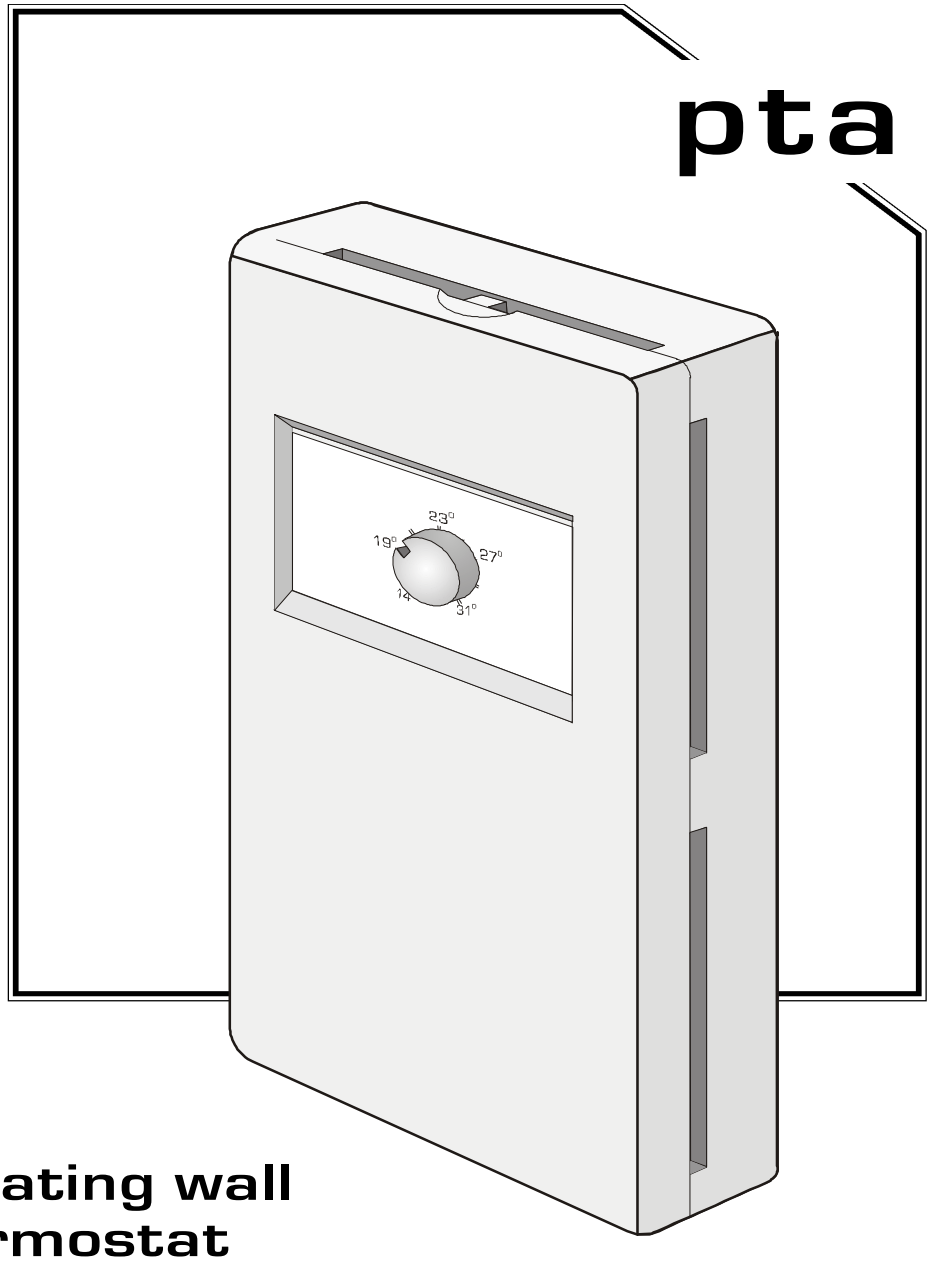
pta

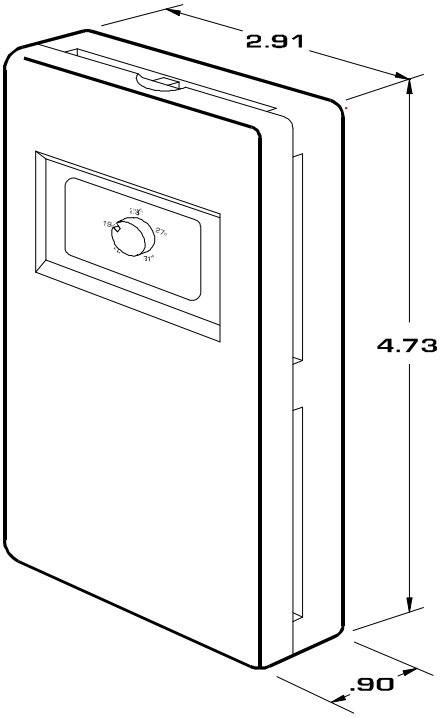


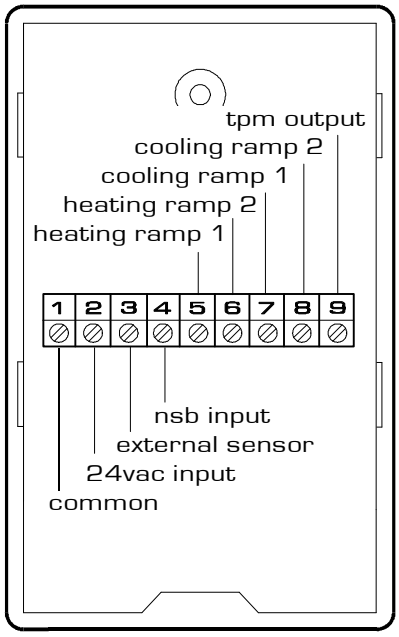
modulating wall thermostat

pta

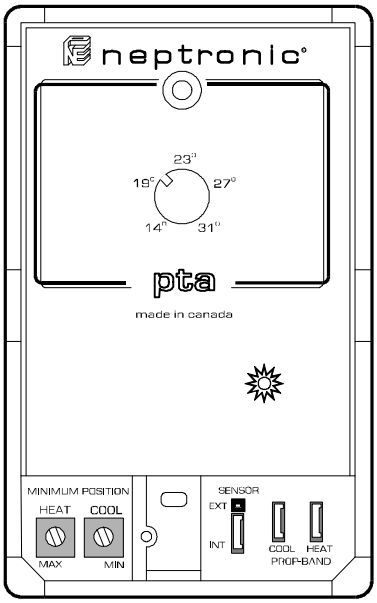
specifications:

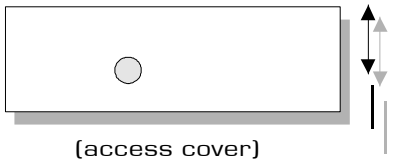
power input:	24 vac ±15%
power consumption:	2va maximum
signal output:	0 - 10 vdc, cooling ramp 1 & 2 0 - 10 vdc, heating ramp 1 & 2 0 or 22 vdc, tpm, (time proportional) output
output impedance:	2 KΩ, heating and cooling ramps 500 Ω, tpm output
ambient temp:	-20° - 50°C (-4° - 120°F)
operating temp:	0° - 45°C (32° - 110°F)
setpoint range:	14° - 31°C (57° - 88°F)
deadband:	± 0.3°C (± 0.5°F)
proportional band:	2° or 4°C (3.5° or 7°F)
nsb input:	0-10 vdc for 0° - ±7°C (0° - ±12°F) deadband expansion; or 24 vac for ± 8°C (± 14°F) deadband expansion
minimum position:	0 to ±9 vdc independently adjustable for heating ramp 1 and cooling ramp 1. Does not affect heating ramp 2 and cooling ramp 2
tpm period:	2 seconds
tpm range:	approximately 90% of heating ramp
tpm resolution:	better than 2%
ext. sensor input:	WS100 or DS100 (optional)





(back view)





(access cover)

description

The **neptronic pta** is a temperature controller with modulating heating & cooling outputs, designed for zone air conditioning applications. Two heating and two cooling ramps (0-10vdc) are available. Heating ramp 2 and cooling ramp 2 are configured as "highest demand" **(hd)** outputs. That is; if two or more pta thermostat's **hd** outputs are connected together the highest demand (highest voltage) signal will appear at this output. This signal can then be used to control mechanical heating or cooling.

In addition to the analog (0-10vdc) heating ramps, there is also a **tpm (time proportional modulation)** output for heating. In a tpm system, the output is high for a percentage of time corresponding to the percent demand. ie: For 100% demand (10vdc on an analog output) the tpm output is high (22 vdc) 100% of the time. For 40% demand (4 vdc on an analog output) the tpm output is high 40% of the time and low (0 vdc) 60% of the time. The tpm period on the pta is 2 seconds. A visual indication of the state of the tpm output **(heat)** is available under the front cover. (fig.#1) The output is 0 or 22 vdc which is used to trigger Triac switches or solid state relays to modulate electrical heaters.

Night set back (nsb) input is available to expand the deadband around the setpoint for energy savings during unoccupied periods. The input is 0-10 vdc which corresponds to 0 to ±7°C (0 to ±12°F) of deadband. 24 vac can also be used as the nsb input in which case the deadband would be ±8°C (±14°F).

The **minimum position** for cooling ramp 1 and heating ramp 1 are each adjustable from 0 to ±9 vdc. Access to these adjustments are under the access cover. (fig. #1)

An **internal temperature sensor** is standard with the pta. An external sensor (WS100 or DS100) may be used by setting the appropriate jumper located under the access cover.

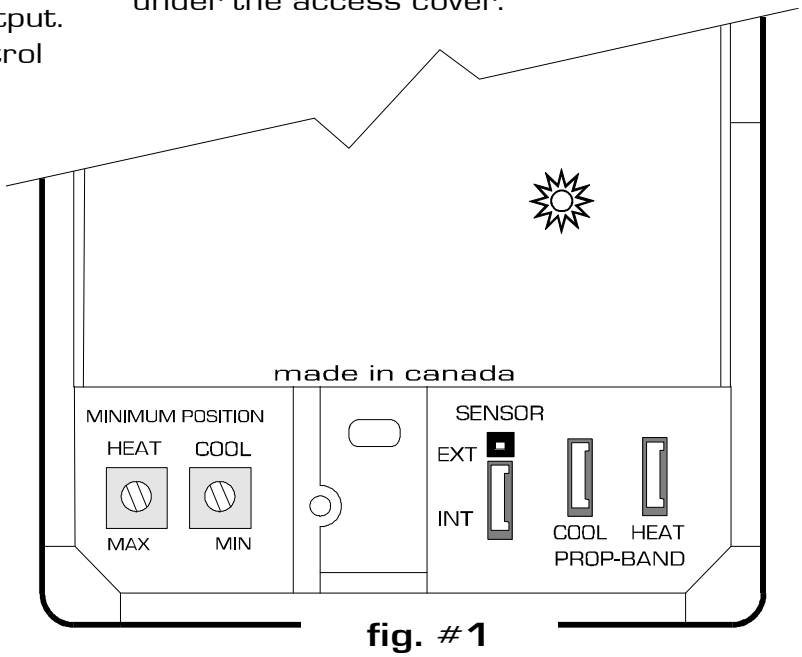
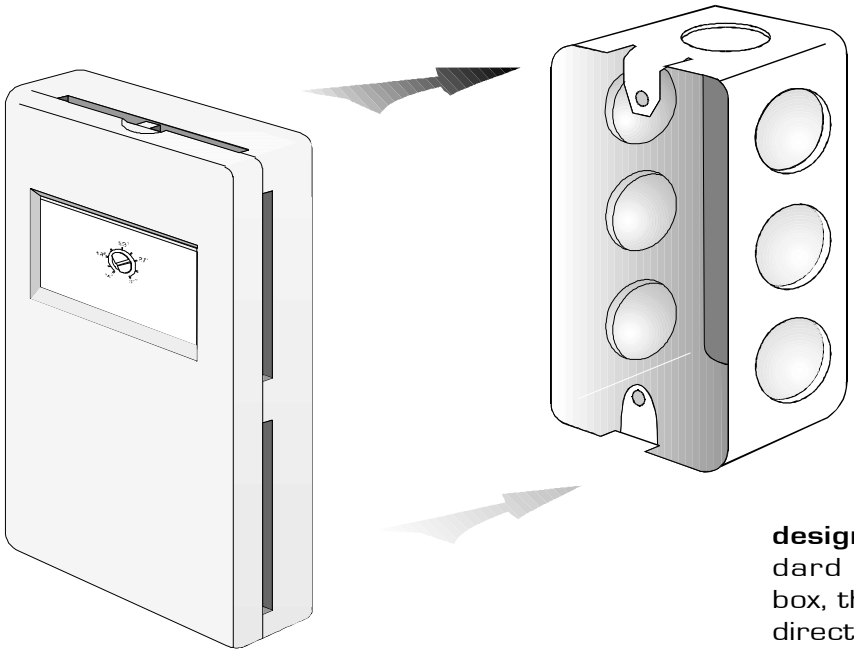


fig. #1

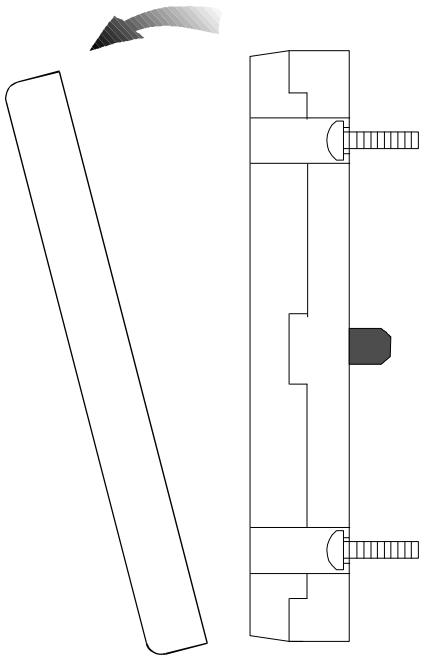
The **heating and cooling proportional bands** are independently adjustable. the adjustment jumpers are located under the access cover. When the jumper is inserted the proportional band is 2°C (3.5°F). When the jumper is removed the proportional band is 4°C (7°F). (fig. #1)

The pta is factory shipped calibrated and configured to internal sensor, both proportional bands set to 2°C, and both minimum positions set to zero.

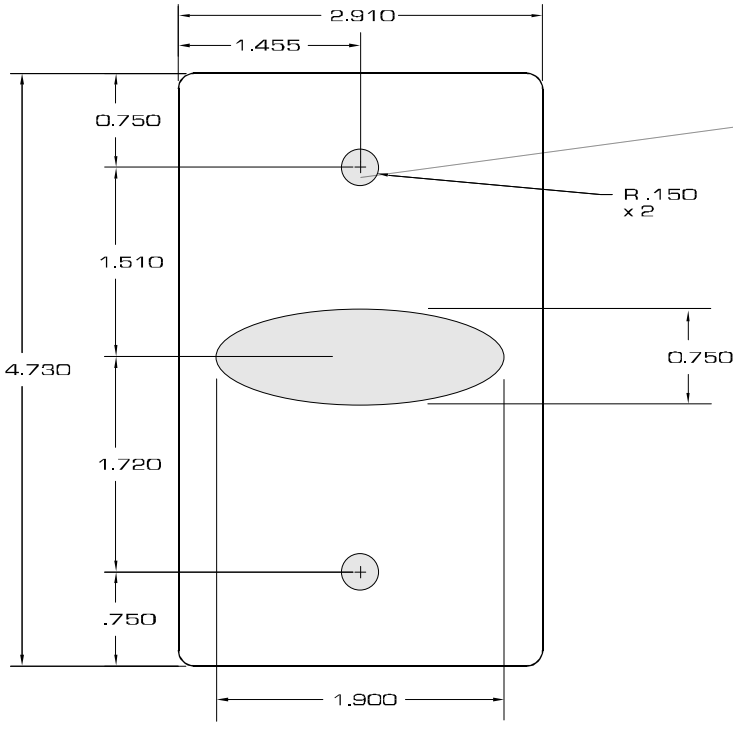
installation:



designed to fit on standard 2020 electrical box, thermostat box, or directly on dry-wall.

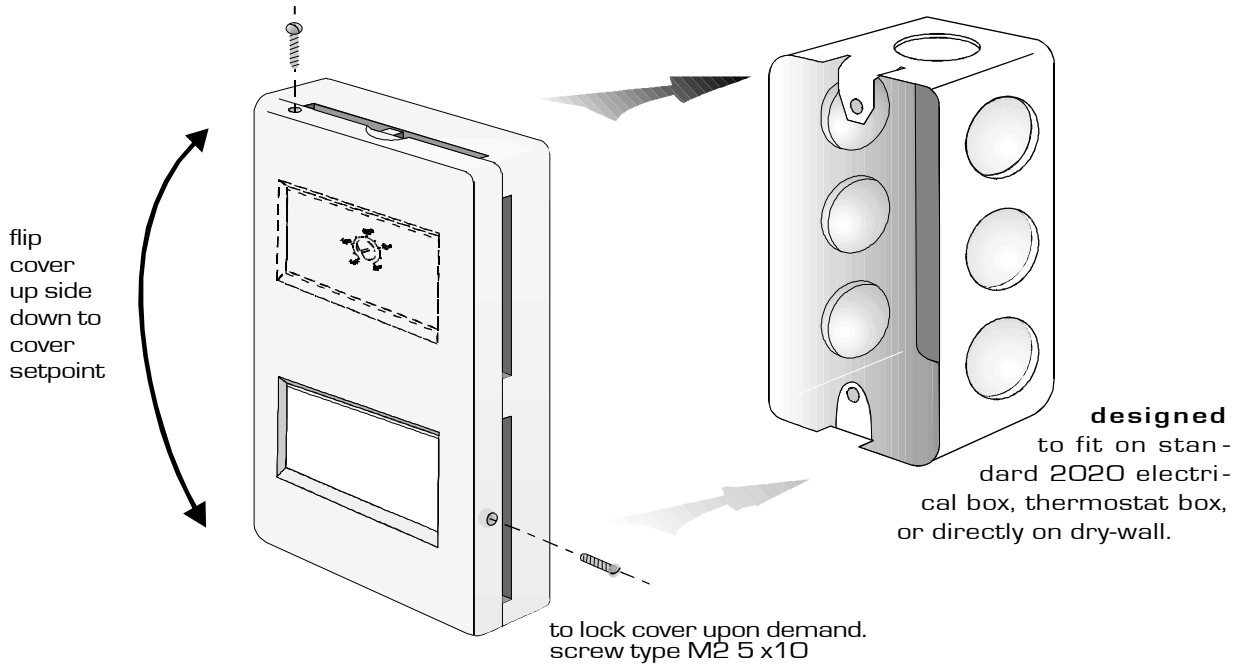


to open:
grab top and bottom of front cover and pull in a downward direction.



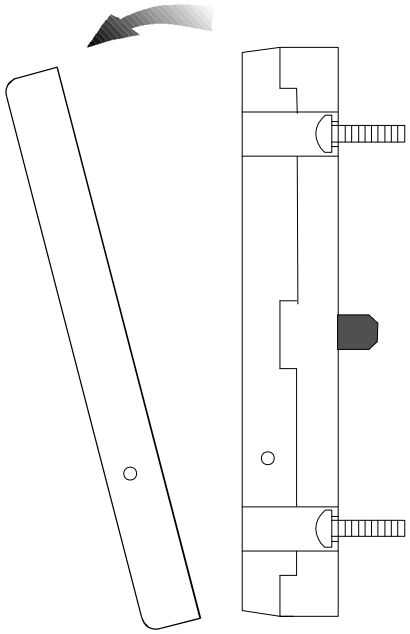
dimensions for wall mounting. (Suggested cut-out for terminal block.)

installation (with lock screw option):

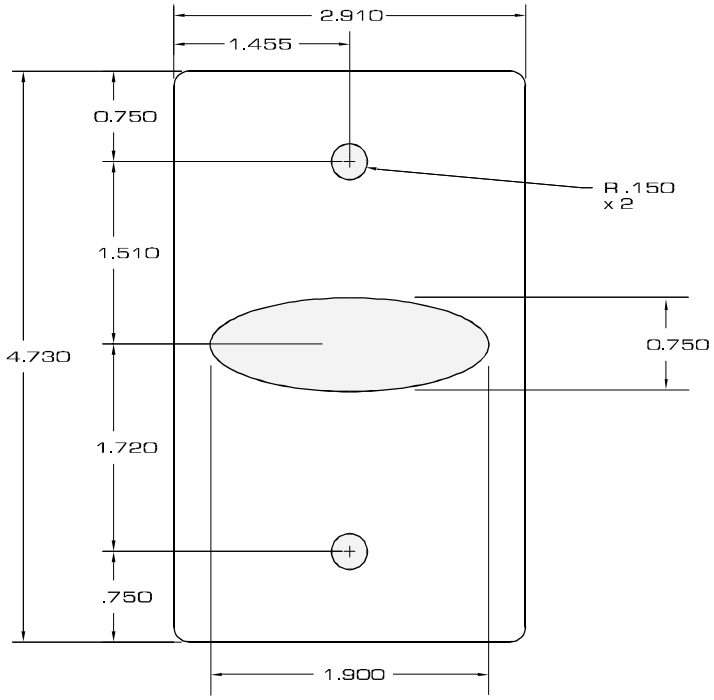


designed to fit on standard 2020 electrical box, thermostat box, or directly on dry-wall.

to lock cover upon demand.
screw type M2 5 x10



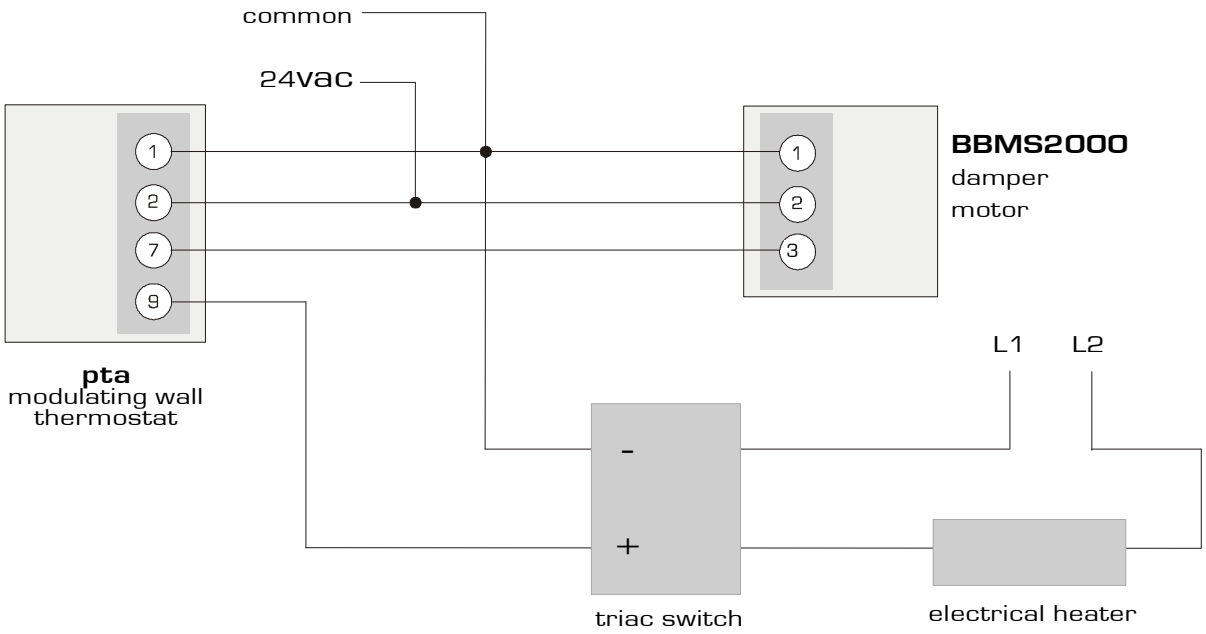
to open:
grab top and bottom of front cover and pull in a downward direction.



dimensions for wall mounting. (Suggested cut-out for terminal block.)

typical applications:

VAV zone control with terminal reheat



3 typical zones:

The central air conditioning unit is controlled by the high demand cooling output coming from the various zones.