

FST-200 Laser Distance Sensor

Description



Features:

In outdoor sunlight, it can ensure to measure more than 100m and measurement accuracy in 1-5mm, if to measure long distance in outdoor or less reflective object indoor and require more than 50meters including ,suggest this type

Technical Specification

Power Supply	5VDC or 9-24VDC
Measurement range (no reflector)	0.05-200m
Measurement Accuracy	+/-1mm
Resolutions	1mm
Measurement Rate:	10Hz
Laser Energy	≥10mj
Laser Life	>20000h
Laser Grade	II
Output Mode	RS232 ,RS485 Communication port
Laser type	635nm,<1mw
Laser beam angle	<1mrad
Spot Size	5mm (50M) , 10mm (100M) , 20mm (200M)
Dimensions	65×38×133mm
Weight	280g
Operation temperature	-20 C°~60 C°
Storage temperature	-25 C°~60 C°
Protect Grade	IP65

Note: if you need RS485 Bus, which can connect 250nos of laser distance sensor at the same time

1.Cable connecting definitions

Red Line-----VCC 5VDC or 9-24VDC

Black Liine-----GND

White Line-----RX,

Green Line----TX;

Yellow Line-----SGND;

Under the condition of bad measurement (for example if the ambient light is too strong. The point measured diffuse reflection coefficient is too big or too small, measurement accuracy has big error:±1 mm+40PPM)

Kindly Prompt: If need to DB9 Female head, so RX,TX and G will be corresponding to connection to Second, Third and Fifth base pin of DB9 head separately.

2 Operating Steps

2.1 Connect a sensor to the serial port of computer (or other device which have serial ports) and the power port of adapter with special data cable.

2.2 Trigger Measuring

2.2.1 Send the command “O” (ASCII) or “0X4F” (HEX) by computer to turn on the sensor. Then the sensor will turn on the laser and prepare for working, and return the data “FF 00 0A 0A 0A 00” to the serial interface.

2.2.2 Send the command “O” (ASCII) or “0X4F” (HEX) again to the sensor to start to measure distance. The sensor will return the measured data like “FF XX XX XX XX XX” to the serial interface and turn off the laser when it finished one time measurement.

2.2.3 Send the command “U” (ASCII) or “0X55” (HEX) to turn off the sensor.

2.3 Continuous Measuring

2.3.1 Send the command “O” (ASCII) or “0X4F” (HEX) by computer to turn on the sensor. Then the sensor will turn on the laser and prepare for working, and return the data “FF 00 0A 0A 0A 00” to the serial interface

2.3.2 Send the command “C” (ASCII) or “0X43” (HEX) to the sensor. The sensor will begin to measure continuously after 3 seconds when it got the order, and return the data continuously like “FF XX XX XX XX XX”. If the sensor couldn't get any available data, it will return “FF 00 0A 0A 0A 00” to the serial interface.

2.3.3 Send the command “U” (ASCII) or “0X55” (HEX) to turn off the whole sensor (include both of laser unit and measuring unit).

Input and output

1 Data format for RS232 serial communication

Baud rate: 9600 bps , Data bits: 8 , Stop bit: 1 , Parity bit: None

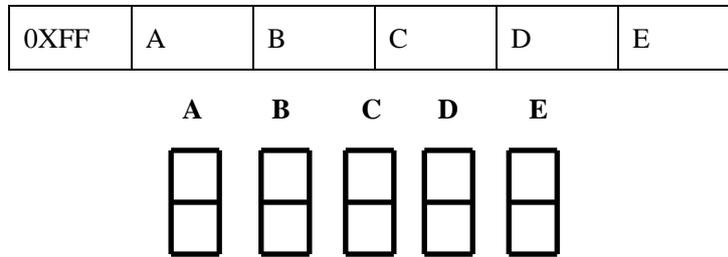
2 RS232 input frame format

There is only one byte in every input frame. The user could send different commands to the sensor for different purpose, the functions of command are shown in the following table.

HEX	0X4F	0X43	0X55
ASCII(Capital letter)	O	C	U
Functions of command	Power On & Trigger Measuring	Continuous Measuring	Power Off

3 RS232 output frame format

There is 6 bytes in every output frame, the frame header is 0XFF, MSB is A, LSB is E. Their orders are shown in this table here.



HEX	0x30	0x31	0x32	0x33	0x34	0x35	0x36	0x37	0x38	0x39	0x2d	0x20	0x00	0X45
ASCII	0	1	2	3	4	5	6	7	8	9	-	space		E

The mapping table of HEX and ASCII codes:

Display Notices

All display notices are either displayed with “E XXX”. The following errors can be corrected.

Display Notice	Cause	Correction
E 204	Calculation error	Repeat procedure
E 252	Temperature too high	Let device cool down
E 253	Temperature too low	Warm device up
E 255	Received signal too weak, time for a measurement too long.	Use a target plate
E 256	Received signal too strong	Use target plate(gray side)
E 257	Faulty measurement, too much background light	Use target plate(brown side)
E 258	Outside of the range of measurement	Select measurement distance within the range of measurement

Warning:

- Under unfavorable conditions, such as in bright sunlight or when measuring to poorly reflecting or very rough surfaces, the module's measuring range and accuracy will be reduced, please take measurements with reflector(not included).
- Do not point the laser dot at persons or animals and do not stare into the laser beam or view directly with optical instruments.

NOTE: If the laser sensor has any quality problem while using. Please contact the supplier for technical support, please don't repair or disassemble by yourself, Thanks for your cooperation!.