

Messrs. _____

Issue No.	
Date	2015.10.21

SPECIFICATIONS

Products : TOF Motion Sensor

Model : HLS-LFOM1

Customer P/N : _____

HLDS P/N : EBD61669501 (Black Cabinet)

HLDS P/N : EBD61669502 (White Cabinet)

Receipt

Approved : A.Yabe

Checked : T. Chiba

Written : T.Takahashi

NOB Team
Development Division
Hitachi-LG Data Storage, Inc.

CONTENTS

1. SCOPE
2. STANDARD PERFORMANCE
3. INDICATION
4. Dimensions
5. PACKING SPECIFICATIONS
6. Cautions on handling
7. Software License information

CONFIDENTIAL

1. SCOPE

This document covers the specifications for the TOF Motion Sensor (TOF:time of flight). Laser diode is driven by the pre-determined current value and the optical power is controlled by software.

Should any question arise in the specifications, it will be settled by mutual discussion.

The specifications are subject to change for improvements.

Related Documents

Doc No.	Revision	Title	Date
-	1.0	TOF Motion Sensor Function specifications	27-Aug-15
-	1.0	TOF CGI command I/F Specifications	27-Aug-15
-	-	-	27-Aug-15

2. STANDARD PERFORMANCE

2.1 Test Performance

Product	Motion Sensor
Model name	HLS-LFOM1
Optical Source	Laser $\lambda=850\text{nm}$, Laser Safety Standard IEC60825-1 class1
Power charge	Power over Ethernet Plus(PoE+):IEEE802.3at
Power consumpton	15W
Detection Distance	Distance 0.7 * ¹ to 10m (White color Kent Paper)
Measurement Resolution & Repeatability Accuracy	$\sigma \leq 80\text{mm}$ @2m with 320x240 resolution Measurement Accuracy 8% or better Ambient Illuminance 10,000 lx or less * ² : (Whote color Kent Paper) *Measure at center of FOV
FOV angle	76° (H) × 60° (V)
Frame rate	30fps fixed rate * ³
Interface	Ethernet 100 BASE-TX
Indicator lamp	Power lamp (Green): Turn on at power on status Operation lamp (Orange): Blink at normal operation Turn off at abnormal operation or disorder
Ambient Temperature Humidity	0 degree C~+45 degree C (Operatable at 50 degree C) 0~95% (Non condensation)
Storage Temperature	-40~+60 degree C
Life	Accumulated use 22,500h
Weight	500g (Excluding cable)
Dimension (WxDxH)	138mm×69mm×69mm (Excluding projecting part)

Notes)

*1 Saturation may occur by measured object. Please confirm environmental influence by the actual unit.

*2 Indoor environment (Fluorescent light 1000lx or less)

*3 Depth output and IR output at 1/1 downscale is optional.

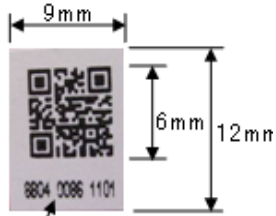
The condition of this specification is 1/2 or less downscale. Depth output and IR output is mutual exclusion.

Output is switched by CGI command.

Actual transfer rate may be lowered by performace of network equipment and PC/Server.

3. INDICATION

3.1 QR code Label



Manufacturing Data	○	○	○	○
	Year Last figure of Year	Month (Jan-Dec ⇒A - L)	Day	

製造年月日 製造番号 管理番号

Manufacturing Date, Serial Number, Control Number

【Contents of data】

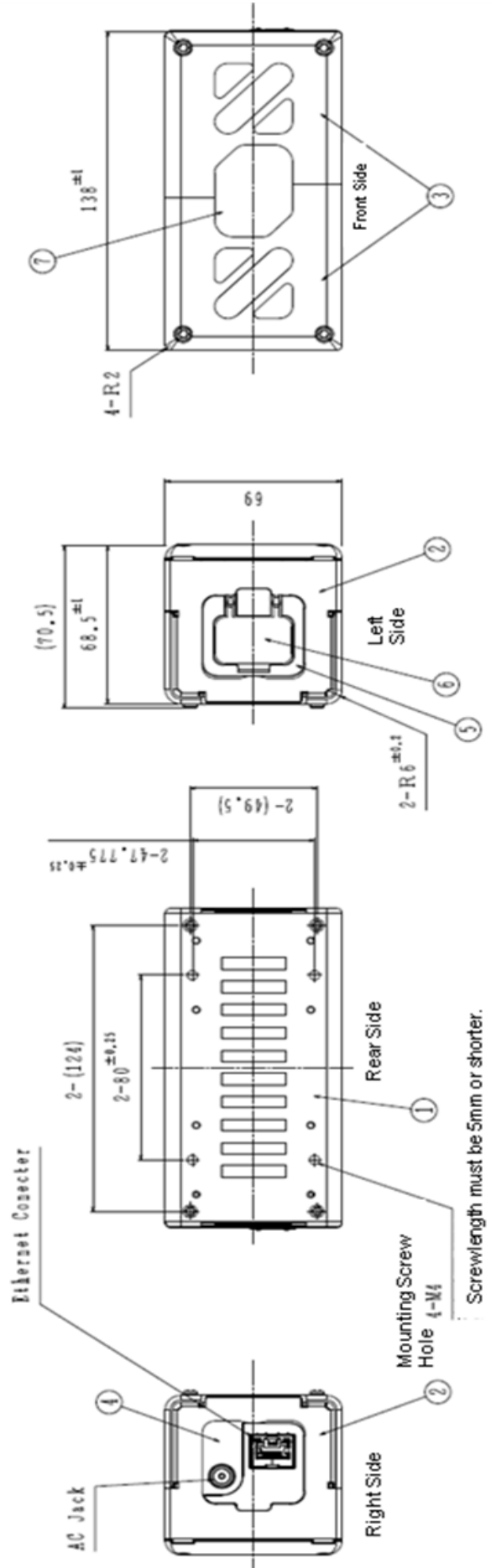
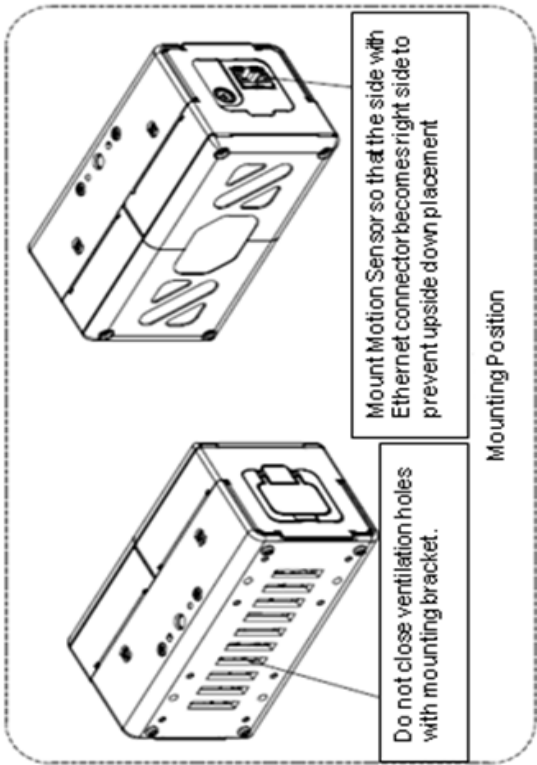
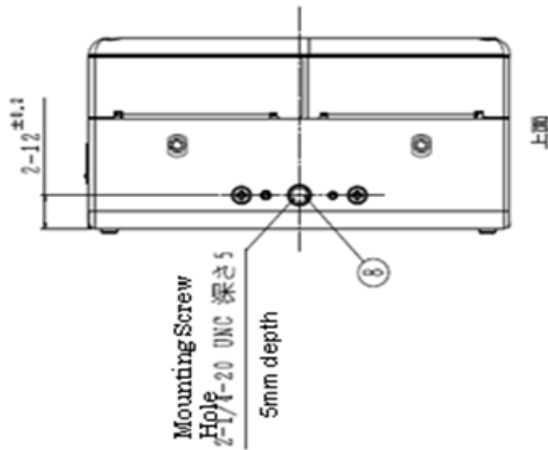
No	Items	Contents of data		
		Image	Digit number	Code examples
1	FPGA Version	○	1	1
2	Manufacturing date	●●●●	4	5J01
3	Serial number	□□□	3	123
4	Control No.	◇◇◇◇	4	1111
5	Mac Address	△△△△△△ △△△△△△	12	EC2E4E000001
		Total	24 digit	

Example of QR-code data : ○●●●●□□□◇◇◇△△△△△△△△△△△△

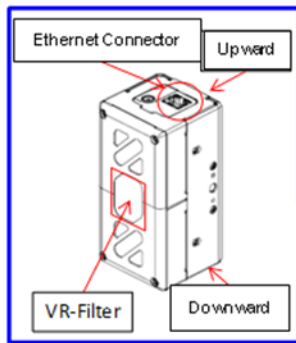
Recommended QR code Reader : Hand Held Products, Inc., Type: IT4200HD

4. Dimensions

No.	Description	Material	UL Flame Class
1	BASE	ALLODP	—
2	Slide-Plate	ALLODP	—
3	Front-Panel	ABS	XB
4	Right-Panel	ABS	XB
5	Left-Panel	ABS	XB
6	CN-CAP	TPE	XB
7	VA-Filter	Acryl	—
8	NUT	ANC12	—

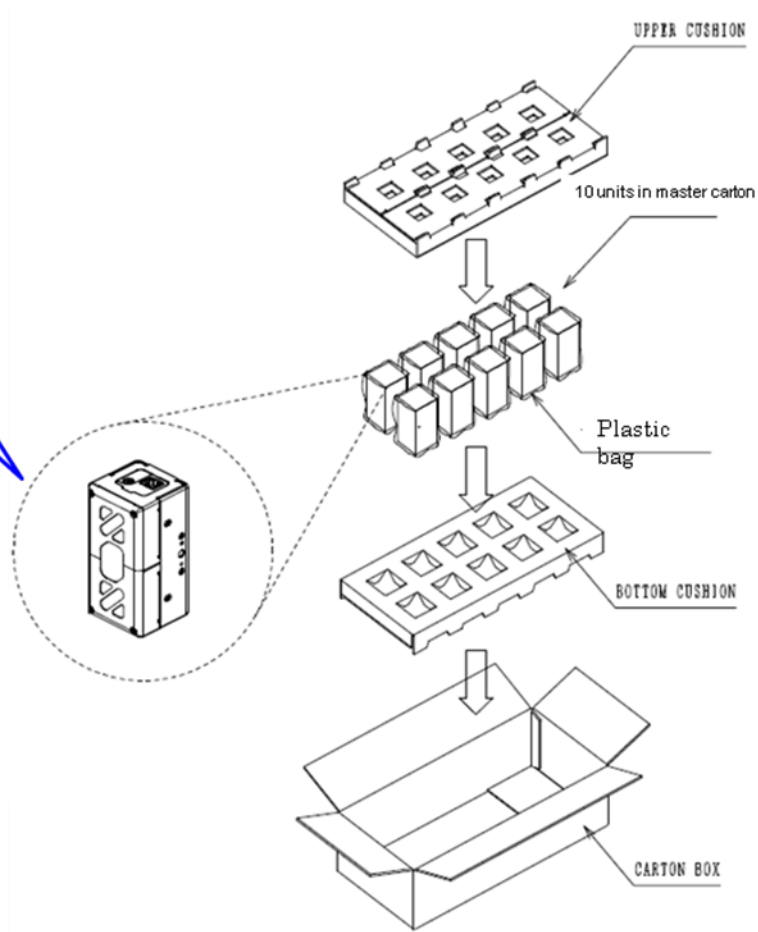


5. Packing specifications

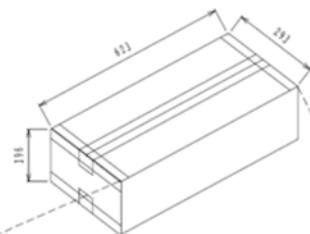


All the units are put into the the box with Connector side upward.

Please do not touch VR FILTER when you take out unit from box.



Final Packing



Close Master Carton with PolyPropylenetape
For top side and bottom side

10 pieces per Master Carton box.

Dimension of Master Carton 623 x293 x 196mm

Gross Weight: 5.0kg



Fig. 2 Packing Specification

6. Cautions on handling

(1) Storage

- Do not leave this unit in high temperature and humidity.
- Be sure to prevent this unit from static electricity, dust and excessive forces.
- Do not leave this unit without a cover for the dust.

(2) Handling

- Be careful not to be dropped or shocked.
- Be sure to earth to the manufacturing equipments.

(3) Precautions

● Precautions as laser product

Motion Sensor generates Infrared Ray. Distance Accuracy is degraded in case the unit is used under the following conditions.

Please make sure to confirm performance and reliability under the actual use status and execute correction if necessary.

- Object is put near Sensor unit.
- Hot or cold wind on Sensor unit
- Temperature of Sensor unit is suddenly changed
- Glass, Acrylic Plat, or Steam is existing between Motion Sensor and detected object.
- Foreign matter or water is on lens of Motion Sensor.

● Environmental conditions

- 1) Please use Motion Sensor in specified operation conditions (Ambient Temperature, Humidity) and rating.
- 2) Strong vibration and shock may cause abnormal operation or performance degradation.
Load or shock on lens may cause abnormal operation or performance degradation.
- 3) This unit is not water proof. Please add countermeasure for water, dust, condensation, freezing if you use Motion Sensor under such environment.
If Motion Sensor is condensed, detection response speed may delay by a few seconds.
- 4) Please do not use or keep Motion Sensor at the are where corrosive gas such as organic solvent gas, sulfurous acid gas, hydrogen sulfide gas are existing.
- 5) Internal Circuit may be destroyed if external surge voltage is charged. To prevent this, please use surge absorbing component.
- 6) Electric noise generated by Static Electricity, Lightening, Mobile Pohne, Amateur Radi, Broadcasting Station may cause malfunction of Motion Sensor.

● Handling Precautions

This specification is for Montion Sensor Unit only. Please confirm performance and and quality under the actual use environment.

- 1) Please do not use Motion Sensor if you drop it. Drop shock may cause function problem.
- 2) Please use Motion Sensor within specified temperature condition and with correct connection.

● Safety Precautions

To prevent injury or accident, please keep the following guidelines.

- Please do not use Motion Sensor with wrong rating or under non specified environmental conditions
Such use may cause accident by damaged circuit due to abnormal heating or smoke.

- Please correctly connect Motion Sensor as described in the drawing.
Wrong connection may cause circuit damage accident due to unexpected malfunction, abnormal heating or smoking, and damage circuit.
- Please do not breakdown or modify Motion Sensor Unit.
- Please install Motion Sensor at the place where strength is sufficiently secured.
- Please do not use Motion Sensor in case diffuser panel has problem.
Diffuser panel problem may cause deviation from Laser Safety Standard.
- Since this Motion Sensor does high speed processing, the heating value is high at both sides and the rear part of cabinet. Please use it in the air-conditioned room.

7. Software license Information

Software license information for HLDS TOF Sensor

The softwares preloaded in HLDS TOF Sensor HLDS_TOF sensor consists of multiple independent modules and each software module has copyright owned by HLDS or third party.

HLDS_TOFsensor includes the software module developed or made by HLDS. Title and Intellectual Property of the software and document about software is hold by HLDS and protected by copyright law or other laws.

HLDS_TOF Sensor uses the software module of which use is authorized as Free Software based on GNU GENERAL PUBLIC LICENSE made by Free Software Foundation, Inc. in U.S.

Please refer the applicable software listed below, and refer the software license agreement in DVD-R disc.

Since the copyright of this free software module is hold by other party and the software module is provided at free of charge, the software module is provided without modification.

Software module	Associated Software License Agreement
Linux Kernel	Debian GNU/Linux6.0("squeeze")