

Digital display symbols for all three phases: I - U - PF - Hz - P - Q - S, active energy export/import by IR side set up communication

► Connection through CT .../5 A till 10.000/5 A

Application

The new digital power-meters with green backlight LCD display, made for a fast and correct reading, are ideal instruments for installation in distribution panels, where user can easily read and control more quantities for the three phases. They are also used to measure the energy of three phases systems, for example in residential, generic and industrial applications. They are provided with two SO outputs: one for active imported energy, the other one for active exported energy. The products can be set up to communicate with LAN TCP/IP, Modbus RTU, M-Bus, EIB-KNX and SD-Card Datalogger. Interfaces are used to analyze the energy-consumption to reduce the running cost to a minimum for Industrial plants and buildings like Offices, Hospitals, Universities etc.



Function

Display

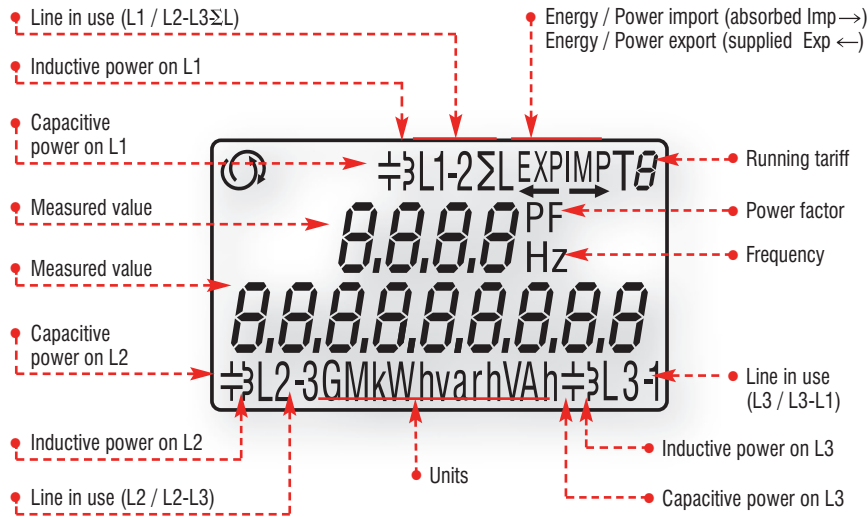
	Unit	ID
Current	A	L1, L2, L3
Tensions related	V	L1-N, L2-N, L3-N
Tensions between phases	V	L1-L2, L2-L3, L3-L1
Power factor	PF	L1, L2, L3
Frequency	Hz	L1
Active power	(k-M) W	Utilization and instantaneous value L1, L2, L3
Reactive power	(k-M) var	Utilization and instantaneous value L1, L2, L3
Apparent power	(k-M) VA	Utilization and instantaneous value L1, L2, L3
Active energy	Tariff 1 (M)-(K) Wh	Energy absorbed or supplied ΣL
Connection errors		PHASE Err
Primary transformer	5 ... 10.000/5 A	CT (current transformer)

Communication modules

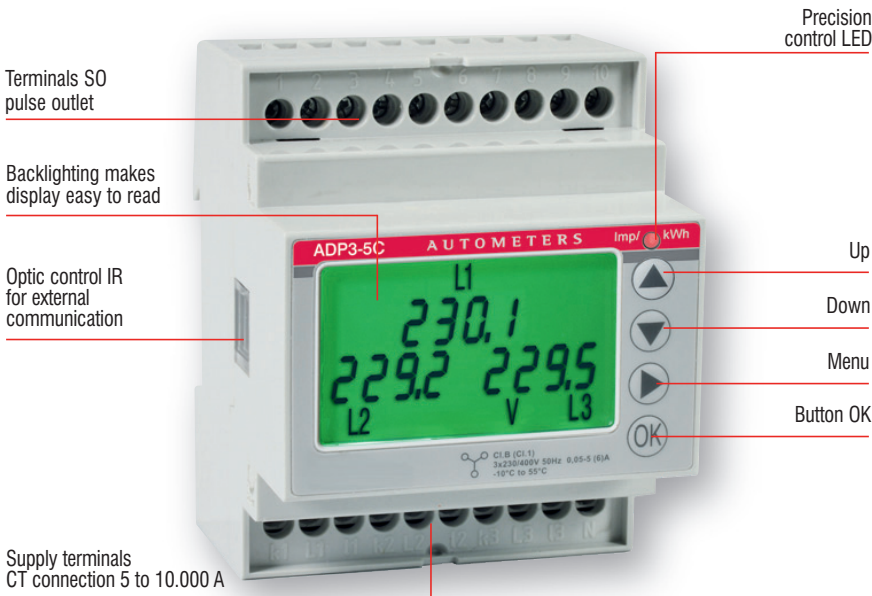


Display

Liquid crystal display with illuminated green background



4 standard module housing, suitable for DIN rail mounting Connection through CT .../5 A till 10.000/5 A



Sealable terminal covers





► **Connection through CT .../5 A till 10.000/5 A**

Overview

These multimeters are ideal instruments for installation in distribution panels, where user can easily read and control more quantities for the three phases. They are provided with two S0 outputs: one for active imported energy, the other one for active exported energy.

- Liquid crystal display with illuminated green background can monitor all three phases
- For direct connection 80 A, or for transformer .../5 A
- For transformer primary current of 5 A to 10.000/5 A. Input is in 5 A increments
- Detection of connection errors (phase transposition)
- Accuracy class 1 precision for the current, voltage
- Accuracy class 1 precision and power and energy active according to EN 50470-3 (B)
- Accuracy class 2 precision for the reactive power according to EN 62053-23
- Version without pulse output (cod. **ECSPM18 - ECSPM06**)
- Version with 2 pulse output (cod. **ECSPM24 - ECSPM12**)
- Version with 2 pulse output and set up for communication (cod. **ECSPM37 - ECSPM30**)
 - (1 pulse output for export energy)
 - (1 pulse output for import energy)
- Two pulse S0/kWh selection for model cod. **ECSPM12- ECSPM30**
- Front LED pulses per kWh selection for model cod. **ECSPM12- ECSPM30**
- Energy register zero setting
- Energy register for import and export
- 4 DIN modules wide (72 mm)

Technical data

Data in compliance with EN 50470-1, EN 50470-3, EN 62053-23 and EN 62053-31

			ECSPM18 - ECSPM24 ECSPM37	ECSPM06 - ECSPM12 ECSPM30
			direct connection 80 A	CT connect. till 10.000/5 A
General characteristics				
• Housing	DIN 43880	DIN	4 modules	4 modules
• Mounting	EN 60715	35 mm	DIN rail	DIN rail
• Depth		mm	70	70
• Reference standard	active energy	-	EN 50470-1-3	EN 50470-1-3
	reactive energy - pulse output		EN 62053-23-31	EN 62053-23-31
Operating features				
• Connectivity	to single/three-phase network	n° wires	2-4	4
• Storage of energy values and configuration	internal flash memory	-	yes	yes
• Tarif	for active energy	-	1 Tarif	1 Tarif
Supply				
• Rated control supply voltage <i>Un</i>		VAC	230	230
• Operating range voltage		V	184 ... 276	184 ... 276
• Rated frequency <i>fn</i>		Hz	50 ±2%	50 ±2%
• Rated power dissipation (max. for phase) <i>Pv</i>		VA (W)	≤8 (0.6)	≤8 (0.6)
Overload capability				
• Voltage <i>Un</i>	continuous; phase/phase	V	480	480
	1 second; phase/phase	V	800	800
	continuous; phase/N	V	276	276
	1 second; phase/N	V	300	300
• Current <i>I_{max}</i>	continuous	A	80	6
	momentary (0,5 s)	A	-	120
	momentary (10 ms)	A	2400	-
Display (readouts)				
• Connection errors and phase out	discernible from phase-sequence indic.	-	PHASE Err	PHASE Err
• Display type	LCD - Energy	n° digits	9 (1 ... 3 decimal)	9 (1 ... 3 decimal)
	LCD - Largeness instantaneous	n° digits	4 (1 ... 3 decimal)	4 (1 ... 3 decimal)
	digit dimensions	mm x mm	6.00 x 3	6.00 x 3
• Active energy: 1 display, 9 digit + display import or export (arrow)	tariff 1	Wh	0.01	0.01
	overflow	MWh	9999999.99	9999999.99
• Instantaneous active power: 3 display, 3-digit		W, kW or MW	000 ... 999.9	000 ... 999.9
• Instantaneous reactive power: 3 display, 3-digit		var, kvar or Mvar	000 ... 999.9	000 ... 999.9
• Instantaneous apparent power: 3 display, 3-digit		VA, kVA or MVA	000 ... 999.9	000 ... 999.9
• Instantaneous tariff measurement	1 display, 1-digit	-	T1	T1
• Transformer primary current		A	-	5 ... 10.000
• Display period refresh		s	1	1
Measuring accuracy				
• Active energy and power	acc.to EN 50470-3	class 1	B	B
• Reactive and apparent power	acc.to EN 62053-23	class 2	2	2
Measuring input				
• Type of connection			direct	transformer .../5 A
• Voltage <i>Un</i>	phase/phase	V	400	400
	phase/N	V	230	230
• Operating range voltage	phase/phase	V	319 ... 480	319 ... 480
	phase/N	V	184 ... 276	184 ... 276
• Current <i>I_{ref}</i>		A	5	-
• Current <i>I_n</i>		A	-	5
• Current <i>I_{min}</i>		A	0.25	0.05
• Operating range current (<i>I_{st} ... I_{max}</i>)	direct connection	A	0.015 ... 80	-
	transformer connection	A	-	0.003 ... 6
• Transformer current	primary current of the transformer	A	-	5 ... 10.000
	smallest input step adjus. in 5 A steps	A	-	5

Technical data

Data in compliance with EN 50470-1, EN 50470-3, EN 62053-23 and EN 62053-31			ECSPM18 - ECSPM24 ECSPM37 direct connection 80 A	ECSPM06 - ECSPM12 ECSPM30 CT connect. till 10.000/5 A
Measuring input				
• Frequency		Hz	50	50
• Input waveform		-	sinusoidal	sinusoidal
• Starting current for energy measurement(<i>Ist</i>)		mA	15	3
Pulse output SO (only for ECSPM12-ECSPM24-ECSPM37-ECSPM30)				
• 2 pulse output	acc.to EN 62053-31			
• Terminal output	1 pulse output for energy export	-	yes	yes
	1 pulse output for energy import	-	yes	yes
	for direct connection 80 A	Imp/kWh	adjustable (max. 2000)	-
	depending on the transf. factor, adjus.	Imp/kWh	-	adjustable (depends on CT)
• Pulse duration		ms	30 ± 2 ms	30 ± 2 ms
• Required voltage	min. (max.)	VAC (DC)	5 ... 230 ± 5% (5 ... 300)	5 ... 230 ± 5% (5 ... 300)
• Permissible current	pulse ON (max. 230 V AC/DC)	mA	90	90
• Permissible current	Imp. OFF (leak. cur. max. 230 V AC/DC)	µA	1	1
Safety acc. to EN 50470-1				
• Indoor meter		-	yes	yes
• Degree of pollution		-	2	2
• Operational voltage		V	300	300
• AC voltage test (EN 50470-3, 7.2)		kV	4	4
• Impulse voltage test		1.2/50 µs-kV	6	6
• Protection class (EN 50470)		class	II	II
• Housing material flame resistance	UL 94	class	V0	V0
Adaptor for Communication (only for ECSPM37-ECSPM30)				
• Plug-and-play technology		-	•	•
• LAN (TCP/IP) interface	Ethernet 802.3	-	10/100 Mbps	10/100 Mbps
• Modbus RTU, Ascii interface	RS-485 - 3 wires	-	up to 19.200 bps	up to 19.200 bps
• M-Bus interface	2 wires	-	up to 9.600 bps	up to 9.600 bps
• EIB-KNX interface	EIB-standard	-	up to 9.600 bps	up to 9.600 bps
• SD-Card Datalogger		-	1 to 8 Gigabytes	1 to 8 Gigabytes
Connection terminals				
• Type cage main current paths	screw head Z +/-	POZIDRIV	PZ2	PZ1
• Type cage pulse output	blade for slotted screw	mm	0.8 x 3.5	0.8 x 3.5
• Terminal capacity main current paths	solid wire min. (max.)	mm ²	1.5 (35)	1.5 (6)
	stranded wire with sleeve min. (max.)	mm ²	1.5 (35)	1.5 (6)
• Terminal capacity pulse outlet	solid wire min. (max.)	mm ²	0.14 (2.5)	0.14 (2.5)
	stranded wire with sleeve min. (max.)	mm ²	0.14 (1.5)	0.14 (1.5)
Environmental conditions				
• Mechanical environment		-	M1	M1
• Electromagnetic environment		-	E2	E2
• Operating temperature		°C	-10 ... +55	-10 ... +55
• Limit temperature of transportation and storage		°C	-25 ... +70	-25 ... +70
• Relative humidity (not condensation)		%	≤ 80	≤ 80
• Vibrations	50 Hz sinusoidal vibration amplitude	mm	± 0.075	± 0.075
• Degree protection	housing when mounted in front (term.)	-	IP51 (*) / IP20	IP51 (*) / IP20

(*) For the installation in a cabinet at least with IP51 protection.

Selection and ordering data

digital display sim for all three phases: I - U - PF - Hz - P - Q - S active energy export/import - 4 modules DIN

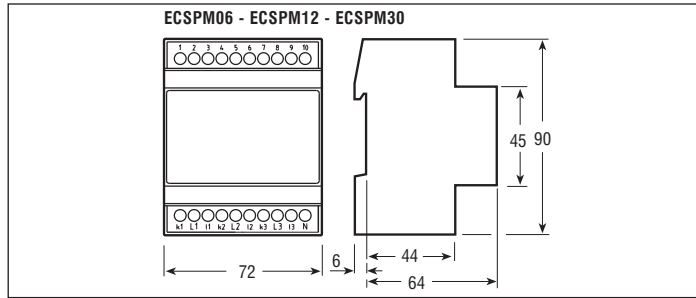
Code	Description
Version without pulse output	
ECSPM18	digital display sim for all three phases: I - U - PF - Hz - P - Q - S active energy export/import direct connection 0.25-5 (80) A
ECSPM06	digital display sim for all three phases: I - U - PF - Hz - P - Q - S active energy export/import with connection by CT .../5 A, up to 10.000/5 A - 0.05-5 (6) A
Version with 2 SO pulse output	
ECSPM24	digital display sim for all three phases: I - U - PF - Hz - P - Q - S active energy export/import direct connection 0.25-5 (80) A - 1 tariff - 2 SO
ECSPM12	digital display sim for all three phases: I - U - PF - Hz - P - Q - S active energy export/import with connection by CT .../5 A, up to 10.000/5 A - 0.05-5 (6) A - 1 tariff - 2 SO
Version with 2 SO pulse output set up for communication	
ECSPM37	digital display sim for all three phases: I - U - PF - Hz - P - Q - S active energy export/import direct connection 0.25-5 (80) A - 1 tariff - 2 SO - set up for communication
ECSPM30	digital display sim for all three phases: I - U - PF - Hz - P - Q - S active energy export/import with connection by CT .../5 A, up to 10.000/5 A - 0.05-5 (6) A - 1 tariff - 2 SO - set up for communication

Optional - additional communication modules - 1 module DIN

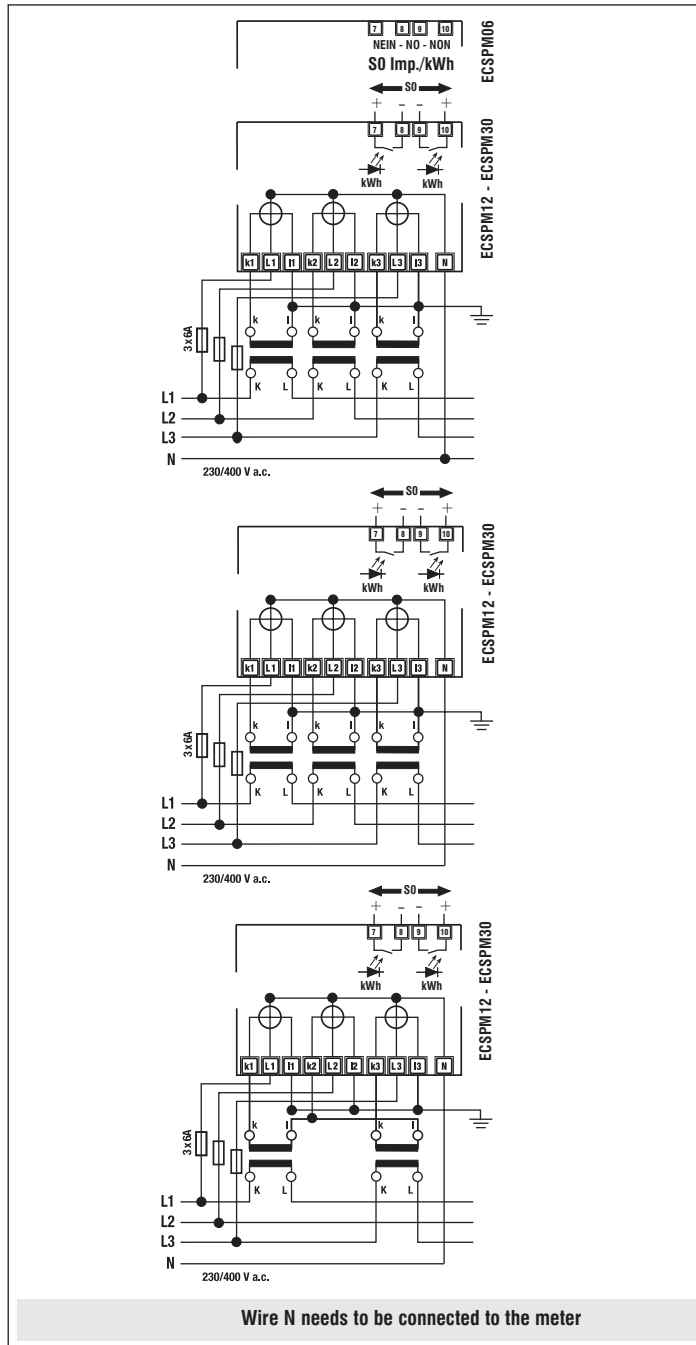
		
		

► Connection through CT .../5 A till 10.000/5 A

Overall dimensions



Circuit diagrams



Instructions for the connection of transformer counters

A fuse of 6 A is recommended for the line protection.
Current transformers must not be operated with open terminals since dangerous high voltages might occur which may result in personal injuries and property damage.
In addition to this, the transformers are exposed to thermal overload.