

# GPRSLink Logging Transmitter



Supports Modbus over Cellular Networks

## Overview

Sutron's Multi-Sensor Input Logger plus Flexible, Economical 2-Way GPRS now has WiFi capability for complete station set-up & data access.

## Features

1. Easy-to-use Software includes setup program.
2. Terminal strip with screw terminals for I/O and power connections
3. Operates 8-16VDC
4. TCXO real-time clock with battery backup (+/-4ppm)
5. Built-in solar panel regulator
6. Support for up to 16 measurements of the following inputs:
  - ▶ SDI-12/RS485 (shared as done in the Bubbler)
  - ▶ 5 Analog Inputs:
    - 2 single ended inputs (range 0-5V)
    - 2 differential inputs (range  $\pm 39\text{mV}$ ,  $\pm 312\text{mV}$ ,  $\pm 2.5\text{V}$ )
    - 1 4-20mA input
  - ▶ 2 Digital Inputs. Use for tipping bucket, frequency, & on/off
  - ▶ Internal temperature
  - ▶ Battery voltage
7. Options to average or accumulate any measurement.
8. Lightning protection (Gas Tube) on all external inputs.
9. User specified equation on any measurement .
10. User specified alarm detection on any measurement.
11. 2 LED for verification/diagnostics.
12. Log capacity: 240K of data accessible via GPRS & direct connect
13. Switched Battery Output
14. Also operates as a standalone recorder without telemetry
15. USB slave for serial connection to PC (USB port does not support typical USB devices like memory sticks, modems, etc.)
16. RealTime Clock operates with internal lifetime battery.

## Advanced Features

- ▶ Equation processing & multiple level averaging
- ▶ GUI Interface for intuitive programming (See LinkComm)
- ▶ Command-line interface for operation without custom programs
- ▶ Separate schedules for each measurement
- ▶ Upgrade firmware via RS232.
- ▶ Supports SDI-12, Analog, 4-20ma input
- ▶ Switched Power Output w/overload protection & Digital Output
- ▶ Gas Tube Protection on Inputs
- ▶ Max min or average computations on measurements
- ▶ LED operational status feedback
- ▶ WiFi access point (IEEE 802.11 b/g) with selectable Auto-Time-Out or Always-On modes



*Little Box. Big Data.* GPRS-Link dimensions are 3.8" x 5.3" x 1.3" (96.5mm x 134.6mm x 33.0mm) (approximately the size of an iPhone).

## Applications








- ▶ Surface Water Level, Flow & Quality
- ▶ Groundwater Level & Quality
- ▶ Offshore X-Linking
- ▶ Mining / Geotechnical
- ▶ Weather X-Linking & Warning
- ▶ Oceanic X-Linking & Warning
- ▶ Oil & Gas Production
- ▶ Any Low-Power, Remote Data Acquisition System

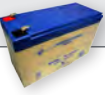
## GPRS Telemetry Benefits

- ▶ Periodic transmissions at user-set times with data in user-selectable format (pseudobinary B, C, SHEF & ASCII)
- ▶ Supports primary/secondary stations via GPRS
- ▶ Alarm transmissions as they are detected.
- ▶ Diagnostics track data amount sent & telemetry performance
- ▶ Supports 2 on/off devices for remote commands (i.e., data collection/maintenance/control)
- ▶ Optional message authentication for insuring a trusted source & for messages sent to SutronWIN via GPRS
- ▶ Incoming SMS transmissions if GPRS fails or in place of GPRS
- ▶ Extremely affordable
- ▶ GPRS uses wireless cellular technology & provides data access in most typical cell phone areas.

<b>SPECIFICATIONS</b>	
<i>Specifications subject to change without notice</i>	
Measurement Interval	1 second to 24 hours
Number of Measurements	16 supported
<b>ANALOG</b>	2 Single ended, 2 Differential, 1 4-20ma
Single-Ended Analog	0-5 V (with respect to ground)
Number available	2
Input Range	0 to 5V (with respect to ground)
Resolution	0.298 $\mu$ V
Noise (p/p) @25°C	25.0 $\mu$ V (p/p)
Accuracy @25°C	0.003% (typ) Midscale 0.004% Max
Input Impedance	> 1 MegOhm @25°C
Differential Analog	0.06%
Number Available	2
Range (SW selectable)	$\pm$ 39mV; Common Mode Voltage Range .3 to 3.9 Volts $\pm$ 312mV; Common Mode Voltage Range .3 to 3.9 Volts $\pm$ 2.5V; Common Mode Voltage Range .1 to 4.9 Volt
Resolution	4.657 nV @ $\pm$ 39mv scale, 37.25 nV @ $\pm$ 312mv scale, 298 nV @ $\pm$ 2.5 scale.
Noise (p/p) @25°C	10 $\mu$ V (p/p) $\pm$ 39 mv / 312 mv scale 20 $\mu$ V (p/p) $\pm$ 2.5 v scale 0.06%
Accuracy @25°C Input Impedance	>5 Meg Ohm 312mV FS Differential @25°C
<b>4-20 mA Analog</b>	
Range	0 - 22mA
Resolution	<1nA
Accuracy @25°C	0.06%
Loop Power	External
Loop Resistance	100 Ohm built-in load
<b>DIGITAL INPUTS/ OUTPUTS</b>	
Digital Input 1,2 Tipping Bucket Type	Switch Contact Type. Pulse Width: 30ms - 120ms. Range: DC to 120 tips/min. (min).
Digital Input 1,2 Frequency Type	10KHz max, optional debouncing (300 Hz max)
Minimum Frequency Input Range	2.8 Hz 0 - 5 V
Maximum Frequency	10 KHz
Digital Input 1,2 Counter Type	
Maximum Frequency	10 kHz (with no debouncing)
Input Range	300 Hz (with debouncing) 0- 5 Volts
<b>ELECTRICAL</b>	
Input Voltage	8-16VDC 10 V minimum for SDI-12 sensor support Reverse power protected

<b>Current Consumption</b>	0.5mA standby typ (all sensors unpowered) 8 to 20mA active typ	
<b>GPRS Transmission</b>	<50mA @ 12 Volts	
<b>Power Connection</b>	2 position terminal strip	
<b>SDI-12 Port</b>	3 position terminal strip	
<b>Red Warning LED</b>	Indicates setup or operation error	
<b>Green Heartbeat LED</b>	Indicates unit operating properly	
<b>Earth GND</b>	.2" screw terminal	
<b>ENVIRONMENTAL</b>		
<b>Temperature</b>	-40°C to +60°C	
<b>Humidity</b>	0-95% Non-condensing	
<b>KEY FEATURES</b>		
<b>Clock</b>	Internal real-time clock w/battery backup.	
<b>Accuracy</b>	$\pm$ 9.3 s /month(Max) -40 to +60°C. (First Year)	
<b>Accuracy</b>	$\pm$ 2.4 min /year (Max) -40 to +60°C. (First Year)	
<b>Accuracy</b>	$\pm$ 4.5 min / 10 years (Max) -40 to +60°C. (10 Years)	
<b>Log Capacity</b>	240,000 readings, flash memory	
<b>USB Port Connector</b>	Serial Communications / USB port	
Mini-B Male USB connector on logger to be connected to USB Type-A Male (Windows PC). LinkComm software included for USB port communications		
<b>Internal Solar Panel Battery Charger</b>	5 - 20W Panels. (Max 30 Watts) Automatic charge & float modes protect gel cell & acid batteries.	
<b>GPRS modem</b>	Modem factory installed, internal with RF output jack for antenna.	
Quad Band GPRS Modem SMA-F Output RF Jack		
<b>COMMUNICATIONS</b>		
<b>Interfaces</b>		
1 USB Mini-B Male (5 pin) Connector Serial Communications - USB. Not full function USB port. GPRS Modem SDI-12. RS485 (future support)		
<b>SDI-12 interface</b> V1.3 compliant recorder		
Supports up to 16 SDI-12 sensors Automatically combines requests to the same device +12V @ 500mA		
<b>DIMENSIONS</b>		
	<b>Operating</b>	<b>Shipping</b>
<b>Height</b>	5.3" (13.5 cm)	14 in. (35.6 cm.)
<b>Length</b>	3.8" (9.7 cm)	10 in. (25.4 cm.)
<b>Width</b>	1.3" (3.4 cm)	6 in. (15.3 cm.)
<b>Weight</b>	1 lbs. (.46 kg)	2 lbs. (0.9 Kg)
<b>NOTES:</b> Please refer to the XLink Product Family User Manual for full product specifications and variations. RM Young Pulse Type Wind Speed & Direction Sensors supported, however they must be amplified & limited to 5 volts. (i.e., Sutron model #5600-0200) Do not use a non-amplified sensor <b>SUTRON RECOMMENDS: RM Young Wind Speed &amp; Direction Sensor (model #5600-0201) with an integrated amplifier.</b>		

ORDERING		
Part #	Description	
<b>GPRSLink Models</b>		
<b>GPRSLink-1</b>	Datalogger & GPRS Modem combined plus 4 Mounting Screws for Holes Located on the Back of the Unit. <b>No enclosure.</b>	
<b>GPRSLink-1E</b>	Basic GPRSLink w/ Internal Antenna & Mounting Ears for Wall includes 7AH Battery	
<b>GPRSLink-1C</b>	Basic GPRSLink w/ External Antenna Connector & Mounting Ears for Wall. Includes 7AH Battery (Antenna not included)	
<b>GPRSLink-1L</b>	Basic GPRSLink w/External Antenna Connector, Lightning Protection & Mounting Ears for Wall includes 7AH Battery (Antenna not included)	
<b>MOUNTING KITS</b>		
<b>Pole Mounting Kit</b>		
Part #	Pole Outside Dia.	Schedule 40 Pipe
<b>2911-1365-1</b>	2.38" *Most Common	2.0"
<b>2911-1365-2</b>	2.88"	2.5"
<b>2911-1365-3</b>	1.90"	1.5"
<b>2911-1365-4</b>	1.66"	1.25"
<b>2911-1365-5</b>	1.32"	1.0"
<b>Din Rail Mounting Kit</b>		
<b>2911-1362-1</b>	Installs on Back of Unit (Din Rail not included.)	
<b>Wall Mounting Kit</b>		
<b>2911-1361-1</b>	Wall Mount Kit for Basic Unit	
<b>ANTENNAS</b>		
<b>1291-1033</b> (internal antenna)	GPRS/CDMA Antenna Indoor Mount, Adhesive Back, 12" Cable, SMA-M Connector	
<b>CABLES - For Basic Models SMA-(F)</b>		
<b>LL400-15-N-SMA</b>	Cellular Antenna Cable (15 ft) SMA to N	
<b>LL400-20-N-SMA</b>	Cellular Antenna Cable (20 ft) SMA to N	
<b>CABLES - For Enclosure Models N-(F)</b>		
<b>LL400-15-N-N</b>	Cellular Antenna Cable (15 ft) N to N	
<b>LL400-20-N-N</b>	Cellular Antenna Cable (20 ft) N to N	
<b>SOLAR PANELS</b>		
<b>5100-0412</b>	2 Watt Solar Panel	
<b>2271-1087</b>	2 Watt Solar Panel Mounting Panel	
<b>3911-1050</b>	5 Watt Solar Panel	
<b>2271-1037</b>	5 Watt Solar Panel Mounting Bracket	

<b>3911-1037</b>	10 Watt Solar Panel
<b>2271-1036</b>	10 Watt Solar Panel Mounting Bracket
<b>BATTERY</b>	
<b>5100-0030</b>	7 Ah Gel Cell Rechargeable Battery (NP7-12) 151mm x 65mm x 98 mm 
<b>GROUNDING KIT</b>	
<b>5100-0600-1</b>	Ground Kit w/8ft. ground rod, copper wire, clamps & plate.
<b>T-MOBILE GPRS ACTIVATION/SERVICE PLANS (DOMESTIC)</b>	
<b>TGPRS.ACT</b>	Activation, 1 time charge
<b>TGPRS.1MB.PLAN</b>	Monthly Plan, 1 MB
<b>TGPRS.1MB.ADD</b>	Overage charge / MB
<b>TGPRS.5MB.PLAN</b>	Monthly Plan, 5 MB
<b>TGPRS.1GB.PLAN</b>	Monthly Plan, 1 Gigabyte
<b>TGPRS.100SMS.PLAN</b>	Monthly Plan
<b>WYLESS GPRS FOR DOMESTIC USE (covers T-Mobile, AT&amp;T &amp; roaming partners)</b>	
<b>WGPRS.ACT</b>	Activation, 1 time charge
<b>WGPRS.1MB.PLAN</b>	Monthly Plan, 1 MB
<b>WGPRS.1MB.ADDL</b>	Overage charge per MB
<b>SMS is not available with WYLESS GPRS.</b>	
<b>DATABASE MANAGEMENT</b>	
<b>SutronWIN</b>	Real-Time Web Hosting, Data Processing, Delivery, Storage, Alarms & Data Display
<b>9400-0400</b>	SutronWIN Client Set Up (1-time fee for new Account)
<b>9400-0401</b>	Custom Starter Page (optional)
<b>9400-0402</b>	SutronWIN Station Set Up (1-time fee/new Station)
<b>9400-0403</b>	SutronWIN /Station Annual Fee, first 10 Stations



GPRSLink in convenient Carrying Case



# LinkComm Software for GPRSLink

## Overview

For user-friendly communications and easy set-up/maintenance of your XLink Product (IridiumLink, GPRSLink, etc.) install LinkComm software directly via a USB or remotely over cell, satellite or Wi-Fi connections. LinkComm runs on Windows PC, iPhone/iPad and Android platforms.

## Features

LinkComm can be used to:

- ▶ Set up an XLink station
- ▶ Download the log from XLink

- ▶ Upgrade XLink firmware
- ▶ Check XLink status
- ▶ Calibrate connected sensors

There are several ways to connect to an XLink:

- ▶ Directly via USB cable
- ▶ Remotely via TCP/IP
- ▶ Remotely through the Sutron Redirector
- ▶ Locally via XLink Wi-Fi

