

NOS-APPROVED TIDE STATIONS MAIN TIDE STATION 3001-0000-1



Although designed for the Tidal Market, the Sutron Main Station is an ideal starting point for a wide variety of highly reliable & accurate weather stations.

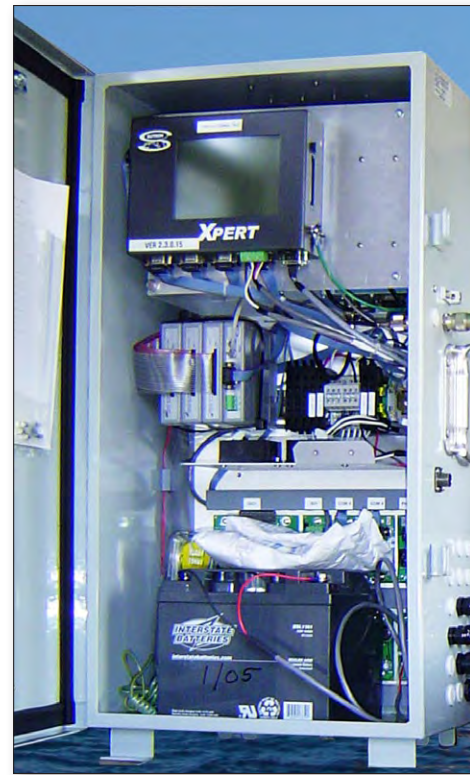
SPECIFICATIONS

Height 28"	Weight 60 lbs
Width 15"	Depth 10"
XPRT DATALOGGER WITH DISPLAY	
Temperatures	-40°C to +60°C Operating -10°C to +60°C Display
Processor	486 Class processor @66 MHz
Memory	32 MB Flash Memory for log & configuration; Expandable. 16MB Flash Operating System; 32 MB RAM Expandable SD/MMC cards & USB
Battery Backup	Not needed for log - memory is flash. Used for clock only. Lithium Battery: 2 years min.
Watchdog Timer	System reset upon microprocessor failure
Sample Intervals	Multiple sample intervals set in increments of 1 sec. to 24 hr., in 1 second increments
Data Retrieval	Through RS-232 Ports & SD Cards, MMC Cards, USB thumb drives
Visual Display	1/4 VGA
Serial Sensor	Using one comm port (Qty 3 RS-232) for sensors SDI-12: Dedicated SDI-12 V1.3
Communications - up to 4	Satellite Radio, LOS Radio, Voice & Data Modems (Speech Synthesis), Iridium, MODBUS, Direct Connect
Power Supply	No internal battery or charger External 6.5 aH @ 12V, operates Xpert for 45 days at 15 minutes sampling.
Power Consumption	Quiescent: 2 mA Typical Avg: 5 mA @ 15 - minute intervals of shaft encoder sample
Digital I/O	Add as needed through I ² C expansion modules. Digital I/O module adds up to 8 additional digital I/O lines.
Analog I/O	I/O Add as needed through I ² C expansion modules. Analog I/O module adds 6 or 10 analog inputs.

DIGITAL I/O MODULE

Specifications continued next page.

Specifications subject to change without notice.



MAIN STATION FEATURES

- ▶ Pocket PC Communications (IPAQ PDA)
 - ▶ Advanced Graphical Setup
 - ▶ Analog I/O Module
 - ▶ Digital I/O Module
 - ▶ Standard software with standard NOS GOES transmit format
 - ▶ Standard NOS Dial-In Station Report (NWS Output)
 - ▶ DQAP
 - ▶ Standardized Panel Mounting with Mounting for Aquatrak Controller
 - ▶ Mounting for CDPD
 - ▶ Modem Enhanced I/O Surge Protection
 - ▶ DIN Rail Mounting for I/O Modules
 - ▶ Web Posting
- The Main Tide Station includes this Sutron equipment:
- ▶ Satlink2 Logger/Transmitter
 - ▶ Xpert Logger with Display & 4 Comms
 - ▶ Xpert Analog & Digital I/O modules (see below)
 - ▶ Xpert Voice Modem

NOS-APPROVED TIDE STATIONS MAIN TIDE STATION 3001-0000-1



Analog I/O	I/O Add as needed through I ² C expansion modules. Analog I/O modules adds 6 or 10 additional inputs.
------------	---

DIGITAL I/O MODULE

Digital Inputs & Outputs	8 digital I/O lines supporting CMOS level inputs. Under software control, 6 of the 8 can be configured as outputs & all 8 can be configured as inputs. Inputs can be configured to support shaft encoders, tipping buckets, counters, & binary inputs.
--------------------------	--

Sensor Excitation	Software control of switched 12 VDC battery power. 250mA max load.
-------------------	--

Shaft Encoders	Quadrature output encoder (4 max) uses 2 digital inputs each. 8 bit gray code encoder (1 max) uses 8 digital inputs.
----------------	--

Tipping Bucket Rain Gages	Input: 100 Kohm pullup for switch closure, software debounced. Uses 1 digital input each (6 max). Counter Inputs: Input frequency - 1 kHz max. 32 bit resolution. Uses 1 digital input each (8 max).
---------------------------	--

Switchable Thresholds	Software configurable 0.03 V threshold with hysteresis. (2 inputs max) For use with low level output devices such as the 5600-0200 wind sensor without amplifier.
-----------------------	---

Digital Outputs	Open drain with 100K pull-up to +5V. Switch on impedance 110 Ohms. 70 mA maximum sink current. Outputs can be externally pulled up to the switched battery voltage (12V nominal). When output is externally pulled above 5V, internal pull-up is automatically disabled.
-----------------	--

ANALOG I/O MODULE

Analog Inputs	6 inputs configurable in various combinations of single ended and differential ranging from 6 single ended to 3 differential.
---------------	---

Resolution	22 bits
------------	---------

Input Range	-5V to +5
-------------	-----------

MAIN STATION - SATLINK2 SATELLITE TRANSMITTER/LOGGER, TRANSMITTER SPECIFICATIONS

Operating Voltage	10.4 to 15 VDC, reverse voltage protected
-------------------	---

LED Indicators	Status, Fault, Transmit
----------------	-------------------------

CONNECTIONS

Power	Built-in cable
-------	----------------

GPS	SMA Bulkhead Mounted
-----	----------------------

RS 232	DB9
--------	-----

SDI-12	5 position removable terminal strip
--------	-------------------------------------

Tipping Bucket	5 position removable terminal strip
----------------	-------------------------------------

Analog Input	7 position removable terminal strip
--------------	-------------------------------------

Timekeeping	Accurate within 10 ms
-------------	-----------------------

POWER REQUIREMENTS @ 12.5 VDC

Quiescent	6 mA typ
-----------	----------

Transmitting 100/300 bps	3.2 amps typ
--------------------------	--------------

Transmitting 1200 bps	4.2 amps typ
-----------------------	--------------

RECOMMENDED ANTENNA

5000-0080 or 0081	Sutron Yagi, 10.5 dB gain (-0081 is stainless steel)
-------------------	--

5000-0010-1	INSAT Yagi
-------------	------------

5000-0010-2	INSAT Yagi, stainless steel
-------------	-----------------------------

TRANSMISSION FORMAT

CE Approved	SHEF & Pseudo Binary formats
-------------	------------------------------

METEOSAT	INSAT 422 bit format
----------	----------------------

TRANSMISSION MODES

100 bps GOES random & self-timed

300 bps GOES random & self-timed

1200 bps GOES random & self-timed

4800 bps INSAT selectable 10 min. window (3 randomized repeat sequence)

METEOSAT Alert & Self Timed

ARGOS/SCD Format

TRANSMITTER OUTPUT POWER

Software selectable power levels

7.0 Watt nominal, 100/300 bps

14.0 watt nominal 1200 bps

3.5 watt (adjustable to 18 watt) INSAT

MAIN STATION - XPERT/XLITE VOICE MODEM SPECIFICATIONS

RS 232 interface, Baud Rate Up to 115,200	V.90, 56 kbps Data Receiving
---	------------------------------

Voice Playback & Record	DTMF Decode
-------------------------	-------------

V.42, MNP 2-4 & 10-EC Error Correction	V.42 bis & MNP-5 Data Compression
--	-----------------------------------

Power Jumper Selectable	+5 +0.25V 0.5A minimum or +12 +3V 0.5A minimum
-------------------------	--

NOTE: The Xpert can be configured to supply power out pin 9 of the DB-9 interface. The Xpert with the 6461-1197 DB-9 com port board can supply +12V, Xpert with 6461-1234 can supply +5(rec om mend ed) or +12.

*Specifications continued next page.
Specifications subject to change without notice.*

NOS-APPROVED TIDE STATIONS MAIN TIDE STATION 3001-0000-1



Sutron's NOS-Approved Main Station & Redundant Station Configuration Pacific Warning Center, Hawaii

SUTRON

MAIN STATION - XPRT/XLITE VOICE MODEM SPECIFICATIONS

RATINGS @ 25° C PARAMETER	Min	Max	Units
Tip / Ring Current Continuous	0	120	mA
Dielectric Withstanding Voltage	-	1650	VRMS
Operating Temperature	-40	+85	°C
Relative Humidity	10	95	%
Voltage Requirement	4.75	5.25	V
Power Consumption	720	880	mW
Transmit & Receive Level	-10 Tx	-43 Rx	dbm
AGENCY APPROVALS			
FCC68 & CS-03 approved		CSA/UL1950 3rd Edition approved (E189947)	
European CE		TUV approved (R2072525)	

MORE FEATURES

Modem enters power-down mode when DTR is low. In this mode, power is turned off to the modem thus conserving the 120mA that the would otherwise be used. When a ring is detected, full mode power is automatically turned on (apprx. 2.5 sec.). Modem will then answer phone on next ring to make connection.

Auto power up on ring with 60 second timer.

DLG - Digital Line Guard Protection (Modem has built-in Digital Line Guard Circuit that automatically detects an over current on the Tip and Ring pins thus protecting the modem in case it is accidentally connected to a Digital Telephone Line.

*Countries Supported: Argentina, Australia, Austria, Belgium, Brazil, Canada, China, Denmark, Finland, France, Germany, Greece, Hong Kong, Iceland, India, Ireland, Italy, Japan, Korea, Malaysia, Mexico, Netherlands, Norway, Philippine, Poland, Portugal, Russia, Saudi Arabia, Singapore, South Africa, Spain, Sweden, Switzerland, Taiwan, Thailand, UK, US and TBR21 Generic