

8.1 Meter Extended Azimuth ESA

Like all Kratos earth station antennas, the 8.1 meter Earth Station Antenna provides high gain and exceptional pattern characteristics.

This antenna system is designed to address the stringent requirements of both the television broadcast industry and telecommunications network operators who demand unsurpassed flexibility and electrical performance in high-quality, cost-effective, and reliable packages.

The 8.1m antenna is offered with an extended AZ motorizable mount allowing 200° travel coverage. This antenna can be provided with the NGC motorization and/or the Kratos Sub-reflector tracking system SRT for Ka band application. The combination of the NGC and the SRT tracking system can allow the tracking on up to 6 axis.

The electrical performance and exceptional versatility provides the ability to configure the antenna with your choice of combining network. That versatility is provided at the time of initial purchase, as well as in the future, as your satellite communication requirements evolve.

This antenna system is used worldwide in broadcast applications and high density data, voice and communications networks. The Kratos 8.1 meter earth station antenna features a computer-optimized dual reflector Gregorian optics system and close-tolerance manufacturing techniques.

This combination provides extremely accurate surface contour resulting in exceptionally high gain and closely controlled pattern characteristics. Kratos earth station antennas provide maximum durability with minimal maintenance.



Features

- Rugged aluminum and steel construction
- Superior Pointing Accuracy
- Advanced Gregorian optics
- 3 Year Warranty on all Structural Components
- Monopulse Tracking Capabilities for Ka-Band
- >200° Continuous Azimuth Travel Range
- Deep Equipment Enclosure
- Low PIM Capabilities

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Design Standards

| | |
|--------------|---|
| Reflector | Aluminum painted with highly diffusive white paint |
| Ground Mount | Hot-dipped galvanized steel, per ASTM-A123 for structural steel. |
| Hardware | Sizes \leq 3/8 in (9.5mm), stainless steel, passivated per MIL-F-14072-E300 Sizes \geq 3/8 in (9.5mm), hot-dipped galvanized stainless steel, passivated per ASTM-A123 |

Environmental Performances

| | |
|------------------------|--|
| Operating Temperature | -40° to 52°C (-40° to 125°F) |
| Seismic (Earthquake) | 1 G Vertical and Horizontal acceleration. Equivalent to a Richter Magnitude 8.3, and Grade 11 on the modified Mercalli Scale |
| Operational Winds | 45 mph (72 km/h) Gusts to 65 mph (105 km/h) |
| Survival Winds | 125 mph (200 km/h) in any position of operation |
| Rain | 4 in (102 mm) per hour |
| Solar Radiation | 360 BTU/hr/ft ² (1135 Watts/m ²) |
| Relative Humidity | 100% |
| Shock and Vibration | As encountered by commercial Air, Rail and Truck shipment. |
| Atmospheric Conditions | As encountered by Moderately Corrosive Coastal and Industrial Areas. |

Mechanical Performances

The 8.1m Antenna mechanical general specifications and performances are listed in below table. Additional information, dimensions and layout may be provided by Kratos on a case-by-case basis.

| | |
|--------------------|----------------------------|
| Optics Type | Dual Reflector Gregorian |
| Reflector Material | Precision-Formed Aluminum |
| Reflector Segments | 20 |
| Mount Type | EI over Az, Pedestal Mount |

Antenna Pointing Range, Coarse/(Continuous)

| | |
|--------------|-------------|
| Elevation: | 0-90° (90°) |
| Azimuth: | 200° (200°) |
| Polarization | 180° (180°) |

Hub/Enclosure Dimensions

| | |
|----------|----------------|
| Diameter | 2.14 m (84 in) |
| Depth | 1.17 m (45 in) |

Shipping Information

Packing Options

| | |
|--|--------------------|
| Standard Commercial Domestic Pack | Included |
| Ocean Export Pack - For non-containerized, packed for seal against salt water spray | OCEANSHP-LG |
| Air Export Pack - For freighter aircraft shipments. Lower deck AirPack requires specialized bids | AIR EXPORT PACK-LG |
| Container Packaging | CNTPCK-LG |

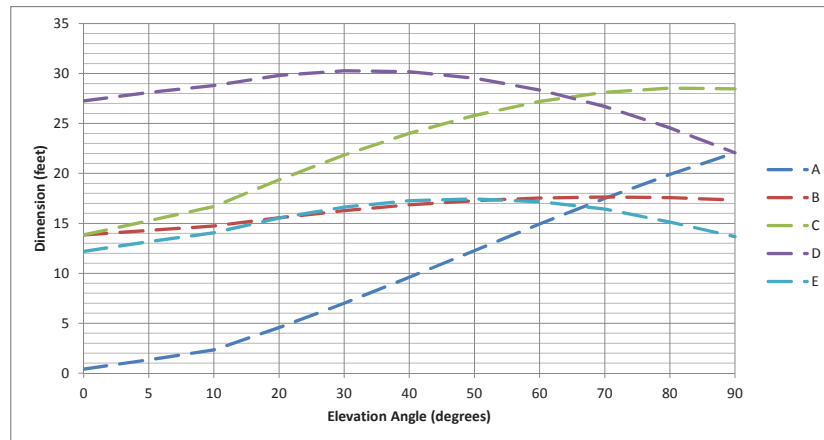
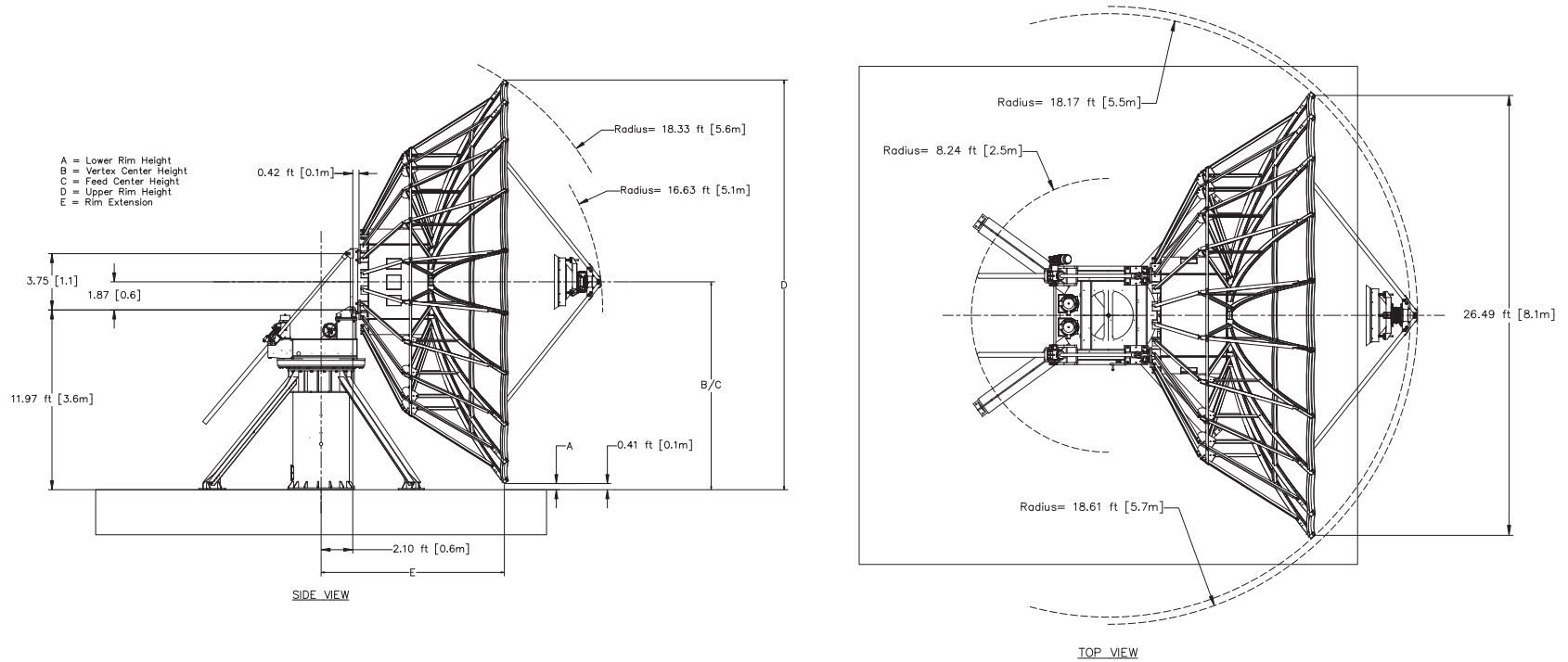
Required Shipping Container

| | |
|-----------------------------------|------------|
| Standard 20 ft land/sea container | Quantity 1 |
| Standard 40 ft land/sea container | Quantity 1 |

Shipping container information is given for basic configuration and may vary depending on the selected options, please contact Kratos for specific container loading plan.

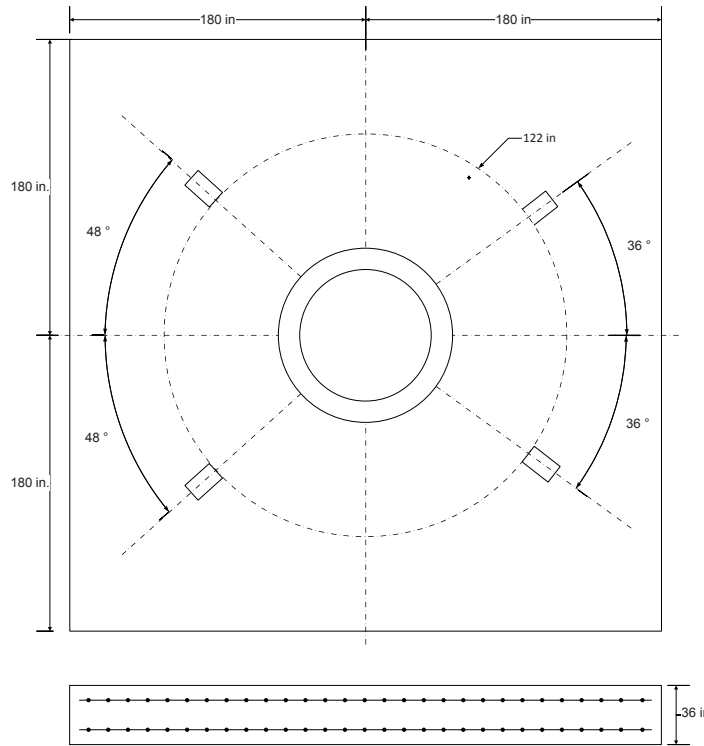
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Dimensional Drawings

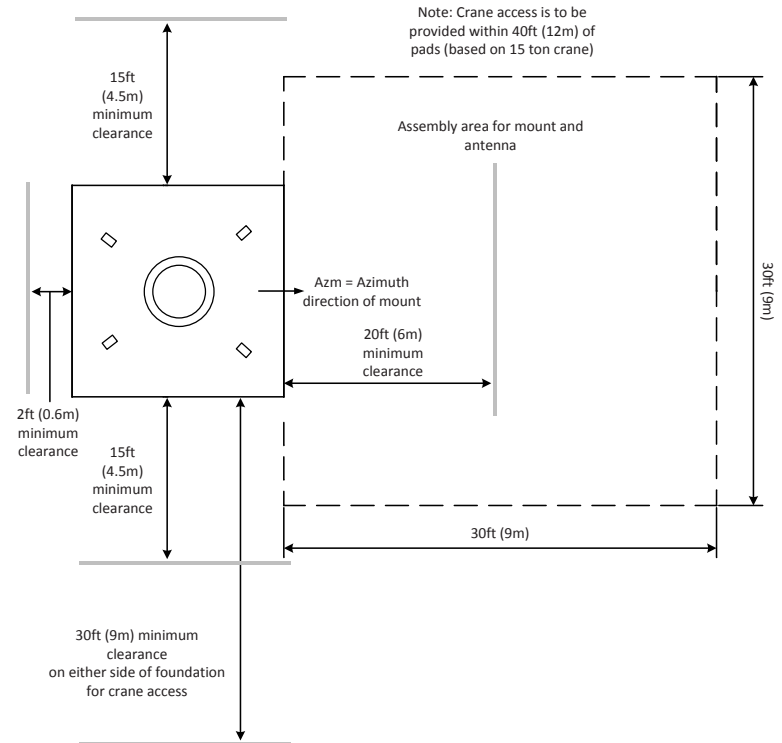


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Typical Foundation Design



Typical Foundation Information



Foundation information are provided in bulletin 7579312, please contact Kratos.

| | |
|--------------------------------|---|
| Soil Bearing Capacity, | 2000 lb/ft ² (9770 kg/m ²) |
| Reinforcing Steel, | 4.7 tons (4300 kg) |
| Concrete Compressive Strength, | 3000 psi (211 kg/cm ²) |
| Foundation Size: | (for specific standard soil and typical design) |
| Length | 30 ft (9.14 m) |
| Width | 30 ft (9.14 m) |
| Depth | 3 ft (0.91 m) |
| Concrete Volume | 144 yd ³ (100 m ³) |

NOTE: Other typical foundation designs are available. Soil borings and foundation analysis should be performed by a qualified civil engineer.

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Motor Drive Speed Summary

| | Variable | |
|--------------|----------|--------|
| Azimuth | 0.05°/s | 0.5°/s |
| Elevation | 0.05°/s | 0.5°/s |
| Polarization | 1°/s | |

Motorization

One Dual Drive motorization system is available for this antenna: the NGC tracking system that can support Steptrack, Smartrack and Ephemeris orbital tracking application. The NGC-IDU controller can also operate the Sub-Reflector tracking system SRT-3-81, 3 axis Control Sub-Reflector Carriage, required for Ka application.

Motor Kit

| | |
|-----------------------------|------------|
| Azimuth/Elevation Motor Kit | NGC-MK81DD |
|-----------------------------|------------|

SRT Kit

| | |
|---------------------------------------|----------|
| 3 axis Control Sub-Reflector Carriage | SRT-3-81 |
|---------------------------------------|----------|

Polarization Drive Kit (DC Step Motors)

| | |
|-------------------------------------|---------------|
| Standard Temperature (> -20°C) | NGC-PK9DRA |
| Low Temperature operation (< -20°C) | NGC-PK9DRA-LO |

Outdoor Unit Controller (Tracking)

| | |
|---------------------------------------|----------------|
| Power 200 - 230 VAC, 3 Phase 50/60 Hz | NGC-ODU-208-3D |
| Power 380 - 460 VAC, 3 Phase 50/60 Hz | NGC-ODU-380-3D |

Antenna controller, motorization and options are detailed in specific bulletins, please contact Kratos.

Antenna Configuration

Earth Station Antennas

| | |
|---|--------------|
| Motorizable Mount with Dual Azimuth Drive and Elevation Jackscrews. | ES81MPEXKA-1 |
|---|--------------|

Motorization and NGC Options

| Indoor | |
|------------------|---|
| NGC-IDU | NGC Rack Mounted Antenna Controller W/LCD Touch Panel |
| NGC-001 | NGC-IDU Analog Telephone Modem |
| NGC-002 | NGC-IDU Spectrum Analyzer Card - Analog |
| NGC-003 | NGC-IDU DVB Receiver Card |
| NGC-004-02 | NGC IDU, L-Band Internal Beacon Receiver |
| NGC-006 | NGC-IDU Emergency Stop Button |
| NGC-007 | NGC-IDU 10 Mhz Reference Source |
| NGC-008 | NGC-IDU Redundant Power Supply |
| NGC-009 | NGC-IDU Rack Slides |
| NGC-101 | NGC-IDU Step Tracking Software |
| NGC-102 | NGC-IDU Smartrack Software |
| NGC-103 | NGC-IDU Predictive Track Software |
| NGC-104 | NGC-IDU Full Tracking Capability Software |
| NGC-106 | NGC-IDU Remote Access Software Package |
| NGC-107 | NGC-IDU Spectrum Analyzer Enhanced User Interface |
| NGC-108 | Receive Pattern Test Tool |
| NGC-109 | Redundancy Control Software |
| NGC-111 | Sand/Dust/Debris Interface |
| NGC-119 | NGC High Availability System Redundancy Software |
| Outdoor | |
| NGC-201 | NGC ODU Low Temperature Kit (-40 C) |
| NGC-202 | NGC ODU High Temperature Kit (+60 C) |
| NGC-205 | NGC ODU Polarization Drive Interface |
| NGC-206 | NGC Exterior Emergency Stop Button |
| NGC-207 | Pre Movement Alert Warning Light And Annunciator |
| NGC-211 | Dual Path NGC Redundancy |
| NGC-AESC | Kit,Antenna Environmental System Controller |
| NGC-HTR-81KA-xxx | Kit,Heater Controller, De-Ice,Reflector,8.1M |

Antenna controller, motorization and options are detailed in specific bulletins, please contact Kratos.

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Feed Matrix

| X/Ka- BAND FEED SYSTEMS | PORT | CP | LOW PIM | RX 7.25 - 7.75 GHz | TX 7.9 - 8.4 GHz | RX 20.2 - 21.2 GHz | TX 30.0 - 31.0 GHz |
|-------------------------|------|----|---------|--------------------|------------------|--------------------|--------------------|
| 8CPXKA-81-1 | 8 | X | | X | X | X | X |
| 6CPXKA-81-1-LP | 6 | X | X | X | X | X | X |
| 8CPXKA-81-1-LP | 8 | X | X | X | X | X | X |

| Ka- BAND FEED SYSTEMS | PORT | CP | LP | RX 17.7 - 21.2 GHz | TX 27.5 - 31.0 GHz | RX 21.4 - 22.0 GHz | RX 27.0 - 30.05 GHz |
|-----------------------|------|----|----|--------------------|--------------------|--------------------|---------------------|
| 4CPWWKA-81-206 | 4 | X | | X | X | | |
| 4LPWWKA-81 | 4 | | X | X | X | | |
| 4LPEUTKA-8 | 4 | | X | | | X | X |

For Monopulse application, please contact Kratos.

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Antenna Options and Spares

| Anchor Bolt and Template Kits Options | |
|---------------------------------------|---|
| 7579648 | Anchor Bolt Kit 8.1M Ka-Band Extended Azimuth Earth Station Antenna. |
| 7579848 | Anchor Bolt Template Kit 8.1M Ka-Band Extended Azimuth Earth Station Antenna. |

Azimuth and Elevation Cross Axis Waveguide Options

Please contact Kratos for specific application.

| Heating Options | |
|-----------------|---|
| FH81KA | Feed Heater and Anti Dew Kit, 8.1M Ka-Band ESA |
| WEC-81R-208-100 | Electric Hot Air De-Ice System, 208 VAC, 3 Phase for 8.1m Ka band |
| WEC-81R-380-100 | Electric Hot Air De-Ice System, 380 VAC, 3 Phase for 8.1m Ka band |

| Environment Systems Options | |
|-----------------------------|--------------------------------------|
| PDKA-81-208 | Precipitation Deviator, 208/230 VAC. |
| PDKA-81-380 | Precipitation Deviator, 380/415 VAC. |

| Hub Equipment Options | |
|-----------------------|---|
| EMRGYLT-115 | Emergency Hub Light Kit, 115 VAC |
| EMRGYLT-220 | Emergency Hub Light Kit, 220 VAC |
| FV8HV0-115 | Fan/Vent Kit, 2 Fans, Not Louvered, 115 VAC |
| FV8HV0-230 | Fan/Vent Kit, 2 Fans, Not Louvered, 230 VAC |
| FV8HV2-115 | Fan Vent Kit, 2 Louvers. 115 VAC |
| FV8HV2-230 | Fan Vent Kit, 2 Louvers. 230 VAC |
| FV8HV4-115 | Fan Vent Kit, 4 Louvers. 115 VAC |
| FV8HV4-230 | Fan Vent Kit, 4 Louvers. 230 VAC |
| HUBHTR-230 | Antenna Hub Heater, 230 VAC |
| HUBLCNTR-115/240 | Hub Power Center, 115/240 VAC |
| HUBLCNTR-230 | Hub Power Center, 230 VAC |
| HUBLT-115 | Hub Light Kit, 115 VAC |
| HUBLT-230 | Hub Light Kit, 230 VAC |

| Safety Options | |
|----------------|---|
| ANTGND-9 | Foundation Installed Grounding Kit |
| LRK9 | Lightning Rod Kit |
| MANPL81-EXTAZ | Maintenance Platform and Ladder Kit for 8.1m Extended Azimuth Mount |
| OBWRNLT-UNV | Obstruction Warning Light Kit |
| LFK-8 | Lift Kit |

| Other Options | |
|---------------|--|
| 223711-2 | Theodolite Alignment Kit |
| 223711-UP8194 | Upgrade Kit for 223711 Theodolite Alignment Kit. Must currently have a 223711 Kit. |
| 209906-2 | Lubrication and Maintenance Kit |
| 7580873 | Kit Handwheel, 12" OD, Alum, Med Ext Az |
| FTST | Feed System Testing |
| TK-MAN-LG | Tool Kit, Large Manual Antennas |
| TK-MOT-LG | Tool Kit, Large Motorized Antennas |



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