

INSTALLATION GUIDE

Draw wire sensors series SX50, SX80, SX120

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.

MOUNTING OF THE SENSOR

- Please start by mounting the encoder to the SX draw wire mechanics. A description is given on the following pages.
- Next mount the sensor at the designated place, before extracting the rope and before attaching the rope to the measuring target.
- Depending on the sensor model it can be installed either by using the boreholes in the mounting plate, or by using the supplied T-slot nuts/clamp brackets. You will find a detailed description of both installation methods in this installation guide.
- 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 through the clip to extract the rope

HANDLING THE WIRE ROPE

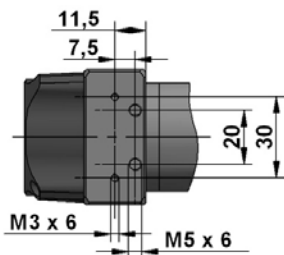
- When installing or operating the sensor, take care not to let the rope snap back by mistake or extract the rope over the specified measurement range, as this might destroy the sensor.
- The rope must be extracted from the sensor vertically. The maximum variation from the vertical is 3°. Avoid carefully 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 SX50

Mounting: standard rope outlet, rope outlet sideways top (S1)

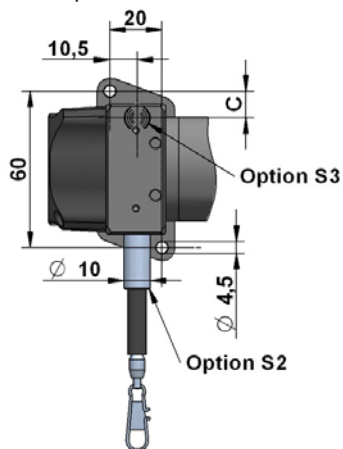
The sensor is usually installed by using the regular mounting plate.

By disassembling the mounting plate, there are 4 threads (2 x M3,2 x M5) in the sensor housing for alternative installation:



Mounting: rope outlet sideways bottom (S2), rope outlet bottom (S3)

Sensors with option rope outlet S2 and S3 have a modified base plate:

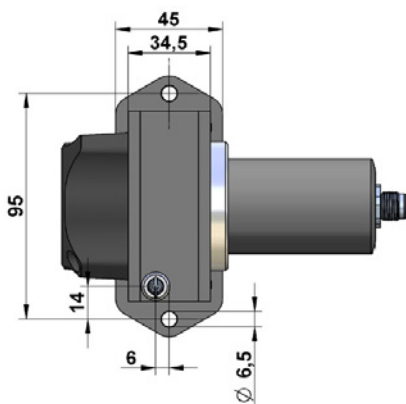


MOUNTING SX80

Mounting: standard rope outlet, rope outlet sideways top (S1)

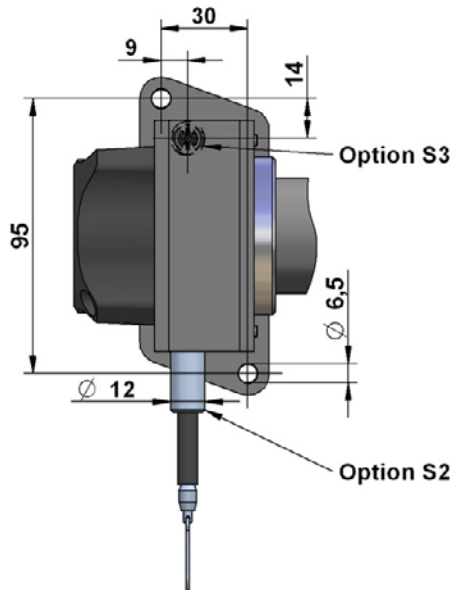
The sensor is usually installed by using the regular mounting plate.

By disassembling the mounting plate, there are 2 x M4 threads in the sensor housing for alternative installation:



Mounting: rope outlet sideways bottom (S2), rope outlet bottom (S3)

Sensors with option rope outlet S2 and S3 have a modified base plate:

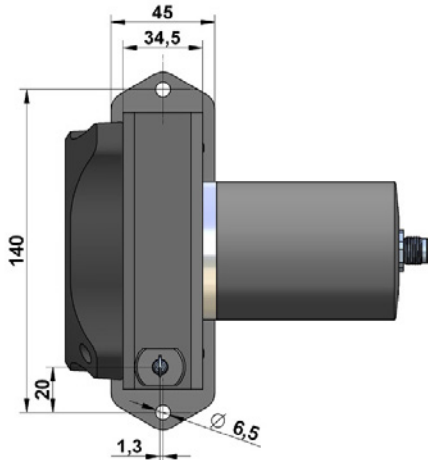


MOUNTING SX120

Mounting: standard rope outlet, rope outlet sideways top (S1)

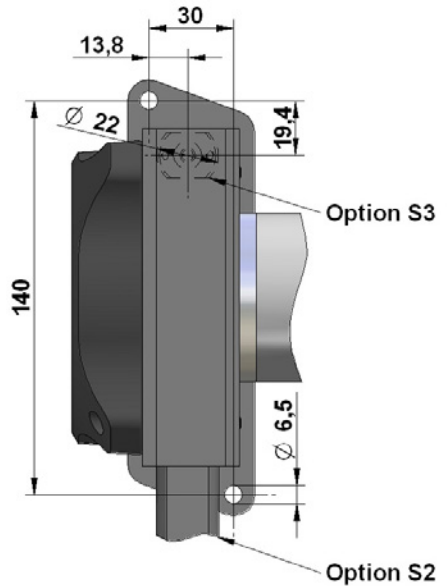
The sensor is usually installed by using the regular mounting plate.

By disassembling the mounting plate, there are 2 x M4 threads in the sensor housing for alternative installation:



Mounting: rope outlet sideways bottom (S2), rope outlet bottom (S3)

Sensors with option rope outlet S2 and S3 have a modified base plate:



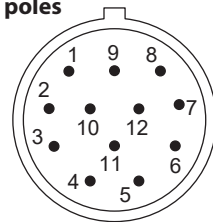
ELECTRICAL CONNECTION SSI

Electrical connection SSI, SX50, cable¹ output tangential

Signals	0V	+V	C+	C-	D+	D-	SET	DIR	Status	H
Cable colour	white	brown	green	yellow	grey	pink	blue	red	purple	GND

Electrical connection SSI, SX80, SX120, SX135, connector output M23, 12 poles

Signal	0V	+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, cable¹ output radial

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

¹ (Isolate unused wires individually before initial start-up)

ELECTRICAL CONNECTION CANopen

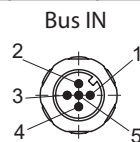
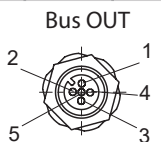
Electrical connection CANopen, SX50, cable¹ output tangential

Signal	+V	0V	CAN_GND	CAN_H	CAN_L
Cable colour	brown	white	grey	green	yellow

¹ (Isolate unused wires individually before initial start-up)

Electrical connection CANopen, SX80, SX120, connector output 2 x M12

	Bus OUT					Bus IN				
Signal	0V	+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, SX80, SX120 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
Abbreviation	CG	CL	CH	0V	+V	0V	+V	CL	CH	CG

ELECTRICAL CONNECTION PROFIBUS

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

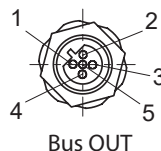
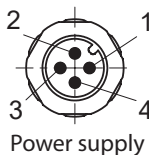
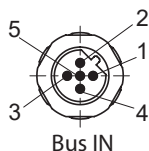
Signal	Bus IN				Bus OUT			
	B	A	0V	+V	0V	+V	B	A
Terminal	1	2	3	4	5	6	7	8

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.	0V	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

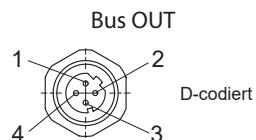
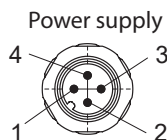
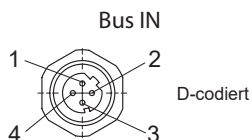
* for supplying an external Profibus termination resistor



ELECTRICAL CONNECTION EtherCAT

Electrical connection EtherCAT 3 x M12 connector output

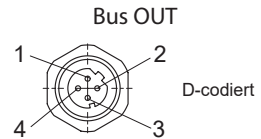
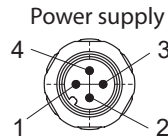
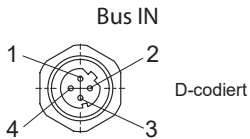
Bus IN	Signal	Transmit data +	Receive data +	Transmit data -	Receive data -
	Abbreviation	TxD+	RxD+	TxD-	RxD-
	PIN	1	2	3	4
Power supply	Signal	Voltage +	n.c.	Voltage -	n.c.
	Abbreviation	+V	n.c.	0V	n.c.
	PIN	1	2	3	4
Bus OUT	Signal	Transmit data +	Receive data +	Transmit data -	Receive data -
	Abbreviation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



ELECTRICAL CONNECTION 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

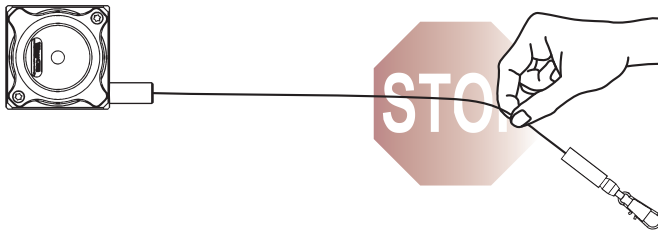


HANDLING THE WIRE ROPE

The rope must be extracted from the sensor vertically.

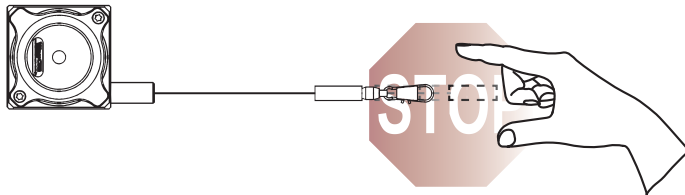


Do not pull on the rope directly. This will buckle the rope. Do not operate the sensor if the rope is buckled or damaged. A ripping of the rope may lead to injuries or a damaging of the sensor.

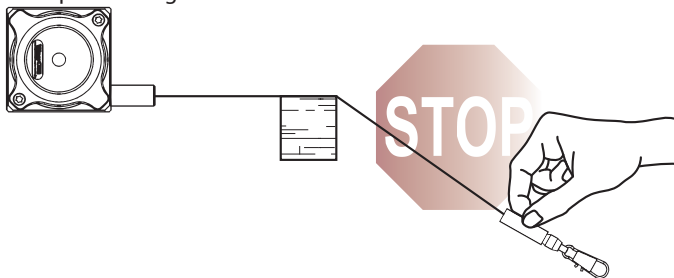


HANDLING THE WIRE ROPE

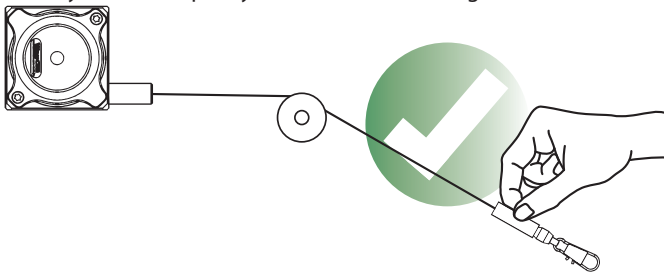
When installing or operating the sensor, take care not to let the rope snap back by mistake or extract the rope over the specified measurement range, as this might destroy the sensor.



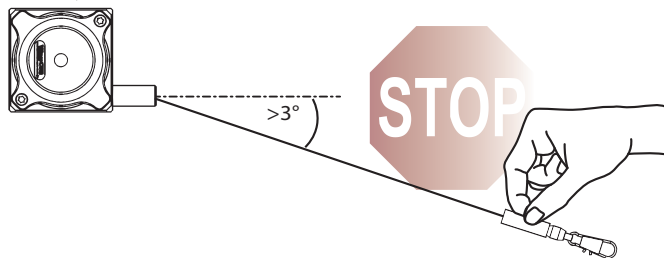
Avoid guiding the rope over edges or corners.



One, or if needed many deflection pulleys can be used to change the extraction direction.



The maximum variation from the vertical is 3°. Avoid carefully 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 must be used.





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. Where applicable use option S3.

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 Träger
CEO