SIEMENS

Installation Instructions
Document No. 546-00333
December 8, 2011

Laboratory Room Single Duct Supply Air Terminal

Product Description

The laboratory room single duct supply air terminal (LGS) is a one-piece Insul-Guard® lined laboratory room airflow control device that provides cooling only or optional cooling with hot water reheat air to a room. This device consists of a duct section, a damper blade mounted on a solid, stainless steel damper shaft with Teflon® bearings, and a Flo-Cross® sensor. There is a round duct inlet collar and a rectangular slip and drive connection on the discharge. The low leakage terminal is constructed with 22-gauge galvanized steel.

Options

- Sizes 4", 6", 8", 10", 12", 14", 16", 18"
- Laboratory Room Controller (LRC) and enclosure
- Room Pressurization Controller (RPC) and enclosure
- Hot water reheat coils (one or two row)

Electronic Actuation

- Control packages including an Electronic Actuator assembly with mounting bracket, and a differential pressure transmitter (optional). These parts are included in an enclosure that is factory-mounted to the outside of the terminal.

Pneumatic Actuation

- Control packages including one or all of the following: Analog Output–Pnuematic (AO–P) Transducers, No. 3 pneumatic actuator, and one differential pressure transmitter (optional). These parts can be included in an optional enclosure that is factory-mounted to the outside of the terminal.

Product Numbers

Contact your Siemens Industry, Inc. representative for detailed parts information.

Warning Notation

WARNING		Personal injury/loss of life may occur if you do not follow a procedure as specified.

Required Tools

- Small flat-blade screwdriver
- 3/8-inch open end wrench
- Needle nose pliers
- Duct sealant
- Four 1/2-inch ‘J’ bolts*
- 1/2-inch threaded rod*
- Hanger wire or hanger straps*
- Hanger brackets*
- 1-inch angle iron*
- Sheet metal screws
- 1/4-inch poly tubing

*Needed for *suggested* installation.

Expected Installation Time

30 minutes

Prerequisites

- Terminal ductwork free of debris
- Construction filters in place
- Reheat coils and valves properly sized (if reheat coils are used)
- Supply ductwork installed
- Water lines installed (if reheat coils are used)
- Air lines installed (pneumatic applications)

NOTE: Terminals should be located so that they do not come in contact with rigid conduit, sprinkler piping, Greenfield metal covering, or rigid pneumatic tubing. Do not install terminals tight against concrete slabs or columns because vibrations are amplified through these structures. Also, allow clearance for service access to controls.

Instructions

Installation instructions for the LGSs are presented in the following two sections:

- Section 1 applies to mounting the terminal unit.
- Section 2 applies to actuation.

Section 1 – Mounting

NOTE: These instructions include the use of angle iron hangers or hanger brackets for installation. These materials are merely for *suggested* methods of installation; they *are not* required.

1. Move the terminal to the installation area. Remove the terminal from the shipping package. Do not handle the Flo-Cross® Sensors, damper extension rod, or any controls. Terminal measurements and weights (with and without heating coils), and coil connection information is included in Figures 1 through 6, Table 1, and Table 2.

NOTE: The terminal's round collar must be positioned as the supply inlet. If a controls enclosure is attached to the terminal, the controls enclosure must be mounted vertically.

Table 1. Single Duct Supply Terminal Dimensions.

Duct	Dimensions, Inches (See Figures 1, 2, and 3)				Weight[2,3] lbs	Weight with reheat coils - lbs		Coil Connection OD Inches	
Size	L	H[4,5]	W	D		one-row	two-row	one-row	two-row
4”	22-1/8	8	12	3-7/8	20	—	—	—	—
4”R[1]	27-1/8	8	12	3-7/8	—	30	31	½	7/8
6”	20-1/8	8	12	5-7/8	20	—	—	—	—
6”R[1]	25-1/8	10	12	5-7/8	—	30	31	½	7/8
8”	20-1/8	10	12	7-7/8	24	—	—	—	—
8”R[1]	25-1/8	10	12	7-7/8	—	35	37	½	7/8
10”	20-1/8	12-1/2	14	9-7/8	30	—	—	—	—
10”R[1]	25-1/8	12-1/2	14	9-7/8	—	43	46	7/8	7/8
12”	25-1/8	15	16	11-7/8	35	—	—	—	—
12”R[1]	20-1/8	15	16	11-7/8	—	58	62	7/8	7/8
14”	23-5/8	17-1/2	20	13-7/8	45	—	—	—	—
14”R[1]	28-5/8	17-1/2	20	13-7/8	—	73	75	7/8	7/8
16”	23-5/8	18	24	15-7/8	45	—	—	—	—
16”R[1]	28-5/8	18	24	15-7/8	—	80	82	7/8	7/8

1. “R” indicates unit with optional reheat coil.
2. Weight for an LRC enclosure varies depending on components within the enclosure.
3. Weight for a controls enclosure varies depending on components within the enclosure. See manufacturing data sheets for weights.
4. LRC enclosure dimensions are: 14-5/8" (371 mm) long, 13-1/8" (333 mm) tall, 4-5/8" (117 mm) wide.
5. Controls enclosures must be mounted vertically. Dimensions are: 14-5/8" (371 mm) long, 12-1/8" (308 mm) tall and 5-1/8” (130 mm) wide.

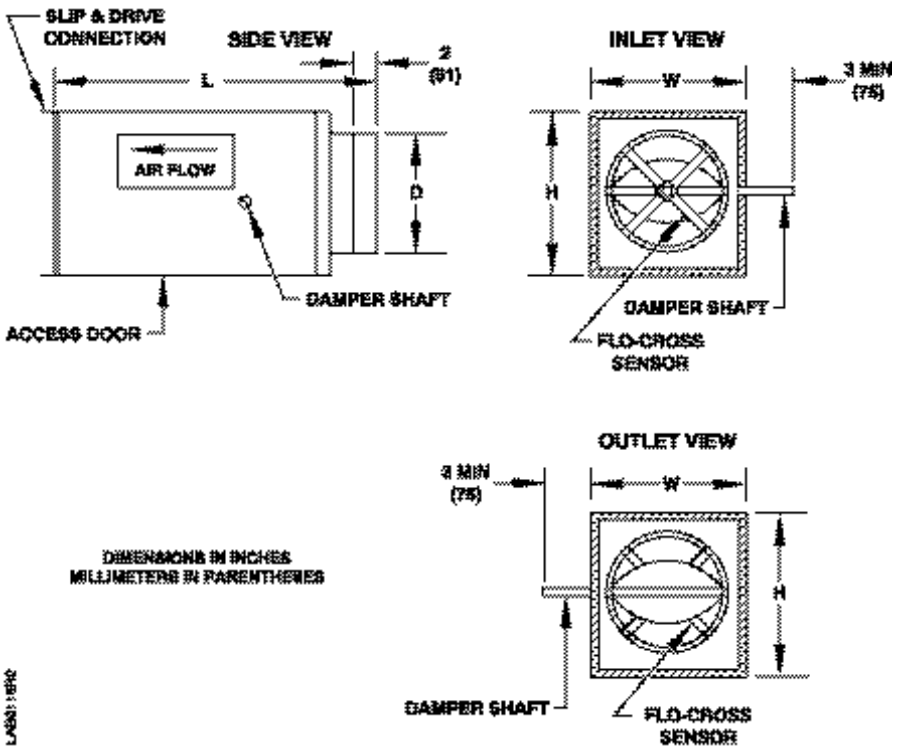

Figure 1. Single Duct Supply Terminal without Reheat.

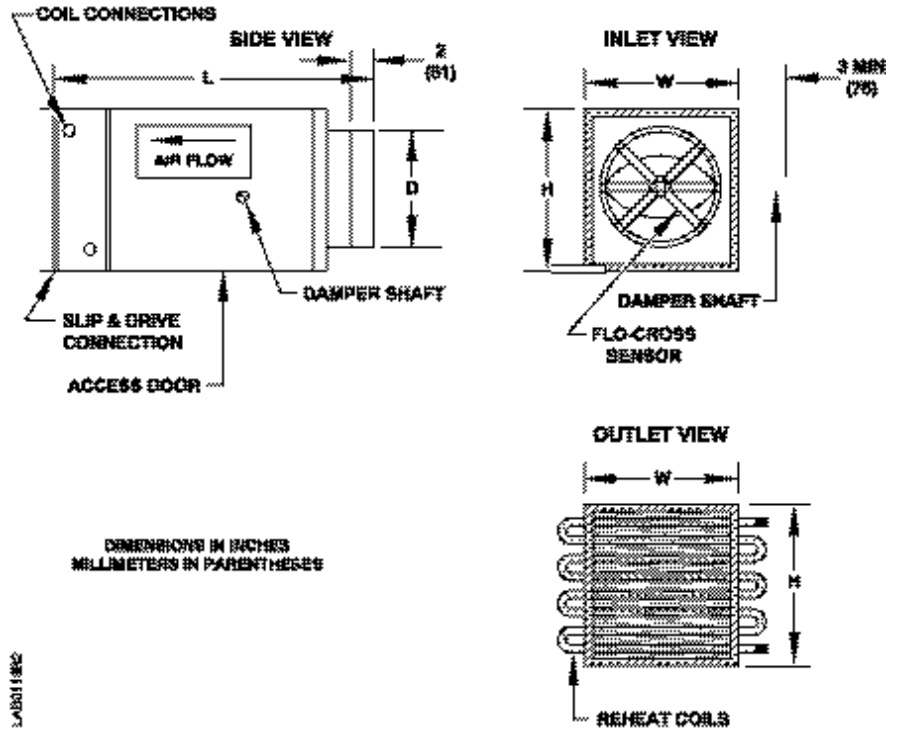

Figure 2. Single Duct Supply Terminal with Reheat and Controls Enclosure.

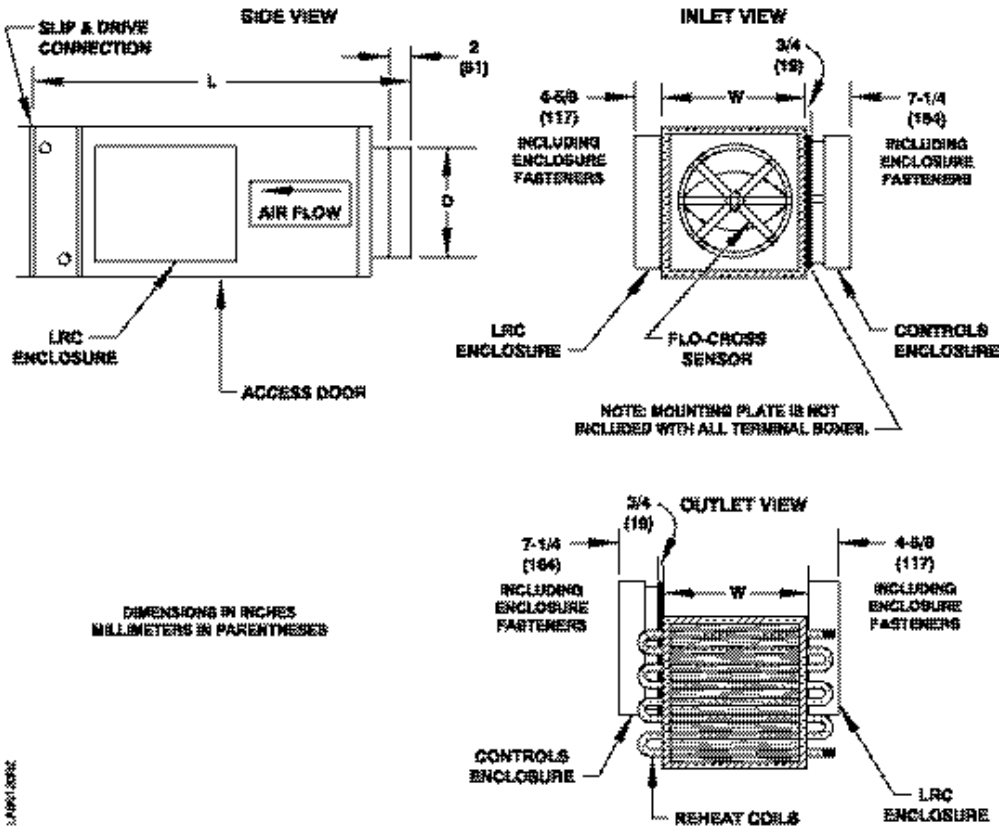

Figure 3. Single Duct Supply Terminal with Reheat, Controls Enclosure, and LRC.

Table 2. 18-inch Single Duct Supply Terminal Dimensions.

Duct Size	Dimensions (See Figures 4, 5, and 6) Inches					Weight[2,3] lbs	Weight with reheat coils - lbs		Coil Connection OD Inches	
		Outlet Side		Inlet Side						
	L	H [4,5]	W	A	B		one-row	two-row	one-row	two-row
18"	19	18	38	15-7/8	23-7/8	47	—	—	—	—
18"R[1]	24	18	38	15-7/8	23-7/8	—	75	77	7/8	7/8

1. "R" indicates unit with optional reheat coil.
2. Weight for an LRC enclosure varies depending on components within the enclosure.
3. Weight for a controls enclosure varies depending on components within the enclosure. See the manufacturers data sheet for weights.
4. LRC enclosures dimensions are: 14-5/8” (371 mm) long, 13-1/8” (333 mm) tall, 4-5/8" (117 mm) wide.
5. Controls enclosures must be mounted vertically. Dimensions are: 13-7/8" (352 mm) long, 12” (305 mm) tall, 7-1/4" (184 mm) wide.

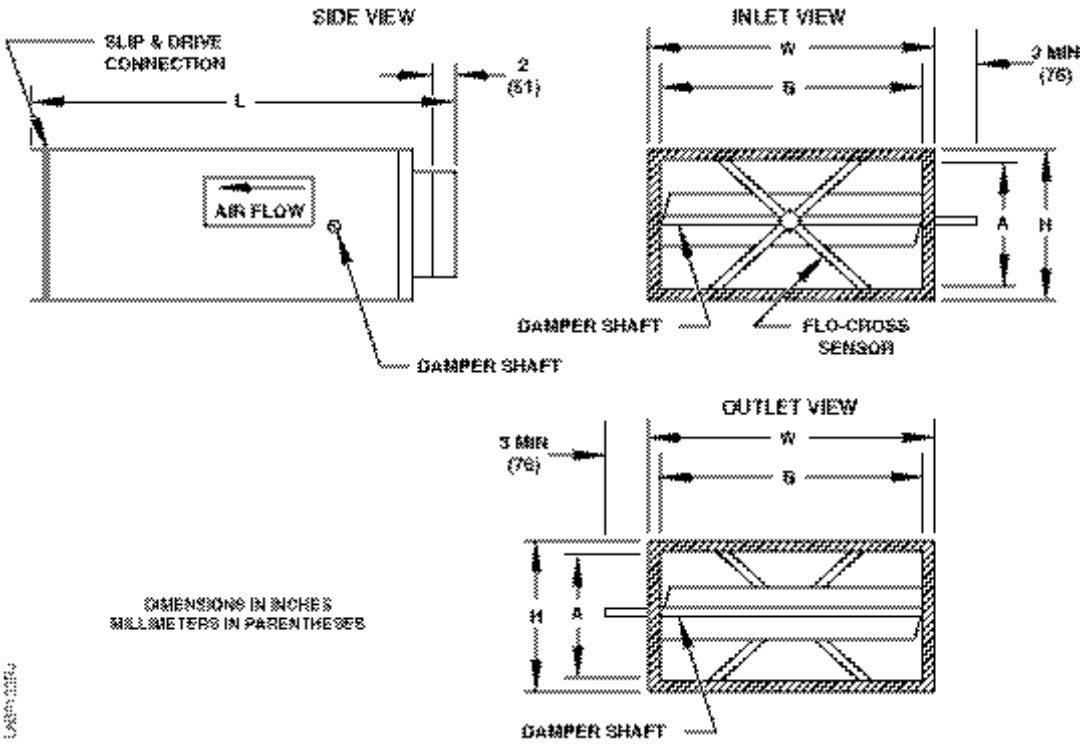

Figure 4. 18-inch Single Duct (High Capacity) Supply Terminal.

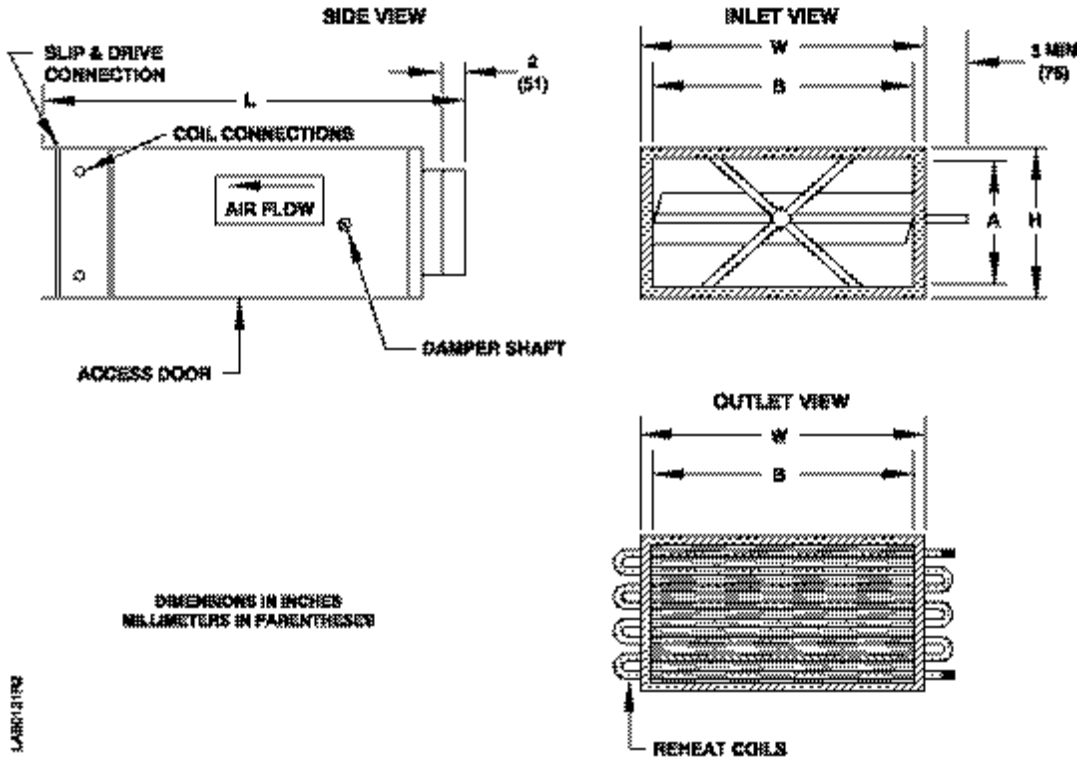

Figure 5. 18-inch Single Duct (High Capacity) Supply Terminal with Reheat.

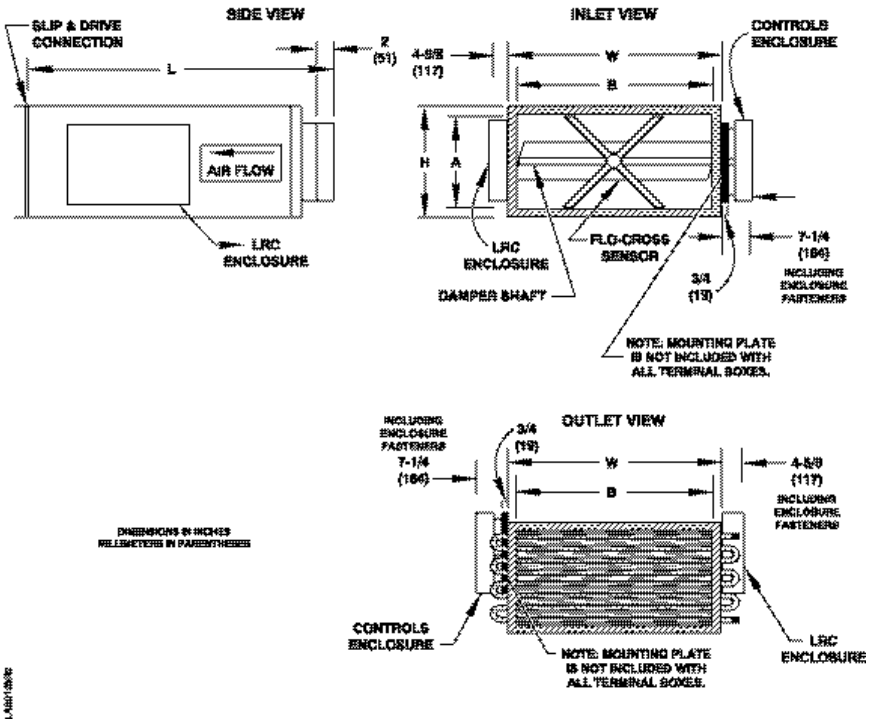

Figure 6. 18-inch Single Duct (High Capacity) Supply Terminal with Reheat, Controls Enclosure, and LRC.

2. **For angle iron hangers.** Cut two pieces of angle iron 4 inches wider than the terminal (Figure 7) and mount the angle iron to the bottom of the terminal using sheet metal screws. Mount the angle iron so that it does not interfere with internal parts or the access panel.

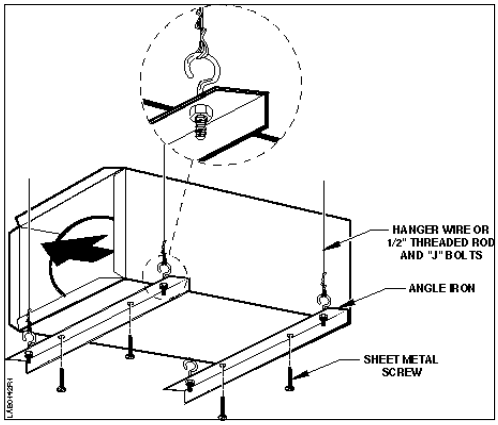

Figure 7. Angle Iron Installation.

3. Drill holes in the angle iron to accommodate the 'J' bolts or threaded rod. If 'J' bolts are used, secure them to the angle iron. Skip to Step 5 if the terminal will be suspended using hanger wire. Skip to Step 6 if the terminal will be suspended using threaded rod.

4. **For hanger brackets.** Mount the four hanger brackets to the top of the terminal using sheet metal screws (Figure 8) so they do not interfere with internal parts or the access panel.

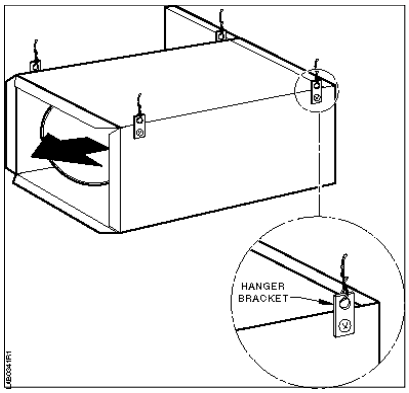

Figure 8. Hanger Bracket Installation.

5. **For hanger wire.** Using hanger wire suspended from the building's bar joist or from mounting anchors properly secured to the building's structure with lugs or poured-in-place hangers, secure the unit and level it in each direction (Figure 7 and Figure 8). Percussion nails are not adequate anchors.

6. **For threaded rod.** Using threaded rod suspended from the building's bar joist or from mounting anchors properly secured to the building's structure with lugs or poured-in-place hangers, secure the terminal and level it in each direction (See Figure 7 and Figure 8). Percussion nails are not adequate anchors.
7. Connect the supply ductwork to the supply terminal's round inlet collar using the accepted trade practice of welding or bolting the supply terminal to the ductwork.

   NOTE: The terminal's round collar must be positioned as the supply inlet. Also, if a controls enclosure is attached to the terminal, the controls enclosure must be mounted vertically.
8. Seal all ductwork and check that the supply air duct connections are airtight.
9. Connect the square slip and drive connection of the supply terminal to the discharge duct.

Section 2 – Actuation

Field Panels and Unitary Controllers (UCs)

For application specific actuator wiring, reference the appropriate controller installation instructions. For actuator wiring, reference the appropriate actuator Technical Instructions.

NOTE: For both field panels and UCs, the AO–P Transducer used in these steps is P/N 545-113.

Tubing Connections

Several pneumatic connections must be made from the field panel or UC to the terminal box to operate the AO-P Transducer and pneumatic damper actuator.

1. **For damper, actuator and valve controls mounted inside the controls enclosure.** Connect the 1/4-inch poly tubing from the 20 to 30 psi supply line to the port labeled "Supply Air 20 to 30 psi" on the side of the controls enclosure (Figure 9).

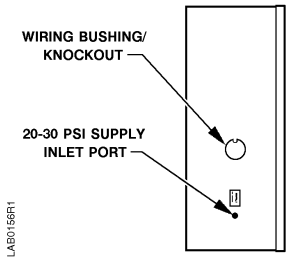

Figure 9. Supply Terminal Pneumatic Piping Connections and Terminal Knockout.

2. **For reheat valve AO–P Transducers mounted to the terminal box.** For field panels and UCs, connect the 1/4-inch poly tubing from the 20 to 30 psi supply line to the reheat valve's AO–P Transducer. Connect the 1/4-inch poly tubing from the AO–P Transducer to the reheat valve.

Wiring Connections

Several electrical connections must be made from the field panel or UC to the terminal box to operate the AO-P Transducer and the differential pressure transmitter.

1. Connect a two-conductor 20 AWG cable to the field panel's 0 to 10V output or UC's universal output. Connect it to the AO–P Transducer or through the wiring bushing/knockout on the controls enclosure (Figure 9) to the AO–P Transducer inside the enclosure. The wire bushing can be removed and a standard 1/2-inch conduit knockout fitting may be installed. Connect the cable to the AO–P Transducer (Figure 10).

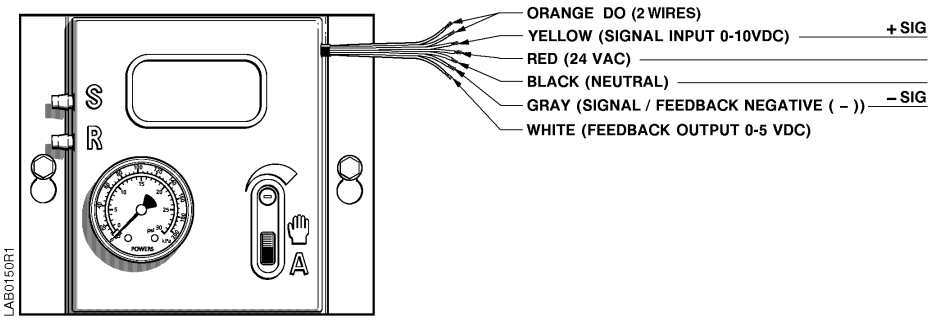

Figure 10. AO-P Transducer Wiring Connections.

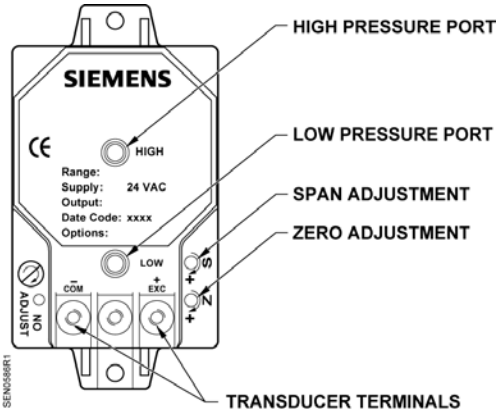

Figure 11. Differential Pressure Transmitter Wiring Connections.

2. Connect a two-conductor 20 AWG cable to the field panel's 4 to 20 mA input or UC's universal input. Connect it to the differential pressure transmitter or through the wiring bushing/knockout on the controls enclosure (Figure 9) to the differential pressure transmitter inside the enclosure. Connect the cable to the differential pressure transmitter (Figure 11).
3. **For reheat coils.** Connect a two-conductor 20 AWG cable to the field panel's 0 to 10V output or UC's universal output and route it to the reheat valve's AO–P Transducer. Connect the cable to the AO–P Transducer.

.

Siemens Industry, Inc.
Building Technologies Division
1000 Deerfield Parkway
Buffalo Grove, IL 60089-4513
U.S.A

Your feedback is important to us. If you have comments about this document, please send them to SBT_technical.editor.us.sbt@siemens.com.