

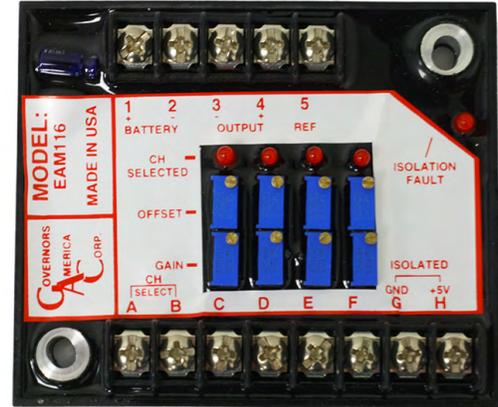
## 1 INTRODUCTION

The EAM116 is a general purpose electronic interface module which accepts one of four different speed setting signals (a 0-10 V DC signal, (two) 0-5 V DC signals or a 4-20 mA signal) and converts them across an isolation barrier to a single 0-5 V DC output signal to control a GAC digital governor or analog controls.

The EAM116 provides balanced proportional signals as required and an isolation barrier between input and output sides of the module input and output signals to offer more stable control of your governor system.

The EAM116 offers:

- Multi-V DC
- Galvanic Isolation
- 0–5 V DC, 0–10 V DC, 4–20 mA Inputs
- 0–5 V DC Output
- All electric sensing
- Accurately measures true power
- Load anticipation and droop adjustments
- Compact size



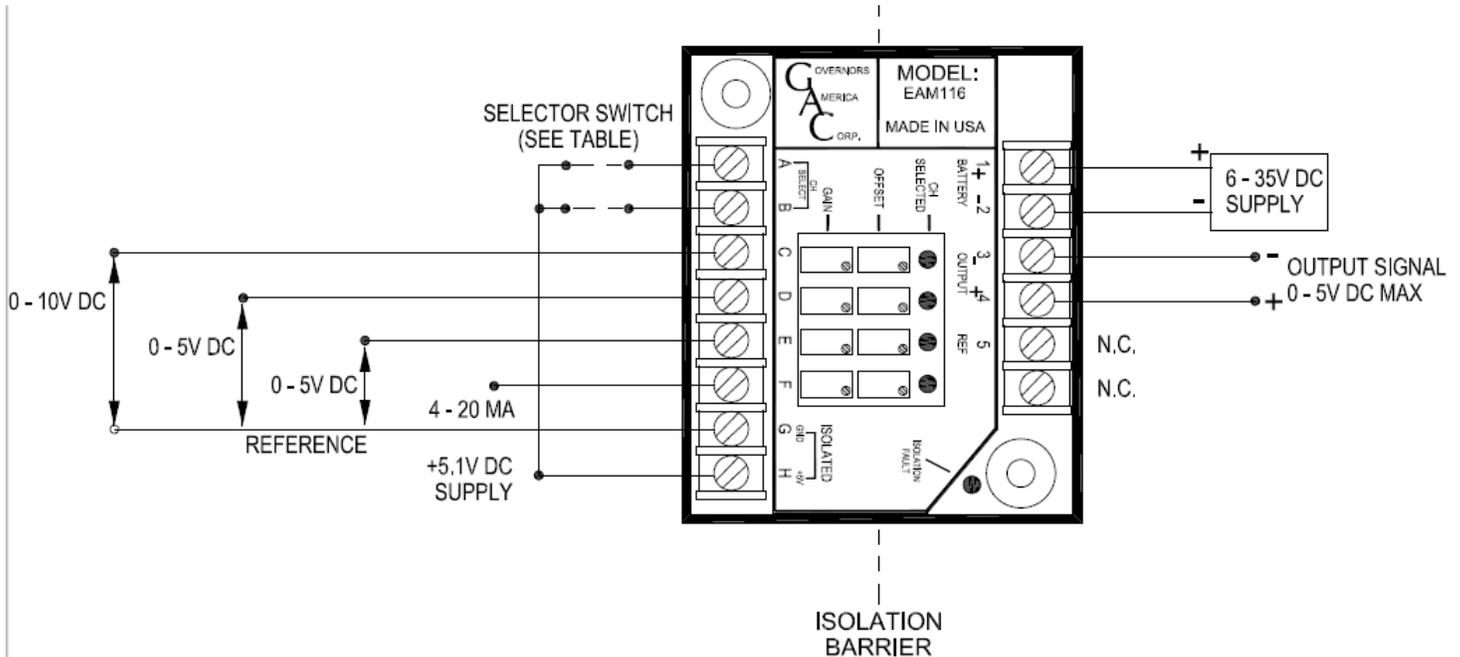
## 2 SPECIFICATIONS

INPUT IMPEDANCE	
0-10V Channel (Terminals C & G)	> 5K $\Omega$
0-5V Channels (Terminals D & G) (Terminals E & G)	< 50 Msec
4-20mA Channels (Terminals F & G)	100 ohms Burden Resistor (5 V DC MAX)
OUTPUT IMPEDANCE	
Terminals 3 & 4	1K $\Omega$
TERMINAL H	
Terminal H & G	5 V DC @ 2 mA (with Pot Input)

DC SUPPLY VOLTAGE	
Ambient Temperature	-40 to 180 °F [-40 to 80 °C]
Relative Humidity	Up to 95 %
All Surface Finishes	Fungus Proof and Corrosion Resistant
DC CURRENT CONSUMPTION	
Terminals 1 & 2	12 to 35 V DC
GALVANIC ISOLATION	
Terminals 2 & H	1000 V DC
ENVIRONMENTAL	
Temperature Range	-40 to 185° F [-40 to +85° C]
Dimensions	2.94 x 3.50 in [74.93 x 88.90 mm]

## 3 WIRING

**NOTE** DC power must come from the output side of the system.



**SELECTION CODE TABLE**

In this table, +5V point is Terminal H:

- No jumpers at Terminals A and B = 0-10 V DC channel (Terminal C)
- +5V Terminal A = 0-5 V DC channel (Terminal D)
- +5V Terminal B = 0-5 V DC channel (Terminal E)
- +5V Terminal A and B = 4-20 mA channel (Terminal F)
- All signals on the input side of the isolation barrier **MUST** be referenced to Terminal G

## 4 ADJUSTMENT

Each channel has two adjustments that allow calibration of the transfer function (input to output). A gain and offset adjustment and an LED is provided for each channel. The LED indicates which channel has been selected and a separate LED indicates if the isolation barrier has been violated. The LEDs are indicators of a condition.

To calibrate each channel, a signal must be applied to the selected input and the output of the module measured. An example is where the desired output is a 1-4 V DC signal (3 V DC change) based on the input change of 0-5 V DC. With 5 V DC applied at the input, adjust the gain so that the output reads 3 V DC. Now with 0 V DC at the input, adjust the offset for a 1 V DC output. The range will now be 1-4 V DC for a 0-5 V DC input. Recheck the signals and adjust if necessary.

1. **Terminals 1 and 2** provide power for the entire module. These inputs accept battery voltage in the range specified in SPECIFICATIONS on page 2.
2. **Terminals 3 and 4** are the output terminals for the module. The output is independently adjustable for each input channel through the GAIN and OFFSET potentiometers on the selected channel. This allows the output to be calibrated to each input channel signal. Using these adjustments, the output is capable of producing a wide variety of output signals in the 0-5 VDC range.
3. **Terminal 5** can be used as a 5 V DC input to provide proportional control to the output. When terminal 5 is connected to a 5 V DC channel, if the 5 V DC supply drifts the EAM116 will balance the output to increase or decrease to match input.

If the EAM116 output is connected to a proportional input then Terminal 5 should be connected to the power supply for that input.

If the output is not connected to proportional input, use Terminal A and B to select which input channel is controlling the output. By applying 5 V DC or GND to the selection inputs any one of the four inputs can be routed to the output. When a channel is selected, its corresponding LED will illuminate, and its potentiometers can be adjusted to set the range and offset of the output. Adjustments to the potentiometers of unselected inputs are not used until that channel is selected.

4. **Terminal C, D, E and F** are input channels. Their adjustment potentiometers and LED are located directly in-line with each input terminal. Each channel has two potentiometers for adjustment.
  - Use GAIN to determine the range of the output, based on the range of the input. For example, if the input has a 4 V DC range (e.g. 1-5 V, or 0-4 V), then adjust the GAIN potentiometer to get a different range for the output, like 3 or 5 V DC.
  - Use OFFSET to set the lowest output voltage when the lowest input voltage is applied to the input. With these two adjustments, a wide variety of inputs and outputs can be accommodated. See SPECIFICATIONS for allowable inputs for each channel.
5. **Terminal G and H** provide an isolated 5 V DC output. This 5 V DC signal is generated internal to the module. The terminals can provide the signals for channel selection Terminals A and B and can provide power for a 5K  $\Omega$  potentiometer for the 5 V DC input channels.
6. **All signals on the input side of the isolation barrier MUST be referenced to Terminal G.** If this isolation barrier is circumvented externally, the ISOLATION FAULT LED will illuminate. If this LED is ON, the module will still function, but the isolation characteristic of the module is no longer functioning, and the output signal may experience errors due to the non-isolated grounds.

This document is subject to change without notice.  
Caution: None of GAC products are flight certified controls including this item.