

Application Note #1218

Opto-Isolation Option for ICM-1460 (Rev G)

The ICM-1460 (Rev G) module from Galil has an option for opto-isolated general and dedicated inputs (Inputs 1-7, XY home inputs, and XY forward and reverse limit inputs) as well as the outputs (OUT1, OUT2, and OUT3). The opto-isolated option allows switches and relays to run at 5-24 VDC with current isolation up to 25mA. This option is specified as ICM-1460-OPTO. The common voltage supply for the opto-isolated inputs and outputs is jumper selectable at JP5 for on board voltage (+12V or +5V) or all jumpers at JP5 can be removed to allow an external supply to the terminal strip input labeled CMP/ICOM (terminal pin 13). *Note: the output compare signal (OC) is NOT available when using the ICM-1460-Opto with the DMC-1415/1416/1425/3425 controller (contact Galil if the OC signal is required).*

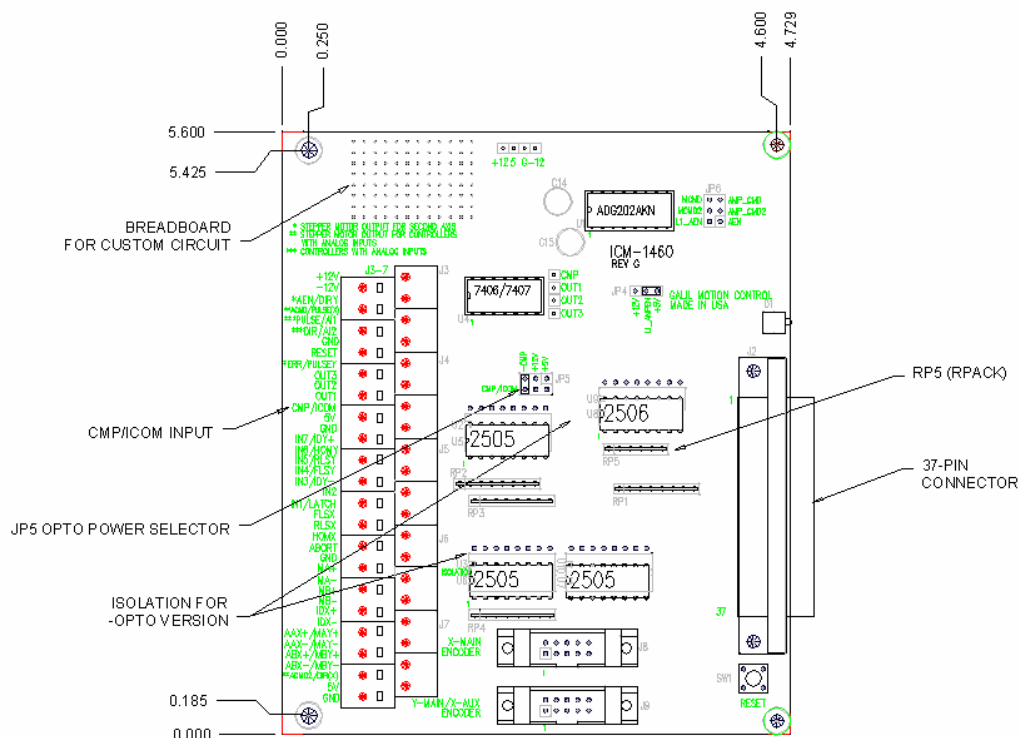


Figure 1 – ICM-1460-OPTO Board Layout

Opto-Isolated Inputs

For true opto-isolation, an external supply is connected to terminal input CMP/ICOM (terminal pin 13) and **ALL** jumpers at JP5 are removed (**failure to remove all jumpers at JP5 may result in damage to the controller**). By connecting CMP/ICOM to the positive (+) side of the isolated power supply, the inputs are activated by switching the input to the isolated supply return (-). By connecting the CMP/ICOM to the negative side (-) of the isolated power supply, the inputs are activated when the supply voltage is present at the input. The opto-isolation diode circuit requires 1ma drive current with approximately 400 usec response time. The voltage should not exceed 24V and additional resistance may be required to limit the current to 11 mA. The inputs to the terminal strip are shown on the left side of Figure 2.

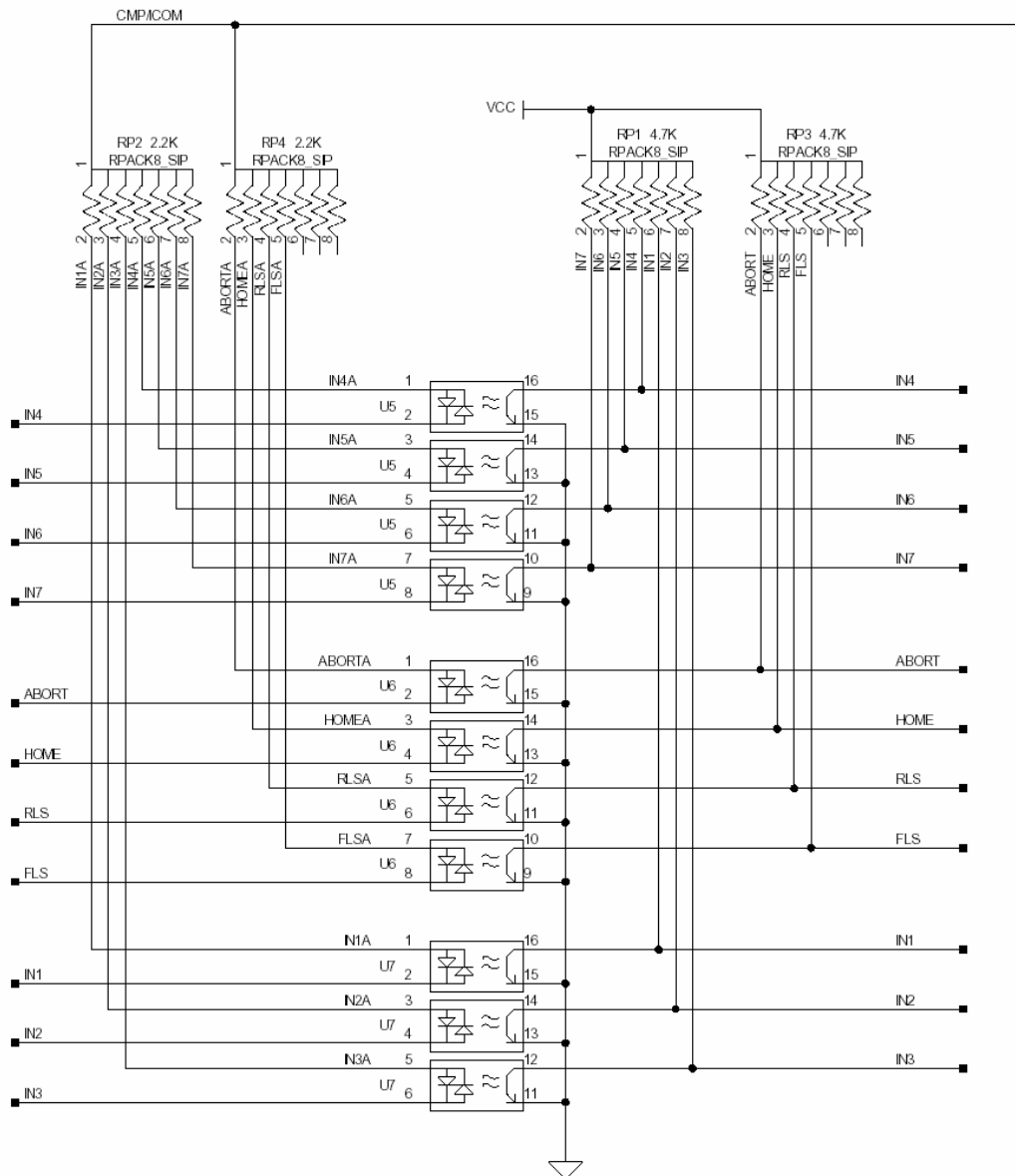


Figure 2 - Opto-Isolated Input Circuit

Opto-Isolated Outputs

The CMP/ICOM voltage source for the outputs comes from the same isolated power supply as the inputs. The outputs are designed to source current from the power supply, where the maximum sourcing current for each output is 25 mA. The user must supply external resistance to insure the current load does not exceed the 25 mA rating.

The default state of the outputs may be set through the resistor pack RP5. With this resistor in the default orientation, the opto-isolator will be ON with the output set in the CB (clear bit) state. By reversing RP5 in its socket, the opto-isolator will be OFF with the output set in the CB (clear bit) state.

In Figure-3 below, the outputs coming from the controller are shown on the left and the discrete outputs at the terminal strip are on the right.

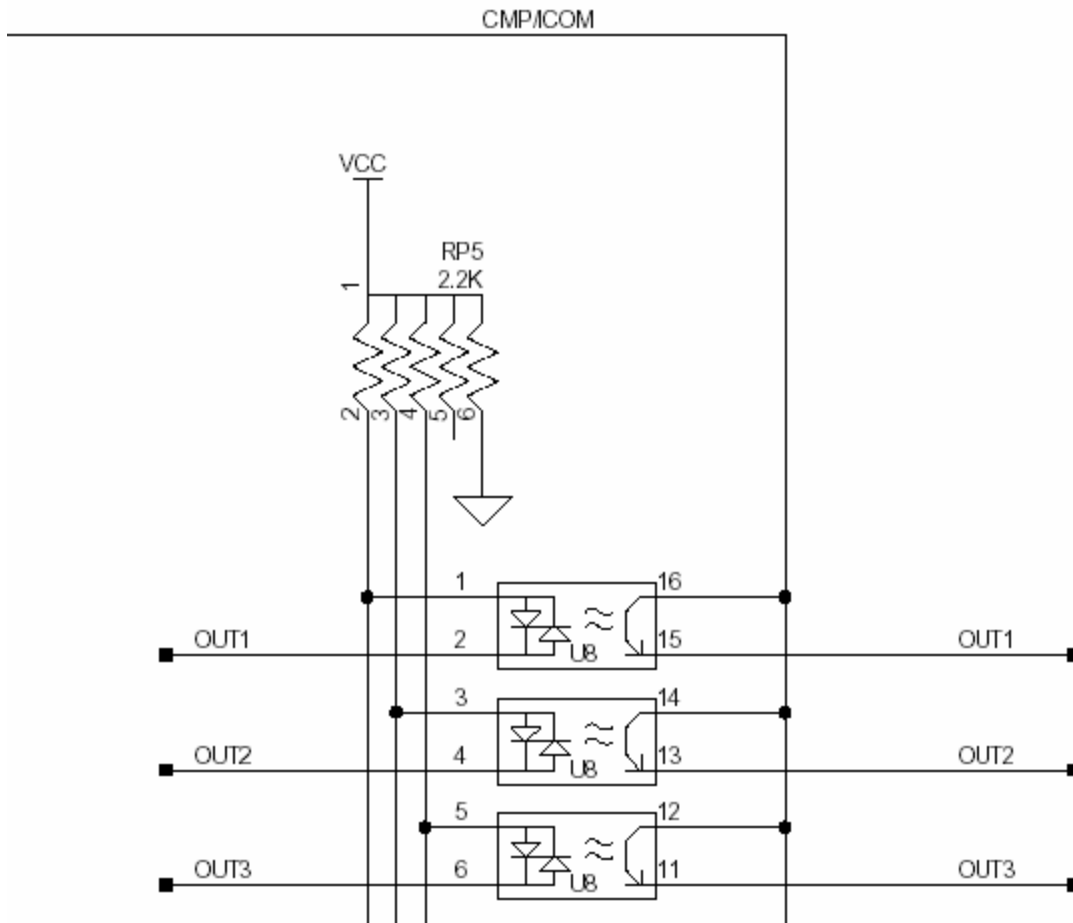


Figure 3 - Opto-Isolated Output Circuit