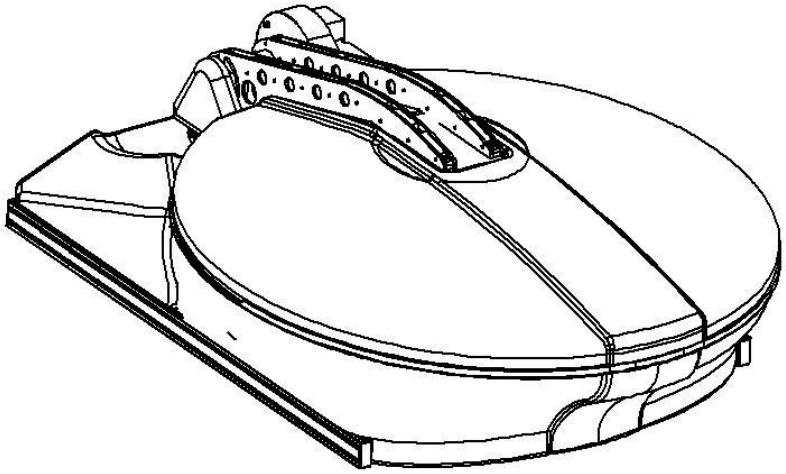
Advantech Wireless



PIONEER*150*™ – Operation Manual

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Ref: PM-PIO150-OM-11346

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1. Overview – Technical Description

This PIONEER150 is an azimuth over elevation positioning mount with motorised polarisation control.

All axis feature simple and very robust 24V DC motor drives giving reliable, low backlash, high and low speed motion controlled by either a jog controller or a fully auto-pointing controller.

The optical layout is a dual offset Gregorian antenna which naturally produces cross polarisation patterns which easily meet the 29-25 log theta requirement.
The bearings are sealed for life items that allow for highly accurate motion but require no maintenance.

A manual over ride is provided for both azimuth and elevation axis to enable stowing the antenna due to power or other failure.

The RF power amplifier(s) can be fitted either inside the cover, onto the framework via mounting brackets or inside the vehicle itself.

System weight (without the RF) is 100kg.

2. Installation and Set-up

The PIONEER150 has been fully tested with the controller prior to shipment.
All position feedback, limit switches and motor speeds have been calibrated or set at the factory and require no adjustment.

The positioner should be secured to the vehicle via sturdy brackets (See addendum 1) attached between the exposed framework on the sides of the antenna base framework and the vehicle roof gutters with the slide nuts provided then connecting wave guide or HPA cables, connecting coax, control cable to controller and power cables.

The vehicle roof structure should be stiff enough to prevent no more than a 0.5 dB of TX gain loss in a 30mph gusting to 45mph wind.

Remove the lid and end sections of the shipping crate, adjust forklift forks to roughly 1m apart or as wide as they will safely go if this cannot be achieved.

Once suitable brackets are available (see attached drawing) these should be fitted to the antenna roughly in the positions shown on the interface drawing with the slide nuts provided.

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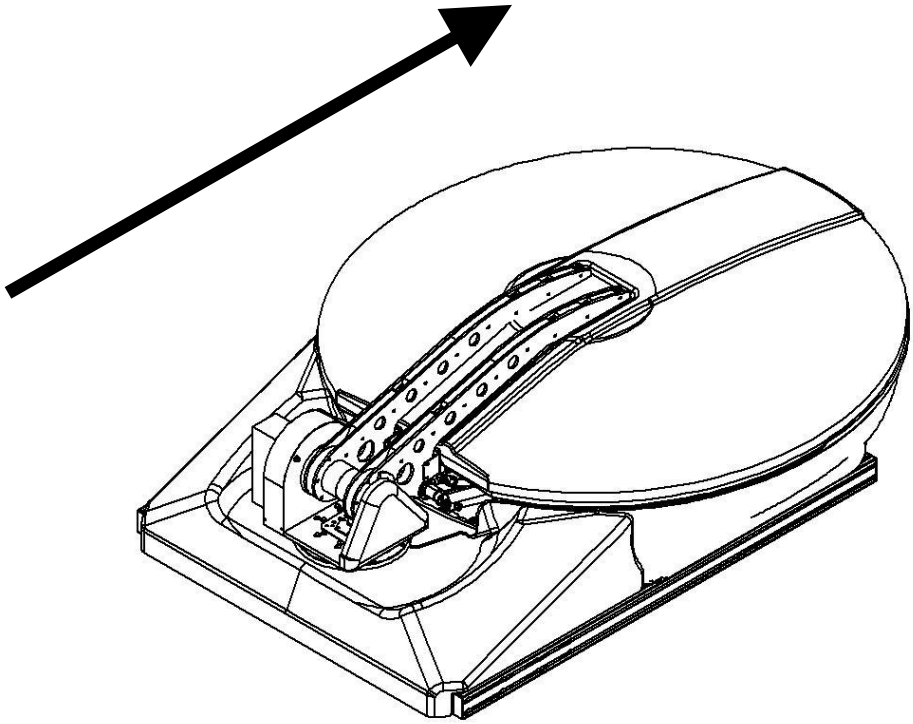
Slings or ropes capable of withstanding the weight of the antenna (100kg) should then be attached to the brackets, looped over the forks of the forklift and clamped onto the forks to prevent them slipping off.

Raise the antenna to clear the vehicle roof by a minimum of 0.5m and manoeuvre to the rear of the vehicle.

Whilst ensuring all cables are clear of mounting points, lower the positioner onto the vehicle roof and line up all mounting holes.

Apply Loctite 242 or similar to all bolts and tighten to a torque of 13 – 15 Nm.

Direction of vehicle travel.
Antenna to be fitted facing this direction.



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3. Controller Installation

Install controller into electronics rack and attach control cable ensuring it is securely and fully pushed into its connector.

4. Maintenance

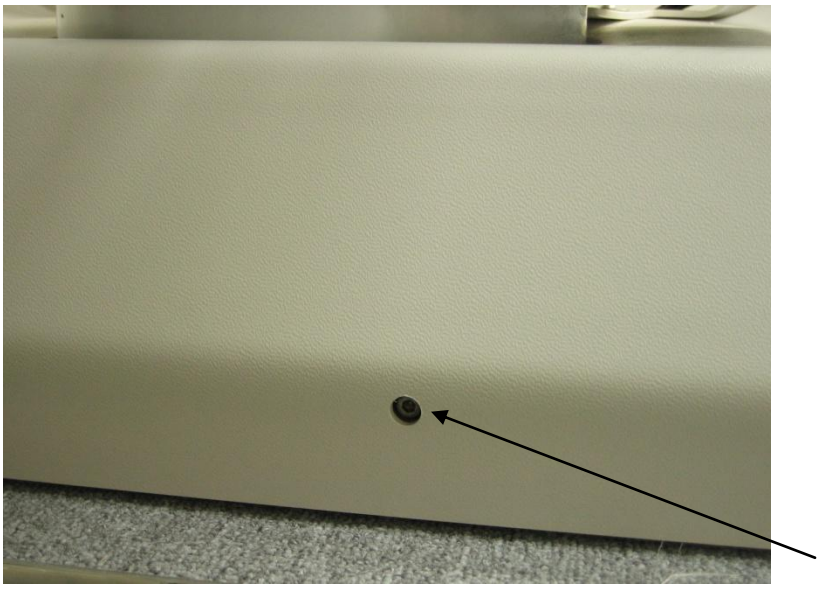
The antenna should be fully visually inspected at the point of installation and periodically there after at intervals of not more than 1 year. As the drives require no maintenance or adjustment this procedure simply involves ensuring there are no worn or damaged cables, that the waveguide is not damaged or perished and that all fasteners are present and tightened to the correct torque level.

5. Spares and Replacement Parts

Since no maintenance is required, only electrical parts are recommended as spares. These parts will not fail from activity, but may fail from environmental exposure.

6. Manual Over Ride

Azimuth



Insert 4mm hexagon key & turn as required.

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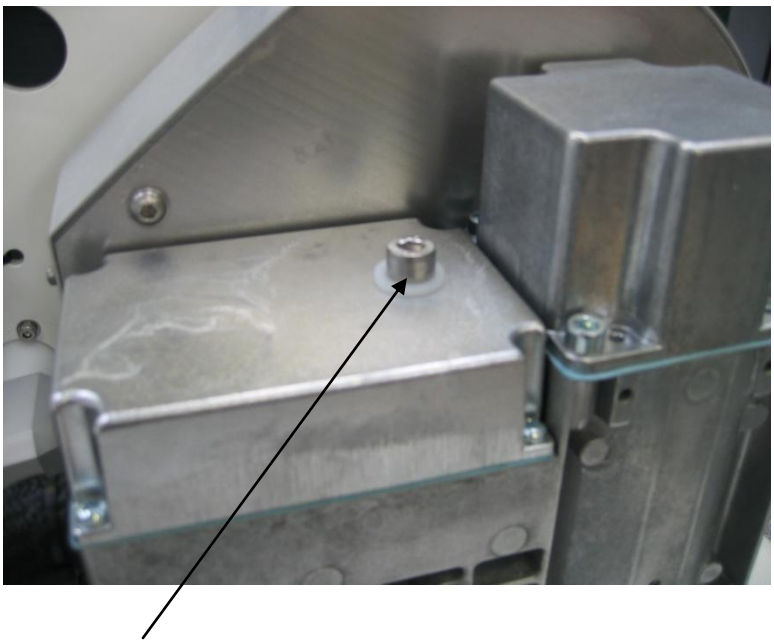
Elevation



Ensure that the DC power to the unit is switched off, remove the 8mm bolt & sealing washer indicated, insert 4mm hexagon key into the shaft end & turn as required.

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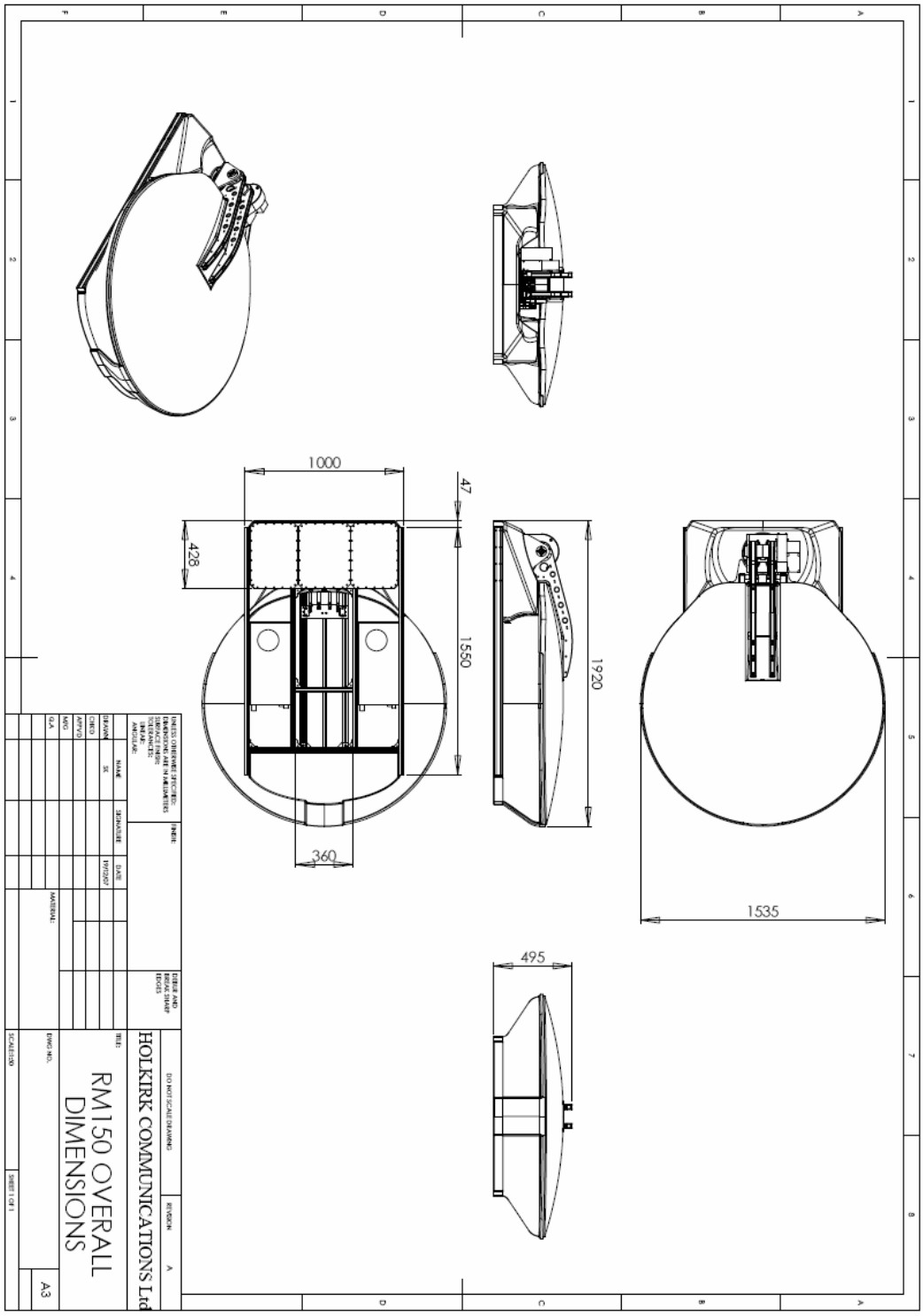
7. Overall Dimensions



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Specifications

Mechanical Data

Overall dimensions:	1.92m x 1.535m x 0.49m
Geometry:	Offset feed
Reflector material:	Carbon fibre
Feed interface:	WR 75
Azimuth range:	+/- 220°
Elevation range:	10~90°
Operating temperature:	-20°C ~ +55°C
Extended Operating temperature Option:	-40°C ~ +55°C
Weight:	100kg (Depending on options)

Electrical Data

Receive

Polarisation :	linear
Frequency band :	10,7 ~12,75 GHz
3dB beam width :	1.19°
Gain @ 12,5 GHz :	44 dBi
G/T (30° elevation) @ 12.5 GHz :	23 dBK

Transmit

Polarisation :	linear orthogonal
Frequency band :	13,75 ~14,5 GHz
3dB beam width :	0.99°
Gain @ 14,25 GHz :	45.7 dBi
VSWR :	1,3 : 1 max
Isolation Rx / Tx (13,75~14,5 GHz) :	40 dB min
Isolation Tx / Rx (10,75~12,75GHz) :	75 dB min
Antenna approvals	Eutelsat/Intelsat compliant

Power Requirements

Unit requires a regulated 24vdc supply with a 10amp current rating as a minimum

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Addendum

1. Advantech strongly recommends that vehicle mounting brackets are purchased from Advantech at the same time as purchasing the antenna for the specific vehicle intended to be used. If mounting brackets are to be manufactured by the customer then they should be made very robustly to ensure they withstand vibrations from travelling over a long period of time and should be regularly inspected to ensure they are free from cracks or other deformation.

Below is an example drawing for mounting brackets suitable for fitting to a Mercedes Vito Van.

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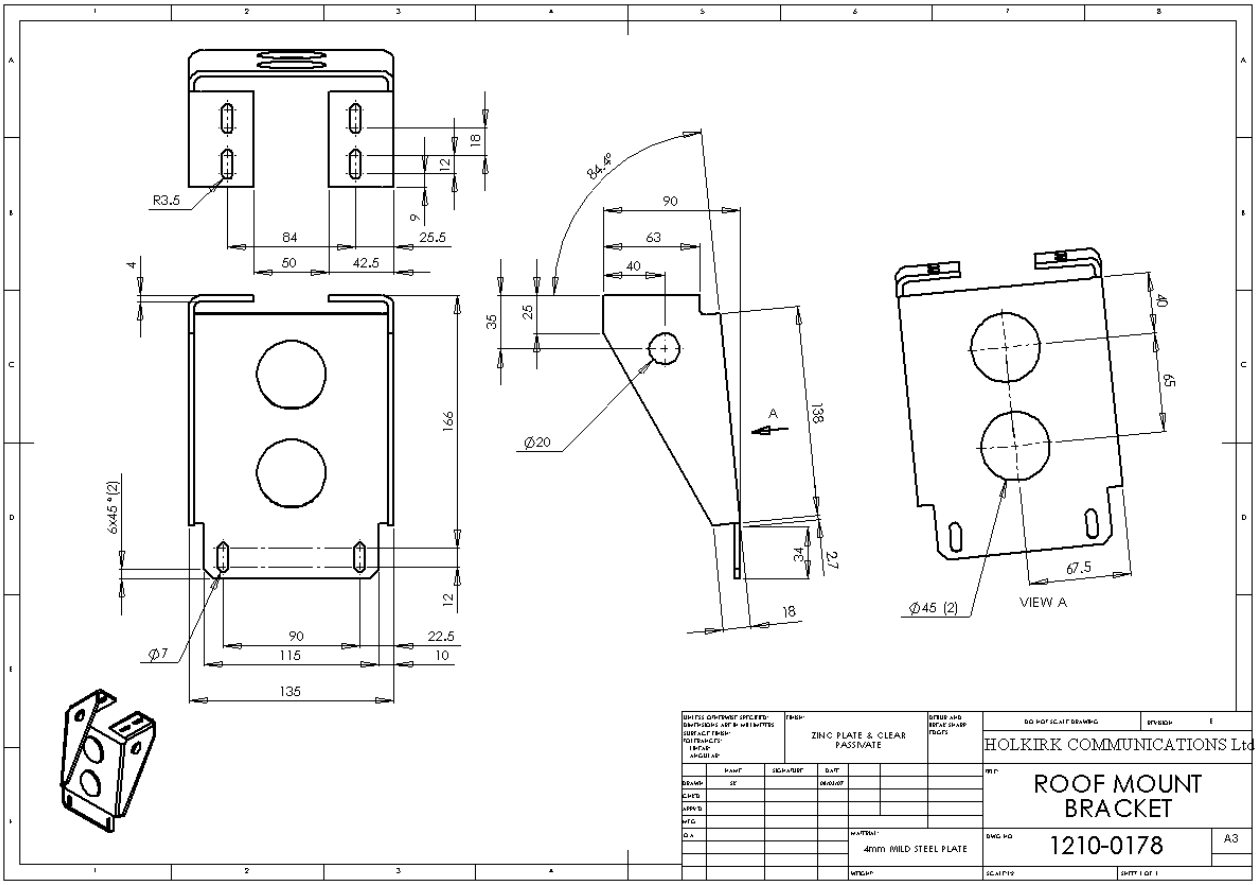

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