

Optical Detector

LG-9200

Instruction Manual

WARNING

- Before attaching or detaching the detector, make sure that the rotating body has stopped.
- To avoid a very dangerous situation that your hands or cloths are caught by the rotating body, apply a protecting cover to the rotating body to prevent the drive unit from being touched.

1. Overview

The LG-9200 Optical Detector, a reflective optical detector, employs an optical fiber at the tip, and is therefore suitable for detection of a rotating body.

The detector incorporates a light source (LED) and photo sensor (photo-transistor), making it compact and easy to use.

The use of the pulse modulation method makes the light source immune to the influence of disturbance light. The built-in operation indicator enables checking the operating status.

2. Operations

2.1 Notes on Attachment

• Attachment fitting

Attach the detector to the object under measurement. Reliably fix the attachment fitting not to jounce by vibration. When threading the attachment fitting, use M16 x 1.

• Attachment position

When attaching the detector, prevent the sunlight and light of electric lamps from directly entering the tip of the detector. Further, when flickering light (fluctuating light) exists around the detector, malfunction may occur. In this case, change the attachment orientation of the detector or apply a cover to it. Do not orient the detector upward because there is a risk that dust easily adheres to the detector, degrading the sensitivity. Maintenance works can be facilitated by attaching the detector in such a way that the operation indicator is easily checked.

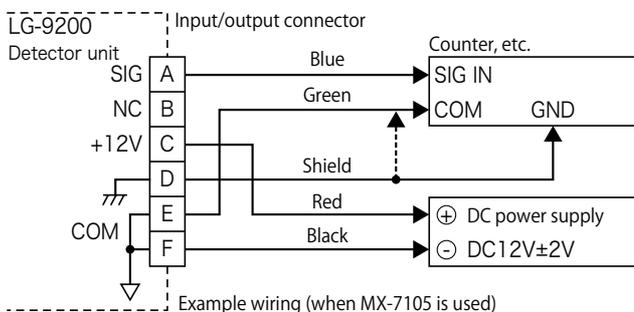
2.2 Handling Precautions

The optical fiber is directly attached to the tip of the detector. Be careful not to damage the fiber or allow dust adherence.

If the detector is dirt, clean it by using a soft cloth. Do not use the detector in a place exposed to water or oil.

2.3 Notes on Wiring

- ① When connecting the detector with a power supply and a measuring instrument (counter), use dedicate cables. Ono Sokki offers the MX-7100 Series as dedicated cables. Avoid connecting the detector and power equipment to the same power line. Supply the power to the detector from a power line separated from power equipment to minimize noise effects.



- ② Perform cable wiring as shown above. Be careful to cable colors.

Since the MX-7100 Series is open on one side, connect the red cable to the positive ⊕ side and the black cable to the negative ⊖ side of the power supply. When the 12VDC±2V is supplied, the detector operates. With signal output, connect the green cable to COM and the blue cable to SIG.IN.

The signal and power supply COM lines are connected inside the detector. If possible, avoid connecting these COM lines outside the detector because leaving the signal COM line and the negative ⊖ side of the power supply unconnected reduces ripple.

The shielded line is connected to the chassis of the detector. Regularly, connect it to the chassis (GND) of the counter. However, the shielded line may be connected to the COM line depending on surrounding noise conditions, counter type, etc.

Since the white line is open, cut the white line if it is not necessary.

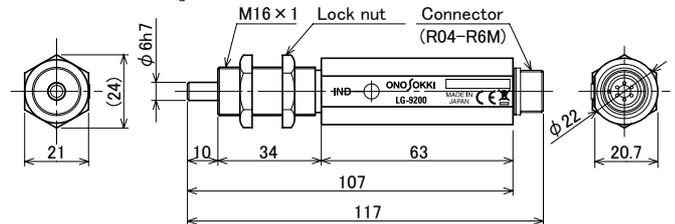
2.4 Operation Check

After checking wiring, turn ON the power and perform operation check. If you bring the supplied reflective mark close to the tip of the detector, the operation indicator lights up and the output signal becomes the Hi level (about 5V). If the operation indicator does not light up, check the polarity of the power supply or wrong wiring. However, the operation indicator may weakly light up even if the detector does not detect the reflected light from the reflective mark. This state is not a failure.

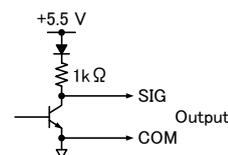
3. Specifications

Detection method	: Reflective photoelectric method using an optical fiber
Detection distance	: Recommended distance 20 to 40 mm (The detection distance depends on the material, color, etc. of the object under detection.)
Object under detection	: Opaque body, reflective mark
Maximum response speed	: 40 m/s (when 12-mm square reflective marks are used at 36-mm intervals (non-reflective))
Response delay time	: 1 ms or below
Light source	: Light-emitting diode (visible light (red))
Photo receptor	: Photo-transistor
Disturbance light	: 3000 lx or below
Power supply	: 12VDC±2V
Current consumption	: 60 mA (12V)
Output voltage	: Hi = +5V±0.5V, Lo = +0.5V or below (with a load resistance of 100k Ω) The output provides a maximum absorption current of 20 mA and a maximum applied voltage of 30V.
Output impedance	: About 1k Ω
Output method	: Voltage output
Protection circuit	: Power source polarity protection
Operating temperature range	: -10°C to +60°C
Storage temperature range	: -20°C to +80°C
Resistance to vibration (conducting)	: 19.6 m/s ² into the X-, Y-, and Z-axis directions
Resistant to shock (non-conducting)	: 490 m/s ² into the X-, Y-, and Z-axis directions (3 times for each direction)
Applicable connector	: R04-PB6F
Shape and dimensions	: Refer to the dimensional outline drawing.
Weight	: About 150 g (including 2 attachment nuts)
Accessories	: Attachment nut x 2 / Instruction manual x 1 / Reflective mark x 1 sheet (12-mm square mark x 25)

Dimensional outline drawing



4. Output Circuit



5. Applicable Standards

CE marking	: EMC Directive (2004/108-/EC) EN61326-1;2006
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■ Omission of Issuance of Test Results

This product has been tested under strict inspections for normal operation before shipment. Please note that the issuance of certificate is omitted.

■ Warranty

1. This product is covered by a warranty for a period of one year from the date of purchase.
2. Even during the warranty period, the following failures will be handled on a fee basis.
 - Failures or damages occurring through misuse, misoperation, or modification
 - Failures or damages occurring through mishandling (dropping) during transportation after purchase
 - Failures or damages occurring through natural calamities (fires, earthquakes, flooding, and lightning), environmental disruption, or abnormal voltage
 - Replenishment of expendable supplies, spare parts, and accessories.
3. For repairs after the warranty period expired, contact your dealer or Ono Sokki sales office nearby.

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