



General Overview



M160R

M160R - single phase, electricity meter with two-way Power Line Communication (PLC) enabling Advanced Metering Reading (AMR).

The M160R meter communicates with a central unit – concentrator, over the power network using two way PLC interface. The concentrator transfer data to the Control Center by cellular communications -GSM/GPRS.

The M160R is capable of receiving data from the concentrator such as: Time Of Use (TOU) tables, power limit, real time clock, disconnection commands and prepaid energy (in prepayment mode).

The M160R is capable of transmitting data to the concentrator such as: energy reading, status, TOU reading and prepaid balance (in prepayment mode).

The M160R meter can communicate with split Display unit, using PLC. The separate Display unit can be placed in any convenient location within customer's premises, while maintaining the option to install the meter in a location that is inaccessible by the customer.

The split configuration of the electricity meter and split Display unit provides the customer access to metering information and allows to manage energy consumption.

M160R meter contains load control switch and can remotely disconnect and reconnect power to customer by command received from the central unit.

M160R meter is designed to be mounted on DIN standard rail in a distribution boards or in a locked standard cabinet with protection of at least class IP51 according to IEC 60259.

Features:

- 15(60) A, Class 2, direct measurement static watt-hour meter.
- Real two-way "A" band Power Line Communication.
- Automatic calibration (NO physical adjustment).
- Non volatile backup memory.
- Calculates locally Time of Use (TOU) consumption at multiple tariffs.
- Repeats and amplifies signals transmitted by other distant units towards the concentrator over the power network – No distance limitation.
- Internal 60A load switching element.
- Remote disconnection/reconnection.
- Remotely limits customer maximum power demand.
- Measures and reports line voltage.
- IrDA Optical port for reading
- Directly energized by power lines.
- Small size 2 DIN rail mounted.
- Simple and fast installation.









Technical Specifications

Supply Voltage range Nominal Frequency (fin) Meter Consumption at Un System connections Measurement Class Index according to IEC62053-21 Basic Current (Ib) Maximum continuous current (Imax) Environmental Temperature range operation storage Relative humidity (R.H.) for annual mean R.H. occasionally on some days Insulation Strength Protective Class acc. to IEC62052-11 LED Indicator Flash rate Display Type LCD Format Character size Character size Communication Interfaces PLC Frequency range PLC Method IrDA communication port (read only) Disconnection Device Type Maximum switching current Maximum switching voltage Maximum switching voltage Maximum switching voltage Measure 1.2W-8Var 1.2W	General	<u> </u>
Nominal Frequency (fig) Meter Consumption at Un System connections Measurement Class Index according to IEC62053-21 Basic Current (lib) Maximum continuous current (Imax) Environmental Temperature range operation storage Relative humidity (R.H.) for annual mean R.H. occasionally on some days Insulation Strength Protective Class acc. to IEC62052-11 Class I I LED Indicator Flash rate Display Type LCD Format Character size Communication Interfaces PLC Frequency range PLC Method Spread FSK IrDA communication port (read only) Disconnection Device Type Maximum switching current Maximum switching voltage Maximum switching voltage Maximum switching voltage Maximum switching voltage 1 1,2W-8Var 1 phase 2 wire 1 4,3ms 2 Fore Class 2 LCD Format Class I I Class I I LED Indicator Flash rate 1000 imp/kWh Display Type LCD Format Spread FSK IrDA communication port (read only) Ploconnection Device Type Single pole latching contactor Maximum switching voltage	Nominal Voltage (Un)	230V
Meter Consumption at Un System connections 1 phase 2 wire Measurement Class Index according to IEC62053-21 Basic Current (Ib) Maximum continuous current (Imax) Environmental Temperature range operation -10°C to 55°C Storage Relative humidity (R.H.) for annual mean R.H. occasionally on some days Insulation Strength Protective Class acc. to IEC62052-11 Class I I LED Indicator Flash rate Display Type LCD Format Character size Character size Communication Interfaces PLC Frequency range PLC Method IrDA communication port (read only) Disconnection Device Type Maximum switching current Maximum switching voltage Maximum switching voltage Maximum switching voltage 15A 60A 60A 60A 60A 60A 60A 60A 6	Supply Voltage range	80% - 115% Un
System connections Measurement Class Index according to IEC62053-21 Basic Current (Ib) Maximum continuous current (Imax) Environmental Temperature range operation -10°C to 55°C storage Relative humidity (R.H.) for annual mean R.H. occasionally on some days Insulation Strength Protective Class acc. to IEC62052-11 LED Indicator Flash rate Display Type LCD Format 3 Characters x 2 Lines 4.3mm x 2.95 mm Communication Interfaces PLC Frequency range PLC Method Spread FSK IrDA communication port (read only) Disconnection Device Type Single pole latching contactor Maximum switching current Maximum switching voltage Maximum switching voltage Class 1 I phase 2 wire Loas 2 Loas 2 Loas 2 Loas 5°C To 70°C Class 1 Loas 1	Nominal Frequency (fn)	50Hz
Measurement Class Index according to IEC62053-21 Class 2 Basic Current (Ib) Maximum continuous current (Imax) Environmental Temperature range operation storage Relative humidity (R.H.) for annual mean R.H. occasionally on some days Insulation Strength Protective Class acc. to IEC62052-11 Class I I LED Indicator Flash rate 1000 imp/kWh Display Type LCD Format 2 Character size 4.3mm x 2.95 mm Communication Interfaces PLC Frequency range PLC Method Spread FSK IrDA communication port (read only) Disconnection Device Type Single pole latching contactor Maximum switching current Maximum switching current Maximum switching voltage Class 1 Clas	Meter Consumption at Un	1.2W-8Var
Class Index according to IEC62053-21 Basic Current (Ib) Maximum continuous current (Imax) Environmental Temperature range operation storage Relative humidity (R.H.) for annual mean R.H. occasionally on some days Insulation Strength Protective Class acc. to IEC62052-11 LED Indicator Flash rate Display Type LCD Format Character size Character size Communication Interfaces PLC Frequency range PLC Method IrDA communication port (read only) Disconnection Device Type Maximum switching current Maximum switching current Maximum switching voltage Maximum switching voltage Maximum switching voltage Maximum switching voltage SonA 115A 106A 106A 106A 106A 107C	System connections	1 phase 2 wire
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Maximum continuous current (Imax) Environmental Temperature range operation storage -25°C to 70°C Relative humidity (R.H.) for annual mean R.H. occasionally on some days s5% Insulation Strength Protective Class acc. to IEC62052-11 LED Indicator Flash rate Display Type LCD Format Character size Character size 4.3mm x 2.95 mm Communication Interfaces PLC Frequency range PLC Method IrDA communication port (read only) Disconnection Device Type Single pole latching contactor Maximum switching current Maximum switching current Maximum switching voltage 25°C to 70°C Class I 1 Class	Class Index according to IEC62053-21	Class 2
Environmental Temperature range operation storage -25°C to 70°C Relative humidity (R.H.) for annual mean R.H. occasionally on some days Insulation Strength Protective Class acc. to IEC62052-11 LED Indicator Flash rate Display Type LCD Format Character size Character size Communication Interfaces PLC Frequency range PLC Method IrDA communication port (read only) Disconnection Device Type Single pole latching contactor Maximum switching current Maximum switching current Maximum switching voltage -25°C to 70°C Class I J Clas I J Class I J	Basic Current (lb)	15A
Temperature range operation storage -25°C to 70°C Relative humidity (R.H.) for annual mean R.H. occasionally on some days Insulation Strength Protective Class acc. to IEC62052-11 LED Indicator Flash rate 1000 imp/kWh Display Type LCD Format 8 Characters x 2 Lines Character size 4.3mm x 2.95 mm Communication Interfaces PLC Frequency range "A"-band PLC Method Spread FSK IrDA communication port (read only) Disconnection Device Type Single pole latching contactor Maximum switching current Maximum switching voltage 250 VAC	Maximum continuous current (Imax)	60A
storage -25°C to 70°C -25°C to	Environmental	
storage	Temperature range	
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R.H. occasionally on some days Insulation Strength Protective Class acc. to IEC62052-11 LED Indicator Flash rate 1000 imp/kWh Display Type LCD Format 8 Characters x 2 Lines Character size 4.3mm x 2.95 mm Communication Interfaces PLC Frequency range "A"-band PLC Method Spread FSK IrDA communication port (read only) Disconnection Device Type Single pole latching contactor Maximum switching current 60A Maximum switching voltage 250 VAC	storage	-25°C to 70°C
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Flash rate 1000 imp/kWh Display Type LCD Format 8 Characters x 2 Lines Character size 4.3mm x 2.95 mm Communication Interfaces PLC Frequency range "A"-band PLC Method Spread FSK IrDA communication port (read only) 9600 bps Disconnection Device Type Single pole latching contactor Maximum switching current 60A Maximum switching voltage 250 VAC	Insulation Strength	
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Format 8 Characters x 2 Lines Character size 4.3mm x 2.95 mm Communication Interfaces PLC Frequency range "A*-band PLC Method Spread FSK IrDA communication port (read only) 9600 bps Disconnection Device Type Single pole latching contactor Maximum switching current 60A Maximum switching voltage 250 VAC	Display	
Character size 4.3mm x 2.95 mm Communication Interfaces PLC Frequency range "A*-band PLC Method Spread FSK IrDA communication port (read only) 9600 bps Disconnection Device Type Single pole latching contactor Maximum switching current 60A Maximum switching voltage 250 VAC	Туре	LCD
Communication Interfaces PLC Frequency range "A"-band PLC Method Spread FSK IrDA communication port (read only) 9600 bps Disconnection Device Type Single pole latching contactor Maximum switching current 60A Maximum switching voltage 250 VAC	Format	8 Characters x 2 Lines
PLC Frequency range "A"-band PLC Method Spread FSK IrDA communication port (read only) 9600 bps Disconnection Device Type Single pole latching contactor Maximum switching current 60A Maximum switching voltage 250 VAC	Character size	4.3mm x 2.95 mm
PLC Method Spread FSK IrDA communication port (read only) 9600 bps Disconnection Device Type Single pole latching contactor Maximum switching current 60A Maximum switching voltage 250 VAC	Communication Interfaces	
IrDA communication port (read only) Disconnection Device Type Single pole latching contactor Maximum switching current Maximum switching voltage 250 VAC	PLC Frequency range	"A"-band
Disconnection Device Type Single pole latching contactor Maximum switching current 60A Maximum switching voltage 250 VAC	PLC Method	Spread FSK
Type Single pole latching contactor Maximum switching current 60A Maximum switching voltage 250 VAC	IrDA communication port (read only)	9600 bps
Maximum switching current 60A Maximum switching voltage 250 VAC	Disconnection Device	
Maximum switching voltage 250 VAC	Туре	Single pole latching contactor
	Maximum switching current	60A
Mechanical life 100 000 operation minimum	Maximum switching voltage	250 VAC
	Mechanical life	100 000 operation minimum



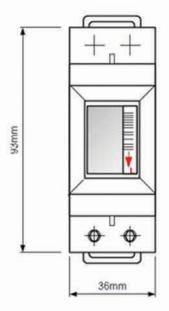






Technical Specifications

Weight and Dimensions/ Case protection		
Weight	195 g	
Width	36 mm	
Height	93 mm	
Depth	63mm	
Enclosure protection (IEC60529)	IP51	
Protection for connection terminals	IP20	



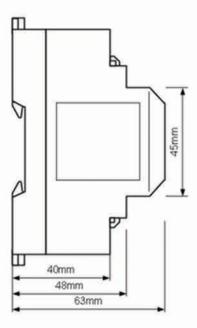


Fig. 2.Meter Dimensiions







Connection Diagram

Connections		
Connection system type	Clamping yoke connection	
Maximum conductor cross-section	16 mm²	
Minimum conductor cross-section	4 mm²	
Clamping screw	M5x17	
Head of clamping screw	Socket hex cap 4 mm	
Tightening torque, min	3.5 Nm	
Tightening torque, max	4.5 Nm	

