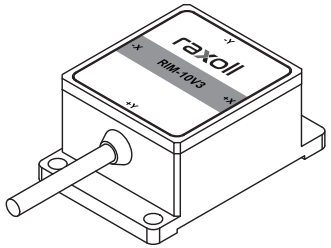
raxoll

RIM *Series*

Tilt Sensor

raxoll.com



CE

INSTRUCTION MANUAL

Thank you for choosing raxoll fiber optic amplifier. Please read the manual before using this product.

- The product should be applied by someone with a certain level of electrical knowledge.
- Please read and make sure that you understand how to operate the product before using it.
- Please keep this manual readily accessible for future reference when needed.

⚠ WARNING

Please do not exceed maximum rated voltage during usage in order to prevent tester malfunction or fire.
Please do not apply AC power supply to avoid breakage.
Please do not subject the product to high temperature to avoid scalding.

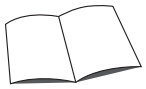
SAFETY PRECAUTIONS

It is dangerous to wire or attach/remove the connector with the power on. Make sure to turn off the power before operation.
Make sure to use the product with the protective cover attached and closed.
Installing in the following places may result in malfunction:

1. A dusty or steamy place.
2. A place generating corrosive gas.
3. A place directly receiving scattering water or oil.
4. A place suffered from heavy vibration or impact.

The product is not designed for outdoor use.
Do not use the sensor in transient state after power on(approx. 300ms.)
Do not wire with the high voltage cable or the power line.
Failure to do this will cause malfunction by induction or damage.
The sensor performance or digital display values may depend on the individual units or the condition of detected product.
This product in not an explosion-proof construction.
Do not use the product under flammable, explosive gas or liquid environment.
Do not use the product in water.
Do not disassemble, repair or convent the product.
Failure to do this may cause failure, fire or electric shock.
Operate within the rated range.

ACCESSORIESS LIST



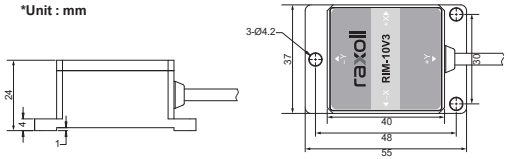
1 PCS INSTRUCTION MANUAL

TECHNICAL SPECIFICATIONS

Measuring Range		±10°	±30°	±60°	±90°
Measuring Axis		X,Y	X,Y	X,Y	X,Y
Resolution		0.05°	0.05°	0.05°	0.05°
Absolute Precision		0.1°	0.1°	0.2°	0.2°
Long-term Stability		0.2	0.2	0.25	0.25
Zero Temperature Drift(-40~+85C°)		±0.01°/°C	±0.01°/°C	±0.01°/°C	±0.01°/°C
Sensitivity Temperature Coefficient(-40~+85C°)		≤ 150 ppm/°C	≤ 150 ppm/°C	≤ 150 ppm/°C	≤ 150 ppm/°C
Power-on Startup Time		0.5S	0.5S	0.5S	0.5S
Response Time		0.02S	0.02S	0.02S	0.02S
Operating Voltage		9-36VDC			
No Load Current		40mA			
Operating Temperature		-40~+85C°(No freezing and No condensation)			
Storage Temperature		-55~+100C°(No freezing and No condensation)			
Vibration Resistance		10grms 10~1000Hz			
MTBF		≥ 45000			
Output Rate		5Hz, 15Hz, 35Hz, 50Hz can be set			
Electromagnetic Compatibility		According to EN61000 GBT17626			
Impact Resistance		100g@11ms, Triaxial and identical(Half sine wave)			
Output Signal		RS232/RS485/RS442/TTL			
Protective Category		IP67			
Connection Type		1m standard wear resistant, wide temperature, shielded cable			
Weight		71g (Including cordes)			
Model Selection	4...20mA	RIM-10A1	RIM-30A1	RIM-60A1	RIM-90A1
	0-10V	RIM-10V3	RIM-30V3	RIM-60V3	RIM-90V3
	RS232	RIM-1032	RIM-3032	RIM-6032	RIM-9032
	RS485	RIM-1085	RIM-3085	RIM-6085	RIM-9085

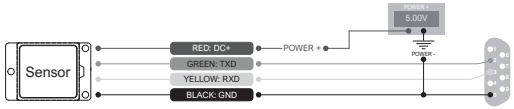
DIMENSIONS

*Unit : mm



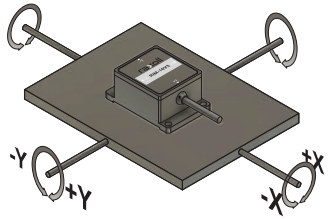
WIRING DIAGRAM

FUNCTION	BLACK	YELLOW	GREEN	RED
	GND	RS232(RXD) or RS485(D+)	RS232(TXD) or RS485(D-)	Vcc 5V



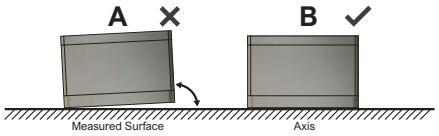
INSTALLATION

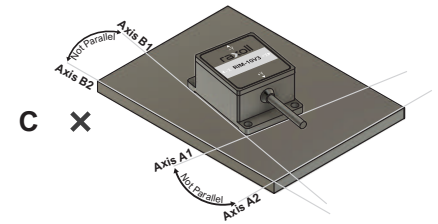
When installing, keep the mounting surface of the sensor parallel to the measured target surface, and reduce the impact of dynamics and acceleration on the sensor. For the installation method, please refer to the following diagram.

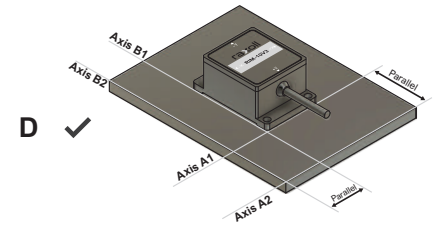


Install the inclination sensor acoording to the correct method. Improper installation will cause measurement errors. Please pay attention to the measured surface and axis:

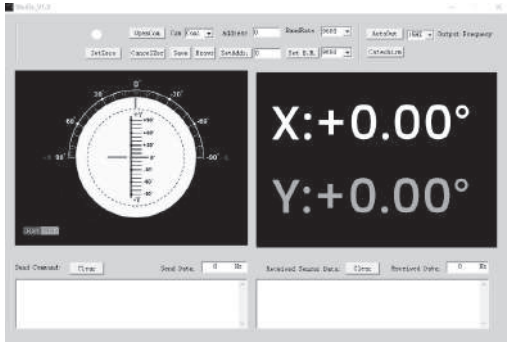
1. The installation surface of the sensor and measured surface must be tight, flat and stable. If the installation is uneven, it will easily cause the angle error of the sensor. Please see Pics. A and B.
2. The axis of the sensor and the measured axis must be parallel, and there must be no angle between the two axis. Please see Pics. C and D.







COMMISSIONING SOFTWARE



Open / Close	: Open and close the COM port;
Com	: Select the COM port corresponding to the device;
Address	: Fill in the current address code of the sensor. The factory default is 00;
Set Address	: Set the sensor address code, write the desired address code into the input boxon the right, and click the "SetAddr" button;
Save Data	: Save the data, click the data to save the angle data synchronously, the file is saved by default in C:--COMDATA file;
Set Zero	: Set relative zero. The current angle of the sensor can be 00.00 degrees.
Cancel Zero	: Cancel the set relative zero point and restore the sensor to the factory absolute zero point.
BaudRate	: Select the current baud rate of the sensor, the factory default is 9600;
Set BaudRate	: Set the baud rate of the sensor, select the corresponding baud rate in the selection box on the right, and then click the SetB.R. button.
Auto Output	: Switch the sensor to the automatic output mode. Different output frequencies can be filled in the automatic output mode. The unit is Hz.
Catechism	: Switch the sensor to question and answer mode. If Q&A is selected, you must enter the send command into the input box at the bottom left of "Send Command" (for the command, please refer to this specification), and fill in the send frequency in SendData. The unit is Hz.
Note	: After installing the commissioning software, if you cannot open it, please follow the steps below:
1-	: Copy the three files in the file package: mscomm.srg, smcomm32.ocx, mscomm32.dep to C:/Windows/system32.
2-	: Click Start-Run--regsvr32 smcomm32.ocx, it will prompt a successful installation dialog box.

COMMUNICATION PROTOCOL

1-Data frame format : (8 data bits, 1 stop bit, no parity, default rate 9600)

Identifier (1byte)	Data Length (1byte)	Address Code (1byte)	Command Word (1byte)	Data Field	Checksum (1byte)
68					

Data format : hexademical
Identifier : 68
Data length : The length from the data length to the checksum (including the checksum).
Address Code : The address of the acqusition module. The default is 00.
The data field changes according to the response of different contents and length of the command word.
Checksum : The sum of data length, address code, command word and data field does not take into account the carry.

2-Command Word Parsing

Command	Meaning / Example	Description
0X04	Read angle commands at the same time Example: ***68 04 00 04 08***	Read angle commands at the same time Example: ***68 04 00 04 08***
0X84	Sensor response Example: ***68 0D 00 84 00 20 10 10 05 25 00 00 00 FB***	Data field (9byte) AA AB BB CC CD DD EE EE EE AA AB BB: 3 characters indicate the X axis CC CD DD: 3 characters indicate the Y axis EE EE EE: 3 characters reserved data, fixed to 000000 The angle format is the same as the X-axis or Y-axis analysis method The angle in the left example is: X axis 020.10 degrees, Y axis -05.25 degrees.
0X05	Set relative / absolute zero: You can set the current angle to zero degree for relative measurement, or you can set the absolute factory zero degree, and the power off the save. Example: ***68 05 00 05 00 0A***	Data field (1byte) 00 : Absolute Zero 01 : Relative Zero
0X85	Sensor response Example: ***68 05 00 85 00 8A***	Data field (1byte) The number in the data field indicates the response result of the sensor. 00 : Successful setting FF : Failed to set
0X0B	Set communication rate. Example: ***68 05 00 0B 03 13***	Data field (1byte) Baud rate : the default value is 9600 00 corresponding to 2400 01 corresponding to 4800 02 corresponding to 9600 03 corresponding to 19200 04 corresponding to 38400 05 corresponding to 115200
0X8B	Response response command of sensor Example: ***68 05 00 8B 90***	Data field (1byte) The number in the data field indicates the response result of the sensor. 00 : Success FF : Failure
0X0C	Set the sensor output mode Response System: The host computer needs to send an angle reading command before the sensor responds to the relative angle. Automatic Output System: After the sensor is powered on, the output frequency of X,Y angles are automatically output as set in the right table. (This function can enable power-off memory) Example: ***86 05 00 0C 00 11***	Data field (1byte) Factory default value is 00 00 Response System 01 5Hz Automatic Output Mode 02 15Hz Automatic Output Mode 03 25Hz Automatic Output Mode 04 35Hz Automatic Output Mode 05 50Hz Automatic Output Mode 06 100Hz Automatic Output Mode Note: RS485 only has the response system and no automatic output mode.
0X8C	Response response command of sensor Example: ***68 05 00 8C 00 91***	Data field (1byte) The number in the data field indicates the response result of the sensor. 00 : Successful setting FF : Failed to set
0X0F	Set module address command The default address of the sensor is 00 If multiple sensors are connected to a group of buses at the same time, such as RS485, each sensor needs to be set to a different address to achieve separate control and response angles. If the new address is changed successfully the address code in all subsequent commands and response packets must be replaced with the new address code after the change to be valid, otherwise the sensor will not respond to the command. This command is the power-off saving function. Example: ***68 05 00 0F 01 15*** Set the address to 01. ***68 05 FF 0F 00 13*** Reset address to 00 with general address.	Data field (1byte) XX module address, from 00 to EF range. Note : All products have a common address: FF. If you forget the address you set during the operation, you can use the FF address to operate the product, and it can still respond normally.
0X8F	Response response command of sensor Example: ***68 05 00 8F 94***	Data field (1byte) The number in the data field indicates the response result of the sensor. 00 : Successful setting FF : Failed to set
0X0D	Query relative / absolute zeroUsed to query whether the current zero mode of the sensor is relative zero or absolute zero. Example: ***68 04 00 0D 11***	Data field (0byte) Dataless Domain Command
0X8D	Response response command of sensor Example: ***68 05 00 8D 00 92***	Data field (1byte) The number in the data field indicates the response result of the sensor. 00 : Absolute zero 01 : Relative zero

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