

# 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**

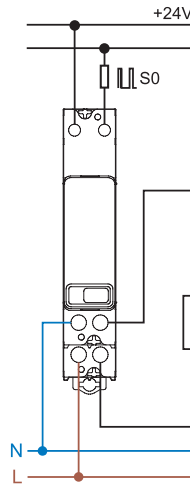
**Type 7M.24.8.230.0001 kWh energy meter**

- 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 11

**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	$4 \pm 0.5$

**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	$32 \pm 2$
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 with 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**

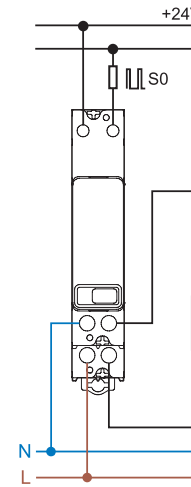
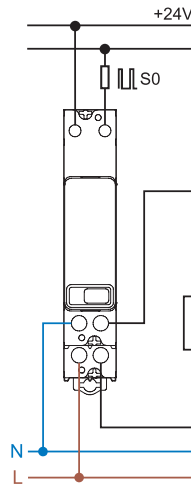


- Reference current 5 A (40 A Maximum)
- 1-phase 230 V 50/60 Hz
- MID certified

**NEW 7M.24.8.230.0110**



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



For outline drawing see page 11

**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	$4\pm 0.5$	$4\pm 0.5$

**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	$32 \pm 2$	$32 \pm 2$
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 backlit LCD display**

**Type 7M.24.8.230.00210**

**Multifunction energy meter**

**Bi-directional, MID certified with RS485**

**Modbus integrated interface and backlit LCD display**

**Type 7M.24.8.230.0310**

**Multifunction energy meter**

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

- 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 11

**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

**Technical data communication protocol**

Bus System		Modbus RS485	M-Bus
Frame		8,N,2	—
Max bus length	m	1000	—
Baud rate*	Baud	1200...115 200	300...9600

**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

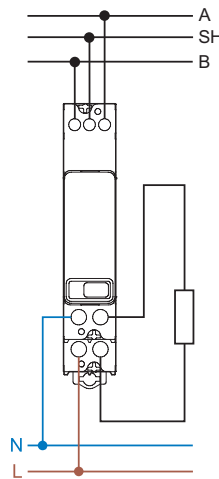
**Approvals** (according to type)



**NEW 7M.24.8.230.0210**



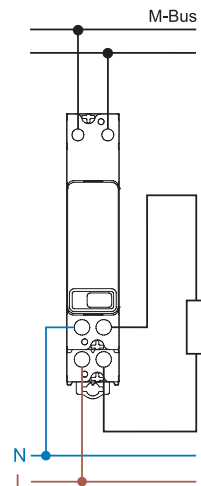
- Reference current 5 A (40 A Maximum)
- Modbus integrated interface and IR communication port
- 1-phase 230 V 50/60 Hz
- MID certified



**NEW 7M.24.8.230.0310**



- Reference current 5 A (40 A Maximum)
- M-Bus integrated interface and IR communication port
- 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**

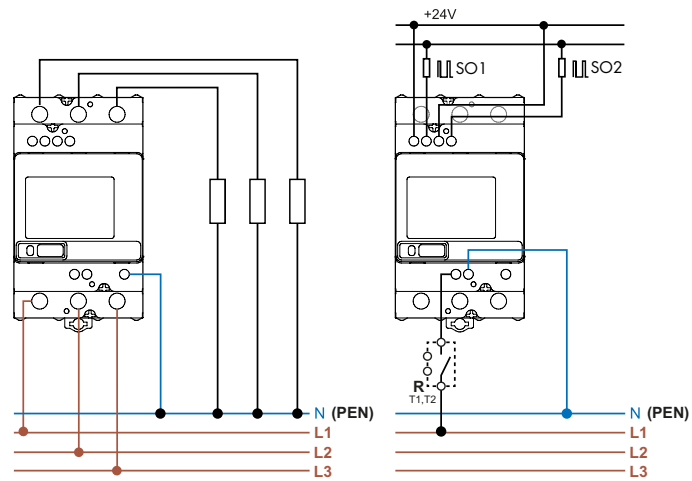
**Direct connection up to 80 A, dual tariff**

- 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 SO outputs and IR communication port
- MID certified up to 70°C



For outline drawing see page 12

**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 (SO+/SO-)**

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	1/2	
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 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
- Sealeable 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 12

**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

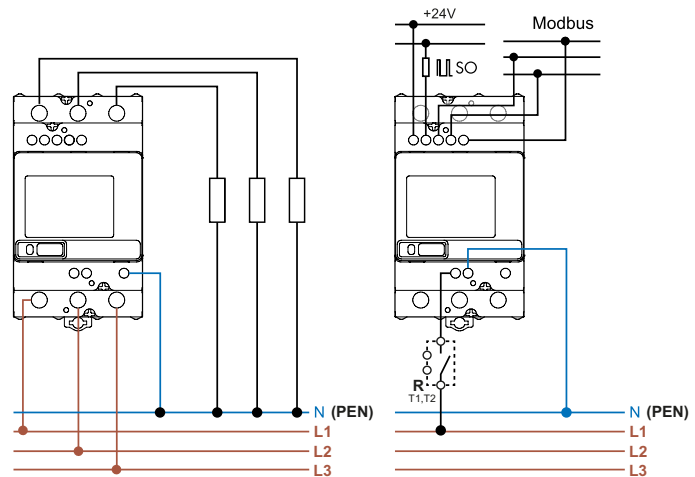
**Approvals (according to type)**



**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**

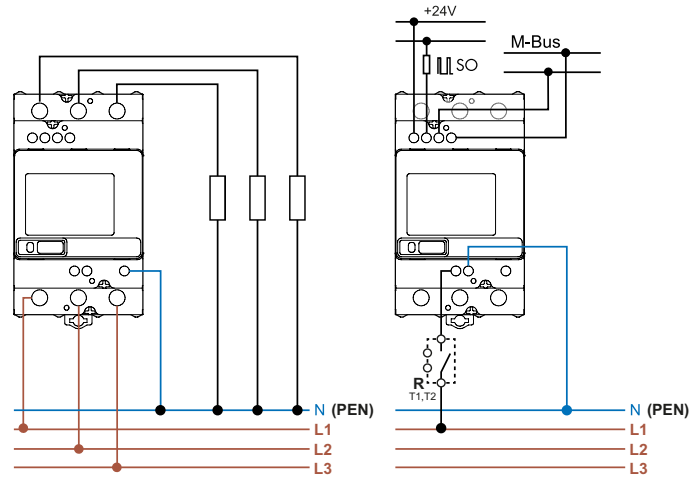
- Display of total or partial (resettable) consumption: kWh, kVAh, kvarh
- 2 active energy MID counters + 2 reactive energy nationally certified counters
- 16 resettable counters
- Scroll to view the following instantaneous values: V, A, PF, kW, kVA, kvar, Hz, THD V, THD A, phase angle and direction 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 12

**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)	-25...+70	
Protective class	II	
Protection category: Housing/terminals	IP 50/IP 20	

**Approvals (according to type)**





### Ordering information

Example: 3-phase energy meter for current transformer operation (6A/400 V AC), Class B accuracy, for 35 mm rail (EN 60715) mounting, with integral sealable tamperproof terminal shield.

**7 M . 2 4 . 8 . 2 3 0 . 0 0 0 1**

**Series** — 7 M

**Type** — 2 = 1-phase, backlit display

**Current** — 4 = 40 A

**Supply version** — 8 = AC

**Special version**  
0 = Standard

**Option**  
0 = SO pulse output  
1 = IR comms. (3x) port + SO pulse output  
2 = RS485 Modbus integrated interface + IR comms. (3x) port  
3 = M-Bus integrated interface + IR comms. (3x) port

**Supply voltage**  
230 = 230 V

**Special version**  
0 = Single tariff  
1 = kWh only (0001)

**Version**  
1 = Conforms to MID directive

**Available versions**  
7M.24.8.230.0001  
7M.24.8.230.0010  
7M.24.8.230.0110  
7M.24.8.230.0210  
7M.24.8.230.0310

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.

**7 M . 3 8 . 8 . 4 0 0 . 0 1 1 2**

**Series** — 7 M

**Function** — 3 = 3-phase, backlit display, direct connection

**Current** — 8 = 80 A

**Supply version** — 8 = AC 50/60 Hz

**Special version**  
0 = Standard

**Option**  
1 = Infra-red comms. port + two SO pulse outputs  
2 = RS485 Modbus integrated interface + SO pulse output + IR comm. port  
3 = M-Bus integrated interface + SO pulse output + IR comm. port

**Supply voltage**  
400 = 3 x 230/400 V AC 50/60 Hz

**Special version**  
2 = Dual tariff

**Version**  
1 = Conforms to MID directive

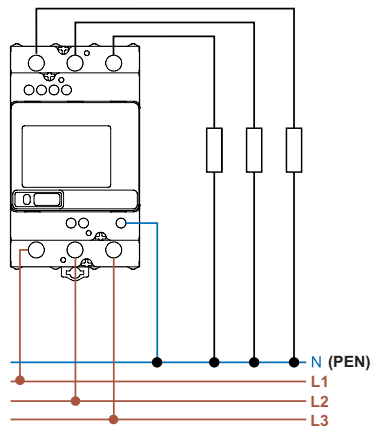
**Available versions**  
7M.38.8.400.0112  
7M.38.8.400.0212  
7M.38.8.400.0312

### Technical data

Supply terminals		7M.24.8.230.0xxx		7M.38.8.400.0xxx	
		solid cable	stranded cable	solid cable	stranded cable
Max. wire size	mm <sup>2</sup>	—	1.5...10	16	25
	AWG	—	—	—	—
	Screw torque for I <sub>max</sub>	Nm	1.5	0.8 PZ2	3.5 PH2
SO+/SO- terminals, RS485 Modbus, M-Bus		7M.24.8.230.0xxx		7M.38.8.400.0xxx	
		solid cable	stranded cable	solid cable	stranded cable
Max. wire size	mm <sup>2</sup>	—	0.05...1	—	0.5...1.5
	AWG	—	—	—	—
	Screw torque	Nm	—	0.6	—

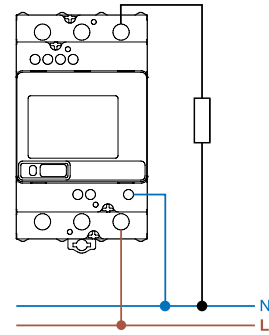
Wiring diagrams

Three-phase system



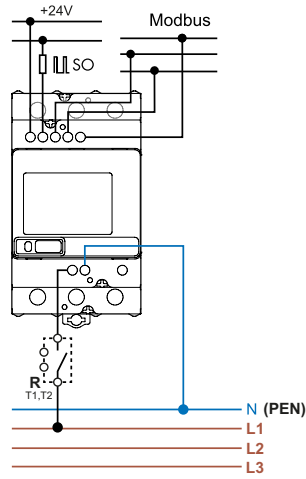
Type 7M.38.8.400.0112

Single-phase system

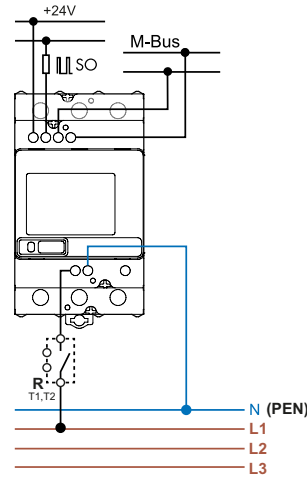


Type 7M.38.8.400.0112

Modbus or Mbus system



Type 7M.38.8.400.0212

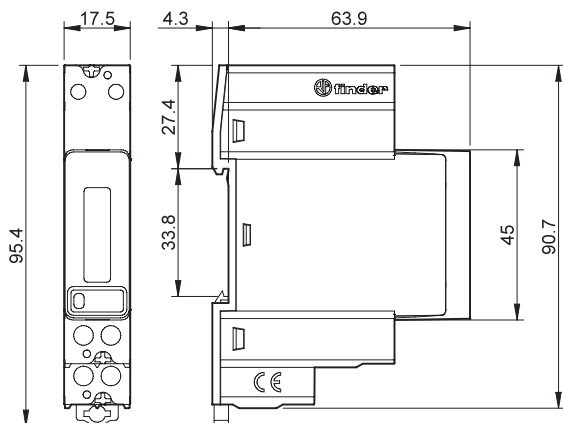


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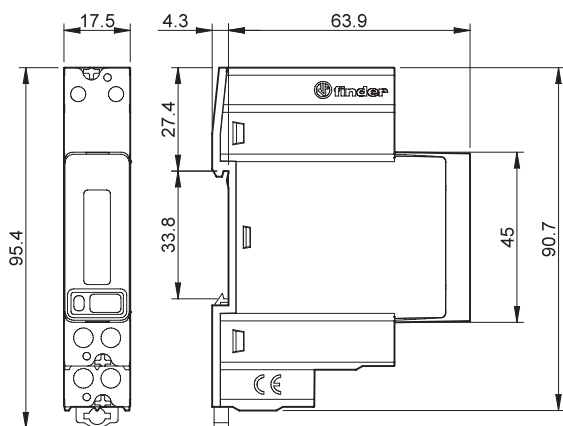
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Outline drawings

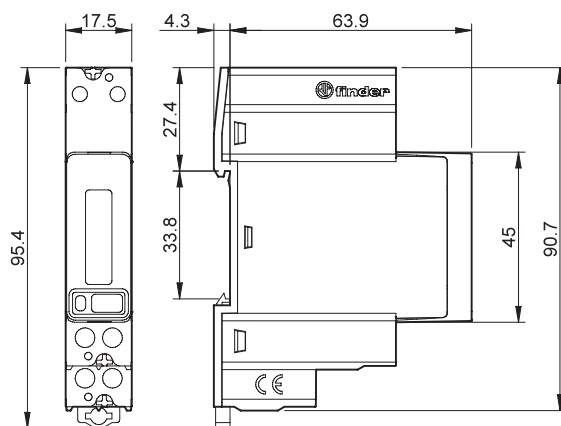
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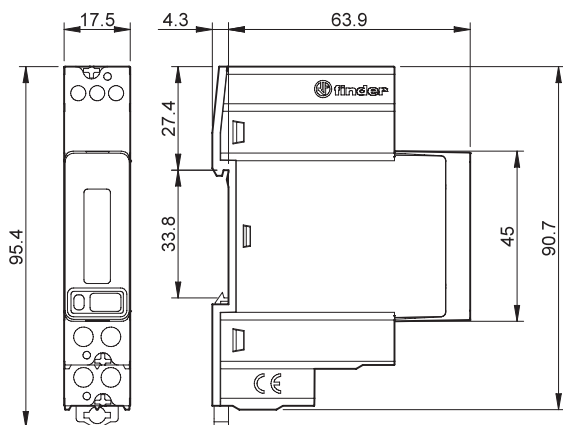
Type 7M.24.8.230.0010



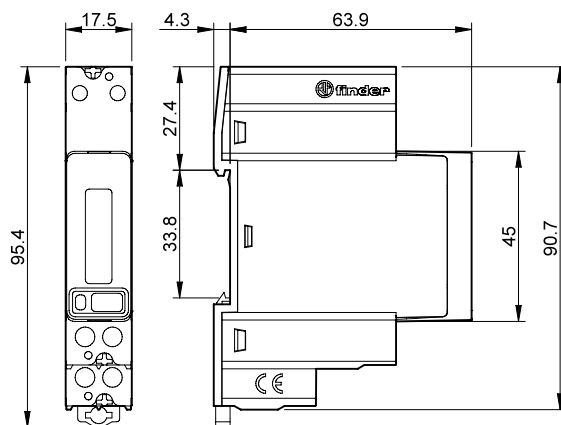
Type 7M.24.8.230.0110



Type 7M.24.8.230.0210



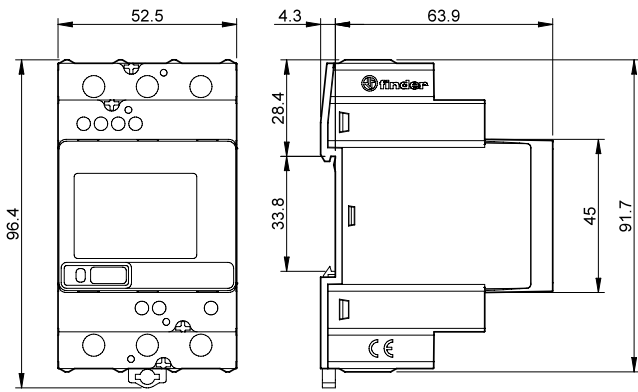
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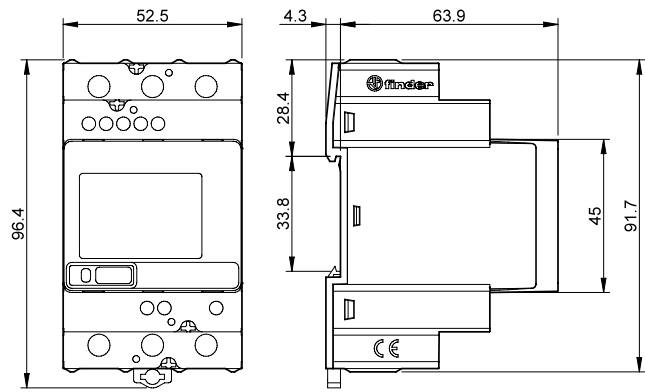
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Outline drawings

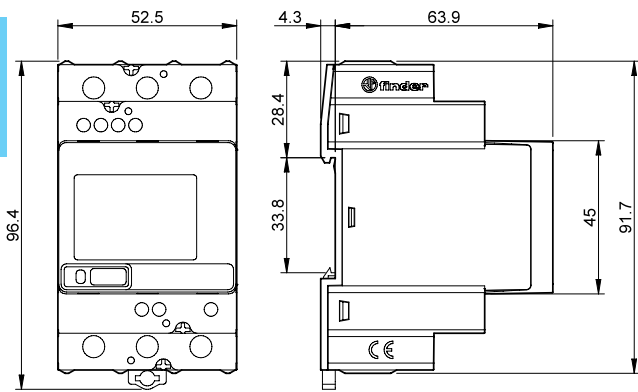
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Type 7M.38.8.400.0212



Type 7M.38.8.400.0312



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