



TORNATECH

Project: _____

Customer: _____

Engineer: _____

Pump Manufacturer: _____

Technical Data Submittal Document

Model GFA Across the Line Start Electric Fire Pump Controller



Contents:

Data Sheets

Dimensional Data

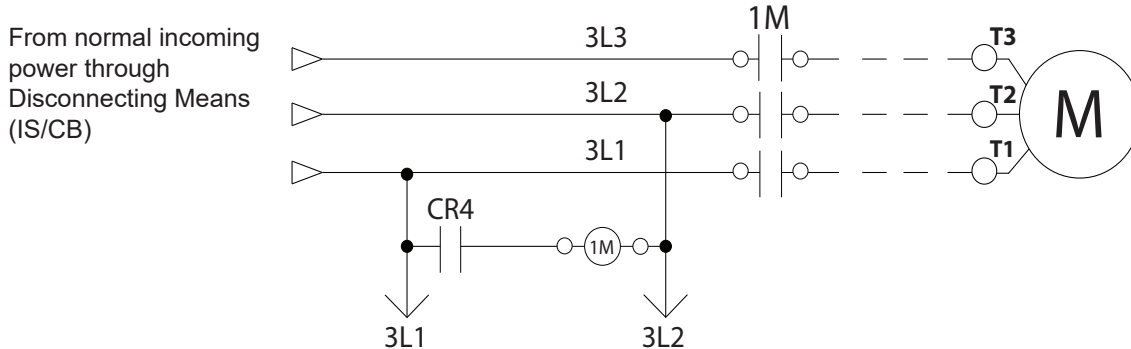
Wiring Schematics

Field Connections

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.



February 2020



Standard & Certification	Built to NFPA 20 (latest edition)	
	☐ CE Mark: Various EN, IEC & CEE directives and standards	
Enclosure	Protection Rating IP55	
	Accessories <ul style="list-style-type: none"> • Bottom entry gland plate 	Paint Specifications <ul style="list-style-type: none"> • Red RAL3002 • Powder coating • Glossy textured finish
Disconnecting Means	<ul style="list-style-type: none"> • Isolating switch and circuit breaker: <ul style="list-style-type: none"> Isolating switch rated not less than 115% of motor full load current Circuit breaker continuous rating not less than 115% of motor full load current Overcurrent sensing non-thermal type, magnetic only Instantaneous trip setting of not more than 20 times the motor full load current • Individual operating handles 	
Emergency Start Handle	<ul style="list-style-type: none"> • Flange mounted • Pull and latch activation • Integrated limit switch • Across the line start (direct on line) 	
Locked Rotor	<ul style="list-style-type: none"> • Operate shunt trip to open circuit breaker • Factory set at 600% of motor full load current • Trip between 8 and 20 seconds 	
Electrical Readings	<ul style="list-style-type: none"> • Voltage phase to phase (normal power) • Amperage of each phase when motor is running 	
Pressure Readings	<ul style="list-style-type: none"> • Continuous system pressure display • Cut-in and Cut-out pressure settings 	



Pressure and Event recorder	<ul style="list-style-type: none"> • Pressure readings with date stamp • Event recording with date stamp • Under regular maintained operation, events can be stored in memory for up to 5 years. • Data viewable on operator interface display screen 			
Pressure Sensing	<ul style="list-style-type: none"> • Pressure transducer for fresh water application • Pressure sensing line connection 1/2" Female NPT • Rated for 0-500PSI working pressure (calibrated at 0-300psi) • Externally mounted with protective cover 			
Visual Indications & Alarms	<ul style="list-style-type: none"> • Power available • Phase reversal • Motor run • Pump room alarm • Motor trouble • Phase loss • Low water level 	<ul style="list-style-type: none"> • Phase unbalance • Locked rotor • Fail to start • Low discharge pressure • Pump on demand/Automatic start • Emergency start • Manual start 	<ul style="list-style-type: none"> • Deluge valve start • Remote automatic start • Remote manual start • Overcurrent • Undercurrent • Undervoltage • Overvoltage 	
Remote Alarm Contacts	<p>SPDT-8A-250V.AC</p> <ul style="list-style-type: none"> • Power available • Phase reversal • Motor run • Common pump room alarm <ul style="list-style-type: none"> • Overvoltage • Undervoltage • Phase unbalance • Common motor trouble <ul style="list-style-type: none"> • Overcurrent • Undercurrent • Fail to start 			
ViZiTouch Light Operator Interface	<ul style="list-style-type: none"> • Embedded microcomputer with software PLC logic • 4.2" color touch screen (HMI technology) • Upgradable software • Expandable storage • Multi-language 			
Operation	Automatic Start	<ul style="list-style-type: none"> • Start on pressure drop • Remote start signal from automatic device 		
	Manual Start	<ul style="list-style-type: none"> • Start pushbutton • Run test pushbutton • Deluge valve start • Remote start from manual device 		
	Stopping	<ul style="list-style-type: none"> • Manual with Stop pushbutton • Automatic after expiration of minimum run timer ** 		
	Timers	Field Adjustable & Visual Countdown	<ul style="list-style-type: none"> • Minimum run timer **(off delay) • Sequential start timer (on delay) • Manual test timer 	
	Actuation	Visual Indication	<ul style="list-style-type: none"> • Pressure • Non-pressure 	
	Mode		<ul style="list-style-type: none"> • Automatic • Non-automatic 	

** Can only be used if approved by the AHJ



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

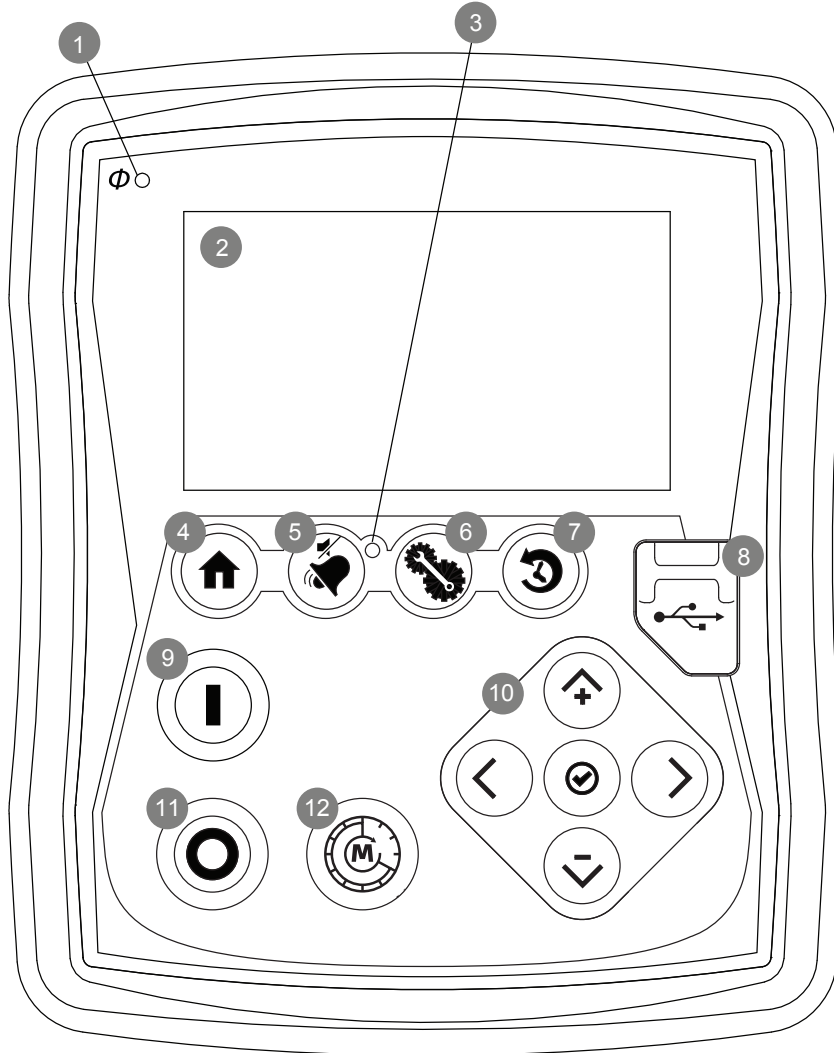
<input type="checkbox"/>	C20	Manual start alarm contact (DPDT)
<input type="checkbox"/>	C21	Deluge valve start alarm contact (DPDT)
<input type="checkbox"/>	C22	Remote automatic start alarm contact (DPDT)
<input type="checkbox"/>	C23	Remote manual start alarm contact (DPDT)
<input type="checkbox"/>	C24	High pump room temperature alarm contact (DPDT)
<input type="checkbox"/>	Cx	Additional visual and alarm contact (Specify function) (DPDT)
<input type="checkbox"/>	D1	Low suction pressure transducer for fresh water rated at 0-300PSI with visual indication and alarm contact
<input type="checkbox"/>	D1A	Low suction pressure transducer for sea water rated at 0-300PSI with visual indication and alarm contact
<input type="checkbox"/>	D5E	Addition of run test solenoid valve for fresh water rated for 0-500psi
<input type="checkbox"/>	D5F	Addition of run test solenoid valve for sea water rated for 0-500psi
<input type="checkbox"/>	D14	Anti-condensation heater & thermostat
<input type="checkbox"/>	D14A	Anti-condensation heater & humidistat
<input type="checkbox"/>	D14B	Anti-condensation heater & thermostat & humidistat
<input type="checkbox"/>	D15	Tropicalization
<input type="checkbox"/>	D18	CE Mark with factory certificate
<input type="checkbox"/>	D27	Motor heater connection (external single phase power source and heater on/off contact)
<input type="checkbox"/>	D27A	Motor heater connection (internal single phase power source and heater on/off contact)
<input type="checkbox"/>	D28	Customized drawing set
<input type="checkbox"/>	D34A	Field programmable I/O board - 8 Input / 5 output
<input type="checkbox"/>	D37	Window kit for operator interface

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



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

ViZiTouch Light Operator Interface



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

Electric Fire Pump Controller

Full Voltage / Across The Line

Dimension

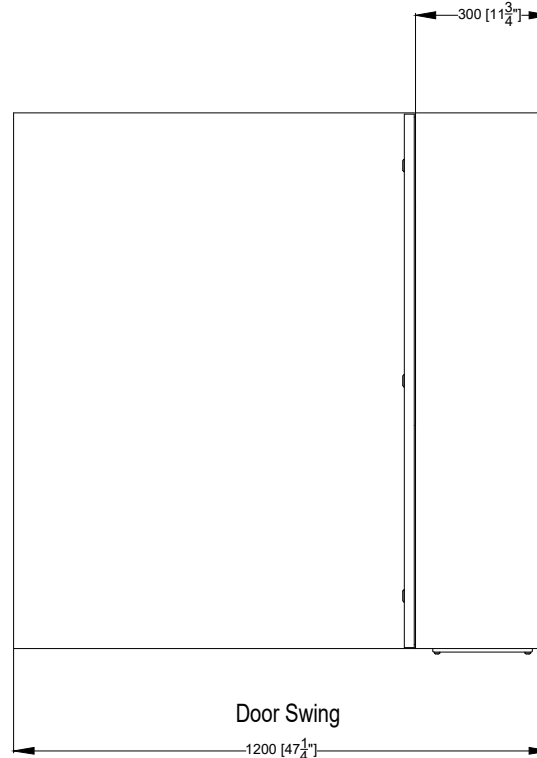
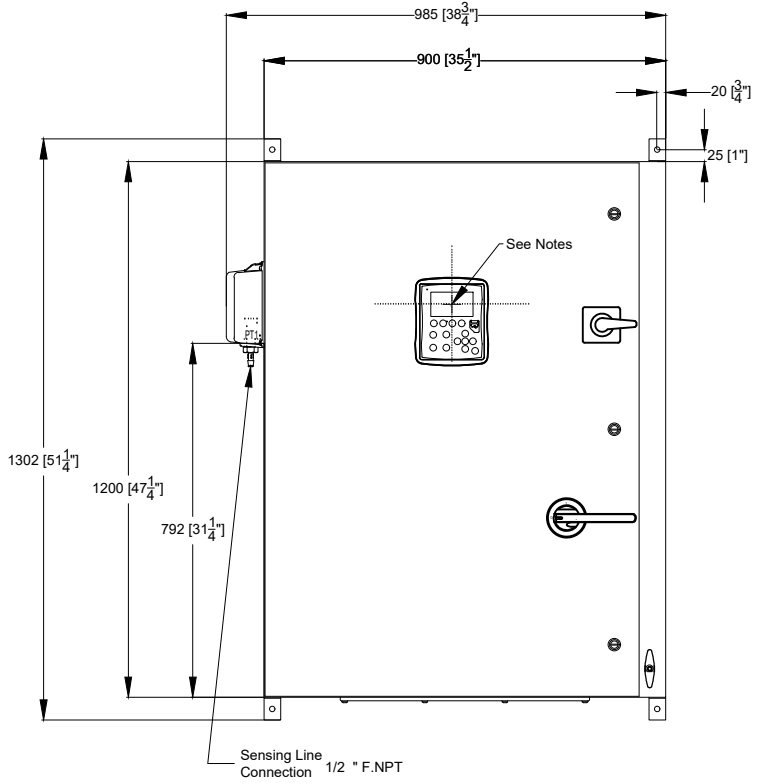
Model: GFA
 Built as per NFPA 20-2013 standard



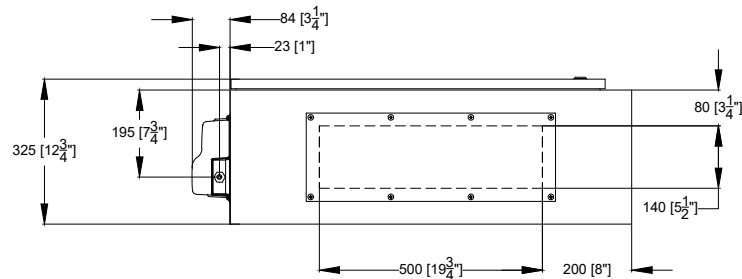
REV.	DESCRIPTION	DD/MM/YY
0.	FIRST ISSUE	04/02/16
1.	TITLE BLOCK INFORMATION CHANGED	11/11/16
2.	REVISED LOGO	18/06/18

Drawing No. GFA-DI502 /E

GFX-S1-VIZI



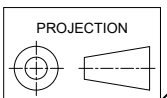
Voltage	Min	Max
220 - 240	125 HP	200 HP
	75 kW	132 kW
380 - 400 - 415	200 HP	350 HP
	132kW	250 kW



Notes:

- IP55 assembly.
- All dimensions are in millimeters [Inches].
- Center of ViZiTouch screen: 880 [34-3/4"] 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.



Electric Fire Pump Controller

Full Voltage / Across The Line

Wiring schematic

Model: GFA

Built as per NFPA 20-2013 standard



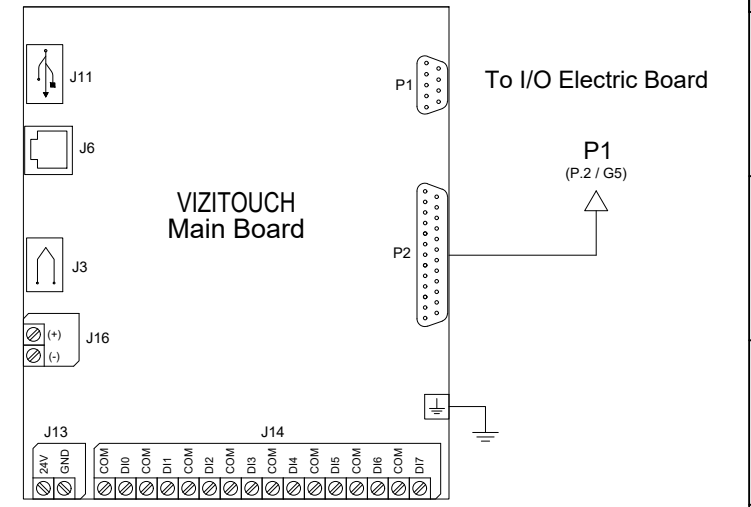
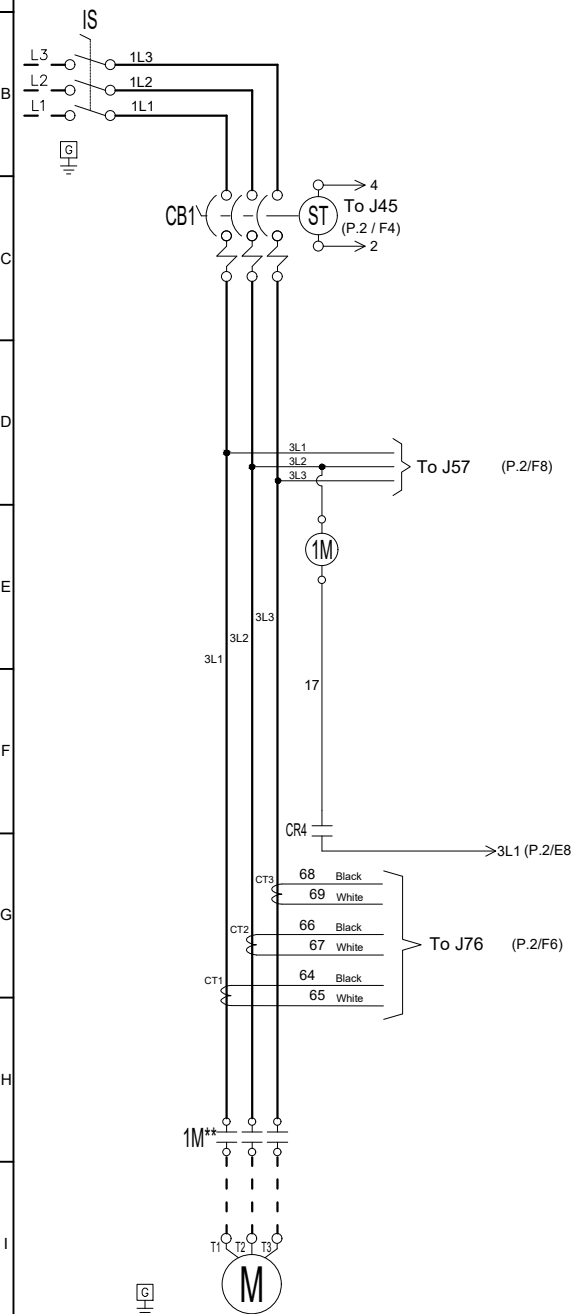
Optional



REV.	DESCRIPTION	DD/MM/YY	Drawing No.
0.	FIRST ISSUE	01/02/16	
1.	TITLE BLOCK INFORMATION CHANGED	11/11/16	
2.	REVISED LOGO	18/06/18	

GFA-WS500 /E

GFX-S1-VIZI



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

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

Electric Fire Pump Controller

Full Voltage / Across The Line

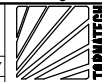
Wiring schematic

Model: GFA

Built as per NFPA 20-2013 standard



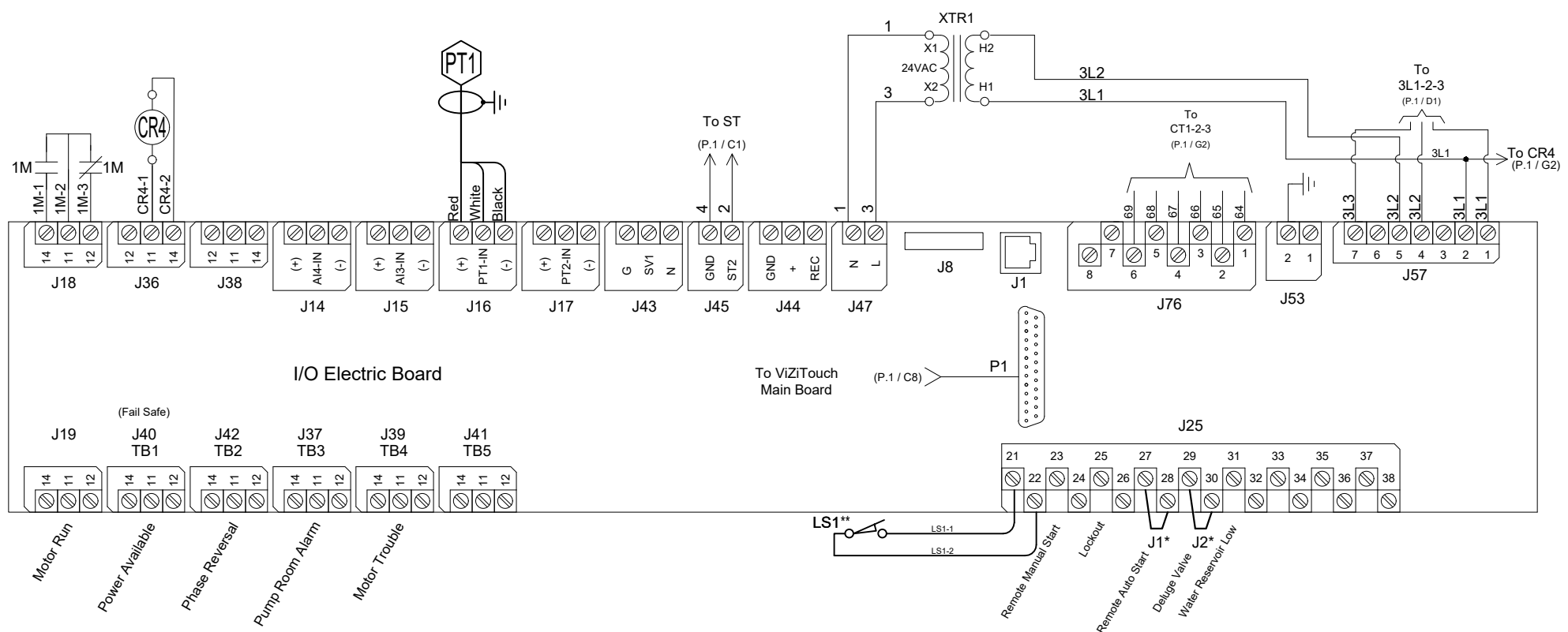
Optional



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

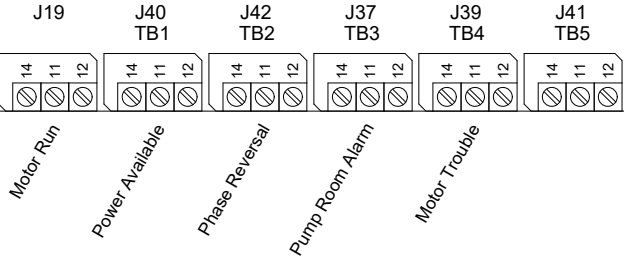
GFX-S1-VIZI



I/O Electric Board

To ViziTouch Main Board

(Fail Safe)



* 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

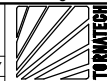
Terminals diagram

Model: GFA

Built as per NFPA 20-2013 standard



Optional



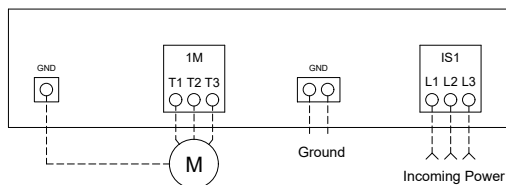
REV.	DESCRIPTION	DD/MM/YY	Drawing No.
0.	FIRST ISSUE	01/02/16	
1.	TITLE BLOCK INFORMATION CHANGED	11/11/16	
2.	REVISED LOGO	18/06/18	

GFA-WS500 /E

GFX-S1-VIZI

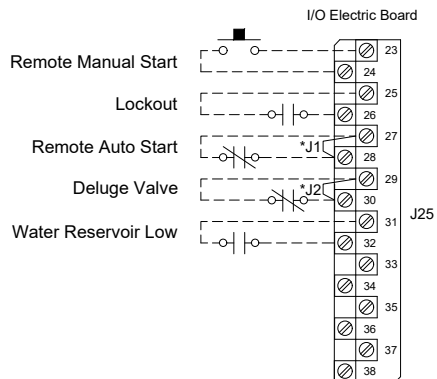
Field Connections

Normal Power Connections



Field Connections

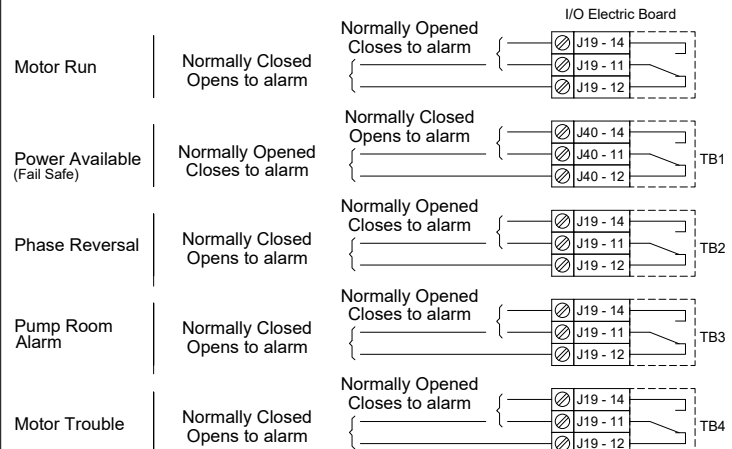
Terminals Wire Size:
12 - 24 AWG
0.5 Nm



Control Terminal Strip

Alarm Contacts

Terminals Wire Size:
12 - 24 AWG
0.5 Nm



* Remove this jumper to use this feature