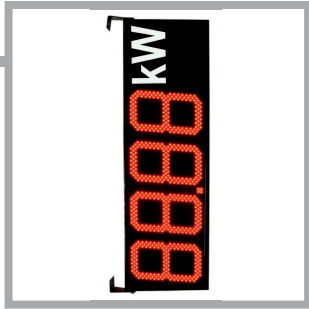


NUMERICAL DIGITAL DISPLAY PANEL DNL2 and DNL3 TYPE



CE
QUICK START MANUAL

Note! The full version of the user's manual is inserted in the www.lumel.com.pl/en/ web site.

1. DISPLAY SET

- 1. digital display DNL..... 1pc
- 2. assembly holder..... 2 pcs
- 3. quick start manual..... 1 pc
- 4. guarantee card..... 1 pc

2. OPERATIONAL SAFETY

In the safety service scope, the display panel meets the requirements of the EN 61010-1 standard.



Observations concerning the operational safety:

- All operations concerning transport, installation and commissioning as well as maintenance must be carried out by qualified, skilled personnel, and national regulations for the prevention of accidents must be observed.
- Before switching the display on, one must check the correctness of connections to the network.
- Do not assemble the display outside.
- The removal of the display casing during the guarantee contract period causes its cancellation.
- A switch or a circuit-breaker should be located near the device, easy accessible by the operator and suitably marked.

3. FIXING WAY

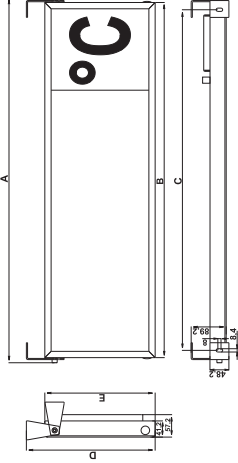
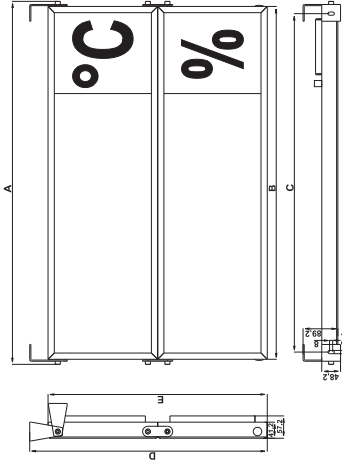


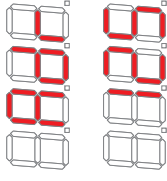
Table 1

	One row version			Two rows version		
	DNL2 [mm]	DNL3 [mm]	DNL3 [mm]	DNL2 [mm]	DNL3 [mm]	DNL3 [mm]
A	931	1091	931	931	1091	1091
B	905	1065	905	905	1065	1065
C	868	1027	868	868	1027	1027
D	328	414	328	328	414	414
E	281	367	281	281	367	367
F	12.4	12.4	12.4	12.4	12.4	12.4

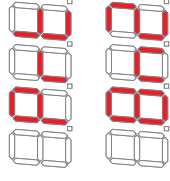
Fig.1 Dimensions of DNL display with one and two rows.

5. STARTING TO WORK

After switching the supply on, the display panel carries out the display test and inform about the transmission parameters of the programming interface. The fig. 3 shows an information about transmission parameters displayed after turning on the display.



Interface address No1
- interface for programming
Address: 125



Operation mode of interface No1:
0- RTU 8N1
1: RTU 8N2
2- RTU 8E1
3- RTU 8O1

4. CONNECTION DIAGRAM

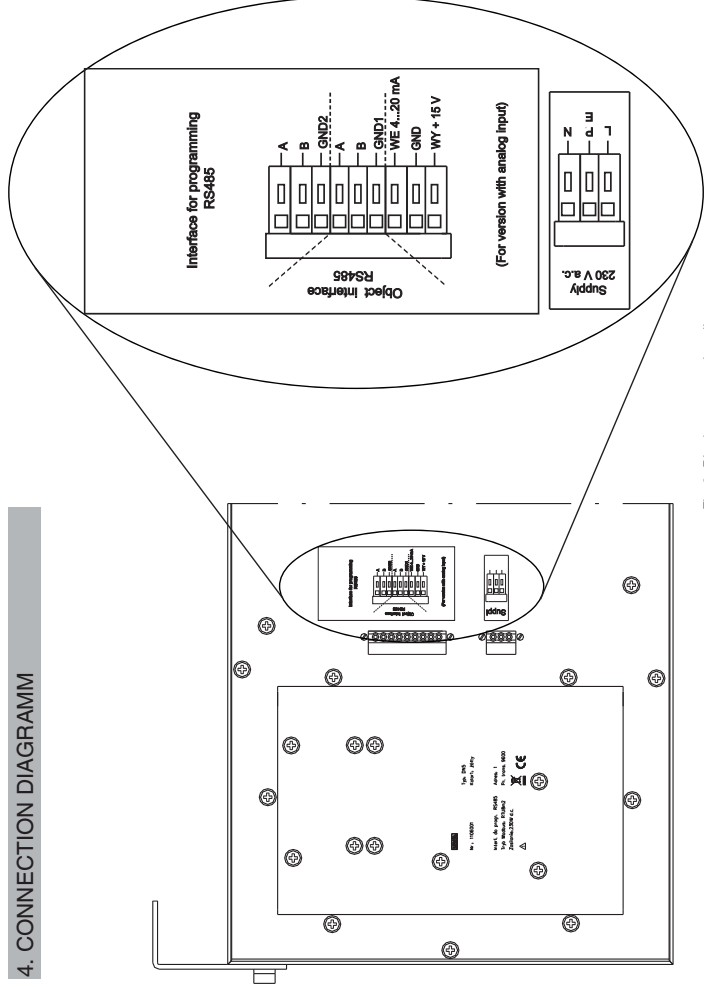
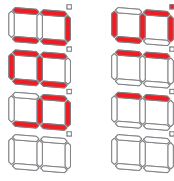


Fig.2. Display connection diagram.



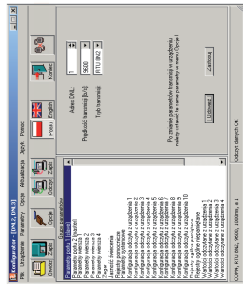
Baud rate of interface No 1 [b/s]:
0 - 2400; 1 - 4800; 2 - 9600; 3 - 14400;
4 - 19200; 5 - 28800; 6 - 38400; 7 - 57600;
8 - 76800; **9 - 115200**

Fig.3. Displaying of transmission parameters.

5. DISPLAY CONFIGURATION

The display configuration can be carried out by the free LPCOn program available on our website www.lumel.com.pl. The display panel is configured by default on following transmission parameters:

- Address: 1
- Baud rate: 9600 bit/sec
- Transmission mode: RTU 8n2



Transmission of the configuration through the RS-485 interface or USB



8. TECHNICAL DATA

Display dimensions: (see fig. 1.)

Display panel weight:
 DNL2 one row 5.4 kg
 DNL2 two row 10.8 kg
 DNL3 one row 7.6 kg
 DNL3 two row 15.2 kg

Real Time Clock:
 ± 3s/day,
 clock is retained up to 7 days without supply

Read-out field:
 DNL2 - 4 digits, height= 230 mm (9")
 DNL3 - 4 digits, height= 305 mm (12")

Power consumption:
 < 55 VA

Communication:
 - interface 2x RS485 galvanically separated MODBUS RTU
 - transmission protocol - interface for programming 03, 06, 16, 17
 - serviced functions - object interfaces: 03, 04, 8n1, 8n2, 8e1, 8o1, 2.4, 4.8, 9.6, 14.4, 19.2, 28.8, 38.4, 57.6, 76.8, 115.2
 - data format: <400 ms.
 - baud rate (kb/s):
 - maximal time to begin the answer:

Reaction against decays and supply recovery:
 preservation of configuration

7. BEFORE A FAILURE WILL BE DECLARED

Table 2

Problem	Solution
The display field is empty (lack of display). 	On must check the correctness of carried out connections. The value to display originates from a device which there is no communication with. The device does not answer in a correct way, or the communication is badly configured with the device. The message occurs in case when 5 successive trials to the value readout were finished with error. One must carry out: correct connections of additional devices and check the introduced settings.
	The value is smallest than the programmed minimal value or is too small to display (a too great number of characters and the value cannot be contained on the display field). One must check the display configuration: the number of the displayed register, format, minimal and maximal value, and coefficients for rescaling the displayed value.
	The value is higher than the programmed maximal value or is too high to be displayed (a too small number of characters and the value cannot be contained on the display field). One must check the display configuration: the number of the displayed register, format, minimal and maximal value, and coefficients for rescaling the displayed value.
A display test is continuously carried on the display. 	One must check the correctness of connections. If connections are carried out in a correct way, and the voltage is in concordance with technical data, one must switch the display panel off and contact the Service Department of LUMEL S.A.

9. ORDERING CODE

Table 3

Code	Unit
00	lack
01	%
02	°C
03	sz.
04	imp.
05	kg
06	m/s
07	szt./h
08	m ³
09	obr
XX	on order

Digital display panel DNL - X X XX X XX XX X X

Digit height:
 230 mm (9")
 305 mm (12")

Color of digits in I row:
 red
 yellow
 lack

Unit of the I row:
 lack
 acc. to the table 4

Color of digits in II row:
 red
 yellow
 lack

Unit of the II row:
 lack
 acc. to the table 4

Version:
 standard
 I row with input 4...20 mA and output +15 V
 custom made*

Language:
 Polish
 English
 other**

Acceptance tests:
 without extra quality requirements
 with an extra quality inspection certificate
 acc. to customer's requirements*

* after agreeing with the manufacturer

ORDER EXAMPLE:

The code: **DNL-2-Y-01-0-00-00-E-1** means: display panel with one row with yellow digits, with unit %, standard version, English language, with an extra quality inspection certificate.

NOTES

Table 4

Code	Unit
00	lack
01	%
02	°C
03	sz.
04	imp.
05	kg
06	m/s
07	szt./h
08	m ³
09	obr
XX	on order

STANDARDS FULFILLED BY THE DISPLAY PANEL:

- Electromagnetic compatibility:**
 - noise immunity acc. to EN 61000-6-2
 - noise emission acc. to EN 61000-6-4
 - resistance against supply decays acc. to EN 61000-6-2
- Safety requirements acc. EN 61010-1 standard:**
 - isolation ensured by the housing: basic
 - isolation between circuits: III
 - installation category: 2
 - pollution grade: 2
 - maximal phase-to-earth working voltage: 300 V for supply circuits and 50 V for other circuits
 - altitude above sea level: < 2000 m.

NOTES