



**Positioning device
PSZxxxR**

*Operating and maintenance manual
version 1.0*

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Supplements:

A: Connection diagram

B: Dimension drawing

1. Technical description.

Positioning sensor device PSZxxxR is designed for positioning of the sensors located at two brackets. The sensors are moving in one line, together from or to the device centre. Setting the distance is possible by serial interface PROFIBUS DP or by means of manual terminal. Produced types vary in the range of movement (the largest distance of sensors). The device is mounted on machine frame by three "T" groves on back plane.

2. Technical specification.

Operating voltage:	24VDC \pm 20%
Supply current:	max. 1 A
Communication interface:	PROFIBUS DP
Sensors position accuracy:	\pm 0.5 mm
Movement speed of outer sensors:	cca 100 mm/s
Min. distance between sensors:	150 mm
Max. distance between sensors:	980 mm (PSZ098R) or 1100 mm (PSZ110R)
Protection:	IP 42
Operating temperature range:	0 to 50°C
Storage temperature range:	-5 to 55°C
Dimensions:	see dimension drawing (supplement B)
Mounting:	by three "T" groves on back plane dimensions and distance between groves on drawing (supplement B)

3. Operating manual.

3.1. Mounting and setting the correct position.

The device is mounted on machine frame by three "T" groves on back plane (for example by mounting brackets – not included in supply, customer will design and make them according his need). There are 4 pcs. of special nuts for groves in the device supply. For correct device operation and to achieve position accuracy according the specification, part 2, it is necessary that bearing surfaces of mounting brackets are in one level, not to twist or fold the device by tightening of fixing screws and consequently to reduce the position accuracy.

3.2. The device commissioning and communication through PROFIBUS DP.

The brackets with sensors are automatically set to the synchronizing position - both sensors are in max. distance from the device centre (and from each other – max. sensors distance) after connecting the device according to the connector wiring diagram (supplement A) and switching the supply on. This distance varies according the device (980mm for PSZ098R, 1100mm for PSZ110R). The device is prepared to communicate with the master system through interface PROFIBUS DP after switching on. The communication buffer contains 4 output and 4 input characters (byte) from the master system and is located at the address VB200 (C8H) of the S7-222 automat with PROFIBUS interface EM277. The meaning of the individual characters, eventually the bits, is following:

Output buffer: address VB200, 4 bytes

VW200: 2 bytes, the desired position [**ZPOL**]
VB202: 1 byte, the status of outputs [**OUT**]
VB203: 1 byte, the check character [**CONTR**]

Input buffer: address VB204, 4 bytes

VW204: 2 bytes, the actual position [**SPOL**]
VB206: 1 byte, the status of inputs [**INP**]
VB207: 1 byte, the LZZ status [**STAT**]

ZPOL - the desired distance of sensors. One increment represents 0.5 mm, it means, that synchronizing position e.g. 980 mm represents number 1960 and distance e.g. 400 mm represents number 800.

OUT - the status of the device outputs. The meaning of the individual bits is following:

OUT.0 - insignificant
OUT.1 - insignificant
OUT.2 - motor current (0- on, 1- off)
OUT.3 - insignificant
OUT.4 - insignificant
OUT.5 - insignificant
OUT.6 - insignificant
OUT.7 – insignificant

CONTR - the check character. The meaning of the individual bits is following:

CONTR.0 - start of movement. Set to “1” after confirming the desired position (ACK)
CONTR.1 - insignificant
CONTR.2 - insignificant
CONTR.3 - insignificant
CONTR.4 - STROBE. Setting to “1” indicates validity of the desired position.
CONTR.5 - insignificant
CONTR.6 - insignificant
CONTR.7 - restart. Setting to “1” requests the synchronisation before movement to the desired position.

SPOL - the actual position.

The device sends its actual position in standstill. One increment represents 0.5 mm.

INP - the status of the device outputs. The meaning of the individual bits is following:

INP.0 - status of input 0
INP.1 - status of input 1
INP.2 - status of input 2
INP.3 - status of input 3
INP.4 - status of the synchronization position sensor
INP.5 - status of the limit position sensor
INP.6 - insignificant
INP.7 - insignificant

STAT - the status of the device. The meaning of the individual bits is following:

STAT.0 - brackets movement, (1- brackets are moving, 0- brackets are not moving)

STAT.1 - ACK. The confirmation of receiving desired position after receiving STROBE bit in "1"

STAT.2 - ERR1. The desired position error

STAT.3 - ERR2. The positioning error, limit switch is on

STAT.4 - insignificant

STAT.5 - insignificant

STAT.6 - insignificant

STAT.7 - insignificant

4. System maintenance manual and safety regulations.

The manufacturer set the device at the specified precision (according specification in part 2), the sensors guide is lubricated, so if the device is not in storage more than 6 months (in original packing or in protection packing against dust), it is possible to connect and commission the device without any preparation or maintenance.

When the device is in storage more than 6 months, before mounting the device it is necessary to manually move the brackets for sensors slowly from one limit position to another and back 8 to 10 times. Return the brackets to the initial position (max. distance between them).

During the operation of device it is necessary to dismount the device from a machine when providing machine routine maintenance (at least once a year) and perform the following maintenance in clean environment:

- Dismount the cover.
- Blow the device with clean pressure air. Clean (wipe) the guide bar with clean absorbent textile from dirt and rest of old lubrication.
- Lubricate both carriers with grease¹⁾. Move the carrier when lubricating to allow grease enter inside whole ball route.
- Manually move the carriages from one limit position to another and back 8 to 10 times. Return the carriers to the initial position (carries are at max. distance from each other).
- Remove excessive grease from carriages and from guide bar with clean absorbent textile.
- Check all screw connections and if necessary tighten them.
- Clean cover form dust.
- Check bar of linear guide. Must be clean, remove any dirt.
- Mount the cover. Take care to use all screws for cover!

¹⁾ Lubricating grease:

Type of lubricating grease: use only grease on syntetic oil base.

Amount of grease necessary for one carriage lubrication is 0.8 to 1.0 g, eventually push grease through carriage nipples until it goes out of carriage.

Recommended lubricating grease: GLEITMO 815 (manufacturer FUCHS OIL).

Push lubricating grease through carriage nipples situated on both sides of every carriage by pressure gun with slim funnel end.

When working on the device it is necessary comply with the safety regulations for work on electric devices. When working on the device and servicing except of setting beam of laser generator, always turn off both connectors – supply connector and PROFIBUS connector.

5. Certificate of warranty.

Product: Positioning sensor device

Type: PSZ R

Serial number:

Warranty Terms.

The producer and distributor are responsible for the product characteristics defined in the technical specifications and provide warranty within 24 month from the date of sale (taking over) of the product, provided that the product is used and operated in accordance with specifications stated in this Warranty and in the Operating and Maintenance Manual. All product malfunctions caused by the defective material or by the incorrect production assembly will be corrected free of charge in warranty time if these conditions are met.

The warranty is prolonged by the time, when the product was in warranty repair, it means from the date when the product was delivered to repair till its taking over.

The buyer's warranty is void if the following facts have been found out, or faults have been caused by:

- connecting the product to the power supply, which does not conform to the technical specifications.
- using the product in unsuitable environment, mechanical damaging during transport, or by the buyer's mistake.
- any changes in the warranty made by unauthorized person, if the warranty is not filled in, loss of the warranty, damaged seal, when the product damage is caused by any vis majeure event, any product modification made by unauthorized person, replacement of product parts without permission.

Date of sale:



The seller signature and stamp

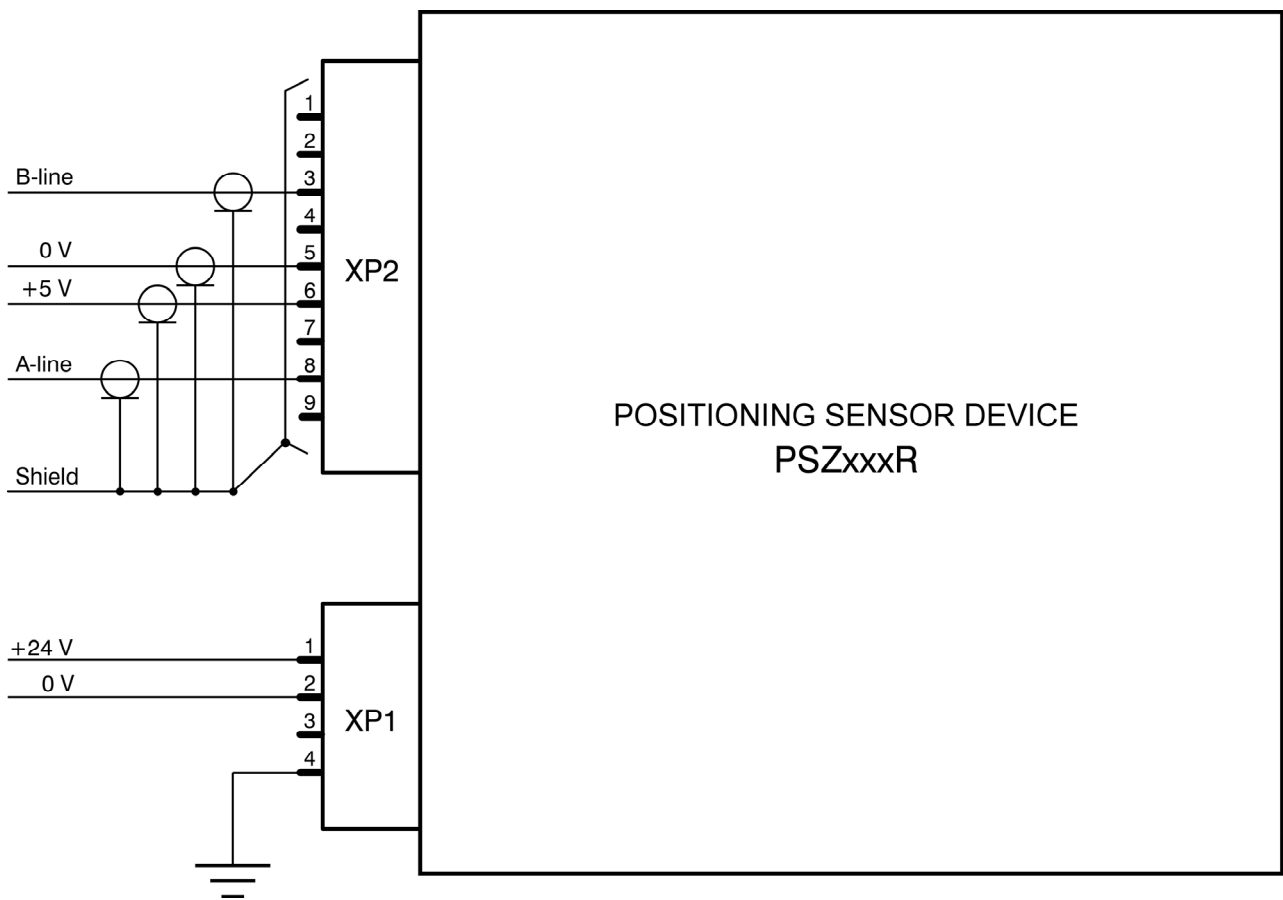
6. Packing.

Positioning sensor device PSZxxxR is packed in cardboard.

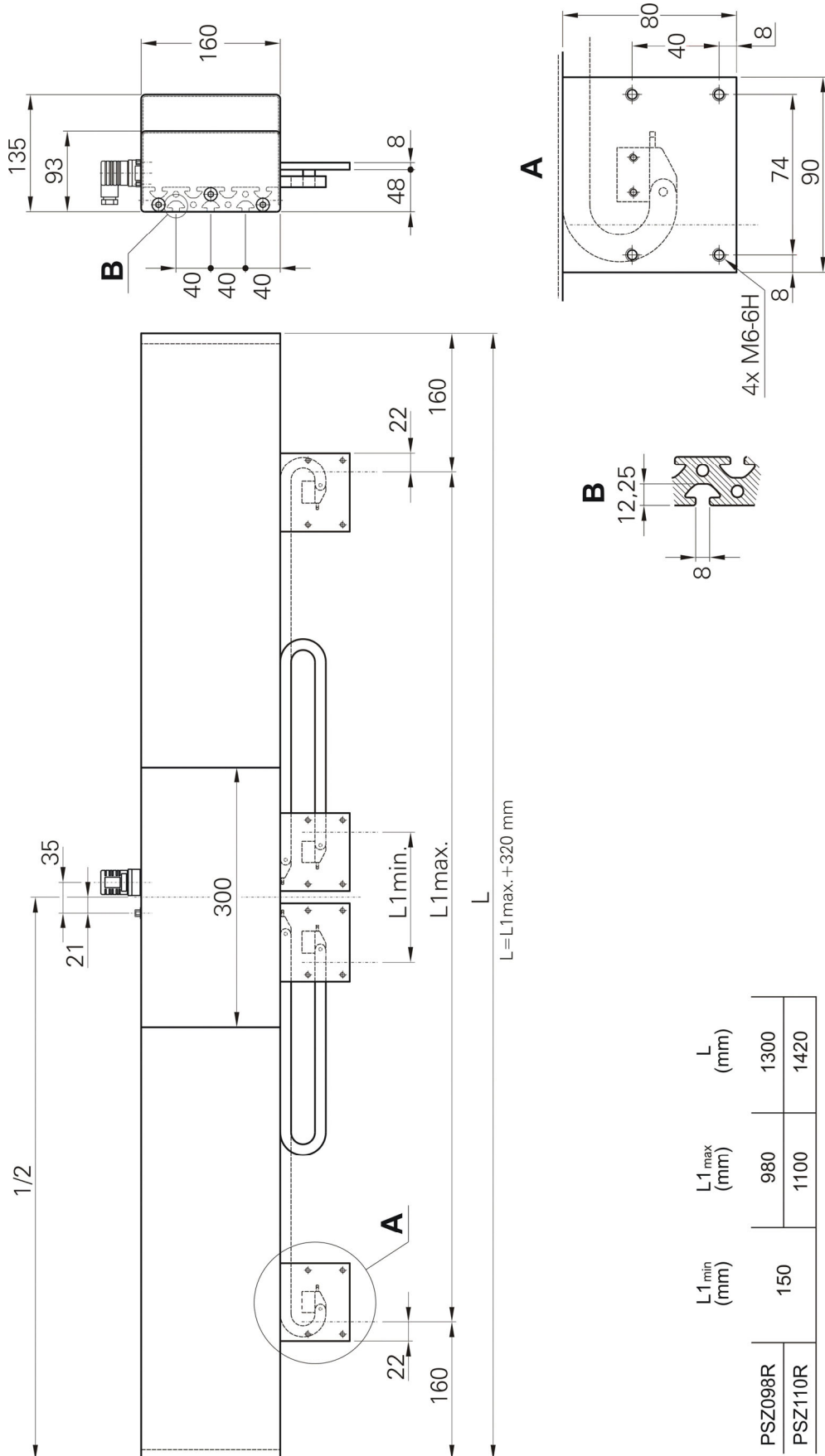
Packing consist of:

- 1 pc Positioning sensor device PSxxR
- 1 pc mate of input supply connector (female)
- 4 pcs Slotted nut M8 (special nut for “T” grove in device back part)
- This „Operating and Maintenance Manual PSZxxxR“

CONNECTION DIAGRAM



DIMENSION DRAWING



	$L1_{min}$ (mm)	$L1_{max}$ (mm)	L (mm)
PSZ098R	150	980	1300
PSZ110R	150	1100	1420



RMC s.r.o.
Trenčianska ul. 863/66
018 51 Nová Dubnica
Slovak Republic

Tel.: +421 42 4455611
+421 42 4455651-3
Fax: +421 42 4434175
e-mail: marketing@rmc.sk
<http://www.rmc.sk/>