

Conzerv DM5230/DM5240

EAV72497-03



Schneider
Electric



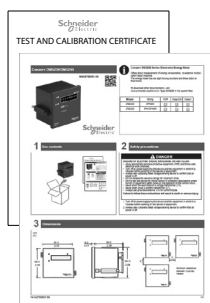
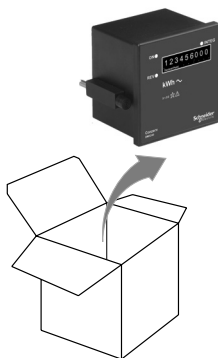
Conzerv DM5200 series electronic energy meter

Offers direct measurement of energy consumption (no external multiplication factor required).
The energy meter has six digit moving counters and three static or fixed zeros.

To download other documentation, visit
www.schneider-electric.co.in. Type DM5200 in the search field.

Model	Wiring	POP	Class 0.5	Class1
DM5230	3PH3W	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
DM5240	1PH/3PH4W	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

1 Box contents



2 Safety precautions

⚠ DANGER

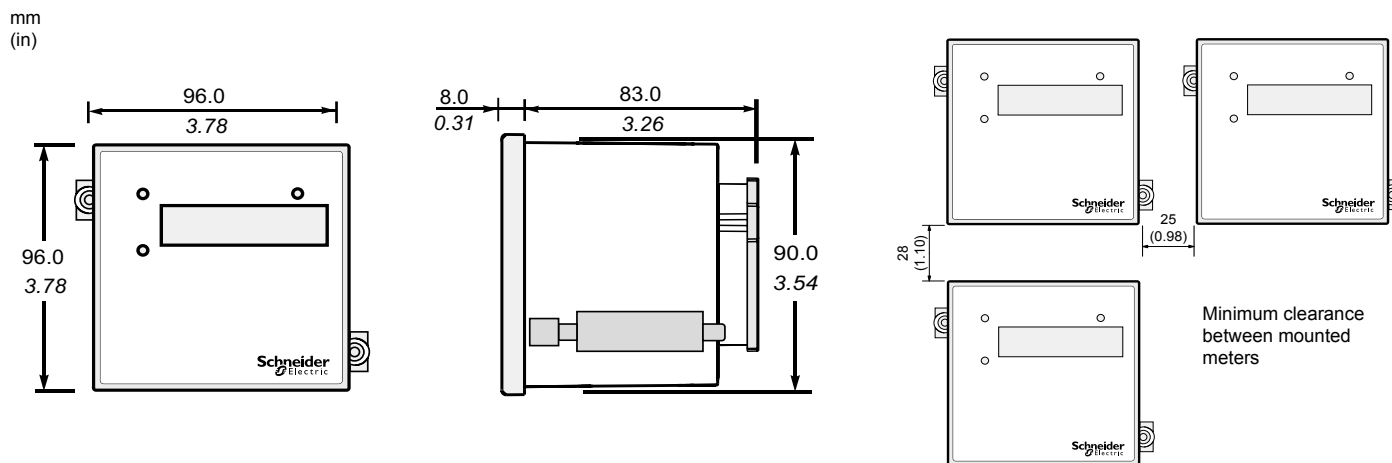
HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices.
- Turn off all power supplying this device and the equipment in which it is installed before working on the device or equipment.
- Always use a properly rated voltage sensing device to confirm that all power is off.
- Do not exceed the device's ratings for maximum limits.
- Do not use this device for critical control or protection applications where human or equipment safety relies on the operation of the control circuit.
- Never short the secondary of a voltage transformer (VT).
- Never open circuit a current transformer (CT).
- Always use grounded external CTs for current inputs.

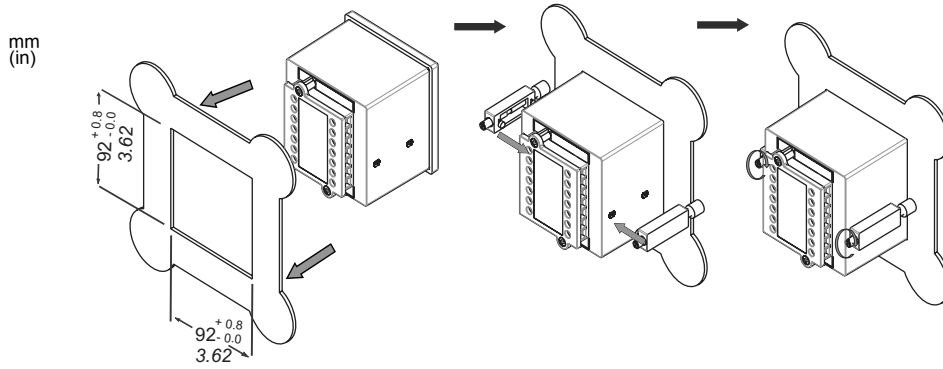
Failure to follow these instructions will result in death or serious injury.

1. Turn off all power supplying this device and the equipment in which it is installed before working on the device or equipment.
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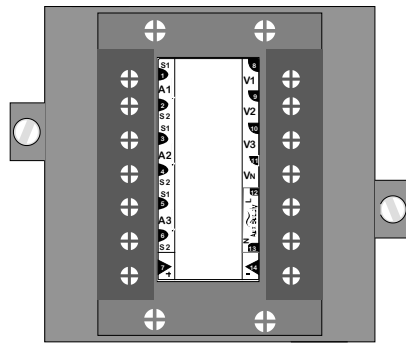
3 Dimensions



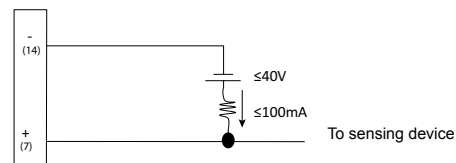
4 Mounting




5 Wiring



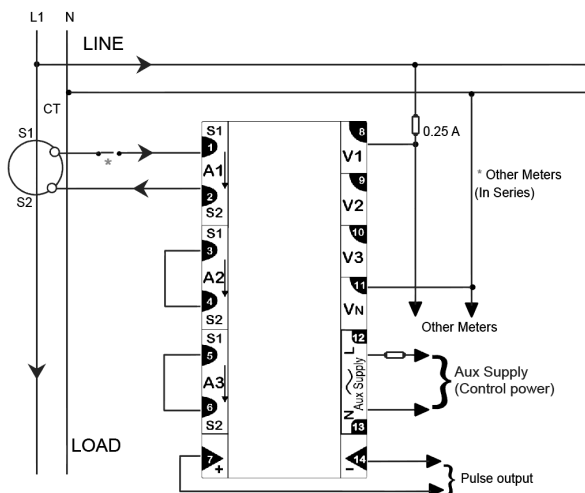
POP



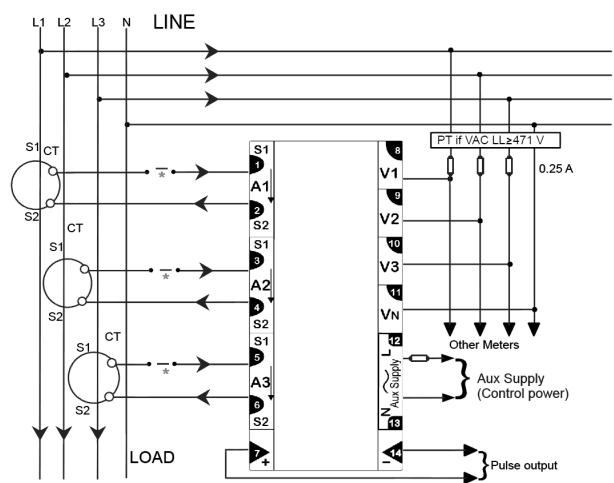
Terminals		Wire size	Wire strip length	Screwdriver type	Tightening Torque
Current terminals	A1 (S1, S2) A2 (S1, S2) A3 (S1, S2)	2.08 - 3.31 mm ² (14 - 12 AWG)	<div><div>3.68 mm ±0.08 [.145 in ±.003] DIA</div><div>6.35 mm [0.250 in] MAX</div></div>	⊕ (PH2)	0.25 - 1.0 N·m (2.2 - 9.0 in·lb)
Voltage terminals	V1, V2, V3, VN	0.82 - 3.31 mm ² (18 - 12 AWG)	7 mm (0.28 in)		<i>Note: Exceeding torque over 1.0 N·m (2.2 - 9.0 in·lb) may damage the screw or the screw head.</i>
Control power	L, N				
Pulse output	+, -				

DM5240

1PH

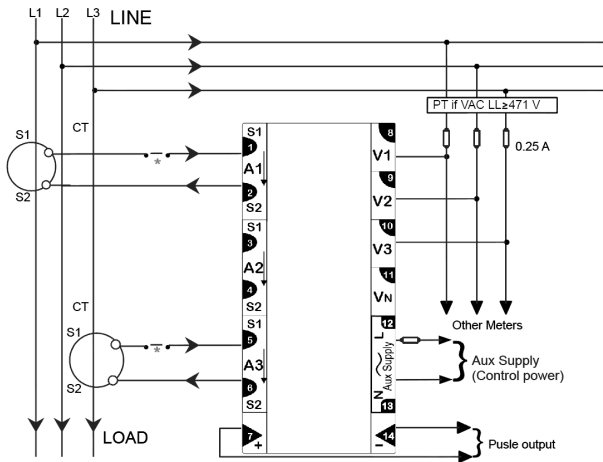


3PH4W



DM5230

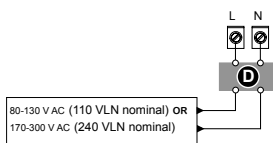
3PH3W



VT	
Fuse	
*	Other meters (in series)

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Control power



D 250 mA fuses

L and N are non-polarized. If using an AC power supply with neutral, connect neutral to the meter's N terminal.

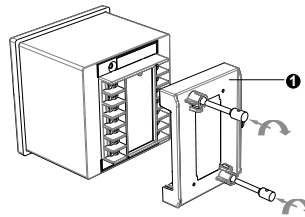
Always use a fuse on L. Fuse N when connecting an ungrounded neutral to the control power.

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.

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Tamper-resistant cover



1 Tamper-resistant cover

To install the tamper-resistant cover:

1. Place the tamper-resistant cover over the terminal block.
2. Tighten the screws at the sealing points to seal the cover.

Note: The tamper-resistant cover is an optional accessory that you can order separately.

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Description

POWER, INTEG, and REV LEDs

POWER LED/ON LED: Indicates presence of Auxiliary Power which is essential for the meter operation.

REV LED: For cross checking connections, low current (<5 % load of CTR), and low power factor (PF) (<0.5 Lag or >0.8 Lead).

INTEG LED: Indicates that integration of Energy is in progress. The LED Blink Rate is either 10 or 8 times that of the Counter update. Hence its resolution is 10 or 8 times that of the Counter and can be conveniently used for meter calibration. Meter constant to be calculated as shown below:

$$\text{No. of INTEG LED blinks per one count update} \times \text{PT ratio} \times \text{CT ratio} = \text{Multiplication Factor}$$

Note: PT ratio and CT ratio are mentioned on the terminal block.

Overflow Hours

As the Counter accumulates kWh, it will eventually reach 999999 and then overflow to 000000. The duration it takes to overflow is approximately equal to $(999999 \times \text{MF}) / \text{average kWh}$.

Multiplying Factor (MF)

The meter is calibrated for particular CT, PT ratio as mentioned on the terminal block. When the meter is used with CT, PT of the same ratio, MF is either 0.01 or 0.1 or 1.0 or 10.0 or 100.0. A decimal point has been placed on the 9 digit (6 moving and 3 dummy digits) depending on the MF. While noting the energy readings, the 9 digit energy readings need to be taken including the decimal point.

Example1 - PT : --/0.415kV, CT: --/5A for this meter
MF = 0.01. Hence the decimal point placement as shown (After 4th digit).
The above display shows 1234.5600kWh

1	2	3	4	5	6	0	0	0
Decimal Point						.		

Example2 - PT : 11kV/110V, CT: 250/5A for this meter
MF = 100.0. Hence the decimal point placement as shown (After 8th digit).
The above display shows 12345600.0kWh

1	2	3	4	5	6	0	0	0
Decimal Point								.

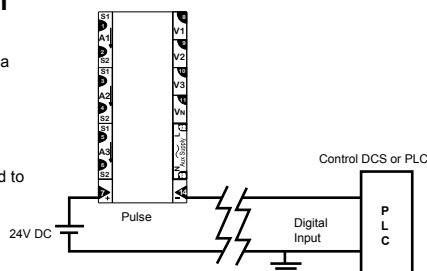
	1	2	3	4	5	6	0	0	0
Decimal Point									
Full Scale kW	0.4	4.1	41	401	4,001	40,001			
$\sqrt{3}$ V Pri LL x A.Pri	to 4.0	to 40	to 400	to 4000	to 40,000	to 4,00,000			
Multiplying Factor:	0.01	0.1	1	10	100	1000			
(Represented by decimal point)									
Resolution :	0.01	0.1	1	10	100	1000			
- Counter : kWh/ Count	0.01	0.1	1	10	100	1000			
INTEG LED kWh/ Blink	10 or 8	10 or 8	10 or 8	10 or 8	10 or 8	10 or 8			
- Pulse Output kWh/ Pulse	0.01	0.1	1	10	100	1000			

Pulse output feature

Optically Isolated, Solid-state NO Contact gives digital pulse output to drive Remote Counter, PLC, DCS Station etc. for off line monitoring of Energy Data, on line control for Energy/Power/Process optimisation, correlating Energy Input to product output etc. Applications of pulse output feature are as shown below.

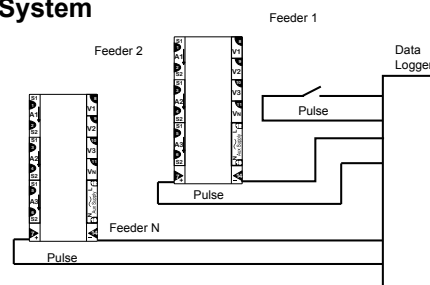
Process Integration

Pulse output from DM 52 can be integrated into a process through a PLC/DCS for online control of Energy content in a process. If the DCS/PLC has a self excited 12V or 24V Digital Input, external 24V DC Supply is not needed. The kWh pulses may also be used to derive average kW information at the PLC



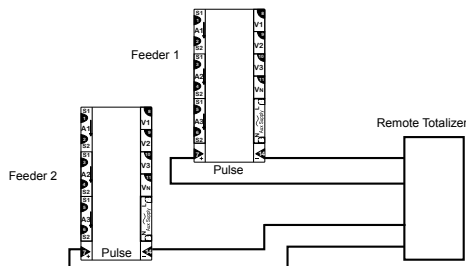
Energy Management System

Several DM 52s can be networked into a cost effective centralised system to centrally monitor energy data and generate a variety of reports covering load-wise, shiftwise, day-wise or batch-wise analysis of energy consumption.



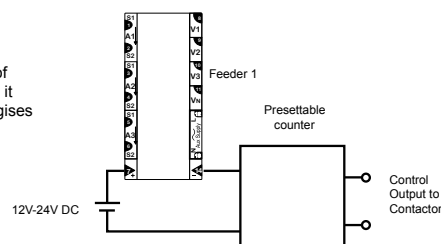
Energy Totalizing

Remote Totalizer can be configured to record Data shift-wise, day-wise etc., while DM 52 records total consumption.



Energy Dispensing

The Preset table Counter is programmed with the amount of Energy to be dispensed. When it counts down to zero, it deenergises the load.



9 Specifications

Accuracy

- Class 1.0; as per IEC 62052-11 & IEC 62053-21
- Class 0.5; $\pm (0.25\% \text{ of reading} + 0.25\% \text{ of full scale})$

Control power

- AC: Nominal 110V (Range 80 to 130 V AC) or Nominal 240 V (Range 170 to 300 V AC)
- AC burden: 3 VA max. on Auxiliary Supply
- Frequency: 45 to 65 Hz
- Installation category III

Pulse output

- Voltage Rating: 5 to 40 V DC
- Current Rating: 100 mA max
- Pulse Width: 500 ms $\pm 10\%$

Voltage inputs

- Measured voltage:
 - 110 V AC L-L (80-130 V AC)
 - 240 V AC L-N (170-300 V AC)
 - 415 V AC L-L (330-470 V AC)
- Frequency: 50/60 Hz
- Permanent overload: 600 V AC L-L
- Measurement category III

Current inputs

- Nominal 1 A (Range: 0.25 to 6.0 A) Or Nominal 5 A (Range: 0.05 to 1.2 A)
- Withstand: 2 A continuous (1A nominal)
- Withstand: 12 A continuous (5A nominal)
- Burden: < 0.2 VA per phase (Volts/Amps Input)

Environment

- Temperature:
 - Operating: 0 to 50 °C
 - Storage: -10 to 60 °C
- Humidity rating: 5% to 95% RH non-condensing
- Pollution degree: 2
- IP30 meter body (except terminals), IP51 front display (IEC 60529)

Display

- 6 digit impulse counter
- Max counts 999999
- Tamper-resistant, non-resettable
- Retains the last recorded reading even under power failure conditions.

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 are not followed.



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 or death.



DANGER indicates an imminently hazardous situation which, if not avoided, **will** result in death or serious 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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- This product must be installed, connected and used in compliance with prevailing standards and/or installation regulations.
- If this product is used in a manner not specified by the manufacturer, the protection provided by the product may be impaired.
- The safety of any system incorporating this product is the responsibility of the assembler/installer of the system.

As standards, specifications and designs change from time to time, always ask for confirmation of the information given in this publication.

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