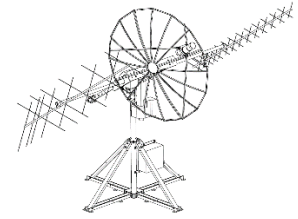


The ISIS Ground Station Kit is a turnkey solution to prioritize, autonomously track, and communicate with earth-orbiting satellites operating on VHF, UHF, and S-Band frequencies. The Kit consists of an antenna-rotator unit and an indoor tracking and communications system that work together to create a fully-functional satellite tracking suite.



## Radio Characteristics

VHF – UHF Transceiver		
Frequency Ranges	RX	Amateur: 144 – 146 MHz and 435 – 438 MHz Commercial: 400.15 – 402 MHz
	TX	Amateur: 145.8 – 146 MHz and 435 – 438 MHz Commercial: 148 – 149.9 MHz
Frequency Stability		±2 ppm at 25°C
Modulation Schemes & Data rates	RX	AFSK @ 1.2 kbps BPSK(-G3RUH) @ 1.2, 2.4, 4.8, and 9.6 kbps FSK @ 1.2, 2.4, and 4.8 kbps FSK-G3RUH @ 2.4, 4.8, and 9.6 kbps
	TX	AFSK @ 1.2 kbps FSK-G3RUH @ 2.4, 4.8, 9.6 kbps
Output Power		Switchable 40 dBm and 50dBm
Reference Input		External 10 MHz input
Data link layer protocol		AX.25
Data Interfaces		IQ data output, Raw bytes output, KISS input & output, Binary input & output
Low Rate S-Band Receiver		
Frequency Ranges	RX	Amateur: 2400 – 2450 MHz Commercial: 2200 – 2290 MHz
Frequency Stability		±2 ppm at 25°C
Modulation Schemes	RX	BPSK, BPSK-G3RUH, AFSK, FSK, FSK-G3RUH
Data rates	RX	9.6, 14.4, 28.8, 57.6, 115.2 kbps
Data link layer protocol		AX.25
Data Interfaces		IQ data output, Raw bytes output, KISS output, Binary output
High Rate S-Band Receiver		
Frequency Ranges	RX	Amateur: 2400 – 2450 MHz Commercial: 2200 – 2290 MHz
Frequency Stability		±0.01 ppm at 25°C
Modulation Schemes	RX	BPSK, OQPSK
Data rates	RX	625 – 5000 ksymbols/s
Data link layer protocol		CCSDS
Data Interfaces		Binary output



# VHF/UHF/S-Band Ground Station Kit Data Sheet

## Rotor Characteristics

Standard Rotor System		
Rotational Range	Azimuth	360°
	Elevation	180°
Rotational Speed	0 – 6 °/sec	
Rotor Pointing Accuracy	≤ 0.2°	

## Antenna Characteristics

Description		Amateur	Commercial
Gain	VHF	12.3 dBic	11.5 dBic
	UHF	15.5 dBic	15.0 dBic
	S-Band (Ø1.9 m)	31.4 dBic	
Front-to-Back Ratio	VHF	20 dB	
	UHF	18 dB	20 dB
Beamwidth	VHF	52°	53°
	UHF	30°	35°
	S-Band (Ø1.9 m)	5.1°	
Polarization	VHF	Switchable LHCP and RHCP	
	UHF	Switchable LHCP and RHCP	
	S-Band	Either LHCP or RHCP	
Overall System Noise Figure (typical)*	VHF	2.2 dB	-
	UHF	2.6 dB	3.3 dB

## Mechanical/Environmental Specifications

Outdoor System		
Height (from ground to cross-boom)	2.3 m	
Clearance Radius	3.2 m	
Weight	Ø1.9 m	247 kg
Operating Temperature	-10 °C to 50 °C	
Humidity	95%, non-condensing	
Lightning Protection	< 10kA	
Survival Wind Speed	120 km/h	
Indoor System		
Size (w x h x d)	9U 19" rack: 56x46x60 cm	
Weight	< 46 kg	
Operating Temperature	10 °C to 35°C	
Humidity	95%, non-condensing	
Supply Voltage	100 to 240 VAC, 50 to 60 Hz	
Supply Current	max 3.5 A @220V, max 7.0 A @110V	

\* As measured relative to the RF connection plane between antenna and Lightning Protection Box (LPB); 20 m RF cable between LPB and indoor rack unit.