S-PLANE

TRACKER+

LOSCOM Solution

Features

Overview

- Line of Sight Communication (LOSCom) connectivity
- Ultra-long-range LOSCom antenna tracker
- Stand-alone GNSS-based antenna tracker
- Environmentally controlled radio enclosure
- Ideal for multiple high-powered, long-range datalinks
- Directional and omni-directional antennas
- Mesh network enabled
- LOSCom between aircraft and ground control stations

Key Advantages

- Accommodates UHF/L/S/C-bands
- Rugged and environmentally qualified to RTCA DO-380
- Fits mobile and static installations
- Quick calibration and requires no specialised tools
- Packaged for transport in rugged protective cases

Overview

The TRACKER+ is the latest evolution of S-PLANE's very successful TRACKER 100 solution. It is a stand-alone GNSS-based antenna tracker with integrated primary and secondary software defined mesh network radios and a combination of directional and omni-directional antennas. Clients can select their configuration from various radio and antenna options to customise the solution to their applications.

The TRACKER+ features an environmentally sealed enclosure with active cooling. Capable of dissipating up to 800 W of heat and qualified to RTCA DO-380 environmental specifications, it ensures dependable operation of long-distance radio links in the harshest environments.

Its modular design facilitates deployment at a new site within 20 minutes, whether mounted on tripods, vehicles or masts. Thanks to the sophisticated Tracker Control Unit (TCU), calibration at a new site is fast and accurate and doesn't require any external equipment or specialised skills.

The TRACKER+ boasts a state-of-the-art backlash-free pan/tilt synchronous harmonic drive system combining high torque and speed in a super-compact and affordable package. It's ideal for reliable communication between mobile or stationary ground units and moving targets (e.g. aircraft). The TRACKER+ can also connect directly to backbone and mobile networks or be daisy-chained to each other to cover very large operational areas.

TRACKER+

Technical Specifications

Modern | Reliable | Always Connected

PERFORMANCE	
Pointing Accuracy	< 1 °
Max Continuous Pan Torque	50 N.m.
Max Pan Rate	20 °/s
Max Continuous Tilt Torque	50 N.m.
Max Tilt Rate	15 °/s
Max Available Torque	176 N.m.
Pan Rotation*	-225 ° to +225 °
Max Power	400 W Nominal; 800 W Peak
Tilt Rotation	-8 ° to +80 °
Normal Operating Voltage	28 VDC
Max Operational Wind Speed	60 km/h (Antenna dependent)
Input Voltage Range	24 to 30.2 VDC / 110 to 230 VAC**
ENVIRONMENTAL (RF LINK DEPENDANT)	
Operating Temperature	DO-380, Section 4, Category B2, -20 to +55 °C
Storage Temperature	DO-380, Section 4, Category B2, -20 to +75 °C
Operating Life	25 000 hours @ 40 °C internal temperature
Ingress Protection	Water: DO-380, Section 10, Category W Sand/Dust: DO-380, Section 12, Category S
Humidity	DO-380, Section 6, Category C, 95% RH @50 °C
Operational Shock	DO-380, Section 7, 3 g, 11 ms
Vibration	DO-380, Section 8, Table 8-1, Fixed and Mobile
Salt Fog	DO-380, Section 14, Category F
Wind Resistance	DO-380, Section 15
Power Input	DO-380G, Section 16, Category C
Solar Radiation	DO-380, Section 18, Category A
TYPE AND CONSTRUCTION	
Drive System	3-phase synchronous with harmonic gearing
Data Port	Ethernet/RS422/RS232
Structure	6082-T6 Al
Loom Length (Customised on request)	Up to 45 m
Dimensions	1400W x 800H x 900D (mm), (Antenna dependent)
Mass (excl. rugged tripod)	70 kg

Specifications are dependent on the specific links and antennas used.
* Auto cable management / de-rotation and optional slip rings to allow unlimited pan rotation.
** Optional rugged 110 to 230 VDC input external power supply.

RADIOS & ANTENNAS	
Primary Link	4x20 W L/S/C-band MIMO Mesh (enquire for options)
Secondary Link	Various L/S/C/UHF-band MIMO Mesh and PtP (enquire for options)
LOSCOM Range to 3 dB Omni-directional rover antenna	> 200 km
Alternative Radios, Tx Power & Antennas	Please enquire
Primary Directional Antenna	2x 21 dBi (S-band) / 24 dBi (C-band) 600 mm Parabolic
Secondary Directional Antenna	600 mm Parabolic or Yagi-Uda for UHF
Primary Omni-directional Antenna	2 dBi Dipole
Secondary Omni-directional Antenna	2 dBi Dipole
Primary Data Rate	3 to 30 Mbps (range/bandwidth setting dependent with Ethernet and Serial options)
Secondary Data Rate	3 to 30 Mbps (range/bandwidth setting dependent with Ethernet and Serial options)
FEATURES & EQUIPMENT	
Tracker Control Unit	Onboard with Level-2 Network Switch
Boresight Camera	2064x1544 GigE Vision 16 ° FOV
RF Cabling	Ultra-low-loss Co-axial
Positioner	Heavy Duty 2-axis Pan & Tilt
Sensors	Multi-GNSS, 3-axis IMU & Magnetometer
Calibration	Automatic, with Optical Assistance

X-KIT Key Equipment

X-CUBE

- The X-CUBE is the core avionics unit of the X-KIT for UAS/OPS conversion
- Function: Flight Control Unit (FCU), Power Distribution Unit (PDU) and Input/Output (I/O) Concentrator
- Support SCP, DFR and TFR internal redundancy with dedicated voting
- Further supports dual X-CUBE external redundancy with failover architecture

X-ADT

- Airborne Data Terminal (ADT)
- Function: Mission Computer, I/O Concentrator, HD-SDI Video Encoder, Data Storage, Ethernet Switch
- Supports S-PLANE's mission software and third-party or custom containerised software
- Interfaces with and manages and controls mission payloads (RADAR, EO/IR, SIGINT, AIS and Direction Finder)

X-RPU

- Remote Piloting Unit (RPU)
- Function: Safety-critical Command & Control Computer, and I/O Concentrator
- Interfaces to Primary Flight Controls (PFC), GCC MFD, Hard I/O (buttons and switches with parallel redundancy) and to data links/tracker

TRACKER+

- Stand-alone GNSS-based antenna tracker for UHF, L-, S- and C-bands
- Function: Long-range Line of Sight Communication (LOSCom) between aircraft and Ground Control Stations (GCS)
- Mesh network enabled

GCC and Paragon

- Ground Control Console (GCC)
- Configured as a Remote Piloting Station, Payload Operating Station, or Engineering Station
- Function: HMI for Paragon, PFD with HUD, and MFD (touch display) for Remote Piloting

Equipment Chains & Products

	AIRBORNE CONTROL	GROUND CONTROL	COMMUNICATION	SIMULATION
NX-FCU	Automation & ISR Mission		Automation & ISR Mission	
X-CUBE	Automation		Automation	
X-ADT	ISR Mission		ISR Mission	
X-RPU		Automation		
GCC		Automation & ISR Mission		
Paragon	Automation & ISR Mission			
X-GDT		ISR Mission	Automation & ISR Mission	
TRACKER+			Automation & ISR Mission	
XSIM-HILS				Automation & ISR Mission
XSIM-Workbench				Automation & ISR Mission
XSIM-Video				Automation & ISR Mission

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