

LASER DISPLACEMENT

Links to further documents for this series:

[Installation guide](#)

[EtherNet Protocol](#)

[Simatic Manager S7 und TIA Portal](#)



LAW SERIES

Key-Features:

- Measurement ranges from 20...24 mm
- Linearity up to 2 μm
- Resolution up to 0.06 μm
- Analog output: 0...10 V, 4...20 mA
- Switching output: PNP/NPN push-pull, NO/NC
- Digital interface: Ethernet
- Protection class IP67
- Temperature range -10...+40 °C

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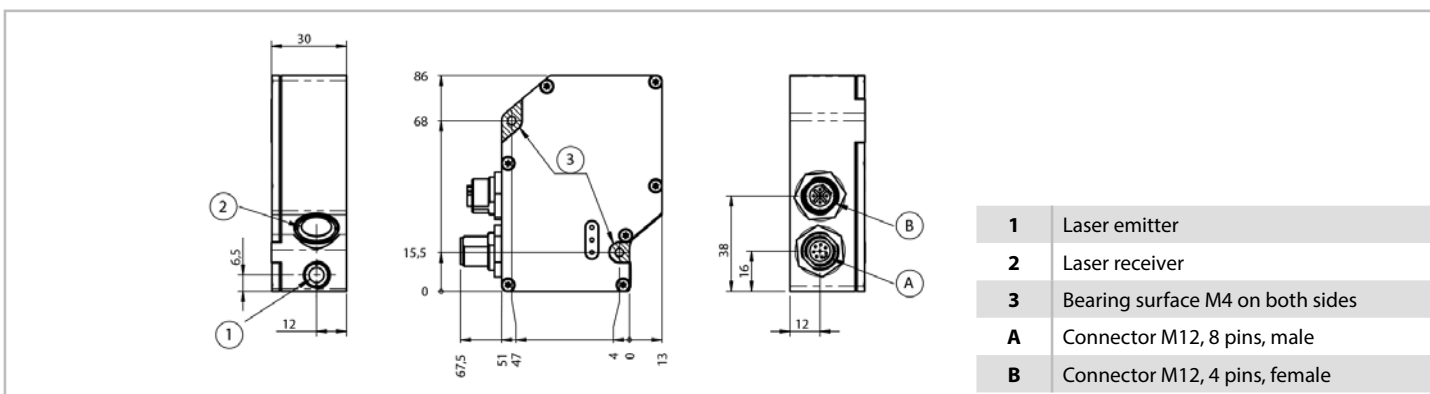
TECHNICAL DATA

Measurement range	[mm]	20...24
Linearity	[μm]	2
Resolution	[μm]	0.06
Light source		Laser (red)
Laser class (EN 60825-1)		Class 2
Beam diameter	[mm]	<0.15
Wave length	[nm]	658
Response time	[μs]	<33
Output rate	[s^{-1}]	10...30000
Analog output		0...10 V / 4...20 mA
Switching output		PNP/NPN push-pull, NC/NO switchable
Number of switching output		4
Voltage drop	[V]	<1.5
Switching current	[mA]	100
Switching frequency	[kHz]	15
Interface		Ethernet TCP/IP
Transmission rate	[Mbit/s]	100
Supply	[VDC]	15...30
Current consumption (at 24 VDC)	[mA]	280
Protection class		IP67
Operating temperature	[$^{\circ}\text{C}$]	-10...+40
Storage temperature	[$^{\circ}\text{C}$]	-20...+70
Temperature drift	[$\mu\text{m}/\text{K}$]	0.2
Ambient illuminance max.	[lx]	10000
Short-circuit proof		Yes
Inverse-polarity protection		Yes
Overload protection		Yes
Life cycle (at 25 $^{\circ}\text{C}$)	[h]	100000
Teach-In modes		Window teach-in and foreground teach-in
Connection		Connector M12, 8 pins and connector M12, 4 pins (Ethernet)
Housing		Aluminium, lens cover: glass
Weight	[g]	230

MEASUREMENT RATE

Object colour	Measurement rate
White (Degree of reflection 90 %)	30 kHz
Grey (Degree of reflection 18 %)	30 kHz
Black (Degree of reflection 6 %)	1 kHz

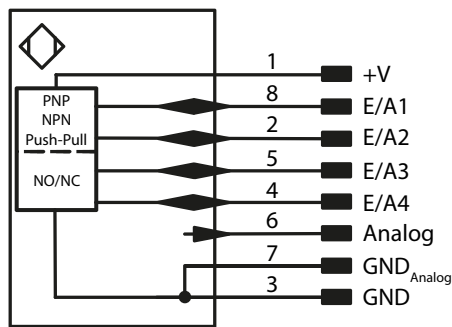
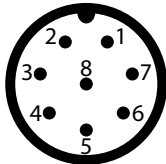
TECHNICAL DRAWING



ELECTRICAL CONNECTION

Connector M12, 8 pins, male

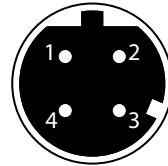
Function	Sensor connector	Connection cable K8P
+V	Pin 1	WH
Input/switching output 2	Pin 2	BN
GND	Pin 3	GN
Input/switching output 4	Pin 4	YE
Input/switching output 3	Pin 5	GY
Analog output	Pin 6	PK
GND _{Analog}	Pin 7	BU
Input/switching output 1	Pin 8	RD



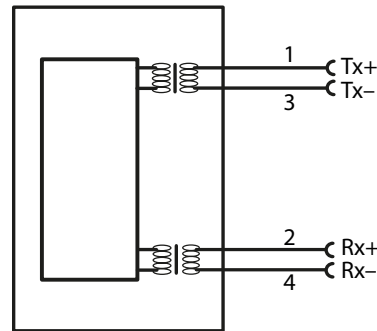
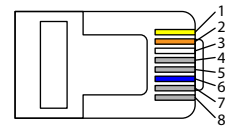
Connector M12, 4 pins, female, d-coded

Function	Sensor connector	Connection cable
Tx+	Pin 1	Pin 1
Rx+	Pin 2	Pin 3
Tx-	Pin 3	Pin 2
Rx-	Pin 4	Pin 6

Sensor connector



RJ45 connector connection cable



ORDER CODE

LAW -

Measurement range [mm]

20...24

4

ACCESSORIES

Cable with mating connector M12 (female), 8 poles, shielded

K8P2M-S-M12	2 m, straight connector
K8P5M-S-M12	5 m, straight connector
K8P10M-S-M12	10 m, straight connector
K8P2M-SW-M12	2 m, angular connector
K8P5M-SW-M12	5 m, angular connector
K8P10M-SW-M12	10 m, angular connector

Digital displays for sensors with analog output, 2 channel

WAY-AX-S ¹⁾	touch screen, supply: 18...30 VDC
WAY-AX-AC ¹⁾	touch screen, supply: 115...230 VAC

For more information and options please refer to the [WAY-AX data sheet](#).

¹⁾The power supply of the sensor is not provided by the display.

Cable with mating connector M12 (male) to RJ45, 4 poles, shielded

K4P2M-M-M12-RJ45	2 m, straight connector
K4P5M-M-M12-RJ45	5 m, straight connector
K4P10M-M-M12-RJ45	10 m, straight connector

Subject to change without prior notice.

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