



SDM
SYNCHRONOUS DETECTOR
INSTRUCTION MANUAL

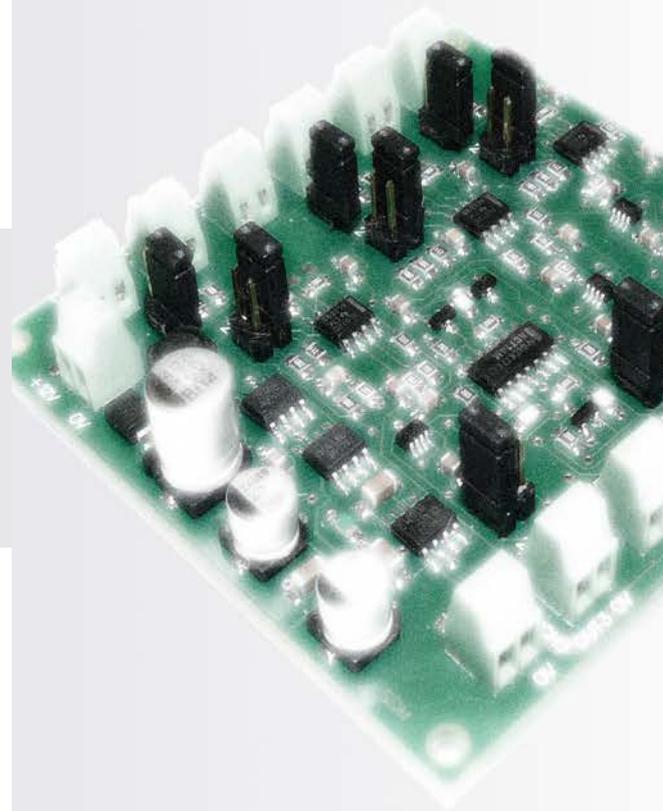


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Application

SDM 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.

SDM 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

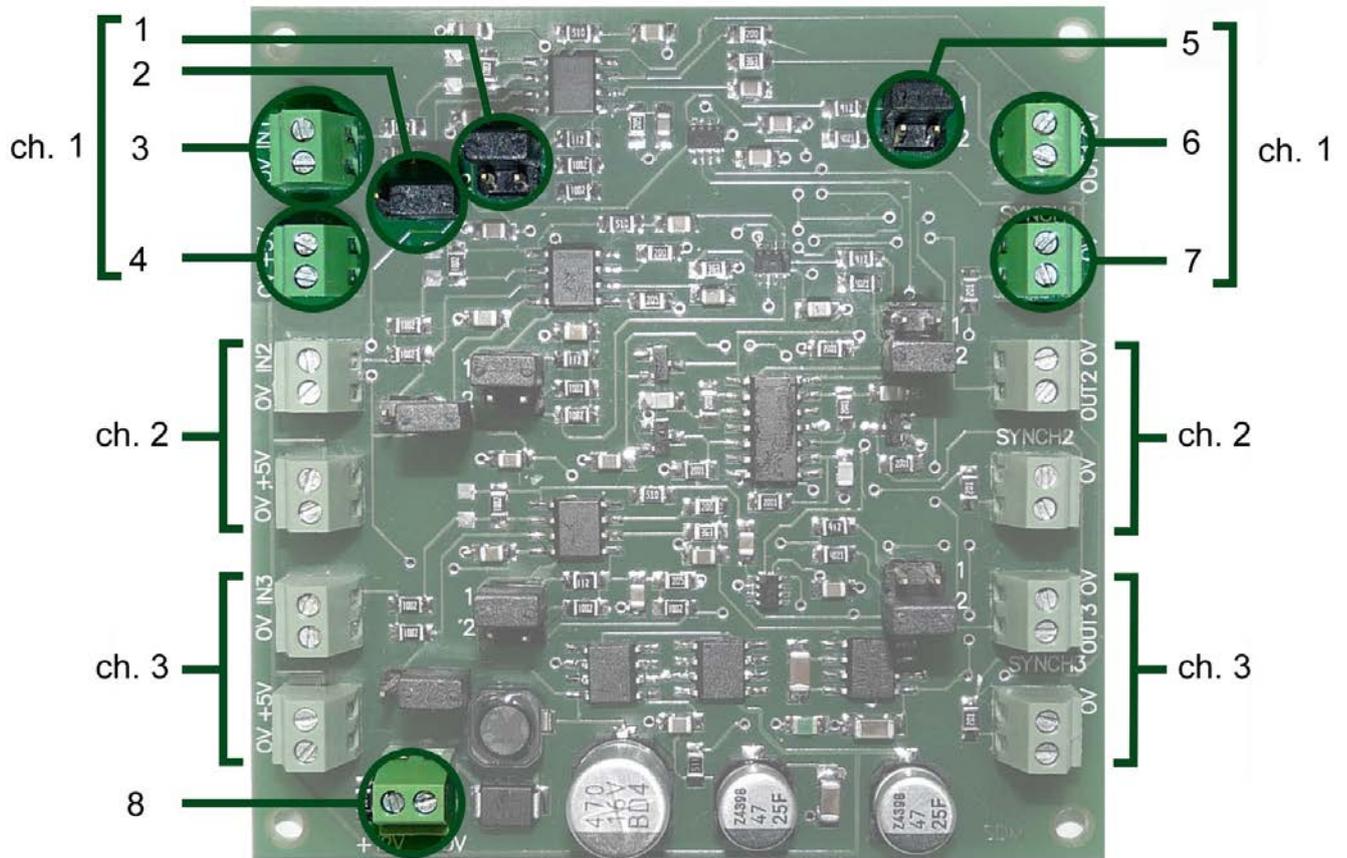
- **Three independent channels** for detection. One can connect three systems with drivers and preamplifiers and run them through the synchronous detector simultaneously.
- **Built-in power supply for preamplifiers.**
- Possibility of **input polarity inversion** using the appropriate jumper. In case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

Operation conditions

Indoor operation only. Ingress Protection Rating IP00.

Note! Please refer to your provider if you have any questions.

SYNCHRONOUS DETECTOR LAYOUT



Channel 1:

1. Averaging time adjustment jumper:
("1" - $100\mu\text{s}$, "2" - $200\mu\text{s}$, w/o jumper - $300\mu\text{s}$).
2. Input polarity inversion jumper.
3. Signal input (from output of preamplifier) terminal block.
4. Power output terminal block (for pleamplifier supply) (DC, unipolar, 5V).
5. Output signal gain adjustment jumper:
("1" - 5x gain, "2" - 10x gain, w/o jumper - 1x gain).
6. Signal output terminal block.
7. Synchronization input terminal block (from LED driver synchronization output).

Channel 2. Independent channel with its own set of jumpers and terminal blocks.

Channel 3. Independent channel with its own set of jumpers and terminal blocks.

8. Power input terminal block (DC, unipolar, +12V).

OPERATING INSTRUCTIONS

1. Connect preamplifier output wires with signal input terminal block (3) till tight fixation.

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 to screen the wires from preamplifier.

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

3. Adjust averaging time and signal gain using jumpers (1) and (5) respectively if necessary.

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

5. Connect +5V power output terminal block (4) with preamplifier power input unless external power supply for preamplifier is used.

6. Make sure that the rest part of the system (LED driver, PD preamplifier) is connected and put on, then connect +12V power supply with power input terminal block (8).

TECHNICAL CHARACTERISTICS

Power supply voltage	+12 V, stabilized
Voltage tolerance	-5..+5 %
Power supply current, max	0.1 A
Board dimensions	70×70×19 mm
Preamplifier supply output voltage	5 V
Output constant voltage signal, max	10 V

Adjustable parameters	
Averaging time	100/200/300 μs
Signal gain	1x/5x/10x

Supported operation modes	
Pulse duration	2-20 μs
Frequency	0.5-16 kHz
Input voltage signal from preamplifier, max	±3 V