



Velleman Home Automation System



VMB4PD

**Push Button and
Timer Module
for Velbus System**



Introduction

This unique panel will let you control all of the output modules on the Velbus® system. There is no need to remember the function of each button, just read the label next to it!

The module also features programmable timing functions to automate daily or weekly button press actions. The infrared receiver will let you control the module at distance.

Features

Four push buttons and one configuration push button.

Up to 8 commands (2 groups of 4 commands each).

The 2 command groups are directly callable through the configuration push button.

Automatic switchover to the first group of commands after 15 seconds of inactivity.

Push button debounce: 65ms.

Possibility for each push button to react only when maintaining pressed (1s, 2s or 3s).

Adjustable push button backlight: off – low dimming – high dimming – max. intensity.

LED indication for each push button: slow, fast, very fast blinking or continuously on.

Remote Control:

Built-in IR receiver for use with the Velbus®

Can be used with the VMBIRTS IR remote stick

IR modulation: RECS80

Transmitter/receiver range: ±10m

LCD display:

2 lines of 16 characters

White backlight

Adjustable backlight: off – low dimming – high dimming – max. intensity.

Possibility to automatically adjust the backlight intensity (twice a day).

Adjustable contrast through configuration menu.

Labelling on the display for each command, 2 lines of 16 characters for each label

Configuration:

Adjustable display contrast and backlight.

Adjustable push button backlight.

Adjustable command reaction time (at once, 1, 2 or 3 seconds)

Command labelling.

Module address configuration (256 possible addresses).

Clock configuration.

Mode configuration (command panel only, command panel with timer or command panel with timer for the 2nd group of commands).

Input and modification of the timer program steps.

Timer activation or deactivation for a specific push button.

Configuration menu will automatically close after 25 seconds of inactivity.

Clock:

Built-in clock with day display.

Setting one clock will adjust all other clocks on the Velbus® system.

Possibility to configure one clock as main clock – all other clocks will run right.

Timer:

Programmable timer functions for push button command automation.

Up to 20 program steps.

Each program step can automate up to 8 commands.

Power Supply:

Required power voltage: 12 to 18VDC.

Consumption: backlight off: 13mA LEDs off / 15mA LEDs on
backlight lowly dimmed: 14mA LEDs off / 16mA LEDs on
backlight highly dimmed: 18mA LEDs off / 19mA LEDs on
backlight max. intensity: 26mA LEDs off / 27mA LEDs on

Max. consumption (all LEDs activated and backlight max. intensity): 27mA.

Power supply LED indication.

9V-battery connection (clock back-up power).

Back-up battery power consumption: 15mA.

Battery not included.

Dimensions:

Push button module (L x W x H): 66 x 44 x 30 mm

Push button module with frame (L x W x H): 118 x 80 x 30 mm

Frame not included.

VELBUS:

2-wire communication for VELBUS data and 2 wires for power

Data transfer: 16.6kbit/s

Serial data protocol: CAN (Controller Area Network)

Short-circuit proof (towards negative or positive of power)

Bus error indication: 2 x short flash of the indication LED

Self restoring after 25 seconds in case of a bus error

Possibility to assign a name (max. 15 characters) and a reaction time (65ms, 1s, 2s or 3s) which can be saved in the non-volatile memory.

The command labels are displayed on the LCD. These labels consist of 2 lines of 16 characters each and will also be saved in the non-volatile memory.

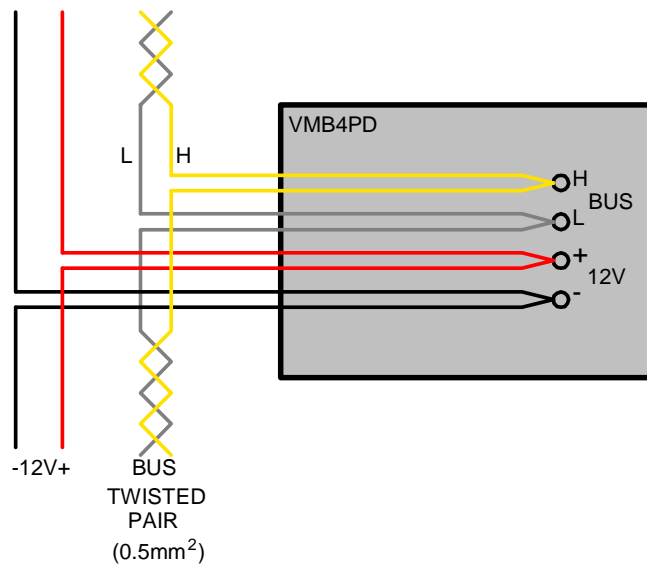
When pressing, maintaining pressed and releasing a push button, an instruction is being sent.

Instructions will be accepted when setting the backlight, switching the indication LEDs on and off, slow, fast or very fast blinking of the indication LEDs, calling up the module type, the push button names and when reading from or writing to the non-volatile memory.

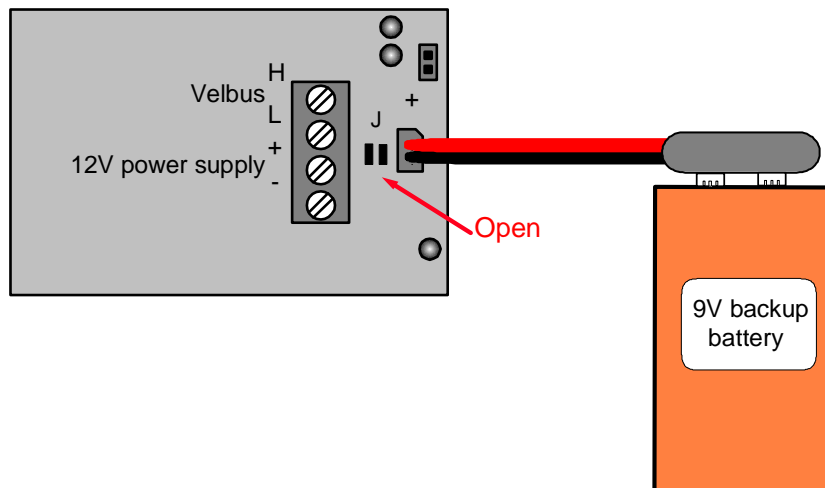
The module can respond with the module type, the push button name or the contents from the memory.

Connection

For connection between the modules, use twisted pair cable (ex. EIB 2x2x0.8mm², UTP 8x0.51mm - CAT5 or other). Use minimum 0.5mm² cable. For long wiring (>50m) or if a lot of modules (> 10) are connected to one wire, use 1mm² cable. Connect the 12-18Vdc (mind the polarity) and connect the bus wires (mind the polarity).

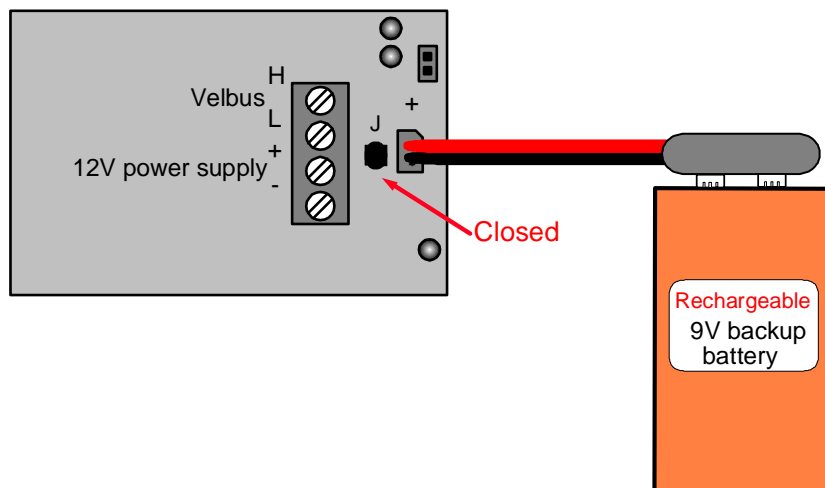


Connect a 9V battery (via the included cable) if you desire to power the clock in case of a power failure.



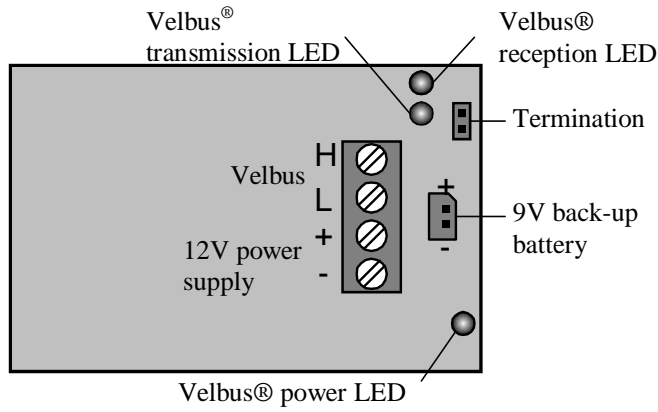
Hint: for advanced level only!

Solder island "J" when using a back-up battery in order to feed the battery.



WARNING: NEVER use a regular battery (non rechargeable) when soldering island "J" to avoid risks of explosion.

Termination:



If the module is connected at the start or end of a cable on the VELBUS, place the 'TERM' jumper.



Remove the jumper in all other cases.



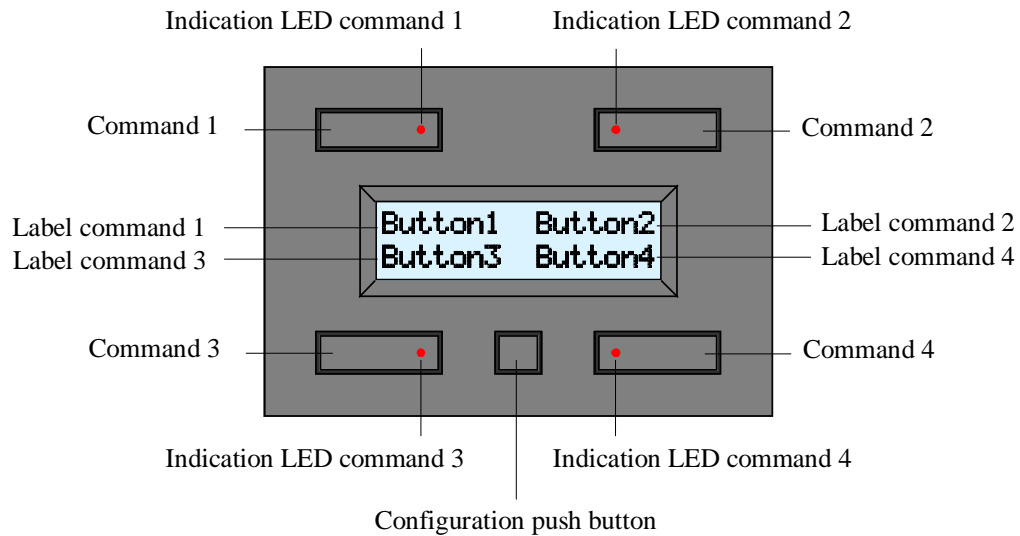
If different cable wiring topologies (tree, star, loop, ...) are used, place a jumper on the end module of the longest cable only, NOT on each end point.

Use

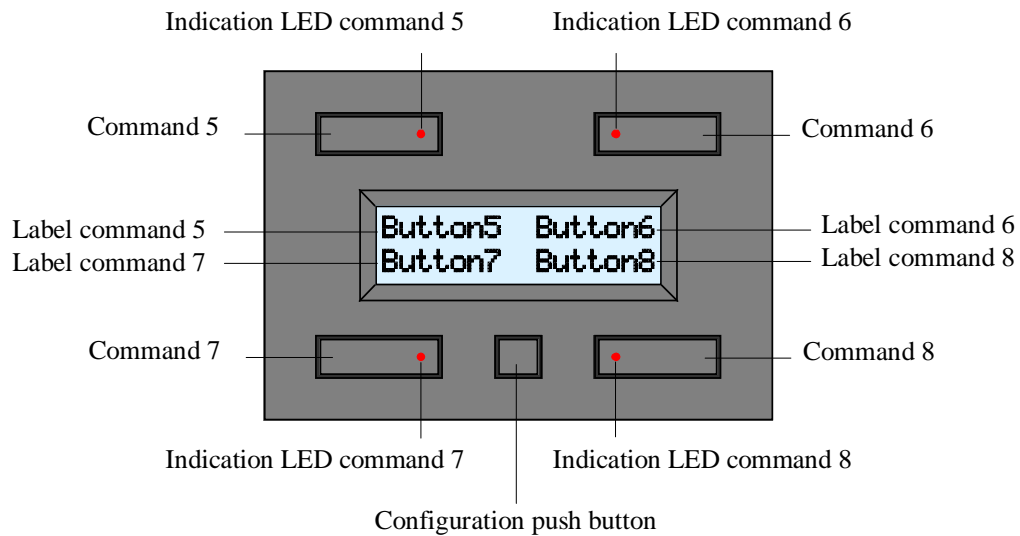
The module consists of 4 push buttons with corresponding LED indication and one configuration push button. The label for each push button is displayed on the LCD.

This module allows defining up to 8 commands.

The module will display the first 4 commands by default:



Push the configuration button to switch to the next four commands:



The module switches back to the default command display after 15 seconds of inactivity.

You can switch between the two displays at any time by pressing the configuration button.

When pressing, maintaining pressed and releasing a push button, an instruction is being sent on the Velbus®. These messages identify which push button has been pressed, maintained pressed or released. Other modules (relay modules, blind control modules, dimmers...) connected to the Velbus® will react and answer by resending a command message to the push button module. This command will switch off, light or blink the indication LEDs.

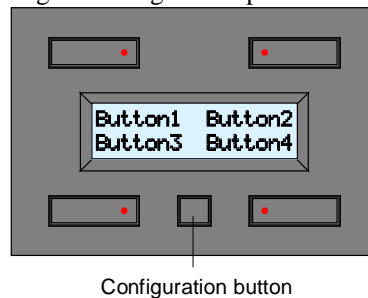
How a specific push button will control a particular module is explained in the learning mode of the concerning modules.

Configuration

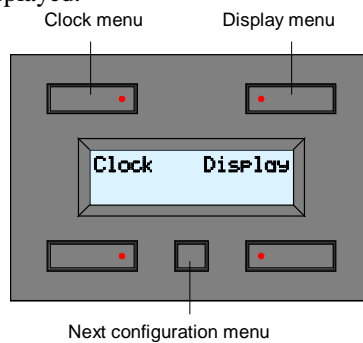
When using the module in the Velbus® system for the first time, configure:

- contrast
- backlight
- push button backlight
- clock
- address
- labels
- reaction time
- mode
- timer

Call the configuration menu by holding the configuration pressed for 4 seconds.



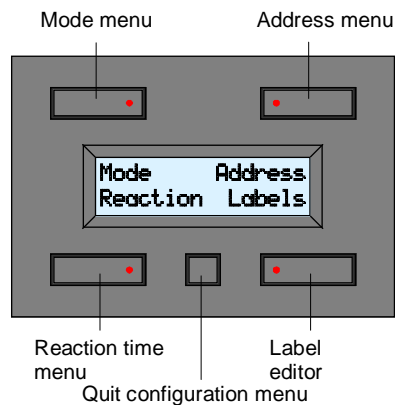
The configuration menu will be displayed.



Press the upper left push button to activate the clock menu.

Press the upper right push button to activate the display menu.

Press the configuration button to display the next configuration menu.



Press the upper left push button to activate the mode menu.

Press the upper right push button to activate the address menu.

Press the lower left push button to activate the reaction time menu.

Press the lower right push button to activate the label editor.

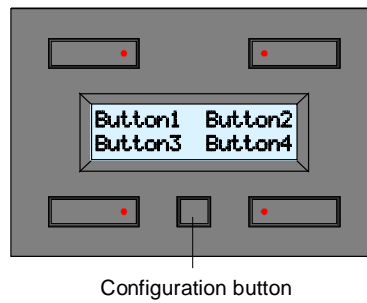
Press the configuration push button to quit the configuration menu.

Remarks:

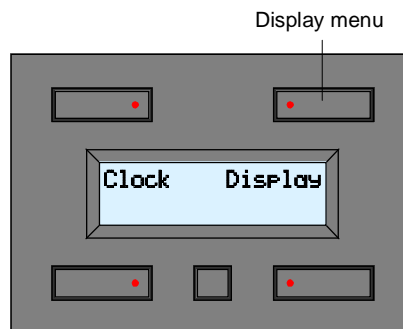
- In configuration mode pressing the push buttons will no more be sent through the Velbus[®].
- All settings will be saved in the module (even with a power failure).
- The first configuration menu shows menus “Prog” and “Timer on/off” when the timer is activated.
- The module will automatically quit the configuration mode after 30 seconds of inactivity.
- Hold the configuration button pressed for 8 seconds to display the configuration menu which allows modifying contrast and backlight.

Setting the Display Contrast

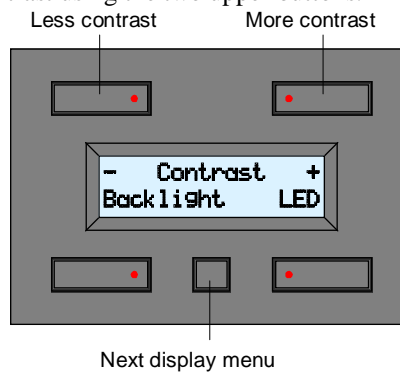
1. Hold the configuration button pressed for 4 seconds to display the configuration menu.



2. Press the upper right button to display the display menu.



3. Adjust the display contrast using the two upper buttons.



4. Press the configuration button repeatedly to quit the display menu.

Remarks:

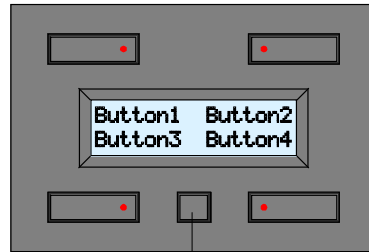
- Hold the configuration button pressed for 8 seconds to display the contrast mode.
- The display contrast may be set too low if experiencing a blank display. Hold the configuration button pressed for 8 seconds to switch the module to the configuration menu which allows modifying contrast. Hold the upper right push button pressed for 3 seconds. The contrast will be set at its maximum.
- The module will automatically quit the configuration mode after 30 seconds of inactivity.

Setting the Display and Push Button Backlight

The backlight intensity can be set according to your preferences (completely off, completely on or dimmed). The module allows you to automatically modify the intensity twice a day.

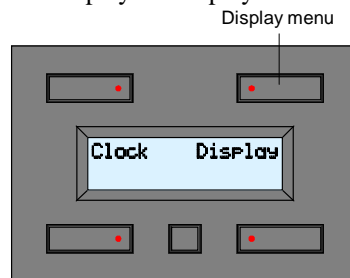
The push button backlight intensity can also be set according to your preferences. This is useful when trying to locate the buttons in a completely dark room.

1. Hold the configuration button pressed for 4 seconds to display the configuration menu.



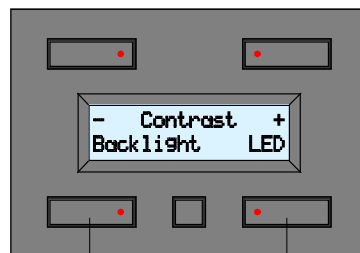
Configuration button

2. Press the upper right button to display the display menu.



Display menu

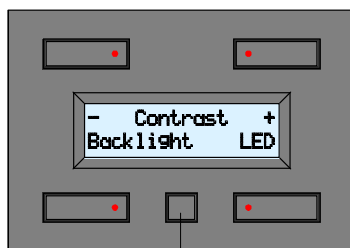
3. Press the lower buttons to adjust the backlight intensity.



Display backlight

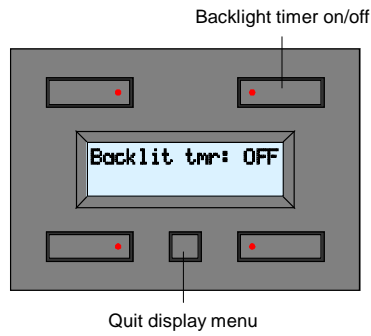
Push button backlight

4. Press the configuration button to display the next display button.

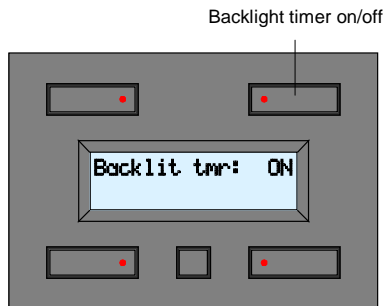


Next display menu

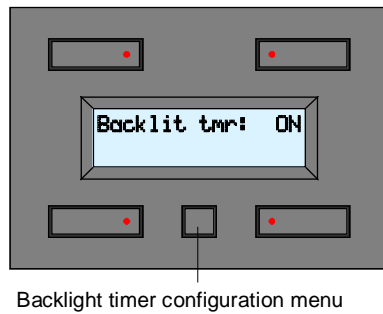
5. Press the upper right button to (de)activate the backlight.



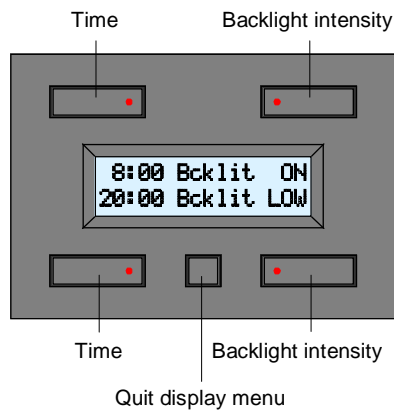
6. Press the configuration button to quit the display menu if the backlight timer has been deactivated.
7. Activate the backlight timer using the upper right button when you desire to automatically switch the backlight between two intensities.



8. Press the configuration button to display the configuration menu for the backlight timer.



9. Enter the first time and intensity using the upper buttons. Enter the second time and intensity using the lower buttons.



In the example above: the backlight will be set at full intensity at 08h00 and dimmed at 20h00.

10. Press the configuration button to quit the display menu.

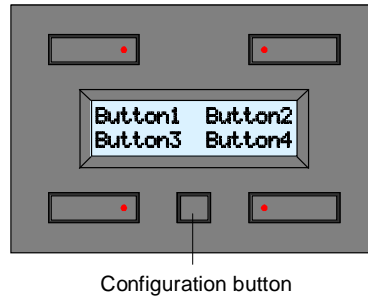
Remark:

- The module will automatically quit the display menu after 30 seconds of inactivity.

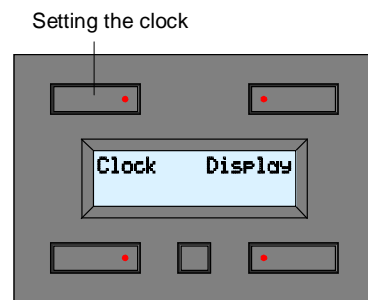
Setting the Clock

You only need to set the clock from one module. All other modules connected in the system will adopt the set time.

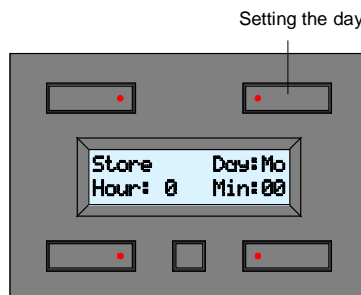
1. Hold the configuration button pressed for 4 seconds to display the configuration menu.



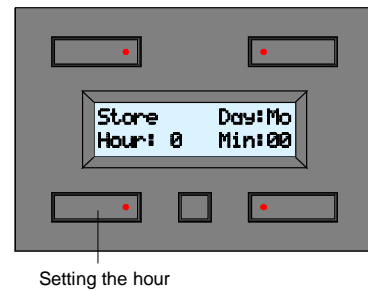
2. Press the upper left button to display the clock menu.



3. Press the upper right button to set the day.



4. Press the lower left button to set the hour.



5. Press the lower right button to set the minutes.



Setting the minutes

6. Confirm by pressing the upper left button.

Confirm time



Next clock menu

Remarks:

The seconds counter starts from 0 when setting the time. Wait for the beginning of a minute

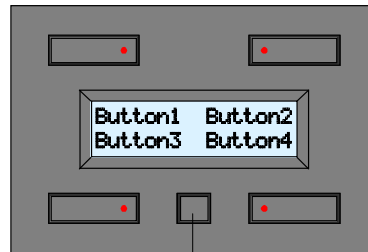
- Hold the configuration button pressed for 8 seconds to display the contrast mode.
- The display contrast may be set too low if experiencing a blank display. Hold the configuration button pressed for 8 seconds to switch the module to the configuration menu which allows modifying contrast. Hold the upper right push button pressed for 3 seconds. The contrast will be set at its maximum.
- The module will automatically quit the configuration mode after 30 seconds of inactivity.

Activating the Main Clock

All modules (with clock function) connected onto the Velbus® system must adopt the same time in order to work properly.

This can be achieved by setting the main clock on none of the connected modules. This module will send the time over the Velbus® system once every day and synchronize all other clocks.

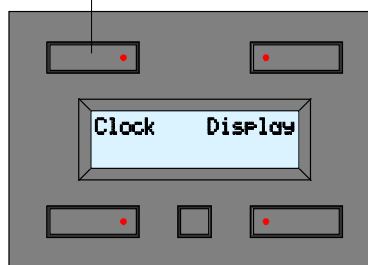
1. Hold the configuration button pressed for 4 seconds to display the configuration menu.



Configuration button

2. Press the upper left button to display the clock menu.

Clock menu



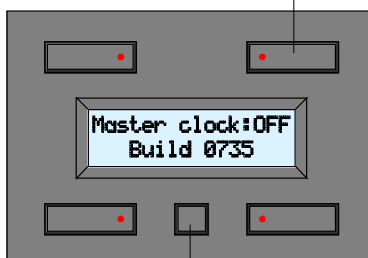
3. Press the configuration button again to display the next clock menu.



Next clock menu

4. Press the upper right button to (de)activate the main clock.
The lower line shows the software version.

Main clock on/off



Quit clock menu

5. Press the configuration button to quit the clock menu.

Remarks:

- Activate the main clock on none module only.
- The module will automatically quit the configuration mode after 30 seconds of inactivity.

Addressing

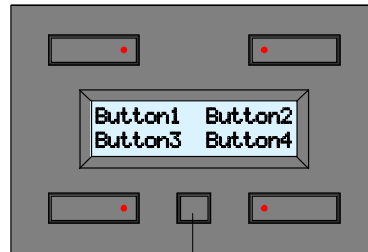
Every module connected onto the Velbus® system must have a unique address which can be set via the configuration menu.

Make sure to synchronize the IR transmitter/receiver by setting the correct address.

The final digit represents the address to be entered into the IR transmitter (see manual for the VMBIRTS transmitter).

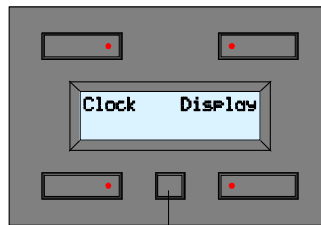
Example: push button model address = 26, IR transmitter address must be 6.

1. Hold the configuration button pressed for 4 seconds to display the configuration menu.



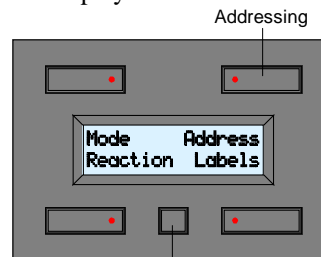
Configuration button

2. Press the configuration button again to display the configuration menu.



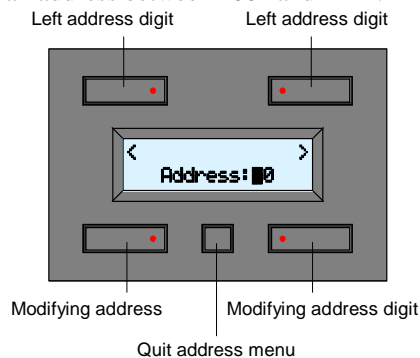
Next configuration menu

3. Press the upper right button to display the address menu.



Quit configuration menu

4. Press the upper left button to select the left address digit (blinking digit).
Press the upper right button to select the right address digit (blinking digit).
Hold the lower left button pressed and press the lower right button to modify the selected address digit. Select an address between "00" and "FE".



5. Press the configuration button to quit the address menu.

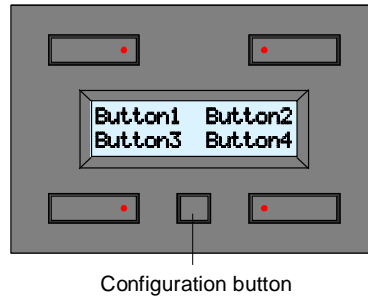
Remarks:

- Make sure every module has a unique address.
- The module will automatically quit the configuration mode after 30 seconds of inactivity.

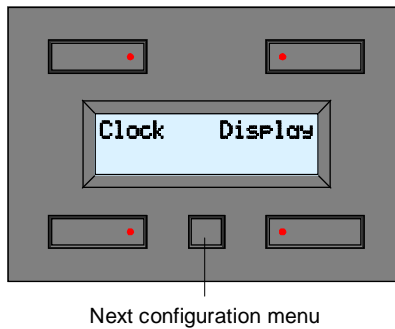
Modifying the Labels

It is possible to label all commands so as to explain their function.

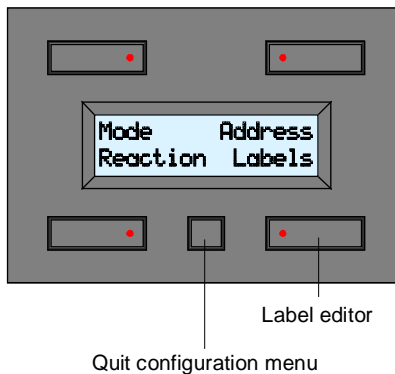
1. Hold the configuration button pressed for 4 seconds to display the configuration menu.



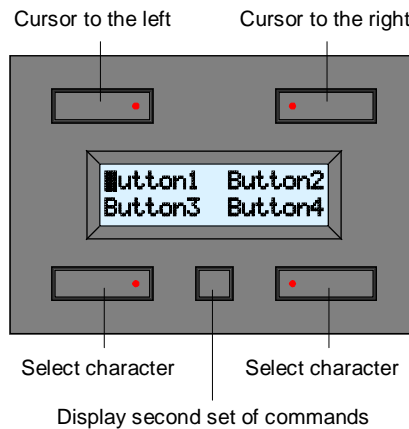
2. Press the configuration button again to display the configuration menu.



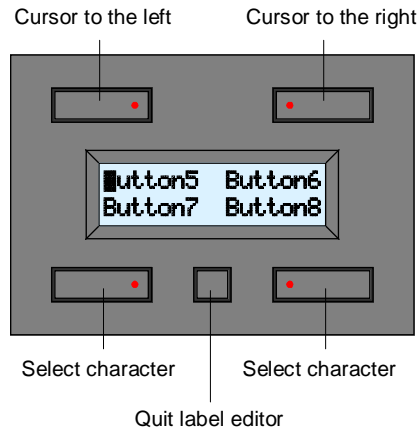
3. Press the lower right button to display the label editor.



4. Move the cursor to the left or to the right using the two upper push buttons.
Select the character using the two lower push buttons.
Press the configuration button to display the second set of commands (commands 5 to 8).



- Move the cursor to the left or to the right using the two upper push buttons.
Select the character using the two lower push buttons.



- Press the configuration button to quit the label editor.

Remarks:

- Following characters can be chosen from:

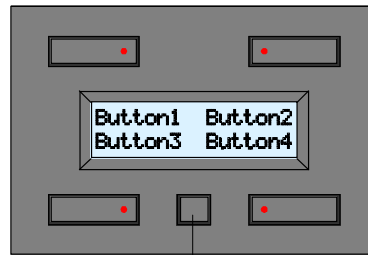
	0	@	P	`	p
!	1	A	Q	a	q
"	2	B	R	b	r
#	3	C	S	c	s
\$	4	D	T	d	t
%	5	E	U	e	u
&	6	F	V	f	v
'	7	G	W	g	w
(8	H	X	h	x
)	9	I	Y	i	y
*	:	J	Z	j	z
+	;	K	[k	{
,	<	L	¥	l	
-	=	M]	m	}
.	>	N	^	n	
/	?	O	_	o	

- Hold a button pressed to scroll.
- Scrolling will stop with a space character.
- The module will automatically quit the label editor after 30 seconds of inactivity.

Setting the Reaction Time

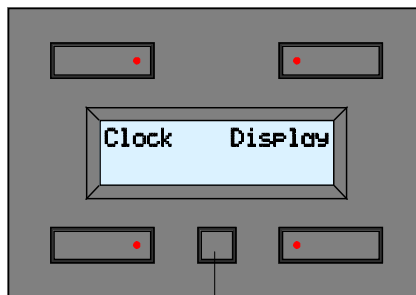
All commands have a short reaction time (65ms) by default. This reaction time can be set at 1, 2 or 3 seconds.

1. Hold the configuration button pressed for 4 seconds to display the configuration menu.



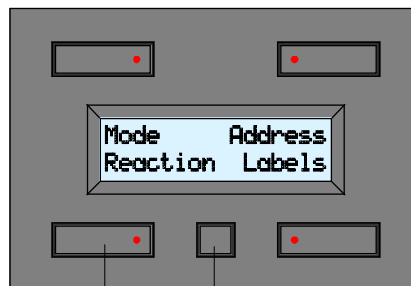
Configuration button

2. Press the configuration button again to display the next configuration menu.



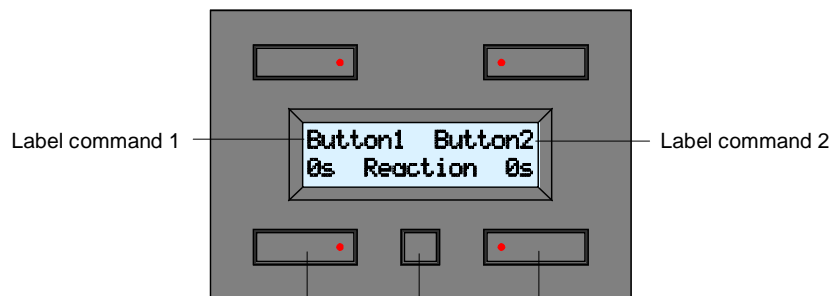
Next configuration menu

3. Press the lower left push button to display the reaction time menu.



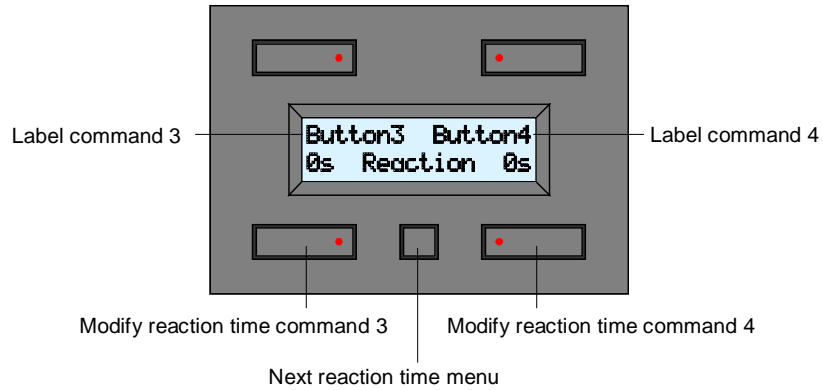
Setting reaction time
Quit configuration menu

4. Press the lower buttons to set a reaction time of 0, 1, 2 or 3 seconds for the displayed command. Press the configuration button to display the next configuration menu.

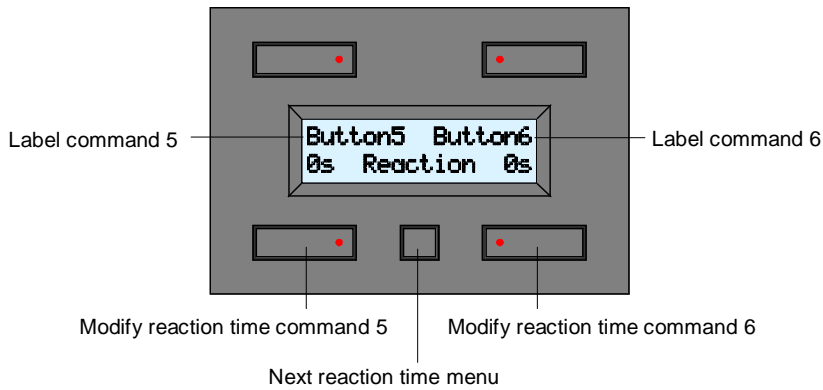


Label command 1
Label command 2
Modify reaction time command 1
Modify reaction time command 2
Next reaction time menu

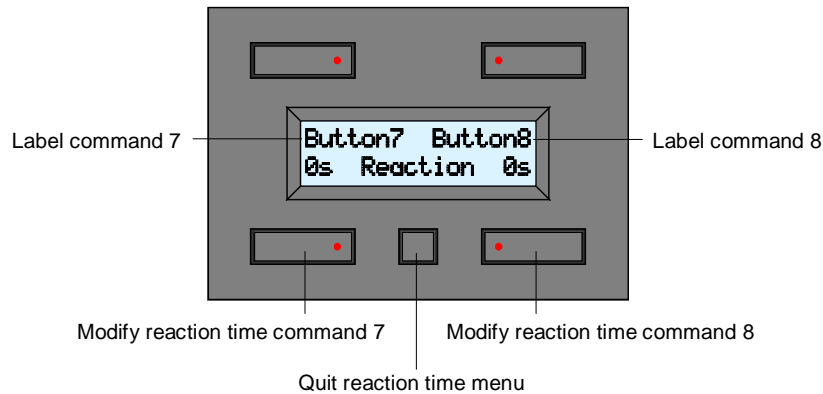
- Press the lower buttons to set a reaction time of 0, 1, 2 or 3 seconds for the displayed command. Press the configuration button to display the next configuration menu.



- Press the lower buttons to set a reaction time of 0, 1, 2 or 3 seconds for the displayed command. Press the configuration button to display the next configuration menu.



- Press the lower buttons to set a reaction time of 0, 1, 2 or 3 seconds for the displayed command.



- Press the configuration button to quit the reaction time menu.

Remarks:

- The module will automatically quit the reaction time menu after 30 seconds of inactivity.

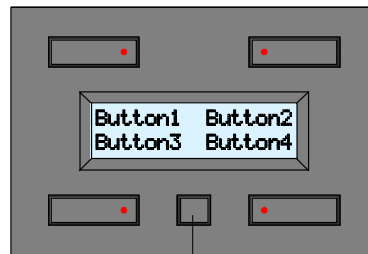
Setting the User Mode

The module can be used as a control panel or as a control panel with timer.

The commands can be automated if the timer function has been activated. It is like you would activate a command at a particular time of the day.

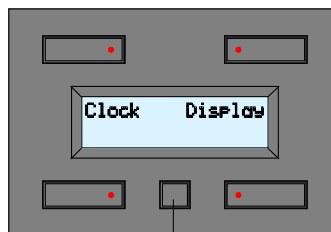
The timer function can be applied to all commands (*Timer mode:8CH*) or to the second set of commands only (*Timer mode:4CH*).

1. Hold the configuration button pressed for 4 seconds to display the configuration menu.



Configuration button

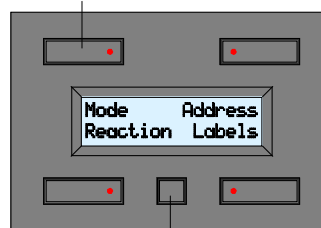
2. Press the configuration button again to display the configuration menu.



Next configuration menu

3. Press the upper left button to display the mode menu.

Modemenu



Quit configuration menu

4. Press the upper right button to set the user mode.

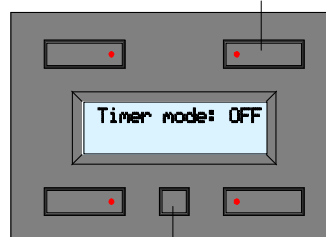
Following user modes are available:

“OFF”: control panel only

“4CH”: control panel with timer function for the second set of commands (commands 5 ...8)

“8CH”: bedieningspaneel met schakelklokfunctie op alle bedieningen

Modify mode settings



Quit mode menu

5. Press the configuration button to quit the mode menu.

Remark:

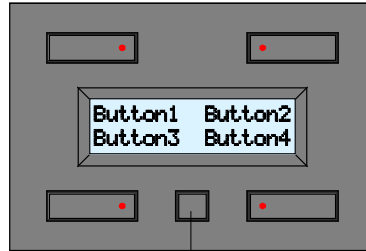
- The module will automatically quit the mode menu after 30 seconds of inactivity.

Programming the Timer

Programming can only be done if the timer function was selected in the user mode.

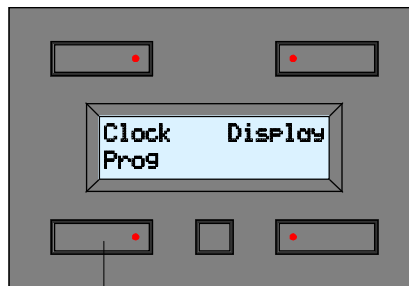
The commands can be automated via the timer function. It is like you would activate a command at a particular time of the day. Twenty program steps can be programmed; each step has a programmable time (day, hour and minutes) and command.

1. Hold the configuration button pressed for 4 seconds to display the configuration menu.



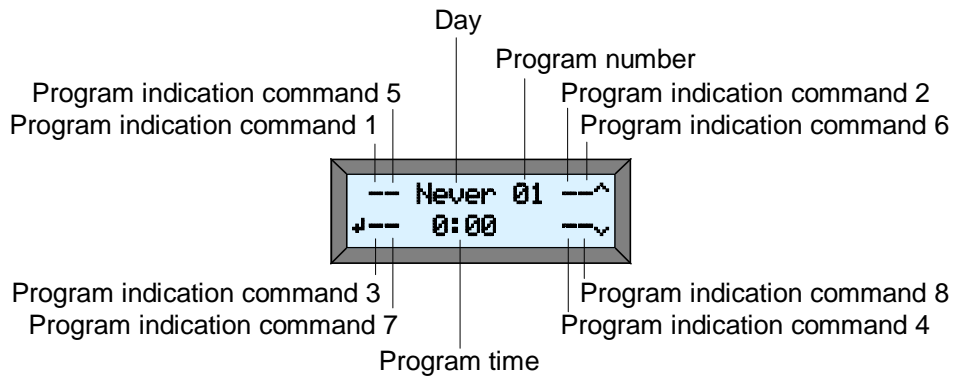
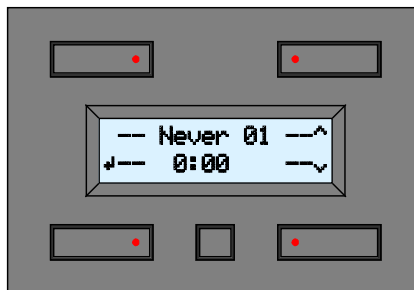
Configuration button

2. Press the lower left button to display the program menu.



Program menu

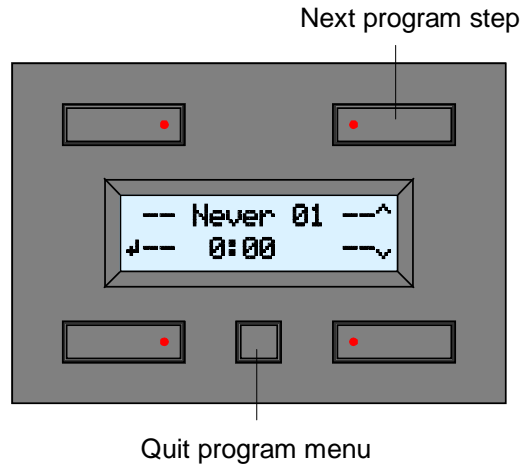
3. The display shows the first program step (program number, time and a view of the automated commands).



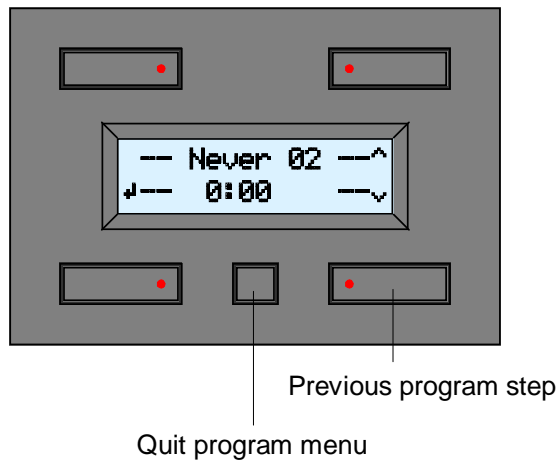
Remark:

The program indications for commands 1 to 4 disappear when the timer function has been activated only for the second set of commands (*Timer mode: 4CH*).

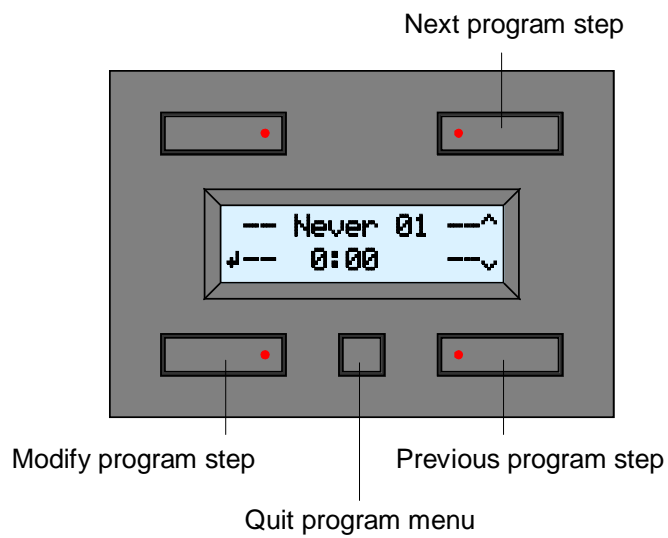
4. Press the upper right button to display the next program step.



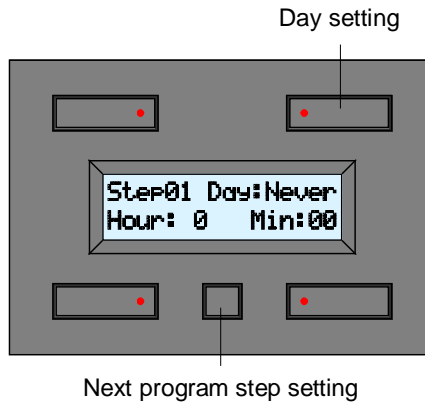
5. Press the lower right button to display the previous program step.



6. Press the lower left button to modify the displayed program step.



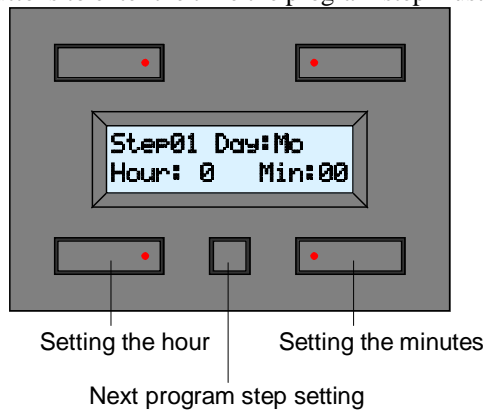
7. Press the upper right button to modify the day of the program step.



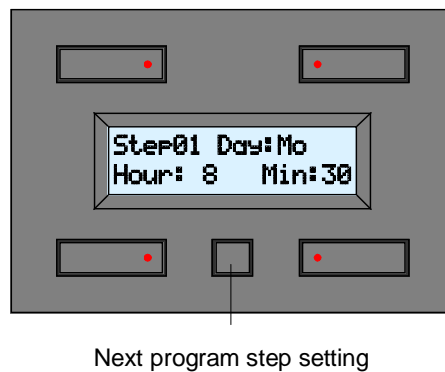
You can choose from the following:

Mo	Program step is executed every Monday
Tu	Program step is executed every Tuesday
We	Program step is executed every Wednesday
Th	Program step is executed every Thursday
Fr	Program step is executed every Friday
Sa	Program step is executed every Saturday
Su	Program step is executed every Sunday
Sa&Su	Program step is executed every Saturday and Sunday
Mo-Fr	Program step is executed every day except on Saturday and Sunday
Mo-Sa	Program step is executed every day except on Sunday
Mo-Su	Program step is executed every day
Never	Program step will not be executed

8. Press the lower buttons to enter the time the program step must be executed.

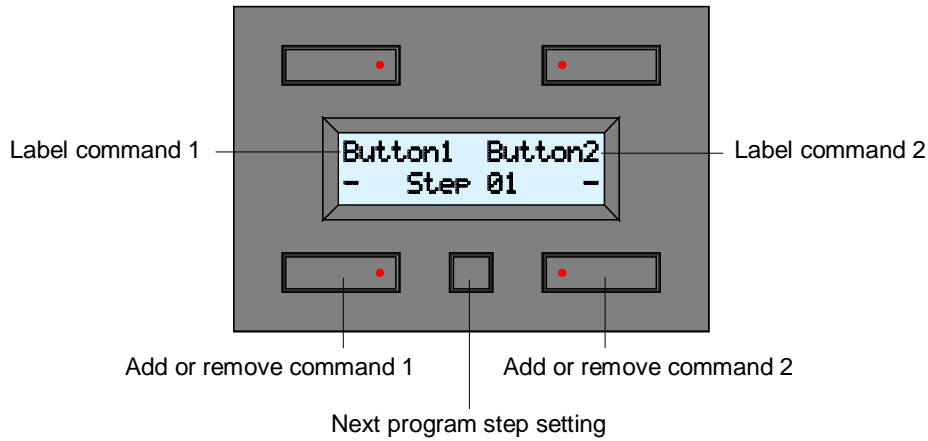


9. Press the configuration button to display the next program step setting menu.



Go to section 14 if the timer function has only been activated for the second set of commands (*Timer mode: 4CH*).

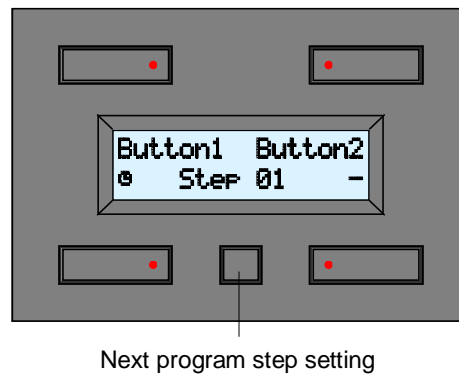
10. Press the lower buttons to add or to remove the displayed command to or from the program step.



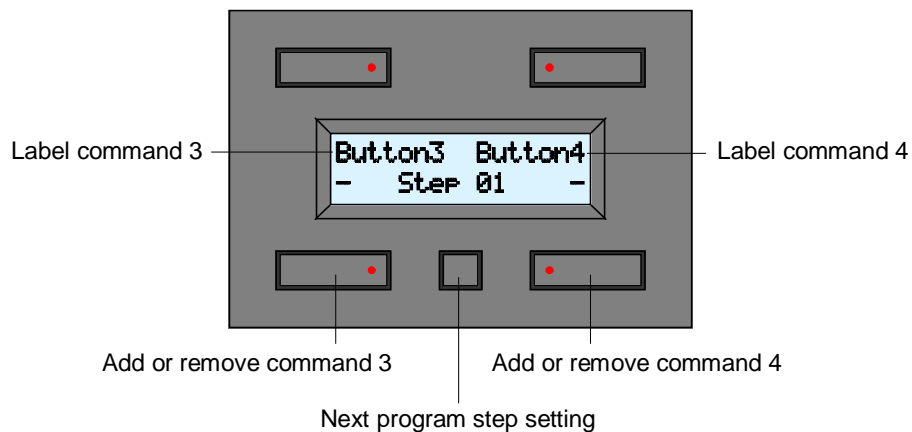
Following symbols can be displayed:

-	The command has not been accepted in the program step
⊕	The command has been accepted in the program step. The push button will be activated automatically on the time (day, hour, minutes) programmed and memorized into the program step.

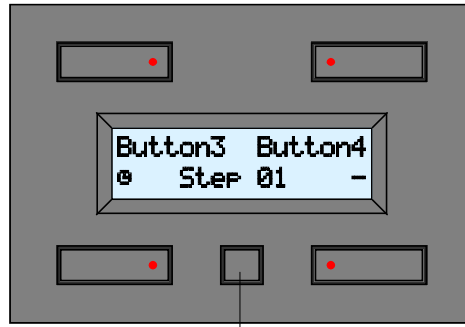
11. Press the configuration button to display the next program step setting menu.



12. Press the lower buttons to add or to remove the displayed command to or from the program step.

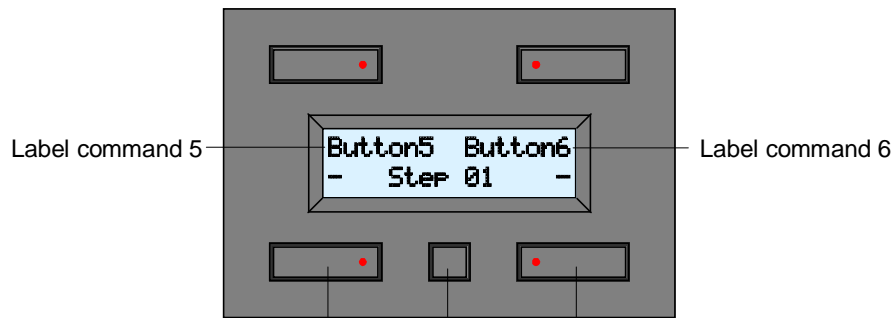


13. Press the configuration button to display the next program step setting menu.



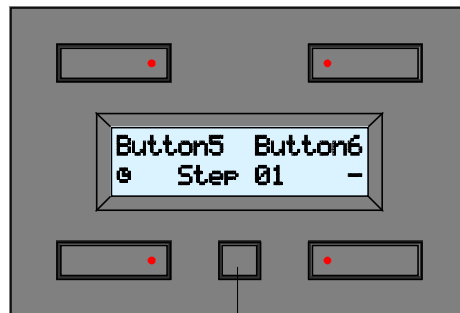
Next program step setting

14. Press the lower buttons to add or to remove the displayed command to or from the program step.



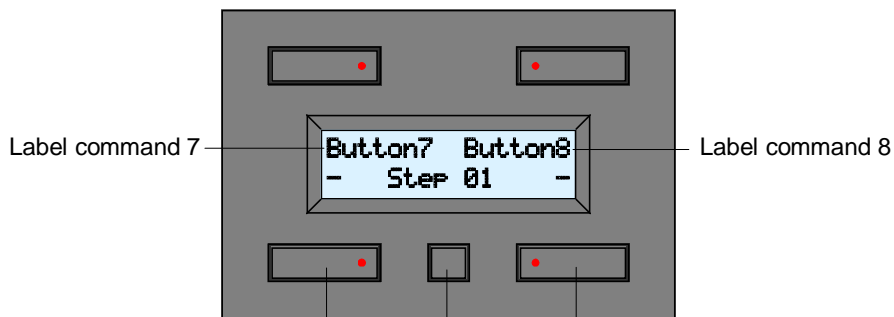
Add or remove command 5 Add or remove command 6
Next program step setting

15. Press the configuration button to display the next program step setting menu.



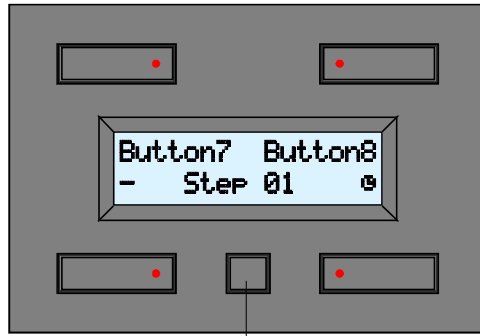
Next program step setting

16. Press the lower buttons to add or to remove the displayed command to or from the program step.



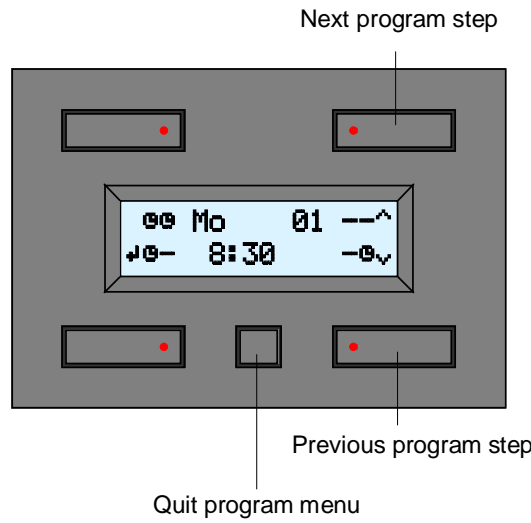
Add or remove command 7 Add or remove command 8
Return to general display

17. Press the configuration button to return to the general display



Return to general display

18. Press the lower buttons to add or to remove the displayed command to or from the program step.



Let's explain the example above:

Command 1 will be executed every Monday morning at 08h30, commands 3, 5 and 8 will be activated briefly.

Program indications for commands 1 through 4 disappear if the timer function has been activated for the second set of commands only (*Timer mode: 4CH*).

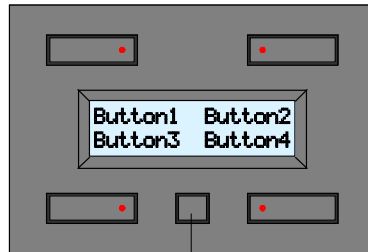
Remark:

- The module will automatically quit the program menu after 30 seconds of inactivity.

Activating and Deactivating the Timer per Command

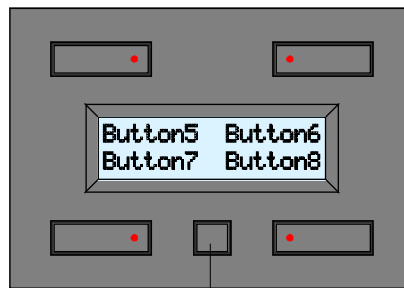
The program will only be executed if the timer function for the command is activated. Deactivate the timer for the commands you do not want to be executed during a certain period (e.g. during vacation period).

1. Press the configuration button to display the second set of commands.



Configuration button

2. Press the configuration button to display the clock.



Configuration button

3. The module displays the current time and an overview of the active timer programs.

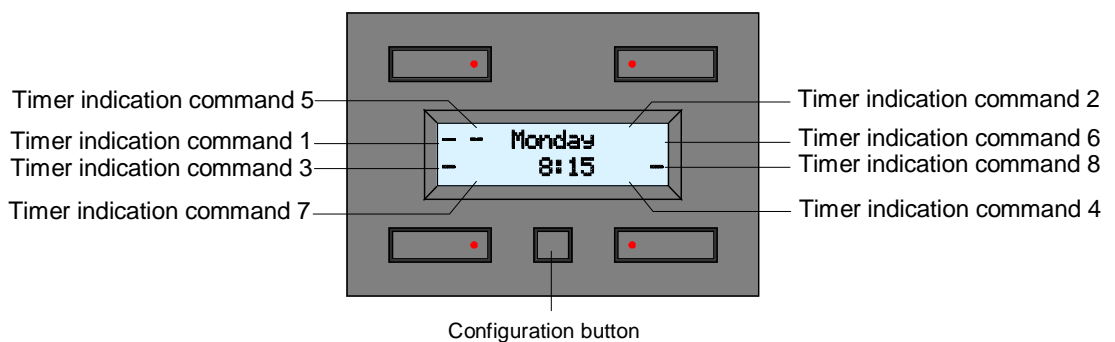
The timer indication means:

" " : the command will not be used in the timer program.

" - " : the timer program for a particular command will not be executed.

" ⌚ " : the timer program for a particular command is activated.

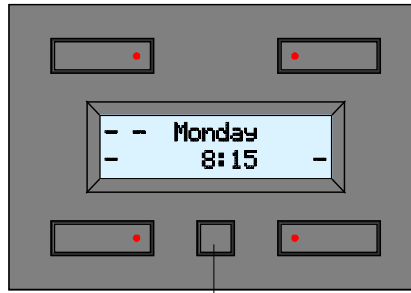
The timer indications for commands 1 through 4 disappear if the timer function has been activated for the second set of commands only (*Timer mode: 4CH*).



In the example above:

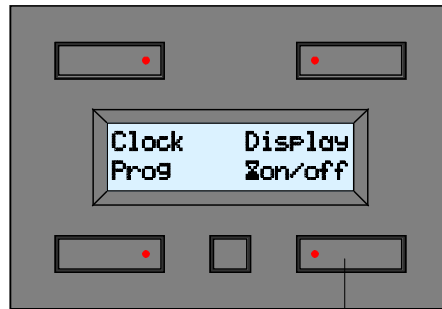
Commands 1, 3, 5 and 8 will be used in the program but the program will not be executed.

4. Hold the configuration button pressed for 4 seconds to display the configuration menu.



Configuration button

5. Press the lower right button to enter the timer activation menu.



Timer activation menu

The timer activation menu is possibly not available which means there is no command used in the program. In this case, press the configuration button again to exit the menu.

Go to section 10 the timer function is activated for the second set of commands only (*Timer mode: 4CH*).

Go to section 8 if commands 1 and 2 are not used in the program.

Go to section 10 if commands 1 through 4 are not used in the program.

Go to section 12 if commands 1 through 6 are not used in the program.

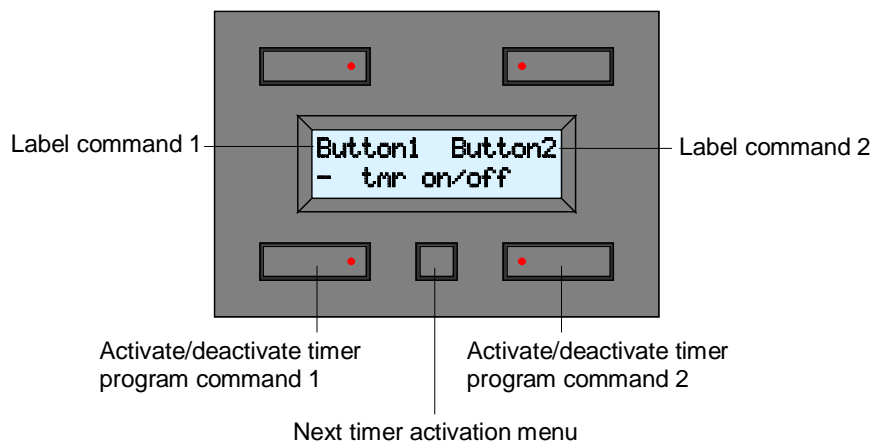
6. Press the lower buttons to activate or deactivate for the displayed commands.

The timer indication means:

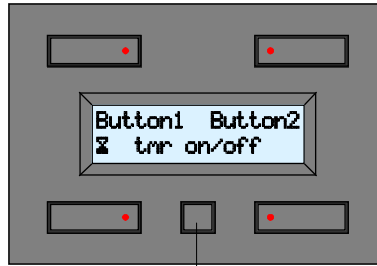
" " : the command will not be used in the timer program and cannot be modified.

" - " : the timer program for a particular command will not be executed.

" ⌘ " : the timer program for a particular command is activated.



- Press the configuration button to enter the next timer activation menu.



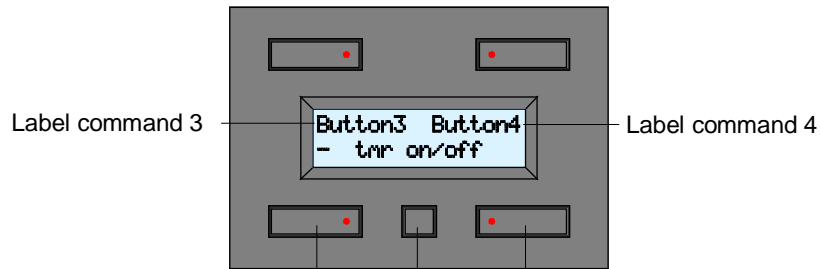
Next timer activation menu

The module exits the timer activation menu if commands 3 through 8 are not used in the program (go to section 14).

Go to section 10 if commands 3 and 4 are not used in the program.

Go to section 12 if commands 3 through 6 are not used in the program.

- Press the lower buttons to activate or deactivate for the displayed commands.

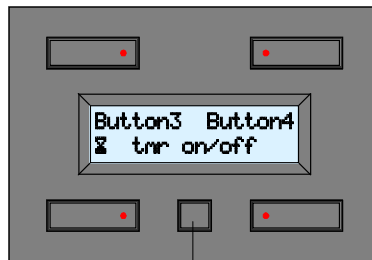


Activate/deactivate timer program command 3

Activate/deactivate timer program command 4

Next timer activation menu

- Press the configuration button to enter the next timer activation menu.

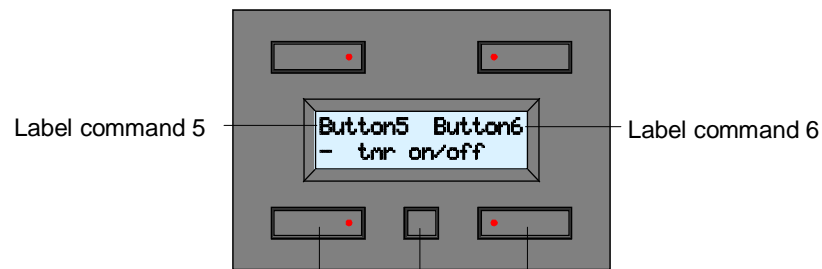


Next timer activation menu

The module exits the timer activation menu if commands 5 through 8 are not used in the program (go to section 14).

Go to section 12 if commands 5 and 6 are not used in the program.

- Press the lower buttons to activate or deactivate for the displayed commands.

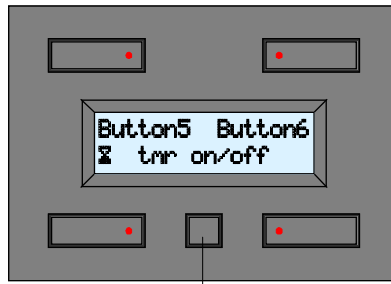


Activate/deactivate timer program command 5

Activate/deactivate timer program command 6

Next timer activation menu

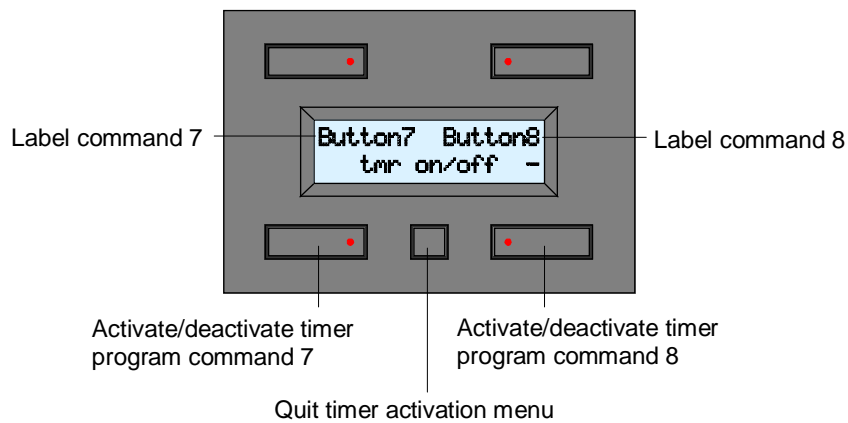
- Press the configuration button to enter the next timer activation menu.



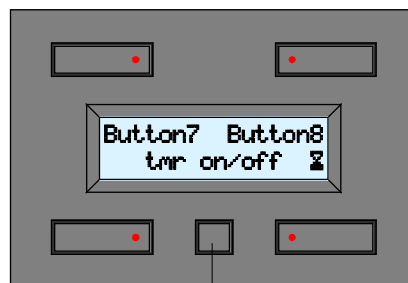
Next timer activation menu

The module exits the timer activation menu if commands 7 and 8 are not used in the program (go to section 14).

- Press the lower buttons to activate or deactivate for the displayed commands.

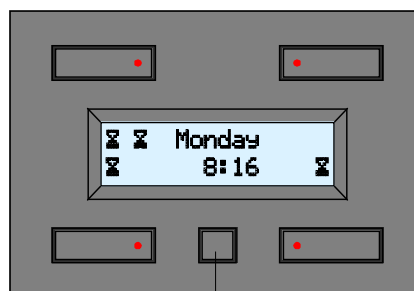


- Press the configuration button to quit the timer activation menu.



Quit timer activation menu

- The module displays the current time and an overview of the active timer programs (in this example the timer program for commands 1, 3, 5 and 8 will be executed). Press the configuration button to display the labels or the clock.



Configuration button

Remark:

The module will automatically quit the timer activation menu after 30 seconds of inactivity.

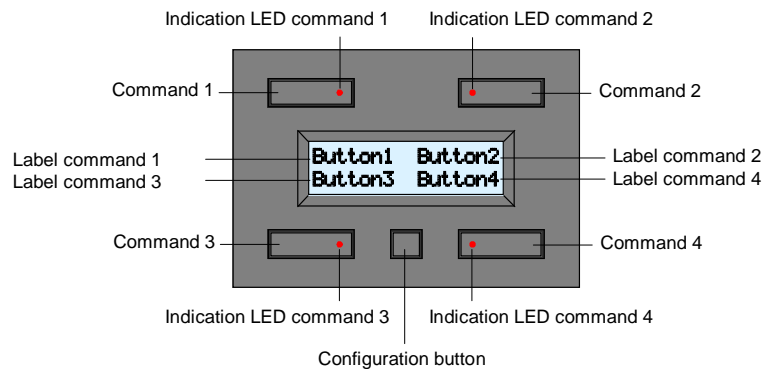
Use

The timer function is deactivated by default and can be activated via the configuration menu (see section “Setting the User Mode”).

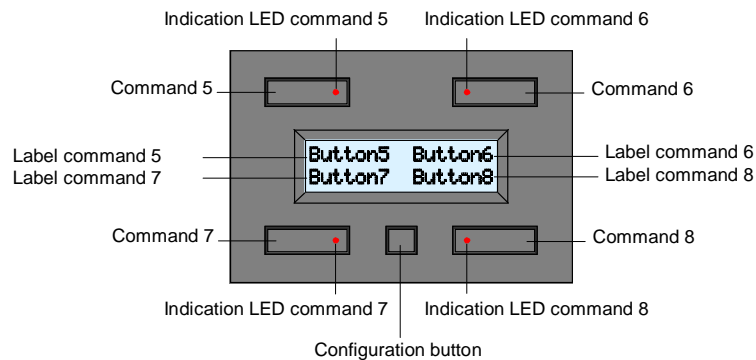
The module consists of 4 push buttons with corresponding LED indication and one configuration push button. The label for each push button is displayed on the LCD.

This module allows defining up to 8 commands.

The module will display the first 4 commands by default.

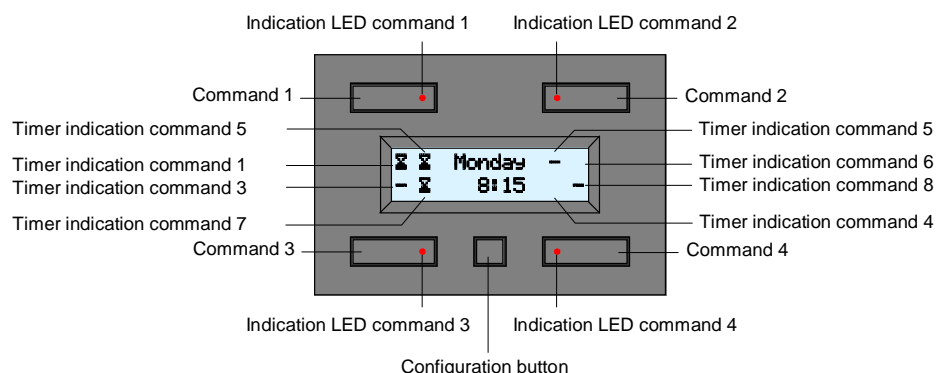


Press the configuration button to switch to the next set of commands:



The module will automatically switch to the default command set after 15 seconds of inactivity.

Press the configuration button again to return to the default command set (if the timer is deactivated) or to display the current timer (if the timer is activated).



The push buttons and their indication LED are configured in the first set of commands.

The timer indication means:

- “ ” : the command will not be used in the timer program.
- “- ” : the timer program for a particular command will not be executed.
- “⌚” : the timer program for a particular command is activated.

Timer indicators for commands 1 through 4 disappear if the timer function is activated for the second set of commands only (*Timer mode: 4CH*).

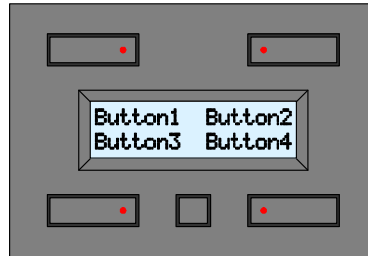
It is possible to switch between the different displays by pressing the configuration button.

Using the VMBIRTS IR Remote Stick

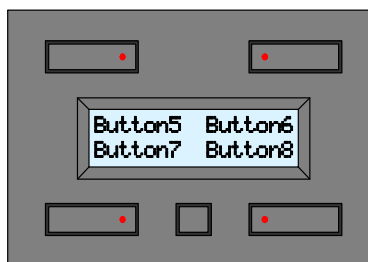
All 8 commands can directly be activated using the IR remote stick.

Point the IR remote stick towards the push button module and activate the desired channel on the stick (see the VMBIRTS manual).

Activating commands 1 through 4 on the stick will make the module display the corresponding labels.



Activating commands 5 through 8 on the stick will make the module display the corresponding labels.



The module will automatically return to the default set of commands after 15 seconds of inactivity.

Remark:

- The module will not switch to the corresponding labels if the current is displayed.
- Make sure to synchronize the IR transmitter/receiver by setting the correct address. Refer to "Addressing" and the transmitter user manual.

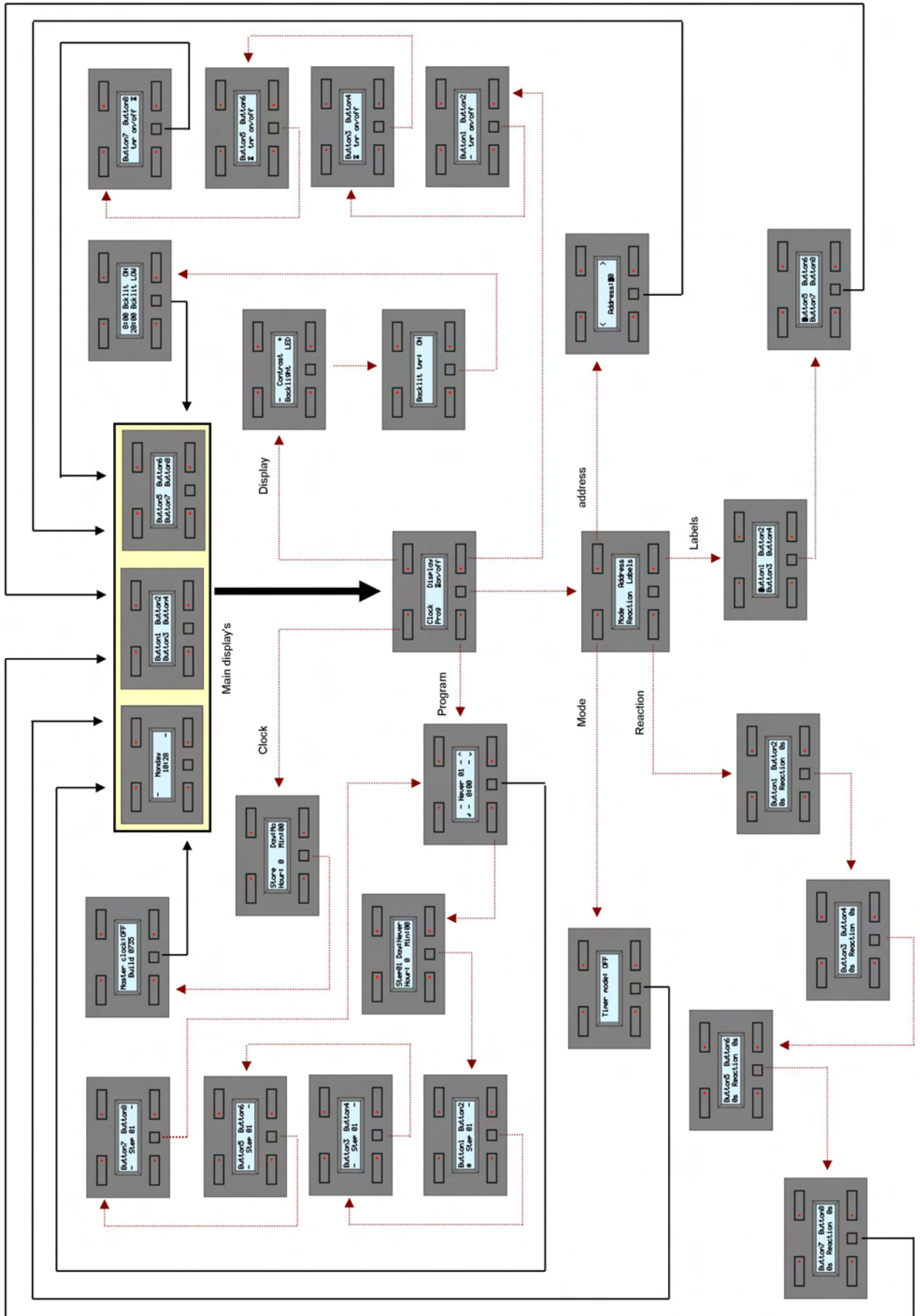
Troubleshooting

No display:

- The display contrast is too low. Hold the configuration button pressed for 3 seconds to switch the module to the configuration menu which allows modifying contrast. Hold the upper right push button pressed for 8 seconds. The contrast will be set at its maximum.
- Selection of blank characters during labelling. Press the configuration button a couple of times until a blinking cursor is displayed in the upper left corner. Enter your label using the 4 push buttons.
- Remove the power supply during min. 10 seconds.

The remote control stick does not function:

- Drained batteries in the transmitter. Replace the batteries.
- Addresses of the transmitter/receiver are not synchronized. See “Addressing” and the transmitter’s notice.



Velleman Home Automation System

Velleman[®] is a major distributor of electronic products and components and has its own R & D department. Velleman[®] is market leader in electronic kits with offices all over the world.



The Velleman building is powered by the Velbus Home Automation System.



In-house training & demonstration facility.

