



## SPECIFICATIONS FOR MODEL GPD DIESEL ENGINE

### FIRE PUMP CONTROLLER

1. STANDARD, LISTING AND APPROVAL
  - 1 NFPA 20
  - 2 UL (UL218 and CSA C22.2 No. 14)
  - 3 FM Global (Class 1321/1323)
  - 4 City of New York for fire pump service
2. MANUFACTURER AND MODEL
  - 1 Tornatech Inc model GPD
3. SEISMIC CERTIFICATION
  1. Test Criteria
    - a. ICC-ES AC156
  2. Building Code
    - a. IBC 2015
    - b. CBC 2016
    - c. OSHPD Special Seismic Certification Preapproval – OSP
  3. Seismic Parameters
    - a. ASCE 7-10 Chapter 13
4. ENCLOSURE
  - 1 NEMA 2
  - 2 Bottom conduit entry gland plate
5. OPERATIONAL COMPONENTS
  - 1 Hand-OFF-Auto selector switch installed behind lockable breakable cover.
6. TOUCH SCREEN OPERATOR INTERFACE
  1. 4.2" LCD color touch screen (HMI technology) operator interface powered by an embedded microcomputer with software PLC logic
    - a. Crank from Battery #1
    - b. Crank from Battery #2
    - c. Stop
    - d. Run test
    - e. Navigation
    - f. Help
    - g. Home
    - h. Alarms
    - i. Settings/Configuration
    - j. History/Statistics
  2. Shall graphically display:
    - a. AC power present
    - b. Charger #1 and #2 charging mode
    - c. Battery #1 and #2 voltage and amperage
    - d. System pressure
    - e. Cut-out and cut-in pressure settings
    - f. Starter #1 and #2 rest or cranking
    - g. Engine stopped / running
    - h. Type of starting cause
    - i. Fuel solenoid valve energized / not energized
    - j. Timers counting
    - k. Hand-OFF-Auto selector switch position
    - l. Actuation mode
    - m. Type of controller
    - n. Method of shutdown
    - o. Time and date
    - p. Pump room temperature (°F or °C)
3. System pressure selectable units of measure:
  - a. PSI
  - b. kPa
  - c. Bar
  - d. Feet of head
  - e. Meter of water
4. Shall allow programming and display of:
  - a. Cut-In and Cut-Out pressure settings
  - b. Minimum run period timer
  - c. Sequential start timer
  - d. Periodic test timer
5. Shall allow to select the language of operation
6. Contextual HELP screens shall be accessible to the user while navigating through the operator interface in the chosen language.
7. COMMUNICATION PROTOCOL CAPABILITY
  - 1 Modbus with TCP/IP frame format and shielded female RJ45 connector
8. STATE AND ALARM VISUAL INDICATORS
  - 1 Shall visually indicate and differentiate the criticalness by color:
    - a. Engine run
    - b. Main switch in Hand, Off or Auto
    - c. AC present / failure
    - d. Battery #1 and battery #2 failure



FIRE PUMP CONTROLLER

- 
- e. Battery charger #1 and battery charger #2 failure
  - f. Low oil pressure
  - g. High engine temperature
  - h. Overspeed
  - i. Fail to start
  - j. Fail when running
  - k. Periodic test
  - l. System overpressure
  - m. Water reservoir low
  - n. Low system (discharge) pressure
  - o. Periodic test cut-in not reached
  - p. Run test solenoid valve check
  - q. Faulty pressure transducer
  - r. Pump on demand
  - s. Over pressure
  - t. Under pressure
  - u. Low pump room temperature
9. CRANK CYCLE
- 1 Crank from battery 1 for 15 seconds
  - 2 Rest for 15 seconds
  - 3 Crank from Battery 2 for 15 seconds
  - 4 Shall repeat 3 times. Visual alarm "Fail TO Start" shall appear if the engine does not start after the completion of this cycle.
10. PRESSURE AND EVENT RECORDING
- 1 Shall be capable of logging pressure data and operational events with time and date stamp
  - 2 Shall be able to display the last 500 operational events and display the pressure data in text and/or graphic form
  - 3 Data shall also be retrievable and downloadable to a flash memory disk via the USB port accessible to the user without having to open the controller door
    - a. Last service statistics
      - 1. Powered since
      - 2. On time
      - 3. Engine last run
      - 4. Engine run time
      - 5. Engine start count
- 6. Minimum, maximum, average system pressure
  - 7. Minimum, maximum, average pump room temperature
- b. All time statistic
    - 1. First power up
    - 2. First start up
    - 3. On time
  - c. Power statistics
    - 1. Battery voltage readings with date stamp
    - 2. Battery amperage readings with date stamp
11. PRESSURE SENSING - WETTED PARTS
- 1 Shall be supplied with a pressure transducer (system) and run test solenoid valve assembly rated for 500psi working pressure (calibrated at 0-300psi) and be externally mounted with a protective cover
  - 2 Pressure sensing line connection to the pressure transducer shall be ½" FNPT
  - 3 Provision for a redundant pressure transducer shall be provided
12. SERVICE/FLOW TESTING CAPABILITIES
- 1 Shall have the capability of scheduling maintenance reminders
  - 2 Shall also have the capability of inputting pump flow test data, generate and display the pump curve and store this information in memory for the lifetime of the controller.
13. CONNECTION FOR EXTERNAL DEVICES
- 1 Manual remote start device
  - 2 Automatic remote start device
  - 3 Deluge valve start
14. DPDT DRY CONTACTS FOR REMOTE INDICATION (8A – 250VAC):
- 1 Engine run
  - 2 Main switch in HAND or OFF
  - 3 Common controller trouble (fail safe)
  - 4 Common engine trouble (field re-assignable)
-



SPECIFICATIONS FOR  
**MODEL GPD** DIESEL ENGINE

FIRE PUMP CONTROLLER

---

- 5 Common pump room alarm (field re-assignable)
- 6 Field programmable
- 15. AUDIBLE ALARM
  - 1 4" alarm bell rated for 85dB at 10ft (3m)