APRIL
2016

METERING INSTRUMENTS
DIGITAL MULTIMETERS AND ENERGY METERS
NETWORK ANALYZERS
DATA CONCENTRATOR
COMMUNICATION DEVICES

ENERGY METERS
DIRECT CONNECTION
OR BY CURRENT
TRANSFORMERS
MID CERTIFIED VERSIONS

OMOLOGATO MID APPROVED

contrel elettronica

EMT 4s

DIGITAL MEASURING INSTRUMENTS

MEASUREMENT TRANSDUCER

The EMT-4s is the transducer version of the EMS-96, for DIN-rail mount.
This device has the same characteristics as the EMS-96, but has no color display.
Instead of the integrated display, the EMT-4s has an interface board
that consent the connection in one of the following modes:

- RS485 communication port
- Remote display communication port

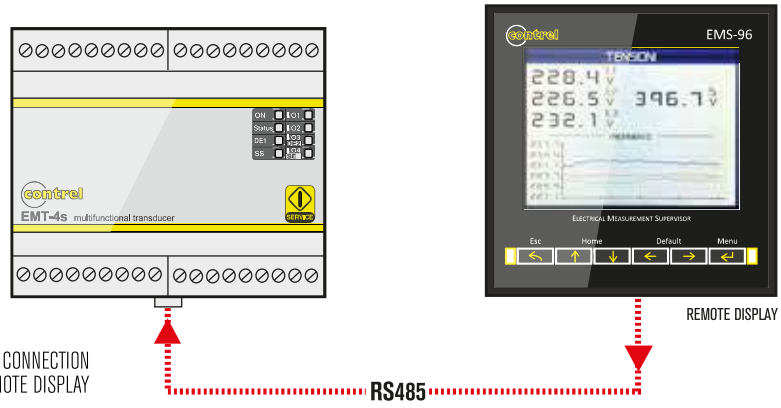
TECHNICAL CHARACTERISTICS		EMT-4s
AUXILIARY SUPPLY		
Nominal voltage Us		110 - 230 - 400 VAC
Operating voltage range		±15%
Power consumption		3VA
Frequency		50 – 60 Hz
VOLTAGE INPUTS		
Measurement range		52...693VAC L-L (30...400VAC L-N)
Method of measuring		True RMS value
Measuring input impedance		1,8MΩ
Method of connection		Single-phase, two-phase, three-phase orbalanced three-phase system
CURRENT INPUTS		
Reference current		1A (option), 30A (option) or 5A
Measurement range		0,05...5A
Method of measuring		True RMS value
Overload capacity		6A by an external current transformer
Self-consumption		<0,5VA
ACCURACY		
Measures	**Voltage**	0,5%
	Current	0,5%
	Power	1 %
	Frequency	0,5%
	Active energy	Class 1
RS485 SERIAL INTERFACE		
Baud-rate		Programmable 4800...38400 bps
Protocol		Modbus RTU
INSULATION		
Insulation voltage		3kVAC for 1 minute
AMBIENT CONDITION		
Operating temperature		-5...+50°C
Storage temperature		-15...+60°C
HOUSING		
Version		6 modules
Degree of protection		IP52 on front IP20 Housing and terminals
Weight		430g
CERTIFICATIONS AND COMPLIANCE		
Reference standards		EN61000-6-2, EN61000-6-4, CISPR22-EN55022, EN62053-21, EN62053-22, EN62053-23

OPTIONS	
ORDER CODE	DESCRIPTION
1A	Rated current inputs by external CT 1A
TT - TTA	Current inputs by miniaturized closed CT (TT) or openable CT (TTA)
N	Neutral current input or differential current input
0.5 s	Active energy Class 0.5s
0.2 s	Active energy Class 0.2s
4DI	4 digital inputs
4DO	4 digital outputs
COMMUNICATION PORTS	
485	RS485 serial interface
485M	RS485 serial interface (Master function)

EMT 4s

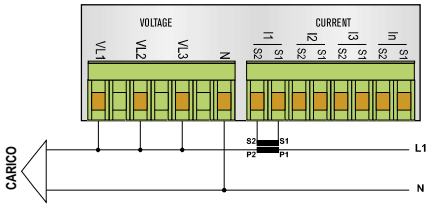
DIGITAL MEASURING INSTRUMENTS

MEASUREMENT TRANSDUCER

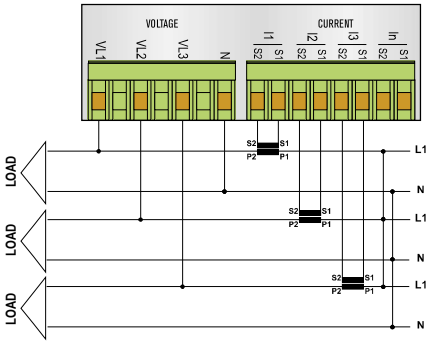


WIRING DIAGRAMS **EMT-4s**

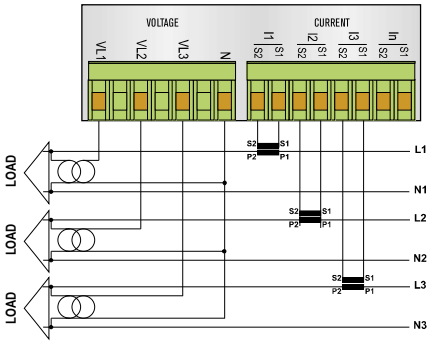
SINGLE-PHASE 2 WIRE CONNECTION



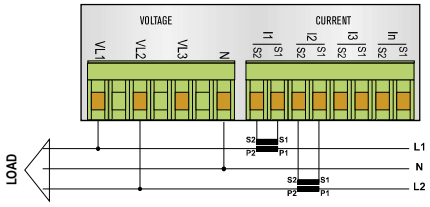
SINGLE-PHASE 2 WIRE CONNECTION MULTIPLE LOADS



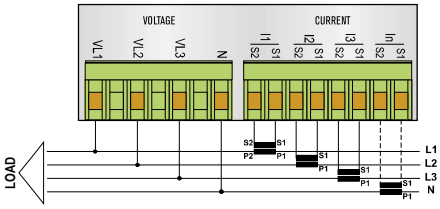
MULTIPLE SINGLE-PHASE CONNECTION MULTIPLE LOADS



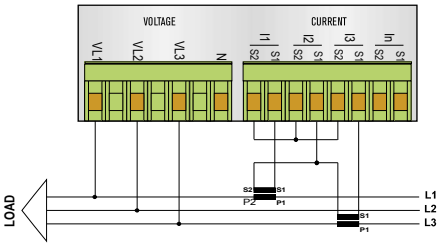
2-PHASE CONNECTION WITH NEUTRAL



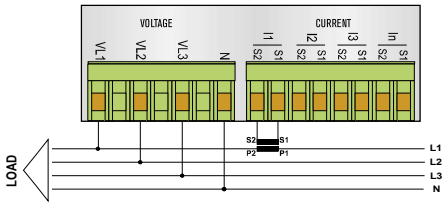
3-PHASE CONNECTION WITH NEUTRAL



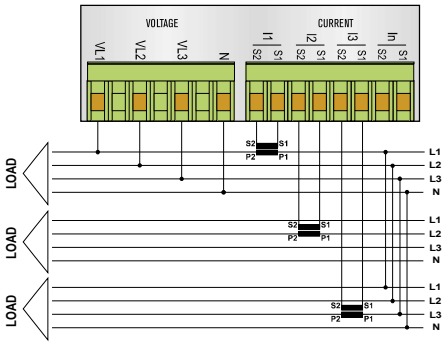
AARON CONNECTION 3-PHASE WITHOUT NEUTRAL



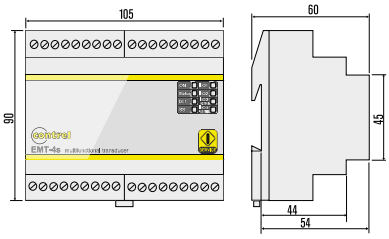
BALANCED 3-PHASE CONNECTION WITH NEUTRAL



BALANCED 3-PHASE CONNECTION MULTIPLE LOADS



MECHANICAL DIMENSIONS **EMT-4s**



EMT-1C/50 | 1C/300

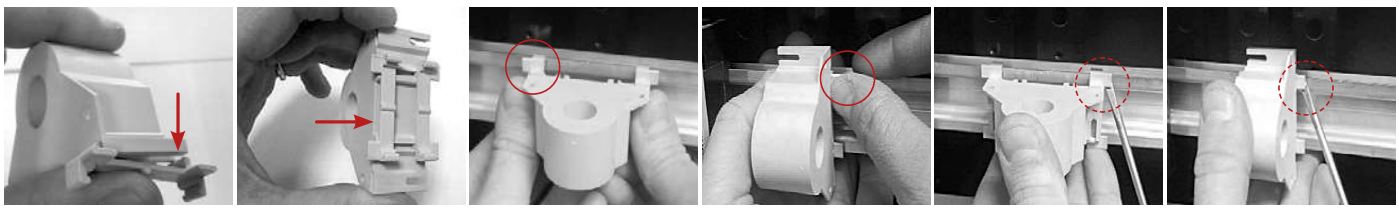
DIGITAL MEASURING INSTRUMENTS

MODULAR MEASUREMENT TRANSDUCER

TECHNICAL CHARACTERISTICS		EMT-1C/50	EMT-1C/50 LV	EMT-1C/300	EMT-1C/300 LV
AUXILIARY SUPPLY					
Nominal voltage Us		9...30 VDC		9...30 VDC	
Operating voltage range		-		-	
Power consumption		< 1,3W		< 1,3W	
Frequency		50 – 60 Hz		50 – 60 Hz	
VOLTAGE INPUTS					
Measurement range		Up to 800 VAC or 1000 VDC	Up to 80 VAC or 100 VDC	Up to 800 VAC or 1000 VDC	Up to 80 VAC or 100 VDC
Method of measuring		True RMS value		True RMS value	
CURRENT INPUTS					
Measurement range		Fino a 50A AC/DC		Fino a 300A AC o 400A DC	
Method of measuring		True RMS value		True RMS value	
ACCURACY					
Measures	Voltage	0,5%		0,5%	
	Current	0,5%		0,5%	
	Power	0,5%		0,5%	
	Frequency	± 0,1		± 0,1	
	Active energy	Class 1		Class 1	
RS485 SERIAL INTERFACE					
Baud-rate		Programmable 1200 - 115200 bps		Programmable 1200 - 115200 bps	
Protocol		Modbus RTU		Modbus RTU	
INSULATION					
Insulation voltage		3 kV on bare wire for current measure 4 kV for Voltage measure		3 kV on bare wire for current measure 4 kV for Voltage measure	
AMBIENT CONDITION					
Operating temperature		-15...+65°C		-15...+65°C	
Storage temperature		-40...+85°C		-40...+85°C	
HOUSING					
Version		DIN rail clips for vertical/horizontal mounting		DIN rail clips for vertical/horizontal mounting	
Filling		Epoxy resin		Epoxy resin	
Degree of protection		IP20		IP20	
Weight		80g		370g	
CERTIFICATIONS AND COMPLIANCE					
Reference standards		EN61000-6-4/2006 + A1 2011; EN64000-6-2/2005 ; EN61010-1/2010		EN61000-6-4/2006 + A1 2011; EN64000-6-2/2005 ; EN61010-1/2010	

MOUNTING

The EMT-1C can be mounted in any position (see photo below), horizontal or vertical mounting, horizontal or vertical through the two hooks for DIN rail included in the box.



EMT-1C/50 | 1C/300

DIGITAL MEASURING INSTRUMENTS

MODULAR MEASUREMENT TRANSDUCER

EMT-1C/50

The EMT-1C/50 is a Single-phase Power meter able to measure TRMS Current AC/DC, and Voltage.
On the RS485 Modbus are available : Irms, Vrms, Watt, Var, Va, Vpk, Ipk, Frequency, Cosφ, Energy bidirectional and THD.
The device is fully configurable by RS485.

CHARACTERISTICS:

- TRMS Measure, THD available
- 0,5 % Accuracy
- RS485 Modbus integrated
- Bidirectional Energy metering
- Din rail mounting in both side
- Fully configurable by interface software
- Bootloader for updating firmware

EMT-1C/50 LV

The EMT-1C/50-LV is the LOW VOLTAGE version of the Single-phase Power meter EMT-1C/50, able to measure the RMS AC or DC Current and Voltage.
On the RS485 Modbus are available:
Irms, Vrms, Watt, Var, Va, Vpk, Ipk, Frequency, Cosφ, Energy bidirectional and THD.
The device is fully configurable by RS485.

CHARACTERISTICS:

- LOW VOLTAGE VERSION
- TRMS Measure, THD available
- 0,5% Accuracy;
- RS485 Modbus integrated;
- Bidirectional Energy metering
- Din-rail mounting in both side
- Fully configurable by interfacesoftware
- Available measure register: MSW first, LSW first or hundredts

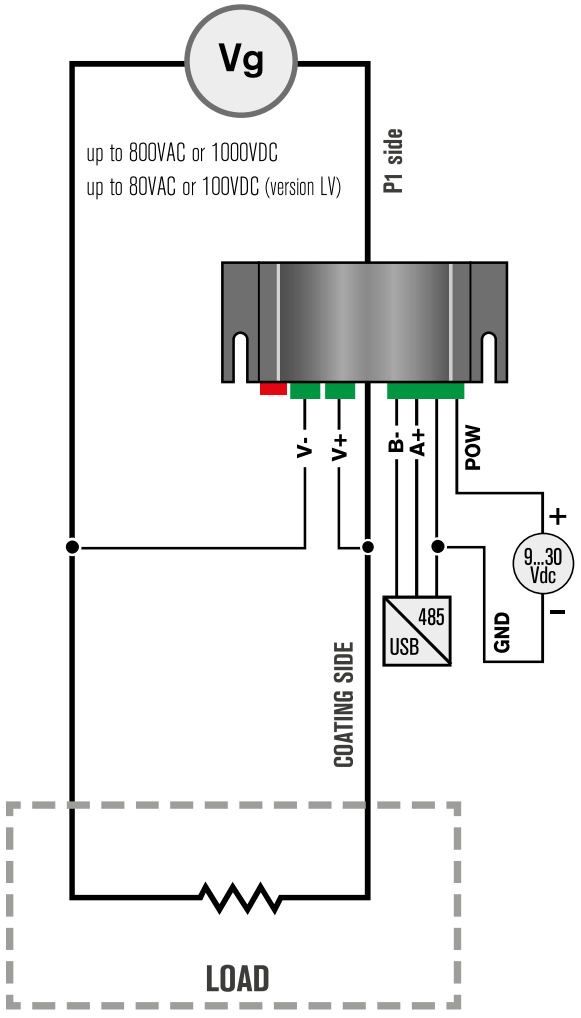
EMT-1C/300

The EMT-1C/300 is an Energy / Power Meter capable of measuring single-phase current and voltage AC RMS/ DC.
RS485 Modbus with over 200 registers.
Measure available: Irms, Vrms, Watt, Var, Va, Vpk, Ipk, Frequenza, Cosφ, Import/Export energy, THD, min/MAX of RMS measurement.
Suitable for measurements with varying frequencies (Wind, Hydro, Shipbuilding Industries, Aviation). Telecommunication applications, Refrigeration, Motors.
Suitable for direct measurements between inverter and motor.

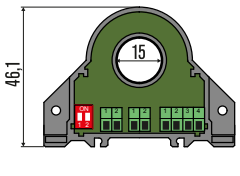
EMT-1C/300 LV

The EMT-1C/300-LV is the LOW VOLTAGE version of the Energy / Power Meter EMT-1C/300, capable of measuring single-phase current and voltage AC/DC TRMS.
RS485 Modbus with over 200 registers.
Measure available: Measure available: Irms, Vrms, Watt, Var, Va, Vpk, Ipk, Frequenza, Cosφ, Import/Export energy, THD, min/MAX of RMS measurement.

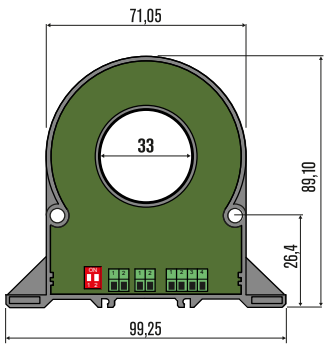
WIRING DIAGRAMS **EMT-1C/50 E EMT-1C/300**



MECHANICAL DIMENSIONS **EMT-1C/50**



MECHANICAL DIMENSIONS **EMT-1C/300**

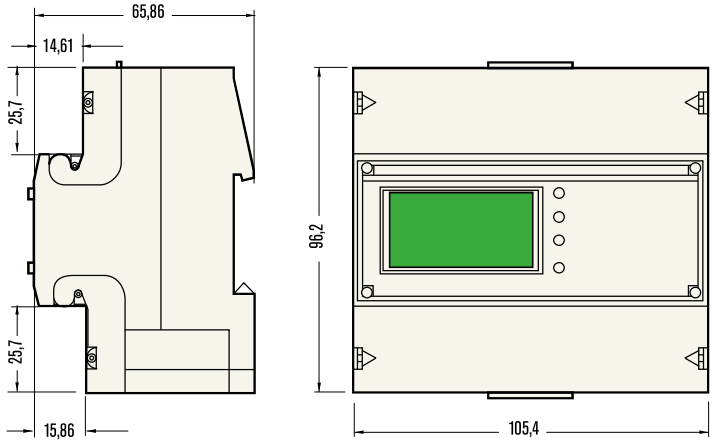


ENERGY METERS
WITH DIRECT CONNECTION OR BY CT
FOR SINGLE PHASE AND THREE PHASE SYSTEMS - **MID APPROVED**

"... for efficient control of energy consumption"

- **CERTIFIED MID ENERGY METERS**
  ACEAN type energy meters will be available even in the MID certified version.
  In the European Union, each measuring instrument, which data is used for a billing, must be certified according to the MID - Measuring Instruments Directive.
- **ACCURACY**
  Class B per EN50470-3
  Class C per EN50470-3
- **MULTIFUNCTION KEYS**
  Multifunction keys to program the device and scroll the measurements
- **METROLOGIC LED**
  The flashing rate of the LED is proportional to the energy consumption
- **SEALABLE TERMINAL**
  The energy meters are equipped with a set of sealable terminal covers
- **METER WIITH 5+2 OR 6+1 DIGITS**
  The active energy count is from 0 to 999999,9kWh

MECHANICAL DIMENSIONS



DIRECT CONNECTION

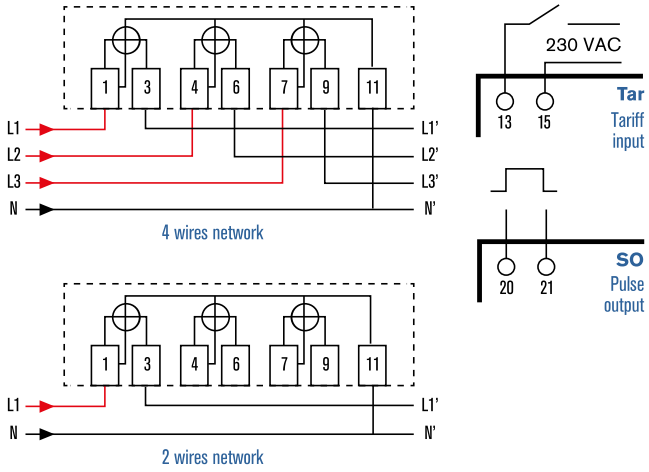
TYPE	Max current	COMMUNICATION PORT	WIRING CONNECTION	LOAD PROFILES
DVH 5141	**65 A**	-	4 OR 2 WIRE	-
DVH 5161	**100 A**	-	4 OR 2 WIRE	-
DVH 5241	**65 A**	RS485 MODBUS-RTU	4 OR 2 WIRE	-
DVH 5261	**100 A**	RS485 MODBUS-RTU	4 OR 2 WIRE	-
DDH 5141	**65 A**	-	3 WIRE	-
DDH 5161	**100 A**	-	3 WIRE	-
DDH 5241	**65 A**	RS485 MODBUS-RTU	3 WIRE	-
DDH 5261	**100 A**	RS485 MODBUS-RTU	3 WIRE	-
DDH 5341	**65 A**	RS485 MODBUS-RTU	3 WIRE	4 LOAD-PROFILES SIMULTANEOUSLY
DDH 5361	**100 A**	RS485 MODBUS-RTU	3 WIRE	4 LOAD-PROFILES SIMULTANEOUSLY

CONNECTION BY CT

TYPE	Max current	COMMUNICATION PORT	WIRING CONNECTION	LOAD PROFILES
MDVH 5181	**5A**	-	4 OR 2 WIRE	-
MDVH 5281	**5A**	RS485 MODBUS-RTU	4 OR 2 WIRE	-
MDDH 5181	**5A**	-	3 WIRE	-
MDDH 5191	**1A o 5A**	-	3 WIRE	-
MDDH 5281	**5A**	RS485 MODBUS-RTU	3 WIRE	-
MDDH 5291	**1A o 5A**	RS485 MODBUS-RTU	3 WIRE	-
MDDH 5381	**5A**	RS485 MODBUS-RTU	3 WIRE	4 LOAD-PROFILES SIMULTANEOUSLY
MDDH 5391	**1A o 5A**	RS485 MODBUS-RTU	3 WIRE	4 LOAD-PROFILES SIMULTANEOUSLY

DVH 5141 (65A) | DVH 5161 (100A)

ENERGY METER WITH DIRECT THREE - PHASE CONNECTION

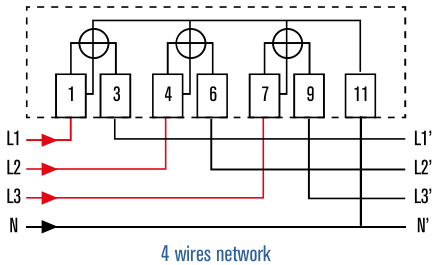


WIRING DIAGRAMS

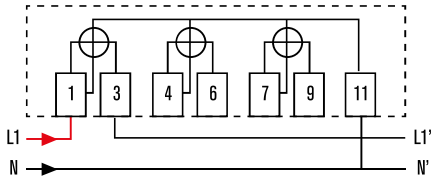
TECHNICAL CHARACTERISTICS	DVH 5141-65A	DVH 5161-100A
VOLTAGE INPUTS		
Nominal voltage Us	90 - 260 VAC/CC	90 - 260 VAC/CC
Operating voltage range	±15%	±15%
Power consumption	5VA	5VA
CURRENT INPUTS		
Connection type	Direct three-phase connection	Direct three-phase connection
Reference current	10 A	10 A
Max current	**65 A**	**100 A**
Start current	40 mA	40 mA
ACCURACY		
Active energy (EN62053-21)	Class C (MID) 0,5%	Class C (MID) Class C (MID) 0,5%
METROLOGIC LED		
Pulse number	**1000** pulses/kWh	**500** pulses/kWh
Pulse duration	30ms	30ms
TARIFF INPUT		
Nominal Voltage	0 ... 230Vac	0 ... 230Vac
Max Voltage	265 Vac	265 Vac
STATIC OUTPUTS		
Output number	1	1
Pulse lenght	Programmable 30 ÷ 500 ms	Programmable 30 ÷ 500 ms
Max Voltage	15 Vdc	15 Vdc
Max Current	15 mA	15 mA
RS485 SERIAL INTERFACE		
Protocol	-	-
Baud-rate	-	-
HOUSING		
Version	6 modules (DIN 43880)	6 modules (DIN 43880)
Mechanical dimensions (mm)	105.4 x 96.2 x 65.86	105.4 x 96.2 x 65.86
Weight	520 g	520 g
Degree of protection	IP 51	IP 51
AMBIENT OPERATING CONDITIONS		
Mounting	Indoor use only	Indoor use only
Operating temperature	-25°C ... +55°C	-25°C ... +55°C
Storage temperature	-25°C ... +55°C	-25°C ... +55°C
Mechanical enviroment	Class M2	Class M2
Electromagnetic enviroment	Class E2	Class E2
Relative humidity	75%	75%
CERTIFICATIONS AND COMPLIANCE		
Reference standards	EN 62053-31, EN 50470-1, EN 50470-3	EN 62053-31, EN 50470-1, EN 50470-3

DVH 5241 (65A) | DVH 5261 (100A)

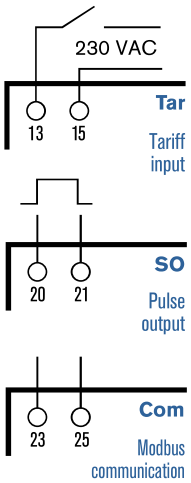
ENERGY METER WITH DIRECT THREE-PHASE CONNECTION - RS485 SERIAL INTERFACE



4 wires network



2 wires network

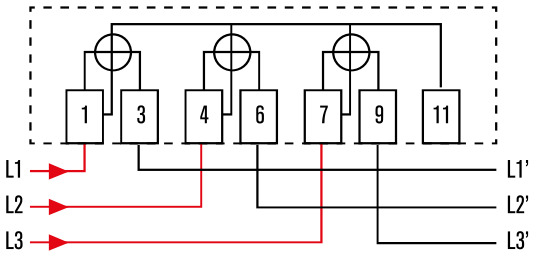


WIRING DIAGRAMS

TECHNICAL CHARACTERISTICS	DVH 5241-65A	DVH 5241-100A
VOLTAGE INPUTS		
Nominal voltage Us	3 x 230 / 400 V (-20 % / +15%)	3 x 230 / 400 V (-20 % / +15%)
Operating voltage range	50 Hz / 60 Hz	50 Hz / 60 Hz
Power consumption	< 5VA / <2 W	< 5VA / <2 W
CURRENT INPUTS		
Connection type	Direct three-phase connection	Direct three-phase connection
Reference current	10 A	10 A
Max current	**65 A**	**100 A**
Start current	40 mA	40 mA
ACCURACY		
Active energy (EN62053-21)	Class C (MID) 0,5%	Class C (MID) Class C (MID) 0,5%
METROLOGIC LED		
Pulse number	1000 pulses/kWh	5000 pulses/kWh
Pulse duration	30ms	30ms
TARIFF INPUT		
Nominal Voltage	0 ... 230Vac	0 ... 230Vac
Max Voltage	265 Vac	265 Vac
STATIC OUTPUTS		
Output number	1	1
Pulse lenght	Programmable 30 ÷ 500 ms	Programmable 30 ÷ 500 ms
Max Voltage	15 Vdc	15 Vdc
Max Current	15 mA	15 mA
RS485 SERIAL INTERFACE		
Protocol	Modbus RTU Modbus ASCII	Modbus RTU Modbus ASCII
Baud-rate	Programmable 300÷19200 bps	Programmable 300÷19200 bps
HOUSING		
Version	6 modules (DIN 43880)	6 modules (DIN 43880)
Mechanical dimensions (mm)	105.4 x 96.2 x 65.86	105.4 x 96.2 x 65.86
Weight	520 g	460 g
Degree of protection	IP 51	IP 51
AMBIENT OPERATING CONDITIONS		
Mounting	Indoor use only	Indoor use only
Operating temperature	-25°C ... +55°C	-25°C ... +55°C
Storage temperature	-25°C ... +70°C	-25°C ... +70°C
Mechanical enviroment	Class M2	Class M2
Electromagnetic enviroment	Class E2	Class E2
Relative humidity	75%	75%
CERTIFICATIONS AND COMPLIANCE		
Reference standards	EN 50470-1, EN 50470-3	EN 50470-1, EN 50470-3

DDH 5141-M | DDH 5161-M

ENERGY METER WITH DIRECT THREE - PHASE CONNECTION 3 WIRE



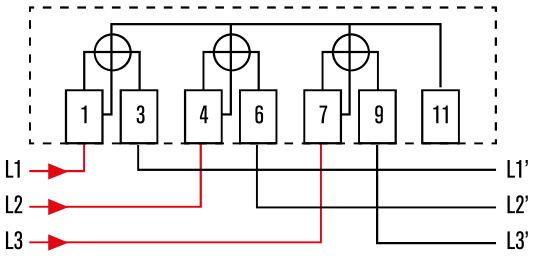
3 wires network (without neutral)

WIRING DIAGRAMS

TECHNICAL CHARACTERISTICS	DDH 5141-M	DDH 5161-M
VOLTAGE INPUTS		
Nominal voltage Us	3 x 400 V or 3 x 230 V	3 x 400 V or 3 x 230 V
Operating voltage range	50/60 Hz	50/60 Hz
Power consumption	-	-
CURRENT INPUTS		
Connection type	Direct three-phase connection	Direct three-phase connection
Reference current	10 A	10 A
Max current	**65 A**	**100 A**
Start current	40 mA	40 mA
ACCURACY		
Active energy (EN62053-21)	Class C (MID) 0,5%	Class C (MID) 0,5%
METROLOGIC LED		
Pulse number	1000 pulses/kWh	5000 pulses/kWh
Pulse duration	30ms	30ms
TARIFF INPUT		
Nominal Voltage	0 ... 230Vac	0 ... 230Vac
Max Voltage	265 Vac	265 Vac
STATIC OUTPUTS		
Output number	1	1
Pulse lenght	Programmable 30 ÷ 500 ms	Programmable 30 ÷ 500 ms
Max Voltage	15 Vdc	15 Vdc
Max Current	15 mA	15 mA
RS485 SERIAL INTERFACE		
Protocol	-	-
Baud-rate	-	-
HOUSING		
Version	6 modules (DIN 43880)	6 modules (DIN 43880)
Mechanical dimensions (mm)	105.4 x 96.2 x 65.86	105.4 x 96.2 x 65.86
Weight	520 g	460 g
Degree of protection	IP 51	IP 51
AMBIENT OPERATING CONDITIONS		
Mounting	Indoor use only	Indoor use only
Operating temperature	-25°C ... +55°C	-25°C ... +55°C
Storage temperature	-25°C ... +70°C	-25°C ... +70°C
Mechanical enviroment	Class M2	Class M2
Electromagnetic enviroment	Class E2	Class E2
Relative humidity	75%	75%
CERTIFICATIONS AND COMPLIANCE		
Reference standards	EN 50470-1, EN 50470-3	EN 50470-1, EN 50470-3

DDH 5241-M | DDH 5261-M

ENERGY METER WITH DIRECT THREE-PHASE CONNECTION 3 WIRE - RS485 SERIAL INTERFACE



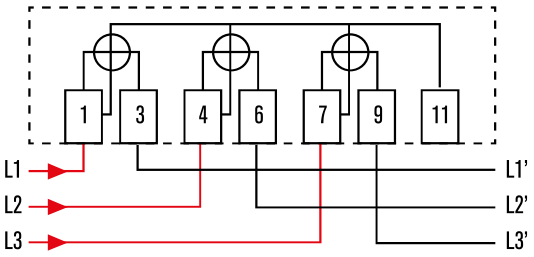
3 wires network (without neutral)

WIRING DIAGRAMS

TECHNICAL CHARACTERISTICS	DDH 5241-M	DDH 5261-M
VOLTAGE INPUTS		
Nominal voltage Us	3 x 400 V or 3 x 230 V	3 x 400 V or 3 x 230 V
Operating voltage range	50/60 Hz	50/60 Hz
Power consumption	-	-
CURRENT INPUTS		
Connection type	Direct three-phase connection	Direct three-phase connection
Reference current	10 A	10 A
Max current	**65 A**	**100 A**
Start current	40 mA	40 mA
ACCURACY		
Active energy (EN62053-21)	Class C (MID) 0,5%	Class C (MID) 0,5%
METROLOGIC LED		
Pulse number	1000 pulses/kWh	5000 pulses/kWh
Pulse duration	30ms	30ms
TARIFF INPUT		
Nominal Voltage	0 ... 230Vac	0 ... 230Vac
Max Voltage	265 Vac	265 Vac
STATIC OUTPUTS		
Output number	1	1
Pulse lenght	Programmable 30 ÷ 500 ms	Programmable 30 ÷ 500 ms
Max Voltage	15 Vdc	15 Vdc
Max Current	15 mA	15 mA
RS485 SERIAL INTERFACE		
Protocol	Modbus RTU Modbus ASCII	Modbus RTU Modbus ASCII
Baud-rate	Programmable 300÷19200 bps	Programmable 300÷19200 bps
HOUSING		
Version	6 modules (DIN 43880)	6 modules (DIN 43880)
Mechanical dimensions (mm)	105.4 x 96.2 x 65.86	105.4 x 96.2 x 65.86
Weight	520 g	460 g
Degree of protection	IP 51	IP 51
AMBIENT OPERATING CONDITIONS		
Mounting	Indoor use only	Indoor use only
Operating temperature	-25°C ... +55°C	-25°C ... +55°C
Storage temperature	-25°C ... +70°C	-25°C ... +70°C
Mechanical enviroment	Class M2	Class M2
Electromagnetic enviroment	Class E2	Class E2
Relative humidity	75%	75%
CERTIFICATIONS AND COMPLIANCE		
Reference standards	EN 50470-1, EN 50470-3	EN 50470-1, EN 50470-3

DDH 5341-M | DDH 5361-M

ENERGY METER WITH DIRECT THREE-PHASE CONNECTION 3 WIRE
RS485 SERIAL INTERFACE - LOAD PROFILES



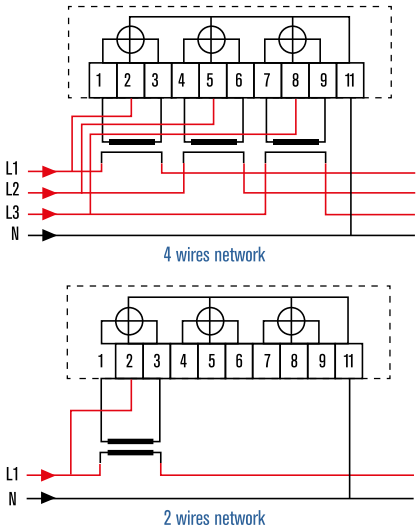
3 wires network (without neutral)

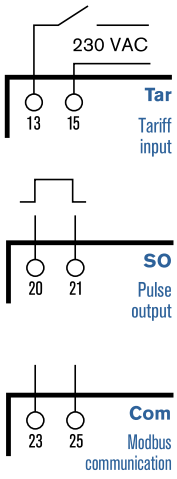
WIRING DIAGRAMS

TECHNICAL CHARACTERISTICS	DDH 5341-M	DDH 5361-M
VOLTAGE INPUTS		
Nominal voltage Us	3 x 400 V or 3 x 230 V	3 x 400 V or 3 x 230 V
Operating voltage range	50/60 Hz	50/60 Hz
Power consumption	-	-
CURRENT INPUTS		
Connection type	Direct three-phase connection	Direct three-phase connection
Reference current	10 A	10 A
Max current	**65 A**	**100 A**
Start current	40 mA	40 mA
ACCURACY		
Active energy (EN62053-21)	Class C (MID) 0,5%	Class C (MID) 0,5%
METROLOGIC LED		
Pulse number	1000 pulses/kWh	5000 pulses/kWh
Pulse duration	30ms	30ms
TARIFF INPUT		
Nominal Voltage	0 ... 230Vac	0 ... 230Vac
Max Voltage	265 Vac	265 Vac
STATIC OUTPUTS		
Output number	1	1
Pulse lenght	Programmable 30 ÷ 500 ms	Programmable 30 ÷ 500 ms
Max Voltage	15 Vdc	15 Vdc
Max Current	15 mA	15 mA
RS485 SERIAL INTERFACE		
Protocol	Modbus RTU Modbus ASCII	Modbus RTU Modbus ASCII
Baud-rate	Programmable 300÷19200 bps	Programmable 300÷19200 bps
HOUSING		
Version	6 modules (DIN 43880)	6 modules (DIN 43880)
Mechanical dimensions (mm)	105.4 x 96.2 x 65.86	105.4 x 96.2 x 65.86
Weight	520 g	460 g
Degree of protection	IP 51	IP 51
AMBIENT OPERATING CONDITIONS		
Mounting	Indoor use only	Indoor use only
Operating temperature	-25°C ... +55°C	-25°C ... +55°C
Storage temperature	-25°C ... +70°C	-25°C ... +70°C
Mechanical enviroment	Class M2	Class M2
Electromagnetic enviroment	Class E2	Class E2
Relative humidity	75%	75%
CERTIFICATIONS AND COMPLIANCE		
Reference standards	EN 50470-1, EN 50470-3	EN 50470-1, EN 50470-3

MDVH 5181 | MDVH 5281

ENERGY METER WITH CONNECTION BY CT /5A



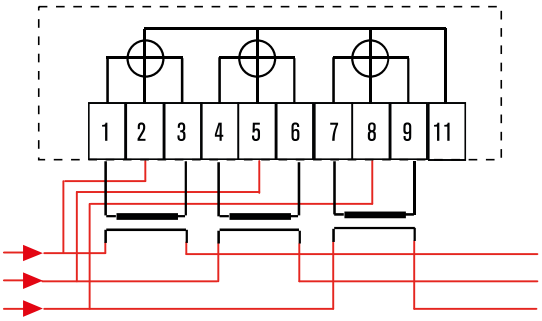


WIRING DIAGRAMS

TECHNICAL CHARACTERISTICS	MDVH 5181-TA (5A)	MDVH 5281-CT (5A)
VOLTAGE INPUTS		
Nominal voltage Us	3 x 230 / 400 V (-20 % / +15%)	3 x 230 / 400 V (-20 % / +15%)
Operating voltage range	50 Hz / 60 Hz	50 Hz / 60 Hz
Power consumption	< 5VA / <2 W	< 5VA / <2 W
CURRENT INPUTS		
Connection type	Connection by CT /5A	Connection by CT /5A
Reference current	5 A	5 A
Max current	6 A	6 A
Start current	5 mA	5 mA
ACCURACY		
Active energy (EN62053-21)	Class C (MID) 0,5%	Class C (MID) 0,5%
METROLOGIC LED		
Pulse number	5000 pulses/kWh	5000 pulses/kWh
Pulse duration	30ms	30ms
TARIFF INPUT		
Nominal Voltage	0 ... 230Vac	0 ... 230Vac
Max Voltage	265 Vac	265 Vac
STATIC OUTPUTS		
Output number	1	1
Pulse lenght	Programmable 30 ÷ 500 ms	Programmable 30 ÷ 500 ms
Max Voltage	15 Vdc	15 Vdc
Max Current	15 mA	15 mA
RS485 SERIAL INTERFACE		
Protocol	-	Modbus RTU Modbus ASCII
Baud-rate	-	Programmable 300÷19200 bps
HOUSING		
Version	6 modules (DIN 43880)	6 modules (DIN 43880)
Mechanical dimensions (mm)	105.4 x 96.2 x 65.86	105.4 x 96.2 x 65.86
Weight	460 g	460 g
Degree of protection	IP 51	IP 51
AMBIENT OPERATING CONDITIONS		
Mounting	Indoor use only	Indoor use only
Operating temperature	-25°C ... +55°C	-25°C ... +55°C
Storage temperature	-25°C ... +70°C	-25°C ... +70°C
Mechanical enviroment	Class M2	Class M2
Electromagnetic enviroment	Class E2	Class E2
Relative humidity	75%	75%
CERTIFICATIONS AND COMPLIANCE		
Reference standards	EN 62053-31, EN 50470-1, EN 50470-3	EN 62053-31, EN 50470-1, EN 50470-3

MDDH 5181-M | MDDH 5191-M

ENERGY METER WITH CONNECTION BY CT /5A OR CT /1A - 3 WIRE



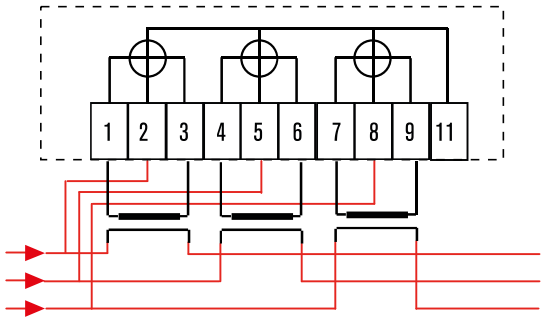
3 wires network (without neutral)

WIRING DIAGRAMS

TECHNICAL CHARACTERISTICS	MDDH 5181-M	MDDH 5191-M
VOLTAGE INPUTS		
Nominal voltage Us	3 x 400 V or 3 x 230 V	3 x 400 V or 3 x 230 V
Operating voltage range	50/60 Hz	50/60 Hz
Power consumption	-	-
CURRENT INPUTS		
Connection type	Connection by CT /5A	Connection by CT /5A or CT /1A
Reference current	10 A	10 A
Max current	**5 A**	**1A e 5A**
Start current	40 mA	40 mA
ACCURACY		
Active energy (EN62053-21)	Class C (MID) 0,5%	Class C (MID) 0,5%
METROLOGIC LED		
Pulse number	1000 pulses/kWh	5000 pulses/kWh
Pulse duration	30ms	30ms
TARIFF INPUT		
Nominal Voltage	0 ... 230Vac	0 ... 230Vac
Max Voltage	265 Vac	265 Vac
STATIC OUTPUTS		
Output number	1	1
Pulse lenght	Programmable 30 ÷ 500 ms	Programmable 30 ÷ 500 ms
Max Voltage	15 Vdc	15 Vdc
Max Current	15 mA	15 mA
RS485 SERIAL INTERFACE		
Protocol	-	-
Baud-rate	-	-
HOUSING		
Version	6 modules (DIN 43880)	6 modules (DIN 43880)
Mechanical dimensions (mm)	105.4 x 96.2 x 65.86	105.4 x 96.2 x 65.86
Weight	520 g	460 g
Degree of protection	IP 51	IP 51
AMBIENT OPERATING CONDITIONS		
Mounting	Indoor use only	Indoor use only
Operating temperature	-25°C ... +55°C	-25°C ... +55°C
Storage temperature	-25°C ... +70°C	-25°C ... +70°C
Mechanical enviroment	Class M2	Class M2
Electromagnetic enviroment	Class E2	Class E2
Relative humidity	75%	75%
CERTIFICATIONS AND COMPLIANCE		
Reference standards	EN 50470-1, EN 50470-3	EN 50470-1, EN 50470-3

MDDH 5281-M | MDDH 5291-M

ENERGY METER WITH CONNECTION BY CT /5A OR CT /1A - 3 WIRE - RS485 SERIAL INTERFACE



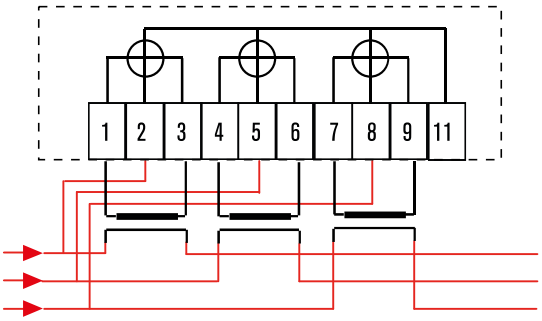
3 wires network (without neutral)

WIRING DIAGRAMS

TECHNICAL CHARACTERISTICS	MDDH 5281-M	MDDH 5291-M
VOLTAGE INPUTS		
Nominal voltage Us	3 x 400 V or 3 x 230 V	3 x 400 V or 3 x 230 V
Operating voltage range	50/60 Hz	50/60 Hz
Power consumption	-	-
CURRENT INPUTS		
Connection type	Connection by CT /5A	Connection by CT /5A or CT /1A
Reference current	10 A	10 A
Max current	**5 A**	**1A e 5A**
Start current	40 mA	40 mA
ACCURACY		
Active energy (EN62053-21)	Class C (MID) 0,5%	Class C (MID) 0,5%
METROLOGIC LED		
Pulse number	1000 pulses/kWh	5000 pulses/kWh
Pulse duration	30ms	30ms
TARIFF INPUT		
Nominal Voltage	0 ... 230Vac	0 ... 230Vac
Max Voltage	265 Vac	265 Vac
STATIC OUTPUTS		
Output number	1	1
Pulse lenght	Programmable 30 ÷ 500 ms	Programmable 30 ÷ 500 ms
Max Voltage	15 Vdc	15 Vdc
Max Current	15 mA	15 mA
RS485 SERIAL INTERFACE		
Protocol	Modbus RTU Modbus ASCII	Modbus RTU Modbus ASCII
Baud-rate	Programmable 300÷19200 bps	Programmable 300÷19200 bps
HOUSING		
Version	6 modules (DIN 43880)	6 modules (DIN 43880)
Mechanical dimensions (mm)	105.4 x 96.2 x 65.86	105.4 x 96.2 x 65.86
Weight	520 g	460 g
Degree of protection	IP 51	IP 51
AMBIENT OPERATING CONDITIONS		
Mounting	Indoor use only	Indoor use only
Operating temperature	-25°C ... +55°C	-25°C ... +55°C
Storage temperature	-25°C ... +70°C	-25°C ... +70°C
Mechanical enviroment	Class M2	Class M2
Electromagnetic enviroment	Class E2	Class E2
Relative humidity	75%	75%
CERTIFICATIONS AND COMPLIANCE		
Reference standards	EN 50470-1, EN 50470-3	EN 50470-1, EN 50470-3

MDDH 5381-M | MDDH 5391-M

ENERGY METER WITH CONNECTION BY CT /5A OR CT /1A - 3 WIRE - RS485 SERIAL INTERFACE - LOAD PROFILES



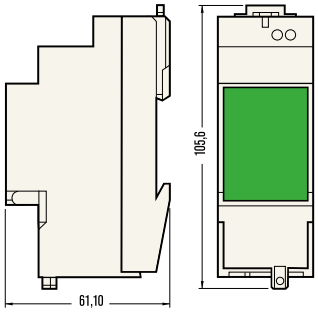
3 wires network (without neutral)

WIRING DIAGRAMS

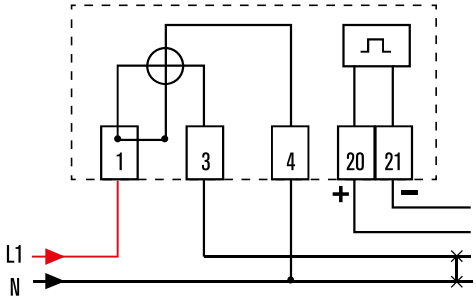
TECHNICAL CHARACTERISTICS	MDDH 5381-M	MDDH 5391-M
VOLTAGE INPUTS		
Nominal voltage Us	3 x 400 V or 3 x 230 V	3 x 400 V or 3 x 230 V
Operating voltage range	50/60 Hz	50/60 Hz
Power consumption	-	-
CURRENT INPUTS		
Connection type	Connection by CT /5A	Connection by CT /5A or CT /1A
Reference current	10 A	10 A
Max current	**5 A**	**1A e 5A**
Start current	40 mA	40 mA
ACCURACY		
Active energy (EN62053-21)	Class C (MID) 0,5%	Class C (MID) 0,5%
METROLOGIC LED		
Pulse number	1000 pulses/kWh	5000 pulses/kWh
Pulse duration	30ms	30ms
TARIFF INPUT		
Nominal Voltage	0 ... 230Vac	0 ... 230Vac
Max Voltage	265 Vac	265 Vac
STATIC OUTPUTS		
Output number	1	1
Pulse lenght	Programmable 30 ÷ 500 ms	Programmable 30 ÷ 500 ms
Max Voltage	15 Vdc	15 Vdc
Max Current	15 mA	15 mA
RS485 SERIAL INTERFACE		
Protocol	Modbus RTU Modbus ASCII	Modbus RTU Modbus ASCII
Baud-rate	Programmable 300÷19200 bps	Programmable 300÷19200 bps
HOUSING		
Version	6 modules (DIN 43880)	6 modules (DIN 43880)
Mechanical dimensions (mm)	105.4 x 96.2 x 65.86	105.4 x 96.2 x 65.86
Weight	520 g	460 g
Degree of protection	IP 51	IP 51
AMBIENT OPERATING CONDITIONS		
Mounting	Indoor use only	Indoor use only
Operating temperature	-25°C ... +55°C	-25°C ... +55°C
Storage temperature	-25°C ... +70°C	-25°C ... +70°C
Mechanical enviroment	Class M2	Class M2
Electromagnetic enviroment	Class E2	Class E2
Relative humidity	75%	75%
CERTIFICATIONS AND COMPLIANCE		
Reference standards	EN 50470-1, EN 50470-3	EN 50470-1, EN 50470-3

WH 6165

ENERGY METER WITH DIRECT SINGLE - PHASE CONNECTION



MECHANICAL DIMENSIONS



WIRING DIAGRAMS

TECHNICAL CHARACTERISTICS	WH 6165
VOLTAGE INPUTS	
Nominal voltage Us	230 V (±10%)
Operating voltage range	50 Hz / 60 Hz
Power consumption	0.5 W
CURRENT INPUTS	
Connection type	Direct single-phase connection
Reference current	10 A
Max current	65 A
Start current	40 mA
ACCURACY	
Active energy (EN62053-21)	Class B (MID EN50470-1 & 50470-3) Class C (MID) 1%
METROLOGIC LED	
Pulse number	1000 pulses/kWh
Pulse duration	30 ms
TARIFF INPUT	
Nominal Voltage	-
Max Voltage	-
STATIC OUTPUTS	
Output number	1000 pulses/kWh
Pulse lenght	30ms
Max Voltage	-
Max Current	-
RS485 SERIAL INTERFACE	
Protocol	-
Baud-rate	-
HOUSING	
Version	2 modules (DIN 43880)
Mechanical dimensions (mm)	36 x 94 x 65
Weight	150 g
Degree of protection	IP 51
AMBIENT OPERATING CONDITIONS	
Mounting	Indoor use only
Operating temperature	-25°C ... +55°C
Storage temperature	-25°C ... +70°C
Mechanical enviroment	Class M1
Electromagnetic enviroment	Class E2
Relative humidity	75%
CERTIFICATIONS AND COMPLIANCE	
Reference standards	EN 62053-31, EN 50470-1, EN 50470-3

EMC 3b | EMC D3b

ENERGY METERS - FLUSH MOUNTING OR DIN-RAIL MOUNTING

TECHNICAL CHARACTERISTICS		EMC-3b	EMC-D3b
AUXILIARY SUPPLY			
Rated voltage Us		110-230-400 VAC	400VAC
Operating limits		±15%	±15%
Power consumption		4VA	3VA
Frequency		50 – 60 Hz	45 – 65 Hz
VOLTAGE INPUTS			
Measurement range		20...500VAC L-L (20...290VAC L-N)	20...500VAC L-L (20...290VAC L-N)
Method of measuring		True RMS value	True RMS value
Measuring input impedance		1MΩ	1MΩ
Method of connection		Single-phase, direct connection 3 or 4 wires, balanced three-phase	
CURRENT INPUTS			
Rated current		1A (option) or 5A	1A (option) or 5A
Measurement range		0,02...5A	0,02...5A
Measuring method		True RMS value	True RMS value
Overload capacity		+30% by an external current transformer	+30% by an external current transformer
Self-consumption		<0,5VA	<0,5VA
ACCURACY			
Measures	**Voltage**	Class 0,5 f.s. ± 1 digit	Class 0,5 f.s. ± 1 digit
	Current	Class 0,5 f.s. ± 1 digit	Class 0,5 f.s. ± 1 digit
	Power	Class 1 f.s. da ± 1 digit	Class 1 f.s. da ± 1 digit
	Frequency	Class 0,5 f.s. ± 1 digit	Class 0,5 f.s. ± 1 digit
	Active energy	Class 1	Class 1
INSULATION			
Insulation voltage		3kVAC for 1 minute	3kVAC for 1 minute
AMBIENT CONDITION			
Operating temperature		-10...+60°C	-10...+60°C
Storage temperature		-25...+80°C	-25...+80°C
HOUSING			
Version		Flush mount 96 x 96 mm	6 modules
Degree of protection		IP52 on front IP20 Housing and terminals	IP52 on front IP20 Housing and terminals
Weight		500g	400g
CERTIFICATIONS AND COMPLIANCE			
Reference standards		IEC/EN 50081-2, IEC/EN 61000-6-2, IEC/EN 61010-1, IEC/EN 61036-1	

OPTIONS	
ORDER CODE	DESCRIPTION
C1	Auxiliary supply 20÷60 VAC/DC (version EMC-3b)
C2	Auxiliary supply 90÷250 VAC/DC (version EMC-3b)
C3	Auxiliary supply 250 VAC/DC (version EMC-3b)
C4	Auxiliary supply 110 VAC/DC (version EMC-3b)
600	Voltage inputs 600 V (version EMM-4h)
1A	Rated current inputs by external CT 1A

T	Internal current inputs, galvanically insulated
TT - TTA	Current inputs by miniaturized closed CT (TT) or openable CT (TTA)
N	Neutral current input or differential current input (version EMM-D4h)
P	2 digital outputs
DI	1 digital input

COMMUNICATION PORTS	
485	RS485 serial interface

EMC D140-485

ENERGY METER WITH DIRECT SINGLE PHASE CONNECTION - RS485 SERIAL INTERFACE

The **EMC-D140-485** is a single-phase energy meter for direct connection, for currents up to 45A.
The energy accuracy is compliant with reference standard EN62053-21 (Class 1).
Apart from energy metering, it can measure additional indications, for a total of 10 measurements thatn can be visualized on the LCD display.
The **EMC-D140-485** has a standard 1U modular housing and is supplied with sealable terminal blocks.

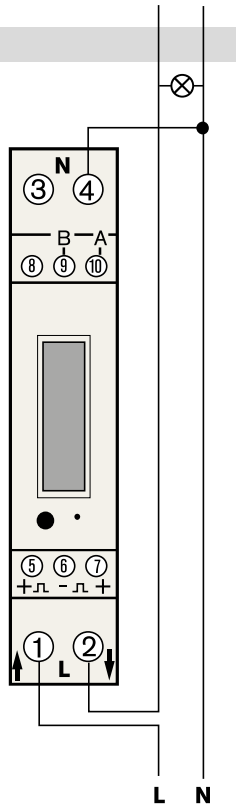
DESCRIPTION

- Modular DIN
- Rail housing, 1U
- Direct connection for currents up to 45A
- Active energy measure complies EN62053
- 21 class 1
- LCD display with 5+1 digits
- Button for measure selection and programming
- Import/Export active energy
- Pulse LED for active energy consumption
- Indication of instantaneous consumption (active power)
- Programmable static outputs for pulse
- RS485 serial interface
- Modbus
- RTU protocol

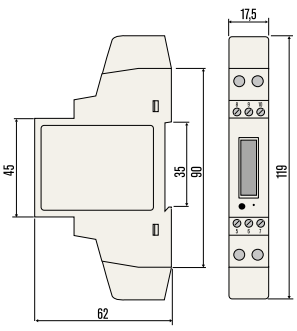
TECHNICAL CHARACTERISTICS	EMC D140-485
VOLTAGE	
Nominal voltage Un	230VAC – 110 VAC
Operating voltage range	0.7 – 1.3 Un
Frequency	50 – 60 Hz
Power assorbita/dissipata	10VA / ≤2W
CURRENT	
Current di riferimento (Iref)	5A
Max current (Imax)	45A
Operating current range	0.4% Iref-Imax
ACCURACY	
Active energy (EN62053-21)	Class 1
LED PULSE	
Pulse number	1000imp / kWh
STATIC OUTPUT	
Pulse number	Progr. 1-10-100-1000 pulses / kWh
RS485 SERIAL INTERFACE	
Protocol	Modbus RTU
Baud-rate	1200...9600 bps
Parity	Dispari/Pari/Nessuna
Stop bit	1
Data format	8
AMBIENT OPERATING CONDITIONS	
Mounting	Indoor use only
Operating temperature	-25...+55°C
Storage temperature	-30...+70°C
Operating humidity	<85%
INSULATION VOLTAGE	
Rated insultation voltage	4kV for 1 minute
Rated impulse withstand voltage	6kV
HOUSING	
Version	1 module (DIN)
Degree of protection	IP51
CERTIFICATIONS AND COMPLIANCE	
Reference standards	EN62053-21 - EN50470-3 EN62053-23

WIRING DIAGRAMS

TERMINAL **1**	L-in
TERMINAL **2**	L-out
TERMINAL **3-4**	Neutral wire
TERMINAL **5-6-7**	Pulse outputs
TERMINAL **9-10**	RS485 serial interface



MECHANICAL DIMENSIONS



EMI 1 | 1R

COMMUNICATION DEVICES - **RS232/RS485 CONVERTER**

EMI 1

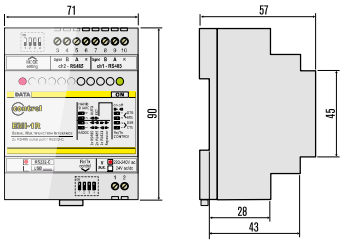
EMI 1R

TECHNICAL CHARACTERISTICS	EMI 1 - 1R
AUXILIARY SUPPLY	
Rated voltage Us	230VAC
Operating limits	±20%
Power consumption	7VA max
Frequency	50 – 60 Hz
RS232 SERIAL INTERFACE	
Data format	Serial asynchronous uart/nrz
Line lenght	15 m MAX
Type of terminal	DB-9
RS485 SERIAL INTERFACE	
	1000 m MAX
Baud rate	57600 bit/s MAX
USB 2.0	
Consumption	50 mA MAX
Voltage	4,25 ... 5,25 VDC
Terminals	MINI-B
INSULATION	
Insulation voltage	3.7kVAC for 1 minute
AMBIENT CONDITION	
Operating temperature	-20...+60°C
Storage temperature	-20...+80°C
HOUSING	
Version	4 modules
Degree of protection	IP20
Weight	300g
CERTIFICATIONS AND COMPLIANCE	
Reference standards	EN 50081-1, EN 50082-2

OPTIONS	
ORDER CODE	DESCRIPTION
Emi-1	RS232/RS485 converter , opto-isolated, 220-240VAC power supply (110-120VAC on request). Repeater drive for RS485 bus extention.
Emi-1R	RS232/RS485 converter DIN-rail mouting , opto-isolated, 220-240VAC power supply (110-120VAC on request). Repeater drive for RS485 bus extention.
Emi-1R USB	USB/RS485 converter DIN-rail mouting , opto-isolated, 220-240VAC power supply (110-120VAC on request). Repeater drive for RS485 bus extention.

Converter that can interface "slave" devices connected in an RS485 bus with a "master" equipped with RS232 interface port. When configured appropriately, it can also be used as RS485 repeater whenever the devices connected to the bus are many or the maximum distance among the bus devices is longer than the allowed. Instead RS232 serial interface can provide USB port.

MECHANICAL DIMENSIONS **EMI-1R**

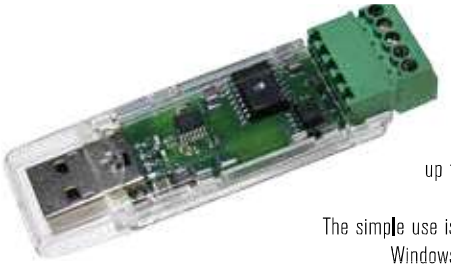


TECHNICAL CHARACTERISTICS	EMI 1P-USB
AUXILIARY SUPPLY	
Rated voltage Us	From PC 5V @ 100mA
Type of connection	USB
RS485 SERIAL INTERFACE	
Type of terminal	Screw (removable)
Baud-rate	Max baud-rate 500Kbit/s
AMBIENT CONDITION	
Operating temperature	-10...+65°C
Storage temperature	-15...+80°C
HOUSING	
Degree of protection	IP20
Weight	100 g
CERTIFICATIONS AND COMPLIANCE	
Reference standards	EN 61000-6-4 / N 64000-6-2 EN 61010-1 / EN 60742

EMI-1P USB

DIGITAL MEASURING INSTRUMENTS

USB/RS485 CONVERTER



The EMI-1P USB is a Serial Converter Isolated up to 2,5kV, based on chip USB FTDI.
The simple use is guarantee by the Windows validation drivers that you download automatically when you have your PC connected to the network.
This device allow you to connect in safety way to any Modbus devices on RS485.

EMI 3m

COMMUNICATION DEVICES - MODEM GSM-GPRS

EMI-3m is an industrial DIN rail GSM modem for the transfer of data, SMS and faxes in GSM networks. Control by ITU, GSM, GPRS and Custom AT commands. EMI-3m come with either a Serial or USB interface and its modular enclosure fits easily into equipment or machinery. Designed to operate in harsh conditions, simplifies the development of M2M and IoT application. Quad band GSM / GPRS / EDGE communication with automatic or manual selection on bands 850 / 900 / 1800 / 1900 MHz for data, sms, fax and voice applications. Full Type Approved and compliant with ETSI GSM Phase 2+ and with Part 15 of the FCC Rules.

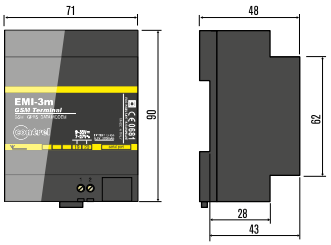
TECHNICAL CHARACTERISTICS	EMI-3m
AUXILIARY SUPPLY	
Rated voltage Us	9,5...35 VDC - 9,5...27 VAC
Operating limits	-
Power consumption	< 5W
Optional backup battery	Li-Poly
MODEM GSM/GPRS	
Frequency bands	Quad band 850 / 900 / 1800 / 1900 MHz
Output power	Class 4 for GSM850 Class 4 for GSM900 Class 1 for GSM1800 Class 1 for GSM1900
SIM INTERFACE	
Type of SIM	U-SIM compatible
GSM/GPRS ANTENNA CONNECTION	
Type of connector	SMA o FME
Type of connector	
Connection	RS232 (RJ45 connector)
Baud-rate	Programmable 300 . . . 115200 bps
INSULATION	
Insulation voltage	3kVAC for 1 minute
AMBIENT CONDITION	
Operating temperature	-40. . .+85°C
Storage temperature	-40. . .+90°C
CERTIFICATIONS AND COMPLIANCE	
Comply with standards	EN 60950-1:2006, EN 60950-1 A11:2009, EN 60950-1 A1:2010 EN 60950-1 A12:2011, EN 50385:2002 EN 301 489-7 V1.3.1:2005-11, EN 301 489-1 V1.9.2:2011-09 EN 301 511 V9.0.2:2003-03

OPTIONS EXTERNAL GSM ANTENNA

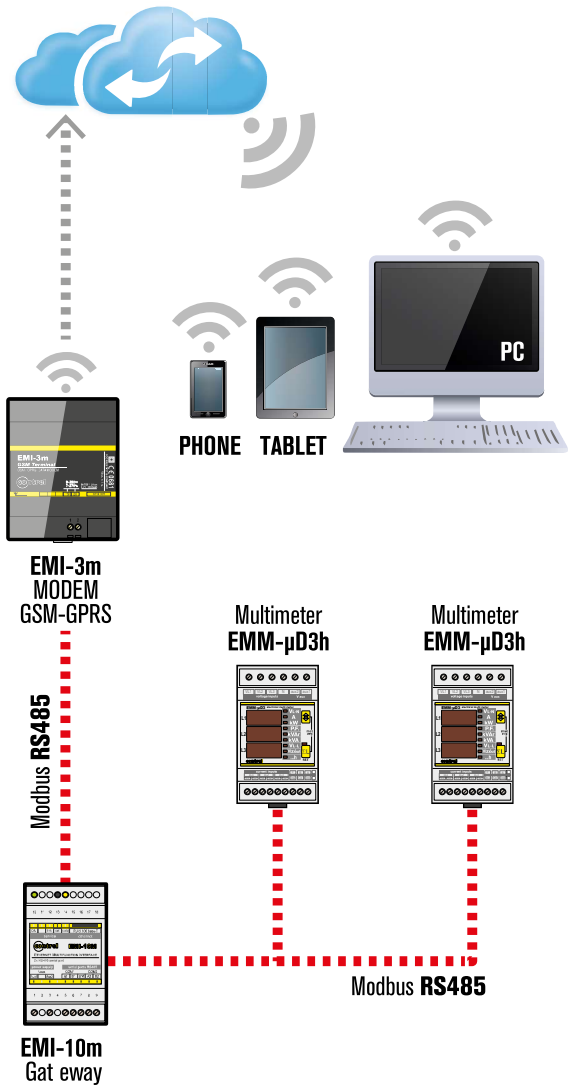
ORDER CODE

STRIP + SMA **STRIP + FME**		Adhesive antenna for non-metallic surfaces.	**MiniSTUB SMA** **MiniSTUB FME**		Antenna to be fitted directly on connector.
MAGNETIC + SMA **MAGNETIC + FME**		Magnetic antenna for metallic surfaces.	**MiniFINGER SMA** **MiniFINGER FME**		Multi band outdoor antenna. Mounting: Wall / Pole
BODY SMA **BODY FME**		Body mount outdoor antenna. IP69K	**FINGER SMA** **FINGER FME**		Multi band outdoor antenna. Mounting: Wall / Pole

MECHANICAL DIMENSIONS **EMI-3m**



WIRING DIAGRAMS **EMI-3m**



EMI 5s

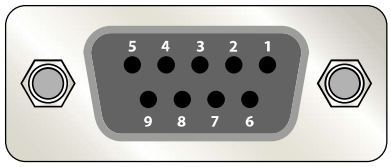
COMMUNICATION DEVICES

PROFIBUS DP/RS485 CONVERTER

Converter/Gateway to control equipments with Modbus protocol within an installation Profibus.

PROFIBUS CONNECTOR

PIN	FUNCTION	PINOUT
1	Shield	
2	Disconnect	
3	RxD/TxD-P (B)	
4	CNTR-P	
5	DGND	
6	VP	
7	Disconnect	
8	RxD/TxD-N (A)	
9	Disconnect	

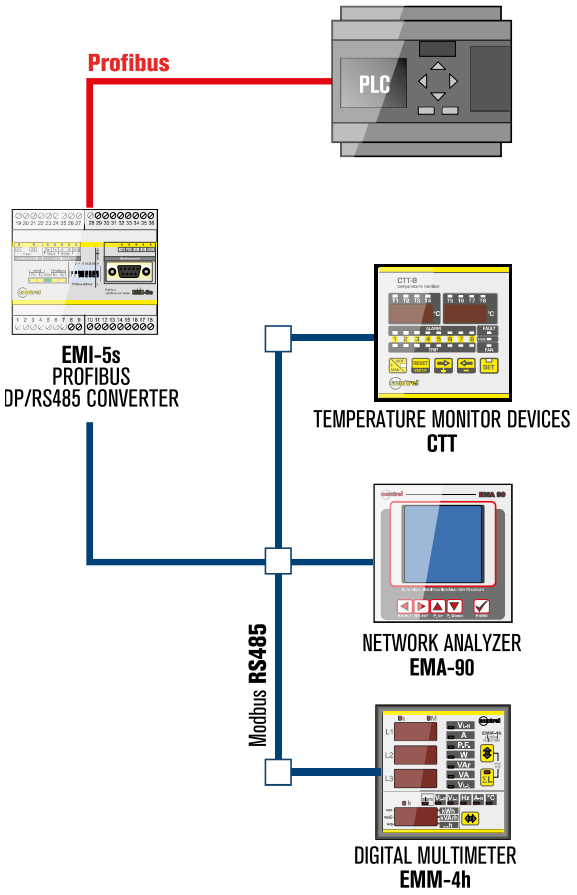


TECHNICAL CHARACTERISTICS	EMI 5s
AUXILIARY SUPPLY	
Rated voltage Us	80 ... 240 VAC/DC - 20 ... 60 VAC/DC
Power consumption	4 VA
PROFIBUS INTERFACE	
Baud-rate	9.600 bps – 19.200 bps – 45.450 bps – 93.750 bps – 187.500 bps – 500.000 bps – 1.5 Mbps – 3 Mbps
Supported protocol	Profibus DP-V0
Type of connector	DB9F
INSULATION	
Insulation voltage	3kV for 1 minute
AMBIENT CONDITION	
Operating temperature	-10...+60°C
Storage temperature	-25...+70°C
HOUSING	
Version	6 module
Degree of protection	IP52
Weight	500g
CERTIFICATIONS AND COMPLIANCE	
Comply with standards	EN 61000-2, EN 61000-4

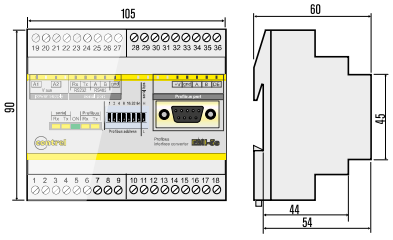
OPTIONS

ORDER CODE	DESCRIPTION
EMI-5s	For EMM, EMA, CTT and HRI instruments
EMI-5s-D	For energy meter MID approved

WIRING DIAGRAMS EMI-5s



MECHANICAL DIMENSIONS EMI-5s



EMI 10L ETHERNET GATEWAY | EMI 10M ETHERNET GATEWAY + LOG MEMORY

COMMUNICATION DEVICES

The monitoring of electrical networks often use a high-speed Ethernet backbone to collect data from multiple devices and share information among users. The Ethernet Gateway **EMI-10L** can help to reduce the cost and complexity of connecting, configuring and managing a network of meters, sensors and other remote tools.
It provides reliable connectivity between Modbus serial devices and TCP/IP networks, without changing their existing infrastructure and is perfect for converting from a system based on a serial bus system based on Ethernet.
The **EMI-10L** allows users to configure the Ethernet parameters, the parameters of the serial communication and perform a possible solution of the problems through a web interface with a detailed diagnosis of the communication.
The **EMI-10L** supports 10BaseT and 100 BaseT.
This Ethernet gateway enables the integration of up to 32 serial Modbus devices.

BENEFITS

Increase your efficiency allowing you to make quick decisions based on data made available to you:
- Access simple, fast, shared information from all electrical network products via Modbus TCP / IP
- Network architecture and flexible modular
- Transfer of data to Modbus RS485 to Ethernet Modbus TCP / IP.

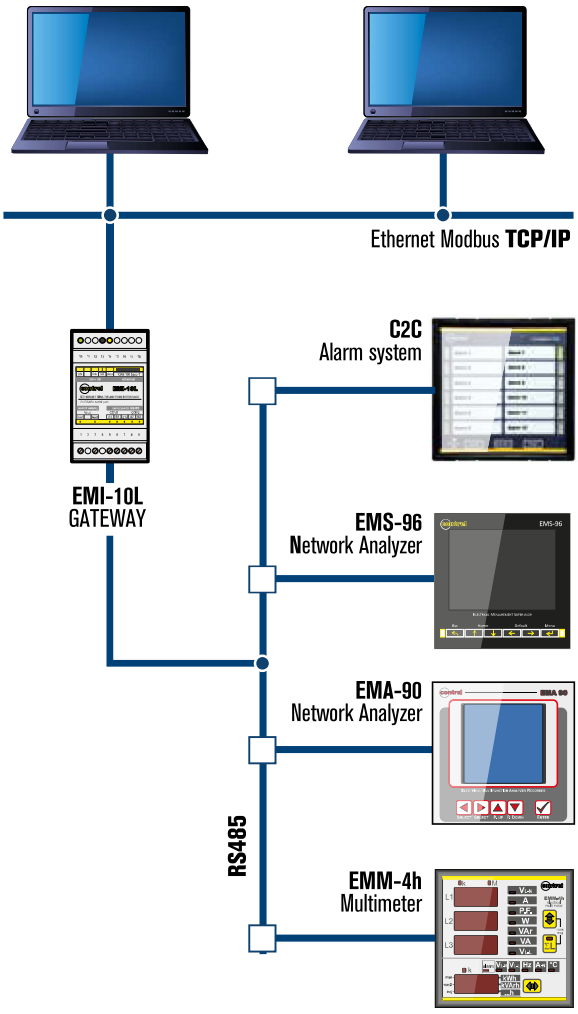
COMMUNICATION

- Use your existing LAN infrastructure to reduce the cost of lines of communication and network management
- Fast 10 or 100 megabits per second, Ethernet communications eliminates bottlenecks transferring monitoring data to the same network speed.

DESCRIPTION

- Ethernet 10 / 100Base-T
- RS485 serial interface
- Integration of up to 32 serial devices Modbus
- Support for Modbus TCP/IP serial master
- Web interface for configuration, diagnostics and maintenance
- Customizable security through different levels of access (read-only access or full)
- Log-in safe with a password
- Languages available in Italian, English and German

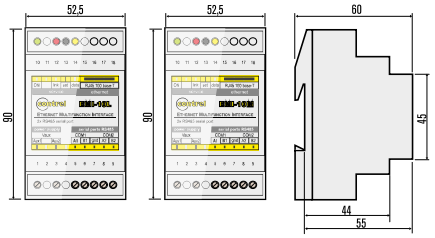
SYSTEM ARCHITECTURE



TECHNICAL CHARACTERISTICS	EMI-10L / EMI-10M
AUXILIARY SUPPLY	
Rated voltage Us	100 ... 240 VAC - 24 VAC/DC
Power consumption	4 VA
RS485 SERIAL INTERFACE	
Baud rate	Programmable 1200 . . . 115200 bps
Protocol	Modbus RTU
Number of connected instruments	32 max
ETHERNET INTERFACE	
Network interface	RJ45 Ethernet 10BASE-T o 100BASE-T (auto-sensing)
Protocols supported	HTTP, Modbus TCP/IP
INSULATION	
Insulation voltage	3kVAC for 1 minute
AMBIENT CONDITION	
Operating temperature	-10. . .+60°C
Storage temperature	-25. . .+70°C
HOUSING	
Version	3 modules
Degree of protection	IP52
Weight	100 g
CERTIFICATIONS AND COMPLIANCE	
Comply with standards	EN 60950-1:2001, EN 60950-1 A11:2004, IEC 60950-1:2005, EN 60950-1 A11:2006 A1:2010 A12:2011, EN 61000-2, EN 61000-4

OPTIONS	
ORDER CODE	DESCRIPTION
EMI-10L	Ethernet Gateway
EMI-10M	Ethernet Gateway + log memory

MECHANICAL DIMENSIONS EMI-10L / EMI-10M



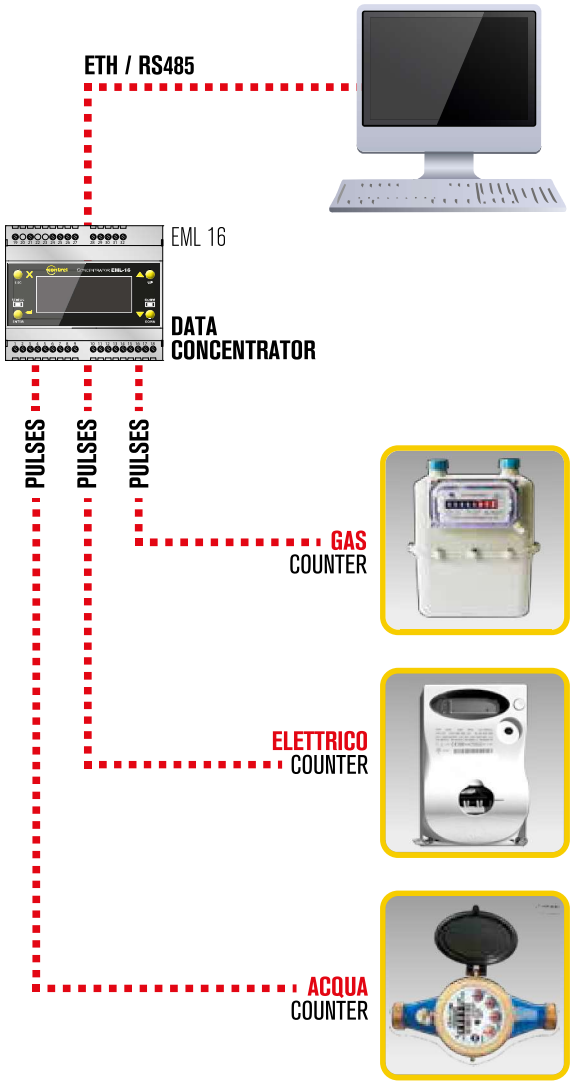
EML 16

DATA CONCENTRATOR

The data concentrator EML-16 provides a function of collected pulses and an interface to supervisory systems.
The EML-16 can be applied as a tool for counting of consumption of energy meters, water, gas, heat, etc..
It supports RS485 communication and TCP/IP communication.

TECHNICAL CHARACTERISTICS	EML 16
AUXILIARY SUPPLY	
Rated voltage Us	90 ÷ 260 VAC/CC 20 ÷ 60 VAC/CC
Operating limits	±15%
Power consumption	4,5VA
Frequency	50 – 60 Hz
COUNTER INPUTS	
Number of inputs	16
Voltage presents on the inputs	24 – 48 - 115 - 230 VAC/CC
Current input	5mA max
Type of inputs filter	Digitale
RS485 SERIAL INTERFACE	
Baud-rate	Programmable 1200 – 115200 bps
Protocol supported	Modbus RTU
ETHERNET INTERFACE	
Network interface	RJ45 Ethernet 10BASE-T o 100BASE-T (auto-sensing)
Protocols supported	HTTP, Modbus TCP/IP
INSULATION	
Insulation voltage	2,5kVAC for 1 minute
AMBIENT CONDITION	
Operating temperature	0...+60°C
Storage temperature	-20...+80°C
HOUSING	
Version	6 module
Degree of protection	IP52 on front IP20 Housing and terminals
Weight	500 g
CERTIFICATIONS AND COMPLIANCE	
Reference standards	EN50082-1, EN50082-2, EMC 89/336/EEC

WIRING DIAGRAMS **EML 16**



OPTIONS	
ORDER CODE	DESCRIPTION
C1	20 ÷ 60 VAC/CC
24	Input voltage 24VAC/CC
48	Input voltage 48VAC/CC
115	Input voltage 115VAC/CC
230	Input voltage 230VAC/CC
COMMUNICATION PORTS	
485	RS485 serial interface
ETH	Ethernet interface with Web server function

MECHANICAL DIMENSIONS **EML 16**