

## AMPCON\_LO

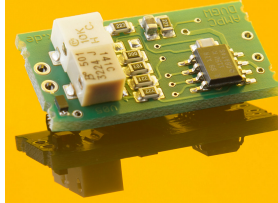
Low sensitivity transmitter of photocurrent to 4-20mA current loop



The AMPCON converts a photocurrent into an output current between 4 and 20mA. The module is designed for integration into 4-20mA databusses.

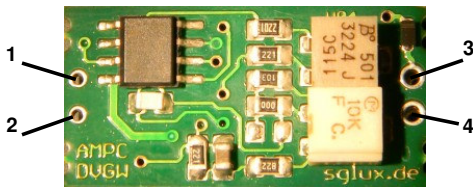
The present module works with a low gain factor and converts a photocurrent of 250µA (adjustable +/-35%) to an output of 20mA. This means, a current higher than 250µA will cause saturation.

Other modules with medium gain (AMPCON\_MED, up to 2,5µA) and high gain (AMPCON\_HI, up to 18nA) are available. Alternatively, please refer to the below instruction for changing the gain.



<b>Input solder points</b>	Photodiode Anode = positive terminal of the photodiode Photodiode Cathode = negative terminal of the photodiode
<b>Power supply = output terminal solder points</b>	A voltage of 24V is to be applied between V+ and GND. The resulting current between 4 and 20mA is the signal, which is proportional to the photocurrent.
<b>Dimensions</b>	W x L x H = 13 x 26 x 8mm
<b>Operating temperature</b>	-20...80 °C
<b>Storage temperature</b>	-40...80 °C
The signal offset and the amplification factor are adjustable with potentiometers. (see description)	
RoHS-compliant to 2002/95/EG.	

### Connection:



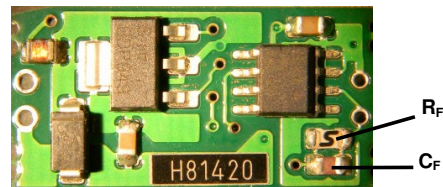
#### Input solder points

- 1 Photodiode anode
- 2 Photodiode cathode

#### Power supply solder points

- 3 V+ power supply
- 4 GND power supply

### 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 k $\Omega$ )  
To calculate  $R_{F_{new}}$  for the new resistor, please use this formula:

$$R_{F_{new}}(\text{in k}\Omega) = 2160 / I_{max}(\text{in }\mu\text{A})$$

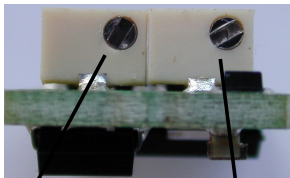
$I_{max}$  is the max. measurable photocurrent. It is adjustable +/- 35% with the potentiometer.  
The capacitor  $C_F$  (the default value is 1µF) is influencing the time constant  $\tau$  of the measurement system. The present time constant is 10ms. It is calculated with the formula:

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

#### maximum ratings

$$5\text{k}\Omega < R_{F_{new}} < 3\text{G}\Omega \text{ and } \tau > 1\text{ms}$$

### Offset and gain fine adjustment:



#### gain adjustment

turn left to raise the gain  
turn right to lower the gain

#### offset adjustment

turn right to raise the offset  
turn left to lower the offset