

Superquad™

Central Receive Antenna System

Features

Advanced Antenna Design

- High gain for maximum range
- Low sidelobes and narrow azimuth beamwidth provide isolation from off-axis interference and multipath reflections
- Cosecant-squared beam shaping eliminates need for elevation tilt, simplifying alignment
- Single and multi-band versions

LNA /Block Downconverter

- High dynamic range
- Continuously variable level control
- Automatic Gain Control optimizes the signal level to maximize the RSL without overloading the receiver

Heavy Duty Positioner

- Rugged worm gear drive
- Built-in RF rotary joint standard
- Continuous rotation without limits standard
- Encased slip ring assembly with corrosion-resistant, precious metal tracks and brushes
- Pan rate twice that of other systems
- Automatic heater standard

Integral Radome

- Encapsulates antenna and positioner for long term reliability
- Superior design features easy access panels and heavy duty base pan

User Friendly Operation

- MC5 provides complete control of the central receive system
- Straight forward control buttons and meters are easy to understand and operate
- Advanced automatic functions simplify and enhance daily operations



Field Proven Performance, Reliability and User Friendly Operation

Field proven with hundreds of systems in operation worldwide, the Superquad™ represents the state-of-the-art in central receive antenna systems.

The Superquad™ incorporates superior features that are not available in the generic counterparts. They provide critical performance advantages required to maximize the area of coverage and to ensure robust live shots. In addition, it is built to ensure years of reliable operation with minimum maintenance.

The performance of the Superquad™ is complemented by the user-friendly NSI MC5 remote control, which includes many advanced features to simplify and enhance daily operations.

Advanced Antenna Design

The Superquad™ incorporates important characteristics that are essential for superior performance - high gain, directivity and selectable polarization - to isolate the microwave link from interference and to provide the maximum area of coverage.



Superquad™ Central Receive Antenna System

Integral Radome

The Superquad™ radome features a single piece cap with no seam across the top. The base pan incorporates deep draft geometry, wide ribs, honeycomb reinforcement and a heavy duty base plate to ensure the structural integrity of the system. Three removable side panels provide easy access to the feed and positioner.

Advanced Antenna Design

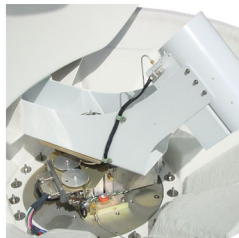
The Superquad™ incorporates important characteristics that are essential for superior performance - high gain, directivity and selectable polarization - to isolate the microwave link from interference and to provide the maximum area of coverage.

Variable Gain LNA

The Superquad™ features a unique LNA/BDC assembly with a high dynamic range. It features a continuously variable level control to optimize the signal level - ensuring the robustness of digital shots from practically underneath the antenna out to the radio horizon and everywhere in between. The MC5's *Automatic Gain Control* function optimizes the LNA/BDC level to maximize the RSL without overloading the receiver.

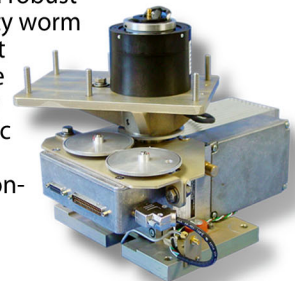
Shielded Components

All antenna-mounted electronic components are housed within metal enclosures for shielding. There are no exposed electronics. In addition, each Superquad™ system incorporates extensive surge suppression for superior reliability.



Heavy Duty Positioner

The Superquad™ features a robust positioner with a heavy duty worm gear drive for reliability that is far superior to chain drive systems. It also includes an RF rotary joint, an automatic heater and an encased slip ring assembly with corrosion-resistant, precious metal tracks and brushes.



Variable Gain LNA/BDC with Automatic Gain Control

NSI Superquad™ central receive antennas feature a unique LNA/BDC assembly with a high dynamic range to prevent signal compression. Each includes a continuously variable level control to optimize the signal level - ensuring the robustness of digital shots from practically underneath the antenna out to the radio horizon and everywhere in between. The *Automatic Gain Control* function of the MC5 remote control automatically optimizes the LNA/BDC level to maximize the RSL without overloading the receiver.

Heavy Duty Positioner

The Superquad™ has the most robust positioner in the industry. It features a heavy duty worm gear drive with an oil bath and automatic heater for reliability that is far superior to chain-drive positioners. It also includes an RF rotary joint and an encased slip ring assembly with precious metal tracks and brushes. The positioner features continuous rotation without limits and a pan rate twice that of other systems.

MC5 Remote Control System

Preset Function

Store up to 100 presets per receive system for instant recall.

Auto Link™



Live shot setup at the touch of a button.

Peak Function

Live shot setup is greatly simplified by the *Peak* function, which automatically optimizes the alignment of the receive antenna with the transmitted signal.

Automatic Tracking

Logic Track™ provides automatic tracking of an airborne downlink.



Spectrum Analyzer Control

Complete control and monitoring of a variety of spectrum analyzers located at the receive site.

Map Function



The *Map* function allows the desired location to be selected on an on-screen map to align the receive antenna.

LNA Automatic Gain Control

The *Automatic Gain Control* function optimizes the LNA/BDC level to maximize the RSL without overloading the receiver.



User Friendly Operation

The superior performance and reliability of the Superquad™ central receive antenna system is complemented by the NSI MC5 remote control. Its user friendly control panels feature straight forward control buttons and meters, providing intuitively easy operation and a short learning curve. The MC5 also includes several advanced functions to simplify and enhance daily operations, such as:

- Peak
- Preset
- Automatic Gain Control
- Map
- Automatic Tracking
- Spectrum Analyzer Control
- Go To
- Step
- Lat Lon
- Filter Control
- Auto Link™

System Control Unit

The SCU-422 system control unit provides on-site control of the Superquad™ as well as the interface to the NSI MC5 remote control. It features latching relays, digital inputs and outputs, analog inputs and outputs and serial COM ports to provide the interface requirements for each application. The SCU-422 also features an advanced regenerative control for the Superquad™ positioner. This unique technology eliminates the use of relays. Processor controlled, it provides unsurpassed reliability by ramping the positioner speed up and down to eliminate stress on the drive train.

Superquad™ Central Receive Antenna System

MC5 Features

User Friendly Operation

- Provides complete control and monitoring of Superquad™ central receive systems
- Straight forward control buttons and meters are easy to understand and operate

Advanced Control Functions

- Simplify and enhance daily operations
- **Auto Link™** automatically sets up the live shot at the touch of a button
- **Automatic Gain Control** optimizes the LNA/BDC level to maximize the RSL without overloading the receiver
- **Peak** optimizes the alignment of the central receive antenna with the transmitted signal
- **Preset** allows up to 100 preset settings per central receive system to be stored in the MC5 master unit for instant recall
- **Logic Track™** provides automatic tracking of an airborne downlink
- **Map** aligns the central receive antenna with a position selected from an on-screen map
- **Go To** rotates the central receive antenna to a heading selected from a compass rose
- **Step** jogs the central receive antenna in fixed increments
- **Spectrum Analyzer Control** enables the operator to monitor a spectrum analyzer at the receive site
- **Lat Lon** aligns the central receive antenna with location coordinates entered through an on-screen keypad
- **Filter Control** automatically selects the desired RF filter or bypass as the receiver channel is selected

Administrator Module

- Enables the user to custom tailor the control of the central receive system
- All parameters of the MC5 are user defined to ensure user friendly operation

Superquad™ Specifications

Antenna

Frequency*

2-2.5 GHz

7 GHz

Gain**

25 dB

35 dB

Az HPBW

8 degrees

2.5 degrees

LNA/BDC

Variable Gain

13-33 dB

* Other frequencies available upon request.

** Gain referenced to a like-polarized isotrope, excluding switching options.

Positioner

Pan Range

Continuous (no limits)

Pan Speeds

Fast

30 degrees/second (adjustable)

Slow

2 degrees/second (adjustable)

Drive System

Unitized assembly with worm gear drive and oil bath

RF Rotary Joint

Included

Slip Ring

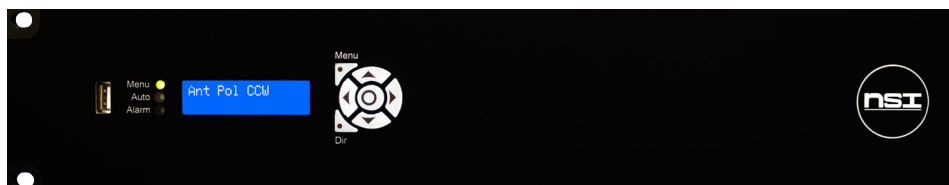
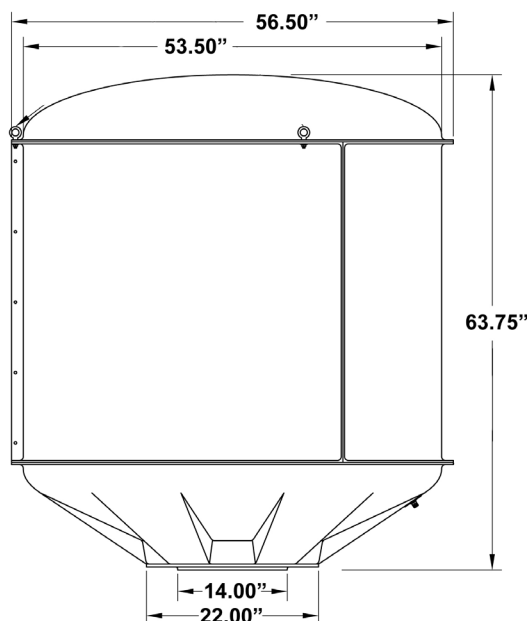
Encased unit with precious metal tracks and brushes

Automatic Heater

Included

Specifications subject to change without notice.

Superquad™ Dimensions



System Control Unit

The system control unit provides complete on-site control of the Superquad™ and provides the interface for the remote control.