

T1-S Gateway SCADA™

Business Value

- Maintain contracted power level at the point of interconnection.
- Maximize site output during “cloud edge” events.
- Comply with the proposed Rule 21 Phase I update requirements.
- Curtail generation to meet a specific target.
- Monitor portfolio and site performance metrics.
- Automate and integrate energy storage management.
- Control power characteristics (Wattage, VARs, and Power Factor) at the point of interconnect.

Power Generation Control and Monitoring

T1-S Gateway SCADA provides powerful logic and control functions to optimize solar power generation. Capabilities include:

- Capture, store and forward real-time data from inverters, meters, and MET stations;
- Initiate control commands from an operator or follow pre-defined logic;
- Issue alarms and alerts for defined events or thresholds.

Power System Control

T1-S Gateway SCADA controls include:

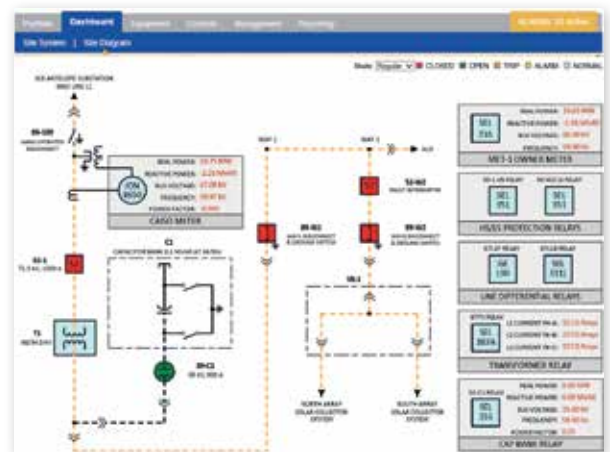
- Connect/disconnect an inverter or all inverters at a site;
- Set maximum power;
- Set fixed power factor;
- Set fixed reactive power (leading/lagging);
- Set tracker angular position for emergency (stow) mode and maintenance;
- Trip breakers; and
- Control storage system operations.

Closed-loop Logical Control

T1-S Gateway SCADA automates complex computations and commands. Algorithms may include real-time data such as aggregated inverter production or line loss. The logic can automate power smoothing (frequency droop modulation) to deliver precise power and quality at the point of interconnection.

Energy Storage Control

T1-S Gateway SCADA provides powerful control over peak shaving/capacity shifting, back-up power/grid islanding, Voltage support and frequency regulation; and ramping/energy arbitrage.



The SCADA interface provides real-time system data via an interactive site diagram, dashboard, and equipment list.

T1-S Gateway Features

- Advanced PV Inverter Control including:
 - Local or remote control;
 - Secure data telemetry;
 - Control over curtailment, connect/disconnect, power factor and VARs;
 - Ramp-rate control;
- Complex mathematical computation and logic;
- Real-time data collection;
- Multi-drop connection;
- 16 to 64-bit signed and unsigned, and Real data types;
- Packed digital support;
- Configuration export/edit/import;
- Testing and diagnostics;
- Built on Microsoft .NET;
- Runs on Microsoft Windows operating systems;
- Factory-tested for scalability;
- Communications Protocols:
 - DNP3 master/slave over TCP and Serial;
 - DNP3 Secure Network;
 - MODBUS master/slave over TCP and Serial;
 - OPC client;
 - PCM518; and
 - Others.

T1-S Suite – Industry-leading Power Generation Management

Trimark's unified, end-to-end SCADA solution includes software, hardware, engineering, and support from concept through commissioning.

T1-S Gateway SCADA and Historian

T1-S Gateway provides real-time data collection, control, closed-loop logic, and secure data telemetry. The system archives data in a historian for analysis.

T1-S Vantage User Interface

Monitoring and control tools enable:

- Real-time control of plant functions;
- Monitoring, reporting and analysis of production;
- Notification of alerts and alarms;
- Cloud access from PCs and mobile devices;
- Real-time portfolio and site performance.

TENetwork

The Trimark Energy Network enables performance monitoring and control of power generation assets through a private, secure network.

T1-S Hardware Platform

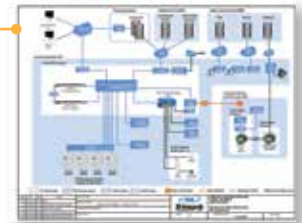
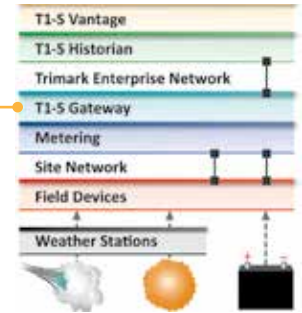
On-site servers hold the SCADA and historian software which executes local logic and control commands. Hardware can be a server-grade computer or Trimark's T1-S Data Gateway (TDG).

Professional Services

Trimark's SCADA engineering services ensure your system is designed, developed and deployed to meet your unique requirements.

The Future of Power and Energy Storage Control

Trimark's full-time development team is continually developing management and operational tools for renewable power generation, energy storage and micro-grids. Trimark works closely with our customers to focus innovation on delivering practical solutions.



A Proven Player in the Energy Market

Trimark Associates, Inc. develops reliable, affordable business and operational solutions that support compliance and optimization of power production.

Northern CA: 916.357.5970
Southern CA: 818.963.4695
Virginia: 757.855.1040

Info@TrimarkAssoc.com
www.TrimarkAssoc.com