












POLENET GPS Station Install



Cargo per site:

<u>COMPONENT</u>	<u>NUMBER</u>	<u>WEIGHT EACH</u>	<u>TOTAL WEIGHT</u>	<u>TECHNICAL SPECIFICATION</u>
Structural frame, small 	1	50	50	http://facility.unavco.org/project_support/polar/remote/structural.html
Large Enclosure with foam inserts (holds 10 batteries) 	1	32	32	http://facility.unavco.org/project_support/polar/remote/structural.html
Small Enclosure with foam inserts (hold 6 batteries each) 	2	25	50	http://facility.unavco.org/project_support/polar/remote/structural.html
Solar panel, including hardware and cables 	2	21	42	http://facility.unavco.org/project_support/polar/remote/power.html
High Speed Wind Turbine, including hardware and cables 	2	9	18	http://facility.unavco.org/project_support/polar/remote/power.html
Electronics Assembly, including Trimble NetRS GPS receiver 	1	7	7	Trimble NetRS GPS receiver: http://facility.unavco.org/project_support/polar/remote/instruments.html Electronics Assembly: http://facility.unavco.org/project_support/polar/remote/power.html

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<u>COMPONENT</u>	<u>NUMBER</u>	<u>WEIGHT EACH</u>	<u>TOTAL WEIGHT</u>	<u>TECHNICAL SPECIFICATION</u>
Trimble Dorne-Margolin Choke Ring with SCIGN radome and 100' antenna cable 	1	14	14	http://facility.unavco.org/project_support/polar/remote/instruments.html
Anchoring (solid rock) Polar Geodetic GPS Antenna Mast, 1- Meter, including anchor bolts 	1	9	9	http://facility.unavco.org/project_support/polar/remote/structural.html http://facility.unavco.org/project_support/polar/remote/monuments.html
Monument drill jig 	1	11	11	http://facility.unavco.org/project_support/polar/remote/monuments.html
Battery, 100 amp-hour and 1 kg carrying case 	22	33	726	http://facility.unavco.org/project_support/polar/remote/power.html
Viasala Weather station 	1	3	3	http://facility.unavco.org/project_support/polar/remote/instruments.html
Iridium antenna, including hardware and cable 	2	3	6	http://facility.unavco.org/project_support/polar/remote/comms.html

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<u>COMPONENT</u>	<u>NUMBER</u>	<u>WEIGHT EACH</u>	<u>TOTAL WEIGHT</u>	<u>TECHNICAL SPECIFICATION</u>
 Rock Hammer Drill	1	16	16	http://facility.unavco.org/project_support/polar/remote/monuments.html
 Hand tool kit	1	14	14	http://facility.unavco.org/project_support/polar/remote/UNAVCO_Polar_GPS_System_Component_List_TOOL_KITS_v1.0.pdf
Field laptop and Iridium kit	1	9	9	
TOTAL WEIGHT FOR ROCK STATION			1005 kg	

Daily Power Request:

We operate the Trimble NetRS GPS receiver at a 30 second sampling rate. This is approximately 1.5 – 2 Watts per day. However, the total power requirement for our systems is approximately 4 Watts. The extra power request is mostly a result of the iridium modem. Many of our current systems require more power (closer to 5 Watts). However, because we will utilize Xeos iridium modems for the sites in Northern Victoria Land. These modems have the ability to turn off power when not in use, so we will save power, resulting in a total daily power request of approximately 4 Watts for the entire system. The power components of our systems (batteries, solar, and wind generators) are designed to support 5 Watts per day.

Personnel:

Minimum of 3 field team members required for each install

Team Member 1: GPS monument/antenna installation

- Locate North
- Level drilling jig
- Drill 4 equal depth holes into bedrock for monument anchors
- Set monument anchors in bedrock using epoxy
- Attach monument to anchors
- Attach antenna to monument, ensure facing north

Team Member 2/3: GPS power system/electronics installation

- Erect system frame
- Add enclosures and batteries
- Attach power components, solar panels, wind turbines and antennas
- Connect GPS receiver and Iridium modems to power system
- Secure all wires to frame, anchor frame into bedrock
- Test system communications and functionality

Ground Time:

4-6 hours ground time is required for each installation. Ground time is affected by proximity of the landing area to the installation site, as well as number of field team members.

