

# EM3-100/R/BI Series

Three Phase Four Wires Din Rail Energy Meter



## Introduction

EM3-100\* series are three phase four wire energy meters "with a white back-lighted LCD screen for perfect reading", they are used to measure three-phase energy in commercial and Industrial applications. The series contains 3 models: EM3-100, EM3-100-R, EM3-100-Bi

EM3-100 measures and displays active energy (kWh) ;  
EM3-100-R measures and displays active energy (kWh) and power (W), a resettable active energy value is available.  
EM3-100-Bi measures and displays the total/import/export active energy and power. resettable energy is also available.

There is a button on the front of EM3-100-R and EM3-100-Bi. The button has two functions: 1 short click the button to scroll the display , 2. press down and hold the button for 3 seconds to reset the resettable energy value.

## Safety Instructions

### Information for your own safety

This manual does not contain all of the safety measures for operation of the equipment (module, device), because special operating conditions, and local code requirements or regulations may necessitate further measures. However, it does contain information which must be read for your personal safety and to avoid material damages. This information is highlighted by a warning triangle and is represented as follows, depending on the degree of potential danger.



#### Warning

This means that failure to observe the instruction can result in death, serious injury or considerable material damage.



#### Caution

This means hazard of electric shock and failure to take the necessary safety precautions will result in death, serious injury or considerable material damage.

### Qualified personnel

Operation of the equipment (module, device) described in this manual may only be performed by qualified personnel. Qualified personnel in this manual means person who are authorized to commission, start up, ground and label devices, systems and circuits according to safety and Regulatory standards.

### Use for the intended purpose

The equipment (device, module) may only be used for the application specified in the catalogue and the user manual, and only be connected with devices and components recommended and approved by EASTRON.

### Proper handling

The prerequisites for perfect, reliable operation of the product are proper transport, proper storage, installation and assembly, as well as proper operation and maintenance. When operating electrical equipment, certain parts of this equipment automatically carry dangerous voltages. Improper handling can therefore result in serious injuries or material damage.

- ♦ Use only insulating tools.
- ♦ Do not connect while circuit is live (hot).
- ♦ Place the meter only in dry surroundings.
- ♦ Do not mount the meter in an explosive area or expose the meter to dust, mildew and insects.
- ♦ Make sure the used wires are suitable for the maximum current of this meter.
- ♦ Make sure the AC wires are connected correctly before activating the current/voltage to the meter.
- ♦ Do not touch the meter connecting clamps directly with your bare hands, with metal, blank wire or other material as you may get an electrical shock.
- ♦ Make sure the protection cover is placed after installation.
- ♦ Installation, maintenance and reparation should only be done by qualified personnel.
- ♦ Never break the seals and open the front cover as this might influence the functionality of the meter, and will avoid any warranty.
- ♦ Do not drop, or allow physical impact to the meter as there are high precision components inside that may break.

## Technical Data

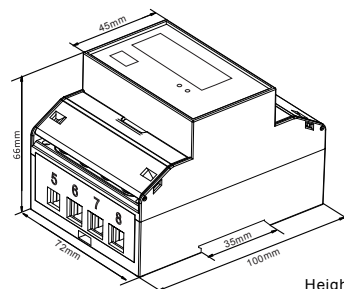
### Specifications

Nominal voltage(Un)	230V/400V AC(3~)
Operational voltage	80%~120% Un
Insulation capabilities	
- AC voltage withstand	4KV for 1 minute
- Impulse voltage withstand	6KV-1.2/50μS
Basic current (Ib)	10A
Maximum rated current (Imax)	100A
Operational current range	0.4% Ib~Imax
Over current withstand	30Imax for 0.01s
Operational frequency range	50Hz ± 10%
Internal power consumption	≤ 2W/10VA/phase
Test output flash rate (PULSE LED)	1000imp/kWh
Test pulse output rate	1000imp/kWh

### Performance criteria

Operating humidity	≤ 90%
Storage humidity	≤ 95%
Operating temperature	-25°C ~ +55°C
Storage temperature	-40°C ~ +70°C
Active energy accuracy	Class B EN50470-1/3 Class 1 IEC 62053-21
Protection against penetration of dust and water	IP51
Insulating encased meter of protective class	II
Warm up time	10S
Mechanical environment	M1
Electromagnetic environment	E2
Degree of pollution	2

## Dimensions

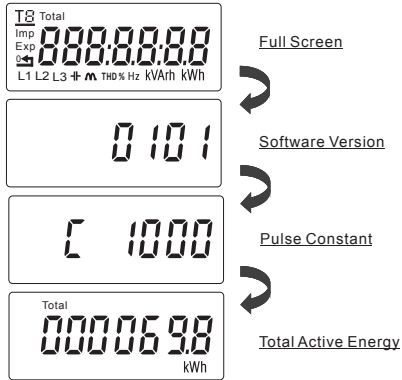


Height	100mm
Width	72mm
Depth	66mm

## Operation

### Initialization display

When the meter is powered on, it will initialize and do self-checking:

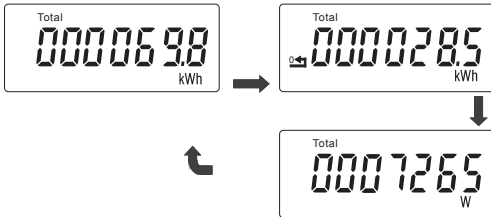


The default display is total active energy kWh for EM3-100, EM3-100-R; while import active energy for EM3-100-Bi.

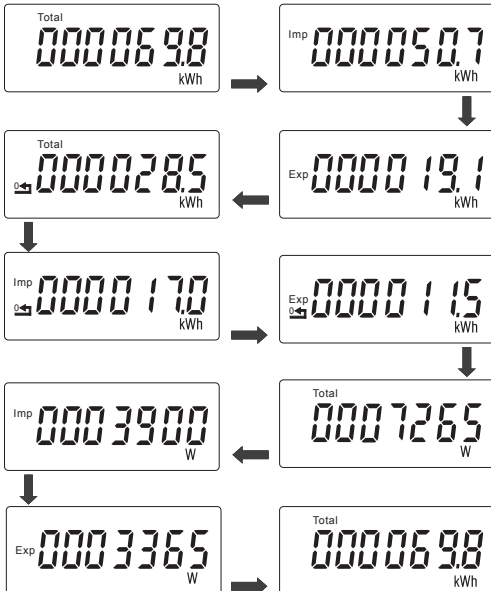
### Scroll display

Both EM3-100-R and EM3-100-Bi provide more displays, which can be checked through the button on the front panel.

#### EM3-100-R Information Pages

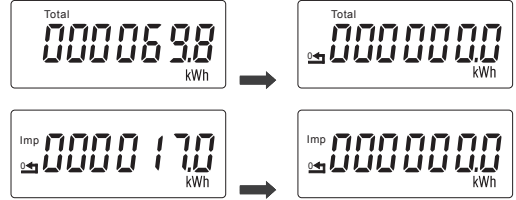


#### EM3-100-Bi Information Pages

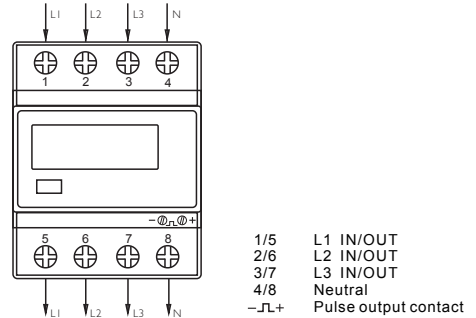


## Resettable Energy

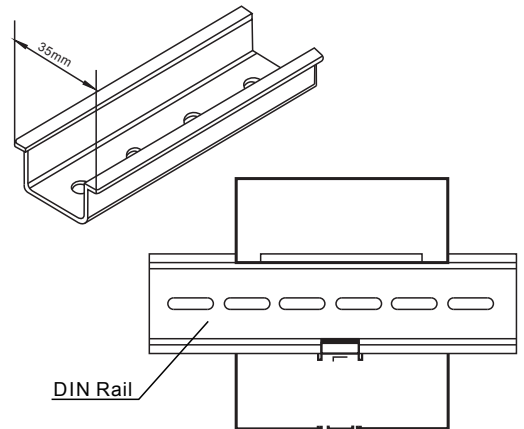
Both EM3-100-R and EM3-100-Bi provide a function of resettable energy. User can press the button for 3 seconds to reset the partial energy.



## Wiring Diagram



## Installation Diagram



## Conformity Declaration

(MID version meters only)

Declare under our sole responsibility as manufacturer that the three phase active energy (kWh) indoor electricity meter EM3-100\* correspond to the production model described in the EC-type examination certificate and to the requirements of the Directive 2014/32/EU type Examination Certificate no.0120/SGS0325 Identification Number of the Nb0120