
# SKYMASTR BASE STATION

## 700 MHz, 800 MHz, 900 MHz

## EXCEPTIONAL OPERATION FOR CRITICAL COMMUNICATIONS

The SkyMASTR Base Station provides wide-area coverage in the OpenSky® network. Base stations are configured to provide multi-channel trunking capability, with 3 to 6 channels available, depending on the required call capacity. Stations are configured in rack mounts that include a Digital Controller/Transceiver (DCX) and High-Power Amplifier (HPA) for each channel, a Cisco® router for network connectivity, and a diagnostic monitoring system.

## FEATURES

SkyMASTR provides multi-channel trunking, with 12 to 24 talkpaths for 700 and 800 MHz 4-slot TDMA operation and 6 to 12 talkpaths for 700 and 900 MHz 2-slot TDMA operation.

The station supports digital voice and data.

The modular design of SkyMASTR reduces maintenance costs and downtime as the controller and receiver modules can be replaced easily.

### CHANNEL EFFICIENCY

Unlike other cell-based trunking networks, OpenSky architecture eliminates the need for a control channel. Removing the control channel requirement results in increased channel efficiency and greater channel access for mobile users.

### ROAMING AND RE-USE

OpenSky architecture affords operators a unique and flexible framework for implementing a wide-area network and also provides the essential features of intersite roaming and frequency re-use.

### MODULAR DESIGN OF DCX

The DCX is composed of two modules: the controller and the transceiver. The controller module is a Digital Signal Processor (DSP) based channel controller that manages channel access arbitration, provides true digital pass-through for repeated voice, and serves as the communications bridge between a mobile fleet and the OpenSky network. The controller module also controls all ancillary devices, and supports remote diagnostics and application upgrades that are managed through the network communications link.

The transceiver module is optimized for the requirements of OpenSky's digital protocol. The transceiver links to the controller via an IQ baseband and serial data interface.

The HPA delivers a continuous rated RF output of 100 watts.

## GENERAL SPECIFICATIONS

Single Rack Dimensions (H x W x D):
83 x 22 x 24 in.
(211 x 56 x 61 cm)

Station occupies 5 Rack Units

Power Supply for a Single Channel:
530W @ -48 VDC

Operating Temperature Range:
-22 to +140°F
(-30 to +60°C)

Humidity:
95% noncondensing @ 86°F (+30°C)

Altitude:
Operational: Up to 15,000 ft
(4,572 m)

Data Interface:
RS-232 SLIP
RS-485 Serial

Note: All RF performance metrics are measured running OpenSky Trunking Protocol (OTP) or Narrowband OpenSky Trunking Protocol (NBOTP).

# DEPENDABLE SKYMASTR PLATFORM

## TRANSMITTER

| | 700 | 800 | 900 |
|---|---|---|---|
| Frequency Range (MHz): | 769-775 Narrowband channels only | 851-869 (SMR and NPSPAC) | 935-940 |
| Power Output (W): | 100 | 100 | 100 |
| RF Output Impedance (ohm): | 50 | 50 | 50 |
| Conducted Spurious and Harmonic Emissions (dB): | -70 minimum | -70 minimum | -70 minimum |
| Frequency Stability (ppm): | 0.1 | 0.1 | 0.1 |
| Channel Spacing (kHz): | 12.5/25 | 12.5/25 | 12.5 |

## RECEIVER

| | 700 | 800 | 900 |
|---|---|---|---|
| Frequency Range (MHz): | 799-805 Narrowband channels only | 806-824 (SMR and NPSPAC) | 896-901 |
| RF Output Impedance (ohm): | 50 | 50 | 50 |
| Channel Spacing (kHz): | 12.5/25 | 12.5/25 | 12.5 |
| Sensitivity for 1% BER (dBm) | | | |
| Wideband OpenSky Protocol: | -112 | -112 | -116 |
| Narrowband OpenSky Protocol: | -116 | -116 | -116 |
| Adjacent Channel Rejection (dB): | 70 | 70 | 55 |
| Intermodulation (dB): | 75 | 75 | 80 |
| Image Rejection (dB): | 80 | 80 | 90 |
| Frequency Stability (ppm): | 0.1 | 0.1 | 0.1 |

## DIGITAL OPERATION

| | |
|---|---|
| Vocoding Method: | Advanced MultiBand Excitation (AMBE®) |
| Data Rate: | 19.2 kbps for 25 kHz channel spacing<br>9.6 kbps for 12.5 kHz channel spacing |
| Modulation: | 4-Level GFSK |

## REGULATORY DATA

| Frequency Range (MHz) | Power Output (W) | FCC Type Acceptance Number | Applicable FCC Rules | Industry Canada Certification Number | Applicable Industry Canada Rules |
|---|---|---|---|---|---|
| 769-775 | 10-100 | BV8MBS700A100 | 90 | NA | NA |
| 851-869 | 10-100 | BV8MBS800A100 | 90 | 3670A-MBS800 | RSS-119 |
| 935-940 | 10-100 | BV8MBS900A100 | 90 | 3670A-MBS900 | RSS-119 |

Technical specifications are subject to change without notice. Product sales are subject to applicable U.S. export control laws.

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