TORNA TECH

Project:_____
Customer:_____
Engineer:_____
Pump Manufacturer:_____

Technical Data Submittal Document

Model GPY + GPU
Full Service Reduced Voltage
Wye-delta Open
Electric Fire Pump Controller
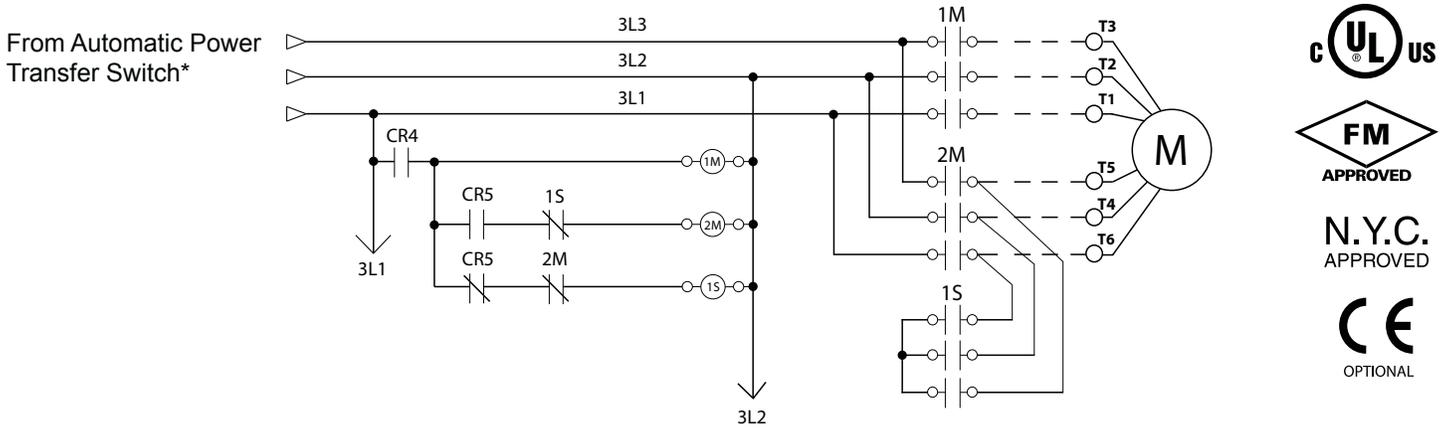## with Automatic Power Transfer Switch

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

From Automatic Power Transfer Switch*

c(UL)us

FM APPROVED

N.Y.C. APPROVED

CE OPTIONAL

Starting Method: Reduced Voltage
Wye-delta open
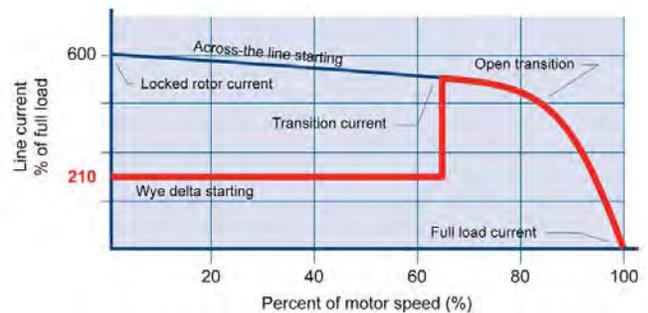**Typical Voltage Applied at Start:** 100%
Inrush Current: 33% of normal load current
Starting Torque: 33%
Motor Type: Wye-delta
No. of Contactors: 2 at 58%, 1 at 33% of motor FLC
Min. ampacity of motor conductors: 6 at 125% x 58% of FLC

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 4X-304 sst painted □ IP54 □ NEMA 3 □ NEMA 4X-304 sst brushed finish □ IP55 □ NEMA 3R □ NEMA 4X-316 sst painted □ IP65 □ NEMA 4 □ NEMA 4X-316 sst brushed finish □ 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.

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		☐ D1	Low suction pressure transducer for fresh water rated at 0-300PSI with visual indication and alarm contact
☐ A8	Foam pump application w/o pressure transducer and run test solenoid valve		☐ D1A	Low suction pressure transducer for sea water rated at 0-300PSI with visual indication and alarm contact
☐ A9	Low zone pump control function		☐ D5	Pressure transducer and run test solenoid valve for fresh water rated for 0-500PSI (for calibration purposes only)
☐ A10	Medium zone pump control function		☐ D5D	Pressure transducer and run test solenoid valve for sea water rated for 0-500PSI
☐ A11	High zone pump control function		☐ D10	Omit mounting feet (when applicable)
☐ A13	Non-pressure actuated controller w/o pressure transducer and run test solenoid valve		☐ D13	High withstand rating for (normal power section) • 208V to 480V = 150kA • 600V = 100kA
☐ A16	Lockout/interlock circuit from equipment installed inside the pump room		☐ D14	Anti-condensation heater & thermostat (normal power section)
☐ 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		☐ D14A	Anti-condensation heater & humidistat (normal power section)
			☐ D14B	Anti-condensation heater & thermostat & humidistat (normal power section)
☐ B11B	Built in alarm panel same as B11 but 220-240VAC supervisory power		☐ D15	Tropicalization
			☐ D18	CE Mark with factory certificate
☐ B19	High motor temperature thermistor relay c/w visual indication and alarm contact (Form C-SPDT)		☐ D26	Modbus RTU provision
			☐ D26A	Modbus TCP/IP provision
☐ B21	Ground fault alarm detection c/w visual indication and alarm contact (Form C-SPDT)		☐ D27	Motor heater connection (external single phase power source and heater on/off contact)
☐ C1	Extra motor run alarm contact (Form C-SPDT)		☐ D27A	Motor heater connection (internal single phase power source and heater on/off contact)
☐ C4	Periodic test alarm contact (Form C-SPDT)		☐ D28	Customized drawing set
☐ C6	Low discharge pressure alarm contact (Form C-SPDT)		☐ D34	Field programmable I/O board - 8 Input / 5 output
☐ C7	Low pump room temperature alarm contact (Form C-SPDT)		☐ D35	Field programmable I/O board - 8 Input / 10 output
☐ C10	Low water reservoir level alarm contact (Form C-SPDT)		☐ D36	Redundant pressure transducer for fresh water rated for 0-500PSI (calibrated at 0-300PSI)
☐ C11	High electric motor temperature alarm contact (Form C-SPDT)		☐ D36A	Redundant pressure transducer for sea water rated for 0-500PSI (calibrated at 0-300PSI)
☐ C12	High electric motor vibration c/w visual indication and alarm contact (Form C-SPDT)		☐ D37	Window kit for operator interface
☐ C14	Pump on demand/automatic start alarm contact (Form C-SPDT)		☐ E1	Permanent load shedding contacts
			☐ E2	Temporary pump motor start period load shedding contacts
☐ C15	Pump fail to start alarm contact (Form C-SPDT)		☐ E3	Temporary & permanent load shedding contacts
☐ C16	Control voltage healthy alarm contact (Form C-SPDT)		☐ F2	Anti condensation heater & thermostat (alternate power section)
☐ C17	Flow meter valve loop open c/w visual indication and alarm contact (Form C-SPDT)		☐ F2A	Anti condensation heater & humidistat (alternate power section)
☐ C18	High water reservoir level c/w visual indication and alarm contact (Form C-SPDT)		☐ F2B	Anti condensation heater & thermostat & humidistat (alternate power section)
☐ C19	Emergency start alarm contact (Form C-SPDT)		☐ F6	High withstand rating for (model GPU only) : • 208V to 480V=150kA • 600V=100kA
☐ 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)			

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

☐ L01	Other language and English (bilingual)		☐ L11	Czech	
☐ L02	French		☐ L12	Portuguese	
☐ L03	Spanish		☐ L13	Dutch	
☐ L04	German		☐ L14	Russian	
☐ L05	Italian		☐ L15	Turkish	
☐ L06	Polish		☐ L16	Swedish	
☐ L07	Romanian		☐ L17	Bulgarian	
☐ L08	Hungarian		☐ L18	Thai	
☐ L09	Slovak		☐ L19	Indonesian	
☐ L10	Croatian		☐ 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
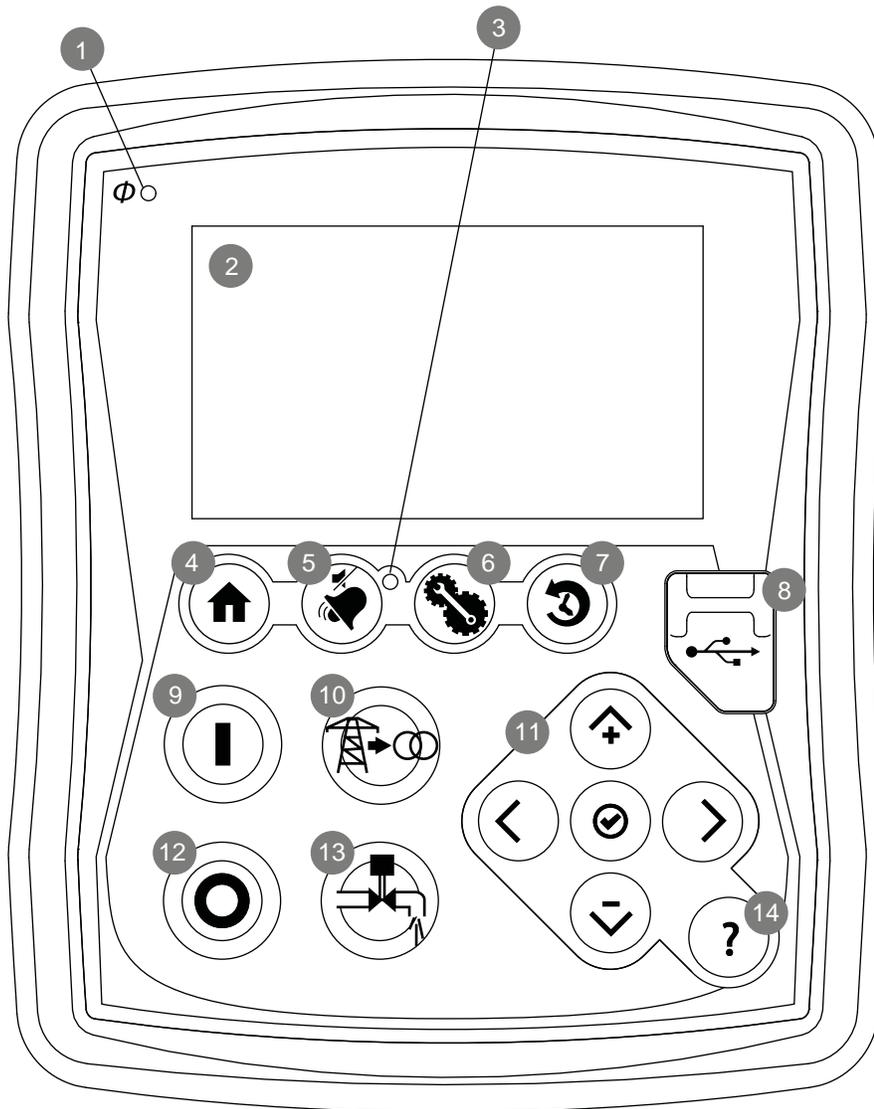
8 - USB port
9 - START button
10 - TRANSFER SWITCH TEST button
11 - Contextual navigation pad
12 - STOP button
13 - RUN TEST button
14 - HELP button

ELECTRIC FIRE PUMP CONTROLLER
WITH AUTOMATIC TRANSFER SWITCH

MODEL : GPA/GPP/GPY +GPU

Dimensions

BUILT TO THE LATEST EDITION OF THE NFPA20 STANDARD

Ø⅞" [Ø23] X2

16-⅛" [409]

12-¼" [312]

36" [914]

38-¼" [972]

30-⅜" [773]
DOOR SWING

SENSING LINE CONNECTION ½" F.NPT

DRAIN ⅜"

39-⅜" [1001]

38-¾" [985]

36" [914]

34-½" [876]

Ø⅜" [Ø10] X4

30" [763]

42" [1068]

37-¼" [946]

2-⅞" [73]

7" [178]

7" [178]

Ø½" [Ø13]X3

6" [152]

7" [179]

7" [178]

NORMAL POWER AND MOTOR LEADS ENTRANCE

EMERGENCY POWER ENTRANCE

1" [25]

⅞" [24]

2-½" [64]

1" [25]

3" [77]

3" [76]

13-½" [343]

26-½" [675]
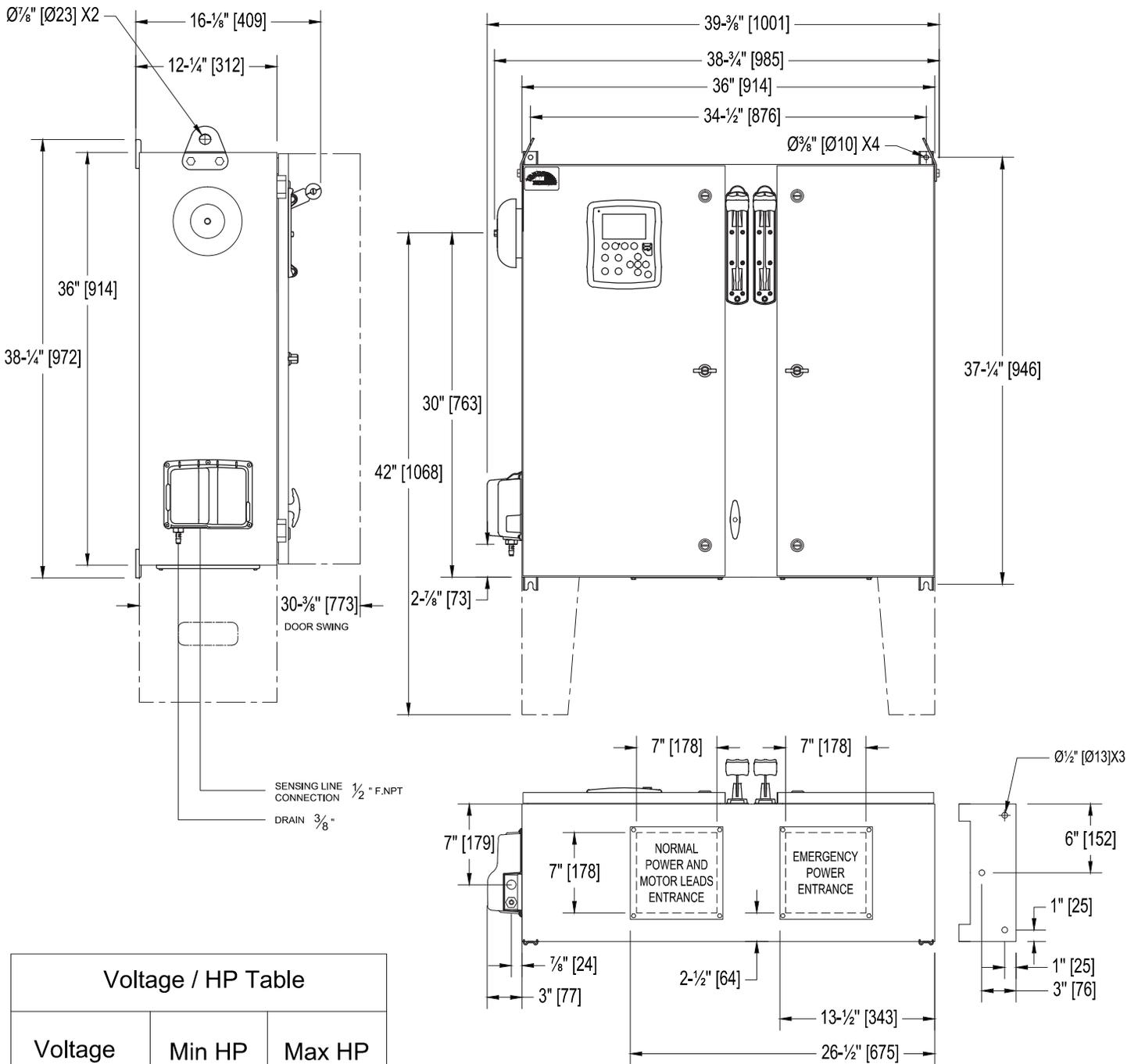
Voltage / HP Table

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
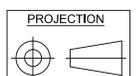
ELECTRIC FIRE PUMP CONTROLLER
REDUCED VOLTAGE / WYE DELTA (OPEN TRANSITION)
WITH AUTOMATIC POWER TRANSFER SWITCH

MODEL : GPY + GPU

Wiring schematic

BUILT TO THE LATEST EDITION OF THE NFPA20 STANDARD
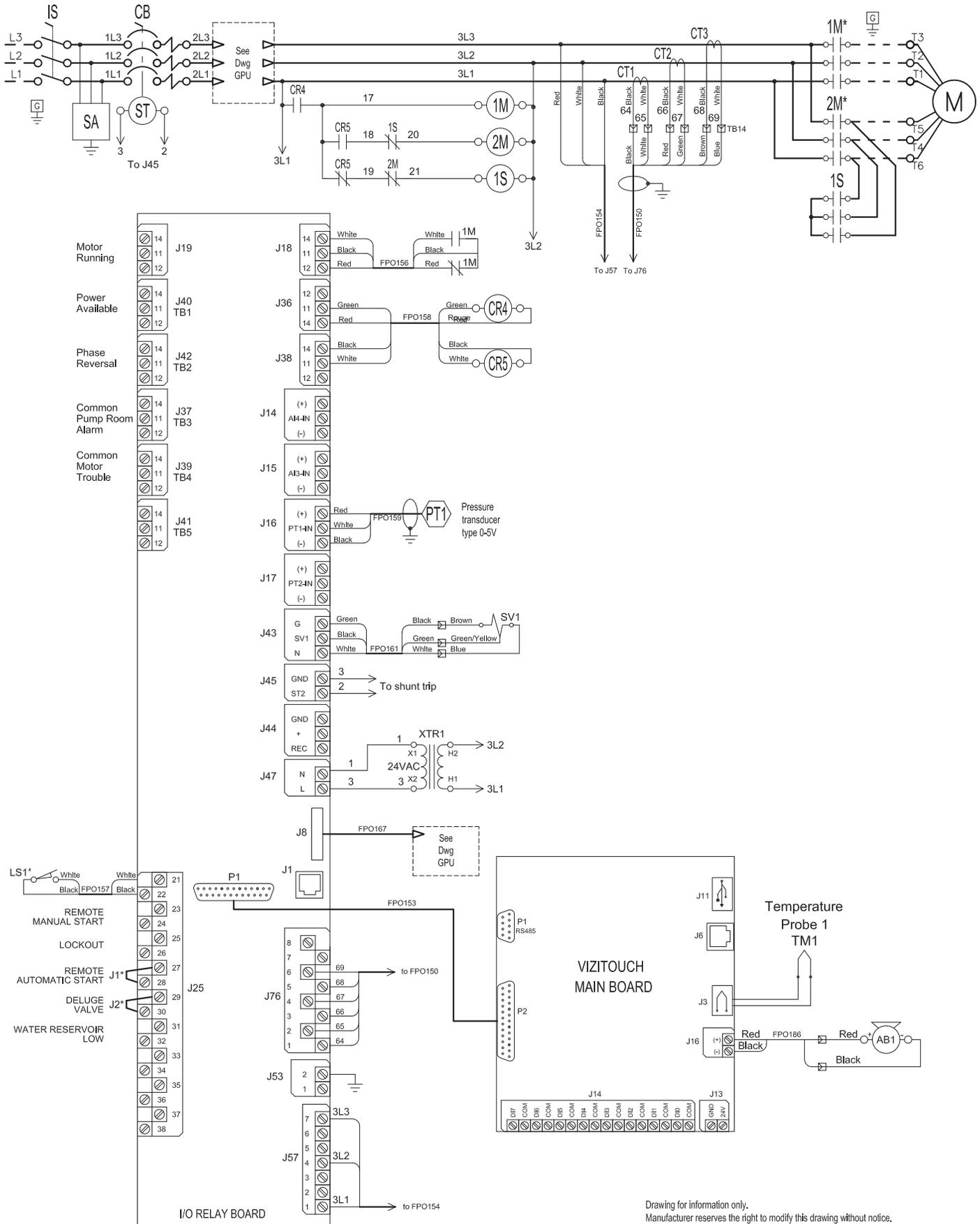
* REMOVE JUMPER TO USE THIS FEATURE

* 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.

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

GPX-WS-ViZi

NYC Dpt of Building Approved

Drawing No.

GPY-WS510 /E

LSA3
J46-8 ← Gray — c (*) NO — Yellow → J46-10
NC — Violet → J46-9

ACB
J46-2 ← White — c (*) NO — Black → J46-1

LSE2
J50-3 ← Red — c NO — Brown → J50-5
NC — Green → J50-4

LSE1
J50-2 ← White — c NO — Black → J50-1

LSE3
J54-1 ← White — c NO → Black → J54-2

AIS   ACB

AL3   1E3   2E3   3L3
AL2   1E2   2E2   3L2   Normal / Alternate Power
AL1   1E1   2E1   3L1   to Fire Pump Section

ASA   AST
3 To J45 2

Red White Black

M   White / Black

LSA2
J46-7 ← Orange — c NO — Brown → J46-5
NC — Blue → J46-6

LSA1
J46-4 ← Red — c NO — Green → J46-3

2L3
Normal Power from   2L2
Fire Pump Section   2L1

LSN2
J49-3 ← Red — c NO — Brown → J49-5
NC — Green → J49-4

LSN1
J49-2 ← White — c NO — Black → J49-1

FPO165   FPO164

LSN3
J55-1 ← White — c NO → Black → J55-2

Red White Black   Red White Black

XTR3
53 X2 H1 2E1
24VAC
54 X1 H2 2E2

XTR2
51 X2 H1 2L1
24VAC
52 X1 H2 2L2

TSP : Shown in normal position

From Fire Pump Section   FPO167

J8
J20

J38   COM
       24Vdc
       24Vrect

J53   24Vac2

J47   24Vac1

J58   GND
       COM

J64   7 2E3
       6
       5 2E2
       4
       3
       2 2E1
       1

J57   7 50
       6
       5 2L2
       4
       3
       2 2L1
       1

I/O BOARD Tr. Sw.

J39
14 / 11 / 12 ALT. POS.
14 / 11 / 12 NOR. POS.
14 / 11 / 12 ACB
14 / 11 / 12 GEN

J50   LSE2 14 Brown FPO163 → To LSE1 / LSE2
             12 Green
             11 Red
       LSE1 11 White
             14 Black

J49   LSN2 14 Brown FPO162 → To LSN1 / LSN2
             12 Green
             11 Red
       LSN1 11 White
             14 Black

J46   LSA3 14 Yellow FPO166 → To LSA
             12 Violet
             11 Grey
       LSA2 11 Orange
             14 Blue
             12 Brown
       LSA1 11 Red
             14 Green
       ACB   11 White
             14 Black

J1

J45   COM 2
       ST2 3   From AST

J55   LN11 Black FPO160 → To LSN3
       LN12 White

J52   M+ Black
       M- White

J54   LE11 Black FPO161 → To LSE3
       LE12 White

I/O BOARD Tr. Sw.

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

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

GPU-WS-ViZi	1.	11/10/05	GENERAL REVISION	DES.	Drawing No.
	0.	11/03/10	FIRST ISSUE	VER.	GPU-WS500 /E
	REV.	DATE	DESCRIPTION	APP.	

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.

GPX-TD-ViZi

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

NYC Dpt of Building Approved

Drawing No.

GPX-TD500 1/3 /E

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)

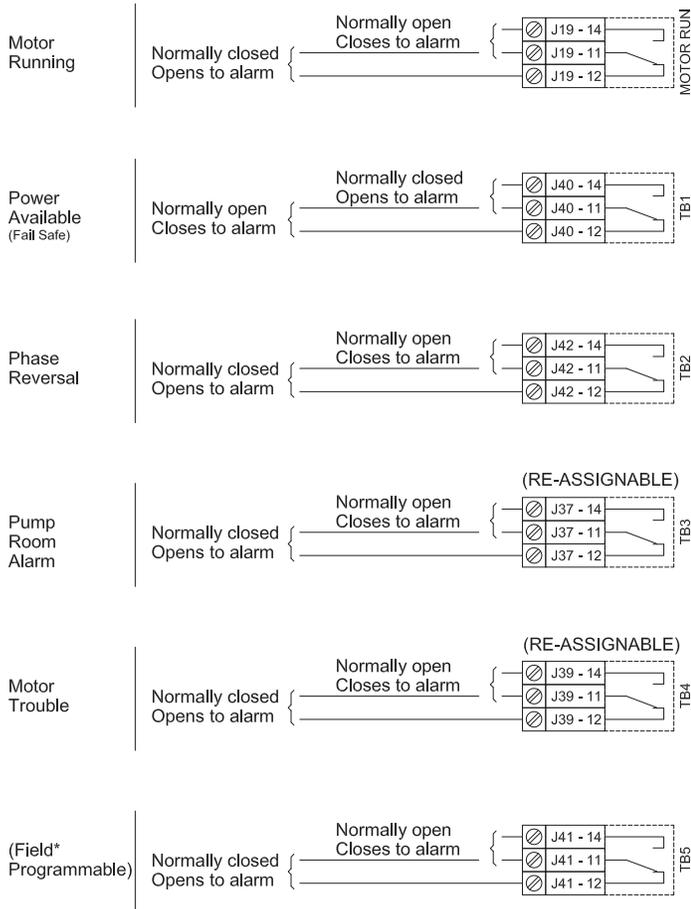| HP \ Voltage	75	100	125	150	200	250	300	350	400	450	500
208	1x (2/0 to 3/0)	1x (3/0)	1x (250 to 300)	2x (1/0 to 300)	2x (3/0 to 350)	--------	--------	--------	--------	--------	--------
220 to 240	1x (1/0 to 3/0)	1x (3/0)	1x (4/0 to 300)	1x (300)	2x (2/0 to 300)	2x (4/0 to 350)	--------	--------	--------	--------	--------
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)

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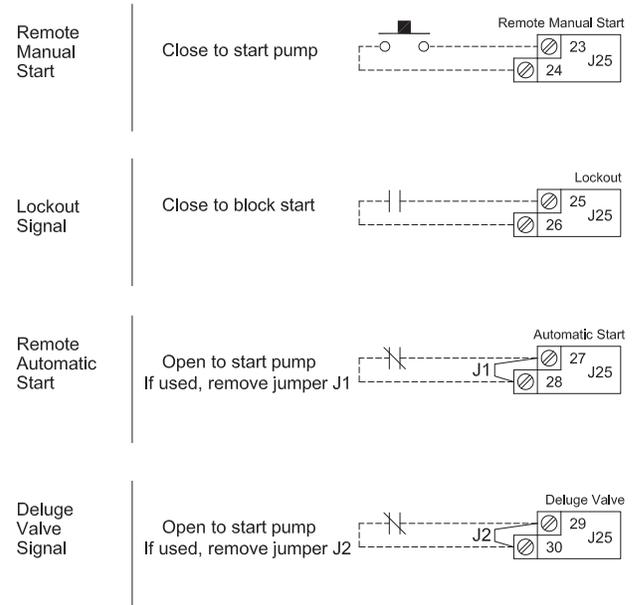For drawing for approval or installation, please contact manufacturer.

		GPX-TD-ViZi	4.	13/11/11	FIELD PROGRAMMABLE	DES.	Drawing No.
			3.	13/01/04	DATA ADDED TO TABLES	VER.	GPX-TD500 2/3 /E
			REV.	DATE	DESCRIPTION	APP.	

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

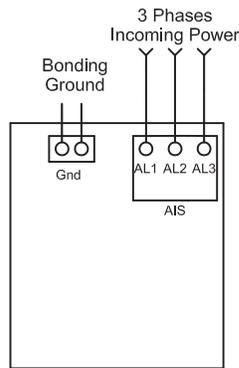**(Field* Programmable)** — Normally closed, Opens to alarm / Normally open, Closes to alarm
- J41 - 14
- J41 - 11
- J41 - 12
- TB5

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

*Not Available in GPS Models

Power Terminals

3 Phases
Incoming Power

Bonding
Ground

Gnd   AL1 AL2 AL3

AIS

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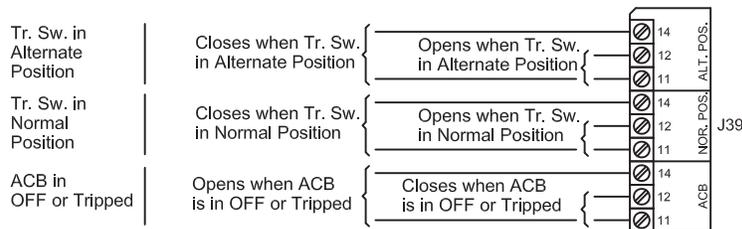   Do not use aluminium conductors.

Isolating Switch (IS) Field Wiring according to Bending Space (AWG or MCM). TERMINALS AL1 - AL2 - AL3   (Use Copper Conductors Only)
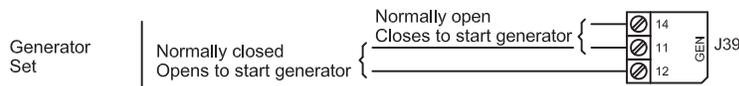
| Bending Space | 5 " (127 mm) | | | | | | | 8 " (203 mm) | | |
HP / Voltage	5	7.5	10	15	20	25	30	40	50	60
208	1x (10 to 1/0)	1x (8 to 1/0)	1x (8 to 1/0)	1x (6 to 1/0)	1x (4 to 1/0)	1x (3 to 1/0)	1x (2 to 1/0)	1x (1/0 to 250)	1x (3/0 to 250)	1x (4/0 to 250)
220 to 240	1x (10 to 1/0)	1x (10 to 1/0)	1x (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.)

Tr. Sw. in Alternate Position	Closes when Tr. Sw. in Alternate Position	Opens when Tr. Sw. in Alternate Position	14 / 12 / 11	ALT. POS.
Tr. Sw. in Normal Position	Closes when Tr. Sw. in Normal Position	Opens when Tr. Sw. in Normal Position	14 / 12 / 11	NOR. POS.	J39
ACB in OFF or Tripped	Opens when ACB is in OFF or Tripped	Closes when ACB is in OFF or Tripped	14 / 12 / 11	ACB

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

| Generator Set | Normally closed Opens to start generator | Normally open Closes to start generator | 14 / 11 / 12 | GEN | J39 |

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GPX-TD-ViZi

					Drawing No.
2.	13/01/04	DATA ADDED TO TABLES	DES.		
1.	12/06/12	ADD COPPER NOTES	VER.		**GPU-TD500 /E**
REV.	DATE	DESCRIPTION	APP.		

TORNA TECH