INSTALLATION GUIDE

Draw wire sensors series SX135

For further information please see the data sheet at
www.waycon.biz/products/draw-wire-sensors

FIRST STEPS

WayCon Positionsmesstechnik GmbH would like to thank you for the trust you have placed in us and our products. This manual will make you familiar with the installation and operation of our draw wire sensors. Please read this manual carefully before initial operation!

Unpacking and checking:
Carefully lift the device out of the box by grabbing the housing. Do not pull the rope. After unpacking the device, check it for any visible damage as a result of rough handling during the shipment. Check the delivery for completeness.
If necessary consult the transportation company, or contact WayCon directly for further assistance.

MONTAGE DES SENSORS

- Mount the sensor at the designated place, before extracting the rope and before attaching the rope to the measuring target.
- The sensor can be installed in two ways, by using the supplied T-slot nuts, or the clamp brackets. You will find a detailed description of both installation methods in the next section.
- Open the rope clip after the sensor is fully mounted and carefully extract the measuring rope. Hook the rope clip on the measuring target and close the bracket of the clip. For safety reasons put a screw driver trough the clip to extract the rope.

HANDLING THE WIRE ROPE

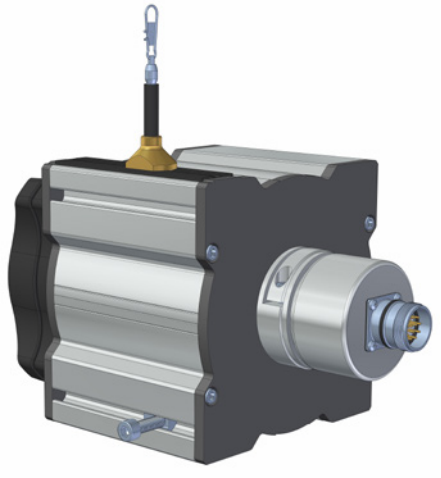
- When installing or operating the sensor, take care not to let the rope snap back by mistake or extract the rope over the specified measurement range, as this might destroy the sensor.
- The rope must be extracted from the sensor vertically. The maximum variation from the vertical is 3°. Avoid extracting the rope at an inclination, since the durability of the instrument would shorten considerably. If it is not possible to keep the limit of 3°, a deflection pulley has to be used.
- Guide the rope preferably in corners or guarded in channels to prevent pollution or accidental touch.
- Avoid guiding the rope over edges or corners. Use a deflection pulley instead.
- Do not operate the sensor if the rope is buckled or damaged. A ripping of the rope may lead to injuries or a damaging of the sensor.

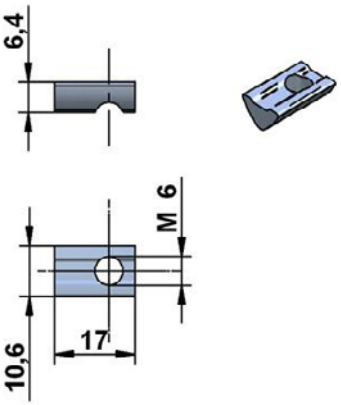
MOUNTING THE SENSOR - USING T-SLOT NUTS

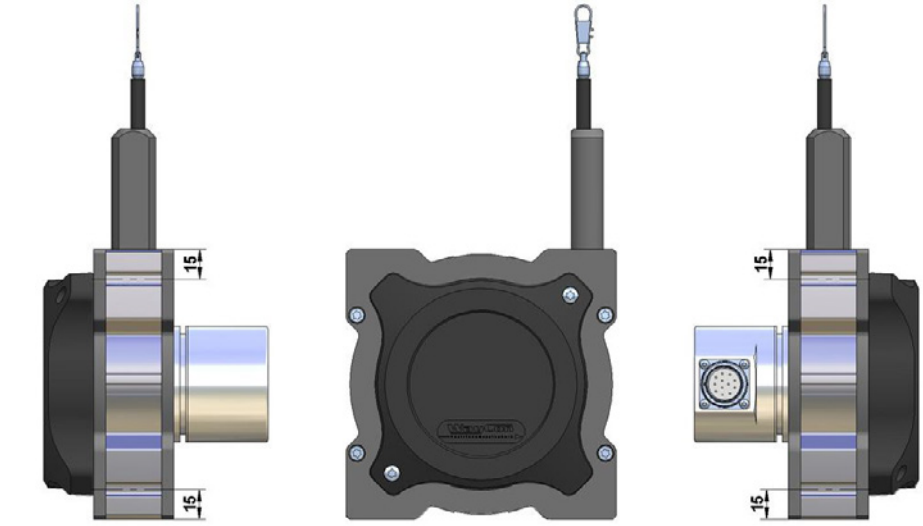
1. by using the grooves in the sensor housing

The included T-slot nuts can be easily inserted into the grooves of the sensor housing. The nuts have a metric thread M6.

Each sensor up to 20 m measurement range comes with 2 nuts. From ranges 20 to 42.5 m four nuts are included.





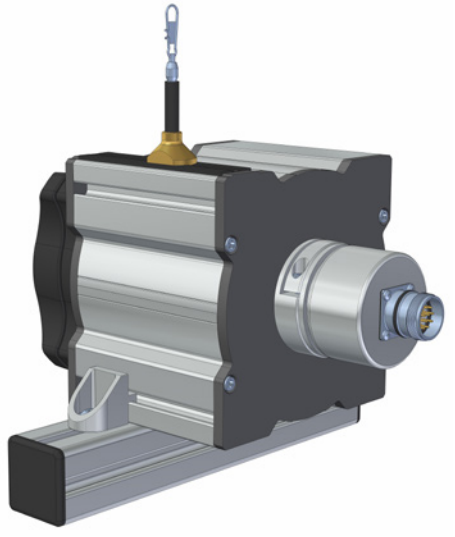


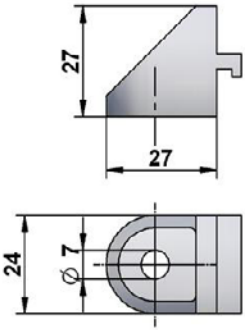
Important: The grooves of the sensor housing, the nuts and brackets are compatible to the aluminium building kit system from *item Industrietechnik GmbH (www.item.info)*.

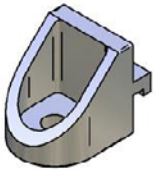
MOUNTING THE SENSOR - USING THE CLAMP BRACKETS

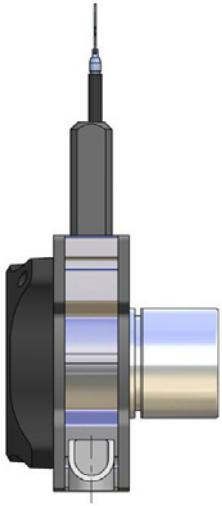
2. by angle clamp brackets

The angle clamp brackets feature a bore for M6 screws to fix it on a plate/ slab or a profile.
Each sensor up to 20 m measurement range comes with 2 brackets. From ranges 20 to 42.5 m four brackets are included.









Important: The grooves of the sensor housing, the nuts and brackets are compatible to the aluminium building kit system from *item Industrietechnik GmbH (www.item.info)*.

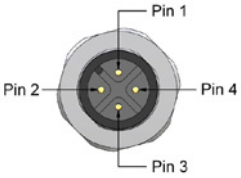
ELECTRICAL CONNECTION ANALOG OUTPUT

Cable output

Cable colour	0... 10 V	0...5 V, 0... 10 V (teachable)	4...20 mA	1 kOhm
brown	V +	V +	V +	V +
white	Signal	Signal	n. c.	Cursor
blue	GND	GND	Signal	GND
black	GND Signal	MFL *	n. c.	n. c.

Connector output, M12, 4 poles

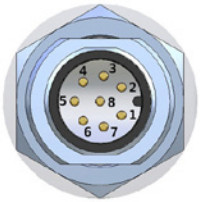
PIN	0... 10 V	0...5 V, 0... 10 V (teachable)	4...20 mA	1 kOhm
1	V +	V +	V +	V +
2	Signal	Signal	n. c.	Schleifer
3	GND	GND	Signal	GND
4	GND Signal	MFL *	n. c.	n. c.



ELECTRICAL CONNECTION INCREMENTAL OUTPUT

Connector output, M12, 8 poles

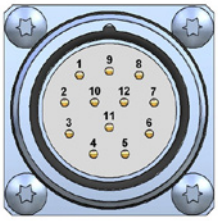
Signal	0 V	+V	A	A_{NOT}	B	B_{NOT}	Z	Z_{NOT}
PIN	1	2	3	4	5	6	7	8



Connector output, M23, 12 poles

Signal	0 V	+V	0 V_{sens} *	+V_{sens} *	A	A_{NOT}	B	B_{NOT}	Z	Z_{NOT}
PIN	10	12	11	2	5	6	8	1	3	4

* only for Line driver L



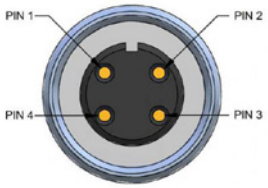
Cable output (Line driver L: 10 wires, Push-Pull G: 8 wires)

Signal	0 V	+V	A	A_{NICHT}	B	B_{NICHT}	Z	Z_{NICHT}	0 V_{sens} *	+V_{sens} *
Cable colour	white	brown	green	yellow	grey	pink	blue	red	black	violet

* only for Line driver L

ACCESSORY CABLE ANALOG OUTPUT

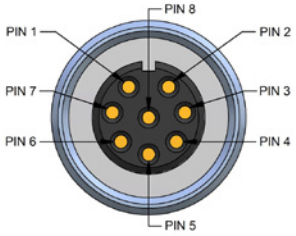
Cable with mating connector M12, 4 pole, shielded	
K4P2M-S-M12	2 m, straight connector, IP67
K4P5M-S-M12	5 m, straight connector, IP67
K4P10M-S-M12	10 m, straight connector, IP67
K4P2M-SW-M12	2 m, angular connector, IP67
K4P5M-SW-M12	5 m, angular connector, IP67
K4P10M-SW-M12	10 m, angular connector, IP67



PIN	Cable colour
1	brown
2	white
3	blue
4	black

ACCESSORY CABLE INCREMENTAL OUTPUT

Cable with mating connector M12, 8 pole, shielded	
K8P2M-S-M12	2 m, straight connector, IP67
K8P5M-S-M12	5 m, straight connector, IP67
K8P10M-S-M12	10 m, straight connector, IP67
K8P2M-SW-M12	2 m, angular connector, IP67
K8P5M-SW-M12	5 m, angular connector, IP67
K8P10M-SW-M12	10 m, angular connector, IP67

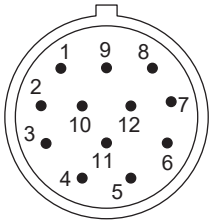


PIN	1	2	3	4	5	6	7	8
Cable colour	white	brown	green	yellow	gray	pink	blue	red

ELECTRICAL CONNECTION DIGITAL OUTPUT SSI

Electrical connection SSI, connector output M23, 12 poles

Signal	0 V	+V	C+	C-	D+	D-	SET
PIN	1	2	3	4	5	6	7
Signal	DIR	Status	n.c.	n.c.	n.c.	H	
PIN	8	9	10	11	12	shield	



Electrical connection SSI, SX80, SX120, cable* output radial

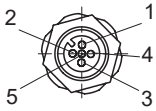
Signal	0 V	+V	C+	C-	D+	D-	SET	DIR	Status	H
Cable colour	white	brown	green	yellow	grey	pink	blue	red	black	shield

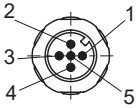
* (Isolate unused wires individually before initial start-up)

ELECTRICAL CONNECTION DIGITAL OUTPUT CANopen

Electrical connection CANopen, connector output 2 x M12

	Bus OUT					Bus IN				
Signal	0 V	+V	CAN_L	CAN_H	CAN_GND	0V	+V	CAN_L	CAN_H	CAN_GND
PIN	3	2	5	4	1	3	2	5	4	1





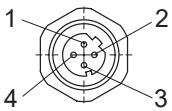
Electrical connection CANopen, with cable gland radial (removable bus terminal cover)

	Bus OUT					Bus IN				
Signal	CAN_GND	CAN_L	CAN_H	0V	+V	0V	+V	CAN_L	CAN_H	CAN_GND
PIN	CG	CL	CH	0V	+V	0V	+V	CL	CH	CG

ELECTRICAL CONNECTION DIGITAL OUTPUT PROFINET

Electrical connection Profinet 3 x M12 connector output

Bus IN	**Signal**	Transmit data +	Receive data +	Transmit data -	Receive data -
	Abbreviation	TxD+	RxD+	TxD-	RxD-
	PIN	1	2	3	4
Power supply	**Signal**	Voltage +	n.c.	Voltage -	n.c.
	Abbreviation	+V	n.c.	0 V	n.c.
	PIN	1	2	3	4
Bus OUT	**Signal**	Transmit data +	Receive data +	Transmit data -	Receive data -
	Abbreviation	TxD+	RxD+	TxD-	RxD-
	PIN	1	2	3	4



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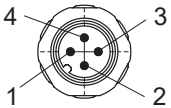
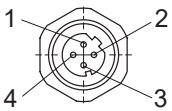
Bus IN



Power supply



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Bus OUT

ELECTRICAL CONNECTION DIGITAL OUTPUT PROFIBUS

Electrical connection Profibus with cable gland radial (removable bus terminal cover)

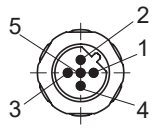
	Bus IN				Bus OUT			
Signal	B	A	0 V	+V	0 V	+V	B	A
Terminal	1	2	3	4	5	6	7	8

The shield of the connection cable must be connected over a large area via the cable gland.

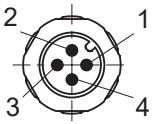
Electrical connection Profibus, 3 x M12 connector output

Bus IN	**Signal**	n.c.	PB_A	n.c.	PB_B	shield
	PIN	1	2	3	4	5
Power supply	**Signal**	+V	n.c.	0 V	n.c.	
	PIN	1	2	3	4	
Bus OUT	**Signal**	BUS_VDC*	PB_A	BUS_GND*	PB_B	shield
	PIN	1	2	3	4	5

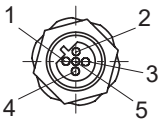
* for supplying an external Profibus termination resistor



Bus IN



Power supply

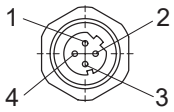


Bus OUT

ELECTRICAL CONNECTION DIGITAL OUTPUT EtherCAT

Electrical connection EtherCAT 3 x M12 connector output

Bus IN	**Signal**	Transmit data +	Receive data +	Transmit data -	Receive data -
	Abbreviation	TxD+	RxD+	TxD-	RxD-
	PIN	1	2	3	4
Power supply	**Signal**	Voltage +	n.c.	Voltage -	n.c.
	Abbreviation	+V	n.c.	0 V	n.c.
	PIN	1	2	3	4
Bus OUT	**Signal**	Transmit data +	Receive data +	Transmit data -	Receive data -
	Abbreviation	TxD+	RxD+	TxD-	RxD-
	PIN	1	2	3	4



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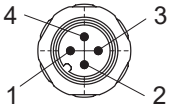
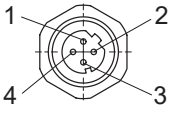
Bus IN



Power supply



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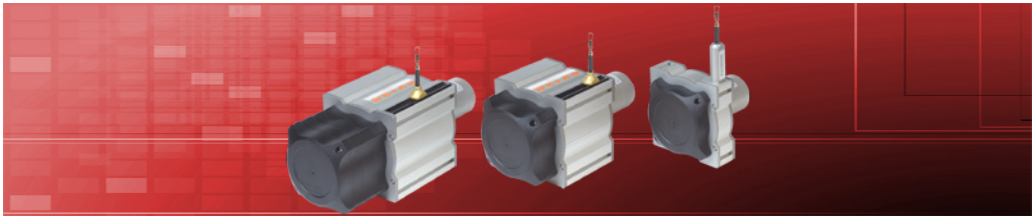
Bus OUT



WARNING NOTICES

- Do not try to open the device. The stored energy of the spring drive may lead to injuries when being mishandled.
- Do not touch the rope when operating the sensor.
- When mounting outdoors protect the sensor and the rope from icing at temperatures below 0 °C. The usage of a deflection pulley may help defrosting the wire rope.
- When operating the sensor in a humid environment, install the sensor with the rope outlet downwards. Otherwise water will gather inside the housing, which leads to corrosion.

MAINTENANCE

The devices are maintenance-free. If however, the rope is soiled due to adverse environmental conditions, it can be cleaned with a cloth drenched in resin-free machine oil.

DECLARATION OF EC-CONFORMITY

Manufacturer	WayCon Positionsmesstechnik GmbH Mehlbeerenstrasse 4 82024 Taufkirchen / Germany
	This is to certify that the products
Classification	draw wire sensors
Product series	SX
	fulfill the current request of the following EC-directives:
	EMC-directive 2004/108/EC (until April 19th, 2016) 2014/30/EU (from April 20th, 2016)
	applied harmonized standards: IEC 61326-1:2013

The declaration of conformity loses its validity if the product is misused or modified without proper authorisation.

Taufkirchen, 24.02.1016

Andreas Täger
CEO