



ELECTRUM AV

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OCTD

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**OPTICAL CONVERTER
for THYRISTOR DRIVER
OCTD**

USER'S MANUAL

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1 PURPOSE AND FUNCTIONALITY

Optical converter for thyristor driver (hereinafter OCTD) is intended for electrical control signal converting to optical control signal for control signal sending to input of thyristor drivers TD type with FOCL control.

OCTD provides the following functions:

- electrical signal (potential or current) conversion to optical signal for control signal sending to thyristor driver TD type with FOCL type;
- three independent convertor channels.

OCTD is produced on printed board that is installed into housing for assembling on to the DIN rail with different control variants and different length of optical cable.

OCTD different control variants include potential and current control. Potential control is possible from voltage sources of 5, 15, 24, 27 V, current control from current sources of 10 or 50 mA.

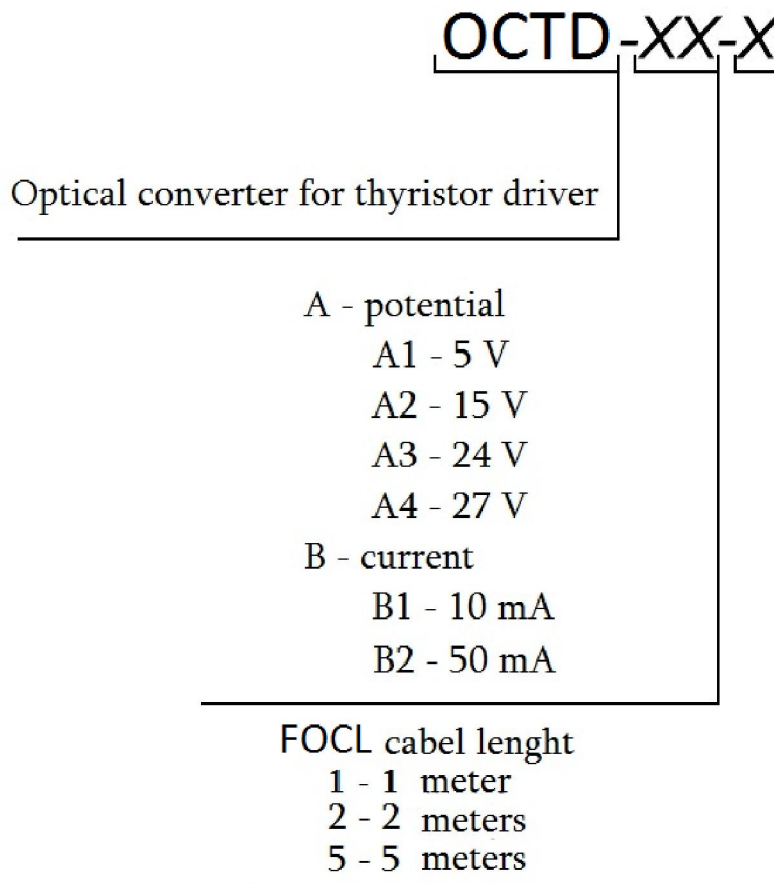


Рисунок 1.1 – Module name explanation

For example, OCTD-B1-5: optical converter for thyristor driver with 10 mA current control at input, with 5 meters FOCL cable length.

2 OVERVIEW

OCTD represents a printed board with assembled components of the device on it that is installed in the housing for planting onto DIN-rail. Schematic block diagram is shown at Figure 2.1.

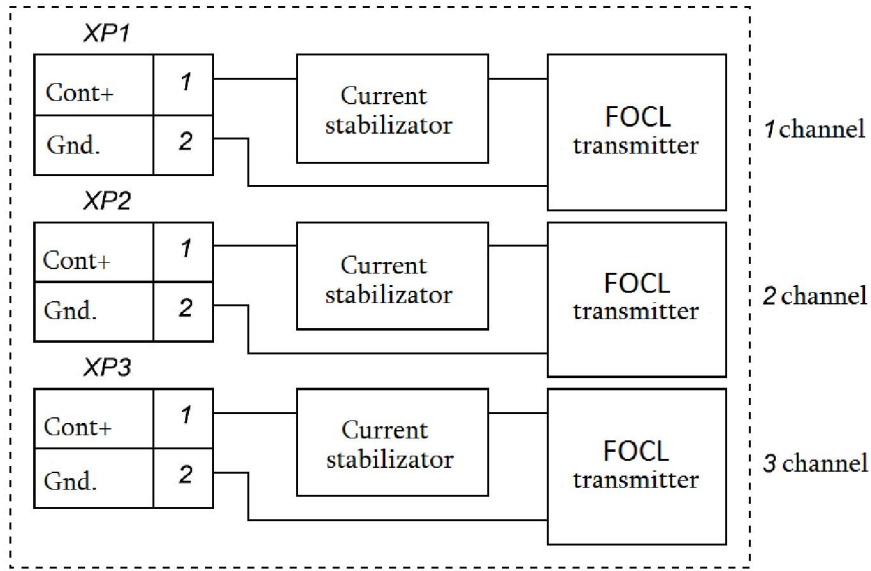


Figure 2.1 – OCTD block diagram

OCTD includes: HFBR15122 transmitter, current stabilizer which is intended to form the signal that is sent to FOCL transmitter.

Control signal connection takes place with help of screw terminal block; optical signal connection is provided by FOCL LED of different length that is supplied with OCTD. Pin assignment is shown in the Table 2.1.

Table 2.1 – Pin assignment

Symbol	Pin assignment
Cont+	Positive of control
Gnd	Negative of control

3 BASIS CHARACTERISTICS

Main electric characteristics and maximum permissible TD electrical parameters at 25 °C are shown in the Table 3.1.

Table 3.1 – Main and maximum permissible electrical characteristics

Name	Symbol	Value			Note
		min	typ.	max	
Control circuit characteristics					
Potential control					
Control signal voltage U_{cont}	V	3	5		OCTD-A1-X
		10	15		OCTD -A2-X
		15	24		OCTD -A3-X
		15	27		OCTD -A4-X
Input current I_{cont}	mA			10	
Current control					
Control signal current I_{cont}	mA	8	10	12	OCTD -B1-X
		45	50	55	OCTD -B2-X
Voltage control U_{cont}	V	5		36	
FOCL transmitter characteristics					
Wave length λ	nm		660		
Effective diameter Def	mm		1		
Optical fiber diameter D	mm		2.2		
Input-output signal transmission delay time $t_d(in-out)$	ns			500	

4 SERVICE RECOMMENDATIONS

Connecting to converter.

Control signal connection to converter is provided by screw terminal blocks. FOCL signal connection is provided by CLFO LEDs with connectors on it ends.

Converter installation

OCTD converter is installed on to standard DIN-rail of 35 mm. Converter should be located in devices in a way to keep it saved from additional overheating by neighbor components.

Exploitation requirements

Converter must be operated in conditions of physical stress impact according to Table 4.1.

Table 4.1 – Physical stress impact

External exposure factor	External exposure factor value
Sinusoidal vibration: - frequency range, Hz;	0.5 - 100
- acceleration amplitude, m/s^2 (g)	150 (15)
Single action mechanical shock: - shock acceleration peak value, m/s^2 (g);	40 (4)
- shock acceleration pulse length, ms	50

Converter must be operated in conditions of climatic loads impact according to Table 4.2.

Table 4.2 – Climatic loads impact

Climatic factor	Climatic factor value
Decreased ambient temperature: - operation, °C;	- 40
- maximum, °C	- 45
Increased ambient temperature: - operation, °C;	+ 85
- maximum, °C	+ 100
Humidity at 35 °C with condensation, %, maximum	98

Safety requirements

1. Proceed with caution during the device exploitation
2. All connections must be realized if the supply is switched.
3. Connect measure devices only if voltage is de-energized.
4. Forbidden to redesign the device. If the device needs to be dismantled or modernized please contact to the developer.
5. Don't allow water splashes or other liquids on the converter.

5 RELIABILITY REQUIREMENTS

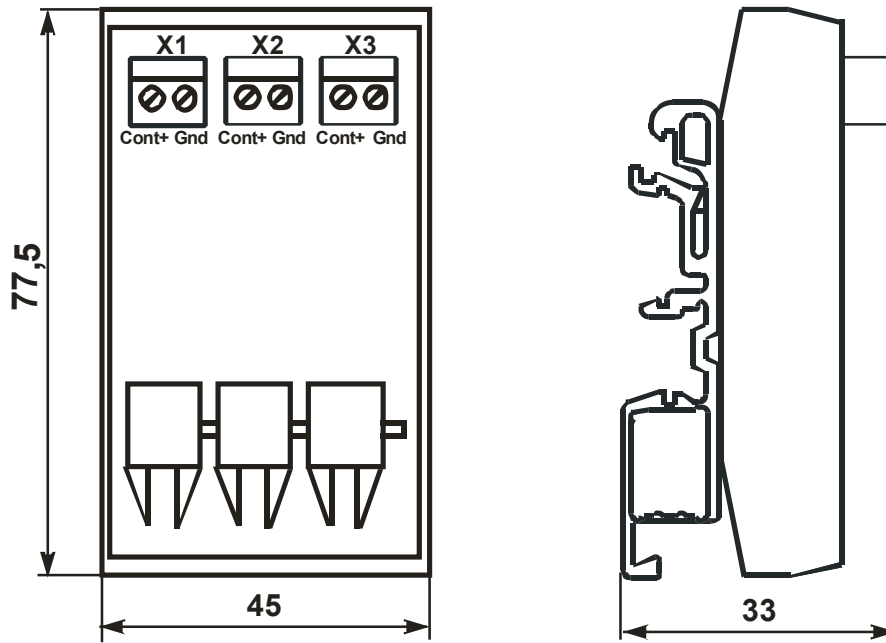
Possibility of converter failure-free operation during 25000 hours must be minimum 0.95.

Gamma-percentile life in modes and conditions, set by technical description must be minimum 50000 hours at $\gamma = 90 \%$.

Gamma-percentile life of modules operating life in case of common working hours no more then gamma-percentile life recourse, minimum 10 years, at $\gamma = 90 \%$.

Gamma-percentile life of modules storage life at $\gamma = 90 \%$, and storing in conditions, assumed by technical conditions for 10 years.

6 OVERALL AND CONNECTION DIMENSIONS



The device doesn't contain any precious metals.

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