

# EXPEDITE

## Product Datasheet



Software modem for TT&C with mission scheduling, ACU support, and REST/TCP/IP host integration.

**70 MHz–2.5 GHz**

supported frequency range

**25 Msps**

maximum symbol rate

**REST API**

remote control interface

**4U / 16 kg**

rack format and weight

<b>Manufacturer</b>	Remos Space Systems AB
<b>Product</b>	EXPEDITE
<b>Product class</b>	Software modem for TT&C
<b>Hardware</b>	4U rack-mount server with built-in digitizer
<b>Supported frequency range</b>	70 MHz–2.5 GHz
<b>Mission bands</b>	VHF, UHF, S-band, Low-rate X-band
<b>Product page</b>	<a href="https://www.remospace.com/products/expedite/">https://www.remospace.com/products/expedite/</a>
<b>Contact</b>	<a href="mailto:info@remospace.com">info@remospace.com</a>



EXPEDITE modem

## Operational Capabilities

- Software modem for integrated telemetry receive and telecommand transmit processing
- Mission scheduler with pass planning (horizon up to 168 h) and ephemeris-driven operations
- Antenna instrumentation for supported antenna control units (ACUs)
- Internal and external Doppler pre-compensation
- Internal or external antenna-angle generation; half-duplex RF sequencer control
- Mission logging, link-quality monitoring, TTC visualization, and spectrum analysis
- Host integration via TCP/IP, REST, WebSocket, ZeroMQ, and web application
- CCSDS Space Link Extension (SLE) and Cortex-like streaming available as options
- Operation with supported external SDR hardware, VRT streams, and file-based IQ sources
- Compatibility with selected satellite transceiver families
- Product manual and REST API documentation (English)

## RF and Baseband Processing

Parameter	Specification
System role	Software modem for telemetry, telecommand, scheduling, and automation.
Supported frequency range	70 MHz–2.5 GHz.
Operating mode	Continuous and burst.
TM/TC symbol rate	100 sps–1 Msps (standard); up to 25 Msps (optional extension).
Modulations	BPSK, QPSK, oQPSK, FSK, GMSK, AFSK, ASK, GFSK, PCM/PM, PCM/PSK/PM.
Line codes	NRZ-L/M/S, BP/Manchester-L/M/S.
Scramblers	G3RUH; CCSDS
Framing	CCSDS CADU and CLTU, AX.25, HDLC, AirMac, RAW; four ASM variants.
Data formats	CSP; Satlab; user-defined.
Forward error correction	CCSDS RS(255,223), RS(255,239), CC(7,1/2), concatenated, BCH, short LDPC.
Telecommand procedures	PLOP-1, PLOP-2; GUI CMM1/CMM2/CMM4 timing 1–9999 ms.
Pulse shaping	SRRC, Integral
Satellite transceivers	GOMSpace AX100, AX2150; Satlab SRS-3/4; AAC Clyde Space; EnduroSat UHF II; GAUSS.
Reference inputs	10 MHz, 1PPS; optional GPS reference.

## Tracking, Pass Operations, and Logging

Function	Specification
Ephemeris	Network-fed updates (e.g. Celestrak); SGP4/SDP4 propagation.
Pass planning	Horizon up to 168 h.
Antenna control	ACU instrumentation; internal angle generation or external angle input; TCP/IP or serial drive.
Doppler	Internal generation or external feed.
Supported Rotors	SPID Rot2Prog, Yaesu, Prosistel, M2, RotCtrl; others on request.
Sequencer	Half-duplex RF relay switching; control packets for external logic.
Mission logs	Telemetry, Doppler, Tracking, Antenna, Telemetry IQ, Command IQ
Operator tools	TTC Visualizer, spectrum analyzer, mission statistics, TTC/network status, radio control, pass views.

## Diagnostics and Mission Visibility

Capability	Specification
Link validation	Loopback and link-check workflows.
Link quality	BER/FER-oriented monitoring; telemetry statistics and failure counters.
Spectrum	Spectrum, constellation, and distribution views.
Frame visibility	TTC Visualizer: frame and telecommand hex display with metadata.
Post-pass analysis	Mission logs, TTC statistics, Doppler/antenna status, recorded IQ.

## Mechanical and Environmental

Parameter	Specification
Form factor	4U rack-mount server with built-in digitizer.
Dimensions (H×W×D)	177 × 482 × 555 mm.
Mass	16 kg.
RF connector	SMA female, 50 Ω.
Operating temperature	+10 °C to +40 °C.
Front panel	Integrated keyboard, pointing device, and LCD.
Rear SDR interfaces	Tx1, Tx2, Rx1, Rx2, 10 MHz, 1PPS; optional GPS reference.
AC supply	230 V AC; maximum consumption 500 W.

## Operations and Integration

Function	Specification
Scheduling	Integrated mission scheduler for pass planning and automated operations.
Antenna support	Instrumentation and control for supported antenna control units (ACUs).
Operator access	Local GUI, remote desktop, integrated front panel, and REST API.
Host data interfaces	Native TCP/IP streaming; REST, WebSocket, and ZeroMQ.
Optional extensions	CCSDS Space Link Extension (SLE); 25 Msps symbol-rate extension; Cortex-like streaming.
Documentation	Product manual and REST API documentation (English).

## Hardware Compatibility and Deployment

Category	Specification
SDR and IQ sources	USRP B-Series, N-Series, X-Series; SpectralNet; VRT; file-based IQ.
Deployment modes	Virtualized; integrated modem appliance with built-in digitizer; ground-station kit.
Host access	Local GUI and front panel; remote desktop; REST API; browser-based remote operation.

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