Pulsar Observatories

OBSERVATORY INSTALLATION GUIDE

Thank you for purchasing a Pulsar Observatory, a checklist of hardware is included in this guide.
PLEASE READ THROUGH THIS GUIDE BEFORE STARTING YOUR INSTALLATION

- ***PREPARING THE BASE***

Your base needs to be as flat and level as possible to ensure a good installation and smooth operation of the dome.
It may be useful to mark the centre of your base and, using a compass, mark a North / South line through the centre point. This will allow you to easily position your pier, which may need to be offset towards the South, if you are using a wedge or German equatorial type mount. The pier should be installed after you have secured the base wall sections. If you are installing a roof-mounted dome, mark the inside of the dome track wall before cutting the hole in your roof.

- ***ASSEMBLY OF WALL PANELS***

Place the wall panels on to the base. Apply 2 beads of silicone sealant to one surface only, down the length of the flange, approximately15mm in from the outer edges, and bring the 2 panels together. Use M8 bolts and washers supplied (1 either side), and bolt together the panels, starting with one at the top, then one at the bottom, making sure that the outside wall surfaces, particularly the track joins, where the dome wheels touch, are perfectly aligned. This is important to allow smooth rotation of the dome top. ***NOTE: It may be necessary to run an 8mm drill through some holes that may not be perfectly aligned.*** *Insert and then immediately fix the remaining bolts. Wipe off excess sealant if necessary, with white spirit. Complete the assembly of the wall panels.*

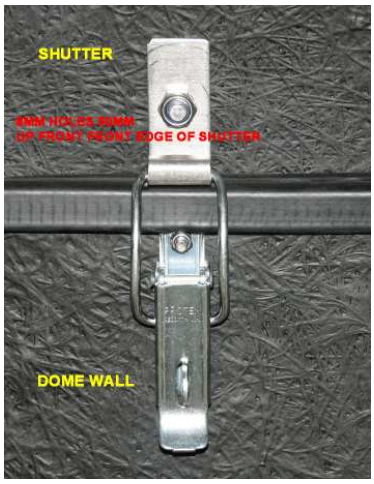
- ***ASSEMBLY OF THE DOME TOP***

Fit 2 track rollers to each dome quadrant. This is easier done with the dome panels laying face up on the floor (use some protection under the panels to prevent damage to the gelcoat finish). Place an M8 x 20mm socket screw and M8 penny washer from the outside, place the aluminium sleeve through the wheel, and use another M8 penny washer between the wheel and the dome wall. Secure the wheels in place but do not over tighten the bolts. You may need to grip the aluminium sleeve with a set of grips to do this.

Place the dome sections onto a flat surface, in the order they are to be assembled. Apply silicone sealant either side of the line of holes and bolt together 2 dome quadrants (as detailed above), one front quadrant and one back, that will form half a dome top, on one side of the aperture opening. Start the bolts from the top first, making sure that all outside surfaces are aligned, particularly where the dome aperture lid wheels locate and run. Move down one bolt at a time, continually checking the alignment of the quadrants on the outside. Repeat for the other side. Bolt the two dome halves together at the ***back*** *only, so that the aperture lid can be installed next. Excess silicone sealant should be wiped off immediately with white spirit or left to dry, and trimmed off with a sharp blade.*

- ***APERTURE LID ASSEMBLY***

Fit the 4 PTFE guides to the aperture lid, using the M6x30mm countersink bolts, securing the guides with an M6 nut and washer on the outside of the lid. There are no washers between the roller and lid on the 2.2m dome, but 2 washers between each roller and lid on the 2.7m dome. Fit the latch brackets to the front of the dome lid. The holes may be pre-drilled, if not, the latch bracket fixing holes are 50mm from the front edge of the aperture lid, and 178mm apart, see picture. Never drill from inside as this will damage the gel coat.



- ***FITTING THE SLIDING APERTURE LID PULLEY SYSTEM***

Now is a good time to fit the pulley assembly whilst the dome is at a convenient level.
Fit the pulley assembly to the very top hole on the back of the dome with the supplied8mm x 30mm bolts and nuts. Drill through and fit the second bolt provided with the pulley kit.

Overlap the dome quadrants at the front (see picture below) and position the lid on to the dome top and carefully locate the guides into the recessed track. When all 4 guides are in place on the track, carefully slide the lid to the back of the dome and silicone and bolt together the front section of the dome quadrants. ***Care must be taken with the sliding or opening the aperture lid, as it can damage the rear of the observatory dome if allowed to slide back unaided!***

- ***FIXING THE BASE WALLS***

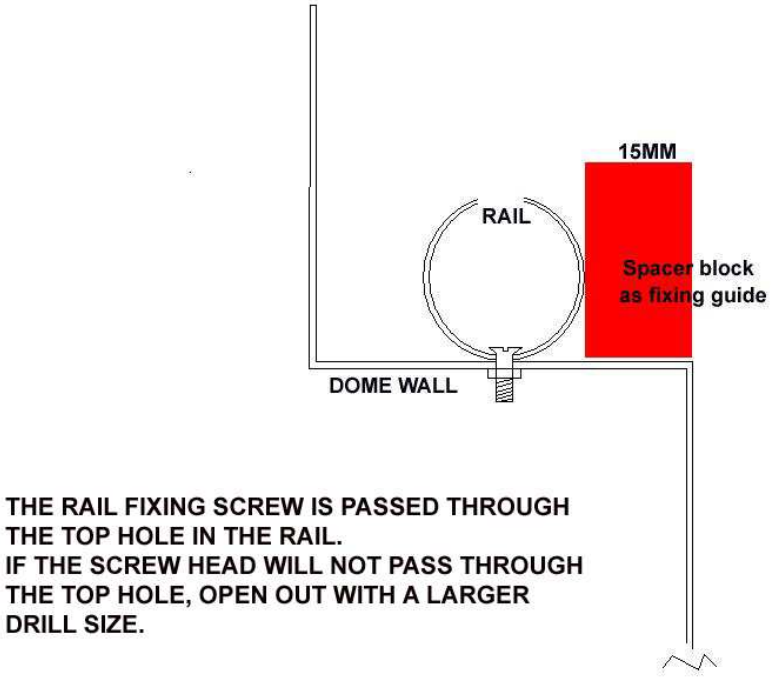
Position the assembled base section onto your concrete hard standing, making sure that you have aligned the door opening to your preferred position. ***Check the diameter of the dome base to ensure it is perfectly round****, and then bolt the base to the concrete using the supplied fixings. A silicone seal can be applied around the outside of the base wall when the installation is complete provided the concrete is dry. Do not apply if wet or damp, as the silicon will not adhere to the concrete.*

- ***INSTALLING THE ALUMINIUM TRACK***

Place the aluminium rail sections around the dome wall joining them together with the connectors supplied. The aluminium sections should butt together with no gaps. Make sure the metal track is positioned so that no hole can be drilled over a wall seam.

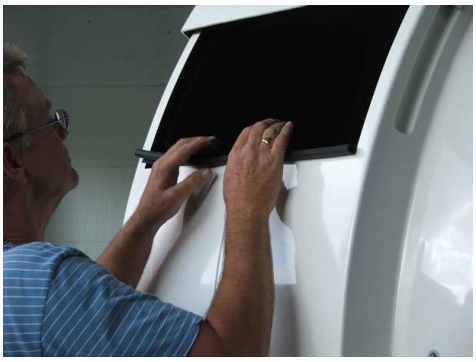
To drill the first hole, a 15mm spacer (anything solid 15mm thick) should be positioned to the side of first hole and flush with the outside wall and the outside of the metal track. Hold the spacer and track in position, place the 6mm bit through the metal track holes and drill into the wall. Present a 6mm bolt through the holes and tighten underneath with the 6mm nut and washer. Do the same for all the remaining holes in turn, working around the dome from the starting point. If necessary, the last length of track may need to be trimmed with a hacksaw to fit.

Note: The metal track is already supplied drilled but make sure the larger hole is showing uppermost.

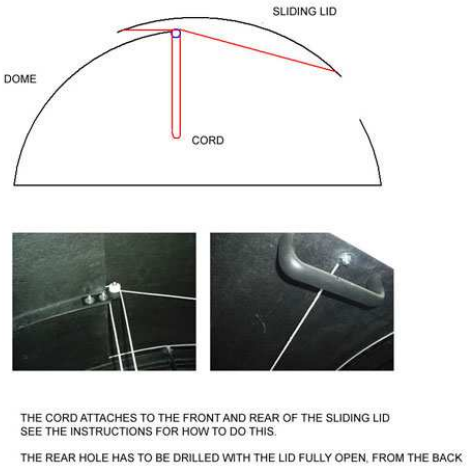


- ***FINAL ASSEMBLY***

With assistance, lift the dome top into position on the base wall, ensuring that the structure is centered in position over the base before lowering down. Check on the inside, that all the wheels are seated correctly on the track. Make sure that the dome top rotates freely on the rail.
Fit the rubber strip along the front opening edge of the hinged aperture lid. This will need to be cut to size with a hacksaw to fit around the flange of the dome, and cut accurately to the correct length. Close the aperture lid, and from the inside, position the 2 latches in place on the dome wall so that they are engaged with the brackets, in the closed position. Carefully mark and drill the latch fixing holes and secure with the supplied 5mm bolts.



Thread the rope through the pulleys as shown in the picture and attach each end of the rope to front and rear of the sliding aperture lid, at the centre, as shown in the picture.
The holes may already be pre-drilled in the front and rear of the aperture lid, if not, follow the instruction below:



With the sliding aperture lid fully open, mark the front hole 30mm from the edge, directly in line with the pulley wheel. Attach the rope as shown, using the M8 x 10mm socket screw, placing the rope under the M8 flat washer, making sure that when tightened, the rope is in line with the pulley. Mark the position for the rear rope fixing with the sliding lid fully closed. The sliding lid will need to be fully open so that the hole can be drilled and rope attached from the back of the dome. For the rear rope fixing, place the nut to the outside of the sliding lid.

The cleat should be positioned half way down the back wall, pictured above. This allows the rope to be held back out of the way of the telescope when the shutter is open. See picture.

- ***SECURITY CLAMPS***

The observatory security clamps are not totally necessary in a secure garden but can provide added security for those who require it. They also provide peace of mind when high winds occur, although we do not know of a case where a dome top has been lifted off in high winds.
Position a clamp against the dome flange as shown in the picture, and mark the hole against the flange. Swing the clamp in the full open position, against the dome wall and mark the hole against the flange again. Drill an 8mm hole where the 2 marks cross. Insert the M8 hexbolt and secure with nut provided, then place the clamp on the bolt and secure using the black scallop knob.

Make sure that the clamps are swung up away from the wall before rotating the dome top at all times.

- ***FINALLY…***

The sliding aperture lid is easily opened and closed by pulling on the ropes. Hold the ropes with each hand to control the lid, preventing it from crashing down with force.

The door lock has an internal handle; do not leave keys in the outside door lock when inside the observatory. Shutting the door on the inside could result in the key turning in the lock and locking the door!

To give a pleasing finish to the observatory interior, use matt black aerosol paint and carefully spray over the dome top joins and bolts, and any other interior marks. The only maintenance required for your observatory is an occasional wash down of the exterior gel coat with a mild detergent.

Your observatory will give you many years of good service, treat it with respect and look after it!

YOU ARE NOW READY TO INSTALL YOUR EQUIPMENT!

FOR TECHNICAL SUPPORT CALL +44(0)1353 886128

Visit us at www.pulsarobservatories.com or call 01353-886139

Installation of a Pulsar Observatory takes approx 4 hours for 2 persons. Extreme care should be taken when aligning the dome panels, as once they have been joined with silicone sealant; it is very difficult to separate them. The door, with lock, is pre-installed in the wall panel.

DOME FIXING KIT: PARTS CHECK LIST – 2.2m / 2.7m DOME

TYPE	*QUANTITY 2.2m*	*QUANTITY 2.7m*	*USED FOR*
M8 X 30MM HEXBOLT	**50**	**75**	**FOR FIXING DOME PANELS**
M8 NUT	**50**	**75**	**FOR ABOVE**
M8 LARGE FLAT WASHER	**100**	**150**	**FOR ABOVE**
ALUMINIUM RAIL	**3***	**3***	**FOR TRACK**
20MM X 150MM PLASTIC TUBE	**3***	**3***	**FOR JOINING ABOVE**
M6 X 20MM SOCKET SCREW	**12**	**12**	**FOR SECURING BOTTOM ALUMINIUM RAIL TRACK**
M6 NUT	**12**	**12**	**FOR ABOVE**
M6 WASHER	**12**	**12**	**FOR ABOVE**
RUBBER SEALING STRIP - 600MM	**1**	**1**	**FOR APERTURE OPENING**
APERTURE LID HANDLE	**1**	**1**	**FOR SLIDING LID**
M8 X 20MM SOCKET SCREW	**2**	**2**	**FOR SECURING SLIDING LID HANDLE**
M8 WASHER	**2**	**2**	**FOR ABOVE**
WHITE PTFE WHEEL	**4**	**4**	**FOR SLIDING LID**
M6 X 30MM C/S BOLT	**4**	**4**	**FOR PTFE WHEELS**
M6 NYLOC NUT	**4**	**4**	**FOR ABOVE**
M6 WASHER	**4**	**12**	**FOR ABOVE**
BLUE NYLON WHEELS	**8**	**8**	**FOR DOME TOP**
ALUMINIUM SLEEVE	**8**	**8**	**FOR WHEELS**
M8 X 20MM SOCKET SCREWS	**8**	**8**	**FOR WHEELS**
M8 LARGE FLAT WASHERS A2	**16**	**16**	**FOR WHEELS**
SECURITY FIXING BRACKET KIT	**2**	**2**	**FOR DOME TOP**
SILICONE SEALANT	**2**	**2**	**FOR SEALING DOME JOINTS AND BASE**
EYE PLATE	**1**	**1**	**FOR SECURING SLIDING LID**
M4 X 20MM BOLT	**2**	**2**	**FOR ABOVE**
M2 NYLOCK NUT	**q**	**q**	**FOR ABOVE**
M5 X WASHER	**4**	**4**	**FOR ABOVE**
PULLEY WHEEL ASSEMBLEY	**1**	**1**	**FOR CLOSING DOME SHUTTER**
M8 X 10MM SOCKET SCREW	**2**	**2**	**FOR ATTACHING ROPE TO SHUTTER**
M8 NUT,	**2**	**2**	**FOR ABOVE**
M8 LARGE FLAT WASHER	**2**	**2**	**FOR ABOVE**
CLEAT	**1**	**1**	**FOR SECURING NYLON ROPE**
5MM BRAIDED NYLON ROPE	**12 FT**	**12 FT**	**FOR SHUTTER**
M8 RAWLBOLTS	**8**	**8**	**FOR FIXING OBSERVATORY TO CONCRETE BASE**

20/08/10 **Note:** In some instances different items may be supplied to those listed