The QUARTZ is available in explosion proof (QX), nonincendive and intrinsically safe (QN) and general purpose (QG) versions. The robust epoxy coated anodized aluminum construction makes this platform extremely durable and well suited for use in corrosive, heavy wash down environments. A broad range of switching, position transmitter and communication options may be selected to accommodate most applications.

This versatile platform adapts to a wide variety of valve systems. Attach the QUARTZ to quarter-turn actuators, manual operators, linear operators and positioners using readily available stainless steel mounting.

The StoneL QUARTZ series is durable, corrosion resistant, and versatile, making it ideal for most of your process valve monitoring requirements.

Save Space with Low Profile Design

Clearance above the actuator is critical in complex piping systems. QUARTZ boldly displays valve position and encloses all electrical components in an explosion-proof compartment with less than 5” clearance requirement.

Speed Installation with LED Indication

StoneL’s coordinated visual indicator and LEDs give you an extra measure of safety and increased convenience during plant start-up and operation. Green visual indication and green LED means the valve is open and the computer circuit is properly operating. Red visual indication and red LED means the valve is closed and the computer is properly matched. All systems are functioning properly.

Wide Variety of Switch/Sensor Functions

A wide variety of switch/sensor communications and position transmitters may be selected for the QUARTZ series. Options include 2, 4 or 6 mechanical or proximity switches, position transmitters with or without switches, and the StoneL dual module with two SST or two Namur sensors or AS-Interface, DeviceNet or FOUNDATION Fieldbus communication capabilities.
Features

1. Enclosures Optimized for Environment
   **QX:** Explosion-proof, water tight and corrosion-proof enclosure is approved for use in div.1/zone 1 hazardous areas.

   **QN:** Nonincendive is approved for all div.2/zone 2 hazardous environments with proximity sensors using a clear cover. Intrinsically safe Namur sensors or passive switches are available for div.1/zone 0 applications.

   **QG:** General purpose features a clear Lexan cover with mechanical switches. All enclosures are rated NEMA 4, 4x, and 6.

2. Rapid Enclosure Access
   Screw-on cover allows quick enclosure access, saving you valuable maintenance and set-up time. The cover provides a vapor tight seal and allows entry to internal components in less than five seconds.

3. Faster Wiring
   Pre-wired and labeled terminal strip enables quick, convenient attachment of field wires.

4. Wide Variety of Switching & Communication
   Switching options include dual module sensors and communication, Maxx-Guard proximity switches and mechanical switches. Continuous signal output is available in a 4 to 20 mA position transmitter.

5. Quick Set Cams are Easy to Adjust
   Touch and Tune switch settings allow you to make adjustments in seconds without the use of tools.

6. Dual Shaft O-ring Seals Eliminate Corrosion
   Top inner and bottom outer shaft o-rings seal the drive bushing from both external corrosives and internal contaminants that enter the enclosure.

7. Special drive bushing assures long cycle life
   The oil impregnated bronze bushing maintains smooth operation and eliminates the potential for shaft seizure due to actuator shaft eccentricity.

8. Space Saving Visual Indication
   Visual indicator offers excellent viewability without sacrificing accessibility or adding to space requirements. Indicators are also available with continuous percentage or three-way indication.

Eliminate Seal Fittings in Division 1 and 2 Areas
FMUs ratings certify the QUARTZ QX series with proximity switches for use without seal fittings in all hazardous areas. By passing special pressure piling tests, the all aluminum enclosure was certified for this elite distinction. Now, a time-consuming procedure can be safely eliminated in division 1 and division 2 areas.

Consolidate Your Components and Minimize Costs
The QUARTZ design offers up to three conduit entries with extra wire terminations. By terminating solenoid valves in the switch enclosure, significant savings are realized by eliminating a junction box, wiring, conduit materials and labor.
Applications and Adaptation

**QUARTZ Mounting Systems**
Low profile convenient mounting systems are readily available in stainless steel for most non-Namur and Namur (VDI/VDE 3845) actuators. You get direct output on rotary actuators, and easy access to positioner internal adjustments.

**Manual Valves**
Proper fit and operation are assured with StoneL’s custom designs for each manual valve. Hundreds of unique mounting systems have been designed and fabricated for manually operated valves.

**Linear Operators**
Precision ball joint connections attach the QUARTZ to valve travel stems. Stroke lengths ranging from 20mm to 150mm (3/4” to 6”) may be easily accommodated.

**Positioners**
QUARTZ position transmitter and switches may be retrofitted directly to most positioners. You get direct output on rotary actuators, and easy access to positioner internal adjustments.

**Position Transmitter**
The QUARTZ two-wire 4 to 20 mA position transmitter offers exceptional accuracy, reliability and performance. It may be directly attached to positioners or actuators in both linear and quarter-turn applications.

**QUARTZ Expeditor**

**Fill Control Applications**
Fill tanks and hoppers rapidly and accurately. The QUARTZ Expeditor’s field adjustable intermediate position reduces flow as the full level approaches. You get fast, economical “topping off” of every batch.

**Flow Dampening Applications**
The QUARTZ Expeditor allows fast closure yet gentle, gradual shut-off from a preset intermediate position. You get prolonged piping life, improved process flow performance and less potential for catastrophic failure.

**Emergency Shut Down (ESD) Applications**
Test your ESD valves by actuating them to a preset intermediate position that does not shut down the process. Reduce costs and increase safety by eliminating several cumbersome manual operations.

**Communication Enabled Expeditor (82, 86)**
Now you can improve process performance and take advantage of incredible cost savings by utilizing proven bus networking technology with the communication enabled Expeditor. The Expeditor functions are available in the QUARTZ with either AS-Interface or DeviceNet protocols. An additional switch and cam are integrated into the VCT which may be set to a pre-determined intermediate position enabling fill control, flow dampening or ESD capabilities. Please specify the “82” or “86” for DeviceNet or AS-Interface Expeditor respectively.

The Expeditor enables three position control of On/Off valves in combination with two standard solenoid valves.

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**Specifications**

- **Span Range**: 35° to 270° (Adjustable)
- **Linearity Error, Standard High Performance**: ± 0.85° Maximum ± 0.35°
- **Cycle Life, Standard High Performance**: 2 Million Rotations Minimum 50 Million Rotations Minimum
- **Temperature Range**: -40° to 80° C (-40° to 176° F)
Sensors and Communications

Dual Module System
The QUARTZ series is available with the dual module in its various configurations. Two solid state sensors and/or communications and electronics are sealed in for the ultimate in reliability and convenience. All dual module versions have a 5 year warranty. (For more detailed information please see pages 28 through 39.)

SST Switching Sensors (33)
Configuration (2) SST Switching Sensors
Terminations for Solenoid
Electrical Ratings 0.3 Amps @ 125 VAC/DC

Namur Sensors (44)
Configuration (2) Namur Sensors
Terminations for Solenoid
Intrinsically safe (EN 60947-5-6)
Voltage Range 5 to 25 VDC
Current Ratings Target On I<1 mA
Target Off I>3 mA

AS-Interface VCT (96)
Configuration (2) Sensor Inputs
(2) Auxiliary Inputs
(2) Power Outputs (Solenoids)
Max. Current 160mA, Both Outputs Combined
(Current Limited to 200mA)
Outputs, Max. Power 4 Watts, Both Outputs Combined
Outputs, Voltage 25 to 30 VDC

AS-Interface VCT (97) with Extended Addressing
Configuration (2) Sensor Inputs
(2) Auxiliary Discrete Inputs
(1) Power Output (Solenoid)
Max. Current 100mA
Outputs, Max. Power 2.4 Watts
Outputs, Voltage 25 to 30 VDC

DeviceNet VCT (92)
Configuration (2) Discrete Inputs
(Open & Closed)
(2) Power Outputs (Solenoids)
(1) 4-20 mA Auxiliary Input
Outputs, Max. Power 4 Watts, Both Outputs Combined
Outputs, Voltage 24 VDC

FOUNDATION Fieldbus VCT, Bus Powered (93)
Configuration (2) Discrete Inputs, DI
(Open & Closed)
(2) Discrete Outputs, DO
(Piezo Valves)
Outputs 2mA @ 6.5 VDC each; Current Limited to 2mA (Bus Powered)

FOUNDATION Fieldbus VCT, Externally Powered (94)
Configuration (2) Discrete Inputs, DI
(Open & Closed)
(2) Power Outputs, DO
(Solenoids)
Outputs 4 watts @ 24VDC Both Outputs Combined; Current Limited to 200mA (Externally Powered)

Modbus VCT (95)
Configuration (2) Discrete Inputs
(Open & Closed)
(2) Power Outputs (Solenoids)
(1) 4-20 mA Auxiliary Input
Outputs 4 Watts @ 24 VDC Both Outputs Combined (Current Limited to 200mA)

Switch/Sensor Options

SST Solid State Sensors
SST sensors have an unlimited application life and are ideal for AC and DC computer input circuits. (See page 38 for more details.)

Maxx-Guard Switches
Maxx-Guard reed switches with SPDT tungsten contacts are suitable for 125VAC computer inputs and 240VAC moderate power applications. SPDT rhodium contacts are designed for either 24VDC or 125VAC low power computer inputs. SPST ruthenium contacts are ideal for either 24VDC or 125VAC low power computer inputs. (See page 38 for more details.)

Mechanical Switches (DPDT)
DPDT switches are available for isolation of two circuits operating at the same time. One DPDT operates identically to two SPDT being actuated simultaneously. (See page 39 for more details.)

Mechanical Switches (SPDT)
Mechanical silver contact switches are ideal for high power applications. Gold SPDT contacts may be used for low power applications. (See page 39 for more details.)

Electrical Ratings (Silver) 10 Amp @ 125/250 VAC
0.5 Amp @ 125 VDC
Operating Life (Silver) 400,000 cycles
Electrical Ratings (Gold) 1.0 Amp @ 125 VAC
0.5 Amp @ 30 VDC
Operating Life (Gold) 100,000 Cycles
**Explosion Proof Model Selector (Aluminum Cover)**  
**Model Example: QX33E02SRA**

<table>
<thead>
<tr>
<th>Function</th>
<th>Enclosure</th>
<th>Conduit Entries</th>
<th>Visual Indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensor/Switching Modules (Proximity Type)</td>
<td>North American (NEC/CEC)</td>
<td>02 (1) ¼&quot; NPT &amp; (1) ½&quot; NPT</td>
<td>SRA Red-Closed</td>
</tr>
<tr>
<td>Valves</td>
<td>International (IEC)</td>
<td>03 (1) ¼&quot; NPT &amp; (2) ½&quot; NPT</td>
<td>SGA Green-Closed</td>
</tr>
</tbody>
</table>

**Nonincendive & Intrinsically Safe Model Selector (Clear Cover)**  
**Model Example: QN33C02SRA**

<table>
<thead>
<tr>
<th>Function</th>
<th>Enclosure</th>
<th>Conduit Entries</th>
<th>Visual Indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensor/Switching Modules (Proximity Type)</td>
<td>North American (NEC/CEC)</td>
<td>02 (1) ¼&quot; NPT &amp; (1) ½&quot; NPT</td>
<td>SRA Red-Closed</td>
</tr>
<tr>
<td>Proximity</td>
<td>International (IEC)</td>
<td>03 (1) ¼&quot; NPT &amp; (2) ½&quot; NPT</td>
<td>SGA Green-Closed</td>
</tr>
</tbody>
</table>

Mounting system required for all and sold separately.
**General Purpose Model Selector (Clear Cover)**

### Enclosure

<table>
<thead>
<tr>
<th>Model Example: QG2VC02SRA</th>
<th>Conduit Entries</th>
<th>Visual Indication*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>02</td>
<td>SRA Red-Closed</td>
</tr>
<tr>
<td></td>
<td>03</td>
<td>SGA Green-Closed</td>
</tr>
<tr>
<td></td>
<td>05, 06</td>
<td>S1A T1 Three Way</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S2A T2 Three Way</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S3A T3 Three Way</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S4A T4 Three Way</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S5A T5 Three Way</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S0A No Indication</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SXA Special</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SCA Continuous</td>
</tr>
</tbody>
</table>

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### Other Specifications and Ratings

#### Materials of Construction

- **Housing & Cover**: Epoxy coated anodized marine aluminum
- **Clear Cover & Indicator**: Lexan® polycarbonate
- **Elastomer Seals**: Buna-N; Optional EPDM
- **Drive Shaft**: Stainless steel
- **Drive Bushing**: Bronze, oil impregnated
- **Fasteners**: Stainless Steel

#### Temperature Ratings

- **Mechanical Components**: -40° to 80° C (-40° to 176° F)
- **Dual Modules**: -40° to 80° C (-40° to 176° F)
- **Maxx-Guard & SST**: -40° to 80° C (-40° to 176° F)

#### Warranty

- **Mechanical Components**: Two Years
- **SST & Dual Modules**: Five Years

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### Dimensions

**Inches [mm]**

![Diagram of dimensions](image)

**NOTE 1:**

- Cover height varies based on model number. Dual module and 2 switch models use short covers.

  - Short Cover = 4.0" [102mm]
  - Medium Cover = 4.86" [123.4mm]
  - Tall Cover = 6.12" [155.4mm]