PUMP CONTROL UNIT

Features

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  Digital Ultrasonic Transducer
  Variable Impedance Transducer
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1200 baud communication
UL Listed
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Represented by:

Description

The Pump Control Unit (PCU001) is a microprocessor based multi-pump controller designed as a stand alone unit. It contains the necessary features to control up to three motor starters. Control is based on level inputs from ultrasonic or pressure transducers or float ball switches. It also provides a telemetry interface compatible with the TAC II Telemetry Systems.

Specifications

Box Dimensions	5.75" X 8.75" X 2.50"
Analog Input	4-20mA@250ohm/1-5V @100Kohm
Digital Input Voltages	10 - 30 volts AC/DC
	30 - 300 volts AC/DC with voltage reducers
Input Protection	M.O.V., Transorb, and Opto-isolated
Digital Input Impedance	6K ohms
Power Consumption	20 Watts
Supply Voltage	115VAC (230VAC factory opt.)

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Pump Control Unit (PCU) Highlights

Multiple Level Input Types

The PCU provides interfaces to several industry standard level sensing devices.

Float Ball Switches

Six well level inputs are provided for float ball switches. High- and Low-well float inputs are always available for backup alarm detection.

Analog Transducers

Analog level sensing devices can be monitored through an industry standard 4-20mA/1-5V interface. These devices include ultrasonic, hydraulic-pressure, and pneumatic-pressure transducers.

Digital Ultrasonic Transducer

Digital serial data interface to low-cost ultrasonic transducer.

Variable Impedance Transducer

Linear resistive devices with 300W/ft impedance.

Motor Starter Outputs

Solid-state AC relays directly control up to three motor starters with 120 or 240VAC coils.

Pump Alternation

The PCU will alternate around pumps that do not run when requested. The operator can override a pump on or off with the HOA switches and the PCU will still provide alternator control over the remaining pump(s). Alternator function can be disabled.

Fail-Safe HOA Switches

Fail-safe Hand-Off-Auto switches remain functional when the PCU is powered -down.

Phase Monitor

On-Board 240VAC Monitor

Transformer-isolated three-phase monitor detects loss of phase, phase reversal, and low leg phase problems. Automated calibration is activated through keypad.

External 480VAC Monitor Input

An input is provided for an external 480VAC phase monitor. Phase monitor operation can be bypassed for use in single- and dual-phase systems.

Alarm Light & Alarm Bell Outputs

Alarm light and bell enunciate phase faults, high- and low-well, and internal PCU fault. Alarm light is activated by all other alarms.

Mechanical Relay for AC or Battery Operation

Alarms can be AC powered or DC powered for operation during power outage. The PCU provides a Battery connection and charging circuitry for Battery backed-up operation.

Alarm-Bell-Silence Input

The alarm bell can be silenced through an external momentary switch or from the keypad.

Connectorized Wire Terminals

Two industry-standard 24-pin terminal connectors allow servicing or replacement of the PCU without rewiring the control panel.

LED Status Indicators

Ultra-bright LEDs display status.

Pump Run Status

Displays pump run status and flashes to indicate a fault in the motor starter circuit.

Well Level

Displays the well level in a float system or the logic set points in an analog system.

Others

PCU Power, CPU Fault TX Data, RX Data and Alarm status are also displayed through the LEDs.

LCD Display & Keypad

A 16 character LCD displays status, alarms and configuration through a menu-style interface. The three-button-keypad is used to scroll through the displays.

Elapsed-Time & Average-Run-Time Displays

The LCD displays an Elapsed-Time Meter and Average-Run-Time Meter for each pump. Each timer can be reset through the service port. Data for the timers is stored in nonvolatile memory.

Auxiliary Input & Output

The auxiliary input and output can be configured to provide redundancy in a bubbler system The input monitors an air-flow-fault switch to activate a backup bubbler compressor. The auxiliary input and output can also be used as a programmable time delay relay.

Flow Totalization

Station total flow is computed from the well volume and time to pump from off to lead level. Total flow will roll over after 999999 units (gal, liters, cf, etc.). These may be collected via the service port and reset when desired.

User-Configurable

Station Variables

The number of pumps, level-sensor type, pumping method, etc., are entered into the PCU to customize its operation.

Through Keypad, Service Port, or Telemetry

A three button keypad is provided as the main method of configuration input. Configuration information can also be transferred to the PCU through an RS-232 service port or over a radio link using TAC II telemetry equipment.

Configuration Stored in an EEPROM

Configuration memory is non-volatile, allowing the PCU to retain configuration information even during extended power outages and servicing.

TAC II Telemetry Interface

The PCU provides all the necessary hardware and firmware to interface to the TAC II telemetry system. With telemetry, the PCU can be remotely monitored and controlled.

Upgrades to TAC Pack

The addition of DFS' "BackPack Radio" turns the PCU into the TAC Pack - a Remote Terminal Unit capable of communicating with the TAC II Telemetry System.