

## USING REMOTE COMMANDS xx 96, and xx97 Antennas

### To Read and Decode an Error 0008 (Pedestal Error) Code:

1. At the Remote Command window key in: **., 8, 3, ENTER** (note the decimal).
2. The display will show **S0000**. Press **ENTER** again to access the Remote Monitor window.
3. The display will show **Sxyz&** (S followed by 3 letters and a checksum). The third letter after the S (in location z above) is the pedestal error code. Decode the error using the chart below where Ref indicates an AZ Reference error, AZ indicates an Azimuth drive limit, LV indicates an Elevation drive limit and CL indicates a Cross-Level drive limit:

Letter	REF	AZ	LV	CL	Description of pedestal error
@	0	0	0	0	None
A	0	0	0	1	CL
B	0	0	1	0	LV
C	0	0	1	1	CL + LV
D	0	1	0	0	AZ
E	0	1	0	1	AZ + CL
F	0	1	1	0	AZ + LV
G	0	1	1	1	AZ + LV + CL
H	1	0	0	0	Ref
I	1	0	0	1	Ref + CL
J	1	0	1	0	Ref + LV
K	1	0	1	1	Ref + LV + CL
L	1	1	0	0	Ref + AZ
M	1	1	0	1	Ref + AZ + CL
N	1	1	1	0	Ref + AZ + LV
O	1	1	1	1	Ref + AZ + LV + CL

### To Monitor Reference Tilt sensors and Home Flag or Az reference sensor:

1. At the Remote Command window key in: **., 1, 1, 8, ENTER** (note the decimal).
2. The display will show **v0000**. Press **ENTER** again to access the Remote Monitor window.
3. The display will show A/D counts of CL Tilt, LV Tilt, Az Ref in the following format: **v 2048 2050 0012**. 2048 is the nominal value for CL and LV Tilt and the Az Ref value will change from near 0000 to near 4095 as the pedestal crosses the home flag sensor in azimuth. The range of values that can be displayed for each of these sensors is 0000 to 4095

### To Reset/Reinitialize the PCU at the antenna:

1. At the Remote Command window key in: **., 9, 4, ENTER** (note the decimal).
2. The display will show **^0000**. Press **9, 0, ENTER** to send a ^0090 RESET command to the PCU.
3. The PCU at the antenna will now perform the same initialization sequence as a full power on reset.

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### Setting and Reading the PCU system model:

1. At the Remote Command window key in: **., 7, 8, ENTER** (note the decimal).
2. The display will show **N0000**. Press **0, #, #, #, ENTER** where **###** equals the desired system model number. Refer to the antenna manual or a PCU software command summary sheet for the exact PCU configuration number to use. Here are some generic entry examples:

**^ 0 0 0 0 ENTER** Sets the PCU to be un-configured. In this mode the CL, LV and AZ servo loops are disabled. When the antenna is re-initialized the level cage will rotate fully CCW, then CW 45 degrees but the CL, LV, and AZ motors will not drive. At the ACU front panel display, the PCU will report xx97 VER 1.nn as a visual indication that the PCU has not been configured for a specific antenna model number.

**^ 0 1 4 0 ENTER** Sets PCU to be a specific model (eg 9797). This sets the PCU model number, the CL, LV and AZ servo loop gains and all operating mode options to the factory default values.

**^ 0 9 9 9 ENTER** Displays the current model configuration set in the PCU.

### Setting and Reading the individual loop gains:

1. At the Remote Command window key in: **., 7, 8, ENTER** (note the decimal).
2. The display will show: **N0000**. Use the examples below to perform the desired operation:

**N 1 0 0 0 ENTER** Sets CL loop gain to 000, CL will not drive.

**N 1 0 2 0 ENTER** Sets CL loop gain to 020.

**N 1 9 9 9 ENTER** Displays the current CL loop gain set in the PCU.

**N 2 0 0 0 ENTER** Sets LV loop gain to 000, LV (EL) will not drive.

**N 2 0 2 0 ENTER** Sets LV loop gain to 020.

**N 2 9 9 9 ENTER** Displays the current LV loop gain set in the PCU.

**N 3 0 0 0 ENTER** Sets AZ loop gain to 000, AZ will not drive.

**N 3 0 2 0 ENTER** Sets AZ loop gain to 020.

**N 3 9 9 9 ENTER** Displays the current AZ loop gain set in the PCU.

### Setting and Reading the Home Flag Offset value:

1. At the Remote Command window key in: **., 7, 8, ENTER** (note the decimal).
2. The display will show: **N0000**. Use the examples below to perform the desired operation:

**N 6 0 0 0 ENTER** Sets HFO to 000 (Default value, 0 degrees).

**N 6 1 2 8 ENTER** Sets HFO to 128 (Equivalent to 180 degrees).

**N 6 9 9 9 ENTER** Displays the current HFO set in the PCU.

Example: Desired Home Flag Offset is 40 degrees.  $40 \times .256/360 = 28.44$ . Round the calculated value to 28 and enter as N6028. Save the PCU parameters and Reset the PCU for the change to take effect without generating an Azimuth Reference or inducing Azimuth drift.

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### Satellite Reference Mode

This mode allows you to use the antenna on a floating platform with no gyro connected or uncouple an unstable or inaccurate gyro from the stabilization loop. To operate in Satellite Reference mode on an xx96 or xx97 antenna requires PCU software Version 1.32 or higher. The gyro heading information is still used for a satellite targeting estimate, so if installed on a fixed or floating platform without a gyro input you must manually enter an approximate heading.

Satellite Reference mode is required for operating with either a flux gate compass or a GPS differential compass. The steps below describe how to configure the PCU for Satellite Reference mode operation.

1. At the Remote Command window key in: **., 9, 4, ENTER** (note the decimal).
2. The display will show **^0000**. Press **7, 1, ENTER** to send the ^0071 Satellite Reference mode command to the PCU.
3. Press **8,7, ENTER** to send a ^0087 Remote Parameter Save command to the PCU. Press **8, 7, ENTER** again to send a second ^0087 Remote Parameter Save command to the PCU. This assures a successful write.
4. Press **9, 0, ENTER** to send a ^0090 Reset command to the PCU. Press **ANTENNA, MODE, N/S** to verify the PCU is Initializing.
5. When initialization is complete, you can verify the PCU is in Satellite Reference mode by entering, **8, 3 ENTER** at the Remote Command window. The display will show **S0000**. Press **ENTER** again to access the Remote Monitor window. The display will show **Sabc&**. Verify the first character after the "S" (a in this example) is P,Q,R,S,T,U,V,W,X,Y,Z,[,\,],^ or \_ (typically "S" for xx96/97 PCU).

### To exit Satellite Reference mode:

1. At the Remote Command window key in: **., 9, 4, ENTER** (note the decimal).
2. The display will show **^0000**. Press **0, ENTER** to send the ^0000 Standard mode command to the PCU.
3. Press **8,7, ENTER** to send a ^0087 Remote Parameter Save command to the PCU. Press **8, 7, ENTER** again to send a second ^0087 Remote Parameter Save command to the PCU. This assures a successful write.
4. Press **9, 0, ENTER** to send a ^0090 Reset command to the PCU. Press **ANTENNA, MODE, N/S** to verify the PCU is Initializing.
5. When initialization is complete, verify that normal mode is restored by using the procedure in step 5 above except the first character after the "S" will be @,A,B,C,D,E,F,G,H,I,J,K,L,M,N, or O (typically "C" for xx96/97 PCU).