SPXFLOW®

IO-LINK CU4PLUS CONTROL UNITS

SPX FLOW CU4plus IO-Link works with all APV and Waukesha Cherry Burrell valves and can retrofit with existing installed base when paired with an IO-Link master. The control units provide features that improve uptime, inter-operatbility, and sustainability.

Inter-operable Flexibility leads to Ease of Installation and Use

IO-Link allows for interoperability across multiple protocols enabling end users to quickly integrate with other fieldbus protocols.

Real Time Diagnostics Improve Uptime

Monitor real-time process data to update valve limit set values to optimize/trigger needed maintenance intervals (activation hours, cycles, actuation reaction times)

Unique Air Pressure Monitoring Allow for Quick Maintenance Response

CU4plus IO-Link features a unique pressure sensor in the control unit will allow end users to monitor air pressure used to actuate the valve. This feature combined with this more advanced protocol enhances the end user to optimize performance, increase uptime and maximize interoperability with other protocols.

Data Centralized for a Robust Network and Less Downtime

Complete configuration setup is an automated process which is stored in the IO-Link master such that it can be reloaded in any replacement unit (including the firmware). This leads to shorter downtimes, accurate, and error-free automation restoration of the original valve relevant setting of the control unit.

Seat Lift Pulsation Enhance CIP / Sustainability

For mix proof valves seat lifting can work based on pulsation with defined ON/OFF times to optimize CIP.

APV®

Waukesha Cherry-Burrell®

CU4 PLUS IO-LINK

APPLICATION

APPLICATION	In food processing industry as well as in related industries
FUNCTION	Control of process valves

MECHANICS AND PNEUMATICS

MATERIAL	PA6.6 / PA12
AMBIENT TEMPERATURE	-20 °C to +70 °C; - 4 °F to + 158 °F
AIR HOSE	6 mm / ¼" OD
PRESSURE RANGE	6 – 8 bar
COMPRESSED AIR QUALITY	Quality class acc. to DIN ISO 8573-1
CONTENT OF SOLID PARTICLES	Quality class 3, max. size of solid particles per m^3 10000 of 0.5 µm < d < 1.0 µm 500 of 1.0 µm < d < 5.0 µm
CONTENT OF WATER	Quality class 3, max. dew point temperature -20 °C For installations at lower temperatures or at higher altitudes, additional measures must be considered to reduce the pressure dew point accordingly.
CONTENT OF OIL	Quality class 1, max. 0.01 mg / m^3

ELECTRICAL DATA

OPERATING VOLTAGE	18 V – 30 V DC
RIPPLE	Max. 1.3 Vpp (peak to peak)
INRUSH CHARGE	Lower 20 mAs
VOLTAGE SUPPLY OF SENSORS	5 V DC (+ / - 5 %)
POWER CONSUMPTION	Minimum approx. 65 mA @ 24 V DC Typical approx. 86 mA @ 24 V DC Maximum approx. 105 mA @ 24 V DC
CABLE LENGTH	Max. 20 m (IO-Link specific)

CU4 PLUS IO-LINK

VALVE TYPES AND CALIBRATION		
Valve Types	For all types of SPX FLOW valves.	
Sensor Calibration	One button automatic calibration process for all valve types.	
Manual Calibration	Separate option for a manual calibration of the valve closed position.	
Tolerance Band	+-1 mm, +-2 mm, +-5 mm depending on the valve type.	
DATA SIGNALS		
Process Data Input Signals	Valve Closed	Signal for Valve in Closed position
	Valve Open	Signal for Valve on Open position
	Upper seat lift active	Upper seat lift of a double seat valve active
	Lower seat lift active	Lower seat lift of a double seat valve active
	Sensor Position 1	Valve in calibrated linear sensor position 1. Needed for PMO valves.
	Sensor Position 2	Valve in calibrated linear sensor position 2. Needed for PMO valves.
	Position Lift	Valve in calibrated linear sensor position lift
	Sensor Position 3	Valve in calibrated linear sensor position 3. Needed for PMO valves.
	Sensor Position 4	Valve in calibrated linear sensor position 4. Needed for PMO valves.
	External Sensor 3	External proximity switch 3 active
	External Sensor 4	External proximity switch 4 active
	Air Pressure	Air pressure of the main actuator
	Valve Shaft Position 1	Linear sensor 1 position
	Valve ShaftPosition 2	Linear sensor 2 position
Process Data Output Signals	Main Valve	Main Actuator
	Upper Seat lift	Actuator for the upper seat lift
	Lower Seat lift	Actuator for the lower seat lift

SPXFLOW®

CU4 PLUS IO-LINK

IO-LINK INTERFACE	
Transmission Type	COM3 (230,4 kBaud)
IO-Link Revision	1.1
IO-Link Class	Port Class A
Data Storage Mode	Fully supported
Firmware update	By an encrypted *.iolfw file
TESTS / APPROVALS	
EU	EMC 2014/30/EU (89/336/EEC)
Protective Class	IP 67 EN 60529 complies with NEMA 6
EMC	DIN EN 55011
DIN EN 6100-4-2,3,4,5,6	
Vibration/Oscillation	EN 60068-2-6
Safety of Machinery	DIN EN ISO 13849-1,2
IO-Link	IEC 611 31-9 Physical Layer Test Device Conformance Test
Control Instruments	IEC 60947-5-2
ELECTRICAL CONNECTION	
Connector	M12 connector with 4 pins
Connection	Default wiring complies with IEC 60947-5-2 and uses only three wires for 24 V, 0 V and a signal line.
SENSOR INTERFACE (DEPENDENT FROM THE VALVE TYPE)	
Linear position Sensors	One or two linear sensors for the valve position.
Discrete Sensors	Up to two proximity switches
Air Pressure Sensor	One air pressure sensor
USER INTERFACE	
Valve Interface	5 LEDs in the cap for the valve function
Solenoid Function	3 internal LEDs for the solenoid function
Function Interface	3 internal LEDs for teach, pressure and service functions
Service Interface	A serial service interface for the connection to a PC for configuration and service purposes.

ISSUED04/2022