TRANSDUCERS, SEPARATORS

Type

	P20 and P17 transducers					Separators	
	P20	**P20Z**	**P21Z**	**P20H**	**P17**	**P20G**	**P17G**
Input	programmable Pt100/250/500/1000, J, K, S, N 0/4...20, ±20 mA 0...5/10, ±5, ±10 V ±60, ±150 mV 0..400/4000 Ω	fixed 0..60/100/150/250/ 400/500/ 600 V a.c. 0..1/5 A a.c.	fixed 0...100/250/ /400 V a.c. 0...1/5 A a.c. 20...500 Hz	fixed 100, 250, 400 V d.c. ±100, ±250, ±400 V d.c. ±1, ±5 A d.c.	fixed Pt100 J, K, N, E, 0...10 V 0...60 mV	programmable 0/4...20 mA ±20 mA 0...5/10 V ±5V, ±10 V	0/4...20 mA
Output	0/4...20 mA or 0...10 V		0/4...20 mA or 0...10 V or RS-485 Modbus Slave		0/4...20 mA	programmable -20...20 mA -10...10 V	active output 0/4...20mA
Supply voltage	85...253 V a.c./d.c. or 20...85 V d.c./ 20...65 V a.c.	85...253 V a.c./d.c. or 20...40 V a.c./d.c.	85..253 V a.c. / 90..300 V d.c. or 20..40 V a.c. / 20..60 V d.c.		supplied from a current loop	85...253 V a.c./d.c. or 20...85 V d.c., 20...65 V a.c.	supply not required
Protection rating	IP40				IP50	IP40	IP50
External dimensions	22.5 x 120 x 100 mm				6.2 x 77.5 x 100 mm	22.5 x 120 x 100 mm	6.2 x 77.5 x 100 mm
Additional functions	free LPCon software (using PD14 programmer)	-	free LPCon/ eCon software (using PD14 programmer)	free LPCon software (using PD14 programmer)	-	free LPCon software (using PD14 programmer)	-

NEW!

Type

P30U and P300 series   **P30H and P30P series**

	P30 and P12 transducers			
	P30U	**P300**	**P30H**	**P30P**
Input	programmable Pt100/250/500/1000, Cu100, Ni100, Ni1000 J, K, N, E, R, S, T, B 0...4/20, ±20 mA -5...20, ±75, ±200 mV, ±10 V, ±24 V 400, 2000, 5500 Ω , RS-485 Master or Slave	2 programmable inputs: pulse counter, frequency, rotational speed, period, operating time counter, pulse differantial counter on inputs or encoder	d.c. network parameters programmable current using shunt ± 200 mV voltage 0...12/48/100/250 V	1-phase power network parameters fixed 1A (X/1A), 5A (X/5A) 100 V(x/100 V) or 250 V
Output	1 x relay NO 1 x analog 0/4...20 mA or 0...10 V			
	additional 1 x relay NO or supplying output (24 V/ 30 mA − option)			
Interface	RS-485 Modbus (Slave or Master) - standard **Ethernet** 10/100 Base-T - option			
Display	LCD 2x8 characters backlighted			
Supply voltage	85...253 V a.c./d.c. or 20...40 V a.c./20...60 V d.c.		85...253 V a.c. , 85...300 V d.c. or 20...40 V a.c./20...60 V d.c.	85...253 V a.c./d.c. or 20...40 V a.c./20...60 V d.c.
Protection rating	IP40			
External dimensions	45 x 120 x 100 mm			
Programming	using buttons or free eCon software using RS-485 Modbus, **Ethernet (option)**			
Additional functions	• rescaling (up to 21 points)(P30U, P300) • alarms indicated on the display • internal memory 534336 samples • mathematic functions independent for both inputs		• WWW server, FTP, Modbus TCP/IP Slave (optionally) • data logging in internal memory or on SD card (optionally) • memory of min. and max. values • filtration of periodic signals	

LUMEL
EVERYTHING COUNTS

NEW!

Type

Power transducers

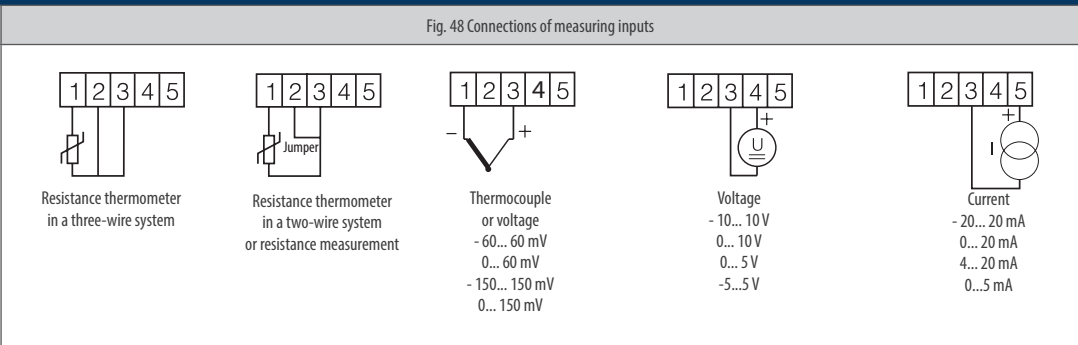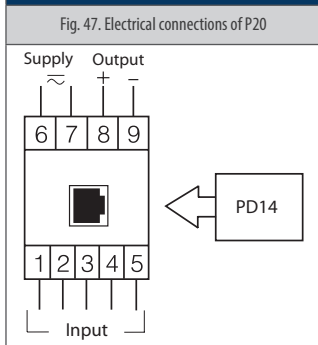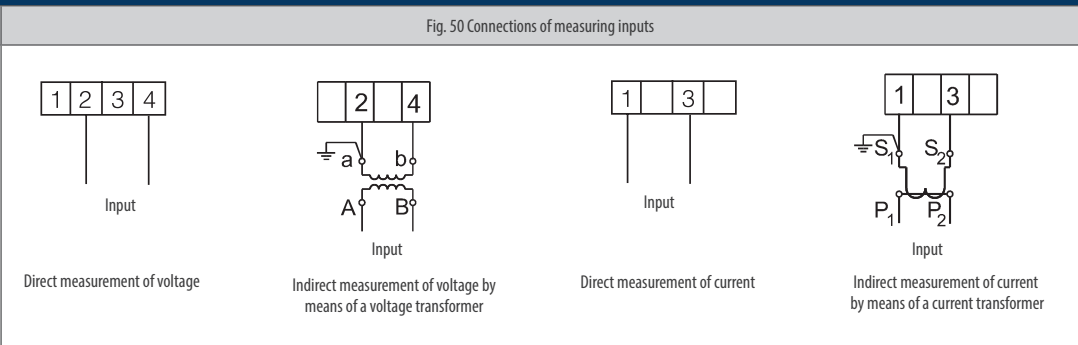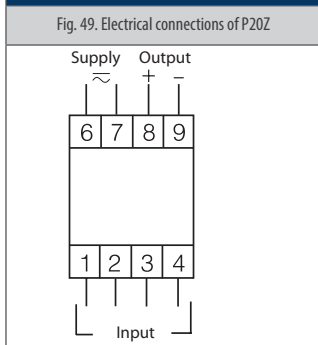|	P41	P30P	P43
Input	programmable 1/ 5 A , 100/ 400 V 1-phase power network parameters	fixed 1/5 A , 100 or 250 V 1-phase power network parameters	fixed 1 or 5 A, 100 or 400 V 3-phase power network parameters
Output	1 x analog programmable ±20 mA	up to 2 x relays NO up to 2 x analog 0/4…20 mA or 0…10 V	4 x relays or 2 x relay + 2 x analog programmable ±20 mA or 4 x analog programmable ±20 mA
Interface	RS-485 Modbus Slave	RS-485 Modbus (Slave or Master) - standard **Ethernet** 10/100 Base-T - option	RS-485 Modbus Slave
Display	–	LCD 2x8 characters	–
Supply voltage	85…253 V a.c./90…300 V d.c. or 20…40 V a.c. /20…60 V d.c.	85…253 V a.c./d.c. or 20…40 V a.c./20…60 V d.c.	85…253 V a.c./90…300 V d.c. or 20…40 V a.c. /20…60 V d.c.
Protection rating		IP40	
External dimensions		45 x 120 x 100mm	90 x 120 x 100 mm
Programming	free LPCon/ eCon software using USB or RS-485	using buttons or free eCon software using RS-485 Modbus, **HTTP (option)**	free LPCon/ eCon software using USB or RS-485
Additional functions	• memory for selected measured value – 9 000 samples • memory of minimal and maximal values • programmable current and voltage transformer ratios	• alarms indicated on the display • internal memory 534336samples • programmable current and voltage transformer ratios • WWW server, FTP, Modbus TCP/IP Slave (optionally) • data logging in internal memory or on SD card (optionally) • filtration of periodic signals	• memory for average power – 9 000 samples • memory of minimal and maximal values • programmable current and voltage transformer ratios • pulse output

NEW!

Type

P18 and P19 temperature and humidity transducers

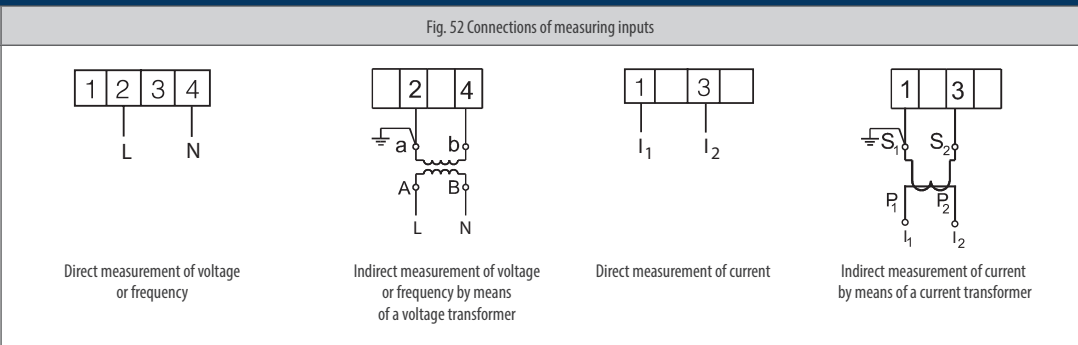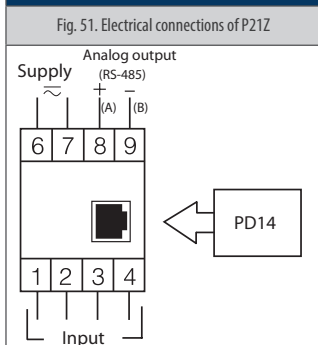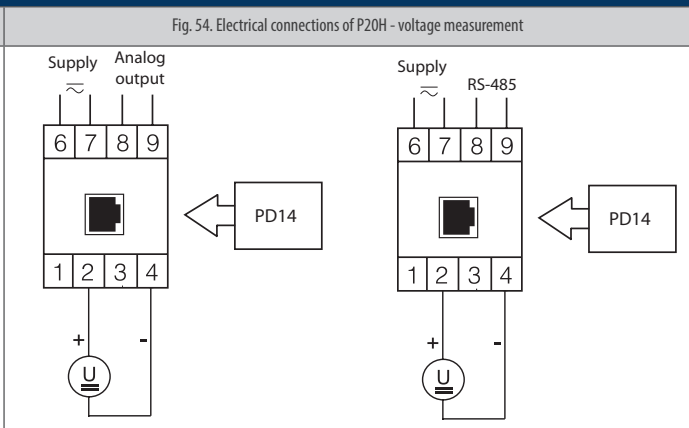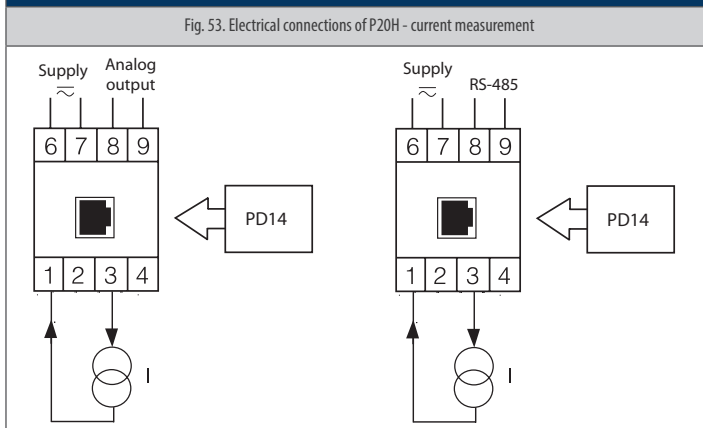|	P18L	P18	P18D	P19
Input	-30 ... -20 ... 60 ... 85ºC or 0...100% RH	-30 ... -20 ... 60 ... 85ºC, 0...100% RH		-20 ... 60 ºC, 0...100% RH
Output	4...20 mA	2 x 4...20 mA or 0...10 V (option)		–
Interface	-	RS-485 Modbus		
Galvanic isolation	-	supply/ RS-485 (for version without analog outputs)		
Supply voltage	19...30 V d.c. (supplied by a current loop)	9 ... 24 V d.c./a.c		
Protection rating		IP65		IP20
External dimensions		38 x 58 x 118 mm		120 x 80 x 25 mm
Additional functions	-	• calculation of other quantities (dew-point temp.; absolute humidity)		• memory of measured and calculated min. and max. values
		• available version with sensor mounted on the wire 0,5 m		-
		-	• data presentation on a LCD display • configuration of transmission parameters using the capacitive button	-

CONNECTION DIAGRAMS

P20

Fig. 47. Electrical connections of P20	Fig. 48 Connections of measuring inputs

Supply Output
~ + −

PD14

Input

Resistance thermometer in a three-wire system

Resistance thermometer in a two-wire system or resistance measurement

Thermocouple or voltage
- 60... 60 mV
0... 60 mV
- 150... 150 mV
0... 150 mV

Voltage
- 10... 10 V
0... 10 V
0... 5 V
-5...5 V

Current
- 20... 20 mA
0... 20 mA
4... 20 mA
0...5 mA

P20Z

Fig. 49. Electrical connections of P20Z	Fig. 50 Connections of measuring inputs

Supply Output
~ + −

Input

Input

Direct measurement of voltage

Input

Indirect measurement of voltage by means of a voltage transformer

Input

Direct measurement of current

Input

Indirect measurement of current by means of a current transformer

P21Z

Fig. 51. Electrical connections of P21Z	Fig. 52 Connections of measuring inputs

Supply Analog output
~ (RS-485)
+ (A) (B)

PD14

Input

Direct measurement of voltage or frequency

Indirect measurement of voltage or frequency by means of a voltage transformer

Direct measurement of current

Indirect measurement of current by means of a current transformer

P20H

Fig. 53. Electrical connections of P20H - current measurement	Fig. 54. Electrical connections of P20H - voltage measurement

Supply Analog output
~

PD14

Supply RS-485
~

PD14

Supply Analog output
~

PD14

Supply RS-485
~

PD14

P17

Fig. 55. Electrical connections of P17	Fig. 56. Electrical connections of P17

Input Output

Thermocouple

Input Output

Voltage 0 .. 10 mV

Input Output

Resistance thermometer in a three-wire system
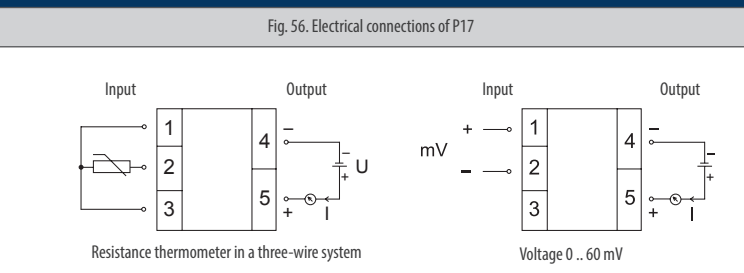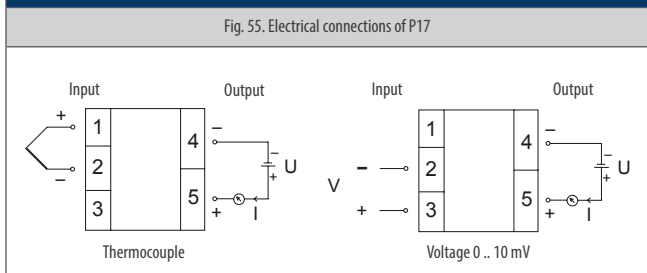
Input Output

Voltage 0 .. 60 mV

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P20G

Fig. 57. Electrical connections of P20G - voltage measurement: -10...10 V
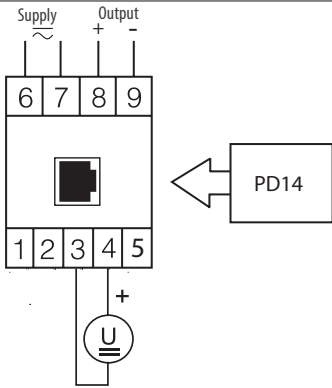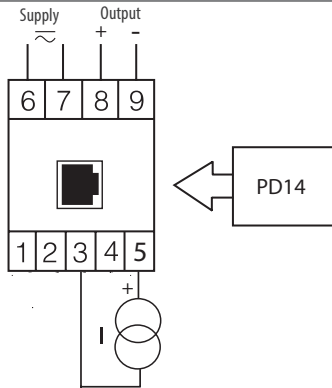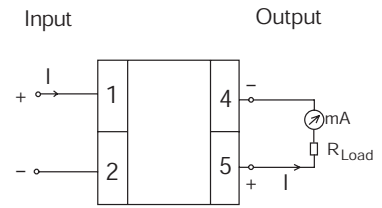
Fig.58. Electrical connections P20G - current measurement: -20...20 mA

P17G

Fig. 59. Electrical connections of P17G
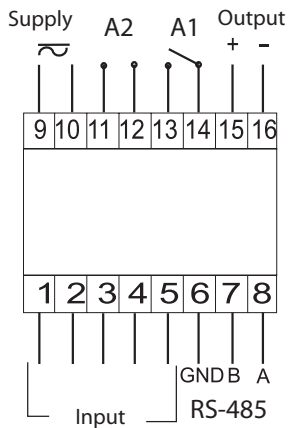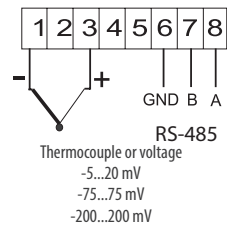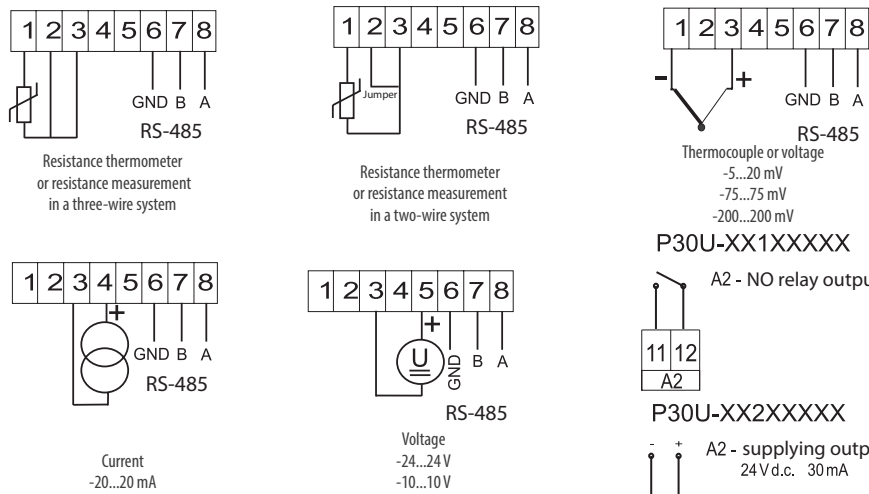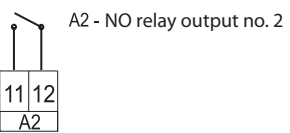
P30U

Fig. 60. Electrical connection of P30U

Fig. 61 Connections of measuring inputs

Resistance thermometer
or resistance measurement
in a three-wire system

Resistance thermometer
or resistance measurement
in a two-wire system

Thermocouple or voltage
-5...20 mV
-75...75 mV
-200...200 mV

P30U-XX1XXXXX

A2 - NO relay output no. 2

Current
-20...20 mA

Voltage
-24...24 V
-10...10 V

P30U-XX2XXXXX

A2 - supplying output
24 V d.c.   30 mA
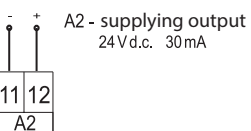
P30o

Fig. 62 Electrical connections of P30o

alarm/suppying output

analog output

pulse input 1

pulse input 2

start/stop

erasing

RS-485
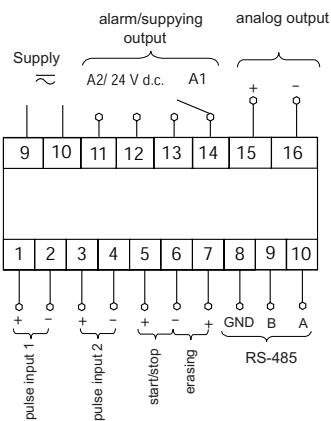
Fig. 63 Connections of measuring outputs

P30o-XX1XXXXX

A2 - NO relay output no.2

P30o-XX2XXXXX

A2 - supplying output
24 V d.c.   30 mA
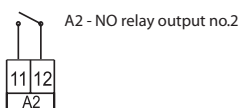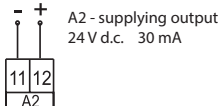
P30H

Fig. 64 Electrical connections of P30H

SUPPLY   OUT3   OUT2   OUT1

INPUT   RS-485

GND

B   A
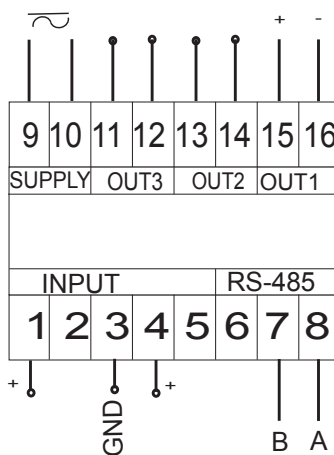
P30P

Fig. 65 Electrical connections of P30H

SUPPLY   OUT3   OUT2   OUT1

INPUT   RS-485

100/250V   1A,5A   B   A

MEASUREMENT

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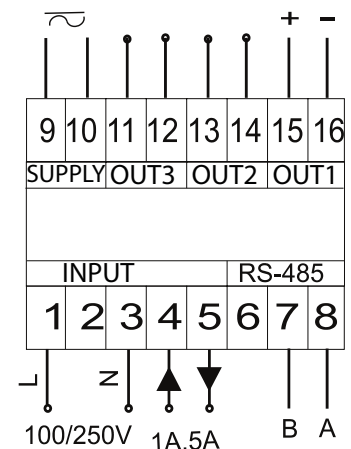
CONNECTION DIAGRAMS

P30H and P30P

Fig. 66 Electrical connections of P30H and P30P

P30H-XX11XXXXX
P30P-XXX11XXXXX

OUT2 - alarm 1
OUT3- alarm 2

11	12	13	14
OUT3		OUT2	

P30H-XX21XXXXX
P30P-XXX21XXXXX

OUT2 - analog output 2
0/4...20 mA
OUT3- Alarm 2

11	12	13	14
OUT3		OUT2	

P30H-XX12XXXXX
P30P-XXX12XXXXX

OUT2 - alarm 1
OUT3- supplying output
24 V d.c., 30 mA

11	12	13	14
OUT3		OUT2	

P30H-XX22XXXXX
P30P-XXX22XXXXX

OUT2 - analog output 2
0/4...20 mA
OUT3- supplying output
24 V d.c., 30 mA

11	12	13	14
OUT3		OUT2	

P30H-XX31XXXXX
P30P-XXX31XXXXX

OUT2 - analog output 2
0...10 V
OUT3- alarm 2

11	12	13	14
OUT3		OUT2	

P30H-XX22XXXXX
P30P-XXX32XXXXX

OUT2 - analog output 2
0...10 V
OUT3- supplying output
24 V d.c., 30 mA

11	12	13	14
OUT3		OUT2	

P41

Fig. 67 Electrical connections of P41 - direct measurement

Fig. 68 Electrical connections of P41 - indirect measurement

P43

Fig. 69 Electrical connections of P43 for 3-wire network

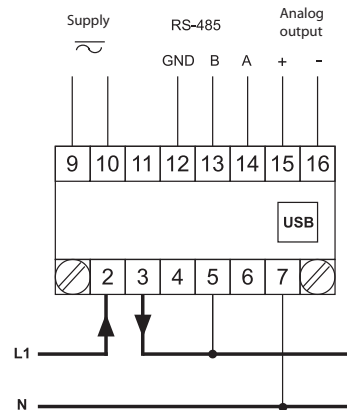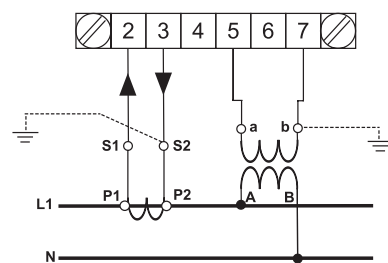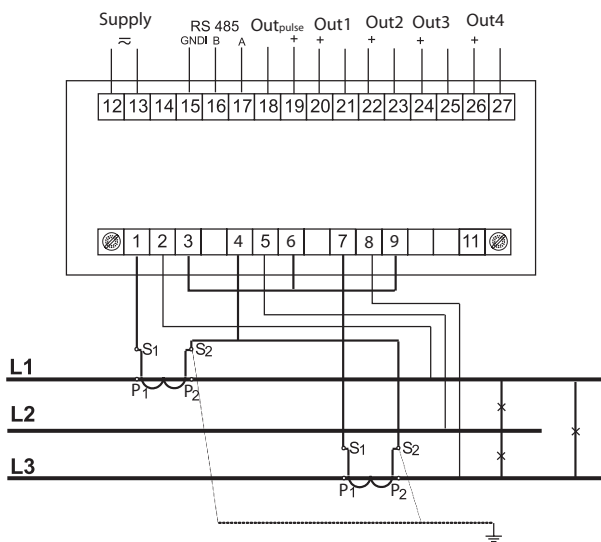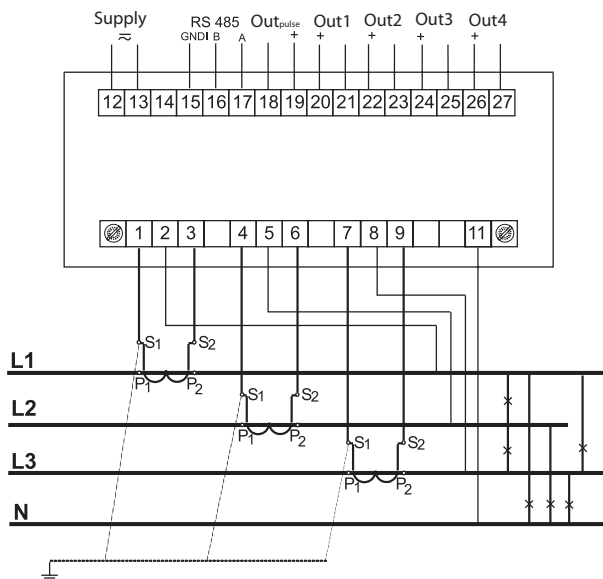### Fig. 70 Electrical connections of P43 for 4-wire network

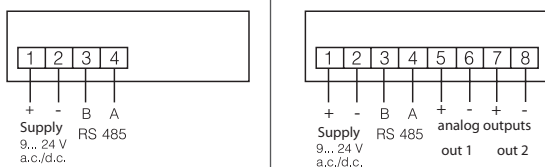## P18 SERIES AND P19

Fig. 71 Electrical connections of P18 and P18D
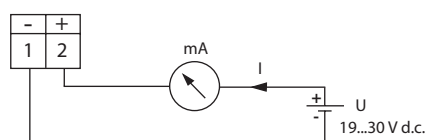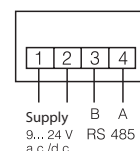

Fig. 72 Electrical connections of P18L

Fig. 73 Electrical connections of P19

P20 and P17 transducer series

Table 27. P20 ordering code:

P20 -	X	X	XX	XX	X
Analog output:					
current 0...20 mA	1				
current 4...20 mA	2				
voltage 0...10 V	3				
Supply:					
85...253 V a.c./d.c.		1			
20...85 V d.c., 20...65 V a.c.		2			
Kind of input:					
write the code from table 28			XX		
Version:					
standard				00	
custom-made*				XX	
Acceptance tests:					
without extra requirements					8
with an extra quality inspection certificate					7
acc. to customer's request*					X

Table 30. P20H ordering code:

P20H -	X	X	X	XX	X
Input signal:					
+/- 100 V	1				
+/- 250 V	2				
+/- 400 V	3				
+/- 1 A	4				
+/- 5 A	5				
0..100 V	6				
0...250 V	7				
0...400 V	8				
Output:					
0...20 mA		1			
4...20 mA		2			
0...10 V		3			
RS-485		4			
Supply voltage:					
85...253 V a.c. 40..400 Hz; 90..300 V d.c.			1		
20...85 V d.c., 20...65 V a.c.			2		
Version:					
standard				00	
non-standard settings				NS	
custom-made*				XX	
Acceptance tests:					
without extra requirements					8
with an extra quality inspection certificate					7
acc. to customer's request*					X

* - after agreeing with the manufacturer

Table 28. input signals P20

Type of sensor/input [Unit]	Range	Code	Type of sensor/input [Unit]	Range	Code
Pt100 [°C]	-200..850	01	TC of K type [°C]	-200..1370	36
	0..850	02		0..1200	37
	0..600	03		0..1000	38
	0..400	04		0..800	39
	0..200	05		0..600	40
	-200..200	06		0..400[1]	41
	-100..100[1]	07		-200..200[1]	42
Pt250 [°C]	-200..850	08	TC of S type [°C]	0..1760	43
	0..850	09		0..1600	44
	0..600	10		0..1400[1]	45
	0..400	11		0..1200[1]	46
	0..200	12		0..1000[1]	47
	-200..200	13	TC of N type [°C]	-200..1200	48
	-100..100	14		0..1200	49
Pt500 [°C]	-200..850	15		0..1000	50
	0..850	16		0..800	51
	0..600	17		0..600[1]	52
	0..400	18		0..400[1]	53
	0..200	19		-200..200[1]	54
	-200..200	20	Voltage d.c. [V]	0..10	55
	-100..100	21		0..5	56
Pt1000 [°C]	-200..850	22		-10..10	57
	0..850	23		-5..5	58
	0..600	24		0..60	59
	0..400	25	Voltage d.c. [mV]	-60..60	60
	0..200	26		0..150	61
	-200..200	27		-150..150	62
	-100..100	28	Current d.c. [mA]	0..20	63
TC of J type [°C]	-200..1200	29		4..20	64
	0..1200	30		0..5	65
	0..1000	31		-20..20	66
	0..800	32	Resistance [Ω]	0..400	67
	0..600	33		0..4000	68
	0..400[1]	34	Custom-made		XX
	-200..200[1]	35	[1] Accuracy class 0.5		

Table 31. P17 ordering code:

P17 -	XX	XX	X
Input signal:			
voltage (0...10 V)	00		
thermocouple J (-100...1200°C)	01		
thermocouple K (-100...1370°C)	02		
thermocouple N (-100...1300°C)	03		
thermocouple E (-100...900°C)	04		
Pt100 (-50...100°C)	05		
Pt100 (-50...400°C)	06		
voltage (0...60 mV)	09		
Version:			
standard		00	
on order*		XX	
Acceptance tests:			
without extra requirements			8
with an extra quality inspection certificate			7
acc. to customer's request*			X

Table 29. P20Z ordering code:

P20Z -	XX	X	X	X	XX	X
Input range:						
0...60 V	01					
0...100 V	02					
0...150 V	03					
0...250 V	04					
0...400 V	05					
0...500 V	06					
0...600 V	07					
0...1 A	08					
0...5 A	09					
Output range:						
0...5 mA		1				
0...20 mA		2				
4...20 mA		3				
0...10 V		4				
Supply voltage:						
85...253 V a.c./d.c.			1			
20...40 V a.c./d.c.			2			
Kind of terminals:						
inseparable screws				1		
screwed plug-in sockets				2		
Version:						
standard					00	
custom-made*					XX	
Acceptance tests:						
without extra requirements						8
with an extra quality inspection certificate						7
acc. to customer's request*						X

Table 32. P21Z ordering code:

P21Z -	X	X	X	XX	X	X
Input signal:						
100 V a.c.	1					
250 V a.c.	2					
400 V a.c.	3					
1 A a.c.	4					
5 A a.c.	5					
frequency 20...500 Hz	6					
Output:						
0...20 mA		1				
4...20 mA		2				
0...10 V		3				
RS-485		4				
Supply voltage:						
85..253 V a.c. 40..400 Hz; 90..300 V d.c.			1			
20..40 V a.c. 40..400 Hz; 20..60 V d.c.			2			
Version:						
standard				00		
non-standard settings				NS		
custom-made*				XX		
Language:						
Polish					P	
English					E	
other*					X	
Acceptance tests:						
without extra requirements						0
with an extra quality inspection certificate						1
acc. to customer's request*						X

P20G and P17G transducer series

Table 33. P20G ordering code:

P20G -	XX	XX	X	XX	X	X
Input:						
input code acc. to the table 22	XX					
Output:						
output code acc. to the table 34		XX				
Supply voltage:						
85...253 V a.c./d.c.			1			
20...40 V a.c./d.c.			2			
Version:						
standard				00		
non-standard settings				NS		
custom-made*				XX		
Language:						
Polish					P	
English					E	
other*					X	
Acceptance tests:						
without extra requirements						0
with an extra quality inspection certificate						1
acc. to customer's request*						X

Table 34. Coding of the P20G separator kind of input and output

Range	Input code	Output code
0...1 V	01	01**
0...5 V	02	02
0...10 V	03	03
±1 V	04	04**
±5 V	05	05
±10 V	06	06
0...5 mA	07	07**
0...20 mA	08	08
±5 mA	09	09**
±20 mA	10	10
4...20 mA	11	11
custom-made version*	XX	XX

* - after agreeing with the manufacturer

** - conversion class > 0.2

Table 35. P17G ordering code:

P17G -	XX	X
Version:		
standard	00	
on order*	XX	
Acceptance tests:		
without extra requirements		8
with an extra quality inspection certificate		7
acc. to customer's request*		X

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Table 36. P30U ordering code:

P30U - X XX X X XX X X

Analog output:	
current (range 0...4...20 mA)	1
voltage (0...10 V)	2
SD/SDHC card:	
without slot for SD card	0
with external SD/SDHC slot	1
Additional output:	
NO relay, 5 A 30V d.c., 250 V a.c.	1
supply 24 V d.c. / 30 mA	2
Supply:	
85...253 V a.c./d.c.	1
20...40 V a.c., 20...60 d.c.	2
Version:	
standard	00
custom-made*	XX
Language:	
Polish	P
English	E
Acceptance tests:	
without extra requirements	0
with an extra quality inspection certificate	1
acc. to customer's request*	X

Tabele 37. P30o ordering code:

P30o - X XX X X XX X X

Analog output:	
current (range 0/4...20 mA)	1
voltage (0...10 V)	2
Additional equipment:	
without	0
with external SD/SDHC slot	1
with Ethernet interface and archive file system memory	2
Additional output:	
relay (NO), 5 A 30 V d.c., 250 V a.c.	1
supply 24 V d.c. / 30 mA	2
Supply:	
85...253 V a.c./d.c.	1
20...40 V a.c., 20...60 d.c.	2
Version:	
standard	00
custom-made[2)]	XX
Language:	
Polish	P
English	E
other[2)]	X
Acceptance tests:	
without extra requirements	0
with an extra quality inspection certificate	1
acc. to customer's request[2)]	X

Table 38. P30P ordering code:

P30P - X X X X X X XX X X

Inputs:	
voltage 100 V, current 1/5 A	1
voltage 250 V, current 1/5 A	2
Analog outputs OUT1:	
current (0/4...20 mA)	1
voltage (0...10 V)	2
Additional equipment:	
without	0
with external SD/SDHC slot	1
with Ethernet interface and archive file system memory	2
Output OUT2:	
relay A1, 5A 30 V d.c., 250 V a.c.	1
analog current output (0/4...20 mA)	2
analog voltage output (0...10 V)	3
Output OUT3:	
relay A2, 5A 30V d.c., 250V a.c.	1
power output 24 V d.c. / 30 mA	2
Supply:	
85...253 V a.c./d.c.	1
20...40 V a.c., 20...60 d.c.	2
Version:	
standard	00
custom-made*	XX
Language:	
Polish	P
English	E
other	X
Acceptance tests:	
without extra requirements	0
with an extra quality inspection certificate	1
acc. to customer's request	X

*- after agreeing with the manufacturer

Table 39. P30H ordering code:

P30H - X X X X X X XX X X

Analog outputs OUT1:	
current (0/4...20 mA)	1
voltage (0...10 V)	2
Additional equipment:	
without	0
with external SD/SDHC slot	1
with Ethernet interface and archive file system memory	2
Output OUT2:	
relay A1 NO, 5 A 30 V d.c., 250 V a.c.	1
analog current output (0/4...20 mA) A1	2
analog voltage output (0...10 V) A1	3
Output OUT3:	
relay A2 NO, 5 A 30 V d.c., 250 V a.c.	1
power output 24 V d.c. / 30 mA	2
Supply:	
85...253 V a.c., 85...300 V d.c.	1
20...40 V a.c., 20...60 d.c.	2
Version:	
standard	00
custom-made*	XX
Language:	
Polish	P
English	E
other	X
Acceptance tests:	
without extra requirements	0
with an extra quality inspection certificate	1
acc. to customer's request*	X

*- after agreeing with the manufacturer

P41 and P43 power transducers

Table 40. P43 ordering code:

P43 - X X X X X XX X X

Current input In:	
1 A (X/1)	1
5 A (X/5)	2
Voltage input (phase/phase-to-phase) Un:	
3 x 57.7/100 V	1
3 x 230/400 V	2
Supply voltage:	
85...253 V a.c.; 90...320 V d.c.	1
20...40 V a.c.; 20...60 V d.c.	2
Kind of outputs:	
without analog outputs, 4 relays	1
2 analog outputs, 2 relays	2
4 analog outputs, without relay	3
Version:	
standard	00
custom-made*	XX
Language:	
Polish	P
English	E
other*	X
Acceptance tests:	
without extra requirements	0
with an extra quality inspection certificate	1
acc. to customer's request*	X

Table 41. P41 ordering code:

P41 - X XX X X

Supply:	
85...253 V a.c. 40...400 Hz; / 90...300 V d.c.	1
20...40 V a.c. 40...400 Hz; / 20...60 V d.c.	2
Version:	
standard	00
custom-made	XX
Language:	
Polish	P
English	E
Acceptance tests:	
without extra requirements	0
with an extra quality inspection certificate	1

*- after agreeing with the manufacturer

P18, P18D and P18L temperature and humidity transducers

Table 42. P18 and P18D ordering code:

P18(D) - X XX X X

Analog outputs - sensors:	
without outputs, with sensor mounted on the housing	0
current 4..20 mA, with sensor mounted on the housing	1
voltage 0...10 V, with sensor mounted on the housing	2
without outputs, with probe on the wire 0,5 m	3
current 4..20 mA, with probe on the wire 0,5 m	4
voltage 0...10 V, with probe on the wire 0,5 m	5
Version:	
standard	00
custom-made*	XX
Language:	
Polish	P
English	E
other*	X
Acceptance tests:	
without extra requirements	0
with an extra quality inspection certificate	1
acc. to customer's request*	X

Table 43. P18L ordering code:

P18L - XX X

Version:	
standard	00
custom-made*	XX
Acceptance tests:	
without extra requirements	0
with an extra quality inspection certificate	1
acc. to customer's request*	X

Tabele 44. P19 ordering code:

P19- XX X X

Version:	
standard	00
custom-made*	XX
Language:	
Polish	P
English	E
other*	X
Acceptance tests:	
without extra requirements	0
with an extra quality inspection certificate	1
acc. to customer's request*	X

*- after agreeing with the manufacturer

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