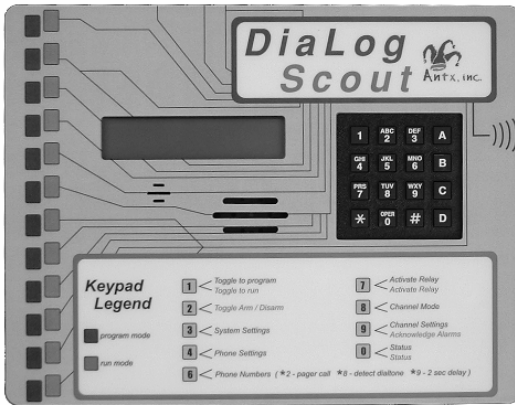


DiaLog Scout

SPLC 12/24

Remote monitoring and
alarm notification system



User's Manual

Version 2.6
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Antx, inc. P.O. Box 200816 Austin, TX 78720
877-686-2689 512-255-8306 (fax)
www.antx.com

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1 Introduction

The DiaLog Scout SPLC6/10 is the most user-friendly and reliable remote monitoring and alarm notification system available. The Scout provides reading and writing of PLC/Modbus registers over a serial link using the Modbus RTU protocol.

Mounted in an industrial aluminum enclosure, the Scout provides simple programming either locally through the integral keypad and display or remotely via a phone call.

Installation is made easy, whether the Scout is installed in a panel or in a door. All wiring connections are made through quick disconnect type connectors, making it fast and simple.

1.1 General Operation

The Scout SPLC reads inputs from a PLC or other Modbus device over a serial cable. Any input channel in the Scout can read/write the following registers from a PLC.

Function	Modbus Function Code
Read coils	01
Read digital status	02
Read Holding	03
Read Register	04
Write Coil	05
Write Holding	06

The Scout supports reading from multiple Modbus IDs, as each channel references a unique point specified by:

- ▶ Modbus slave ID
- ▶ Register type
- ▶ Register number

The Scout has 2 modes of operation – PROGRAM and RUN. During PROGRAM mode you can change how the Scout operates. During RUN mode the Scout is monitoring and performing alarm notification.

The Scout monitors up to 24 inputs continuously. When any one of the inputs changes from the normal condition to the alarm condition, the DiaLog Scout starts calling the first of up to 8 phone numbers to deliver the user recorded alarm message.

1.1.1 Acknowledging Alarms

Alarms are acknowledged remotely by pressing the '9' key on your phone keypad. The Scout tells you that the channel has been "acknowledged".

2 Installation

You can mount the DiaLog Scout to a panel or it can be flush mounted to a door. The brackets on the either side of the Scout can be removed and turned around for panel mounting.

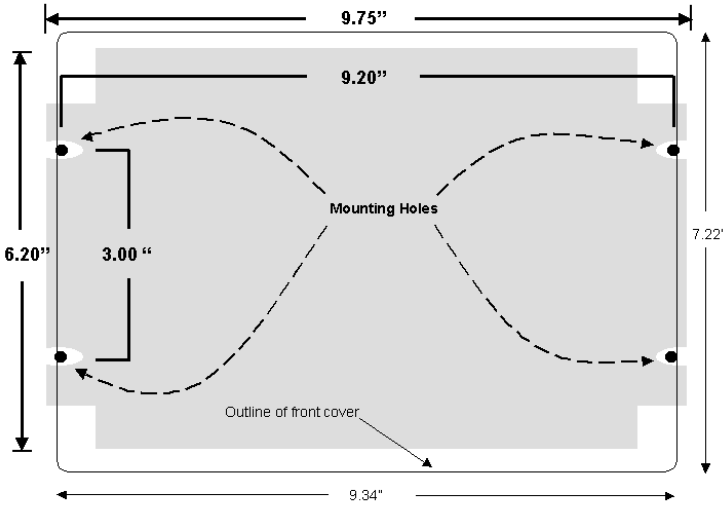


Figure 1 Panel Mount mounting holes

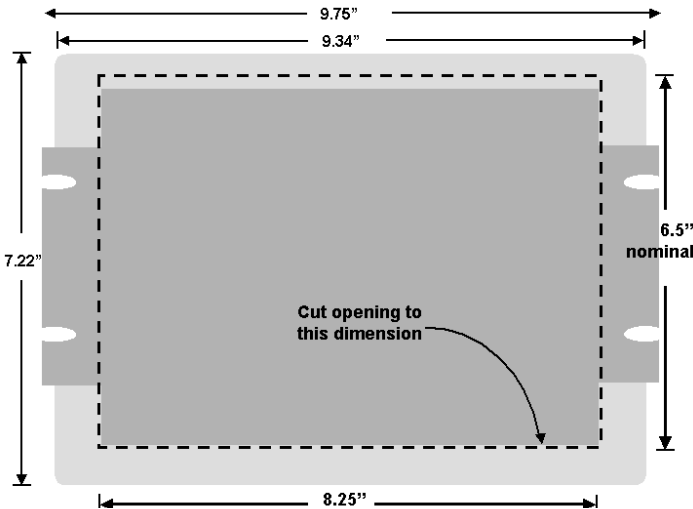


Figure 2 Flush Mount cut-out dimensions

The connectors for Primary Power and Phone use quick disconnect plugs. The diagram below shows the location of these connections.



Figure 3 Field wiring diagram

Connection point	Function
Phone	Connect the included phone cord.
Power	Connect the included power connection from the wall-mount power supply to the Scout.
Reset	To supply power to the Scout, remove the plug. The Scout will power up and the display will read "DiaLog Scout". To reset the power on the Scout, take a blade screwdriver and touch the 2 pins.

2.1 Enabling power

The Scout is shipped electrically disabled. To enable the DiaLog Scout, remove the plastic jumper that is installed in the Reset location on the side of the Scout with the wiring connectors.

NOTE: When the reset jumper is removed, the Scout will be running, there is no power on/off switch. To turn the Scout off, re-install the reset jumper.



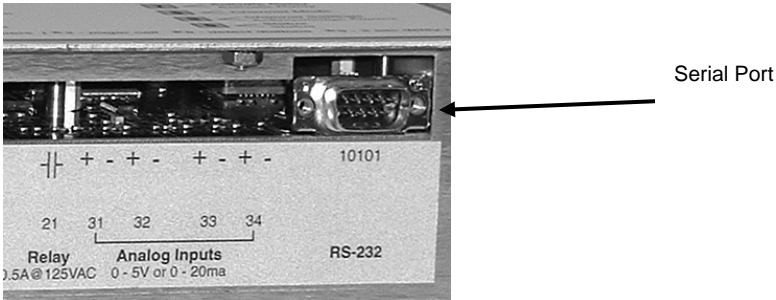
Remove reset jumper to enable power up of the Scout
Save the jumper by installing it in the top pin only.

2.2 Connecting the serial cable

The Scout has a 9-pin connector located on the far right-hand side. The pin configuration is as follows:

1	CD	5	GND
2	RCV data	7	RTS
3	XMT data	8	CTS

The cable between the Scout and the PLC/Modbus device will have to assure that the RCV on the Scout connects to the XMT on the PLC and visa versa.



2.3 Configuring the serial port

The serial port is configured for baud rate, message pacing and response time from the System Setup (3) function when in the Programming mode.

Character Setup	8 bits, no parity, 1 stop bit (fixed)
Baud Rate	
0 - 2400	4 - 19200
1 - 4800	5 - 38400
2 - 9600	6 - 57600
3 - 14400	7 - 115200
Message Pacing	Maximum amount of time between each character of transmission from the PLC to the Scout
5 - 1000	msec
Response Time	Maximum amount of time the Scout will wait for a response from the PLC when a command has been issued
20-400	msec

2.4 Adjusting display contrast

The contrast of the LCD display can be adjusted with a screwdriver by turning a potentiometer on the left-hand side of the board. The potentiometer is located as shown below.



3 Programming

The DiaLog Scout is programmed from the front panel by pressing the keypad to access the various portions of the system. For the most basic application, you can simply program some phone numbers and put the Scout into the RUN mode.

In more complex applications, you can program individual messages for each channel being monitored, adjust the amount of time channels must be in the alarm condition before starting the callout sequence and enter phone and pager numbers for alarm notification.

When programming, all prompts are displayed. You can enter a value or press the # key to keep the current value and move to the next option.

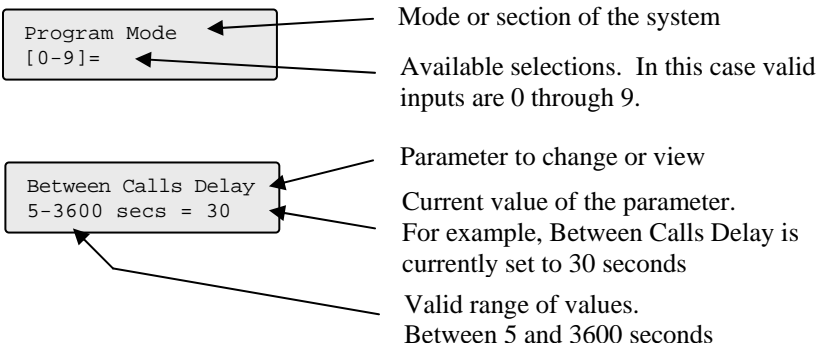
To navigate the menu:

Key	Function
#	Accept the current entry
*6	Go to the top of the Menu (HOME)
*7	Reset the value back to the factory default

NOTE: When you have finished programming, return the Scout to the RUN mode by pressing the 1 key. If the Scout is not in RUN mode, it will not perform any alarm call operations.

If you forget to return the Scout to RUN mode, it will automatically return to RUN mode after 30 minutes.

3.1 How to Read the Menus



3.2 Programming System Settings

System settings are generally programmed once during the initial setup of the Scout. Options in this section are:

- Site Message
- Access Code
- Date and Time
- Country Code
- Numeric ID
- Rings to Answer
- Reset to System Defaults

	What you do:	What the display shows:
Step 1	Press the 1 key to enter PROGRAM mode. You can now enter options 0 – 9.	Program Mode [0-9]=
Step 2	Press 3 <i>Enter Access Code if requested.</i>	NOTE: <i>If an Access Code has been programmed, the Scout will show a screen to enter it.</i>
Step 3	The pre-recorded Site Message is spoken through the speaker. Press 0 to listen to the current message, 1 to record a new message, or # to move to the next step.	Site ID Msg 0-play 1-rec =
	If you press 1, this message is displayed.	Press # to record
	Speak you message into the microphone and press the # key when finished. NOTE: <i>The speaker is intended only to confirm that you message was recorded as desired. The voice quality over the phone is excellent even though the voice quality over the speaker may be noisy.</i>	Recording . . . Press # to stop

Step 4	<p>A 20 character name that is displayed on the screen.</p> <p>To enter the name, press the key that corresponds to the letter or number that you want.</p> <p>To move to the next character, wait 1 second between entries.</p> <p>Press # key when finished.</p> <p>For example,</p> <table border="1" data-bbox="219 431 600 605"> <thead> <tr> <th>Character/#</th> <th>How to enter</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>2 key – 1 time</td> </tr> <tr> <td>B</td> <td>2 key – 2 times</td> </tr> <tr> <td>C</td> <td>2 key – 3 times</td> </tr> <tr> <td>2</td> <td>2 key – 4 times</td> </tr> <tr> <td>S</td> <td>7 key – 3 times</td> </tr> </tbody> </table>	Character/#	How to enter	A	2 key – 1 time	B	2 key – 2 times	C	2 key – 3 times	2	2 key – 4 times	S	7 key – 3 times	<div style="border: 1px solid black; padding: 5px;"> System ID nnnnnnnnnnnnnnnnnn </div>
Character/#	How to enter													
A	2 key – 1 time													
B	2 key – 2 times													
C	2 key – 3 times													
2	2 key – 4 times													
S	7 key – 3 times													
Step 4	<p>The Numeric ID that will display on a pager is shown.</p> <p>Press # to keep the current value or enter a new value then press the # key.</p>	<div style="border: 1px solid black; padding: 5px;"> Numeric ID nnnnnnnnnnnnnnnnnn </div>												
Step 5	<p>The Access Code is displayed. Press # if OK or enter a new 4-digit Access Code.</p>	<div style="border: 1px solid black; padding: 5px;"> Access Code nnnn </div>												
Step 6	<p>The Audio Volume can be adjusted to be louder (up) or softer (down).</p> <p>Press # when you have the level you desire.</p> <p>NOTE: 7 is maximum volume level</p>	<div style="border: 1px solid black; padding: 5px;"> Audio Volume 0-dwn 1-up = 7 </div>												
Step 7	<p>Local Speaker specifies whether the speaker is on or off during alarm calls. If off, then the alarm call is not spoken over the local speaker.</p>	<div style="border: 1px solid black; padding: 5px;"> Local Speaker 0-off 1-on = off </div>												
Step 8	<p>Rings to Answer is the number of rings before the Scout answers.</p> <p>Press # if OK or enter a new value as nn (e.g. 03 for 3)</p>	<div style="border: 1px solid black; padding: 5px;"> Rings to Answer 1-20 = nn </div>												
Step 9	<p>If enabled, set the country code for the country where the Scout is located.</p>	<div style="border: 1px solid black; padding: 5px;"> Country Code 0-nn = 0 US </div>												

<p>Step 10</p>	<p>Set the baud rate for the serial port. 0 – 2400 to 7 = 115200.</p>	<div style="border: 1px solid black; padding: 5px;"> <p>Baud Rate 0-7 = 5 (38400)</p> </div>
<p>Step 11</p>	<p>Message pacing is the number of idle characters before the received message is accepted by the system.</p>	<div style="border: 1px solid black; padding: 5px;"> <p>Msg Pacing 5-1000 = 10</p> </div>
<p>Step 12</p>	<p>Response Timeout is the maximum amount of time the Scout waits for a response from the PLC.</p>	<div style="border: 1px solid black; padding: 5px;"> <p>Resp Timeout(msec) 20-400 = 200</p> </div>
<p>Step 13</p>	<p>Set the time and date as needed. Press the # key if the value is correct already. NOTE: <i>The Scout uses a 24-hour clock.</i></p>	<div style="border: 1px solid black; padding: 5px;"> <p>Set Hour 00-23 = nn</p> </div>
		<div style="border: 1px solid black; padding: 5px;"> <p>Set Minute 00-59 = nn</p> </div>
		<div style="border: 1px solid black; padding: 5px;"> <p>Set Month 01-12 = nn</p> </div>
		<div style="border: 1px solid black; padding: 5px;"> <p>Set Day 01-31 = nn</p> </div>
		<div style="border: 1px solid black; padding: 5px;"> <p>Set Year 02-99 = nn</p> </div>
<p>Step 14</p>	<p>Reset to Defaults sets the unit back to the factory default values. Press 0 or # to keep your programming or 1 to reset back to the factory defaults.</p>	<div style="border: 1px solid black; padding: 5px;"> <p>Reset to Defaults 1-rst =</p> </div>

3.3 Programming Phone Settings

Phone settings consist of options to set for all calls in or out of the Scout. They are generally setup once during initial installation.

Phone Settings include:

- Message repeat
- Acknowledge redial delay
- Phone numbers
 - Between call delay
 - Call Progress delay

	What you do:	What the display shows:
Step 1	Press the 1 key for PROGRAM mode. You can now enter options 0 – 9.	<div style="border: 1px solid black; padding: 5px; width: fit-content;"> Program Mode 0-9 = </div>
Step 2	Press 4 <i>Enter Access Code if requested.</i>	<i>NOTE: If the Scout is in RUN mode and an Access Code has been programmed, the Scout will show a screen to enter it.</i>
Step 3	Msg Repeat is the number of times the alarm message will be repeated when an alarm call is made. Press # to keep the current value or enter a new value using 2 digits. (e.g. 03 for 3).	<div style="border: 1px solid black; padding: 5px; width: fit-content;"> Msg Repeat 0-20 = nn </div>
Step 4	The Ack Redial Delay specifies the number of minutes to wait after an alarm has been acknowledged before calling again. <i>NOTE: If the channel has returned to the normal condition, the Scout will not call.</i> Press # to keep the current value or enter a new value using 4 digits. (e.g. 0060 for 60 minutes)	<div style="border: 1px solid black; padding: 5px; width: fit-content;"> Ack Redial Delay 1-1440 min = nnnn </div>
Step 5	The Teach Mode allows the Scout to learn the ring pattern of the phone system that the Scout is connected to. Typical US systems have a 4-second pause and a 2-second ring pattern.	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin-bottom: 10px;"> Teach Mode 1-teach = </div> <div style="border: 1px solid black; padding: 5px; width: fit-content;"> Teach Mode Press # to start... </div>

	<p>However, a number of PBX, digital systems and some private phone companies use other patterns.</p> <p>To have the Scout learn how your phone system work</p> <ul style="list-style-type: none"> - press the 1 key - dial into the Scout and let it ring until it moves to the next screen 	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;"> Teach Mode ...waiting... </div>								
<p>Step 6</p>	<p>There are 8 phone numbers that can be entered in the Scout. These are processed in order from 1 to 8.</p> <p>Enter the position of the phone number you want to check or modify.</p> <p>Press # if you do not want to change any phone numbers.</p>	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;"> Enter Phone Pos 1-8 = </div>								
<p>Step 6</p>	<p>The phone number in the position specified is shown. Press # if OK or enter a new phone number.</p> <p>NOTE: <i>The phone number can be up to 25 numbers long.</i></p> <table border="1" data-bbox="219 794 600 911"> <tr> <td>*2</td> <td><i>For a pager call</i></td> </tr> <tr> <td>*7</td> <td><i>Deletes phone number</i></td> </tr> <tr> <td>*8</td> <td><i>Detects a dialtone</i></td> </tr> <tr> <td>*9</td> <td><i>2-second delay</i></td> </tr> </table> <p>(e.g. 5124442233P would call a pager at 5124442233)</p>	*2	<i>For a pager call</i>	*7	<i>Deletes phone number</i>	*8	<i>Detects a dialtone</i>	*9	<i>2-second delay</i>	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;"> Pos 1 Phone Number nnnnnnnnnnnnnnnnnn </div>
*2	<i>For a pager call</i>									
*7	<i>Deletes phone number</i>									
*8	<i>Detects a dialtone</i>									
*9	<i>2-second delay</i>									
<p>Step 7</p>	<p>Specifies the amount of time to wait before calling the next number in the list.</p>	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;"> Pos 1 Next Call Dly 5-3600 secs = nnnn </div>								
<p>Step 8</p>	<p>This is the amount of time the Scout waits after issuing the last digit in the phone number before issuing the alarm or numeric pager message.</p> <p>NOTE: <i>0 means Call Progress is enabled. The Scout will call and wait until the phone has been answered before the alarm message is delivered.</i></p> <p><i>If the Scout calls and never delivers the message, then the Scout is not able to determine that the phone has been answered, probably because the voice answering the phone is not loud enough.</i></p>	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;"> Pos 1 Call Prog Dly 0-60 secs = nn </div>								

Loop back to Step 5

3.4 Programming Channel Settings

This section allows you to configure the information specific to each channel or condition being monitored. For each channel the following options can be programmed.

Types of Channels	
System	
(01) - Power Fail	(02) - Low Battery
(05) – Communications	
channel name	
channel message	
channel mode (alarm or status)	
alarm delay	
alarm type (normal or latched)	
PLC/Modbus channels	
(11-22) or (11-34)	
slave address	
register type	
register number	
channel message	
alpha ID	
Register type = read coil or read status	
channel mode	
channel state (Normally Open/Normally Closed)	
alarm delay	
alarm type (normal or latched)	
activate relay on alarm	
Register type = write coil	
pulse duration	

Types of Channels	
PLC/Modbus channels	
Register type = read holding or read register	
channel mode alarm delay alarm type (normal or latched) decimal position engineering units min counts max counts zero in engineering units full scale in engineering units low limit high limit activate relay on alarm	
Register type = write holding	
decimal position min counts max counts zero in engineering units full scale in engineering units	

	What you do:	What the display shows:
Step 1	Press the 1 key to enter PROGRAM mode. You can now enter options 0 – 9.	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> Program Mode 0-9 = </div>
Step 2	Press 9	
Step 3	Enter the Channel Number that you wish to examine or program. NOTE: <i>Press # to back-up the menu.</i>	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> Enter Chan Number 0x,11-34 = </div>
Step 4	Enter the Modbus Slave ID of the remote PLC or device that this channel will be read from. 0 = disabled	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> Slave Address 0-247 = </div>
Step 5	Enter the type of Modbus register that this channel will read or write. 1 – Read Coil (digital in) 2 – Read Status (digital in) 3 – Read Holding Register (analog in)	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> Register Type 1-6 = </div>

	What you do:	What the display shows:												
	4 – Read Register (analog in) 5 – Write Coil (relay out) 6 – Write Holding Register (analog out)													
Step 6	Enter the register number to read/write in the PLC or Modbus device.	<div style="border: 1px solid black; padding: 5px;"> Register Number 1-9999 = </div>												
Step 7	The Scout will repeat the current channel message. If the message is OK, press #. To record a new message, press 1 and speak your new 6-second message into the microphone followed by the # key. To listen to the current message again, press 0.	<div style="border: 1px solid black; padding: 5px;"> Chan 11 Alarm Msg 0-play 1-rec = </div>												
Step 8	Each channel can have a 20 character name that will be displayed whenever the Status is shown or a channel is in alarm. To enter the name, press the key that corresponds to the letter or number that you want. To move to the next character, wait 1 second between entries. Press # key when finished. For example, <table border="1" style="margin-top: 10px;"> <thead> <tr> <th>Character/#</th> <th>How to enter</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>2 key – 1 time</td> </tr> <tr> <td>B</td> <td>2 key – 2 times</td> </tr> <tr> <td>C</td> <td>2 key – 3 times</td> </tr> <tr> <td>2</td> <td>2 key – 4 times</td> </tr> <tr> <td>S</td> <td>7 key – 3 times</td> </tr> </tbody> </table>	Character/#	How to enter	A	2 key – 1 time	B	2 key – 2 times	C	2 key – 3 times	2	2 key – 4 times	S	7 key – 3 times	<div style="border: 1px solid black; padding: 5px;"> Chan 11 Alpha ID nnnnnnnnnnnnnnnnnnn </div>
Character/#	How to enter													
A	2 key – 1 time													
B	2 key – 2 times													
C	2 key – 3 times													
2	2 key – 4 times													
S	7 key – 3 times													

For Register Type = Read Coil or Read Status jump to Step 9.

For Register Type = Read Holding or Read Register jump to Step 14.

For Register Type = Write Coil jump to Step 26.

For Register Type = Write Holding jump to Step 27.

For Read Coil...

Step 9 The Channel Mode should be set to 1 for Call on Alarm conditions or 0 for

Chan 11 Mode
 0-stat 1-alm = 1

	What you do:	What the display shows:
	Status Only. Press # if the value is OK.	
Step 10	The Alarm State is 0 for normally open and 1 for normally closed. NOTE: <i>An alarm occurs when the Scout transitions out of these 'normal' conditions.</i>	Chan 11 Normal State 0-n/o 1-n/c = 0
Step 11	The Alarm Delay specifies the amount of time the input must be in the alarm condition before a call-out begins. Press # if OK or enter a new 5-digit value as nnnnn (e.g. 00300 for 300)	Chan 11 Alarm Delay 0-65535 sec = nnnnn
Step 12	The Alarm Type specifies whether the alarm tracks the input signal condition or not. 0 (normal) indicates the alarm condition follows the input signal in and out of alarm. 1 (latch) indicates once an alarm condition occurs it will continue to call until the channel is acknowledged AND the input signal goes back to the normal condition. Press # if OK.	Chan 11 Alarm Type 0-norm 1-latch = 0
Step 13	To Activate the Relay when the channel goes into alarm enter the channel number of a Write Coil channel. NOTE: <i>The relay will follow the channel into and out of alarm.</i>	Activate Relay Chan 11-34

Loop back to Step 3

For read holding and read register ...

Step 14	The Channel Mode should be set to 1 for Call on Alarm conditions or 0 for	Chan 11 Mode 0-stat 1-alm = 1
----------------	---	----------------------------------

	What you do:	What the display shows:										
	Status Only. Press # if the value is OK.											
Step 15	The Alarm Delay specifies the amount of time the input must be in the alarm condition before a call-out begins. Press # if OK or enter a new 5-digit value as nnnnn (e.g. 00300 for 300)	Chan 11 Alarm Delay 0-65535 sec = nnnnn										
Step 16	The Alarm Type specifies whether the alarm tracks the input signal condition or not. 0 (normal) indicates the alarm condition follows the input signal in and out of alarm. 1 (latch) indicates once an alarm condition occurs it will continue to call until the channel is acknowledged AND the input signal goes back to the normal condition. Press # if OK.	Chan 11 Alarm Type 0-norm 1-latch = 0										
Step 17	Specify the location of the decimal point by indicating the number of digits to the right of the decimal point. <i>For example, 2 would provide 44.33</i>	Decimal Position 0-5 =										
Step 18	Specify the engineering units to use for this analog value. <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">0 – none</td> <td style="width: 50%;">1 – deg</td> </tr> <tr> <td>2 – gals</td> <td>3 – gpm</td> </tr> <tr> <td>4 – gph</td> <td>5 – ppm</td> </tr> <tr> <td>6 – psi</td> <td>7 – pct</td> </tr> <tr> <td>8 – ft</td> <td></td> </tr> </table>	0 – none	1 – deg	2 – gals	3 – gpm	4 – gph	5 – ppm	6 – psi	7 – pct	8 – ft		Engineering Units 0-8 = 1 (deg)
0 – none	1 – deg											
2 – gals	3 – gpm											
4 – gph	5 – ppm											
6 – psi	7 – pct											
8 – ft												
Step 19	Specify the minimum value in counts that will be read from the PLC/Modbus register.	Min Counts 0-65535 = 0										
Step 20	Specify the maximum value in counts that will be read from the PLC/Modbus register.	Max Counts 0-65535 = 32767										
Step 21	Specify the zero value in engineering units that corresponds to the minimum value in counts.	Zero 0-99999 = 0										

	What you do:	What the display shows:
Step 22	<p>Specify the span value in engineering units that corresponds to the minimum value in counts.</p> <p><i>For example, to convert a value that ranges from 20.0 to 100.0 deg, the Zero value would be 200 and the Full Scale would be 1000, assuming a Decimal Position of 1.</i></p>	<div style="border: 1px solid black; padding: 5px; width: fit-content;"> Full Scale 0-99999 = 10000 </div>
Step 23	<p>If the current reading is below the Low Limit, the channel goes into alarm and initiates a call and/or a relay activation.</p> <p>NOTE: <i>always has 1 digit to the right of the decimal</i></p>	<div style="border: 1px solid black; padding: 5px; width: fit-content;"> Chan 31 Low Limit 0-99999 = xxxxxx </div>
Step 24	<p>If the current reading exceeds the High Limit, the channel goes into alarm and initiates a call and/or a relay activation.</p>	<div style="border: 1px solid black; padding: 5px; width: fit-content;"> Chan 31 High Limit 0-99999 = xxxxxx </div>
Step 25	<p>To Activate the Relay when the channel goes into alarm enter the channel number of a Write Coil channel. The relay will follow the channel into and out of alarm.</p>	<div style="border: 1px solid black; padding: 5px; width: fit-content;"> Activate Relay Chan 11-34 </div>
Loop back to Step 3		
For relay output...		
Step 26	<p>The Pulse Duration specifies the length of time relay will stay activated.</p> <p>If you specify 0, then the relay will deactivate when all channels that reference it are in the normal condition.</p>	<div style="border: 1px solid black; padding: 5px; width: fit-content;"> Pulse Duration 0-86400 sec = nnnnn </div>
Loop back to Step 3		
For write holding ...		
Step 27	<p>Specify the location of the decimal point by indicating the number of digits to the right of the decimal point.</p> <p><i>For example, 2 would provide 44.33</i></p>	<div style="border: 1px solid black; padding: 5px; width: fit-content;"> Decimal Position 0-5 = </div>

	What you do:	What the display shows:										
Step 18	<p>Specify the engineering units to use for this analog value.</p> <table border="1"> <tr> <td>0 – none</td> <td>1 – deg</td> </tr> <tr> <td>2 – gals</td> <td>3 – gpm</td> </tr> <tr> <td>4 – gph</td> <td>5 – ppm</td> </tr> <tr> <td>6 – psi</td> <td>7 – pct</td> </tr> <tr> <td>8 – ft</td> <td></td> </tr> </table>	0 – none	1 – deg	2 – gals	3 – gpm	4 – gph	5 – ppm	6 – psi	7 – pct	8 – ft		<div style="border: 1px solid black; padding: 5px;"> <p>Engineering Units 0-8 = 1 (deg)</p> </div>
0 – none	1 – deg											
2 – gals	3 – gpm											
4 – gph	5 – ppm											
6 – psi	7 – pct											
8 – ft												
Step 28	<p>Specify the minimum value in counts that will be written to the PLC/Modbus register.</p>	<div style="border: 1px solid black; padding: 5px;"> <p>Min Counts 0-65535 = 0</p> </div>										
Step 29	<p>Specify the maximum value in counts that will be written to the PLC/Modbus register.</p>	<div style="border: 1px solid black; padding: 5px;"> <p>Max Counts 0-65535 = 32767</p> </div>										
Step 30	<p>Specify the zero value in engineering units that corresponds to the minimum value in counts.</p>	<div style="border: 1px solid black; padding: 5px;"> <p>Zero 0-99999 = 0</p> </div>										
Step 31	<p>Specify the span value in engineering units that corresponds to the minimum value in counts.</p> <p><i>For example, to convert a value that ranges from 20.0 to 100.0, the Zero value would be 200 and the Full Scale would be 1000, assuming a Decimal Position of 1.</i></p>	<div style="border: 1px solid black; padding: 5px;"> <p>Full Scale 0-99999 = 10000</p> </div>										
Loop back to Step 3												

3.5 Programming Phone Numbers

The Scout has an Express Key (6), that allows you to jump directly to the programming section for a particular phone number.

	What you do:	What the display shows:								
Step 1	<p>There are 8 phone numbers that can be entered in the Scout. These are processed in order from 1 to 8.</p> <p>Enter the position of the phone number you want to check or modify.</p> <p>Press # if you do not want to change any phone numbers.</p>	<div style="border: 1px solid black; padding: 5px; width: fit-content;"> Enter Phone Pos 1-8 = </div>								
Step 2	<p>The phone number in the position specified is shown. Press # if OK or enter a new phone number.</p> <p>NOTE: <i>The phone number can be up to 25 numbers long.</i></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">*2</td> <td style="padding: 2px;"><i>For a pager call</i></td> </tr> <tr> <td style="padding: 2px;">*7</td> <td style="padding: 2px;"><i>Deletes phone number</i></td> </tr> <tr> <td style="padding: 2px;">*8</td> <td style="padding: 2px;"><i>Detects a dialtone</i></td> </tr> <tr> <td style="padding: 2px;">*9</td> <td style="padding: 2px;"><i>2-second delay</i></td> </tr> </table> <p>(e.g. 5124442233P would call a pager at 5124442233)</p>	*2	<i>For a pager call</i>	*7	<i>Deletes phone number</i>	*8	<i>Detects a dialtone</i>	*9	<i>2-second delay</i>	<div style="border: 1px solid black; padding: 5px; width: fit-content;"> Pos 1 Phone Number nnnnnnnnnnnnnnnnnnn </div>
*2	<i>For a pager call</i>									
*7	<i>Deletes phone number</i>									
*8	<i>Detects a dialtone</i>									
*9	<i>2-second delay</i>									
Loop back to Step 1										

3.6 Programming Channel Mode

The Scout has an Express Key (8), that allows you to jump directly to the programming section for a particular channel number.

	What you do:	What the display shows:
Step 1	Enter the Channel Number that you wish to examine or program. Press # to back-up the menu.	Enter Chan Number 0x,1x,21,3x=
Step 2	The Channel Mode should be set to 1 for Call on Alarm conditions or 0 for Status Only. Press # if the value is OK.	Chan 31 Mode 0-status 1-alm = 1
For read coil and status inputs...		
Step 3	The Alarm State is 0 for normally open and 1 for normally closed. NOTE: <i>An alarm occurs when the Scout transitions out of these 'normal' conditions.</i>	Chan 31 Normal State 0-n/o 1-n/c = 0
Loop back to Step 1		
For holding and register inputs...		
Step 4	If the current reading is below the Low Limit, the channel goes into alarm and initiates a call and/or a relay activation.	Chan 31 Low Limit 0-99999 = xxxxxx
Step 5	If the current reading exceeds the High Limit, the channel goes into alarm and initiates a call and/or a relay activation.	Chan 31 High Limit 0-99999 = xxxxxx
Loop back to Step 1		

3.7 Programming remotely over a phone

There are 2 functions that can be programmed from a remote call-in – Phone Numbers and Channel Mode.

When you call-in, the Scout will:

- Answer the phone
- Repeat the current status
- 3 “beeps”

You have 5 seconds after the 3 ‘beeps’ to press the # key on your phone to inform the Scout that you want to perform remote programming. After pressing the # key, the Scout will say “System ready, enter selection.”

3.7.1 Phone numbers

	What you do:	What the Scout says:						
Step 1	Press # within 5 seconds of hearing the 3 “beeps”	“System ready. Enter selection.”						
	Press 6 or press # if finished. Enter Access Code if requested	<i>NOTE: If an Access Code is programmed, the Scout says “Enter Access Code”</i> “Phone setup. Enter phone position. Or press # to exit”						
Step 2	Enter position number 1-8. Press # when finished.	“Position” nn “Phone number is” nnnnnnnnnnnn						
Step 3	Press # if the number is OK or enter a new number followed by the # key. <i>NOTE: The phone number can be up to 25 numbers long.</i>	“Position” nn “Phone number is” nnnnnnnnnnnn “Enter new number or press # to exit”						
	<table border="1"> <tr> <td>*2</td> <td><i>For a pager call</i></td> </tr> <tr> <td>*7</td> <td><i>Deletes phone number</i></td> </tr> <tr> <td>*8</td> <td><i>Detects a dialtone</i></td> </tr> <tr> <td>*9</td> <td><i>2-second delay</i></td> </tr> </table> <p>(e.g. 5124442233P would call a pager at 5124442233)</p>		*2	<i>For a pager call</i>	*7	<i>Deletes phone number</i>	*8	<i>Detects a dialtone</i>
*2	<i>For a pager call</i>							
*7	<i>Deletes phone number</i>							
*8	<i>Detects a dialtone</i>							
*9	<i>2-second delay</i>							
Loop back to Step 2								

3.7.2 Channel mode

	What you do:	What the Scout says:
		“System ready. Enter selection.”
Step 1	Press 8 or press # if finished.	<i>NOTE: If an Access Code is been programmed, the Scout says “Enter Access Code”</i>
	Enter Access Code if requested.	“Channel setup.”
Step 2	Enter a channel number	“Enter channel number or press # to exit”

For Digital Inputs...

Step 3	Enter channel number 1x Press # when finished.	“Digital input channel nn” “The mode is” “status only” or “call on alarm” “Enter new selection or press # to exit”
Step 4	Press 0 for status only. (no alarm calls) Press 1 for call on alarm.	“Digital input channel nn” “The mode is” “status only” or “call on alarm”
	NOTE: <i>Your entry is repeated back to you.</i>	“Digital input channel nn” “Alarm state is normally” “open” or “closed”.
Step 5	Press 0 for normally open or 1 for normally closed.	“Digital input channel nn” “Alarm state is normally” “open” or “closed”. “Enter new selection or press # to exit”

Loop back to Step 2

For analog inputs...

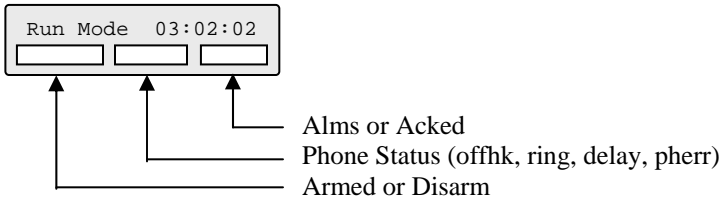
Step 6	Enter channel number 3x Press # when finished.	“Analog input channel nn” “The mode is” “status only” or “call on alarm” “Enter new selection or press # to exit”

Step 7	Press 0 for status only. (no alarm calls) Press 1 for call on alarm.	“Analog input channel nn” “The mode is” “status only” or “call on alarm”
Step 8	Enter a new low limit with 1 assumed digit to the right of the decimal, or # if the current value is OK. Enter *7 to disable the low limit. <i>e.g. 252 would be 25.2 %</i>	“Analog input channel nn” “low limit is nn.n %” “Enter new selection or press # to exit”
Step 9	<p>NOTE: <i>Your entry is repeated back to you.</i></p> <p>Enter a new high limit with 1 assumed digit to the right of the decimal. Enter *7 to disable the high limit. <i>e.g. 850 would be 85.0 %</i></p>	<p>“Analog input channel nn” “low limit is nn.n %”</p> <p>“Analog input channel nn” “high limit is nn.n %” “Enter new selection or press # to exit”</p>
Step 9	<p>NOTE: <i>Your entry is repeated back to you.</i></p>	<p>“Analog input channel nn” “high limit is nn.n %”</p>
Loop back to Step 2		

4 RUN Mode functions

While the Scout is in RUN mode it is scanning all inputs, evaluating them for transitions into and out of alarm conditions, performing alarm calls and updating the display.

The default RUN mode display looks like this:



There are 7 functions that can be performed while in RUN mode.

Function	Capability
Keypad 0	Get system status
Keypad 1	Enter Program mode
Keypad 2	Toggle Arm/Disarm
Keypad 5	View Event Log
Keypad 7	Activate Relay
Keypad 9	Acknowledge alarms
Keypad * #	Test phone line

5 Getting System Status

System Status reports the current conditions of the DiaLog Scout. It will report any channels that are in alarm or acknowledged, including the primary power, battery and communications channels.

5.1 From the front panel

The Scout displays the first channel (Power). To view the other channels **press the A key to move backward** or the **B key to move forward** through all the channels.

The channels are: Power, Low Battery, Low Low Battery, Phone line status, each input channel and then the version of the firmware in the Scout.

	What you do:	What the display shows:
Step 1	Press the 0 key.	
Step 2	<i>Primary power is being supplied.</i> Press the B key.	Power normal
	<i>Battery level is normal.</i> Press the B key.	Low Batt normal
	<i>Battery level is normal.</i> Press the B key.	Low Low Batt normal
	<i>Phone line is connected and has a dial-tone.</i> Press the B key.	Phone normal
	<i>Serial communication channel is in alarm and cannot communicate with the device on Modbus ID 15.</i> Press the B key.	Comm in alm id: 15
	<i>Channel 11 is in the normal condition and is open.</i> Press the B key.	Chan 11 in alm 23.4 ft
	Press 0 again, to get information about the programming for that channel. <i>e.g. ID 15, read holding, register 200.</i>	Chan 11 15 Rd Holding 200
		<i>Loop through remaining channels</i>
	DiaLog Scout version	Ver v1.x SPLCxx

Loop back to Step 1

NOTE: Press any key on the keypad to stop the System Status display.

5.2 Remotely

The System Status can be retrieved remotely by calling into the Scout from a phone.

The Scout will answer after the number of rings specified by Rings to Answer. Then the Scout will:

	What you do:	What the Scout says:
Step 1	Dial the DiaLog Scout phone number	Site ID Message (followed by any channels in alarm) <i>beep beep beep</i>
Step 2	Press the # key. (within 5 seconds)	“System ready. Enter selection.”
Step 3	Press 0	“System status.” The System Status report is spoken. “Enter channel number or press # to exit”
Step 4	Enter a channel number	Channel message “is normal/in alarm” “The present value is open/closed” or “The present value is xx.x ”
Loop back to Step 3 or enter # to exit		

6 Verifying Communication

When a channel is configured to read from a PLC or Modbus device, the Scout reads all channels every 1/2 second. If the Scout is not able to communicate correctly, the state of the Communication channel (05) will show an alarm.

NOTE: *If communication with a Modbus device is lost, the Communication channel will not go into alarm until the Alarm Delay period, which is defaulted to 10 seconds.*

To verify that the Scout is reading values correctly, look at the Status (3) of the Communication channel (05).

Serial communication channel indicates that all communications is operating properly.	Comm norm
Serial communication channel indicates that the communications with Modbus Slave ID 122 is not working. Potential causes are: <ol style="list-style-type: none"> 1. The serial cable is disconnected. 2. The ID is not correct. 3. The Baud Bate is not correct. 4. The Register Type or Register Number are not correct. 5. The Message Pacing needs to be increased. 6. The Time to Respond needs to be increased. 	Comm in alm id: 122

If some channels are being read and others are not, check the Status for each channel to determine which are having problems.

Input channel indicates that the channel is in alarm and there is a loss of communication.	Chan xx <status> 0.00 ppm
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The <status> field switches between the alarm condition and a communication failure.

For example,
In alm and **Comm**

7 Listening In from a remote call

The DiaLog Scout allows you to call into it from a phone and Listen-In on the noise around the Scout. This is typically used to determine if motors, pumps, fans, etc. are running.

	What you do:	What the Scout says:
Step 1	Dial the DiaLog Scout phone number	Site ID Message (followed by any channels in alarm) <i>beep beep beep</i>
Step 2	Press the # key	“System ready. Enter selection.”
Step 3	Press the 5 key to enable Listen-In Press the # key during the 40 seconds.	The Scout's microphone is turned on for 40 seconds. Disables Listen-In “System ready. Enter selection.”

8 Acknowledging alarms

A channel goes into alarm when it transitions out of the normal condition specified in the Alarm State.

For example, if a channel has an Alarm State of Normally Open, then the channel goes into alarm when the input closes. The channel will stay in alarm as long as the input is closed. If the Alarm Type is set to Latching, then it will stay in alarm, even if the input goes back to open, until the channel is acknowledged.

When any channel goes into alarm and the Channel Mode is set to Call on Alarm, the Scout will start calling the phone numbers in the Phone List. It will continue to call through the list of phone numbers until the channel goes out of alarm or until it is acknowledged.

When acknowledged, the Scout will stop calling and wait the time specified by the Ack Redial Delay before starting to call again if the channel is still in the alarm condition.

8.1 Acknowledge from the keypad

While in RUN mode, press the 9 key.

The Scout will change the display information for the channel(s) in alarm from Alarm to Acknowledged and stop calling.

8.2 Acknowledge remotely when called

The Scout calls the phone numbers programmed into the Phone List beginning with the first position. If the call is busy, the Scout will go to the next number.

	What you do:	What the Scout does:
Step 1		Calls next phone number.
Step 2		Waits time specified by the Call Progress Delay for that phone number.
Step 3		Says: Site Message ID Channel Message ID "is in alarm" "please acknowledge"
	You have 5 seconds to press the 9 key to acknowledge the alarm.	
If you do not acknowledge, loop back to Step 3 the number of times specified by Msg Repeat		
If you do acknowledge		"Channel acknowledged." <i>beep beep beep</i> NOTE: <i>After all the channels have been spoken, the Scout will give you three (3) beeps. You have 5 seconds to press the # key if you wish to continue.</i>
	If you do not press the # key.	"Good-bye"

8.3 Acknowledge when you call in

If you receive a pager notification that a channel is in alarm and you call into the Scout, the Scout asks you to acknowledge any alarms.

	What you do:	What the Scout does:
Step 1	Call into the Scout	Says: Site Message ID Channel Message ID "is in alarm" "Please acknowledge"
	You have 5 seconds to press the 9 key to acknowledge the alarm.	
If you do acknowledge		"Channel acknowledged." <i>beep beep beep</i> NOTE: <i>After all the channels have been spoken, the Scout will give you three (3) beeps. You have 5 seconds to press the # key if you wish to continue.</i>
	If you do not press the # key.	"Good-bye"

9 Arming and Disarming

At times it may be beneficial to Disarm the Scout to prevent it from calling out. This is generally done when you are performing maintenance on equipment being monitored and do not want unnecessary alarms generated.

NOTE: When the Scout is disarmed, all scanning of I/O stops. You can manually write to coils and holding registers either locally or remotely.

9.1 From the front panel

NOTE: The Scout must be in the RUN mode

	What you do:	What the display shows:
Step 1	Press the 2 key to toggle between Armed and Disarmed.	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> Run Mode 03:04:07 armed </div>
	NOTE: If the Scout is Disarmed, it will automatically become Armed after 30 minutes.	

9.2 Remotely

You can Arm or Disarm the Scout when you call into it.

	What you do:	What the Scout says:
Step 1	Dial the DiaLog Scout phone number	Site ID Message (followed by any channels in alarm) <i>beep beep beep</i>
Step 2	Press the # key within 5 seconds <i>If an Access Code has been activated, you will be requested to enter it.</i>	“System ready. Enter selection.”
Step 3	Press 2 to toggle between arm/disarm.	“System is armed/disarmed” “Return to arm in 30 minutes” “System ready. Enter selection.”
Loop back to Step 2		

10 Writing Coils and Holding Registers

Coils and Holding Registers can be written to manually either locally from the keypad or remotely over a phone. Both of these functions are activated by pressing the 7 key.

If the coil is also controlled via a digital or analog channel going into alarm, the coil will perform the programmed function in addition to any manual operations.

10.1 From the front panel

NOTE: The Scout must be in the RUN mode

	What you do:	What the display shows:
Step 1	Press the 7 key to see the Output Channels selection screen. Enter the channel number for the Write Coil or Write Holding Register.	Output Channels Chan 11-20 = xx

If the Channel number is a Holding Register, go to Step 3.

Step 2	The channel is a Write Coil . Enter 0 to deactivate the coil (relay) or 1 to activate. NOTE: <i>Once the command has been accepted, the value to the right of the '=' will be the actual read back value of the coil.</i> <i>Therefore, if the command entered was a '1' to activate and the display shows '= 0', the coil was not set and there may be a communication problem.</i>	Relay Output xx 0-deact 1-act =
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Loop back to Step 1

Step 3	The channel is a Write Holding . The value xx.xx represents the last value read back from this holding register. For example (assume 2 decimal places): You enter: Set = 5629# If the write was successful, 56.29 will be displayed as the value read back from this holding register.	Analog Output xx xx.xx Set =
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<p>You may now enter a new value for this holding register. The value is entered as 1 to 5 consecutive numbers.</p> <p>If the pound key is pressed and no numbers have been entered, the system returns to prompt for an output channel number. When the # key is pressed, the number is rewritten showing the decimal point location.</p> <p>If this value is correct, press the pound key to write the new value to the holding register. If the value is not correct, hit any key except the pound key to abort this entry and reenter a new value.</p>	
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Loop back to Step 1

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10.2 Remotely

You can activate or deactivate the relay when you call into the Scout or when the Scout has called you during an alarm notification.

	What you do:	What the Scout says:
Step 1	Dial the DiaLog Scout phone number	Site ID Message (followed by any channels in alarm) <i>beep beep beep</i>
Step 2	Press the # key within 5 seconds <i>If an Access Code has been activated, you will be requested to enter it.</i>	"System ready. Enter selection."
Step 3	Press 7 to listen to the Output Channels prompt.	"Output Channels. " "Enter channel number or press # to exit."
If the Channel number is a Holding Register, go to Step 6.		
Step 4	Enter channel number. For a write coil channel	Recorded channel message or "Relay output channel nn" "Relay is energized/de-energized" "Enter new selection"

Step 5	Press 1 to activate the relay or 0 to deactivate the relay. The new state of the coil is the read back to you. Press the pound key to return to the channel prompt.	“Relay is energized (or deenergized)” “Enter new selection or press # to exit.”
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Loop back to Step 1

Step 6	Enter channel number. For a write holding channel	“Analog output channel nn” “The present value is xx.xx” “Enter new value or press # to exit”
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Step 7	Enter a new value. For example, 5678#	“The new value is 56.78” “Press # to enter” “Enter new value or press # to exit.”
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Step 8	If this value is correct, press the pound key to write the value to the holding register. <i>NOTE: If the value is not correct, hit any other key to abort this entry and reenter a new value. If the entry is aborted the system says “No Entry”.</i>	“The present value is 56.78” “Press # to enter” “Enter new value or press # to exit.”
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Loop back to Step 1

11 Retrieving the Event Log

The DiaLog Scout keeps the last 100 events that occurred in a local non-volatile log. The Event Log can be viewed locally on the display or retrieved remotely over the phone.

11.1 To view the Event Log locally

	What you do:	What the display shows:
Step 1	Press the 5 key	<div style="border: 1px solid black; padding: 5px; width: fit-content;"> 1) PROG Mode date time </div>
Step 2	Press the B key to advance forward through the Event Log or the A key to move backward. Press the # key when you are finished.	<div style="border: 1px solid black; padding: 5px; width: fit-content;"> 2) DIN3 Cl Alm date time </div>
Press # when finished		

11.2 To retrieve the Event Log remotely

The Event Log can be retrieved remotely via a phone call in to the DiaLog Scout.

	What you do:	What the Scout says:
Step 1	Dial the DiaLog Scout phone number	Site ID Message (followed by any channels in alarm) <i>beep beep beep</i>
Step 2	Press the # key (within 5 seconds)	“Enter selection.”
Step 3	Press the 3 key.	“Event log start” “Type is # <optional value>” “Date is xx xx” “Time is xx xx xx”
Step 4	Press the 1 key to move to the next event, press the 0 key to move to the previous event.	“Type is # <optional value>” “Date is xx xx” “Time is xx xx xx” NOTE: <i>if the Date is the same as the previous event, then the date will not be repeated. If the time is the same as the previous event, then the time will not be repeated.</i> NOTE: <i>the Scout will say “Event log end” prior to the type of the last entry in the event log.</i>
	Loop back to Step 4 or press # to exit.	

Type #	Event Description	Optional value
0	NULL Event	
1	Power On	
2	Dead Task	Task Number
3	Armed	
4	Disarmed	
5	RUN Mode	
6	PROGMode	
7	Configuration Change	
8	Set Defaults	
9	Call Answered	
10	No Dial Tone	
11	Phone Busy	
12	Call Error	
13	Call Aborted	
14	Call Timeout	
15	Call No Answer	
16	Call Incoming	
17	Call Complete	
18	Local Ack	
19	Remote Ack	
20	Alarm Call	
21	Open Alarm	Channel number
22	Closed Alarm	Channel number
23	Low Alarm	Channel number
24	High Alarm	Channel number
25	Channel Normal	Channel number
26	Channel Acked	Channel number
27	Relay On	Channel number
28	Relay Off	Channel number
29	Preset Holding Register	Channel number
30	Unknown	

12 Replacing the Backup Battery

The Backup Battery is continually monitored by the Scout to confirm that it is supplying enough power to run the Scout. If it is not, then the Low Battery (02) alarm will be activated.

This alarm is caused by:

1. the Scout has lost Primary Power, is running on the battery and is low on power, or
2. the battery cannot be recharged, which should take 6-12 hours.

The Backup Battery is located inside the enclosure. You will have to remove the front panel from the enclosure to expose the battery.

Battery replacement procedure	
Step 1	If panel mounted, dismount the enclosure by loosening the screws holding the enclosure to the panel.
Step 2	Remove the four (4) nuts that hold the front cover to the enclosure.
Step 3	Slowly tilt the top edge of the front cover away from the enclosure to expose the cable connecting the electronics to the battery.
Step 4	Put the front cover in a safe place and remove the battery bracket and battery.
Step 5	Put the new battery in the bracket with the leads facing the left-hand side of the enclosure.
Step 6	Reattach the battery cable and front cover.
Step 7	Mount the enclosure back in place.

NOTE: *be careful when removing the front panel as it holds the electronics and there is a cable between the electronics and the battery.*

13 Customer Service

Antx customer service can be reached toll-free at 877-686-2689.

Antx, inc.
P.O. Box 200816
Austin, TX 78720
www.antx.com
custserv@antx.com

14 FCC Registration

The Federal Communications Commission (FCC) has established rules that permit this device to be directly connected to the telephone network. Standardized jacks are used for these connections. This equipment should not be used on party lines or coin lines.

If this device is malfunctioning, it may also be causing harm to the telephone network. This device should be disconnected until the source of the problem can be determined and until repair has been made. If this is not done, the telephone company may temporarily disconnect service.

The telephone company may make changes in its technical operations and procedures. If such changes affect the compatibility or use of this device, the telephone company is required to give adequate notice of the changes. You will be advised of your right to file a complaint with the FCC.

If the telephone company requests information on what equipment is connected to their lines, inform them of:

- a. The telephone number this unit is connected to
- b. The ringer equivalence number: 0.2B
- c. The USOC jack required
- d. The FCC registration number: 60DAL02BSCOUT

Items b and d are indicated on the label.

The ringer equivalence (REN) is used to determine how many devices can be connected to your telephone line. In most areas, the sum of the REN's of all devices on any one line should not exceed five. If too many devices are attached, they may not ring properly.



Antx, inc.

P.O. Box 200816
Austin, TX 78720
512/255-2800
512/255-8306 (fax)

www.antx.com