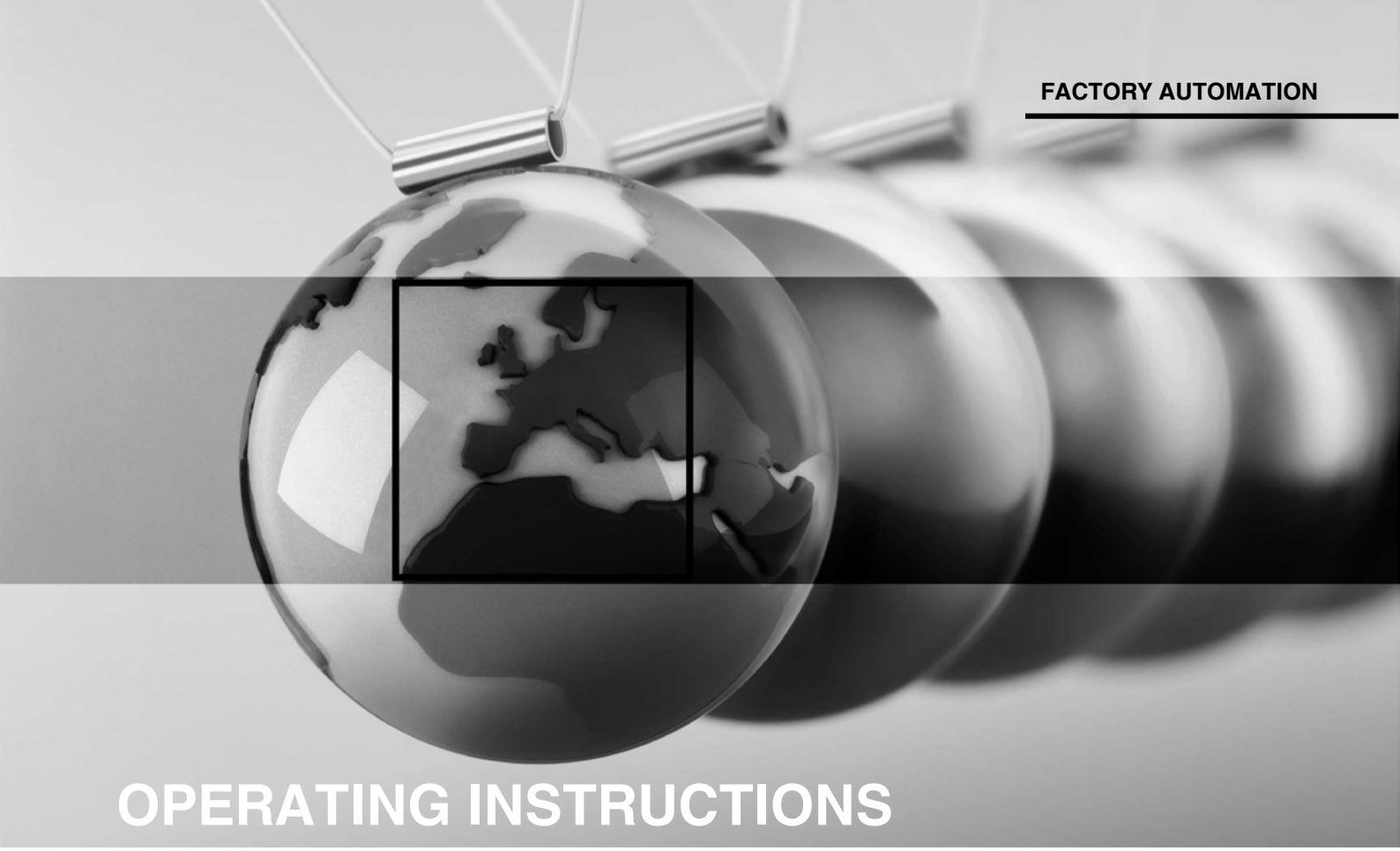

OPERATING INSTRUCTIONS

R2100: SERIAL PROTOCOL

PEPPERL+FUCHS
SENSING YOUR NEEDS

With regard to the supply of products, the current issue of the following document is applicable: The General Terms of Delivery for Products and Services of the Electrical Industry, published by the Central Association of the Electrical Industry (Zentralverband Elektrotechnik und Elektroindustrie (ZVEI) e.V.) in its most recent version as well as the supplementary clause: "Expanded reservation of proprietorship"

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1 Serial Port Configuration

The Pepperl+Fuchs R2100 sensor uses the following configuration for the serial port:

- Type: RS-232
- Baud Rate: 115200 kBd
- Bits: 8
- Parity: None
- Stop Bits: 1

1.1 Low Level Protocol

The communication between the master and the slave is based on frame messages using this format:

Byte 0	**Byte 1**	**Byte 2**	**Byte 3**	**Byte 4**	**...**
Receiver ID	Sender ID	Length of the complete frame	Command	Date Byte 0	...

...	**Byte 4+n**	**Byte 5+n**
...	Date Byte n	Checksum

The checksum is the antivalence (XOR) of all bytes within the frame except the checksum byte.

The master ID is 0x01 and the standard slave ID is 0xde.

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2 R2100 Protocol

2.1 Request Distances & Echoes

To request the current distances and echoes the following frame has to be sent to the R2100:

Byte 0	Byte 1	Byte 2	Byte 3	Byte 4
0xde	0x01	0x05	0x59	0x83

This request should not be sent more often than every 20ms. Please be aware of the internal averaging window, which spans 50ms. Therefore, results reference only non-overlapping components when they are requested 50ms or more apart.

2.2 Response Distances & echoes

The R2100 sensor answers with the following frame:

Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5
0x01	0xde	0x32	0x11	distance 0 (LSB)	distance 0 (MSB)

Byte 6	Byte 7	Byte 8	Byte 9	Byte 10	Byte 11
echo 0 (LSB)	echo 0 (MSB)	distance 1 (LSB)	distance 1 (MSB)	echo 1 (LSB)	echo 1 (MSB)

Byte 12	Byte 13	Byte 14	Byte 15	Byte 16	Byte 17
distance 2 (LSB)	distance 2 (MSB)	echo 2 (LSB)	echo 2 (MSB)	distance 3 (LSB)	distance 3 (MSB)

Byte 18	Byte 19	Byte 20	Byte 21	Byte 22	Byte 23
echo 3 (LSB)	echo 3 (MSB)	distance 4 (LSB)	distance 4 (MSB)	echo 4 (LSB)	echo 4 (MSB)

Byte 24	Byte 25	Byte 26	Byte 27	Byte 28	Byte 29
distance 5 (LSB)	distance 5 (MSB)	echo 5 (LSB)	echo 5 (MSB)	distance 6 (LSB)	distance 6 (MSB)

Byte 30	Byte 31	Byte 32	Byte 33	Byte 34	Byte 35
echo 6 (LSB)	echo 6 (MSB)	distance 7 (LSB)	distance 7 (MSB)	echo 7 (LSB)	echo 7 (MSB)

Byte 36	Byte 37	Byte 38	Byte 39	Byte 40	Byte 41
distance 8 (LSB)	distance 8 (MSB)	echo 8 (LSB)	echo 8 (MSB)	distance 9 (LSB)	distance 9 (MSB)

Byte 42	Byte 43	Byte 44	Byte 45	Byte 46	Byte 47
echo 9 (LSB)	echo 9 (MSB)	distance 10 (LSB)	distance 10 (MSB)	echo 10 (LSB)	echo 10 (MSB)

Byte 48	Byte 49
-	CRC

The distances are measured in millimetres. If a beam does not detect a target, the corresponding distance and echo values are reported as 0xffff.

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