

INSTRUCTION MANUAL



SW12V 12 V Power Switch Assembly

12/15



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General

- Prior to performing site or installation work, obtain required approvals and permits. Comply with all governing structure-height regulations, such as those of the FAA in the USA.
- Use only qualified personnel for installation, use, and maintenance of tripods and towers, and any attachments to tripods and towers. The use of licensed and qualified contractors is highly recommended.
- Read all applicable instructions carefully and understand procedures thoroughly before beginning work.
- Wear a **hardhat** and **eye protection**, and take **other appropriate safety precautions** while working on or around tripods and towers.
- **Do not climb** tripods or towers at any time, and prohibit climbing by other persons. Take reasonable precautions to secure tripod and tower sites from trespassers.
- Use only manufacturer recommended parts, materials, and tools.

Utility and Electrical

- **You can be killed** or sustain serious bodily injury if the tripod, tower, or attachments you are installing, constructing, using, or maintaining, or a tool, stake, or anchor, come in **contact with overhead or underground utility lines**.
- Maintain a distance of at least one-and-one-half times structure height, 20 feet, or the distance required by applicable law, **whichever is greater**, between overhead utility lines and the structure (tripod, tower, attachments, or tools).
- Prior to performing site or installation work, inform all utility companies and have all underground utilities marked.
- Comply with all electrical codes. Electrical equipment and related grounding devices should be installed by a licensed and qualified electrician.

Elevated Work and Weather

- Exercise extreme caution when performing elevated work.
- Use appropriate equipment and safety practices.
- During installation and maintenance, keep tower and tripod sites clear of un-trained or non-essential personnel. Take precautions to prevent elevated tools and objects from dropping.
- Do not perform any work in inclement weather, including wind, rain, snow, lightning, etc.

Maintenance

- Periodically (at least yearly) check for wear and damage, including corrosion, stress cracks, frayed cables, loose cable clamps, cable tightness, etc. and take necessary corrective actions.
- Periodically (at least yearly) check electrical ground connections.

WHILE EVERY ATTEMPT IS MADE TO EMBODY THE HIGHEST DEGREE OF SAFETY IN ALL CAMPBELL SCIENTIFIC PRODUCTS, THE CUSTOMER ASSUMES ALL RISK FROM ANY INJURY RESULTING FROM IMPROPER INSTALLATION, USE, OR MAINTENANCE OF TRIPODS, TOWERS, OR ATTACHMENTS TO TRIPODS AND TOWERS SUCH AS SENSORS, CROSSARMS, ENCLOSURES, ANTENNAS, ETC.

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SW12V 12 V Power Switch Assembly

1. Introduction

The SW12V power switch allows a datalogger to supply power to a sensor only during measurement, thereby reducing current drain. The SW12V consists of a cable that connects to the datalogger, and a terminal block for connecting the external device.

The SW12V provides similar functionality as a datalogger's switched 12 V terminal. For newer dataloggers, the SW12V is used when datalogger's switched 12 V terminals are not available. It is also used with older dataloggers (for example, CR510, 21X, CR7) that do not have a switched 12 V terminal.

2. Precautions

- READ AND UNDERSTAND the [Safety](#) section at the front of this manual.

3. Initial Inspection

- Upon receipt of the SW12V, inspect the packaging and contents for damage. File damage claims with the shipping company.

4. Specifications

Features:

- Compatible with all Campbell Scientific dataloggers

Current ratings: 0.9 A @ 20 °C
0.65 A @ 50 °C
0.36 A @ 85 °C

Cable Length: 17.7 cm (18 in)

Control Line Voltage Range: 4 to 16 Vdc

5. Installation

5.1 Wiring

TABLE 5-1. SW12V Connections

TABLE 5-1. SW12V Connections			
Sensor	SW12V		Datalogger
Wire Description	Terminal	Wire	Terminal
Power	SW12V	Red	12V
Power Ground	GND	Black	G or \perp
		Green	Control Port

5.2 Datalogger Programming

CRBasic dataloggers use the **PortSet()** instruction to switch the power on and off. The **PortSet()** has the following form:

```
PortSet(Port, State)
```

Where,

Port: the control port used

State: nonzero value switches the power on and 0 switches the power off

NOTE

CRBasic programs need to use the sequential mode to ensure that 12 V will be turned on prior to the measurement.

Edlog dataloggers use the **Do (P86)** instruction to switch the power on and off.

Use code 4X in parameter 1, where X is the number of the control port used to switch the power on. Use code 5X to switch the power off.

5.2.1 Example Programs

5.2.1.1 CR1000 Program

The following CR1000 program uses control port 1 to switch the power on the SW12V on before measuring an HMP155A Temperature and Relative Humidity Sensor and then switches the power off after making the measurement.

```
SequentialMode
'Declare Variables and Units
Public Batt_Volt
Public AirTC
Public RH

Units Batt_Volt=Volts
Units AirTC=Deg C
Units RH=%

'Define Data Tables
DataTable(Temp_RH,True,-1)
  DataInterval(0,60,Min,0)
  Average(1,AirTC,IEEE4,0)
  Sample(1,RH,IEEE4)
EndTable

'Main Program
BeginProg
  Scan(5,Sec,1,0)
  'Default Datalogger Battery Voltage measurement Batt_Volt:
  Battery(Batt_Volt)
  'HMP155A measurements AirTC and RH:
  PortSet(1,1)
  Delay(0,2,Sec)
  VoltSE(AirTC,1,mV2500,2,0,0,_60Hz, .14,-80)
  VoltSE(RH,1,mV2500,1,0,0,_60Hz,0.1,0)
  PortSet(1,0)
  If RH>100 And RH<108 Then RH=100
  'Call Data Tables and Store Data
```

```

CallTable(Temp_RH)
NextScan
EndProg

```

5.2.1.2 CR10X Program

The following CR10X program uses the SW12V to switch the power on before measuring an HMP155A Temperature and Relative Humidity Sensor and then switches the power off making the measurement.

```

;Turn the HMP155A on.
;
01: Do (P86)
  1: 41      Set Port 1 High      ;Green wire (C1) if using SW12V device
                                   ;For CR23X use 49 for SW12V internal
                                   ;control port
;Pause 2 s before making measurements so the probe can stabilize on true readings.
;
02: Excitation with Delay (P22)
  1: 1      Ex Channel
  2: 0      Delay W/Ex (units = 0.01 sec)
  3: 500    Delay After Ex (units = 0.01 sec)
  4: 0      mV Excitation
;Measure the HMP155A temperature.
;
03: Volt (Diff) (P2)
  1: 1      Reps
  2: 5      2500 mV Slow Range    ;CR510, CR500 (250 0mv)
                                   ;CR23X (1000 mV) 21X, CR7 (5000 mV)
  3: 2      DIFF Channel         ;Yellow wire (2H), jumper (2L to 1L)
  4: 1      Loc [ T_C ]
  5: .14    Mult
  6: -80    Offset
;Measure the HMP155A relative humidity.
;
04: Volt (Diff) (P2)
  1: 1      Reps
  2: 5      2500 mV Slow Range    ;CR510, CR500 (2500mv); CR23X (1000 mV)
                                   ;21X, CR7 (5000 mV)
  3: 1      DIFF Channel         ;Blue wire (1H), white or purple wire (1L)
  4: 2      Loc [ RH_pct ]
  5: .1     Mult
  6: 0      Offset
;Turn the HMP155A off.
;
05: Do (P86)
  1: 51      Set Port 1 Low      ;Green wire (C1) if using SW12V device
                                   ;For CR23X or CR5000 use 59 for SW12V internal
                                   ;control port

```


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