

ROOSTERTM

AIRFLOW ALARM

User Manual

**Monitor Airflow Safety of Biosafety Cabinets and Fume Hoods
with Full Time Air Velocity Tracking**

Complete Kit includes:

- o Alarm Module
- o Choice of Sensor Type
- o Power Supply



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DEGREE CONTROLS, INC.

300 Innovative Way

Suite 222

Nashua, NH 03062-5746

(P) 603-672-8900 or 1-877-DEGREEC

www.degreeC.com

Sales, Support: sales@degreeC.com

Note:

NSF/ANSI 49 Standard

Biosafety Cabinetry: Design, Construction, Performance, and Field Certification

Degree Controls, Inc. manufactures a well designed and tested product, the Rooster™ Airflow Alarm, for use in compliance with the NSF-49 Standard designated above. Proper installation and system-specific calibration should be performed by a certified technician at initial setup and also during regularly scheduled checkups. It is the responsibility of Laboratory/Facility Manager to ensure that certification, calibration, and daily operation of the Rooster Airflow Alarm meet NSF regulations. No claims, representation or warranties, whether expressed or implied, are made by Degree Controls, Inc. as to the safety, reliability, durability, or performance of the Rooster Airflow Alarm under varied operational conditions.

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1 Introduction

1.1 Product Overview

The Rooster™ Airflow Alarm combines a rich set of customizable features with unprecedented ease of installation and configuration, creating a hassle-free solution purpose-built for laboratory scientists and certifiers. Rooster allows you to provide the safety and compliance you need for BSCs (biosafety cabinets) and fume hoods that do not meet current NSF & OSHA regulations - or to add a layer of security needed for your laboratory technicians.

Rooster provides full time monitoring of air velocities within your cabinet or exhaust system and other critical containment applications to ensure air movement never falls below user-defined thresholds. In the alert mode, a highly visible red LED light will flash, and the volume-adjustable audio alert will announce. Rooster is easily reset with the illuminated button, and this reset can be defined by EH&S facility management to be either latching or repeatable based on your laboratory's policy.

The fully-featured Rooster Airflow Alarm has a quick and easy installation procedure with flexible mounting options. The airflow turbulence indicator assures perfect placement of the remote sensor in your canopy or exhaust system. Whether you need the exhaust duct-mounted probe sensor for your Class II biosafety cabinet, the sidewall mounted face velocity sensor for the fume hood, or the in-line replacement sensor for noncompliant monitors, each option easily plugs into the Rooster via the RJ-11 plug. Sensor calibration is performed with a single button press while your containment unit is operating. When you see the green LED, your Rooster is up and running.

1.2 Setup and Operation Overview

The steps to begin full time tracking of air velocities within your cabinet or exhaust system to ensure air movement never falls below the user-defined thresholds are:

- Install Rooster Airflow Alarm
- Configure DIP switch settings on the rear of the Rooster to create the behavior suitable for your application
- Power up and calibrate the Rooster
- Optional – Wire relay alarms and night setback

1.3 Features

The Rooster has many beneficial features based on valued client feedback, such as:

- Audible and visual alarm functions
- Latching or resettable alarm
- Single push button for calibration
- User configurable alarm threshold (preset NSF/ANSI-49 required -20%)
- Accurate! $\pm 2\%$ repeatability
- Auxiliary relay output for communication & control system interoperability

- Power connector for hard-wired building power connection, or simple plug-in AC/DC power supply
- Quick, non-invasive Velcro installation or permanent screw mounting
- Customizable audible alarm tones and warning lights via PC interface
- Ready for Windows-based PC communication for real-time monitoring and data logging functions

1.4 Applications

The Rooster finds applications in a variety of diverse domains such as:

- | | |
|---------------------------------|--------------------------------|
| ▪ Critical containment | ▪ Vivarium interiors |
| ▪ Biosafety cabinets | ▪ Life Science workstations |
| ▪ Fume hoods | ▪ Pharmaceutical manufacturing |
| ▪ Glove box isolators | ▪ Clean rooms |
| ▪ Flow benches | ▪ Airlocks |
| ▪ Autoclaves | ▪ Containerized laboratories |
| ▪ Ventilated workstations | ▪ HVAC ducts |
| ▪ Compounding aseptic isolators | ▪ Filter boxes |
| ▪ Restricted access barriers | ▪ Grossing stations |

2 Specifications

2.1 Components

The Rooster Airflow Alarm includes the following:

- Rooster Airflow Alarm Module
- Sensor - your choice of probe, sidewall, or inline sensor (duct mounting gland nut included with probe sensor)
- Power supply – your choice of US or International

In-field feature programming and the ability to use the Rooster as a real-time airflow meter can be achieved by using a Windows® PC computer with a USB connection to the Rooster module. The optional Rooster programming software and programming cable are available through DegreeC Customer Support, sales@degrec.com.

The *USB Programming Cable for Rooster Alarm* terminates in a male USB-A connector on one end and a 3-position wire-to-board connector which mates to the Rooster's programming jack on the other end.

2.2 Specifications Table

<i>Airflow Alarm</i>	Alarm Flow Range	0.2 – 10 m/s (40-2000 fpm)
	Response Time	< 1 second
	Threshold	Ships with NSF/ANSI-49 required -20%, configurable with optional programming cable
	Repeatability	+/- 2% of measured value
<i>Audio Alarm</i>	Type	Piezo
	Output Level	90db at 10cm
	Output Delay	5 seconds standard, configurable
	Horn Reset	Disable temporarily or permanently
<i>Visual</i>	Type	Ultra-bright, wide viewing angle LEDs
	Output Indicators	Flashing Green – Safe and operating within calibrated range Flashing Red - Unsafe airflow condition Slow Flashing Red - Uncalibrated Solid Yellow - System or sensor failure (power cycle the unit and begin troubleshooting) Calibration: Flashing Yellow - Turbulence warning (for airflow fluctuations greater than 20%) Night Setback: (Feature available on Rooster Airflow Alarm NSB) Flashing Yellow – If the NSB command asserted, the yellow LED will flash, no audible tone.
<i>Electrical, Power Adapter</i>	Input Voltage	100-240VAC
	Input Current	0.5A max
<i>Electrical, Rooster Alarm</i>	Input Voltage	24VDC/AC
	Input Current	0.5A max
	Relay Output	Mechanical Relay - N.O. or N.C. N.O. No Power – Contacts Open Good Flow – Contacts Closed Low Flow – Contacts Open N.C. No Power – Contacts Closed Good Flow – Contacts Open Low Flow – Contacts Closed 2A Max @ 30VDC or 0.5A Max @ 125VAC or 0.25A @ 250VAC resistive load Max Contact Impedance: 50mΩ max at 10mA/20mV (initial) Insulation Resistance: 10⁹Ω Withstanding Voltage: 2500VDC contact to coil, 1500VDC adjacent contacts
	Max power shall not exceed 60W (DC) or 62.5VA (AC) for all load conditions.	

<i>Mechanical, Rooster Alarm Module</i>	Size (W x H x D)	71mm x 122mm x 36mm (2.8" x 4.8" x 1.4")
	Weight	Less than 170g (6oz)
	Mounting	Velcro install or chassis mounting holes
	Note: See the mechanical drawings section for additional information.	
<i>Environmental</i>	Operating Temperature	15 - 60°C (60 - 140°F)
	Storage Temperature	-40 - 85°C (-40 - 185°F)
	Relative Humidity	5 - 95%, non-condensing

2.3 5-Pin Phoenix Connector

	<i>Rooster Alarm</i>	<i>Rooster Alarm NSB</i>
Pin	Description	Description
1	24VDC/AC	Night Setback
2	GND	Night Setback RTN
3	Alarm Relay Normally Open	Alarm Relay Normally Open
4	Alarm Relay COM	Alarm Relay COM
5	Alarm Relay Normally Closed	Alarm Relay Normally Closed

Rooster Alarm:

Connection to the 5-pin Phoenix connector is available for alternative power entry and Alarm Relay connections.

Rooster Alarm NSB:

Connection to the 5-pin Phoenix connector is available for the remote Night Setback signal and Alarm Relay connections. When the night setback signal is asserted, the mute/reset button LED will flash, and the airflow alarm is inactive.

The mate to the 5-pin Phoenix connector on the Rooster is Phoenix PN 1840395, not supplied.

2.4 Mechanical Drawings

2.4.1 Rooster Alarm Module

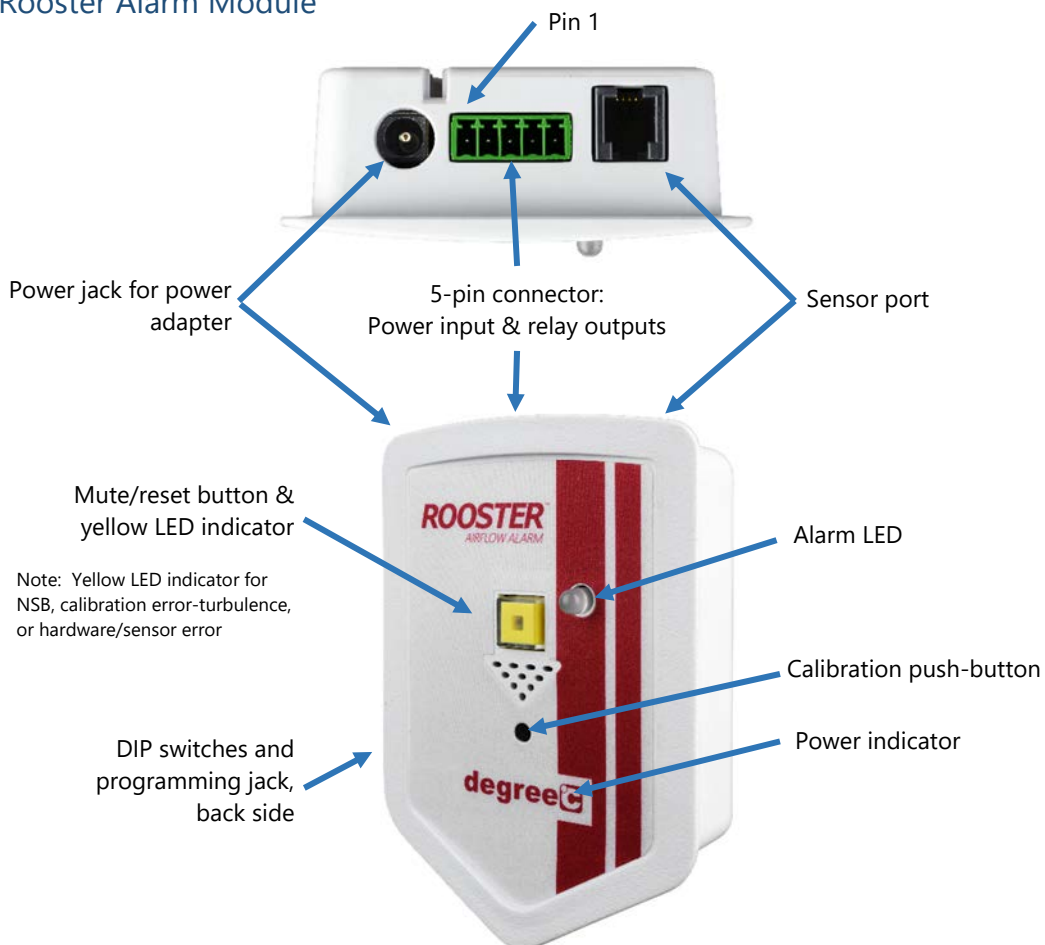
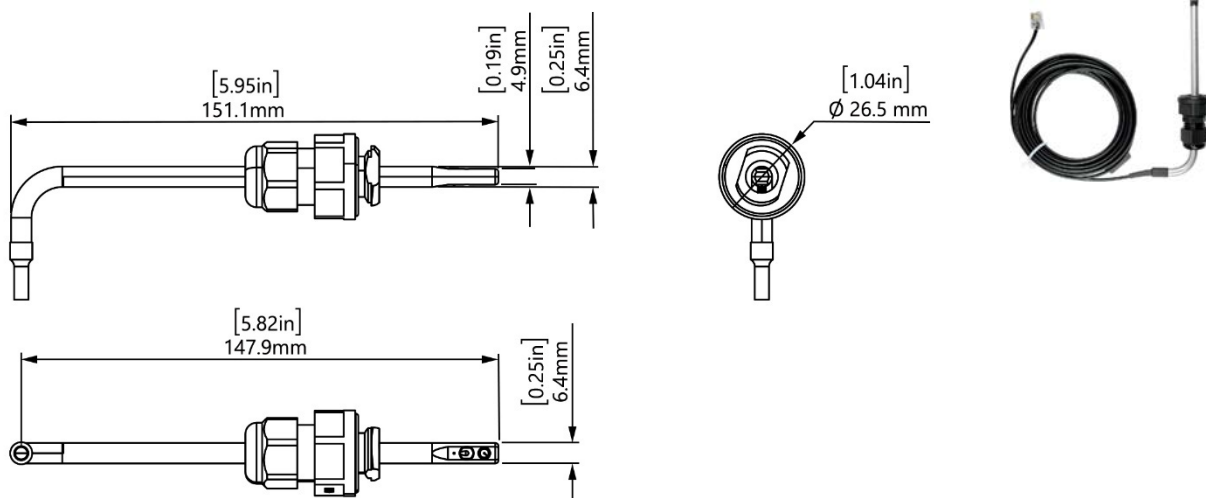


Figure 1 Rooster Alarm

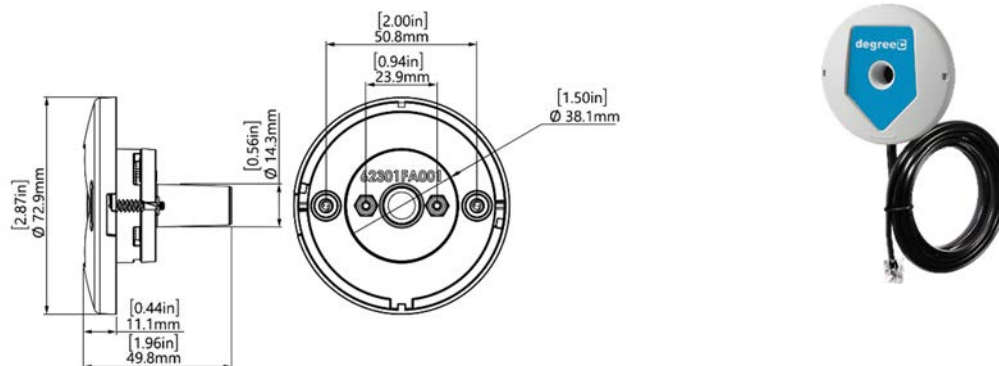
2.4.2 Sensor Options

2.4.2.1 Probe Sensor



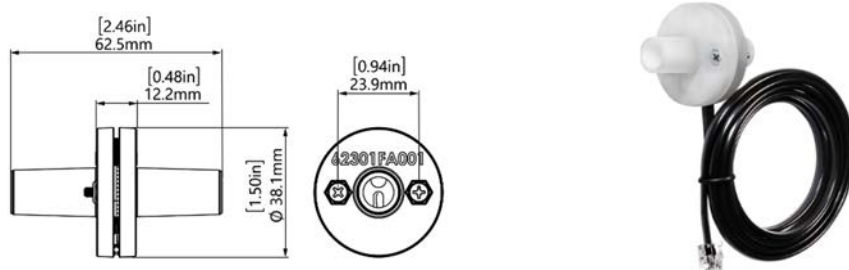
- Adjustable length for 15.2mm - 30mm (6" - 12") ducts
- Single hole mounting with included gland nut
- 3.5m (12') cable with RJ-11 connection plug

2.4.2.2 Sidewall Sensor



- Protective cover/face plate and replaceable protective screen (assembled)
- 600mm (24") PVC tubing to reach interior pressure area
- 1.2m (4') cable with RJ-11 connection plug

2.4.2.3 Inline Sensor



- 600mm (24") PVC tubing to reach interior pressure area
- 1.2m (4') cable with RJ-11 connection plug

3 Installation

3.1 Sensor Mounting

The Rooster Airflow™ Alarm Monitor has flexible sensing options. The primary means of air velocity sensing is via the *Probe* sensor, which is inserted into the exhaust duct. Biosafety cabinets looking to meet NSF-49 compliance will find the duct-mounted, probe installation to be optimal. It is used in the exhaust flow of Class II A or B duct systems, typically on the clean side of the HEPA filter.

For installations where sidewall (also known as flow-through) sensing is desired (predominantly in chemical fume hoods, or applications where the exhaust stream is dirty or hot), sidewall sensor installation methods are provided. Fume hoods which need to monitor sash (or face velocity) airflow should use a *Sidewall* sensor. Installation configurations are available for single wall and double wall fume hoods, where the hood pressure can be referenced to the room, if

needed, using the tube kit included in the sidewall sensing option. In addition, the sidewall sensor's hose line attachment allows for backwards compatibility to preexisting airflow monitor systems.

A special inline retrofit kit is also available, where the sensor element has 1/2" ID PVC hose line attachments for quick connection and very flexible mounting.

3.1.1 Probe Sensor Installation

The Probe sensor should be located in the duct system in the best laminar (stable) flow possible. The sensor should be placed at least two duct diameters away from duct elbows and constrictions, and follow ASHRAE best practices.



Figure 2 Top View of Duct-Mounted Probe Sensor

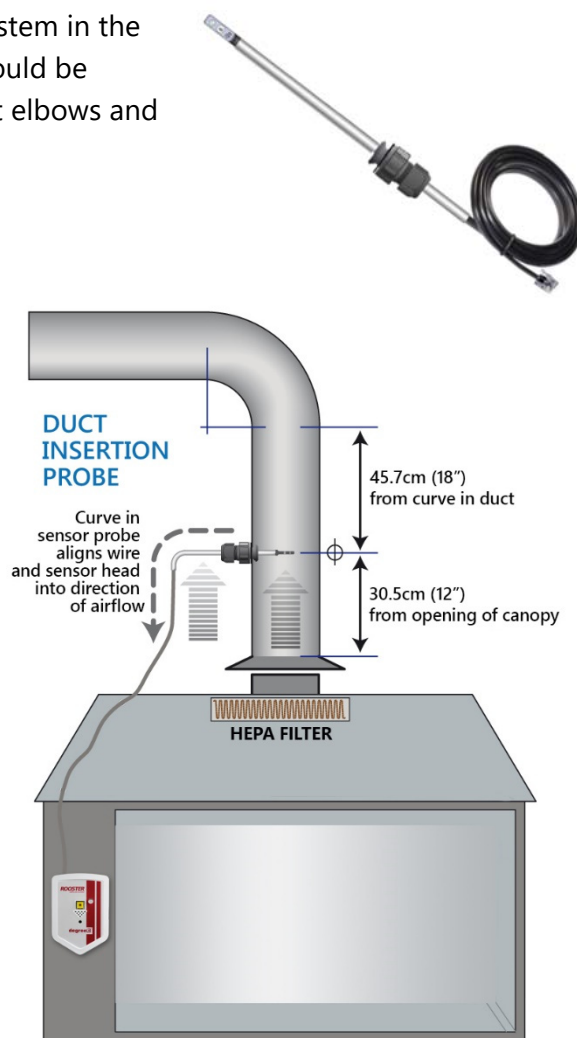


Figure 3 Typical Use in Exhaust Flow on Clean Side of HEPA Filter

Probe sensor installation steps:

1. Drill 16mm [5/8"] hole.
2. Adjust insertion depth and tighten (A) gland nut onto sensor probe.
3. Insert into duct hole, with wider flange first, and then rotate into position.
4. Tighten mounting nut (B) in left-hand direction.

Make sure the sensor head faces airflow by positioning the probe elbow in the flow direction.

A gland fitting is included with the Probe sensor. (Gland Fitting, Degree Controls P/N: HA1203)

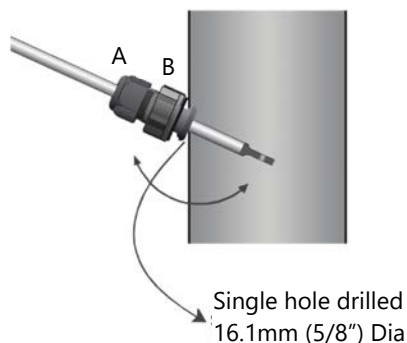


Figure 4 Probe Sensor Installation



Figure 5 Align Sensor Head Into Direction of Airflow

3.1.2 Sidewall Sensor Installation

When determining the face velocity of a negatively pressurized cabinet, the Sidewall sensor is often the best choice, as it measures clean, temperature-controlled, laboratory air. This is preferable to measuring potentially heated, dirty air in the exhaust duct. The Sidewall sensor has a removable air screen, which is washable and provides the sensor with a level of protection against tampering. The Sidewall sensor installs directly to the sidewall or appropriate face wall of your biosafety cabinet or fume hood. The sensor opening should be at least 100mm (4") away from a sash opening or air moving device.



3.1.2.1 Single Wall Cabinet

When an airflow channel only needs to pass through a single sheet metal panel, the "single wall" installation method can be used. This is most typical when the Sidewall sensor is mounted on the side of a cabinet, and airflow simply travels through the sensor body with no need for additional ducting. In this case, the user will not need to use the PVC flex tubing, nor the end cap, which is included in the Sidewall sensor assembly.

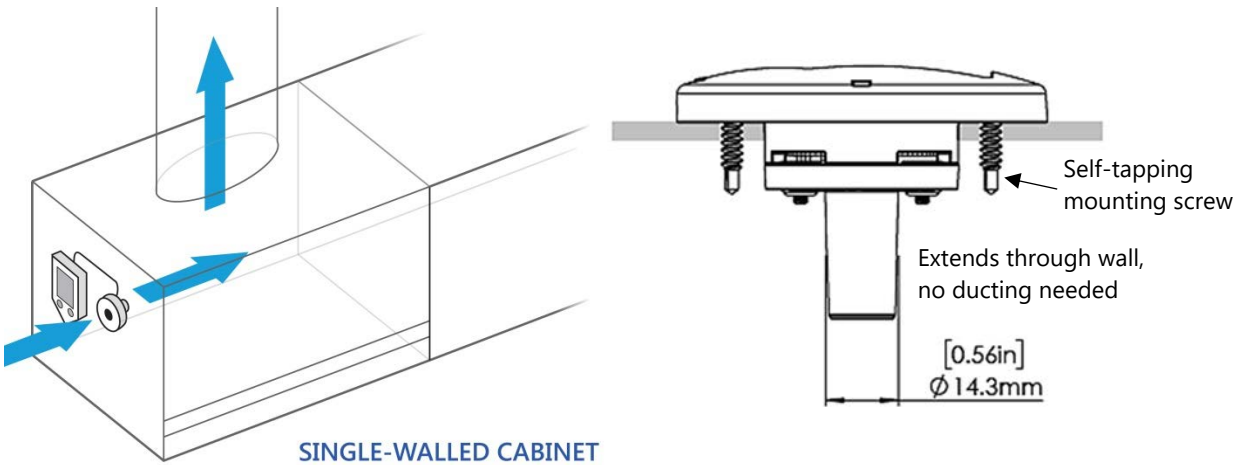


Figure 6 Sidewall Sensor on Single Wall Cabinet

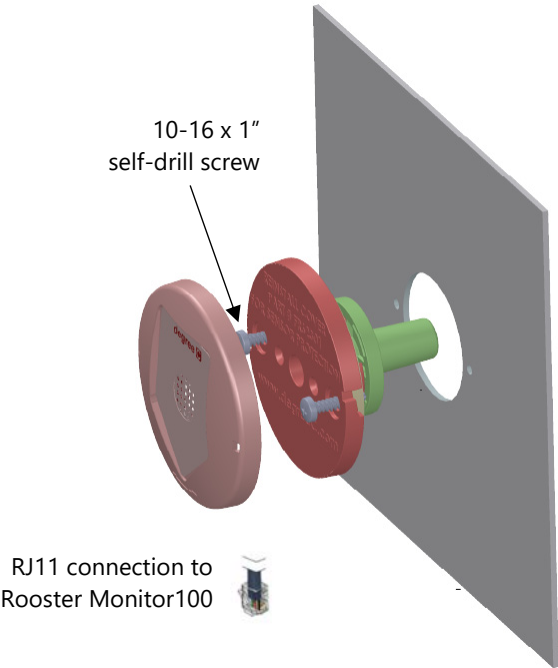


Figure 7 Sidewall Sensor Mounting – Single Wall Cabinet

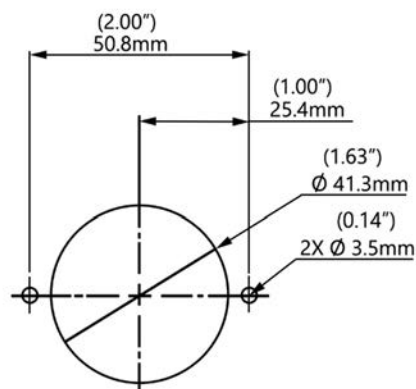


Figure 8 Sidewall Sensor Mounting Dimensions

The RJ-11 connector from the sensor cable rests inside the sensor faceplate notch and protrudes from the sensor bracket. The other RJ-11 connector snaps into the Rooster Alarm Module. This connection needs to be in place, with the cabinet running at operational speeds, before the Rooster Airflow Alarm can be calibrated.

3.1.2.2 Double Wall Cabinet

For those installations where the Sidewall sensor will be on the front face of the fume hood, and a duct is needed to create an airflow path from the front face to the inside face of the cabinet, the "dual wall" installation method is required. This method is also required for installations where the Sidewall sensor is mounted on the side, but there are two sheet metal walls for the air flow to travel through. In both of these scenarios, the Sidewall sensor will need to be installed according to the "dual wall" method depicted in the diagram below. The dual wall solution simply involves the use of the supplied PVC tubing and end cap.

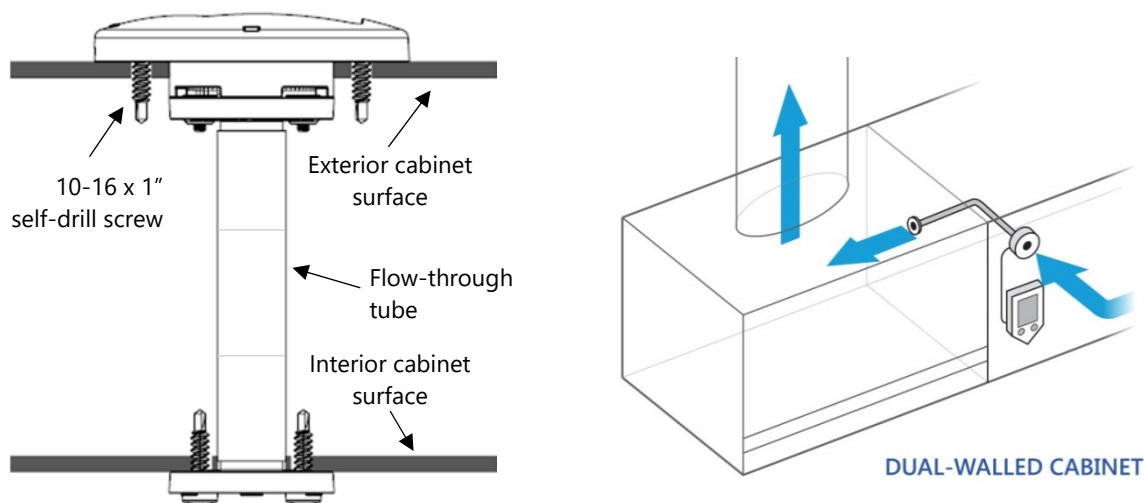


Figure 9 Sidewall Sensor on Dual Walled Cabinet

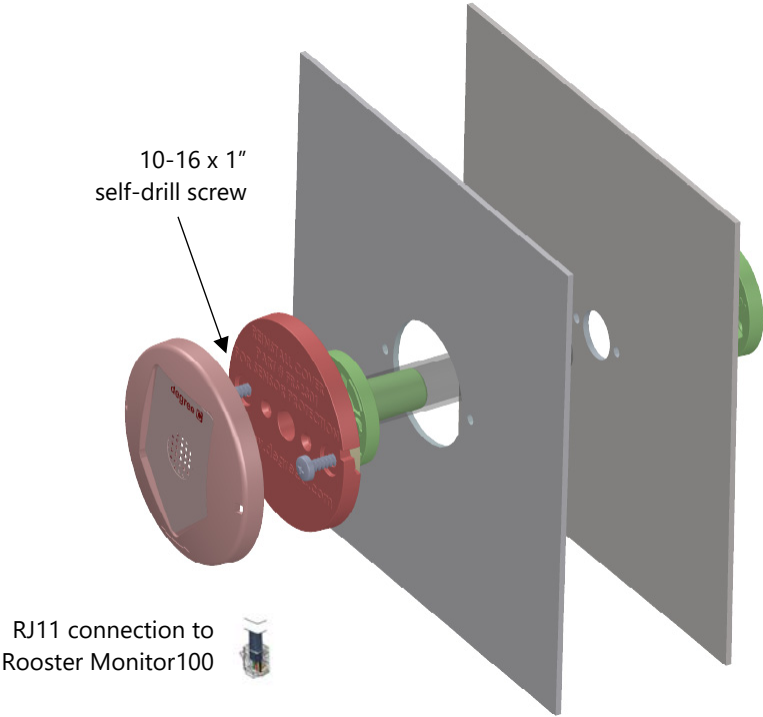


Figure 10 Sidewall Sensor Mounting – Double Walled Cabinet

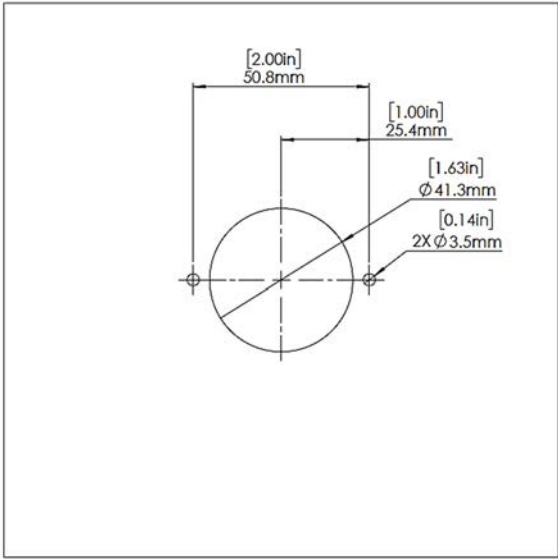


Figure 11 Mounting Dimensions – Wall 1 (Front)

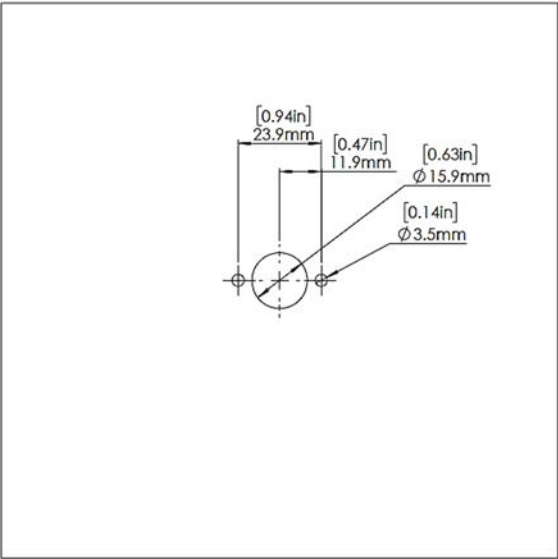


Figure 12 Mounting Dimensions – Wall 2 (Rear)

3.1.3 Inline Sensor Installation

We recognize that certain airflow monitors, already installed in cabinets, may have failed in the field or do not meet the level of safety required in recent years. In addition, in some installations, the equipment manager may require a sensor installation where tampering is prevented, by moving the sensor assembly out of sight and away from any tool access. For this reason, the Rooster can be ordered with an Inline sensor which is quickly connected by splicing into the existing ½" flow tube being used by another monitor. The suggested installation procedure is depicted below. **Inline sensor includes sensor and tubing only. Call Degree Controls for pricing on additional installation components.*

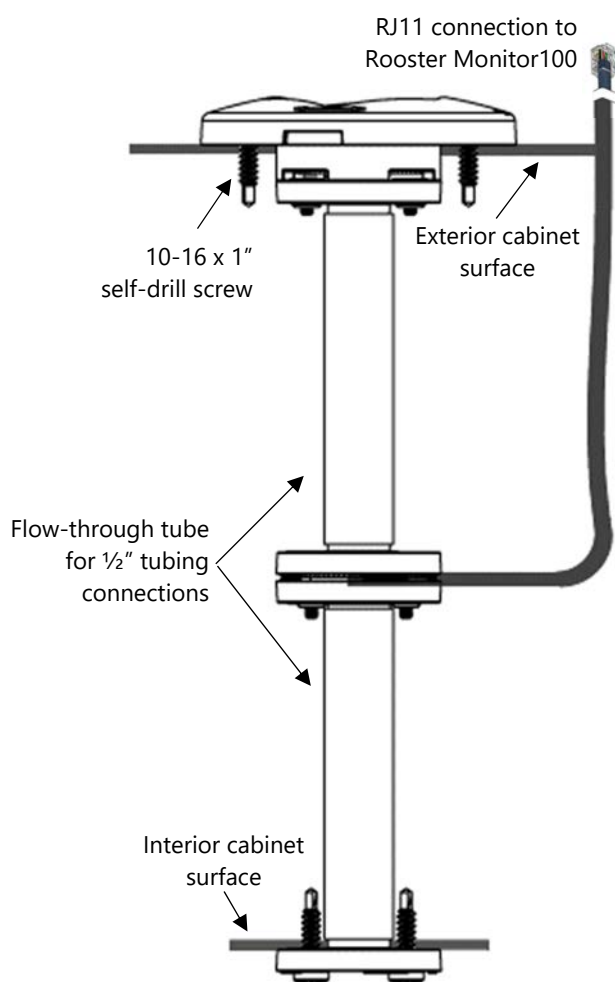


Figure 14 Suggested Inline Sensor Installation

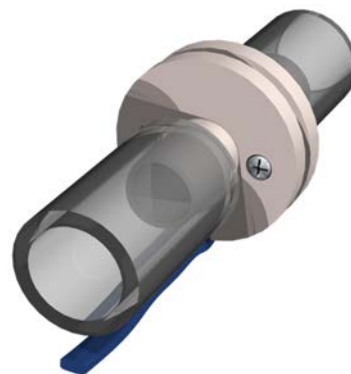


Figure 13 Inline Sensor Includes Sensor with Cable and Tubing Only

4 Startup

4.1 Configuration

Configure your DIP switch settings on the rear of the Rooster Alarm to create the behavior suitable for your application. There are 3 DIP switches on the rear of your unit, which are all set to OFF from the factory.

DIP Switch	Description	On Position Behavior	Off Position Behavior
1	Calibration Method Selection	Method B: Calibrate at trip point velocity	Method A: Calibrate at known safe flow (most common)
2	Alarm Latching Selection	In an alarm condition, the alarm will automatically clear when safe flow returns. This is called an <i>unlatched</i> or self-clearing alarm (most common).	In an alarm condition, the alarm will not self-clear when safe flow returns. Instead, the audible alarm will silence, and the red LED will blink until the user resets it manually by pressing the mute/reset button for 3 seconds. This is called a <i>latched alarm</i> , which is useful to convey that an alarm event occurred while the user was away.
3	Alarm Ring Back (Snooze) Function	When an alarm sounds, and the mute/reset button is pressed, the <i>alarm will ring again</i> after 120 seconds to remind the user of the unsafe condition (most common).	When an alarm sounds, and the mute/reset button is pressed, the <i>alarm is permanently silenced</i> .

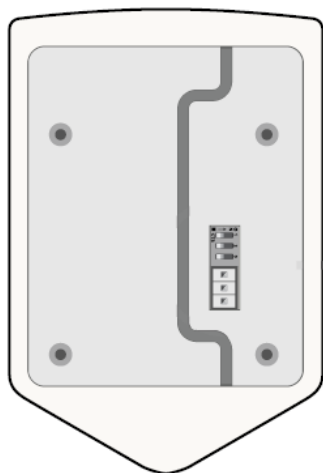


Figure 15 Rooster Rear View

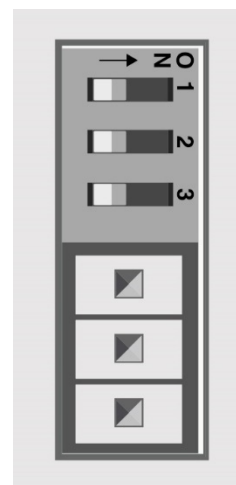


Figure 16 DIP Switch Close Up

4.2 Power Up

Apply power to the Rooster Airflow Alarm with the supplied 100V – 240VAC voltage adapter or 24VDC/AC connection to the terminal block. The Rooster will sound an audible chirp, and the DegreeC logo will illuminate. You will see one of two behaviors:

- If the Rooster has never been calibrated, the red LED will blink in a slow, 3 second sequence.
- If the Rooster has been previously calibrated, it will use those stored settings and begin to blink green while it checks for safe airflow. If airflow is unsafe, the unit will alarm within 5 seconds.

4.3 Calibration

Method A: Calibrate at Known Safe Flow

DIP switch 1 must be set to OFF to calibrate at known safe flow by following these steps:

1. Assert known safe flow.
2. Initiate the calibration process by pressing the calibration button for 3 seconds. The Rooster will learn this safe flow velocity, and the alarm trip point is calculated as a 20% loss of flow from this calibrated value.

Method B: Calibrate at Alarm Trip Point Velocity

DIP switch 1 must be set to ON to calibrate at alarm trip point velocity by following these steps:

1. Run the cabinet at the desired alarm trip point velocity.
2. Initiate the calibration process by pressing the calibration button for 3 seconds. The Rooster will learn this trip point velocity, and, once the cabinet is running normally, will alarm when airflow falls to this calibrated alarm trip point.
3. After successful calibration, return the cabinet to known safe flow.

The calibration process lasts approximately 24 seconds, during which time the LED will blink red. When calibration is successful, the Rooster will chirp, and the LED will blink green to denote healthy operation. The Rooster is now ready for air velocity monitoring. You will find wiring information for optional alarm relay and night setback connections in the [electrical section](#) of this manual.

If there is too much turbulence during calibration, the mute/reset button LED will blink yellow until a successful calibration is achieved.

LED Configuration for Calibration Cycle	Description
Flashing Red	During the 24 second calibration routine
Flashing Green	With audible chirp signals successful calibration
Flashing Yellow	Unsuccessful calibration due to air turbulence

Note: Calibration settings remain in memory even when the Rooster is turned off.

4.4 Operation

4.4.1 Turbulence Fault

If the mute/reset button LED blinks yellow during the calibration process, the sensor has determined a turbulent airflow condition and cannot establish a velocity threshold. Install the sensor in a more reliable location, or make adjustments to the airflow path. Make sure the L-

shaped duct insertion sensor probe and head point toward the direction of airflow. The reset button will continue to flash until a new calibration is done.

4.4.2 Run State

During airflow monitoring, with a calibration threshold setting established, the alarm relay is *energized*, and the green LED will flash every 2 seconds to denote safe airflow and operating within calibrated air velocity range. If the airflow velocity drops below the threshold level for more than 5 seconds, audio and visual alarms will be activated.

4.4.3 Alarm State

When a low airflow condition has been detected, the alarm relay is *de-energized*, flashing the red light quickly and triggering the audio alarm with a two-part hi-low tone. You can silence the audio alert by pushing the mute/reset button, and the red LED will continue to flash. To return to operational monitoring mode, push and hold the mute/reset button for 5 seconds. The green LED will light and the unit will return to the run state, but an alarm will be triggered if the fault still exists. To reset the Rooster to new airflow velocities, establish the necessary airflow conditions in your cabinet and duct system, and initiate a new calibration process.

4.4.4 Error State

If the Rooster reaches a fault condition, the mute/reset button will light solid yellow and an audible warning sound will be heard. In this condition, a forced power reset is necessary. Disconnect the power source, wait ten seconds, and then repower the device. The Rooster will go through its power-up system test, and the green LED will light based on previously established calibration settings.

4.4.5 NSB (Night Setback)

The night setback feature is available on the Rooster Airflow Alarm NSB. If night setback is asserted, the yellow LED will flash, no audible tone.

5 Maintenance & Troubleshooting

Before calling Degree Controls, Inc. for service, please try to:

- Find answers to your queries in this manual. A useful FAQ list is included below.
- Restart the Rooster hardware.

5.1 Frequently Asked Questions

Q: Why is the alarm sounding for known good airflow?

A: First, confirm with an anemometer whether the airflow is at a safe or unsafe level. If the airflow is indeed at a safe level, and the alarm is sounding, verify that DIP switch 1 is in the correct position for the calibration method you have chosen, and then recalibrate the Rooster.

Note: If you've calibrated for known safe flow, but DIP switch 1 was set as cut-off airflow, *the -20% alarm threshold was not built in to prevent nuisance alarming.*

Q: Is there a way to control the audio alarm volume?

A: The Rooster audio alarm volume can be adjusted during power up:

- 1) Turn on power to the Rooster.
- 2) Push the calibration button in with a paperclip during power up.
- 3) After 4 seconds, immediately push the mute/reset button and you will hear a tone based on the current volume setting. Push the reset button to sequence through the various volume options available. When you hear the option you need, stop, and that will be your new volume setting.

Q: Instead of the Velcro mounting tape on the back of the alarm module, are there other mounting methods?

A: The Rooster Alarm Module is designed to fit inside a standard double receptacle outlet box. The Velcro mounting option is often preferred and provides for a simple and flexible installation.

Q: When I shut down my workstation, how do I turn off the Rooster alarm module?

A: The Rooster alarm module should be powered by the workstation's switching auxiliary power supply. If it is connected to a dedicated source such as a wall outlet, then the alarm module will need to be unplugged when not in use.

Q: When I start up my workstation, how do I know if the Rooster Airflow Alarm is working and calibrated for my work process?

A: The Rooster will show a flashing green light when it recognizes proper airflow. A slowly flashing red light indicates an uncalibrated airflow state, and a quickly flashing red light indicates an alarm state.

Q: I need to run my workstation at a slower airflow velocity, how do I recalibrate the Rooster?

A: When you want to operate a workstation outside of the current airflow rate, you will need to recalibrate the Rooster for this new air velocity. Refer to the [calibration section](#) of this manual.

Q: When I reset the alarm to turn off the noise, why does it come back on in a minute or two?

A: The Rooster Airflow Alarm uses a DIP switch to toggle between 'alarm ringback' and 'alarm off' modes. DIP switch settings are described in the [configuration section](#).

Q: The square mute/reset button keeps flashing yellow, how do I fix this?

A: A yellow flashing light indicates airflow turbulence during the calibration cycle. This means the sensor element cannot get a consistent airflow rate with which to establish an alarm threshold. Various conditions may exist, depending on the sensor style.

- With a probe sensor, sensor placement in the airflow stream may be too close to a filter element, air mover, or duct geometry such as an elbow or venturi valve. Consider another location for the sensor.
- The sensor element has a wide, but not unlimited, angle of acceptance for measurement. Ensure that the probe sensor head faces airflow by positioning the probe elbow in the flow direction (see probe sensor installation). The probe sensor head is marked with a flow direction arrow as well.
- With the sidewall and inline sensor styles, the sensor opening should be at least 100mm (4") away from a sash opening or air moving device. Tube positioning or lack of tube connected to the remote sensor device should also be considered if you have a turbulence indication with sidewall or inline sensor styles.

In rare situations a yellow flashing light may indicate that the Rooster is in an error or fault state. See the [error state section](#) for more information.

Q: Is there a way to tell exactly what the LFM (linear feet per minute) of the alarm is set at?

A: No. The alarm threshold is a (minus) percentage of the operational LFM determined by the calibration cycle. Typically set at -20% for NSF regulations, this setting can be changed by using the optional in-field programming cable and Rooster Alarm Programming Kit. Contact Degree Controls, Inc. or visit www.degreeC.com for more information.

Q: Can I set the alarm threshold to an absolute value prior to doing an on-site installation?

A: The alarm threshold cannot be set to an absolute value prior to an on-site installation. The set point is always calculated using the actual flow measurements when a calibration cycle is initiated (calibration button pushed).

Q: Why would I use the Inline sensor in place of the Sidewall sensor?

A: In practice they work the same way. The Sidewall model permits you to install the filter housing and face plate on your cabinet as desired, using a common three-hole pattern. The Inline model uses 1/2" hose (13mm) which is common to some other systems and allows for easy retrofit.

Q: Should I place the probe sensor before or after the HEPA filter?

A: The insertion probe should be positioned on the clean air side of the HEPA filter to reduce its exposure to contaminants and particulate matter. This helps the probe provide accurate and reliable measurements over the longest period of time.

5.2 Cleaning

To clean a unit or its cables, use a mild detergent applied to a clean cloth. Do not use alcohol or ammonia-based solutions.

To clean insertion probe sensor-heads, use an ultrasonic bath.

To clean the sidewall sensor, remove the protective cover, and use canned air to gently dust off the sensor head and protective cover screen. The cover filter is replaceable by ordering #FR62301. Be sure to replace the protective cover when you are done cleaning.

CAUTION: Unplug the sensor before putting it into the ultrasonic bath.

6 Safety Guidelines

Important notices and safety instructions are below. Please read carefully, and follow all instructions and warnings marked on the Rooster and in this manual.



DANGER: INDICATES SITUATIONS THAT COULD RESULT IN THE INJURY OR DEATH OF A HUMAN OPERATOR OR BYSTANDER. WARNINGS ARE PRINTED IN ALL UPPER-CASE CHARACTERS BETWEEN TWO HEAVY HORIZONTAL RULES, AS IN THE FOLLOWING EXAMPLE:



DANGER: FAILURE TO PROPERLY GROUND THE INSTRUMENT MAY RESULT IN ELECTROCUTION OR SEVERE INJURY TO THE OPERATOR.

CAUTION: Indicates situations that could damage the instrument and/or sensors, or cause injury to an operator. Cautions are printed in mixed upper- and lower-case characters, between two heavy horizontal rules, as in this example:

CAUTION: Failure to connect the instrument to the proper electrical voltage as specified herein could result in damage to the power supply and instrument.

NOTE: Indicates miscellaneous information. Notes are printed in mixed case characters, between two heavy horizontal rules, as in this example:

NOTE: For Degree Controls, Inc. contact information, please see the beginning of this manual.

6.1 Dangers, Cautions, and Notes



DANGER: NEVER INSTALL OR OPERATE DEGREE CONTROLS, INC. INSTRUMENTS AND SENSORS WHILE IN CONTACT WITH WATER. YOU MAY BE ELECTROCUTED!



DANGER: DO NOT TRY TO REPAIR AN INSTRUMENT OR SENSOR YOURSELF. THERE ARE NO CUSTOMER-SERVICEABLE PARTS INSIDE. OPENING THE CASE PRESENTS A DANGER OF ELECTRIC SHOCK, AND VOIDS THE DEGREE CONTROLS, INC. WARRANTY.

DANGER: IF ANY OF THE FOLLOWING CONDITIONS OCCURS, TURN OFF THE INSTRUMENT IMMEDIATELY, UNPLUG THE POWER CORD FROM THE ELECTRICAL OUTLET, AND CONTACT DEGREE CONTROLS, INC.:

If smoke, abnormal noise, or any strange odor is present.



If liquid has spilled over or into the instrument.

If the instrument has been dropped or damage is visible.

WHEN EXPERIENCING MALFUNCTIONS, CONTINUING TO USE INSTRUMENTS OR SENSORS IN THE EVENT OF ANY OF THE ABOVE CONDITIONS CAN RESULT IN DAMAGE TO THE EQUIPMENT AND INJURY TO HUMAN OPERATORS!

CAUTION: This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

CAUTION: Avoid exposing the Instrument and sensors to dust, rain, and (condensing) water. Water can cause shorts, corrosion, and, at a minimum, inaccurate readings.

CAUTION: Rooster Airflow Alarm is an ESD sensitive devices. Do not expose the device to ESD.

CAUTION: Rooster Airflow Alarm is designed for room air velocity monitoring only. Air containing chemicals (for example, hazardous gases) may damage the unit. Also, chemicals may change the heat capacity of the air so that the calibration of Rooster Airflow Alarm is no longer accurate.

NOTE: Avoid exposing Rooster Airflow Alarm to direct sunlight or other heat sources. Do not store the unit(s) in an extreme hot or cold environment.

NOTE: Keep Rooster Airflow Alarm away from magnets, motors, transformers, speakers, and televisions.

7 Compliance



This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

CAUTION: This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

WARNING: THIS EQUIPMENT GENERATES, USES, AND CAN RADIATE RADIO FREQUENCY ENERGY AND, IF NOT INSTALLED AND USED IN ACCORDANCE WITH THE INSTRUCTION MANUAL, MAY CAUSE HARMFUL INTERFERENCE TO RADIO COMMUNICATIONS. OPERATION OF THIS EQUIPMENT IN A RESIDENTIAL AREA IS LIKELY TO CAUSE HARMFUL INTERFERENCE IN WHICH CASE THE USER WILL BE REQUIRED TO CORRECT THE INTERFERENCE AT HIS OWN EXPENSE.

8 Degree Controls 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.