

Panasonic

INSTRUCTION MANUAL

Cylindrical • Amplifier Built-in Proximity Sensor

GX-200 Series

Thank you very much for purchasing Panasonic products.
Please read this Instruction Manual carefully and thoroughly for the correct and optimum use of this product.
Kindly keep this manual in a convenient place for quick reference.
This manual divides the safety precautions into “ **WARNING**” by danger level.

	Content that may cause death or serious injury”.
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	WARNING
	Never use this product as a sensing device for personnel protection, otherwise it may result in death or serious injury.
	In case of using sensing devices for personnel protection, use products which meet laws and standards, such as OSHA, ANSI or IEC etc., for personnel protection applicable in each region or country.
	The product is designed to conduct object detection, which does not have the control function for the purpose of safety guarantee and cannot prevent accidents.
	Never disassemble or modify the produ.

1 INTENDED PRODUCTS FOR CE MARKING

- The product applies the following applicable specifications/regulations.

<Conformity Directives /Conforming Regulations>
EU Regulation: EMC Directive 2014/30/EU
- Applicable Standards
EN IEC 60947-5-2:2020
Note 1): When using the product, please be sure to confirm the specifications/regulations of the country and region of use.

2 CAUTIONS

Specification
- This product has been developed / produced for industrial use only. - Do not use under conditions outside the specifications of this product. Otherwise, accidents or failures may occur. And life expectancy may also be significantly shortened.
Service Environment
- This product is suitable for indoor use only. - Do not install the product in the following places: - Places where flammable or corrosive gases are present, or much of dust, dirt, and steam. - Places with much dust, iron filings and salt - Places exposed to direct sunlight - Places that come into contact with organic solvents such as diluents or strong acids, alkalis, pharmaceuticals, water, oils and grease. - Places that will burden the product - Places surrounded by inflammables - Do not use the product in an environment where the temperature changes dramatically and condensation is easy to attach. - The specification may not be satisfied in a strong magnetic field. - The product is precision machinery and equipment. Do not impact it, such as falling. Otherwise, it may cause malfunction.
Power Supply
- Make sure that the change of power supply voltage does not vary beyond the rated range when in use. If a voltage exceeding the rated range is applied, or if an AC power supply is directly connected, the product may get burnt or be damaged. - If power is supplied from a commercial switching regulator, ensure that the frame ground (F.G.) terminal of the power supply is connected to an actual ground. - Do not use for a short time (50 ms) after the power is turned on. - In case of surge, it is necessary to connect a surge absorber at the source of surge. - When using a transformer for the power supply section, be sure to use an insulated transformer. If an autotransformer (single coil transformer) is used, the product or power supply may be damaged. - Please use an insulated power supply with a protection circuit to protect against abnormal voltage caused by the power line. - If a power device without internal protective circuit is used, be sure to supply power with fuse or other protective element.

- Do not use the product in an environment where the temperature changes dramatically and condensation is easy to attach.
- The specification may not be satisfied in a strong magnetic field.
- The product is precision machinery and equipment. Do not impact it, such as falling. Otherwise, it may cause malfunction.

4 SPECIFICATIONS

Type		DC 3-Wire Cable Type									
		2x distance shielded type					2x distance unshielded type				
Model	Normally open	NPN Output	GX-208MKA	GX-212MKA	GX-218MKA	GX-230MKA	GX-208MLKA	GX-208MLKA	GX-218MLKA	GX-230MLKA	
		PNP Output	GX-208MKA-P	GX-212MKA-P	GX-218MKA-P	GX-230MKA-P	GX-208MLKA-P	GX-212MLKA-P	GX-218MLKA-P	GX-230MLKA-P	
Item	Normally closed	NPN Output	GX-208MKB	GX-212MKB	GX-218MKB	GX-230MKB	GX-208MLKB	GX-212MLKB	GX-218MLKB	GX-230MLKB	
		PNP Output	GX-208MKB-P	GX-212MKB-P	GX-218MKB-P	GX-230MKB-P	GX-208MLKB-P	GX-212MLKB-P	GX-218MLKB-P	GX-230MLKB-P	
Max. operation distance			2mm ± 10%	4mm ± 10%	8mm ± 10%	15mm ± 10%	4mm ± 10%	8mm ± 10%	16mm ± 10%	30mm ± 10%	
Stable sensing range			0mm ~ 1.6mm	0mm ~ 3.2mm	0mm ~ 6.4mm	0mm ~ 12mm	0mm ~ 3.2mm	0mm ~ 6.4mm	0mm ~ 12.8mm	0mm ~ 24mm	
Standard sensing object			Iron sheet 8mm×8mm ×1mm	Iron sheet 12mm×12mm ×1mm	Iron sheet 24mm×24mm ×1mm	Iron sheet 45mm×45mm× t1mm	Iron sheet 12mm×12mm ×t1mm	Iron sheet 24mm×24mm ×t1mm	Iron sheet 48mm×48mm ×t1mm	Iron sheet 90mm×90mm ×t1mm	
Frequency Response			1.5KHZ	1KHZ	0.5KHZ	0.25KHZ	1KHZ	0.8KHZ	0.4KHZ	0.1KHZ	
Hysteresis			15% or less of operation distance (standard sensing object)								
Repeatability			5% or less of operation distance								
Supply voltage			10 V ~ 30 V DC±10%								
Current consumption			10 mA or less								
Output			< NPN Output type > NPN open-collector transistor ·Load current :<100 mA(GX-208 series) <200 mA(except GX-208 series) ·Residual voltage :<2 V(Load current 100mA and when the conductor length is 2 meters) <2.5 V(Load current 200mA and when the conductor length is 2 meters)				< PNP Output type > PNP open-collector transistor ·Load current :<100 mA(GX-208 series) <200 mA(except GX-208 series) ·Residual voltage : <2 V(Load current 100mA and when the conductor length is 2 meters) <2.5 V(Load current 200mA and when the conductor length is 2 meters)				
Operation indicator			Orange LED								
Temperature effect			With in 10% of the detection distance at + 23°C in the temperature range of -25°C to +70°C .								
Environmental resistance	IP protection		IP67 / IP67G(IEC)								
	Circuit protection		Power polarity protection, short circuit protection, overload protection,surge absorption								
	Ambient temperature		Use and storage: -25°C ~ +70°C (no condensation or frost)								
	Ambient humidity		Use and storage: 35% RH to 85% RH								
	Voltage withstandability		1000 V AC for one min. between all supply terminals connected together and enclosure								
	Insulation resistance		Above 20 MΩ between all power connection terminals and housing, mega meter based on DC 500V								
	Vibration resistance		10 Hz to 55 Hz frequency,1.5mm double amplitude in X,Y and Z direction for 2 hours each								
	Shock resistance		500m/s² acceleration (50 G approx.) in X,Y and Z directions for three times each								
Material			Housing: Nickel-plated brass, GX-208 housing is stainless steel Sensing surface: PBT								
Cable			3-core rubber cable with cross section area of 0.2 mm² length of 2m								
Cable extension			Extension up to total 100m is possible with 0.3 mm²,or more,cable.								
Weight			58 g Approx.	93.5 g Approx.	145 g Approx.	199.5 g Approx.	63.8 g Approx.	99.5 g Approx.	162.5 g Approx.	213 g Approx.	

Type		DC 3-wire plug-in type								
		2x distance shielded type				2x distance unshielded type				
Model	Normally open	NPN Output	GX-208MKA-Z	GX-212MKA-Z	GX-218MKA-Z	GX-230MKA-Z	GX-208MLKA-Z	GX-212MLKA-Z	GX-218MLKA-Z	GX-230MLKA-Z
		PNP Output	GX-208MKA-P-Z	GX-212MKA-P-Z	GX-218MKA-P-Z	GX-230MKA-P-Z	GX-208MLKA-P-Z	GX-212MLKA-P-Z	GX-218MLKA-P-Z	GX-230MLKA-P-Z
Item	Normally closed	NPN Output	GX-208MKB-Z	GX-212MKB-Z	GX-218MKB-Z	GX-230MKB-Z	GX-208MLKB-Z	GX-212MLKB-Z	GX-218MLKB-Z	GX-230MLKB-Z
		PNP Output	GX-208MKB-P-Z	GX-212MKB-P-Z	GX-218MKB-P-Z	GX-230MKB-P-Z	GX-208MLKB-P-Z	GX-212MLKB-P-Z	GX-218MLKB-P-Z	GX-230MLKB-P-Z
Max. operation distance			2mm ± 10%	4mm ± 10%	8mm ± 10%	15mm ± 10%	4mm ± 10%	8mm ± 10%	16mm ± 10%	30mm ± 10%
Stable sensing range			0mm ~ 1.6mm	0mm ~ 3.2mm	0mm ~ 6.4mm	0mm ~ 12mm	0mm ~ 3.2mm	0mm ~ 6.4mm	0mm ~ 12.8mm	0mm ~ 24mm
Standard sensing object			Iron sheet 8mm×8mm ×t1mm	Iron sheet 12mm×12mm ×t1mm	Iron sheet 12mm×12mm ×t1mm	Iron sheet 45mm×45mm ×t1mm	Iron sheet 12mm×12mm ×t1mm	Iron sheet 24mm×24mm ×t1mm	Iron sheet 48mm×48mm ×t1mm	Iron sheet 90mm×90mm ×t1mm
Frequency Response			1.5KHZ	1KHZ	0.5KHZ	0.25KHZ	1KHZ	0.8KHZ	0.4KHZ	0.1KHZ
Hysteresis			15% or less of operation distance (standard sensing object)							
Repeatability			5% or less of operation distance							
Supply voltage			10 V ~ 30 V DC±10%							
Current consumption			10 mA or less							
Output			< NPN Output type > NPN open-collector transistor ·Load current :<100 mA(GX-208 series) <200 mA(except GX-208 series) Residual voltage :<2 V(Load current 100mA and when the conductor length is 2 meters) <2.5 V(Load current 200mA and when the conductor length is 2 meters)				< PNP Output type > PNP open-collector transistor ·Load current :<100 mA(GX-208 series) <200 mA(except GX-208 series) Residual voltage : <2 V(Load current 100mA and when the conductor length is 2 meters) <2.5 V(Load current 200mA and when the conductor length is 2 meters)			
Operation indicator			Orange LED							
Temperature effect			With in 10% of the detection distance at +23°C in the temperature range of -25°C to +70°C .							
Environmental resistance	IP protection		IP67 / IP67G(IEC)							
	Circuit protection		Power polarity protection, short circuit protection, overload protection,surge absorption							
	Ambient temperature		Use and storage: -25°C ~ +70°C (no condensation or frost)							
	Ambient humidity		Use and storage: 35%RH to 85%RH							
	Voltage withstandability		1000 V AC for one min. between all supply terminals connected together and enclosure							
	Insulation resistance		Above 20 MΩ between all power connection terminals and housing, mega meter based on DC 500V							
	Vibration resistance		10 Hz to 55 Hz frequency,1.5mm double amplitude in X,Y and Z direction for 2 hours each							
Shock resistance			500 m/s² acceleration (50 G approx.) in X,Y and Z directions for three times each							
Material			Housing: Nickel-plated brass, GX-208 housing is stainless steel Sensing surface: PBT							
Cable			M8-3Pin connector M12/18/30-4Pin connector							
Cable extension			-							
Weight			12.5 g Approx.	35 g Approx.	59.7 g Approx.	90 g Approx.	16 g Approx.	40 g Approx.	65.8 g Approx.	100.5 g Approx.

Model		Type	DC 2-wire cable type							
			2x distance shielded type				2x distance unshielded type			
Item	Normally open	NPN Output PNP Output	GX-208MKAU	GX-212MKAU	GX-218MKAU	GX-230MKAU	GX-208MLKAU	GX-212MLKAU	GX-218MLKAU	GX-230MLKAU
	Normally closed	NPN Output PNP Output	GX-208MKBU	GX-212MKBU	GX-218MKBU	GX-230MKBU	GX-208MLKBU	GX-212MLKBU	GX-218MLKBU	GX-230MLKBU
Max. operation distance			2mm ± 10%	4mm ± 10%	8mm ± 10%	15mm ± 10%	4mm ± 10%	8mm ± 10%	16mm ± 10%	30mm ± 10%
Stable sensing range			0mm ~ 1.6mm	0mm ~ 3.2mm	0mm ~ 6.4mm	0mm ~ 12mm	0mm ~ 3.2mm	0mm ~ 6.4mm	0mm ~ 12.8mm	0mm ~ 24mm
Standard sensing object			Iron sheet 8mm×8mm ×t1mm	Iron sheet 12mm×12mm ×t1mm	Iron sheet 24mm×24mm ×t1mm	Iron sheet 45mm×45mm ×t1mm	Iron sheet 12mm×12mm ×t1mm	Iron sheet 24mm×24mm ×t1mm	Iron sheet 48mm×48mm ×t1mm	Iron sheet 90mm×90mm ×t1mm
Frequency Response			1.5KHZ	1KHZ	0.5KHZ	0.25KHZ	1KHZ	0.8KHZ	0.4KHZ	0.1KHZ
Hysteresis			15% or less of operation distance (standard sensing object)							
Repeatability			5% or less of operation distance							
Supply voltage			10V ~ 30V DC±10%							
Leakage current			1 mA or less							
Output			·Load current :<100mA ·Residual voltage :<4V(Load current 100mA and when the conductor length is 2 meters)							
Operation indicator			Orange LED							
Temperature effect			With in 10% of the detection distance at +23°C in the temperature range of -25°C to +70°C .							
Environmental resistance	IP protection		IP67 / IP67G(IEC)							
	Circuit protection		Power polarity protection, short circuit protection, overload protection,surge absorption							
	Ambient temperature		Use and storage: -25°C ~ +70°C (no condensation or frost)							
	Ambient humidity		Use and storage: 35%RH to 85%RH							
	Voltage withstandability		1000V AC for one min. between all supply terminals connected together and enclosure							
	Insulation resistance		Above 20 MΩ between all power connection terminals and housing, mega meter based on DC 500V							
	Vibration resistance		10Hz to 55Hz frequency,1.5mm double amplitude in X,Y and Z direction for 2 hours each							
	Shock resistance		500m/s² acceleration (50 G approx.) in X,Y and Z directions for three times each							
Material			Housing: Nickel-plated brass, GX-208 housing is stainless steel Sensing surface: PBT							
Cable			3-core rubber cable with cross section area of 0.2mm² length of 2m							
Cable extension			Extension up to total 100m is possible with 0.3mm², or more, cable.							
Weight			45 g Approx.	73 g Approx.	118 g Approx.	165 g Approx.	52.5 g Approx.	80.5 g Approx.	125 g Approx.	185 g Approx.