

# Grenada Hydrometric Equipment Installation: CARIWIN

# The Packing List

- Stage
  - SDI Encoder for stage measurement
  - AxSys MPU Logger, Serial for SDI-12 input
  - Accessories
  
- Rainfall
  - TB3 Tipping Bucket Rain Gage (0.01", 10 m)
  - AxSys MPU Logger, Serial for pulse input

# Accessories

- Pulley (PVC, tape, 12" circ, 2.4" perf.)
- Float Tape (2.4" perf., blank, 30 ft)
- Float (Cu, 8" dia)
- Counterweight (10 oz)
- End hooks (set of 2)

# Other items shipped

- Staff Gage 0-3.33 ft
- Staff Gage 3.33-6.66 ft
- Weather proof NEMA4 enclosure (for AxSys)
- What's missing??

# Not shipped: Power Supply

- Options:
  - Solar Panel (10 W) with charge controller and 12 V 10.5 A-h battery
  - Electrical power (AC) with transformer for 12 V DC output power
  - Extension cables (if required)
- These need to be procured locally
  - total cost ~ US\$500 whichever system is used

# Groundwork

- Site selection
  - Clear and level ground
  - Safety of equipment, accessibility
- Site preparation
  - Housing and stilling well
  - Foundation for rain gage?
- Procurement
  - Power supply and mounts for solar panel

# AxSys Serial MPU Logger

For SDI-12 logger



# AxSys MPU (Serial for SDI-12)

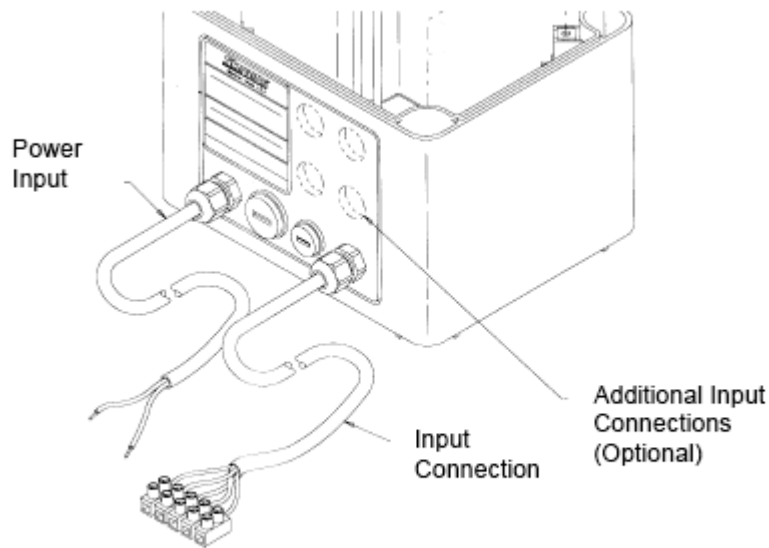
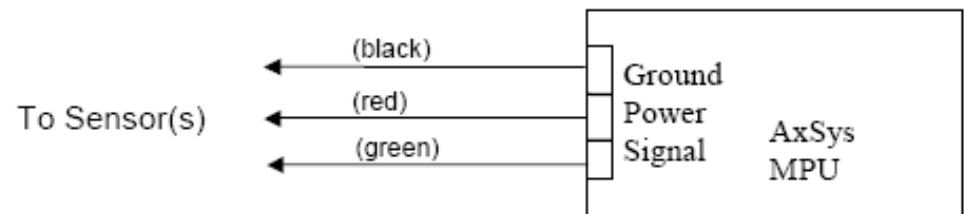


Figure 7.1 AxSys Connections

SDI-12 INPUT	
PIN (wire color)	SIGNAL
1 (black)	Signal/Supply Common (Ground)
2 (red)	Vsupply Output (Typically 12 VDC)
3 (green)	SDI-12 Signal Line

Table 7.3 SDI-12 Sensor Input Connections





# AxSys Serial MPU Logger

With pulsed input for rain gage



# AxSys for Rain Gage

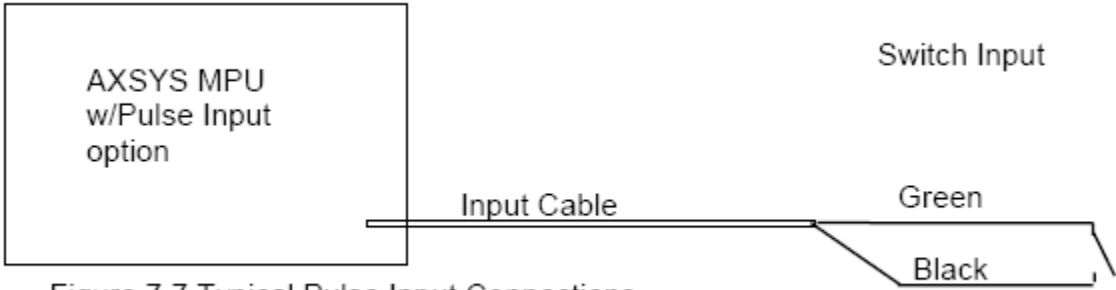


Figure 7.7 Typical Pulse Input Connections

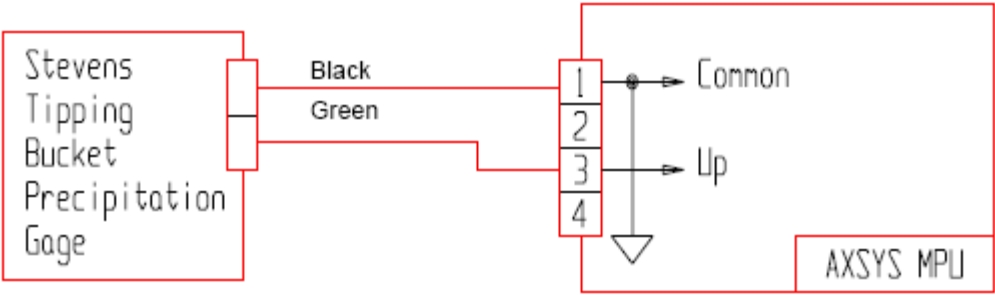


Figure 7.4 Tipping Bucket Precipitation Gage Connections

Wire Color	Signal
Green	Pulse In
Black	Signal Ground

# Maintenance

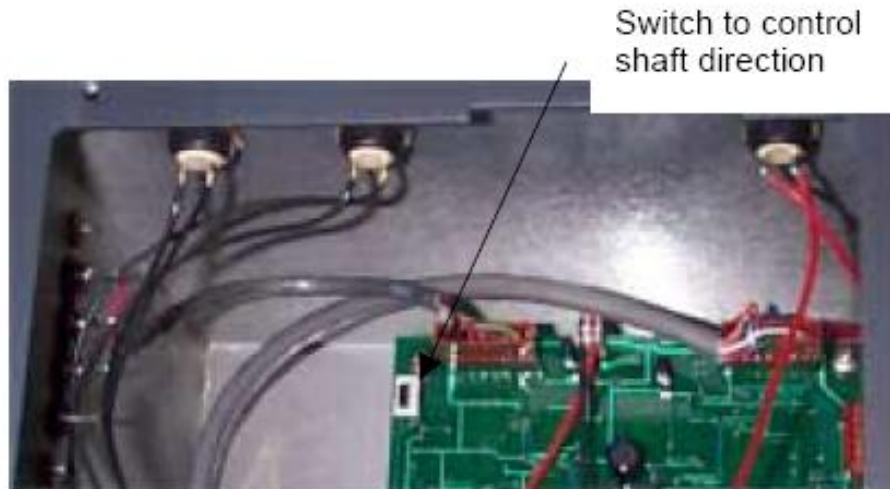
- Maintain Field book
- Check battery voltages ( $> 12$  V?) and keep a regular log (every site visit)
- Is the battery charging through the solar panel or battery charger?
- Dessicant to keep the Axsys moisture free
- Check seal on lid (gasket)

# SDI-12 Encoder

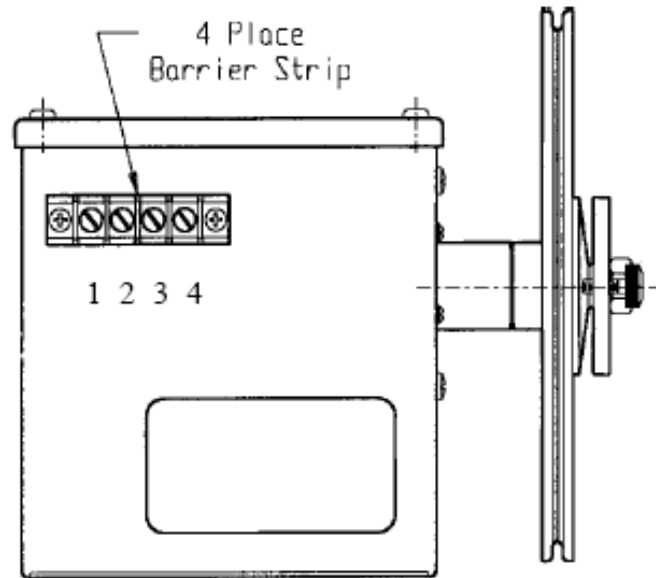


# SDI-12 Encoder

- Both Metric and Feet options available
  - Parameter Option controls this (1 or 2)
- Direction of shaft can be reversed




# SDI-12 Wiring



1. Power (Red) (+12 VDC from receiving instrument)
2. Ground (Black)
3. Signal (Green)

# Scale Values (Programming)

*Table of Scale Values for Different Pulley Sizes*



<b>Pulley Size</b>	<b>Scale Value</b>	<b>Parameter #</b>	<b>Readout</b>
12 inch	1.00	2	xxx.xx feet
18 inch	1.50	2	xxx.xx feet
36 inch	3.00	2	xxx.xx feet
375mm	1.23	1	xxx.xx meters
750mm	2.46	1	xxx.xx meters

# Tipping Bucket Rain Gage

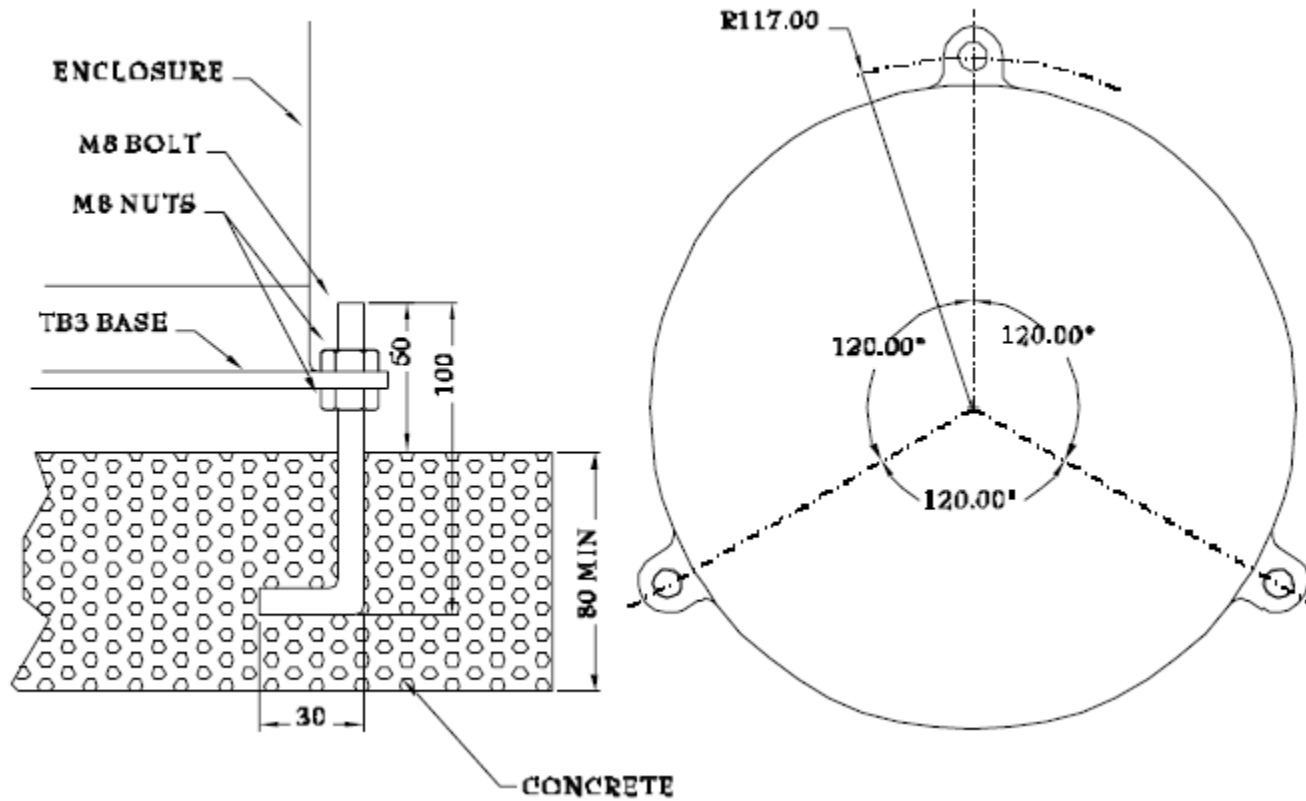
0.01" bucket



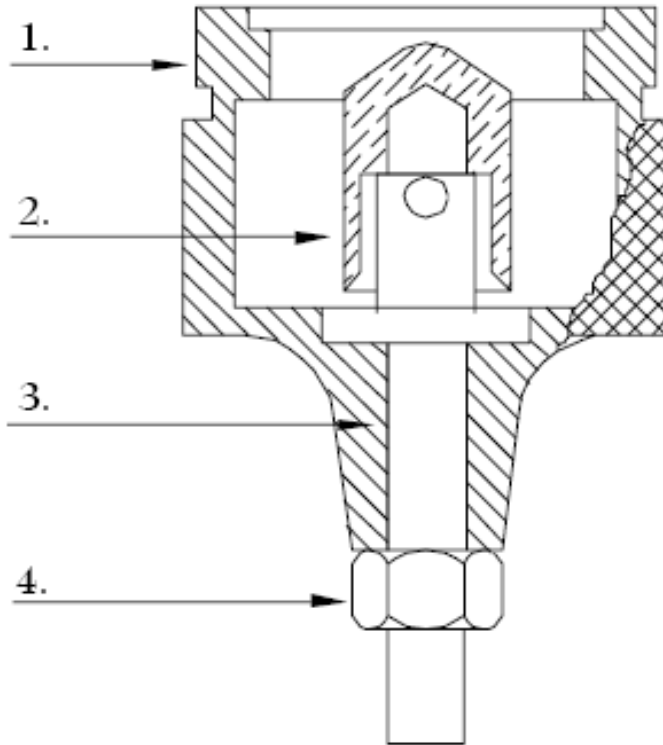


# Tipping Bucket Rain Gage

## Recommended Installation



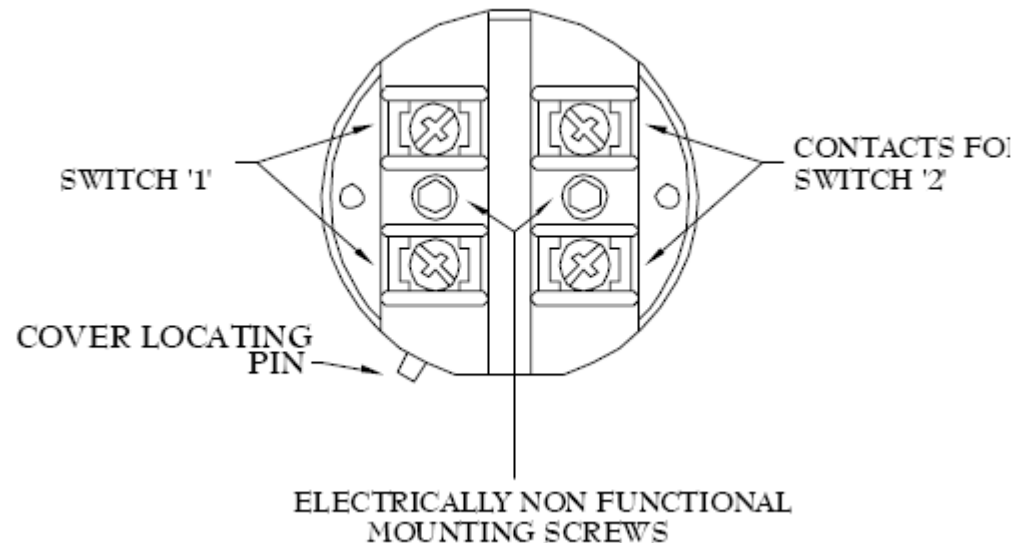
# Cross Section of Assembly



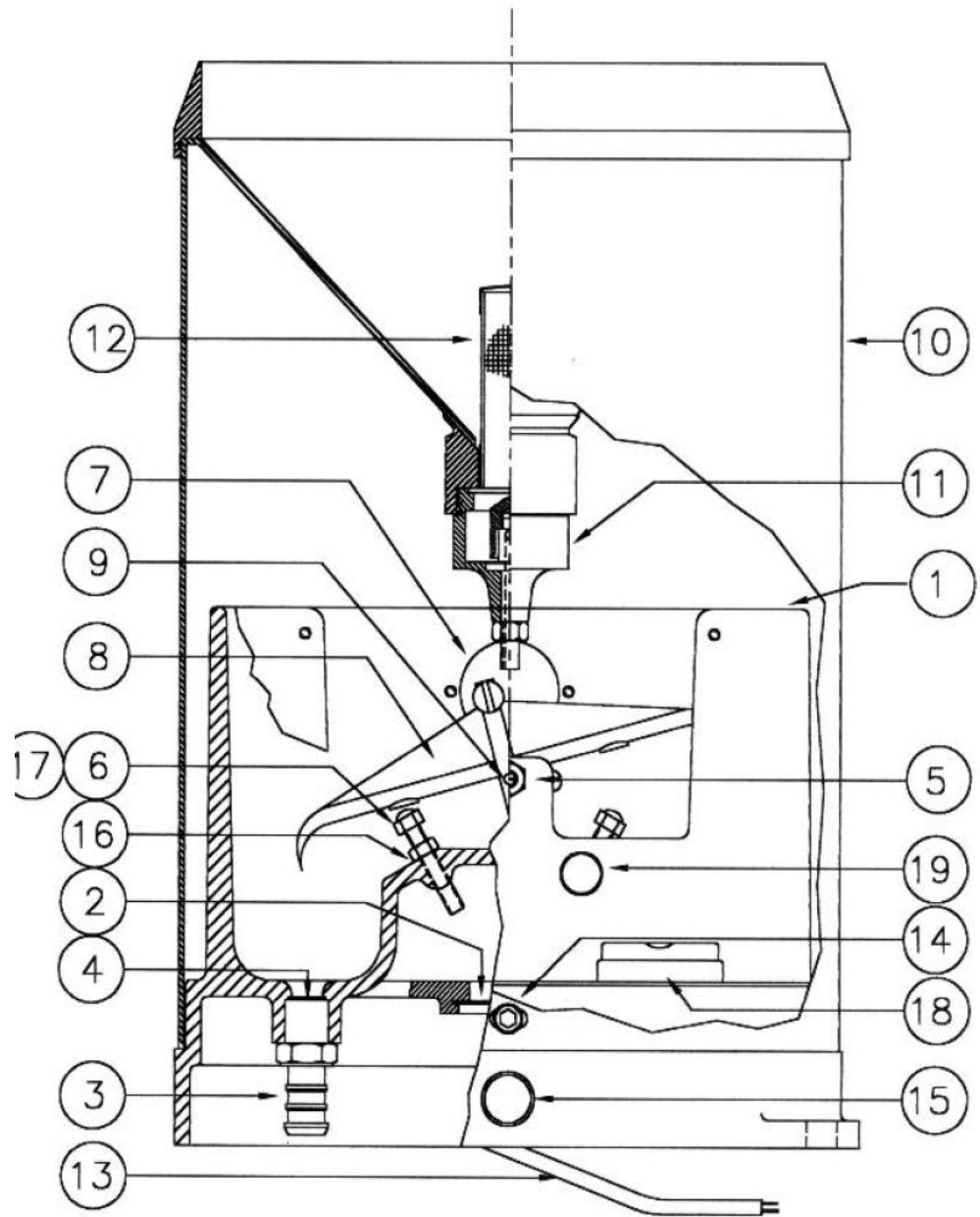
- 1. SYPHON BODY TB309-01
- 2. STEM CAP TB309-02
- 3. SYPHON STEM TB309-03
- 4. HEX NUT BRASS SCO08-38

## Dual Reed Switches

- Second switch ensures redundancy
- Allows the use of two separate circuits if required (e.g. Telemetry + data)
- Parallel connection can increase current carrying capacity if required



1	BASE
2	INSECT SCREEN
3	FITTING
4	INSECT SCREEN
5	PIVOT SCREW C/W NUT
6	ADJUSTING SCREW
7	ASSY REED SWITCH
8	ASSY BUCKET (METAL)
	ASSY BUCKET (PLASTIC)
9	BUCKET AXLE
10	ASSY ENCLOSURE
11	ASSY SYPHON
12	ASSY FILTER
13	CONNECTING LEAD
14	SCREW
15	GROMMET
16	LOCK NUT
17	SCREW
18	BULLSEYE LEVEL
19	KNURLED HEAD LOCK SCREW



# Maintenance

- Check catch filter and siphon for cleanliness
- Troubleshooting
  - Connections (wiring)
  - Power supply (voltage)
  - Clogged?
  - Tipping smoothly?

# Other

- Installation of staff gage