Numerical displays for churches

NDT Series

User Manual

TABLE OF CONTENTS

This user's manual describes the installation and operation of electronic numerical displays with remote control, designed especially for displaying hymn and psalm numbers during religious services. Basic parameters of the described types are specified in the following table:

Display type	Number of digits	Digit height (mm)	Readability range (m)
NDT 57/3	3	57	23
NDT 57/4	4	57	23
NDT 100/3	3	101	40
NDT 100/4	4	101	40
NDT 160/3	3	160	70

1. DISPLAY ACCESSORIES

A delivery includes all necessary accessories according to a chosen display connection scheme.

Standard accessories:
− installation console with mounting screws/bolts

Optional accessories:
− manual infra-red remote control (up to 20 m)

2. DISPLAY INSTALLATION

Mount the supplied U-console on a wall in the horizontal position by two screws. We recommend to use ∅8 mm screw wall packings. In the case of an installation on wooden boarding, we recommend to use ∅4×40 mm bolts. Then mount the display on the console by means of two M5 bolts, tilt it to a required position and lock it by tightening the bolts.

2.1. CONNECTING DISPLAY TO THE POWER SUPPLY

Plug the power cable into 230 VAC power outlet socket. Display will show a dot in the right bottom side – standby mode.

2.2. CONNECTING DISPLAY TO A COMMUNICATION NETWORK

If there is a need to connect more displays to a communication network, proceed as follows:

There is a communication connector on the back side of the display with terminals marked as "A" and "B". Using a 2-wire cable interconnect both terminals with other displays (A to A and B to B). You can use any communication type of cable with a diameter up to 2.5 mm, cable length can be up to 1 200 m.

3. DISPLAY AND INFRA-RED REMOTE CONTROL PROPERTIES

The display is controlled by a manual infra-red control BQS 062, supplied by the manufacturer together with the display. The range of the infra-red control is approx. 20 m. The direction angle range of the control is ±30°. Functions of the buttons are explained in the following figure.

Button	Colour	Function
ESC	red	Standby mode [ESC]
SELECT	blue	Psalm/verse number setting [SELECT]
MENU	yellow	Entering the menu [MENU]
MEM	yellow	Memory mode [MEM]
DEL	yellow	Erase of the memory [DEL]
ALPHA	yellow	Input of alphabetical characters [ALPHA]
0 to 9	grey	Input of digits [0] to [9]
␣	grey	Space [␣]
•	grey	Separator – decimal point [•]
▲ **up arrow**	blue	Increase the number by one (memory place) [▲]
► **right arrow**	blue	Increase of brightness
◄ **left arrow**	blue	Decrease of brightness
▼ **down arrow**	blue	Decrease the number by one (memory place, brightness level) [▼]
OK	blue	Confirmation button [OK]
II	grey	Direct input of 'A' character (without necessity of pressing [DEL] key) [II]

Fig. 1. Manual IR control keybord

The display has five control modes:

0. standby mode
1. number selection mode
2. psalm/verse number mode
3. memory mode
4. parameter setting mode

After connecting the power supply, the display switches itself into the *standby mode*.

3.0. STANDBY MODE

After pressing the button [**ESC**] the display is cleared and switched to the *standby mode*, which is signaled by an illuminating dot in the lower right-hand corner. This button can be used before the selection of a new number.

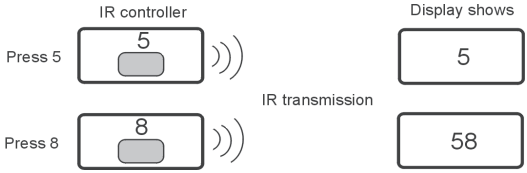
If it is not necessary to keep the display in operation, it does not have to be disconnected from the power supply, it just should be switched to the standby mode, by which the power consumption is minimized.

The [ESC] button has the highest priority. Every time it is pressed, the display switches to the *standby mode*.

3.1. NUMBER SELECTION MODE

3.1.1. Entering numbers

After you press one of the buttons [**0**] to [**9**], the respective digit will be displayed in the right position of the display. Previously displayed numbers will be moved to the left. Subsequent numbers must be entered within a time period of 5 seconds. Entering numbers after 5 sec. interval will cause input initialization (new number will be displayed instead of moving previous numbers to the left).



3.1.2. Entering alphabetical characters

After pressing the button [II], the character 'A' will move in from the right.

After pressing the button [␣], a blank space will move in from the right.

After pressing the button [•], a dot will be displayed behind the last pressed digit, which will be moving with the digit when subsequently entering other numbers.

Alphabetical characters can be entered using the [ALPHA] button. A hyphen will be displayed on the (prefix), while previously displayed numbers will be shifted to the left. When subsequently pressing buttons [0] to [9], an alphabetical number will be displayed in place of the hyphen according to the following table:

Numerical button	Displayed character
1	**A**
2	**b**
3	**C**
4	**d**
5	**E**
6	**F**
7	**H**
8	**P**
9	**U**
0	**- (minus)**

Note:

If a "prefix" is displayed, and you need to switch the display into the initial state, press the button [ALPHA] again. The hyphen will no longer be displayed and display will enter into previous mode.

3.1.3. Increasing/decreasing number by one

After pressing the button [**up arrow**]▲ the number is increased by one. Similarly, after pressing the button [**down arrow**]▼ the number is decreased by one.

Note:

If an alphabetical character and number are displayed, then increasing or decreasing by one will affect only the number to the right from the alphabetical character.

3.2. PSALM/VERSE NUMBER MODE

3.2.1. Entering a verse number

Entering a psalm number and pressing the button [**SELECT**] will display the preset verse number 1 in the '_. 01' format. It is possible to directly enter a two-digit verse number, e.g. '_.23'.

Pressing the button [**SELECT**] again will cause an alternating display of psalm and verse number according to preset parameters – see chapter "*3.4.1. Setting parameters of psalm/verse display durations*".

Note:

*The psalm/verse number alternating display mode can be cancelled only by switching the display into the standby mode by pressing the button **[ESC]**, **[MENU]**, or **[MEM]**.*

3.2.2. Entering a hymn number in the psalm/verse number alternating display mode

Enter a hymn number by a numerical keyboard according to Chapter "*3.1.1. Number input*" and "*3.1.2. Input of alphabetical characters*". After pressing a key, alternating displaying will stop for at least 2 seconds, so that you can enter a hymn number.

Note:

By entering a new hymn number, verse number will be automatically reset to '_. 01'.

3.2.3. Entering a verse number in the psalm/verse number alternating display mode

In the *psalm/verse number alternating display mode* you can increase/decrease the verse number by one by pressing [**up arrow**]▲/ [**down arrow**]▼.

Note:

You can input a verse number directly according to the description in Chapter "3.2.1. Entering a verse number".

3.3. MEMORY MODE

3.3.1. Working with the number memory

You can prepare the numbers of hymns into the memory in the order they will be sung before the service. There are 30 memory locations available (one memory location for at maximum one 4-digit number).

The memory mode can be entered by pressing the [**MEM**] button. This will be indicated by {MEM} on display. There are three procedures for the work with the memory:
− erasing the whole memory
− writing numbers into memory
− selection of numbers from the memory

3.3.2. Erasing the whole memory

This procedure will delete the number memory so that each memory place will contain its order number with a hyphen. This will make a base for better orientation in memory.

You can erase the whole memory only in the *memory mode* (the display shows {MEM}). After pressing the button [**DEL**], will start blinking on the display. Within two seconds press the confirmation button [**OK**]. Otherwise erasing will not take effect, and the original numbers will remain unchanged. Display will show the first memory place '-1'.

3.3.3. Selection of numbers from the memory

Individual memory locations can be browsed using the arrow buttons (▲,▼) (must be in memory mode). Pressing the button [**up arrow**]▲ the first time will display number from the first memory position. Similarly by pressing the button [**down arrow**]▼the first time will display the number from the last memory position (position 30).

If the display is in the *memory mode* (it shows {MEM}) and you want to get quickly to another memory location other than the 30th, you can address the memory by tens. For example, if you want to get quickly to the 22nd memory location, press button [**2**]; the display will show the content of the 20th memory location; then press the button [**up arrow**]▲ twice.

Note:

It should be pointed out that the so-called fast addressing is possible only in the memory mode. It means only when the display shows {MEM}.

3.3.4. Entering numbers into the memory

Stored number in memory can be changed when browsing the memory locations.

Select a new number by using the buttons [**0**] to [**9**], [ıı] ("A" character), [•] (decimal point) or [␣] (space), which blinks continually, and store the selected number into the memory by pressing [**OK**]. The stored number will stop blinking.

Canceling the storing of a new number into memory can be accomplished by e.g. pressing the (▲,▼) buttons. The original (previously stored) number will stay in memory.

3.4. PARAMETER SETTING MODE

After pressing the [**MENU**] button you access the parameter setting mode for the time duration of displaying the:

a) psalm number
b) verse number

*This mode can be ended by pressing a button [**ESC**], [**SELECT**] or [**MEM**].*

3.4.1. Setting parameters of psalm/verse display durations

The following parameters express the duration (in seconds) of the displaying of a psalm (hymn) number “P…” and the verse number “V…” in the psalm/verse number alternating display mode.

By pressing the button [**MENU**] you enter the *display duration mode*. The display shows, for example, {P 5}, which means that in the psalm/verse number alternating display mode the hymn number will be displayed for 5 seconds. Here you can enter the parameter directly through the numerical keyboard in the range of 0 to 9 seconds.

After pressing [**up arrow**]▲ or [**down arrow**]▼ a reading, e.g. {V 5}, will appear on the display, which means that in the hymn/verse alternating display mode the verse will be displayed for 5 seconds. Here you can enter the parameter directly through the numerical keyboard in the range of 0 to 9 seconds.

If one of the previous parameters is equal to zero, then in the *psalm/verse number alternating display mode* the respective psalm/verse number will not be displayed (if the parameter of the other item, e.g. a psalm number, is other than zero, the item will be constantly displayed).

Note:

If both parameters are equal to zero, then only a psalm number will be permanently displayed.

3.5. SETTING THE BRIGHTNESS PARAMETER

The brightness level can be increased or decreased by pressing the buttons [**right arrow**]► and [**left arrow**] ◄.

4. OPERATING CONDITIONS

NDT series displays

Power supply	230 VAC
Mains voltage tolerance	±10%, 50Hz
Operating ambient temperature	-10°C ÷ +40°C
Class of protection	IP 40
Operating ambient humidity	max. 80%

The devices are designed for the indoor use.

5. WARRANTY CONDITIONS

1. The units are supplied with a 24-month warranty, starting from the date of purchase.
2. ELEN/authorized distributor will repair the units free of charge during the warranty period at ELEN/authorized distributor company.
3. Cost of shipping the units to ELEN/authorized distributor company is not covered by ELEN/authorized distributor.
4. The validity of the warranty is void if the units have been damaged:
   - as a result of improper use;
   - after connection to a mains supply network with other than specified ratings;
   - as a result of force majeure;
   - as a result of repairs or modifications done by an unauthorised person.

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