



ES73-1

7.3 Meter ESA

The superior performance of the Andrew 7.3 meter earth station antenna makes it an excellent choice for high-density data, voice, communications networks and broadcast applications.

The uniquely formed dual reflector Gregorian system and close-tolerance manufacturing techniques provide an extremely accurate surface contour, exceptionally high gain and closely controlled pattern characteristics.

The 7.3M 2 or 4-port C-band Intelsat® Type Approved antennas speed system deployment. Minimal testing and decreased administrative and approval requirements translate directly to cost savings.



Features :

- Self-aligning main reflector - No field alignment
- Rugged aluminum and steel construction
- 3-Year warranty on all structural components

Electrical Performance Meets or Exceeds :

- FCC Regulation 25.209
- ITU-R, S580 and S.465
- Russian Homologation Certificate # OC/1-AO-136
- Intelsat® Type Approval, IA032A00, 2-port; IA032B00, 4-port

Design Standards

Material/Finish Reflector: Aluminum, chromate converted per MIL-C-5541C and painted with highly diffusive white paint

Ground Mount: Hot-dipped galvanized steel, per ASTM-A123 for structural steel

Hardware: Sizes < 3/8 in (9.5 mm), stainless steel, passivated per MIL-F-14072-E300

Sizes > 3/8 in (9.5 mm), hot-dipped galvanized steel per ASTM-A123

Mechanical Specifications

Optics Type: Dual-reflector, Gregorian

Reflector Material: Precision formed aluminum

Reflector Segments: 16

Hub/Enclosure Dimensions: Diameter 48.00" (1.22)

Depth 46.00" (1.17)

Mount Type: Tripod mount

Antenna Pointing Range, Elevation 5 (90)

Course/(Continuous): Azimuth 180 (120)

Polarization 180 (180)

Environmental Conditions

Operating Temperature: -40° to 125°F (-40° to 50°C)

Wind Loading, Survival: Antenna, with or without motor drives will survive 125 mph (200 km/h) winds while in a stationary position

Wind Loading, Operational: Antenna with motor drives or fixed antennas can be repositioned in winds of 45 mph (72 km/h), with gusts up to 65 mph (105 km/h)

Seismic (Earthquakes): 1 G vertical and horizontal acceleration ; equivalent to a Richter magnitude 8.3 and grade 11 on the modified Mercalli scale

Rain: 4 in (102 mm) per hour

Solar Radiation: 360 BTU/hr/ft² (1135 W/m²)

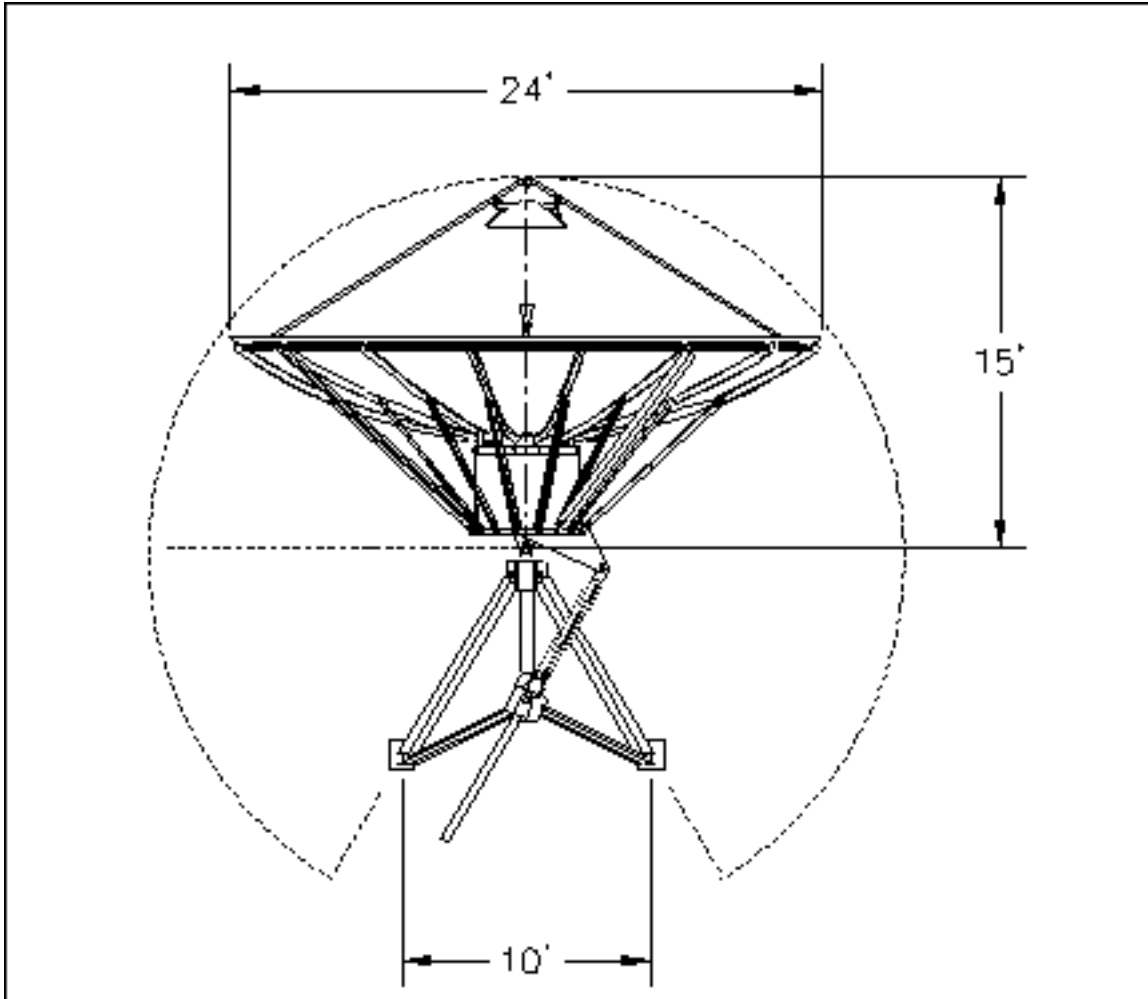
Relative Humidity: 100

Shock and Vibration: As encountered by commercial air, rail and truck shipment

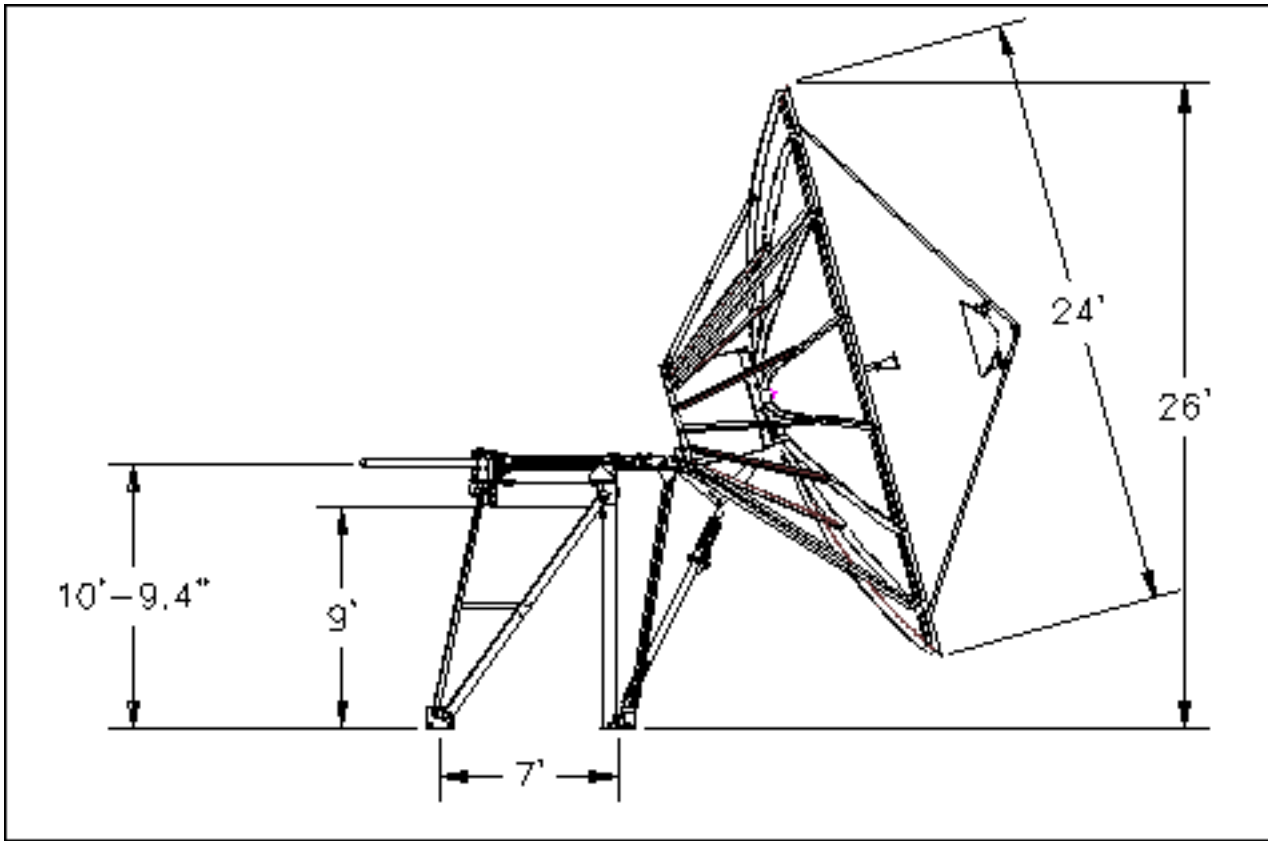
Atmospheric Conditions: As encountered in a moderately corrosive coastal and industrial area

Dimensional Drawings

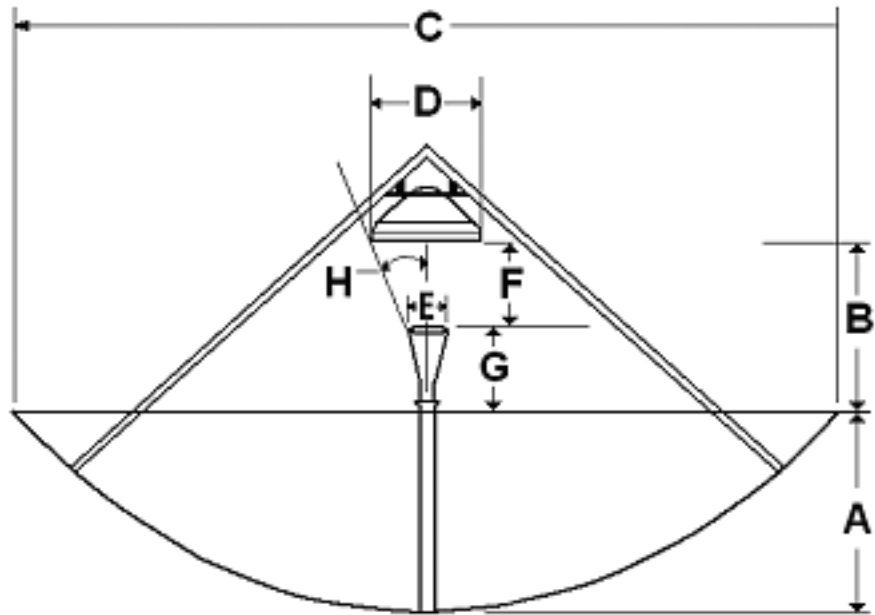
Tripod mount, Top View:



Tripod mount, Side View:



Energy Density Calculation



| | | |
|-----------|--|-----------------|
| A: | Vertex to aperture plane of main reflector | 3.9 ft (1.18 m) |
| B: | Aperture plane of main reflector to aperture plane of subreflector | 4.4 ft (1.34 m) |
| C: | Diameter of main reflector | 24 ft (7.32 m) |
| D: | Diameter of subreflector | 3.5 ft (1.07 m) |
| E: | Diameter of feed horn | 1.1 ft (0.34 m) |
| F: | Distance from feed aperture to aperture plane of subreflector | 1.7 ft (0.52 m) |
| G: | Distance from aperture plane of main reflector to feed horn aperture | 2.7 ft (0.82 m) |
| H: | Angle from bore sight to subreflector edge | 46° |

Earth Station Antenna and Feed System Specifications

ES73-1 7.3 M C-Band Transmit/Receive Earth Station Antenna. Motorizable Tripod Mount.

Nominal C Band G/T Antenna Performance

| | | |
|------------------------------------|-----------|-----------|
| LNA/LNB Noise Temperature: | 45 K | 30 K |
| G/T @ 10 Degrees Elevation: | 29.4 dB/K | 30.3 dB/K |
| Beamwidth, midband, degrees | C-Band Rx | C-Band Tx |
| 3 dB | 0.66° | 0.44° |
| 15 dB | 1.30° | 0.83° |

2 Port C Band Receive Only Feed Systems

| Feed Part Numbers | 2CPNCR-7-109 | 2CPWCR-7-120 | 2LPNCR-7 | 2LPWCR-7 |
|---|----------------|----------------|----------------|----------------|
| Operation | Receive Only | Receive Only | Receive Only | Receive Only |
| Polarization | Circular | Circular | Linear | Linear |
| Frequency, GHz | 3.625-4.200 Rx | 3.400-4.200 Rx | 3.625-4.200 Rx | 3.400-4.200 Rx |
| Insertion Loss dB Rx (Tx) | 0.15 | 0.15 | 0.10 | 0.15 |
| Port-to-Port Isolation, dB | | | | |
| Rx to Rx | 40 | | 40 | 40 |
| Interface Flange | | | | |
| Rx Port | WR229 | WR229 | WR229 | WR229 |
| Gain @ feed output flange (dBi ± 0.2 dB) | | | | |
| Frequency | | | | |
| 3.4000 GHz | | | | 46.8 |
| 3.6250 GHz | 47.4 | 47.4 | 47.4 | |
| 3.7000 GHz | 47.6 | | 47.6 | 47.6 |
| 4.0000 GHz | | 48.3 | | |
| 4.2000 GHz | 48.7 | 48.7 | 48.7 | 48.7 |
| Antenna Noise Temperature - clear sky conditions, at 68°F (20°C) | | | | |
| 10° elevation | 42 | 42 | 35 | 42 |
| 30° elevation | 31 | 31 | 27 | 31 |
| 50° elevation | 29 | 29 | 25 | 29 |
| Maximum Pressurization | 0.50 psi | 0.50 psi | 0.50 psi | 0.50 psi |

2 Port C Band Transmit / Receive Feed Systems

| Feed Part Numbers | 2CPNC-7-109 | 2CLPNC-7 | 2LPNC-7 | 2LPUC-7 | 2LPWC-7 |
|---|--------------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| Operation | Transmit / Receive | Transmit / Receive | Transmit / Receive | Transmit / Receive | Transmit / Receive |
| Polarization | Circular, field switchable to Linear | Co-Linear | Linear | Linear | Linear |
| Frequency, GHz | 3.625-4.200 Rx 5.850-6.425 Tx | 3.625-4.200 Rx 5.850-6.425 Tx | 3.625-4.200 Rx 5.850-6.425 Tx | 4.500-4.800 Rx 6.725-7.025 Tx | 3.400-4.200 Rx 5.850-6.725 Tx |
| Insertion Loss dB Rx (Tx) | 0.20 (0.20) | 0.20 (0.20) | 0.20 (0.10) | 0.15 (0.20) | 0.20 (0.20) |
| Port-to-Port Isolation, dB | | | | | |
| Tx to Rx | 85 | 85 | 85 | 40 | 85 |
| Interface Flange | | | | | |
| Tx Port | Brass, CPR137G | Brass, CPR137G | Aluminum, CPR137G | WR112 | WR137 |
| Rx Port | Brass, CPR229G | Brass, CPR229G | Aluminum, CPR229G | CPR229G | WR229 |
| Gain @ feed output flange (dBi ± 0.2 dB) | | | | | |
| Frequency | | | | | |
| 3.4000 GHz | | | | | 46.8 |
| 3.6250 GHz | 47.4 | 47.4 | 47.4 | | |
| 3.7000 GHz | 47.6 | 47.6 | | | 47.9 |
| 4.0000 GHz | | | 48.3 | | |
| 4.2000 GHz | 48.7 | 48.7 | 48.7 | | 48.7 |
| 4.5000 GHz | | | | 49.2 | |
| 4.8000 GHz | | | | 49.6 | |
| 5.8500 GHz | 51.2 | 51.2 | 51.2 | | 51.2 |
| 6.1750 GHz | 51.7 | 51.6 | 51.6 | | 51.7 |
| 6.4250 GHz | 52.0 | 51.9 | 51.9 | | |
| 6.7250 GHz | | | | 52.4 | 52.4 |
| 7.0250 GHz | | | | 52.8 | |
| Antenna Noise Temperature - clear sky conditions, at 68°F (20°C) | | | | | |
| 10° elevation | 48 | 42 | 42 | 42 | 42 |
| 30° elevation | 37 | 31 | 31 | 31 | 31 |
| 50° elevation | 35 | 29 | 29 | 29 | 29 |
| Tx Power Capacity | 500 W | 2500 W | 5000 W | | 5000 W |
| Maximum Pressurization | 0.50 psi | 0.50 psi | 0.50 psi | 0.50 psi | 0.50 psi |

4 Port C Band Receive Only Feed Systems

| Feed Part Numbers | 4CPNCLPKUR-7 | 4LPNCLPKUR-7 |
|---|------------------------------------|------------------------------------|
| Operation | Receive Only | Receive Only |
| Polarization | Circular | Linear |
| Frequency, GHz | 3.625-4.200 Rx 10.950-12.750 Rx | 3.625-4.200 Rx 10.950-12.750 Rx |
| Interface Flange | | |
| Rx Port | | WR229 |
| Gain @ feed output flange (dBi ± 0.2 dB) | | |
| Frequency | | |
| 3.6250 GHz | 47.3 | 47.4 |
| 4.0000 GHz | 48.2 | 48.3 |
| 4.2000 GHz | 48.6 | 48.7 |
| Antenna Noise Temperature - clear sky conditions, at 68°F (20°C) | | |
| 10° elevation | 48 | 48 |
| 30° elevation | 37 | 37 |
| 50° elevation | 35 | 35 |
| Maximum Pressurization | 0.50 psi | 0.50 psi |

4 Port C Band Transmit / Receive Feed Systems

| Feed Part Numbers | 4CPNC-7-206 | 4LPNC-7 | 4LPWC-7 | 4LPWWC-7 |
|---|----------------------------------|--|----------------------------------|----------------------------------|
| Operation | Transmit / Receive | Transmit / Receive | Transmit / Receive | Transmit / Receive |
| Polarization | Circular | Linear | Linear | Linear |
| Frequency, GHz | 3.625-4.200 Rx 5.850-6.425 Tx | 3.625-4.200 Rx 5.850-6.425 Tx | 3.400-4.200 Rx 5.850-6.725 Tx | 3.400-4.200 Rx 5.725-6.725 Tx |
| Insertion Loss dB Rx (Tx) | 0.30 (0.20) | 0.20 (0.15) | 0.20 (0.15) | 0.25 (0.20) |
| Port-to-Port Isolation, dB | | | | |
| Tx to Rx | 85 | 85 | | 85 |
| Interface Flange | | | | |
| Tx Port | Brass, CPR137G | Brass, CPR137G | WR137 | WR137 |
| Rx Port | Brass, CPR229G | Brass, CPR229G | WR229 | WR229 |
| Gain @ feed output flange (dBi ± 0.2 dB) | | | | |
| Frequency | | | | |
| 3.4000 GHz | | | 46.8 | 46.8 |
| 3.6250 GHz | 47.3 | 47.4 | | |

| | | | | |
|------------|------|------|------|------|
| 3.7000 GHz | | | 47.9 | 47.9 |
| 4.0000 GHz | 48.3 | 48.4 | | |
| 4.2000 GHz | 48.7 | 48.8 | 48.7 | 48.7 |
| 5.8500 GHz | 51.1 | 50.9 | 51.2 | 51.2 |
| 5.9250 GHz | | 51.2 | | |
| 6.1750 GHz | 51.6 | | 51.7 | 51.7 |
| 6.4250 GHz | 51.9 | 51.9 | | |
| 6.7250 GHz | | | 52.4 | 52.8 |

Antenna Noise Temperature - clear sky conditions, at 68°F (20°C)

| | | | | |
|---------------|----|----|----|----|
| 10° elevation | 48 | 38 | 48 | 48 |
| 30° elevation | 37 | 27 | 37 | 37 |
| 50° elevation | 35 | 25 | 35 | 35 |

Tx Power Capacity

2500 W 2000 W per port 2000 W per port

Maximum Pressurization 0.50 psi 0.50 psi 0.50 psi 0.50 psi**4 Port Ku Band Receive Only Feed Systems**

| Feed Part Numbers | 4CPNCLPKUR-7 | 4LPNCLPKUR-7 |
|-----------------------|------------------------------------|------------------------------------|
| Operation | Receive Only | Receive Only |
| Polarization | Linear | Linear |
| Frequency, GHz | 10.950-12.750 Rx 3.625-4.200 Rx | 10.950-12.750 Rx 3.625-4.200 Rx |

Interface Flange

| | | |
|---------|------|------|
| Rx Port | WR75 | WR75 |
|---------|------|------|

Gain @ feed output flange (dBi ± 0.2 dB)

| Frequency | | |
|-------------|------|------|
| 10.9500 GHz | 55.2 | 55.2 |
| 11.9500 GHz | 56.0 | 56.0 |
| 12.7500 GHz | 56.5 | 56.5 |

Antenna Noise Temperature - clear sky conditions, at 68°F (20°C)

| | | |
|---------------|----|----|
| 10° elevation | 62 | 62 |
| 30° elevation | 52 | 52 |
| 50° elevation | 49 | 49 |

Maximum Pressurization 0.50 psi 0.50 psi

Motorization and Antenna Controllers

The MK7VS-xxx variable speed motor kits include 3 HP Az and El motors, line filters and mounting kits. The local motor controller provides electrical power distribution and local control of the motors at the antenna pedestal. The local motor controller is housed in an environmental protected enclosure that mounts to the side of the antenna pedestal.

The hand held controller allows the operator or maintenance personnel to control the position the antenna and the feed polarization from the local motor controller.

The ACS100 automatically moves the antenna to the requested satellite position

A jog switch is provided on the front panel to allow manual movement of the antenna. 40 satellite positions can be entered and stored in the ACS100 memory

The ACS3000S-xx-7-xxx is an all-inclusive motorization and antenna controller package. Includes Outdoor Unit (ODU), Data Transmission Unit (DTU) and jack mounted gear motors. Can be run by customer-provided PC running a Web browser installed on a private local area network, an existing station monitor and control computer via serial interface, or the included Andrew handheld unit. Data transmission unit accepts external tracking signals supplied by either the customer or an optional tracking receiver. In addition to manual control, the ACS300S-() provides Andrew proprietary SmarTrack® and ephemeris data automated tracking with NORAD two Line or Intelsat® element sets.

Requires customer-provided PC. Beacon receiver (if required), ordered separately.

Typical weights and dimensions for ACS3000S products is: 48 in L x 43 in W x 56 in H, 275 lbs

| Part Number | Description | Specifications |
|-------------------|---|---|
| MK7VS-208 | Variable speed motorization kit. 0.5 deg/sec fast, Az/El. 0.05 deg/sec slow, Az/El | Power: 200-230 VAC, 3 phase 50//60 Hz. 4 conductor (3 ph Delta_safety ground. or 5 conductor (3 ph WYE+safety ground.) Use with ACS100-100 controller |
| MK7VS-380 | Variable speed motorization kit. 0.5 deg/sec fast, Az/El. 0.05 deg/sec slow, Az/El | Power: 380-460 VAC, 3 phase 50//60 Hz. 4 conductor (3 ph Delta_safety ground. or 5 conductor (3 ph WYE+safety ground.) Use with ACS100-100 controller |
| ACS100-100 | Antenna programmable control system. Incl: positioner, local motor controller, 100 ft control cable | 265 VAC 50/60 Hz, 1 Ph. Use with MK(*) VS-(*) variable speed motorization packages. |
| ACS100-100 | Antenna programmable control system. Incl: positioner, local motor controller, 100 ft control cable | 265 VAC 50/60 Hz, 1 Ph. Use with MK(*) VS-(*) variable speed motorization packages. |

| | | |
|--------------------------|---|--|
| ACS3000S-05-7-208 | Antenna control system, StepTrack. Incl: ODU,DTU, jackmount gearmotors, handheld unit. 50m cable | Run by customer-provided PC running a Web browser installed on a private LAN, an existing station M&C computer or the handheld unit. Beacon receiver ordered separately. 0.5 Fast/0.05 Slow Az/EI. 200-230VAC/3Ph/50-60 Hz. 4 cond (3ph Delta +safety gnd) or 5 cond (3ph WYE+ safety gnd) |
| ACS3000S-05-7-380 | Antenna control system, StepTrack. Incl: ODU,DTU, jackmount gearmotors, handheld unit. 50m cable | Run by customer-provided PC running Web browser installed on a private LAN, an existing station M&C computer or the handheld unit. Beacon receiver ordered separately. 0.5 Fast/0.05 Slow Az/EI. 380-460 VAC/3Ph/50-60 Hz. 4 cond(3ph Delta +safety gnd) or 5 cond(3ph WYE+ safety gnd) |
| ACS3000S-10-7-208 | Antenna control system, StepTrack. Incl: ODU,DTU, jackmount gearmotors, handheld unit. 100m cable | Run by customer-provided PC running a Web browser installed on a private LAN, an existing station M&C computer or the handheld unit. Beacon receiver ordered separately. 0.5 Fast/0.05 Slow Az/EI. 200-230VAC/3Ph/50-60 Hz. 4 cond (3ph Delta +safety gnd) or 5 cond (3ph WYE+ safety gnd) |
| ACS3000S-10-7-380 | Antenna control system, StepTrack. Incl: ODU,DTU, jackmount gearmotors, handheld unit. 100m cable | Run by customer-provided PC running a Web browser installed on a private local area network, an existing station monitor and control computer or the handheld unit. 100 m cabling Motor Speed: 0.5 fast/slow, Az and EI Power: 380-460 VAC, 3 Ph, 50/60 hZ 4 |
| ACS3000S-F2-7-208 | Antenna control system, StepTrack. Incl: ODU,DTU, jackmount gearmotors, handheld unit. 200m fiber | Run by customer-provided PC running a Web browser installed on a private LAN, an existing station M&C computer or the handheld unit. Beacon receiver ordered separately. 0.5 Fast/0.05 Slow Az/EI. 200-230VAC/3Ph/50-60 Hz. 4 cond (3ph Delta +safety gnd) or 5 cond (3ph WYE+ safety gnd) |
| ACS3000S-F2-7-380 | Antenna control system, StepTrack. Incl: ODU,DTU, jackmount gearmotors, handheld unit. 200m fiber | Run by customer-provided PC running Web browser installed on a private LAN, an existing station M&C computer or the handheld unit. Beacon receiver ordered separately. 0.5 Fast/0.05 Slow Az/EI. 380-460 VAC/3Ph/50-60 Hz. 4 cond(3ph Delta +safety gnd) or 5 cond(3ph WYE+ safety gnd) |

Polarization Drive Kit

A motorized feed polarization kit automatically switches the feed polarization in the field. The PK9DRA polarization drive kit can be mounted to the 7.3-meter antenna linearly polarized feed to provide feed rotation to switch from linear or horizontal polarization

| Part Number | Description | Specifications |
|-------------|------------------------|--|
| PK9DRA | Polarization Drive Kit | Nominal Speed 1.8 Degrees/Second @ 50 Hz 2.2 Degrees/Second @ 60 Hz |

Cross and Polarization Axis Waveguide Kits

| | |
|-------------|--|
| XAPC-73 | C-band cross and polarization axis w/g kit. 1 run transmit. |
| XAPC-73-UPG | C-band cross and polarization axis w/g kit. 2nd run transmit. Order with XAPC-73 |

Heating Options

Antenna de-icing is forced heated air. A sensor and controller unit automatically senses moisture and activates the system whenever the need for heating is determined.

Feed heaters are available.

| | |
|--|-----------------------|
| Full reflector electric de-icing. Incl remote panel, controller and 100 ft cabling | WEC73R-208-100 |
|--|-----------------------|

| | |
|---|------------------------|
| Full reflector and feed electric de-icing. Incl remote panel, controller and 100 ft cabling | WEC73RF-208-100 |
|---|------------------------|

| | |
|--|-----------------------|
| Full reflector electric de-icing. Incl remote panel, controller and 100 ft cabling | WEC73R-380-100 |
|--|-----------------------|

| | |
|---|------------------------|
| Full reflector and feed electric de-icing. Incl remote panel, controller and 100 ft cabling | WEC73RF-380-100 |
|---|------------------------|

| | |
|---|--------------|
| 7.3M C/Ku-band receive only feed heater kit | FH7CP |
|---|--------------|

| | |
|------------------------------|-------------|
| 7.3M feed heater kit, C-band | FH7A |
|------------------------------|-------------|

Options

Contact Sales for part number and pricing for your specific requirement.

| | |
|-------------------------------------|---|
| Lubrication and Maintenance Kit | 209906-2 |
| Hub Heater Kit | HUBHTR-230 Antenna Hub Heater Provides Approx 3000 W/Heat C |
| Emergency Hub Light Kit | EMRGYLT-115 Emergency lighting, hub mounted |
| Emergency Hub Light Kit | EMRGYLT-230 Emergency lighting, hub mounted |
| Hub Light Kit | HUBLT-115 |
| Foundation Grounding Kit | ANTGND-9 Antenna foundation grounding kit.t. |
| Hub Light Kit | HUBLT-230 Hub Light Kit, 230 VAC. Supplied w/ 100 W bulb. |
| Lightning Rod Kit | LRK9 Lightning rod kit |
| Obstacle Warning Light Kit | OBWRNLT-115 Operates at 108-132V, 1 Phase, 50-60 Hz |
| Obstacle Warning Light Kit | OBWRNLT-230 Obstruction Warning Light Kit. Operates at 216-26 |
| Miscellaneous | TK-MAN-LG Tool Kit, Manual Antennas. Hand tools with tool b |
| Miscellaneous | TK-MOT-LG Tool Kit, Motorized Antenna. Hand tools with tool |
| Rain Deviator Kit | RD5 Rain Deviator Kit |
| Maintenance Ladder and Platform Kit | MANPL7 maintenance ladder and Platform Kit. Azimuth rang |

Typical Slab and Pier Foundation Specifications

| | |
|----------------------------------|---|
| Soil Bearing Capacity | 2000 lb/ft ² (9764 kg/m ²) |
| Reinforcing Steel | 1780 lb (807 kg) |
| Concrete Compressive Strength | 3000 lb/in ² (211 kg/cm ²) |
| Foundation Length | 15.5 ft (4.7 m) |
| Foundation Width | 15.5 ft (4.7 m) |
| Foundation Depth | 2 ft (0.6 m) |
| Foundation Concrete Volume | 17.8 yd ³ (13.6 m ³) |
| Foundation Specification Drawing | 37762 |
| Typical Pier Foundation Drawing | 237308 |
| Typical Slab Foundation Drawing | 300311 |

Note: Foundation specifications provided are for a typical design only. Certification of suitability for a particular installation by a professional engineer is required prior to it's use for actual fabrication.

Shipping Information

| | |
|-------------------------|---|
| Typical Net Weight | 6500 lb (2984 kg) |
| Typical Shipping Weight | 8200 lb (3719 kg) |
| Typical Shipping Volume | 780 ft ³ (22.09 m ³) |
| Shipping Container | Qty 1 per standard 20 ft land/sea container. Qty 3 per standard 40 ft land/sea container. |

Note: Weights and dimensions may vary based upon actual equipment ordered and consolidation of parts. This information should be considered typical for antenna only.

Part numbers, designs and specifications provided are subject to change without notice.

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