

GPx

Options For Full Service Electric Fire Pump Controllers



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



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

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 circuitry for foam (additive) pump application

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

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 rated 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.

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 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.***

D11 NEMA 4 assembly (add option F4 for transfer switch)

D12 NEMA 4 assembly stainless steel-304 painted* (add option F5 for transfer switch)

D12A NEMA 4 assembly stainless steel-316 brushed finish* (add option F5A for transfer switch)

D12B NEMA 4 assembly stainless steel-304 brushed finish* (add option F5B for transfer switch)

D12C NEMA 4 assembly stainless steel-316 painted* (add option F5C for transfer switch)

D22 NEMA 3R assembly* (add option F3 for transfer switch)

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. ***

D23 NEMA 12 assembly* (add option F8 for transfer switch)

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). ***

D29 NEMA 3 assembly* (add option F13 for transfer switch)

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. ***

D30 IP54 assembly* (add option F9 for transfer switch)

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. **

D31 IP55 assembly* (add option F10 for transfer switch)

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. **

D32 IP65 assembly* (add option F11 for transfer switch)

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. **



Stainless Steel
Brushed Finish

D33 IP66 assembly* (add option F12 for transfer switch)

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.

D13 High short circuit withstand rating for GPx Series full service fire pump controller (add option F6 is also required on transfer switch):

Voltage	Optional Rating	Standard Rating
208V to 480V	150kA	100kA
600V	100kA	50kA

D13A High short circuit withstand rating for Model GPL limited service fire pump controller (add option F6A if also required on transfer switch):

Voltage	Optional Rating	Standard Rating
208V to 240V	N/A	65kA
380V to 480V	65kA	25kA
600V	25kA	18kA

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.

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)

Modbus Communication Connection Type

Standard supply is a TCP/IP type connection. Option required when the type of connection required is RTU (RS-485).

D26 Modbus RTU provision

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)

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

Option required when emergency loads are required to be inhibited from being energized (permanently or temporarily) in order to give priority to the starting of the fire pump.

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 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. 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



RTU (RS-485) type connection

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) | L14 Russian |
| L02 French | L15 Turkish |
| L03 Spanish | L16 Swedish |
| L04 German | L17 Bulgarian |
| L05 Italian | L18 Thai |
| L06 Polish | L19 Indonesian |
| L07 Romanian | L20 Slovenian |
| L08 Hungarian | L21 Danish |
| L09 Slovak | L22 Greek |
| L10 Croatian | L23 Arabic |
| L11 Czech | L24 Hebrew |
| L12 Portuguese | L25 Chinese |
| L13 Dutch | |

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

Note: The information contained in this brochure is subject to change without notice.

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