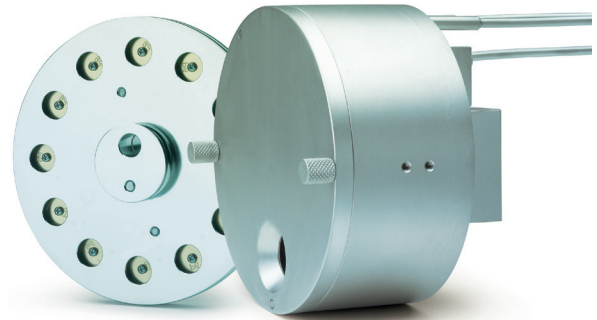




Crystal 12[®] Sensor

The INFICON Crystal 12 sensor is critical for long processes demanding continuous rate control. Whether an OLED, MBE, Solar or other process having an extended period between chamber venting, the Crystal 12 sensor offers the security of 12 quartz monitor crystals in one sensor head. When used with Cygnus 2, IC6, XTC/3M, XTC/3S, SQC-310 or SQC-310C, the Crystal 12 automatically rotates a new crystal into position whenever the current crystal fails or becomes unstable. Crystals are automatically replaced without interrupting your process for continuous deposition rate monitoring. To further minimize downtime, crystals can be preloaded into a second optional carousel, which can then be quickly and easily exchanged with the carousel containing the exhausted crystals, minimizing the time the system is open.

Crystal indexing is accomplished with a pneumatically driven mechanism. This pneumatic drive provides better thermal stability than competitive units using expensive in-vacuum, heat generating, electric motors. One-eighth inch water cooling tubes keep the sensor head thermally stable and allow flexibility in sensor placement.



ADVANTAGES

- Holds 12 crystals with robust, automatic switching to maximize process uptime
- Easy-to-remove carousel allows fast replacement of all 12 crystals
- Stable crystal temperature, because crystal switching is pneumatically-driven (competitive units use heat-generating motors)
- 1/8 in. tubes maintain thermal stability and allow flexibility in sensor placement
- Easy-to-remove front deposition shield protects the crystals and carousel from material accumulation, minimizing the need to remove entire sensor for maintenance
- Optional mounting-post kit can be user-modified to accommodate metric hardware
- Optional crystal shutter available

ORDERING INFORMATION

Crystal 12 Sensor

Type of sensor (Includes User Manual. Crystals sold separately)

None.....
Base unit – Crystal 12 Sensor.....

In-vacuum Cable Assembly Length – See Note 3

None.....
30.75 in. (78cm)
6 in. (15.2cm)
12 in. (30.5cm)
24 in. (61cm)
36 in. (91.4cm)
48 in. (121.9cm)
60 in. (152.4cm)
72 in. (182.9cm)

Crystal Carousel Assembly

One (included in base unit).....
Spare Crystal Carousel Assembly.....

Front Deposition Shield

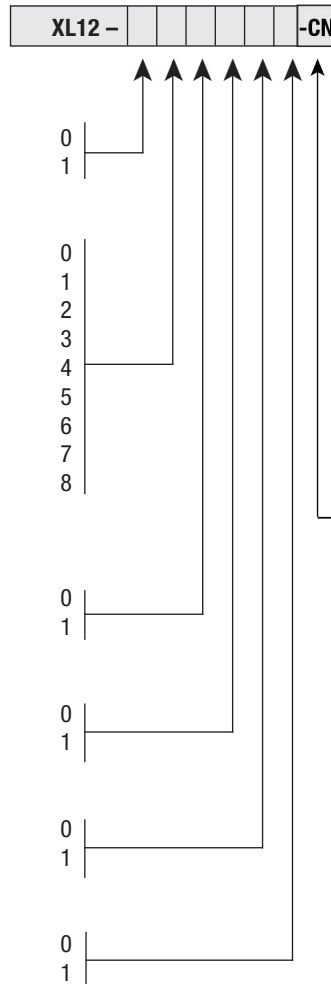
One (included in base unit).....
Spare Front Deposition Shield.....

Mounting Post with Hardware

None.....
Mounting Post Kit.....

Solenoid Valve – See Note 2

None.....
Solenoid Valve



NOTE 1:

Auto Crystal Switch only with IC6, Cygnus 2, XTC/3M, XTC/3S, SQC-310, and SQC-310C.

NOTE 2:

The Crystal 12 Sensor requires the 750-420-G1 solenoid valve with orifice installed (IPN 059-0189, included in Crystal 12 ship kit).

NOTE 3:

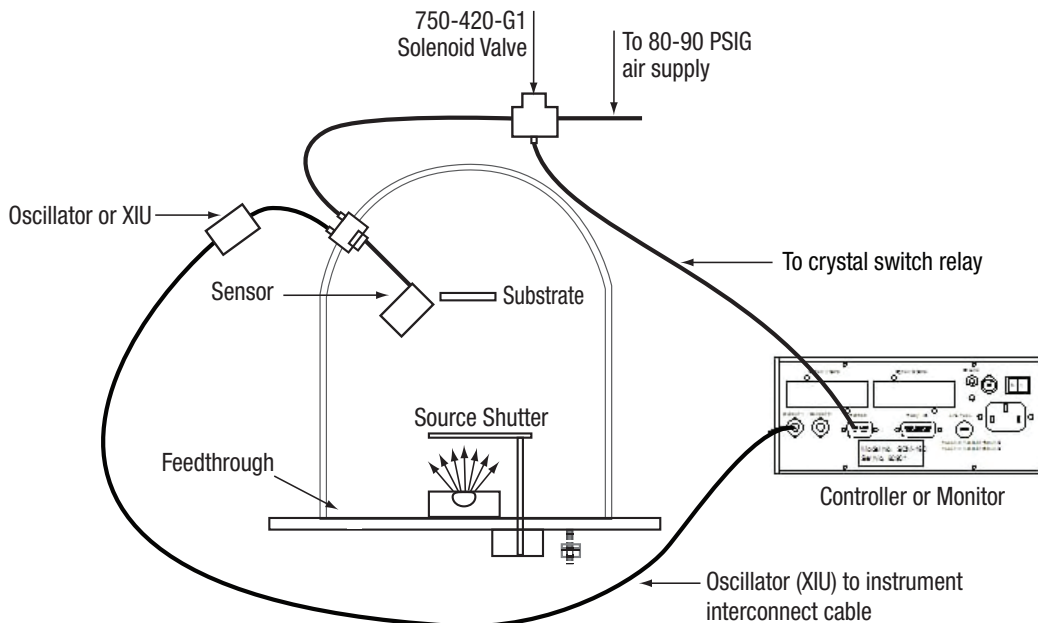
All lengths are supported with IC6, Cygnus 2, XTC/3M, and XTC/3S. SQC-310 and SQC-310C support in-vacuum lengths up to 30.75 in. only.

NOTE 4:

Position feedback is not available with SQC-310 or SQC-310C.

“-CN” suffix added for sensors made in China

Custom parts, special bends and other non-standard parts available – Consult factory



SPECIFICATIONS

XL12 series Crystal 12 Sensor Specifications

| | |
|--|---|
| Maximum bakeout temp with no water | 130° C |
| Maximum operating isothermal environment temperature with minimum water flow | 300° C |
| Size (maximum envelope) | 4.0 in. (102 mm) dia. x 3.3 in. (84 mm) high 4.75 in. (121 mm) dia. x 3.46 in. (88 mm) with optional mounting posts installed |
| Water and air length | Standard 30 in. (762 mm) |
| Crystal exchange | Front-loading |
| Mounting | Six #4-40 tapped holes on the back of the sensor body, six #4-40 tapped holes on outside circumference. Three #6-32 tapped holes with optional mounting kit (IPN 750-670-G1). |
| Weight | 4.92 lb. (2.23 kg) |

Installation Requirements

| | |
|---------------------------|---|
| Feedthrough | Qty (1) 2-3/4 in. ConFlat® with one coaxial feedthrough, two pass water, one air, IPN 750-685-G1, or, Qty (1) 750-685-G2, with one coaxial feedthrough three tube with Ultra-Torr compression fittings or, Qty (1) 1 in. bolt with one coaxial feedthrough, two pass water, one air IPN 750-030-G1 |
| Mounting | User to provide mounting structure adequate to support weight of Crystal12 and designed to facilitate removal and replacement with minimal change in exact position. An optional mounting post kit, IPN 750-670-G1, may be purchased for this purpose. |
| Air and Water Connections | User to provide vacuum-tight braze joints or connectors for the water and air tubes. Valve assembly for air, IPN 750-420-G1 (not provided), with a 0.022 in. restrictor orifice installed by the user. (Orifice included with Crystal12 accessory kit.) |
| Utilities | Minimum water flow 150-200 cc/min, 30° C max (Do not allow water to freeze). Coolant should not contain chlorides as stress corrosion cracking may occur. Regulated air supply 80-90 PSIG (5.5 bar – 6.2 bar) [550 kPa - 620 kPa] 2 meter maximum length of 1/8 in. tubing between sensor head and the solenoid valve. |

Materials

| | |
|---|--|
| Plate, Material Shield, Mechanical Parts, Body and Carousel | 304 type stainless steel |
| Springs, Electrical Contacts | Au plated Be-Cu, Au Plated 302 stainless steel |
| Water and air tubes | S-304, 0.125 in. (3.2 mm) O.D. x .016 in. (0.4 mm) Wall Thickness x 30 in. Long (762 mm) seamless stainless steel tubing |
| Connector | Stainless steel |
| Insulators | Teflon, Peek® |
| Cable | Teflon insulated copper plated steel |
| Crystal | 0.550 in. (13.97 mm) diameter |

SPECIFICATIONS

Feedthrough Specifications

Note: Sensor / Feedthrough combination specifications are determined by lowest component specification.

Example: Crystal12 with CF40 is only rated to 300° C, not 450° C.

1 inch bolt and Ultra-Torr (compression fitting) terminations:

| | |
|-------------|--|
| Materials | 304 stainless steel, Teflon, ceramic, beryllium nickel, VITON® |
| Temperature | Operational environment to 300° C with water cooling or 165° C without |
| Mounting | 1.015 in. \pm 0.010 in. diameter aperture |

CF 40 welded terminations:

| | |
|-------------|--|
| Materials | 304 stainless steel, Teflon, ceramic, beryllium nickel |
| Temperature | Operational environment to 450° C with water cooling or 165° C without |
| Mounting | Mates with 2 3/4 in. ConFlat type flanges with 1.375 in. I.D. min. |

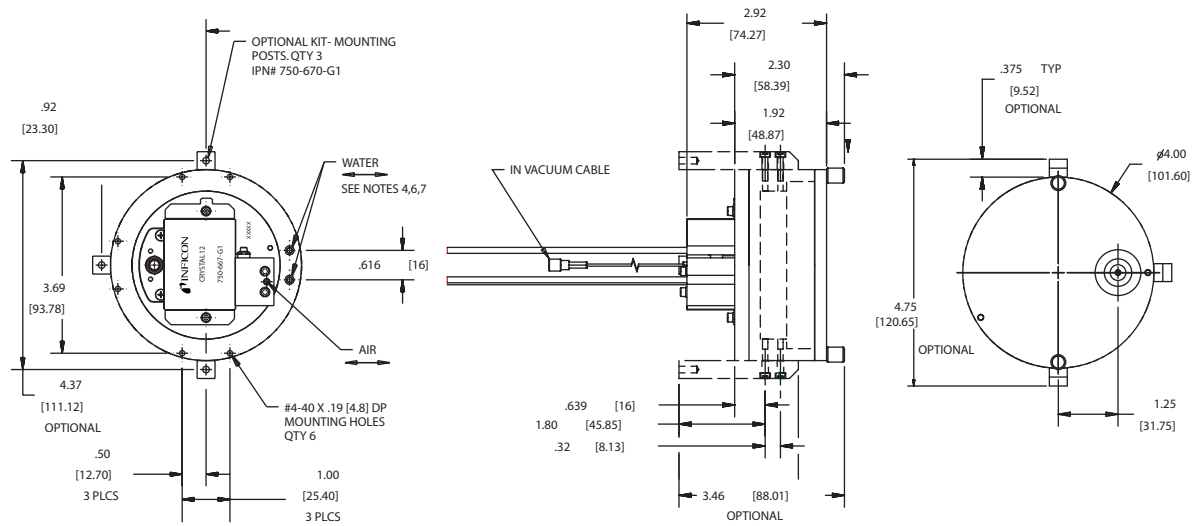
SPARE PARTS LIST

| P/N | Description |
|------------|--|
| 750-276-P3 | Actuator Cover |
| 750-644-G1 | Housing |
| 750-658-G1 | Deposition Shield |
| 750-286-P2 | Pneumatic Actuator |
| 750-291-P1 | Detent |
| 750-294-P2 | Stop Ratchet |
| 750-293-P2 | Ratchet |
| 750-256-P2 | Extension Spring |
| 750-252-P2 | Spring Post |
| 750-649-G1 | Electrical Connection |
| 750-295-G1 | Pawl and Actuator |
| 750-258-P2 | Bearing Shaft |
| 070-779 | Ball Bearing |
| 750-652-G1 | Carousel |
| 750-650-P1 | Aperture Plate (without Dowel Pin) |
| 070-1253 | Dowel Pin |
| 750-651-P1 | Resistor Network Support |
| 750-655-P1 | Resistor Network Insulator |
| 750-642-G1 | Resistor Network |
| 750-661-P1 | Contact Terminal (Carousel component) |
| 750-656-P1 | Crystal Insulator (Carousel component) |
| 321-038-P6 | Leaf Spring (Carousel component) |
| 750-657-P1 | Grounding Leaf Spring |
| 750-671-P1 | Torsion Spring |
| 750-626-P1 | Spring |
| 750-647-P1 | Spindle |
| 070-1268 | Spindle Bearing (Spindle component) |
| 070-1254 | E-Ring (Spindle component) |
| 750-660-P1 | Location Screw (Spindle component) |

| P/N | Description |
|------------|--|
| 007-126 | 0.125 in. x 30 in. (3.175 mm x 762 mm) seamless tubing |
| 070-201 | #4 Split Lock Washer |
| 084-004 | #4-40 x .187 Hex Socket Head Screw |
| 070-398 | Retaining Ring |
| 070-867 | Shaft Spacer |
| 070-170 | #2 Split Lock Washer |
| 070-177 | #4-40 x 3.12 Hex Head Screw |
| 080-038 | #0-80 x 0.375 Phillips Pan Head Screw |
| 082-032 | #2 Internal Lock Washer |
| 082-045 | #2-56 x 0.187 Phillips Screw |
| 084-054 | #4 Split Lock Washer |
| 082-022 | #2 Flat Washer |
| 082-024 | #2-56 x 0.250 Hex Socket Screw |
| 082-032 | #2 Internal Lock Washer |
| 750-292-P2 | Detent Spacer |
| 080-013 | #0-80 Split Washer |
| 080-007-P1 | #0-80 x 0.170 Flat Washer |
| 080-009-P1 | #0-80 x 0.188 Socket Head Screw |
| 084-048 | #4-40 x 0.250 Flat Head Screw |
| 750-665-P1 | #2-56 Torsion Spring Shoulder Screw |
| 070-170 | #2 Split Lock Washer |
| 082-045 | #2-56 x 0.187 Phillips Screw |
| 070-201 | #4 Split Lock Washer |
| 084-093 | #4-40 x 1.125 Socket Head Screw |
| 086-084-P2 | #6-32 x 0.125 Set Screw |
| 086-041 | #6 Flat Washer |
| 086-038 | #6 Split Lock Washer |
| 086-036 | #6-32 x 3/8 Socket Head Screw |
| 086-084-P2 | #6-32 x 0.125 Set Screw |

DIMENSIONS

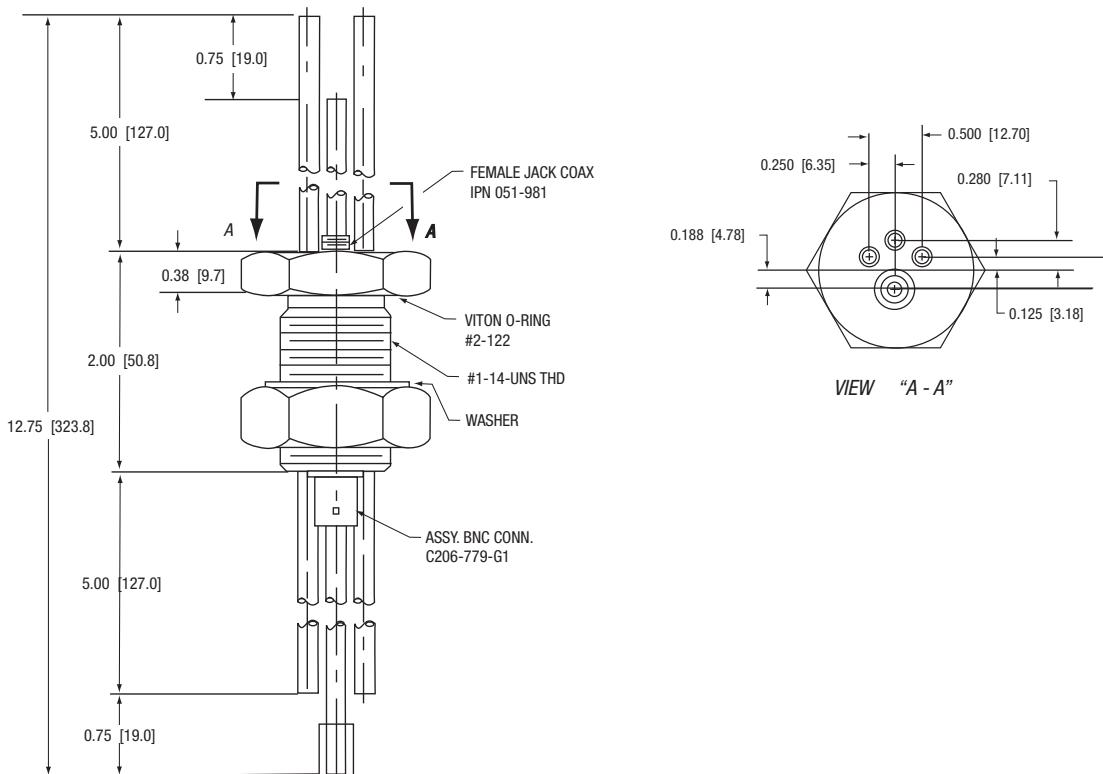
XL12 series Crystal 12 Sensor



DIMENSIONS

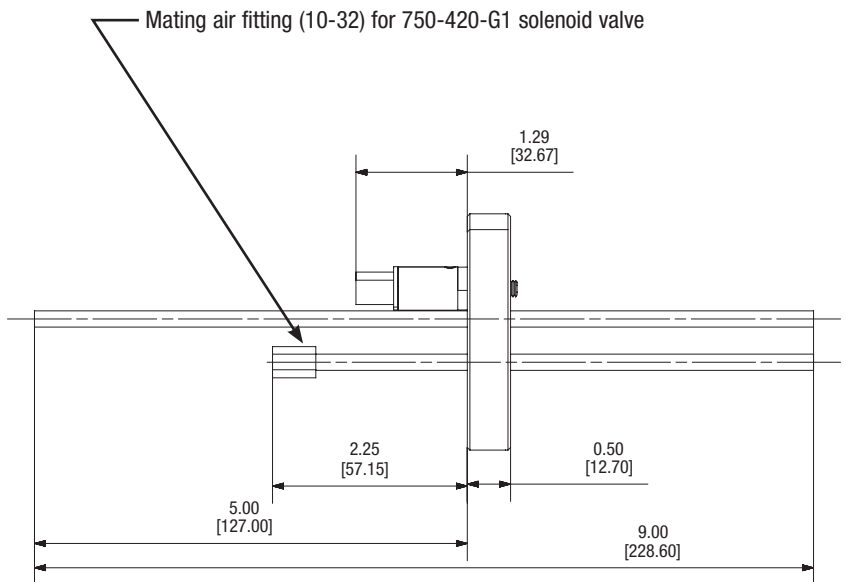
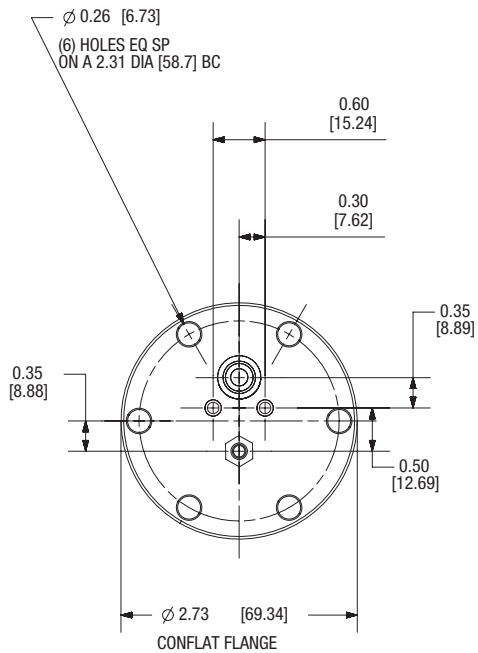
The Crystal 12 sensor can be used with the following Feedthroughs:

P/N 750-030-G1



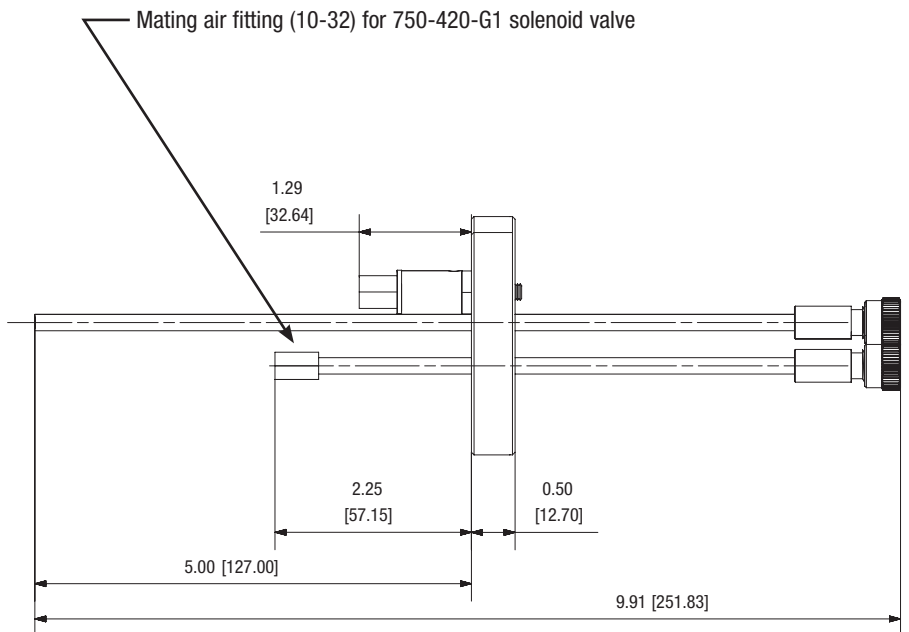
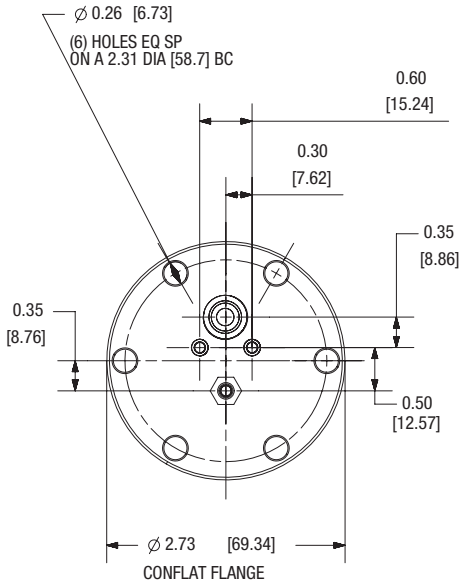
DIMENSIONS

P/N 750-685-G1



DIMENSIONS

P/N 750-685-G2



www.inficon.com reachus@inficon.com

Due to our continuing program of product improvements, specifications are subject to change without notice. Crystal12 and Cygnus are registered trademarks of INFICON. All other trademarks are the property of their respective owners.

cibe26a1-c ©2026 INFICON