

ELECTRONICS & DEFENSE



**SERIES 585
ILLUMINATED LED PUSHBUTTON
ANNUNCIATOR SWITCHES AND
INDICATORS**

OUR CATALOG

Safran Electronics & Defense, a Safran high-tech company with worldwide leadership in optronics, avionics, electronics and critical software for civil and defense applications.

The pages of this catalog introduce Safran Electronics & Defense comprehensive range of part 21 products and part 145 services for both civil and military applications. These units are designed to meet the specifications of modern cockpits.

Your parts can be designed through the use of this catalog. For specific product requests, we remain at your disposal to study new configurations for your application.



For all orders or questions

marketing.avionics@safrangroup.com



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SERIES 585 ILLUMINATED LED PUSHBUTTON ANNUNCIATOR SWITCHES & INDICATORS



Safran Electronics & Defense has field proven capability and pedigree of development and manufacturing of illuminated pushbutton switches and control panel products. This development covers a wide array of applications for civil and military platforms.

At the Safran Electronics & Defense facilities in North America, we manufacture pushbutton switches, illuminated panels, pilot controls, and cockpit control panels. The co-location of Safran Electronics & Defense design and manufacturing enables superior Control and delivery of Quality product. Everyone at Safran Electronics & Defense takes great pride in their work and the quality of the product being shipped to our customers. Additionally, Safran's switches, pilot control products, and cockpit control panels have demonstrated superior performance and reliability in the field.

585 PBA LED PRESENTATION

The Series 585 PBA LED Lighted Avionics Pushbutton Switch is designed for life-of-the-aircraft service. It features a variation of aviation and NVIS (Night Vision Imaging System) compatible colors. The Series 585 PBA is available in momentary action, alternate action, and indicator only configurations. Two termination systems are available: Plug-in and PCB Solder Termination. These termination systems are available in an 8-amp staggered pin pattern and a 5-amp in-line pin pattern.



PEDIGREE

The Series 585 LED switch uses the proven four-pole switch contact pushbutton mechanism and qualified to MIL-PRF-22885/110. The switch display is illuminated by surface mount Light Emitting Diodes (LEDs) located within the lamp capsule.

The Series 585 LED PBA switches provides high reliability product in a lightweight, sunlight readable package with options of night vision compatibility, spray-tight sealing, and plug-in mounting.

LED LIGHTING

The Series 585 LED PBA functions with a 5-Volt or 28-Volt aircraft DC power supply systems. Additionally, the LED PBA Lighting is available in three different functions: linear, step, or logarithmic. The linear dimming is proportional to the external current or voltage input. The step dimming is defined by the desired daytime and night mode voltage level. The logarithmic dimming, or incandescent curve, mimics the light or luminance output of a conventional incandescent lamp circuit as the voltage input is adjusted from bright to dim mode. Series 585 PBA illumination life exceeds 100,000 continuous hours due to the optimized Electro-Opto-Mechanical design.

SWITCH DESIGN

The Series 585 LED pushbutton switch is a four pole, snap action, Form C device available in momentary, indicating alternate, and indicator configurations. Safran Electronics & Defense uses its proprietary bi-stable switch contact system, which is also used on another qualified Safran product, the Series 584 PBA switch. This bi-stable design ensures contact reliability and speed by enabling four switch contacts to be equally stable in both C-NC and C-NO states, unlike sub-miniature switches, which require a balanced spring system to maintain them in an activated mode. The switch actuation mechanism is a unique over-center snap actuator, which precludes contact tease and inadvertent switch transfer by operators. The Series 585 PBAs deliver fast and simultaneous switch contact transfer based on the bi-stable and switch actuation mechanism.

The Series 585 LED pushbutton switch delivers 200,000 cycles.

PERFORMANCE AND RELIABILITY

1. RELIABILITY

Switch life is based on three factors:

- **Mechanical life:** The 585 switch mechanism is rated for 1,000,000 actuations
- **Electrical life of the switch contacts:** 1,000,000 actuation cycle at 0.01 to 0.1 amperes resistive
- **Electrical life of the lighting circuitry:** 100,000 continuous hours based on when the degradation reaches 50% of its initial brightness value

Reliability Prediction

The MTBF for the Series 585 LED pushbutton switch is predicted to be greater than 500,000 hours based on MIL-HDBK-217F and the Non-Electronic Parts Reliability Data (NPRD) and the assumption of one operation cycle per flight. However the MTBF computation is performed based on each application pending the environmental conditions. We can determine the MTBF for a given requirements.

2. PERFORMANCE CHARACTERISTICS

Polarity

LED's are polarity sensitive devices therefore we provide polarity definition as part of the electronic circuit information marked on the side of the 585 LED switches. Additionally, the polarity can be marked on the connector to prevent incorrect wiring. The electronic circuit is protected from accidental application of power with the wrong polarity.

Chromaticity and Luminance

Our LED illuminated switches are manufactured with true color LED's to meet specific chromaticity values. The LED luminance or brightness can be tailored to specific customer requirements if the application necessitates a deviation from the performance of the standard product provided here. Luminance levels for all LED capsule colors and legend configurations are derived for the specified bright and dim operating voltages. The selected voltage or current has minimal impact on legend colors. The LED color and luminance will operate consistently at the specified input voltages set for the bright and dim control voltages.

Low Power Consumption

The nominal power consumption for the Series 585 LED pushbutton switch is 1.5 Watts for the 28-Volt system. This represents a power savings of greater than 50% over a typical 28-Volt incandescent system.

Low Touch Temperature

The touch temperature at the face of the Series 585 LED pushbutton switch operated at 28 volts in an ambient temperature of 24 degrees Celsius has been tested at 38 degrees Celsius. This temperature rise of 14 degrees Celsius is as much as 40 degrees Celsius cooler than an equivalent 28 volt incandescent light source.

LED Design Redundancy

The Series 585 LED PBA design utilizes eight LED's. A full display is made up of 8 LED's, while a half display would have 4 LED's per each half. Given the long life of the individual LED's, LED replacement is highly unlikely during the life of an aircraft; however premature loss of one or two LED's in a full display capsule would not result in a non-legible capsule legend. A half display will remain legible with one failed LED.

Qualification Data

The Series 585 LED pushbutton switch is qualified to MIL-PRF-22885/110. The 585 PBA switch is an upgraded design and is based on the Series 584 LED PBA product and does not impact the structural integrity of the switch.

3. DESIGN AND PRODUCT FLEXIBILITY

Dimming Methods

Safran offers «**linear dimming**», «**step dimming**» and «**logarithmic dimming**» capabilities for the Series 585 LED PBA switch.

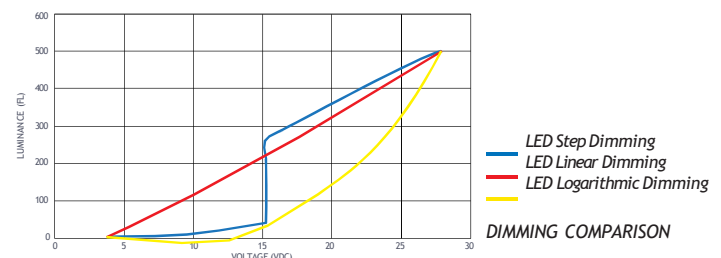
Linear dimming uses external voltage input for providing the dimming control. In this method, the voltage input to the switch is varied from full rated voltage (bright mode) to a desired dim voltage level (dim mode). In this configuration, the LED current limiting resistors are located inside the switch body which control the current and subsequently tune the luminance value of the LED's.

Step dimming provides dimming control internal to the switch and is generally designed to provide a «stair-step» response to bright and dim mode voltage inputs to achieve desired levels of luminance for day and night operation.

Logarithmic dimming, or the incandescent curve, mimics the light or luminance output of a conventional incandescent lamp circuit as the voltage input is adjusted from full bright at 28 VDC to ~5 VDC.

In a 28-Volt system, an electrical circuit within the switch housing provides the voltage reduction and dimming circuitry to provide the desired bright mode and dim mode luminance at the desired voltages. The dimming circuit is attached to the switch body to remove heat away from the LED capsule and thereby increase their operating life.

The graph shown compares the luminance versus voltage curve for a standard 28-Volt LED PBA switch with step dimming to that of a 28-Volt LED PBA switch with linear dimming and a typical 28-Volt incandescent switch. For custom applications the range of the dimming step can be pre-specified within 22 to 12 Volt for a 28-Volt system.



4. HANDLING

Due to sensitivity of electronics and Electro-Optics component to ESD the series 585 LED PBAs shipped with ESD protection packaging. We strongly recommend that proper ESD handling procedures are used when working with the series 585 LED pushbutton switches.

MECHANICAL SPECIFICATION

The length of each unit is specified from the rear of the housing flange to the end of the switch body, not including terminals. Terminal length is 0.2 inches (5.1 mm) for solder and PCB units.

Safran Electronics & Defense offers two (2) different switch body lengths, which provides various options for length behind the panel. The Series 585 pushbutton switch is available in either a standard or extended length. The detailed dimensions can be found on pages 9 & 10.

To calculate the actual behind panel depth for your application, subtract the thickness of the panel, the thickness of spacers used above panel, and 0.030 inches for the drip-proof panel seal, if required, from the length of unit listed below.



Mechanical Specification Specification pushbutton switches

	Maximum Length Behind Switch Housing Flange	Maximum Weight
Standard Length, solder & PCB Termination	1.50	20 grams
Standard Length, Plug-in Termination	1.81	21 grams
Extended Length, Solder & PCB Termination	1.71	26 grams
Extended Length, Plug-in Termination	2.02	27 grams
Standard Length, Solder & PCB Termination, Spray Tight Seal	1.29	23 grams
Standard Length, Plug-in Termination, Spray Tight Seal	1.60	24 grams
Extended Length, Solder & PCB Termination, Spray Tight Seal	1.42	29 grams
Extended Length, Plug-in Termination, Spray Tight Seal	1.75	30 grams

Switch Form	Form C single break
Actuation Travel	0.135 ± 0.010 inches (3.43 ± 0.25 mm).
Actuation Force	2 to 5 lbs (8.9 to 22.3 N)
Extraction Force	3 to 5 lbs (13.3 to 22.3 N)
Mounting Torque	18 ± 2 inch-oz. (0.127 ± 0.014 N-m)
Internal Seal	Dust & Drip-proof per MIL-PRF-22885
Diaphragm Seal	Spray-tight per MIL-STD-108
Mechanical Life	200 000 cycles MIL-
Marking	STD-130

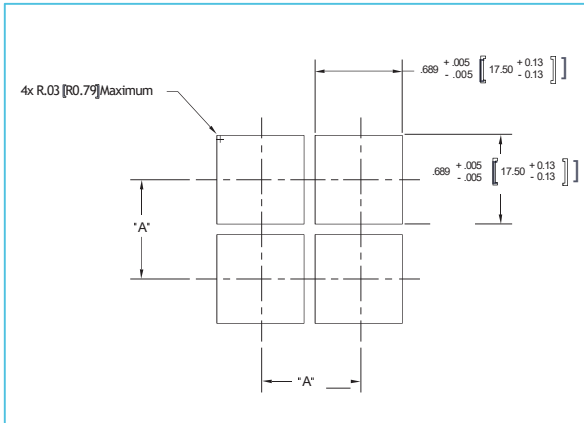


Figure 1. Recommended Panel Cutout

TYPE	DIMENSION "A"
Unsealed Switch	.780 [19.8]
Switch with Spray Tight Boot	.930 [23.62]

Figure 4. 5 Amp, 6-Pin In-Line Termination PCB Layout

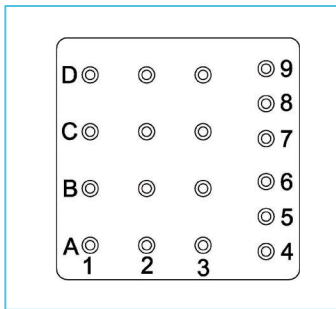


Figure 2. 5 Amp, 6-Pin In-Line Termination

Figure 5. 8 Amp Termination PCB Layout

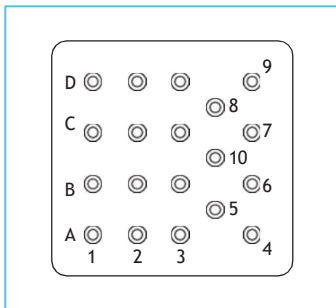
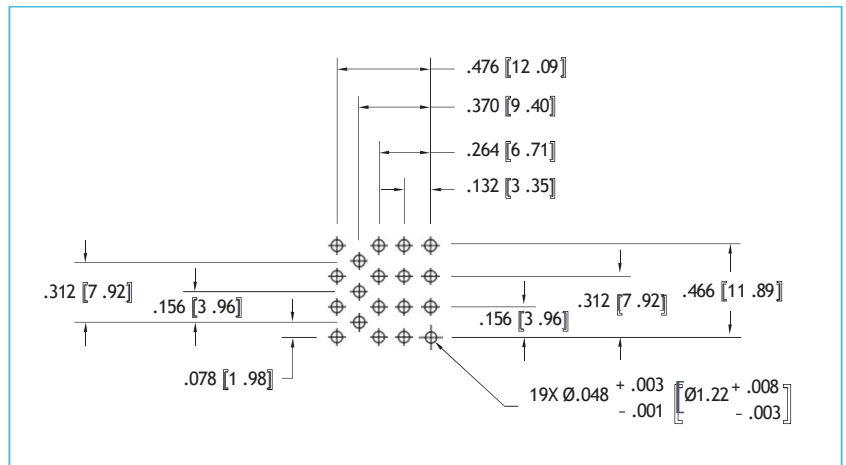
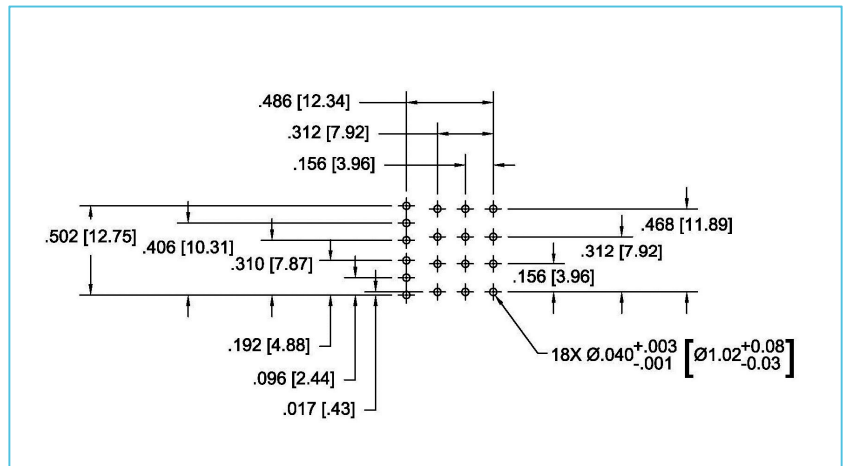


Figure 3. 8 Amp-6 Pin Staggered Terminations



DIMENSIONAL SPECIFICATION

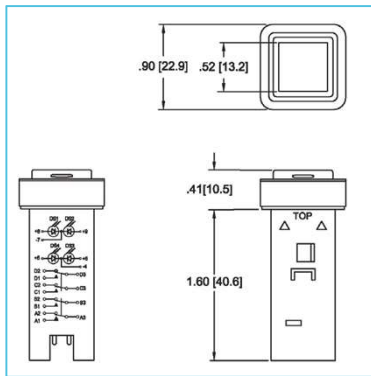


Figure 6. Spraytight Seal Plug-in

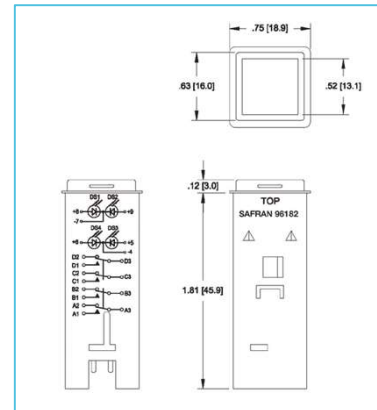


Figure 7. Dust Resistance or Dripproof Seal

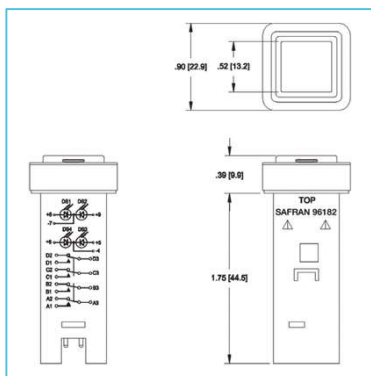


Figure 8. Spray Tight Seal

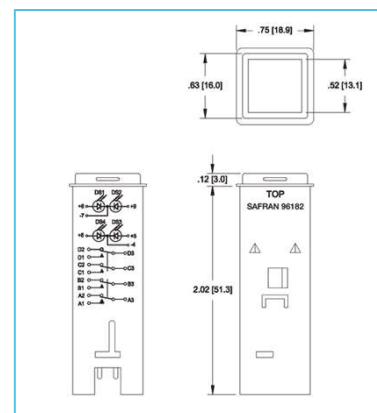


Figure 9. Dust Resistance or Dripproof Seal

PLUG-IN TERMINATION

STANDARD

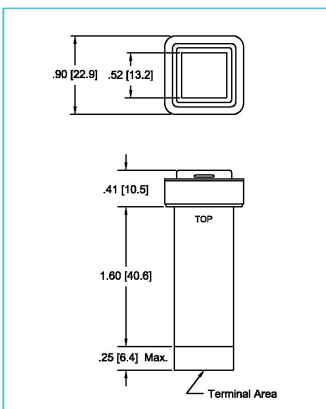


Figure 10. Spraytight Seal Plug-in

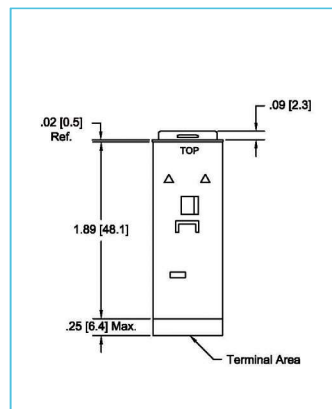


Figure 11. Dust Resistance or Dripproof Seal

EXTENDED

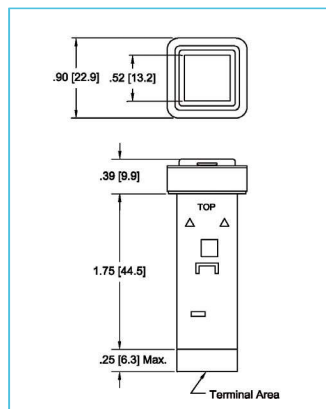


Figure 12. Spraytight Seal Plug-in

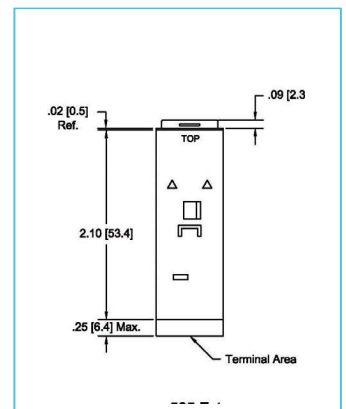


Figure 13. Dust Resistance or Dripproof Seal

DIMENSIONAL SPECIFICATION, PCB TERMINATION

STANDARD

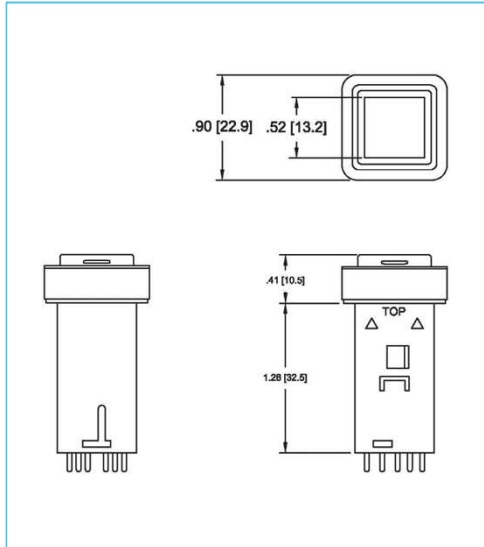


Figure 14. Spraytight Seal PCB Termination

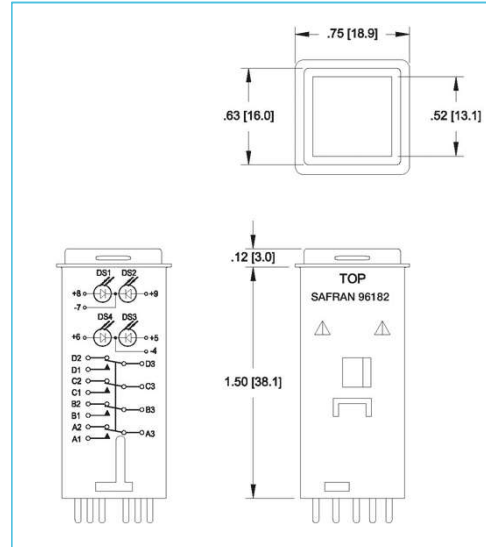


Figure 15. Dust Resistance or Dripproof Seal

EXTENDED

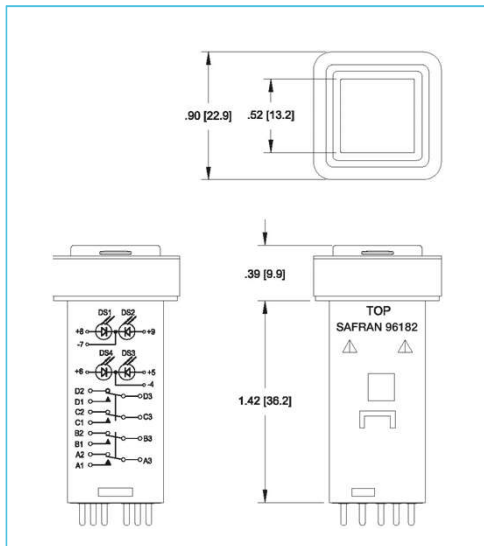


Figure 16. Spray Tight Seal

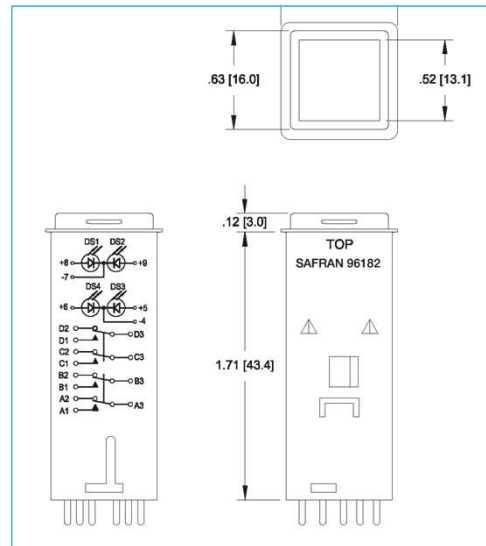


Figure 17. Dust Resistance or Dripproof Seal

ENVIRONMENTAL SPECIFICATIONS

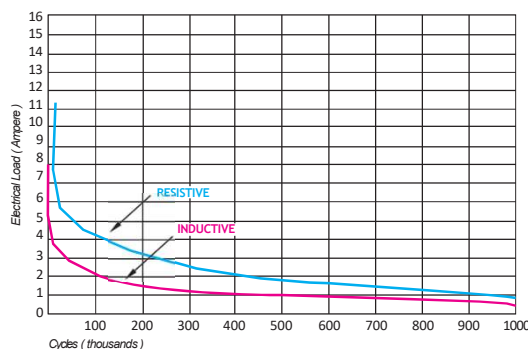
Operating Temperatures	-40°C to +71°C
Storage Temperatures	-55°C to +85°C
Thermal Shock	MIL-STD-202, Method 107, Condition A
Moisture	MIL-STD-202,
Salt Spray	MIL-STD-202, Method 101, Condition A, 96hours
Sand and Dust	MIL-STD-202,
Fungus	MIL-STD-810, Method 508, All Materials used are non-nutrient to fungus
Vibration	MIL-STD-202, Method 204m Condition B, for single channel mount. For multiple channel matrix mount, contact the factory
Shock	MIL-STD-202, Method 213, Condition B
Explosion	MIL-STD-202,
Magnet Effect	RTCA/DO-160, Section 15, Class Z
Power Input	RTCA/DO-160, Section 16,
Voltage Spike	RTCA/DO-160, Section 17, Category B
Audio Frequency Conducted Susceptibility	RTCA/DO-160, Section 18,
Induced Signal Susceptibility	RTCA/DO-160, Section 19, Category Z
Emission of Radio Frequency Energy	RTCA/DO-160, Section 21, Category M

ELECTRICAL SPECIFICATIONS

585 Current Ratings

Load	Sea level 28 vdc Max	Sea level 115 vac Max	50 000 Ft 28 vdc Max	50 000 Ft 115 vac Max	Life
Resistive	8.0 A	8.0 A	5.0 A	5.0 A	25 000 cycles
Resistive	5.0 A	5.0 A	3.0 A	3.0 A	100 000 cycles
Inductive	4.0 A	4.0 A	2.5 A	2.5 A	25 000 cycles
Inductive	0.5 A	0.5 A	0.3 A	0.3 A	100 000 cycles
Lamp	1.0 A	1.0 A	-	-	50 000 cycles

Note: Other application values can be identified on the switch life graph shown below.



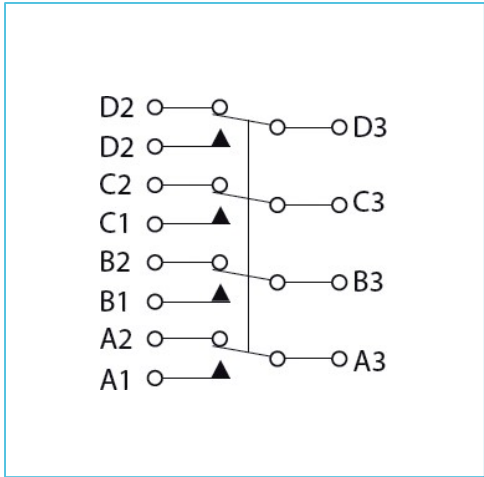


Figure 18.
4PDPT Switch

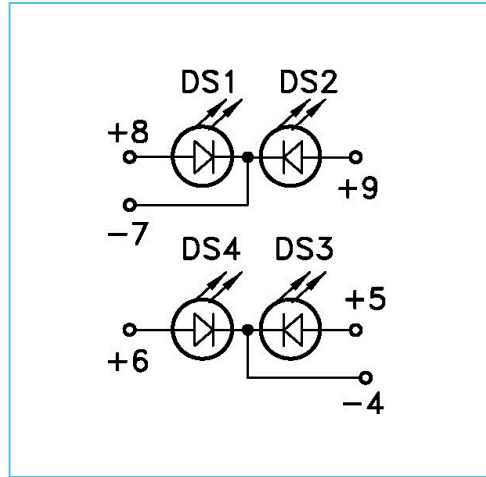


Figure 19.
C1 Four Lamp Separate Power & Ground

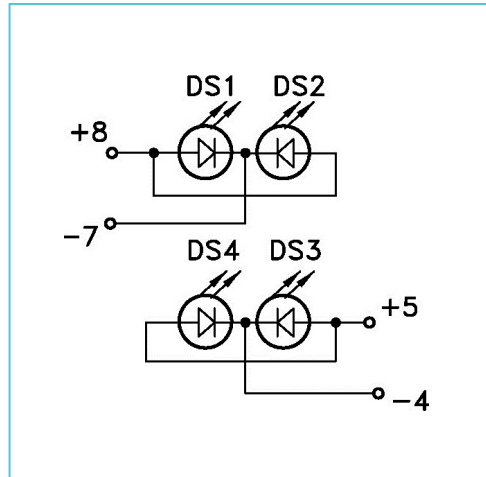
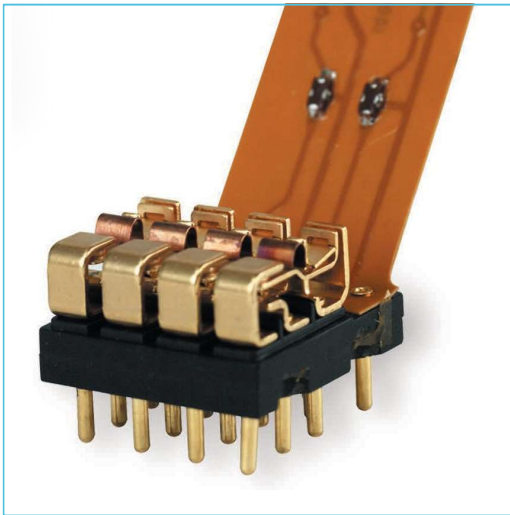












Figure 20.
C2 Two Lamp Common Power & Ground

DISPLAY SPECIFICATIONS

The Series 585 is available with a variety of display screens. The most common types are listed below. For special requirements, contact the factory customer service center.

Standard Illumination

	OFF	ON	Display Reference Numbers
Hidden legend. Letters not visible until illuminated. Lighted colored letters on opaque black background when energized			L5205 Unenergized : Hidden Legend Energized : Colored Letters / Black Background
Hidden legend. Letters not visible until illuminated. Lighted colored background when energized			L5208 Unenergized : Hidden Legend Energized : Black Letters / colored Background
Opaque black letters on white background Background shows color when energized			L5208 Unenergized : Black Letters / White Background Energized : Black Letters / colored Background
White letters on opaque black background Letters show color when energized			L5201 Unenergized : White Letters / Black Background Energized : colored Letters / colored Background
Opaque black letters on colored background Lighted colored background when energized			L5606 Unenergized : Black Letters / colored Background Energized : Black Letters / colored Background



OPTICAL SPECIFICATIONS

Luminance

The table below specifies the Luminance of PBAs at bright mode and dim mode. Bright mode luminance values are provided when the input voltage is 28V. Dim mode luminance values are provided when the input voltage is 14V. However, customers can specify non-standard dim voltage within the range of 12V to 22V.

Aviation Color	Luminance (fL) Bright mode at 28V	Luminance (fL) Dim mode at 14V
RED	≥ 250	15±5
AMBER	≥ 250	15±5
GREEN	≥ 250	15±5
WHITE	≥ 250	15±5
BLUE	≥ 200	10±5

Contrast

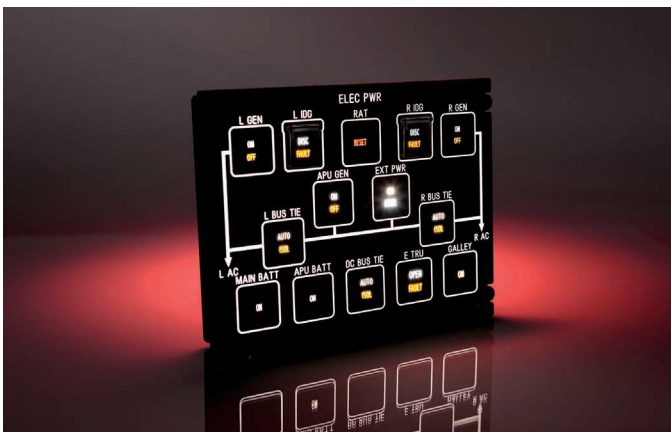
The table below specifies the sunlight readability by contrast values between legend and background for sunlight readable display types. The measurements shall be performed at the following illumination conditions: 10,000 fC of 3000K to 5000K light source incidents to the measured surface at 45°±2°. The photometer is positioned perpendicular to the measured surface.

Aviation Color	On-Contrast (C _I)	Off-Contrast (C _{UI})
RED	≥ 0.6	≤ 0.1
AMBER	≥ 0.6	≤ 0.1
GREEN	≥ 0.6	≤ 0.1
WHITE	≥ 0.6	≤ 0.1
BLUE	≥ 0.6	≤ 0.1

Chromaticity

The typical color coordinates of illuminated characters and background shall be within the area defined by the following color coordinates based on the CIE 1931 Chromaticity diagram.

Color	Chromaticity Coordinates based on CIE 1931	
	x	y
RED	0.665	0.335
	0.665	0.320
	0.695	0.290
	0.710	0.290
AMBER	0.540	0.459
	0.540	0.445
	0.610	0.375
GREEN	0.625	0.375
	0.150	0.808
	0.150	0.640
	0.300	0.640
WHITE	0.300	0.694
	0.290	0.315
	0.330	0.285
	0.400	0.390
BLUE	0.360	0.420
	0.175	0.005
	0.175	0.175
	0.077	0.175
	-	-









Control Panel with illuminated pushbutton switches

NVIS Compatible Display

Our NVIS compatible displays meet the requirements of MIL-L-85762A and MIL-STD-3009. The typical sunlight readable NVIS displays are shown in the following table.

The typical sunlight readable NVIS displays are shown in the following table.

WITH LIGHT SOURCE NOT ENERGIZED			WITH LIGHT SOURCE ENERGIZED		
LEGEND	BACKGROUND	APPEARANCE/DESCRIPTIONS	LEGEND	BACKGROUND	APPEARANCE/DESCRIPTIONS
Not visible	Black	 Hidden characters on black background	Red	Black NV201	 Red characters on black background
			Yellow	Black NV202	 Yellow characters on black background
			White	Black NV203	 White characters on black background.
			Green B	Black NV204	 Green characters on black background
			Green A	Black NV205	 Green characters on black background

Luminance - NVIS Compatible Display

NVIS-Compatible Color	Class	Luminance (fL) Bright mode at 28V	Luminance (fL) Dim mode at 14V
RED	B	≥ 200	15±5
¹ YELLOW	A and B	≥ 200	15±5
¹ WHITE	A and B	≥ 200	15±5
¹ GREEN B	A and B	≥ 200	15±5
^{1 & 2} GREEN A	A and B	1±0.5	N/A

Note 1: PBAs of Yellow Class A, White, Green A, and Green B are able dimmable continuously to less than 0.1fL.

Note 2: Legends with Green A applications appear the same as the markings of the illuminated panels.

NVIS Color and Radiance

The center chromaticity coordinates and its radius of a circle for each NVIS compatible color is specified in the table. At the luminance level specified in the following table, the u' and v' chromaticity coordinate values for Green A and White shall be within the areas by the defined circles; the u' and v' chromaticity coordinate values for Green B, Yellow, and Red shall be within the area by the defined circles and CIE 1976 diagram boundary.

The NVIS radiance for each NVIS compatible color shall meet the requirements in the table at the specified luminance level.



NVIS-Compatible Color	Class	Chromaticity Coordinates Based on CIE 1976				NVIS RADIANCE (NRa or NRb) (W/cm ² · sr)
		u'	v'	r	Luminance (fL)	
RED	B	0.450	0.550	0.060	15	$4.7 \times 10^{-8} < NRb < 1.4 \times 10^{-7}$
YELLOW	B	0.274	0.622	0.083	15	$4.7 \times 10^{-8} < NRb < 1.4 \times 10^{-7}$
YELLOW	A	0.274	0.622	0.083	15	$5.0 \times 10^{-8} < NRa < 1.5 \times 10^{-7}$
GREEN B	A and B	0.131	0.623	0.057	0.1	NRa, NRb $< 1.7 \times 10^{-10}$
GREEN A	A and B	0.088	0.543	0.037	0.1	NRa, NRb $< 1.7 \times 10^{-10}$
WHITE	A and B	0.190	0.490	0.040	0.1	NRa, NRb $< 1.0 \times 10^{-9}$

Contrast – NVIS Compatible Display

The table on the right specifies the sunlight readability by contrast values between legend and background for sunlight readable display types. The measurements for NVIS Red, NVIS Yellow, and NVIS Green B shall be performed at the following illumination conditions: 10,000 fC of 3000K to 5000K light source incidents to the measured surface at $45^\circ \pm 2^\circ$. The photometer is positioned perpendicular to the measured surface. The measurements for NVIS Green A shall be performed at the following illumination conditions: 50 fC of cool light source F2 incidents to the measured surface at $45^\circ \pm 2^\circ$. The photometer is positioned perpendicular to the measured surface.

NVIS-Compatible Color	Class	On-Contrast (C_L)	Off-Contrast (C_{UL})
RED	B	≥ 0.6	≤ 0.1
YELLOW	A and B	≥ 0.6	≤ 0.1
WHITE	A and B	≥ 0.6	≤ 0.1
GREEN B	A and B	≥ 0.6	≤ 0.1
GREEN A	A and B	≥ 10.0	≥ 10.0

CREATE YOUR OWN REFERENCE

This catalog describes the standard and optional features of the Series 585. To determine the correct part number, refer to the following pages. Samples of the typical part number are shown on each page to aid your selection.

585	0	G28	C1	A1	B2	D1	B	L5205	N1	(G)	P12	;12	SAFRAN
Switch Series	Unit Options	Voltage	Lamp Circuit	Switch Action	Termination & Mounting Method	Spacer Option	Seal & Switch Guard Option	Display Screen	Display Configuration	Lens Color	Legend Font	Legend Configuration	Legend Text

1 Series Codes (585...)

To order a Series 585, begin the part number with «585»

2 Option Codes

Several product options are identified by the fourth digit of the part number. Use the table below to select the lighting option and the length of the switch.

Lighting - Length	Code
Linear Dimming - Standard Length	0
Linear Dimming - Extended Length	1
Step Dimming - Standard Length	2
Step Dimming - Extended Length	3
Log. Dimming - Standard Length	4
Log. Dimming - Extended Length	5

3 Voltage

The letter «G» and the digit(s) immediately following it identify the voltage of the switch.

Voltage Type	Code
5-VDC	G5
28-VDC	G28

4 Lamp Circuit Codes

The letter «C» and the digit immediately following it designate the lamp circuit.

Lamp Circuit	Code
Dual Ground, 4 Separate Inputs	C1
Dual Ground, 2 Separate Inputs (Top/Bottom)	C2

5 Switch Action Codes

The letter «A» and the digit immediately following it identify the switch action

Switch Action	Code
Indicator Light Only	A0
Momentary 4-Pole	A1
Alternate Action 4-Pole	A3

6 Termination and Mounting Method

The letter «B» and the digit following it identify the termination and mounting method.

Termination	Maximum Current	Compatible Code Carrying Capacity Connector Pins	Wire Size	Capacity
6 Staggered Pin: PCB Solder	8A	M39029/22-192	20-24 AWG	B2
6 Staggered Pin: Plug-In	8A	M39029/22-192	20-24 AWG	B5
6 Pin In-Line: PCB Solder	5A	M39029/57-354	22-28 AWG	B3
6 Pin In-Line: Plug-In	5A	M39029/57-354	22-28 AWG	B0

7 Spacer Option

The letter «D» and the digit immediately following it identify the spacer option.

Spacer Option	Code
No Spacer	D1
Spacer: 0.030 - 0.149	D2

8 Mounting Hardware Codes

The following letter identify the seal and switch guard option. A seal is required for all switches but a switch guard is optional.

Seal (Required) + Switch Guard (Optional)	Code
Seal Only - Dust Resistant	A
Seal Only - Drip Proof (MIL-DTL-22885)	B
Seal Only - Spray Tight (MIL-STD-108)	C
Seal + SW Guard - Dust Resistant, Black Wire	D
Seal + SW Guard - Drip proof (MIL-DTL-22885), Black Wire	E
Seal + SW Guard - Spray Tight (MIL-STD-108), Black Wire	F
Seal + SW Guard - Dust Resistant, Red Wire	G
Seal + SW Guard - Drip Proof (MIL-DTL-22885), Red Wire	H
Seal + SW Guard - Spray Tight (MIL-STD-108), Red Wire	J
Seal + SW Guard - Dust Resistant, Clear	K
Seal + SW Guard - Drip proof (MIL-DTL-22885), Clear	L
Seal + SW Guard - Spray Tight (MIL-STD-108), Clear	M



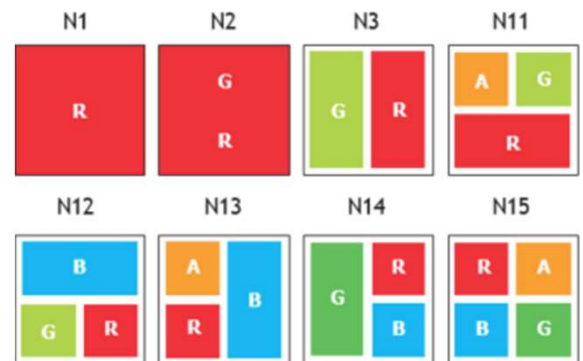
9 Display Screen

The letter «L» and the digits immediately following it identify the standard illumination option. The letters «NV» and the digits immediately following it identify the NVIS Compatible option. Further detail of the various display screens are available on pages 13 -16.

Display Screen Descriptions	Code
Unenergized: Hidden Legend - Energized: Colored Letters / Black Background	L5205
NVIS - Unenergized: Hidden Legend - Energized: Red Letters / Black Background	NV201
Unenergized: Hidden Legend - Energized: Black Letters / Colored Background	L5208
NVIS - Unenergized: Hidden Legend - Energized: Yellow Letters / Black Background	NV202
Unenergized: Black Letters / White Background - Energized: Black Letters / Colored Background	L5202
NVIS - Unenergized: Hidden Legend - Energized: White/ Black Background	NV203
Unenergized: White Letters / Black Background - Energized: Color Letters / Colored Background	L5201
NVIS - Unenergized: Hidden Legend - Energized: Green B/ Black Background	NV204
Unenergized: Black Letters / Colored Background - Energized: Black Letters / Colored Background	L5206
NVIS - Unenergized: Hidden Legend - Energized: Green A/ Black Background	NV205

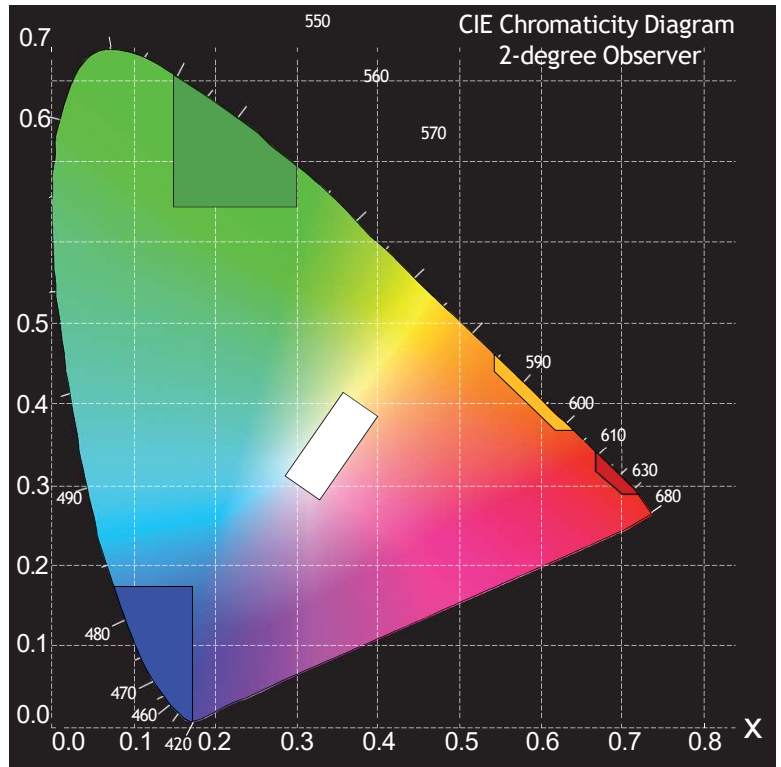
10 Display Configuration

The letter «N» and the digit immediately following it identify the display configuration.



11 Lens Color

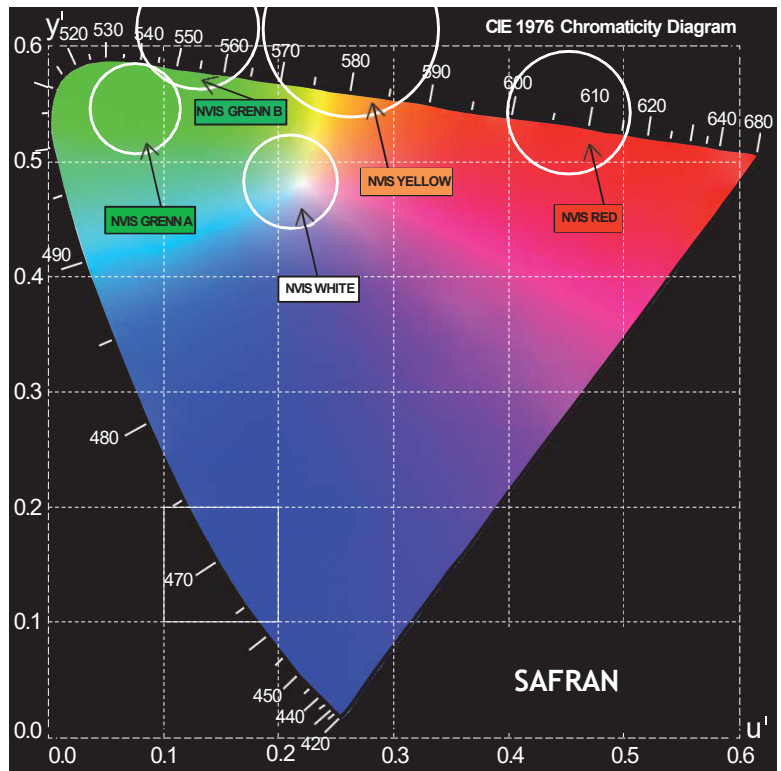
The letters in parenthesis following the lens configuration identify the lens colors of the unit. In split displays, multiple letters are used to designate the colors of individual sections, in order from left to right and top to bottom. For example, in a four way split device, the designation (RWBG) would identify a red upper left quadrant, white upper right, blue lower left, and green lower right.



Aviation (Standard) Lens Color	Code
RED	R
AMBER	A
GREEN	G
WHITE	W
BLUE	B

NVIS-Compatible Color	Class	NVIS-Compatible Display Code
RED	B	K
YELLOW	B	J
YELLOW	A	T
WHITE	A&B	V
GREEN B	A&B	H
GREEN A	A&B	F

Color limits within CIE Diagram



12 Character Font and Height Codes

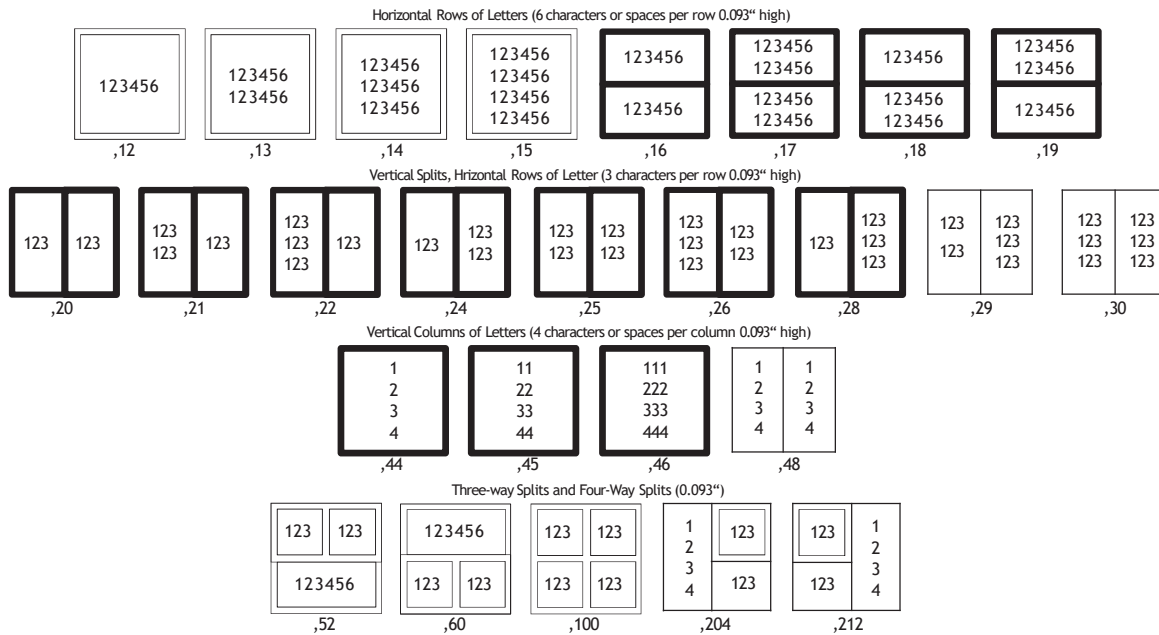
The letter "P" and the digits immediately following it identify the front style and character height to be used for the legend nomenclature.

Letter Style	Font	Character Height	Letters Per Full Row ²	Letters Per Half Row ³	Code
Helvetica Medium	1	0.125 (3.2 mm)	5	2	P12
Helvetica Medium Bold ¹	1	0.125 (3.2 mm)	5	2	P12B
Helvetica Medium Condensed	2	0.093 (2.4 mm)	8	3	P14
Futura Medium	7	0.125 (3.2 mm)	5	2	P20

Note 1: 15% wider character stroke width. Recommended for better off-angle viewing.

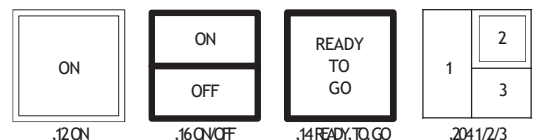
13 Legend Configuration Codes

The two digits following the second comma identify the legend configuration. Legend configurations are listed below. The .093 inch (2.4mm) Character height is shown.



14 Legend Nomenclature

The legend nomenclature must be written out as part of the catalog part number when ordering a switch or indicator. The legend is appended to the catalog part number after the legend configuration code. Commas are used between rows of characters and a slash is used to identify legend splits. When specifying a legend with a split, the order for the nomenclature is upper left, upper right, lower left and lower right. Examples are listed to the right.



SERIES 585 PLUG-IN MOUNTING SLEEVES WITH CONNECTOR BLOCK

Basic Mounting Sleeve

After the switch has been inserted into the panel, this sleeve slides over the behind panel portion of the switch and is secured by tightening the pawl. When switch removal is necessary, access to both the front and rear of the panel is required.

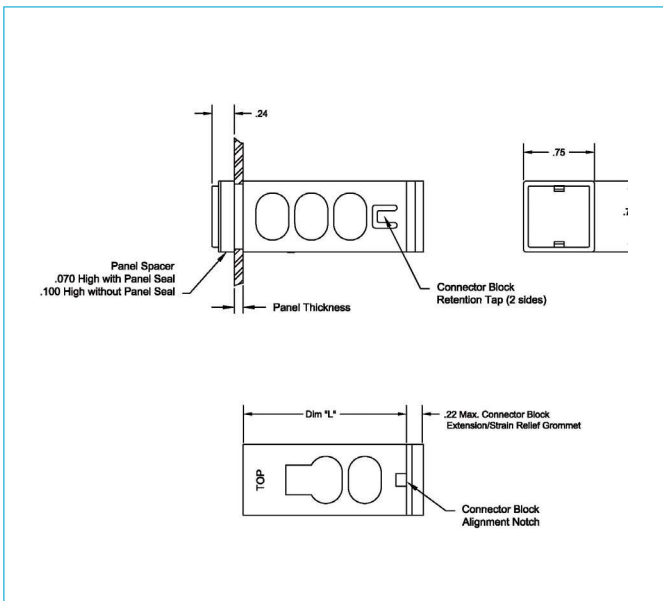


Figure 23.
Plug-in Mounting-Sleeve

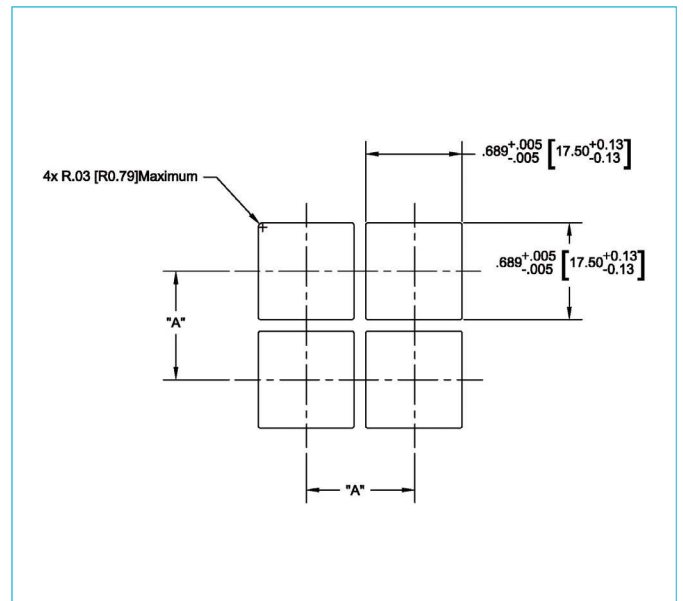


Figure 24.
Panel-Cutout-1



Connector Block

Two connector blocks are available for the Series 585. A staggered pin connector block is available for an 8 Amp switch termination. A straight in-line connector block is available for a 5 Amp switch termination.

Connector Block	Code
Staggered Pin for 8 Amp Termination	58A-116-1
Straight In-Line for 5 Amp Termination	58A-116-2

SWITCH GUARD

Full protection against inadvertent switch actuation is provided by two different designed switch guards. The first option is a clear plastic cover hinged at the top and spring loaded to the closed position is available. The second option is a wire based switch guard, which is available in two colors. To order this feature, the Accessories table on this page details the part numbers.

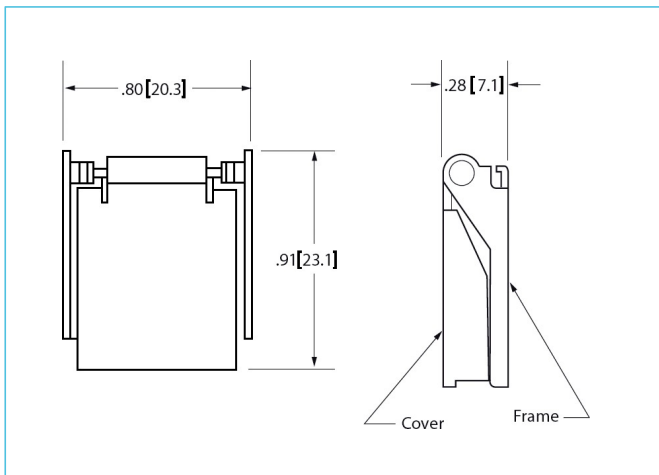


Figure 25.
Clear Plastic Switch Guard

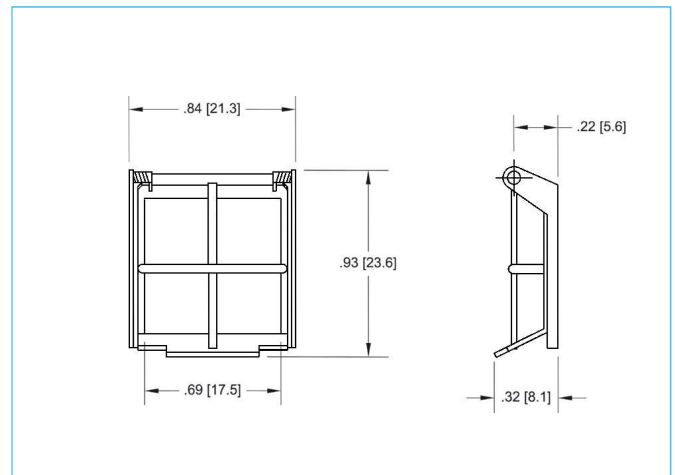


Figure 26.
Wire Switch Guard

Accessories	
Connector Pin, 8A, M39029/22-192	58A-111-1
Connector Pin, 8A, M39029/22, 25 ct	58A-111-2
Connector Pin, 8A, M39029/1-100, Crimp Style, 1 ea.	58A-110-1
Connector Pin, 8A, M39029/1-100, 25 ct	58A-110-2
Connector Pin, 8A, M39029/1-101, Crimp Style, 1 ea.	58A-110-3
Connector Pin, 8A, M39029/1-101, 25 ct	58A-110-4
Connector Pin, 5A, M39029/57-354	58A-108-1
Connector Pin, 5A, M39029/57-354, 25 ct	58A-108-2
Clear Plastic Switchguard	58A-104
Wire Switchguard, Black	58A-105-1
Wire Switchguard, Red	58A-105-2

Installation and Removal Tools	
Lamp Capsule Removal Tool	58T-101
Connector Pin Crimp Tool, for M39029/1	58T-109-1
Connector Pin Crimp Tool, for M39029/22	58T-109-2
Connector Pin Crimp Tool, for M39029/57	58T-109-3
Connector Pin Removal Tool	58T-104
Connector Block Removal Tool	58T-107
Torque Screwdriver	58T-106

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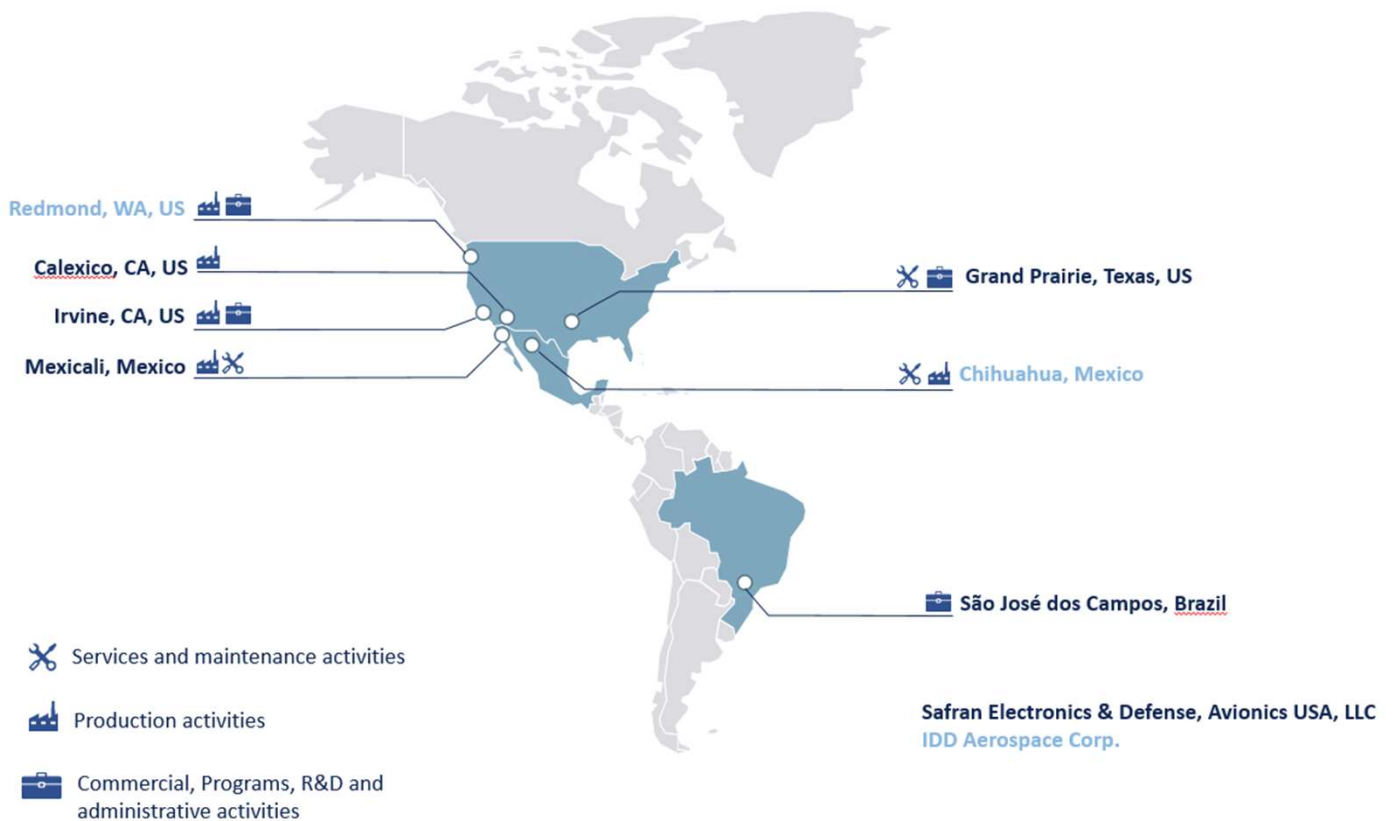
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7

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