mark LCD - User manual

1   General

The IPLC controller hosts a 3 row LCD display and 6 buttons which move the menu and set values.

Red button – Esc: leave the menu, do not confirm selection

Green button – OK: confirm selected value or action

Yellow (blue) buttons – up and down arrows: move in the menu items, set selected analog or digital value

Yellow (blue) buttons – left and right arrows: move in the time programs etc.

The second (middle) row is always the active one; whatever we do with the buttons applies to this row. To change a value or enter a menu, position the value or menu item **to the middle row** and press OK.
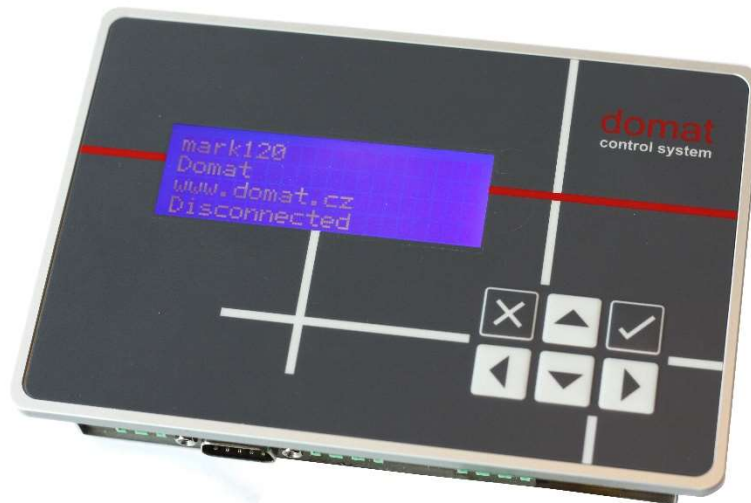

Illustrative photo type mark320.

By pressing Esc several times, the main menu is reached.

Note:

Controllers types mark120, mark125 have a four-line LCD display and six not illuminated keys on membrane keyboard. Active line is the second from the top and is highlighted by the red line. Other information is consistent with the type mark320 and mark220.

Illustrative photo type mark120.

2 Moving in the menu

The menu tree is defined by the author of the application (software engineer). Move in the menu pressing Up arrow, Down arrow, OK, and Esc.

A submenu is indicated by the „>" character at the last (right) position of the row. Set the submenu line to the 2nd row and press OK. Leave the menu either pressing Esc (no changes are saved), or OK (changes saved).

3 Setting values on the controller

Example texts on the display are in serif.

```
PAVEX – stan
Alarmy: OK   >
t room   23.7
```

The „>" arrow on the right means that this row contains a submenu, which is here list of alarms and an item for acknowledgment of alarms.

Use Up and Down arrow to browse in the menu:

```
PAVEX – stan
Alarms: OK   >
t room  23.7°
p dif.  2.3 Pa
Settings     >
Inputs       >
Outputs      >
```

In the „Inputs" and „Outputs" sections there are in this example read values from the peripherials (sensors, switches, variable speed drives, valves etc.), all values are read-only.

3.1 Setting of analog values

As an example, a temperature setpoint will be changed:

1. Go to the main menu (repeated pressing of the Esc key).

```
PAVEX – stan
Alarms: OK   >
t room  23.7
```

2. Three times down arrow – the Settings item is in the middle row and it is possible to enter it.

```
p dif.  2.3 Pa
Settings     >
Inputs       >
```

3. Confirm Settings with the OK key.

```
Temp.       22.0
Pressure     3.0
Ot.st.1     40.0
```

4. Arrow up an item set Temperature on the middle row.

5. Press OK to enter the value change dialogue.

```
Temp.       22.0
?   22.0
```

6. Using Up and Down arrows, set the new value in steps (usually 0.5 K).

7. Press OK to confirm the new value. The new value will be written into the controller.

8. To leave the setting dialogue without changing the value press Esc.

3.2 Setting of digital values

An example will change mode value:

1. Locate the operating mode in the menu – a multistate value.

```
Temperature22.0
Mode     Summer
Ot.st.1    40.0
```

2. Up arrow to set the Mode item to the middle row.

3. Press OK to enter the mode select dialogue.

```
Mode    Summer
?   Summer
```

4. Use Up and Down arrow to set the requested mode (e.g. Winter, Summer, Off).

5. Press OK to confirm the value – it will be written to the controller.

6. To leave the setting dialogue without changing the value press Esc.

3.3 Time scheduler setting

The time scheduler contains one or more events (changes of state of a multistate value or changes of analog value) for each weekday. It is set after entering the time scheduler pressing the OK button:

```
press.  2.3 Pa
AHU Schedule >
Inputs      >
```

This displays the defined events – status changes:

```
0.00:00 Saving
0.06:00 Comf.
```

Browse the defined events by pressing Up arrow and Down arrow.

Days are represented by the first number, 0 indicates Monday.

3.3.1 Changing the schedule

Position the event to be changed to the second row of the display. Example: the Comfort status shall be entered not at 6 AM but at 6.30 AM.

Press Down arrow to set this event to the editing line:

```
0.00:00 Saving
0.06:00 Comf.
0.18:00 Saving
```

Press OK to enter the edit mode of the event:

```
Edit
0  06:00 Comf.
Delete
```

Use Right arrow and Left arrow to focus the item to be changed, which is *minutes* in our case: Press Right arrow twice. The minutes are flashing.

Set the minutes from „00" to „30" using Up arrow. The buttons have the autorepeat functionality, i.e. by sustained pressure longer than 0.3 s the value is changing rapidly.

Similarly, it is possible to change all the other items in the time event, which are weekday, hours, and status (or value if it is an analog time program).

To confirm the set value, press OK.

3.3.2 New event

In the event list

```
New
0.00:00 Saving
0.06:00  Comf.
```

go up arrow to set the line New at the second position:

```
Special
New
0.00:00 Saving
```

and enter a new item by pressing the OK button.

```
 Edit
6  20:20 Saving
Delete
```

Use Right arrow and Left arrow to select weekday, hour, minute, and status, use Up arrow and Down arrow to change the value of the focused (flashing) item.

Press OK to write the new item down.

3.3.3 Delete event

Set the item to be deleted to the second row:

```
0.00:00 Saving
0.06:00 Comf.
0.18:00 Saving
```

Press OK to enter the event:

```
Edit
0  06:00 Comf.
Delete
```

Use Right arrow to select the Delete option – press the Right arrow button four times. The Delete text is flashing at the last row.

Press OK to confirm delete.

3.3.4 Delete all events

Sometimes, it is more convenient to delete all events in a schedule at once and define them again.

In the event list

```
New
0.00:00 Saving
0.06:00 Comf.
```

go up arrow to set the line Clear at the second position:

```
Clear
Special
```

and click OK to delete all events in the schedule.

3.3.5 Entering new exceptions in the time program

In the event list

```
New
0.00:00 Saving
0.06:00 Comf.
```

go up arrow to set the line Special at the second position:

```
Clear
Special
New
```

and press OK to enter into the list of exceptions in the program.

```
New
```

Press the up arrow line New set to the second position.

```
Clear
New
```

Press OK to enter a new exception in the program.

```
Saving
21.07.16 09:15
21.07.16 09:15
```

Left and right arrows select the state, day, month, year, hour and minute. Up and down arrow selected (flashing) variable changing. The first line is the start of exceptions in the program and the other end.

Press OK to confirm insertion exceptions.

3.3.6 Changing the exception of the time program

In the event list

```
New
0.00:00 Saving
0.06:00 Comf.
```

go up arrow to set the line Special at the second position:

```
Clear
Special
New
```

and press OK to enter into the list of exceptions in the program.

```
New
21.07-21.07 Savi
```

Exceptions that you want to change settings on the second line.

```
New
21.07-21.07 Savi
```

Press OK to choose.

```
Edit
Delete
```

Since Edit is now located on the second line, press OK again to confirm.

```
Saving
21.07.16 09:15
21.07.16 09:15
```

Left and right arrows select the state, day, month, year, hour and minute. Up and down arrow selected (flashing) variable changing. The first line is the start of exceptions in the program and the other end.

Press OK to confirm change exceptions.

3.3.7 Deleting exceptions in the time program

In the event list

```
New
0.00:00 Saving
0.06:00 Comf.
```

go up arrow to set the line Special at the second position:

```
Clear
Special
New
```

and press OK to enter into the list of exceptions in the program.

```
New
21.07-21.07 Savi
```

Exceptions that you want to deleting, set on the second line.

```
New
21.07-21.07 Savi
```

Press OK to choose.

```
Edit
Delete
```

Down arrow set Delete on the second row.

```
Edit
Delete
```

Pressing the OK button will delete the exception.

3.3.8 Deleting all the exceptions in the time program

In the event list

```
New
0.00:00 Saving
0.06:00 Comf.
```

go up arrow to set the line Special at the second position:

```
Clear
Special
New
```

and press OK to enter into the list of exceptions in the program.

```
New
21.07-21.07 Savi
```

Press the up arrow to set the line Clear at the second position

```
Clear
New
```

Press OK to delete all exceptions.

4   Alarms and faults

There are data points in the program defined as alarms. Alarms may be of those states:

```
OK          Normal status, no alarm
*           Alarm active, unacknowledged
*v          Alarm active, acknowledged
-x          Alarm inactive, acknowledged (unreset)
-           Alarm inactive, unacknowledged (unreset)
```

If a datapoint is in the „Alarm" state, it is necessary to remove the cause of the problem: reset a VSD, clean a filter etc. Then it is possible to re-set the alarm.

„Alarm active" means that the cause of the alarm is still existing (temperature higher than expected, leakage detector flooded, etc.). „Alarm inactive" means that the alarm cause is over.
An „Acknowledged" alarm has been confirmed by the operator. Inactive alarms can be deleted (reset).

The most common situation is as follows:

- alarm appears, it is active and unacknowledged

- operator **acknowledges** the alarm, alarm is still active

- the alarm disappears, it is acknowledged and inactive

- operator **resets** the alarm

- the alarm data point goes to normal.

In case alarm is not acknowledged during the time it is active:

- alarm appears, it is active and unacknowledged

- the alarm disappears, it is unacknowledged and inactive

- operator **resets** the alarm

- the alarm data point goes to normal.

4.1   Acknowledge and reset alarm

Enter the alarm menu by pressing OK

```
press.    2.3 Pa
Alarm:        * >
t room    23.7
```

The alarm menu appears:

```
Alarm
Ack
```

Acknowledge the alarm by pressing OK. Now the alarm row looks different:

```
press.   2.3 Pa
Alarm:        *v
t room    23.7
```

The alarm is acknowledged but still active, therefore it can not be reset (note that there is no „>" character at the end of the row to enter the submenu).

After the alarm goes inactive, the indicator reads:

```
press.   2.3 Pa
Alarm:        -x>
t room    23.7
```

After entering the menu it is possible to reset the alarm:

```
Alarm
RST
```

Press OK to reset the alarm. After returning to the upper menu, the alarm is in normal state:

```
press.   2.3 Pa
Alarm:        OK
t room    23.7
```

and the plant should be running.

4.2   Possible error causes

Check the following:

- **Is the panel powered (all fuses OK, control lamps on)?**
  If not check the main circuit breaker or power distributor.

- **Are all the motor protections on?**
  If not, check if the circuit breakers and switch them on. Remember that there may be circuit breakers in the panel that should stay off all the time!

- **Are the green LEDs at the controller and the modules on?**
  If not, the controller and/or modules are not powered. Check power presence at the power terminals of the modules.

- **Are the red communication LEDs at the modules and the controller flashing?**
  If not, communication may be broken. Check communication wiring and input-output modules.

- **Are correct input values (temperatures etc.) displayed in the LCD menu?**
  Short-circuited sensor: -250°C
  Interrupted sensor: 150°C

- **Inverters reports error?**

  On the display of invertors could be read error code - see an appropriate invertor manual.

5 Protected menu areas

Parts of the menu may be protected from unauthorised access by a four-digit code (PIN). There may be more independently protected menu branches, each of them being locked by a different PIN.

In the locked areas there may be e.g. parameters of the control loops or actual time/date settings.

The protected menu item does not display its submenu. After being selected by the OK button (here „Date/time")

```
MiniPLC
Clock        >
t prost. 23.7
```

not displayed submenu, but it shows a dialog to enter the PIN:

```
Enter PIN
? 0***
```

Enter the PIN using the arrows to the right and left (shift between positions) and up and down (adjustment digits). Click OK to confirm. If the PIN is entered correctly, displays the submenu. Typing errors can not confirm the selection.

```
27.07.16 07:30
```

After the PIN has been entered correctly, the menu is available (unlocked) for a definable time. After user inactivity time exceeds this period, the menu is locked and the PIN must be entered again.

6 More information

More information on your plant, its maintenance and service can be found in following resources:

- Project of the control system, especially wiring schematics and technical description
- Project of the electrical part
- Projects of technologies (AHUs, heating...)
- Data sheets and manuals of fans, variable speed drives, sensors etc.
- Supplier / service of your control system:

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