

# TruBlue® Remote Monitoring System

- Measure Surface and Groundwater Levels in the Field, View from Your Office.
- Dependable KPSI® High Accuracy SDI-12 Water Level Transducers.
- Self-powered Smart Well Cap “Nodes” Communicate to “Gateways” via Built-in One Watt 900 MHz Radio Transmitter for Maximum Unlicensed Power and Range.
- “Gateway” Modules Communicate via Cellular Modem to Internet-based TruTel™ Listener Software.
- Polling And Communication Intervals Are Custom Programmable Using TruTel™ User Software.



## DESCRIPTION & FEATURES

The TruBlue® Remote Monitoring System (TRMS) makes monitoring water levels more cost effective and less labor intensive than traditional data collection methods. It enables users to obtain readings remotely instead of having to travel to each monitoring point to collect data.

System components include Transducers, Nodes and Gateways. Nodes are installed at the top of groundwater wells or stilling wells on a body of water. With up to four Transducers attached, each Node transmits collected data via a built-in 900 MHz RF transmitter to a Gateway, which can collect information from multiple Nodes. Gateways transmit the information by cell modem to an Internet-based TruTel™ listener application, where it is accessed by the end user.

TRMS provides a comprehensive, systematic approach to collecting and managing water level data. Many users will realize significant savings every billing cycle, fewer site visits and higher data integrity.

## APPLICATIONS

### Crest Stage Gauging

- River Gauging
- Stream Gauging
- Flood & Storm Surge



### Groundwater Monitoring

- Permit Compliance
- Aquifer Studies
- Dewatering



### Surface Water Monitoring

- Rivers & Streams
- Lakes & Reservoirs
- Wetlands



### Tide and Estuary Studies

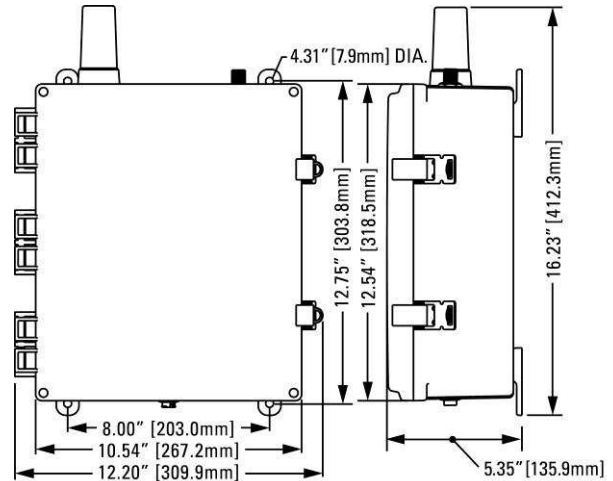
- Tidal basins
- Estuaries
- Harbors & Canals

# TruBlue® Remote Monitoring System

## SPECIFICATIONS

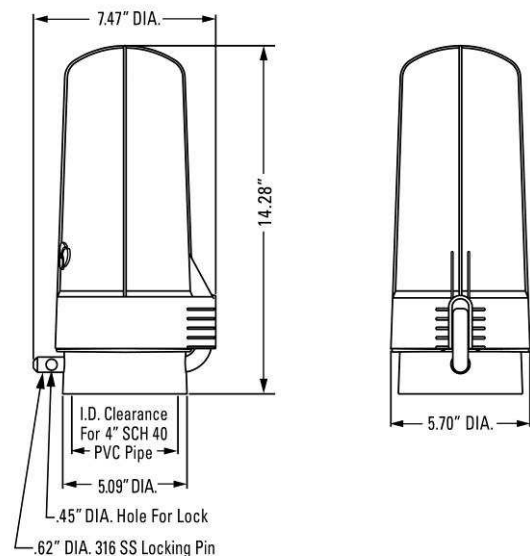
### GATEWAY MODULE

Dimensions	16.23" x 12.20" x 5.35"
Enclosure Type	Polycarbonate enclosure with mounting feet. Hinged clear cover with both locking latch and screw retention for cover.
Environmental Rating	Outdoor UV Exposure – F1 Ingress Protection – IP66
Operating Temperature	-30 to 70 °C
Weight	6.3 lb / 2.8 kg
Storage Temperature	-30 to 70 °C
Power Requirements	7-28 VDC (250 mA @ 12V)
Connector Types	N-type RF (900 MHz antenna) Switchcraft EN3P8M (Power)
Communication Type	900MHz FHSS (to GMS nodes) GSM or CDMA Cellular (for communications to TruTel™ software)
Time Stamp Accuracy	±5 seconds
Supported Transducers	Thru Node - all MEAS smart level transducers (TruBlue® Transducers, 35x, 50x, 380)
Desktop Software	TruTel™ Listener Software
PC requirements	see TruTel™ software requirements
Warranty	One year



### NODE MODULE

Dimensions	7.5" dia. x 14.3"
Enclosure Type	High strength polyurethane enclosure. Designed for 4" PVC well case
Environmental Rating	Ingress Protection – IP66
Operating Temperature	-30 to 70 °C
Weight	3.0 lb/ 1.4 kg (node w/o batteries); 5.5 lb/ 2.5 kg (node w/ batteries)
Storage Temperature	-30 to 70 °C
Battery Life	~ 6 months (dependent on sensors type, sample rate, and gateway uplink rate)
Power Requirements	8 x Alkaline D-cell, optional 8-16VDC external
Sensor Ports	4
Connector Types	Switchcraft EN3P8M (Optional power/transducer connection)
Logging Intervals	1 minute – 24 hr
Data Logging Channels	4
Data Storage	10,000 samples per transducer
Communication Type/Speed <sup>1</sup>	900MHz FHSS (to GMS gateway) 802.11 b/g (local Wi-Fi configuration)
Time Stamp Accuracy	±5 seconds
Supported Transducers	SDI-12/RS-485 digital output transducers (TruBlue®, 35x, 50x, 380)
Warranty	One year



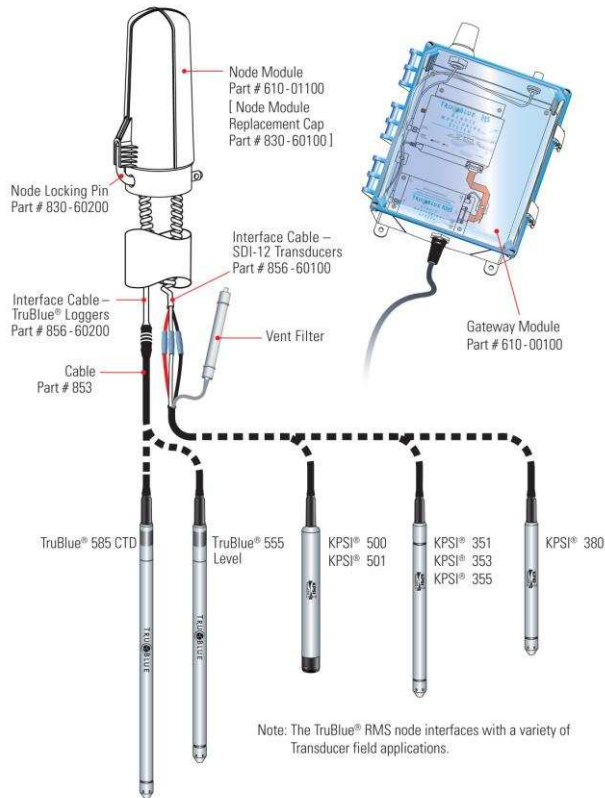
<sup>1</sup> Wireless communications radios are approved for use in North America only.

# TruBlue® Remote Monitoring System

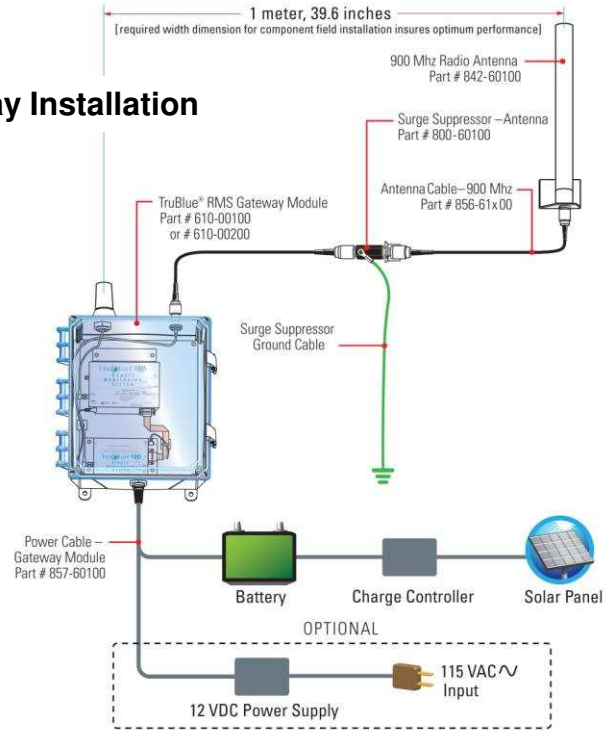
## POTENTIAL COMPONENT CONFIGURATIONS



### Node Installation



### Gateway Installation



Timestamp	Pressure (PSI)	Depth	Temperature (F)	Transducer Serial	Sequence Number
2012-03-29 01:44:01 AM	15.2569	35.21	73.11	1010779	13812
2012-03-29 01:28:32 AM	15.2569	35.21	73.11	1010779	13811
2012-03-29 01:14:02 AM	15.2568	35.2	73.11	1010779	13810
2012-03-29 12:59:02 AM	15.2573	35.2	73.11	1010779	13809
2012-03-29 12:44:35 AM	15.2584	35.2	73.11	1010779	13808
2012-03-29 12:29:05 AM	15.2566	35.2	73.11	1010779	13807
2012-03-29 12:14:38 AM	15.2558	35.2	73.1	1010779	13806
2012-03-29 11:59:36 PM	15.2555	35.2	73.11	1010779	13805
2012-03-29 11:44:39 PM	15.2559	35.2	73.11	1010779	13804
2012-03-29 11:29:11 PM	15.2554	35.2	73.12	1010779	13803
2012-03-29 11:14:43 PM	15.2553	35.2	73.11	1010779	13802
2012-03-29 10:59:15 PM	15.2548	35.2	73.11	1010779	13801
2012-03-29 10:44:25 PM	15.254	35.2	73.11	1010779	13800
2012-03-29 10:29:10 PM	15.2538	35.2	73.1	1010779	13799
2012-03-29 10:14:10 PM	15.2541	35.2	73.11	1010779	13798
2012-03-29 09:59:40 PM	15.2548	35.2	73.12	1010779	13797
2012-03-29 09:43:55 PM	15.255	35.2	73.11	1010779	13796
2012-03-29 09:28:33 PM	15.257	35.2	73.1	1010779	13795
2012-03-29 09:14:38 PM	15.2579	35.2	73.12	1010779	13794
2012-03-29 08:59:49 PM	15.2588	35.21	73.11	1010779	13793

The TruTel™ Web interface can be accessed on any networked computer's Web browser.

# TruBlue® Remote Monitoring System

## ORDERING INFORMATION

Part Number	Part Name	Part Description
610-00100	Gateway Module – GSM Modem	900MHz Radio and GSM Cellular Gateway Assembly
610-00200	Gateway Module – CDMA Modem	900MHz Radio and CDMA Cellular Gateway Assembly
610-01100	Node Module	900MHz Transmitter/Repeater Assembly
842-60100	900 MHz Radio Antenna	for Gateway 900 MHz Radio Modem
800-60100	Surge Suppressor - Antenna	for Radio Antenna
Cables		
856-60100	Node Interface Cable – SDI-12	Connects KPSI® SDI-12 Transducers to Node
856-60200	Node Interface Cable – TruBlue®	Connects TruBlue® Dataloggers Transducers to Node
856-61100	Gateway Antenna Cable – 900MHz	Cable for 900MHz Radio Modem (4' length)
856-61200	Gateway Antenna Cable – 900MHz	Cable for 900MHz Radio Modem (10' length)
856-61300	Gateway Antenna Cable – 900MHz	Cable for 900MHz Radio Modem (20' length)
857-60100	Gateway Power Cable	External Power Source Cable for Gateway Module
Replacement Parts		
830-60100	Node Module Replacement Cap	High Strength Polyurethane – Protect Node Comp.
830-60200	Node Locking Pin	Alloy Steel – Provides secure locking point
830-60300	Node Activation Dongle	Used to initiate Node transmission signal
Accessories		
830-61100	Gateway 2" Pole Mounting Kit	Mounting Gateway Enclosure on 2" pole
830-61200	Gateway 3" Pole Mounting Kit	Mounting Gateway Enclosure on 3" pole
830-61300	Gateway 4" Pole Mounting Kit	Mounting Gateway Enclosure on 4" pole

### NORTH AMERICA

Measurement Specialties  
 1000 Lucas Way  
 Hampton, VA 23666  
 Tel: 1-800-745-8008  
 Fax: 1-757-766-4297  
 Sales: [WL.sales@meas-spec.com](mailto:WL.sales@meas-spec.com)

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