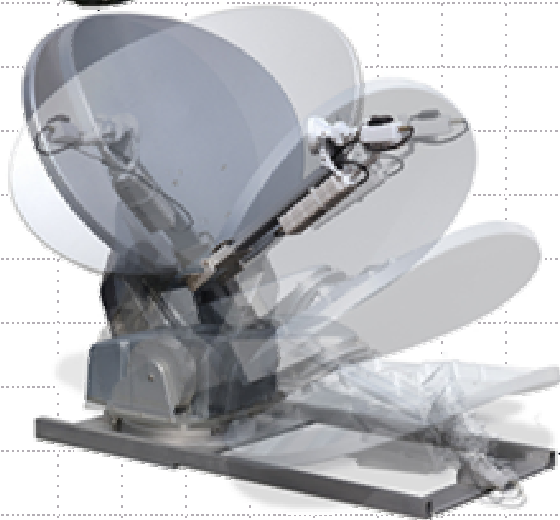
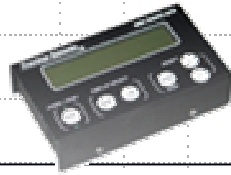


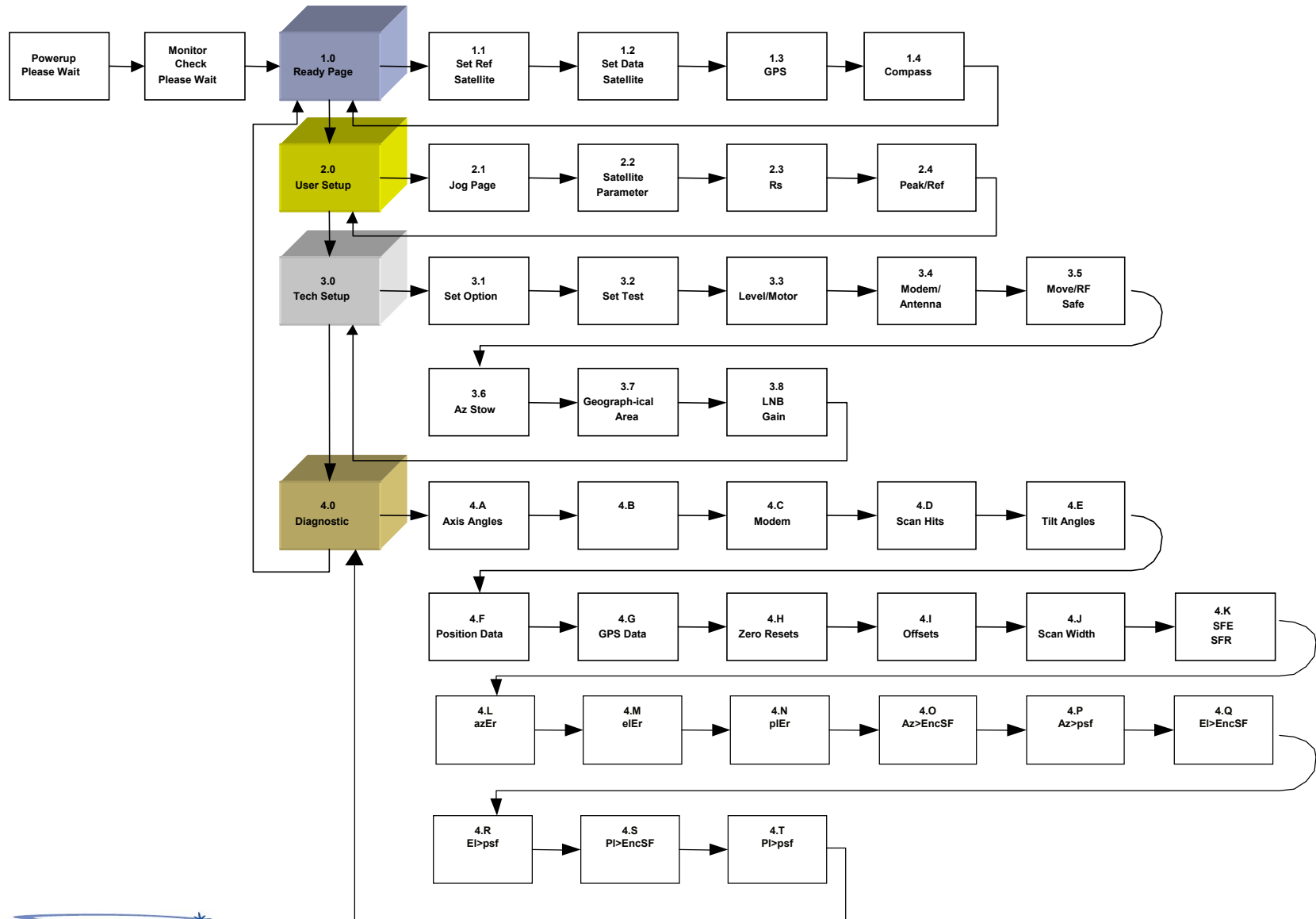
MVS Series Antennas Operating Instructions July 2005 Version 3.2

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Orlando, FL 32804
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www.tracstar.net





TracStar Controller Menu Grid





1. Theory of Operation
2. Antenna Setup Options
3. Antenna Operations and Display Unit Instructions



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ARROW 1X
MAIN 2X

PgUP / PgDn

- Click on HOME / HOUSE symbol to return to INDEX page
- Means it is something *TracStar* feels is important to you.
- Number of times operator must touch respective keypad position to accomplish the direction(s) being given.
- PgUP / PgDn navigates the MVS Manual by decreasing or increasing the page number respectively.



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Appendix B – Connection Directions

Gilat 360E
EMS Technologies
iDirect
Linkstar
Vipersat



Antenna Description

- Three axis, polarization over elevation over azimuth
- Configurable for operation on most satellites
- Designed for operator simplicity, performs precise antenna to satellite alignment with the push of a button or a switch
- Pedestal Description:
 - High precision motors with optical encoders
 - Very low backlash drive system
- Each antenna is fully integrated with
 - GPS
 - Compass
 - DVB Receiver
 - Base level sensor
 - Antenna Control System with User Interface

- Satellite Acquisition Description
- Upon power up and deployment, the following acquisition sequence takes place:
 - Compass aligns the antenna with south (if in the northern hemisphere, to the north if in the southern hemisphere)
 - Antenna acquires GPS for high precision geographic location information
 - Antenna precisely sets elevation angle and sweeps through a selected reference satellite, monitoring signal characteristics of the reference satellite
 - Antenna peaks on reference satellite until the center of the antenna beam is located as a calibration
 - Antenna then peaks on the satellite of interest and performs a high precision alignment to the satellite
 - Antenna sends GPS to satellite modem (if applicable)
 - Satellite modem initiates contact with network operations



Antenna Description

- DirectPoint™ technology closely couples with the satellite modem thus enhancing the satellite acquisition accuracy and reducing the startup time. The antenna goes directly to the data satellite and using enhanced communications capability with intelligent modems is able to acquire, lock and peak on the specific satellite without the traditional pre-alignment (reference satellite) stage.



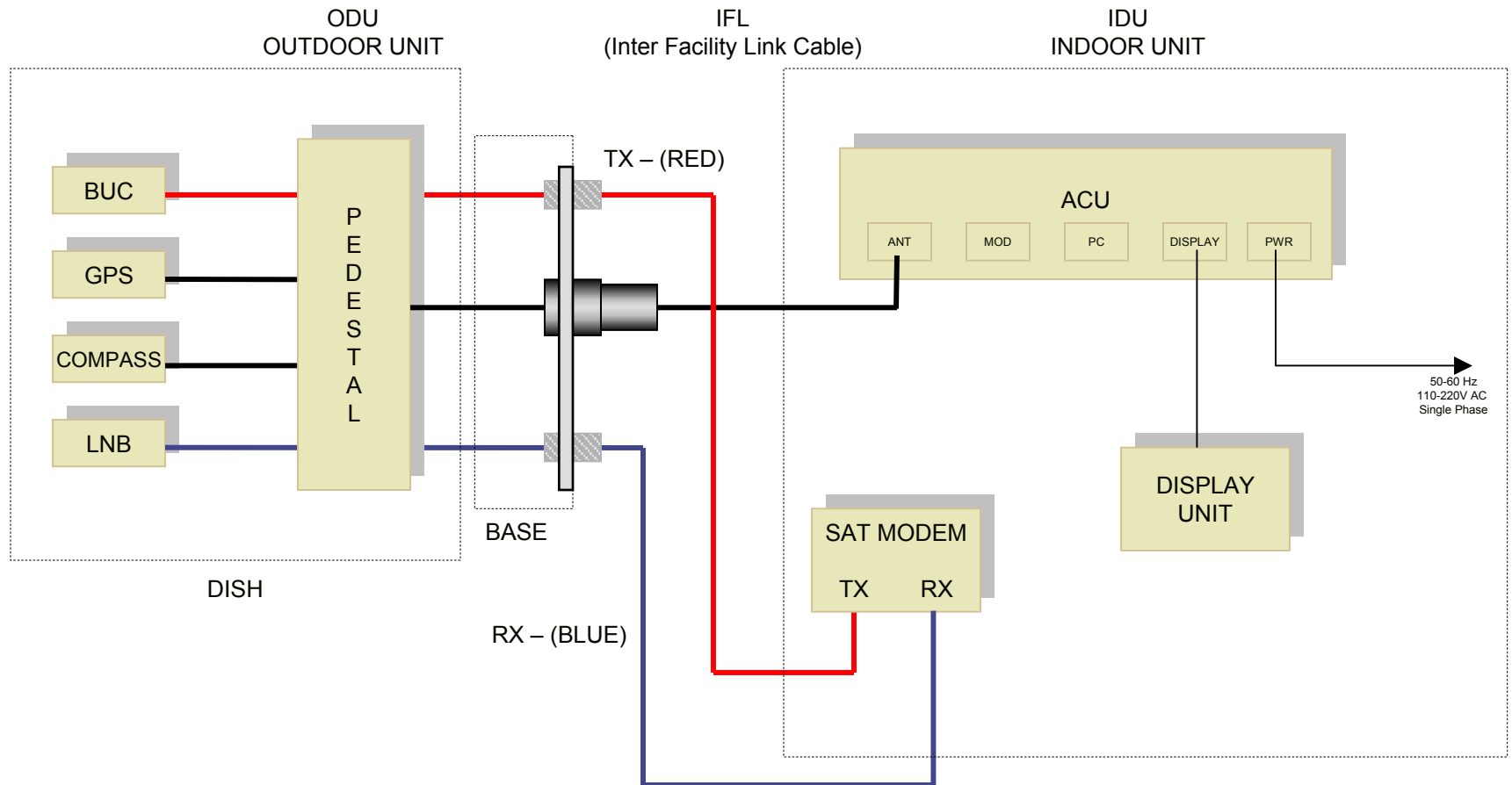
The DirectPoint mode is invoked by setting "10000" as the Lock Method Word in the User Setup Page 2.4 and "iDirect" as the Modem in Tech Setup Page 3.4.

Satellite Acquisition Description

- Upon power up and deployment, the following acquisition sequence takes place:
 - Compass aligns the antenna with south (if in the northern hemisphere, to the north if in the southern hemisphere)
 - Antenna acquires GPS data for high precision geographic location information
 - Using DirectPoint™ and bypassing the selected reference satellite, the antenna pointing algorithm precisely scans to the selected data satellite
 - Monitoring signal characteristics specific to this data satellite, the antenna peaks on the center of the satellite beam and performs a high precision alignment to this satellite
 - After completion of the peaking sequence data is sent to the modem to enable transmit
 - The modem can then automatically initiate contact with the network operations center and be commissioned into the network



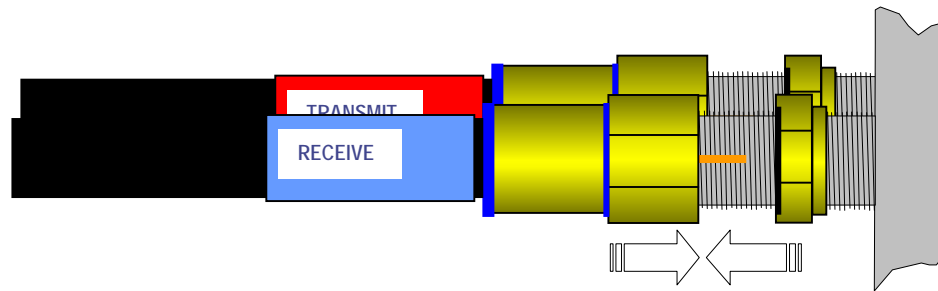
System/Cabling Block Diagram





IFL CABLE CONNECTIONS

There are two different types of coaxial connectors on the IFL cables. The cable connecting to the antenna is shown below. The two-piece connection allows for the O-ring seal in the smaller nut to be placed on the F Type connector first. Once the cable is connected, the smaller nut is tightened against the cable end allowing the O-ring to provide a moisture proof seal.





Antenna Setup Options

1. Quick Setup

1. This setup is performed for an antenna system to be used in a geographical region for the first time.
2. The user has known Reference Satellite information.
3. The user does not have Reference Satellite frequencies.

2. Quick Setup Reference from Script

1. This setup is performed for an antenna system to be used in a geographical region for the first time.
2. The user has a script, i.e., orbital positions and frequencies exist for the Reference Satellites and therefore can be entered into the antenna controller.

3. Quick Setup Reference Using SkyScan

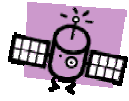
1. This setup is performed for an antenna system to be used in a geographical region for the first time.
2. There is no information for Reference Satellites.

4. After the Reference Satellites are input, the following criteria should be considered in selecting them.

1. There can be up to 12 Reference Satellites in the library. A general rule is to select 3-4.
2. The antenna "rated" the satellites during the ScanSky. Reference satellite positions ending with the letter "A" are the most desirable, then "B", then "C". "Z" indicates that carrier power was not found.
3. Try to select satellites that are off to the side (east or west) of the users longitude position, i.e., lower on the horizon is better.



1. Quick Setup Reference – Known Reference Satellites



NOTE:

Locate the antenna so that it has a view of the orbital arc.

Orient the antenna so that it comes up generally to the south (if located north of equator), north (if located south of equator).

Step	Function	Action	Display Page
1.	Power up antenna	Turn on power at ACU	READY
2.	Set Code (enables editing) (Page 3.0)	From READY page Main 2x + to code 13, Enter Main 2x	READY TECH SETUP,[Code 0] Tech Setup [CODE 13] READY
3.	Clear existing satellite data. (Page 3.2)	From READY page Main 2x Arrow 2x + or – to Enter + Enter	READY TECH SETUP [Code 13] SET TEST, [NONE] [CLEAR REF DATA] [CANCEL] [RUN NOW] READY
4.	Input reference satellite parameters. (Page 2.3) Go to reference satellites entry page Leave both default frequencies 10799 Set scan type to Freq Repeat, up to 12 Ref satellites	From READY page Main 1x Arrow 3x Enter + or – to Ref Sat Long ENTER - to [10799] ENTER + TO [Freq] ENTER	READY USER SETUP [Rs 1] [XXX.X] [XXX.X] [XXX.X] [10799] [SS] [Freq]
5.	Run Frequency Scan (Page 3.2 – Set Test/Freq Scan)	From READY page Main 2x Arrow 2x + or – to ENTER + Enter	READY TECH SETUP, [Code 13] SET TEST, [NONE] [SCAN FREQ] [cancel] [RUN NOW] READY
6.	(Input Reference Satellites Page 1.1) Select RefX Satellite Select RefY Satellite	From Ready page: Arrow 1x + or – through Ref Sat List ENTER + or – through Ref Sat List Enter Main	READY SetREF, X XXX.X SetREF, Y XXX.X READY
7.	(Input data satellite parameters Page 1.2) Toggle between SatA and SatB Input orbital position for SatA Input orbital position for SatB	From READY page: Arrow 2x + or – + or – Enter	READY SELECT DATA [SatA] or [SatB] XXX.X



2. Setup Quick Reference: From A Script



NOTE:

Locate the antenna so that it has a view of the orbital arc.

Orient the antenna so that it comes up generally to the south (if located north of equator), north (if located south of equator).

Step	Function	Action	Display Page
1.	Power up antenna	Turn on power at ACU	READY
2.	Set Code (enables editing) (Page 3.0)	From READY page Main 2x + to code 13, ENTER Main 2x	READY TECH SETUP [Code 0] Tech Setup [CODE 13] READY
3.	Clear existing satellite data. (Page 3.2)	From READY page Main 2x Arrow 2x + or - to ENTER + ENTER	READY TECH SETUP [Code 13] SET TEST, [NONE] [CLEAR REF DATA] [cancel] [RUN NOW] READY
4.	Input reference satellite parameters (Page 2.3) Select Reference Satellite 1 Input orbital position for Ref 1 Input primary frequency for Ref1 Input secondary freq. for Ref1 Repeat, up to 12 Ref satellites	From READY page Main 1x Arrow 3x ENTER + or - then ENTER + or - then ENTER + or - then ENTER + or - then ENTER	READY USER SETUP [Rs 1] [XXX.X] [XXXXX] [XXXXX] [Rs2]
5.	(Input reference satellites Page 1.1) Select RefX satellite Select RefY satellite	From READY page: Arrow 1x + or - then ENTER + or - then ENTER	READY Set Ref XXX.X XXX..X
7.	Input data satellite parameters. (Page 1.2) Toggle between SatA and SatB Input orbital position for SatA Input orbital position for SatB	From READY page Arrow 2x + or - then Enter + or - then Enter + or - then Enter	READY SELECT DATA [SatA] or [SatB] XXX.X XXX.X



3. Setup Quick Reference Using SkyScan

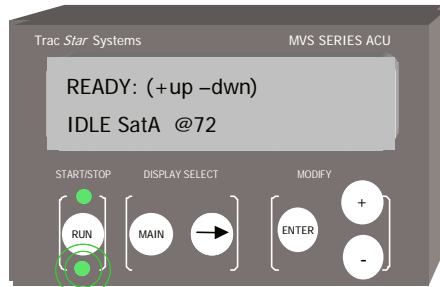


NOTE:

Locate the antenna so that it has a view of the orbital arc.

Orient the antenna so that it comes up generally to the south (if located north of equator), north (if located south of equator).

Step	Function	Action	Display Page
1.	Power up antenna	Turn on power at ACU	READY
2.	Set Code (enables editing) (Page 3.0)	From READY page Main 2x + to code 13, Enter Main 2x	READY TECH SETUP, [Code 0] Tech Setup, [CODE 13]
3.	Clear existing satellite data. (Page 3.2)	From READY page Main 2x Arrow 2x + or - to ENTER + ENTER	READY TECH SETUP, [Code 13] SET TEST, [NONE] [CLEAR REF DATA] [cancel] [RUN NOW] READY
4.	Initiate ScanSky function:	From SET TEST page + or - to ENTER + ENTER	SET TEST, [NONE] [SCAN Sky] [cancel] [RUN NOW] Initiates Sky Scan
5.	Input reference satellites (Page 1.1) Select RefX satellite Select RefY satellite	From READY page: Arrow 1x + or - then ENTER + or - then ENTER	READY Set Ref XXX.X XXX.X
6.	Input data satellite parameters. (Page 1.2) Toggle between SatA and SatB Input orbital position for SatA Input orbital position for SatB	From READY page Arrow 2x + or - then ENTER + or - then ENTER + or - then ENTER	READY SELECT DATA [SatA] or [SatB] XXX.X XXX.X

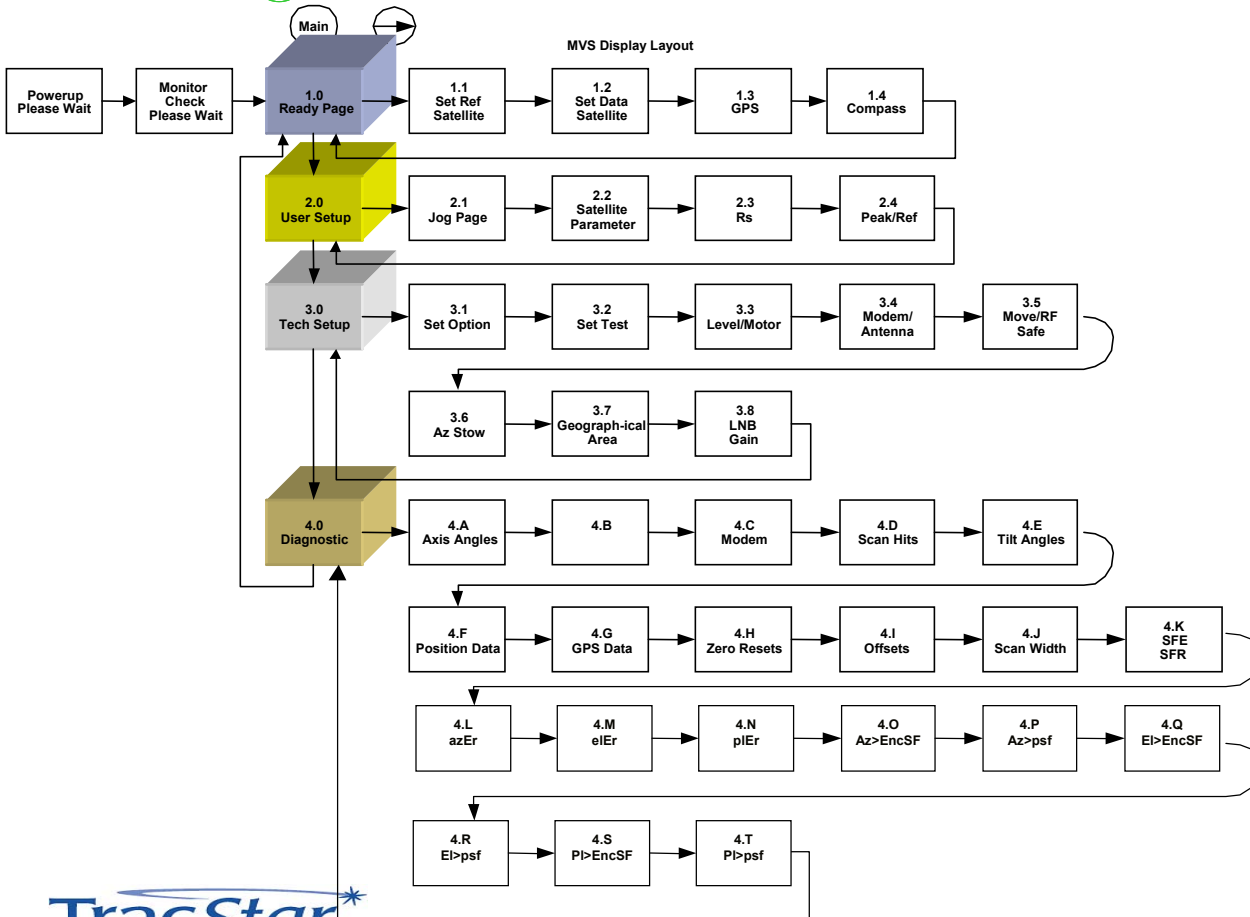


IMPORTANT

There are four distinct groupings of functions in the operation of the TracStar Auxiliary Control Unit (ACU). This manual will discuss each of these groups (Ready Page, User Setup, Tech Setup and Diagnostics) individually.

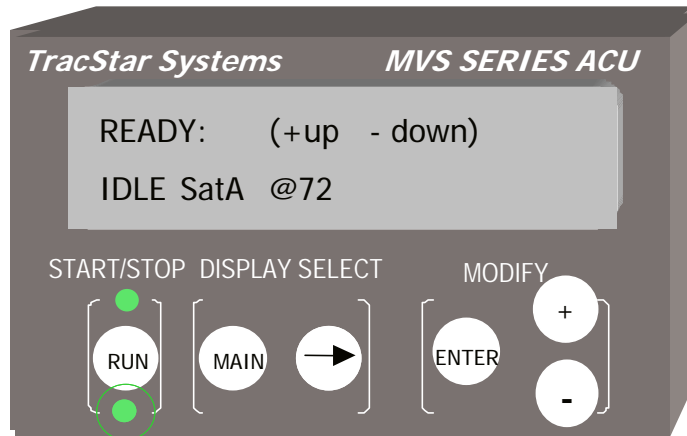
During actual ACU operation, the various sections are selected by pushing the MAIN button the appropriate number of times thus moving "vertically" to select the desired group function. Hereafter, the block diagram will be shown for each individual function without the other groups functions being represented.

Regardless of what operation is displayed in the ACU display panel, returning to the MAIN or MASTER menu may always be accomplished by continually pressing MAIN until "READY:" appears.





MVS ACU Unit Display and Layout



START/ STOP	Places the antenna in operational mode (green LED on top) or standby (green LED on bottom)
DISPLAY SELECT	MAIN steps through the menu vertically → steps across the menu horizontally
MODIFY	ENTER to select or step through page + or - to modify selection

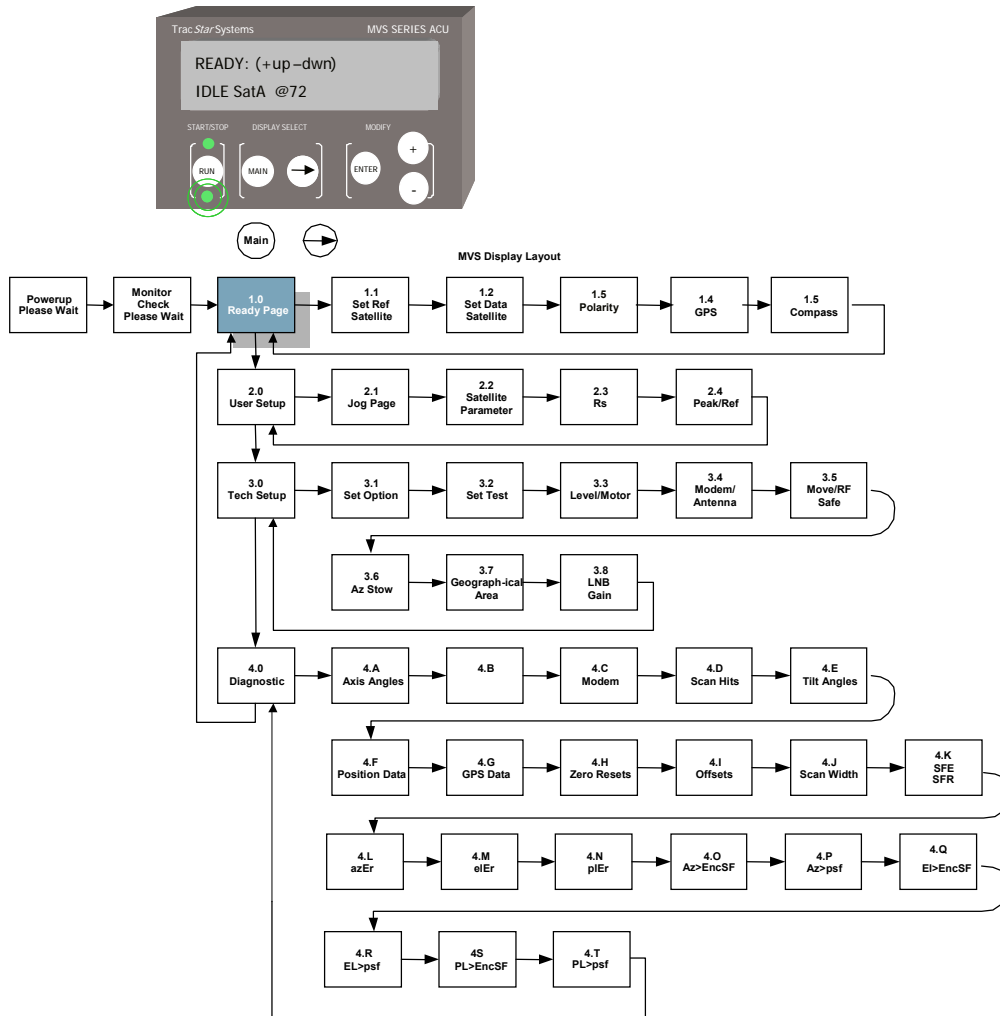
Note: A Flashing Question Mark [---?---] in the display indicates an item has not yet changed in the process. Select the desired item with [+/-] then press enter.



Flashing Blocks indicate something has changed but not been stored. ENTER must still be pressed to move to the next item.



1.0 READY



- READY is the main or default page and appears once the system is powered up. The selected satellite and orbital position in degrees longitude is displayed. Positive degrees indicates west longitude, "-" or negative degrees indicates east longitude.
- To activate the system:
- Turn on power to the TracStar Power Supply.
- Press + and hold for 2 seconds to initiate a satellite acquisition. This can be done with the antenna in any position.
- Press - and hold for 2 seconds to stow. This can be done with the antenna in any position. Lower LED should be on.
- From the READY page the user can:
 - Press → move to the Select Satellite page.
 - Press **MAIN** move to User Setup.
- Note that when the system is in READY (standby) mode the bottom green LED is on. When the system is active the top LED is on.

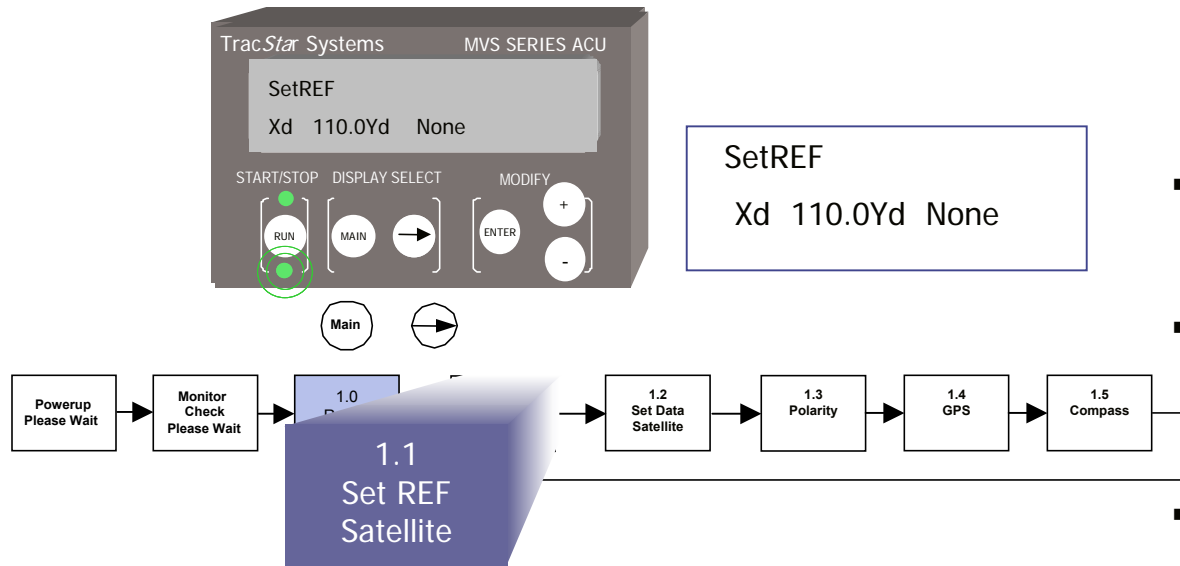


1. Typical Acquisition Sequence

Message Displayed	Description
POWER UP PLEASE WAIT	Power is being applied to the system
MONITOR CHECK PLEASE WAIT	The system is initiating its internal monitor software
LOADING PLEASE WAIT	The system is going through a momentary warm-up stage (3-5 seconds)
READY: (+ up – down)	The system is in standby mode waiting for instructions (green LED is on bottom): (a) Press + to initiate an acquisition (b) Press – to stow the antenna
RUN: (+/- stop) Startup @ XX	The system is active and has started an acquisition (green LED on top). NOTE: any time the system is active press + or – to place the system in standby.
RUN: (+/- stop) Compass XXX	The system is reading the compass and aligning. Shows relative compass sensor reading.
RUN: (+/- stop) Wait GPS 118	The system is acquiring GPS signals Last digit shows number of GPS satellites acquired, +100 if locked
RUN: (+/- stop) SCAN XXX YYYYY	The system is scanning a reference satellite XXX is orbital position; YYY shows signal strength
RUN: (+/- stop) PEAK XXX YYY	The system is scanning the selected communications satellite
RUN: (+/- stop) Locked XXX YYY	The antenna is locked on the selected satellite
	To place the system in standby, press + or -, READY page will appear



1.1 Set Reference Satellite



- The antenna system uses a reference satellite as part of the acquisition process.
- The Set Reference Satellite page allows the user to select up to two pre-programmed reference satellites from a stored library.
- The RefX is the primary and the RefY is the secondary. The secondary reference satellite will be used in case the primary satellite cannot be found, for example, signal blockage.



IMPORTANT

- NOTE: *Those satellites located west of 0° longitude are positive and those east of 0° are shown as a negative number.*



1.1 Set Reference Satellite (con't)

Description	Action	Display
Set Code (enables editing) (Page 3.0)	From READY page Main 2x + to code 13 Enter Main 2x	READY TECH SETUP Tech Setup CODE 13
Set Reference Page (Page 1.1)	From Ready Page: Arrow 1x	SetREF X[XXX.X] Y XXX.X
Reference X is the primary reference satellite. Select the appropriate reference satellite from the library. For USAdvb ONLY: {If reference satellite is unknown, select [auto]}	+ or – then Enter (Press + to select known satellite or "auto", then Enter)	SetREF [XXX.X] Y [XXX.X]
Reference Y is the secondary satellite in case the primary satellite is not available, i.e., blockage. In some cases the RefY satellite will be used as a check during the acquisition. <i>If RefX is set as AUTO, then setting RefY to other than AUTO will cause the RefY location to be tried FIRST, followed by the AUTO list as needed.</i>	+ or – then Enter (Press + to select known satellite or "auto", then Enter)	SetREF XXX.X Y [XXX.X]

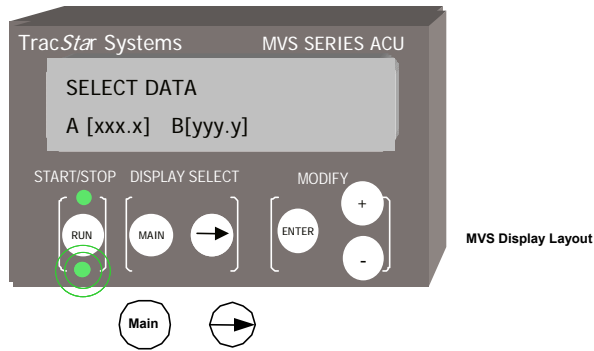


1.1 Set Reference Satellite (con't)

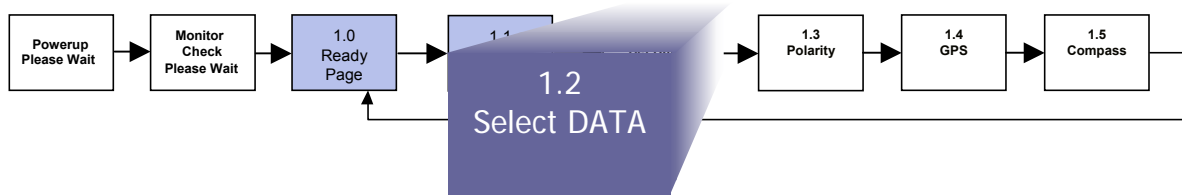
Description	Action	Display
Set Code (enables editing) (Page 3.0)	From READY page Main 2x + to code 13 Enter Main 2x	READY TECH SETUP Tech Setup CODE 13
Set Reference Page (Page 1.1)	From Ready Page: Arrow 1x	SetREF X[XXX.X] Y XXX.X
Reference X is the primary reference satellite. Select the appropriate reference satellite from the library.	+ or – then Enter	SetREF XXXX.X Y [XXX.X]
Reference Y is the secondary satellite in case the primary satellite is not available, i.e., blockage. In some cases the RefY satellite will be used as a check during the acquisition	+ or – then Enter	SetREF XXXX.X Y [XXX.X]



1.2 Select Data Satellite



SELECT DATA [SatA]
A XXX.X B XXX.X



- The Set Data Satellite page allows the user to select the communications satellite of interest.
- The user can select up to two pre-programmed data satellites, SatA and SatB.
- The user can program the desired satellite by entering the orbital position in degrees longitude.



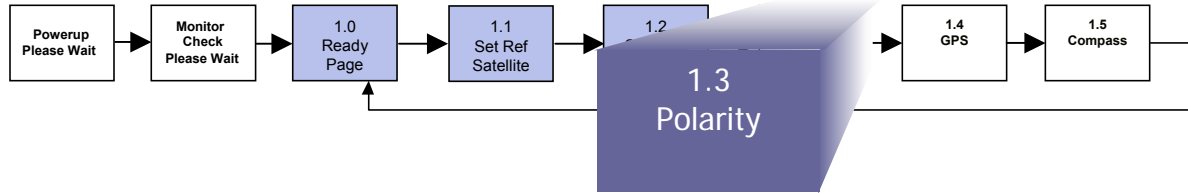
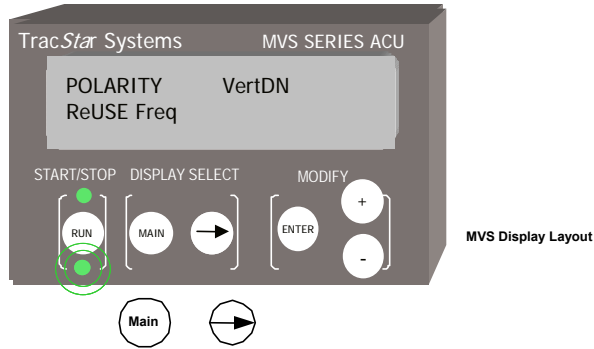
IMPORTANT

- NOTE: Satellites west of 0° longitude must be entered as positive values, satellites east of 0° longitude must be entered as negative values.



1.2 Select Data Satellite (con't)


Description	Action	Display
Set Code (enables editing) (Page 3.0)	From READY page Main 2x + to code 13, Enter Main 2x	READY TECH SETUP Tech Setup CODE 13
Set Satellite Page (Page 1.2)	From Ready Page: Arrow 2x	SELECT DATA [SatA] A XXX.X B XXX.X
When SatA is flashing, the antenna will acquire SatA. The orbital position for SatA is shown on the bottom row as well as on the READY page. Press ENTER to select SatA, or press + to change to SatB , then press ENTER.	+ or – to [SAT A] or [SAT B] ENTER	SELECT DATA [SatA] A XXX.X B XXX.X SELECT DATA [SAT A] [A XXX.X] B XXX.X
Now the orbital position for SatA is flashing and the user can input the desired orbital position in degrees longitude. Press + or - until the desired value is reached then ENTER.	+ or – to Data Sat Long ENTER	SELECT DATA [SatA] A XXX.X B XXX.X SELECT DATA SAT A A XXX.X [B XXX.X]
Now the orbital position for SatB is flashing and the user can input the desired orbital position in degrees longitude. Press + or - until the desired value is reached then ENTER.	+ or – then Enter Main	SELECT DATA SatA A XXX.X [B XXX.X] READY
NOTE: Satellites west of 0° longitude must be entered as positive values, satellites east of 0° longitude must be entered as negative values.		



- **Applies to MVS1200 with motorized feed assembly ONLY**
- The user is allowed to change the polarization of the receive frequency
- Allows the user to ReSCAN the existing selection of Satellite A / Satellite B frequency after changing the receive polarity



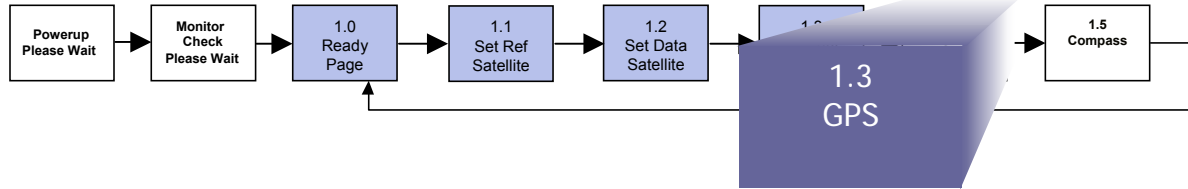
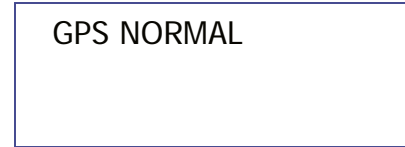
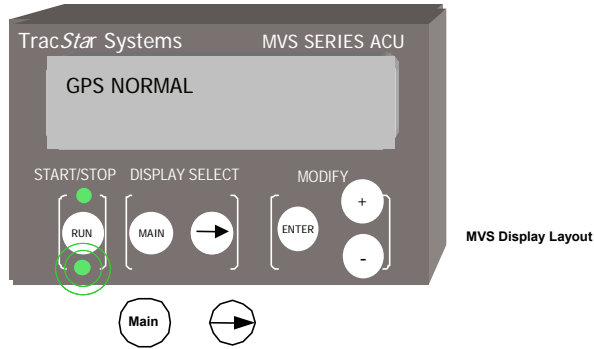
1.3 POLARITY (con't)

Description	Action	Display
Set Code (enables editing) (Page 3.0)	From READY page Main 2x + to code 13, Enter Main 2x	READY TECH SETUP Tech Setup CODE 13
Polarity Page (Page 1.3) FOR MVS1200 ANTENNAS ONLY	From Ready Page: Arrow 3x	POLARITY [VertDN]
After the code is entered, the word VertDN is flashing. The user can now manually input the desired polarity, VertDN or HorzDN.	+ or – then Enter	POLARITY [VertDN]
<p>ReUSE Freq is now flashing. The user can now manually select the ReUSE or ReSCAN options.</p> <p><i>NOTE: ReSCAN is not intended to replace the Satellite Parameters / Section 2.2 of the manual. If the proper frequencies are in place for SatA and SatB, a simple ReSCAN can be used after changing polarity. If problems are encountered, refer to Section 2.2, reset the SatA and SatB frequencies to 10799 and the antenna will scan for the best available frequency.</i></p>	<p>+ or – then Enter</p> 	<p>[ReUSE Freq]</p> <p>[ReSCAN Freq]</p>

IMPORTANT



1.4 Manual GPS Input



- The antenna systems has an integrated GPS to aid in satellite acquisition. The Manual GPS page allows the user to select between the built in GPS (default) or manually input GPS coordinates in case the GPS is unavailable.



1.4 Manual GPS Input (con't)

Description	Action	Display
Set Code (enables editing) (Page 3.0)	From READY page Main 2x + to code 13, Enter Main 2x	READY TECH SETUP Tech Setup CODE 13
GPS Normal Page (Page 1.4)	From Ready Page: Arrow 4x	GPS [NORMAL]
After the code is entered, the word NORMAL is flashing. The user can now manually input the GPS coordinates.	+ or – then Enter	GPS [NORMAL]
MAN is now flashing, press ENTER to step to the latitude input.	Enter	Gps[MAN] LATXXX.XX LONG XXX.XX
LAT is now flashing, press + or – until the desired coordinate is reached, then press ENTER.	+ or – then Enter	GpsMAN [LAT 22.86] LONG XXX.XX
LONG is now flashing, press + or – until the desired coordinate is reached, then press ENTER.	+ or – then Enter	GpsMAN LAT 22.86 LONG [81.23]



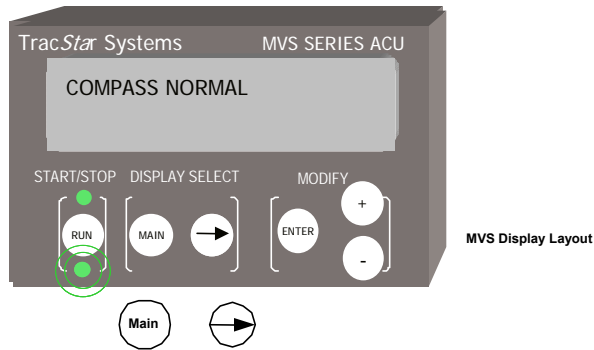
IMPORTANT

NOTES:

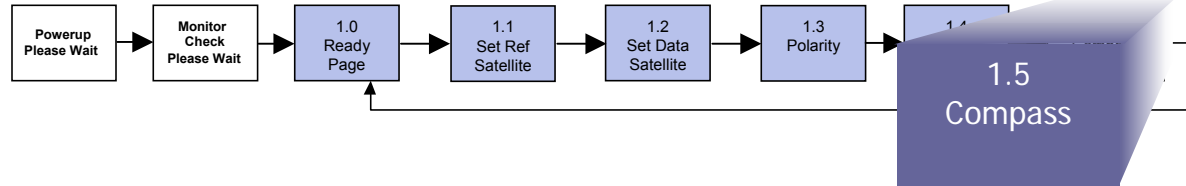
1. Coordinates are entered in degrees and decimals of degrees (vs. minutes and seconds)
2. Coordinates west of 0° longitude are positive, east of 0° are negative values.
3. Coordinates north of the equator are positive, south of the equator are negative.



1.5 Manual Compass Input



COMPASS NORMAL



- The antenna system has an integrated compass to aid in satellite acquisition. The Manual Compass page allows the user to provide the antenna with a north or south heading in case the compass is unavailable or heavily influenced by external magnetic fields.
- The Menu returns to the READY PAGE.

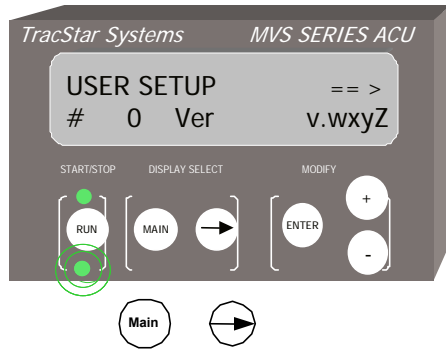


1.5 Manual Compass Input (con't)

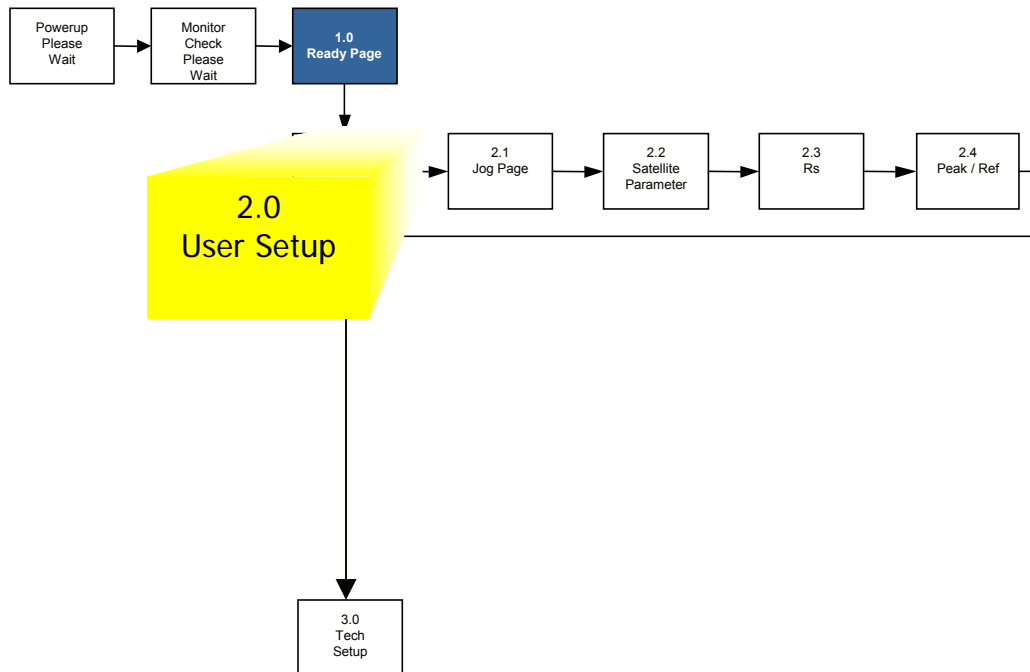
Description	Action	Display
Set Code (enables editing) (Page 3.0)	From READY page Main 2x + to code 13 Enter Main 2x	READY TECH SETUP Tech Setup CODE 13
COMPASS Page (Page 1.5)	From Ready Page: Arrow 5x	COMPASS [NORMAL]
After the code is entered, the word NORMAL is flashing. Press + or – to change to Manual input, then ENTER.	+ or – then Enter	COMPASS [NORMAL]
The Display now prompts the user to jog the antenna to face or point south. The Jog function is described in section 2.1.		COMPASS MANUAL JOG South, Start
Once the antenna is pointed south using the Jog function, press START and the system will initiate its scan from the manually input south position.		



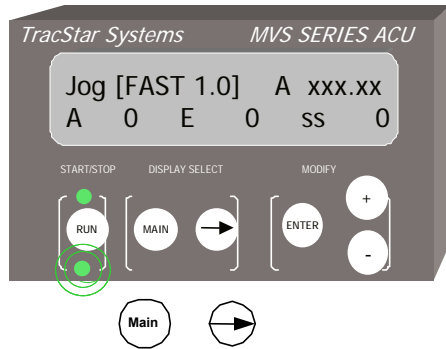
2.0 USER SETUP



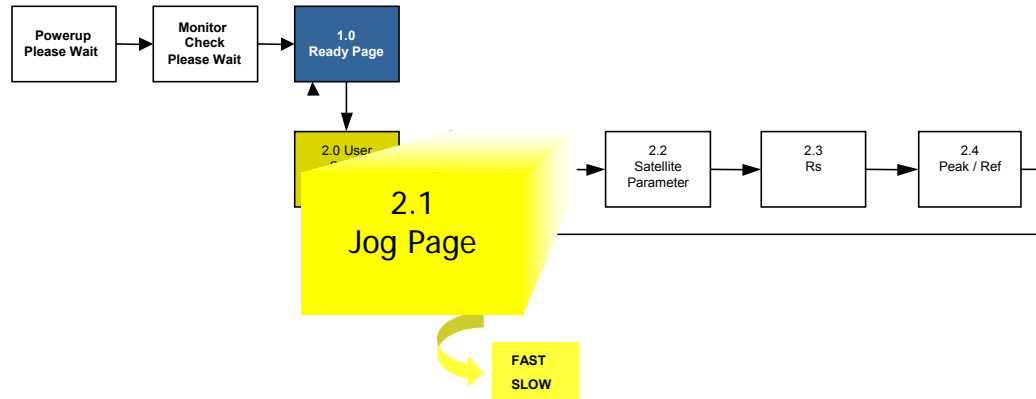
USER SETUP == >
#XXXXX Ver v.wxyZ



- USER SETUP contains several interactive and setup pages including antenna jog control and satellite parameter setup.
- The antenna serial number and the software version is shown on the bottom row.
- Press to step to the Jog page or MAIN to step to the TECH SETUP page.



Jog [FAST 1.0] → ENT
A 0 E 0 ss 0



- Jog control enables the user to manually position the antenna in the azimuth, elevation and polarization axes. The jog step increment is flashing.
- Press (+) to select FAST (2 Degree steps) or SLOW (1 Degree steps) jog increments.
- Press (ENTER) to select.



IMPORTANT

▪ **CAUTION:**
DO NOT JOG THE ANTENNA IN AZIMUTH OR POLARIZATION WHILE IN STOW.

DO NOT DRIVE THE ANTENNA BEYOND ITS TRAVEL LIMITS IN ANY AXIS



2.1 Jog (con't)

Description	Action	Display
Set Code (enables editing) (Page 3.0)	From READY page Main 2x + to code 13 Enter Main 2x	READY TECH SETUP Tech Setup CODE 13
Jog Page (Page 2.1)	From Ready Page: Main 1x Arrow 1x	Jog FAST A XXX.XX
Jog Position is now flashing. The user can select FAST or SLOW jog increments.	+ or – then Enter	Jog FAST A XXX.XX
The azimuth position is now flashing. The user can jog the antenna by pressing + for clockwise and – for counterclockwise.	+ or – then Enter	Jog FAST 1.0 → ENT [A O] E O P O
Now the elevation position is flashing. The user can jog the antenna by pressing + for up and – for down.	+ or – then Enter	Jog FAST 1.0 → ENT A O [E O] P O
Now the polarization position is flashing. When viewed from the rear of the dish, the user can jog the antenna by pressing + for clockwise and – for counterclockwise.	+ or – then Enter	Jog FAST 1.0 → ENT A O E O [P O]

NOTES:

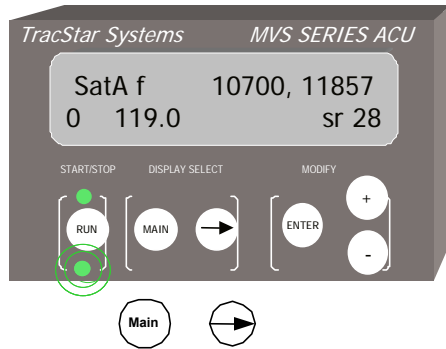
1. The user must press START/STOP to activate the antenna motors. The top green LED will flash when the motors are enabled.
2. DO NOT JOG THE ANTENNA IN AZIMUTH OR POLARIZATION WHILE IN STOW.
3. DO NOT DRIVE THE ANTENNA BEYOND ITS TRAVEL LIMITS IN ANY AXIS.



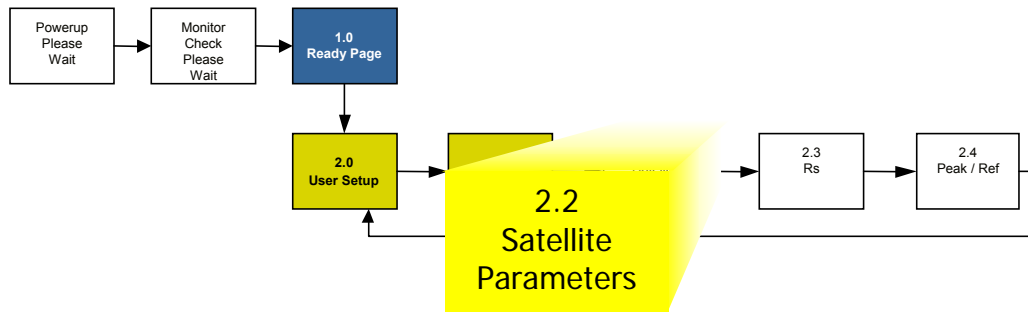
IMPORTANT



2.2 Satellite Parameters



SatAf10700,11857		
0	119.0	sr28



- The Satellite Parameters page allows the user to view or edit the frequencies used to acquire the communications satellite.

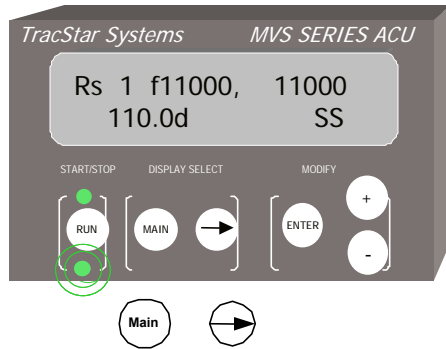


2.2 Satellite Parameters (con't)

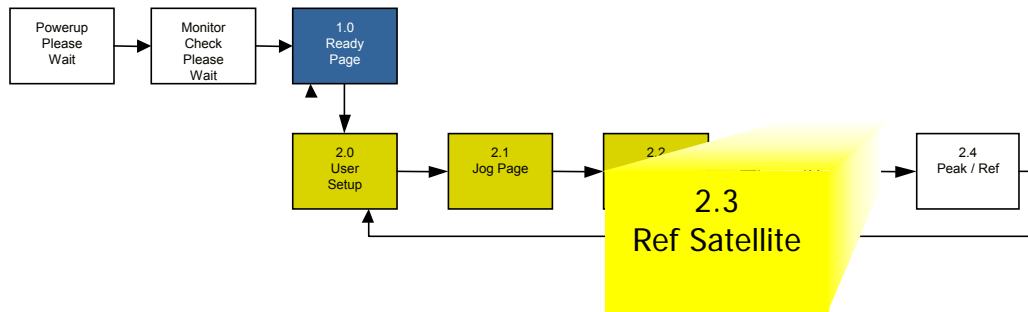
Description	Action	Display
Set Code (enables editing) (Page 3.0)	From READY page Main 2x + to code 13 Enter Main 2x	READY TECH SETUP Tech Setup CODE 13
Satellite Parameters Page (Page 2.2)	From Ready Page: Main 1x Arrow 2x	SatAf10799, 10799 [0] 119 sr28
The user can toggle between SatA and SatB. To change to SatB, press + to switch to SatB. To change from SatB to SatA, press -. The orbital position of the selected satellite is displayed on the bottom row.	+ or – then Enter	SatAf10799, 10799 [0] 119 sr28
To input a new frequency for SatA press Enter then + or – to the desired frequency, then Enter. The default frequency is 10799. When the default is entered, the antenna will scan for the best frequency available.	+ or – then Enter	SatA[f10799], 10799 0 119 sr28
This is the secondary frequency and may be used by the antenna to verify lock or as a backup frequency, depending on the Lock Word (paragraph 2.4)	+ or – then Enter	SatAf10799, [10799] 0 119 sr28
sr is the symbol rate and should not be adjusted.		



2.3 Reference Satellite



[Rs1] f10799, 10799
110.0 SS



- The Reference Satellite page provides access to the available reference satellites so the user can:
 - Enter Reference Satellites
 - Delete Reference Satellites
 - Edit parameters
- Up to 12 reference satellites can be stored



2.3 Reference Satellite (con't)

Description	Action	Display
Set Code (enables editing) (Page 3.0)	From READY page Main 2x + to code 13 Enter Main 2x	READY TECH SETUP Tech Setup CODE 13
Reference Satellite Page (Page 2.3)	From Ready Page: Main 1x Arrow 3x	[Rs1] f10799,10799 XXX.X USDvB
The user can enter/edit the reference satellites from this page. When [RSX] is flashing the user can step to the next reference satellite with + or -. There can be up to 12 Reference Satellites stored. Select the desired Ref satellite number then Enter.	+ or - then Enter	[RsX] f10799,10799 XXX.X USDvB
The orbital position is now flashing and can be edited. Press + or - to the desired value, then Enter	+ or - then Enter	RsX f10799,10799 [XXX.X] USDvB
The primary frequency is now flashing. Use + or - to set the desired frequency or set to 10799 as default, then Enter. The default will be automatically updated when the frequency scan is run (para. 3.2 Set Test)	+ or - then Enter	Rs2 [f10799],10799 XXX.X USDvB
Continued on Next Page		

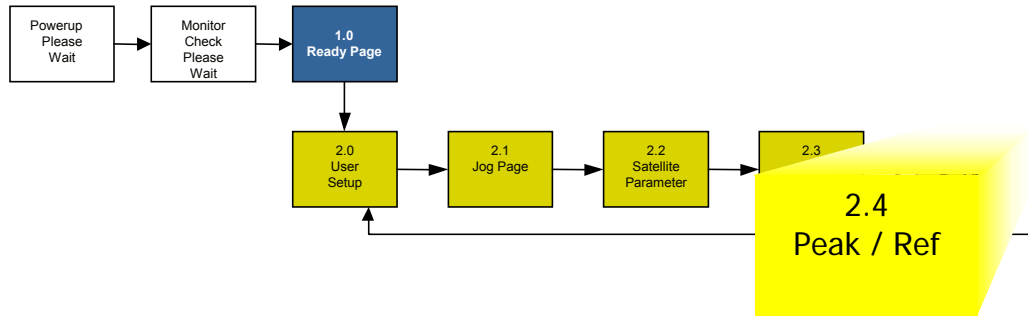
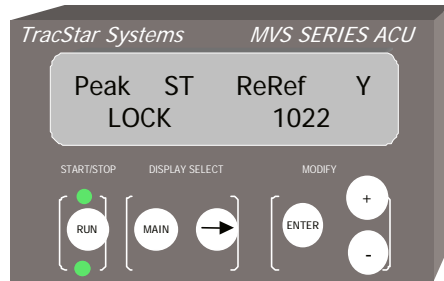


2.3 Reference Satellite (con't)

Description	Action	Display
Carry Over From Page 29		
The backup frequency is now flashing. Use + or – to set the desired frequency or set to 10799 as default, then Enter. The default will be automatically updated when the frequency scan is run (para. 3.2 Set Test)	+ or – then Enter	Rs2 f10799,[10799] XXX.X USDvB
The user can select a scan method that uses signal strength (SS) or frequency (Freq) or USDvB to acquire the Reference Satellite.	+ or – then Enter	Rs2 f10799, 10799 XXX.X [USDvB]
If more Reference Satellites are desired, change to RsX then input the orbital positions and frequencies. <i>Repeat until all the applicable Reference Satellites are input.</i>	+ or – then Enter	[RsX] f10799, 10799 XXX.X USDvB



2.4 Peak/Re-reference/Lock Methods



- This page gives the user the ability to:
 - change between SatA and SatB satellites without initiating a new acquisition sequence, i.e., skip the compass and reference satellite scan functions. The antenna will move directly between SatA and SatB
 - Set the Lock Method Word

- Upon Power Up the antenna will default as follows:
 - Peak: ST: As previously set
 - ReRef: Y
 - Lock Word: As previously set



2.4 Peak/Re-reference/Lock Method (con't)

Description	Action	Display
Set Code (enables editing) (Page 3.0)	From READY page Main 2x + to code 13 Enter Main 2x	READY TECH SETUP Tech Setup CODE 13
Peak / Re-reference / Lock Page (Page 2.4)	From Ready Page: Main 1x Arrow 4x	[Peak [ST] ReRef Y Lock 1022
The antenna has two types of peaking, step track and criss-cross. Step Track is the default and required mode and should not be changed. Press Enter to step to ReRef{Y}.	Enter	Peak [ST] ReRef Y Lock 1022
The user can set the antenna to change between SatA and SatB without repeating the compass and reference satellite scans. This should not be changed unless the user has a requirement to lock onto more than one satellite.	Enter	Peak ST [ReRef Y] Lock 1022
The Lock Word sets the criteria by which the antenna identifies satellites. The choices are to use a transponder/carrier frequency or by signal strength. By modifying the Lock Word, certain conditions are set and must be met for the antenna to lock.	+ or – then Enter	Peak ST ReRef Y [Lock 1022]
Note: The following are valid lock words.	1233, 1133, 1036, 1022, 1032, 1023, 1222, 1233,1232,1223 and 10000 (DirectPoint Mode)	



Peak ST ReRef Y
Lock [1022]

2.4 Peak/Re-reference/Lock Method (con't)

0	1	0	2	2
	Reference Satellite Scan	Reference Satellite Lock Condition	Reference Satellite Frequency Condition	Data Satellite Frequency Condition
	0 = Signal Strength	0 = AGC	0 = Neither	0 = Neither
1 = DirectPoint Mode	1 = Frequency	1 = AGC & SNR	2 = F1 or F2	2 = F1 or F2
All Other parameters must be "0"		2 = SNR Only	3 = F1 and F2	3 = F1 and F2
				6 = Peak on B; Move to Sat A

Example: 1022 is a decimal word and will set the following condition for acquisition of the Reference and Data Satellite:

1022 = When the antenna is scanning for the Reference satellite, it will use the frequency from the Reference Satellite Page (2.3). Alternatively, if the digit is set to 0, the antenna will scan for the Reference Satellite using signal strength.

1022 = 0 the AGC circuit of the internal receiver is used for a satellite lock indication. If the digit = 1, the lock indication is a combination of AGC and SNR (Signal Noise Ratio) readings. If the digit = 2, the lock indication is from SNR values only.

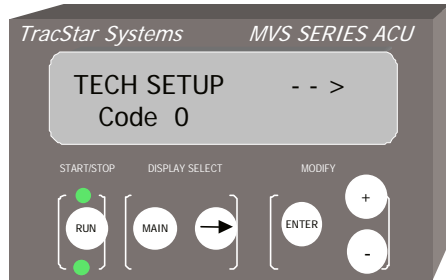
1022 = This digit sets the condition that the antenna must find either the primary or the secondary frequency (F1 or F2) on the reference satellite in order to confirm lock. Alternatively, if the digit is set = 3, F1 AND F2 will be confirmed in order for the antenna to lock.

1022 = This digit sets the condition that the antenna must find either the primary or the secondary frequency (F1 or F2) on the reference satellite in order to confirm lock. Alternatively, if the digit is set = 3, F1 AND F2 will be confirmed in order for the antenna to lock. *

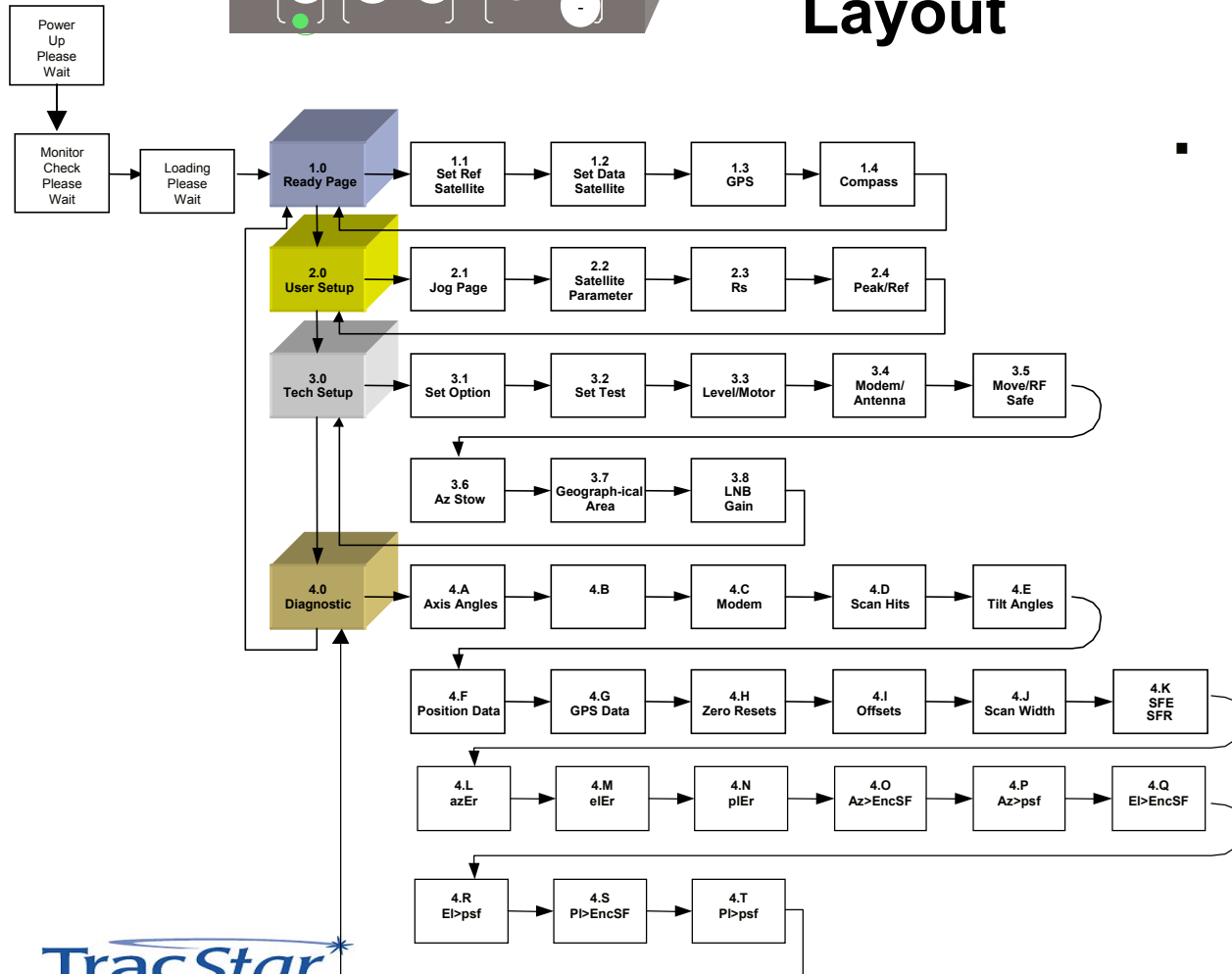
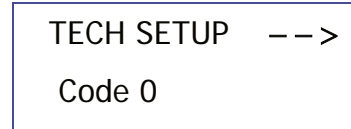
If the last digit is set to = 6, the antenna will peak on Satellite B, then swing to Satellite A. Use this for extreme cases where there appears to be no transponder on the desired data satellite.

With DirectPoint™ the Lock Method Word can be set to 10000 to enable peaking on the desired satellite (Sat A or Sat B) without using a Reference satellite. In this mode the carrier data from the modem is used solely for acquiring and peaking on the satellite.

The valid lock words are: 1022, 1033, 1023, 1032, 1222, 1233, 1232, 1223 and 1036. Use 10000 for DirectPoint acquisition.*



MVS Display Layout



- TECH SETUP contains several interactive setup pages and the ability to enable/disable various sensors and motor drives. This page is password protected to prevent inadvertent or undesirable changes. The user must press + to Code 13, then ENTER to edit these pages.

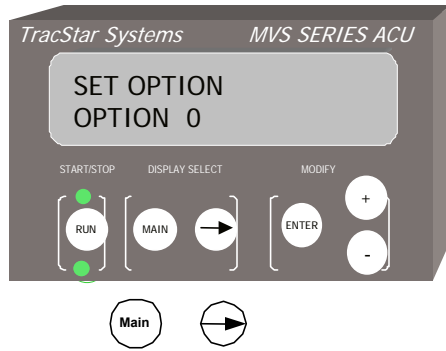


3.0 TECH SETUP (con't)

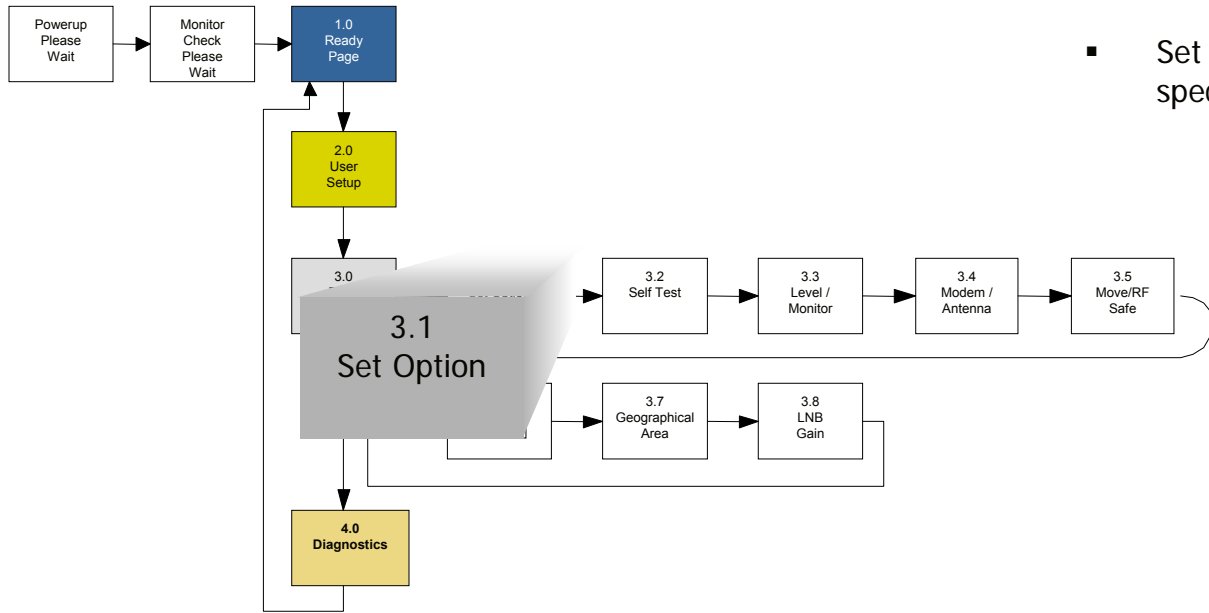
Description	Action	Display
Set Code (enables editing) (Page 3.0)	From READY page Main 2x + to code 13, Enter Main 2x	READY TECH SETUP Tech Setup CODE 13 READY



3.1 Set Option



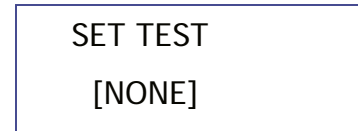
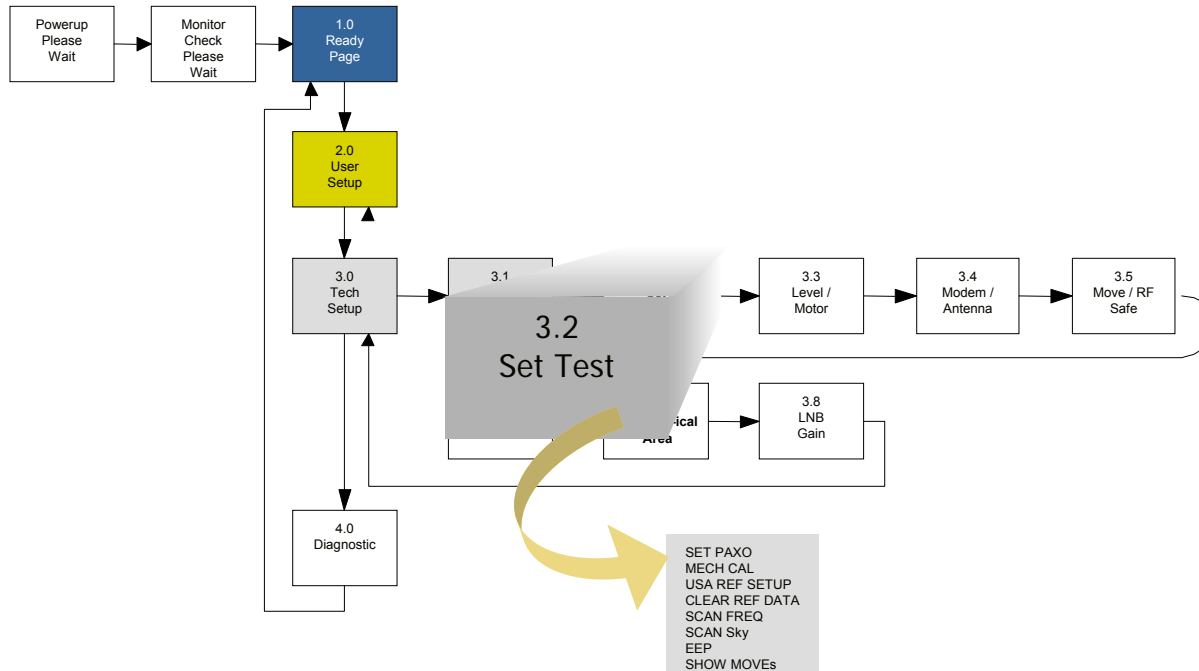
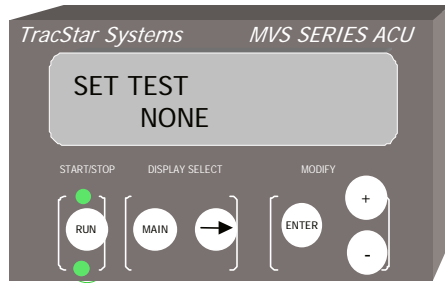
SET OPTION
[OPTION 0]




- Set Option is occasionally used for special functions.



3.2 Set Test



- There are several function available to the user in Set Test. Press the  key to select the desired function. NOTE: The following tests do not have input parameters. They either RUN or NOT RUN a standard factory setup.

- NONE:
- SET PAZO: Sets pol axis azimuth offset
- MECH CAL: Mechanical calibration of antenna
- USA REF SETUP
- CLEAR REF DATA
- SCAN FREQ: Scans selected Reference Satellites for transponder/carrier frequencies that will be used in subsequent acquisitions.
- SCAN Sky: Scans the orbital arc for Reference Satellite positions, signal strength and frequency.
- EEP Save: Saves memory to EProm.
- SHOW MOVEs: Pre-programmed satellite acquisition simulation.

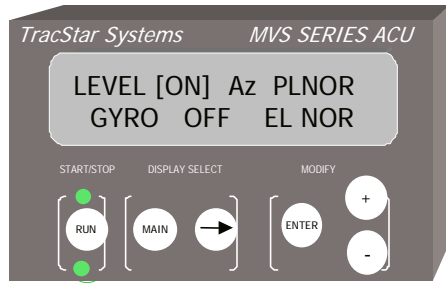


3.2 Set Test

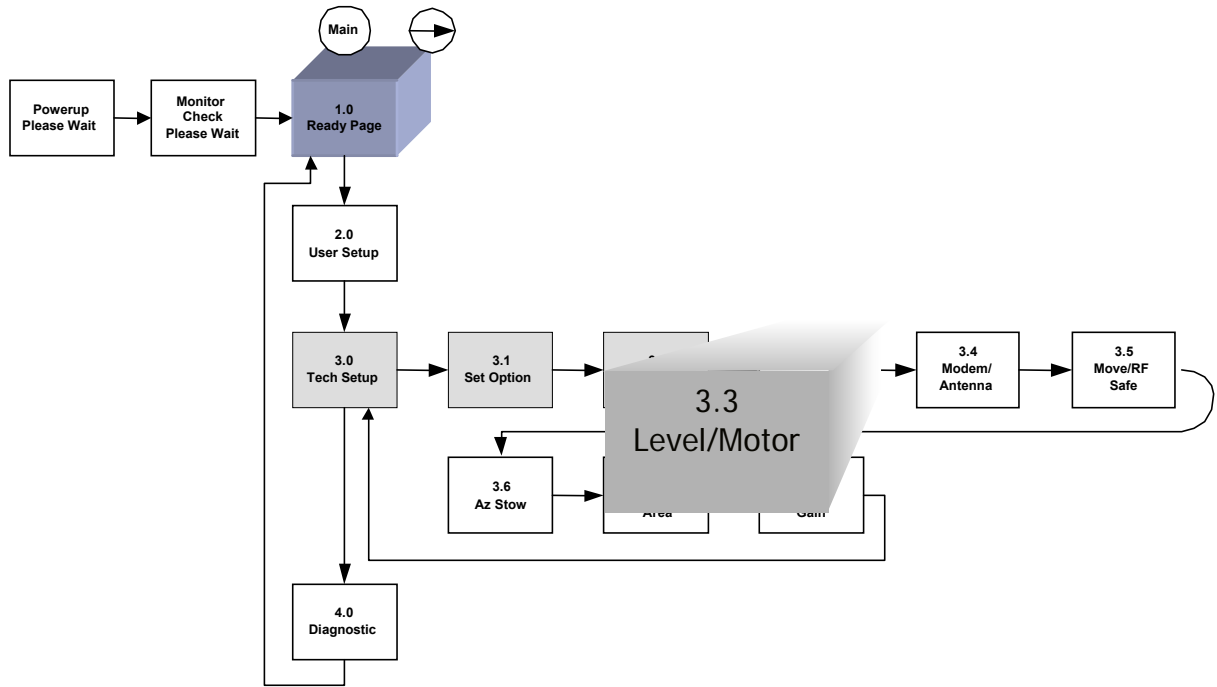
Description	Action	Display
Set Code (enables editing) (Page 3.0)	From READY page Main 2x + to code 13, Enter Main 2x	READY TECH SETUP Tech Setup CODE 13 READY
Set Test Page (Page 3.2)	From Ready Page: Main 2x Arrow 2x	SET TEST [NONE]
Press + or – until the desired function is shown: Set PAZO – Factory Direction Only MECH CAL – Factory Direction Only USA REF SETUP CLEAR REF DATA SCAN FREQ SCAN Sky EEP Save SHOW MOVES	+ or – then Enter	SET TEST [NONE]
	+ or -	SET TEST [CANCEL] SCAN FREQ
	Enter	SET TEST [RUN NOW] SCAN FREQ



3.3 Level/Motor Control Page



LEVEL [ON] Az PL NOR
GYRO OFF EI NOR



- This page gives the user the ability to turn off the base level sensor and the azimuth, elevation and polarization motors. This would normally only be performed in a troubleshooting application.
- The GYRO option is not applicable to this antenna. Default setting is OFF.

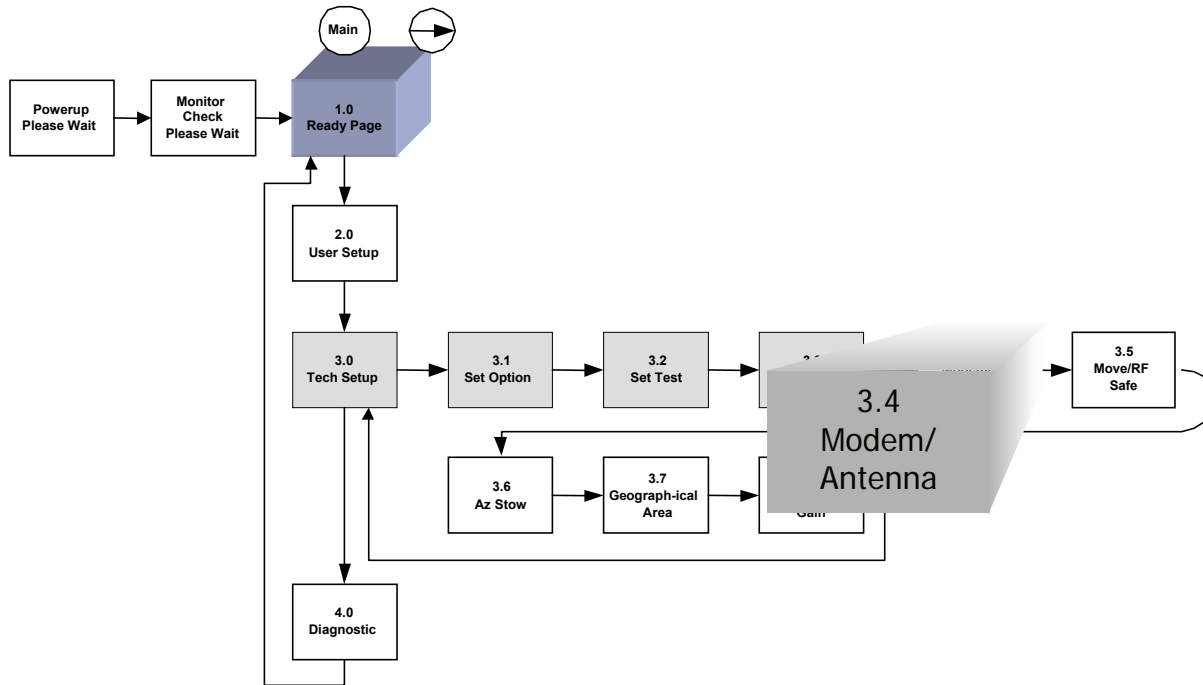
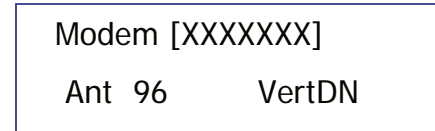
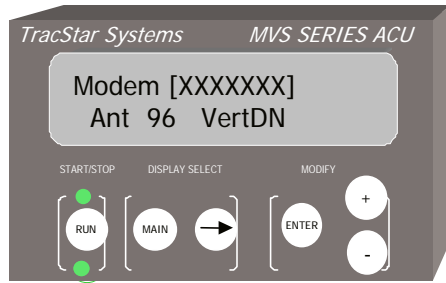


3.3 Level/Motor Control (con't)

Description	Action	Display BLUE indicates default setting
Set Code (enables editing) (Page 3.0)	From READY page Main 2x + to code 13, Enter Main 2x	READY TECH SETUP Tech Setup CODE 13 READY
Level / Motor Control Page (Page 3.3)	From Ready Page: Main 2x Arrow 3x	LEVEL [ON /OFF] Az PLNOR GYRO OFF EL NOR
The user can turn the base level sensor off, this would only be done during a maintenance or troubleshooting activity.	+ or – then Enter	LEVEL [ON /OFF] Az PLNOR GYRO OFF EL NOR
The user can turn the azimuth and polarization motor off, normally only a troubleshooting function.	+ or – then Enter	LEVEL ON Az PL [NOR /DIS] GYRO OFF EL NOR
The user can turn the elevation motor off, normally only a troubleshooting function.	+ or – then Enter	LEVEL ON Az PL NOR GYRO OFF EL [NOR /DIS]



3.4 Select Modem/Antenna/Pol



- The antenna has a serial interface for communications to selected modem types. The antenna can provide GPS information over this port.
- Press the + or – key to scroll through the pre-programmed modem models, make a selection and press ENTER.
- On the MVS1200 (1.2 Meter) Antenna with the Motorized Feed Assembly, Receive Polarization can be selected.

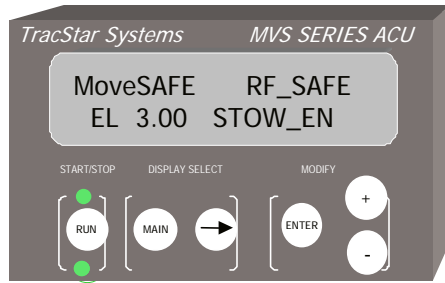


3.4 Select Modem/Antenna/Pol (con't)

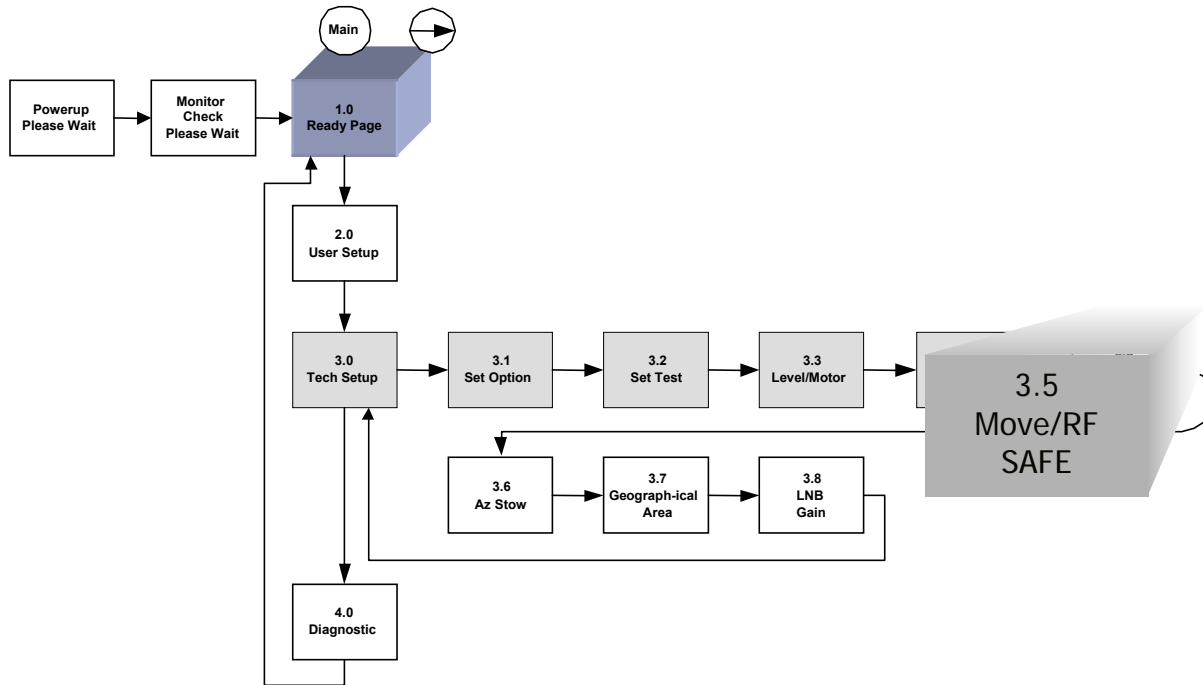
Description	Action	Display
Set Code (enables editing) (Page 3.0)	From READY page Main 2x + to code 13, Enter Main 2x	READY TECH SETUP Tech Setup CODE 13 READY
Select Modem / Antenna Page (Page 3.4)	From Ready Page: Main 2x Arrow 4x	Modem [iDirect] Ant 96 Remove
The user can select from the following modem types for the GPS interface: None iDirect Linkstar Linkway AuxRemote	+ or – then Enter	Modem [iDirect] Ant 96 Remove
The antenna type cannot be changed without factory direction.	Contact Factory	Modem iDirect Ant 96 Remove
MVS 1200 Antenna ONLY		
The user can select the Receive Polarization for the antenna. Choices are: HorzDN VertDN	+ or – then Enter	[HorzDN]



3.5 Move/RF_SAFE



Move[SAFE] RF_SAFE
EL 3.00 Stow EN



- There are several safety features built into the antenna:
- MOVE SAFE prevents any azimuth motion including jog commands below a pre-set elevation angle. This is to prevent jogging the antenna at too low of angles and possibility causing a mechanical interference.
- RF SAFE provides a Transmit Inhibit feature. If there is any motion command given to the antenna while it is locked onto a satellite, the transmitter will be inhibited prior to any motion of the antenna. The modem must have a DC block installed in the receive line to be valid.
- STOW SAFE will stow the antenna if any base motion is detected by the on-board sensors. This feature will automatically stow the antenna if the user drives off with the antenna deployed.

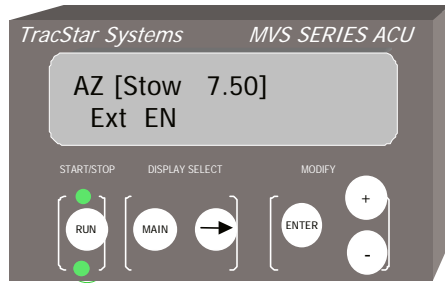


3.5 MOVE/RF_SAFE (con't)

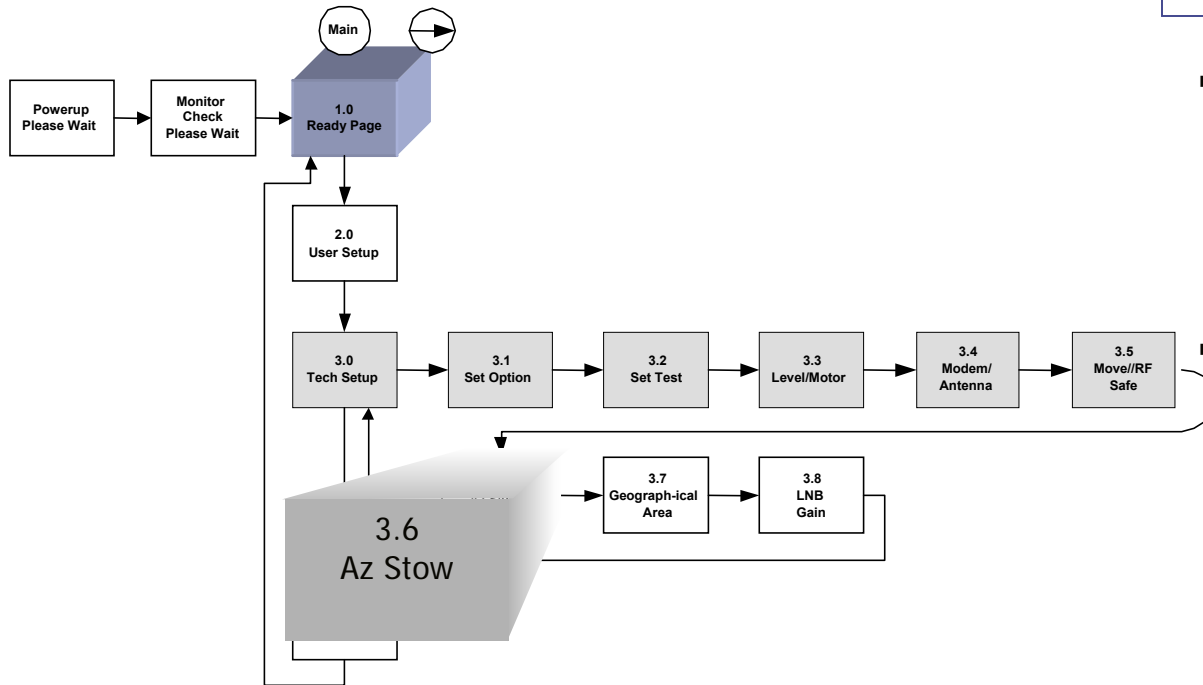
Description	Action	Display BLUE indicates default setting
Set Code (enables editing) (Page 3.0)	From READY page Main 2x + to code 13, Enter Main 2x	READY TECH SETUP Tech Setup CODE 13
Move/RF/Stow Safe Page (Page 3.5)	From Ready Page: Main 2x Arrow 5x	Move [SAFE /ANY!] RF SAFE EL 3.00 Stow EN
Move [SAFE] prevents azimuth axis motion including jog commands below this pre-set limit to prevent accidental mechanical interference. Move [ANY] will disable the SAFE mode.	+ or – then Enter	Move [SAFE /ANY!] RF SAFE EL 3.00 Stow EN
RF [SAFE] will inhibit LNB power thereby inhibiting transmit if a motion command is given to the antenna via the controller. RF [ANY] will disable the SAFE mode.	+ or – then Enter	Move SAFE RF [SAFE /ANY!] EL 3.00 Stow EN
EL [X.XX] sets the low elevation angle for Move SAFE. Adjust with + or – until the desired value is reached.	+ or – then Enter	Move SAFE RF SAFE [EL 3.00 /x.xx] Stow EN
Stow [En] is the auto stow feature designed to stow the antenna in the event of excessive base motion. This is a safety feature if the antenna is roof mounted and the vehicle begins to move with the antenna up. Stow [DIS] will disable the safe feature.	+ or – then Enter	Move SAFE RF SAFE EL 3.00 Stow [EN /dis]



3.6 Azimuth Stow/External Switch



AZ [Stow 7.50]
Ext EN

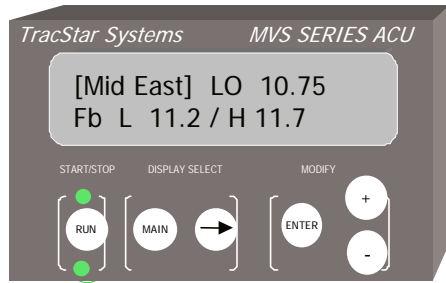


- The AZIMUTH STOW setting provides the offset for the angular distance from the azimuth reference switch to the desired azimuth stow position.
- The Enable/Disable setting enables or disables the optional stow switch that is located on the antenna.

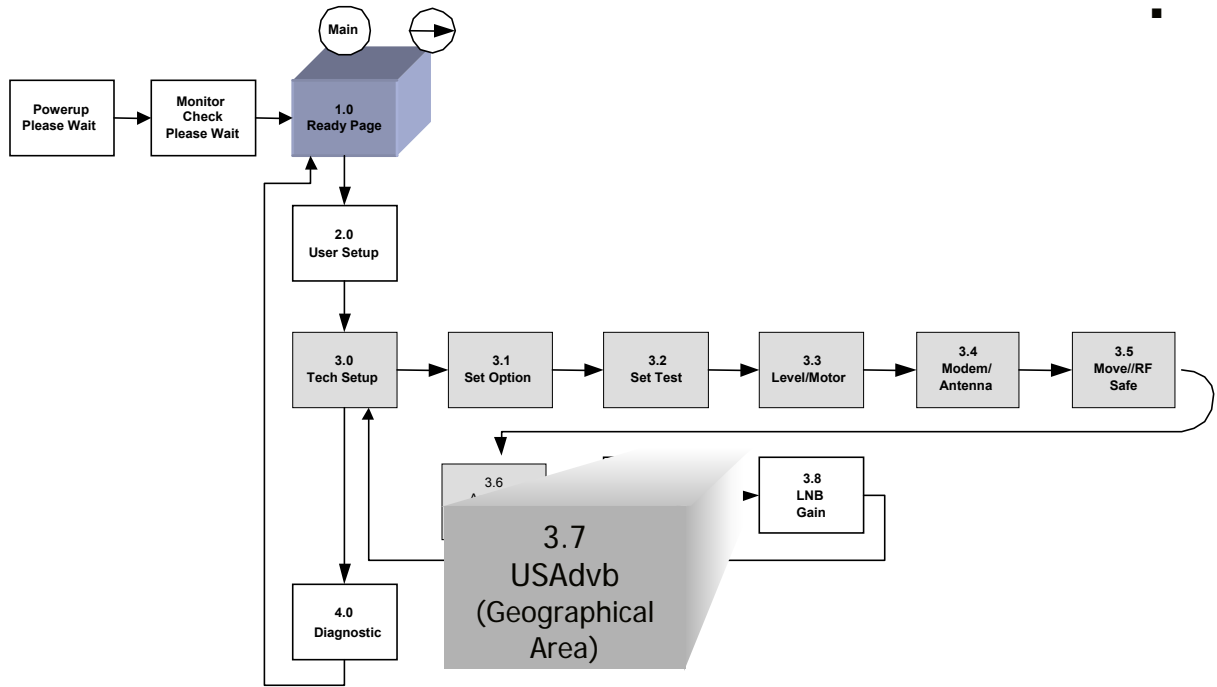


3.6 Azimuth Stow Setting

Description	Action	Display BLUE indicates default setting
Set Code (enables editing) (Page 3.0)	From READY page Main 2x + to code 13, Enter Main 2x	READY TECH SETUP Tech Setup CODE 13 READY
Azimuth Stow / External Switch Page (Page 3.6)	From Ready Page: Main 2x Arrow 6x	AZ [Stow 7.5] Ext EN
The azimuth stow setting determines the offset for the angular distance from the azimuth axis reference switch to the desired azimuth stow position. + or – will change the angle. This is set in the factory.	+ or – then Enter	AZ [Stow 7.5] Ext EN
Ext EN indicates whether the pedestal start/stow switch is enabled or disabled. Press + or – to change the selection, then Enter.	+ or – then Enter	AZ Stow 7.5 Ext [EN /dis]




[Mid East] LO 10.75
Fb L 11.2/H 11.7



- The LNB Setup page allows the user to:
 - Select the region of the world that the antenna is located in
 - Input the local oscillator frequency of the LNB in use
 - Input the receive frequency band corresponding to the transponder and LNB in use.
 - Note: these are the frequencies that are used during the antenna scan.

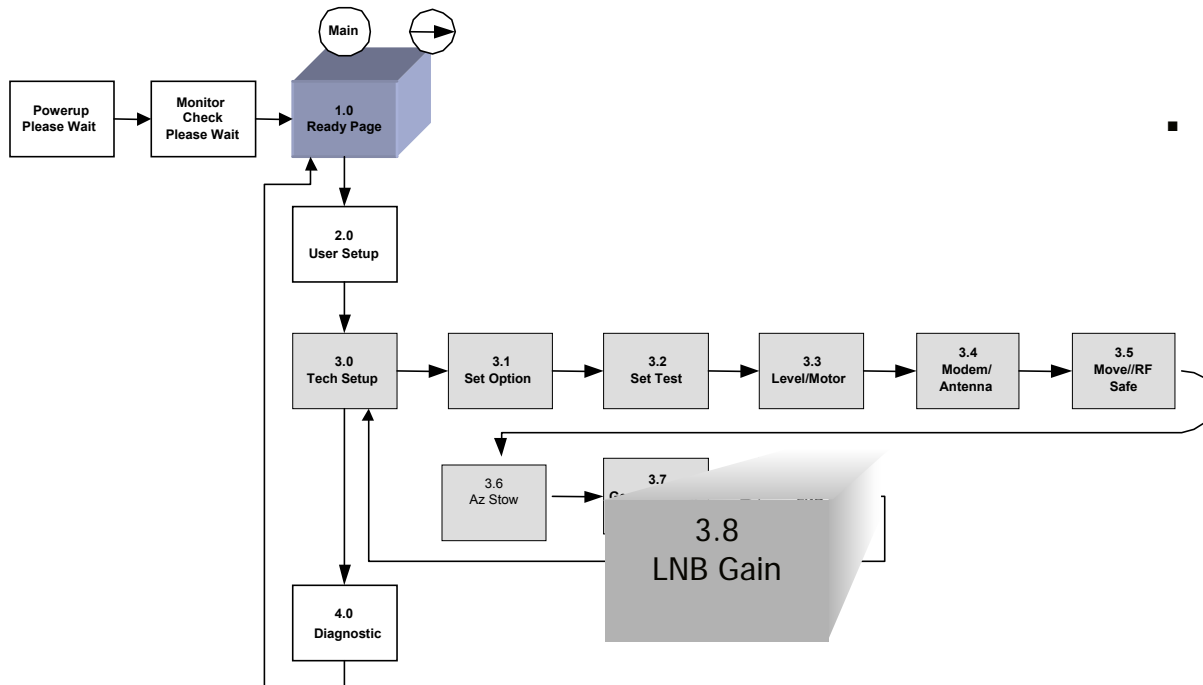
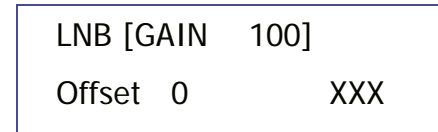
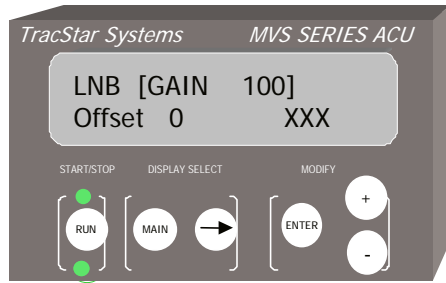


Description	Action	Display BLUE indicates default setting
Set Code (enables editing) (Page 3.0)	From READY page Main 2x + to code 13, Enter Main 2x	READY TECH SETUP Tech Setup CODE 13
LNB Setup Page (Page 3.7)	From Ready Page: Main 2x Arrow 7x	[USAdvb] LO 10.75 Fb L 11.2/H 11.7
The antenna must be set to USA, USAdvb, Mid East or Europe. Press + to edit then Enter. <i>USAdvb is the preferred setting in the USA, due to the type of satellite typically used as a reference. Mid EAST and EUROPE have the same internal software functions, either will work in either location.</i>	+ or - then Enter	[USAdvb] LO 10.75 Fb L 11.2/H 11.7 
Set the LNB Local Oscillator frequency using + or -, then Enter	+ or - then Enter	Mid East [LO 10.75] Fb L 11.2/H 11.7
Set the low end of the frequency band in use with + or -, then Enter.	+ or - then Enter	Mid East LO 10.75 Fb [L 11.2]/H 11.7
Set the high end of the frequency band in use with + or -, then Enter	+ or - then Enter	Mid East LO 10.75 Fb L 11.2/[H 11.7]

IMPORTANT



3.8 LNB GAIN



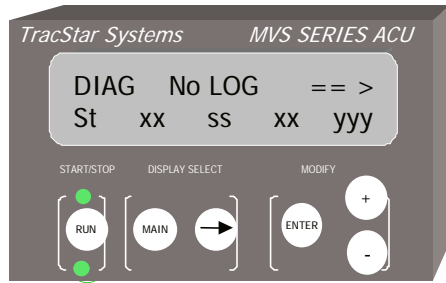
- The LNB Gain page allows the user to:
 - Adjust the gain of the LNB as seen by the antenna controller's built in signal strength measurement (SS).
 - Enter a LNB noise offset as seen by the antenna controllers built in signal strength measurement (SS).



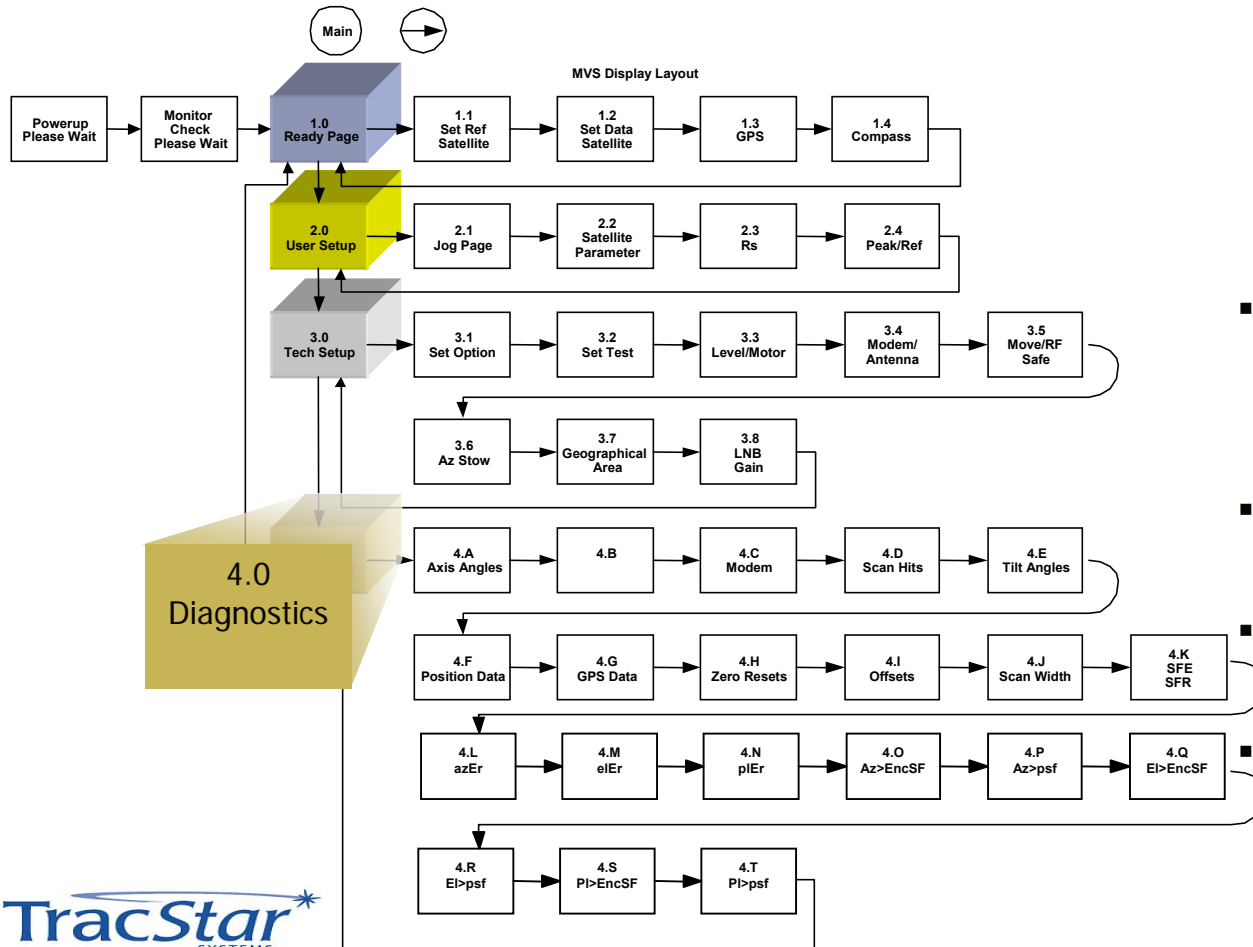
Description	Action	Display BLUE indicates default setting
Set Code (enables editing) (Page 3.0)	From READY page Main 2x + to code 13, Enter Main 2x	READY TECH SETUP Tech Setup CODE 13
LNB GAIN Page (Page 3.8)	From Ready Page: Main 2x Arrow 8x	[USAdvb] LO 10.75 Fb L 11.2/H 11.7
The user may wish to adjust the LNB gain as measured by the built in tuner: Gain = 100, nominal setting Gain = 50, ½ of nominal gain Gain = 200, double the nominal gain When adjusting the gain, monitor the signal strength number in the lower right. Increasing the gain will increase the signal level.	+ or – then Enter	LNB [GAIN 100] Offset 0 XXX
The user may wish to adjust the LNB offset as measured by the built in tuner. Adjust the offset when the antenna is pointed at a cold sky. Adjusting the offset should minimize the signal strength number when the antenna is looking at cold sky.	+ or – then Enter	LNB GAIN 100 [Offset 0] XXX



4.0 DIAGNOSTICS



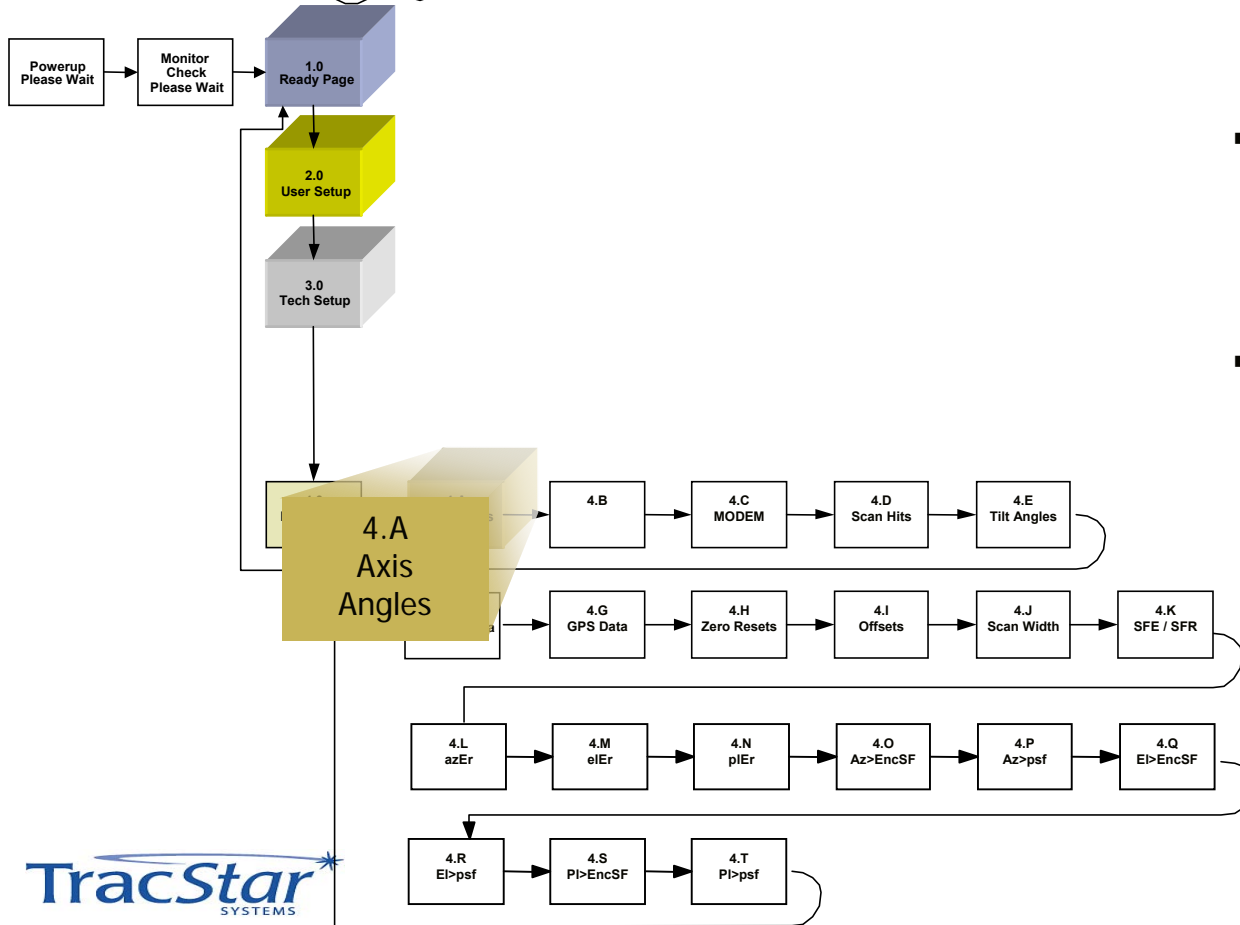
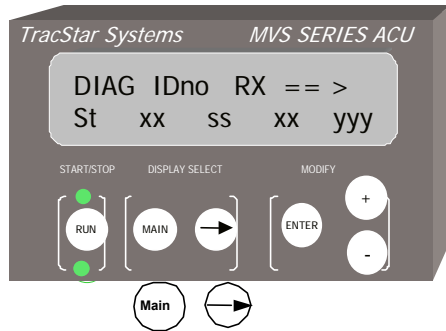
DIAG No LOG ==>
St XX ssXX YYY



- The Diagnostics section includes information on antenna pointing angles, level sensor readings, GPS data and the ability to set correction factors for the three axes.
- “No LOG” and “LOG try” are messages unique to Idirect Modems and a log-in process.
- St XX indicates the tracking state of the antenna.
- ssXX indicates the current signal strength reading.
- YYY is tuner signal to noise (>100 is locked) ratio.

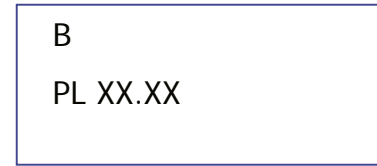
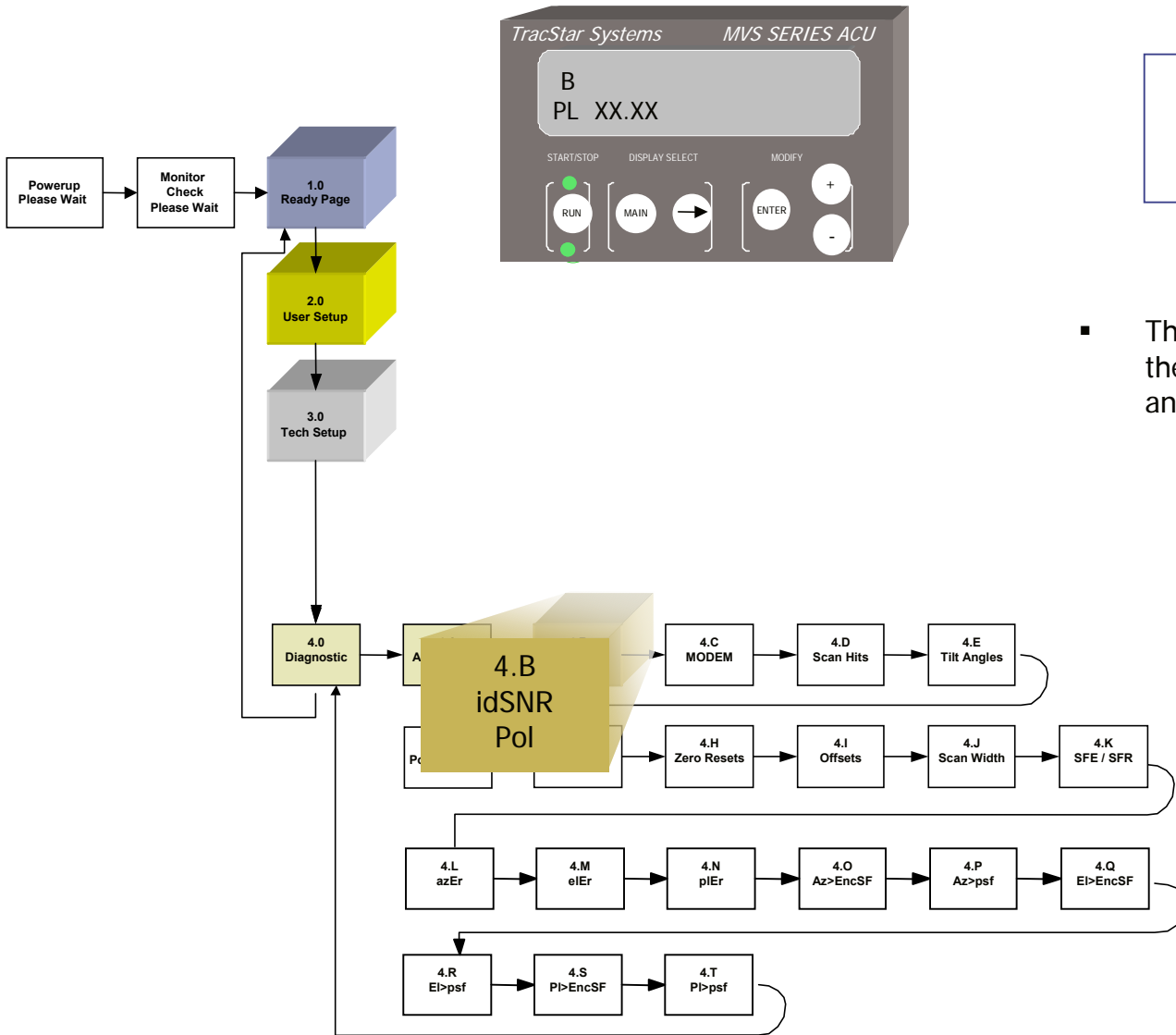


4.A Axis Angles

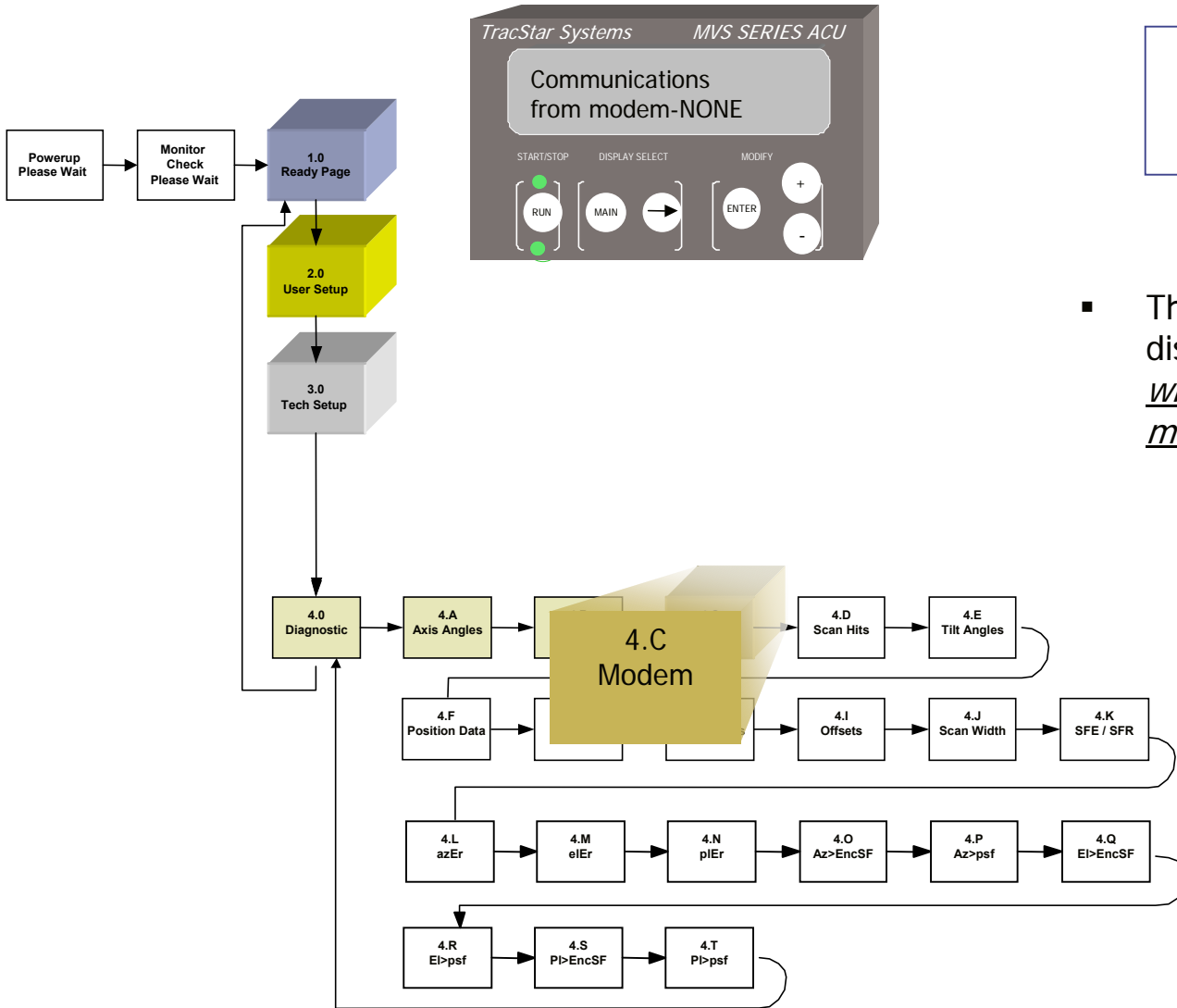


A 246.00 E 28.70
Ap 44.6 Ep 27.77

- The DIAGNOSTICS A page indicates the azimuth and elevation angles of the antenna.
- The top row shows the antenna Az and El angles relative to the earth (azimuth only valid after lock on)
- The second row Ap and Ep indicate the Az and El angle relative to the pedestal coordinates, i.e., the azimuth stow angle is zero degrees. El is only valid above -10 degrees.

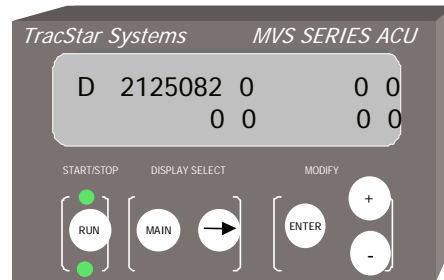


- The DIAGNOSTICS B page displays the polarization angle of the antenna.

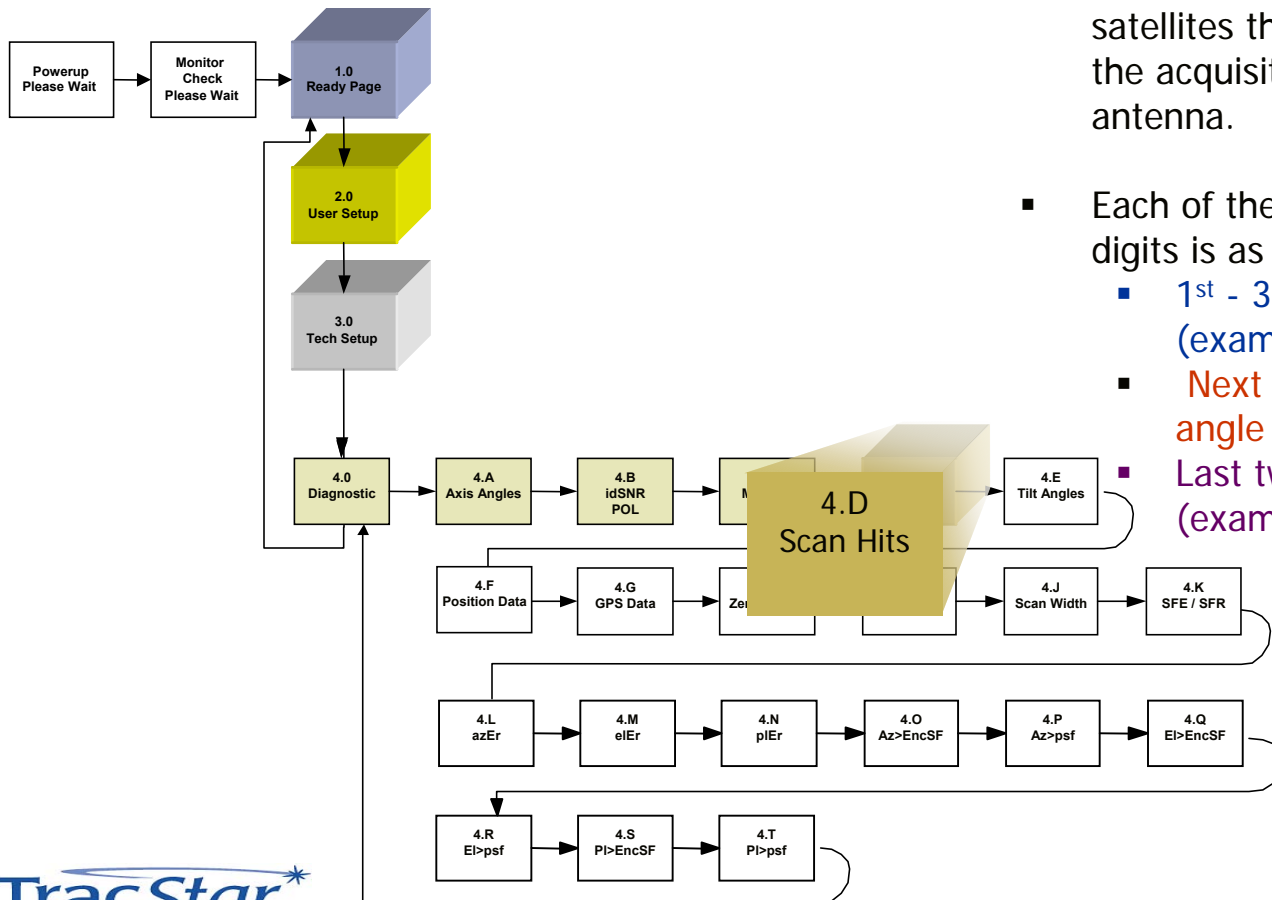


Communications
from modem-NONE

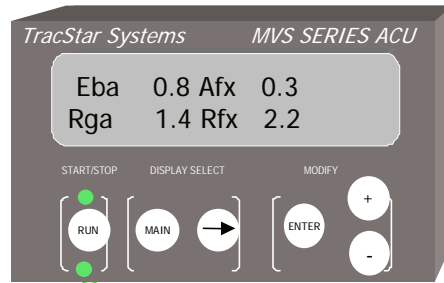
- The DIAGNOSTICS C page displays modem messages when connected to an iDirect modem only.



2125082 0000000
0000000 0000000

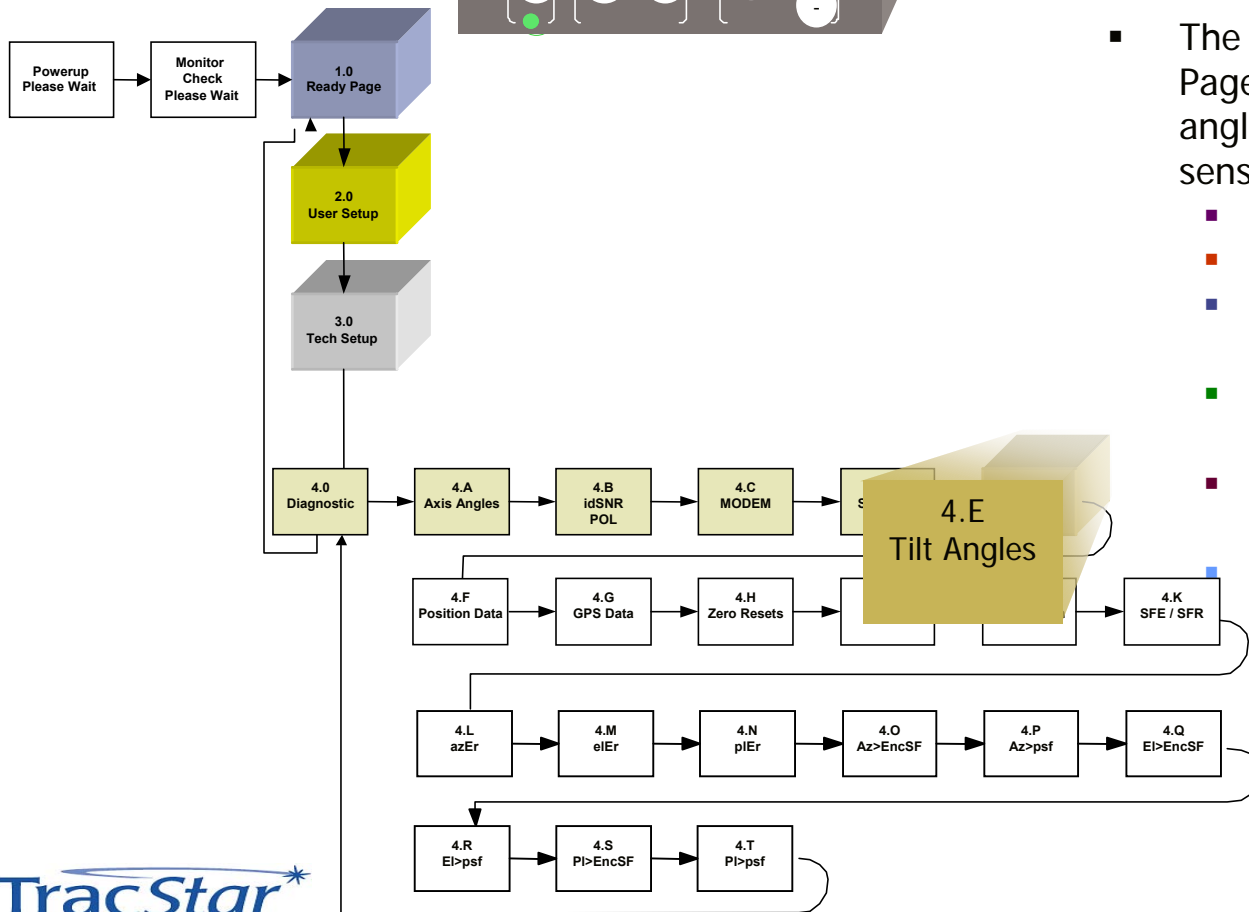


- The DIAGNOSTICS D page indicates satellites that were “seen” during the acquisition and alignment of the antenna.
- Each of the four groups of seven digits is as follows:
 - 1st - 3 digits - azimuth angle (example 212)
 - Next two digits - elevation angle (example 50)
 - Last two digits signal – strength (example 82)



Eba	0.8	Afx	0.3
Rba	1.4	Rfx	2.2

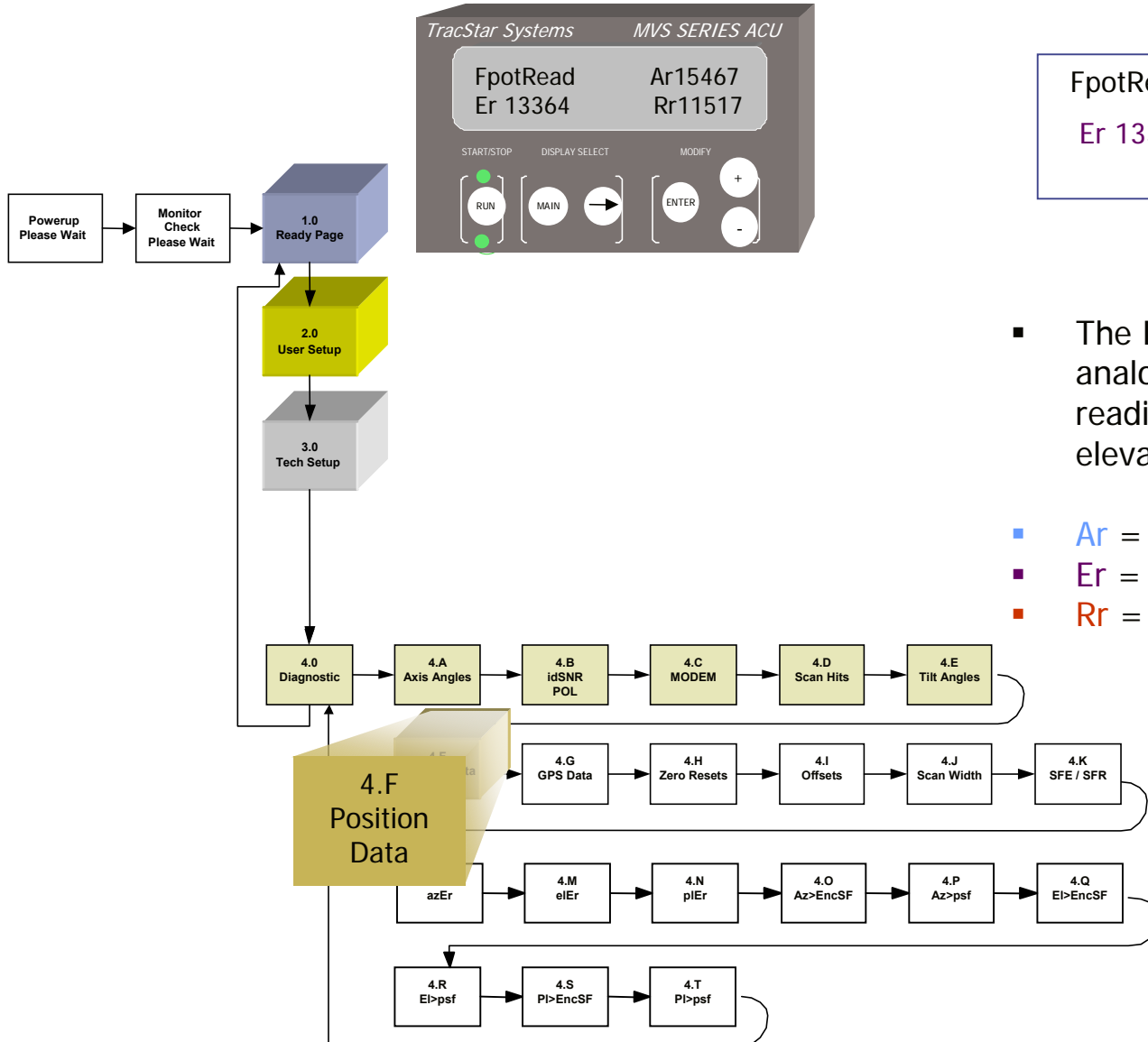
Elv	4.0	Afx	1.7
Rlv	1.5	Rfx	1.4



- The values on the DIAGNOSTICS E Page are the pedestal base tilt angles as measured by the tilt sensor.
 - Eba = elevation base angle
 - Rba = roll base angle
 - Afx = azimuth adjustment due to base tilt
 - Rfx = pol adjustment due to base tile
 - Elv = raw (unfiltered) el base angle reading
 - Rlv = raw (unfiltered) roll level reading

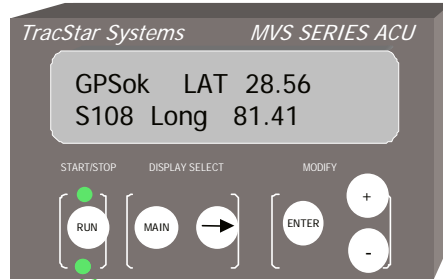


4.F Axis Position Transducer Readout

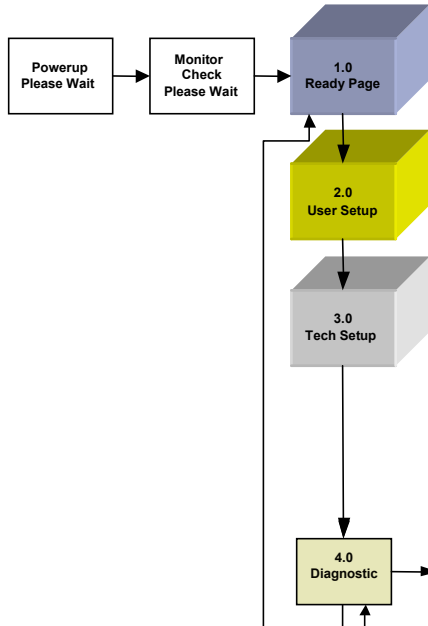


FpotRead	Ar15467
Er 13364	Rr11517

- The DIAGNOSTICS F page is the analog position transducer reading from the azimuth and elevation axis.
- Ar = azimuth reading
- Er = elevation reading
- Rr = (not used)

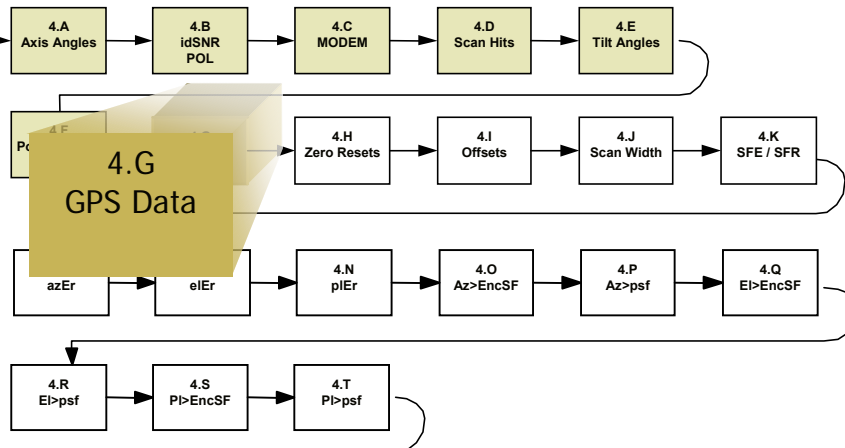


GPSok LAT 28.56
S108 Long 81.41



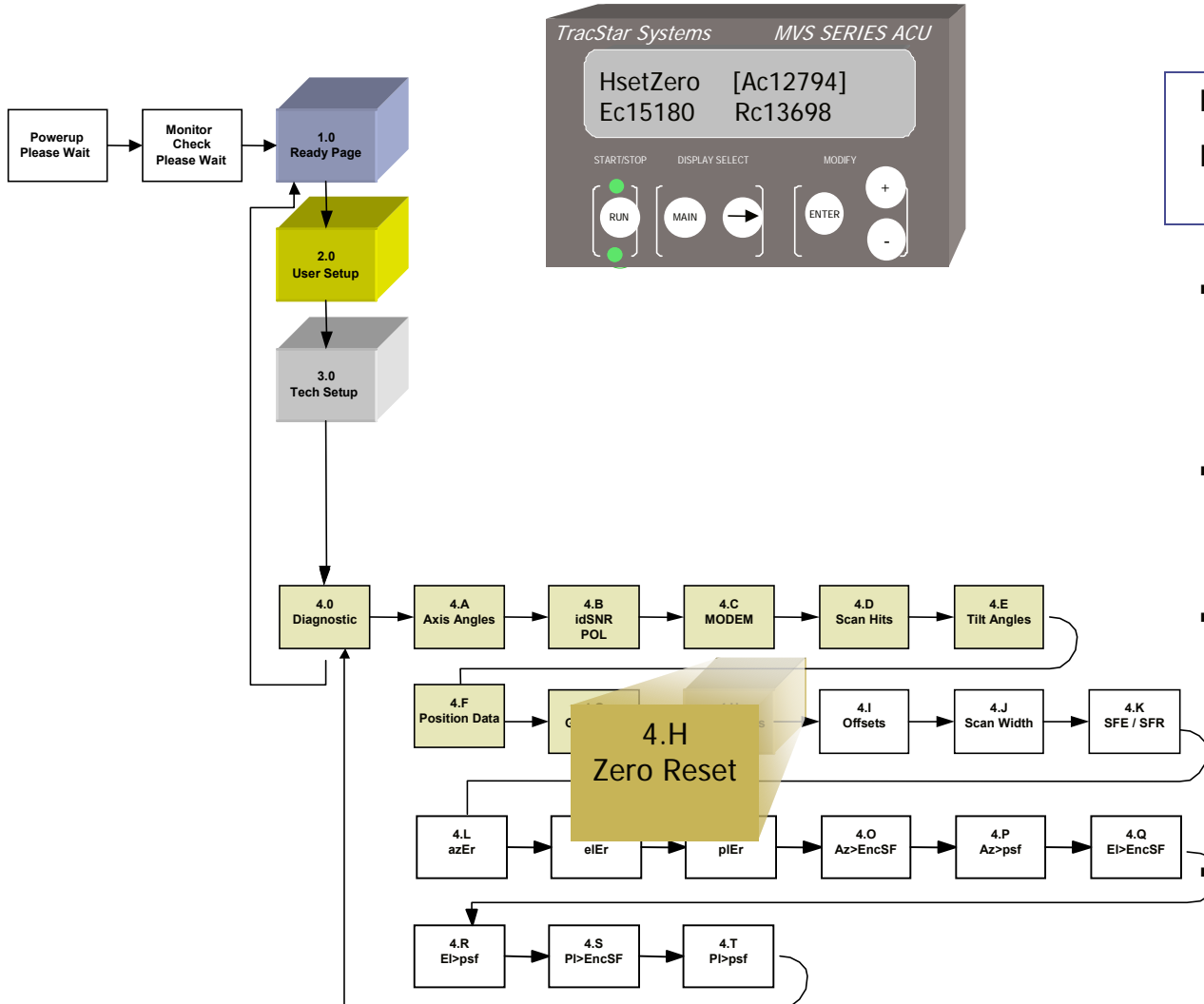
- The DIAGNOSTICS G page provides the GPS data as follows:
- GPSok indicates the GPS signal is acquired

- LAT 28.56 indicates the current latitude of the antenna.
- MagD 5.10 indicates the magnetic deviation
- S108: 100 indicates GPS lock and 8 indicates the number of GPS satellites being received.
- Long 81.41 gives the longitude position of the antenna.





4.H Axis Zero Offsets



HsetZero [Ac12794]
Ec15180 Rc13698

- The DIAGNOSTICS H page allows the user to set the center value for each of the transducers as seen on the F page.
- Ac is the azimuth center value used to set azimuth 0 degree angle (stow position).
- Ec is the elevation center value used to set elevation 45 degree angle.
- Rc (not used)

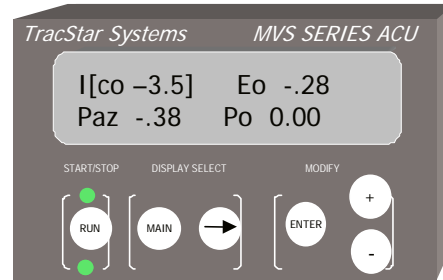


4.H Axis Zero Offsets (con't)

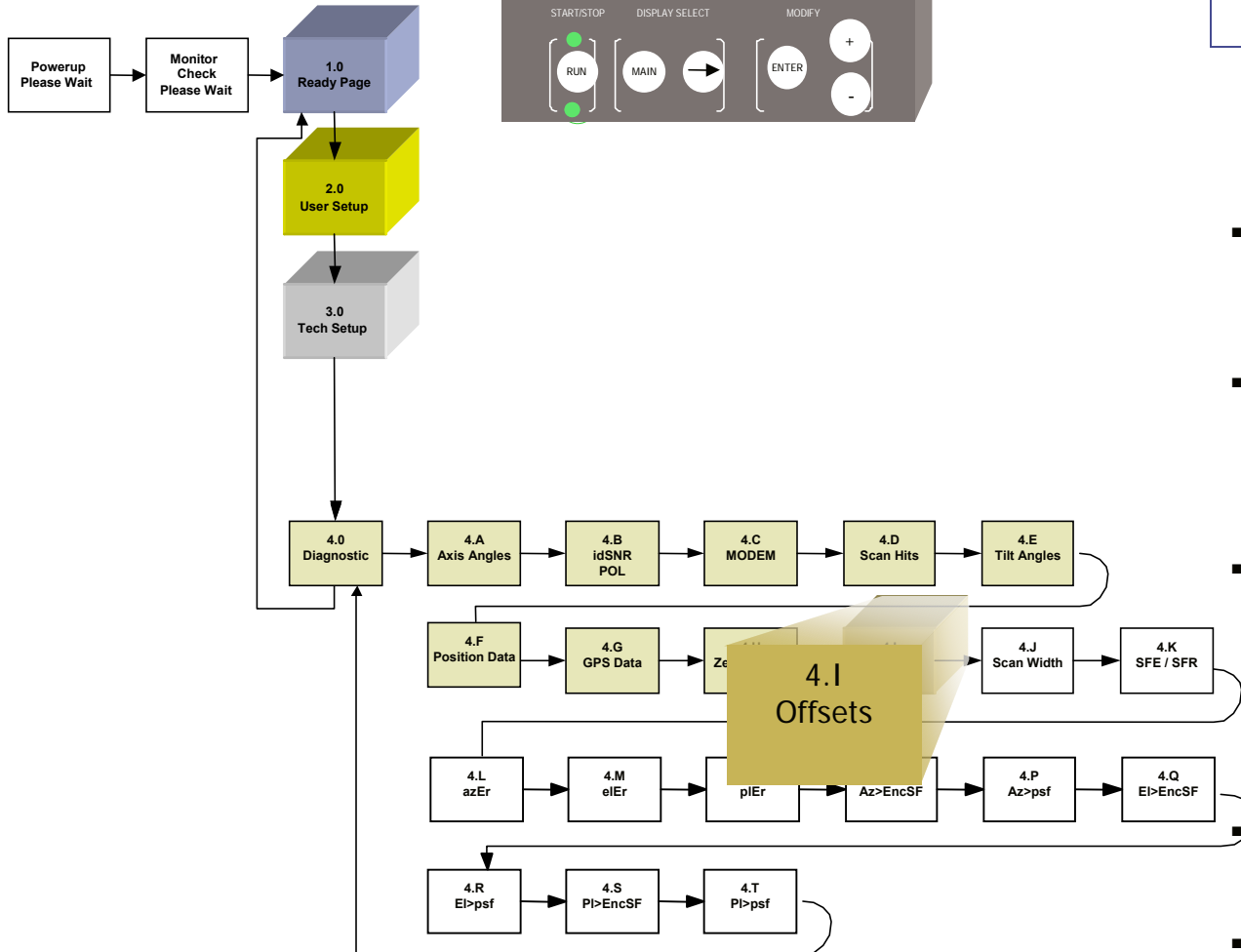
Description	Action	Display
Set Code (enables editing) (Page 3.0)	From READY page Main 2x + to code 13, Enter Main 2x	READY TECH SETUP Tech Setup CODE 13 READY
Axis Zero Offsets Page (Page 4.8)	From Ready Page: Main 3x Arrow 8x	HsetZero [Ac12794] Ec15180 Rc 13698
When Ac (azimuth center) is flashing, the user can press + or – to change the azimuth value, then Enter.	+ or – then Enter	HsetZero [Ac12794] Ec15180 Rc 13698
When Ec (elevation center) is flashing, the user can press + or – to change the azimuth value, then Enter.	+ or – then Enter	HsetZero Ac12794 [Ec15180] Rc 13698
Rc = Not Used	+ or – then Enter	HsetZero Ac12794 Ec15180 [Rc 13698]



4.1 Axis Offsets



I[co -3.5] Eo -.28
Paz -.38 Po 0.00



- The DIAGNOTICS I page allows the user to view and set offsets in degrees for each axis.
- Co is the compass offset, this correction is self learning and updates itself on each acquisition.
- Eo is the elevation offset after each acquisition.
- Paz is the boresight offset for the RF beam.
- PI is the polarization adjustment.

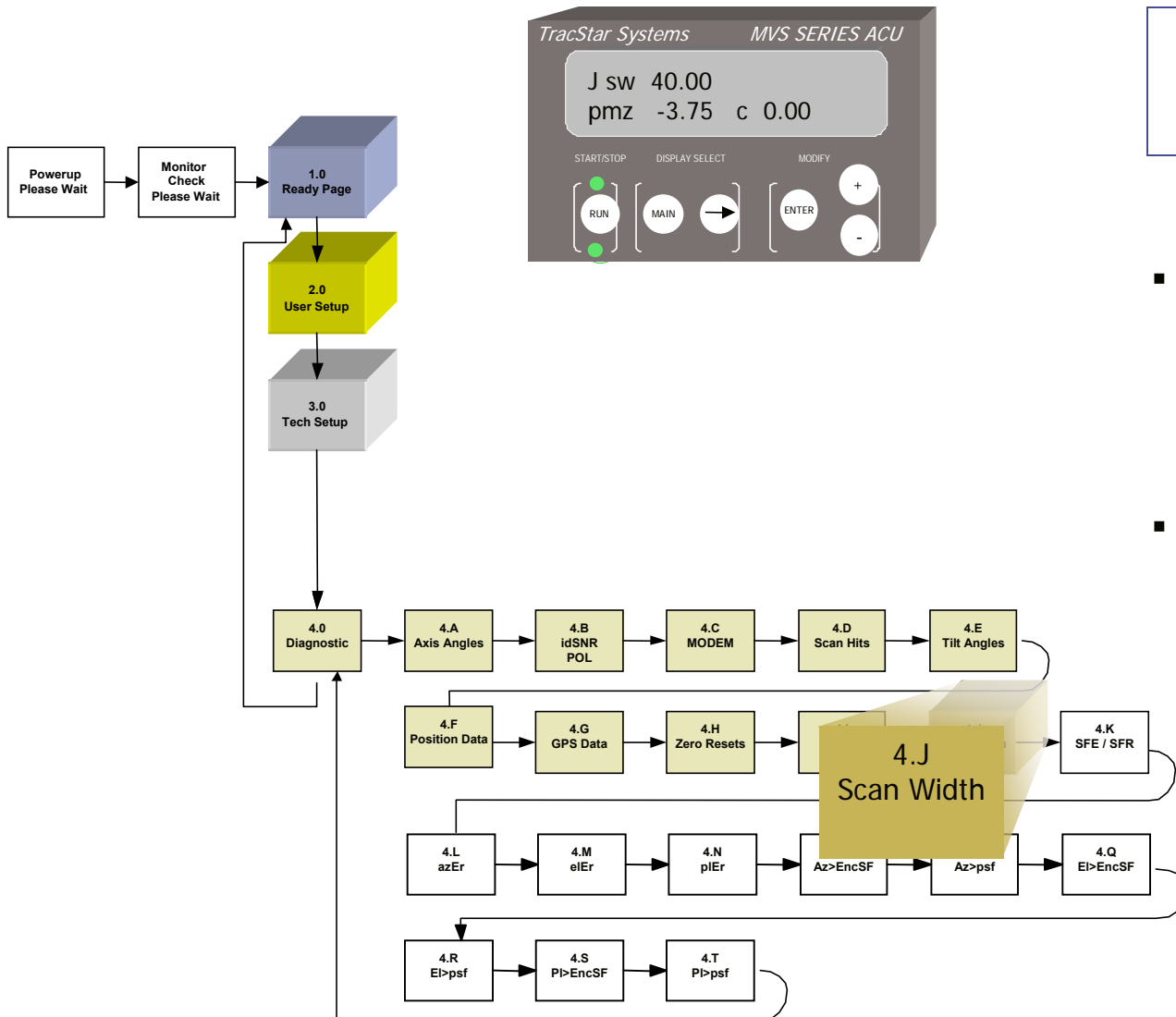


4.1 Axis Offsets (con't)

Description	Action	Display
Set Code (enables editing) (Page 3.0)	From READY page Main 2x + to code 13, Enter Main 2x	READY TECH SETUP Tech Setup CODE 13
Axis Zero Offsets Page (Page 4.9)	From Ready Page: Main 3x Arrow 9x	I [co -3.5] Eo -.28 Paz -.30 Po 0.00
Co is the compass offset and updates automatically after each acquisition. The user should not change this value.	Enter	I [co -3.5] Eo -.28 Paz -.30 Po 0.00
Paz is the boresite offset for the RF beam. This value is set in test and should not be changed by the user.	Enter	I co -3.5 Eo -.28 [Paz -.30] Po 0.00
Po is an offset for the polarization axis. An offset can be permanently input by the user if necessary.	+ or – then Enter	I co -3.5 Eo -.28 Paz -.30 [Po 0.00]



4.J Azimuth Scan Width



J sw 40.00

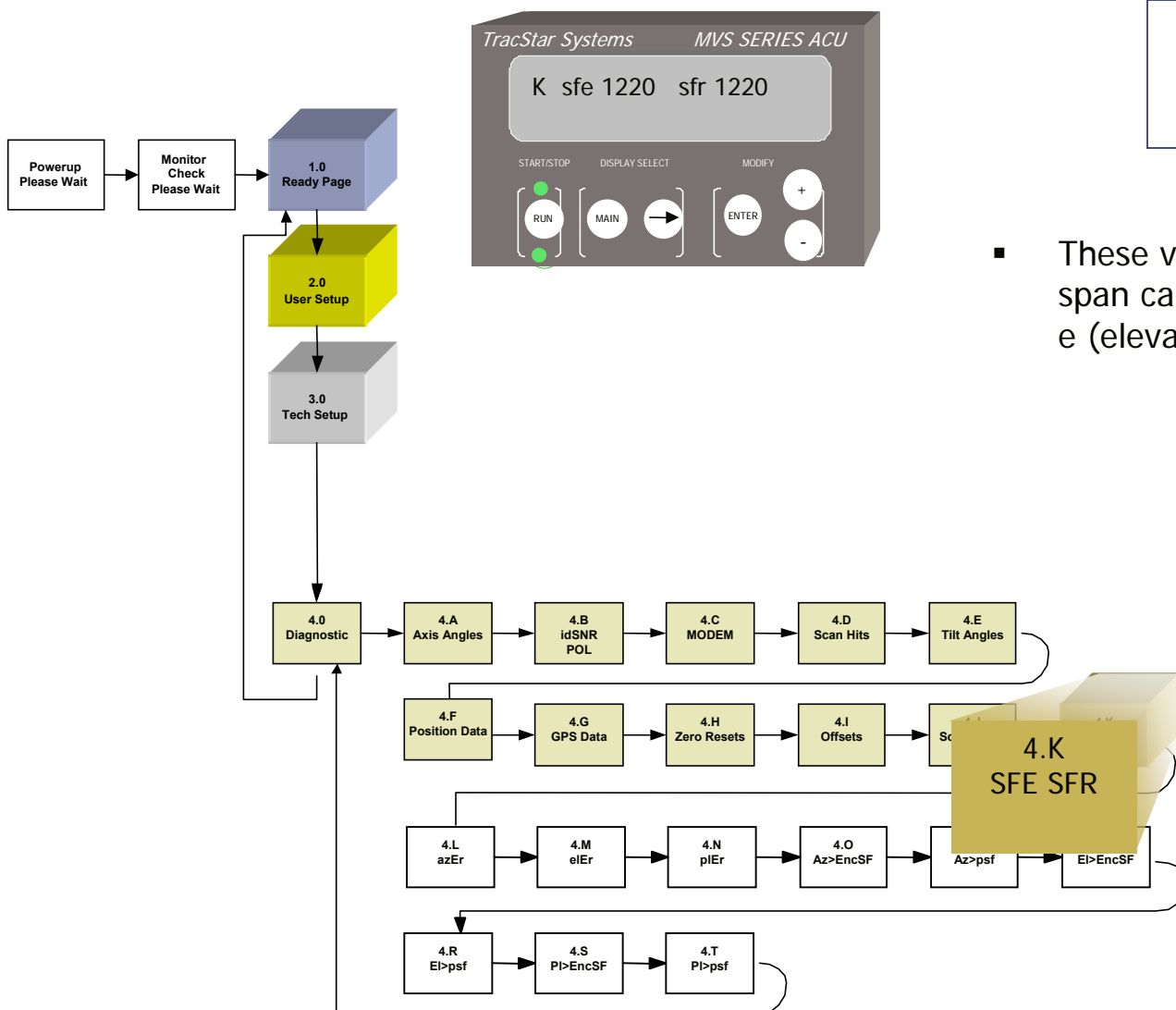
pmz -3.75 c 0.00

- The Diagnostics J page allows the user to set the width of the azimuth scan during the initial reference satellite acquisition.
- The default value is 40.0 degrees.
 - The max value is 100 degrees
 - The min value is 10 degrees.



4.J Azimuth Scan Width (con't)

Description	Action	Display
Set Code (enables editing) (Page 3.0)	From READY page Main 2x + to code 13, Enter Main 2x	READY TECH SETUP Tech Setup CODE 13
Azimuth Scan Width Page (Page 4.10)	From Ready Page: Main 3x Arrow 10x	[Sw 40.00] pmz -3.75
The user can adjust the azimuth scan width from 10 to 100 degrees. 40 is the default.	+ or – then Enter	[Sw 40.00] pmz -3.75
		Sw 40.00 [pmz -3.75]



K sfe1220 sfr1220

- These values are the base angle level span calibrations for the e (elevation) and r (roll) tilt.

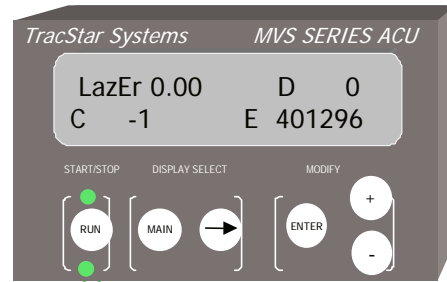


4.K SFE SFR (con't)

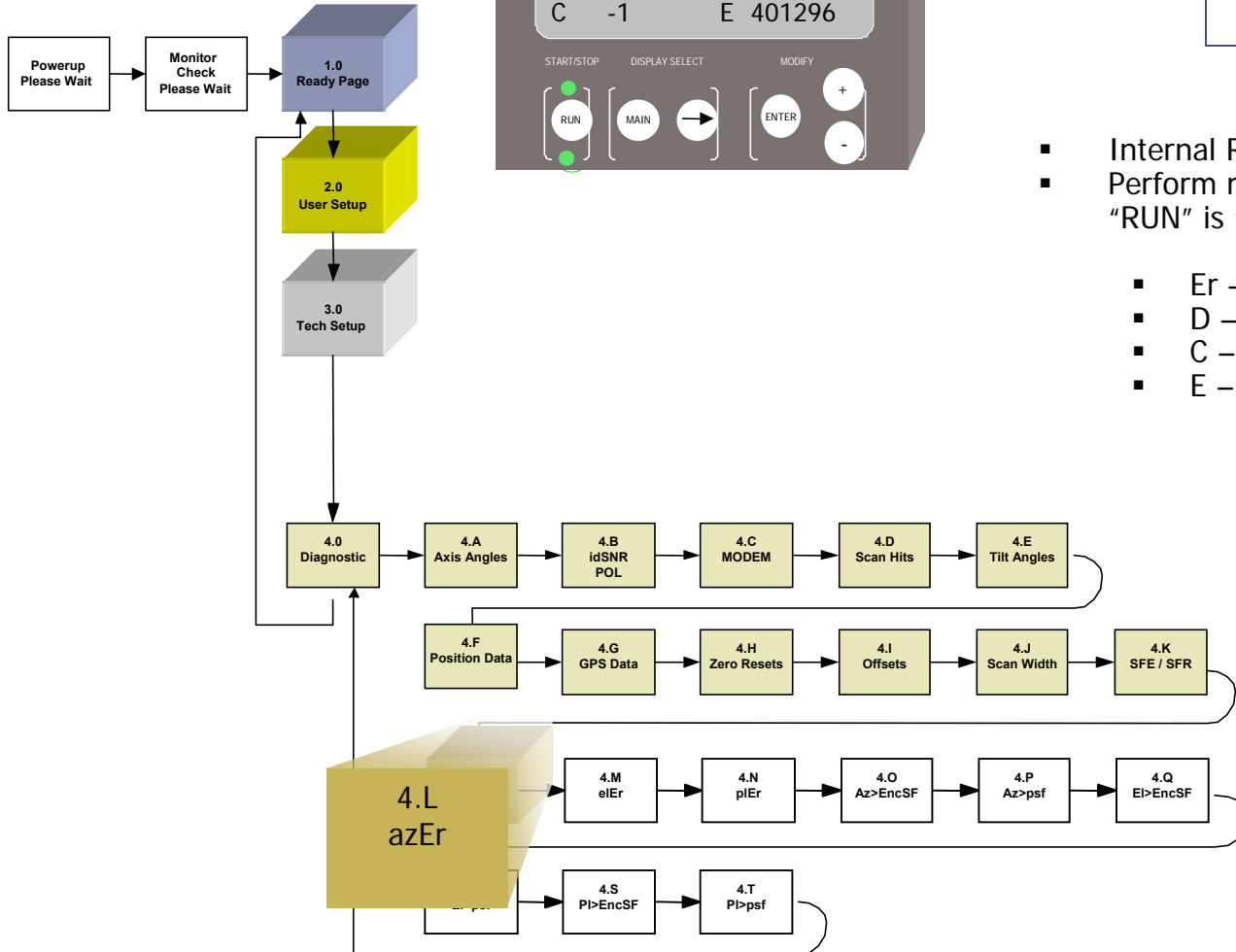
Description	Action	Display
Set Code (enables editing) (Page 3.0)	From READY page Main 2x + to code 13, Enter Main 2x	READY TECH SETUP Tech Setup CODE 13
Azimuth Scan Width Page (Page 4.11)	From Ready Page: Main 3x Arrow 11x	K sfe1220 sfr1220



4.L Axis Diagnostics



LazEr	0.00	D	0
C	-1	E	401296



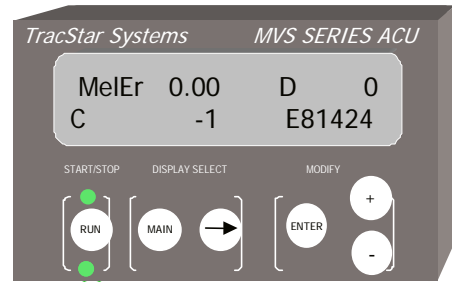
- Internal Readings from azimuth axis.
- Perform manual jog of the azimuth axis when "RUN" is 'on' and +/- buttons are depressed.
 - Er – Servo Position Error
 - D – DAC Value +/- 120
 - C – Current Value +/- 100
 - E – Encoder Counts



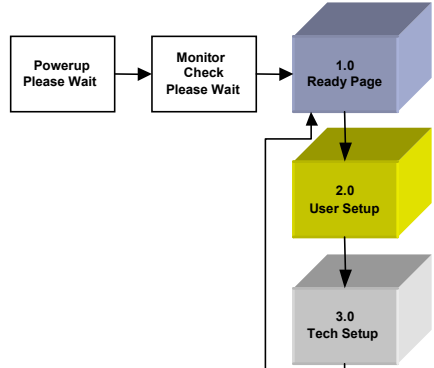
Summary Slide (cont.)



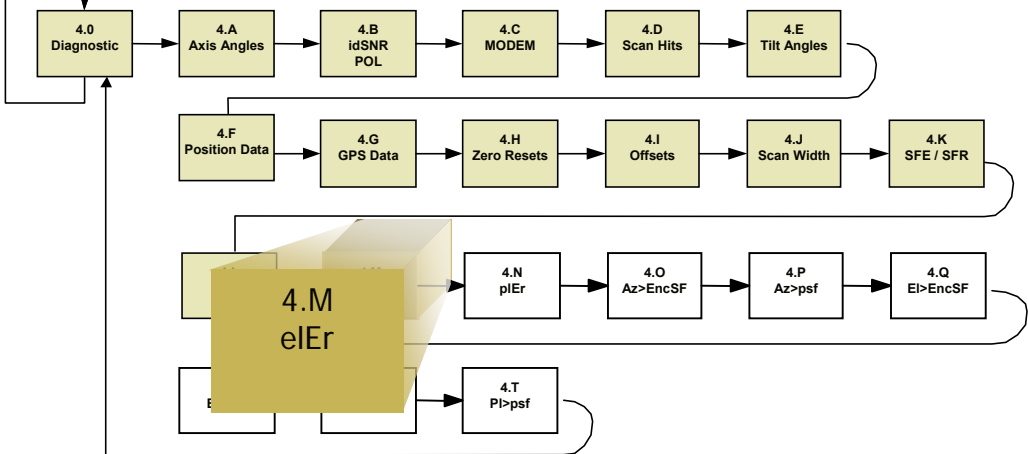
4.M Axis Diagnostics



MeEr	0.00	D	0
C	-1	E	81424

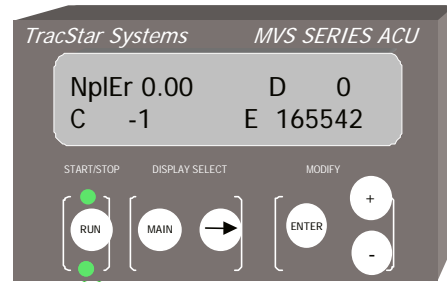


- Internal Readings from elevation axis.
- Perform manual jog of the azimuth axis when "RUN" is 'on' and +/- buttons are depressed.
 - Er – Servo Position Error
 - D – DAC Value +/- 120
 - C – Current Value +/- 100
 - E – Encoder Counts

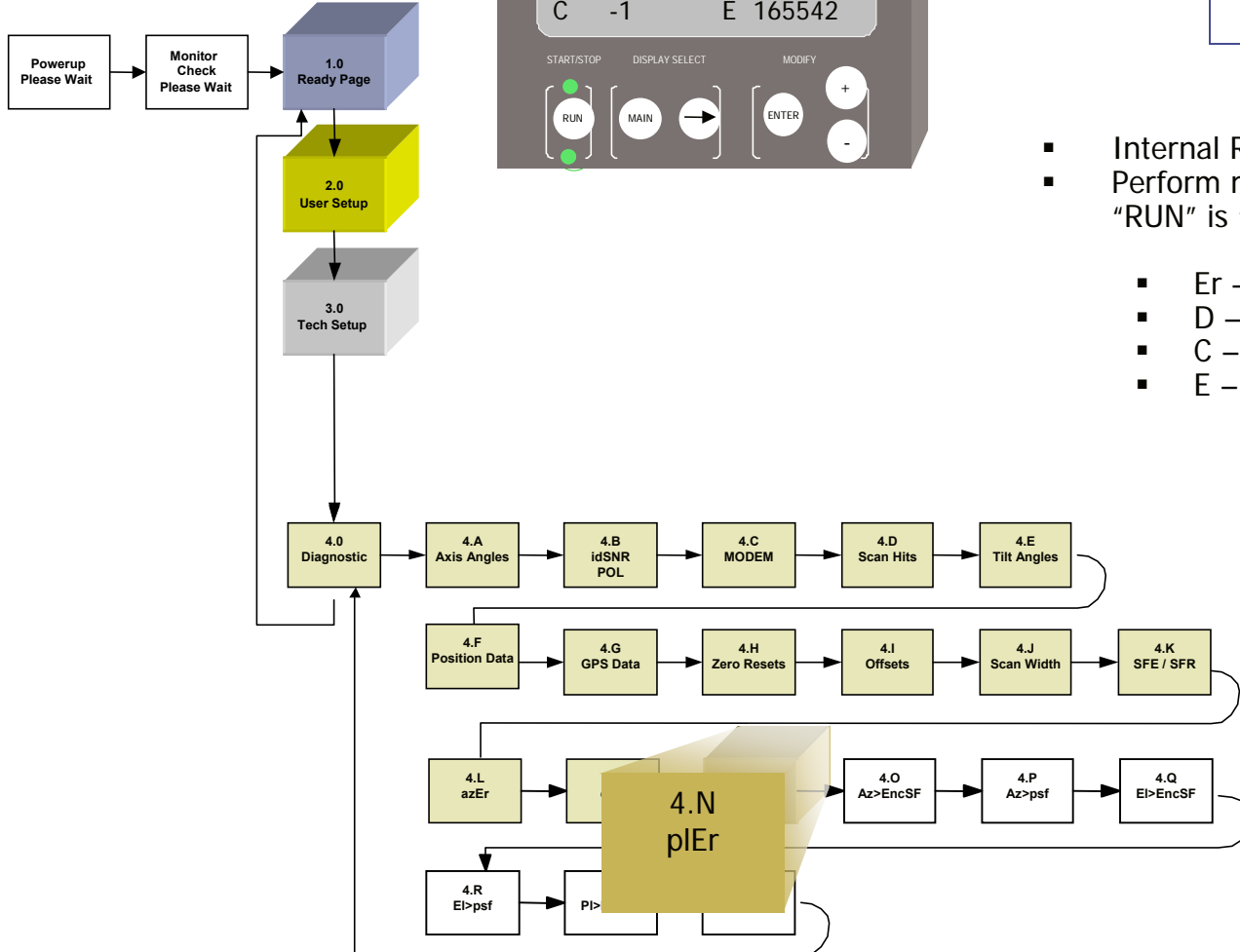




4.N Axis Diagnostics



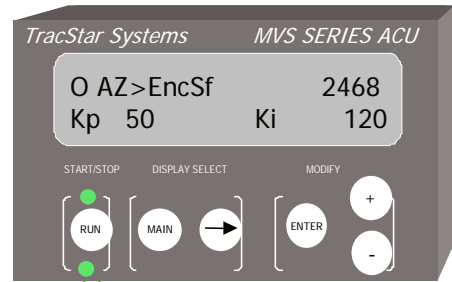
NplEr	0.00	D	0
C	-1	E	165542



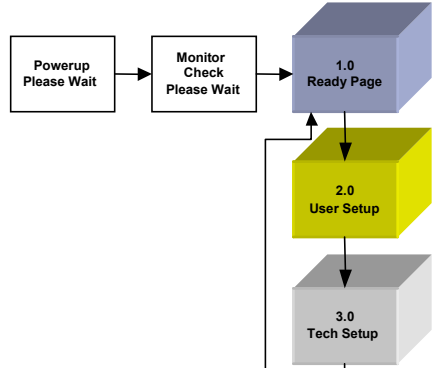
- Internal Readings from pole axis.
- Perform manual jog of the azimuth axis when "RUN" is 'on' and +/- buttons are depressed.
 - Er – Servo Position Error
 - D – DAC Value +/- 120
 - C – Current Value +/- 100
 - E – Encoder Counts



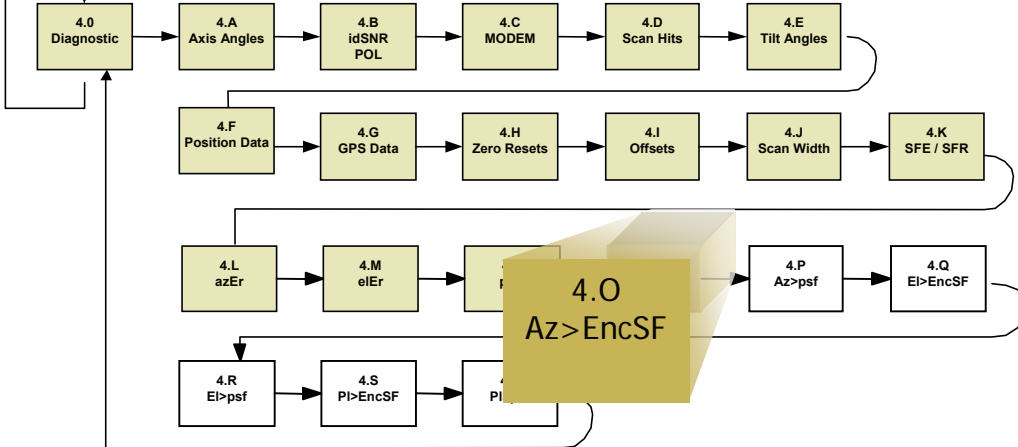
4.0 Axis Diagnostics



O AZ>EncSf	2468
Kp 50	Ki 120

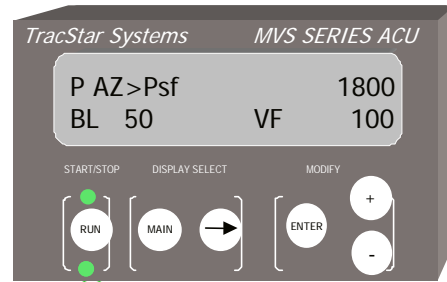


- Azimuth Encode Scale Factor
- Setup Readings for Azimuth Axis
- Kp and Ki are servo loop data

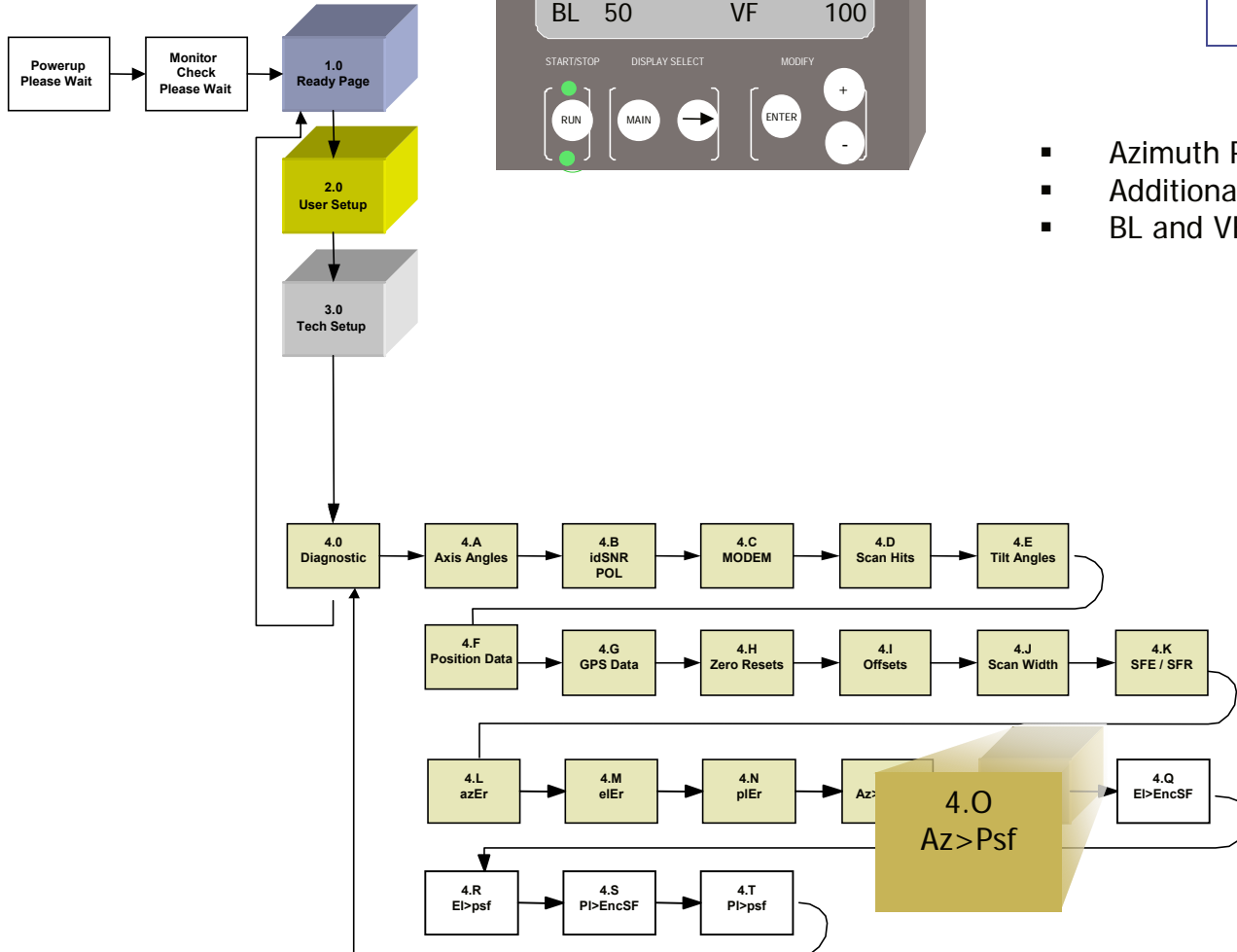




4.P Axis Diagnostics



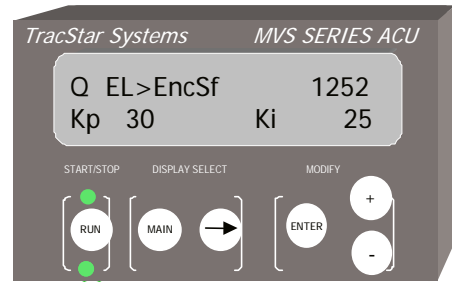
P AZ>Psf	1800
BL 50	VF 100



- Azimuth Pot Scale Factor
- Additional Setup Readings for Azimuth Axis
- BL and VF are servo parameters

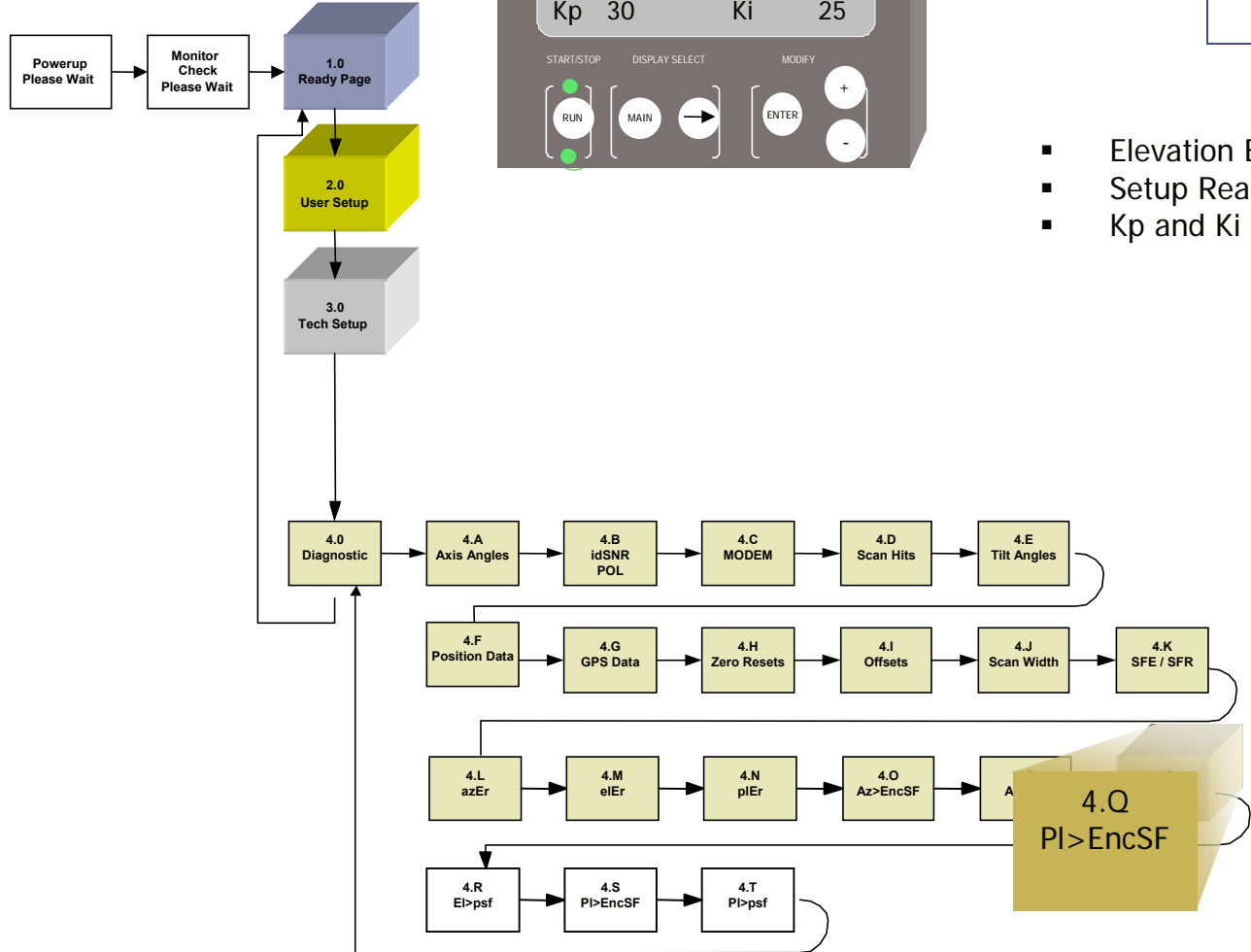


4.Q Axis Diagnostics



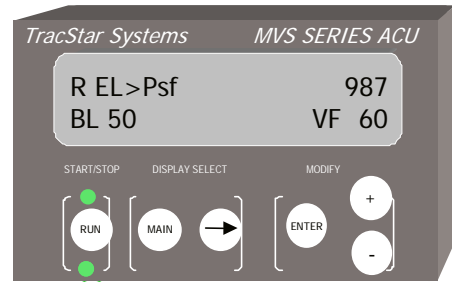
Q EL>EncSf	1252
Kp 30	Ki 25

- Elevation Encode Scale Factor
- Setup Readings for Elevation Axis
- Kp and Ki are servo loop data

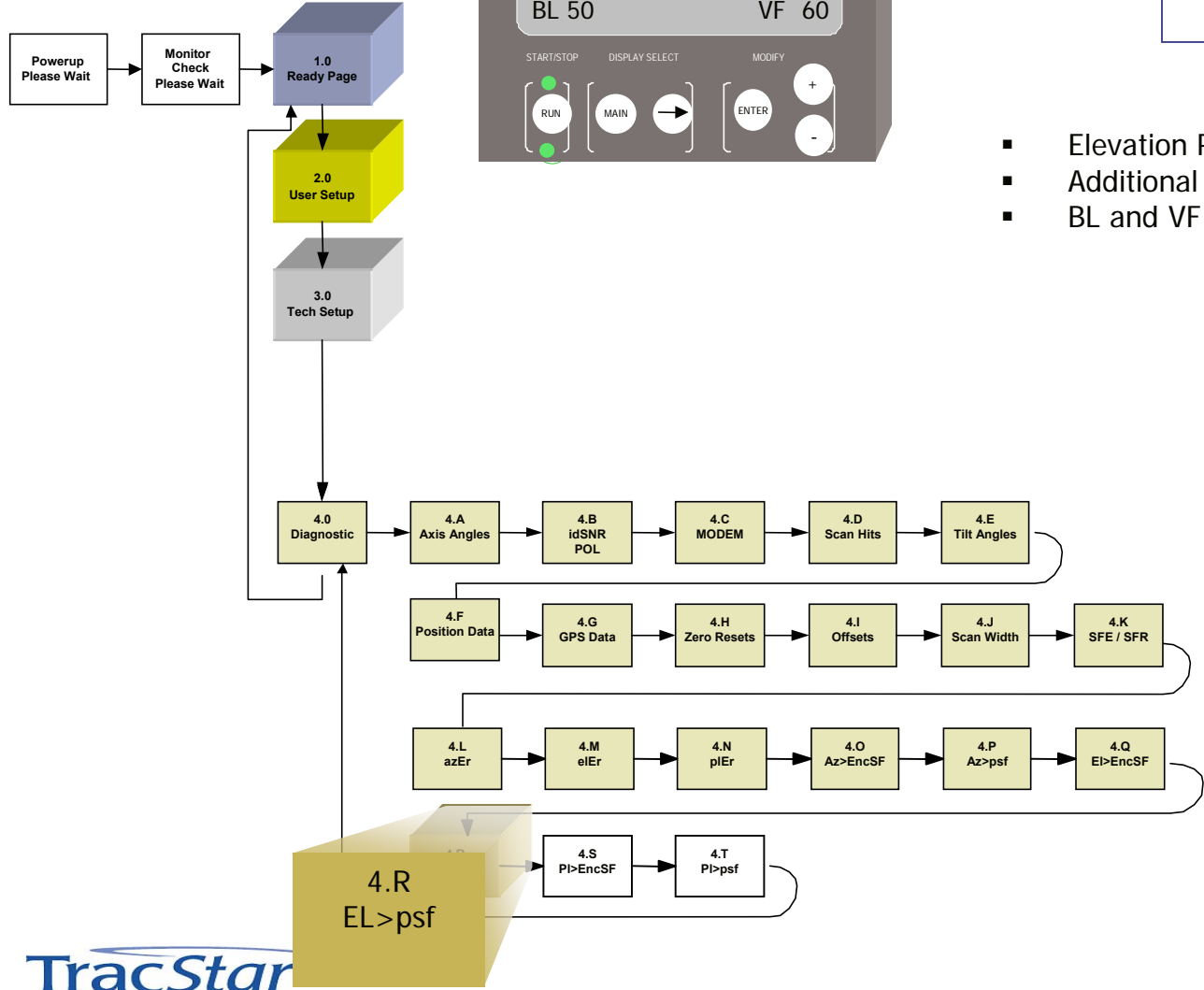




4.R Axis Diagnostics



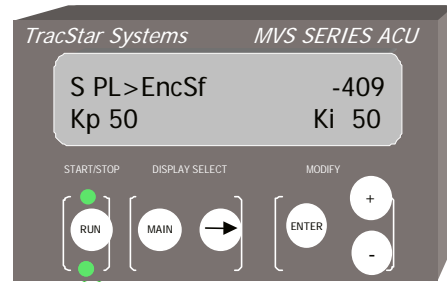
R EL>Psf	987
BL 50	VF 60



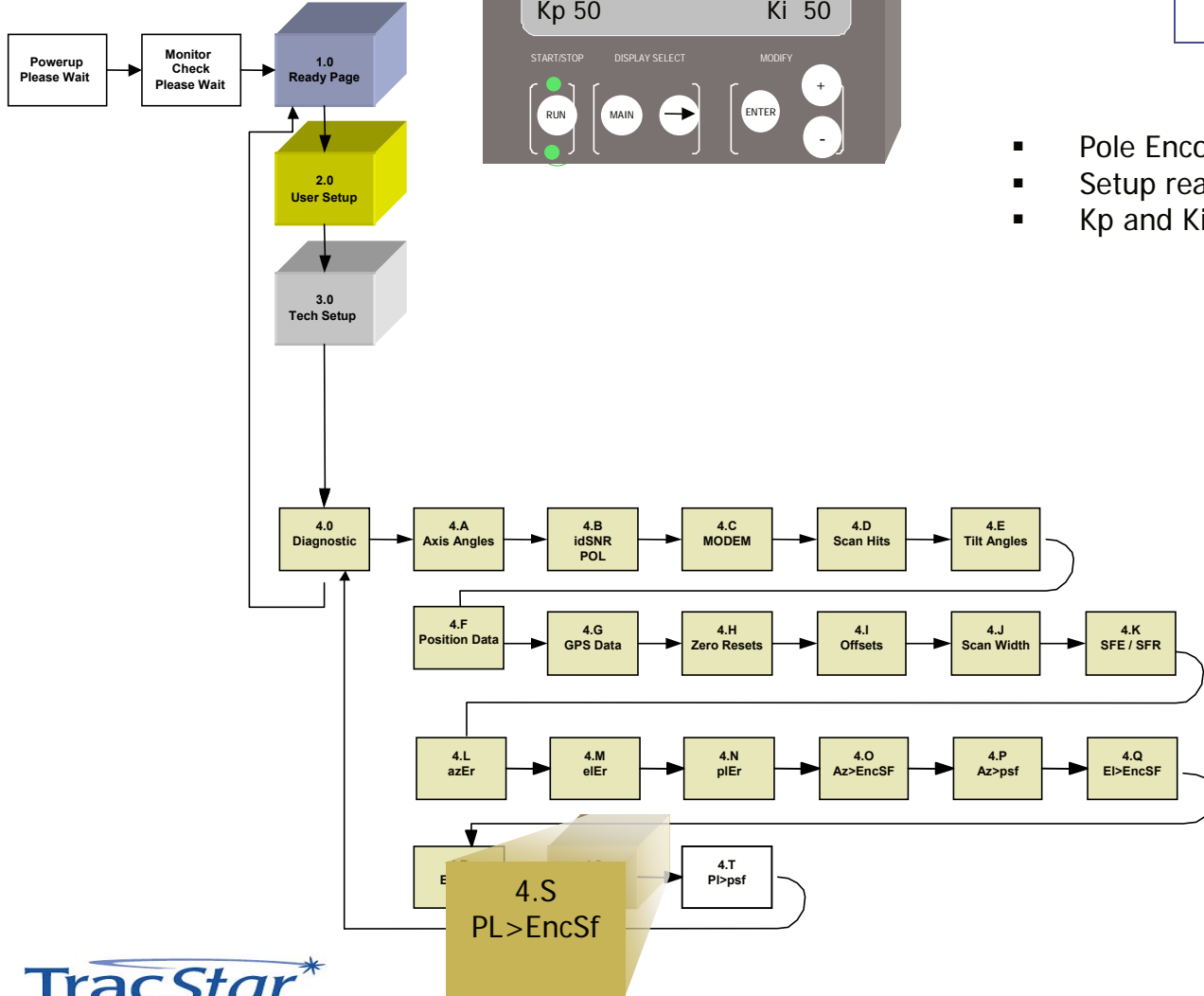
- Elevation Pot Scale Factor
- Additional Setup Readings for elevation axis
- BL and VF are servo parameters



4.S Axis Diagnostics



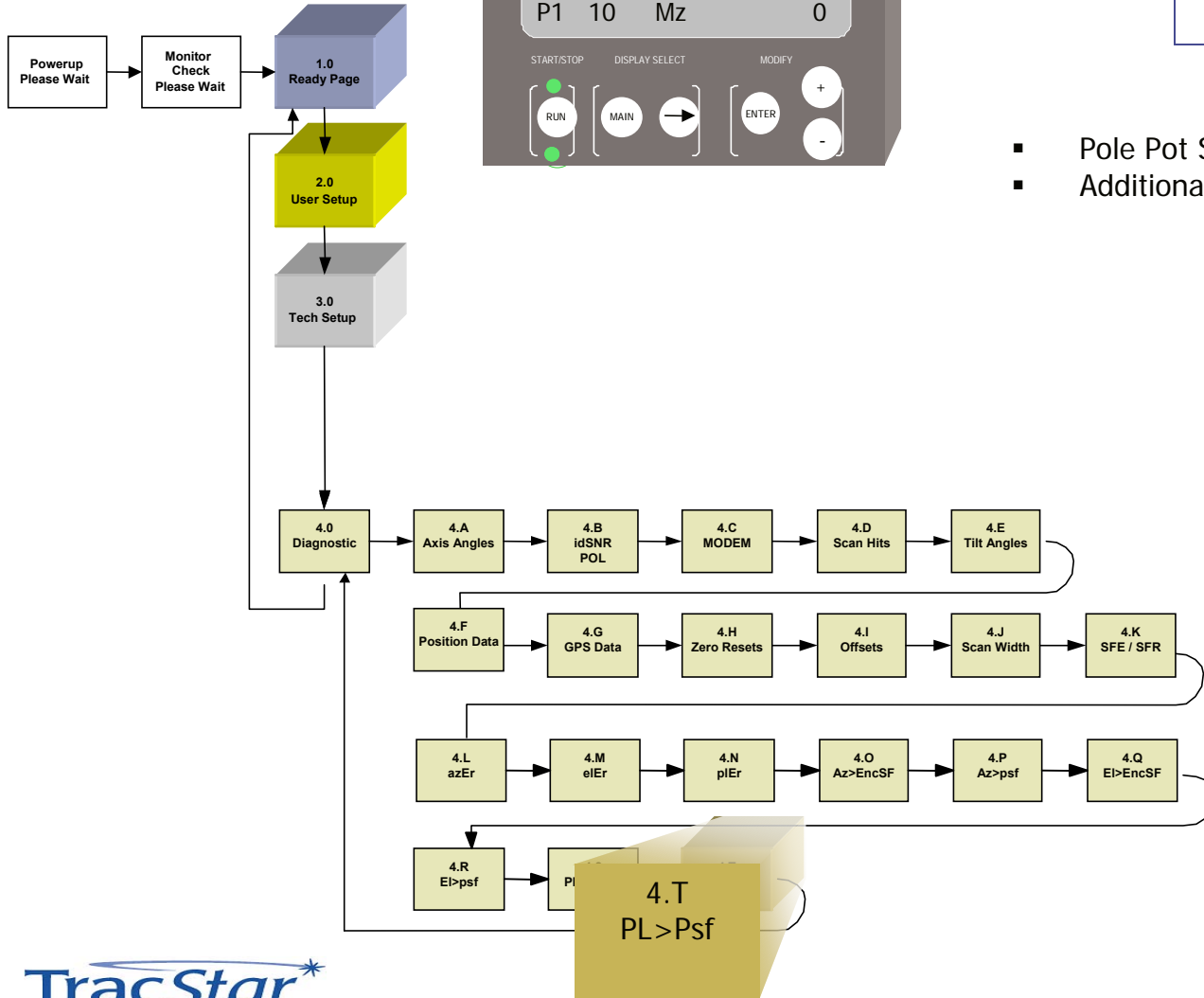
S PL>EncSf	-409
Kp 50	Ki 50



- Pole Encode Scale Factor
- Setup readings for Pole axis
- Kp and Ki are servo loop data



4.T Axis Diagnostics



T PL>Psf	2358
P1 10 Mz	0

- Pole Pot Scale Factor
- Additional setup readings for pole axis



TROUBLESHOOTING

- **Antenna has no power.**
Turn off Power. Check the power cord on the ACU and or the rack mount control panel. The antenna receives its power from one of these two respective locations. Check the antenna end of the grey cable with the black connectors as well. Reapply Power. Restore Power.
- **OBSTRUCTIONS**
Ensure there is a clear unobstructed view towards the equator relative to the antenna's position.
- **Antenna Not Responding**
When using the handheld controller, ensure the RJ11 (phone cord) connection is properly seated in the ACU and the handheld device.
- **REF SAT NOT FOUND**
Select an alternate reference satellite (refer to page xx) and begin the acquisition process again. Should the message still occur, move the antenna base in a 90° arc and check the leveling of the antenna. Auto-correction features in the software will accommodate up to +/- 10° of error in the mounting plane of the antenna.
- **Skyscan**
Skyscan can be engaged to find all available satellites in the sky. Refer to the operating manual for instruction on using Skyscan.
- **Waiting Log On (iDirect)**

The TracStar controller 'logs' into the iDirect modem, when iDirect modem is selected. Make sure the DB9-RJ45 cable is in place between the controller and the modem, as this serves as the communication link. If communication still fails, set modem to NONE to allow antenna to lock onto satellite.



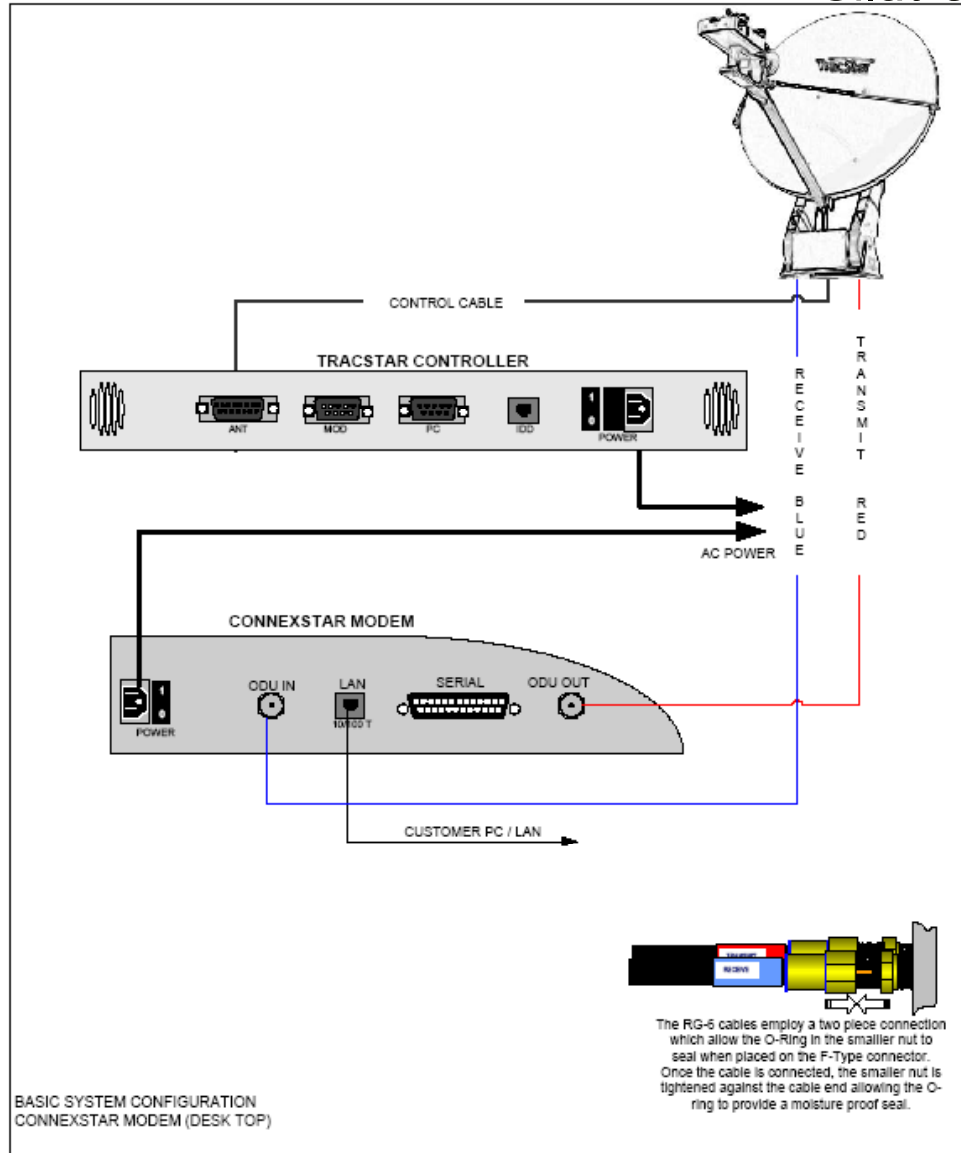
Appendix B – Connection Directions

Modem and Voice Equipment Connection / Wiring Diagrams

NOTE: For VoIP follow EMS w/EdgeAccess connection information for the EdgeAccess Equipment



Gilat 360E Connection



BASIC SYSTEM CONFIGURATION
CONNEXSTAR MODEM (DESK TOP)

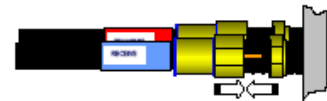
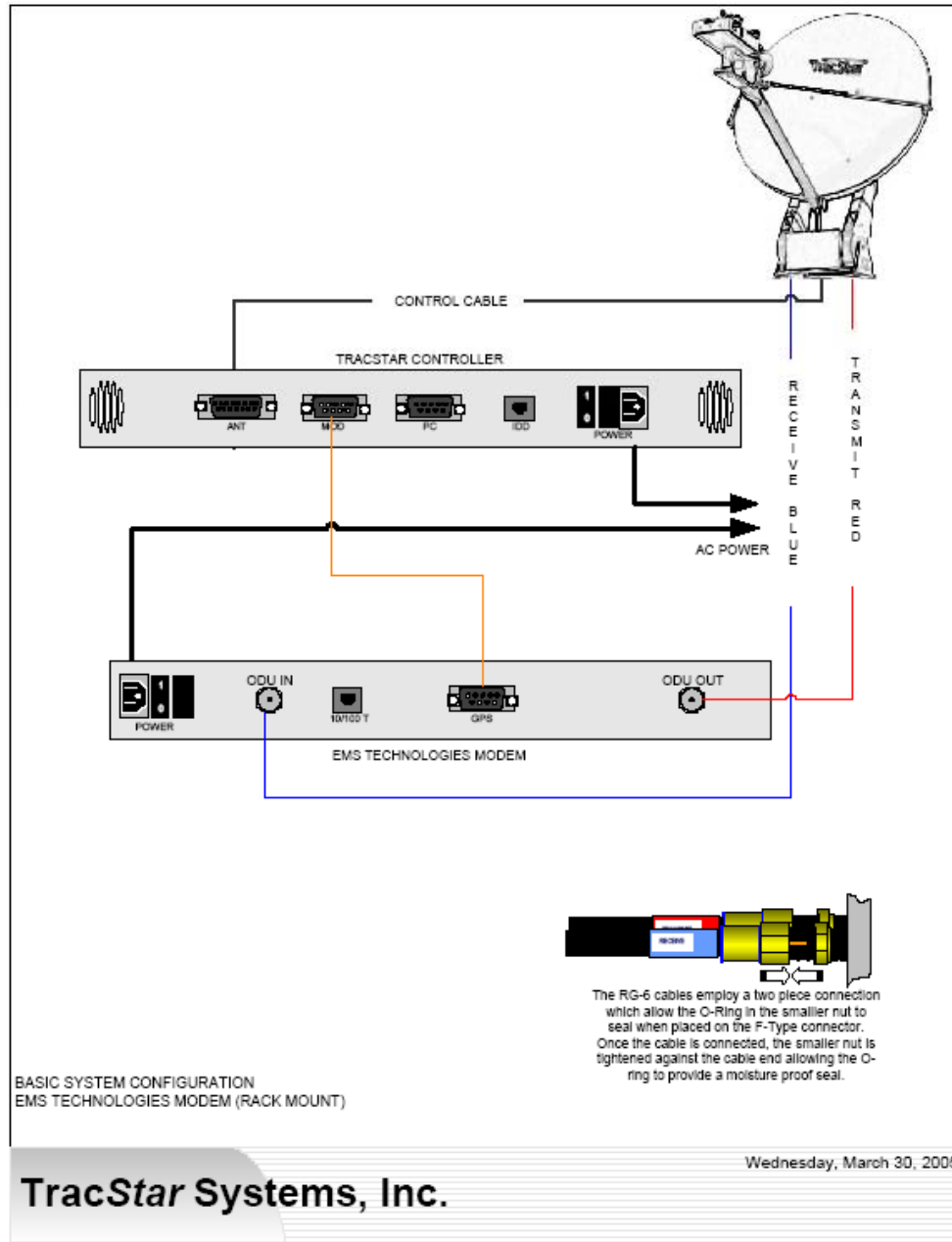
Wednesday, March 30, 2005

TracStar Systems, Inc.





EMS Technologies Connection



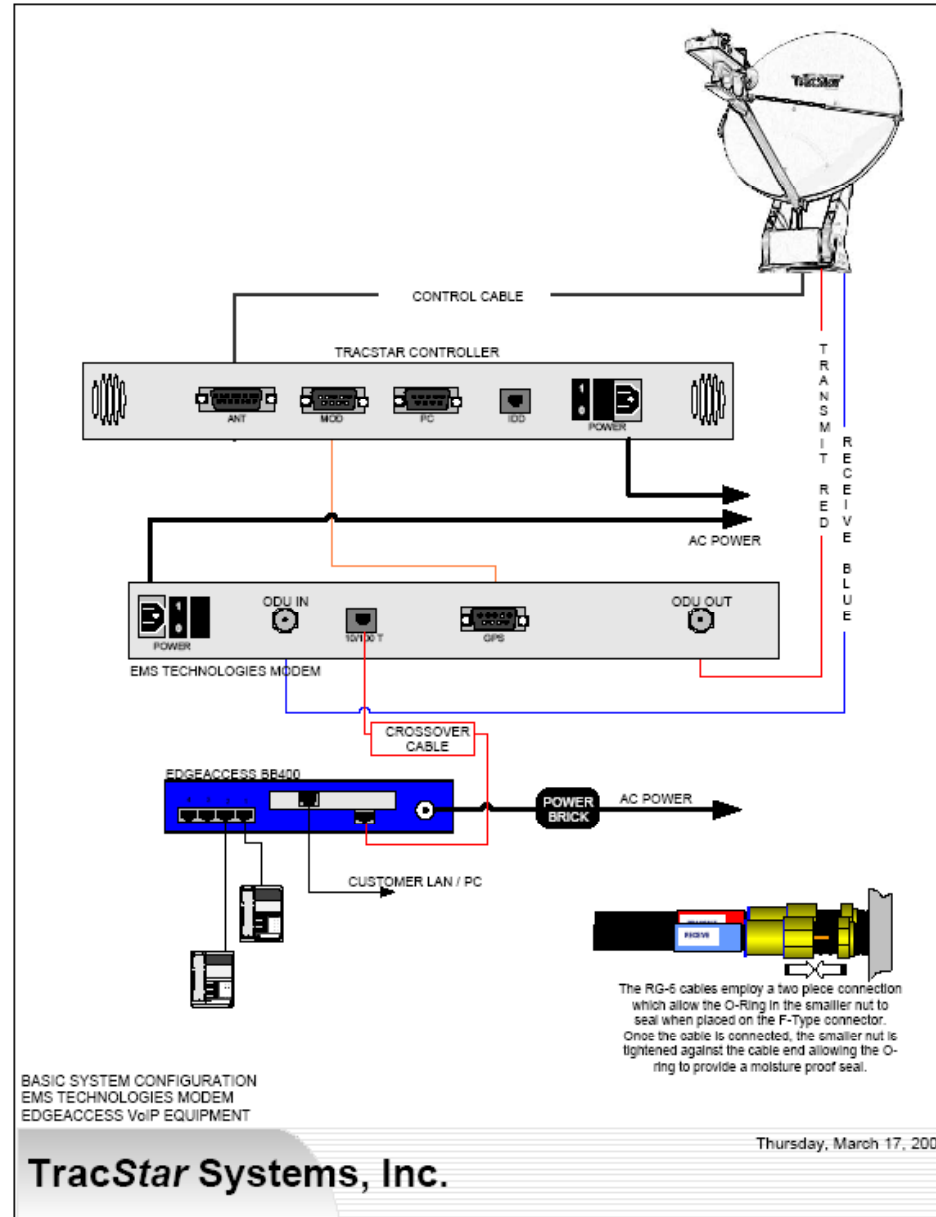
The RG-6 cables employ a two piece connection which allow the O-Ring in the smaller nut to seal when placed on the F-Type connector. Once the cable is connected, the smaller nut is tightened against the cable end allowing the O-ring to provide a moisture proof seal.

BASIC SYSTEM CONFIGURATION
EMS TECHNOLOGIES MODEM (RACK MOUNT)

Wednesday, March 30, 2005

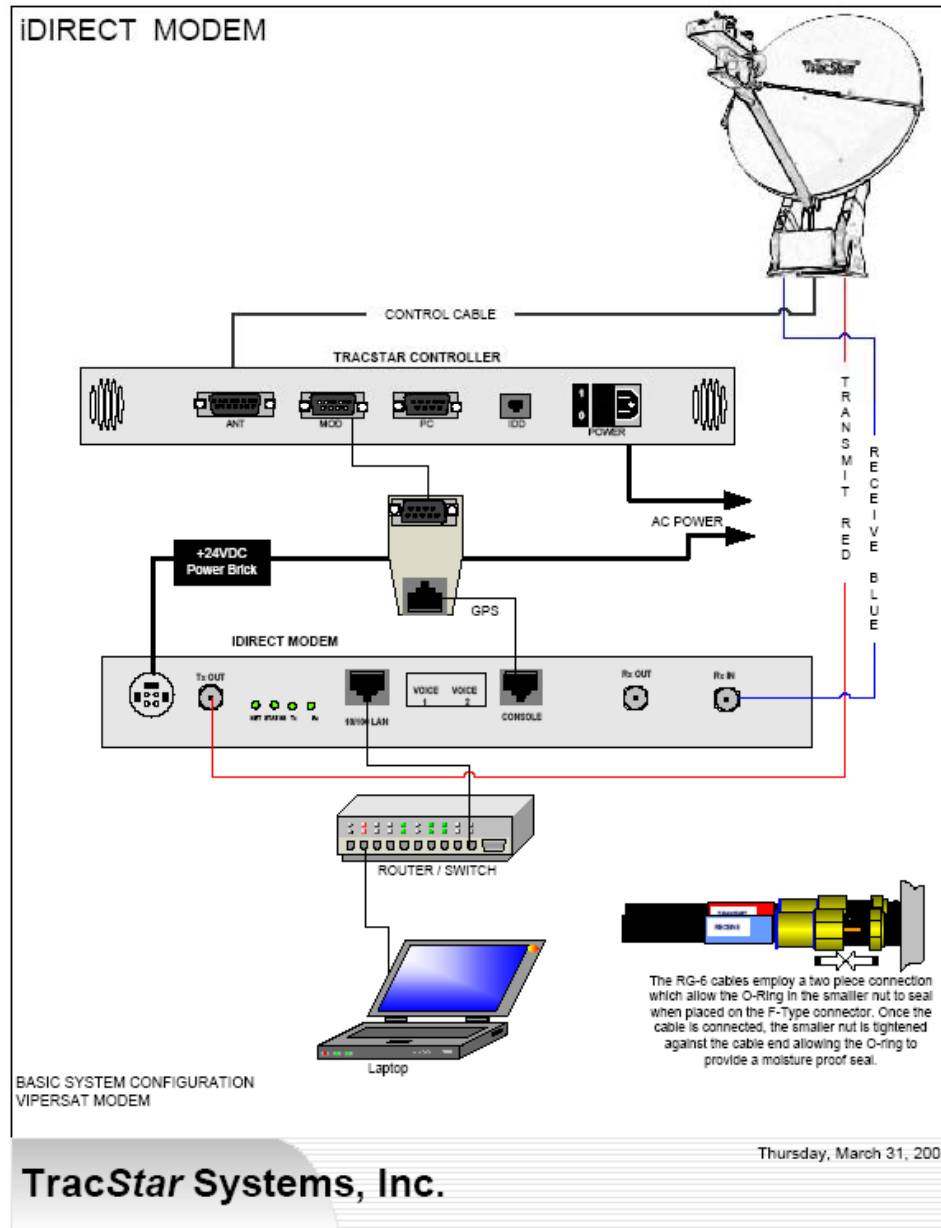


EMS with EdgeAccess Connection



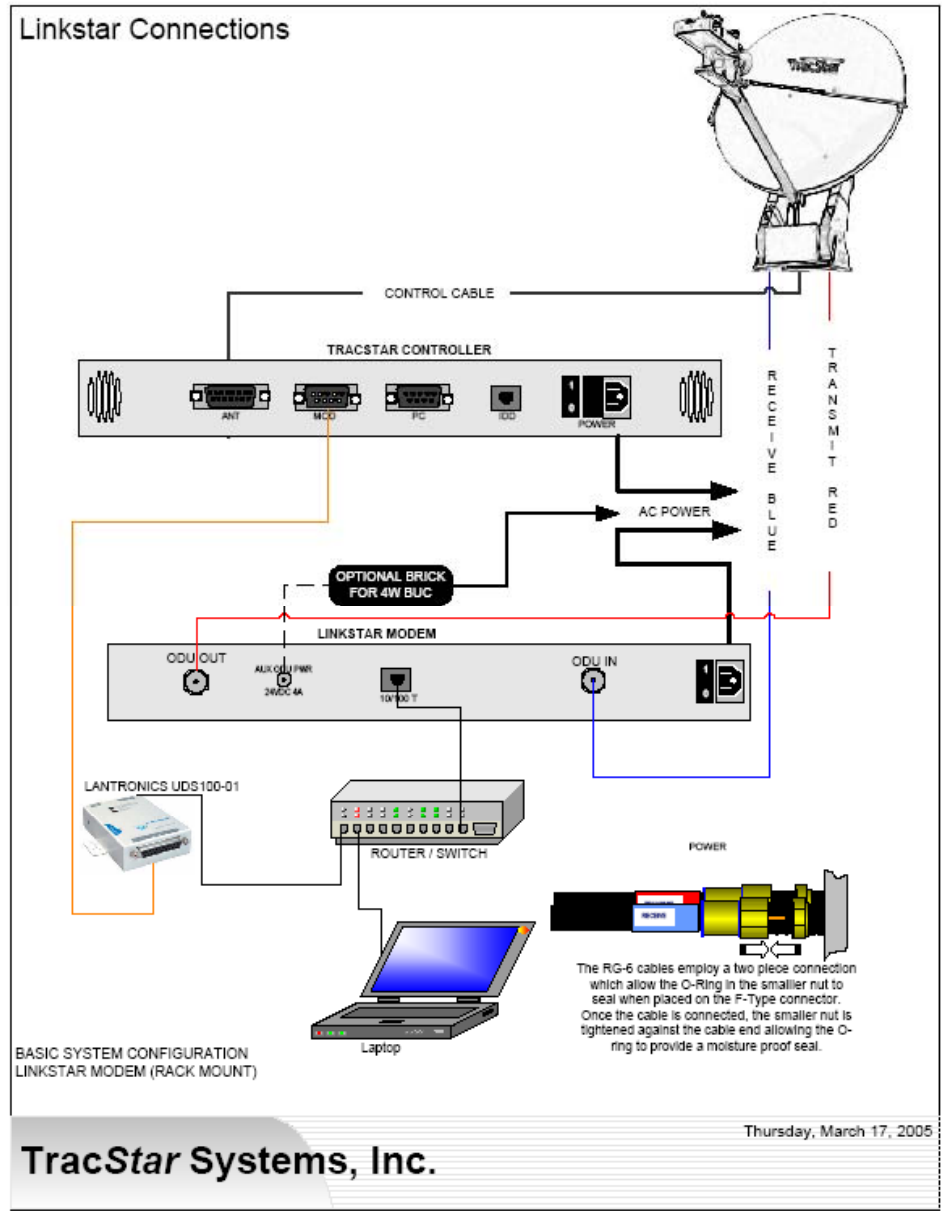
Thursday, March 17, 2005

TracStar Systems, Inc.





Linkstar Connection



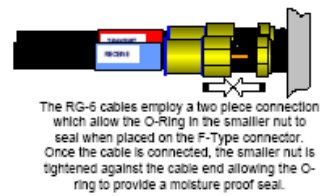
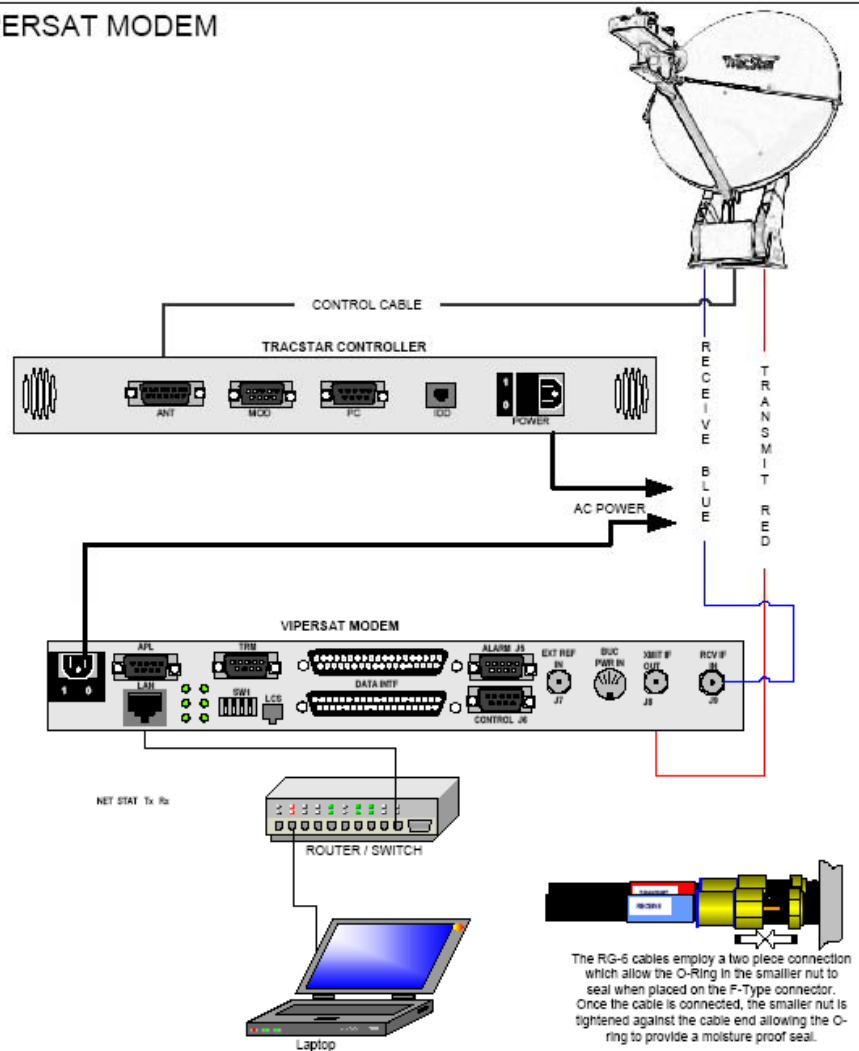
TracStar Systems, Inc.





Vipersat Connection

VIPERSAT MODEM



BASIC SYSTEM CONFIGURATION
VIPERSAT MODEM

Wednesday, March 30, 2005

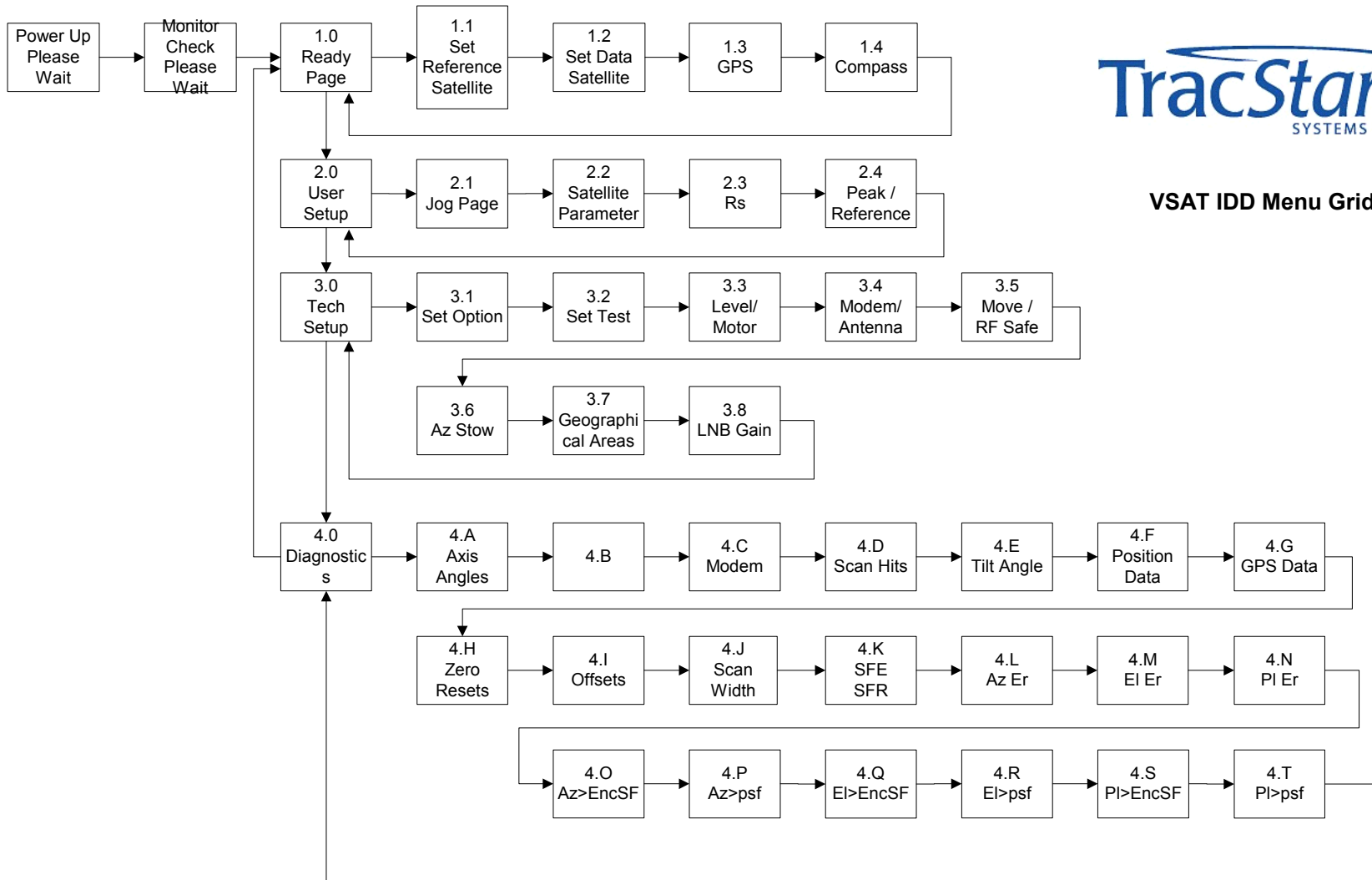
TracStar Systems, Inc.



MENU GRID



VSAT IDD Menu Grid



**- PROPRIETARY
INFORMATION - DO
NOT DUPLICATE**

