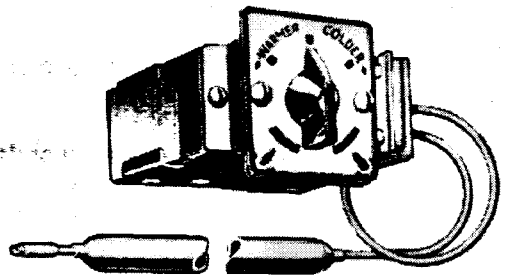
RANCO

INSTRUCTION SHEET

Bulletin No. 1531070

C12 & C21 REMOTE BULB Temperature Controls



C12 shown with optional dial plate and knob

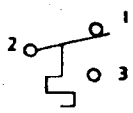
DESCRIPTION /APPLICATION

The Ranco C12 and C21 series temperature controls are used where a remote bulb thermostat with a narrow differential is required. The sensing element uses a liquid fill which changes volume in direct proportion to a change in temperature. The electrical terminals are located on the back of the C12; on the side of the C21.

A popular application of the C control with its double throw switch is on PTAC heat/cool units where the bulb senses return air. The close on temperature rise terminals (2-1) are used to control a compressor for cooling; the close on temperature drop terminals (2-3) are used to cycle resistance heat or a heat pump compressor. In either case, a manual switch or separate temperature control is required for heating/cooling changeover. Other applications of the C series include fan operation on blower coils for space conditioning; heater control for coffee brewers; electric heat hold back control for heat pumps.

C12 & C21 Single pole, double throw (SPDT)
2-1 close (cut-in) on rise
open (cut-out) on drop

2-3 close (cut-in) on drop
open(cut-out) on rise



For specific applications, the C control may be built as a SPST switch with either terminal 1 or 3 omitted.

The C control may be either fixed-setting or have a range of adjustment (see specifications on back). They have been manufactured with various mounting bracket and dial shaft configurations, as well as various capillary lengths and bulb sizes tailored to the specific application.

CAUTION:
To prevent possible electrical shock or equipment damage, disconnect electrical power to unit before and during installation. DO *NOT* restore electrical power to unit until the control is properly installed and grounded. DO *NOT* locate the control in an explosive atmosphere as a safety hazard can result due to possible spark generation in the control.

Controls are not to be located in areas of extreme moisture, dirt or dust, or in a corrosive or explosive atmosphere. These environments can shorten control life.

PREINSTALLATION STEPS

1. Disconnect electrical power.
2. Refer to the equipment manufacturer's wiring diagram and service manual.
3. Note the location of the control's bulb and the routing of the capillary.
4. Record the electrical wire to terminal connections.
5. If the sensing element enters a pressurized fitting or well, cautiously relieve the pressure and remove the fluid prior to removal of the control.
6. Remove control, retaining the screws and any hardware required forthe replacement.

OVER

INSTALLATION OF NEW CONTROL

1. The tip of the screws used to mount the control must not extend through the mounting bracket so as to touch the control body.

2. Taking care to not twist the control body, secure it to the original mounting.

CAPILLARY CARE AND MOUNTING

1. Hold the capillary close to the control and carefully uncoil the required amount. Minimize rebending of the capillary which makes it more susceptible to breakage.

2. If the original control had a protective sleeve on the capillary, transfer it to the new control.

3. DO NOT cut the capillary or bulb nor bend or dent the bulb. Avoid sharp bends, kinks, strains, or pinch marks in the capillary. Never allow the capillary to rest against sharp edges or rub against metal surfaces.

4. Avoid exposing the bulb and capillary to extreme temperatures.

5. A drip loop should be provided in the capillary to prevent moisture from reaching the control and causing an electrical short.

6. Excess capillary should be placed in an area as free as possible from excessive heat or cold. Secure any excess capillary in 3 inch coils to avoid damage from vibration and contact with electrical terminals.

7. If the sensing element has a compression fitting, hand start the fitting. Using a suitable wrench, secure the fitting. DO NOT overtighten.

CONTROL WIRING

1. Disconnect electrical power to the unit.

2. DO NOT exceed the listed electrical ratings.

3. The control's terminals must not be field bent, cut off or modified.

4. Allow some slack in the wire to prevent stressing of the switch. Provide a drip loop in the wiring to prevent water from reaching the control.

5. Secure wires to prevent damage from heat, sharp edges, moving parts, vibration, etc.

ELECTRICALRATINGS

SERIES	VAC	FLA	LRA	NIA	PD VA
CI 2-2000 thru	240	25	100	25	
CI 2-2399	277	16	60	20	240
CI 2-5000 thru	240	25	100		
CI 2-5899	277	16	60	16	240
C21-2000 thru	240	25	100	25	
C21-2499	277	16	60	20	240
C21-5000 thru C21-5999	240	20	80		

VAC is Volts Alternating Current
FLA is Full Load Amps
LRA is Locked Rotor Amps
NIA is Non Inductive (resistive) Amps
PD VA is Pilot Duty Volt-Amps

CHECKOUT

Inspect work to be assured that all the above steps were taken. Start up the unit and observe at least one full cycle. When applicable, check compression fitting for leaks.

ALTITUDE ADJUSTMENT

The C series with its liquid charge is not affected by altitude.

SPECIFICATIONS

PART NUMBER	TEMPERATURE RANGE °F	DIFFERENTIAL °F	STEM ROTATION TO WARMER POSITION
C12-5010	60 to 98	3	CCW
	Constant cooling is full clockwise.		
C21-2014	54 to 90	4	CCW

For additional specifications and for those controls not listed above, refer to the general catalog and the carton label.

RANCO CONTROLS

RANCO WHOLESALE
Uni-Line Div. Robertshaw
8115 U.S. Route 42 North
Plain City, Ohio 43064
(614) 876-8022

Form #1531070