Data Sheet

HUGHES
An EchoStar Company

HL1620 Hughes LEO for Rail Terminal

Resilient Rail Connectivity. Every Mile, Everywhere.

The Hughes HL1620 is a low-profile electronically steerable antenna terminal designed specifically for high-speed rail connectivity over the Eutelsat OneWeb LEO satellite network.

Combining a rugged outdoor unit, rail-input power supply, and rail-optimized mobility capabilities, the HL1620 extends connectivity across routes where terrestrial coverage may be unavailable or inconsistent. It can be integrated into a multi-WAN architecture as an additional network path alongside cellular connectivity.

Qualification and Certification

The HL1620 is purpose-built for rail deployment and is undergoing certification to applicable railway, environmental, EMC, safety, and radio standards.

Certifications include EN 50155, EN 45545-2, EN 50121, and applicable high-voltage railway safety standards.

Rail-Ready by Design

- **High-speed mobility:** Designed for operation at speeds up to 600 km/h (373 mph).
- **Advanced positioning:** High-rate location updates, upgraded inertial sensing, and dual-band, multi-constellation GNSS.
- **Blockage tolerance:** Designed to improve recovery following temporary blockage, including through tunnels.
- **Snow and ice management:** Integrated heating.
- **Rugged, low-profile design:** Only 45 mm (1.77 in) high, with IP68/IP69K ingress protection.
- **Simplified integration:** A single PoE connection carries power and Gigabit Ethernet to the antenna.

Benefits:

- Extend coverage
- Increase network resilience
- Support passenger experience
- Enable operational continuity

HL1620 Hughes LEO Rail Terminal

RF and Performance Specifications*

Satellite network	Eutelsat OneWeb LEO
Antenna technology	Electronically steerable antenna
Peak data rate	195 Mbps downlink / 32 Mbps uplink
TX frequency	14.0 GHz to 14.5 GHz
RX frequency	10.7 GHz to 12.7 GHz
G/T	Up to 11.6 dB/K
EIRP	36.6 dBW, dual carrier
Field of view	68° half-cone angle
Maximum vehicle speed	Up to 600 km/h (373 mph)
Data interface	Gigabit Ethernet

Rail Antenna Specifications

Dimensions	873 x 633 x 45 mm (34.37 × 24.92 × 1.77 in)
Weight	24.95 kg (55 lbs.)
Operating temperature	–40 °C to +70 °C**
Survival temperature	–40 °C to +85 °C
Ingress protection	IP68 and IP69K
Power input	48 VDC nominal through PoE
Power consumption	235 W typical; 400 W maximum with heating active
Interface	M16, 8-position
Mounting provisions	M6
Grounding provisions	M8

Rail Power Supply Unit (PSU) Specifications

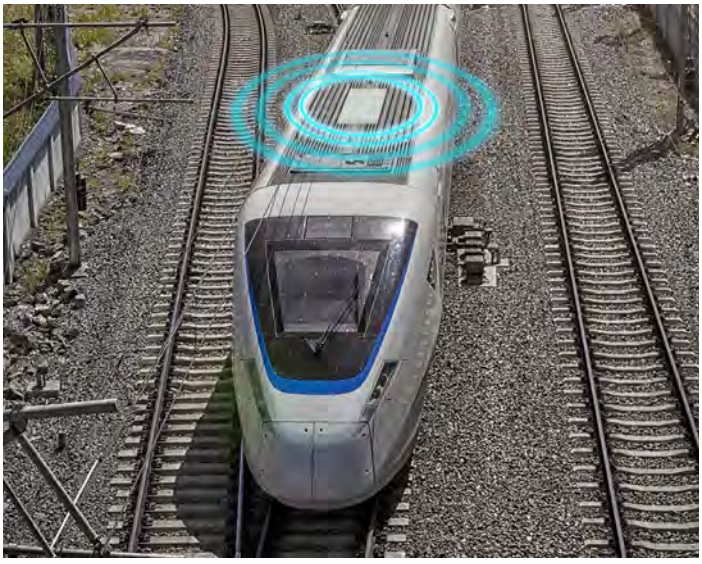
Dimensions	250 x 120 x 100 mm (9.84 x 4.72 x 3.94 in)
Weight	3.5 kg (7.7 lb)
Operating temperature	–40 °C to +70 °C
Survival temperature	–40 °C to +85 °C
Ingress protection	IP67
Rail power input	72 VDC, 96 VDC, and 110 VDC (Nominal)
Rail power connector	M12 K-coded male
LAN connector	M12 X-coded male
ODU output	48 VDC (Regulated)
ODU connector	M16
Electric protection	Reverse polarity and high-voltage transient/lightning protection

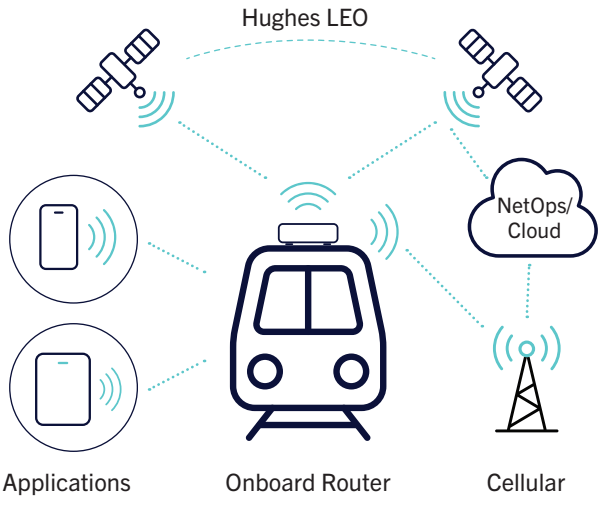
Preliminary specifications.

Product design, specifications, certifications, and availability are subject to change.

*Performance depends on network configuration, service plan, coverage, installation, and operating conditions. Contact Hughes for service offerings available in your region.

**Upper temperature limit subject to successful completion of environmental qualification testing.





For more information, visit
www.hughes.com/leo-rail

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