

ROVER

FLEXIBLE. PORTABLE. RELIABLE.



Norsat

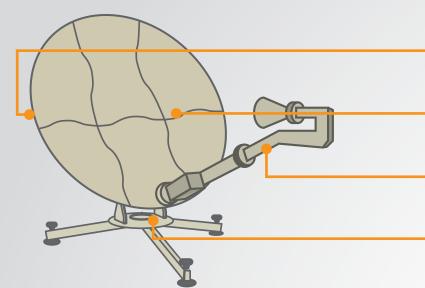
ROVER

The ROVER™ is an ultra-lightweight fly-away satellite terminal with unsurpassed reliability, advanced assisted-acquire technology, and a flexible deployment platform. Available in both 1.0 and 1.2m antenna sizes, the ROVER's components can be tightly integrated for rapid deployment or separated into indoor and outdoor units for safe operation in dangerous terrain or situations. With IATA compliant packaging and a tool-free assembly process, the ROVER is easy to transport and operate, with military grade durability you can rely on wherever your mission takes you.

WHY CHOOSE THE NORSAT ROVER™?

Advanced assisted acquire technology

Modular Architecture Easy tool free assembly Flexible Indoor/Outdoor unit deployment Multi-band capability System integration Built in trouble shooting Military Grade Ultra lightweight packaging LinkControl's intuitive user interface guides users through the satellite acquisition process Components are field serviceable for easy maintenance Rapidly assemble & deploy without tools in under 15 min Safely deploy the ROVER in dangerous terrain, or weather Ku, X, and Ka band kits available – field swappable in under 10 min Software integration and control supports widest variety of components Visible and audible alarms guide user through problem resolution Platforms have been tested to meet military specifications IATA compliant hard cases or backpack options available



COMPONENTS

SSPA

RF package can be field swapped to quickly change the frequency bands and powers.

6-Segment Carbon Fibre Antenna

Lightweight, portable and easy to assemble. Available in 1.0 or 1.2m.

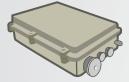
2-Segment Boom Arm

Fits into compact packaging. Patented integrated filters are included for X-band systems.

IIIC (Interface/Indicator/Inclinometer/Compass) Conveniently houses a digital Compass, digital Inclinometre and a Receive Signal Strength Indicator (RSSI)

INTEGRATION OPTIONS

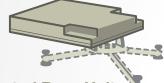
The ROVER system is available in a variety of configurations, giving you the flexibility to choose the best fit for your your existing equipment, technical expertise and deployment requirements.



Satellite Acquisition Assistant

The Satellite Acquisition Assistant (SAA) is a satellite pointing tool kit available with the ROVER as a standalone unit in a rugged enclosure. The SAA includes spectrum analyzer, integrated GPS, inclinometer, compass, narrow band power meter, DVB/S(2) receiver, and LinkControl Software.

- Cost effective solution for experienced satellite technicians
- Ideal for redundant terminal solutions
- May be used to align other terminals



Integrated Base Unit

The SAA, power supply and a rugged satellite modem can be delivered in an outdoor unit, fully integrated into the ROVER outdoor equipment. • All weather deployment - Electronics stored

- All weather deployment Electronics store in outdoor rated enclosures (IP65)
 Ultra-light weight for easy transportation
- Integration ensures the most rapid set up and deployment



Rack Mount System

The ROVER can be supplied with an integrated rack mount solution in a variety of rack sizes. Rack mounted systems include a Compact Indoor Unit, SAA, laptop, power supply & space for any number of modems or encoders.

- Maximum flexibility- integrate nearly any component, including high power BUCs
- Rugged- rack units are supplied in ruggedized cases for transport and storage

Basic: Already have your own pointing tools? ROVER can be supplied without any components for the most cost effective solution.

	X-Band (60W BUC*)		Ku-Band (40W BUC*)		Ka-Band (4W BUC*)		
	1.0m antenna	1.2m antenna	1.0m antenna	1.2m antenna	1.0m antenna	1.2m antenna	
G/T	14.7 dB/K	17.0 dB/K	19.5 dB/K	20.2 dB/K	21.5 dB/K	20.8 dB/K	
EIRP*	51.5 dBW	55.1 dBW	56.1 dBW	57.6 dBW	53.5 dBW	55.2 dBW	
Tx Gain	>36.1 dBi	>38.3 dBi	>41.5 dBi	>43.0 dBi (mid band)	>48.0 dBi	>49.7 dBi (mid band)	
Rx Gain	>36.0 dBi	>37.6 dBi	>40.0 dBi	>41.0 dBi (mid band)	>44.0 dBi	>46.0 dBi (mid band)	
Polarization	Circular Linear Cross-Pol RHCP/LHCP or LHCP/RHCP		Circular / Linear RHCP/LHCP or LHCP/RHCP				
Cross pol isolation	1	N/A	>35.0 dB within 1 dB contour		N/A		
Axial Ratio	<1.2 dB in Tx Band		N/A		<1.0 dB in Tx band		
Elevation adj	5° to 85°, Manual with fine adjust						
Azimuth adj	±300, Manual with fine adjust						
Transmit frequency	7.9 - 8.4 GHz		13.75 GHz - 14.5 GHz		30 - 31 GHz (military)		
Receive frequency	7.25 - 7.75 GHz		10.95 - 12.75 GHz		18.2 - 21.2 GHz		
Input frequency	950 - 1450 MHz		950 - 1700 MHz		950 - 1950 MHz		
Operating Temp	-30°C to +55°C, meets MIL-STD- 810G						
Rainfall	15 mm/h Operational, 30 mm/h Survival, meets MIL-STD- 810G						
Windspeed	60 km/h Operational, 100 km/h Survival						

* Other power options available

SPECS

LinkControl Software

Included with every ROVER[™] system, LinkControl[™] software is the industry's most intuitive and powerful suite of satellite pointing tools. With an easy-to-use GUI, LinkControl guides the user through the satellite acquisition process and seamlessly integrates the various hardware components. Users have full control of all integrated components including SSPA, LNB, modem, or encoder modulators. Through user configured profiles and a customizable satellite almanac, LinkControl enables users to plan operations, rapidly deploy systems and conduct remote diagnostics. Features include:

- Assisted acquire technology with an easy step-by-step interface
- Component auto-detection for easy modem or bandwidth switching
- Remote access from anywhere in the world via TCP/IP
- Built-in troubleshooting and resolution system
- Closed loop power control to account for environmental variation
- User configured LinkProfiles to store deployment data including location, satellite, Modem/encoder data, hardware configuration, LNB and polarization detail



LinkControl in action



PORTABLE AND RELIABLE.

Currently deployed around the world for a variety of military and commercial applications, the ROVER[™] is field proven and reliable for mission critical operations. The ROVER platform has been tested to meet military specifications and features a rugged design ideal for use in all terrains and climates. The ROVER's light weight carbon fibre antenna and IATA compliant packaging ensure the terminal is airline transportable, so you can rely on the ROVER to just work, wherever your mission takes you.

FLEXIBLE.

The ROVER's flexible platform is easily configured to exactly meet the requirements of your deployment. The various components can be integrated into a compact base unit for easy transportation and deployment, or separated into Indoor and Outdoor units to keep electronics and personnel safe while operating in dangerous terrain or inclement weather. A compact indoor unit (CIDU) completely integrates laptop controllers and pointing tools, and a Satellite Acquisition Assistant (SAA) provides everything needed to point, peak and acquire a satellite. Available with X, Ku and Ka band kits that can be field swapped in less than 10 minutes, and power options up to 200W, the ROVER provides the most flexible satellite terminal platform available today.

Antenna	X-Band	Ku-Band		Ka-Band	
Antenna Platform	Elevation over Azimuth	Elevation over Azimuth	Elevation over Azimuth		
	Mounted on tripod	Mounted on Tripod	Mounted on Tripod		
Transmit	X-Band	Ku-Band		Ka-Band	
Reference Signal Frequency	external 10 MHz	external 10 MHz		external 10 MHz	
	-5 to +5 dBm (supplied by Base Unit)	-5 to +5 dBm (supplied by Base Unit)		-5 to +5 dBm (supplied by Base Unit)	
Rated Power (1dB C.P.)	60 W (other options available)	40 W (other options availa	uble)	4 W (other options available)	
Power Control	0.1 dB res, 1 dB accuracy	0.1 dB res, 1 dB accuracy		0.1 dB res, 0.6 dB accuracy	
	modem dependent	modem dependent		modem dependent	
Max. SSG Variation over any narrow band	±1 dB per 54 MHz	±1 dB per 54 MHz		0.3 dB in 36 MHz band	
Spectral Regrowth at rated pwr.	-26 dBc	-26 dBc		-26 dBc	
Receive	X-Band	Ku-Band		Ka-Band	
LNB Noise Figure (typical)	0.7 dB	0.8 dB		1.3 dB	
LO Stability Maximum (over temp)	±10 KHz or ext. ref.	±5 KHz or ext. ref.		±40 kHz or ext. ref.	
Phase noise (SSB maximum)	-75 dBc/Hz at 1 kHz	-75 dBc/Hz at 1 kHz		-75 dBc/Hz at 1 kHz	
(SSB maximum)	-85 dBc/Hz at 10 kHz -95 dBc/Hz at 100 kHz	-80 dBc/Hz at 10 kHz -95 dBc/Hz at 100 kHz		-80 dBc/Hz at 10 kHz - dBc/Hz at 100 kHz	
Output P1dB	10 dBm	-95 dBC/H2 at 100 kH2 7 dBm		7 dBm	
			_		
Modem and Encoder/Modu	•	Environmental			
The ROVER is compatible with a variety of		Temperature	20%0 to 155%0	MIL STD 810C	
including those made by the following man	Operational Survival	-30°C to +55°C -40 to +70°C	MIL-STD-810G MIL-STD-810G		
Comtech		Bainfall	-+010 170 0	MIL-OTD-010G	
iDirect	Operational	15 mm/h	MIL-STD-810G		
Hughes	Survival	30 mm/h	MIL-STD-810G		
Radyne	Storage Temp	-40°C to +70°C			
Norsat MPEG 2/4 HD/SD Encoders Availa	Windspeed				

Norsat MPEG 2/4 HD/SD Encoders Available

Satellite Acquisition Assistant (SAA) Toolkit Features

Spectrum analyzer. Advanced Sat Comm professional tool allowing for enhanced precision during pointing and diagnostics.

Integrated GPS, inclinometer, and compass. Provides all the bearing information needed to accurately find and point the terminal

Narrow band power meter. Power level reading for quick check satellite indication DVB S/S2 receiver. Positive lock for exact satellite acquisition confirmation.

LinkControl Software

Rackmount or Compact Indoor Unit (CIDU) Features

Form Factor Power Supply

Size

Weight

Power Requirements

System Controller

2RU 19" rack chassis up to 100W @ 24V (for IDU) up to 400W @ 48V (for SSPA power supply) 600W 110/220V AC 50/60Hz 41 x 56 x 24 cm 22 kg (est.) Panasonic CF-19 Toughbook

Completely integrated SAA Module with all SAA tools Windows XP, Windows 7, Mac OSX, Norsat LinkControl software User selectable Modem integrated with LinkControl Software

Integrated Base Unit Features

The Base Unit is delivered in an outdoor rated enclosure, completely integrated into the ROVER. The Base Unit is complete with all of the following:

Satellite Acquisition Assistant (components listed above) Power supply Rugged satellite modem

CONTACT

Norsat International Inc. 110-4020 Viking Way **Richmond, BC** V6V 2L4 Canada

+ 1 604 821 2800

TEL +1 604 821 2800 FAX +1 604 821 2801 sales@norsat.com www.norsat.com

MIL-STD-810G MIL-STD-810G MIL-STD-810G MIL-STD-810G MIL-STD-810G MIL-STD-810G MIL-STD-810G MIL-STD-810G 110/220 V AC (50 / 60 Hz) Varies with BUC options Can be supplied with 400W, 600W & 1000W

MIL-STD-810G

MIL-STD-810G

MIL-STD-810G

power supply depending on BUC options

Packaging

Operational Survival

Loose Cargo Vibration

Blowing Dust & Sand

Blowing wind & rain

Random vibration

Power Supply

Drop & topple

Humidity

Vibration

Shock

Free fall

Salt mist

Prime Power

Consumption

Power Supply

Transit Drop

Hard packs, soft pack and backpack options available. Most system configurations are available with IATA Compliant packaging (cases ≤32 kg each) Packaging options available in as few as 2 cases.

60 km/h

100 km/h

5-95% non-condensing

Accessories Options

2 kVa Generator Ruggedized Laptop Controller with Integrated Linkcontrol Software 30 meter IFL cable Fibre optics package Lightning protection kit De-icing kit

Vehicle power kit (MIL-STD 1275B)





sales@norsat.com www.norsat.com

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