



861-ASQ Series Sequencer

Description

The 861-ASQ Series Sequencer is an electronic step controller for controlling multiple condenser fan motors, in incremental steps, in sequence, for low ambient condenser control.

The Sequencer may be used stand alone, or in combination with 816-10D (HPVD) or 814-10EH (DC) Series controls to further enhance incremental step control. The Sequencer is available in 4 or 6 stages of isolated relay control for sequencing steps with reference to liquid line temperature. Each stage may be field adjusted to energize a SPDT control circuit to control condenser fan motors. Stages may be monitored by observing the LED indicator as each stage energizes. If the 6 Sequencer stages are concurrently called to be on, they will sequence on one at a time over an 8 second interval (factory set). Any fewer than 6 stages will react in a fractional portion of the total time interval. Control differential (hysteresis) is fixed at 6°F for each stage when the sensor is connected to the 861-ASQ Sequencer.

The 861-ASQ Sequencer incorporates a loss of power, auto reset feature. If 24V AC power is not present for less than 15-milliseconds, then no disconnection occurs. A power loss of 15-ms or greater will result in an auto reset of all stages. When power is restored, the appropriate stages will systematically sequence back on line based on the Sequencer input signal. This feature eliminates “relay chatter”

The internal control ramp generates a 2 to 17.5V DC signal over a 45°F to 94°F temperature range. Condenser control may be accomplished by liquid line sensing using 8.2 to 17.5VDC of the ramp. This allows liquid line sensing from 45°F to 94°F. The Controller incorporates a 20VDC power supply for calibrating stages over the liquid line temperature span. Each step can be sequentially energized anywhere

within the control ramp for pilot duty control. For Multiple Circuit Sensing, see 851-MS Product Data.

The “AUX OUT” output provides a 1–10V DC mirror image of the VDC IN 1–10 volts. It can drive up to twenty (20)-816-10D (HPVD) Fan Speed Controllers. It can serve to transfer the 861 ramp to another Sequencer. The “AUX OUT” can be derived from either the 1–10-volt input, the 2–20 mA input, or the thermistor Sensor input.

The “NEXT OUT” and “PREV IN” terminals allow two Sequencers to operate in series while maintaining synchronized sequential operation.

Application

The 861-ASQ Sequencer is a direct-acting controller (energizes on a temperature rise) for ambient control of air-cooled condensers. The 861-ASQ is factory calibrated for liquid line sensing. Multiple Sequencers may be used for applications for more than six stages.

Liquid Sensing — On an initial cold, low ambient temperature start up, each stage will energize only after that stage reaches its preset °F setting. This function provides system temperature/pressure build up before ambient control regulation is initiated.

The 851-MS Multiple Sensor Selector and the 816-10D (HPVD) Motor Speed Controller may be used when required to enhance and/or refine control resolution to meet specific low ambient control requirements. The Sequencer may be expanded to include multiple refrigerant circuits and/or condenser fan motor speed control. For multiple circuit applications, the Sequencer can accept an input signal from the 851-MS, or directly sense liquid line temperature for single circuit systems. When the 861-ASQ and 816-10D (HPVD) Controllers are used together on a single circuit system, each Controller may have its own sensor input.

Specifications

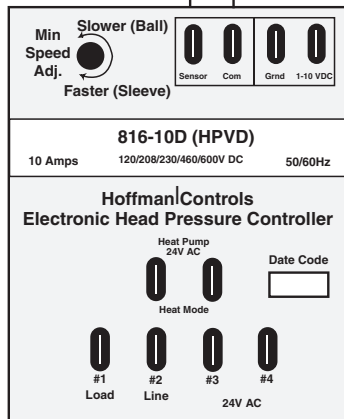
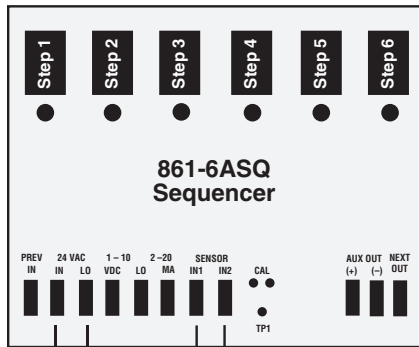
Voltage, Input (Nominal)	24V AC
Power Requirements	
861-4ASQ	6 VA
861-6ASQ	8 VA
Output	Isolated
Current	
NO @ 240 V	4 Amps
NC @ 240 V	4 Amps
Differential, Fixed	
Using 851-MS	4°F
Using 861-ASQ sensor	6°F
Ramp	
(50°F to 80°F) Liquid Line	7.0 – 17.5V DC
Ambient, Operating Temp.	–30°F to 160°F
Dimensions – 4 or 6 Stage	8.0” (L) x 5.0” (W) x 1.5” (H)

Features

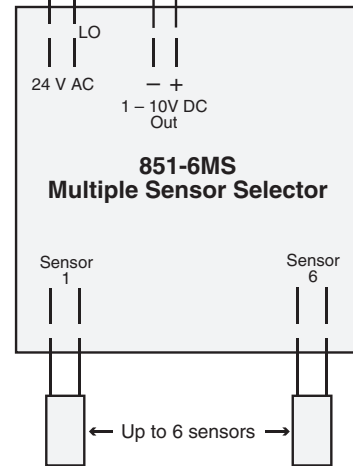
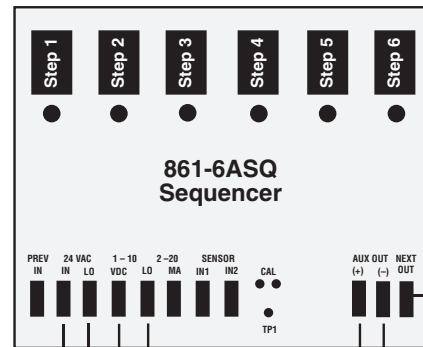
- Liquid line sensing.
- Line or low voltage pilot duty isolated output.
- Multiple input/output functions.
- Adjustable staging.
- Momentary Loss of Power protection.
- LED stage indicators.
- Optional staging intervals.
- Loss of Power Auto Reset.

Benefits

- Choice of sensing method.
- Adaptable to all control systems.
- Stand alone or used in combination with other controls.
- Adaptable to any requirement.
- Visual indication of operational status.
- Industry acceptance.



861-ASQ & 816-10D (HPVD) Application
(Sequencing/Motor Speed/Single Circuit Illustrated)



861-ASQ/851-MS Application
(Sequencing/Multiple Circuits Illustrated)



CAUTION: When "GROUNDED SECONDARY" U.L. requirements apply, ground this terminal. Always connect "LO" to "LO" as shown, when the 861 Sequencer is used with the 851 Multiple Sensor, otherwise damage to equipment may result.

861-ASQ Series Wiring Diagrams

Hoffman|Controls