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Solutions. Technology. Simple.

Semaphore T-BOX System Overview

Each T-BOX RTU is an all-in-one package that brings an integral Web server, push communications, and reporting via email and SMS text messaging to monitoring and control applications. Semaphore's innovative technology enables real-time access, anywhere, with a mobile phone, PC or PDA to create a highly costeffective solution.

T-BOX — The web generation of advanced telemetry products

Semaphore telemetry systems are designed to leverage easy-to-use Web technologies and inexpensive public networks. They offer up to 50% less total installed cost per point versus traditional SCADA/PLC systems and permit greater organizational access to data through automated reporting and browser software.

The T-BOX line of SCADA and control products is ideal for decentralized applications where its push and Web technologies enable high performance yet economical implementation and operation. Thanks to its advanced IP capabilities, onsite staffing of your SCADA control room 24 hours a day is now a thing of the past. T-BOX incorporates full Web server technology to provide users real-time access anytime, anywhere through a standard Web browser. Since T-BOX also supports e-mail and SMS text messaging, personnel can be kept fully up-to-date using a cell phone.

Semaphore's Windows-style menus simplify configuration of all communications messaging, as well as formatting of reports, trends, and Web pages. Since no programming is required, systems engineering time is greatly reduced.

Since it further incorporates advanced automation capabilities and onboard I/O, T-BOX is an all-in-one product that combines the best of the Internet, automation and telemetry worlds.

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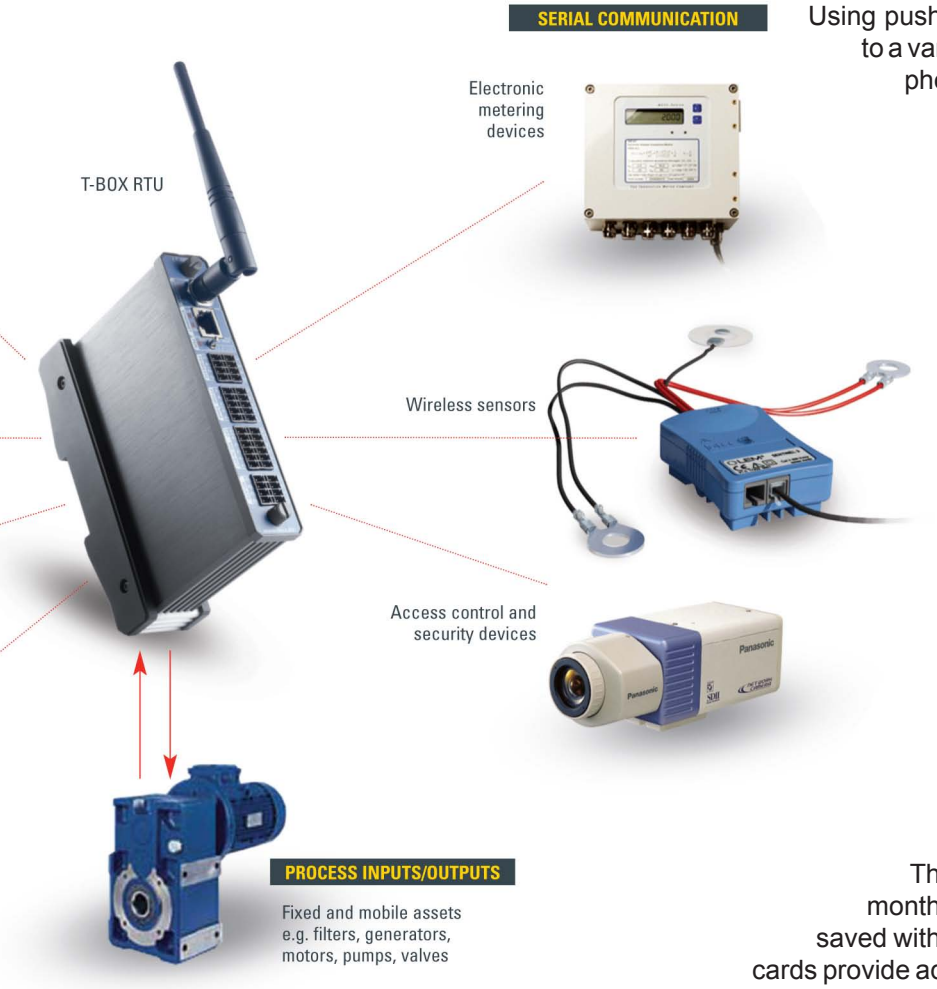
Programmable control

T-BOX processing capabilities are appropriate for simple through complex multitasking automation requirements. For even the most sophisticated applications, Semaphore's programming tools, dynamic analytical tools, and libraries significantly reduce development time. The LD programmer will find the IEC 61131-3 ladder diagram editor to be familiar and intuitive.

For those who prefer structured text, a BASIC environment is also provided. Systems suppliers who use Microsoft tools such as Excel are also supported through Microsoft Automation.

Alarm management



Using push communications, a T-BOX RTU sends alarms to a variety of recipients, including e-mail boxes, mobile phones, pagers, Web portals, another T-BOX RTU, SCADA top end, printers, etc. Integrated alarm management includes control of repeated call attempts, escalation/redirection, acknowledgement management, and multiple levels of authority. Alarms can be acknowledged even via GSM mobile phone. Date, time, person concerned, and action taken are maintained in the local database.

Data logging

T-BOX products support sophisticated archiving with elaborate preprocessing locally at the RTU. Values can be maintained in the form of averages, maxima, minima, or instantaneous samples. Event tables include alarms and events for the controller as well as the process/site. Successive transitions (e.g. high-speed contacts, water hammer) can be tracked with a resolution as low as 1 msec.

The standard, high-capacity memory enables months, or even years, of time stamped data to be saved with full security. Removable high-capacity memory cards provide additional flexibility in retrieval for operations staff.

Intelligent end device compatibility

A T-BOX RTU directly interfaces with a broad array of devices such as access control, analyzers, barcode readers, chromatographs, flow meters, and smart transmitters. A library of more than 40 drivers is available, free of charge, from Semaphore.

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T-BOX — Virtual SCADA in the RTU

T-BOX enables the complete integration of SCADA, telemetry, and control functionality in a single, rugged package. Compatibility with a broad array of discrete devices and intelligent end devices, combined with advanced telemetry and Web capabilities, simplifies systems engineering and significantly reduces installed costs.

Internet compatibility

As a standard feature, all T-BOX products manage Internet and Intranet communications without the need for a front end device. TCP/IP compatibility is provided on three levels, including an integral Web server, file transfer protocol (FTP), and physical networking via Ethernet or GSM cellular.

Web pages can include mimics with embedded, dynamic objects as well as tabular reports and trends. Using FTP, Web pages and other files (CSV, JPEG, etc.) can be served to Internet portals regularly or upon events.

Semaphore's software tools greatly simplify configuration of Web pages and communications messaging. No complex programming is required. Dynamic objects, entry fields, tables, trends, and links to other pages are simply added with a few clicks.

E-mail

On a programmed schedule or change of state, a T-BOX RTU can send e-mail messages to multiple recipients. E-mail messages can have attached files, which include complete reports with live and historical information, as well as alarms and events. Unlike most products, T-BOX locally maintains complete, formatted reports, which are readily viewed on a PDA or PC.

Text messaging

Like e-mail, SMS text messages can be transmitted to multiple recipients on a programmed schedule or change of state. This allows mobile phone users, anywhere in the world, to be fully informed of conditions at the site.

SCADA compatibility

While T-BOX products feature IP, push, and Web technologies, they also drop in to traditional SCADA systems, which use a variety of common or standard protocols, including DNP 3.0, IEC 60870-5, Modbus, as well as many custom, proprietary protocols.

Multi communications

T-BOX products are very flexible in terms of hardware compatibility. Available physical interfaces include; Ethernet, RS-232, RS-485, Fiber optics, GSM/GPRS, PSTN modem, private line modem, and radio. Each port operates independently of each other, uses any protocol, and can be master or slave. For critical applications, communications redundancy is supported.

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T-BOX Capabilities

Product Family

T-BOX products effectively meet a broad range of requirements. Users can select a compact package for small processes, a modular package for larger processes, or ultra-low-power products, which are optimized for remote sites that lack commercial power. For embedded OEM applications, a board-level version is also available. All products are fully compatible in communications and software configuration.

Core Capabilities

All T-BOX products provide the following core functionality:

- Embedded Internet, Web server, FTP, e-mail
- Alarm management and intelligent data logging
- Programmable control
- Multi-protocol (DNP 3.0, IEC 60870-5, Modbus, TCP/IP, etc.)

T-BOX MS

Available in configurations using up to 20 card slots, T-BOX MS is a modular system that packs the processing power and multi-communications capabilities to suit virtually any process. Rugged hardware installs on a DIN rail or 19-inch rack and performs over a broad range of operating environments.

T-BOX Lite

This very compact, all-in-one RTU is extremely effective for applications requiring up to 32 I/O points. Using four ports (Ethernet, RS 232, RS 485 and optional GSM/GPRS or PSTN modem) T-BOX Lite readily integrates systems, which include intelligent end devices, with the Internet and other IP networks.

T-BOX Ultra-Low-Power

T-BOX Ultra-Low-Power products cost-effectively extend the capabilities of T-BOX to even the smallest assets and processes. Battery and solar-power systems allow efficient operation where commercial power is unavailable. Hazardous area approvals and IP67 enclosures allow installation practically anywhere.

T-BOX TG (TeleControl Gateway)

An ultra-compact OEM solution, it can be rapidly adapted to many embedded applications. T-BOX TG automates fixed or mobile assets and connects them to the Internet for worldwide monitoring.

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