

VISS3, control voltage interface



VISS3, interface for control voltage, dimmer

VISS3, *VoltageInterfaceSinkSource3steps*, is an interface for devices with control input for voltage 0 - 10VDC. Via 3 digital inputs, which are connected to digital outputs on the higher-level control computer, the control voltage for the controlled device can be regulated in 3 steps. VISS3 is equipped with components that enable regulation for both sink and source.

The three steps are adjustable via a knob and a switch. Visualization of the control voltage takes place via a simple display. Normally it shows measured voltage x 10 in the control network, not the setpoint. 5 V = 50.

VISS3 has a built-in regulator, with input from the controlled object, which ensures that the control voltage is always kept according to the setting. This compensates for load in the control network when controlling many units in parallel.

Change in output occurs with smooth ramping up and down. The ramping speed is the default 200 seconds from 20 to 100%, but can be setup when assembled according to the controlled object. VISS3 is mounted in a sheet metal casing of 300x300x150 mm. The control current must be limited to a maximum of 1A to be on the safe side in terms of heat development.

Example: Typically a lighting fixture (source) draws 1 - 2 mA/pc, which means that VISS3 (sink) can control 1,000 – 1,500 fixtures simultaneously. However, of course, voltage drops in long lines and interference sensitivity must always be taken into account. VISS3 itself can actually cope with up to 5,000 luminaires, but then you may have problems with the cooling.

Example of application:

A cucumber grower wishes to change the brightness of LED lighting that has an analog input for voltage. The brightness is controlled between 0 - 10V where 0 is off (0%) and 10 is 100%. Control takes place via a greenhouse control computer, LCC4, which has digital lighting outputs that can step in 3 steps for each luminaire group. You set the brightness in VISS3 for each step, e.g. 30, 60 and 100%. The step outputs from LCC4 are connected to VISS3's digital inputs and now the lighting can be varied smoothly up and down depending on e.g. light coming from outside (sun) or brightness determined by plant physiology crop demand.

Short functional description:



There are 8 connection terminals in the lower right corner of the VISS3-print. They have the following function from left to right:

- 1 Control signal out -
- 2 Control signal out +(0)2..10V
- 3 Voltage supply 0VDC
- 4 Voltage supply +15VDC (adjusted on the built-in power supply)
- 5 -C, common to control computer, minus
- 6 Step 1 from control computer
- 7 Step 2 from control computer
- 8 Step 3 from control computer

The inputs from the control computer are potential-free and galvanic separated with optocouplers. Detection range +12 - +24V. The steps must be activated in sequence 1-2-3 and the previous step must remain activated when the next step is activated. A relay cuts the control voltage completely if no step is activated.

Example:

- Step 1 activated. Control voltage according to setting step 1.
- Steps 1 and 2 activated. Control voltage according to setting for step 2.

- Steps 1, 2 and 3 activated. Control voltage according to setting for step 3.
- Steps 2 and 3 activated. Control voltage 0 (incorrect sequence).
- Steps 1 and 3 activated. Control voltage 0 (incorrect sequence).



Settings:

Procedure: There is a rotary switch, A, with 4 steps: Out, Step 1, Step 2, Step 3. There is also a stepless knob, B, to the right of the switch. Here you set the desired control voltage for each step. Under the switch is an Enter button, C. With this you confirm the entered value for VISS3.

Normal position of switch A is *Out*, which means that it shows the current control voltage to the controlled object.

How to make a setting?

- 1. Turn switch A to Step 1.
- 2. Now you can read the current setting for Step 1 for 3 seconds. During this time, VISS3 is not susceptible to setting.
- 3. When the 3 seconds have elapsed, turn knob B to the brightness, in % of full brightness, desired for Step 1. The setting is shown in the display. The range of setting is 20 - 100%.
- 4. When the correct value appears in the display, press the Enter key C. Then - C - (copy) appears in the display as a confirmation that the input is complete for this step.
- 5. Then turn the switch to the next step and repeat the procedure.
- 6. When all settings are complete, turn switch A to Out.
- 7. The display now shows current voltage x 10 volts on the control network, not the setpoint.
0 = 0V, 100 = 10V.

If you want to set Step 3 directly, you first get a pause of 3 seconds for Step 1 and then a pause of 3 seconds for reading Step 3 before you can set Step 3.

If you set the value of Step 1 higher than Step 2? There is a lock that prevents the next step from having a lower value than the previous one. If you still try to do this, the input is blocked and the step stops at the value in the previous step +2.

N.B.

The power supply, up to the left in the cabinet picture above, should normally be set to 15V.

Manual mode

The switch on the front, *Auto-Off-Step1-Step2-Step3*, makes it possible to override the output from the control computer.

- Auto – The voltage signal output is controlled by the greenhouse computer
- Off – The luminaires are shut off
- Step 1 – The voltage signal output is according to the setting of step 1
- Step 2 – The voltage signal output is according to the setting of step 2
- Step 3 – The voltage signal output is according to the setting of step 3