

# X-Link Datalogger



**Little Box. Big Data.** X-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).

## Overview

Sutron's X-Link Datalogger, a Multi-Sensor Input Logger, has WiFi capability for complete station set-up & data access.

## Features

- ▶ Multi-Sensor Input
- ▶ Easy-to-use Software includes setup program.
- ▶ Terminal strip with screw terminals for I/O and power connections
- ▶ Operates 8-16VDC
- ▶ TCXO real-time clock with battery backup (+/-4ppm)
- ▶ Built-in solar panel regulator
- ▶ 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
- ▶ Options to average or accumulate any measurement.
- ▶ Lightning protection (Gas Tube) on all external inputs.
- ▶ User specified equation on any measurement .

- ▶ User specified alarm detection on any measurement.
- ▶ 2 LED for verification/diagnostics.
- ▶ Log capacity: 240K of data accessible via direct connect
- ▶ Switched Battery Output
- ▶ USB slave for serial connection to PC (USB port does not support typical USB devices like memory sticks, modems, etc.)
- ▶ 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 USB.
- ▶ 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

## Applications







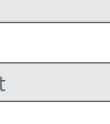


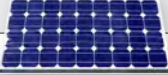
- ▶ Surface Water Level, Flow & Quality
- ▶ Groundwater Level & Quality
- ▶ Offshore X-Linking
- ▶ Mining / Geotechnical
- ▶ Weather X-Linking & Warning
- ▶ Oceanic X-Linking & Warning
- ▶ Oil & Gas Production
- ▶ Any Low-Power, Remote Data Acquisition System

**SPECIFICATIONS***Specifications subject to change without notice*

<b>Measurement Interval</b>	1 second to 24 hours
<b>Number of Measurements</b>	16 supported
<b>ANALOG</b>	2 Single ended, 2 Differential, 1 4-20ma
<b>Single-Ended Analog</b>	0-5 V (with respect to ground)
<b>Number available</b>	2
<b>Input Range</b>	0 to 5V (with respect to ground)
<b>Resolution</b>	0.298 $\mu$ V
<b>Noise (p/p) @25°C</b>	12.0 $\mu$ V (p/p)
<b>Accuracy @25°C</b>	0.003% (typ) Midscale 0.004% Max
<b>Input Impedence</b>	> 1 MegOhm @25°C
<b>Differential Analog</b>	
<b>Number Available</b>	2
<b>Range (SW selectable)</b>	$\pm$ 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
<b>Resolution</b>	4.657 nV @ $\pm$ 39mv scale, 37.25 nV @ $\pm$ 312mv scale, 298 nV @ $\pm$ 2.5v scale.
<b>Noise (p/p) @25°C</b>	1.6 $\mu$ V (p/p) $\pm$ 39 mv / 312 mv scale 5.0 $\mu$ V (p/p) $\pm$ 2.5 v scale
<b>Accuracy @25°C</b>	0.004% max @ $\pm$ 2.5v scale
<b>Input Impedance @25°C</b>	>5 Meg Ohm 312mV FS Differential
<b>4-20 mA Analog</b>	
<b>Range</b>	0 - 22mA
<b>Resolution</b>	<1nA
<b>Accuracy @25°C</b>	0.02%
<b>Loop Power</b>	External
<b>Loop Resistance</b>	200 Ohm
<b>DIGITAL INPUTS/ OUTPUTS</b>	
<b>Digital Input 1, 2 Tipping Bucket Type</b>	Switch Contact Type. Pulse Width: 30ms - 120ms. Range: DC to 120 tips/min. (min).
<b>Digital Input 1,2 Frequency Type</b>	
<b>Minimum Frequency</b>	2.8 Hz
<b>Maximum Frequency</b>	10 KHz
<b>Input Range</b>	0 - 5 V
<b>Digital Input 1,2 Counter Type</b>	
<b>Maximum Frequency</b>	10 kHz (with no debouncing) 300 Hz (with debouncing)
<b>Input Range</b>	0- 5 Volts
<b>INTERNAL TEMPERATURE</b>	
<b>Range</b>	-40 to +60°C
<b>Accuracy</b>	$\pm$ 3 degrees

<b>ELECTRICAL</b>		
<b>Input Voltage</b>	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>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>COMMUNICATIONS</b>		
<b>Interfaces</b>		
1 USB Mini-B Male (5 pin) Connector Serial Communications - USB. Not full function USB port. 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.		

**ORDERING**

Part #	Description	
<b>X-Link Models</b>		
X-Link-1	Basic datalogger plus 4 Mounting Screws for Holes Located on the Back of the Unit. <b>No enclosure.</b>	
X-Link-1E	Basic X-Link with NEMA enclosure & Mounting Ears for Wall includes 7AH Battery	
<b>MOUNTING KITS</b>		
<b>Pole Mounting Kit</b>		
Part #	Pole Outside Dia.	Schedule 40 Pipe
2911-1365-1	2.38" <b>*Most Common</b>	2.0" 
2911-1365-2	2.88"	2.5" 
2911-1365-3	1.90"	1.5" 
2911-1365-4	1.66"	1.25" 
2911-1365-5	1.32"	1.0" 
<b>Din Rail Mounting Kit</b>		
2911-1362-1	Installs on Back of Unit (Din Rail not included.)	
<b>Wall Mounting Kit</b>		
2911-1361-1	Wall Mount Kit for Basic Unit	
<b>SOLAR PANELS</b>		
5100-0412	2 Watt Solar Panel	
2271-1087	2 Watt Solar Panel Mounting Panel	
3911-1050	5 Watt Solar Panel	
2271-1037	5 Watt Solar Panel Mounting Bracket	
3911-1037	10 Watt Solar Panel	
2271-1036	10 Watt Solar Panel Mounting Bracket	
<b>BATTERY</b>		
5100-0030	7 Ah Gel Cell Rechargeable Battery (NP7-12) 151mm x 65mm x 98 mm	
<b>GROUNDING KIT</b>		
5100-0600-1	Ground Kit w/8ft. ground rod, copper wire, clamps & plate.	

*If you want to include a Display with your new X-Link, please inform your Sutron representative or the Sutron Sales Administrator when you place your order.*

*If you are interested in up-grading an existing X-Link with a Display, please contact Sutron Customer Service as some factory re-work will be necessary in order to accept the cable connection to the X-Link Display. Customer Service - (703)406-2800 or CS@sutron.com.*



**ORDERING X-LINK DISPLAY**

X-Link Display is an accessory that can be mounted in a Station in order to read values at the DCP site.

**Features**

Character Format	5x8 dots
Display Type	OLED
Text Color	Yellow
Background Color	Black
Operating Temperature	-40°C to +60°C
Size (HxWxD)	1.65" x 4.79" x 1.55"
Current in Sleep	1mA @ 12VDC
Compatible with all X-Link products	

**Easy Operation**

- ▶ Pressing the WiFi button will turn the display on and repeated presses will cycle through Station Name, Errors, M1, M2...Signal Strength.
- ▶ Display turns off after 5 minutes since the last button press to conserve power.
- ▶ Displayed readings are live values.



# LinkComm Software for X-Link

## Overview

For user-friendly communications and easy set-up/maintenance of your X-Link, 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 X-Link station
- ▶ Download the log from X-Link

- ▶ Upgrade X-Link firmware
- ▶ Check X-Link status
- ▶ Calibrate connected sensors

There are several ways to connect to an X-Link:

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

