

1 Universal Input, 2 Outputs Valve Controller, Plug-In

1 Voltage, Current, Resistive, PWM, Frequency or Digital Input
2 - 2A Outputs
Programmable

P/N: AX022320

Control localized at the hydraulic valve with configurable control profiles

Features:

- 1 Universal signal input (Voltage, Current, Resistive, PWM, Frequency or Digital)
- Two 0-2.0A outputs configurable for proportional or on/off
- Superimposed dither
- Independent ramps (0-60 seconds)
- 12Vdc, 24Vdc nominal input power
- Rugged IP67 enclosure using ultrasonic welding technology
- Integrated connectors to minimize wiring and reduce installation time
- Compact, plug-in style for valve coils having a molded-in integral electrical connector (equivalent TE Deutsch P/N: DT04-2P)
- Includes standard control profiles identified by model type: AXLCV Valve Controller; AXLCF Fan Controller; AXLCT Transmission Controller; or AXLCTI Transmission Controller with inverse profile.
- Flexible user programming for application-specific parameters via EWRITE Service Tool for a PC



Description: The 1 Universal Input, 2 Outputs Plug-In Valve Controller is designed for extremely versatile control of up to two proportional outputs to directly drive coils or other inductive loads up to 2.0 Amps. The controller has one fully programmable universal input that can be setup to read a: voltage, current, resistive, or PWM input signal. The two outputs can be setup to drive proportional current (up to 2.0A each) or hotshot digital current (2A). Both outputs are high-side driven (sourcing) outputs. The sophisticated control algorithms allow the user to program the controller for a wide range of applications without the need for custom software. The controller includes user selectable standard control profiles identified by model type: AXLCV Valve Controller; AXLCF Fan Controller; AXLCT Transmission Controller; or AXLCTI Transmission Controller with inverse profile. A service tool is provided for user programming via PC. The Axiomatic Local Controller EWRITE service tool requires a configuration cable.

Applications:

The hydraulic valve controller is designed to meet the rugged demands of mobile equipment, oil and gas equipment, and heavy duty industrial machine applications. It can be used for distributed control of the following.

- Flow or pressure control of single solenoid hydraulic valves
- Control of dual solenoid hydraulic valves with interface to a joystick
- Control of hydraulic fan drives
- Transmission control for accurate low-speed control of vehicles
- Soft shift of valve coils

Ordering Part Numbers:

Dual Valve Controller, 1 Universal Input, Plug-In: **AX022320**

User Manual: AXLC Local EWRITE User Manual

Service Tool: **AXLC Local EWRITE** (Available from the log-in section of www.axiomatic.com)

Configuration Cable: **AX070127**

Mating Connector Kit for 6-pin connector (1 DT06-6S, 1 W6S, 6 0462-201-16141): **AX070119**

Technical Specifications:

Specifications are indicative and subject to change. Actual performance will vary depending on the application and operating conditions. Users should satisfy themselves that the product is suitable for use in the intended application. All our products carry a limited warranty against defects in material and workmanship. Please refer to our Warranty, Application Approvals/Limitations and Return Materials Process as described on <https://www.axiomatic.com/service/>.

Power Supply Input

Power Supply Input - Nominal	12Vdc, 24Vdc nominal (8...36 Vdc power supply range)
Protection	Reverse polarity protection is provided. Transient and surge protection is provided. Under-voltage protection at 6Vdc is provided. Overvoltage protection up to 40Vdc is provided.

Inputs

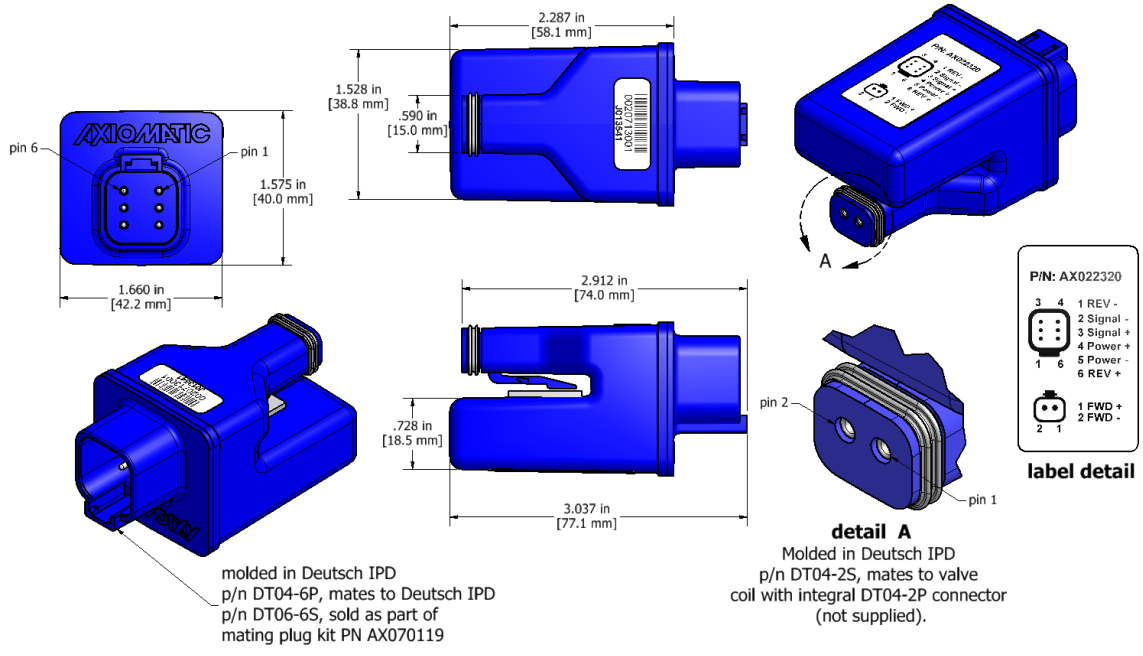
Command Signal Input	1 universal signal input is provided. See below. All input modes are user selectable.
Analog Input Functions	Voltage [V], Current [mA], Resistive [kΩ], PWM [%], Frequency [Hz], Digital
Voltage Input	0-5V 0-10V
Current Input	0-20mA (Impedance 249 Ω) 4-20mA (Impedance 249 Ω)
Resistive Input	10Ω to 5 kΩ
PWM Input	100 Hz to 10 kHz PWM Range 0 to 100% D.C. (100 Hz to 10 kHz) 1.5V to 3.5V
Digital Input	Active High up to +Vsupply or Active Low to Ground Amplitude: 0V to +Vsupply
Input Resolution and Accuracy	12-bit Analog to Digital (voltage, current, resistive) Voltage Type: 1 mV resolution, +/- 1% accuracy Current Type: 1 μA resolution, +/- 1% accuracy Resistive Type: +/-1 % accuracy PWM Type: 100 Hz to 10 kHz: 0.01% resolution, +/- 100 Hz accuracy PWM D.C. with 100 Hz to 10 kHz signal: +/- 0.5% accuracy
Protection	The inputs are protected against shorts to GND or +Vsupply.

Outputs

Output Functions	Two outputs are configurable as follows. Proportional Current [mA] or On/Off
Output Type	High side switch (sourcing output) 0 – 2.5A (hardware) NB. Software allows up to 2A. Half-bridge output, current sensing, grounded load High frequency drive
Output Resolution and Accuracy	Output Current mode: 1mA resolution, +/- 2% full scale error Output Voltage mode: 0.1V resolution, accuracy +/-5% error Output PWM mode: 0.1% resolution, accuracy +/-0.1% error
Digital Output	If digital output is selected, it is sourcing from power supply or output off. The load at supply voltage must not draw more than 2.5A.
Dither	50 to 400 Hz 0 to 10% of I-max.
Ramp Times	Independent 0-60 seconds Full scale (0 mA to maximum current)
Protection for Output A+	Output A which plugs directly into the valve is protected against a short to GND.
Protection for Output B+	Output B is protected against short circuit to ground and short circuit to power supply rail. Unit will fail safe in the case of a short circuit condition, self-recovering when the short is removed.
Output GND Reference	Two output grounds are provided.

General Specifications

Quiescent Current	40 mA @ 12VDC; 24 mA @ 24VDC																																																																								
Microprocessor	STM32, 32-bit, 128 Kbyte program memory																																																																								
Control Logic	<p>User programmable functionality using a service tool.</p> <p>The controller includes user selectable standard control profiles identified by model type: AXLCV Valve Controller; AXLCF Fan Controller; AXLCT Transmission Controller; or AXLCTI Transmission Controller with inverse profile.</p> <p>The controller includes user selectable control profiles for single output/single slope, single output/dual slope, dual output/single slope or dual output/dual slope.</p> <p>Parameters to fine tune the outputs to the fan, include: cold start; hotshot; coldshot; auto over temperature; and other configurable settings.</p> <p>There is an inching control method configurable as on or off and assigned to forward or reverse operation.</p> <p>Refer to the User Manual for details.</p>																																																																								
User Interface	<p>A service tool is available for user configuration, the Axiomatic Local Controller EWRITE. The service tool is available from www.axiomatic.com. Go to the Log-In tab. Contact sales@axiomatic.com for the password.</p> <p>The Axiomatic Local Controller EWRITE service tool, requires a configuration cable, P/N: AX070127. The configuration cable allows access to the one-wire serial port (over the universal input pin).</p>																																																																								
Enclosure	<p>Molded Enclosure, integral connectors, Ultrasonic welded assembly</p> <p>Polyester, 15% glass</p> <p>Silicone seals</p> <p>3.037 x 1.44 x 1.660 inches (77.1 x 36.6 x 42.2 mm)</p> <p>L x W x H including integral connectors</p>																																																																								
Protection	IP67 rating for the product assembly																																																																								
Weight	0.15 lb. (0.068 kg)																																																																								
Temperature Rating	Operating: -40 to 85°C (-40 to 185°F) Storage: -50 to 105°C (-58 to 221°F)																																																																								
Connectors	<p>6-pin Integral Connector (equivalent TE Deutsch P/N: DT04-6P) which mates to TE Deutsch P/N DT06-6S (not supplied)</p> <p>2-pin Integral Connector (equivalent TE Deutsch P/N: DT06-2S) mates to valve coil with integral DT04-2P Connector (not supplied)</p>																																																																								
Electrical Pinout	<p>Wires should be of the appropriate gauge to meet requirements of applicable electrical codes and suit the specifications of the connector(s).</p> <table border="1" data-bbox="532 1087 1341 1360"> <thead> <tr> <th colspan="6">6-pin Connector</th> </tr> <tr> <th>Pin #</th> <th>Description</th> <th>AXLCV Valve Controller</th> <th>AXLCF Fan Controller</th> <th>AXLCT Transmission Controller</th> <th>AXLCTI Inverse Transmission Controller</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Solenoid B-</td> <td>Solenoid B-</td> <td>REV-</td> <td>REV-</td> <td>REV-</td> </tr> <tr> <td>2</td> <td>Signal -</td> <td>Signal -</td> <td>Signal -</td> <td>Signal-</td> <td>Signal-</td> </tr> <tr> <td>3</td> <td>Signal +</td> <td>Signal +</td> <td>Signal +</td> <td>Signal+</td> <td>Signal+</td> </tr> <tr> <td>4</td> <td>Power +</td> <td>Power +</td> <td>Power +</td> <td>Power+</td> <td>Power+</td> </tr> <tr> <td>5</td> <td>Power -</td> <td>Power -</td> <td>Power -</td> <td>Power-</td> <td>Power-</td> </tr> <tr> <td>6</td> <td>Solenoid B+</td> <td>Solenoid B+</td> <td>REV +</td> <td>REV+</td> <td>REV+</td> </tr> </tbody> </table> <table border="1" data-bbox="532 1377 1341 1545"> <thead> <tr> <th colspan="6">2-pin Connector</th> </tr> <tr> <th>Pin #</th> <th>Description</th> <th>AXLCV Valve Controller</th> <th>AXLCF Fan Controller</th> <th>AXLCT Transmission Controller</th> <th>AXLCTI Inverse Transmission Controller</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Solenoid A+</td> <td>Solenoid A+</td> <td>FAN +</td> <td>FWD+</td> <td>FWD+</td> </tr> <tr> <td>2</td> <td>Solenoid A-</td> <td>Solenoid A-</td> <td>FAN -</td> <td>FWD-</td> <td>FWD-</td> </tr> </tbody> </table>	6-pin Connector						Pin #	Description	AXLCV Valve Controller	AXLCF Fan Controller	AXLCT Transmission Controller	AXLCTI Inverse Transmission Controller	1	Solenoid B-	Solenoid B-	REV-	REV-	REV-	2	Signal -	Signal -	Signal -	Signal-	Signal-	3	Signal +	Signal +	Signal +	Signal+	Signal+	4	Power +	Power +	Power +	Power+	Power+	5	Power -	Power -	Power -	Power-	Power-	6	Solenoid B+	Solenoid B+	REV +	REV+	REV+	2-pin Connector						Pin #	Description	AXLCV Valve Controller	AXLCF Fan Controller	AXLCT Transmission Controller	AXLCTI Inverse Transmission Controller	1	Solenoid A+	Solenoid A+	FAN +	FWD+	FWD+	2	Solenoid A-	Solenoid A-	FAN -	FWD-	FWD-
6-pin Connector																																																																									
Pin #	Description	AXLCV Valve Controller	AXLCF Fan Controller	AXLCT Transmission Controller	AXLCTI Inverse Transmission Controller																																																																				
1	Solenoid B-	Solenoid B-	REV-	REV-	REV-																																																																				
2	Signal -	Signal -	Signal -	Signal-	Signal-																																																																				
3	Signal +	Signal +	Signal +	Signal+	Signal+																																																																				
4	Power +	Power +	Power +	Power+	Power+																																																																				
5	Power -	Power -	Power -	Power-	Power-																																																																				
6	Solenoid B+	Solenoid B+	REV +	REV+	REV+																																																																				
2-pin Connector																																																																									
Pin #	Description	AXLCV Valve Controller	AXLCF Fan Controller	AXLCT Transmission Controller	AXLCTI Inverse Transmission Controller																																																																				
1	Solenoid A+	Solenoid A+	FAN +	FWD+	FWD+																																																																				
2	Solenoid A-	Solenoid A-	FAN -	FWD-	FWD-																																																																				



Form: TDAX022320-06/14/23