VOLTCON series

Transmitter of photocurrent to 0 - 5 V signal

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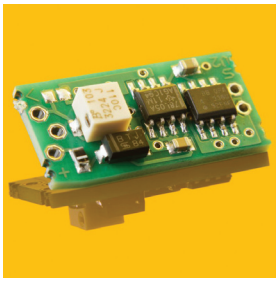
GENERAL FEATURES



Properties of the VOLTCON

The VOLTCON converts a photocurrent into an output voltage between 0 and 5 V and can be connected to any PLC system.

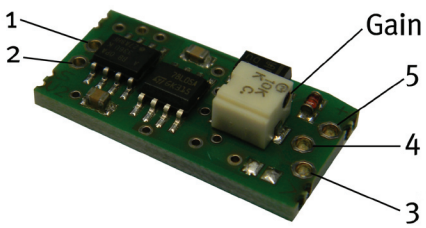
Three models with different measurement ranges are available. The amplification factor (gain) can be adjusted by a potentiometer. The measurement range can also be customized by replacing passive components (see description on page 2).

SPECIFICATIONS

Parameter	Value
Photocurrent measurement range	VOLTCON_low 500 µA
	VOLTCON_med 5 µA
	VOLTCON_high 100 nA
Supply voltage	7* ... 24 V (*usable down to 5V, but this is not recommended)
Gain adjustment range	± 35%
Dark output voltage	< 1 mV
Dimensions	13 x 26 x 8 mm (WxLxH)
Operating temperature	-20 ... +80 °C
Storage temperature	-40 ... +80 °C
Standards	RoHS 2 2011/65/EU, DIN IEC 60381-2

We strongly recommend to process this product on ESD protected workplaces.

CONNECTION



1 - Photodiode anode

2 - Photodiode cathode

3 - Signal output (connect to current input)

4 - GND power supply

5 - V+ power supply

Gain - turn left to increase the gain

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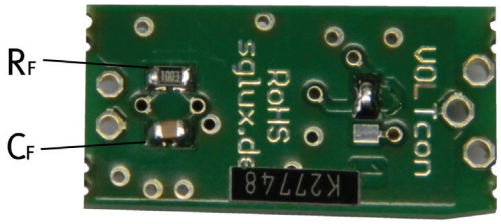
CUSTOMIZATION OF MEASUREMENT RANGE



To modify the measurement range beyond the available adjustment range the feedback resistor R_f must be replaced. The adjustment range remains unaffected by this change. I_{max} is the designated maximum photocurrent to be measured.

$R_{f,new}$ (in MΩ) = 5 / I_{max} (in µA)

The capacitor C_f defines the time constant τ of the measurement and may need modification too. By default τ is 10 ms for all models. The required value of C_f can be calculated from $R_{f,new}$ and the intended time constant:

C_f (in nF) = τ_{new} (in ms) / $R_{f,new}$ (in MΩ)

Recommended values:

10 kΩ <= $R_{f,new}$ <= 3 GΩ and 1 ms <= τ <= 200 ms, $C_{f,new}$ >= 33 pF,

components package size 0805 (2.0 x 1.25 mm)

Default component values:

Model	**R_f**	**C_f**
VOLTCON_low	10 kΩ	1 µF
VOLTCON_med	1 MΩ	10 nF
VOLTCON_high	100 MΩ	100 pF