

# GENERAL PURPOSE TERMINAL UNIT CONTROLLER

## OVERVIEW

The HVAC controls market requires a versatile yet economical DDC controller that provides multiple independent control loops for different types of equipment in diverse HVAC applications.

The Circon SCC-300-GPC comes complete with easy to configure control loop software combined with a cost-effective hardware platform to provide exceptional flexibility. Configurable for a wide range of applications, the SCC-300-GPC is all you need in a 13-point general purpose DDC controller.

## APPLICATIONS

The SCC-300-GPC can be used in many HVAC applications. Typical uses for its four independent control loops include: unit heater or baseboard heater control, exhaust fan control, lighting control, Variable Volume and Temperature (VVT®) zone control, space static or duct pressure control, and more.

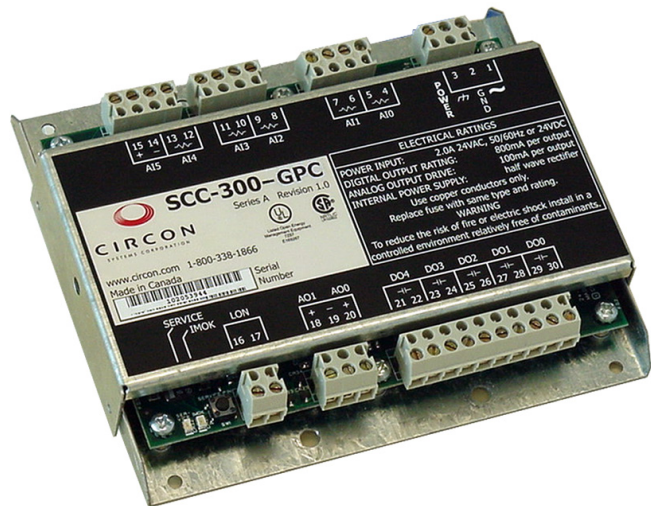
Through flexible configuration options, the control loops provide schedule only, two position, proportional-integral (PI) or VVT zone damper control sequencing. To allow chaining of multiple zone damper control loops that share a common source of heating and cooling, the SCC-300-GPC includes a zone arbitrator to ensure the highest priority request for tempered air is sent to the rooftop unit.

Four independent schedules allow control loops to adapt setpoints to occupied or unoccupied time periods.

The SCC-300-GPC's inputs, outputs, control loop sequences, and alarming, trending, and scheduling functions are all easily configured using simple Windows®-based software which is all fully compatible with Echelon® Corporation's LNS®.

## ORDERING INFORMATION

Part number 10-0395



## FEATURES AND BENEFITS

- Seamless integration into interoperable LonWorks® networks; adaptable for standalone installation
- Easily mounts directly inside equipment
- Four independent control loops allow schedule only, two position, PI or VVT zone damper control sequencing for flexible control of simple HVAC equipment
- Five resistive inputs for space temperature with / without occupancy override button and setpoint adjust slider
- An analog voltage input allows monitoring and control of static or duct pressure, light or carbon monoxide levels
- Five digital (TRIAC) outputs and two analog voltage outputs simplify connecting to a variety of digital, floating and analog-controlled equipment
- Combines with a UHC-320 as the RTU controller to implement a powerful VVT solution
- Onboard soft clock, scheduling, and trending to decrease costs and increase flexibility
- Transmits alarms for local or remote annunciation
- Faster, easier to use LNS plug-ins
- LonMark-certified



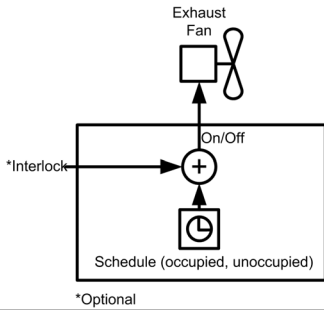
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TYPICAL APPLICATIONS

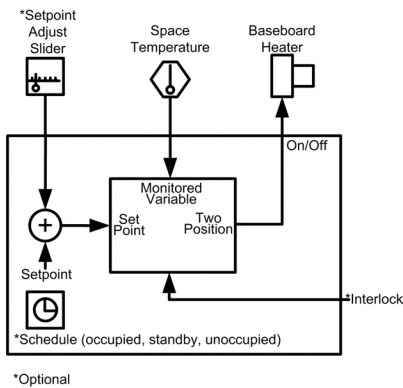
EXHAUST FAN CONTROL USING SCHEDULE ONLY LOOP



A **Schedule Only** loop controls a digital output point based only on a time of day schedule. The output point is turned on during occupied time periods and off during unoccupied time periods. An input point is not required for a Schedule Only loop.

**Interlock** allows an input point to enable and disable the scheduled control. (optional)

TEMPERATURE CONTROL USING TWO POSITION LOOP



A **Two Position** loop controls a digital output point based on the difference between a setpoint and a temperature measured at an input point. The loop can act to cool or heat the space.

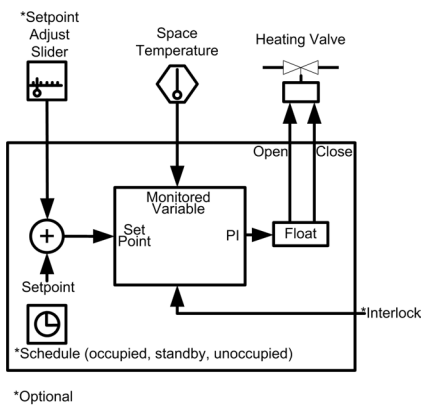
**Occupant adjustable setpoint offset** using a setpoint adjust slider allows all user comfort levels to be satisfied. (optional)

**Scheduling** of occupied, standby and unoccupied time periods, including holidays, allows flexibility and adaptability to meet occupant needs while optimizing energy usage. (optional)

**Unoccupied override** allows the occupant to extend or return to the occupied setpoints by pushbutton override. (optional)

**Interlock** allows an input point to enable and disable the two position control. (optional)

TEMPERATURE CONTROL USING PROPORTIONAL INTEGRAL LOOP



A **Proportional Integral (PI)** loop controls a single or multiple, staged digital output points or it modulates either a floating or analog output based on the difference between a setpoint and a monitored value measured at an input point.

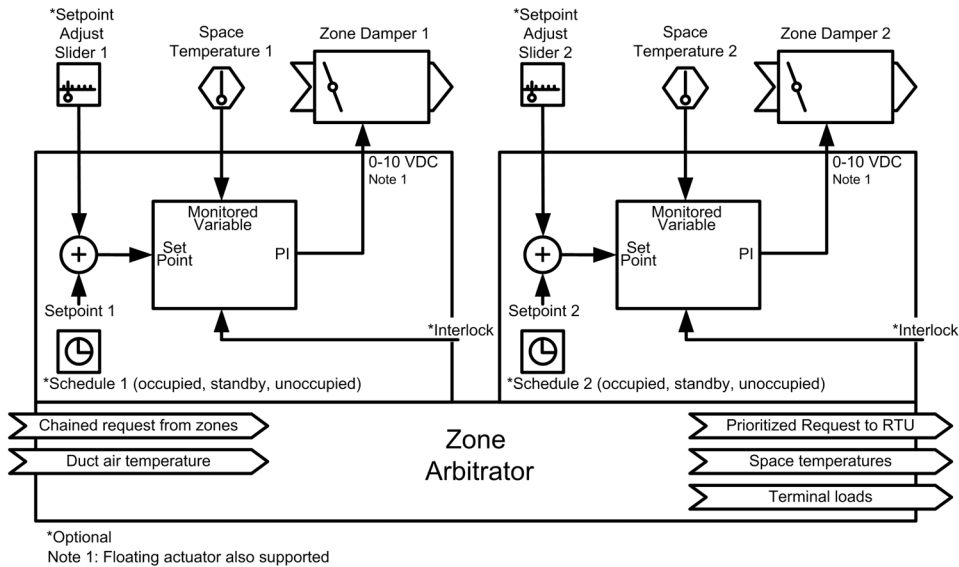
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## TYPICAL VVT ZONE DAMPER CONTROL APPLICATION



### Flexible control

In a typical Variable Volume and Temperature (VVT) system, a single rooftop AC unit supplies tempered air to multiple zones. In each zone a damper then independently controls the amount of tempered air being delivered in order to maintain the zone space temperature at setpoints.

The SCC-300-GPC includes complete floating or analog output control for two zone dampers and limited control for a third zone damper. Chaining allows flexibility in expanding the VVT system over multiple controllers. Combined with a Circon UHC-320 to control the RTU and a SCC-300-GPC PI loop to control the bypass damper, a powerful, cost-effective VVT solution can be provided.

**Scheduling** of occupied, standby and unoccupied time periods, including holidays, allows flexibility and adaptability to meet occupant needs while optimizing energy usage. (optional)

**Individual zone setpoints** for occupied, standby and unoccupied time periods maximize occupant comfort in each zone.

**Occupant adjustable setpoint offset** using a setpoint adjust slider allows all user comfort levels to be satisfied. (optional)

**Unoccupied override** allows an occupant to extend or return to occupied setpoints by pushbutton override. (optional)

**Interlock** allows an input point to enable and disable the PI control. (optional)

**Network variables** provide individual zone's terminal load data allowing an RTU controller to establish the heating / cooling demand over all zones before selecting its operating mode. This prevents the cycling of equipment attempting to adjust to the unique needs of a single zone.

**Zone Arbitrator improves equipment operation** by ensuring that the appropriate request for tempered air reaches the RTU. Each zone can be configured for its priority for heating and cooling requests for the local zones and for any zone chained to it, and sends this request by network variable to the next SCC-300-GPC in the chain. Finally, the RTU controller accepts the heating or cooling request from a collection of zones, via network variable from the last SCC-300-GPC in the chain, and uses that request to select its operating mode.

The Zone Arbitrator broadcasts the average, minimum or maximum space temperature and terminal load of the local zones to allow an HMI to display zone status.

**SPECIFICATIONS**

**I/O CAPABILITY**

6 Inputs	Five 10 kΩ thermistor, Precon curve: Type II model 24 or Type III model 3, or dry contact. One voltage 0-10 VDC
2 Analog outputs	0-10 VDC Max drive 100 mA per output
5 Digital outputs	Isolated TRIAC 800 mA maximum 30 mA minimum, at 24 VAC Short circuit protected, auto-reset

**COMMUNICATIONS**

Transceiver	Echelon Free Topology Transceiver (FTT-10A) @ 78 kbps
Wire type	AWG 22 to AWG 16 stranded (use only twisted pair wiring and copper conductors for network)
Neuron®	3150, 10 MHz

**POWER SUPPLY**

Controller	2.0 A, 24 VAC 50-60 Hz or 24 VDC
Fuse	2.0 A slow-blow (Bussman GMD-2.0A, Littlefuse 23902.0A)
Rectifier	Half-wave

**MECHANICAL**

Operating temperature	32°F to 122°F (0°C to 50°C)
Relative humidity	5% to 95% RH (non-condensing)
Weight	15 oz. (420 grams)
Dimensions	0.8" x 5" x 5.8" (20.3 mm x 127 mm x 147 mm)
Enclosure material	Metal
Mounting	Four sheet metal screws, optional DIN rail adaptor

**AGENCY LISTINGS AND REGULATORY COMPLIANCE**

Class II device when powered by class II supply  
 CSA 22.2 #205-M1983, #950-M89  
 UL 916 certification for Energy Management Equipment  
 Part 15, Class B of the FCC rules for Radio Frequency Devices  
 EMC Directive 89/336/EEC  
 LonMark 3.4 certified

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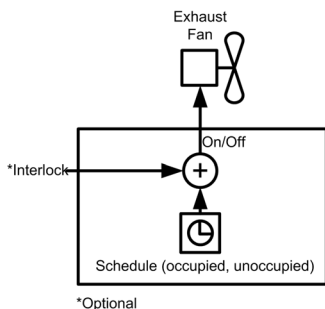
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TYPICAL APPLICATIONS

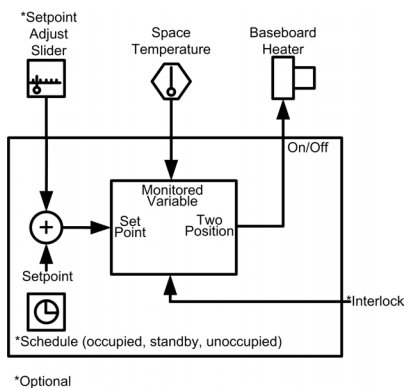
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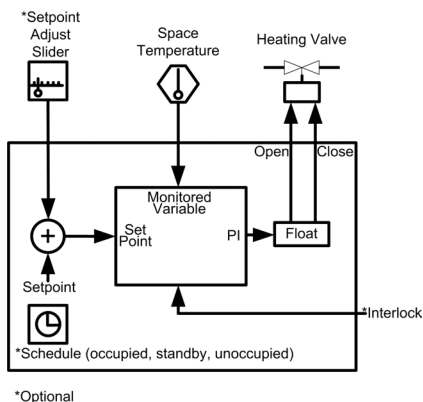
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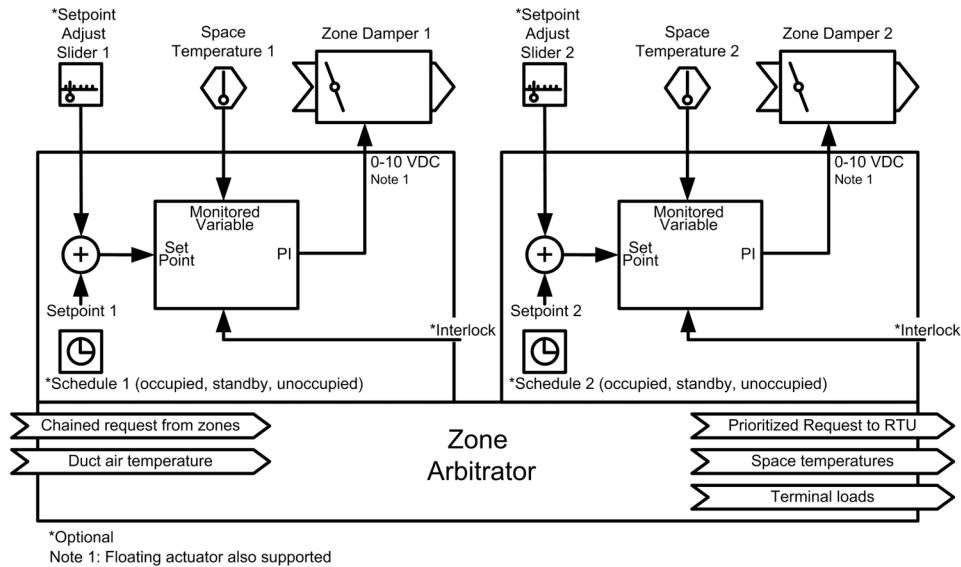
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