

ELECTRICAL NETWORK ANALYSERS

Single or 3-phase balanced/unbalanced network,
3, 4 wire

Series PECA

♦ This range is declined into 8 input versions, which can be combined with output options according to your requirements.

- Single or 3 phase balanced networks -
Up to 18 parameters

PECA 5 Electrical network analyser
PECA 5C DC network analyser
PECA 5 TA Wave train and phase angle

- Single or 3-phase balanced/unbalanced 3, 4 wire networks - Network analyser - Up to 32 parameters

PECA 15 Sinusoidal signals
PECA 15 TA Wave train and phase angle
PECA 15 PBUS Digital output RS485 Profibus DP
PECA 16 Network at 400 Hz
PECA 17 2 independent insulated digital outputs



♦ **Output options acc. to versions**

A Insulated analog outputs :
1 or 2, active or passive current,
or voltage output.
Return value in case of self-
diagnosis error.

R1 / R / R4
Relay outputs : 1, 2 or 4 relays
(mode setpoint / window or energy
pulse)

for 2 programmable logic outputs

N Insulated digital outputs :
RS485 and RS422
(Modbus-Jbus and Profibus DP)

H Harmonics analysis

B Bargraph display

Introduction

Measuring, control and display of all the parameters of AC electrical networks for panel mounting.

A range of electrical network analysers fully programmable by the keyboard on front face, allowing direct access to the programming displayed in clear language, or programming by PC software.

The display allows a comfortable reading of the measure, even at a remote distance.

Functions

♦ **Self diagnosis :**

The instrument permanently watches some of its parameters. If an error is detected, it can be reported on the relays and on the analog output.

♦ **Input scale overstepping :**

The meter will indicate a caliber overstepping by an alarm message.

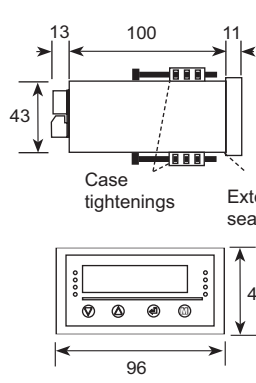
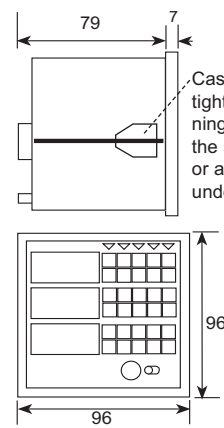
♦ **Filtering of the measure :**

Programmable integration indice, allows display stabilising in case of unsteady input.

♦ **Test and correction of the phase ranks :**

PECA 15 and PECA 15 Pbus only.

Description

	PECA 5 / PECA 5TA	Other PECAs
Dimensions	48 x 96 x 124 mm 	96 x 96 x 86 mm 
Housing	Self-extinguishing black UL94VO ABS	Self-extinguishing black UL94V1 polycarbonate
Latching	2 tightening pads - Mounting on panel. Cut out 44 x 91mm (maximum panel thickness 30)	2 tightenings - Mounting on panel. Cut out 92 x 92mm (maximum panel thickness 30)
Connectors	Plug-off connectors on rear face for screwed connectings (2.5mm², flexible or rigid)	
Protection	Case/terminals : IP 20 Front face : IP 65	Case/terminals : IP 20 Front face : IP 40 (IP 65 optional)
Display	one ±10000 points high brightness indicator (14 mm high electroluminescent red digits).	Three 1000 points high brightness indicators (14 mm high electroluminescent red digits).
Weight	from 150g to 250g	from 375g to 510g

Input features

Names of the PECAs	Parameters	Input features	Accuracy (at +25°C)
<i>Single or 3 phase balanced networks with or without neutral</i>			
Electrical network analyser PECA 5 	12 measurable parameters : voltages, currents, frequency, power factor, 3 powers (active, reactive and apparent), 4 energies (active, reactive).	2 programmable current or voltage calibers (2) Frequency : 45...50...65Hz Measure cycle : 55ms 3 or 4 wire networks Protection of the programming by access code	U, I : 0.2 P : 0.5 E act. : 1
DC network analyser PECA 5 C 	3 measurable parameters : Voltage, current, power.	2 programmable current or voltage calibers (2) Internal or external shunt to be specified on order Measure cycle : 55ms Protection of the programming by access code	U, I : 0,3 P : 0,5
Wave train and phase angle PECA 5 TA 	12 measurable parameters : 2 voltages, line current, 3 powers (active, apparent), cosine, 2 active energies, maximum voltage and current.	2 programmable current or voltage calibers (2) Frequency : 50 Hz (60 Hz by programming) Measure cycle programmable from 20ms to 250s or automatic - 3, 4 wire networks <i>Captions (details) : AP:phase angle TA:wave train</i>	AP:U,I:0.5 P : 1 TA:U,I:0.2 P : 0.5 E : 1 (5A) & 2 (1A)
<i>Single or 3-phase balanced / unbalanced networks with or without neutral</i>			
Sinusoidal signals PECA 15 	32 measurable parameters : 6 voltages, 3 currents, 9 powers (active, reactive, apparent), frequency, 4 cosines, leak current, 7 energies (active, reactive).	2 programmable current or voltage calibers (2) Frequency : 45...50...65Hz Measure cycle : 55ms 3 or 4 wire networks	U, I : 0.2 P : 0.5 E act. : 1
Wave train and phase angle PECA 15 TA 	24 measurable parameters : 6 voltages, 3 currents, 5 powers (active, apparent), 4 cosines, 2 energies (active), maximum voltage and current.	2 programmable current or voltage calibers (2) Frequency : 50 Hz (60 Hz by programming) Measure cycle programmable from 20ms to 250s, or automatic - 3, 4 or 6 wire. <i>Captions (details) : AP:phase angle TA:wave train</i>	AP:U,I:0.5 P : 1 TA:U,I:0.2 P : 0.5 E : 1 (5A) & 2 (1A)
Profibus DP networks PECA 15 PBUS 	32 measurable parameters : 6 voltages, 3 currents, 9 powers (active, reactive, apparent), frequency, 4 cosines, leak current, 7 energies (active, reactive).	2 programmable current or voltage calibers (2) Frequency : 45...50...65Hz Measure cycle : 55ms 3 or 4 wire networks	U, I : 0,2 P, Q, S : 0.5 E act. : 1 E reac. : 2
Networks at 400 Hz PECA 16 	32 measurable parameters : 6 voltages, 3 currents, 9 powers (active, reactive, apparent), frequency, 5 cosines, leak current, 7 energies (active, reactive).	2 programmable current or voltage calibers (2) Frequency : 300...400...800Hz Measure cycle : 55ms 3 or 4 wire networks	U, I : 0.2 P : 0.5 E act. : 1
2 independent digital outputs PECA 17 	32 measurable parameters : 6 voltages, 3 currents, 9 powers (active, reactive, apparent), frequency, 5 cosines, leak current, 7 energies (active, reactive).	2 programmable current or voltage calibers (2) Frequency : 45...50...65Hz Measure cycle : 55ms 3 or 4 wire networks	U, I : 0.2 P : 0.5 E act. : 1

Environment

	PECA 5 / PECA 5C / PECA 5 TA	Other versions
Standards	CE marking (89/336 rev.92/31). Complies with standards IEC 61000-6-2 on immunity, IEC 61000-6-4 on emissions. Test standard EN55011 cl. A	
Relative dampness	80 % annual average	
Operating T°	-5°C to +55°C	0°C to +55°C
Storage T°	-30 to +80°C	-25°C to +70°C
Power draw	8 VA	6 VA

Options

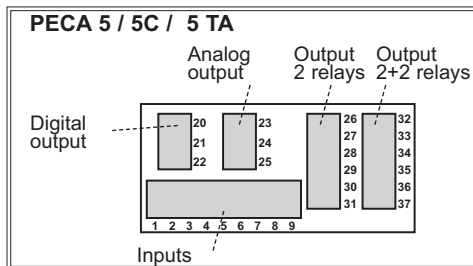
Name	Type	Features
Analog output A1, A2, A3 	PECA 5 / PECA5 C : <u>3 Types of outputs on choice :</u> Active current 0/4-20 mA Passive current 0/4-20 mA (Vmax. = 30Vdc) Voltage 0-10V Programmable scale ratio with enlarging effect. Return value in case of self-diagnosis error. Galvanic partition : 2.5kV eff.50Hz-1min.	Scale setting : 0 to 100% of the measure range by programming Admissible load : $0\Omega < R_c < 500\Omega$ (current) and $L_r > 2k\Omega$ (voltage). Resolution of the board : 24000 points. Accuracy : 0.1% of the full scale (in relation to the display). Residual ripple $\leq 0.2\%$. Response time : 40 ms. Thermic drifts : $< 100\text{ppm}$ ($\pm 20\text{mA}$) $< 200\text{ppm}$ (0/20mA)
Analog output A 	PECA 15 / 15TA / 16 : Programmable current output (mA) -20/20 -10/10 -5/5 0/5 0/10 0/20 4/20 mA PECA 5 TA : Programmable current output (mA) 0/5 0/10 0/20 4/20 mA Galvanic partition : 2kV eff.50Hz-1min.	Scale setting : 0 to 100% of the measure range by programming Admissible load : $0\Omega < L_r < 600\Omega$ (20 mA) Resolution of the board : 24000 points. Accuracy of the board : $< 0.1\%$ of the full scale on -20/20mA (in relation to the display). $< 0.2\%$ on -5/5 mA. Residual ripple : $\pm 2.5\text{mV}$ (peak to peak) on 50 Ω load. Response time 50ms ($< 120\text{ms}$ input $\rightarrow$ output). Thermic drifts : $< 100\text{ppm}$ ($\pm 20\text{mA}$) $< 200\text{ppm}$ (0/20mA)
Relay outputs R1, R or R4 	<u>3 Types of outputs available accor. to versions :</u> R1 : 1 programmable setpoint relay R : 2 independ. programmable setpoint relays R4 : 4 independ. programmable setpt. relays Combinable relays : Setpoints or/and pulses Type of contact : potential free contact. Galvanic partition : 2kV eff.50Hz-1min. Rated load : 5A - 250Vac	Energy pulse output (except PECA 5C) Count rate : 1 to 4 pulses per second max. Pulse width : 100 to 400ms by programming Weight of the pulses programmable Setpoint relays Setting of the setpoints : 0 to 100% of the measure range by programming Switching hysteresis : 0 to 15% of the setpoint by programming (0 to 100% for PECA5 / 5C) Time delay : 0 to 15s. (25s Peca5/5C) by programming in 1s. increments (0.1s PECA5/5C)
Digital outputs N 	PECA 5/5c : RS485 (2wire) Insulated (2.5kV) Modbus Jbus RTU 8 bits : Programmable parity. 1 start bit, 8 parityless bits, 1 stop bit. Format of the data : integer and double integer. Slave number programmable from 1 to 255 with a transmission speed between 1200 and 19200 bauds. PECA 15PBUS : RS485 Insulated (2kV) PROFIBUS DP. Sub-D9 points female connecting. Transmission speed from 9600 to 12 Mbauds. Format of the data : integer 16 bits. PECA 5TA / 15 / 16 / 17 / 15 TA : RS 485 or 422 insulated (2kV) (2 or 4 wire) Modbus Jbus RTU 8 bits : Programmable parity. 1 or 2 stop bits. Format of the data programmable, integer 16 bits. Slave number programmable from 1 to 250 with a transmission speed of 4800 / 9600 / 19200 bauds.	
Harmonics analysis H	PECA 15PBUS : PROFIBUS DP retransmi. of the odd harmonics and the THD of the 3 volt. and the 3 currents from rank 3 to 29. PECA 15 & 17 : Dipslay of the harmonics and the THD (harmonics distortion rate) of the 3 voltages and the 3 currents from rank 3 to rank 50 (even and odd). Retransmission possible in Modbus.	
Bargraph display B 	PECA 5/5C : 16 led display Adjustable brightness	Allows a quick evaluation of the measured value variations. Scale factor programmable.
Power supply 2 or 3	High voltage (2) : 90-270Vac and 88-350Vdc or Low voltage (3) : 20-53Vac and 20-75Vdc (40/60/400Hz)	

Coding

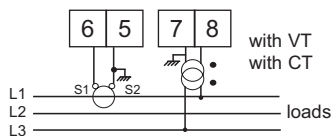
Single or 3-phase networks with or without neutral							
Electrical network analyser	PECA 5 / PECA 5C	A*	R or R4		N	B	* Output I or U : specify A1, A2 or A3 Output RS485 Modbus
Wave train and phase angle	PECA 5 TA	A	R	N			Output I - Output RS485 Modbus
Single or 3-phase balanced/unbalanced network with or without neutral							
Sinusoidal signals	PECA 15	A	R	N	H		Output I - RS485/422 Modbus output
Wave train and phase angle	PECA 15 TA	A	R	N			Output I - RS485/422 Modbus output
Digital output RS485 Profibus DP	PECA 15 PBUS	1R or R		H			RS485 Profibus DP output
Network at 400 Hz	PECA 16	A	R	N			Output I - RS485/422 Modbus output
2 independent insulated digital outputs	PECA 17	1R		H			2 RS485/422 Modbus outputs
Example : For a PECA 5TA with an analog output (mA passive) and 2 relays supplied in 230 Vac, request reference : PECA 5TA A2R 2				Example : For a PECA 15 with an analog output and 2 alarm set-points supplied in 230 Vac, request reference : PECA 15 AR 2			

Connectings

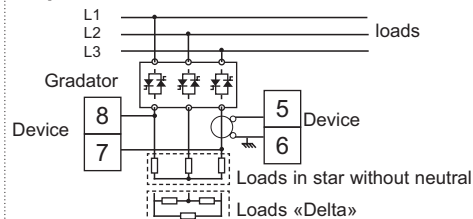
View of the rear face of the instruments / location of the connection terminals
Wiring examples :



PECA 5
3-wire balanced network without neutral

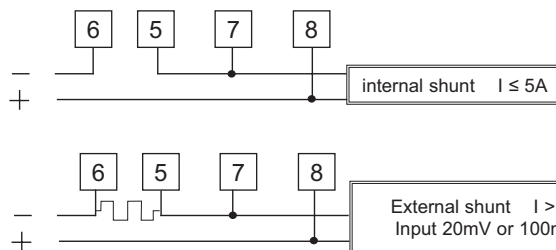


PECA 5 TA
3-phase balanced network without neutral

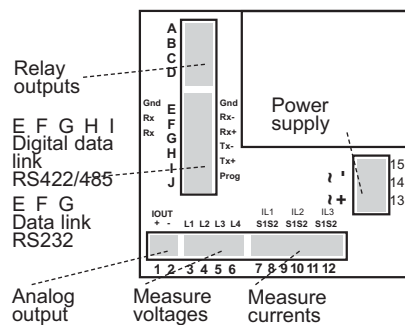


PECA 5 C
3-phase balanced network without neutral

INPUTS

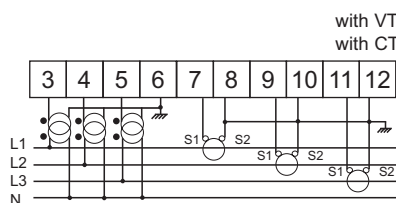


PECA 15 / 15 TA / 16

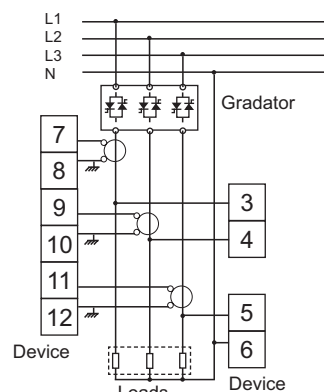


PECA 15 / 15PBUS / 16 / 17

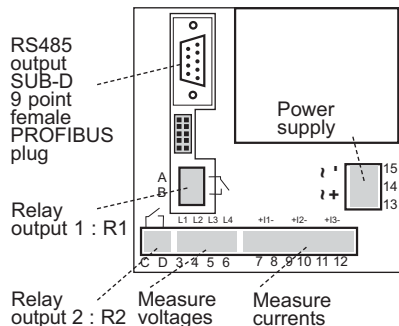
3-phase unbalanced network with neutral



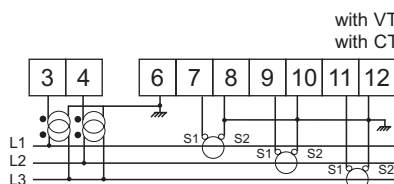
PECA 15 TA
3-phase unbalanced network with neutral



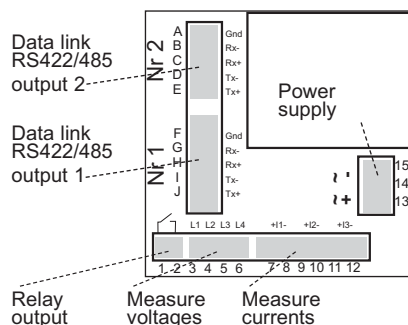
PECA 15 PBUS



3-phase unbalanced network without neutral, measuring of the 3 currents



PECA 17



These instruments are dedicated to industrial applications. They have to be installed in an electrical switchbox, or equivalent.

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