

# Model 1800 Master Station Radio

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## Features

- Common Time Base
- Over-the-Air Parameter Changes
- Transmitter A/B Cycling
- Co-Channel Multiple Repeater
- Single Adjustment Calibration

## General Description

The Model 1800 radio operates as the Master Station of a Multiple Address Radio System, commonly used for SCADA communications. The 1800 may be co-located with the SCADA Master Control, or connected via microwave, telephone line, or another 1800, configured as a polling remote. Several Model 1800s sharing the same frequency can be configured as multiple repeaters to allow coverage of dead spots created by terrain and structures. Alligator's development staff assigned significant emphasis to suggestions of MAS users, virtually eliminating routine maintenance procedures. The unique Common Time Base provides zero frequency offset between transmit and receive modules. Beat tone between two active transmitters is eliminated. Frequency calibration of the entire unit requires a single adjustment by connecting a general

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## Applications

- SCADA Systems
- Utility Data Communications
- Oil and Gas Pipeline Monitoring
- Water Systems
- Distribution Automation

purpose PC. Self-prompting Alligator software replaces hand tools and test equipment, and SCADA polling is not interrupted. Tedious and time-consuming manual adjustment of receiver modules causing SCADA down time are eliminated.

Model 1800 has built-in intelligence to perform automatic functions such as periodically checking of a warm standby transmitter module, schedule rotation of the primary transmit module with the secondary transmit module. When a replacement module is installed, the Model 1800 automatically programs the operating frequency of the new module. A built-in auto answer device allows a technician to dial up from anywhere, through any phone outlet without the use of a modem, and perform diagnostics to the Model 1800 as well as all the associated remote radios in the same network.



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Communications, Inc.

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# 1800 Specifications

## General

Frequency: 360-512 MHz  
860-960 MHz  
Channel Spacing: 12.5 or 25.0 kHz  
Data Rate: 300 to 9600 BPS  
Input Voltage: 110/220 V<sub>AC</sub>, 12, 24, 48,  
125 V<sub>DC</sub>  
Input Power: 45 Watts  
Transient Protection: 2500 V Isolation on VF  
Input/Output, Keying, Alarm  
and Power Circuits.

### Connectors:

Antenna	Type N Female
Modem	DB-25
Diagnostics	Modular
Phone Line	Modular
Alarm Outputs	Terminal Block
External Battery	Terminal Block
Diagnostics	Modular (front)
Order Wire	Modular (front)

Alarm Outputs: One each form C dry contact closure relay  
for module malfunction and AC failure.

### Environment:

Temperature: -30°C to +60°C  
Humidity: 95% at 40°C

Dimension: 19"W x 5.25"H x 17"D, Rack Mount  
Weight: 35 lbs

## Agency Certification

	360-512 MHz	895-960 MHz
FCC Rules:	Parts 90 & 15	Parts 101 (94)
FCC Identifier:	JIL1800B	JIL1800
FCC Emission Designators:	12K5F1D 11K0F2D 12K5F3D	12K5F1D 11K0F2D 12K5F3D
Industry Canada Certification:	3073195404A	

Contact factory for other frequency bands and power levels.

## Transmitter

RF Power: 5 Watts (Adjustable: 0.1 to 5.0 Watts)  
Impedance: 50 Ohms  
Duty Cycle: Continuous  
Transmitter Attack Time: < 1 msec  
Frequency Stability: 0.00015% (1.5ppm) -30°C to +60°C  
Modulation Deviation:  
12.5 kHz Band: ±3 kHz max.  
25 kHz Band: ±5 kHz max.

### Spurious and Harmonic Emissions:

Audio Input Levels: -25 to +10 dBm, Adjustable  
Frequency Response: +1/-3 dB; 300 to 3000 Hz

## Receiver

Type: Double Conversion Superheterodyne  
Frequency Stability: 0.00015% (1.5ppm) -30°C to +60°C  
Sensitivity: -117 dBm (0.3 micro volts)  
12 dB SINAD  
Selectivity: -100 dB Minimum at Adjacent  
Channel  
Desensitization: -65 dB (EIA) at 12.5 kHz Spacing  
-70 dB (EIA) at 25.0 kHz Spacing  
Intermodulation: -75 dB (EIA)  
Spurious/Image Rejection: -85 dB  
Audio Output Levels: -20 to +6 dBm, Adjustable  
Frequency Response: +1/-3 dB, 300 to 3000 kHz  
Bit Error Rate:  
1200 bps: BER 1x10<sup>-6</sup> at -110 dBm  
4800 bps: BER 1x10<sup>-6</sup> at -110 dBm  
9600 bps: BER 1x10<sup>-6</sup> at -103 dBm

## Options and Accessories

Modems:  
1200 BPS, Bell 202 Compatible: RS-232  
300-9600 BPS, Asynchronous operation; Digital Interface –  
RS-232  
Transmitter A/B Cycle  
Over-the-Air Diagnostics & Control  
Repeater Diagnostics  
Dial-Up Auto Answer



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