

# IMS



## Model M5/6/8-□□□□

### INSTRUCTION MANUAL

#### ! WARNING

Thank for you selecting IMS product.This sheet primarily describes precautions required in installing and operating the product.Before operating the product, read the sheet thoroughly to acquire sufficient knowledge of the product. For your convience, keep the sheet at your disposal.

#### ! CAUTION

Failure to follow these instnctions may result in serious injury or death:  
Fail-safe device must be installed when using the unit with machinery that may cause serious injury or substantial economic loss. (e.g. nuclear power control, medical equipment, ships, vehicles, railways, aircraft, combustion appatatus, safety equipment, crime/disaster prevention devices, etc.)  
Failure to follow these instructions may result in product damage:  
Do not use this unit over rated voltage;  
Do not use this unit where there is flammable or explosive gas;  
Do not use this unit where there is vibration or impact;  
In cleaning the unit, do not use water or an oil-based detergent.

#### ■ Features

- High performance ASIC with built-in amplifier
- Power on delay to prevent error trigger
- Optimum Choice to replace optical fiber sensor
- Red LED/ laser/ Infrared LED
- Rejection of ambient/DC light/interference using with built in digital filter
- Compact size is easy for installation
- Reversed voltage protection, over voltage protection

#### ■ Ordering information

M5 D 1 M - N L T - C - ( Light sorce code )

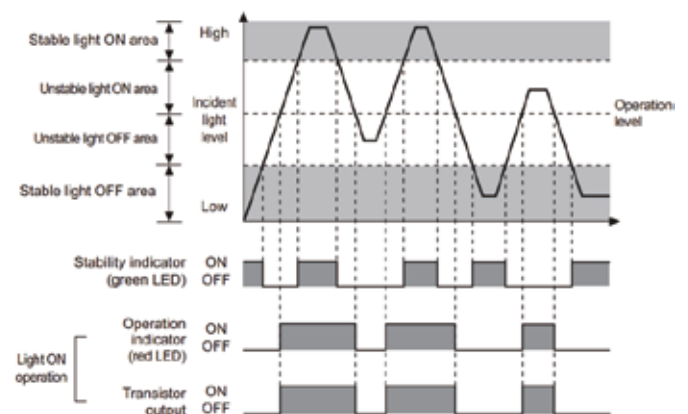
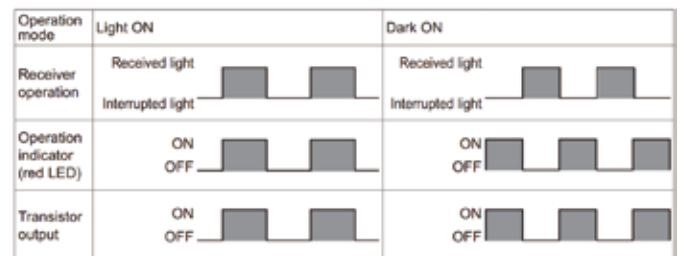
Connection type	L	Cable type
	C	Connector type
Response time		1ms
	M	0.25ms
	H	20us
Sensitivity	T	available
		Fixed
Operation mode	L	Light on
	D	Dark on
	S	Selectable
Output	N	NPN
	P	PNP
	O	NPN+PNP
	D	5V
	C	Relay
	A	Analog
Sensing distance unit		Unit : mm
	M	Unit : m
Sensing distance ( slot series use 30/50 to refer slot distance )	Number	Sensing distance
Sensing method ( solt series is none )	T	Through-beam
	D	Diffuse reflective
	R	Retro reflective
	V	Convergent reflective
	B	P-opaqing
Item	M5	Photoelect sensor

#### ■ Specifications

Sensing method		Diffuse reflective	Through-beam	Diffuse reflective	Through-beam	Diffuse reflective
Model	NPN	M5D20-N	M5T200-N	M6D50-N	M6T500-N	M8D100-N
	PNP	M5D20-P	M5T200-P	M6D50-P	M6T500-P	M8D100-P
Sensing distance		20mm	200mm	50mm	500mm	100mm
Sensing object		Non-glossy white paper 100×100mm	—	Non-glossy white paper 100×100mm	—	Non-glossy white paper 100×100mm
Hysteresis		Max. 20%	—	Max. 20%	—	Max. 20%
Light source		Infrared LED (850nm)	Infrared LED (940nm)	Infrared LED (940nm)	Laser (650nm)	Laser (650nm)
Power supply		10~24VDC (ripple Max.10%(p-p))				
Current consumption		Max. 20mA (No including the load)				
Output		NPN/PNP				
Load current		Max. 100mA				
Operation mode		Light on/Dark on				Switchable
Indicators		Operation indicator: Red, Stability indicator: Green				
Circuit protection		Reverse polarity protection, output short-circuit protection				
Response time		1ms				
Sensitivity adjustment		—				Adjustable
Ambient illumination		Incandescent lamp: Max. 5,000lx/Sunlight: Max.50,000lx				
Ambient temperature		Operation: -20 ~ 65 °C/Storage: -30 ~ 80 °C (with no icing and condensation)				
Ambient humidity		Operation: 45 ~ 85 %/Storage: 35% ~ 95% (with no condensation)				
Insulation resistance		Min. 20MΩ (at 500VDC megger)				
Dielectric strength		1000VAC 50/60Hz for 1 minute				
Vibration resistance		1.5mm amplitude at frequency of 10 to 55Hz in each of X,Y,Z direction for 2 hours				
Shock resistance		500m/s <sup>2</sup> in X,Y,Z directions for 3 times				
Degree of protection		IEC: IP64				
Weight		Approx. 25g	Approx. 50g	Approx. 25g	Approx. 50g	Approx.25g/44g*(1)
Material	Case	Stainless steel				
	Lens	PMMA				
Accessory		Instruction, Nut *2 (Through-beam type: 4pcs)				

※ 1: There are two types of connections for M8 sensor.

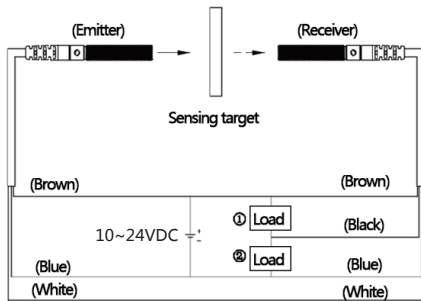
#### ■ Operating timing diagram



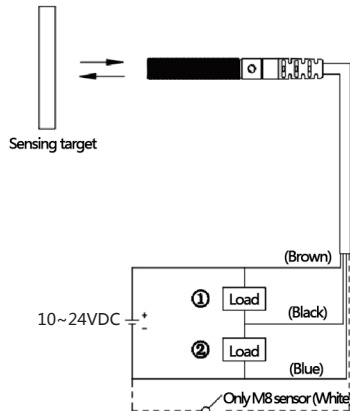
※ The waveforms of "Operation indicator" and " Transistor output" are for Light on mode.

## Connections

### Through-beam

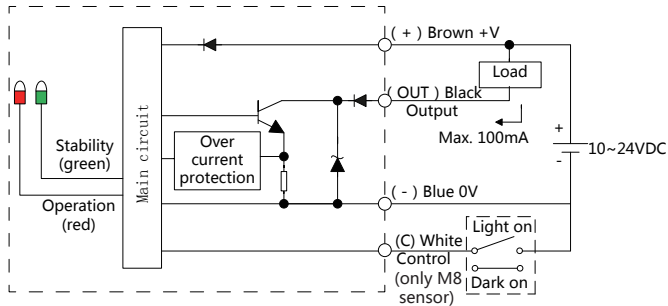


### Diffuse reflective

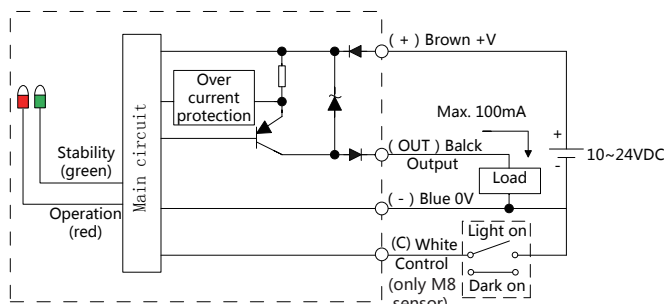


## Control output circuit diagram

### NPN open collector output

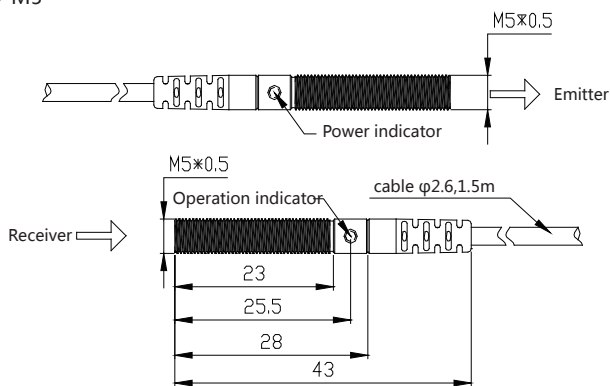


### PNP open collector output

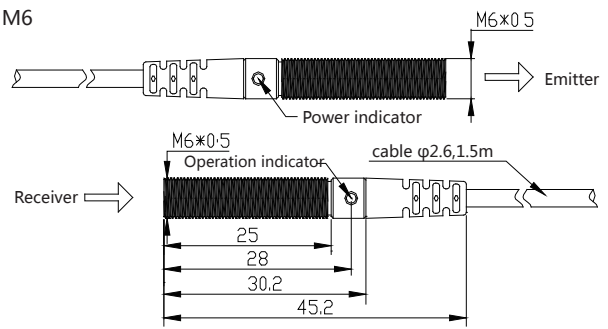


## Dimensions

### M5

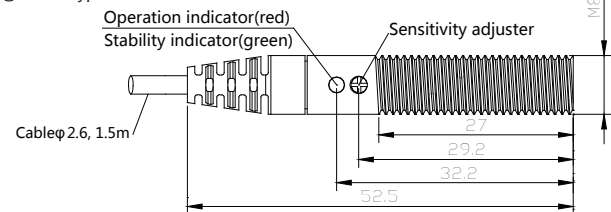


### M6

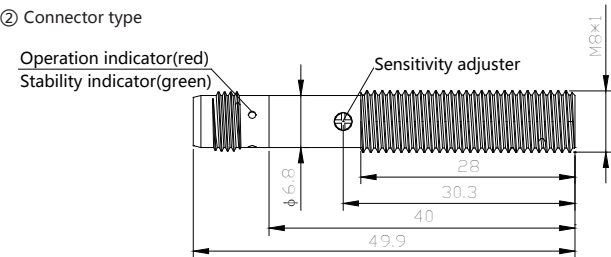


### M8

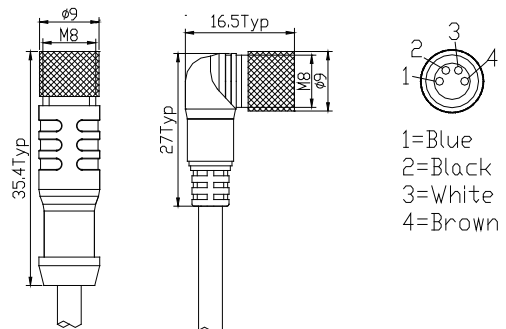
#### ① Cable type



#### ② Connector type



### Connection cable



## Caution for using

1. Please make sure the wiring is correct before power-on.
2. Use a visor or a hood so that excessive light ( e.g. sunlight, spotlight ) does not directly enter into the inclination angle of the sensor.
3. When more than 2 sets of Through-beam type sensor are used closely, it might cause interference each other. Be sure to put enough space between them in order to avoid malfunction.
4. When more than 2 sets of diffuse reflective beam type or narrow beam reflective type are installed adjacently, it can occur malfunction by light beam from the other target. So it must be installed at an enough interval.
5. If the sensor is installed directly on a flat surface, the reflection off the surface may cause malfunction. Make sure there is enough space between the sensor and the surface.
6. If the sensor is wired with a high voltage line or power line, it may cause product damage or malfunction. Use separate wiring or a dedicated conduit.
7. Please use short cables for wiring the sensors. Power surge from extended wiring may cause product malfunction;
8. When the lens is stained by foreign substances, clean the lens lightly with dry cloth. Do not use chemical or organic solvents.

## Main product

- Photoelectric sensor
- Light curtain
- Proximity sensor
- Pressure sensor
- Counting sensor
- Distance sensor
- Liquid level sensor
- Lable sensor
- Hall sensor
- Pressure meter
- Counting machine
- Dust sensor

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