TORNATECH
LISTEN DEVELOP LEAD

GPx

Options For Full Service Electric Fire Pump Controllers

Standard Features

- ViZiTouch 2.1 operator interface
- Pressure and event recorder
- Voltage and amperage display
- Single operator for both isolating switch and circuit breaker
- Surge arrestor
- Lifting lugs
- Run test push button
- Available with automatic power transfer switch
- Emergency start handle
- Start and stop pushbuttons
- Locked rotor protector
- Phase reversal indication
- Remote start / deluge valve start provision
- Pressure transducer and run test solenoid valve externally mounted
- Gland plate
- Alarm buzzer
- Alarm contacts for remote indication
- Available with full voltage and reduced voltage starting

Starting Methods

- Model GPA - Across-the-line
- Model GPY - Wye-Delta Open
- Model GPP - Partwinding
- Model GPR - Autotransformer
- Model GPW - Wye-Delta Closed
- Model GPS - Soft Start Soft Stop

	Tornatech Inc Laval, Canada	Tornatech Europe SA Mont-Saint-Guibert, Belgium	Tornatech FZE Dubai, UAE
Standard Enclosure Rating	NEMA 2	IP55	NEMA 2
CE	Optional	Standard	Optional
SEISMIC COMPLIANT	Optional	Optional	Optional

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FM APPROVED

This document describes our standard options. Please consult factory for any additional options / features / modifications if required.

Modifications / additions to basic sequence of operation

A4 Flow switch provision

Option required when the fire pump is required to start upon the detection of a water flow prior to a pressure drop. The fire pump can be stopped when both pressure and flow conditions are satisfied.

A13 Non-pressure actuated controller w/o pressure transducer and run test solenoid valve

Option required for non-pressure actuated application as per:

NFPA20 - 10.5.2.2 Nonpressure Switch-Actuated Automatic Controller *

A16 Lockout / Interlock circuit from equipment installed inside the fire pump room

Option required when two fire pumps or more are hydraulically connected in parallel in order to provide 100% redundancy (lead / stand-by) and the system is designed for only one fire pump to run at once (pumps cannot run simultaneously automatically).

D1 Low suction pressure transducer for fresh water rated for 0-300psi with visual indication and alarm contact

D1A Low suction pressure transducer for sea water rated for 0-300psi with visual indication and alarm contact

Options D1 & D1A are required when the suction pressure is required to be monitored. The fire pump controller is supplied with a pressure transducer that is required to be hydraulically connecting to the suction of the fire pump. Low suction pressure setting and reset pressure setting can be set in the "Suction Pressure" menu of the ViZiTouch. Note: Alarm only. The fire pump will not shutdown in a low suction condition.

D5 Pressure transducer and run test solenoid valve for fresh water rated for 0-500psi (for factory calibration purposes only)

D5D Pressure transducer and run test solenoid valve for sea water rated for 0-500psi

D36 Redundant pressure transducer for fresh water rated for 0-500psi (no longer available)

D36A Redundant pressure transducer for sea water rater for 0-500psi (no longer available)

Options D36 & D36A are required when redundancy of the electronic pressure sensor (pressure transducer) is required. The fire pump controller is supplied with additional pressure transducer providing a back-up to the main pressure transducer.

Additive (Foam) Pump Controllers

Additive (Foam) Pump Controllers are typically designed for use in buildings where flammable or combustible liquids are present such as aircraft hangers, petro-chemical and hazardous waste facilities.

Choose one of the following configurations:

A8 Foam pump application w/o pressure transducer and run test solenoid valve

Option required for foam pump (additive pump) application as per:

NFPA20 – 10.9.2 Automatic Starting. In lieu of pressure-actuated switch described in 10.5.2.1, automatic starting shall be capable of being accomplished by the automatic opening of a closed circuit loop containing this fire protection equipment.*

A8A Foam pump application with pressure transducer and run test solenoid valve

Add any of the following options if required:

D40 Dump valve circuity for foam (additive) pump application

Cx79 Low foam additive pressure c/w visual indication and alarm contact (DPDT)

Options required for series fire pump unit as per NFPA20 - 3.3.42 Series Fire Pump Unit*

A9 Low zone pump control function

Option required when two (2) fire pumps or more are hydraulically connected in series in order to prevent the high zone fire pump(s) from starting before the low zone fire pump is running. (Installed in the low zone controller.)

A10 Medium zone pump control function

Option required when three (3) fire pumps or more are hydraulically connected in series in order to prevent the high zone fire pump from starting before both the low zone fire pump and sequentially the middle zone fire pump are running. (Installed in the middle zone controller.)

A11 High zone pump control function

Option required when two (2) fire pumps or more.

Additional visual and/or alarm contacts for remote indications

The visual indication of an alarm condition will appear as text in the middle of the green bar on the top of the touch screen. The text will be color coded (yellow or red) in reference to the criticalness of the condition. If an alarm contact (Form C – SPDT) is also supplied, it will change state if the alarm condition occurs.

B19A **High motor temperature c/w thermoster relay and alarm contacts (DPDT)**

B19B **High motor temperature c/w PT100 relay and alarm contacts (DPDT)**

B21 **Ground fault alarm indication c/w visual indication and alarm contact (DPDT)**

C1 **Extra motor run alarm contact (DPDT)**

C4 **Periodic test alarm contact (DPDT)**

C6 **Low discharge (system) pressure alarm contact (DPDT)**

C7 **Low ambient pump room temperature alarm contact (DPDT)**

C10 **Low water level alarm contact (DPDT)**

C11 **High motor temperature alarm contact (DPDT)**

C12 **High vibration c/w visual indication and alarm contact (DPDT)**

C14 **Pump on demand/automatic start alarm contact (DPDT)**

C15 **Pump fail to start alarm contact (DPDT)**

C16 **Control voltage healthy alarm contact (DPDT)**

C17 **Flow meter loop valve open c/w visual indication and alarm contact (DPDT)**

C18 **High water level c/w visual indication and alarm contact (DPDT)**

C19 **Emergency start alarm contact (DPDT)**

C20 **Manual start alarm contact (DPDT)**

C21 **Deluge valve start alarm contact (DPDT)**

C22 **Remote automatic start alarm contact (DPDT)**

C23 **Remote manual start alarm contact (DPDT)**

C24 **High pump room temperature alarm contact (DPDT)**

C25 **Second set of standard alarm contacts (DPDT) (typical for city of Los Angeles and Denver)**

Cx **Other addition alarm contact (DPDT) (specify function)**

D34A **Field programmable i/o board - 5 input/5 output**

(NOTE: if more than 5 input or 5 output are required, please order this option as many times as required (max.8))

Independent alarm monitoring for remote annunciation

Option required when the minimum alarm conditions to be monitored as per NFPA20 are required to be independently monitored by an alarm panel that is built into the fire pump controller and energized by an independent single phase power supply.

B11 **Built in alarm panel (120VAC supervisory power) providing indication for:**

Audible alarm & silence pushbutton for:
- Motor run
- Phase reversal
- Loss of power
- Pilot lights for loss of phase & supervisory power available

B11B **Built in alarm panel same as above but 220-240VAC supervisory power**

Enclosure assembly ratings

Standard paint specifications (does not apply to brushed finish enclosures):

- Red RAL3002
- Powder coated / glossy textured finish

NEMA Type		Option	
		w/o tr. sw	with tr. sw
NEMA 3R		D22	F3
NEMA 3		D29	F13
NEMA 4		D11	F4
NEMA 12		D23	F8
NEMA 4X Stainless Steel	304 Painted	D12	F5
	304 Brushed	D12B	F5B
	316 Painted	D12C	F5C
	316 Brushed	D12A	F5A

IP Type	Option	
	w/o tr. sw	with tr. sw
IP54	D30	F9
IP55	D31	F10
IP65	D32	F11
IP66	D33	F12

NEMA 4 enclosures constructed for either indoor or outdoor use to provide a degree of protection to personnel against access to hazardous parts; to provide a degree of protection of the equipment inside the enclosure against ingress of solid foreign objects (falling dirt and windblown dust); to provide a degree of protection with respect to harmful effects on the equipment due to the ingress of water (rain, sleet, snow, splashing water, and hose directed water); and that will be undamaged by the external formation of ice on the enclosure. **NEMA 4X** enclosures provide an additional level of protection against corrosion.***

NEMA 3R enclosures constructed for either indoor or outdoor use to provide a degree of protection to personnel against access to hazardous parts; to provide a degree of protection of the equipment inside the enclosure against ingress of solid foreign objects (falling dirt); to provide a degree of protection with respect to harmful effects on the equipment due to the ingress of water (rain, sleet, snow); and that will be undamaged by the external formation of ice on the enclosure. ***

Stainless Steel
Brushed Finish

NEMA 12 enclosures constructed (without knockouts) for indoor use to provide a degree of protection to personnel against access to hazardous parts; to provide a degree of protection of the equipment inside the enclosure against ingress of solid foreign objects (falling dirt and circulating dust, lint, fibers, and flyings); and to provide a degree of protection with respect to harmful effects on the equipment due to the ingress of water (dripping and light splashing). ***

NEMA 3 enclosures constructed for either indoor or outdoor use to provide a degree of protection to personnel against access to hazardous parts; to provide a degree of protection of the equipment inside the enclosure against ingress of solid foreign objects (falling dirt and windblown dust); to provide a degree of protection with respect to harmful effects on the equipment due to the ingress of water (rain, sleet, snow); and that will be undamaged by the external formation of ice on the enclosure. ***

IP54 dust protected - Ingress of dust is not entirely prevented, but it must not enter in sufficient quantity to interfere with the satisfactory operation of the equipment; complete protection against contact. Splashing water - Water splashing against the enclosure from any direction shall have no harmful effect.**

IP55 dust protected - Ingress of dust is not entirely prevented, but it must not enter in sufficient quantity to interfere with the satisfactory operation of the equipment; complete protection against contact. Water jets - Water projected by a nozzle (6.3mm) against enclosure from any direction shall have no harmful effects.**

IP65 dust tight - No ingress of dust; complete protection against contact. Water jets - Water projected by a nozzle (6.3mm) against enclosure from any direction shall have no harmful effects.**

IP66 dust tight - No ingress of dust; complete protection against contact. Powerful water jets - Water projected in powerful jets (12.5mm nozzle) against the enclosure from any direction shall have no harmful effects.**

D10 **Omit mounting feet (when applicable)**
Option required when the fire pump controller is to be wall mounted or mounted on upright supports on a fire pump package. Only applicable to the following HP and Voltage selections.

All Models With or Without Automatic Transfer Switch	
Voltage	**Horsepower**
208V	5-30
220V - 240V	5-30
380V - 415V	5-60
440V - 480V	5-60
600V	5-75

Short circuit withstand ratings*

Option required when the short circuit withstand rating of the installation is higher than the standard supply.

HP	200V to 208V 50/60Hz/3ph		220V to 240V 50/60Hz/3ph		380V to 415V 50/60Hz/3ph		440V to 480V 50/60Hz/3ph		575V to 600V 60Hz/3ph	
	Intermediate	High	Intermediate	High	Intermediate	High	Intermediate	High	Intermediate	High
w/o tr. sw	D13	D13B	D13	D13B	D13	D13B	D13	D13B	D13	D13B
with tr. sw	F6	F6B	F6	F6B	F6	F6B	F6	F6B	F6	F6B
≤150	150kA	200kA	150kA	200kA	150kA	200kA	150kA	200kA	100kA	-
200	100kA	-								
250	-	-	100kA	-						
300	-	-	-	-	100kA	-				
350	-	-	-	-		-				
400	-	-	-	-		-				
450	-	-	-	-		-	100kA	-		
500	-	-	-	-		-		-		

Note: *Only applicable to GPx Series.

Heaters for enclosure assembly or electric motor

Options recommended when the fire pump controller is installed in an environment other than described in NFPA20 – 4.12.1.1.*

D14 **Anti-condensation heater & thermostat***

(add option F2 for transfer switch)

D14A **Anti-condensation heater & humidistat***

(add option F2A for transfer switch)

D14B **Anti-condensation heater & thermostat & humidistat***

(add option F2B for transfer switch)

D15 **Tropicalization**

Option required when the fire pump controller is installed in an environment where electronic components and electrical coils require additional protection. Recommended as complimentary option to options D14, D14A and D14B and/or if the fire pump controller is installed in a hot and humid environment.

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, specify WATTS)**

Options D27 & D27A are required when recommended by the electric motor manufacturer.

Additional certifications

D18 **CE Mark with factory certificate**

Option required when the fire pump controller is to be installed in a country that requires the fire pump controller to meet the following CE standards:

- EN 60439-1: Low-Voltage Equipment Assemblies
- EN 45014: General Criteria for Declaration of Conformity
- 89/336/CEE: ElectroMagnetic Compatibilities Guidelines
- 73/23/CEE: Electrical Equipment Guidelines
- 93/68/CEE: Guidelines Modifications (CE Marking)

D43 **Seismic Certification compliant to CBC 2019, IBC 2018 rigid base/wall mounted only (with or without transfer switch)**

D44 **Special Seismic Certification compliant to OSHPD rigid base/wall mounted only (with or wothout transfer switch)**

Ambient temperature ratings (with or without transfer switch)

Option required when the fire pump controller will be installed in a location that will have an ambient temperature in excess of 40°C (104°F).

D39 **Controller rated for 55°C ambient temperature* (add option F15 for transfer switch)**

Alternate power load shedding function (only available on fire pump controllers with automatic power transfer switch)

Load shedding is a control strategy applied when the generator cannot supply sufficient power for the fire pump to start and operate reliably. By selecting and automatically removing non-critical electrical loads, either temporarily during pump startup or permanently as needed, the available generator capacity is prioritized. This ensures the fire pump receives the required starting current and continuous operating power, maintaining system performance and reliability in a critical condition.

E1 **Permanent load shedding contacts**

The load shedding contacts change position when the fire pump controller is connected to the alternate power source, and the fire pump is called to start. The fire pump will start after a 3 second factory set delay or adjustable in the field to maximum 20 seconds. The contacts permanently inhibit the emergency loads to be energized.

E2 **Temporary pump motor start period load shedding contacts**

The load shedding contacts change position when the fire pump controller is connected to the alternate power source, and the fire pump is called to start inhibiting the emergency loads to be energized. The fire pump will start after a 3 second factory set delay or adjustable in the field to maximum 20 seconds. Once the fire pump starts and runs, the emergency loads are allowed to come on-line by de-energizing the load shedding contacts after the expiration of a timer (adjustable).

E3 **Temporary & permanent load shedding contacts**

A combination of option E1 and option E2 which the user can choose and activate on site.

Documentation

D28 **Customized drawing set (per controller)**

Option required when as-built drawings require additional information such as:

- Voltage
- Horsepower
- Ratings
- Tag numbers
- Special title block
- Special layout (if different than Tornatech standard)

Export Crating

Option required when the fire pump controller will be exposed to the elements during transportation.

H1 **Export packing 1 for fire pump controller without transfer switch**

H2 **Export packing for 1 controller fire pump controller with transfer switch**

Export Packing

Regular Packing

Languages

Option required when the fire pump controller's documentation (i.e. external and internal labels, drawings and Installation, Operation and Maintenance Manual) is required to be in a language other than English.

L01 Other language and English (bilingual)

L02 French

L03 Spanish

L04 German

L05 Italian

L06 Polish

L07 Romanian

L08 Hungarian

L09 Slovakian

L10 Croatian

L11 Czech

L12 Portuguese

L13 Dutch

L15 Turkish

L16 Swedish

L21 Danish

L25 Chinese

L28 Finnish

L29 Norwegian

References:
* National Fire protection Association. NFPA20 Standard for the Installation of Stationary Pumps for Fire Protection. 2013 ed. Quincy, Massachusetts: One Batterymarch Park, 2013. Print.
** IP code reference IEC 60529
*** National Electrical Manufacturers Association. NEMA Standards Publication 250-2003, "Enclosures for Electrical Equipment (1000 Volts Maximum) NEMA Enclosure Types. NEMA Enclosures Section. Nov 2005. Rosslyn, VA. Web

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