


TECHNICAL DATASHEET #TDGWL171100  
CAN Controlled Valve Driver with Position Feedback, SAEJ1939  
AXIOMATIC P/N: GWL171100  
G.W. LISK P/N: VY2-2837

**Features:**

- 1 universal signal input with +5V reference (5 mA), user selectable:
  - Voltage (0-1V, 0-2.5V, 0-5V or 0-10VDC);
  - Current (4-20 mA or 0-20 mA);
  - PWM;
  - Frequency;
  - or Digital.
- 1 PWM proportional output up to 4 A (to drive a 12V or 24VDC hydraulic positional actuator)
- Closed loop position control or direct current control modes (user selectable)
- 12V or 24VDC nominal power input
- 1 CAN SAE J1939 port, control commands received from CAN network
- Periodically reports coil current and/or position information to the CAN network
- High temperature operation for under hood applications
- Aluminum enclosure with 1-12 pin Deutsch IPD DTM15-12PA connector
- IP67
- Parameters are configurable via the Electronic Assistant® 
- Simulink® block library is available



**Applications:**

- Off-Highway and Truck Engine Control Valves
- Electrohydraulic Position Control, Actuator Drives

**Ordering Part Numbers:**

Controller Platform:

Axiomatic P/N: **GWL171100** (G.W. LISK P/N: VY2-2837)

Configuration Tool:

Axiomatic P/N: AX070502 (Electronic Assistant®)  
Simulink Block Library

Accessories:

Mating Plug Kit: **PL-DTM06-12SA**

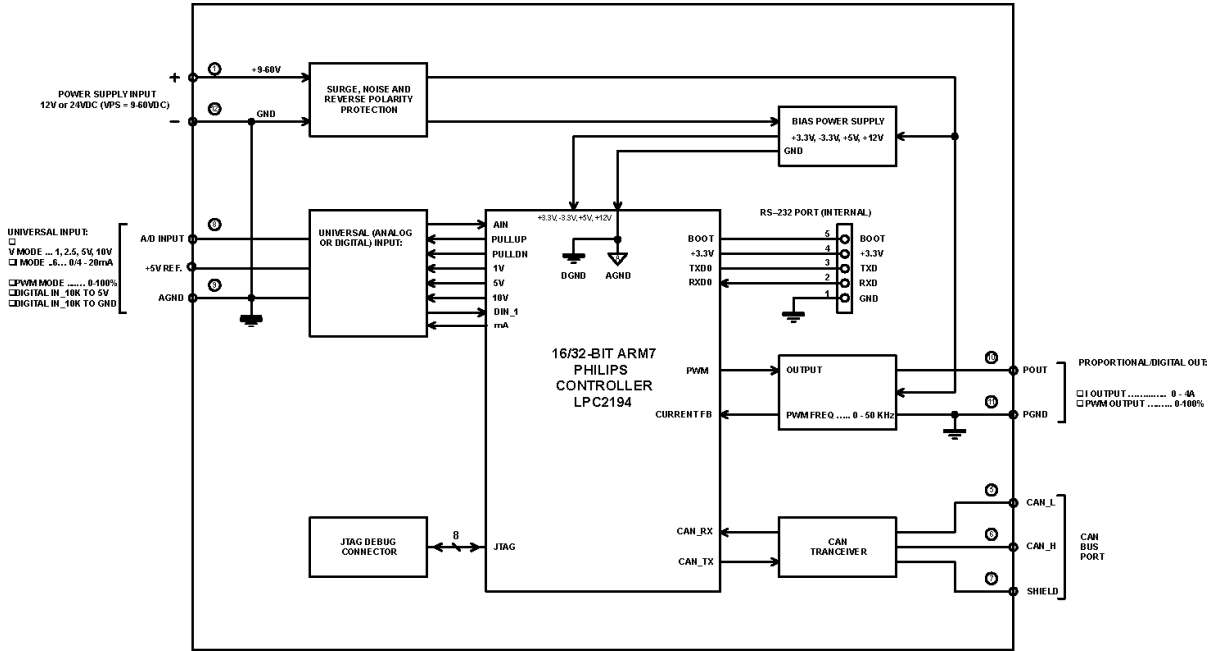
*(The KIT is comprised of: DTM06-12S, 1 WM12S and 12 contacts. The Axiomatic stock # is FG-IOCTRL-20.)*

Documentation:

**UMGWL171100** User Manual

**CD-GWL171100S** Axiomatic Hardware Interface Library for Simulink User Manual and Files

# Block Diagram



## Technical Specifications:

### Inputs

Power Supply Input	12V or 24VDC nominal (9...60VDC power supply range)
Protection	Reverse polarity protection is provided. Overvoltage protection up to 60V is provided. Short circuit protection is provided.
CAN	SAE J1939 Commands
Position Input	1 input provided 0-5VDC  This input is fully user selectable to suit a variety of applications. See Table 1.0.
Voltage Reference	+5V, 5 mA Short circuit protected

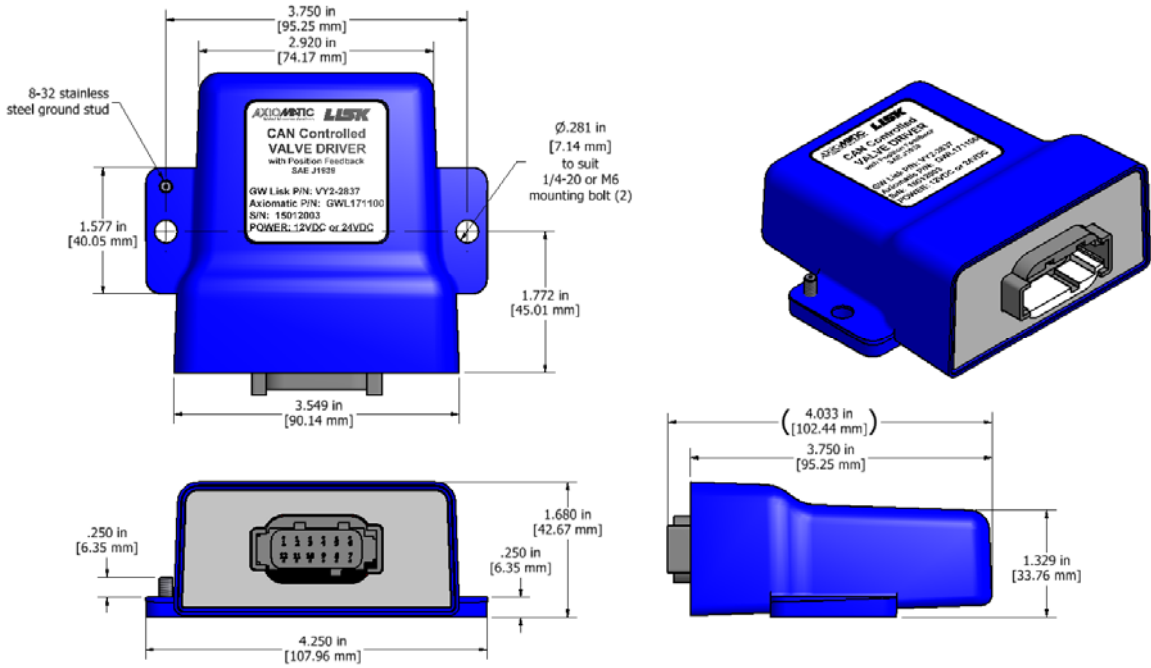
Table 1.0 – Input – User Selectable Options	
Analog Input Functions	Voltage Input, Current Input
Voltage Input	0-1V (Impedance 1 MOhm) 0-2.5V (Impedance 1 MOhm) 0-5V (Impedance 200 KOhm) 0-10VDC (Impedance 133 KOhm for 0-5V, 133 to 20 KOhm for 5-10V))
Current Input	0-20 mA (Impedance 124 Ohm) 4-20 mA (Impedance 124 Ohm)
Digital Input Functions	Discrete Input, PWM Input Frequency Input
Digital Input Level	V CMOS
PWM Input	0 to 100% 0 to 10 kHz
Frequency Input	0 to 10 kHz
Digital Input	Active High, Active Low
Input Impedance	1 MOhm high impedance, 10KOhm pull down, 10KOhm pull up to +5V
Input Accuracy	≤ 1%
Input Resolution	12-bit

## Outputs

CAN	SAE J1939 Messages
Output	Single output, 0-4A 9-32VDC PWM (0-100% D.C.) High Side Switch, Current Sensing, Grounded Load
Maximum Operating PWM	15 kHz
Short Circuit Protection	5.5 A
Protection for Output + Terminal	Fully 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 Accuracy	2%

## General Specifications

Microprocessor	Philips LPC2194HBD64 32-bit, 256 KByte flash program memory
Control Logic and User Interface	<p>The module is programmed with standard embedded control logic.</p> <p>It has two operating modes: Position Control and Direct Current Control.</p> <p>The User Interface is the Electronic Assistant® for <i>Windows</i> operating systems. It comes with a royalty-free license for use.</p> <p>To use the Electronic Assistant, an USB-CAN converter links the device's CAN port to a <i>Windows</i>-based PC. The EA is available as KIT, P/N: AX070502, with the USB-CAN converter included.</p> <p>On request, Axiomatic can provide the Simulink® block library. <b>Simulink®</b> is a model-based design tool for from Mathworks®. Using Simulink®, the OEM machine designer may simulate their control system with the VY2-2837 module included. This permits fine tuning of the design parameters and testing of functionality prior to machine prototype installation.</p>
Communications	1 CAN port (SAE J1939)
Network Termination	It is necessary to terminate the network with external termination resistors. The resistors are 120 Ohm, 0.25W minimum, metal film or similar type. They should be placed between CAN_H and CAN_L terminals at both ends of the network.
Operating Conditions	125°C components for high temperature operation -40°C is the low range of the operating temperature
Packaging	Aluminum enclosure, integral Deutsch IPD connector P/N: DTM15-12PA 4.03 x 4.25 x 1.68 inches 102.44 x 107.96 x 42.67 mm L x W x H including integral connector Refer to the dimensional drawing.
Protection	IP67 rating for the product assembly NOTE: Deutsch IPD connectors are rated for submersion to 3 ft.(0.9 m)
Weight	0.60 lbs. (0.272 kg)



Dimensional Drawing Inches [mm]

<p>Electrical Connections</p>	<p>12 pin Deutsch IPD connector P/N: DTM15-12PA  Mates with: Mating plug KIT: Available from Axiomatic as p/n: <b>PL-DTM06-12SA</b>.  It is comprised of the following Deutsch IPD parts: plug (DTM06-12SA); wedgelock (WM12S); 12 contacts (0462-201-20141); and 6 sealing plugs (0413-204-2005).</p> <table border="1" data-bbox="544 976 1096 1354"> <thead> <tr> <th colspan="2">CAN and I/O Connector</th> </tr> <tr> <th>Pin #</th> <th>Description</th> </tr> </thead> <tbody> <tr><td>1</td><td>Power +</td></tr> <tr><td>2</td><td>Power -</td></tr> <tr><td>3</td><td>Not Used</td></tr> <tr><td>4</td><td>Not Used</td></tr> <tr><td>5</td><td>CAN H</td></tr> <tr><td>6</td><td>CAN L</td></tr> <tr><td>7</td><td>Universal Input +</td></tr> <tr><td>8</td><td>Universal Input GND</td></tr> <tr><td>9</td><td>+5V Reference (Universal Input)</td></tr> <tr><td>10</td><td>Not Used</td></tr> <tr><td>11</td><td>Output GND</td></tr> <tr><td>12</td><td>Output +</td></tr> </tbody> </table>	CAN and I/O Connector		Pin #	Description	1	Power +	2	Power -	3	Not Used	4	Not Used	5	CAN H	6	CAN L	7	Universal Input +	8	Universal Input GND	9	+5V Reference (Universal Input)	10	Not Used	11	Output GND	12	Output +
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<p>Installation</p>	<p>Mounting holes sized for ¼ inch or M6 bolts. The bolt length will be determined by the end-user's mounting plate thickness. The mounting flange of the controller is 0.25 inches (6.35 mm) thick. If the module is mounted without an enclosure, it should be mounted to reduce the likelihood of moisture entry. Install the unit with appropriate space available for servicing and for adequate wire harness access (6 inches or 15 cm) and strain relief (12 inches or 30 cm). Wires should be of the appropriate gauge to meet requirements of applicable electrical codes and suit the specifications of the connector(s). 16AWG or 18AWG wiring is recommended for this connector. The CAN wiring is considered intrinsically safe. The power wires are not considered intrinsically safe and so in hazardous locations, they need to be located in conduit or conduit trays at all times. The module must be mounted in an enclosure in hazardous locations for this purpose. All field wiring should be suitable for the operating temperature range of the module. All chassis grounding should go to a single ground point designated for the machine and all related equipment.</p>																												

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Simulink® is a registered trademark of The Mathworks, Inc.

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 [www.axiomatic.com/service.html](http://www.axiomatic.com/service.html).

Form: TDAXGWL171100-06/19/12