

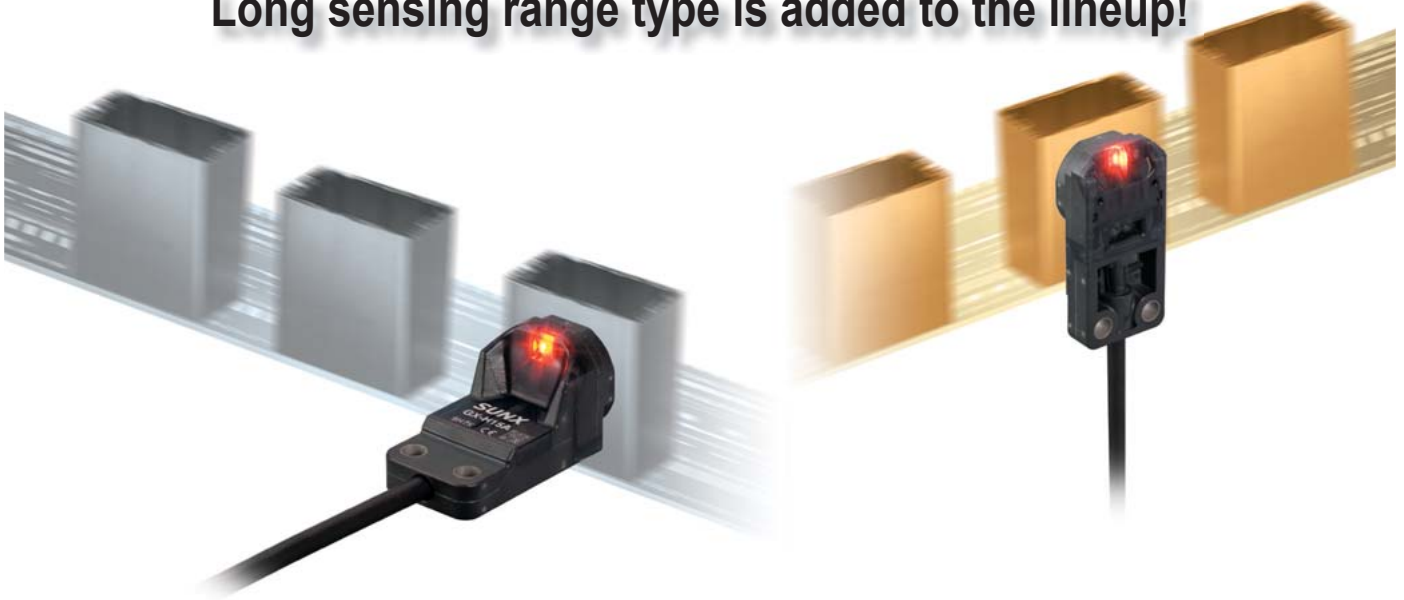


# Amplifier Built-in NEW RECTANGULAR INDUCTIVE PROXIMITY SENSOR

## GX-F15/H15 SERIES



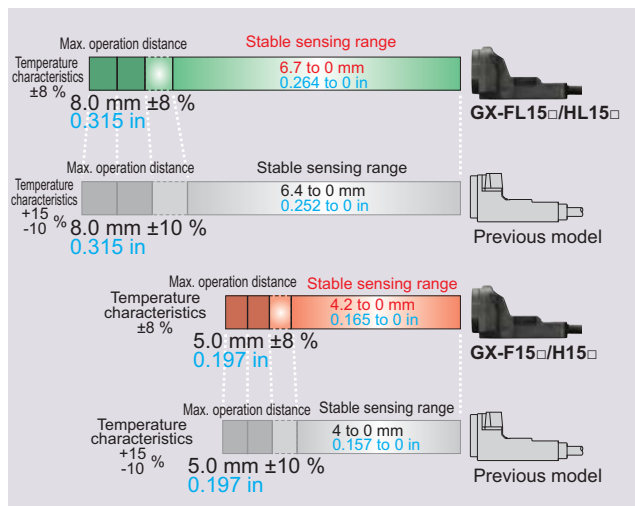
Long sensing range type is added to the lineup!



### Stable detection by superior basic performance!

Variation at the max. operation distance is within  $\pm 8\%$  | Temperature characteristics vary within  $\pm 8\%$

Having little individual variability in the sensors along with excellent temperature characteristics, stable detection can be obtained.



### Highly resistant to water and oil! IP68g protection structure

The new integrated construction method used improves environmental resistance performance. Sensors can be used even in places where water or oil presents.



### Operation indicator of high visibility

An easy-to-see operation indicator (orange) that has a prism with a wide field of view is incorporated.

GX-F(L)15□(-P)



GX-H(L)15□(-P)



### Strong against vibration or shock!

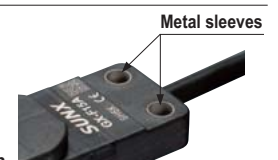
With the new integrated construction method, the sensors were able to clear endurance tests of shock resistance of 10,000 m/s<sup>2</sup> acceleration (1,000 G approx. in X, Y and Z directions for three times each), and vibration resistance of 10 to 500 Hz frequency [3 mm 0.118 in (20 G max.) amplitude in X, Y and Z directions for two hours each].

### Close mounting of two sensors

Different frequency type is available so that two sensors can be mounted closely together.

### Mounting holes with metal sleeves for secure tightening

The mounting holes have metal sleeves inserted to prevent damage to the sensor due to over tightening.



Tightening torque: 1 N·m

## SPECIFICATIONS

| Type                             | NPN output                                                                                                                                                                                 |                                                         |                                                           |                                                         | PNP output                                                                                                                                                                                    |                                                         |                                                           |                                                         |
|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|---------------------------------------------------------|
|                                  | Long sensing range                                                                                                                                                                         |                                                         | Long sensing range                                        |                                                         | Long sensing range                                                                                                                                                                            |                                                         | Long sensing range                                        |                                                         |
| Model No.<br>(Note 2)            | Front sensing                                                                                                                                                                              | Top sensing                                             | Front sensing                                             | Top sensing                                             | Front sensing                                                                                                                                                                                 | Top sensing                                             | Front sensing                                             | Top sensing                                             |
| Item                             | GX-F15A(I)                                                                                                                                                                                 | GX-F15B(I)                                              | GX-FL15A(I)                                               | GX-FL15B(I)                                             | GX-F15A(I)-P                                                                                                                                                                                  | GX-F15B(I)-P                                            | GX-FL15A(I)-P                                             | GX-FL15B(I)-P                                           |
| Max. operation distance (Note 3) | 5.0 mm 0.197 in $\pm 8\%$                                                                                                                                                                  | 8.0 mm 0.315 in $\pm 8\%$ (Note 4)                      | 5.0 mm 0.197 in $\pm 8\%$                                 | 8.0 mm 0.315 in $\pm 8\%$ (Note 4)                      | 5.0 mm 0.197 in $\pm 8\%$                                                                                                                                                                     | 8.0 mm 0.315 in $\pm 8\%$ (Note 4)                      | 5.0 mm 0.197 in $\pm 8\%$                                 | 8.0 mm 0.315 in $\pm 8\%$ (Note 4)                      |
| Stable sensing range (Note 3)    | 0 to 4.2 mm 0 to 0.165 in                                                                                                                                                                  | 0 to 6.7 mm 0 to 0.264 in (Note 4)                      | 0 to 4.2 mm 0 to 0.165 in                                 | 0 to 6.7 mm 0 to 0.264 in (Note 4)                      | 0 to 4.2 mm 0 to 0.165 in                                                                                                                                                                     | 0 to 6.7 mm 0 to 0.264 in (Note 4)                      | 0 to 4.2 mm 0 to 0.165 in                                 | 0 to 6.7 mm 0 to 0.264 in (Note 4)                      |
| Standard sensing object          | Iron sheet 20 × 20 × 1.1 mm<br>0.7874 × 0.7874 × 0.039 in                                                                                                                                  | Iron sheet 30 × 30 × 1.1 mm<br>1.181 × 1.181 × 0.039 in | Iron sheet 20 × 20 × 1.1 mm<br>0.7874 × 0.7874 × 0.039 in | Iron sheet 30 × 30 × 1.1 mm<br>1.181 × 1.181 × 0.039 in | Iron sheet 20 × 20 × 1.1 mm<br>0.7874 × 0.7874 × 0.039 in                                                                                                                                     | Iron sheet 30 × 30 × 1.1 mm<br>1.181 × 1.181 × 0.039 in | Iron sheet 20 × 20 × 1.1 mm<br>0.7874 × 0.7874 × 0.039 in | Iron sheet 30 × 30 × 1.1 mm<br>1.181 × 1.181 × 0.039 in |
| Hysteresis                       | 20 % or less of operation distance (with standard sensing object)                                                                                                                          |                                                         |                                                           |                                                         |                                                                                                                                                                                               |                                                         |                                                           |                                                         |
| Repeatability                    | Along sensing axis, perpendicular to sensing axis: 0.04 mm 0.0016 in or less                                                                                                               |                                                         |                                                           |                                                         |                                                                                                                                                                                               |                                                         |                                                           |                                                         |
| Supply voltage                   | 12 to 24 V DC $\pm 10\%$ Ripple P-P 10 % or less                                                                                                                                           |                                                         |                                                           |                                                         |                                                                                                                                                                                               |                                                         |                                                           |                                                         |
| Current consumption              | 15 mA or less                                                                                                                                                                              |                                                         |                                                           |                                                         |                                                                                                                                                                                               |                                                         |                                                           |                                                         |
| Output                           | NPN open-collector transistor<br>• Maximum sink current: 100 mA<br>• Applied voltage: 30 V DC or less (between output and 0 V)<br>• Residual voltage: 2 V or less (at 100 mA sink current) |                                                         |                                                           |                                                         | PNP open-collector transistor<br>• Maximum source current: 100 mA<br>• Applied voltage: 30 V DC or less (between output and +V)<br>• Residual voltage: 2 V or less (at 100 mA source current) |                                                         |                                                           |                                                         |
| Output operation                 | Normally open                                                                                                                                                                              | Normally closed                                         | Normally open                                             | Normally closed                                         | Normally open                                                                                                                                                                                 | Normally closed                                         | Normally open                                             | Normally closed                                         |
| Max. response frequency          | 250 Hz                                                                                                                                                                                     | 150 Hz (Note 5)                                         | 250 Hz                                                    | 150 Hz (Note 5)                                         | 250 Hz                                                                                                                                                                                        | 150 Hz (Note 5)                                         | 250 Hz                                                    | 150 Hz (Note 5)                                         |
| Operation indicator              | Orange LED (lights up when the output is ON)                                                                                                                                               |                                                         |                                                           |                                                         |                                                                                                                                                                                               |                                                         |                                                           |                                                         |
| Protection                       | IP68 (IEC), IP68g (JEM) (Note 6, 7)                                                                                                                                                        |                                                         |                                                           |                                                         |                                                                                                                                                                                               |                                                         |                                                           |                                                         |
| Ambient temperature              | -25 to +70 °C -13 to +158 °F, Storage: -40 to +85 °C -40 to +185 °F                                                                                                                        |                                                         |                                                           |                                                         |                                                                                                                                                                                               |                                                         |                                                           |                                                         |
| Ambient humidity                 | 45 to 85 % RH, Storage: 35 to 95 % RH                                                                                                                                                      |                                                         |                                                           |                                                         |                                                                                                                                                                                               |                                                         |                                                           |                                                         |
| Sensing range variation          | Over ambient temperature range -25 to +70 °C -13 to +158 °F: Within $\pm 8\%$ of sensing range at +23 °C +73.4 °F.                                                                         |                                                         |                                                           |                                                         |                                                                                                                                                                                               |                                                         |                                                           |                                                         |
| Voltage characteristics          | Within $\pm 2\%$ for $\pm 10\%$ fluctuation of the supply voltage                                                                                                                          |                                                         |                                                           |                                                         |                                                                                                                                                                                               |                                                         |                                                           |                                                         |
| Material                         | Enclosure: PBT, Indicator part: Polyester                                                                                                                                                  |                                                         |                                                           |                                                         |                                                                                                                                                                                               |                                                         |                                                           |                                                         |
| Cable                            | 0.15 mm <sup>2</sup> 3-core oil, heat and cold resistant cabtyre cable, 1 m 3.281 ft long                                                                                                  |                                                         |                                                           |                                                         |                                                                                                                                                                                               |                                                         |                                                           |                                                         |
| Net weight                       | 20 g approx.                                                                                                                                                                               |                                                         |                                                           |                                                         |                                                                                                                                                                                               |                                                         |                                                           |                                                         |

Notes: 1) Where measurement conditions have not been specified precisely, the conditions used were an ambient temperature of +23 °C +73.4 °F.  
 2) "I" in the model No. indicates a different frequency type.  
 3) The maximum operation distance stands for the maximum distance for which the sensor can detect the standard sensing object. The stable sensing range stands for the sensing range for which the sensor can stably detect the standard sensing object even if there is an ambient temperature drift and/or supply voltage fluctuation.  
 4) This is when mounted onto an insulant plate. When mounted onto a steel or stainless steel plate, insert the optional aluminum sheet between the sensor and the plate.  
 5) This is when mounted onto an insulant plate. When mounted onto a metallic plate, max. response frequency will decrease.  
 6) SUNX's IP68 test method  
 ① Immerse at 0 m below 0 °C +32 °F water surface and leave for 30 min. Then, immerse at 0 m below +70 °C +158 °F water surface and leave for 30 min.  
 ② Regard the heat shock test in ① as one cycle and perform 20 cycles.  
 ③ Leave in water at a depth of 1 m 3.281 ft in water for 500 hours.  
 ④ After tests ① to ③, insulation resistance, voltage withstandability, current consumption, and sensing range must meet the standard values.  
 7) If using the sensor in an environment where cutting oil droplets splatter, the sensor may be deteriorated due to added substances in the oil.

### Cable length 5 m 16.404 ft type, flexible cable type

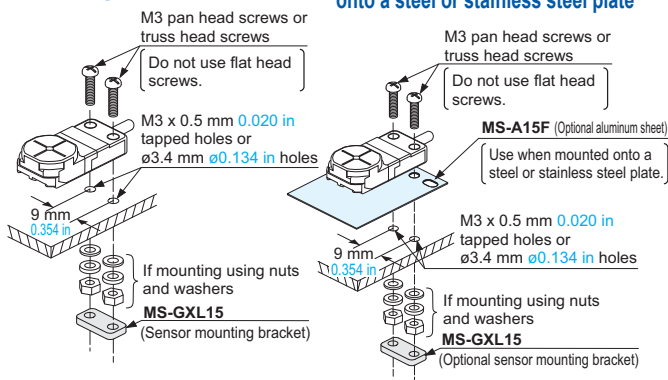
Cable length 5 m 16.404 ft type (standard is 1 m 3.281 ft) and flexible cable (excluding cable length 5 m type) are available. However, long sensing range type is not available. When ordering cable length 5 m 16.404 ft type, suffix "-C5" to the model No. When ordering flexible cable type, suffix "-R" to the model No. (e.g.) 0.5m 1.640 ft cable length type of GX-F15AI-P is "GX-F15AI-P-C5". Flexible cable type of GX-F15AI-P is "GX-F15AI-P-R".

## OPTIONS

### Sensor mounting bracket

- MS-GXL15  
Nut is not attached.

### Mounting



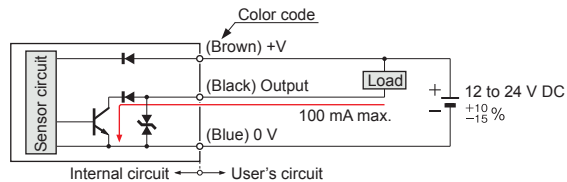
### Aluminum sheet

- MS-A15F [For GX-FL15□(-P)]
- MS-A15H [For GX-HL15□(-P)]

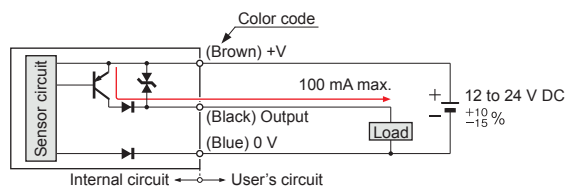
### Mounting example when mounted onto a steel or stainless steel plate

## I/O CIRCUIT DIAGRAM

### GX-F(L)15□ GX-H(L)15□ NPN output type

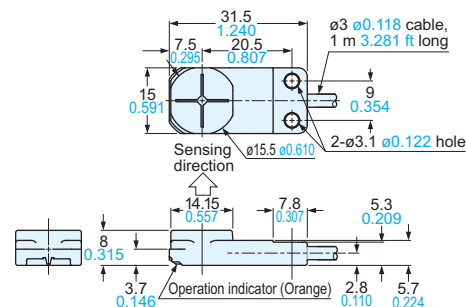


### GX-F(L)15□-P GX-H(L)15□-P PNP output type

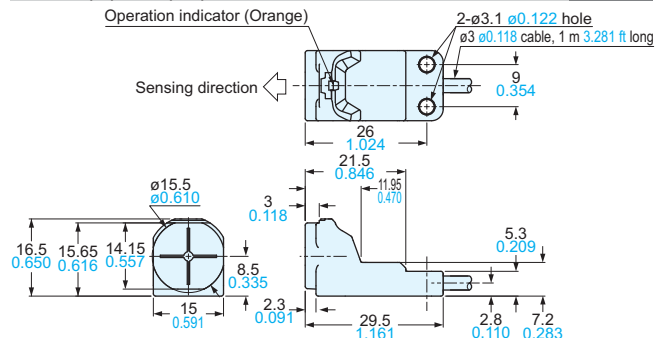


## DIMENSIONS (Unit: mm in)

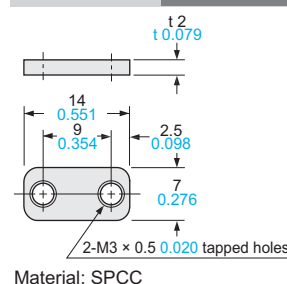
### GX-F(L)15□(-P) Sensor



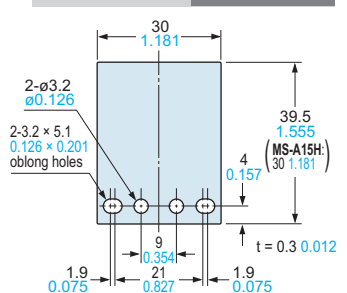
### GX-H(L)15□(-P) Sensor



### MS-GXL15 Sensor mounting bracket (Optional)



### MS-A15F MS-A15H Aluminum sheet (Optional)



All information is subject to change without prior notice.



### SUNX Limited

2431-1 Ushiyama-cho, Kasugai-shi, Aichi,  
486-0901, Japan  
Phone: +81-568-33-7211  
FAX: +81-568-33-2631

### Overseas Sales Division

Phone: +81-568-33-7861  
FAX: +81-568-33-8591

<http://www.sunx.com>