



### Features

- TRMS Measurement
- More than 64 Electrical Parameters on 27 Pages
- 4 Rows of 4 Digit Super Bright Red LED Display
- 3 Phase 3 Wire / 3 Phase 4 Wire (Factory Set)
- Programmable CTR, PTR, Instr. Address, Password & MD Period
- Energy Import-Export (4 Quadrant Operation)
- IP54 (for meter front)
- POWER MASTER Software
- RS 485 Port, 5kV Isolated with MODBUS RTU Protocol
- CE Compliance with EN61010-1, EN61326-1
- Inbuilt Memory to store CTR, PTR, Instr. Address, Password & MD Period
- Auto Scroll (5 sec.) / Manual Scroll Display
- Built-In 20 Energy Meters of 8 Digit Resolution



MFM-144x192UE



MFM-144x192UMT



MFM-144x192UMTP

- Energy Retention & Password Protected Energy Reset Facility
- \*Additional features for MFM144x192UMT & MFM144x192UMTP
  - Max. Demand for KW, KVA & Isys with User Selectable Demand Interval 5-30 min.
  - THD for Voltage & Current
  - Password for Protection of Programmable Parameters
- \*\*Additional features for MFM144x192UMTP
  - Front Key Pad Lock ● Run Hours ● On Hours ● RPM ● Interruptions
  - TOU (Energy, MD) ● Shows Current Date & Time

| Parameters Measured | Accuracy $\pm$ (FS + 5Digit) | Phase                        | System                                      |
|---------------------|------------------------------|------------------------------|---|
| Voltage             | $\pm 0.5\%$                  | V1N, V2N, V3N, V12, V23, V31 | V (System)                                  |
| Current             |                              | I1, I2, I3                   | I (Average)                                 |
| Active Power        | $\pm 1\%$                    | W1, W2, W3                   | W (System)                                  |
| Reactive Power      | $\pm 1\%$                    | Var1, Var2, Var3             | Var (System)                                |
| Apparent Power      | $\pm 1\%$                    | VA1, VA2, VA3                | VA (System)                                 |
| *Maximum Demand     | $\pm 1\%$                    | -                            | KW (System), KVA (System), Current (System) |
| *THD                | $\pm 5\%$                    | V1, V2, V3, I1, I2, I3       | -   |
| Frequency           | $\pm 0.2$ Hz                 | -                            | Hz (System)                                 |
| Power Factor        | 1 <sup>o</sup> Electrical    | PF1, PF2, PF3                | PF (System)                                 |
| Active Energy       | Class 1                      | KWh1, KWh2, KWh3             | KWh Total (Import), KWh Total (Export)      |
| Reactive Energy     |                              | KVarh1, KVarh2, KVarh3       | KVarh Total (Ind.), KVarh Total (Cap.)      |
| Apparent Energy     |                              | KVAh1, KVAh2, KVAh3          | KVAh Total                                  |
| **Phase Angle       |                              | 1 <sup>o</sup> Electrical    | V1, V2, V3, V1I1, V2I2, V3I3                |

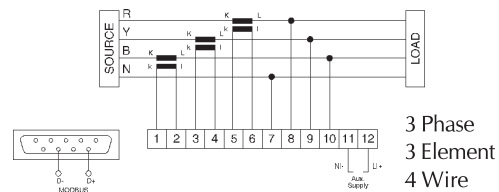
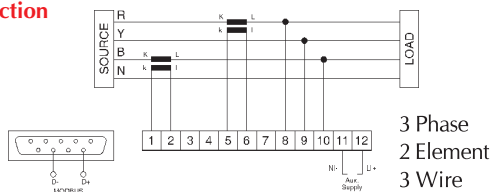
### Specifications

|                            |   |
|----------------------------|---|
| <b>Display</b>             | Simultaneous Display of 4 Parameters, 4 Digits Resolution, 1" / 25.4mm Digit Height   |
| <b>Auxiliary Supply</b>    | 110 / 230V AC $\pm 20\%$ (any one)<br>48V DC / 110V DC / 220V DC $\pm 20\%$ (any one) |
| <b>Input</b>               |   |
| Voltage/Phase              | 50 - 300V (max.) (Phase to Neutral)   |
| Current/Phase              | 0.2A to 1.2 A (max.) or<br>1A to 6A (max.) (any one only)                             |
| Frequency                  | 45-55 Hz  |
| Power Factor               | 0.300 Lag (L) - 1.000 - 0.300 Lead (C)  |
| <b>VA Burden (Typical)</b> |   |
| Auxiliary                  | < 5VA   |
| Voltage Input              | < 0.1VA / Phase   |
| Current Input              | < 0.5VA / Phase   |

|                              |   |
|------------------------------|---|
| <b>System</b>                | 3P2E3W / 3P3E4W (Factory Set)                             |
| <b>Standard</b>              |   |
| Installation Category        | Cat II (IEC / EN61010-1)                                  |
| Pollution                    | Degree 2 (IEC / EN61010-1)                                |
| <b>Environment</b>           |   |
| Calibration                  | 27°C $\pm 5^\circ$ C                                      |
| Operating                    | 0 to 50°C, RH < 70%                                       |
| Storage                      | -10 to 60°C, RH < 70%                                     |
| <b>Terminal Block</b>        | Screw Type  |
| <b>Dimensions (mm)</b>       |   |
| Front                        | 144 x 192mm   |
| Depth (Behind Bezel)         | 60mm  |
| Panel Cut-Out                | 138 <sup>(+0.8, -0.0)</sup> x 186 <sup>(+0.8, -0.0)</sup> |
| <b>Dielectric Strength</b>   | 2.5kV at 50Hz for 1 min.                                  |
| <b>Insulation Resistance</b> | > 20MΩ at 500V DC   |

**Ordering Information :** Model, Input Voltage, Input Current, Input Frequency, System (3P2E3W or 3P3E4W), CTR / PTR (if any) and Auxiliary Supply

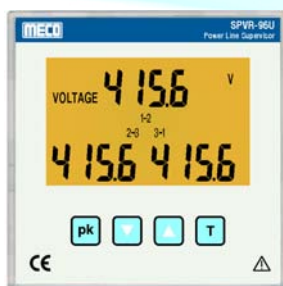
### Terminal Connection



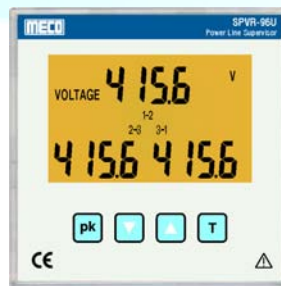


### Features

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- More than 64 Electrical Parameters on 27 Pages
- 4 Rows of 4 Digit Super Bright Red LED Display
- 3 Phase 3 Wire / 3 Phase 4 Wire (Factory Set)
- Programmable CTR, PTR, Instr. Address, Password & MD Period
- Energy Import-Export (4 Quadrant Operation)
- IP54 (for meter front)
- POWER MASTER Software (Optional)
- RS 485 Port, 5kV Isolated with MODBUS RTU Protocol (Optional)
- CE Compliance with EN61010-1, EN61326-1
- Inbuilt Memory to store CTR, PTR, Instr. Address, Password & MD Period
- Auto Scroll (5 sec.) / Manual Scroll Display
- Built-In 20 Energy Meters of 8 Digit Resolution



SPVR-96UE



SPVR-96UMT



SPVR-96UMTP

- Energy Retention & Password Protected Energy Reset Facility
- \*Additional features for SPVR-96UMT & SPVR-96UMTP**
  - Max. Demand for KW, KVA & Isys with User Selectable Demand Interval 5-30 min.
  - THD for Voltage & Current
  - Password for Protection of Programmable Parameters
- \*\*Additional features for SPVR-96UMTP**
  - Front Key Pad Lock ● Run Hours ● On Hours ● RPM ● Interruptions
  - TOU (Energy, MD) ● Shows Current Date & Time

| Parameters Measured | Accuracy $\pm$ (FS + 5Digit) | Phase                        | System                                 |
|---------------------|------------------------------|------------------------------|--|
| Voltage             | $\pm 0.2\%$                  | V1N, V2N, V3N, V12, V23, V31 | V (System)                             |
| Current             |                              | I1, I2, I3                   | I (Average)                            |
| Active Power        | $\pm 0.5\%$                  | W1, W2, W3                   | W (System)                             |
| Reactive Power      | $\pm 1\%$                    | Var1, Var2, Var3             | Var (System)                           |
| Apparent Power      | $\pm 0.5\%$                  | VA1, VA2, VA3                | VA (System)                            |
| *Maximum Demand     | $\pm 0.5\%$                  | W1, W2, W3, VA1, VA2, VA3    | KW (System), KVA (System)              |
| *THD                | $\pm 5\%$                    | V1, V2, V3, I1, I2, I3       | -                                      |
| Frequency           | $\pm 0.2$ Hz                 | -                            | Hz (System)                            |
| Power Factor        | 1 <sup>o</sup> Electrical    | PF1, PF2, PF3                | PF (System)                            |
| Active Energy       |                              | KWh1, KWh2, KWh3             | KWh Total (Import), KWh Total (Export) |
| Reactive Energy     | Class 1                      | KVarh1, KVarh2, KVarh3       | KVarh Total (Ind.), KVarh Total (Cap.) |
| Apparent Energy     |                              | KVAh1, KVAh2, KVAh3          | KVAh Total                             |
| **Phase Angle       | 1 <sup>o</sup> Electrical    | V1, V2, V3, V1I1, V2I2, V3I3 | -                                      |

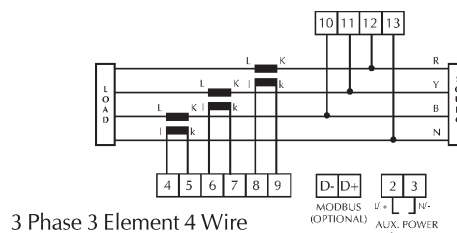
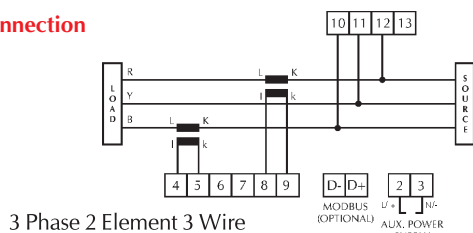
### Specifications

|                            |   |
|----------------------------|---|
| <b>Display</b>             | 3 Groups of 4 Digit LCD with Backlight & Annunciators<br>Viewing Area : 44 x 68mm     |
| <b>Auxiliary Supply</b>    | 110 / 230V AC $\pm 20\%$ (any one)<br>48V DC / 110V DC / 220V DC $\pm 20\%$ (any one) |
| <b>Input</b>               |   |
| Voltage/Phase              | 50 - 300V (max.) (Phase to Neutral)   |
| Current/Phase              | 0.2A to 1.2 A (max.) or<br>1A to 6A (max.) (any one only)                             |
| Frequency                  | 45-55 Hz  |
| Power Factor               | 0.300 Lag (L) - 1.000 - 0.300 Lead (C)  |
| <b>VA Burden (Typical)</b> |   |
| Auxiliary                  | < 5VA   |
| Voltage Input              | < 0.1VA / Phase   |
| Current Input              | < 0.5VA / Phase   |

|                              |   |
|------------------------------|---|
| <b>System</b>                | 3P2E3W / 3P3E4W (Factory Set)                           |
| <b>Standard</b>              |   |
| Installation Category        | Cat II (IEC / EN61010-1)                                |
| Pollution                    | Degree 2 (IEC / EN61010-1)                              |
| <b>Environment</b>           |   |
| Calibration                  | 27°C $\pm 5^\circ$ C                                    |
| Operating                    | 0 to 50°C, RH < 70%                                     |
| Storage                      | -10 to 60°C, RH < 70%                                   |
| <b>Terminals</b>             | Plug in type  |
| <b>Dimensions (mm)</b>       |   |
| Front                        | 96 x 96mm   |
| Depth (Behind Bezel)         | 90mm  |
| Panel Cut-Out                | 92 <sup>(+0.8, -0.0)</sup> x 92 <sup>(+0.8, -0.0)</sup> |
| <b>Dielectric Strength</b>   | 2.5kV at 50Hz for 1 min.                                |
| <b>Insulation Resistance</b> | > 20M $\Omega$ at 500V DC                               |

**Ordering Information :** Model, Input Voltage, Input Current, Input Frequency, System (3P2E3W or 3P3E4W), CTR / PTR (if any), RS485 MODBUS Communication (Optional) & Auxiliary Supply

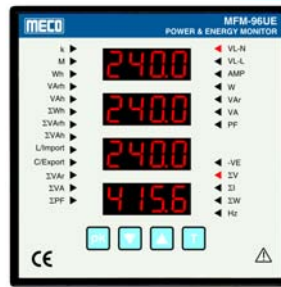
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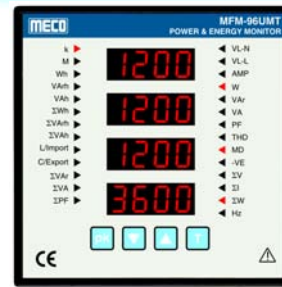


### Features

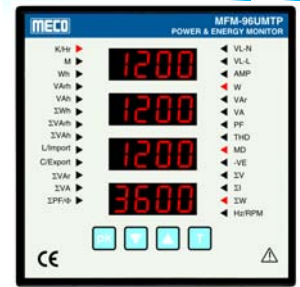
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MFM-96UMT



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  - THD for Voltage & Current
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| Parameters Measured | Accuracy $\pm$ (FS + 5Digit) | Phase                        | System                                 |
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| Voltage             | $\pm 0.2\%$                  | V1N, V2N, V3N, V12, V23, V31 | V (System)                             |
| Current             |                              | I1, I2, I3                   | I (Average)                            |
| Active Power        | $\pm 0.5\%$                  | W1, W2, W3                   | W (System)                             |
| Reactive Power      | $\pm 1\%$                    | Var1, Var2, Var3             | Var (System)                           |
| Apparent Power      | $\pm 0.5\%$                  | VA1, VA2, VA3                | VA (System)                            |
| *Maximum Demand     | $\pm 0.5\%$                  | W1, W2, W3, VA1, VA2, VA3    | KW (System), KVA (System)              |
| *THD                | $\pm 5\%$                    | V1, V2, V3, I1, I2, I3       | -                                      |
| Frequency           | $\pm 0.2$ Hz                 | -                            | Hz (System)                            |
| Power Factor        | 1 <sup>o</sup> Electrical    | PF1, PF2, PF3                | PF (System)                            |
| Active Energy       | Class 1                      | KWh1, KWh2, KWh3             | KWh Total (Import), KWh Total (Export) |
| Reactive Energy     |                              | KVarh1, KVarh2, KVarh3       | KVarh Total (Ind.), KVarh Total (Cap.) |
| Apparent Energy     |                              | KVAh1, KVAh2, KVAh3          | KVAh Total                             |
| **Phase Angle       | 1 <sup>o</sup> Electrical    | V1, V2, V3, V111, V212, V313 | -                                      |

### Specifications

|                            |   |
|----------------------------|---|
| <b>Display</b>             | Simultaneous Display of 4 Parameters, 4 Digits Resolution, 0.36" / 9.2mm Digit Height |
| <b>Auxiliary Supply</b>    | 110 / 230V AC $\pm 20\%$ (any one)<br>48V DC / 110V DC / 220V DC $\pm 20\%$ (any one) |
| <b>Input</b>               |   |
| Voltage/Phase              | 50 - 300V (max.) (Phase to Neutral)   |
| Current/Phase              | 0.2A to 1.2 A (max.) or<br>1A to 6A (max.) (any one only)                             |
| Frequency                  | 45-55 Hz  |
| Power Factor               | 0.300 Lag (L) - 1.000 - 0.300 Lead (C)  |
| <b>VA Burden (Typical)</b> |   |
| Auxiliary                  | < 5VA   |
| Voltage Input              | < 0.1VA / Phase   |
| Current Input              | < 0.5VA / Phase   |

|                              |   |
|------------------------------|---|
| <b>System</b>                | 3P2E3W / 3P3E4W (Factory Set)                           |
| <b>Standard</b>              |   |
| Installation Category        | Cat II (IEC / EN61010-1)                                |
| Pollution                    | Degree 2 (IEC / EN61010-1)                              |
| <b>Environment</b>           |   |
| Calibration                  | 27°C $\pm$ 5°C  |
| Operating                    | 0 to 50°C, RH < 70%                                     |
| Storage                      | -10 to 60°C, RH < 70%                                   |
| <b>Terminals</b>             | Plug in type  |
| <b>Dimensions (mm)</b>       |   |
| Front                        | 96 x 96mm   |
| Depth (Behind Bezel)         | 90mm  |
| Panel Cut-Out                | 92 <sup>(+0.8, -0.0)</sup> x 92 <sup>(+0.8, -0.0)</sup> |
| <b>Dielectric Strength</b>   | 2.5kV at 50Hz for 1 min.                                |
| <b>Insulation Resistance</b> | > 20MOhms at 500V DC                                    |

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