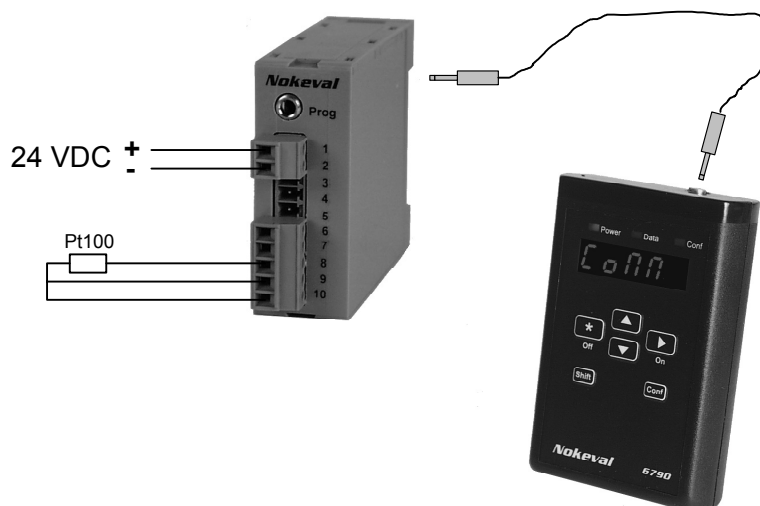


Nokeval Hand-held programmer 6790

Introduction	2
Functional states	2
Powering up and communications setup	2
Monitor state	3
CONF-state	3
Editing	3
Entering password	4
Powering off	4
Programming cable	4
Battery	4
Interface	5
Menu structure	5



Introduction

6790 is a hand-held programming device able to configure devices supporting Nokeval Meku configuration language. However, 6790 cannot edit text strings.

Meku is a set of definitions and commands, by which the programming device is able to read the menu of the target device and modify the settings associated with them. The menus can be hierarchic.

There are six keys (buttons). See the last page of this manual of their general usage.

Functional states

The main states of 6790 are shown in the label back-side of 6790 and on the last page of this manual. After powering up, 6790 is in Communications setup menu (see later), where the connection to the target device is established. When the connection is up, 6790 is in monitor state and the measurement values can be observed like on a panel meter.

When in monitor state, you can enter configuration state and then exit to the monitor state. When exiting monitor state, the connection is closed and 6790 is in the communications setup again and may be powered down.

Powering up and communications setup

6790 is powered up by holding ► pressed down about one second. Software version of 6790 is displayed briefly.

After power-up, you can set up communications parameters for 6790 to match those on the target device. There is three things to set up: Baud, Addr

and Slot. You can edit these by selecting them with ▲▼ keys and pushing ►; exit with ★ when done. Finally select Conn and push ► to connect.

The comm setup menu items are:

CONN

6790 attempts to open a connection to the target device with the parameters selected on comm setup menu. While attempting, a exclamation mark (!) is shown on the display (unless Auto baud is used in which case the probed rate is displayed). If no response is heard in 1 seconds, 6790 gives up and returns to the communications setup. In case the attempt is successful, 6790 transits to monitor state (see Monitor state).

SLOT

If the target device has several active cards with separate menus, these cards can be addressed with slot number. With simple devices like 6720, set slot=0.

ADDR

6790 sends its commands using Nokeval SCL protocol, where is a device address number (0..127) on the RS-485 bus. When using direct cable connection, most devices will respond in any address and this setting is trivial.

BAUD

Select the baud rate that matches the target device. Most devices (e.g. 6720 and 6740) use 9600 baud. Devices that have a RS-485 connection can be set on different baud rates; if the rate is not known, Auto baud setting is useful. Note that this setting does not change anything in the target, but this setting must be matched to make the connection possible.

Display Brightness

While in comm setup menu (display Conn, Baud, Slot or Addr), it is possible to adjust the display brightness. Hold down the Shift key and use ▲▼ keys to adjust. The dimmer the display, the longer battery life.

Monitor state

When 6790 is succeeded to connect to a device, the measurement results or other live values are shown on the display. This is called monitoring.

You can use keys to:

- ▲▼ Changes target of monitoring (e.g. Input or Output); select on list displayed and push ►.
- Display diagnostic message (s) from the device (e.g. WBk=sensor wire break). If there is no messages, monitoring continues.
- ★ Disconnects from the device and returns to the comm setup menu. Please do this always before physically disconnecting 6790 from the target.
- Conf** Enters configuration state. See Conf state.
- Shift+Conf** Shift+Conf Enters Configuration state but in the main menu of the target device. Here you can access calibration and monitor menu. Please do not enter main menu unless necessary.
- Shift+▲ ▼** Adjusts number of decimals on the display.

CONF-state

In Conf state the configuration menu of target device is shown. You can select menu items with ▲▼ keys and modify the selected item by pushing ► key. When the value is OK, push ★ to get back to the menu. You can select the next item and edit it and so on.

Some menu items are not settings but lead to a new menu, called submenu. Menu is arranged hierarchically to shorten up single menus. You can back to the previous menu with ★ key again. See the target device manual; usually there is a menu map to ease up navigation.

6790 has five digit/letter display. If the item name is longer than fits in the display, the rest can be viewed with Shift key.

When a menu item is selected (but not being edited), you can issue Lock and Free commands for that item. These are additional functions not normally needed. The purpose of them is explained in the target device documentation. Lock and Free are given by holding down Shift and then using ► or ★ key, respectively.

When all is set up, it's time to exit configuration menu. Exiting is done by ★ key, of course. If the menu has option to Save (write the settings made to the target device non-volatile memory) or Undo (retrieve the previous settings discarding those just done), these options are shown and you must accept either using ► key.

Keys:

- ▲▼ Selecting (among parallel options)
- Editing; entering submenu; accepting Save/Undo
- ★ Exiting
- Shift** Scrolling the display
- Shift+►** Lock-command
- Shift+★** Free-command

Editing

There are several possible types of data 6790 can edit.

ON/OFF

Displayed "Yes" or "No". Select with ▲▼ and exit with ★.

An example: selecting bipolar measurement mode.

Integer

One digit blinking. Digit may be adjusted with ▲▼. Move the cursor (blinking) with ►. Exit with ★.

Example: serial address.

Decimal number (floating point)

One number or decimal point blinking. Adjust with ▲▼. Move cursor (blinking) with ►. The leftmost digit may be adjusted to be minus sign. Exit with ★.

Example: output scaling.

List of options

Select the desired option using ▲▼. Exit with ★.

Example: input type.

Password setup

There is *OFF* or *SET* on the display depending on if the password is currently activated. To set a password, select *SET* and push ► key. Display is changed to *COD 0* and now you can define the password. The password must be entered twice; if they mismatch, "*OFF*" is displayed and you must re-try. See next chapter on how to enter passwords. Finally exit with ★.

Entering password

You are asked to enter password when there is "COD 0" on the display.

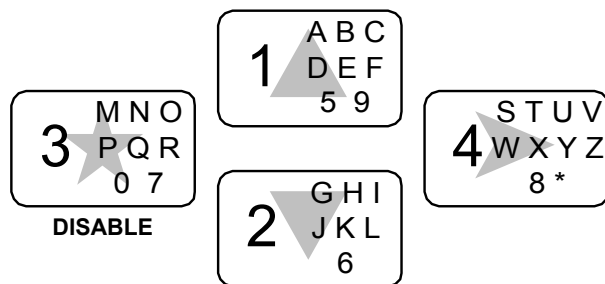
A password consists of six keypresses using keys ▲▼★►. However, the password ★★★★★★ means no password and cannot be used.

The number after COD indicates the count of keypresses given so far.

In Nokeval 2000 panel meters the keys are arranged in a row ▲▼★►. To ease up remembering passwords, you may think the keys be numbered respectively 1234. See the backside label of 6790. This is also necessary to be able to enter the password in Mekuwin configuration program.

Example: in Mekuwin you have set password 123111. When using 6790, this is entered ▲▼★▲▲▲.

The password is still easier to remember if letters are associated according to the diagram (this is also compatible with Mekuwin):



Powering off

If you are still in monitor state, please exit to the Communications setup before disconnecting the cables. To exit, use ★ key until there is *Conn* in the display.

If there is no more devices to configure, you can shut 6790 down with ★ key (needs one second press).

If there is problems with communications and 6790 keeps waiting and does not respond, you can press ★ key for 6 seconds to terminate the connection immediately. If this does not work, disconnect the battery for a couple of seconds.

6790 powers itself down if the keys are not used for 5 minutes. This is to save batteries.

Programming cable

You can use both Mono (2 pole) and Stereo (3 pole) cables with 3.5mm plug connectors. 6790 connects the Stereo middle pole to the ground making the cable like Mono. The cable is recommended to be no more than 1 meters long.

COMMUNICATION FAILURES

If 6790 does not receive a response from the target device in one second, it shows a blinking exclamation mark (!) and requests the user to choose:

1. Just wait for the device to respond (some commands like calibration commands may take several seconds),
2. Re-transmit the command using ► key, OR
3. Terminate the connection with ★ key.

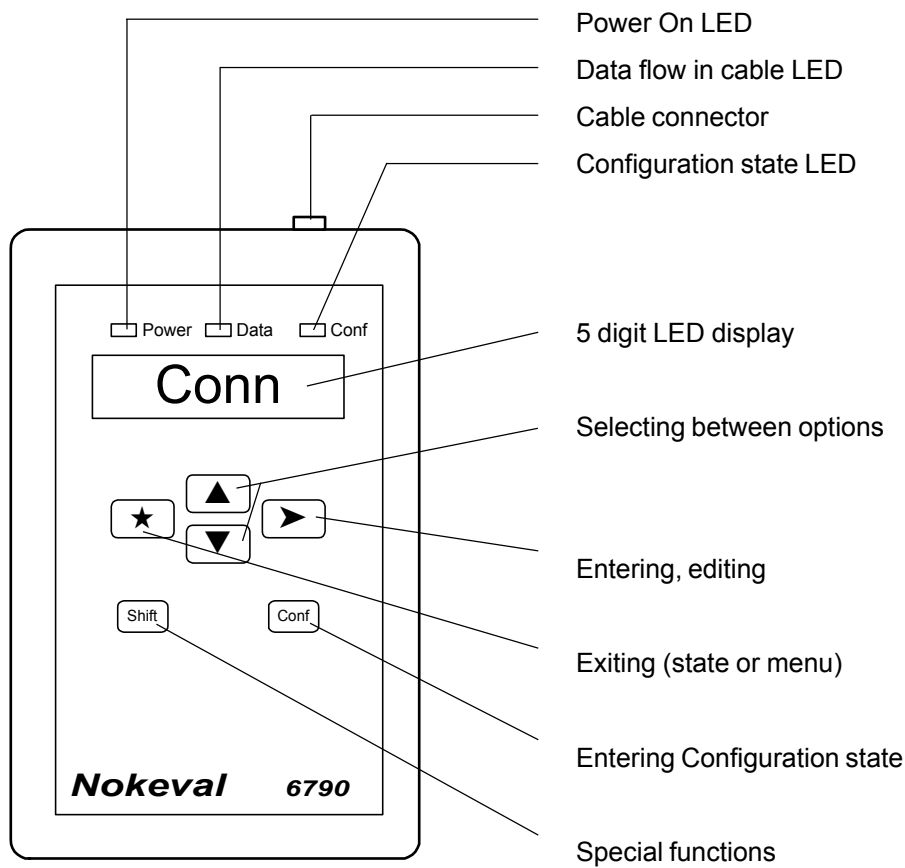
Battery

6790 is powered by a 9V battery (6F22). To change it, open the battery lid backside of 6790. No need to open screws. If the display brightness varies, there is need for a new battery. A weak battery can cause connection drop-outs. Very weak battery makes 6790 to turn itself off.

It is possible to use a rechargeable 9V battery. Recharging must be done externally.

The power consumption depends heavily on the display brightness; see Communications setup on how to adjust it.

Interface



Menu structure

