Elevation over azimuth configuration providing high
Pedestal Interface Unit with most of the electronics for easy
Implementation of Type I, Type I with feed forward and
Either cable wrap or slipring depending on requirements
Simultaneous RHCP & LHCP and/or vertical & horizontal
Digital demodulation and autotrack phasing at the
Autotrack with conical feeds etc.

Dual speed synchro / resolvers or encoders for increased
Up to 47 status lines with flexibility to assign to monitor
Advanced technology resulting in less number of parts and
Perform extensive tests to evaluate the performance and to
Use of high efficiency servo amplifiers and motors.
Dual drive torque bias to eliminate backlash
Up to 24 discrete commands with flexibility to assign to
Pedestals have mechanical stops with shock absorbers
Electronic zeroing of synchros from the ACU-M1.
Extensive interlocks system for enhanced safety.
Adjustable electrical limits and programmable soft limits
Integrated camera systems with control from ACU-M1.
Improved G/T by minimizing losses in the feed
Easy to add or delete commands & status even after
Real time switching of servo loops based on the mode of
Transportable systems with electrical actuators to lay
Remote stow function with built in safety and monitoring.
14'(4.2m)
1,800
-25°C to +55°C
60°/sec/sec
60 MPH (Dual)
10' (3m)
12'(3.6m)
55 MPH
Single or Dual
PWM
2.7°
15'(4.6m)
-50°C to +70°C
60°/sec/sec
100 lb
360 lb
700 lb
60 MPH
45 MPH (Single)
120 MPH
40°/sec
900 lb
1,800
25°/sec/sec
700 lb
60°/sec/sec
60°/sec/sec
0.05° RMS
0.05° RMS
0.05° RMS (Dual)
0.05° RMS (Single)
0.05° RMS
0.05° RMS

• Please contact TCS for systems not listed here.

Specifications

<table>
<thead>
<tr>
<th></th>
<th>1800 Series</th>
<th>2400 Series</th>
<th>3000 Series</th>
<th>4300 Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reflect System</td>
<td>4'(1.2m)</td>
<td>8'(2.4m)</td>
<td>10'(3m)</td>
<td>12'(3.6m)</td>
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<tr>
<td>Gearbox Peak</td>
<td>300 fl-b</td>
<td>900 fl-b</td>
<td>1,800 fl-b</td>
<td>1,750 (Single)</td>
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<tr>
<td>Torque</td>
<td>40°/sec</td>
<td>30°/sec</td>
<td>30°/sec</td>
<td>30°/sec</td>
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<tr>
<td>Velocity</td>
<td>60°/sec/sec</td>
<td>60°/sec/sec</td>
<td>60°/sec/sec</td>
<td>60°/sec/sec</td>
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<tr>
<td>Acceleration</td>
<td>0.05° RMS</td>
<td>0.05° RMS</td>
<td>0° RMS (Dual)</td>
<td>0° RMS (Dual)</td>
</tr>
<tr>
<td>Synchro / Resol</td>
<td>N/A (Encoder)</td>
<td>Single</td>
<td>Single</td>
<td>Single or Dual</td>
</tr>
<tr>
<td>Motor Type</td>
<td>Integral DC Motor / Servo Amplifier</td>
<td>DC Brush / Tach / Brake</td>
<td>DC Brush / Tach / Brake</td>
<td>DC Brush / Tach / Brake</td>
</tr>
<tr>
<td>Servo Amplifier</td>
<td>PWM</td>
<td>PWM</td>
<td>PWM</td>
<td>PWM</td>
</tr>
<tr>
<td>Gain @ 2400MHz</td>
<td>&gt;26dB</td>
<td>&gt;29dB</td>
<td>&gt;32dB</td>
<td>&gt;34dB</td>
</tr>
<tr>
<td>Beamwidth @ 2400 MHz (Typical)</td>
<td>6.8°</td>
<td>4.5°</td>
<td>3.5°</td>
<td>2.7°</td>
</tr>
<tr>
<td>EL Total Travel</td>
<td>Continuous or ±410°</td>
<td>Continuous or ±410°</td>
<td>Continuous or ±410°</td>
<td>Continuous or ±410°</td>
</tr>
<tr>
<td>AZ Total Travel</td>
<td>Continuous or ±410°</td>
<td>Continuous or ±410°</td>
<td>Continuous or ±410°</td>
<td>Continuous or ±410°</td>
</tr>
<tr>
<td>Temperature Operating</td>
<td>-5° to +185°</td>
<td>-5° to +185°</td>
<td>-5° to +185°</td>
<td>-5° to +185°</td>
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<tr>
<td>Temperature Non-Operating</td>
<td>-50°C to +70°C</td>
<td>-50°C to +70°C</td>
<td>-50°C to +70°C</td>
<td>-50°C to +70°C</td>
</tr>
<tr>
<td>Pedestal Weight</td>
<td>100 lb (45 kg)</td>
<td>120 lb (54 kg)</td>
<td>210 lb (95 kg)</td>
<td>310 lb (141 kg)</td>
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<tr>
<td>System Total Weight</td>
<td>180 lb (82 kg)</td>
<td>210 lb (95 kg)</td>
<td>500 lb (227 kg)</td>
<td>700 lb (317 kg)</td>
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<tr>
<td>Wind Speed Operating</td>
<td>60 MPH</td>
<td>55 MPH</td>
<td>60 MPH (Dual)</td>
<td>60 MPH (Dual)</td>
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<tr>
<td>Wind Speed Stowed</td>
<td>120 MPH</td>
<td>120 MPH</td>
<td>120 MPH</td>
<td>120 MPH</td>
</tr>
</tbody>
</table>

- Easy to add or delete commands & status even after commissioning of the system.
- Perform extensive tests to evaluate the performance and to do the fault finding
- Pedestals have mechanical stops with shock absorbers
- Transportable systems with electrical actuators to lay pedestal flat on the trailer
- Pedestal Interface Unit with most of the electronics for easy access & monitoring

Optional
- Variety of tracking modes for GEOs, LEOS and fast moving targets
- Remote slow function with built in safety and monitoring.
- Integrated camera systems with control from ACU-M1.
- Dual drive torque bias to eliminate backlash
- Dual speed synchro / resolvers or encoders for increased resolution

TCS offers an extensive line of dual axis tracking antenna / pedestals for all your telemetry applications. All the pedestals are designed and built with new technology for efficiency, simplicity, cost effectiveness and ease of maintenance. The product line starts with 16' reflectors and goes up to 7 meter systems. TCS offers systems for operation in L, S, C, X, Ku and Ka Bands of operation. Our Pedestals are highly flexible in design and will be customised to suit your requirements.

TCS came up with the concept of the Pedestal Interface Unit (PIU), which houses most of the pedestal electronics like power supplies, servos, and our Pedestal Interface PCB. The PIU will be physically located inside or near the pedestal. The Pedestal Interface PCB is the central place where all the signals are processed and interfaced to the ACU.

Special Features

- Elevation over azimuth configuration providing high dynamics and accurate pointing.
- Advanced technology resulting in less number of parts and improved reliability.
- Electronic zeroing of synchros from the ACU-M1.
- Extensive interlocks system for enhanced safety.
- Use of high efficiency servo amplifiers and motors.
- Simultaneous RHCP & LHCP and/or vertical & horizontal polarizations.
- Autotrack with conical feeds etc.
- Digital demodulation and autotrack phased at the controller.
- Improved G/T by minimizing losses in the feed.
- Adjustable electrical limits and programmable soft limits
- Either cable wrap or slipping depending on requirements.
- Implementation of Type I, Type II with feed forward and Type II servo loops.
- Real time switching of servo loops based on the mode of operation extends life.
- Up to 24 discrete commands with flexibility to assign to different commands.
- Up to 47 status lines with flexibility to assign to monitor different signals.

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September 2003
The TCS Advantage: Simplicity Through Modularity and Technological Elegance

TCS Fiber Interface

Originally, multi-conductor cables were used to bring back signals and send commands between an ACU and its pedestal. With the advances in technology, serialized approaches have replaced the multi-conductor cable to add flexibility and reduce cost. Generally, this serialized communication method is done with a second computer in the pedestal to gather the pedestal information and send it to the ACU over Ethernet. However, TCS eliminated the need for a second computer at the pedestal by embedding the fiber interface into the ACU and Pedestal Interface PCB. The TCS fiber interface is superior to other conventional methods in the following ways:

- Because TCS fiber communication is synchronous, the two scan references do not have to be sent to the ACU on separate fibers. Instead they can be very conveniently packaged with the other data send back to the ACU. Therefore TCS requires only two fibers for full functionality of the whole system.
- TCS provides a complete redundant data link by using an optional second pair of fibers. If any one fiber becomes faulty a switching takes place on the fly to the second either receive or transmit link and an alarm is displayed on the ACU’s front panel.
- Less expensive than the two computers scheme.
- Less number of parts and therefore making a system simpler and more reliable.
- Easier to install and maintain.
- Less dependence on third party supplied equipment.
- Handles either single-mode or multi-mode fiber optic cables.
- The TCS Pedestal Interface PCB (the only electronic assembly required for controlling the pedestal) has a conformal coating for protection against humidity.
- The operational temperature ranges for the Pedestal Interface PCB are -40°C to +85°C.
- Since TCS fiber link does not require another computer in the pedestal
  - There are no moving parts (hard disk, etc.) to reduce reliability.
  - No need for maintenance of two different software versions, one for each end.
  - No need for extra precautions for environmental and shock protection involving a sensitive device such as a computer.
  - No need for Ethernet to fiber and fiber to Ethernet converter modules.