Indeeco part number 1016941

ELECTRONIC CONTROLLER: C1025X-1000
FOR MODULATING ELECTRIC HEAT APPLICATIONS

0 to 10 VDC modulating output
VDC pulsed modulating output
Room or supply control applications

DESCRIPTION

The C1025X-1000 series controllers are microcomputer-based, proportional and integral (PI) devices with one analog 0 to 10 VDC output and one VDC time proportioning pulsed output.

The analog 0 to 10 VDC modulating output can control the room or supply temperature by modulating directly a 0 to 10 VDC SCR power controller.

The VDC pulsed output can control the room or supply temperature by modulating directly 4-32 VDC triggered solid state relays (SSR's) using a time proportioning control algorithm on a 1 second time cycle.

The controller also contains two dip switches which adjust the following parameters:

- Room or supply control applications
- Internal or external remote sensor

Type of output	Modulating devices for heating
Modulating analog 0 to 10 VDC output	SCR's power controls
VDC pulsed output	4-32 VDC triggered SSR's

HOW TO ORDER

C1025 ☐ -1000

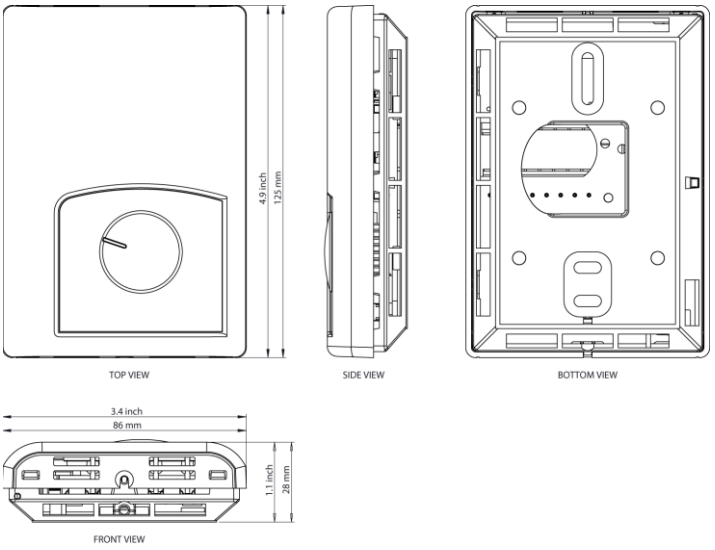
↓

☐ C = °C scale

↓

☐ F = °F scale

DIMENSIONS



SPECIFICATIONS

Operating Conditions:	-30 °C to 50 °C (-22 °F to 122 °F) 0% to 95% R.H. non-condensing
Sensor:	Local 47 K NTC Thermistor
Resolution:	± 0.1 °C (± 0.2 °F)
Control accuracy:	± 0.2 ° C (± 0.4 °F) (calibrated)
Ranges:	C1025C-1000: 10 °C to 32 °C C1025F-1000: 50 °F to 90 °F
Proportional band for room temperature control **(S1 = 0):**	1.8°C (3.2°F)
Proportional band for supply temperature control **(S1 = 1):**	28°C (50°F)
Analog 0 to 10 VDC output:	0 to 10 VDC into 2KΩ resistance min. 5 mA max at 10 VDC
VDC pulsed output:	20 mA max at 8 VDC.
Power:	24 VAC -15%, +10% 50/60 Hz; 2 VA

ANALOG 0 TO 10 VDC MODULATING OUTPUT

The analog 0 to 10 VDC modulating output can control the room or supply temperature by modulating directly 0 to 10 VDC SCR power controller.

Use only one of the outputs, not both at the same time.

VDC PULSED MODULATING OUTPUT

The VDC pulsed output can control the room or supply temperature by modulating directly 4-32 VDC triggered solid state relays (SSR) using a time proportioning control algorithm on a 1 second time cycle.

Ex.:

PI demand	Time on	Time off	Total cycle
50 %	½ sec.	½ sec.	1 sec.
25 %	¼ sec.	¾ sec.	1 sec.

This time proportioning output **cannot be used** on regular mechanical relays or contactors.

Use only one of the outputs, not both at the same time

REMOTE SENSOR

A remote sensor can be wired and used with the C1025X-1000 controller. To wire a remote sensor, first set dip switch S2 to position 0 (off).

If the application is for discharge air or supply temperature control, set dip switch S1 to position 1 (on). This will enable a larger proportional band, making the controlled temperature more stable.

Characteristics of remote sensor 47 KΩ (S61).

Temperature °F	Temperature °C	Sensor resistance
150.0 °F	65.6 °C	9.610 Kohm
140.0 °F	60.0 °C	11.700 Kohm
130.0 °F	54.4 °C	14.342 Kohm
120.0 °F	48.9 °C	17.682 Kohm
110.0 °F	43.3 °C	21.940 Kohm
100.0 °F	37.8 °C	27.412 Kohm
90.0 °F	32.2 °C	34.483 Kohm
80.0 °F	26.7 °C	43.704 Kohm
70.0 °F	21.1 °C	55.834 Kohm
60.0 °F	15.6 °C	71.866 Kohm
50.0 °F	10.0 °C	93.340 Kohm
40.0 °F	4.4 °C	122.298 Kohm

CONTROLLER INSTALLATION

Important:
Electronic controllers require special care for wiring and startup. To avoid problems, carefully follow the procedures below.

Remove the security screw on the bottom of Terminal Equipment Controller cover.

- Open unit by pulling on the bottom side of Terminal Equipment Controller (Fig.1).
- Please read the FCC ID and IC label installed in the cover upon removal of cover for the wireless products.

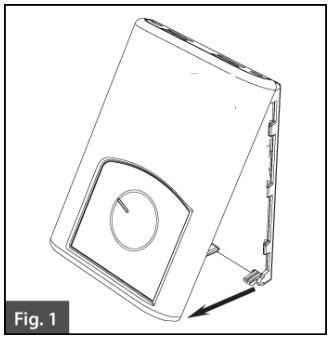


Fig. 1

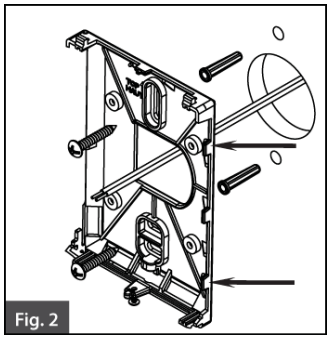


Fig. 2

Location:

1. Should not be installed on an outside wall.
2. Must be installed away from any direct heat source.
3. Should not be installed near an air discharge grill.
4. Should not be affected by direct sun radiation.
5. Nothing should restrict vertical air circulation to the Terminal Equipment Controller.

Installation:

1. Swing open the Controller PCB to the left by pressing the PCB locking tabs (Fig.2).
2. Pull out cables 6” out from the wall.
3. Wall surface must be flat and clean.
4. Insert cable in the central hole of the base.
5. Align the base and mark the location of the two mounting holes on the wall. Install base in the proper orientation. Arrow on base should be facing up.
6. Install anchors in the wall.
7. Insert screws in mounting holes on each side of the base (Fig.2).
8. Gently swing back the circuit board on the base and push on it until the tabs lock it.
9. Strip each wire 1/4 inch from end.
10. Insert each wire according to wiring diagram.
11. Gently push excess wiring back into hole.
12. Re-install the cover (top side first) and gently push extra wire length back into the hole in the wall.
13. Install security screw.

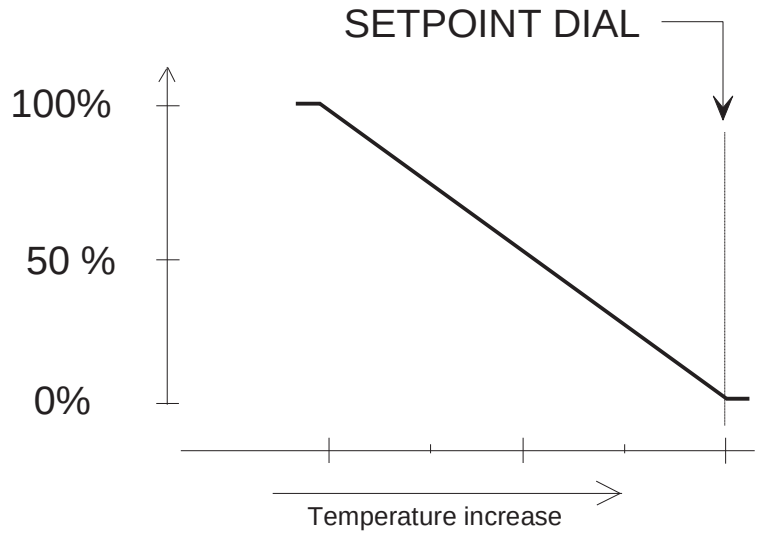
DIP SWITCH ADJUSTMENTS PER APPLICATIONS

S1	APPLICATION SWITCH
0	For regular room control applications Proportional band is 1.8°C (3.2°F)
1	For discharge air or supply temperature control Proportional band is 28°C (50°F)

S2	MAIN TEMPERATURE SENSOR
0	Main temperature sensor is remote mounted
1	Controller internal sensor for room temperature sensing

S3 switch is not used.

CONTROL CURVE AND SEQUENCE

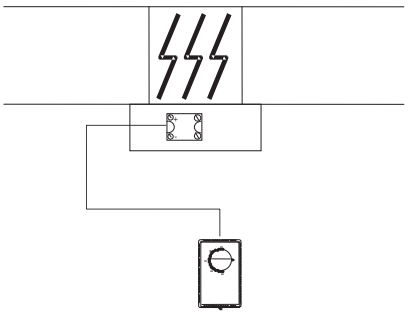


TYPICAL APPLICATIONS

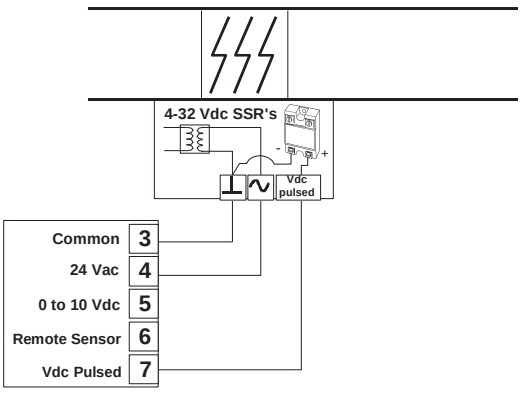
Room Temperature Control With: 4-32 VDC SSR's

Dip switch position	S1	S2
Heating application	0	1

Modulating Electric Duct Heater c/w 4-32 VDC Triggered SSR



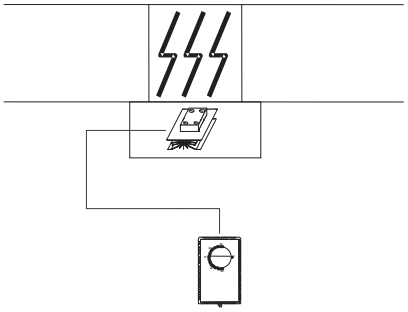
The output is rated at 20 mA max at 8 VDC.

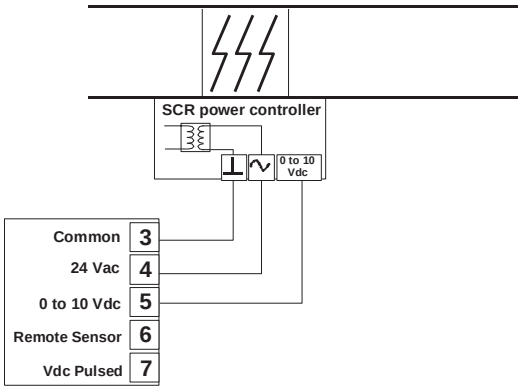


Room Temperature Control With: 0 to 10 VDC SCR Power Controller

Dip switch position	S1	S2
Heating application	0	1

Modulating Electric Duct Heater
0 to 10 VDC SCR Power Controller

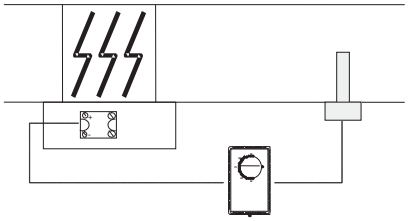




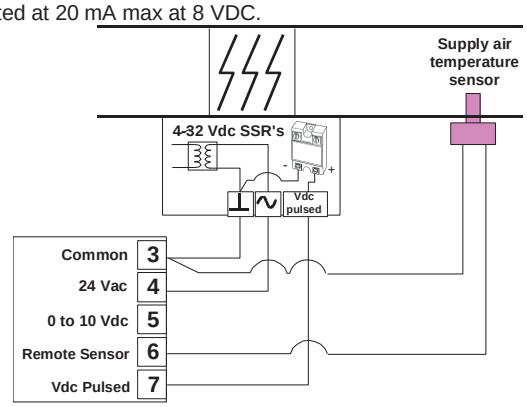
Supply Temperature Control With: Remote Sensor & 4-32 VDC SSR's

Dip switch position	S1	S2
Heating application	1	0

Modulating Electric Duct Heater
c/w 4-32 VDC Triggered SSR



The output is rated at 20 mA max at 8 VDC.



Supply Temperature Control With: Remote sensor & 0 to 10 VDC SCR Power Controller

Dip switch position	S1	S2
Heating application	1	0

Modulating Electric Duct Heater
0 to 10 VDC SCR Power Controller