



FA-100 Antenna

COMPACT AND LIGHTWEIGHT, RAPID DEPLOY, MANPACK TERMINAL

Features

- Available in X, Ku & Ka bands
- Embedded or external modem
- Full auto acquired one button operation
- Robust carry case with backpack option
- SkyNet certified
- MIL-STD-810G compliant
- AC or DC powered
- Flyaway antennas available from 0.23m to 3.7m diameter

Overview

The FA-100 is a fully automated integrated satellite terminal providing the user with high capacity bandwidth in a simple to use simultaneous 3-axis motorised VSAT terminal.

The all carbon fibre construction FA-100 terminal meets today's most stringent Size, Weight and Power (SWaP) requirements.

Ultra's terminals are specially designed for use in high-pressure environments, where reliable access to secure communications is critical to protecting the safety of soldiers and assets as they carry out their missions.

Specifically designed for worldwide operations where mobility and rapid deployment are essential. The rugged FA-100 can be effortlessly deployed with a one-button operation that means the user can be on-air in minutes, in the harshest of environments, ensuring the operator has easy access to communications without impacting their ability to carry out their mission.

The terminal is designed to be modem agnostic, accommodating a range of integrated options including, but not limited to: iDirect e150mp, iDirect e850mp, iDirect 950mp, iDirect iQ200, Comtech DMD1050, Paradise Q-Lite, Viasat CBM-100.

Users can also bypass or omit an internal modem and connect an external modem using the L-band interfaces.

Constructed from high strength carbon fibre, the FA-100 is lightweight and easily transportable whilst still maintaining its ability to withstand the rigours of multiple deployments in challenging environments. Requiring minimal in-field operational training, the terminal has been designed to deliver maximum connectivity without placing undue strain on operations, logistics and users.

A number of packaging options are available depending upon customer requirements, and the terminal has the option to be placed into a 'Stealth' mode whereby speed of acquisition is traded off with motor noise, thus making the terminal almost silent in operation, whilst still acquiring the satellite in minutes.

Technical Specification

General	
Antenna Type	Parabolic (Segmented), centre fed
Diameter	1.0m
Polarisation	Linear Orthogonal for Ku-band, optional for Ka-band RHCP, switchable to LHCP, for X-band and Ka-band

Transmit		
Transmit Bands	FA-100/70 FA-100/140 FA-100/300	7.9 to 8.4GHz 13.75 to 14.5GHz 27.5 to 31GHz
Transmit Gain	FA-100/70 FA-100/140 FA-100/300	36.4dBi 41.2dBi 47.7dBi
Transmit EIRP (PSat)	FA-100/70 FA-100/140 FA-100/300	52.9dBW (50W BUC) 58.0dBW (55W BUC) 61.1dBW (25W BUC)
Transmit EIRP (PLin)	FA-100/70 FA-100/140 FA-100/300	50.9dBW (50W BUC) 56.0dBW (55W BUC) 59.1dBW (25W BUC)
Higher EIRPs are possible using larger BUC and external power supply		

Receive		
Receive Bands	FA-100/70 FA-100/140 FA-100/300	7.25 to 7.75GHz 10.7 to 12.75GHz 18.7 to 21.2GHz
Receive G/T	FA-100/70 FA-100/140 FA-100/300	15.2dB/K 18.6dB/K 21.1dB/K
Receive Gain	FA-100/70 FA-100/140 FA-100/300	35.7dBi 39.5dBi 44.3dBi

Interfaces	
DC Power Input (11 to 36V)	4 pin chassis plug (TVP00ZN-15-04PN)
RJ45 Ethernet (Data)	RJ45 Socket (RJFTV72N00)
RJ45 Ethernet (Management Port)	RJ45 Socket (RJFTV72N00)
L-band Monitor	N-Type Socket
L-band BUC Input	N-Type Socket

Power	
Power Requirement	90 to 264V AC Power Supply +24VDC 'Hot swappable' MIL batteries (option)
Power Consumption	100W to 280W

Environmental	
Temperature	-40 to +70°C - Transportation & Storage -40 to +55°C - Operational
Humidity	1 to 100%
Wind Rating	Operational: • 50km/h with gusts to 72km/h Survival: • 100km/h (stowed)
Altitude	3,000m @ -10°C

Physical	
Packed Size	0.70 x 0.40 x 0.37m Size above is for a baseline configuration
Weight	19kgs Weight above is for a baseline configuration
Packaging	Any packaging is possible: • Hard case • Semi-hard case • Rucksacks



Multiple FA-100's



FA-180 Antenna

A 1.8m FLYAWAY ANTENNA FOR MULTI-BAND TRANSMISSIONS

Features

- Assembles in less than 10 minutes
- No tools required
- Only 2 cases <90kgs
- Multi-band feeds changed in minutes
- Intelsat/Eutelsat compliant for commercial bands
- SkyNet and MIL-STD-810G certified
- Complete, integrated system available
- Flyaway antennas available from 0.23m to 3.7m diameter

Overview

The FA-180 is designed specifically for any application requiring a compact, rugged, multi-band antenna which is rapidly deployable with no tools.

It includes a multi segmented carbon fibre honeycomb reflector, ensuring light weight and maximum strength with no deformation, even after being re-assembled hundreds of times.

The axially symmetric design with prime focus feed was chosen because of its overall compact dimensions which make the packed size of the antenna smaller than any other comparable product of similar gain.

It also means that unlike, offset fed designs, each antenna petal is identical allowing simple replacement in case of damage.

The FA-180 has a unique multi-band feed arm allowing a change of frequency band in a matter of seconds simply by swapping out a quick release feed cartridge. Termination of transmit waveguide and receive coax is in a safe position at the back of the reflector.

Intelsat/Eutelsat compliance is guaranteed, including side lobe performance better than 29-25 log θ .

Features fully adjustable, wide spreading legs for high stability on any terrain.

The FA-180 can be fully motorised and when combined with Ultra's GigaSat STC-100 antenna controller it can automatically acquire and track, even on inclined orbit satellites.

For transportation the FA-180 packs into its own mount which splits into two conveniently sized flight cases. There are no other cases required.

Technical Specification

General	
Antenna Type	Circular, axially symmetric with centre hub plus eight petals
Diameter	1.8m
Configuration	Prime Focus
Polarisation	Linear Orthogonal transmit & receive. (Optimal circular left & right)
Cross Polarisation	-35dB within the -1dB co-polar contour (linear)
Port-to-Port Isolation	90dB typical (with TRF)

Transmit		
Transmit Bands	FA-180/60 FA-180/70 FA-180/140 FA-180/180 FA-180/300	5.85 to 7.025GHz 7.9 to 8.4GHz 12.75 to 14.5GHz 17.3 to 18.4GHz 27.5 to 31GHz
3dB Beamwidth	<2.0° at 5.85GHz	
Transmit Power	1.5kW max.	
Off Axis Transmit Gain	<29-25 log θ dBi	
VSWR	1.3:1	
Transmit Gain	FA-180/60 FA-180/70 FA-180/140 FA-180/180 FA-180/300	39.0dBi mid-band 41.5dBi mid-band 46.3dBi mid-band 48.3dBi mid-band 52.8dBi mid-band

Receive		
Receive Bands	FA-180/60 FA-180/70 FA-180/140 FA-180/180 FA-180/300	3.4 to 4.2GHz 7.25 to 7.75GHz 10.7 to 12.75GHz 10.7 to 12.75GHz 17.7 to 22.2GHz
Receive Gain	FA-180/60 FA-180/70 FA-180/140 FA-180/180 FA-180/300	34.9dBi mid-band 40.8dBi mid-band 44.7dBi mid-band 44.7dBi mid-band 49.4dBi mid-band

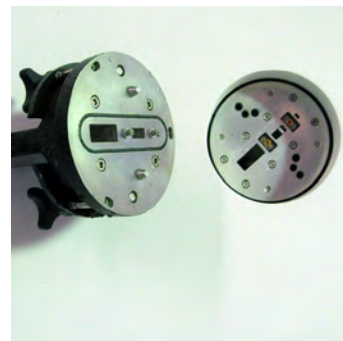
Power	
Power Requirement	90 to 264V AC Power Supply (option) +24V DC (option)

Environmental	
Temperature	-40 to +70°C - Transportation & Storage -40 to +60°C - Operational (-40 to 60°C with optional low temperature pack)
Humidity	100%
Altitude	4,500m
Wind Rating	Operational 60km/h with gust to 72km/h Survival 121km/h

Physical		
Elevation Adjustment	0 to 90°	
Azimuth Adjustment	+/-180°	
Polarisation Adjustment	+/-95°	
Packed Size	Box 1	0.88 x 0.88 x 0.51m
	Box 2	0.88 x 0.88 x 0.51m
Weight	Box 1	39kgs
	Box 2	49kgs
Weights above are for manual, baseline, configuration		



Quick Release Feed



Quad-band Feed arms – C/X, Ku & Ka
(C/X, Ku/DBS & Ka available as an option)

Ultra reserves the right to vary these specifications without notice.

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FA-240 Antenna

A 2.4m FLYAWAY ANTENNA FOR MULTI-BAND TRANSMISSIONS

Features

- Assembles in less than 10 minutes
- No tools required
- Only 2 cases <100kgs
- Multi-band feeds changed in minutes
- Intelsat/Eutelsat compliant for commercial bands
- WGS, SkyNet, XTAR, Inmarsat and MIL-STD-810G certified
- Complete, integrated systems available
- Flyaway antennas available from .23m to 3.7m diameter

Overview

The FA-240 is designed specifically for any application requiring a compact, rugged multi-band antenna which is rapidly deployable with no tools.

The FA-240 has a unique multi-band feed arm allowing a change of frequency band in a matter of seconds simply by swapping out a quick release feed cartridge. Termination of transmit waveguide and receive coax is in a safe position at the back of the reflector.

The reflector itself is moulded from carbon fibre honeycomb, ensuring light weight and maximum strength with no deformation, even after being re-assembled hundreds of times.

The axially symmetric design with prime focus feed was chosen because of its overall compact dimensions which make the packed size of the antenna smaller than any other comparable product of similar gain.

It also means that unlike offset fed designs, each antenna petal is identical allowing simple replacement in case of damage.

Intelsat/Eutelsat compliance is guaranteed, including side lobe performance better than 29-25 logθ.

Features fully adjustable, wide spreading legs for high stability on any terrain.

Once deployed, zero backlash, zero back drive gears in all three axis ensure the antenna will remain on target.

The FA-240 can be fully motorised and when combined with the STC-100 antenna controller it can automatically acquire and track, even on inclined orbit satellites.

The FA-240 packs into two conveniently sized flight cases and carbon fibre is used not only on the reflector and feed arm but also in the mount and flight cases keeping the weight down to an absolute minimum for transportation.

Technical Specification

General	
Antenna Type	Circular, axially symmetric with centre hub plus ten petals
Diameter	2.4m
Configuration	Prime Focus
Polarisation	Linear orthogonal transmit & receive Optional circular left & right
Cross Polarisation	-35dB within the -1dB co-polar contour (linear)
Port-to-Port Isolations	90dB typical (with TRF)

Transmit		
Transmit Bands	FA-240/60 FA-240/70 FA-240/140 FA-240/180 FA-240/300	5.85 to 7.025GHz 7.9 to 8.4GHz 12.75 to 14.5GHz 17.3 to 18.4GHz 27.5 to 31GHz
3dB Beamwidth	<1.5° at 5.85GHz	
Transmit Power	1.5kW max.	
Off Axis Transmit Gain	<29-25 log θ dBi	
VSWR	1.3:1	
Transmit Gain	FA-240/60 FA-240/70 FA-240/140 FA-240/180 FA-240/300	41.6dBi mid-band 44.1dBi mid-band 48.9dBi mid-band 50.8dBi mid-band 55.0dBi mid-band

Receive		
Receive Bands	FA-240/60 FA-240/70 FA-240/140 FA-240/180 FA-240/300	3.4 to 4.2GHz 7.25 to 7.75GHz 10.7 to 12.75GHz 10.7 to 12.75GHz 17.7 to 22.2GHz
Receive Gain	FA-240/60 FA-240/70 FA-240/140 FA-240/180 FA-240/300	37.4dBi mid-band 43.3dBi mid-band 47.2dBi mid-band 47.2dBi mid-band 51.9dBi mid-band

Power	
Power Requirement	90 to 264V AC Power Supply (option) +24V DC (option)

Environmental	
Temperature	-40 to +70°C - Transportation & Storage -40 to +60°C - Operational (-40 to 60°C with optional low temperature pack)
Humidity	1 to 100%
Altitude	4,500m
Wind Rating	Operational 60km/h with gust to 72km/h Survival 121km/h

Physical	
Elevation Adjustment	0 to 90°
Azimuth Adjustment	+/-180°
Polarisation Adjustment	+/-95°
Packed Size	Box 1 0.95 x 0.95 x 0.6m Box 2 0.95 x 0.95 x 0.6m
Weight	Box 1 48kgs Box 2 49kgs Weights above are for manual, baseline configuration



Quick Release Feed



Quad-band Feed arms – C/X, Ku & Ka
(C/X, Ku/DBS & Ka available as an option)



FA-370 Antenna

A 3.7m FLYAWAY ANTENNA FOR MULTI-BAND TRANSMISSIONS

Features

- Assembles in less than 30 minutes
- No tools required
- Only 5 cases <470kgs
- Multi-band feeds changed in minutes
- Intelsat/Eutelsat compliant for commercial bands
- WGS, SkyNet, XTAR, Inmarsat and MIL-STD-810G certified
- Complete, integrated systems available
- Flyaway antennas available from 0.23m to 3.7m diameter

Overview

The FA-370 is a compact ultra high gain antenna which can be easily deployed with no tools in less than 30 minutes.

All major components of the antenna including the multi-segmented reflector plus integrated 3 axis mount and flight case system are moulded from carbon fibre, which makes it more practical to transport than many much smaller antennas, yet the 3.7m diameter allows for an uplink EIRP previously unachievable from a flyaway earth station.

Ultra's high precision manufacturing process ensures excellent surface accuracy on the dish and guarantees no deformation, even after being assembled hundreds of times.

The FA-370 is ideal for any rapid deployment broad band communications requirement such as MCPC digital video or multiple SCPC transmission. Secure Government Communications, Emergency Restoration, Sporting Events and Major news stories are obvious applications.

Each FA-370 antenna has a four piece segmented feed arm which allows operation at C, X, Ku, DBS and Ka band frequencies.

Band changes are achieved simply by clipping the relevant feed cartridge into position.

The axially symmetric prime focus feed system was chosen because of its overall compact dimensions and commonality of spare parts. A spares holding of only two petals is all that's required to repair a reflector in case of damage. Compliance with all satellite authority specifications is guaranteed, including side lobe performance better than -29 to -25 dB.

Vernier adjustments with clear scales are included for all three axes including fine and course adjustment for elevation and in common with all FA series antennas the FA-370 has a full 0 to 90 degree elevation capability.

Technical Specification

General	
Antenna Type	Circular, axially symmetric with centre hub plus eighteen petals
Diameter	3.7m
Configuration	Prime Focus
Polarisation	Linear orthogonal transmit & receive Optional circular left & right
Cross Polarisation	-35dB within the -1dB co-polar contour (linear)
Port-to-Port Isolations	90dB typical (with TRF)

Transmit		
Transmit Bands	FA-370/60 FA-370/70 FA-370/140 FA-370/180 FA-370/300	5.85 to 7.025GHz 7.9 to 8.4GHz 12.75 to 14.5GHz 17.3 to 18.4GHz 27.5 to 31GHz
3dB Beamwidth	<1.0° at 5.85GHz	
Transmit Power	1.5kW max.	
Off Axis Transmit Gain	<29-25 log θ dBi	
VSWR	1.3:1	
Transmit Gain	FA-370/60 FA-370/70 FA-370/140 FA-370/180 FA-370/300	45.3dBi mid-band 47.7dBi mid-band 52.5dBi mid-band 54.6dBi mid-band 58.4dBi mid-band

Receive		
Receive Bands	FA-370/60 FA-370/70 FA-370/140 FA-370/180 FA-370/300	3.4 to 4.2GHz 7.25 to 7.75GHz 10.7 to 12.75GHz 10.7 to 12.75GHz 17.7 to 22.2GHz
Receive Gain	FA-370/60 FA-370/70 FA-370/140 FA-370/180 FA-370/300	40.9dBi mid-band 47.0dBi mid-band 50.8dBi mid-band 50.8dBi mid-band 54.8dBi mid-band

Power	
Power Requirement	90 to 264V AC Power Supply (option) +24V DC (option)

Environmental	
Temperature	-40 to +70°C - Transportation & Storage -20 to +60°C - Operational (-40 to +60°C with optional low temperature pack)
Humidity	1 to 100%
Altitude	4,500m
Wind Rating	Operational: • 60km/h with gusts to 72km/h Survival: • 121km/h

Physical	
Elevation Adjustment	0 to 90°
Azimuth Adjustment	+/-180°
Polarisation Adjustment	+/-95°
Packed Size	Box 1 1.23 x 1.23 x 0.55m Box 2 1.23 x 1.23 x 0.55m Box 3 1.23 x 1.23 x 0.55m Box 4 1.23 x 1.23 x 0.5m Box 5 1.23 x 1.23 x 0.5m
Weight	Box 1 77kgs Box 2 77kgs Box 3 107kgs Box 4 118kgs Box 5 83kgs Weights above are for manual, baseline configuration



Quad-band Feed arms – C/X, Ku & Ka
(C/X, Ku/DBS & Ka available as an option)