Project: _____

Customer: _____

Engineer: _____

Pump Manufacturer: _____

Technical Data Submittal Document

Model GPA + GPU
Full Service Full Voltage
Across the Line Start
Electric Fire Pump Controller
with Automatic Power Transfer Switch

Contents:

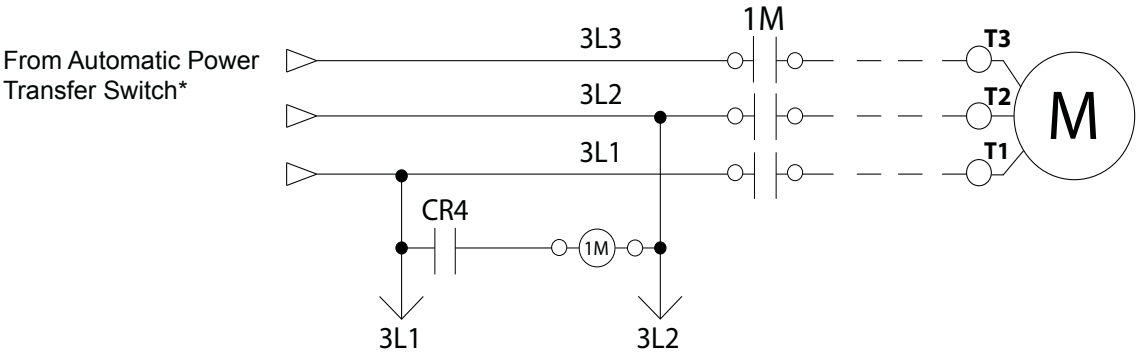
- Data Sheets
- Dimensional Data
- Wiring Schematics
- Field Connections

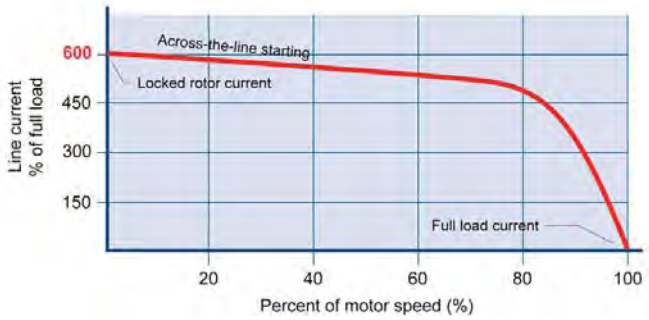
Note: The drawings included in this package are for controllers covered under our standard offering. Actual AS BUILT drawings may differ from what is shown in this package.

February 2014

c UL us FM APPROVED N.Y.C. APPROVED CE OPTIONAL

Technical Data
Model GPA + GPU Electric Fire Pump Controller with Automatic Power Transfer Switch





Starting Method: Full Voltage
Across the line (Direct on line)
Typical Voltage Applied at Start: 100%
Inrush Current: 6 x normal load current
Starting Torque: 100%
Motor Type: Across the line (Direct on line)
No. of Contactors: 1 at 100% of horsepower
Min. ampacity of motor conductors: 3 at 125% x 100% of Full load Current (FLC)

Standard, Listings, Approvals and Certifications	Built to NFPA 20 (latest edition)		
	Underwriters Laboratory (UL)	• UL218 - Fire Pump Controllers • UL 1008 - Automatic power transfer switches for fire pump controllers • CSA C22.2 No. 14 Industrial Control Equipment	
	FM Global	Class 1321/1323	
	New York City	Accepted for use in the City of New York by the Department of Buildings	
	Optional		
	☐ CE Mark	Various EN, IEC & CEE directives and standards	
Enclosure	**Protection Rating** ☐ Standard: NEMA 2 (IP31) **Optional**		
	☐ NEMA 12 ☐ NEMA 3 ☐ NEMA 3R ☐ NEMA 4	☐ NEMA 4X-304 sst painted ☐ NEMA 4X-304 sst brushed finish ☐ NEMA 4X-316 sst painted ☐ NEMA 4X-316 sst brushed finish	☐ IP54 ☐ IP55 ☐ IP65 ☐ IP66
	Accessories • Bottom entry gland plate • Lifting Lugs • Keylock handle	**Paint Specifications** • Red RAL3002 • Powder coating • Glossy textured finish	

*Please see Disconnecting Means details on page 3.

Technical Data
Model GPA + GPU Electric Fire Pump Controller with Automatic Power Transfer Switch

Shortcircuit Withstand Rating	200V to 208V 60Hz		220V to 240V 60Hz		380V to 416V 50 Hz / 60Hz		440V to 480V 60Hz		575V to 600V 60Hz	
	Normal Power	Alternate Power	Normal Power	Alternate Power	Normal Power	Alternate Power	Normal Power	Alternate Power	Normal Power	Alternate Power
	HP (kw)									
☐ Standard 100kA	5-150 (3.7 - 110)		5-200 (3.7 - 147)		5-300 (3.7 - 220)		5-450 (3.7 - 335)		n/a	
☐ Optional 150kA										
☐ Standard 50kA	200 (147)		250 (184)		350 - 450 (257 - 335)		500 (373)		5-500 (3.7- 373)	
☐ Optional 100kA	n/a		n/a		n/a		n/a			

Ambient Temperature Rating	**Standard**: ☐ 5°C to 40°C / 41°F to 104°F	**Optional**: ☐ 5°C to 50°C / 41°F to 122°F ☐ 5°C to 55°C / 41°F to 131°F

Surge Suppression	Surge arrestor rated to suppress surges above line voltage
Disconnecting Means	• Isolating switch and circuit breaker assembly: - Door interlocked in the ON position - 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 • Common flange mounted operating handle
Service Entrance Rating	Suitable as service entrance equipment
Emergency Start Handle	• Flange mounted • Integrated limit switch • Pull and latch activation • Across the line start (direct on line)
Locked Rotor Protector	• Operate shunt trip to open circuit breaker • Trip between 8 and 20 seconds • Factory set at 600% of motor full load current
Electrical Readings	• Voltage phase to phase (normal power) • Amperage of each phase when motor is running
Pressure Readings	• Continuous system pressure display • Cut-in and Cut-out pressure settings
Pressure and Event recorder	• 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 • Downloadable by USB port to external memory device
Pressure Sensing	• Pressure transducer and run test solenoid valve assembly for fresh water application • Pressure sensing line connection 1/2” Female NPT • Drain connection 3/8” • Rated for 0-500PSI working pressure (calibrated at 0-300psi) • Externally mounted with protective cover

Audible Alarm	4” alarm bell - 85 dB at 10ft. (3m)		
Visual Indications & Alarms	• Power available • Phase reversal • Motor run • Pump room alarm • Motor trouble • Phase loss • Phase unbalance • Low water level	• Locked rotor • Periodic test • Fail to start • Low discharge pressure • Low pump room temperature • Pump room temperature (ºF or ºC) • Pump on demand/Automatic start • Emergency start	• Manual start • Deluge valve start • Remote automatic start • Remote manual start • Overcurrent • Undercurrent • Undervoltage • Overvoltage
Remote Alarm Contacts	SPDT-8A-250V.AC • Power available • Phase reversal • Motor run • Common pump room alarm (field re-assignable)** • Overvoltage • Undervoltage • Phase unbalance • Low pump room temperature • High Pump room temperature • Common motor trouble (field re-assignable)** • Overcurrent • Fail to start • Undercurrent • Ground fault • Free (field programmable)**		
ViZiTouch Operator Interface	• Embedded microcomputer with software PLC logic • 4.2” color touch screen (HMI technology) • Upgradable software • Expandable storage • Multi-language		
Operation	**Automatic Start**	• Start on pressure drop • Remote start signal from automatic device	
	Manual Start	• Start pushbutton • Run test pushbutton • Deluge valve start • Remote start from manual device	
	Stopping	• Manual with Stop pushbutton • Automatic after expiration of minimum run timer ***	
	Timers	Field Adjustable & Visual Countdown	• Minimum run timer ***(off delay) • Sequential start timer (on delay) • Periodic test timer
	Actuation	Visual Indication	• Pressure • Non-pressure
	Mode		• Automatic • Non-automatic

**Tornatech reserves the right to use any of these three alarm points for special specific application requirements.
***Can only be used if approved by the AHJ

Automatic Power Transfer Switch	**Surge Suppression**	Surge arrestor rated to suppress surges above line voltage
	Disconnecting Means	• Isolating switch and circuit breaker assembly: - Door interlocked in the ON position - 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 • Common flange mounted operating handle
	Locked Rotor Protector	• Operate shunt trip to open circuit breaker • Factory set at 600% of motor full load current • Trip between 8 and 20 seconds
	Visual Indications	• Alternate (emergency) isolating switch in the OFF position • Alternate (emergency) voltage phase to phase • Transfer switch in normal position • Transition timers
	Transfer switch test pushbutton	
	Bypass for re-transfer and generator shutdown	
	Electrically operated and mechanically held in the normal or alternate position	
	Provision for manual operation	
	Remote Alarm Contacts SPDT-8A-250VAC • Isolating switch in the OFF position • Transfer switch in normal position • Transfer switch in alternate (emergency) position	
	Time Delays • Momentary normal power outage override (factory set at 3 sec - field adjustable 1 to 3 sec) • Alternate (emergency) power available delay (factory set at 3 sec - field adjustable 1 to 3 sec) • Transfer trouble delay (factory set at 20 sec - field adjustable 1 to 60 sec) • Retransfer to normal (factory set at 5 min - field adjustable 1 to 20 min) • Generator cooldown (factory set at 5 min - field adjustable 1 to 20 min)	
	Voltage Sensing • Transfer to alternate (normal power dropout) 85% of nominal - field adjustable 0 to 100% • Phase reversal transfer to alternate • Retransfer to normal (normal power pickup) 90% of nominal - field adjustable 0 to 100%	
	Audible Alarm (AIS Open) 4” alarm bell - 85 dB at 10ft. (3m)	
	Generator Start Connection SPDT-8A-250V.AC	

☐ A4	Flow switch provision
☐ A8	Foam pump application w/o pressure transducer and run test solenoid valve
☐ A9	Low zone pump control function
☐ A10	Medium 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
☐ B11	Built in alarm panel (120V.AC supervisory power) providing indication for: • Audible alarm & silence pushbutton for motor run, phase reversal, loss of phase. • Pilot lights for loss of phase & supervisory power available
☐B11B	Built in alarm panel same as B11 but 220-240VAC supervisory power
☐ B19	High motor temperature thermistor relay c/w visual indication and alarm contact (Form C-SPDT)
☐ B21	Ground fault alarm detection c/w visual indication and alarm contact (Form C-SPDT)
☐ C1	Extra motor run alarm contact (Form C-SPDT)
☐ C4	Periodic test alarm contact (Form C-SPDT)
☐ C6	Low discharge pressure alarm contact (Form C-SPDT)
☐ C7	Low pump room temperature alarm contact (Form C-SPDT)
☐ C10	Low water reservoir level alarm contact (Form C-SPDT)
☐ C11	High electric motor temperature alarm contact (Form C-SPDT)
☐ C12	High electric motor vibration c/w visual indication and alarm contact (Form C-SPDT)
☐ C14	Pump on demand/automatic start alarm contact (Form C-SPDT)
☐ C15	Pump fail to start alarm contact (Form C-SPDT)
☐ C16	Control voltage healthy alarm contact (Form C-SPDT)
☐ C17	Flow meter valve loop open c/w visual indication and alarm contact (Form C-SPDT)
☐ C18	High water reservoir level c/w visual indication and alarm contact (Form C-SPDT)
☐ C19	Emergency start alarm contact (Form C-SPDT)
☐ C20	Manual start alarm contact (Form C-SPDT)
☐ C21	Deluge valve start alarm contact (Form C-SPDT)
☐ C22	Remote automatic start alarm contact (Form C-SPDT)
☐ C23	Remote manual start alarm contact (Form C-SPDT)
☐ C24	High pump room temperature alarm contact (Form C-SPDT)
☐ Cx	Additional visual and alarm contact (specify function) (Form C-SPDT)

☐ 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
☐ D5	Pressure transducer and run test solenoid valve for fresh water rated for 0-500PSI (for calibration purposes only)
☐ D5D	Pressure transducer and run test solenoid valve for sea water rated for 0-500PSI
☐ D10	Omit mounting feet (when applicable)
☐ D13	High withstand rating for (normal power section) • 208V to 480V = 150kA • 600V = 100kA
☐ D14	Anti-condensation heater & thermostat (normal power section)
☐ D14A	Anti-condensation heater & humidistat (normal power section)
☐ D14B	Anti-condensation heater & thermostat & humidistat (normal power section)
☐ D15	Tropicalization
☐ D18	CE Mark with factory certificate
☐ D26	Modbus RTU provision
☐ D26A	Modbus TCP/IP provision
☐ 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
☐ D34	Field programmable I/O board - 8 Input / 5 output
☐ D35	Field programmable I/O board - 8 Input / 10 output
☐ D36	Redundant pressure transducer for fresh water rated for 0-500PSI (calibrated at 0-300PSI)
☐ D36A	Redundant pressure transducer for sea water rated for 0-500PSI (calibrated at 0-300PSI)
☐ D37	Window kit for operator interface
☐ E1	Permanent load shedding contacts
☐ E2	Temporary pump motor start period load shedding contacts
☐ E3	Temporary & permanent load shedding contacts
☐ F2	Anti condensation heater & thermostat (alternate power section)
☐ F2A	Anti condensation heater & humidistat (alternate power section)
☐ F2B	Anti condensation heater & thermostat & humidistat (alternate power section)
☐ F6	High withstand rating for (model GPU only) : • 208V to 480V=150kA • 600V=100kA

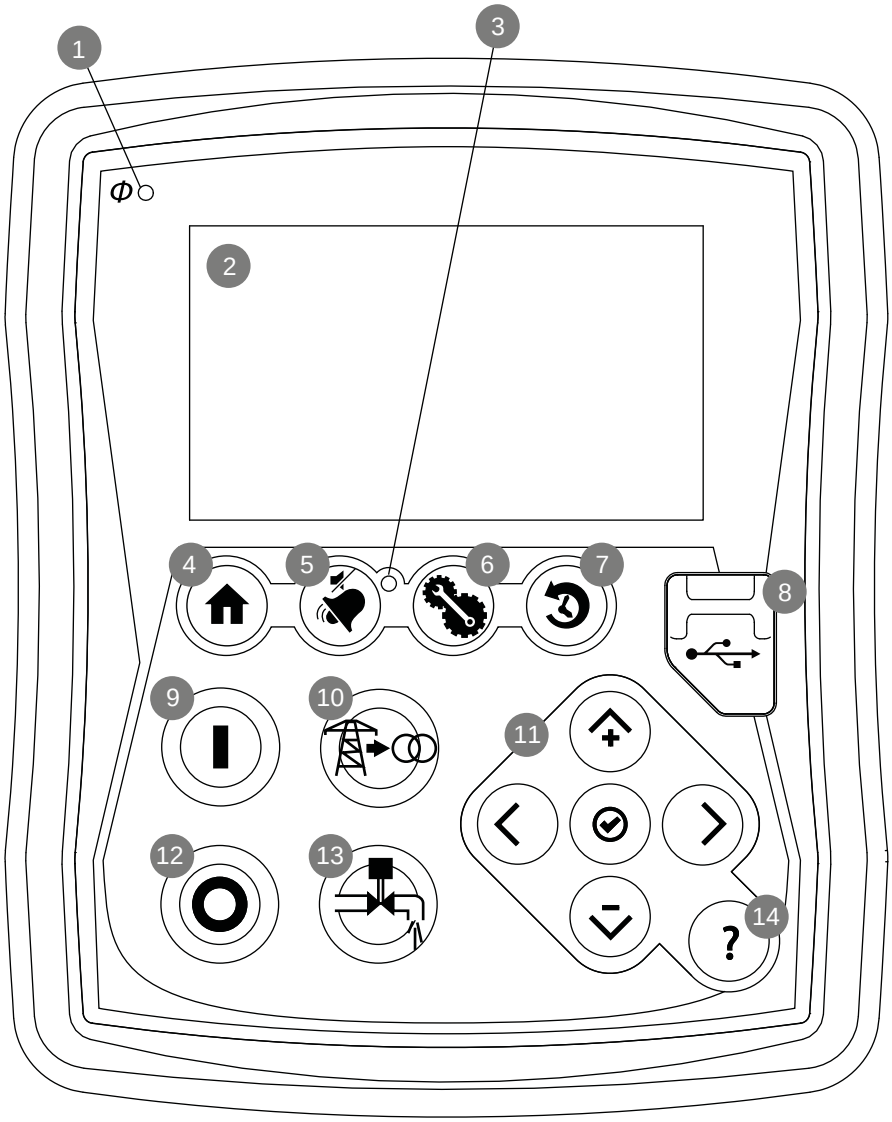
Note: Options chosen from this page are not electrically represented on the wiring schematics in this submittal package.

☐ 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

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

ViZiTouch Operator Interface



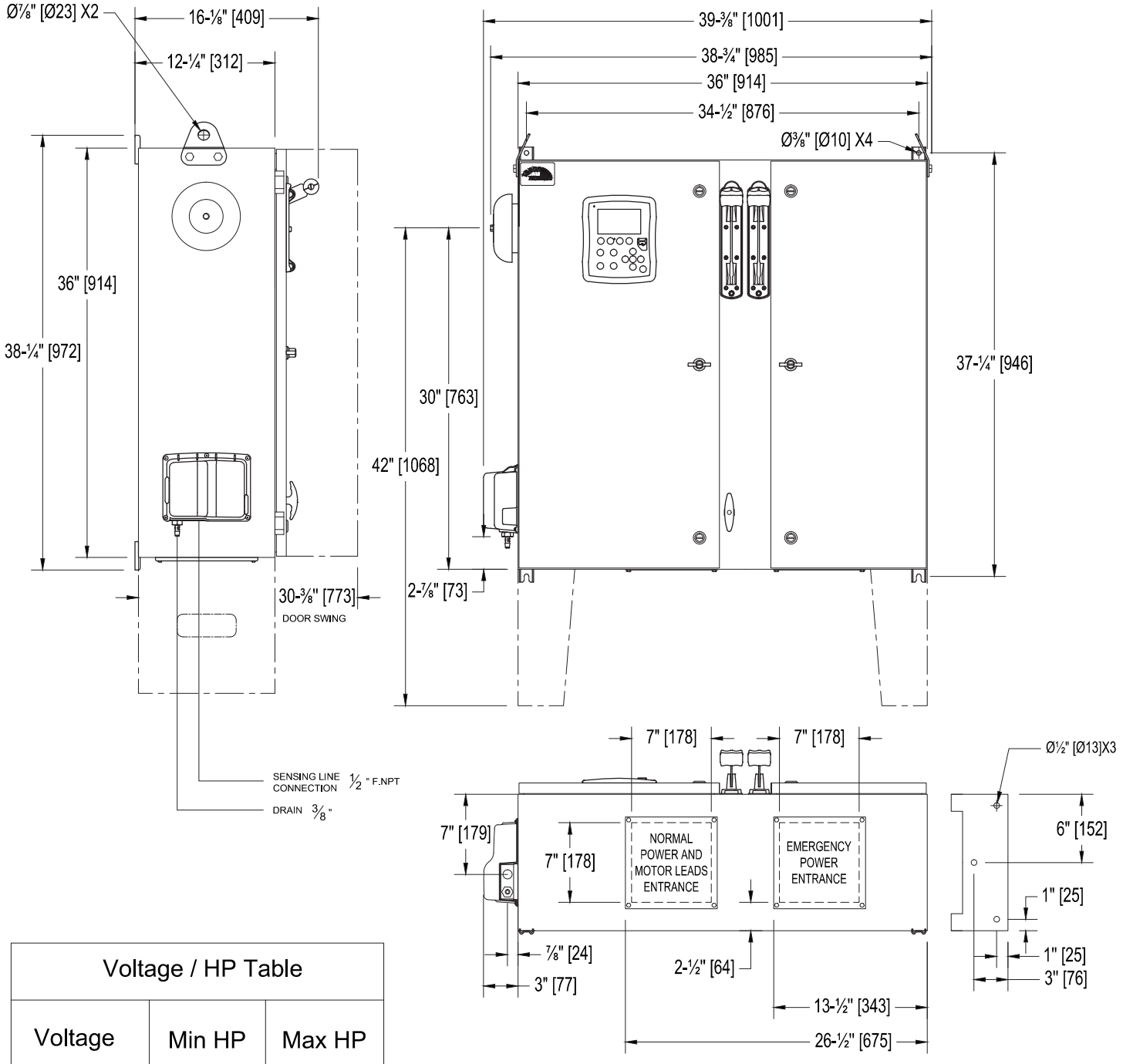
1 - Power on LED
2 - Color touch screen
3 - Alarm LED
4 - HOME page button
5 - ALARM page button
6 - CONFIGURATION page button
7 - HISTORY page button
8 - USB port
9 - START button
10 - TRANSFER SWITCH TEST button
11- Contextual navigation pad
12 - STOP button
13 - RUN TEST button
14 - HELP button

ELECTRIC FIRE PUMP CONTROLLER WITH AUTOMATIC TRANSFER SWITCH

MODEL : GPA/GPP/GPY +GPU

Dimensions

BUILT TO THE LATEST EDITION OF THE NFPA20 STANDARD



Voltage / HP Table		
Voltage	Min HP	Max HP
208	5	30
220 - 240	5	30
380 - 400 - 415	5	60
440 - 480	5	60
600	5	75

NOTES :

- ALL DIMENSIONS ARE IN INCHES (MILLIMETERS).
- PAINT : TEXTURED RED RAL 3002.
- BOTTOM CONDUIT ENTRANCE THROUGH REMOVABLE GLAND PLATE RECOMMENDED
- USE WATERTIGHT CONDUIT CONNECTOR ONLY.
- PROTECT EQUIPMENT AGAINST DRILLING CHIPS.
- AMBIENT TEMPERATURE : BETWEEN 41°F (5°C) AND 104°F (40°C).

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

PROJECTION

NYC Dpt of Building Approved

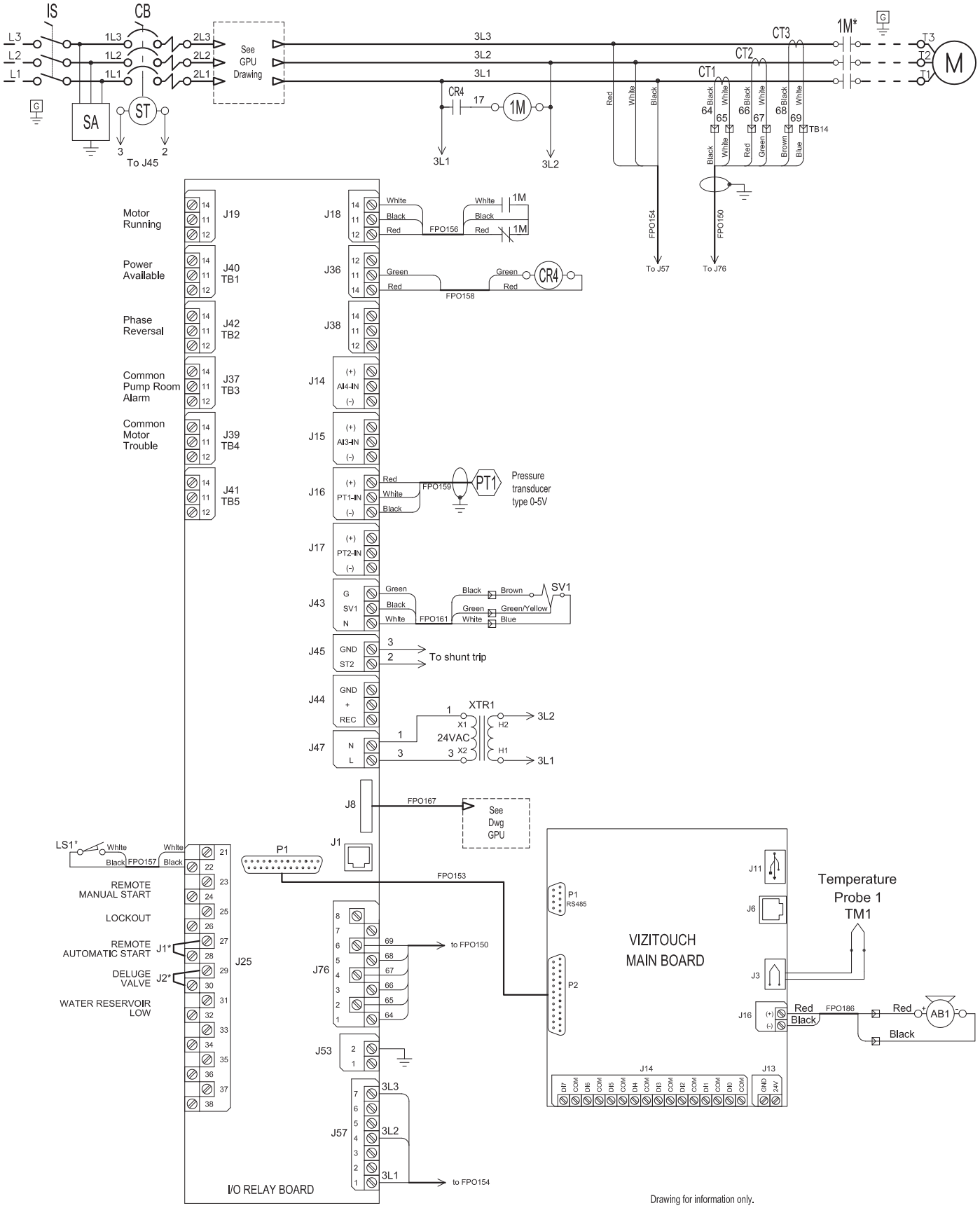
GPXDIM				
8.	13/01/29	FEET		DRAWING No.
7.	13/01/14	HP TABLE	DES.	GPX-DI112 /E
6.	12/07/20	PLATE DIM. AND IDENTIFI.	VER.	
REV.	DATE	DESCRIPTION	APP.	

ELECTRIC FIRE PUMP CONTROLLER
FULL VOLTAGE / ACROSS THE LINE
WITH AUTOMATIC POWER TRANSFER SWITCH

MODEL : GPA + GPU

Wiring schematic

BUILT TO THE LATEST EDITION OF THE NFPA20 STANDARD



* REMOVE JUMPER TO USE THIS FEATURE

* Contact closed when Emergency Start is in ON position

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

GPX-WS-ViZi

NYC Dpt of Building Approved

REV.	DATE	DESCRIPTION	APP.
2.	12/11/21	General Revision	DES.
1.	12/05/30	Correct Signal Input	VER.

Drawing No.

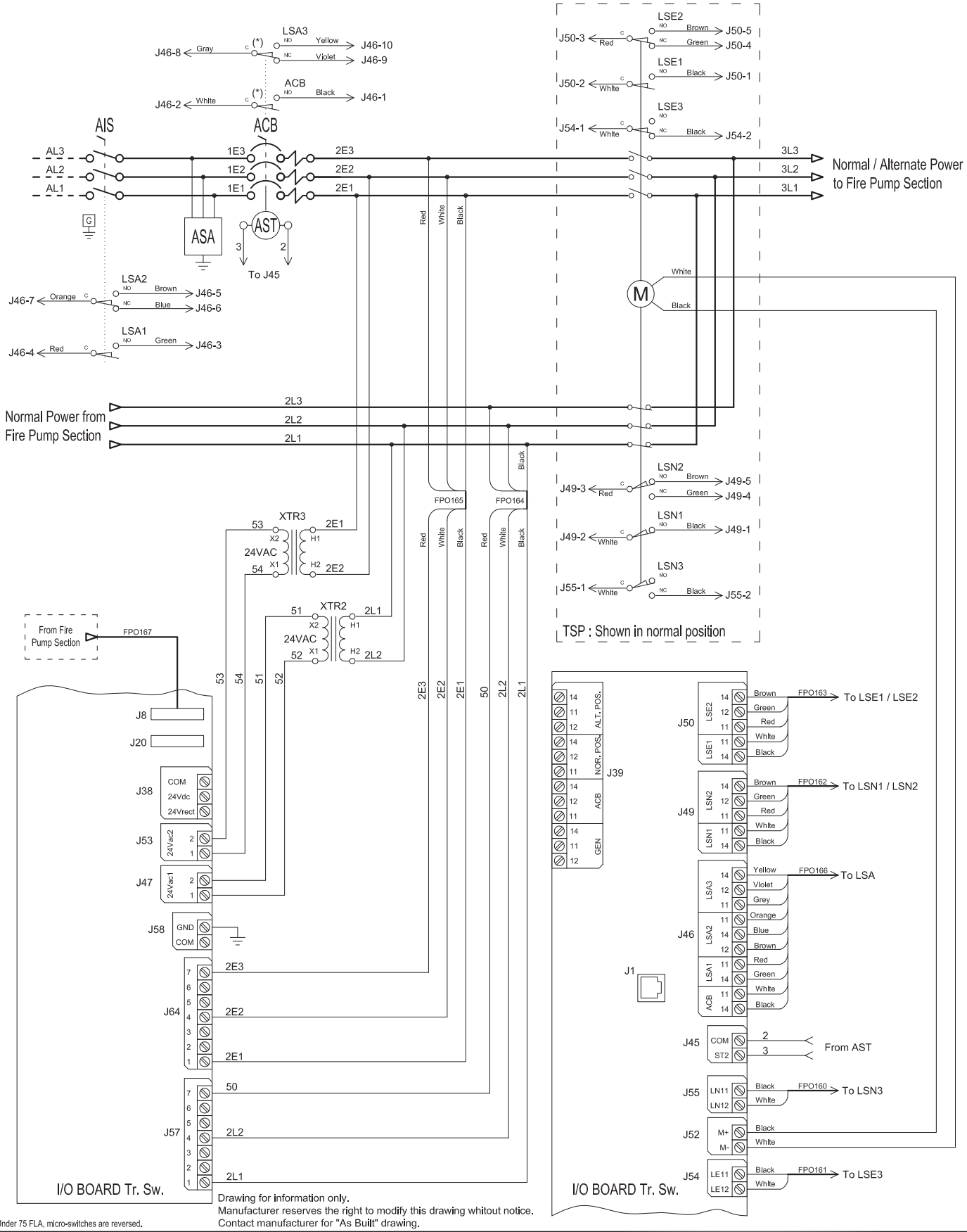
GPA-WS510 /E

AUTOMATIC TRANSFER SWITCH

MODEL : GPU

Wiring schematic

BUILT TO LATEST NFPA 20 STANDARD EDITION



Drawing for information only.
Manufacturer reserves the right to modify this drawing whitout notice.
Contact manufacturer for "As Built" drawing.

(*) Under 75 FLA, micro-switches are reversed.

GPU-WS-ViZi

REV.	DATE	DESCRIPTION	APP.
1.	11/10/05	GENERAL REVISION	DES.
0.	11/03/10	FIRST ISSUE	VER.

Drawing No.

GPU-WS500 /E

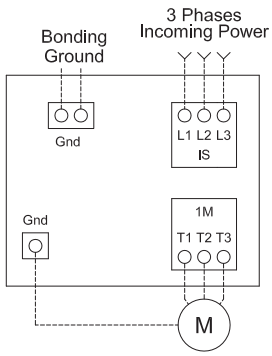
NYC Dpt of Building Approved

ELECTRIC FIRE PUMP CONTROLLER — MODEL : GPx

Terminals Diagram and Sizing — BUILT TO LATEST EDITION OF THE NFPA20 STANDARD

Power Terminals

Models : GPA, GPR & GPS



Notes:
1 - For proper wire sizing, refer to NFPA70 and NEC (USA) or CEC (Canada) or local code.
2 - Controller suitable for service entrance in USA.
3 - For more accurate motor connections refer to motor manufacturer or motor nameplate.
4 - Controller is phase sensitive. Incoming lines must be connected in ABC sequence.
5 - Field wiring and lug sizes base on copper conductors only.
Do not use aluminium conductors.

Isolating Switch (IS) Field Wiring according to Bending Space (AWG or MCM). TERMINALS L1 - L2 - L3 (Use Copper Conductors Only)

Bending Space	5 " (127 mm)							8 " (203 mm)		
HP / Voltage	5	7.5	10	15	20	25	30	40	50	60
208	1x (10 to 1/0)	1x (8 to 1/0)	1x (8 to 1/0)	1x (6 to 1/0)	1x (4 to 1/0)	1x (3 to 1/0)	1x (2 to 1/0)	1x (1/0 to 250)	1x (3/0 to 250)	1x (4/0 to 250)
220 to 240	1x (10 to 1/0)	1x (10 to 1/0)	1x (8 to 1/0)	1x (6 to 1/0)	1x (4 to 1/0)	1x (4 to 1/0)	1x (3 to 1/0)	1x (1 to 250)	1x (2/0 to 250)	1x (3/0 to 250)
380 to 416	1x (10 to 1/0)	1x (10 to 1/0)	1x (10 to 1/0)	1x (8 to 1/0)	1x (8 to 1/0)	1x (6 to 1/0)	1x (6 to 1/0)	1x (4 to 1/0)	1x (3 to 1/0)	1x (3 to 1/0)
440 to 480	1x (10 to 1/0)	1x (10 to 1/0)	1x (10 to 1/0)	1x (10 to 1/0)	1x (8 to 1/0)	1x (8 to 1/0)	1x (6 to 1/0)	1x (6 to 1/0)	1x (4 to 1/0)	1x (3 to 1/0)
600	1x (10 to 1/0)	1x (10 to 1/0)	1x (10 to 1/0)	1x (10 to 1/0)	1x (10 to 1/0)	1x (8 to 1/0)	1x (8 to 1/0)	1x (6 to 1/0)	1x (6 to 1/0)	1x (4 to 1/0)

Bending Space	12 " (305 mm)				16 " (406 mm)						
HP / Voltage	75	100	125	150	200	250	300	350	400	450	500
208	1x (300 to 500)	1x (500)	2x (4/0 to 500)	2x (250 to 500)	2x (400 to 600)	--------	--------	--------	--------	--------	--------
220 to 240	1x (250 to 500)	1x (350 to 500)	2x (3/0 to 500)	2x (4/0 to 500)	2x (350 to 500)	2x (500 to 600)	--------	--------	--------	--------	--------
380 to 416	1x (1/0 to 250)	1x (3/0 to 250)	1x (250)	1x (300 to 500)	2x (3/0 to 250)	2x (4/0 to 500)	2x (300 to 500)	2x (400 to 500) 2x (400 to 500)	2x (500 to 600)	2x (600)	--------
440 to 480	1x (1 to 250)	1x (2/0 to 250)	1x (3/0 to 250)	1x (4/0 to 250)	1x (350 to 500)	2x (3/0 to 250)	2x (4/0 to 500)	2x (300 to 500)	2x (350 to 500)	2x (400 to 600)	2x (500 to 600)
600	1x (3 to 1/0)	1x (1 to 250)	1x (2/0 to 250)	1x (3/0 to 250)	1x (250 to 500)	1x (350 to 500)	2x (3/0 to 250)	2x (4/0 to 500)	2x (250 to 500)	2x (300 to 500)	2x (350 to 500)
	5 " (127 mm)	8 " (203 mm)			12 " (305 mm)						

Wiring Size for motor connection for Model GPA, GPR and GPS (AWG or MCM). TERMINALS T1 - T2 - T3 (Use Copper Conductors Only)

HP / Voltage	5	7.5	10	15	20	25	30	40	50	60
208	1x (10)	1x (10)	1x (8 to 2)	1x (6 to 2)	1x (4 to 1/0)	1x (3 to 1/0)	1x (2 to 1/0)	1x (1/0 to 3/0)	1x (3/0)	1x (4/0 to 300)
220 to 240	1x (12 to 10)	1x (10)	1x (8 to 2)	1x (6 to 2)	1x (4 to 1/0)	1x (4 to 1/0)	1x (3 to 1/0)	1x (1 to 3/0)	1x (2/0 to 3/0)	1x (3/0)
380 to 416	1x (14 to 10)	1x (12 to 10)	1x (8 to 2)	1x (8 to 2)	1x (8 to 2)	1x (6 to 2)	1x (6 to 1/0)	1x (4 to 1/0)	1x (3 to 1/0)	1x (3 to 1/0)
440 to 480	1x (14 to 10)	1x (14 to 10)	1x (12 to 10)	1x (10)	1x (8 to 2)	1x (8 to 2)	1x (6 to 2)	1x (6 to 2)	1x (4 to 1/0)	1x (3 to 1/0)
600	1x (14 to 10)	1x (14 to 10)	1x (14 to 10)	1x (12 to 10)	1x (10)	1x (8 to 2)	1x (8 to 2)	1x (6 to 2)	1x (6 to 2)	1x (4 to 1/0)

HP / Voltage	75	100	125	150	200	250	300	350	400	450	500
208	1x (300)	2x (2/0 to 300)	2x (4/0 to 300)	2x (250 to 300)	2x (400 to 600)	--------	--------	--------	--------	--------	--------
220 to 240	1x (250 to 300)	2x (2/0 to 300)	2x (3/0 to 300)	2x (4/0 to 300)	2x (350 to 500)	2x (500 to 600)	--------	--------	--------	--------	--------
380 to 416	1x (1/0 to 3/0)	1x (3/0)	1x (250 to 300)	1x (300)	2x (3/0 to 300)	2x (4/0 to 300)	2x (300)	2x (400 to 500)	2x (500 to 600)	2x (600)	
440 to 480	1x (1 to 2/0)	1x (2/0 to 3/0)	1x (3/0)	1x (4/0 to 300)	2x (1/0 to 300)	2x (3/0 to 300)	2x (4/0 to 300)	2x (300)	2x (350 to 500)	2x (400 to 600)	2x (500 to 600)
600	1x (3 to 1/0)	1x (1 to 2/0)	1x (2/0 to 3/0)	1x (3/0)	1x (250 to 300)	2x (2/0 to 300)	2x (3/0 to 300)	2x (4/0 to 300)	2x (250 to 300)	2x (300)	2x (350 to 500)

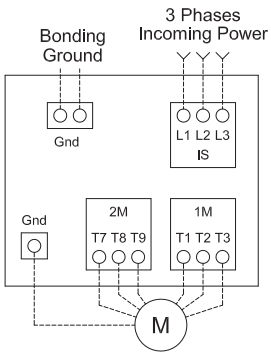
Drawing for information only.
Manufacturer reserves the right to modify this drawing without notice.
For drawing for approval or installation, please contact manufacturer.

ELECTRIC FIRE PUMP CONTROLLER — MODEL : GPx

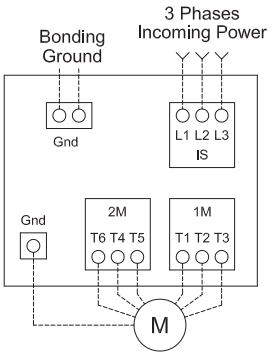
Terminals Diagram and Sizing

BUILT TO LATEST EDITION OF THE NFPA20 STANDARD

Power Terminals



Model : GPP



Models : GPW & GPY

Notes:
1 - For proper wire sizing, refer to NFPA70 and NEC (USA) or CEC (Canada) or local code.
2 - Controller suitable for service entrance in USA.
3 - For more accurate motor connections refer to motor manufacturer or motor nameplate.
4 - Controller is phase sensitive. Incoming lines must be connected in ABC sequence.
5 - Field wiring and lug sizes base on copper conductors only.
Do not use aluminium conductors.

Isolating Switch (IS) Field Wiring according to Bending Space (AWG or MCM). TERMINALS L1 - L2 - L3 (Use Copper Conductors Only)

Bending Space	5 " (127 mm)							8 " (203 mm)		
HP / Voltage	5	7.5	10	15	20	25	30	40	50	60
208	1x (10 to 1/0)	1x (8 to 1/0)	1x (8 to 1/0)	1x (6 to 1/0)	1x (4 to 1/0)	1x (3 to 1/0)	1x (2 to 1/0)	1x (1/0 to 250)	1x (3/0 to 250)	1x (4/0 to 250)
220 to 240	1x (10 to 1/0)	1x (10 to 1/0)	1x (8 to 1/0)	1x (6 to 1/0)	1x (4 to 1/0)	1x (4 to 1/0)	1x (3 to 1/0)	1x (1 to 250)	1x (2/0 to 250)	1x (3/0 to 250)
380 to 416	1x (10 to 1/0)	1x (10 to 1/0)	1x (10 to 1/0)	1x (8 to 1/0)	1x (8 to 1/0)	1x (6 to 1/0)	1x (6 to 1/0)	1x (4 to 1/0)	1x (3 to 1/0)	1x (3 to 1/0)
440 to 480	1x (10 to 1/0)	1x (10 to 1/0)	1x (10 to 1/0)	1x (10 to 1/0)	1x (8 to 1/0)	1x (8 to 1/0)	1x (6 to 1/0)	1x (6 to 1/0)	1x (4 to 1/0)	1x (3 to 1/0)
600	1x (10 to 1/0)	1x (10 to 1/0)	1x (10 to 1/0)	1x (10 to 1/0)	1x (10 to 1/0)	1x (8 to 1/0)	1x (8 to 1/0)	1x (6 to 1/0)	1x (6 to 1/0)	1x (4 to 1/0)

Bending Space	12 " (305 mm)				16 " (406 mm)						
HP / Voltage	75	100	125	150	200	250	300	350	400	450	500
208	1x (300 to 500)	1x (500)	2x (4/0 to 500)	2x (250 to 500)	2x (400 to 600)	--------	-------	-------	--------	--------	-------
220 to 240	1x (250 to 500)	1x (350 to 500)	2x (3/0 to 500)	2x (4/0 to 500)	2x (350 to 500)	2x (500 to 600)	-------	-------	--------	--------	-------
380 to 416	1x (1/0 to 250)	1x (3/0 to 250)	1x (250)	1x (300 to 500)	2x (3/0 to 250)	2x (4/0 to 500)	2x (300 to 500)	2x (400 to 500) / 2x (400 to 500)	2x (500 to 600)	2x (600)	-------
440 to 480	1x (1 to 250)	1x (2/0 to 250)	1x (3/0 to 250)	1x (4/0 to 250)	1x (350 to 500)	2x (3/0 to 250)	2x (4/0 to 500)	2x (300 to 500)	2x (350 to 500)	2x (400 to 600)	2x (500 to 600)
600	1x (3 to 1/0)	1x (1 to 250)	1x (2/0 to 250)	1x (3/0 to 250)	1x (250 to 500)	1x (350 to 500)	2x (3/0 to 250)	2x (4/0 to 500)	2x (250 to 500)	2x (300 to 500)	2x (350 to 500)
Bending Space	5 " (127 mm)	8 " (203 mm)			12 " (305 mm)						

Wiring Size for motor connection for Model GPP, GPW and GPY (AWG or MCM). TERMINALS T1 - T2 - T3 - T4 - T5 - T6 - T7 - T8 - T9 (Use Copper Conductors Only)

HP / Voltage	5	7.5	10	15	20	25	30	40	50	60
208	1x (14 to 10)	1x (12 to 10)	1x (10)	1x (8 to 2)	1x (8 to 2)	1x (6 to 2)	1x (6 to 1/0)	1x (4 to 2/0)	1x (2 to 3/0)	1x (1 to 3/0)
220 to 240	1x (14 to 10)	1x (12 to 10)	1x (10)	1x (8 to 2)	1x (8 to 2)	1x (6 to 2)	1x (6 to 1/0)	1x (4 to 2/0)	1x (3 to 2/0)	1x (2 to 3/0)
380 to 416	1x (14 to 10)	1x (14 to 10)	1x (14 to 10)	1x (12 to 10)	1x (10)	1x (10)	1x (8 to 2)	1x (6 to 2)	1x (6 to 2)	1x (4 to 1/0)
440 to 480	1x (14 to 10)	1x (14 to 10)	1x (14 to 10)	1x (12 to 10)	1x (12 to 10)	1x (10)	1x (10 to 2)	1x (8 to 2)	1x (6 to 2)	1x (6 to 2)
600	1x (14 to 10)	1x (14 to 10)	1x (14 to 10)	1x (14 to 10)	1x (12 to 10)	1x (12 to 10)	1x (10)	1x (10 to 2)	1x (8 to 2)	1x (8 to 2)

HP / Voltage	75	100	125	150	200	250	300	350	400	450	500
208	1x (2/0 to 3/0)	1x (3/0)	1x (250 to 300)	2x (1/0 to 300)	2x (3/0 to 350)	--------	-------	-------	--------	--------	-------
220 to 240	1x (1/0 to 3/0)	1x (3/0)	1x (4/0 to 300)	1x (300)	2x (2/0 to 300)	2x (4/0 to 350)	-------	-------	--------	--------	-------
380 to 416	1x (4 to 2/0)	1x (2 to 2/0)	1x (1/0 to 3/0)	1x (2/0 to 3/0)	1x (4/0 to 300)	1x (300)	2x (2/0 to 300)	2x (3/0 to 300)	2x (4/0 to 350)	2x (4/0 to 350)	-------
440 to 480	1x (4 to 2/0)	1x (3 to 2/0)	1x (2 to 3/0)	1x (1/0 to 3/0)	1x (2/0 to 3/0)	1x (4/0 to 300)	1x (300)	2x (1/0 to 300)	2x (2/0 to 300)	2x (3/0 to 350)	2x (4/0 to 350)
600	1x (6 to 2)	1x (4 to 2/0)	1x (3 to 2/0)	1x (2 to 3/0)	1x (1/0 to 3/0)	1x (2/0 to 3/0)	1x (4/0 to 300)	1x (250 to 300)	1x (300)	2x (1/0 to 300)	2x (2/0 to 300)

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ELECTRIC FIRE PUMP CONTROLLER

MODEL : GPx

Terminals diagram

BUILT TO LATEST EDITION OF THE NFPA20 STANDARD

Remote Alarm Terminals (I/O board)

Motor Running

Normally closed / Opens to alarm
Normally open / Closes to alarm
J19 - 14
J19 - 11
J19 - 12
MOTOR RUN

Power Available (Fail Safe)

Normally open / Closes to alarm
Normally closed / Opens to alarm
J40 - 14
J40 - 11
J40 - 12
TB1

Phase Reversal

Normally closed / Opens to alarm
Normally open / Closes to alarm
J42 - 14
J42 - 11
J42 - 12
TB2

Pump Room Alarm

(RE-ASSIGNABLE)
Normally closed / Opens to alarm
Normally open / Closes to alarm
J37 - 14
J37 - 11
J37 - 12
TB3

Motor Trouble

(RE-ASSIGNABLE)
Normally closed / Opens to alarm
Normally open / Closes to alarm
J39 - 14
J39 - 11
J39 - 12
TB4

(Field* Programmable)

Normally closed / Opens to alarm
Normally open / Closes to alarm
J41 - 14
J41 - 11
J41 - 12
TB5

Control Terminals (I/O board)

Remote Manual Start

Close to start pump
Remote Manual Start
23
24
J25

Lockout Signal

Close to block start
Lockout
25
26
J25

Remote Automatic Start

Open to start pump
If used, remove jumper J1
Automatic Start
J1
27
28
J25

Deluge Valve Signal

Open to start pump
If used, remove jumper J2
Deluge Valve
J2
29
30
J25

Filed Connections for External Devices (I/O board)

Water Reservoir Low Signal

Close to signal alarm
Water Reservoir Low
31
32
J25

Flow / Zone Start / Stop Signal

Close to signal alarm
Flow / Zone
33
34
J25

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*Not Available in GPS Models

TORNATECH

c UL us

FM APPROVED

NYC Dpt of Building Approved

GPX-TD-ViZi

REV.	DATE	DESCRIPTION	APP.
4.	13/11/11	FIELD PROGRAMMABLE	DES.
3.	13/01/04	DATA ADDED TO TABLES	VER.

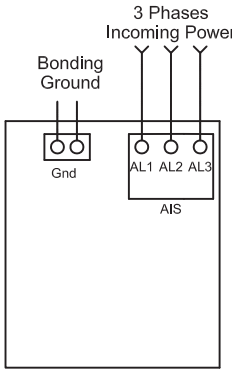
Drawing No.

GPX-TD500 3/3 /E

AUTOMATIC TRANSFER SWITCH — MODEL : GPU

Terminals Diagram and Sizing — BUILT TO LATEST EDITION OF THE NFPA20 STANDARD

Power Terminals



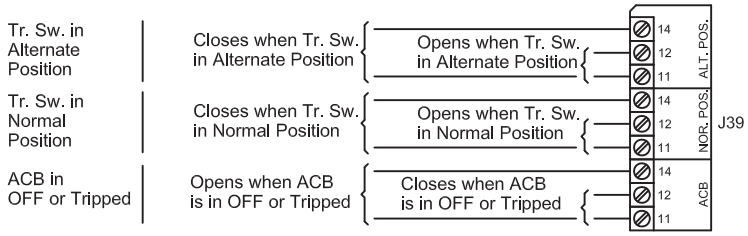
Notes:
1 - Controller is phase sensitive. Incoming lines must be connected in ABC
2 - Field wiring and lug sizes base on copper conductors only.
Do not use aluminium conductors.

Isolating Switch (IS) Field Wiring according to Bending Space (AWG or MCM). TERMINALS AL1 - AL2 - AL3 (Use Copper Conductors Only)

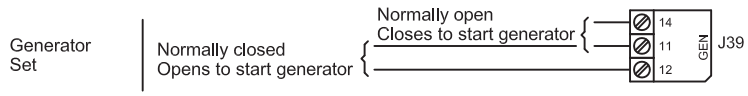
Bending Space	5 " (127 mm)							8 " (203 mm)		
HP / Voltage	5	7.5	10	15	20	25	30	40	50	60
208	1x (10 to 1/0)	1x (8 to 1/0)	1x (8 to 1/0)	1x (6 to 1/0)	1x (4 to 1/0)	1x (3 to 1/0)	1x (2 to 1/0)	1x (1/0 to 250)	1x (3/0 to 250)	1x (4/0 to 250)
220 to 240	1x (10 to 1/0)	1x (10 to 1/0)	1x (8 to 1/0)	1x (6 to 1/0)	1x (4 to 1/0)	1x (4 to 1/0)	1x (3 to 1/0)	1x (1 to 250)	1x (2/0 to 250)	1x (3/0 to 250)
380 to 416	1x (10 to 1/0)	1x (10 to 1/0)	1x (10 to 1/0)	1x (8 to 1/0)	1x (8 to 1/0)	1x (6 to 1/0)	1x (6 to 1/0)	1x (4 to 1/0)	1x (3 to 1/0)	1x (3 to 1/0)
440 to 480	1x (10 to 1/0)	1x (10 to 1/0)	1x (10 to 1/0)	1x (10 to 1/0)	1x (8 to 1/0)	1x (8 to 1/0)	1x (6 to 1/0)	1x (6 to 1/0)	1x (4 to 1/0)	1x (3 to 1/0)
600	1x (10 to 1/0)	1x (10 to 1/0)	1x (10 to 1/0)	1x (10 to 1/0)	1x (10 to 1/0)	1x (8 to 1/0)	1x (8 to 1/0)	1x (6 to 1/0)	1x (6 to 1/0)	1x (4 to 1/0)

Bending Space	12 " (305 mm)				16 " (406 mm)						
HP / Voltage	75	100	125	150	200	250	300	350	400	450	500
208	1x (300 to 500)	1x (500)	2x (4/0 to 500)	2x (250 to 500)	2x (400 to 600)	-----	-----	-----	-----	-----	-----
220 to 240	1x (250 to 500)	1x (350 to 500)	2x (3/0 to 500)	2x (4/0 to 500)	2x (350 to 500)	2x (500 to 600)	-----	-----	-----	-----	-----
380 to 416	1x (1/0 to 250)	1x (3/0 to 250)	1x (250)	1x (300 to 500)	2x (3/0 to 250)	2x (4/0 to 500)	2x (300 to 500)	2x (400 to 500) / 2x (400 to 500)	2x (500 to 600)	2x (600)	-----
440 to 480	1x (1 to 250)	1x (2/0 to 250)	1x (3/0 to 250)	1x (4/0 to 250)	1x (350 to 500)	2x (3/0 to 250)	2x (4/0 to 500)	2x (300 to 500)	2x (350 to 500)	2x (400 to 600)	2x (500 to 600)
600	1x (3 to 1/0)	1x (1 to 250)	1x (2/0 to 250)	1x (3/0 to 250)	1x (250 to 500)	1x (350 to 500)	2x (3/0 to 250)	2x (4/0 to 500)	2x (250 to 500)	2x (300 to 500)	2x (350 to 500)
	5 " (127 mm)	8 " (203 mm)			12 " (305 mm)						

Remote Alarm Terminal (I/O board Tr. Sw.)



Field Connections for External Devices (I/O board Tr. Sw.)



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