

SPECIFICATIONS

DC 2-wire type

| Type Standard Model No. | | GXL-8 type | | GXL-15 type | | | |
|-----------------------------------|-----------------------------|---|--|--|---|--|---|
| | | | | Standard | | Long sensing range (For mounting on non-magnetic body) (Note 1) | |
| | | Front sensing | Top sensing | Front sensing | Top sensing | Front sensing | Top sensing |
| Item | | GXL-8FU | GXL-8HU | GXL-15FU | GXL-15HU | GXL-15FLU | GXL-15HLU |
| Max. operation distance (Note 2) | | 2.5 mm 0.098 in ± 20 % | | 5 mm 0.197 in ± 10 % | | 8 mm 0.315 in ± 10 % | |
| Stable sensing range (Note 2) | | 0 to 1.8 mm 0 to 0.071 in | | 0 to 4 mm 0 to 0.157 in | | 0 to 6.4 mm 0 to 0.252 in | |
| Standard sensing object | | Iron sheet 15 × 15 × t 1 mm 0.591 × 0.591 × t 0.039 in | | Iron sheet 20 × 20 × t 1 mm 0.787 × 0.787 × t 0.039 in | | Iron sheet 30 × 30 × t 1 mm 1.181 × 1.181 × t 0.039 in | |
| Hysteresis | | 20 % or less of operation distance | | | | | |
| Repeatability | | Along sensing axis, perpendicular to sensing axis: 0.04 mm 0.002 in or less | | | | | |
| Supply voltage | | 12 to 24 V DC ± 10 % Ripple P-P 10 % or less | | | | | |
| Current consumption (Note 3) | | 0.8 mA or less | | | | | |
| Output | | Non-contact DC 2-wire type • Load current: 3 to 70 mA (Note 4) • Residual voltage: 3 V or less (Note 5) | | Non-contact DC 2-wire type • Load current: 3 to 100 mA (Note 4) • Residual voltage: 3 V or less (Note 5) | | | |
| | | Utilization category | | DC-12 or DC-13 | | | |
| | | Short-circuit protection | | Incorporated | | | |
| Max. response frequency | | 1 kHz | | | | | |
| Operation indicator | | Normally closed type: Red LED (lights up when the output is ON) | | | | | |
| 2-color indicator | | Normally open type: Lights up in green under stable sensing condition Lights up in red under unstable sensing condition | | | | | |
| Environmental resistance | Pollution degree | | 3 (Industrial environment) | | | | |
| | Protection | | IP67 (IEC), IP67 g (JEM) | | | | |
| | Ambient temperature | | − 25 to + 70 °C − 13 to + 158 °F, Storage: − 30 to + 80 °C − 22 to + 176 °F | | | | |
| | Ambient humidity | | 45 to 85 % RH, Storage: 35 to 95 % RH | | | | |
| | EMC | | EN 50081-2, EN 50082-2, EN 60947-5-2 | | | | |
| | Voltage withstandability | | 1,000 V AC for one min. between all supply terminals connected together and enclosure | | | | |
| | Insulation resistance | | 50 MΩ, or more, with 250 V DC megger between all supply terminals connected together and enclosure | | | | |
| | Vibration resistance | | 10 to 55 Hz frequency, 1.5 mm 0.059 in amplitude in X, Y and Z directions for two hours each | | | | |
| Shock resistance | | 1,000 m/s² acceleration (100 G approx.) in X, Y and Z directions for three times each | | | | | |
| Sensing range variation | Temperature characteristics | Over ambient temperature range − 25 to + 70 °C − 13 to + 158 °F: Within ± ¹⁵ ₁₀ % of sensing range at + 20 °C + 68 °F | | | | | |
| | Voltage characteristics | Within ± 2 % for ± 10 % fluctuation of the supply voltage | | | | | |
| Material | | Enclosure: PBT, Indicator part: Polyallylate | | | Enclosure: PET (Glass fiber reinforced) Indicator part: Polyallylate | Enclosure: PBT Indicator part: Polyallylate | Enclosure: PET (Glass fiber reinforced) Indicator part: Polyallylate |
| Cable (Note 6) | | 0.15 mm² 2-core oil, heat and cold resistant cable, 1 m 3.281 ft long | | 0.2 mm² 2-core oil, heat and cold resistant cable, 1 m 3.281 ft long | | | |
| Cable extension | | Extension up to total 50 m 164.042 ft is possible with 0.3 mm², or more, cable. | | | | | |
| Weight | | 12 g approx. | | 20 g approx. | | | |
| Accessories | | MS-GXL8-4 (Sensor mounting bracket): 1 set | | | MS-A15F (Aluminum sheet): 1 pc. | | MS-A15H (Aluminum sheet): 1 pc. |

Notes: 1) To mount the long sensing range **GXL-15** type on a magnetic body, such as iron, the enclosed aluminum sheet, or any other aluminum sheet having a minimum size of 30 X 39.5 X t 0.3 mm 1.181 X 1.555 X t 0.012 in (**GXL-15HLU** type: 30 X 30 X t 0.3 mm 1.181 X 1.181 X t 0.012 in), should be inserted between the sensor and the magnetic body.

However, it is not necessary to use the aluminum sheet when mounting on a non-magnetic body, such as, aluminum or an insulator.

2) 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.

3) It is the leakage current when the output is in the OFF state.

4) The maximum load current varies with the ambient temperature. Refer to 'I/O CIRCUIT AND WIRING DIAGRAMS' (p.691~) for more details.

5) When the cable is extended, the residual voltage becomes larger according to the resistance of the cable.

The residual voltage of 5 m 16.404 ft cable length type increases by 0.1 V.

6) The flexible cable type (model No. with suffix **-R**) has a 0.15 mm² (**GXL-15** type: 0.2 mm²) flexible, oil, heat and cold resistant cabtyre cable, 1 m 3.281 ft long.

SPECIFICATIONS

NPN and PNP output type

| Type | | NPN output | | | | | | | PNP output | | |
|----------------------------------|---|---|--|---|---------------|---|---|---|---|---------------|---|
| | | GXL-8 type | | GXL-N12 type | | GXL-15 type | | | GXL-N12 type | | GXL-15 type |
| | | | | Cable type | Terminal type | Standard | | Long sensing range (For mounting on non-magnetic body (Note 1)) | Cable type | Terminal type | Standard |
| | | Front sensing | Top sensing | Front sensing | | Front sensing | Top sensing | | Top sensing | Front sensing | |
| Item | Standard Model No. | GXL-8F | GXL-8H | GXL-N12F | GXL-N12FT | GXL-15F | GXL-15H | GXL-15HL | GXL-N12F-P | GXL-N12FT-P | GXL-15F-P |
| Max. operation distance (Note 2) | | 2.5 mm 0.098 in ± 20 % | | 3 mm 0.118 in ± 10 % | | 5 mm 0.197 in ± 10 % | | 8 mm 0.315 in ± 10 % | 3 mm 0.118 in ± 10 % | | 5 mm 0.197 in ± 10 % |
| Stable sensing range (Note 2) | | 0 to 1.8 mm 0 to 0.071 in | | 0 to 2 mm 0 to 0.079 in | | 0 to 4 mm 0 to 0.157 in | | 0 to 6.4 mm 0 to 0.252 in | 0 to 2 mm 0 to 0.079 in | | 0 to 4 mm 0 to 0.157 in |
| Standard sensing object | | Iron sheet 15 × 15 × t 1 mm 0.591 × 0.591 × t 0.039 in | | Iron sheet 20 × 20 × t 1 mm 0.787 × 0.787 × t 0.039 in | | | | Iron sheet 30 × 30 × t 1 mm 1.181 × 1.181 × t 0.039 in | Iron sheet 20 × 20 × t 1 mm 0.787 × 0.787 × t 0.039 in | | |
| Hysteresis | | 20 % or less of operation distance | | | | | | | | | |
| Repeatability | | Along sensing axis, perpendicular to sensing axis: 0.04 mm 0.002 in or less | | | | | Along sensing axis, perpendicular to sensing axis: 0.06 mm 0.002 in or less | | Along sensing axis, perpendicular to sensing axis: 0.04 mm 0.002 in or less | | |
| Supply voltage | | 12 to 24 V DC ± 10 % Ripple P-P 10 % or less | | | | | | | | | |
| Current consumption | | 15 mA or less | | | | | | | | | |
| Output | | NPN open-collector transistor • Maximum sink current: 100 mA • Applied voltage: 30 V DC or less (between output and 0 V) • Residual voltage: 1 V or less (at 100 mA sink current) 0.4 V or less (at 16 mA sink current) | | | | | | | PNP open-collector transistor • Maximum source current: 100 mA • Applied voltage: 30 V DC or less (between output and + V) • Residual voltage: 1 V or less (at 100 mA source current) 0.4 V or less (at 16 mA source current) | | |
| Utilization category | | DC-12 or DC-13 | | | | | | | | | |
| Short-circuit protection | | | | | | | | | | | |
| Max. response frequency | | 500 Hz | | | | 250 Hz | | | 500 Hz | | 250 Hz |
| Operation indicator | | Red LED (lights up when the output is ON) | | | | | | | | | |
| Environmental resistance | Pollution degree | 3 (Industrial environment) | | | | | | | | | |
| | Protection | IP67 (IEC), IP67 g (JEM) except for the terminal type | | | | | | | | | |
| | Ambient temperature | − 10 to + 55 °C 14 to + 131 °F, Storage: − 30 to + 80 °C − 22 to + 176 °F | | | | | | | | | |
| | Ambient humidity | 45 to 85 % RH, Storage: 35 to 95 % RH | | | | | | | | | |
| | EMC | EN 50081-2, EN 50082-2, EN 60947-5-2 | | | | | | | | | |
| | Voltage withstandability | 1,000 V AC for one min. between all supply terminals connected together and enclosure | | | | | | | | | |
| | Insulation resistance | 50 MΩ, or more, with 250 V DC megger between all supply terminals connected together and enclosure | | | | | | | | | |
| Vibration resistance | 10 to 55 Hz frequency, 1.5 mm 0.059 in amplitude in X, Y and Z directions for two hours each | | | | | | | | | | |
| Shock resistance | 1,000 m/s ² acceleration (100 G approx.) in X, Y and Z directions for three times each | | | | | | | | | | |
| Sensing range variation | Temperature characteristics | Over ambient temperature range − 10 to + 55 °C + 14 to + 131 °F: Within $\pm \frac{15}{10}$ % of sensing range at + 20 °C + 68 °F | | | | | | | | | |
| | Voltage characteristics | Within ± 2 % for ± 10 % fluctuation of the supply voltage | | | | | | | | | |
| Material | | Enclosure: PBT, Indicator part: Polyallylate | | | | | Enclosure: PET (Glass fiber reinforced) Indicator part: Polyallylate | | Enclosure: PBT Indicator part: Polyallylate | | |
| Cable (Note 3) | | 0.08 mm ² 3-core oil, heat and cold resistant cabtyre cable, 1 m 3.281 ft long | 0.15 mm ² 3-core oil, heat and cold resistant cabtyre cable, 1 m 3.281 ft long | | | 0.15 mm ² 3-core oil, heat and cold resistant cabtyre cable, 1 m 3.281 ft long | | | | | 0.15 mm ² 3-core oil, heat and cold resistant cabtyre cable, 1 m 3.281 ft long |
| Cable extension | | Extension up to total 100 m 328.084 ft is possible with 0.3 mm ² , or more, cable. | | | | | | | | | |
| Weight | | 12 g approx. | 20 g approx. | 5 g approx. | | 20 g approx. | | | 5 g approx. | 20 g approx. | |
| Accessories | | MS-GXL8 (Sensor mounting bracket): 1 set | MS-GXL12-1 (Sensor mounting bracket): 1 pc. M3 pan head screw, plain washer, spring washer and nut: 1 set MS-R1 (Rubber washer): 1 pc. | | | | | MS-A15H (Aluminum sheet): 1 pc. | MS-GXL12-1 (Sensor mounting bracket): 1 pc. M3 pan head screw, plain washer, spring washer and nut: 1 set MS-R1 (Rubber washer): 1 pc. | | |

Notes: 1) To mount the long sensing range **GXL-15** type on a magnetic body, such as iron, the enclosed aluminum sheet or any other aluminum sheet having a minimum size of 30 × 30 × t 0.3 mm 1.181 × 1.181 × t 0.012 in, should be inserted between the sensor and the magnetic body.
However, it is not necessary to use the aluminum sheet when mounting on a non-magnetic body, such as, aluminum or an insulator.

2) 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.

3) The flexible cable type (model No. with suffix **-R**) has a 0.15 mm² (**GXL-8** type: 0.1 mm²) flexible, oil, heat and cold resistant cabtyre cable, 1 m 3.281 ft long.