

ROOSTERTM **SENSOR100** *Airflow Sensing*

User Manual

**High Performance Air Velocity and
Temperature Sensor**

with Full-Color Touch Screen Display

Version 1.07.03

Complete Kit includes:

- o Sensor Display Panel
- o Sensor Probe and Mounting Clamp
- o Power Supply



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Product Overview

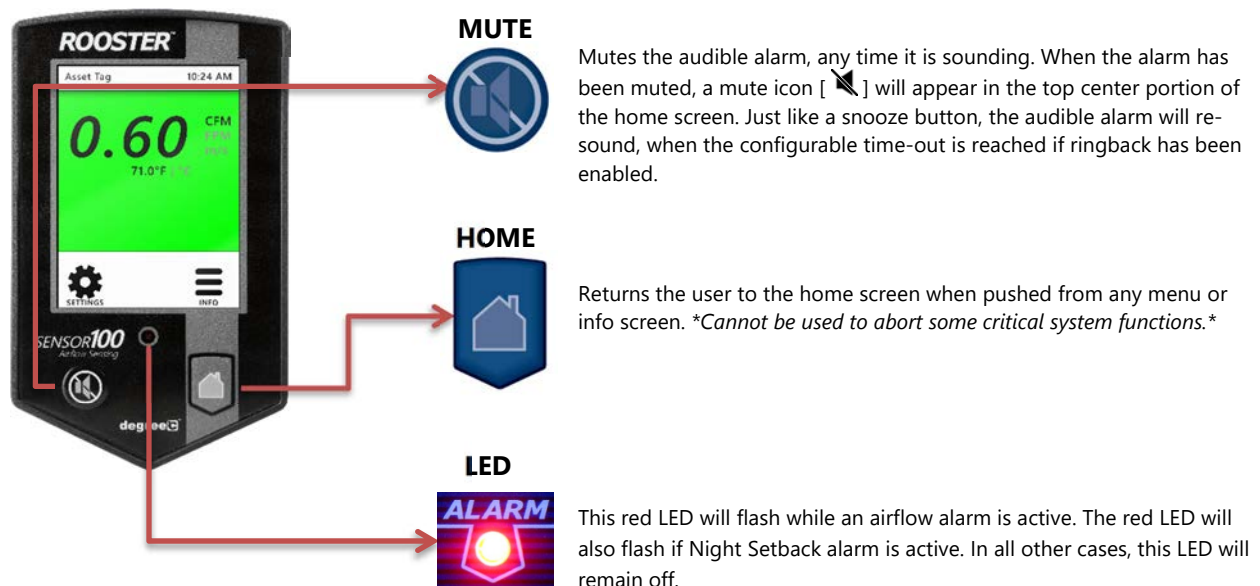
Congratulations on your purchase of the Rooster Sensor100, the next-generation air velocity and temperature sensor, a monitoring and alarm system for critical HVAC and process control applications where airflow is required to be viewed, monitored, alarmed, and even communicated to building and laboratory systems.

Degree Controls Inc. designed the Rooster Sensor100 to meet the demand for high-performance air velocity and temperature sensing applications. Sensor100 uses an intuitive, glove-friendly, color touchscreen interface, and probe-style sensor to reach into ducted flows in building, process, datacenter, and HVAC applications. The instrumentation class sensor eliminates trouble alarms and provides the best accuracy across wide temperature ranges. The Rooster Sensor100 comes calibrated with NIST certificate, from 0.15 – 20.0 m/s (30 – 4000 fpm). Different calibration ranges can be ordered. Contact sales@degrec.com for more information.

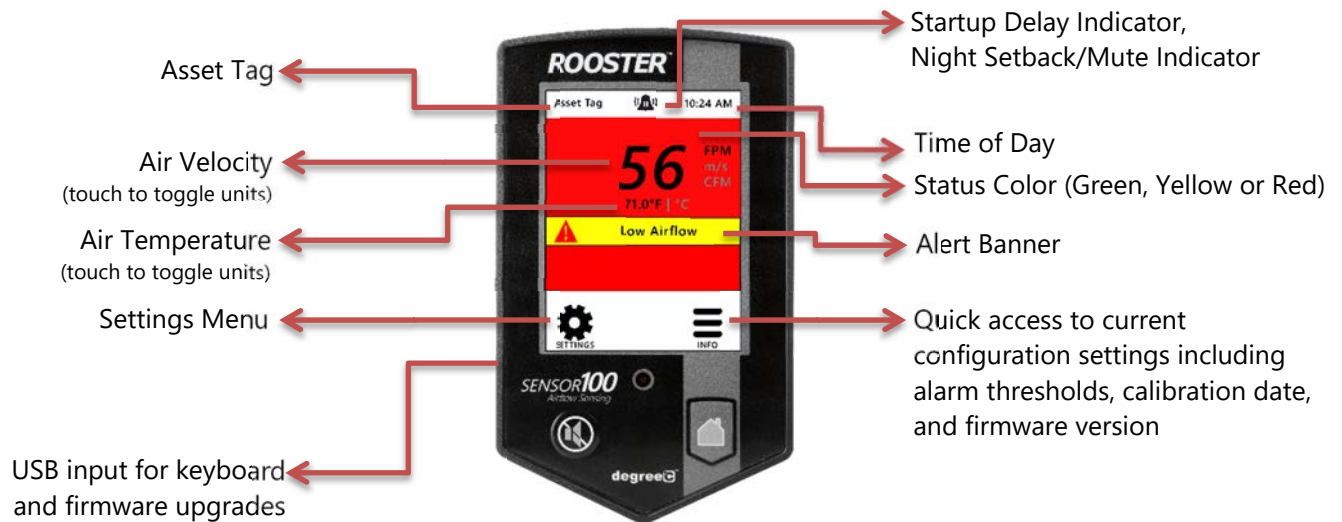
With a bright, backlit display, the Sensor100 contains many simple-to-use features and configuration capabilities, built into an intuitive user interface that requires little to no training to learn. Password-protected access tiers ensure greater safety by limiting access to critical functions and system settings for specific, authorized users. The Rooster Sensor100 is the first airflow sensor with USB-based plug and play firmware upgrades, to keep your product current and operating to the latest standards.

This manual will guide you through installation, alarm control settings, and the full range of features for the Sensor100.

Hard Button Overview



Soft Buttons and Home Screen



Feature Overview

CUSTOM ASSET TAG

Users logged in as EH&S can change default "Asset Tag" to a custom tag. This is useful for naming the sensor in larger distributed systems, or to denote a company asset number. The user may set a 12-digit numeric asset tag with the provided on-screen keypad OR plug in a USB interface keyboard to enter a 12-character alphanumeric tag.

Home>Settings>System>Advanced>Configure Asset Tag

CLOCK

Users logged in as EH&S or Certifier can set time, date and change clock to display in 12- or 24-hour format.

Home>Settings>System>Time>Date and Time Settings

KEYPAD SOUNDS

Users may toggle keypad beep sounds on and off.

Home>Settings>System>Alarms/Sound>Key Beep

ALARM VOLUME

Users can toggle through low, medium, or high alarm volumes. If logged in as an EH&S or Certifier, a global minimum volume threshold can be set. This restricts a standard user from setting an alarm volume too low for a particular facility's safety requirements. Audible alarms may be turned off using "Alarm Tone Settings".

Home>Settings>System>Alarms/Sound>Device Volume

ON-SCREEN ALERT BANNERS

A yellow banner will appear beneath on-screen velocity readings to alert users of the following scenarios: 1) Uncalibrated Sensor 2) Sensor Failure 3) Low Airflow. Alarm latched status will also display here.

Home

TOGGLE VELOCITY UNIT TYPE

Instantly toggle displayed velocity units between m/s, fpm, or cfm by pressing on the displayed velocity reading on the home screen.

Home

TOGGLE TEMPERATURE TYPE

Instantly toggle displayed temperature units from Fahrenheit to Celsius or vice versa by pressing on the displayed temperature reading on the home screen.

Home

PASSWORD-PROTECTED ACCESS TIERS: CERTIFIER & EH&S

Password protected access tiers enable advanced configuration options and features.

Home>Settings>System>Advanced>Change Passwords

USB INTERFACE FOR FIELD UPGRADE PROCEDURE AND DATA IMPORT/EXPORT

Firmware upgrades can be installed on-site via USB flash drive. See the USB Field Upgrade section for more information. Users may also import/export Rooster settings and export the event log through the USB interface.

CUSTOMIZABLE BOOT SCREEN

The Rooster may be configured with a custom image to display on bootup using the Upload Start-Up Image option of the Import/Export menu. The acceptable file format is .bmp, 240 x 320 pixels.

Home>Settings>System>Advanced>Import/Export

NIGHT SETBACK

EH&S or Certifier users can configure three convenient modes (Audible, Muted, or Off) of operation. The Rooster is a normally open (NO) device, to trigger audible or muted night setback, the dry contact relay must be closed. See the "Alarm Threshold Configuration" section for instructions on how to setup night setback alarm thresholds.

Home>Settings>System>Alarms/Sound>Alarm Controls>Night Setback

ALARM LATCHING

EH&S or Certifier users can setup latched alarms to indicate that a low airflow state has occurred in the "Alarm Controls" menu. The user must then enter EH&S or Certifier passcode to unlatch an alarm.

Home>Settings>System>Alarms/Sound>Alarm Controls>Latch Alarm

ALARM RINGBACK

EH&S or Certifier users can configure the amount of snooze time before an alarm rings again after being muted in the “Alarm Controls” menu.

Home>Settings>System>Alarms/Sound>Alarm Controls>Ringback

BACKLIGHT DIMMING

Users can toggle the brightness setting, as well as the brightness of the screen when set to “dim”. A “time before dim” option is available that sets the screen to dim after a predetermined amount of time has expired.

Home>Settings>System>Brightness

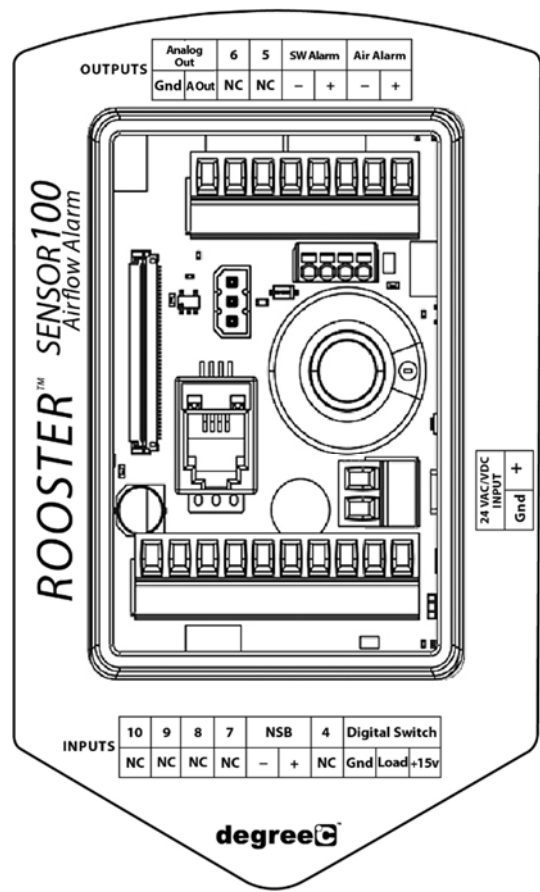
AIRFLOW RESOLUTION

EH&S or Certifier users can select the resolution of air velocity units displayed in m/s, fpm, or cfm.

Note: Cfm can only be displayed once duct diameter information has been entered; see the Volumetric Flow Settings section of this manual for more information.

Home>Settings>System>Advanced>Airflow Resolution

Rear Panel Layout for Advanced Connections



Degree Controls recommends 18-24 AWG wires be used with screw terminal connections.

Figure 1 Connections

Connection Description	Connector Type	Mating Connector
Power Entry	2-Pin, polarized, Phoenix Contact	Included and attached to AC/DC power supply
Sensor Connection	RJ10	Included as part of sensor assembly
Output Connection	8-pin, polarized, Phoenix Contact *2-position connectors will fit	Not included 8-position orderable Part Number: Phoenix Contact 1803633 2-position orderable Part Number: Phoenix Contact 1803578
Input Connection	10-pin, polarized, Phoenix Contact *2-position connectors will fit	Not included 10-position orderable Part Number: Phoenix Contact 1803659 2-position orderable Part Number: Phoenix Contact 1803578

Table 1 Connections - Rear Panel of Display Module

Technical Specifications

<i>Alarm Module Size</i>	82mm x 135mm x 19mm (3.2" x 5.3" x 0.7") (without back plate)
<i>LCD Display Area</i>	57mm x 70mm (2.3" x 2.7")
<i>Airflow Velocity Range</i>	0.15- 20.0 m/s (30-4,000 fpm)
<i>Response Time</i>	< 1 second
<i>Supply Voltage</i> <i>Current Consumption</i>	24VAC/VDC or Supplied Wall Adapter < 0.5A for 24VAC/VDC
<i>Sash Switch Input</i>	Pin 1 +15V Power (For Proximity SW) Pin 2 Switch (Contact or Proximity) Pin 3 GND (Contact or Proximity)
<i>Night-Set Back Input</i>	Dry Contact Closure (0V) Pins 5-6
<i>Relay Outputs</i>	Qty. (2), 1A, 24VDC Pins 1-2 Air Alarm Pins 3-4 Switch Alarm
<i>Analog Output</i>	0 – 5V, 0 – 10V, 0 – 20mA, 4 – 20mA Analog Pin 7 A OUT Pin 8 GND
<i>Power Adapter</i>	90-250V
<i>Red LED Indicator</i>	160° viewing angle
<i>Alarm Volume</i>	0 - 85dB (adjustable)
<i>Relative Humidity</i>	(non-condensing) 5 - 95%
<i>Operating Temperature</i>	5 to 60°C (40 to 140°F)
<i>Storage Temperature</i>	-40 to 85°C (-40 to 185°F)
<i>Weight</i>	< 170g (<6oz)
<i>Compliance Standards</i>	CE, RoHS

Connection and Wiring Information

Degree Controls recommends 18-24 AWG for all wiring connections to the input and output connectors. Both the sensor and power supply connections have been prepared for you, and merely need to be pulled through the cutout and connected to the display module.

The Rooster Sensor100 has additional capabilities for a night setback input, alarm outputs, and an analog output control signal. These cable harnesses should be prepared by the client, using the orderable mating connectors listed above. The I/O connectors present on the Rooster have some pins deactivated as these are reserved for future Rooster models designed for more advanced control functionality:

- o Output Connectors, Pins 5-6
- o Input Connectors, Pins 7-10

Leave these pins non-connected.

Switch Input

This switch input is a digital input, and the default I/O polarity is normally open. The design intent is as follows:

In a safe or "ok" position, the proximity sensor should not detect the metallic object/strip.

Switch position input logic may be reversed using the I/O polarity menu on the Rooster Sensor100 to achieve a different result, and any proximity sensor may be implemented.

Night Setback Input

The Rooster Sensor100 allows the user to connect to the digital input (0V, dry contact) on the input connector, positions 5-6, for night setback. The purpose of the Night Setback input is to allow the user the ability to send a remote signal to all Rooster Sensor100s, simultaneously, which changes their behavior during low flow conditions. This signal is normally initiated by a Laboratory or Building Management System (BMS).

Once the wiring connections are made, the user can assert and remove the night setback signal from the BMS. After setting an NSB threshold, three NSB states can be selected. If no threshold is set (all threshold values are zero), then only the Disable and Enable options are available.

Audible: In this state, when the night setback signal is asserted, the Sensor100 will audibly alarm when airflow drops below the NSB trip threshold.

Note: NSB threshold is independently set.

Muted: In this state, when the night setback signal is asserted, the Sensor100 will alarm (screen will display a red background, and the LED will flash) when airflow drops below the NSB trip threshold, but the alarm will be muted.

Disabled (default): If the night setback signal is asserted in this state, the Sensor100 will ignore it.

Outputs

Relay Outputs

The Rooster Sensor100 alarms for airflow and switch, and alarm outputs are available on the output connector of the display module. The default I/O polarity is normally open, and output polarity logic may be reversed via I/O Polarity from the Advanced menu.

Analog Output

Analog output can be enabled to produce an analog control signal on the analog output pins in order to maintain the desired velocity or volumetric flow, or to indicate the flow. Analog output pins are 7 and 8 on the output connector and marked as Analog Out:

Pin 7 = A OUT

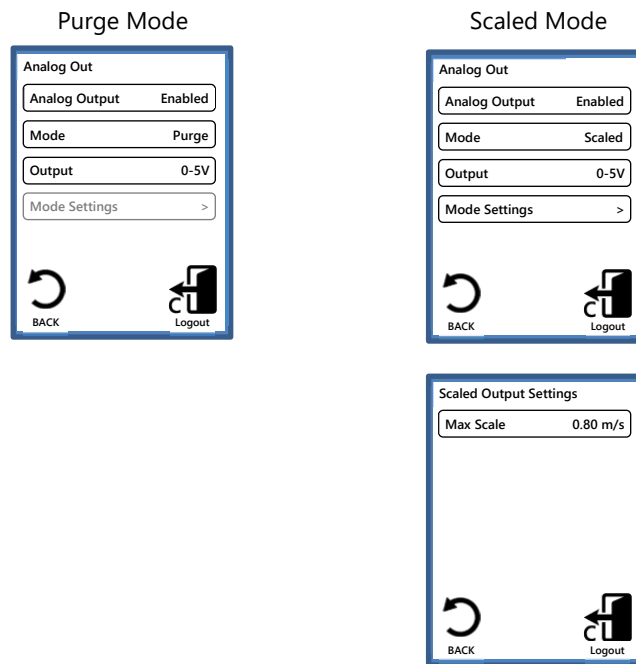
Pin 8 = GND

Users can enable/disable the analog output, toggle between Purge and Scaled modes, and select the analog output signal.

Home>Settings>System>Advanced>Analog Out

Settings	Parameters
Analog Output	Disabled Enabled
Mode	Purge Scaled
Output	0-5V 0-10V 0-20mA 4-20mA
Mode Settings	Mode settings are available for Scaled mode. See details below.

Screen examples:



Purge Output

When Purge is activated, the analog output is set to its highest level to fully open a valve or set a fan to maximum speed. The intention is to evacuate potentially hazardous air from a duct system or enclosure.

The Purge button appears on the main screen if Analog Output is enabled with Purge mode selected. Press the button to activate purge.

- Purge overrides any other control, whether the Sensor100 is in normal operating mode or a night setback condition.
- When Purge is active, the airflow sensor is in the alarm state.
 - o The screen background is red with a PURGE IN PROGRESS alert banner.
 - o The audible alarm sounds.
 - o The mute button behaves normally.
 - o Purge suppresses any other airflow alarm. All other alarms are deactivated while Purge is in progress.
- When Purge is in progress, pressing the Purge button deactivates Purge; the airflow sensor reverts to standard behavior.

The purge button appears differently in on/off states.



Figure 2 Purge Inactive



Figure 3 Purge Active

Scaled Output

Scaled Output provides a control signal proportional to velocity. Scaled Output is typically used to change the position of a damper in a VAV (variable air volume) system or control fan speed. With Analog Output enabled and Scaled mode selected, the user needs to select the output and enter Max Scale, the upper limit of the scaled analog output range.

For example, with:

- Output set to 0-5 V,
- Max Scale set to 0.80 m/s, and
- flow set such that 0.40 m/s is displayed on the Rooster

the analog out voltage will be 2.5 volts.

Installation

Installation of the Rooster involves selecting and preparing appropriate locations for the alarm module and sensor, wiring, connecting the unit, and then mounting both the alarm module and sensor securely.

Back Plate Mounting Options - Alarm Module

The Rooster Sensor100 is easily mounted to a cabinet or wall panel. First, secure the back plate, and then align the alarm module to the back plate and tighten the bottom captive screw. Two back plate versions are available:

1. **Wall Mount:** This back plate sits directly on the wall or cabinet surface, and is secured by self-tapping screws, or industrial Velcro. Sensor and control wiring access is at the back, while access for power in from the wall mount power supply is at the bottom of the back plate.
2. **Semi-Flush:** This back plate sits partially inside a standard electrical gang box, allowing the Rooster to be recessed and sit approximately 15mm (0.6") proud of the mounting surface. Self-tapping screws secure it, and there is open back access to accept building power.

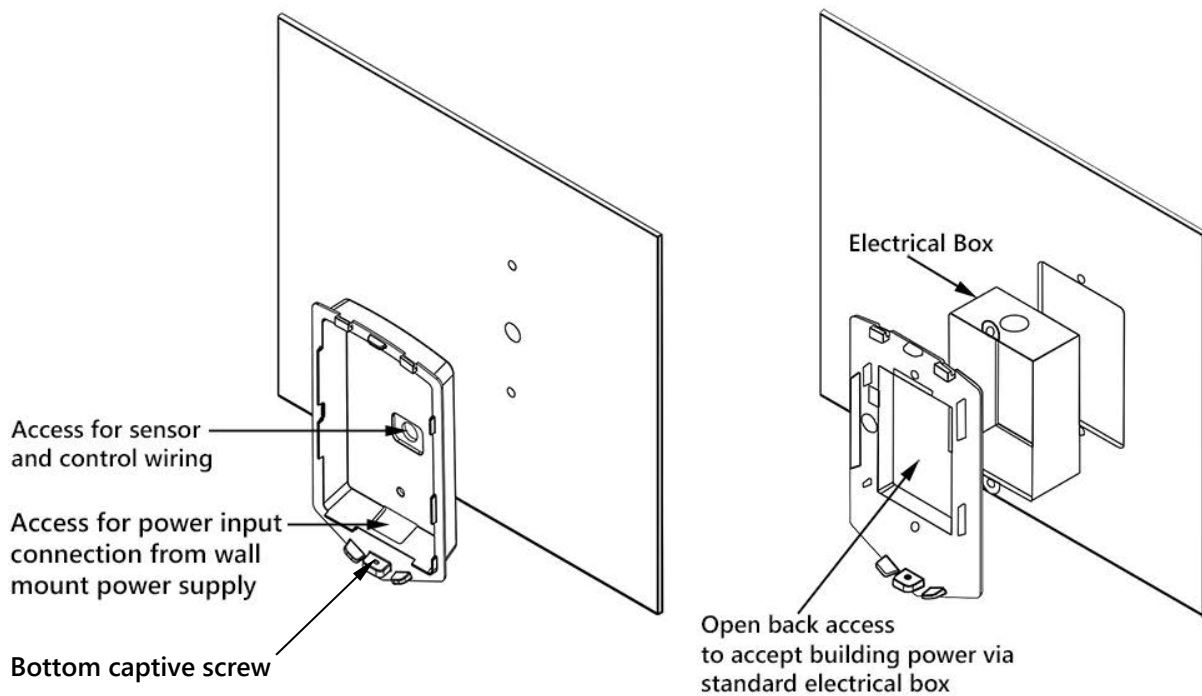


Figure 4 Wall Mount (left), Semi-Flush Mount (right) - for Alarm Module

Installation Procedure

1. Determine mounting locations for the Rooster alarm module and sensor.
2. Mark the surface where the Rooster Sensor100 alarm module will be located and make the necessary drills/cutout according to the mounting option you selected when you placed your order: Wall Mount or Semi-Flush Mount.
3. Secure back plate.
4. Mount the sensor. See below for sensor installation.
5. Feed power and sensor wire harnesses through the opening(s) and make connections to the Rooster alarm module. Make any other optional connections to the alarm module.
6. Align top of alarm module with tabs on back plate, and secure in place with captive screw at bottom of alarm module.

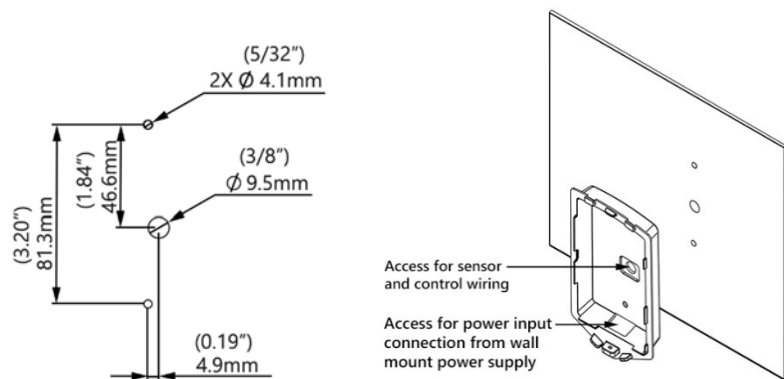


Figure 5 Wall Mount Back Plate Mounting

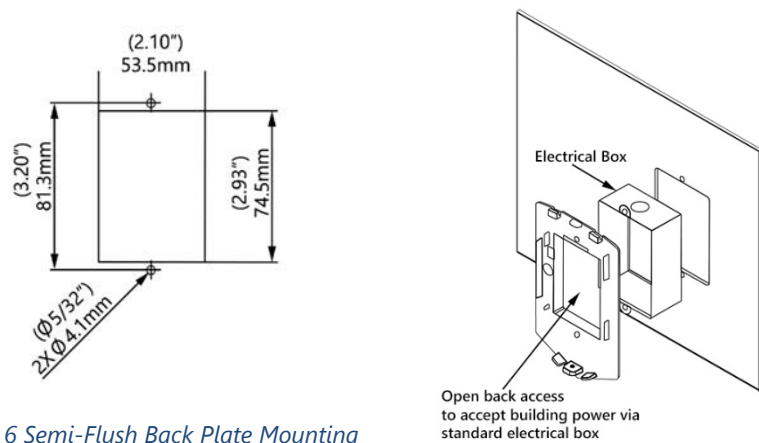


Figure 6 Semi-Flush Back Plate Mounting

Probe Sensor

The probe sensor should be located in your duct system in the best laminar (stable) flow possible. Good sensor placement and ASHRAE best practices should be followed. The sensor should be placed at least two duct diameters away from duct elbows and constrictions. **Please see below for °C Clamp specifications and installation instructions.**

°C Clamp and Sensor Installation:

1. Mark the sensor hole, and screw positions, per Step 1 of °C Clamp installation figure, below.
2. Drill a 17/32" (14mm) hole through the surface where you wish to install the sensor.
3. Drill two pilot holes for the °C Clamp fastening screws. (°C Clamp, Degree Controls P/N: 64500AS011)
4. Secure the °C Clamp with two screws (not provided).
5. Insert the sensor into the °C Clamp and adjust the sensor's insertion depth (use the printed ruler on the sensor's body for reference), ensuring that the airflow indicators (arrows on the blue or orange head; see Airflow Direction below) are facing in the intended direction.
6. Using the provided screw, tighten and cinch the sensor into place.



Back View



Front View

Figure 7 °C Clamp

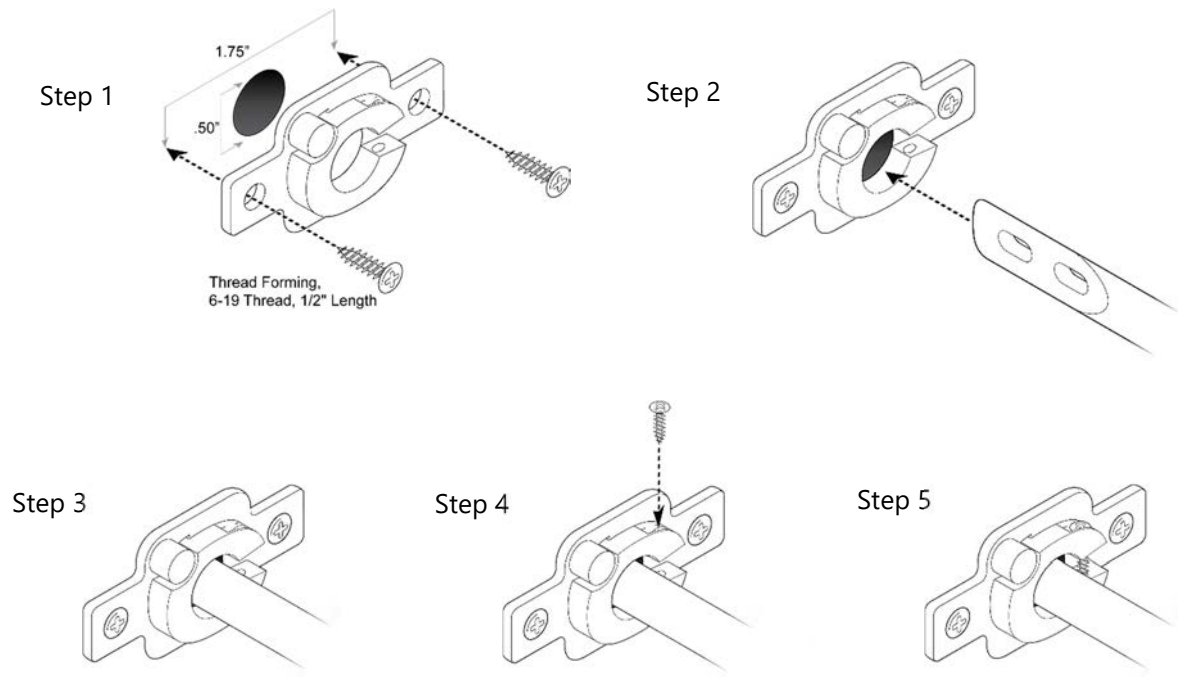


Figure 8 °C Clamp Installation

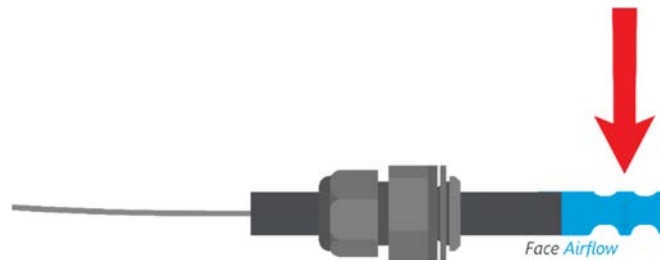


Figure 9 Airflow Direction

Ensure that the sensor head is aligned correctly by positioning the arrow in the direction of airflow.

Boot Up Procedure

The Rooster does not have a power-on switch and will become energized as soon as it is plugged in. The Rooster boots to the Degree Controls startup screen, with a slot for a custom logo or image file in .bmp format, 240 x 320 pixels (Navigate to the Import/Export menu to upload a new start-up image.).

Once the start procedure has completed, the Home screen will appear with two system buttons. You will need to setup password-protected access tiers for advanced system functions. This is explained in the "Access Tier Privileges" section below.



You can reboot your Rooster Sensor100 at any time by pushing the hard “Home” and “Mute” buttons simultaneously until the boot screen reappears.

Access Tier Privileges: USER, EH&S & CERTIFIER

Users have the ability to customize their containment cabinets within a defined set of options for each authorization level. There are three levels of access to the Rooster: User, EH&S/Facility Manager and Certifier. These are managed by logging in with a 4-digit numerical passcode. The User access level does not require a passcode.

Manufacturer default passcodes:

EH&S = **8377**

Certifier = **6425**

Access Privileges Defined

Function	Passcode Required
Adjust Alarm Volume	None
Set Minimum Alarm Volume Threshold (superseded by Alarm Tones Settings)	EH&S, Certifier
Alarm Ringback Setting	EH&S, Certifier
Alarm Delay Setting	EH&S, Certifier
Startup Delay Setting	EH&S, Certifier
Alarm Latching Setting	EH&S, Certifier
Alarm Tones Settings	EH&S, Certifier
Mute Live Alarm	None
Set Asset Tag	EH&S
Set Time / Clock Format	EH&S, Certifier
Import / Export	EH&S, Certifier
Toggle between Fahrenheit or Centigrade Temperature Units on Home Screen	None
Toggle between Metric or Imperial Air Velocity Units on Home Screen	None
Toggle ON/OFF Keypad Sounds	None
Unlatch Alarm (if Alarm Latching is set to Password)	EH&S

Set/Change Passwords

To change or set a password, follow this GUI path to trigger the password change sequence:

Home>Settings>System>Advanced>Change Passwords

To change either the EH&S or Certifier passcode, you must first re-enter the old passcode. Please note that if you are authorized to perform both EH&S and Certifier functions, you may set an identical passcode for both access tiers to make logging in and accessing key functions easier.

Alarm Threshold Configuration

- 1) To set your alarm threshold, follow the menu path below :
Home>Settings>Thresholds>Adjust Thresholds
- 2) To set alarm thresholds, first define an alarm trip point and an alarm clear point. The **alarm trip point** is the air velocity value that will trigger an alarm. The **alarm clear point** is the air velocity value that will clear an alarm state. Once you have defined these values, the alarm will trip and clear based on your settings. You may return to this menu at any time to adjust these values as needed.
- 3) By default, no values are set for the NSB (Night Setback) mode of operation. Depending on your application or setup, you may not need to have an active alarm during night setback mode. You may choose, however, to set a specific alarm trip and clear point for night setback mode. You will first have to define an alarm trip point and an alarm clear point. Once thresholds are assigned for night setback, you may choose to set your alarm as “audible” or “muted” in the alarm controls menu below:
Home>Settings>System>Alarms/Sound>Alarm Controls>Night Setback
- 4) To quickly glance at threshold settings, follow this menu path:
Home>Settings>Thresholds>Threshold Info

Alarm Troubleshooting

Is your alarm failing to sound or clear as you intended? You may need to verify that you have entered **valid threshold values**. For both normal and NSB modes of operation, the “Alarm Trip” or “NSB Trip” point must be a lower value than the “Alarm Clear” or “NSB Clear” point to properly trigger and clear an alarm.

The Rooster Sensor100 offers an array of customization options for alarm behaviors. The following section provides a detailed overview on how to customize alarm behavior to meet individual needs and preferences.

Alarm Controls

To provide our users with full customization of the alarm behaviors that are best suited for their facilities and unique conditions, the Rooster Sensor100 allows authorized users (Certifier & EH&S) to set night setback, ringback, alarm delay, startup delay, latching, alarm tone, and airflow resolution preferences.

Night Setback

The Rooster Sensor100 supports night setback (NSB) for energy savings and greater HVAC system integration in building automation systems. Users can toggle between three modes of operation detailed below:

This crescent moon icon [] will appear on the top portion of the home screen when Night Setback is active

Home>Settings>System>Alarms/Sound>Alarm Controls>Night Setback

Note: The definitions in the table below are with the I/O Polarity of the NSB input set as normally open.

Night Setback Modes	Definition
Audible	Enters Night Setback mode whenever relay is closed and audibly triggers an alarm when airflow drops below the NSB trip point. To adjust Night Setback alarm thresholds, navigate to: Home>Settings>Thresholds>Adjust Thresholds
Muted	Enters Night Setback mode whenever relay is closed and triggers a muted alarm when airflow drops below the NSB trip point. (LED will still flash during an alarm event). This is the default setting. To adjust Night Setback alarm thresholds, you must go to the Threshold menu and select "Adjust Thresholds".
Disabled	Disables Night Setback mode. Alarm does not enter Night Setback mode when relay is closed.

Alarm Ringback

When an active alarm state is muted, ringback is a useful safety feature to remind the user that the muted alarm is still active. Whenever there is an active alarm state, the red LED will flash for the entire duration of the alarm. There are several ringback modes available:

Home>Settings>System>Alarms/Sound>Alarm Controls>Alarm Delay Settings>Ringback

Settings	Definition
Off	Turns off ringback. If an alarm is muted with ringback turned off, the alarm sound turns on immediately (approximately 1 sec delay) if the unit is still in an active alarm state.
10s	A muted alarm will ringback audibly after 10 seconds if the unit is still in an active alarm state. This is the default setting.
30s	A muted alarm will ringback audibly after 30 seconds if the unit is still in an active alarm state.
1min	A muted alarm will ringback audibly after 60 seconds if the unit is still in an active alarm state.
5min	A muted alarm will ringback audibly after 5 minutes if the unit is still in an active alarm state.
10min	A muted alarm will ringback audibly after 10 minutes if the unit is still in an active alarm state.
60min	A muted alarm will ringback audibly after 60 minutes if the unit is still in an active alarm state.
Disable	Disables ringback. If an alarm is muted, the alarm remains muted for the entire duration of the alarm event.

Alarm Delay

To account for hysteresis and prevent nuisance alarms or premature recoveries, users can define the amount of time that the Rooster has to achieve continuous safe velocity readings before the alarm state clears and continuous unsafe velocity readings before an alarm is triggered. This is called Alarm Delay.

Alarm Delay	Definition
1s	Alarm is cleared after 1 second if velocity readings are above the alarm clear threshold. Alarm is triggered after 1 second if velocity readings are below the alarm trip threshold. This is the default setting.
2s	Alarm is cleared after 2 seconds if velocity readings are above the alarm clear threshold. Alarm is triggered after 2 seconds if velocity readings are below the alarm trip threshold.
5s	Alarm is cleared after 5 seconds if velocity readings are above the alarm clear threshold. Alarm is triggered after 5 seconds if velocity readings are below the alarm trip threshold.
10s	Alarm is cleared after 10 seconds if velocity readings are above the alarm clear threshold. Alarm is triggered after 10 seconds if velocity readings are below the alarm trip threshold.

Startup Delay

The startup delay prevents an alarm from triggering until the workstation and ventilation systems have fully powered up and are operational.

Alarm Delay	Definition
5s	Alarm is paused for 5 seconds on power up.
30s	Alarm is paused for 30 seconds on power up.
1 min	Alarm is paused for 1 minute on power up.
2 min	Alarm is paused for 2 minutes on power up.
5 min	Alarm is paused for 5 minutes on power up.

Latch Alarm

Alarm latching is a useful feature to indicate that an alarm state was triggered even if the device is no longer in an active alarm state. This could occur, for example, when a user has stepped away from the workstation. When latching is activated "On", a yellow banner will display beneath the velocity and temperature readings on the home screen to indicate that a low airflow event has occurred. When latching is set to "Password", an EH&S passcode must be entered to unlatch this alarm. If the latch alarm setting is set to "On", simply tap the banner to disable the alarm. Switching the latch state to "Off" disables this feature entirely.

Home>Settings>System>Alarms/Sound>Alarm Controls>Latch Alarm

Alarm Tone Settings

The user can configure alarms with different tones. Alarm tone settings are available for Low Flow, Sensor, and Switch Alarms. At the time of tone selection, the tone plays for approximately 2 seconds to provide an understanding of tone type and volume level. Default alarm tone settings are:

- Airflow alarm - Tone 1
- Sensor alarm - Off
- Switch alarm - Tone 2

Alarm Tone Settings supersedes Minimum Volume settings.

Alarm Type	Definition
Off	The audible alarm is off.
Tone 1	Alarm plays Tone 1.
Tone 2	Alarm plays Tone 2.

Examples:

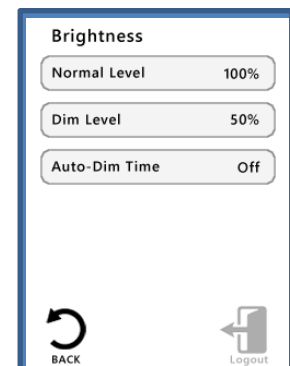
1. If the sensor becomes disconnected, and Sensor Alarm is set to Tone 1, the audible alarm will play Tone 1, and the on-screen alert banner will indicate Sensor Fault.
2. If the sensor becomes disconnected, and Sensor Alarm is set to Off, there will be no audible alarm, and the on-screen alert banner will indicate Sensor Fault.

Backlight Dimming

Brightness is adjusted via the left and right arrows. Actual screen brightness adjusts immediately as the setting is changed. Pressing the Enter button will save the brightness setting, and Cancel will leave the setting unchanged.

A timer is reset each time the screen is pressed. Once the timer reaches the "Auto-Dim Time" value, the screen will dim. When the screen is pressed again, the screen will return to its original brightness setting. The lowest dim level setting will not allow the screen to turn completely dark, instead, it will be just bright enough to still be readable. Dim times are 1, 5, 10, and 60 minutes, with an "Off" setting, and a default time of 10 minutes initially.

Home>Settings>System>Brightness



Airflow Settings

Airflow Sensitivity

This setting smooths airflow readings by applying a filter that determines "sensitivity" of readings.

Home>Settings>System>Airflow Settings>Sensitivity

Sensitivity	Definition
Low	Increases filtering providing smoother readings, but slower response.
Med	Default setting. Provides a balance between smooth readings and reasonable response times.
High	Decreases filtering resulting in greater fluctuation of readings with faster response.

Airflow Resolution

For advanced users, displayed velocity units can be configured to display in an alternate resolution. The default resolution for units is 1 fpm and .01 m/s respectively, however, for users who prefer a more uniform readout, this can be configured at different settings up to 5 fpm or .05 m/s.

Home>Settings>System>Airflow Settings>Airflow Resolution

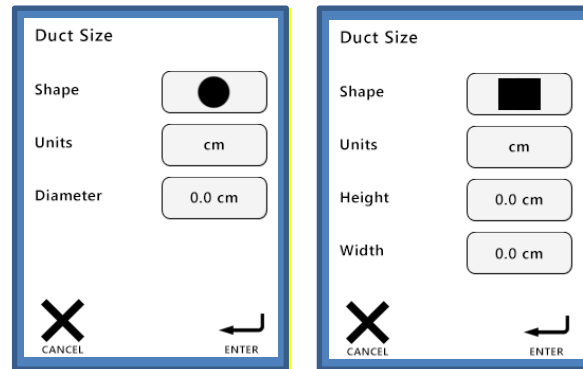
Airflow Resolution	Definition
1 fpm	Displayed units in fpm are rounded to 1 fpm. This is the default setting.
2 fpm	Displayed units in fpm are rounded to 2 fpm.
5 fpm	Displayed units in fpm are rounded to 5 fpm.
.01 m/s	Displayed units in m/s are rounded to .01 m/s. This is the default setting.
.02 m/s	Displayed units in m/s are rounded to .02 m/s.
.05 m/s	Displayed units in m/s are rounded to .05 m/s.

Volumetric Flow Settings

The Sensor100 displays velocity flow by default. Display of volumetric flow is available for applications using the probe style sensor in a ducted flow. Volumetric flow can be displayed by first navigating to the Airflow Settings menu to enable volumetric flow, and then entering the required duct information. The steps are as follows:

1. Navigate to the System screen by following this path:
Home>Settings>System
2. Push the "Airflow Settings" button to enter the Airflow Settings menu screen.
Home>Settings>System>Airflow Settings
3. In order to proceed, you will need to enter your "Certify" password. If you have not set a custom password, the factory default is **"6425"**
4. Push the "Volumetric Flow Settings" button to enter the Volumetric Flow menu screen.
Home>Settings>System>Airflow Settings>Volumetric Flow Settings
5. Push the "Volumetric Flow" button until it says Enabled.
Home>Settings>System>Airflow Settings>Volumetric Flow Settings>Volumetric Flow
6. Push the "Duct Size" button to enter the Duct Size screen.
Home>Settings>System>Airflow Settings>Volumetric Flow Settings>Volumetric Flow>Duct Size

7. Press the "Shape" button until the appropriate duct shape is displayed, circular or rectangular.
8. Press the "Units" button to display your choice of cm or inch units for entry of duct dimension(s).
9. Enter the dimension(s) of the duct, diameter for circular shape, height and width for rectangular shape.

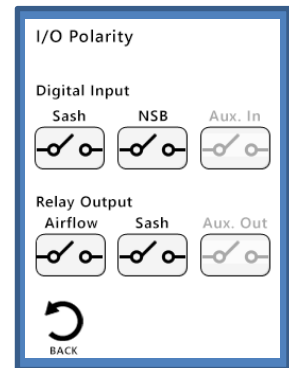


A third units touch toggle of cfm is accessible on the main screen with volumetric flow enabled so that the user is able to cycle between fpm, m/s, and cfm.

I/O Polarity

For advanced users, it may be helpful to toggle relay and input nodes from normally open to normally closed. In the default state, a closed relay output denotes an alarm. If the alarm state is required to be an open relay, then toggle the output on the Rooster. For example: The Airflow Alarm is configured by default to alarm when the relay is closed. If this is toggled to Normally Closed (NC), then this logic is reversed.

Home>Settings>System>Advanced>I/O Polarity



Import/Export

EEPROM

The user can save all current Rooster settings to a USB thumb drive for future use. Importing the EEPROM configuration file to another Rooster in your facility ensures operational consistency and saves valuable setup time. Plug a USB thumb drive into the Rooster and navigate to the Import/Export menu to access the Import EEPROM or Export EEPROM option.

Home>Settings>System>Advanced>Import/Export

Event Log

Rooster logs the date and time of alarms and alarm recovery as well as system boot time to its internal SD card. Users can export the event log in .csv format to a USB thumb drive. Simply plug a USB thumb drive

into the Rooster and select Export Event Log from the Advanced menu. Users also have a selection to delete the event log.

Home>Settings>System>Advanced>Import/Export

Users can also view the event log on screen by navigating to the Info screen and then pressing “Event Log” to view.

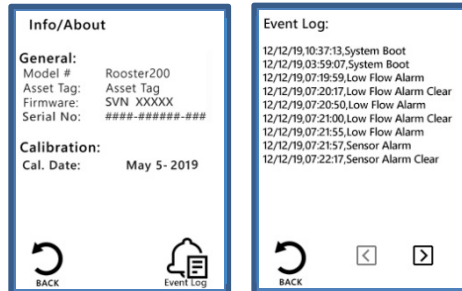
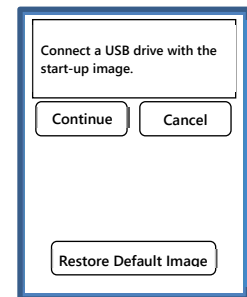


Figure 10 Event Log Viewable On Screen

Upload Start-Up Image

Upload Start-Up Image allows users to change the start-up image via USB upload. The acceptable file format is .bmp, 240 x 320 pixels. Once the image is successfully uploaded, Rooster will display “Success! The start-up image will show on the next boot up.

The default image may be restored at any time.



USB Field Upgrade Procedure

Caution: A Rooster with firmware preceding version 1.06 may be upgraded to version 1.06 using the bootloader, however, existing calibration data will be lost, and all settings will be reset to factory defaults. Thus, this update should only be done during annual certification, where the certifier would be recalibrating anyway, OR, if the client approves forcing a recalibration.

Degree Controls is continually improving Rooster products. The latest in Rooster technology offers users a convenient soft reboot procedure for upgrading the operating system while maintaining existing *calibration data* and *user settings*. This is available for a Rooster having firmware version 1.06 and later.

A Rooster with firmware preceding version 1.06 may be upgraded, however, existing calibration data will be lost, and all settings may be reset to factory defaults. Thus, the update should only be done during annual certification, where the certifier would be recalibrating anyway, OR, if the client approves forcing a recalibration.

The first step of the firmware upgrade process is to identify the current version of Rooster firmware. Next, use the table below to evaluate the effects of an upgrade, and determine the best time to update your Rooster.

Upgrade From Firmware Version	Upgrade Procedure	Calibration Maintained?	User Settings Maintained?
V1.06.xx	Soft Reboot from Info Screen	Yes	Yes
V1.04.xx	Power Cycle Procedure	No	Yes, if the Export EEPROM function is used to save Rooster settings before upgrading firmware, <i>and</i> the Import EEPROM function is used to restore user settings post upgrade.
V1.03.xx and earlier	Power Cycle Procedure	No	No

You will need:

1. USB thumb drive with new firmware "Rooster.bin"
2. Rooster Sensor100

Review the firmware update procedure carefully before you begin. The firmware update procedure must be allowed to complete without interruption. If the update procedure is interrupted by user interference, a power failure, or some other circumstance, the existing firmware may be corrupted, and the device may become nonfunctional. Contact Degree Controls if your Rooster is inoperative as a result of an interruption during the firmware update procedure.

Soft Reboot from Info Screen

Procedure:

1. Insert the USB thumb drive into the left side of Rooster.
2. Navigate to the Info [] screen and press the Upgrade [] button at the bottom of the screen. Rooster will prompt you to confirm you wish to backup current settings and upgrade the firmware.
3. Select "Yes". Rooster will restart to read the USB thumb drive, and the Alarm LED turns on. Once the upgrade process is complete, Rooster will automatically restart.
4. Navigate to the Info screen to validate that the new firmware version was properly installed. The firmware release information – listed next to "firmware" – should have changed to the most current build. If this is not the case, repeat the upgrade procedure.

Power Cycle Procedure

Procedure:

1. Remove power from the Rooster Sensor100.
2. Insert USB thumb drive into left side of the Rooster.
3. Depress and hold the "Home" button, while reapplying power to your unit. (Hard Home button must be depressed while Rooster powers up in order to enter the firmware update sequence.)
4. After approximately 3 seconds, release the Home button. After approximately 10 seconds, the LED on the front of the Rooster will light, and the unit will boot up with the new firmware.
5. When the field upgrade procedure is complete, navigate to the Info [] screen to validate that the new firmware version was properly installed. The firmware release information – listed next to

"firmware" - should have changed to the most current build. If this is not the case, repeat the upgrade procedure.

Factory Reset Procedure

The Factory Reset will return the Rooster Sensor100 to its default alarm & input/output settings. Time and date will be preserved. The factory reset procedure can be done at any time upon system reset to restore default settings and passwords.

Note: Asset tag designations and prior event log history will be lost upon successful factory reset.

1. When the startup screen displays, press the "Mute" button four times.
2. The "Enter Certify Password" screen will display. The factory default Certifier password is "6425". This can be changed by accessing the Advanced menu.
3. The Factory Menu will be displayed. Select "Reset to Factory Defaults"

GUI Map



Warranty

For a period of one (1) year following the date of delivery, and subject to the other provisions of this Warranty Section, DegreeC warrants that all new products that are both (a) manufactured by DegreeC and (b) purchased directly from DegreeC (or an authorized distributor of DegreeC) shall be free of material defects in materials and workmanship. Buyer's sole and exclusive remedy, and DegreeC's sole and exclusive obligation, in the event of any product defect shall be for DegreeC to, at its option, repair or replace such products free of charge. In no event shall DegreeC be liable for ordinary wear and tear. In order to get the benefit of the foregoing warranty, Buyer must examine the delivered products immediately upon receipt thereof and report to DegreeC, in writing, any visible defects within ten (10) working days of such receipt. Buyer's failure to report defects within the foregoing time period will be deemed an unqualified waiver of any and all of Buyer's rights to warranty claims. DegreeC does not provide any warranty for third party parts, components, or products that are not manufactured by DegreeC. Such parts, components, or products may be warranted by third parties on a "pass through" basis. The foregoing remedies shall not apply to any product failure caused in whole or in part by (i) Buyer's failure to operate, maintain, or service the products in accordance with DegreeC's documentation, (ii) any alteration, modification, or repair made to the products other than by DegreeC, or (iii) use of the products for a purpose other than that for which it is intended. THE FOREGOING EXPRESS WARRANTY extends only to the original customer of DegreeC or DegreeC's authorized distributor, as the case may be. THE CORRECTION OF ANY DEFECT IN, OR FAILURE OF, PRODUCTS BY REPAIR OR REPLACEMENT IN ACCORDANCE WITH DEGREEC'S POLICIES DESCRIBED HEREIN SHALL BE DEGREEC'S SOLE AND EXCLUSIVE OBLIGATION AND THE SOLE AND EXCLUSIVE REMEDY OF BUYER FOR ANY AND ALL LOSSES, DELAYS OR DAMAGES RESULTING FROM THE PURCHASE OR USE OF DEGREEC'S PRODUCTS. OTHER THAN THE LIMITED WARRANTY SPECIFICALLY STATED HEREIN, DEGREEC SPECIFICALLY DISCLAIMS ANY AND ALL OTHER WARRANTIES WITH RESPECT TO DEGREEC'S PRODUCTS, INCLUDING THE PERFORMANCE THEREOF AND ANY SERVICES PROVIDED TO BUYER, EITHER EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, ANY WARRANTY ARISING FROM A COURSE OF DEALING OR USAGE OF TRADE, NON-INFRINGEMENT AND ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE OR USE.

