LEGION 400

Cost effective ● Highly reliable ● Lean Design

New Generation of Multi-band S-X-Ka Ground Station for Smallsats

The **LEGION 400** is the new generation of 4m-class antenna system released by Safran Data Systems. **Originally designed for Mega-Constellations**, the LEGION 400 benefits from a unique **tri-band S/X/Ka concentric feed,** patented by Safran, combined with a **lean and an ultra accurate pedestal**.

Safran Data Systems offers its customers total flexibility in building up a scalable ground segment for the long term, with a **true one-stop-shop** for the complete system, including antenna, radome, RF, baseband, station Monitoring & Control as well as scheduler.

The LEGION 400 is applicable whether you need to support **smallsats, launch vehicles or telecom constellations**.

Application	Smallsat	Launch vehicle	Telecom constell
Capabilities	Up to S/X/Ka (25.5-27GHz)	S-band Autotrack (SCM)	Ka-Rx/Tx (20/30 GHz) Q/V (40/50 GHz)

Precise & High Speed Pedestal

- ≤ 0,040° rms pointing accuracy
- 3-axes / No keyhole at zenith

Multi-band Radome

- Compact Metal space frame
- 4.6 m sweep diameter
- Extends product lifetime
- Eases maintenance

Safran's S/X/Ka feed

- Efficient Dual optics « ring focus »
- Patented multi-band concentric design
- Auto-aligned reflector (0.5mm rms)
- Also available in mono or dual bands

Low OPEX & CAPEX

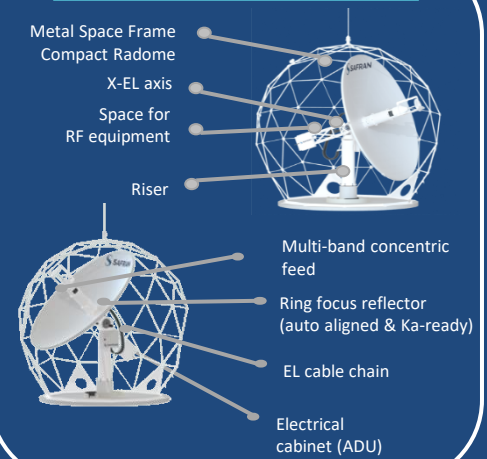
- Installation duration (Ant + radome): ~3-4 days
- Reliability: MTBF > 10,000 hrs / MTTR ~ 1 hr
- Power consumption ~600 W during satellite pass

E-antenna™

- Multi-band 1,500 MHz B/W Safran NuRoN I/O Digitizer
- Direct Optic Fiber output
- DVB-S2 / SCCC / C2 LDPC 7/8

NURON

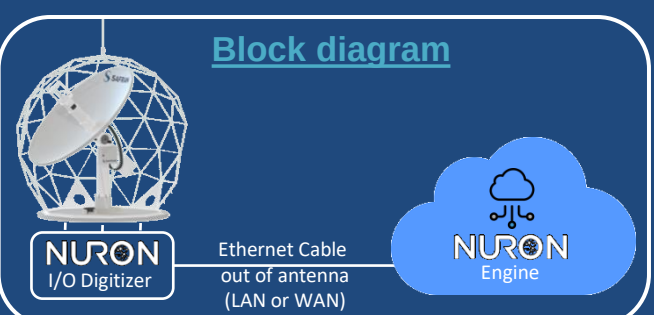
Hardware architecture



Servo & mechanics	LEGION 400
Reflector diameter	3.9 m
Pedestal Type	3-axis Cross-Elevation over Elevation over Azimuth (no keyhole) Adapted to satellites from 350km and above
Axis travel Range	Az: ± 180° / El: 0° to 180° / X-El -4° to +4°
Axis velocity and acceleration	Azimuth: 20°/s, 5°/s² / Elevation: 20°/s, 5°/s²
Pointing accuracy – Ephemeris mode	< 60 m° peak (3 sigma) / < 40 m° rms (1 sigma)
Tracking accuracy (S-band option)	< 30 m° peak (3 sigma) / < 10 m° rms (1 sigma)
Operational wind	200 km/h (optional 240km/h)

RF	LEGION 400
X-band Rx	[7.9 – 8.5] GHz – Simultaneous LHCP / RHCP
X-band G/T (10° EL)	>27 dB/K (bi-band) >26 dB/K (tri-band)
S-band Rx	[2.2 – 2.3] GHz] – Simultaneous LHCP / RHCP
S-band G/T (10° EL)	>14 dB/K
S-band Tx	[2.025 – 2.120] GHz – Selectable LHCP / RHCP
S-band EIRP	Up to 54 dBW
Ka-band Rx	[25.5 – 27 GHz] Simultaneous LHCP / RHCP
Ka-band G/T (10° EL)	>31 dB/K

Block diagram



LEGION *Smallsats & Constellations* | VISION *Earth Observation* | ORION *Space Agencies* | IRIS *Be mobile*

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