

# Silhouette™

## 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
- Broad elevation beam shaping eliminates need for tilt, simplifying alignment
- Single and multi-band versions

#### LNA /Block Downconverter

- High dynamic range
- Continuously variable level control
- Automatic Gain Control function 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
- Rugged fiberglass construction ensures long term structural integrity

#### 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 Silhouette™ represents the state-of-the-art in central receive antenna systems.

The Silhouette™ 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 Silhouette™ 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 Silhouette™ 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.



# Silhouette™ Central Receive Antenna System

## Integral Radome

The Silhouette™ antenna and positioner are encapsulated within an integral radome to provide protection from the elements. Unlike radomes that are made of ABS plastic, the Silhouette™ radome is constructed of rugged fiberglass to ensure the long term structural integrity of the system.

## Advanced Antenna Design

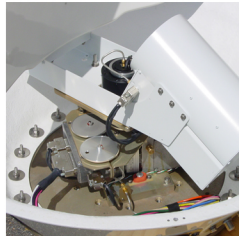
The Silhouette™ incorporates important characteristics that are essential for superior performance - high gain, directivity and selectable polarization - to isolate the microwave link from interference and to provide the maximum area of coverage.

## Variable Gain LNA

The Silhouette™ 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.

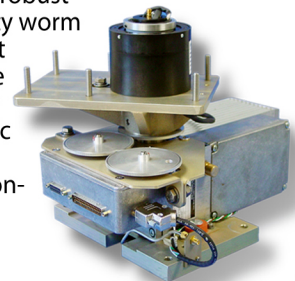
## Shielded Components

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



## Heavy Duty Positioner

The Silhouette™ 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 Silhouette™ 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 Silhouette™ 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

The *Peak* function 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 Silhouette™ 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.

# Silhouette™ Central Receive Antenna System

## MC5 Features

### User Friendly Operation

- Provides complete control and monitoring of Silhouette™ 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** automatically 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

## Silhouette™ Specifications

Antenna		LNA/BDC		
Frequency*	Gain**	Az	EI	Variable Gain
2-2.5 GHz	20 dB	14 deg.	22 deg.	13-33 dB
7 GHz	30 dB	4 deg.	7 deg.	

\* Other frequencies available upon request.

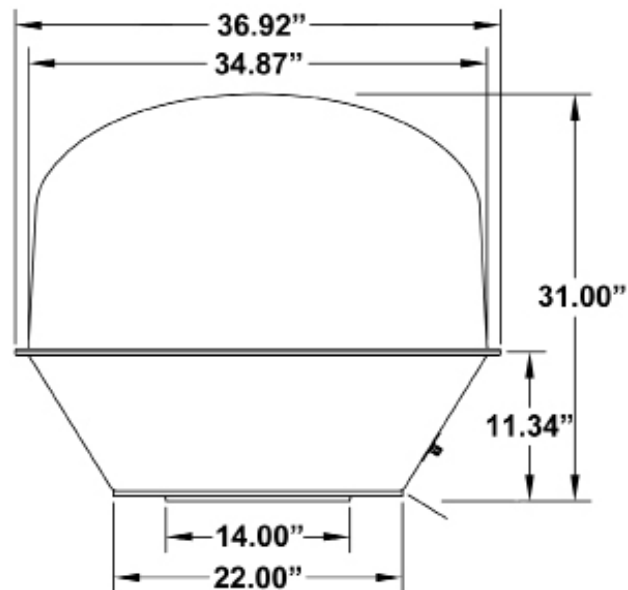
\*\* Gain referenced to a like-polarized isotrope, excluding switching options.

### 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.

## Silhouette™ Dimensions



### System Control Unit

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