

Energy Management

Compact Power Transducer

Type CPT-DIN “Advanced version”

CARLO GAVAZZI



- One digital output and RS485 communication port (2 wires only)
- 16 freely configurable alarms with OR/AND logic linkable to up to 2 digital outputs
- RS422/485/RS232 communication port (MOD-BUS-RTU), iFIX SCADA compatibility

Product Description

3-phase compact power transducer. Particularly recommended for the measurement of the main electrical variables also on board of machines.

Housing for DIN-rail mount-

ing, with up to 3 analogue outputs, or RS485 communication port or alarm outputs or “Dupline” bus. Parameters programmable by means of UCS software.

- Class 1 (kWh), Class 2 (kvarh)
- Accuracy ± 0.5 F.S. (current/voltage)
- Compact power transducer
- Instantaneous variables data format: 4 DGT
- Energies data format: 8+1 DGT
- System variables and phase measurements: V_{LL} , V_{LN} , A , A_{max} , A_n , A_{dmd} , $A_{dmd\ max}$, VA , VA_{dmd} , $VA_{dmd\ max}$, W , W_{dmd} , $W_{dmd\ max}$, W_{L1} , W_{L2} , $W_{L3\ max}$, var , PF , PF_{L1} , PF_{L2} , $PF_{L3\ min}$, Hz , ASY
- Four quadrant power measurement
- Energy measurements: total and partial kWh and kvarh (according to EN62053-21 and EN62053-23)
- Hour counter (5+2 DGT)
- TRMS meas. of distorted sine waves (voltages/currents)
- Universal power supply: 90 to 260 VAC/DC, 18 to 60 VAC/DC
- Dimensions: 45x83.5x98.5mm
- Voltage asymmetry, phase sequence, phase loss control
- Up to 3 analogue outputs (20mA or 10VDC)
- 2 digital outputs

How to order

CPT-DIN AV5 3 H A3 AX

Model	
Range code	
System	
Power supply	
Outputs	
Option	

How to order

CPTCABLEUSB

RJ-12 to USB cable for configuration with UCS via RJ-12 CPT auxiliary port.

Note: UCS software can be downloaded free of charge from Carlo Gavazzi website.

Type Selection

Range codes	System	Outputs	Options
AV5: 347/600V _{LN} /1/5(6)AAC V _{LN} : 230 V to 347 V V _{L-L} : 400 V to 600 V	3 : 1-2-3-phase, balanced/unbalanced load, with or without neutral	R2: 2-relay outputs O2: 2-open collector outputs A1: 1-analogue output: 0/4 to 20mA DC	AX: advanced functions
AV6: 120/208V _{LN} /1/5(6)AAC V _{LN} : 57 V to 120 V V _{L-L} : 100 V to 208 V	1 : 1-3-phase, balanced load (*)	A3: 3-analogue outputs: 0/4 to 20mA DC V1: 1-analogue output: 0 to 10V DC V3: 3-analogue outputs: 0 to 10V DC	(*) Note: the 3-phase balanced load measurement requires the connection of the neutral according to fig. 15 and 16 in the final part of this document.
Phase current: 0.01A to 6A Neutral current: 0.05A to 6A	Power supply	S1: RS485/RS422 port S2: RS232 port DB: Dupline bus	
	L: 18 to 60 VAC/VDC H: 90 to 260 VAC/VDC		

Input specifications

Rated inputs Current Voltage	System type: 3 3 (internal current transformers) 4 System type: 1 1 (internal CT) 2	Neutral current Phase-phase voltage Phase-neutral voltage	$\pm(2\%RDG+3DGT)$ $\pm(0.5\%RDG+2DGT)$ $\pm(0.5\%RDG+2DGT)$
Current Voltage		Active and Apparent power, Reactive power	$\pm(1.5\%RDG+3DGT)$ $\pm(3\%RDG+3DGT)$
Accuracy (RS485) (@25°C $\pm 5^\circ\text{C}$, R.H. $\leq 60\%$)	I _{max} : 6A, V _{max} : 400V _{LN} (690V _{LL}), I _n : 5A, V _n : 230V _{LN} (400V _{LL}) CT: 1, VT (PT): 1	Range accuracy: 0.05I _n to I _{max} Current Neutral current Phase-phase voltage Phase-neutral voltage Active and Apparent power	$\pm(0.5\%RDG+2DGT)$ $\pm(1\%RDG+3DGT)$ $\pm(0.5\%RDG+2DGT)$ $\pm(0.5\%RDG+2DGT)$ $\pm(1\%RDG+3DGT)$
Range accuracy: 0.02I _n to 0.05I _n Current	$\pm(0.5\%FS)$ or $\pm(1\%RDG+2DGT)$		

Input specifications (cont.)

Reactive power	$\pm(2\%RDG+3DGT)$	Hourcounter	5+2 DGT, max indication 9 999 9.99
Active energy	Class 2 according to EN62053-21 (I start up: 10mA)	Measurements	Current, voltage, power, power factor, frequency
Reactive energy	Class 3 according to EN62053-23 (I start up: 10mA)	Type	TRMS measurement of distorted waves.
Frequency	$\pm 0.1Hz$ (48 to 62Hz)	Coupling type	Direct
Additional errors		Crest factor	< 3, max 10A peak
Humidity	$\leq 0.3\% FS$, 60% to 90% RH	Input impedance	
Frequency	$\leq 0.3\% FS$ (45 to 48Hz and 62 to 65Hz)	400/690V _{L-L} (AV5)	1.6 M Ω $\pm 5\%$
Temperature drift	$\leq 200ppm/^{\circ}C$	120/208V _{L-L} (AV6)	1.6 M Ω $\pm 5\%$
Sampling rate	1600 samples/s @ 50Hz 1900 samples/s @ 60Hz	Current	$\leq 0.01\Omega$
Measurement refresh time	200ms	Frequency	45 to 65 Hz
Measurement format	(serial communication)	Overload protection	(max values)
Instantaneous variables	4 DGT, max indication 9999	Continuos voltage/current	AV5: 347V _{LN} /600V _{LL} /6A
Energies	8+1 DGT, max indication 999 999 99.9	For 500ms: voltage/current	AV6: 120V _{LN} /208V _{LL} /6A AV5: 800V _{LN} /1380V _{LL} /36A AV6: 240V _{LN} /416V _{LL} /36A

Output Specifications

Analogue Outputs		Set-point adjustment	From 0 to 100% of the retransmitted scale
Number of outputs	Up to 3	Hysteresis	from 0 to full scale
Accuracy (@ 25°C $\pm 5^{\circ}C$, R.H. $\leq 60\%$)	$\pm 0.3\% FS$	On-time delay	0 to 255s
Range	0 to 20mA or 0 to 10 VDC	Output status	Selectable; normally de-energized and normally energized
Scaling factor:	Programmable within the whole range of retransmis- sion; it allows the retrans- mission management of all values from: 0 and 20 mA, 0 and 10VDC	Min. response time	$\leq 400ms$, filters excluded and with alarm delay: "0 s"
		Note	The 2 digital outputs can also work as one pulse output and one alarm output.
Response time	$\leq 400 ms$ typical (filter excluded)	Static outputs	
Ripple	$\leq 1\%$, according to IEC 60688-1, EN 60688-1	Purpose	For alarm outputs or for pulse outputs
Total temperature drift	$\leq 500 ppm/^{\circ}C$	Signal	
Load: 20 mADC	$\leq 350 \Omega$	V _{ON} 1.2 VDC/ max. 100 mA	
10 VDC	$\geq 10K\Omega$	V _{OFF} 30 VDC max.	
Insulation	By means of optocouplers, See table "Insulation between inputs and outputs"	Insulation	By means of optocouplers, See table "Insulation between inputs and outputs"
Digital outputs		Relay outputs	
Pulse		Purpose	For alarm outputs or for pulse outputs
Number of outputs	Up to 2	Type	Relay, SPST type AC 1-5A @ 250VAC DC 12-5A @ 24VDC AC 15-1.5A @ 250VAC DC 13-1.5A @ 24VDC
Type	Programmable from 0.01 to 500 pulses per kWh/kvarh (total counters) Outputs connectable to the total energy meters (Wh/varh)	Insulation	See table "Insulation between inputs and outputs"
Pulse duration	$\geq 100ms$ <120msec (ON), $\geq 120ms$ (OFF) according to EN62053-31	RS422/RS485	(on request) Multidrop bidirectional (static and dynamic variables)
Alarm		Connections	2 or 4 wires, max. distance 1200m, termination directly on the instrument
Number of outputs	up to 2, independent	Addresses	From 1 to 255, selectable via software
Alarm modes	Up alarm, down alarm, in window alarm, out window alarm. Start-up deactivation func- tion at power-on for all kinds of alarm. All of them connectable to all variables (see the table "List of the variables that can be con- nected to")	Protocol	MODBUS/JBUS (RTU)

Output Specifications (cont.)

Data (bidirectional) Dynamic (reading only)	System and phase variables: see table "List of variables..." All the configuration parameters. 1 start bit, 8 data bit, no parity, 1 stop bit 4800, 9600, 19200, 38400 bits/s By means of optocouplers, See table "Insulation between inputs and outputs"	Baud-rate	4800, 9600, 19200, 38400 bits/s other characteristics like R422/RS485 port
Static (writing only)		Dupline	Full Dupline compatibility Programmable using UCS soft- ware kWh, kvarh + 8 variables chosen among the available ones. By means of optocouplers. See table "Insulation between inputs and outputs"
Data format		Bus	
Baud-rate		Address	
Insulation		Variables	
RS232	Halfduplex communication Point to point connection 3-wire, max. distance 15m 1 to 255 selectable via software MODBUS/JBUS (RTU)	Insulation	
Type			
Connections			
Address			
Protocol			

RS232 Configuration Bus

Connections	RJ12 (3-wire) for special cable 4800 bits/s 1 start bit, 8 data bit, no parity, 1 stop bit	Insulation	By means of optocouplers, See table "Insulation between inputs and outputs"
Baud-rate			
Data format			

UCS software: parameter programming and data reading

UCS software	Multi language software to program the working parameters of the transducer and to read the energies and the instantaneous variables. Compatibility with Windows 7 and later. Two different working modes can be selected: - management of a local RS485 network; - management of the communication from single instrument to PC (RS232); System selection: 1-2-3 phases CT/VT ratios		Filtering parameters Alarm variables Alarm set-points and rel- evant parameters Variables to be connected to the analogue outputs Scaling of analogue outputs Energies to be connected to the pulse outputs Parameters related to the pulse outputs Reset function: max/min values, energies, dmd By means of RS232 serial port, RS485 serial port or RS232 con- figuration port (RJ12) via CPT- CABLEUSB adapter
Working mode			
Programming parameters		Data access	

Software functions

System selection	3-phase (3-wire, 4-wire) 3-phase ARON 2-phase (3-wire) 1-phase (2-wire) 3-phase (3-wire, 4-wire) 3-phase (3-wire) "1CT+1VT" 3-phase (3-wire) "1CT+3VT" 3-phase (4-wire) "1CT+1VT" 3-phase (4-wire), phase to neutral voltage measurement 1-phase (2-wire)	Transformer ratio	1 to 60 000 1.0 to 6 000.0
System 3, unbalanced		CT VT (PT)	
System 3, balanced		Filter	0 to 100% of the retransmitted scale 1 to 32 Measurements, alarms, serial output (fundamental variables: V, A, W and their derived ones).
System 1, balanced		Operating range	
		Filtering coefficient Filter action	

Software functions (cont.)

Alarms

Working mode

“OR” or “AND” or “OR+AND” functions (see “Alarm parameter and logic” page). The user can freely program up to 16 total alarms. (out1+out2). The alarms can be connected to any variables available in the table “List of the variables that can be connected to”

Reset

The following resets are available by means of the configuration software:

- all the maximum/min values:
- W dmd max, VA dmd max, A₁ max, A₂ max, A₃ max, W_{L1} max, W_{L2} max, W_{L3} max, W sys max, A₁ dmd max, A₂ dmd max, A₃ dmd max, VA sys dmd max, W sys dmd max, PF₁ min, PF₂ min, PF₃ min
- all the counters: total kWh, partial kWh, total kvarh, partial kvarh, hour counters
- reset of all the above mentioned variables in a single command

Power Supply Specifications

AC/DC voltage

90 to 260VAC/DC
18 to 60VAC/DC

Power consumption

AC: 2.5 VA
DC: 2W

General Specifications

Front LED's

Power on
Diagnostics

RS485/RS422/RS232

Dupline bus

Alarm outputs

Pulse outputs

Analogue outputs

Green

TX data (Green)
RX data (Red)
TX data (Green)
RX data (Red)
1st output activation (Green)
2nd output activation (Red)
1st output activation (Green)
2nd output activation (Red)
Output signal within the programmed scale (Green)
Output signal exceeding 110% of full scale (Red)

Operating temperature

0° to +50°C (32° to 122°F)
(RH < 90% non condensing)

Storage temperature

-10° to +60°C (14° to 140°F)
(RH < 90% non condensing)

Overvoltage category

Cat. III (IEC 60664, EN60664)

Insulation (for 1 minute)

4kVAC_{RMS} between measuring inputs and power supply.
4kVAC/DC @ I_z 3mA between measuring inputs and RS485/RS232/programming port (RJ12)
4kVAC_{RMS} between power supply and RS485/RS232/programming port (RJ12)

Dielectric strength

4kVAC_{RMS} (for 1 min)

EMC

Emissions

EN61000-6-3, EN60688 residential environment, commerce and light industry

Immunity

EN61000-6-2 industrial environment.

Pulse voltage (1.2/50µs)

EN61000-4-5

Safety standards

IEC60664, IEC61010-1
EN60664, EN61010-1

Measurement standards

IEC60688, EN60688, EN62053-31, EN62053-23

Approvals

CE, cURus, CSA

Connections 5(6) A

Max cable cross sect. area

Screw-type
2.5 mm²

Housing

Dimensions (WxHxD)
Material

45 x 83.5 x 98.5 mm
ABS
self-extinguishing: UL 94 V-0

Mounting

DIN-rail

Protection degree

IP20

Weight

Approx. 200 g (pack. incl.)

List of the variables that can be connected to:

- RS485/RS422/RS232 communication port
- Analogue outputs ("max" variables, "energies" and "hour counter" excluded)
- Alarm outputs ("max" variables, energies and "hour counter" excluded)
- Pulse outputs (only "energies")
- Dupline bus (only "total energies" + up to 8 selectable variables)

No	Variable	1-phase system	2-phase system	3-ph. 4-wire balanced sys.	3-ph. 4-wire unbal. sys.	3-ph. 3-wire bal. sys.	3-ph. 3-wire unbal. sys.	Notes
1	V L1	x	x	x	x	o	o	
2	V L2	o	x	x	x	o	o	
3	V L3	o	o	x	x	o	o	
4	V L-N sys	o	x	x	x	o	o	Sys = system
5	V L1-2	o	x	x	x	x	x	
6	V L2-3	o	x	x	x	x	x	
7	V L3-1	o	o	x	x	x	x	
8	V L-L sys	o	x	x	x	x	x	Sys = system
9	A L1	x	x	x	x	x	x	#
10	A L2	o	x	x	x	x	x	#
11	A L3	o	o	x	x	x	x	#
12	Amax/ Admd max	x	x	x	x	x	x	◆ Highest value among the 3-ph
13	An	o	x	x	x	x	x	
14	W L1	x	x	x	x	o	o	◆
15	W L2	o	x	x	x	o	o	◆
16	W L3	o	o	x	x	o	o	◆
17	W sys	o	x	x	x	x	x	Sys = system
18	var L1	x	x	x	x	o	o	
19	var L2	o	x	x	x	o	o	
20	var L3	o	o	x	x	o	o	
21	var sys	o	x	x	x	x	x	Sys = system
22	VA L1	x	x	x	x	o	o	
23	VA L2	o	x	x	x	o	o	
24	VA L3	o	o	x	x	o	o	
25	VA sys	o	x	x	x	x	x	Sys = system
26	PF L1	x	x	x	x	o	o	★
27	PF L2	o	x	x	x	o	o	★
28	PF L3	o	o	x	x	o	o	★
29	PF sys	o	x	x	x	x	x	Sys = system
30	Hz	x	x	x	x	x	x	
31	Phase seq.	o	o	x	x	x	x	
32	ASY L-N	o	x	x	x	x	x	
33	ASY L-L	o	x	x	x	x	x	
34	VA sys dmd	x	x	x	x	x	x	Sys = system ◆
35	W sys dmd	x	x	x	x	x	x	Sys = system ◆
36	A L1 dmd	x	x	x	x	x	x	dmd = (*)
37	A L2 dmd	o	x	x	x	x	x	dmd = (*)
38	A L3 dmd	o	o	x	x	x	x	dmd = (*)
39	VA L1 dmd	x	x	x	x	x	x	dmd = (*)
40	VA L2 dmd	o	x	x	x	x	x	dmd = (*)
41	VA L3 dmd	o	o	x	x	x	x	dmd = (*)
42	W L1 dmd	x	x	x	x	x	x	# dmd = (*)
43	W L2 dmd	o	x	x	x	x	x	# dmd = (*)
44	W L3 dmd	o	o	x	x	x	x	# dmd = (*)
45	kWh	x	x	x	x	x	x	Total and partial
46	kvarh	x	x	x	x	x	x	Total and partial
47	hours	x	x	x	x	x	x	

(x) = available (o) = not available

◆ These variables are available also for the MAX values stored in the EEPROM when the instrument switches off.

★ These variables are available also for the MIN values stored in the EEPROM when the instrument switches off.

(*) dmd value integrated in a programmed time interval.

(#) The variables are available also for the max values. When the instrument switches off, the values are not stored.

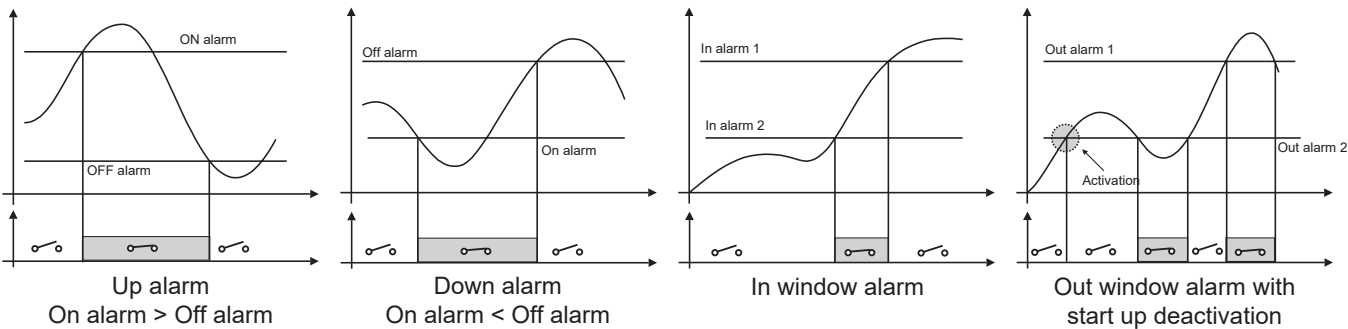


Alarm parameters and logic



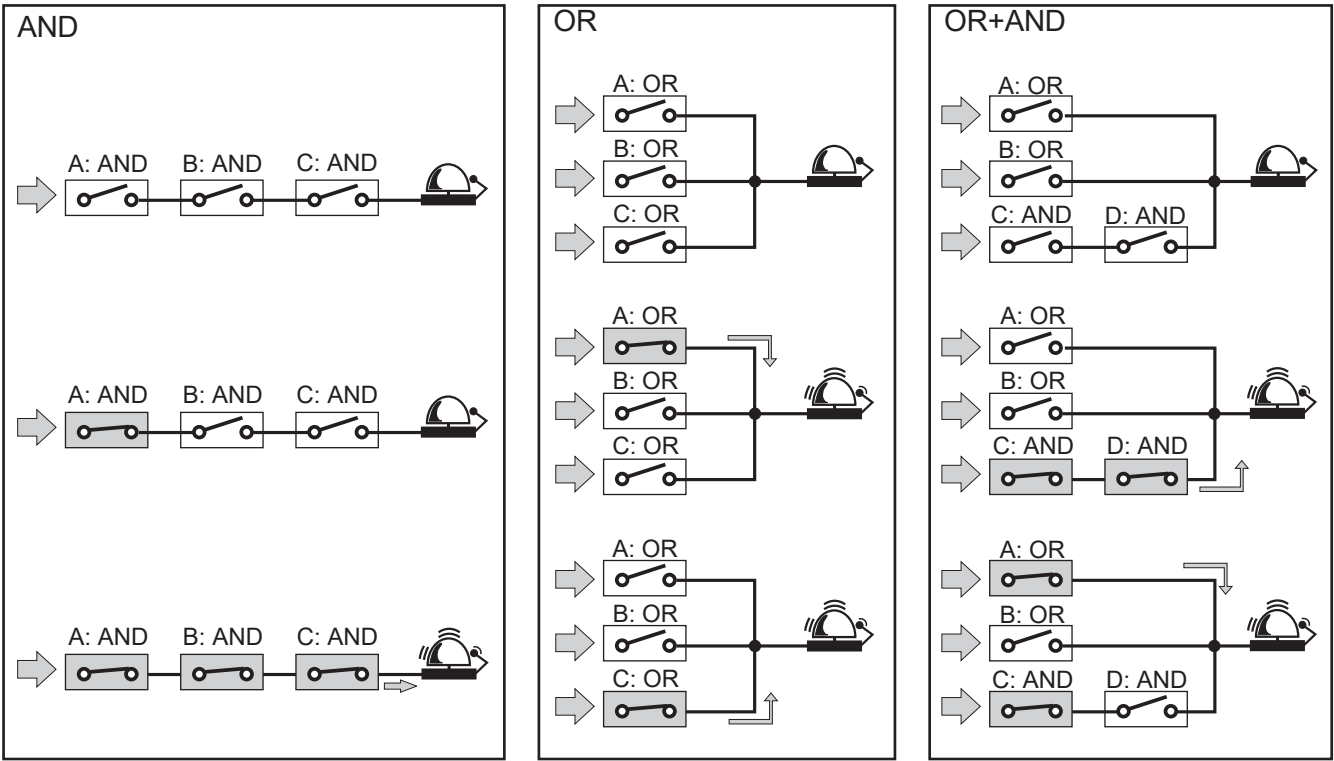
- Block enable.
- Controlled variable (VLN, ...).
- Alarm type (up, down, in window alarm, out window alarm).
- Activation function.
- ON set-point.
- OFF set-point.
- ON delay.
- Logical function (AND, OR).
- Digital output (1, 2).

A, B, C... up to 16 parameter control blocks.



Note: any alarm working mode can be linked to the “start up deactivation” function which disables only the first alarm after power on of the transducer.

AND/OR logical alarm examples:



Function Description

Input and output scaling capability. Working of the analogue outputs (y) versus input variables (x)

Figure A

The sign of measured quantity and output quantity remains the same. The output quantity is proportional to the measured quantity.

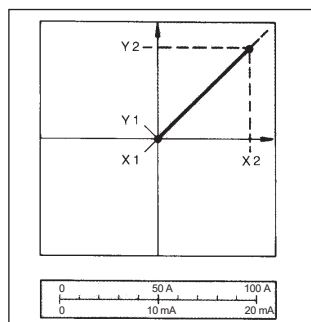


Figure C

The sign of measured quantity and output quantity remains the same. With the measured quantity being zero, the output quantity already has the value $Y_1 = 0.2 Y_2$. Live zero output.

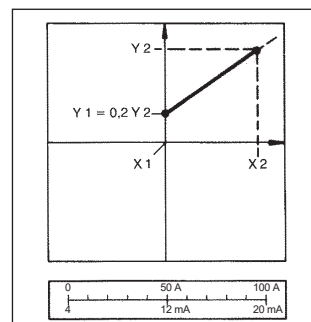


Figure B

The sign of measured quantity and output quantity remains the same. On the range $X_0 \dots X_1$, the output quantity is zero. The range $X_1 \dots X_2$ is delineated on the entire output range $Y_0 = Y_1 \dots Y_2$ and thus presented in strongly expanded form.

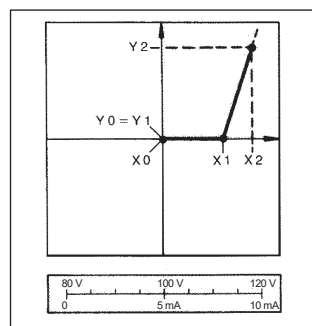
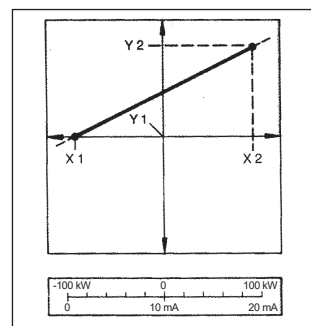


Figure D

The sign of the measured quantity changes but that of the output quantity remains the same. The output quantity steadily increases from value X_1 to value X_2 of the measured quantity.



Insulation between inputs and outputs

	Measuring Input	Relay Output	Open collect-or output	Dupline output	Analogue Output	RS232/RS485	RS232 (RJ12)	90-260VAC/DC Power supply	18-60VCA/CC Power supply
Measuring input	-	4kV	2,5kV @ $I \geq 3\text{mA}$	2,5kV	2,5kV @ $I \geq 3\text{mA}$	2,5kV @ $I \geq 3\text{mA}$	2,5kV @ $I \geq 3\text{mA}$	4kV	4kV
Relay output	4kV	-	-	-	-	-	4kV	4kV	4kV
Open collect-or output	2,5kV @ $I \geq 3\text{mA}$	-	-	-	-	-	4kV	4kV	4kV
Dupline output	2,5kV	-	-	-	-	-	2,5kV	2,5kV	2,5kV
Analogue output	2,5kV @ $I \geq 3\text{mA}$	-	-	-	-	-	4kV	4kV	4kV
RS232/RS485	2,5kV @ $I \geq 3\text{mA}$	-	-	-	-	-	4kV	4kV	4kV
RS232 (RJ12)	2,5kV @ $I \geq 3\text{mA}$	4kV	4kV	2,5kV	4kV	4kV	-	4kV	4kV
90-260 VAC-DC	4kV	4kV	4kV	2,5kV	4kV	4kV	4kV	-	-
18-60 VAC/DC	4kV	4kV	4kV	2,5kV	4kV	4kV	4kV	-	-

NOTE: in case of fault of first insulation the current from the measuring input to the ground is lower than 2mA.

Waveform of the signals that can be measured

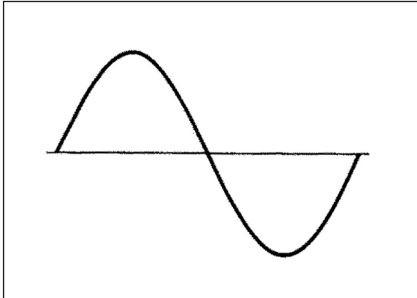


Figure A
Sine wave, undistorted

Fundamental content 100%
Harmonic content 0%
 $A_{rms} = 1.1107 | A |$

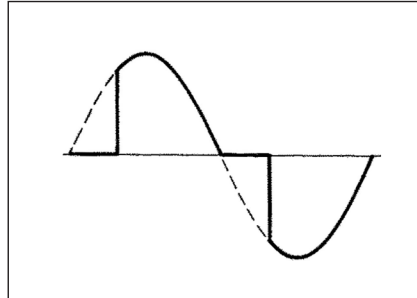


Figure B
Sine wave, indented

Fundamental content 10...100%
Harmonic content 0...90%
Frequency spectrum: 3rd to 16th harmonic
Additional error: <1% FS

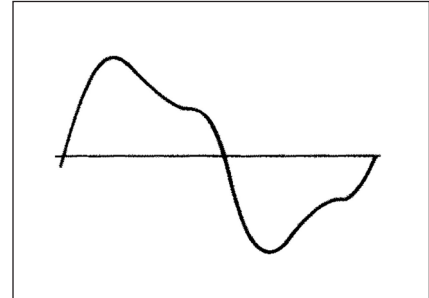
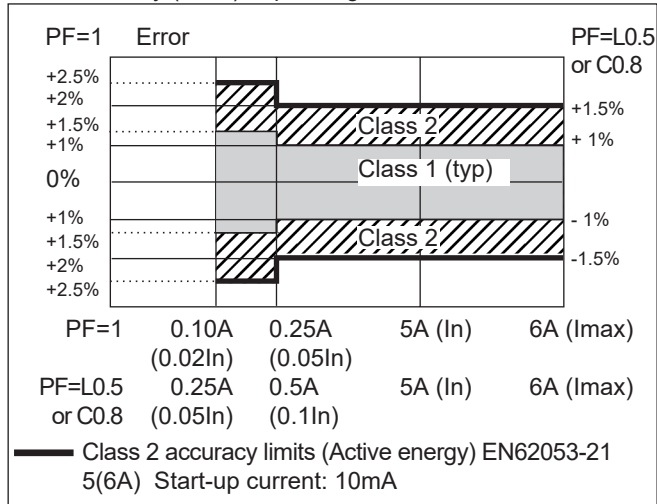


Figure C
Sine wave, distorted

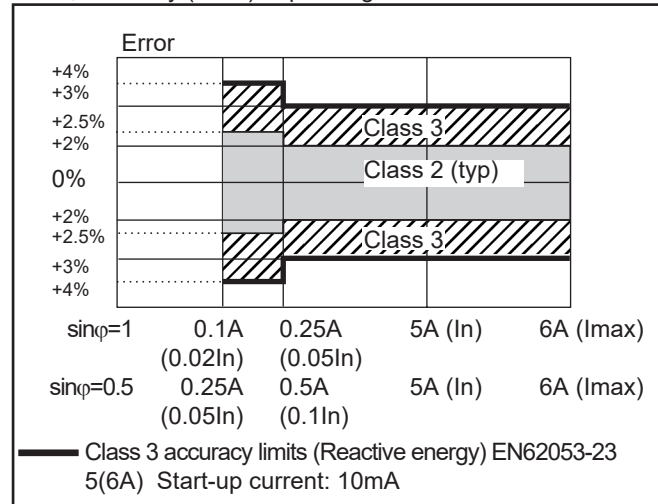
Fundamental content 70...90%
Harmonic content 10...30%
Frequency spectrum: 3rd to 16th harmonic
Additional error: <0.5% FS

Accuracy

kWh, accuracy (RDG) depending on the current



kvarh, accuracy (RDG) depending on the current



Used calculation formulas

Phase variables

Instantaneous effective voltage

$$V_{IN} = \sqrt{\frac{1}{n} \cdot \sum_{i=1}^n (V_{INi})^2}$$

Instantaneous active power

$$W_1 = \frac{1}{n} \cdot \sum_{i=1}^n (V_{INi}) \cdot (A_1)_i$$

Instantaneous power factor

$$\cos\phi_1 = \frac{W_1}{VA_1}$$

Instantaneous effective current

$$A_1 = \sqrt{\frac{1}{n} \cdot \sum_{i=1}^n (A_1)_i^2}$$

Instantaneous apparent power

$$VA_1 = V_{IN} \cdot A_1$$

Instantaneous reactive power

$$VAR_1 = \sqrt{(VA_1)^2 - (W_1)^2}$$

System variables

Equivalent three-phase voltage

$$V_z = \frac{V_{12} + V_{23} + V_{31}}{3}$$

Voltage asymmetry

$$ASY_{LL} = \frac{(V_{LLmax} - V_{LLmin})}{V_{LL} \Sigma}$$

$$ASY_{LN} = \frac{(V_{LNmax} - V_{LNmin})}{V_{LN} \Sigma}$$

Three-phase reactive power

$$VAR_z = (VAR_1 + VAR_2 + VAR_3)$$

Neutral current

$$A_n = \overline{A_{L1}} + \overline{A_{L2}} + \overline{A_{L3}}$$

Three-phase active power

$$W_z = W_1 + W_2 + W_3$$

Three-phase apparent power

$$VA_z = \sqrt{W_z^2 + VAR_z^2}$$

Three-phase power factor

$$\cos\phi_z = \frac{W_z}{VA_z} \quad (\text{TPF})$$

Energy metering

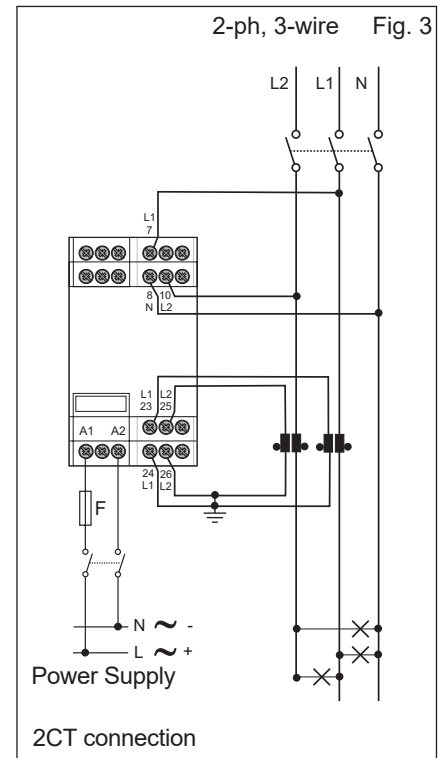
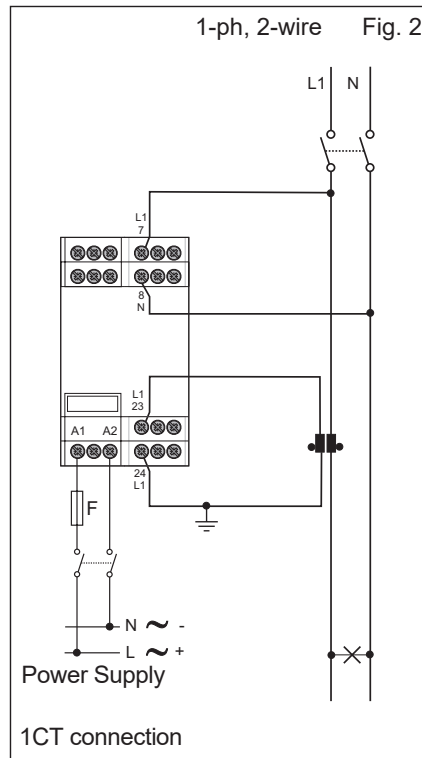
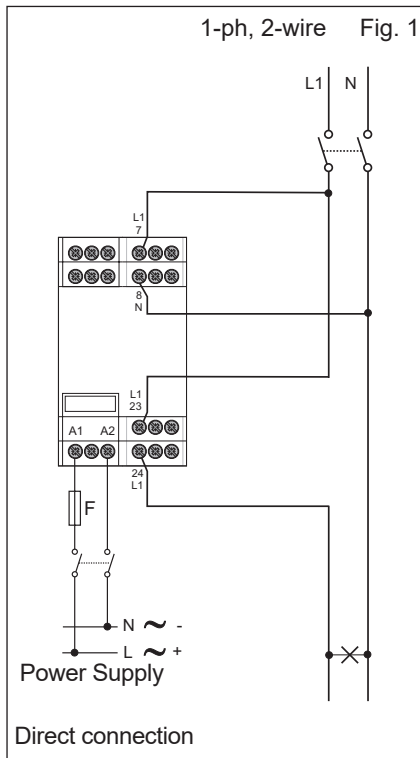
$$kWh_i = \int_{t_1}^{t_2} P_i(t) dt \approx \Delta t \sum_{n_1}^{n_2} P_{i,j}$$

$$kVarh_i = \int_{t_1}^{t_2} Q_i(t) dt \approx \Delta t \sum_{n_1}^{n_2} Q_{i,j}$$

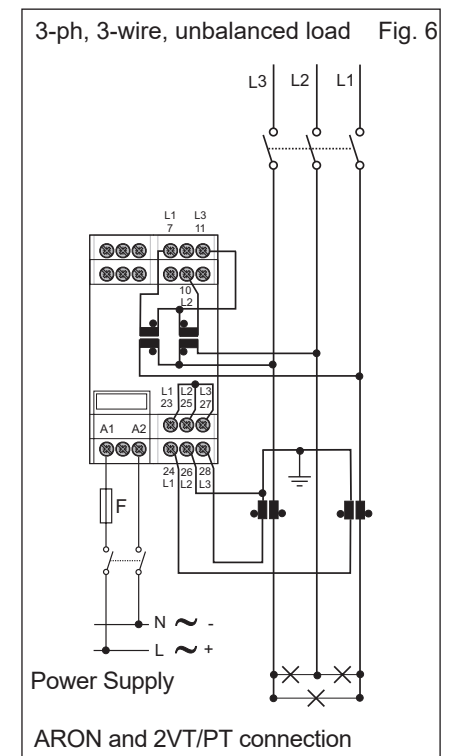
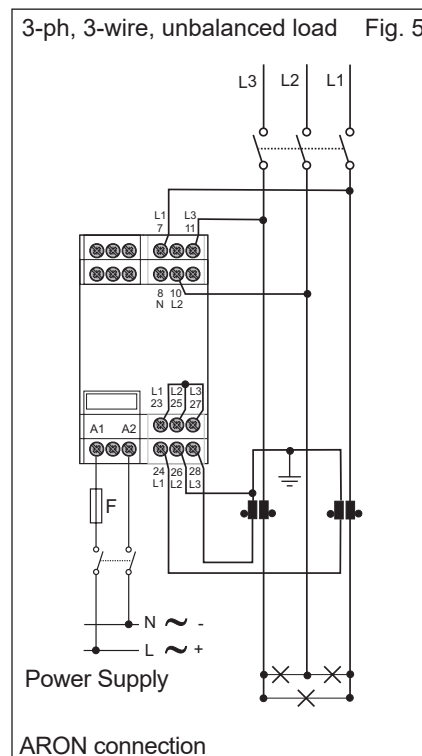
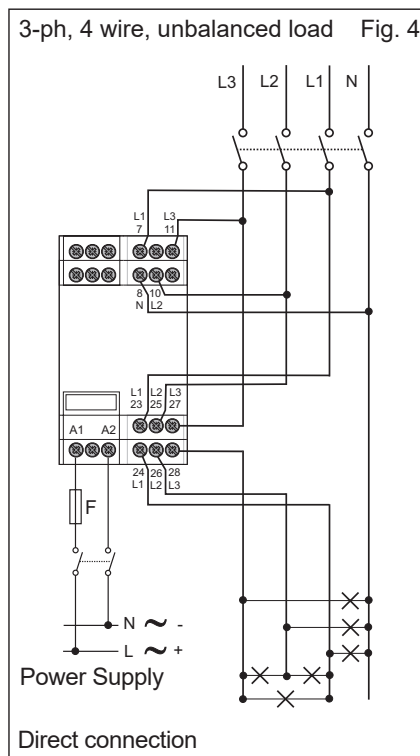
Where:

i= considered phase (L1, L2 or L3)
P= active power; Q= reactive power;
 t_1, t_2 = starting and ending time points
of consumption recording; n= time
unit; Δt = time interval between two
successive power consumptions;
 n_1, n_2 = starting and ending discrete
time points of consumption recording

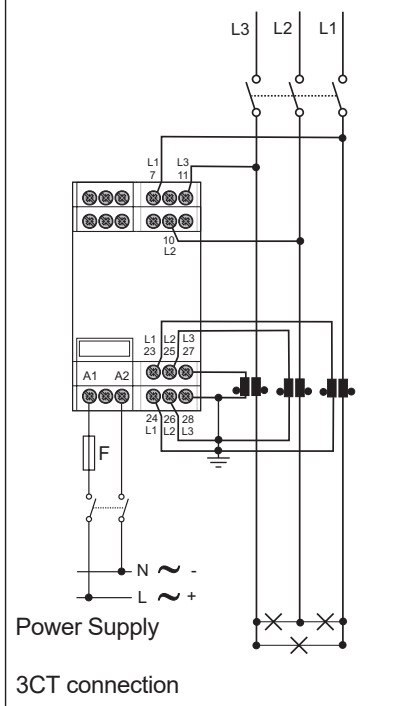
Wiring diagrams “system type selection: 3”



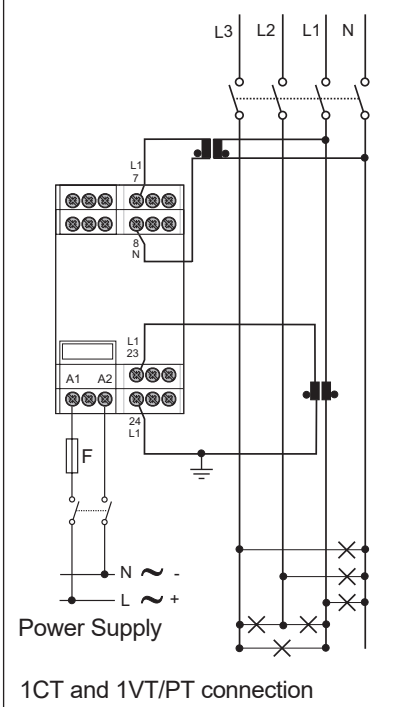
F= 630 mA T (18 to 60VAC/DC)
125 mA T (90 to 260VAC/DC)



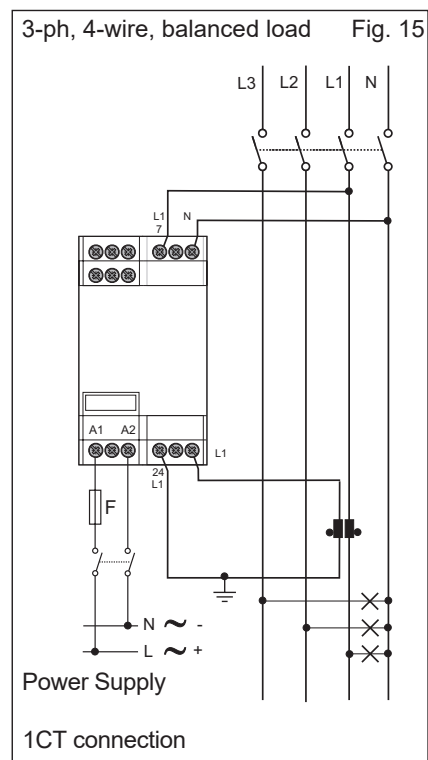
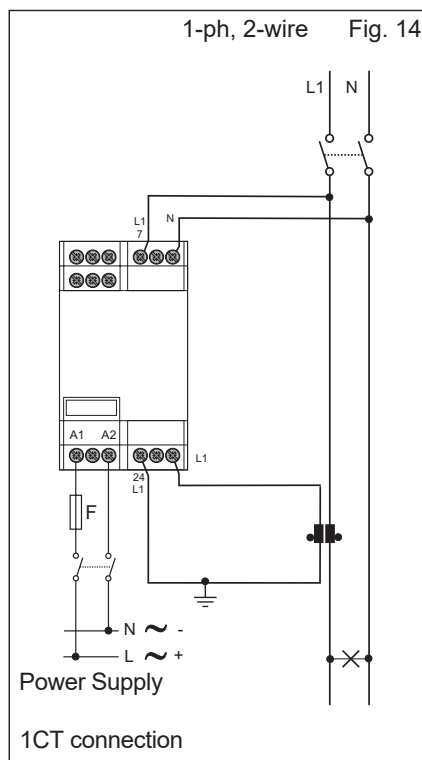
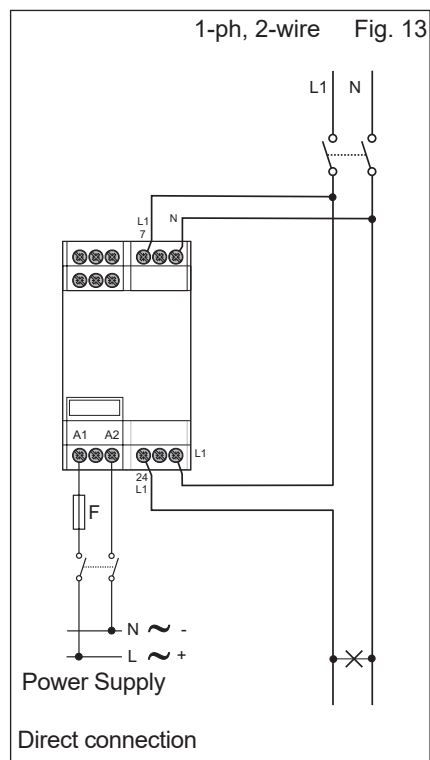
3-ph, 3-wire, unbalanced load Fig. 9



3-ph, 4-wire, balanced load Fig. 12

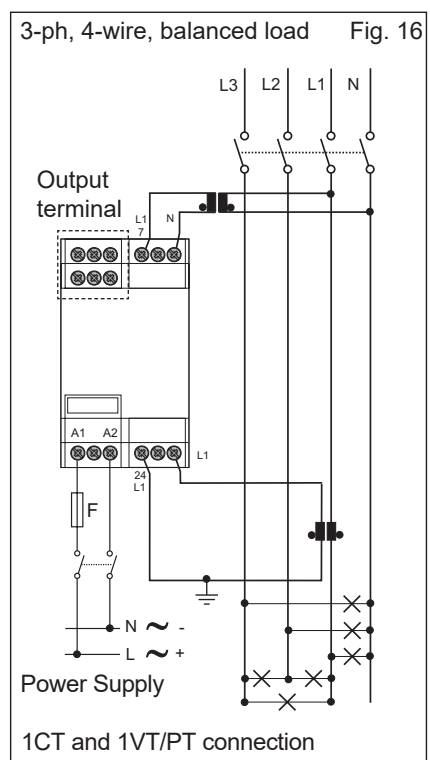


Wiring diagrams “system type selection: 1”

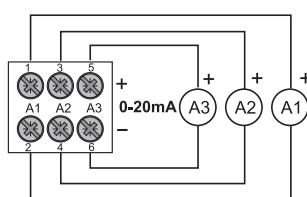


F= 630 mA T (18 to 60VAC/DC)
125 mA T (90 to 260VAC/DC)

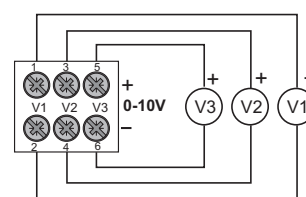
Outputs



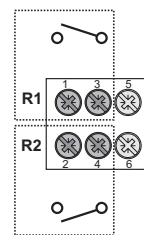
Analogue output 0-20mA



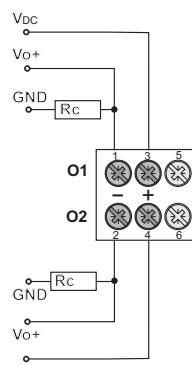
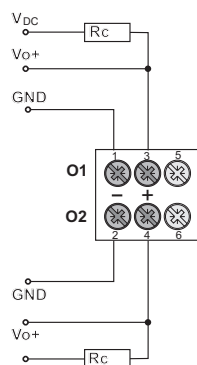
Analogue output 0-10V



Relay out.

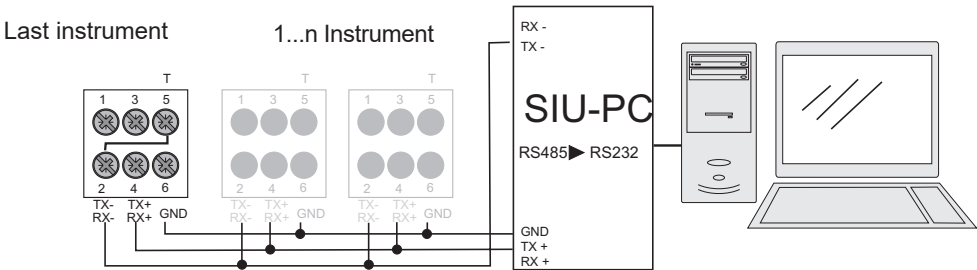


NOTE: the analogue outputs are not insulated among each other.

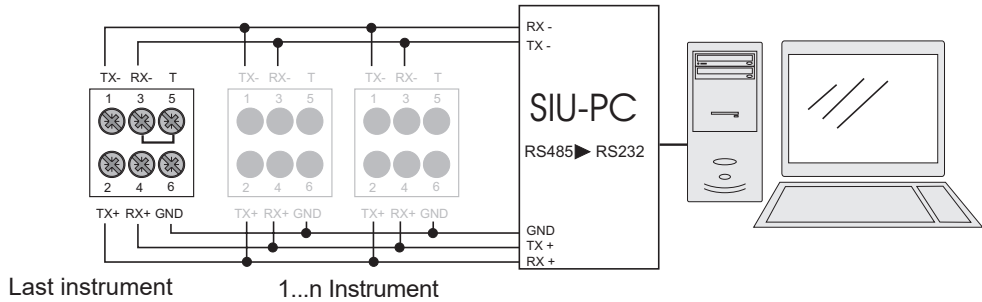


Open collector outputs: The load resistance (R_c) must be calculated so that the closed contact current is lower than 100mA; the VDC voltage must be lower than or equal to 30V. VDC: power supply voltage (external). Vo+: positive output contact (open collector transistor). GND: ground output contact (open collector transistor).

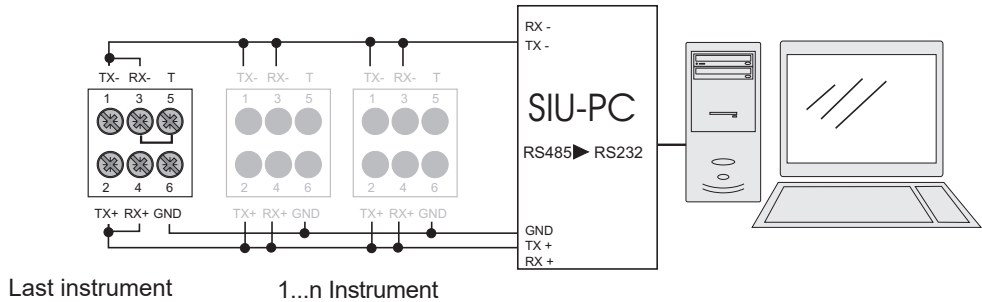
RS485 serial port and one relay connections



2-wire connection of RS485 serial port. The terminalization must be carried out only on the last instrument of the network



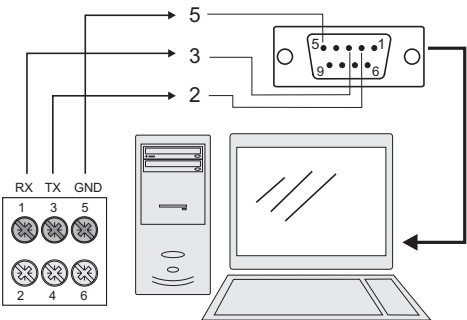
4-wire connection of RS485 serial port, the terminalization must be carried out only on the last instrument of the network



2-wire connection of RS485 serial port, the terminalization must be carried out only on the last instrument of the network

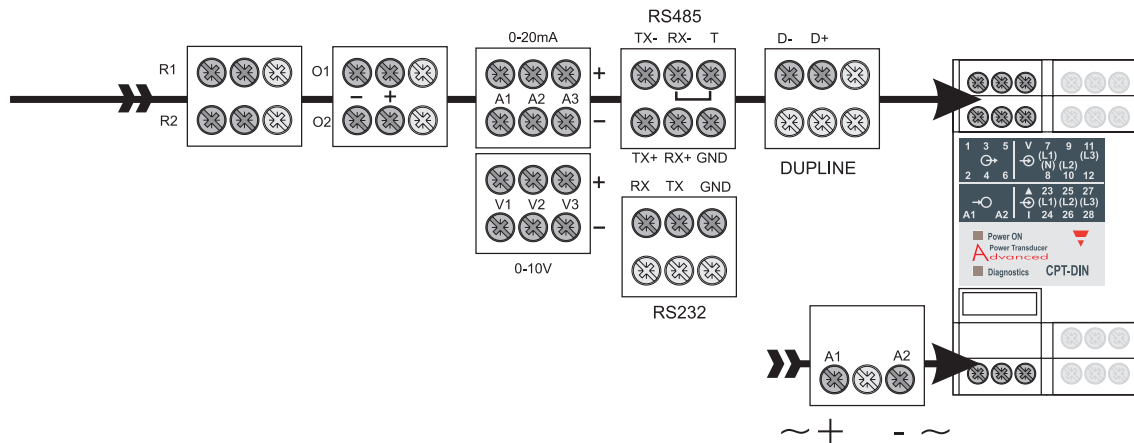
RS232 Serial port connection

Easy programming

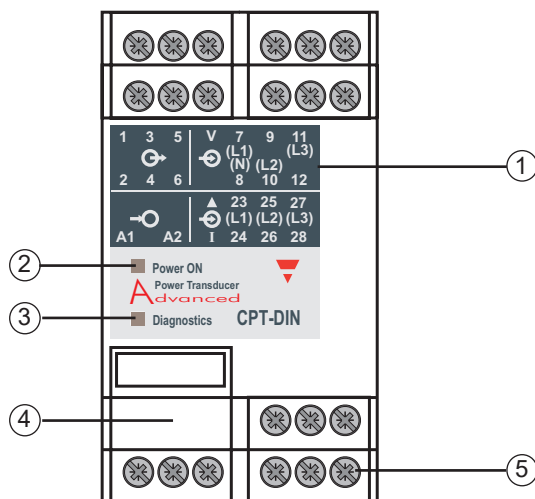


RJ12 communication port for parameters programming. The configuration of the transducer can be easily performed by means of UCS software.

Outputs connections



Front Panel Description



1. Front panel
2. Power ON LED
3. Diagnostics LED
4. Configuration bus (RJ12 connector)
5. Connections screw terminals

Dimensions

