Product Presentation

Training Presentation on
PM 1XXX and DM 6XXX series
Meters

Schneider Electric

Overview

1. Intro About PM 1000 / DM 6000 series

- True RMS measurement
- Digital Multifunction Meter
- 8 Segment LED Display
- 3 Row & 4 Digit each row
- Load Analyser
- Tri Color Analog Load Bar
- Four Quadrant Measurement (Power & Energy)
- Field Programmable VTR(PTR) and CTR both Primary & Secondary
- User Selectable Demand Parameter (A or W or VA)
- Universal Auxiliary (Control) Supply , works both on AC and DC
- Pass Word Protected (Factory set)

2. Models

PM 1000
- PM 1000*
- PM 1200^

DM 6000
- DM 6000*
- DM 6200^

* **With out RS 485 Communication Port**
^ **With RS 485 Communication Port**

3. Applications : PM 1X00 Series.. contd

- Entry Range Multi Function meter, which provides all parameters required in a basic multifunction meter
- For Load Studies and Circuit Optimization
- For Power Monitoring
- For Demand Monitoring
- For Equipment Monitoring and Control
- For Preventive Maintenance Scheduling
- Can be used on either LV / MV / HV systems.

3. Application : DM 6X00 Series

APPLICATIONS:

- Direct Replacement for existing Analog meters in one panel.
  - One Voltmeter with One Selector Switch or Three Voltmeters
  - One Ammeter with One Selector Switch or Three Ammeters
  - Frequency Meter
  - PF Meter
  - RPM Meter (wherever required)
- For Equipment Monitoring
- For Preventive Maintenance Scheduling
- Can be used on either LV / MV / HV systems.

4. Technical Characteristics of DM 1X00

- **Accuracy**
  - PF, Volts, Amps, Active Power, Apparent Power: 1.0 % of reading
  - Reactive Power: 2.0 % of reading
  - Active Energy: 1.0 as per IEC 62053 – 21
  - Reactive Energy: 2.0 as per IEC 62053 – 23
  - Apparent Energy: 1.0 % of reading
- **Display**: 3 Row, 4 Digit, Red LED Display (alpha numeric segments), 14mm height of digits. Auto scaling from kilo to mega to giga, auto scrolling from one parameter to another / from one page to another
- **Size**: 96 X 96 mm bezel, 92 X 92 mm panel cut out
- **Data Update:** 1 second
- **Input Voltage**: 80 – 480 V AC L – L, without PTs, upto 999 kV with PTs
- **Input Current**: Through CTs,
  - CT primary: 1 A – 99.0 kA, CT secondary: 1 A – 5 A
- **Burden**: 0.2 VA on per phase for V & I, 3 VA on power supply
- **Power Supply**: 44 – 277 V AC / DC
- **Temperature**:
  - Operating: - 10° to +60° C
  - Storage: - 25° to +70° C
- **IP Rating**: Front: IP 51, Back: IP 40
- **Communication**: 2 terminal RS 485 port, baud rate upto 19600, MODBUS RTU protocol
- Fully Site programmable for various configurations from the keys on the front of the meter.
- Locking of programming menu and default page settings
- Color coded terminal block for ease of wiring

4. Technical Characteristics of DM 6X00

- **Accuracy**
  - PF, Volts and Amps: 1.0 % of reading for Class 1.0.
  - **Display**: 3 Row, 4 Digit, Red LED Display (alpha numeric segments), 14mm height of digits. Auto scaling from kilo to mega to giga, auto scrolling from one parameter to another / from one page to another
- **Size**: 96 X 96 mm bezel, 92 X 92 mm panel cut out
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- **Input Voltage**: 80 – 480 V AC L – L, without PTs, upto 999 kV with PTs
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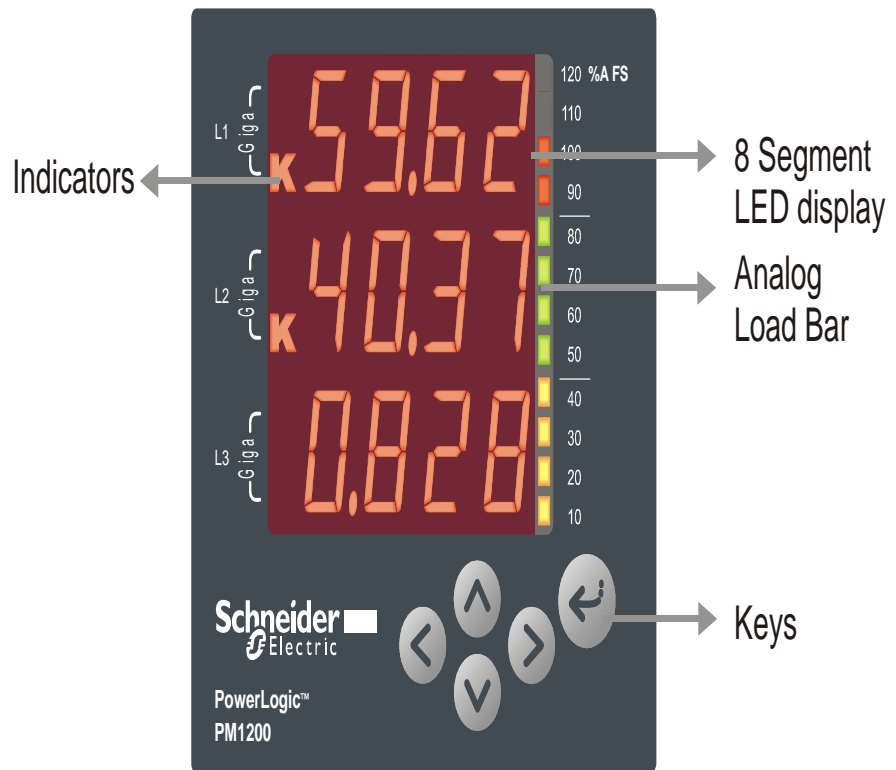- Locking of programming menu and default page settings
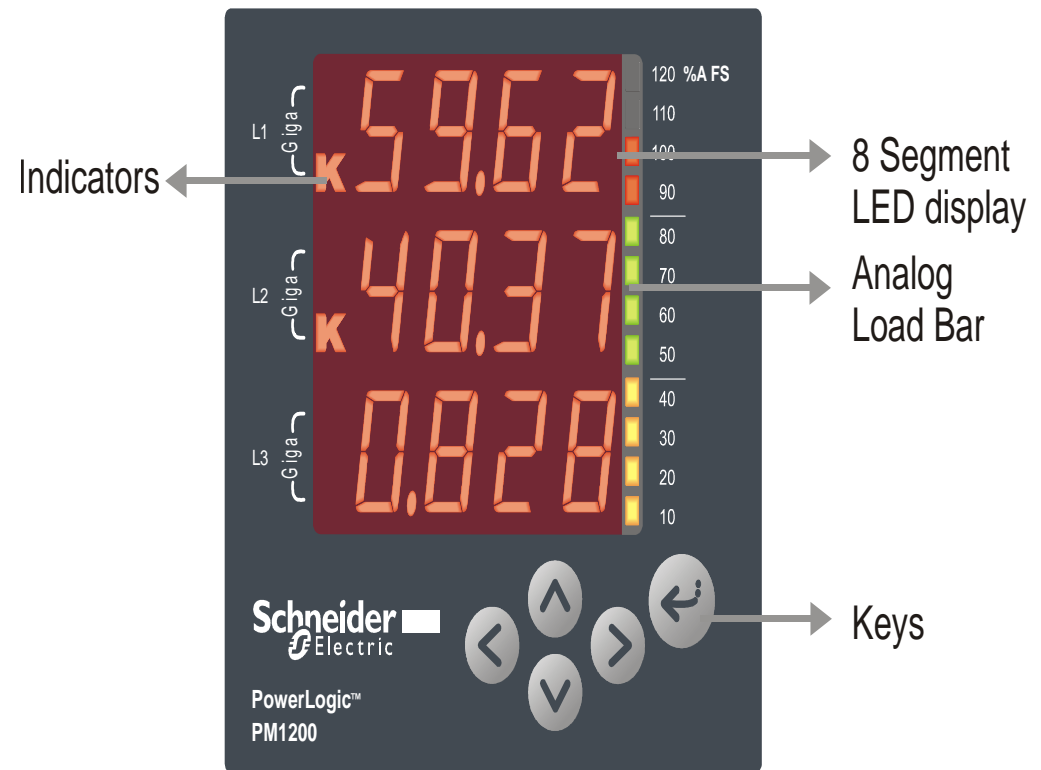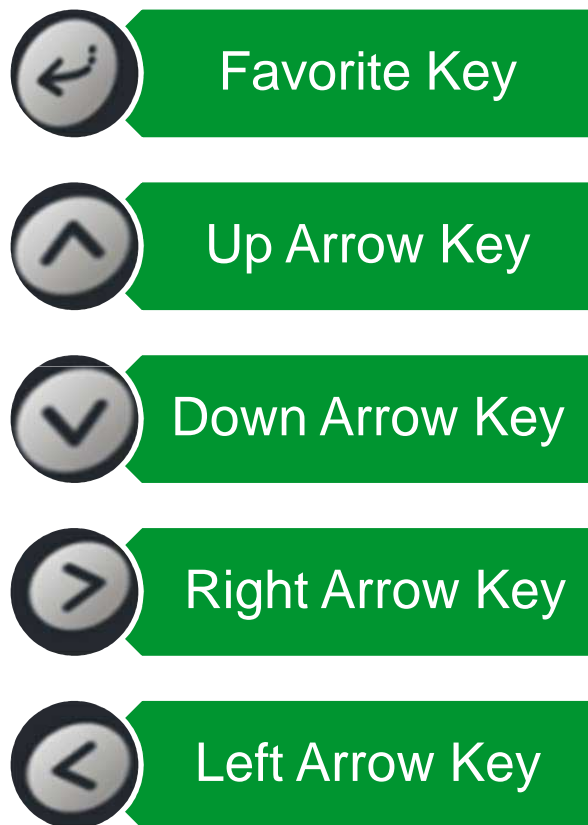- Color coded terminal block ease of wiring

5.1 Brief about Display & Front Panel Keys

- Display
  - Bright 8 Segment LED Display (14mm Height)
  - Alpha Numeric Display
  - Three Row
  - Four 4 digits per Row
  - Tricolor Analog Load Bar (Red, Yellow and Green) for Indication of % of load based on CT ratio loading or Equipment loading helps to check the real time loading / performance (% FS can be programmable from 1 to 100% of CT Primary in set up menu).
  - In Built "K", "-" and "M" Indicators for parameter Value Display with Kilo, minus and Mega.

Indicators →

→ 8 Segment LED display

→ Analog Load Bar

→ Keys

5.1 Brief about Display & Front Panel Keys

Favorite Key

Up Arrow Key

Down Arrow Key

Right Arrow Key

Left Arrow Key

Indicators

8 Segment LED display

Analog Load Bar

Keys

5.1 Front Panel Key Functions

Turbo Key
For navigation to Favorite Pages,Saving Values,
Entry to Edit Menu (set up) while Powering ON Aux Supply

Up Arrow Key
For Moving up to further pages, Changing Digit and Decimal

Down Arrow Key
For Moving down to further pages, Changing Digit and Decimal

Right Arrow Key
For Navigation to sub pages, Saving, editing, Intg Clear
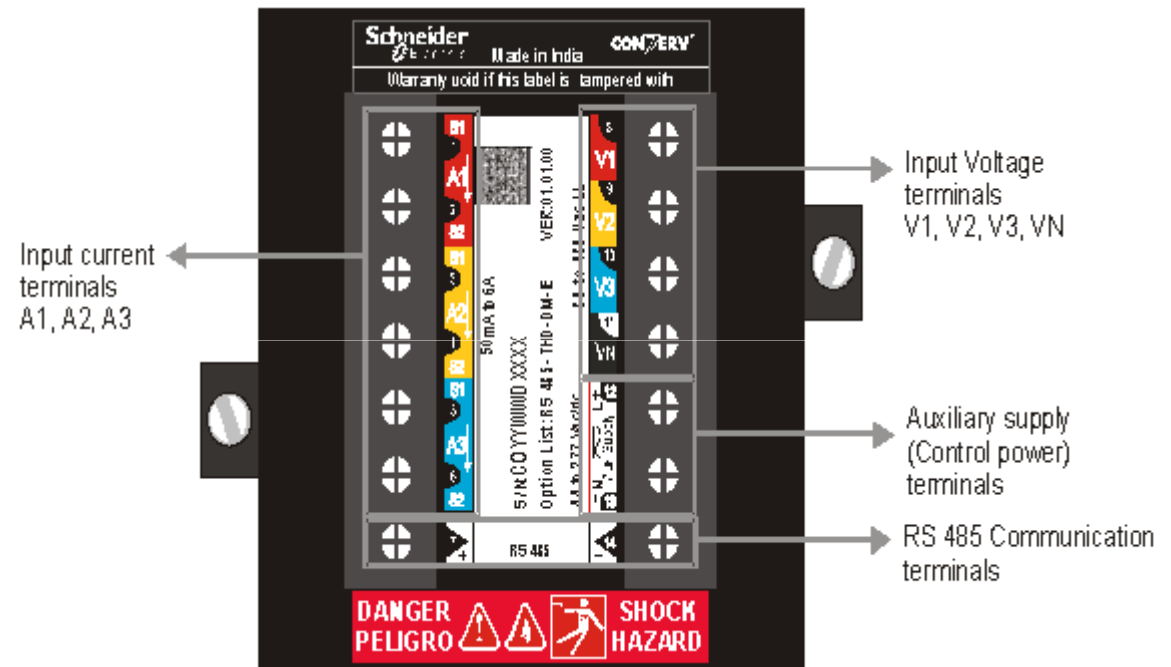and to next Digit

Left Arrow Key
For Navigation from sub pages to main page, to previous Digit
and to SIM Mode while powering ON

5.2 Meter Rear Side Terminal Block & Label

Separate Terminals for
1. Current Input from Current Transformer for each Phase (Terminal 1,2,3,4,5 & 6, one S1 and S2 for each phase with label colored in Red, Yellow and Blue for each phase)
2. Voltage Input (Terminal 8,9,&10) – separately for each phase plus one for Neutral (Terminal No.11)
3. Auxiliary Supply AC/DC 44-277V (Terminal 12&13)
4. RS 485 Communication Labeled (terminal 7&14) only for PM 1200/DM 6200

Input current terminals A1, A2, A3

Input Voltage terminals V1, V2, V3, VN

Auxiliary supply (Control power) terminals

RS 485 Communication terminals

5.3 Programming & Wiring

- Meter can be programmed for
    - Voltage : LV/MV/HV
        - 3 Phase 4 Wire (Star / Wye),
        - 3 Phase 3 Wire (Delta)
        - 2 Phase
        - 1 Phase
    - Amps
        - 1 A to 5A
    - Demand Parameter Programmable
        - for VA or W or A (user selectable, only one at a time)
        - Auto or User Mode (Sliding or Fixed Window Demand)
        - Timings Programmable 5-30 min with steps of 5 min
        - Maximum Demand Value Recorder
    - RPM : Number of Poles Can be Programmed from 2 – 16 in steps of 2.
    - Overflow of Energy : based on Wh or VAh user selectable.

5.3 Programming & Wiring

- Set up Menu
    - Thru View and Edit   by Entering Factory Set Pass Word 1000
    - Direct Entry to Edit by Pressing Favorite key for 2 Seconds while Power ON meter(No pass Word Required for this Mode)

- Voltage : LV/MV/HV
    - 3 Phase 4 Wire (Star / Wye),
    - 3 Phase 3 Wire (Delta)
    - 2 Phase
    - 1 Phase

- Amps
    - 1 A to 5A (user Programmable)

- Demand Programmable
    - Parameter VA or W or A (user selectable, only one at a time)
    - Auto or User Mode (Sliding or Fixed Window) user Selectable
    - Timings Programmable 5-30 min with steps of 5 min
    - Maximum Demand Value Recorder

-

5.3 Programming & Wiring

- Meter can be programmed for

  - Apparent Power measurement (VA) : 3D or Arithmetic (User Selectable)

- Phase Labels User Selectable from

  - 123, RYB, RST, PQR, ABC

- % of Full Scale

  - User Programmable from 1% - 100% for Indication of Loading Based on CT Ratio primary or Equipment in Meter as Well on Analog Tricolor Load Bar

- RPM : Number of Poles Can be Programmed from 2 – 16 in steps of 2.

- Overflow of Energy : based on Wh or Vah user selectable.

- Communication Parameters (applicable only for PM 1200 / DM 6200)

  - Baud Rate 2400 – 19200 (User Selectable)

  - ID : User Programmable from 1 to 247

  - Parity and Stop Bit : User Selectable

5.4 Auto Scaling

● Auto Scaling

  ● PM 1X00 & DM 6X00 series will automatically scale as referred in table below.

  ● Basic and Power Parameters indication will be in 4 digits and Energy Parameters Indication in 8 Digits.

  ● PF Sign : "-" for Lead & No sign for Lag.

Sl.No	Parameter Scale (eg W)	From	To	Indication
1.	Watts	0000. 0000	9999. 9999	No LED glows
2.	Kilowatts (kW)	10.00 0000	9999. 9999	K LED glows
3.	Megawatts(MW)	10.00 0000	9999. 9999	M LED glows
4.	Gigawatts (GW)	10.00 0000	9999. 9999	Both K&M LED glows

6. Key Features

6.1 Default Page Lock :

- Press Left ⓒ and Right ⓒ simultaneously when in any of the Main / Sub pages for locking as default page , this will help the user to return to default locked page even they navigate to further pages after 2 minutes.

- Also this default page will prevent entry in set up (both thru Edit menu Pass Word as well in Power ON set up Mode) by unauthorised personnel's

- To Unlock the page again Press Left ⓒ and Right ⓒ simultaneously when in any of the Main / Sub pages

6.2 Power ON Set up:

- To enter Set up (Edit Mode) Keep Pressing Favorite key ⓒ for 2 seconds while Powering ON Auxiliary supply to the meter.

6. Key Features

6.4 Auto Scroll Mode :

- Three Types of Auto Scroll Can be activated by Pressing the keys for 5secs
  - Favorite Key ⟨↵⟩ for Auto Scroll of Selected pages (factory default)

  - UP Key ⟨∧⟩ for Auto Scroll with in Basic & Power Parameters Main/Sub pages (factory default)

  - Down Key ⟨∨⟩ for Auto Scroll of All Main/Sub pages (factory default)
  - In Auto Scroll Mode Parameter name is Display for 2 Seconds and Parameter Values for 4 Seconds

6.5 On Hrs , Run Hrs and Interruptions

- ON Hours : Will Indicate the total Duration of Auxiliary Supply On time in Hrs (4 digits): Minutes (2 digits): Seconds (2 digits) with Max of 9999 Hrs
- Run Hrs#: Will Indicate the total time of load Hrs based on Wh updation in Hrs (4 digits): Minutes (2 digits): Seconds (2 digits) with Max of 9999 Hrs
- Interruptions : Will Indicate (in Counts) the number of time Auxiliary Supply Interrupted .

: Run Hrs Only in PM 1000 and PM 1200 Models.

For Tech Support

❖Email : customercare@vn.schneider-electric.com

❖ Call (Tool Free)
  ❖ Phone : 1800 585858