



ALM

ANTENNA / LINE MONITOR

User Manual

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PREFACE

The user should ascertain that this product is suitable for the intended application. TASC Systems Inc. accepts no responsibility, liability, for misuse, or damage resulting from the inappropriate use of the product described herein.



Before connecting any equipment to the ALM product, the user is advised to read this document in its entirety. Application of voltages in excess of the built-in protection could seriously damage the ALM and/or the equipment it is connected to.

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RELATED DOCUMENTS

AMCU Antenna Line Monitor Configuration Utility User Manual (050-015-0026)

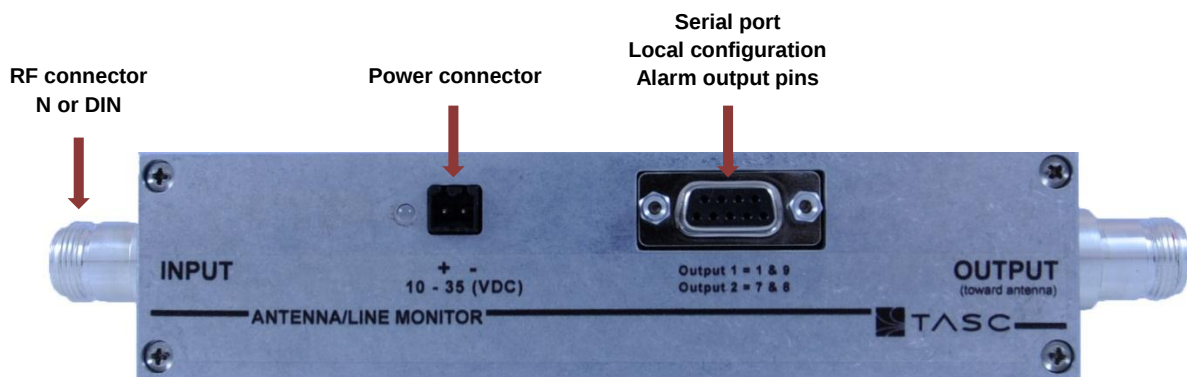
REVISION HISTORY

Revision	Date	Changes
050-015-0034 R01	January 2013	Expanded from the Installation Guide

1. PRODUCT OVERVIEW

1.1 System Description

The TASC Antenna / Line Monitor (ALM) is a precision voltage standing wave ratio (VSWR) monitoring device, used for measuring and monitoring the integrity of an antenna. There are two user settable alarm outputs for local monitoring. The device provides highly accurate VSWR measurements in real time with forward power levels up to 500 Watts average power regardless of the modulation scheme deployed. The ALM is engineered to provide years of trouble free service with an accuracy that will guarantee proper monitoring of your antenna system.



1.2 Connections

The ALM has DIN (M-F) or N (F-F) type connectors for RF input and output. The INPUT connector should be connected to the base transceiver station (BTS) TX, or TX/RX output at a point where the device has a good “view” of the antenna and transmission line. The OUTPUT connector should be connected to the transmission line attached to the antenna. Ensure that the lightning protection apparatus is connected to the transmission line between the ALM output connector and the antenna. Once the ALM is inserted in the TX path, provide a DC Voltage to the two-pin connector labeled VDC. The DC Voltage range that the ALM will accept is between 10 and 35 Volts. Ensure that you respect the polarity as marked clearly on the housing of the ALM.

1.3 Configuration Utility

Install the Antenna/Line Monitor Configuration Utility™ (AMCU) software on a PC by selecting “Install AMCU” from the CD that is provided. The installation wizard will assist you through the installation. Connection between the PC and the ALM is accomplished with the standard 9-pin male-to-female data cable provided with the unit. Once DC Voltage is applied to the 2-pin Weidmuller power connector, you are ready to connect to the ALM for VSWR monitoring, as well as configuring the alarm outputs.

1.4 Setup

The following steps describe the installation of the ALM.

- 1) Insert the ALM in your transmission line with the input connector facing your BTS and the output connector facing your antenna.
- 2) Load the AMCU™ software on your PC and run the application
- 3) Connect DC voltage to the ALM through the two-pin Weidmuller power connector.
- 4) Connect the 9-pin data cable between the serial port of your PC and the 9 pin D-sub connector on the ALM.
- 5) Start AMCU and press the [Local Connection] button.
- 6) Apply BTS RF power through the unit and observe the resulting VSWR.
- 7) Set the Alarms to suit your needs.
- 8) Remove the data cable from the ALM
- 9) Install an alarm cable between the ALM 9 pin D-sub connector and your alarm panel. The pinout for the alarm contacts is labeled on the ALM near the 9 pin D-sub connector. Wiring instructions for a single summary alarm output is shown below.

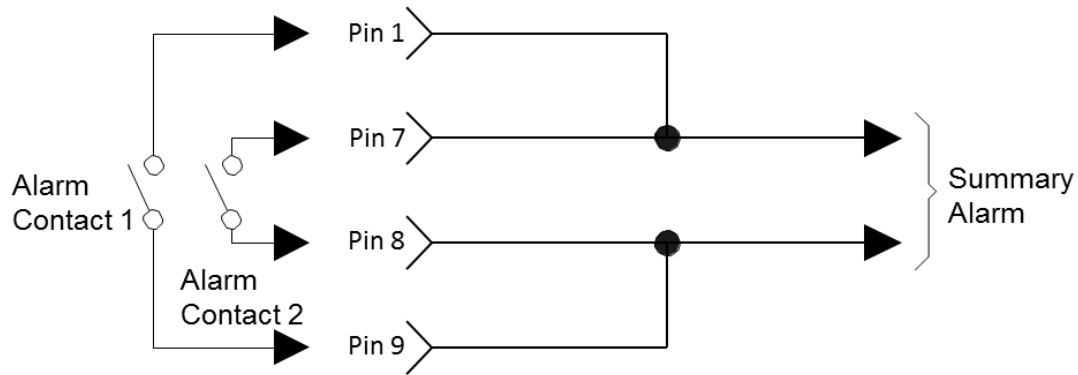
1.5 Alarm Configuration

The alarm conditions are presented to your alarm panel through two built-in Form C relays. The conditions that can be monitored are VSWR major and minor over threshold. The first choice in the AMCU list is automatically steered through Contact 1 and the second choice is automatically steered through Contact 2. The relays are software configurable as Normally Open or Normally Closed. The relay outputs are completely isolated so the polarity of your alarm panel is of no consequence. The relay outputs share the 9 pin D-sub connector on the ALM with the local connection capability. This means that the alarm connections must be disconnected from the ALM to connect locally to the device through your PC.

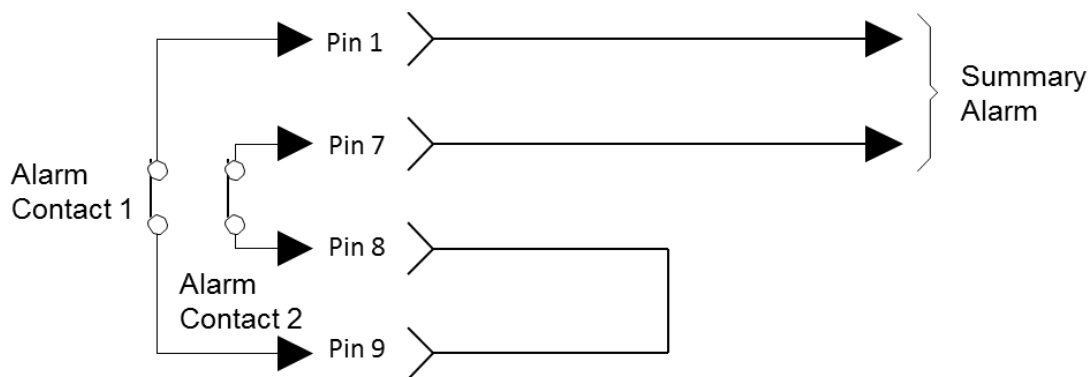
The Alarm pinout assignments are as follows:

f Alarm contact 1 = Pins 1 and 9

f Alarm contact 2 = Pins 7 and 8



Normally Open Summary Alarm Contact Configuration



Normally Close Summary Alarm Contact Configuration

1.6 Status LED Indicators

The ALM assumes that there is constant RF power transmission by a control channel. Therefore, it reads and reports conditions at all time. RF power must be transmitted continuously by the control channel for the ALM to show NO alarm condition (flashing green). As soon as RF power is removed, it will be interpreted as failure of the control channel (flashing red).

- a) When first powered up the LED will alternate red/green for a few seconds, then 0.5 sec of solid green, then continuous flashing red. This indicates that there is no valid reading recorded yet.
- b) When RF power is transmitted for the first time, and the level detected by the ALM is within the thresholds, the LED changes to flashing green (Indicating NO alarm). If the VSWR ratio crosses the set threshold, the LED will flash red indicating an alarm.

Note: If the DC voltage to the ALM is turned OFF/ON (power cycled), then the unit resets to stage “a)” above.

LED Status	Description
RED/GREEN alternating flash	Start up
GREEN flash	No alarm
RED flash	- Value Undefined ⁽¹⁾ - Value Under Range ⁽¹⁾ - High VSWR ratio alarm - Control channel failure

(1) For details refer to the AMCU Antenna Line Monitor Configuration Utility User Manual (050-015-0026)