



PROJECT: \_\_\_\_\_

CUSTOMER: \_\_\_\_\_

ENGINEER: \_\_\_\_\_

PUMP MANUFACTURER: \_\_\_\_\_

**MODEL: GPL**

**LIMITED SERVICE FULL VOLTAGE  
ACROSS THE LINE START  
ELECTRIC FIRE PUMP CONTROLLER**

## **DRAWING SUBMITTAL PACKAGE**

### **CONTENTS**

**BROCHURE  
DIMENSIONAL DATA  
WIRING SCHEMATICS  
FIELD CONNECTIONS**

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





# GPL MODEL

The model GPL across-the-line starter (full voltage) limited service pump controller built to the latest NFPA 20 and UL218 Standards provides for:

- Full voltage across-the-line starting. Peak inrush current is approximately 6 times the full load motor current. Inrush current and starting torque are not reduced.  
NOTE: Voltage at the controller line terminal shall not drop more than 15% below controller rated voltage under motor starting conditions.

- 3-phase - 3-wire or 1-phase - 2-wire motor connection assures error free field installation and simple change of motor rotation. The limited service pump controller is limited to 30HP max. and across-the-line starting. It does not provide accurate "locked rotor" protection and is subject to acceptance by the "authority having jurisdiction".

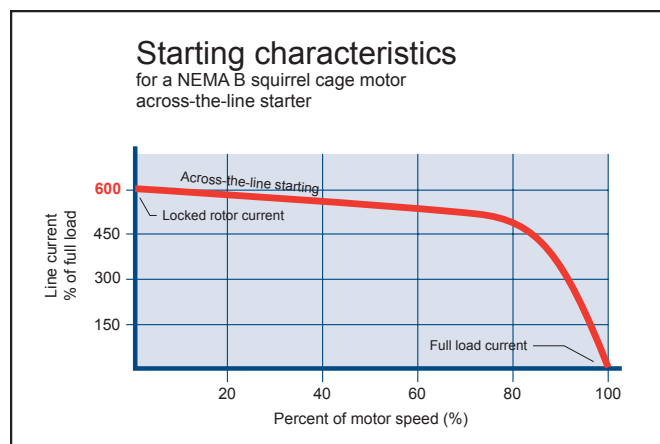
This controller can only be utilized where the capacity of the electric power source and the electric supply utility permits full voltage starting of a squirrel cage motor. (Not recommended for use on generator set installations due to high inrush current.)

Only quality components, all U.L. listed or recognized and C.S.A. certified are used throughout to assure the best possible reliability.

The complete assembled and wired controllers are factory tested before shipping and ready for immediate installation.

**SUITABLE FOR USE AS SERVICE ENTRANCE EQUIPMENT**  
(where acceptable by local code)

This controller meets the NFPA 20 requirements for connection to a normal power source only. For normal and alternate power sources, add a listed automatic transfer switch (Model GLG or GLU). Pump controller and automatic transfer switch will be supplied as one unit.



## Limited service pump controller Full voltage across-the-line starter 3-phase and single phase



### CONTROLLER PROTECTION LEVEL:

- Standard NEMA - UL - CSA type 2
- Optional NEMA - UL - CSA type 3, type 4, type 4X, type 12

### CONTROLLER DIMENSIONS:

- 30" (762mm) high
- 24" (610mm) wide
- 10" (254mm) deep

### OPERATIONAL TEMPERATURE LIMITS:

- 41°F to 122°F (5°C to 50°C)

**WITHSTAND RATING** (short circuit current):

	STANDARD	OPTIONAL
208V. to 240V.	65,000 A.Sym.	NOT AVAILABLE
380V. to 480V.	25,000 A.Sym.	65,000 A. Sym.
600V.	18,000 A.Sym.	25,000 A. Sym.

## Limited service pump controller Full voltage across-the-line starter 3-phase and single phase

### STANDARD FEATURES:

#### MANUAL OPERATORS (DOOR MOUNTED)

- Circuit breaker operator door interlocked in the "ON" position
- Start and Stop push buttons

#### MANUAL OPERATOR (SIDE MOUNTED)

- Emergency manual start handle, providing for manual across-the-line starting of motor start contactor

#### CONTROL FEATURES

- Across-the-line motor start contactor HP rated
- Voltage surge suppressor connected to load terminals of the circuit breaker
- Remote start circuit
- Minimum running period timer
- Sequential start timer
- Weekly test
- Built-in pressure transducer

#### DRY ALARM CONTACTS - 8A. - 250VAC

Three phase model:

- Power or phase failure and/or circuit breaker in open position - DPDT
- Phase reversal - DPDT
- Pump run - 1N/O - 1N/C

Single phase model:

- Power and/or circuit breaker in open position - DPDT
- Pump run - 1N/O - 1N/C

### OPTIONAL FEATURES:

#### Type A: OPERATIONAL MODIFICATIONS

Option A3: **Deluge valve provision** required when remote water control equipment is connected to the fire pump controller

Option A4: **Flow switch provision** required when the fire pump motor has to start upon the detection of a water flow prior to a pressure drop and not to stop until there is no more flow detection in the system.

Option A8: **Concentrate foam pump application**: Removal of pressure transducer and installation of two terminals for connection of a remote fire pump start contact.

#### Type B: ADDITIONAL ANNUNCIATIONS

Option B7: **Low suction pilot light**. (Pressure switch not included. See Options D1 and C5.)

#### Type C: EXTRA ALARM CONTACTS

Option C4: **Weekly exercise cycle alarm contacts**.

Option C5: **Low suction pressure alarm contacts**. (Pressure switch not included. See Options D1 and B7.)

**HOW TO ORDER:** GPL - V / HP / Ph / Hz + options  
Ex.: GPL - 208 / 20 / 3 / 60 + options

Tornatech inc., 7075, Place Robert-Joncas, # 132, Montreal, Quebec, Canada H4M 2Z2

Tel.: + 1 514 334 0523 + 1 800 363 8448 (Canada & U.S.A.) Fax: + 1 514 334 5448

E-mail: tornatech@tornatech.com

[www.tornatech.com](http://www.tornatech.com)

### ANNUNCIATOR AND LCD DISPLAY

#### Voltage and amperage module

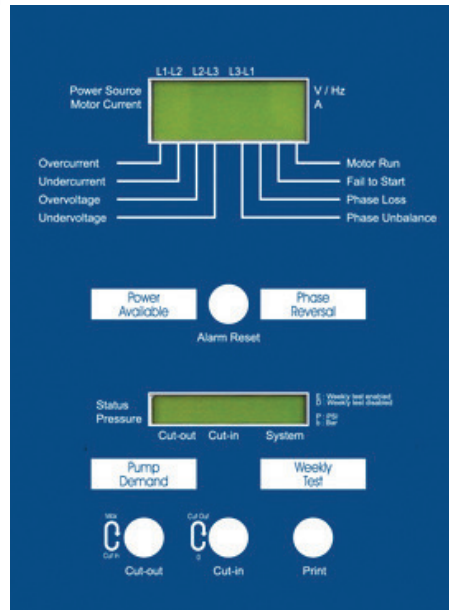
Provides for:

- Phase sequence / Loss monitoring & alarms
- Individual phase-to-phase voltage indication
- Individual phase current indication
- True elapsed run time
- Motor run visual indication
- Over & under current visual indication
- Over & under voltage visual indication
- Fail to start visual indication
- Phase loss visual indication
- Phase unbalance visual indication
- Power available LED
- Phase reversal LED

#### Pressure and Sequencer module

Provides for:

- Cut-In & Cut-Out pressure setting
- System pressure indication
- Run period timer
- Sequential start timer
- Weekly test setting
- Pressure recording
- Alarm & events recording
- Pump on demand LED
- Weekly test LED
- USB slave communication port
- Printer (optional)
- Modem (optional)



#### Type D: MISCELLANEOUS

Option D1: **Low suction pressure switch** for fresh water mounted inside the controller. (See Options B7 and C5.)

Option D10: **Mounting feet**

Option D11: **NEMA 4 - assembly** for pump section only.

Option D12: **NEMA 4X - assembly** for pump section only.

Option D13: **High withstand rating** for fire pump section only. 65 kA for 380V. to 480V. ; 25 kA for 600V.

Option D17A: **Printer**

Option D18: **CE listing**

Option D19: **French labeling**

Option D20: **Spanish labeling**

Option D21: **Labeling in language other than English, French or Spanish**

Option D22: **NEMA 3 - assembly** for pump section only.

Option D23: **NEMA 12 - assembly** for pump section only.

#### Type H: EXPORT PACKING

Option H1: Export packing for 1 controller Model GPL

# LIMITED SERVICE PUMP CONTROLLER

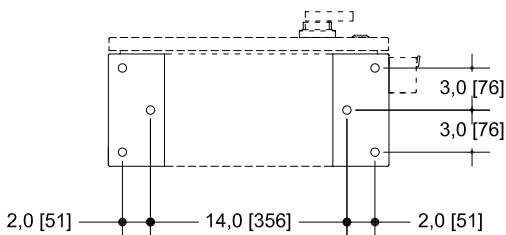
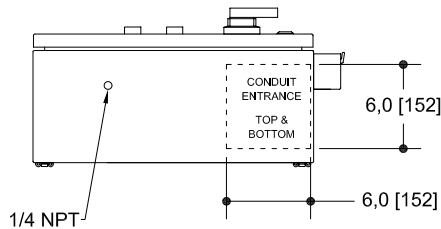
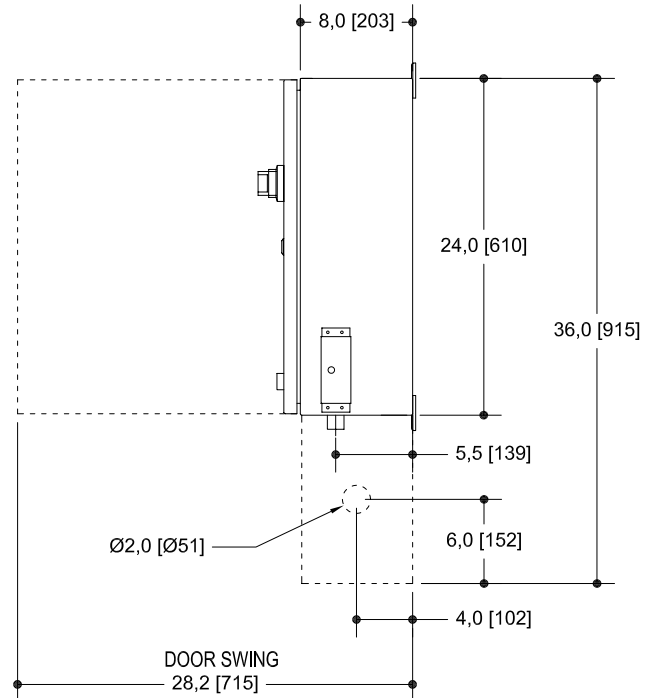
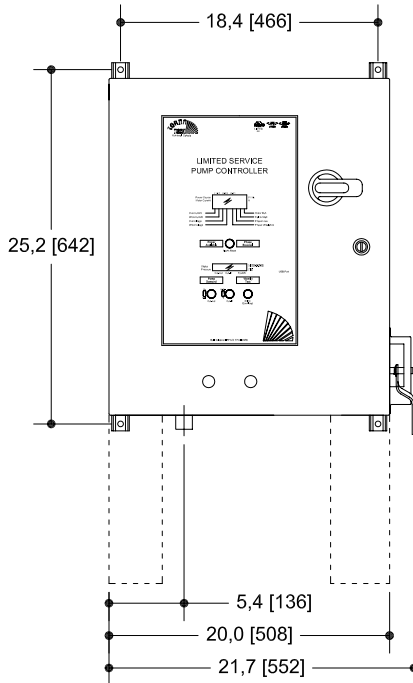
MODEL : GPL

## 1 AND 3 PHASES

### Dimensions

BUILT TO LATEST NFPA 20 STANDARD EDITION

This controller meets the NFPA 20 requirements for connection to a normal power supply only.  
For normal & alternate power supply add a listed fire pump automatic transfer switch (Model GLU or GLG)



### NOTES :

- ALL DIMENSIONS ARE IN INCHES (MILLIMETERS).
- FINISHED FIRE PUMP RED.
- BOTTOM CONDUIT ENTRANCE RECOMMENDED.
- USE WATERTIGHT CONDUIT CONNECTOR ONLY.
- PROTECT EQUIPMENT AGAINST DRILLING CHIPS.
- AMBIANT TEMPERATURE : BETWEEN 41°F (5°C) AND 122°F (50°C).
- FOR ELECTRICAL RATING & OPTIONS INCLUDED, SEE RATING LABEL.

VOLT/Hz	HP RATING		WITHSTAND RATING [kA] RMS	
	MIN HP	MAX HP	STANDARD	HIGH (OPT. D13)
<b>1 PHASE</b>				
200-208 / 60	3 HP	15 HP	65kA	65kA
230-240 / 50-60	3 HP	15 HP	65kA	65kA
<b>3 PHASES</b>				
200-208 / 60	3 HP	30 HP	65kA	65kA
230-240 / 50-60	3 HP	30 HP	65kA	65kA
380-415 / 50-60	3 HP	30 HP	25kA	65kA
440-480 / 50-60	3 HP	30 HP	25kA	65kA
575-600 / 60	3 HP	30 HP	18kA	25kA

NEMA 2 ENCLOSURE (STD)

SHIPPING WEIGHT

100 LBS - 46 KG

WALL MOUNT. (STANDARD)

FEET MOUNT.(OPT. D10)

Drawing for information only.

Manufacturer reserves the right to modify this drawing without notice.

For drawing for approval or installation, please contact manufacturer.



GPLDIM

REV.	DATE	DESCRIPTION	APP.
0.	06/07/10	FIRST ISSUE	

DRAWING No.

GPL-DI001/E

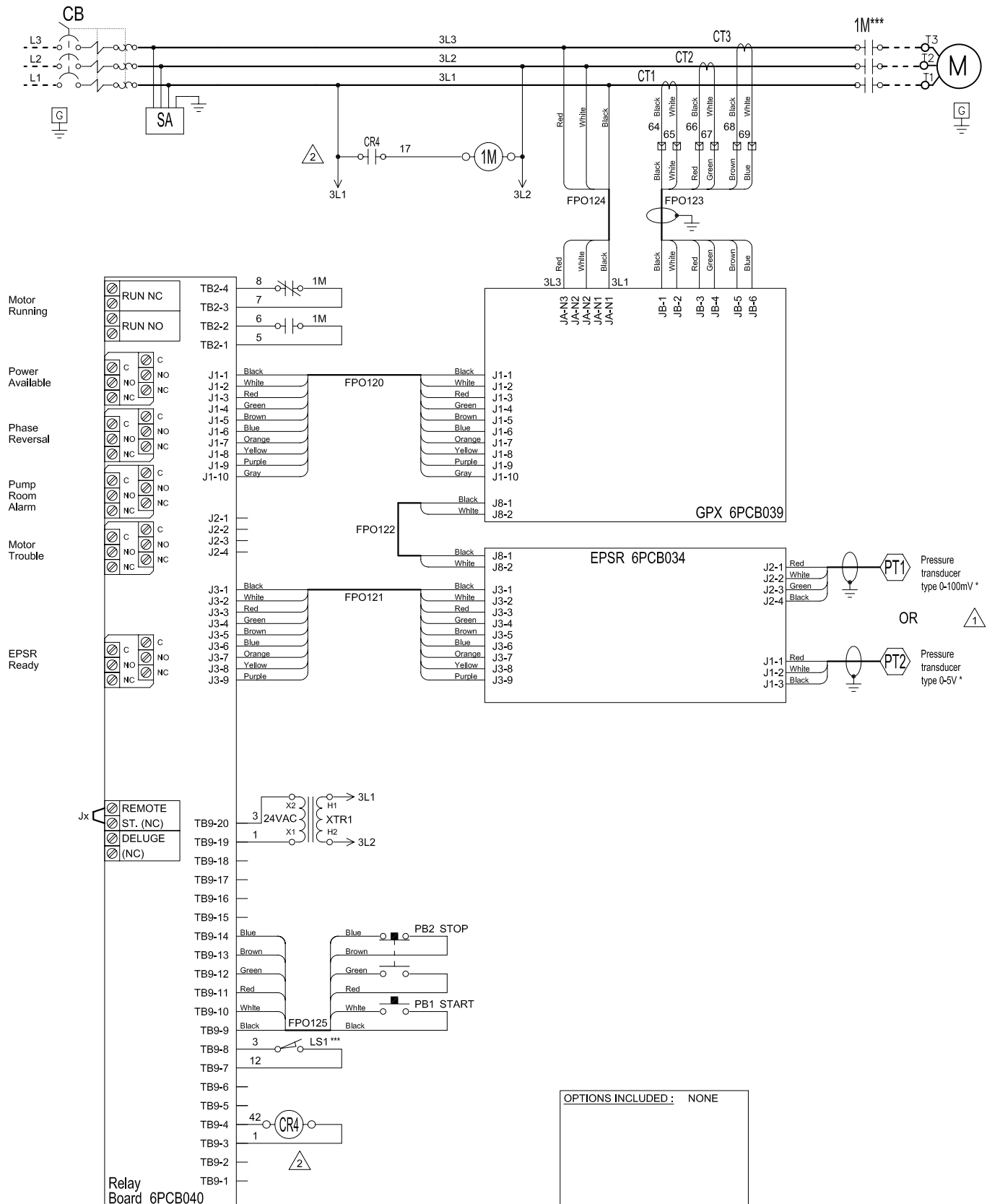
# LIMITED SERVICE CONTROLLER

## 3 PHASES

Wiring schematic

MODEL : GPL

BUILT TO LATEST NFPA 20 STANDARD EDITION



Drawing for information only.  
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\* Only 1 transducer is installed  
\*\*\* Contact closed when Emergency Start is in ON position

A



GPLWS	2.	07/11/29	RELAY & CONT. RENAM.	A	DES.	Drawing No.
	1.	07/04/13	PT2		VER.	GPL-WS031 / E
REV.	DATE		DESCRIPTION	APP.		Options included : NONE

# LIMITED SERVICE CONTROLLER

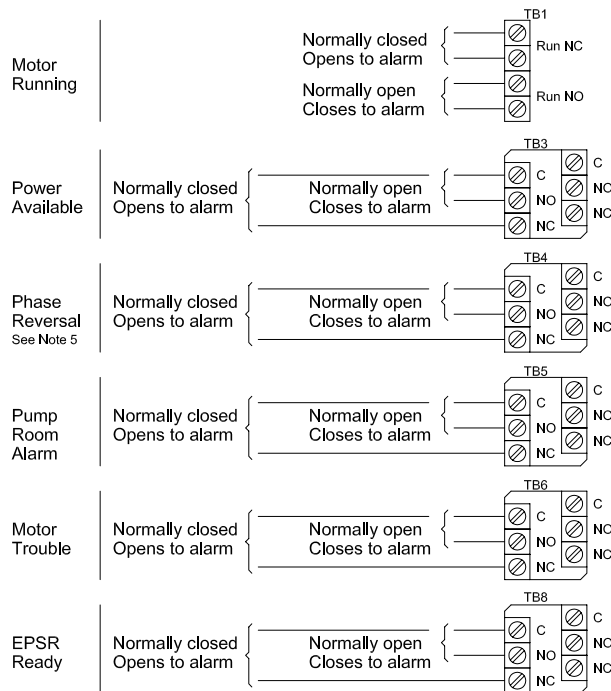
## 1 or 3 PHASES

Terminal diagram

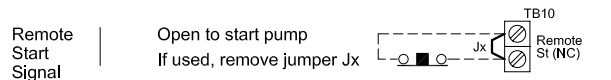
MODEL : GPL

BUILT TO LATEST NFPA 20 STANDARD EDITION

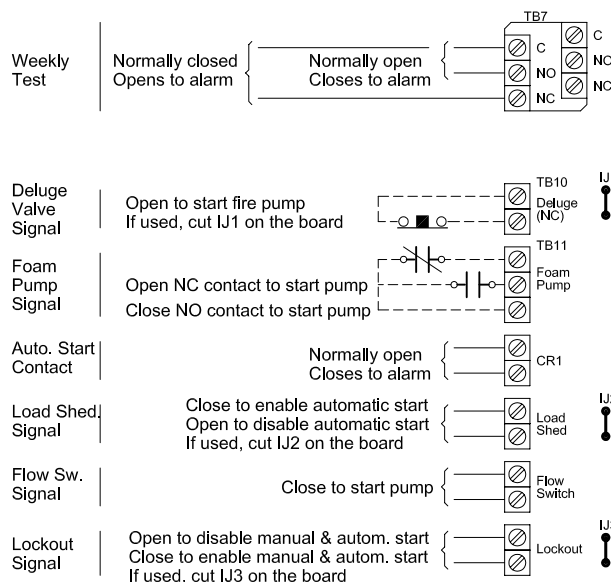
### Remote Alarm Terminal Blocks



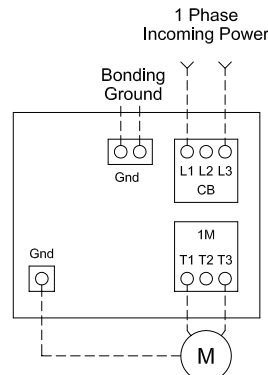
### Control Terminal Block



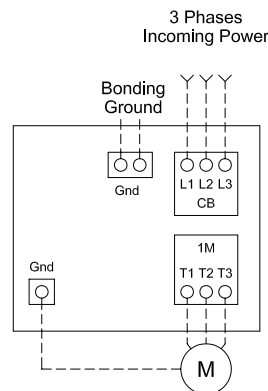
### Optional Terminal Blocks



### Power Terminals for GPL - 1 Phase



### Power Terminals for GPL - 3 Phases



MAXIMUM MOTOR HORSEPOWER								LINE SIDE		LOAD SIDE	
MODEL 1 PHASE				MODEL 3 PHASES				LINE TERMINALS	MAXIMUM WIRE SIZE (*)	LOAD TERMINALS	MAXIMUM WIRE SIZE (*)
200-208V	220-240V	200-208V	220-240V	380-416V	440-480V	550-600V		10 to 1/0 AWG	1 AWG	10 to 3 AWG	3 AWG
7.5	7.5	15	15	30	30	30		3 to 3/0 AWG	1 AWG	14 to 2/0 AWG	1 AWG
15	15	25	30	-	-	-		14 to 1/0 AWG	1 AWG	14 to 2/0 AWG	1 AWG
-	-	30	-	-	-	-					

(\*) : Maximum wiring size only for wire entering the cabinet in wall opposite the terminals  
For wires entering from others walls use maximum line terminal capacities.

GROUND TERMINAL	MOTOR GROUND LUG	BENDING SPACE	
		INCH	mm
14 to 1/0 AWG	14 to 6 AWG	3	76

(\*\*) : Ground terminal suitable for service entrance bonding & grounding, when accepted by authority having jurisdiction.

#### Notes:

- 1 - For proper wire sizing, refer to NFPA20 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.
- 5 - For GPL 1 phase, phase reversal relay is always off.

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