



USFilter

**D620i PROGRAMMABLE
PROCESS CONTROLLER**

BIG THINGS IN SMALL PACKAGES

The D620i is a special purpose programmable logic controller for control and monitoring of stand-alone processes as well as an integral part of a telemetry/SCADA system providing distributed or centralized control and monitoring. The unit offers complete field programmability and supports multiple industry standard protocols, providing a true system open architecture.

The D620i is specially designed for water and wastewater municipal and industrial applications and is packed full of features needed and desired for this unique market. These features translate into a strong set of benefits unmatched in our industry.



FEATURES AND BENEFITS

Field Programmable

Allows efficient system changes on site.

Open Communications Architecture

Allows interface with other third party manufacturer equipment.

User Friendly

Does not require specialized technical or programming knowledge to operate.

Self Contained/Bundled Unit

Saves cost, labor; eliminates incompatibility.

Superior Diagnostics

Simplifies troubleshooting and diagnosis of system problems.

Preconfigured Specialized Standard Function Blocks

Reduces configuration time, simplifies field modifications, and increases system functionality.

Plug In Terminal Blocks

Facility field service/replacement

APPLICATIONS

Water

- Tank/reservoir monitoring
- Valve and flow metering stations
- Well pump stations
- Booster pump stations
- Water treatment plant process
 - Raw water intake structures
 - Chemical feed
 - Filter control

Wastewater

- Lift stations
- Combined sewer overflow facilities
- Wastewater treatment plant process
 - Headworks
 - Solids separation
 - Aeration/digestion
 - Chemical feed

AN INTEGRATED SOLUTION

The D620i is an integrated solution with a variety of technologies and capabilities bundled into a single module that offers:

- User-friendly operator interface that allows users to view system data, set and adjust parameters, perform troubleshooting and diagnostics, and for configure the unit in the field.
- A generous complement of built-in on-board analog and discrete inputs and outputs allowing for monitoring and controlling field devices. The on-board I/O complement meets over 80% of the water and wastewater applications without the need for expanded I/O. The D620i can accommodate hundreds of I/O points through the use of off-board expansion I/O modules.
- Dual serial ports for download and upload of system configuration, telemetry or LAN communications and for interface to SCADA-based PC.
- On-board power supply and battery charging circuitry.
- A strong set of multi-functional blocks specialized for water and wastewater applications. These blocks meet the most demanding control and monitoring applications in the simplest possible manner.
- A comprehensive set of built-in system diagnostic tools allowing quick in-field system troubleshooting of controller, I/O and telemetry systems. These tools provide quicker and more accurate diagnosis of system problems and minimize downtime.
- By eliminating the need for multiple peripheral devices, the D620i reduces equipment and labor costs, speeds implementation time, improves serviceability and eliminates compatibility issues.

A UNIQUE LIBRARY OF SOFTWARE MODULES

The power of the D620i is in its unique library of software modules, each tuned to a specific process control function. Instead of using ladder logic or programming scripts, the D620i function blocks are easily configured through our Windows™ configuration tool, then downloaded or directly configured via the D620i operator interface. Configuration is based on a menu-driven fill-in-the-blanks approach that lets you quickly and easily link the modules to create a programmable controller perfectly tuned to your system.

The library of D620i function blocks – including PID, Alternation, Pump Control, Volumetric Flow Calculation, Full Math, and many others – has been developed over the years based on thousands of control applications and our many years of experience in water, wastewater and process control. This efficient and user-

friendly method of programming, in combination with dedicated, application specific, multi-function blocks, allows complete system configuration in one-eighth the time of conventional programmable logic controllers.

Because the D620i software configuration modules are configured in an orderly, structured fashion, in-field modifications to an existing program can be made quickly and easily. Additionally, this structured configuration aids in troubleshooting and when changing system parameters. In-field modifications are protected by multi-level structured security access codes that can be customized for up to four levels of access. The worry of making in-field modifications is eliminated with the unique “try-before-you-save” functionality that allows system parameters to be reset to previously saved parameters, if desired.

The image shows a screenshot of a software configuration tool. It features a multi-column table with various parameters and settings. The columns include labels like 'Name', 'Type', 'Value', and 'Units'. The rows contain detailed configuration data for different modules or components. The interface is typical of a Windows-based application from the late 1990s or early 2000s, with a standard menu bar and toolbar at the top.

TELEMETRY/SCADA INTEGRATION



In addition to its simplistic yet powerful control and monitoring capabilities, the D620i supports a strong set of field-configurable telemetry and communications functions that allow scalable integration from small to large SCADA systems using either open (Modbus RTU & ASCII, Allen Bradley DF1) or native USFilter protocols. The D620i can be configured as a Master Telemetry Unit (MTU), Sub Master Telemetry Unit (SMTU), Repeater Remote Telemetry (RRTU), or Remote Telemetry Unit (RTU) and can operate over virtually any communications medium with the use of off-board modems/transceivers. The system addressing allows up to 254 RTUs to be operational on the same communication medium.

The D620i supports multiple methods of communications methodology, including polling, broadcast (timeslot), and quiescent. This flexibility allows for a wide range of telemetry applications.

The D620i supports serial communications with a local PC running Windows™ compatible Graphical User Interface (GUI) software, such as PlantScape, Wonderware, Fix, Lookout and many others.

System control and monitoring are typically embedded in the D620i or other communications-compatible master telemetry device. In the event the PC fails, system control and status continue to be operational through the D620i.

BUILT-IN FUNCTIONS FOR COMMON APPLICATIONS

The D620i programmable controller is pre-configured with built-in functions that are commonly used in water, wastewater and process control applications. The function blocks build in a suite of functions that can be quickly implemented upon initial installation or later in the field.

- Intrusion detection
- Flow calculation algorithms (standard size weirs, flumes & volumetric time based)
- Pump performance calculations (run time, # starts, pump flow rate and alarms)

- Security (four levels)
- Alarm screen (shows all active alarms)
- Historian (1000 points time- and date-stamped and can be sorted into up to 10 groups)
- 28 different types of programmable multi-function control blocks allow configuration of control and monitoring strategies
- 10 information and customizable function blocks
- System diagnostic screens for troubleshooting, I/O and communications

BASIC ON-BOARD COMPONENTS

- 16-bit microprocessor w/512 KB FLASH and ROM memory (ROM is battery backup)
- 12 discrete isolated inputs (off-board expandable up to 524 points)*
- 10 discrete transistor 200 mA outputs (off-board expandable up to 192 points)*
- 3 analog inputs (1-5 volt/4-20 mA), off-board expandable up to 11 points

*Mix of I/O determines actual total points available.

- 2 analog outputs (1-5 volt/4-20 mA), off-board expandable up to 66 points*
- 32 character back-lit display (2 line x 16 character @ 0.94" x 3.9")
- 16-point long-life membrane keypad
- 1 selectable RS-232/RS-485 serial/multi-drop communications port
- 1 RS-232 serial communications port
- On-board power supply and battery charger (unit requires UL-listed Class II 12-16 VAC @ 30 VA input transformer)

MODELS AND PARTS

DESCRIPTION	PART NUMBER
D620i microprocessor-based controller; open/unprogrammed (no I/O expansion header)	601362-06
D620i I/O expansion board – 6 port	601370-02
I/O Expansion Modules	
CMZ20 quad analog input module (12-bit resolution)	601236-01
CMZ22 analog output module (1-5 volt/4-20 mA)	601246-01
CMZ24 eight point digital output module (open collector drivers (200 mA))	601270-01
CMZ27 eight point isolated digital input module (12 VAC line voltage inputs)	601289-01
CMZ27 eight point isolated digital input module (24 VAC line voltage inputs)	601289-02
CMZ27 eight point isolated digital input module (120 VAC line voltage inputs)	601289-03
CMZ30 quad relay output module (form C 10 amp @ 240 VAC/10 amp @ 30 VDC)	601210-01
CMZ37 eight point isolated digital input module (5 VDC contact closure sense power)	601402-01
Communication Modems	
CMM103 Bell 103 compatible modem (leased phone line and radio)	96032785
CMM11 RS-485 twisted wire pair modem	601322-02
CMM14 FCC Part 68-app., 300/1200/2400 BPS dial up modem	601376-01
CMM202 Bell 202 compatible modem (leased phone line and radio)	96032775

COMPLETE CONTROL CAPABILITIES

USFilter Control Systems offers a single, high-quality source for everything from simple level sensors to telemetry systems to complex system control engineering and software. Based in St. Paul, MN, USFilter Control Systems is part of United States Filter Corporation, the leading global provider of industrial, municipal and residential water and wastewater treatment systems, products and services.

As a major manufacturer/integrator with an extensive selection of specialized product lines in the areas of SCADA and telemetry, power equipment integration, automation and measurement, USFilter Control Systems is uniquely positioned to provide cost-effective, comprehensive solutions for water, wastewater, and process control and telemetry applications. Our products and services encompass the following:

- Complete design and engineering services
- Field services, including training and troubleshooting
- Autocon SCADA systems
- Consolidated Electric SCADA systems
- Microcat control and telemetry products
- Remote terminal units and central control units
- Control and monitoring software
- Process control and communications computers
- I/O boards, modems and power supplies
- Power equipment integration
- Programmable logic controller systems
- Programmable process controllers
- Controllers and controller/alternators
- Tank pump control systems
- Pressure/level controllers
- Pump flow and performance monitoring
- Flow switches and float switches
- Intrinsic safety barriers
- Level transducers and level sensors
- Pressure transducers

To find out more about how to put
USFilter to work for you,
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