OMRON

Smart Fiber Sensor

E3X-HD0

INSTRUCTION SHEET

Thank you for selecting an OMRON product. This sheet primarily describes precautions required in installing and operating the product.
- A specialist who has the knowledge of electricity must treat the product.
- Please read this manual carefully, and use it correctly after thoroughly understanding the product.
- Please keep this manual properly for future reference whenever it is necessary.

9521893-2A

PRECAUTIONS ON SAFETY

● Meanings of Signal Words

⚠ CAUTION	Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury or in property damage.

● Warning Indications

⚠ PRECAUTIONS

Do not use the product with voltage in excess of the rated voltage. Excess voltage may result in malfunction or fire.	
Never use the product with an AC power supply. Otherwise, explosion may result.	

PRECAUTIONS FOR SAFE USE

The following precautions must be observed to ensure safe operation of the Sensor.
- Do not use the Sensor in environments subject to flammable or explosive gases.
- Do not use the Sensor in environments subject to exposure to water, oil, chemicals, etc.
- Do not install the Sensor in environments subject to intense electric field or ferromagnetic field.
- Do not attempt to disassemble, repair, or modify the Sensor Unit in any way.
- Do not apply voltages or currents that exceed the rated ranges.
- Do not use the Sensor in any atmosphere or environment that exceeds the ratings.
- Do not miswire such as the polarity of the power supply.
- Do not use the Sensor if the case is damaged.
- When disposing of the Sensor,treat it as industrial waste.
- Burn injury may occur. The Sensor surface temperature rises depending on application conditions, such as the ambient temperature and the power supply voltage. Use caution when operating or cleaning the Sensor.
- High-Voltage lines and power lines must be wired separately from this product. Wiring them together or placing them in the same duct may cause induction, resulting in malfunction or damage.
- When setting the Sensor, be sure to check safety such as by stopping the equipment.

PRECAUTIONS FOR CORRECT USE

- Do not install the Sensor in the following locations.
  (1) Locations subject to direct sunlight
  (2) Locations subject to condensation due to high humidity
  (3) Locations subject to corrosive gas
  (4) Locations subject to vibration or mechanical shocks exceeding the rated values
- The Sensor is ready to operate 200 ms after the power supply is turned ON. If the Sensor and load are connected to power supplies separately, turn ON the power supply to the Sensor first.
- Output pulses may occur when the power supply is turned OFF. Turn OFF the power supply to the load or load line first.
- Excessive incident light cannot be sufficiently handled by the mutual interference prevention function and may cause malfunction. To prevent this, set a higher threshold level.
- Attach a protective cap on the power supply connecting terminals that are not used to prevent electric shock or short circuit.

- Make sure that the power supply is turned OFF before connecting, separating or adding Amplifier Units.
- Do not pull or apply excessive pressure or force (exceeding 9.8N) on the Fiber Unit when it is mounted on the Amplifier Unit.
- The E3X-MC11, E3X-MC11-SV2 and E3X-MC11-S Mobile Consoles cannot be used.
- Mutual interference prevention does not function among the E3X-DA-N/SD/NA amplifiers. It functions among E3X-DA-S/MDA models.
- The E3X-DRT21-S Communication Unit cannot be used.
- Always keep the protective cover in place when using the Amplifier Unit.
- Dor not use thinner, benzine, acetone, and lamp oil for cleaning.

Checking the Package Content

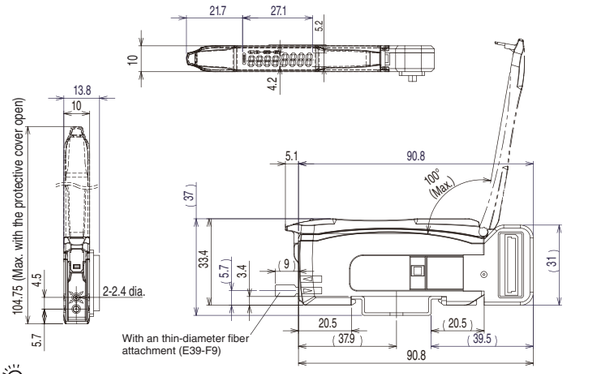
- Amplifier Unit: 1 • Instruction Sheet (this sheet): 1 (Japanese, English and Chinese)

Compatible Communication Unit (Sold Separately)

EtherCAT compatible E3X-ECT, CompoNet compatible E3X-CRT

1 Installation

1-1 Dimensions

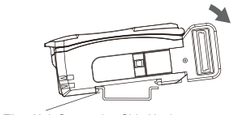


CHECK! Dimensions in parentheses () indicates the ones with related components. Unit: mm

1-2 Mounting the Amplifier Unit

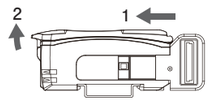
■ Mounting on DIN Track

1. Let the hook on the Amplifier Unit's Fiber Unit connection side catch the track and push the unit until it clicks.



■ Removing from DIN Track

1. Push the unit in the direction 1.
2. Lift it up in the direction 2.



■ Connectng Amplifier Units with Communication Units

1. Mount the Communication Unit and Amplifier Unit on each DIN track and slide them in the direction of arrow 1 and insert the connector until it clicks.
2. Use End Plates (PFP-M: separately sold) at the both ends of the grouped Amplifier Units to prevent them from separating due to vibration or other cause.
3. Tighten the screw on the End Plates using a driver.

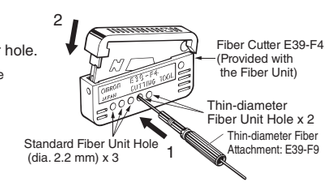
CHECK! Up to 30 Amplifier Units can be connected to E3X-ECT Communication Unit .
Up to 16 Amplifier Units can be connected to E3X-CRT Communication Unit.
Under environments such as vibration, use an End Plate even with a single amplifier unit.

Tighten the screw while pressing the End Plate.

1-3 Mounting Fiber Unit

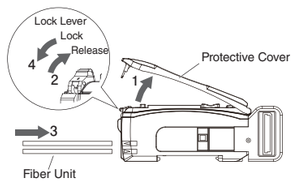
■ Use Fiber Cutter

1. Insert a Fiber Unit into a fiber cutter hole.
   Insert a standard Fiber Unit fiber up to the position in which it is cut; and a thin-diameter Fiber Unit fiber to the bottom of the hole.
2. Press down the blade at a single stroke to cut the fiber.

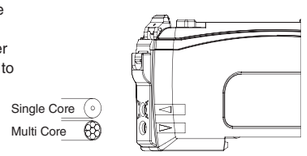


■ Mount Fiber Unit

1. Open the protective cover.
2. Raise the lock lever.
3. Insert the Fiber Unit in the fiber unit hole to the bottom.
4. Return the lock lever to the original position and fix the Fiber Unit.



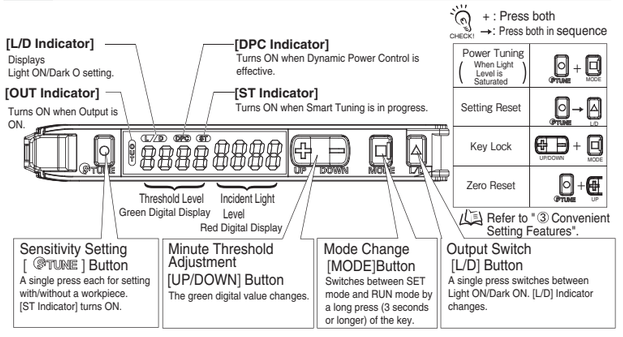
CHECK! When mounting a coaxial reflective Fiber Unit, insert the single-core Fiber unit to the upper hole (Emitter side) and the multi-core Fiber Unit to the lower hole (Receiver side).



2 Settings

CHECK! If you want to set with the Communication Unit, refer to the User's Manual provided with the Communication Unit. See below to set with Amplifier Unit.

2-1 Setting and Display Overview

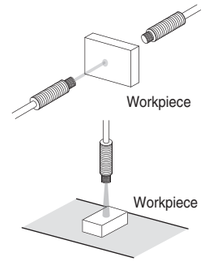


2-2 Switching Control Output

1. Press L/D button.

Through-beam: Set to "Dark ON" to turn the output ON with a workpiece in the detection area.
[L/D Indicator] turns (D) ON.

Reflective: Set to "Light ON" to turn the output ON with a workpiece in the detection area.
[L/D Indicator] turns (L) ON.

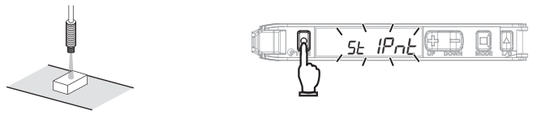


2-3 Smart Tuning [Easy Sensitivity Setting]

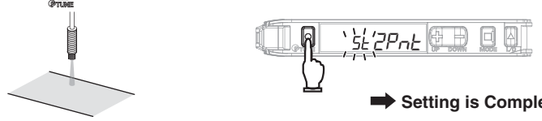
① Detect for Workpiece Presence/Absence

● 2-point Tuning

1. Press @TUNE button with a workpiece in the detection area.



2. Press @TUNE button again without a workpiece in the detection area.



➡ **Setting is Completed**

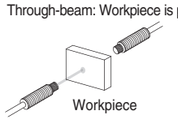
Incident light level setting: The larger incident level of the Step 1 and 2 values is adjusted to the power tuning level.
Threshold setting: Set to the middle between the Step 1 and 2 incident light levels.

CHECK! Step 1 and Step 2 can be reversed.

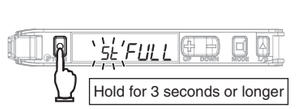
② Detect for Workpiece Presence/Absence

● Maximum Sensitivity Tuning

1. Hold @TUNE button for 3 seconds or longer with/without workpiece as shown below.
   Release the button when [St FULL] is displayed.
   Through-beam: Workpiece is present



Reflective: Workpiece is absent



The red digital display changes [IPnt]→[FULL]

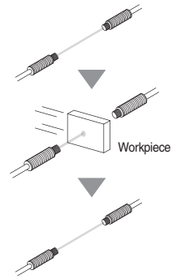
➡ **Setting is Completed**

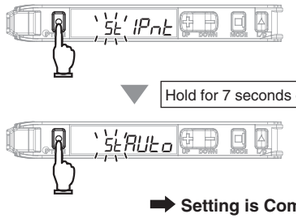
Incident light level setting: The incident level in Step 1 is adjusted to "0".
Threshold setting: The value is set to approx. 7% of the incident light level of 1.
If the incident light level of 1 is smaller during long distance etection, the minimum value by which an output is correctly turned ON will be set.

③ Adjust for Moving Workpiece without Stopping Line

● Full Auto Tuning

1. Hold the @TUNE button without the presence of a workpiece, and pass the workpiece through while [IPnt] -> [FULL] -> [AUto] is displayed in red digital.
   (Keep holding the @TUNE button while the workpiece passes through, and hold 7 seconds or longer until [AUto] is displayed in red digital. After the workpiece passes through, release your finger from the @TUNE button.)





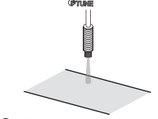
➡ **Setting is Completed**

Incident light level setting: Adjust the max. incident light level on Step 1 as the power tuning level.
Threshold setting: Set to the middle between max. and min. incident light levels on Step 1.

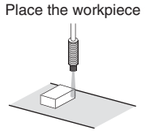
④ Determine Workpiece Position

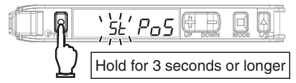
● Position Tuning

1. Press @TUNE button without a workpiece in the area.



2. Place the workpiece at the desired position and hold @TUNE button.





The red digital display changes [2Pnt]→[PoS].

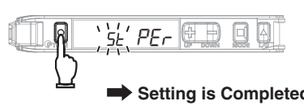
➡ **Setting is Completed**

Incident light level setting: The Step 2 incident level is adjusted to half the power tuning level.
Threshold setting: Set to the same value as the Step 2 incident level.

⑤ Detect Transparent or Small Workpiece (Set Threshold by incident light level percentage)

● Percentage Tuning

1. Turn ON Percentage Tuning in SET mode. Refer to " ⑤ Detailed Settings".
2. Press @TUNE button without a workpiece in the area.



➡ **Setting is Completed**

Incident light level setting: The Step 2 incident light level is adjusted to the power tuning level.
Threshold setting: Set to the value obtained by [Incident Level at Step 2 x Percentage Tuning Level + Incident Level at Step 2].

CHECK! No Smart Tuning other than Power Tuning can be used if Percentage Tuning is set.

● Smart Tuning Error

Error / Display / Cause	Error Origin Tuning Type	Remedy
Near Error nEAr Err The light level difference between Points 1 and 2 are extremely small.	2-point Tuning Full Auto Tuning Positioning Tuning	• Change the detection function mode to a slower response time mode. • Narrow the emitter and receiver distance (Through-beam) • Mount the sensor closer to the workpiece (Reflective)
Over Error ouEr Err Incident light level is too high.	All	• Enhance the power tuning level. • Use a thin-diameter fiber. • Widen the emitter and receiver distance (Through-beam) • Distance the sensor from the workpiece (Reflective)
Low Error Lo Err Incident light level is too low.	Tuning other than Maximum Sensitivity Tuning	• Decrease the power tuning level. • Narrow the emitter and receiver distance (Through-beam) • Locate the sensor closer to the workpiece (Reflective)

CHECK! The adjustment range of smart tuning is approx. 20 to 1/100 times. When selecting giga mode as detection function, the range will be approx. 2 to 1/100 times due to the large initial value.
Refer to "⑤ Detailed Settings" to change the powr tuning level.

2-4 Minute Adjustment of Threshold Level

1. Press UP/DOWN button to adjust the threshold level.

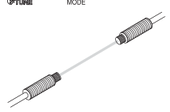
CHECK! Hold the key for high-speed level adjustment.

3 Convenient Setting Features

① Restore from the Incident Level Changed due to Dust and Dirt

● Power Tuning

1. Hold [PTUNE] and [MODE] buttons for 1 second or longer without a workpiece in the area.



➡ **Setting is Completed**

Incident light level setting: The Step 1 incident level is adjusted to the power tuning level.
Threshold setting: Not changed. If the value is low, it will be set to the minimum value in which an output is turned ON/OFF correctly.

CHECK! Perform the procedure with a workpiece in the area for reflective model setting.
If the setting is made after position tuning, set both the through-beam model and reflective model with a workpiece.

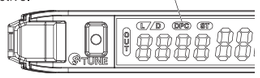
Refer to "2-3 Smart Tuning Error" for error displays.

② Stable Detection Regardless of Incident Level Change due to Dust and Dirt

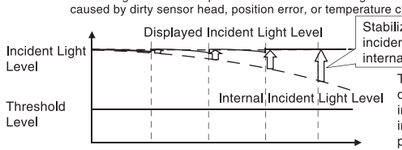
● DPC Function

1. Perform Smart Tuning.
   Refer to "2-3 Smart Tuning"
   Refer to "③Convenient Setting Features - Power Tuning"
2. Set the DPC function ON in SET mode.
   Refer to " ⑤ Detailed Settings".

The DPC indicator turns ON when the DPC function is effective.



CHECK!
- Steps 1 and 2 can be reversed.
- The DPC function will be disabled when a smart tuning error occurs, differential function with maximum sensitivity tuning is performed, or the first incident light level of the positioning tuning is low.
- The incident light level is corrected to the power tuning level to maintain stable threshold and incident light levels. This provides stable detection regardless of the incident level changes caused by dirty sensor head, position error, or temperature changes.



Stabilizes the displayed incident level by correcting internal incident level changes.

The displayed incident level decreases and the DPC indicator starts blinking when incident level correction is not possible.

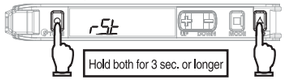
Refer to "4-1 Troubleshooting"

③ Reset Settings

● Setting Reset

Initializes all the settings by returning them to the factory defaults.

1. Hold [PTUNE] button and then hold [L/D] button for 3 seconds or longer.



2. Select [rSt] in [UP/DOWN] and press [MODE] button.
3. Select [rSt init] in [UP/DOWN] and press [MODE] button.

Item	Initial Value
Threshold Value	55
Control Output	L-on

* Settings for other functions are returned to the detailed setting initial values. User-saved settings are retained. Smart Tuning is canceled.

CHECK! Caution is required; the output is inverted if [L/D] button is pressed first.

④ Save or Read Settings

1. Hold [PTUNE] button and then hold [L/D] button for 3 seconds or longer.

● User Save Function

Saves the current settings.

2. Select [SAvE] in [UP/DOWN] and press [MODE] button.
3. Select [SAvE YES] in [UP/DOWN] and press [MODE] button.

● User Reset Function

Reads out the saved settings.

2. Select [rSt] in [UP/DOWN] and press [MODE] button.
3. Select [rSt USEr] in [UP/DOWN] and press [MODE] button.

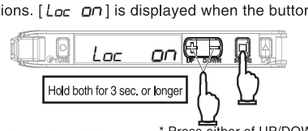
CHECK! Caution is required; the output is inverted if [L/D] button is pressed first.

⑤ Prevent Mis-operation

● Key Lock Function

Disables all button operations. [Loc on] is displayed when the button is pressed.

■ Enable/Cancel
(This procedure)



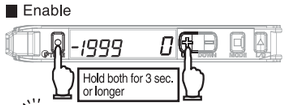
* Press either of UP/DOWN.

⑥ Reset Incident Light Level to "0"

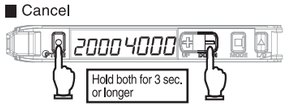
● Zero Reset Function

Changes the incident light level to "0". The threshold level is also shifted accordingly.

■ Enable



■ Cancel



CHECK! The zero reset function is canceled when either of the DPC function/differential function/Smart Tuning is performed.

4 Maintenance

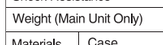
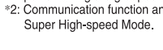
4-1 Troubleshooting

● Troubleshooting

Problem	Cause	Remedy
Blank display	No power supplied or the cable broken	Check the connector connection between Communication Unit and Amplifier. Refer to "4-2 Input/Output Circuit Diagram"
No digital display	Eco mode is ON.	Turn OFF Eco mode. Refer to "5. Detailed Settings". Refer to "⑤ Detailed Settings".
Sensing/Detection not possible despite the minimum threshold level	Detection set to a small light level mode Dust or dirt influences	The GIGA mode setting enhances the light level and a larger incident level is displayed. Refer to "⑤ Detailed Settings".
Incident light level display fluctuation	Dust or dirt, temperature changes or vibration	Use the DPC function to stabilize the incident light level display. Refer to "③ Convenient Setting Features"
The operation indicator blinking	Mutual interference or other reason	Check the Amplifier Units mounted in a group and turn ON the power again. Refer to "1-2 Mounting Amplifier Unit"
Incident light level displayed in a negative value	The zero reset function is enabled.	Cancel the zero reset function. Refer to "③ Convenient Setting Features"
	The differential function is enabled.	Turn OFF the differential function. Refer to "⑤ Detailed Settings".
Lost tracking of the settings made	-	Reset the settings. Refer to "③ Convenient Setting Features"

CHECK! For information on troubleshooting with Communication Unit, refer to the User's Manual provided with the Communication Unit.

● Error Display

Error Name / Display	Cause	Remedy
DPC Error* 	The incident light level has deteriorated due to dust or dirt.	Wipe the dust off the Fiber Unit detection surface or other relevant areas and recover the original incident light level. Then, perform Smart Tuning. Refer to "2-3 Smart Tuning "
EEPROM Error 	Failed internal data read/out	Turn ON the power again. Reset the settings if the error is not corrected. Refer to "③ Convenient Setting Features"
Lock ON 	The key lock function enabled	Cancel the key lock function. Refer to "③ Convenient Setting Features"
Current Over	Over current flowing to the control output	Check the control output load and adjust it within the rated value. Check for a load short-circuit. Refer to "4-2 Ratings and Specifications"

* The DPC indicator blinks.

4-2 Ratings and Specifications

Model		E3X-HD0
Number of Control Outputs		1 (Inside the wire-saving connector)
Connection Method		Communication Unit compatible wire-saving connector
Compatible Communication Unit		EtherCAT compatible E3X-ECT, CompoNet compatible E3X-CRT
Light Source (Wavelength)		Red 4-element LED (625 nm)
Power Supply Voltage		12 to 24 VDC ±10%, ripple (p-p) 10% max. (Power is supplied from Communication Unit.)
Power Consumption		Normal: 720 mW max. (30 mA max. at power supply voltage of 24 VDC; 60 mA max. at power supply voltage of 12 VDC) Power-saving ECO: 530 mW max. (current consumption: 22 mA max. at power supply voltage of 24 VDC; 44 mA max. at power supply voltage of 12 VDC)
Maximum connectable units	E3X-ECT	30 units
	E3X-CRT	16 units
Control Output		Refer to the specifications of the Communication Unit.
Protection Circuits		Power supply reverse polarity protection, output short-circuit protection and output reverse polarity protection
APC (Auto Power Control)		Always ON
Mutual Interference Prevention		Possible for up to 10 units *1
Ambient Illumination		Receiver side: Incandescent lamp: 20,000 lux max. / Sunlight: 30,000 lux max.
Ambient Temperature Range		Operating: Groups of 1 to 2 Amplifiers: –25°C to 55°C Groups of 3 to 10 Amplifiers: –25°C to 50°C Groups of 11 to 16 Amplifiers: –25°C to 45°C Groups of 17 to 30 Amplifiers: –25°C to 40°C Storage: –30°C to 70°C (with no icing or condensation)
Ambient Humidity Range		Operating and storage: 35% to 85% (with no condensation)
Insulation Resistance		20 MΩ min. (at 500 VDC megger)
Dielectric Strength		1,000 VAC at 50/60 Hz for 1 minute
Vibration Resistance		10 to 55 Hz with a 1.5-mm double amplitude for 2 hours each in X, Y and Z directions
Shock Resistance		500 m/s², for 3 times each in X, Y and Z directions
Weight (Main Unit Only)		Approx. 25 g
Materials	Case	Heat resistant ABS (ABS)
	Cover	Polycarbonate (PC)
	Connector	Polybutylene Terephthalate (PBT)

*1: Mutual interference prevention is only possible for up to 6 units, if the E3X-DA-S/MDA sensors applied with power tuning are grouped with this sensor.
*2: Communication function and mutual interference prevention function are disabled when selecting Super High-speed Mode.

5 Detailed Settings

Hold [MODE] button for 3 seconds or longer to enter SET mode.

SET mode provides the function settings described hereafter. The initial display shown after transition from one function to another represents the factory default.

Function Setting | Description

1. Function Selection — Func dFLt / Func oPt

Changing Functions to Set in SET Mode

[dFLt]: Functions 1. to 5. can be set.
[oPt]: Functions 1. to 10. can be set.

2. Detection Function (Incident Light Level Example)

(a) HS 500
(b) Stnd 500
(c) GIGA 6000
(d) SHS 125

Changing Light Level and Response Time

Detection Function	Response Time	Light Level
(a) HS High-speed Mode	250µs	1 (Standard)
(b) STND Standard Mode	1 ms	1 time
(c) GIGA Giga Mode	16 ms	12 times
(d) SHS Super High-speed Mode*	50 µs	0.25 times

Smart Tuning is canceled if the detection mode is changed.
*The communication and mutual interference prevention functions are disabled when the detection mode is set to Super High-speed Mode.

CHECK! The incident light level in setting mode is a reference value. It may be changed when switched to detection mode.

Stable Detection Regardless of Incident Light Level Change

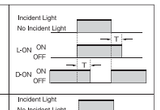
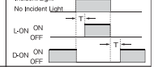
Refer to "③ Convenient Setting Features"

3. DPC Function — dPc oFF / dPc on

4. Timer Function — toFF----

Setting Output Timer

(a) oFFd 10
(b) on-d 10
(c) Shot 10

(a) Off-delay Timer Holds the output ON for detection by PLC when the detection time is too short.	
(b) On-delay Timer Delays the output ON after detection.	
(c) One-shot Timer Keeps the output ON for a specified time regardless of the workpiece size variations.	

A timer value can be set after pressing [MODE] button when a timer menu (other display than "----") is displayed. Use [UP/DOWN] button to set the time. (1 to 9999ms in 1 ms steps; the initial value: 10 ms)

5. Power Tuning Level — P-Lv 9999

Changing the Target Incident Light Level (Power Tuning Level)

Use [UP/DOWN] button to set the power tuning level.
[100 to 9999 in 1 steps; the initial value: 9999]

Refer to "③ Convenient Setting Features"

Function Selection: [dFLt] → A
Function Selection: [oPt] → 6. Percentage Tuning

6. Percentage Tuning — PEr oFF / PEr on

Detecting Transparent or Small Workpiece

Press [MODE] button in [PEr on] menu, then use [UP/DOWN] button to set the percentage tuning level.
(-99% to 99% in 1% steps; the initial value: -10%)

Refer to "2-3 Smart Tuning"

7. Differential Function — diFF oFF / diFF 1 / diFF 2 / diFF 3 / diFF 4 / diFF 5 → B

Detecting Incident Light Level Change

Detects if the absolute value of the incident light level change of the set response time is larger than the threshold value. The display shows the change of the incident light level of the set response time in red.

Differential Setting	Response Time
1	250µs
2	500µs
3	1ms
4	10ms
5	100ms

Use [UP/DOWN] button to specify the response time.

When the differential function is enabled, the detection function setting is disabled. Smart tunings except power tuning are disabled. The adjustment range of powr tuning is approx. 1 to 1/100 times.

Function Setting | Description

8. Digital Display — diSP Std

Changing Digital Display in RUN Mode for Specific Purpose

(a) diSP PEr — Checking a Margin Against Threshold

Threshold	Light Level Ratio	
2000	150P	The ratio of the incident light level to the threshold is displayed in red digital figures.

(b) diSP P-b — Setting Threshold using a Small or Fast Moving Workpiece

Peak Light Level	Bottom Light Level	
8000	2000	Holds and displays the minimum value of the peak of the light incident and the maximum value of the bottom of the light interruption.

(c) diSP bAr — Setting for Intuitive Analog Display

Threshold		
120% 100% 80%		Displays the current level in the 80 to 120% range against the threshold value (100%).

(d) diSP PEAK — Adjusting Optical Axis

Peak Light Level	Light Level	
3500	3000	Holds the peak incident light level and displays it in green digital figures.

(e) diSP ch — Checking the Channel No. in Group Mounting

Ch. No.	Light Level	
Ich	3000	Checking the Channel No. in Group Mounting

9. Inverted Display — rEv oFF / vo nJ

Mounting Amplifier in Inverted Direction

Inverts the display upside down.
The digital display shows the threshold value in red, and light incident level in green.

10. Eco Function — Eco oFF / Eco on

Saving Power Consumption

Indicators (Green and Red digital displays) turn OFF in approx. 10 seconds after a key operation.

Suitability for Use

THE PRODUCTS CONTAINED IN THIS SHEET ARE NOT SAFETY RATED. THEY ARE NOT DESIGNED OR RATED FOR ENSURING SAFETY OF PERSONS, AND SHOULD NOT BE RELIED UPON AS A SAFETY COMPONENT OR PROTECTIVE DEVICE FOR SUCH PURPOSES.
Please refer to separate catalogs for OMRON's safety rated products.

OMRON shall not be responsible for conformity with any standards, codes, or regulations that apply to the combination of the products in the customer's application or use of the product.

Take all necessary steps to determine the suitability of the product for the systems, machines, and equipment with which it will be used.
Know and observe all prohibitions of use applicable to this product.

NEVER USE THE PRODUCTS FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON PRODUCT IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.
See also Product catalog for Warranty and Limitation of Liability.

■ EUROPE
OMRON EUROPE B.V. Sensor Business Unit
Carl-Benz Str.4, D-71154 Nufringen Germany
Phone:49-7032-811-0 Fax: 49-7032-811-199
■ NORTH AMERICA
OMRON ELECTRONICS LLC
One Commerce Drive Schaumburg,IL 60173-5302 U.S.A.
Phone:1-847-843-7900 Fax : 1-847-843-7787
■ ASIA-PACIFIC
OMRON ASIA PACIFIC PTE. LTD.
No. 438A Alexandra Road #05-05-08(Lobby 2),
Alexandra Technopark, Singapore 119967
Phone : 65-6835-3011 Fax :65-6835-2711
■ CHINA
OMRON(CHINA) CO., LTD.
Room 2211, Bank of China Tower,
200 Yin Cheng Zhong Road,
PuDong New Area, Shanghai, 200120, China
Phone : 86-21-5037-2222 Fax :86-21-5037-2200
OMRON Corporation

D ⓪ OCT,2009