

## Distinctive Characteristics

Brilliant illumination for highly visible status indication with LEDs and caps in red, green, or amber; subdued illumination for low light requirements with white cap over red, green, or amber LEDs.

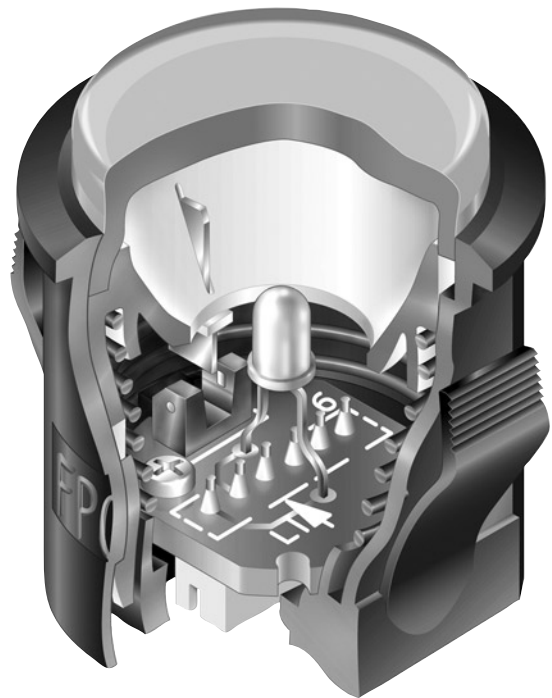
Photo interrupter, rather than contacts, ensures high reliability and long life of 3 million operations minimum.

Rugged construction and smooth actuation allow repeated, rapid actuation force anywhere on cap surface.

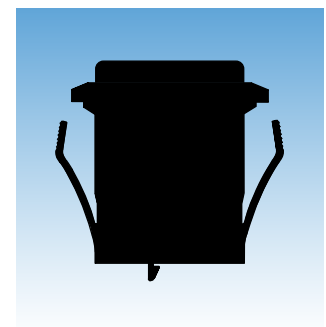
Snap-in mounting for easy installation.

Connector socket with 6 pins for simple connection.

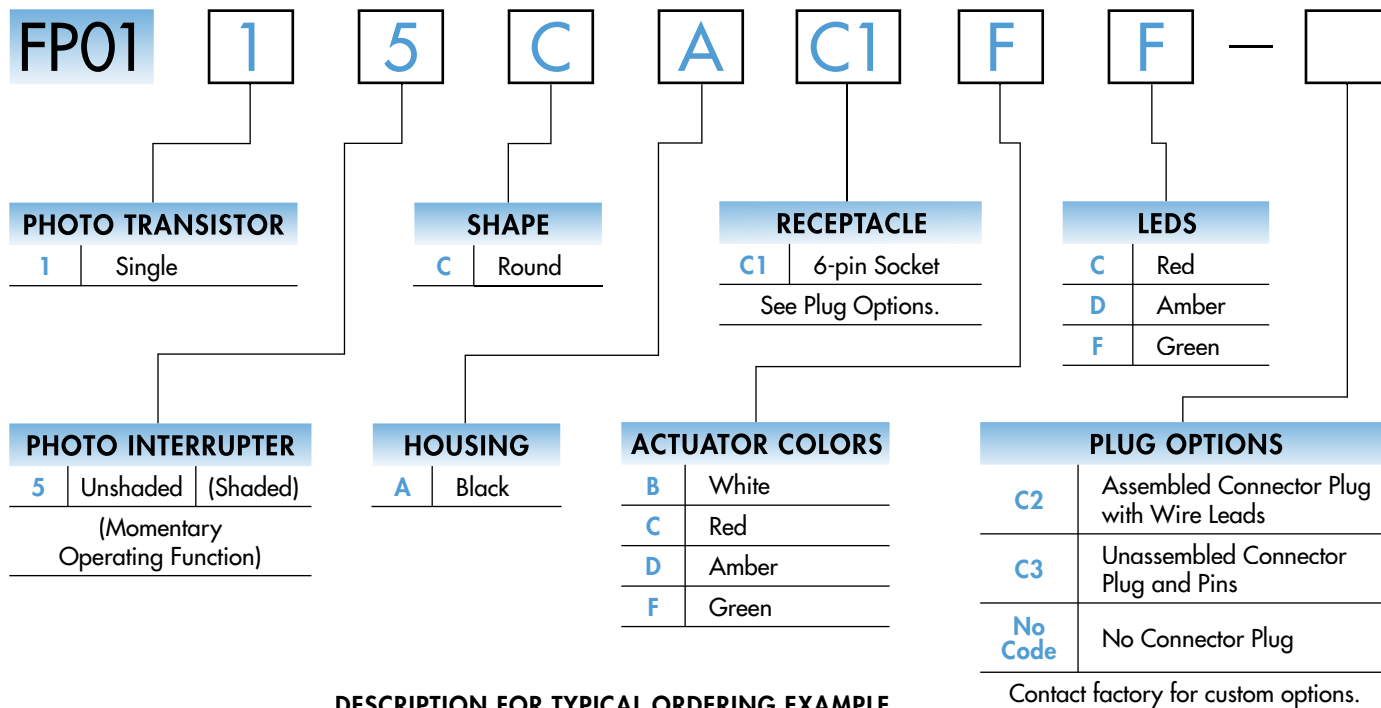
Well suited for gaming and vending machines, as well as equipment exposed to corrosive gases used in environments such as chemical or steel manufacturing plants.



Actual Size



## TYPICAL SWITCH ORDERING EXAMPLE



### DESCRIPTION FOR TYPICAL ORDERING EXAMPLE

**FP0115CAC1FF**



## ACTUATOR & INTERRUPTER

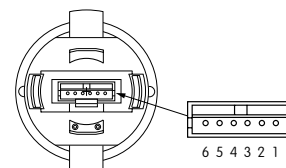
		Actuator Position		Photo Interrupter		Schematics
Model		Normal	Down	Unshaded	Shaded	
	<b>1</b>			<b>5</b>	Normally Unshaded with Momentary Shaded status	LED connector pins are 5 & 6; interrupter connector pins are 3-4 & 1-2.
<b>FP0115</b>	<b>Single Photo Transistor</b>	When shaded, the photo transistor momentarily activates electrical function which signals the external device to change its state.				

## HOUSING SHAPE & COLOR

**C** Round Shape      **A** Black Housing

## INTERNAL RECEPTACLE

**C1** Receptacle  
Internal male connector socket



## SWITCH SPECIFICATIONS

	Actuator Up	Actuator Down
Status of Photo Interrupter:	Unshaded	Shaded
Collector Current $I_C$ :	0.8mA minimum	10 $\mu$ A maximum
Status of Photo Transistor:	On	Off
Output Condition of Photo Transistor:	$I_F = 20\text{mA}$ & $V_{CE} = 5\text{V}$	

## MECHANICAL SPECIFICATIONS

Total Travel:	.079" (2.0mm)
Operating Force:	0.75 N (.169 lbf)
Mechanical Life:	3,000,000 operations minimum
Operating Temperature Range:	-25°C through +50°C (-13°F through +122°F)

## MATERIALS

Actuator:	Polyacetal
Housing:	Polyamide

## PHOTO INTERRUPTER SPECIFICATIONS

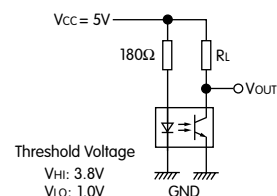
(Temperature @ 25°C)

Electrical & Optical Characteristics	Typical	Maximum	Condition
<b>Input</b>			
Forward Voltage $V_F$ :	1.3V	1.6V	$I_F = 50\text{mA}$
Reverse Current $I_R$ :		10 $\mu$ A	$F_R = 5\text{V}$
<b>Transmission</b>			
Collector-Emitter Saturation Voltage $V_{CE sat}$ :		0.4V	$I_F = 20\text{mA}$ & $I_C = 0.1\text{mA}$
<b>Absolute Maximum Ratings</b>			
<b>Input LED</b>		<b>Output Photo Transistor</b>	
Forward Current $I_F$ :	50mA	Collector-Emitter Voltage $V_{CEO}$ :	30V
Reverse Voltage $V_R$ :	5V	Emitter-Collector Voltage $V_{ECO}$ :	4.5V
Power Dissipation $P_D$ :	80mW	Collector Current $I_C$ :	30mA
		Collector Dissipation $P_C$ :	80mW

### Circuit Design Considerations

Output of the infrared LED in the photo interrupter decreases approximately 50% after 100,000 hours.

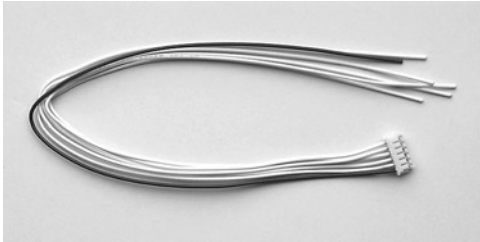
Recommended load resistance ( $R_L$ ) is 40k ~ 120k $\Omega$  for the illustrated circuit.



## EXTERNAL PLUG OPTIONS

**C2** **AT021**  
Assembled Connector Plug  
with Wire Leads

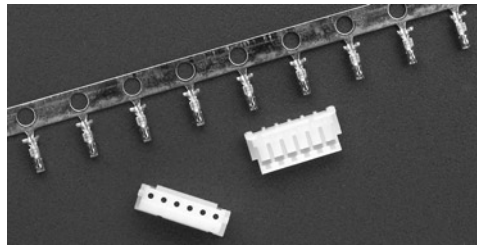
Connector plug body: JST model ZHR-6  
Crimp connector pins: JST model SZH-002T-P0.5  
Wire leads: 28-26AWG; 12-inch, unstripped;  
Blue for Pin 1



**C2** **AT022**  
Unassembled Connector Plug  
and Pins

1 connector plug and 8 crimp connector  
pins only (no wire leads provided).

Matching wire leads: 28-26AWG



**No Code**

**No Connector Plug**

Recommended connector  
plug for assembly:  
JST model number ZHR-6

Recommended crimp  
connector pins:  
JST model SZH-002T-P0.5  
for 28-26AWG wire leads  
or SZH-003T-P0.5 for  
32-28AWG wire leads.

## ACTUATOR COLORS

**B** White

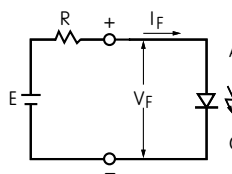
**C** Red

**D** Amber

**F** Green

## LED COLORS & SPECIFICATIONS

LEDs are an integral part of the switch and not available separately. The electrical specifications shown are determined at a basic temperature of 25°C.



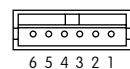
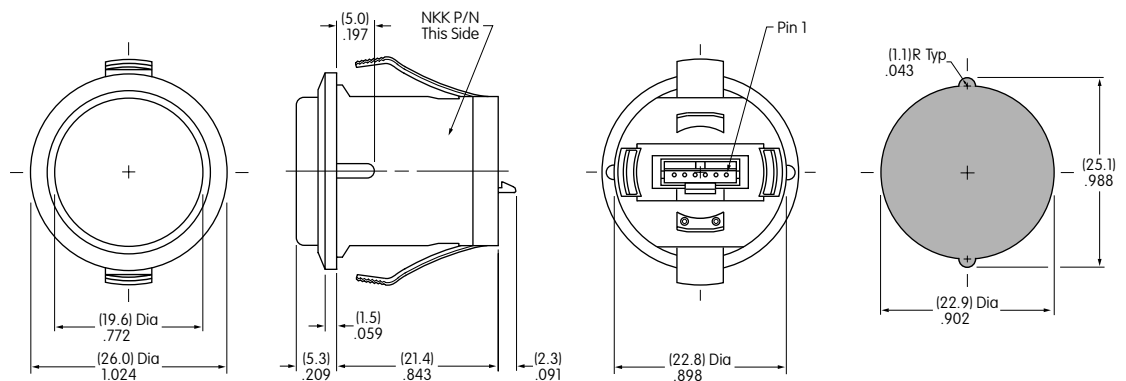
$$R = \frac{E - V_F}{I_F}$$

If the source voltage exceeds the rated voltage, a ballast resistor is required.

Where: R = Resistor Value (Ohms)  
E = Source Voltage (V)  
V<sub>F</sub> = Forward Voltage (V)  
I<sub>F</sub> = Forward Current (A)

Single Element LED		<b>C</b>	<b>D</b>	<b>F</b>
	Color	Red	Amber	Green
Forward Peak Current	I <sub>FM</sub>	30mA	25mA	25mA
Continuous Forward Current	I <sub>F</sub>	20mA	20mA	20mA
Forward Voltage	V <sub>F</sub>	1.85V	2.0V	2.25V
Reverse Peak Voltage	V <sub>RM</sub>	5V	5V	5V
Current Reduction Rate Above 25°C	ΔI <sub>F</sub>	0.38mA /°C	0.28mA /°C	0.40mA /°C
Ambient Temperature Range		-25° ~ +50°C		

## TYPICAL SWITCH DIMENSIONS



Terminal Connector Detail

Recommended Panel  
Thickness Range:  
.098" ~ .197"  
(2.5mm ~ 5.0mm)

FP0115CAC1FF

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