

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.

Information		Reset Form	Configuration: VC-22D	
*Project Name <input type="text" value="N/A"/>		*Today's Date <input type="text"/>		
*Cla-Val Representative <input type="text" value="N/A"/>		Project Completion Date <input type="text"/>		
Control Valve Model Number (if known) <input type="text" value="131"/>		Customer Approval Signature <input type="text"/>		
Valve Regulation (If more than 2 PID's are required, specify in logic on page 2)				
<input checked="" type="checkbox"/> PID 1 - Valve Regulation	*Solenoid Config <input type="text" value="NC / NC (P.F. Lock)"/>	<input type="checkbox"/> PID 2 - Valve Regulation	PID Selection Mode <input type="text"/>	
*Control Type <input type="text" value="Level - Modulating"/>	*Signal Loss <input type="text" value="Lock Valve"/>	Control Type <input type="text"/>	Signal Loss <input type="text"/>	
Deadband (+/-) <input type="text"/>	Ramping <input type="text"/>	Deadband (+/-) <input type="text"/>	Ramping <input type="text"/>	
DP Metering (133 Valve)				
<input type="checkbox"/> DP Metering	Pressure Measurement <input checked="" type="radio"/> P1+P2 <input type="radio"/> DPT	Output <input type="text"/>		
Size <input type="text"/>	Body Style <input type="text"/>	Seat <input type="text"/>	Units <input type="text"/>	Output Scaling <input type="text"/>
Totalizer				
<input type="checkbox"/> Totalizer	Reset <input type="text"/>	Units <input type="text"/>	Output <input type="text"/>	Output Scaling <input type="text"/>
Analog Inputs (4-20mA) 6 Available				
<input checked="" type="checkbox"/> *Analog Input #1 (Typically reserved for control setpoint signal)	Name <input type="text" value="Level Shutoff SP"/>	Units <input type="text" value="ft"/>	Scaling <input type="text" value="4mA = 0"/>	<input type="checkbox"/> Signal Powered by Controller
			<input type="text" value="20mA = 20"/>	Decimal <input type="text" value="0.00"/>
<input checked="" type="checkbox"/> *Analog Input #2 (Typically reserved for control feedback signal)	Name <input type="text" value="Level"/>	Units <input type="text" value="ft"/>	Scaling <input type="text" value="4mA = 0"/>	<input checked="" type="checkbox"/> Signal Powered by Controller
			<input type="text" value="20mA = 20"/>	Decimal <input type="text" value="0.00"/>
<input checked="" type="checkbox"/> Analog Input #3	Name <input type="text" value="Flow Rate"/>	Units <input type="text" value="gpm"/>	Scaling <input type="text" value="4mA = 0"/>	<input checked="" type="checkbox"/> Signal Powered by Controller
			<input type="text" value="20mA = 2000"/>	Decimal <input type="text" value="0"/>
<input type="checkbox"/> Analog Input #4	Name <input type="text"/>	Units <input type="text"/>	Scaling <input type="text"/>	<input type="checkbox"/> Signal Powered by Controller
			<input type="text"/>	Decimal <input type="text"/>
<input type="checkbox"/> Analog Input #5	Name <input type="text"/>	Units <input type="text"/>	Scaling <input type="text"/>	<input type="checkbox"/> Signal Powered by Controller
			<input type="text"/>	Decimal <input type="text"/>
<input type="checkbox"/> Analog Input #6	Name <input type="text"/>	Units <input type="text"/>	Scaling <input type="text"/>	<input type="checkbox"/> Signal Powered by Controller
			<input type="text"/>	Decimal <input type="text"/>
Digital Inputs 6 Available				
<input checked="" type="checkbox"/> Digital Input 1	Name <input type="text" value="Spare"/>	<input type="checkbox"/> Digital Input 2	Name <input type="text"/>	<input type="checkbox"/> Digital Input 3
Purpose <input type="text"/>	Purpose <input type="text"/>	Purpose <input type="text"/>	Purpose <input type="text"/>	Purpose <input type="text"/>
<input type="checkbox"/> Digital Input 4	Name <input type="text"/>	<input type="checkbox"/> Digital Input 5	Name <input type="text"/>	<input type="checkbox"/> Digital Input 6
Purpose <input type="text"/>	Purpose <input type="text"/>	Purpose <input type="text"/>	Purpose <input type="text"/>	Purpose <input type="text"/>

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

<input type="checkbox"/> Analog Output #1	Scaling
Name <input type="text"/> Units <input type="text"/>	4mA = <input type="text"/> 20mA = <input type="text"/> Decimal <input type="text"/>
<input type="checkbox"/> Analog Output #2	Scaling
Name <input type="text"/> Units <input type="text"/>	4mA = <input type="text"/> 20mA = <input type="text"/> Decimal <input type="text"/>
<input type="checkbox"/> Analog Output #3	Scaling
Name <input type="text"/> Units <input type="text"/>	4mA = <input type="text"/> 20mA = <input type="text"/> Decimal <input type="text"/>
<input type="checkbox"/> Analog Output #4	Scaling
Name <input type="text"/> Units <input type="text"/>	4mA = <input type="text"/> 20mA = <input type="text"/> Decimal <input type="text"/>

Solenoid Outputs

<input checked="" type="checkbox"/> *Solenoid Output #1 (SO1)	<input checked="" type="checkbox"/> Solenoid Output #2 (SO2)	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.
Name <input type="text"/> Close Solenoid <small>Default: Closing Solenoid</small>	Name <input type="text"/> Open Solenoid <small>Default: Opening Solenoid</small>	

Relay Output

<input type="checkbox"/> Relay Output #1 (RO1)	<input type="checkbox"/> Relay Output #2 (RO2)	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.
Name <input type="text"/>	Name <input type="text"/>	

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

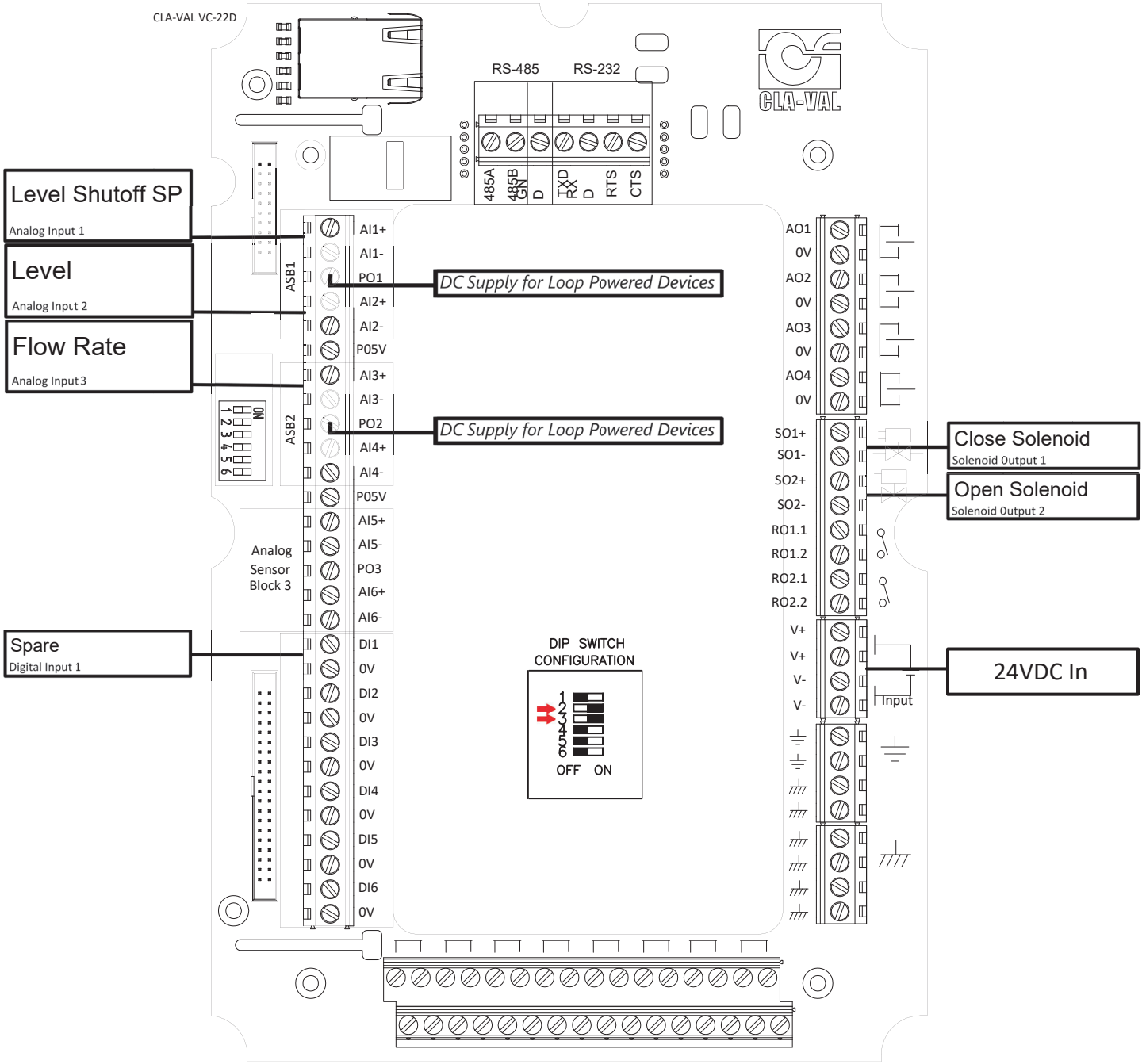
<input type="checkbox"/> GSM/GPRS	<input checked="" type="checkbox"/> Modbus TCP/IP	<input type="checkbox"/> Modbus RTU (RS485/RS232)	Note: See ModBus specification page for register mapping and implementation. Refer to manual for more details.
-----------------------------------	---	---	---

***Control Logic** (Please specify all control logic using sketches, diagrams, etc. Attach additional sheets if necessary)

This ValvApp provides standard level altitude control. If the level is above a high setpoint, the valve goes full closed. If the level is below the high setpoint, the valve controls flow into the tank. The flow rate is directly proportional to the difference between current level and high setpoint. A maximum flow rate setpoint has been included which can be adjusted in the field to prevent the flow from exceeding a certain value regardless of how empty the tank is. A minimum flow rate setpoint has been included which can be adjusted in the field to prevent the flow from getting extremely small as the level approaches the high setpoint.

DI1 has been added into this program, even though they are currently not used for anything. This serves as a spare IO point so additional functionality can be added in the field by landing signal cables on this IO point and configuring actions in the VC-22D.

* 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	Level Shutoff SP	Analog Input Modbus Override	Bit	Write	N/A	Overrides 4-20mA AI1 Input to use Modbus Address 43000/43001
40007 Bit 1	Level	Analog Input Modbus Override	Bit	Write	N/A	Overrides 4-20mA AI2 Input to use Modbus Address 43002/43003
40007 Bit 2	Flow Rate	Analog Input Modbus Override	Bit	Write	N/A	Overrides 4-20mA AI3 Input to use Modbus Address 43004/43005
40007 Bit 3	--	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	Level Shutoff SP	Analog Input	Int 32	Read/Write	AI1	Register Holds/Reads AI1 Value x100 for Two Implied Decimals
43002/43003	Level	Analog Input	Int 32	Read/Write	AI2	Register Holds/Reads AI2 Value x100 for Two Implied Decimals
43004/43005	Flow Rate	Analog Input	Int 32	Read/Write	AI3	Register Holds/Reads AI3 Value x100 for Two Implied Decimals
43006/43007	--	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	--	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.