APPENDIX B - MOUNT SPECIFIC DATA
For
ANDREW 1.2/2.4m. SNG

This appendix describes RC3000 operations unique for Andrew 1.2/2.4m. mounts equipped with the "Customer Supplied Controller" interface. Differences between this version and the operation described in the "baseline" RC3000 manual are noted on a paragraph by paragraph basis.

1.1 Manual Organization

This appendix is provided as a supplement to the baseline RC3000 manual.

1.2 RC3000 Features – Configuration

A RC3000A version of hardware is required for this mount. The mount model will be designated as N2 or N3 per the following table.

RC3000 MOUNT DESIGNATION	ANDREW MOUNT MODEL
N2	2.4 m. SNG
N3	1.2 m. SNG

Software will be designated as RC3K-N2/N3-xxx

1.3.2 System Interface Requirements

The interface requirements for this mount are very similar to the "standard" RC3000 interface described in the baseline manual with the following differences:

- HPA and alarm contact closure interfaces are used to control azimuth and elevation brakes

- The mount's elevation "creep" switch is connected to the input normally described as the polarization stow limit. Whenever the "creep" switch is active, the RC3000 will be forced to slow motor speed.

- A different version of the electronic inclinometer is used.

2.1.4 Inclinometer Orientation

For the 2.4m. mount (N2), the inclinometer should be at its level position when the reflector is at the 30 degree look angle position.

For the 1.2m. mount (N3), the inclinometer should be at its level position when the reflector is at the 45 degree look angle position.

2.2 Electrical Connections

Interfaces to control mount movement are made via the Andrew "Customer Supplied Controller" terminal strip. The following table lists these connections.

NOTE: in some cases the RCI and Andrew polarity definitions are opposite. The table reflects the correct wiring to achieve the RC3000's polarity scheme. A sample schematic showing how to wire a cable set to achieve these interfaces is provide in section 4.2 (schematics).

RC3000			CSC TERMINAL BLOCK	
CONNECTOR	DESCRIPTION	PIN	TERMINAL #	DESCRIPTION
J7 – Motor Drive	Pol Drive	A	10	Pol Motor Pos
	Pol Return	B	9	Pol Motor Neg
	Az Drive	G	6	Az Motor Pos
	Az Return	F	5	Az Motor Neg
	El Drive	H	1	El Motor Neg
	El Return	J	2	El Motor Pos
	Pol Drain	C	Terminate motor shield wires as close to terminal strip as possible	
	Az Drain	E		
	El Drain	D		
J1 – Drive Sense	Az Wiper	1	31	Az Term 2 (Wiper)
	Az -	2	30	Az Term 3 (CW)
	Az+	9	32	Az Term 1 (CCW)
	Az Drain	10	29	
	Pol Wiper	4	39	Pol Term 2 (Wiper)
	Pol +	11	38	Pol Term 3 (CW)
	Pol -	12	40	Pol Term 1 (CCW)
	Pol Drain	3	37	
	El Signal	15	35	El Clinometer Yellow (sig)
	El +5V	6	36	El Clinometer Red (pwr)
	El Common	14	34	El Clinometer Black (rtn)
	El Drain	7	33	
J3 – Limit Switches	AZ Stow +	9	16	Center Status Switch (NO)
	AZ Stow -	7	15	Center Status Switch (COM)
	EL Up +	10	22	Up LS (COM)
	EL Up -	14	21	Up LS (NC)
	EL Down +	5	24	Down LS (COM)
	EL Down -	6	23	Down LS (NC)
	EL Stow +	11	28	Stow LS Wire 2 (NC)
	EL Stow -	13	27	Stow LS Wire 1 (COM)
	Pol Stow -	1	25	Creep LS (In)
	Pol Stow +	2	26	Creep LS (12 V.)
	Sensor Drain	4	N/C	
J8 - Accessories	Az Brake Drive (+)	D	8	Az Brake
	Az Brake Return (-)	E	7	Az Brake
	El Brake Drive (+)	F	4	El Brake
	El Brake Return (-)	H	3	El Brake
	Brake drains		N/C	

The connections listed above account for the interfaces described in sections 2.2.2 (Motor Drive), 2.2.3 (Drive Sense), 2.2.4 (Limit Switches) and 2.2.7 (Accessories) of the baseline RC3000 manual. All other RC3000 interfaces (navigation sensors, signal strength, etc.) are not made to the mount and their descriptions in the baseline manual apply.

Several types of interfaces listed in the above table are unique to the Andrew mounts. They are briefly described next.

Drive Sense. The Andrew mounts use a similar inclinometer to the one described in the baseline RC3000. The difference is that the inclinometer used by Andrew requires a +5 VDC supply while the standard inclinometer used with the RC3000 uses +/- 15 VDC supply.

Limit Switches. The Andrew mount implements a "creep" switch to indicated that the reflector is close to the elevation stow position. The creep switch is input to the RC3000 via the connection normally defined for a polarization stow limit switch.

Accessories. The contact closures described for HPA disable and Alarm Out are instead utilized for energizing the azimuth and elevation brakes.

2.3.2 Elevation Calibration

Elevation Reference Position. The following table describes the elevation reference position, the approximate voltage that should be seen when the mount is in the reference position and the RF angle that subsequently should be displayed when the reference voltage is input.

MOUNT	REFERENCE POSITION	TARGET VOLTAGE	RF ANGLE AT REFERENCE POSITION
2.4 m. (N2)	Boom Level	0.96	-8.5 deg.
1.2 m. (N3)	Backstructure Vertical	1.44	18.5 deg.

Elevation Scale Factor. The nominal scale factor for the inclinometer used with these mounts is 40.0 mV/deg. The procedure to calculate the actual scale factor is the same as described in the baseline manual.

2.3.4 Polarization Calibration.

-45 as center of travel -> ref v.

pol offset –45

+/- ___ cw, ccw l imits

2.3.5 Fast/Slow Motor Speed. The fast/slow drive voltages will be set at the factory according to the following table:

MOUNT	FAST	SLOW
2.4 m. (N2)	12.0 VDC	3.6 VDC
1.2 m. (N3)	12.0 VDC	3.6 VDC

NOTE: care should be taken in adjusting the slow speed motor voltage. This voltage should be low enough that the elevation motor stalls after the elevation stow pad has been compressed.

3.2.1 Manual

The Manual mode will function as described in the baseline document with the exception of how the elevation stow limit is indicated. This is due to how the RC3000 reacts to the elevation creep and stow switches.

The elevation creep switch is input to the RC3000's motor drive hardware logic. Anytime the creep switch is active, the RC3000 will only output the slow motor speed voltage. In order to accommodate compressing the stow pad, the RC3000's logic does not inhibit down elevation movement when the elevation stow switch is active. When the elevation stow switch is first encountered a four second timer is initiated. Until the timer expires down movement may occur even with the elevation stow switch active.

In order to restart the timer and allow down movement with the elevation switch active the mount must be moved above the stow switch.

While the timer is counting, the elevation limit field will display “stow”. As noted, down movement may still occur during this state. After the timer has expired, the elevation limit field will display “STOW”. No further down movement may occur at this point.

3.2.2.2 Stow

The stow mode will function as described in the baseline manual with the exception that the elevation down movement will continue for four seconds after the elevation stow switch is encountered. This additional time should allow the stow pad to be compressed to secure the reflector for traveling.

3.3.1.2 Reset Defaults

The following table supplies the default configuration item values for each model of mount.

Space has also been provided to record installation specific changes to the configuration items. Note: recording of installation specific changes to defaults may prove valuable when trying to restore system configuration.

4.2 schematics

brakes,
5v inclinometer,
creep switch,
3k to CSC drawing

CONFIGURATION ITEM	N2	N3						INSTALL VALUE
SYSTEM DEFINITION								
GPS_present	1	1						
Compass_present	1	1						
Mode	2	2						
antenna_size_cm	240	120						
Waveguide_Switch_Present	0	0						
AZIMUTH CALIBRATION								
Zero Voltage	2.50	2.50						
Azim_offset	0.0	0.0						
ccw_azim_limit	175	175						
Cw_azim_limit	175	175						
Azim_Scale_Factor	72.08	72.08						
ELEVATION CALIBRATION								
Zero Voltage	0.96	1.44						
Elev_offset	0.0	0.0						
Up_elev_limit	65	65						
Down_elev_limit	0	0						
Elevation_Scale_Factor	40.00	40.00						
Elevation_look_configuration	1	1						
POLARIZATION CAL								
Zero Voltage	2.50	2.50						
Polarization_Offset	0.0	0.0						
CW Polarization Limit	90.0	90.0						
CCW Polarization Limit	90.0	90.0						
Pol_Scale_Factor	37.50	37.50						
Polarization_type	2	2						
H/V_Reference	1	1						
Default Horizontal Position	-45.0	-45.0						
Default Vertical Position	45.0	45.0						
Pol_Automove_Enable	1	1						
SIGNAL PARAMETERS								
Channel 1 Polarity	1	1						
Channel 1 Threshold	100	100						
Channel 1 Delay	0.1	0.1						
Channel 1 Lock Type	0	0						
Channel 2 Polarity	1	1						
Channel 2 Threshold	100	100						
Channel 2 Delay	0.1	0.1						
Channel 2 Lock Type	0	0						
AUTOPEAK								
Autopeak Enabled	0	0						
Signal Source	1	1						
RF Band	1	1						
Spiral Search AZ Limit	3	3						
Spiral Search EL Limit	3	3						
Spiral Signal Threshold	200	200						
Scan Range Limit	8	8						
Scan Signal Threshold	200	200						

CONFIGURATION ITEM	N2	N3						INSTALL VALUE
AZIMUTH POT DRIVE								
Fast/Slow Threshold	2.5	2.5						
Maximum Position Error	0.20	0.20						
Coast Threshold	0.1	0.1						
Maximum Retry Count	3	3						
AZIMUTH PULSE DRIVE								
Pulse Scale Factor	2406	2406						
CW Pulse Limit	64000	64000						
CCW Pulse Limit	100	100						
Fast/Slow Threshold	50	50						
Maximum Position Error	0	0						
Coast Threshold	3	3						
Maximum Retry Count	3	3						
AZIM DRIVE MONITORING								
Jam Slop	1	1						
Runaway Slop	200	200						
Fast Deadband	1000	1000						
Slow Deadband	500	500						
ELEV POT DRIVE								
Fast/Slow Threshold	3.0	3.0						
Maximum Position Error	0.2	0.2						
Coast Threshold	0.4	0.4						
Maximum Retry Count	3	3						
ELEV PULSE DRIVE								
Pulse Scale Factor	1646	1646						
UP Pulse Limit	64000	64000						
Down Pulse Limit	100	100						
Fast/Slow Threshold	50	50						
Maximum Position Error	0	0						
Coast Threshold	3	3						
Maximum Retry Count	3	3						
ELEV DRIVE MONITORING								
Jam Slop	1	1						
Runaway Slop	200	200						
Fast Deadband	1000	1000						
Slow Deadband	500	500						
POL POT DRIVE								
Fast/Slow Threshold	2.0	2.0						
Maximum Position Error	0.5	0.5						
Coast Threshold	0.3	0.3						
Maximum Retry Count	3	3						
POL DRIVE MONITORING								
Jam Slop	1	1						
Runaway Slop	200	200						
Fast Deadband	1000	1000						
Slow Deadband	500	500						

CONFIGURATION ITEM	N2	N3						INSTALL VALUE
TRACK								
Search Enable	0	0						
Max Track Error	3	3						
Search Width	4	4						
Peakup Holdoff Time	120	120						
Track Signal Source	2	2						
Signal Sample Time	2	2						
REMOTE CONTROL								
Remote Enabled	1	1						
Bus Address	50	50						
Baud Rate	6	6						
STOW / DEPLOY								
AZ STOW	0.0	0.0						
EL STOW	-67.5	-67.5						
PL STOW	0.0	0.0						
AZ DEPLOY	0.0	0.0						
EL DEPLOY	22.3	22.3						
PL DEPLOY	0.0	0.0						
PL ENABLED	1	1						