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Scalable Solution Designed for the Assessment and Monitoring of Solar Resources in Solar Power Plants

DTN ObsConnect is a complete range of professional grade IoT-based observation stations for weather and environmental monitoring. It provides a flexible and scalable end-to-end solution for the deployment and management of all kind of weather and environmental observation networks.

DTN ObsConnect Solar Resource Assessment (SRA) stations and Solar Resource Monitoring (SRM) stations are specially designed for providing real-time observations during the entire life-cycle of a solar power project.

DTN ObsConnect stations feature a diverse array of smart sensors from leading brands, collecting and securely publishing observations to the DTN MetConsole® Cloud.

Additionally, our Smart Gateway performs statistical calculations, stores data locally, and seamlessly integrates with local SCADA Systems via Modbus TCP, RESTful API, HTTPS, and FTP.

Color-coded and type-coded connection system for a plug-and-play error-free installation.

Embedded web application for seamless configuration and monitoring, providing comprehensive operational data on the status of the station.
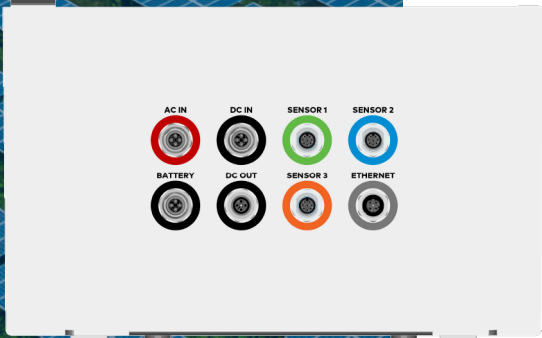
Seamlessly integrated with other DTN SaaS platforms

DTN ObsConnect stations can be deployed stand-alone, connected to a local SCADA System as part of an IEC 61724-1 power plant performance monitoring solution, and/or connected to the DTN MetConsole Cloud, for further processing, cloud-based storage, remote/centralized monitoring, visualization, and data dissemination.
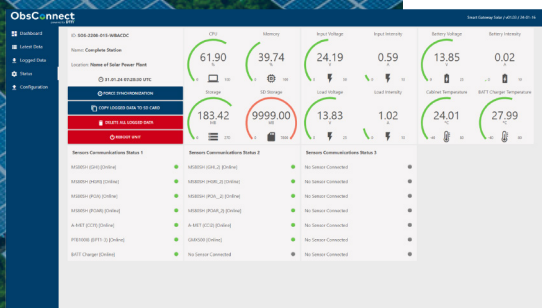
Overview

DTN ObsConnect stations comprehensively address weather and environmental observations throughout the entire solar power plant project life-cycle:

- In the pre-planning phase, ObsConnect SRA stations provide precise local weather data, essential for securing funding and managed seamlessly with the MetConsole Cloud.

- Design and engineering optimize asset positioning and enhance plant efficiency using historical and real-time weather data.

- During construction, ObsConnect SRM stations, with a robust Class A design, monitor plant performance in compliance with the IEC 61724-1 standard.

- In the operation and maintenance phase, DTN solutions enhance plant performance with real-time parameter measurement and asset-specific power forecasts. An IoT approach with LoRaWAN efficiently monitors soiling, while ObsConnect hail stations, alongside a multi-radar strategy, mitigate hail risk through accurate storm tracking and probability assessment.

- During dismantling and recycling, operations are efficiently planned by prioritizing safety and efficiency through weather nowcasting and forecasting. On-site crews are safeguarded with proactive, real-time severe weather alerts.

Technical data for DTN ObsConnect SRA and SRM stations

General features		
Enclosure	10 … 10,000m	
Power	Redundant AC/DC or AC/Solar Integrated Solar MPTT charger	
	Internal 22 Ah battery, external packs for runtime extension	
Electrical protections	Individual over-current protections in all power lines	
	Type 3, 10 KA surge protections in all power and data lines	
Connection systems	Connection system based on industrial IP68 M12 connectors	
	Easy error-free installation thanks to a color-coded and type-coded connectivity solution	
DTN smart gateway (data collection Unit)	2 x Ethernet Ports (10/100 Mbps)	8 x analogue inputs
	2 x RS-485,	5 x digital inputs
	1 x Micro USB, 1 x USB 2.0	4 x digital outputs
	Local data storage, expandable via micro-SD card	
Communications	Data access to latest values via Modbus TCP or RESTful API	
	Historical data download through FTP or HTTPS	
	2 x Ethernet Ports can be configured in 2 Isolated Networks or in "Bridge" mode	
	NTP synchronization and advance routing	
	Internal 3G/4G router option	
	External satellite module option	
Operating temperature	-40 ºC to +70 ºC	
Weight	< 20 Kg (including 22 Ah Battery)	
Dimensions HxWxD	430x330x200 mm	
Data process and configuration		
Sample rate	1 sec (configurable)	
Data configuration and storage	1 sec, 1 min, 5 min, 10 min, 15min, 1 hour, 1 day… (configurable)	
Calculations	Inst. values, Average, Minimum, Maximum, Integral, Standard Dev., Soiling Ratio according IEC 61724-1, Sun Position, DNI/DHI, Custom Calculations	
Configuration and monitoring	Via embedded web server	

Ready to learn more? Contact us today.

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