GROUND SEGMENT — HIGH-RATE SOFTWARE MODEM

HASTEN

Product Datasheet

High-throughput software modem for satellite payload data downlink, with CCSDS TM and DVB-S2X waveforms, mission booking, and REST/WebSocket host integration.

40 MHz–2.5 GHz	Up to 315 Mbps	CCSDS / DVB-S2X	4U / 16 kg
telemetry frequency bands	telemetry data rate	supported waveforms	rack format and weight

Manufacturer	Remos Space Systems AB
Product	HASTEN
Product class	High-rate software modem for payload data downlink
Hardware	4U rack-mount server
Telemetry frequency bands	`40 MHz–2.5 GHz`
Telemetry data rate	Up to `315 Mbps`
Product page	`https://www.remosspace.com/products/hasten/`
Contact	info@remosspace.com



HASTEN high-rate modem

Remos Space Systems AB Aurorum 1C, 977 75 Luleå, Sweden

Operational Capabilities

- High-rate software modem for reliable downlink of large satellite payload datasets
- CCSDS TM and DVB-S2(x) compliant waveforms for standards-based, high-throughput delivery
- High-performance demodulation engineered for challenging RF environments and high-order modulations
- Software-defined, software-upgradable architecture with no hardware changes as mission needs evolve
- Continuous, sustained ingestion of large data streams with high aggregate throughput
- Adaptive waveform and coding configurations to maximize spectral efficiency across link budgets
- Scalable, parallel high-volume downlink operations across multiple satellites and constellations
- Mission booking and tracking with live AZ/EL pointing, elevation curves, and Doppler correction
- Full ground-station control: antenna, modem, sequencer, and scheduler on one console
- Host integration via `REST`, `WebSocket`, `TCP/IP`, `SLE`, `CFDP`, and `FTP`
- Real-time mission dashboard for link state, telemetry, antenna orientation, and pass queue
- Product manual and REST API documentation (English)

Telemetry and Signal Processing

Parameter	Specification
System role	High-rate software modem for satellite payload data downlink.
Telemetry frequency bands	`40 MHz–2.5 GHz`.
Telemetry data rate	Up to `315 Mbps`.
Modulations	`BPSK`, `GMSK`, `QPSK`, `8-PSK`, `16-APSK`, `32-APSK`.
Forward error correction	CCSDS `Viterbi`, `Reed-Solomon`, concatenated, `LDPC`.
Protocols	CCSDS `CADU`, `DVB-S2(x)`.
VCM mode	`CCM`.
Line codes	`NRZ-L/M/S`, `BP/Manchester-L/M/S`.
Doppler correction	Automatic or external.

Interfaces and Integration

Function	Specification
Operator access	Local GUI, web application, and integrated front panel.
Host data interfaces	`REST API`, `WebSocket`, `TCP/IP`.
Standards interfaces	CCSDS Space Link Extension (`SLE`); `CFDP`.
File transfer	`FTP`.
Documentation	Product manual and REST API documentation (English).

Tracking, Rotor Control, and Tools

Function	Specification
Satellite tracking	Live AZ/EL pointing with mission elevation curves and Doppler correction.
Mission booking	Plan, queue, and prioritize missions across the satellite fleet.
Supported rotors	`SPID`, `Yaesu`, `M2`, `Prosistel`; custom rotor upon request.
Simulation	TM/TC simulator; local TT&C client.
Analysis tools	Spectrum analyzer; BER/FER performance tools.
Console integration	Integrated mouse, keyboard, and screen.

Mission Operations Dashboard

- Real-time link state, telemetry, and commanding the moment a pass opens
- Mission control to plan, queue, and prioritize passes across the entire satellite fleet
- Live satellite tracking with AZ/EL pointing, elevation curves, and Doppler correction
- Full ground-station control of antenna, modem, sequencer, and scheduler from one console
- Global pass queue and antenna orientation surfaced on a single operator screen

Mechanical and Environmental

Parameter	Specification
Form factor	4U rack-mount chassis.
Dimensions (H×W×D)	177 × 482 × 555 mm.
Mass	16 kg.
RF connector	SMA female.
Operating temperature	+10 °C to +40 °C.

Ideal Use Cases

- **Earth observation & remote sensing:** efficient downlink of large imaging and sensor datasets from LEO constellations
- **High-rate payload missions (LEO/GEO):** CCSDS TM and DVB-S2X compliant downlink for high-capacity data streams
- **Scientific & exploration missions:** reliable transmission of large scientific datasets from space to ground
- **Constellation data operations:** scalable downlink across multiple satellites with high aggregate throughput

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