VOLTCON_HI

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

sglux
The UV Experts

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

The present module works with a high gain factor and converts a photocurrent of 40nA to an output of 5V. This means, a current higher than 40nA will cause saturation.

Other modules with low gain (VOLTCON_LO, up to 500µA) and medium gain (AMPCON_MED, up to 5µA) are available. Alternatively, please refer to the below instruction for changing the gain.
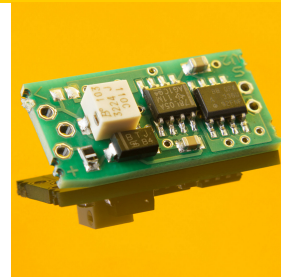
Input solder points	Photodiode Anode = positive terminal of the photodiode Photodiode Cathode = negative terminal of the photodiode
Power supply and output terminal solder points	A voltage of 5...24V is to be applied between V+ and GND. The resulting output voltage between 0 and 5V is measured between 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:
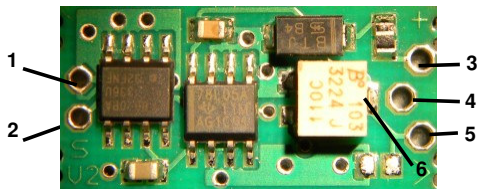
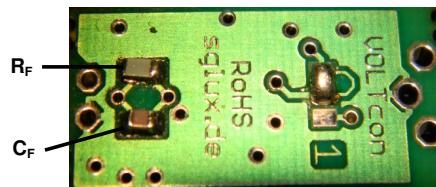**Input solder points**

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 120 MΩ).
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 820pF) is influencing the time constant τ of the measurement system. The present time constant is approx. 10ms. It is calculated with the formula:

$$\tau\ (in\ ms)=C_F(in\ nF)*\ R_F\ (in\ M\Omega)$$

maximum ratings
$10k\Omega < R_{Fnew} < 3G\Omega$ and $\tau > 1ms$