# FTA5509
# JOCKEY PUMP CONTROLLERS

## STANDARD SUBMITTAL PACKAGE

**Firetrol®**

NOTE: The drawings included herein are for standard controllers.
Actual "as built" drawings may differ from those seen here.

**ASCO** Power Technologies®

- Failed to start indication
- Main switch not in "Auto" alarm
- Pressure recording
- Event log (3000 events stored in controller memory)
- Data log (including cycle counter)
- Door mounted display/user interface featuring a 128 x 64 pixel backlit LCD Graphical Display, Membrane Type User Controller Push-buttons and LED indication for:
  - Power ON
  - Pump Running
  - Alarm
- 2 lines of user selectable display information

**Description**—Firetrol® FTA550E XG Jockey Pump Controllers are intended for use with fire pump systems. They are used for pressure maintenance in fire pump installations to prevent unnecessary operation of the main fire pump.

**Approvals**—Firetrol jockey pump controllers are listed by Underwriters' Laboratories, Inc., in accordance with UL508A, Standard for Industrial Controls, and CSA, Standard for Industrial Control Equipment. They are built to meet or exceed the requirements of the approving authorities as well as NEMA and the latest edition NFPA 70, National Electrical Code.

**Standard Features**—The following are included as standard with each controller:
- NEMA Type 2 (IEC IP22) Painted Steel Enclosure
- Circuit Breaker
- Horsepower rated motor starter
- Suitable for use as service equipment
- HAND-OFF-AUTO selector switch
- Minimum run timer
- On-Delay timer
- Pump Restart Timer
- Control circuit transformer with 24VAC secondary
- 0-300 psi (0-20.7 bar) stainless steel solid state pressure transducer
- Overpressure indication
- Low Pressure indication

**NOTE:** FTA550E XG Jockey Pump Controllers are available as standard in the voltage/horsepower combinations shown below and with the options shown on the reverse side. For other combinations and options, please consult your Firetrol representative or the factory.

| VOLTAGE 3-PHASE (50/60 Hertz) | | MAX HP | Short Circuit Current Rating |
|---|---|---|---|
| -H | 200 - 208V | 25 | 65kA |
| -A | 220 - 240V | 30 | 65kA |
| -F | 380 - 415V | 40 | 65kA |
| -B | 440 - 480V | 50 | 65kA |
| -C | 550 - 600V | 50 | 25kA |

| VOLTAGE 1-PHASE* (50/60 Hertz) | | MAX HP | Short Circuit Current Rating |
|---|---|---|---|
| -D | 110-120V | 5 | 5kA |
| -T | 200-208V | 15 | 5kA |
| -E | 220-240V | 15 | 5kA |

\* Single phase units supplied standard with fusible disconnect switch and fuses

NOTE: Firetrol Brand Jockey Pump controllers DO NOT CONTAIN MERCURY filled pressure switches.

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Network Power

## Jockey Pump Controller

The auxiliary jockey pump controller, if required and specified on the plans and specifications, shall be factory assembled, wired, and tested and specifically designed for this type of service. This controller shall be UL listed, and shall be of the same manufacturer as the main fire pump controller.

## Approvals

Firetrol Jockey Pump Controllers are listed by Underwriters Laboratories, Inc., in accordance with UL508A, Standard for Industrial Controls, and CSA, Standard for Industrial Control Equipment (cUL). They are built to meet or exceed the requirements of the approving authorities as well as NEMA and the latest edition of NFPA 70, National Electrical Code.

## Construction

The jockey pump controller shall be full voltage starting. The controller components shall be housed in a NEMA Type 2 (IEC IP22) painted steel, wall mounted enclosure (UL50E Construction). The controller shall incorporate a circuit breaker and horsepower rated motor starter, control circuit transformer with 24VAC secondary and 200-600V multi-tap primary, main disconnect switch, HAND-OFF-AUTOMATIC selector switch and a 0-300 psi (0-20.7 bar) stainless steel solid state pressure transducer.

## Short Circuit Current Ratings

The jockey shall have standard short circuit current ratings of:
65kA @ 480 Volts Max. (3-Phase)
25kA @ 600 Volts (3-Phase)
5kA @ 240 Volts Max. (1-Phase)

## Operator Interface

The jockey pump controller shall feature an operator interface with user keypad. The interface shall monitor and display motor operating conditions, including all alarms, events, and pressure conditions. The display shall be a 128x64 Backlit LCD capable of customized graphics. The display and interface shall be NEMA rated for Type 2, 3R, 4, 4X, and 12 protection and shall be fully accessible without opening the controller door. The display and user interface shall utilize multiple levels of password protection for system security. A minimum of 3 password levels shall be provided. The operator shall have the ability to choose up to 2 lines of data to be displayed on the main (home) information screen.

## Digital Status/Alarm Messages

The digital display shall indicate text messages for the status and alarm conditions of:

- Pump Running
- Minimum Run Time
- Pump Restart Timer
- Automatic Start
- User Selectable #1[1]
- User Selectable #2[1]
- Sequential Start Time
- Low System Pressure
- Fail to Start
- System Overpressure
- Main Switch Position

[1] User may choose from the following to be shown on main display (stop pressure setting, start pressure setting, cycles/period, cycles/month, cycles/day, cycles/hour, total cycle count, pump total run time)

The Sequential Start Timer, Minimum Run Timer/Off Delay Timer and Pump Restart Timer shall be displayed as numeric values reflecting the value of the remaining time.

## LED Visual Indicators

LED indicators, visible with the door closed, shall indicate:

- Power ON
- Pump Running
- Alarm

## Data Logging

The digital display shall monitor the system and log the following data:

- Motor Calls/Starts
- Pump Last Run Time
- Last Pump Start
- Last Phase Fail/Reverse
- Pump Total Run Time
- Total Controller Pwr On Time
- Min/Max System Pressure
- Cycle Counts

### Event Recording

Memory - The controller shall record all operational and alarm events to system memory. All events shall be time and date stamped and include an index number. The system memory shall have the capability of storing 3000 events and allow the user access to the event log via the user interface. The user shall have the ability to scroll through the stored messages in groups of 1 or 10.

### Serial Communications

The controller shall feature a RS485 serial communications port for use with 2 or 4 wire Modbus communications.

### Solid State Pressure Transducer

The controller shall be supplied with a stainless steel solid state pressure transducer with a range of 0-300 psi (0-20.7 bar) ±1 psi. The solid state pressure transducer shall be used for both display of the system pressure and control of the jockey pump controller. Systems using analog pressure devices or mercury switches for operational control will not be accepted.

The START and STOP PRESSURE shall be adjustable through the user interface. The pressure transducer shall be mounted inside the controller to prevent accidental damage. The pressure transducer shall be directly pipe mounted to a bulkhead pipe coupling without any other supporting members. Field connections shall be made externally at the controller coupling to prevent distortion of the pressure switch element and mechanism.

### Seismic Certification

The controller shall be certified to meet or exceed the requirements of the 2006 International Building Code and the 2010 California Building Code with Importance Factor 1.5 and Sds equal to 1.88 or less. Qualifications shall be based upon successful tri-axial shake-table testing in accordance with ICC-ES AC-156. Certification without testing shall be unacceptable. Controller shall be clearly labeled as rated for installation in seismic areas and a Certificate of Conformance shall be provided with the controller.

### Operation

A digitally set On Delay (Sequential Start) timer shall be provided as standard. Upon a call to start, the user interface shall display a message indicating the remaining time value of the On Delay timer.

The controller shall include a Minimum Run Timer to allow the motor to run for a set period of timer after starting. The timer shall be programmable through the user interface.

A pump restart delay timer shall be provided to allow the residual voltage of the motor to decay prior to restarting the motor and to prevent severe short cycling of the motor. The timer shall be programmable through the user interface.

A Lamp Test feature shall be included. The user interface shall also have the ability to display the status of the system inputs and outputs.

An Audible Test feature shall be included to test the operation of the audible alarm device (if supplied).

The disconnect switch shall be mechanically interlocked so that the enclosure door cannot be opened with the handle in the ON position except by a hidden tool operated defeater mechanism. The disconnect switch shall be capable of being padlocked in the OFF position for installation and maintenance safety.

The controller shall be a Firetrol brand.

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USER INTERFACE

.50 [12.7] MTG HOLE
TYP (4) PLACES

DOOR SWING
28.00 [712]

3.00 [76]

14.00 [356]

27.00 [686]

26.00 [660]

24.00 [610]

.50 [13]

20.00 [508]

1/2 FNPT SYSTEM
CONNECTION

CONDUIT
ENTRANCE
TOP & BOTTOM

8.00 [203]

6.00 [152]

4.587 [117]

5.00 [127]

11.00 [279]

1.00 [25]

1.00 [25]
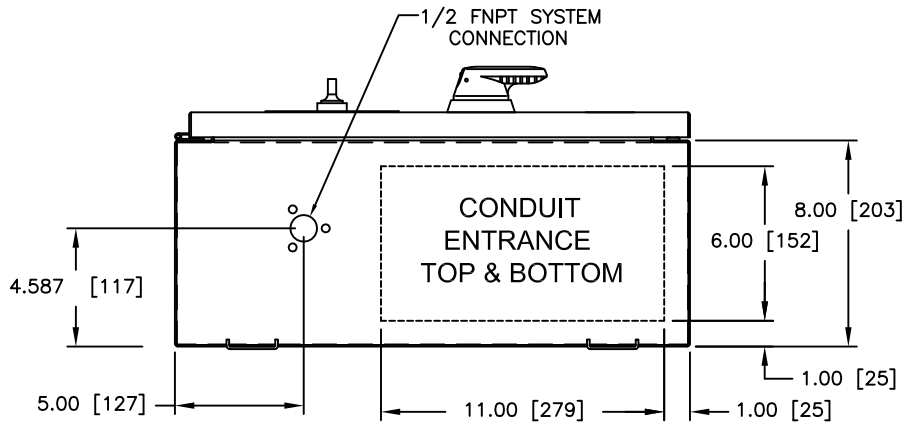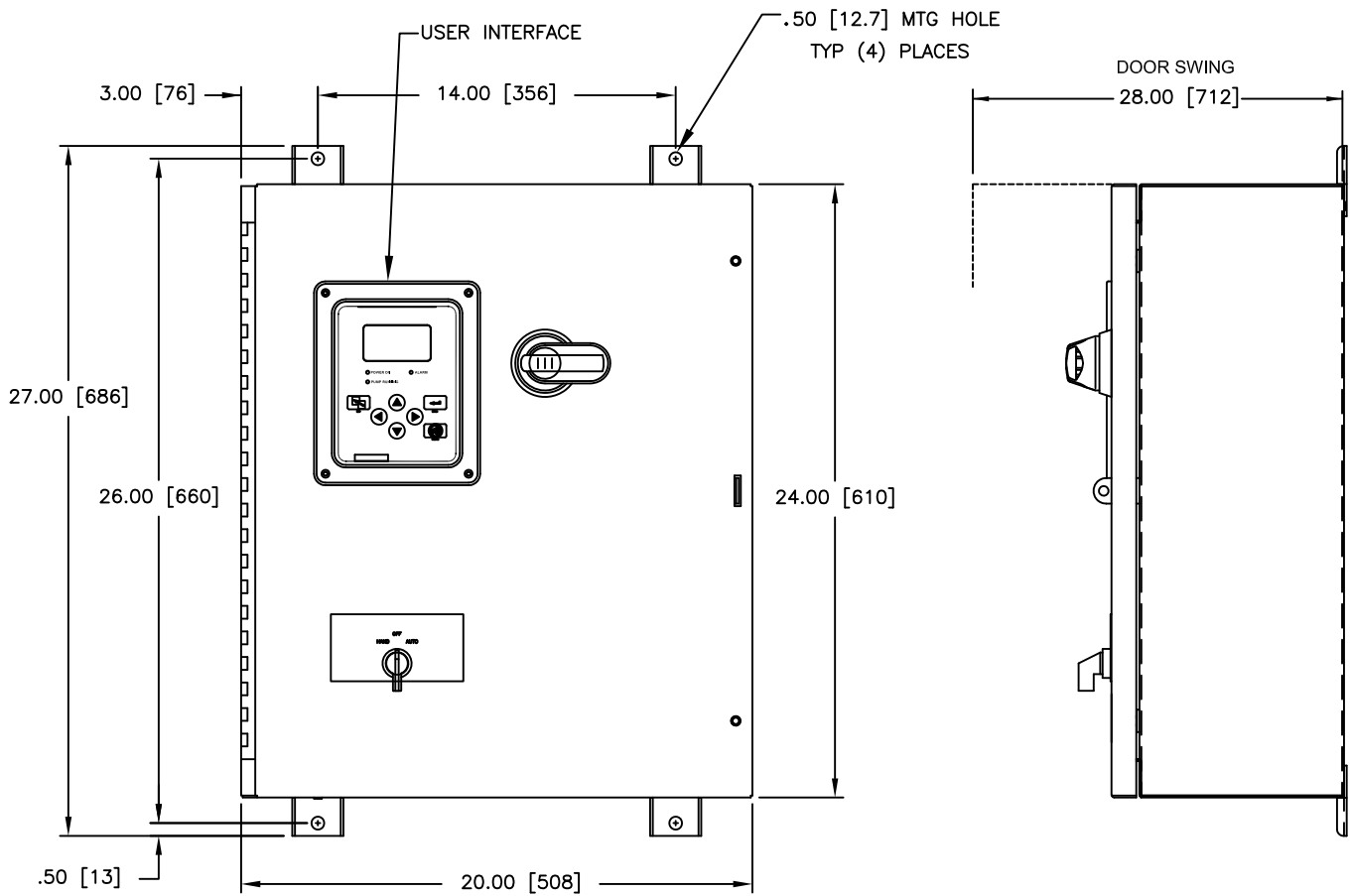
SHIPPING WEIGHT
APPROX. 45 [20.4]

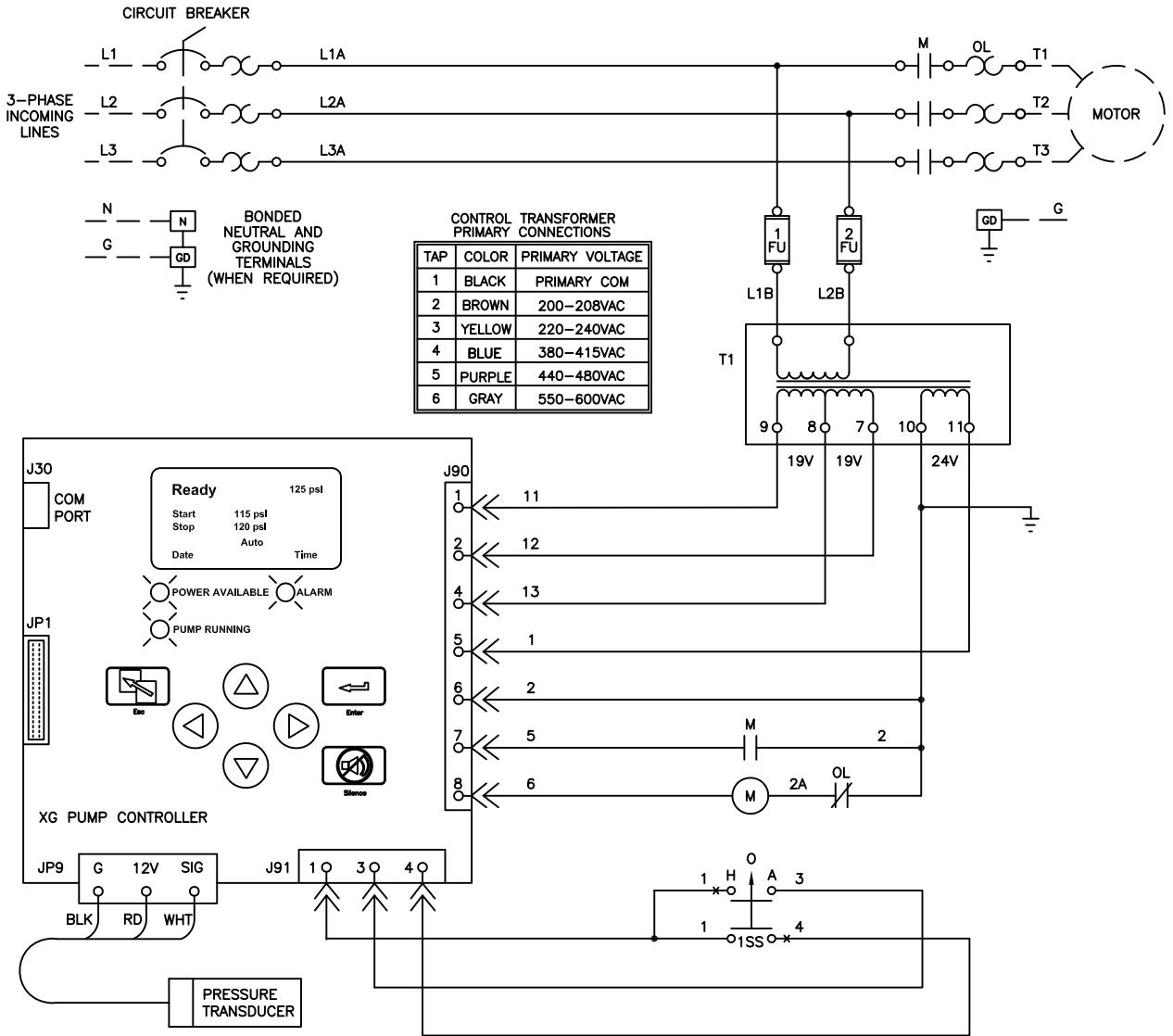ALL DIMENSIONS - INCHES [MM]
SHIPPING WEIGHT - POUNDS [KG]

NOTES:

FOR ADDITIONAL HORSEPOWER
RATINGS CONSULT FACTORY.

DIMENSIONS SHOWN ON THIS DRAWING
ARE APPLICABLE FOR NEMA TYPES
2 - 3R - 4 - 4X - 12

| DISCONNECT TYPE | MAXIMUM MOTOR HORSEPOWER | | | | |
|---|---|---|---|---|---|
| | 200-208V | 220-240V | 380-415V | 440-480V | 550-600V |
| CIRCUIT BREAKER OR FUSIBLE DISCONNECT | 25 | 30 | 40 | 50 | 50 |

| PROJECT NAME: | | | | REV. TO SHEET | ECN NO. | BY | APP. | DATE |
|---|---|---|---|---|---|---|---|---|

DIMENSIONS AND SHIPPING WEIGHT — FTA550E
FTA550E JOCKEY XG PUMP CONTROLLER

THIRD ANGLE PROJECTION

| | BY | DATE | MANUFACTURING TOLERANCES TO BE IN ACCORDANCE WITH ASCO PROCEDURE MP-I-003. FOR PLASTIC PARTS SEE MP-I-055 | ASSEM. REF. NO. | COMPUTER GENERATED DRAWING | | |
|---|---|---|---|---|---|---|---|
| DRAWN BY | CIR | 4-25-12 | | | SCALE 1:1 | SIZE A | |
| CHECKED | | | PROPERTY OF ASCO POWER TECHNOLOGIES. USE PERMITTED FOR OUR WORK ONLY. ALL RIGHTS OF DESIGN OR INVENTION ARE RESERVED. | | DWG. NO. | | |
| PROJECT APPROVAL | | | | | DD550-05 | | |
| FINAL APPROVAL | TEF | 4-25-12 | ASCO® ASCO POWER TECHNOLOGIES, L.P. FLORHAM PARK, NEW JERSEY 07932 U.S.A. | | DRAWING REV. — | ECN NO. 237139 | SHEET 1 OF 1 |

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CIRCUIT BREAKER

L1    L1A

3-PHASE INCOMING LINES

L2    L2A

L3    L3A

N

G

BONDED NEUTRAL AND GROUNDING TERMINALS (WHEN REQUIRED)

M   OL   T1
   T2   MOTOR
   T3

GD — G

1 FU   2 FU

L1B   L2B

T1

9   8   7   10   11

19V   19V   24V

**CONTROL TRANSFORMER PRIMARY CONNECTIONS**

| TAP | COLOR | PRIMARY VOLTAGE |
|-----|--------|-----------------|
| 1 | BLACK | PRIMARY COM |
| 2 | BROWN | 200–208VAC |
| 3 | YELLOW | 220–240VAC |
| 4 | BLUE | 380–415VAC |
| 5 | PURPLE | 440–480VAC |
| 6 | GRAY | 550–600VAC |

J30

COM PORT

Ready    125 psi
Start   115 psi
Stop   120 psi
   Auto
Date    Time

POWER AVAILABLE   ALARM
PUMP RUNNING

JP1

Esc   Enter   Silence

XG PUMP CONTROLLER

JP9   G   12V   SIG   J91   1   3   4

BLK   RD   WHT

PRESSURE TRANSDUCER

J90
1   11
2   12
4   13
5   1
6   2
7   5    M    2
8   6    M   2A   OL

1   H   O   A   3
1   1SS   4

FOR ADDITIONAL OPTIONS AND MODIFICATIONS, REFER TO DRAWING WS550-06

**LINE TERMINALS—WIRE CAPACITY AND QUANTITY (CU) ①**
**—FUSIBLE DISCONNECT OPTION**

| MAXIMUM MOTOR HORSEPOWER | | | | | WIRE SIZE (CU) PER PHASE | WIRE SIZE (CU) NEUTRAL AND GROUND TERMINALS |
|---|---|---|---|---|---|---|
| 200–208V | 220–240V | 380–415V | 440–480V | 550–600V | | |
| 5 | 7 1/2 | 10 | 15 | 20 | (1) #14 AWG–#8 AWG (1) 2.5 MM²–10 MM² | (1) #14 AWG–#6 AWG (1) 2.5 MM²–16 MM² |
| 15 | 15 | 25 | 30 | 50 | (1) #14 AWG–#4 AWG (1) 2.5 MM²–25 MM² | (1) #14 AWG–#6 AWG (1) 2.5 MM²–16 MM² |
| 25 | 30 | 40 | 50 | –– | (1) #14 AWG–#2/0 AWG (1) 2.5 MM²–70 MM² | (2) #14 AWG–#2/0 AWG (2) 2.5 MM²–70 MM² |
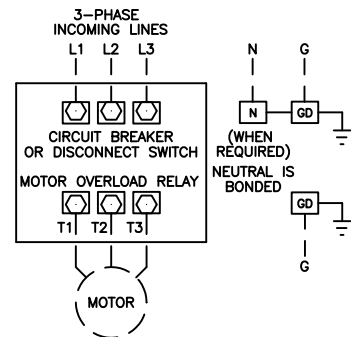
**MOTOR TERMINALS—WIRE CAPACITY AND QUANTITY (CU) ①**

| MAXIMUM MOTOR HORSEPOWER | | | | | WIRE SIZE (CU) PER PHASE |
|---|---|---|---|---|---|
| 200–208V | 220–240V | 380–415V | 440–480V | 550–600V | |
| 7 1/2 | 10 | 15 | 20 | 25 | (1) #14 AWG–#8 AWG (1) 2.5 MM²–10 MM² |
| 25 | 30 | 40 | 50 | 50 | (1) #8 AWG–#1 AWG (1) 10 MM²–35 MM² |

3-PHASE INCOMING LINES
L1   L2   L3

CIRCUIT BREAKER OR DISCONNECT SWITCH

MOTOR OVERLOAD RELAY

T1   T2   T3

MOTOR

N   G

(WHEN REQUIRED) NEUTRAL IS BONDED

**LINE TERMINALS—WIRE CAPACITY AND QUANTITY (CU) ①**
**—CIRCUIT BREAKER OPTION**

| MAXIMUM MOTOR HORSEPOWER | | | | | WIRE SIZE (CU) PER PHASE |
|---|---|---|---|---|---|
| 200–208V | 220–240V | 380–415V | 440–480V | 550–600V | |
| 25 | 30 | 40 | 50 | 50 | (1) #14 AWG–#1/0 AWG (1) 2.5 MM²–50 MM² |

① FOR CORRECT WIRE SIZING, REFER TO *NATIONAL ELECTRICAL CODE*, NFPA 70.

PRESSURE SYSTEM CONNECTION 1/2" FNPT

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☐ MODIFICATION H – SPACE HEATER, 110–120VAC
☐ MODIFICATION L – SPACE HEATER, 220–240VAC
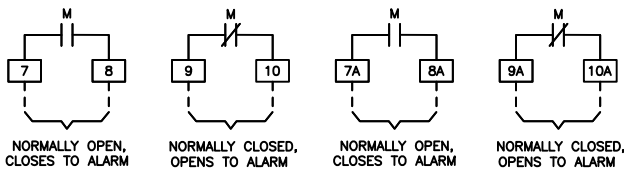
CIRCUIT BREAKER

SINGLE PHASE LINE
HL1 — 202
HL2(N) — 204
HEATER
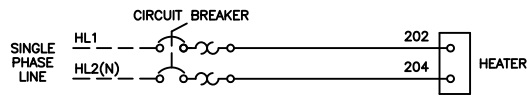
☐ MODIFICATION J – SPACE HEATER, 110–120VAC (WITH THERMOSTAT)
☐ MODIFICATION M – SPACE HEATER, 220–240VAC (WITH THERMOSTAT)

CIRCUIT BREAKER
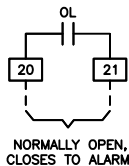
SINGLE PHASE LINE
HL1 — 203 THERMOSTAT 202
HL2(N) — 204
HEATER
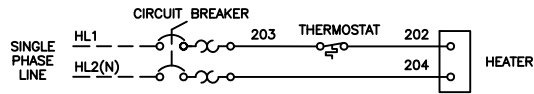
☐ MODIFICATION K – SPACE HEATER, 110–120VAC (WITH HUMIDISTAT)
☐ MODIFICATION N – SPACE HEATER, 220–240VAC (WITH HUMIDISTAT)

CIRCUIT BREAKER
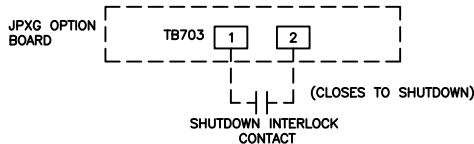
SINGLE PHASE LINE
HL1 — 203 HUMIDISTAT 202
HL2(N) — 204
HEATER
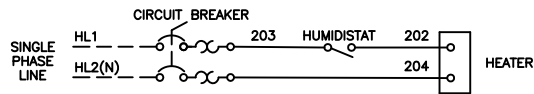
☐ MODIFICATION AC – PUMP OPERATING ALARM CONTACTS

M | 7 | 8
NORMALLY OPEN, CLOSES TO ALARM

M | 9 | 10
NORMALLY CLOSED, OPENS TO ALARM

M | 7A | 8A
NORMALLY OPEN, CLOSES TO ALARM

M | 9A | 10A
NORMALLY CLOSED, OPENS TO ALARM

☐ MODIFICATION BY – PUMP OVERLOAD REMOTE ALARM CONTACT

OL | 20 | 21
NORMALLY OPEN, CLOSES TO ALARM

☐ MODIFICATION NZ – INTERLOCK SHUTDOWN IN AUTO

JPXG OPTION BOARD
TB703 | 1 | 2
(CLOSES TO SHUTDOWN)
SHUTDOWN INTERLOCK CONTACT

☐ MODIFICATION AST – REMOTE AUTO START INPUT

JPXG OPTION BOARD
TB703 | 3 | 4
(CLOSES TO START)
AUTO START CONTACT
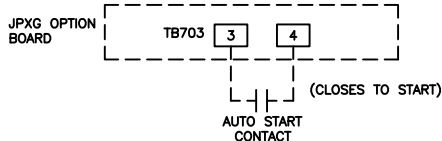
WIRING REQUIRED WHEN JPXG OPTION BOARD IS USED

JPXG OPTION BOARD
JP701
J701 | J702
1
2
CABLE TO XG PUMP CONTROLLER JP1

☐ MODIFICATION AM – PUMP FAILED TO START REMOTE ALARM CONTACTS

JPXG OPTION BOARD
TB704 | 1 | 2 | 3

NORMALLY OPEN, CLOSES TO ALARM
NORMALLY CLOSED, OPENS TO ALARM
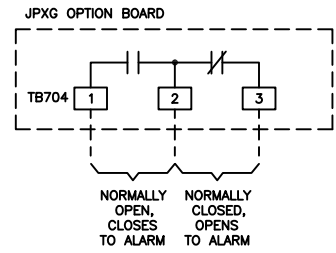
☐ MODIFICATION EF – SWITCH NOT IN AUTO REMOTE ALARM CONTACTS

JPXG OPTION BOARD
TB704 | 4 | 5 | 6

NORMALLY OPEN, CLOSES TO ALARM
NORMALLY CLOSED, OPENS TO ALARM
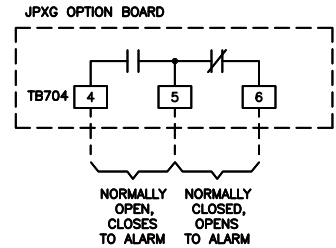
☐ MODIFICATION KH – COMMON TROUBLE REMOTE ALARM CONTACTS

JPXG OPTION BOARD
TB704 | 7 | 8 | 9

HELD CLOSED, OPENS TO ALARM
HELD OPEN, CLOSES TO ALARM
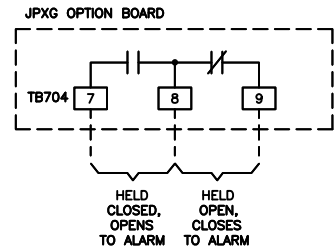
☐ MODIFICATION BW – PHASE FAILURE/REVERSAL REMOTE ALARM CONTACTS

WIRING REQUIRED FOR OPTION –BW
L1A
L2A
L3A
1 | 3 | 5
J711

JPXG OPTION BOARD
TB704 | 10 | 11 | 12

HELD CLOSED, OPENS TO ALARM
HELD OPEN, CLOSES TO ALARM
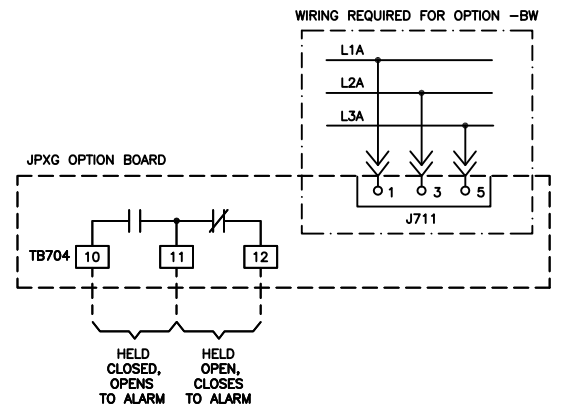
| CONTROL AND ALARM TERMINAL WIRE CAPACITY | |
|---|---|
| JPXG OPTION BOARD TERMINALS | #18–12 AWG [.75–4 MM²] |
| PUMP OPERATING TERMINALS | #14–12 AWG [2.5–4 MM²] |
| CIRCUIT BREAKERS | #14–4 AWG [2.5–25 MM²] |

NOTE:
TERMINAL NUMBERS SUBJECT TO CHANGE

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| PROJECT NAME: | | REV. TO SHEET | ECN NO. | BY | APP. | DATE |
|---|---|---|---|---|---|---|
| WIRING SCHEMATIC | FTA550E | | | | | |
| JOCKEY XG PUMP CONTROLLER OPTIONS AND MODIFICATIONS | | | | | | |

THIRD ANGLE PROJECTION

| | BY | DATE | MANUFACTURING TOLERANCES TO BE IN ACCORDANCE WITH ASCO PROCEDURE MP–I–003. FOR PLASTIC PARTS SEE MP–I–055 | ASSEM. REF. NO. | COMPUTER GENERATED DRAWING |
|---|---|---|---|---|---|
| DRAWN BY | TEF | 05/14/12 | | | SCALE 1:1  SIZE A |
| CHECKED | | | PROPERTY OF ASCO POWER TECHNOLOGIES. USE PERMITTED FOR OUR WORK ONLY. ALL RIGHTS OF DESIGN OR INVENTION ARE RESERVED. | | DWG. NO. |
| PROJECT APPROVAL | | | | | WS550–06 |
| FINAL APPROVAL | TEF | 05/14/12 | ASCO® ASCO POWER TECHNOLOGIES, L.P. FLORHAM PARK, NEW JERSEY 07932 U.S.A. | DRAWING REV. — | ECN NO. 237139  SHEET 1 OF 1 |