

- \* **Alta velocità di risposta 0.1ms / ON**  
*High speed response time 0.1 ms/ON*
- \* **Fibre ottiche a taglio libero**  
*Free cut fiber cable*
- \* **Montaggio su guida DIN**  
*DIN rail fixer*
- \* **Deriva termica meno di 1 $\mu$  m/°C**  
*Thermal drift less than 1 $\mu$  m/°C*
- \* **Illuminazione oltre 10,000 lux di lampada**  
*Illumination over 10,000 lux of lamp light*
- \* **Fibre con alta sensibilità 5 $\mu$  m**  
*Fiber sensor with high repetitive 5 $\mu$  m*



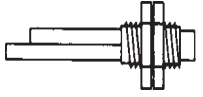
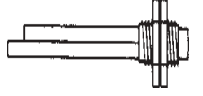
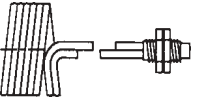
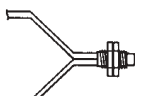
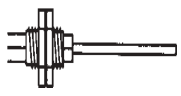
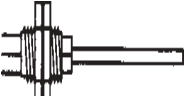



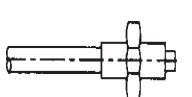
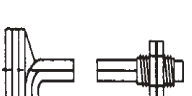


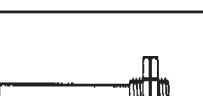
### Caratteristiche < Amplificatore > / Specification < Amplifier Unit >

Tipo di uscita <i>Output method</i>	Tipo standard <i>Standard type</i>			Tipo per lunghe distanze <i>Long distance type</i>	
<b>Modello</b> <i>Model</i>	<b>FF-01G</b>	<b>FF-03R</b>	<b>FF-03X</b>	<b>FF-06R</b>	<b>FF-06X</b>
Emettitore <i>Emitter</i>	Led verde <i>Green led</i>	Led rosso <i>Red led</i>	Led infrarosso <i>Infrared led</i>	Led rosso <i>Red led</i>	Led infrarosso <i>Infrared led</i>
Tempo di risposta <i>Response time</i>	ON : 0.1 ms, OFF : 0.15ms				
Isteresi <i>Hysteresis</i>	< 0.5% della distanza di rilevamento / <i>of sensing distance</i>				
Tensione di alimentazione <i>Operating voltage</i>	11 - 30VDC; Ripple 20% picco/picco / <i>of peak to peak</i>				
Assorbimento <i>Current consumption</i>	30mA max			40mA max	
Tensione residua <i>Residual voltage</i>	< 0.8 V				
Corrente di fuga <i>Leakage current</i>	< 0.8 mA				
Tipo di uscita <i>Output method</i>	Due uscite NPN & PNP / <i>two way output</i>				
Stato di uscita <i>Output status</i>	NO / NC intercambiabili / <i>changeable</i>				
Corrente di uscita <i>Output current</i>	150 mA max				
Protezione del circuito <i>Protection method</i>	Corto circuito & protezione all'inversione di polarità / <i>Short circuit &amp; polarity reversed protection</i>				
Connessione <i>Connection method</i>	4 cores / diam. 5.0 X 2m				
Classe di protezione <i>Protection class</i>	IP 65				
Interferenza luce esterna <i>Illumination</i>	Lampada / <i>lamplight</i> 5,000 lux,			Luce solare / <i>Sunlight</i> 10,000 lux	
Temperatura ed umidità di lavoro <i>Operating temperature / Humidity</i>	-20°C - +70°C; 35% - 85% RH				
Materiale della custodia <i>Housing material</i>	PBT				
Peso approx. <i>Weight</i>	105 gr.				

## ELETTRONICA DUE

## Serie / Series

## Fibre ottiche / Optical fiber

Tipo Type	Terminale fibra Mode	Modello Model	Forma della fibra Fiber shape	Amplificatore Amplifier	Min. ogg. rilevabile (diam.) Min. detectable object	Distanza di rilevamento Sensing distance
Tipo a tasteggio / Reflex type	M6 diam. 1.0 X 2	FPR-51		FF-01G	0.1	12mm
				FF-03R(X)	0.03	35mm
				FF-06R(X)	0.03	65mm
	M6 diam. 1.0 X 2 diam. 0.25X15	FPR-52		FF-01G	0.5	12mm
				FF-03R(X)	0.03	35mm
				FF-06R(X)	0.03	65mm
	M6 diam. 1.0 X 2	FPR-53		FF-01G	0.2	6mm
				FF-03R(X)	0.03	15mm
				FF-06R(X)	0.03	30mm
	M4 diam. 0.5 X 2	FPR-54		FF-01G	0.1	8mm
				FF-03R(X)	0.03	20mm
				FF-06R(X)	0.03	45mm
	M6 diam. 1.0 X 2	FPR-55		FF-01G	0.1	12mm
				FF-03R(X)	0.03	35mm
				FF-06R(X)	0.03	65mm
	M4 diam. 0.5 X 2	FPR-56		FF-01G	0.1	8mm
				FF-03R(X)	0.03	20mm
				FF-06R(X)	0.03	45mm
M5 diam. 0.5 X 2	FPR-57		FF-01G	0.1	8mm	
			FF-03R(X)	0.03	20mm	
			FF-06R(X)	0.03	45mm	
M4 diam. 0.5 X 2	FPR-58		FF-01G	0.1	8mm	
			FF-03R(X)	0.03	20mm	
			FF-06R(X)	0.03	45mm	
Tipo a barriera / Thru beam type	M4 diam. 0.5 X 1	FPT-01		FF-01G	0.1	30mm
				FF-03R(X)	0.3	50mm
				FF-06R(X)	0.5	100mm
	M4 diam. 1.0 X 2	FPT-02		FF-01G	0.1	45mm
				FF-03R(X)	0.3	80mm
				FF-06R(X)	0.5	300mm
	M4 diam. 1.0 X 2	FPT-03		FF-01G	0.1	30mm
				FF-03R(X)	0.3	50mm
				FF-06R(X)	0.5	100mm
	M4 diam. 1.0 X 2	FPR-04		FF-01G	0.1	45mm
				FF-03R(X)	0.3	80mm
				FF-06R(X)	0.5	250mm
	M4 diam. 1.0 X 2	FPT-05		FF-01G	0.1	45mm
				FF-03R(X)	0.3	80mm
				FF-06R(X)	0.5	250mm
	M3 diam. 1.0 X 2	FPT-06		FF-01G	0.1	30mm
				FF-03R(X)	0.3	50mm
				FF-06R(X)	0.5	150mm

Temperatura di lavoro / Operating temperature = -40°C - +70°C

Materiale della fibra / Fiber material = Plastica / Plastic

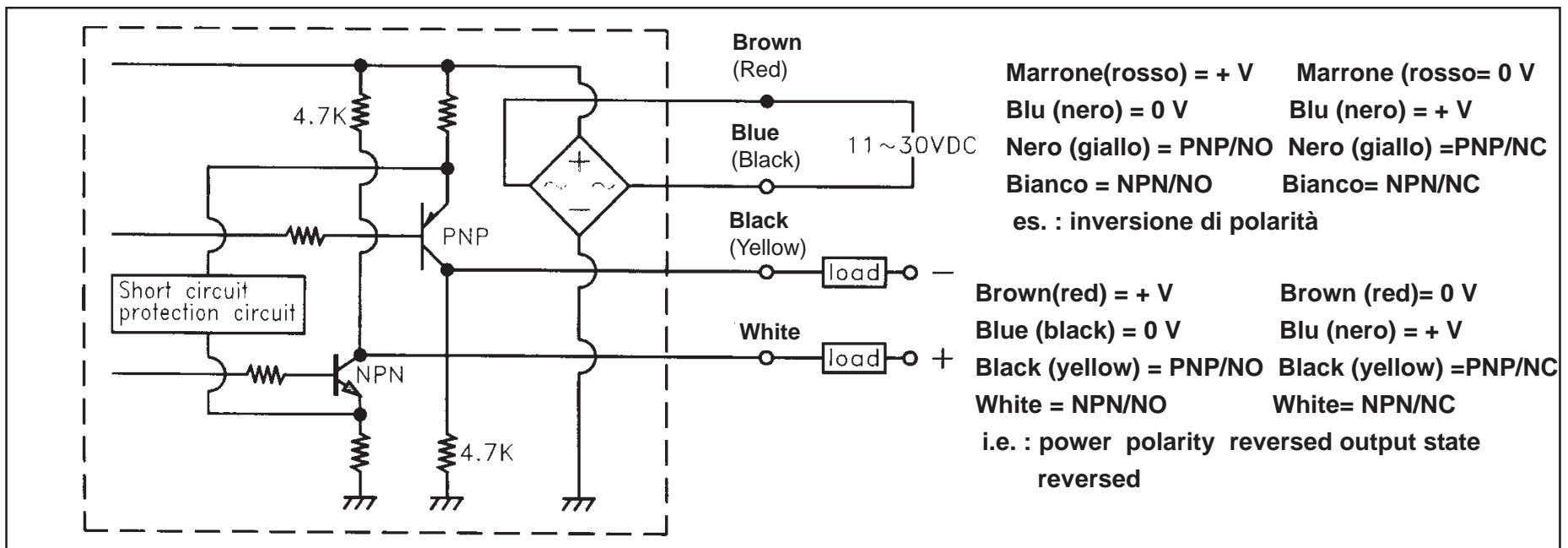


ELETRONICA DUE

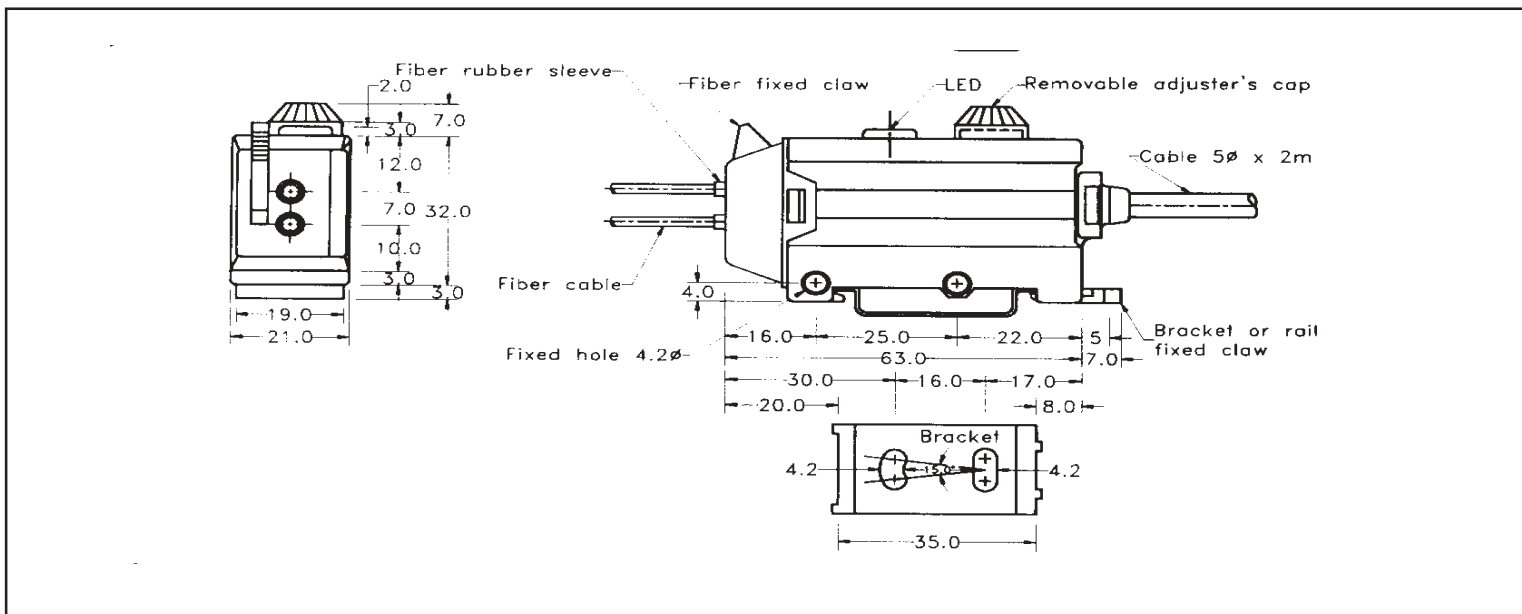
Serie / Series FF

Fibre ottiche / Optical fiber

Circuito di uscita e connessioni / Output circuit & connection diagram



Dimensioni dell'amplificatore mm. / Dimension <Amplifier unit>



Gruppi ottici aggiuntivi / Attachment <Lens>

Tipo / Type	Frontale / Right view lens		Laterale / Aside view lens	
<b>Modello / Model</b>	<b>FL1</b>		<b>FL2</b>	
Forma / Shape				
Fibra adatta / Suitable fiber unit	FPT - 02			
Amplificatore / Amplifier	FF-03R(X)	FF-06R(X)	FF-03R(X)	FF-06R(X)
Distanza di rilevamento / Sensing distance	1200mm	2000mm	400mm	600mm
Minimo oggetto rilevabile / Min. sensible object	diam.1 mm.			

### ■ ISTRUZIONI PER UN CORRETTO UTILIZZO

#### *How to use correctly*

#### **Come montare la fibra ottica / To mount the optical fiber**

- \* Scegliere la fibra e gli appropriati adattatori (1), fissarli all'amplificatore mediante la levetta(2) (nella scatola ci sono due adattatori dello stesso diametro esterno, ma di diverso diametro interno 1 - 2 mm).

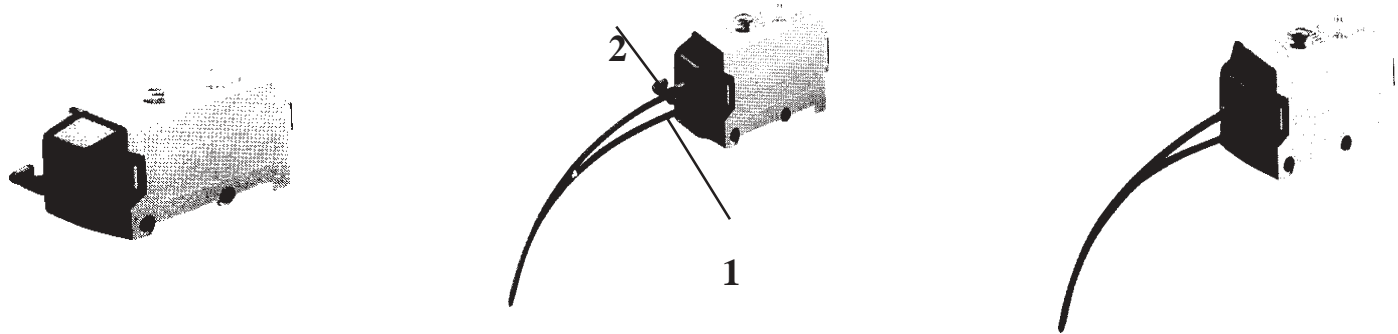
*First, to select the right fiber cable rubber sleeve (1) fixed by fiber fixed claw (2) of amplifier. (Two kinds of rubber sleeve have the same outer diameter but have the different inner diameter 1 - 2 mm.)*

- \* Tirare verso il basso la levetta (2) posizionandola orizzontalmente. Inserire i terminali della fibra nei fori degli adattatori emettitore e ricevitore.

*Put down the fiber fixed claw to horizontal direction, then inserting the fiber cable through the rubber sleeve to emitter and receiver.*

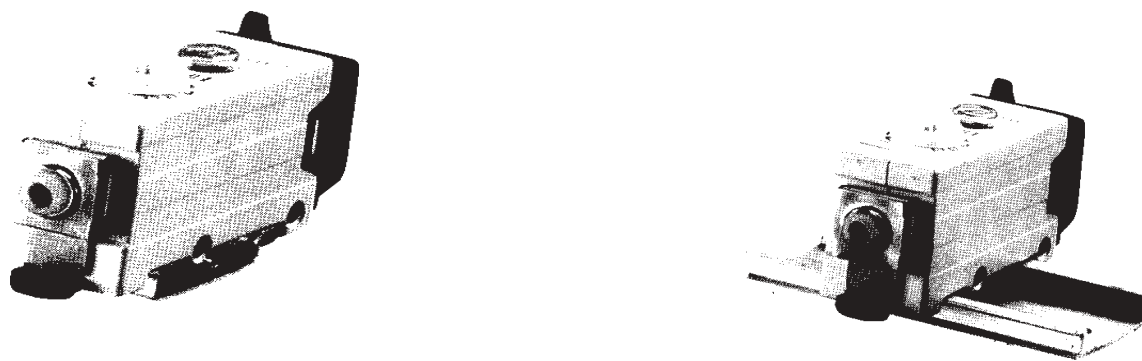
- \* Sollevare la levetta (2).

*Put up the fiber fixed claw to vertical direction.*

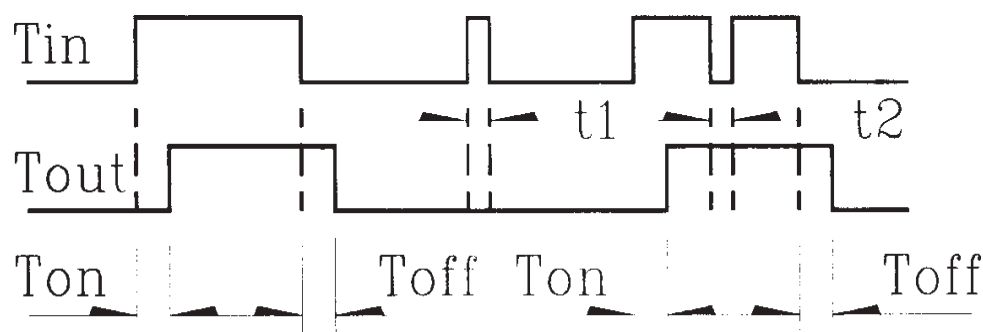


#### Montaggio dell'amplificatore / To mount or detach the amplifier unit

Tutte le fotocellule della serie F possono essere montate su barra DIN o con staffa.  
*All F series can be mounted to DIN rail or fixed bracket.*



### ■ Tempo di risposta / Response time



**Tin** : Tempo di passaggio dell'oggetto  
*Object passing time*

**Tout** : Tempo di uscita del sensore  
*Sensor output time*

**Ton** : Ritardo del sensore ON  
*Delay time of sensor ON*

**Toff** : Ritardo del sensore OFF  
*Delay time of sensor OFF*

Se  $t1 < Ton$ , il sensore non può rilevare l'oggetto.  
*If  $t1 < Ton$ , sensor can't detect object.*

Se  $t1 > Ton$ , il sensore non può distinguere l'oggetto.  
*If  $t1 > Ton$ , sensor can't distinguish object.*