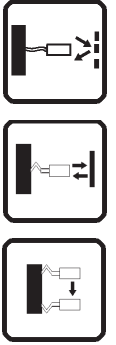


FIBRE OPTIC SENSOR FOR DIN RAIL MOUNTING



- 10 bit resolution models with 500 μ s response for high operating distances
- 12 bit resolution models with 50 μ s response and 4 digit display for high speed
- Cost-effective models with multiturn trimmer adjustment
- EASYtouch™ push-button setting with remote control, keylock and output delay
- Ultra-thin housing with CLEARLOCK™ patented fibre fixing system

the 1st in Europe

S7 SERIES

The **S7** series is the first fibre optic amplifier to be manufactured in Europe that is equipped with a full 4 digit display, confirming Datasensor's technological leadership. With its slim 10mm body width, the **S7** represents the ideal solution for all applications requiring high accuracy sensing combined with very compact dimensions.

The high resolution 12 bit amplifier has a response time of 50 μ s for a switching frequency of 10 KHz; 4096 resolution steps make the **S7** series perfect for ultra high precision detection of small objects and low colour contrasts.

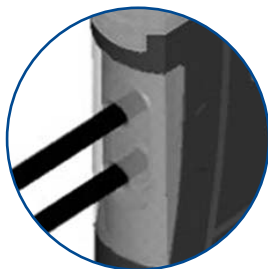
This is made easier by the integral 4 digit display, which clearly indicates the received signal, selected time delay and the adjustable set point values. Moreover, the white light LED emission possibility enhances the contrast detection.

Installing and setting the **S7** is easy and rapid, thanks to the patent-covered CLEARLOCK™ fibre fixing and EASYtouch™ adjustment system that offers remote setting, keylock and activation of the output OFF delay function.

Furthermore new versions of the **S7** series are available with multiturn mechanical trimmer threshold adjustment for cost-oriented applications.

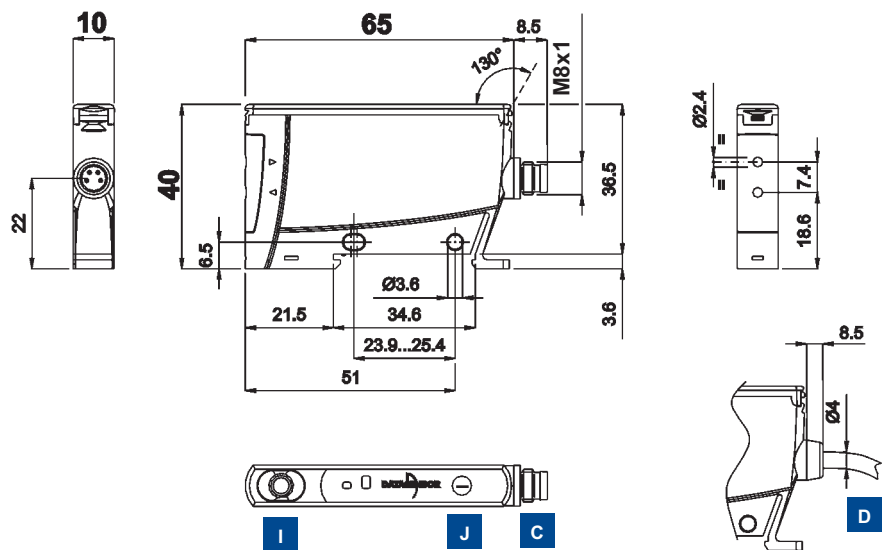
S7 FIBRE-OPTIC SENSORS

The ultra-thin housing is specifically designed for side-by-side mounting on DIN rail where space is limited or mounting through two M3 clearance holes onto the side of a machine. The **CLEARLOCK™** fibre-optic fixing system assists reliable insertion of standard and high performance 2.2mm Ø fibre-optics. The **EASYtouch™** one touch setting procedure automatically selects the best detection conditions. For critical applications a two touch setting is provided for fine tuning. S7 benefits from remote teach, keypad lock and delay off timing functions. For further information on our extensive range accessories please see our OF and OFA fibre optic datasheet.

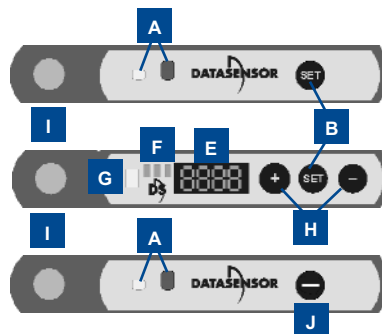


CLEARLOCK™

DIMENSIONS



INDICATORS AND SETTINGS



- A** OUTPUT status and READY/ERROR LEDs
- B** Teach-in push-button
- C** M8 connector output
- D** Cable output
- E** 4 digit display
- F** STATUS signalling LEDs
- G** OUTPUT status LED
- H** '+' e '-' buttons (ADJUST/MENU)
- I** Fibre lock/unlock button
- J** Multiturn trimmer

Teach-in button for setting.
EASYtouch™ provides two setting modes: standard or fine.
 Please refer to instructions manual for operating details

ACCESSORIES

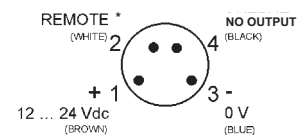
For dedicated accessories refer to the **ACCESSORIES** section of this catalogue

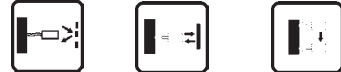
Refer also to **Fibre-Optics, Connectors** and **Fixing brackets** of the General Catalogue

CONNECTIONS



* NC OUTPUT for S7-7/8 models





TECHNICAL DATA

| | | S7-1-E | S7-2-E | S7-3-E | S7-4-E | S7-5-E | S7-6-E | S7-7-E | S7-8-E |
|---|---------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Proximity operating distance: | 0 ... 100 mm (normal mode) | | | | | | | | |
| | 0 ... 50 mm (fast mode) | | | | | | | | |
| | 0 ... 25 mm (fast and normal mode) | | | | | | | | |
| Through beam operating distance: | 0 ... 300 mm (normal mode) | | | | | | | | |
| | 0 ... 150 mm (fast mode) | | | | | | | | |
| | 0 ... 75 mm (fast and normal mode) | | | | | | | | |
| Power supply: | 12 ... 24 Vdc ± 10 % ¹ | | | | | | | | |
| Consumption: | ≤ 50 mA | | | | | | | | |
| Light emission²: | red LED 670 nm | | | | | | | | |
| | white LED 460 ... 630 nm | | | | | | | | |
| Setting: | teach-in SET button | | | | | | | | |
| | remote via cable ³ | | | | | | | | |
| | '+' '−' buttons (ADJUST/MENU) | | | | | | | | |
| | 12-turn trimmer | | | | | | | | |
| Digital setting : | EASYtouch™ or fine | | | | | | | | |
| Digital resolution: | 12 bit (4096 points) | | | | | | | | |
| | 10 bit (1024 points) | | | | | | | | |
| Indicators: | yellow USCITA LED | | | | | | | | |
| | green / red READY / ERROR LED | | | | | | | | |
| | 4 digit display, status bar | | | | | | | | |
| Output type: | PNP, NO (see table) | | | | | | | | |
| | NPN, NO (see table) | | | | | | | | |
| Output current: | ≤ 100 mA | | | | | | | | |
| Saturation voltage: | ≤ 2 V | | | | | | | | |
| Response time: | 500 μs (normal mode) | | | | | | | | |
| | 100 μs (fast mode) | | | | | | | | |
| | 50 μs (fast mode) | | | | | | | | |
| Switching frequency (max.): | 1 kHz (normal mode) | | | | | | | | |
| | 5 kHz (fast mode) | | | | | | | | |
| | 10 kHz (fast mode) | | | | | | | | |
| Operating mode: | light with EASYtouch™ or trimmer | | | | | | | | |
| | automatic dark / light with fine acq. | | | | | | | | |
| Timing function: | 20 ms minimum output ON | | | | | | | | |
| Auxiliary functions: | remote ⁴ | | | | | | | | |
| | keylock | | | | | | | | |
| Connection: | 2 m Ø 4 mm cable ⁵ | | | | | | | | |
| | M8 4-pole connector | | | | | | | | |
| Electrical protection: | class 2 | | | | | | | | |
| Mechanical protection: | IP50 | | | | | | | | |
| | IP65 | | | | | | | | |
| Electrical protection device: | A, B ⁶ | | | | | | | | |
| Housing material: | ABS | | | | | | | | |
| Weight: | 30 g max. | | | | | | | | |
| | 115 g max. | | | | | | | | |
| Functioning temp.: | -10 ... +55°C | | | | | | | | |
| Storage temp.: | -10 ... +70°C | | | | | | | | |
| Reference standard: | EN 60947-5-2 | | | | | | | | |

SELECTION TABLE

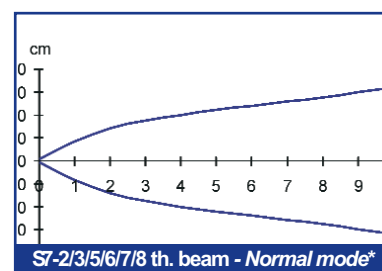
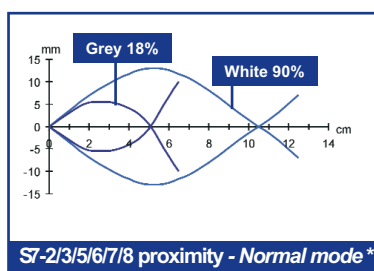
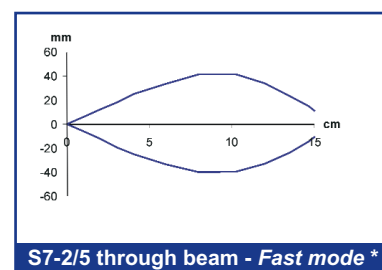
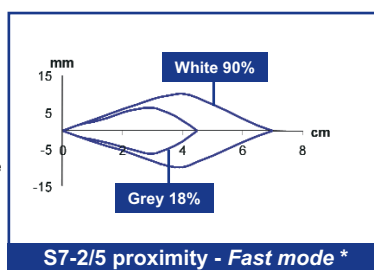
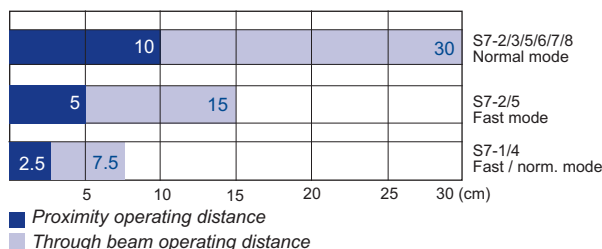
| fibre-optic sensor with display - 2 m cable | | |
|---|-----------|-----|
| S7-1-E-N | 950551080 | NPN |
| S7-1-E-P | 950551090 | PNP |
| S7-2-E-N | 950551000 | NPN |
| S7-2-E-P | 950551010 | PNP |
| fibre-optic sensor without display - 2 m cable | | |
| S7-3-E-N | 950551040 | NPN |
| S7-3-E-P | 950551050 | PNP |
| fibre-optic sensor with display - M8 connector | | |
| S7-4-E-N | 950551100 | NPN |
| S7-4-E-P | 950551110 | PNP |
| S7-5-E-N | 950551020 | NPN |
| S7-5-E-P | 950551030 | PNP |
| fibre-optic sensor without display - M8 connector | | |
| S7-6-E-N | 950551060 | NPN |
| S7-6-E-P | 950551070 | PNP |
| fibre optic sensor with trimmer - 2 m cable | | |
| S7-7-E-P | 950551120 | PNP |
| S7-7-E-N | 950551130 | NPN |
| fibre optic sensor with trimmer - M8 connector | | |
| S7-8-E-P | 950551140 | PNP |
| S7-8-E-N | 950551150 | NPN |



TECHNICAL NOTES

- Limit values
- Average life of 100.000 h with $T_A = +25^\circ\text{C}$
- Connect to 0 V when remote wire not used
- Active with remote at +V at power on
- PVC, 4 x 0.14 mm²
- A - reverse polarity protection
B - overload and short circuit protection

DETECTION DIAGRAMS



Standard fibre-optics:
OF-42-ST-20 proximity / OF-43-ST-20 through beam

High efficiency fibre-optics or accessory lenses can be used to obtain larger operating distances. Refer to **Fibre-optics (A.02)** of the **General Catalogue**

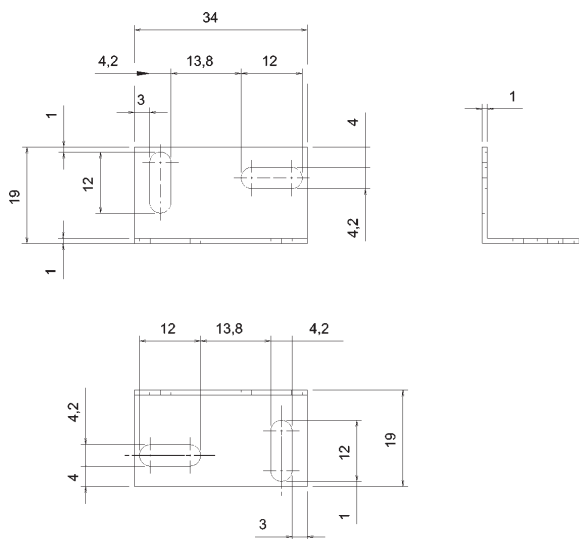
Note: the detection diagrams of the S7-1/4 models in normal and fast mode, corresponds to the values of the S7-2/5 models in fast mode, but with half the operating distance

* standard fibre-optics

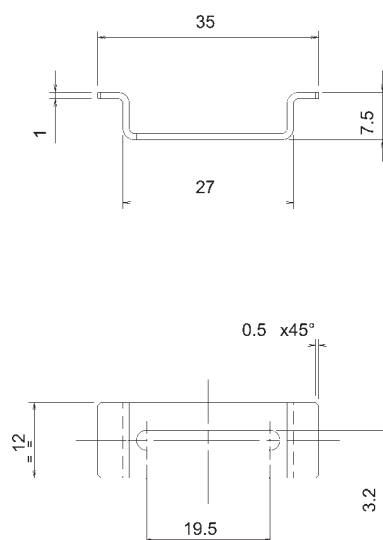
MODEL SELECTION AND ORDER INFORMATION

| MODEL | CONNECTION | OUTPUT | DISPLAY | SETTING | EMISSION | CODE N° |
|----------|---------------------|--------|---------|-------------|-----------|-----------|
| S7-1-E-N | 4-pole cable | NPN | yes | push-button | white LED | 950551080 |
| S7-1-E-P | 4-pole cable | PNP | yes | push-button | white LED | 950551090 |
| S7-2-E-N | 4-pole cable | NPN | yes | push-button | red LED | 950551000 |
| S7-2-E-P | 4-pole cable | PNP | yes | push-button | red LED | 950551010 |
| S7-3-E-N | 4-pole cable | NPN | no | push-button | red LED | 950551040 |
| S7-3-E-P | 4-pole cable | PNP | no | push-button | red LED | 950551050 |
| S7-4-E-N | M8 4-pole connector | NPN | yes | push-button | white LED | 950551100 |
| S7-4-E-P | M8 4-pole connector | PNP | yes | push-button | white LED | 950551110 |
| S7-5-E-N | M8 4-pole connector | NPN | yes | push-button | red LED | 950551020 |
| S7-5-E-P | M8 4-pole connector | PNP | yes | push-button | red LED | 950551030 |
| S7-6-E-N | M8 4-pole connector | NPN | no | push-button | red LED | 950551060 |
| S7-6-E-P | M8 4-pole connector | PNP | no | push-button | red LED | 950551070 |
| S7-7-E-P | 4-pole cable | PNP | no | trimmer | red LED | 950551120 |
| S7-7-E-N | 4-pole cable | NPN | no | trimmer | red LED | 950551130 |
| S7-8-E-P | M8 4-pole connector | PNP | no | trimmer | red LED | 950551140 |
| S7-8-E-N | M8 4-pole connector | NPN | no | trimmer | red LED | 950551150 |

ACCESSORIES



ST-505



CRD-5000

ACCESSORY SELECTION AND ORDER INFORMATION

| MODEL | DESCRIPTION | CODE N° |
|----------|---------------------------------|-----------|
| ST-505 | 1 pc 'L'- shaped fixing support | 95ACC1300 |
| CRD-5000 | 1 pc fixing support on DIN rail | 95ACC1290 |

Refer also to *Accessories for Sensors* of the *General Catalogue*



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