

Brasch Control Panel Sample Specification

General: Furnish and install as indicated remote control panels as manufactured by Brasch. Size and configuration shall conform to the requirements dictated by the electric heaters to be controlled by the panel. The entire control panel shall be UL Listed and shall meet all applicable NEC requirements.

1. Enclosure shall be heavy gauge steel, formed into sturdy channels with continuous weld seams; panels smaller than 30" x 30" to have spot weld seams. Panels greater than 30" x 30" shall be provided with back-vent design which provides convection cooling to keep control components from overheating without allowing molten material to escape in case of a fault. Removable component panel board shall be of the same gauge as the enclosure.
2. Mounting Brackets: each panel shall have a minimum of four external wall mounting brackets welded to the enclosure and constructed to space the panel at least 1/4" from the mounting surface for proper cooling of the back surface of the enclosure.
3. Finish: all panel enclosures shall have a baked-on finish, medium gray; panel board shall have a baked-on white finish.
4. Lifting Eyes: panels exceeding 72" in height shall be fitted with a minimum of two lifting eyes to facilitate shipment and installation by hoist or crane.
5. Panels with single doors shall be hinged on the right side; panels over 42" wide shall have double doors. Doors to be secured with heavy duty corrosion protected hinges and two-point catch with lock and key; when interlocking safety disconnect is also specified, locking two-point catch is provided for panels 42" W x 48" H and larger, NEMA 3R and 4 (Non-UL) panels to have provision for locking.
6. Panels containing SCRS or other heat sensitive equipment shall be provided with adequate ventilating grilles or louvers.
7. Furnish floor stands for each surface mounted panel 54" or higher. Floor stand height shall be 12" for panels up to 60" high and 6" for panels above 60".
8. Panels shall be furnished with detailed wiring diagram showing all internal connections of panel and heater power supply connections, connections between panel and heater and recommended field wire gauges and fuse sizes. Terminals in panel shall be marked to match terminals in heater. Typical wiring diagrams are unacceptable.
Each panel shall be functionally tested before shipment to assure proper operation of components. Panels designed to control more than one duct heater shall have electrical components clearly subdivided into modules and identified with nameplates indicating which heater is controlled by each module.
9. Panel shall have terminal blocks capable of accepting properly sized copper conductors as shown on the electrical plan. Panels will be connected to a single

supply circuit unless otherwise scheduled. Provide load terminal blocks per step and control interlock terminals as required.

10. Built-in components shall include one main interlocking disconnect switch, disconnecting type magnetic contactors, transformer with secondary fuses per NEC and branch circuit fuses per step.
11. The following special features shall be an integral part of each panel (as scheduled):

TEMPERATURE CONTROL

- Contactors controlled by on-off thermostat
- Contactors controlled by proportioning step controller
- Step Control/SCR Vernier System.
- Total SCR Control (100% modulation)

Schedule will indicate which control devices shall be supplied by the control contractor and shipped to the heater manufacturer for installation, wiring and testing in the remote control panel.

SPECIAL CONSTRUCTION

- NEMA 1 - General Purpose - Indoor
- NEMA 3R - Weather Resistant - Outdoor (Not UL)
- NEMA 4 - Watertight/Dusttight - Indoor Industrial (Not UL)
- NEMA 12 - Dust tight - Indoor Industrial
- Flush Mounted Design - Wall Mounted - Indoors

OVERCURRENT PROTECTION

- Automatic Circuit Breakers (in lieu of fuses)
- Fuses per NEC (in lieu of fuses per step)
- Main Supply Overcurrent Protection (48 Amps or less)

SWITCHING DEVICES AND CONTROLS

- Mercury Contactors (sealed for quiet switching)
- SCRs (for solid state modulation)
- Toggle Switch(es)
 - A. One per Step
 - B. Interrupts Control Voltage
- Door Interlock Switch(es) (to break control circuit)
- Step Controllers
 - A. Electric input Signal (modulating 0-135 ohm)
 - B. Pneumatic Input Signal
 - C. Electronic 0-16V DC Signal
- Time Delay Relay
- PE Switch(es) (for pneumatic control) (specify close or open on pressure rise)
- Transducer (pneumatic to 135 ohm, reverse acting)
- Pilot Lights
 - A. One per Step
 - B. Power On (line volts)
 - C. Control Circuit On
 - D. Airflow Switch Open
 - E. Overtemperature Alarm
 - F. Push-To-Test Type (with airflow switch open only)
 - G. Waterproof (not UL)

12. Manufacturer to provide one year limited warranty for components and accessories.