**SPECIFICATIONS**

**TOLL FREE 1.888.628.8258**

**DIMENSIONS**

**Series 22 Electronic Control Valve**

**FUNCTION OFFERED BY SERIES 22 CONTROL VALVE**

While conventional valves control the valve function hydraulically, the Series 22 can control these functions electronically. Conventional valves require a valve to open and close based on a physical signal, whereas electronic valves can be set to specific values according to specific applications, the electronic functions can be mixed and restricted in any way to fit a specific application.

**APPLICATION**

**CONTROL VALVE**

**REVISED 05/04/17**
OPERATING PRINCIPLES OF THE SERIES 22 CONTROL VALVE

The system consists of:
- Control Panel (for OCV valves)
- Control Panel (for Universal Valve Controller)
- Electronic controller (for OCV valves)
- Remote retransmitter (for OCV valves)

The Series 22 Control Valve is configured with either a 22FPR, 22FBP, or 22FBP-2 control module. The 22FBP-2 is designed for very low pressurized environments.

THE CONTROLS

The OCV Universal Valve Controller (UVC) is a series that has been built and designed to provide numerous control functions for the OCV control valve. In addition, the UVC can be customized for specific user requirements.

UVC Valve Controller

The electronic brains of the system is a highly sophisticated electronic module responsible for its control & process variable. The UVC receives input, compares it to the desired control setting and then sends electrical power to the valve solenoids and the desired setting is achieved.

Model 103-3 Control Valve

The 103-3 valve is the basic element, a plug-in solenoid operated valve for the Series 22 electronic control valves. It is positioned by the two solenoids (A and B) which, through their own pilot circuits, move the valve stem up or down. When one of the solenoids is energized, the valve moves in the direction of the energized solenoid. The solenoids are energized by control signals from the controller.

UVC Operation with Valve

The UVC receives the signal (PV) from the process transducer and compares it to the programmed set point. If the PV is outside the small dead band around the set point, the controller begins to adjust the valve stem position to the set point. If the PV is within the small dead band, the controller maintains the valve stem position at the last known position. In the event of a power failure, the valve will close, open or hold last position, depending on which failure position is specified.

Features of UVC Controllers

- Direct Valve Operation - G做了d-system requirements
- Process Variable Input
- Analog (0-20mA, 4-20mA)
- Analog (0-10V)
- Digital (pulse)
- 4-20mA for Remote Set Point
- Digital (pulse)

UVC Basic

- Valve Operation
- Flow Control with External Flow Meter
- Level/Altitude Control
- Pressure Control
- Additional Discrete Inputs & Outputs

UVC Ultra

- Process Control
- Level/Altitude Control
- Flow Control without External Flow Meter
- Flow Metering
- And others consult factory

Series 22 Electronic Control Valve

The UVC Controller is the electronic brains of the system. It is a highly sophisticated electronic module whose purpose is to control a process variable (flow, pressure, etc.). The UVC receives input, compares it to the desired control setting and then sends electrical power to the valve solenoids and the desired setting is achieved.

UVC Basic

- Features of UVC Basic
- Touch screen
- Logging Capabilities
- Email Generation upon valve errors;

UVC Ultra

- Features of UVC Ultra
- Advanced Display
- Multi-key panel

Controller Selection Guide

For the most comprehensive procuress in using Electronic Control Valves, it is best to use our ValveSizer program on our website, www.controlvalves.com. In this process, the following procedures will generally apply.

Sizing Chart

- Use the valve table to select the valve for the application.
- Use the correct head for your application.
- Select the correct type of valve for your application.

Series 22 Electronic Control Valve

Features
- Direct Valve Operation - G做了d-system requirements
- Process Variable Input
- Analog (0-20mA, 4-20mA)
- Analog (0-10V)
- Digital (pulse)
- 4-20mA for Remote Set Point
- Digital (pulse)
OPERATING PRINCIPLES OF THE SERIES 22 CONTROL VALVE

The system consists of:
- 

Electronic Valve Controller (EVC)
- Model 115-3, hydraulically operated, dual solenoid controlled valve
- Analog Position Transmitter required on valve inputs, optional on others

UVC Valve Controller

The UVC controller is a microelectronic board housed in the system. It is a highly sophisticated electronic module whose purpose is to control a process variable (flow, pressure, etc.). The UVC receives input, compares it to the desired control setting and then sends electrical power to the valve solenoids and the selected valve is actuated.

Model 115-3 Control Valve

The 115-3 valve is a two-way, solenoid-actuated control valve for the Series 22 electronic control valve. It is positioned by the two inputs (pilot 2 and 3) and 360°. With both pilot (2) closed and pilot (3) open, the diaphragm chamber of the main valve (1) is vented to downstream and the valve moves further away from it. With both pilot (2) and pilot (3) closed, the valve remains in the same position. With both pilot (2) and pilot (3) open, the diaphragm (1) moves closer to the main valve (1) and the valve moves further away from it. The valves can be actuated with normally open or normally closed pilots. In the event of a power failure, the valve will close, open or hold last position, depending on which failure position is specified.

UVC Operation with Valve

The UVC receives a signal (V) from the process transducer and compares it to the programmed set point. If the PV is outside the set point band around the set point, the control logic adjusts the appropriate signal and opens or closes a small proportional valve, with the amount of flow proportional to the deviation from the set point. This adjustment is made in response to deviation from the set point. If the PV is within the dead band around the set point, the controller begins pulsing the appropriate solenoid pilot open and closed on a time proportional basis, with the amount of open time directly proportional to the deviation from the set point.

Hydraulic locking occurs when the process variable is within the dead band around the set point, the controller begins pulsing the appropriate solenoid pilot open and closed on a time proportional basis, with the amount of open time directly proportional to the deviation from the set point.

Blending

Features of UVC Controllers

- Field Upgradeability
- Dual solenoid operation
- Process Variable Input
- Analog Position Transmitter
- Time, Day of Week
- RS232/RS485 Communication Port
- Digital (pulse)
- Analog (0-10 V, 4-20 mA)
- Internal Real Time Clock
- Adjustable Solenoid Activation Cycle Time (where applicable)
- MODBUS Protocol Support
- Additional Discrete Inputs & Outputs
- Additional Discrete Inputs & Outputs
- Electronic Controllers are UL listed

Models

UVC Basic

- Analog Variable
- 15 Keys for entry and scrolling
- Analog (0-10 V, 4-20 mA)
- Digital (pulse)

UVC Ultra

- 5 Keys & Virtual Keyboards
- SMS (text) Messaging by GSM Modem
- Additional Discrete Inputs & Outputs
- Analog Output (4-20 mA)
- Field Upgradeable - Should system require
- Power Saving Options
- Operational Power
- Electronic Controllers are UL listed
- Enclosure: NEMA 4X (IP66)
- 15 Keys for entry and scrolling
- Analog (0-10 V, 4-20 mA)
- Digital (pulse)
- Additional Discrete Inputs & Outputs
- 15 Keys for entry and scrolling
- Analog (0-10 V, 4-20 mA)
- Digital (pulse)

UVC Ultra Typical Applications:

- Pressure Control
- Flow Control with External Flow Meter
- Flow Control without External Flow Meter
- Level/Altitude Control
- Pressure Control
- SMS (text) Messaging by GSM Modem
- Field Upgradeable - Should system require
- Power Saving Options
- Operational Power
- Electronic Controllers are UL listed
- Enclosure: NEMA 4X (IP66)
- 15 Keys for entry and scrolling
- Analog (0-10 V, 4-20 mA)
- Digital (pulse)
- Additional Discrete Inputs & Outputs
- 15 Keys for entry and scrolling
- Analog (0-10 V, 4-20 mA)
- Digital (pulse)

Series 22 Electronic Control Valve

UVC Valve Controller

The UVC Valve Controller (UVC) is a series that has been built and designed to provide numerous control functions for the OCV control valve. In addition, the UVC can be customized for specific user requirements.

Features of UVC Controllers

- Field Upgradeability
- Dual solenoid operation
- Process Variable Input
- Analog Position Transmitter
- Time, Day of Week
- RS232/RS485 Communication Port
- Digital (pulse)
- Analog (0-10 V, 4-20 mA)
- Internal Real Time Clock
- Adjustable Solenoid Activation Cycle Time (where applicable)
- MODBUS Protocol Support
- Additional Discrete Inputs & Outputs
- Electronic Controllers are UL listed

Models

UVC Basic

- Analog Variable
- 15 Keys for entry and scrolling
- Analog (0-10 V, 4-20 mA)
- Digital (pulse)

UVC Ultra

- 5 Keys & Virtual Keyboards
- SMS (text) Messaging by GSM Modem
- Additional Discrete Inputs & Outputs
- Analog Output (4-20 mA)
- Field Upgradeable - Should system require
- Power Saving Options
- Operational Power
- Electronic Controllers are UL listed
- Enclosure: NEMA 4X (IP66)
- 15 Keys for entry and scrolling
- Analog (0-10 V, 4-20 mA)
- Digital (pulse)
- Additional Discrete Inputs & Outputs
- 15 Keys for entry and scrolling
- Analog (0-10 V, 4-20 mA)
- Digital (pulse)

UVC Ultra Typical Applications:

- Pressure Control
- Flow Control with External Flow Meter
- Flow Control without External Flow Meter
- Level/Altitude Control
- Pressure Control
- SMS (text) Messaging by GSM Modem
- Field Upgradeable - Should system require
- Power Saving Options
- Operational Power
- Electronic Controllers are UL listed
- Enclosure: NEMA 4X (IP66)
- 15 Keys for entry and scrolling
- Analog (0-10 V, 4-20 mA)
- Digital (pulse)
- Additional Discrete Inputs & Outputs
- 15 Keys for entry and scrolling
- Analog (0-10 V, 4-20 mA)
- Digital (pulse)

Series 22 Electronic Control Valve

UVC Valve Controller

The UVC Valve Controller (UVC) is a series that has been built and designed to provide numerous control functions for the OCV control valve. In addition, the UVC can be customized for specific user requirements.

Features of UVC Controllers

- Field Upgradeability
- Dual solenoid operation
- Process Variable Input
- Analog Position Transmitter
- Time, Day of Week
- RS232/RS485 Communication Port
- Digital (pulse)
- Analog (0-10 V, 4-20 mA)
- Internal Real Time Clock
- Adjustable Solenoid Activation Cycle Time (where applicable)
- MODBUS Protocol Support
- Additional Discrete Inputs & Outputs
- Electronic Controllers are UL listed

Models

UVC Basic

- Analog Variable
- 15 Keys for entry and scrolling
- Analog (0-10 V, 4-20 mA)
- Digital (pulse)

UVC Ultra

- 5 Keys & Virtual Keyboards
- SMS (text) Messaging by GSM Modem
- Additional Discrete Inputs & Outputs
- Analog Output (4-20 mA)
- Field Upgradeable - Should system require
- Power Saving Options
- Operational Power
- Electronic Controllers are UL listed
- Enclosure: NEMA 4X (IP66)
- 15 Keys for entry and scrolling
- Analog (0-10 V, 4-20 mA)
- Digital (pulse)
- Additional Discrete Inputs & Outputs
- 15 Keys for entry and scrolling
- Analog (0-10 V, 4-20 mA)
- Digital (pulse)

UVC Ultra Typical Applications:

- Pressure Control
- Flow Control with External Flow Meter
- Flow Control without External Flow Meter
- Level/Altitude Control
- Pressure Control
- SMS (text) Messaging by GSM Modem
- Field Upgradeable - Should system require
- Power Saving Options
- Operational Power
- Electronic Controllers are UL listed
- Enclosure: NEMA 4X (IP66)
- 15 Keys for entry and scrolling
- Analog (0-10 V, 4-20 mA)
- Digital (pulse)
- Additional Discrete Inputs & Outputs
- 15 Keys for entry and scrolling
- Analog (0-10 V, 4-20 mA)
- Digital (pulse)
OPERATING PRINCIPLES OF THE SERIES 22 CONTROL VALVE

The system consists of:
- Electronic Controller (UVC)

The UVC receives, compares and sends electrical power to the valve solenoids and the desired valve position is achieved.

**Features of UVC Controllers**
- Field Upgradeable – Sizes up to 115.
- Remote Access/Communication (4-20mA) for Demand/Event, Fault Log, Etc.
- Event-activated Real Time Clock
- ASCII/Modbus/Factory Settings/Relay Outputs
- Battery Backup & Power Saving Options
- Microsoft based Software

**Valve Position Transmitter**

The valve position transmitter (optional) uses movement of the valve stem to provide a 4-20mA analog signal proportional to the valve position. The transmitter indicates the position of the valve at any time (open, close, hold last position in the event input signal failure).

**Scalable Controllers**

The scalable controllers can fit modulation needs of all sizes, form the 4-20mA analog input to the discrete input/output.

**Discrete Inputs/Outputs**

- 320x240 Color Graphic Display
- 16 Key Keypad
- Multi-Function Input (Analog, Digital, Frequency, Pulse, etc.)
- ASCII/Modbus/Factory Settings/Relay Outputs
- Battery Backup & Power Saving Options
- Microsoft based Software

Series 22 Electronic Control Valve

**Features of UVC Ultra**
- 4000 x 4000 Color Display Graphical Display
- 20 Key Keypad
- Multi-Function Input (Analog, Digital, Frequency, Pulse, etc.)
- ASCII/Modbus/Factory Settings/Relay Outputs
- Battery Backup & Power Saving Options
- Microsoft based Software

**Series 22U**

- Series 22U is hydraulically operated, and is available in a variety of control valves. It is used in a variety of applications, including onshore, offshore, and other industries.

**Series 22W**

- Series 22W is a high-pressure control valve. It is used in applications where high pressure and temperature are required.

**Series 22X**

- Series 22X is a high-performance control valve. It is used in applications where high performance and durability are required.

**Series 22Y**

- Series 22Y is a high-temperature control valve. It is used in applications where high temperature is required.

**Series 22Z**

- Series 22Z is a high-pressure control valve. It is used in applications where high pressure and temperature are required.

**Series 22M**

- Series 22M is a high-temperature control valve. It is used in applications where high temperature is required.

**Series 22T**

- Series 22T is a high-pressure control valve. It is used in applications where high pressure is required.

**Features of UVC Basic**
- 128x64 Graphic Monochrome Display
- 15 Keys for entry and scrolling
- Time, Day of Week
- Analog (4-20mA, 0-10V, etc.)
- Digital (pulse, frequency, or pulses)
- Internal Real Time Clock
- SMS (text) messaging by GSM Modem
- Remote Access/Communication (SCADA)
**Series 22 Electronic Control Valve**

**DIMENSIONS**

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**CONSTRUCTION**

- **STAINLESS STEEL**
- **BETTER HOLLOW BODY**
- **GLOBE VALVE**
- **OFFSET CONNECTIONS**
- **LOW MAINTENANCE**
- **HIGH PERFORMANCE**

**APPLICATION**

- **TEMPERATURE CONTROL**
- **BLENDING**
- **MODULATING LEVEL CONTROL**
- **DIFFERENTIAL PRESSURE**
- **BACK PRESSURE CONTROL**
- **PRESSURE REDUCING**
- **FLOW METERING AND CONTROL**
- **FLOW RATE CONTROL**

**INPUT DEVICE REQUIRED**

- **Three Flow Meters**
- **Transducer**
- **Differential Pressure Transducer**
- **Downstream Pressure Transducer**
- **Upstream Pressure Transducer**
- **Level Transducer**

**FUNCTION OFFERED BY SERIES 22 CONTROL VALVE**

- **Can be used as a closed loop system**
- **Simple valve sizing**
- **Remote monitoring and control**
- **Modulating level control**
- **Flow rate control**

**APPLICATION**

- **Industrial**
- **Process Control**
- **SCADA, CAN, Intranet, and RF Systems available**

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SERIES FEATURES/ADVANTAGES

FUNCTION OFFERED BY SERIES 22 CONTROL VALVE

Global performance. Personal touch.