



WISTCryo example device

Distributed temperature sensing based on fiber Bragg grating (FBG) technology is widely adopted due to its high speed and accuracy, dense multiplexing, small form factor, immunity to EMI and safety within explosive environments. For example, Proximion's [WISTHeat](#) array sensors have found use in many high temperature industrial control applications.

There is great interest in exploiting these FBG measurement benefits in cryogenic applications, particularly where liquid natural gas (LNG) or liquid hydrogen (LH2) are processed or stored. However, the measurement sensitivity of conventional FBGs falls significantly at cryogenic temperatures, and at LH2 temperatures of ~20K the sensitivity is too small to be of use. Proximion has addressed this unmet need with the WISTCryo array sensor development which provides high accuracy, repeatable measurements down to 20K and below.

Key Features

- Unparalleled measurement performance
- Multi-Point Sensor for process & tank gauging
- Fiberoptic for robustness & EX safety
- Small Size for installation in tubes & fast response

Applications

- Energy
- Oil and Gas
- Aerospace
- R&D

WISTCryo is a customised sensor, manufactured to suit the application needs. For guidance, some typical specifications are set out below.

WISTCryo Package	Typ.
Sensor probe construction	Fiber in metal or polymer tube, 1/8" [3mm] diameter
Number of sensors per array	Typ. 16, up to 100
Temperature sensing range ^{a)}	10K [-263C] to room temperature
Temperature measurement accuracy ^{b) c)}	0.2K @room temperature, 1K @20K
Temperature measurement resolution ^{b) c)}	2mK @room temperature, 10mK @20K
Response time ^{c)}	<1s

a) <10K available with reduced measurement performance

b) When used with [WISTSense Ultra](#) interrogator

c) Preliminary, based on early prototype testing