Surprisingly Stable Detection with Your Finger tip

Exceptionally easy operation and stabilizing technology reduce maintenance cost.
Long-term Stable Detection with No Maintenance
Optimum Settings with the Press of a Button

**Stable**

- **No Maintenance**
  - Smart Power Control: Long-term stable detection with no maintenance
    - Smart Power Control function detects the decrease in light intensity due to LED light deterioration and fixes the decrease in incident level
    - Maintenance-free operation that withstands the ambient environments.
- **Detect Workpieces compensation without concern for Color and Size**
  - Lighting element GIGA RAY is equipped that margin of detection on all scenes has been realized.
  - Unparallelled power of GIGA RAY with the highest level stability detects large workpieces and low-reflective workpieces such as black rubber whose detection was unstable before.
  - Long-distance detection for large workpieces.
  - Detection in water and liquid medicine.
  - Detection in oily environments.
  - Maintenance-compensated LED aged deterioration.
  - Chapters of detection on all scenes has been realized.
- **Smart Power Control**
  - Auto Power Control automatically compensates the optimum detection condition.
  - You get reliable detection performance even for operators overseas.
  - Easy operation even with gloves on.
  - Smart Tuning for the optimum settings with just one button.
  - Instruction Manuals are included in Chinese.
  - Choose your language from the drop-down menu.

**Easy**

- **Greater operability and visibility** are realized by a universal design.
  - The universal design models such as a universal design allows you to reliably communicate with operators when starting or maintaining equipment.
  - Greater operability and visibility:
    - Visibility is improved with digital displays and visible indicators.
    - Indications: Easy viewing even from a distance.
- **New Concept: Visible Indicators**
  - White and red LED make it easy to identify where maintenance is required.
  - Easy viewing even in a straight line.
  - Easy viewing even from a distance.
  - Easy tuning for the optimum settings with just one button.
  - Smart Power tuning: The DPC indicator flashes to let you know that maintenance is required.
  - The indicator lights up to let you know that maintenance is required.

**Maintenance cost is furthermore reduced!**

**Open network is supported**

- Smart Tapping for the optimum settings with just one button.
- Visibility is improved with digital displays and visible indicators.
- New Concept: Visible Indicators
- Easy tuning for the optimum settings with just one button.
with No Maintenance
Press of a Button

**Stable**

**Smart Power Control**  Long-term stable detection with no maintenance

Even if the incident level is decreased due to dirt or mechanical vibration, Omron's proprietary Smart Power Control combines APC and DPC to automatically compensate the power so that high-precision detection with no maintenance is performed. If compensation is not possible, the DPC indicator flashes to let you know that maintenance is required. You get reliable operation with long-term stable detection and visible abnormality.

**Point**

APC can be used always on for E3X-HD. The GIGA RAY II, which is described below, widely reduces the load with a low-power consumption LED. Furthermore comfortable long-term reliability has been realized. **OMRON's APC is the No.1 for long-term reliability!**

**Advanced newly-developed GIGA RAY II for long-term stability and energy savings**

The GIGA RAY has evolved into the newly-developed GIGA RAY II to achieve 1.5 times the power efficiency of conventional models. This effect is utilized to enhance APC service life for long-term stability and energy-saving effect more than enhancing the sensing distance. It contributes to the reliability and energy saving of your equipment.

**Maintenance cost is furthermore reduced!**

**Open network is supported**

- Greatly reduce wiring work for Fiber Amplifiers with zero-line connection.
- You can change settings from an external device to greatly reduce setup work.
- Connection of multiple units is available. (E3X-CRT: 16 units, E3X-ECT: 30 units)

Make the following search to access information on network standards and products.

Access keyword from search engines: Omron Field Network
Consistent Settings for All Users

Easy and optimal settings for anyone.

The increased power efficiency of the newly developed GIGA RAY and the new circuit design reduce power consumption by 6% over conventional models. This supports saving energy and power in your equipment. Power consumption of only 720 mW has been realized in operation in Normal Mode. And there are no restrictions for sensing distance and response times.

Let the E3X-HD Help You Save Energy

Contribute to energy saving of equipment.

Easy Solution

The optimum settings can be performed regardless of skills and languages.

Press only twice.

Fewer Setting Steps

Operate or reset: 16 ms

Giga-power Mode (GIGA) Operate or reset: 16 ms

Standard Mode (STND) Operate or reset: 1 ms

High-speed Mode (HS) Operate or reset: 250 µs

Standard models

Giga-power Mode (GIGA): Eco LO: 640 mW max. (Current consumption: 26 mA max. at 24 VDC, 53 mA max. at 12 VDC)

Eco ON: 530 mW max. (Current consumption: 22 mA max. at 24 VDC, 44 mA max. at 12 VDC)

Nomal Mode: 720 mW max. (Current consumption: 30 mA max. at 24 VDC, 60 mA max. at 12 VDC)

High-speed Mode (HS): 960 mW max. (Current consumption: 55 mA max. at 24 VDC, 110 mA max. at 12 VDC)

Reverse power supply connection protection, output short-circuit protection, and reverse output connection protection are required for applications.

There is no master/slave distinction for the Amplifiers.

Communications Units are available.

Smart Fiber Sensor

Exceptionally easy operation and stabilizing technology reduce maintenance cost.

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Authorized Distributor:
Long-term Stable Detection with No Maintenance

Optimum Settings with the Press of a Button

No Maintenance

Smart Power Control - Long-term stable detection with no maintenance

Smart Power Control function detects the decrease in light intensity due to LED aging deterioration and the decrease in incident level to 0 V, thus restoring the full power to drive outputs with zero maintenance and zero maintenance-free operation that withstands the ambient environments.

Maintenance-free operation by double compensation of light intensity and incident level

Light intensity maintenance, incident level maintenance

Detected Workpieces compensation without concern for Color and Size

Lighting element GIGA RAY is equipped with a low-power consumption LED. Furthermore, comfortable long-term reliability has been realized.

E3X-HD Series

Smart Power Control - Long-term stable detection with no maintenance

Even if the incident level is decreased due to dirt or mechanical vibration, Omron’s proprietary Smart Power Control combines APC and DPC to automatically compensate the power for the high-precision detection with no maintenance in performed. And if compensation is not possible, the DPC indicator flashes to let you know that maintenance is required. You get reliable operation with long-term stable detection and under automatically.

Maintenance cost is furthermore reduced!

Maintenance-free operation by double compensation of light intensity and incident level

Maintenance-free operation by double compensation of light intensity and incident level

Advanced newly-developed GIGA RAY for long-term stability and energy savings

The GIGA RAY has evolved into the newly-developed GIGA RAY to achieve 1.5 times the power efficiency of conventional models. This effect is utilized to enhance APC service life for long-term stability and energy-saving effect more than enhancing the sensing distance. It contributes to the reliability and energy-saving of your equipment.

Greater operability and visibility are realized by a universal design

The universal design models operation much easier and allows you to reliably communicate with operators when starting up or maintaining systems overseas.

Easy Fiber Insertion

Easy Fiber Insertion

Easy Easy Ease

Easy Fiber Insertion

Easy Fiber Insertion

Easy Fiber Insertion

Easy Fiber Insertion
### Ordering Information

**E3X-HD Series**

**Amplifier Units**

<table>
<thead>
<tr>
<th>Type</th>
<th>Appearance</th>
<th>Connection method</th>
<th>Model</th>
<th>NPN output</th>
<th>PNP output</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard models</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>For Communications Unit connection</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wire-saving Connectors (Order Separately) (An Amplifier Unit with a wire-saving connector is required.) Connectors are not provided with the Amplifier Units.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>Appearance</td>
<td>Cable length</td>
<td>Number of conductors</td>
<td>Model</td>
<td></td>
</tr>
<tr>
<td>Master connector</td>
<td></td>
<td>2 m</td>
<td>3</td>
<td>E3X-CN11</td>
<td></td>
</tr>
<tr>
<td>Slave connector</td>
<td></td>
<td></td>
<td>1</td>
<td>E3X-CN12</td>
<td></td>
</tr>
<tr>
<td>Sensor I/O Connectors (Order Separately) (An Amplifier Unit with an M8 connector is required.) Connectors are not provided with the Amplifier Units.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appearance</td>
<td>Cable length</td>
<td>Number of conductors</td>
<td>Model</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Straight</td>
<td>2 m</td>
<td>4</td>
<td>XS3F-M421-402-A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Right-angle</td>
<td></td>
<td></td>
<td>XS3F-M422-402-A</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Communications Units**

<table>
<thead>
<tr>
<th>Communications method</th>
<th>Appearance</th>
<th>Applicable Fiber Amplifier Units</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>CompoNet</td>
<td></td>
<td>E3X-HD0</td>
<td>E3X-CRT</td>
</tr>
<tr>
<td>EtherCAT</td>
<td></td>
<td>E3X-HD11</td>
<td>E3X-HD6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>E3X-HD41</td>
<td>E3X-HD8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>E3X-HD14</td>
<td>E3X-HD44</td>
</tr>
<tr>
<td></td>
<td></td>
<td>E3X-HD0</td>
<td>E3X-HD14</td>
</tr>
<tr>
<td></td>
<td></td>
<td>E3X-HD0</td>
<td>E3X-HD44</td>
</tr>
</tbody>
</table>

**Ratings and Specifications**

<table>
<thead>
<tr>
<th>Type</th>
<th>Standard models</th>
<th>For Communications Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>NPN output</td>
<td>E3X-HD11</td>
<td>E3X-HD0</td>
</tr>
<tr>
<td>PNP output</td>
<td>E3X-HD41</td>
<td>E3X-HD0</td>
</tr>
<tr>
<td>Connection method</td>
<td>Wire-saving connector</td>
<td>M8 connector</td>
</tr>
<tr>
<td>Light source (wavelength)</td>
<td>Red, 4-element LED (625 nm)</td>
<td></td>
</tr>
<tr>
<td>Power supply voltage</td>
<td>12 to 24 VDC ±10%, ripple (p-p)±10% max.</td>
<td>Supplied from the connector through the Communications Unit</td>
</tr>
<tr>
<td>Nomal Mode</td>
<td>720mW max. (Current consumption: 30 mA max. at 24 VDC, 60 mA max. at 12 VDC)</td>
<td></td>
</tr>
<tr>
<td>Eco ON</td>
<td>530 mW max. (Current consumption: 22 mA max. at 24 VDC, 44 mA max. at 12 VDC)</td>
<td></td>
</tr>
<tr>
<td>Eco LO</td>
<td>640 mW max. (Current consumption 26 mA max. at 24 VDC, 53 mA max. at 12 VDC)</td>
<td></td>
</tr>
<tr>
<td>Control output</td>
<td>Load power supply voltage: 26.4 VDC max., open-collector output</td>
<td></td>
</tr>
<tr>
<td>Load current: Groups of 1 to 3 Amplifier Units: 100 mA max.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residual voltage: At load current of less than 10 mA; 1 V max.,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>At load current of 10 to 100 mA; 2 V max.</td>
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<td></td>
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<tr>
<td>OFF current: 0.1 mA max.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protective circuits</td>
<td>Reverse power supply connection protection, output short-circuit protection, and reverse output connection protection</td>
<td></td>
</tr>
<tr>
<td>Super-high-speed Mode (SHS)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NPN output: Operate or reset: 50 μs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PNP output: Operate or reset: 55 μs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High-speed Mode (HS)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operate or reset: 250 μs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard Mode (STND)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operate or reset: 1 ms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Giga-power Mode (GIGA)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operate or reset: 16 ms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mutual interference prevention</td>
<td>Possible for up to 10 units</td>
<td></td>
</tr>
<tr>
<td>Maximum connectable Units</td>
<td>16 units</td>
<td>with E3X-CRT: 16 units with E3X-ECT: 30 units</td>
</tr>
</tbody>
</table>

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