
TCU800 PUMP CONTROLLER

THE TCU800 PUMP CONTROLLER COMBINES AUTOMATED PUMP CONTROL FUNCTIONS WITH ADVANCED SCADA COMMUNICATIONS TO PROVIDE A POWERFUL, PRICE-COMPETITIVE SOLUTION.

The TCU800 is a state-of-the-art pump controller designed to automate the operation of simplex, duplex and triplex sewer pumping stations. The TCU800 is a new and improved version of the field-proven TCU001 pump controller that is currently operating tens of thousands of pumping stations throughout the US. The TCU800 boasts a 5" touchscreen operator interface, faster processing power, and additional on-board inputs for increased monitoring and motor protection capabilities. The TCU800 provides intuitive off-the-shelf control of a typical fixed-speed pumping station. A future release will incorporate an expansion module for Variable Frequency Drive (VFD) applications.

The TCU800 contains all of the necessary hardware and software to control pumps based on level input from floats and/or pressure transducers. An integrated True RMS AC phase monitor provides accurate three-phase voltage readings and under/overvoltage motor protection. The TCU800 introduces additional on-board monitoring of CT's for motor current monitoring, as well as digital inputs for motor seal fail and thermal overload monitoring for all 3 pumps. The integrated H.O.A. switches are fail-safe and remain functional even if the TCU800 is not powered. Its touchscreen operator interface presents the operation menu, set-point adjustment, fault resets, and status indication with the touch of a finger. Ultra-bright LEDs provide at a glance indication of pump status, power status, alarm status and active communications.

SCADA-ready with open Modbus RTU and ASCII protocols, the TCU800 is also available with optional factory integrated TAC II radio, network interface adapter, or Verizon cellular modem. For enhanced security requirements, AES-128 Encryption is also available with the factory integrated TAC II radio.

When utilized in the DFS TAC II SCADA System and DFS' Symphony-Harmonious Pump & Flow Management software, TCU's are utilized to coordinate the system-wide operation of pump stations for the purpose of reducing force main pressures and equalizing flow into a treatment plant, reducing energy costs and solving daily peak-flow problems.



FEATURES AT A GLANCE

- Easy to understand, install and use
- No PLC knowledge required
- Multiple operation profiles
- Redundant level sensing
- Configurable pump alternation
- Digital elapsed time meters
- True RMS 3-phase monitoring
- Alarm light and horn control
- Integrated charger for Backup Battery
- Free TCU800 configuration software
- Upload/download settings with Laptop
- Configurable via on-board 5" touchscreen
- Free factory support for life of product
- Three-year parts and labor warranty
- Three-year lightning damage warranty
- Expandable I/O Interface
- RS-485 Modbus Serial Radio Interface
- Customizable for VFD applications (future release)
- UL Listed for process control equipment
- Optional FIPS 140-2 Validated AES-128 Encryption



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TECHNICAL SPECIFICATIONS:

- Box Dimensions: 5.75" X 8.75" X 5.45"
- Supply Voltage: 120VAC +/-10%, 60 Hz
- Supply Current: 0.5-1.5A
- Processor Core: AM335x SoC with an ARM Cortex A8 (1GHz) + dual PRU (200MHz); 512MB DDR3 and 4 GB onboard flash
- 5" TFT LCD w/ capacitive touchscreen and overlay push-button
- H-O-A Switches: 3 x 3-position switches for Hand-Off-Auto operation
- Internal Phase Monitor: 240 VAC @ 60Hz single- or three-phase; 480 VAC @ 60Hz three-phase using external resistors
- Analog Inputs: (3) 4-20mA @ 250Ω / 0-5VDC or 0-10VDC @ 120KΩ, 15-bit precision
- Digital Inputs: (17) 10-30V @ 6KΩ / 30-300V with external resistors, 10-30VDC / pulse input <1000 PPS
- Digital Outputs: (4) Solid State Relays, 120-240VAC @ 60Hz, 1A, Pilot Duty
- Alarm Relays: (2) Electromechanical Relays, 120VAC @ 60Hz, 0.5A / 0-24VDC, 1.0A; NO (Alarm Horn), NC (Alarm Light)
- Isolated 24VDC Bias: 300 mA current limited and regulated
- Input Protection: MOV (Metal Oxide Varistor), TVS (Transient Voltage Suppressor), and on-chip transformer isolation
- Integrated Radio: 2W @ 200 MHz or 5W @ synthesized 400 MHz (Optional)
- Ethernet Interface: 10/100base-T (Optional)
- Cellular Interface: Verizon Wireless (Optional)
- RS-232 Interface: 9600-115200 baud serial interface for Modbus ASCII devices (Pending Release)
- RS-485 Interface: 9600-115200 baud serial interface for Modbus ASCII/RTU devices
- USB 2.0 (Full Speed): 2 ports external, 1 port internal
- Recommended Battery Backup: 12-volt, sealed, lead-acid battery (sold separately)

ENVIRONMENTAL CONDITIONS:

- Ambient Operating Temperature Range: -10°C to 60°C (14°F to 140°F). The upper temperature limit is 50°C (122°F) when using the recommended backup battery.
- Relative Humidity: 0-100%
- Atmospheric Pressure: 75-106 KPa
- Overvoltage Category II
- Pollution Degree 2
- Safety Approval: UL listed for Process Control Equipment (UL1092)

WARRANTY:

This product carries a one (1) year return-to-factory warranty against defects in material and workmanship. When installed with factory recommended surge protection, the return-to-factory warranty is extended to three (3) years and is also covered against damage due to lightning and surge. DFS will repair or replace at its option, F.O.B. Melbourne, Florida, any part or parts of this product during the warranty period. A Return Authorization (RA) must be obtained by contacting the DFS Factory Repair Center at 321-259-5009 or by email at rma@dataflowsys.com.

