DM1000/DM3000 Series Digital Panel Meter

Quick Start Guide

HRB64845-04

English
03/2016



Safety Precautions

Read and follow all the safety precautions and instructions before installing and working with this equipment.

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. In the USA, see NFPA 70E.
- Only qualified electrical workers should install this equipment. Such work should be performed only after reading this entire set of instructions.
- If the equipment is not used in the manner specified by the manufacturer, the protection provided by the equipment may be impaired.
- NEVER work alone.
- Before performing visual inspections, tests, or maintenance on this equipment, disconnect all sources of electric power. Assume that all circuits are live until they have been completely de-energized, tested, and tagged. Pay particular attention to the design of the power system. Consider all sources of power, including the possibility of backfeeding.
- Turn off all power supplying the digital meter and the equipment in which it is installed before working on it.
- Always use a properly rated voltage sensing device to confirm that all power is off.
- Before closing all covers and doors, carefully inspect the work area for tools and objects that may have been left inside the equipment.
- Use caution while removing or installing panels so that they do not extend into the energized bus; avoid handling the panels, which could cause personal injury.
- The successful operation of this equipment depends upon proper handling, installation, and operation. Neglecting fundamental installation requirements may lead to personal injury as well as damage to electrical equipment or other property.
- NEVER bypass external fusing.
- NEVER short the secondary of a PT.
- NEVER open circuit a CT; use the shorting block to short circuit the leads of the CT before removing the connection from the digital meter.
- Before performing Dielectric (Hi-Pot) or Megger testing on any equipment in which the digital meter is installed, disconnect all input and output wires to the digital meter. High voltage testing may damage electronic components contained in the digital meter.
- The digital meter should be installed in a suitable electrical enclosure.

Failure to follow these instructions will result in death or serious injury

Additional Resources

The Conzerv DM1000 series (1-ph V A F) / DM3000 series (3-ph V A) digital panel meters offer five different configurations. To download installation guide and other documentation, go to www.schneider-electric.com, select your country/region and search for your meter model (e.g., DM3210).

Introduction

The DM1000/DM3000 series digital meter ships in five different configurations as given below.

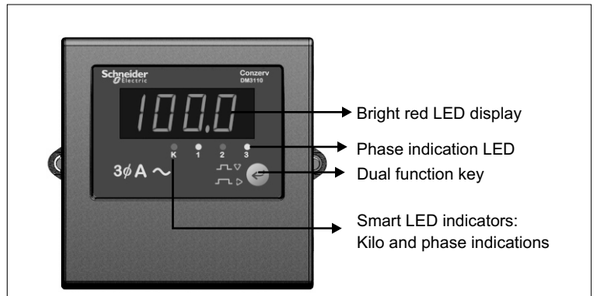
1. DM1110: 1-phase ammeter (A)
2. DM1210: 1-phase voltmeter (V)
3. DM1310: 1-phase frequency meter (Hz)
4. DM3110: 3-phase ammeter (A)
5. DM3210: 3-phase voltmeter (V)

Box Contents

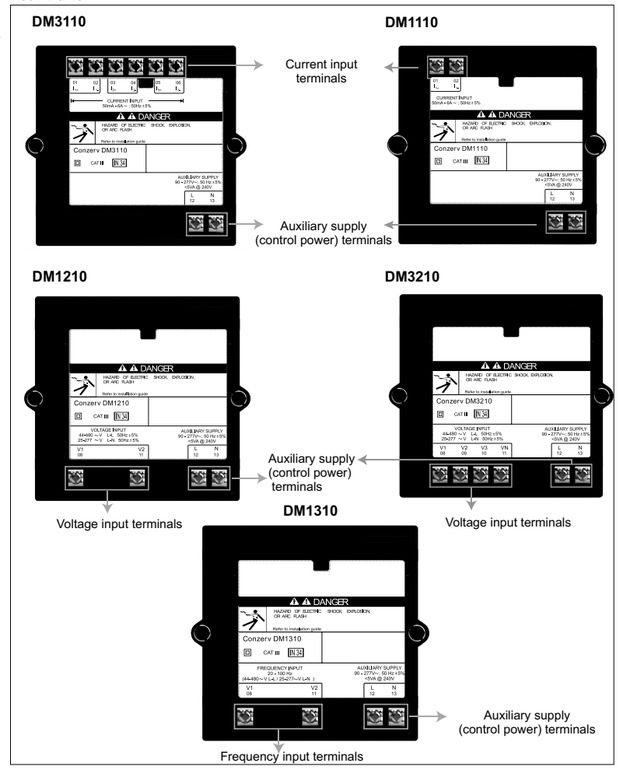
- One (1) digital panel meter
- One (1) quick start guide
- One (1) test and calibration certificate for the digital meter

Digital Meter Physical Description

Front Panel (DM3110)



Rear Panel



Installation

Connecting Cable Requirements

	Insulation rating	Current rating	Temperature rating	Wire size
Voltage circuit	> 600 VAC	> 0.1 A	> 75 °C (167 °F)	0.82 - 3.31 mm^2 (18 - 12 AWG)
Current circuit	> 600 VAC	> 7.5 A	> 75 °C (167 °F)	0.82 - 3.31 mm^2 (18 - 12 AWG)

NOTICE

DAMAGE TO THE DEVICE

- Use only the specified tool for tightening and loosening the screw
- Do not over-torque the screw above the specified range

Failure to follow these instructions can result in equipment damage.

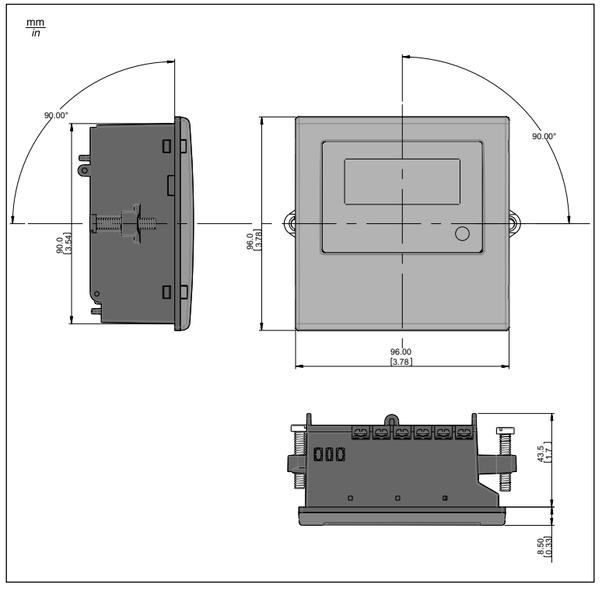
Tools and equipment

Driver	Torque driver preferred; may use hand screwdriver.
Tip	Philips tip preferred, but you can also use flat. Do not use Pozidriv tip.
Screw head Diameter	3.5 mm (0.14 in.)
Shaft diameter	< 5 mm (0.2 in.). Diameter ≥ 5 mm (0.2 in.) will get stuck in the cover.
Torque	Tightening Torque: 0.25 to 1 N.m (2.21 to 8.85 lb-in) If the torque is more than 1 N.m (8.85 lb-in), then it may damage the screw or the screw head. Loosening Torque: 1.2 N.m (10.62 lb-in)

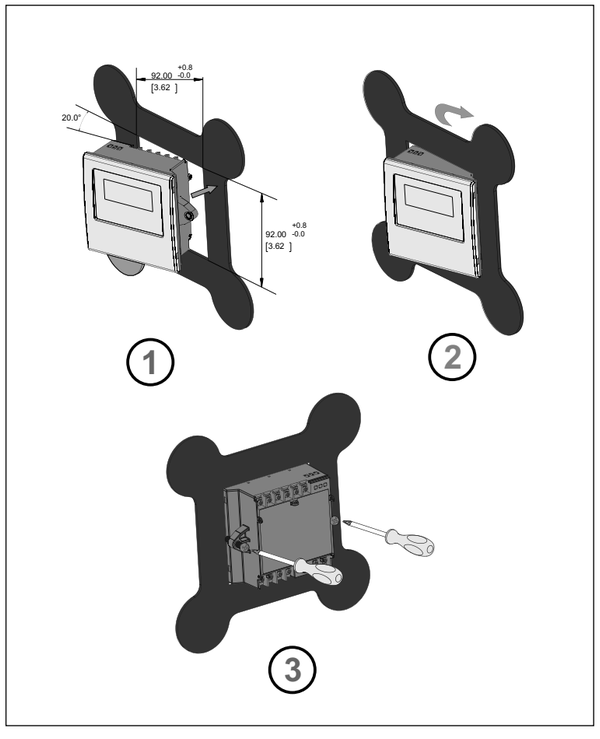
NOTE: Installations should include a disconnecting device, like a switch or circuit breaker, with clear ON/OFF markings to turn-off the auxiliary supply (control power). The disconnecting device should be placed within the reach of the equipment and the operator.

Dimensions and Mounting

Dimensions



Mounting



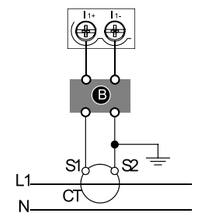
Wiring

Wiring Diagram Symbols

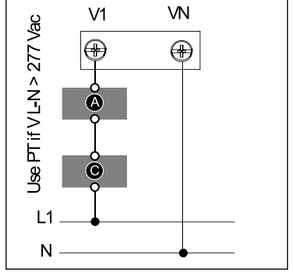
Symbol	Description
S1 S2	Current transformer
	Ground
A	0.25A Fuse
B	Shorting block
C	Voltage disconnect switch

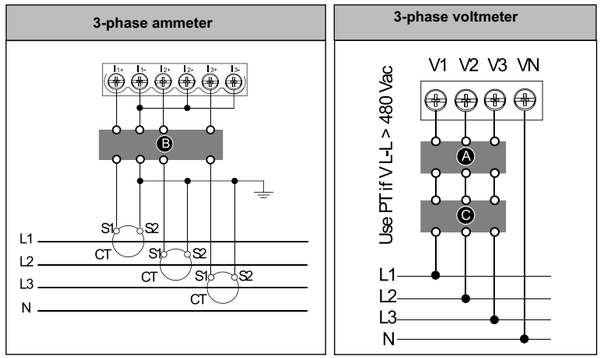
Wiring diagrams

1-phase ammeter

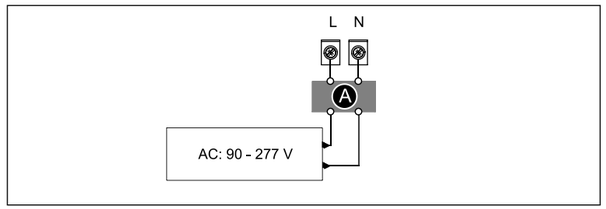


1-phase voltmeter/frequency meter





Control power



Note: Clearly label the device's disconnect circuit mechanism and install it within easy reach of the operator.

If using a control power transformer, fuse both primary and secondary sides of the transformer. The fuses / circuit breakers must be rated for the installation voltage and sized for the available fault current. Fuse for neutral terminal is required if the source neutral connection is not grounded.

Dual Function Key

The Conzerv DM1110, DM1210, DM1310, DM3110, and DM3210 digital panel meters have an intuitive dual function key. The following table explains the dual function key operation.

Press dual function key for	To
Five seconds	Enter setup menu.
Two seconds (Long press)	Select the digit/value in the setup menu for editing.
Simple one touch (Short press)	• Edit the digit/value in the setup menu. • Scroll down the display pages.

Setup Menu

⚠ CAUTION

HAZARD OF UNINTENDED OPERATION

Only qualified personnel are authorized to set up the digital meter.

Failure to follow this instruction can result in injury or equipment damage.

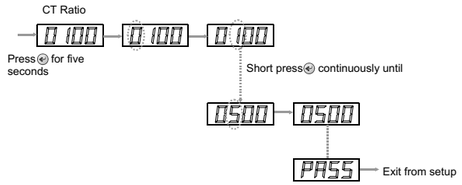
To enter setup menu

1. Press ↵ and hold for five seconds.
2. For DM1110 / DM3110, the display flashes CTr and displays the default CTr value 0100.
   For DM1210 / DM3210, the display flashes PTr and displays the default PTr value 1.000.

NOTE: CTr is CT ratio and Ptr is PT ratio.

To edit CT Ratio (DM1110 / DM3110)

To set the CTr value to 2500/5 i.e., 0500 in DM1110 / DM3110 digital panel meter.

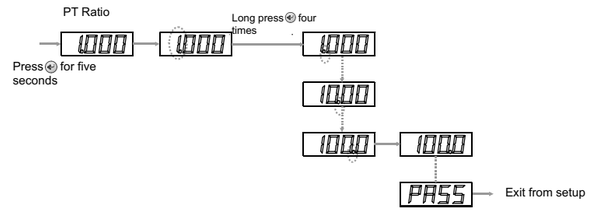


1. Press ↵ and hold for five seconds.
   The display flashes CTr and displays the default CTr value 0100.
2. Long press ↵. The display shows **0100** with blinking **0**.
3. Long press ↵. The display shows **0100** with blinking **1**.
4. Short press ↵ for four times. The display shows **0500** with blinking **5.**
5. Long press ↵ to accept the new value.
6. Short press ↵. The display flashes **PASS** and comes out of the setup mode.

NOTE: The maximum CTr value you can set in DM1110 / DM3110 digital panel meter is 9999.

To edit PT ratio (DM1210/DM3210)

To set the PTr value to 11 kV/110 i.e., 100 in DM1210 / DM3210 digital panel meter.



1. Press ↵ and hold for five seconds.
   The display flashes PTr and displays the default PTr value 1.000.
2. Long press ↵. The display shows **1.000** with blinking **1**.
3. Long press ↵ for four times. The display shows **1.000** with blinking decimal point ".".
4. Short press ↵ to shift the decimal point one place. The display shows **10.00** with blinking ".".
5. Short press ↵ to shift the decimal point one more place. The display shows **100.0** with blinking ".".
6. Long press ↵ to accept the new value.
7. Short press ↵. The display flashes **PASS** and comes out of the setup mode.

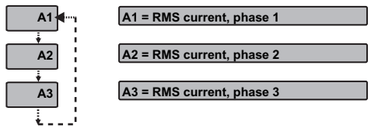
NOTE: The maximum PTr value you can set in the DM1210 / DM3210 digital panel meter is 9999.

NOTE:

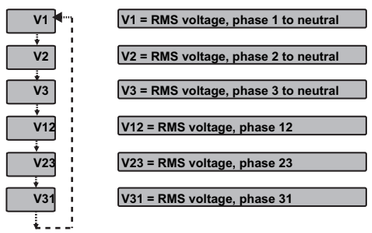
→ *Key long press* ⟨1⟩ *Digit/value selection for editing*
⇢ *Key short press* ⟨1⟩ *Digit/value 1 is selected for editing*

Menu Hierarchies

DM3110: Menu Hierarchy



DM3210: Menu Hierarchy



Technical Specifications

Description		Specification
Sensing/measurement		True RMS, one second update time
Accuracy	DM1000	Voltage and current: ± 1.0 % of full scale for Class 1.0 ± 0.5 % of full scale for Class 0.5 Frequency: ± 0.2 % of full scale
	DM3000	Voltage and current: ± 1.0 % of full scale for Class 1.0 ± 0.5 % of full scale for Class 0.5
Auxiliary supply (control power)		AC: 90 to 277 V AC Frequency: 50 ± 5% Hz
Input voltage	DM1210 DM3210	44 to 480 Vac L-L; 50 ± 5% Hz 25 to 277 Vac L-N; 50 ± 5% Hz
Input current	DM1110 DM1310	1A/5A AC Nominal, 50mA to 6A AC; 50 ± 5% Hz
Input frequency	DM1310	20 to 100 Hz at 44 to 480 Vac L-L /25 to 277 Vac L-N; 50 ± 5% Hz
Burden		Voltage and current input < 0.2 VA per phase Max 5 VA at 240 Vac L-N, 50 ± 5% Hz
Overload		10 A max continuous, 50 A for 5 sec/hr, 120 A for 1 sec/hr
Display and resolution		Four digits, seven segment LED display 0.1 % resolution.
Safety		CAT III - Measurement Pollution degree 2 ⧈ - Double insulation at user-accessible area
IP degree of protection		Front Display - IP 50 ; Meter Body - IP 30
Environmental		Operating temperature: -10 °C to 60 °C (14 °F to 140 °F) Storage temperature: -25 °C to 70 °C (-13 °F to 158 °F) Humidity 5 % to 95 % non-condensing
Product weight (approx)	DM1110	200 gms
	DM1210 DM1310	180 gms
	DM3110	240 gms
	DM3210	195 gms
Isolation		4 kV for one minute
DM3000/DM1000 series conforms to		Emission : CISPR11; Class A Electrical Fast Transient: IEC 61000-4-4* Electrostatic discharge: IEC 61000-4-2* Surge withstand: IEC 61000-4-5* Radiated susceptibility: IEC61000-4-3* Conducted susceptibility: IEC61000-4-6* Immunity to voltage dips and interruptions: IEC61000-4-11*
Altitude		≤2000m

*Notice: * As per IEC 61326-1*

Safety Instructions

Read these instructions carefully and look at the equipment to become familiar with the device before trying to install, operate, service or maintain it. The following special messages may appear throughout this bulletin or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.

The addition of either symbol to a "Danger" or "Warning" safety label indicates that an electrical hazard exists which will result in personal injury if the instructions.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury.

⚠ DANGER

DANGER indicates a hazardous situation which, if not avoided, will result in death or serius injury.

Electrical equipment should be installed, operated, serviced and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.
A qualified person is one who has skills and knowledge related to the construction, installation, and operation of electrical equipment and has received safety training to recognize and avoid the hazards involved.

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