

# CrystalTwo Switch

## Function

The INFICON® CrystalTwo Switch will allow a single Crystal Interface Unit (XIU) to sequentially communicate to one of two crystal transducers. It may be used with any two single type sensors or with a single dual sensor. The internal switching mechanism is designed to minimize any loss of electrical signal through the device to very low levels and will generally not have any effect on the measurement system's performance or crystal (Xtal) life.

## Specifications

### Part Number

779-220-G1 ..... CrystalTwo Switch with two 6" (152.4 mm) BNC cables

779-220-G2 ..... CrystalTwo Switch with two 20" (508 mm) BNC cables

Input ..... quantity 1, female BNC

Output ..... quantity 2, female BNC

Operating frequency ..... 6.0 to 4.5 MHz

Insertion loss ..... less than 1 dB at specified operating frequencies

Basic size ..... 1.5" (38.1 mm) hexagonal x 1.139" (28.931 mm) Thick

Clearance for connectors ..... 2.5" (63.5 mm) radius from hexagon's center

Mounting ..... 4 ea. #6-32 and 2 ea. #10-32 tapped holes for mounting in various orientations

Switching voltage ..... 24 V AC or DC nominal, polarity independent

Switching power ..... 200 mW, nominal

Control wires ..... insulated hookup wire approximately 16" (406.4 mm) long, inline rectifier module allows use of AC or reverse polarity hookup

Temperature range ..... 0 – 50°C

Humidity ..... 5 – 85%

Switching time ..... less than 0.1 second; exclusive of measurement instrument's acquisition, optimization and stabilization requirements

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Accessories . . . . .	two 6" (152.4 mm) male-male BNC cables for attachment between CrystalTwo and feedthroughs. Alternatively, a CrystalTwo Switch with two 20" (508 mm) male-male BNC cables can be purchased.
Weight . . . . .	3.5 oz. (100 g)

## **Compatibility**

The CrystalTwo Switch is compatible with all ModeLock Deposition Controllers. Refer to your instrument operating manual for crystal switching details.

## **Installation**

See [Figure 1](#) and [Figure 2](#). The CrystalTwo Switch requires 24 volt power to switch the XIU to XTAL 2. In the un-powered condition the electrical connection is between the XIU and XTAL 1. The 24 volt power may be either polarity of DC or AC; the inline rectifier package insures that the switch is properly powered.

There are two 6" or two 20" BNC cables shipped with each CrystalTwo Switch. These are to be used to connect the two outputs (XTAL 1 & XTAL 2) to the feedthrough of the appropriate transducer. It is suggested that the cable supplied with the XIU be used to connect the XIU to the terminal marked XIU on the CrystalTwo switch.

Rigidly mounting the switch is suggested, especially if there is a possibility of frequent movement of the cables. There are 6 threaded mounting holes available for permanently mounting the CrystalTwo Switch. Four #6-32 holes are available on the hexagonal base and two #10-32 holes are available on one side face.

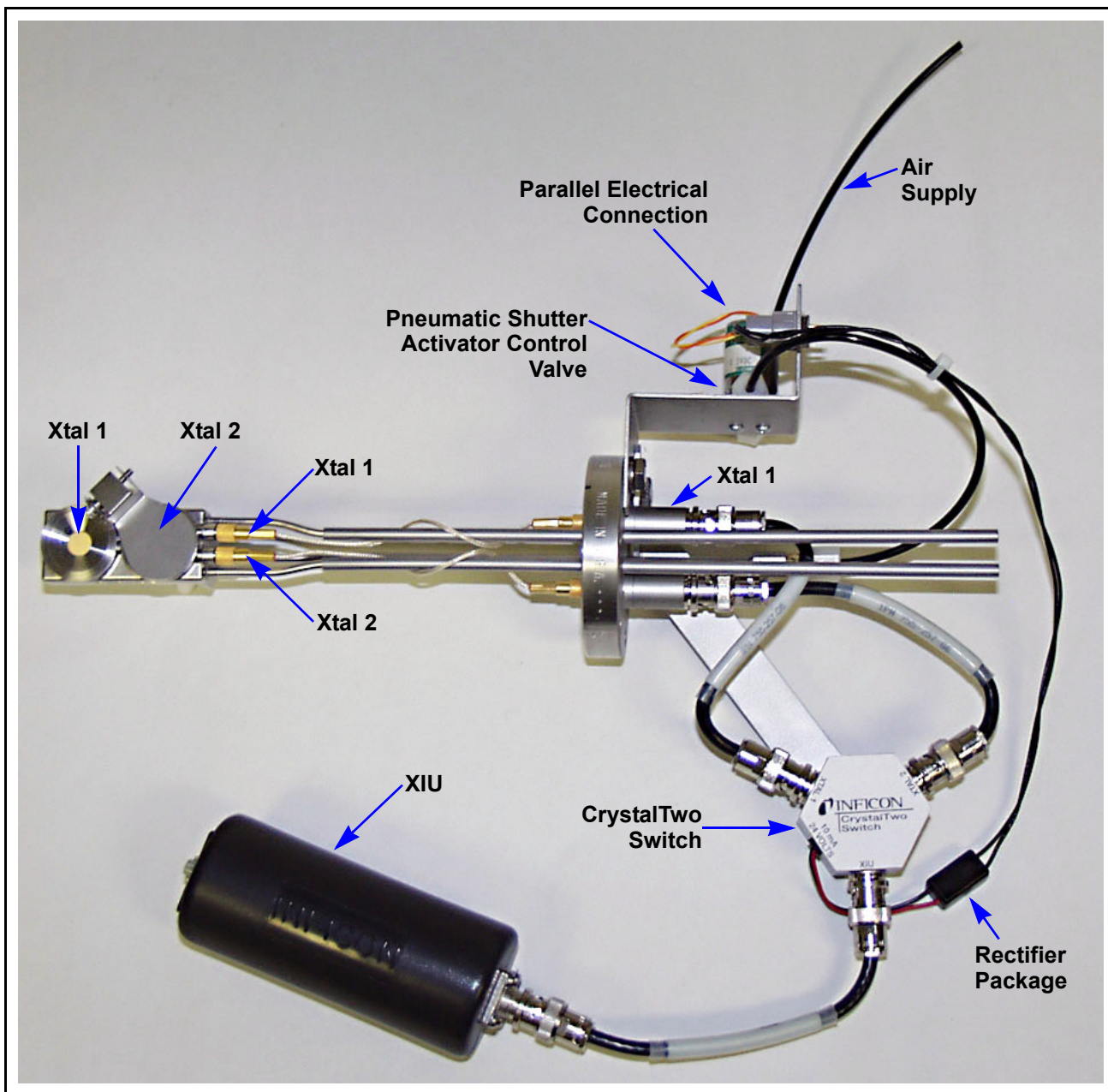
## **Integration With Controller**

Coordination of the CrystalTwo Switch with the deposition process is very straightforward. Use the Crystal Switch relay function with normally open contacts and parallel the CrystalTwo Switch's control wires with those of the Shutter Actuator control valve. This will transfer electrical contact to the backup transducer as the shutter exposes it.

It is normal for the controller to not use the information from the new crystal immediately as it takes about one second for the measurement system to acquire and optimize the resonance. There is also a built-in delay to allow the freshly exposed crystal to thermally stabilize. This switching sequence normally lasts 5-6 seconds.

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Figure 1 Typical Installation; CrystalTwo Switch and Dual Sensor



# CrystalTwo Switch

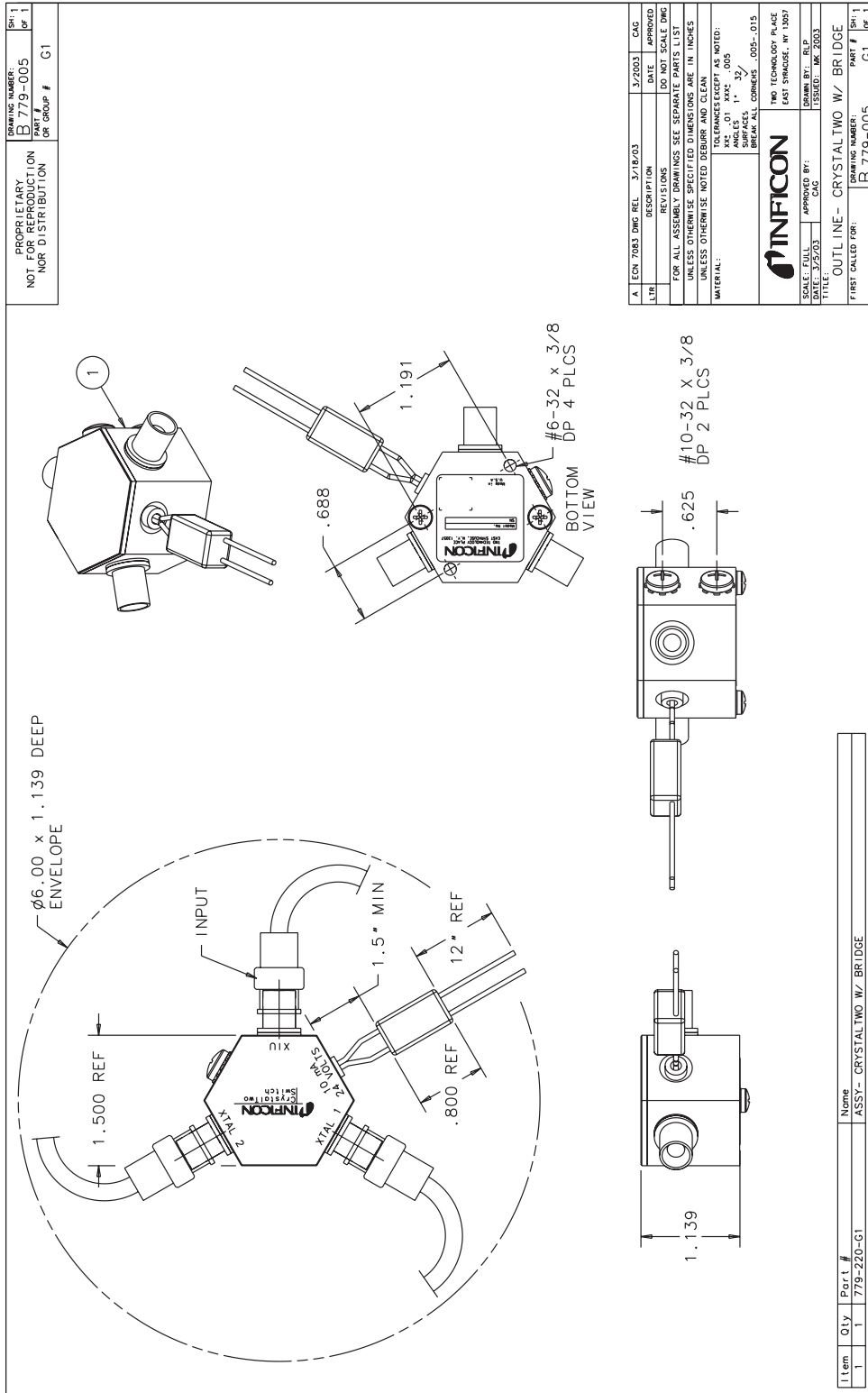


Figure 2 Outline Drawing of CrystalTwo with Rectifier Package