

# RIG Solution - T1S Gateway

## OVERVIEW

T1S Gateway is a low-cost, event driven SCADA gateway solution built on the Microsoft OS .NET framework. Designed to meet the specifications for use as a Remote Intelligent Gateway (RIG) in the California Independent System Operator (CAISO) control area, T1S is flexible, scalable, reliable, and easy to configure as a set-and-forget service on Windows-based PCs and servers. *Figure 1* illustrates a possible T1S Gateway implementation.

## BASIC CONFIGURATION

T1S Gateway provides a secure network DNP3 connection for data telemetry as required by CAISO. It can connect to multiple field devices using multiple master connections to access real-time data, apply scaling, perform calculations, and provide remote visibility to the data. T1S Gateway is easy to configure using the T1S Gateway Configuration Editor.

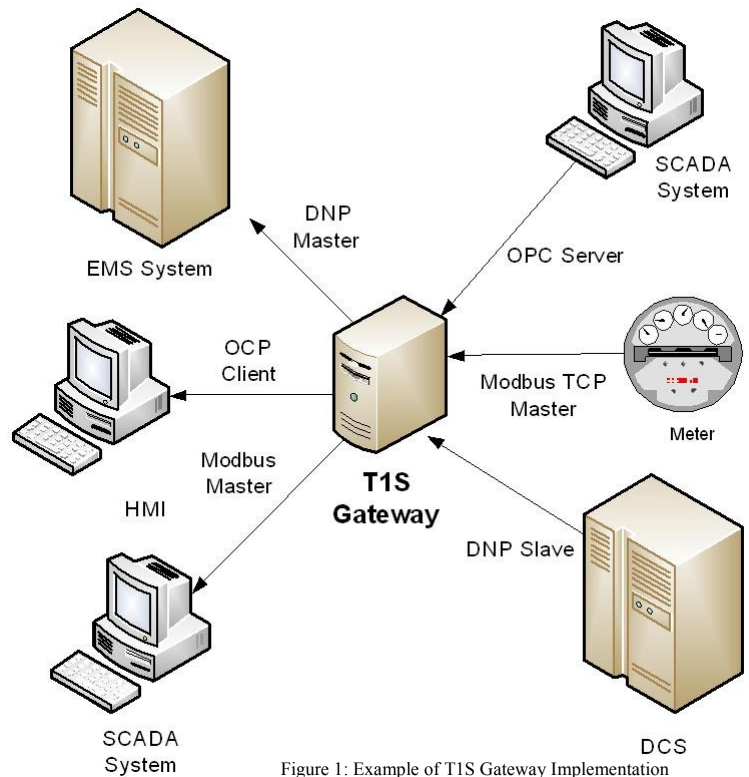


Figure 1: Example of T1S Gateway Implementation

## SUPPORTED PROTOCOLS:

T1S Gateway supports the following protocols:

- DNP3 Serial master and Slave
- DNP3 Slave over Secure Network
- Modbus serial master and slave
- Modbus TCP master and slave
- OPC client and server

*Figure 2* shows the structure of data transactions from an RTU to a Master Station via T1S Gateway.

## T1S Data Transactions

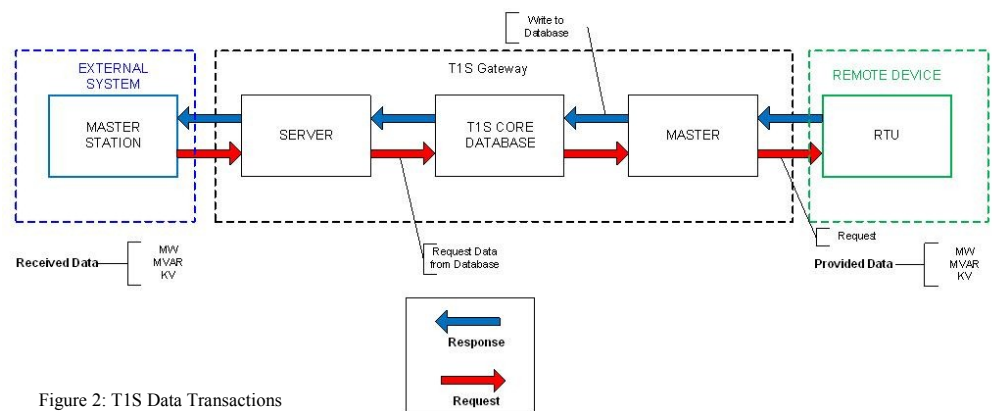


Figure 2: T1S Data Transactions



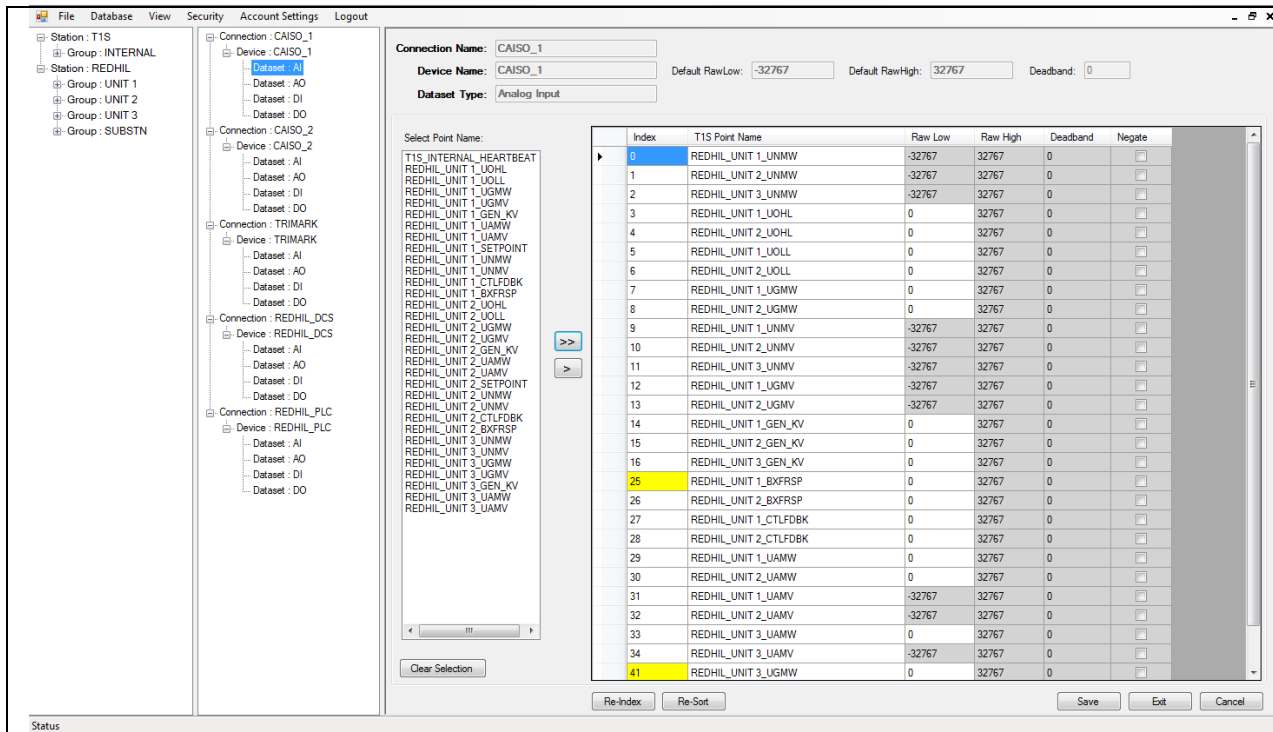
**Northern California**  
 193 Blue Ravine Rd., Ste 120  
 Folsom, CA 95630  
 Toll free: 866.995.5970  
 Local: 916.357.5970  
 info@trimarkassoc.com  
 www.trimarkassoc.com

**Southern California**  
 6800 Owensmouth Ave., Ste 340  
 Canoga Park, CA 91303  
 Local: 818.963.4695



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## DATA ACQUISITION

T1S acts as a master station employing various protocols to connect to various RTUs. RTUs may be connected via Ethernet or Serial RS-232. T1S is configurable to scan at rates ranging from milliseconds to several minutes. For maximum flexibility, raw data can be scaled to engineering units when written into the T1S Core Database. Engineering units can, in turn, be scaled back into raw counts for delivery to external systems.

## PLATFORM

T1S Gateway supports installation on Windows XP, Vista, Windows 7, Server 2003, and Server 2007 operating systems. The application can be installed and run on a minimally equipped PC or Server and is designed to be fault tolerant, self starting, and reliable with minimal maintenance.

## STANDARD PRE-LOADED CALCULATIONS:

T1S comes standard with several pre-configured calculations immediately available to the user. These include:

1. Unit Connection (UCON)
2. Add and subtract Analog values
3. Multiply Analog value by a constant
4. AND Status
5. Or Status
6. Data Port Failure Alarms
7. Bumpless Transfer
8. Heartbeat counter

A powerful calculation editor is available for configuring the most complex algorithms or logical calculations.



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