

Stonel Limit Switch Assemblies

Features

Quick Access Cover: A lockable, part turn cover ensures fast access for rapid set-up.

High Visibility Indicator: The Red/Green indicator offers clear indication of the current valve position from up to 20 meters (65 feet).

Quick Set Cams: Touch & Tune Switch Cams are set without the need for additional tools further reducing installation time.

Compact Design: The SolaR Series is a compact construction, minimizing valve package envelope size.

Easy Wiring: Despite its compact design, the SolaR Series is surprisingly easy to wire up with plenty of room to bring wires into the enclosure.

Engineered Resin Enclosure: A rugged engineered resin enclosure offers excellent impact and chemical resistance.

IP67 & NEMA 4, 4X Protection: The SolaR Series is suitable for most intrinsically safe and general purpose applications.

Back-Wire Facility: With 2 conduit entries standard and two additional termination points, solenoid valves may be terminated within the enclosure, reducing installation costs.

Materials of Construction

Housing Material	Calibre ¹ Polycarbonate
Cover Material	Calibre ¹ Polycarbonate
Shaft	303 Stainless Steel
Namur Bracket	Stainless Steel

Ratings

Enclosure Protection	NEMA 4, 4X & IP67
Intrinsically Safe	EEx ia IIC T6 (sensors only)

Other Specifications	
Temperature Range	-40° to 82°C (-40° to 180°F)
Warranty, Mechanical Parts	Two Years
Warranty, Maxx-Guard Sensors	Two Years
Warranty, Sensor & Communication Modules	Five Years

Electrical Switch Ratings

V3 Mechanical (SPDT)	10 AMPS @ 120 VAC
V3 Gold Mechanical (SPDT)	0.5 Amps @ 30 VDC
Maxx-Guard (SPST)	0.15 Amps @ 120 VAC/30 VDC
Max. Volt Drop (no LED)	0.5 V @ 100 mA
Max. Volt Drop (LED)	3.5 V @ 10 mA; 6.5 V @ 100 mA
Min. LED Current	2.0 mA

¹ Calibre is a Registered Trade Mark of the Dow Chemical Company

Note: All Stonel Switches are available. Contact Factory for further information.



Sensor/Communication Module Ratings

AS-i Communication Module

Protocol	Actuator Sensor Interface (AS-i)
Configuration	Open/Closed Inputs & (2) Power Outputs
Voltage Output	24 to 30 VDC
Max. Current Output	160 mA, (1) or (2) outputs combined
Max. Power Output	4 watts, (1) or (2) outputs combined
Temperature Range	-25° to 82°C (-13° to 180°F)
Operating Life	Unlimited

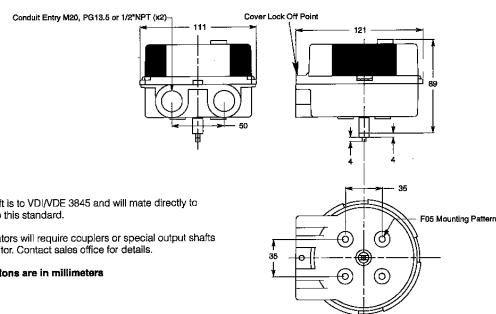
NAMUR Sensor Module

Configuration	(2) NAMUR Sensors; DIN 19234 Standard
Current with Target Present	Current < 1.0 mA
Current with Target not Present	Current > 3.0 mA
Voltage Range	6 to 29 VDC
Temperature Range	-40° to 82°C (-40° to 180°F)
Operating Life	Unlimited

SST Sensor Module

Configuration	(2) Solid State Sensors
Max. Inrush Current	2.0 Amps
Max. Continuous Current	0.3 Amps
Min. on Current	2.0 mA
Max. Leakage Current	0.25 mA
Voltage Range	8 to 125 VDC; 24 to 125 VAC
Max. Volt Drop	6.5 V @ 10 mA; 7.0 V @ 100 mA
Temperature Range	-40° to 82°C (-40° to 180°F)
Operating Life	Unlimited

Dimensional Data



'Apollo' Valves

Stonel Limit Switch Assemblies

Approvals

QZI:

Factory Mutual approved for:
Class I, Groups A, B, C & D, Divisions 1 and 2
Class II, Groups E, F & G, Divisions 1 and 2
Class III, Divisions 1 and 2

Entity Parameters:

(Values apply to all ISQ sensors, transmitters and potentiometers.)
Voltage Maximum (Vmax) = 40 VDC
Current Maximum (max) = 100 milliamps
Input Capacitance (Ci) = 0
Input Inductance (Li) = 0

QZP:

Factory Mutual and Canadian Standards approved for:
Class I*, Groups A & B, Division 2
Class I, Groups C & D, Divisions 1 and 2
Class II, Groups E, F & G, Divisions 1 and 2
NEMA 1, 3, 4, 4X, 5, 6, 7, 9, 12 & 13
No Seal-offs required in Division 1 and 2
*Consult factory for Group B, Division 1 approval

Clear Cover:

Factory Mutual and Canadian Standards approved for:
Class I, Groups A, B, C & D, Division 2
Class II, Groups E, F & G, Division 2
NEMA 1, 3, 4, 4X, 5, 6, 7, 9, 12 & 13
No Seal-offs required in Division 2

QZM:

Aluminum Enclosure

Factory Mutual and Canadian Standards approved for:
Class I*, Groups C & D, Divisions 1 and 2
Class II, Groups E, F & G, Divisions 1 and 2
NEMA 1, 3, 4, 4X, 5, 6, 7, 9, 12 & 13
No Seal-offs required in Division 1 and 2
*Consult factory for Group B, Division 1 and 2 approval

Clear Cover

NEMA 1, 3, 4, 4X, 5, 6, 7, 9, 12 & 13

Potentiometer Specifications

Power Rating 1 Watt @ 40°C
Resistance* 10 K ohms over 340°
Max. Linearity Error ±0.85°
Operating Life 2,000,000 rotations

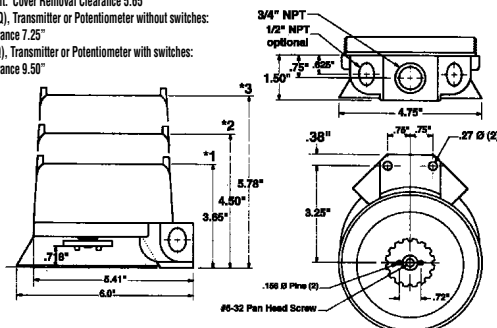
*Consult factory for other resistance ranges.

Dimensional Data

*1-(1) & (2) Switch Unit: Cover Removal Clearance 5.65"

*2-(4) Switch Unit (MQ), Transmitter or Potentiometer without switches: Cover Removal Clearance 7.25"

*3-(4) Switch Unit (PQ), Transmitter or Potentiometer with switches: Cover Removal Clearance 9.50"



Other Specifications

Temperature:

-40° to 82°C (-40° to 180°F) for mechanical switches, position transmitters and potentiometers (See Maxx-Guard Specifications for Temp. Range)

Operating Life:

Mechanical Switches — 1,000,000 cycles
Maxx-Guard Sensors — 10,000,000 cycles
(See Potentiometer and Position Transmitter for Operating Life)

Temperature:

-40° to 82°C (-40° to 180°F) for mechanical switches, position transmitters and potentiometers (See Maxx-Guard Specifications for Temp. Range)

Operating Life:

Mechanical Switches — 1,000,000 cycles
Maxx-Guard Sensors — 10,000,000 cycles
(See Potentiometer and Position Transmitter for Operating Life)

Warranty

2 Years
5 Years

All Mechanical
Maxx-Guard Sensors

Maxx-Guard Specifications

Sensors:	SPST	SPDT
Typical Operate Time	1.0 millisecond	3.0 millisecond
Contact Composition	Ruthenium	Tungsten
Temperature Range	-40° to 82°C (-40° to 180°F)	-30° to 82°C (-23° to 180°F)
Seal	Hermetically Sealed	Hermetically Sealed
Leakage Current	None	None
Operating Life	10,000,000 Cycles	10,000,000 Cycles
Maximum Voltage Drop	0.1 volts @ 10 milliamps	3.5 volts @ 10 milliamps
	0.5 volts @ 100 milliamps	6.5 volts @ 100 milliamps
Max. Current for LED Illumination	No LED	2.0 milliamps
LED Operating Life	No LED	minimum of 11 years

Position Transmitter Specification

Output Signal	Two wire 4 to 20mA
Recommended Supply Voltage Range	24 VDC, 50mA minimum 10 to 40 VDC at terminals
Span Range	Adjustable from 50° to 270° (50° to 270° for HP-7)
Maximum Loading	700 ohms @ 24VDC
Maximum Linearity Error	±0.85° (±0.35 for HP-7)
Maximum Potentiometer Life	2 million rotations (50 million rotations for HP-7)
Rotation	Selectable clockwise or counter-clockwise