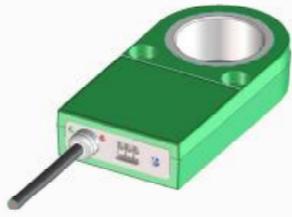




Passage Type Detector

FMS-130 シリーズ

INSTRUCTION MANUAL



Thank you for purchasing this product.
In order to use this specification, fully satisfying it,
please use a handling description on looking well.

1 SPECIFICATIONS

ITEM	TYPE	FMS-130-10	FMS-130-15	FMS-130-20	FMS-130-25
DETECTION HOLE DIAMETER		Φ10mm	Φ15mm	Φ20mm	Φ25mm
DETECTABLE OBJECT		Magnetic metal (Detection sensitivity falls non-magnetic metal)			
MINIMUM DETECTABLE OBJECT		Φ2mmSteel ball	Φ3mmSteel ball	Φ4mmSteel ball	Φ5mmSteel ball
INDICATOR		Power supply indicator (Green LED) Detection indicator (Red LED)			
SENSITIVITY ADJUSTMENT		3 Rotation Tolimmer			
NON-CONTACT OUTPUT		Photocoupler Output 50mA or less (DC30V or less)			
RESPONSE		5ms or less			
FUNCTION	NO, NC	NO or NC Choose			
	OFFDELAY	0ms or 200ms(Time Accuracy ±10% or less) Choose			
	MUTUAL INTERFERENCE	Standard Frequency or Ex-Frequency Choose			
AMBIENT TEMPERATURE		0~60°C 85%RH or less, There must not be no dew condensation.			
POWER		DC12~24V ±10% ripple rate 10% or less			
CONSUMPTION CURRENT		50mA or less			
INSULATION RESISTANCE		Connection line—Case Between 20MΩ or more			
ELECTRIC STRENGTH		Connection line—Case Between AC1500V 1min, DC500V 1min			
VIBRATION STRENGTH		10~50Hz Amplitude 1.5mm X, Y, Z for all directions 2h			

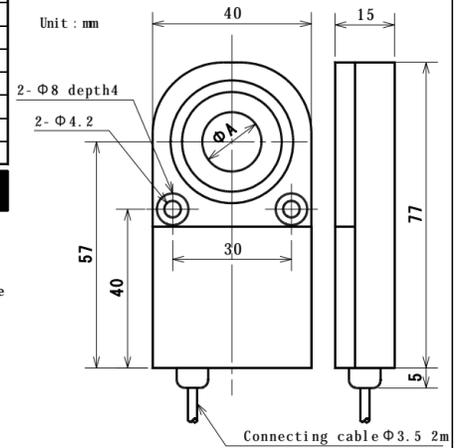
2 CAUTIONS ON USE

- Please be sure to fix to an attachment place firmly with a screw etc. in the case of installation. If a detector runs by vibration etc., it will become a cause of incorrect detection.
- Please make the connecting cable different from a power line or a power supply line.
- Since a detection signal continues outputting when a detection object is in a primary detecting element, this detector is unsuitable for uses, such as positioning.
- Please use the sensitivity by the lowest possible sensitivity in the detectable range. If sensitivity is recklessly made high, it will become causes, such as incorrect detection.
- Since the influence of a temperature change etc. may incorrect-detect near maximum sensitivity, please avoid use near maximum sensitivity as much as possible. Maximum sensitivity is in a state without a detection object, and is the neighborhood which continues raising sensitivity and outputs it.
- Since it becomes a cause of incorrect detection when using a metal attachment jig near a detection hole, please use together the attachment jig made of resin.

3 CONNECTION LINE ARRANGEMENT

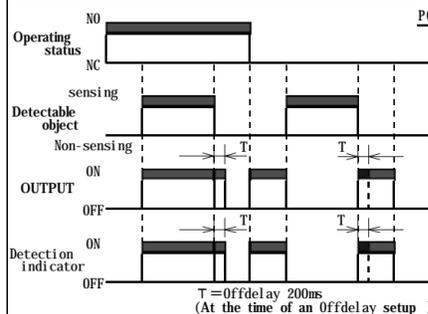
CORD	NAME	CONTENTS
RED	+V	DC POWER +12~24V
BLACK	-V	DC POWER -
WHITE	OUTPUT	Photocoupler Output
YELLOW	COM	OUTPUT COM

4 CONTROLLER DIMENSIONS

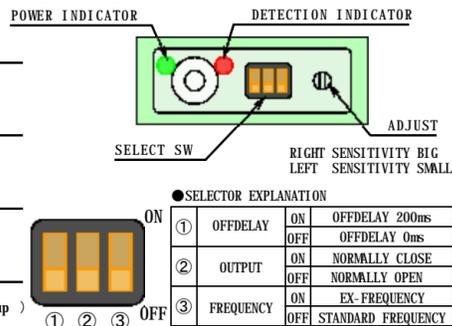


	FMS-130-10	FMS-130-15	FMS-130-20	FMS-130-25
ΦA	Φ10	Φ15	Φ20	Φ25

5 TIME CHART

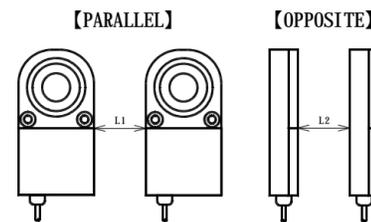


7 OPERATION SIDE EXPLANATION



9 ABOUT THE INFLUENCE OF MUTUAL INTERFERENCE AND CIRCUMFERENCE METAL

- When using it, making two or more probe heads approach (parallel, opposite), in response to interference, it may incorrect-detect mutually. In order to avoid interference, please use it, above the distance of the following table.
- When you use it with the head from which the diameter of detection is different, please be based on distance with the larger diameter of detection.
- Inside is an interference prevention changeover switch and is distance when it changes to different frequency.

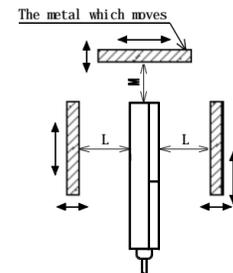


●MUTUAL INTERFERENCE

	L1	L2
FMS-130-10	120(40)	
FMS-130-15		
FMS-130-20	140(60)	
FMS-130-25		

UNIT : mm

- When a metal thing is around a sensor, please use it, above the distance of the following table. When you attach a sensor using metal jigs, please use together the jig made of resin of the thickness above the distance of the following table.

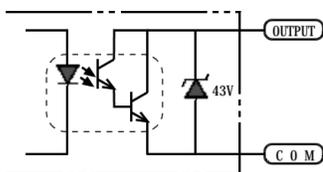


●INFLUENCE OF CIRCUMFERENCE METAL

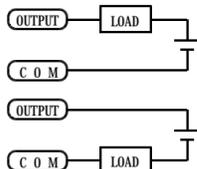
	L	M
FMS-130-10	60	30
FMS-130-15		
FMS-130-20	80	40
FMS-130-25		

UNIT : mm

6 OUTPUT CIRCUIT



- The connection method of load
- Capacity of load
- DC30V 50mA or less



8 ADJUSTMENT

1. Please check that supplied the power supply to equipment and the power supply indicator (green LED) is on.
2. Sensitivity Tolimmer is carried out near a center (half one rotation) with the driver for adjustment.
3. When a detection object passes through near the center of a detection hole, please check whether a detection indicator (red LED) lights up. Please check then whether it has stabilized and detected enough.
4. When detection is insufficient, to the place in which detection is stabilized, please turn Tolimmer to the right and raise sensitivity.

10 CAUTION ON SAFETY

- ⚠ Warning If cautions are neglected, a dangerous situation which is connected with a serious disaster is shown.
 - ⚠ Caution If cautions are neglected, a dangerous situation which is connected with damage on a product is shown.
- Warning**
- Please do not make reconstruction and decomposition absolute.
 - Be careful for there to be no faulty wiring according to the wiring method indicated to this book and an instructions manual. A product may be damaged with faulty wiring. Faulty wiring The breakage and failure to depend become the outside of the object of a guarantee.
 - In case you perform connection, since there is a possibility of receiving an electric shock, please work turning off the power.
- Caution**
- Please add a big vibration and a shock to a product, or do not drop a product. Please do not place a thing in piles on a product. It may change and a product may be damaged.
 - When you unpack, please check that it is a product of an order. When there are accessories, please be careful enough not to throw away.
 - When there are accessories etc., please keep it not to be intermingled.
 - When you carry a product, please give treatment carefully.
 - Please do not use and keep it under existence of corrosive gas.
 - If water is poured when the product is used, or when kept, water will infiltrate into the inside of a product, and it will become a cause of breakage.
 - When you build a product into apparatus and you ship it, please use shock absorbing material etc. in consideration of the vibration at the time of transportation, or a shock.
 - The data value etc. that have been described are measurements under the examination environment of our specification, and it might be different from the data value described in this book and the manual depending on various conditions besides use conditions.
 - When you attach a product, please use a suitable tool and be careful not to apply superfluous power.
 - Please do not use it exceeding the range of the specification.
 - Please carry out warming up 30 minutes or more from a power supply injection.
 - Nothing should connect with the terminal which is not used.
 - Please do not set it up near the device equipment (inverter, high-frequency apparatus, and motor, etc.) that generates big surge.
 - When you wire, please separate from a high-tension wire or a power line. It becomes a cause of malfunction or failure by a noise.
 - Please set up the protection circuit of the Surge arrester and the surge killer, etc. when the influence of the thunder and surge is thought.
 - When you connect loads, such as a relay lamp, please install a protection circuit.
 - Please avoid use in the place where a rapid temperature change is caused and the place where the vibration is intense.
 - When it installs in a moist place, a product may be damaged by dew condensation. Please keep dew condensation from occurring in a moist place.

11 WARRANTY

- The guarantee of the product is the one to mean the guarantee of this machine unit.
- The term of a guarantee of a product is after-shipment one year.
- When failure occurs on a manufacturer's responsibility during the above-mentioned term of a guarantee, repair of the failure portion of a product or component replacement is performed. However, when it corresponds to below, it carries out the outside of the scope of a guarantee.
 1. When used in unsuitable conditions other than the specifications of a product, etc., and an environment.
 2. When the cause of failure is based on reasons other than supplies.
 3. When reconstruction or repair is carried out with the supplies from other than our company.
 4. When based on the reason which was not able to be foreseen with the technical level at the time of shipment.
 5. When irresponsible for the manufacturer side owing to a natural disaster and a disaster.
- cannot do conformity in the particular application of this machine, guarantee of the secondary value which occurs with a product, and compensation of a loss. Moreover, it is not the product designed and manufactured for the purpose of the use as which very high reliability and safety are required, and the uses (atomic power, aerospace, infrastructure, medical equipment, etc.) concerning a human life. About the use under such a use and environment, I will carry out the outside of the scope of a guarantee.

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★A specification change may be made without a preliminary announcement for the better improvement of a product.
Please give me consent and an understanding.