



**TX5952**

Sentro Vortex Wireless



**TROLEX** <<

# User Manual



# TX5952 Sentro Vortex Wireless Air Flow Sensor

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## 1. Product Overview

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<b>TX5952 . . . XX</b>	Sentro Vortex Wireless air flow sensor with side projecting sensing probe for open flow monitoring in tunnels, roadways and process systems.
<b>TX5952 . . . XX</b>	Sentro Vortex Wireless air flow sensor with remote mounted sensor. For use where fitting space is limited or is difficult to access.

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## 1.1 Operating Features

- Fully wireless operation
- Powered by commercially available batteries giving up to 200 hours of operation
- Powered by the Strata CommTrac wireless network
- High stability air flow monitoring
- Vortex monitoring principle with no moving components
- Output signal linearly proportional to flow velocity
- Integral LCD screen with large easy to read characters and back light illumination
- Easily programmable function and display configuration
- Rangeable flow velocity from 0.5 m/sec to 30 m/sec
- Integral LED indicators for General and High alarms
- Auxiliary analogue output signal to drive a local audio visual alarm unit, if required

## 1.2 Application

Fixed point wireless air flow velocity measurement in pipes, ducts and open roadways. Ventilation, cooling systems and process condition monitoring in heavy duty industrial applications and hazardous areas. Output data linearly proportional to air flow velocity.

## 1.3 Product Options

### 1.3.1 Side Projecting Sensor

#### Side Projecting Sensor

##### Order Reference

###### Mining Ex ia

TX5952.XX.XX.XX.XX

###### General Purpose

TX5952.XX.XX.XX

Please specify the probe length when ordering, probes available from 160 mm to 2000 mm insertion length, in 100 mm increments.

### 1.3.2 Remote Mounted Sensor

#### Remote Mounted Sensor With 50 mm ANSI Mounting Flange

##### Order Reference

###### Mining Ex ia

TX5952.XX.XX.XX.XX

###### General Purpose

TX5952.XX.XX.XX.XX

Please specify cable length and non-standard process fittings when ordering.  
Please specify the probe length when ordering, probes available from 160 mm to 2000 mm insertion length, in 100 mm increments.

#### Remote Mounted Sensor With 1 $\frac{1}{2}$ " BSP Mounting Bush

##### Order Reference

###### Mining Ex ia

TX5951.XX.XX.XX.XX

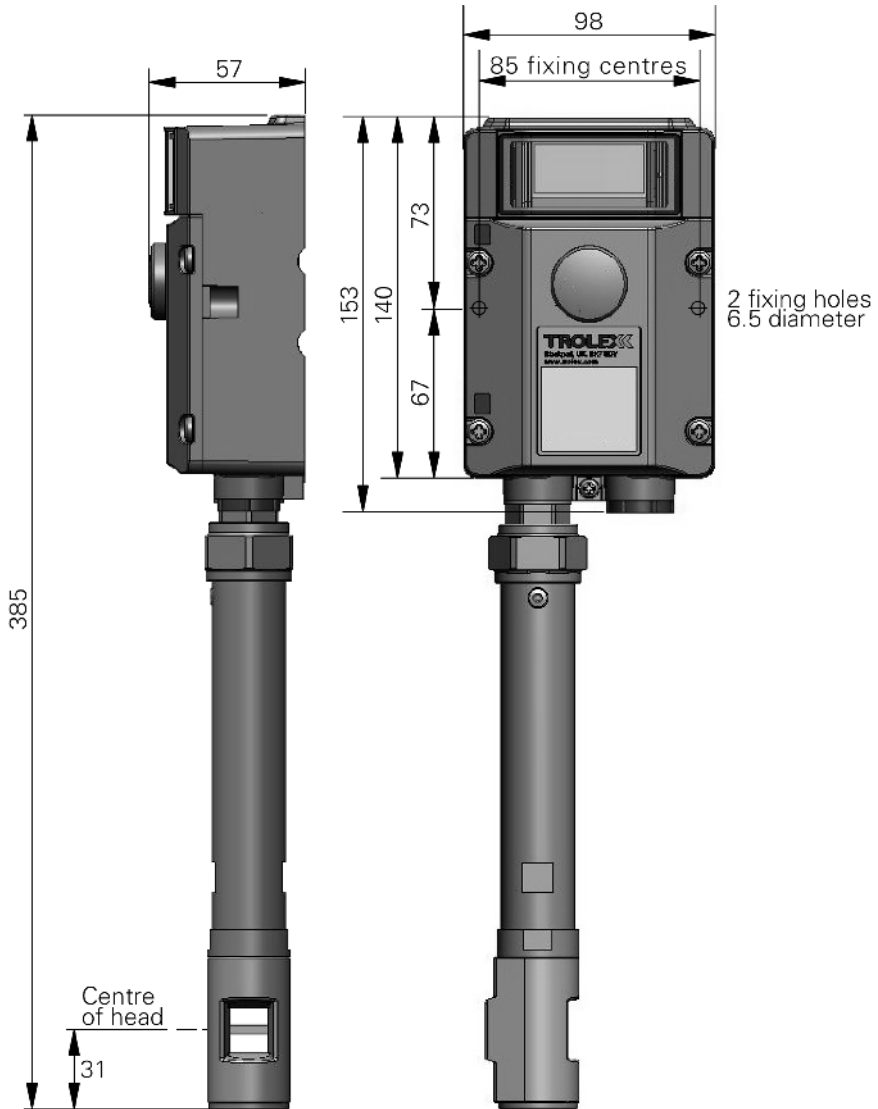
###### General Purpose

TX5952.XX.XX.XX.XX

Please specify cable length and non-standard process fittings when ordering.  
Please specify the probe length when ordering, probes available from 160 mm to 2000 mm insertion length, in 100 mm increments.

## 1.4 Dimensions

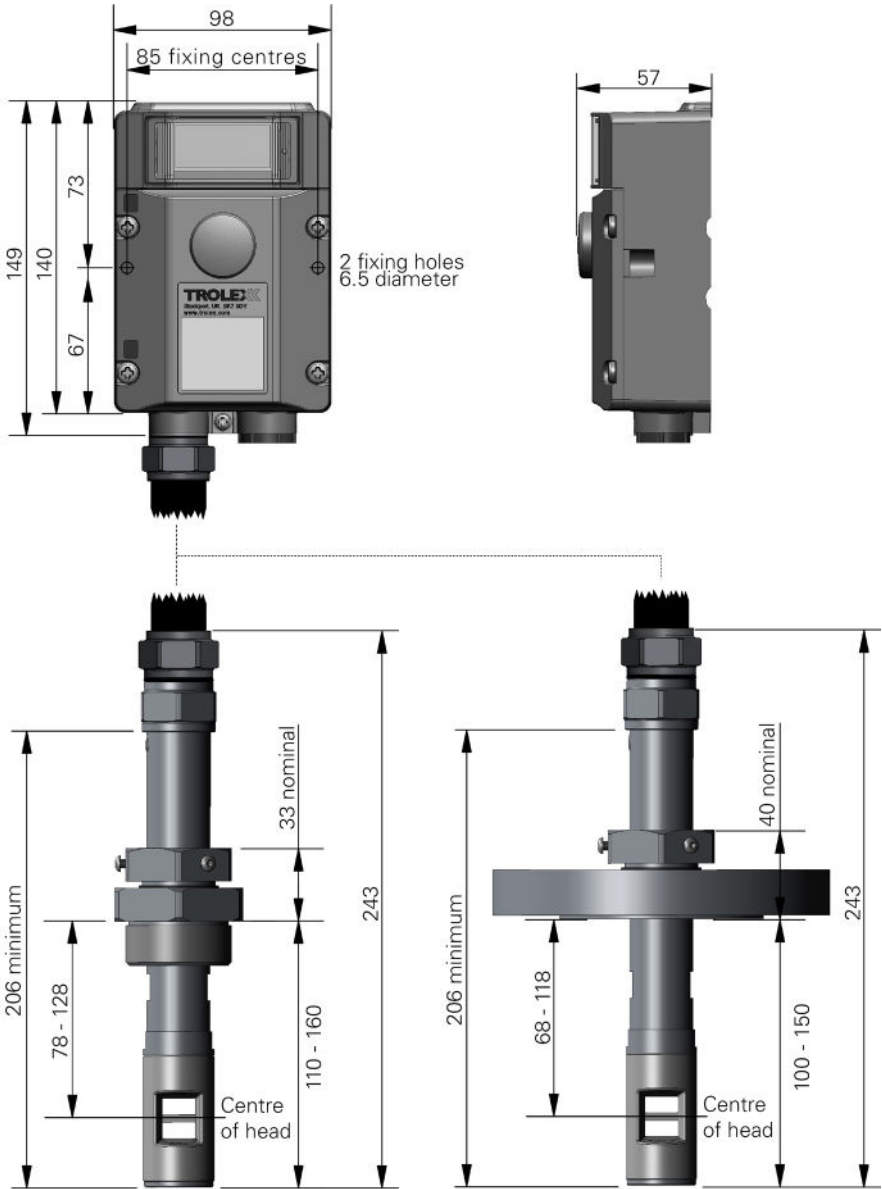
### 1.4.1 Side Projecting Sensor



All dimensions in mm

Probes available from 160 to 2000 mm insertion length in 100 mm increments

## 1.4.2 Remote Mounted Sensor



All dimensions in mm  
Probes available from 160 to 2000 mm insertion length in 100 mm increments



## 1.5 Technical Information

Flow measuring range	Rangeable from 0.5 to 5 m/s up to 0.5 to 30 m/s
Accuracy	+/- 2% within 12.5° rotation of flow axis
Linearity	+/- 1%
Ambient temperature limits	-20 to +40°C
Sensor temperature limit	-20 to +150°C
Humidity	0 to 95% non-condensing
Protection classification	Dust and waterproof to IP65
Process media	Air, steam or saturated vapour
Housing material	Reinforced polymer
Sensor material	Stainless steel - grade 316
Flexible cable (remote sensor)	PVC coated armoured flexible conduit
Maximum static pressure	20 bar
Process fittings	<ul style="list-style-type: none"> <li>• 1½" BSP mounting bush</li> <li>• 50 mm ANSI mounting flange</li> </ul>
Cable entry	<ul style="list-style-type: none"> <li>• Side projecting sensing probe - 1 x M20</li> <li>• Remote mounted sensing probe - 1 x 2M20</li> </ul>
Nett weight	<ul style="list-style-type: none"> <li>• Side projecting sensing probe - 1.5 kg</li> <li>• Remote mounted sensing probe - 2.5 kg</li> </ul>
Information display	128 x 64 dot graphic backlit LCD screen
Vibration limits	Vibration limits (EN 60079-29-1): <ul style="list-style-type: none"> <li>• 10 to 30 Hz - 1.00 mm total excursion</li> <li>• 31 to 150 Hz - 19.6 m/s<sup>2</sup> acceleration peak</li> </ul>
Impact limits	20 joules (housing)
Output Signals	<ul style="list-style-type: none"> <li>• CommTrac wireless proprietary signal</li> <li>• Auxiliary analogue output signal (4 to 20 mA) to drive a local audio visual alarm</li> </ul>
Alarms	Programmable <b>General</b> and <b>High</b> alarm levels with built-in LED indicators

Menu configuration	<ul style="list-style-type: none"> <li>• Security code protection</li> <li>• Scale factor selection (linear/volume/time)</li> <li>• Setpoint level and mode adjustment</li> <li>• Data output protocol configuration</li> <li>• Flow units selection</li> <li>• Duty display text entry</li> <li>• Wireless network configuration and information</li> </ul>
Fault indication	<ul style="list-style-type: none"> <li>• Loss of communications</li> <li>• Sensing module absent</li> <li>• Sensor over-range</li> </ul>

## 1.6 Electrical Details

Description	Mining Ex	General Purpose
Supply voltage	6 V dc (+/- 5%)	6 V dc (+/- 5%)
Supply current	10 mA - no backlight	10 mA - no backlight
	30 mA - with backlight	30 mA - with backlight
	50 mA with 2 alarm signals and backlight	50 mA with 2 alarm signals and backlight
Output relays	None	None

## 1.7 Sentro Module

Plug-in pre-calibrated sensing module with standardised output data.

- The sensing module stores all the necessary data about its type identification, sensing range and specific calibration. This data is automatically recognised by **Sentro Vortex Wireless** when the sensing module is loaded into the module bay
- The sensing modules are pre-calibrated so they can be replaced at any time by a replacement sensing module
- The sensing module will identify itself when plugged into the sensor housing and auto configuration will take place
- All Sentro sensing modules have two output alarm signals for General alarm and High alarm. Default values are entered during manufacture and these can be changed to preferred values
- The two alarm signals can be set to illuminate built-in flashing LED indicators
- Two auxiliary analogue output signals (4 to 20 mA) to drive a local audio visual alarm unit, if required

## 2. Certification

Pending

## **Certification - continued**

Pending

## 3. Installation

### 3.1 Tools and Test Equipment Required

No special tools are required:

- Metric spanner set
- Metric hexagon key set
- Standard electrical test meter

Trox recommends that the Sentro Wireless Gas Detector is positioned a minimum of 6 m (20 ft) and no more than 245 m (800 ft) from a Strata CommTrac C node for the Sentro Wireless Gas Detector to work effectively.

#### Checkpoint

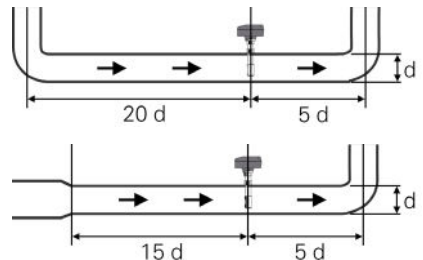
Where the process cannot be interrupted to remove the **Sentro Vortex Wireless** from a pipeline, an isolating ball valve may be fitted to the process connection at the installation. This is also useful in installations that have a high level of contamination or moisture in the air stream. Build up of debris or water vapour will cause deterioration of the output signal.

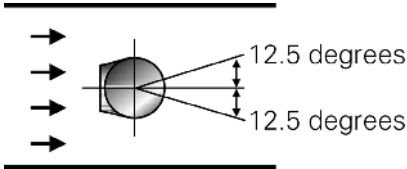
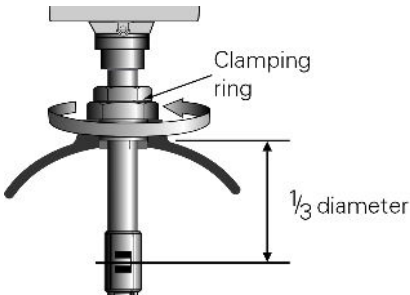
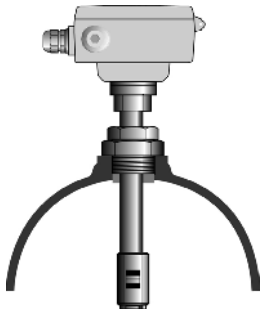
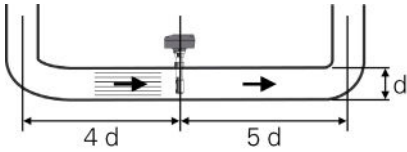
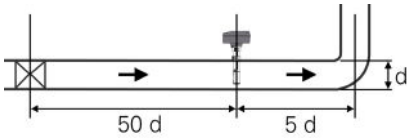
### 3.2 Siting Recommendations

#### 3.2.1 Fitting in Pipes and Ducts

To attain the best accuracy of response, select a position that is at least twenty pipe diameters down-stream from bends or obstructions, and approximately five pipe diameters from down-stream intrusions.

Similarly, the sensor should be mounted





at least fifteen pipe diameters from a pipe reducer and fifty pipe diameters from valves.

If this is not possible then the installation of a standard flow straightener will improve performance.

Fit a corresponding threaded boss or flange at the monitoring point and install the sensor, ensuring an air tight seal.

### Checkpoint

High pressure versions, above 2 bar, will be supplied with a welded bush or flange and will require dedicated process fittings.

Release the clamping ring on the mounting bush or flange.

The centre of the flow path of the sensing head should be positioned as shown.

### Checkpoint

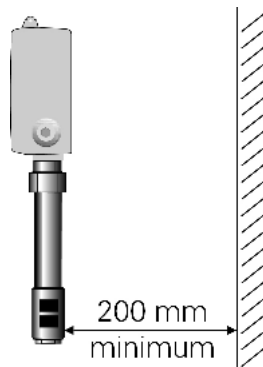
Ensure that pressurised systems have been completely vented before installation or removal of the sensor.

Position the sensing head with the smaller opening facing the flow, within a rotational deviation of no more than  $12.5^\circ$  from the axis of flow. Tighten the clamping ring with moderate force.

Avoid fitting the sensor at low points in pipework structures to prevent the sensing head from being affected by large accumulations of moisture.

## 3.2.2 Fitting in Roadways and Tunnels

To attain the best accuracy of response, select a position away from adjacent structures with a clearance of at least 200 mm.



The version with a side projecting sensor can be mounted on to a suitable support using the mounting holes.



Alternatively use a standard mounting bush or flange for fitting to a suitable bracket.

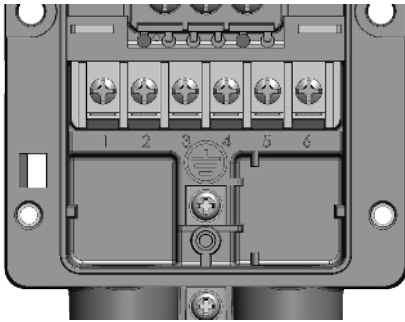




## 3.3 Connections

The **Sentro Vortex Wireless** is battery powered and has wireless communications, therefore no wiring is required to install it. However, there are two analogue output signals. These can be used to connect to local audio visual alarms, if required.

If you decide to use local audio visual alarms you will need to wire them to the Sentro Vortex Wireless. Connections are as follows:

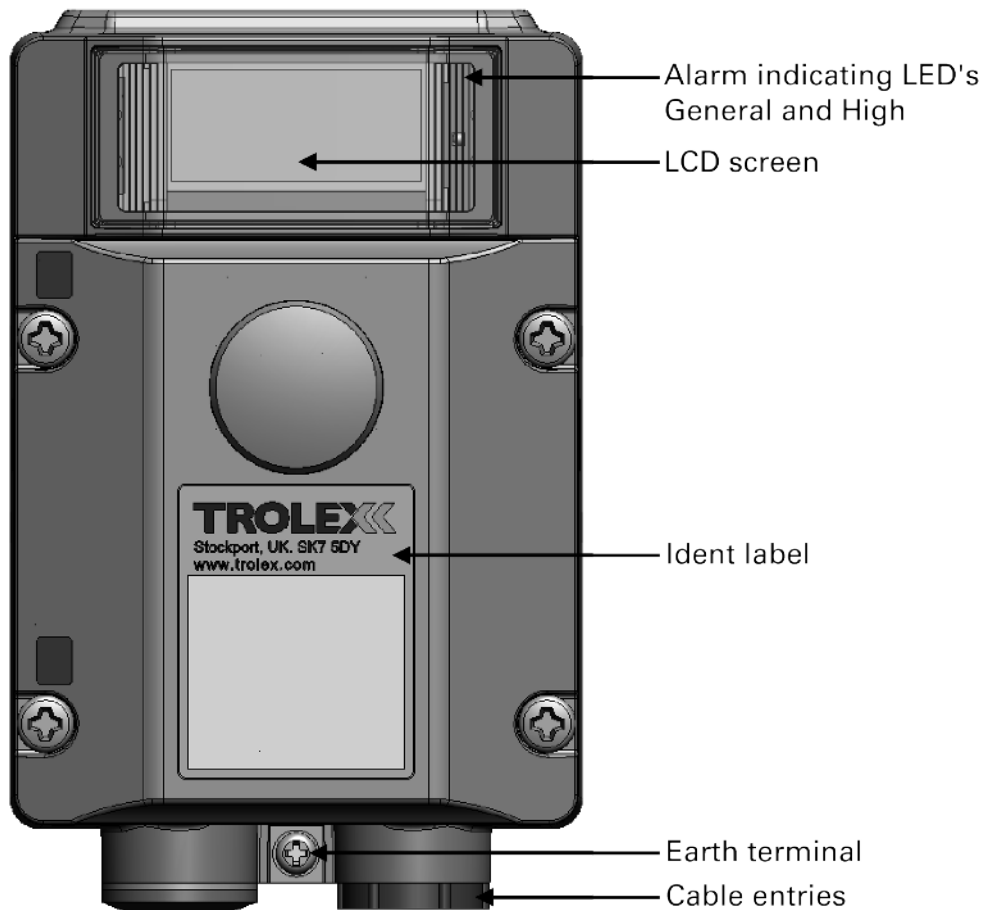


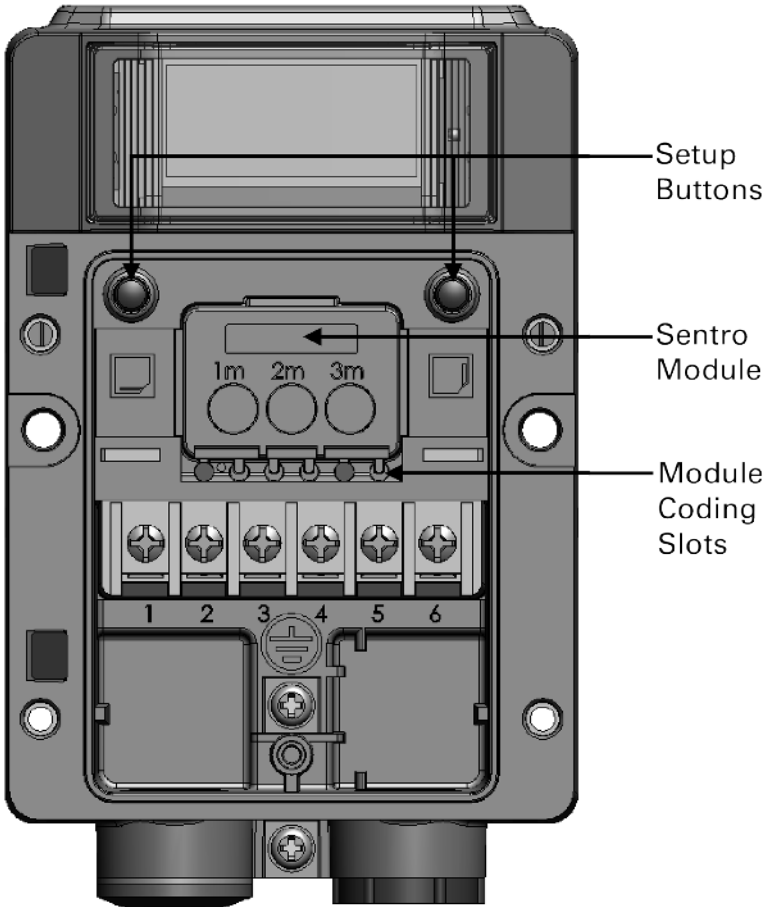
1. Alarm output 1
2. 0 V
3. Alarm output 2
4. Battery + V (no user connection)
5. 0 V Battery - V (no user connection)
6. Reserved for future use (no user connection)

The terminals are located behind the front cover. Use a cross head screwdriver to remove the four screws securing the front cover and move it out of the way.

## 4. Setup and Calibration

### 4.1 Controls and Indicators





## 4.2 Software Menus

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[Main Display - Pg 22](#)

[Main Menu - Pg 23](#)

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[System Information - Pg 24](#)

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[Sensor Polling Interval - Pg 45](#)

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[Exit - Pg 46](#)

## 4.3 Navigation



**NEXT**

**SELECT/CHANGE**

### Checkpoint

To use the **Sentro Vortex Wireless** software and navigate between menus you must press the Setup Buttons:

**Next** is the Left button - **L**

**Select/Change** is the Right button - **R**.

The use of these buttons is abbreviated to **L** and **R** throughout this User Manual.

To access the **L (Next)** and **R (Select/Change)** buttons you need to remove the front cover. Use a cross head screwdriver to remove the four screws securing the front cover and move it out of the way.

### Checkpoint

The **Sentro Vortex Wireless** is factory configured with the Security Code unset. If a **Security Code** has been subsequently set it will need to be successfully entered before the menus can be accessed, see Section 4.5.1.4 for details.

## 4.4 Power-up

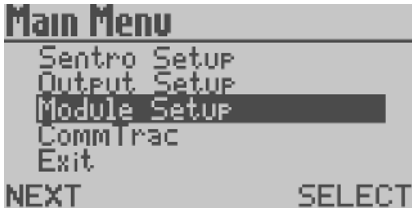
When the **Sentro Vortex Wireless** is powered-up the **Start-up Screen** will appear. The **Start-up Screen** displays basic information about the system including the software version, driver version and output type.



After five seconds the **Main Display** will appear. The **Main Display** displays the current airflow.

## 4.5 Main Menu

From the **Main Display** press and hold **L**, this will bring up the **Main Menu**.



From the **Main Menu** the operating parameters of the **Sentro Vortex Wireless** may be set up according to preference. The available menus are as follows:

- **Sentro Setup**
- **Output Setup**
- **Module Setup**
- **CommTrac**
- **Exit**

### Checkpoint

You can safely remove the front cover of the **Sentro Vortex Wireless** for setup in a hazardous area, even with the power applied.

### Checkpoint

The **Sentro Vortex Wireless** will automatically return to the **Main Display** if no keys are pressed within 30 seconds.

## 4.5.1 Sentro Setup

This enables you to view and carry-out setup of the **Sentro Vortex Wireless** characteristics.

From the **Main Menu** press **L**, navigate to **Sentro Setup** and press **R** to enter the **Sentro Setup Menu**.

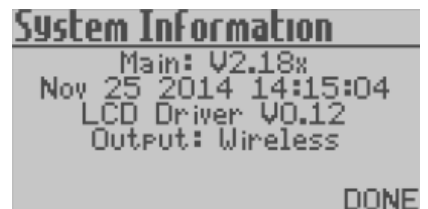
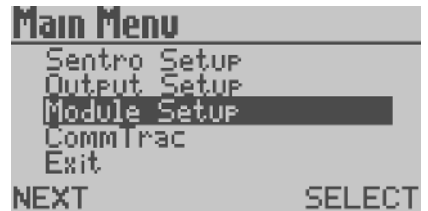
The available menus are as follows:

- **System Information**
- **Display Setup**
- **Alert Setup**
- **Set Security Code**
- **Exit**

### 4.5.1.1 System Information

This displays basic information about the system including the main software version, system date, system time, driver versions and output formats.

From the **Sentro Setup Menu** press **L**, navigate to the **System Information** and press **R** to display the **System Information**.







## 4.5.1.2 Display Setup Menu

This enables you to carry-out the setup of the **Display**.

From the **Sentro Setup Menu** press **L**, navigate to the **Display Setup** and press **R** to enter the **Display Setup Menu**.

The available menus are as follows:

- **Set Backlight**
- **Adjust Contrast**
- **Exit**

### Set Backlight

The screen backlight illumination may be set to **On** or **Off**, to reduce power consumption.

From the **Display Setup Menu** press **L**, navigate to **Set Backlight** and press **R** to enter the **Set Backlight Menu**.

From the **Set Backlight Menu** press **R** to set the Backlight Illumination to **On** or **Off** as required.

Press **L** to move to **Save** or **Cancel** as required. Press **R** to confirm the selection and return to the **Display Setup Menu**.

### Adjust Contrast



The contrast of the screen may be set for best visual appearance.

From the **Display Setup Menu** press **L**, navigate to **Adjust Contrast** and press **R** to enter the **Adjust Contrast Menu**.

Press **L** to navigate to **Increase** or **Decrease** as required. Press **R** to **Increase** or **Decrease** the contrast as required.

Press **L** and select **Save** or **Cancel** as required. Press **R** to confirm the selection and return to the **Display Setup Menu**.

## Exit

From the **Display Setup Menu** press **L**, navigate to **Exit**, press **R** to confirm the selection and return to the **Sentro Setup Menu**.

### 4.5.1.3 Alert Setup Menu

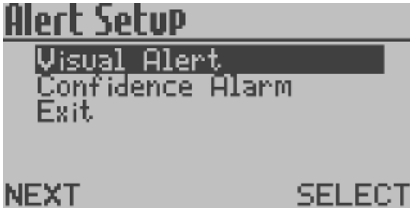
This enables you to carry-out the setup of the **Alerts**.

From the **Sentro Setup Menu** press **L**, navigate to **Alert Setup** and press **R** to enter the **Alert Setup Menu**.

The available menus are as follows:

- **Visual Alert**
- **Confidence Alarm**
- **Exit**

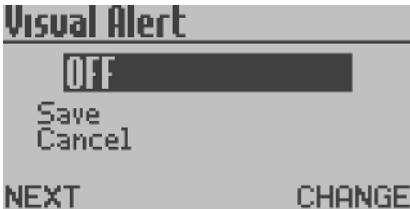




## Visual Alert

The integral **General** and **High** visual alarms can be set to **On** or **Off**.

From the **Alert Setup Menu** press **L**, navigate to **Visual Alert** and press **R** to enter the **Visual Alert Menu**.



From the **Visual Alert Menu** press **R** to set the **Visual Alert** to **On** or **Off** as required.

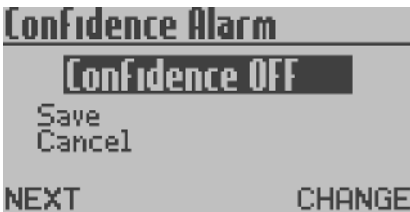
Press **L** and navigate to **Save** or **Cancel** as required. Press **R** to confirm the selection and return to the **Alert Setup Menu**.



## Confidence Alarm

The **Confidence Alarm** flash can be set to **On** or **Off**. For details of the **Confidence Alarm** refer to **Section 5**.

From the **Alert Setup Menu** press **L**, navigate to **Confidence Alarm** and press **R** to enter the **Confidence Alarm Menu**.



From the **Confidence Alarm Menu** press **R** to set the **Confidence Alert** to **On** or **Off** as required.

Press **L** to move to **Save** or **Cancel** as required.

Press **R** to confirm the selection and return to the **Alert Setup Menu**.

## Exit

From the **Alert Setup Menu** press **L**, navigate to **Exit** and press **R** to confirm the selection and return to the **Sentro Setup Menu**.

### 4.5.1.4 Set Security Code

This enables you to enter a **Security Code** and prevent unauthorised access to the **Main Menu**.

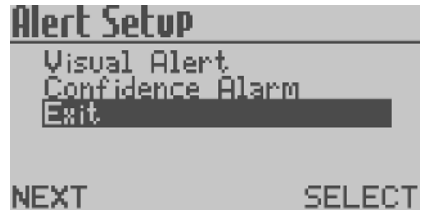
From the **Sentro Setup Menu** press **L**, navigate to **Set Security Code** and press **R** to enter the **Set Security Code** menu.

From **Set Security Code** press **R** to increment the first digit. Press **L** to confirm the selection and move to the next digit.

Repeat for all four digits. Press **L** and navigate to **Save** or **Cancel** as required and Press **R** to confirm the selection.

### 4.5.1.5 Exit

From the **Sentro Setup Menu** press **L**, navigate to **Exit**, press **R** to confirm the selection and return to the **Main Menu**.



## 4.5.2 Output Setup

This enables you to view information on and setup characteristics of the **Sentro Vortex Wireless** output signal.

From the **Main Menu** press **L**, navigate to **Output Setup** and press **R** to enter the **Output Setup Menu**.

The available menus are as follows:

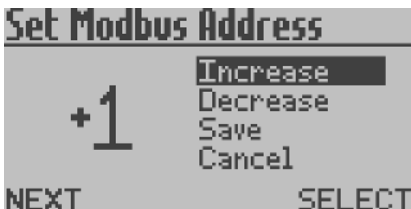
- **Modbus Address**
- **Baud Rate**
- **TxOn Delay**
- **TxOff Delay**
- **Exit**

### Modbus Address

The **Modbus Address** can be set between **1** and **255** as required.



From the **Output Setup Menu** press **L**, navigate to **Modbus Address** and press **R** to enter the **Modbus Address Menu**.



Press **L** to navigate to **Increase** or **Decrease** as required. Press **R** to **Increase** or **Decrease** the **Modbus Address** as required.

Press **L** and navigate to select **Save** or **Cancel** as required. Press **R** to confirm the selection and return to the **Output Setup Menu**.

## Baud Rate

The Baud Rate can be set to 300/600/1200/2400/4800/9600/14400/19200/28800/38400/57600/115200 as required.

From the **Output Setup Menu** press **L**, navigate to **Baud Rate** and press **R** to enter the **Set Baud Rate Menu**.

Press **R** to navigate to the required **Baud Rate**, press **L** and select **Save** or **Cancel** as required. Press **R** to confirm the selection and return to the **Output Setup Menu**.

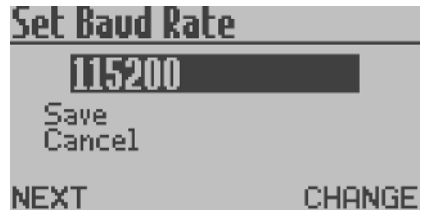
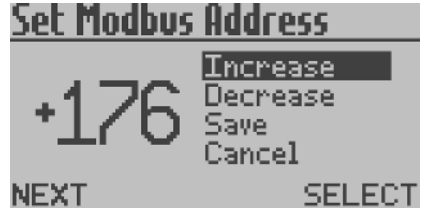
## TxOn Delay and TxOff Delay

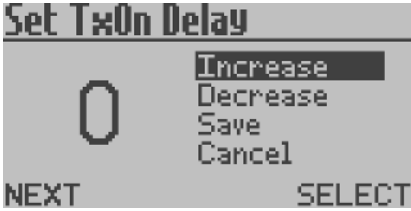
### Checkpoint

**TxOn Delay** and **TxOff Delay** are configured in exactly the same way as each other.

The **TxOn Delay** and **TxOff Delay** can be set between 0 and 99 ms.

From the **Output Setup Menu** press **L**, navigate to **TxOn Delay** or **TxOff Delay** as required and Press **R** to enter the **TxOn Delay** or **TxOff Delay Menu** as required.





Press **L** to navigate to **Increase** or **Decrease** as required. Press **R** to **Increase** or **Decrease** as required. Press **L** and select **Save** or **Cancel** as required. Press **R** to confirm the selection and return to the **Output Setup Menu**.



## Exit

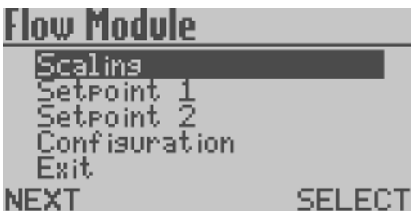
From the **Output Setup Menu** press **L**, navigate to **Exit**, press **R** to confirm the selection and return to the **Main Menu**.

## 4.5.3 Module Setup

This enables you to setup the functional values of the **Sentro Module** fitted to **Sentro Vortex Wireless**.



From the **Main Menu** press **L**, navigate to **Module Setup** and press **R** to enter the **Module Setup Menu**.



The available menus are as follows:

- **Scaling**
- **Setpoint 1**
- **Setpoint 2**
- **Configuration**
- **Exit**

### 4.5.3.1 Scaling

This enables you to carry-out a setup of the **Scaling** functions.

From the **Module Setup Menu** press **L**, navigate to **Scaling** and press **R** to enter the **Scaling Setup Menu**.

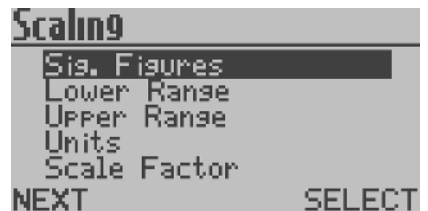
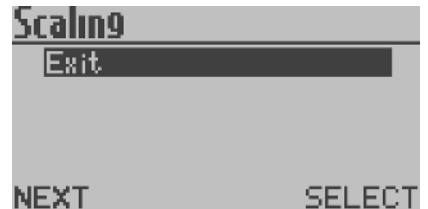
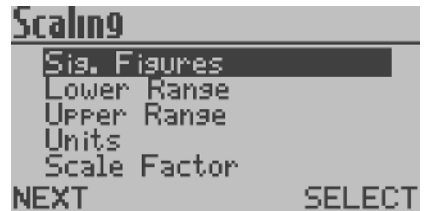
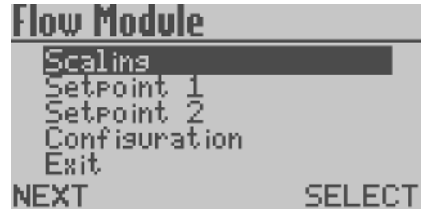
The available menus are as follows:

- **Sig. Figures**
- **Lower Range**
- **Upper Range**
- **Units**
- **Scale Factor**
- **Exit**

### Significant Figures

The position of the decimal point can be shifted along the displayed number to the best **Significant Figures** to suit the particular sensor signal being monitored and its optimum measuring range. This can be used to eliminate digit flicker and redundant decimal places.

From the **Scaling Setup Menu** press **L**, navigate to **Sig. Figures** and press **R** to enter the **Significant Figures Menu**.







Press **R** to move the decimal point to the preferred position to give the number of decimal places required.

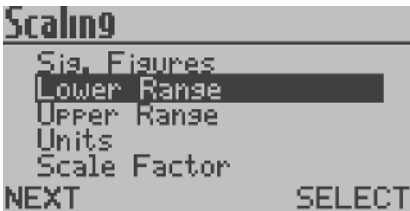
Press **L** and select **Save** or **Cancel** as required. Press **R** to confirm the selection and return to the **Scaling Setup Menu**.

## Lower Range and Upper Range

Set the desired **Lower Range** and **Upper Range** of the displayed reading for a given magnitude of input signal. This can be any numeric value and the polarity can be any negative value through to any positive value.

### Checkpoint

Enter the preferred **Significant Figures** before setting the **Lower Range** and **Upper Range** values.



From the **Scaling Setup Menu** press **L**, navigate to **Lower Range** or **Upper Range** as required and press **R** to enter the **Lower Range** or **Upper Range Menu** as required.



Press **R** to change the minus to a plus. Press **L** to move to the first digit, press **R** to increment the digit and press **L** to move to the next digit.

Press **L** and select **Save** or **Cancel** as required. Press **R** to confirm the selection and return to the **Scaling Setup Menu**.

## Units

The displayed **Units** of air flow can be changed according to preference. Two types of **Units** can be displayed:

- **Flow Velocity Values** - independent of the cross-sectional area of the flow path
- **Volumetric Flow Values** - relative to the cross-sectional areas of the flow path

The default **Units** displayed are m/s (metre/second). The **Units** that can be displayed are as follows:

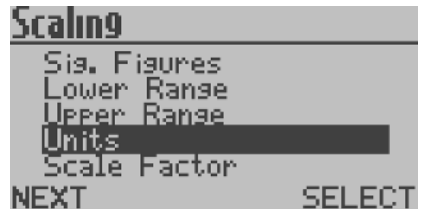
### Flow Velocity Values

- m/s - metres per second
- ft/s - feet per second

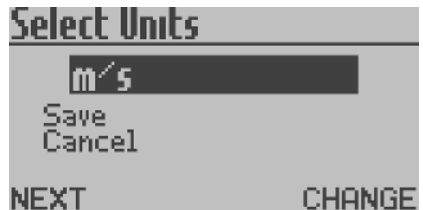
### Volumetric Flow Values

- m<sup>3</sup>/s - cubic metres per second
- m<sup>3</sup>/h - cubic metres per hour
- ft<sup>3</sup>/s - cubic feet per second
- ft<sup>3</sup>/h - cubic feet per hour

From the **Scaling Setup Menu** press **L**, navigate to **Units** and press **R** to enter the **Units Menu**.



Press **R** to change the displayed **Units** to the preferred **Units** to be displayed.



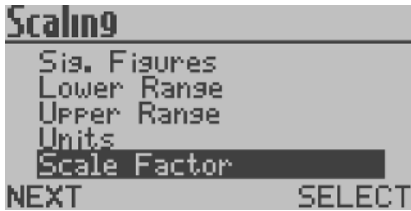
Press **L** and select **Save** or **Cancel** as required. Press **R** to confirm the selection and return to the **Scaling Setup Menu**.

## Scale Factor

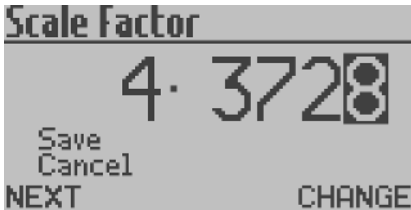
If one of the four **Volumetric Flow Value** units is selected, it will be necessary to enter a multiplication factor relating to the cross-sectional area of the flow path.

### Checkpoint

The scale Factor is user rangeable between 1.0000 and 9.9999.

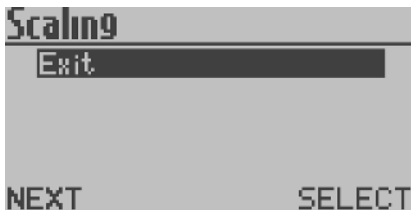


From the **Scaling Setup Menu** press **L**, navigate to **Scale Factor** and press **R** to enter the **Scale Factor Menu**.



Press **R** to increment the first digit, press **L** to move to the next digit, press **R** to increment the digit and repeat for all digits as required.

Press **L** and select **Save** or **Cancel** as required. Press **R** to confirm the selection and return to the **Scale Factor Setup Menu**.



## Exit

From the **Scaling Setup Menu** press **L**, navigate to **Exit** and press **R** to **Exit** the **Scaling Setup Menu** and return to the **Module Setup Menu**.

### 4.5.3.2 Setpoint 1 and Setpoint 2

This enables you to carry-out a setup of **Setpoint 1** and **Setpoint 2**.

#### Checkpoint

**Setpoint 1** and **Setpoint 2** are configured in exactly the same way.

From the **Module Setup Menu** press **L**, navigate to **Setpoint 1** or **Setpoint 2** and press **R** to enter the **Setpoint 1** or **Setpoint 2 Setup Menu**.

The available menus are as follows:

- **Activation**
- **Level**
- **Exit**

#### Activation

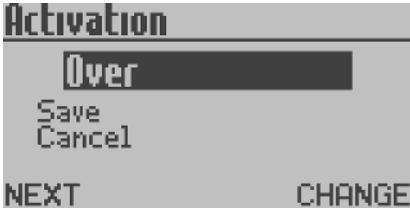
The **Activation** mode of **Setpoint 1** and **Setpoint 2** can be configured to **Over** or **Under** as required.

From the **Setpoint 1** or **Setpoint 2 Setup Menu** press **L**, navigate to **Activation** and press **R**.

```
Flow Module
Scaling
Setpoint 1
Setpoint 2
Configuration
Exit
NEXT                SELECT
```

```
Change Setpoint 1
Activation
Level
Exit
NEXT                SELECT
```

```
Change Setpoint 1
Activation
Level
Exit
NEXT                SELECT
```



From the **Activation Menu** press **R** to set **Activation** to **Over** or **Under** as required.

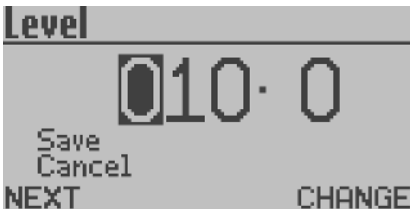
Press **L** and navigate to **Save** or **Cancel** as required. Press **R** to confirm the selection and return to the **Setpoint 1** or **Setpoint 2 Setup Menu**.

## Level

The **Level** at which **Setpoint 1** and **Setpoint 2** are activated can be configured.



From the **Setpoint 1** or **Setpoint 2 Setup Menu** press **L**, navigate to **Level** and press **R**.



Press **R** to increment the digits as required. Press **L** to move to the next digit. Repeat for all digits and press **L**.

Press **L** and select **Save** or **Cancel** as required. Press **R** to confirm the selection and return to the **Setpoint 1** or **Setpoint 2 Setup Menu**.



## Exit

From the **Setpoint 1** or **Setpoint 2 Setup Menu** press **L**, navigate to **Exit**, press **R** to confirm the selection and return to the **Module Setup Menu**.

### 4.5.3.3 Configuration

This enables you to setup the **Configuration** of the sensing module.

From the **Module Setup Menu** press **L**, navigate to **Configuration** and press **R** to enter the **Configuration Setup Menu**.

The available menus are as follows:

- **Set Duty Text**
- **Set Update**
- **Exit**

#### Set Duty Text

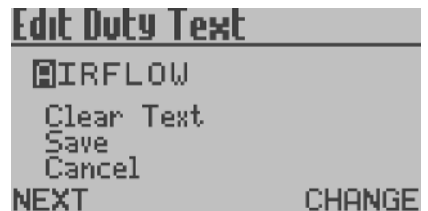
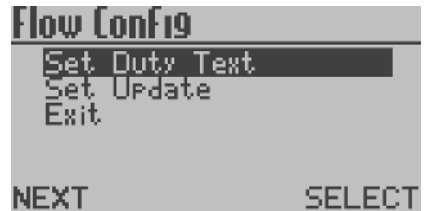
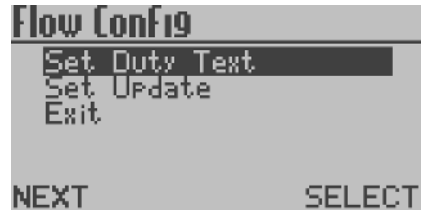
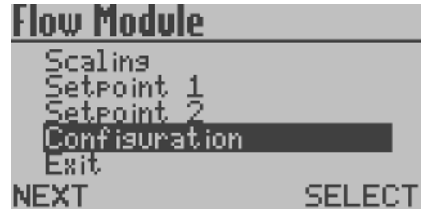
The **Duty Text** can be set according to preference, by default it reads **Airflow**.

From the **Configuration Setup Menu** press **L**, navigate to **Set Duty Text** and press **R** to enter the **Set Duty Text Menu**.

From the **Set Duty Text Menu** press **R** to increment a character as required and press **L** to move to the next character.

#### Checkpoint

The characters are in the sequence **A** to **Z**, **0** to **9** and a **Blank Space**.



## Edit Duty Text

```
BIRFLOW
Clear Text
Save
Cancel
NEXT                SELECT
```

### Checkpoint

If you wish to clear all text press **L**, navigate to **Clear Text** and press **R** to clear all **Duty Text** as required.

### Checkpoint

The maximum number of characters that can be entered in the **Duty Text** field is 16.

Press **L** and select **Save** or **Cancel** as required. Press **R** to confirm the selection and return to the **Configuration Setup Menu**.

## Set Update

The value of the analogue input signal is averaged and up-dated at periodic intervals. You can configure the up-date period in the **Set Update Menu**.

### Checkpoint

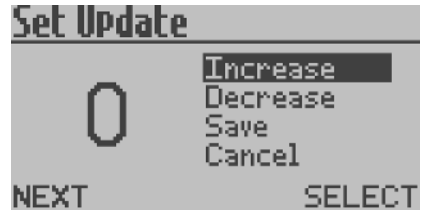
A low **Set Update** setting will give rapid reaction to the input signal and a higher setting may be entered where damping of a fluctuating input is necessary, or simply as a means of applying a delay to the input. This is particularly useful in electrically noisy environments.

## Flow Config

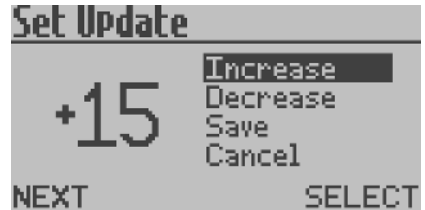
```
Set Duty Text
Set Update
Exit
NEXT                SELECT
```

From the **Configuration Setup Menu** press **L**, navigate to **Set Update** and press **R** to enter the **Set Update Menu**.

Press **L** to navigate to **Increase** or **Decrease** as required. The field is configurable between 0 and 99 seconds.



Press **R** to **Increase** or **Decrease** as required. Press **L** and select **Save** or **Cancel** as required. Press **R** to confirm the selection and return to the **Configuration Setup Menu**.



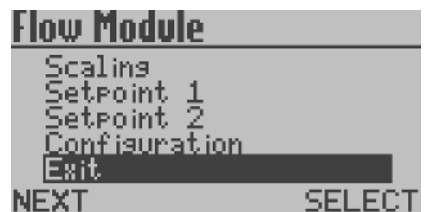
## Exit

From the **Configuration Setup Menu** press **L** and navigate to **Exit**. Press **R** to confirm the selection and return to the **Module Setup Menu**.



### 4.5.3.4 Exit

From the **Module Setup Menu** press **L**, navigate to **Exit** and press **R** to confirm the selection and return to the **Main Menu**.





## 4.5.4 CommTrac

This displays the system settings of the **CommTrac** wireless communication system fitted the **Sentro Vortex Wireless** sensor.

From the **Main Menu** press **L**, navigate to **CommTrac** and press **R** to enter the **CommTrac Setup Menu**.

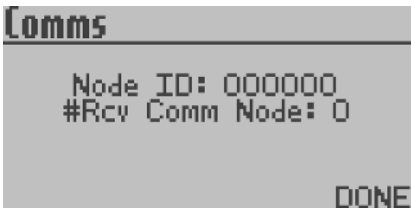
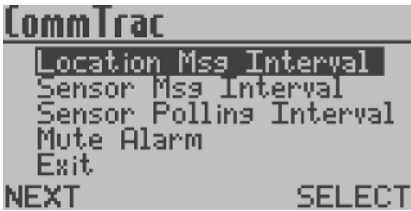
The available menus are as follows:

- **Comms**
- **Firmware Versions**
- **CN RSSI**
- **Xmit Freq**
- **Voltages**
- **I/O #1**
- **I/O #2**
- **Location Msg Interval**
- **Sensor Msg Interval**
- **Sensor Polling Interval**
- **Mute Alarm**
- **Exit**

### 4.5.4.1 Comms

From the **CommTrac Setup Menu** press **L**, navigate to **Comms** and press **R** to enter the **Comms Menu**.

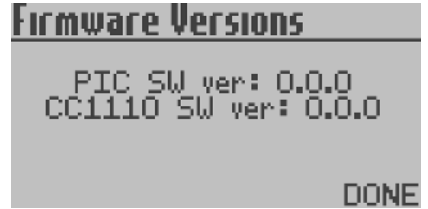
This displays the **Node ID** of the **Sentro Vortex Wireless** sensor on the **CommTrac** wireless network. It also displays the **Number of Received Comm Node** which is the number of nodes that the **Sentro Vortex Wireless** can see on the **CommTrac** wireless network.



## 4.5.4.2 Firmware Versions

From the **CommTrac Setup Menu** press **L**, navigate to **Firmware Versions** and press **R** to enter the **Firmware Versions Menu**.

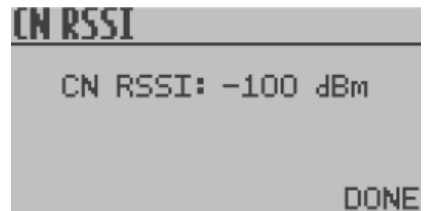
This displays the software versions for the **PIC Software** and **CC1110 Software** for the **CommTrac** wireless network system.



## 4.5.4.3 CN RSSI

From the **CommTrac Setup Menu** press **L**, navigate to **CN RSSI** and press **R** to enter the **CN RSSI Menu**.

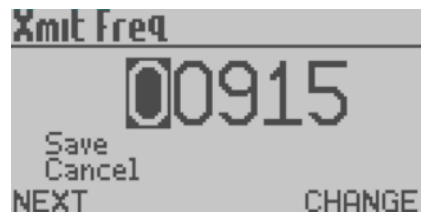
This displays the strength of the wireless signal the **Sentro Vortex Wireless** is receiving from the **CommTrac** wireless node. The value displayed will be between -100 (weak signal) to 0 (strong signal).



## 4.5.4.4 Xmit Freq

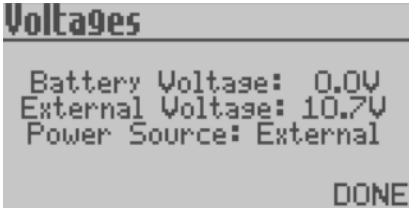
From the **CommTrac Setup Menu** press **L**, navigate to **Xmit Freq** and press **R** to enter the **Xmit Freq Menu**.

This displays frequency in MHz that the **Sentro Vortex Wireless** has been configured to transmit to the **CommTrac** wireless node on. The range displayed will be 868 to 925 MHz.



### Checkpoint

This parameter is configured during manufacture. It is user configurable, but Trolex strongly recommends that users **DO NOT** alter the configured frequency.

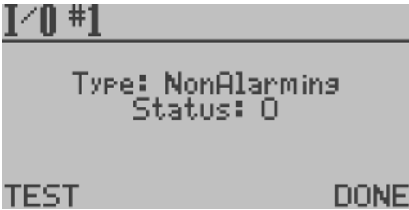


## 4.5.4.5 Voltages

From the **CommTrac Setup Menu** press **L**, navigate to **Voltages** and press **R** to enter the **Voltages Menu**.

This displays voltages for the **Sentro Vortex Wireless**, including the **Battery Voltage**, **External Voltage** and **Power Source** type.

The **Battery Voltage** would normally be in the range 0 to 6.5 V. If the **Sentro Vortex Wireless** is operating from the internal battery the **External Voltage** would be displayed as 0 V.



## 4.5.4.6 I/O #1 and I/O #2

From the **CommTrac Setup Menu** press **L**, navigate to **I/O #1** or **I/O #2** and press **R** to enter the **I/O #1** or **I/O #2 Menu**.

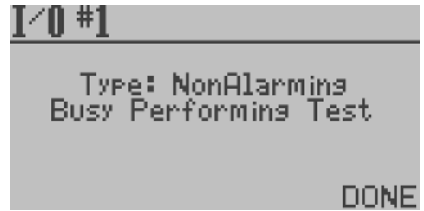
### Checkpoint

**I/O #1** and **I/O #2** are configured in exactly the same way.

This displays the configuration and status of **I/O #1** and **I/O #2** of the **CommTrac** wireless module fitted to the **Sentro Wireless**. The configuration is on of the following:

- **Alarming**
- **Non Alarming**
- **Confidence Alert**
- **Visual Alarm**
- **Sounder Alarm**

Press **L** to start a **Test** to verify if the **Sentro Wireless** is communicating with the wireless network. A **Test** result of **Busy, Passed, Failed** or **Timed Out** will display once the **Test** is completed.



#### 4.5.4.7 Location Msg Interval

From the **CommTrac Setup Menu** press **L**, navigate to **Location Msg Interval** and press **R** to enter the **Location Msg Interval Menu**.

This is a user configurable parameter. This is how often (in minutes) the I/O board will queue a CommTrac location message. The default value for this parameter is 1440 minutes. The range is 1 to 32767. This parameter can also be set via a CommTrac over-the-air message.

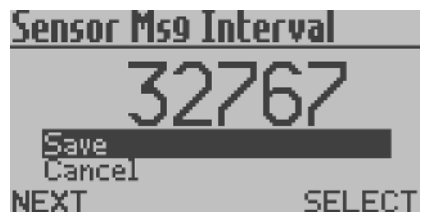
Press **R** to increment the digits as required. Press **L** to move to the next digit. Repeat for all digits, press **L** and select **Save** or **Cancel** as required. Press **R** to confirm the selection and return to the **CommTrac Setup Menu**.



#### 4.5.4.8 Sensor Msg Interval

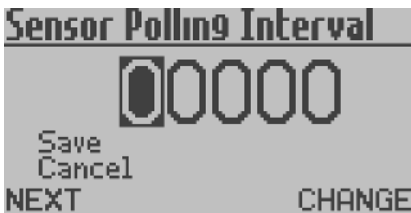
From the **CommTrac Setup Menu** press **L**, navigate to **Sensor Msg Interval** and press **R** to enter the **Sensor Msg Interval Menu**.

This is a user configurable parameter to define how often (in seconds) the I/O board will queue a CommTrac sensor message when there are no alarms. If there are alarms a sensor message is generated as soon as the I/O board sees them via polling of the Sentro Wireless. The default value for this



parameter is 90 seconds. The range is 10 to 32767. This parameter can also be set via a CommTrac over-the-air message.

Press **R** to increment the digits as required. Press **L** to move to the next digit. Repeat for all digits, press **L** and select **Save** or **Cancel** as required. Press **R** to confirm the selection and return to the **CommTrac Setup Menu**.



#### 4.5.4.9 Sensor Polling Interval

From the **CommTrac Setup Menu** press **L** and navigate to **Sensor Polling Interval**, press **R** to enter the **Sensor Polling Interval Menu**.

This is a user configurable parameter to define how often (in seconds) the I/O board polls the **Sentro Wireless** for sensor data, alarms and parameter changes. Between polling the **Sentro Wireless**, the I/O board is in a low power mode. Any changes made to this parameter via the **Sentro Wireless** controls will not be applied, the value is currently hard coded at 5 seconds.



#### 4.5.4.10 Mute Alarm

From the **CommTrac Setup Menu** press **L**, navigate to **Mute Alarm** and press **R** to enter the **Mute Alarm Menu**.

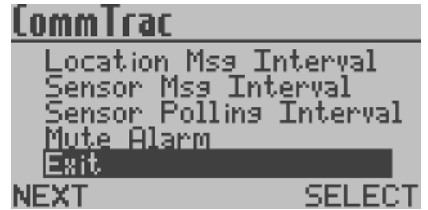
This will clear any I/Os that are set as Alarming I/Os until another event re-sets that Alarming I/O

Press **R** to change the configuration between **Alarm Muted** and **Alarm Not Muted** as required.

Press **L** and navigate to **Save** or **Cancel** as required. Press **R** to confirm the selection and return to the **CommTrac Setup Menu**.

#### 4.5.4.11 Exit

From the **CommTrac Setup Menu** press **L**, navigate to **Exit**, press **R** to **Exit** and return to the **Main Menu**.



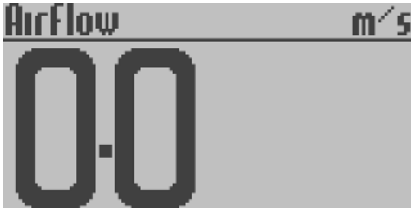
#### 4.5.5 Exit

From the **Main Menu** press **L**, navigate to **Exit** and press **R** to confirm the selection and return to the **Main Display**.



### 4.6 Support

If you need technical support to operate this product, or would like details of our after sales technical support packages, please contact your local Trolex service agent or [service@trolex.com](mailto:service@trolex.com).



## 5. Operation

In the normal mode of operation the **Sentro Vortex Wireless** will display the air flow rate on the LCD screen in the preferred **Units** of measurement, this is the **Main Display**.

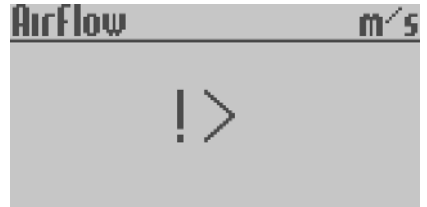
If the **Confidence Alert** has been enabled it will flash every 15 seconds.

## 6. Diagnostics and Maintenance

### 6.1 Diagnostic Messages

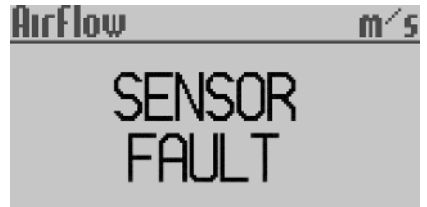
#### Sensor Over-range

If the **Sentro Vortex Wireless** goes over-range then the following message will be seen on the LCD screen.



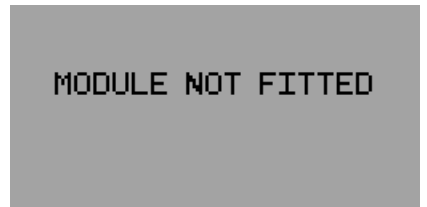
#### Loss of Signal From the Sensor

If there is a loss of signal from the sensing module to the **Sentro Vortex Wireless** an error message will be shown.



#### Module Not Fitted

If the sensing module has been removed from the **Sentro Vortex Wireless** and is out for more than 10 seconds, an error message will be shown.





## 6.2 Maintenance

### 6.2.1 Introduction

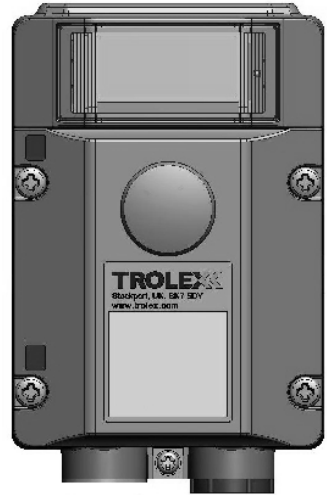
To keep your **Sentro Vortex Wireless** in the best possible condition and minimise downtime, Trolex strongly recommends that you carry out regular planned preventative maintenance and keep records of the maintenance carried out.

The planned preventative maintenance for **Sentro Vortex Wireless** consists of a number of tasks carried out at regular intervals on a cumulative basis, ie. at 12 months do the 1 month task, the 3 month task, the 6 month task AND the 12 month task. These tasks are listed in the maintenance schedule below:

Equipment Name	Task Type	Task Number	Interval
Sentro Vortex Wireless	Check	6.2.2	1 month
Sentro Vortex Wireless Batteries	Replace	6.2.3	200 operating hours
Sentro Vortex Wireless Sensing Probe	Clean	6.2.4	3 months
Sentro Vortex Wireless Sensing Probe	Function Test	6.2.5	12 months

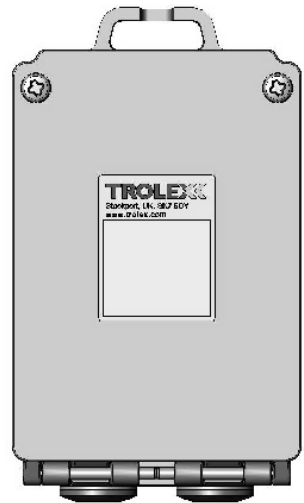
## 6.2.2 Sentro Vortex Wireless - Check

1. Check the exterior of the **Sentro Vortex Wireless** for cracks, penetration, water ingress and other signs of damage.
2. Check that the front cover is free from damage and is securely fitted.
3. Check the LCD screen is clear and free from damage.
4. If any part of the **Sentro Vortex Wireless** shows any signs of damage, deformation or missing parts, contact your local Trolex service agent or [service@trolex.com](mailto:service@trolex.com) for advice on repair or replacement.
5. After the completion of all maintenance, update the maintenance records.



## 6.2.3 Sentro Vortex Wireless Batteries - Replace


1. On the back of the **Sentro Vortex Wireless** remove the two captive screws located in the top corners of the back panel.
2. Swing the back panel down.
3. Remove the four D cell batteries located in the battery box.
4. Fit four new D cell batteries to the battery box.



### Checkpoint

Only fit the same brand and type of batteries. **DO NOT** mix battery brands and types. Only fit batteries as sets of four. **DO NOT** mix old and new batteries.

5. Swing the back panel into place and secure using the two screws.

6. Tighten the screws firmly but do not overtighten.
7. Check the  is showing an airflow reading on the screen.
8. Check no error messages are being displayed.
9. After the completion of all maintenance, update the maintenance records.

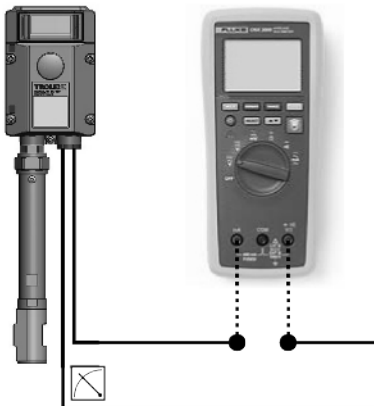
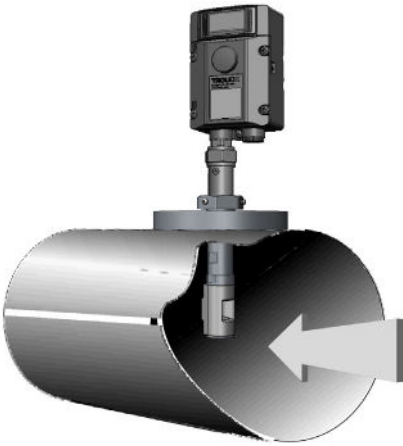
## 6.2.4 Sentro Vortex Wireless Sensing Probe - Clean

1. Remove the sensor and assess its condition.
2. Clean the sensing head with a soft brush or cloth if necessary.

### Checkpoint

Do not use sharp tools as this may cause damage to the ultrasound transducers and the transverse strut.

3. After the completion of all maintenance, update the maintenance records.



## 6.2.5 Sentro Vortex Wireless Sensing Probe - Function Test

1. Under normal circumstances, the calibration of the sensing probe will not change significantly.
2. Check the accuracy by comparing the display reading with a reference value of flow velocity. If the values do not correspond return the **Sentro Vortex Wireless** to your local Trolex service agent, for checking and calibration across the full operating spectrum.

OR

2. Alternatively the **Sentro Vortex Wireless** can be removed and returned to your local Trolex service agent, for checking and calibration across the full operating spectrum. Contact [service@trolex.com](mailto:service@trolex.com) for further information.
3. After the completion of all maintenance, update the maintenance records.



## 6.3 Disposal

Part of the ethos of Trolex is sustainable design. **Sentro Vortex Wireless** contains materials that can be recovered, recycled and reused.

At the end of its useful life ensure that the **Sentro Vortex Wireless** is recycled in accordance with local laws and bylaws for the geographic area where it is located.

The end of its useful life is to be determined by the owner/operator of the equipment and not Trolex. Ensure that the **Sentro Vortex Wireless** is recycled by licenced waste contractors with the appropriate licences for handling metal, plastic and electronic waste in the geographic area where the **Sentro Vortex Wireless** is located.

### Checkpoint

Consult your local Trolex service agent or the Trolex Product Support Department if you require assistance with disposal:

**service@trolex.com**

## 6.4 Maintenance Records

Implement a planned preventative maintenance process and keep good maintenance records.

Consult your local Trolex service agent or the Trolex Product Support Department: **service@trolex.com** for help in implementing a planned preventative maintenance process.

The 'Maintenance and Calibration Log' gives an example of a typical maintenance record system.

## 6.5 Maintenance and Calibration Log

Order Reference: TX5952	
Serial Number:	Date Purchased:
Location:	Flow Rate:

Date	Scheduled Check	Fault	Recalibrate	Return to Trolex	Comments

## Disclaimers

The information provided in this document contains general descriptions and technical characteristics of the performance of the product. It is not intended as a substitute for and is not to be used for determining suitability or reliability of this product for specific user applications. It is the duty of any user or installer to perform the appropriate and complete risk analysis, evaluation and testing of the products with respect to the relevant specific application or use. Trolex shall not be responsible or liable for misuse of the information contained herein. If you have any suggestions for improvements or amendments, or find errors in this publication, please notify us at [marketing@trolex.com](mailto:marketing@trolex.com).

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All pertinent state, regional, and local safety regulations must be observed when installing and using this product. For reasons of safety and to help ensure compliance with documented system data, only Trolex or its affiliates should perform repairs to components.

When devices are used for applications with technical safety requirements, the relevant instructions must be followed.

## Trademarks

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