

## Features

### kWh Energy meter - 1-phase

Type 7E.13 5(32)A - 1 module wide  
 Type 7E.16 10(65)A - 2 module wide

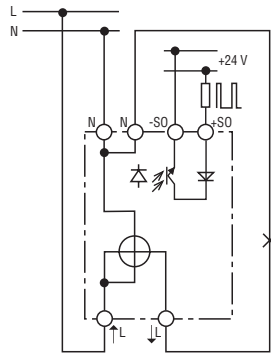
- Complies with EN 62053-21 and prEN 50470
- Complies with the EU MID-directive 2004/22/EG (Measuring Instruments Directive), mandatory for meters subject to legal regulation (from 31 Oct 2006)
- Certified by PTB (Physikalisch - Technischen Bundesanstalt)
- Accuracy class 1
- Protection class II
- Pulse output for remote energy management; SO interface (open collector) according DIN 43864 to link the energy meter to a centrally located monitoring/management system
- Tamper-proof cover with lead seal facility available as an accessory
- Space saving small size
- 35 mm rail (EN 50022) mount

For outline drawing see page 5

### 7E.13.8.230.0000



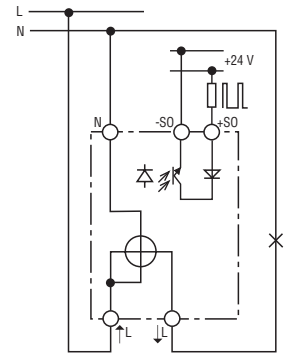
- Nominal current 5 A (32 A Maximum)
- 1-phase 230 V AC
- 17.5 mm wide



### 7E.16.8.230.0000



- Nominal current 10 A (65 A Maximum)
- 1-phase 230 V AC
- 35 mm wide



Specification			
Nominal/Maximum current measuring	A	5/32	10/65
Minimum measured current	A	0.02	0.04
Current range (within accuracy class)	A	0.25...32	0.5...65
Maximum peak current	A	960 (10 ms)	1,950 (10 ms)
Supply (& monitored) voltage	V AC	230	230
Operating range		$(0.8...1.15)U_N$	$(0.8...1.15)U_N$
Frequency	Hz	50	50
Rated power	W	< 0.4	< 0.5
Display, Reading, Indication		Seven digit counter, red decimal digit, digit height 4 mm	
Max. totalising count/Min. totalising count kWh		999,999.9/0.1	999,999.9/0.1
LED- Pulses per kWh		2,000	1,000
Open collector- output specification (SO+/SO-)			
Voltage (external supply)	V DC	5...30	5...30
Maximum current	mA	20	20
Maximum leakage current @30 V/25 °C	µA	10	10
Pulses per kWh		1,000	1,000
Pulse length	ms	50	50
Internal series resistance	Ω	100	100
Maximum Cable length (30 V/20 mA)	m	1,000	1,000
Technical data			
Accuracy class		1	1
Ambient temperature (Within accuracy class)	°C	-10...+45	-10...+45
Ambient temperature (Outside accuracy class)	°C	-20...+55	-20...+55
Protective class		II	II
Protection category: Housing/terminal		IP 50/IP 20	IP 50/IP 20
Approvals (according to type)		<b>CE PTB</b>	

## Features

### kWh Energy meter - 3-phase

Type 7E.36-0000 10(65)A - Single tariff

Type 7E.36-0002 10(65)A - Dual tariff

- Complies with EN 62053-21 and prEN 50470
- Complies with the EU MID-directive 2004/22/EG (Measuring Instruments Directive), mandatory for meters subject to legal regulation (from 31 Oct 2006)
- Certified by PTB (Physikalisch - Technischen Bundesanstalt)
- Accuracy class B
- Protection class II
- Pulse output for remote energy management; SO interface (open collector) according to DIN 43864 to link the energy meter to a centrally located monitoring/management system
- Tamper-proof cover with lead seal facility available as an accessory
- 35 mm rail (EN 50022) mount

7E.36.8.400.0000

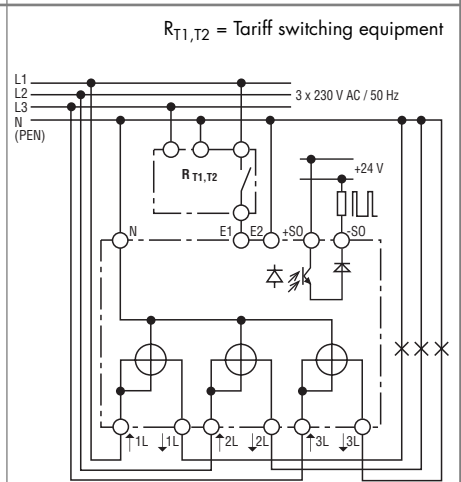
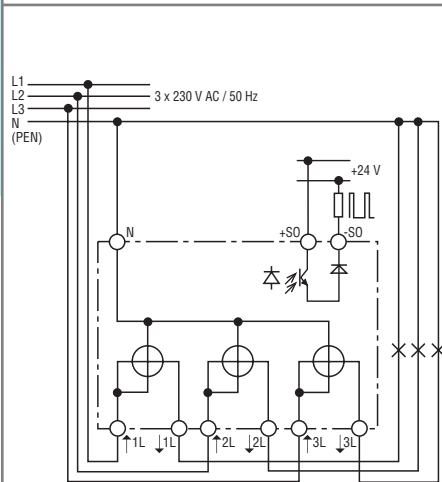


- Nominal current 10 A (65 A Maximum)
- 3-phase
- 70 mm wide

7E.36.8.400.0002



- Nominal current 10 A (65 A Maximum)
- 3-phase
- Dual tariff (Day and Night)
- 70 mm wide

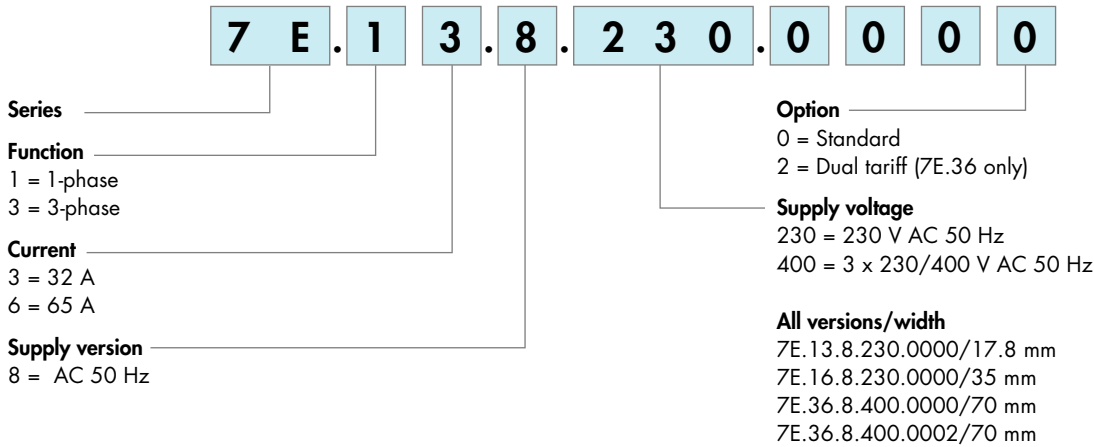


For outline drawing see page 5

Specification			
Nominal/Maximum current measuring	A	10/65	10/65
Minimum measured current	A	0.04	0.04
Current range (within accuracy class)	A	0.5...65	0.5...65
Maximum peak current	A	1,950 (10 ms)	1,950 (10 ms)
Supply (& monitored) voltage	V AC	3 x 230	3 x 230
Operating range		$(0.8...1.15)U_N$	$(0.8...1.15)U_N$
Frequency	Hz	50	50
Rated power per phase	W	< 1.5	< 1.5
Display, Reading, Indication		Seven digit counter, red decimal digit, digit height 4 mm	
Max. totalising count/Min. totalising count kWh		999,999.9/0.1	999,999.9/0.1
LED- Pulses per kWh		100	100
Open collector- output specification (SO+/SO-)			
Voltage (external supply)	V DC	5...30	5...30
Maximum current	mA	20	20
Maximum leakage current @30 V/25 °C	µA	10	10
Pulses per kWh		1,000	1,000
Pulse length	ms	50	50
Internal series resistance	Ω	100	100
Maximum Cable length (30 V/20 mA)	m	1,000	1,000
Technical data			
Accuracy class		B	B
Ambient temperature	°C	-25...+55	-25...+55
Protective class		II	II
Protection category: Housing/terminal		IP 50/IP 20	IP 50/IP 20
Approvals (according to type)		<b>CE PTB</b>	

## Ordering information

Example: Energy meter 32 A/230 V AC, with PTB certified, accuracy class 1, available with Tamper-proof lead sealed cover as accessory, for 35 mm rail (EN 50022) mounting.



## Technical data

<b>Insulation EN 62053-21</b>		<b>7E.13, 7E.16</b>	<b>7E.36</b>			
Insulation rated voltage	V	250	250			
Overvoltage category		IV	IV			
Isolation	between active part SO+/SO- terminals	kV (1.2/50 μs)	6			
	adjacent phases	kV (1.2/50 μs)	6			
Insulation	between supply and SO+/SO-	V AC	4,000			
	between adjacent phases	V AC	4,000			
Protection class		II	II			
<b>EMC Specification</b>		<b>Reference standard</b>				
Electrostatic discharge	contact discharge	EN 61000-4-2	8 kV			
	air discharge	EN 61000-4-2	15 kV			
Radio-Frequency Electromagnetic Field (80...1,000)MHz		EN 61000-4-3	10 V/m			
Fast Transients (Burst) (5-50 ns, 5 kHz)	on Supply Terminals	EN 61000-4-4	Class 4 (4 kV)			
	on SO+/SO- Terminals	EN 61000-4-4	Class 4 (2 kV)			
Surge (1.2/50 μs)	on Supply Terminals	EN 61000-4-5	Class 4 (4 kV)			
	on SO+/SO- Terminals	EN 61000-4-5	Class 3 (1 kV)			
Radio-Frequency Common Mode (0.15...80)MHz on Supply terminals		EN 61000-4-6	10 V			
Radiated and Conducted Emission		EN 55022	Class B			
<b>Other data</b>						
Pollution degree		2				
Vibration resistance	(10...60)Hz	mm	0.075			
	(60...150)Hz	g	1			
Vibration resistance of the internal mechanical counter (10...500)Hz		g	2			
Schock resistance		g/18 ms	30			
Schock resistance of the internal mechanical counter		g/18 ms	350			
Power lost to the environment	without current	W	0.4			
	with maximum current	W	1			
<b>Supply terminals</b>		<b>7E.13</b>	<b>7E.16</b>	<b>7E.36</b>		
		solid cable	stranded cable	solid cable	stranded cable	
Max. wire size		mm <sup>2</sup>	1...6	0.75...4	1.5...16	1.5...16
		AWG	18...10	18...12	16...6	16...6
Screw torque for I <sub>max</sub>		Nm	0.8...1.2		1.5...2	
	Screw		M4 Pozidrive No.1, Phillips No.1, Flat No.1			
<b>SO+/SO- terminals</b>		solid cable	stranded cable	solid cable	stranded cable	
		mm <sup>2</sup>	2.5	1.5	2.5	1.5
Max. wire size		AWG	14	16	14	16
		Nm	0.5		0.8	
Screw torque for I <sub>max</sub>		Nm	0.5		0.8	
	Screw		M3 Pozidrive No.1, Phillips No.1, Flat No.1		M4 Pozidrive No.1, Phillips No.1, Flat No.1	

## LED indication (Normal operation)

Type	Energy consumption			Pulses per kWh	Pulse space	The LED Pulse rate represents the instantaneous power being consumed, according to the following
	None	Low	High			
7E.13				2,000	100 ms	$kW = (\text{number of pulse per Minute}) / 33.3$
7E.16				1,000	100 ms	$kW = (\text{number of pulse per Minute}) / 16.7$
7E.36				100	150 ms	$kW = (\text{number of pulse per Minute}) / 1.7$

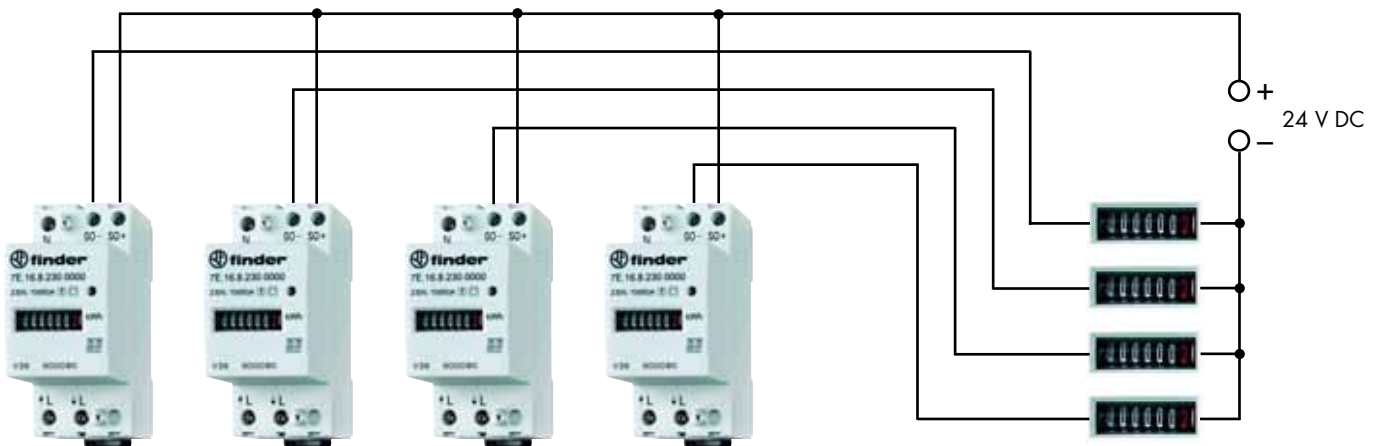
## LED indication (Abnormal operation)

Status indicates errors of installation, as below

Type	Abnormal operation status		
7E.13 7E.16	Device ON, incorrect connection (L-N inverted). Mark = 600 ms, Space = 600 ms 		
7E.36	Phase L1 ↑ L1 ↓ inverted or loss 	Phase L2 ↑ L2 ↓ inverted or loss 	Phase L3 ↑ L3 ↓ inverted or loss 
	Phase L1 ↑ L1 ↓ and L2 ↑ L2 ↓ inverted or loss 	Phase L1 ↑ L1 ↓ and L3 ↑ L3 ↓ inverted or loss 	Phase L1 ↑ L1 ↓ and L2 ↑ L2 ↓ and L3 ↑ L3 ↓ inverted or loss 

## SO+/SO- Open collector output wiring diagram

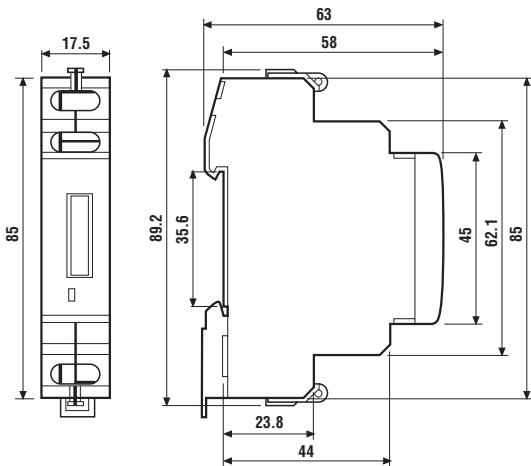
The pulsating open collector output available at terminals SO+ and SO- can be interfaced with the input of a computer, plc or other energy management equipment to allow the remote monitoring of energy consumed.



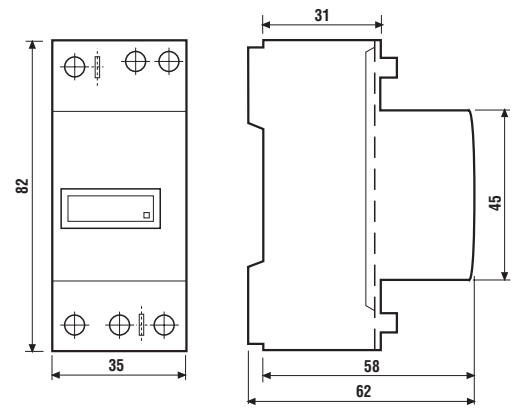
Energy meters – at difference locations  
(Note: Both Single and Dual tariff meters provide only a single pulsating output)

Central monitoring/management system  
(max. 20 mA for each input)

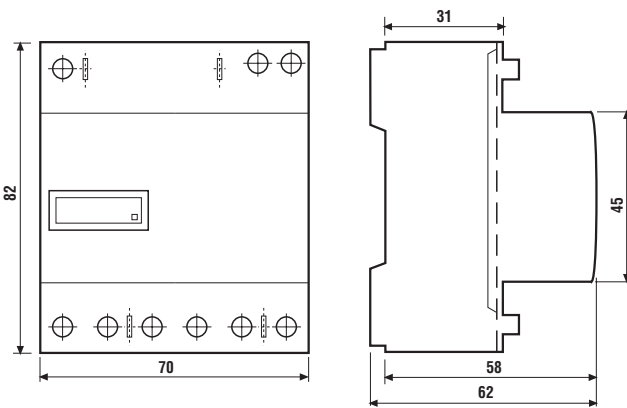
## Outline drawing



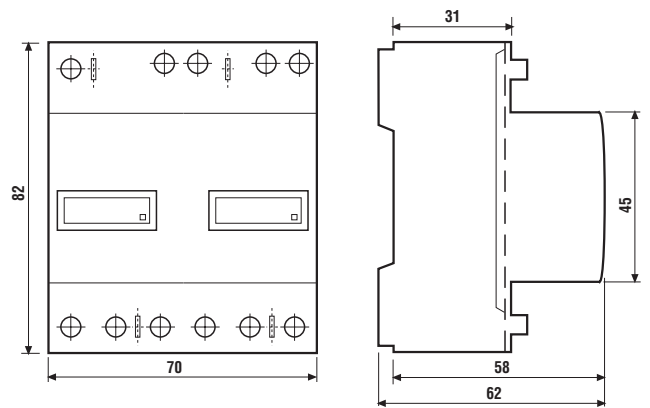
7E.13.8.230.0000



7E.16.8.230.0000



7E.36.8.400.0000



7E.36.8.400.0002

## Accessories



07E.13

**Terminal cover** for type 7E.13  
For the tamper-proof lead seal use 2 terminal cover

07E.13



07E.16

**Terminal cover** for type 7E.16 and 7E.36  
7E.16 - For the tamper-proof lead seal use 2 terminal covers  
7E.36 - For the tamper-proof lead seal use 4 terminal covers

07E.16