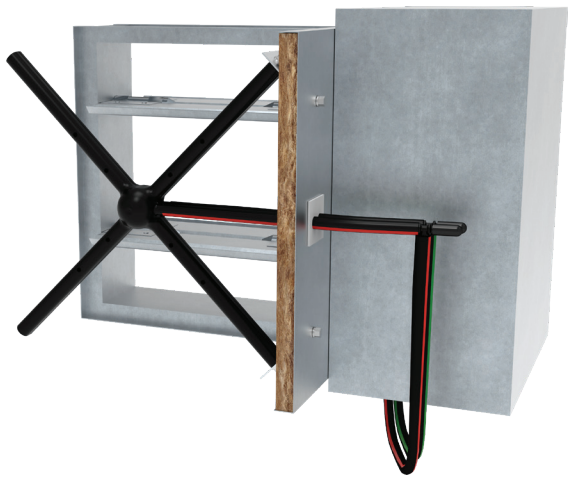
GREENHECK
Building Value in Air.

Document 1041407
Model XG-SR
SQUARE/RECTANGULAR VAV ATU

Installation, Operation and Maintenance Manual

Please read and save these instructions for future reference. Read carefully before attempting to assemble, install, operate or maintain the product described. Protect yourself and others by observing all safety information. Failure to comply with these instructions will result in voiding of the product warranty and may result in personal injury and/or property damage.



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General - Safety Information

Only qualified personnel should install this unit. Personnel should have a clear understanding of these instructions and should be aware of general safety precautions. Improper installation can result in electric shock, possible injury due to coming in contact with moving parts, as well as other potential hazards. If more information is needed, contact a licensed professional engineer before moving forward.

1. Follow all local electrical and safety codes, as well as the National Electrical Code (NEC), the National Fire Protection Association (NFPA), and the Canadian Electrical Code (CEC), where applicable.
2. Unit must be securely and adequately grounded.
3. Verify that the power source is compatible with the equipment.
4. Electrical equipment should be transported, stored, installed, and operated only in the environment for which it is designed.

DANGER

Improper installation, adjustment, alteration, service or maintenance can cause property damage, injury or death. Read the installation, operating and maintenance instructions thoroughly before installing or servicing this equipment.

WARNING

Always disconnect power before working on or near a unit. Use appropriate lockout tagout procedures to prevent accidental power up.

NOTICE: This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.

Receiving Inspection and Hanging/Installation Requirements

Prior to removing the shipping materials, visually inspect the packing materials. There should be a black plastic strip wrapped in the clear plastic stretch wrap. If this black plastic strip is missing, the shipment may have been repacked by the shipper and you should make a note of this on the shipping documents and inform the delivering carrier. If any damage or other concerns are present, make a note of this on the shipping documents and inform the delivering carrier.

After unpacking the Square/Rectangular Retrofit Air Terminals, check for shipping damage. If any shipping damage is found, report it immediately to the delivering carrier.

Always store the product in a clean dry location prior to installation.

Units with controls are not recommended for use in ambient temperatures greater than 95ºF. For protection of controls, do not store in temperatures above 135ºF.

The unit maximum operating static pressure is 3.0 in. wg.

General - Model Number Code

The model number code provides basic identification of the unit. XG-SR502B0608

XG	-	SR	502B	06	08
Brand Greenheck		**Model** SR	**Series** 502B, 502D, 502EX	**Width** 06, 08, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52	**Height** 06, 08, 10, 12, 14, 16, 18, 20, 22, 24, 26

Installation

CAUTION: HAZARD OF EQUIPMENT DAMAGE

Do not use the flow sensor, connecting tubing or damper shaft as a lift point. Damage to the components may result.

NOTICE: Unit is not recommended for installation above 2,000 m.

NOTICE: The Square/Rectangular Retrofit must be installed such that the bottom of the unit is at a height of 2.5 m or greater.

Unless local building codes require hangers, the basic Square/Rectangular Retrofit Air Terminals may be light enough to be supported by the ductwork itself.

Square/Rectangular Retrofit Terminal Units are not designed nor suitable for outdoor use.

In advance of start-up, verify all electrical connections are tight and the correct voltage is supplied to the Square/Rectangular Retrofit Terminal Unit per the rated voltage listed on the unit label. If factory-supplied controls are present, review all wiring diagrams to ensure a complete working knowledge.

IMPORTANT

If equipped with pneumatic controls, the orientation of the Square/Rectangular Retrofit Air Terminal Unit is critical. The pneumatic controls must be mounted right side up. The Square/Rectangular Retrofit Terminal must be level within + or – 10 degrees of horizontal, both parallel to the airflow and at right angle of airflow. The control side of the Square/Rectangular Retrofit Terminal is labeled with an arrow indicating up. Unless otherwise noted, most electric, analog electronic and digital controls are not position sensitive and may be installed in any orientation.

MINIMUM CLEARANCE FOR ACCESS

Square/Rectangular Retrofit Air Terminals require sufficient space to allow servicing of the controls and electric reheat power hookup (if applicable). Horizontal clearance requirements are dependent upon access panel dimensions which are indicated on the appropriate submittal. For control panel access, a minimum of 18” is recommended. See the appropriate submittal for control panel location.

CAUTION

These clearance recommendations are not meant to preclude NEC requirements or local building codes that may be applicable, which are the responsibility of the installing contractor.

FIELD ELECTRICAL WIRING

DANGER

High voltage electrical supply is needed for this equipment. The control cabinet contains live electrical parts. Contacting these parts with power applied may cause serious injury or even death. This work should only be performed by a qualified electrician.

All field wiring must comply with local building codes and NEC. (ANSI/NFPA 70).

When applicable, electrical control and piping diagrams are attached to the inside of the control enclosure cover of the Square/Rectangular Retrofit Air Terminal.

Use copper only conductors with insulation rated 75ºC.

The Square/Rectangular Retrofit Air Terminal must be properly grounded per NEC 424-14 and 250.

Always check product label for voltage and current data to determine the proper wire size and over current protection.

The control panel cover must be closed or in place before applying electric power to the Square/Rectangular Retrofit Air Terminal.

These recommendations are not meant to preclude NEC requirements or other applicable local building codes and are the sole responsibility of the installing contractor.

NOTICE: If the unit is not ordered with an internal disconnecting device then a disconnection device that shall disconnect all phases must be provided by the customer and incorporated in the fixed wiring.

CONTROLS

NOTICE: Square/Rectangular Retrofit Air Terminals with digital controls, if factory programmed, incorporate specific communication addresses. Installing the Square/Rectangular Retrofit Air Terminal in a different location than noted on the Square/Rectangular Retrofit Air Terminal label and building plans may result in excessive start-up labor and is the sole responsibility of the contractor.

Square/Rectangular Retrofit Air Terminals with digital controls, if factory programmed, incorporate specific communication addresses.

INLET FLOW SENSOR

Square/Rectangular Retrofit Air Terminals are shipped with factory-installed (where applicable) pressure differential inlet flow sensors in the primary inlet. See **figure 3** for calibration curve and K factors.

Troubleshooting

Investigating Noise Complaints

- Noise from a Square/Rectangular Retrofit Air Terminal can be due to a variety of conditions and can be difficult to eliminate.
- The first step is to isolate the type, source and direction.
- Generally, noise heard at the air outlet is considered a discharge type.
- Noise heard through the ceiling is considered radiated noise.
- For detailed information concerning noise transmission in buildings, refer to AHRI Standard 885-2008, “Procedure for estimating occupied space sound levels in the application of air terminals and air outlets.”

Discharge Noise

- This is usually caused by high static pressure or little to no internal duct lining downstream of the Air Terminal.
- It can sometimes be caused by the air outlet itself.
- Air outlet generated sounds can be reduced by reducing flow or increasing an outlet size.
- Reducing static pressure, flow or adding additional downstream attenuation materials will reduce discharge sounds from the Air Terminal.

Radiated Noise

- Radiated noise is most commonly associated with Fan Powered Terminals.

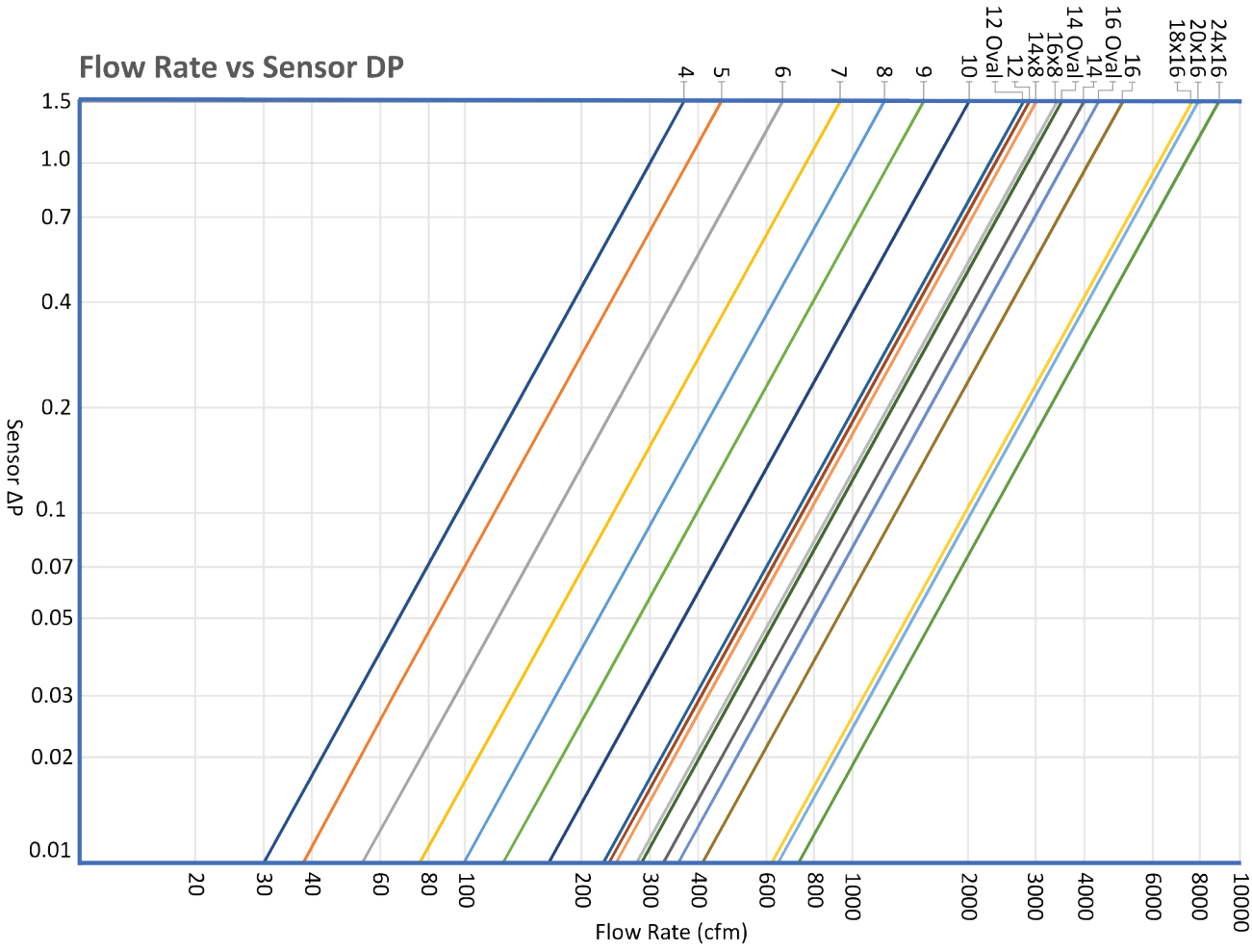
Figure 3 - Multi-Quadrant Averaging Flow Sensor

MODEL	INLET SIZE	K FACTOR
XG-TH, XG-FCI, XG-FCQ XG-FVI, XG-DD XG-DH, XG-BP XG-RT, XG-RA XG-TL (4 to 10) XG-FCI C2 (4 to 8) XG-FVL C2 (4 to 8)	04 Rnd	300
	05 Rnd	375
	06 Rnd	540
	07 Rnd	760
	08 Rnd	990
	09 Rnd	1250
	10 Rnd	1640
	12 Rnd	2350
	14 Rnd	3250
	16 Rnd	4100
XG-TL (12)	12 Flat Oval	2270
XG- TL (14) & XG-FVL C6	14 Flat Oval	2850
XG- TL (16)	16 Flat Oval	3550
XG-FVL C4	14x8 Rect	2450
XG-FCI C4	16x8 Rect	2770
XG-FCI, XG-FCQ, & XG-FVI C7	18x16 Rect	6200
XG-TH 20	20x16 Rect	6430
XG-TH 24	24x16 Rect	7270

Note: K-factor is the calibration flow constant at 1 in. wg delta P

How to tell which sensor you have:
Multi-quadrant - two additional metal balancing taps directly out of the inlet tube.

$$Cfm = \sqrt{\triangle p} \times K\ Factor$$

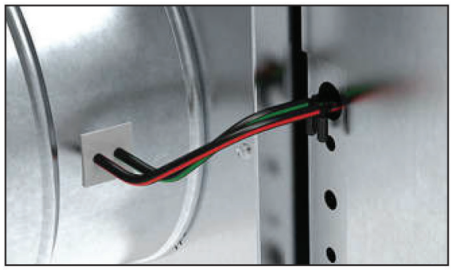


Center Averaging Flow Sensor

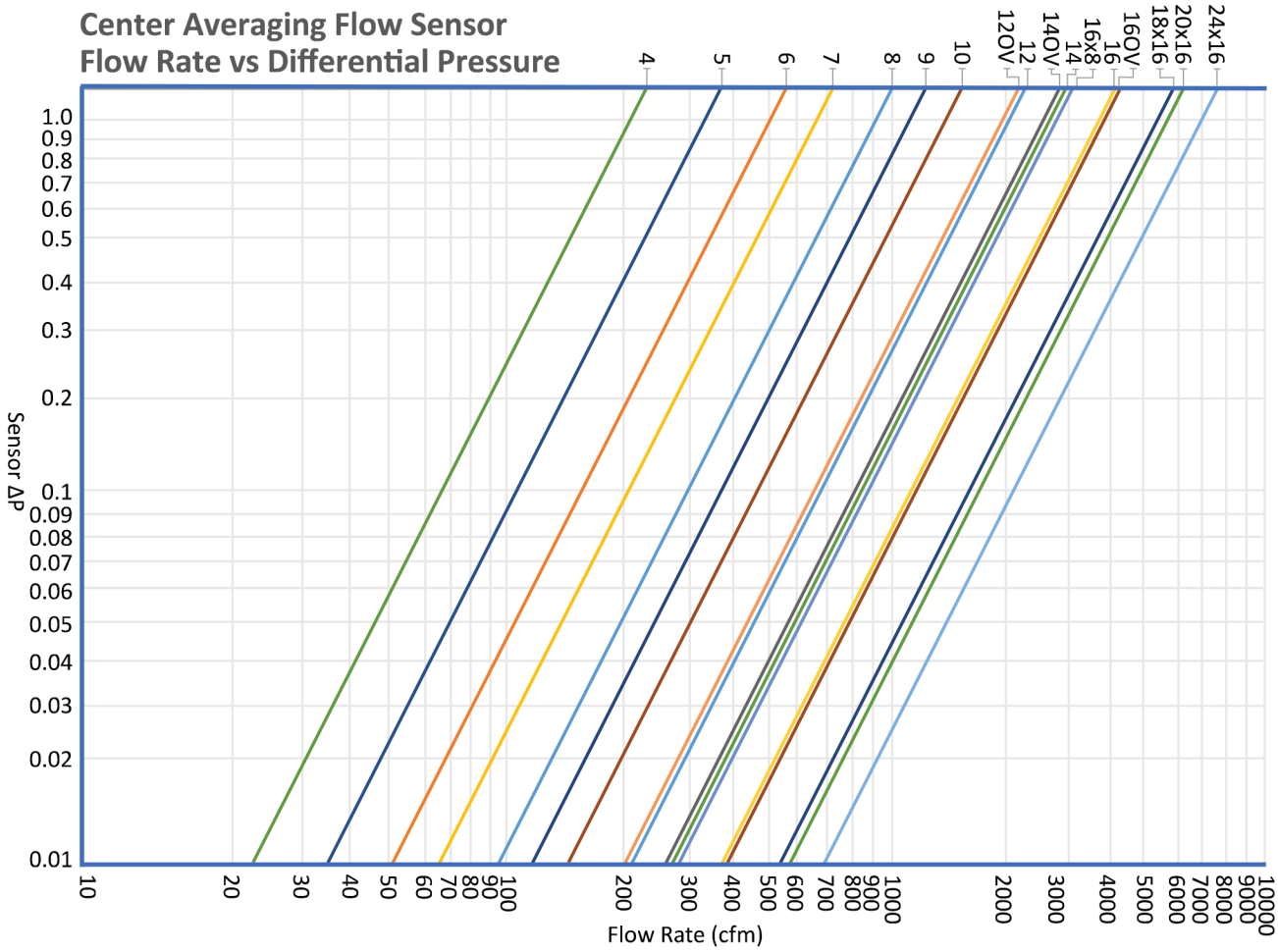
INLET SIZE	K FACTOR
4	215
5	345
6	517
7	658
8	929
9	1154
10	1417
12	2082
14	2718
16	3698
120V	2010
140V	2610
160V	3712
14x8	2491
16x8	2816
18x16	5297
20x16	5670
24x16	6797

Note: K-factor is the calibration flow constant at 1 in. wg delta P

How to tell which sensor you have:
Center Averaging - only two tubes coming out of the inlet tube with a T in the middle of the tubing.



$$Cfm = \sqrt{\triangle p} \times K\ Factor$$



Our Commitment

As a result of our commitment to continuous improvement, Greenheck reserves the right to change specifications without notice.

Product warranties can be found online at Greenheck.com, either on the specific product page or in the literature section of the website at Greenheck.com/Resources/Library/Literature.

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