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Cat. No. E29MA1 with E29KGG Glass Lens

Product Description

These indicating lights are miniature panel components designed especially for industrial application. They are of oiltight design, compact and offered in Standard, PresTest or Master Test design.

Standard Miniature Oiltight Indicating Lights

Standard Miniature Oiltight Indicating Lights are offered in two styles: a transformer type suitable for 50/60 Hz operation and a non-transformer type for either AC or DC service.

Transformer type indicating lights offer the advantages of high level illumination coupled with long life, even when subjected to conditions of voltage spikes and transients. The reduced voltage supplied by the transformer in this unit permits the use of a low voltage lamp with a rugged filament which is highly resistant to shock and vibration.

Non-transformer type indicating lights offer comparable illumination at lower cost. A series resistor is built into the 12V and 120V indicating lights to limit the current, reduce the lamp voltage and increase lamp life considerably. The 24V and 48V devices use lamps rated at 28V and 60V respectively for longer lamp life. If voltage spikes or transients may be encountered, the transformer type is preferred.

Indicating lights can be supplied with either a polycarbonate plastic lens or a glass lens mounted in a metal holder. Both types of lens are available in red, green, amber, blue, clear and white; the polycarbonate lens is also available in yellow.

Terminals are serrated pressure type with screw and captive saddle clamp or spade type.

Note: The indicating light with spade terminals has a component Underwriters Laboratories listing.

Miniature Oiltight Indicating Lights have an internal and an external synthetic rubber seal to stop seepage of oil and contaminants into the enclosure. The panel seal also functions as an anti-rotation device when properly tightened. An optional Anti-Rotation washer is available for applications specifying it.

PresTest Indicating Lights

PresTest Indicating Lights provide a positive, quick means of checking lamp condition without removing the lens. Depressing the lens disconnects the lamp from the control circuit and connects it to a continuously energized testing circuit for an immediate check of the lamp condition. PresTest Indicating Lights are otherwise identical to the two-terminal standard Miniature Oiltight Indicating Lights.

Master Test Indicating Lights

Master Test Indicating Lights permit testing a large number of Type E29 indicating lights on a panel, or a group of panels, from a single TEST push-button. This can be a substantial time and labor saver for large panels as opposed to PresTest devices which must be manually depressed, one by one, to check for lamp failure. Master Test devices also offer a solution to simple testing of lights located in inaccessible or hard to reach places where PresTest checking can not be readily performed.

Legend Plates

Legend plates are available in a number of configurations: small (half round), standard (square) and jumbo (half round and square). They are available with standard popular legends or blank for custom engraving. The square plates must have a blackening solution applied immediately after engraving — order Blackening Kit 10250TBK when blank square nameplates are ordered.

Lamp Removal

Tool E22BA3 simplifies removal of #755 lamps used on transformer-type indicating lights.

Features

- Standard, PresTest or Master Test units
- Polycarbonate or glass lens
- Voltage range from 6 – 120V AC/DC

Benefits

- Master Test permits multiple lamp testing with a single TEST pushbutton
- Wide variety of voltages permits installation in a variety of applications

Operation — Master Test

When the TEST pushbutton or switch is closed, all of the Master Test indicating lights are energized simultaneously to check for lamp failure. Master Test indicating lights have two internally isolated inputs. The Master Test unit functions as a normal pilot light through its “signal” input terminal. When the “test” terminal is energized, the lamp filament is checked through an independent test circuit. The two inputs are internally isolated so that energizing one input does not affect the other — when a lamp is turned on by its monitored device, the “test” circuit is not affected.

There are two types of Master Test indicating lights available: the solid-state diode type and the transformer type. The diode type uses an electronic circuit that isolates the signal circuit from the test circuit and offers protection against electrical conditions that might cause an isolation breakdown.

The diode-type Master Test device can be used on 120V AC or DC circuits; when used on AC circuits, the light operates on half-wave current — this gives the same extended life characteristics as operating on reduced voltage. Because of the half-wave operation, the light is slightly reduced as compared to full-wave; ambient light conditions should be considered in making this selection.

Note: When operating on AC, and a brighter light is desired, we recommend substituting a 60MB lamp (Eaton’s Cutler-Hammer Part No. 28-3043) for the 120MB standard lamp. However, lamp life will be reduced from 10,000 hours to 3,000 hours.

The transformer-type incorporates a small control relay in the lamp housing which transfers the lamp transformer from the signal circuit to the test circuit when the test circuit terminal is energized. It can be used on AC circuits only. The control relay functions similarly to the pressing of the lens on PresTest units to transfer the lamp from the “signal” to the “test” circuit.

Standards and Certifications

- Designed to meet the specifications for heavy-duty pilot devices adopted by the National Machine Tool Builders Association, National Fire Protection Association, National Electrical Manufacturers Association, Underwriters Laboratories and Canadian Standards Association
 - UL Listed (Pressure Terminals)
 - UL Recognized (Spade Terminals)
 - CSA Certified
- Automotive Approved Design: Octagonal mounting nuts, bayonet base lamps, square legend plates and optional thrust washer
- Transient and Noise Immunity: Diode-type Master Test units are varistor protected against transient voltages. Meets 1500V showering arc test per NEMA ICS 2-230

Technical Data

- Ingress Protection
 - Standard Units: NEMA 3, 3R, 3S, 4, 4X, 12, 13
 - PresTest and Master Test Units: NEMA 3, 3R, 4, 4X, 12, 13
- Mounting: Mounts in 11/16" (17 mm) mounting hole or, with an optional adapter, in a 7/8" (22 mm) mounting hole
- Lens: Polycarbonate or glass lenses available in red, green, amber, blue, clear, white and yellow (plastic only)
- Lamps: Bayonet base type available for full voltage, transformer or resistor operation

Note: For additional Technical Information, see Pub. TD.7.4.T.E.04.

Table 47-147. Lamp Data

Indicating Light		Lamp	
Volts	VA	Lamp No.	Volts
Transformer Type			
120 AC	1.8	#755 ①	6
240 AC	2.0	#755 ①	6
Full Voltage, Resistor and Diode-Type Master Test			
6 AC/DC	0.9	#755 ①	6
12 AC/DC	1.1	12MB ②	12
24 AC/DC	0.9	28MB	28
28 AC/DC	1.1	28MB	28
48 AC/DC	2.2	60MB	60
120 AC/DC	2.4	120MB ②	120

① LEDs are available to be used in place of incandescent lamps, see **Page 47-57**.

② These devices use a series resistor.

- Legend Plates: Small, Standard and Jumbo Legend Plates available with stock legends for blank for up to three lines
- Terminals
 - Pressure or spade type
 - Accept up to #14 wire
- Torque: 7 lb-in (0.8 Nm)

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E29 Series, Product Selection

Product Selection

When Ordering Specify

- Catalog Number of light unit, lens and legend plate if required. (For non-standard legends, select letter size and specify legend required.)



Cat. No. E29NM1 with E29KPB Lens and E29KS12 Legend Plate



Cat. No. E29MT1 with E29KPR Plastic Lens

Table 47-148. Light Units without Lens

Type	Voltage 60/50 Hz	Lamp Number	Standard Unit NEMA 3, 3R, 3S, 4, 12, 13		PresTest Unit NEMA 3, 3R, 4, 12, 13		Master Test Unit NEMA 3, 3R, 4, 12, 13	
			Catalog Number ①	Price U.S. \$	Catalog Number ①	Price U.S. \$	Catalog Number ①	Price U.S. \$
			Pressure Terminals		Pressure Terminals		Pressure Terminals	
Transformer AC Only	24	#755	E29NP1 ②	95.50	E29TP1 ②	118.00	—	—
	120	#755	E29NA1 ②	95.50	E29TA1 ②	118.00	E29MA1 ②	137.00
	240	#755	E29NB1 ②	95.50	E29TB1 ②	118.00	—	—
Full Voltage AC or DC	6	#755	E29NF1 ②	70.00	E29TF1 ②	89.00	—	—
	24/28	28MB	E29NH1	70.00	E29TH1	89.00	E29MH1	102.00
	48	60MB	E29NL1	70.00	E29TL1	89.00	—	—
Resistor Type AC or DC	12	12MB	E29NG1	81.50	E29TG1	89.00	—	—
	120	120MB	E29NM1	70.00	E29TM1	89.00	—	—
Solid-State Type AC or DC	120	120MB	—	—	—	—	E29MT1	105.00

① Spade terminals available as a non-stock item. For standard units replace **N** with **V**, PresTest **T** with **W** and Master Test **M** with **S**.
② For flashing lamp, add letter **F** to listed Catalog Number. Example: E29NA1 to E29NA1F.

Table 47-149. Lenses

Color	Plastic		Glass	
	Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$
Red	E29KPR	5.85	E29KGR	10.40
Green	E29KPG	5.85	E29KGG	10.40
Amber	E29KPA	5.85	E29KGA	10.40
Blue	E29KPB	5.85	E29KGB	10.40
Clear	E29KPC	5.85	E29KGC	10.40
White	E29KPW	5.85	E29KGW	10.40
Yellow	E29KPY	5.85	—	—

Table 47-150. Incandescent Lamps — T3-1/4 (BA9) Bayonet Base ③

Lamp Voltage	Lamp Number	Catalog Number	Price U.S. \$
6	#755	28-2202	5.70
12	12MB	28-3041	5.70
28	28MB	28-3042	5.70
60	60MB	28-3043	5.70
120	120MB	28-3044	5.70

③ For LED bulbs, see Table 47-84 on Page 47-57.

Legend Plates Page 47-102
Dimensions Page 47-103
Discount Symbol 1CD1

E29 Series, Accessories and Legend Plates

Accessories and Legend Plates

Accessories

Table 47-151. Accessories

Description	Catalog Number	Price U.S. \$
Adapter for 7/8" (22 mm) Panel Mounting	E29KA1	15.30
E29 and 10250T Two Ended Octagonal Retaining Nut Wrench	10250TA95	22.00
Thrust Washer Kit — To meet Ford Motor Co. Mounting Specification	E29FK	2.00
Lamp Removal Tool — Two Ended for #755 or #6S6 Lamps	E29KLT	5.55

Legend Plates

Non-standard Legends

Legend Plates with non-standard legends — add "STAMP" Suffix to Blank Legend Plate Catalog Number and specify letter size in Order Notes.

Table 47-152. Legend Plates with Non-standard Legends

Letter Size	No. of Lines	Letters per Line
Small or Standard Size		
3/16 inch (4.8 mm)	1	6
1/8 inch (3.2 mm)	1	6
3/32 inch (2.4 mm)	2	8
Jumbo Size		
3/16 inch (4.8 mm)	1	10
1/8 inch (3.2 mm)	2	11
3/32 inch (2.4 mm)	3	14

Table 47-153. Blank Plastic Legend Plates — Square

Colors		Catalog Number	Price U.S. \$
Letters	Field		
Standard			
Black	White or Silver ①	E29KSP76	2.70
White	Red or Black ①	E29KSP77	2.70
Jumbo			
Black	White or Silver ①	E29KJP76	2.70
White	Red or Black ①	E29KJP77	2.70

① If legend plate is to be engraved, specify field color required.

Table 47-154. Blackening Kit

Catalog Number	Price U.S. \$
10250TBK	14.70

Note: Solution blackens aluminum exposed by engraving process. Must be applied immediately after engraving.

Standard Legends

Table 47-155. Legend Plates with Standard Legends or Blank

Legend	Color of Field	Letter Size	Catalog Number			Price U.S. \$	
			Small Size ② 1/2 Round	Standard Size Square	Jumbo Size 1/2 Round Square		
Blank	Black	—	E29KM1	E29KS1 ③	E29KJ1	E29KL1 ③	2.70
Blank	Red	—	E29KM2	E29KS2 ③	E29KJ2	E29KL2 ③	2.70
ON	Black	3/16	E29KM10	E29KS10	E29KJ10	E29KL10	2.70
OPEN	Black	3/16	E29KM12	E29KS12	E29KJ12	E29KL12	2.70
CLOSED	Black	3/16	E29KM13	E29KS13	E29KJ13	E29KL13	2.70
POWER ON	Black	3/16	E29KM14	E29KS14	E29KJ14	E29KL14	2.70

② Requires special retaining nut when mounting on minimum spacing dimensions with terminals vertically oriented as listed in Table 47-156 on Page 47-103. Call Eaton's Cutler-Hammer Customer Support Center 1-800-356-1243.

③ Requires use of Blackening Kit listed below left immediately after engraving.

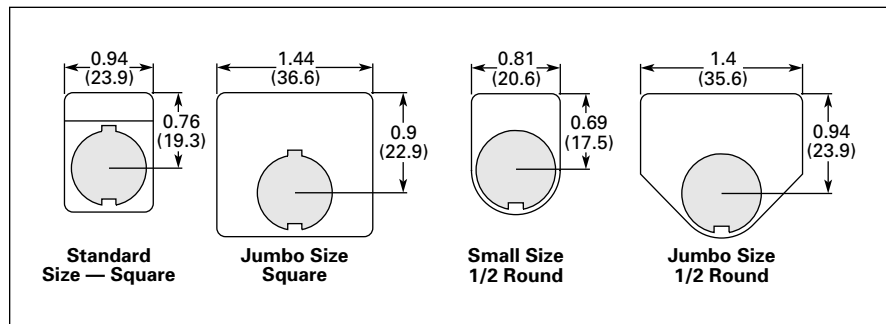


Figure 47-26. Legend Plate Approximate Dimensions in Inches (mm)

**Wiring Diagrams —
Master Test**

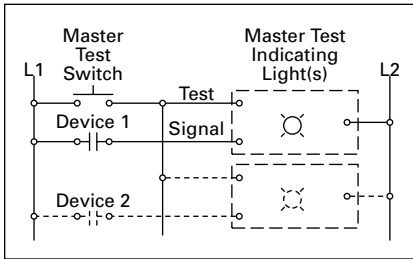


Figure 47-27. Wiring Diagram — Master Test

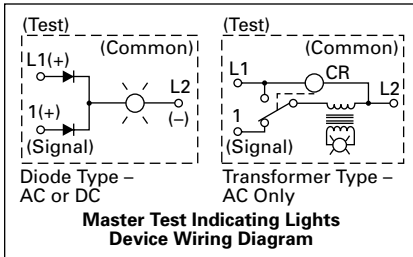


Figure 47-28. MasterTest Indicating Lights Device Wiring Diagram

Dimensions

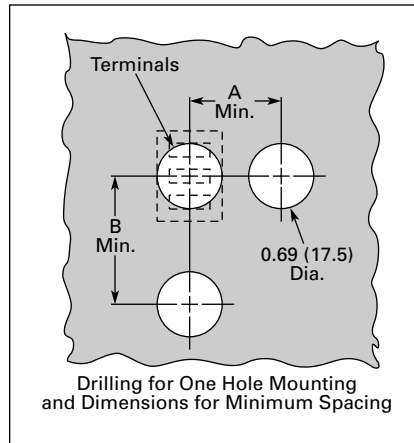


Figure 47-29. Drilling Dimensions
Terminals shown in vertically oriented position.

Table 47-156. Drilling Dimensions and Minimum Spacing

Operator Mounting Orientation	Legend Plate	Approximate Dimensions in Inches (mm)	
		A	B
Terminals Vertically Oriented	Small	0.9 (22.9)	1.2 (30.5)
	Standard	1.0 (25.4)	1.3 (33.0)
	Jumbo	1.5 (38.1)	1.5 (38.1)
Terminals Horizontally Oriented	Small	1.1 (27.9)	1.2 (30.5)
	Standard	1.1 (27.9)	1.3 (33.0)
	Jumbo	1.5 (38.1)	1.5 (38.1)

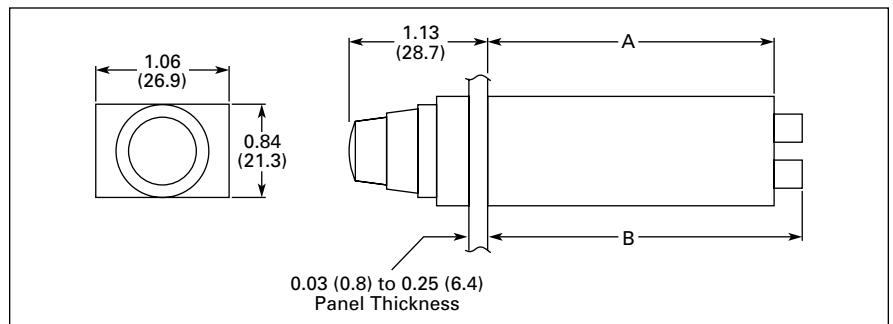


Figure 47-30. Approximate Light Dimensions in Inches (mm)

Table 47-157. Approximate Light Dimensions in Inches (mm)

Indicating Light	Dimensions	
	Pressure Terminals A	Spade Terminals B
Transformer Type Master Test Unit	3.94 (100)	4.00 (101.6)
All Others	2.66 (67.6)	2.72 (69.1)