

TECHNOLOGIC 350 SERIES CONTROLLER **PRODUCT DATA BULLETIN**

TECHNOLOGIC 350 CONSTANT SPEED PUMP CONTROL PANEL FOR CLOSED LOOP APPLICATIONS

STANDARD FEATURES

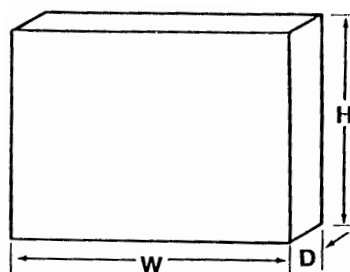
- Controls up to 3 pumps in parallel
- Exclusive Microprocessor Design
- Internal Diagnostics
- Log Menu
- On-Screen Help Function
- Integral, Internal Fused 24 Volt Power Supply
- Exclusive Analog Inputs with overvoltage protection
- Remote Alarm Indication
- NEMA 1 Enclosure
- UL Listed
- cUL or CSA Certified
- Visual Alarm Messages
- Automatic or Manual Operation
- User Selectable Pump Staging by:
 - kW (True Power)
 - Amps (RMS)
 - Flow (GPM) (flow sensor required)
 - Pressure (PSI) (pressure sensor required)
 - Temperature (sensor required)
- kW and Amp Transducer with On-Board Calibration
- Elapsed Time Meters
- Virtual H-O-A Switches
- Overload Failure Alarm
- Control Power Transformer
- Ambient Environmental Ratings:
 - Temperature: 0°C to 50°C
 - Humidity: 10% to 90%, non-condensing
- Single Point Power Input with Input Disconnect Switch
- IEC Magnetic Starters with Integral Overload Protection
- Short Circuit Protection for Each Pump
- Remote Pump Run Indication
- Remote Start/Stop
- Manual and Automatic Pump Alternation
- "EZ" Start through Quick Setup
- Real Time Clock
- Scheduled Start/Stop of System
- Pump Purge
- Parameter Backup through Save and Load Menu
- Serial Communication with RS-485 Port allows BACnet MS/TP, Johnson Controls Metasys N2, or Modicon Modbus Protocols. LonWorks shall be provided through RS-232 port.



OPTIONAL FEATURES

- NEMA 12 Rated Enclosure
- NEMA 4 Rated Enclosure
- Differential Pressure Switches (for pump failure indication)
- NEMA Starters
- Flow Meter (for staging to flow or for GPM display)
- Phase Monitoring
- 4-6 Pump System

DIMENSIONAL DATA



TECHNOLOGIC	
H	36"
W	30"
D	9"
WT.	180 lbs. Maximum

Consult factory for systems larger than 3 pumps and above 140 total amps.



Pump Logic Controller

The pump logic controller shall be listed and bear the label of UL, cUL or CSA. It shall be microcomputer based and hold its software in non-volatile memory. On-line field modified data entries, such as stage point, or method of staging, shall be stored in flash memory with capability to prevent accidental loss of data due to voltage surge or spike. In the event of a complete power outage, all factory preset data values remain stored and available for recall by the operator.

The pump logic controller shall be powered by 115V AC power from a control power transformer within the control enclosure. The control panel shall be equipped with an integral, regulated 24VDC power supply to power analog input signals. It shall be capable of receiving four 4-20 mA analog input signals and two RTD signals. Analog input overvoltage and short circuit protection shall be on-board. All analog inputs shall be provided with current limit circuitry to provide short circuit protection and safeguard against incorrect wiring of sensors.

The staging of pumps shall be user-selectable based on kilowatts (kW), current (Amps), flow (optional sensor required) or pressure (optional sensor required).

kW shall be true power derived from a transducer. Amps shall be RMS from the kW transducer. Both kW and Amps shall be microcontroller calibrated with calibration held in non-volatile memory. PSI shall be derived from a pressure transducer with a 4-20 mA analog input. Optional flow shall be derived from a transducer with a 4-20 mA analog input.

The controller shall include input disconnect switch, fuses per pump, motor starters, overloads, control power transformer and microprocessor with NEMA 4 rated operator interface.

The Technologic controller shall have off line and on line diagnostic software. Off line diagnostics shall consist of CPU, non-volatile and RAM memory test. It shall have digital input diagnostics, display test, program test and all analog and digital I/O user-tests. Fault information may be accessed by interrogating the pump logic controller through its HELP key.

The incoming power and I/O circuitry shall reject electromagnetic (EMI) and radio frequency interference (RFI). All digital outputs should be externally isolated.

The pump controller shall be capable of operation in ambient conditions of 0°C to 50°C and a humidity range of 10% to 90%, non-condensing.

The user interface shall contain a 4 line x 20 character liquid crystal display with 1/4" characters.

The pump logic controller shall alternate the pumps automatically based on a user defined time period, scheduled, manually from the operator interface, or via serial interface.

The pump logic controller shall be capable of operating in automatic, manual or off-line diagnostic modes. One level of password and software security shall be provided for protection of field modifiable data.

A data-logging feature provides historical information of key events with date and time stamps. Log information includes alarms, pump run timers, system on/off timers and pump cycle counters. The data log displays the minimum, maximum and average values of temperature, pressure and flow. It is also capable of displaying kilowatt-hours.

The pump controller shall be capable of communicating with the Building Automation System (BAS) by both hardwired and serial communications. The following communication features shall be provided to the BAS in hardwired form via digital outputs:

- Remote system start/stop
- System alarm output
- Pump on/off status indication
- Auto/manual status indication

The following communication features shall be provided to the Building Automation System via an RS-485 port utilizing BACnet MS/TP, Johnson Controls Metasys N2, or Modicon Modbus protocols. LonWorks shall be provided through RS-232 port.

1. Individual analog inputs
2. Individual pump failure
3. Individual pump on/off status
4. Start/Stop command and status
5. System flow when optional flow sensor is provided
6. Pressure, Temperature, Power measurement
7. General alarm indication
8. No flow shutdown status
9. Pump alternation

The pump logic controller shall provide the following standard user-selectable features:

- Overload Failure Alarm
- Pump Failure Alarm

Sequence of Operation:

In the "AUTO" mode, the lead pump shall start upon initiation of the system either by activation of the "START" button or by digital input from the Building Automation System (BAS).

The lead pump shall operate at the point on its curve where system demand is satisfied. If the lead pump is unable to satisfy demand, the lag pumps shall be started as required.

As demand decreases, the lag pumps shall be destaged to minimize energy consumption.

In the event of a failure due to motor overload, the next pump in sequence shall be started.

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