

DUAL COMPRESSOR SAFETY CONTROLLER WITH ANTI-SHORT CYCLE DELAY AND LEAD-LAG SELECTOR ETCLO-830

The ETCLO-830 Compressor Safety Controller has an anti-short cycle, solenoid valve time delay and lead-lag multi-settings. It is designed for use with any single and two-stage air conditioning and refrigeration equipment for compressor operation and protection control. If during normal operation any safeties are opened (low or high pressure switches), the compressor will shut off immediately. The controller then restarts the A/C unit again and a warning flag will be set. The compressor will be locked-out if safeties are opened for a second time. Manually opening and closing the thermostat can restart the A/C unit and reset the board. The fault can be attended to at any convenient time. The early warning feature will save the compressor from burnout.



FEATURES:

- Microprocessor-based controller
- Random start of 0-60 seconds to avoid simultaneous start of several units after power interruption
- Anti-short cycle time delay (selectable 0, 3, 5 or 10 minutes)
- Relay output for solenoid valve operation
- Time delay settings for solenoid valve (selectable 0, 10, 30, 60 or 90 seconds)
- Time delay of 30 seconds between the two compressors
- Built-in automatic warning flag setting to monitor the fault for a period of 30 minutes from the first fault signal
- Manual and automatic setting for compressor rotation (lead-lag sequence changeover) including runtime, every 15 days or every 30 days with automatic changeover
- TRIAC fault output for alarm signal
- LED status indicators (power and fault)
- On board test mode jumper for fast testing and diagnostic

SPECIFICATIONS:

- Input power supply: 24VAC, 50/60 HZ
- Power consumption: 4 VA @ 24 VAC (board only)
- Output (compressor): SPST relay contact
- Output (fault): Solid state, TRIAC
- Relay output current: 1000 mA continuous
- Operating conditions: -40 to +167°F Temp, 10% to 90% RH
- Dimensions (LxWxH): 4" x 3.375" x 1.375" Mounted in Snap-Track (provided)

OPERATION, WARNING FLAG & LOCK OUT MODE:

During normal operation of the compressor, contacts 5 and 6 will be energized, as well as the safety contacts that are in series with contact 6 and the compressor's contactor. In this state, the warning flag (in the processor's memory) will remain reset and normal operation will continue.

If during normal operation safety contact(s) opens, **the warning flag will be set** and the compressor will shut off immediately. Terminals 5 and 6 will open for the duration of the selected anti-short cycle time delay (ASTD). Upon completion of this delay, contact 5, followed by 6, will re-energize. At this time there are two possible outcomes to this scenario:

- A - If the safety contact(s) is still open, the board will immediately go into lock-out mode, so that contacts 5 and 6 will be opened and the TRIAC output at terminal 4 (alarm output) will be activated.

OR

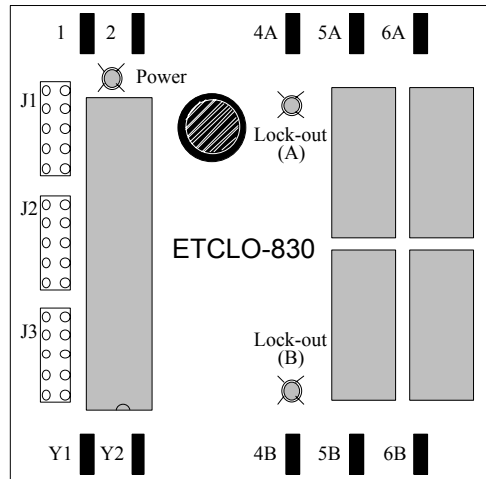
- B - If the safety contact(s) is now closed, the compressor will start running again. However, **the warning flag will remain set**. If a safety contact(s) opens, the related compressor will immediately go into lock-out mode.

Under condition B, the warning flag will be reset after 30 minutes of successful running of the compressor. In test mode, the 30 minutes for warning flag will be reduced to 4 seconds.

When the thermostat is satisfied, the warning flag will be reset.

The board is equipped with one green LED that indicates power to the board. Two red LEDs indicate the lock-out condition for each compressor.

After power interruption, a unique time delay of 0–60 seconds for random start begins to avoid simultaneous start of multi-unit applications.



Terminal Designation

TERMINAL(S)	DESCRIPTION
1	24 VAC
2	Common
4A & 4B	Lock-out mode
5A & 5B	Solenoid valve output
6A & 6B	Compressor
Y1, Y2	Thermostat hook-ups

Jumper Settings

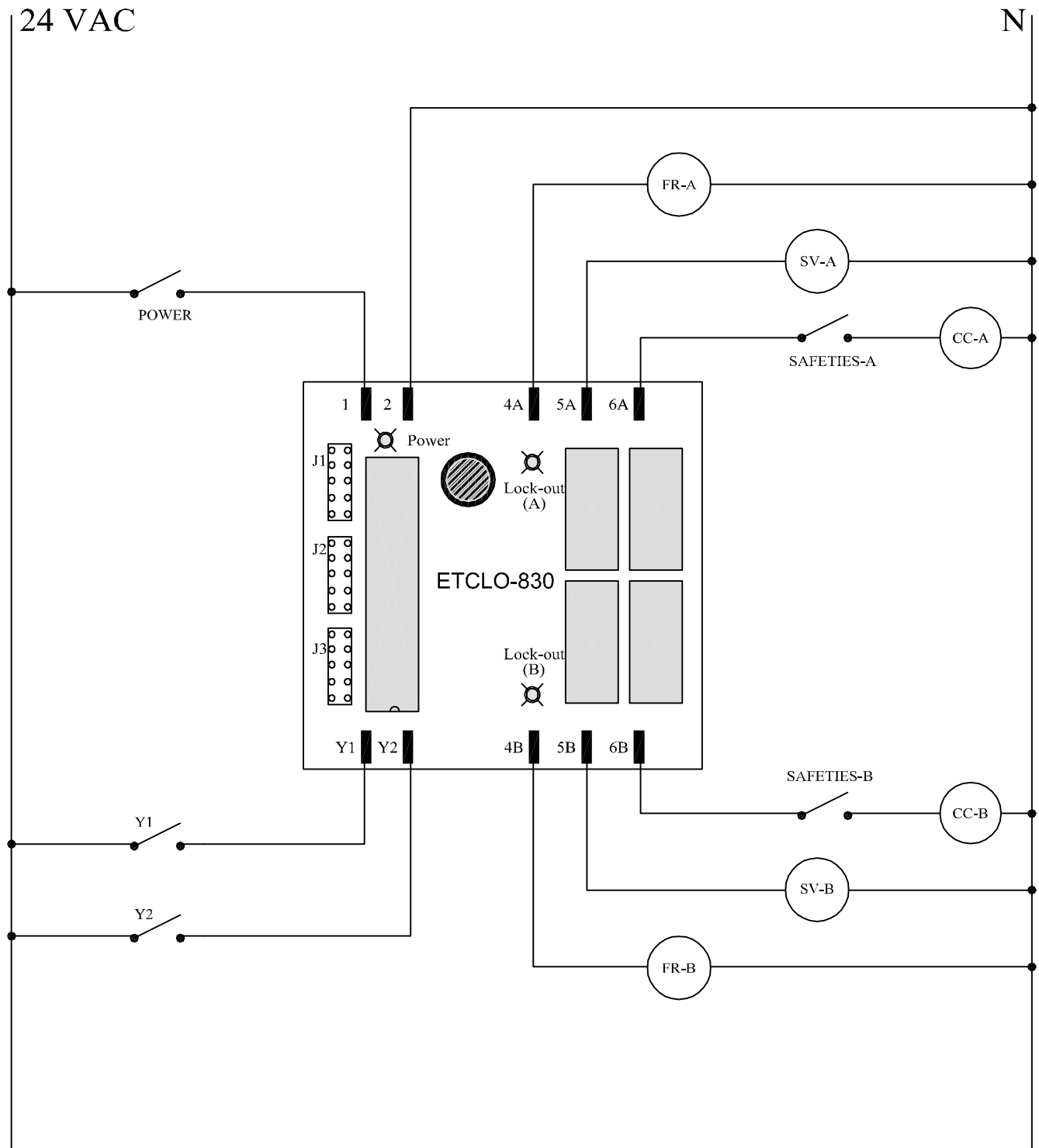
Three sets of five position jumpers (J1, J2 & J3) are used to select functions as per tables below. Only one shunt should be applied to each jumper (except J3 in test mode).

J1 (LLS) Jumper Position	M1	M2	RT	15D	30D
Lead-Lag Selector	A leads B	B leads A	Algorithm	15 Day Interval	30 Day Interval
Test Mode	-	-	-	1.5 min	3 min

J2 Jumper Position	0	10	30	60	90
Delay between T5&T6	0 sec	10 sec	30 sec	60 sec	90 sec

J3 Jumper Position	0	3	5	10	TST
Anti-Short Delay	no delay	3 min	5 min	10 min	Activate Test Mode
Test Mode	-	3 sec	5 sec	7 sec	-

The ETCLO-830 is designed for class 2 circuits and should be powered by an UL recognized class 2 24 VAC transformer.



FR - Fault Relay
 SV - Solenoid Valve Output
 CC - Compressor Contactor
 Y - Thermostat



Title: Dual Compressor Safety controller		
Model No.:	Rev:	Date: 08/17/2004
ETCLO-830	C	DWG No.: 000506-C