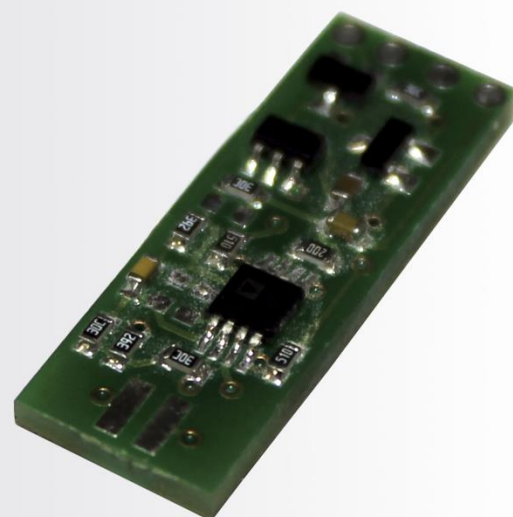




PAb  
PREAMPLIFIER BOARD  
INSTRUCTION MANUAL



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## GENERAL INFORMATION

### Application

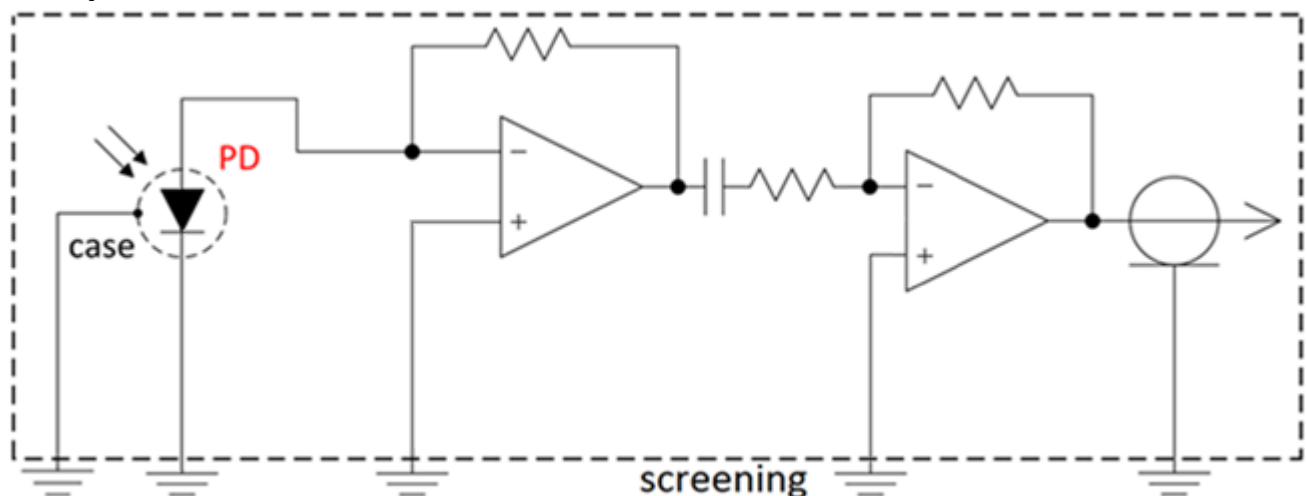
PAb preamplifier is oriented for amplification and conversion of the pulse current signal generated by LMSNT photodiodes (PDs). Preamplifier enables PD operation at **photovoltaic mode** (with no reverse bias) – mode in which photodiode becomes the source of photocurrent. PD photocurrent is amplified and converted by preamplifier into voltage signal. The resulted voltage signal has the same form as the photocurrent, i.e. if the photocurrent from photodiode is a meander, the converted signal will be a meander too with the same frequency and pulse duration. Current into voltage conversion coefficient is constant and depends on given photodiode.

### Compatibility table

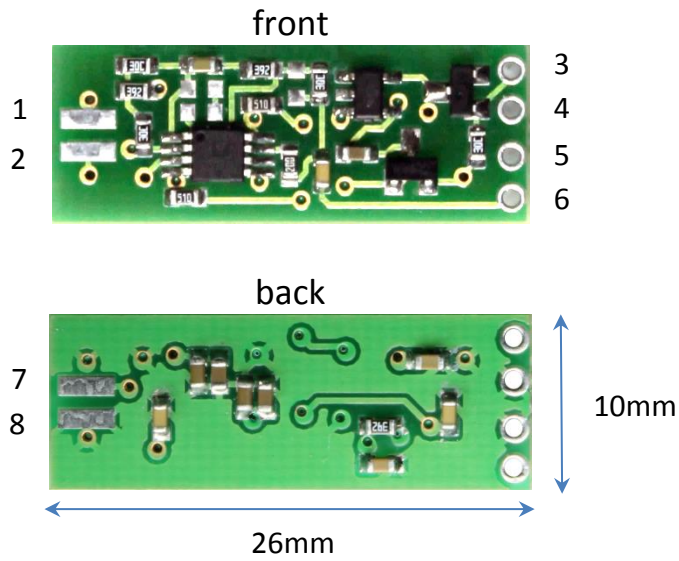
PD models	
LmsXXPD-XX	✓
LmsXXPD-XX-R	✓
LmsXXPD-XX-RW	✓
LmsXXPD-XX-R-PA	✗
LmsXXPD-XX-RW-PA	✗
LmsXXPD-XX-TEM	✓ (under request)
LmsXXPD-XX-TEM-R	✓ (under request)
LmsXXPD-XX-TEM-R-PA	✗
LmsXXPD-XX-TEM-RW-PA	✗

**Note!** Before purchasing the PAb board, please notify your provider about the exact photodiode model to be used with the preamplifier, since the preamplifier board should be tuned for the appropriate photodiode type.

### Principal Scheme



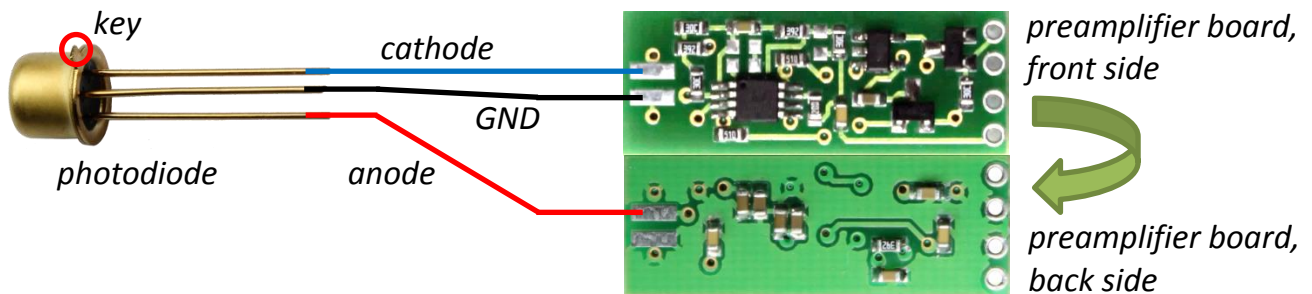
# PREAMPLIFIER BOARD LAYOUT



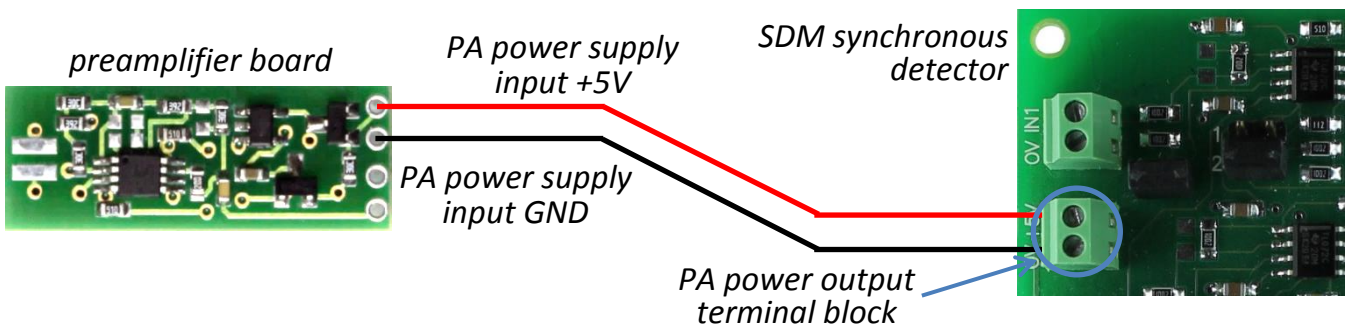
- 1. connection to photodiode “-”
- 2. connection to photodiode GND
- 3. +5V power supply
- 4. GND power supply
- 5. output signal GND
- 6. output signal “+”
- 7. connection to photodiode “+”
- 8. connection to photodiode GND

## OPERATION ISTRUCTIONS

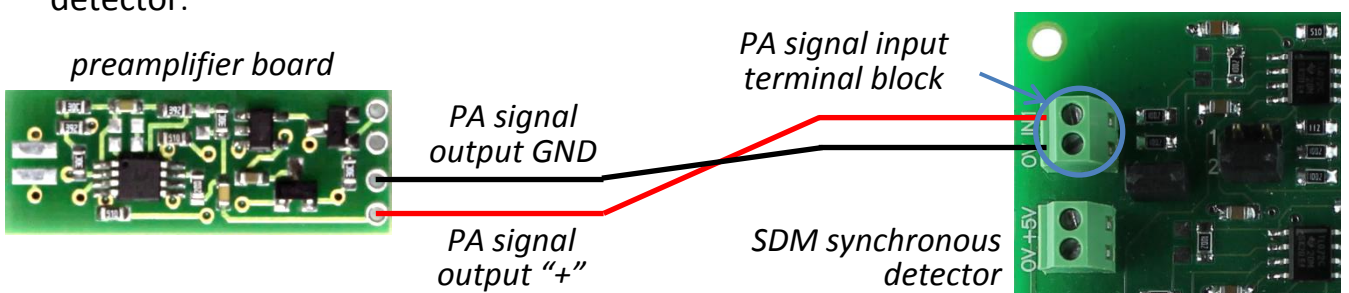
1. Solder a PD to the PD preamplifier in the following way: photodiode's "+" to (7), photodiode's "-" to (1) and photodiode's GND to (2) or (8).



2. Solder the power supply wires: "+5V" to (3) and "GND" to (4).
3. Solder the signal output wires: "+" to (6) and "GND" to (5).
4. Screen photodiode and preamplifier to avoid noise.
5. Connect the 5V power output of the synchronous detector with the preamplifier power input.



6. Connect the preamplifier output wires to signal input of the SDM synchronous detector.

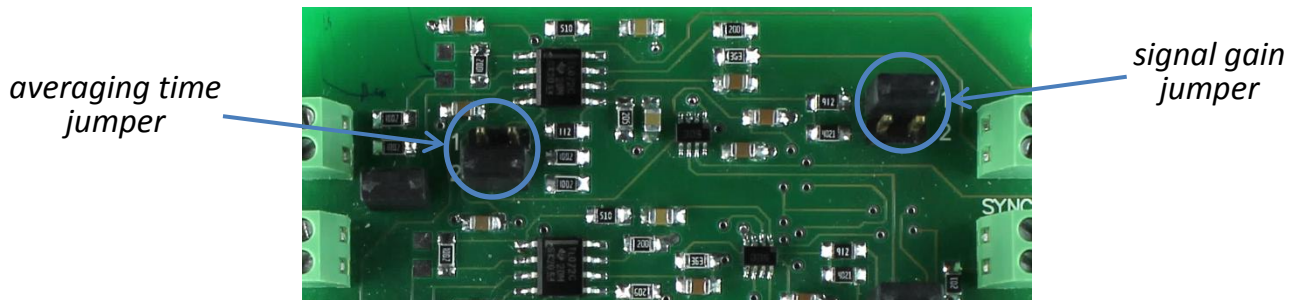


### Note!

- Check all the connections before turning on the photodiode.
- Do not connect the photodiode to the multimeter.
- Make sure that the connection between the photodiode and the preamplifier is proper, safe and securely screened.

## OPERATION ISTRUCTIONS

7. Choose the needed averaging time and signal amplification with the help of the appropriate jumpers of the SDM synchronous detector.



**Note!** To find out more about mode adjustment of the synchronous detector please refer to the SDM synchronous detector manual.

7. Make all the connections of other boards (driver, synchronous detector etc.) following the appropriate instructions manuals. Before turning them on check the required connections and modes:

### Driver:

- LED connection
- Synchronisation with sync. detector
- Pulse duration, frequency, current selection
- External connections (if necessary)

### Synchronous detector:

- Photodiode input connection
- Pre-amplifier power output connection
- Synchronisation with driver
- Averaging time and signal gain selection
- External signal observing device connection

## TECHNICAL CHARACTERISTICS

Power input voltage	+5 V, stabilized
Voltage tolerance	-5..+5 %
Board dimensions	10×26 mm