

## 3Ø Electronic Energy Meters - DM 52 series

Direct measurement of energy consumption, no external multiplication factor required. Can be hooked on to an Energy Management System, SCADA, PLC, DCS.



### Applications

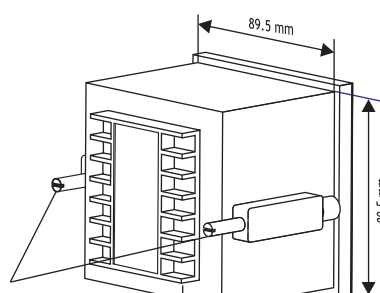
- Electrical Panels
- Test Benches
- Wind Energy
- Co-Generation
- Genset Panels
- Lab Equipment
- Power Plants
- All types of Industries
- Load Centers

### Features

- True RMS
- Low PT, CT burden
- Accuracy class 1.0 IEC 61036 & Class 0.5
- Simultaneous sampling of Volts & Amps
- Accurate on distorted waveforms
- Sealed dust-proof construction
- Quick and easy installation
- Reverse LED for trouble shooting
- 3 phase 4 wire (& Single phase) - DM 5240
- 3 Phase 3 wire - DM 5230
- Industrial quality
- Field settable standard full scale
- Pulse output feature
- Tamper proof cover option

### Dimensions

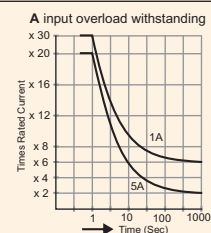
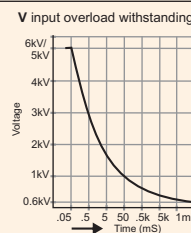
Bezel : 96 x 96 mm  
 Depth : 80 mm behind Bezel  
 Panel cutout : 92<sup>+0.5</sup> x 92<sup>+0.5</sup> mm



9mm additional space on both side of the meter inside the Panel

### Technical Specifications

#### ■ Input (3 Phase 3 Wire / 4 Wire) :



Nominal Voltage	Range	Nominal Current	Range
110 VLL	80 to 130 V	5 Amps	0.25 to 6.0 Amps
240 VLN	170 to 270 V	1 Amp	0.05 to 1.2 Amps
415 VLL	330 to 470 V		

Frequency : 50 Hz / 60 Hz  $\pm$  5%  
 Power Factor : 0.5 PF Lag-Unity-0.8 PF Lead

- Auxiliary Supply : Nominal 110 V Range 80-150 V  
(45 to 65 Hz) Nominal 240 V Range 170-300 V
- Burden : 0.2 VA max. per phase (Volts/Amps Input)  
3 VA max. on Auxiliary Supply
- Display : 6 Digit Impulse Counter.  
Max counts 999999.  
Tamper proof, Non-resettable.  
Retains the last recorded reading even under power failure conditions.
- Accuracy : Class 1.0 ; as per IEC 61036  
Class 0.5 ;  $\pm$  (0.25 % of reading + 0.25 % of Full Scale)

	1	2	3	4	5	6	0	0	0
Decimal Point	○	○	○	○	○	○	○	○	○
■ Full Scale kW Ø3 V Pri LL x A Pri	0.4 to 4.0	4.1 to 40	41 to 400	401 to 4000	4,001 to 40,000	40,001 to 4,00,000			
■ Multiplying Factor: (Represented by decimal point)	0.01	0.1	1	10	100	1000			
■ Resolution : - 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			

- Overflow Hours : 2,500 - 25,000 (at Full Load)
- Pulse Width : 500 mS  $\pm$  50 mS
- Contact Rating : 24V DC, 100 mA Max
- Ambient : Temperature 0 - 50°C  
Humidity < 95% Non-Condensing
- Weight : 450 gms approx.
- Dimension : Bezel: 96 x 96 mm
- Depth : 80 mm behind Bezel
- Panel Cut-out : (92<sup>+0.5</sup>) x (92<sup>+0.5</sup>) mm
- Mounting : Flush Mounting.
- Warranty : 3 Year from date of Invoice

## Know your DM 52

### 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 : --/415V, CT: --/5A for this meter MF = 0.01. Hence the decimal point placement as shown (After 4<sup>th</sup> digit).



The above display shows 1234.56000kWh

Example2 - PT : 11kV/110V, CT: 250/5A for this meter MF = 100.0. Hence the decimal point placement as shown (After 8<sup>th</sup> digit).



The above display shows 12345600.0kWh

### What do the POWER & INTEG LEDs on the front panel do ?

POWER LED indicates presence of Auxiliary Power which is essential for the meter operation.

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

$$\frac{\text{No of INTG LED blinks per one count update}}{\text{Multiplication Factor}} \times \text{PT ratio} \times \text{CT ratio}$$

Note: PT ratio, CT ratio 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  $(999999 \times \text{MF}) / \text{average kW}$ .

### TAMPER PROOF COVER OPTION

A Tamper Proof cover enables sealing of terminal block at the rear of the meter. This prevents tampering of connections.

## 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 Totalizing

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

#### 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, shift-wise, day-wise or batch-wise analysis of energy consumption.

#### Energy Dispensing

The Presettable Counter is programmed with the amount of Energy to be dispensed. When it counts down to zero, it de-energises the load.

★ Contact Conzerv for Energy Management Systems.

## Ordering Option Table

### Specify

Model	Accuracy	Wiring	Frequency (in Hz)	Input voltage (in volts)	Input current (in amps)	PT ratio Pri/Sec (kV/VLL)	CT ratio Pri/Sec (in amps)	Aux supply (in volts)	Tamper cover
<input type="checkbox"/> DM 5230	<input type="checkbox"/> CL 1.0	3 phase	<input type="checkbox"/> 50	<input type="checkbox"/> 110	<input type="checkbox"/> 1	<input type="checkbox"/> 11/110	<input type="checkbox"/> 100/1	<input type="checkbox"/> 110	<input type="checkbox"/>
	<input type="checkbox"/> CL 0.5	3 wire	<input type="checkbox"/> 60	<input type="checkbox"/> 415	<input type="checkbox"/> 5	<input type="checkbox"/> 33/110	<input type="checkbox"/> 1200/5	<input type="checkbox"/> 240	
<input type="checkbox"/> DM 5240	<input type="checkbox"/> CL 1.0	3 phase	<input type="checkbox"/> 50	<input type="checkbox"/> 110	<input type="checkbox"/> 1	<input type="checkbox"/> 415/415	<input type="checkbox"/> 5/5	<input type="checkbox"/> 110	<input type="checkbox"/>
	<input type="checkbox"/> CL 0.5	4 wire	<input type="checkbox"/> 60	<input type="checkbox"/> 415	<input type="checkbox"/> 5	<input type="checkbox"/> 33k/110	<input type="checkbox"/> 200/5	<input type="checkbox"/> 240	

Note: One typical value for CT and PT ratio is shown above. Meters can be supplied with other ratios also.

### ACCESSORIES on order

Fused Voltage Probes & Clamp-on Current probes.