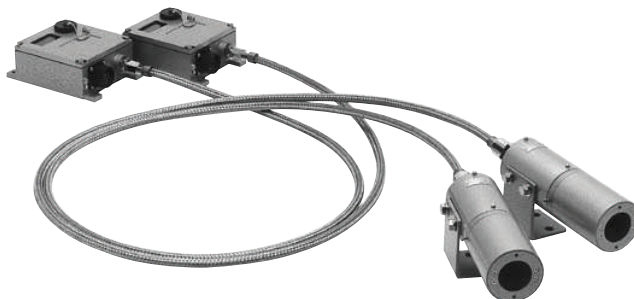


LED Type CMD

LAV-10/11

This is a new optical fiber type CMD using semi-conductor laser as light source. This equipment is composed of transmitter (Sensor head, heat-resistance fiber and amplifier) and receiver and detects steel material which passes through between them. It emits more powerfully compared with LED type so that high performance with margin in bad environment is possible.

- It is capable of being used within the scope of 100 to 240VAC.
- Water-cooling or air-purge isn't required for sensor head because non-air dust purge hood is applied.
- 8-point LED display unable to monitor the margin and emitting state.
- Warning output is provided.



Specifications

Type	Through-beam type
Model No.	Amp. unit: basic type LAV-10P · Strong power type LAV-11P (Projector), LAV-10A (Receiver) Sensor head: FHM-211-1 · FHM-311 Fiber unit*1: FHV-321 (2m) · FHV-351 (5m) · FHV-411 (10m)
Power source	100 to 240VAC (10%, -15% 50/60Hz)
Power consumption	Projector: 5VA or less, receiver: 5.5VA or less
Laser class	LAV-10P: JIS/IEC class1, LAV-11P: JIS/IEC class3R
Detection distance	50m (Detecting margin: 10.0000 times or more at 10m*2)
Detectable object	Steel material with ϕ 100 or more (FHM-311)
Response time	Contact output: 40msec or less, photo-coupler output: 30msec or less
Operating mode	Changeover of Dark-ON/Light-ON
Control output	1C relay contact (250VAC 3A, 30VDC 5A, COS ϕ =1), Photo-coupler (120V or less, 100mA)
Warning output	
Light-emission amount lowering output	
Analog output	DC voltage output in proportion to light-reception amount (Saturated value 9V or more but do not use it except for adjustment)
Connection	Connector type (Cable 2m)
Fiber characteristics	Allowable bending radius: 100mm, Max. pressure: 784MPa, Tension strength: 490N
Ambient illuminance	10,000lux or less (Incandescent lamp)
Ambient temperature	Amp. unit: -10 to +55°C, Sensor head · Fiber unit: -10 to +200°C
Ambient humidity	45 to 85%RH (not icing, not condensing)
Insulation resistance	20M Ω or more (between power/output contact and case, by megohmmeter with 1,000V)
Withstand voltage	AC1,500V, 1min. (between power/output contact and case)
Vibration resistance	Double amplitude 1.5mm, 10 to 55Hz, each 2 hour in X, Y and Z directions
Impact resistance	490m/s ² , each 3 times in X, Y and Z directions
Protective structure	Amp. unit: IP64 (IEC Standard), Sensor head: IP66 (IEC Standard) Fiber unit: Corrugated tube with blade (SUS)
Case materials	Amp. unit: Aluminum die-casting, Sensor head: Aluminum
Weight	Amp. unit: Approx. 950g, Sensor head: FHM-211-1 Approx. 1.5kg, FHM-311 Approx. 4kg Fiber unit: FHV-321 Approx. 1.0kg, FHV-351 Approx. 1.8kg, FHV-411 Approx. 2.8kg

*1. 3m, 15m and 20m type are also available.

*2. In case of using FHV-321 and FHM-211-1.

★Photo-mos relay type for control output is also lined-up.

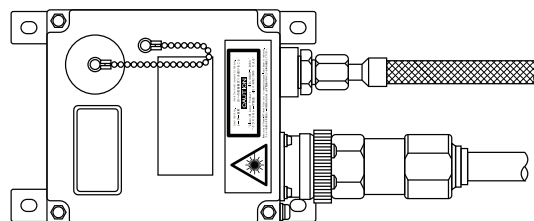
Cautions for Laser Product

This product is radiating the infrared laser beam and is classified as Class 1/3R by JIS C6802:2005/IEC 60825 Laser Safety Standard. Refer to Page 159.



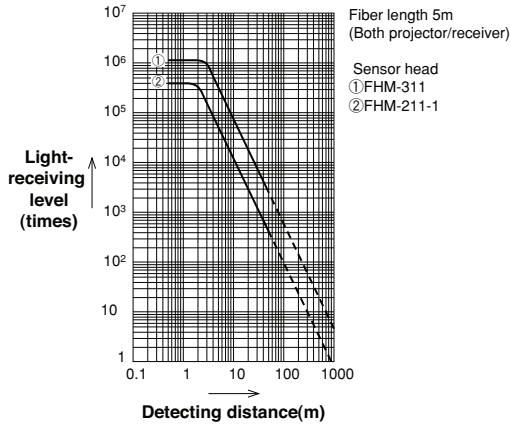
Warning

Don't view the laser beam directly or expose it to human eyes. It may injure human eyes or damage health.

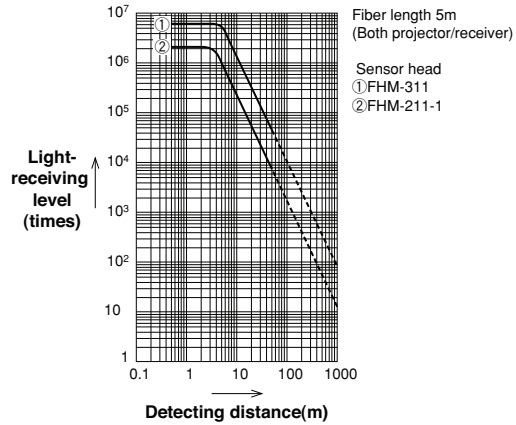


Characteristic data (Typical example)

Projector/receiver LAV-10P/LAV-10A

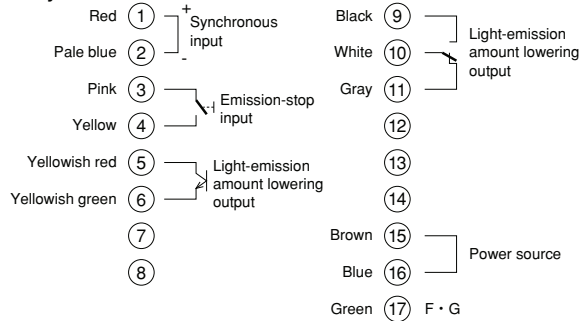


Projector/receiver LAV-11P/LAV-10A

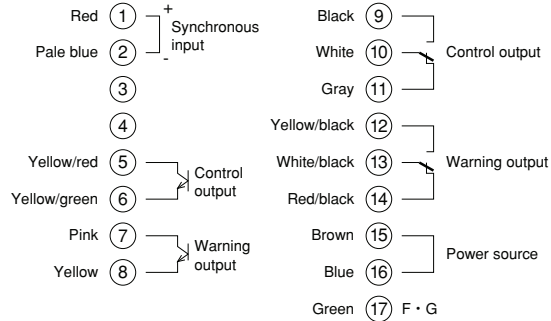


Connection

Projector



Receiver



● Light-emission amount lowering output

Operating mode	NORMAL		
Connector pin No.	5-6	9-10	10-11
Power-off state	OFF	OPEN	CLOSE
Power-on state	When normal	ON	CLOSE
	When troubled	OFF	OPEN

Operating mode	ABNORMAL		
Connector pin No.	5-6	9-10	10-11
Power-off state	OFF	OPEN	CLOSE
Power-on state	When normal	OFF	OPEN
	When troubled	ON	CLOSE

● Control output (Operating mode can be changed by inner switch)

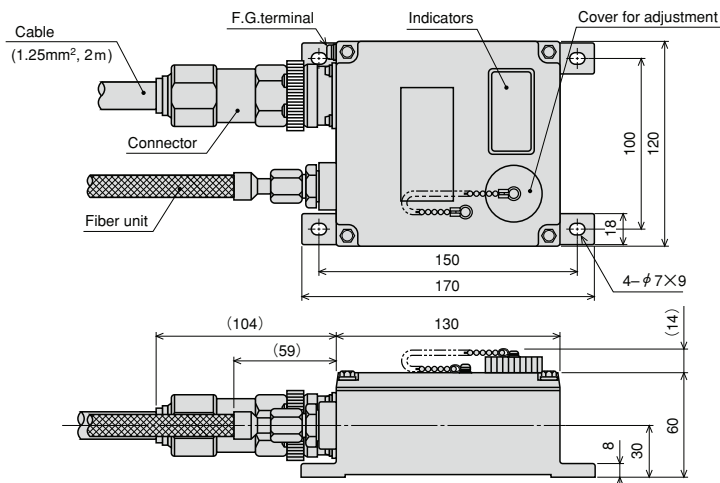
Operating mode	Light-ON			Dark-ON		
Connector pin No.	5-6	9-10	10-11	5-6	9-10	10-11
Power-off state	OFF	OPEN	CLOSE	OFF	OPEN	CLOSE
Power-on state	When light-entering	ON	CLOSE			
	When light-interrupting	OFF	OPEN			

● Warning output

Connector pin No.	7-8	12-13	13-14
Power-off state	OFF	OPEN	CLOSE
Power-on state	When normal	ON	CLOSE
	When troubled	OFF	OPEN

External dimensions

Amplifier (Common use for projector/receiver)



Optical axis adjustment

Optical axis adjuster, TES-113 is also available as an option. (Ask us in details) This is using red laser element (Class 2) and it is easy to adjust optical axis visually.