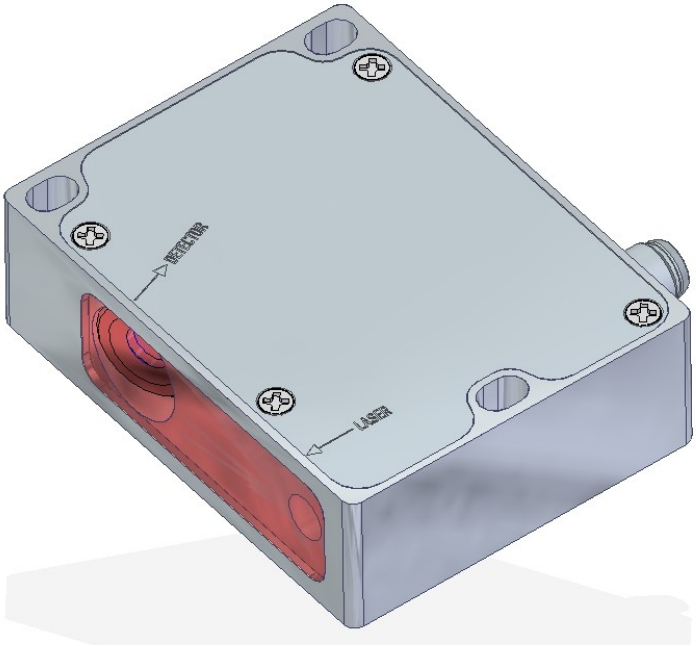
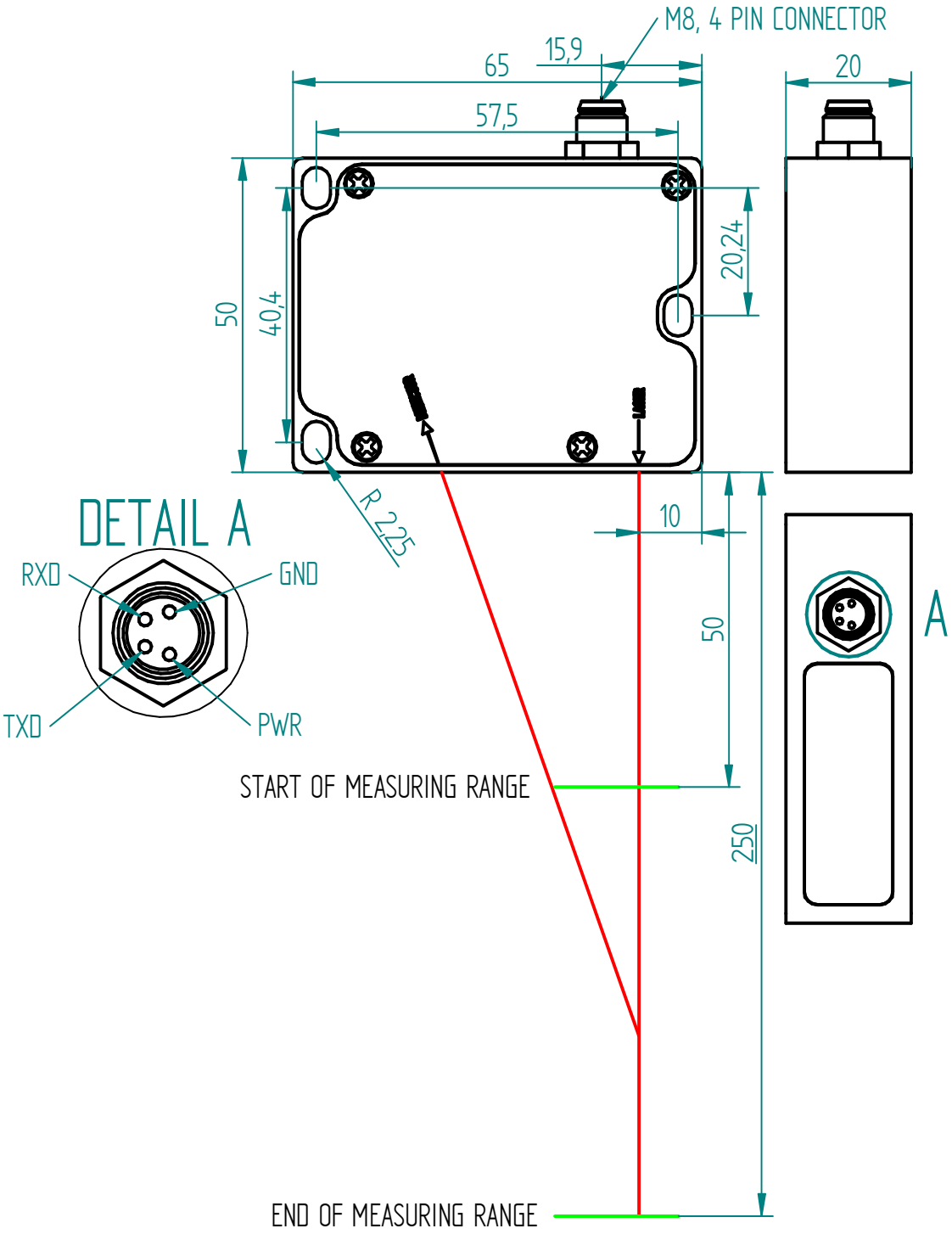
PT1-50-350 POINT TRIANGULATION SENSOR



Measurement range: 50 to 250(350) mm
Resolution: 10 to 100 µm
Linearity error: max. ± 0.2 mm
Response Time: 1 kHz (option: up to 50kHz)
Laser: 670 nm, Class II, <1mW
Communication: RS232, baud rate 38400, adjustable
Power: 5VDC (10mA) to 24 Vss (30mA)
Material: Aluminum, glass
Weight: 105g
Dimensions: 65 x 50 x 20 mm
Connector: M8, 4 pin
Operating temperature: 0 ... +50 °C
Protection class: IP 67


M8, 4 PIN CONNECTOR
65
15,9
57,5
20
50
40,4
20,24
R 2,25
10
50
250
DETAIL A
RXD
GND
TXD
PWR
A
START OF MEASURING RANGE
END OF MEASURING RANGE

Laser safety class

RS232 communication interface

1. Interface Settings

Baud rate: 38400 Baud, Start/stop bits: 1, Data length 8 bits, Parity None

2. Command structure

Name of Byte	Byte Nr. #	bytesNumber of	Character	Decimal	Hexadecimal
Start of Frame (SOF)	1	1	'/'	47	0x2F
Number of data bytes	2,3	2	Xx		
Command bytes	4,5	2	Yy		
Data byte #1	6	1	D1		
Data byte #2	7	1	D2		
.....	...		Dx		
Data byte #n	5+n	1	Dn		
Checksum	5+n+1	2	Qq		
End of Frame (EOF)	5+n+2	1	'.'	46	0x2E

Notes

Checksum

The Checksum (CS) is generated as XOR operation from the first to the last byte.
CS = 0x00
For i= 1 to 5+n do CS = CS XOR outputstring(i)

Error handling

The sensor works the protocol in 2 steps
1. wait for SOF
2. after SOF was found, wait for EOF
Error conditions
Errors appear after SOF if
1. The time from one to next byte exceeds 1 s.Output : Error message with Timeout as parameter. (T)
2. The number of bytes since the last start of frame exceeds 15. Output : Error message with "framing error" as parameter (F)
3. The command is unknown. Output : Error message with "unknown command" as parameter (U)
4. The checksum or the number of bytes is not correct. Output : Error message with "framing error" as parameter.(F)

Action after error: The sensor goes back to "wait for SOF"

3. Commands

qq stands for checksum (for checksum calculation see notes)

Name	command	Example	Answer from sensor	Comment
RESET	0R	/000R4D.	/030RV131A.	V13 is the version of the sensor Stops all permanent modes.
GET_DATA	0D	/000D5B.	/050Dxxxxxxxqq.	Value in 1 µm (7 digits xxxxxxx)
START_STREAM_D	0P	/000P4F.	/010P17F.	Acknowledge for permanent transmission (DECIMAL). After that permanent strings /050Pxxxxxxxqq. (see above)
START_STREAM_B	0B	/000B5D.	/010B16D.	Acknowledge for permanent Transmission (BINARY). Data are in 1/10 mm increments After that permanent Data of the format : '#', Hi Byte, LoByte **Caution**: the data can have the value of '#' !
GET_STATUS	0S	/000S4C.	/090STttSssssqq. Example: /090ST27S0171272. T=27°C Shutter = 1712 1ticks	Internal temperature T (tt) Shutter time S (sssss)
GET_VERSION	0V	/000V49.	/100VsxxHyPwwyyqq. Example: /100VS11H2P250731 Software 11 Hardware 2 Production week 25 in 2007	Software Version: S (xx) Hardware Version: H (y) Prod. date: P week/year (ww) Year (yy)
LASER_ON	0L	/020L0150.	/020L0150.	After Power Up Laser is ON
LASER_OFF	0L	/020L0051.	/020L0051.	
ERROR_MSG	0E From Sensor Only		/010Exqq Example /01EF2D	This message will be sent by the sensor if an error has happened. The x stands for the type of framing error. F = Framing error T = Timeout U = Unknown command Details see in appendix.