CSE Semaphore TBox TG2 TeleControl Gateway

In a very compact, DIN rail package, the TBox TG2 RTU brings multiplatform Web, wireless connectivity, and advanced automation to remote assets and processes.

A powerful Internet-ready RTU solution for remote automation and monitoring

TBox TG2 integrates advanced automation, web server, alarm notification, and data logging in a single, rugged module. With connectivity via 3G cellular, Ethernet, RS-232/485, and USB, TG2 is intended for use with process equipment such as drives and short-range, wireless devices, which provide analog and discrete I/O.

Innovative push and multi-platform Web server technologies open up new possibilities. Users have complete access to alarms, live conditions, and historical data on their mobile devices, tablets, and PCs — anytime and anywhere. This self-contained system gives you everything needed to create high-performance yet economical automation and monitoring installations.
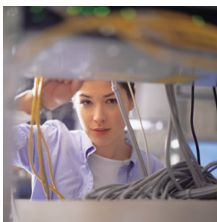
KEY FEATURES
- Powered by CSE Semaphore's advanced, Series 2 processing engine
- Multiplatform vector-based Webserver 2.0
- Powerful PLC features
- Alarm management
- Smart Data Logging™
- Security suite with authentication, encryption, firewall, HTTPS, VPN, SSL, SFTP
- IP Pass-through, FTP, e-mail, text messaging
- SNMP and Network Time Protocol (NTP)
- Modbus (Master and Slave), DNP3 (Master and Slave), DF1, IEC60870 Slave Protocols, and more
- Ethernet, USB 2.0, RS232, and RS485 ports
- Integral 3G
- Micro SD card for local archives, program backup, and remote start-up
- I/O expansion
- Embedded battery charger
- ADK application software development kit

TBox TG2 — IP/Web/telemetry technology for smart solutions

A major engineering challenge for smart systems is collecting and aggregating data from a wide variety of remote meters, sensors, and process equipment. TBox TG2 rapidly brings all remote devices onto the system via Ethernet and serial interfaces. Alarm/event management, live data processing, and intelligent data logging provide the full spectrum of information required by smart solutions. Using efficient, push technology, TBox TG2 inexpensively and securely transfers information to smart systems over cellular and wireless networks.

WebForm Studio 2.0

CSE Semaphore's unique WebForm™ Studio 2.0 unlocks the potential of today's web-enabled devices in automation and monitoring systems. Instead of producing device-specific apps, CSE Semaphore has deployed Asynchronous JavaScript and XML (AJAX), the agnostic technology of reference for our new Web interface. Without writing code, TBox TG2 users can build device-independent Web pages that include vectorized dynamic objects from an extensive library. WebForm Studio 2.0 provides online information that keeps everyone informed — from local technicians to operations management to mobile device users anywhere—and license-free!

Always in touch
Via Web 2.0 and multi-media messaging, TBox TG2 keeps users informed, anytime, anywhere.

Applications

TBox TG2 is ideal for remote automation and monitoring applications in a broad variety of industries, including agriculture, broadcast/telecommunications, energy management, mobile asset management, oil & gas, smart grid, transportation, utilities, irrigation, signaling, vendor-managed inventory, and water/wastewater.

CSE Semaphore TBox TG2

TBox all-in-one technology creates economical, high-performance monitoring and control installations. Key features and benefits of the TG2 are:

Powerful Automation

Control applications are readily programmed using BASIC or IEC 61131-3 Ladder Diagram. For large RTU deployment, advanced programmers will benefit from the compatibility of our programming environments with Microsoft Automation in order to configure applications using common tools such as Microsoft Excel or Visual Basic.

SCADA compatibility
Support of over 40 protocols including Modbus, DNP3, DF1, and IEC 60870 provide broad compatibility.

Alarm Management

Alarm notification includes multimedia messaging, recipient groups, escalation, and shift management. Users can acknowledge alarms and initiate logic operations from their smart phones, tablets, or any wireless devices.

Smart Data Logging

Special routines are available to only log the necessary events with their appropriate time stamps. Reports in CSV, text, or XML formats are quickly configured using CSE Semaphore's Report Studio and are readily available via e-mail attached files and FTP.

Push Communications

Without waiting for a poll, TBox TG2 initiates messages via e-mail, FTP, and SMS text to immediately notify users of alarms and live conditions at remote assets and processes.

IT and security
A security suite and IT tools including SNMP fully support systems management operations.

Security Suite

TBox TG2 capabilities including authentication, firewall, HTTP secure (HTTPS), and VPN are unprecedented among remote terminal units and provide compatibility with a variety of security measures.

Simple Network Management Protocol (SNMP)

An in-depth implementation provides broad compatibility with IT networks as an agent or manager. An array of SNMP function blocks simplifies programming of network messaging.

Communications Configurations

Five ports include the following:
* RS-232 for local configuration and programming
* RS-485 for field device networking
* Ethernet for IP networking, local configuration, and programming
* USB 2.0 host
* Remote communications option:
  3G modem — model TG2-500-3-EU or TG2-500-3-US

Remote management
Out there, TBox TG2 completely controls remote assets and processes.

Operations and maintenance
Extensive capabilities including Web 2.0 and Plug & Go expedite service and support.

In a compact footprint, TBox TG2 includes Ethernet, RS232, RS485, USB, and a communications option such as 3G. For installations requiring additional I/O, TBox TG2 readily expands using compact modules interfaced via Ethernet or RS-485.

TBOX TG2 SPECIFICATIONS

Designation	Industrial grade Remote Terminal Unit (RTU) / Automation Controller
Processor	32-bit ARM9, 400 MHz
Clock	Real-time clock with lithium battery backup
Memory	32 MB NOR Flash (Boot loader, Linux, OS, application, sources, web and reports)
	64 MB DDR2 SDRAM (Linux execution, OS, application)
	1 MB SRAM with lithium battery backup (data logging, copy of tags value)
	Micro SD card slot — Optional industrial grade SD card — up to 32 GB
Front panel switch	RUN-STOP-RESET
Communication	Ethernet RJ-45 100-BASE T, 4 wires; LEDs for 100, LK and FD
	RS-232 2 wires (RxD/TxD) plus GND
	RS-485 2 wires plus GND
	USB 2.0 Host
	Optional GSM 3G modem (see below)
3G modem — "EU" model	GSM Quadband (GSM850, GSM900, DCS1800, PCS1900) and UMTS Tripleband (Band I — 2100 MHz, Band II — 1900 MHz, Band VIII — 900 MHz)
3G modem — "US" model	GSM Quadband (GSM850, GSM900, DCS1800, PCS1900) and UMTS Tripleband (Band I — 2100 MHz, Band II — 1900 MHz, Band V — 850 MHz)
Antenna	FME male connector
Power — main	DC Powered, 9 to 30V DC
	Input voltage must be 24V DC if backup battery is connected
Power — backup	Embedded battery charger, 13.8 V DC, 250 mA, for sealed lead acid batteries only; recommended size: 7AH, nom. 12 V DC
Consumption — Vin 24 V dc	TG2-500
	-- 50 mA
	-3 75 mA
Consumption — Vin 12 V dc	TG2-500
	-- 80 mA
	-3 125 mA
Connectors	Spring-cage terminal blocks for power, RS-232 and RS-485
Operating system	Real-time embedded Linux
Programming	Via TWinSoft Suite (TWinSoft, Web editor, report editor)
Advanced programming	TWinSoft supports Microsoft Windows™ Automation; add-ons using ADK (advanced users)
Automation languages	Ladder logic (IEC61131-3 LD), Basic
Alarm handling	Smart alarm management with embedded calendar
Datalogging	Smart datalogging: sampling tables (instantaneous, min, max, average, incremental), digital and analog chronologies
Datalogging resolution	Down to 1 mS
IT features	HTTP, HTTPS, FTP, SFTP, SMTP (email), SNMP, IP forwarding, DynDNS, NTP
Security features	Firewall, HTTP log-in, HTTPS, IEEE802.1x authentication, VPN, SFTP, SSL, Industrial Defender Ready
Protocols	Support for over 40 protocols, including Modbus (master/slave, RTU, TCP, ASCII), DNP 3.0, IEC60870-5
DIN rail housing	Proprietary aluminum enclosure, anodized and alodined for corrosion and noise interference resistance
Size	Height x depth x width: 150 mm x 83 mm x 29 mm/5.91" x 3.27" x 1.14"
Weight	300 gr/10.6 oz
Temperature	Storage: -40° to +80°C/-40° to + 176°F
	Working: -40° to +70°C/-40° to +158°F
	Industrial grade SIM card is required for 3G operation down to -40°C
Humidity	5-95% noncondensing
MTBF	MTBF > 600,000 hours
Safety certifications	CE, UL/CSA
EMC certifications	CE, FCC, C-Tick
Telecom certifications	All EU standards, Industry Canada, R&TTE, A-Tick
Other certifications	GOST-R
Hazardous area approval	Class I, Division 2, Groups C, D pending

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