



DVS-WT510 Solar LoRaWAN Node

Harnessing ambient sunlight to drive multi-protocol wireless telemetry, the DAVISOL DVS-WT510 Solar delivers long-range pressure acquisition across challenging industrial terrain. Featuring embedded diagnostic algorithms and an IP68-sealed housing, it keeps isolated pipelines and pressure vessels continuously connected to your cloud network.



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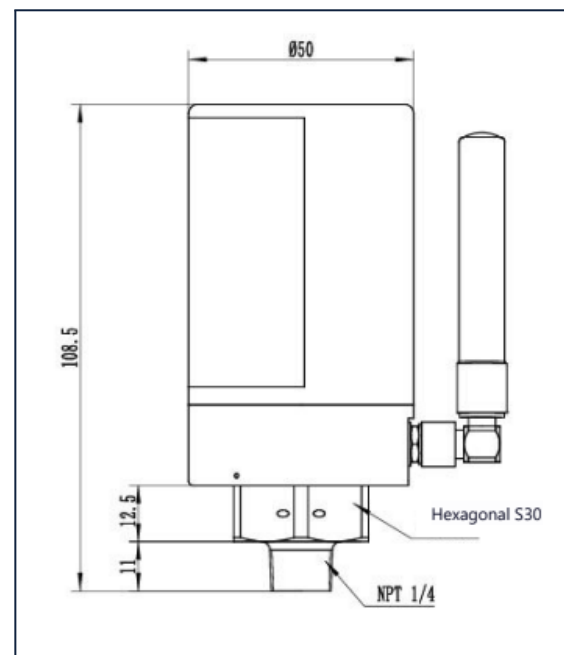


Some Product Applications

- Smart municipal water networks & leak detection
- Oil & gas wellheads, sub-surface pumps & remote pipelines
- Wind turbine hydraulic & gearbox lubrication pressure
- Environmental hydrology & flood prevention monitoring
- Heavy machinery, locomotive braking & industrial compressors
- Chemical & petrochemical processing reactors (Zone 0)

Principle and Characteristics

This intrinsically safe solar node combines high-precision gauge pressure sensing with multi-protocol wireless connectivity (LoRaWAN, NB-IoT, Bluetooth). Featuring an integrated solar panel and a high-capacity 19000mAh lithium battery, it achieves multi-year autonomous operation. Constructed with a 304 stainless steel pressure inlet and IP68-rated PC enclosure, it provides dynamic over/underpressure alerting, offline data caching with auto-retransmission, and remote cloud configuration via mobile app or AT commands.



Technical Specifications

Category	Parameter	Specification
Pressure Sensing	Measurement Range	0 to 10 MPa Optional (Gauge Pressure)
	Measurement Accuracy	Normal Temp: $\leq \pm 0.5\%$ FS Full Temp Range: $\leq \pm 1.0\%$ FS
	Overload / Safety Pressure	Overload: 1.5x FS Safety/Burst: 2.0x FS
	Leak Rate	$\leq 1 \times 10^{-7}$ Pa·m ³ /s
	Measured Medium	Oxygen, Helium, Nitrogen, Kerosene (gaseous & liquid)
Wireless & Power	Communication Protocols	LoRaWAN (868/915 MHz), NB-IoT, Bluetooth
	Transmission Range	Up to 2.5 km (Line of sight)
	Power Supply	Hybrid Solar Panel + 19000mAh Rechargeable Lithium Battery
	Power Consumption	Sleep mode: $< 60 \mu\text{A}$ Data Tx/Rx: $< 160 \text{ mA}$
	Battery Lifespan	3 to 5 years (Autonomous solar-assisted extended runtime)
Environmental & Mechanical	Hazardous Area Approval	Zone 0, Category IIC gas environment (Ex ia IIC T4)
	Operating Temperature	-40°C to 85°C
	Protection Rating & Build	IP66 / IP67 / IP68 sealed; 304 Stainless Steel & PC Enclosure
	Mechanical Connection	NPT 1/4 male thread with security fuse wire hole

Category	Parameter	Specification
	Dimensions & Weight	Ø50 mm x 108.5 mm Weight: < 500 g

A full suite of operational accessories, including LoRaWAN gateways, high-gain antennas, replacement lithium batteries, and thread adapters, is available through DAVISOL.

R&D and Customization

At **DAVISOL**, we understand that standard off-the-shelf solutions don't always meet the rigorous demands of specialized field applications. Our dedicated R&D engineering team stands ready to deliver bespoke configurations of the DVS-WT510 Solar tailored precisely to your operational needs.

From proprietary mesh protocol stacks and custom edge-computing anomaly detection algorithms to specialized wetted materials (such as Hastelloy or Monel for extreme media), we adapt our technology to fit your exact operational requirements.

DAVISOL — Engineering that delivers.