

Autonics LASER DISPLACEMENT SENSOR [AMPLIFIER UNIT] BD SERIES

INSTRUCTION MANUAL

Thank you for choosing our Autonics product.

Please read the following safety considerations before use.

Safety Considerations

Please observe all safety considerations for safe and proper product operation to avoid hazards.

- Warning Failure to follow these instructions may result in serious injury or death. Caution Failure to follow these instructions may result in personal injury or product damage.

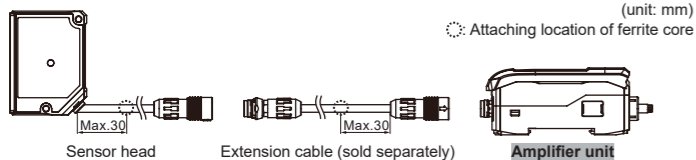
Warning

- Fail-safe device must be installed when using the unit with machinery that may cause serious injury or substantial economic loss. Do not use the unit in the place where flammable/explosive/corrosive gas, humidity, direct sunlight, radiant heat, vibration, impact, or salinity may be present. Do not disassemble or modify the unit. Do not connect, repair, or inspect the unit while connected to a power source. Check 'Connections' before wiring.

Caution

- Do not stare at the laser emitter. Use the unit within the rated specifications. Use dry cloth to clean the unit, and do not use water or organic solvent. Mount the ferrite core to specified position before using.

Model



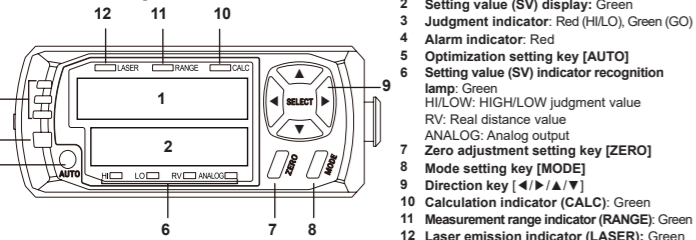
Sensor head

Table with columns: Model, Beam shape, Reference distance (Maximum measurement range), Spot diameter (Near, Far), Reference, Far.

Amplifier unit

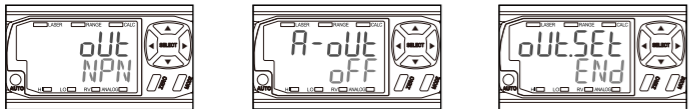
Table with columns: Model, Compatible sensor head, Model, Length, Model, Length.

Unit Description



Display When Power is ON

Displays control output setting screen when connecting a sensor head and supplying power at the first time, or replacing a sensor head. Set the output type as below sequence.



- When 'OUT NPN' is displayed on the present value (PV) display, select control output type through the [▲/▼] keys and push the [MODE] key. When 'R-out OFF' is displayed on the present value (PV) display, select analog output type through the [▲/▼] keys and push the [MODE] key.

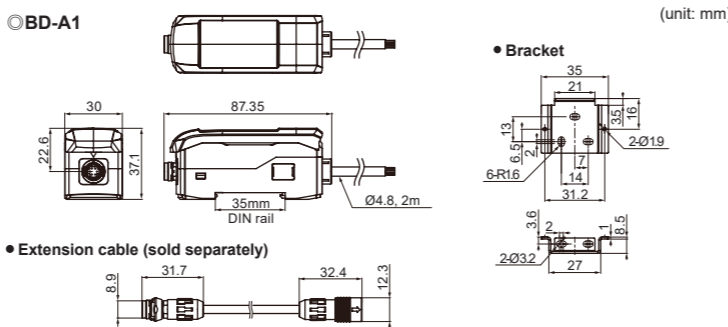
The above specifications are subject to change and some models may be discontinued without notice. Be sure to follow cautions written in the instruction manual, user manual and the technical descriptions (catalog, website).

Specifications

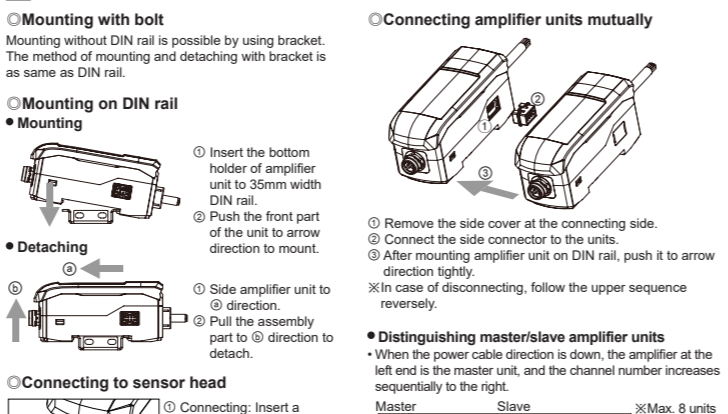
Specifications table including Amplifier unit, Model, Power supply, Power consumption, Control input, Judgment output, Alarm output, Analog output, Residual voltage, Protection circuit, Response time, Min. display unit, Display method, Display range, Display period, Insulation resistance, Noise immunity, Dielectric strength, Vibration, Shock, Environment, Protection structure, Material, Connection, Sensor head compatibility, Accessory, Approval, Weight.

※1: Power to the load is not included. ※2: Use after assigning to external input line. For the details, refer to the item in 'Parameter group'. ※3: It is possible to use among -5.5V, 0-5V, 1-5V, 4-20mA by parameter setting. ※4: Setting range is assigned automatically when connecting sensor head. ※5: The weight is with packaging and the weight in parenthesis is only unit weight. ※The temperature or humidity mentioned in Environment indicates a non freezing or condensation environment.

Dimensions



Installations

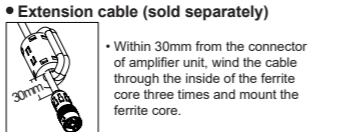


Connecting to sensor head



Do not supply the power when connecting or disconnecting sensor head to amplifier unit.

Ferrite core (accessory for sensor head, extension cable)



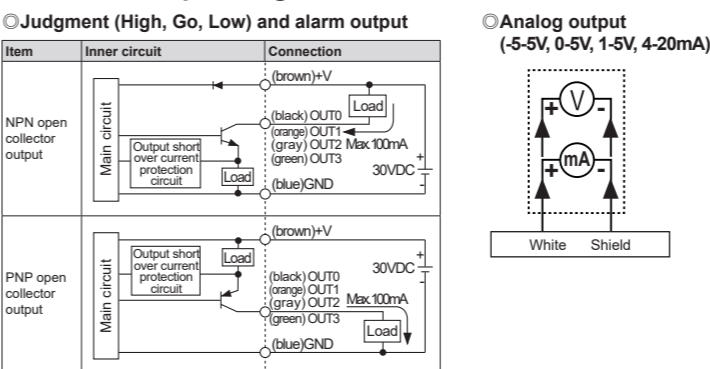
Manuals

For the detail information and instructions, please refer to user manual, and be sure to follow cautions written in the technical descriptions (catalog, website). Visit our website (www.autonics.com) to download manuals.

Connections

Table with columns: Item, Code color, Description. Lists power and output connections with color coding.

Control Output Diagram



Parameter Setting

Parameter Setting table with columns: Mode, Key, Description. Details setting procedures for run mode, sensing optimization, zero adjustment, sensitivity adjustment, auto sensitivity adjustment, and control output type.

Parameter Group

Push the [MODE] key over 2 sec to enter the parameter setting mode. In the setting mode, change the parameter group by the [◀▶] keys and enter the group by pushing the [MODE] key. In the group, change the parameter by the [▲▼] keys, select by pushing the [MODE] key, and change the setting value by the [▲▼] keys.

Parameter group 1, 2, 3, 4 settings tables. Group 1: Settings related to output type, displacement, display and error output. Group 2: Settings related to present value. Group 3: Settings related to external input. Group 4: Settings related to user convenience functions.

Parameter group 3 and 4 settings tables. Group 3: Settings related to external input. Group 4: Settings related to user convenience functions.

Error Display

In error status, 'ERROR' is displayed on present value (PV) display. Deal with an error by referring to the below solution of each setting value (SV) display.

Error Display table with columns: Setting value (SV) display, Output Reason, Solution. Lists error codes like HERD, LASEP, dRRK, RANGE, bRI GHE, A-NEH, H-NEH, AMP-C, VER, OUT, RULo, AMP, OUTP and their respective solutions.

Cautions during Use

- Follow instructions in 'Cautions during Use'. Otherwise, it may cause unexpected accidents. The power supply should be insulated and limited voltage/current or Class 2, SELV power supply device. Do not install where strong magnetic or electric field exist. Mutual optical interference between laser sensors and photoelectric sensors may result in malfunction. When connecting DC relay or other inductive load to the output, remove surge by using diode or varistor. Wire as short as possible and keep away from high voltage lines or power lines, to prevent surge and inductive noise. For the optimized performance, it is recommended to measure after 30 minute from supplying power. [Amplifier unit] Since internal disturbance light (sunlight, fluorescent lighting, etc.) can cause product malfunction, use the product with a light shield or slit. [Sensor head] When detecting with the maximum sensitivity, an error may occur depending on each characteristic deviation. This unit may be used in the following environments: Indoors/Outdoors (in the environment condition rated in 'Specifications'), Altitude max. 2,000m, Pollution degree 2, Installation category II

