Telemetry Control Unit

The TCU combines Automated pump control functions with advanced SCADA communications to provide a powerful, price-competitive solution.

The Telemetry Control Unit (TCU) is a state-of-the-art pump controller designed to automate the operation of simplex, duplex and triplex sewer pumping stations. The TCU provides "off-the-shelf" control of a typical fixed speed pumping station. The TCU is also customizable for Variable Frequency Drive (VFD) applications.

The TCU contains all of the necessary hardware and software to control pumps based on level input from floats, bubblers, or pressure transducers. An integrated True RMS AC phase monitor provides accurate three-phase voltage readings and under/overvoltage motor protection. Its intuitive operator interface presents the operation menu, set-point adjustment, fault resets, and status indication. The H.O.A. switches are fail-safe and remain functional even if the TCU is not powered.

SCADA-ready with open Modbus RTU and ASCII protocols, the TCU is also available with optional factory integrated TAC II radio, network interface adapter, telephone autodialer, or a Verizon cellular modem. Optional AES-128 Encryption is available with the factory integrated radio.

When utilized in the DFS TAC II SCADA System, TCU's are used to coordinate the system-wide operation of sewer pumping stations for the purpose of reducing force main pressures and equalizing flow into a wastewater treatment plant. The result is a significant reduction in energy costs and a solution to 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
- Back-up battery & charger
- Free TCU configuration software

- Upload/download settings with Laptop
- Configurable via on-board keypad
- 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
- UL Listed for process control equipment (UL61010-1)
- Optional FIPS 140-2 Validated AES-128 Encryption

Specifications

Models	**TCU001:** Telemetry Control Unit **TAC Pack TCU:** TCU001 with Integrated Radio (optional AES-128 Encryption available) **TCU001-IP:** TCU001 with integrated network interface **TCU001-AD:** TCU001 with integrated autodialer **TCU001-C:** TCU001 with integrated Verizon cellular modem (requires monthly data plan)
Dimensions	5.75" X 8.75" X 5.45"
Supply Voltage	120VAC +/-10%
Frequency	60 HZ
Current	0.5A
Power Consumption	20 Watts (with integrated Radio)
3-Phase Monitor	240 VAC / 480 VAC using external resistors
Battery Backup	12 VDC
Analog Inputs	4-20mA@250ohm /1-5V @100Kohm; both inputs are 12-bit accurate
Digital Input Voltages	10 - 30 volts AC/DC ~ 30 - 300 volts AC/DC with external resistors
Digital Input Impedance	6K ohms
Digital Outputs	120-240VAC, 60HZ, 1A, Pilot Duty
Bias	100 mA
RS-232 Interface	9600 baud serial interface for radio connection **Default Settings:** **Optional Settings (must be set at the factory):** ASCII protocol RTU protocol 9600 baud 9600 baud 7 data bits 8 data bits Odd parity E/O/N parity 2 stop bits 1 stop bit
RS-485 Interface	9600 BAUD serial interface for communication to Modbus ASCII devices
ISO+24V / ISOGND	24 VDC at 60 mA (100 mA max), unregulated, isolated
Input Protection	M.O.V., Transorb (Transient Voltage Suppressor), and Opto-isolated
Alarm Relays	120VAC, 60HZ, 0.5A, Tungsten
Alarm Light / Horn	Normally closed contacts
LCD w/Keypads	Liquid Crystal Display; keypad is used to page through programmed menu items
H-O-A Switches	3 x 3-position switches hardwired to 3 solid state control points for HOA operation
Encryption (Optional)	The integrated radio is available with optional AES-128 Encryption. When encryption is activated, the radio is FIPS 140-2 Validated for Security Level 1 under the Cryptographic Module Validation Program (CMVP) OpenSSL FIPS Object Module 2.0 (Certificate #1747).
Environmental Conditions	Ambient Operating Temperature Range: -10°C (14°F) to 60°C (140°F). The upper temperature limit is 50°C (122°F) when using the recommended backup battery. Note that the LCD display may become unreadable at temperatures below 0°C. Relative Humidity: 0-100%; Atmospheric Pressure: 75-106 KPa; Overvoltage Category II; Pollution Degree 2; EMI Susceptibility to IEC61000-4-5 Surge Immunity Tests; UL listed for Process Control Equipment (UL 61010-1)

Operator Interface: The TCU's large 4-line x 20-character LCD and 12-button keypad provide an operator interface for configuring the TCU, viewing status, and viewing and resetting alarms. An onboard temperature sensor controls the LCD's contrast to ensure that the LCD screen is easy to read in both high and low temperature conditions.

Service Port: RS-232 interface for diagnostics, configuration storage, and updating. Configuration files can be transferred between the TCU and a computer.

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.