LUMEL

DIGITAL CLOCKS
DZ2 and DZ3 TYPES

CE

Dimensions:

	DZ2	DZ3
- width	1510 mm	2020 mm
- height	285 mm	360 mm
- depth	77 mm	77 mm

Reference conditions and rating operating conditions:

- operating temperature   -10... <u>23</u>... 55°C
- storage temperature   -20... 80°C
- humidity   25... 95%
- supply   85... 253 V
- external magnetic field   <u>0...40</u>...400 A/m
- operating position   any
- heating time   1 minute

Standards fulfilled by the digital clock:
Electromagnetic compatibility:
- noise immunity acc. to EN 61000-6-2
- noise emission acc. to EN 61000-6-4

Safety requirements:
According to EN 61010-1 standard:
● isolation ensured by the housing: basic
● isolation between circuits: basic
● installation category: III
● pollution level: 2
● maximal phase-to-earth voltage:
  - supply 300 V a.c.
  - interface 50 V a. c.

1. APPLICATIONS

The DZ2 and DZ3 digital clocks show the date and time alternately. The quantity switching over is set arbitrarily. The default value is equal 5 seconds.

These digital clocks are intended to be installed outside and inside shops, by production lines, in stores, refrigeration plants, sports and commercial objects.

The DZ2 clock (digits of 200 mm high) ensures a good readout from 80 m distance. The DZ3 clock (digits of 300 mm high) ensures a good readout from 120 m distance. These clocks are offered with digits in 3 versions of colours: red, green and yellow.

DZ clocks co-operate with an external DCF receiver, atomic time standard. These clocks are synchronized every now and again with the time standard. They have additionally the RS-485 interface with MODBUS RTU protocol. This interface enables to set the clock in case when the DCF signal is too weak and there is no possibility to synchronize the clock with the time standard.

The luminosity of digits is programmed by the user taking into consideration the night-time.

2. TECHNICAL DATA

Power consumption   max 45 W

Readout field:
- **DZ2**   10 characters of 200 mm high 8 digits + 2 special characters (colon, hyphen, comma) digit colour: red, yellow, green,
- **DZ3**   10 characters of 300 mm high 8 digits + 2 special characters (colon, hyphen, comma) digit colour: red, yellow, green,

Communication:
- serial interface   RS-485
- transmission protocol   MODBUS RTU

Reaction to decays and supply recoveries:
- preservation of configuration data,
- continued operation after supply recovery.
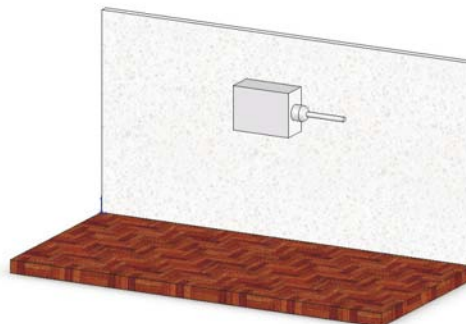
**Protection degree ensured
by the housing**   IP 54

3. DESIGN AND INSTALLATION

The clock housing is made of steel sheet with the possibility to fix it on a wall or suspend the digital clock. The protection degree is IP54. Housing dimensions:
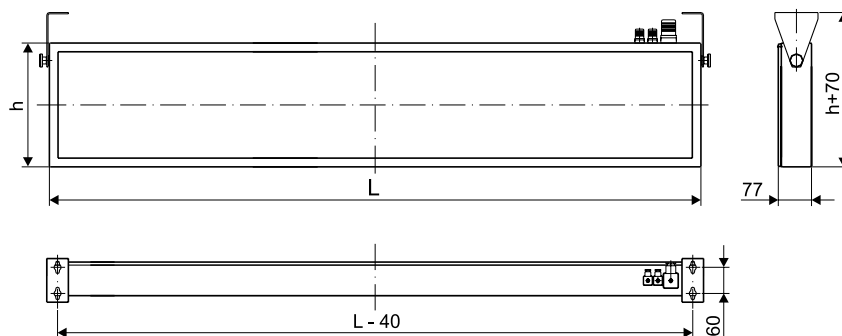
DZ2: 1510 × 284 × 77 mm, DZ3: 2020 × 360 × 77 mm

The DCF receiver is fixed separately and should be distant from electromagnetic field sources, current-carrying wires, big metallic objects, and electronic devices.

If it is possible, the receiver should be situated outside the building. The DCF signal is broadcasted from Germany in the shape of 0.1 sec. and 0.2 sec. pulses, in one second' intervals. If the DCF receiver is properly situated, the receiver diode lights during 0.1 or 0.2 sec and goes out within 0.9 or 0.8 sec.

Fig. 1. Fixing way of the DCF receiver

Dimensions	DZ2	DZ3
L	1510	2020
h	284	360

Fig. 2. Overall dimensions of DZ2 and DZ3 digital clocks and layout of holes and suspension clamps

4. WIRING CONNECTIONS

The clock set includes two female cable connectors: a 3-pole supplying connector and a 4-pole interface connector. The DCF receiver is delivered with a plug. One must perform electrical connectors acc. to the Fig. 3.
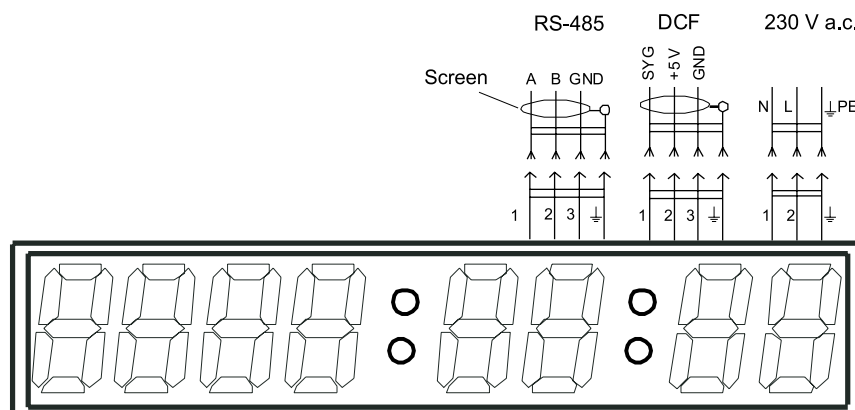

Fig. 3. Electrical connections

5. ORDERING CODES

Table 2

DIGITAL CLOCK	DZ	X-	X	XX

Digit height:
200 mm...**2**
300 mm...**3**

Digit colour on the display field:
red ....**R**
yellow..**Y**
green ....**G**

Version:
standard..**00**
custom-made* .... **XX**

* The code number will be established by the manufacturer

Ordering example:

Code: **DZ 2 - R 00** means:
DZ2 - digital clock with digits of 200 mm high,
R - digit colour on display: red,
00 - standard version

DZ2-19