

## Application Note #2509

### ICS-48032-F Opto-Isolated break for the DMC-40x0 extended IO

The ICS-48032-F is a breakout board for the DMC-40x0 series controllers that provides opto-isolation for the extended I/O.

There are 4 banks of 8 configurable I/O available on the DMC-40x0. With the ICS-48032-F each bank can be ordered pre-configured as inputs, sinking outputs or sourcing outputs. This application note provides the dimensions (Figure 1), ordering information and technical information for the ICS-48032-F.

#### Dimensions:

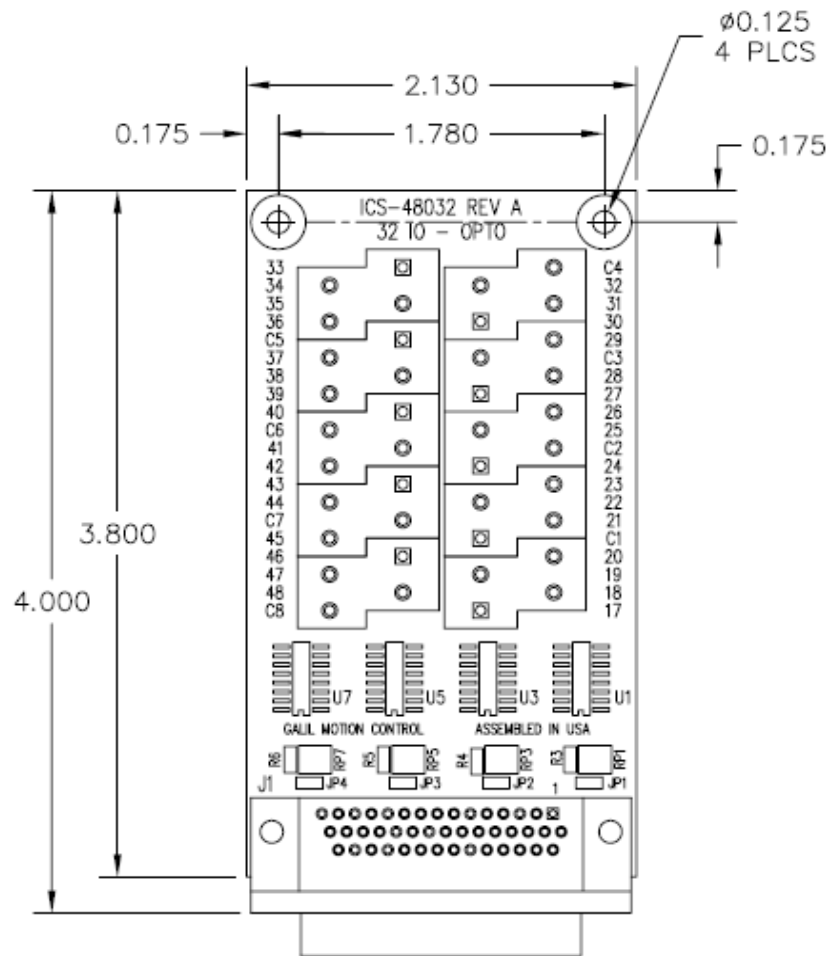
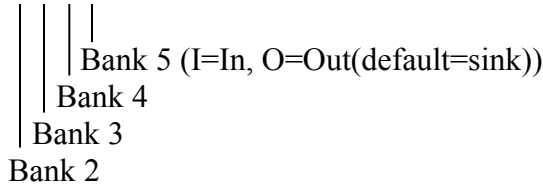


Figure 1 : Dimensions of ICS-48032-F

## Ordering Options:

ICS-48032-F-x x x x – SINK/SOURCE – 3.3V/5V



SINK/SOURCE – sinking(default) or sourcing outputs

3.3V/5V – for use with controller with 3.3V(default) or 5V extended I/O

ICS-48032-F-O000-SOURCE -3.3V

All 4 banks configured as outputs, outputs sourcing

Configured to mate to controller with default 3.3V extended I/O

ICS-48032-F-OOII – 5V

First 2 banks outputs, second 2 banks inputs, outputs sinking

Configured to mate to controller with (5V) extended I/O option

ICS-48032-F-OOII-SOURCE-3.3V

First 2 banks outputs, second 2 banks inputs, outputs sourcing

Configured to mate to controller with default 3.3V extended I/O

## Terminal Description:

Terminal Description for ICS-48032			
Terminal	Description	Terminal	Description
C2A	Bank 2 A-Common	C4A	Bank 4 A-Common
17	Bank 2 - IO 17	33	Bank 4 - IO 33
18	Bank 2 - IO 18	34	Bank 4 - IO 34
19	Bank 2 - IO 19	35	Bank 4 - IO 35
20	Bank 2 - IO 20	36	Bank 4 - IO 36
21	Bank 2 - IO 21	37	Bank 4 - IO 37
22	Bank 2 - IO 22	38	Bank 4 - IO 38
23	Bank 2 - IO 23	39	Bank 4 - IO 39
24	Bank 2 - IO 24	40	Bank 4 - IO 40
C2B	Bank 2 B-Common	C4B	Bank 4 B-Common
C3A	Bank 3 A-Common	C5A	Bank 5 A-Common
25	Bank 3 - IO 25	41	Bank 5 - IO 41
26	Bank 3 - IO 26	42	Bank 5 - IO 42
27	Bank 3 - IO 27	43	Bank 5 - IO 43
28	Bank 3 - IO 28	44	Bank 5 - IO 44
29	Bank 3 - IO 29	45	Bank 5 - IO 45
30	Bank 3 - IO 30	46	Bank 5 - IO 46
31	Bank 3 - IO 31	47	Bank 5 - IO 47
32	Bank 3 - IO 32	48	Bank 5 - IO 48
C3B	Bank 3 B-Common	C5B	Bank 5 B-Common

Table 1 : Terminal Description for ICS-48032-F

## Sourcing Outputs:

### Electrical Specifications:

Maximum A-Common Voltage: 28 VDC

Minimum A-Common Voltage: 5 VDC

Current Rating: 25mA max sourcing

Figure 2 shows the opto-isolated sourcing outputs for the ICS-48032-F.

Banks configured as sourcing outputs have the ability to source 25mA to an external device. An external supply is needed to power the opto-isolated outputs in the range of 5-28 VDC. The positive voltage of the supply (+Vs) should be connected to the A-Common, and the power supply ground (-Vs) should be connected to B-Common. As shown in Figure 3, the load should be connected to the appropriate terminal number on one side and to -Vs or B-Common on the other.

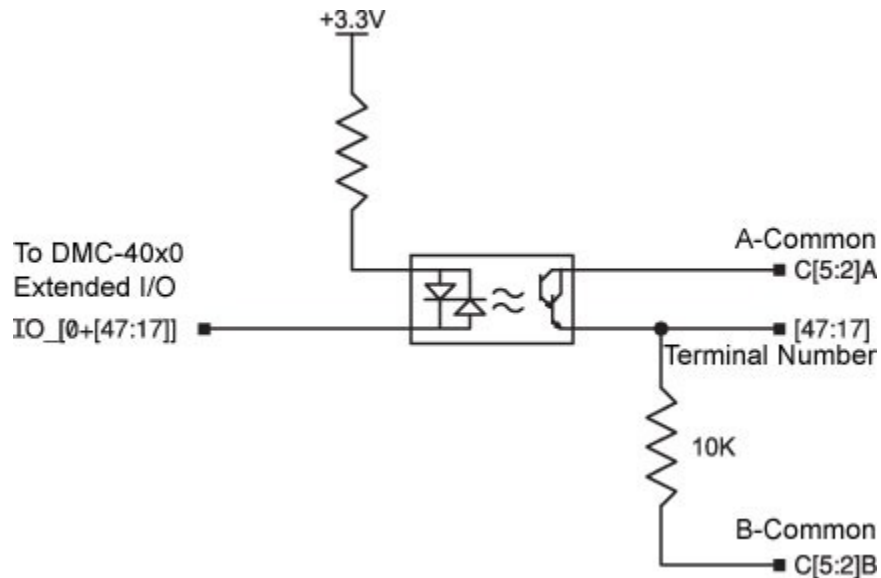


Figure 2 : Sourcing Output Circuit for ICS-48032-F

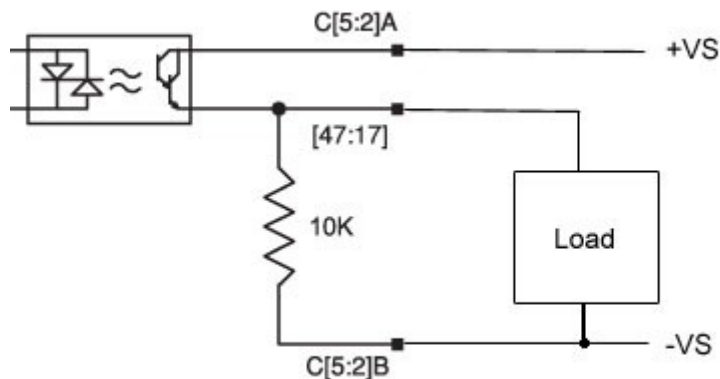


Figure 3 : Sourcing Output with Load

## Sinking Outputs:

### Electrical Specifications:

Maximum B-Common Voltage: 28 VDC

Minimum B-Common Voltage: 5 VDC

Maximum sinking current: 25 mA

Figure 4 shows the opto-isolated sinking outputs for the ICS-48032-F.

Banks configured as sinking outputs have the ability to sink 25mA to an external device. An external supply is needed to power the opto-isolated outputs in the range of 5-28 VDC. The positive voltage of the supply (+Vs) should be connected to the B-Common, and the power supply ground (-Vs) should be connected to A-Common. As shown in Figure 5, the load should be connected to the appropriate terminal number on one side and to +Vs or B-Common on the other.

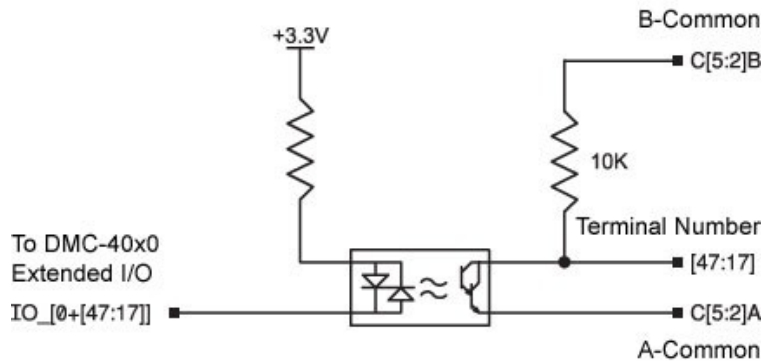


Figure 4 : Sinking Output Circuit for ICS-48032-F

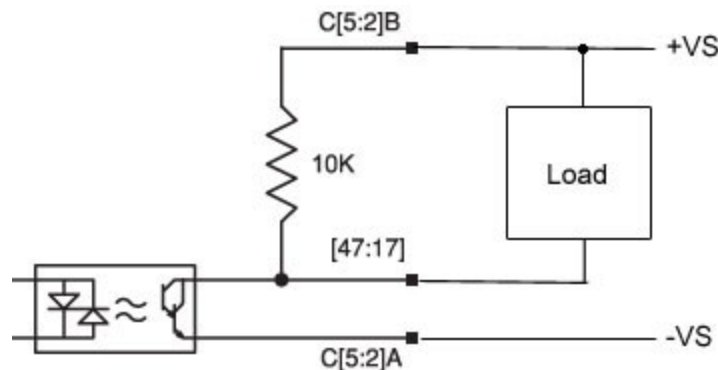


Figure 5 : Sinking Output with Load

### Note:

The outputs of the ICS-48032 are configured so that when the output is set (SB), the opto-isolated output is disabled. When the output is cleared (CB), the opto-isolated output is activated. This is to ensure that during power-up or reset, the outputs are not unintentionally activated.

## Inputs:

### Electrical Specifications:

Maximum A-Common Voltage : 28 VDC  
Minimum Current to turn on an Input : 1mA

Figure 6 shows the opto-isolated input circuit for the ICS-48032-F.

All inputs can be used as active high or low – An external supply is needed to power the opto-isolated inputs. The positive voltage of the supply (+Vs) connected to the A-Common will configure the inputs for active low. Connecting the power supply ground to the A-Common will configure the inputs for active high.

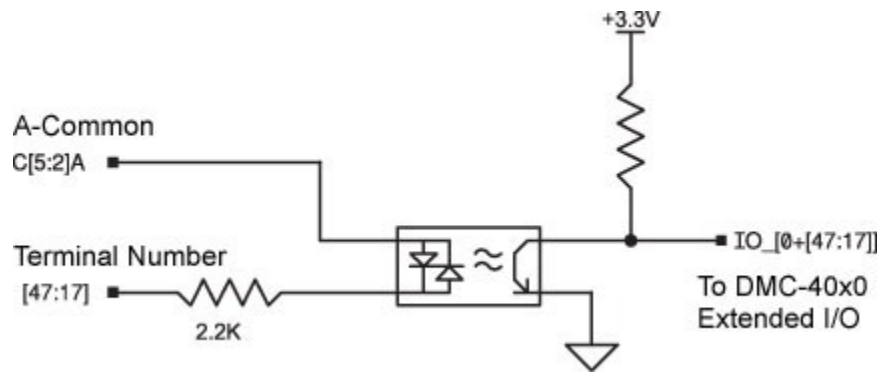


Figure 6 : Input Circuit for ICS-48032-F

## RoHS:

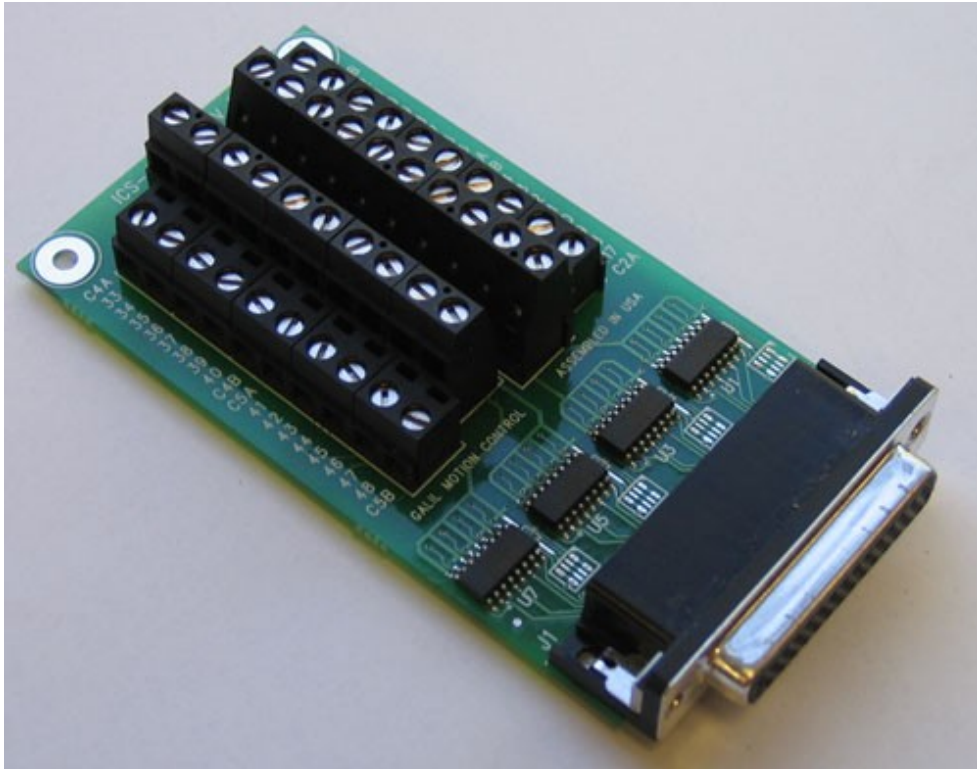
Galil Motion Control, Inc. certifies that the ICS-48044-M meets the 2002/95/EC (RoHS) requirements.

Level 1: RoHS Compliance Certification

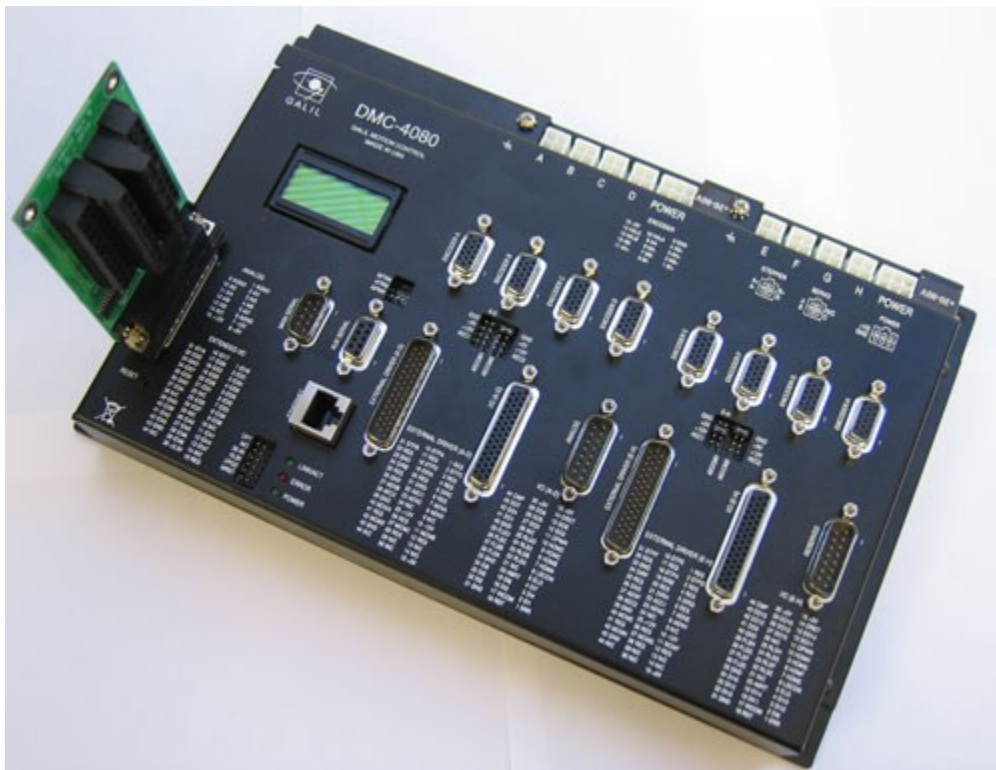
Galil Motion Control, Inc. states the above products and any of its homogenous materials, do not contain each of the 6 substances above the RoHS thresholds.

Lead	<1000 PPM
Mercury	<1000 PPM
Hexavalent Chromium	<1000 PPM
PBB	<1000 PPM
PBDE	<1000 PPM
Cadmium	< 100 PPM

**Pictures:**



**Figure 7 : ICS-48032-F**



**Figure 8 : ICS-48032-F on DMC-4080**