TORNATECH

**Project:** _____

**Customer:** _____

**Engineer:** _____

**Pump Manufacturer:** _____

## Technical Data
## Submittal Document

# Model GFA

Across the Line Start
Electric Fire Pump Controller


**Contents:**



**Note: The drawings included in this package are for controllers covered under our standard offering. Actual AS BUILT drawings may differ from what is shown in this package.**

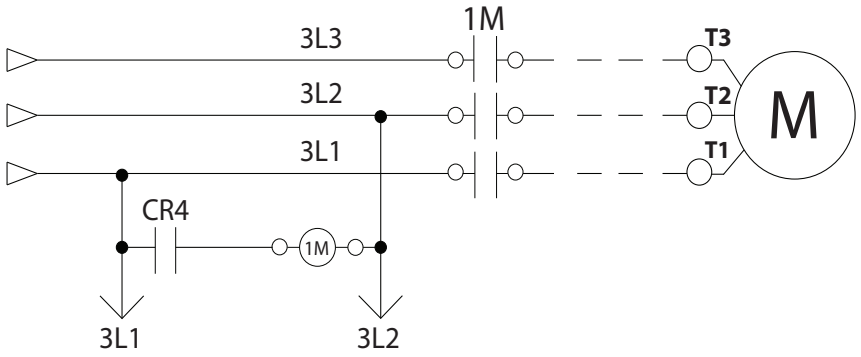
CE NFPA MEMBER 2019 - 2020

February 2020

# Technical Data

## Model GFA Electric Fire Pump Controller Options

From normal incoming power through Disconnecting Means (IS/CB)

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CE

| | | |
|---|---|---|
| **Standard & Certification** | Built to NFPA 20 (latest edition) | |
| | CE Mark: Various EN, IEC & CEE directives and standards | |
| **Enclosure** | **Protection Rating**<br>IP55 | |
| | **Accessories**<br>• Bottom entry gland plate | **Paint Specifications**<br>• Red RAL3002<br>• Powder coating<br>• Glossy textured finish |
| **Disconnecting Means** | • Isolating switch and circuit breaker:<br>Isolating switch rated not less than 115% of motor full load current<br>Circuit breaker continuous rating not less than 115% of motor full load current<br>Overcurrent sensing non-thermal type, magnetic only<br>Instantaneous trip setting of not more than 20 times the motor full load current<br>• Individual operating handles | |
| **Emergency Start Handle** | • Flange mounted<br>• Pull and latch activation<br>• Integrated limit switch<br>• Across the line start (direct on line) | |
| **Locked Rotor** | • Operate shunt trip to open circuit breaker<br>• Factory set at 600% of motor full load current<br>• Trip between 8 and 20 seconds | |
| **Electrical Readings** | • Voltage phase to phase (normal power)<br>• Amperage of each phase when motor is running | |
| **Pressure Readings** | • Continuous system pressure display<br>• Cut-in and Cut-out pressure settings | |

| | | | |
|---|---|---|---|
| **Pressure and Event recorder** | • Pressure readings with date stamp<br>• Event recording with date stamp<br>• Under regular maintained operation, events can be stored in memory for up to 5 years.<br>• Data viewable on operator interface display screen | | |
| **Pressure Sensing** | • Pressure transducer for fresh water application<br>• Pressure sensing line connection 1/2” Female NPT<br>• Rated for 0-500PSI working pressure (calibrated at 0-300psi)<br>• Externally mounted with protective cover | | |
| **Visual Indications & Alarms** | • Power available<br>• Phase reversal<br>• Motor run<br>• Pump room alarm<br>• Motor trouble<br>• Phase loss<br>• Low water level | • Phase unbalance<br>• Locked rotor<br>• Fail to start<br>• Low discharge pressure<br>• Pump on demand/Automatic start<br>• Emergency start<br>• Manual start | • Deluge valve start<br>• Remote automatic start<br>• Remote manual start<br>• Overcurrent<br>• Undercurrent<br>• Undervoltage<br>• Overvoltage |
| **Remote Alarm Contacts** | SPDT-8A-250V.AC<br>• Power available<br>• Phase reversal<br>• Motor run<br>• Common pump room alarm<br>• Overvoltage • Undervoltage • Phase unbalance<br>• Common motor trouble<br>• Overcurrent • Undercurrent • Fail to start | | |
| **ViZiTouch Light Operator Interface** | • Embedded microcomputer with software PLC logic<br>• 4.2” color touch screen (HMI technology)<br>• Upgradable software<br>• Expandable storage<br>• Multi-language | | |
| **Operation** | **Automatic Start** | • Start on pressure drop<br>• Remote start signal from automatic device | |
| | **Manual Start** | • Start pushbutton<br>• Run test pushbutton<br>• Deluge valve start<br>• Remote start from manual device | |
| | **Stopping** | • Manual with Stop pushbutton<br>• Automatic after expiration of minimum run timer ** | |
| | **Timers** | Field Adjustable & Visual Countdown | • Minimum run timer **(off delay)<br>• Sequential start timer (on delay)<br>• Manual test timer |
| | **Actuation** | Visual Indication | • Pressure<br>• Non-pressure |
| | **Mode** | | • Automatic<br>• Non-automatic |

** Can only be used if approved by the AHJ

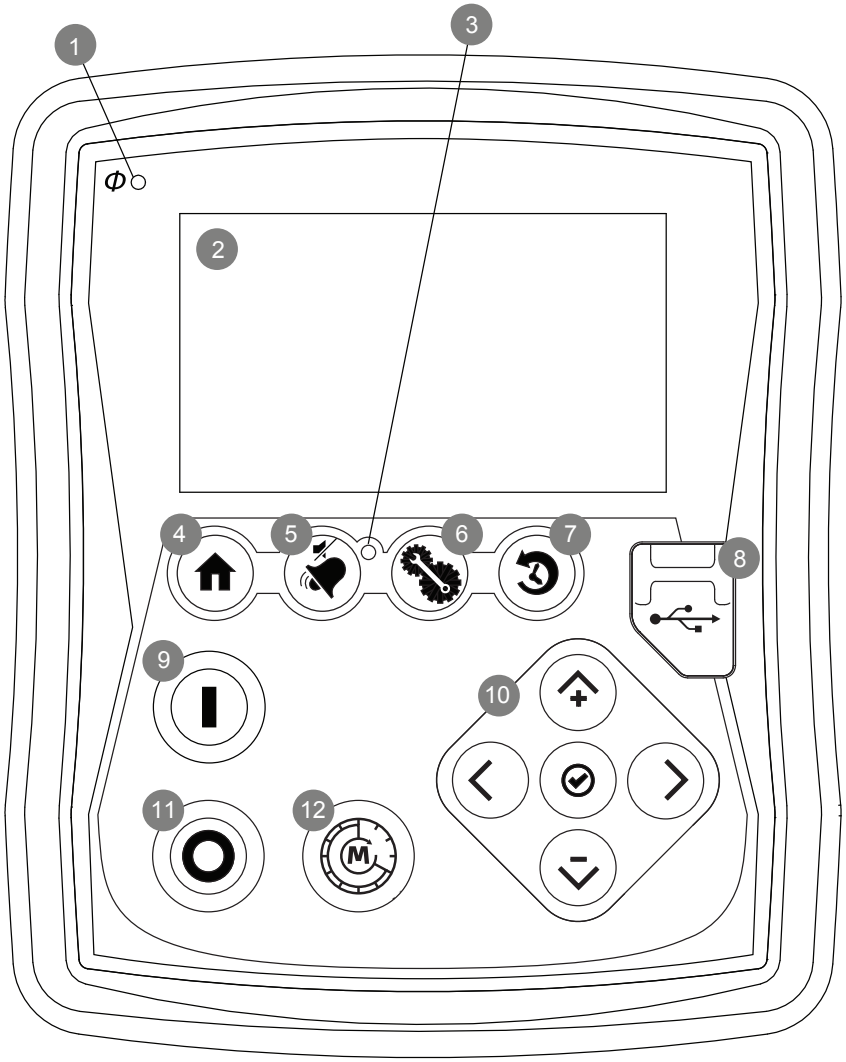
| | |
|---|---|
| ☐ A4 | Flow switch provision |
| ☐ A9 | Low zone pump control function |
| ☐ A10 | Middle zone pump control function |
| ☐ A11 | High zone pump control function |
| ☐ A13 | Non-pressure actuated controller w/o pressure transducer and run test solenoid valve |
| ☐ A16 | Lockout/interlock circuit from equipment installed inside the pump room |
| ☐ B11B | Built in alarm panel same as B11 but 220-240VAC supervisory power |
| ☐ B19A | High motor temperature c/w thermoster relay and alarm contacts (DPDT) |
| ☐ B19B | High motor temperature c/w PT100 relay and alarm contacts (DPDT) |
| ☐ B21 | Ground fault alarm detection c/w visual indication and alarm contact (DPDT) |
| ☐ C1 | Extra motor run alarm contact (DPDT) |
| ☐ C4 | Periodic test alarm contact (DPDT) |
| ☐ C6 | Low discharge pressure alarm contact (DPDT) |
| ☐ C7 | Low pump room temperature alarm contact (DPDT) |
| ☐ C10 | Low water reservoir level alarm contact (DPDT) |
| ☐ C11 | High electric motor temperature alarm contact (DPDT) |
| ☐ C12 | High electric motor vibration c/w visual indication and alarm contact (DPDT) |
| ☐ C14 | Pump on demand / automatic start alarm contact (DPDT) |
| ☐ C15 | Pump fail to start alarm contact (DPDT) |
| ☐ C16 | Control voltage healthy alarm contact (DPDT) |
| ☐ C17 | Flow meter valve loop open c/w visual indication and alarm contact (DPDT) |
| ☐ C18 | High water reservoir level c/w visual indication and alarm contact (DPDT) |
| ☐ C19 | Emergency start alarm contact (DPDT) |

| | |
|---|---|
| ☐ C20 | Manual start alarm contact (DPDT) |
| ☐ C21 | Deluge valve start alarm contact (DPDT) |
| ☐ C22 | Remote automatic start alarm contact (DPDT) |
| ☐ C23 | Remote manual start alarm contact (DPDT) |
| ☐ C24 | High pump room temperature alarm contact (DPDT) |
| ☐ Cx | Additional visual and alarm contact (Specify function) (DPDT) |
| ☐ D1 | Low suction pressure transducer for fresh water rated at 0-300PSI with visual indication and alarm contact |
| ☐ D1A | Low suction pressure transducer for sea water rated at 0-300PSI with visual indication and alarm contact |
| ☐ D5E | Addition of run test solenoid valve for fresh water rated for 0-500psi |
| ☐ D5F | Addition of run test solenoid valve for sea water rated for 0-500psi |
| ☐ D14 | Anti-condensation heater & thermostat |
| ☐ D14A | Anti-condensation heater & humidistat |
| ☐ D14B | Anti-condensation heater & thermostat & humidistat |
| ☐ D15 | Tropicalization |
| ☐ D27 | Motor heater connection (external single phase power source and heater on/off contact) |
| ☐ D27A | Motor heater connection (internal single phase power source and heater on/off contact) |
| ☐ D28 | Customized drawing set |
| ☐ D34A | Field programmable I/O board - 8 Input / 5 output |
| ☐ D37 | Window kit for operator interface |

Note: Options chosen from this page are not electrically represented on the wiring schematics in this submittal package.

| | |
|---|---|
| ☐ L01 | Other language and English (bilingual) |
| ☐ L02 | French |
| ☐ L03 | Spanish |
| ☐ L04 | German |
| ☐ L05 | Italian |
| ☐ L06 | Polish |
| ☐ L07 | Romanian |
| ☐ L08 | Hungarian |
| ☐ L09 | Slovak |
| ☐ L10 | Croatian |
| ☐ L11 | Czech |
| ☐ L12 | Portuguese |
| ☐ L13 | Dutch |
| ☐ L14 | Russian |
| ☐ L15 | Turkish |
| ☐ L16 | Swedish |
| ☐ L17 | Bulgarian |
| ☐ L18 | Thai |
| ☐ L19 | Indonesian |
| ☐ L20 | Slovenian |
| ☐ L21 | Danish |
| ☐ L22 | Greek |
| ☐ L23 | Arabic |
| ☐ L24 | Hebrew |
| ☐ L25 | Chinese |

## ViZiTouch Light Operator Interface




1 - Power on LED
2 - Color touch screen
3 - Alarm LED
4 - HOME page button
5 - ALARM page button
6 - CONFIGURATION page button
7 - HISTORY page button
8 - USB port
9 - START button
10- Contextual navigation pad
11 - STOP button
12 - RUN TEST button

# Electric Fire Pump Controller

## Full Voltage / Across The Line

## Dimension

## Model: GFA

Built as per NFPA 20-2013 standard

CE Optional

| REV. | DESCRIPTION | DD/MM/YY |
|---|---|---|
| 0. | FIRST ISSUE | 04/02/16 |
| 1. | TITLE BLOCK INFORMATION CHANGED | 11/11/16 |
| 2. | REVISED LOGO | 18/06/18 |

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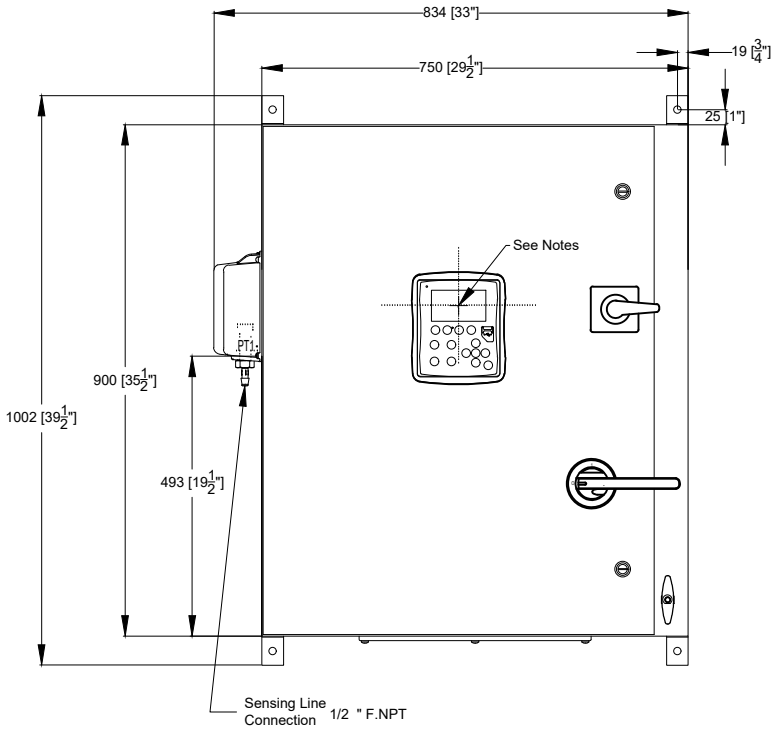
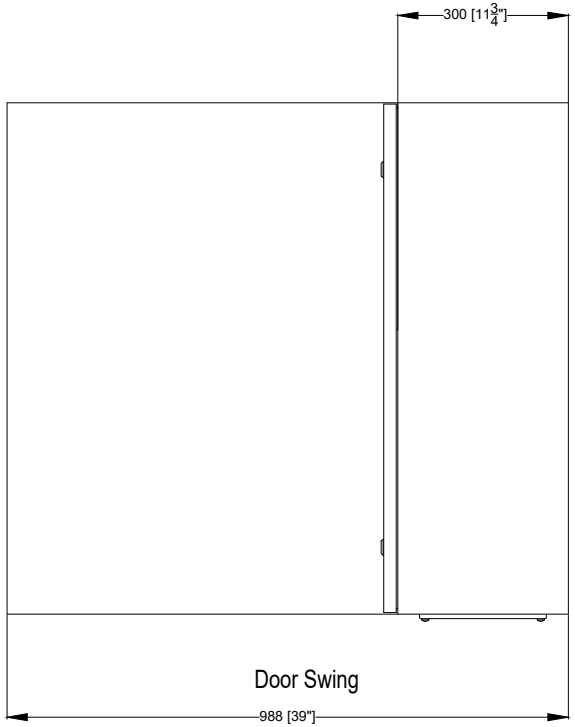
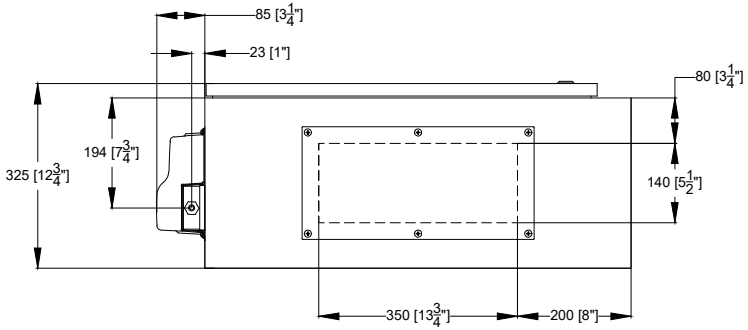
Drawing No. GFA-DI501 /E

GFX-S1-ViZi




| Power Table | | |
|---|---|---|
| Voltage | Min | Max |
| 220 - 240 | 50 HP | 100 HP |
| | 30 kW | 55 kW |
| 380 - 400 - 415 | 75 HP | 150 HP |
| | 55 kW | 110 kW |

Notes:
- IP55 assembly.
- All dimensions are in millimeters [Inches].
- Center of ViZiTouch screen: 582 [23"] from bottom.
- Paint: textured red RAL 3002.
- Bottom conduit entrance through removable gland plate recommended.
- Use watertight conduit and connectors only.
- Protect equipment against drilling chips.
- Drawing for information only.
  Manufacturer reserves the right to modify this drawing without notice.
  Contact manufacturer for "As Built" drawing.

PROJECTION

# Electric Fire Pump Controller

## Full Voltage / Across The Line

## Wiring schematic

## Model: GFA

Built as per NFPA 20-2013 standard

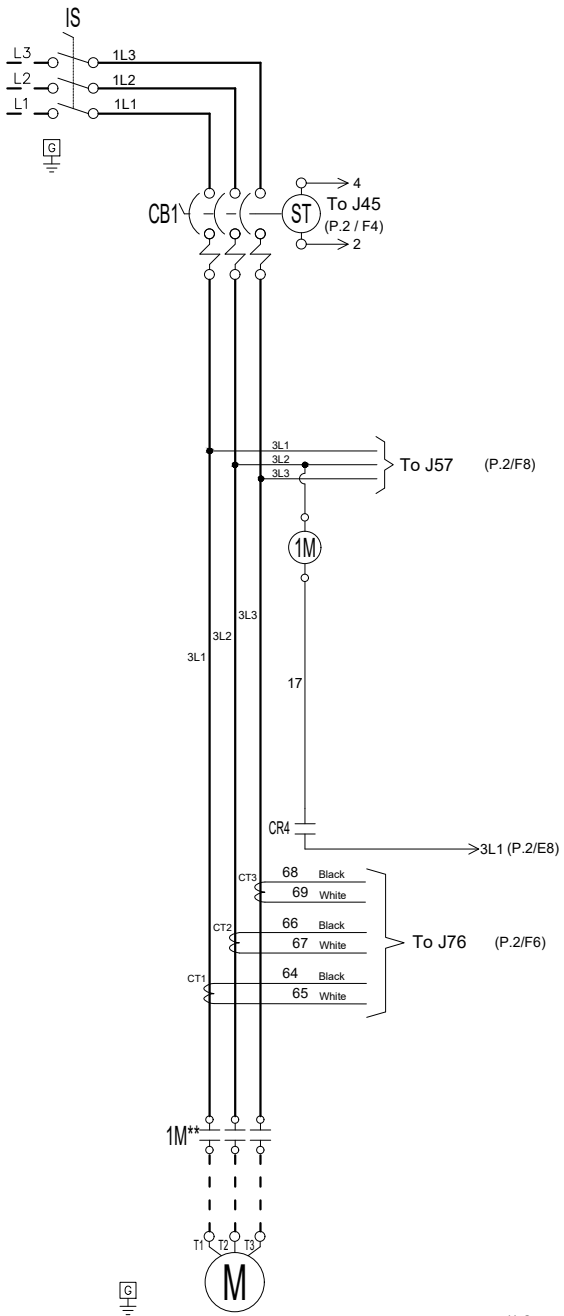
Optional

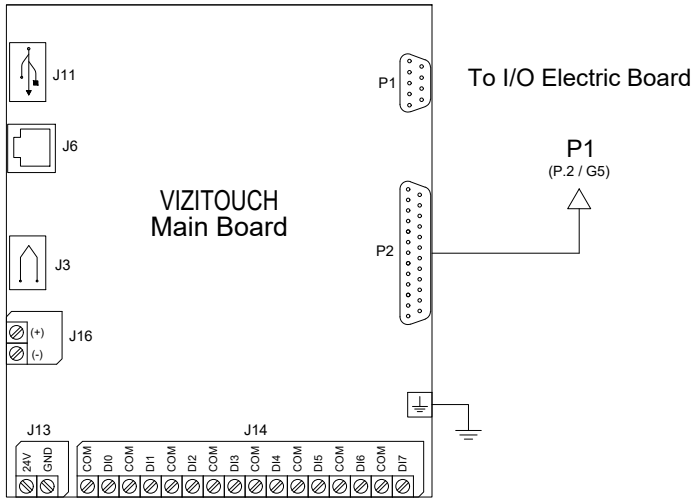
| REV. | DESCRIPTION | DD/MM/YY |
|---|---|---|
| 0. | FIRST ISSUE | 01/02/16 |
| 1. | TITLE BLOCK INFORMATION CHANGED | 11/11/16 |
| 2. | REVISED LOGO | 18/06/18 |

Drawing No.

GFA-WS500 /E

GFX-S1-ViZi




** Contact closes when emergency starts is in "ON" position.

Note:
- Drawing for information only.
  Manufacturer reserves the right to modify this drawing without notice.
  Contact manufacturer for "As Built" drawing.

# Electric Fire Pump Controller

## Full Voltage / Across The Line

## Wiring schematic

## Model: GFA

Built as per NFPA 20-2013 standard

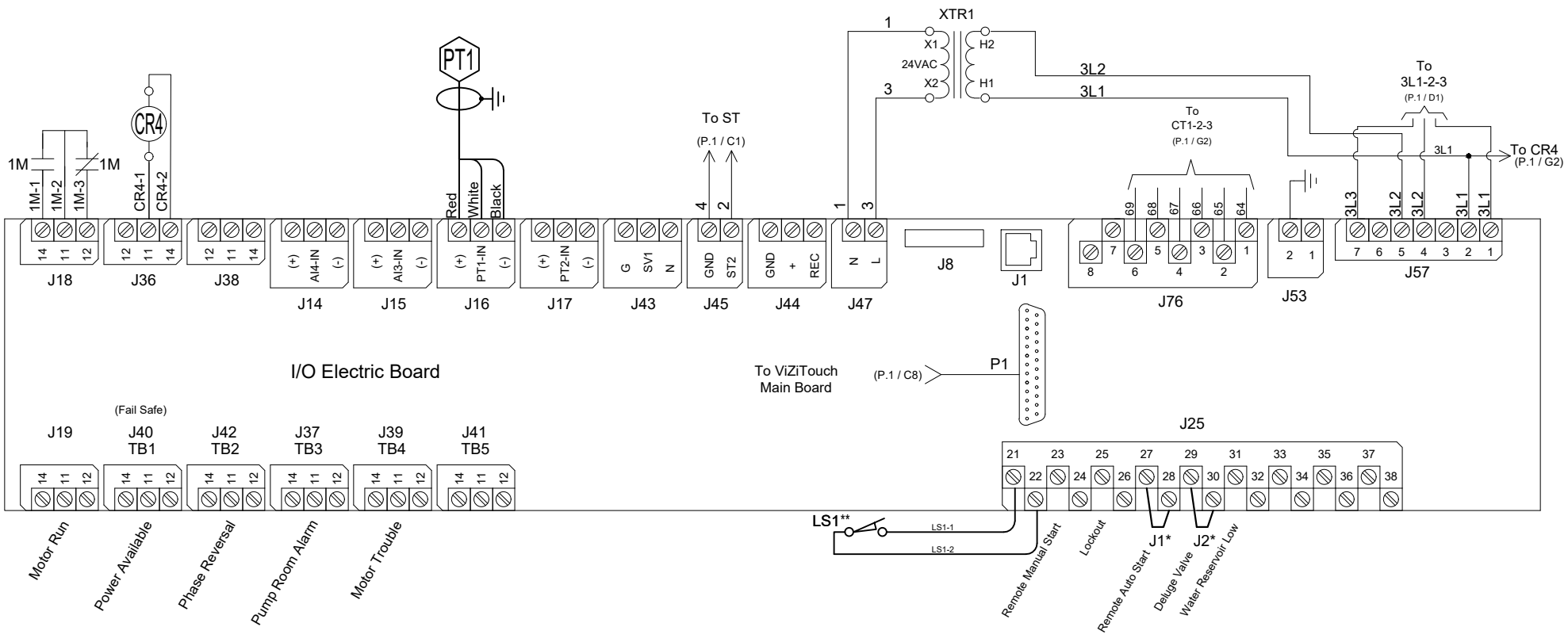
Optional

| REV. | DESCRIPTION | DD/MM/YY |
|---|---|---|
| 0. | FIRST ISSUE | 01/02/16 |
| 1. | TITLE BLOCK INFORMATION CHANGED | 11/11/16 |
| 2. | REVISED LOGO | 18/06/18 |

Drawing No.

GFA-WS500 /E

GFX-S1-ViZi




* Remove this jumper to use this feature

** Contact closes when emergency start is in "ON" position.

# Electric Fire Pump Controller

## Full Voltage / Across The Line

## Terminals diagram

## Model: GFA

Built as per NFPA 20-2013 standard

Optional

| REV. | DESCRIPTION | DD/MM/YY |
|---|---|---|
| 0. | FIRST ISSUE | 01/02/16 |
| 1. | TITLE BLOCK INFORMATION CHANGED | 11/11/16 |
| 2. | REVISED LOGO | 18/06/18 |

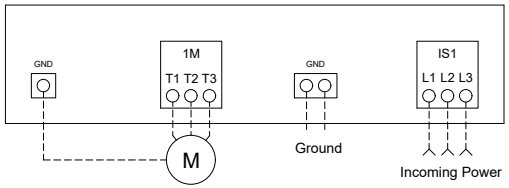
Drawing No.

GFA-WS500 /E

GFX-S1-ViZi

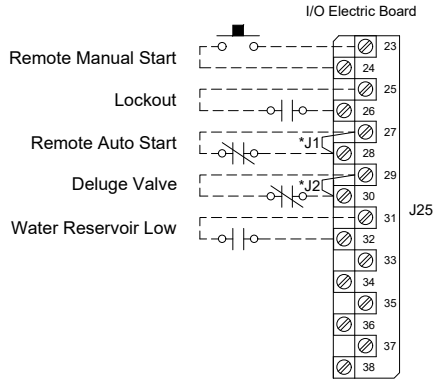
## Field Connections

### Normal Power Connections




## Field Connections

Terminals Wire Size:
12 - 24 AWG
0.5 Nm




Control Terminal Strip

* Remove this jumper to use this feature

## Alarm Contacts

Terminals Wire Size:
12 - 24 AWG
0.5 Nm