

UNAVCO Polar GPS System Component List ROCK SITE

Version 1.0, December 7 2012

PROJECT

STATION NAME

PREPARED BY

DATE SHIPPED

COMPONENT	NOMINAL #	ACTUAL #	NOTES
-----------	-----------	----------	-------

X = DEFAULT

(X) = OPTIONAL

MONUMENT

1-meter monument	1		
w/ antenna mount cap			
w/ 5/8" bolt			
w/ 3 set screws			recommend 1 spare
w/ allen wrench for set screws			
1/2" x 24" stainless rock bolts	4		recommend 4 spares
1/2" nuts, stainless	12		recommend 4 spares
1/2" washers, stainless	12		recommend 4 spares
18" metal cable tie downs	5		need 18" length for monument
2-meter monument	(1)		
w/ antenna mount cap			
w/ 5/8" bolt			
w/ 3 set screws			recommend 1 spare
w/ allen wrench for set screws			
5/8" x 24" stainless rock bolts	(4)		recommend 4 spares
5/8" nuts, stainless	(12)		recommend 4 spares
5/8" washers, stainless	(12)		recommend 4 spares

FRAME

structural frame	1		large or small
w/ fit check on bolt holes			
w/ disassembled joints labeled			
w/ assembled joints tightened			
5/16-18 x 3" bolts	30		
5/16-18 locknuts	30		
cradle, MM24	1		
cradle, MM36	(1,2)		
5/16-18 U-bolts for cradle	4 (8)		four per cradle, recommend 1 spare
w/ 1 washer plate each			
w/ 2 locknuts each			

level foot, 4"	4		
level foot, 6"	3		
level foot, 8"	2		
level foot, 10"	1		
level foot, 12"	1		
level foot, 14"	1		

SOLAR PANELS

80-watt panels	2 (4)		
w/ external solar cable			
w/ straight gland fitting			
w/ 90 degree gland fitting			
w/ angle braces			
w/ backing plate			
w/ 1 wood + 2 foam ribs, glued			
w/ biteproof sheathing on cable			
saddle clamp	8 (16)		four per panel, recommend 1 spare
w/ 1 V-bolt each			
w/ 2 washers and locknuts each			
rubber mount gaskets	8 (16)		four per panel, recommend 1 spare

WIND TURBINES

Forgen 500-LT, side-mount, 3-phase	2 (0)		
w/ rectifier box attached			
w/ connectorized cable			
w/ side mount bracket			
w/ two adapter plates attached			
w/ biteproof sheathing on cable			
saddle clamp	4 (0)		
w/ 1 V-bolt each			
w/ 2 washers and locknuts each			
18" pipe extension	2 (0)		
external pipe coupler fitting	2 (0)		
5/16-18 x 3" bolts + locknuts	4 (0)		

MAIN ENCLOSURE

enclosure (MM24 or MM36)	1		
w/ system name labeled on outside			
w/ foam inserts			
w/ vent plug			
w/ ground plate			
w/ 2 ground wires (ring terminals)			
w/ 2 ground wires (alligator clips)			
battery bulkhead connector	(1,2,3)		

solar bulkhead connector	2 (4)		
wind bulkhead connector	2 (0)		
met bulkhead connector	(1)		
bulkhead dust cap	4 (2-10)		
GPS surge protector	1		
w/ 90V gas cap			
N dust cap	1		
Iridium surge protector	1 (0,2)		
TNC bulkhead connector (for radio)	(1)		
TNC dust cap	1 (0,2)		
cargo strap	1		

AUXILIARY ENCLOSURE

enclosure (MM24 or MM36)	(1,2,3)		
w/ system name labeled on outside			
w/ foam inserts			
w/ vent plug			
w/ battery bulkhead connector			
internal battery cable	(1,2,3)		
external battery cable	(1,2,3)		
w/ biteproof sheathing on cable			
cargo strap	(1)		

ANCHORING

12" metal cable tie downs	25		
1/2" x 6" rock bolt with nut	5		
locking carabiner	5		
bolt hanger	5		
1/2" locknut	5		
2-foot chain	3		
5-foot chain	2		
1/2" x 24" rock drill bit	4		
1/4" x 3" rock drill bit	4		
anchor stake	4		N/A if rock surface is competent
7/8" fender washer	8		N/A if rock surface is competent
7/8" shaft collar	8		N/A if rock surface is competent
1/4" split drive rock bolt	12		N/A if loose rocks available on-site
3/8" loom clamp	12		N/A if loose rocks available on-site
3/4" loom clamp	12		N/A if loose rocks available on-site

GPS ELECTRONICS BOARD

NetRS receiver	1		record UID
NetRS A power cable	1		recommend 1 spare
NetRS B power cable	1		recommend 1 spare
NetRS dongle	1		
NetR9 receiver	(1)		record UID
NetR9 power cable	(1)		recommend 1 spare
NetR9 4GB USB memory stick	(1)		
w/ USB mini-flat cable			
NetR9 Iridium filter	(1)		only if Iridium used
w/ second internal antenna cable			
GPS internal antenna cable	1		recommend 1 spare
serial surge protector	1 (2,3)		one for each dial-up modem and one for met
serial null modem	(1)		may be needed for weather station
solar charge regulator, new TC	1		
wind charge regulator, new TC	1 (0)		
Dial-up Iridium modem	1 (0,2)		record UID
			record UID
Dial-up modem power/serial cable	1 (0,2)		recommend 1 spare
Xeos Iridium modem	(1)		record UID
Xeos modem power / serial cable	(1)		recommend 1 spare
Xeos modem ethernet / serial cable	(1)		recommend 1 spare
Iridium SIM card	1 (0,2)		record P phone #
			record S phone #
timer switch	1 (0,2)		record P settings
			record S settings
Iridium internal antenna cable	1 (0,2)		recommend 1 spare
point to point radio	(1)		record UID
radio internal antenna cable	(1)		recommend 1 spare
radio power cable	(1)		recommend 1 spare
radio ethernet cable	(1)		recommend 1 spare
terminal block strip	1		check dividers and jumpers
w/ jumpers on connected blocks			
w/o jumpers on diode blocks			
w/ dividers and end stops			
diodes, 8 amp, 45V	4 (2,6)		one for each panel and Forgen
breakers (10A load, 30A all others)	4 (5,6,7)		one solar, one wind, one load, one each aux batt
internal solar cable	2 (4)		one per panel
internal wind cable	2 (0)		one per turbine
internal battery cable	(1,2,3)		one per auxiliary battery bank
internal met cable	(1)		
anti-static bag	1		recommend 1 spare
foam cap	1		
red and black battery lead wires	1		
weatherpack leads from terminal blks	2 (0)		
heat pads with weatherpack ends	2 (0)		

EXTERNAL ELECTRONICS

GPS antenna	1		record UID
GPS antenna radome	(1)		record S/N
GPS antenna cable with heavy sheath	1		recommend 1 spare (can be unsheathed)
GPS antenna cable with biteproof shth	(1)		
GPS antenna cable, unsheathed	(1)		
Iridium antenna	1 (0,2)		
Iridium antenna cable	1 (0,2)		recommend 1 spare
w/ biteproof sheathing on cable			
Iridium antenna mount	1 (0,2)		
w/ wall flange fitting			
w/ saddle clamp w/washers + nuts			
w/ 3/4-NPT pipe nipple			
w/ pipe nipple bushing			
w/ 1.5" pipe extension, drilled			
w/ 5/16-18 x 3" bolt and locknut			
weather station	(1)		record UID
weather station bird spike attachment	(1)		
external met cable	(1)		
w/ biteproof sheathing on cable			
weather station mount	(1)		
w/ wall flange fitting			
w/ saddle clamp w/washers + nuts			
w/ 1" EMT conduit length			
w/ conduit bushing			
w/ 1.5" pipe extension, drilled			
w/ 5/16-18 x 3" bolt and locknut			
point to point radio antenna	(1)		
radio antenna pipe mount	(1)		
radio antenna cable	(1)		
w/ biteproof sheathing on cable			

BATTERIES

100 AH batteries	10 (6-24)		
battery jumper pairs (A+)	10 (6-24)		recommend 2 spares
battery carrying cases	10 (6-24)		

MISC SPARES AND PARTS

spare set screws for iron fittings	4		
spare battery terminal nuts	2		
strong magnet	1		to reset solar regulator
ring terminals	5		
flag disconnect terminals, 18-22 ga	2		

