

Fiber Optic Sensor Amplifier FG-1300

ONOSOKKI

Optical Fiber Sensor FS-5500/540/542

CE

■ Features

High sensitivity

- Allows detection without a reflective mark
- Thin rotating shaft can be detected
- Small measurement object can be detected

Enables detection even under high and low temperatures.

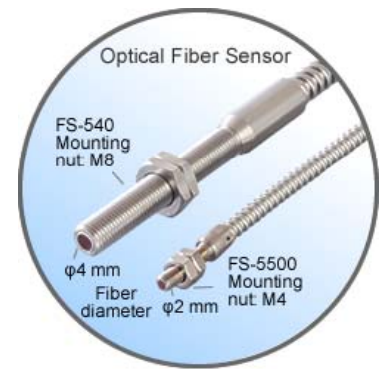
A maximum of 10 kHz response frequency permits measurement of high speed rotating objects.

The gain adjustment, range selection, and threshold level setting functions enable measurement setting as desired.

The automatic threshold adjustment function allows detection at the place even when the reflected light quantity greatly fluctuates.



FS-5500
Optical Fiber Sensor
(sold separately)



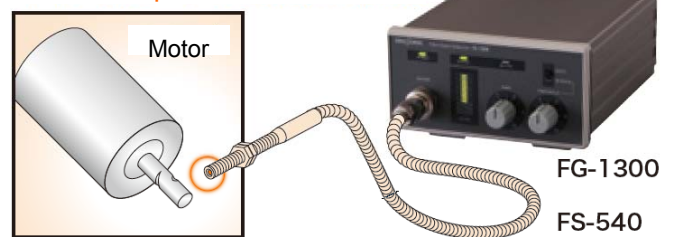
■ Application examples

Measurement for unit inspection of a turbine



Since the FG-1300 can detect minimal change of light, it allows for rotational measurements without a reflective mark. Therefore, a turbine fan that does not directly reflect optical light can be detected. The sensor part enables the device to perform rotational measurements even in very hot temperatures where a reflective mark would not stick as in the case of a turbocharger.

Measurement of a micromotor's rotational speed



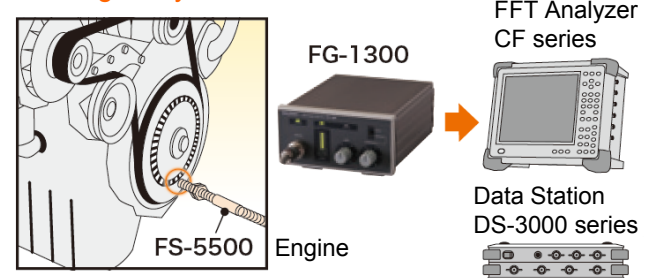
You can obtain rotational signals even from an object such as a thin shaft of a micromotor, as long as there is a 'micro-dent', uneven color or an oil-based pen marking on the surface. The FG-1300 features a maximum of 10 kHz response frequency and enables the detection of a high-speed rotation of 100,000 r/min.

Measurement of an engine's rotational speed



The FG-1300 performs rotational speed measurements of an engine by means of detecting reflected light from a rotating object, then outputting the light as pulses which are inputted into an engine tachometer. Marking a pulley enables measurement even if the pulley is oily which would prevent a reflective mark from sticking.

Rotational signals can be used for rotational tracking analysis



Rotational tracking analysis of an engine and a compressor can be performed by inputting rotational signals detected by the FG-1300 Fiber Optic Sensor Amplifier to an FFT analyzer.

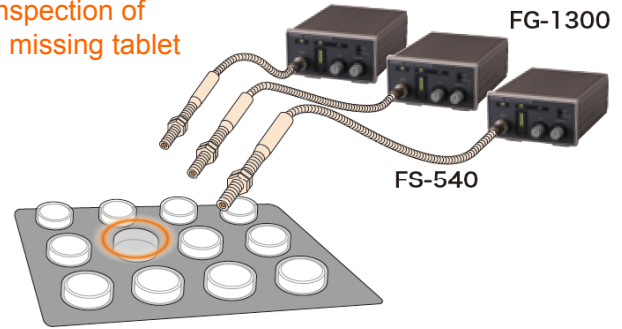
Application examples

Presence or absence detection of small parts



The FS-5500 can project to a small part at a pinpoint with $\phi 2\text{mm}$ of light emission. Presence or absence of a small part flowing on a production line can easily be detected by measuring reflected light amount and judging the level of it by the threshold function.

Inspection of a missing tablet



The FG-1300 checks a missing tablet by projecting light onto the production line and comparing the reflection light amount.

Specifications (FG-1300)

| | |
|----------------------------|--|
| Detection method | Projects LED light onto the measured object through optical fiber and detect amount of reflected light Light source: red LED Photodetector: phototransistor |
| Maximum response frequency | 10 kHz |
| Output signal | MONITOR: detects reflected light and outputs as analog signal waveform in proportion to the light amount. Output voltage range: 0 to 10 V PULSE OUT: shapes and converts waveform of reflected light into square wave and then outputs as signal pulse. Output voltage range: Low 0.5 V or less, High 4.5 V or more Signal output connector: BNC |
| Adjustment function | Gain: can be adjusted by control knob or RANGE selection switch (selects measurement distance). Threshold level: can be adjusted manually / automatically by control knob or selection switch. Range: measurement distance can be adjusted by selection switch. Frequency dividing: divides the PULSE OUT signal by the range of dividing ratio 1 to 10. Peak hold time constant: can be selected from 1 s / 10 s by selection switch. |

| | |
|-----------------------------|--|
| Display | For checking sensitivity: LED bar chart type monitor |
| Power supply | 100 to 240 VAC (50 Hz / 60 Hz) |
| Operating temperature range | 0 to +40 °C |
| Operating humidity range | 5 to 80 %RH (with no condensation) |
| CE marking | Conforming |
| Outer dimensions | 144 (W) × 72 (H) × 212 (D) mm |
| Weight | Approx. 1 kg |
| Accessories | Power cable × 1 Instruction manual × 1 4 rubber pads × 1 set |
| Options (sold separately) | Stand (FG-0131) Panel mounting fixture (FG-0132) |

Specifications (FS-540/542/5500)

| | FS-540 | FS-542 | FS-5500 |
|--|-------------------------------|--------|----------------|
| Detection type | Optical fiber reflection type | | |
| Emitting port diameter at the tip of Fiber | $\phi 4$ mm | | $\phi 2$ mm |
| Cable length (L) | 1 m | 2 m | |
| Mounting nut | M8 | | M4 |
| Operating temperature range | -10 to +250 °C | | -40 to +250 °C |

* A sheet of reflective marks (12mm square x 25 / sheet) is included at the time of purchase. * The length of fiber cable can be extended. Please contact your nearest distributor or send us an e-mail (overseas@onosokki.co.jp).

<Reference> Distance between the Optical Fiber Sensor and the measurement object (when the output signal is 1 V.)

◆ FS-540/542

| Measurement object | Minimum GAIN | Maximum GAIN |
|---------------------------|---------------|---------------|
| Mat black painted surface | $\cong 7$ mm | $\cong 14$ mm |
| White copying paper 12X12 | $\cong 8$ mm | $\cong 15$ mm |
| Reflective mark 12X12 | $\cong 44$ mm | $\cong 69$ mm |

◆ FS-5500

| Measurement object | Minimum GAIN | Maximum GAIN |
|-----------------------|--------------|---------------|
| Zebra tape | $\cong 2$ mm | $\cong 20$ mm |
| Reflective mark 12X12 | $\cong 2$ mm | $\cong 50$ mm |

ONOSOKKI

WORLDWIDE ONO SOKKI CO., LTD.
1-16-1 Hakusan, Midori-ku, Yokohama, 226-8507, Japan
Phone : +81-45-935-3918 Fax : +81-45-930-1808
E-mail : overseas@onosokki.co.jp

* Outer appearance and specifications are subject to change without prior notice.
URL : <https://www.onosokki.co.jp/English/english.htm>

U.S.A.
Ono Sokki Technology Inc.
2171 Executive Drive, Suite 400
Addison, IL. 60101, U.S.A.
Phone : +1-630-627-9700
Fax : +1-630-627-0004
E-mail : info@onosokki.net
<http://www.onosokki.net>

THAILAND
Ono Sokki (Thailand) Co., Ltd.
1/293-4 Moo.9 T.Bangphud
A.Pakkred
Nonthaburi 11120, Thailand
Phone : +66-2-584-6735
FAX : +66-2-584-6740
E-mail : sales@onosokki.co.th

INDIA
Ono Sokki India Private Ltd.
Unit No.4B,Ground Floor, Tower-A, Spazedge,
Sector 47, Gurgaon-Sohna Expressway,
Gurgaon, Haryana-122002, INDIA
Phone : +91-124-421-1807
Fax : +91-124-421-1809
E-mail : osid@onosokki.co.in

P.R.CHINA
Ono Sokki Shanghai Technology Co., Ltd.
Room 506, No.47 Zhengyi Road, Yangpu
District, Shanghai, 200433, P.R.C.
Phone : +86-21-6503-2656
Fax : +86-21-6506-0327
E-mail : admin@shonosokki.com