



## Fibre-optic Compact amplifier

### Series CLS-K\_

- **Analogue output** 0.1-5 VDC
- **Switching frequency** ≤ 4 kHz
- **Response time** ≤ 120 µs
- **Fibre-optic connector**

■ **The most powerful fibre optic sensor for industrial automation and quality assurance**

#### Description:

- Sensing range reflective type up to **200 mm\*** through beam up to **2 m\***  
\* depends on the fibre-optic
- Supply **10-30 VDC** reverse supply and short circuit protected
- Output: NPN, PNP, Optocoupler, Relay (depends on the version)
- Response time **120 µs**
- Switching frequency **4 kHz**
- Analogue output **0.1-5 VDC**
- Off delay **5-100 ms** adjustable (optional)
- Control of the transmitting power
- **CE**

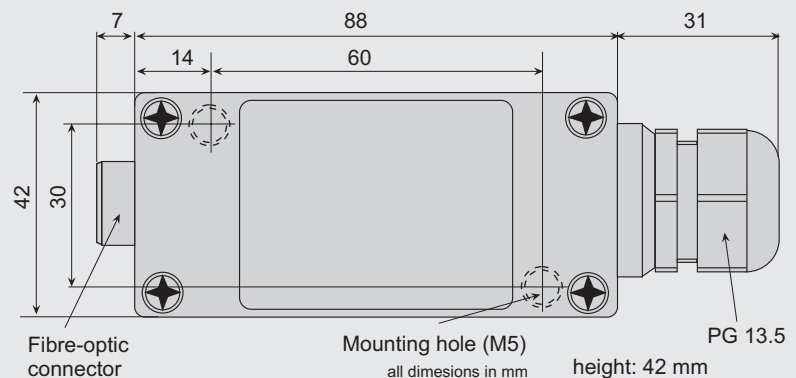
#### Typical Applications:

- Measuring and checking tasks
- Position detection of small parts
- Presence detection
- Positioning and assembly control
- Length and diameter control

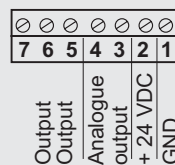
#### Advantages:

- Precise and reliable detection of objects
- Low drift by control of transmitter therefore suitable for measuring tasks
- High speed recognition
- System control by use of the analogue output

#### Dimensions



#### terminal



#### Output:

CLS-K-11: NPN O.C.  
CLS-K-20/40: Relay  
CLS-K-30/50: Optocoupler o.c. / o.e.  
CLS-K-31/51: PNP  
CLS-K-60/65: NPN O.C.

all versions light ON / dark ON

#### cable

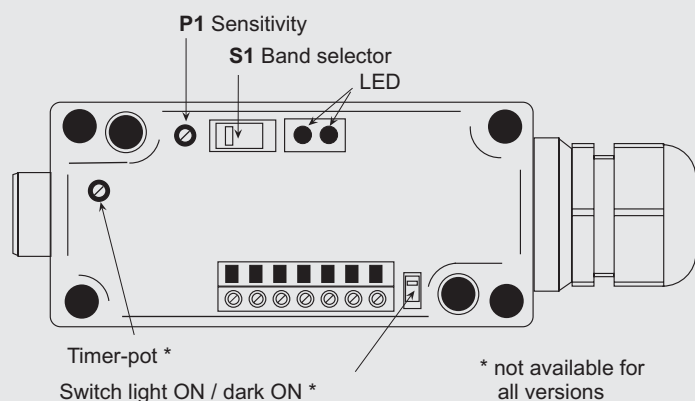
brown — GND  
pink — +24 VDC  
green — Analogue output +  
yellow — Analogue output GND  
grey — NPN output \*1  
white — NPN output \*2

#### Output:

CLS-K-10: NPN O.C.  
CLS-K-61: NPN O.C.

\*1 dark ON  
\*2 light ON

#### Operating and display elements



## Sensing range

Through beam <sup>*3</sup>			Reflective type <sup>*3</sup>		
fibre diameter ø mm	range mm (typ.) <sup>*1</sup>	min. size of detection (typ.)	fibre diameter ø mm	range mm (typ.) <sup>*1 *2</sup>	
0.6	90	≥ 0.05	0.6	≤ 10	
1.0	200	≥ 0.1	1.0	≤ 30	
1.5	500	≥ 0.1	1.5	≤ 80	
2.5	1700	≥ 0.2	2.5	≤ 165	
3.0	2000	≥ 0.3	3.0	≤ 180	

\*1: 90°-Sensor heads have a reduced range

\*2: with Kodak white 90%

\*3: refer to fibre-optic catalogue

## Technical data

Type CLS-K-__	10	11	20	30	31	40	50	51
Part No.	10010023	10010024	10040025	10040027	10020028	10040029	10040030	10040031
Operating-voltage VDC	10-30	10-30	24	10-30	10-30	24	10-30	10-30
Max. residual ripple	≤ 10%							
Current consumption	~ 50 mA							
Switch-on suppression	≤ 500 ms							
Min. input pulse	≤ 120 µs							
Temperature drift	≤ 0.5% /K							
Repeatability	≤ 1% at $\Delta\theta \hat{=} 2$ K							
Status indication	LED red and green							
Operating mode	light and dark switching output	light/dark switching						
Sensitivity	adjustable with 10-turn potentiometer P1							
Sensing range	1:100 (near / far range)							
Hysteresis	≤ 10 %							
Degree of protection	IP 65 (with mounted fibre-optic)							
Ambient temp. range	(0 to +50 °C							
Storage temp. range	-25 to +70 °C							
Case material	macrolon 8030/UL94V1, transparent cover, blue underpart							
Weight, dimensions	approx. 100g, 125 x 42 x 42 mm							
Switching output (* short circuit prot.)	transistor* 2 x NPN O.C.	relay 1 x change-over cont.	opto-coupler*	PNP*	relay 1 x change-over cont.	opto-coupler*	PNP*	
Turn-on voltage	30 VDC	0.01-250 VAC 0.01-220 VDC	30 VDC	30 VDC	0.01-250 VAC 0.01-220 VDC	30 VDC	30 VDC	30 VDC
Switching current	5-100 mA	50 µA-2 A	5-100 mA	5-100 mA	50 µA-2 A	5-100 mA	5-100mA	
Switching power		5 µW-60 W 125 VA			5 µW-60 W 125 VA			
Max. switching freq.	4 kHz	60 Hz	4 kHz	4 kHz	60 Hz	4 kHz	4 kHz	4 kHz
Saturation voltage	≤ 2.0 V		≤ 2.0 V	≤ 2.0 V			≤ 2.0 V	≤ 2.0 V
Pulse stretching 5-100 ms	adjustable with potentiometer P2							
Analogue output	0.1- 5 VDC, output resistance 1 kOhm							
Connection	2 m cable	terminal screws 1.5 mm <sup>2</sup> (version with connector on request)						

Presented by: