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 µm
Repeatability . . . . . . . . . . . 6 µm
Linearity . . . . . . . . . . . ±8 µm
Light spot size . . . . . . . . . . . . . 30 mm

![Light spot size](image)

**Mechanics/Electronics**

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

**Ambient Data**

Operating temperature . . . . . -10-40° C
Storage temperature . . . . . . . -20-60° 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: <3,000 lx, Sunlight: <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

## Parts List

<table>
<thead>
<tr>
<th>Item</th>
<th>QTY</th>
<th>Part Number</th>
<th>Description</th>
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</thead>
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<tr>
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<td>Set, A, pt, stainless, 8-32 X 1/4 thick</td>
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</table>

## Notes:
1) Use stainless steel fasteners where possible.

## Schematic:

- The indent on the back of the laser fits over these indents on the bracket.
- SPARES (FOR DIFFERENT ADJUSTMENTS)
## Interchangeable Laser Height Sensor and Receptacle Panel

### Parts List

<table>
<thead>
<tr>
<th>ITEM</th>
<th>QTY</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
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</thead>
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<td>ASSY INTERCHANGE TOUCH PROBE LASER</td>
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<td>2100-0865</td>
<td>CONN M-18 FEMALE 8 PIN PANEL MOUNT</td>
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<td>2</td>
<td>2675-0021</td>
<td>COUPLER BULKHEAD 4MM SELF SEAL</td>
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</tbody>
</table>

### Notes
- LABEL FOLDS OVER BEND ONTO VERTICAL SURFACE AS SHOWN
- DRAWN BY BM 6/26/2017 SHEET 1 OF 1

### Drawing Information
- Title: Interchangeable Laser Height Sensor and Receptacle Panel
- Drawing Date: 10/2/17
- Sheet: 1 of 1
- Scale: A
- Sheet: 2 of 1
- DWG SIZE: NA
- DRAWN BY BM 6/26/2017

### Tolerances
- Fractions: 1/32
- Heat Treatment: X.XX
- Heat Treatment Tolerance: 0.015
- Angular: 0.5
- Runout: 0.003 T.I.R.
- Metric: 0.4 MM
- Metric Tolerance: 0.00 MM
- Metric Tolerance: 0.1 MM
- Material: GPD Global
- Heat Treatment: X.XX
- Heat Treatment Tolerance: 0.015
- Angular: 0.5
- Runout: 0.003 T.I.R.