

ø22mm Ultra-bright LED Pilot Lights

# AP22 Series



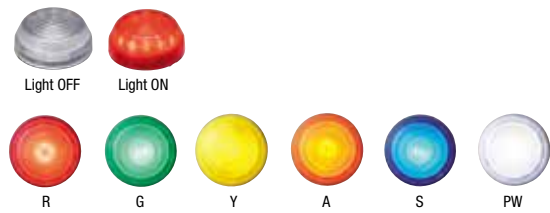
Outstanding visibility, even in direct sunlight.



• See website for details on approvals and standards.

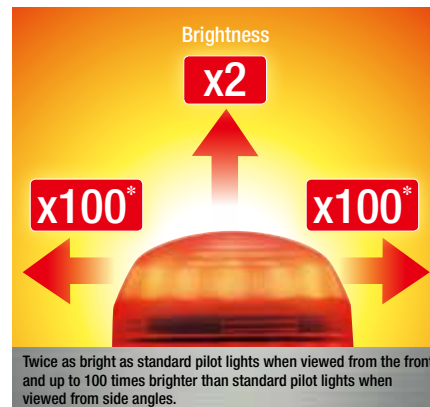
## Six different color variations

Viewable in direct sunlight.  
Clear lens available (except PW)



## High visibility from all directions Unique optical design

Visible from all directions.



## Easy wiring

Integrated terminal cover is IP20 (finger protection), preventing electrical shocks.

## Great visibility - even from inside a train (automatic safety fence on a train station platform)



## Compact size - Perfect for mounting in small or narrow surfaces.



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- APEM
- Switches & Pilot Lights
- Control Boxes
- Emergency Stop Switches
- Enabling Switches
- Safety Products
- Explosion Proof
- Terminal Blocks
- Relays & Sockets
- Circuit Protectors
- Power Supplies
- LED Illumination
- Controllers
- Operator Interfaces
- Sensors
- AUTO-ID
- Flush Silhouette
- ø16
- ø22
- ø30
- Miniature
- Pilot Lights

## Specifications

Operating Temperature	-25 to +55°C (no freezing)	
Storage Temperature	-45 to +80°C (no freezing)	
Operating Humidity	45-85%RH (no condensation)	
Insulation Resistance	100MΩ (DC500V megger)	
Over Voltage Category	II (IEC60664-1)	
Impulse Dielectric Strength	2.5kV (IEC60664-1, IEC60947-5-1)	
Pollution Degree	3 (IEC60947-5-1)	
Dielectric Strength	Between terminals of different poles: 2,000V AC, 1 min Between live and non-live parts: 2,000V AC, 1 min	
Vibration Resistance	Operation limit	5-55Hz half amplitude: 0.5mm
	Damage limit	30Hz half amplitude: 1.5mm
Shock Resistance	Operation limit	100m/s <sup>2</sup> (10G)
	Damage limit	1000m/s <sup>2</sup> (100G)
Degree of Protection	Panel front: IP66 (IEC 60529), UL Type 4X Terminals: IP20	
Terminal Size	M3.5 screw	
Tightening Torque	Terminal Screw	1.0N·m
	Locking Ring	2.0N·m
Wire Size	AWG16 to AWG14, 2 wires max.	
Weight (approx.)	18g	

## LED Lamp Ratings



Rated Voltage	24V DC	
Voltage Range	24V DC ±10%	
LED Illumination Color	Red (R), Green (G), Yellow (Y), Amber (A), Blue (S), and White (PW)	
Rated Current	24mA (all colors)	
LED Life (Ref.)	Approx. 30,000 Hrs. at rated voltage @ 25°C in specified environmental conditions (The brightness reduces to 50% of initial value.)	
Equivalent Circuit	<p>Colors R, A, and Y</p>	<p>Colors G, S, &amp; PW</p>
	<p>Note: X1 and X2 have no polarity.</p>	
		<p><b>Drawing Key</b></p> <ul style="list-style-type: none"> <li> LED Chip</li> <li> Rectifier Diode</li> <li> Zener Diode</li> <li> Resistor</li> </ul>

- HW1Z
- AP22
- A Series
- LD6A

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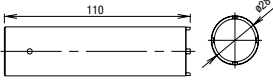


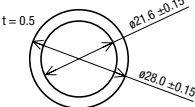
## Part Numbers

### Pilot Lights

Appearance	Lens	Rated Voltage	Part Number	Lamp Color
	Color	24V DC	AP22M-2Q4 *	R G Y A S PW
	Clear			

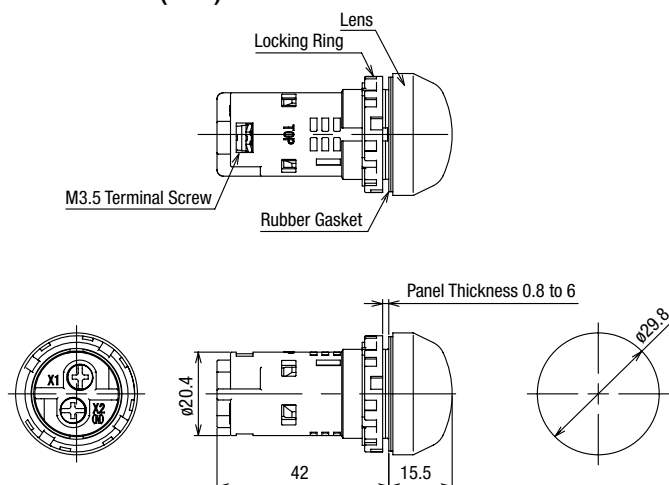
- In place of \* insert LED color code: R (red), G (green), Y (yellow), A (amber), S (blue), and PW (white).
- White (PW) only available as colored lens.
- LED cannot be removed or replaced.

## Accessories & Replacement Parts

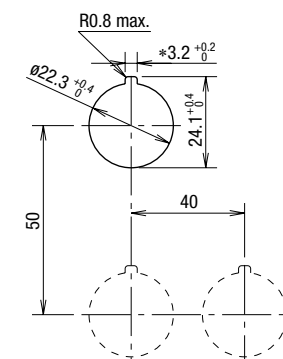
Appearance	Material	Part Number	Notes
	Metal (brass)	MW9Z-T1	Used for mounting unit into a panel. 
	Resin	YW9Z-PL12 *	Dimension: ø29.8mm H14.5mm In place of * insert color code: R (red), G (green), Y (yellow), A (amber), S (blue), C (clear) Note: Use a clear lens (C) for a PW (White) LED.
	Nitrile rubber	HW9Z-WM	

- Nameplates HWAM, HWAS-0, and CWAM can be used.

## Dimensions (mm)



## Panel cut-out (mm)



- \* 3.2mm  $^{+0.2}$  opening (notch) is used to stop rotation. (Not necessary if a nameplate is not used.)

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## Safety Precautions

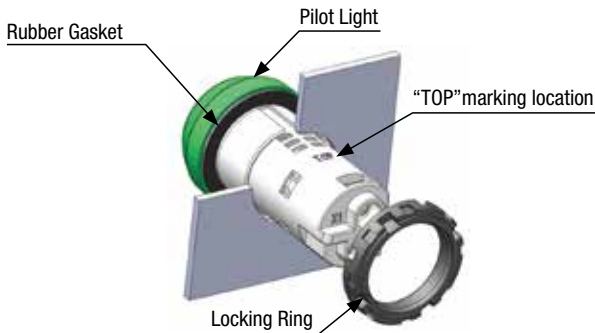
- Turn off the power before installation, removal, wiring, maintenance and inspection. Failure to turn off power may cause an electrical shock or fire hazard.

- When wiring, use proper size wires (AWG16 - AWG14) to meet voltage and current requirements. Tighten the terminal screws to the recommended tightening torque (1.0N·m). Operating with loose terminal screws may cause overheating and fire.

## Installation Instructions

### Panel Mounting

Remove the locking ring and check if the rubber gasket is properly aligned. Then insert the AP22M unit, align the "TOP" marking with the recess into the panel cut-out, and tighten the locking ring.



When installing the pilot light into a panel cut-out, use locking ring wrench (part number MW9Z-T1) to tighten the locking ring to the recommended torque of 2.0N·m. Do not use pliers and do not tighten excessively, otherwise the unit may become damaged.

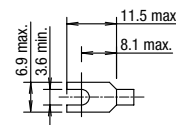
### Mounting Notes

#### Applicable Wires

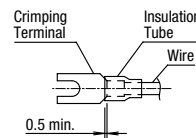
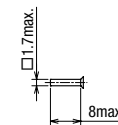
The applicable wire sizes are from AWG14 to AWG16 with 2 wires max. A ring-tongue terminal cannot be used.

#### Applicable Terminal

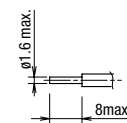
##### Fork Crimp Terminal



##### Ferrule Crimp Terminal

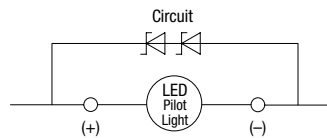


#### Bare Wire



### Noise

External noise may cause the LED chips to deteriorate, leading to a reduction in brightness, a change in color, or malfunction. We recommend the following solution if this problem exists. However, please note that this solution will vary depending on the operating environment and the application.



Zener Diode Reference Value  
Zener Voltage: 15V (1W)