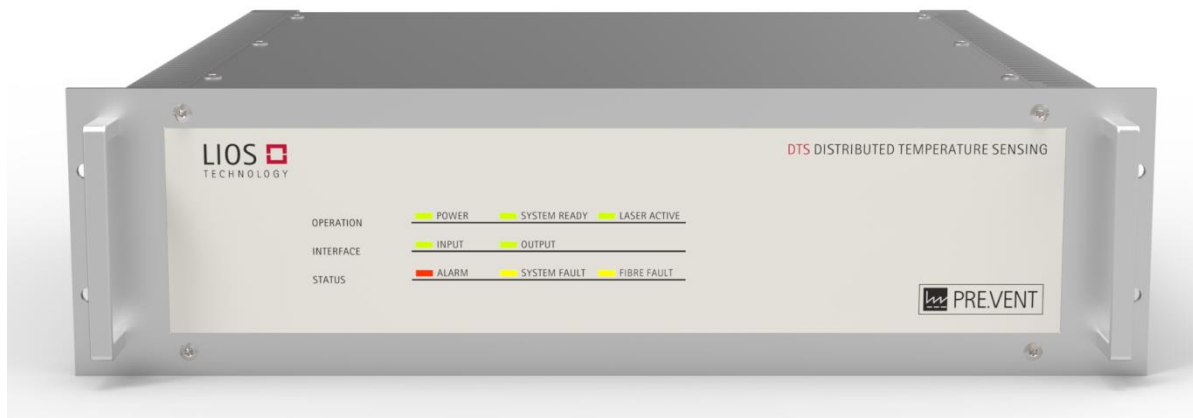


## Long-Range Distributed Temperature Sensing System



### PRE.VENT® DTS for Distributed Temperature Monitoring in Industrial Assets

The long-range OTS4 series of the field-proven PRE.VENT DTS family is based on a proprietary Brillouin measurement technology. Its major advantages are the excellent distance range and measurement performance in combination with the passively cooled (fan-less) and maintenance-free industrial design of the PRE.VENT DTS family. Especially at distances above 20km, it exhibits a superior temperature resolution and accuracy in comparison to other technologies. The excellent performance is achieved in both, single- and double-ended fibre configurations. The OTS4 series is designed for autonomous operation without PC and comprises an internal SSD (solid state drive) for storage of measurement and event data.

The OTS4 series is fully integrated with the Charon4 software suite for easy configuration, long-term data storage and enhanced visualization that also serves other PRE.VENT DTS series. Data from different series of DTS and other temperature sensors are easily combined in the database to enable an efficient monitoring of complex industrial assets using multiple DTS with different distance range and also point temperature sensors.

A PRE.VENT OTS4 controller simultaneously monitors thousands of locations along the entire length of gas and heated liquid pipelines, direct electrical heated flowlines, liquid natural gas production, storage and transport facilities as well as subsea umbilicals, risers and flowlines. Leak detection and prevention of any other unwanted operation conditions (e.g. blockage at temperatures falling below critical limits) are examples of key functions of the temperature monitoring system.



## Distance Ranges of OTS4 Models

PRE.VENT OTS4-300, -400, -500, -600, -700	30 km, 40 km, 50 km, 60 km, 70 km
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## Optical Data

Optical channels (internal)	1, 2, 3, 4, 6, 8, 9, 12 or 16
Fibre configuration	No loop or termination required
Optical connector(s)	E2000 / APC
Fibre types	Single-mode 9/125, e.g. ITU-T G.652, G.655 or G.657
Laser classification	Class 1M (IEC60825-1), eye-safe wavelength

## Measurement Performance\*

Sampling Interval	0.25, 0.5 or 1 m
Spatial resolution	1, 2, 3 or 5 m
Temperature resolution, minimum	< 0.1°C
Temperature resolution @ 10dB optical loss	< 1°C
Temperature accuracy	2°C**
Measurement time	1 to 20 min

\* Measurement performance parameters are interdependent

\*\* after calibration on a loose fibre without strain

## Data Storage / Communication / Interfaces

Internal SSD storage	8, 16, 32 or 64 GB
Communication interfaces	2x Ethernet TCP/IP, USB, (optional: WLAN, GSM)
Communication protocols (options)	XML, MODBUS, DNP3, IEC60870, IEC61850
Programmable inputs / outputs	4 / 10
Fixed outputs	Collective fault and alarm
I/O board (optional***)	4 inputs / 12 outputs
Analogue sensors interface board (optional***)	4x Pt100, 2x 0(4)-20mA and 2x 0-10V
Analogue outputs (optional external module)	4 - 20mA

\*\*\* 2 optional boards can be installed in total

## Mechanical Data

Rack space	19-inch rack, 3 height units
Dimensions (H x W x D)	13.3 x 43.9 x 40.3 cm
Weight	15kg

## Electrical Data

Power consumption, max. (DC / AC options)	40W / 45W
Operating voltage (DC-1 option)	12 ... 24 V DC (-15%/+10%)
Operating voltage (DC-2 option)	24 ... 48 V DC (-15%/+10%)
Mains voltage (AC option)	100 ... 240 V AC 50..60 Hz / 110... 220 V DC (-15%/+10%)

## Environmental Conditions

Storage temperature	-40°C to +85°C
Operating temperature	-10°C to +60°C
Humidity (relative)	≤95 % (non-condensing)
Protection class (IEC 60529)	IP51

## Conformity to Standards

Electrical safety	IEC/UL 61010-1, LV directive 2014/35/EC, CAN/CSA-C22.2
EMC****	EN61326-1, EN61000-6-2,3,-4-2,3,4,5,6,8,11,-3-2,3, FCC 47 CFR Ch.1 Part15
Hazardous substances, waste	RoHS directive 2011/65/EC, WEEE directive 2002/96/EC
Environmental testing****	IEC 60068-2-6,14,27,30
Functional safety (IEC61508)****	Hardware design compliant to Safety Integrity Level SIL2
Explosion safety (option)****	EX II (1) G [Ex op is T4 Ga] IIC / II (1) D [Ex op is Da] IIC / I (M1) [Ex op is Ma]

\*\*\*\* Qualification in process



## Prevent Hazards in Industrial Assets

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