

# ASSEMBLY GUIDE

## Draw wire sensors series SX200

For further information please see the data sheet at [www.waycon.biz/products/draw-wire-sensors/](http://www.waycon.biz/products/draw-wire-sensors/)

### MOUNTING OF A ROTARY TRANSDUCER WP TO A SX200

We assume that the SX200 draw wire sensor is already installed inside of the hydraulic cylinder. The pressure seal is mounted to the cylinder housing and connected to the rotating shaft of the SX200 by a coupling.

The analogue rotary transducer WP has a start and an end stop (no continuous rotation). Therefore it is very important to install the WP sensor as shown below.

Before installing the WP to the pressure seal the piston has to be fully retracted and the WP must be set to its start position.

Hold the WP so that you look frontal on the shaft side (see picture 1). Carefully turn the shaft clockwise until it reaches the stop position. Then turn the shaft back counter clockwise for approximately 5°.

Check the adjustment of the shaft by using the output signal of the WP. After the electrical connection the output signal should be approx. 4 mA ( $\pm 5\%$ ) or 0 V ( $\pm 5\%$ ), depending on the output type. If there is a deviation higher than 5%, please redo the adjustment of the shaft.

Mount the coupling to the WP shaft. Then carefully insert the coupling into the pressure seal (picture 2). Make sure that there is a positive-looking connection between the coupling and the pressure seal. It is very important that the shaft does not rotate during the procedure.

Fix the WP to the flange of the pressure seal, using the two M6 x 10 threaded pins (picture 3).

Tighten the threaded pins only by hand, approximately 2 Nm.

#### Final check

The WP must be mounted flush to the flange of the pressure seal and must not spring back. This can happen if the coupling was not inserted correctly into the flange.



picture 1



picture 2



picture 3



picture 4



## MOUNTING OF A SX200 INTO A CYLINDER

Please make sure that the SX200 has the correct measurement range, before starting the installation.

In order to calculate the correct measurement range the pre-extraction (distance between the piston and the sensor, while the piston is in its end position = the closest to the SX200) has to be deducted from the nominal measurement range. The result is the actual useful measurement range.

As a result the nominal measurement range of the SX200 has to be greater than the cylinder stroke + the pre-extraction + reserve (picture 6).

If the calculation of the measurement range was done incorrectly, a tearing of the wire rope may happen!

### **Example: SX200-10-420A, cylinder stroke 7.8 m**

Nominal measurement range SX200: 10 m

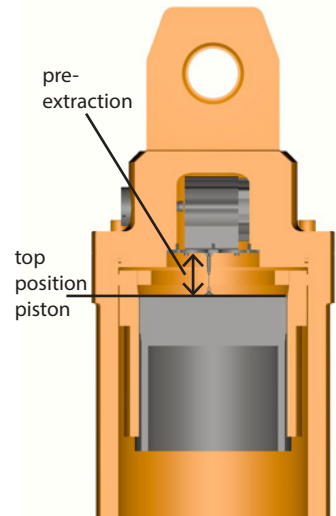
Output signal: 4...20 mA

The output signal is approx. 4 mA while the wire rope is retracted.

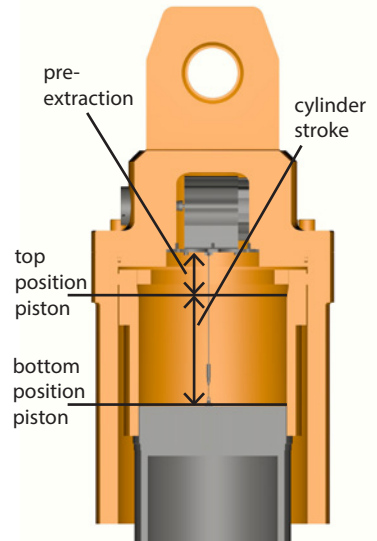
The output signal is approx. 20 mA while the wire rope is extracted.

The wire rope gets connected to the piston, while the piston is in its top position (picture 5). In case this pre-extraction would be 0.5 m, the output signal were 4.8 mA. As the cylinder stroke is 7.8 m, the output signal at the pistons bottom position were 16.48 mA.

In this example the wire rope would be totally extracted for 8.3 m. For this reason a SX200 with a nominal measurement range of 8 m would not be ok, although the cylinder stroke is only 7.8 m.



picture 5



picture 6