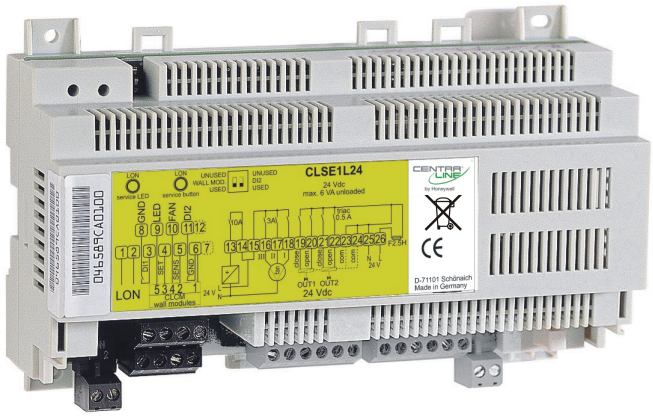
SERVAL

Product Data

CENTRA LINE by Honeywell



GENERAL

The SERVAL Controller is an individual room controller which can be used for a wide range of control applications. It can operate as a stand-alone unit or as a part of a CentraLine control system.

Interfaces are provided for a wide range of actuator types. Heating systems can be water or electric, and cooling systems can be chilled water supply or compressors. Extensive timing and interlock features make them especially suitable for systems using electrical heat and compressors.

Table 1. Overview of equipment (by model)

model	description	CLSE 1L230	CLSE 1L24	CLSE 2L230
power supply	230	X	--	X
	24	--	X	--
digital outputs	1st relay (Fan I)	X	X	X
	2nd relay (Fan II)	X	X	X
	3rd relay (Fan III)	X	X	X
	4th relay (Reheat)	X	X	X
	triac (open OUT1)	X	X	X
	triac (close OUT1)	X	X	X
	triac (open OUT2)	X	X	X
	triac (close OUT2)	X	X	X
	LED	X	X	X
digital inputs	config. digital input	X	X	X
	digital input (window contact)	X	X	X
analog inputs	fan speed + occ. override	X	X	X
	room sensor	X	X	X
	set-point adjustment	X	X	X
analog output	variable-speed fan control or OUT1 or 0…10 V OUT2	--	--	X

FEATURES

- **Direct connection of thermal or floating actuators**
- **Direct connection for up to three fan stages**
- **Direct connection to electrical heat**
- **Supports (via relays) staged fan (up to 3 stages) or (via 0…10 V output) variable-speed fan**
- **Supports (via 0…10 V output) one proportional valve (alternatively to variable-speed fan)**
- **Factory-configured default parameters**
- **Wide range of supported valves and actuators**
- **Interlocks and time delays to protect equipment**
- **Uses Echelon LonTalk® protocol**
- **Wall modules for manual override**
- **Slim design fits into narrow fan coil units and false ceilings**
- **Power supplied by power mains or 24 V**
- **eu.bac certified**

DESCRIPTION

The SERVAL Controller provides room temperature control for two- and four-pipe control circuits with optional electrical heating coils and can control single-, two-, or three-speed, or variable-speed fans (depending upon model – see Table 1). It has factory-set default configuration settings and is fully operable upon installation. Using the COACH configuration tool, the controller can be configured with project-specific settings. Using the CARE engineering tool, the controller can be configured by means of an LNS plug-in. A variety of COMMAND wall modules interface with the controller and provide any or all of the following: setpoint adjustment, fan speed adjustment, and an occupancy bypass button. All wall modules include a space temperature sensor; however, a remote C7068A return air sensor can also be used.

SEQUENCES

Heat and cool sequences can be selected to be active or not active, giving a total of ten different room applications:

- Radiator with heating valve
- Floor heating with heating valve
- Floor heating/ cooling with changeover valve
- Chilled ceiling with cooling valve
- Chilled ceiling with heating/ cooling changeover valve
- Radiator with heating valve, chilled ceiling with cooling valve
- Fancoil unit with heating + cooling valve
- Fancoil unit with heating + cooling + electric reheat
- Fancoil unit with heating/ cooling changeover valve
- Fancoil unit with heating/ cooling changeover valve + electric reheat relay

CE eu.bac Cert

Modes of Operation

The controller has the following modes of operation.

"Occupied" Mode

This is the normal operating condition for a room or zone when occupied. The controller can be switched into this mode by the system time program, by the room occupancy sensor, or using the COMMAND wall module's bypass button. In the "occupied" mode, the fan is controlled by the COMMAND wall module's fan speed switch setting − or, when the switch is set to "auto," by the control algorithm. Within the zero energy band, the fan is switched OFF.

"Standby" Mode

The "standby" mode saves energy by reducing heating or cooling demand when the room is temporarily unoccupied. Within the zero energy band, the fan is switched OFF.

"Unoccupied" Mode

This mode is used for longer unoccupied periods, such as at night or during weekends and holidays.

Window Open

If configured for window open detection, the controller automatically disables heat and cool control until the window is closed again. Frost protection remains active.

Frost Protection

If the temperature drops below 8°C, the controller enables the heating circuit as frost protection.

Smoke Control

For smoke control, the fan can be turned ON or OFF with a window open contact.

Fan Failure

When configured with electric reheat, an air flow detector is expected on digital input1. The controller protects equipment by disabling the system when the fan fails.

Changeover

The controller can operate two-pipe room control systems. The changeover input for this function is physically connected to the PANTHER, LION, or TIGER.

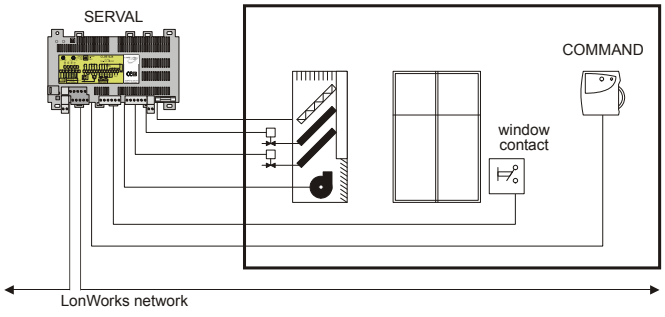


Fig. 1. Typical application, here with fancoil

SPECIFICATIONS

The controller is equipped as shown in Table 2.

Input/Output, Power Consumption

Table 2. Input/output specifications

	function/characteristics
1st DI	configurable to read input from hardwired window contact, occupancy sensor, etc.; suitable for dry contacts, only; max. voltage at open contact = 5 Vdc
1st AI	permanently configured to read input from hard-wired COMMAND wall module's temperature setpoint adjustment knob
2nd AI	permanently configured to read input from hard-wired COMMAND wall module's room temperature sensor
1st DO	permanently configured to write output to LED of hardwired COMMAND wall module
3rd AI	permanently configured to read input from hard-wired COMMAND wall module's 3-speed fan control knob and "occupancy override" button
2nd DI	permanently configured to read input from window contact; enabled / disabled using **right** DIP switch; suitable for dry contacts, only; max. voltage at open contact = 5 Vdc
4th relay	permanently configured to write output to hard-wired electrical reheat coil; switching voltage = 24...230 Vac; switching current = 0.05...10 A
1st, 2nd and 3rd relays	permanently configured to write output to hard-wired 3-speed fan; switching voltage = 24...230 Vac; switching current = 0.05...3 A (max. 3 A for all three relays together)
triac outputs	permanently configured to write output to OUT1/2; switching voltage = 230 Vac (CLSE1L230) or 24 Vac (CLSE1L24), max. switching current = 0.5 A; max. peak (10 sec) current = 1 A • Maximum allowable continuous current for all of the triac outputs together: 1 A. • cos φ > 0.8
AO	CLSE2L230, only: Used (depending upon configuration) to control a variable speed fan or a proportional valve. In order for it (terminal 12) to be used to control a proportional valve, OUT1 (terminals 19 and 20) must be configured for "PWM", and the fan must not be configured for "variable speed fan."

Power Supply

CLSE1L230: 230 Vac +10%, -15%, 50/60 Hz

- Power consumption: < 6 VA (device unloaded)

CLSE1L24: 24 Vac ±20%, 50/60 Hz

- Power consumption: < 3 VA (device unloaded)

CLSE2L230: 230 Vac +10%, -15%, 50/60 Hz

- Power consumption: < 6 VA (device unloaded)

Hardware Design

Processor: Neuron 3150® running at 5 MHz, with 2 kB of RAM and 0.5 kB of EEPROM on chip.

Ext. memory: EPROM, 64 kB by 8.

Specified Sensing Temperature Range

0° to 40°C

Environmental Ratings

Operating temperature: 0...50°C

Shipping/storage temperature: -40...+70°C

Relative humidity: 5% to 95% non-condensing

Dimensions

110 x 180 x 60 mm

Weight

CLSE1L230: 420 g

CLSE1L24: 260 g

CLSE2L230: 420 g

Communications

The SERVAL Controller uses the LonTalk protocol. It supports the LONMARK Functional Profile # 8020 “Fan Coil Unit Controller”, version 2.0.

Approvals and Standards

- CE
- EN50081-1
- EN50082-1
- eu.bac

Accessories

- COMMAND Wall Modules
- Dew-Point Sensor H7018A1003
- LONWORKS termination module XAL-Term
- M7410C Small Electric Linear Valve Actuator
- M6410L Small Electric Linear Valve Actuator
- M5410C Small Electric two-position actuators
- M100 thermal actuators, 24 V and 230 V
- XAL-COV-L Terminal Covers (8 pcs. bulk) – necessary for IP30

System Components

- configuration software: COACH
- front-end software: ARENA
- graphic editor: ARENA EDITOR
- plant controller: PANTHER / TIGER / LION

For detailed information, see related literature.

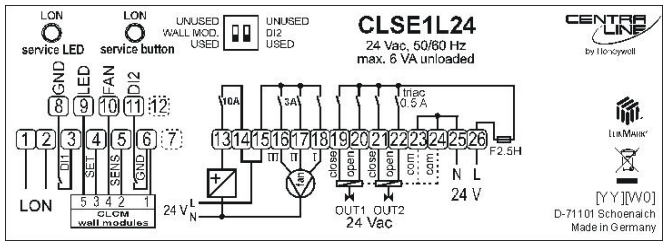


Fig. 2. CLSE1L24 sticker with input/output details

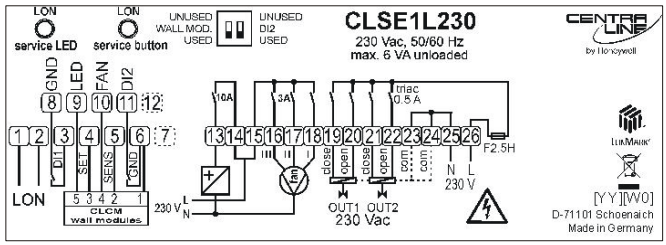


Fig. 3. CLSE1L230 sticker with input/output details

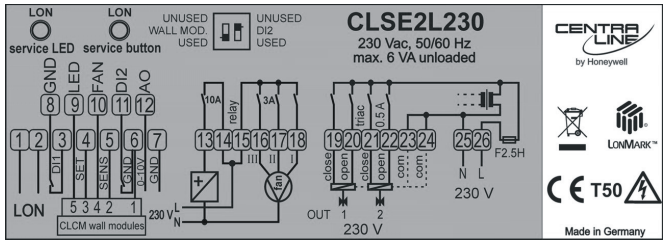


Fig. 4. CLSE2L230 sticker with input/output details

Manufactured for and on behalf of the Environmental and Combustion Controls Division of Honeywell Technologies Sàrl, Rolle, Z.A. La Pièce 16, Switzerland by its Authorized Representative:

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