

Intellect EnFORM

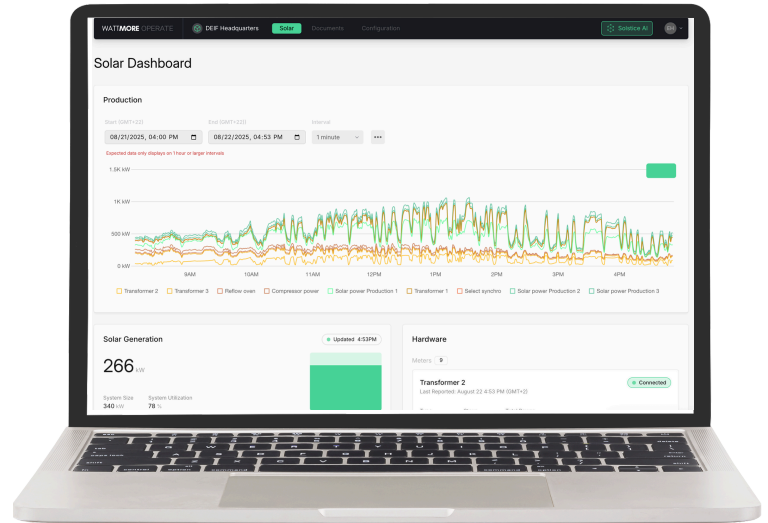
The new standard in solar monitoring

By WATTMORE

Monitor and control solar & storage assets on one unified, AI-powered platform

Intellect EnFORM is a next-generation Solar, Storage and Beyond Data Acquisition System (DAS) that combines secure, ruggedized field hardware with enterprise-grade cloud analytics. EnFORM enables real-time monitoring, control, and optimization of solar, storage, and energy assets across portfolios.

With **Solstice**, our integrated AI Agent, operators gain proactive insights, predictive analytics, automated reporting, and decision-making support for maximizing system uptime, maintenance ROI, and compliance.



Key Features

AI-Powered Monitoring

- Solstice AI Agent for anomaly detection, forecasting, and operator guidance
 - Automatic normalization
 - Real-time weather adjusted estimation vs real-time weather adjusted actual
- Alert prioritization and root-cause analysis
- Predictive maintenance recommendations
- Maximized ROI reactive recommendations

Platform & User Interface

- Secure Web-based dashboard accessible from desktop, tablet, or mobile
- HMI-style plant one-line visualization
- Portfolio-wide reporting and drilldown
- Financial reporting with ROI/service call cost avoidance
- ERP integration (NetSuite, Acumatica, etc.)
- SLA impact tracking

Connectivity & Protocols

- TCP/IP, MODBUS RS485 TCP/RTU, DNP3, MQTT, IEC 61850 readiness

Data Acquisition & Control

- Revenue-grade meter integration
 - Multi-meter support (grid, production, load monitoring)
- Real-time (30 sec granularity) data collection
- Inverter data collection inclusive of faults, alerting & setpoint control
- Transformer monitoring
- Recloser monitoring & control
- Weather station integration (irradiance, temperature, wind, pressure, rain)
- Combiner & string-level monitoring
- Digital In/Out control for any relay-controlled device such as:
 - E-Stop integration
 - Alarms
 - Sirens

SPECIFICATIONS

ELECTRICAL		MECHANICAL	
INPUT VOLTAGE	100 – 277 VAC (single-phase)	ENCLOSURE	NEMA 4X, outdoor-rated, powder-coated steel Operating Temperature: -40 °C to +60 °C Humidity Tolerance: Up to 95% non-condensing Shock & Vibration: Designed to meet IEC/MIL-STD ruggedness standard
INPUT CURRENT	2–5A typical (dependent on meter and add-ons)		
FREQUENCY	50 / 60 Hz auto-sensing		
UPS OPTIONS	User selectable: 8 hours up to 100 hours runtime backup	DIMENSIONS	16" (H) × 16" (W) × 6" (D)
INGRESS PROTECTION	IP66 equivalent	MOUNTING	Wall or pole mount standard
		COOLING	Passive convection; no moving parts
		WEIGHT	~28 lbs (base system, varies by options)

WATTMORE OPERATE

Advent Lutheran Church

Solar

Documents

Configuration

Solstice AI

EH

Solar Dashboard

Production

Total Energy 1,096.19 kWh

Start (MDT-6)08/05/2025, 09:00 AMEnd (MDT-6)08/13/2025, 09:54 AMInterval1 hour

Advent Solar MeterSOLECTRIA 14KW INVERTER 2SOLECTRIA 14KW INVERTER 1Expected Power

Power Generation

Updated 10:15AM

16.11kW

Maximum AC Output29 kWInverter Utilization56 %

Actual Vs Expected

Total Energy 57.97 kWh

Today3 DayWeekMonthYear

Actual PowerExpected Power

Hardware

Meters1

Advent Solar Meter

Connected

Last Reported: August 13 10:15 AM (MDT)

Type	Status	Total Power
Solar Production	Connected	16.11 kW

Inverters2

SOLECTRIA 14KW INVERTER 1

Connected

Last Reported: August 13 10:15 AM (MDT)

Total Power	Voltage (V)	Current (A)
8.25 kW	211.4 213 212.5	22.4 22.7 22.3
Power (kW)		
2.75 2.75 2.75		

SOLECTRIA 14KW INVERTER 2

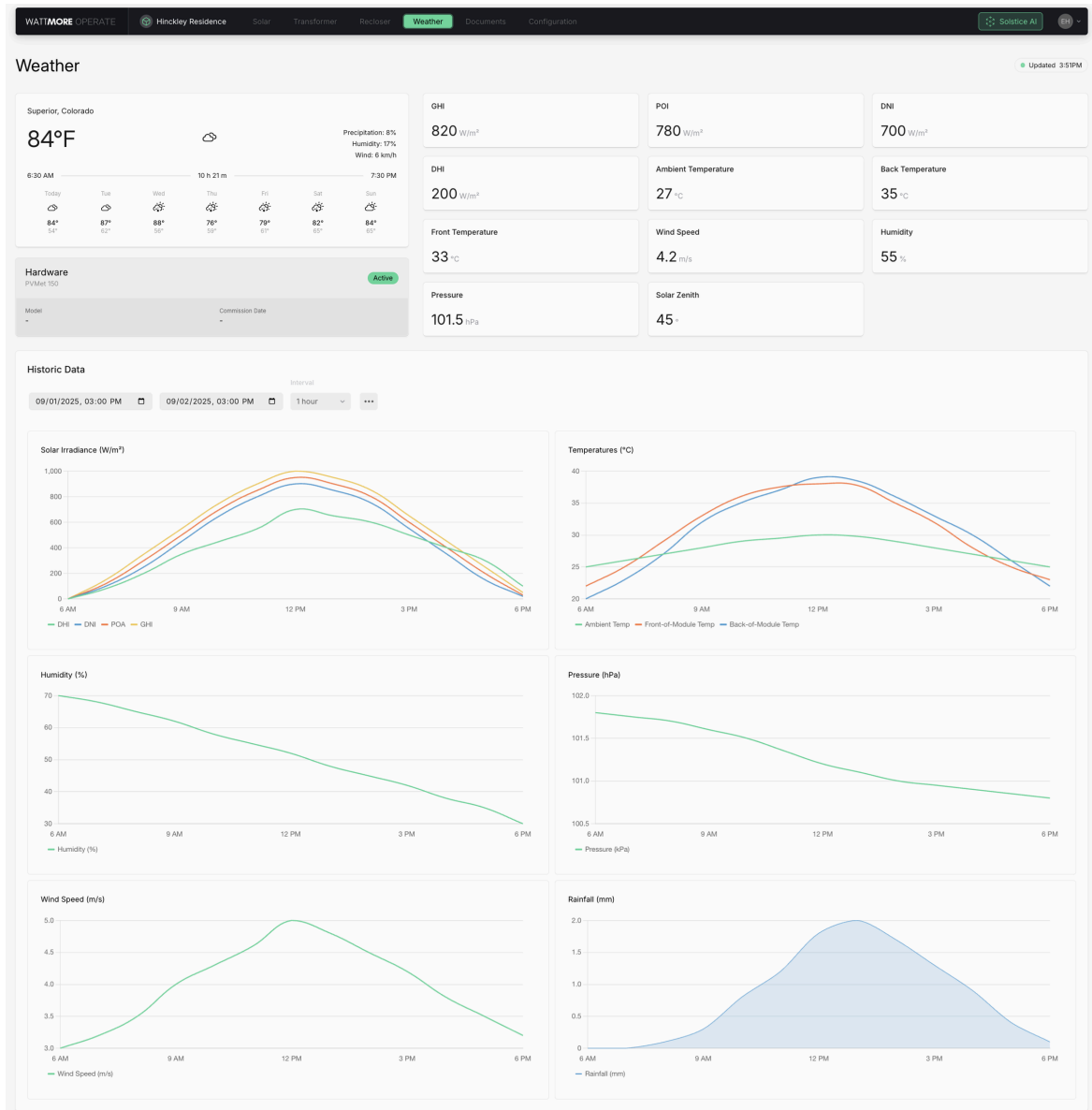
Connected

Last Reported: August 13 10:14 AM (MDT)

Total Power	Voltage (V)	Current (A)
8.53 kW	210.9 213.8 211.8	23.5 23.4 23.3
Power (kW)		
2.84 2.84 2.84		

TLS 1.3 Encrypted Communication

- **Firmware Security:** Secure boot and signed OTA firmware updates for edge device protection
- **Incident Response & Recovery:** Full logging, redundancy, and rollback for cyber recovery
- **Regulatory References:** FERC Order 2222 and IEEE 2030.5 (SEP2.0) roadmap alignment
- **Mutual Authentication:** Edge devices and cloud servers utilize certificate-based mutual authentication.
- **Role-Based Authentication (RBAC):** Multi-level role-based access controls restrict system functions by user type (e.g., Admin, Operator, Viewer).
- **Data Encryption at Rest:** All operational and historical data stored is encrypted at rest with AES-256.
- **Logging & Audit Trails:** Every command, config change, and data packet is logged with timestamped records for auditability and compliance.
- **Compliance Standards**
 - IEEE 1547: Interconnection compliance for DER (Distributed Energy Resources).
 - NERC-CIP Ready: Architecture designed with critical infrastructure protection in mind.
 - SOC 2 & ISO 27001 Alignment: Operational policies and cloud practices aligned with best-in-class information security standards.
- **Cybersecurity Monitoring:** Intrusion detection, anomaly detection (via Solstice AI), and AWS GuardDuty integration provide continuous security posture awareness.



CERTIFICATIONS & STANDARDS

UL 508A Panel compliance

ANSI C12.20 Accuracy Class for revenue-grade metering

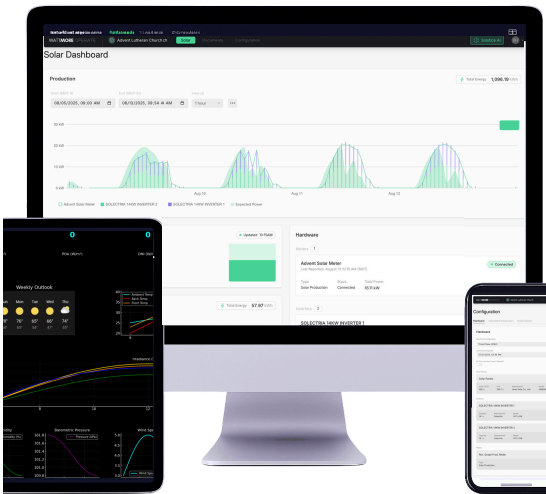
FCC / CE compliance for communication equipment

SOFTWARE & REPORTING

Real-Time Analytics (import and export):

- Alarm & Event Management: Threshold-based alerts with configurable severity (warning vs critical)
- Forecasting: Integration with weather forecasting APIs for predictive performance
- Service Ticket Integration: Optional auto-ticketing into ServiceNow, Jira, or O&M platforms
- Configurable Data Granularity: Down to 1-second sampling (device dependent)
- Role-Based Dashboards: Tailored interfaces for field technicians, asset managers, and executives
- Offline Mode: Edge buffers and syncs data during connectivity outages, stores up to 180 days
- Portfolio Optimization: AI benchmarking and performance analysis across multiple sites

Intellect EnFORM



Intellect EnFORM with **Solstice AI** is not just a DAS, but a full solar & storage operating system! Enabling monitoring, control, reporting, and financial optimization in one cohesive platform.

APPLICATIONS

- Utility-scale PV plants
- C&I solar + storage systems
- Microgrids & off-grid islanded systems
- Community solar portfolios
- Hybrid PV + BESS installations

OPTIONAL ADD-ON MODULES

- Weather Station (GHI, DNI, DHI, wind speed, back-of-cell temp)
- Breaker/Contactor Monitoring modules
- Cybersecurity Appliance Add-On for advanced NERC compliance
- On-Prem Gateway Option for fully site-contained operation
- Cellular modem for redundant comms
- Expanded UPS battery backup pack
- Recloser contactor monitoring via SEL-651 integration
- Transformer monitoring
- Site surveillance integration
- Custom ERP connectors