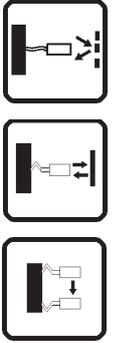**FIBRE OPTIC SENSOR FOR DIN RAIL MOUNTING**

- *10 bit resolution models with 500 µs response for high operating distances*
- *12 bit resolution models with 50 µs 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 µs 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.

DATASENSOR
value through detection

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.
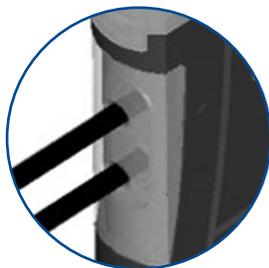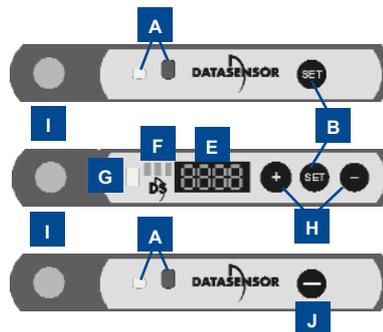
DIMENSIONS

CLEARLOCK™
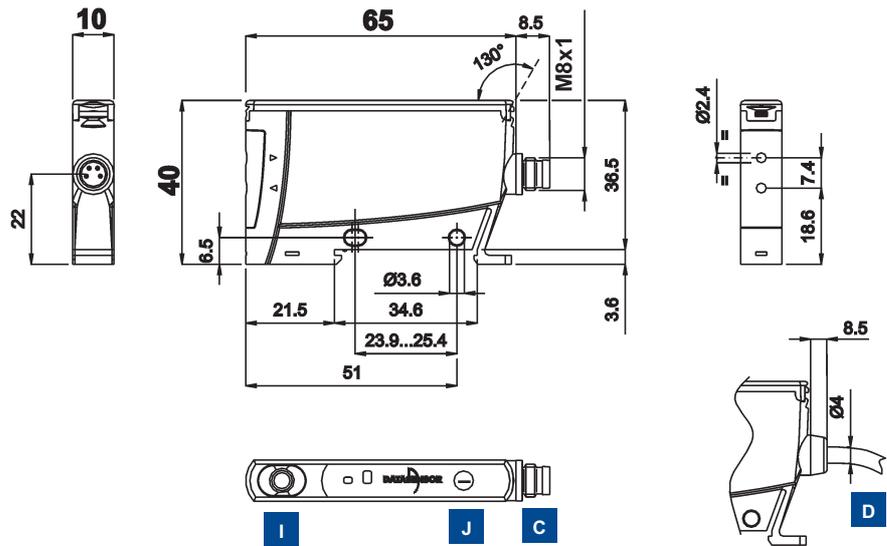
INDICATORS AND SETTINGS

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

BROWN + 12... 24 Vdc
BLACK NO OUTPUT
WHITE REMOTE *
BLUE – 0 V
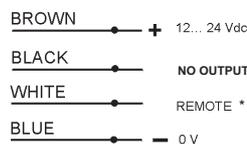
* NC OUTPUT for S7-7/8 models

REMOTE * (WHITE) 2
NO OUTPUT (BLACK) 4
+ 1
12 ... 24 Vdc (BROWN)
3 – 0 V (BLUE)

DATASENSOR

TECHNICAL DATA

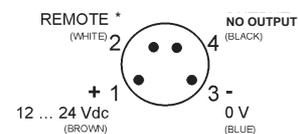|		S7-1-E	S7-2-E	S7-3-E	S7-4-E	S7-5-E	S7-6-E	S7-7-E	S7-8-E
Proximity operating distance:									
	0 ... 100 mm (normal mode)			●		●	●	●	●
	0 ... 50 mm (fast mode)		●			●			
	0 ... 25 mm (fast and normal mode)	●			●				
Through beam operating distance:									
	0 ... 300 mm (normal mode)		●	●		●	●	●	●
	0 ... 150 mm (fast mode)		●			●			
	0 ... 75 mm (fast and normal mode)	●			●				
Power supply:	12 ... 24 Vdc ± 10 % [1]	●	●	●	●	●	●	●	●
Consumption:	≤ 50 mA	●	●	●	●	●	●	●	●
Light emission [2]:	red LED 670 nm		●	●		●	●	●	●
	white LED 460 ... 630 nm	●			●				
Setting:	teach-in SET button	●	●	●	●	●			
	remote via cable [3]	●	●	●	●	●			
	'+' e '-' buttons (ADJUST/MENU)	●	●	●	●	●			
	12-turn trimmer							●	●
Digital setting :	EASYtouch™ or fine	●	●	●	●	●			
Digital resolution:	12 bit (4096 points)	●	●	●	●				
	10 bit (1024 points)				●	●	●	●	●
Indicators:	yellow OUTPUT 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

$C \in$ c(UL)us LISTED II3D

TECHNICAL NOTES

[1] Limit values

[2] Average life of 100.000 h with T_A = +25 °C

[3] Connect to 0 V when remote wire not used

[4] Active with remote at +V at power on

[5] PVC, 4 x 0.14 mm²

[6] A - reverse polarity protection
B - overload and short circuit protection

DETECTION DIAGRAMS

10		30	S7-2/3/5/6/7/8 Normal mode
5	15		S7-2/5 Fast mode
2.5	7.5		S7-1/4 Fast / norm. mode

5 10 15 20 25 30 (cm)

■ Proximity operating distance
■ Through beam operating distance
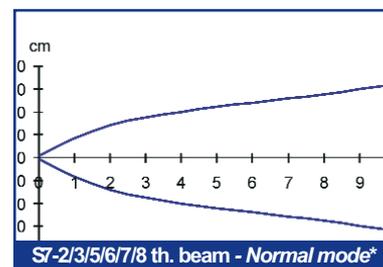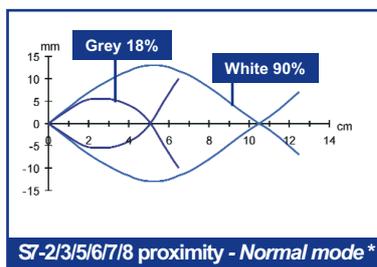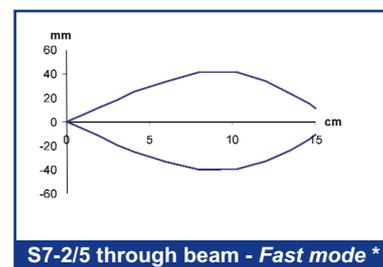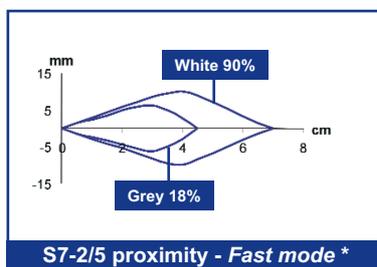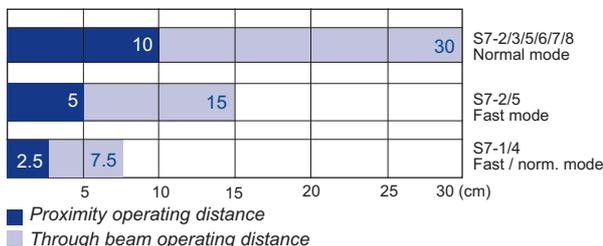
Standard fibre-optics:
OF-42-ST-20 proximity / OF-43-ST-20 through beam

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


S7-2/5 proximity - Fast mode * (White 90%, Grey 18%)

S7-2/5 through beam - Fast mode *

S7-2/3/5/6/7/8 proximity - Normal mode * (Grey 18%, White 90%)

S7-2/3/5/6/7/8 th. beam - Normal mode *

* standard fibre-optics

DATASENSOR

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
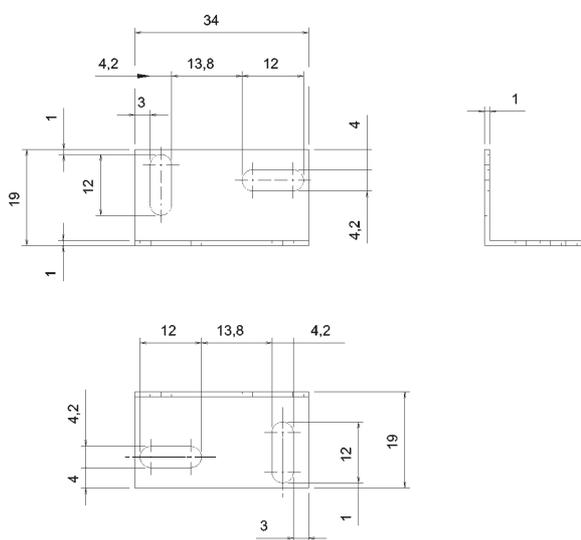
ST-505
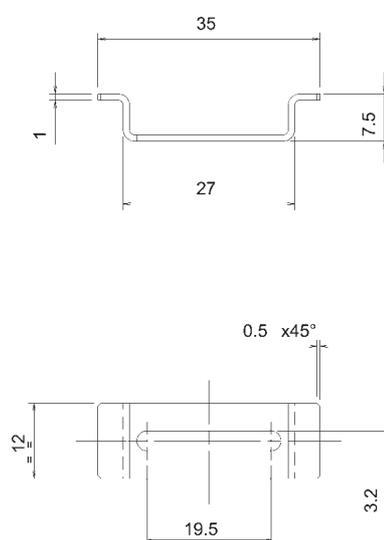
CRD-5000

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***