

PRELIMINARY DATA SHEET

RI-D175

Single Phase Energy Meter (MID Certified)



- 45A direct connected
- Single module width DIN rail mounted
- Import active energy measurement
- Modbus or MBus communication
- Single pulse output
- MID B+D Certified (NMI Cert no. EU-TEC-T11307)



Product Description

The RI-D175 Series forms part of the rayleigh Instruments family of MID Certified energy meters, designed for the accurate measurement of energy consumption in residential, commercial, industrial and utility applications. The direct connection of the unit to a 45A ac circuit means the meter does not require additional current transformers.

This meter is housed in a single module width case suitable for DIN rail mounting, with a high definition backlit LCD display allowing easy reading of the recorded values.

Its MID status means the RI-D175 has been tested for build quality and accuracy and is certified for billing purpose.

Display

Display Type	LCD, high definition	
Digit height	5mm (displayed value)	
Page scrolling	Auto scroll	
Displayed parameters and accuracy	Active energy	Class 1, Class B (IEC/EN62053-21, IEC/EN50470)
	Voltage	0.5% of full scale
	Current	0.5% of full scale
	Active power	1%
	Power factor	1% of unity
	Frequency	0.1% of full scale (L-N >20V)
Energy maximum display	99999.99 (default) or 999999.9 (user programmable via RS485)	
Resolution	0.01K or 0.1K depending energy max. display setting	
Tariff	Tariff 1, Tariff 2 - switching via RS485	

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Programming

Programmable parameters	Communication address, Communication speed (Baudrate), Energy max. display, Tariff
Programming access	RS485
Memory retention	Non-volatile memory

Input

Connection	Single phase
Input voltage (Un)	230V AC
Operating voltage range	195.5...253V AC
Voltage circuit power consumption (max.)	2W / 10VA
Current rating (Imin-Iref)	0.25...5A
Max current (Imax)	45A
Current circuit power consumption (max.)	N/A combined with voltage input
Starting current	20mA
Short time overcurrent	30 Imax. For 10mS (IEC/EN62053-21 and -23)
Impulse voltage withstand	6kV 1.2μS
AC voltage withstand	2kV for 1 minute
CT ratio range	N/A direct connection
VT ratio range	N/A direct connection
Frequency	50Hz ±10%
Current distortion factor	According to IEC/EN50470

Auxiliary Supply

Voltage range	Self supplied from measuring input
Operating frequency	See Input section
Power consumption	See Input section

Outputs

Number of pulse outputs	1
Pulse output function	1 x fixed 1000 imp/kWh
Pulse output type	Passive transistor, require external DC supply
Pulse output max. current	27mA
Pulse output voltage range	5 - 27V DC
Pulse duration	>30mS

Communication

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Modbus Version (RI-D175-C)	
Communication type	RS485
Communication protocol	Modbus RTU
Address	0... 255
Number of bits	8 bit
Parity	Even
Baudrate	1200, 2400, 4800, 9600
Bus loading (max.)	64 meters
Max distance from Master device	1000m
Mbus Version (RI-D175-MB)	
Communication type	RS485
Communication protocol	Mbus
Address	0... 255
Baudrate	2400, 4800, 9600
Number of meters connected on the bus	64 (dependant on the converter and baudrate (higher speed reduces number of meters))
Max distance from Master device	1000m (64 meters)

Insulation

Installation category	III
Pollution degree	2
Insulation voltage rating	300V

Environmental Conditions

Reference temperature	23°C ±1°C
Specified temperature operating range	-25°C ... +55°C
Storage temperature	-30°C ... +70°C
Relative humidity	0... 95%, non-condensing
Mechanical environment	M1
Electromagnetic environment	E2

Mechanical

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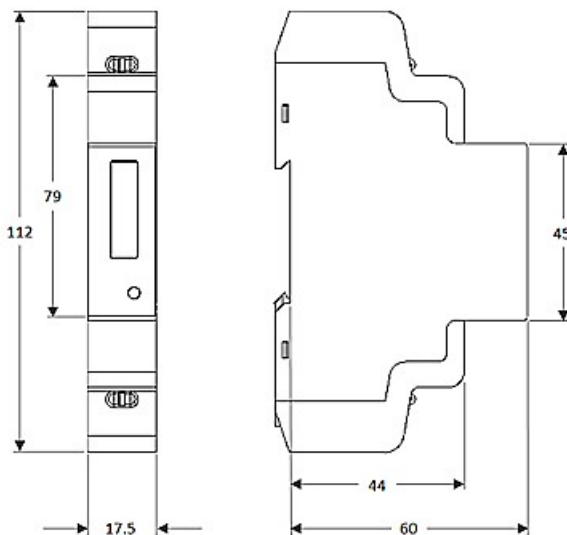
Housing	
Housing type	1 module DIN 43880
Mounting	Snap-on 35mm rail
Tamper sealing	Terminal cover and meter housing (by means of crimped seal)
Housing material	Self-extinguishing ABS
Protection degree (IEC/EN60529)	IP20 (terminals), IP51 (front of housing)
Weight	120g
Termination	
Current input terminal type	Screw type - rising clamp
Max. wire size	50mm ²
Voltage input terminal type	Combined with current circuit
Max. wire size	N/A
Output terminal type	Screw type - rising clamp
Max. wire size	2.5mm ²

Conformity

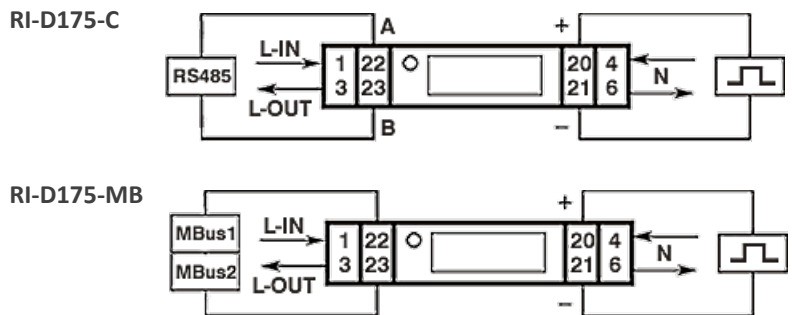
Electromagnetic compatibility	Emission and immunity tests according to EN50470 Immunity test according to IEC/EN50470
Accuracy and functionality	IEC/EN50470-1:2006 - Electricity metering equipment (A.C) Part 1: general requirements, tests and test conditions Metering equipment (class indexes A, B, C) IEC/EN50470-3:2006 - Electricity metering equipment (A.C) Part 3: Particular requirements Static meters for active energy (class indexes A, B, C) EC Directive 2004/22/EC

Dimensions

Wiring Diagram



All dimensions in mm



Model Selection

Model	Communication
RI-D175-C	Modbus RTU
RI-D175-MB	MBus