

AMPCON_MED

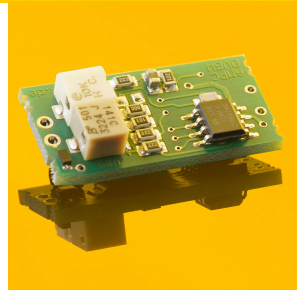
Medium sensitivity transmitter of photocurrent to 4-20mA current loop



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

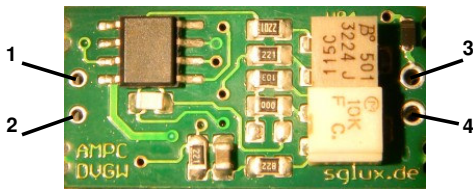
The present module works with a medium gain factor and converts a photocurrent of 2,5µA (adjustable +/-35%) to an output of 20mA. This means, a current higher than 2,5µA will cause saturation.

Other modules with low gain (AMPCON_LO, up to 250µA) and high gain (AMPCON_HI, up to 18nA) 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 = output terminal solder points	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.
Dimensions	W x L x H = 13 x 26 x 8mm
Operating temperature	-20...80 °C
Storage temperature	-40...80 °C
The signal offset and the amplification factor are adjustable with potentiometers. (see description)	
RoHS-compliant to 2002/95/EG.	

Connection:



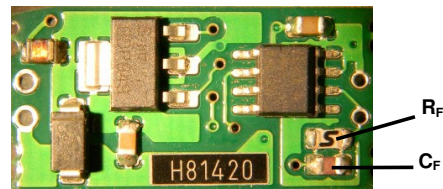
Input solder points

- 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 1 MΩ).
To calculate $R_{F_{new}}$ for the new resistor, please use this formula:

$$R_{F_{new}}(\text{in } M\Omega) = 2160 / I_{max}(\text{in } nA)$$

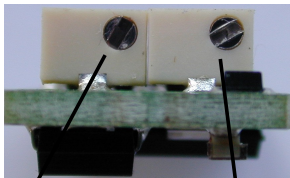
I_{max} is the max. measurable photocurrent. It is adjustable +/- 35% with the gain potentiometer.
The capacitor C_F (the default value is 100nF) is influencing the time constant τ of the measurement system. The present time constant is 10ms. It is calculated with the formula:

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

maximum ratings

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

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