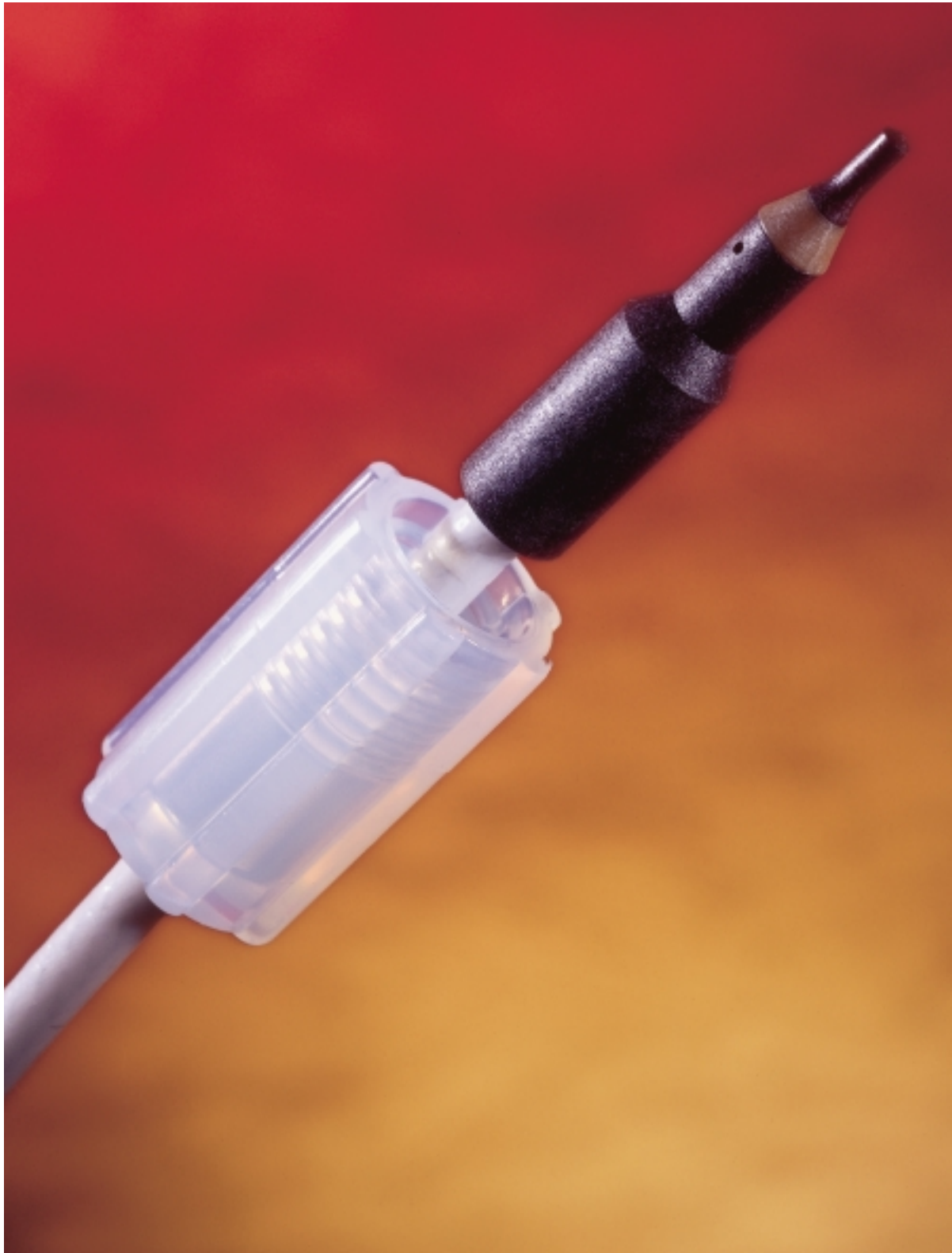




ESPY® SENSING PRODUCTS

*The sensing solution for harsh environments
and ultrapure applications*



*designed for ultrapure applications
and harsh environments*

Espy® Sensing Products

Years of service in challenging applications have proven that Entegris' Espy® capacitive sensing products are the best solution for ultrapure sensing in your harsh chemicals and high temperature environments. Our patented nonmetallic capacitive sensing products use remotely located circuitry, and Entegris' Zintek™ conductive polymer, to make a variety of measurements in any of your challenging applications. An Espy® sensing solution consists of the reusable, nonmetallic probe tip and cable, a remote mounted control module, and for many applications a specially designed adapter.

Espy® sensing components are in use worldwide in high purity, corrosive and high temperature applications. Our wide range of adapters meet your needs for:

- sensing liquid level and presence
- monitoring leaks in secondary containment
- detecting system leaks
- indicating valve position



Espy® sensing products are available in a variety of configurations and styles to meet all your unique application needs.

Features and Benefits

Feature	Benefit
All plastic (Zintek™ and PFA material) design	• Corrosion resistance
Nonintrusive sensors, PFA-coated cable	• High purity
Remote electronics	• High temperature (200°C) tolerance
Unique electronic filtering	• RF immunity
Small probe and adapters	• Saves valuable space
Three component system: cable, electronics, adapter	• Modularity and easy repairability
NPN/PNP, NO/NC, adjustable, retrofittable	• Installation flexibility

Sensing Probe Tip and Electronic Control Modules

Sensor Probe Assembly

At the heart of the Espy® sensing system is the probe tip. This tip is a capacitance-based sensor consisting of Zintek™ conductive material separated by nonconductive material. This patented, all-plastic sensor probe can withstand corrosive environments and temperatures to 200°C. This tip is connected to a control module via a PFA jacketed triaxial cable. When power is applied, a small capacitance field is set up at the probe tip. Changes in capacitance within this field, caused by the introduction of fluid or a valve position indicator, are detected by the control module which provides an output, signaling an event.



The sensor probe assembly can be located up to 20 meters from the electronic control module – increasing sensing flexibility.

Electronic Control Modules

Unlike common self-contained sensors, the Espy® control modules are connected to the sensing probe via a Teflon® PFA encapsulated cable. Available in two styles, these unique designs enable Espy® sensing components to perform in environments where space is an issue for traditional capacitive sensor configurations. To interface with your system, simply make standard wiring connections to the control module. When activated by the remote sensor probe assembly, each control module generates a solid state output as well as a visual LED.

Auto-cal Control Module

The Espy® auto-cal control module allows you to quickly and easily calibrate the module with a push of the button membrane switch. The micro-processor-based design enhances performance and

reliability by continually monitoring and adjusting for physical changes and environmental changes such as temperature and humidity. In addition, two LEDs provide status indication as well as system alarming conditions. The LEDs are also used during setup and programming of the numerous configurable outputs including NO, NC, NPN or PNP. A separate output that indicates a “broken cable” condition is also included.

Panel Mount Control Module

The single channel panel mount control module is constructed of a corrosion-resistant fluoropolymer material. This housing construction is ideal for mounting the control module through a panel or box. This control module can be wired either sinking or sourcing, and has normally open outputs.

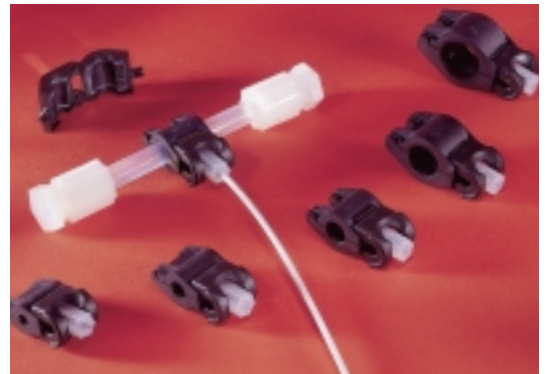
Tube Adapters

The tube adapter is an extension of the Espy® probe tip. The basic function of the tube adapter is to sense the presence or absence of media in a tube. Made from Zintek™ material, the adapter can withstand temperatures up to 200°C and direct contact with most hazardous chemicals. An integral gasket and compression clip enable the tube adapter to function in wet environments and spraydown applications.

Nonintrusive 360° Sensing Field


The all plastic, hinge design enables you to clamp the adapter around the outside of your nonmetallic tubing, giving you a nonintrusive 360° sensing field – without ever disassembling your plumbing or dismantling cumbersome mounting brackets.

Custom tube adapters are available. Contact your local Entegris representative for information.



Distinct from common sensors, the hinged Espy® tube adapter simply clamps around the outside of the glass or plastic tube.

Specifications

Description	Auto-cal Module	Single Channel Panel Mount
Configuration	Microprocessor-based Single channel output Side stackable	Single channel output Stand-alone
Remote sensor cable length	3 or 10 or 20 meters interchangeable	3 or 10 or 20 meters
Input voltage (linear power supply only)	10-30 VDC	10-30 VDC
DC solid-state output with LED	NC/NO Sinking (NPN) or sourcing (PNP)	NO Sinking (NPN) and sourcing (PNP)
Cable break output	NC (NPN or PNP)	N/A
Current rating (output)	≤50 mA	≤100 mA
Operating current (no load)	70 mA maximum	13 mA maximum
Response time	75 mSec	50 mSec
Mounting	35 mm DIN rail	Panel mount
Operating temperature	10-55°C	0-55°C
Over current protection	1 amp maximum	1 amp maximum
Approvals (pending)	  CE Directives 92/59/EEC, 93/465/EEC, 89/336/EEC Standards EN 50081-2, EN 50082-1	CE Directives 92/59/EEC, 93/465/EEC, 89/336/EEC Standards EN 50081-1, EN 50082-1 Conforms to UL Standard 1604 for use in hazardous locations.

All control module enclosures are constructed to a NEMA Type I rating.



Entegris offers a variety of custom downtube level sensors for monitoring chemical levels in containers such as chemical storage tanks, process tanks, pressure vessels and day tanks.

Downtubes

All single and multipoint downtube sensors are encapsulated in Teflon® material, therefore, compatible with virtually all media. The sensors do not have moving parts and function via remote electronics. These innovative sensors are more accurate and cost-effective than complex monitoring alternatives such as N₂ bubblers, floats and traditional metallic-based capacitive and optical sensors. Espy® downtube sensors also eliminate the high maintenance costs and process contamination problems common with N₂ bubblers and unreliable floats – promoting a high-purity environment.

Espy® downtube sensors can be made from 3/4" PureBond® pipe, 1/2" PureBond® pipe or 3/8" tubing. Standard end connections include 1" MNPT, 3/4" MNPT, 3/8" MNPT and 2" buttress; and they can be customized to meet specific customer needs.

System Leak Detectors

Due to the harsh nature of chemicals being used today, undetected product failures can have catastrophic effects including material loss, system downtime and compromised safety. With that in mind, Entegris has designed a complete line of sensing products that immediately detect leaks in any secondary containment such as valve boxes or pumps.



Entegris' leak detection products increase product safety and reduce potential process contamination.

Leak Detection

The leak well adapter provides the ideal interface between the Espy® sensor probe assembly and a secondary containment. When used as a leak detector in a pressure application, the connection seals up to 80 PSIG (551.6 kPa). This PFA adapter is compatible in corrosive environments and in temperatures up to 200°C. The ¼" NPT male thread adapter provides a convenient means of adapting leak detection in any secondary containment.

Dual-point Sensor

Entegris has designed a dual-point Espy® sensor that promptly detects a leak between the pump's primary and secondary diaphragms. The "t-cable" design allows you to install one sensing probe into each leak well adapter that is installed at the pump. A single electronic module controls both probe tips. At the first indication of either diaphragm failure, the control module output is energized and the LED is illuminated, notifying you instantly.

Remote Valve Leak Detection Manifold

The all fluoropolymer construction provides reliable service in corrosive environments. The panel mount design is easy to install. Each valve's leak detection port is connected to the manifold with ¼" tubing. In the event of a media leak in any valve, process media drains into the manifold and past the Espy® sensor. The Espy® sensor immediately detects the media presence and triggers the selected output signal. This signal can be either normally open or closed, sinking or sourcing.

Valve Monitoring

Entegris enhanced Integra® and Dymak® valves by teaming them with Espy® sensing components. This technology partnership gives you the option to incorporate leak detection and position indication into your process. Taking advantage of these convenient options gives you immediate notification of media leaks and valve position – increasing safety, decreasing contamination and providing instantaneous system verification.

Leak detection and position indication options are available on select Integra® and Dymak® valves. Refer to www.entegris.com for dimensions and ordering information.



Top photo, mounting adapter is designed specially for position indication on Integra® valves.

Bottom photo, mounting adapter is designed specially for position indication on Dymak® valves.



Utilizing Espy® sensor leak detection and position indication protects your system and allows remote system verification.

For More Information

To learn how Espy® sensing components can improve the reliability and automation of your chemical process, contact your local Entegris distributor, or Entegris, Inc.

To review our complete line of sensing and control product solutions visit Entegris' Web site at www.entegrisfluidhandling.com or contact Entegris Customer Service at 1-877-503-0200.

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PERFORMANCE – Unless otherwise agreed to in writing, Entegris reserves the right to make design changes which Entegris believes will improve its products. Entegris may also satisfy customer purchase orders by shipping 90-100% of ordered quantities for nonstandard products when shipping lesser quantities provides Entegris operational efficiencies. Entegris shall only charge Buyer for actual quantities shipped. Entegris' performance shall be excused in the event of strikes, accidents, fires, unavailability of materials and all other causes beyond the control of Entegris.

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