

WellWatcher Hyperion

Portable DTS acquisition system

APPLICATIONS

- Remote observation wells
- SAGD and thermal recovery in well monitoring
- Data center environmental monitoring

BENEFITS

- Tolerates installation in remote or in hostile environments without air-conditioned enclosures
- Obtains DTS temperature along a deployed fiber to alert for changes in well and fluid properties
- Enhances efficiency using power from solar energy
- Installs easily with a single system required and no ancillary PC

FEATURES

- Single-well solution
- Small form factor
- Broad operating range for deployment in remote and hostile environments
- Lightweight for easy transportation during mobile applications
- High resolution along length of fiber pinpoints a source of heat down to nearest 3.9 ft [1.2 m]
- Modbus® output up to 2,000 registers
- Seamless connectivity with WellWatcher Connect* wellsite data transmission system applications to simplify data transmission via satellite and mobile

The WellWatcher Hyperion* portable DTS acquisition system uses Raman spectroscopy along these fibers to measure the temperature at each fiber location. The fiber can be deployed in a loop for double-ended measurement, or the WellWatcher Hyperion system can be used in single-ended mode on two separate fibers.

Fiber-optic temperature sensing technology enables many hundreds, or even thousands, of points to be monitored using fiber as the sensing medium. Signals are immune to electromagnetic interference, thereby ensuring integrity of readings from electrically noisy areas. As no electric current is used in the sensing fiber and the fiber is a relatively inert and dielectric (nonconducting) medium, it is a suitable technology to use in hazardous environments. The flexible nature of fiber ensures ease of installation even in environments where there is poor access.

The WellWatcher Hyperion system does not require a stand-alone PC to convert from the optical signal to digital data; instead, the WellWatcher Hyperion system is fully compatible with industry standards and can write directly to Modbus/PLC registers. The WellWatcher Hyperion system is also compatible with the WellWatcher Connect system, which simplifies data delivery across firewalls and geographic locations.



WellWatcher Hyperion system.

WellWatcher Hyperion

WellWatcher Hyperion System Specifications

Distributed optical sensing

Type	Single-ended (SE) or double-ended (DE) DTS
Number in one station	1 DE or 2 SE
Total fiber length, mi [km]	2.5 [4]
Maximum optical loss, dB	12 dB (reference coil to reference coil)
Calibration error, degF [degC]	±1.8, 32 to 176 [±1, 0 to 80] DE ±5.4, 32 to 302 [±3.0, 0 to 150] DE ±9.0, 32 to 482 [±5.0, 0 to 250] DE
Temperature resolution, degF [degC]	±0.2 [0.1]
Minimum measurement time, s	30
Spatial resolution, ft [m]	<3.9 [1.2]

Physical characteristics

Dimensions, in [mm]	15 × 10 × 2 [380 × 250 × 52]
Weight, lbm [kg]	8.8 [4]
Operating temperature, degF [degC]	32 to 122 [0 to 50]
Nonoperating temperature, degF [degC]	-40 to 167 [-40 to 75]
Fiber characteristics	Multimode 50/125/250 fiber

System installation

Laser safety	Class 1 to IEC/EN60825-1: 2007
Certification and compliance	IEC/EN60825-1, EN61326-1:2013, UL61010/CSA-C22.2 No. 61010, FCC, FDA, IECCE CB Scheme, CE, and MET compliant
Power consumption	20 W peak
Input power	15–30 VDC, 2 A

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