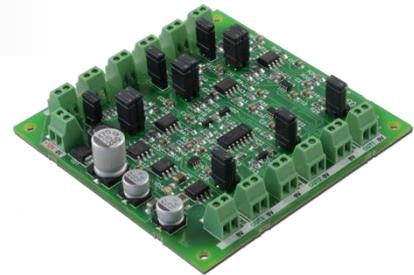




PCB-sdetect-3P

- Synchronous Detector For Mid-IR PDs
- Pulse Mode Operation
- 3 Independent Channels
- Built-in Power Supply For Preamplifiers
- Dimension: 70 x 70 x 19 mm



Description



PCB-sdetect-3P synchronous detector measures the voltage signal from the output of photodiode preamplifier and converts it to the DC voltage signal proportional to amplitude of voltage from input. PCB-sdetect-3P synchronous detector is optimized for work in a pulse mode, since in this mode the highest signal amplitude and STN ratio can be achieved.

Features

- **Three independent channels** for detection. One can connect three systems with drivers and preamplifiers and run them through the synchronous detector simultaneously.
- Built-in **power supply for preamplifiers**.
- Possibility of **input polarity inversion** using the appropriate jumper. In case of wrong polarity connection from photodiode preamplifier one can simply switch the input polarity inversion jumper.

Main Characteristics

Parameter	Symbol	Min.	Values Typ.	Max.	Unit
Input Voltage (stabilized)	V_{SUPPLY}	11.4	12.0	12.6	V
Voltage Tolerance		-5		+5	%
Power Consumption	P				W
Input Current	I_{SUPPLY}			0.1	A
Preamplifier Supply Output Voltage	V_{PRES}		5		V
Output Constant Voltage Signal, max	V_{OUTMAX}			10	V
Board Dimensions			70 x 70 x 19		mm

Adjustable Parameters

Parameter	Symbol	Pulse Mode	Unit
Averaging Time	t_{AV}	100 / 200 / 300	ms
Signal Gain		1x / 5x / 10x	

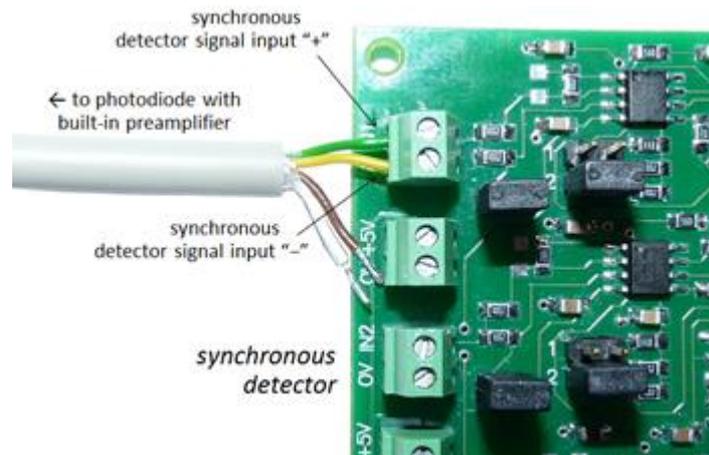
Supported Operation Modes

Single Data	Symbol	Pulse Mode	Unit
Pulse Duration	t_p	2 – 20	μ s
Frequency	f	0.5 – 16	kHz
Input Voltage Signal From Preamplifier, max	V_{IN}	± 3	V



Operating Instruction

1. Connect preamplifier output wires with signal input terminal block (3) till tight fixation. If you use a photodiode with built-in preamplifier (PDxx-xxxx-AMP series), then make a connection in the following way:

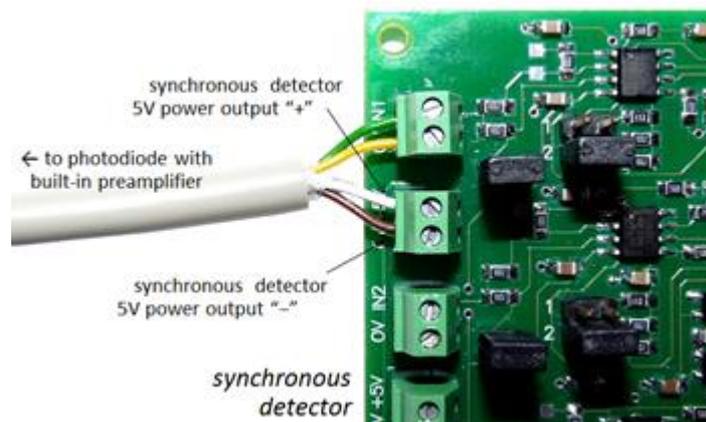


- Green cord – to the signal input “+”
- Yellow cord – to the signal input “0”

Note! The polarity of connections must be observed. In case of alternative polarity connection between photodiode and photodiode preamplifier one can simply switch the input polarity inversion jumper (2).

Note! To minimize noise we recommend screening the wires from preamplifier.

2. Connect +5V power output terminal block (4) with preamplifier power input unless external power supply for preamplifier is used. If you use a photodiode with built-in preamplifier (PDxx-xxxx-AMP series), then make a connection in the following way:



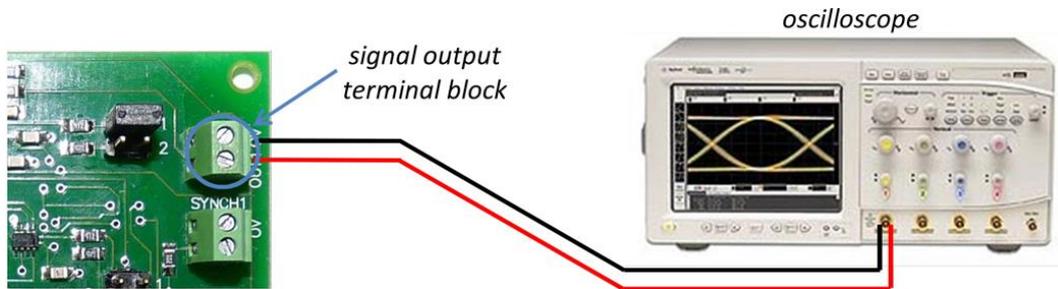
- White cord – to the power output “+”
- Brown cord – to the power output “0”

Note! If you use a standalone version of the preamplifier (PCB-preamp), make sure that the connection between the photodiode and the preamplifier is proper, safe and securely screened and take the abovementioned steps 1-2.

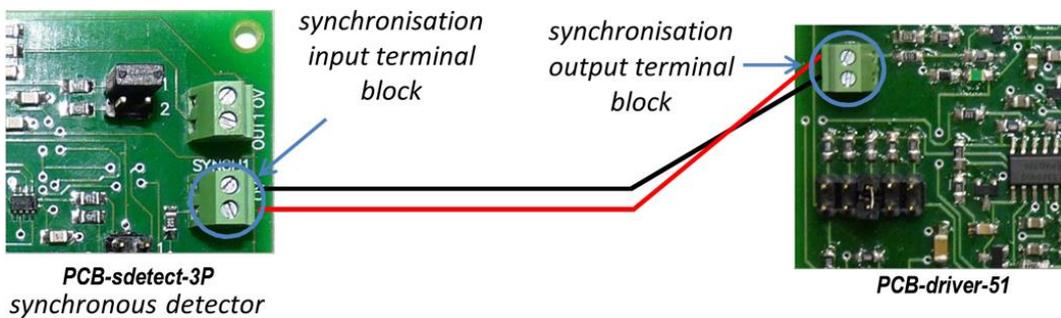
Note! Pay your attention to the colours of the cords; actual colours may differ from ones pointed in the present manual, follow the instructions pointed in the technical data provided with the ordered photodiode with built-in preamplifier (PDxx-xxxx-AMP).



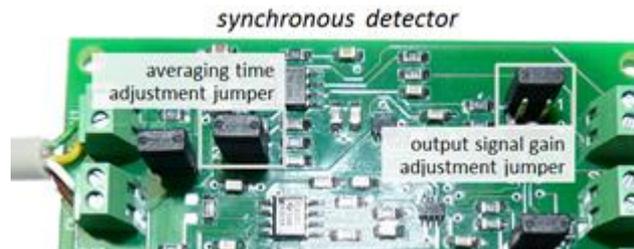
3. Connect signal output terminal block with signal observing device (multimeter, oscilloscope or PC via ADC).



4. Connect wires from LED driver's synchronization output with synchronization input terminal block (7).



5. Choose the needed averaging time and signal amplification with the help of the averaging time (1) and signal gain (5) jumpers of the PCB-sdetect-3P synchronous detector.



- 6.
7. If necessary, make all the connections of other boards (driver, thermocontroller, 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)

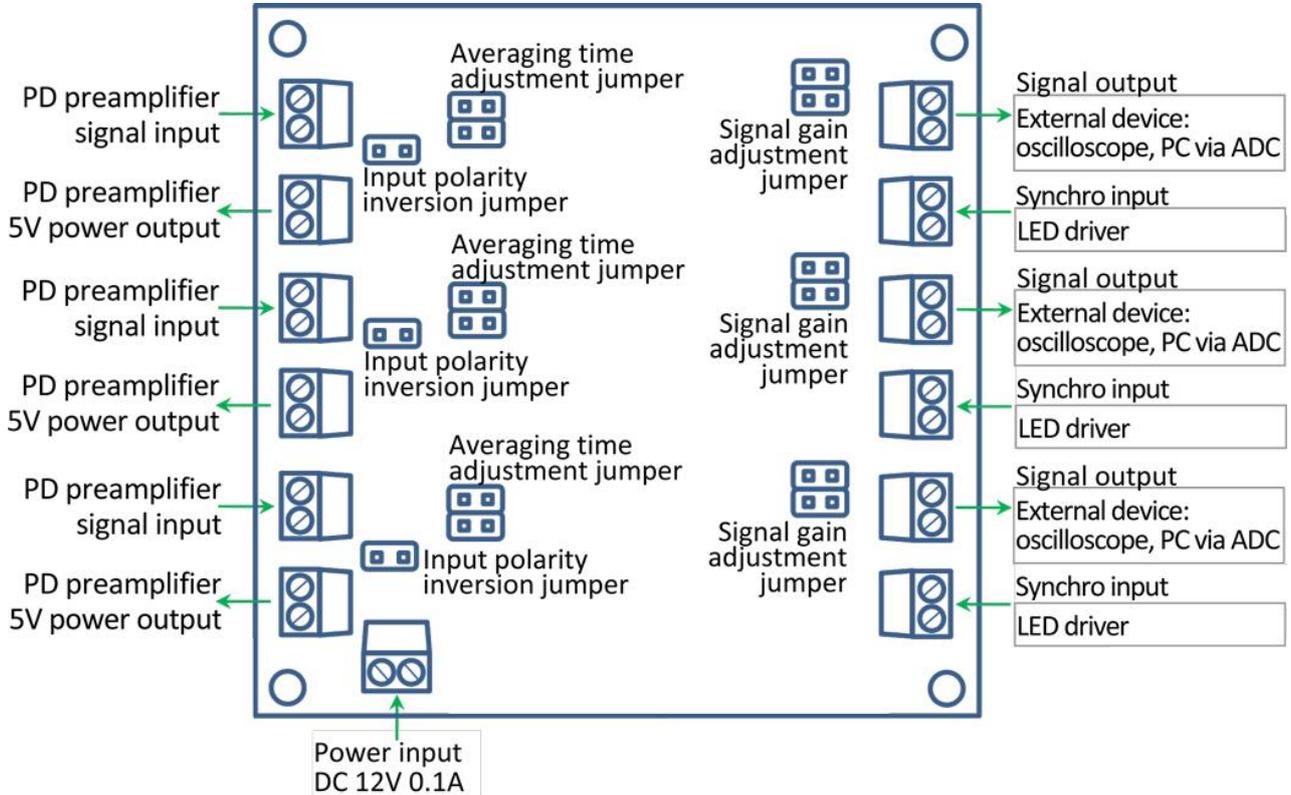
Thermocontroller:

- Thermistor / PCB-driver-51 temperature observation block input connection
- Thermocooler output connection
- External connections (if necessary)

8. Turn on the PCB-sdetect-3P board connecting +12V power supply with power input terminal block (8)..



PCB-sdetect-3P Connections



Precautions

Operation:

Indoor operation only.
Ingress Protection Rating IP00.

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The above specifications are for reference purpose only and subjected to change without prior notice