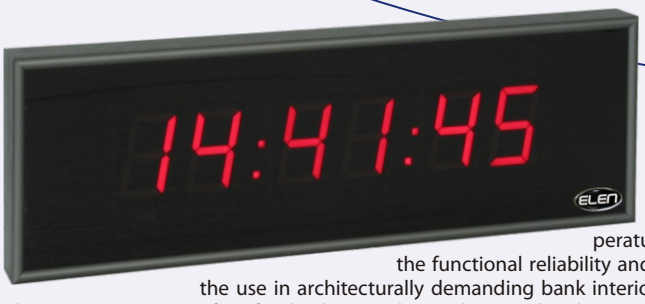
NDC series digital clocks



NDC series digital clocks are designed for displaying time, date and temperature in a numerical form. In their design, the maximum emphasis was put on the functional reliability and aesthetic appearance. NDC 57/x and 100/x models are suitable especially the use in architecturally demanding bank interiors, public institutions, companies, etc. As a standard, they are delivered in platinum matt grey surface finish. They can be made on order also in other colours according to a customer's request. Superbright 7-segment LED modules are used as displaying elements. The larger NDC 160/x, 212/x types are designed for outdoor use or for industrial conditions. They have double-casing protection with an internal steel frame and an external aluminum one. These types of the NDC series use ultrabright LEDs with elliptic radiation angle in the horizontal axis, which ensures their good visibility even in sunlight at a sufficient angle.

The level of brightness of NDC series clocks is controlled manually or automatically according to the intensity of the surrounding light. A local or remote thermal sensor and GPS receiver (or other time-synchronizing device) can be connected to all types of NDC clocks, which allows to achieve a long-term time precision of 1s per 300,000 years without the necessity to adjust time. The user can choose automatic switching from the summer to winter time and back (Daylight Saving Time) and utilize stopwatch and count-up/down features for exact time measurements. A switching contact of a built-in relay is available, activated upon the end of counting down/up or activated according to programmed time intervals, which allows to use the clock for time signalling at schools. The clocks are ready for building into unified time displaying systems – their synchronisation in a network is secured by their connection to the NDC-net (simple 2-wire connection through a standard RS485 serial interface) and by the user configuration.

The clocks can be pre-programmed for displaying time, date, temperature, as a stopwatch, for counting-up/down and for alternate displaying the above readings and thus to be adjusted for displaying according to individual needs. Moreover, a time shift can be set, which allows to use the clocks in various time zones even with the synchronisation through the GPS. Wireless IR remote control (identical with a TV control) allows to set the time, the date and the programming of the clock. If external time synchronisation is used (e.g. GPS receiver), the time and date are adjusted automatically.

The clocks are designed for the installation on a wall, NDC 160/x and 212/x types are supplied with a tilting wall bracket as a standard.

Parameters of NDC digital clocks in details

- **Time** – Hours:Minutes or Hours:Minutes:Seconds reading, time zone setting, time correction of ±23 hours 59 minutes, automatic Daylight Saving Time option.
- **Date** – Day.Month or Day.Month.Year reading (depending on type).
- **Temperature** – -99° ÷ -10°, -9.9° ÷ 99.9° or -99°C ÷ -10°C, -9.9°C ÷ 99.9°C reading range, if local or remote thermal sensor is connected.
- **Stopwatch mode** – Start/Stop/Freeze/Reset, resolution in hundredths of seconds, automatic decreasing of resolution, when seconds are filled up, of the stopwatch by IR remote control, by local or by remote close contact.
- **Counter** – count-up or count-down – user defined counting limit in the range 1s to 99 days, 23 hours, 59 minutes, 59 seconds, automatic adjustment of the reading format, Start/Stop/Resume/Reset, contact of built-in or remote relay is closed, when the counter reaches the limit, control of the counter by IR remote control, by a local or remote close contact.
- **Switch clock mode** – user defined 16 switching times of the built-in or remote relay, adjustable relay switch-on state period in the range 0.01 – 99s, setting of switch-on days (weekly calendar Sunday – Saturday).
- The clock allows **alternate display** of the above data, while the user can program the duration of their displaying in the range 0 – 60s.
- The clocks are ready for building into **the system for displaying unified time** by their connection to the NDC-net bus (2-wire RS485 connection).
- Optional **external time synchronisation** by means of a synchronisation module connected to the NDC-net bus, e.g. GPS receiver (with the galvanic insulation for an extra fee).
- Optional connection of local or remote **thermal sensor**.
- **Time precision –** ±5 sec/mounth (autonomous time, in +20°C ÷ +30°C temperature range), or the precision is given by the precision of the synchronisation, if an external synchronisation module is connected (e.g. GPS).
- **Inputs/Outputs** – RS485 interface for the connection to the NDC-net bus (with the galvanic insulation for an extra fee), an input for the connection of a local button (close contact, max. 5 m cable length) for controlling the stopwatch/counter (with the galvanic insulation for an extra fee), an input for the connection of a local thermal sensor (max. 5 m), built-in output relay 2A/250VAC, which can be closed for 0.1s – 99s in the counter mode or in the switch clock mode.
- **Automatic** (depending on ambient light conditions) or **manual brightness setting** in 15 levels.
- Clock **programming and setting** wirelessly by means of IR remote control up to 15 m.

Standard accessories

- Cabel plug for power supply (only models NDC 160/x and 212/x).
- Tilted wall bracket (only models NDC 160/x and 212/x).

Optional accessories

- IR remote control for manual setting (range up to 15 m).
- GPS receiver for time synchronisation (with galvanic insulation at extra cost).
- GPS receiver/thermal sensor (with galvanic insulation at extra cost).
- Local thermal sensor.

Date and temperature reading

Numerical displays for displaying time, date and temperature

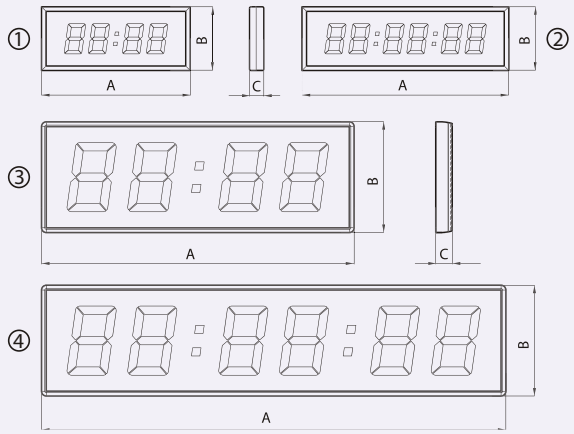
NDC series digital clocks

Technical specifications

Type	Readability range	Digit height	Number of digits	Time format	Date format	Temperature format	Display element type	Inputs/Outputs
NDC 57/4	23 m	57 mm	4	HH:MM	DD.MM	-55° ÷ 99,9°	7-segments superbright LED modules	NDC-net (RS485); IR remote controle receiver; External contact; Local thermal sensor; Relay 2A/250VAC.
NDC 57/6	23 m	57 mm	6	HH:MM:SS	DD.MM.YY	-55°C ÷ 99,9°C		
NDC 100/4	40 m	100 mm	4	HH:MM	DD.MM	-55° ÷ 99,9°		
NDC 100/6	40 m	100 mm	6	HH:MM:SS	DD.MM.YY	-55°C ÷ 99,9°C		
NDC 160/4	70 m	160 mm	4	HH:MM	DD.MM	-55° ÷ 99,9°	Ultrabright elliptical LEDs	
NDC 160/6	70 m	160 mm	6	HH:MM:SS	DD.MM.YY	-55°C ÷ 99,9°C		
NDC 212/4	100 m	212 mm	4	HH:MM	DD.MM	-55° ÷ 99,9°		
NDC 212/6	100 m	212 mm	6	HH:MM:SS	DD.MM.YY	-55°C ÷ 99,9°C		

Dimensions and weights

Type	Figure number	Width A [mm]	Height B [mm]	Thickness C [mm]	Protection class	Weight [kg]
NDC 57/4	①	360	150	38	IP 20	1,7
NDC 57/6	②	460	150	38	IP 20	2,2
NDC 100/4	①	530	200	38	IP 20	3,3
NDC 100/6	②	730	200	38	IP 20	4,4
NDC 160/4	③	685	340	110	IP 54	13,3
NDC 160/6	④	990	340	110	IP 54	17,2
NDC 212/4	③	890	400	110	IP 54	17,4
NDC 212/6	④	1280	400	110	IP 54	24,1



Optional accessories


1


2


3


4

1. **IR remote control** BQS 062 for clock setting and programming. Range of control: max. 15 m (perpendicular distance); dimensions (w x l x h): 55 x 200 x 22 mm; power supply: 2 pcs. of AAA battery.
2. **GPS receiver for time synchronisation**. 5 m cable; dimensions (w x l x h): 91 x 91 x 52 mm (without bracket). Receiver is also available with built-in thermal sensor and galvanic insulation.
3. **External thermal sensor** for local connection, without protection. 5 m cable; precision of the sensor: ±0.5°C in temperature range 0 ÷ +70°C, +3/-1 in temperature range -55 ÷ 0°C; dimensions (w x l x h): 40 x 40 x 33 mm.
4. **External thermal sensor covered**, for local connection, covered for outdoor installation. 5 m cable; dimensions (w x l x h): 91 x 91 x 52 mm.

ELEN, s.r.o., Ľubochnianska 16, 080 06 Ľubotice, Slovakia, tel.: +421 / 51 77 33 700, fax: +421 / 51 75 99 142
GSM gate: +421 / 905 637 717, +421 / 911 637 716, e-mail: sales@elen.sk, www.elen.eu