



Cat. No. FX-CM-712

FX-CM

COLOR MARK SENSORS



INSTRUCTION SHEET

Thank you for selecting INNO for your requirement.

This sheet describes the procedure and precautions required for installing and operating the product.

Kindly read this sheet before operating or installing the product. Store the sheet for future reference.

CAUTION FOR SAFETY

- ⓘ Please keep this sheet for review before use of unit.
- ⓘ Please observe the following:

⚠ WARNING
Serious injury may occur if instructions are not followed

⚠ CAUTION
Product failure or injury can occur if instructions are not followed

⚠ WARNING

- This is not a safety product and is not to be used with machinery that requires use of safety control.
- Do not disassemble or modify this unit. It may lead to electric shock/ fire.

Do not connect sensor to AC power supply.
RISK OF EXPLOSION!



⚠ CAUTION

- This unit shall not be used outdoors.
- Do not use unit in places where there is flammable/ explosive gas.
- Please observe the rated specifications in Instruction Sheet.
- Do not use this unit beyond rated power and do not supply AC power at DC power type; do not connect without load.
- Please check the polarity of power and wrong wiring.
- Do not use this unit in places where there is vibration or impact.
- Do not use water or oil based detergent for cleaning the unit.
- Do not use excessive force to tighten the unit to the mounting plate and do not hammer the unit.
- Please process it as industrial waste and dispose responsibly.

- A Warmup period of minimum 200 m sec is required on powerup.
- Do not use the sensor in direct sunlight.

SPECIFICATIONS

*For details on Customized/ Special Models contact Seller

*Models	FX-CM-18P2M	FX-CM-18N2M	FX-CM-18PM12J3	FX-CM-18NM12J3
Sensing Distance	18mm ±2mm			
Spot Size	1*6mm at 18mm			
Hysteresis	H1 - 8; H2 - 6; L - 4			
Response Time	Mark Mode	H1 - 250 μs; H2 - 500 μs; L - 1200 μs (Selectable)		
	Color Mode	H1 - 800 μs; H2 - 1600 μs; L - 4000 μs (Selectable)		
Light Source	Mark Mode	1 Color (Selectable by Teaching)		
	Color Mode	3 Color - RGB LED (Automatic Selection)		
Light Wavelength	Red: 634 nm; Green: 517 nm; Blue: 469 nm			
Sensitivity Adjustment	Pushbutton Teach with fine adjust buttons			
Operation Mode	Light ON / Dark ON selectable			
Supply Voltage	10 - 30 VDC (Ripple Max 10%)			
Current Consumption	max. 40 mA			
Connection	2 meter Cable	M12 Junction connector with 0.3 meter cable		
Control Output	NPN or PNP open collector output (depending on model)			
Control Output Rating	Load Voltage: max. 30 VDC; Load Current: max 100mA; Residual Voltage: NPN- max 1 V, PNP- min (-2.5 V)			
Output Timer Function	Off Delay / On Delay / One Shot Delay (10 m sec increments: 0-990 m sec; 1 sec increment: 1-10 sec)			
Teach	Mark Mode: 2 Point Teach/ Auto Teach; Color Mode: 1 Point Teach			
Memory Function	8 Remote Accessible Memory Setpoints			
Operation Indication	Output Indication - Orange; Sensor On - Green			
Digital Indication	3 Digit Seven Segment Red / Green LED			
Insulation Resistance	20 M Ω at 500 VDC			
Shock Resistance	50 G (500 m/ s ² , X, Y, Z 3 directions)			
Environmental Illuminance	Sunlight: 10,000 lux. max. ; Incandescent Lamp: 3,000 lux. max.			
Ambient Temperature	-25° ~ 55°C (non- freezing; non- condensing)			
Ambient Humidity	35 ~ 90% RH (non- condensing)			
Protection Class	IP67			
Weight	aprox. 75 g			
Material	Housing: Heat-resistant ABS; Front Cover: PMMA or Equiv.; Button: TEEE or Equiv.			

OUTPUT MODES

	Color Mode	Mark Mode
Light ON	Output is active when matched	Output is active for high reflection
Dark ON	Output is active when un-matched	Output is active for low reflection

When 2 point teach, the 1st selected color will be ON

Represented by:

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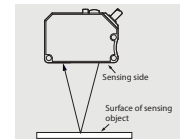


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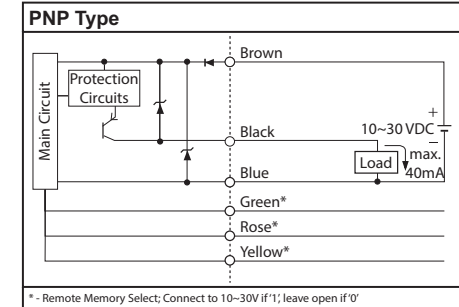
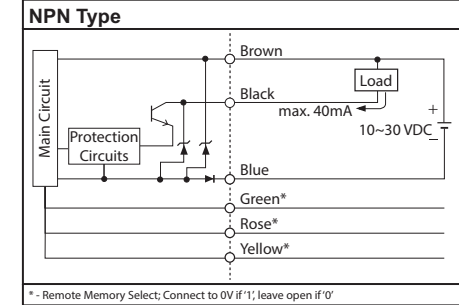
MOUNTING AND ADJUSTMENTS

Make sure that the sensing side of the sensor is parallel with the surface of the sensing object. Normally, do not incline the sensor towards the sensing object. The sensor is to be placed at least 10mm away from any glossy or reflective surface.

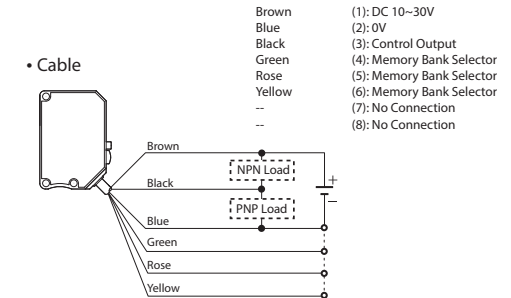


For detection of Glossy Objects, mount the sensor at an angle of 5° to 15°, as shown in the Fig. (a). This will improve the mark detection capability

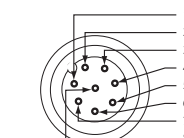
OUTPUT CIRCUIT DIAGRAM



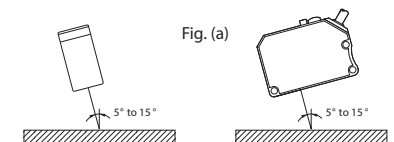
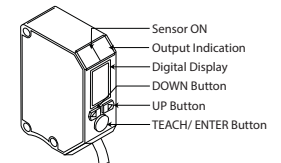
CONNECTION DIAGRAM



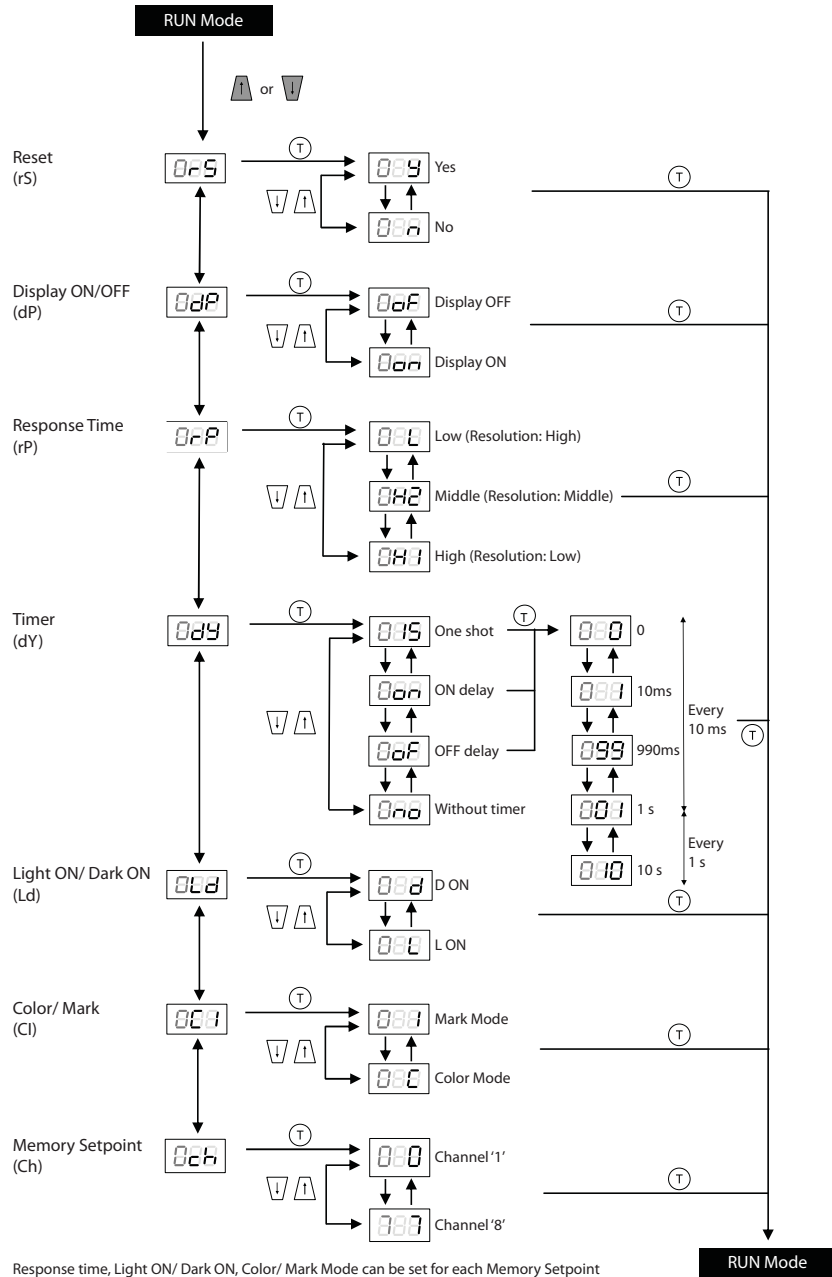
• Connector



NOMENCLATURE



FUNCTIONS

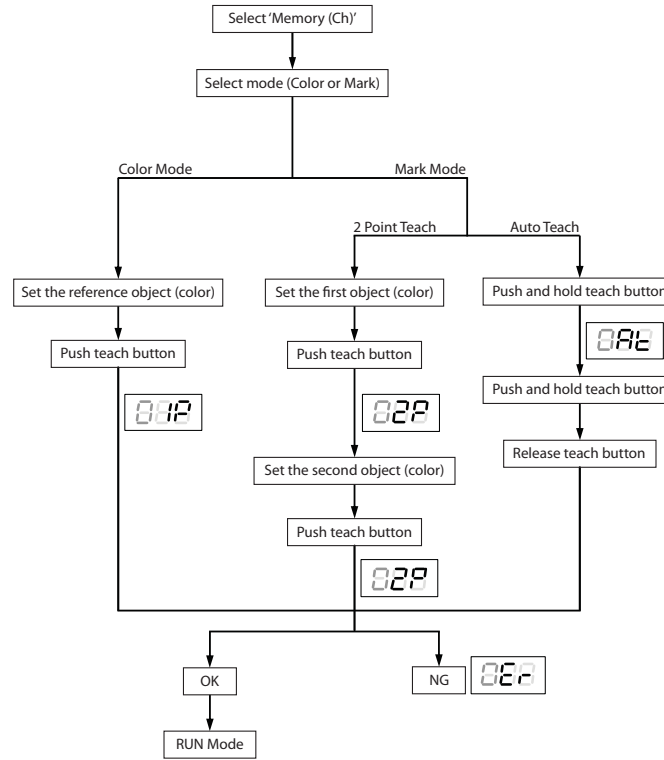


Response time, Light ON/ Dark ON, Color/ Mark Mode can be set for each Memory Setpoint

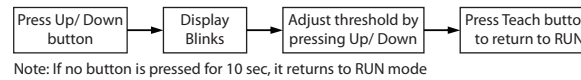
LEGEND

- T Press Teach button
- Press UP button
- Press DOWN button
- Press DOWN button for more than 2 sec
- Press UP button for more than 2 sec

TEACHING



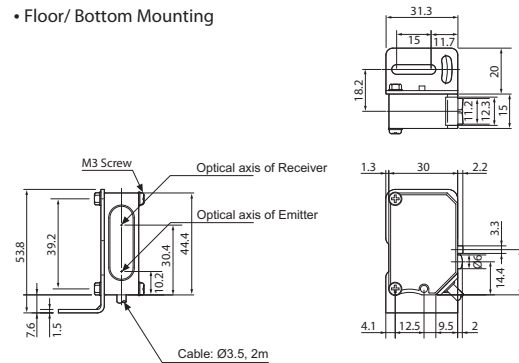
MANUAL THRESHOLD ADJUSTMENT



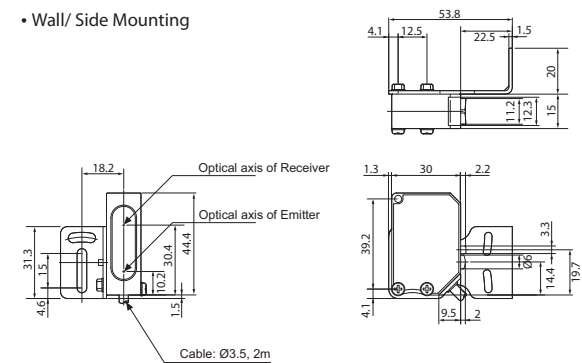
Note: If no button is pressed for 10 sec, it returns to RUN mode

DIMENSIONS

- Floor/ Bottom Mounting



- Wall/ Side Mounting



MEMORY CHANNEL SELECTION

Memory	Wire Color		
	Green	Rose	Yellow
0	0	0	0
1	0	0	1
2	0	1	0
3	0	1	1
4	1	0	0
5	1	0	1
6	1	1	0
7	1	1	1

0	NPN	Open or connect to 24V
	PNP	Open or connect to 0V
1	NPN	Connect to 0V
	PNP	Connect to 24V

STATUS INDICATION

	Color Mode	Mark Mode
RUN Mode	Indicates matching level comparing to taught color	Indicates amount of incoming light.
Threshold level adjust Mode	Indicates threshold level, after teaching level is 80.	Indicates threshold level, after teaching level is 50.
Function select Mode	Indicates selectable functions	

KEYPAD LOCK

To lock the keys, Press UP and Down keys simultaneously for more than 2 sec. The same procedure is to be repeated for unlock.

Represented by:

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