

Dome Geometry ScopeDome Dome Observatories



Information to help you work out the inputs to make your Dome Shutter Opening match your Telescopes pointing position.





# CASE STUDY: DOME GEOMETRY

In your dome's configuration section, under the tab "DOME", you will find the "Dome Geometry" section, see below:

Card	Dome	Felescope	Program	Dome Hea
Dor	me Geomet	ry		
Sco	ope Position	n X (+S/-N)		mm
Sco	ope Position	n Y (+E∕-W)		mm
Sco	ope Position	n Z (+U/-D)		mm
Dor	me Radius	- R	1500	mm
GE	M Axis Offs	et - r		mm

The pointing accuracy of your dome shutter opening as compared to your pointing angle of your OTA, will totally depend upon your inputs here. The dome for this case study is a 3m dome, so the input for the Dome radius is 1500mm [see below to confirm the radius input]:

Card	Dome	Telescope	Program	Dome He
Don	ne Geomet	ry		
Sco	pe Positior	n X (+S/-N)		mm
Sco	pe Position	n Y (+E/-W)		mm
Sco	pe Positior	n Z (+U/-D)		mm
Dor	ne Radius	- R	1500	mm
GE	M Axis Offs	et - r		mm

### To Begin...

To begin this explanation of the inputs, we will start with the Z Input:

🕞 Cor	问 Config				
Card	Dome	Telescope	Program	Dome Heat	
Sco	1855	try n X (+S/-N) n Y (+E/-W)		mm	
Sco	ope Positio	n Z (+U/-D)		mm	
Dor	ne Radius	- R	1500	mm	
GE	M Axis Off:	set - r		mm	

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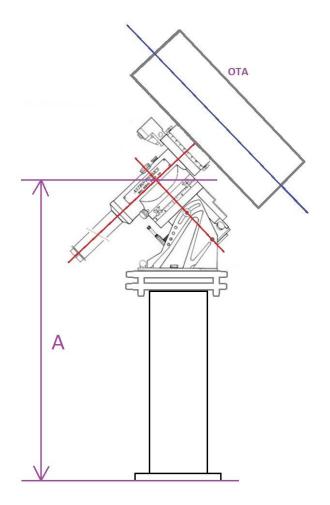


# Z Entry

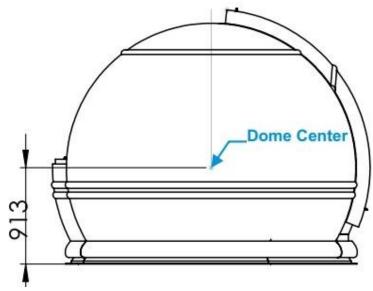
In this case we have a 3m dome, with an AP900 installed upon a pier that is 750mm high.

We need to examine and compare:

1. The height of the mount with pier at the mounts Dec-Ra intersecting point,



2. The Domes center point height, shown below:



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The Z entry is the difference between the A measurement in point one above, and the domes centre point at 913mm. If A= 1050mm, the result would be a positive input of 137mm.

C 1	Domo	<b>T</b> 1	D	D 11
Card	Dome	Telescope	Program	Dome Heat
Don	ne Geome	try		
Sco	pe Positio	n X (+S/-N)		mm
Sco	pe Positio	n Y (+E/-W)		mm
Sco	pe Positio	n Z (+U/-D)	137	mm
Dor	ne Radius	- R	1500	mm
GE	M Axis Off:	set - r		mm

If A = 800mm, the result would be a negative input of -113mm.

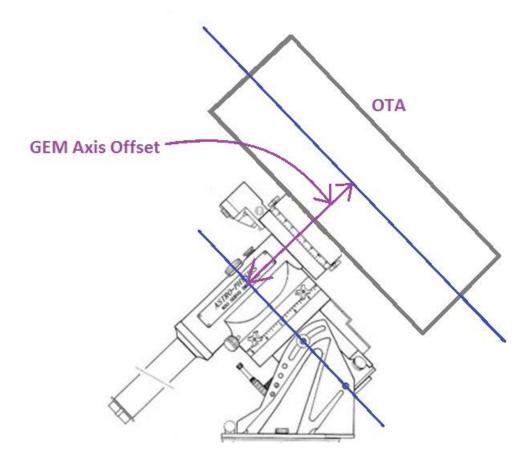
Card	Dome	Telescope	Program	Dome Hea
Dor	ne Geomet	ry		
Sco	ope Position	n X (+S/-N)		mm
Sco	ope Position	n Y (+E/-W)		mm
Sco	ope Position	n Z (+U/-D)	-137	mm
Dor	me Radius	- R	1500	mm
GE	M <mark>A</mark> xis Offs	et - r		mm

Continue over for the GEM offset...



### GEM Axis Offset -r

This input measures the distance from the RA-DEC intersection, to the OTA centre line, see below:



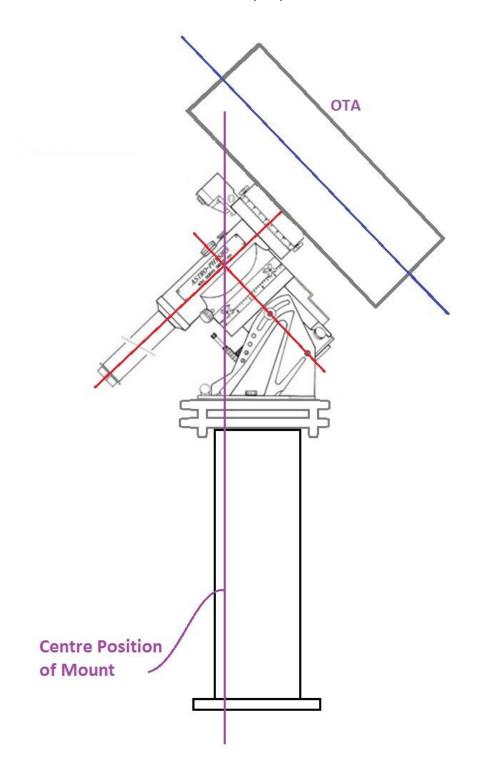
IMPORTANTLY: We have found that entering this value into the driver requires a **NEGATIVE** value for the southern hemisphere, for this example, we measure the distance to be 300mm:

	(	and the		10010 20000
Card	Dome	Telescope	Program	Dome Hea
Dor	me Geomet	ry		
Sco	ope Positior	n X (+S/-N)		mm
Sco	ope Position	n Y (+E/-W)		mm
Sco	ope Position	n Z (+U/-D)	-137	mm
Dor	me Radius	- R	1500	mm
GE	M <mark>A</mark> xis Offs	et - r	-300	mm



#### Scope Position Y & X

For these positions, you are adjusting for the mounts RA-DEC axis position relative to the centre of the dome. Here you will input the measurement again in millimetres, indicating the centre of the mount axis relative North or South, East or West perspective.



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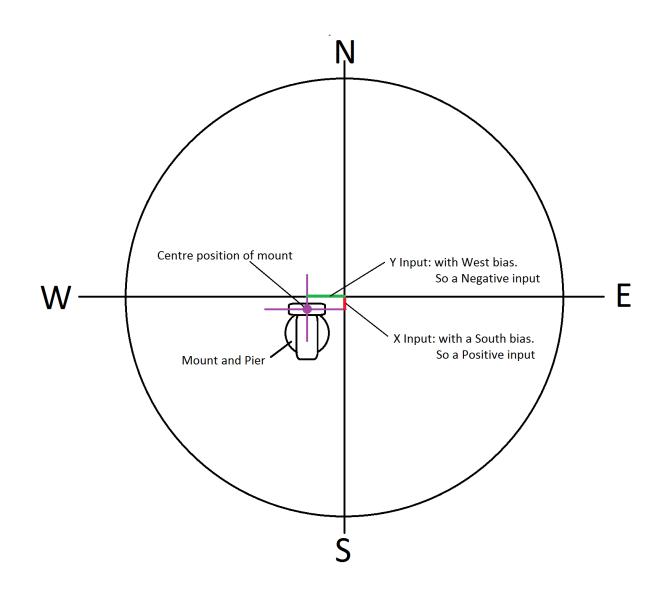




Below are the input sections:

Card	Dome	Telescope	Program	Dome Hea
Dor	ne Geometr	у		
Sco	ope Position	X (+S/-N)		mm
Sco	ope Position	Y (+E∕-W)		mm
Sco	ope Position	n Z (+U∕-D)	259	mm
Dor	me Radius -	R	1500	mm
GE	M Axis Offs	et - r	-300	mm

The graphic below demonstrates looking at the dome from above, looking down on the floor, with all the compass points shown: N, S, E, W. The mount is located in the South – West quadrant. The purple dot indicates the centre of the mount, the RA-DEC centre point. The GREEN line indicates the WEST BIAS amount of distance this centre point is from the DOME CENTRE. The RED line indicates the SOUTH BIAS of the mount RA-DEC centre point as compared to the dome's centre:



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Online ScopeDome Observatory Equipment Sales | 117a Atlantic Drive, Keysborough, VIC 3173 | Tel: +61 (0)3 8752 2402 sales@scopedome.com.au | ABN: 56 125 108 545



If we assumed the mount was 100mm west, and 90mm south, you would input the following:

Card	Dome Te	elescope	Program	Dome Hea
Don	ne Geometry			
Sco	pe Position X	(+S/-N)	90	mm
Sco	pe Position Y	(+E/-W)	-100	mm
Sco	pe Position Z	(+U/-D)	-137	mm
Dor	ne Radius - R		1500	mm
GE	M <mark>A</mark> xis Offset	-r	-300	mm

If you have any questions regarding the above, please do not hesitate to contact us, this can be a confusing set of numbers.

Kind regards, ScopeDome Australia

+61 3 8752 2404 | steven@scopedome.com.au