

Model 1888 MAS Remote Transceiver



Features

- "Over-the-Air" Control
- Alarm Limits
- Frequency & Power Adjustment
- Event Counters
- Sleep Mode
- Compatible with any Master
- Two Year Limited Warranty

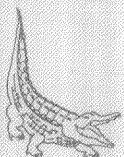
General Description

The Model 1888 frequency synthesized remote radio provides the maximum performance and reliability in a multiple address communications network. The radio utilizes an onboard microprocessor to control all operational parameters and diagnostic functions, including the programmable frequency synthesizer.

Applications

- Oil & Gas Pipeline Monitoring
- Utility Data Communications
- Railroad Data Communications
- Water Systems
- Distribution Automation
- Security Systems
- SCADA Systems

Available diagnostic software, capable of running on notebook and/or desktop PC computers, can read and change any operational or diagnostic parameter. The diagnostic PC can communicate with the Model 1888 locally at the remote site or "Over-the-Air" by the radio's RF link. Therefore, modifying a remote's configuration does not require radio disassembly or even visiting the remote site.



Alligator
Communications, Inc.

"Over-the-Air" Control

All Model 1888 radios are available with Advanced Diagnostics that, when interfaced by the Alligator Software, provide a comprehensive analysis of the radio's status and performance. Monitoring and changing a radio's parameters can be performed at the remote site or "Over-the-Air" via the remote's master station. Available Alligator Interface modules allow connection by telephone line or microwave link to the master station. It is possible to monitor and reconfigure an entire network of Alligator radios from your office or any location with land line or cellular telephone services. Changing frequencies, alarm limits, power levels, deviation, sleep timers, and operating parameters can all be performed without dispatching a technician to the remote site.

Alarm Limits

Also available on the Model 1888 is a group of user programmable alarm limits. These limits monitor the performance of several diagnostic parameters and generate an alarm condition should any parameter exceed its limits. With the RTU monitoring the alarm status output of the radio, alarm conditions can be quickly noted and corrective action taken to prevent further degradation of radio performance. With early detection and Alligator's "Over-the-Air" capabilities, most corrections can be performed without visiting the remote site.

Remote Frequency Fine Tune

The Model 1888 is also available with a frequency fine tune feature. With this feature installed, the user can fine tune the remote's frequency offset to account for the unavoidable long term crystal aging. Like all other features, frequency offset tuning can be performed "Over-the-Air". Yearly visits to all remote sites for frequency calibrations are a thing of the past.

Remote Power Level Adjust

Another available feature allows adjustment of the RF power output. Use this feature to take advantage of ideal transmission conditions, and lower a radio's power output. This will reduce power requirements and extend battery life, further reducing trips to remote sites.

The Model 1888's "Over-the-Air" adjustment capability greatly reduces trips to remote radio sites, saving you time and money.

Event Counters

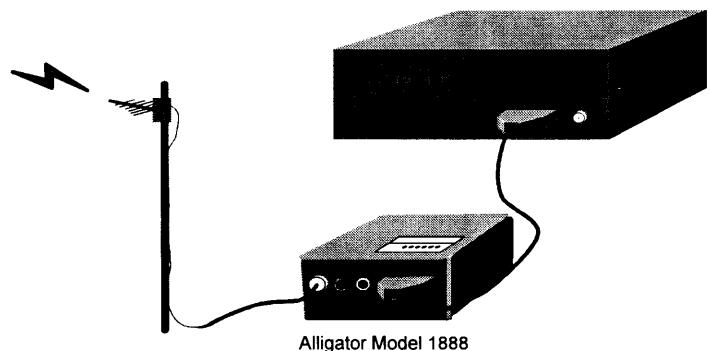
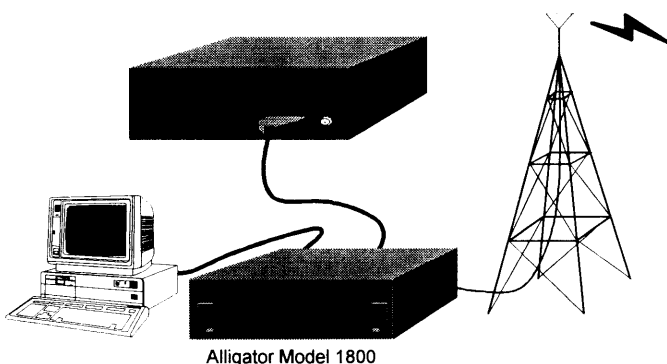
The Model 1888 radio also has a set of event counters. These counters keep track of several different events such as PTT keying, receiver squelch, and transmit time out. Tracking these variables helps pinpoint the source of nagging data errors.

Radio Upgrade by Telephone

Any optional features or future enhancements can be upgraded without sending the remote radio back to the factory. An Alligator technician can dial-up and access the radio through its associated master station and upload the selected features directly to the remote.

Simple Loopback Test

Every Model 1888 radio is equipped with loopback test capabilities. Performing a loopback test requires a handset equipped with a touch-tone pad connected to the master station orderwire. Use the handset to key in the loopback code and the address of the remote of interest. The remote will then respond with either a steady three second tone or three short beeps. A steady tone indicates all is well. Three short beeps





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indicates an alarm condition. The technician can further diagnose and correct the situation, by using the advanced diagnostic software to access the remote via the RF link.

Sleep Mode

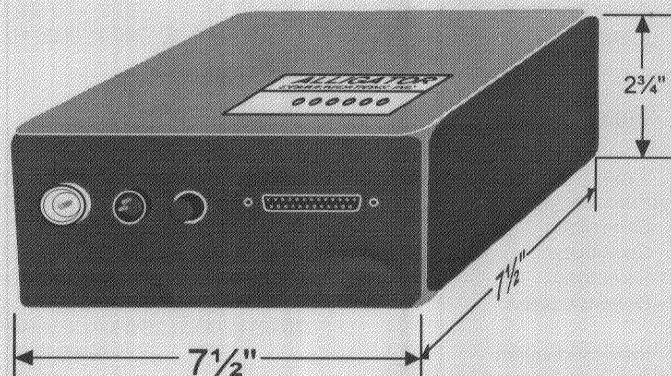
Another available feature is the sleep mode capabilities. Using the Alligator software, you can program the Model 1888 to deactivate and reactivate the receiver in accordance with an onboard clock. This option significantly reduces the current required by the transceiver. This is especially valuable at unpowered remote sites relying solely on solar power and batteries. During sleep mode, the entire unit requires only 15 mA.

Compatible with any Master

For users who already have an installed 900 MHz network, the Model 1888 simplifies upgrading equipment. Using the Alligator diagnostic computer interface module, virtually all Model 1888 features are accessible through any manufacturer's master station radio. Its small dimensions allow installation almost anywhere. Therefore, you can install new 1888's as you need them and slowly replace your current out-dated system.

Signal Interface

The Model 1888 is available with two different RTU signal interface options. The standard analog signal interface handles audio input/output such as voice or modem data (up to 9600 bps). The optional digital signal interface provides up to 9600 bps throughput, utilizes direct modulation of the transmitter VCO, and handles RS-232, RS-422, and TTL data.



The Model 1888's small dimensions allow installation into most existing enclosures.

Alligator Diagnostic Software

Alligator's Diagnostic Software is the most advanced in the industry. Its menu oriented design simplifies the task of radio configuration and maintenance. The user no longer has to memorize cryptic command codes or refer to manuals for dip switch and jumper settings. The software displays all radio information both textually and graphically. Changing and/or reading any parameter is as simple as selecting a command from the appropriate menu and pressing <Return>.

The software runs on any PC compatible computer with a parallel printer port. This means the technician will never be without his best diagnostic tool, either in the field or at the office.

The diagnostic software is capable of monitoring and/or modifying all of the following radio parameters:

Diagnostic Parameters:

Alarm Status
Reverse Power

Alarm Limits (High/Low):

Power Supply Voltage
Internal Temperature

Operating Parameters:

Frequency
RTS/CTS Delay
Rx AFC Enable

Counters:

Squelch

Sleep Mode Parameters:

Clock
Wake Duration

Received Signal Strength
Forward Power

PLL Voltage Level

FM Deviation
VOX Enable
Radio Address

PTT

Sleep Enable
Snnooze Duration

RF Power Output
PLL Voltage Level

Reverse Power

Soft-Carrier Dekey
PTT Enable
RF Power Output

Tx Time-out

Wake-up Time
Maintenance Start Time

Power Supply Voltage
Internal Temperature

Forward Power

Time-out Timer
Tx AFC Enable
Frequency Offset

Sleep Time
Maintenance End Time

Specifications

Transmitter

RF Power:	5 Watts, adjustable 0.5 to 5 W
Impedance:	50 Ohms
Duty Cycle:	Continuous
Tx Attack Time:	< 1 ms
Frequency Stability:	.00015%(1.5 ppm) -30 C to +60 C
Bandwidth:	12.5 or 25 kHz
Modulation Deviation:	
12.5 kHz Band:	± 3.0 kHz
25.0 kHz Band:	± 5.0 kHz
Spurious and Harmonic Emissions:	- 65 dB
Tx Time-out Timer:	1-255 seconds
Audio input level:	-20 to +10 dBm
Frequency Response:	+1/-3 dB: 300 to 3000 Hz

Receiver

Type:	Double Conversion Super-heterodyne
Frequency Stability:	.00015%, (1.5 ppm) -30° C to +60°C
Bandwidth:	12.5 or 25.0 kHz
Sensitivity:	-117 dBm (0.3 *V) 12 dB SINAD
Selectivity:	-100 dB min / Adjacent Channel
Desensitization:	-60 dB (EIA) at 12.5 kHz spacing -70 dB (EIA) at 25.0 kHz spacing
Inter-modulation:	-75 dB (EIA)
Spurious/Image Rejection:	-80 dB
Audio Output levels:	-20/+6 dBm, Adjustable
Frequency Response:	
Filtered:	+1/-3 dB 300 - 3000 Hz
Unfiltered:	+1/-3 dB 300 - 6000 Hz
Bit Error Rate:	
1200 bps:	BER 1*10 ⁻⁶ at -110 dBm
4800 bps:	BER 1*10 ⁻⁶ at -110 dBm
9600 bps:	BER 1*10 ⁻⁶ at -108 dBm

*FCC Information

FCC Part:	94
FCC Identifier:	JILMPR1888A
FCC Emission Designators:	
12K5F1D	25K0F1D
11K0F2D	16K0F2D
12K5F3D	20K0F3D

Contact factory for other frequency bands and power levels.

General

Frequency Agility:	895 - 960 MHz*
	350 - 512 MHz
Input Voltage:	13.8 Vdc Nominal (11-16 Vdc) 24, 48, 125 VDC Optional
Current Consumption:	
Sleep Mode:	Typical 15 mA
Receive Mode:	No options < 120 mA With options < 150 mA
Transmit (5W):	< 1.7 A
Data Rate:	300 to 9600 bps
Connectors:	
Antenna:	Type N female
Power:	4 Pin Circular (AMP-CPC)
Data:	DB-25 pin
Environment:	
Temperature:	-30 C to +60 C
Humidity:	95% at 40 C
Dimensions:	7 1/2" x 7 1/2" x 2 3/2"
Weight:	3 pounds

Options & Accessories

Diagnostics	Provides the ability to monitor all radio diagnostic parameters and program internal alarm limits by local connect or the RF path
Alarm Limits &	Provides programmable power output, Event Counters event counters, and diagnostic limits, each adjustable over the RF path
AGFC	To compensate for long term crystal aging, the internal TCXO is always calibrated to the remote radio's associated master in an intelligent manner
ADC	To compensate for long term variations in FM modulation deviation to avoid violating FCC Emissions rules
ALC	To accommodate an audio input level anywhere from -20dBm to +10dBm without requiring any adjustments
Internal Modems:	
1200 bps	Bell 202 Compatible; Digital Interface-RS-232
300-4800 bps	Auto-Select, Asynchronous operation; Digital Interfaces - RS-232, or TTL
9600 bps	Asynchronous or Synchronous operation; Digital Interfaces - RS-232, or TTL (for 25.0 kHz bandwidths)

Internal DC/DC Converters: 24, 48, & 125 VDC

Interface Modules:

HART Protocol Flow Transmitter Interface Board
Orderwire Interface Module
Dial-up Interface Module

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