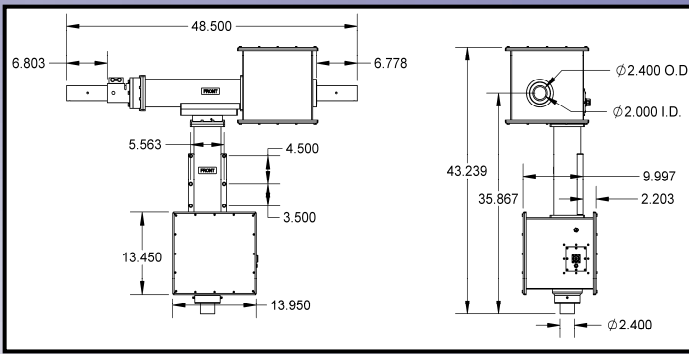
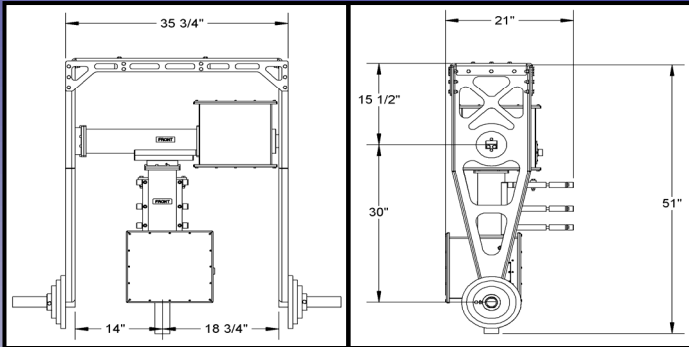




# M2 Antenna Systems, Inc.

Weather Sealed DC Brush Motor System Models  
AE1000D1WDA, AE1000D1WCOSAN and Weather Sealed  
DC Brushless Motor System Models AE1000BD1WCOSAN and  
AE1000BD1WCOSAN



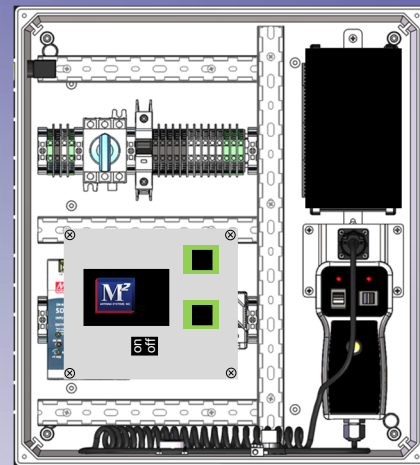
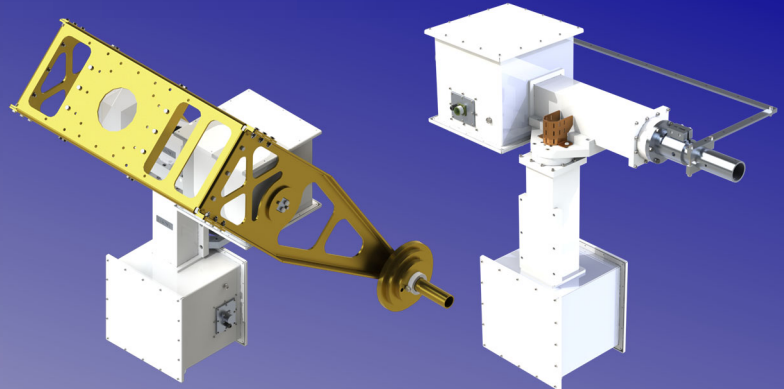
**RC2800PRKX2SU ACU**

## BRUSH MOTOR SPECIFICATIONS:

MODELS ..... AE1000D1WDA / AE1000D1WCOSAN  
MOTOR ..... DC Brush 1/25 HP  
GEAR RATIO ..... 6600:1  
GEAR BOX CONFIG. .... Dual Worm Gear  
POINTING ACCURACY ..... >0.2°  
MIN COMMANDED MOTION ..... 0.25° (RC2800PRKX2SU)  
BACKLASH ..... <0.03°  
ROTATING TORQUE ..... 200 ft. lb.  
MAX SYSTEM WEIGHT ..... 300 lb (balanced)  
MAX SPEED / VELOCITY ..... 4° / Sec.  
MAX TRAVEL ..... AZ=370° EL=185°  
PHYSICAL LIMITS ..... Adjustable @ 5°  
POSITION FEED BACK ..... Open Loop Encoder  
SURVIVABILITY ..... 25 Sq Ft @ 90 MPH  
WEIGHT ..... 115-130 lbs.

## FEATURES:

The **AE1000D1WDA** and **AE1000BD1WDA** antenna positioners are versatile pedestals with the ability to adapt to many different types of antenna systems and configurations. These pedestals were designed with the remote, unmanned system in mind, when located in harsh environments where excessive rain, snow, and ice can be a problem for unsealed systems. The development of our "Weather Sealed" system and optional heaters gives the customer the confidence for unit longevity in adverse conditions. The **AE1000D1WCA** and **AE1000D1WCOSAN** are specifically designed for VHF and UHF systems. The on axis elevation cross boom is a perfect building block for many configuration of phased arrays. The **AE1000D1WDA** and **AE1000D1WCOSAN** has counter balance arms and box frame mounting for parabolic dishes up to 8 ft in diameter. Dual worm gear drive train with adjustments gives smooth powerful movement with less than .03° system backlash. The physical limit switches on each axis can be adjusted for any spectrum of use. The **RC2800PRKX2SU** features our PC based set up utility, and controls features such as ramp up or ramp down, speed control, limit switches for reference return and reverse delay, all can be adjusted to maximize the performance of your system. The **RC2800PRKX2SU** will be phased out, but repairs will still be available. The **RPU1KPRF** control unit features minimum motion of 0.10 degrees, speed from 10% to 99% for each move command, motor driver temperature sensing / reporting along with ethernet connectivity with local USB support. Custom designs can be configured for your Dish feed and or Dish including feed attachment arms or we can supply our custom built Septum Feeds for your L-Band or S-Band requirements. For phased arrays we can provide a complete Turnkey System including cross boom, vertical risers and complete Linear, Circular or Helical systems to meet your requirement. Contact M2 to help configure your next satellite system.



**RPU1KPRF Remote Power Unit**

## BRUSHLESS MOTOR SPECIFICATIONS:

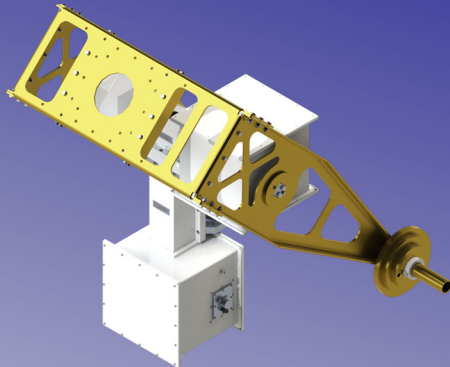
MODELS ..... AE1000BD1WDA/ AE1000BD1WCOSAN  
MOTOR ..... DC Brushless 1/16 HP  
GEAR RATIO ..... 6600:1  
GEAR BOX CONFIG. .... Dual Worm Gear  
POINTING ACCURACY ..... 0.014°  
MIN COMMANDED MOTION ..... 0.10° (RPU1KPRF)  
BACKLASH ..... <0.03°  
ROTATING TORQUE ..... 200 ft. lb.  
MAX SYSTEM WEIGHT ..... 300 lb (balanced)  
MAX SPEED / VELOCITY ..... 6.8° / Sec.  
MAX TRAVEL ..... AZ=370° EL=185°  
PHYSICAL LIMITS ..... Adjustable @ 5°  
POSITION FEED BACK ..... Open Loop Encoder  
SURVIVABILITY ..... 25 Sq Ft. @ 90 MPH  
WEIGHT ..... 115-130 lbs.



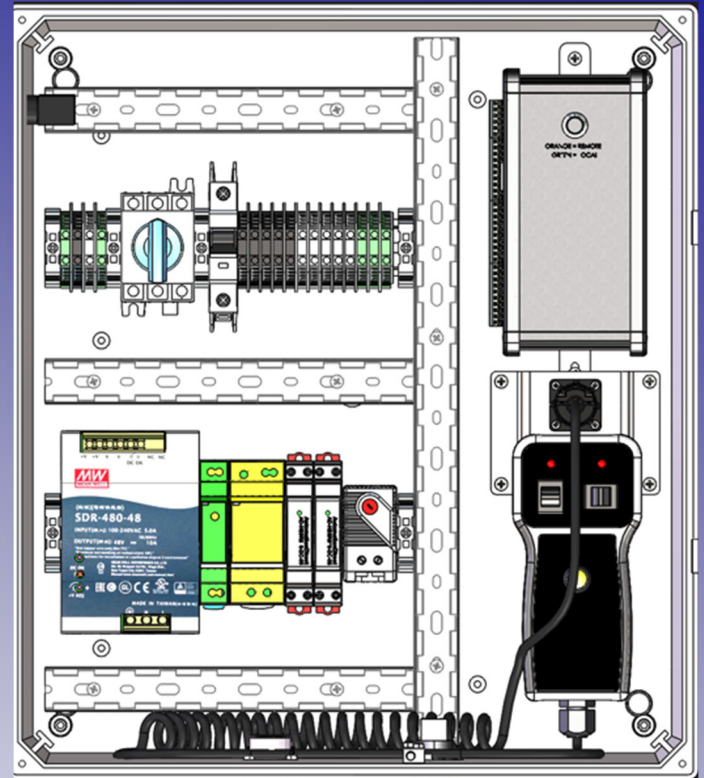
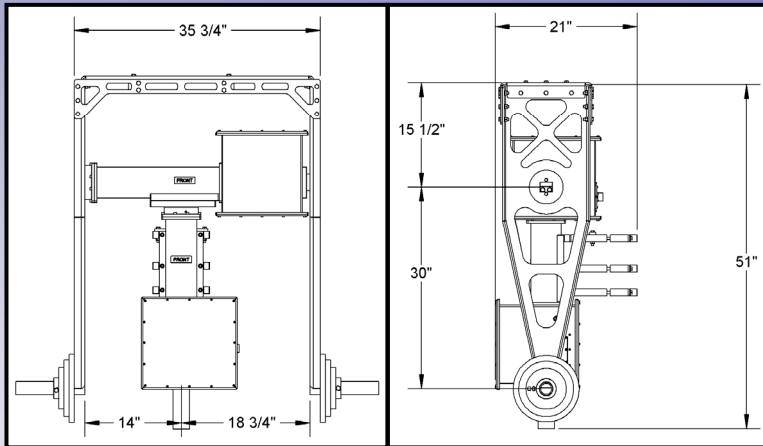
# M2 Antenna Systems, Inc.

## FGAE1000S1WDA & FGAE1000S1CA

### Weather Sealed Servo Motor System



**Model AE1000S1WDA**



**M2 RPU1KRLF Remote Power Unit**

#### SPECIFICATIONS:

MODELS .....	AE1000S1W
MOTOR .....	Servo Motor
GEAR RATIO .....	6600:1
GEAR BOX CONFIG .....	Dual Worm Gear
POINTING ACCURACY .....	>0.05°
BACKLASH .....	<0.03°
ROTATING TORQUE .....	200 ft. lb.
MAX SYSTEM WEIGHT .....	300 lb (balanced)
MAX SPEED / VELOCITY .....	4° / Sec.
MAX TRAVEL .....	AZ=370° EL=185°
PHYSICAL LIMITS .....	Adjustable @ 5°
POSITION FEED BACK .....	Encoder
SURVIVABILITY .....	25 sq ft @ 90 mph
WEIGHT .....	115-130 lbs.

#### FEATURES:

The **AE1000S1WDA** and **AE1000S1WCA Servo Motor** antenna positioners are versatile pedestals with the ability to adapt to many different types of antenna systems and configurations. These pedestal were designed with the remote, unmanned system in mind, when located in harsh environments where excessive rain, snow, and ice can be a problem for unsealed systems. The development of our "Weather Sealed" system and optional heaters gives the customer the confidence for unit longevity in adverse conditions. The **AE1000S1WCA** is specifically designed for VHF and UHF systems. The on axis elevation cross boom is a perfect building block for many configuration of phased arrays. The **AE1000S1WDA** has counter balance arms and box frame mounting for parabolic dishes up to 8 ft in diameter. Dual worm gear drive train with adjustments gives smooth powerful movement with less than .03° system backlash. The physical limit switches on each axis can be adjusted for any spectrum of use. The **Radeus Labs RL2200** provides accurate and dependable tracking performance for full motion applications. Features include: Touchscreen control, efficient and intuitive GUI, hardware jog panel & motion indicators, nonvolatile data storage, Ethernet SNMP interface, Remote I/O control card for motor and encoder management with a single Ethernet cable interface between ACU and DC. Custom designs can be configured for your Dish feed and or Dish including feed attachment arms or we can supply our custom built Septum Feeds for your L-Band, S-Band, X-Band requirements. For phased arrays we can provide a complete Turnkey System including cross boom, vertical risers and complete Linear, Circular or Helical systems to meet your requirement. Contact M2 to help configure your next satellite system.

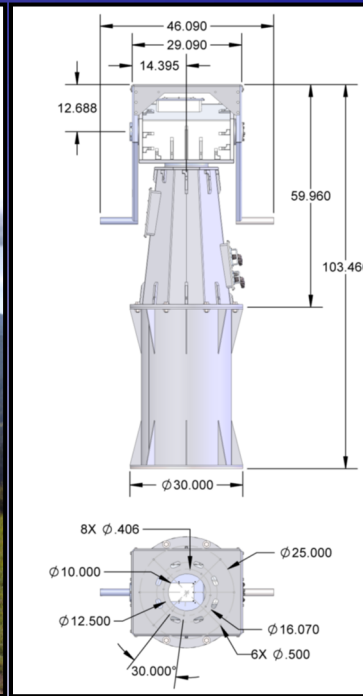


**RADEUS LABS RL2200 ACU**



# M2 Antenna Systems, Inc.

## MODEL AE2000S



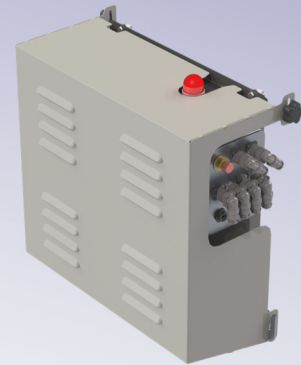
RADEUS LABS RL2200 ACU

### SPECIFICATIONS:

MODEL .....	FGAE2000S
MAX VELOCITY .....	20° Per Second
MAX ACCELERATION .....	20° Per Second
MAX OVERTURN .....	6700 lbs ft.
MAX LOAD .....	700 lbs.
GEAR BOX .....	Cycloidal
GEAR RATIO .....	774:1
BACKLASH .....	0.01°
AZ TRAVEL .....	700° Adjustable
EL TRAVEL .....	180° Adjustable
TRAVEL LIMITS .....	Soft and Hard Adjustable
POINTING ACCURACY .....	0.05°
INTERFACE .....	RS232 / ETHERNET
COMMUNICATION PROTOCOL .....	Open Architecture



M2 REMOTE POWER UNIT (RPU)

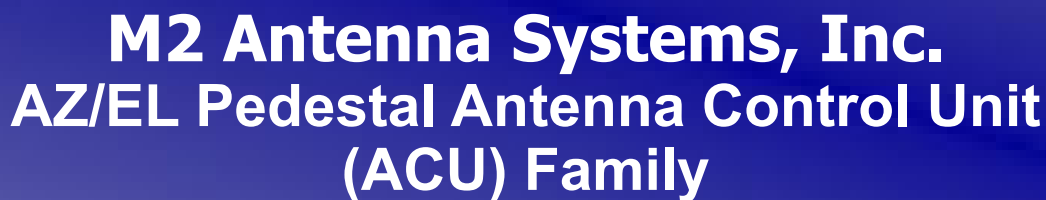


(RPU) HEATSHIELD

### FEATURES:

The **AE2000S** has been designed for the Earth-Sat and Cube-Sat community as an easily deployable long life Satellite-Earth-Terminal. The **M2 Antenna Systems, Inc. AE2000S** provides up to 20 degrees per second of simultaneous Azimuth and Elevation motion designed to support the growing LEO and MEO needs, eliminating the Keyhole challenge for the low-flyers during overhead passes. Built with Cycloidal gearboxes on both axis, resulting in the ability to take high shock loads caused by Mother nature. Programmable holding brakes on both axes that are engaged even when the system is not powered. Unique tapered octagon concept used on the main azimuth base gives the system a sleek look, while keeping the load as close to over the center of axis as possible but spreading the load at the base. Azimuth gearbox with thru the center construction with a pass thru of 2" in diameter, allows cables to be passed thru the azimuth gear box without the use of a rotary joint. An Azimuth limit switch system using a unique slip ring system giving up to 700 degrees of axis rotation before switch engagement. Accessory mounts can be added to support an external NEMA rated box to house amplifiers, preamps, downconverters or other needed components. Base extensions are available to raise the Azimuth base to desired heights to accommodate different dish diameters.





MODEL .....	RC2800PRKX2SU
POWER REQUIREMENTS .....	115 / 230 VAC @ 5A / 3A Switchable
ENCLOSURE SIZE .....	W=19" / H=5.25 / D=10"
COLOR .....	BLACK ANODIZED
POINTING ACCURACY .....	<0.1°
READOUT ACCURACY .....	<0.3°
MIN COMMANDED MOTION .....	>0.25°
DIGIT SIZE .....	0.5" Heading / .375" Mode / Speed

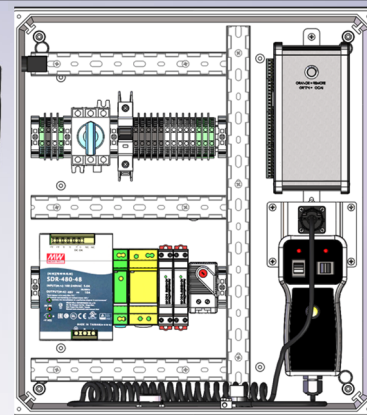
CONTROL SWITCHES .....	Tactile 0.5" Diameter
MICROPROCESSOR TYPE .....	"Microchip" PIC18F2520-I/SP
CONTROLS .....	Power Switch, ON / OFF Speed Buttons, Increments 1-9 CCW / DWN & CW / UP Button
MODES .....	(3) Operational / Run Modes / (10) Presets
OUTPUT VOLTAGE .....	32-48 VDC @5A
COMPUTER INTERFACE .....	RS232 Ports (x2)

The diagram shows the rear panel of the MFC 7200. Key components include:

- Top Left:** A multi-pin connector labeled "1000BASE-T" and "RJ45".
- Top Right:** A large black rectangular component, likely a power supply or cooling unit.
- Center:** A large grey rectangular component with the "M" logo and "7200" text. It has two green square indicators.
- Bottom Left:** A multi-pin connector labeled "USB" and "USB 2.0".
- Bottom Center:** A multi-pin connector labeled "USB" and "USB 2.0".
- Bottom Right:** A power jack labeled "POWER" and "DC IN". A power cord is plugged into it.

MODEL NUMBER .....	RPU-1K-PR-F
POWER REQUIREMENTS .....	115 VAC or 230 VAC
ENCLOSURE SIZE .....	W=18" / H=16" / D=10"
ENCLOSURE RATING .....	NEMA 3R / NON-METALLIC POLYCARBONATE
COLOR .....	GREY
POINTING ACCURACY .....	<0.03°
READOUT ACCURACY .....	<0.10°
MINIMUM COMMANDED MOTION .....	<0.10°
CONTROL SWITCHES .....	Elevation Jog Control (Up & Down Momentary) Azimuth Jog Control (CCW & CW Momentary) Reference Return (Momentary)
ELECTRONIC ENCLOSURE MODES ..	Run Mode (USB) / Maintenance Mode
COOLING .....	89 Cubic Foot-Per-Minute Thermostatically Controlled Fan
STANDARD OUTPUT VOLTAGES .....	AZ / EL = 48 VDC @ 10 A
ONBOARD COMPUTER VOLTAGE .....	5 VDC @ 3 A
COMPUTER INTERFACE .....	Ethernet-RJ45

MODEL NUMBER .....	RPU-1K-PR-F
POWER REQUIREMENTS.....	115 VAC or 230 VAC
ENCLOSURE SIZE .....	W=18" / H=16" / D=10"
ENCLOSURE RATING.....	NEMA 3R / NON-METALLIC POLYCARBONATE
COLOR.....	GREY
POINTING ACCURACY .....	<0.03°
READOUT ACCURACY .....	<0.10°
MINIMUM COMMANDED MOTION.....	<0.10°
CONTROL SWITCHES .....	Elevation Jog Control (Up & Down Momentary) Azimuth Jog Control (CCW & CW Momentary) Reference Return (Momentary)
ELECTRONIC ENCLOSURE MODES ..	Maintenance Mode
COOLING .....	89 Cubic Foot-Per-Minute Thermostatically Controlled Fan
STANDARD OUTPUT VOLTAGES.....	AZ / EL = 48 VDC @ 10 A
ONBOARD COMPUTER VOLTAGE.....	5 VDC @ 3 A
COMPUTER INTERFACE .....	Ethernet-RJ45

RADEUS LABS  
RL2200 ACU

The **RPU-1K-RL-F** "Antenna Control Unit" is a Commercial grade computer controlled system designed to be out in the environment and to control a series of our M2 multi axis pedestals including the **AE1000BD1WCOSAN**. Housed in the enclosure is the main switching power supplies for the Pedestal, Computer controls and a thermostat for Cooling. The housing is a **NEMA 3R** with rubber gaskets and screened ventilation ports, Jog control for both Elevation, Azimuth and Reference Return can be run in the "Maintenance Mode" inside the enclosure. The **M2 RPU-1K-PR-F** controller uses switching power supplies that operate from 86-245VAC. The **RPU-1K-RL-F** software system has been custom manufactured for use with Animatics smart servo motors that provide a much tighter pointing accuracy for higher frequency dish systems.

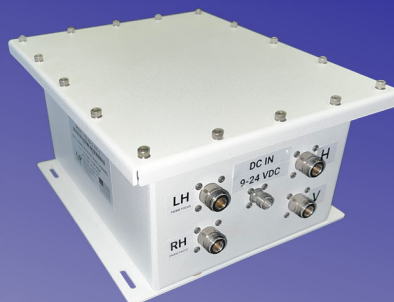


# M2 Antenna Systems, Inc.

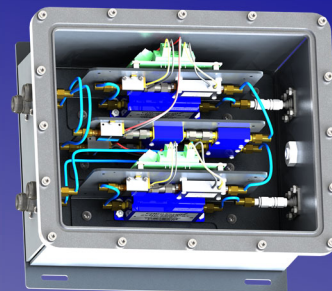
## Low Noise Amplifiers, RF Components and Beam Forming Networks



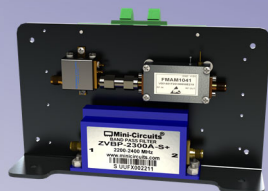
**2.2-2.4 GHz Beam Forming Dual  
Channel Low Noise Amplifier  
Enclosure**



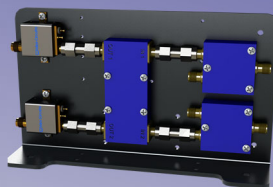
**3.4-4.8 GHz Beam Forming Dual  
Channel Low Noise Amplifier  
Enclosure**



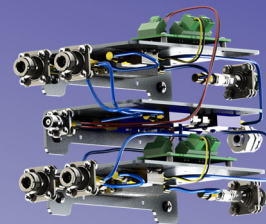
**Internal components with o-ring  
sealed enclosure**



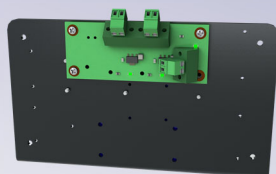
**Low Noise Amplifier and Filter  
On custom M2 replaceable blade**



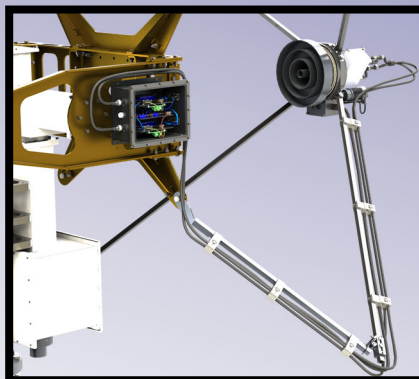
**Distribution & Beam Former Module  
On custom M2 replaceable blade**



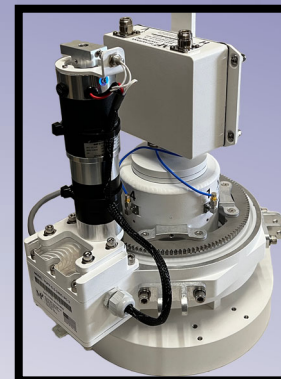
**Completed internal RF section**



**Custom M2 Voltage Regulator for  
13-24 VDC input / 2 x 12 VDC output**



**Beam Forming Network, Low Noise  
Amplifier and Filter on M2 AZ/EL System**



**Custom Beam Forming Network  
and Dish Feed on M2  
PR-6.5-24DC-PC-2 Polarity Unit**

**M2 Antenna Systems** continues to expand our line of custom electronics packages. Designed to fit both commercial and specialized applications, M2's engineering staff have provided solutions to multiple unusual and demanding applications.

Customized Beam Forming Networks, Low Noise Amplifier and Filter sets, 4-polarity Beam Formers, RF amplification and switching matrices are just some of the services we provide.

M2's production facility is geared to handle single piece orders, custom designs, and high volume production runs. With a 20,000 square foot facility, computer aided design and simulation, and three-dimensional rendering software, M2 can confidently meet your requirements. Equipped with a full precision C&C machine shop, moving products from design to delivery is seamless.

For complex microwave solutions, look no further than M2 Antenna Systems. Call us for your RF and microwave needs.

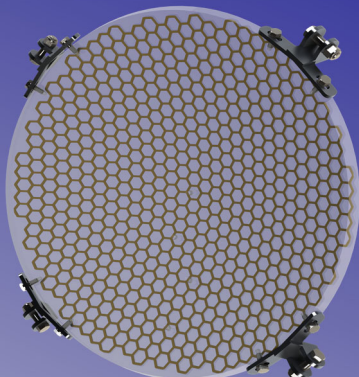




# M2 Antenna Systems, Inc. Custom Dish Feeds



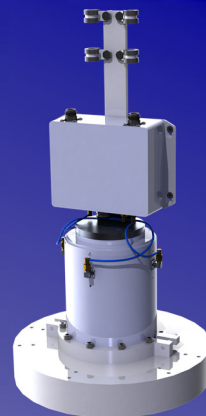
**Tri-Band S-Band / C-Band &  
X-Band dish feed using Frequency  
Selective Sub Reflector**



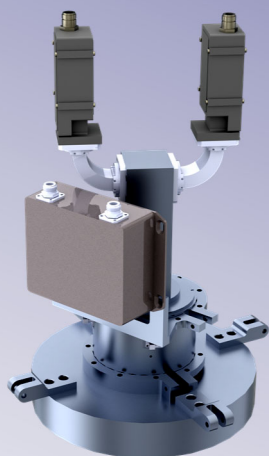
**Frequency Selective Sub-reflector  
\*Application Specific\***



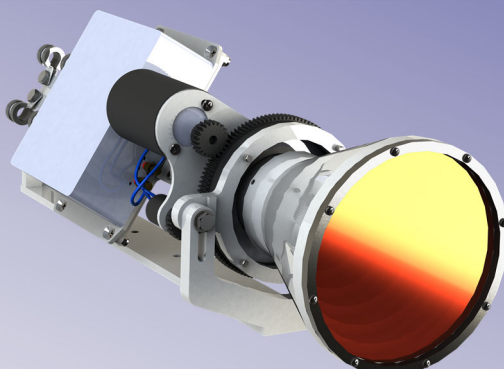
**L-Band (1.0-1.9 GHz)  
C-Band (3.4-4.8 GHz)  
\*Customer Specific\***



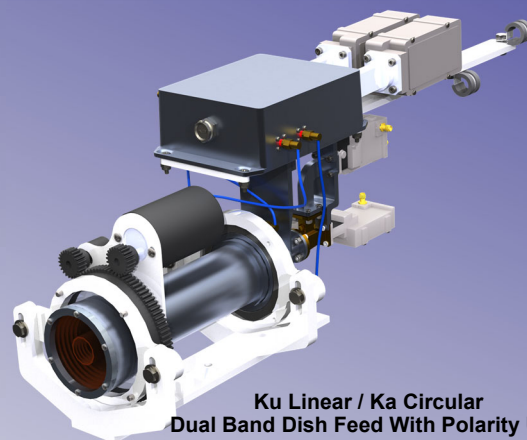
**S-Band (2.0-3.0 GHz) With  
Amplifier, Filter & Beam Forming**



**S-Band (1.95-3.05 GHz)  
X-Band (7.0-8.5 GHz)  
Dual Band, Filter & Beam Forming**



**Extended C-Band (3.4-4.8 GHz)  
Dual Linear Feed With Polarity Unit**



**Ku Linear / Ka Circular  
Dual Band Dish Feed With Polarity Unit**

M2 Antenna Systems extensive line of dish feeds and dish feed systems are designed to fit both commercial and custom reflectors both large and small Ranging from 900 MHz to 22.1 GHz, single band, dual band, and custom band solutions are available. With F/D ratios from 0.3 to 0.85 and beyond, M2's feeds have the flexibility to support prime-focus, Cassegrain, Gregorian, and offset feed applications.

M2's engineering staff have provided solutions to multiple demanding applications. When coupled with Beam Forming Networks, M2 can provide feed systems that simultaneously deliver polarity tracking dual linear signals as well as dual circular polarity capabilities

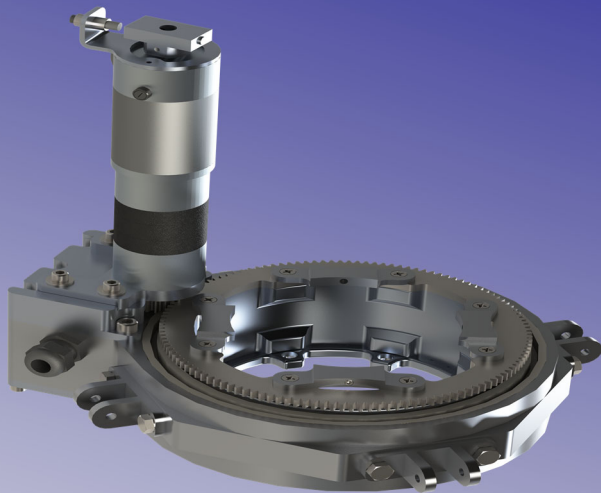
Using M2's Frequency Selective Sub-reflector, multi-banding a single primary reflector enables extended versatility and capabilities while keeping the reflector on boresight.

M2's production facility is geared to handle single piece orders, custom designs, and high volume production runs. With a 20,000 square foot facility, computer aided design and simulation, and three-dimensional rendering software, M2 can confidently meet your requirements. Equipped with a full precision C&C machine shop, moving products from design to delivery is seamless.

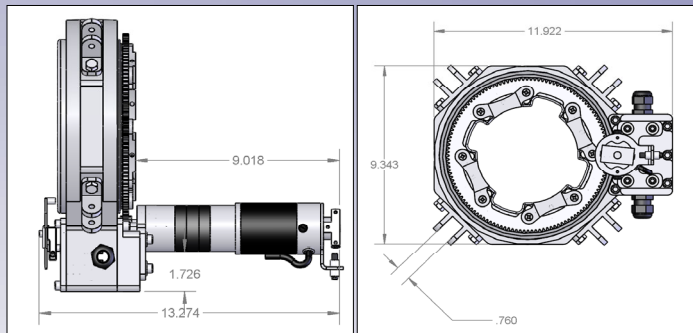
For complex microwave solutions, look no further than M2 Antenna Systems. Call us for your RF and microwave needs.



# M2 Antenna Systems, Inc. Custom Polarity Units Model FGPR-6.5-24DC-PC-2



**THE FGRC2800PRKX1SU  
SINGLE AXIS POLARITY CONTROLLER**

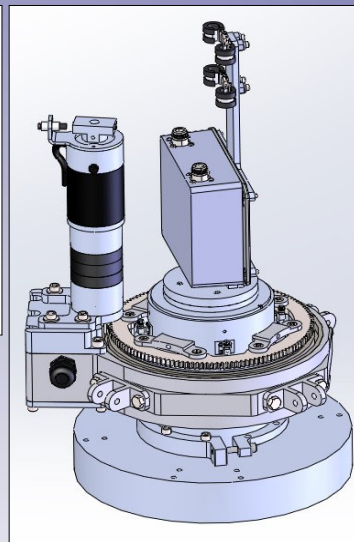


## SPECIFICATIONS:

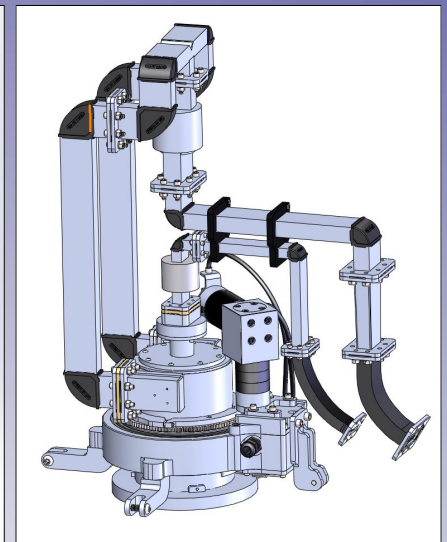
**MODEL** ..... FGPR-6.5-24DC-PC-2  
**MAX DIAMETER FEED** ..... 6.5"  
**MOTOR TYPE** ..... 24VDC Gear Head  
**GEAR RATIO** ..... 2460:1  
**DRIVE GEAR** ..... Spur Gear  
**MOUNT STYLE** ..... Quad Leg  
**BODY MATERIAL** ..... Aluminum  
**MAIN BEARINGS** ..... Nylon, SS Balls  
**ROTATION RANGE** ..... Up to 360°  
**POSITION RESOLUTION** ..... 0.2°

## FEATURES:

M2 continues to improve and add to it's line of dish feeds and dish feed polarity adjustment mechanisms. Our latest addition is the new PR-6.5-24DC-PC-2, this robust feed polarity mechanism is built for large L and S Band feeds along with the complex multi Band feed where strength and reliability is necessary. This fully billet machined Polar-Rotor, uses Nylon bearings with stainless Steel balls to combat weather conditions. A complete electrical connections limit switch system, is enclosed in a sealed housing, adding to the reliability where others would fail. When you need large dish feed polarity adjustment, look no further than M2. Call us for your dish feed needs.



**\*THE PR-6.5-24DC-PC-2  
SHOWN WITH SINGLE BAND  
CUSTOM FEED**



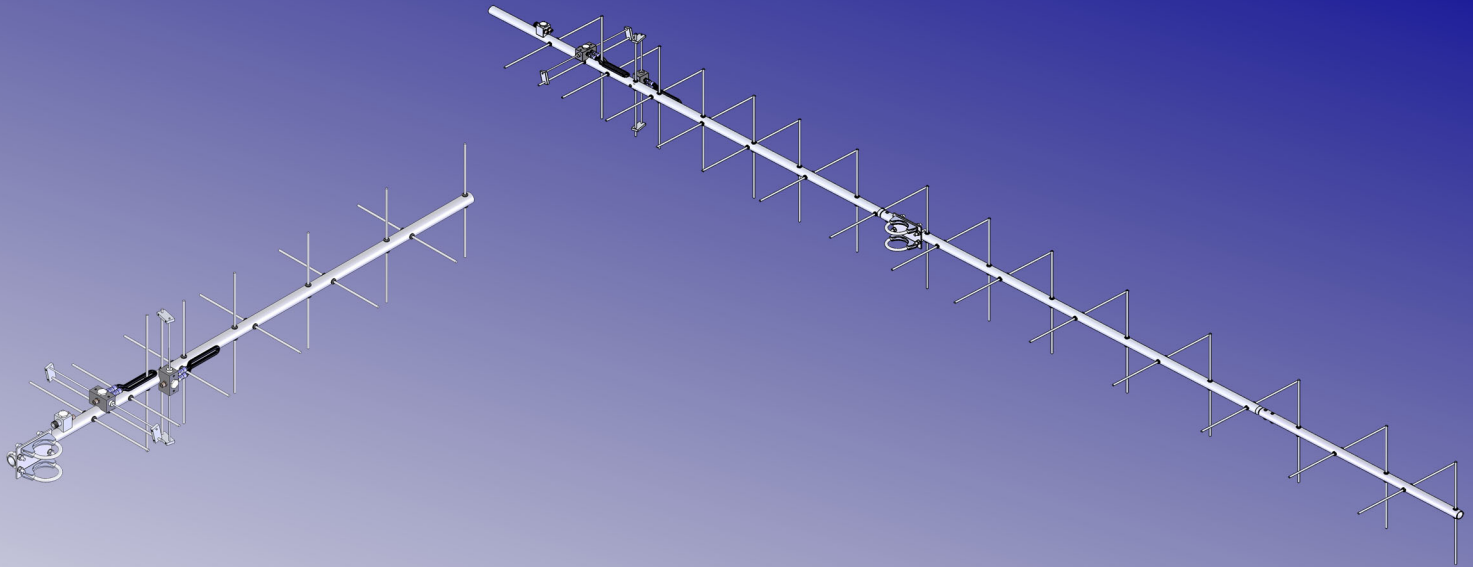
**\*THE PR-6.5-24DC-PC-2  
SHOWN WITH DUAL BAND  
CUSTOM FEED**



# M2 Antenna Systems, Inc.

## Popular Circular Polarized Yagi

### Antenna list



Model	Freq Range	Gain	Front to Back	Beamwidth	Feed Imp	Max VSWR	Power	Boom / Dia.	No Ele.	Wind Area / Survival	Weight	Price
136CP14	134-136 MHz	12.1 dBic	20 dB Typ	52° Circular	50 Ohms	1.5:1	1.5 kW	127" / 1"	14	1.1 Sq. Ft. / 100 MPH	7 lbs.	\$ 525.00
136CP22	135-137 MHz	14.1 dBic	20 dB Typ	50° Circular	50 Ohms	1.5:1	1.5 kW	237" / 1"	22	2.7 Sq. Ft. / 100 MPH	14 lbs.	\$ 525.00
2MCP14	143-148 MHz	12.3 dBic	20 dB Typ	52° Circular	50 Ohms	1.5:1	1.5 kW	126" / 1"	14	1.1 Sq. Ft. / 100 MPH	7 lbs.	\$ 335.99
2MCP22	144-148 MHz	14.3 dBic	25 dB Typ	38° Circular	50 Ohms	1.5:1	1.5 kW	223" / 1"	22	2.5 Sq. Ft. / 100 MPH	11 lbs.	\$ 493.99
149CP14	148-150 MHz	11.5 dBic	20 dB Typ	53° Circular	50 Ohms	1.5:1	1.5 kW	114" / 1"	14	1.1 Sq. Ft. / 100 MPH	7 lbs.	\$ 525.00
400CP30A	395-405 MHz	16.2 dBic	22 dB Typ	30° Circular	50 Ohms	1.5:1	1.5 kW	141" / 1"	30	1.1 Sq. Ft. / 100 MPH	8 lbs.	\$ 675.00
401CP14	400-415 MHz	11.5 dBic	22 dB Typ	60° Circular	50 Ohms	1.5:1	1.5 kW	49" / 1"	14	0.7 Sq. Ft. / 100 MPH	4 lbs.	\$ 650.00
406CP30	403-409 MHz	16.9 dBic	23 dB Typ	50° Circular	50 Ohms	1.5:1	1.5 kW	150" / 1"	30	1.0 Sq. Ft. / 100 MPH	9 lbs.	\$ 725.00
436CP30	432-440 MHz	15.5 dBic	18 dB Typ	30° Circular	50 Ohms	1.5:1	1.5 kW	117" / 1"	30	1.0 Sq. Ft. / 100 MPH	9 lbs.	\$ 325.99
436CP42UG	430-438 MHz	18.9 dBic	25 dB Typ	50° Circular	50 Ohms	1.5:1	1.5 kW	226" / 1"	42	2.0 Sq. Ft. / 100 MPH	12 lbs.	\$ 461.99
440CP14	430-450 MHz	12.3 dBic	15 dB Typ	60° Circular	50 Ohms	1.5:1	1.5 kW	51" / 1"	14	0.4 Sq. Ft. / 100 MPH	4 lbs.	\$ 750.00
450CP26	445-455 MHz	16.5 dBic	21 dB Typ	30° Circular	50 Ohms	1.5:1	1.5 kW	124" / 1"	26	1.0 Sq. Ft. / 100 MPH	9 lbs.	\$ 675.00
450CP34	435-455 MHz	16.0 dBic	22 dB Typ	28° Circular	50 Ohms	1.5:1	1.5 kW	130" / 1"	34	1.0 Sq. Ft. / 100 MPH	10 lbs.	\$ 725.00
456CP34	435-470 MHz	16.0 dBic	23 dB Typ	30° Circular	50 Ohms	1.5:1	1.5 kW	125" / 1"	34	1.0 Sq. Ft. / 100 MPH	9 lbs.	\$ 750.00