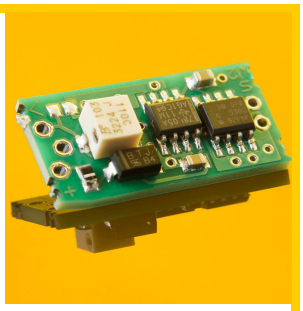
VOLTCON_LO

Low sensitivity transmitter of photocurrent to a 0-5V signal

The Voltcon converts a photocurrent into an output voltage between 0 and 5V.

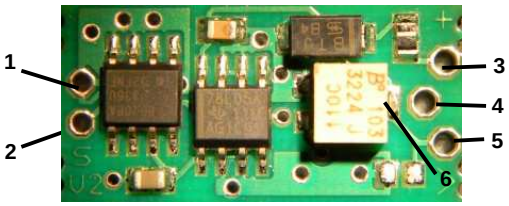
The present module works with a low gain factor and converts a photocurrent of 500µA to an output of 5V. This means, a current higher than 500µA will cause saturation.

Other modules with medium gain (VOLTCON_MED, up to 5µA) and high gain (VOLTCON_HI, up to 40nA) are available. Alternatively, please refer to the below instruction for changing the gain.



Input solder points	Photodiode Anode = positive terminal of the photodiode Photodiode Cathode = negative terminal of the photodiode
Power supply and output terminal solder points	A voltage of 5...24V is to be applied between V+ and GND. The resulting output voltage between 0 and 5V is measured between the signal output and GND. The voltage is proportional to the applied photocurrent.
Dimensions	W x L x H = 13 x 26 x 8mm
Operating temperature	-20…80°C
Storage temperature	-40…80°C
The amplification factor (gain) is adjustable with a potentiometer (see description).	
RoHS-compliant to 2002/95/EG.	

Connection:



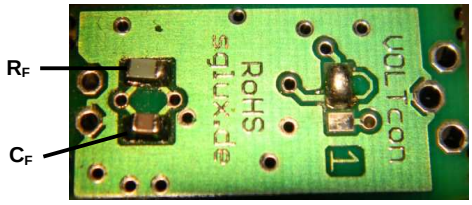
Input solder points
1 Photodiode anode
2 Photodiode cathode

Power supply solder points
3 V+ power supply
4 GND power supply
5 Signal output

Gain fine adjustment:

The gain fine adjustment is done via the potentiometer (6)
- turn left to raise the gain
- turn right to lower the gain

How to change the gain:



R_F and C_F might have another appearance than in the picture.
To change the gain (measurement range) in a larger scale, please change the feedback resistor R_F (the present value is 10 kΩ).
To calculate R_{Fnew} for the new resistor, please use this formula:

$R_{Fnew}(in\ M\Omega)=5/I_{max}(in\ \mu A)$

I_{max} is the max. measurable photocurrent. It is adjustable with the gain potentiometer.
The capacitor C_F (the default value is 1µF) is influencing the time constant τ of the measurement system. The present time constant is 10ms. It is calculated with the formula:

$\tau(in\ ms) = C_F(in\ \mu F) * R_F(in\ k\Omega)$

maximum ratings

10kΩ < R_{Fnew}<3GΩ and **τ > 1ms**

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