

FRIEDRICH SYSTEM CONTROL PANEL SUBMITTAL SHEET

AGENT: _____
PROJECT: _____
CONTRACTOR: _____
CONSULTING ENG: _____

DATE: _____
CITY, STATE _____
APPROVAL _____

STANDARD FSCP SYSTEM CONTROL PANEL FEATURES:

120 V.A.C. SUPPLY VOLTAGE
MANUAL LEAD/LAG CONDENSER WATER PUMP CONTROL
AUTO PUMP CHANGEOVER/INDICATION
HEAT SOURCE CONTROL/INDICATION (ADJUSTABLE)
TOWER STAGING CONTROL/INDICATION (ADJUSTABLE)
HIGH TEMPERATURE ALARM/INDICATION
HIGH TEMPERATURE SHUT DOWN ALARM/INDICATION
NO FLOW ALARM/INDICATION
ALARM SILENCE SWITCH
PANEL ON/OFF SWITCH
SURFACE OR RECESSED PANEL MOUNTING
CONDENSER WATER LOOP TEMPERATURE INDICATION

OPTIONAL FEATURES OF FSCP

___ 24 VOLT A.C. SUPPLY VOLTAGE
___ FOUR STAGE TOWER CONTROL (ADJUSTABLE)
___ TERMINALS FOR REMOTE DUPLICATING PANEL RPI
___ TERMINALS FOR REMOTE ALARM PANEL RP2
___ RELAY CONTACTS FOR REMOTE ALARM FUNCTION
___ OUTSIDE AMBIENT RESET, ADJUSTABLE -30°F to + 100°F
___ DUAL TEMPERATURE INDICATION, COND. WATER
___ 2ND SENSOR TEMPERATURE INDICATION -10°F to +140°F

ACCESSORIES FOR FSCP

___ REMOTE DUPLICATING PANEL
___ REMOTE ALARM PANEL
___ SYSTEM TEMPERATURE AND FLOW SIMULATOR
___ CONDENSOR WATER SENSOR WELL
___ SUN SHIELD FOR OUTSIDE AMBIENT SENSOR
___ COMPLETE BOARD KIT

Continuing engineering research
results in steady improvements.
Therefore, these specifications are
subject to change without notice.

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Friedrich
Climate Master®

FRIEDRICH SYSTEM CONTROL PANEL SPECIFICATIONS

1.0 System Master Temperature Control Panel

1.1 GENERAL - The System Master Temperature Control Panel shall be a solid state electronic device utilizing one temperature sensing element to control the closed circuit cooler, and supplemental heat source with visual indication of their operational status. Response shall be to the condenser water loop temperature. The control center shall also have manual "lead-alternate" condenser water pump sequencing, and upon loss of condenser water flow, automatic condenser pump change over with pump operational status. The control center shall have low temperature, high temperature and no flow alarms both audibly and visually, and the ability to facilitate system safety shut-down on high temperature and no flow alarms, without additional sensing elements.

The control center shall be a Friedrich System Control Panel and shall be located as shown on the plans.

1.2 Control Panel Alarms

1.2.1 All alarm functions shall be both audible and visual.

1.2.2 Low temperature alarm shall occur when the condenser water loop temperature decreases to 50°F.

1.2.3 High temperature alarm shall occur when the condenser water loop temperature increases to 105°F.

1.2.4 High temperature system safety shut-down alarm shall occur when the condenser water loop temperature increases to 115°F.

1.2.5 No flow alarm shall occur upon loss of condenser water loop flow.

1.2.6 No flow system safety shut-down alarm shall occur should the state of "no flow" continue for a period of 30 seconds.

1.2.7 The control panel shall have an alarm silence switch. Silencing the alarm shall not be a means of re-setting an alarm. Should an alarm be silenced and the condition continue to exist, the control panel must have the ability to over-ride the silence switch if an additional alarm occurs.

1.3 Control Panel Functions

1.3.1 Condenser water pumps shall be manually sequenced from lead to alternate by means of a lead pump switch located on the face of the panel.

FRIEDRICH SYSTEM CONTROL PANEL SPECIFICATIONS

- 1.3.2 Should a "no flow" condition exist for a period of ten seconds the alternate condenser water pump shall be started, automatically.
- 1.3.3 The supplemental heat source shall be activated at 65°F. This set point is to be field adjustable by plus or minus 5°F, for optimum system operation. Upon a rise in condenser water temperature of 3°F above the heat source set point, the supplemental heat source shall be deactivated.
- 1.3.4 The closed circuit cooler (tower) shall have it's first stage activated at * °F. Each succeeding stage of tower control shall track it's preceding stage by 2°F. The first stage of tower control shall be field adjustable plus or minus 5°F for optimum system operation. To further optimize system operation, the last stage of tower control shall be field adjustable plus or minus 1°F. The tower shall be deactivated in stages 1°F below the set point of each individual tower control stage.

1.4 Control Panel Features

- 1.4.1 The control panel shall provide operational status lights for the condenser water pumps, supplemental heat source and each stage of the closed circuit cooler. The panel shall also provide alarm lights for "no flow", low temperature, high temperature and high temperature system safety shut-down.
- 1.4.2 The control panel shall be powered 120 volt AC, 60HZ or 24 volt AC, 60HZ from an external source. On the face of the panel a red indicating light shall be provided for "power on."
- 1.4.3 The control panel shall be fused for internal circuit protection. On the face of the panel an amber light shall be provided for blown fuse indication.
- 1.4.4 The control panel enclosure shall be constructed of 16 gauge steel with continuous welded seams, suitable for either surface or flush mounting, in accordance with NEMA 1 requirements.
- 1.4.5 All alarm and operational status lights shall be long life light emitting diodes. Operational status lights shall be green in color and alarm lights shall be red in color.
- 1.4.6 Individual functions of the control panel shall be mounted on replaceable solid state circuit boards for ease of maintenance and field repair.
- 1.4.7 Reset of all alarms shall be made by momentary power interruption to the control panel utilizing the "power on" switch.

* See Page Three

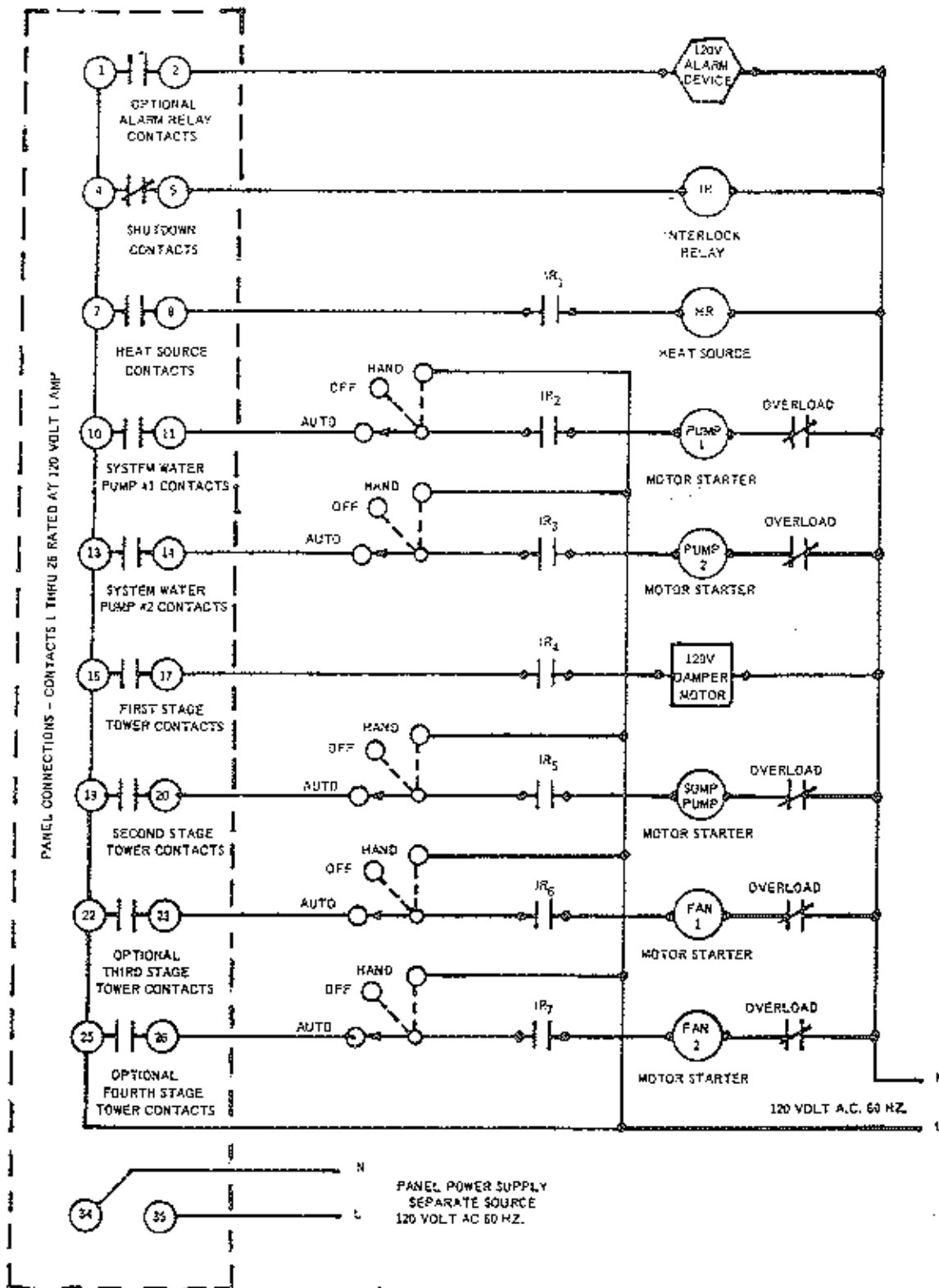
Page 2

FRIEDRICH SYSTEM CONTROL PANEL SPECIFICATIONS

- 1.4.8 The condenser water loop temperature sensor shall be installed in a well provided by the contractor
- 1.4.9 The control panel shall be provided with a system temperature and flow simulator, run-up box, for initial system start-up and tests. The run-up box shall simulate temperatures from 35°F to 135°F as well as "flow" and "no flow" conditions
- 1.4.10 The control panel shall have terminals grouped and specifically labeled for their specific function within the panel enclosure. Construction and arrangement of terminals shall be such that line voltage wiring can not be intermingled.
- 1.4.11 The control panel shall have solid state digital temperature indication of the condenser water loop.
- 1.4.11A The control panel shall have dual temperature indication. The primary sensor shall indicate condenser water loop temperature. The secondary sensor shall indicate ******.
- 1.4.12 The control panel shall have contacts to activate a remote alarm device.
- 1.4.13 The control panel shall have adjustable outside ambient reset. The set point of activation shall be field adjustable to meet project requirements. Upon a fall in temperature to the determined outside ambient temperature of ********°F the FSCP master panel will be reset to maintain 70°F condenser water loop temperature. Upon a rise in temperature above the outside ambient set point the FSCP master panel will control the condenser water loop temperature at it's original set point.
- 1.5 Repeater Panels
- 1.5.1 The control panel shall have terminals to operate a remotely located repeater panel.
- ***** 1.5.2 The remotely located repeater panel shall parallel each of the alarms and operational status functions, both audibly and visually, of the master temperature control panel. The repeater panel shall have an alarm silence switch and require no external power for operation. The repeater panel shall be located as shown on the plans.
- ****** 1.5.2.A The remotely located repeater panel shall indicate an audible and visual alarm for any alarm condition at the master temperature control panel. The repeater panel shall be located as shown on the plans.

- NOTES:
- * Insert 85°F for two stage and 81°F for four stage tower control panels.
 - ** Insert the temperature you want indicated, such as outside ambient, solar storage tank, tower sump, etc.
 - *** Use either paragraph 1.5.2 or 1.5.2.A
 - **** The outside ambient thermostat is adjustable from -30°F to +100°F.

TYPICAL FSCP FIELD WIRING DIAGRAM



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