



# IN-1000 CONDITION MONITORING

SAFE. BUILT-IN. COST-EFFECTIVE.



ALLWEILER® HOUTTUIN™  
IMO® WARREN® ZENITH®



## KEEPING THERMAL TRANSFER PUMP SYSTEMS EFFICIENT AND SAFETY FIRST

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Having the tools to conduct predictive maintenance of thermal transfer pump systems is an operating imperative today. That's why plant professionals like you, responsible for reliability, safety and maintenance of these systems, need CIRCOR's IN-1000 automated condition monitoring equipment.

Engineered to keep small problems from becoming disasters, the IN-1000 is an essential tool for total pump system visibility. You can assess expected performance on key indicators such as leak detection and bearing temperature, vibration, suction and discharge pressure against actual performance – and detect anomalies. This enables remedying dangerous seal leaks before they happen.

When you're handling combustible fluids, you can't afford the trouble caused by an unmonitored mechanical seal leak. What you can afford is the safe and cost-effective operation of your plant with an aftermarket investment in the IN-1000, the market's most advanced solution for condition monitoring of thermal transfer pumps.

## SAFETY THAT'S CERTIFIED

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### CONDITION MONITORING WITH OUR IN-1000 IS NOW AVAILABLE FOR DEMANDING AREAS LIKE ATEX

With changing regulations and always evolving requirements, sometimes you need a solution that doesn't just meet your specifications but the ATEX Directive's as well. With the new setup, the IN-1000 Monitoring Device offers peace of mind and is approved for use in ATEX zones: Zone 2, Category 3G, Gc.



## THE POWER OF EVIDENCE-BASED DECISIONS

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With the IN-1000 condition monitoring solution, your facility can remain up and running at its best, reducing total cost of ownership. That's because data is always available to help:

- › Steer clear of consequential damages from dangerous seal leaks and worn-out bearings
- › Avoid unplanned production downtimes
- › Pre-plan maintenance and repairs
- › Extend maintenance intervals
- › Potentially reduce insurance premiums as overall safety profiles improve

Mechanical oscillations of thermal transfer pump systems are monitored and compared continuously to threshold values defined by ISO 10816-3 and 10816-7 and ANSI/HI 9.6.4, and in comments in API 610. The insights provided may lead to (1) immediate intervention or shutdown, (2) scheduling of maintenance or (3) initiatives to optimize the system.

Examples of industries whose plant professionals can immediately benefit from this built-in safeguard of system availability include:



OSB MILLS



NONWOVEN TEXTILE PRODUCERS



CHEMICAL MANUFACTURERS



ASPHALT, ROOFING MANUFACTURER



FOOD PROCESSORS, BAKERIES



## MORE THAN JUST A BOLT-ON DEVICE

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IN-1000 is a retrofit modular solution for central condition monitoring. With one master and up to 10 satellite modules per network, it is possible to monitor as many as 11 pumps. Built-in features include:

### TWO-LEVEL WARNING AND ALARM SYSTEM

Maintenance personnel receive warnings and alarms about disturbances or irregular operating conditions, accompanied by visualizations of sensor values from all pumps on a color touchscreen. Messages can be forwarded in real-time via Ethernet or wirelessly if your master device is connected to a wireless router.

### LOGGING OF SENSOR DATA

Sensor data can be exported to a spreadsheet for evaluation; load profiles, pressure curves or temperature trend curves can be generated to facilitate optimization planning.

### REMOTE MONITORING

With the Vijeo Design'Air smartphone app, an integrated web server and a router, remote access to the system is easy. It's like having 11 pumps in the palm of your hand.

## REMOTE MONITORING MADE EASY

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Green – Normal operation

Yellow – Indicates warning of possible machine failure

Red – Indicates alarm conditions





## THE TECHNICAL DETAILS

MASTER DEVICE	SATELLITE DEVICE
Industry-standard terminal assembly	Industry-standard terminal assembly
Own power supply (100-240VAC)	Own power supply (100-240VAC)
Enclosure rating IP 54 / NEMA 4	Enclosure rating IP 54 / NEMA 4
<b>INTERFACE:</b>	
Color TFT lcd 320x240mm	
2x digital inputs	
1x PT-100/temperature	
2x analog inputs	8x analog inputs (4-20 mA)
3x digital outputs (relay)	3x digital outputs (relay)
<b>COMMUNICATION:</b>	
Ethernet/router (web browser)	
Modbus RTU, to other master and/or up to 10 satellites	Bus length 1-100m/1-328 ft (device to device)

### IN-1000 COMPATIBILITY

- › Existing or new Allweiler ALLHEAT and NTT pump installations
- › Replacement of competitors' EN733 compliant pumps with equivalent NTT or ALLHEAT size
- › Compatible with common standard sensors (analog and digital)



## COMPLIANT WITH ALL RELEVANT INDUSTRY STANDARDS

The heart of IN-1000 condition monitoring equipment – its main controller – meets the following widely recognized standards:

- › UL 508 for Industrial Control Equipment
- › CSA C22.2 No. 142 for Process Control Equipment

The equipment also meets:

- › Standards governing nonincendive electrical equipment for use in Class I, Division 2 hazardous locations: ANSI/ISA 12.12.01 and CSA C22.2 No. 213
- › Electrotechnical standards for the design of software (IEC 61131-3), and hardware (IEC EN 61439-2)

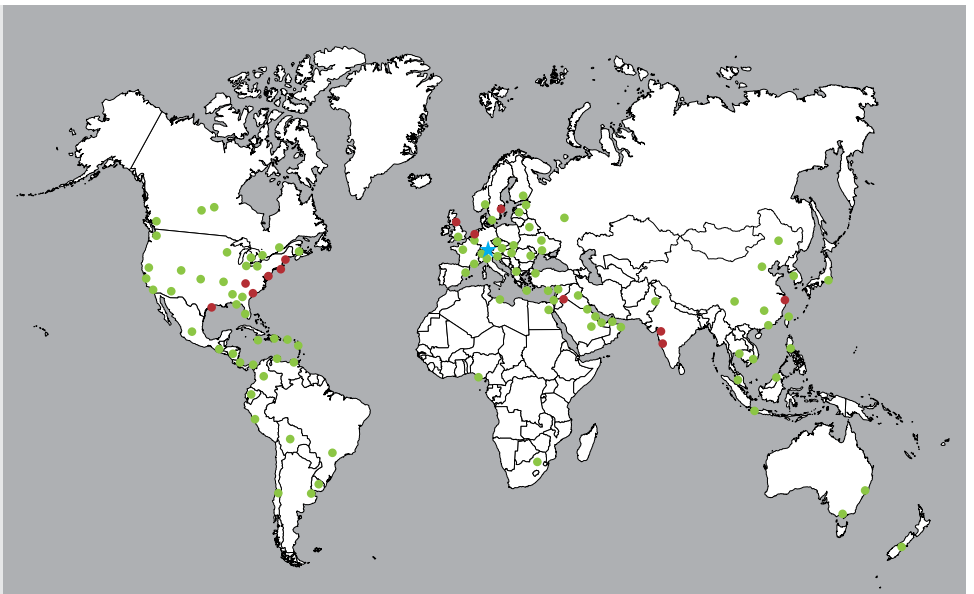
## FORESIGHT IS 20/20 WITH IN-1000

Pump seals are the only rotating component of thermal transfer pump systems between the hot combustible fluid and air. That is why many thermal fluid fires involve leaking seals, and it's a risk that you can manage. With IN-1000 condition monitoring, plant professionals can directly address operating safety, increase machine efficiency and reduce total cost of ownership in one complete solution.

## REDEFINING GLOBAL SOLUTIONS

CIRCOR maintains regional engineering and manufacturing facilities, along with a global network of distributors, to support you around the world and around the clock.

-  Global Headquarters
-  Regional Manufacturing and Engineering Support Facilities
-  Global Distributor Network





CIRCOR is a market-leading, global provider of integrated flow control solutions, specializing in the manufacture of highly engineered valves, instrumentation, pumps, pipeline products and services, and associated products, for critical and sever service applications in the oil and gas, power generation, industrial, process, maritime, aerospace, and defense industries.

## Excellence in Flow Control

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