PowerLogic power-monitoring units

iEM3000 Series

Technical data sheet

Schneider Electric
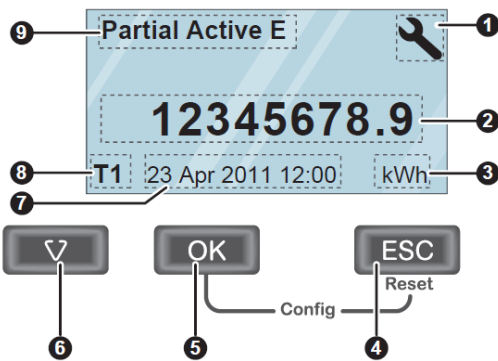
Energy Meter Series iEM3000
Functions and characteristics

Energy Meter Series iEM3100

Energy Meter Series iEM3255

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 (iEM3255)
9 Functions/Measurements

The PowerLogic Energy meter Series iEM3000 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 iEM3000 series make 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) and current transformers associated meter (iEM3200). For each range five versions are available to satisfy from 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: a multi-tariff meter controlled by digital input or internal clock, 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 input/output 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
■ 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
■ Graphical display for easy viewing
■ Easy wiring (without CTs) iEM3100 series
■ Double fixation on DIN rail (horizontal or vertical)
■ Anti-tamper security features ensure the integrity of your data

Part numbers

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**
iEM3150 energy meter & electrical parameter plus RS485 comm port	Direct connected 63 A	**A9MEM3150**
iEM3155 advanced multi-tariff energy meter & electrical parameter plus RS485 comm port	Direct connected 63 A	**A9MEM3155**
iEM3200 basic energy meter	Transformer connected 6 A	**A9MEM3200**
iEM3210 energy meter with pulse output	Transformer connected 6 A	**A9MEM3210**
iEM3215 multi-tariff energy meter	Transformer connected 6 A	**A9MEM3215**
iEM3250 energy meter & electrical parameter plus RS485 comm port	Transformer connected 6 A	**A9MEM3250**
iEM3255 advanced multi-tariff energy meter & electrical parameter plus RS485 comm port	Transformer connected 6 A	**A9MEM3255**

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Energy Meter Series iEM3000
Functions and characteristics (cont.)

Function guide	iEM3100	iEM3110	iEM3115	iEM3150	iEM3155	iEM3200	iEM3210	iEM3215	iEM3250	iEM3255
Direct measurement (up to 63 A)	■	■	■	■	■					
CTs inputs (1 A, 5A)						■	■	■	■	■
VTs inputs									■	■
Active energy measurements	■	■	■	■	■	■	■	■	■	■
Four quadrant energy measurements					■					■
Electrical measurements (I, V, P, etc.)				■	■				■	■
Multi-tariff (internal clock)			4		4			4		4
Multi-tariff (external control)			4		2			4		2
Measurement display	■	■	■	■	■	■	■	■	■	■
Programmable inputs					1					1
Programmable digital outputs					1					1
Pulse output		■					■			
kW overload alarm					■					■
Modbus RS485				■	■				■	■
MID (legal metrology certification)		■	■		■		■	■		■
Width (18 mm module in DIN Rail mounting)	5	5	5	5	5	5	5	5	5	5

Direct connected up to 63 A

CTs connected (1 A / 5 A)

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 (i EM3155/iEM5255) kWh pulses
Graphic LCD display	Scroll energies Current, voltage, power, frequency, power factor
Communication	Modbus RS485 with plug-in screw terminals allows connection to a daisy chain

Standards

IEC standardsntegrated display	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 iEM3000 range 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

Energy Meter Series iEM3000
Functions and characteristics (cont.)

Specification guide	iEM3100 Range				
	iEM3100	iEM3110	iEM3115	iEM3150	iEM3155
Current (max.) Direct connected	63 A				
Meter constant LED	500/kWh				
Pulse output		Up to 1000p/kWh			Up to 1000p/kWh
Multi-tariff			4 tariffs		4 tariffs
Communication				Modbus via RS485	Modbus via RS485
DI/DO		0/1	2/0		1/1
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 Range				
	iEM3200	iEM3210	iEM3215	iEM3250	iEM3255
1 A / 5 A CTs (max current)	6 A				
Meter constant LED	5000/kWh				
Pulse output frequency		Up to 100p/kWh			Up to 100p/kWh
Multi-tariff			4 tariffs		4 tariffs
Communication				Modbus via RS485	Modbus via RS485
DI/DO		0/1	2/0		1/1
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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Energy Meter Series iEM3000
Installation and connection

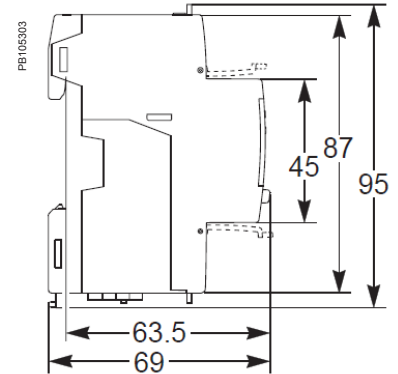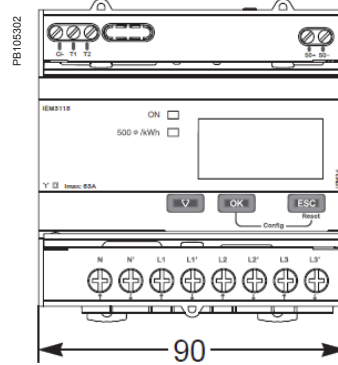## iEM3000 series dimensions
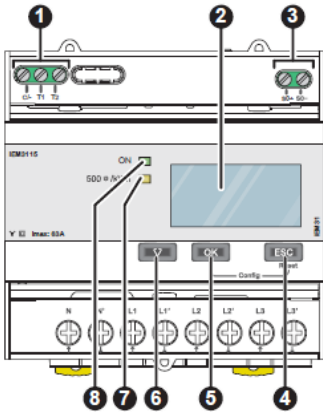
iEM3000 series parts
1. Digital inputs for tariff control (iEM3115 / iEM3215)
2. Display for measurement and configuration
3. Pulse out for remote transfer (iEM3110 / iEM3210)
4. ESC Cancellation
5. OK Confirmation
6. ▽ Selection
7. Flashing yellow meter indicator to check accuracy
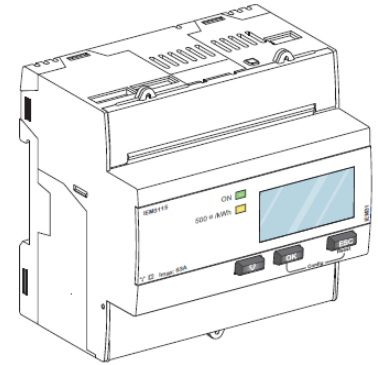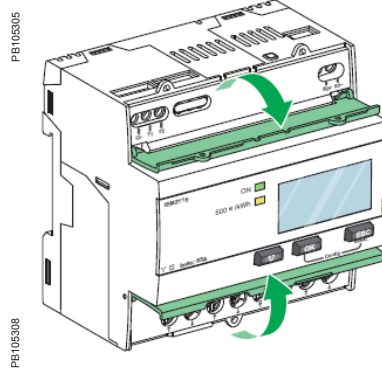8. Green indicator: on/off, error

iEM3000 series front flaps open and closed

iEM3x50 and iEM3x55 Comm./terminal parts
1. Digital inputs for tariff control (iEM3255 / iEM3255)
2. Digital output (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
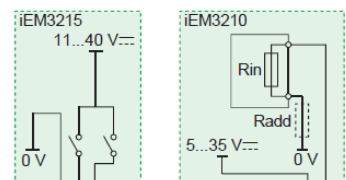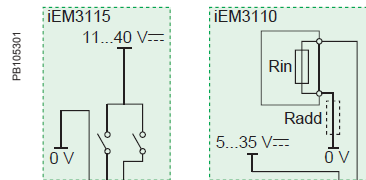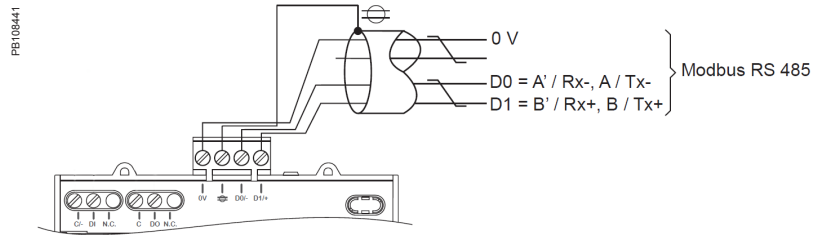10 Green indicator: on/off, error

Pulse Output and Digital Input sample wiring diagrams
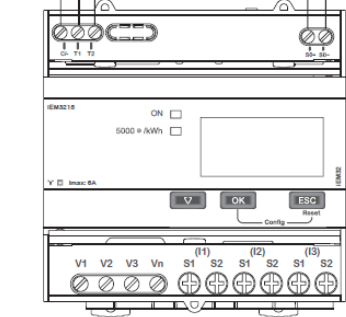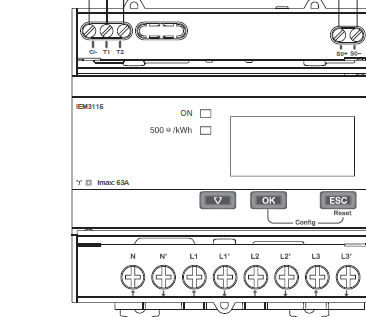
Note: These are sample wiring diagrams only. For further information please see the Installation Guide and User Guide documents for these products.
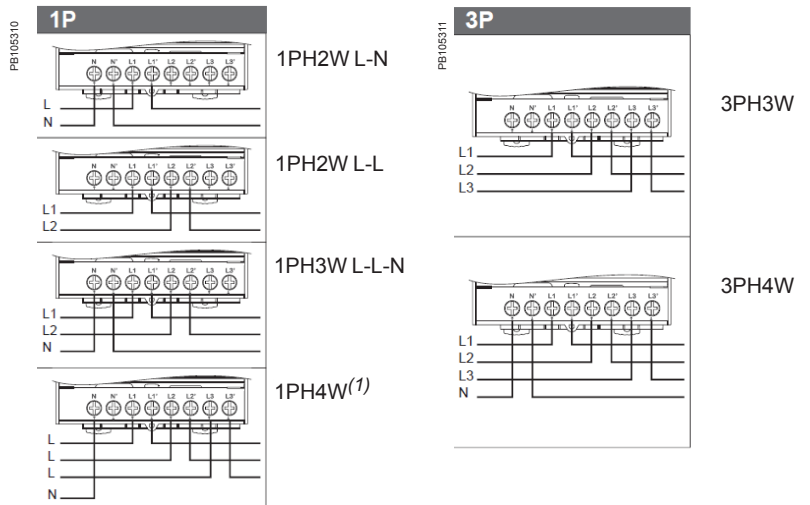
Note: These are sample wiring diagrams only. For further information please see the Installation Guide and User Guide documents for these products.

Modbus communications wiring diagram

0 V

D0 = A' / Rx-, A / Tx-

D1 = B' / Rx+, B / Tx+

Modbus RS 485

iEM31xx series sample wiring diagrams - 1 and 3 phase

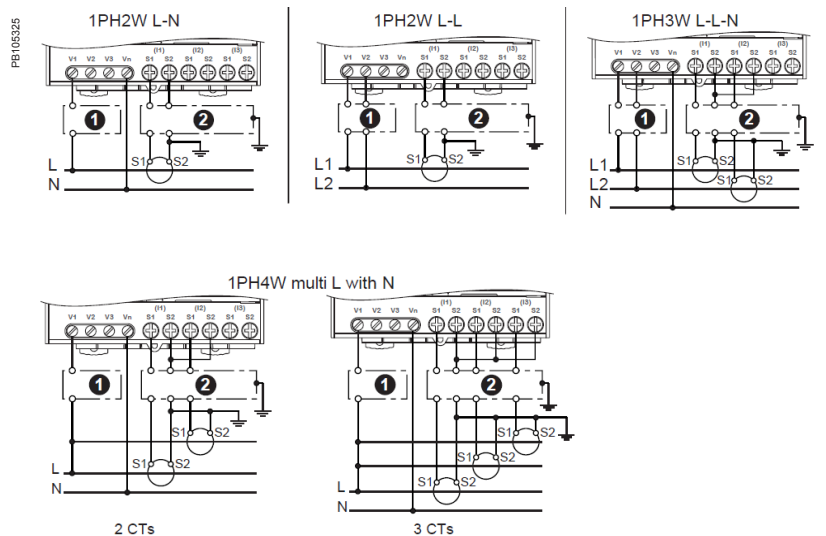*(1) - Single phase wiring supported only by iEM3150 and iEM3155.*
- Neutral (N') must not be connected to avoid possible damage to the meter.

1P

1PH2W L-N

1PH2W L-L

1PH3W L-L-N

1PH4W[(1)]

3P

3PH3W

3PH4W

① Protection (to be adapted to suit the short-circuit current at the connection point)

② Shorting switch unit

Note: These are sample wiring diagrams only. For further information please see the Installation Guide and User Guide documents for these products.

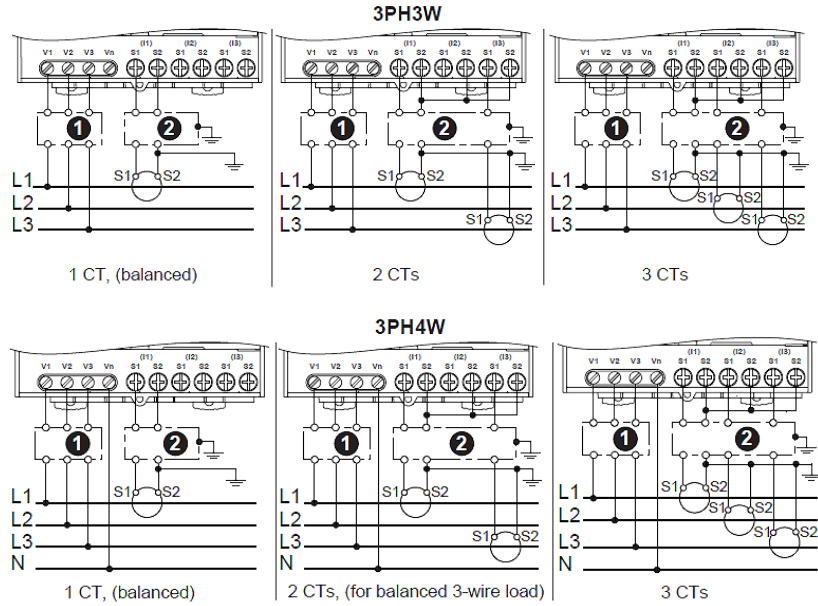## iEM32xx series sample wiring diagrams -1 phase

1PH2W L-N

1PH2W L-L

1PH3W L-L-N

1PH4W multi L with N

2 CTs

3 CTs

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Energy Meter Series iEM3000
Installation and connection (cont.)

① Protection (to be adapted to suit the short-circuit current at the connection point)

② Shorting switch unit

iEM32xx Series sample wiring diagrams - 3 phase without VTs

3PH3W

1 CT, (balanced)   2 CTs   3 CTs

3PH4W

1 CT, (balanced)   2 CTs, (for balanced 3-wire load)   3 CTs

iEM32xx Series sample wiring diagrams - 3 phase with VTs (iEM3250 & iEM3255)

3PH3W

2 VTs, 1 CT, (balanced)   2 VTs, 2 CTs   2 VTs, 3 CTs

3PH4W

3 VTs, 1 CTs, (balanced)   3 VTs, 2 CTs, (for balanced 3-wire load)   3 VTs, 3 CTs
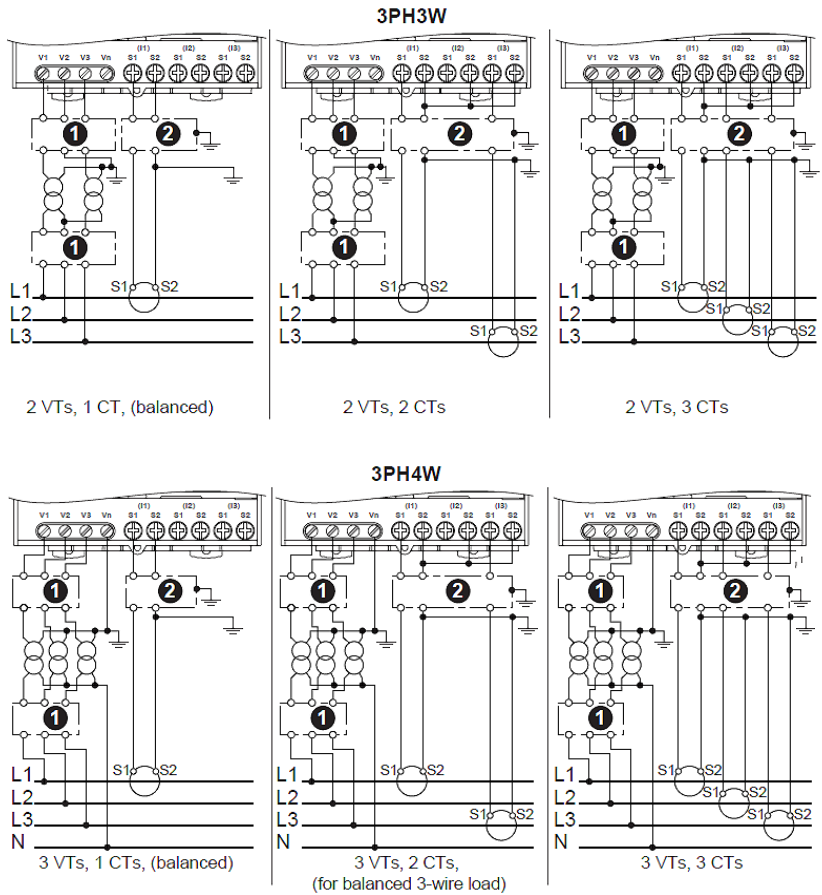
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