Project: _____

Customer: _____

Engineer: _____

Pump Manufacturer: _____

Drawing Submittal Package

Model GPL + GLU
Limited Service Full Voltage
Across the Line Start
Electric Pump Controller
with Automatic Power Transfer Switch

Contents:

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

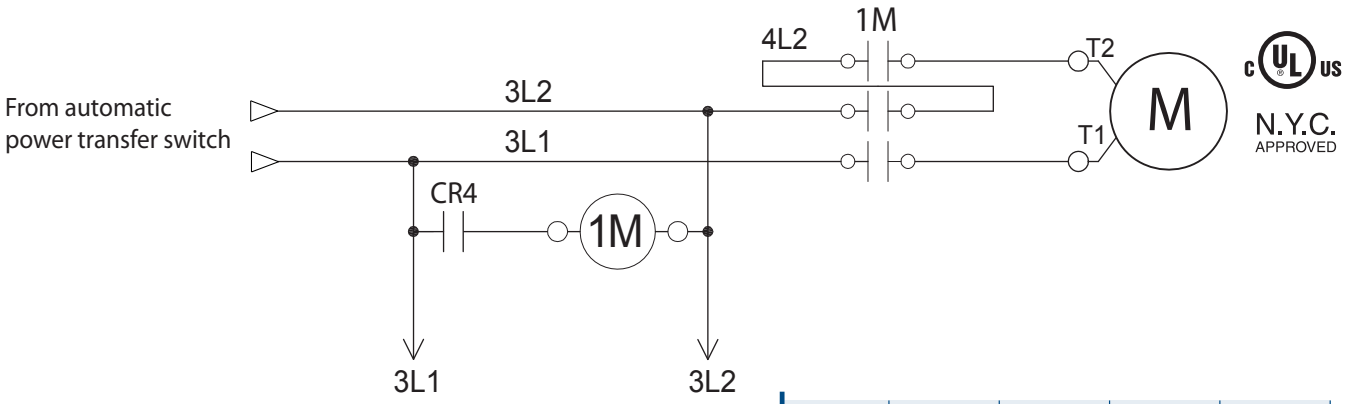
NOTE: The drawings included in this package are for controllers covered under our standard offering. Actual AS BUILT drawings may differ from what is shown in this package

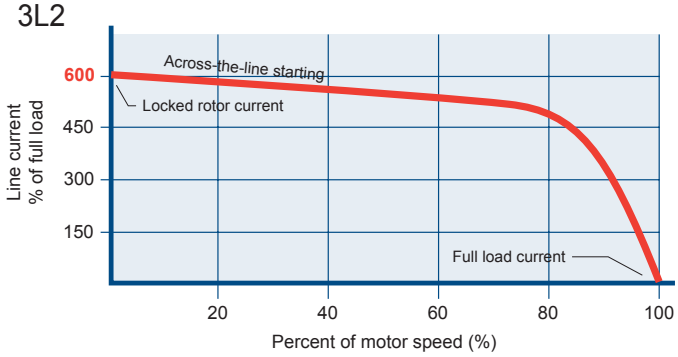
c UL US

N.Y.C. APPROVED

August 2012

Submittal Data Sheet
Model GPL + GLU Electric Pump Controller





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
No. of Motor Connections & Sizing: 3 at 100% of Full load Current (FLC)

Shortcircuit Withstand Rating	208V to 240V - 1ph - 50/60Hz	
	Normal Power	Alternate Power
Standard	65,000 A	

Listings, Approvals and Certifications	**Built to NFPA 20 (latest edition)**	
	Underwriters Laboratory (UL)	• UL218 - Fire pump controllers • UL1008 - Automatic power transfer switches for fire pump controllers • CSA C22.2 No. 14 Industrial Control Equipment
	New York City	Accepted for use in the City of New York by the Department of Buildings
Enclosure	**Protection Rating** ☐ **Standard:** NEMA 2 **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
	Accessories • Wall mounting lugs • Keylock handle	**Paint Specifications** • Red RAL3002 • Powder coating • Glossy textured finish

Limitations	• Across the line starting only • Horsepower rating of maximum 30hp • Can only be installed where acceptable by the authority having jurisdiction • Not accepted in FM insured property
Pressure Sensing	• Pressure transducer for fresh water application • Pressure sensing connection 1/2” Female NPT • Rated for 0-500psi working pressure (calibrated at 0-300psi) • Internally mounted
Surge Suppression	Surge arrestor rated to suppress surges above line voltage
Disconnecting Means & Locked Rotor Protector	Circuit breaker (inverse time non ajustable) rated between 150% and 250% of motor full load current
Service Entrance Rating	Suitable as service entrance equipment
Emergency Start Handle	• Push and slide to lock • Across the line start (direct on line)
Electrical Readings	• Voltage phase to phase • 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

Audible Alarm	4" alarm bell - 85 dB at 10ft. (3m)		
Visual Indications and 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 • Overvoltage • Low pump room temperature • Undervoltage • High pump room temperature • Phase unbalance • Common motor trouble • Overcurrent • Undercurrent • Fail to start • Ground fault		
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

** Can only be used if approved by the AHJ

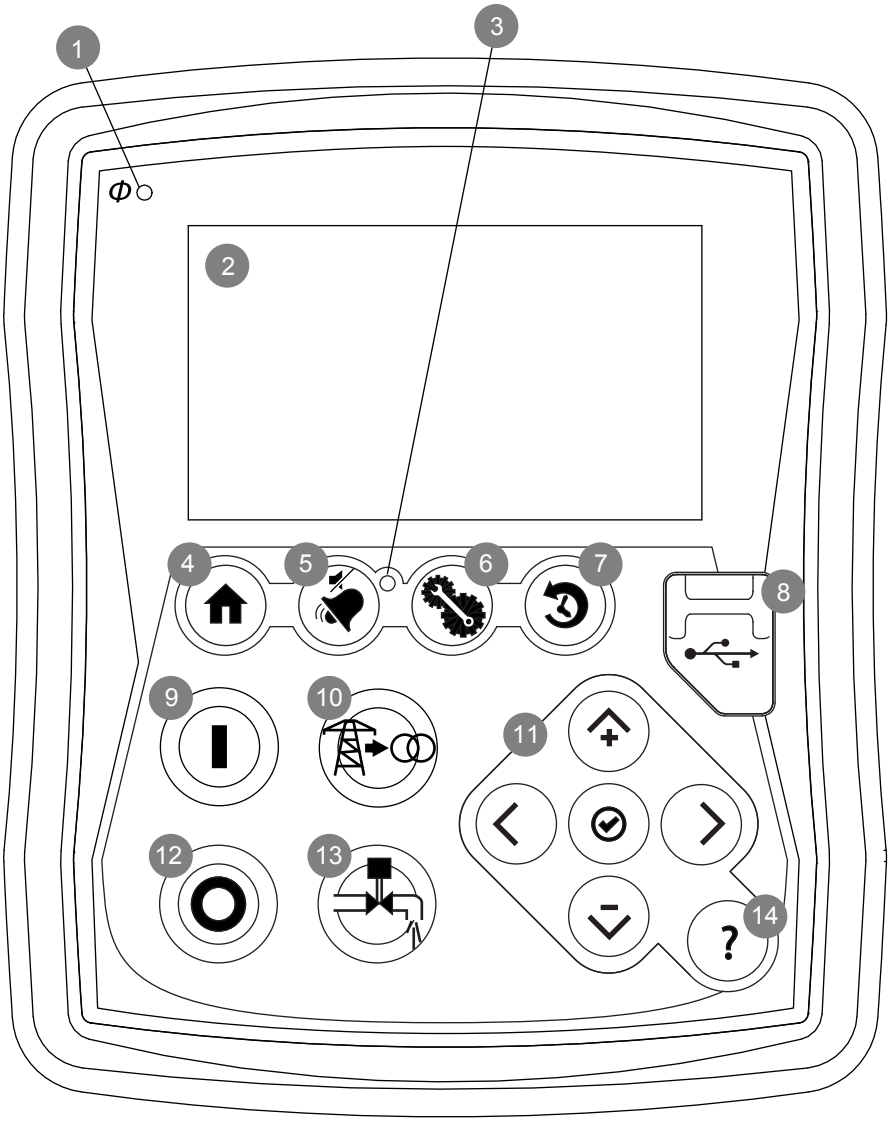
Automatic Power Transfer Switch	Surge Suppression	Surge arrestor rated to suppress surges above line voltage
	Disconnecting Means	• Isolating switch and circuit breaker assembly: Door interlocked in the ON position Isolating switch rated not less than 115% o f motor full load current Circuit breaker continuous rating not less than 115% of motor full Overcurrent sensng nonthermal type, magnetic only Instantaneous trip setting of not more than 20 times the motor full • 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 • Transfer switch in alternale (emergency) 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	High 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)

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

☐ 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
☐ D10	Omit mounting feet (when applicable)
☐ D14	Anti-condensation heater & thermostat (fire pump section only)
☐ D14A	Anti-condensation heater & humidistat (fire pump section only)
☐ D14B	Anti-condensation heater & thermostat & humidistat (fire pump section only)
☐ D15	Tropicalization
☐ D18	CE Mark with factory certificate
☐ D19	French labelling
☐ D20	Spanish labelling
☐ D21	Other languages
☐ 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 (transfer switch section only)
☐ F2A	Anti condensation heater & humidistat (transfer switch section only)
☐ F2B	Anti condensation heater & thermostat & humidistat (transfer switch section only)

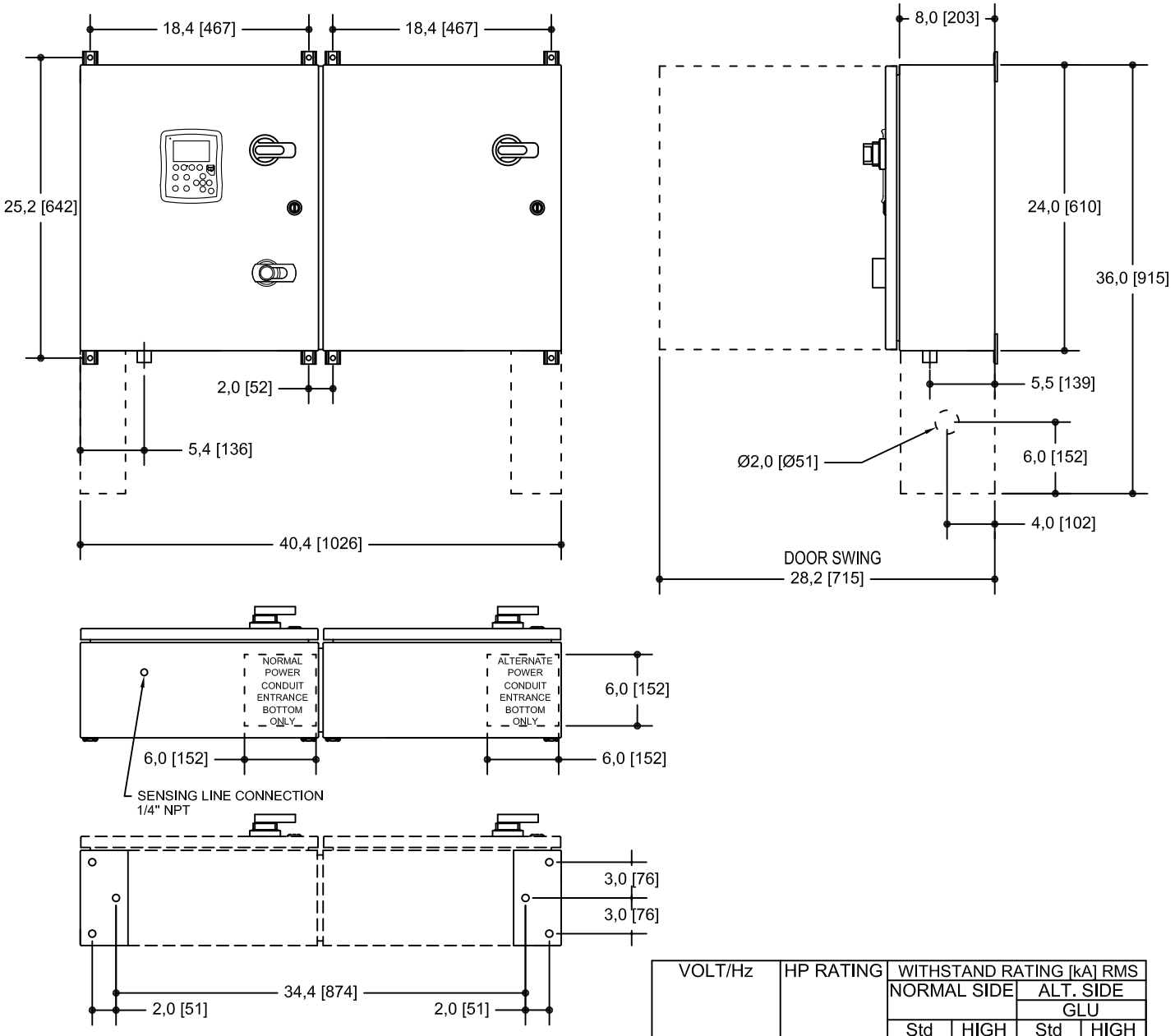
ViZiTouch Operator Interface



1 - Power 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

LIMITED SERVICE PUMP CONTROLLER
1 AND 3 PHASE
Dimensions

MODEL : GPL & GLU
BUILT TO LATEST NFPA 20 STANDARD EDITION



VOLT/Hz	HP RATING		WITHSTAND RATING [kA] RMS			
			NORMAL SIDE		ALT. SIDE GLU	
	MIN	MAX	Std	HIGH (OPT. D13)	Std	HIGH (OPT. F6)
1 PHASE						
200-208 / 60	3	15	65	N/A	65	N/A
230-240 / 50-60	3	15	65	N/A	65	N/A
3 PHASES						
200-208 / 60	3	30	65	N/A	65	N/A
230-240 / 50-60	3	30	65	N/A	65	N/A
380-416 / 50-60	3	30	25	65	25	65
440-480 / 50-60	3	30	25	65	25	65
575-600 / 60	3	30	18	25	18	25

NOTES :

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

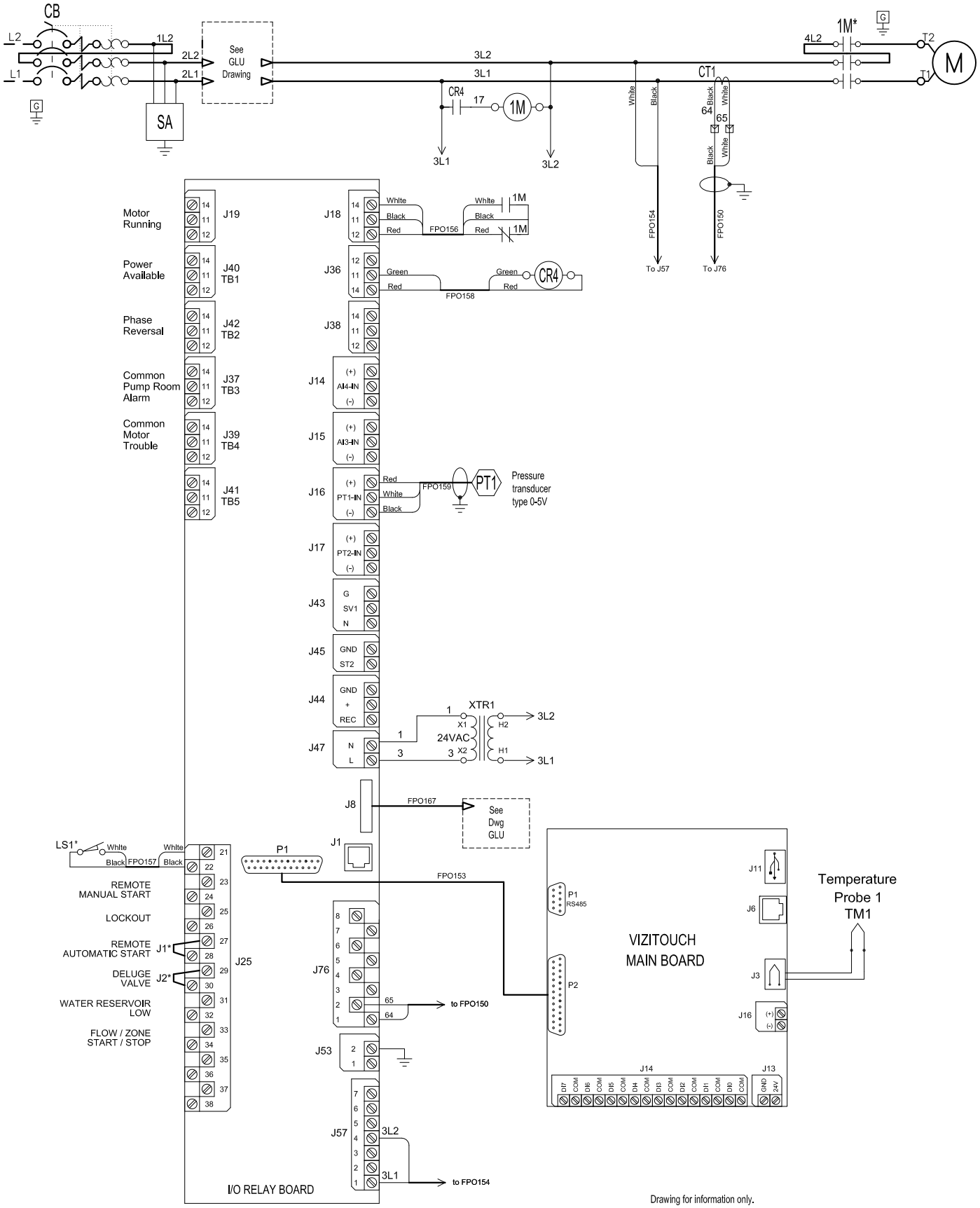
Drawing for information only.
Manufacturer reserves the right to modify this drawing without notice.
Contact manufacturer for "As Built" drawing.

LIMITED SERVICE PUMP CONTROLLER WITH AUTOMATIC POWER TRANSFER SWITCH 1 PHASE

MODEL :GPL+ GLU

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.

TORNATECH

c UL us

NYC Dpt of Building Approved

GPX-WS-ViZi

REV.	DATE	DESCRIPTION	APP.
2.	12/08/06	GENERAL REVISION	DES.
1.	12/05/30	Correct Signal Input	VER.

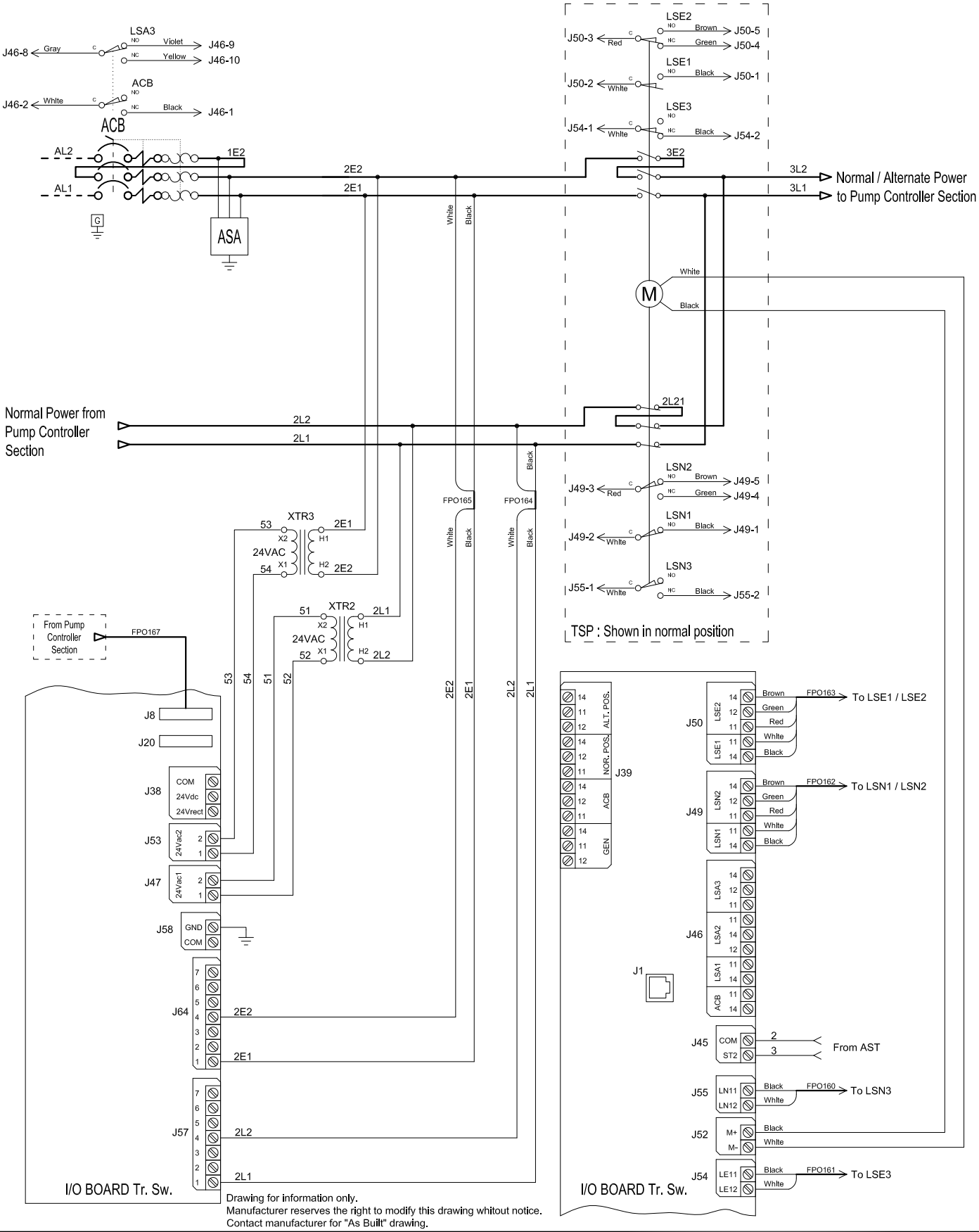
Drawing No. GPL-WS510 /E

AUTOMATIC POWER TRANSFER SWITCH FOR LIMITED SERVICE PUMP CONTROLLER 1 PHASE

MODEL : GLU

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.

NYC Dpt of Building Approved

REV.	DATE	DESCRIPTION	APP.
1.	12/08/06	GENERAL REVISION	DES.
0.	12/01/10	FIRST ISSUE	VER.

Drawing No.
GLU-WS500 /E

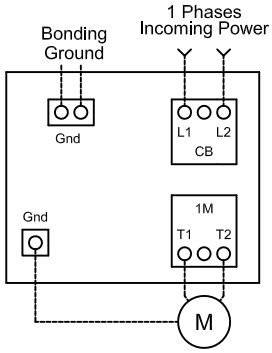
LIMITED SERVICE PUMP CONTROLLER MODEL : GPL

Terminal Sizing

BUILT TO LATEST EDITION OF THE NFPA20 STANDARD

Power Terminals

Model : GPL 1 PHASE



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.
5 - Field wiring and lug sizes based on copper conductors only.
Do not use aluminium conductors.

Circuit breaker (CB) Field Wiring according to Bending Space (AWG or MCM). TERMINALS L1 - L2

Bending Space	5 " (127 mm)				
HP / Voltage	3	5	7.5	10	15
208	1x (10 to 1/0)	1x (8 to 1/0)	1x (6 to 1/0)	1x (4 to 1/0)	1x (3 to 3/0)
220 to 240	1x (10 to 1/0)	1x (8 to 1/0)	1x (8 to 1/0)	1x (6 to 1/0)	1x (3 to 3/0)

(Use Copper Conductors Only)

Wiring Size for motor connection for Model PGL (AWG or MCM). TERMINALS T1 - T2

HP / Voltage	3	5	7.5	10	15
208	1x (10 to 3)	1x (8 to 3)	1x (6 to 3)	1x (4 to 2/0)	1x (3 to 2/0)
220 to 240	1x (10 to 3)	1x (8 to 3)	1x (8 to 3)	1x (6 to 2/0)	1x (4 to 2/0)

(Use Copper Conductors Only)

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

TORNA TECH

c UL us

GPL-TD-ViZi

NYC Dpt of Building Approved

REV.	DATE	DESCRIPTION	APP.
3.	12/08/06	GENERAL REVISION	DES.
2.	12/06/19	ADD COPPER NOTES	VER.

Drawing No.

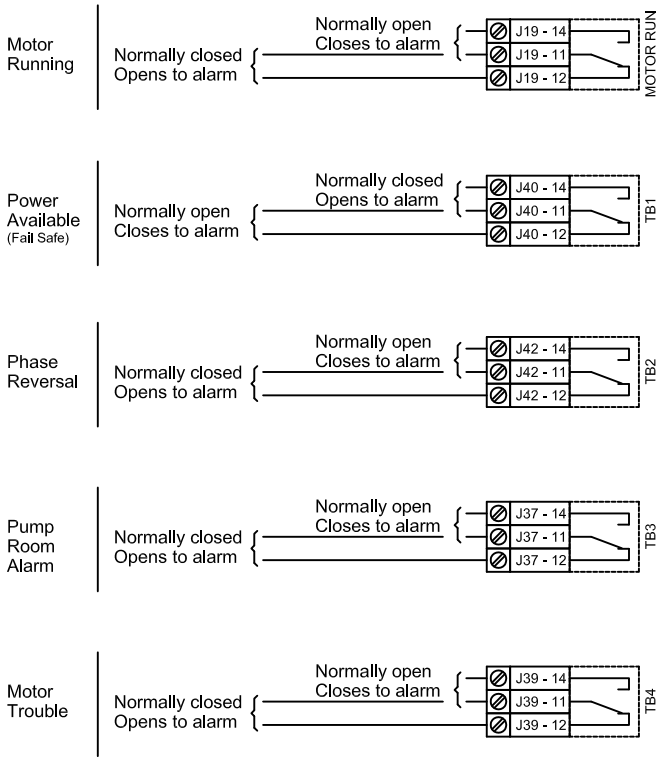
GPL-TD500 1/2 /E

LIMITED SERVICE PUMP CONTROLLER MODEL : GPL

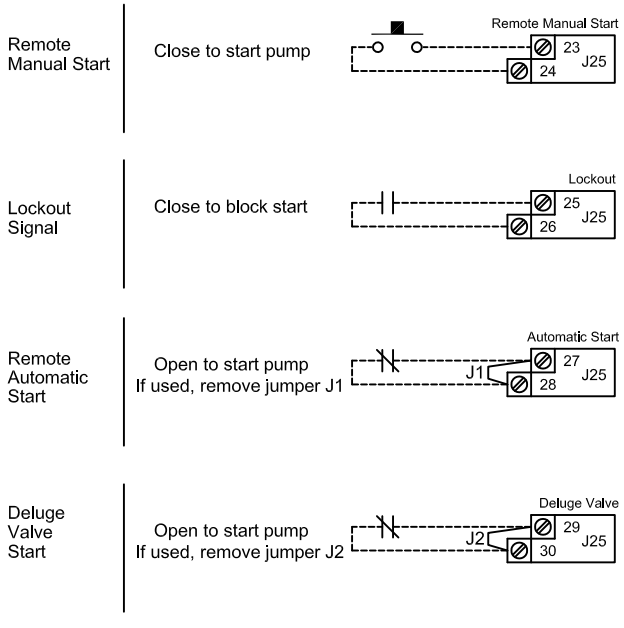
Terminal diagram

BUILT TO LATEST EDITION OF THE NFPA20 STANDARD

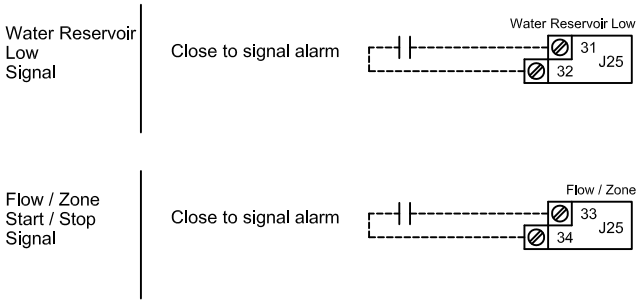
Remote Alarm Terminals (I/O board)



Control Terminals (I/O board)



Filed Connections for External Devices (I/O board)



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

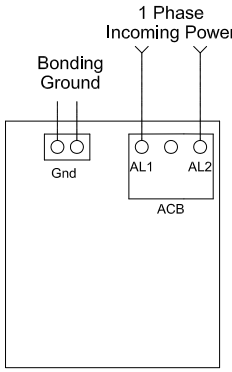
AUTOMATIC POWER TRANSFER SWITCH FOR LIMITED SERVICE PUMP CONTROLLER

MODEL : GLU

Terminal Diagram and Sizing

BUILT TO LATEST EDITION OF THE NFPA20 STANDARD

Power Terminals



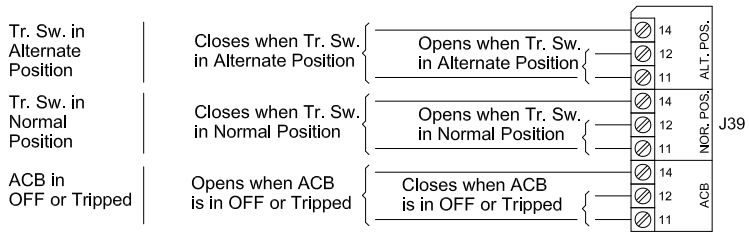
Notes:
1 - For proper wire sizing, refer to NFPA70 and NEC (USA) or CEC (Canada) or local code.
2 - Controller suitable for service entrance in USA.
3 - Controller is phase sensitive.
4 - Field wiring and lug sizes based on copper conductors only.
Do not use aluminium conductors.

Circuit Breaker (CB) Field Wiring according to Bending Space (AWG or MCM). TERMINALS L1 - L2

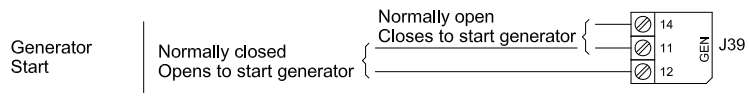
Bending Space	5 " (127 mm)				
HP / Voltage	3	5	7.5	10	15
208	1x (10 to 1/0)	1x (8 to 1/0)	1x (6 to 1/0)	1x (4 to 1/0)	1x (3 to 3/0)
220 to 240	1x (10 to 1/0)	1x (8 to 1/0)	1x (8 to 1/0)	1x (6 to 1/0)	1x (3 to 3/0)

(Use Copper Conductors Only)

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



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



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