

Autonics

LCD 显示型光纤放大器 BFX SERIES

使用说明书



非常感谢您选择AUTONICS的产品 为了您的安全, 请在使用前阅读以下内容

注意安全

- *'注意安全' 是为了安全正确地使用该产品, 以防止危险事故的发生, 请遵守以下内容。
* 注意安全可分为'警告'与'注意'两个部分, 其意思如下:
警告 如违反此项, 可能导致严重伤害或死亡。
注意 如违反此项, 可能导致轻度伤害或产品损坏。
* 使用说明书和产品中的符号说明如下
* 特殊条件下可能会发生意外或危险

警告

- 1. 用于对人身及财产上影响大的机器(如: 核能控制、医疗器械、船舶、车辆、铁路、航空、易燃易爆、安全装置、火灾/防盗装置等)时, 请务必加装双重安全保护装置。
2. 除本公司维修人员外不得改造产品。
否则有火灾危险。

注意

- 1. 请勿在室外使用本产品。
2. 否则会导致产品的使用寿命或发生误动作。
3. 严禁在易燃易爆的环境下使用本产品。
4. 请在使用电压范围内使用, 切勿施加交流电源。
5. 请确认电源极性后, 正确连接。
6. 严禁在有强烈振动或冲击的地方使用本产品。
7. 严禁使用水或有机溶剂清洗本产品。
否则有火灾危险。

型号

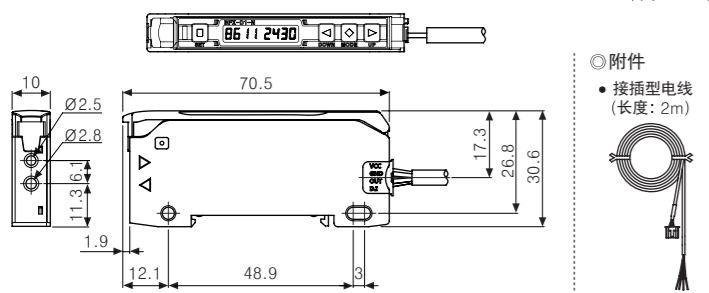
Table with columns: 型号名, 使用光源, 显示部, 控制输出. Rows: BFX-D1-N, BFX-D1-P.

各部位名称

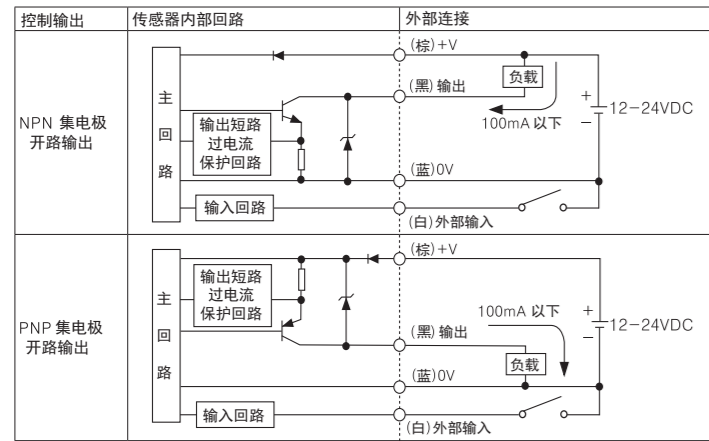


- 1. 控制输出指示灯: 根据动作模式比较收光量和设定值进行灯亮或灯灭。
2. (SET)键: 用于灵敏度设定及各模式下执行动作。
3. 测量值(PV)显示器: 运行模式: 显示当前收光量测量值(PV)。
4. 设定值(SV)显示器: 运行模式: 显示设定值(SV)。
5. (MODE)键: 用于进入程序模式, 返回运行模式, 参数移动, 保存设定值。
6. (MODE)键: 用于进入程序模式, 返回运行模式, 参数移动, 保存设定值。
7. 锁扣: 用于连接光纤线。

外形尺寸图



控制输出电路图及接线图

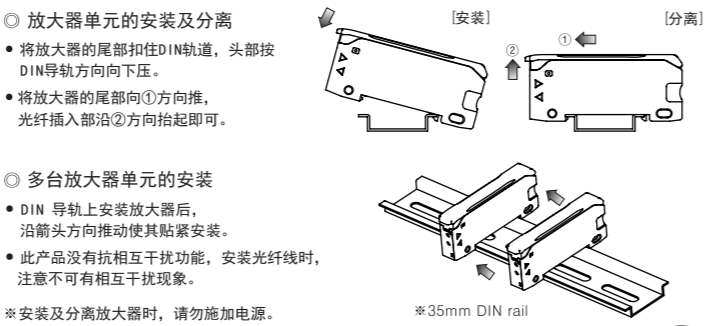


*本说明书所记载规格, 外形尺寸等因产品改进或变更或停产时, 恕不另行通知。
*请务必遵守使用说明书及技术说明(选型样本, 网页)中的注意事项。

规格

Specifications table including model names, power source, consumption, control output, protection circuit, response time, display method, sensitivity setting, timing function, external input, and weight.

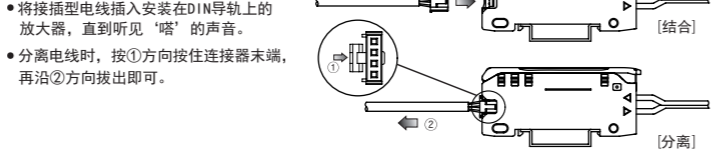
安装方法



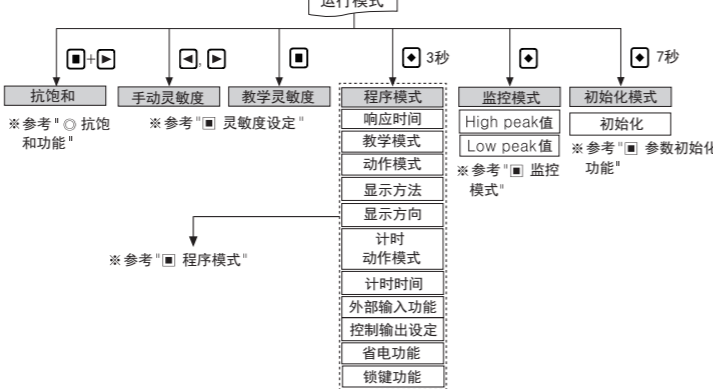
光纤维的结合

- 将放大器的保护盖向①方向抬起, 沿②的方向向光纤松开锁扣。
• 将光纤沿③方向插入, 使放大器和光纤线紧密结合。
• 沿④方向向上锁扣, 再将保护盖按⑤方向闭合。

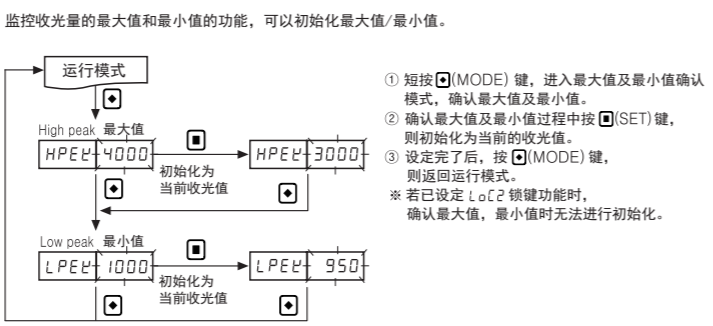
接插型电线的结合及分离



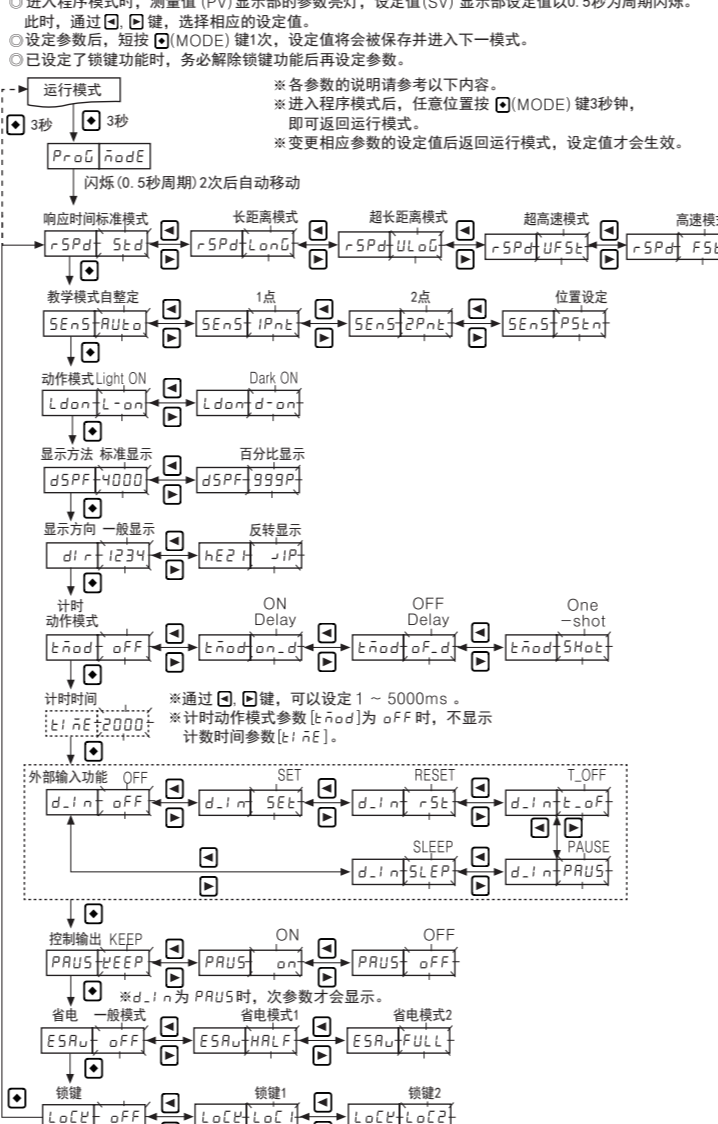
各模式的进入



监控模式



程序模式



响应时间 [rSPd]

是设定控制输出的响应时间的功能, 可在以下响应模式中选择其一。
• 超高速[F5t]模式: 50μs
• 标准[5t]模式: 500μs
• 超长距离[L0t]模式: 4ms

动作模式 [Ldon]

是设定在光状态变为ON和光状态变为OFF的功能, 可分为收光量小于设定值时变为ON和大于设定值时变为ON两种情况。

显示方法 [dSPF]

测量值显示器(PV)显示当前收光量时, 选择标准显示(4000)或百分比显示(999P)的功能。
• 标准显示的显示范围: 0 ~ 4000 (长距离模式时为 0 ~ 9999)
• 百分比显示的显示范围: 0P ~ 999P (小数点不显示。)

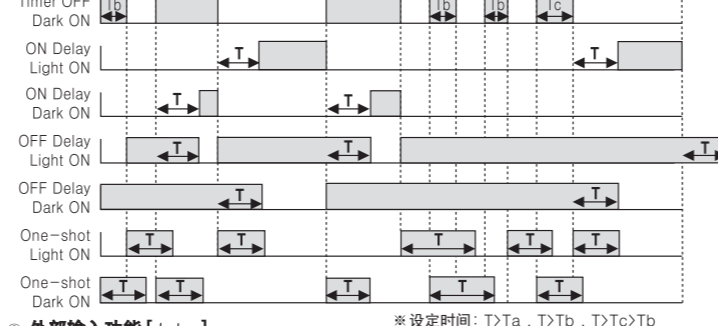
显示方向 [dIr]

根据放大器的安装方向, 选择显示方向以方便用户使用的功能。
有一般显示和反转显示两种显示方法。
*反转显示是将一般显示反转180°显示。

计时功能 [计时动作模式: tNoD, 计时时间: tInE]

外部连接设备的响应时间较慢或由于检测物体小而控制时间较短时使用。
• 计时 OFF[oFF]: 不使用计时功能。
• ON Delay[OnD]: 延迟控制输出ON的时间, 经过设定的计时时间后输出才会ON。
• OFF Delay[OfD]: 延迟控制输出OFF的时间。
• One-shot[5Ho]: 在设定的计时时间内, 控制输出将保持ON。
• 计时时间 [tInE]: 1~5000ms

时序图



外部输入功能 [dLin]

按操作困难时, 可通过外部输入实现以下功能。
• OFF[oFF]: 不使用外部输入功能。
• SET[5t]: 外部输入时, 根据教学模式参数[5EnS], 可用作灵敏度设定功能。
• RESET[5t]: 外部输入时, 可初始化High Peak, Low Peak。
• T.OFF[t.oF]: 外部输入期间, 用作发光停止功能。
• PAUSE[PRUS]: 外部输入时, 根据设定控制输出保持ON/OFF动作。
• SLEEP[5tP]: 外部输入时, 解除省电参数[ESR]设定。

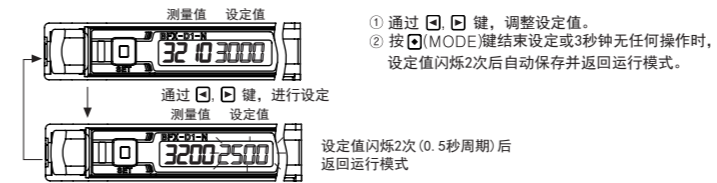
控制输出设定 [PRUS]

外部输入设定, 输出保持[EEP]根据设定进行ON[on]/OFF[oFF]。
(只有在外部输入参数[dLin]中设定为[PRUS]时, 此参数才会被激活。)



灵敏度设定

*灵敏度设定方法有手动灵敏度设定和教学灵敏度设定(按键设定灵敏度/外部输入灵敏度设定)两种。
请选择合适的灵敏度设定模式。
*手动灵敏度设定(灵敏度微调设定)
• 用户手动设定灵敏度时使用。
• 手动灵敏度设定也可用于教学灵敏度设定后微调灵敏度时使用。
• 设定值设定期间, 测量值(PV)显示器仍持续检测收光量。

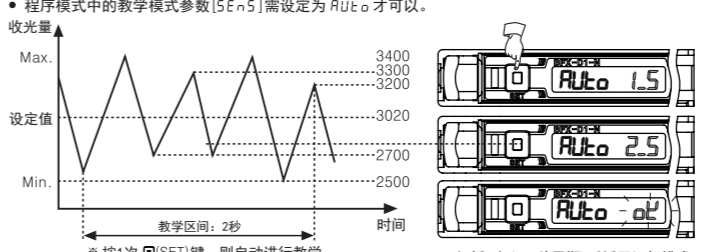


教学灵敏度设定(按键灵敏度设定/外部输入灵敏度设定)

• 按键((SET)键)设定灵敏度: 运行模式中按1次放大器单元的((SET)键, 则自动进行教学, 教学结束后自动返回运行模式。
• 通过外部输入设定灵敏度: 不使用放大器单元的((SET)键而通过外部输入信号线设定灵敏度。
设定灵敏度时, 将SW ON后 OFF。
注: 外部输入功能[dLin]设定为5Et时, 才可通过外部输入进行灵敏度设定。(请参考"控制输出电路及连接图")。
• 教学设定期间, 测量值(PV)显示器显示设定的教学模式参数, 设定值(SV)显示器显示进行阶段。
• 设定灵敏度前选择的教学模式(自整定, 1点教学, 2点教学, 位置设定教学)。
*各教学模式, 请参考如下内容。

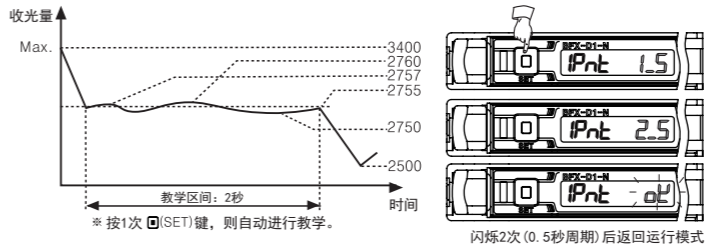
1. 自整定

*用于检测收光量不稳定且快速连续移动的检测物体。
*连续读取一段时间内的收光量, 取最大值和最小值的平均值为设定值的灵敏度设定模式。
设定值 = (Pmax + Pmin) / 2



2. 1点教学方法

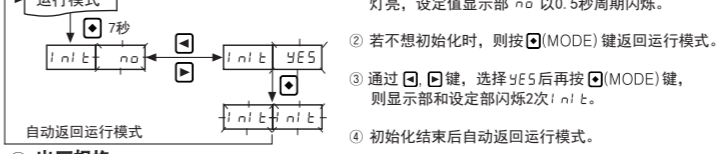
*用于检测小孔(对射型)或检测移动的弯曲物体(漫反射型)时, 灵敏度设定为检测物体的最大收光量的 90%的模式。
*程序模式中的教学模式参数[5EnS]需设定为P5tn才可以。



参数初始化功能

• 由于用户设定错误或操作困难时将存储器内的所有参数初始化为出厂设定的功能。
• 只有锁键功能[LoC]设定为oFF时, 才可对参数进行初始化。
• 最大值[PEV], 最小值[PEV]的设定值不会被初始化。

参数初始化方法



出厂规格

Table with columns: 参数, 出厂设定, 参数, 出厂设定, 参数, 出厂设定, 参数, 出厂设定, 参数, 出厂设定. Rows: rSPd, tNoD, 5EnS, dLin, Ldon, L-on, dSPF, tNoD, dIr, 1234.

省电功能 [ESR]

若0秒内无任何操作, 则变更显示方式以减少消耗电流的功能。
区分
一般模式[oFF]
省电模式1[HALF]
省电模式2[FULL]

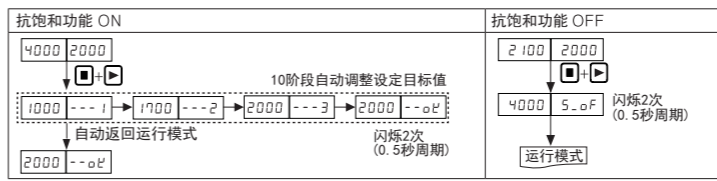
锁键功能 [LoC]

为防止不注意或外部因素而变更设定值, 内置2种锁键功能。
参数
灵敏度设定值
程序初始化
参数初始化
抗饱和和功能
外部输入功能

Table showing lock key function settings for various parameters.

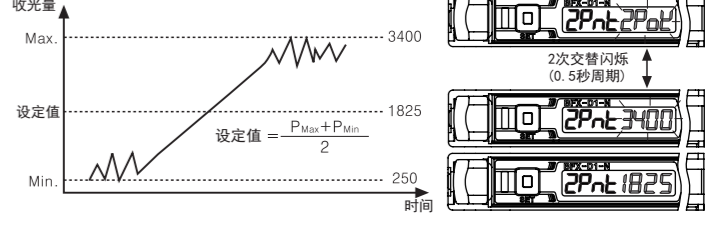
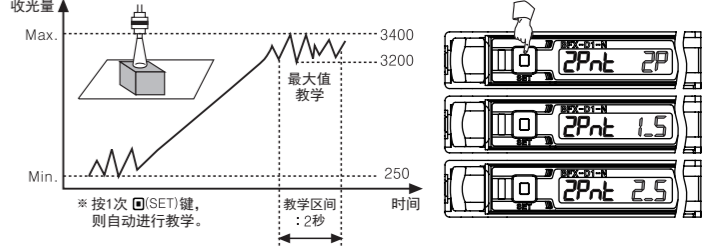
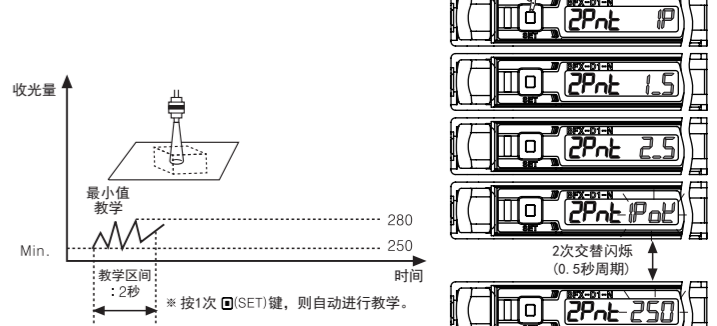
抗饱和和功能

• 抗饱和和功能是当检测物体量的最近变成饱和和状态时, 修正收光量使其达到最佳状态的功能。
• 按1次((SET)+(键), 抗饱和和功能到自动动作, 最大可调整至10阶段。
• 取消抗饱和和功能时, 也按1次((SET)+(键)即可取消。
• 饱和和功能动作期间, 设定值(SV)显示器显示当前进行阶段。
• 响应时间模式为超高速[F5t], 高速[F5t], 标准[5t]时, 当收光量大于 2000 则设定完了, 长距离[L0t], 超长距离[UL0t]时, 大于 5000 则设定完了自动返回运行模式。
*当前的收光量小于抗饱和和动作的基准值 [F5t, F5t, 5t, 2000, L0t, UL0t: 5000] 时, 不动作。
*设定抗饱和和功能时, 有可能会变更控制输出动作。



3. 2点教学方法

*适合检测收光量稳定且缓慢移动的物体。
*分别对检测物体和没有检测物体的两点进行教学, 取中间值为设定值的灵敏度设定模式。
*程序模式中的教学模式参数[5EnS]需设定为2Pnt才可以。



4. 位置设定教学方法

*用于检测小孔(对射型)或检测移动的弯曲物体(漫反射型)时, 灵敏度设定为检测物体的最大收光量的 90%的模式。
*程序模式中的教学模式参数[5EnS]需设定为P5tn才可以。

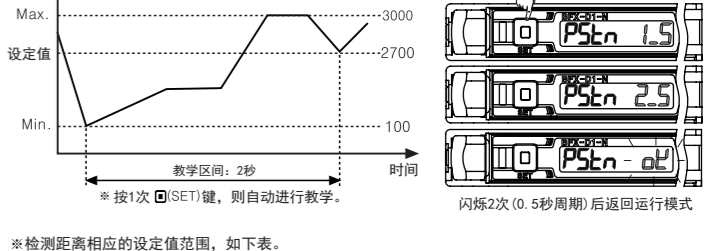


Table showing setting ranges for different teaching methods.

报错显示和处理

Table with columns: 错误显示, 原因, 处理方法. Row: Err, 运行模式下输出回路端有过流输入, 解除过流条件.

注意事项

- 1. 12~24VDC 型号的电源电压必须绝缘且限流或使用 Class 2, SELV 电源设备供电。
2. 注意请勿伤光纤切面。
3. 请勿让强光(太阳光, 聚光灯)直接照射光纤光面的指向角内, 请用遮光板遮挡。
4. 注意不可用力牵拉光纤线。
5. 安装光纤时, 若弯曲内径小于选型样本中所规定的的允许弯曲半径时, 光线将会急剧下降导致检测距离变短。
6. 若光纤线与高压线, 动力线一同铺设时, 有可能引发误动作或产品故障, 请单独布线。
7. 严禁在灰尘或强腐蚀的环境下本产品以免发生误动作。
8. 输出端连接OC Relay等感应负载时, 请使用二极管或电阻等消除浪涌。
9. 尽可能缩短电线长度, 过长时可能因浪涌等引起误动作。
10. 光纤切面若有异物, 请用干毛巾轻轻擦拭, 请勿用有机溶剂清洗。
11. 当使用开关电源供电时, Frame ground(F.G.)端子必须接地, 且0V和F.G.端子间务必连接滤波电容以消除干扰。

主要产品

- 光电传感器
• 光纤传感器
• 门传感器
• 门磁传感器
• 光幕
• 接近开关
• 压力传感器
• 旋转编码器
• 陀螺仪/陀螺
• 开关电源/灯/蜂鸣器
• I/O端子台/电缆
• 步进电机/驱动器/控制器
• 船舶用
• 远程网络设备
• 激光打印系统(Fiber, CO2, Nd:YAG)
• 激光焊接/切割系统

Autonics Corporation logo and contact information including address, phone, and website.

Autonics LCD Display Fiber Optic Amplifier BFX SERIES INSTRUCTION MANUAL



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

Safety Considerations

- Please observe all safety considerations for safe and proper product operation to avoid hazards.
- Safety considerations are categorized as follows.
- 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.
- The symbols used on the product and instruction manual represent the following.
- symbol represents caution due to special circumstances in which hazards may occur.

Warning

- Fail-safe device must be installed when using the unit with machinery that may cause serious injury or substantial economic loss.** (e.g. nuclear power control, medical equipment, ships, vehicles, railways, aircraft, combustion apparatus, safety equipment, crime/disaster prevention devices, etc.)
- Failure to follow this instruction may result in personal injury, fire, or economic loss.
- Do not disassemble or modify the unit. Please contact us if necessary.**
- Failure to follow this instruction may result in fire.

Caution

- Do not use the unit outdoors.** Failure to follow this instruction may result in shortening the life cycle of the unit or product malfunction.
- Do not use the unit where flammable or explosive gas may be present.** Failure to follow this instruction may result in fire or explosion.
- Use the unit within the rated specifications.** Failure to follow this instruction may result in shortening the life cycle of the unit.
- Do not use loads beyond the rated voltage range. Do not supply AC power.** Failure to follow these instructions may result in product damage.
- Check the polarity of the power before wiring the unit.** Failure to follow this instruction may result in product damage.
- Do not use the unit where heavy vibration and impact may be present.** Failure to follow this instruction may result in product damage.
- Do not use water or oil-based detergent when cleaning the unit.** Failure to follow this instruction may result in fire.

Model

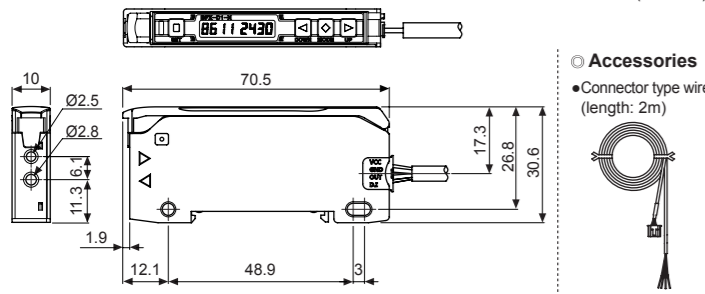
| Model | Light source | Display part | Control output |
|----------|--------------|--------------|---------------------------|
| BFX-D1-N | Red LED | Dual display | NPN open collector output |
| BFX-D1-P | Red LED | Dual display | PNP open collector output |

Unit Description

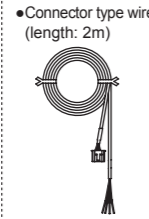


- Control output indicator:** Used to indicate control output provided by comparing SV and actual incident light level.
- (SET) key:** Used to execute each operation and to set sensing sensitivity.
- Measured value (PV) display part:**
 - RUN mode: It displays present value (PV) of input incident light.
 - Setting mode: It displays the parameter.
- Set value (SV) display part:**
 - RUN mode: It displays the setting value (SV) and actual incident light level.
 - Setting mode: It displays the setting value of the parameter.
- (MODE) key:** Used to enter SV setting mode, move up/down digit, set sensitivity manually.
- (MODE) key:** Used to enter program mode, RUN mode, move parameters, or save the setting value.
- Lock lever:** Used to connect fiber optic cable.

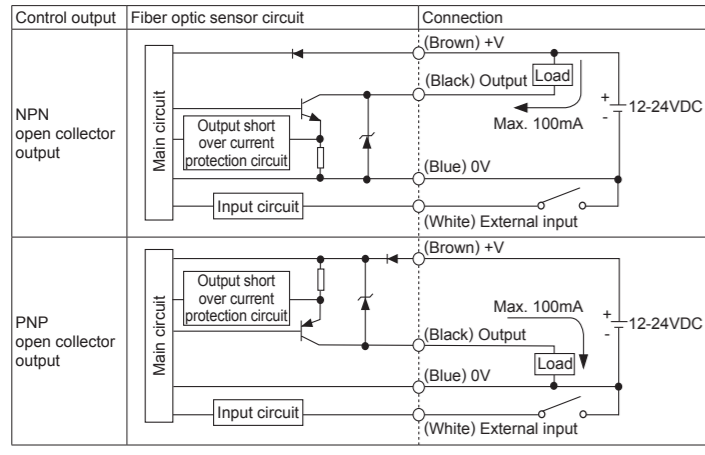
Dimensions



Accessories



Control Output Circuit Diagram and Connections



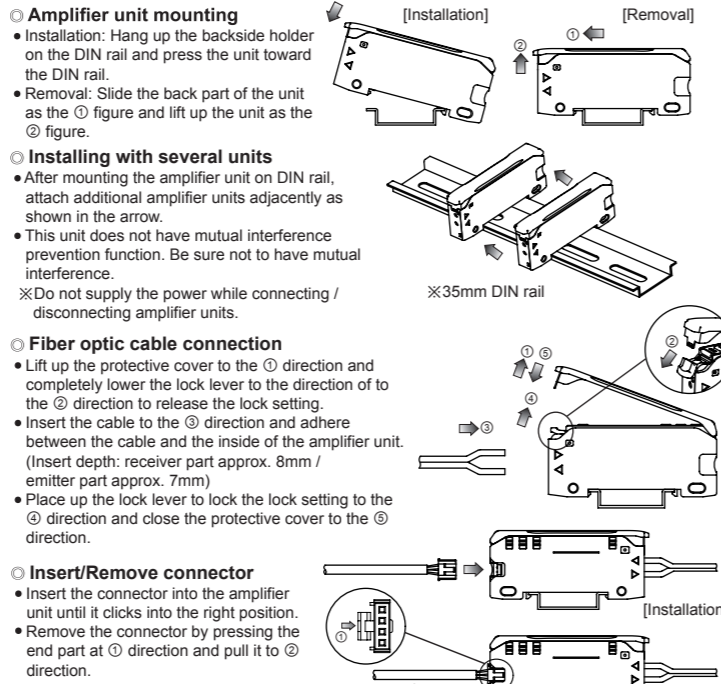
The above specifications are subject to change and some models may be discontinued without notice. Be sure to follow cautions written in the instruction manual and the technical descriptions (catalog, homepage).

Specifications

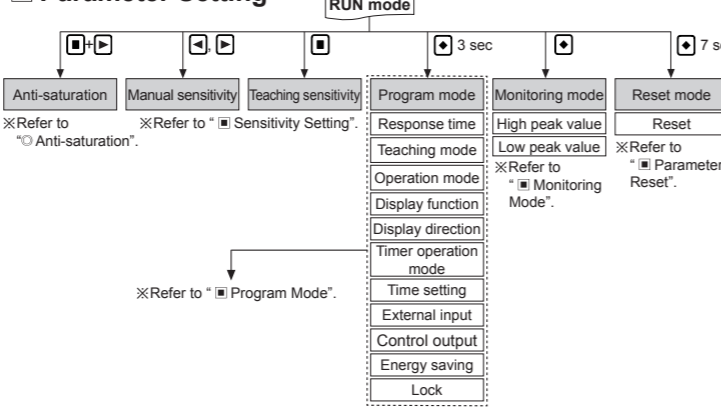
| | | |
|-------------------------------------|--|---------------------------------------|
| Model | NPN open collector output BFX-D1-N | PNP open collector output BFX-D1-P |
| Light source | Red LED (660nm, modulated) | |
| Power supply | 12-24VDC ± 10% | |
| Current consumption | Max. 50mA | |
| Operation mode | Light ON/Dark ON Selectable | |
| Control output | NPN or PNP open collector output • Load voltage: Max. 24VDC • Load current: Max. 100mA • Residual voltage - NPN: Max. 1VDC, PNP: Max. 3VDC | |
| Protection circuit | Reverse power polarity protection, output short over current protection circuit, surge protection | |
| Response time | Ultra Fast: 50µs, Fast: 150µs, Standard: 500µs, Long: 4ms, Ultra Long: 10ms 7 Segment (PV: red, SV: green) LCD Display, Control output indicator (red) LED method | |
| Display method | Incident light level/SV display (4,000/10,000 resolution), Standard / Percentage display, High/Low peak value display, Normal/Reversed display | |
| Display function | Manual sensitivity setting Teaching sensitivity setting (sensitivity setting by button or external input) Auto-tuning, 1-point, 2-point, positioning | |
| Sensitivity setting | Timer function: OFF, OFF Delay, ON Delay, One-shot (time setting: 1 to 5000ms) | |
| External input function | Remote sensitivity setting, peak value reset, emitter OFF, control output setting (Keep/ON/OFF), energy saving OFF (operates applying over 2ms of external input signal) | |
| Insulation resistance | Over 20MΩ (at 500VDC megger) | |
| Dielectric strength | 1,000VAC 50/60Hz for 1min | |
| Vibration | 1.5 mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 2 hours | |
| Shock | 500ms/s ² (approx. 50G) in each X, Y, Z direction for 3 times | |
| Environment | Ambient illumination: Sunlight: Max. 11,000lx, Incandescent lamp: Max. 3,000lx (received illumination) | |
| Ambient temp. | -10 to 50°C, storage: -20 to 70°C | |
| Ambient humi. | 35 to 85%RH, storage: 35 to 85% RH | |
| Protection | IP40 (IEC standard) | |
| Material | Case: Polyketon, cover: Polycarbonates | |
| Fiber optic cable tightening torque | Min. 2kgf | |
| Accessories | Connector type wire (Ø4mm, 4-wire, 2m / AWG22, core diameter: 0.08mm, number of cores: 60, insulator diameter: Ø1.25mm) | |
| Weight | Approx. 115g (approx. 16g) | |

- The weight includes packaging. The weight in parenthesis is for unit only.
- The temperature or humidity mentioned in Environment indicates a non freezing or condensation environment.

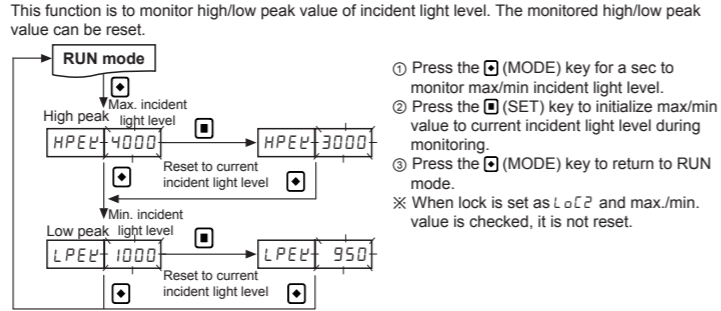
Installations



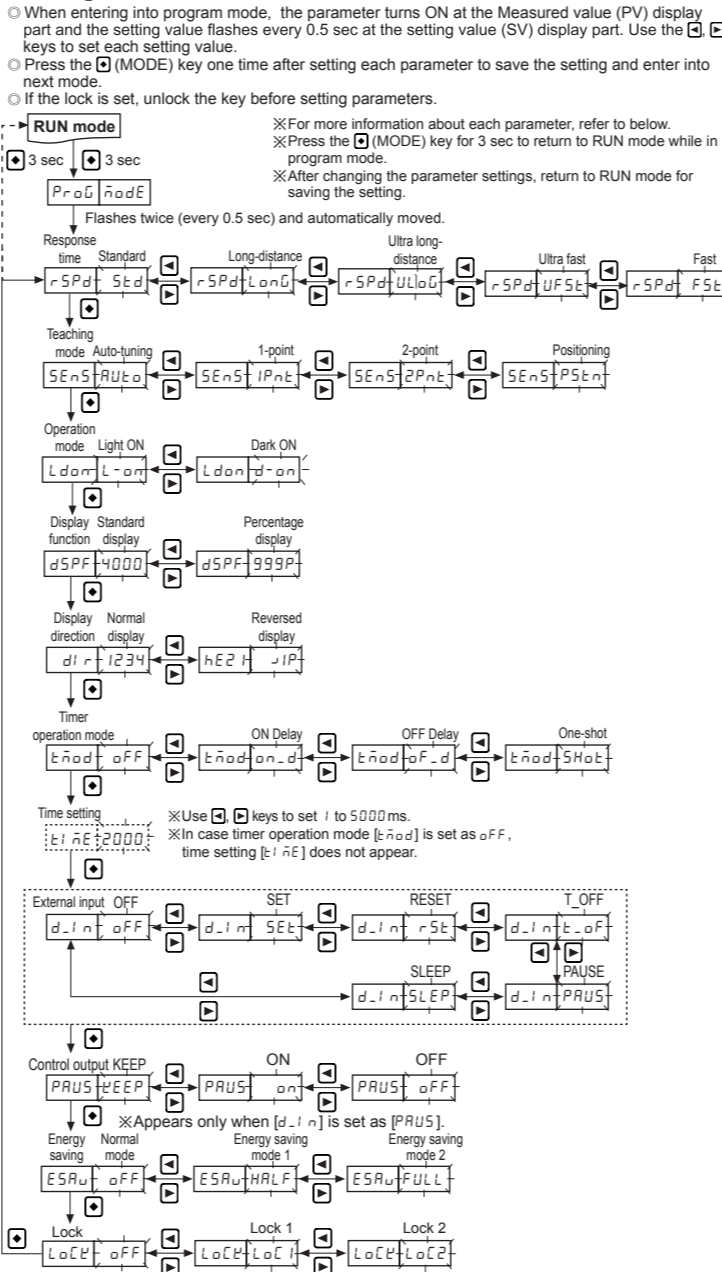
Parameter Setting



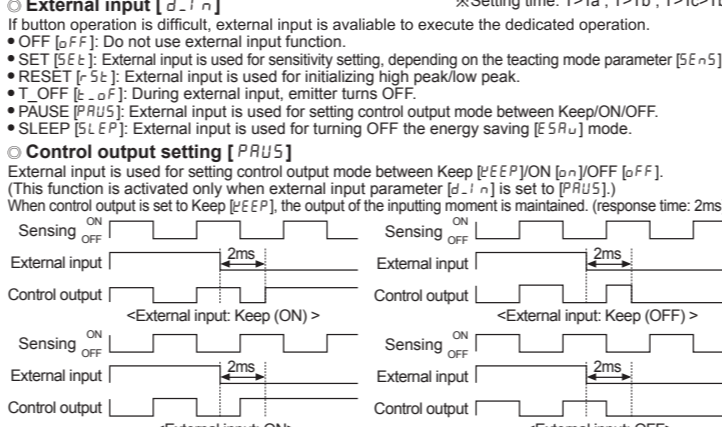
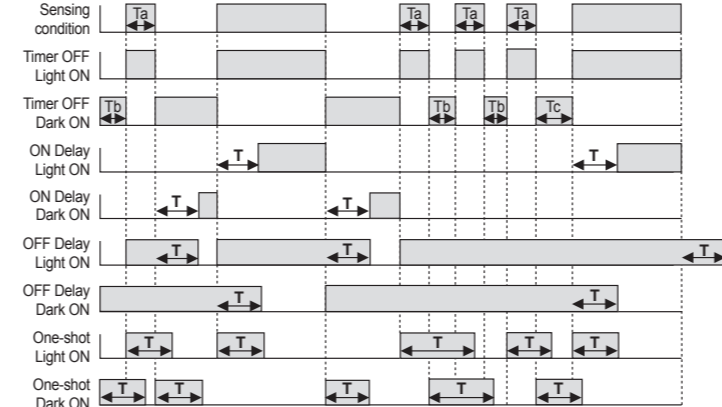
Monitoring Mode



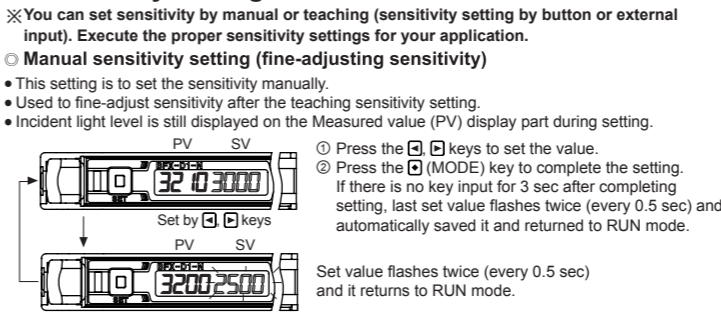
Program Mode



- Response time [rSPd]**
 - Ultra fast [UF5t]: 50µs
 - Fast [F5t]: 150µs
 - Standard [5t d]: 500µs
 - Long distance [LONd]: 4ms
 - Ultra long distance [ULoG]: 10ms
- Display [d5PF]**
 - Standard display (4000) / Percentage display (999P)
 - Display range of standard display: 0 to 4000 (0 to 99999, in case of long distance mode)
 - Display range of percentage display: 0P to 999P (decimal point is not displayed)
- Display direction [d1r]**
 - Normal display / Reversed display selectable.
 - Reversed display is upside-down (180°) display of normal display.
- Timer [Timer operation mode: tnod, Time setting: t1rE]**
 - Timer OFF [oFF]: Do not use timer function.
 - ON Delay [on d]: Control output time from OFF to ON is delayed during the setting time.
 - OFF Delay [oF d]: Control output time from ON to OFF is delayed during the setting time.
 - One-shot [5HoT]: Control output turns ON or OFF within the setting time.
 - Time setting [t1rE]: 1 to 5000ms
 - Timing chart

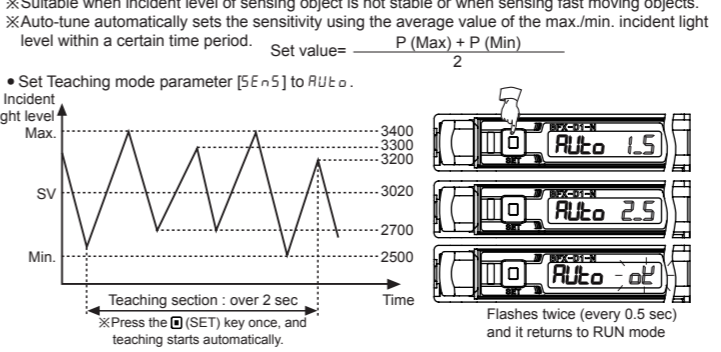


Sensitivity Setting

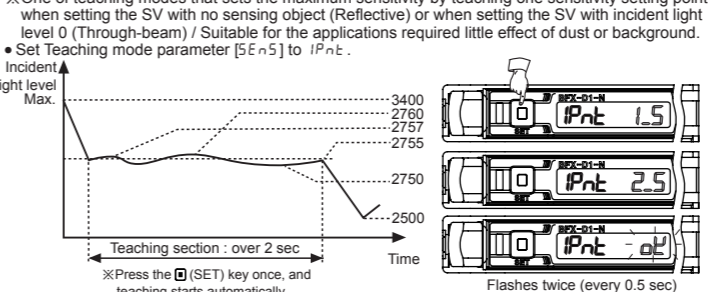


- Teaching sensitivity setting (sensitivity setting by button or external input)**
 - Sensitivity setting by button (SET) key: Press the (SET) key once in RUN mode and teaching automatically starts. When teaching completes, it returns to RUN mode automatically.
 - Sensitivity setting by external input: Set the sensitivity by external input signal wire not by using the (SET) key. When setting teaching sensitivity, turn SW ON to OFF instead of the (SET) key. This is available only when external input [d1r] is set as [5tE]. (Refer to "Control output circuit diagram and Connections".)
 - During teaching, the Measured value (PV) display part displays the set teaching mode parameter and the setting value (SV) display part displays progressing status.
 - Before sensitivity setting, set the proper teaching mode (auto-tuning, one-point, two-point, positioning teaching mode).
 - Refer to the below for the each teaching sensitivity setting.

1. Auto-tuning teach mode



2. One-point teach mode



Parameter Reset

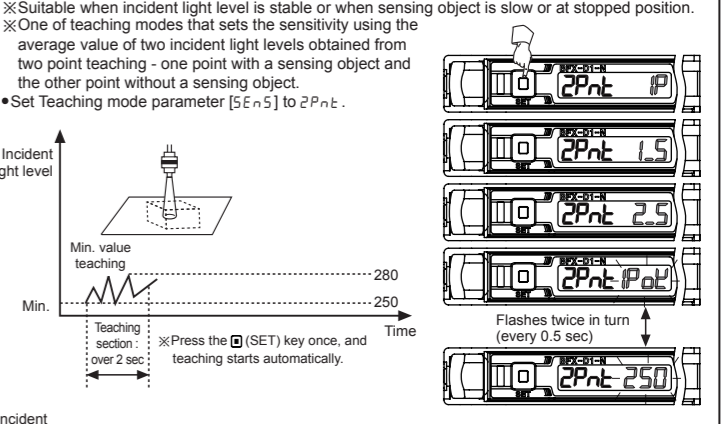
- Function is to initialize all parameters in memory to default value in case the possibility of mis-setting or mis-operation.
- Set lock function [LoCt] to oFF to execute parameter initialization.
- High peak value [HPEt] and low peak value [LPEt] is not initialized.
- Parameter reset flow**
 - RUN mode: Press (MODE) key for 7 sec in RUN mode. [nI t] parameter turns ON on the Measured value (PV) display part and no flashes every 0.5 sec on the setting value (SV) display part.
 - Press (MODE) key once again to return to RUN mode not to execute the initialization.
 - Select YES using (MODE) key once and press (MODE) key. [nI t] flashes twice on both the Measured value (PV) and Set value (SV) display parts.
 - When parameter initialization is completed, it is automatically returned to RUN mode.
- Factory default**

| Parameter | Default | Parameter | Default | Parameter | Default | Parameter | Default |
|-----------|---------|-----------|---------|-----------|---------|-----------|---------|
| rSPd | 5t d | SEnS | RuT o | LdOn | L o n | d5PF | 4000 |
| tnod | oFF | d1r | oFF | ESRu | oFF | LoCt | oFF |
- Energy saving [ESRu]**
 - Function is to save unit's power consumption by reducing power supplying to display parts in case of no setting input within 60 sec.
 - Table:

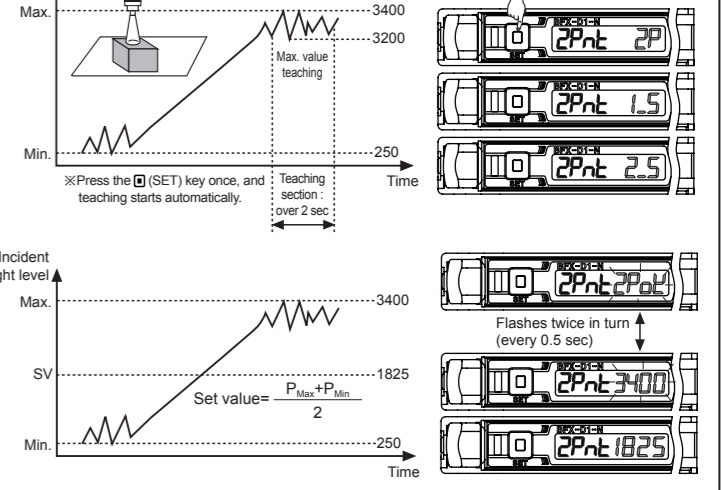
| Type | Control output indicator | Measured value (PV) display part | Set value (SV) display part |
|-----------------------------|--------------------------|----------------------------------|-----------------------------|
| Normal mode [oFF] | • | • | • |
| Energy saving mode 1 [HRLf] | • | • | • |
| Energy saving mode 2 [FULl] | • | • | • |
- Lock [LoCt]**
 - Two types of key lock setting available in order to prevent SV changes due to careless.
 - Table:

| Parameter | LoC1 | LoC2 |
|---------------------|------|------|
| Sensitivity setting | • | • |
| Program mode | • | • |
| Parameter reset | • | • |
| Anti-saturation | • | • |
| External input | • | • |
- Anti-saturation**
 - When the sensing target comes too close and it is saturation status, this function corrects the optimize status.
 - Press the (SET) + (MODE) keys one time and anti-saturation function operates automatically. There are max. 10 levels.
 - Press the (SET) + (MODE) keys one time again and anti-saturation function is cleared.
 - During anti-saturation, the setting value (SV) display part displays current level.
 - When response time mode is ultra fast [UF5t], fast [F5t], standard [5t d], and incident light is over than 2000, the setting is complete. When the mode is long distance [LONd], ultra long distance [ULoG], and incident light is over than 5000, the setting is complete. After completing the setting, it returns to RUN mode automatically.
 - This function does not execute when present incident is lower than the determined value. (UF5t, F5t, 5t d: 2000, LONd, UL oG: 5000)
 - When anti-saturation function is set, control output operation may be changed.

Two-point teach mode



Positioning teach mode



Error Display

| Error code | Cause | Troubleshooting |
|------------|---|---|
| Err | In case of recurrent inflow occurs into the output circuit. | Remove the overcurrent due to the overload. |

Caution during Use

- 12-24VDC power input should be insulated and limited voltage/current or Class 2, SELV power supply device.
- Do not scratch the section of fiber optic cable.
- Intercept a strong source of light as like sunlight, spotlight within inclination angle range of photoelectric sensor.
- Do not apply a strong tensile force to fiber optic cable.
- In case of installing the fiber optic cable, be sure not to curve the fiber optic cable over the tolerance from Autonics total catalog specifications.
- When wire the fiber optic amplifier with high voltage line, power line in the same conduit, it may cause malfunction or mechanical trouble. Therefore please wire separately or use different conduit.
- Avoid installing the unit where there is severe corrosive gas, or dust, etc.
- In case of connecting inductive load such as DC relay at load, use shielded cable, diode and varistor in order to remove noise.
- The amplifier cable shall be used shortly, because it may cause malfunction by surge through the long cable.
- When the detection area is cover with dirt on the fiber optic cable, please clean the sensing part with dry a cloth softly. But do not use any organic materials such as alkali, acid, chromic acid.
- When the unit is supplied by switching mode power supply unit, as a power source, please earth Frame Ground (F.G.) terminal, and connect between 0V and F.G. terminals to remove noise.
- After 3 sec supplying the power, use the unit.
- When this unit is placed from outside to indoor, use the unit after the surface is completely dry.
- When using this unit with max. sensitivity, sensing distance may be different.
- This unit may be used in the following environments.
 - Indoors
 - Pollution degree 2
 - Altitude: under 2,000m
 - Installation category II

Major Products

- Photoelectric Sensors
- Fiber Optic Sensors
- Door Sensors
- Door Side Sensors
- Area Sensors
- Proximity Sensors
- Pressure Sensors
- Rotary Encoders
- Connectors/Sockets
- Switching Mode Power Supplies
- Control Switches/Lamps/Buzzers
- IO Terminal Blocks & Cables
- Stepper Motors/Drivers/Motion Controllers
- Graphical Logic Panels
- Field Network Devices
- Laser Marking System (Fiber, CO₂, Nd:YAG)
- Laser Welding/Cutting System
- Temperature Controllers
- Temperature/Humidity Transducers
- SSRs/Power Transistors
- Counters
- Timers
- Panel Meters
- Tachometers/Pulse (Rate) Meters
- Sensor Controllers

Autonics Corporation
http://www.autonics.com

Autonics electronic (Jiaxing) Corporation
#301 Wenhui Road, Jiaxing, Zhejiang, China
Tel: 0573-8216190
Fax: 0573-8216197
Hot Line: 800-857-3141
400-826-7709