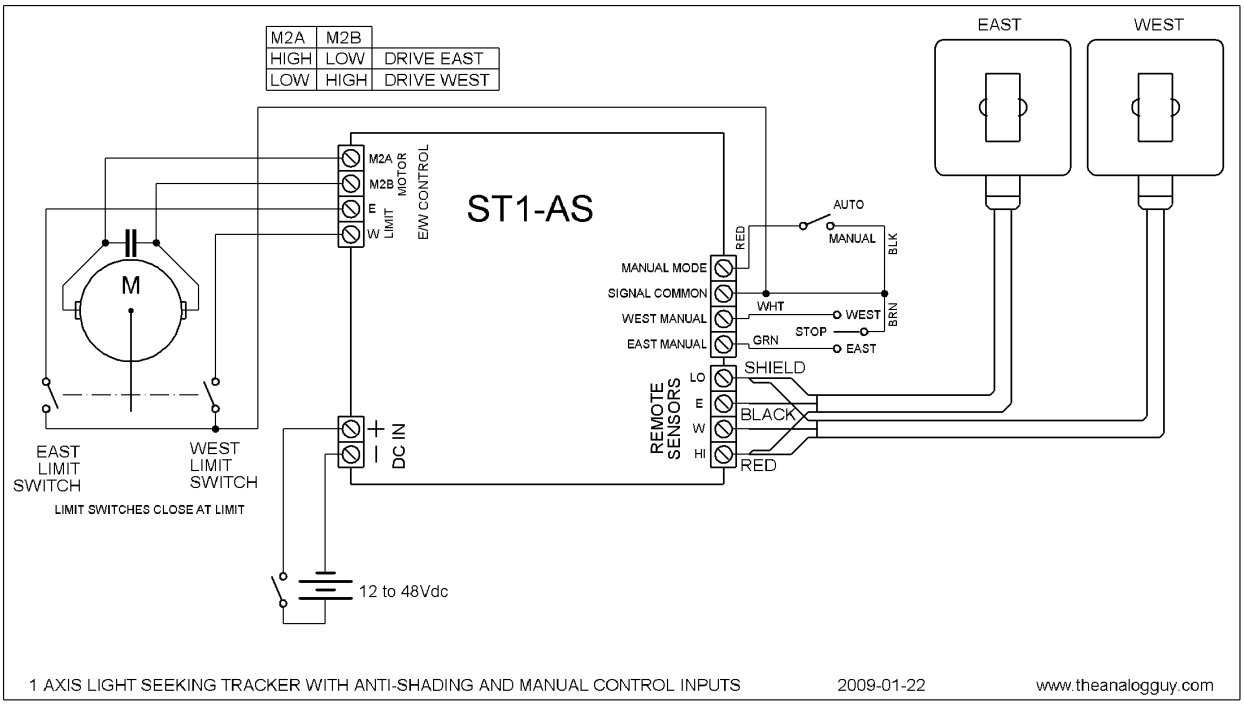
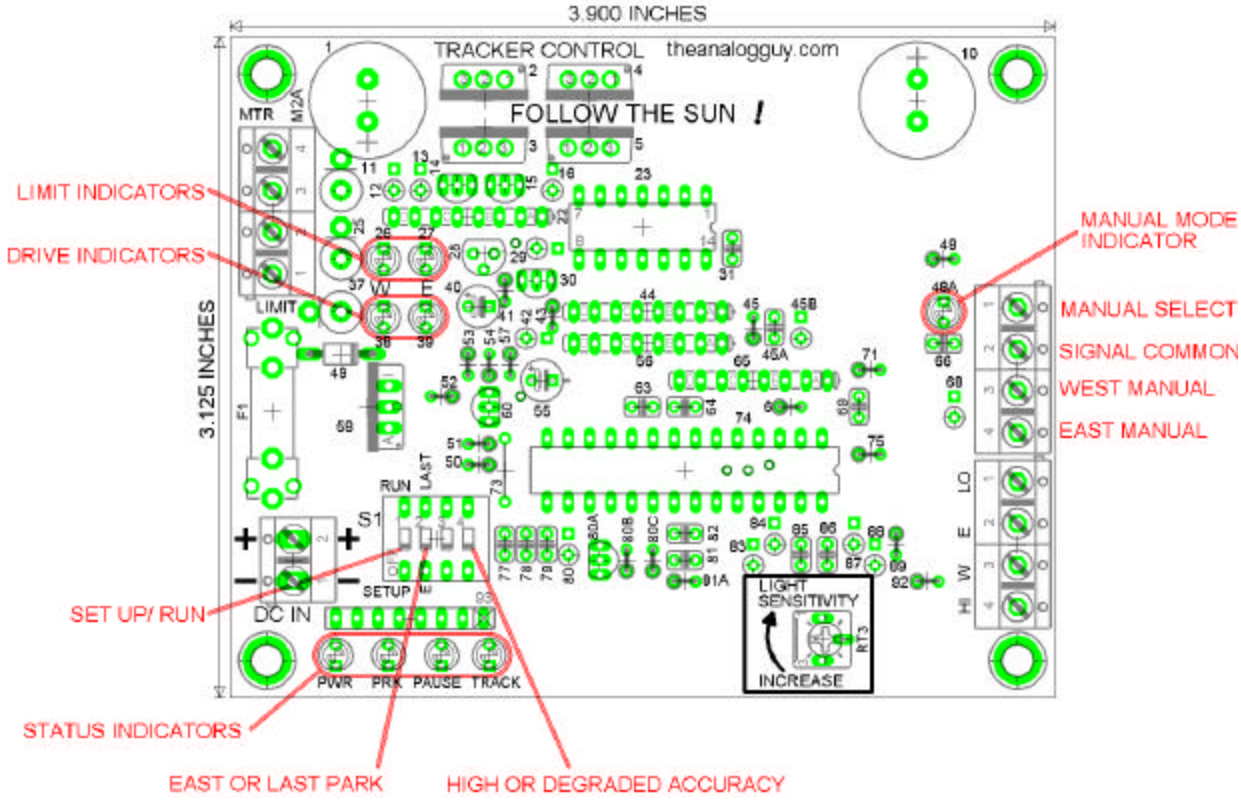




The pcb assembly needs to be mounted indoors or in a weatherproof enclosure.

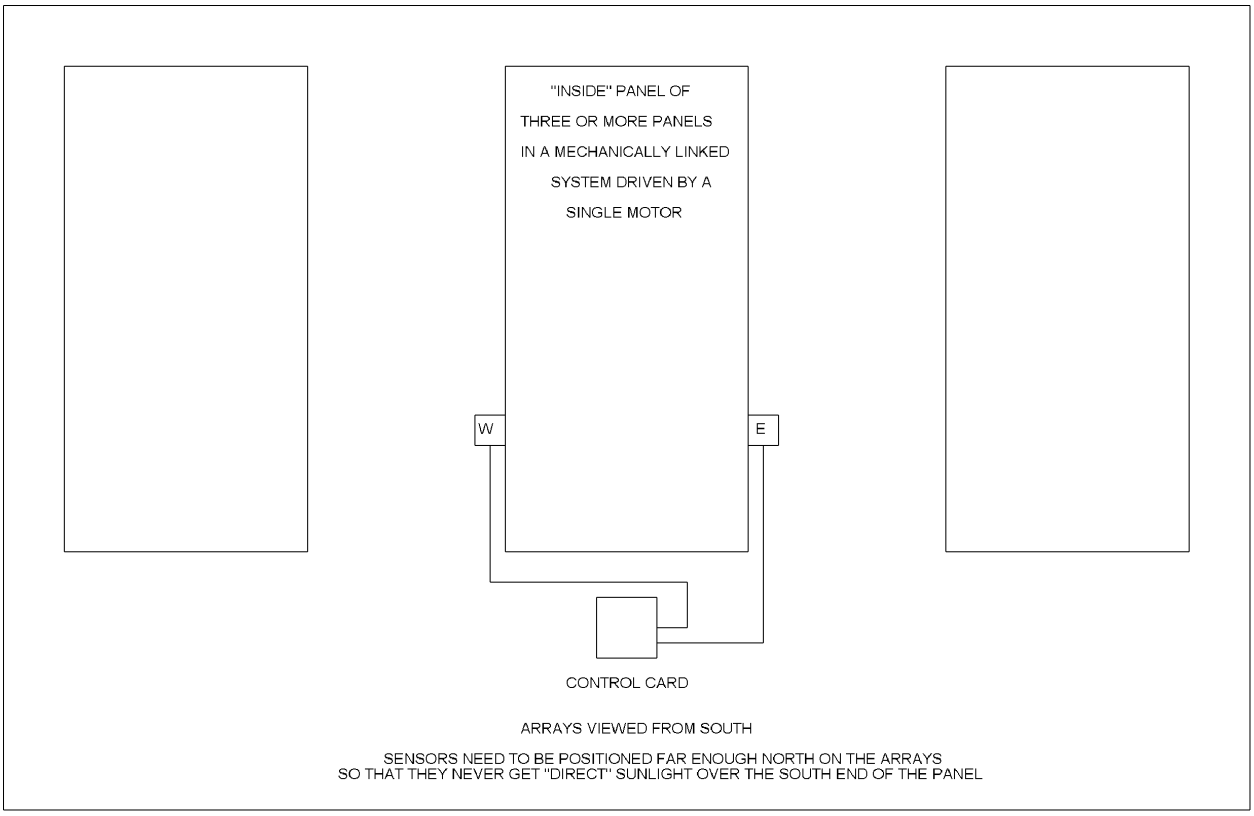
Operation overview: The control follows the sun normally except when there is adjacent array shading—when this happens, the control changes to retrograde movement until the affected light sensor is out of the shade.

Operating voltage range: 10-56VDC

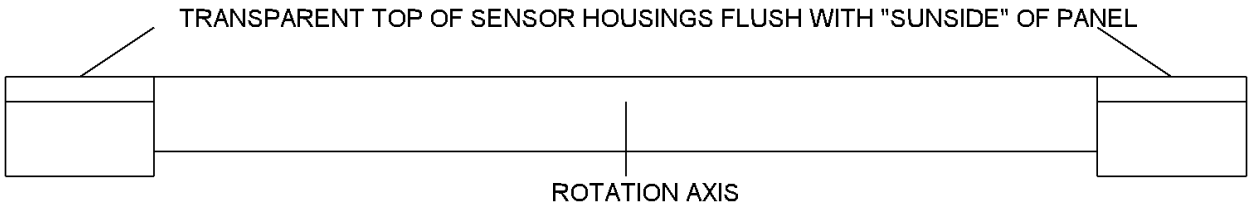
Maximum output current: 10 Amps

Input fuse: 10 Amps

See page 3 for more information on product, indicators and operation.



LIGHT SENSOR MOUNTING DETAIL



END VIEW OF PANEL/SENSORS

Note that the sensors have "east" and "west" types (label on back)—they are not interchangeable.

See page 4 for picture of sensors installed on array.

The ST1-10AS is a single axis light seeking tracker control with Anti-Shading capability for use with mechanically ganged solar panel arrays with 3 or more panel sections and one drive motor.

NOTES ON OPERATION

Status indicator leds:

PWR Power On

PRK (on continuously) Low light level, in park mode.

PRK (flashing) Output has been overloaded, in protect mode for 1 hr—no movement.

PAUSE (on continuously) Not enough light to track, no movement.

PAUSE (flashing) 2 minute time delay between tracking movements.

Other leds:

W (green) West drive on—array should be moving west.

E (yellow) East drive on—array should be moving east.

W & E (red) Respective limit input active—movement should be stopped.

Manual Control (orange) Manual mode selected by external toggle switch.

Dip Switches (note: the block of 4 dip switches is called S1 and the sections are S1-1 through S1-4)

S1-1 Set up/ Run—in set up mode (off), there are no delays in the tracking operation; in the run position (on), there is a 2 minute delay added between tracking corrections.
This is to reduce nuisance corrections in variable cloud conditions.

S1-2 East/ Last (park) selection. In the east position (off), when the ambient light level drops below the park threshold, the control sends the array to the east limit to await the next day.
In the "last" position (on), array movement is halted at the last "valid" tracking point (this will typically be toward the equator) until the next tracking day dawns.
When in "last" park mode, both the PAUSE and PARK leds will be on.

S1-3 Not used.

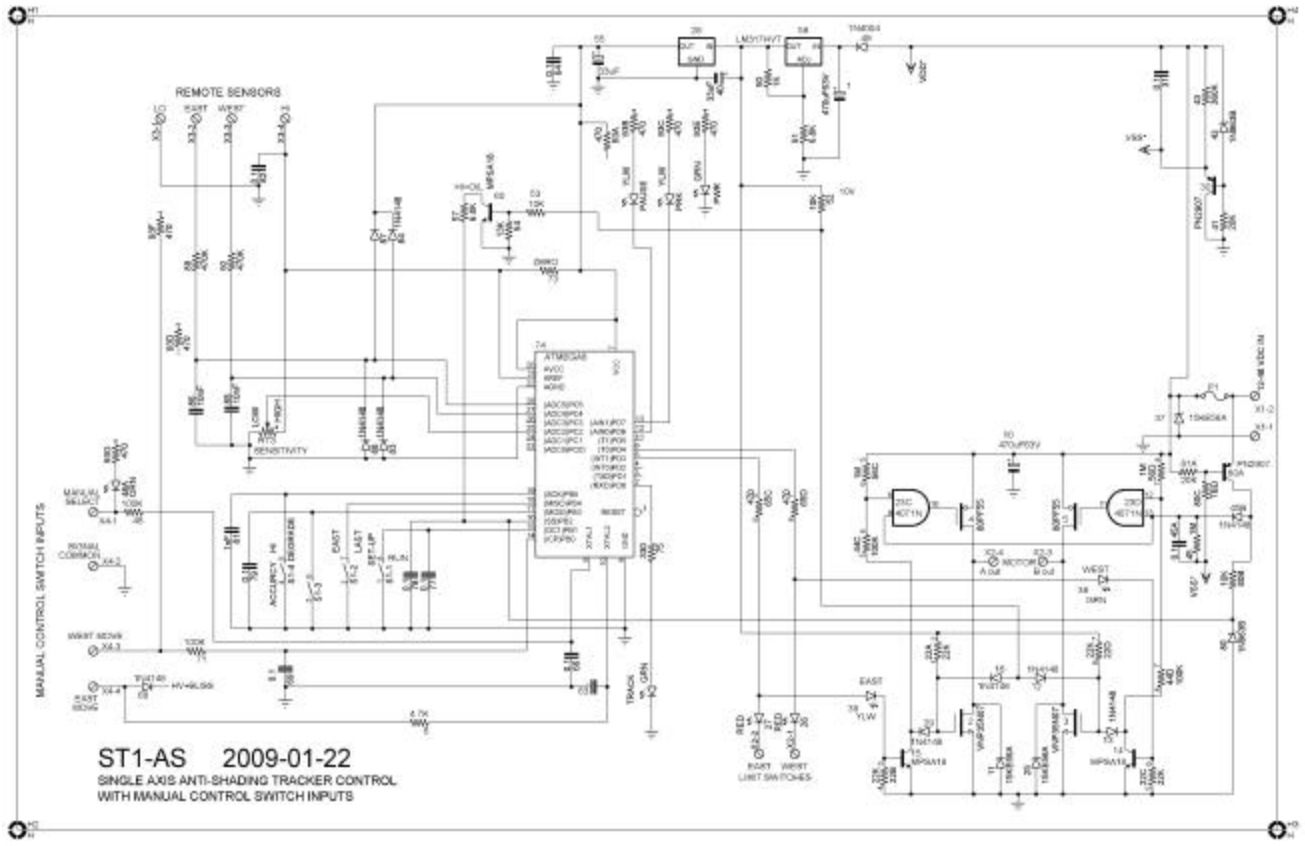
S1-4 Accuracy: off=highest accuracy; on=degraded accuracy. Use degraded accuracy to stop east west oscillation in "fast drive" systems or to reduce pointless movement in variable cloud conditions.

Light Sensitivity trimpot (has maximum mechanical rotation of 270°--use small screwdriver and be gentle) product shipped with this control at mid-range:

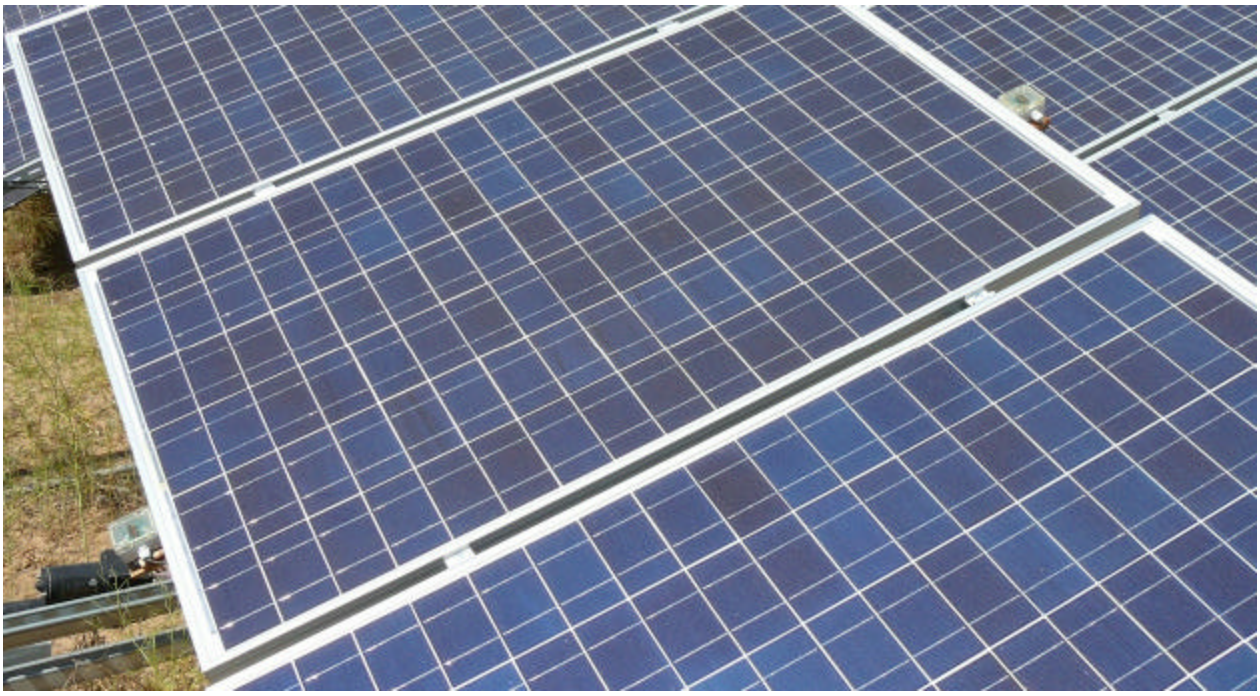
Minimum sensitivity—direct, unobstructed sunlight hitting one of the sensors is required for tracking. At minimum sensitivity, array shading will likely happen —adjust clockwise until pause led goes out and arrays move to eliminate shading.

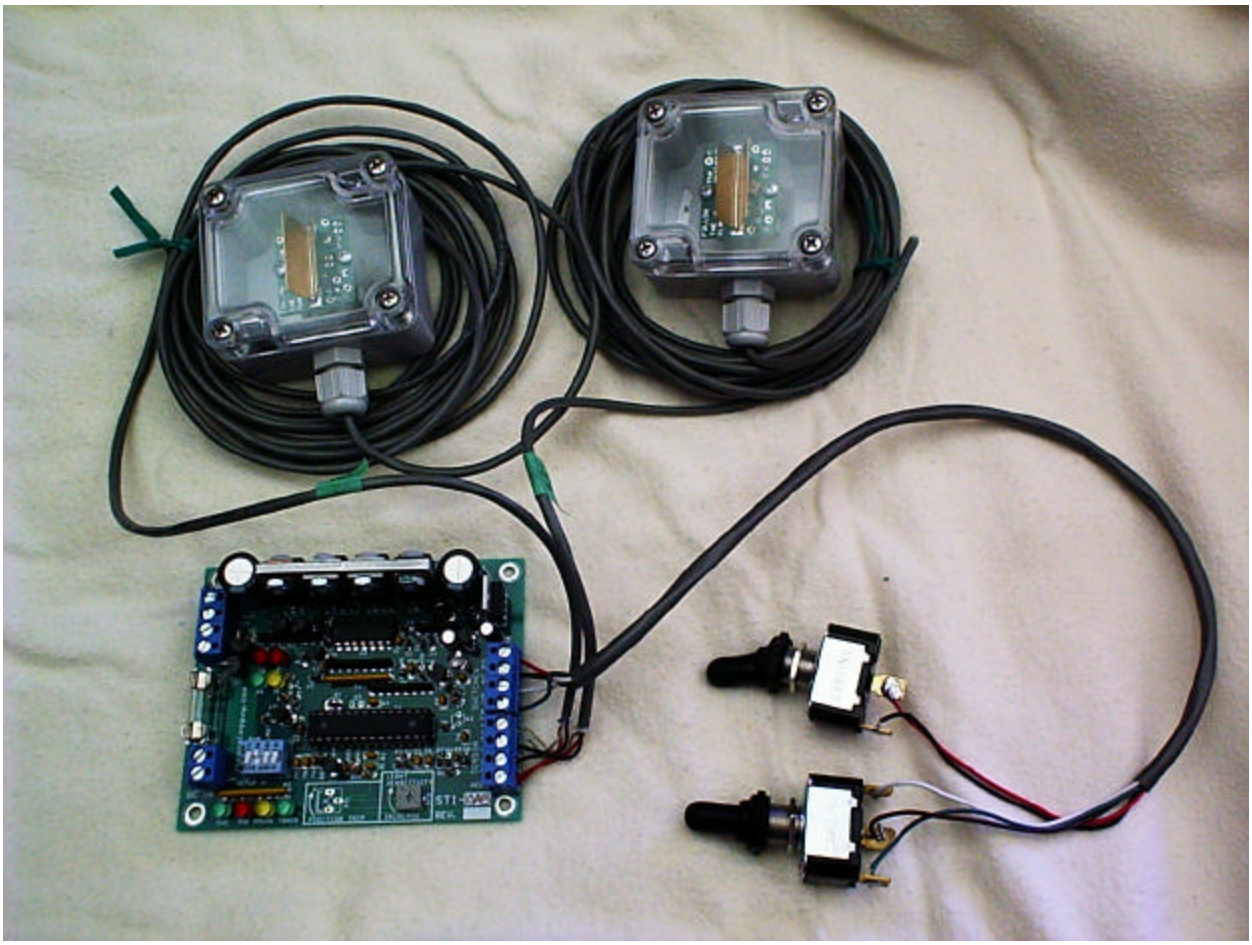
Maximum sensitivity—diffuse daylight will invoke tracking. At maximum sensitivity, expect to see the array pointing "up" on overcast days and expect it to follow "holes in the clouds" on days with bright broken cumulus.

If your drive system has built-in limit switches, the limit switch inputs on the control card can be left open and will have no effect on operation.



Manual control (applicable for units ordered with manual control option):
With the manual/auto switch in the manual position and the east/west switch in the center off position, there is no movement. Select east or west movement with the east/west switch.
Overload protect:
If there is an overcurrent or overtemperature condition in the power output devices, the control will go into protect mode and flash the park led. This protect mode can be reset by cycling the power off/on, but if the fault persists, it will immediately return to protect mode.





Revisions:

2009-04-15 : Added information in sensitivity adjustment to alert user about shading at minimum sensitivity.

2009-04-19: Added note on "last" park position.

2009-07-13: Picture of sensors installed on array added.