### Autonics LASER DISPLACEMENT SENSOR [SENSOR HEAD] BD SERIES

**INSTRUCTION MANUAL**

Thank you for choosing our Autonics product. Please read the following safety considerations before use.

#### Safety Considerations
1. Follow the instructions in the Catalog or website. (Cautions during Use)
2. This equipment is a Class II (FDA part 1002) power supply device.
3. Do not install where strong magnetic or electric field exist. Otherwise, the resolution may be adversely affected.
4. Mutual optical interference between laser sensors and photoelectric sensors may result in malfunction.
5. Mutual optical interference between laser sensors may result in malfunction.
6. When detecting with the maximum sensitivity, an error may occur depending on each characteristic deviation.
7. This unit may be used in the following environments.
   - Indoors/Outdoors (in the environment condition rated in 'Specifications')
   - Ambient temperature: 0 °C to +50 °C
   - Ambient humidity: 25% to 90% RH (No condensation)
   - Linearity guaranteed measurement range.
8. This unit may cause unexpected accidents. (Cautions during Use)
9. For optimum measurement, mount the sensor head according to the following procedure.

### Installation Procedures
- **For optimum measurement**, mount the sensor head according to the following procedure.

#### Installation Precautions
- **1. Object with material / color difference**
  - Install the emitter and receiver in parallel to the material or color boundary of the object.
- **2. Rotating object**
  - Install the emitter and the rotating shaft to prevent the installation of fluff, vibrations and position deviations.
- **3. Object with step**
  - Install the sensor head where the reflected laser beam does not block toward the receiver part.
- **4. Near area or concave object**
  - Install the sensor head when the reflected laser beam does not block toward the receiver part.
- **5. Black object**
  - When measuring black object with laser reflection the amount of light reflected is small, install the sensor head closely to the object.

### Installation Considerations
- **1. Do not stare at the laser emitted [Sensor head]**
  - Failure to follow this instruction may result in eye damage.
- **2. Use the unit within the rated specifications**
  - Failure to follow this instruction may result in the unit being damaged.
- **3. Do not do the usage or modify the unit**
  - Failure to follow this instruction may result in the unit being damaged.
- **4. Do not connect, neglect, or inspect the unit connected to a power source**
  - Failure to follow this instruction may result in the unit being damaged.
- **5. Check 'Connections' before wiring (Amplifier unit)**
  - Failure to follow this instruction may result in the unit being damaged.

### Caution
- **1. Do not damage the power indicator.**
  - Failure to follow this instruction may result in the unit being damaged.
- **2. Do not use the unit in the place where flammable/explosive gas, humidity, direct sunlight, radiant heat, vibration, impact, or static electricity may be present**
  - Failure to follow this instruction may result in explosion or fire.
- **3. Do not do the usage or modify the unit**
  - Failure to follow this instruction may result in the unit being damaged.
- **4. Do not connect, neglect, or inspect the unit connected to a power source**
  - Failure to follow this instruction may result in the unit being damaged.
- **5. Check 'Connections' before wiring (Amplifier unit)**
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### Model
- **Unit (mm)**
  - **Sensor head**: 2-R46.7, 2-R52.7
  - **Amplifier unit**: 2-R64.7

### Specifications
- **Sensor head**: BD-030, BD-065, BD-100
- **Amplifier unit**: CID6P-5-SI-BD 5m

### Dimensions
- **Sensor head**
  - **BD-030**: Width 3.2mm, Height 25.3mm, Depth 9.1mm
  - **BD-065**: Width 4.5mm, Height 60mm, Depth 25.3mm
  - **BD-100**: Width 4.6mm, Height 30mm, Depth 25.3mm

### Unit Description
- **Power indicator**: red LED, Laser emission indicator: green LED, Near indicator: green LED, Far indicator: red LED, Reference indicator: red LED
- **Sensor head**
  - **BD SERIES**: BD-A1 BD series sensor head: 1
  - **Spot diameter**: (at 80mm) 65mm, (at 25mm) 25mm, (at 20mm) 20mm
  - **Laser beam diameter**: (at 65mm) 57.5mm, (at 25mm) 25.3mm, (at 20mm) 20mm
  - **Laser emission indicator**: green LED
  - **NEAR indicator**: green LED
  - **Far indicator**: red LED
  - **Pointer display**: Check the operation of indicators to know distance between sensor head and the object.
  - **Cross-OF indicator**: OFF
  - **Linearity Guaranteed Measurement Range**
  - **Distance between the sensor head and the object**: Near ON NEAR/FAR ON FAR ON

### Limitations
- **1. Object with material / color difference**
  - Install the emitter and receiver in parallel to the material or color boundary of the object.
- **2. Rotating object**
  - Install the emitter and the rotating shaft to prevent the installation of fluff, vibrations and position deviations.
- **3. Object with step**
  - Install the sensor head where the reflected laser beam does not block toward the receiver part.
- **4. Near area or concave object**
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### Cautions during Use
- **1. Follow instructions in ‘Cautions during Use’. Otherwise, it may cause unexpected accidents.**
- **2. These products may be used and limited subclassification as Class 2, SELV power supply device.**
- **3. Do not install where strong magnetic or electric field exist. Otherwise, the resolution may be adversely affected.**
- **4. Mutual optical interference between laser sensors and photoelectric sensors may result in malfunction.**
- **5. Mutual optical interference between laser sensors may result in malfunction.**
- **6. When detecting with the maximum sensitivity, an error may occur depending on each characteristic deviation.**
- **7. This unit may be used in the following environments.**
  - Indoors/Outdoors (in the environment condition rated in 'Specifications')
  - Ambient temperature: 0 °C to +50 °C
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  - Linearity guaranteed measurement range.

### Manuals
- For the detail information and instructions, please refer to user manual for communication, and be sure to follow caution written in the technical descriptions (catalog, website).
- Visit our website (www.autonics.com) to download the manuals (user manual and the technical descriptions (catalog, website).
- The above specifications are subject to change and some models may be discontinued without notice.
- Be sure to follow caution written in the instruction manual, user manual and the technical descriptions (catalog, website).