

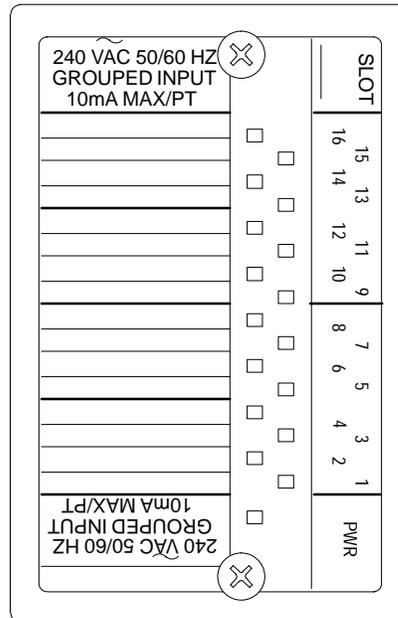
Discrete Input Module

IC670MDL241

GFK-1286C
June 1997

240 VAC Input Module

The 240VAC Input Module (IC670MDL241) provides two isolated groups of 8 discrete inputs each.



46737

Power Sources

The power that runs the module itself comes from the power supply in the Bus Interface Unit.

A separate external 240VAC supply is needed to power each isolated group of input devices. Module inputs respond to voltage levels from 0 VAC to 265 VAC.

LEDs

Individual logic-side LEDs, visible through the transparent portion of the module top, indicate the on/off status of each input. The PWR LED is on when field and backplane power are present.

Host Interface

Intelligent processing for this module is performed by the Bus Interface Unit or elsewhere in the system. This includes configuring features such as input defaults and fault reporting. The module has 8 bits (one byte) of discrete input data. A Bus Interface Unit is required to provide this input data to the host and/or local processor.

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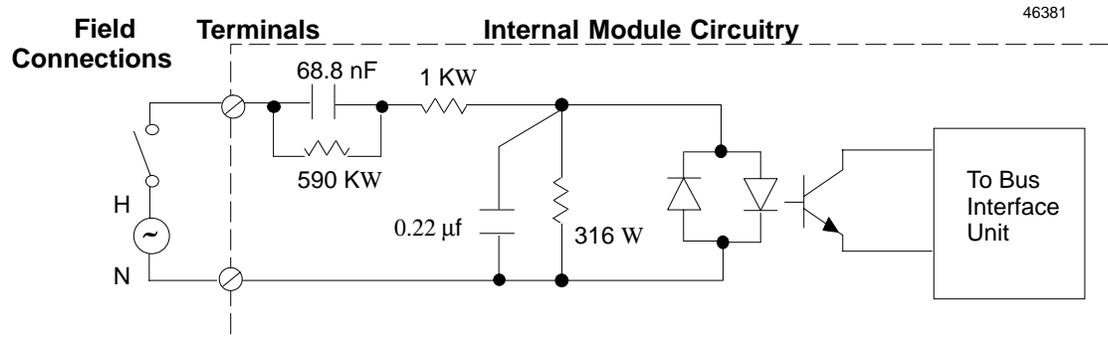
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Module Operation

A network of resistors and capacitors establishes input thresholds and provides input filtering. Optoisolators provide isolation between the field inputs and the module's logic components. Data from all 16 inputs is placed into a data buffer. The module's circuit LEDs show the current states of the 16 inputs in this data buffer.

Parallel-to-serial converters change input data from the data buffer into the serial format needed by the Bus Interface Unit.

After checking the Board ID and verifying that the module is receiving appropriate logic power from the Bus Interface Unit (which is reflected by the state of the module's Power LED), the Bus Interface Unit then reads the filtered, converted input data.



Module Specifications

Module Characteristics	
Rated Voltage	240 VAC
Input Voltage Range	0-265 VAC (47-63 Hz)
User Input Current	8.2 mA per point @ 240 VAC
Isolation: User input to logic, User input to frame ground, Group to group	250 VAC continuous, 1500 VAC for 1 minute. No isolation between individual points in a group.
Indicators	1 LED per point shows individual point status PWR LED indicates backplane and user power are present
Current Drawn from Bus Inter- face Unit Power Supply	77 mA maximum
Input Characteristics	
Input Impedance	typical (reactive) 38.5K @ 60Hz, 46.3K @ 50 Hz
On state voltage Off state voltage	155 VAC to 265 VAC 0 VAC to 40 VAC
On state Current Off state Current	4.0mA to 10mA 0mA to 1.5mA
On response time Off response time	20ms maximum 20ms maximum

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Keying Locations

Optional keying locations for the 240VAC Input Module are shown below.

KeyingLocations									
A	B	C	D	E	F	G	H	J	K
		✓		✓		✓		✓	

Field Wiring

I/O Terminal Block wiring assignments for this module are shown below. Inputs 1 to 8 are one isolated group and inputs 9 to 16 are another isolated group. If isolation is needed, each isolated group must have its own power supply. If isolation is not needed, one power supply can be used for all sixteen inputs.

The Terminal Block with box terminals has 25 terminals for each module, each of which accommodates one AWG #14 (avg 2.1mm² cross section) to AWG #22 (avg 0.36mm² cross section) wire, or two wires up to AWG #18 (avg. 0.86mm² cross section). When an external jumper is used, the wire capacity is reduced from AWG #14 (2.10mm²) to AWG #16 (1.32mm²).

The I/O Terminal Block with barrier terminals has 18 terminals per module. Each terminal can accommodate one or two wires up to AWG #14 (avg 2.1mm² cross section).

The I/O Terminal Block with Connectors has one 20-pin male connector per module. The mating connector is Amp part number 178289-8. Any tin-plated contact in the AMP D-3000 series can be used with the connector (Amp part number 1-175217-5 for high contact force receptacle for 20-24 gauge (0.20-0.56mm²) wires), 1-175218-5 for high contact force receptacle for 16-20 gauge (0.56-1.42mm²).

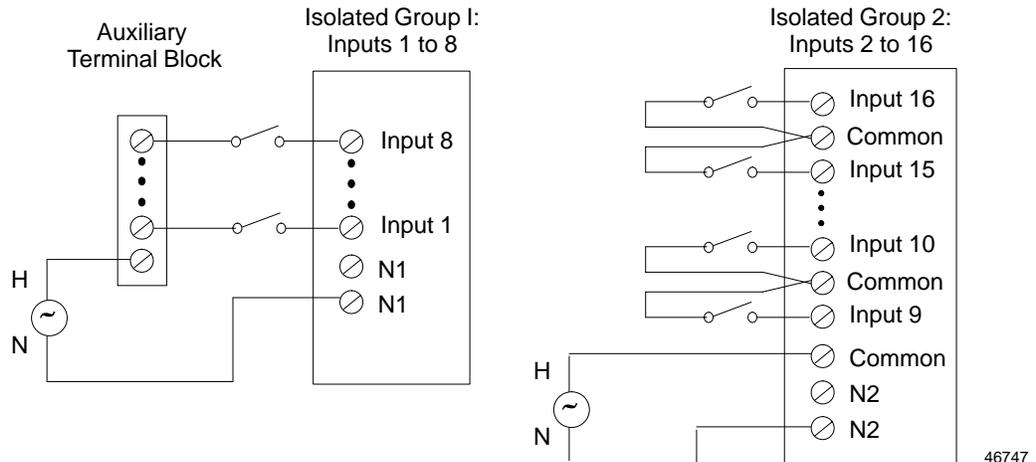
<p>I/O Terminal Block with Box Terminals (IC670CHS002 and 102)</p> <p>46383</p> <p>Input 16 Input 14 Common Input 12 Input 10 Common Input 8 Input 6 Common Input 4 Input 2 Common N2 N2</p> <p>16 14 E8 12 10 E6 8 6 E4 4 2 E2 B2 B1</p> <p>15 13 11 9 7 5 3 1 E1 A2 A1</p> <p>Input 15 Input 13 Input 11 Input 9 Input 7 Input 5 Input 3 Input 1 Common N1 N1</p> <p>Terminals E1, E2, E4, E6, and E8 are electrically connected together, A1 and A2 are electrically connected together, B1 and B2 are electrically connected together.</p>	<p>I/O Terminal Block with Barrier Terminals (IC670CHS001 and 101)</p> <p>46451</p> <p>Input 16 Input 14 Input 12 Input 10 Input 8 Input 6 Input 4 Input 2 N2</p> <p>16 14 12 10 8 6 4 2 B</p> <p>15 13 11 9 7 5 3 1 A</p> <p>Input 15 Input 13 Input 11 Input 9 Input 7 Input 5 Input 3 Input 1 Input 1 N1</p>	<p>I/O Terminal Block with Wire to Board Connectors (IC670CHS003 and 103)</p> <p>46530</p> <p>Input 11 Input 12 Input 13 Input 14 Input 15 Input 16 NC NC N2 N1</p> <p>11 12 13 14 15 16 A2 A1 B2 B1</p> <p>10 9 8 7 6 5 4 3 2 1</p> <p>Input 10 Input 9 Input 8 Input 7 Input 6 Input 5 Input 4 Input 3 Input 2 Input 1</p>
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Wiring Examples with Auxiliary Terminal Blocks

An Auxiliary Terminal Block may be used to provide additional wiring terminals. Auxiliary Terminal Blocks have all terminals connected together internally. The Auxiliary Terminal Block with box terminals has 13 terminals, each of which accommodates one AWG #14 (avg 2.1mm² cross section) to AWG #22 (avg 0.36mm² cross section) wire, or two wires up to AWG #18 (avg. 0.86mm² cross section). The Auxiliary Terminal Block with barrier terminals has nine terminals, each of which can accommodate one or two wires up to AWG #14 (avg 2.1mm² cross section).

Example Connections for Wiring Two Isolated Groups

For an I/O Terminal Block with Box Terminals, an Auxiliary Terminal Block with Box Terminals can be used for power connections for one of the groups. Two external power supplies are used to provide isolation between inputs 1–8 and 9–16. Because all terminals on an Auxiliary Terminal Block are common, it can only be used for one group when isolation is needed. For the other group, an external terminal strip or the common terminals on the base might be used.



For an I/O Terminal Block with Barrier Terminals or an I/O Terminal Block with Wire to Board Connectors, an Auxiliary Terminal Block can be used for one isolated group as shown on the left above. An external terminal strip must be used for the other group.

Example Connections for Wiring Without Isolation

If two isolated groups are not needed, an Auxiliary Terminal Block might be used for the H connections for all 16 points. The following example shows a Terminal Block and Auxiliary Terminal Block with Barrier Terminals.

