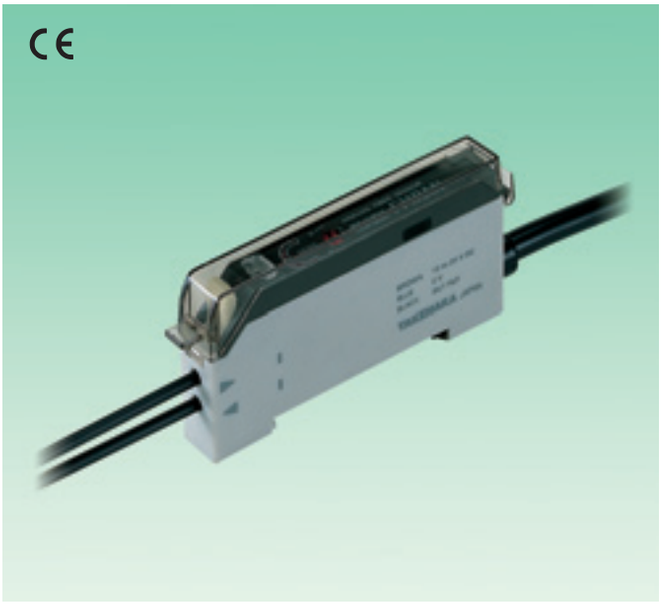
F71RAN Series

Analog output
Fiber optic sensors



- Ultra-slim 9-mm body
- 8-turn adjustment with indicator for fine-tuning
- Red LED allows for checking of illumination

Type

Type / Detection method	Detecting distance	Model	Operation mode	Output mode
Fiber type Through-beam Reflective (Dependant on fiber optic cable)	Dependant on fiber optic cable, light source, etc.	**F71RAN**	Voltage output in proportion to received light intensity	Effective voltage range: 2~8 V

- "White LED" is used for light emitting element

  A model that uses white LED as the light emitting element is available separately.
  Model.: F71WAN

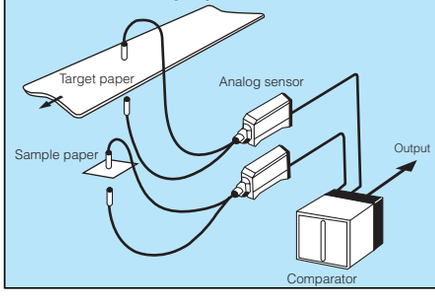
- Applicable comparator

  (ANP Series)

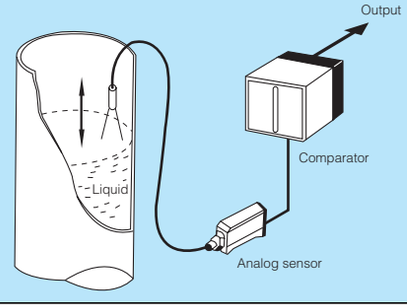
(See P. 612 for details)

Application example

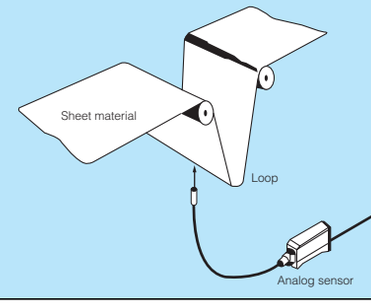
Comparative detection of thickness of paper, etc.



Liquid level detection



Loop control



F71RAN

Rating/Performance/Specification

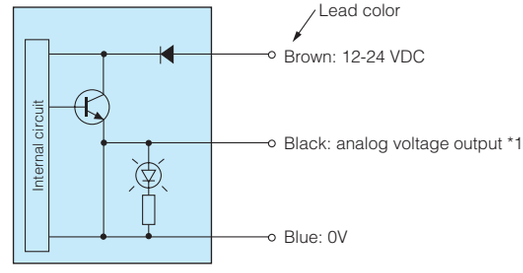
	Model	F71RAN
Rating/performance	Detection method	Fiber type
	Power supply	12~24 VDC ± 5 % / Ripple: 2% max.
	Current consumption	30 mA max.
	Output mode	Effective voltage range: 2~8 V (NPN emitter follower)*
	Operation mode	Voltage output in proportion to received light intensity (current 3 mA max.)
	Response time	Rise from 2 to 8 V in 10 ms max.
		Fall from 8 to 2 V in 25 ms max.
	Temperature drift	0.3%/ ºC max. at –10 ~ +50 ºC
	Output ripple	80 mV max.
Specification	Light source (light wavelength)	Red LED (680 nm)
	Indicator	Power (green) / Light intensity (orange)
	Case material	Case: heat-resistant ABS / Cover: polycarbonate
	Connection	Permanently attached cord (outer dimension: dia. 4.8) 0.2sq, 3 core 2 m length
	Mass	Approx.90 g (including 2-m cord and mounting bracket)

* The range may be 1~9 V depending on the characteristics of the individual products and fiber optic cables.

Environmental Specification

Environment	Ambient light	Incandescent lamp: 10,000 lx max.
	Ambient temperature	–25 ~ +55 ºC (non-freezing)
	Ambient humidity	35~85%RH (non-condensing)
	Protective structure	IP40
	Vibration	10~55 Hz / 1.5 mm amplitude / 2 hours each in 3 direction

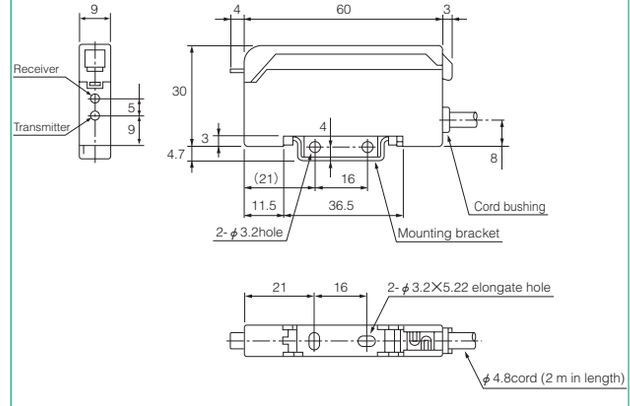
Input/Output Circuit and Connection



*1: Output current: 3 mA
Effective voltage range: 2~8 V

Dimensions (in mm)

CAD



Detecting Distance with Different Fiber Optic Cables (Typical Example)

Detection method	Fiber optic cable model	Detecting distance (mm)
Through-beam	FT105BC	120 mm
	FT8EBC	30mm
	FT5YBC	8mm
	FTS5BC	70mm
	FTSV73BC	80 mm
	FTL716BC	10mm
	GTH520J	60mm

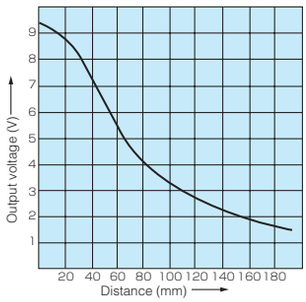
Detection method	Fiber optic cable model	Detecting distance (mm)
Reflective Detection object: 50mm□ white non-gloss paper	FR105BC	50 mm
	FR108BC	30mm
	FXN84BC	10mm
	FRS8BC	3mm
	FRL732BC	20mm
	FRSV55BC	8mm
	GXH520J	10mm

For specifications, dimensions, etc. of fiber optic cables, see pp. 59-.

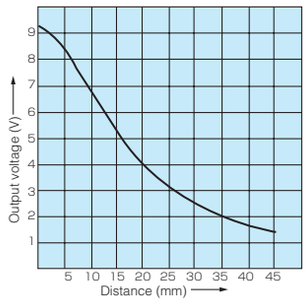
F71RAN

Distance-Output Characteristics (Typical Example) with F71RAN + Different Fiber Optic Cables (50 mm□ white non-gloss paper used as detection object for reflective types)

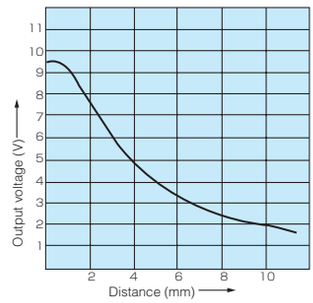
FT105BC(through-beam)



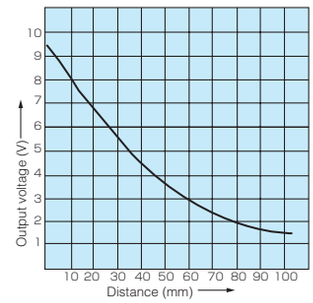
FT8EBC(through-beam)



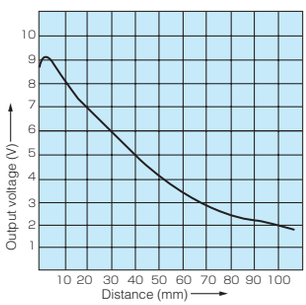
FT5YBC(through-beam)



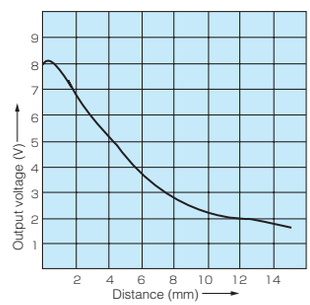
FTS5BC(through-beam)



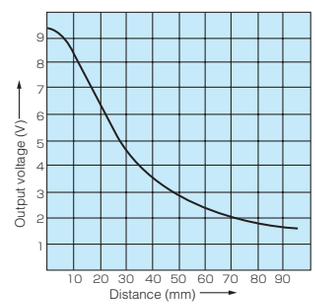
FTSV73BC(through-beam)



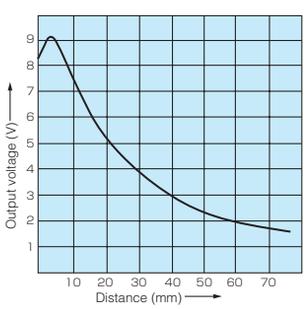
FTL716BC(through-beam)



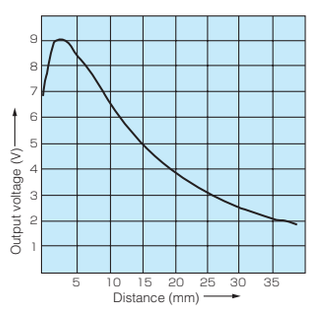
GTH520J(through-beam)



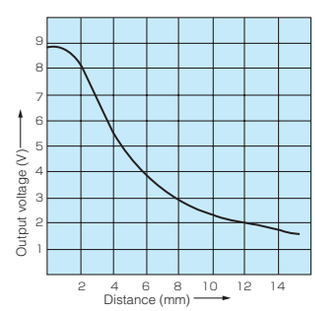
FR105BC(reflective)



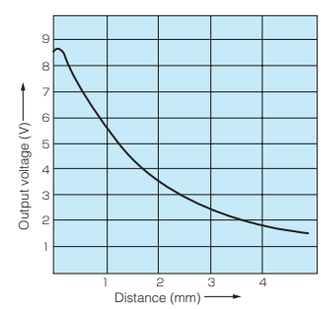
FR108BC(reflective)



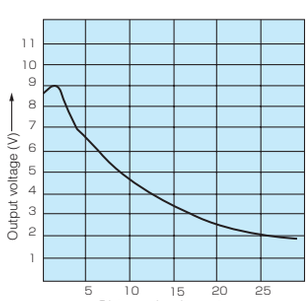
FXN84BC(reflective)



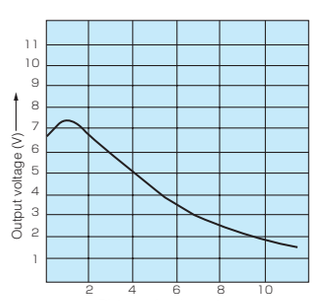
FRS8BC(reflective)



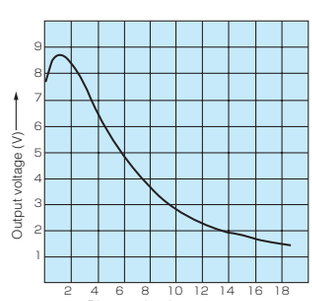
FRL732BC(reflective)



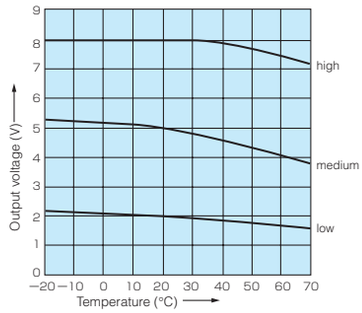
FRSV55BC(reflective)



GXH520J(reflective)



Temperature Characteristics (Typical Example)



The graph shows characteristics based on temperature variations for high, medium and low output voltage settings with the same detecting position.

For Correct Use

- Do not use sensor outdoors or in a place subject to a direct disturbing light surface.
- Analog voltage takes about 30 minutes to stabilize after power-up. For detections requiring accuracy, supply power well in advance. Fluctuations of about 100 mV should be expected.