

Laser Height Sensor

User Guide

For use with P/N 22293215 & 22293215-0001

The optional, displacement, Laser Height Sensor is interchangeable with the standard Contact Surface Sensor. Either device can be quickly installed in the same location on a GPD Global DS Series or MAX Series dispense system.

Safety Notice

CAUTION: Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

CAUTION: Laser Radiation: Do not stare into beam.

CAUTION: Laser Aperture: Avoid exposure. Laser radiation is emitted from this aperture.

Proper Use

The displacement sensor OD Value is an opto-electronic sensor and is used for optical determination of object distances without contact.

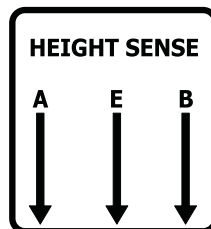
Installation & Set Up

Installing Laser Sensor

The surface sensor hardware operates mounted between the first and second head mount stations of a GPD Global dispense system.

To install the Laser Height Sensor:

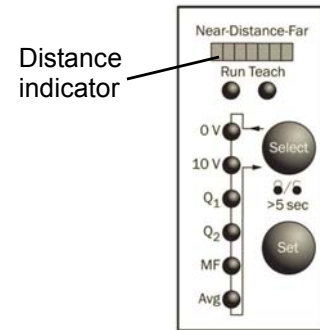
1. If a Contact Surface Height Sensor is installed on the dispense system:
 - a. Remove height sensor by disconnecting its power cable and two air hoses
 - b. While holding the height sensor so it does not fall, use a 7/64 Allen wrench to remove the two (2) bolts from the back of the Z-axis plate that secure the height sensor to the Z-axis plate.
 - c. Store the height sensor in a safe place.
2. Mount the Laser Surface Sensor to the Z-axis plate to the Z-axis plate, inserting two (2) bolts into the back of the Z-axis plate. Make sure the sensor is vertically plumb before tightening the screws.
3. Connect the power cable to the height sense E receptacle.



Set Base Location for Sensor

Reteach the “Touch Probe to Target (XYZ)” base location. Raise/lower the sensor vertically (Z-axis) until the laser sensor “sees” the physical target location - indicated by lights centered in the Distance indicator. If both outer-most red LEDs light up, the sensor is out of range and no measurement is possible.

For additional details, refer to *Base Locations Reference Guide* (PN 22100025).



Interchanging Laser Sensor with Contact Sensor

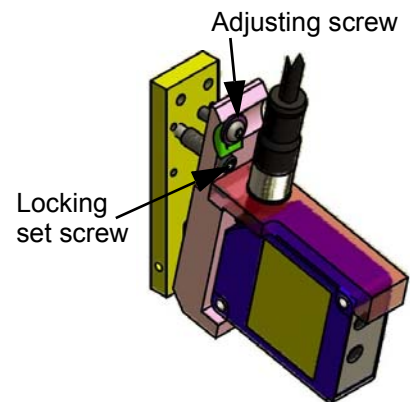
To remove the Laser Height Sensor from the dispense system and replace it with a Contact Surface Sensor:

1. Disconnect the laser power cable from the height sensor outlet plate.
2. While holding the height sensor so it does not fall, use a 7/64 Allen wrench to remove the two (2) bolts from the back of the Z-axis plate that secure the height sensor to the Z-axis plate. Store the height sensor in a safe place.
3. The Contact Surface Height Sensor can now be installed by bolting it into place on the Z-axis plate, making sure it is vertically plumb. Plug the power cable and both air lines (A and B) into the height sensor outlet plate.
4. As needed, reteach the “Touch Probe to Target (XYZ)” base location.

Angle Adjustment

To adjust the angle at which the laser beam is projected:

1. Loosen the locking set screw (see at right).
2. Turn the adjusting screw (see at right) in/out to adjust laser position. To adjust the laser to a greater degree, replace the adjustment screw with another of a different length. A set of adjustment screws in various lengths is provided with the Laser Height Sensor to increase the range of possible angle adjustment.
3. When desired angle is achieved, tighten the locking set screw.



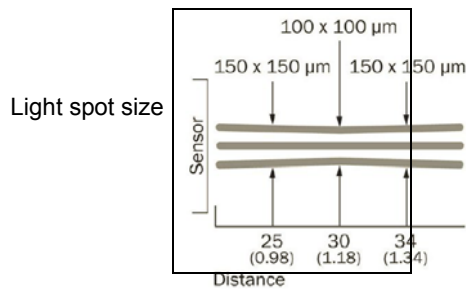
Maintenance

The laser sensor does not require maintenance; however, it is recommended that you clean the external lens surfaces and check the screw connections and plug-in connections at regular intervals.

Specifications

Performance

Measuring frequency	2 kHz
Light source	Laser, red
Typ. light spot size (distance)	0.1 mm x 0.1 mm (30 mm)
Response time	1 mx/10 mx/ 35 ms
Laser protection class	2 (EN 60825-1)
Measuring range	26-34 mm, 6-90% remission
Resolution	2 μ m
Repeatability	6 μ m
Linearity	\pm 8 μ m
Light spot size	30 mm



All dimensions in mm (inch)

Mechanics/Electronics

Maximum output	1 mW
Wave length	655 nm
Medium	semiconductor laser
Classification	Class 2 Laser product
Warm-up time	\leq 5 minutes
Weight	70 g (2.47 oz)

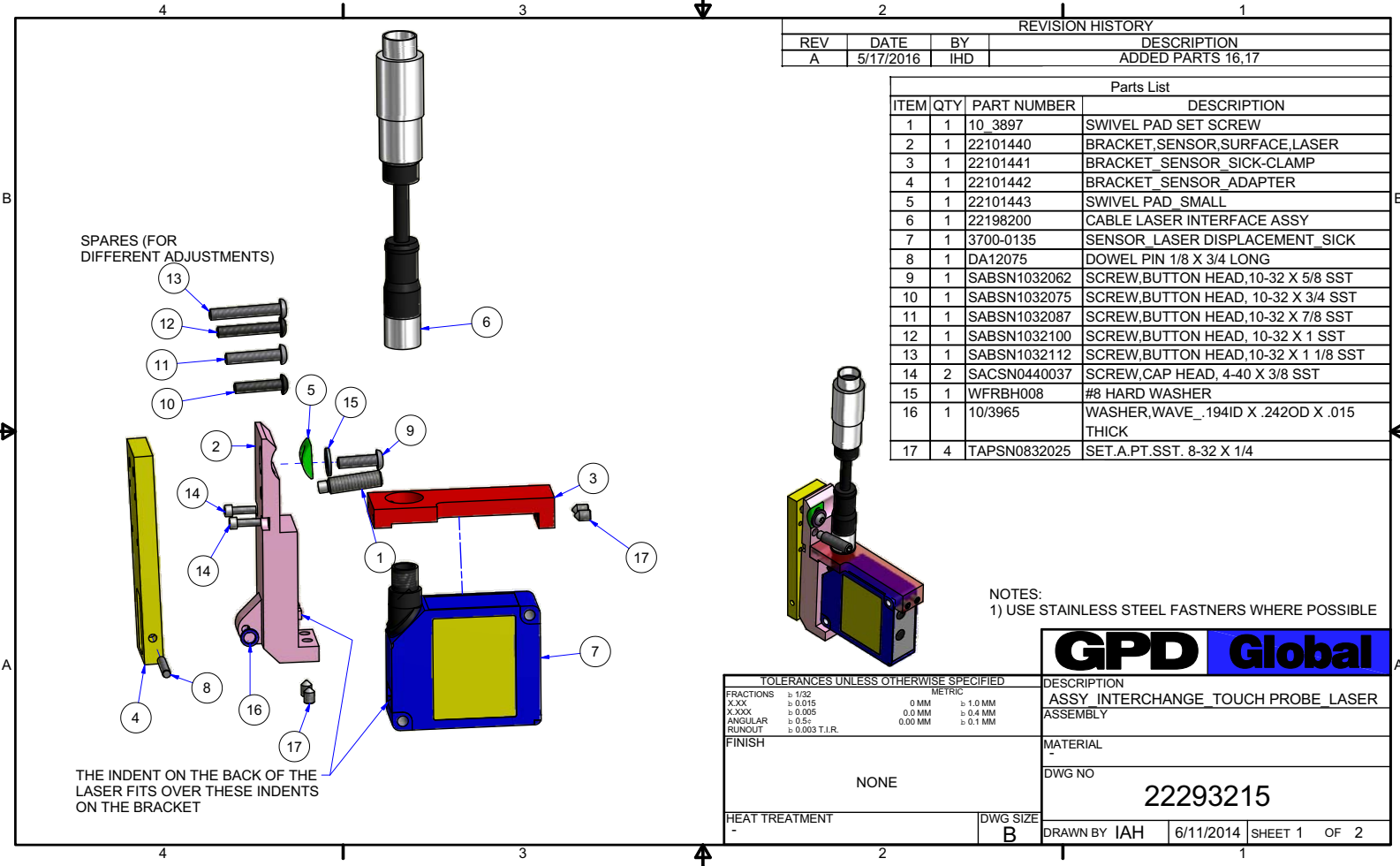
Ambient Data

Operating temperature	-10-40 $^{\circ}$ C
Storage temperature	-20-60 $^{\circ}$ C
Max. relative humidity	35-95% non-condensing
Vibration resistance	10-55 Hz (amplitude 1.5 mm, x-, y-, z-axis 2 hours ea.)
Protection class	III
Typ. ambient light safety	Artificial light: \leq 3,000 lx, Sunlight: \leq 10,000 lx
Shock resistance	50 g (x-, y-, z-axis 3 times each)

References

- [Interchangeable Laser Height Sensor](#) (pg 4)
- [Interchangeable Laser Height Sensor and Receptacle Panel](#) (pg 5)

Interchangeable Laser Height Sensor



REVISION HISTORY			
REV	DATE	BY	DESCRIPTION
A	5/17/2016	IHD	ADDED PARTS 16,17

Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	10_3897	SWIVEL PAD SET SCREW
2	1	22101440	BRACKET,SENSOR,SURFACE,LASER
3	1	22101441	BRACKET_SENSOR_SICK-CLAMP
4	1	22101442	BRACKET_SENSOR_ADAPTER
5	1	22101443	SWIVEL PAD_SMALL
6	1	22198200	CABLE LASER INTERFACE ASSY
7	1	3700-0135	SENSOR_LASER_DISPLACEMENT_SICK
8	1	DA12075	DOWEL PIN 1/8 X 3/4 LONG
9	1	SABSN1032062	SCREW,BUTTON HEAD,10-32 X 5/8 SST
10	1	SABSN1032075	SCREW,BUTTON HEAD, 10-32 X 3/4 SST
11	1	SABSN1032087	SCREW,BUTTON HEAD,10-32 X 7/8 SST
12	1	SABSN1032100	SCREW,BUTTON HEAD, 10-32 X 1 SST
13	1	SABSN1032112	SCREW,BUTTON HEAD,10-32 X 1 1/8 SST
14	2	SACSN0440037	SCREW,CAP HEAD, 4-40 X 3/8 SST
15	1	WFRBH008	#8 HARD WASHER
16	1	10/3965	WASHER,WAVE_,194ID X .242OD X .015 THICK
17	4	TAPSN0832025	SET,A.PT.SST. 8-32 X 1/4

NOTES:
1) USE STAINLESS STEEL FASTNERS WHERE POSSIBLE

GPD Global	
DESCRIPTION ASSY INTERCHANGE TOUCH PROBE LASER ASSEMBLY	
MATERIAL -	
DWG NO 22293215	
DRAWN BY IAH 6/11/2014 SHEET 1 OF 2	

TOLERANCES UNLESS OTHERWISE SPECIFIED			
FRACTIONS		METRIC	
1/32	0.015	0.05	0.10
1/16	0.005	0.02	0.04
1/8	0.0025	0.01	0.02
1/4	0.00125	0.005	0.01
1/2	0.000625	0.0025	0.005
1	0.0003125	0.00125	0.0025

FINISH	NONE
HEAT TREATMENT	-
DWG SIZE	B

Interchangeable Laser Height Sensor and Receptacle Panel

