

MC SERIES Instruction Manual

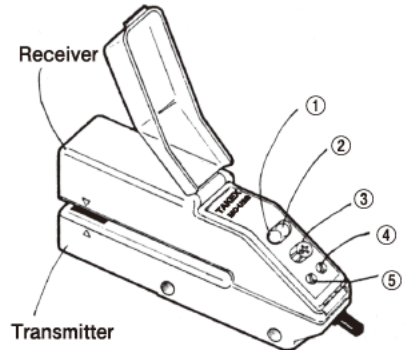
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SPECIFICATIONS



Type	Open collector NPN output			NPN · PNP dual output		
	MC-U2R	MC-U2G	MC-U2B	MC-U2RTC	MC-U2GTC	MC-U2BTC
Detection method	Through beam (U-shaped)					
Detection distance	2mm fixed					
Power supply	12 to 24V DC ±10% Ripple 10% (Max)					
Current consumption	20mA or less	28mA or less	22mA or less	22mA or less	30mA or less	24mA or less
Output mode	NPN Open collector Rating : Sink current 100mA (30VDC) Max			Open collector NPN/PNP 2 output Rating : 100mA (30VDC) Max		
Operation mode	Light ON/Dark ON Selectable					
Response time	0.5 ms or less					
Light source	Red LED (680nm)	Green LED (525nm)	Blue LED (450nm)	Red LED (680nm)	Green LED (525nm)	Blue LED (450nm)
Indicator	O.P.L : Operation indicator (Red LED) STB : Stability indicator (Green LED)					
Adjustment volume	4 turns adjustment					
Switch	Light ON, Dark ON selector switch (L : Light ON, D : Dark ON) Light power selector switch (L : Low power, H : High power)					
Protection circuitry	Short circuit protection					
Material	Case : ABS resin, Lens : Glass					
Connection	0.2mm ² × 3 cores, 3m			0.2mm ² × 4 cores, 3m		
Weight	Approx. 120 g					

PANEL DESCRIPTION



- ① O.P.L Operation indicator (Red LED)
- ② STB Stability indicator (Green LED)
- ③ SENS.....Sensitivity adjuster
- ④ D-L Light on, Dark on selector
(D : Dark ON)
(L : Light ON)
- ⑤ L-H Light power selector
(L : Low power)
(H : High power)

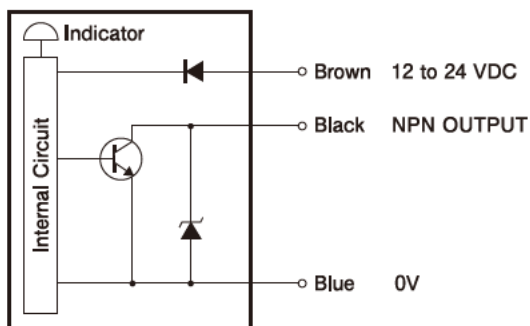
ENVIRONMENTAL SPECIFICATION

Ambient light	Withstands 5,000 lx or less
Operating temp.	-25 to +55°C
Humidity	35 to 85%RH
Case protection	I P 67
Vibration	10 to 55Hz, 1.5mm Double amplitude, 2 HR, X.Y.Z Direction
Shock	100m/s ² , 3 times X.Y.Z Direction
Dielectric withstanding	AC500V, 1 minute
Insulation resistance	20MΩ or higher (at 500V DC megger)

OUTPUT CIRCUIT

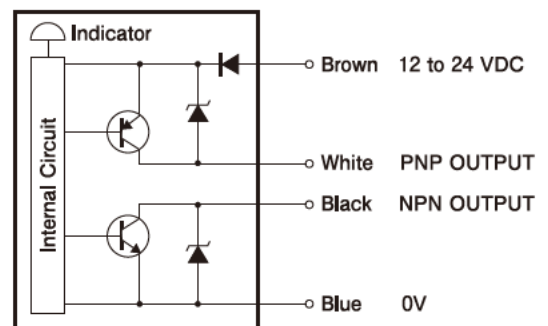
(NPN Output type)

- MC-U2R
- MC-U2G
- MC-U2B



(NPN · PNP 2 Output type)

- MC-U2RTC
- MC-U2GTC
- MC-U2BTC



Upon overload or short circuiting, the output transistor turns off. Check the load before restoring the power.

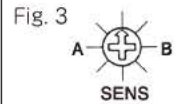
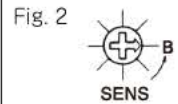
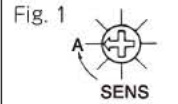
ADJUSTMENT

Sensitivity can be adjusted by a 4-turn potentiometer.

It has no stopper. Making a reverse turn immediately starts variable control.

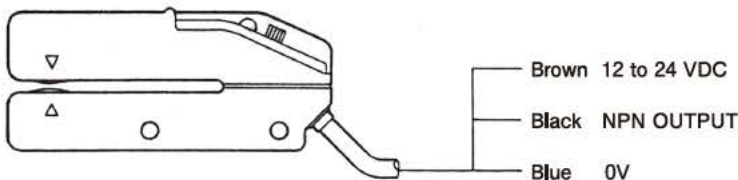
Sensitivity adjustment (Light ON mode)

1. Open the cover and set the light power selector to L.
2. Place a detecting object at the detecting position and locate a light spot on higher transparent portion. Turn the potentiometer clockwise from the MIN until the operation indicator turns on. (Fig 1: Point A)
If the operation indicator doesn't turn on, set the light power selector to H, repeat the same procedure and find the Point A.
3. Locate a light spot on the portion of less transparency. Turn the potentiometer counterclockwise from the MAX until the operation indicator turns off. (Fig 2: Point B) If the operation indicator doesn't turn off at the MAX, it is regarded as Point B.
4. Set the potentiometer at the middle point between Point A and B. (Fig 3)
5. Firmly close the cover.

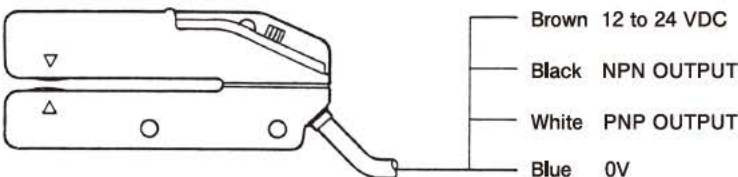


WIRING

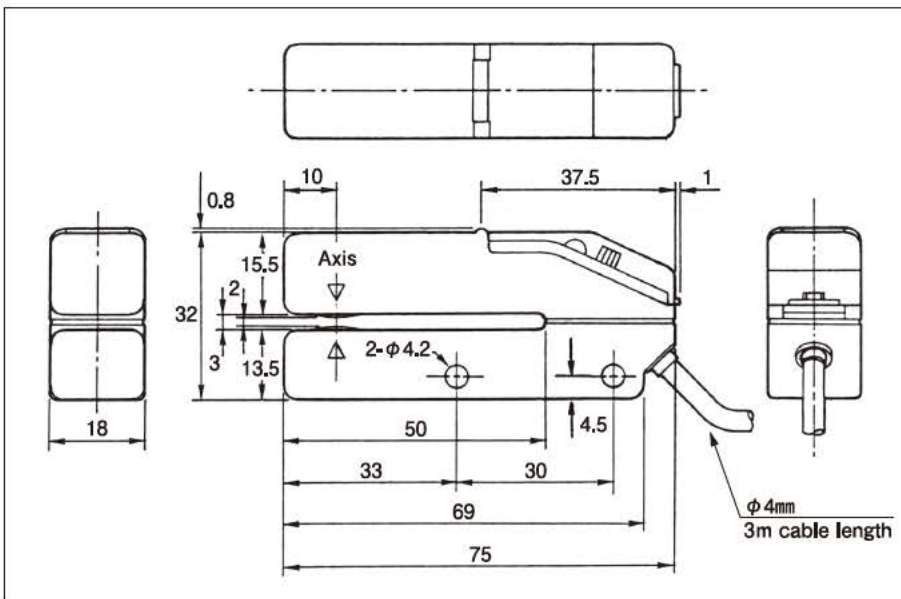
● N P N output type (MC-U2R, MC-U2G, MC-U2B)



● N P N · P N P 2 output type (MC-U2RTC, MC-U2GTC, MC-U2BTC)



DIMENSIONS (in mm)



NOTES

- Clean the lens by a soft and dry cloth periodically. A stain or dirt stuck on the lens deteriorates the performance. Do not use organic solvent including alcohol and thinner.
- Avoid to turn on and off the power consecutively.
- Do not use the sensor where water is splashing constantly or under the water.
- Be sure to route the sensor wires separate from any power transmission or high voltage line. Use a same conduit or duct with high-voltage or power lines will cause malfunction or damage by induction.
- When using a DC power unit with an insulated transformer or a switching regulator, be sure to ground the frame ground (FG) terminal.
- High frequency fluorescent lamps or inverters may emit light or noise of similar modulated frequency that photo sensors generate. Do not install the sensor in the vicinity of high-frequency equipment.
- Limit the current of the power supply (2A) in accordance with the size of the sensor cable.
- When expanding the wiring, use 0.3mm² cable or more.
- Fix the sensor by the screws. Tighten the screws with a torque of 0.6N·m or less.

- The guarantee period of this product is one year after the delivery.
- If any defect is found during the guarantee period, Takenaka will repair or replace the defective product.
- This product is an industrial sensor which issues an output upon detecting an object. It does not have any function to prevent accidents, death or injuries.
- Takenaka will not held responsible for any damage or loss incurred due to accidents, faulty installation, abuse, misuse, improper maintenance or acts of God including lightning surge.