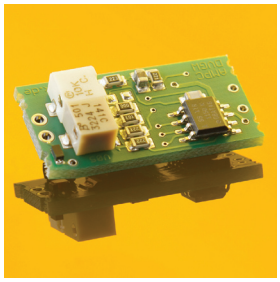
AMPCON series

Transmitter of photocurrent to 4 - 20 mA current loop

sglux
The UV Experts

Boston Electronics

GENERAL FEATURES



Properties of the AMPCON

The AMPCON converts a photocurrent to an industry standard current loop signal. It exhibits a loop-powered (passive) 4 to 20 mA sensor to any PLC system.

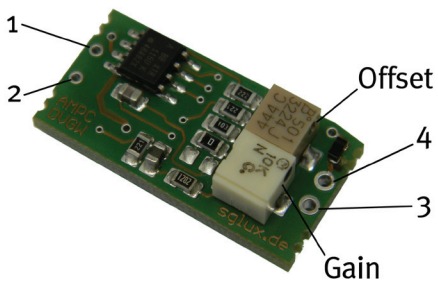
Three models with different measurement ranges are available. Gain and offset can be adjusted by potentiometers. The measurement range can also be customized by replacing passive components (see description on page 2).

SPECIFICATIONS

Parameter	Value	
Photocurrent measurement range	AMPCON_low	250 µA
	AMPCON_med	2.5 µA
	AMPCON_high	25 nA
Loop supply voltage	(10 to 24) V ± 10 % depending on loop resistance	
Total loop resistance	<= 700 Ω@ 24V, <= 100 Ω at 10V	
Gain adjustment range	± 35%	
Offset adjustment range	4 mA (±12.5%)	
Dimensions	13 x 26 x 8 mm (WxLxH)	
Operating temperature	-20 to +80 °C	
Storage temperature	-40 to +80 °C	
Standards	RoHS 2 2011/65/EU, DIN IEC 60381-1	

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 - V+ power supply

Gain - turn left to increase the gain

Offset - turn left to decrease the offset

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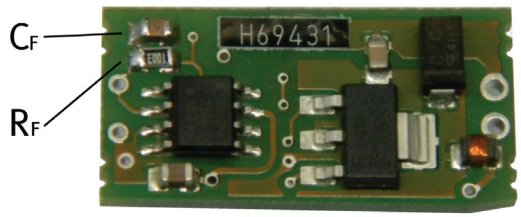
CUSTOMIZATION OF MEASUREMENT RANGE



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) = 2160 / I_{max} (in nA)

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 0805 (2.0 x 1.25 mm)

Default component values:

Model	R_f	C_f
AMPCON_low	10 kΩ	1 µF
AMPCON_med	1 MΩ	10 nF
AMPCON_high	100 MΩ	100 pF