

# VC-22D ValvApp™ Worksheet



This worksheet is intended for the configuration of ValvApps™ used in the VC-22D Valve Controller. From the information provided below, Cla-Val will determine whether a standard ValvApp™ should be used or if a custom ValvApp™ is required. Additionally, this worksheet acts as a check list during commissioning to verify all parameters have been correctly configured in the VC-22D Valve Controller. Once this worksheet is completed, please return to your Cla-Val representative for approval. If a custom ValvApp is required and approved, a custom wiring diagram and ValvApp™ will be created and emailed to you. Please verify all \*Required fields have been filled out prior to submittal.

<b>Information</b>	<b>Reset Form</b>	<b>Configuration:</b> VC-22D
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<b>*Project Name</b> N/A	<b>*Today's Date</b> _____
<b>*Cla-Val Representative</b> N/A	<b>Project Completion Date</b> _____
<b>Control Valve Model Number (if known)</b> 133	<b>Customer Approval Signature</b> _____

**Valve Regulation** (If more than 2 PID's are required, specify in logic on page 2)

<input checked="" type="checkbox"/> PID 1 - Valve Regulation	<b>*Solenoid Config</b> NC / NC (P.F. Lock)	<input type="checkbox"/> PID 2 - Valve Regulation	<b>PID Selection Mode</b> _____
<b>*Control Type</b> Flow	<b>*Signal Loss</b> Lock Valve	<b>Control Type</b> _____	<b>Signal Loss</b> _____
<b>Deadband (+/-)</b> _____	<b>Ramping</b> _____	<b>Deadband (+/-)</b> _____	<b>Ramping</b> _____

**DP Metering (133 Valve)**

<input checked="" type="checkbox"/> DP Metering	<b>Pressure Measurement</b> <input checked="" type="radio"/> P1+P2 <input type="radio"/> DPT	<b>Output</b> Analog Out 1
<b>Size</b> _____	<b>Body Style</b> _____	<b>Seat</b> _____
<b>Units</b> gpm	<b>Output Scaling</b> _____	

**Totalizer**

<input type="checkbox"/> Totalizer	<b>Reset</b> _____	<b>Units</b> _____	<b>Output</b> _____	<b>Output Scaling</b> _____
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**Analog Inputs (4-20mA) 6 Available**

<input checked="" type="checkbox"/> *Analog Input #1 (Typically reserved for control setpoint signal)	<b>Name</b> Flow Setpoint	<b>Units</b> gpm	<b>Scaling</b> 4mA = 0 20mA = 2000	<input type="checkbox"/> Signal Powered by Controller	<b>Decimal</b> 0
<input checked="" type="checkbox"/> *Analog Input #2 (Typically reserved for control feedback signal)	<b>Name</b> Valve Position	<b>Units</b> %	<b>Scaling</b> 4mA = 0 20mA = 100	<input checked="" type="checkbox"/> Signal Powered by Controller	<b>Decimal</b> 0.0
<input checked="" type="checkbox"/> Analog Input #3	<b>Name</b> P1 Transmitter	<b>Units</b> psi	<b>Scaling</b> 4mA = 0 20mA = 290	<input checked="" type="checkbox"/> Signal Powered by Controller	<b>Decimal</b> 0.0
<input checked="" type="checkbox"/> Analog Input #4	<b>Name</b> P2 Transmitter	<b>Units</b> psi	<b>Scaling</b> 4mA = 0 20mA = 290	<input checked="" type="checkbox"/> Signal Powered by Controller	<b>Decimal</b> 0.0
<input type="checkbox"/> Analog Input #5	<b>Name</b> _____	<b>Units</b> _____	<b>Scaling</b> 4mA = _____ 20mA = _____	<input type="checkbox"/> Signal Powered by Controller	<b>Decimal</b> _____
<input type="checkbox"/> Analog Input #6	<b>Name</b> _____	<b>Units</b> _____	<b>Scaling</b> 4mA = _____ 20mA = _____	<input type="checkbox"/> Signal Powered by Controller	<b>Decimal</b> _____

**Digital Inputs 6 Available**

<input checked="" type="checkbox"/> Digital Input 1 <b>Name</b> Spare	<input type="checkbox"/> Digital Input 2 <b>Name</b> _____	<input type="checkbox"/> Digital Input 3 <b>Name</b> _____
<b>Purpose</b> _____	<b>Purpose</b> _____	<b>Purpose</b> _____
<input type="checkbox"/> Digital Input 4 <b>Name</b> _____	<input type="checkbox"/> Digital Input 5 <b>Name</b> _____	<input type="checkbox"/> Digital Input 6 <b>Name</b> _____
<b>Purpose</b> _____	<b>Purpose</b> _____	<b>Purpose</b> _____

**Analog Outputs (4-20mA)** Note: Analog Outputs are sourced with controller power.

<input checked="" type="checkbox"/> Analog Output #1	Name <input type="text" value="Flow Rate"/>	Units <input type="text" value="gpm"/>	Scaling	4mA = <input type="text" value="0"/>	20mA = <input type="text" value="2000"/>	Decimal <input type="text" value="0"/>
<input type="checkbox"/> Analog Output #2	Name <input type="text"/>	Units <input type="text"/>	Scaling	4mA = <input type="text"/>	20mA = <input type="text"/>	Decimal <input type="text"/>
<input type="checkbox"/> Analog Output #3	Name <input type="text"/>	Units <input type="text"/>	Scaling	4mA = <input type="text"/>	20mA = <input type="text"/>	Decimal <input type="text"/>
<input type="checkbox"/> Analog Output #4	Name <input type="text"/>	Units <input type="text"/>	Scaling	4mA = <input type="text"/>	20mA = <input type="text"/>	Decimal <input type="text"/>

**Solenoid Outputs**

<input checked="" type="checkbox"/> *Solenoid Output #1 (SO1)	Name <input type="text" value="Close Solenoid"/> <small>Default: Closing Solenoid</small>	<input checked="" type="checkbox"/> Solenoid Output #2 (SO2)	Name <input type="text" value="Open Solenoid"/> <small>Default: Opening Solenoid</small>	<small>Note: SO1 and SO2 are a powered solid state output typically reserved for solenoids used on a 131 or 133 series valve. The output can be configured as PWM (default) or Discrete ON/OFF. If configured as discrete, a value of 0 represents an open circuit, and 1 a closed circuit.</small>
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**Relay Output**

<input type="checkbox"/> Relay Output #1 (RO1)	Name <input type="text"/>	<input type="checkbox"/> Relay Output #2 (RO2)	Name <input type="text"/>	<small>Note: RO1 and RO2 are configured as dry contact mechanical relays typically used for alarms. These outputs are configured as Discrete ON/OFF, a value of 0 represents an open circuit, and 1 a closed circuit.</small>
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**Actions/Alarms**

<input type="checkbox"/> Action #1	Name <input type="text"/>	Describe <input type="text"/>	<small>Additional Comments</small> <input type="text"/>
<input type="checkbox"/> Action #2	Name <input type="text"/>	Describe <input type="text"/>	<small>Additional Comments</small> <input type="text"/>
<input type="checkbox"/> Action #3	Name <input type="text"/>	Describe <input type="text"/>	<small>Additional Comments</small> <input type="text"/>
<input type="checkbox"/> Action #4	Name <input type="text"/>	Describe <input type="text"/>	<small>Additional Comments</small> <input type="text"/>

**Communication**

<input type="checkbox"/> GSM/GPRS	<input checked="" type="checkbox"/> Modbus TCP/IP	<input type="checkbox"/> Modbus RTU (RS485/RS232)	<small>Note: See ModBus specification page for register mapping and implementation. Refer to manual for more details.</small>
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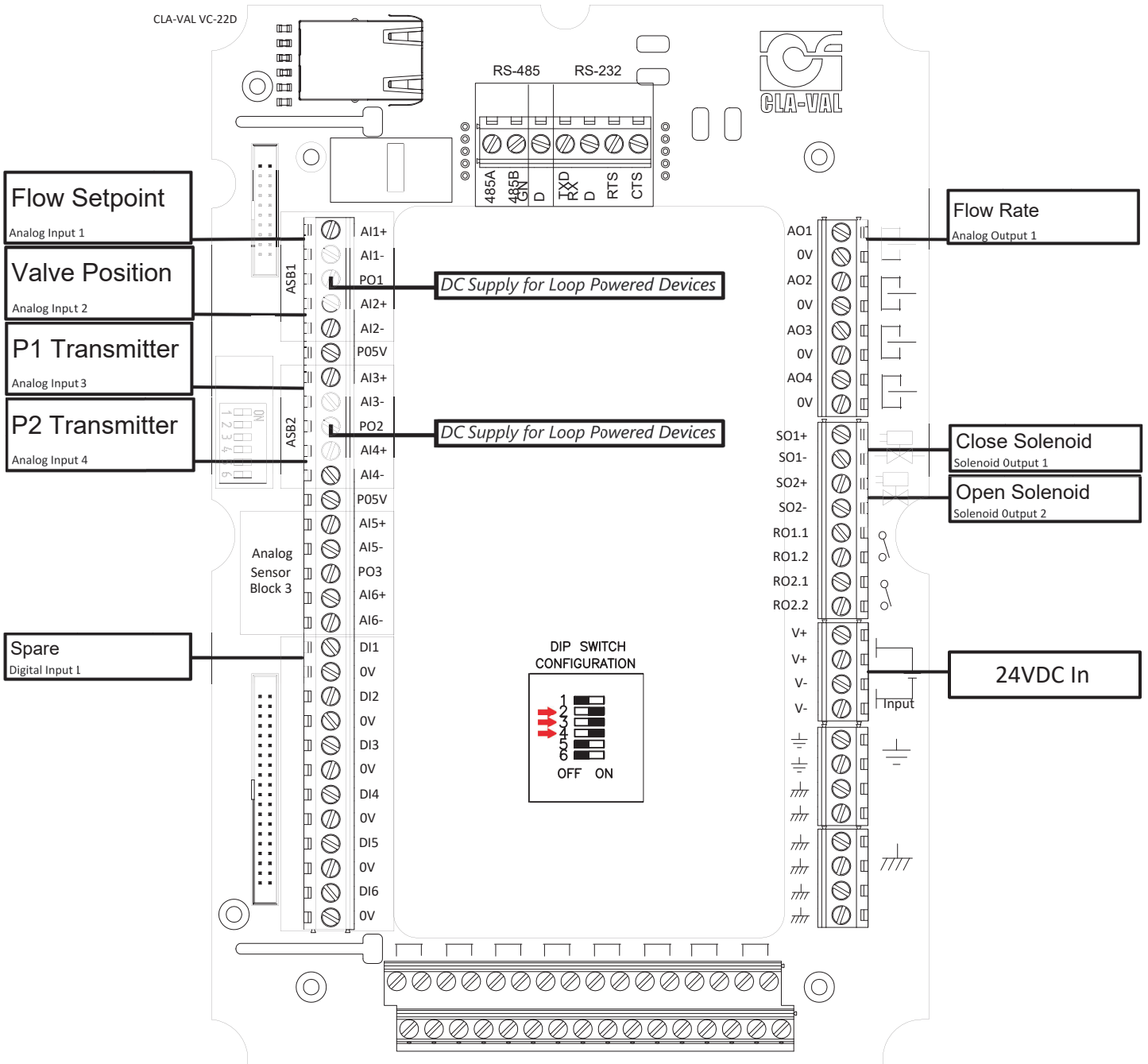
**\*Control Logic** (Please specify all control logic using sketches, diagrams, etc. Attach additional sheets if necessary)

This ValvApp provides a standard flow control function for a 133 series valve. If the flow rises above the SP, the valve will modulate closed. If the flow drops below the SP, the valve will modulate open.

DI1 and AI3 have been added into this program, even though they are currently not used for anything. These serve as spare IO points so additional functionality can be added in the field by landing signal cables on these IO points and configuring actions in the VC-22D.

A custom control curve has been added to this program which allows the position transmitter to be pseudo calibrated in the field. There is also an interactive variable, P2 offset, which can be adjusted in the field. This exists to allow the DP Metering to be adjusted to match a mag meter in the field.

\* This is only to give an idea of where wires will be landed. Does not account for number of wires and Loop or Field powered. Please refer to **Electrical Wiring** section of VC-22D IOM for help wiring loop or field powered devices.



**Cla-Val VC-22D Modbus Addresses**

**Project Name:**

N/A

**Date:**

Modbus	Input	Description	Data Type	Access	I/O Mapping	Comments
40007 Bit 0	Flow Setpoint	Analog Input Modbus Override	Bit	Write	N/A	Overrides 4-20mA AI1 Input to use Modbus Address 43000/43001
40007 Bit 1	Valve Position	Analog Input Modbus Override	Bit	Write	N/A	Overrides 4-20mA AI2 Input to use Modbus Address 43002/43003
40007 Bit 2	P1 Transmitter	Analog Input Modbus Override	Bit	Write	N/A	Overrides 4-20mA AI3 Input to use Modbus Address 43004/43005
40007 Bit 3	P2 Transmitter	Analog Input Modbus Override	Bit	Write	N/A	Overrides 4-20mA AI4 Input to use Modbus Address 43006/43007
40007 Bit 4	--	Analog Input Modbus Override	Bit	Write	N/A	Overrides 4-20mA AI5 Input to use Modbus Address 43008/43009
40007 Bit 5	--	Analog Input Modbus Override	Bit	Write	N/A	Overrides 4-20mA AI6 Input to use Modbus Address 43010/43011
40008 Bit 0	Spare	Digital Input Modbus Override	Bit	Write	N/A	Overrides Hardwire DI1 Input to use Modbus Address 41000
40008 Bit 1	--	Digital Input Modbus Override	Bit	Write	N/A	Overrides Hardwire DI2 Input to use Modbus Address 41001
40008 Bit 2	--	Digital Input Modbus Override	Bit	Write	N/A	Overrides Hardwire DI3 Input to use Modbus Address 41002
40008 Bit 3	--	Digital Input Modbus Override	Bit	Write	N/A	Overrides Hardwire DI4 Input to use Modbus Address 41003
40008 Bit 4	--	Digital Input Modbus Override	Bit	Write	N/A	Overrides Hardwire DI5 Input to use Modbus Address 41004
40008 Bit 5	--	Digital Input Modbus Override	Bit	Write	N/A	Overrides Hardwire DI6 Input to use Modbus Address 41005
41000	Spare	Digital Input	Word	Read/Write	DI1	Register Holds/Reads DI1 Value
41001	--	Digital Input	Word	Read/Write	DI2	Register Holds/Reads DI2 Value
41002	--	Digital Input	Word	Read/Write	DI3	Register Holds/Reads DI3 Value
41003	--	Digital Input	Word	Read/Write	DI4	Register Holds/Reads DI4 Value
41004	--	Digital Input	Word	Read/Write	DI5	Register Holds/Reads DI5 Value
41005	--	Digital Input	Word	Read/Write	DI6	Register Holds/Reads DI6 Value
41006	Close Solenoid	Digital Output	Word	Read	S01	Monitory Purposes (Optional)
41007	Open Solenoid	Digital Output	Word	Read	S02	Monitory Purposes (Optional)
41008	--	Digital Output	Word	Read	R01	Monitory Purposes (Optional)
41009	--	Digital Output	Word	Read	R02	Monitory Purposes (Optional)
43000/43001	Flow Setpoint	Analog Input	Int 32	Read/Write	AI1	Register Holds/Reads AI1 Value x100 for Two Implied Decimals
43002/43003	Valve Position	Analog Input	Int 32	Read/Write	AI2	Register Holds/Reads AI2 Value x100 for Two Implied Decimals
43004/43005	P1 Transmitter	Analog Input	Int 32	Read/Write	AI3	Register Holds/Reads AI3 Value x100 for Two Implied Decimals
43006/43007	P2 Transmitter	Analog Input	Int 32	Read/Write	AI4	Register Holds/Reads AI4 Value x100 for Two Implied Decimals
43008/43009	--	Analog Input	Int 32	Read/Write	AI5	Register Holds/Reads AI5 Value x100 for Two Implied Decimals
43010/43011	--	Analog Input	Int 32	Read/Write	AI6	Register Holds/Reads AI6 Value x100 for Two Implied Decimals
43036/43037	Flow Rate	Analog Output	Int 32	Read	AO1	Monitory Purposes (Optional) - Register Holds AO1 Value x100 for Two Implied Decimals
43038/43039	--	Analog Output	Int 32	Read	AO2	Monitory Purposes (Optional) - Register Holds AO2 Value x100 for Two Implied Decimals
43040/43041	--	Analog Output	Int 32	Read	AO3	Monitory Purposes (Optional) - Register Holds AO3 Value x100 for Two Implied Decimals
43042/43043	--	Analog Output	Int 32	Read	AO4	Monitory Purposes (Optional) - Register Holds AO4 Value x100 for Two Implied Decimals

\*\*\*Additional ModBus information can be found in the manual.