

## AMPCON\_MED

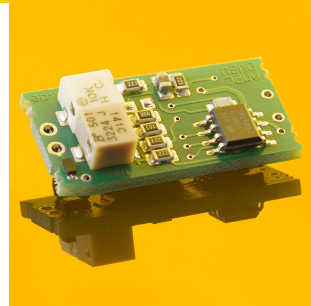
Medium sensitivity transmitter of photocurrent to 4-20mA current loop



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

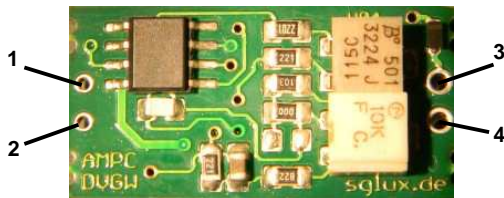
The present module works with a medium gain factor and converts a photocurrent of 2,5µA (adjustable +/-35%) to an output of 20mA. This means, a current higher than 2,5µA will cause saturation.

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.



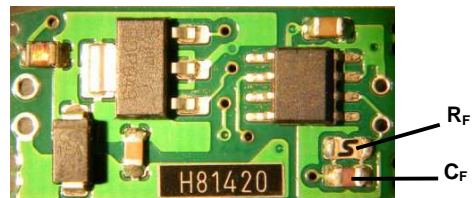
<b>Input solder points</b>	Photodiode Anode = positive terminal of the photodiode Photodiode Cathode = negative terminal of the photodiode
<b>Power supply = output terminal solder points</b>	A voltage of 24V is to be applied between V+ and GND. The resulting current between 4 and 20mA is the signal, 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:



- |                            |                                   |
|----------------------------|-----------------------------------|
| <b>Input solder points</b> | <b>Power supply solder points</b> |
| 1 Photodiode anode         | 3 V+ power supply                 |
| 2 Photodiode cathode       | 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  $R_{Fnew}$  for the new resistor, please use this formula:

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

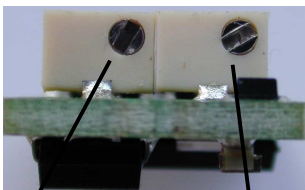
$I_{max}$  is the max. measurable photocurrent. It is adjustable +/- 35% with the gain potentiometer.  
The capacitor  $C_F$  (the default value is 100nF) is influencing the time constant  $\tau$  of the measurement system. The present time constant is 10ms. It is calculated with the formula:

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

### maximum ratings

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

### Offset and gain fine adjustment:



- |                              |                                |
|------------------------------|--------------------------------|
| <b>gain adjustment</b>       | <b>offset adjustment</b>       |
| turn left to raise the gain  | turn right to raise the offset |
| turn right to lower the gain | turn left to lower the offset  |