

▶ SensorTrek ST1000

▶ GENERAL DESCRIPTION

Integrated remote water level monitoring system measures gauge height, charges and manages batteries, and communicates with on-line database all offered as a single cost effective package.

Imagine a simple solar powered installation installed and operating within hours of opening the box, imagine data that can be viewed from your desktop with just a standard PC and web browser, imagine a single vendor that supplies the hardware and data reporting, imagine no longer; presenting the simplicity of the SensorTrek ST1000.

▶ FEATURES

Built upon a platform utilizing the latest proven low power technology the ST1000 performs what other units try to do with only a fraction of the power. This power savings results in a direct cost savings to you in the size and number of solar panels, lower cost batteries and cabinets. The reduced foot print saves in installation costs too while providing a package that is easier to disguise from vandals.

The ST1000 features three independent solar panel input channels, this built in redundancy allows the unit full functionality while up to two solar panels are disabled due to leaves, snow or damaged cells. Each channel operates its solar panel at the maximum power generating point by holding the panel voltage at a constant optimal voltage all while the battery is managed for optimal life with built in battery charging algorithms.

▶ BENEFITS

Simple low cost installation and operation
Compact and rugged
Easy global access to data

▶ FEATURES

Web based data reporting
Integrated bubbler, SDI-12 , analog/digital interfaces
Satellite and radio communication link
Three Channel redundant solar panel interface featuring maximum power operating point charge controller.

Contact: Peter May
V.P. Marketing and Sales
Phone: 541 383-0863
E-mail: peter@sensortrek.com

1632 NW Vicksburg
Bend, Oregon
97702

▶ ST1000 Specifications

▶ COMMUNICATIONS

Satellite communication is provided over the low earth orbiting satellite ORBCOMM packet radio system. The system communicates using 48bit packets of data on a cost per packet basis, the ST1000 efficiently uses each packet resulting in a cost effective communications solution. The system provides near real time performance but can experience data delivery delays depending on atmospheric conditions, satellite communications loading, and satellite availability. Applications requiring frequent data transmission and or guaranteed latency may better be served by radio modem links.

Various radio modem options are available for the ST1000. The system is designed to accommodate several models of modems that optimize range, power consumption and security requirements. Several combinations of modems form a family of products ranging from sensor applications, data relay stations to base stations. Hardware support for cellular telephones for those installations where cell service is available are planned for (available 4th qtr 2006).

▶ SENSORS

The ST1000 initial offering comes standard with an integrated bubbler system, three analog inputs, three digital outputs and four digital inputs. The ST1000 also supports a single channel SDI-12 compliant interface.

The SDI-12 interface follows the hardware and software protocol version 1.3 specification. Initial SDI-12 support is handled as a custom engineering solution until a full library of sensor application software is built.

Analog and digital interface are also handled as a custom software solution depending on the customer application. Engineering and software support are directly supported by SensorTrek engineers.

Satellite		
Parameter	Specification	Notes
Range	Global access	Clear view of sky required, polar regions excluded and where allowed by government regulations
Antenna	Mono pole whip	No ground plane required
Latency	Typically < 10 minutes	Dependent on satellite coverage and local radio interference
Data Rate	2400bps packet radio link	Typical installation transmit less than 200 bits per day
Transmit power	5 Watts	

Radio Modem		
Parameter	Specification	Notes
Modem 1 (optional)	ZigBee, 802.15.4 protocol	Short range modem for local battery powered sensors
Modem 2 (optional)	XStream 900MHz/2.4GHZ	Up to 7 mile range with dipole Up to 20 miles with high gain antenna
Modem 3 (optional)	9XTend 900MHz	Up to 40 mile line of site with high gain antenna, 256bit encryption

Integrated Bubbler		
Parameter	Specification	Conditions
Resolution	0.01 foot	
Range	0-3' 0-10'	Standard Factory option

SDI-12 Interface		
Parameter	Specification	
Channels	1 multi-drop interface 12VDC 1 Amp maximum	Custom application software required

Analog/Digital Interface		
Parameter	Specification	Notes
Digital I/O	4 inputs, 4 outputs 5V tolerant inputs 5,12,24V low side drivers	2 outputs available on bubbler systems
Analog Inputs	4 inputs 0-2.5V, 0-5V, 0-20mA, 0-10mA (Jumper selectable)	
Analog Output	0-2.5V	

Contact: Peter May
V.P. Marketing and Sales
Phone: 541 383-0863
E-mail: peter@sensortrek.com

1632 NW Vicksburg
Bend, Oregon
97702

FEATURES

The ST1000 standard offering includes one 10W solar panel, additional panels are offered as an option. The optional panels provide higher power generation during low light levels, and provide the means for redundant power generation.

A data logger option will be available third quarter 2006, up to 512MB of data can be stored on a standard SD card. The cards data can be read by any standard PC.

A WiFi wireless interface will be offered in late 2006, features to be determined.

▶ ST1000 Specifications

Solar/Battery Charger		
Parameter	Specification	Notes
Channels	3	Standard unit supplied with one solar panel
Input voltage	35V Max, 17V set point	Programmable set point
Panel power	10W nominal 50W max per channel	
Battery voltage	6V nominal 12V nominal	Either batter voltage configuration is allowed
Battery float voltage	120% of nominal	

Data Logger (optional)		
Parameter	Specification	Notes
256/512MB SD Card		DOS based file system compatibility

WiFi Interface (optional)		
Parameter	Specification	Conditions
Protocol	802.11b	

Contact: Peter May
 V.P. Marketing and Sales
 Phone: 541 383-0863
 E-mail: peter@sensortrek.com

1632 NW Vicksburg
 Bend, Oregon
 97702