Ecolec 300 Rail Mount Energy Meters

The Ecolec 300 series is a rail mounted, compact, Class 1 electricity meter, available as a single or three phase meter showing the consumption of the installation. The compact rail mounted meters comply with SANS 1799 : 2004.

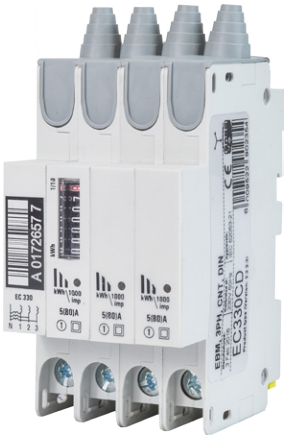
These meters fit on a DIN rail and the CBI Mini Rail. The DIN version is grey in colour and has a 45 mm front escutcheon. The dual (DIN and CBI Mini Rail) mount version is black in colour and has a 57 mm front escutcheon. The display is an electro-mechanical counter with a seven digit indication of energy consumed to 1 / 10 kWh. A dual colour lamp shows the rate of consumption and confirms the presence of incoming power supply and some unsafe / error conditions. They are supplied with anti-tamper terminal protection plugs.

These are compact in size and can be mounted next to incoming circuit breakers. They drastically reduce enclosure costs. The meter is reverse feedable and measures consumption correctly. It has a LIN bus terminal for communicating and requesting data remotely (up to 20 addressable meters on one bus).

EC320CM
Dual Mount

EC330CM
Dual Mount

EC320CD
DIN Mount



EC330CD
DIN Mount

Features

- SANS 1799 class-1 electricity meters
- Class 1: accuracy < 1%
- Single and three phase alternatives
- Fits all CBI Mini and DIN rail distribution boards
- 7 Digit tamper-proof counter
- Anti-tamper terminal protection plugs
- Also available in 120V / 60 Hz
- LED status and kWh consumption indicator
- Remote monitoring: LIN bus
- IP-45 rating
- 57 mm (dual mount) and 45 mm (DIN rail) escutcheon

Applications

- Residential
- Commercial
- Rural electrification

Approvals

SABS APPROVED

SANS 1799

Rail Mount Energy Meters

Technical Data

Product Type	EC320CM, EC320CD	EC330CM, EC330CD
Phase	1 + N	3 + N
Nominal Voltage (Un)	120 / 240 V	
Operational Voltage Range	60 - 320 V	
Over Voltage Withstand	480 V (≤ 48 hr)	
DC Voltage Withstand	1 kV (≤ 1 min)	
Impulse Voltage Withstand	10 kV	
ESD Withstand	15 kV	
Operational Frequency Range	50 / 60 Hz	
Basic Current (Ib)	5 A	
Maximum Rated Current (Imax)	80 A	
Operational Current Range	0.015 - 125 A	
Overcurrent Withstand	160 A (≤ 48 hr)	
Fault Current Withstand	10 kA (≤ 40 ms)	
Voltage Circuit Burden	0.2 W	

Product Type	EC320CM, EC320CD	EC330CM, EC330CD
LED Output Flash Rate	1000 impulses per kWh	
Accuracy Class	Class 1	
Protection Class	Class 2 double insulated	
Conformity To Standards	SANS / IEC 62052-11, SANS / IEC 62052-21, SANS 1799	

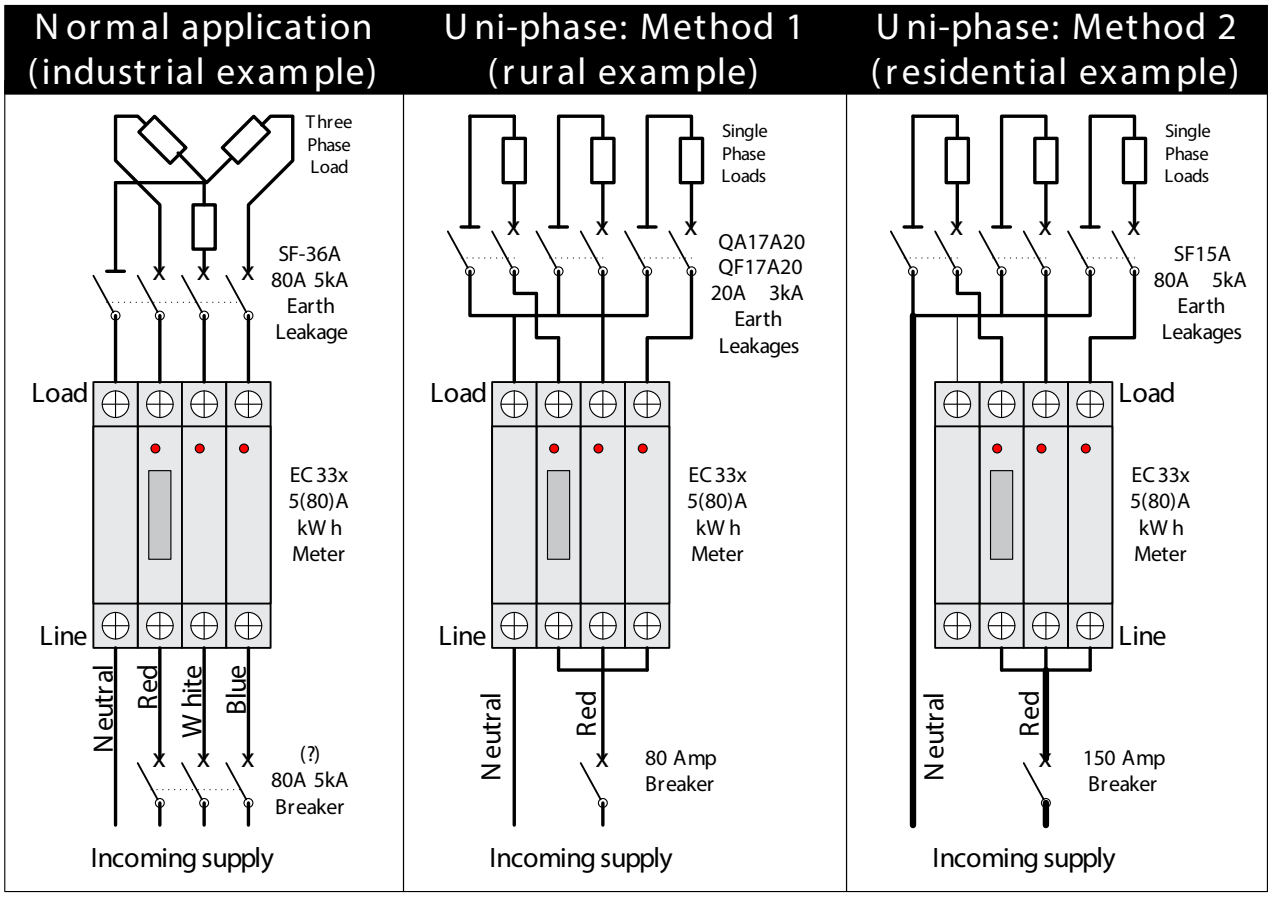
Product Type	EBM
Operating Temperature Range	-40 °C to +75 °C
Mounting Options	Dual mounting (DIN & Mini), DIN rail
Weight	158,5 g per double pole (unpacked)
Humidity	35 to 85% relative
Altitude	Certification tests done at altitude ≈ 2000 metres. Will operate at higher altitudes.
Flammability	I3 - Ignition does not persist at 850 °C after glow wire is withdrawn with an oxygen index of ≥ 28
Toxicity	F1 - Smoke index of ≤ 20 which determines the fume class
Pollution Degree	PD2 - Normally only non-conductive pollution occurs. Temporary conductivity caused by condensation is to be expected.

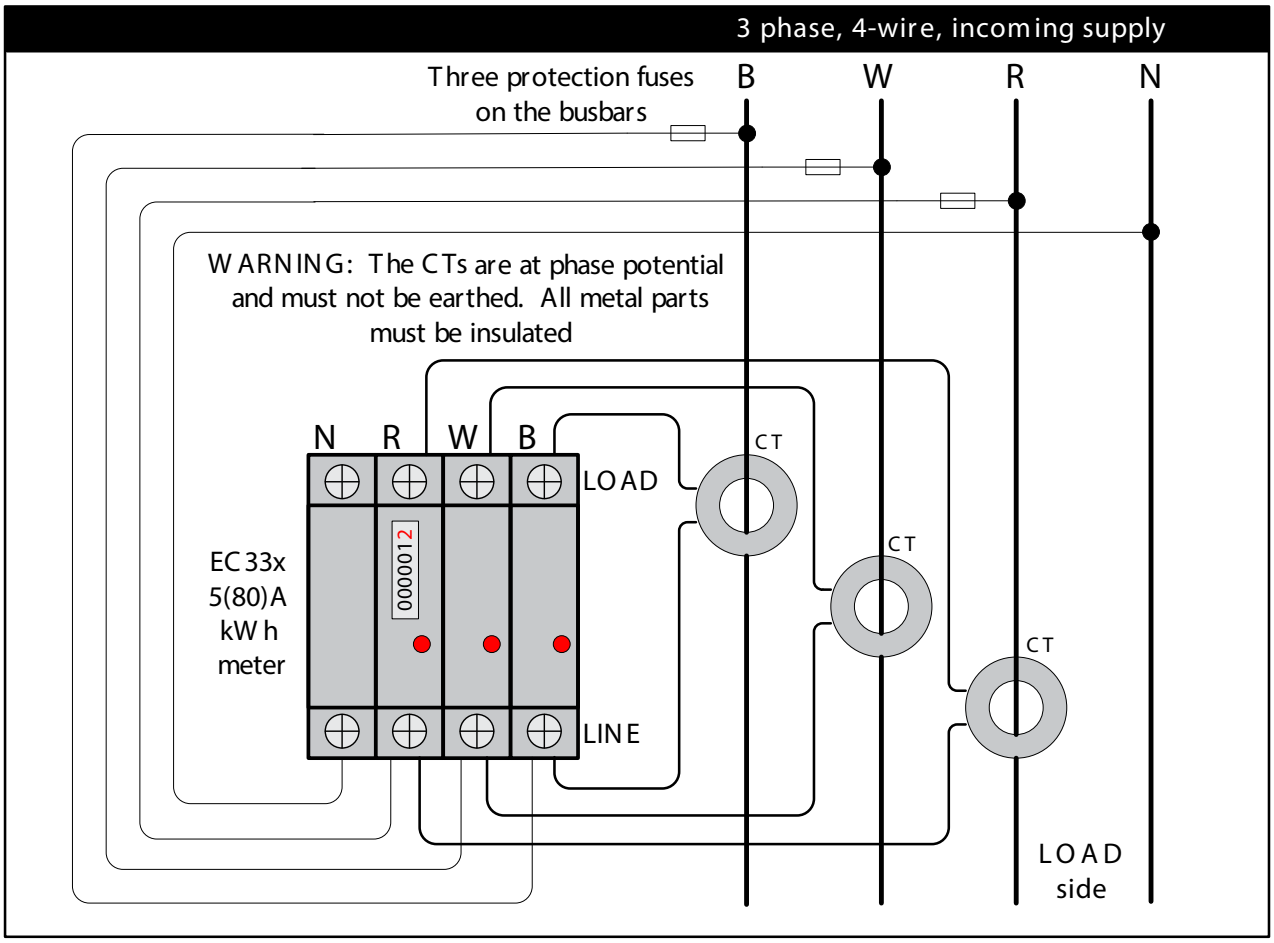
Rail Mount Energy Meters

Ordering Information

Product Description	Single Phase Direct Connect	Three Phase Four Wire	Shell Colour		Escutcheon Height
Mini Rail 230 V / 50 Hz	EC320CM	EC330CM	Black		57 mm
DIN Rail 230 V / 50 Hz	EC320DM	EC330CD	Grey		45 mm
Qty per Std Pack	6	3		Shrink Wrap Carton	
Meter Width	26 mm	52 mm		Carton 178 mm wide	
Meter Height	107 mm	107 mm		Carton 68 mm high	
Meter Depth	66 mm	66 mm		Carton 110 mm high	
Mass / Std Pack	1060 g	1150 g			

Wiring diagram





LED Indication

LED Indication	Reason/ Description
Pulses RED	Normal consumption pulses (1000 pulses per kilo watt hour)
Pulses GREEN	Low load condition (consumption is less than 30 watts)
Solid GREEN	No load (meter is powered up)
Pulses ORANGE	Abnormal load (supply voltage is between 265 - 460 V or 60 - 90 V AC)
Solid ORANGE	Unsafe load condition (the current being drawn is greater than 125 A or the supply voltage is greater than 460 V AC)
Solid RED	Error condition (the meter's internal built in test has failed)
No LED	No LED indication (insufficient supply voltage)

EC 300 series kWh consumption when using external CTs

There is a requirement to measure loads in excess of the metre's maximum current rating of 80 A. This can be done by using external CTs.

The actual kWh consumption per phase can be calculated as follows:

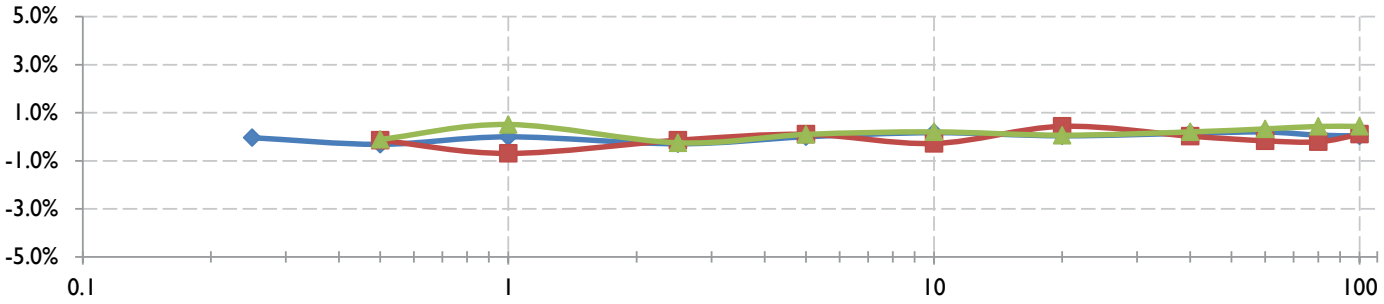
CT Ratio x △ Counter Value

E.g.: For a 200/5 CT ratio the factor is 40.
Therefore the consumption per phase = 40 x kWh consumed.

For CT Selection, please refer to the NRS057 specification parts 1, 2 and 4.

NOTE: Do not earth CTs fitted above!

Accuracy graph

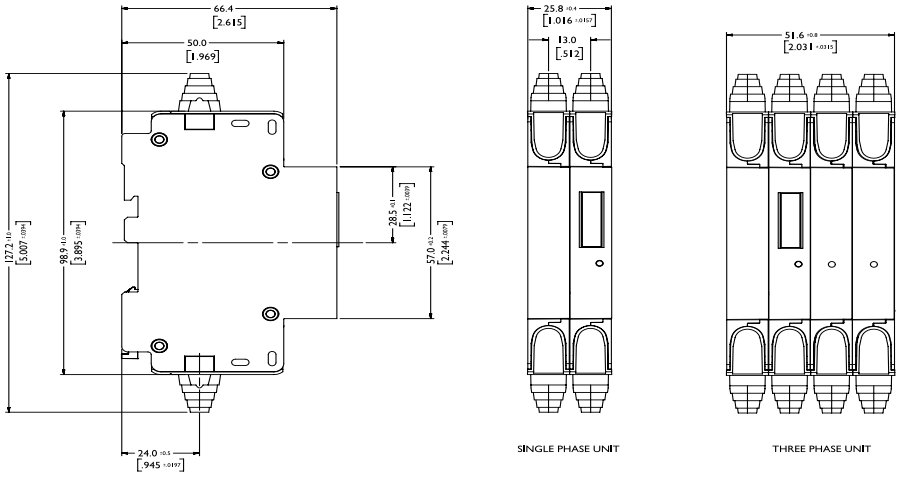


Additional influence of current variation at Un = 230 V, f = 50 Hz, t = 25 °C													
Currrent (A)	**0.05**	**0.1**	**0.25**	**0.5**	**1**	**2.5**	**5**	**10**	**20**	**40**	**60**	**80**	**100**
Resistive (1)	-1.18%	-1.86%	-0.04%	-0.31%	0.00%	-0.29%	0.00%	0.17%	0.04%	0.15%	0.20%	0.07%	0.04%
Ind. (0.5)	7.42%	2.45%	0.61%	-0.15%	-0.69%	-0.14%	0.10%	-0.28%	0.43%	0.02%	-0.17%	-0.21%	0.10%
Cap. (0.8)	-5.01%	-2.66%	-0.58%	-0.11%	0.51%	-0.25%	0.10%	0.20%	0.06%	0.20%	0.33%	0.43%	0.43%
% Ib	1%	2%	5%	10%	20%	50%	100%	200%	400%	800%	1200%	1600%	2000%

Rail Mount Energy Meters

Dimensional Drawing: Black, 57 mm Front Escutcheon

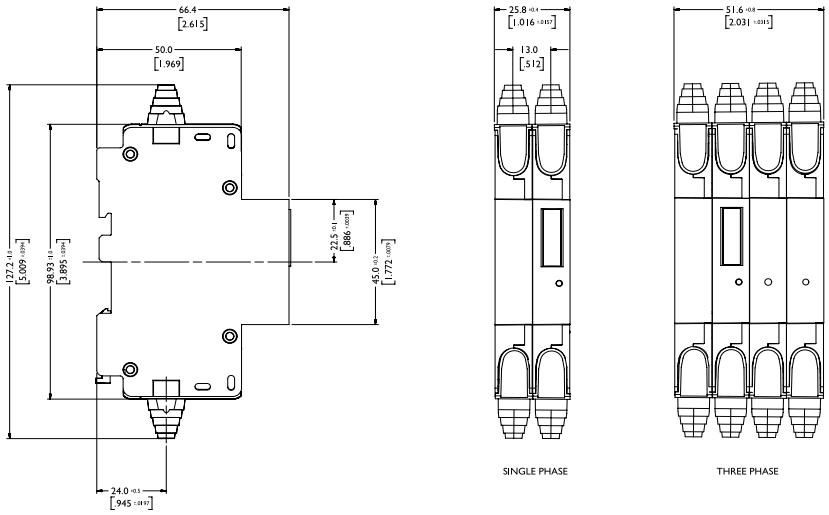
DUAL MOUTING EBM UNIT



TOLERANCE ±0.4 UNLESS OTHERWISE SPECIF
(DIMENSION IN BRACKETS ARE IN INCH)

Dimensional Drawing: Grey, 45 mm Front Escutcheon

DIN MOUTING EBM UNIT



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