Quality Control & Integration, Inc.

Control, Instrumentation, Telemetry, SCADA, and Automation Systems

1500ct Pump Controller

Dynamic Solutions for greater control and true dynamic I/O, color, touch screen interface

Model # QCI 1500V—T20B

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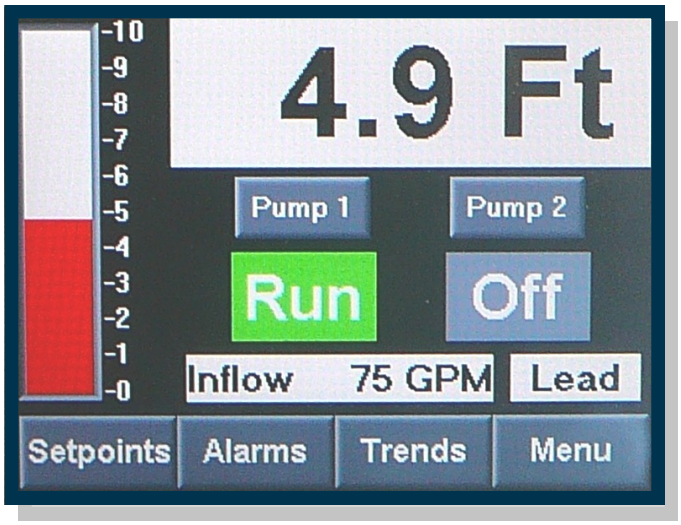
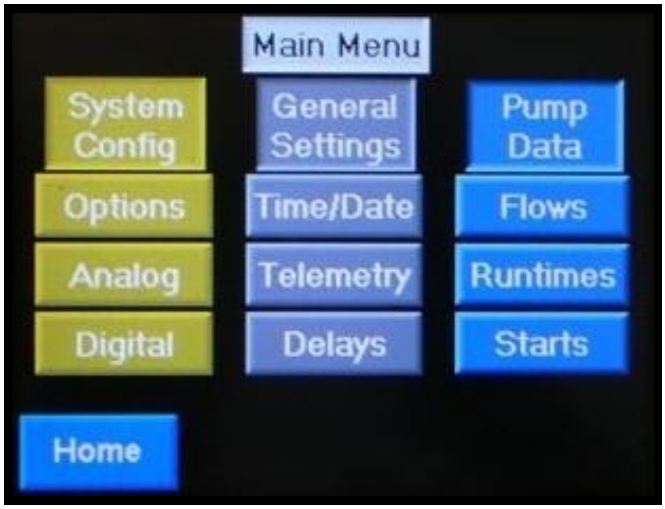
Details

- **Telemetry Ready** - with the addition of a radio, cellular modem, or leased phone line, the 1500ct allows you to monitor station status, change pump start and stop set points, change high and low level alarm set points, acknowledge alarms, and view pump run, fail, and performance information remotely.
- **Adaptable** - The 1500ct is an "open" control platform supporting industry standard communication protocols like Modbus and DF1. This open protocol approach allows the 1500ct to be readily integrated into most new or existing SCADA systems. Two serial communication ports and an optional Ethernet port allow for redundant telemetry networks.
- **Versatile** - The 1500ct can be used to control and monitor up to three constant and / or variable speed pumps in either pump up or pump down mode. This versatility makes the 1500ct able to control even difficult pump applications like pressure / flow controlled applications.



1500ct Home Screen

Cellular Remote Control - enables operator to receive controller status and acknowledge alarms via cellular text messaging.



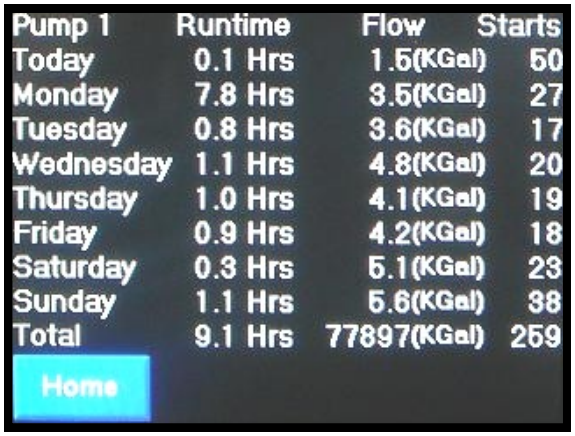
Main Menu Screen

Feature Summary

- **Large 5.7 inch touch screen Color LCD Display**
- **Pump Control**
- **Historical Trend Data**
- **Alarm/Event Log**
- **Dynamic I/O**
- **Communicates with virtually all PLCs/SCADA Systems**
- **VFD Control**
- **Security; multi-level**
- **Communication Protocols**
  - MODBUS
  - Remote Access Utilities
  - Ethernet via TCP/IP
  - GPRS/GSM/SMS Support
  - DF1
  - OPC Server/DDE Server

Pump Run Data

- Total runtime
- Total pump flow
- Total number of starts
- Eight continuous days of data



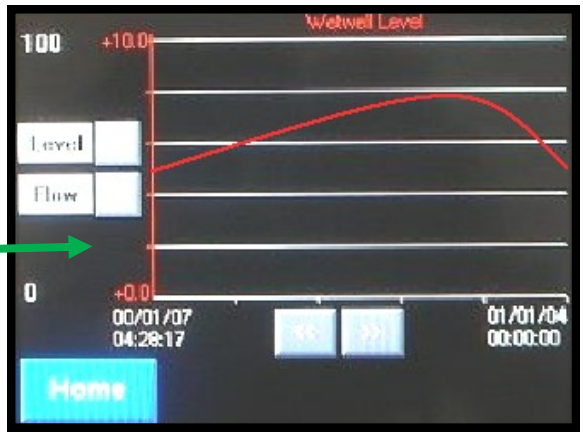
Calculated Flow Statistics

- Total station flow
- Average daily flow
- Maximum daily flow

Individual Pump Data Screen

Trend Data

- The controller will trend station flow, wet well level, and pump flow performance without a flow meter.
- Pump trend data is available for one year.



Volumetric Flow Calculation

The controller can calculate station flows

Pump Protection

- The 1500ct controller will detect failed pumps, and take the failed pump out of service until the failure condition is corrected and reset.

Time and Date

- Alarm Event Log stores the last 1000 alarm events

Alarm Control

- Easily silence audible alarms and reset latching alarm conditions

…Informative Data; Custom tailored for any Pump Station …

I/O Module

2 Serial ports, Supports MODBUS, and DF1
- Optional Ethernet port

Diagnostics
- Troubleshoot via the HMI panel- no PC needed

The 1500ct Supports a Wide Variety of Communication Media
- Ethernet
- Radio (UHF, VHF, Spread Spectrum, Cellular)
- Phone line

24 Volt DC Operation
- Easy to back-up DC power supply with standard batteries

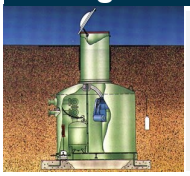
VFD Control and Ramps
- Control and scale Analog Outputs for virtually any use

Pull-Apart Terminal Blocks
- For ease of installation & maintenance

Alternation
- The 1500ct supports multiple modes of operation, configurable through the touch screen

...Versatile; Allows for control of any Pumping application...

Sewage Lift Pump Station

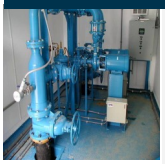


Controls pumps based on both level transmitter and float switch control inputs for primary and back up control.

WWTP Influent or Effluent Pump

Controls pumps based on locally monitored wet well level. Supports both level transmitter and float switch control inputs for primary and back up control.

Booster Pump Station



Controls pumps based on locally monitored discharge pressure sensor or remotely monitored tank level.

Irrigation Pump Station

Controls pumps based on local discharge pressure or flow rate.

Well Pump Station

Controls pumps based on pressure/level sensor or remotely monitored tank level.

Well Pump Station

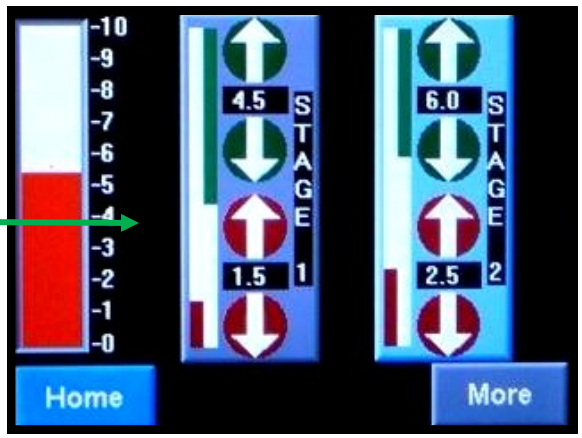
Controls pumps based on locally monitored flow rate/ pressure/level sensor signal.

Transfer Pump Station

Controls pumps based on locally monitored wet well level. Supports both level transmitter and float switch control inputs for primary and back up control.

Custom Scale Ranges

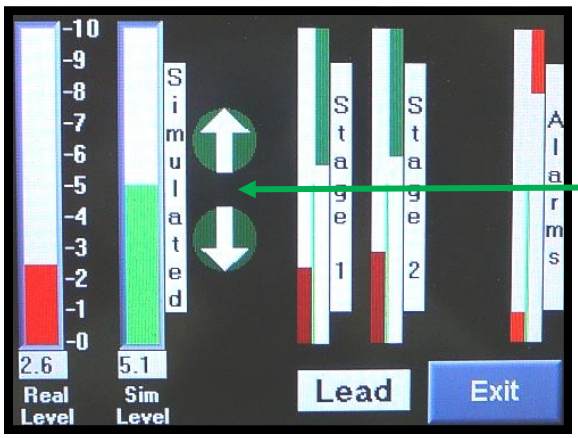
- Allows you to scale the controller to precisely display the individualized station's data



Set points Screen

Level Simulation

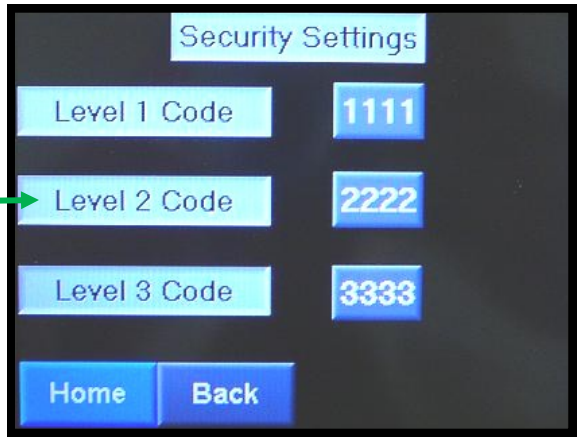
- Two simple up/down keys allows an operator to simulate the level and verify proper operation



Simulation Screen

Security Protection

- Password Security
- Prevent unauthorized modification of controller variables
- Detect unauthorized station access with a door switch input and an operator interface security password
- Activates local alarm and telemeters unauthorized entry to a central monitoring point



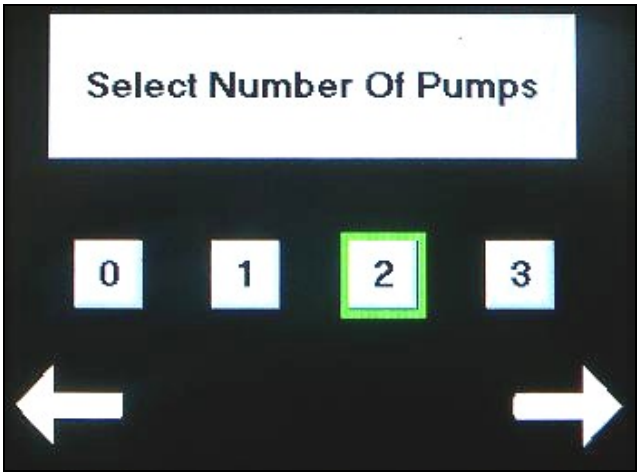
Security Screen

...Intuitive, Secure; Straight-forward interface keeps it simple...

Easy Setup Wizard

- Guides you, step-by-step, through the basic setup of the 1500ct

Setup Wizard Screen



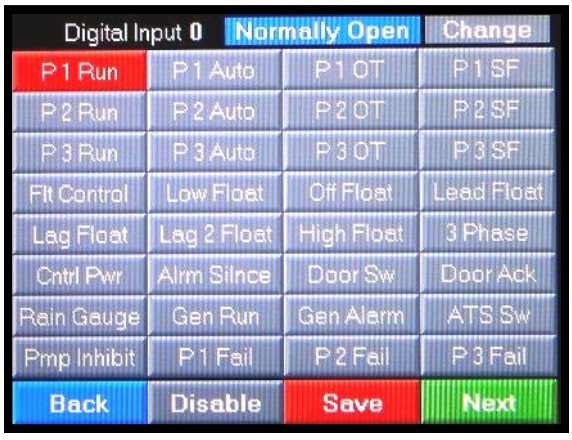
Setup Wizard Screen; Pump Selection

Easy Setup Wizard, cont.

- Select number of Pumps
- Choose whether or not pump running inputs and/or pump failure inputs are utilized
- Setup and scale level sensor

Dynamic Inputs / Outputs

- Allows the station to be customized to its specific I/O needs
- Configure 16 inputs from 32 different options
- Configure 10 outputs from 20 different options



Dynamic Digital Input Screen

...Easy to set-up; Total scalability of Inputs and Outputs

Standard Specifications

Graphic Display Screen	
Display Type	TFT LCD
Colors	256
Display Resolution & Size	320x240 pixels (QVGA), 5.7" active area
Touchscreen	Resistive, analog
Brightness	Adjustable via touchpanel or software
HMI Displays	1024 displays, 500 images per application
Program	
Application Memory	Application Logic: 2MB, Images, 6MB, Fonts: 1MB
Scan Time	9µsec per 1K of typical application
Memory Bits (coils)	4096
Memory Integers (registers)	2048
Long Integers (32 bit)	256
Double Word (32 bit unsigned)	64
Memory Floats	24
Timers	192
Counters	24
Data Tables	120K dynamic data, 192K fixed data
Communication	
RS232/RS485	2 isolated ports, Select RS232 or RS485 via DIP switch
Ethernet	1 port (optional; available separately)
CANbus	1 isolated port
CANopen	CANopen Master, supports PDO, SDO, NMT. CiA DS 301
UniCAN	Multi-master CANbus
MODBUS	Supports MODBUS protocol, Master/Slave
Allen-Bradley DF1	Supports DF1 protocol, Half-duplex Slave
GSM	SMS messages to/from any quantity of phone numbers. Supports programming and data acquisition
GPRS	Use a GPRS modem to establish a data connection via Internet, and transmit IP packets of data over the cellular network, SMS-enabled
General	
PID	Up to 20 independent PID loops, including internal auto-tune, ramp-soak program and bumpless transfer
Info Mode	Troubleshoot, view, and edit system data in real-time - directly form the HMI panel via built-in info mod screens. Supported by remote access
Power Supply	24VDC nominal; 20.4 - 28.8VDC permissible range
Battery back-up	7 years typical at 25°C, back-up for all memory sections & real-time clock (RTC). External battery replacement
Environment	IP65/NEMA4X (for panel, when mounted)
Expansion option	Up to 128 additional I/Os, via plug-in expansion modules (number may vary according to expansion model)
Dimensions	197 x 146.6 x 68.5 mm (7.75" x 5.77" x 2.7")
Standard Snap-in I/O Module	
Digital Inputs (Isolated)	16 (sixteen) pnp/npn Inputs; 24VDC
High-speed (counter) Inputs*	2 (two) 10 kH pnp/npn Inputs
Analog Inputs	2 (two) 10-bit Inputs; 0-10V, 0-20mA, 4-20mA
Temperature Measurement	Internal
Digital Outputs (Isolated)	4 (four) pnp/npn Outputs; 24VDC
High-speed (PWM) Outputs	2 (two) Transistor Outputs are high-speed outputs; 50 kHz for npn / 2 kHz for pnp
Relay Outputs (Isolated)	10 (ten) SPST-NO relay; 230VAC / 24VDC; 5A resistive; 1A inductive
Analog Outputs	2 (two) 12-bit Outputs, 0-10V, 0-20mA, 4-20mA

*Certain digital inputs can function as high-speed counters, shaft-encoder inputs, frequency measurers

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