Preliminary
TECHNICAL DATASHEET #TDAX030591

12x Signal Outputs Controller, CANopen®

Voltage, Current, Frequency, PWM, and Digital On/Off Outputs
1x CANopen® Port
EDS File for Configuration
P/N: AX030591

Features

- 12x outputs user selectable as follows.
  - Analog voltage
  - Analog current
  - Frequency
  - PWM
  - Digital On/Off (5 or 12 V configurable)
- Works with 12, 24, or 48 VDC battery power (9 to 60 VDC range)
- 1x CAN port (CANopen®)
- 24-pin TE Deutsch connector
- Rugged TE Deutsch enclosure
- IP67 rated
- EDS file provided for configuration

Applications

- Construction equipment
- Power generator sets
- Heavy-duty industrial machine control

Ordering Part Numbers

12x Signal Outputs Controller, CANopen® – P/N: **AX030591**

SAE J1939 model – P/N: **AX030590**

Accessories:
Mating Plug KIT – P/N: **PL-DTM06-12SA-12SB** *(Details under General Specifications)*
EDS File

Description

The 12x Signal Outputs Controller provides 12 outputs configurable as analog voltage, analog current, frequency, PWM, or digital on/off types. It interfaces with the CAN network (CANopen®) of the machine. A rugged IP67 rated enclosure and a wide-ranging power supply input section for 12, 24, or 48 VDC power makes the module suitable for applications in the harsh environment of mobile equipment with on-board battery power. Standard embedded logic is provided.

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Block Diagram

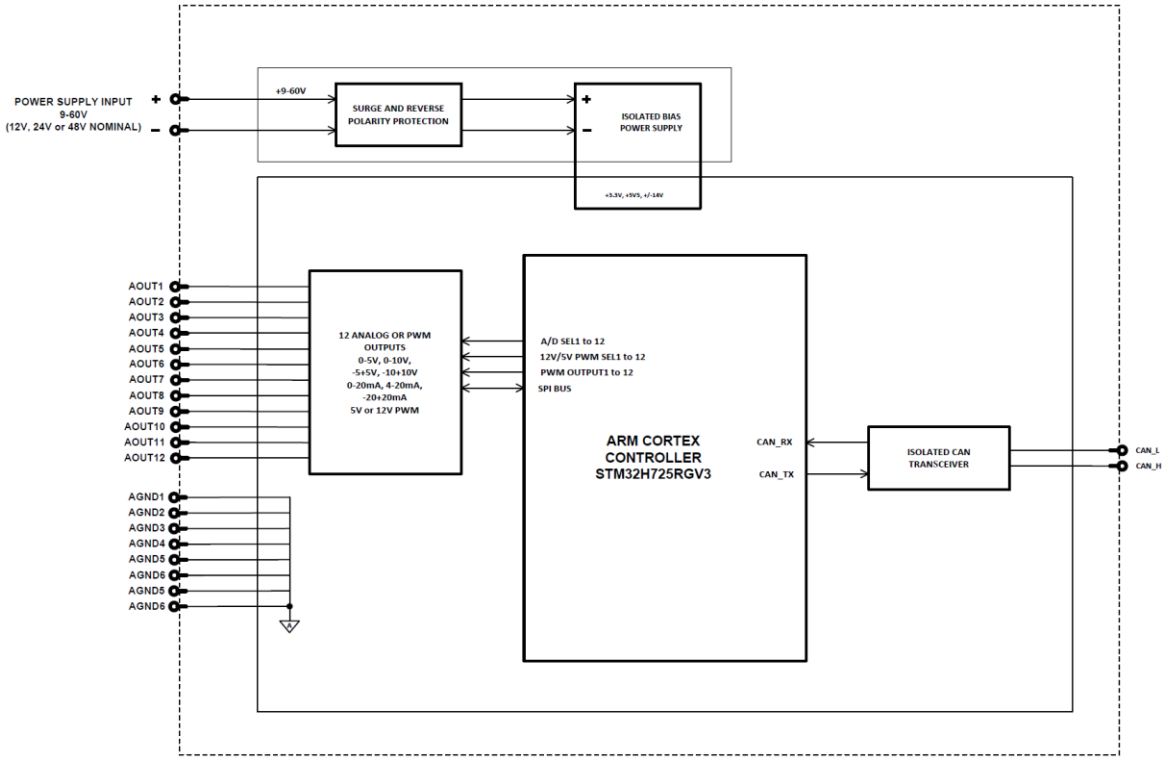


Figure 1.0 – Block Diagram

Dimensional Diagram

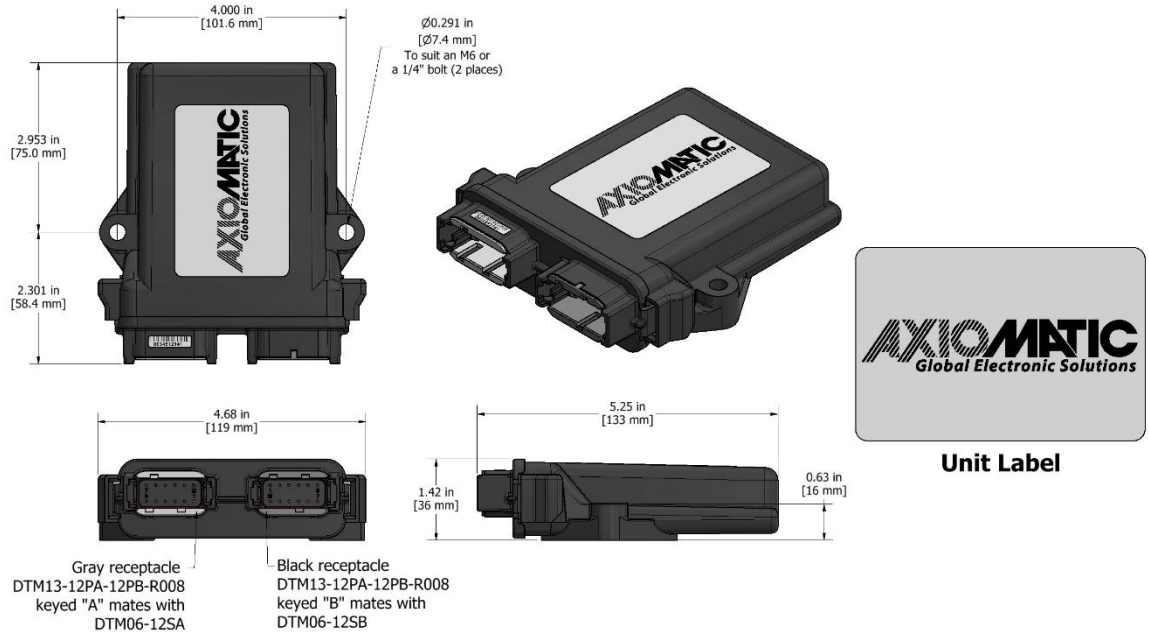


Figure 2.0 – Dimensional Diagram

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 Limitations & Return Materials Process as described on https://www.axiomatic.com/service/.

Power Supply

Power Supply Input	12, 24, or 48 VDC nominal (9 to 60 VDC)
Quiescent Current	81 mA @ 12 V; 47 mA @ 24 V; 31 mA @ 48 V typical
Protection	Surge and transient protection Reverse polarity protection Undervoltage protection. Hardware shuts down at 6.91 V and recovers at 7.70 V. Overvoltage protection. Hardware shuts down at 59.67 V and recovers at 58.66 V.

Outputs

Outputs	12x outputs user selectable as follows.

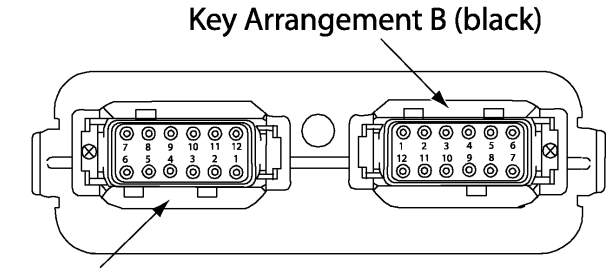
Analog Voltage	Range: 0 to 10 V, ±10 V Resolution: 0.2 mV Accuracy: ±0.2 % error Max Load: 20 mA
Analog Current	Range: 0-20 mA, ±20 mA Resolution: 0.2 µA Accuracy: ±0.2 % error Max. Load: 500 Ω
Frequency	Range: 1 Hz to 10 kHz Resolution: 0.001 % Accuracy: ±1 % error Amplitude: +5 V ±1 % or +12 V ±1 % (configurable) Max Load: 20 mA
PWM	Range: 1 Hz to 10 kHz Duty Cycle: 0 to 100 % Resolution: 0.1 % Accuracy: ±1 % error Amplitude: +5 V ±1 % or +12 V ±1 % (configurable) Max Load: 20 mA
Digital	On/Off Low: 0 V High: +5 V ±1 % or +12 V ±1 % (configurable)

16-bit digital to analog (voltage and current outputs)
Protected against shorts to Ground or +Vsupply

Grounds	8x signal Grounds are provided

General Specifications

Microcontroller	STM32H725RGV3
Control Logic	Standard embedded logic is provided.
Isolation	300 Vrms (3-way isolation between power, outputs, and CAN)
Communications	1x CAN port (CANopen®) Supported baud-rates: 10 kbit/s, 20 kbit/s, 50 kbit/s, 125 kbit/s (default), 250 kbit/s, 500 kbit/s, 800 kbit/s, or 1 Mbit/s
User Interface	An EDS file is provided for interfacing with the device using standard CANopen® tools.
Compliance	RoHS
Protection	IP67
Operating Temperature	-40 to 85 °C (-40 to 185 °F)
Storage Temperature	-40 to 85 °C (-58 to 257 °F)
Weight	0.58 lb. (0.26 kg)
Enclosure	High Temperature Nylon Enclosure – (TE Deutsch P/N: EEC-325X4B) Flammability Rating: UL 94V-0 4.68 in. x 5.25 in. x 1.42 in. (119 mm x 133 mm x 36 mm) W x L x H excluding mating plugs
Electrical Connections	24-pin receptacle (TE Deutsch P/N: DTM13-12PA-12PB-R008)



FRONT VIEW 24 PIN RECEPTACLE

Grey Connector		Black Connector	
Pin	**Function**	**Pin**	**Function**
1	Ground	1	Output 1
2	Ground	2	Output 2
3	Ground	3	Output 3
4	Ground	4	Output 4
5	CAN Low	5	Output 5
6	Battery -	6	Output 6
7	Battery +	7	Output 8
8	CAN High	8	Output 7
9	Ground	9	Output 12
10	Ground	10	Output 11
11	Ground	11	Output 10
12	Ground	12	Output 9

Mating Connectors	A mating plug KIT is available from Axiomatic under P/N: **PL-DTM06-12SA-12SB**. It includes DTM06-12SA, DTM06-12SB, 2x WM-12S, 24x Contacts, 18x Plugs.
Mounting	Mounting holes sized for 1/4 in. or M6 bolts. The bolt length will be determined by the end-user's mounting plate thickness. The mounting flange of the controller is 0.63 in. (16 mm) thick. If the module is mounted without an enclosure, it should be mounted vertically with connectors facing left and right to reduce likelihood of moisture entry. CAN wiring is considered intrinsically safe. Power wires are not considered intrinsically safe and so in hazardous locations, they need to always be in conduit or conduit trays. 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. Install the unit with appropriate space available for servicing and for adequate wire harness access (6 in. or 15 cm) and strain relief (12 in. or 30 cm).

Form: TDAX030591-04/02/2026