

SMART Energy meters

7M
SERIES



Panels for
electrical
distribution



Control panels



Electrical
energy
control



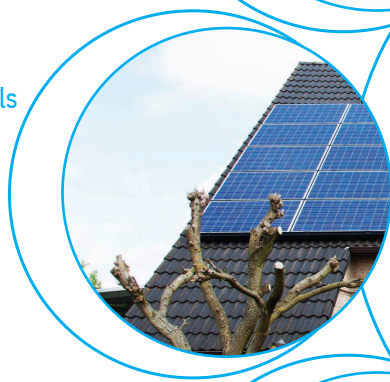
Industrial
robots



Road / tunnel
lighting



Elevators and lifts



**Single-phase Bi-directional energy meter
with backlit LCD display**

Type 7M.24.8.230.0001

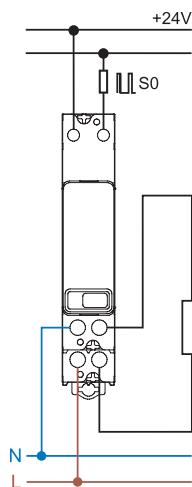
kWh energy meter

- Display of active energy consumption (kWh)
- Active power accuracy Class B according to EN 50470-3
- S0 pulse output for remote energy monitoring according to EN 62053-31
- Sealable tamperproof terminal shield
- Protection category II
- 35 mm rail (EN 60715) mount

NEW 7M.24.8.230.0001



- Reference current 5 A (40 A Maximum)
- 1-phase 230 V AC
- kWh



For outline drawing see page 12

Specification

Reference/Maximum current I_n/I_{max}	A	5/40
Starting current I_{st}	A	0.02
Minimum measured current I_{min}	A	0.25
Current range (within accuracy class)	A	0.5...40
Maximum peak current	A	1200 (10 ms)
Supply (& monitored) voltage U_N	V AC	230
Operating range		$(0.8...1.15)U_N$
Frequency	Hz	50/60
Power consumption	W/VA	$\leq 0.5/10$
Display		LCD
Max. totalising count/Min. increment	kWh	999 999.9/0.1
LED pulses per kWh		1000
LED pulse length	ms	4 ± 0.5

Output specification (S0+/S0-)

Number/Type		1 opto-isolated output
Voltage range/Maximum current (conforming to EN 62053-1)	V DC/mA	3.3...27/1...27
Pulses per kWh	Imp/kWh	1000
Pulse length	ms	32 ± 2
Maximum cable length	m	1000

Technical data

Accuracy class EN 50470-3 (MID)		B
Ambient temperature (Within accuracy class)	°C	-25...+55
Protective class		II
Protection category: Housing/terminals		IP 50/IP 20

Approvals (according to type)



Single-phase Bi-directional energy meters with backlit LCD display**Type 7M.24.8.230.0010****Type 7M.24.8.230.0110 NFC**

NFC technology allows reading the measured energy even in the absence of mains voltage and to program and customize the counter via smartphone;

IR communication port**Multifunction, MID certified**

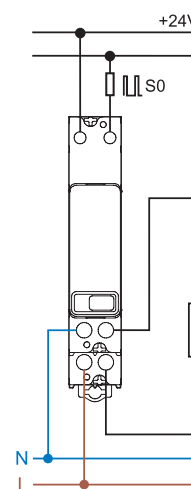
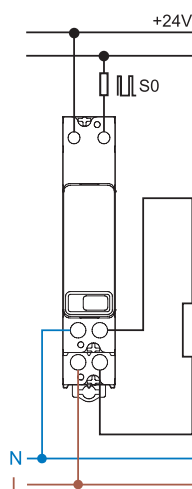
- Display of total or partial consumption: kWh, kVAh, kvarh
- 2 active energy MID counters + 2 reactive energy nationally certified counters
- 8 resettable counters
- Scroll to view the following instantaneous values: V, A, PF, kW, kVA, kvar, Hz, THD V, THD A, phase angle and direction of power flow
- 7 digit backlit LCD display
- Multifunction touch button
- Active energy accuracy Class B according to EN 50470-3 (MID)
- Reactive energy accuracy Class 2 to EN 62053-23
- S0 pulse output for remote energy monitoring according to EN 62053-31
- Sealable tamperproof terminal shield
- Protection category II
- 35 mm rail (EN 60715) mount

NEW 7M.24.8.230.0010

- Reference current 5 A (40 A Maximum)
- 1-phase 230 V 50/60 Hz
- MID certified

NEW 7M.24.8.230.0110

- Reference current 5 A (40 A Maximum)
- IR communication port and NFC
- 1-phase 230 V 50/60 Hz
- MID certified



For outline drawing see page 12

Specification

Reference/Maximum current I_n/I_{max}	A	5/40	5/40
Starting current I_{st}	A	0.02	0.02
Minimum measured current I_{min}	A	0.25	0.25
Current range (within accuracy class)	A	0.5...40	0.5...40
Maximum peak current	A	1200 (10 ms)	1200 (10 ms)
Supply (& monitored) voltage U_N	V AC	230	230
Operating range		$(0.8...1.15)U_N$	$(0.8...1.15)U_N$
Frequency	Hz	50/60	50/60
Power consumption	W/VA	$\leq -/10$	$\leq -/10$
Display		LCD	LCD
Max. totalising count/Min. increment	kWh	999 999.9/0.1	999 999.9/0.1
LED pulses per kWh		1000	1000
LED pulse length	ms	4 ± 0.5	4 ± 0.5

Output specification (S0+/S0-)

Number/Type		1 opto-isolated output	1 opto-isolated output
Voltage range/Maximum current (conforming to EN 62053-1)	V DC/mA	3.3...27/1...27	3.3...27/1...27
Pulses per kWh	Imp/kWh	1000	1000
Pulse length	ms	32 ± 2	32 ± 2
Maximum cable length	m	1000	1000

Technical data

Accuracy class IEC EN 50470-3 / IEC EN 62053-23		1/2	1/2
Ambient temperature (Within accuracy class)	°C	-25...+55	-25...+55
Protective class		II	II
Protection category: Housing/terminals		IP 50/IP 20	IP 50/IP 20

Approvals (according to type)

Single-phase Bi-directional energy meters with NFC technology and LCD display

Type 7M.24.8.230.0210 NFC

Multifunction energy meter

Bi-directional, MID certified with RS485

Modbus integrated interface and backlit LCD display

Type 7M.24.8.230.0310 NFC

Multifunction energy meter

Bi-directional, MID certified with M-Bus integrated interface and backlit LCD display

NFC technology allows reading the measured energy even in the absence of mains voltage and to program and customize the counter via smartphone;

IR communication port

- Display of total or partial (resettable) consumption: kWh, kVAh, kvarh
- 2 active energy MID counters + 2 reactive energy nationally certified counters
- 8 resettable counters
- Scroll to view the following instantaneous values: V, A, PF, kW, kVA, kvar, Hz, THD V, THD A, phase angle and direction of power flow
- 7 digit backlit LCD display
- Multifunction touch button
- Active energy accuracy Class B according to EN 50470-3 (MID)
- Reactive energy accuracy Class 2 to EN 62053-23
- Sealable tamperproof terminal shield
- Protection category II
- 35 mm rail (EN 60715) mount

* Modbus default transmission baud rate: 19200 bps
M-Bus default transmission baud rate: 2400 bps

For outline drawing see page 12

Specification

Reference/Maximum current I_N/I_{max}	A	5/40
Starting current I_{st}	A	0.02
Minimum measured current I_{min}	A	0.25
Current range (within accuracy class)	A	0.5...40
Maximum peak current	A	1200 (10 ms)
Supply (& monitored) voltage U_N	V AC	230
Operating range		$(0.8...1.15)U_N$
Frequency	Hz	50/60
Power consumption	W/VA	$\leq -/10$
Display		LCD
Max. totalising count/Min. increment	kWh	999 999.9/0.1
LED pulses per kWh		1000
LED pulse length	ms	4±0.5

Technical data communication protocol

Bus System	Modbus RS485
Frame	8, N, 2
Max bus length	1000
Baud rate*	Baud

Technical data

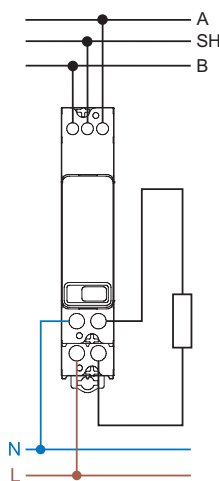
Accuracy class IEC EN 50470-3 / IEC EN 62053-23	1/2
Ambient temperature (Within accuracy class) °C	-25...+55
Protective class	II
Protection category: Housing/terminals	IP 50/IP 20

Approvals (according to type)

NEW 7M.24.8.230.0210



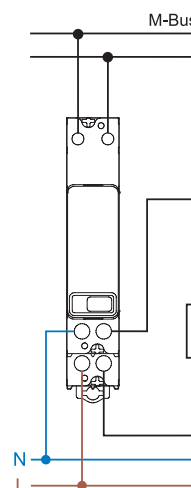
- Reference current 5 A (40 A Maximum)
- Modbus integrated interface and IR communication port and NFC technology
- 1-phase 230 V 50/60 Hz
- MID certified



NEW 7M.24.8.230.0310



- Reference current 5 A (40 A Maximum)
- M-Bus integrated interface and IR communication port and NFC technology
- 1-phase 230 V 50/60 Hz
- MID certified



Three-phase multi-function Bi-directional energy meters with backlit Matrix LCD display. MID certified for 3 or 4 wire system and single phase application up to 80 A @ 70°C.

Type 7M.38.8.400.0112

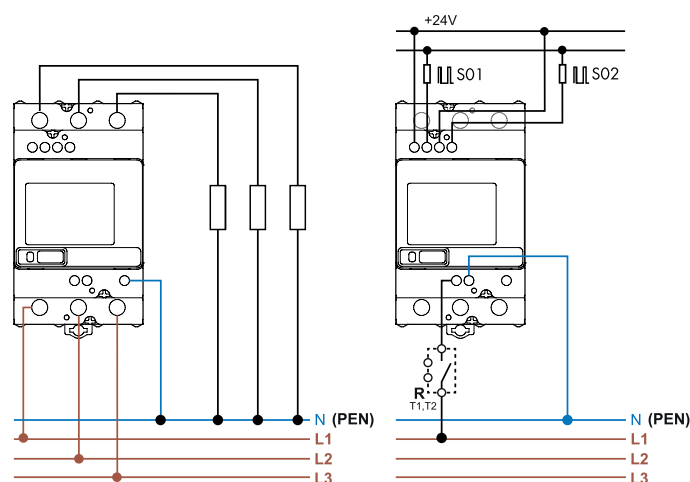
Direct connection up to 80 A, dual tariff

- Display of total or partial (resettable) consumption: kWh, kVAh, kvarh
- 2 active energy MID counters + 2 reactive energy nationally certified counters
- 16 resettable counters
- Scroll to view the following instantaneous values: V, A, PF, kW, kVA, kvar, Hz, THD V, THD A, phase angle and direction of power flow
- Matrix backlit LCD display
- Multifunction touch button
- Active energy accuracy Class B according to EN 50470-3 (MID)
- Reactive energy accuracy Class 2 to EN 62053-23
- Sealable tamperproof terminal shield
- Protection category II
- 35 mm rail (EN 60715) mount

NEW 7M.38.8.400.0112



- Reference current 5 A (80 A Maximum)
- Three phase system 3 or 4 wire or single phase
- Dual S0 outputs and IR communication port
- MID certified up to 70°C



For outline drawing see page 13

Specification

Reference/Maximum current I_n/I_{max}	A	5/80
Starting current I_{st}	A	0.02
Minimum measured current I_{min}	A	0.25
Current range (within accuracy class)	A	0.5...80
Maximum peak current	A	2400 (10 ms)
Supply (& monitored) voltage U_N	V AC	3 x 230/400
Operating range		$(0.8...1.15)U_N$
Frequency	Hz	50/60
Power consumption	W/VA	$\leq -/8$
Display		Matrix - LCD
Max. totalising count/Min. increment	kWh	999 999.9/0.1
LED pulses per kWh		1000
LED pulse length	ms	4 ± 0.5

Output specification (S0+/S0-)

Number/Type	2 opto-isolated outputs	
Voltage range/Maximum current (conforming to EN 62053-1)	VDC/mA	3.3...27/1...27
Pulse per kWh	Imp/kWh	500
Pulse length	ms	32 ± 2
Maximum cable length	m	1000

Technical data

Accuracy class IEC EN 50470-3 / IEC EN 62053-23	B/2
Ambient temperature (Within accuracy class) °C	-25...+70
Protective class	II
Protection category: Housing/terminals	IP 50/IP 20

Approvals (according to type)



Three-phase multi-function Bi-directional energy meters with backlit Matrix LCD display. MID certified for 3 or 4 wire system and single phase application up to 80 A @ 70°C.

Type 7M.38.8.400.0212

Multifunction energy meter with RS485 Modbus integrated interface and S0 output

- Display of total or partial (resettable) consumption: kWh, kVAh, kvarh
- 2 active energy MID counters + 2 reactive energy nationally certified counters
- 16 resettable counters
- Scroll to view the following instantaneous values: V, A, PF, kW, kVA, kvar, Hz, THD V, THD A, phase angle and direction of power flow
- Matrix backlit LCD display
- Multifunction touch button
- Active energy accuracy Class B according to EN 50470-3 (MID)
- Reactive energy accuracy Class 2 to EN 62053-23
- Sealable tamperproof terminal shield
- Protection category II
- 35 mm rail (EN 60715) mount

* Modbus default transmission baud rate: 19 200 bps

For outline drawing see page 13

Specification

Reference/Maximum current I_n/I_{max}	A	5/80
Starting current I_{st}	A	0.02
Minimum measured current I_{min}	A	0.25
Current range (within accuracy class)	A	0.5...80
Maximum peak current	A	2400 (10 ms)
Supply (& monitored) voltage U_N	V AC	3 x 230/400
Operating range		$(0.8...1.15)U_N$
Frequency	Hz	50/60
Power consumption per phase	W/VA	$\leq -/8$
Display		Matrix - LCD
Max. totalising count/Min. increment	kWh	999 999.9/0.1
LED pulses per kWh		1000
LED pulse length	ms	4±0.5

Output specification (S0+/-S0-)

Number/Type		1 opto-isolated output
Voltage range/Maximum current (conforming to EN 62053-1)	VDC/mA	3.3...27/1...27
Pulse per kWh	Imp/kWh	500
Pulse length	ms	32 ± 2
Maximum cable length	m	1000

Modbus technical data

Bus System		Modbus RS485
Frame		8, N, 2
Max bus length	m	1000
Max. Modbus energy meters connectable		32
Baud rate*	Baud	1200...115 200

Technical data

Accuracy class IEC EN 50470-3 / IEC EN 62053-23		B/2
Ambient temperature (Within accuracy class)	°C	-25...+70
Protective class		II
Protection category: Housing/terminals		IP 50/IP 20

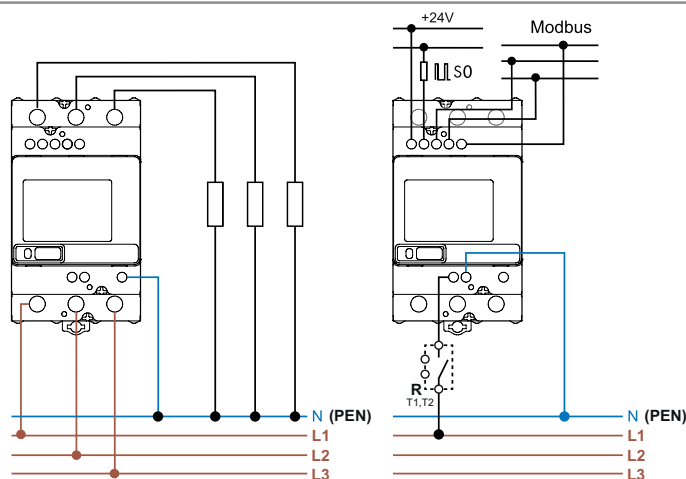
Approvals (according to type)



NEW 7M.38.8.400.0212



- Reference current 5 A (80 A Maximum)
- Modbus integrated interface and IR communication port
- 3-phase 230/400 V 50/60 Hz system: 3L+N, 3L, 1L+N
- MID certified up to 70°C



Three-phase multi-function Bi-directional energy meters with backlit Matrix LCD display. MID certified for 3 or 4 wire system and single phase application up to 80 A @ 70°C.

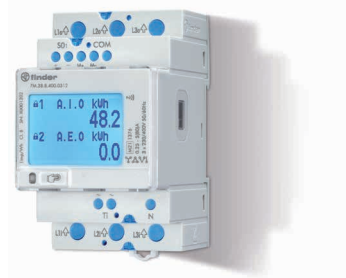
Type 7M.38.8.400.0312

Multifunction energy meter with M-Bus integrated interface and S0 output

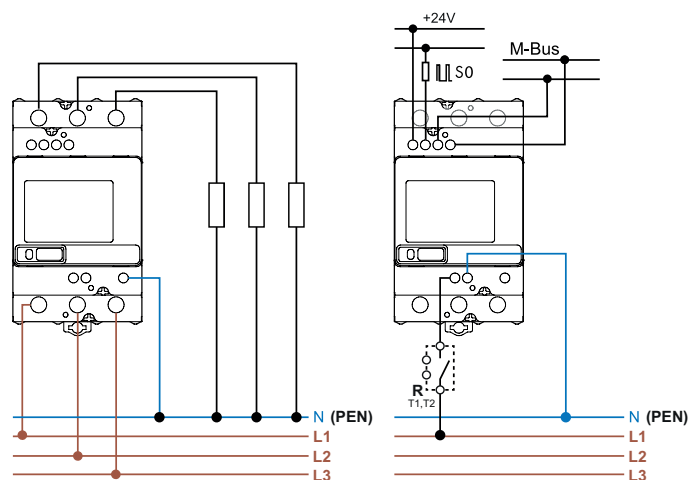
- Display of total or partial (resettable) consumption: kWh, kVAh, kvarh
- 2 active energy MID counters + 2 reactive energy nationally certified counters
- 16 resettable counters
- Scroll to view the following instantaneous values: V, A, PF, kW, kVA, kvar, Hz, THD V, THD A, phase angle and direction of power flow
- Matrix backlit LCD display
- Multifunction touch button
- Active energy accuracy Class B according to EN 50470-3 (MID)
- Reactive energy accuracy Class 2 to EN 62053-23
- Sealable tamperproof terminal shield
- Protection category II
- 35 mm rail (EN 60715) mount

* M-Bus default transmission baud rate: 2400 bps

NEW 7M.38.8.400.0312



- Reference current 5 A (80 A Maximum)
- M-Bus integrated interface and IR communication port
- 3-phase 230/400 V 50/60 Hz system: 3L+N, 3L, 1L+N
- MID certified up to 70°C



For outline drawing see page 13

Specification

Reference/Maximum current I_n/I_{max}	A	5/80
Starting current I_{st}	A	0.02
Minimum measured current I_{min}	A	0.25
Current range (within accuracy class)	A	0.5...80
Maximum peak current	A	2400 (10 ms)
Supply (& monitored) voltage U_N	V AC	3 x 230/400
Operating range		$(0.8...1.15)U_N$
Frequency	Hz	50/60
Power consumption per phase	W/VA	$\leq -/8$
Display		Matrix - LCD
Max. totalising count/Min. increment	kWh	999 999.9/0.1
LED pulses per kWh		1000
LED pulse length	ms	4±0.5

Output specification (S0+/S0-)

Number/Type	1 opto-isolated output	
Voltage range/Maximum current (conforming to EN 62053-1)	VDC/mA	3.3...27/1...27
Pulse per kWh	Imp/kWh	500
Pulse length	ms	32 ± 2
Maximum cable length	m	1000

M-Bus technical data

Bus System	M-Bus
Baud rate* Baud	300...9600

Technical data

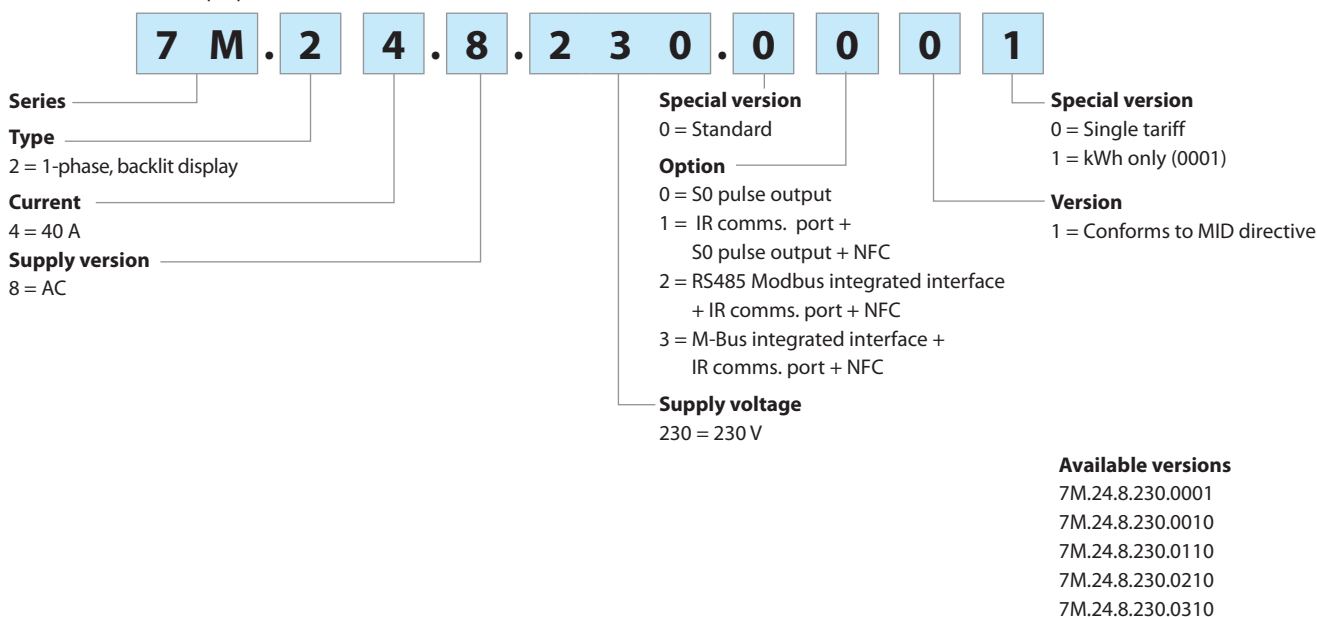
Accuracy class IEC EN 50470-3 / IEC EN 62053-23	B/2
Ambient temperature (Within accuracy class) °C	-25...+70
Protective class	II
Protection category: Housing/terminals	IP 50/IP 20

Approvals (according to type)

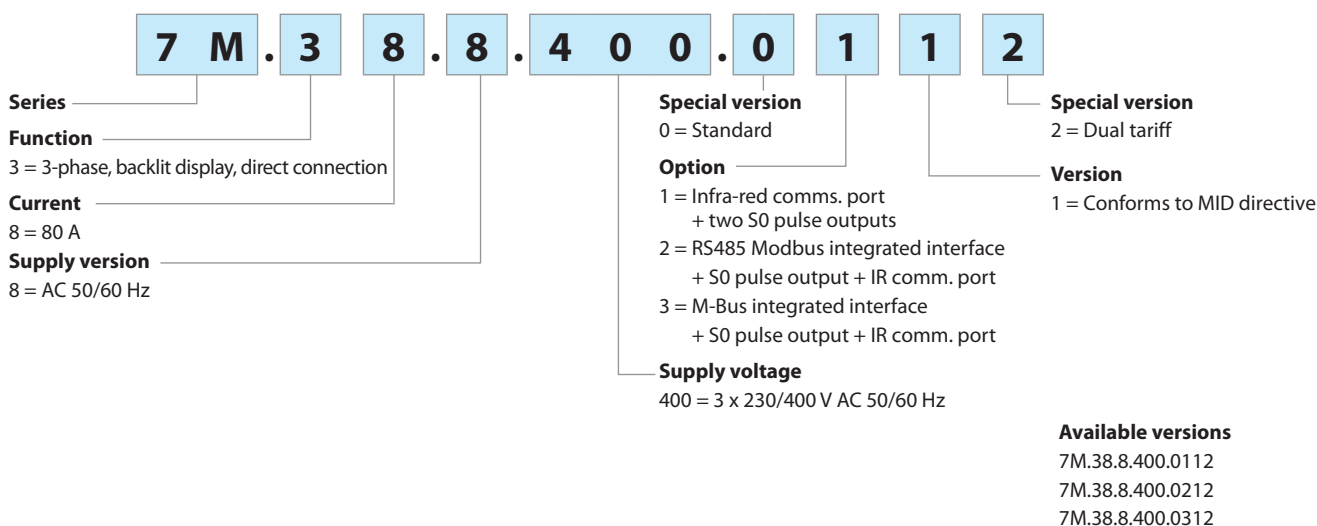


Ordering information

Example: 1-phase energy meter for direct connection up to 40 A, S0 pulse output, Class B accuracy, for 35 mm rail (EN 60715) mounting, with integral sealable tamperproof terminal shield.



Example: 3-phase energy meter for direct connection up to 80 A, with MID certification, Class B accuracy, for 35 mm rail (EN 60715) mounting.

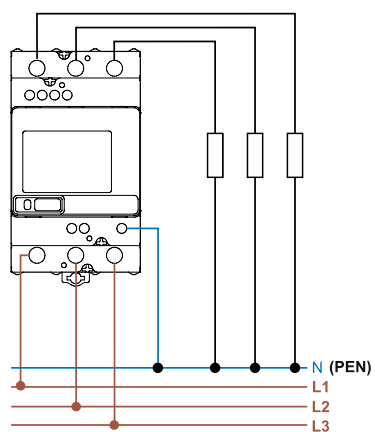


Technical data

Insulation			7M.24.8.230.0xxx		7M.38.8.400.0xxxx	
Insulation rated voltage			V	250	250	
Insulation	between active parts and S0+/S0– terminals	kV (1.2/50 µs)			6	
	between supply and Modbus, M-Bus terminal	kV (1.2/50 µs)			6	
	between adjacent phases	kV (1.2/50 µs)			6	
Insulation	between active parts and S0+/S0– terminals	V AC			4000	
	between supply and Modbus, M-Bus terminal	V AC			4000	
Protection class					II	
EMC Specification according to 61000-4-(2/3/4)			7M.24.8.230.0xxx		7M.38.8.400.0xxxx	
Electrostatic discharge	contact discharge				8 kV	
	air discharge				15 kV	
Radio frequency Electromagnetic field (80...2000)MHz					30 V/m	
Fast Transients (burst) (5-50 ns, 5 kHz)	on Supply terminals				4 kV	
	on S0+/S0– terminals				2 kV	
	Modbus, M-Bus terminal				2 kV	
Surge (1.2/50 µs)	on Supply terminals				4 kV	
Other data			7M.24.8.230.0xxx		7M.38.8.400.0xxxx	
Pollution degree					2	
Vibration resistance			EN 60068-2-6		EN 60068-2-6	
Shock resistance			EN 60068-2-27		EN 60068-2-27	
Power lost to the environment		max value per phase	0.5W/1.5 VA		1W/7.5VA	
Supply terminals			7M.24.8.230.0xxx		7M.38.8.400.0xxx	
Max. wire size	mm²	—	solid cable	stranded cable	solid cable	stranded cable
			—	1.5...10	max 16	1.5...25
			AWG	—	—	—
Screw torque for I _{max}	Nm	—	0.8	3.5	3.5	
S0+/S0– terminals, RS485 Modbus, M-Bus			7M.24.8.230.0xxx		7M.38.8.400.0xxx	
Max. wire size	mm²	—	solid cable	stranded cable	solid cable	stranded cable
			—	0.14...2.5	max 2.5	0.14...1.5
			AWG	—	—	—
Screw torque	Nm	—	0.6	—	0.6	

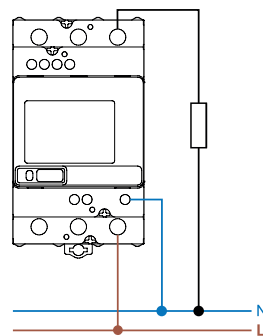
Wiring diagrams

Three-phase system



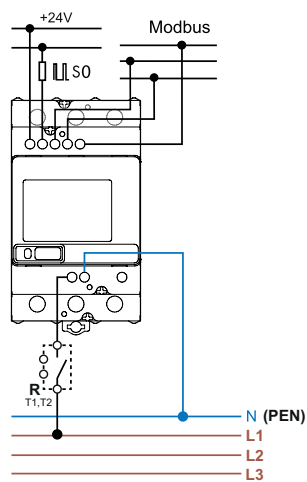
Type 7M.38.8.400.0112

Single-phase system

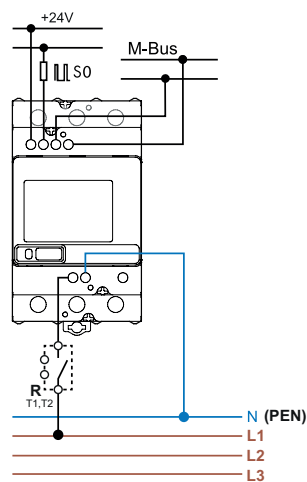


Type 7M.38.8.400.0112

Modbus or M-Bus system



Type 7M.38.8.400.0212

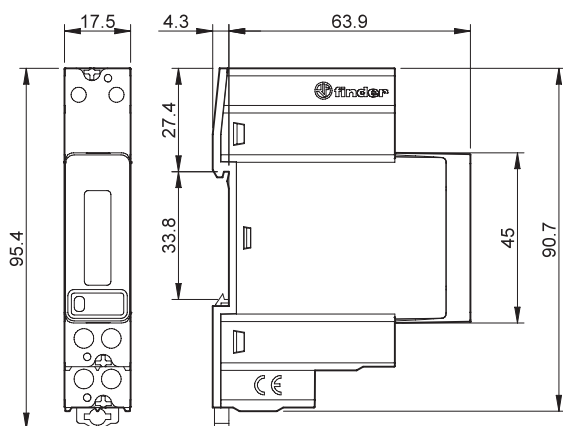


Type 7M.38.8.400.02312

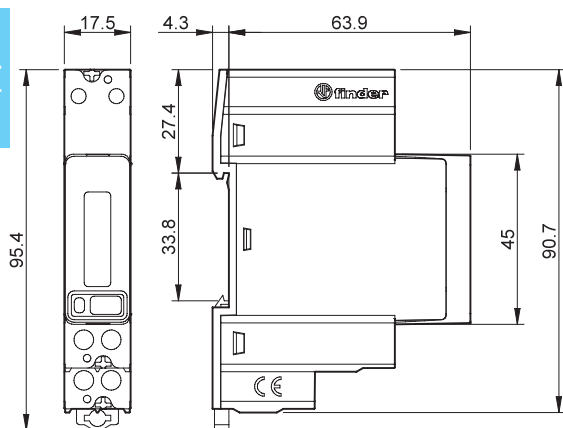
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Outline drawings

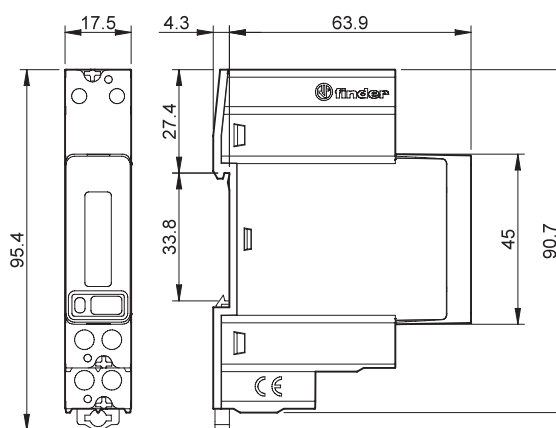
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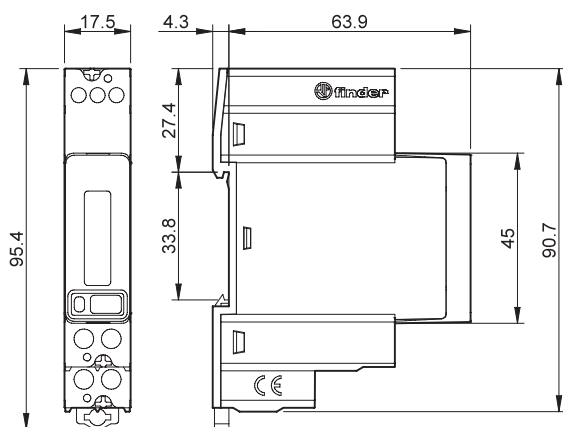
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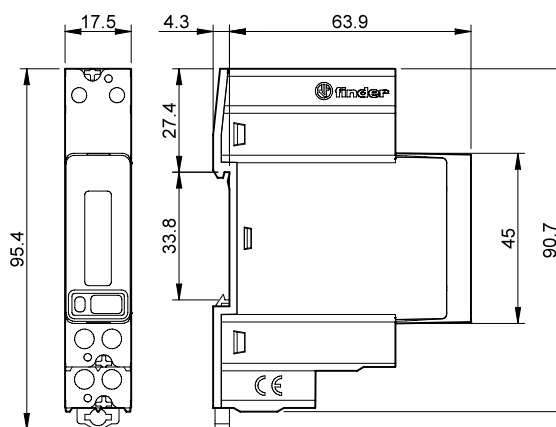
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Type 7M.24.8.230.0210

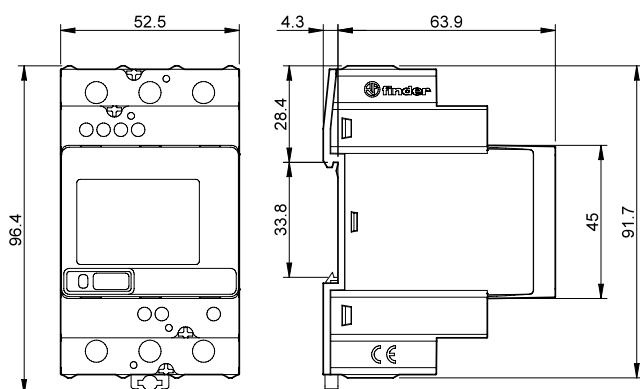


Type 7M.24.8.230.0310

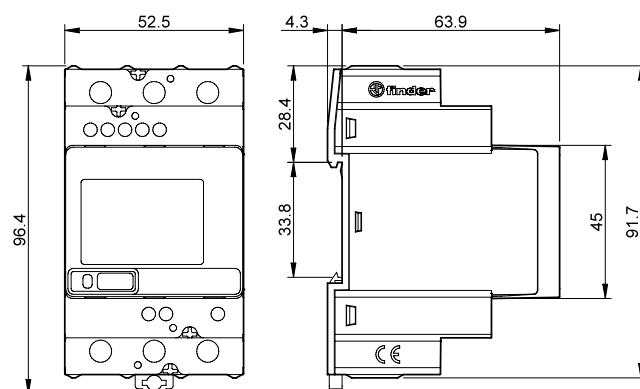


Outline drawings

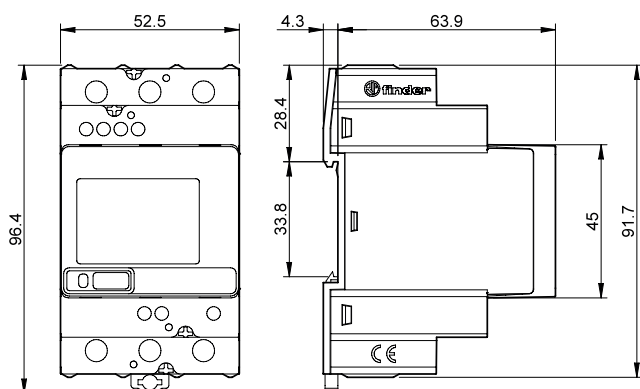
Type 7M.38.8.400.0112



Type 7M.38.8.400.0212



Type 7M.38.8.400.0312



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