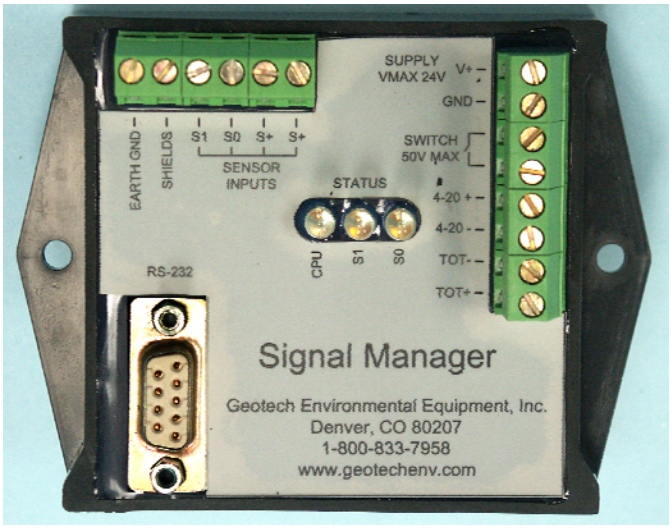
Signal Manager

Installation and Operation Manual



Rev.11/28/2008 Part # 26550007

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DOCUMENTATION CONVENTIONS

This uses the following conventions to present information:

Chapter 1: System Description

Function and Theory

The Geotech Signal Manager has been designed to simplify fluid level measurement and control when an application requires that two sensor inputs be scaled and differenced to form one output representing an accurate fluid level. This controller has been designed to operate in harsh environments and includes protection on all inputs and outputs to minimize system down time.
FEATURES:

- Dual 4-20 mA current loop inputs
- Advanced noise filtering and input protection
- Failed sensor detection
- 4-20 mA current output
- Dry contact output
- Reverse voltage protection
- Over voltage protection
- Simple to use
- Low cost
- Operates with sealed gauge or absolute sensors

Figure 1 depicts a simple application for the current differencing controller. Two absolute or sealed gauge pressure sensors are used, one to sense fluid pressure and one to sense gas pressure. The sensor outputs are fed into the Signal Manager, which performs the required scaling and control functions for the system.

Chapter 2: System Installation

Hardware Interface

Refer to Figure 2 and the label on the Signal Manager for wiring connections. The controller accepts two (2) 4-20mA inputs from loop powered sensors. These sensors should include a shield to minimize interference from external sources. In order for the shields to be effective, a #14AWG ground wire needs to be run from the end sensor terminal block connection position to a good earth ground. Keep this wire as short as possible.

Connect the power supply inputs to the correct positions on the IO terminal block. These inputs are reverse voltage protected; however, care should be taken to connect the wiring correctly. See Signal Manager specification for acceptable input supply voltage range.

The 4-20mA output is a current source output that may be used to monitor the difference between the two input channels.

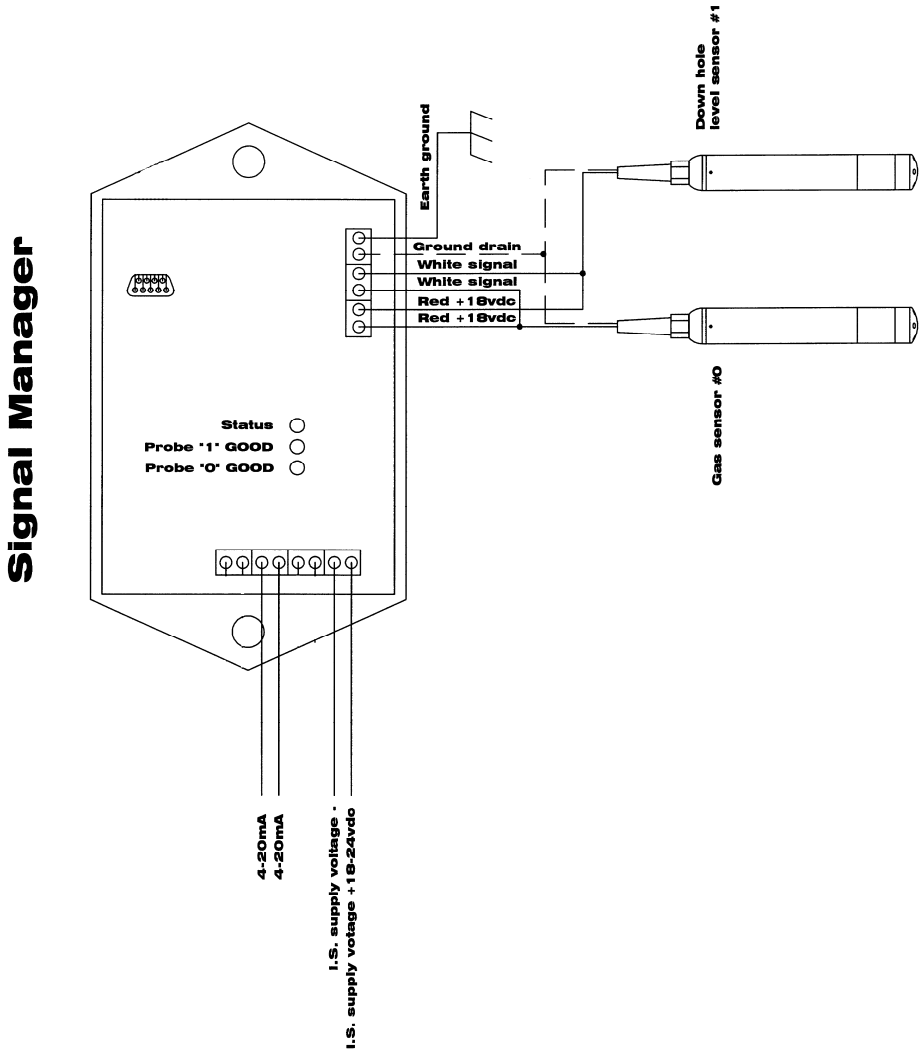
Signal Manager
Earth ground
Down hole
level sensor #1
Ground drain
White signal
White signal
Red +18vdc
Red +18vdc
Status
Probe "1" GOOD
Probe "0" GOOD
Gas sensor #0
4-20mA
4-20mA
I.S. supply voltage -
I.S. supply votage +18-24vdc

Figure 2

Chapter 3: System Troubleshooting

Status LED's

Problem: Indicates that power is applied and CPU is operational.
Solutions:
1) Status LED for sensor "0" input. Illuminated for valid current loop.

2) Status LED for sensor "1" input. Illuminated for valid current loop.

Problem : CPU LED not lit
Solutions:
1) Check DC supply wiring

2) Check DC supply level

Problem: S0 or S1 LED's not lit
Solutions:
1) Check sensor wiring

2) Cross inputs to verify problem with one sensor

3) Check loop current with multimeter

4) Replace sensor

Chapter 4: System Specifications

Maximum Ratings:

Supply voltage	24	VDC

Performance:

Supply voltage	12-24	VDC
Quiescent supply current	25	mA
Output current ($A - B \times k_{scale}$)	4-20	mA
Controller bandwidth	30	Hz
Channel A input	4-20	mA
Channel B input	4-20	mA
Input resolution	12	bit
Output resolution	12	bit
Channel A & B input accuracy	0.1	%
Overall accuracy	0.5	% Full scale

Environmental:

Operating temperature	-40°→60°	C
Humidity	5 to 95%	Relative NC
Size	4x3x2	Inches
Weight	7	Ounces

Chapter 5: System Schematic

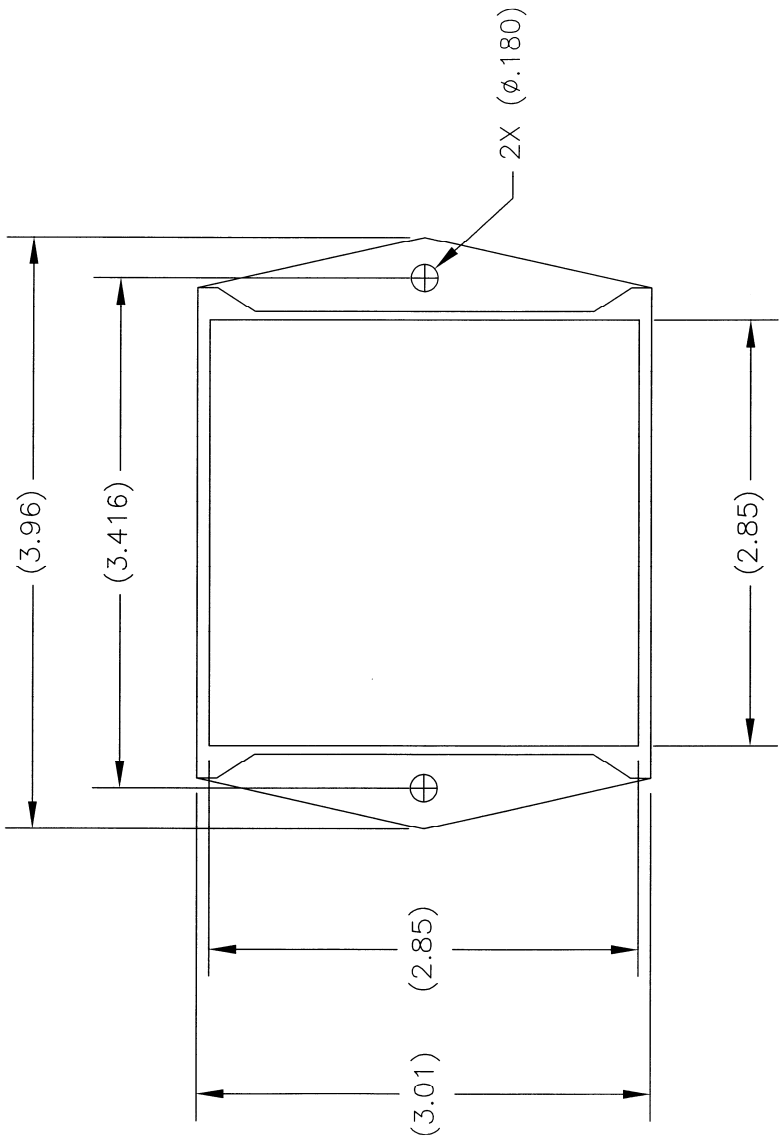

Figure 8

Outline Dimensions

Chapter 6: Replacement Parts List

Signal Manager Control	PN 86550006
Operation Manual	PN 26550007

The Warranty

For a period of one (1) year from date of first sale, product is warranted to be free from defects in materials and workmanship. Geotech agrees to repair or replace, at Geotech's option, the portion proving defective, or at our option to refund the purchase price thereof. Geotech will have no warranty obligation if the product is subjected to abnormal operating conditions, accident, abuse, misuse, unauthorized modification, alteration, repair, or replacement of wear parts. User assumes all other risk, if any, including the risk of injury, loss, or damage, direct or consequential, arising out of the use, misuse, or inability to use this product. User agrees to use, maintain and install product in accordance with recommendations and instructions. User is responsible for transportation charges connected to the repair or replacement of product under this warranty.

Equipment Return Policy

A Return Material Authorization number (RMA #) is required prior to return of any equipment to our facilities, please call 800 number for appropriate location. An RMA # will be issued upon receipt of your request to return equipment, which should include reasons for the return. Your return shipment to us must have this RMA # clearly marked on the outside of the package. Proof of date of purchase is required for processing of all warranty requests.

This policy applies to both equipment sales and repair orders.

FOR A RETURN MATERIAL AUTHORIZATION, PLEASE CALL OUR SERVICE DEPARTMENT AT 1-800-833-7958 OR 1-800-275-5325.

Model Number: _____

Serial Number: _____

Date: _____

Equipment Decontamination

Prior to return, all equipment must be thoroughly cleaned and decontaminated. Please make note on RMA form, the use of equipment, contaminants equipment was exposed to, and decontamination solutions/methods used.
Geotech reserves the right to refuse any equipment not properly decontaminated. Geotech may also choose to decontaminate equipment for a fee, which will be applied to the repair order invoice.

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