



## Gaia™ 100

LEO/MEO satellite tracking ground stations for  
business and mission-critical applications





## Make Your Data Count - Every Time

Earth Observation (EO) has become an essential part of our daily lives. The earth is constantly monitored, analyzed and measured by governmental agencies, defense forces and the private sector. From weather forecasting to disaster control, for oil and gas exploration and resource monitoring, earth observation data is vital to a growing body of applications that profoundly affect all of us.

New and growing constellations of Low Earth Orbit (LEO) and Medium Earth Orbit (MEO) satellites continuously circle our globe, providing visible imaging, radar screening and spectral analysis of our planet, as well as new communications services. To access data captured by these satellites, a fast and

reliable communications link must be established between the moving satellites and the earth. Communication can only be established when there is a line of sight between the satellite and the ground station. For LEO satellites, this communications "time window" typically lasts only a few minutes, so the goal is to get the most out of it.

Important decisions depend on the reliability of such communications links and there are no second chances. Orbit's LEO/MEO ground station solution for business- and mission-critical applications was designed to help ensure you never lose crucial data or connectivity.

## Gaia 100 family

Rethinking Ground Stations for EO and New Space

Combining years of experience and an extensive installed base with lessons from the emerging New Space sector, Orbit is rethinking traditional ground stations to develop the ultimate compact ground station to address the needs of its EO and constellation customers. The company's Gaia 100 family comprises cost-effective, high-performance ground terminals for proven and reliable connectivity with LEO and MEO satellites.

The Gaia 100 family is available in three antenna sizes:



Gaia 100 2.4m



Gaia 100 3.7m



Gaia 100 4.5m



## Tracking Superiority

The combination of Orbit's Advanced Control Loop™ algorithm and integrated RF tracking meets the demanding accuracy requirements of the Ka-band frequency range, ensuring that your ground station is ready for current and next-generation satellites. Gaia's boresight pointing capability (the ability to pinpoint the center of a moving target) ensures maximum peak (G/T) reception performance while tracking the satellite.

Gaia 100 can also be configured with a dual S/X feed that supports simultaneous or switchable RHCP and LHCP polarization. It typically uses X-band for downloading data from the satellite and S-band for the control and monitor management channel in both receive and transmit modes. A single band feed is also available (S- or X-band). All antennas are designed to ensure continuous operation even when the LEO tracking path is at its zenith.

All Gaia ground stations come equipped with a ruggedized radome that enables them to withstand even the harshest environmental conditions.

## GaiaLink™ Software Key Features

- Ability to monitor and control one or many ground stations at once
- Advanced graphical user interface
- Secured SCP for host antenna file transfer (TLE, routing, scheduling, SW upgrades)
- Scheduler option for automatic "send & forget" antenna action plan
- Colored indicators for AGC signal levels
- SDK for easy user program interface
- Easy and intuitive configurable desktop
- User-defined multiple views
- Advanced high accuracy antenna log limited only by disk space

## Key features

— No "key hole", for continuous tracking

— Real 3-axis system – EL, Tilt and AZ for higher availability and reliability

— Built in Advanced Control Loop™, Step track based for supreme performance

— Innovative GaiaLink™ software, for ease of integration and operation

— Radome covered, for anytime/anywhere operation

— Short lead time

— Multiple configurations (from L to K-band) in a single platform

— Mature product with multiple installations around the globe

## Applications

Orbit's globally installed tracking systems operate under extreme environmental conditions to meet the needs of a broad range of challenging applications, including:



Gateways and TT&C for MEO/LEO constellations



Weather forecasting



Disaster monitoring and control



Search and rescue missions



Surveillance for military and homeland security



Oil & gas exploration



Land mapping

## Gaia 100 System Specifications

	Gaia 100 2.4m	Gaia 100 3.7m	Gaia 100 4.5m
Parameters	Specifications		
Antenna			
Diameter	2.4 m (7.9 ft)	3.7 m (12.1 ft)	4.5 m (14.7 ft)
Frequency Range	S-Band Transmit: 2020-2120 MHz S-Band Receive: 2200-2300 MHz X-Band Receive: 7900-8400 MHz Optional X-Band (7700 – 8500 MHz) Optional S-Band (2400-2500 MHz)		
G/T (including radome loss)	S-Band: 9[dB/°K]; X-Band: 21.5[dB/°K]	S-Band: 12.8[dB/°K]; X-Band: 25.4[dB/°K]	S-Band: 14.5[dB/°K]; X-Band: 27.1[dB/°K]
Environmental Conditions			
Wind Operational/Survival	Up to 185 Km/hour (115 miles/hour)		
Temperature Range	Operational: -25°C to +55°C (-13°F to +130°F), (-40°C/-40°F optional) Storage: -40°C to +70°C (-40°F to +158°F)		
Altitude	Operational: 6,300 meter (20,000 ft) Transportation: 12,600 meter (40,000 ft)		
Rain	IP rating X6 (radome enclosed)		
Mechanical Specifications			
Max Velocity	20°/sec	10°/sec	5°/sec
Max Acceleration	10°/sec <sup>2</sup>	5°/sec <sup>2</sup>	5°/sec <sup>2</sup>
Weight (Including Radome)	800 Kg (1764 lb)	1100 Kg (2400 lb)	1500 Kg (3300 lb)
3 Axis	Az -> Continuous rotation Elevation -> 0-90° Tilt -> ±30°		
Radome Size	Base Diameter: 2.1 m; Height: 3.0 m	Base Diameter: 3.0 m; Height: 4.3 m	Base Diameter: 4.3 m; Height: 5.0 m
Power Input	90-130VAC or 200-250VAC 50/60Hz		
Safety	EN 60204-1, ISO 12100-2, EN 614-1, IEC 60945:2002		

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### How to order:



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**Gaia 100**

**Dish Size**

**Band Type**

### Band types (partial configuration table)

S&X Full Simultaneous	X-Band Manual
S&X Full Switchable	X-Band Switchable
X RHCP/LHCP S Switchable	Ka-band RHCP or LHCP
L & S Switchable	S-Band Switchable
S&X Manual	X RHCP Only
Ka-band Switchable	X LHCP Only

\* Additional configurations are available. For more information, visit [www.orbit-cs.com](http://www.orbit-cs.com).