



APPLICATION:

- visualization of essential technological process' parameters (DN, DL)
- displaying text messages (DA1)

VISUALIZATION

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SELECTED FEATURES:

- different digit sizes (100, 200 and 300 mm) for showing information from different distances
- analog input for direct connection with a measuring transducers (DNL)
- RS-485 interface with Modbus Master protocol to connect external information source
- RS-485 interface with Modbus Slave protocol for sharing displayed values with master systems (SCADA, PLC)

APPLICATION EXAMPLES



Type	Outdoor or indoor displays	
	DN1, DN2, DN3	
Display	numerical	
Digit height	100/200/300 mm	
Number of rows	1 or 2	
Characters per row	3,4 or 5	
Display colour	red, yellow or green	
Displayed values	value measured by external device, transmitted through RS-485 interface	
Interface (Master)	RS-485 for value download	
Protection rating	IP54 (IP65 option)	
Additional functions	<ul style="list-style-type: none"> • good visibility in range up to 120 m • brightness sensor installed (display brightness changes depending on outside conditions) 	

Type	Indoor displays			
	DL11, DL12, DL13	DL21	DLZ	DNL
Display	numerical			
Digit height	100 mm			230 mm (DNL2), 305 mm (DNL3)
Number of rows	1, 2 or 3	1	1	1 or 2
Characters per row	3	3	7	4
Display colour	red, yellow or green	red/orange/green (programmable)	red	red, yellow
Displayed values	value measured by external device, transmitted through RS-485 interface		current time, humidity and temperature (version with P18 transducer)	value measured by external device, transmitted through RS-485 interface
Interface (Master)	Modbus RTU RS-485 for value transmission			
Interface (Slave)	RS-485 for configuration			RS-485 for configuration
Programming	using dedicated software	using LPCon software		using LPCon software
Additional functions	<ul style="list-style-type: none"> • unit field can be printed in each row • 15 V d.c. supply for P18 transducer 	<ul style="list-style-type: none"> • 3-colour, display colour changes on value change. Ranges of colour changes can be programmed 	<ul style="list-style-type: none"> • digits brightness can change depending on day time 	<ul style="list-style-type: none"> • visibility up to 120 m • brightness sensor (digital brightness changes depending on outside conditions) • analog input 4...20 mA

DN1, DN2, DN3

Fig.182 Electrical connections of DN1, DN2, DN3

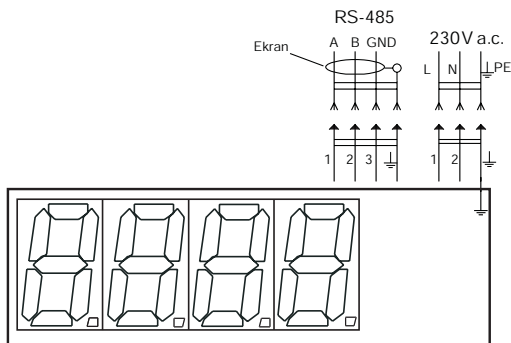
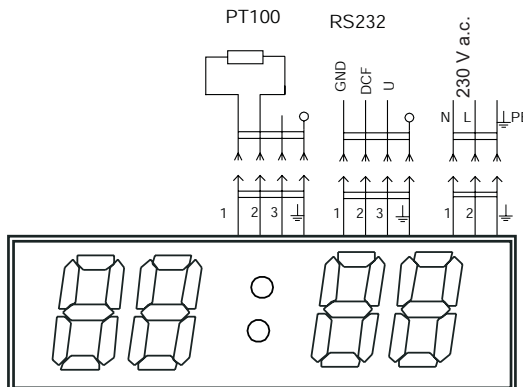
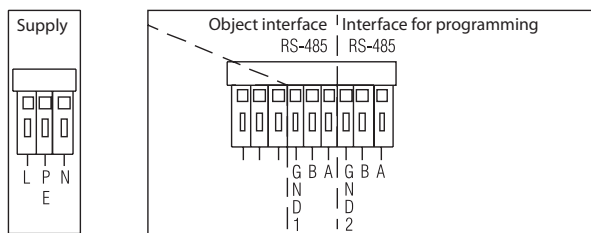


Fig.183 Electrical connections of DN3-8xxxxxx (temperature + time)



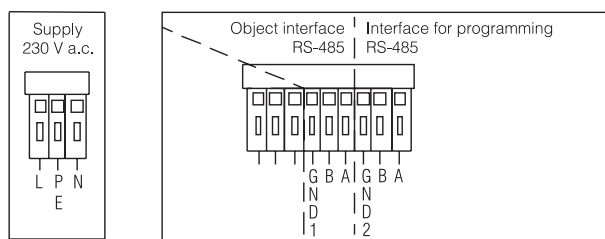
DL11, DL12, DL13

Fig. 184 Electrical connections of DL11, DL12, DL13



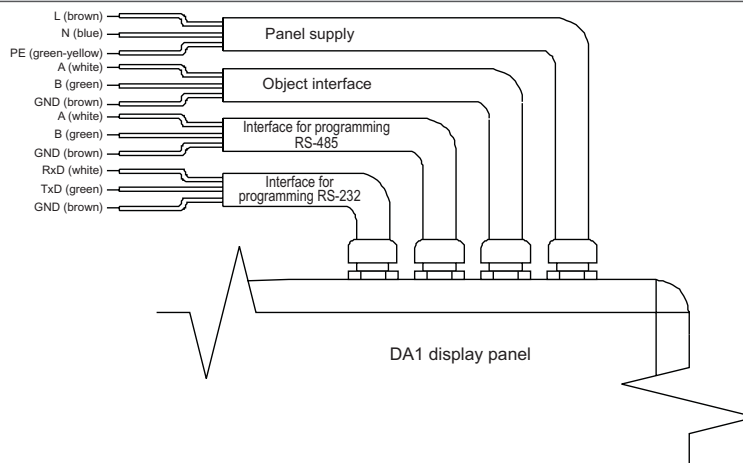
DL21

Fig. 185 Electrical connections of DL21



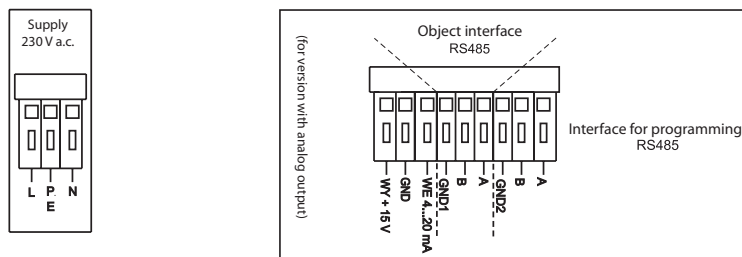
DA1

Fig. 186 Electrical connections of DA1



DNL

Fig.187 Electrical connections of DNL



OUTDOOR DISPLAY

TABLE 88. DN1, DN2, DN3 ORDERING CODE:

DN -	X	X	X	X	X	XX	XX	X	XX	X
Digit height:										
100 mm	1									
200 mm	2									
300 mm	3									
Kind of display:										
Code acc to the table 89 (version 8 concerns DN3)	X									
on order*	9									
Digit colour of the first display field:										
red	R									
yellow	Y									
green	G									
blue** (concerns version 1...4 and 6 acc. to the tab.90)	B									
Digit colour of the second display field:										
lack of second field	0									
red	R									
yellow	Y									
green	G									
Way of fixing:										
on the wall	1									
suspended	2									
on order*	9									
Unit of the first display field:										
code number of the unit acc. to the table 90	XX									
on order*	99									
Unit of the second display field:										
code number of the unit acc. to the table 90	XX									
on order*	99									
Quantity displayed and measuring device:										
acc. to the table 91	X									
on order*	9									
Version:										
standard	00									
custom-made*	XX									
Acceptance tests:										
without extra quality requirements	8									
with an extra quality inspection certificate	7									
acc. to customer's request*	X									

TABLE 89.

Code	Kind of display	Number of digits	Display overall dimensions [mm]			Assembly dimensions [mm]		
			DN1	DN2	DN3	DN1	DN2	DN3
1		2 digits	a = 415 b = 77 h = 160	a = 560 b = 77 h = 264	a = 820 b = 100 h = 370	c = 220 d = 50 L = 250	c = 320 d = 75 L = 350	c = 450 d = 80 L = 450
2		3 digits	a = 415 b = 77 h = 160	a = 560 b = 77 h = 264	a = 820 b = 100 h = 370	c = 220 d = 50 L = 250	c = 320 d = 75 L = 350	c = 450 d = 80 L = 450
3		4 digits	a = 593 b = 77 h = 160	a = 810 b = 77 h = 264	a = 1200 b = 100 h = 370	c = 320 d = 50 L = 420	c = 430 d = 75 L = 480	c = 850 d = 80 L = 710
4		5 digits	a = 593 b = 77 h = 160	a = 810 b = 77 h = 264	a = 1200 b = 100 h = 370	c = 320 d = 50 L = 420	c = 430 d = 75 L = 480	c = 850 d = 80 L = 710
5		2x 2 digits	a = 593 b = 77 h = 160	a = 810 b = 77 h = 264	a = 1200 b = 100 h = 370	c = 320 d = 50 L = 420	c = 430 d = 75 L = 480	c = 850 d = 80 L = 710
6		clock	a = 415 b = 77 h = 160	a = 810 b = 77 h = 264	a = 1200 b = 100 h = 370	c = 320 d = 50 L = 420	c = 430 d = 75 L = 480	c = 850 d = 80 L = 710
7		2x 3 digits 2 rows	a = 415 b = 77 h = 270	a = 560 b = 77 h = 478	a = 820 b = 100 h = 680	c = 320 d = 50 L = 250	c = 320 d = 75 L = 350	c = 450 d = 80 L = 450
8*	 Caution: Alternate display every 10 sec. Clock synchronized by DCF signal.	clock + temperature			A = 1200 B = 100 H = 370			C = 850 D = 80 L = 450

* concerns DN3

* after agreeing with the manufacturer
** concerns DN1

TABLE 90. CODES OF HIGHLIGHTED UNIT:

Code	Unit	Code	Unit	Code	Unit
00	without unit	22	°F	44	m³/h
01	mV	23	K	45	obr
02	V	24	% H ₂ O	46	obr/min
03	kV	25	mbar	47	rad
04	mA	26	Bar	48	szt.
05	A	27	mmH ₂ O	49	szt./h
06	kA	28	mmHg	50	O ₂
07	kW	29	Pa	51	CO
08	MW	30	hPa	52	CO ₂
09	var	31	kPa	53	l
10	kvar	32	MPa	54	l/min
11	Mvar	33	pH	55	l/h
12	kWh	34	s	56	mg
13	Ω	35	min	57	kg
14	kΩ	36	h	58	Mg
15	μ S	37	mm	59	k/h
16	mS	38	cm	60	Mg/h
17	Hz	39	m	61	N
18	kHz	40	m³	62	kN
19	MHz	41	m/s	63	mg/l
20	%	42	m/h		
21	°C	43	km/h		

TABLE 91. CODE OF BACKLIGHTED UNIT AND MEASURING DEVICES

Displayed quantities	Code
Without measuring quantity	0
Temperature measurement * Measuring range	1
Humidity measurement * Measuring range	2
Temperature and humidity measurement * Measuring range	3
Pressure measurement * Measuring range	4
Measurement of the real time * Measuring range	5
Measurement of pulses, revolutions, working time * Measuring range	6
Measurement of power network parameters * Measuring range	7
measurement of current and voltage standard signals * Measuring range	8

INDOOR DISPLAYS

TABLE 92. DL11 ORDERING CODE:				
DL11 -	X	XX	X	X
Colour of display field:				
red	R			
yellow	Y			
green	G			
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 93. DL12 ORDERING CODE:				
DL12 -	X	X	XX	X
Colour of first display field:				
red	R			
yellow	Y			
green	G			
Colour of second display field:				
red	R			
yellow	Y			
green	G			
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 94. DL13 ORDERING CODE:					
DL13 -	X	X	X	XX	X
Colour of first display field:					
red	R				
yellow	Y				
green	G				
Colour of second display field:					
red	R				
yellow	Y				
green	G				
Colour of third display field:					
red		R			
yellow		Y			
green		G			
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 95. DL21 ORDERING CODE:		
DL21 -	XX	X
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 96. DNL ORDERING CODE:								
DNL -	X	X	XX	X	XX	XX	X	X
Digit height:								
230 mm (9")	2							
305 mm (12")	3							
Colour of digits in first row:								
red	R							
yellow	Y							
Unit of the first row:								
lack			00					
acc. to the table 97			XX					
Colour of digits in the second row:								
lack of row			0					
red			R					
yellow			Y					
Unit of the second row:								
lack					00			
acc. to the table 97					XX			
Version:								
standard						00		
first row with input 4...20 mA and output +15 V						01		
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 requirements*								X

TABLE 97. CODES OF HIGHLIGHTED UNIT:	
Code	Unit
00	lack
01	%
02	°C
03	szt.
04	imp.
05	kg
06	m/s
07	szt./h
08	m ³
09	obr
XX	on order

* after agreeing with the manufacturer