Overview
The pressurized line sampling system for the Isco 5800 sampler consists of the sampler, a relay alarm box, a 3-way actuated ball valve, an aluminum mounting plate, and, if pressures will be in excess of 15 psi, a pressure reduction valve. The system supports sampling from pipes with pressures up to 300 psi. This is also compatible with the 4700 Sampler.

Operation
A normal sample routine consists of the sampler pumping first in reverse (pre-purge), then forward (bottle fill), and reverse again (post-purge).

When the sampler runs forward, it sends a signal to the relay alarm box (see the instructions under Programming to activate this function). The alarm box alerts the 3-way valve to allow pumping of the sample liquid. During pre-purge and post-purge, the valve causes the remaining liquid between itself and the sampler to be discharged through the third port into the user-supplied drain.

Pressures exceeding 15 psi must be reduced prior to reaching the 3-way valve to maintain accurate sample volumes and avoid damage to the system. Isco offers a stainless-steel pressure reduction valve with 1/2” NPT fittings.

Site Requirements
The discharge drain must be routed to a point at or near zero pressure for complete purging and prevention of cross-contamination between samples.

The Isco pressure reduction valve is not recommended for sample sources containing solids, or with viscosities higher than that of no. 2 oil. The user is responsible for any pre-filtering required.

The Isco relay alarm box is an essential component of this system. It is equipped with specific hardware, circuitry, and weatherproof enclosure not feasibly duplicated in the field.

The system must be positioned near a mains outlet that is easily accessible, so that power can be quickly removed in the event of an emergency.

The line cord is the only disconnect device. Mains power is applied to the system continually.

\[\text{WARNING}\]
If this equipment is used in a manner not specified in the instructions, safety may be compromised.

Setup and Installation
Programming
When enabled, a software option causes the sampler to delay the bottle fill and post-purge pumping steps by 10 seconds to allow the 3-way valve to fully open. This option must be enabled for proper filling and purging during pressurized sampling.

To enable the pump valve option:

1. Turn the sampler controller on. From the main menu, select CONFIGURE.

2. At SELECT OPTION, arrow to OUTPUT PINS and select.

3. Under SET OUTPUT 1, arrow to 3-WAY VALVE CONTROL and select.

4. Continue programming output pins as needed, and then select EXIT CONFIGURATION.
**Figure 1: System Components**

- Liquid source (10-300 PSI)
- Pressure reduction valve
- 3-way ball valve assembly
- Mounting plate
- Accessory connector (see sampler manual)
- 10ft sampler connect cable
- Output to sampler
- 6ft line cord
- #10 Mounting hardware

Ensure that the sampler outlet is positioned higher than its connection to the 3-way valve to ensure complete purging.

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**CAUTION**

Ensure that the user-supplied connecting hardware between the liquid source and the system inlet can safely withstand the maximum pressures of the source.

**Pressure Reduction Valve**

The pressure reduction valve (Figure 2) is required for installations where pressures will exceed 15 psi. This is a one-way valve designed to reduce liquid pressure from up to 300 psi to a pressure adjustable between 3 and 30 psi. When used with Isco samplers, the pressure should be adjusted for 8 to 10 psi.

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**Plumbing and Positioning**

Connect the drain to a point at or near zero pressure. A 1/2” coupler is provided for connection to the sampler and discharge line. It may be necessary to heat the tubing in order to slip it over the coupler.

Connect the line from the pressurized source to the 3-way valve (or pressure reduction valve if used) with the shortest possible length of tubing.

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**Note**

A manual shut-off valve (user-supplied) is recommended for placement between the sampling system and the sample source for purposes of system removal, should this become necessary.
The valve comes pre-adjusted from the factory. Field adjustment is seldom required, if ever.

However, if adjustment should become necessary:
1. Loosen the lock nut located behind the pressure dial (Figure 3).
2. Turn the adjustment bolt clockwise to increase the valve’s pressure output, or counterclockwise to decrease it.
3. If the pressure gauge does not read between 8 and 10 psi, repeat step 2.

**Note**
A sample cycle may be required for the gauge to register a pressure reading.

4. Tighten the lock nut to secure the adjustment bolt.

**Wiring**

Standard systems come pre-wired and mounted on the aluminum plate. For assistance with other types of Isco alarm boxes, additional alarm outputs, and systems that are not pre-wired, contact Teledyne Isco.

Connect the signal cable from the relay alarm box to the 16-pin connector on the back side of the sampler (see Figure 4).

Plug the line cord into the AC electrical outlet, and the system is ready for use.

**Cleaning**

To clean the system, use a mild detergent in water. For tougher stains, use isopropyl alcohol. If the installation location permits, the system may be hosed down.

**Specifications**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
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<tbody>
<tr>
<td>Mounting plate H x W</td>
<td>1 x 2 ft (0.3 x 0.6 m)</td>
</tr>
<tr>
<td>Weight</td>
<td>18 lb (8 kg)</td>
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<tr>
<td>Power</td>
<td>120 VAC/60 Hz (system #68-5304-006)</td>
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<td></td>
<td>230 VAC, 50/60 Hz, 1.2A (system #68-5304-005)</td>
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<tr>
<td>Maximum input pressure</td>
<td>300 psi</td>
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<tr>
<td>Minimum input pressure</td>
<td>10 psi</td>
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<tr>
<td>System enclosure rating</td>
<td>NEMA 4X, IP66</td>
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<td>Operating temperature</td>
<td>32 to 140 °F (0 to 60 °C)</td>
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<td>Maximum liquid temperature</td>
<td>145 °F (62 °C)</td>
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<td>Installation category</td>
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**Table 1: Technical Specifications**

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Teledyne Isco is continually improving its products and reserves the right to change product specifications, replacement parts, schematics, and instructions without notice.
DEPARTMENT OF CONFORMITY

2002/96/EC – The WEEE Directive
2006/95/EC – The Low Voltage Directive

Manufacturer's Name: Teledyne Isco, Inc.
Manufacturer's Address: 4700 Superior
Lincoln, Nebraska 68504-1398 USA
P.O. Box 82531, Lincoln, NE 68501-2531
Phone: +1 (402) 464-0231
Facsimile: +1 (402) 465-3799

Equipment Type/Environment: Light Industrial/Commercial Environments

Trade Name/Model No: Pressure Sampling System
Year of Issue: 2011

Standards to which Conformity is Declared:
EN 61010-1 2nd edition Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use
EN 61326-1:2003 EMC Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use

<table>
<thead>
<tr>
<th>Standard</th>
<th>Description</th>
<th>Severity Applied</th>
<th>Performance Criteria</th>
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<tr>
<td>EN61000-4-2</td>
<td>Electrostatic Discharge</td>
<td>4kV contact discharge; 8kV air discharge</td>
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<tr>
<td>EN61000-4-3</td>
<td>Radiated RF Immunity</td>
<td>80 mHz to 2.7GHz, 80% AM at 1kHz</td>
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<tr>
<td>EN61000-4-4</td>
<td>Electrical Fast Transient</td>
<td>2kV on AC lines; 1kV on I/O lines</td>
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<tr>
<td>EN61000-4-6</td>
<td>Conducted RF on AC lines</td>
<td>150 kHz to 80 MHz, 3V rms, 80% modulated</td>
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<td>CISPR11/</td>
<td>RF Emissions</td>
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<tr>
<td>EN 55011</td>
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<td>and Medical Equipment</td>
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The undersigned, hereby declares that the design of the equipment specified above conforms to the above Directive(s) and Standards as of April 18, 2011.

USA Representative

William Foster
Vice President of Engineering

60-5312-002