

# Installation Instructions

## IntelliFlex® Sun and Wind Sensor by Draper

- ① Sun Sensor must be connected to an Eye Jack on an SC1 or splitter.
- ② Sun Sensor is not weatherproof: **DO NOT install outdoors.**
- ③ Keypads or remote transmitters can be used to program the Sun Sensor. Programming codes available at [www.draperinc.com](http://www.draperinc.com).

### Sun and Wind Sensor Configuration:

For the most reliable operation, this unit should be hardwired to the system. If that is not practical, the Sun and Wind Sensor may be connected to an RF Transmitter (Part# C072.022) for wireless operation. However, the batteries on an RFTM will not power the Sun and Wind Sensor for very long, so a DC Power Supply (Part# C258.0020) must also be used. The "change radio address" is used if more than one Sun and Wind Sensor is connected to a system using radio. See "Installing Sun and Wind Sensor Using Radio". To configure the Sun and Wind Sensor, see the chart on page 2.

### Installing the Sun Sensor

- ① Connect the sun and wind sensor Sun and Wind Sensor control board and wire to the Bus (see Fig. 1).

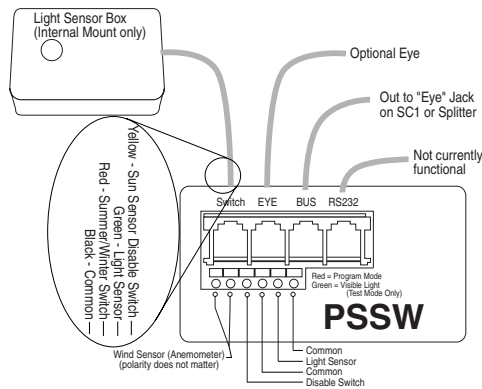


Figure 1

**Please Note:** An EYE plugged into the eye jack is repeated out to the Bus. This unit is able to work with other accessories on the same Bus.

- ② Connect the board to the receivers using a modular phone cable that does **not** flip (i.e., the black wire is always on the left). Multiple SC1 devices can be controlled by daisy chaining them together.
- ③ The light sensor in the white box must be connected using a modular phone cable that does not flip. It is recommended that this sensor be placed indoors hanging in the window looking outside. You may also connect the light sensor to the spring loaded connector. If this wire is exposed outside, it needs to be appropriately rated to handle sunlight, moisture, etc.; the light sensor must also be appropriately moisture proofed. The wire to the light sensor may be up to 500' long; wire type and gauge do not matter.
- ④ Apply power to the receivers. Please note that:
  - A. Sensor default factory setting is "test mode."
  - B. Sunrise and sunset actions are already programmed. Sunrise = Close All, @ sunset = no command sent.
  - C. Disable switch is NOT on.
- ⑤ Cover the light sensor and verify that the red LED on the board is off.
- ⑥ Expose the sensor to typical daylight. The red LED on the board should turn on. If the red LED does not turn on, program the sensitivity to a smaller number. A few seconds after the LED lights, the motor (s) should activate for the SUNRISE event. In the default case it will send the ALL CLOSE command.
- ⑦ Block the light sensor.
  - A. The LED should go out

- B. After a few seconds, all motors should go in the programmed direction. The default for this event is to do nothing. At this point everything is working correctly in "test" mode.
  - ⑧ You must set the delay time to an operational time rather than the quick test time. For ten minutes use the following sequence: S+7+7; CLOSE "# (led); CLOSE 3 (blink); OPEN 2 (blink); STOP ("#=number).
  - ⑨ Verify that the operational mode is engaged.
    - A. Cover the light sensor and verify that the green LED is off.
    - B. Uncover the sensor and verify that:
      - The green LED does not come on, and
      - The motors do not move after a few seconds.
- The motors may move as programmed for SUNRISE after ten minutes.

### Please Note:

When connected to a mod jack, this sensor uses the black and green wires assuming black on the left.

An optional "Sun Disable" switch may be connected into the sensor jack or the spring loaded connector as shown. This switch connects between the black and yellow/white wires assuming black on the left. Switch OFF (no electrical connection) ENABLES the sensor. ON (electrical short) DISABLES the sensor. This switch may be placed in the same box as the light sensor if desired. This switch only disables activity due to SUN.

Sun commands will control all Bus devices.

An optional "Winter/Summer select" switch may be connected into either mod jack (see Fig. 1). This switch connects between the black and red wires assuming black on the left. The sunrise and sunset thresholds and the associated actions can all change when this switch is activated. Switch OFF (no electrical connection): Summer; ON (electrical short): Winter.

See page two for all codes and default settings.

### Installing Sun and Wind Sensor Using Radio (RFTM) (see Fig. 2)

- ① Install the light Sensor and control board.
- ② Put an infrared eye in the Sun and Wind Sensor EYE jack.
- ③ Using an IR only handheld transmitter, program the Sun and Wind Sensor to radio mode S+7+7 Close "# (red LED must be on) Close 12 (blink) Open 3 (blink) Stop (LED off) ("#=number).
- ④ Press the "learn" button on the RR24 with which you want the Sun and Wind Sensor to communicate. The red LED must come on.
- ⑤ Quickly press the stop button on the IR transmitter aimed at the eye plugged into the Sun and Wind Sensor. (This will cause the Sun and Wind Sensor to send a radio command that will be learned by the RR24.) The LED on the RR24 must go out when the stop button is pressed indicating the RR24 has learned the radio address of the Sun and Wind Sensor.
- ⑥ Press an open or close command on the IR transmitter and make sure the appropriate action happens on the system.

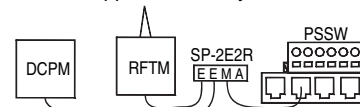


Figure 2

### Installing the Optional Wind Sensor

Wind protection only works when connected to Bus devices that have enabled wind. The wind anemometer (see Fig. 3) connects to the spring loaded terminals. Polarity does not matter. The cable may be up to 100'. The wire type and gauge does not matter, but exterior rated wire should be used if the wire is exposed. Unlike the sun sensor, there is no "switch" to turn off wind protection. The only way to disable this protection would be to insert a switch in series with the anemometer leads. Enter programming mode and set Wind options using the chart on page 2.

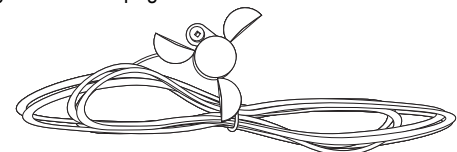


Figure 3

Continued on page 2

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If you encounter any difficulties installing/wiring your IntelliFlex Sun and Wind Sensor, call your dealer or Draper, Inc., Spiceland, Ind., (765) 987-7999 or fax (765) 987-7142.

**Installing Optional Wind Sensor (continued from page 1)**

**Please Note:** For the “wind event” to occur, the anemometer must spin faster than the threshold speed for the persistence time. If the persistence is set to instantaneous, then as soon as the cups spin fast enough, the event happens. Setting the persistence higher allows brief gusts of wind to be ignored. If the wind speed is set for 1 MPH, then a persistence less than 4 seconds will never trip. If the wind speed is set for 2 MPH, then a persistence less than 2 seconds will never trip. If the wind speed is set for 3-5 MPH, then

a persistence of less than 1 second will never trip. The control will move the motor appropriately when a “wind event” is received. It will start a 10-minute lockout time and not allow Bus commands during the “lockout”. Subsequent “wind events” restart this timer. The Sun and Wind Sensor will send a “wind event” every 4½ minutes if wind is detected during that interval. The unit will send wind event commands by Bus every three seconds until the command is successfully sent; by radio repeat the command once after 3 seconds.

**Codes for Programming IntelliFlex Sun and Wind Sensor**

**Configuration Chart**

Configuration:					
Change accessory number to “X” (Default is 1)	S+7+7	C “N”	C 12	C “X”	S
Plugged into Bus (default)	S+7+7	C “N”	C 12	O 2	S
Plugged into RFTM	S+7+7	C “N”	C 12	O 3	S
Change radio address	S+7+7	C “N”	C 12	O 4	S
Demo Wind Timing (report every 4 seconds)	S+7+7	C “N”	C 12	O 5	S
Standard Wind Timing (every 4.5 minutes) (default)					

**Wind Chart**

To set this	LED:	on	blink	blink	off
Reset All Sun and Wind options to factory default	S+7+7	C “N”	C ALL		S
Wind Threshold to 10+y miles per hour (default = 10) minimum = 0 1 (1 mph), max = 9 9 (99 mph). Use 10 for 0	S+7+7	C “N”	C 4	Ox Oy	S
nudge the threshold ½ MPH more (less sensitive)	S+7+7	C “N”	C 4	O 11	S
nudge the threshold ½ MPH less more sensitive)	S+7+7	C “N”	C 4	O 12	S
Wind Persistence Time:					
instantaneous default	S+7+7	C “N”	C 5	O 1	S
½ second	S+7+7	C “N”	C 5	O 2	S
1 second	S+7+7	C “N”	C 5	O 3	S
2 seconds	S+7+7	C “N”	C 5	O 4	S
4 seconds	S+7+7	C “N”	C 5	O 5	S
8 seconds	S+7+7	C “N”	C 5	O 6	S
16 seconds	S+7+7	C “N”	C 5	O 7	S

**Sun Chart**

To set this	LED:	on	blink	blink	off
Reset all Sun & Wind options to factory default <sup>1</sup>	S+7+7	C “N”	C All		S
Action at Sunrise in Summer (default is close all)	S+7+7	C “N”	C 1	Button <sup>2</sup>	S
Action at Sunset in Summer (default is ignore this event)	S+7+7	C “N”	C 2	Button <sup>2</sup>	S
Sun Sensor delay time (both Winter & Summer)					
3 seconds with Test LED active (default)	S+7+7	C “N”	C 3	O 1	S
10 minutes	S+7+7	C “N”	C 3	O 2	S
15 minutes	S+7+7	C “N”	C 3	O 3	S
20 minutes	S+7+7	C “N”	C 3	O 4	S
30 minutes	S+7+7	C “N”	C 3	O 5	S
60 minutes	S+7+7	C “N”	C 3	O 6	S
Set the Sunrise (Light) Threshold in Summer to 10x+y min = 0 0 = no light, max = 9 9 = direct sun (use 010 for 0)	S+7+7	C “N”	C 6	Ox Oy <sup>3</sup>	S
nudge the threshold "5" brighter (sunrise earlier)	S+7+7	C “N”	C 6	O 11	S
nudge the threshold "5" darker (sunrise later)	S+7+7	C “N”	C 6	O 12	S
Set the Sunset (Dark) Threshold in Summer to 10x+y min = 0 0 = no light, max = 9 9 = direct sun (use 010 for 0)	S+7+7	C “N”	C 7	Ox Oy <sup>3</sup>	S
nudge the threshold "5" brighter (sunset earlier)	S+7+7	C “N”	C 7	O 11	S
nudge the threshold "5" darker (sunset later)	S+7+7	C “N”	C 7	O 12	S
Action at Sunrise in Winter (default is Open All)	S+7+7	C “N”	C 8	Button <sup>2</sup>	S
Action at Sunset in Winter (default is Close All)	S+7+7	C “N”	C 9	Button <sup>2</sup>	S
Set the Sunrise (Light) Threshold in Winter to 10x+y Set level or nudge using same buttons as Summer	S+7+7	C “N”	C 10	Ox Oy <sup>3</sup>	S
Set the Sunrise DarkThreshold in Winter to 10x+y Set level or nudge using same buttons as Summer	S+7+7	C “N”	C 11	Ox Oy <sup>3</sup>	S

<sup>1</sup> Radio address is not changed here, accessory number will be changed to 1.

<sup>2</sup> This means whatever “button” you want to be pushed at the selected event, “Stop” means ignore the event.

<sup>3</sup> Dark threshold MUST be less than Light threshold . After Ox there is a short blink, the value is not saved until long blink after Oy button. If the LED flashes red then green many times, then the Dark threshold is too high or Light threshold is too low, all thresholds are set back to default values and you remain in program mode. If you attempt to nudge a threshold too far, the LED flashes red then green several times, and the thresholds are unchanged.

**Defaults:**

Sun: Sensor in test mode (3 sec),  
 Summer Sunrise threshold= 70, action = Close ALL; Summer Sunset level = 35, action = ignored,  
 Winter Sunrise threshold= 60, action = Open ALL; Winter Sunset level = 25, action = Close ALL.

Wind: threshold = 10 MPH, Persistence = instantaneous.

Configuration: Accessory number = 1, Bus, Standard Wind Timing. Mode: Bus standard operation.

Sample settings for sun thresholds:

Direct sun + ignore clouds = 90 / 20

Direct sun + trip if cloud goes over = 90 / 70

Sensor does not see sunlight well (no lamps nearby) = 30 / 10

Summer/Winter switch connects between Red & Black wires on the modular jack labeled “SUN”. If there is no switch installed, then the unit is in Summer mode.

After installation be sure to program the unit to Standard Wind Timing & the Sun Sensor Delay at least 10 minutes.