Significant challenges are part of everyday life for professionals in the water and waste water industries. Companies are tasked to expand, maintain and troubleshoot aging systems all while operating under significant and ever changing budget constraints. Innovative and cost effective solutions allow companies to achieve these goals by saving money on capital equipment, maintenance, and manpower costs.

For more than 30 years TBox solutions have helped hundreds of water and waste water utilities worldwide conquer these challenges with superior performance, flexibility and reliability.

TBox for Monitoring and Control

TBox Series Solutions combine alarm notification, data logging, integral web server, IP telemetry and programmable automation in highly flexible and rugged package. TBox uniquely supports a broad range of core functionality:

- Modular (MS) or "All-In-One" (LT2) form factors
- High-performance 400MHz CPU with up to 32GB Expandable Memory
- IEC-61131 Ladder, Structured Text (Basic), and Function Block Programming
- Integrated HMI works on any desktop, smart phone, tablet or other HMTL5 devices.
- Alarm Notification via email and SMS/Text
- Data Logging, Forwarding, Reporting, etc.
- -40° to 70° C operating temperature range
- Rugged aluminum enclosures with built in DIN Rail Mounting
- Low Power for Solar Powered Applications
- Easily expandable with Ethernet / Serial Remote I/O (RM2)
- And much, much more.

Applications Include:

- Distribution Systems
- Pump Stations
- PRV's
- Raw Water Gathering

- Source of Supply
- Chemical Feed
- Storage Systems
- Power Monitoring

- Lift Stations
- Gathering Systems
- CSO / SSO Monitoring
- Corrosion Monitoring

- Potable Treatment Plants
- Recycled Water Plants
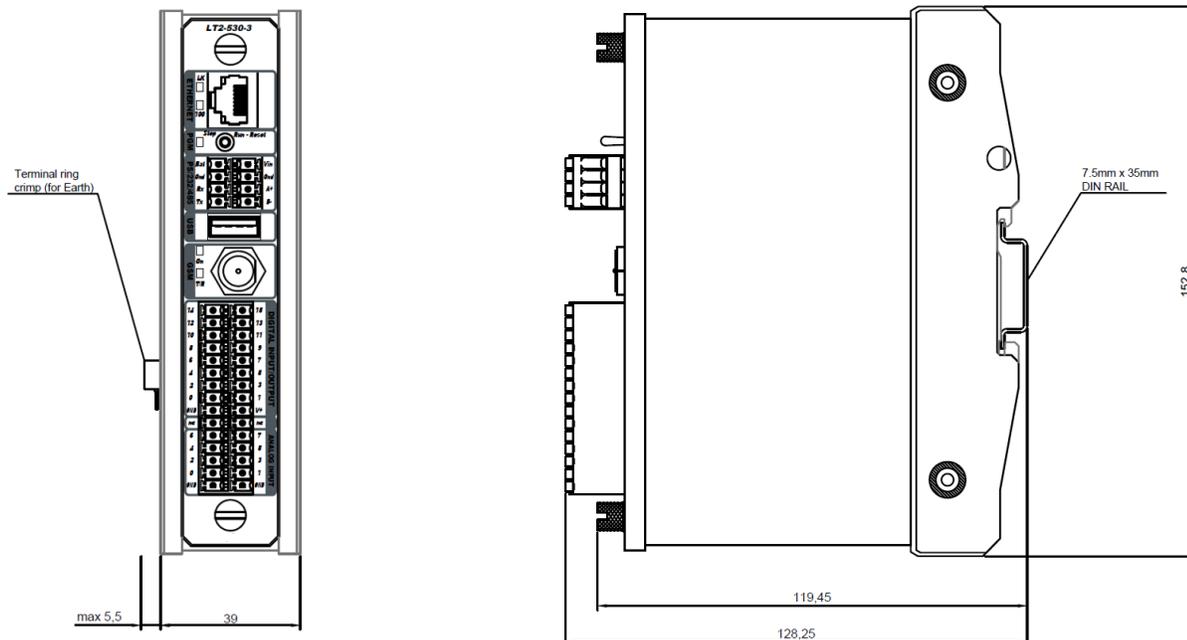- Waste Water Plants
- And more...

TBox Programming / Configuration	
Software	TwinSoft Suite - Complete configuration / programming environment for TBox Hardware Platform
Languages	Ladder Logic (IEC 61131-3 LD), Basic (Structured Text), Function Blocks, Optional C/C+++ add-ons
Industrial Protocol Support	Support for over 40 protocols including: Modbus TCP/IP, Modbus RTU/ASCII), DNP 3, IEC 60870-5, IEC-61850, EtherNet/IP, AB-DF1 (Serial), Fisher ROC, Siemens (ISO-TCP), OPC-UA, MQTT(S), SNMP, and many more
IT Features and Protocol Support	HTTP(s), FTP(s), SMTP(S) & POP3(s), SNMP, IP forwarding, DynDNS, NTP, SSH/SCP/SFTP
Security	Multi-user Logins, Firewall, SSL/TLS & X.509 Certificates, IEEE802.1X, AES Encryption, OpenVPN Support, DC-09 SIA Event Reporting
Integral Web Server	Provide operational and "micro-SCADA" graphical HTML web pages to any modern browser locally or remotely
Alarm Management	Smart alarm management including real-time and historical visualization, push notification, logging, and reporting
Historical Data / Logging	On board trending and historical data logging of digital and analog data including both periodic and event driven logging
Report Studio	Periodic and on-demand reporting of historical data and alarm to email, FTP(s), HTTP(s), SMS/Text, etc.
SCADA Compatibility	Connect to virtually any modern SCADA system: ICONICS GENESIS64, iFix, Ignition, Schneider GeoScada, VTScada, Wonderware, etc.

TBox Model Number						
On Board Communications	LT2-530	LT2-530-S	LT2-532	LT2-532-S	TG2-500	TG2-500-S
USB for Programming / Local connectivity	Y	Y	Y	Y	Y	Y
Ethernet Port (10/100) - RJ45	Y	Y	Y	Y	Y	Y
Serial - RS232/485 - Terminal Block (Spring-cage)	Y	Y	Y	Y	Y	Y
Additional RS-232 Port - DB9	-	Y	-	Y	-	Y
Optional on Board LTE/4G Modem 12 bands LTE(4G) - Add "-4W" to Model	Y	-	Y	-	Y	-
On Board Inputs/ Outputs						
16 Digital Inputs / Outputs - Point-by-Point Configurable Up to 3 Points can be High Speed Counters	Y	Y	Y	Y	-	-
8 Analog Inputs (4-20mA or 0-10VDC)	Y	Y	Y	Y	-	-
2 Analog Outputs (4-20mA)	-	-	Y	Y	-	-

Functional	
Processor	32 bits ARM9, 400MHz
Memory	32 MB NOR Flash 64 MB DDR2 SDRAM 1 MB SRAM w/ Lithium Battery Backup
Memory Expansion	Industrial Grade MicroSD Card - Up to 32GB
Input Power Range	9 to 30 VDC
Power Consumption	50mA @ 24VDC 90mA @ 12VDC
Embedded Battery Charger	Included - 13.8VDC, Temperature Compensated. For Sealed Lead Acid Battery's Only - 12V, 7aH
I/O and Power Connectors	Spring-cage Terminal Blocks
MBTF	>1,000,000 Hours Statement available upon request

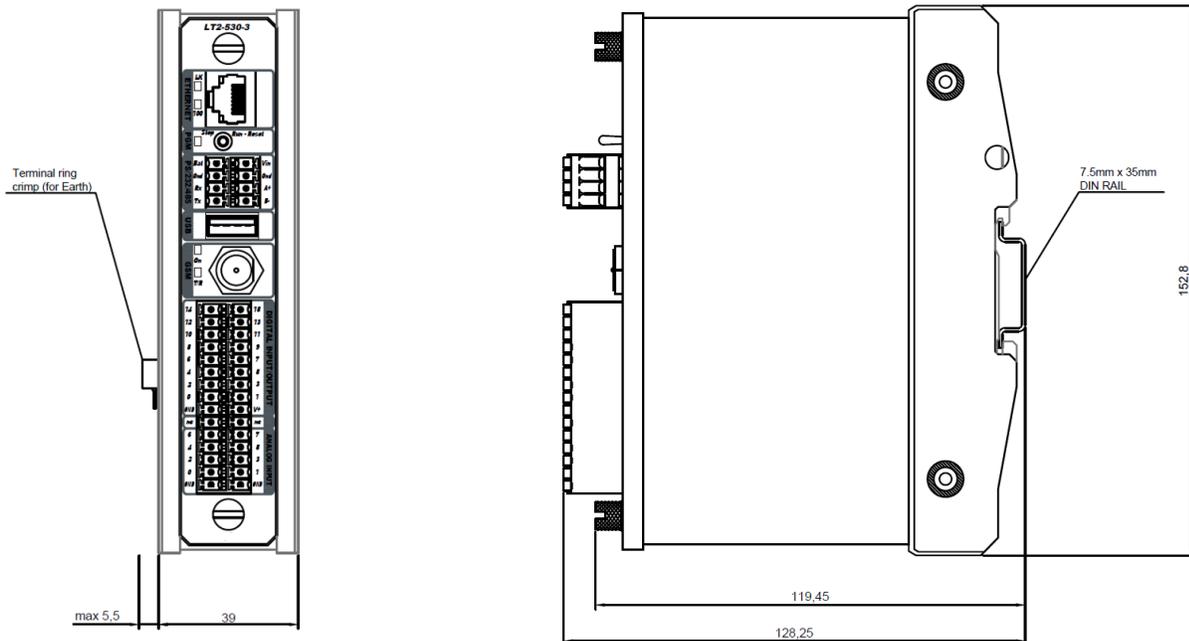| Physical	
Enclosure Material	Proprietary aluminum enclosure Alodine coating against corrosion
Mounting	Integral DIN-Rail Mount Bulit In
Temperature	Operating: -40°C to +70°C / -40°F to +158°F Storage: -40°C to +80°C / -40°F to +176°F
Humidity	0-95% non-condensing
Max Altitude	4,000 Meters / 13,000 Feet
Dimensions	5.91" x 3.27" x 1.4" (H x W x D) 150mm x 83mm x 29mm (H x W x D)
Weight	515gr / 18.17oz
Certifications	CE, UL/CSA, FCC, IC, RCM, RED, IEC 60068-2-6/27/31/64, Hazardous Area Class 1, Division 2

Dimensions - LT2 / TG2 All-in-One RTU

	TBox RM2 Model Number	
On Board Communications	RM2-530	RM2-532
USB for Local Configuration	Y	Y
Ethernet Port (10/100) - RJ45	Y	Y
Serial - RS232/485 - Modbus Slave Only	Y	Y
On Board Inputs/ Outputs		
16 Digital Inputs / Outputs - Point-by-Point Configurable Up to 3 Points can be High Speed Counters	Y	Y
8 Analog Inputs (4-20mA or 0-10VDC)	Y	Y
2 Analog Outputs (4-20mA)	-	Y

Functional	
Input Power Range	9 to 30 VDC
Power Consumption	50mA @ 24VDC 90mA @ 12VDC
Embedded Battery Charger	Included - 13.8VDC, Temperature Compensated. For Sealed Lead Acid Battery's Only - 12V, 7aH
I/O and Power Connectors	Spring-cage Terminal Blocks
MBTF	>1,000,000 Hours Statement available upon request

Physical	
Enclosure Material	Proprietary aluminum enclosure Alodine coating against corrosion
Mounting	Integral DIN-Rail Mount Bulit In
Temperature	Operating: -40°C to +70°C / -40°F to +158°F Storage: -40°C to +80°C / -40°F to +176°F
Humidity	0-95% non-condensing
Max Altitude	4,000 Meters / 13,000 Feet
Dimensions	5.91" x 3.27" x 1.4" (H x W x D) 150mm x 83mm x 29mm (H x W x D)
Weight	515gr / 18.17oz
Certifications	CE, UL/CSA, FCC, IC, RCM, RED, IEC 60068-2-6/27/31/64, Hazardous Area Class 1, Division 2

Dimensions - Remote I/O

Note: RM2 share the same form factor and dimensions as LT2/TG2 RTU's

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CPU

Model	Processor	Memory	Communications
MS-CPU32-S2	32 bits ARM9 @ 400MHz	32 MB NOR Flash, 64 MB DDR2 SDRAM 1 MB SRAM w/ Lithium Battery Backup Industrial Grade MicroSD Card Slot - Up to 32GB	1 ea. Ethernet (10/100) - RJ45 1 ea. RS232 Serial - DB9 1 ea. RS485 Serial- DB9 3 ea. USB

Communications Cards

Model	Description
MS-ETHER-4	4 Port Ethernet (10/100) embedded industrial switch RJ45 Ports
MS-SERIAL	2 RS-232/RS-485 ports - DB9
MS-GSM-4W	12 bands LTE(4G), 7 bands UMTS/HSPA+ 1 RS232/RS485

Power Supplies

Model	Description
MS-PS-DCN	DC Power Supply -48 VDC (-60..-24VDC) or +24VDC (+8..+30VDC) with Battery charger (90mA) + 24VDC output - 30 Watts output
MS-PS-230V	AC Power Supply 230VAC (85..265VAC) or 90..375VDC Isolated with Battery charger (90mA) + 24VDC output - 15 Watts output
MS-PS-AC30W	AC Power Supply 230VAC (85..265VAC) or 90..375VDC Isolated without Battery charger + 24VDC output - 30 Watts output

I/O Cards

Model	Description
MS-16DI	16 digital inputs, 12-60VDC
MS-48DI	48 digital inputs, 12-60VDC — no LED
MS-10DI-HS	10 digital inputs, 5-30VDC, Counting (50KHz), Quad inputs, SOE, Debounce filter, Isolated 1/1
MS-DO	16 digital outputs, 12-60VDC, max 200 mA, Current Sinking, Protected
MS-16DIO	16 digital inputs + outputs, 12-60VDC, max 200 mA, Current Sinking, Protected
MS-RELAY	8 digital outputs relay, 230VAC or 30VDC max 3A, Isolated 1/1
MS-8AIVC	8 analog inputs -10/+10 V, -20 mA/+20 mA, 4-20 mA, 24-bit
MS-4AI420	4 analog inputs 4-20 mA, 14-bit, Isolated 1/1
MS-8AI420	8 analog inputs 4-20 mA, 14-bit, Isolated 1/1
MS4AOVC	4 analog outputs, 12-bit, 4-20 mA, -10 V/+10 V, Active, Isolated 1/1
MS-RTD	8 RTD temperature inputs, 24 bit
MS-COMBO	8 DI (12-60VDC) + 4 DO (12-60VDC, max 200mA) + 3 AI (4-20mA)
MS-IO_SIMUL	Simulation / Test Card: 8 DI (switches), 8 DO (LEDs), 4AI (Potentiometers), 4AO (LEDs)

Mounting Racks

Model	Description
MS-RACK-1	One (1) Slot Rack with DIN Rail Mounting
MS-RACK-3	Three (3) Slot Rack with DIN Rail Mounting
MS-RACK-5	Five (5) Slot Rack with DIN Rail Mounting
MS-RACK-10	10 Slot Rack with DIN Rail Mounting
MS-RACK-20	15 Slot Rack with DIN Rail Mounting
MS-RACK-20	20 Slot Rack with DIN Rail Mounting
MS-RACKKIT	2 each brackets for mounting a MS-RACK15 in a 19'' cabinet. Screws included.
MS-WALLKIT	Wall mounting brackets for all MS-RACKS. Screws Included.

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