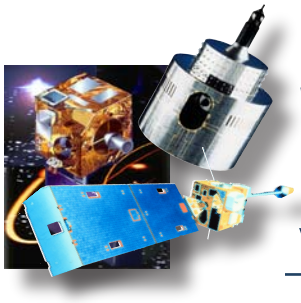

Monitoring & Control Solutions for Environmental Problems
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ISO 9001:2000

SatLink2 Logger/Transmitter with Display Option

Built-In Logger, Multi-Satellite Certified, Pocket PC Communications, Display Option, 4 Analog & 10 SDI-12

Transmission Formats

- GOES High Data Rate 100, 300 & 1200 bps
- INSAT/METSAT
- METEOSAT 2nd Gen. (MSG)
- GMS JAPAN
- FEN YUN
- ARGOS/SCD (pending)

Applications

Stand-Alone Hydro-Met Station or combine with Existing and/or New Sensors or combine with Existing and/or New Loggers

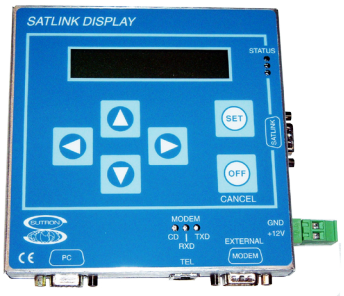
- Stream Gauging
- Reservoir Monitoring Stations
- Precipitation Stations
- Hydro-Met Stations
- Agricultural Weather Stations
- Synoptic and Climatic Weather Stations
- Fire Weather Stations
- Tidal and Port Systems
- Ground Water Monitoring

Basic SatLink2 Features

4 ANALOG INPUTS & 10 SDI-12 SENSOR INTERFACES

- User programmable from Pocket PC, desktop/laptop PC
- Built-in logger - 120,000 readings from any sensor to Flash Memory
- 4 Analog Inputs for single-ended & differential input sensors
- Gain setting options on Analog inputs
- SDI-12 support facilitates a vast array of sensors
- Dedicated Tipping Bucket Input
- Powerful mathematical equation editor for analog sensor data conversion with polynomial & trigonometric support
- Reference voltage output for direct thermistor support
- Switched +12Vdc output
- Forward and reflected RF power measured.
- Scheduled & random (event driven) reporting & alarm detection
- Easy Data Merge allows SatLink to make & log its own measurements AND receive data from another logger
- Every unit includes Trimble GPS module with fast satellite acquisition
- Internal flash log can be downloaded @ 115200 Baud.
- Standard RS232 interface to data recorder
- Easy integration with Sutron 8210, 8080 Xpert, 9210 XLite, 8400 & 8200 Dataloggers
- Serial port for quick and easy firmware & field software upgrades
- Internal diagnostics to monitor transmission quality and GPS performance
- Text messages & manual data entry

Display Option Features



- Adds dual communication capability to SatLink2
- Displays Date & Time
- Display Station Name
- View Data
- Calibrate Sensors - Password Protected
- Enter Data Manually
- Display/Set INSAT ID, Channel, Transmission Time
- Force an INSAT Transmission
- Menus & submenus organized in a tree
- Display: 2 line x 20 character LCD w/backlight
- Readable in direct sunlight and in darkness
- Keypad: 6 keys w/large sealed embossed keys (UP, DOWN, RIGHT, LEFT, ON/OFF, SET)
- Communications: three (3) RS232 ports (one to connect to Satlink 2, one to a PC or PDA, and one to an external modem)
- Power: 9-15VDC thru pin 9 of DB9 or separate 2 pin connector. <0.5 mA standby.
- Operating temperature: -40° C to +60° C, LCD Display -20° C to +60° C
- Dimensions: 5 1/2" x 6 1/2" x 1"
- Optional internal modem

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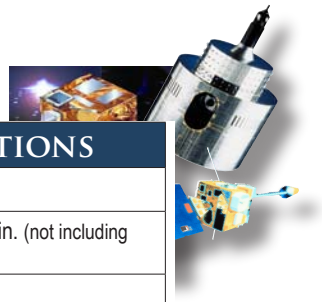
SatLink2 Logger/Transmitter w/Display Option



Basic Logger Specifications

MEASUREMENTS	
Analog Inputs	4 single ended (0-5V, differential ratiometric selectable)
A/D Resolution	24 bit A/D converter
A/D Accuracy	+/- 0.02% FS @25C +/- 0.03% FS @ 25 during TX
Temperature Coeff	+/- 5 ppm/C typ. +/- 10 ppm/C max
Linearity	+/- 0.005% FS
Reference Output	2.5 Volt, 10 ma. max (for temperature sensors)
Switched +12V Out	500 ma. Nom
Tipping Bucket	Dedicated switch closure counter intput

- **SDI-12:** V1.0, V1.1, V1.2, V1.3 sensors
- Supports 10 sensors or measurements
- Independent measurement schedules for each sensor
- User enterable labels for sensors
- Powerful Mathematical Equation Editor for analog sensor data conversion allows user entry of virtually any equation
- Manually entered readings

LOG

- 120,000 readings
- Individual time stamped - 1 sec. resolution
- Can log numbers as small as 1E-38 or as large as 3E+38
- Quality flag for each data sample
- Non-volatile flash memory log
- Data Merge Mode supports merging of SatLink Logger data with data from external logger prior to transmission
- Circular Buffer Mode - enhanced transmission data mgt. Excess data is stored & sent on subsequent transmissions.

ALARMS

- User configurable for each sensor
- High Alarms, Low Alarms, Rate of Change Alarms

SATELLITE SUPPORT

GOES 100 baud	GOES 300 baud
GOES 1200 baud	
Meteosat 2nd Generation (MSG)	INSAT

TRANSMISSION SUPPORT

Random reporting	Self-timed
SHEF	SHEFFIX
Pseudo Binary	

MISCELLANEOUS

- Non-volatile storage of configuration
- Visual indication of data collection
- Windows based setup utility
- GPS support for accurate time

Specifications subject to change without notice.

Transmitter Specifications

Weight	2.2 lbs.
Size	5.55 in. x 7.70 in. x 1.75 in. (not including mounting ears)
Environmental	-40°C to +65°C
Operating Voltage	10.4 to 15 VDC, reverse voltage protected
LED Indicators	Status, Fault & Transmit
CONNECTIONS	
Power	Built-in cable
GPS	SMA (Bulkhead Mounted)
RS232	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.
	Frequency discipline to within 10Hz typ
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 ss)
5000-0010-1	INSAT YAGI
50000-0010-2	INSAT YAGI, stainless steel

TRANSMISSION FORMAT

- SHEF & Pseudo Binary formats
- INSAT 422 bit format
- Meteosat
- CE approved

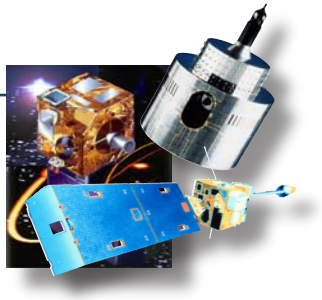
TRANSMISSION MODES

- 100 BPS GOES random and self-timed
- 300 BPS GOES random and self-timed
- 1200 BPS GOES random and 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
- 2 Watt output for ARGOS,SCD
- **Protection against open or short circuit loads on transmitter output**

SatLink2 Logger/Transmitter w/Display Option



Logger w/Display Specifications

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GOES 1200 baud	
Meteosat 2nd Generation (MSG)	INSAT

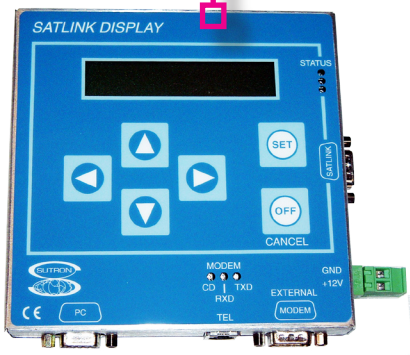
TRANSMISSION SUPPORT

Random reporting	Self-timed
SHEF	SHEFFIX
Pseudo Binary	

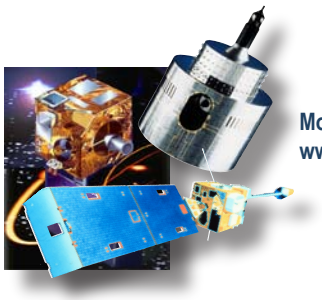
MISCELLANEOUS

- Non-volatile storage of configuration
- Visual indication of data collection
- Windows based setup utility
- GPS support for accurate time

Basic SatLink2 Logger/Transmitter plus Display



Equals SatLink2 Logger/Transmitter w/Display



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Features of Internal Modem (SatLink2 Display-2)

- 33.6 kbps Max Data Rate
- Special power saver circuitry to power off while inactive
- Auto power up on ring
- V.42, MNP 2-4 and 10-EC error correction
- V.42 bis and MNP-5 data compression

Countries Supported by Existing Firmware:

Australia (09)	Austria (0A)	Belgium (0F)
Brazil (16)	China (26)	Denmark (31)
Finland (3C)	France (3D)	Germany (42)
Hong Kong (50)	India (53)	Ireland (57)
Italy (59)	Japan (00)	Korea (61)
Malaysia (6C)	Mexico (73)	Netherlands (7B)
Norway (82)	Poland (8A)	Portugal (8B)
Singapore (9C)	South Africa (9F)	Spain (A0)
Sweden (A5)	Switzerland (A6)	UK (B4)
USA (B5)	TBR21 (FD)	Taiwan (FE)

NOTE:
Sutron recommends using an optional lightning protection module such as the Sutron 6461-1240 for most remote systems.

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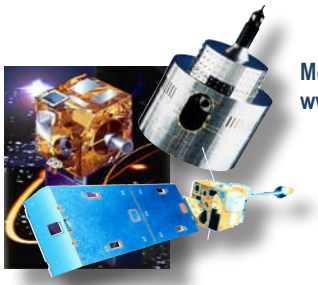

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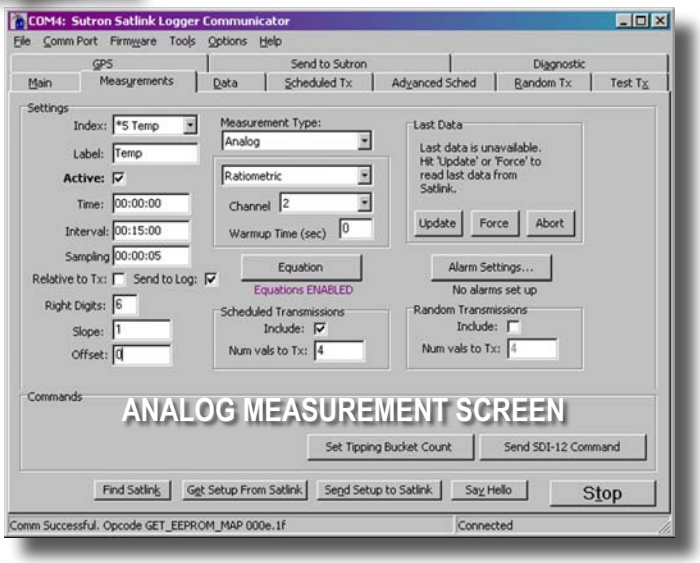
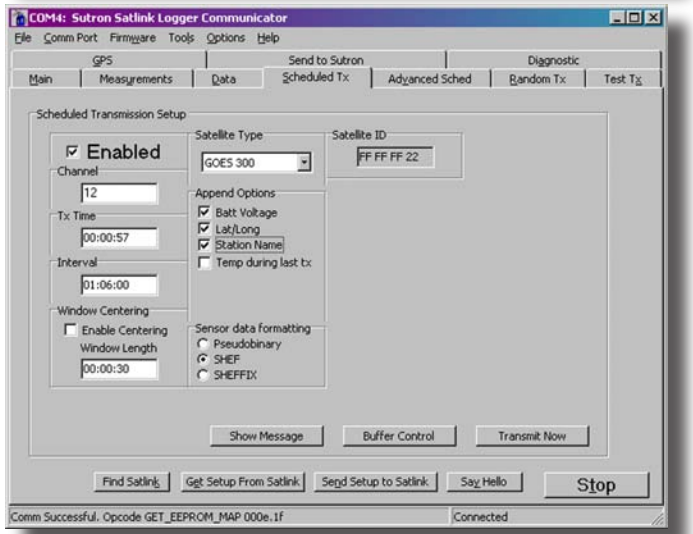
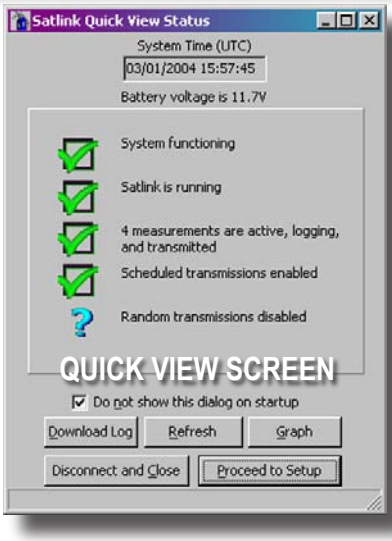


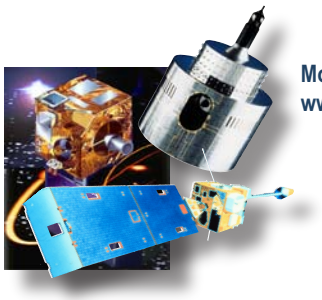




Ordering

SL2-G312-1	SatLink HDR GOES Satellite Transmitter/Logger, 100, 300 and 1200 BPS
SL2-G312-2	INSAT SatLink Transmitter
SL2-Display-1	Display
SL2-Display-2	Display with Internal Modem
	ACCESSORIES
No Charge	Software for Pocket PC
6661-1248-1	SDI-12 Analog Module
6661-1258	Bluetooth Cordless Serial Adapter
6211-1207-1	Mounting kit for installation of SatLink 2 into 8210 with existing speech modem (upgrade of 8210-5314-1)
6211-1208-1	Mounting kit for installation of SatLink 2 into 8210 (upgrade of 8210-5014-1)
6411-1172-1	18" RF cable to connect SatLink to enclosure wall
8111-1113-1	RF COAX Cable Lightning Protection Kit. Bulkhead mount with 36" RG-58 N to N cable.
	ANTENNA OPTIONS
5000-0080	YAGI Antenna
5000-0155, -0156	YAGI Antenna, stainless steel or aluminum
5000-0170	Jam-Resistant GPS Antenna (Bullet Antenna)
6211-1209-1	Mounting Kit for Jam-Resistant GPS Antenna
2271-1061-1	Tower Mount Arm (uni-strut solid wall) for GPS Antenna
6411-1561-1	5 Meter GPS Bullet Antenna Cable
6411-1561-2	10 Meter GPS Bullet Antenna Cable

Sutron recommends installing Satlink 2 in a NEMA 4 enclosure for any humid or hostile environment.



SatLink2 Logger/Transmitter w/Display Option

OPTION 1

JAM-RESISTANT GPS ANTENNA

The Bullet Antenna is recommended for applications where interference near the GPS frequency band might cause jamming or loss of GPS reception. The antenna is also suited for marine environments and any application where a more rugged antenna is required. This antenna has a TNC connector allowing the use of special length cables where required. (Mounting hardware not included.)

Order Sutron Part Number 5000-0170

OPTION 2

MOUNTING KIT FOR JAM-RESISTANT GPS ANTENNA

This kit is designed to mount to existing Uni-Strut type mounting arms used at many stations. Included are a 4 inch stainless steel threaded pipe with a pair of Uni-Strut mounting brackets with hardware for mounting to a Uni-Strut tower arm. (This kit does not include the Uni-Strut arm on the tower, see below.)

Order Sutron Part Number 6211-1209-1

OPTION 3

TOWER MOUNT ARM (UNI-STRUT SOLID WALL) FOR GPS ANTENNA

Length is 38 inches. Plating is Hot Dipped Galvanized. Remember to place the antenna in an open sky view location, i.e. away from the tower as much as possible.

Order Sutron Part Number 2271-1061-1

OPTION 4

ANTENNA CABLE FOR GPS ANTENNA

A low-loss RG-59 cable is provided with a TNC-male connector on one end and an SMA-male on the other end. Two lengths are available although the 5 meter is the preferred length if the extra length is not necessary:

5 Meter Length Order Sutron Part Number 6411-1561-1

10 Meter Length Order Sutron Part Number 6411-1561-2

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