

# Acti 9 Energy Meters

## iEM3000 Series

Technical data sheet

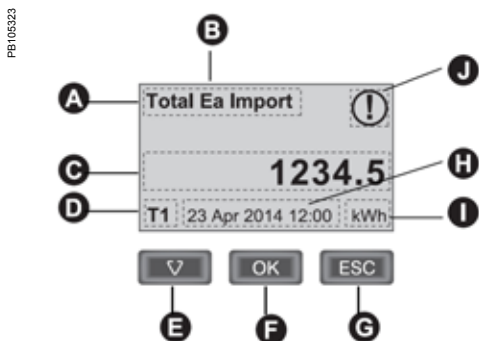




Acti9 iEM3100/3200 energy meter



Acti9 iEM3300 energy meter



### Front Panel Display and Buttons

- A Measurement
- B Ea /Er = active / reactive energy (if available)
- C Value
- D Active tariff (if applicable)
- E Scroll through the available screens
- F View more screens related to the measurement category (if available)
- G Go back to previous screen
- H Date and time (if applicable)
- I Unit
- J Icon indicating date / time not set

The Acti9 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 Acti9 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.

Several versions are available: 63A direct measure (iEM3100 models), current transformers associated meter (iEM3200 models), and 125A direct measure (iEM3300 models), low voltage current transformers (iEM3400 models), and Rogowski coils (iEM3500 models). For each range, eight versions are available (seven for the iEM3300) to satisfy basic to advanced applications:

- iEM3100/iEM3200/iEM3300: kWh meter with partial counter
- iEM3110/iEM3210/iEM3310: 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/iEM3335: 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/iEM3350: kWh meter with partial counter and current, voltage, power measurement. Modbus communication.
- iEM3155/iEM3255/iEM3355/iEM3455/iEM3555: energy meter, four quadrant, multi-tariffs with partial counter and current, voltage, power measurement. Modbus communication, digital I/O, MID certified (iEM3155, iEM3255, iEM3355 only).
- iEM3165/iEM3265/iEM3365/iEM3465/iEM3565: energy meter, four quadrant, multi-tariffs with partial counter and current, voltage, power measurement. BACnet communication, digital I/O and MID certified (iEM3165, iEM3265, iEM3365 only).
- iEM3175/iEM3275/iEM3375: 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 (LVCT safer to install)
- 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 (selected models)
- 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) Acti9 iEM3100 and iEM3300 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
- LVCT support (iEM3455 and iEM3465)
- Rogowski support (iEM3555 and iEM3565)

Function guide	iEM3100 iEM3200 iEM3300	iEM3110 iEM3210 iEM3310	iEM3115 iEM3215	iEM3135 iEM3235 iEM3335	iEM3150 iEM3250 iEM3350	iEM3155 iEM3255 iEM3355 iEM3455 iEM3555	iEM3165 iEM3265 iEM3365 iEM3465 iEM3565	iEM3175 iEM3275 iEM3375
Width (18 mm module, DIN rail mounting)	5 / 5 / 7	5 / 5 / 7	5 / 5	5 / 5 / 7	5 / 5 / 7	5 / 5 / 7 / 5 / 5	5 / 5 / 7 / 5 / 5	5 / 5 / 7
Direct measurement (up to 63A or 125A)	63A / - / 125A	63A / - / 125A	63A / -	63A / - / 125A	63A / - / 125A	63A / - / 125A / LVCT / Rog.	63A / - / 125A / LVCT / Rog.	63A / - / 125A
Measurement inputs through CTs (1A, 5A)	- / ■ / -	- / ■ / -	- / ■	- / ■ / -	- / ■ / -	- / ■ / - / LVCT / Rog.	- / ■ / - / LVCT / Rog.	- / ■ / -
Measurement inputs through VTs				- / ■ / -	- / ■ / -	- / ■ / - / ■ / ■	- / ■ / - / ■ / ■	- / ■ / -
Active Energy measurements class (Total & partial kWh)	1 / 0.5S / 1	1 / 0.5S / 1	1 / 0.5S	1 / 0.5S / 1	1 / 0.5S / 1	1 / 0.5S / 1 / 0.5S / 0.5S	1 / 0.5S / 1 / 0.5S / 0.5S	1 / 0.5S / 1
Four Quadrant Energy measurements				■		■	■	■
Electrical measurements (I, V, P, ...)				■	■	■	■	■
Multi-tariff (internal clock)			4	4		4	4	4
Multi-tariff (external control)			4	2		2	2	2
Measurement display (number of lines)	3	3	3	3	3	3	3	3
Digital inputs				1		1	1	1
Programmable (Tariff control or WAGES input)								
Tariff control only			2					
Digital outputs				1		1	1	
Programmable (kWh pulse or kW alarm)								
kWh pulse only		1						
kW overload alarm				1		1	1	
M-Bus protocol				■				
Modbus protocol					■	■		
BACnet protocol							■	
LON								■
MID (legal metrology certification)		■	■	■		3155 / 3255 / 3355	3165 / 3265 / 3365	■



Acti9 iEM3100 models direct connected (63 A)  
Direct connected up to 63 A



Acti9 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, iEM3335, iEM3355, iEM3365, iEM3455, iEM3465, iEM3555, iEM3565) 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

Industry standards	IEC 61557-12, IEC 61036, IEC 61010, UL61010-1, IEC 62053-21/22 Class 1 and Class 0.5S, IEC 62053-23 ANSI C12.20 0.5%
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### Multi-tariff capability

The Acti9 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

Specification guide	iEM3100/iEM3300 Models							
	iEM3100 iEM3300	iEM3110 iEM3310	iEM3115	iEM3135 iEM3335	iEM3150 iEM3350	iEM3155 iEM3355	iEM3165 iEM3365	iEM3175 iEM3375
Current (max.) Direct connected (iEM31xx)	63A for iEM3100 models, 125A for iEM3300 models							
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 mm <sup>2</sup> for iEM3100 models, 50 mm <sup>2</sup> for iEM3300 models							
Display max.	LCD 99999999.9kWh							
Voltage (L-L)	3 x 100/173 V AC to 3 x 277/480 V AC (50/60 Hz)							
IP protection	IP40 front panel and IP20 casing							
Temperature	-25°C to 55°C (K55)							
Product size	5 x 18 mm for iEM3100 models, 8 x 18 mm for iEM3300 models							
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 tariff	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) <sup>(1)</sup>							
Wiring capacity	6 mm <sup>2</sup> for currents and 4 mm <sup>2</sup> for voltages							
Display max.	LCD 99999999.9kWh or 99999999.9MWh							
Voltage (L-L)	3 x 100/173 V AC to 3 x 277/480 V AC (50/60 Hz)							
IP protection	IP40 front panel and IP20 casing							
Temperature	-25°C to 55°C (K55)							
Product size	5 steps of 18 mm							
Overvoltage & measurement	Category III, Degree of pollution 2							
kWh	■	■	■	■	■	■	■	■
kVARh				■	■	■	■	■
Active power				■	■	■	■	■
Reactive power				■		■	■	■
Currents and voltages				■	■	■	■	■
Overload alarm				■		■	■	■
Hour counter				■		■	■	■
<i>(1) For 1 A CTs Class 1 (IEC6253-21 and IEC61557-12 Class B (EN50470-3))</i>								



Split core LVCT00101S 100 A



Split core LVCT00102S 100 A



Split core LVCT00201S 200 A



Split core LVCT01004S 400 A



Ropestyle

Specification guide	iEM3400/iEM3500 Models			
	iEM3455	iEM3465	iEM3555	iEM3565
Max current	0.333V-1.0V LVCTs	0.333V-1.0V LVCTs	Rogowski coils	Rogowski coils
Meter constant LED	5000/kWh			
Pulse output frequency	Up to 500p/kWh			
Multi-tariff	4 tariffs			
Communication	Modbus	BACnet	Modbus	BACnet
DI/DO	1/1			
Network	1P+N, 3P, 3P+N support LVCTs, Rogowski coils, and VTs			
Wiring capacity	6 mm <sup>2</sup> for currents and 4 mm <sup>2</sup> for voltages			
Display max.	LCD 99999999.9kWh or 99999999.9MWh			
Voltage (L-L)	3 x 100/173 V AC to 3 x 277/480 V AC (50/60 Hz)			
IP protection	IP40 front panel and IP20 casing			
Temperature	-25°C to 70°C (-13°F to 158°F) (K55)			
Product size	5 steps of 18 mm			
Overvoltage & measurement	Category III, Degree of pollution 2			
kWh		■		
kVARh		■		
Active power		■		
Reactive power		■		
Currents and voltages		■		
Overload alarm		■		
Hour counter		■		

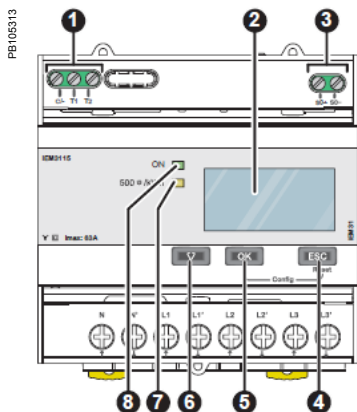


iEM3455



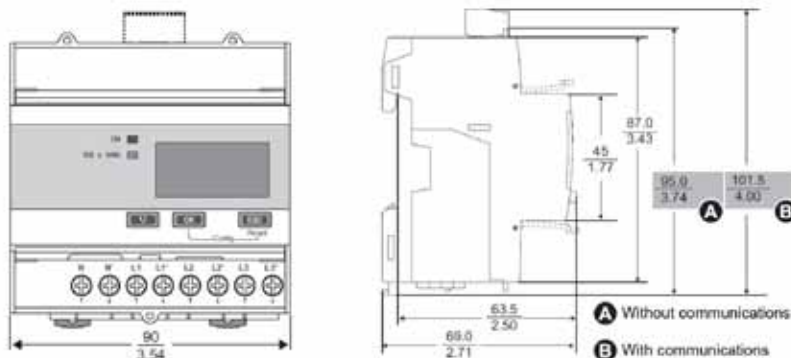
iEM3455 with sealing covers open

### iEM3200/iEM3400/iEM3500 series dimensions



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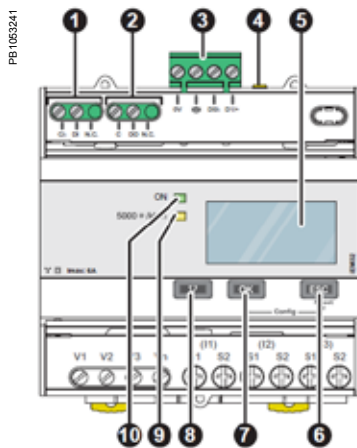
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#### Acti9 iEM3000 Series parts

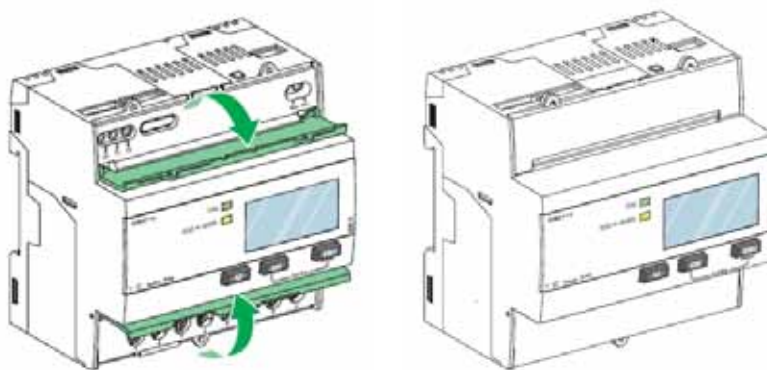
1. Digital inputs for tariff control (iEM3115 / iEM3215)
2. Display for measurement and configuration
3. Pulse out for remote transfer (iEM3110 / iEM3210)
4. **ESC** Cancellation
5. **OK** Confirmation
6. **SEL** Selection
7. Flashing yellow meter indicator to check accuracy
8. Green indicator: on/off,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

### iEM3100/iEM3200/iEM3400/iEM3500 Series front sealing covers open and closed



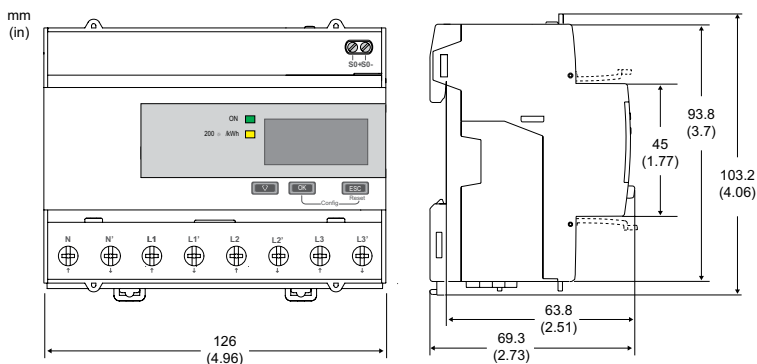
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### iEM3300 series dimensions

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#### Acti9 iEM3000 Series parts

1. Digital inputs 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** Confirmation
8. **SEL** Selection
9. Flashing yellow meter indicator to check accuracy
10. Green indicator: on/off, error

# Acti9 iEM3000 Series Energy Meters

## Commercial reference numbers

iEM31xx / iEM32xx / iEM33xx Meter model and description	Current measurement	Ref. 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
iEM3300 basic energy meter	Direct connected 125 A	A9MEM3300
iEM3310 energy meter with pulse output	Direct connected 125 A	A9MEM3310
iEM3335 advanced multi-tariff energy meter & electrical parameter plus M-Bus comm port	Direct connected 125 A	A9MEM3335
iEM3350 energy meter & electrical parameter plus Modbus RS485 comm port	Direct connected 125 A	A9MEM3350
iEM3355 advanced multi-tariff energy meter & electrical parameter plus Modbus RS485 comm port	Direct connected 125 A	A9MEM3355
iEM3365 advanced multi-tariff energy meter & electrical parameter plus BACnet MS/TP comm port	Direct connected 125 A	A9MEM3365
iEM3375 advanced multi-tariff energy meter & electrical parameter plus LON TP/FT-10 comm port	Direct connected 125 A	A9MEM3375
iEM34xx / iEM35xx	Current measurement	Ref. no.
iEM3455 advanced multi-tariff energy meter & electrical parameter plus Modbus MS/TP comm port	LVCT	A9MEM3455
iEM3465 advanced multi-tariff energy meter & electrical parameter plus BACnet MS/TP comm port	LVCT	A9MEM3465
iEM3555 advanced multi-tariff energy meter & electrical parameter plus Modbus MS/TP comm port	Rogowski coil	A9MEM3555
iEM3565 advanced multi-tariff energy meter & electrical parameter plus BACnet MS/TP comm port	Rogowski coil	A9MEM3565
LVCTs*		
CT, split-core, Size 0, 50 A to 0.333 V		LVCT00050S
CT, split-core, Size 1, 100 A to 0.333 V		LVCT00101S
CT, split-core, Size 1, 200 A to 0.333 V		LVCT00201S
CT, split-core, Size 2, 100 A to 0.333 V		LVCT00102S
CT, split-core, Size 2, 200 A to 0.333 V		LVCT00202S
CT, split-core, Size 2, 300 A to 0.333 V		LVCT00302S
CT, split-core, Size 3, 400 A to 0.333 V		LVCT00403S
CT, split-core, Size 3, 600 A to 0.333 V		LVCT00603S
CT, split-core, Size 3, 800 A to 0.333 V		LVCT00803S
CT, split-core, Size 4, 800 A to 0.333 V		LVCT00804S
CT, split-core, Size 4, 1000 A to 0.333 V		LVCT01004S
CT, split-core, Size 4, 1200 A to 0.333 V		LVCT01204S
CT, split-core, Size 4, 1600 A to 0.333 V		LVCT01604S
CT, split-core, Size 4, 2000 A to 0.333 V		LVCT02004S
CT, split-core, Size 4, 2400 A to 0.333 V		LVCT02404S

See your Schneider Electric representative for complete ordering information.

### Rogowski coils for iEM3555 and iEM3565 meters

ROGCOIL 12 in (0.30 m) 8 ft (2.40 m) 5000 A	U018-0001
ROGCOIL 18 in (0.45 m) 8 ft (2.40 m) 5000 A	U018-0002
ROGCOIL 24 in (0.60 m) 8 ft (2.40 m) 5000 A	U018-0003
ROGCOIL 36 in (0.90 m) 8 ft (2.40 m) 5000 A	U018-0004

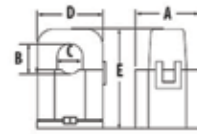
\* Available in select countries (as used for BCPM accessories).  
See your Schneider Electric representative for complete ordering information.

### LVCT Split-core dimensions

These dimensions apply to both BCPMSCCTxx (branch CTs) and LVCT0xxxx0S/1S (for Mains) 50A-200A CT families.

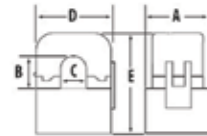
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#### Split-Core CTs



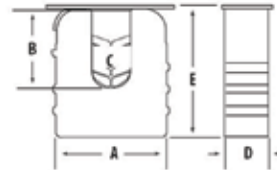
#### 50 Amp

- A = 1.0" (26 mm)
- B = 0.5" (11 mm)
- C = 0.4" (10 mm)
- D = 0.9" (23 mm)
- E = 1.6" (40 mm)



#### 100 Amp

- A = 1.2" (29 mm)
- B = 0.8" (20 mm)
- C = 0.7" (16 mm)
- D = 1.6" (40 mm)
- E = 2.1" (53 mm)



#### 200 Amp

- A = 2.6" (66 mm)
- B = 1.1" (28 mm)
- C = 0.8" (19 mm)
- D = 2.9" (74 mm)
- E = 3.5" (90 mm)



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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>

As standards, specifications and designs develop from time to time, please ask for confirmation of the information given in this document.

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