



Semaphore T-BOX WM Wireless Monitor

Compact, ultra low-power solution for remote monitoring provides long life using a lithium battery.

The T-BOX ultra low power Wireless Monitor cost effectively extends advanced IP, web and telemetry technologies to even the smallest remote assets and processes. To meet all installation needs, it is available in a very compact, self-powered DIN rail-mounting module or IP68 package.



T-BOX provides an affordable solution for managing your previously unmanaged mobile and fixed assets. The T-BOX Wireless Monitor is ideal for low I/O count applications such as asset tracking and monitoring of remote measurements from analytical, flow, level, pressure, and temperature instrumentation. It is available in an IP68 package and has Class I, Division 1 hazardous area approvals. Use of D size lithium ion batteries gives it both long life and a compact size.

Even when only one or two measurements are required, remote locations can benefit from the advanced IP, Web, and telemetry technologies provided by Semaphore's T-BOX architecture. T-BOX technology provides users real-time access to alarms, live information, and historical data, anytime, anywhere, through a standard Web browser. T-BOX best manages inexpensive public networks by transmitting information via e-mail, IP and SMS text messaging, only when necessary, and allows personnel to be kept fully up-to-date using a mobile phone or PDA.

Unlike other solutions for remote monitoring, T-BOX also incorporates programmable automation, calculations and logic operations with support for IEC 61131-3 Ladder Diagram, Basic and Microsoft Automation.

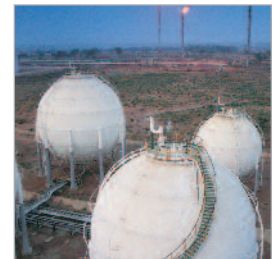
Integrating the T-BOX IP/Web technology platform in a rugged, ultra low-power package, the Wireless Monitor provides unprecedented automation and IP/telemetry capabilities to comprise a complete solution for management of remote assets and operations.

T-BOX WM Wireless Monitor

Via 2 AI, 4 DI, 4 DO and RS-485 2-wire, T-BOX WM directly interfaces with a broad array of devices such as access controllers, analytical instruments, barcode readers, flow meters, intrusion alarms, level probes, smart transmitters, and wireless sensors. Multi-communications gateway capabilities link all users to alarms, live information and historical data.

NETWORK MESSAGING AND NOTIFICATION

END DEVICE INTERFACING



T-BOX WM is ideal for remote monitoring applications in a variety of industries, including energy management, mobile asset management, oil & gas, smart grid, utilities, vendor-managed inventory and water/wastewater.



The T-BOX Wireless Monitor is available in an IP68 housing (shown on the front page) that is suitable for outdoor locations, which may find themselves briefly under water, and a DIN rail-mounting enclosure (shown here), which presents a very compact footprint for installation in third-party enclosures.

T-BOX WM Wireless Monitor

Bringing T-BOX technology to remote asset monitoring:

Communications Management

Timely updates on consumables, inventory and process status substantially reduce site visits. Intelligent management of communications and push technology minimize networking costs while providing the comprehensive information that is needed to optimize maintenance and operations. T-BOX WM transmits alarms, live updates and historical reports via e-mail, SMS text or IP when required without continual polling on the network.

Integral Web Server

T-BOX WM serves very informative Web pages, which comprise an inexpensive HMI for operations and local maintenance. Semaphore's WebForm Studio greatly simplifies configuration of web pages using dynamic objects.

Alarm Management

Using multi-media messaging, T-BOX WM notifies multiple recipients upon an alarm and escalates unacknowledged alarms. Users can acknowledge alarms via phone, PDA or PC.

Data Logging

T-BOX WM supports sophisticated archiving that maintains values in the form of averages, maxima, minima or instantaneous samples to provide reports for auditing, maintenance, and optimization purposes.

SCADA Compatibility

T-BOX WM is also compatible with traditional, SCADA systems, which use a variety of common protocols such as Modbus.

Programmable Automation

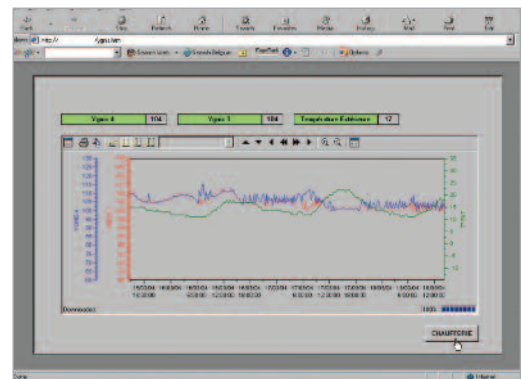
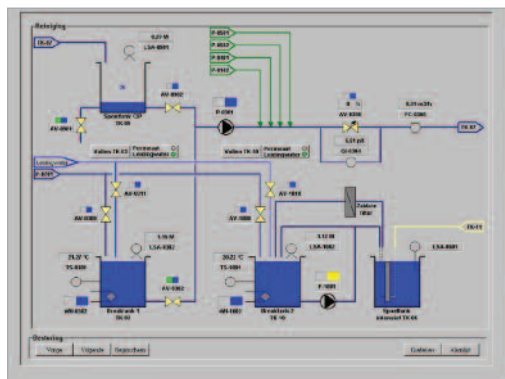
Automation tasks, custom calculations and logic operations are programmable using IEC 61131-3 ladder diagram or BASIC. Microsoft Automation support allows compilation of source from Microsoft Excel, Visual Basic, etc.

Integrated Packaging

The compact, easy-to-install, IP68 package completely integrates the T-BOX platform, communications devices and batteries. For installations in third-party enclosures, a DIN rail-mounting package is also available.

Ultra Low Power Management

Ultra low power consumption keeps power source costs at a minimum and provides long life using a single battery. Optionally, a second battery further extends operating time and allows T-BOX WM to continue operating while the other battery is replaced. Unlike most "low power" devices, T-BOX WM can source loop current for 4–20 mA instruments.



Web pages can be dynamic, "mimic" displays, which incorporate multiple process objects, tabular displays or trend displays.

T-BOX WM Wireless Monitor – Specifications

	Models		
	WM-100	WM-200	WM-201
Analog/Discrete Inputs/Outputs			
Digital inputs, dry contact, 0-12V dc*	4		
*2 Digital input points are also 1KHz counters. Optional front panel pushbuttons use 2 points.			
Digital outputs, open drain	4		
Analog Inputs, 0-5V dc only			2
Analog inputs, 0-5V dc and 0/4-20 mA	2		
Source low power voltage transmitters	Yes		
Source 4-20 mA transmitters via 12 and 24V dc	Yes		
Integral Communications			
RS-232 local "programming" port w/RTS and CTS	Yes		
RS-485 2-wire port	Yes		
RS-232 network port full modem control option	Yes		
GSM quad band option	Yes		
CDMA option	Contact Semaphore for availability		
Spread spectrum 900 MHz, 2.4 GHz, 9600 b option	Contact Semaphore for availability		
Power			
Internal battery	Lithium D Cell, Saft LSH20-BA, 13 AH		
Number of batteries	1 or 2		
Operating voltage	3.6V dc		
Battery voltage measurement, low power	Yes		
Average current draw at 3.6V dc	0.1 to 1.3 mA	0.2 to 2.0 mA	
Battery life using 2 batteries*	2 to 12 Years	1 to 10 Years	
*Please refer to the T-BOX WM Battery Life Calculator spreadsheet to determine life time based on specific operating conditions.			
Processor/Memory			
Processor	Low power Mitsubishi 16-bit microprocessor		
Real time clock	Yes		
Flash	768K		
RAM	128K (chronologies + sample tables: 72k)		
Environment			
Operating temperature	-40 to 70° C (GSM option: -20° to 65° C)		
Storage temperature	-40 to 80° C		
Humidity	5 to 95% RH		
Safety approvals	CE, UL, CSA		
Hazardous area approvals**			
	WM-100	WM-200	WM-201
Class I, Division 1, Groups C, D	Approved		Approved
ATEX Zone 1	Approved		Approved
DIN Rail-mounting package			
	T-BOX WM	Battery compartment	
Size, inches	5.91 H x 4.53 D x 1.58 W	4.4 H x 4.33 D x 1.97 W	
Size, mm	150 H x 115 D x 40 W	112 H x 110 D x 50 W	
Weight	300 g (9.65 oz)	140 g (4.83 oz)	
IP68 housing			
Approvals	IP68 and Nema 6		
Size, inches	8.15 H x 3.0 D x 8.15 W		
Size, mm	207 H x 77 D x 207 W		
Weight with GSM, LCD, one battery	2.35 kg (5.2 lb)		
Installation	Wall-mount and pipe-mount accessories optional		
LCD and pushbutton option	Yes**		
**Please refer to www.cse-semaphore.com for the latest information on certifications.			

www.cse-semaphore.com

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