



Installation and Calibration

REG0111 Pneumatic Volume Regulator

The REG0111 is a direct replacement for REG0097, REG0098, REG0099 and REG0100.

2764-0001-05-00

SAFETY WARNING

Only qualified personnel should install and service the equipment. The installation, starting up, and servicing of heating, ventilating, and air-conditioning equipment can be hazardous and requires specific knowledge and training. Improperly installed, adjusted or altered equipment by an unqualified person could result in death or serious injury. When working on the equipment, observe all precautions in the literature and on the tags, stickers, and labels that are attached to the equipment.

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Warnings, Cautions, and Notices

Read this manual thoroughly before operating or servicing this unit. Safety advisories appear throughout this manual as required. Your personal safety and the proper operation of this machine depend upon the strict observance of these precautions.

The three types of advisories are defined as follows:

WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It could also be used to alert

NOTICE

Indicates a situation that could result in equipment or property-damage only accidents.

Important Environmental Concerns

Scientific research has shown that certain man-made chemicals can affect the earth's naturally occurring stratospheric ozone layer when released to the atmosphere. In particular, several of the identified chemicals that may affect the ozone layer are refrigerants that contain Chlorine, Fluorine and Carbon (CFCs) and those containing Hydrogen, Chlorine, Fluorine and Carbon (HCFCs). Not all refrigerants containing these compounds have the same potential impact to the environment. Trane advocates the responsible handling of all refrigerants-including industry replacements for CFCs such as HCFCs and HFCs.

Important Responsible Refrigerant Practices

Trane believes that responsible refrigerant practices are important to the environment, our customers, and the air conditioning industry. All technicians who handle refrigerants must be certified according to local rules. For the USA, the Federal Clean Air Act (Section 608) sets forth the requirements for handling, reclaiming, recovering and recycling of certain refrigerants and the equipment that is used in these service procedures. In addition, some states or municipalities may have additional requirements that must also be adhered to for responsible management of refrigerants. Know the applicable laws and follow them.

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WARNING

Proper Field Wiring and Grounding Required!

Failure to follow code could result in death or serious injury. All field wiring MUST be performed by qualified personnel. Improperly installed and grounded field wiring poses FIRE and ELECTROCUTION hazards. To avoid these hazards, you MUST follow requirements for field wiring installation and grounding as described in NEC and your local/state electrical codes.

WARNING

Personal Protective Equipment Required!

Installing/servicing this unit could result in exposure to electrical, mechanical and chemical hazards. Before installing/servicing this unit, technicians MUST put on all Personal Protective Equipment (PPE) recommended for the work being undertaken. ALWAYS refer to appropriate SDS sheets and OSHA guidelines for proper PPE. When working with or around hazardous chemicals, ALWAYS refer to the appropriate SDS sheets and OSHA guidelines for information on allowable personal exposure levels, proper respiratory protection and handling recommendations. If there is a risk of arc or flash, technicians MUST put on all necessary Personal Protective Equipment (PPE) in accordance with NFPA70E for arc/flash protection PRIOR to servicing the unit. Failure to follow recommendations could result in death or serious injury.

WARNING

Follow EHS Policies!

Failure to follow instructions below could result in death or serious injury.

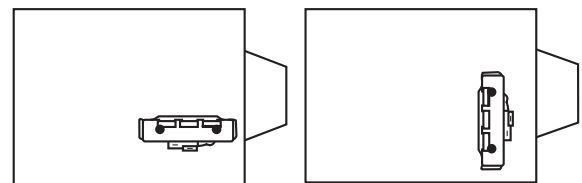
- All Trane personnel must follow the company's Environmental, Health and Safety (EHS) policies when performing work such as hot work, electrical, fall protection, lockout/tagout, refrigerant handling, etc. Where local regulations are more stringent than these policies, those regulations supersede these policies.
- Non-Trane personnel should always follow local regulations.

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Installation

- Attach bracket either vertically or horizontally to the mounting surface. Horizontal is preferred, vertical is acceptable, any other position is not acceptable. See [Figure 1](#).

Figure 1. Acceptable mounting positions



- Insert controller into its bracket. Controller may be face up, face down, face left, or face right. The controllers LO and HI stat Δ P must be calibrated in the same position that it is mounted.

REG0111 is factory calibrated to operate with a Direct Acting Thermostat (cooling/reset start pressure 8 psi) and normally open air valve. If a normally closed air valve or a reverse acting thermostat is used with the application, use the following procedure to calibrate the pneumatic volume regulator.

- For normally open air valves, go to step 2. If a normally closed air valve is used, loosen damper selection switch screw and align the "NC" pointer with the damper points and tighten the screw.
- For Direct Acting Thermostats stop here. For Reverse Acting Thermostats, the reset start pressure must be calibrated (usually 3 psi).
- Connect an accurate 0-10 psi gauge to port "G".
- Input 3 psi or desired reset start pressure to port "T".
- Adjust Reset Start to indicate 0-0.1 psi on port "G". See [Figure 2](#).

Figure 2. Adjusting reset start/selecting normally open/closed

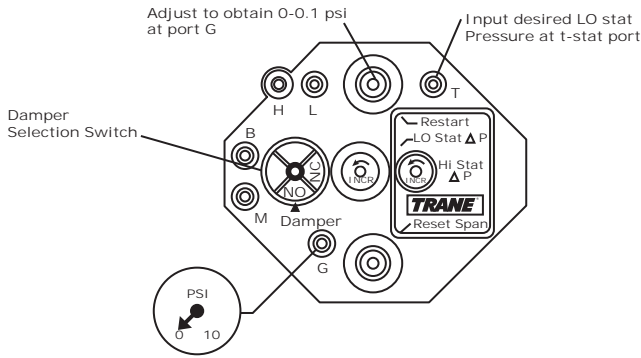


Figure 3. Proper port connections

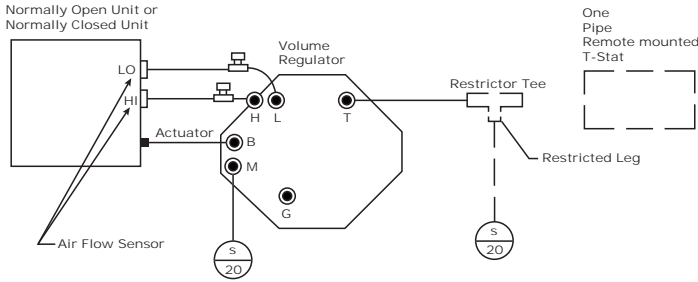
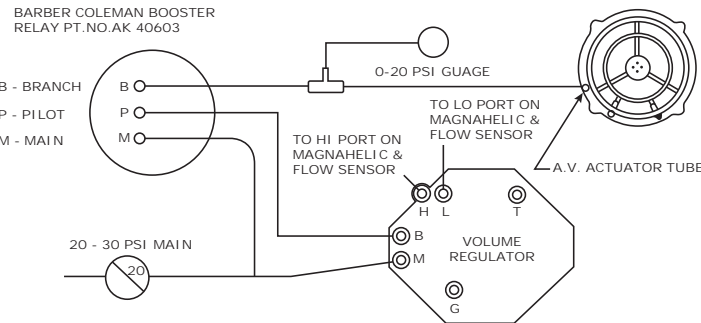


Figure 5. Connecting field supplied booster relay



Normally open valve - Direct/Reverse Acting T-Stat

Note: See Figure 6 for proper connections.

Table 1.

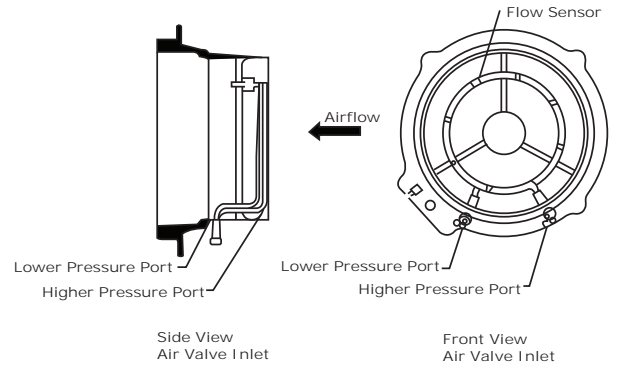
Direct	Reverse
Set port "T" at 0 psi.	
Monitor the ΔP and adjust the LO-stat (minimum) adjustment to desired minimum.	Monitor the ΔP and adjust the LO-stat ΔP (maximum) adjustment to desired maximum. If the actuator pressure is less than 3 psi, the air valve is wide open.
Set port "T" input at 16 psi or greater with the hand pump.	Set port "T" to 16 psi or greater with the hand pump.
Monitor the ΔP and adjust the HI-stat (maximum) adjustment to desired maximum flow. If the actuator pressure is less than 3 psi, the air valve is wide open.	Monitor the ΔP and adjust the HI-stat (minimum) adjustment to desired minimum flow.
Set port "T" at 0 psi.	
Monitor the minimum flow ΔP. If it is not correct, adjust the LO-stat adjustment knob.	Monitor the maximum flow ΔP. If it is not correct, adjust the LO-stat adjustment knob.

Calibration Procedure:

1. Be sure the PVR is mounted correctly and that all connections are hooked up to the proper ports. See Figure 1 and Figure 3.
2. Remove the caps on the tees which are connected to the lines to the flow sensor. Connect a 0-2" magnahelic gauge to monitor flow sensor ΔP. The higher pressure port is further upstream on the air valve inlet. See Figure 4.
3. Remove the thermostat line and connect a hand pump with a 0.20 psi gauge to port "T".
4. Tee a 0-20 psi gauge in the line from port "B" on the Volume Regulator to the air valve actuator.

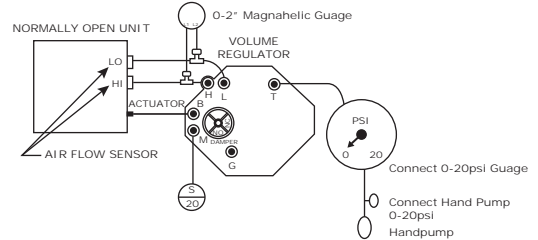
Continue with step 5 for the proper configuration.

Figure 4. Air valve inlet with location of flow sensor and HI/LO pressure port



Note: Varitrane air valves are designed to stroke at ranges from 3 to 9 minutes. Because of this, very accurate zone control can be obtained. During calibration and air balancing it may be desirable to speed up the stroke time. A Barber Coleman AK 40603 booster relay may be used. See Figure 5 for connections.

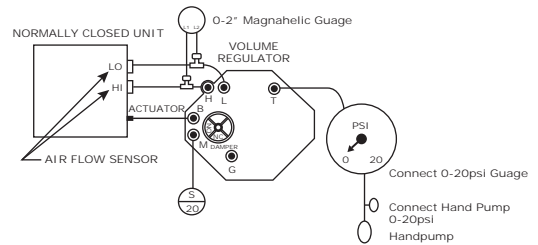
Figure 6. Normally open valve



Normally closed valve - Direct/Reverse Acting T-Stat

Note: See Figure 7 for proper connections and refer Table 1 for instructions.

Figure 7. Normally closed valve



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