Acti 9 Energy Meters

iEM3000 Series

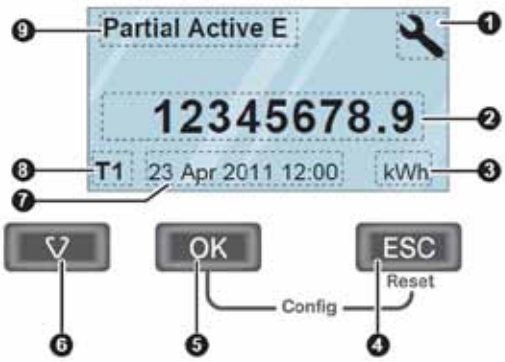
Technical data sheet

Schneider Electric

Acti 9 iEM3000 Series Energy Meters
Functions and characteristics

Acti 9 iEM3100 energy meter

Acti 9 iEM3255 energy meter



Front of meter parts
1 Configuration mode
2 Values and parameters
3 Unit
4 Cancellation
5 Confirmation
6 Selection
7 Date and time
8 Tariff currently used (iEM3235, iEM3255, iEM3265, iEM3275)
9 Functions/Measurements

- The Acti 9 iEM3000 Energy Meter Series offers a cost-attractive, competitive range of DIN rail-mounted energy meters ideal for sub-billing and cost allocation applications.

Combined with communication systems, like Smart Link, the Acti 9 iEM3000 Series makes it easy to integrate electrical distribution measurements into customer's facility management systems. It's the right energy meter at the right price for the right job.

Two versions are available: 63A direct measure (iEM3100 models) and current transformers associated meter (iEM3200 models). For each range, eight versions are available to satisfy basic to advanced applications:

- iEM3100/iEM3200: kWh meter with partial counter
- iEM3110/iEM3210: kWh meter with partial counter and pulse output. MID certified.
- iEM3115/iEM3215: multi-tariff meter controlled by digital input or internal clock, MID certified.
- iEM3135/iEM3235: energy meter, four quadrant, multi-tariffs with partial counter and current, voltage, power measurement. M-Bus communication, digital I/O and MID certified.
- iEM3150/iEM3250: kWh meter with partial counter and current, voltage, power measurement. Modbus communication.
- iEM3155/iEM3255: energy meter, four quadrant, multi-tariffs with partial counter and current, voltage, power measurement. Modbus communication, digital I/O, MID certified.
- iEM3165/iEM3265: energy meter, four quadrant, multi-tariffs with partial counter and current, voltage, power measurement. BACnet communication, digital I/O and MID certified.
- iEM3175/iEM3275: energy meter, four quadrant, multi-tariffs with partial counter and current, voltage, power measurement. LON communication, digital input and MID certified.

Innovative design makes the meters smart and simple:
- Easy to install for panel builders
- Easy to commission for contractors and installers
- Easy to operate for end users

Applications
Cost management applications
- Bill verification
- Sub-billing, including WAGES view (four user-defined tariffs)
- Cost allocation, including WAGES view

Network management applications
- Basic electrical parameters like current, voltage and power
- Onboard overload alarm to avoid circuit overload and trip
- Easy integration with PLC systems by input/output interface

Market segments
- Buildings & Industry
- Data centres and networks
- Infrastructure (airports, road tunnels, telecom)

Characteristics
- Self-powered meters
- Chain measurement (meters + CTs) accuracy class 1
- Compliance with IEC 61557-12, IEC 62053-21/22, IEC 62053-23, EN50470-3
- Compact, 5 module width
- Graphical display for easy viewing
- Onboard Modbus, LON, M-Bus or BACnet communication
- Easy wiring (without CTs) Acti 9 iEM3100 models
- Double fixation on DIN rail (horizontal or vertical)
- Anti-tamper security features ensure the integrity of your data
- MID compliant (selected models) providing certified accuracy and data security

Acti 9 iEM3000 Series Energy Meters
Functions and characteristics

Function guide		iEM3100	iEM3110	iEM3115	iEM3135	iEM3150	iEM3155	iEM3165	iEM3175	iEM3200	iEM3210	iEM3215	iEM3235	iEM3250	iEM3255	iEM3265	iEM3275
Direct measurement (up to 63 A)		■	■	■	■	■	■	■	■								
Measurement inputs through CTs (1 A, 5A)										■	■	■	■	■	■	■	■
Measurement inputs through VTs													■	■	■	■	■
Active energy measurements class (total & partial kWh)		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Four Quadrant Energy measurements					■		■	■	■				■		■	■	■
Electrical measurements (I, V, P, etc.)					■	■	■	■	■				■	■	■	■	■
Multi-tariff (internal clock)				4	4		4	4	4			4	4		4	4	4
Multi-tariff (external control)				4	2		2	2	2			4	2		2	2	2
Measurement display (number of lines)		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Digital inputs	Programmable (Tariff control or WAGES input)				1		1	1	1				1		1	1	1
	Tariff control only			2								2					
Digital ouputs	Programmable (kWh pulse or kW alarm)				1		1	1					1		1	1	
	kWh pulse only		1								1						
kW overload alarm					■		■	■	■				■		■	■	■
M-Bus					■								■				
Modbus						■	■							■	■		
BACnet								■								■	
LON									■								■
MID (legal metrology certification)			■	■	■		■	■	■		■	■	■		■	■	■
Width (18 mm module in DIN Rail mounting)		5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5

PB108410

Acti 9 iEM3100 models direct connected (63 A)

PB108424

Acti 9 iEM3200 models (1 A / 5 A CT connected)

Connectivity advantages	
Programmable digital input	External tariff control signal (4 tariffs) Remote Reset partial counter External status, e.g. breaker status Collect WAGES pulses
Programmable digital output	kWh overload alarm (iEM3135, iEM3155, iEM3165 iEM3235, iEM3255, iEM3265) kWh pulses
Graphic LCD display	Scroll energies Current, voltage, power, frequency, power factor
Communication	Serial communication options are available with M-Bus, Modbus, BACnet or LON protocols
Standards	
IEC standards	IEC 61557-12, IEC 61036, IEC 61010, IEC 62053-21/22 Class 1 and Class 0.5S, IEC 62053-23
MID	EN 50470-1/3

Multi-tariff capability

The Acti 9 iEM3000 Series allows arrangement of kWh consumption in four different registers. This can be controlled by:

- Digital Inputs. Signal can be provided by PLC or utilities
- Internal clock programmable by HMI
- Through communication

This function allows users to:

- Make tenant metering for dual source applications to differentiate backup source or utility source
- Understand well the consumption during working time and non working time, and between working days and weekends
- Follow up feeders consumption in line with utility tariff rates

Acti 9 iEM3000 Series Energy Meters
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Specification guide	iEM3100 Models							
	iEM3100	iEM3110	iEM3115	iEM3135	iEM3150	iEM3155	iEM3165	iEM3175
Current (max.) Direct connected	63 A							
Meter constant LED	500/kWh							
Pulse output		Up to 1000p/kWh		Up to 1000p/kWh		Up to 1000p/kWh		
Multi-tariff			4 tariffs	4 tariffs		4 tariffs		
Communication				M-bus	Modbus	Modbus	BACnet	LON
DI/DO		0/1	2/0	1/1		1/1	1/1	1/0
MID (EN50470-3)		■	■	■		■	■	■
Network	1P+N, 3P, 3P+N							
Accuracy class	Class 1 (IEC 62053-21 and IEC61557-12) Class B (EN50470-3)							
Wiring capacity	16 mm²							
Display max.	LCD 99999999.9kWh							
Voltage (L-L)	3 x 100/173 Vac to 3 x 277/480 Vac (50/60 Hz)							
IP protection	IP40 front panel and IP20 casing							
Temperature	-25°C to 55°C (K55)							
Product size	10 steps of 9mm							
Overvoltage and measurement	Category III, Degree of pollution 2							
kWh	■	■	■	■	■	■	■	■
kVARh				■		■	■	■
Active power				■	■	■	■	■
Reactive power				■		■	■	■
Currents and voltages				■	■	■	■	■
Overload alarm				■		■	■	■
Hour counter				■		■	■	■

Specification guide	iEM3200 Models							
	iEM3200	iEM3210	iEM3215	iEM3235	iEM3250	iEM3255	iEM3265	iEM3275
1 A / 5 A CTs (max current)	6 A							
Meter constant LED	5000/kWh							
Pulse output frequency		Up to 500p/kWh		Up to 500p/kWh		Up to 500p/kWh		
Multi-tariff			4 tariffs	4 tariffs		4 tariffs		
Communication				M-bus	Modbus	Modbus	BACnet	LON
DI/DO		0/1	2/0	1/1		1/1	1/1	1/0
MID (EN50470-3)		■	■	■		■	■	■
Network	1P+N, 3P, 3P+N support CTs			1P+N, 3P, 3P+N support CTs & VTs				
Accuracy class	Class 0.5S (IEC 62053-22 and IEC61557-12) Class C (EN50470-3)(1)							
Wiring capacity	6 mm² for currents and 4 mm² for voltages							
Display max.	LCD 99999999.9kWh or 99999999.9MWh							
Voltage (L-L)	3 x 100/173 Vac to 3 x 277/480 Vac (50/60 Hz)							
IP protection	IP40 front panel and IP20 casing							
Temperature	-25°C to 55°C (K55)							
Product size	10 steps of 9mm							
Overvoltage & measurement	Category III, Degree of pollution 2							
kWh	■	■	■	■	■	■	■	■
kVARh				■		■	■	■
Active power				■	■	■	■	■
Reactive power				■		■	■	■
Currents and voltages				■	■	■	■	■
Overload alarm				■		■	■	■
Hour counter				■		■	■	■

(1) For 1 A CTs Class 1 (IEC6253-21 and IEC61557-12 Class B (EN50470-3)

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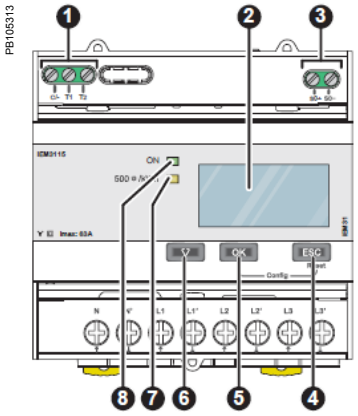
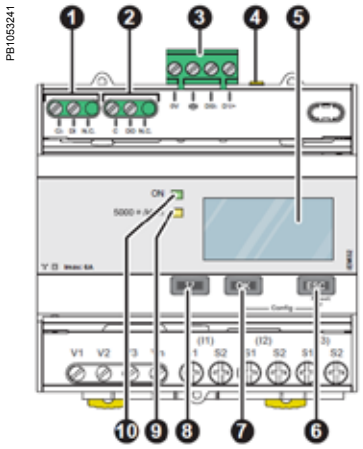


Acti 9 iEM3000 Series parts

1. Digital inputs for tariff control (iEM3115 / iEM3215)
2. Display for measurement and configuration
3. Pulse out for remote transfer (iEM3110 / iEM3210)
4. ESC Cancellation
5. OK Confirmation
6. Selection
7. Flashing yellow meter indicator to check accuracy
8. Green indicator: on/off, error



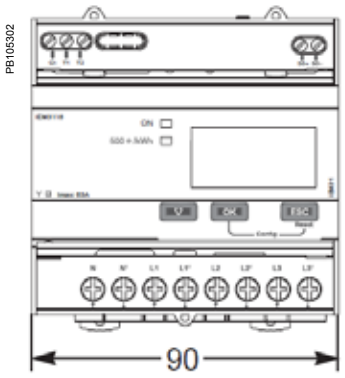
iEM3x50 and iEM3x55 Comm./terminal parts

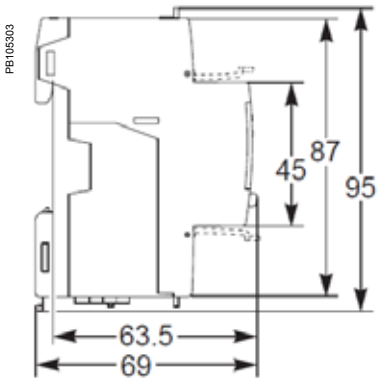
1. Digital input for tariff control (iEM3155 / iEM3255)
2. Digital output (iEM3155/iEM3255)
3. Communication port
4. Yellow indicator for communication diagnosis
5. Display for measurement and configuration
6. ESC Cancellation
7. OK Confirmtion
8. Selection

9 Flashing yellow meter indicator to check accuracy
10 Green indicator: on/off, error

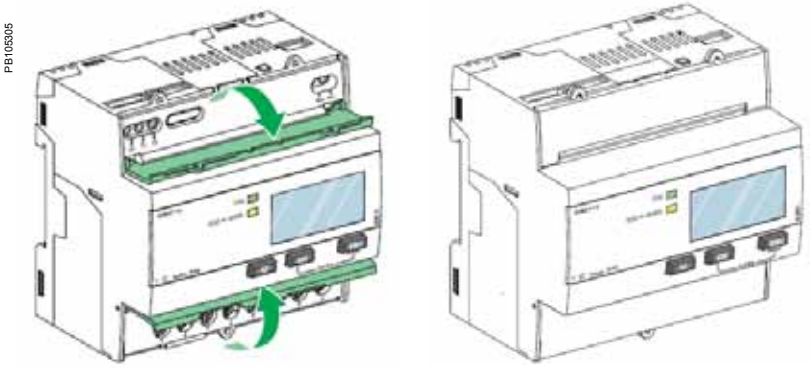
***Note**: For further information please see the Installation Guide and User Guide documents for these products.*

iEM3000 series dimensions





Acti 9 iEM3000 Series front flaps open and closed



Meter model and description	Current measurement	Part no.
iEM3100 basic energy meter	Direct connected 63 A	**A9MEM3100**
iEM3110 energy meter with pulse output	Direct connected 63 A	**A9MEM3110**
iEM3115 multi-tariff energy meter	Direct connected 63 A	**A9MEM3115**
iEM3135 advanced multi-tariff energy meter & electrical parameter plus M-Bus comm port	Direct connected 63 A	**A9MEM3135**
iEM3150 energy meter & electrical parameter plus Modbus RS485 comm port	Direct connected 63 A	**A9MEM3150**
iEM3155 advanced multi-tariff energy meter & electrical parameter plus Modbus RS485 comm port	Direct connected 63 A	**A9MEM3155**
iEM3165 advanced multi-tariff energy meter & electrical parameter plus BACnet MS/TP comm port	Direct connected 63 A	**A9MEM3165**
iEM3175 advanced multi-tariff energy meter & electrical parameter plus LON TP/FT-10 comm port	Direct connected 63 A	**A9MEM3175**
iEM3200 basic energy meter	Transformer connected 5 A	**A9MEM3200**
iEM3210 energy meter with pulse output	Transformer connected 5 A	**A9MEM3210**
iEM3215 multi-tariff energy meter	Transformer connected 5 A	**A9MEM3215**
iEM3235 advanced multi-tariff energy meter & electrical parameter plus M-Bus comm port	Transformer connected 5 A	**A9MEM3235**
iEM3250 energy meter & electrical parameter plus Modbus RS485 comm port	Transformer connected 5 A	**A9MEM3250**
iEM3255 advanced multi-tariff energy meter & electrical parameter plus Modbus RS485 comm port	Transformer connected 5 A	**A9MEM3255**
iEM3265 advanced multi-tariff energy meter & electrical parameter plus BACnet MS/TP comm port	Transformer connected 5 A	**A9MEM3265**
iEM3275 advanced multi-tariff energy meter & electrical parameter plus LON TP/FT-10 comm port	Transformer connected 5 A	**A9MEM3275**

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For more information on the Acti 9 range, see:
http://www2.schneider-electric.com/sites/corporate/en/products-services/product-launch/acti9/discover-acti9.page
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