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RMAS-120 Alarm

Microwave Repeater Systems

Applications

- Provides remote alarm and status monitoring for microwave RF Repeaters.
- Compatible with all Peninsula Engineering Solutions RF Repeaters.

Features

- Provides a total of 31 alarm and monitoring points; 27 digital & 4 analog.
- Can monitor general condition and RF output power of up to eight amplifiers.
- Has 7 digital inputs and 1 analog input allocated to customer designation.
- Retrofits with all Peninsula Engineering Solutions microwave Repeaters, except RF-1500 and RF-2000 Repeaters produced before 1994.
- Complete site status is available locally at both the transmitter and receiver for further extension to other supervisory equipment.
- Automatically combines two AGC (Automatic Gain Control) inputs, via the diversity receiver interface, while canceling the noise.
- The transmitter consumes only 66 mA at 12 VDC and is solar power compatible.
- The receiver employs a wide input voltage power supply (21 VDC to 72 VDC).
- The communication protocol is handed by industrial-graded microcontroller hardware on board.

RMAS-120 Alarm

General Information

The Peninsula Engineering Solutions Microwave Repeater Monitor and Alarm System, hereafter referred to as the RMAS-120, allows operators to remotely monitor the status of Peninsula Engineering Solutions microwave Repeaters. Remote monitoring improves the ability to maintain top performance, minimize outages, and schedule routine maintenance for equipment. In addition to alarm monitoring, the RMAS-120 alerts operators of battery power failure several days in advance of the failure. The RMAS-120 also reports key conditions such as amplifier status, battery voltage, and temperature, and allows system operators to designate additional alarm monitor points.

Both the transmitter and receiver modules of the RMAS-120 have LEDs (Light-Emitting Diodes) for visual alarm indication and contact closures (opto-couplers). The contact closures allow the operator to connect alarm information into a standard supervisory system.

The receiver module has dual receiver input for diversity microwave systems in order to auto-matically adjust for the stronger input signal of diversity systems.

Product Description

The RMAS-120 consists of a set of transducers which monitor the equipment, a transmitter module at the Repeater site that generates the alarm data and modulates the microwave carrier, and a receiver at the terminal that decodes the data stream from the microwave signal.

The transmitter module is housed inside the microwave Repeater cabinet. The receiver is designed to occupy one mounting space on a standard 19-inch rack.

Technical Summary

General

Data Transfer Rate	32 baud
Encoding	Manchester
Wave shaping	Butterworth Response
Modulation	AM (Amplitude Modulation)*

*1 \pm 0.3 dB peak to peak, 6% depth of modulation.

Digital Alarm Points

- Battery A Major
- Battery B Major
- Cabinet Door
- Low Waveguide Pressure
- 8 RF Power Failure Alarms (F1 through F8)
- 8 Amplifier Failure Alarms (AMP 1 through AMP 8)
- 7 Uncommitted (User-Defined) Alarms

RMAS-120 Alarm

Analog Alarm Points	Transmitter	Scale	Receiver Output
Battery A Voltage	0 – 30VDC	3:1	0 – 10VDC
Battery B Voltage	0 – 30VDC	3:1	0 – 10VDC
Battery Bank Temperature	0 – 5VDC	1:2	0 – 10VDC
1 Uncommitted (User-Defined) Alarm	0 – 30VDC	3:1	0 – 10VDC

Voltage Telemetry

Accuracy +/-100 mV maximum

Transmitter

Power Requirements

Voltage 10.5 ~ 20 VDC, or 20.0 ~ 40 VDC

Current

LEDs Off 70 mA

All 21 LEDs ON,
activated upon manual switch 166 mA

All LEDs momentarily ON and Strappable
Opto-Couplers ON 210 mA typical, 430 mA maximum

Alarm Outputs

27 Opto-Couplers
10 mA maximum current and 24 V maximum voltage, each

Environmental

Temperature -40 to +60° C
Humidity 90%
Altitude 15,000 feet (4600 m) maximum

Mechanical

Dimensions
Height 7.25 inches
Width 10.5 inches
Depth 3.7 inches
Weight 2 pounds

Receiver

Input Source Radio AGC (Automatic Gain Control) Voltage Output
AGC Loading 100 k-ohms, AC Coupled
AGC Sense Balanced Differential Input

Alarm Outputs

27 Opto-Couplers 10 mA maximum current & 24 V maximum voltage, each

RMAS-120 Alarm

Power Requirements

Voltage	21 to 72 VDC (Positive or negative ground)
Current	300 mA maximum at 24 VDC

Environmental

Ambient Temperature	0 to 60°C
Humidity	90%
Altitude	15,000 feet (4600m) maximum

Mechanical

Mounting	19-inch Rack Mount Assembly (1 mounting space, 5 inches front projection)
Weight	2 pounds

Terminal Radio Requirements

For proper performance, the terminal radio receiver must meet the following specifications:

AGC Sensitivity	20 mV minimum for 1 dB change in RF level
AGC Tracking	1 dB/10 ms (100 dB/second) Fade Rate, minimum

Ordering Information

The type of RMAS-120 to be ordered depends upon the configuration of Repeaters which will be monitored. To order the RMAS-120, specify the proper part numbers—see Table 1.A.

To order spare parts, specify the part and the part number of the spare—see Table 1.B.

Table 1.A
Standard Assembly

Part Number	Application
900-0782-01	1+0 RF Repeaters
900-0782-02	1+1 RF Repeaters
900-0782-03	2+1 RF Repeaters
900-0782-04	3+1 RF Repeaters

Table 1.B
Standard Assembly

Part Number	Part Name
090-0781-01	Transmitter Unit, 1+0
090-0781-02	Transmitter Unit, 1+1
090-0781-03	Transmitter Unit, 2+1
090-0781-04	Transmitter Unit, 3+1
090-0780-01	Receiver Unit, 1+0
087-0444-01	Temperature Transducer Assembly
034-0004-01	Pressure Switch Assembly (optional)
087-0021-02	Door Switch

Orders should include a shipping destination and a billing address. Upon receipt of an order, Peninsula Engineering sends an order acknowledgment with a list of equipment ordered and the scheduled shipping date. Each shipment also includes an equipment list. Contact Peninsula Engineering' corporate headquarters for sales information or technical assistance for the RMAS-120, or any of our communications' or related products.