

# Spectrex SharpEye™ 40/40C & 40/40D Series

Flame Detectors





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# 1 Introduction

This manual describes how operators can use HART® handheld field communicators to configure the SharpEye 40/40 Flame Detectors to suit customer needs, perform firmware upgrades, and find troubleshooting information and functionality.

This manual also describes the HART hand-held communicator software and provides instructions on how to install, operate, and maintain the software.



## 2 Installation

### 2.1 Download the HART<sup>®</sup> device driver (DD)

To download the HART device driver:

#### Procedure

1. Go to [Spectrex.net](http://Spectrex.net).
2. Navigate to the relevant product page.
3. Scroll down to *Documents and Drawings*.
4. Click *SOFTWARE DOWNLOADS & DRIVERS*.
5. Download the relevant file.

### 2.2 Load device driver (DD) on HART<sup>®</sup> hand-held communicator

#### Procedure

1. Load the DD on the HART hand-held communicator.
2. Select **Setup**.



### 3 Operating the HART® hand-held communicator

From the main screen, you have three options:

Figure 3-1: Main screen

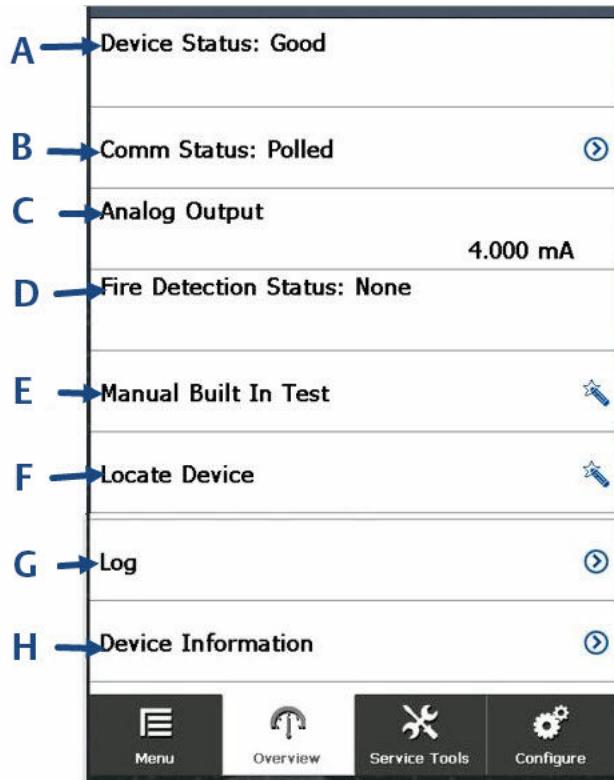


- A. Overview: Opens **Overview** screen.
- B. Service Tools: Opens **Service Tools** screen.
- C. Configure: Opens **Configure** screen.

## 3.1 Overview screen

The **Overview** screen gives a summary of the device information.

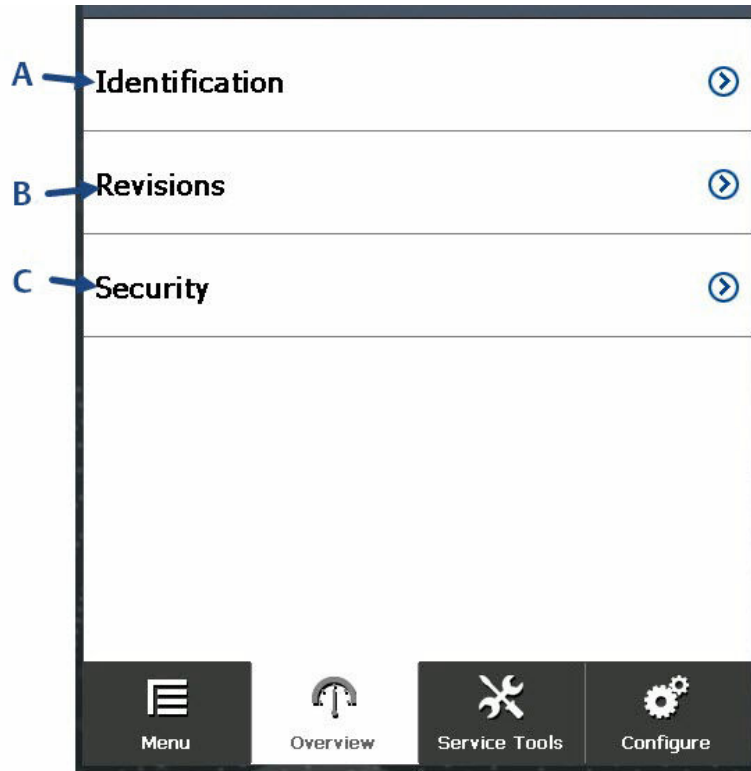
Figure 3-2: Overview screen



- A. *Device Status: Available options are Good, Failure, and Maintenance Required.*
- B. *Comm Status: Displays communication method. This is polled.*
- C. *Analog Output: Displays a value between 1 mA and 20 mA when the device is turned on.*
- D. *Fire Detection Status: Indicates whether the device has detected fire. Available options are None and Detected.*
- E. *Manual Built In Test: Click to perform built in test.*
- F. *Locate Device: Click here to make the device light-emitting diode (LED) blink to locate a connected device.*
- G. *Log: Shortcut to Log screen.*
- H. *Device Information: Displays **Device Information** screen. When you open the **Device Information** screen from the **Overview** screen, all fields are read only.*

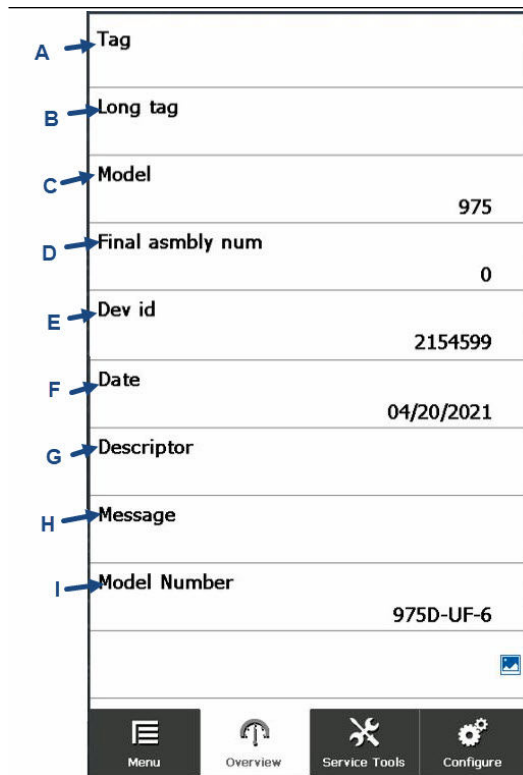
## 3.2 Device information screen

Figure 3-3: Device information screen



- A. *Identification*: Opens **Identification** screen.
- B. *Revisions*: Opens **Revisions** screen.
- C. *Security*: Opens **Security** screen.

### 3.2.1 Identification screen



- A. Tag
- B. Long tag
- C. Model
- D. Final assembly num (Final assembly number)
- E. Dev id (Device identification)
- F. Date
- G. Descriptor
- H. Message
- I. Model Number

**Note**

When you access the *Identification* screen from the *Overview* screen, all fields are read only.

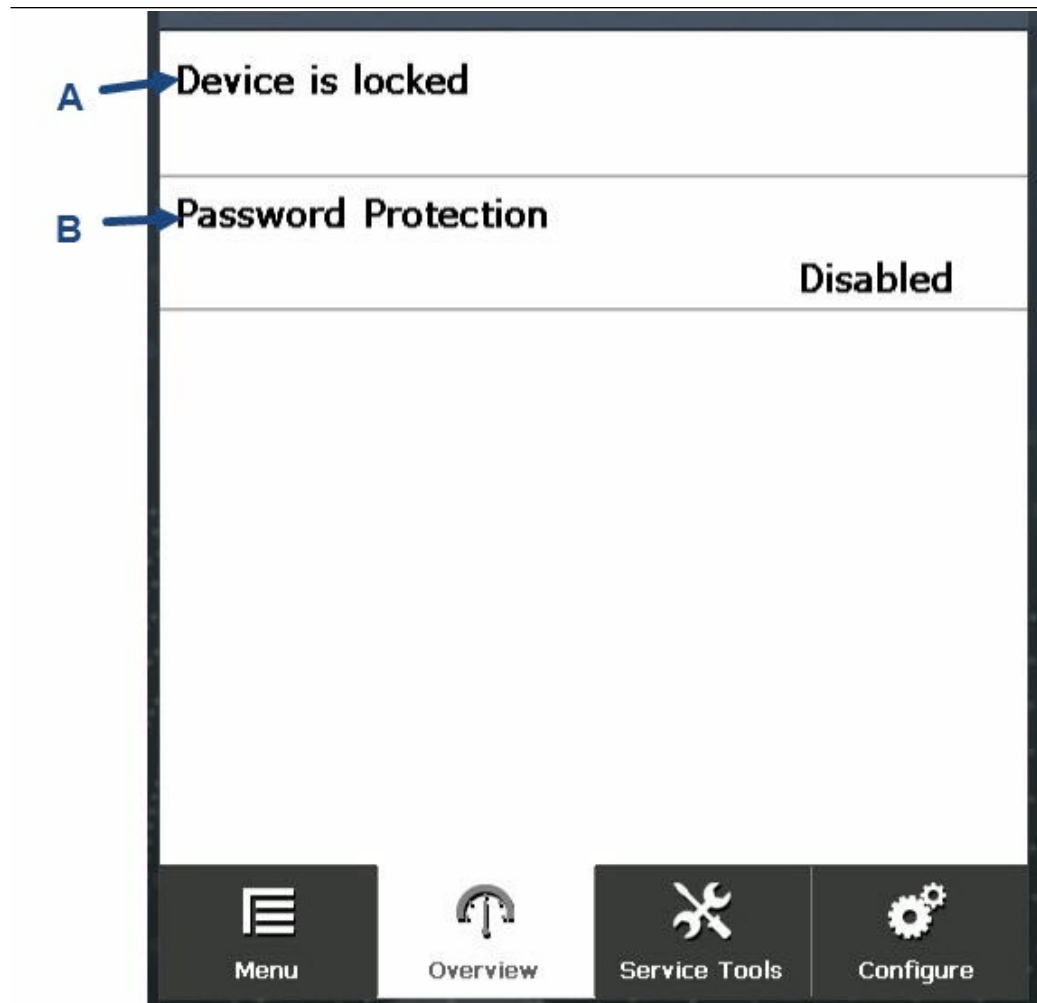
### 3.2.2 Revision numbers screen

A →	Universal rev	7
B →	Fld dev rev	1
C →	Hardware rev	1
D →	Software rev	1
E →	DD Revision	1

Menu Overview Service Tools Configure

- A. *Universal rev: Universal revision*
- B. *Fld dev rev: Field device revision*
- C. *Hardware rev: Hardware revision*
- D. *Software rev: Software revision*
- E. *DD Revision: Device driver revision*

### 3.2.3 Security screen

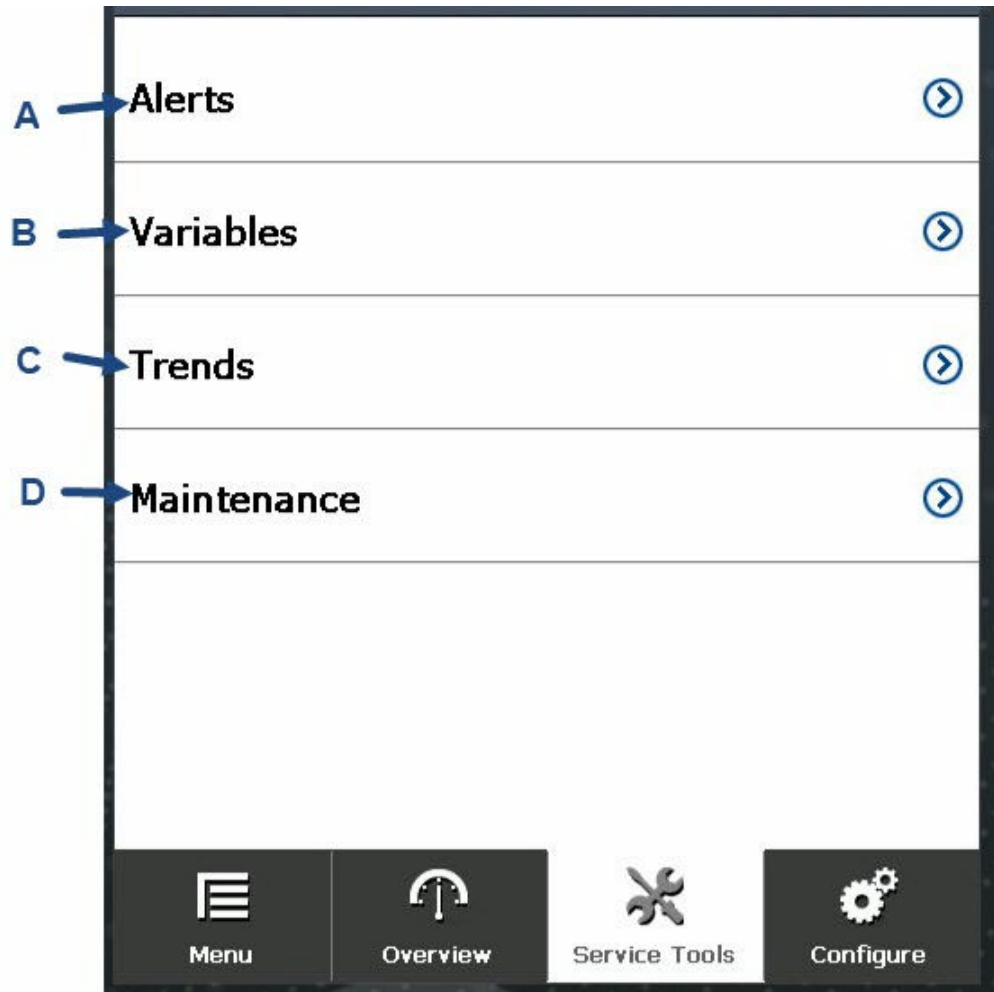


- A. Device lock status.
- B. Password Protection: Enabled or Disabled.

### 3.3 Service tools screen

The *Service Tools* screen provides links to sub-screens, in which you can view and edit service-related device parameters.

Figure 3-4: Service tools screen

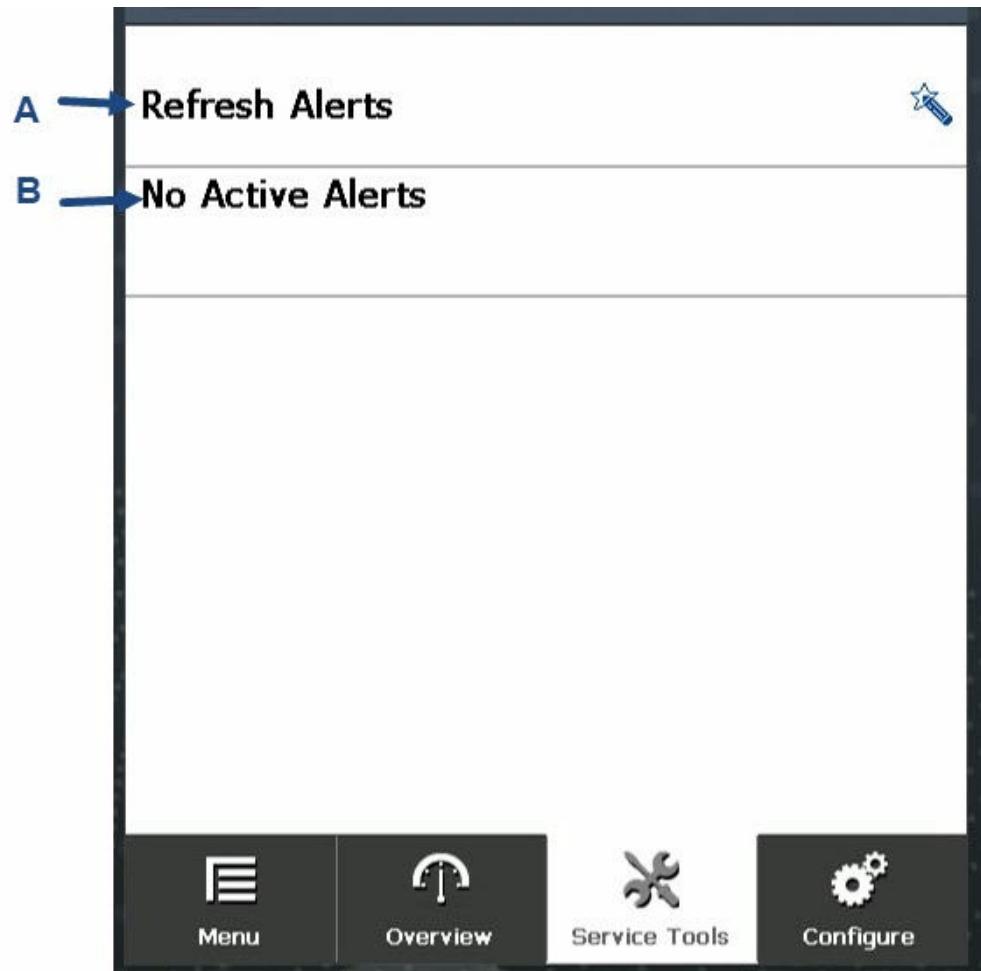


- A. Alerts
- B. Variables
- C. Trends
- D. Maintenance

### 3.3.1 Alerts screen

The **Alerts** screen provides information about device alerts and enables you to reset any active alerts.

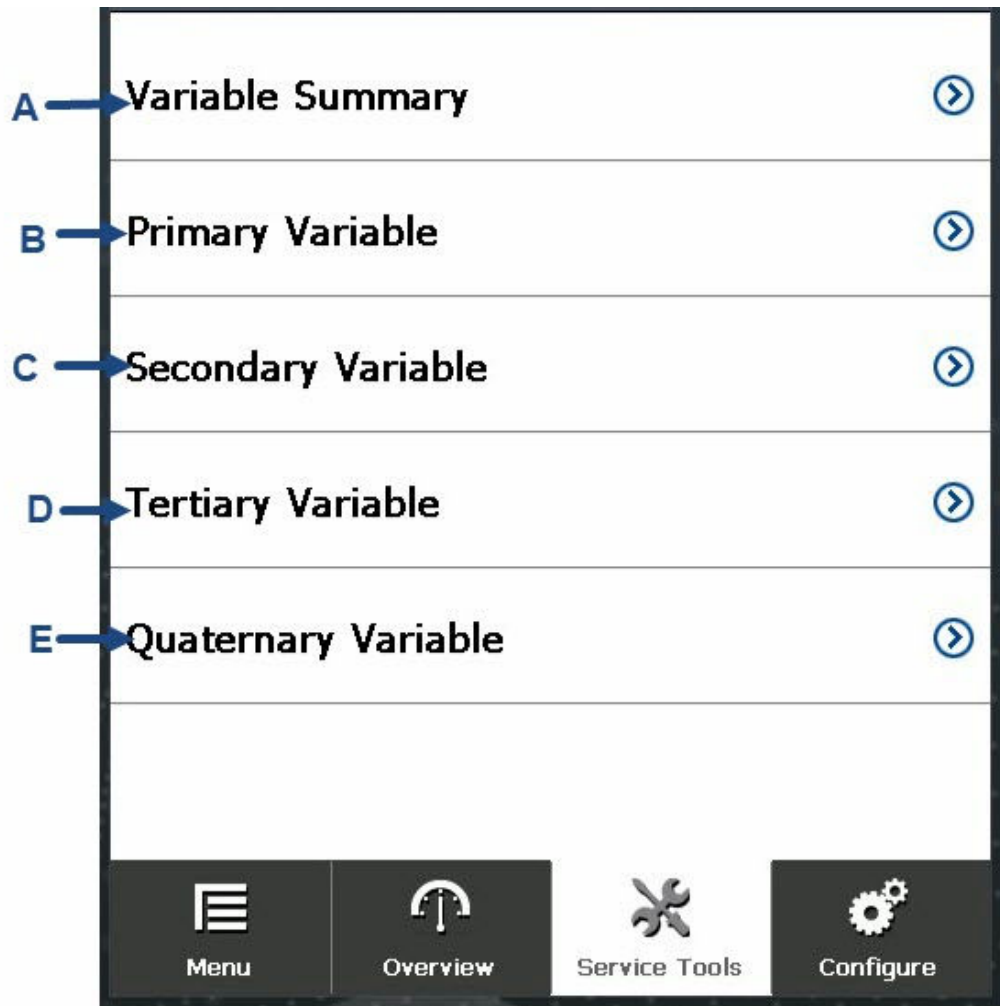
Figure 3-5: Alerts screen



- A. Refresh Alerts: Tap to refresh alert status.
- B. Displays alert status: No Active Alerts in this example.

### 3.3.2 Variables screen

Figure 3-6: Variables screen

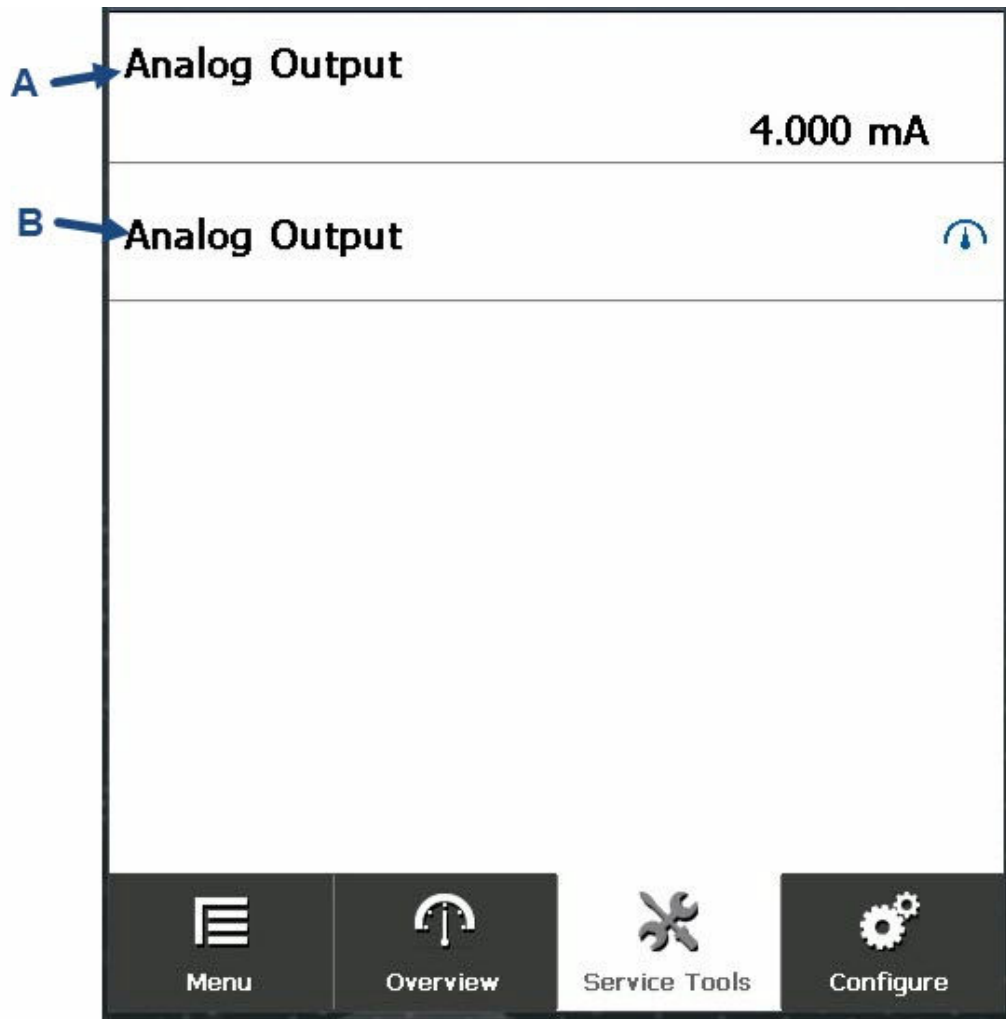


- A. *Variable Summary: Displays a summary of all variables.*
  - Analog output
  - Electronic temperature
  - Supply voltage
- B. *Primary Variable: Opens screen where you can select analog output variables.*
- C. *Secondary Variable: Opens screen where you can select temperature-related variables.*
- D. *Tertiary Variable: Opens screen where you can select voltage-related variables.*
- E. *Quaternary Variable: Opens screen where you can select heater-related variables.*

## Primary variable screen

The *Primary Variable* screen displays the analog output.

Figure 3-7: Primary variable screen

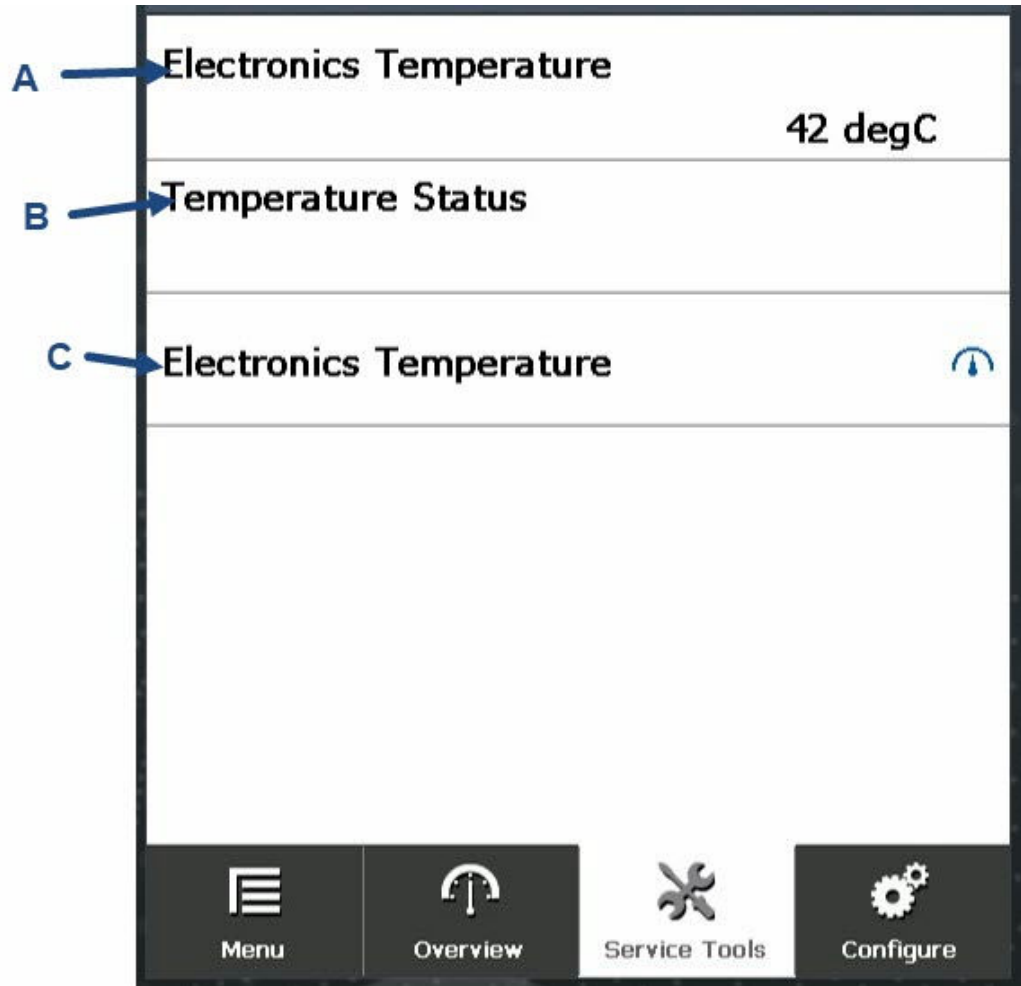


- A. Analog Output: Displays analog output.
- B. Analog Output gauge: Tap to display **Analog Output Gauge** screen.

## Secondary variable screen

The *Secondary Variable* screen displays electronics information.

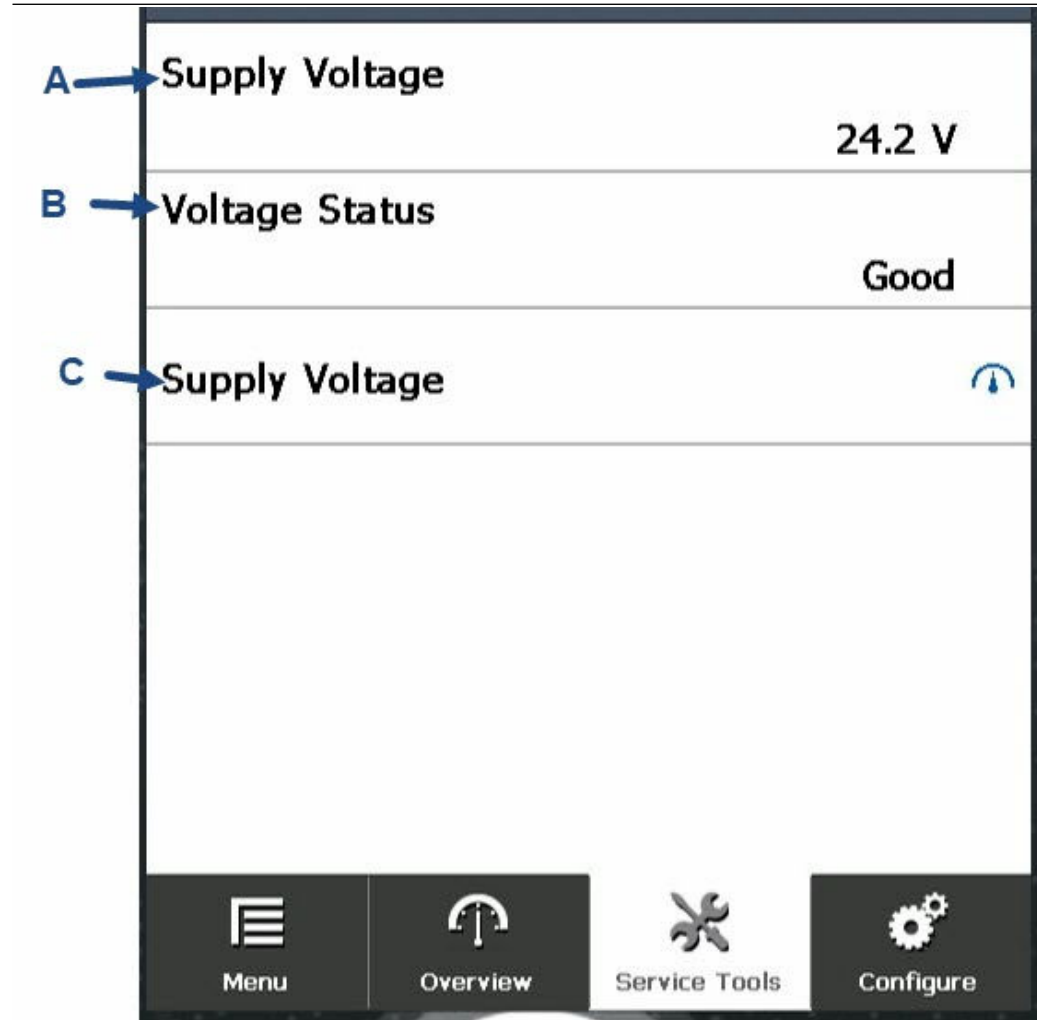
Figure 3-8: Secondary variable screen



- A. *Electronics Temperature*: Displays electronics temperature.
- B. *Temperature Status*: Displays how well the temperature is being read.
- C. *Electronics Temperature gauge*: Tap to display **Electronics Temperature gauge** screen.

## Tertiary variable screen

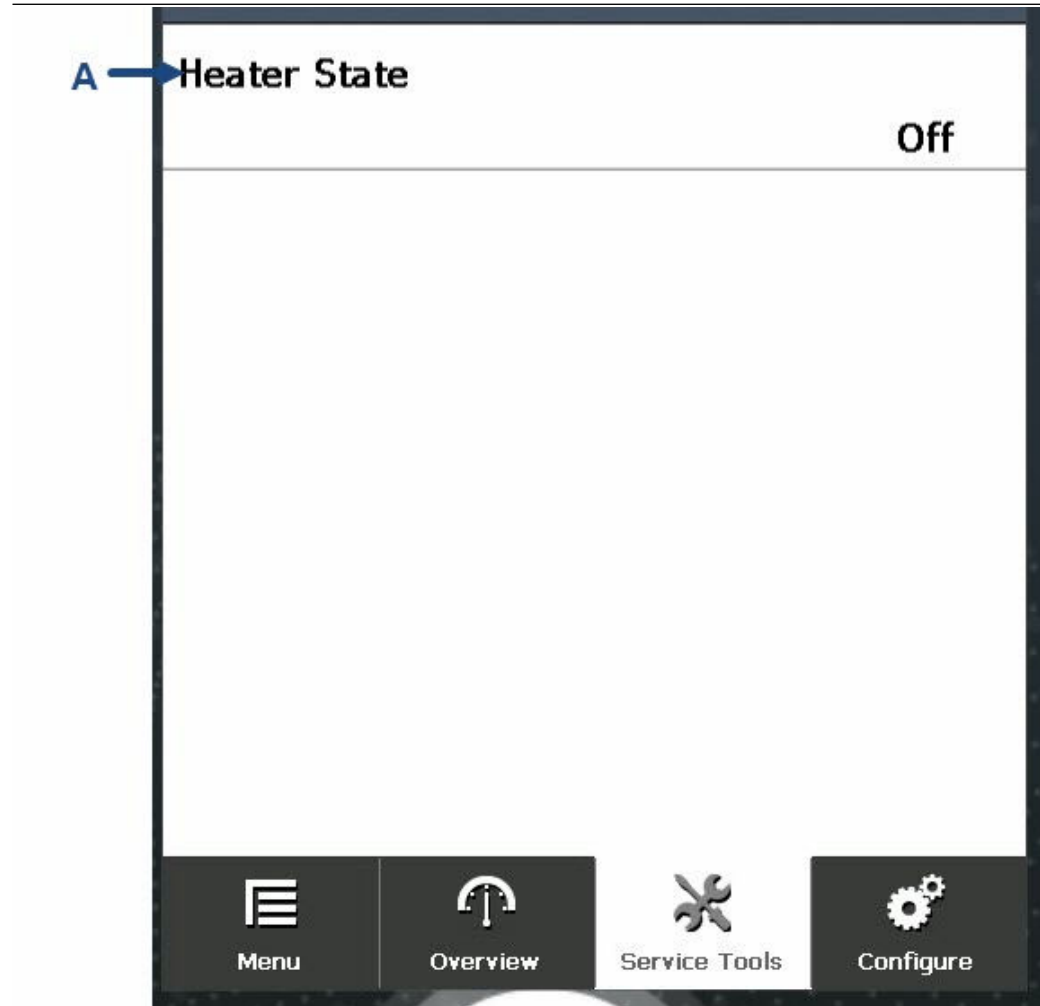
The *Tertiary Variable* screen displays voltage information.



- A. *Supply Voltage*: Displays current supply voltage.
- B. *Voltage Status*: Displays how well the voltage is being read.
- C. *Supply Voltage gauge*: Tap to display the **Supply Voltage Gauge** screen.

## Quaternary variable screen

The *Quaternary Variable* screen displays heater information.

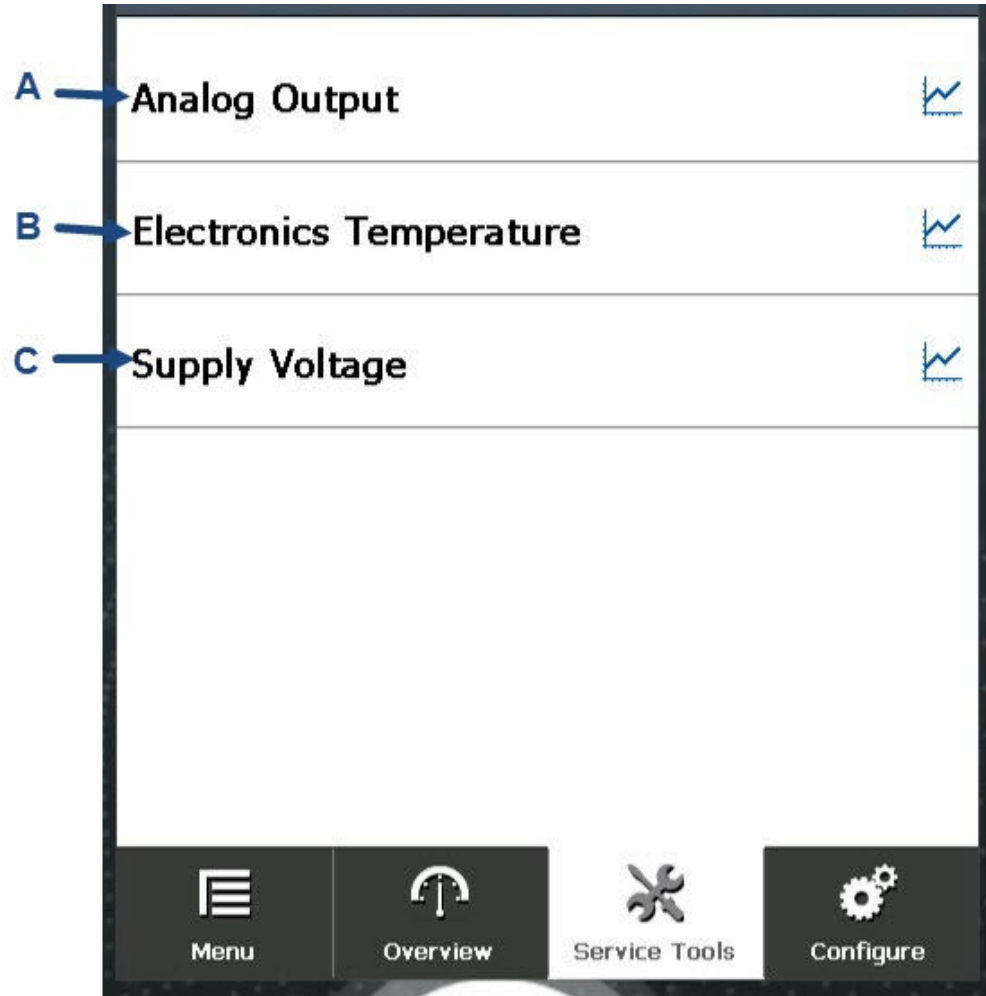


A. Heater State: Displays heater state - On or Off.

### 3.3.3 Trends screen

From the **Trends** screen, you can view the variables listed on a graph.

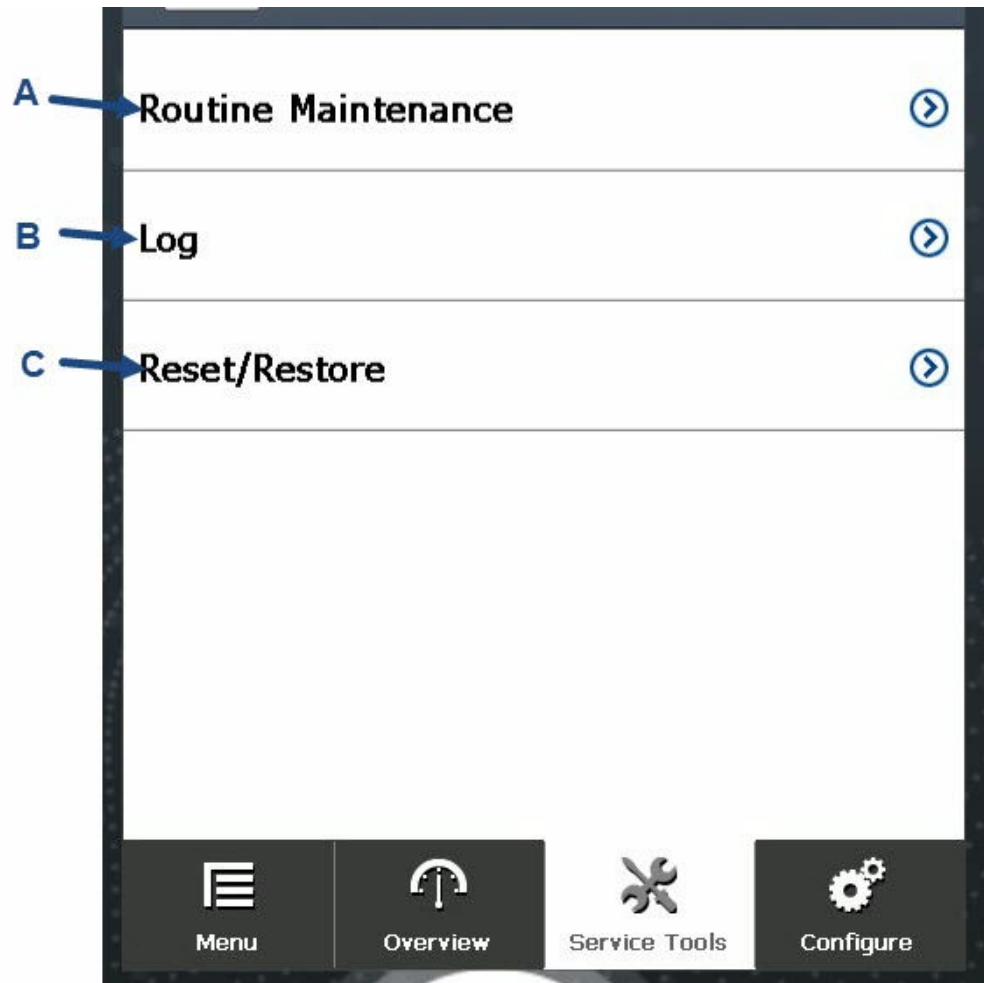
Figure 3-9: Trends screen



- A. *Analog Output: Displays the analog output on a graph.*
- B. *Electronics Temperature: Displays the electronics temperature on a graph.*
- C. *Supply Voltage: Displays the supply voltage on a graph.*

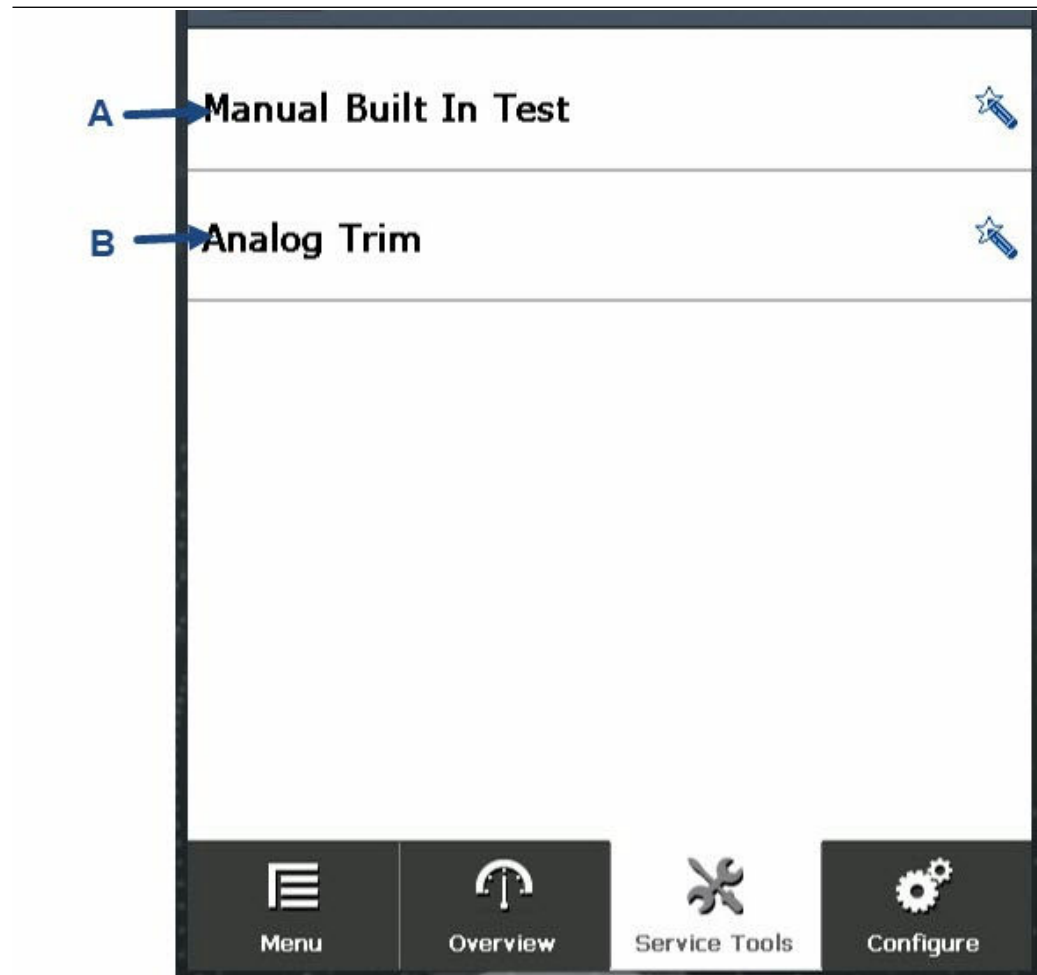
### 3.3.4 Maintenance screen

Figure 3-10: Maintenance screen



- A. Routine Maintenance: Opens screen with routine maintenance functions.
- B. Log: Opens screen with event logs.
- C. Reset/Restore: Opens a screen from which you can reset the detector.

## Routine maintenance screen



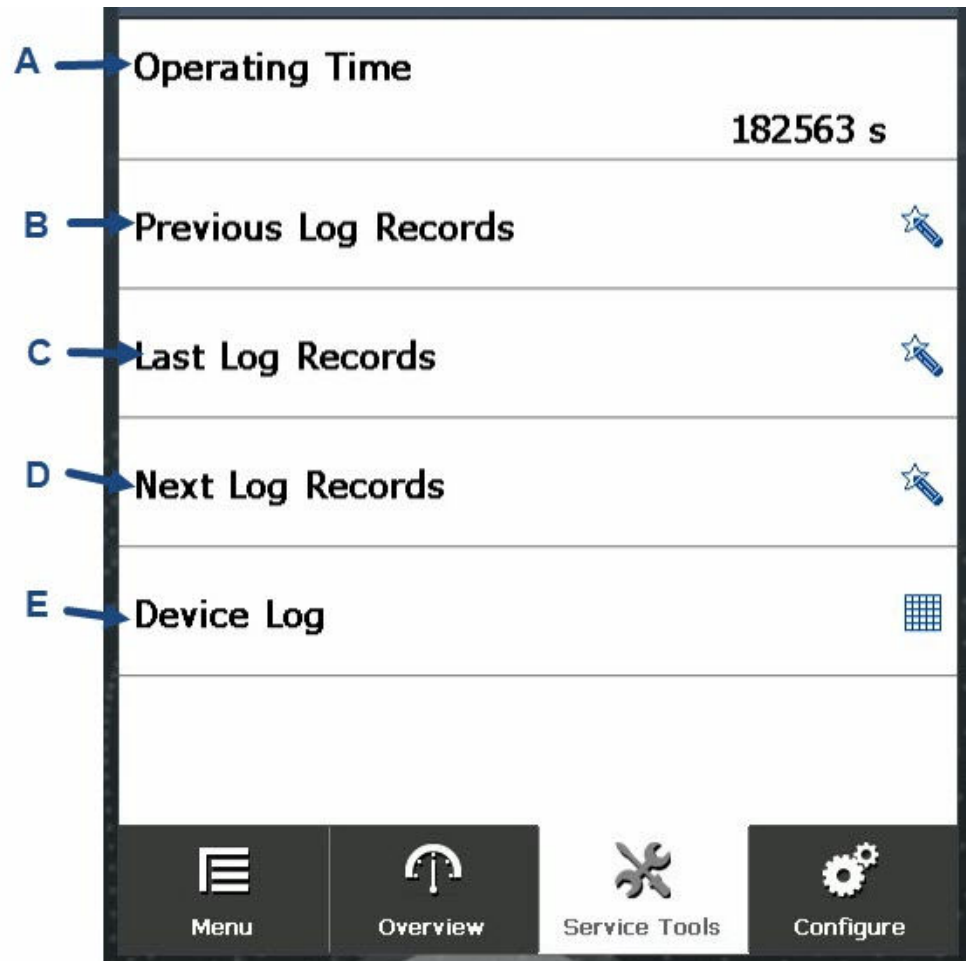
- A. Manual Built In Test: Performs manual built-in test.
- B. Analog Trim. Calibrates 4-20 mA.<sup>(1)</sup>

(1) With the analog trim function, you can round multimeter values to a 4-mA fixed value. Tap Analog Trim and then enter and confirm the multimeter reading.

## Log screen

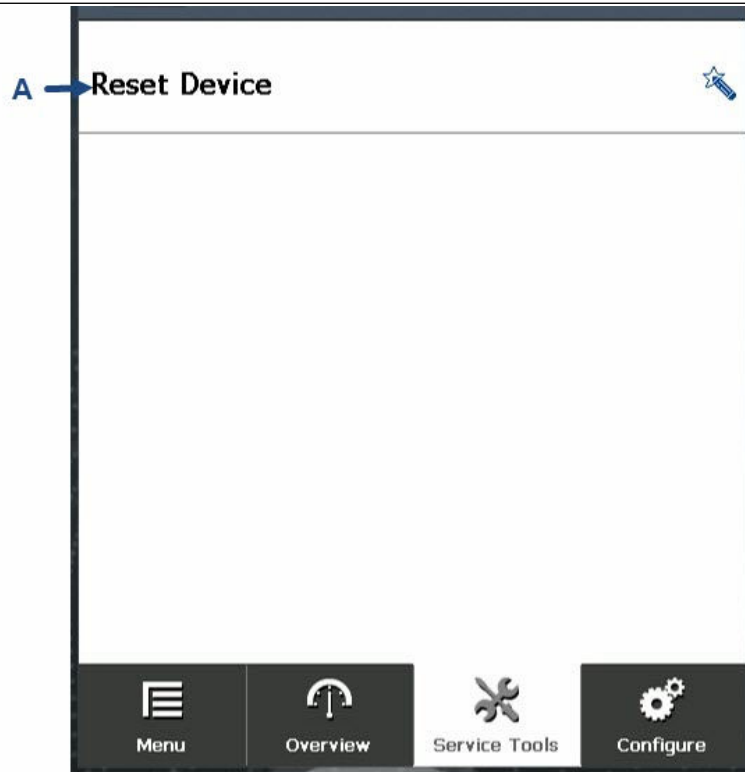
The **Log** screen provides information about the logs and navigation options.

Figure 3-11: Log screen



- A. *Operating Time: Amount of time device has been powered up.*
- B. *Previous Log Records: Displays previous log records.*
- C. *Last Log Records: Displays the latest **Log Record** screen.*
- D. *Next Log Records: Displays the next **Log Record** screen.*
- E. *Device Log: Displays the log in a table.*

## Reset/Restore screen

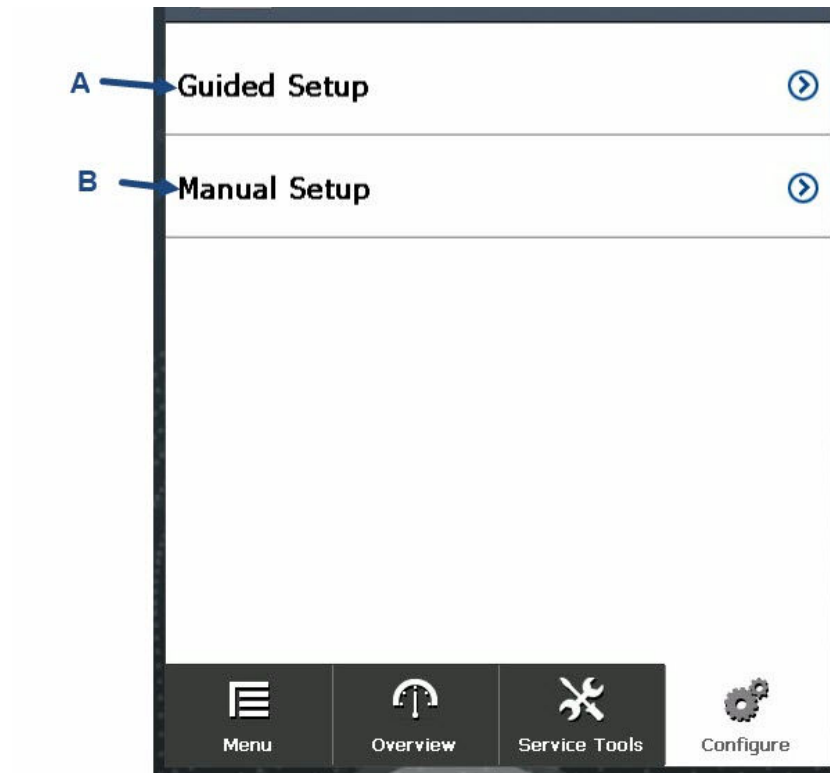


A. *Reset Device: Performs soft reset.*

### 3.3.5 Configure screen

From the **Configure** screen, you can configure the detector's parameters manually or using the wizard.

Figure 3-12: Configure screen

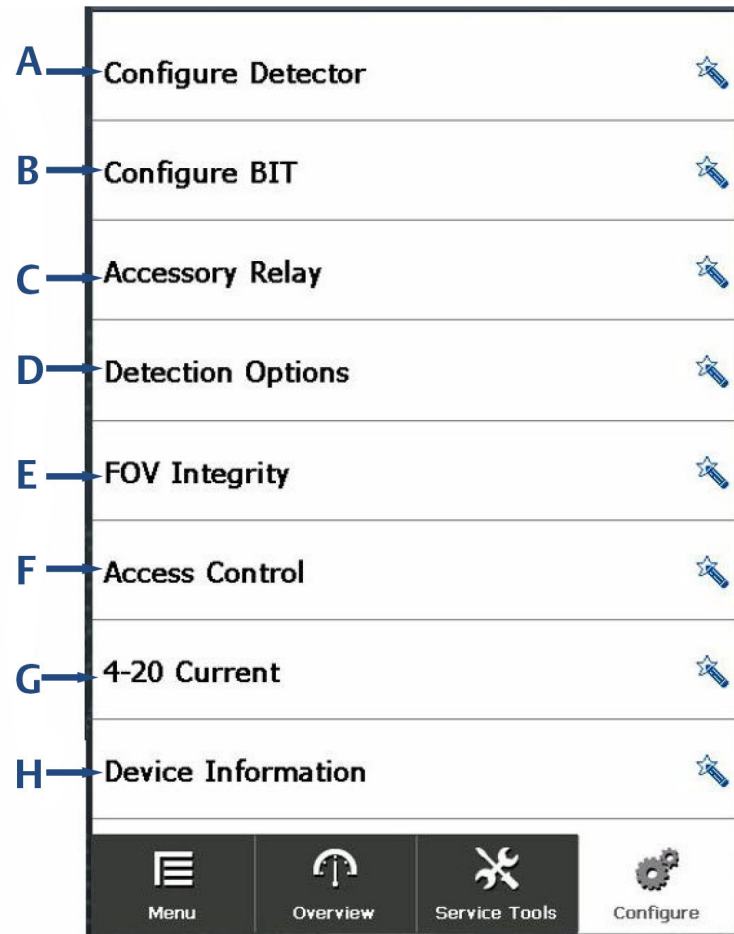


- A. *Guided Setup: Opens screen from which you can configure parameters using the wizard.*
- B. *Manual Setup: Opens screen from which you can manually configure parameters.*

## Guided setup screen

Use the *Guided Setup* screen to configure the device parameters using a wizard.

Figure 3-13: Guided setup screen



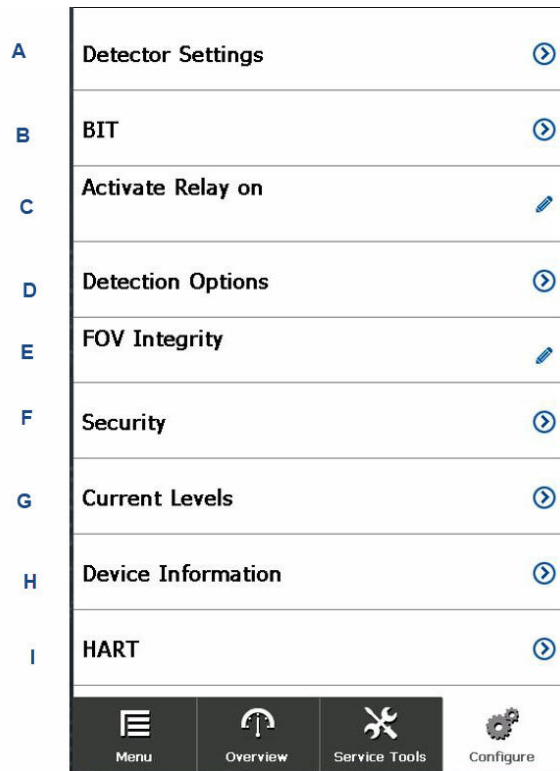
- A. *Configure Detector*: Guides you through detector configuration.
- B. *Configure BIT*: Guides you through the built-in test (BIT) configuration.
- C. *Accessory Relay*: Guides you through accessory relay configuration.
- D. *Detection Option*: Guides you through detector options configuration.
- E. *FOV Integrity*: Guides you through FOV integrity configuration.<sup>(2)</sup>
- F. *Access Control*: Guides you through access control configuration.
- G. *4-20 Current*: Guides you through the 4-20 mA current configuration.
- H. *Device Information*: Guides you through detector information configuration.

<sup>(2)</sup> This is available for the SharpEye 40/40D models only.

## Manual setup screen

Use the **Manual Setup** screen to manually configure each of the detector's parameters.

Figure 3-14: Manual setup screen

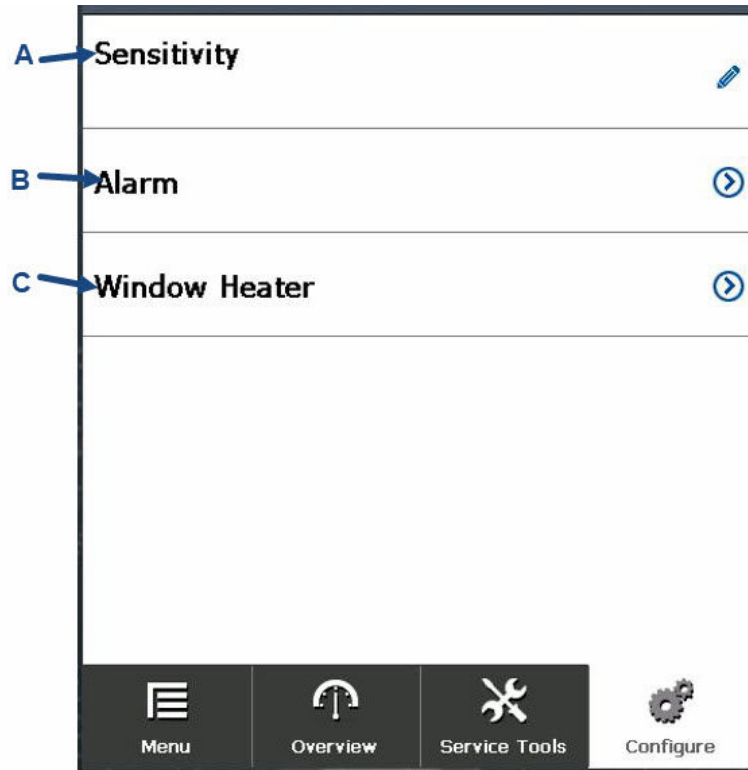


- A. *Detector Settings*: Opens **Settings** screen.
- B. *BIT*: Opens **BIT Settings** screen.
- C. *Activate Relay on*: Activates or deactivates relay.
- D. *Detection Options*: Opens **Detection Options** screen.
- E. *FOV Integrity*: Enables or disables FOV integrity.<sup>(3)</sup>
- F. *Security*: Opens **Security** screen.
- G. *Current Levels*: Displays levels.
- H. *Device Information*: Displays the **Device Information** screen. See [Device information screen](#).
- I. *HART*: Opens **HART Settings** screen.

<sup>(3)</sup> This is available for SharpEye 40/40D models only.

## Detector settings screen

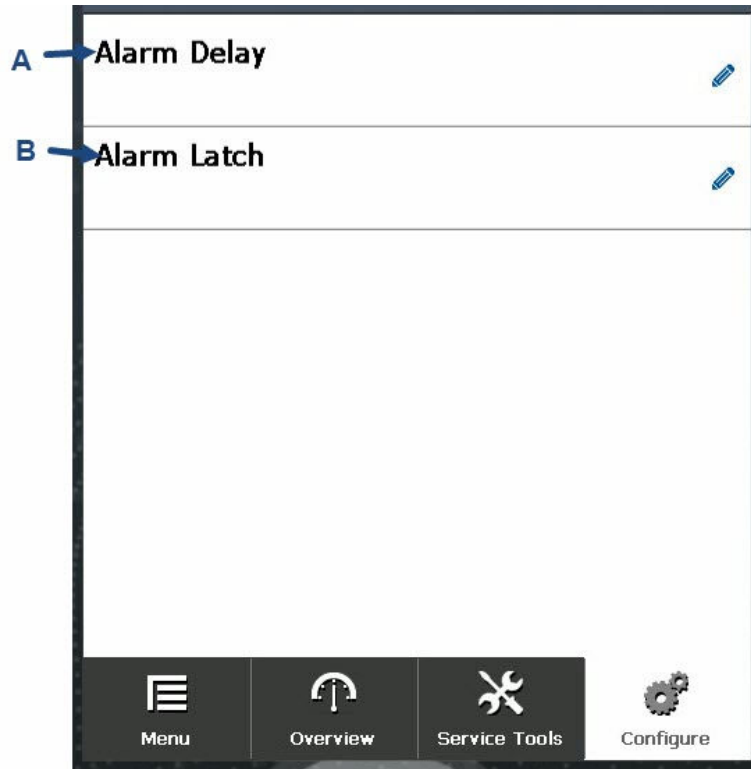
Figure 3-15: Detector settings screen



- A. *Sensitivity*: Selects the sensitivity.  
See the options displayed in the [SharpEye 40/40 Quick Start Guide](#).
- B. *Alarm*: Opens the **Alarm** screen.
- C. *Window Heater*: Opens **Window Heater Settings** screen.

### Alarm screen

Figure 3-16: Alarm screen



A. Alarm Delay: Select alarm delay.

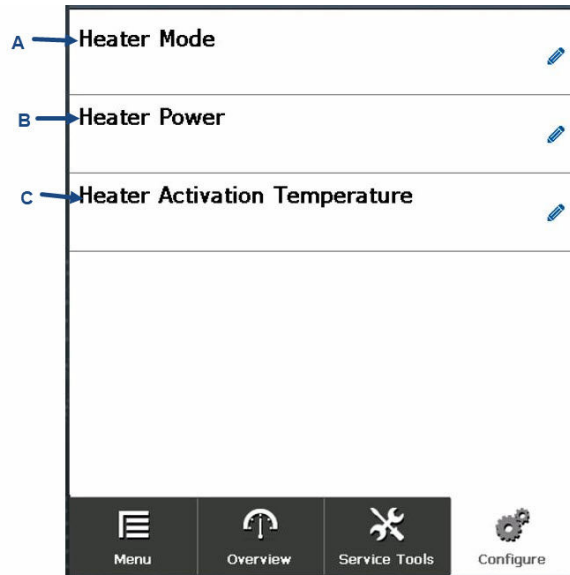
Options are:

- 0 sec
- Antiflare
- 3 sec
- 5 sec
- 10 sec
- 15 sec
- 20 sec
- 30 sec

B. Alarm Latch: Activate or deactivate alarm latch.

### Window heater screen

Figure 3-17: Window heater screen



A. *Heater Mode: Select window heater mode from the following options:*

**Off** Window heater is off all the time.

**Auto** Window heater turns on when the environment reaches the activation temperature.

**On** Window heater is on all the time.

B. *Heater Power: Select power mode: low or high.*

C. *Heater Activation Temperature: Heater activation temperature in degrees Celsius.*

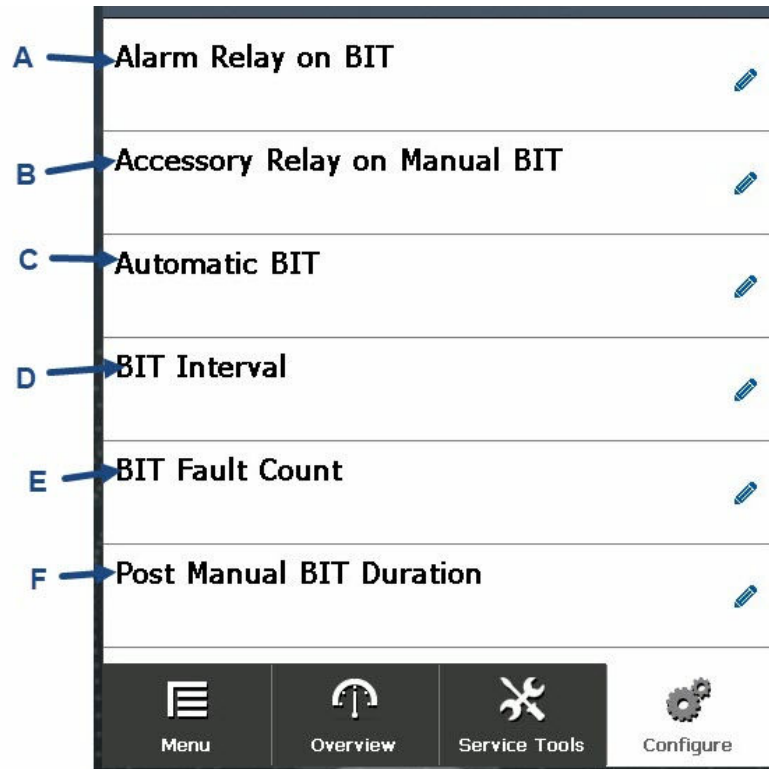
*Options are:*

- 0
- 5
- 10
- 15
- 20
- 25
- 30

## BIT screen

Use this screen to define built-in test (BIT) settings.

Figure 3-18: BIT screen

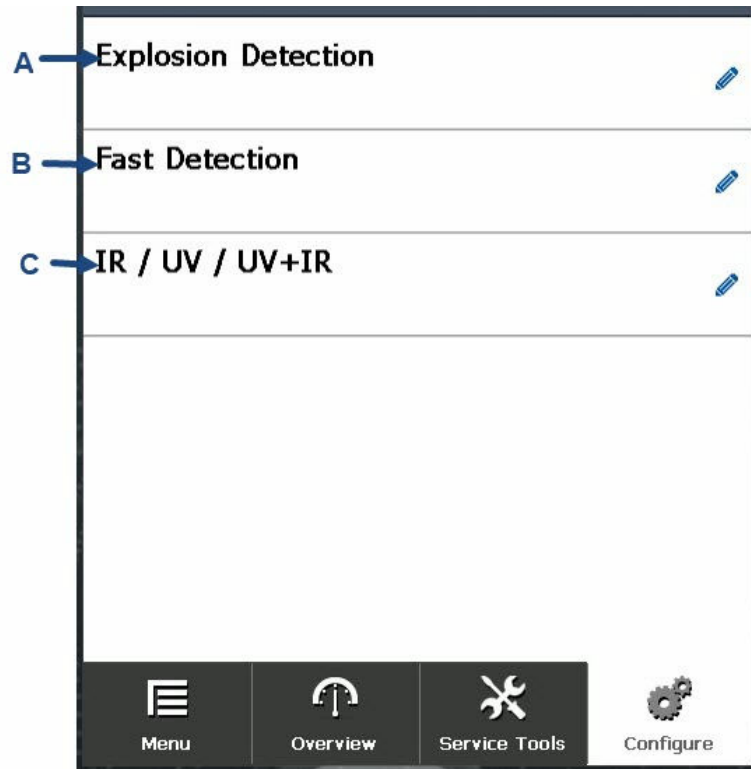


- A. Alarm Relay on BIT: Activate or deactivate alarm relay on BIT.
- B. Accessory Relay on Manual BIT: Activate or deactivate accessory relay on BIT.
- C. Automatic BIT: Activate or deactivate automatic BIT.
- D. BIT Interval: Manually select BIT interval.
- E. BIT Fault Count: Manually select BIT fault count.
- F. Post Manual BIT Duration: Set post manual BIT duration in seconds.

## Detection options screen

Use this screen to define the detection options.

Figure 3-19: Detection options screen



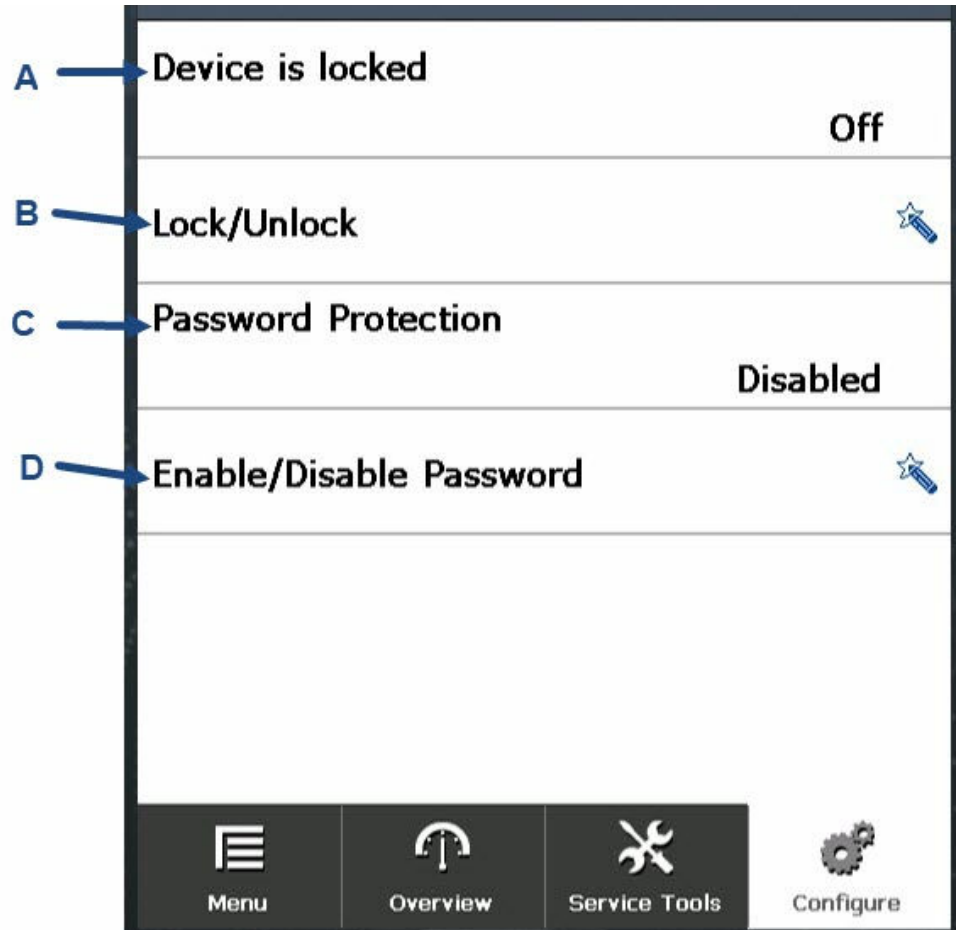
- A. Explosion Detection: Enable or disable explosion detection.<sup>(4)</sup>
- B. Fast Detection: Enable or disable fast detection.<sup>(4)</sup>
- C. IR/UV/UV+IR: Select single infrared (IR), single ultraviolet (UV), or both UV and IR channels.<sup>(5)</sup>

<sup>(4)</sup> This is available for SharpEye 40/40D models only.

<sup>(5)</sup> This is available for UV/IR models only.

## Security settings screen

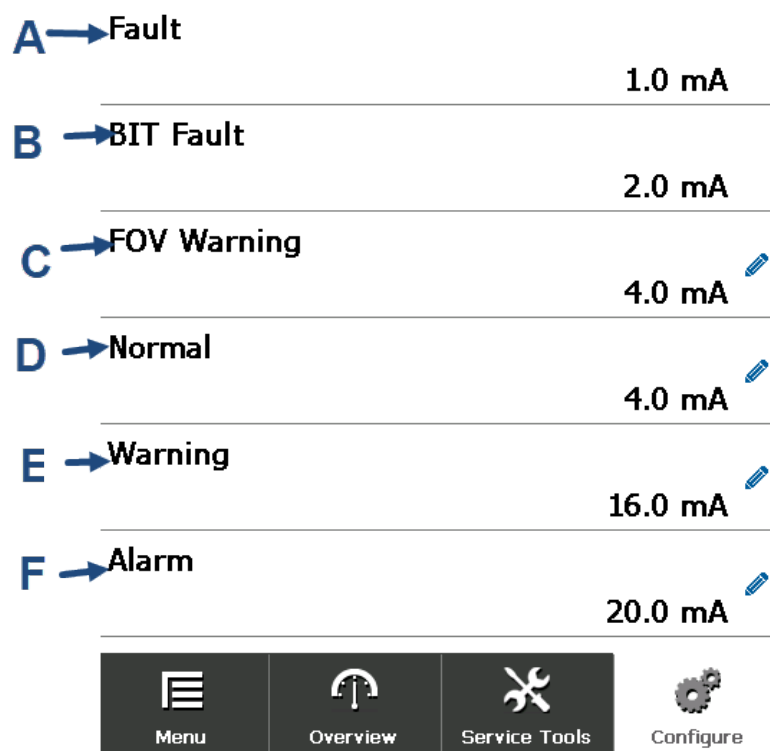
Figure 3-20: Security settings screen



- A. *Device Lock Status: Displays device lock status.*
- B. *Lock/Unlock: Lock or unlock the detector for maintenance. No other device can configure the detector while it is locked.*
- C. *Password Protection: Displays password protection status.*
- D. *Enable/Disable Password: Enable password protection to prevent unauthorized access.*

## Current levels screen

Figure 3-21: Current levels screen



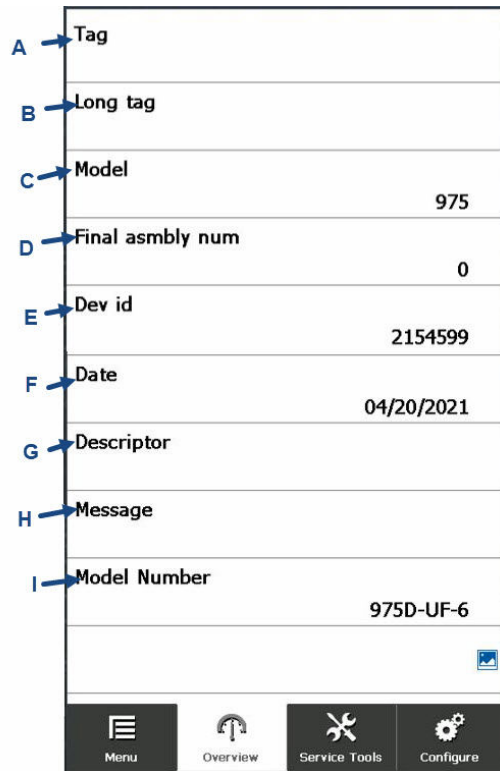
- A. Fault: Current displayed during fault. This cannot be changed (1 mA).
- B. BIT Fault: Current displayed during built-in test (BIT) fault. This cannot be changed.
- C. FOV Warning: Current displayed during FOV warning. 3 - 5 mA (should always be  $\leq$  the normal value. Default: 4 mA.<sup>(6)</sup>)
- D. Normal: Current displayed during normal function. 4 or 5 mA (should always be  $\geq$  the FOV value). Default: 4 mA.
- E. Warning: Current displayed during warning. 13 - 16 mA (should always be lower than alarm value). Default: 16 mA.
- F. Alarm: Current displayed during alarm. 15 - 20 mA (should always be higher than warning). Default: 20 mA.

(6) This is available with SharpEye 40/40 models only.

## Device information screen

See [Device information screen](#) for information on the *Device Information* screen.

Figure 3-22: Identification screen



- A. Tag: Displays detector tag. This is editable.
- B. Long tag: Displays detector long tag. This is editable.
- C. Model: Displays detector model.
- D. Final assembly num: Displays final assembly number. This is editable.
- E. Dev id: Displays device identification number.
- F. Date: Displays current date.
- G. Descriptor.
- H. Message.
- I. Model Number.

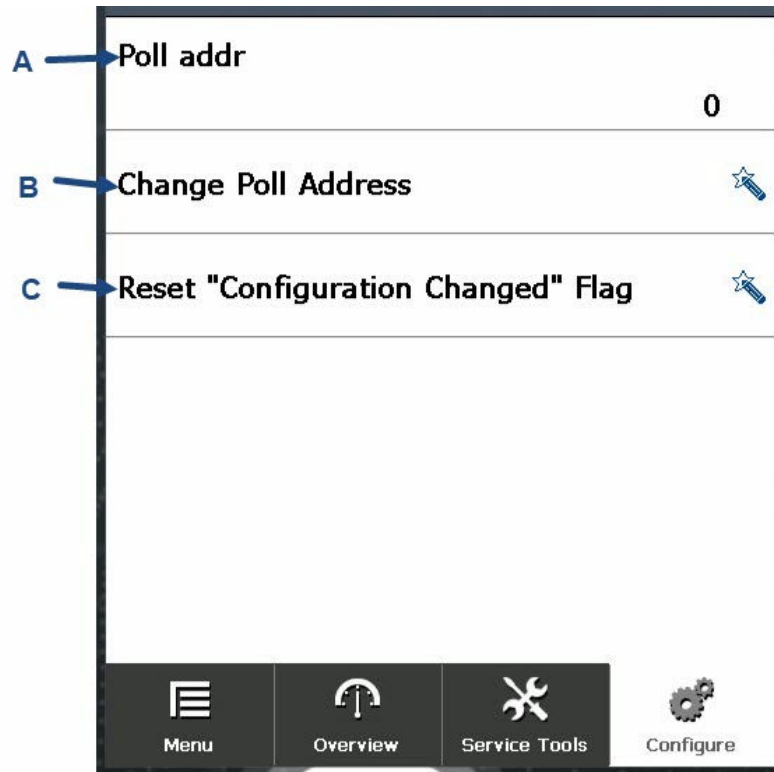
Figure 3-23: Revision numbers screen

A	Universal rev	7
B	Fld dev rev	1
C	Hardware rev	1
D	Software rev	1
E	DD Revision	1

The screenshot shows a mobile application interface with a list of revision numbers. The list has five rows, each with a label on the left and a number on the right. The labels are 'Universal rev', 'Fld dev rev', 'Hardware rev', 'Software rev', and 'DD Revision'. The numbers are 7, 1, 1, 1, and 1 respectively. Below the list is a dark navigation bar with four icons and labels: 'Menu' (hamburger icon), 'Overview' (circular arrow icon), 'Service Tools' (wrench icon), and 'Configure' (gears icon).

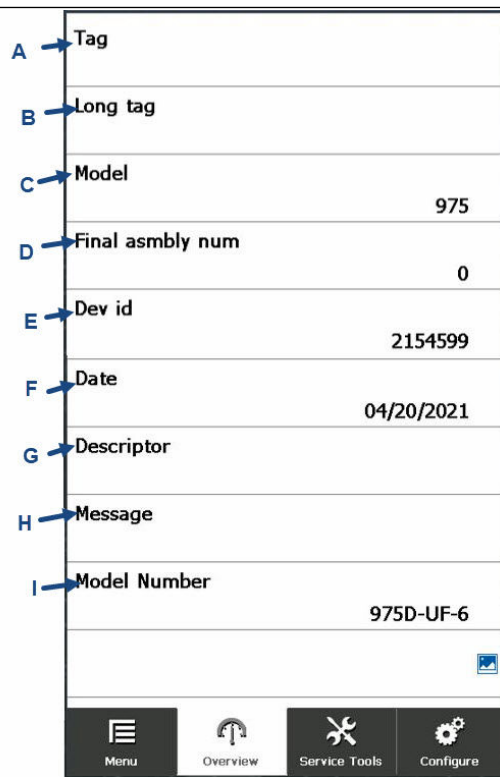
- A. *Universal rev: Displays HART® revision number.*
- B. *Fld dev rev: Displays device revision number.*
- C. *Hardware rev: Displays hardware revision number.*
- D. *Software rev: Displays software revision number.*
- E. *DD Revision: Displays device driver revision number.*

Figure 3-24: HART® screen



- A. *Poll addr: Displays polling address.*
- B. *Change Poll Address: Tap to change polling address.*
- C. *Reset "Configuration Changed" flag: Tap to reset configuration change count.*

### Identification screen



- A. Tag: Displays detector tag. This is editable.
- B. Long tag: Displays detector long tag. This is editable.
- C. Model: Displays detector model.
- D. Final assembly num: Displays final assembly number. This is editable.
- E. Dev id: Displays device identification number.
- F. Date: Displays current date.
- G. Descriptor.
- H. Message.
- I. Model Number.

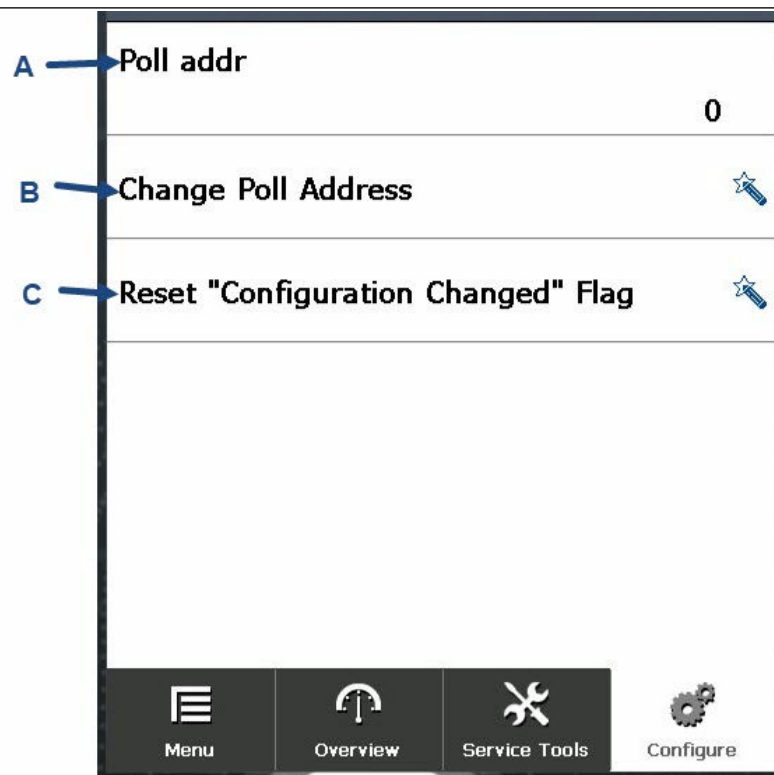
**Revision Numbers screen**

A	Universal rev	7
B	Fld dev rev	1
C	Hardware rev	1
D	Software rev	1
E	DD Revision	1

The screenshot shows a mobile application interface with a list of revision numbers. On the left side, there are five callouts labeled A through E, each with a blue arrow pointing to a specific row in the table. The table has two columns: the first column contains the revision type names, and the second column contains the corresponding revision numbers. At the bottom of the screen, there is a dark navigation bar with four icons and their respective labels: a list icon for 'Menu', a refresh icon for 'Overview', a wrench icon for 'Service Tools', and a gear icon for 'Configure'.

- A. Universal rev: Displays HART® revision number.
- B. Fld dev rev: Displays device revision number.
- C. Hardware rev: Displays hardware revision number.
- D. Software rev: Displays software revision number.
- E. DD Revision: Displays device driver revision number.

## HART screen



- A. Poll addr: Displays polling address.
- B. Change Poll Address: Tap to change polling address.
- C. Reset "Configuration Changed" flag: Tap to reset configuration change count.



For more information: [Emerson.com](https://www.emerson.com)

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