

Unit Conditioner Controllers

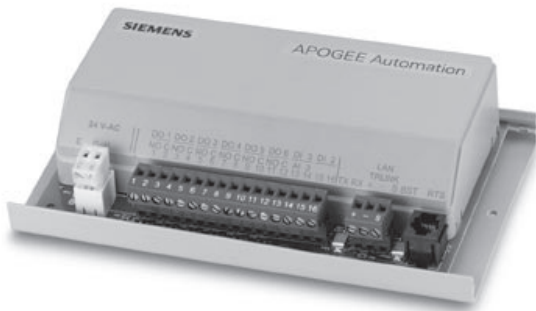


Figure 1. Unit Conditioner Controller.

The Unit Conditioner Controller (Figure 1) is an integral part of the APOGEE™ Automation System. The controller provides high performance Direct Digital Control (DDC) technology for room temperature control of pressure dependent boxes, fan coil units, and induction units. The Unit Conditioner Controller and related components provide a totally electronic control system. The Unit Conditioner Controller can operate independently, stand-alone or networked to perform complex HVAC control, monitoring, and energy management functions without relying on a higher level processor. The totally electronic approach to temperature control includes the following features.

Features

- PID control of HVAC systems to minimize offset and maintain tighter set point control,
- Unique control algorithms for specific applications,

- HVAC diagnostics through communication with a Portable Operator's Terminal at a room sensor or at any field panel,
- Set points and control parameters assigned or changed using the Portable Operator's Terminal,
- Uses Electrically Erasable Programmable Read Only Memory (EEPROM) for storing set points and control parameters—no battery backup required,
- Returns from power failure without operator intervention,
- Uses proven APOGEE Automation System DDC architecture,
- No calibration required, thereby reducing costs.

Applications

Operating independently, or as part of the APOGEE Automation System, the Unit Conditioner Controller can control a variety of applications, including:

- Pressure Dependent Terminal Boxes:
 - Heating or Cooling
 - Hot Water Reheat
- Fan Coil Units:
 - Heat or Cool
 - Heating and Cooling
 - Three Stage Electric Heat & Chilled Water
 - Three Stage Electric Heat and Two Stage Cooling
 - Hot Water Heat and Two Stage Cooling
- Induction Units

Description

The Unit Conditioner Controller consists of an electronic controller assembly. Control algorithms are preprogrammed. The controller is ready to operate after selecting the application and assigning the unit's address with the Portable Operator's Terminal. If desired, the operator may use the Portable Operator's Terminal to adjust the room set point and other control parameters. The controller is designed for operation and modification without vendor assistance. A Pneumatic Transducer provides for control of pneumatic damper and valve actuators.

Unit Conditioner Controller

This controller provides wiring terminals for input/output, system and local communication, and power. The cable from the room sensor connects to the RJ-11 jack on the controller. All other connections are removable block terminations. The controller assembly is mounted on a plastic track that is mounted directly on the fan coil unit, induction unit, or pressure dependent box. An optional enclosure protects the controller assembly.

The controller interfaces with the following external devices:

- Floating control valve and damper actuators,
- Temperature sensors (room, pipe, and duct),
- Portable Operator's Terminal,
- APOGEE Automation System,
- Digital input devices (dry contacts from motion sensors, alarm contacts), and
- Digital output devices (fan, stages of heat or stages of DX cooling).

Specifications

Power Requirements	
Operating Range	18 to 28 Vac 50 or 60 Hz
Power Consumption	Peak 5.0 Va @ 24 Vac Nominal 3.5 Va @ 24 Vac (plus loads)
Input	
Analog	1 room temperature sensor 1 set point (optional) 1 auxiliary temperature sensor
Digital	2 dry contact
Output	
	6 DO 24 Vac optically isolated solid state switch @ .5 amp
Dimensions	4-1/8" W x 7-3/4" L x 1-1/2" H

	(105 mm x 197 mm x 38 mm)
Weight	Approx. 3 lbs. (1.35 kg)
Controlled Temperature Accuracy, Heating, or Cooling	± 1.5°F (.9°C)
Ambient Conditions	
Storage Temperature	-40°F to 167°F (-40°C to 75°C)
Operating Temperature	32°F to 122°F (0°C to 50°C)
Humidity Range	10% to 95% (non-condensing)
Agency Listings	
UL Listing	UL 916 PAZX UL 864 UDTZ
CSA Certified	
FCC Compliance	
Communications	
Remote	LAN Trunk
Local	Portable Operator's Terminal

Pneumatic Transducer

The PTS Pneumatic Transducer (Figure 2) contains the transducers that provide the signal conversion from electronic to pneumatic. The module is piped to the pneumatic actuator and wired to the Unit Conditioner Controller. This transducer provides for accurate control of pneumatic actuators for precise temperature and air volume control.

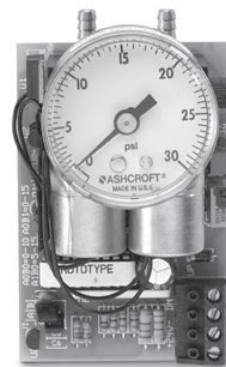


Figure 2. PTS Pneumatic Transducer.

Specifications

Maximum Input Pressure	30 psi (207 kPa)
Air Consumption	0 SCIM
Power Consumption	4 VA @ 24 Vac max.
Dimensions	3-1/2" L x 2-1/4" W x 1-1/2" H (87 mm x 57 mm x 38 mm)
Weight	9 oz (0.3 kg)