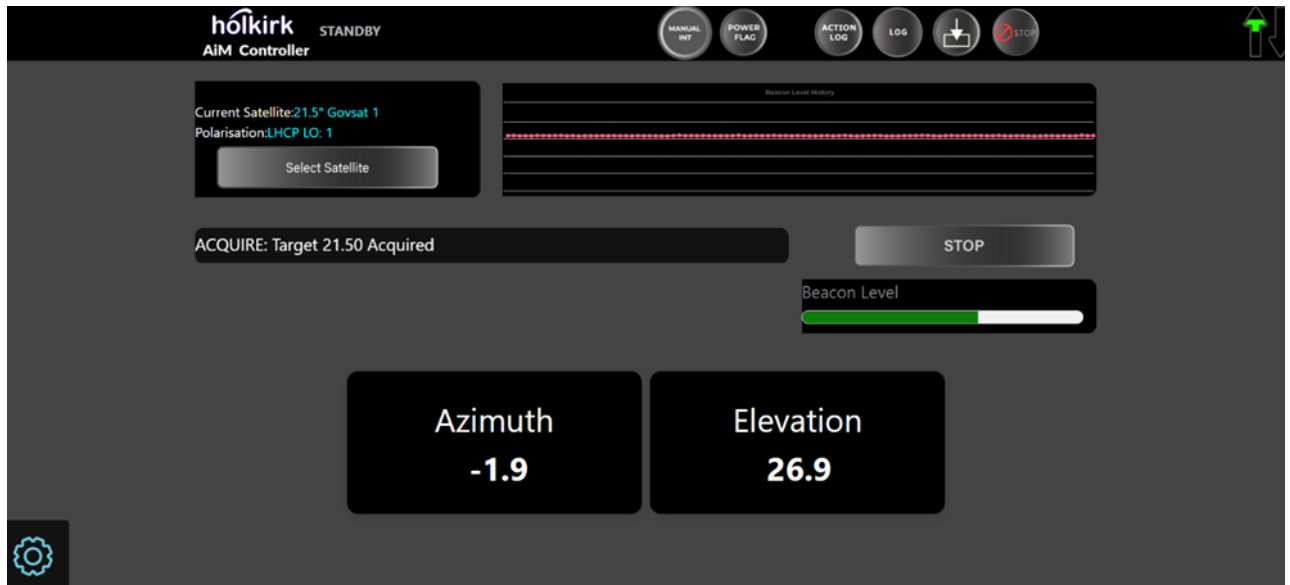


AIM STATION X-Band

AIM STATION Controller and Graphical Interface (AGI)



Option	Software Revision	Date
Vsat Mount 1.2M		1/7/2024

Operation Manual v1.5

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Antenna Interface Module STATION (AIM STATION)

The AIM STATION is a fully featured pointing aid for use with the Holkirk range of Motorised Vsat Mounts. With step-by-step graphical guidance for the complete satellite selection and acquisition process. The command-and-control interface can be accessed on either a high-definition touch screen indoor controller or a direct web interface.

Instruments

GPS – Factory fitted and connected directly into AIM STATION board. This will give AIM STATION the geo-location of the antenna relative to the earth surface (including altitude)

Pitch and Roll - Factory fitted and connected directly into AIM STATION board. This instrument gives the AIM information on the terrain level in two axes, this is used to calculate accurate satellite position and polarisation skew for linear polarisation.

Inclinometer - Factory fitted and connected directly into AIM STATION board. This solid-state device gives accurate feedback on the angle of the feed arm and is used to point the antenna to the satellite.

Magnetometer - Factory fitted and connected directly into AIM STATION board. The magnetometer will give the magnetic heading reference to north for the position of the antenna system.

Fixed IP and settable Address

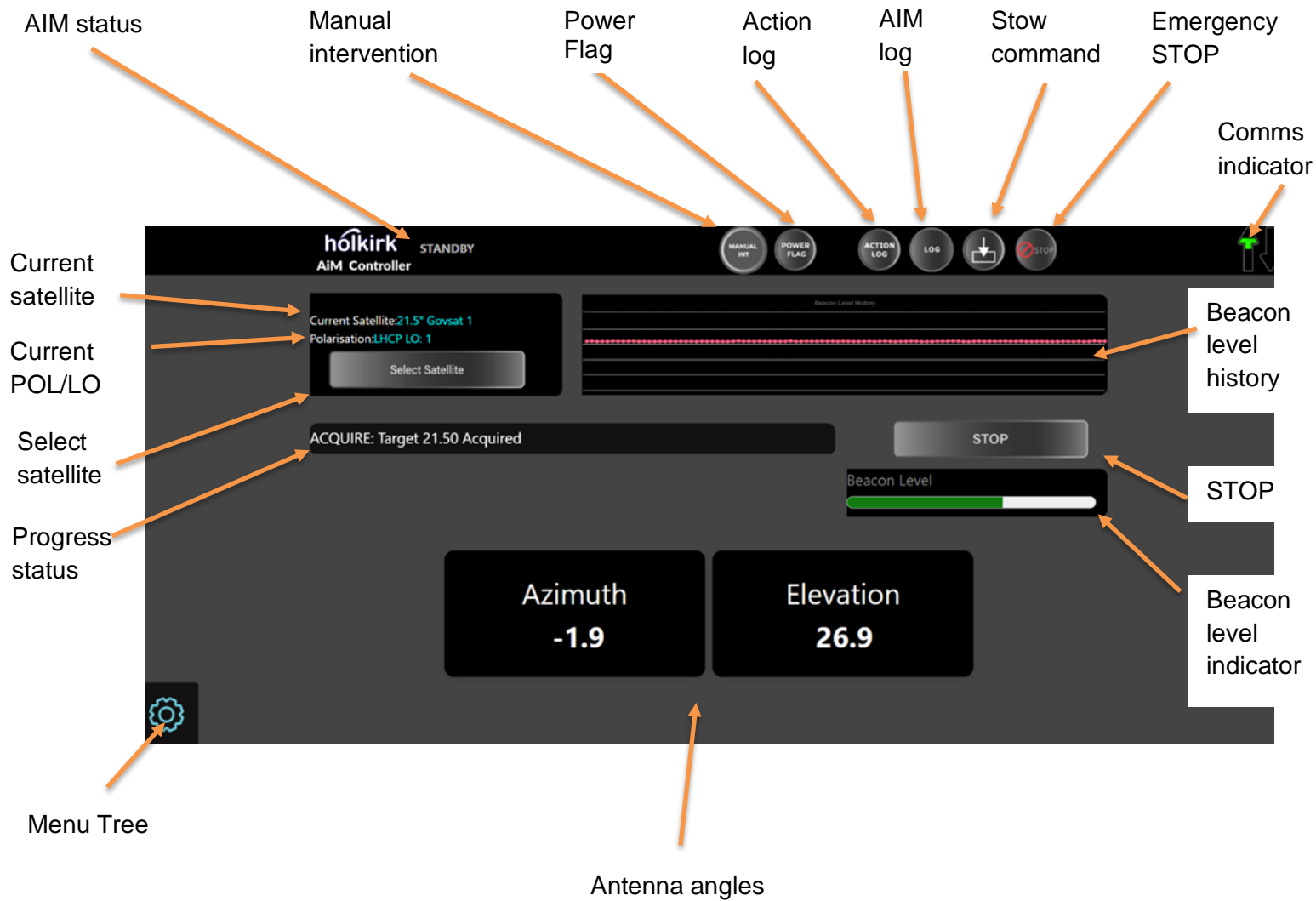
The AIM STATION has a fixed IP address that cannot be changed to allow engineering access and a user settable IP address.

AIM ASSIST Module (Integrated) Fixed 10.10.10.22 Settable (default) **192.168.172**

AIM STATION Graphical Interface (ASGI)

The AIM STATION Graphical Interface can be used to remote monitor and control the system via a web base GUI.

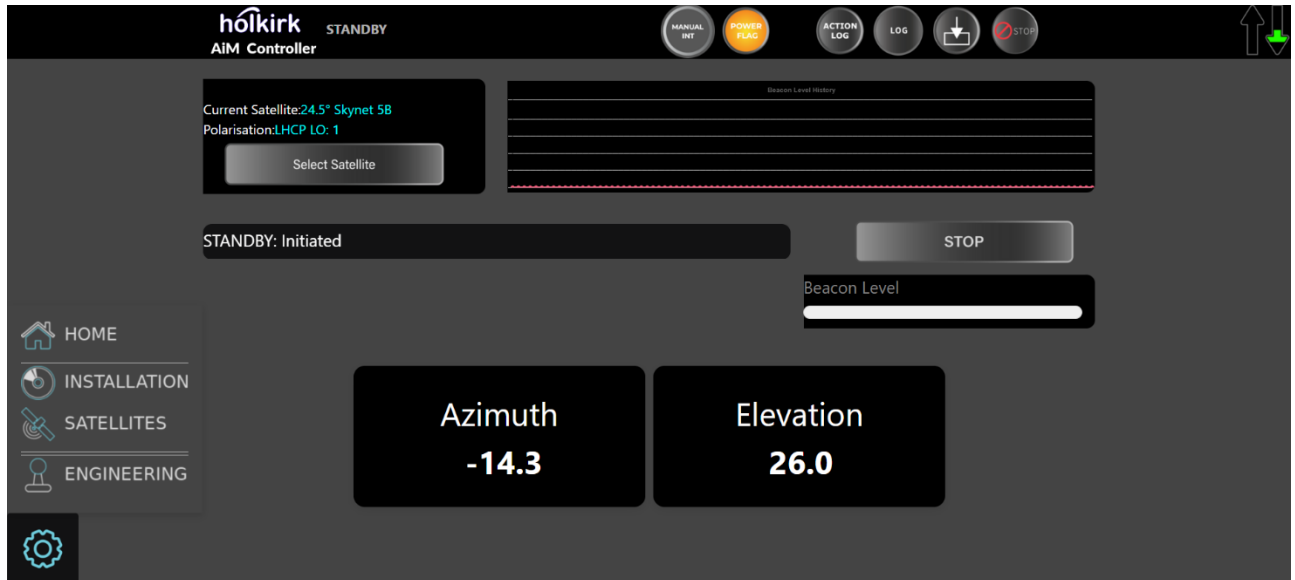
HOME SCREEN



The functions of the HOME Screen are explained in the next section.

Menu Structure

The menu structure can be accessed from the HOME screen.



HOME Returns to the HOME Screen.

Features of the HOME Screen

AIM Status

This will indicate the state of the AIM controller



STANDBY indicates the system has performed the automatic task assigned and is ready for the next command

ACQUIRE – the automatic INITIAL ACQUIRE process is underway

ALARM – there is a fault

SEAERCH SATELLITE – automated acquisition of satellite after initial acquire

This example shows a manual change to LO3

```
2:40.52 :Manual Intervention: FALSE
2:40.52 :TRACKING: Initiated
2:40.52 :No complete model
2:40.52 :Tracking
2:41.39 :Manual Intervention: TRUE
2:41.39 :STANDBY: Initiated
```

Power Flag



After any power cycle the power flag icon will be **ORANGE** to set the power flag function for auto-detection, move your mouse over the icon and click to set the system to detect.

The icon will de-illuminate.

This function will alert the user if the system has experienced a power outage.

NOTE: it is best practice to set this function to auto detect so and power outage can be monitored

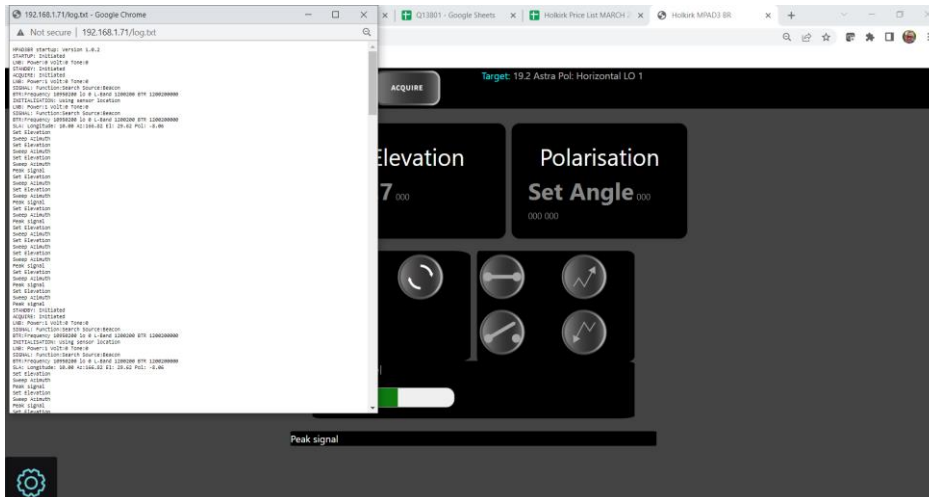
Action log

The action log will give a time stamped report on all activities from the AIM STATION and manual intervention

```
10.10.10.22/log_action.txt - Google Chrome
Not secure 10.10.10.22/log_action.txt
UTC 00:00.00 :AIM startup: Version 3.4.83
UTC 00:00.00 :LNB LO:1
UTC 00:00.00 :LNB LO:1
UTC 12:28.53 :STARTUP: Initiated
UTC 12:28.53 :LNB LO:1
UTC 12:28.53 :STANDBY: Initiated
UTC 12:35.38 :Manual Intervention: TRUE
UTC 12:35.38 :STANDBY: Initiated
UTC 12:35.38 :Manual Intervention: FALSE
UTC 12:35.38 :ACQUIRE: Initiated
UTC 12:35.39 :INITIALISATION: Initiated
UTC 12:35.39 :LNB LO:1
UTC 12:35.46 :SEARCH: Initiated
UTC 12:35.46 :SEARCH: Longitude 21.50
UTC 12:35.46 :LNB LO:1
UTC 12:36.31 :PEAK: Initiated
UTC 12:36.51 :ID: Initiated
UTC 12:36.51 :LNB LO:1
UTC 12:36.55 :GOTO SATELLITE: Initiated
UTC 12:36.55 :GOTO SATELLITE: Longitude:21.500000
UTC 12:36.55 :LNB LO:1
UTC 12:36.55 :PEAK: Initiated
UTC 12:37.15 :ID: Initiated
UTC 12:37.15 :LNB LO:1
UTC 12:37.19 :LNB LO:1
UTC 12:37.19 :POL ROLL: Initiated
UTC 12:39.42 :Manual Intervention: TRUE
UTC 12:40.52 :Manual Intervention: FALSE
UTC 12:40.52 :TRACKING: Initiated
UTC 12:40.52 :No complete model
UTC 12:40.52 :Tracking
UTC 12:41.39 :Manual Intervention: TRUE
UTC 12:41.39 :STANDBY: Initiated
```

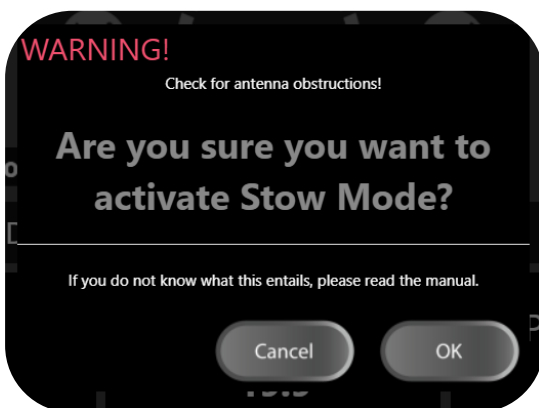
Log File This will generate a LOG file in a new window with all the status information used to de-bug the system.

This is a full system de-bug of the AIM STATION process



STOW command This will start the automated STOW process

STOW commands the antenna to move to a safe position for transportation. Stow is the mode indicated while the antenna is being stowed following a Stow command.

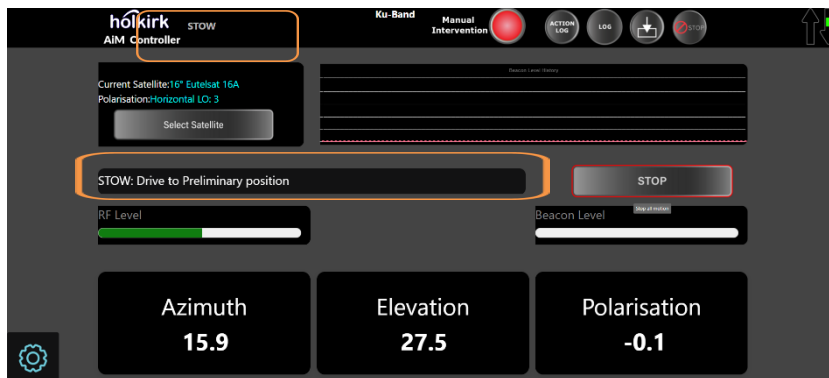


NOTE : to mitigate the risk of an accidental press of the STOW button the AIM will prompt the user with an 'ARE YOU SURE' screen

If you wish to continue press OK

If you wish to abort press Cancel

NOTE: Factory default: Azimuth 0° , Elevation 25°



STOW will appear in the AIM status and the progress will be displayed in the progress status bar

Once STOW is achieved the AIM status will be STANDBY



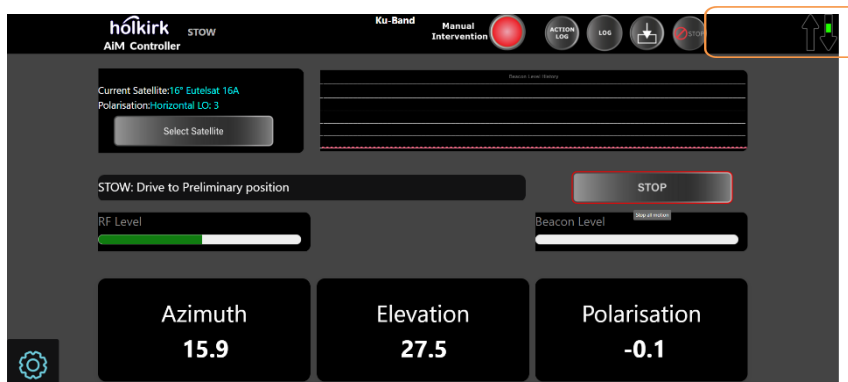
Is an emergency stop function. It will abort any operation that was in progress and return the system to the Standby condition. **This will appear across the top banner on every screen**

Standby mode is a “no movement” mode, the antenna is not driven (the brakes where fitted will be applied) but the pointing angles and signal level are monitored and displayed.

Standby mode is entered in one of two ways :-

- selected by the operator
- on the successful completion of another mode.

Communication Indicator

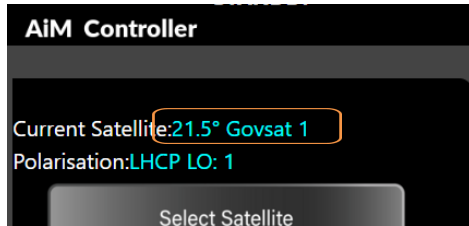


The **green** arrows will indicate the two-way communication between the control PC or AIU and the AIM STATION module.

They should be animated for two-way communication.

Current Satellite

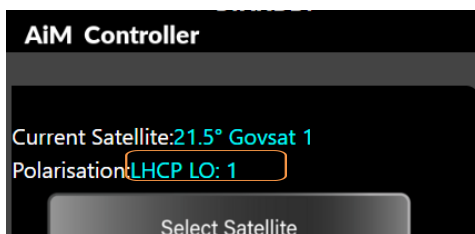
This will display the current satellite the AIM STATION has set as the target



NOTE: This if for indication only

Current POL and LO

This will display the current POLARISATION and LNB LO the AIM STATION has set for satellite data and LNB installation

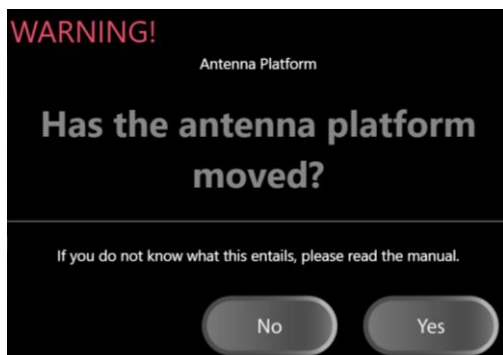


NOTE: This if for indication only

SELECT SATELLITE

The Select Satellite button will allow the user to access the satellite database and chose a desired satellite.

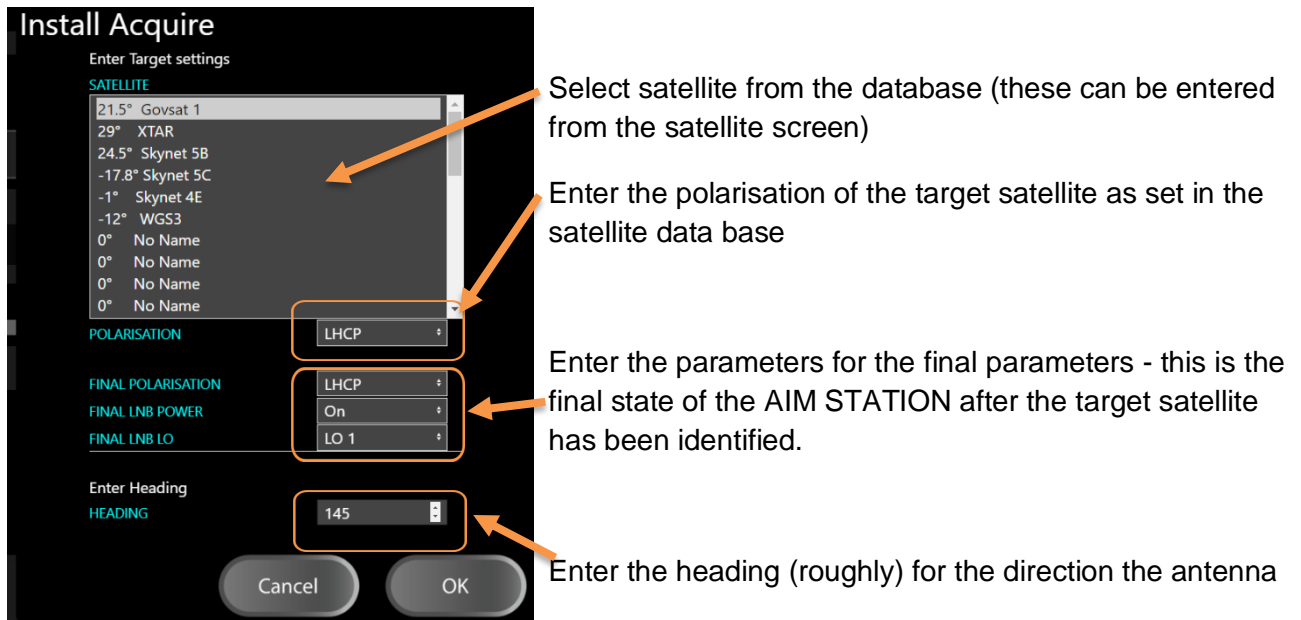
NOTE: after a power cycle the AIM STATION will prompt the user to question if the earth station has been moved. If YES, then an INSTALL ACQUIRE/INSTALL is required.



INSTALL ACQUIRE – This process is required every time the earth station is move. It will be used to calibrate the dives and allow for fast accurate moving between satellites.

If the earth station has moved press YES and the Install Acquire screen will appear

NOTE: for accurate heading for dish positioning you must acquire a GEO satellite before any inclined orbit satellite can be located.



Press OK

The Initial acquire process will now proceed with the progress being displayed in the progress status and the Holkirk OCTO-IDENT

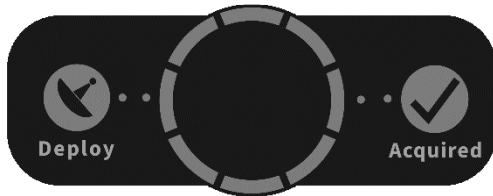
AIM OCTO IDENT

The AIM OCTO IDENT is a simple graphical indicator of the acquisition process.



Once the OK button has been pressed on the INITIAL ACQUIRE screen, the following process will take place

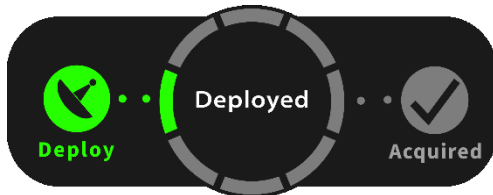
Stage 1 - DEPLOY



Standby – Antenna STOWED



Deploy icon will go orange, the antenna will automatically move into a pre-determined position ready to conduct INITIALISATION process



Antenna has successfully completed the Deploy stage

Stage 2 – INITILISATION

The AIM will automatically enter the Initialisation process.



1. Look up the satellite in TARGET data
2. Compare satellite with SATELLITE data
3. Read sensors, calculate EL for a clear skies measurement

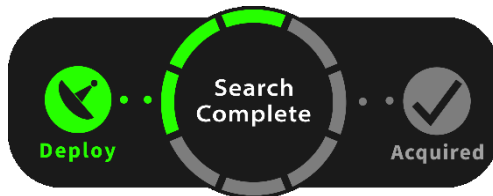


AIM has successfully Initialised

Stage 3 - SEARCH

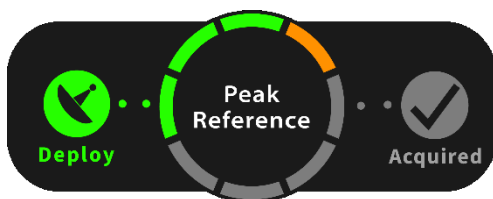


AIM will set the desired POL position and drive to the start of the search window for the satellite. The System will look for a LOCK from the set Search Source RF, Beacon – in SATELLITES>SATELLITE DATA)

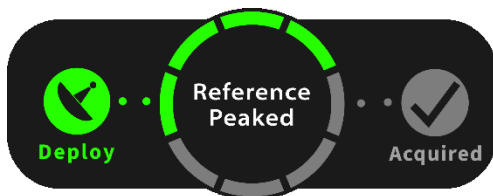


Once the lock has been detected the AIM will drive the antenna to the LOCK centre

Stage 4 - PEAK Reference

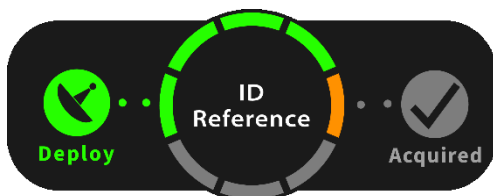


AIM will perform a peak on the reference satellite from the set Peak Source (RF, Beacon – in SATELLITES>SATELLITE DATA)



Once the AIM has peaked the signal on the reference satellite successfully.

Stage 5 - ID REFERENCE



The AIM will cross reference the satellite data base with the receive information and perform an ID (Frequency, Symbol Rate and POL – in SATELLITES>SATELLITE DATA)



Once the satellite data is confirmed.

Stage 6 – GOTO TARGET



Once the Reference has been successfully identified the AIM will calibrate the heading correction and move to the TARGET satellite as defined on TARGET page



Once AIM has moved to the TARGET satellite

Stage 7 – PEAK TARGET



AIM will perform a peak on the target satellite from the set Peak Source (RF, Beacon – in SATELLITES>SATELLITE DATA)



Once the AIM has peaked the signal on the target satellite successfully.

Stage 8 – ID TARGET



The AIM will cross reference the satellite data base with the receive information and perform an ID(Frequency, Symbol Rate and POL – in SATELLITES>SATELLITE DATA)



Once the satellite data is confirmed.

Stage 9 - ACQUIRED

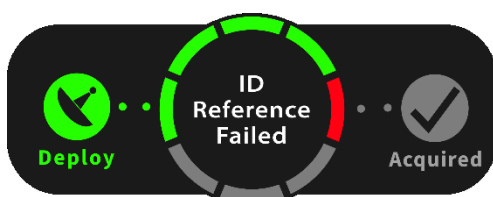
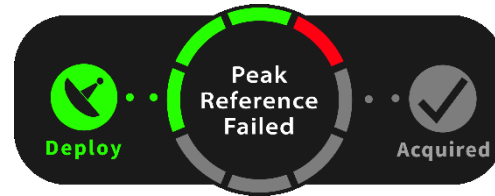
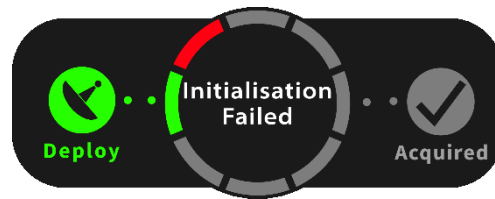
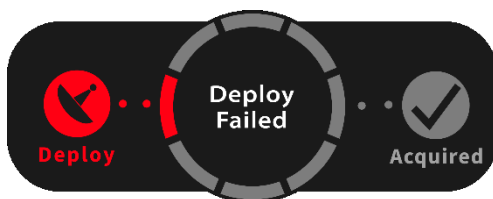


Once the TARGET is acquired then the AIM will set the final settings for POL and LNB from the TARGET page



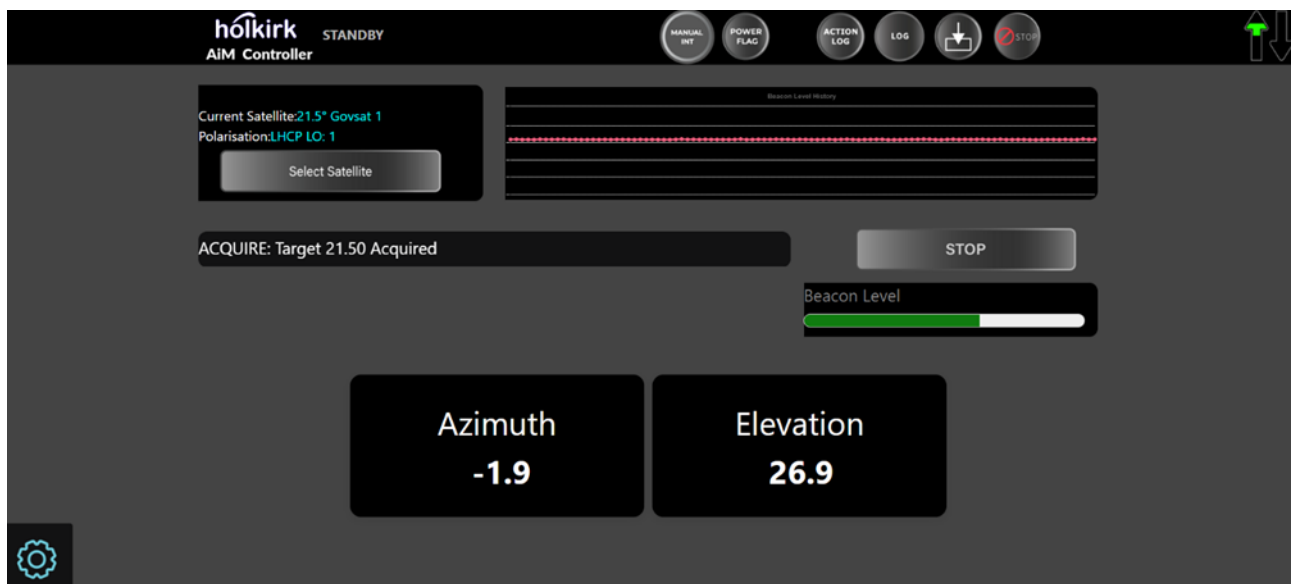
AIM has identified the TARGET satellite and set the desired POL and LNB

Common OCTO Ident failure messages



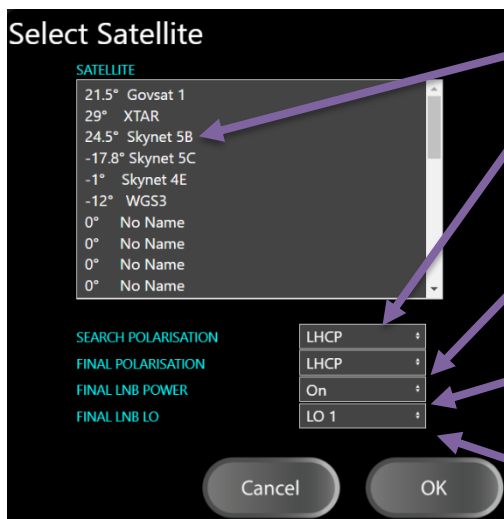


Once the TARGET satellite has been acquired the AIM STATION will return to the HOME screen



Select Satellite (earth-station not moved or after a INSTALL ACQUIRE)

Once the AIM STATION has successfully completed an INSTALL ACQUIRE the user can switch between any satellite in the database from the Select Satellite drop down menu



The satellite drop-down menu that is automatically populated from the satellite database

Search polarisation is the POL the AIM will use to search for the satellite and there must be satellite data for that pol in the satellite database

Final polarisation is the POL for your traffic, note this can be the same as the search.

Final LNB power will allow the user to switch off the volts derived from AIM and allow local modem control of the LNB

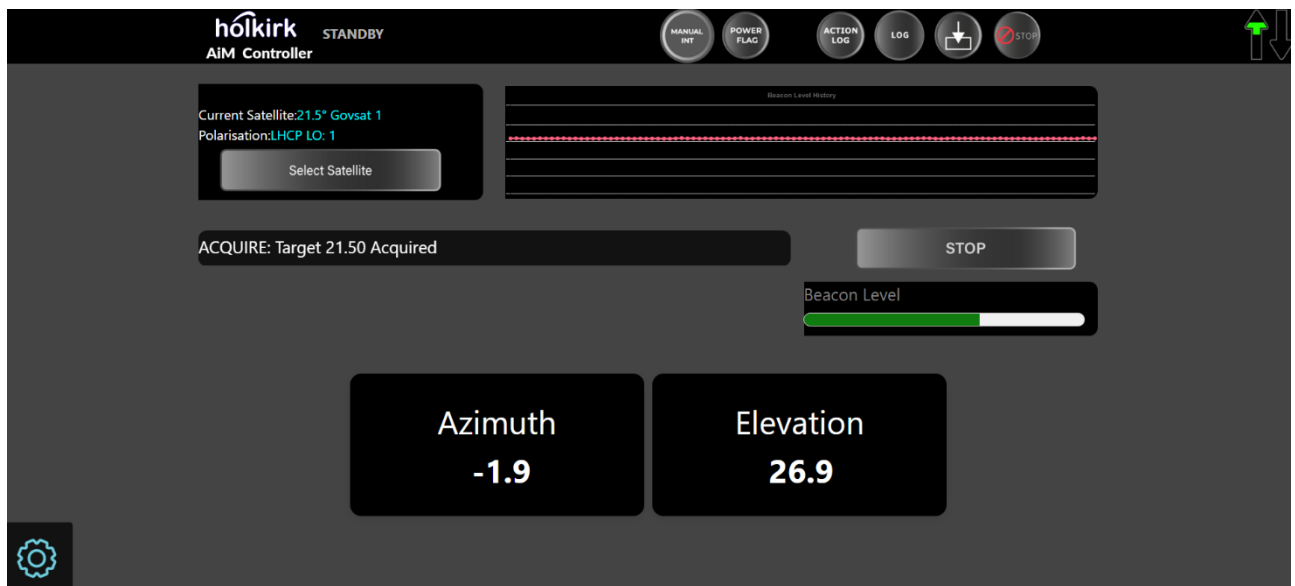
Final LNB will allow the user to select any of the 4 LO

from the Installation menu

Press OK to enter and start the search

The AIM will enter SATELLITE SEARCH mode and move to the desired satellite and peak

For Geostationary Orbit satellites the AIM STATION will calculate the coordinates of the satellite and drive to that position and then peak on the beacon level to give maximum signal strength.



Once the desired satellite has been located the AIM will enter STANDBY mode

For Inclined Orbit satellites the AIM STATION will perform a ‘toast rack’ search based on the theoretical box centre and the amount the satellite is inclined that is entered into the satellite data base (see Appendix A)

SEARCH TOASTRACK: Start Az:-12.38 El: 19.04 Pol:-18.20

The progress message will instruct the user the AIM STATION is performing a TOASTRACK search.

NOTE: the AIM STATION will complete a full toast rack search to mitigate for side lobe and false locks before returning to lock centre and peaking on the beacon and then perform the tracking process.


The Tracking process

0-24 hours The system will start to build a tracking table of the satellite position, during this time period the AIM-STATION will perform a STEP TRACK function to determine the optimum peak of the beacon level. During this time the system is learning and can not predict the path of the satellite.

24 hour plus The system will enter MEMORY track and does not need to receive the beacon level

Once a 24 hour period has expired the system can experience power outages and still predict the path of the satellite once power is restored.

PROGRESS LOG

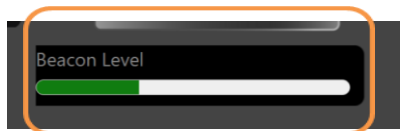


ACQUIRE: Target 13.00 Acquired

Log lozenge displays the status and progress log of the AIM as the acquisition process executes, it will also display any fault codes. The AIM incorporates a number of continuous integrity checks and system monitoring functions. If any of these fail at any time an alarm will be raised. The nature of the alarm will be shown in the progress log pane of the AIM and the OCTO-IDENT graphical indicator.

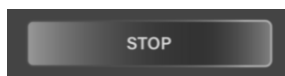
Receive power indicators

The RF level will give the Beacon Level will beacon signal strength



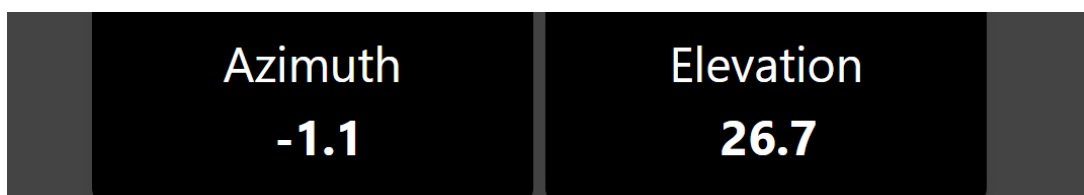
Home Screen STOP

This will stop any automated movements and return the system to STANDBY and indicate a Manual Intervention.



Antenna Mount Angles

This is a real time display of the antenna mount angles for AZ and EL



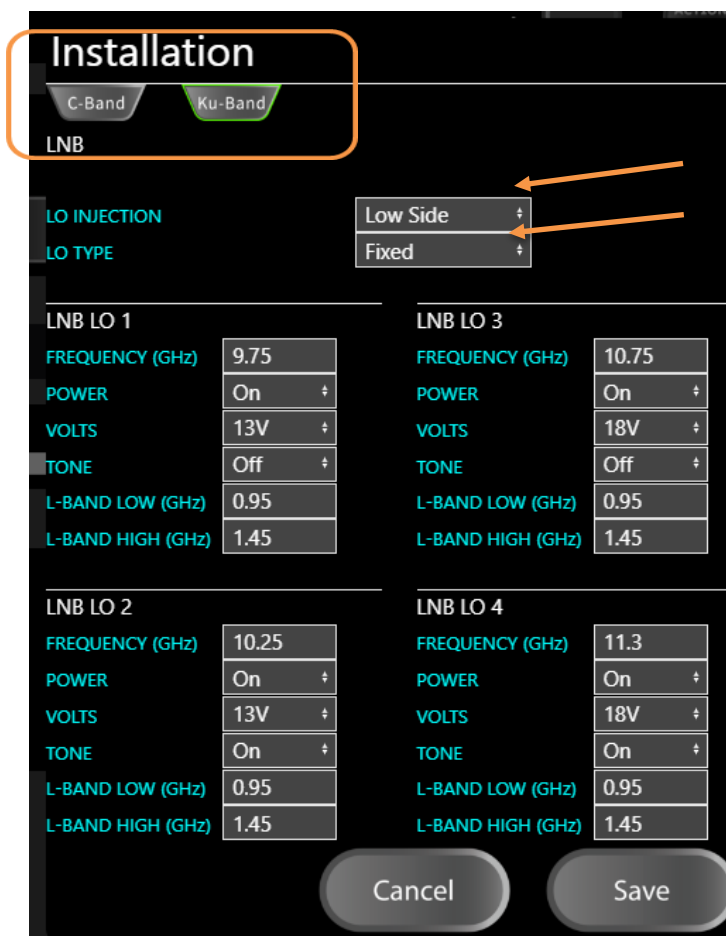
INSTALLATION

The Installation screen is used to set up the LNB parameters. The AIM STATION provides support for multiple LNB choices with both voltage and tone switching and can set high or low sided LO frequency.

AIM STATION allows you to configure four separate LNB Local oscillator set ups – LO1, LO2, LO3 and LO4.

For multi-band system you can set the LO for each frequency by clicking the frequency tab

Ku-Band



The screenshot shows the 'Installation' screen with the 'Ku-Band' tab selected. The 'LNB' section is highlighted with an orange box. Below it, the 'LO INJECTION' is set to 'Low Side' and 'LO TYPE' is set to 'Fixed'. There are four LNB LO configurations (LO 1, LO 2, LO 3, LO 4) with the following parameters:

LO	FREQUENCY (GHz)	POWER	VOLTS	TONE	L-BAND LOW (GHz)	L-BAND HIGH (GHz)
LNB LO 1	9.75	On	13V	Off	0.95	1.45
LNB LO 2	10.25	On	13V	On	0.95	1.45
LNB LO 3	10.75	On	18V	Off	0.95	1.45
LNB LO 4	11.3	On	18V	On	0.95	1.45

At the bottom, there are 'Cancel' and 'Save' buttons.

High or Low side LNB (Ku/C-Band)
Select Switchable or FIXED

LNB LO frequency
Power ON/OFF
Voltage 13V or 18V
22kHz ON or OFF
Start L-Band frequency
Stop L-Band frequency

Each of the 4 LO fields are configured with the LNB switching parameters

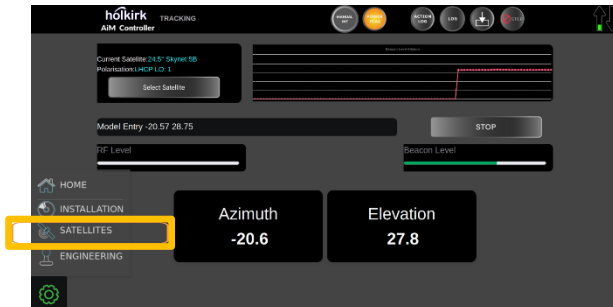
NOTE: press SAVE to confirm and save

NOTE: if you select LO TYPE FIXED then LO1 is used for all TARGET calculations

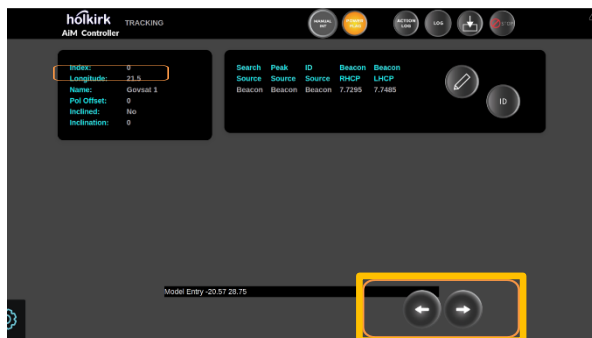
SATELLITES

To enter a satellite into the SATELLITE database you we need to follow the following steps

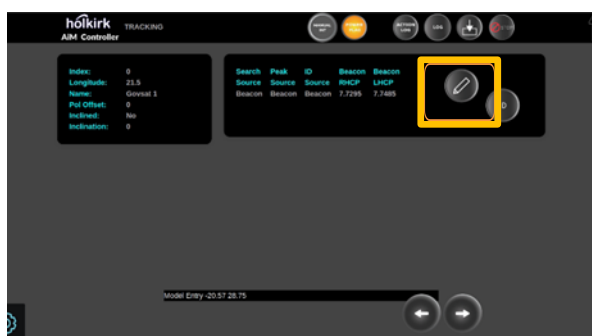
Step 1- Select SATELLITES from menu tree



Step 2 - Use INDEX arrows to move index to a clear slot



Step 3 - Press EDIT satellite



Step 4 – Enter orbital slot



A satellite orbital slot is essentially a designated position in space where a satellite is placed in orbit around the Earth. Think of it as a “parking spot” in the geostationary orbit, which is a circular orbit directly above the Earth’s equator. Here, satellites move at the same speed as the Earth’s rotation, allowing them to stay fixed over a particular point on the Earth’s surface.

When you are looking up the orbital slot for the satellite please note the number you enter into AIM STATION will be POSITIVE (+) is EAST and NEGATIVE (-) is WEST

as a example: Eutelsat 33 is at 33° EAST so it is entered into AIM STATION as **33**.

36.0°E	Express AMU1 (Eutelsat 36C)	Ku	240530	4.9°E	SES 5	CKu	240521
	Eutelsat 36B	Ku	240530		Astra 4A	Ku	240530
33.0°E	Eutelsat 33F	Ku	240527	3.0°E	Eutelsat 3B	CKu	240518
	Intelsat 28	Ku	231019		Rascom QAF 1R	CKu	240516
31.0°E	Türksat 5A	Ku	240525	1.9°E	BulgariaSat 1	Ku	240523

From online satellite information sites like <https://www.lyngsat.com/europe.html>

If the satellite was at say 18° WEST then the orbital slot entered into AIM STATION will be **-18**

14.0°W	Express AM8	CKu	240510	58.0°W	Intelsat 21	CKu	240505
15.0°W	Telstar 12 Vantage	Ku	240519		Amazonas 2	Ku	240516
18.0°W	Intelsat 37e	CKu	240427	61.0°W	Amazonas 3	CKu	240226
22.0°W	SES 4	CKu	240519		Amazonas 5	Ku	240522

From online satellite information sites like <https://www.lyngsat.com/europe.html>

Step 5 - Satellite NAME



This is a free field, and you can enter any characters. It is best practice to keep the same naming convention as the satellite operators

Step 7 - POL off set (Linear only)



The screenshot shows the 'Edit Satellite' form with the following fields:

- LONGITUDE: 21.5
- NAME: Govsat 1
- POLARISATION OFFSET: 0** (highlighted with a yellow box)
- INCLINED: No
- INCLINATION: 0
- SEARCH SOURCE: Beacon
- PEAK SOURCE: Beacon
- ID SOURCE: Beacon
- BEACON LHCP (GHz): 7.7485
- BEACON RHCP (GHz): 7.7295

Some satellites are intentionally positioned with a slight offset in their polarization to minimize polarization adjustment required in the central region of their coverage area and reduce cross-polarization interference during rain.

Step 8 – Inclined Orbit selection



The screenshot shows the 'Edit Satellite' form with the following fields:

- LONGITUDE: 21.5
- NAME: Govsat 1
- POLARISATION OFFSET: 0
- INCLINED: No**
- INCLINATION: 0
- SEARCH SOURCE: Beacon
- PEAK SOURCE: Beacon
- ID SOURCE: Beacon
- BEACON LHCP (GHz): 7.7485
- BEACON RHCP (GHz): 7.7295

If the satellite orbit is inclined you can set the TAG to YES if the orbit is GEO then set to NO.

Step 9 – Inclined Orbit inclination



The screenshot shows the 'Edit Satellite' form with the following fields:

- LONGITUDE: 21.5
- NAME: Govsat 1
- POLARISATION OFFSET: 0
- INCLINED: No
- INCLINATION: 0** (highlighted with a yellow box)
- SEARCH SOURCE: Beacon
- PEAK SOURCE: Beacon
- ID SOURCE: Beacon
- BEACON LHCP (GHz): 7.7485
- BEACON RHCP (GHz): 7.7295

Set the level of satellite inclination of the satellite orbit in degrees (°)

Step 10 – Satellite source



The screenshot shows the 'Edit Satellite' form with the following fields:

- LONGITUDE: 21.5
- NAME: Govsat 1
- POLARISATION OFFSET: 0
- INCLINED: No
- INCLINATION: 0
- SEARCH SOURCE: Beacon** (highlighted with a yellow box)
- PEAK SOURCE: Beacon** (highlighted with a yellow box)
- ID SOURCE: Beacon** (highlighted with a yellow box)
- BEACON LHCP (GHz): 7.7485
- BEACON RHCP (GHz): 7.7295

Search, PEAK and ID source must be set to BEACON

Step 11 – Satellite source



Enter the beacon frequencies for the satellite beacon

NOTE: make sure you have LHCP and RHCP correct for the terminal NOT the teleport earth station

Press SAVE

ENGINEERING

The engineering screen is used to set up and commission the AIM STATION.



- 1 Angle readout or the position of the antenna
- 2 JOG direction buttons
- 3 JOG speed buttons
- 4 Engineering features action buttons
- 5 Beacon signal strength meter
- 6 Status/Information bar

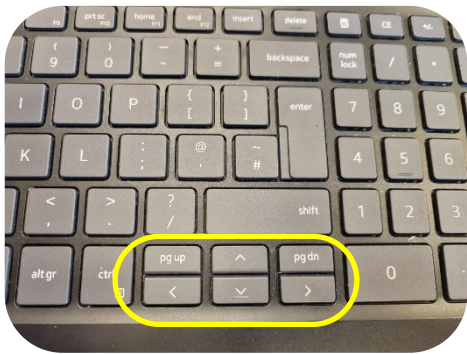
NOTE: there are some system performance changing commands in the commissioning menu so care must be taken.

1. Antenna angle read out – real-time read out for the antenna angles

2. JOG direction buttons

The AIM has a JOG function to move the antenna in all axes. Either use the mouse or touch screen to action a movement in AZIMUTH, ELEVATION or POLARISATION.

The buttons are latched so you will need to press for ON/MOVE and the click to stop



Also if a keyboard is attached to the the AIM controller then the UP, DOWN, LEFT, RIGHT keys can be used to control the antenna.

NOTE: only in ENGINEERING screen

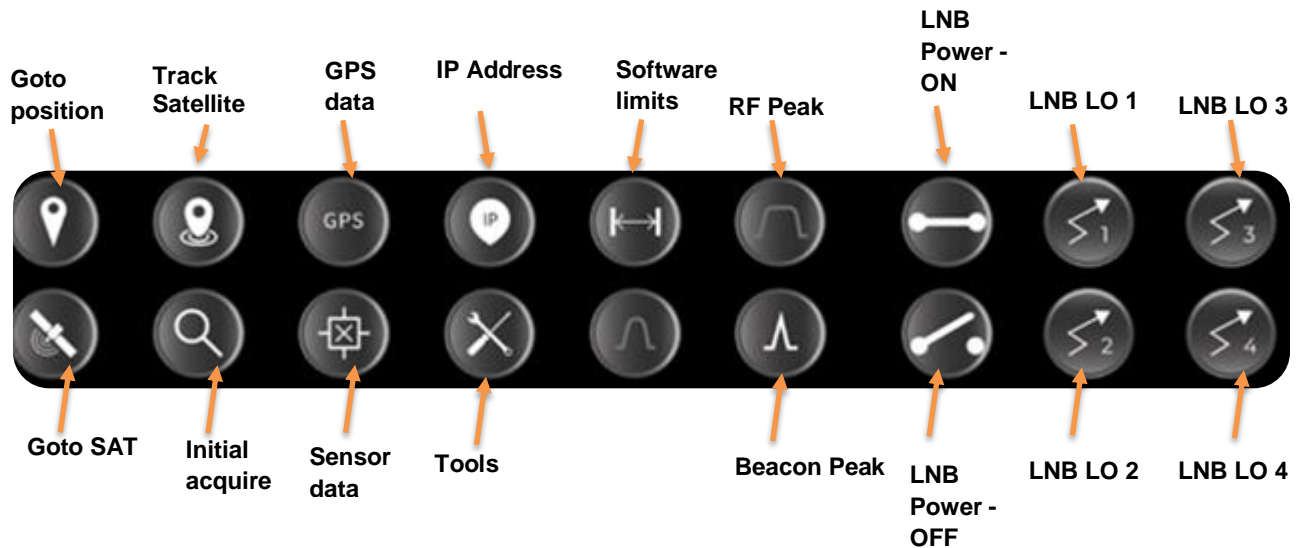
3. SPEED JOG FUNCTION

There is a FAST / SLOW function to increase / decrease motion speed. Click the speed indication button (FAST/SLOW) the speed function will be identified in RED

When the NUDGE feature is selected the activation of the JOG buttons will command a timed movement that will equate to approx. 0.1° of angular movement

4. Engineering Features

NOTE: there are some system performance changing commands in the commissioning menu so care must be taken.



GOTO Position Allows the user to enter an azimuth, elevation and POL position

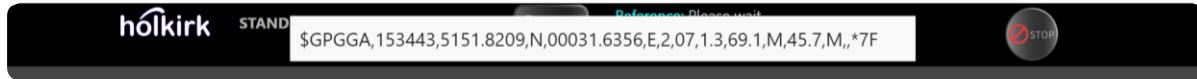


Press OK to enter data into AIM STATION

Track Satellite Once you have completed an INTALL ACQUIRE this will allow you to STEP -TRACK any satellite

GPS DATA

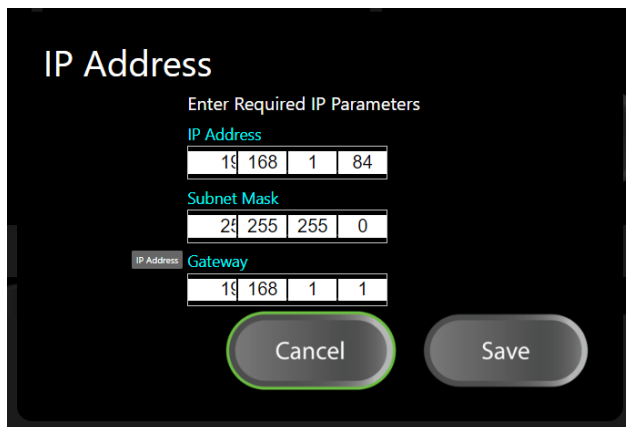
Displays the GPS information directly from GPS module



NOTE: the GPS data will appear in a separate information window and stay on the screen for a few seconds. Multiple presses will load multiple windows

IP Address

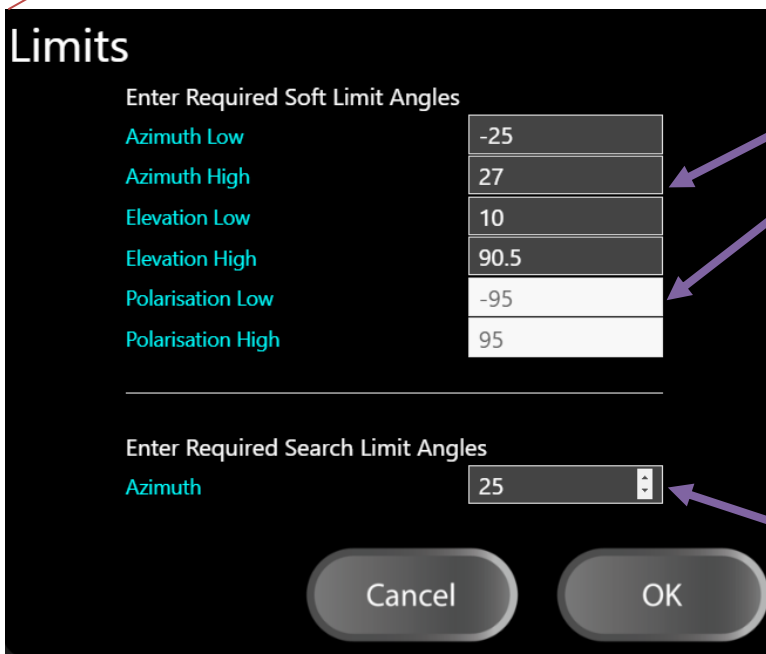
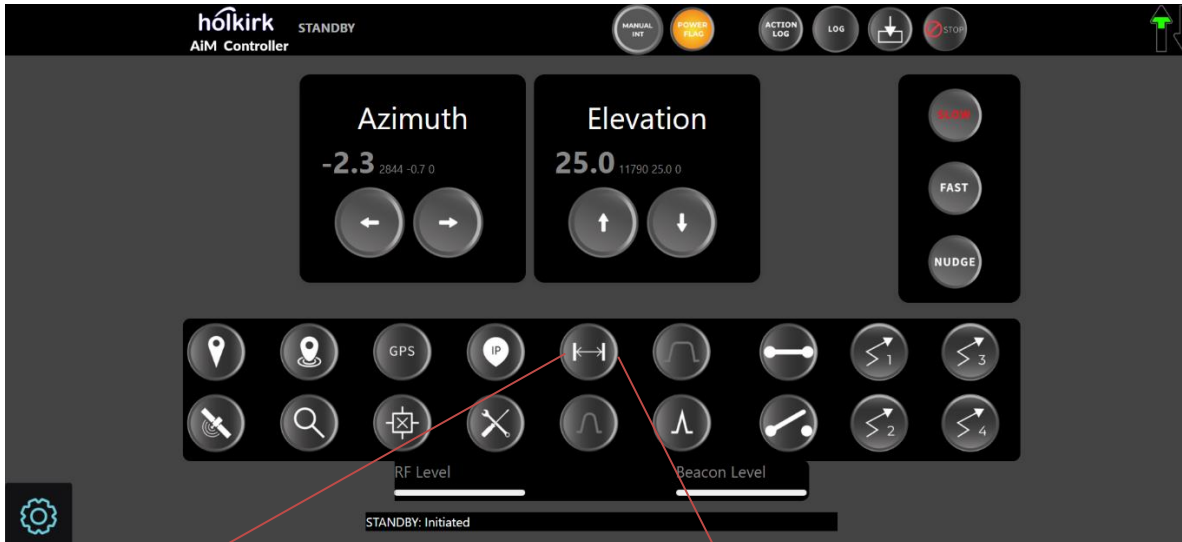
This will allow you to change the settable IP address of the AIM ASSIST unit and the BUC (for internal communications)



LIMITS

The user can select soft limit extends that will constrain the movement. This is very useful if the station have physical environmental limits that could obstruct the antenna movement

In case of obstructions and travel limitations the AIM STATION ACU will allow you to set soft limits for the Azimuth and Elevation.



Extent limits can be set for Azimuth and Elevation

NOTE for X-Band there is no motorised POL

There is a search angle limit that can be set.

This will set the search angle from the heading entered into the INSTALL ACQUIRE initial setting

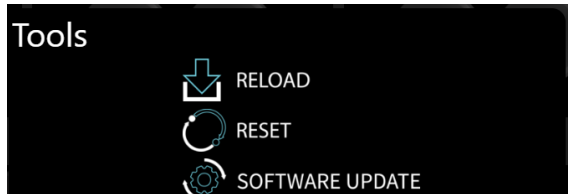
This will be +/- 25° from the inputted heading on the INSTALL ACQUIRE screen (page 11)

BEACON PEAK

This will perform a peak using the beacon level as a source

TOOLS

The TOOLS screen will allow the user to perform three system tasks.

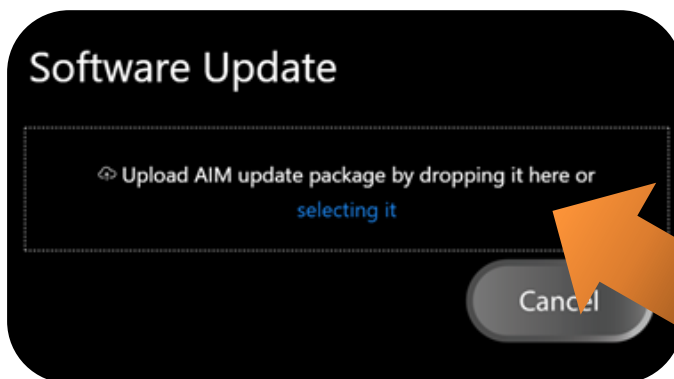


RELOAD – will reload any factory/system changes made to the AIM system.

RESET – will commands a soft re-boot of the AIM system.

SOFTWARE UPDATE

For updating the software installed on the AIM board

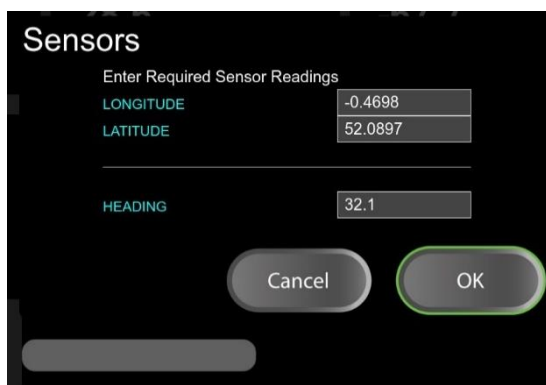


Either drag and drop the file into the box or browse to the file location. file will be .tgz e.g. AIM V3.4.22.tgz After the file is selected the system will upload & reboot, this could take up to minute



SENSOR DATA

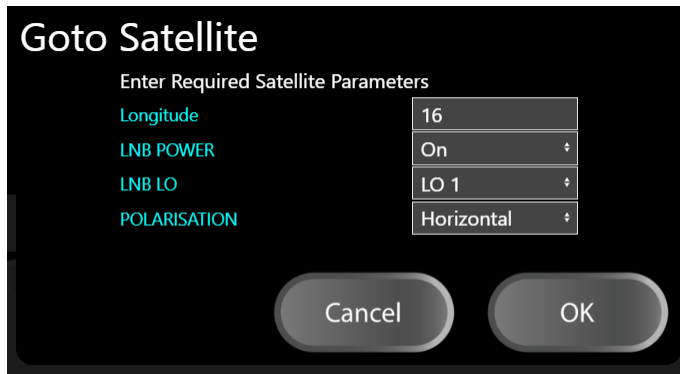
Allows the user to enter the instrument data directly.



In the case of instrument failure or spoofing from external influence you can enter the LAT LONG and heading directly into the AIM ASSIST.

Press OK to enter the readings into AIM

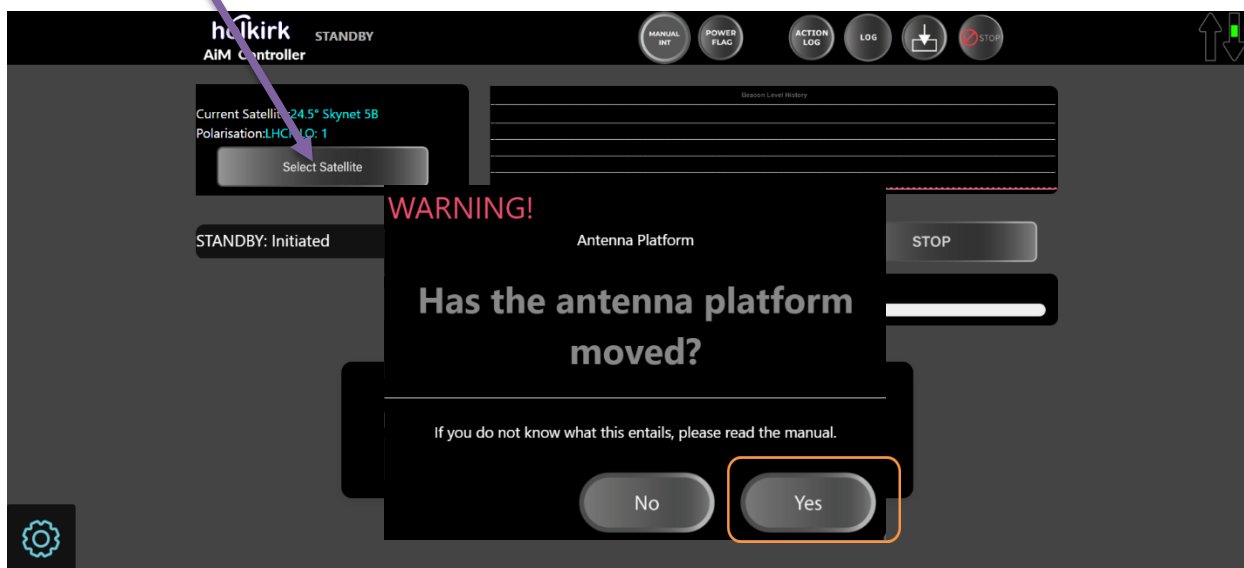
GOTO SAT



will allow the user to enter an orbital slot for a satellite even if this is not in the satellite database. AIM will move the antenna to the correct position for that orbital slot and peak on broadband RF

INITIAL ACQUIRE – will instigate the INITISAL Acquire process

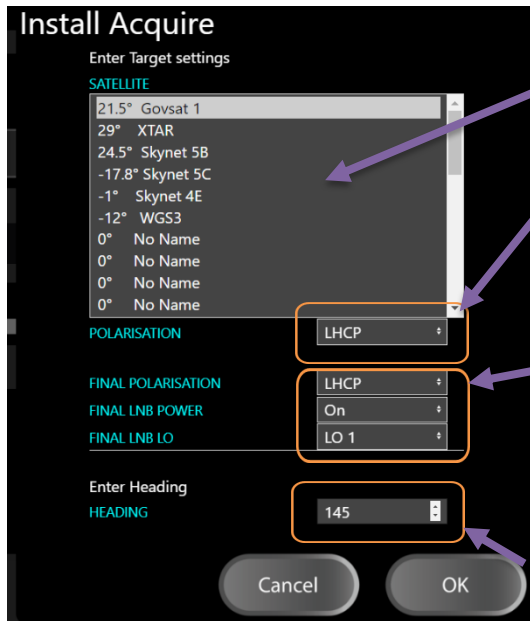
The Select Satellite button will allow the user to access the satellite database and chose a desired satellite.



NOTE: For the initial install or after a power cycle the AIM STATION will prompt the user to question if the earth station has been moved. If YES, then an INSTALL ACQUIRE/INSTALL is required.

INSTALL ACQUIRE – This process is required for the initial install.

If the earth station has moved press YES and the Install Acquire screen will appear



Select satellite from the database (these can be entered from the satellite screen)

Enter the polarisation of the desired target satellite as set in the satellite data base **NOTE there must be data in the database**

Enter the parameters for the final parameters - this is the final state of the AIM STATION after the target satellite has been identified.

For X-Band this will be the same as the TARGET satellite

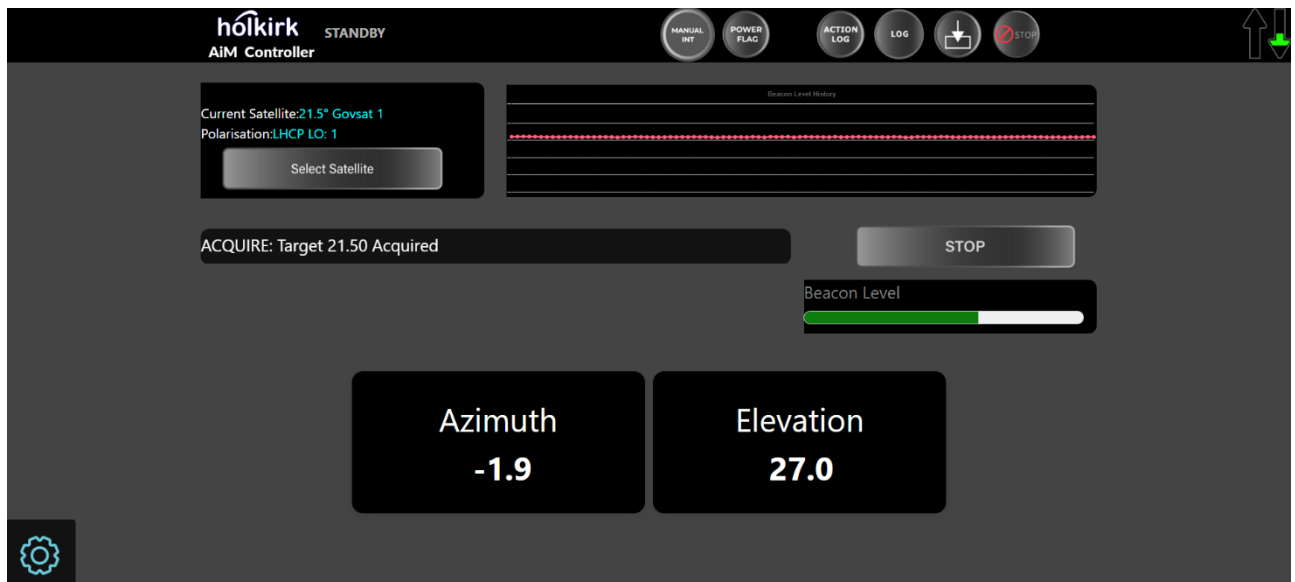
Enter the heading (roughly) for the direction the antenna is facing.

The satellite must be within the search limit angle set in the LIMITS screen (page 29)

Press OK

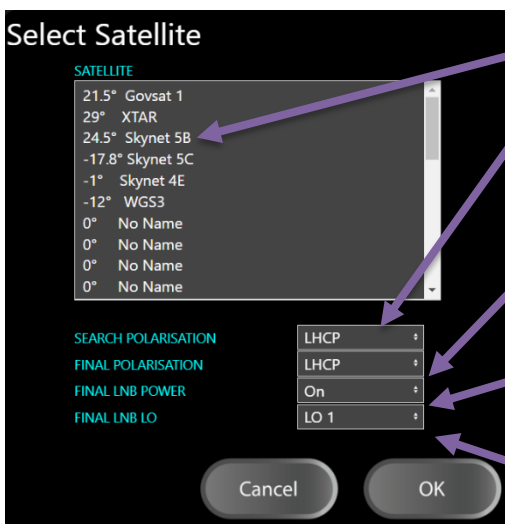
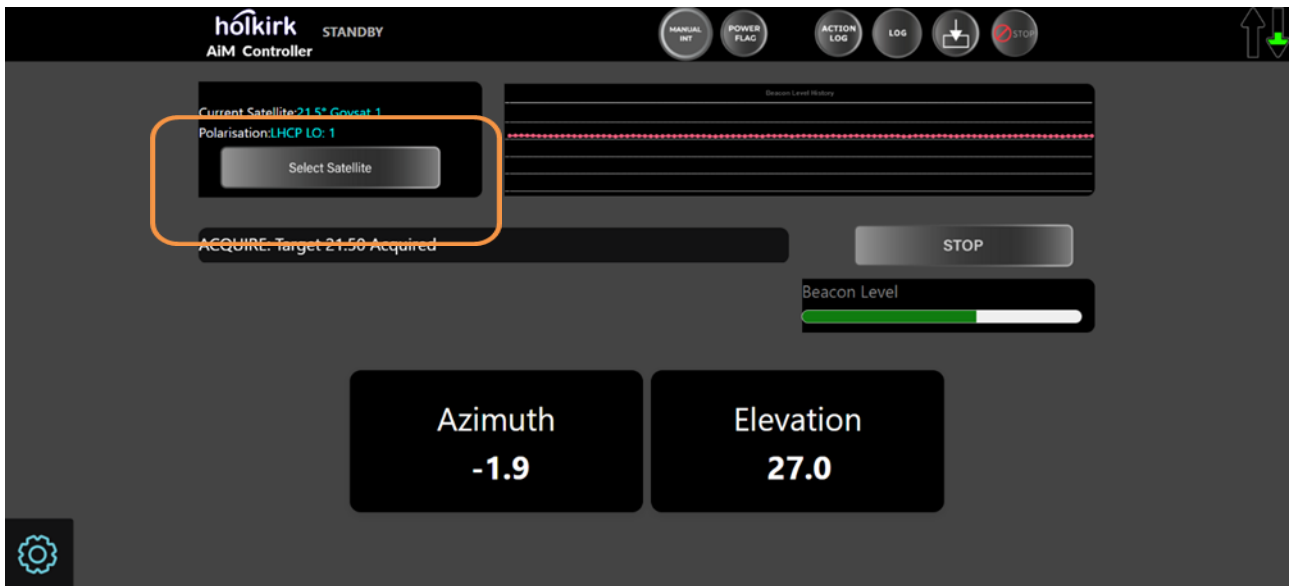
The Initial acquire process will now proceed with the progress being displayed in the progress

Once the TARGET satellite has been acquired the AIM STATION will return to the HOME screen



Select Satellite (earth-station not moved)

Once the AIM STATION has successfully completed an INSTALL ACQUIRE the user can switch between any satellite in the database from the Select Satellite drop down menu



The satellite drop-down menu that is automatically populated from the satellite database

Search polarisation is the POL the AIM will use to search for the satellite and there must be satellite data for that pol in the satellite database

Final polarisation is the POL for your traffic, note this can be the same as the search.

Final LNB power will allow the user to switch off the volts derived from AIM and allow local modem control of the LNB

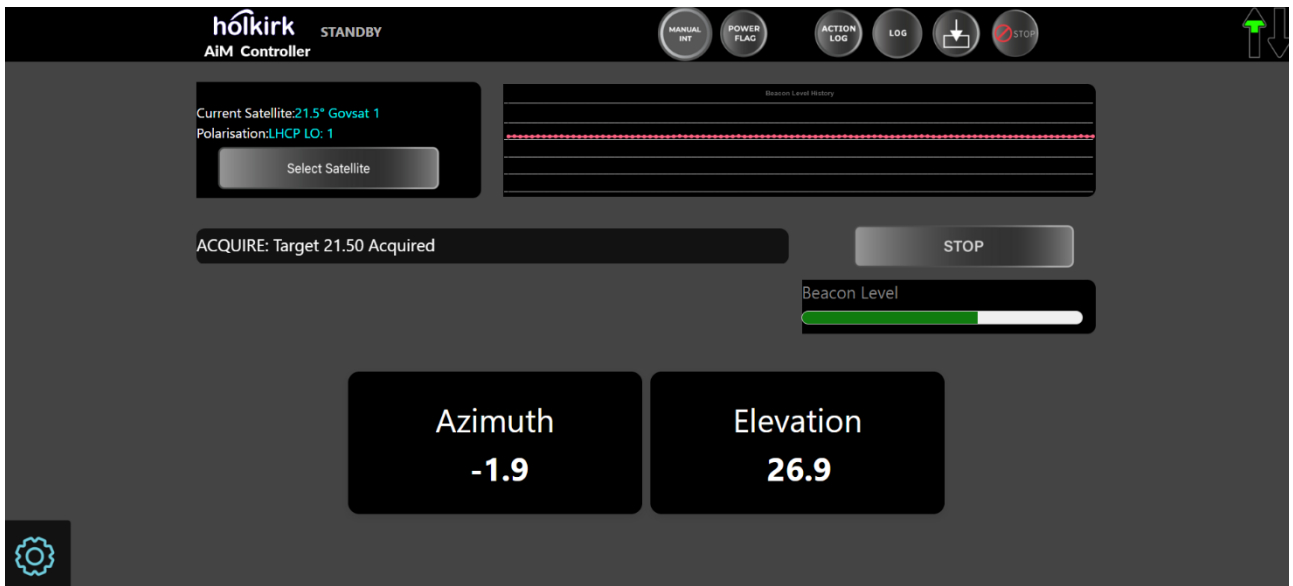
Final LNB will allow the user to select any of the 4 LO

from the Installation menu

Press OK to enter and start the search

The AIM will enter SATELLITE SEARCH mode and move to the desired satellite and peak

For Geostationary Orbit satellites the AIM STATION will calculate the coordinates of the satellite and drive to that position and then peak on the beacon level to give maximum signal strength.



Once the desired satellite has been located the AIM will enter STANDBY mode

LNB control – power

These icons will switch the voltage to the LNB ON/OFF



LNB POWER ON

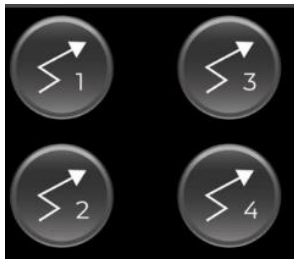
Turns on the voltage to the LNB

LNB POWER OFF

Turns off the voltage to the LNB

LNB control – Select LO

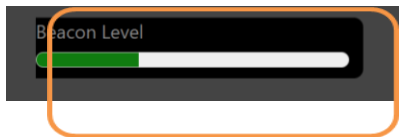
The LNB LO can be selected with the corresponding icons 1,2,3,4



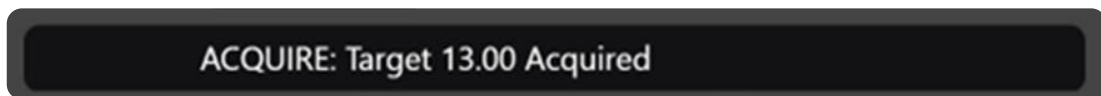
- LNB LO1 Selects the LO1 frequency set in the INSTALLATION menu
- LNB LO2 Selects the LO2 frequency set in the INSTALLATION menu
- LNB LO3 Selects the LO3 frequency set in the INSTALLATION menu
- LNB LO4 Selects the LO4 frequency set in the INSTALLATION menu

5. Signal strength read-out

The RF level will give the Beacon Level will beacon signal strength



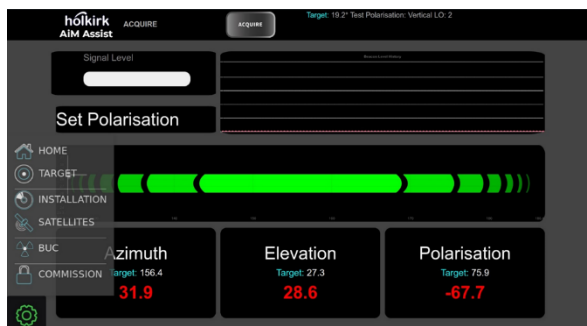
6. Status bar



Log lozenge displays the status and progress log of the AIM as the acquisition process executes, it will also display any fault codes. The AIM incorporates a number of continuous integrity checks and system monitoring functions. If any of these fail at any time an alarm will be raised.

Appendix A – Adding a satellite into satellite database

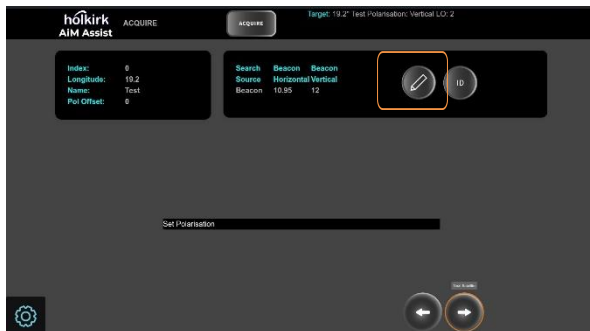
Step 1- Select SATELLITES from menu tree



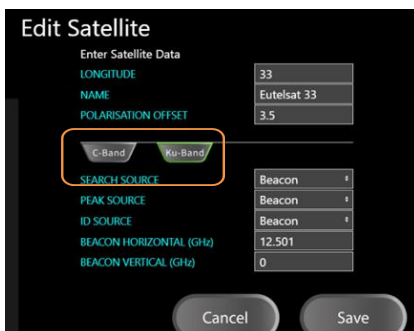
Step 2 - Use INDEX arrows to move index to a clear slot



Step 3 - Press EDIT satellite

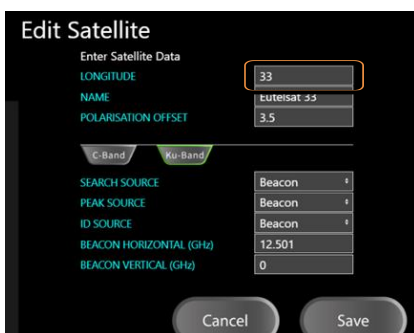


Step 4 - Enter satellite data



If AIM STATION is in multi-band mode then select the frequency band

Step 5 – Enter orbital slot



A satellite orbital slot is essentially a designated position in space where a satellite is placed in orbit around the Earth. Think of it as a “parking spot” in the geostationary orbit, which is a circular orbit directly above the Earth’s equator. Here, satellites move at the same speed as the Earth’s rotation, allowing them to stay fixed over a particular point on the Earth’s surface.

When you are looking up the orbital slot for the satellite please note the number you enter into AIM STATION will be POSITIVE (+) is EAST and NEGATIVE (-) is WEST

as a example: Eutelsat 33 is at 33° EAST so it is entered into AIM STATION as 33.

36.0°E	Express AMU1 (Eutelsat 36C)	Ku	240530	4.9°E	SES 5	CKu	240521
	Eutelsat 36B	Ku	240530		Astra 4A	Ku	240530
33.0°E	Eutelsat 33F	Ku	240527	3.0°E	Eutelsat 3B	CKu	240518
	Intelsat 28	Ku	231019		Rascom QAF 1R	CKu	240516
31.0°E	Türksat 5A	Ku	240525	1.9°E	BulgariaSat 1	Ku	240523

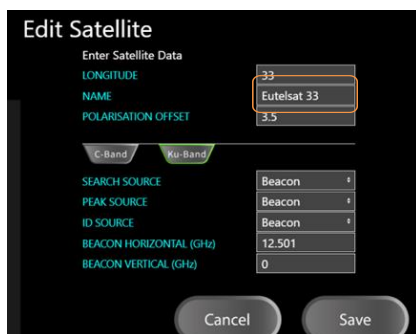
From online satellite information sites like <https://www.lyngsat.com/europe.html>

If the satellite was at say 18° WEST then the orbital slot entered into AIM STATION will be -18

14.0°W	Express AM8	CKu	240510	58.0°W	Intelsat 21	CKu	240505
15.0°W	Telstar 12 Vantage	Ku	240519		Amazonas 2	Ku	240516
18.0°W	Intelsat 37e	CKu	240427	61.0°W	Amazonas 3	CKu	240226
22.0°W	SES 4	CKu	240519		Amazonas 5	Ku	240522

From online satellite information sites like <https://www.lyngsat.com/europe.html>

Step 6 - Satellite NAME



This is a free field and you can enter any characters. It is best practice to keep the same naming convention as the satellite operators

Step 7 - POL off set (Linear only)



Some satellites are intentionally positioned with a slight offset in their polarization to minimize polarization adjustment required in the central region of their coverage area and reduce cross-polarization interference during rain.

If there is a known off set, you can enter the value into AIM STATION and any adjustments will be made from the calculated readings to the POL position

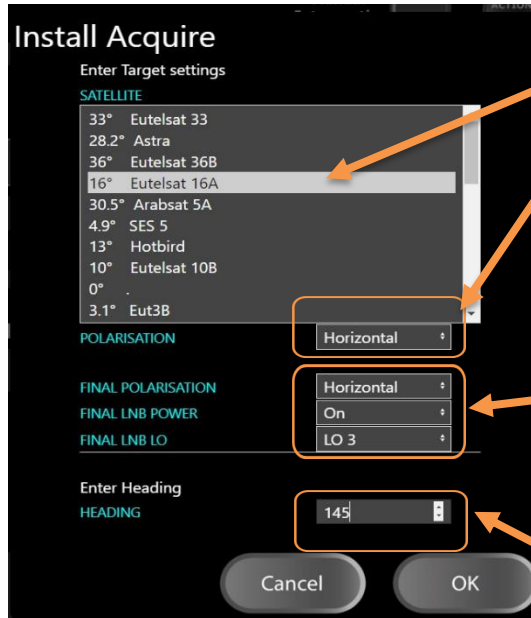
Search Source used for the initial search
Beacon Frequency (H)
Beacon Frequency (V)

Press SAVE

Appendix B Initial acquire and satellite search rational

After a power cycle, if the earth station is in a new location or the earth station has been moved from the last initial acquire then the auto-pointing process will need to be repeated. (see page 47)

The satellite drop-down menu is automatically populated from the satellite database




Select satellite from the database (these can be entered from the satellite screen)

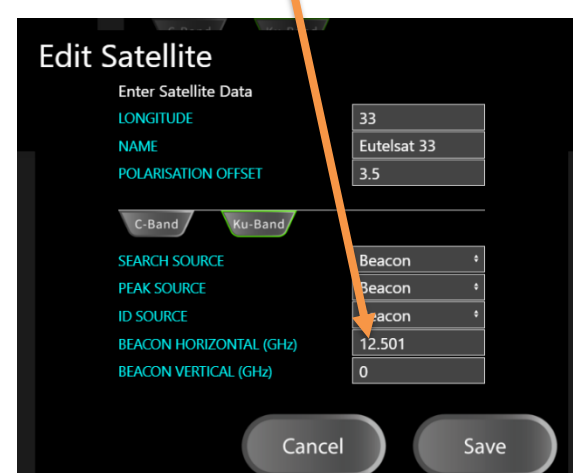
Enter the polarisation of the target satellite as set in the satellite data base

Enter the parameters for the final parameters - this is what the AIM STATION will set to after the install satellite is identified.

Enter the heading (roughly) for the direction the antenna



NOTE: in this example the search POL is set to Horizontal

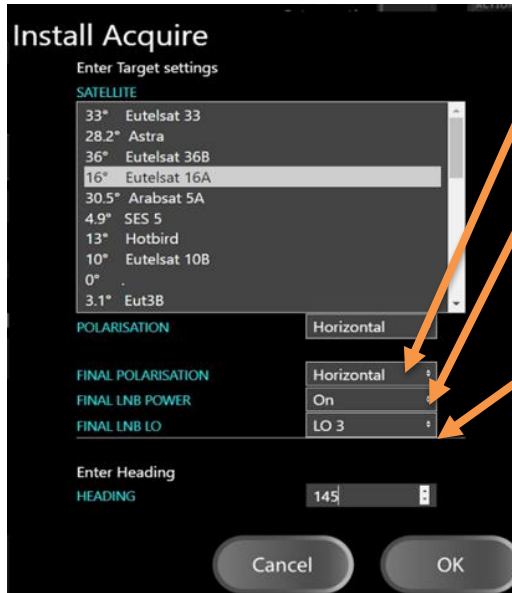


NOTE: the beacon frequency is for a Horizontal beacon

The satellite selected must have a current active beacon that can be received in the GEO location of the earth station in the satellite database. (see page 60)

AIM STATION will automatically calculate the optimum LO for the LNB and perform the search.

AIM STATION has the ability to change the final LNB and POL parameters for your traffic after the install satellite has been identified.



Final polarisation is the POL for your traffic, note this can be the same as the search.

Final LNB power will allow the user to switch off the volts derived from AIM and allow local modem control of the LNB

Final LNB will allow the user to select any of the 4 LO from the Installation menu. This will allow the user to search on one Rx frequency for the beacon and receive the traffic on a different LO frequency

NOTE the beacon level will disappear from the home screen if the Final LNB LO or POL is different to the search LNB LO or POL

Press OK to enter