

LOW POWER (50 mW) BITE Indicators

Model MI 51LP

Qualified to MIL-PRF-83287/4*



FEATURES

- 50 Milliwatt Sensitivity
- Manual Reset
- Magnetic Latching
- Environmentally Sealed

The MI 51LP is a miniature dual drum magnetic latching indicator featuring a nonvolatile two-drum display, excellent positive indication of a fault condition with superior visibility in high ambient light. It is fully qualified to MIL-PRF-83287 and is designed to monitor electronic systems where space is limited.

OPERATION

When the indicator coil is energized with a 25 millisecond (or longer) pulse, the highly visible drums spin 180 degrees and latches to the magnetic core. The drums will remain magnetically latched to the core in the position last pulsed. Even if the fault signal is removed, the indicator will “remember” that a fault had occurred.

Reset is accomplished manually by rotating the knurled ring clockwise 60 degrees. The knob returns to its normal position automatically.

* See page 27 for additional /4 qualified designs.



communications
Electrodynamics, Inc.

ELECTRICAL SPECIFICATIONS

Standard Coil Voltages and Resistances

Nominal Voltage DC	Operating Voltage		DC Coil Resistance in Ohms, ±10%
	Min	Max	
1.5	1.2	1.8	45
3	2.4	3.6	180
5	4.0	6.0	500
6	4.8	7.2	720
12	9.6	14.4	2,880
24	19.2	28.8	11,500
28	22.4	30.0	15,700

Pulse Power: 50 mw.

Nominal Pulse Length: 25 milliseconds, minimum.

Dielectric Withstanding Voltage: 500 VAC RMS

Insulation Resistance: 100 megohms minimum at 500 VDC.

Electromagnetic Interference and Magnetic Susceptibility:

Per MIL-PRF-83287. The MI 51LP will not malfunction or false transfer when subjected to a 20 ampere turn field at 400 Hertz.

MECHANICAL SPECIFICATIONS

Case: Black, anodized aluminum.

Mounting: Front panel mount (D hole or keyed washer)

Weight: 6.5 grams

Display Colors: “NO FAULT” (reset) is black, “FAULT” (set) is white, as shown.

Terminations: Solder terminals (turret type), and wire leads standard per MIL-PRF- 83287. *Solder loops also available.*

Designations are:

Turret Terminals TT (Standard)

Wire Leads WL (Standard)

Loop Terminals LT (Special)

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature Range: -65°C to +125°C.

Vibration*: .06" D.A. or 15 G Peak, whichever is less, 10 Hz to 2 kHz per MIL STD 202, Method 204, Test Condition B.

Shock: 100 G's MIL STD 202, Method 213, Test Condition I.

Moisture Resistance: (Humidity): MIL STD 202, Method 106.

Barometric Pressure: 100,000 ft., MIL STD 202, Method 105, Test Condition D.

Thermal Shock: MIL STD 202, Method 105, Test Condition B.

Salt Spray: MIL STD 202, Method 105, Test Condition B.

Life: 10,000 cycles at cycling rate of 10 per minute.

During vibration testing caution should be taken to shield the indicator from the strong magnetic field.

Patent No. 3,465,333

MI 51LP - 12 - W/BLK - TT - S

Basic Model	Coil Voltage	Fault Color	Terminal Type	Factory Modification Number if Special S + ID No.
MI 51LP	1.5	W/BLK	LT- Loop Terminals	
	3	(White/Black)	WL-Wire Leads	
	5		TT-Turret Terminals	
	6			
	12			
	24			
	28			

ORDERING INFORMATION When ordering, show model number first, then coil voltage desired, then the color combination desired. If this is a special part, factory assigned modification number will be added at the end of the ordering number.

Example:

Basic model for 12 volts with white as set color and black as reset color and Turret terminals would be model MI51LP-12-W/BLK-TT.



LOW POWER (50 mW) BITE Indicators

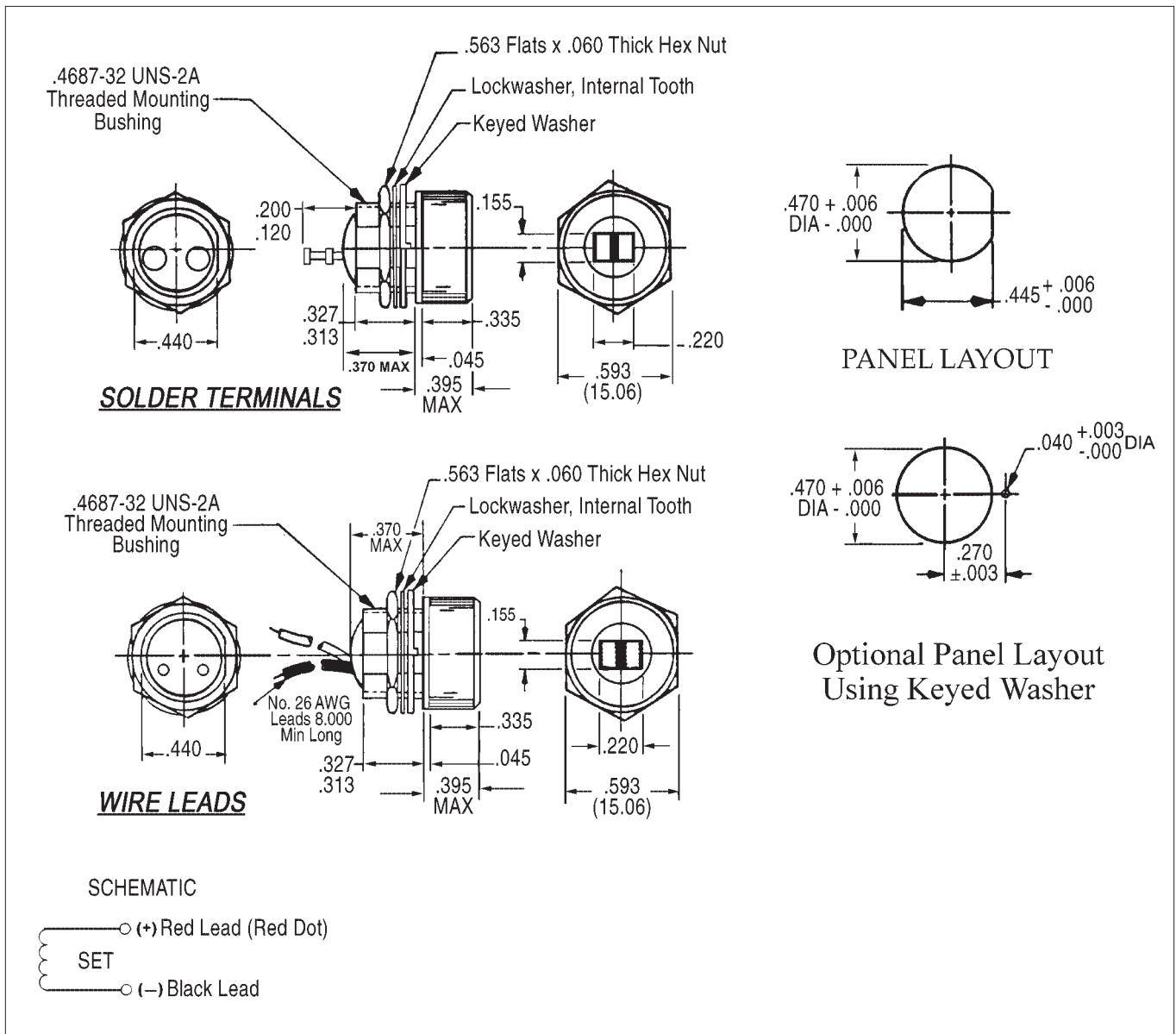
Model MI 51LP

Qualified to MIL-PRF-83287/4 *



Model MI 51LP

* See page 27 for additional /4 qualified designs.



FLAG INDICATORS

NOTE:

Dimensions in () are mm. Tolerances: Decimals: ± .010 (0,25), Fractions: ± 1/64—All mounting hardware is black anodized aluminum. Mounting Torque: 5-7 in. lbs.



BITE Indicators

Model MI 6I SA

Qualified to MIL-PRF-83287/1*

FEATURES

- Manual Reset Return
- Magnetic Latching
- Environmentally Sealed
- Random Vibration Capability

The MI6I SA (MIL-PRF-83287/1) series magnetic latching fault indicator displays highly visible dual color internal flag when the indicator coil is pulsed by a BITE (Built-In Test Equipment) system. The “cloverleaf” pattern provides a high contrast visual indication and an effective warning of system results.

OPERATION

When the indicator coil is energized with a 40 millisecond (or longer) pulse, the highly visible display disc rotates and latches to the magnetic core. The display disc will remain magnetically latched to the core in the position last pulsed. Even if the fault signal is removed, the indicator will “remember” that a fault had occurred.

Return to the “No-Fault” position is accomplished mechanically by rotating the knurled knob clockwise to 60°. The knob automatically returns to its normal position.

Optional features include insulated lead wire or solder loop termination, non-glare lens, and RFI panel shield. Consult your representative or the factory for details.

* See page 28 for additional /1 qualified designs.

ELECTRICAL SPECIFICATIONS

Standard Coil Voltages and Resistances

Nominal Voltage DC	Operating Voltage		DC Coil Resistance in Ohms
	Min	Max	
3	2.4	3.6	8.5-18
5	4.0	6.0	22-52.8
6	4.8	7.2	33-77
12	9.6	14.4	130-303
20	16.0	30.0	360-1225
24	19.2	28.8	530-880
28	22.4	30.0	720-1331

Pulse Power: One Watt.

Nominal Pulse Length: 40 milliseconds, minimum.

Dielectric Withstanding Voltage: 500 V RMS.

Insulation Resistance: 100 megohms minimum at 500 VDC.

Electromagnetic Interference and Magnetic Susceptibility:

Per MIL-PRF-83287. MI 6I SA will not malfunction or false transfer when subjected to a 20 ampere turn field at 400 Hertz.

MECHANICAL SPECIFICATIONS

Case: Black anodized aluminum.

Mounting: Front panel mount (D hole or keyed washer).

Weight: 13 Grams

Display Colors: “NO-FAULT” is black, “FAULT” is black/white, as shown.

Leads: 8 inches of #26 Teflon Insulated standard wire or Solder loops.

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature Range: -65°C to + 125°C.

Vibration*:

Sinusoidal: .06" D.A. or 20 G Peak, whichever is less,

10 Hz to 2 kHz per MIL STD 202, Method 204, Test Condition D.

Random: 11.6 G's rms per MIL STD 202, Method 214, Test Condition D, Curve 1.

Shock: 100 G's MIL STD 202, Method 213, Test Condition I.

Moisture Resistance: (Humidity): MIL STD 202, Method 106.

Altitude: 100,000 ft., MIL STD 202, Method 105, Test Condition D.

Thermal Shock: MIL STD 202, Method 107, Test Condition 13.

Salt Spray: MIL STD 202, Method 101, Test Condition B.

Barometric Pressure: MIL STD 202, Method 105, Test Condition D, with 350 Volts AC, RMS.

Life: 10,000 cycles at cycling rate of 10 per minutes.

*During vibration testing caution should be taken to the indicator from the strong magnetic field.

Patent No. 4,661,813

ORDERING INFORMATION When ordering, show model number first, then coil voltage desired, then the color combination desired. If this is a special part, factory assigned modification number will be added at the end of the ordering number.

Example:

Basic model for 12 volts with all black for reset (no-fault) color and white for set (fault) color, loop terminals would be Model MI 6I SA -12- W/BLK-LT

Model MI 6I SA - 12 - W / BLK - LT-S

Basic Model Number	Coil Voltage	Fault Color	No Fault Color	Terminal Type	Factory Modification Number if Special S + ID No.
MI 6I SA	3	W/BLK	BLK Black	WL Wire Leads	
	5	White/Black		LT Loop Terminals	
	6				
	12				
	20				
	24				
	28				

BITE Indicators

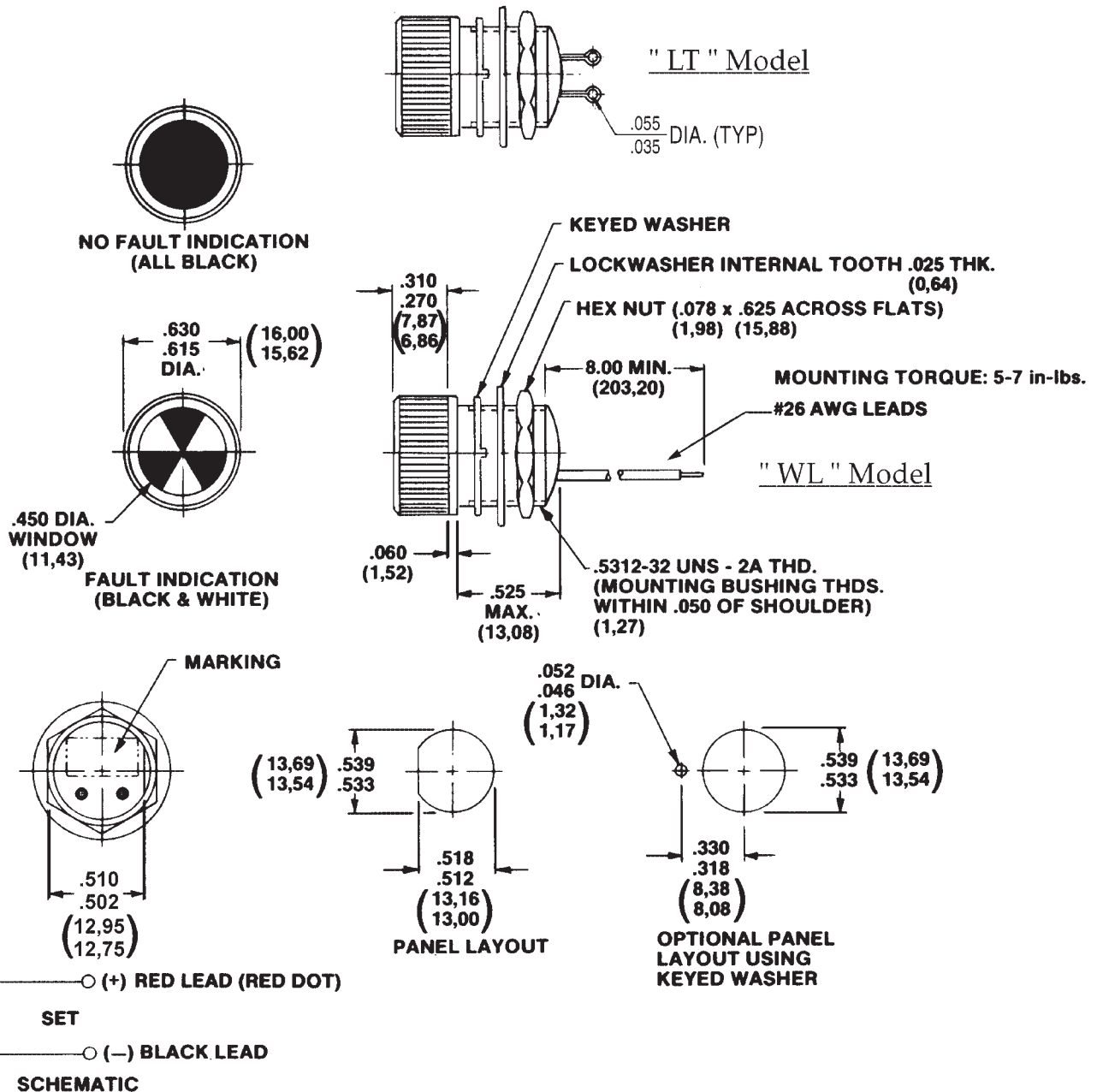
Model MI 6I SA

Qualified to MIL-I-83287/1*



Model MI 6I SA

* See page 28 for additional /1 qualified designs.



FLAG INDICATORS

NOTE:

Dimensions in () are mm. Tolerances: Decimals: ± .010 (0,25), Fractions: ± 1/64—All mounting hardware is black anodized aluminum. Mounting Torque: 5-7 in. lbs.



Mil-Spec Indicators

Rear and Front Mount Qualified to MIL-PRF-83287/2

FEATURES

- Electrical Reset
- Magnetic Latching
- Positive Identification
- Environmentally Sealed

The M83287/2 magnetic latching fault indicator displays a highly visible dual color internal flag when the indicator coil is pulsed by a BITE (Built-in Test Equipment) system. The “cloverleaf” pattern provides a high contrast visual identification and an effective warning of system results.

OPERATION

When the indicator coil is energized with a 40 millisecond (or longer) pulse, the highly visible display disc rotates and latches to the magnetic core. The display disc will remain magnetically latched to the core in the position last pulsed. Even if the fault signal is removed, the indicator will “remember” that a fault had occurred.

Return to the “No-Fault” position is accomplished electromechanically by pulsing a separate coil.



ELECTRICAL SPECIFICATIONS

See table below for Voltage and Resistance values.

Pulse Power: One Watt. Nominal

Pulse Length: 40 milliseconds, minimum

Dielectric Withstanding Voltage: 500 VAC RMS.

Insulation Resistance: 100 megohms minimum at 500 VDC.

Electromagnetic Interference and Magnetic Susceptibility:

Per MIL-PRF-83287. The units will not malfunction of false transfer when subjected to a 20 ampere turn field at 400 Hertz.

MECHANICAL SPECIFICATIONS

Case: Black, anodized aluminum.

Mounting: Front panel by mount (D-hole or keyed washer).

Weight: MIL Unit 20 grams

Display Colors: “NO-FAULT” is black, “FAULT” is black/white

Leads: WL-Eight inches of #26 AWG Teflon insulated wire leads
LT- Loop Terminals

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature Range: -65°C to + 125°C.

Vibration*: Sinusoidal: .06" D.A. or 20 G Peak, whichever is less,

10 Hz to 2 kHz per MIL STD 202, Method 204, Test Condition D.

Random: 11.6 G's per MIL STD 202, Method 214, Test Condition D, Curve 1.

Shock: 100 G's MIL STD 202, Method 213, Test Condition I.

Moisture Resistance: (Humidity): MIL STD 202, Method 106.

Thermal Shock: MIL STD 202, Method 107, Test Condition B.

Salt Spray: MIL STD 202, Method 101, Test Condition B.

Barometric Pressure: MIL STD 202, Method 105, Test Condition D, with 350 Volts AC, RMS.

Life: 100,000 cycles at cycling rate of 10 per minutes.

**During vibration testing caution should be taken to shield the indicator from the strong magnetic field.*

Optional: RFI panel shielding available

Covered by U.S. & Foreign Patents

Military Product Ordering Information

When ordering military spec product, use the basic MIL number as identified on page 26. Example: M83287/2-01

Basic Part Number	Standard Glass				Non-Glare Glass				Rated Voltage	Coil Resistance		Configuration
	Wire Leads		Loop Terminals		Wire Leads		Loop Terminals			OHMS		
	Diodes		Diodes		Diodes		Diodes		DC	Ambient		
	W/Out	With	W/Out	With	W/Out	With	W/Out	With		Min	Max	
	Dash Number				Dash Number					Min	Max	
M83287/2	-01	-02	-03	-04	-05	-06	-07	-08	28	675	880	A
M83287/2	-09	-10	-11	-12	-13	-14	-15	-16	28*	360	500	A
M83287/2	-17	-18	-19	-20					28	375	850	A
M83287/2	-21		-22		-23		-24		28	675	880	B
M83287/2	-25		-26		-27		-28		28*	360	500	B
M83287/2	-29	-30	-31	-32	-33	-34	-35	-36	12	130	230	A
M83287/2	-37		-38		-39		-40		12	130	230	B
M83287/2	-41	-42	-43	-44	-45	-46	-47	-48	5	19	35	A
M83287/2	-51		-52		-49		-50		5	19	35	B

*FOR USE WITH UNREGULATED POWER SUPPLY (MIL-STD-704)



MIL-Spec Indicators

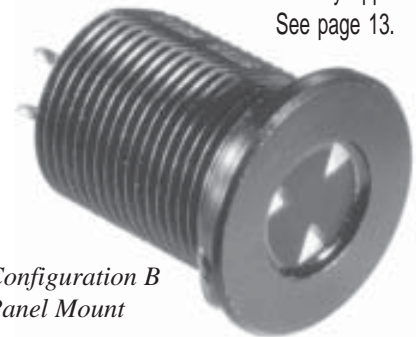
Rear and Front Mount

Qualified to MIL-PRF-83287/2

Short case model MI 57DA available for non-military applications. See page 13.

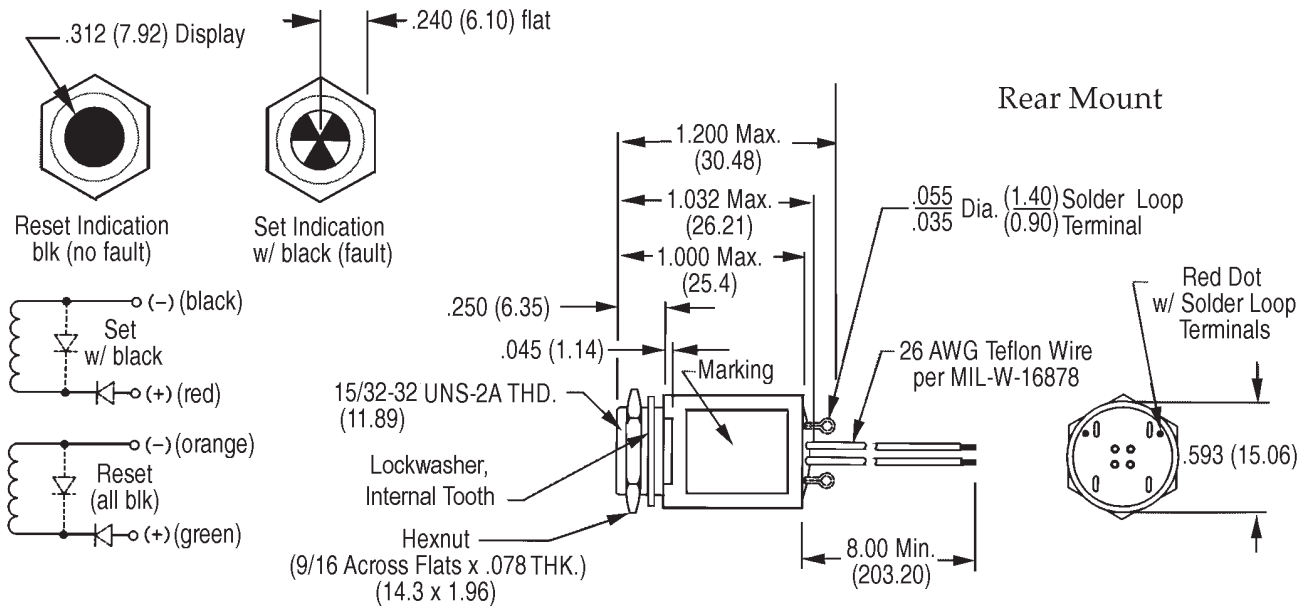


Configuration A
Rear Mount

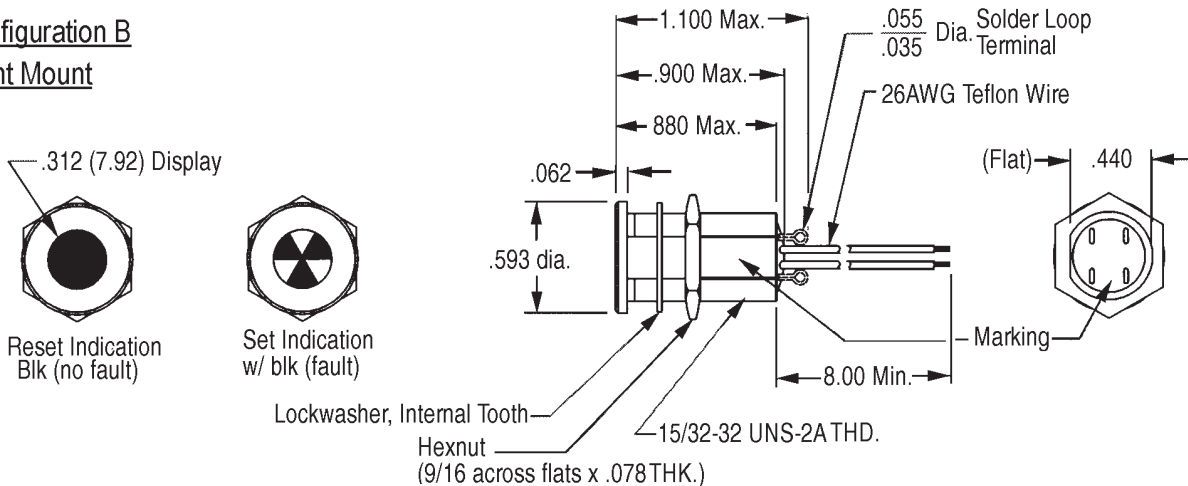


Configuration B
Panel Mount

Configuration A Rear Mount



Configuration B Front Mount



NOTE:

Dimensions in () are mm. Tolerances: Decimals: ± .010 (0.25), Fractions: ± 1/64—All mounting hardware is black anodized aluminum. Mounting Torque: 5-7 in. lbs.

FLAG INDICATORS