

LARGE SIZE NUMERIC DISPLAYS DN1, DN2, DN3 TYPES



APPLICATION

Digital displays of DN type can be applied for the visualisation of essential parameters in automation and measurement processes when supervising the quality or working safety.

Information put in a visible place helps in the efficient work in industrial communication, logistics, automation and control technology, and material handling. These displays are destined to be installed in: industrial plants, sports objects, trade buildings and communication areas.

The character height ensures a good visibility and reading from a long distance, up to 120 m.

Digit heights: **DN1** - 100 mm; **DN2** - 200 mm; **DN3** - 300 mm.

Digital displays are offered in four colours: red, green, yellow and blue.

Basic installations are applied for measurements and indications of: temperature, humidity, time, pressure, flow, rotations, pulses, and also the gas content and material quantity. These DN displays together with an external measuring element or transducer can display any physical quantity and co-operate with external devices equipped with an RS-

485 digital output with the MODBUS RTU/ASCII protocol.

The configuration of transmission parameters and measuring ranges is made agree with the customer.

Each customer obtains a service manual together with the display unit. The standard version includes the digital diode display field and the unit field. The number of characters and the display colour are expressed by the ordering code or defined by the customer.

The display field brightness is established automatically in accordance with external conditions. The unit can be selected from the list inserted

TECHNICAL DATA

Power consumption of the single display module:

| | |
|-----|-----|
| DN1 | 2 W |
| DN2 | 5 W |
| DN3 | 5 W |

Read-out field:

| | |
|-----|-----------------------|
| DN1 | 100 mm (digit height) |
| DN2 | 200 mm |
| DN3 | 300 mm |

Communication:

| | |
|-------------------------|------------------|
| - serial interface | RS-485 |
| - transmission protocol | MODBUS RTU/ASCII |

Reaction against supply decay and recovery:

- preservation of configuration data
- continuation of work after supply recovery

Environmental and rated operating conditions:

| | |
|---------------------------|-------------------|
| - ambient temperature | -20...23...55°C |
| - storage temperature | -20... 80°C |
| - humidity | 20... 80% |
| - supply | 195... 253 V |
| - external magnetic field | 0...40...400 A/m. |
| - working position | any |
| - preheating time | 1 min |

Standards fulfilled by the display:

Electromagnetic compatibility:

| | |
|------------|-----------------|
| - immunity | acc. EN-50082-2 |
| - emission | acc. EN-50081-2 |

Safety requirements:

acc. IEC 61010-1+A1 standard:

| | |
|--|------------|
| - insulation ensured through the housing | double |
| - insulation between circuits | basic |
| - installation category | III |
| - pollution degree | 2 |
| - maximal phase-to-earth working voltage | 600 V a.c. |

Protection grade ensured by the housing

IP 54

Weight

depending on version

CHOICE OF THE DISPLAY CHARACTER SIZE

In order to ensure the optimal read-out for each application one must choose the appropriate height of the display digit.

Dependence between the read-out distance and the digit size

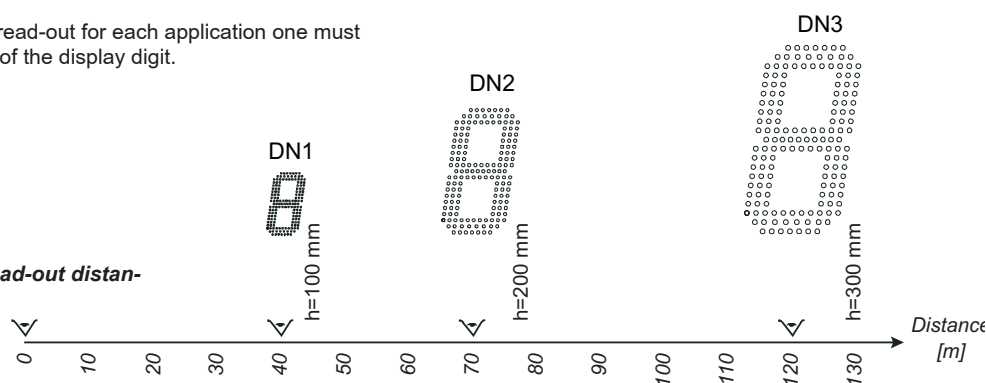


Table 1

| Code nr | 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 = 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 |
| 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 = 220 d = 50 L = 250 | c = 320 d = 75 L = 350 | c = 450 d = 80 L = 450 |
| 8* | Note: 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

Kind of displays and display overall dimensions
Table 2

| Unit | Code | Unit | Code | Unit | Code | Unit | Code |
|------|------|--------------------|------|-------------------|------|-----------------|------|
| lack | 00 | Hz | 17 | s | 34 | CO | 51 |
| mV | 01 | kHz | 18 | min | 35 | CO ₂ | 52 |
| V | 02 | MHz | 19 | h | 36 | l | 53 |
| kV | 03 | % | 20 | mm | 37 | l/min | 54 |
| mA | 04 | °C | 21 | cm | 38 | l/h | 55 |
| A | 05 | °F | 22 | m | 39 | mg | 56 |
| kA | 06 | K | 23 | m ³ | 40 | kg | 57 |
| kW | 07 | % H ₂ O | 24 | m/s | 41 | Mg | 58 |
| MW | 08 | mbar | 25 | m/h | 42 | k/h | 59 |
| var | 09 | Bar | 26 | km/h | 43 | Mg/h | 60 |
| kvar | 10 | mmH ₂ O | 27 | m ³ /h | 44 | N | 61 |
| Mvar | 11 | mmHg | 28 | revolutions | 45 | kN | 62 |
| kWh | 12 | Pa | 29 | r.p.m. | 46 | mg/l | 63 |
| Ω | 13 | hPa | 30 | rad | 47 | | |
| kΩ | 14 | kPa | 31 | pieces | 48 | | |
| μS | 15 | MPa | 32 | pcs/h | 49 | | |
| mS | 16 | pH | 33 | O ₂ | 50 | | |

Table 3

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

* **NOTE:** When ordering, one must contact the Export Dept in order to establish the display way, the choice of devices and measuring ranges displayed on the display.

ORDERING CODES

| DIGITAL DISPLAY 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. table 1 (exec. 8 concerns DN3)..... | X | | | | | | | | | |
| on order *..... | 9 | | | | | | | | | |
| Digit colour of the first display field: | | | | | | | | | | |
| red..... | R | | | | | | | | | |
| yellow..... | Y | | | | | | | | | |
| green..... | G | | | | | | | | | |
| blue*** (concerns exec. 1...4 and 6 acc table 1)..... | B | | | | | | | | | |
| Digit colour of the second display field: | | | | | | | | | | |
| lack of second field..... | 0 | | | | | | | | | |
| red..... | R | | | | | | | | | |
| yellow..... | Y | | | | | | | | | |
| green..... | G | | | | | | | | | |
| blue..... | B | | | | | | | | | |
| Way of fixing: | | | | | | | | | | |
| on the wall..... | 1 | | | | | | | | | |
| suspended..... | 2 | | | | | | | | | |
| on order *..... | 9 | | | | | | | | | |
| Unit of the first display field: | | | | | | | | | | |
| code number of the unit acc. table 2..... | XX | | | | | | | | | |
| on order *..... | 99 | | | | | | | | | |
| Unit of the second display field: | | | | | | | | | | |
| code number of the unit acc. table 2..... | XX | | | | | | | | | |
| on order *..... | 99 | | | | | | | | | |
| Quantity displayed and measuring device: | | | | | | | | | | |
| acc. table 3..... | X | | | | | | | | | |
| on order *..... | 9 | | | | | | | | | |
| Version: | | | | | | | | | | |
| standard..... | 00 | | | | | | | | | |
| custom-made**..... | XX | | | | | | | | | |
| Acceptance tests: | | | | | | | | | | |
| without a quality certificate..... | 0 | | | | | | | | | |
| with a quality certificate..... | 1 | | | | | | | | | |
| acc. customer's agreement **..... | X | | | | | | | | | |

* After manufacturer's agreement

** The code number will be established by the manufacturer

*** Concerns DN1

EXAMPLE OF ORDER

Code DN 1 7 R Y 1 21 24 3 00 0 means:

DN - Large size numeric digital display

1 - digit height = 100 mm

7 - quantities are displayed in two rows of 3 digits (table 2)

R - colour of the first display field

Y - colour of the second display field

1 - to be fixed on a wall

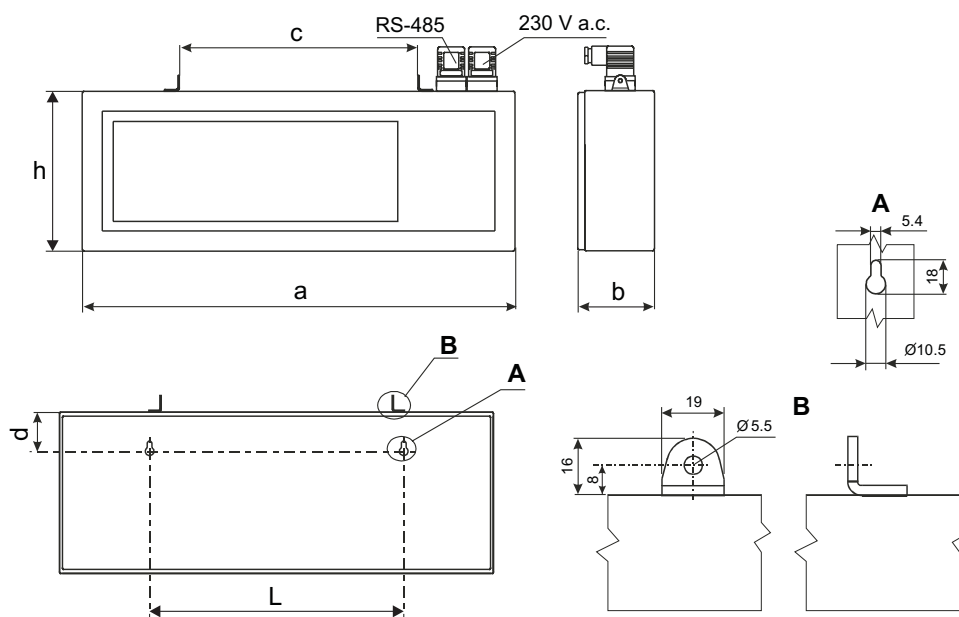
21 - °C unit (table 2)

24 - % H2O unit (table 2)

3 - with a temperature and humidity transducer (table 3)

00 - standard version

0 - without an extra quality inspection certificate



Display dimensions and layout of holes and fixing grips.