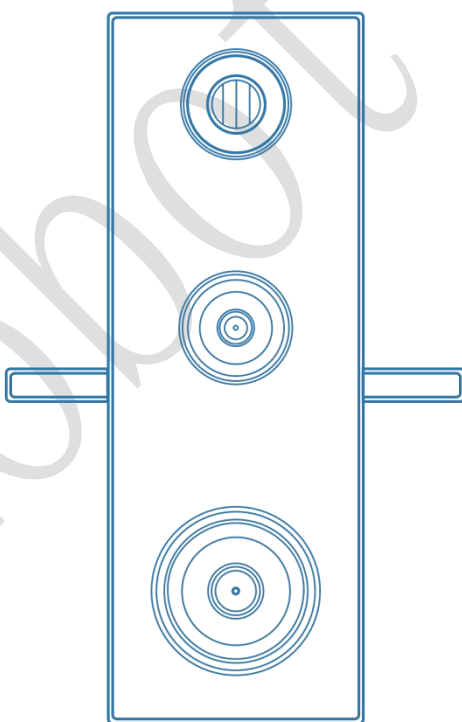




RD210MB 2D DEPTH CAMERA

Development Manual



<http://www.robotleo.com>



The external system will communicate with the RD210MB ranging core via the UART serial port. The hex data is used in interaction. Every communication process will be originated by an external system. RD210MB will not proactively return data to the external system.

Bundle and conversion board

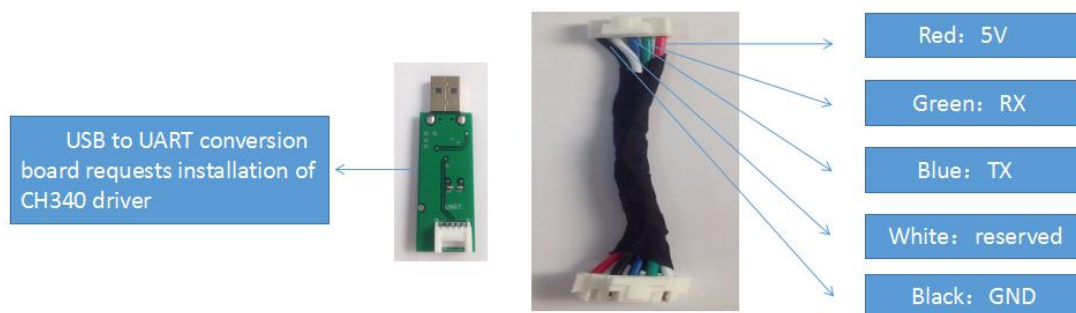


Figure 1 Bundle and conversion board

Serial port parameters

Parameters	Parameter value
Baud rate	115200
Data bit	8
Stop bit	1
Check bit	NONE

Figure 2 Serial parameters

Control command

Description	Command	Return	Remark
Get sample	A5 07 0N 36 00 00 E3	A5 0N + 448 Bytes sample data (for details, refer to the continued description)	N is the device number and its default is 1

Figure 3 RD210MB control command



Command structure

Format	Length (byte)	Reference value	Description
Frame header	1	0xA5	Start bit of data frame
Length of frame	1	0x07	Total length of data frame
Receiver ID	1	0x01	0x00 broadcast, 0x01-0x04 gets ranging device number of samples
Command value	1	0x36	Command type, 0x36 is to get samples.
Data	2	0x00 0x00	Reserved
Check bit	1	0xE3	accumulative value of first 6 bytes.

Figure 4 Format of control command

Remark: After the sampling command is sent successfully and RD210MB receives and handles it, the returned results are from single sample and will not be continuously returned. To continuously capture data, it is required to control the logic for continuously sending the sample acquisition command.

Structure of sampled data

After the RD210MB receives the sample acquisition command from the external system, the ranging system will return a group of 450-byte hex data strings. The data strings include identifier and data information.



Figure 5 Structure of sampling data

The first two bytes indicate the identifier and N is the module number. When multiple RD210MB modules are used in work, these data can be used to determine the data source. The followed 448 bytes indicate data. Two adjacent bytes indicate a measurement distance. Two adjacent measurement distances are spaced by 0.5° . All sampling distance for 112° can be outputted in anti-clockwise. The ranging information within $-45^\circ \sim +45^\circ$ is more credible. The developers should not apply the ranging information of other angles as the slam algorithm, which can only be used as the reference value. E.g.



2 adjacent bytes	Hex	Decimal distance	Corresponding angle
00 E1	0x00E1	225mm	-55°
00 E0	0x00E0	224mm	-54.5°
01 5A	0x015A	346mm	-54°
01 59	0x0159	345mm	-53.5°
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Figure 6 Parsing of sampling data

Revisal records

Version	Revisal Date	Revised contents
v1.0	August 27,2016	This manual is a draft edition

Figure 7 Revisal records