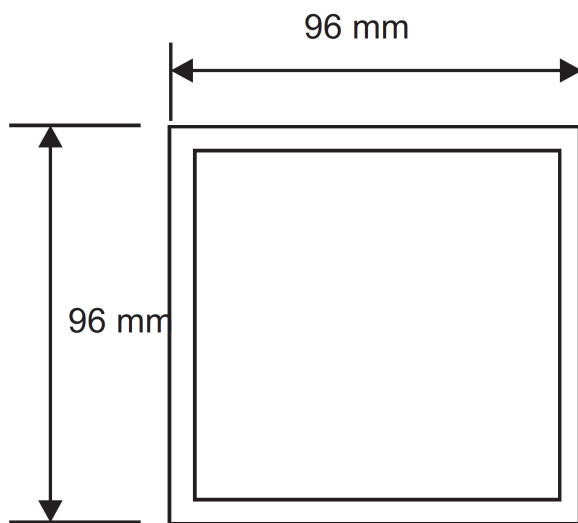
Four-Wire-System



Three-Wire-System



Dimensions



Applicable Standards

| | | |
|-----------------------|---|--|
| EMC | IEC 61326 | |
| Immunity | IEC 61000-4-3 10V/3 min – Level 3 industrial low level | |
| Safety | IEC 61010-1-2001, permanently connected use | |
| IP for water & dust | IEC60529 | |
| Pollution degree | 2 | |
| Installation category | III | |
| High Voltage Test | 2.2kV AC, 50Hz for 1 minute between all electrical circuits | |

Executions and Order options

| Type | Description | Art.No. |
|-----------------|---|----------|
| WPM 800 – Touch | Multifunctional Power Meter 96x96mm | 696.3000 |
| WPM 800 – Touch | Multifunctional Power Meter 96x96mm for switch gear panels with RS 485 interface, 1 digital output and 2 analog outputs | 696.3100 |
| WPM 800 – Touch | Multifunctional Power Meter 96x96mm for switch gear panels with Ethernet interface | 696.3200 |

Richtlinien und Normen

| | |
|-----------------------|---|
| Richtlinie 2014/30/EU | EMV- Richtlinie |
| Richtlinie 2014/35/EU | Niederspannungs- Richtlinie |
| Richtlinie 2011/65/EU | RoHS- Richtlinie |
| DIN EN 61010 | Safety requirements for electrical equipment for measurement, control, and laboratory use –1 Part 1: General requirements –2-030 Part 2: Particular requirements for testing and measuring circuits |
| DIN EN 60950-1 | Information technology equipment – Safety – – 1 Part 1: General requirements |
| DIN EN 61326-1 | Electrical equipment for measurement, control and laboratory use – EMC requirements – Part 1: General requirements |
| DIN IEC 61000 | Electromagnetic compatibility (EMC) – 6-2 Part 6-2: Generic standards – Immunity standard for industrial environments – 6-4 Part 6-4: Generic standards – Emission standard for industrial environments |

Safety instructions



- Check the device for transport damage before putting in operation.
- The device must not be put into operation if it's damaged.
- The device may only be installed by qualified electricians.
Check the information on the nameplate before installation and commissioning.
Check correct connection before start-up.
The circuits must be protected for the maximum permissible currents.
- When commissioning and using the device, comply with the applicable laws, rules and regulations.
- Do not put the device into operation if it's in an environment with explosive gases or explosive substances.
- Only install the device in weather-protected environments, protected from sunlight and not behind unglazed openings.
- For devices in groups B and C, the seal included in the scope of delivery must be properly installed in the level control panel. The degree of protection behind the control panel must be ensured by the customer.
- The device must not be installed on or near easily flammable materials. Follow relevant fire protection regulations.



- Improper use and non-observance of these safety instructions can lead to serious injuries and even death.
- For applications with high working voltages, ensure that there is sufficient distance or isolation from other devices.
- The non-insulated ends of connecting cables must be at a sufficient safety distance from the panel mounting and the sheet steel housing.
- Dangerous electrical voltage can lead to electric shock and burns.
- Always activate the device before you assemble, install or troubleshoot the device.
- Devices with a metal housing must be earthed.
- If the front frame and / or front glass are damaged, the devices must be disconnected from the mains.
- The replacement of the front frame and front glass is only permitted when the power is off.
- Changing the scale is only permitted when the power is off.



- The device is maintenance-free when used as intended.

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