

Orenco Simplex Control Panel



Demand-Controlled

This document is a specification sheet for the Orenco Systems Simplex Control Panel: Demand-Controlled. Specifications for alternative features are included as subpoints of each specification, and specifications for options are included in Section 6. Include only the alternatives and options that your application requires.

1. GENERAL

1.1 Panel type: Contractor shall furnish all labor, materials, equipment and incidentals required to provide a simplex motor control panel as specified herein.

1.2 Assembly and testing: The motor control panel shall be assembled and tested by a controls system manufacturer (Orenco Systems, Inc. or pre-approved equal) meeting the standards of UL 508A for industrial controls and shall be UL labeled and serialized accordingly. The panel shall be assembled and tested by the manufacturer to ensure that components and motors are suitably matched and to ensure single-source responsibility for the equipment.

1.3 Motor circuit components: The panel shall contain all components required by the motor manufacturer for starting and protecting the motor. If the motor manufacturer requires the control panel to have certain features for warranty of the motor, such as thermal overload detection or seal failure detection, these features shall be included.

1.4 Warranty: The panel shall be warrantied for three years against part defects.

1.5 Approval process for substitution: No part shall be substituted for a part specified here without the approval of the designer.

2. POWER

2.1 Motor power: Incoming motor power shall be single-phase, 60 Hz, 120 VAC. **Or:**

2.1.1 Motor power: Incoming motor power shall be single-phase, 60 Hz, 240 VAC.

2.2 Control/alarm power: Incoming control/alarm power shall be single-phase, 60 Hz, 120 VAC.

3. CONSTRUCTION

3.1 Enclosure: Components shall be housed in a fiberglass enclosure meeting UL Type 4X requirements with a hinged door and neoprene gasket. The enclosure shall accommodate a padlock.

3.2 Labeling and documentation: A nameplate shall be permanently affixed to the exterior of the enclosure. A ratings label affixed to the inside of the enclosure shall include the model number, voltage, phase, frequency, ampere rating and horsepower rating. A label warning about the risk of electric shock shall be permanently affixed to the outer door. As-built schematic drawings and any other necessary instructions shall be supplied inside the enclosure.

3.3 Back plate: A removable aluminum back plate shall be provided for mounting all circuit breakers, motor starters, etc. All components mounted to the back plate shall be secured by screws. Rivets shall not be acceptable for securing any component to the backplate.

3.4 Mounting: Whenever possible, components shall be standard, off-the-shelf components that mount in sockets or directly on the DIN rail for ease of replacement.

3.5 Wiring: Wiring shall be installed in ducts for neatness and safety. All grounding conductors shall be securely connected to assure a proper ground.

3.6 Touch-safe construction: Panel construction and all components shall be touch-safe whenever possible.

4. FUNCTIONS

4.1 Inputs: The control panel shall accept inputs from contacts for on, off, alarm, and optional redundant off functions.

4.2 Control logic: The panel will control a motor in response to demand on the system. Electromechanical relays shall be provided for control logic.

4.3 Motor power circuit: In Auto and Hand operation modes, the motor load shall be switched through a motor contactor.

4.4 Alarm function: An alarm condition shall activate the main alarm light on the front of the enclosure and a warble-tone alarm horn. The audible alarm can be silenced. The alarm light shall remain illuminated until the problem is corrected. The audible alarm shall be controlled by a 120 VAC relay with automatic reset.

5. COMPONENTS

5.1 Control and alarm circuit breaker: Control and alarm circuits shall be protected by a separate 10-amp circuit breaker with thermal-magnetic tripping.

5.2 Motor circuit breaker: The motor circuit shall be protected by a 20-amp circuit breaker with thermal-magnetic tripping.

5.3 Motor contactor: The motor contactor shall be 1 hp at 120 VAC, 60 Hz, 16 full load amps (FLA), or 3 hp, 240 VAC, 60 Hz, 16 full load amps (FLA). It shall be rated for 2.5 million cycles at FLA and 10 million at 50% of FLA.

5.4 Control relays: Control relays shall be rated 8A resistive (DPDT). They shall be rated for an operational life of 200,000 cycles at full resistive load and 50 million cycles at no load.

5.5 HOA switch: The HOA switch shall allow selection of Hand, Off, or Auto operation mode.

5.6 Alarm horn: The alarm horn shall be rated 95 dB minimum.

5.7 Alarm light: The alarm light shall be a UL Type 4X listed 1-watt LED with a 7/8-in. red lens and push-to-silence functionality.

5.8 Terminal blocks: All connections shall be made in touch-safe terminal blocks rated for 600 VAC, 50 A, capable of holding wires from 26 AWG to 8 AWG and accommodating a 3/16-in. instrument screwdriver blade.

6. OPTIONAL FEATURES

6.1 Intrinsically safe components: Control relays shall be intrinsically safe, 120 VAC, listed per UL 698A, for Class 1 Div. 1, groups A, B, C, and D hazardous locations.

6.2 Redundant off relay: The system shall include a redundant off relay that will activate an alarm and disable the motor when the primary off relay fails or, in the case of a tank, when a low liquid level is detected.

6.3 Heater: The system shall include a self-adjusting heater that radiates additional wattage as the temperature drops.

6.4 Disconnect switch: The system shall include a disconnect switch that is single pole/single throw, 20 amps, and motor-rated at 1 hp.

6.5 Elapsed time meter: The system shall include an elapsed time meter with a 7-digit non-resettable display. The meter shall record up to 99,999 hours with a resolution of 0.01 hour.

6.6 Event counter: The system shall include an event counter with a 6-digit non-resettable display.

6.7 Motor run light: The system shall include a UL Type 4X listed motor run light on the front of the enclosure with a 7/8-in. green lens having a 1-watt, 120 VAC LED.

6.8 Power light: The system shall include a UL Type 4X listed power light on the front of the enclosure with a 7/8-in. green lens having a 1-watt, 120 VAC LED.