

HLS ROOM TEMPERATURE CONTROLLERS

The HLS33 is specifically designed for individual room temperature and zone control applications. The controller supports 0..10V actuators, 3-point controlled actuators and thermic actuators (selection via jumper settings). Thermic output provides pulse width modulation.

Temperature is detected by the internal sensor of the HLS33. If an external temperature sensor such as return air sensor is required or room sensor if the unit is mounted on the side of a fan coil, a separate HLS33-EXT model is provided. The external sensor type is NTC10. The measured temperature is maintained at the set point by modulating the position of the actuator to meet the cooling (green light) or heating (red light) demand. The dead zone (no red or green light) between heating and cooling is adjustable (0..3°C). The controller uses P or PI-control action.

HLS 33 outputs can be configured to operate in direct or reverse logic using jumpers S1 and S2. The PWM signal is time proportional and uses 20 second pulses.

The cooling mode can be disabled by connecting terminals Z1 and G0.

HLS33-N and HLS33-N-EXT models have built-in display for the room temperature. When the room set point is adjusted, the display automatically switches to display the set point reading. The display returns to normal operation after 2 second delay.



HLS33, HLS33-EXT



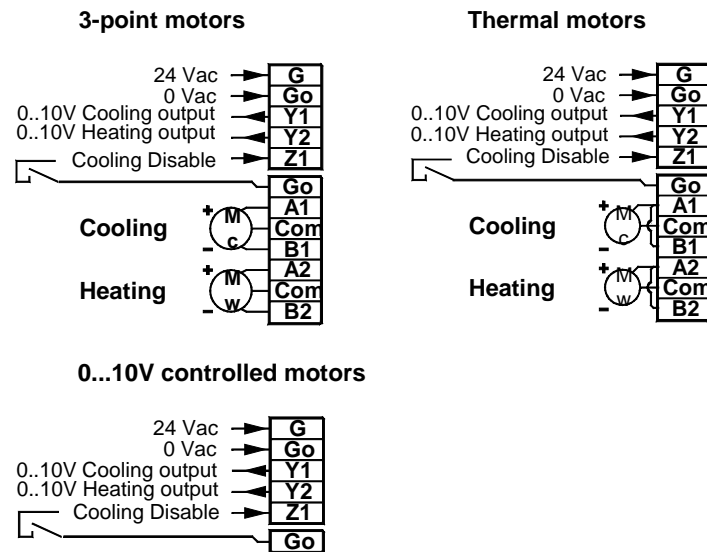
HLS33-N, HLS33-N-EXT

Model Types	Model	Description
	HLS33	HLS33 Room Temperature Controller
	HLS33-N	HLS33-N Room Temperature Controller with Display
	HLS33-EXT	HLS33 Room Temperature Controller with External Sensor Input
	HLS33-N-EXT	HLS33-N Room Temperature Controller with Display with External Sensor Input
Technical Data	Power Supply	24Vac (20...26V), 2VA
	Inputs	Built-in Temperature Sensor 1 x NTC10 e.g. TEHRNTC10 (HLSx-EXT models only)
	Outputs	2 x 0..10Vdc 4 x 24Vac Triacs, 2A maximum
	Set Point Adjustment	21°C ±3°C (factory default = 21°C)
	Accuracy	±0.5°C
	Dead Zone	Dz = 0..3°C (factory default = 1.5°C)
	Proportional Band	Xp = 1..8°C (factory default = 4°C)
	Integral Action Time	Tn = 50..500s (factory default = 300 sec)
	3-Point Control Actuator Runtime	Mt = 30..300s (factory default = 180 sec)
	Protection Class	IP20
	Operating Humidity	0..85% rH non-condensing
	Wiring Terminals	1.5 mm ²
	Housing	ABS Plastics
	Dimensions	87W x 86H x 32D mm

Wiring Terminals



The electrical installation, device connection and commissioning can only be carried out by qualified professionals and according to the local wiring regulations!



Commissioning

Selecting the operations. Settings are located inside the casing on the PCB.

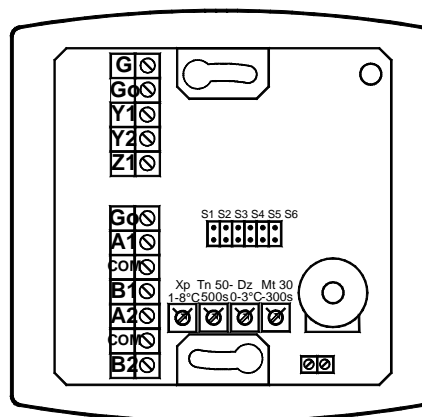
		Operation	Description
S1	off* on	0...10V 10...0V	Y1 = Direct output for cooling actuator Y1 = Reverse output for cooling actuator
S2	off* on	0...10V 10...0V	Y2 = Direct output for heating actuator Y2 = Reverse output for heating actuator
S3	off* on	PI - control P - control	Control mode
S4	off on*	3-point motor thermal motor	Actuator selection
S5	off on*	1-stage cooling 2-stage cooling	Number of cooling stages
S6	off on*	Stage 1 first Stage 2 first	Sequence of the cooling stages, stage 1 = 0..10V output, stage 2 = 24Vac/PWM output

*Factory Setting



Switch off the power before changing the jumper settings!

Terminals,
Trimmers and
Jumpers



Factory Settings

Sp = 21 °C

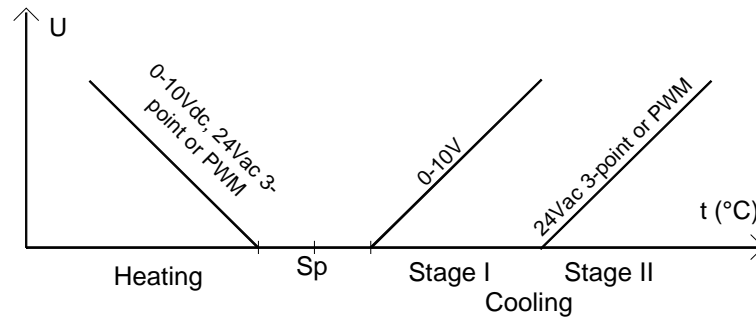
Xp = 4°C

Tn = 300s

Dz = 1.5°C

Mt = 180s

Control Operation



Notes

1. Switch off the power before changing any jumper settings.
2. When the trimmers are adjusted, the corresponding reading can be read from the display (HLS33-N and HLS33-N-EXT models). The display is a plug-in module and it can be temporarily added also to HLS33 and HLS33-EXT.
3. When the 24Vac 3-point control has reached the minimum or maximum output value, the output is overridden for 5 seconds every 5 minutes.
4. After switching power on (or after power failure), the 24Vac 3-point control is driven to a close position for 1.5 x actuator run-time setting.
5. If the cooling action has been disabled and there is cooling demand, the green LED flashes every 30 seconds to indicate cooling demand.

Dimensions

