POWER TECHNOLOGIES™
Private Limited

PTSenR™ Smart Grid

CATALOG

24 / 7 / 365 Predictive Temperature & Partial Discharge

Product Overview

Each day, the electrical standards become more rigorous in order to ensure the continuity of production processes and especially human safety and security.

Power Technologies created the self-powered energy harvesting sensor, which aims to monitor and protect electrical assets through enhancing reliability and as an early detection for potential problems that could lead to catastrophic incident.

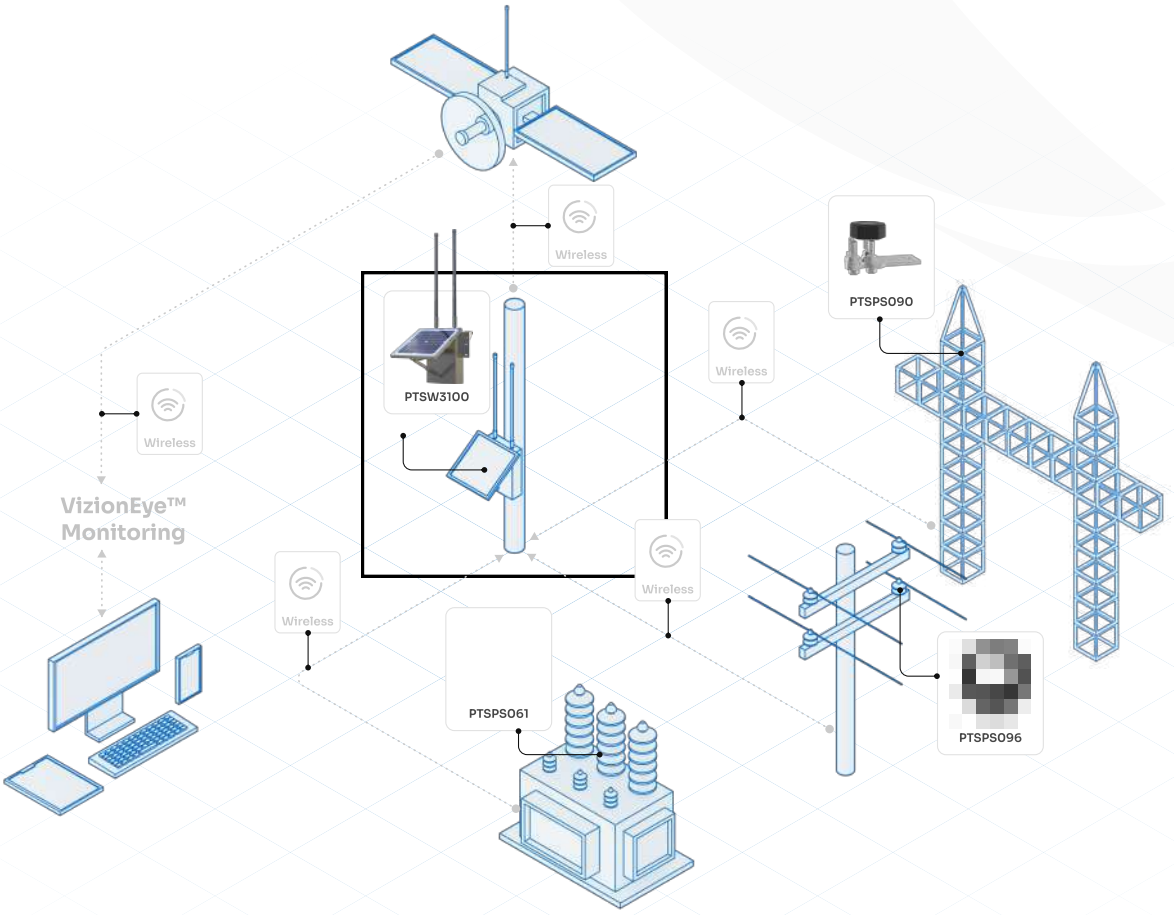
The line comprises of continuous monitoring based on a network of sensors .

These sensors was specially design to provide complete integral monitoring solutions for extra high-voltage and low-voltage distribution network including LV distribution room, substation and power grid, which demands high mission-critical components , dispose of short space with low cost, ensuring space and cost-saving.

The sensor is used to monitor dynamic and static contact connection of electrical connection such as the bus-bar joints, the cable connector, the transformer inlet and outlet and other key parts that are easy to cause heat due to wear and tear or environmental elements .

IDCA SDS CERTIFIED SYSTEM SYS286411022 G1.G2.G3.G4.Applicable

SMART GRID



Data acquisition

Effectively monitor the temperature of each critical sensor point when the important power equipment in operation, collect and display the temperature value of each sensor point.

Threshold algorithm setting, over limit alarm

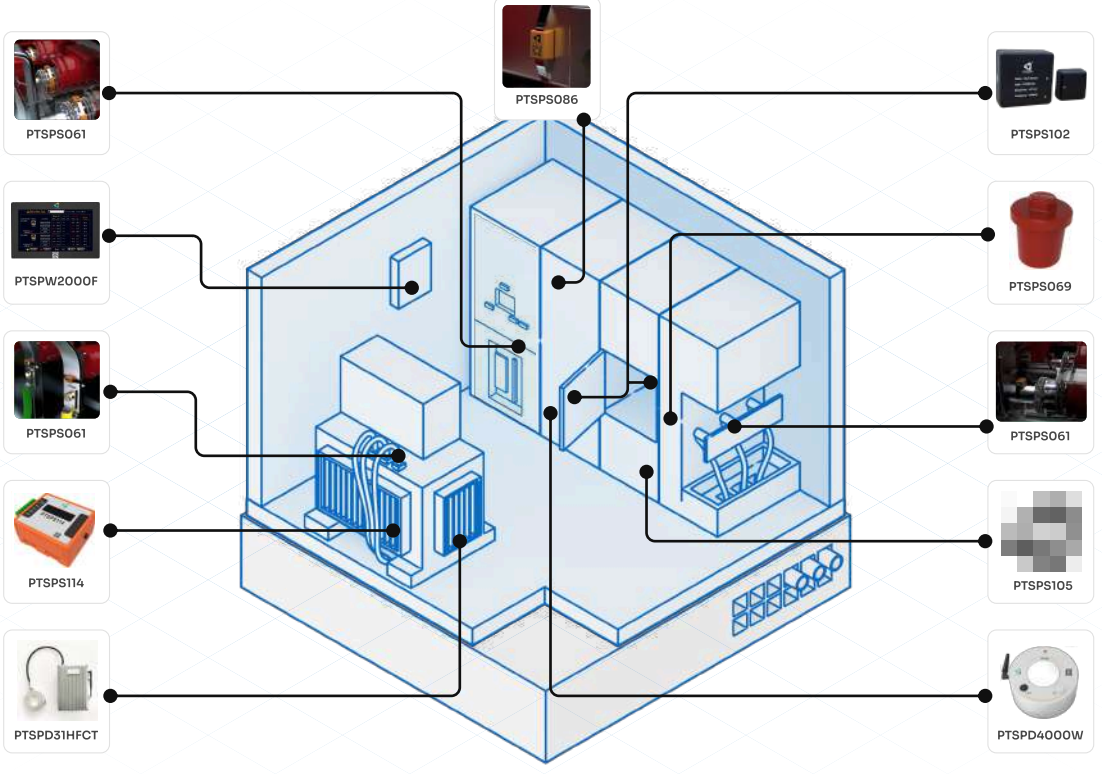
The temperature threshold of the monitored point can be set, when the temperature of certain point exceeds the set threshold, the system will automatically sent out audible, visual alarm signal, SMS and email.

Data Storage, information upload

The monitor host has the function of data visualization, fault identification.
It can also upload all the information into the BMS, SCADA, DCIM, or server computer via Modbus, Ethernet, Optical Fiber.

High Tension Switch Gear

- Indoor & outdoor isolation switches in substations
- SF6, AIS, GIS Circuit Breaker Contact
- Inlet and outlet connector of main transformer
- High voltage Switchboard, circuit breaker contact
- Cable connectors, bus-bar joints
- Bus coupler, Busbar incoming and outgoing
- Critical vertical to horizontal bus connections
- All shipping / transport joints
- Critical cable connections



PTSenR™ Systems: Increase uptime and Reliability

PTSPS061 Sensor

IP68 + Energy Harvesting (EH) + Low Consumption + Wireless

- World Smallest IP68 flame retardant (V0) plastic wireless sensor.
- Real-time monitoring the temperature of electrical equipment, early fault warning and alarm.
- Energy Harvesting maintenance and calibration free, pocket-sized
- Low cost operation & maintenance, improve automatic management level.

Wireless transmission – Zigbee Green Protocol

- Wireless thermal solution (short distance + long distance).
- Data transmission distance up to 500m (barrier free) and 20m (in-metal enclosure).
- Access to cloud directly through gateway, supporting ODM & OEM.

High-level management, low Operation cost

- Low current electromagnetic energy harvesting with power management chip.
- Access to cloud via WEB GUI at any location.
- 20-years in-service life with maintenance-free calibration free.

For more information

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Why Utilizing Continuous Temperature Monitoring

Advantages with Continuous Temperature Monitoring

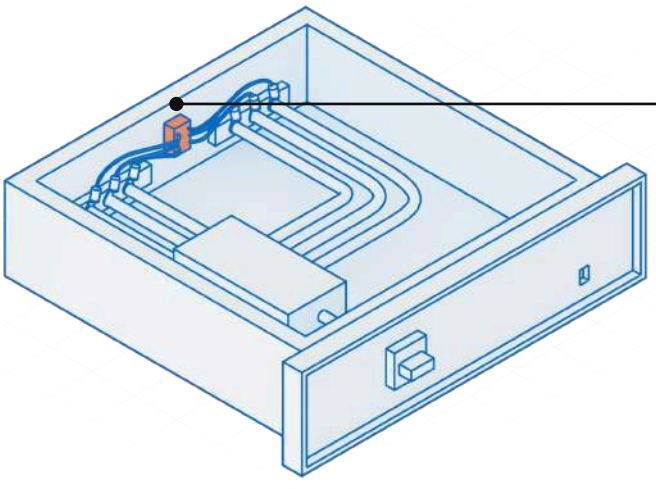
- Lower operating costs and lesser Malfunctions or Failure
- Continuous, Reliable online monitoring
- 24/7/365 Partial discharge & temperature monitoring overcomes this limitation and provides an instant indication that catastrophic failure may be imminent.
- Significant savings during operation
- Condition-Based Maintenance
- Early Detection and quick rectification of errors
- Modular Design with optional packages available for individual expansion
- Reduced Downtime, even with an aging equipment.

- No Cables Fast Interagtion
- Predictive Diagnostics
- Compliance with the Standards
- Artificial Intelligence Analytics
- Continuous Real-Time Thermal Data
- Avoids Panel Opening
- Replaces Traditional Thermography
- Communication Network
- ARC FLASH Mitigation
- Increase Facilities Safety
- 433MHzz Wireless
- EH Technology Self-Powered
- Maintenance & Calibration-free
- Real-time Analytics Monitoring (Early Warning)
- CLOUD Platform (Remote Access)

Motor Control Center (MCC)

- Quick and Easy Fit to any MCC or Tap out unit
- Fits inside drawer
- Full, Half, Quarter drawer cable lengths
- Warning and Critical thermal alarms
- Temperature Phase imbalance alarm for motors
- Monitors critical connections at rear of drawer
- No Power Required
- Dry contact relay alarm enables remote alarm on client network
- Alarms and Temperature Data available in Modbus protocol for pass through to client system

PTSPW2000F – E

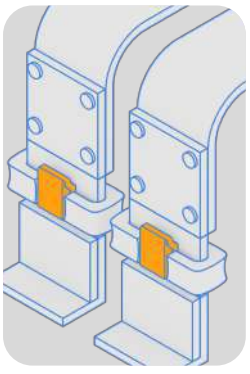


PTSPS075

Low Voltage Switchboard

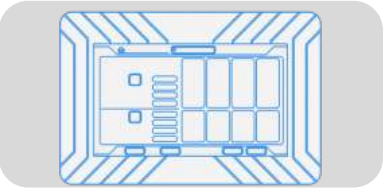
01

EH Wireless Sensors



Our patented smallest IP68 Energy harvesting Sensors have lifetime calibration and maintenance-free and require no external power. These are placed within the enclosure to directly monitor key bus-bar joints through phase to phase ΔT measurement.

03



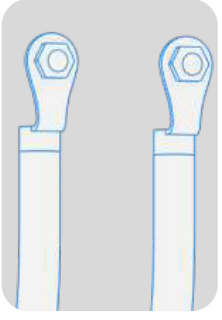
Human Machine Interface

Our HMI facilitate the collection of data from the EH and cable sensors and transmit it to the gateway via 433Mhz Zigbee Green protocol. Top features are easy integration and connection to your network BMS/SCADA/EPMS via RS485 Modbus, RJ45 sockets and Dry Contacts

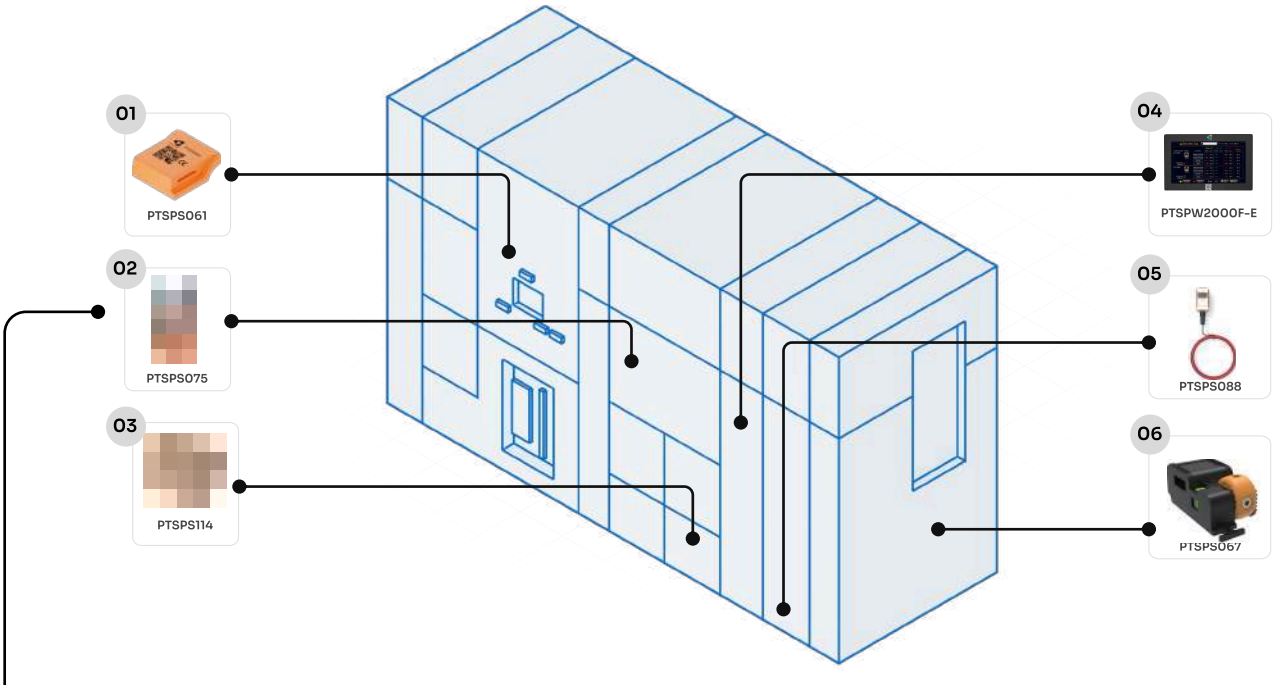
02

Cable Sensors

Our patented cable sensors secured to the cable monitors to monitor cable termination through phase to phase ΔT measurement.



04 Integration Options



04 Integration Options

PTSPW2000F -G

4G / ETHERNET

BMS / SCADA / CLOUD

PTSPW2000F-E

MODBUS RS485

BMS / SCADA / CLOUD

ETHERNET

MOBUS RS485

LOAD RELATED ALARM

PRE-ALARM

HIGH ALARM

RS485 RS485 RS485

PTSPS1810

PTSPS1810

PTSPS1810

PTSPW2000F

PTSPS1807

MODBUS RS485

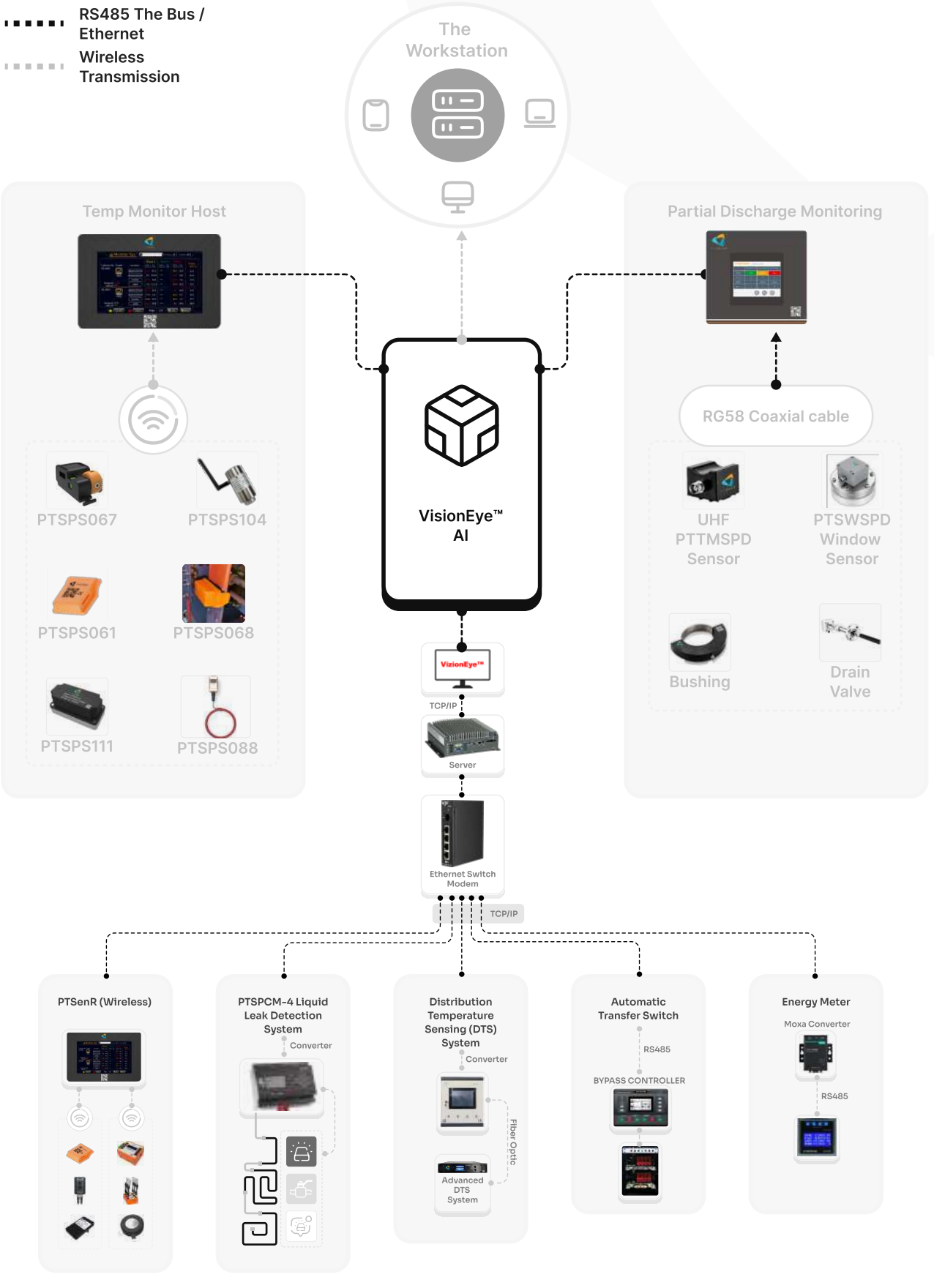
ETHERNET

Raw Data to

BMS / EPMS / CLOUD

RS485 The Bus / Ethernet

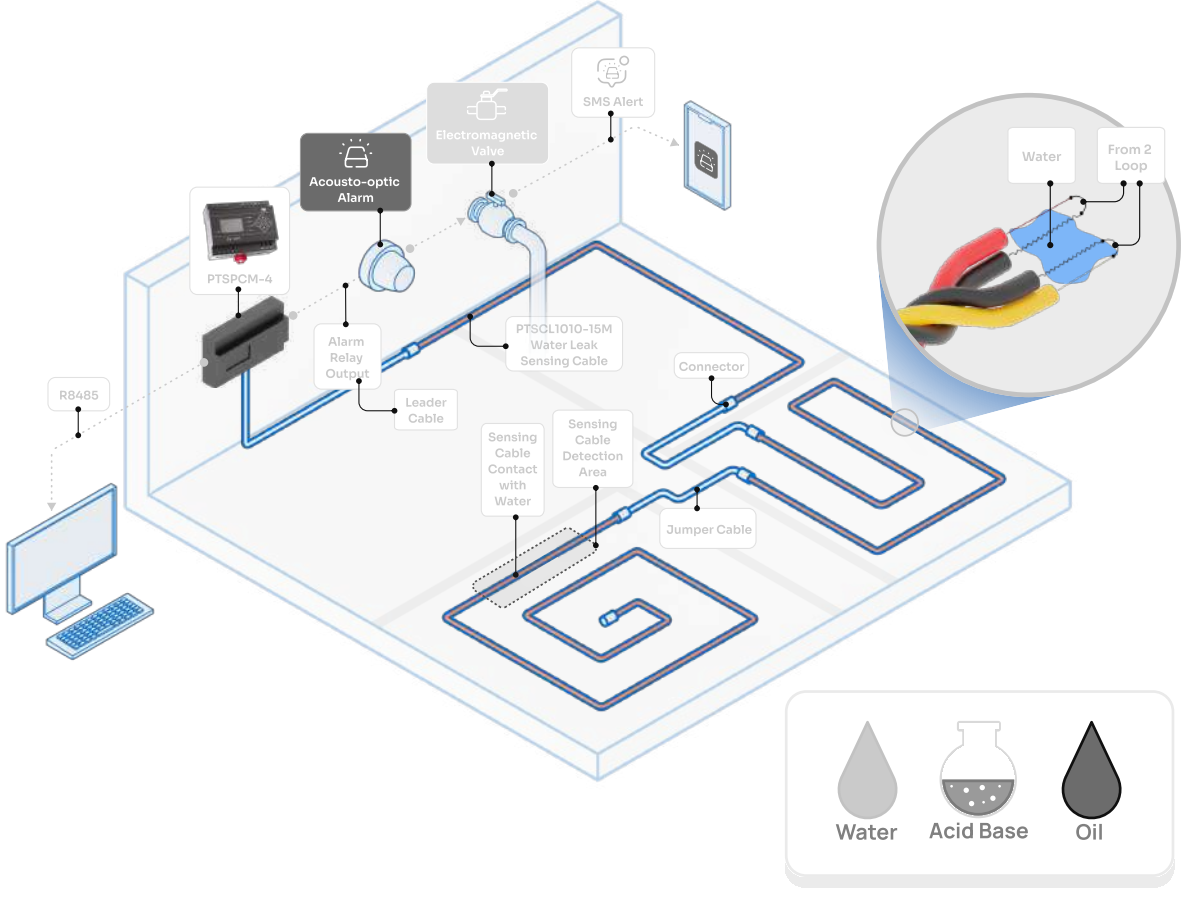
Wireless Transmission



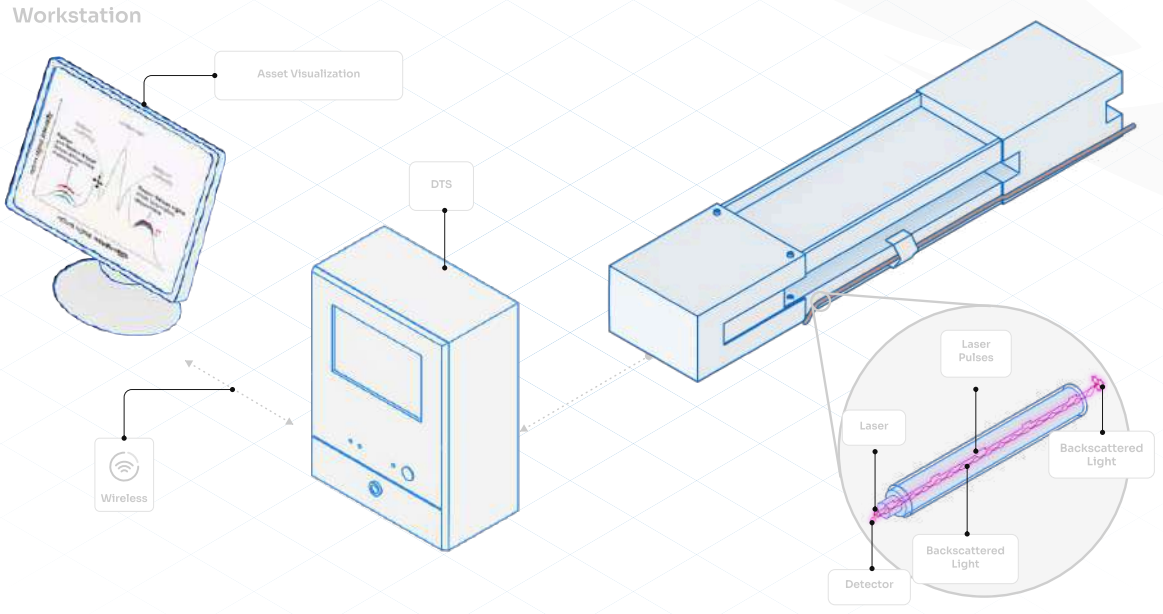
PTSPCM-4 Liquid Leak Detection System

PTSenR™ PTSPCM-4 locating liquid leak relay with LCD and can detect the area up to 1500 meters, monitoring of environmental leakage, once the leak is detected, the sensor immediately alarms and accurately locate the leakage position and trigger the alarm. The specific location of leakage can be seen through the LCD display screen. The relay contact signal and RS485 signal output by the relay can be integrated with various monitoring systems to establish remote monitoring.

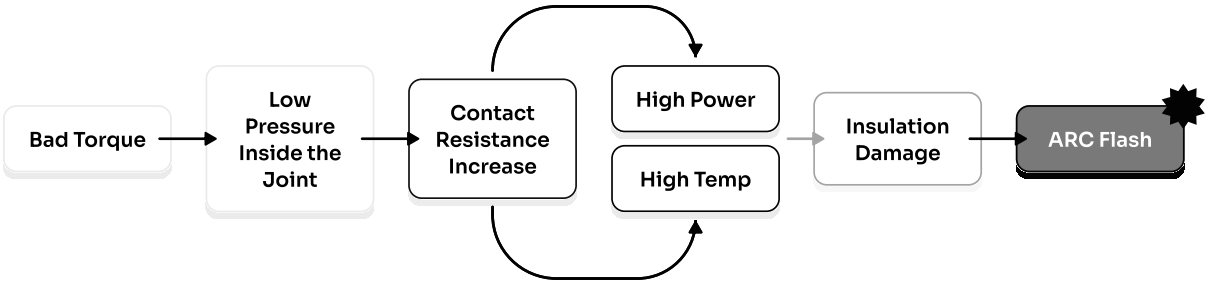
PTSPSCM-4 relay connects with PTSCL1000 sensing cables, and once the liquid is detected, the leakage data can be uploaded to the host computer through RS485 signal, accurately locate the leakage position and trigger the relay action. Relay output signal can be used to control peripheral equipment such as acousto-optic alarm, automatic valve, and intelligent alarm, etc.



Basic Distributed Temperature System (DTS)



Thermal Avalanche Effect



Basic Distributed Temperature System involves the use of Raman Effect and optical Time Domain Reflectometry to detect potential issues or abnormalities in busducts before they can lead to failures or disruptions.

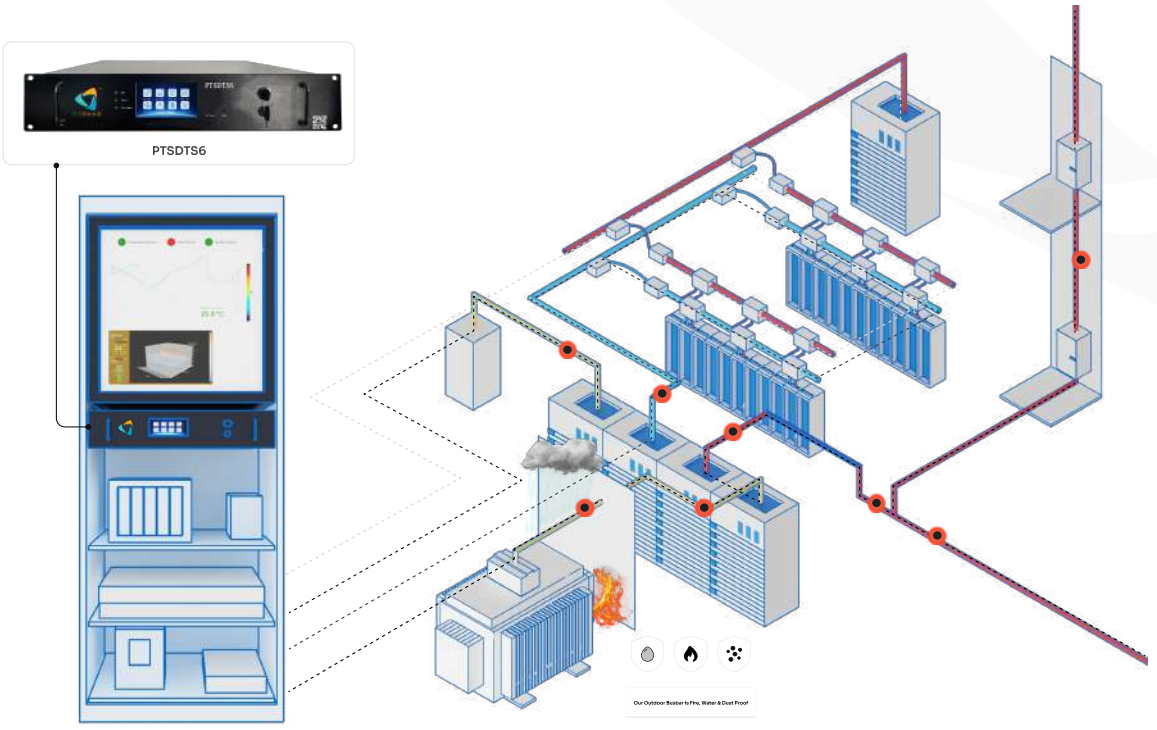
Benefits of having this system

- 4 channel with 2.5km per channel
- ΔT measurement and Fixed Temperature
- Easy Integration to BMS
- Modbus RS485
- 24 Dry Contact Alarm

Application

- DTS systems are widely used for monitoring temperature along pipelines to ensure the integrity of critical infrastructure in the oil and gas sector.
- DTS systems play a crucial role in monitoring temperature gradients in infrastructure components such as bridges, dams, tunnels, and railways. They help to enhance the safety and reliability of critical infrastructure assets.

Advanced Distributed Temperature System (DTS)



Advance Distributed Temperature System aids condition monitoring by involving the use of various techniques and technologies to detect potential issues or abnormalities in busducts before they can lead to failures or disruptions.

Benefits:

- Single mode Fibre Optics
- 4 /8/16 Channels
- Single Channel up to 5km/10km/20km
- 3 level of Alarm Detection
  Level 1 - Static
  Level 2-Dynamic
  Level 3-Pattern Recognition

Advantage of Fiber Optic Sensing

- Low Cost
- No Maintenance
- Fail safe
- Accurate stable and Linear
- Resistance to Electricity

Application:.

1. Cable trench/oil and gas pipeline anti-breakage monitoring
2. Pipeline leakage monitoring and perimeter security
3. High-speed rail, underground, and airport monitoring
4. Photovoltaic temperature monitoring
5. Fire detection

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