

GA-MT1R

Embedded Amplifier Photo sensors
Transparent container detection



- Simple operation just with the press of a button
Perform simple setup with the touch of a button for highly transparent objects with transmittance
Optical system capable of detecting small differences in transparent objects
- Development of reflector exclusively for transparent container detection
Reflector designed for detecting transparent objects
- Inverter light suppression circuit
Prevents faulty operation with inverter fluorescent lamps
- IP 67 water resistance allowing washing

Type

Detection method	Detecting distance	Model	Operation mode	Output mode
 Retroreflective	 0.1-1m	GA-MT1R	Light ON/ Dark ON selectable (by teaching)	NPN open collector
		GA-MT1RPN		PNP open collector

Optional Parts

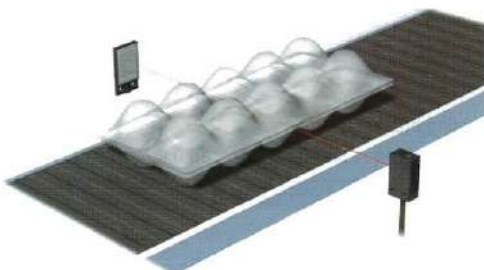
Type	Model	Description
Mounting bracket	GA-B1	Vertical mounting bracket
	GA-B2	Horizontal mounting bracket
Protective cover	G-MSB1	Rigid protective cover doubling as mounting bracket.
	G-MTB1	
Reflector	K-MT4	Accessory (when purchase separately)

Mounting brackets do not come with sensors. Select and purchase appropriate models according to the mounting conditions

Sensitivity adjustment for transparent object detection difficult with conventional volume type made by single-touch operation

Applications

Transparent packages detected in processing line.



Reliably detects PET bottles with uneven surfaces.



GA-MT1R

Rating/Performance/Specification

Type	NPN output type	PNP output type
Model	GA-MT1R	GA-MT1RPN
Detection method	Retroreflective	
Detecting distance	0.1-1m (with K-MT4 reflector)	
Power supply	12-24V DC $\pm 10\%$ / Ripple 10% or less	
Current consumption	25mA or less	25mA or less
Output mode	Control output	NPN open collector
	Rating	Sink current 100 mA (30 VDC) or less Residual voltage: 1 V or less
	Stability output	NPN open collector
	Rating	Sink current 50 mA (30 VDC) or less Residual voltage: 1 V or less
Operation mode	Light ON/Dark ON selectable	
Response time	1ms or less	
Light source	Red LED (700 nm)	
Indicator	Operation indicator (orange LED) Stability indicator (green LED)	
Setting button	For sensitivity setting and Light ON/Dark ON selection *1	
Short circuit protection	Provided	
Material	Sensor	Lens: acrylic Case: polycarbonate
	Reflector	Mirror: acrylic / Base: heat resistant ABS
Connection	Attached cable (outer dimension: dia. 4.2 mm) 0.2 mm ² 4 core 2 m length	
Weight	Body: Approx.60 g / Reflector: Approx.15 g	
Notes	Special reflector (K-MT4), operation manual, explanation sticker, (Note) mounting bracket separately available	

The detecting distance is the range which you can set for the reflector. The sensor can detect an object even in extremely short range.

*1 Factory settings Sensitivity: Max.
Mode: Dark ON

Environmental Specification

Ambient light	5,000 lx max.
Ambient temperature	-25 - +55°C (non-freezing)
Ambient humidity	35-85%RH (non-condensing)
Protective structure	IP 67
Vibration	10-55 Hz / 1.5 mm double amplitude / 2 hours each in 3 direction
Shock	500 m/s ² / 3 times each in 3 directions
Dielectric withstanding	1,000 VAC for 1 minute
Insulation resistance	500 VDC, 20 MΩ or higher

Indicators

The figure below shows the illumination of operation and stability indicators for different received light intensity levels. Set the sensitivity in such a way that the sensor operates in a sensitivity range that allows stable activation.

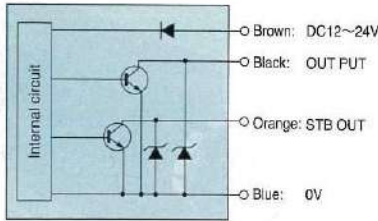
Received light intensity level	Stability indicator (green)	Operation indicator (orange)
	Light ON	Dark ON
Stable light reception range	Illuminated	Illuminated
Unstable range	Illuminated	Not illuminated
Stable light blocking range	Not illuminated	Illuminated

Stability output

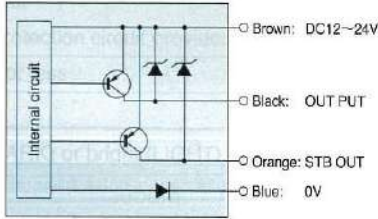
When seven consecutive detections have occurred with the intensity of light detected not reaching the stable light reception range, the stability signal is output.

Input/Output Circuit and Connection

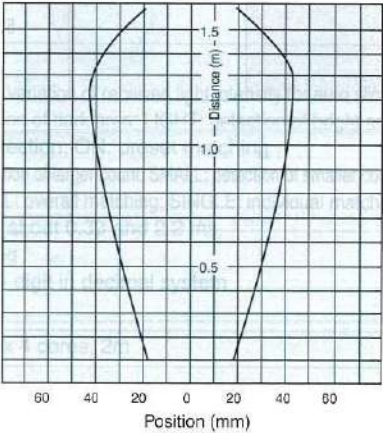
NPN output
GA-MT1R



PNP output
GA-MT1RPN



Response Curves: Detecting Position (Typical)



Dimensions (in mm)

