

### Description

The 851-MS Multiple Sensor Selector is an electronic signal selector designed to provide ambient control of multiple refrigerant circuits for air-cooled air conditioning or refrigeration condensers.

The 851-MS selects the optimum signal used to determine the proportional airflow through the air-cooled condenser. This reduced airflow provides the appropriate heat rejection for the selected refrigerant circuit for the specific low ambient encountered. Low ambient control is accomplished in proportion to system loading.

The highest liquid line temperature of the refrigerant circuits is selected as the output signal for modulating condenser fan speed and/or sequencing multiple fans. This selection provides the control signal representative of the heaviest loaded refrigerant circuit. The selection will always disregard the inoperative, or lighter loaded circuits.

### Applications

The 851-MS control may be applied to an air conditioning or refrigeration system. When multiple refrigerant circuits are used in the common airflow of an air-cooled condenser, condenser control must always provide adequate heat rejection for the heaviest loaded circuit. The control signal for this circuit will be proportional to the low ambient temperature encountered. The 851-MS control normalizes the multiple signals (refrigerant circuits), providing an output signal representative of the optimum condensing temperature required.

Ambient condenser control requirements are related to condensing temperature.

1. Once the refrigerant becomes a sub-cooled liquid, the degree of sub-cooling that occurs for a specific ambient is the same for all refrigerant types.
2. Liquid temperature sensing is not dependent on refrigerant type; therefore, condenser circuits using different refrigerants may be sensed simultaneously.

When ambient temperature declines, liquid sub-cooling increases, and the requirement of condenser airflow proportionally decreases. Proportional speed control and/or sequencing of condenser fan motors are regulated by the additional liquid sub-cooling that occurs at low ambients.



851-MS Multiple Sensor Selector

For applications that require fan sequencing, the 851-MS furnishes a 2–10V DC output that can sequence condenser fans and/or modulate motor speed controllers.

For sequencing fans, see 861-ASQ Series Sequencer Product Data.

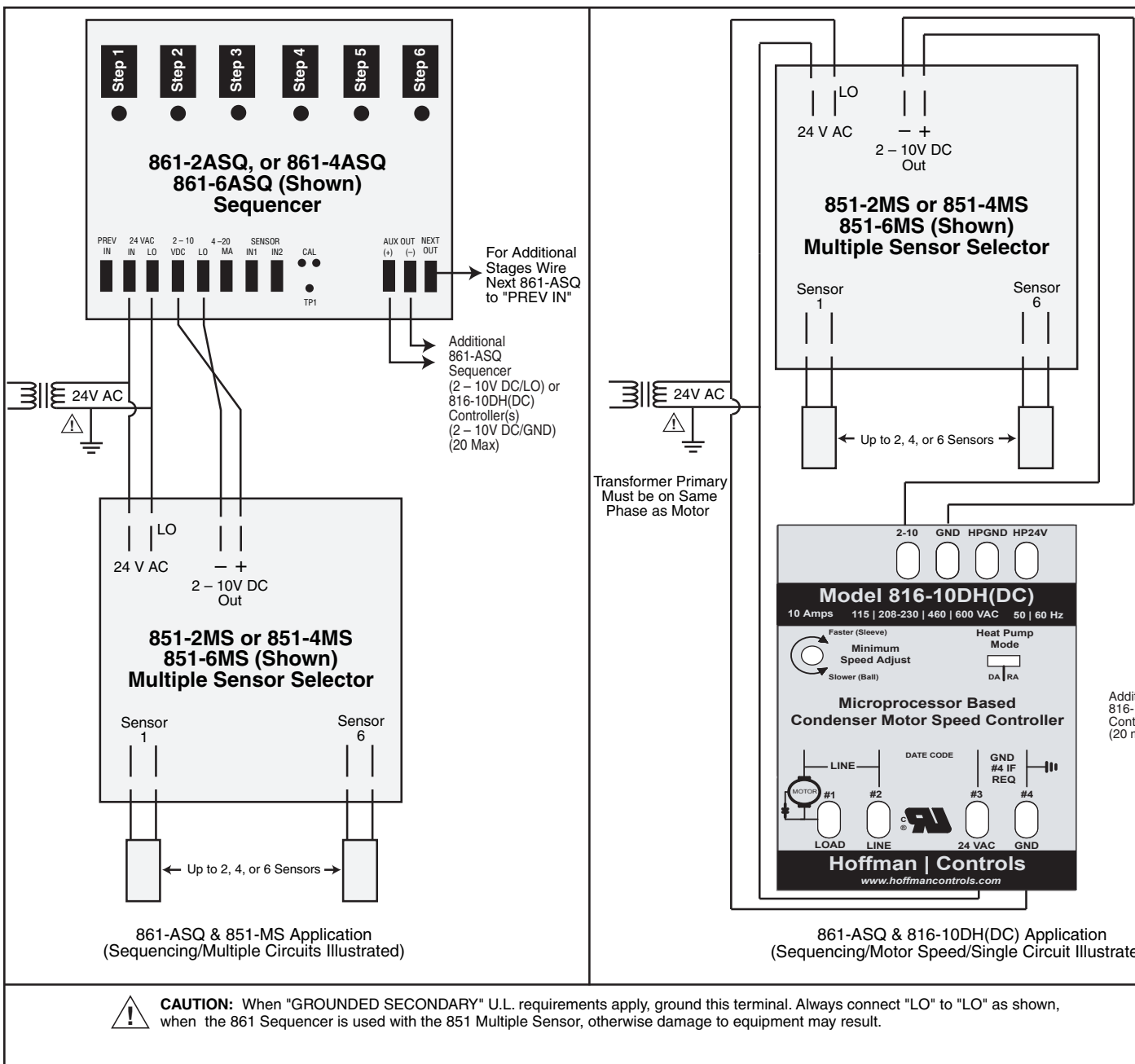
### Specifications

Available Inputs	
851-6MS	6 Sensors
851-4MS	4 Sensors
Voltage, Input (Nominal)	24V AC
Power @ 24V AC	4 VA
Output Signal	
to 816-10DH(DC) or 861-ASQ	2–10V DC
Sensor Inputs	10K Thermistor
Ambient, Operating Temp.	–30°F to 160°F
Dimensions (L x W x H)	5.5" x 5.0" x 1.50"

# Features and Benefits

- Output signals are available to modulate and/or sequence condenser fans.
- Simultaneous control of multiple refrigerant circuits of common airflow condensers.
- Liquid line sensor.
- Multiple condensers using different refrigerant types may be sensed simultaneously.

- Eliminates “On/Off short cycling” or “hunting” inherent in two position pressure controls.
- Low voltage control sensors.
- Optional Sensor Simulator Kit (Part No. 510-0027-000).
- Selects optimum circuit for control.
- Precludes high side penetration.
- Universally adaptable to all refrigerant types.
- Controls without limiting system operation.
- Eliminates line voltage hazards.



851-MS, 816-10DH(DC) and 861-ASQ Combination Wiring Diagram

## Hoffman|Controls