



# R2100: Serial Protocol

## Serial Port Configuration

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

- Type: RS-232
- Baud Rate: 115.200 Baud
- Bits: 8
- Parity: None
- Stop Bits: 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	...

...	<b>Byte 4+n</b>	<b>Byte 5+n</b>
...	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.

## R2100 Protocol

### Request Distances & Echoes (0x59)

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 50 ms.

### Response Distances & echoes (0x59)

Channel 0 is near the power LED, channel 10 looks to the plug side.

The R2100 sensor answers with the following frame:

Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5
0x01	0xde	0x32	0x59	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.