RC2000 Embedded

Commercial Satellite Antenna Controller for Dual Axis Antennas

FEATURES

- **Familiar Operation**
  Uses the same user interface as the standard rack mount RC2000 ACU via keypad & LCD
- **Remote Control Options**
  Can be controlled remotely via standard RS-422 or through an internal serial-to-Ethernet adapter
- **Convenient installation**
  Optional "quick disconnect" allows all antenna & user connections to be routed to weather-proof connectors on the enclosure bottom panel
- **24V Rotating Feed Drive**
  Optional drive for a 24V polarization feed drive with potentiometer feedback.
- **Weatherproof Enclosure**
  Utilizes a NEMA 4 rated outdoor enclosure
- **Inclined Orbit Tracking**
  Optionally includes a beacon tracking receiver to allow for an all-in-one tracking controller
- **Safe Operation**
  Emergency STOP switch cuts all power to the ACU for emergencies or maintenance
- **Retrofit Oriented**
  Easily replaces other antenna controllers for retrofit applications
- **Handheld Remote Front Panel**
  Optional handheld remote control with LCD display and keypad. Communicates using RS-422 serial interface to outdoor box

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OPERATIONAL OVERVIEW

The RC2000 is designed to provide years of reliable operation through the use of a heavy duty solid-state drive network coupled with a novel microcontroller-based fault monitoring system. The 10 amp drive output capability is unparalleled in the market and the Adapti-Drive™ digital servo speed control optimizes antenna movement for today's demanding Ku-band applications. Additional features like an RS-422 and Ethernet communication ports for PC control and a very user-friendly menu scheme make the RC2000 a unique and highly adaptable piece of equipment.

MODES

The RC2000 operates in a mode architecture whereby the controller's operational status is governed by the selected mode. An explanation of these modes are listed below.

MANUAL:	Allows for manual jogging of the antenna azimuth, elevation and polarization axis. The fast/slow speed toggle is active in this mode.
AUTO:	A satellite, previously saved in memory, can be recalled and the controller will position the antenna on the selected satellite.
SETUP:	This mode is invoked to store azimuth, elevation and polarization values memory for a selected satellite.
RESET:	Used to reset the drive over-current protection circuits after the load error has been corrected.
DELETE:	Allows the user to delete a satellite from the list of stored values.
FIX:	Used to restore the proper position counters in the event of a memory error or sensor failure.
AZIM SLOW:	This mode allows the user to select an appropriate drive slow speed value to optimize system performance.
ELEV SLOW:	Same as for Azim Slow
CONFIG:	Provides a concise point to enter any necessary system constants or enable options. Examples are Auto-Pol sense and status as well as simultaneous movement of axis during an Auto move.
LIMITS:	Software limits are set for both axis in this mode. They provide backups for the mechanical limits and establish an estimate of the antenna range of operation.

SPECIFICATIONS

Power:	115/230 VAC, 48W
Size:	16″ W x 20″ H x 8″ D
Weight:	55 lbs.
Temperature:	-30 to +60° C

Drive Output:	12 – 36 VDC, 10 Amps
Sensor Input:	Reed, Hall Effect, Optical
Polarization:	Standard Polarotor™ interface
PC Interface:	RS-422, 4 wire Ethernet optional

www.researchconcepts.com

IMC-101 Series

Industrial Ethernet-to-fiber media converters

- 10/100BaseT(X) auto-negotiation and auto-MDI/MDI-X
- Link Fault Pass-Through (LFP)
- Power failure, port break alarm by relay output
- Redundant power inputs
- -40 to 75°C operating temperature range (T models)
- Designed for hazardous locations (Class 1 Div. 2/Zone 2, IECEx)

Introduction

The IMC-101 industrial media converters provide industrial-grade media conversion between 10/100BaseT(X) and 100BaseFX (SC/ST connectors). The IMC-101 converters' reliable industrial design is excellent for keeping your industrial automation applications running continuously, and each IMC-101 converter comes with a relay output warning alarm to help prevent damage and loss. The IMC-101 media converters are designed for harsh industrial environments, such as in hazardous locations (Class 1, Division 2/Zone 2, IECEx, DNV, and GL Certification), and comply with FCC, UL, and CE standards. The IMC-101 series is available in models that support an operating temperature from 0 to 60°C, and an extended operating temperature from -40 to 75°C. All IMC-101 series converters are subjected to a 100% burn-in test.

Specifications

Technology

Standards:
IEEE 802.3 for 10BaseT
IEEE 802.3u for 100BaseT(X) and 100BaseFX

Interface

Fiber Ports: 100BaseFX (SC/ST connectors)
LED Indicators: PWR1, PWR2, FAULT, 10/100M (TP port), 100M (Fiber port), FDX/COL (Fiber port)
DIP Switches: 100BaseFX Full/Half duplex selection, port break alarm mask
Alarm Contact: One relay output with current carrying capacity of 1 A @ 24 VDC
RJ45 Ports: 10/100BaseT(X)

Optical Fiber

	100BaseFX	
	Multi-mode	Single-mode
Wavelength	1300 nm	1310 nm
Max. TX	-14 dBm	0 dBm
Min. TX	-20 dBm	-5 dBm
RX Sensitivity	-32 dBm	-34 dBm
Link Budget	12 dB	29 dB
Typical Distance	5 km [a] 4 km [b]	40 km [c]
Saturation	-6 dBm	-3 dBm

a. 50/125 µm, 800 MHz*km fiber optic cable
b. 62.5/125 µm, 500 MHz*km fiber optic cable
c. 9/125 µm, 3.5 PS/(nm*km) fiber optic cable

Physical Characteristics

Housing: Metal, IP30 protection
Dimensions: 53.6 x 135 x 105 mm (2.11 x 5.31 x 4.13 in)
Weight: 630 g
Installation: DIN-Rail mounting, wall mounting (with optional kit)

Environmental Limits

Operating Temperature:
Standard Models: 0 to 60°C (32 to 140°F)
Wide Temp. Models: -40 to 75°C (-40 to 167°F)
Storage Temperature: -40 to 85°C (-40 to 185°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Power Requirements

Input Voltage: 12 to 45 VDC redundant inputs
Input Current: 160 mA @ 24 VDC
Connection: Removable terminal block
Overload Current Protection: 1.1 A
Reverse Polarity Protection: Present

Standards and Certifications

Safety: UL 508, UL 60950-1
Hazardous Location: UL/cUL Class I Division 2 Groups A/B/C/D, ATEX Zone2 Ex nA nC op is IIC T4 Gc, IECEx Ex nA nC IIC T4 Gc
EMC: CE, FCC
EMI: FCC Part 15 Subpart B Class A, EN 55022 Class A
EMS:
EN 61000-4-2 (ESD) Level 3,
EN 61000-4-3 (RS) Level 3,
EN 61000-4-4 (EFT) Level 3,
EN 61000-4-5 (Surge) Level 3,
EN 61000-4-6 (CS) Level 2,
EN 61000-4-8,
EN 61000-4-11
Marine: DNV, GL
Shock: IEC 60068-2-27
Freefall: IEC 60068-2-32
Vibration: IEC 60068-2-6
Green Product: RoHS, CRoHS, WEEE

MTBF (mean time between failures)

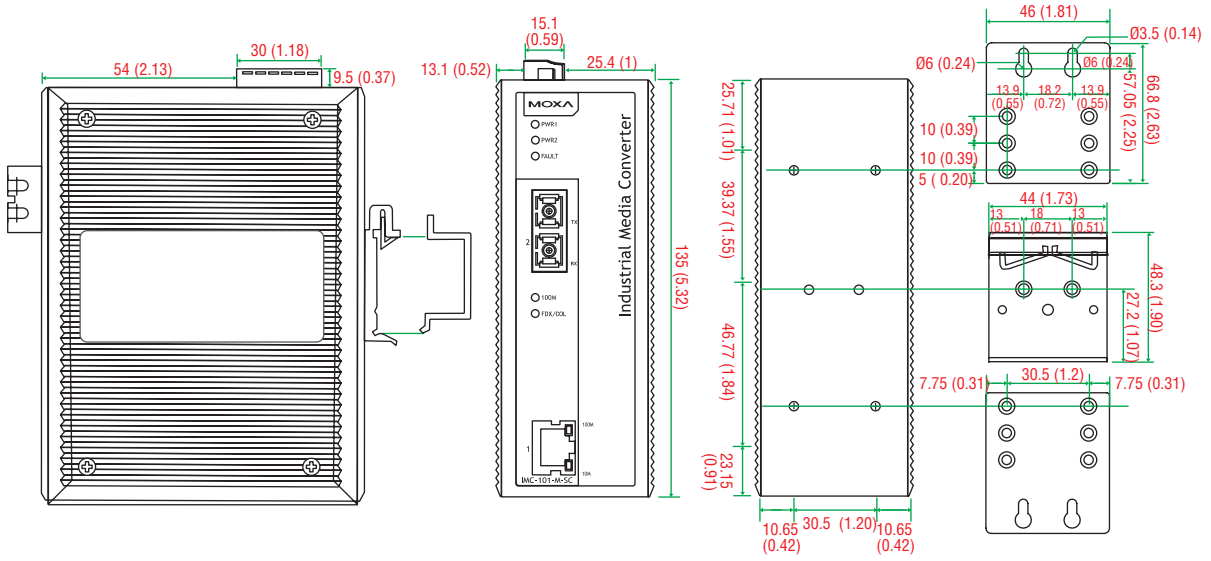
Time: 401,000 hrs
Database: MIL-HDBK-217F, GB 25°C

Warranty

Warranty Period: 5 years
Details: See www.moxa.com/warranty

Dimensions

Unit: mm (inch)



Side View | Front View | Rear View | Panel Mounting Kit

Ordering Information

Available Models

IMC-101-M-SC: Industrial 10/100BaseT(X) to 100BaseFX media converter, multi mode, SC connector, 0 to 60°C operating temperature
IMC-101-M-ST: Industrial 10/100BaseT(X) to 100BaseFX media converter, multi mode, ST connector, 0 to 60°C operating temperature
IMC-101-S-SC: Industrial 10/100BaseT(X) to 100BaseFX media converter, single mode, SC connector, 40 km, 0 to 60°C operating temperature
IMC-101-S-SC-80: Industrial 10/100BaseT(X) to 100BaseFX media converter, single mode, SC connector, 80 km, 0 to 60°C operating temperature
IMC-101-M-SC-T: Industrial 10/100BaseT(X) to 100BaseFX media converter, multi mode, SC connector, -40 to 75°C operating temperature
IMC-101-M-ST-T: Industrial 10/100BaseT(X) to 100BaseFX media converter, multi mode, ST connector, -40 to 75°C operating temperature
IMC-101-S-SC-T: Industrial 10/100BaseT(X) to 100BaseFX media converter, single mode, SC connector, 40 km, -40 to 75°C operating temperature
IMC-101-S-SC-80-T: Industrial 10/100BaseT(X) to 100BaseFX media converter, single mode, SC connector, 80 km, -40 to 75°C operating temperature

Package Checklist

- 1 IMC-101 media converter
- Quick installation guide (printed)
- Warranty card

IECEx Models

IMC-101-M-SC-IEX: Industrial 10/100BaseT(X) to 100BaseFX media converter, multi mode, SC connector, IECEx, 0 to 60°C operating temperature
IMC-101-M-ST-IEX: Industrial 10/100BaseT(X) to 100BaseFX media converter, multi mode, ST connector, IECEx, 0 to 60°C operating temperature
IMC-101-S-SC-IEX: Industrial 10/100BaseT(X) to 100BaseFX media converter, single mode, SC connector, 40 km, IECEx, 0 to 60°C operating temperature
IMC-101-S-SC-80-IEX: Industrial 10/100BaseT(X) to 100BaseFX media converter, single mode, SC connector, 80 km, IECEx,0 to 60°C operating temperature
IMC-101-M-SC-T-IEX: Industrial 10/100BaseT(X) to 100BaseFX media converter, multi mode, SC connector, IECEx, -40 to 75°C operating temperature
IMC-101-M-ST-T-IEX: Industrial 10/100BaseT(X) to 100BaseFX media converter, multi mode, ST connector, IECEx, -40 to 75°C operating temperature
IMC-101-S-SC-T-IEX: Industrial 10/100BaseT(X) to 100BaseFX media converter, single mode, SC connector, 40 km, IECEx,-40 to 75°C operating temperature
IMC-101-S-SC-80-T-IEX: Industrial 10/100BaseT(X) to 100BaseFX media converter, single mode, SC connector, 80 km, IECEx, -40 to 75°C operating temperature

Optional Accessories (can be purchased separately)

DR-4524: 45W/2A DIN-Rail 24 VDC power supply, 85 to 264 VAC input
DR-75-24: 75W/3.2A DIN-Rail 24 VDC power supply, 85 to 264 VAC input
DR-120-24: 120W/5A DIN-Rail 24 VDC power supply, 88 to 132 VAC/176 to 264 VAC input by switch
WK-46: Wall mounting kit
RK-4U: 4U-high 19" rack mounting kit

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