



VMB4DC

**4-channel 0 (1) to 10V output
dimmer controller
for Velbus system**



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DESCRIPTION

The module features four 0/1 to 10V outputs. Each output can accept one or more DC-controlled power dimmers so as to dim large groups of bulbs simultaneously.

The module also allows you to dim neon lighting equipped with a dimmable electronic starter with 1-10V control input.

Controlling DC-controlled LED dimmers allows also an attractive ambient lighting.

Each channel can memorize several dimming functions and preset ambiances.

CHARACTERISTICS

Use:

- suitable for controlling DC-controlled power dimmers with 0/1-10V control input
- suitable for controlling DC-controlled LED dimmers with 0/1-10V control input
- suitable for dimming neon lighting equipped with a dimmable electronic starter with 1-10V control input

Outputs:

- 4 outputs with common (-) connection
- output voltage: 0 to 10V or 1 to 10V (adjustable per output)
- max. output current: 10mA per output
- the output is protected against short-circuits and overvoltage
- galvanic separation between the output voltage and the Velbus power supply (3000VDC isolation)

LED indications:

- status indication for all 4 channels
 - continuously lit: selected dimming level achieved
 - slow blinking: timer running
 - fast blinking: changing dimming level
 - two short blinks: communication error
- power voltage present
- data reception and transfer over the Velbus
- status notification of the dimmer to the control modules

Module power supply:

- required power voltage: 12...18VDC
- consumption in stand-by: 45mA
- max. consumption: 100mA

Dimensions:

- standard DIN-rail housing: 2 modules
- L x W x H: 90 x 36 x 58mm

Configuration:

- only configurable via the Velbus PC interface (VMB1USB, VMB1RS or VMBRSUSB) and the Velbuslink software
- addressing through software (up to 250 addresses)
- storage space for 37 different pushbuttons and their function
- multiple functions and timer settings are configurable through software
- learned pushbuttons are saved in case of a power failure

Control:

- local control on the module (on/off at short press, dimming at long press)
- through Velbus commands or pushbuttons connected to the Velbus system
- multiple control functions
 - momentary
 - off or slow off
 - on or slow on
 - on/off or slow on/off
 - timer (start/stop, restartable or non-restartable)
 - dimming (more or less intensity)
 - more intensity
 - less intensity
 - moods

- multistep dimmer
- output forced off
- output forced on
- output inhibition

Timer presets:

- only configurable through the Velbuslink software
- switch-off time configurable between
 - 1 sec and 2 min in steps of 1 sec
 - 2 min and 5 min in steps of 15 sec
 - 5 min and 30 min in steps of 30 sec
 - 30 min and 1 hour in steps of 1 min
 - 1 hour and 5 hours in steps of 15 min
 - 5 hours and 10 hours in steps of 30 min
 - 10 hours and 24 hours in steps of 1 hour
 - 2 days
 - 3 days
 - no switch-off timer
- dimming speed configurable between
 - 2 sec and 2 min in steps of 1 sec
 - 2 min and 5 min in steps of 15 sec
 - 5 min and 30 min in steps of 30 sec
 - 30 min and 1 hour in steps of 1 min
 - 1 hour and 5 hours in steps of 15 min
 - 5 hours and 10 hours in steps of 30 min
 - 10 hours and 23 hours in steps of 1 hour

- 2-wire communication for Velbus data and 2 wires for power
- data transfer: 16.6 kbit/s
- serial data protocol: CAN (Controller Area Network)
- short-circuit proof (towards (-) or (+) of power)
- bus error indication: 2 short blinks of the operation mode LED
- self-restoring after 25 seconds in case of a bus error

Possibility to assign a name (max. 16 characters) to each output channel.

The dimmer controller module can send following messages:

- dimmer status
- dimmer controlling module type (with software version)
- dimmer names
- communication error counter
- memory capacity

The dimmer controller module can send following commands:

- switch off LEDs on a control module
- switch on LEDs on a control module
- slow or fast blinking of the LEDs on a control module

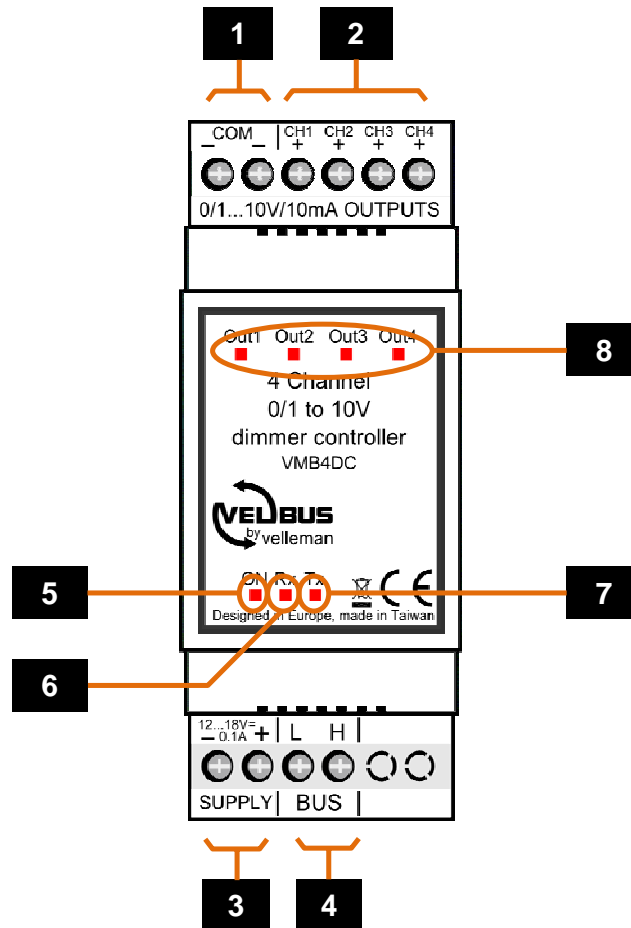
The dimmer controller module can receive following messages:

- pushbutton module status
- fader status

The dimmer controller module can receive following commands:

- dimmer value setting
- to last-used dimming level
- stop dimming
- timer start
- recall dimmer status
- recall module type and software version
- recall communication error counter
- recall dimmer names
- recall memory contents
- overwrite memory contents
- switch off pushbutton indication LED

OVERVIEW



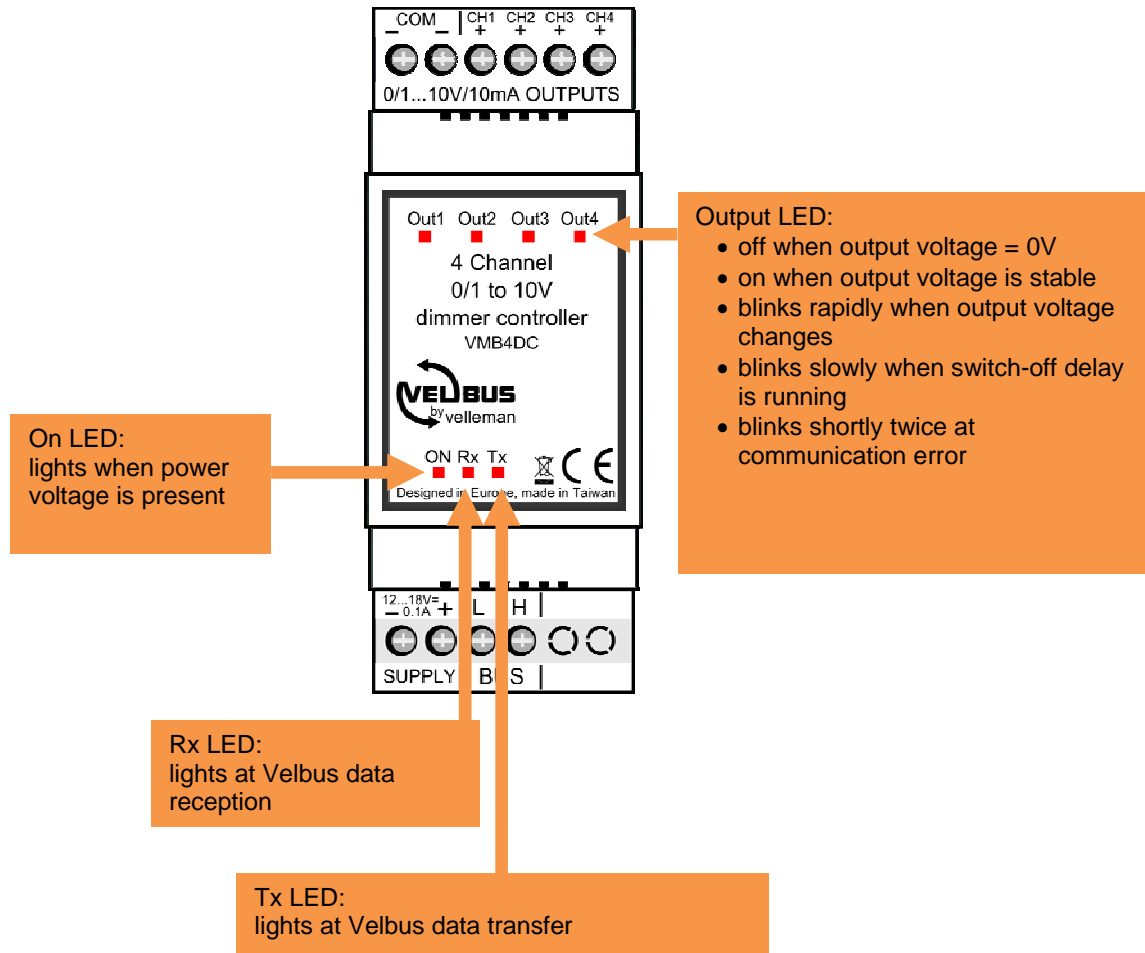
Connections

1	common (-) output
2	outputs
3	module or Velbus power supply
4	Velbus

LED indications

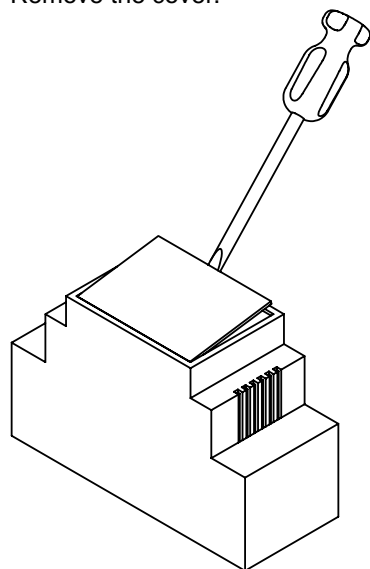
5	power LED
6	Velbus RX (receive) LED
7	Velbus TX (transmit) LED
8	output status

LED INDICATIONS

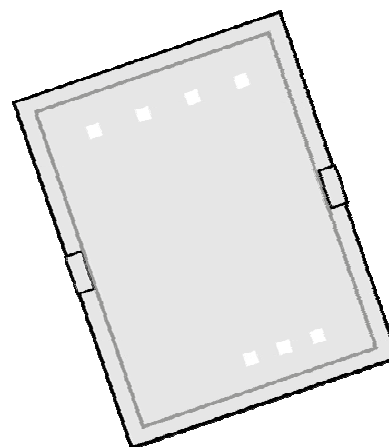
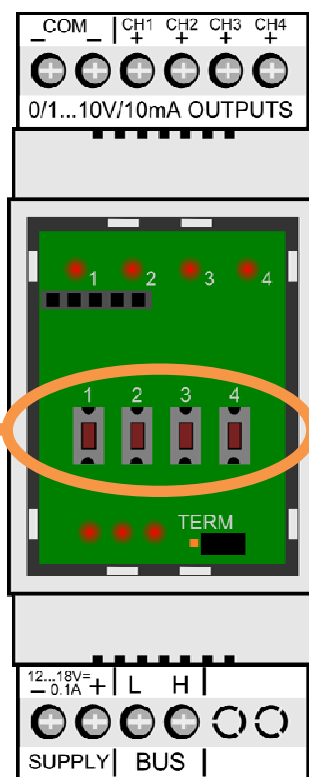


LOCAL CONTROL

Remove the cover.



Local control:
short press: enable or disable
the 0 or 10V output
long press: output voltage
modification between 0 and
10V (dimming)



USE

The dimmer controller module is to be used with neon lighting equipped with a dimmable electronic starter using a 1-10V control signal, or with a DC-controlled power dimmer.

The module is entirely integrated into the Velbus system and controlled through the VMB4PD control panel or through pushbuttons connected to a VMB8PB pushbutton interface.

To interconnect the Velbus modules it is recommended to use a twisted-pair cable (EIB 2x2x0.8mm², UTP 8x0.51mm - CAT5 or equivalent).

Make sure to use a heavy-gauge wire (0.5mm² or more) in case of a multiple module connection (>10 modules) or with long connections (>50m).

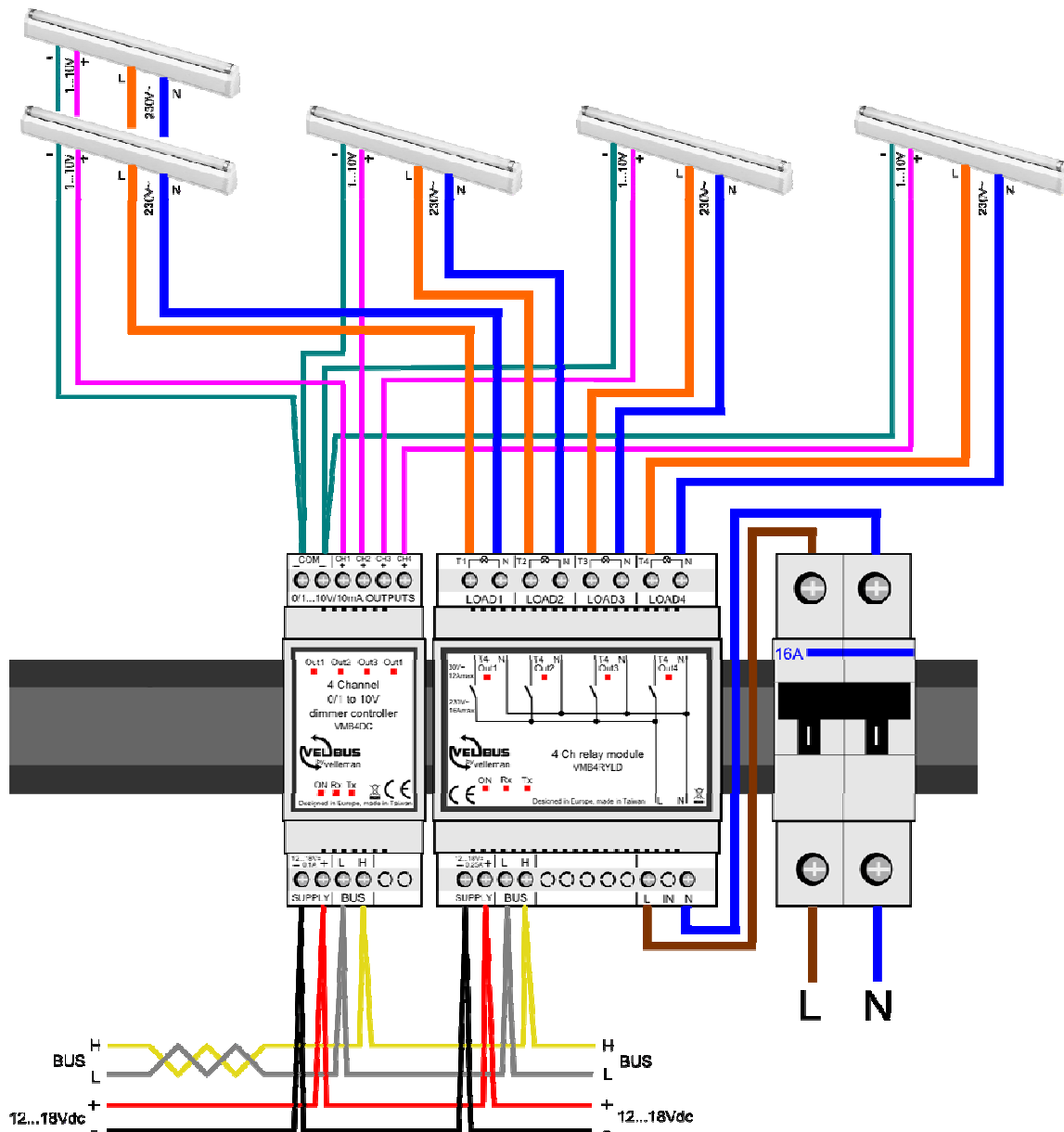
Connect the bus to the module (mind the polarity).

Connection diagram with dimmable neon lighting

The neon lighting must be equipped with a dimmable electronic ballast using a 1-10V control signal.

You can connect several neon tubes to 1 channel.

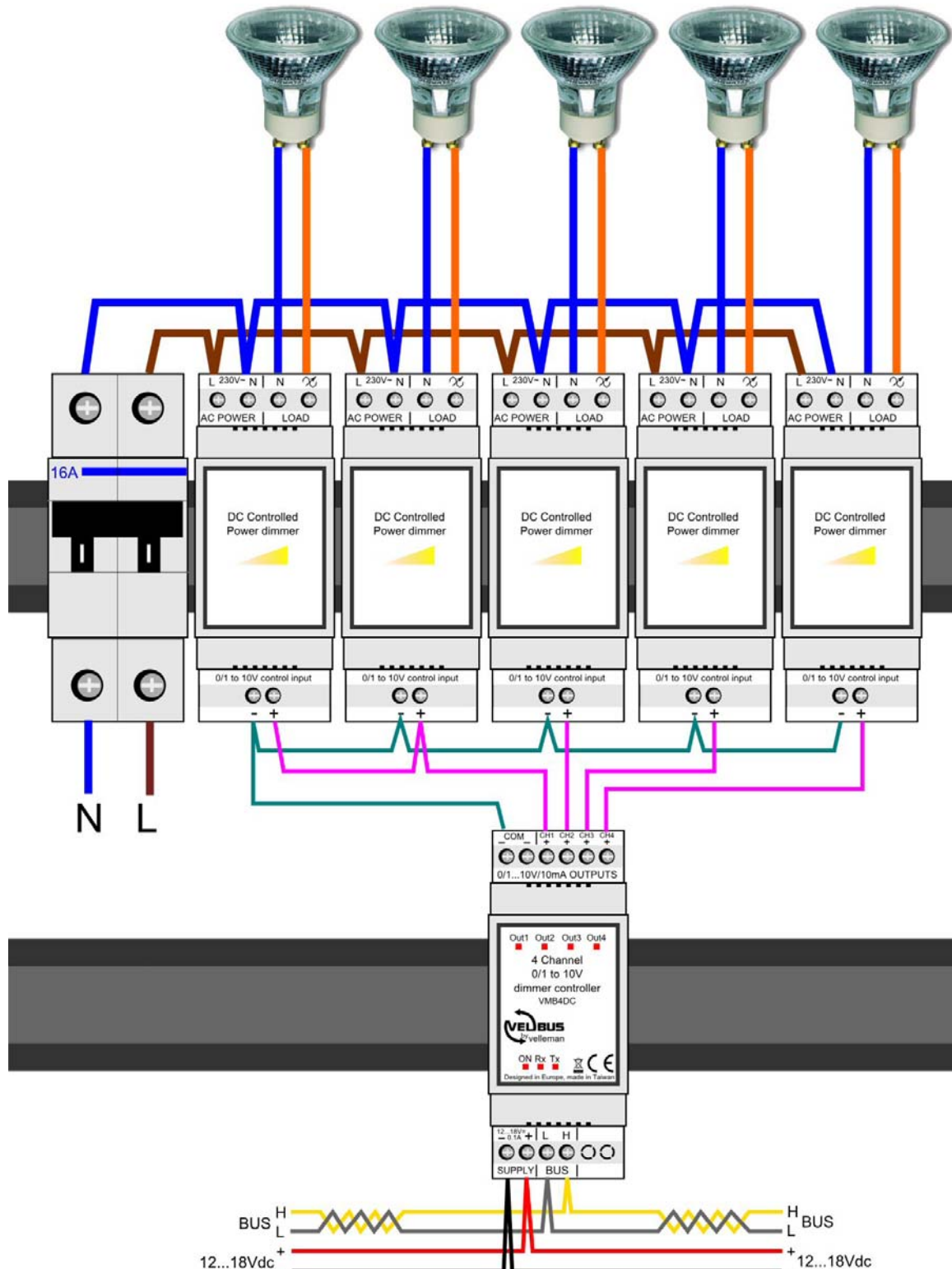
The Velbuslink program links every dim channel with a relay channel in momentary control so the voltage of the neon tube drops at 0V in order to switch the lighting completely off.



Connection diagram with power dimmers

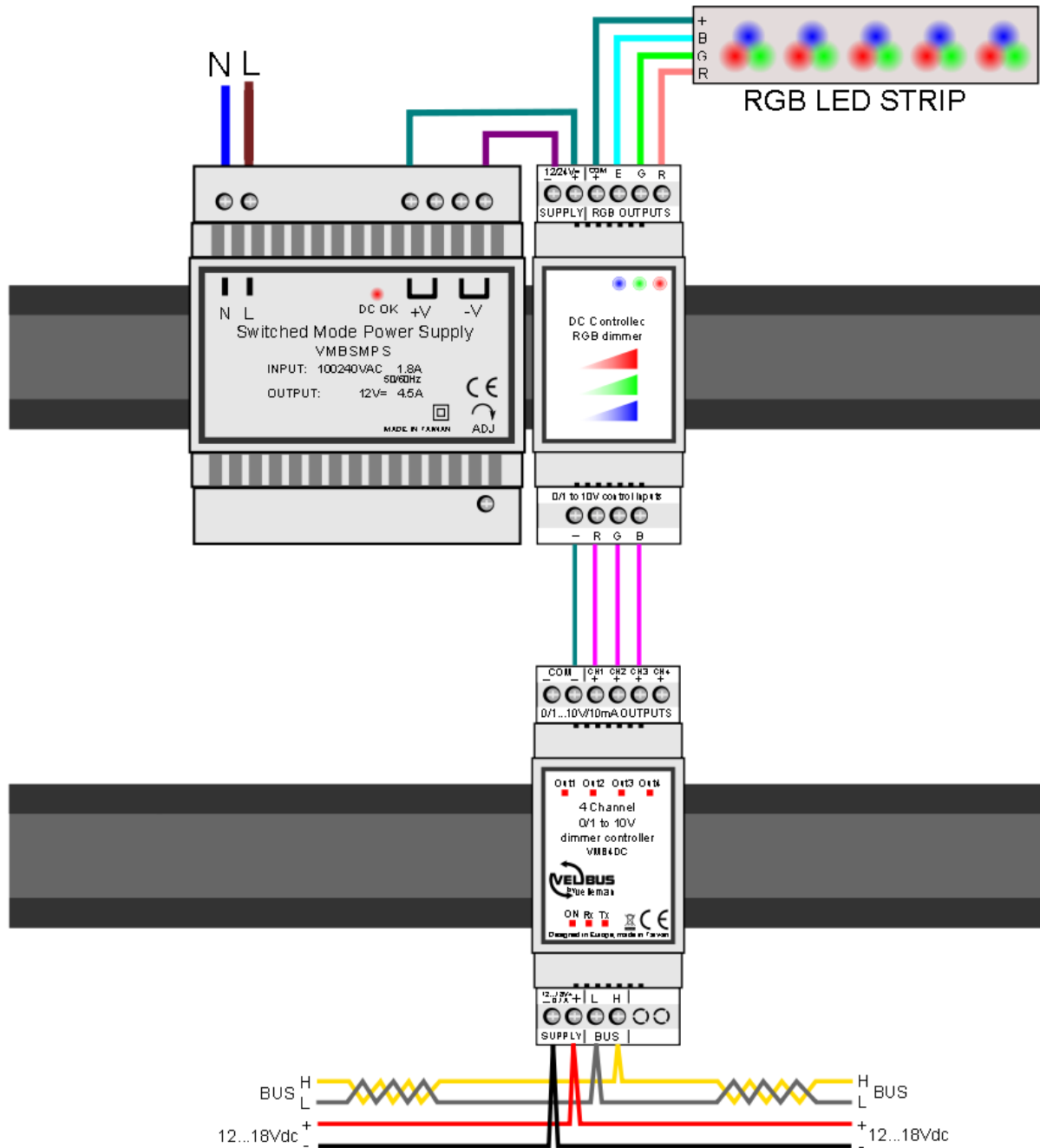
In order to dim high-power lamps or a large group of lamps, it is possible to connect one or more DC-controlled dimmers to the outputs of the dimmer controller.

Note that the 4 channels have 1 common (-) output.



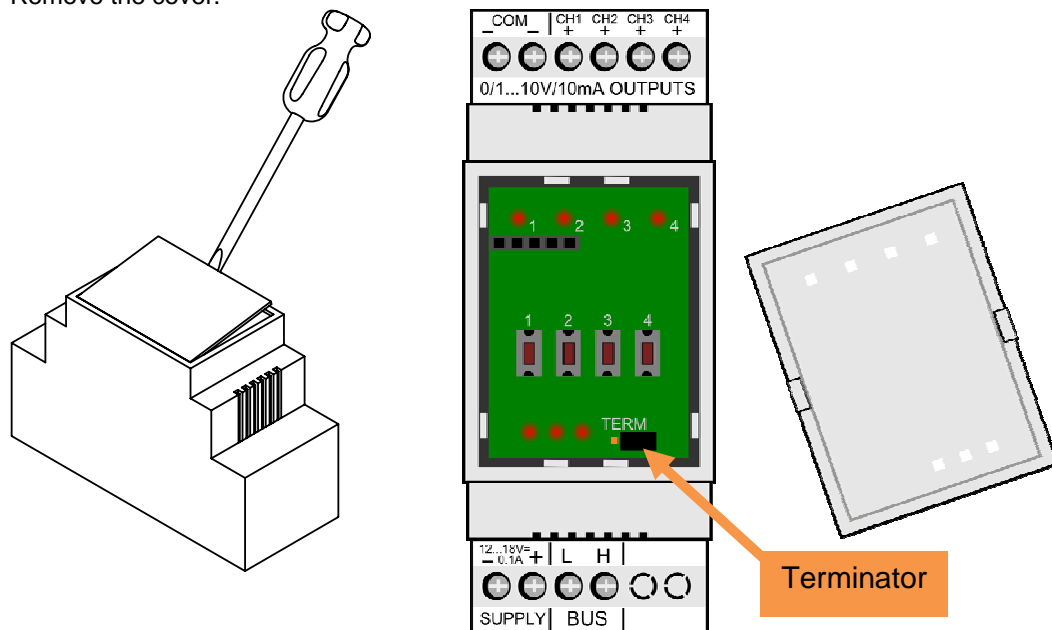
Connection diagram with a RGB LED dimmer

The dimmer controller can also be used to dim RGB LED strips through a DC-controlled RGB LED dimmer. Here, 3 channels are being used.



Termination

Remove the cover.



Generally, only 2 'TERM' terminators must be used in a complete Velbus® installation. Usually, this will be on one module inside the distribution box and on the module which is physically located furthest from the distribution box.



On all other modules, the terminator must be removed.



Remark:

In case of a wiring with multiple branches, only place a termination into a single module in the distribution box and in the control panel which is the farthest from the distribution box. When communication problems occur, you can place an extra termination on another branch. It is highly recommended to limit the number of terminations as too large a number may overload the bus.

Configuration

Address, dimmer delay, switch-off delay and control functions can only be configured through the Velbuslink software.

Address:

Each module in the Velbus connection must have a unique address.
Configure the address through the software.

Dimmer delay:

If the dimmer module will be used to dim neon lighting, link relay channel in a momentary control to the dimming channel in order to switch the lamp on or off. As soon as the dimming value is not 0 (zero), the relay channel will be activated. To allow the lamp to ignite, you must set a dimming delay during which the lamp's dimming process will be briefly stalled.

The dimming delay and relay contact are not necessary when dimming neon lighting.

Switch-off delay:

The neon lighting's dimming can be linked to a deactivation delay of the relay channel as soon as the dimming value drops to 0%, this in order to prevent the lamp's restart when dimming it off and on again.
This feature is not necessary when dimming neon lighting.

Control functions:

The dimmer module is controlled through pushbuttons connected to the Velbus system via a pushbutton interface or control panel.

You may assign up to 37 different pushbuttons. Each pushbutton may activate integrate a different function.

	<i>Function</i>	<i>Description</i>
1	Momentary	The lighting remains switched on as long as the switch is closed.
2	Off	The lighting is switched off. <i>In order to create an "all off" function, the same pushbutton of all dimming channels will be configured as an off function.</i>
3	Off with timers disabled	The lighting is switched off and the timers cannot be restarted.
4	Off with timers disabled at short press	A short press of the pushbutton switches off the lighting but the timers cannot be restarted. A long press of the pushbutton switches off the lighting and the timers remain enabled.
5	Off with timers disabled at long press	A short press of the pushbutton switches off the lighting and the timers remain enabled. A long press of the pushbutton switches off the lighting but the timers cannot be restarted.
6	Slow off	The lighting switches off slowly during a preset period.
7	On	The lighting switches on.
8	On with timers disabled	The lighting is switched on and the timers cannot be restarted.
9	On with timers disabled at short press	A short press of the pushbutton switches on the lighting but the timers cannot be restarted. A long press of the pushbutton switches on the lighting and the timers remain enabled.
10	On with timers disabled at long press	A short press of the pushbutton switches on the lighting and the timers remain enabled. A long press of the pushbutton switches on the lighting but the timers cannot be restarted.
11	Slow on	The lighting switches on slowly.
12	Toggle	Each press toggles the lighting status.
13	Toggle with timers disabled	Each press toggles the lighting status (on/off). The timers cannot be started when the lighting is switched on.

14	Toggle with timers disabled at short press	Each press toggles the lighting status (on/off). The timers cannot be started when the lighting was switched on by a short press.
15	Toggle with timers disabled at long press	Each press toggles the lighting status (on/off). The timers cannot be started when the lighting was switched on by a long press.
16	Slow toggle	Each press switches the lighting slowly on or off.
17	Start/stop timer	A press of the pushbutton switches on the lighting for a preset time. A press of the pushbutton switches off the switched-on lighting immediately.
18	Start/stop timer met langzaam aan/uit	A press of the pushbutton slowly switches on the lighting for a preset time. The lighting switches off slowly after the preset time has expired. A press of the pushbutton switches off the switched-on lighting slowly.
19	Restartable timer	A press of the pushbutton switches on the lighting for a preset time. A press of the pushbutton while the lighting is switched on restarts the timer.
20	Restartable timer with slow toggle	A press of the pushbutton switches on the lighting slowly. The lighting switches off slowly after the switch-off delay has expired. A press of the pushbutton while the lighting is switched on restarts the timer.
21	Non-restartable timer	A press of the pushbutton switches on the lighting for a preset time. A press of the pushbutton while the lighting is switched on has no effect.
22	Non-restartable timer with slow toggle	A press of the pushbutton switches on the lighting slowly. The lighting switches off slowly after the switch-off delay has expired. A press of the pushbutton while the lighting is switched on has no effect.
23	Slow on at press, slow off at release	At the press of the pushbutton the lighting switches on slowly. At the release of the pushbutton the lighting switches off slowly. The lighting switches off slowly if the switch-off delay is expired while the pushbutton is still being pressed.
24	Dimming up	A press of the pushbutton increases the lighting's intensity. The lighting switches off after the switch-off delay has expired.
25	On at short press Dimming up at long press	A short press of the pushbutton switches the lighting fully on. A long press dims up the lighting. The lighting's intensity is maintained at release. The lighting switches off after the switch-off delay has expired.
26	Memory at short press Dimming up at long press	A short press of the pushbutton switches on the lighting at the last-used intensity. A long press dims up the lighting. The lighting's intensity is maintained at release. The lighting switches off after the switch-off delay has expired.
27	Dimming down	A press of the pushbutton decreases the lighting's intensity. The intensity is maintained at release of the pushbutton. The lighting switches off after the switch-off delay has expired.
28	Off at short press Dimming down at long press	A short press of the pushbutton switches the lighting fully off. A long press dims down the lighting. The lighting's intensity is maintained at release. The lighting switches off after the switch-off delay has expired.
29	Dimming	A press of the pushbutton dims the lighting up or down. The intensity is maintained at release of the pushbutton. Repress the pushbutton to toggle the dimming direction. The lighting switches off after the switch-off delay has expired.

30	Toggle at short press Dimming at long press	A short press of the pushbutton switches the switched-off lighting fully on or switches the switched-on lighting fully off. A long press of the pushbutton dims the lighting up or down. The intensity is maintained at release of the pushbutton. The lighting switches off after the switch-off delay has expired.
31	Memory at short press Dimming at long press	A short press of the pushbutton switches on the switched-off lighting at the last-used intensity or switches the switched-on lighting fully off. A long press of the pushbutton dims the lighting up or down. The intensity is maintained at release of the pushbutton. The lighting switches off after the switch-off delay has expired.
32	Recalling a dimming atmosphere	A press of the pushbutton recalls a preset lighting intensity. The ramp time to reach the preset lighting intensity and the switch-off delay can also be programmed.
33	Fader dimming	The fader's position determines the lighting's intensity.
34	Multistep dimmer	A press of the pushbutton recalls the next preset lighting intensity. The ramp time to reach the preset lighting intensity and the switch-off delay can also be programmed. The module can memorize up to 14 preset intensities. Default values are 25, 50, 75, 100, 75, 50 and 25%.
35	Forced off at closed switch	The lighting cannot be switched on as long as the switch is closed.
36	Forced off at open switch	The lighting cannot be switched on as long as the switch is open.
37	Forced off	A press of the pushbutton locks the lighting's switch-on for a preset time.
38	Enabling/disabling the forced-off mode	A press of the pushbutton locks the lighting's switch-on for a preset time. Repress the pushbutton to disable the forced-off mode.
39	Cancelling forced-off mode	A press of the pushbutton cancels the forced-off mode. <i>Remark:</i> <i>The forced-off mode can still be determined through function 35 or 36 (Forced off at closed/open switch).</i>
40	Forced on at closed switch	The lighting is switched on as long as the switch is closed. All other controls are ignored. <i>Remark:</i> <i>The forced-off mode suppresses the forced-on mode.</i>
41	Forced on at open switch	The lighting is switched on as long as the switch is open. All other controls are ignored. <i>Remark:</i> <i>The forced-off mode suppresses the forced-on mode.</i>
42	Forced on	A press of the pushbutton switches on the lighting. All other controls are ignored for a preset time. <i>Remark:</i> <i>The forced-off mode suppresses the forced-on mode.</i>
43	Enabling/disabling the forced-on mode	A press of the pushbutton switches on the lighting. All other controls are ignored for a preset time. Repress the pushbutton to disable the forced-on mode. <i>Remark:</i> <i>The forced-off mode suppresses the forced-on mode.</i>
44	Cancelling forced-on mode	A press of the pushbutton cancels the forced-on mode. <i>Remark:</i> <i>The forced-on mode can still be determined through function 35 or 36 (Forced off at closed/open switch).</i>

45	Inhibition at closed switch	The lighting is switched off as long as the switch is closed. The functions continue to operate internally. The internal status is transferred to the lighting as soon as the switch is opened.
46	Inhibition at open switch	The lighting is switched off as long as the switch is open. The functions continue to operate internally. The internal status is transferred to the lighting as soon as the switch is closed.
47	Inhibition	A press of the pushbutton switches off the lighting for a preset time. The functions continue to operate internally.
48	Toggle inhibition mode	A press of the pushbutton switches off the lighting for a preset time. The functions continue to operate internally. Repress the pushbutton to cancel the inhibition mode.
49	Cancelling inhibition	A press of the pushbutton transfers the internal status to the relay.

Some functions may be configurable with a switch-off time between

- 1 sec and 2 min in steps of 1 sec
- 2 min and 5 min in steps of 15 sec
- 5 min and 30 min in steps of 30 sec
- 30 min and 1 hour in steps of 1 min
- 1 hour and 5 hours in steps of 15 min
- 5 hours and 10 hours in steps of 30 min
- 10 hours and 24 hours in steps of 1 hour
- 2 days
- 3 days
- no switch-off timer

and a dimming speed between

- 2 sec and 2 min in steps of 1 sec
- 2 min and 5 min in steps of 15 sec
- 5 min and 30 min in steps of 30 sec
- 30 min and 1 hour in steps of 1 min
- 1 hour and 5 hours in steps of 15 min
- 5 hours and 10 hours in steps of 30 min
- 10 hours and 23 hours in steps of 1 hour

CHECKING THE SOFTWARE VERSION

The software version can be verified via the Velbus link software.

Check on <http://www.velbus.eu> whether you have the latest version. If a newer version is available, download it. Connect the Velbus interface to a PC and run the upgrade-software and follow the instructions on the screen.

Remark:

Upgrading a module is not without risk. **Do not** interrupt the process!

If for any reason the upgrade should fail, the module will cease normal operation. The module will have to be returned to the manufacturer.

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by **velleman**

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All appliances get intelligent, how about your home?

Choosing for Velbus means choosing for a future-proof system which provides comfort, safety and a better energy management at a price which is just slightly higher than classical wiring.

COMFORT



Imagine coming home from a long day at work. With a single button press you turn on the heating, the blinds close, several lights turn on and create a cosy, intimate atmosphere. The wall outlets, which were shut off for safety reasons during your absence, are switched on again...

SAFETY



A sudden noise wakes you up in the middle of the night. Press your bedside button and your home comes alive. All lighting is turned on, while all blinds open. The garden lighting starts to flash, to attract attention...

ENERGYSAVING



Bedtime. Again, you press a single button. All lighting is turned off and nightlights start to glow. The garden remains lit for an hour. Wall outlets are turned off again for safety and to reduce electrosmog. Finally, the heating is lowered with a couple of degrees.


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