

Project:	
Customer:	
Engineer:	
Pump Manufacturer:	

Technical Data Submittal Document

## Model GPL+GLU

Limited Service Full Service Across the Line Start Electric Fire Pump Controller with Automatic Power Transfer Switch



**Contents:** Data Sheets Dimensional Data Wiring Schematics Field Connections

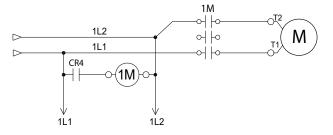
Note: The drawings included in this package are for controllers covered under our standard offering. Actual AS BUILT drawings may differ from what is shown in this package.





# Model GPL+GLU Electric Fire Pump Controller with Automatic Power Transfer Switch

From Automatic Power Transfer Switch\*





	Built to NFPA 20 (latest edition)		
Standard, Listings,	Underwriters Laboratory (UL)	<ul> <li>UL218 - Fire Pump Controllers</li> <li>UL 1008 - Automatic power transfer switches for fire pump controllers</li> </ul>	
Approvals and Certifications	New York City	Accepted for use in the City of New York by the Department of Buildings	
Certifications	Optional		
	CE Mark	Various EN, IEC & CEE directives and standards	
Enclosure	NEMA 3 NEMA 3 NEMA 4	<ul> <li>NEMA 4X-304 sst painted</li> <li>NEMA 4X-304 sst brushed finish</li> <li>NEMA 4X-316 sst painted</li> <li>NEMA 4X-316 sst brushed finish</li> </ul>	
	Accessories • Bottom entry gland plate • Lifting Lugs • Keylock handle	Paint Specifications• Red RAL3002• Powder coating• Glossy textured finish	

Shortcircuit	120V to 240V - 1ph - 60Hz				
Withstand Rating	Normal Power	Alternate Power			
Standard	100,000A				

\*Please see Disconnecting Means details on page 3



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Limitations	<ul> <li>Across the line starting only</li> <li>Horsepower rating of maximum 30hp</li> <li>Can only be installed where acceptable by the authority having jurisdiction</li> <li>Not accepted in FM insured property</li> </ul>		
Ambient Temperature Rating	Standard:       Optional:         □       4°C to 40°C / 39°F to 104°F       □       4°C to 55°C / 39°F to 131°F         Controllers built in Dubai, UAE (Tornatech FZE) are supplied standard with 55°C rating.		
Surge Suppression	Surge arrestor rated to suppress surges above line voltage		
Disconnecting Means	<ul> <li>Door interlocked in the ON position</li> <li>Circuit breaker continuous rating not less than 115% of motor full load current</li> <li>Overcurrent sensing non-thermal type, magnetic only</li> <li>Instantaneous trip setting of not more than 20 times the motor full load current</li> <li>Common flange mounted operating handle</li> </ul>		
Service Entrance Rating	Suitable as service entrance equipment		
Emergency Start Handle	<ul> <li>Flange mounted</li> <li>Pull and latch activation</li> <li>Integrated limit switch</li> <li>Across the line start (direct on line)</li> </ul>		
Locked Rotor Protector	<ul> <li>Operate shunt trip to open circuit breaker</li> <li>Factory set at 600% of motor full load current</li> <li>Trip between 8 and 20 seconds</li> </ul>		
Electrical Readings	<ul> <li>Voltage phase to phase (normal power)</li> <li>Amperage of each phase when motor is running</li> </ul>		
Pressure Readings	<ul> <li>Continuous system pressure display</li> <li>Cut-in and Cut-out pressure settings</li> </ul>		
Pressure and Event recorder	<ul> <li>Pressure readings with date stamp</li> <li>Event recording with date stamp</li> <li>Under regular maintained operation, events are stored in memory for the life of the controller.</li> <li>Data viewable on operator interface display screen</li> <li>Downloadable by USB port to external memory device</li> </ul>		
Pressure Sensing	<ul> <li>Pressure transducer and run test solenoid valve assembly for fresh water application</li> <li>Pressure sensing line connection 1/2" Female NPT</li> <li>Drain connection 3/8"</li> <li>Rated for 0-500PSI working pressure (standard display at 0-300PSI)</li> <li>Externally mounted with protective cover</li> </ul>		



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Audible Alarm	Alarm buzzer - 85 dB at 10ft.	(3m)	
Visual Indications	<ul><li>Motor run</li><li>Periodic test</li></ul>	<ul> <li>Deluge valve start</li> <li>Remote automatic start</li> <li>Remote manual start</li> <li>Emergency start</li> </ul>	<ul> <li>Pump on demand/Automatic start</li> <li>Pump room temperature (°F or °C)</li> <li>Lockout</li> </ul>
Visual & Audible Alarms	Visual only • Alternate lock rotor current • Alternate power phase reve • Automatic transfer switch tr • Control voltage not healthy • Invalid cut-in • Lock rotor current • Loss of power • Low ambient temperature Visual and Audible • ACB in OFF or tripped • Alternate IS tripped/open • Fail to start	ouble • Normal power phase revers	<ul> <li>Pressure transducer fault detected</li> <li>Pump on demand</li> <li>Sal Pump room alarm</li> <li>Service required</li> <li>Undercurrent</li> <li>Undervoltage</li> <li>Check weekly test solenoid</li> <li>Weekly test cut-in reached</li> </ul>
Remote Alarm Contacts	DPDT-8A-250V.AC • Power available • Phase reversal • Motor run • Common pump room a • Overvoltage • Undervoltage • Phase unbalance • Low pump room te • High Pump room te • High Pump room to • Common motor trouble • Overcurrent • Fail to start • Undercurrent • Ground fault • Free (field programmate	emperature (field re-assignable)**	

\*\*Tornatech reserves the right to use any of these three alarm points for special specific application requirements.



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ViZiTouch V2.1 Operator Interface	<ul> <li>Embedded microcomputer with software PLC logic</li> <li>7.0" color touch screen (HMI technology)</li> <li>Upgradable software</li> <li>Multi-language</li> </ul>			
Communication Protocol Capability	<ul> <li>Protocol: Modbus</li> <li>Connection type: Shielded female connector RJ45</li> <li>Frame Format: TCP/IP</li> <li>Addresses: See bulletin MOD-GPx</li> </ul>			
	Automatic Start	<ul> <li>Start on pressure drop</li> <li>Remote start signal from</li> <li>Deluge valve start</li> </ul>	automatic device	
	Manual Start	<ul> <li>Start pushbutton</li> <li>Run test pushbutton</li> <li>Remote start from manual device</li> </ul>		
Operation	Stopping	<ul> <li>Manual with Stop pushbutton</li> <li>Automatic after expiration of minimum run timer ***</li> </ul>		
	Timers	Field Adjustable & Visual Countdown	<ul> <li>Minimum run timer ***(off delay)</li> <li>Sequential start timer (on delay)</li> <li>Periodic test timer</li> </ul>	
	Actuation	Visual Indication	Pressure     Non-pressure	
	Mode		Automatic     Non-automatic	

\*\*\*Can only be used if approved by the AHJ



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	Surge Suppression	Surge arrestor rated to suppress surges above line voltage	
	Disconnecting Means	<ul> <li>Door interlocked in the ON position</li> <li>Circuit breaker continuous rating not less than 115% of motor full load current</li> <li>Overcurrent sensing non-thermal type, magnetic only</li> <li>Instantaneous trip setting of not more than 20 times the motor full load current</li> <li>Common flange mounted operating handle</li> </ul>	
	Locked Rotor Protector	<ul> <li>Operate shunt trip to open circuit breaker</li> <li>Factory set at 600% of motor full load current</li> <li>Trip between 8 and 20 seconds</li> </ul>	
	Visual Indications	<ul> <li>Alternate (emergency) isolating switch in the OFF position</li> <li>Alternate (emergency) voltage phase to phase</li> <li>Transfer switch in normal position</li> <li>Transition timers</li> </ul>	
	Visual Alarms	<ul> <li>Transfer switch trouble</li> <li>Alternate power phase reversal</li> <li>Alternate isolating switch open/tripped</li> <li>Alternate circuit breaker open/tripped</li> <li>Alternate side locked rotor current</li> </ul>	
	Transfer switch test p	pushbutton	
Automotic Dowor	Bypass for re-transfe	r and generator shutdown	
Automatic Power Transfer Switch	Electrically operated and mechanically held in the normal or alternate position		
	Provision for manual	operation	
	Transfer switch i	in the OFF position	
	<ul> <li>Time Delays</li> <li>Momentary normal power outage override (factory set at 3 sec - field adjustable 1 to 3 sec)</li> <li>Alternate (emergency) power available delay (factory set at 3 sec - field adjustable 1 to 3 sec)</li> <li>Transfer trouble delay (factory set at 20 sec - field adjustable 1 to 60 sec)</li> <li>Retransfer to normal (factory set at 5 min - field adjustable 1 to 20 min)</li> <li>Generator cooldown (factory set at 5 min - field adjustable 1 to 20 min)</li> </ul>		
	Voltage Sensing <ul> <li>Transfer to alter</li> <li>Phase reversal to</li> </ul>	nate (normal power dropout) 85% of nominal - field adjustable 0 to 100% transfer to alternate rmal (normal power pickup) 90% of nominal - field adjustable 0 to 100%	
	Audible Alarm (AIS Alarm buzzer - 85		
	Generator Start Con SPDT-8A-250V.A		



## **Technical Data** Model GPL+GLU Electric Fire Pump Controller with Automatic Power Transfer Switch

A4	Flow switch provision	C18	High water reservoir level c/w visual indication and alarm contact (DPDT)
A8	Foam pump application w/o pressure transducer and run test solenoid valve.	C19	Emergency start alarm contact (DPDT)
A9	Low zone pump control function	C20	Manual start alarm contact (DPDT)
A10	Middle zone pump control function	C21	Deluge valve start alarm contact (DPDT)
A11	High zone pump control function	C22	Remote automatic start alarm contact (DPDT)
A13	Non-pressure actuated controller w/o pressure transducer and run test solenoid valve	C23	Remote manual start alarm contact (DPDT)
A16	Lockout/interlock circuit from equipment installed inside the pump room	C24	High pump room temperature alarm contact (DPDT)
	Built in alarm panel (120V.AC supervisory	C25	Second set of standard alarm contacts (DPDT) (Typical for city of Los Angeles and Denver)
□ B11	power) providing indication for: • Audible alarm & silence pushbutton for motor run, phase reversal, loss of phase.	Сх	Additional visual and alarm contact(Specify function) (DPDT)
	<ul> <li>Pilot lights for loss of phase &amp; supervisory power available</li> <li>Built in alarm panel same as B11 but 220-</li> </ul>	D1	Low suction pressure transducer for fresh water rated at 0-300PSI with visual indication and alarm contact
□ B11B	240VAC supervisory power	544	Low suction pressure transducer for sea water
🔲 B19A	High motor temperature c/w thermoster relay and alarm contacts (DPDT)	D1A	rated at 0-300PSI with visual indication and alarm contact
B19B	High motor temperature c/w PT100 relay and alarm contacts (DPDT)	D13A	High withstand rating for (normal power section) • 380v to 480v=65ka   • 600v = 25ka
□ B21	Ground fault alarm detection c/w visual indication and alarm contact (DPDT)	D14	Anti-condensation heater & thermostat
C1	Extra motor run alarm contact (DPDT)	D14A	Anti-condensation heater & humidistat
<u> </u>	Periodic test alarm contact (DPDT)		Anti-condensation heater & thermostat &
C6	Low discharge pressure alarm contact (DPDT)	D14B	humidistat
C7	Low pump room temperature alarm contact (DPDT)	D15	Tropicalization
C10	Low water reservoir level alarm contact	D18	CE Mark with factory certificate
 C11	(DPDT) High electric motor temperature alarm contact	D26	Modbus with RTU frame format and RS485 connection
 C12	(DPDT) High electric motor vibration c/w visual	D27	Motor heater connection (external single phase power source and heater on/off contact)
□ □ □ □	indication and alarm contact (DPDT) Pump on demand / automatic start alarm	D27A	Motor heater connection (internal single phase power source and heater on/off contact)
C15	contact (DPDT) Pump fail to start alarm contact (DPDT)	D28	Customized drawing set
C15	Control voltage healthy alarm contact (DPDT)	D34A	Field programmable I/O board - 5 Input / 5 output
C17	Flow meter valve loop open c/w visual indication and alarm contact (DPDT)	D36	Redundant pressure transducer for fresh water rated for 0-500PSI

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

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D36A	Redundant pressure transducer for sea water rated for 0-500PSI
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)
F6A	High withstand rating for (model GLU only) : 380v to 480v=65ka • 600v=25ka

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
L21	Danish
L22	Greek
L23	Arabic
L24	Hebrew
L25	Chinese

### Additional Options:

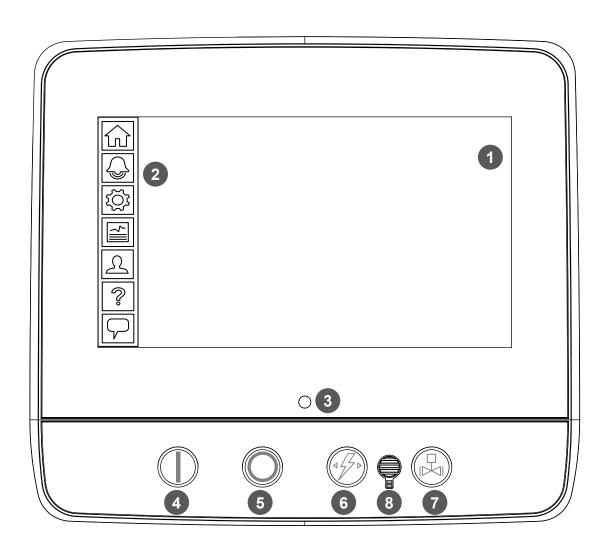
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Iechnical Data Model GPL+GLU Electric Fire Pump Controller with Automatic Power Transfer Switch

## ViZiTouch V2.1 Operator Interface





- 1 Color touch screen
- 2 Onscreen menu
  - HOME page
  - ALARM page
  - CONFIGURATION page
  - HISTORY page
  - SERVICE page
  - MANUAL page
  - LANGUAGES page

- 3 Power LED (3 colors)
- 4 START button
- 5 STOP button
- 6 TRANSFER SWITCH TEST button
- 7 RUN TEST button
- 8 Alarm buzzer

