# OMRON

**3D TOF Sensor Module** 

# B5L

### **Evaluation Software Manual**



**3D TOF Sensor Module** 

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#### ■Revision History

Revision	Year/Month	Contents
А	2020/9	First Release

#### **Additional Notes**

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Note that the contents of this document or specifications for B5L noted in this document may change without notice.

#### Contents

TRODUCTION	3
OUTLINE	3
CAUTION	3
OPERATING ENVIRONMENT	4
OPERATING PROCEDURES	5
HOW TO USE THE APPLICATION.	6
5.1 CONNECTION	6
5.2 DEVICE SETTINGS	7
5.3 MACHINE SETTINGS ABOUT RESULT WINDOW	9
5.4 Measurement Start	10
5.5 LOG SETTINGS AND LOGGING START	11

### Introduction

This document is the manual (hereafter referred to as "This Manual") for the OMRON 3D TOF Sensor Module B5L Evaluation Software (hereafter referred to as the "Application").

# 1 Outline

The Application is used to evaluate the various functions of the OMRON 3D TOF Sensor Module B5L (hereafter referred to as the "Device") on a machine.

# 2 Caution

Make sure to read the Device's documentation and user's manual before using it. Make sure to read the Device's documentation and user's manual when verifying its proper operation. Make sure to follow the instructions in the Device's documentation and user's manual when using it.

## **3 Operating Environment**

The Application was tested in the environment described below.

OS	Windows 10 Professional 64-bit
CPU	Intel® Core <sup>TM</sup> i5-7200 CPU @ 2.50GHz
Communication	USB2.0

### **4 Operating Procedures**

- 1. Power on the Device, and then connect the Device to the machine with a USB cable.
- 2. Make sure that the Pilot LED of the Device is lit.
- 3. Run the Application (TOFImagerTool.exe), after the Device is waked up.

### 5 How to use the Application 5.1 Connection

Select COM port number from drop-down list of the Application, and then push "Connect" button (Refer to red frame of figure below.)

It is possible to confirm the number of the port used for the Device by looking in "Device Manager" > "Ports (COM & LPT)" > "USB Serial Device (COM#)" on the machine used.

If the Device's COM port number does not come out in the drop-down list or user wants to disconnect the Device from machine, push "Refresh" button.

Note that proper operations will not be guaranteed if the wrong port is specified.

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#### **5.2 Device Settings**

If necessary, change setting on the Device, and then push "Set" button (Refer to red frame of figure at next page.) Meaning of each setting is as follows (Refer to user's manual for detail information.)

Format : Setting of result format (Select from 7 settings below.)

Amplitude	: amplitude data
Distance(Polar)	: distance data (polar coordinates)
Distance(Cartesian)	: distance data(rectangle coordinates without rotation)
Distance(Cartesian rot)	: distance data(rectangle coordinates with rotation)
Distance(Polar)+AMP	: distance data (polar coordinates) and amplitude data
Distance(Cartesian)+AMP	: distance data(rectangle coordinates without rotation)
	and amplitude data
Distance(Cartesian rot)+AMP	: distance data(rectangle coordinates with rotation)
	and amplitude data

Mode : Setting of operation mode (Select from 2 settings below.)

Normal	: Normal mode
High speed	: High speed mode

Exposure time : Setting of exposure time

Frame rate limiter : Setting of frame rate

Amplitude minimum :

All range: Setting of MIN\_AMP(for all range)Near range(1.5m): Setting of MIN\_AMP(for near range)

Rotation angle : Setting of T3D rotation angle

LED freq.ID : Setting of LED frequency ID

Pilot LED : Setting of pilot LED enable/disable

Response speed :

Data size : Setting of transmission size of response speed (Select from 5 settings below.) 1,2,4,8,16

Interval : Setting of transmission interval of response speed

ENR threshold : Setting of ENR threshold

Connection		View			
Serial Port COM8 ~	Refresh	Picture Start	10.0	fps	3D Start
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x 0 ÷ V 0 ÷ LED freq. ID Plot LED Response speed Data size Interval ENR threshold	2 0 ÷ 8 ÷ @ ON OC 16 √ 0 ÷	Logging CSV PNG Bi Number of logs Logging interval Filename	nary total once	10	

#### 5.3 Machine Settings about result window

If necessary, change machine setting about result window. (Refer to result window in figure below.)

Meaning of each setting is as follows. (Refer to red frame of main window in figure below.)

TRANSFORMATION :

Horizontal flip: Result is displayed horizontally flipped in result window, if this checkbox is checked.

Vertical flip : Result is displayed vertically flipped in result window, if this checkbox is checked. View range :

Maximum : Setting of maximum value of distance result displayed in result window.

Minimum : Setting of minimum value of distance result displayed in result window.

#### Monitor :

View of Center : Distance result at center coordinate is displayed.

Position of center coordinate is displayed in result window, if "Center Mark" checkbox is checked.

TEMPERATURE BORD : LED and Imager temperature during measurement is displayed. Display is stopped, if "Stop sampling" checkbox is checked.

Connectio	n			View			
Serial Po	rt COM8 🗸	Refr	esh	Picture Start	10.0	fps	3D Start
Setting		Conr	nect	TRANSFORMATION	Vertical flip		
Format	Distance(Polar)	~		View range Maximum		6250	
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LED free	4. ID	8	•	Logging	Binary		
Pilot LED	0	ON	OOFF	Number of logs	total	10	\$
Respon	se speed Data size	16	✓ KB		once	1	•
	Interval	0	🔹 us	Logging interval		0	🗘 s
ENR thr	eshold	0	*	Filename			
							÷.
			Set				Start

< Main window >



< Result window >

### **5.4 Measurement Start**

Start measurement. (Refer to red frame of main window in figure below.)

If "Picture" button is pushed, measurement is started, result is got once, and then measurement is stopped.

If "Start" button is pushed, "Start" button is changed to "Stop" button, results are got continuously.

The result is displayed in 3D, if "3D Start" button is pushed during measurement. (Refer to result window (3D) in figure below)

\* Some time are required to display 3D. If 3D doesn't appear, move mouse wheel in the window or drug any point of the window inside.

Measurement is stopped, if "Stop" button is pushed.

Connectio	on			View			
Serial Po	coms 🗸	R	efresh	Picture Start	10.0	fps	3D Start
Setting Format Mode Exposur Frame ra Amplitud	Distance(Polar) Normal re time ate limiter de minimum All range Near range (1.5m)	C C 850 0 0 0	us t t t t t t t t t t t t t	TRANSFORMATION  Horizontal flip View range Maximum Minimum Monitor Value of Center 608 mm TEMPERATURE BOARD LED 32.5 °C Ima	rertical flip	6250 0 □ ☑ Cer ing □ ○ 34.0 32.5	mm  mm  mm  mm
LED free Pilot LEI Respon ENR thr	x 0 0 Y 0 0 q. ID D Ise speed Data size Interval reshold	z 0 8 • 01 16 0	÷ ♦ 0 OFF V KB ↓ US ↓	Logging CSV PNG B Number of logs Logging interval Filename	inary total once	10 1 0	4 4 4 4 5
							0
			Set				Start

<Main window>



<Result window(3D)>

### 5.5 Log Settings and Logging Start

Measurement result can be stored as specified log format. (Refer to red frame of figure at next page.) Following log formats are available depending on result format setting.

Amplitude	: CSV,	PNG,	Binary
Distance(Polar)	: CSV,	PNG,	Binary
Distance(Cartesian)	: CSV,	PCD	
Distance(Cartesian rot)	: CSV,	PCD	
Distance(Polar)+AMP	: CSV,	PNG,	Binary
Distance(Cartesian)+AMP	: CSV,	PCD	
Distance(Cartesian rot)+AMP	: CSV、	PCD	

Prefix of log files name can be set in "File name" box and log files are stored in selected folder.

Set following 3 value and push "Start" button, and then measurement and logging is started.Logging and measurement are stopped after getting of total number of logs.(Measurement is not stopped, if the logging "Start" button is pushed after starting measurement in the way explained in section 5.4.)

Number of logs : total : Setting of total number of logs once : Setting of number of logs per one acquisition Logging interval : Setting of interval each acquisition

For example, Logging timing is as follows, if "once" is 10, "total" is 30, and "Logging interval" is 60.



Serial Port COM8     Refresh        Connect     Interval     Connect     Connect     Connect     Interval     Response speed     Interval     Interval     Response speed     Interval     Response	Serial Port COM8 Refresh Connect Setting Format Distance(Polar) V	Picture     Start     10.0     fps     3D Start       TRANSFORMATION     Horizontal flip     Vertical flip       View range
Connect       TRANSFORMATION         etting          Format       Distance(Polar)         Mode       Normal         Mode       Normal         Exposure time       850         Frame rate limiter       0         0       frps         Amplitude minimum       0         All range       0         Near range (1.5m)       0         VED freq. ID       8         Pilot LED       © ON O OFF         Response speed       16       KB         Interval       0       ‡ us         Interval       0       ‡ us         ENR threshold       0       ‡ us	Setting Format Distance(Polar)	TRANSFORMATION
	Mode       Normal         Exposure time       850       us         Frame rate limiter       0       fps         Amplitude minimum       0       fps         All range       0       fps         Near range (1.5m)       0       fps         Rotation angle       2       fps         LED freq. ID       8       fps         Pilot LED       Interval       0       fps         Interval       0       fps       us         ENR threshold       0       fps       fps	Maximum       6250       m         Minimum       0       m         Monitor       Value of Center       608 mm       Center Mark         TEMPERATURE BOARD       Stop sampling       Stop Sampling         LED       32.5       %       Imager         Stop Sampling       Stop Sampling       Stop Sampling         LED       32.5       %       Imager         Stop Sampling       Stop Sampling       Stop Sampling         LED       32.5       %       Imager         Stop Sampling       Stop Sampling       Stop Sampling         Logging       Stop Sampling       Stop Sampling         Logging       O       Imager         Logging       Imager       Imager         Logging Interval       O       Imager         Filename       Imager       Imager

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