# Suntrack Installation Manual

Hardware installation

Heliostaat.nl
Mark Ursum

| Version | Date | remark |
|---------|------|--------|
| **1.0** | 28-2-2012 | Initial version |
| **1.1** | 12-5-2013 | Added mounting picture |
| **1.2** | 11-6-2013 | Improved Commissioning of the endpoints. |

# Installation Manual

## Introduction.
This document describes the installation of the hardware.

## Description
This is suitable for both the standard SG2100A motors and the users with own motors.

## The mirror assembly.
Using the Dremel make holes in the mirror. See instruction video on Youtube Use the supplied white spacers, 5mm bolts, nuts  and pvc strip to form a triangle against the sagging. For larger mirrors, a different construction is recommended. Weight is no problem but the wind catch is.

This is a mirror of round 50cm and 5mm thick.



The first method of mounting the mirror.



Another way of mounting. A sheet of aluminium with foam 100x100x4mm tapped with 5mm thread.

## Motors
The motors as delivered.



Left the vertical motor and right the horizontal.

## Bracket

Place the dish referred bracket level. The better leveled the better the result.



## Mounting the rotors

Adjust the horizontal motor using a level.



## Mounting the mirror

Adjust the mirror exactly at 90º

## Commissioning of the endpoints.

The end point are used to define the area where the mirror can move freely. The maximum is +75° and -75°. Once learned the mirror operates within this area, when a value outside this is calculated the display will call: OutRange. The x and y counter will be reset by pressing Xmin and Ymin.

The endpoints are mechanical switches in the rotor. These can be moved using a screw, see picture.

Note If you pass an endpoint strange things happen. The tab that touches the switch can pass the switch. If you have passed an end point press the other direction a few times to return.

To learn the end points: use remote  *slider position 3*

- Set the minimum position by pressing the botton *Xmin* and *Ymin* <u>once</u>. The engine will move until it reaches the switch.
- If you want to change the minimum point: move the motor away using *X/Ymax* and *Stop.* Loosen the screw (anticlockwise or low) and move it in or out. Repeat the first step.
- Set the maximum position by pressing the botton *Xmax* and *Ymax* once. The engine will move until it reaches the switch. Note Xmax and Ymax at the same time is mechanical not possible. Do it one by one. Will not occur in practice.
- Change the maximum position is similar as the minimum.

Move the motors to Xmin and Ymin minimum again. The maximum X and Y values are now set. The controller will always move the mirror within these values. Check the values by power off the suntrack controller  and on. In the first 3 seconds of operation the display shows Xm and Ym. These values need to be high >2000.
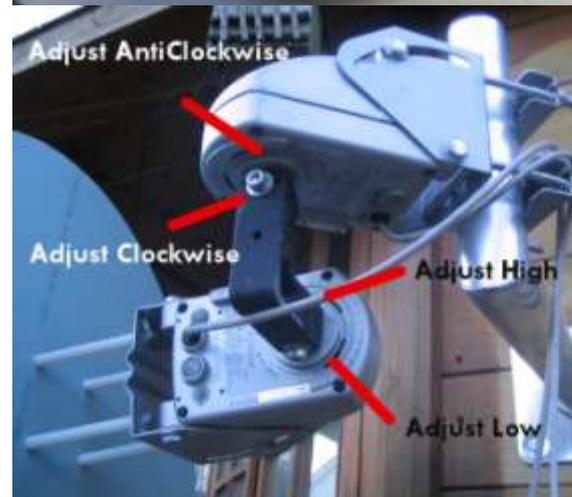
Note: normally the end switches are not used, they are only for safety and recalibration.

## Maximum position of the motors.

The factory standard maximum positions for the horizontal and vertical motors. The horizontal axis may be confusing. The middle position is when the mirror is parallel to the wall. The black L-bridge is pointing to the left at that moment.



Zero position X
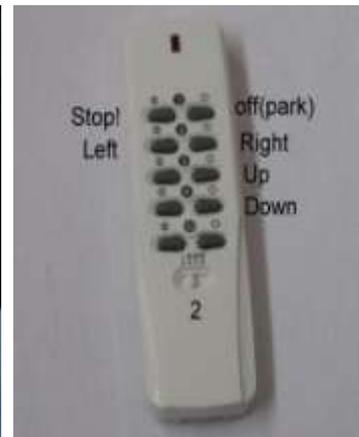


Max position X



Zero position Y



Max position Y

## Calibrating the sun position.

Point the mirror at the sun using a paper on the mirror and a cup. Use *slider position 2*: Manually. The shade should be equal.



When the sun is aligned to position go to *slider position 4* and press *Sun*. On the LCD: save follow and press *Yes*.



In *slider position 1*, with *follow sun* check that everything works. If it is level mounted the sun is reflected all day long.
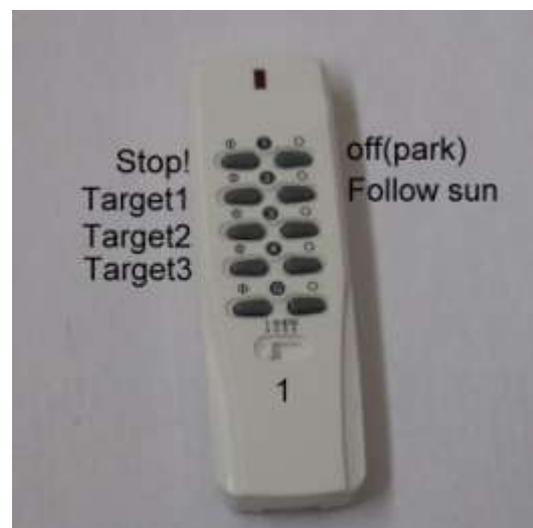
## Store target positions

Move the mirror using manual move, *slider position 2* to a reflection position you want.

To store a target *slider position 4* press *Target1*, *Target2* or *Target3*. The display shows: Save Tg1 now press *Yes* on the remote control. The display shows Saved Tg1

To store the park position move the mirror using manual move, *slider position 2* to a position you want. To store use *slider position 4* press *Park* and *Yes*. This position is used when sundown, or maximum wind, if equipped.



The system is ready for use. Only slider 1 is needed to target 1, 2 or 3 or to switch off the system.

Legend of remote control.
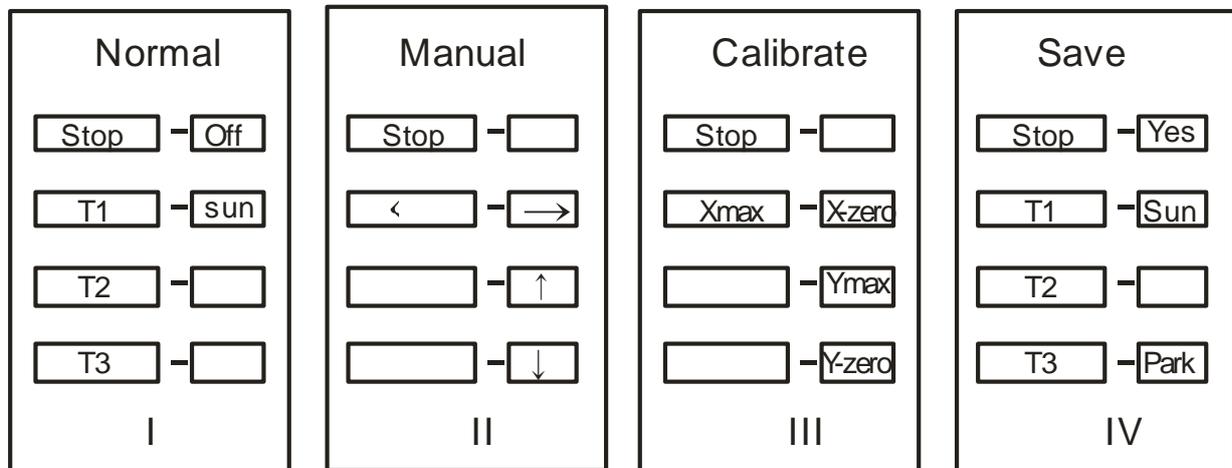


Note: in case of a 10 button remote control the lowest are unused.