SINCE 1948
RACO ®
REMOTE ALARMS AND CONTROLS

Verbatim ®

Analog Signal Monitoring Option
For VERBATIM
Automatic Dialing
Remote Monitoring System

Unlike the conventional two-state contact type inputs, an analog signal is continuously variable. The level of the signal represents some physical variable quantity such as water level, pressure, etc. A VERBATIM auto-dialer equipped with analog inputs will report the physical variable value spoken in terms of the actual physical units, and will initiate alarm calls when these values exceed user-programmed high or low alarm setpoints.

Analog inputs are available for 1, 4, 8 or 16 channels. The unit automatically assigns installed analog channels the first available channel numbers beyond the number of conventional contact channels.

The standard signal input type is 4-20 milliamperes. 70 ohm load gives maximum loop voltage drop of 1.4 volts @ 20 milliamperes.

Other signal input types available on order:
Raco Temperature Sensor (– 20 to + 120 deg F)
Certain other non-thermocouple temperature sensors
DC voltages 0-1, 0.2-1, 1-5, 0-10, etc.

Each signal input is differential (i.e. double ended or floating with respect to ground), with an allowable common mode range of ± 10 volts (i.e. both sides of each input must be within 10 volts of AC electrical. ground).

Measurement accuracy is within ± 0.3% of full scale absolute accuracy over an environmental temperature range of 32 to 110 degrees F, and typically ± 0.15% at room temperature. The system uses a high-resolution 12-bit converter, providing a measurement resolution of one part in 4,096. Measurements are reported rounded to 4 significant digits (with respect to full scale). Setpoints and scaling factors of up to 4 significant digits may be entered, with an optional decimal point at any position. Setpoint entries may not exceed the full scale span of the signal. High and low setpoints may be independently enabled and disabled.

Like contact channels, any analog channel may also be completely turned off so that it never reports or causes alarms.

Each input has heavy duty surge protection (gas tubes backed up with solid state tranzorbs) meeting IEEE Standard 587, Category B. Unlike most "isolation" schemes, this protection is effective with the fast risetimes characteristic of lightning-induced surges.

Terminal strip connection points are unpluggable type for convenience of installation.

Gain and offset scaling factors are field programmable. These are the factors which the unit uses to translate the analog signal level into corresponding spoken physical units of measure. This programmability includes the unique ability to fine-tune the scaling factors based on the user's on-the-spot observation of the physical quantity being measured, without need to measure the signal level with test instruments.

The user may optionally record a preamble message identifying the quantity being measured, separately for each analog channel. Additional speech memory is provided (14/21/28/40 seconds depending on speech rate, for each block of 4 or fewer analog channels) up to the overall system maximum of 56/84/112/162 seconds.

All programming may be done by either front panel or over-the-phone command at the user's choice and does not require physical manipulation of switches, etc. The type of signal accommodated (e.g. 4-20 milliamperes), and the number of analog channels, is physically configured on the plug-in analog card as ordered from the factory. Each card can accommodate up to 8 analog channels; 2 cards are required for 16 channels.

The analog option is field upgradable and expandable, requiring installation of plug-in IC chips, circuit cards and card guides, but no soldering.
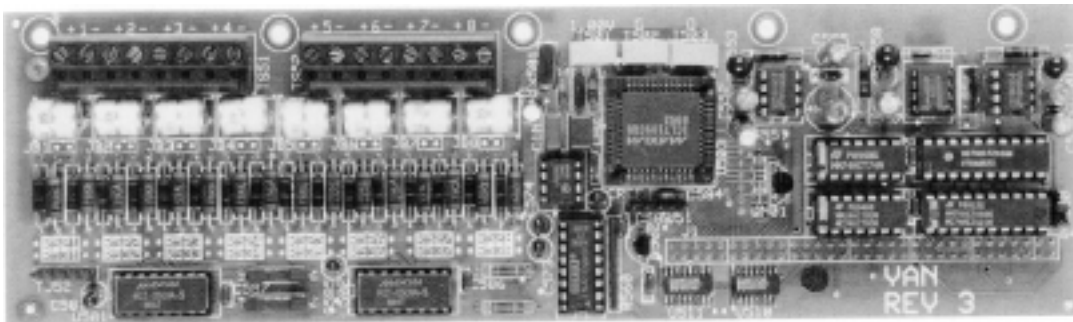
Analog Signal Monitoring Specifications:

Available Input Hardware Configurations:
☐ 4 to 20 ma DC
☐ 0 to 1 volt DC
☐ RACO TS705A Temperature Sensor, – 67 to +120 F or – 30 to +55C
☐ Consult Raco for other input configurations

Accuracy:
☐ ±0.3% of full scale from – 32 to 110 F

A/D Resolution
☐ 12 BITS (1 part in 4,096)
☐ Readings spoken to 4 significant digits at full scale

Input Impedance:
☐ Over 50,000 ohms for voltage inputs
☐ 70 ohms for 4-20 ma input

Differential Input Common Mode Range:
☐ ±10 volts with respect to ground for DC inputs

Scaling of Spoken Readings:
☐ User programmable
☐ Easily fine tuned to match observed values or other instrumentation

Speech Messages:
☐ User recordable
☐ Generic default messages also provided

Surge Protection:
☐ Gas Tube followed by solid state Tranzorb
☐ Meets IEEE Standard 587, category B

Effect on 24 Hour Battery Backup:
☐ Reduces 24 hour rating to 16 hours
☐ No effect on standard 6 hour rating

Specify Number and Configuration of Inputs at Time of Order:
☐ Input Configuration (e.g. 4-20 ma)
☐ 1 1 A-1E for 1 analog input, or
☐ 4 4A-1E for 4 analog inputs, or
☐ 8 8A-1E for 8 analog inputs, or
☐ 16 16A-2E for 16 analog inputs

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