

# XLite 9210B Datalogger & Controller



4/8/19

# Overview



Designed for maximum value and functionality, the XLite 9210B is a high performance data recorder and communications device ideal for remote real-time data acquisition, control, and communications. The XLite 9210B datalogger has the ability to simultaneously take measurements and transmit information for a wide range of applications.



XLite 9210B without Enclosure  
9210-000-2B



XLite 9210B with Enclosure  
9210-ENC-B



# XLite 9210B Applications



- Meteorology and Climatology
- Agrometeorology
- Oceanography
- Aviation (AWOS)
- Flood Warning
- Water Level and Flow Monitoring
- Water Quality
- Hydrology
- Air Quality
- Visibility
- Geotechnical
  - Dam Safety
  - Structural Stability
- Energy
  - Solar Farm
  - Wind Farm





# XLite 9210B Features

- Support for SD or USB memory
- 32MB Internal Flash Memory
- 32-Bit Processor
- Multiple Communications Simultaneously
- Sensors connect to the system via analog and digital I/O modules that plug into the I2C port as well as via RS232, RS485, and SDI-12.
- 4 communications serial ports for satellite transmitters, modems, radios & other serial communication devices.
- Retrieve data using any communication interface, USB or SD memory cards.
- Wide Operating Temperature (-40 to +60°C)
- Built-In Ethernet
- Built-in Display/Buttons for viewing data
- Built-in 10 channel A/D, 8 channel DIO



# XLite 9210B Features



2x20 Backlit LCD display

Menu and Data Entry keys

B Terminal Strip: 8 channel Digital I/O,  
RS485, SDI-12

A Terminal Strip: 10 channel Analog  
input, DC Power connection

Earth Connection

3 RS232 Ports, I<sup>2</sup>C Bus to additional  
I/O modules, Optional PCMCIA card



# XLite 9210B Specifications



|                                    |   |
|------------------------------------|---|
| •Measurement Interval              | 0.1 Seconds to 24 hours (Programmable)  |
| •Number of Measurements Supported  | Unlimited   |
| •Analog Channels                   | 10  |
| •Input Voltage Common mode voltage | -0.1 to 5V with respect to ground, single ended or differential                           |
| •Range                             |   |
| Single-Ended                       | 0-5 V, ± 78 mV (with respect to ground)   |
| Differential                       | ±2.5V, ± 78 mV (+ input with respect to – input)  |
| •Accuracy                          | 0.002% of 5V typ 0.003% of 78mV typ   |
| •Resolution                        | 16 bit  |
| •Expandable                        | via I2C and SDI-12  |
| •Digital Inputs and Outputs        | 8 (6 Bi-Directional, 2 input only)  |
| •Functions Supported               | Status inputs, counter inputs, frequency inputs, quadrature input                         |
| •Max Frequency                     | Channel 1, 8KHz; other channels 1KHz  |
| •Support for Low Level AC inputs   | Channels 7 and 8 support low level AC frequencies (e.g. RMYoung)                          |
| •Output Type                       | Open collector with 100 ohm current limiting resistor, 100 mA max, 15V max                |
| •Expandable                        | via I <sup>2</sup> C and SDI-12   |
| •Excitation Channels               | 5 Channels  |
| •Type(s)                           | Precision Voltage Reference, Switched battery, Switched +5, Protected +12V, Protected +5V |
| •Communication Ports               | 4 RS232 for communications  |



# XLite 9210B Specifications - Continued



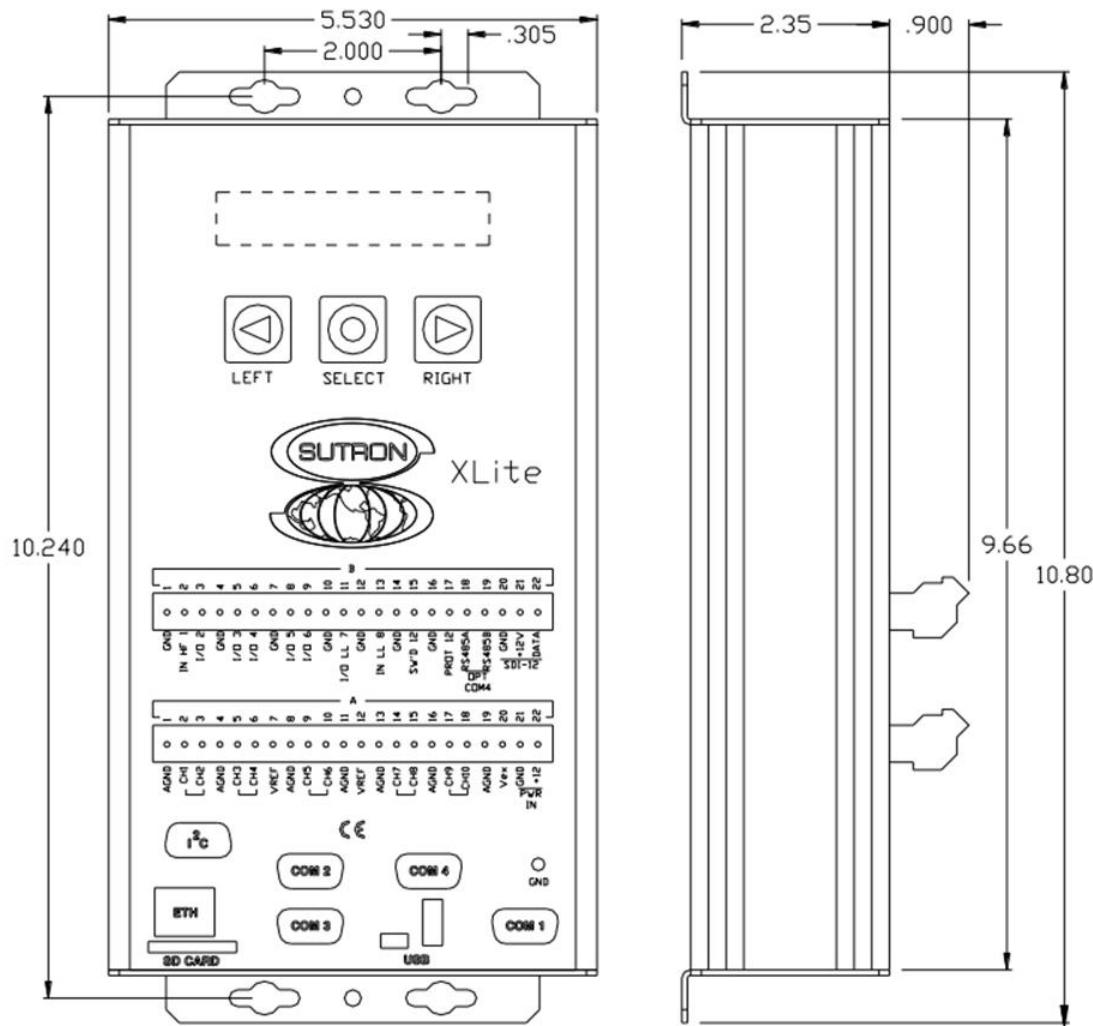
|  |  |
|--|--|
| •Telemetry                             | Satlink2, Sutron Data & Voice Modem, Radio, Direct Connect, GPRS, IRIDIUM, MODBUS, and custom devices via BASIC                                    |
| •Number of Simultaneous Communications | 4  |
| •Operating Temperature                 | -40°C to +60°C   |
| •Display Operating Temperature         | LCD operates to -20°C  |
| •Display Type                          | 2x20 character sunlight-readable backlit LCD   |
| •Keypad Type                           | 3 buttons  |
| •Memory                                | Non-volatile memory: 65MB (1 to 3 million readings), RAM: 32 MB<br>For download data and read/write setups or additional log memory                |
| Built-In                               |  |
| SD/MMC Card                            |  |
| •Ethernet                              | Built in Ethernet support  |
| •Clock Accuracy (at 0C – 40°C)         | 5.4 sec/month  |
| •Power Requirements                    | 10-16VDC (20VDC max)   |
| •Current Drain                         | Typically 3mA standby, 40mA active   |
| •Communication Protocols Supported     | SSP (Sutron Standard Protocol), MODBUS, YMODEM, Telnet, HTTP, FTP, DHCP, DNS, SLIP, PPP, and custom protocols via Basic using RS-232, TCP, and UDP |
| •Programming                           | Menu driven setup, Expanded complexity via BASIC, Custom capability via C++  |
| •Device Dimensions                     |  |
| Height                                 | 11" (28 cm)  |
| Length                                 | 6" (15.3 cm)   |
| Width                                  | 3" (7.7 cm)  |
| Weight                                 | 2 lbs. (0.9 kg)  |



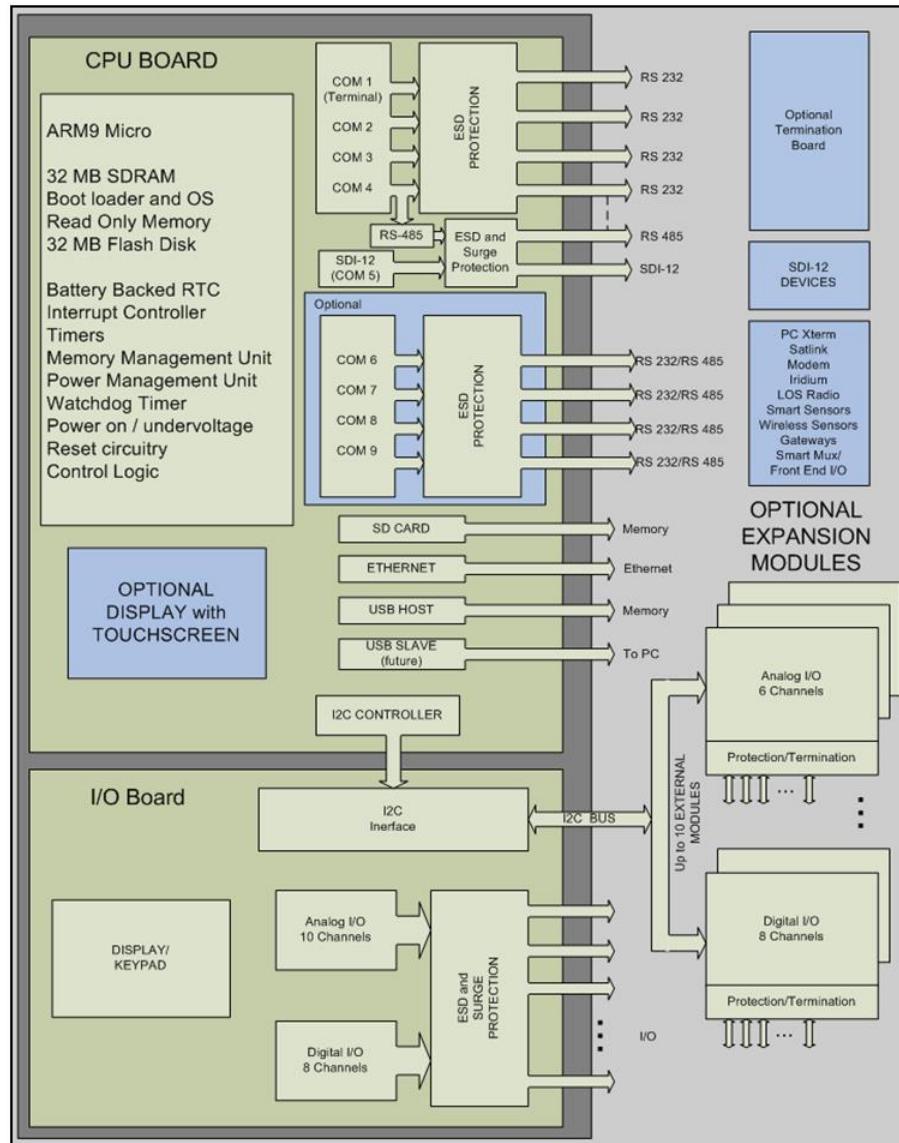
# XLite 9210B Dimensions



Dimensions are shown in inches:



# XLite 9210B Block Diagram



# Key Client Portfolio – U.S.A



- NWS
- NOAA/NOS
- USACE
- USBR
- USGS
- USGS HIF
- CRREL
- NYPA
- EWEB



- PACIFICORP
- SRP, Arizona
- CH2MHILL
- Gannett Fleming
- URS Corp.
- TETRA TECH
- John Hopkins University
- Texas A&M
- Montgomery County

# Key Client Portfolio – International



- Environment Canada
- Water Survey of Canada



- BC Hydro



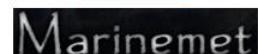
- Hydro Quebec



- TRCA – Toronto Regional Conservation Authority



- FAO - UN
- UNESCO



- MARINEMET



- AEMET
- Niagara Peninsula Conservation Authority



- WMO



Ministerio de Medio Ambiente  
y Recursos Naturales



- SASE – India
- CWC – India
- IMD – India
- IMGW – Poland
- CVC – Colombia
- INAMEH – Venezuela
- SNET – EL Salvador
- INETER – Nicaragua
- ETESA – Panama
- IDEAM – Colombia
- SENAMHI – Peru
- FURNAS – Brazil
- SIMEPAR – Brazil

# Installation Examples

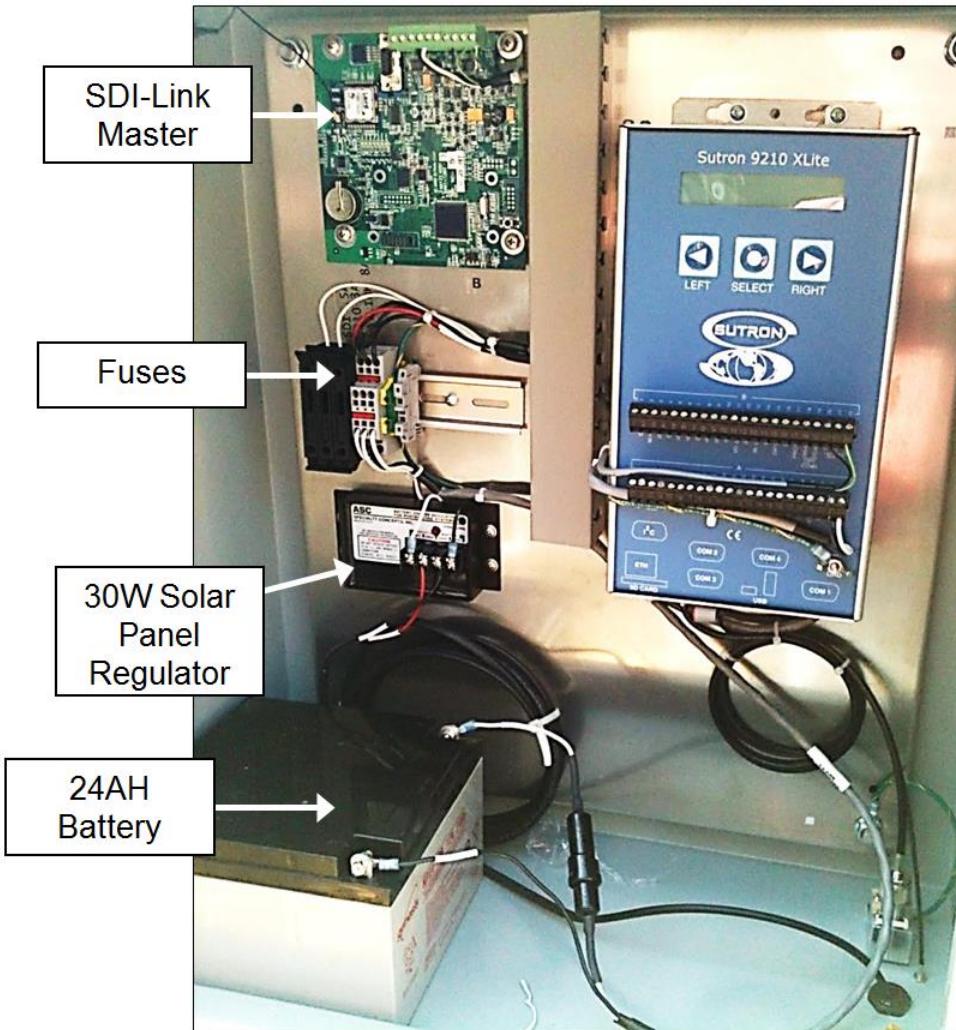


XLite 9210B in Afghanistan





# Installation Examples



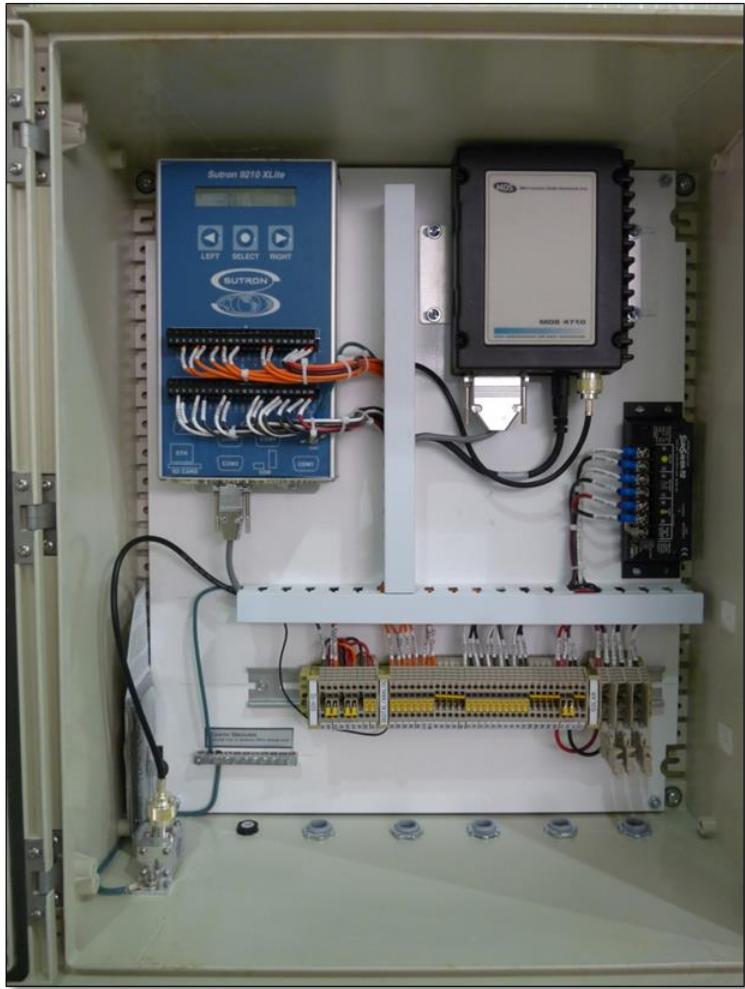
XLite 9210B with SDI-Link Master Station



# Installation Examples



XLite 9210B with MDS Radio



# Installation Examples



XLite 9210B – Cali, Colombia



# Installation Examples



XLite in a Tide Station





# Installation Examples



XLite in a Tide Station



# Installation Examples



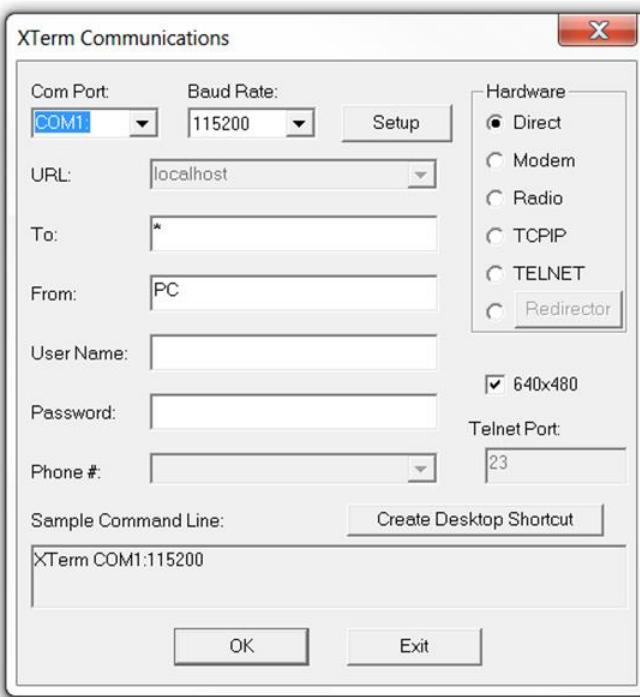
XLite 9210B with Range Finder and Camera for Glacier Monitoring – Hubbard Glacier, Wrangell-St. Elias National Park & Preserve, Alaska



# XTerm Software for Remote Operation



Sutron's XTerm communications program allows any PC to remotely setup and operate an XLite without using a front panel. No special installation is needed for XTerm. Simply copy from our website to any folder on your PC.



- Free software shipped with loggers and available on our website
- Remote operation of XLite
- Automatically displays the graphic display of the XLite
- Easy file transfer to allow uploading and downloading of setups, programs, and data files
- Set the clock on the XLite
- Export logged data to your PC
- Communicate with an XLite via RS232 com ports 1-9 at up to 115200 baud
- Automatically prompts for login account and password when needed
- Display system information regarding running processes, threads, and memory usage
- Also available for Windows Mobile, Pocket PC, and PDA

# XLite 9210B Models & Options



## Models

- 9210-0000-2B      XLite Data Recorder, 4 Comms
- 9210-0000-3B      XLite Data Recorder, 8 Comms
- 9210-ENC-B      XLite Data Recorder in Enclosure
- 9210-SL2-ENC-B      XLite Data Recorder with Satlink-2, in Enclosure
- 9210-SL2-ENC-M      XLite Data Recorder with Satlink-2, in Enclosure, With Modem
- 9210-SL2-2B      XLite Data Recorder with Satlink-2 Transmitter





## Datalogger Modules & Communications Options

- Analog/Digital Expansion Modules – I<sup>2</sup>C
- Surge Protection Modules
- Communication Options
- SDI-12 Analog Plus



# Xpert/XLite Expansion Modules - I<sup>2</sup>C



## Options

8080-0003-1

Xpert/XLite Analog I/O Module: 6 Channels



8080-0003-3

Xpert/XLite Analog I/O Module: 6 Channels  
with Surge Protection



8080-0007

Xpert/XLite Analog I/O Module: 10 Channel, 16 Bit.



8080-0002-1

Xpert/XLite Digital I/O Module: 8 Channels



8080-0002-4

Xpert/XLite Digital I/O Module with Surge Protection



8080-0008-1

Fire Weather I/O Module



# Xpert/XLite Surge Protection Modules



## Options

6461-1241 SDI-12 Surge Protection Module



6461-1242 Power Surge Protection Module



6461-1239 RS-232 Surge Protection Module



6461-1240 Telephone Surge Protection Module



# Xpert/XLite Communications Options



## Options

SL2

SatLink2-V2 Logging Transmitter



GPRS-I-O

GSM GPRS Modem



-various plans available-

Cellular Data Plans



ISBD-1-O

Iridium® Short Burst Data (SBD) Transceiver



-various plans available-

Iridium Data Plans



8080-0005-1B

Voice Modem Module



8080-0005-2

Modem with King Radio



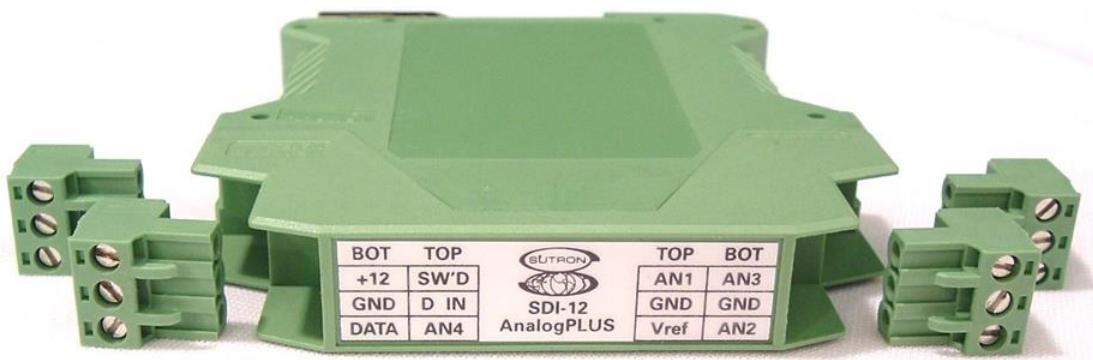
# Universal SDI-12 Converter



## Options

6661-1248-1

Universal SDI-12 Converter



5 Ports to accommodate a vast array of sensors: Highly accurate and stable, programmable input range, and supports low level 10 mV and high level 0-5V sensors.

Converts the following to SDI-12:

- Analog
- Digital/Frequency
- Quadrature



# Universal SDI-12 Converter



## Analog to SDI-12



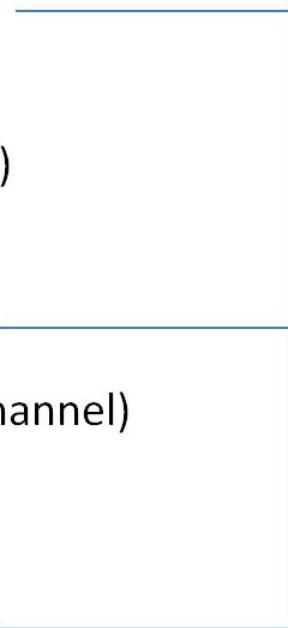
AT/RH (2 Channel)



Water Temp (1 Channel)



Pyranometer (1 Channel)



### Analog

- 0-5 VDC
- 4-20 ma
- Differential
- Ratiometric



# Universal SDI-12 Converter



## Digital/Frequency to SDI-12



Prop & Vane Wind Sensor  
(1 digital, 1 analog)



Tipping Bucket  
Rain Gauge



### Digital/Frequency

- Switch Closure
- Frequency (20KHz)
- Period



# Universal SDI-12 Converter



## Quadrature to SDI-12



Quadrature Shaft Encoder



# Universal SDI-12 Converter



## Interfaces with many of these sensors

- Air Temperature
- Water Temperature
- Relative Humidity
- Wind Speed
- Wind Direction



### Left Side Top

| Label | Description                          |
|-------|--------------------------------------|
| SW'D  | Switched Voltage out (+5 or +12)     |
| D IN  | Digital input                        |
| AN4   | Analog input 4 / optional digital in |

### Right Side Top

| Label | Description                  |
|-------|------------------------------|
| Vref  | Reference Voltage out (2.5V) |
| GND   | Ground                       |
| AN1   | Analog input 1               |

### Left Side Bottom (SDI-12 connection)

| Label | Description                   |
|-------|-------------------------------|
| +12   | +12V SDI power from recorder  |
| GND   | Ground connection to recorder |
| DATA  | SDI-12 data line to recorder  |

### Right Side Bottom

| Label | Description    |
|-------|----------------|
| AN2   | Analog input 2 |
| GND   | Ground         |
| AN3   | Analog input 3 |

