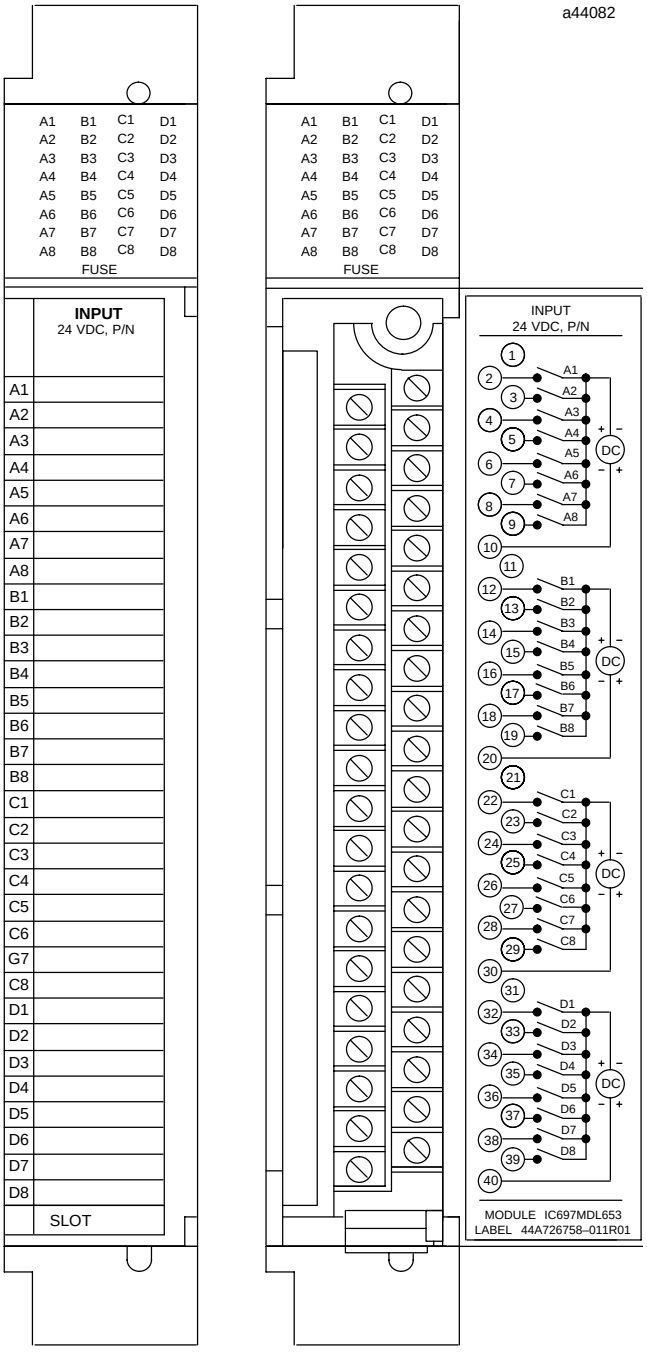
GFK-0379F
August 1997

24 Volt DC Positive/Negative Logic, 32-Point Input Module

Features

- 32 Points - Four isolated groups of 8 points each
- Positive / NegativeLogicCompatibility
- Proximity switch compatible
- Input filter selectable* - 1mS or 10mS
- One input configurable as interrupt*

* These features are available for all IC697 Programmable Logic Controllers (PLC). They may not be available when this module is used with other types of PLCs. See the applicable *ProgrammableControllers Reference Manual* for details.



Functions

The 24 Volt DC Positive / Negative Logic Input Module provides 32 input points in four isolated groups of eight points each. The input current-voltage characteristics meet IEC standard (type 1) specifications.

LED indicators which give the ON-OFF status of each point on the logic (PLC) side of the circuit are included at the top of the module.

The module is mechanically keyed to ensure correct replacement with a similar type in the field. I / O references are user configurable without the use of jumpers or DIP switches on the module.

Configuration is done using the configuration function of the MS-DOS® or Windows® programming software running on Windows® 95 or Windows NT® over Ethernet TCP / IP or through the SNP port. The Programming Software configuration function is installed on the programming device. The programming device can be an IBM® XT, AT, PS / 2® or compatible Personal Computer.

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Operation - 24 Volt DC Positive/Negative Logic Input Module

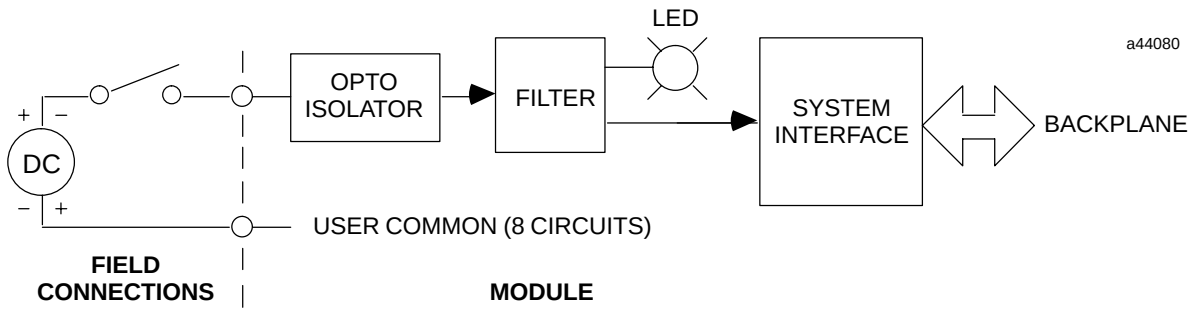

Figure 1. Block Diagram for IC697MDL653

Input Characteristics

This input module is designed to have both positive and negative logic characteristics in that it sinks or sources current from the input device to the user common. The input device is connected between the power bus and the module input as shown above.

This module is compatible with a wide variety of input devices, such as:

- Pushbuttons, limit switches, selector switches;
- Electronic proximity switches, both 2-wire and 3-wire.

In addition, inputs on this module may be directly driven by any IC697 PLC voltage compatible output module.

The input circuitry provides sufficient current to ensure reliable operation of the switching device. Input current is typically 10mA in the ON state, and can accept up to 2 mA leakage current in the OFF state without turning on.

3-wire proximity switches are easily applied, since they provide low voltage drop in the ON state and low leakage current in the OFF State.

2-wire proximity switches derive their power from the signal connections; thus both the ON state voltage and the OFF state leakage current are higher than for 3-wire devices. This module is designed to be compatible with many such 2-wire devices; however each device type must be carefully evaluated for compatibility in both the ON and OFF states.

To determine compatibility with a specific proximity switch, find the ON state characteristics of the switch in the diagram shown below. If that point falls to the left of the input load line, the ON state characteristics are compatible. As an example, the ON state requirements of a compatible proximity switch of 3mA at 5 volts drop are shown below.

OFF state compatibility is assured if the proximity switch leakage is less than 2mA with a module input voltage of 5 volts or less.

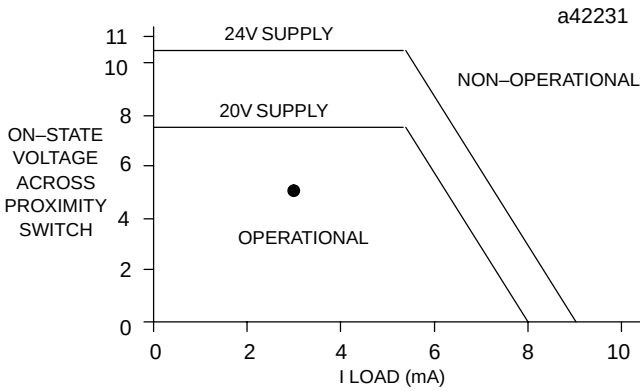

Figure 2. Proximity Switch Compatibility

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Input Filter Selection

With the IC697 PLC and certain other CPU options, this module may be configured to have either a 1mS or 10mS input filter. Configuration is on a module, not per point basis; all points have the same filter time. See the applicable *Programmable Controllers Reference Manual* for detailed information.

Interrupt

When used with the IC697 CPU, input point A1 may be configured to cause a CPU interrupt. Configuration allows the CPU to be interrupted on either the rising or falling edge of the signal transition. Interrupt response is not affected by input filter time selection. Refer to the applicable *Programmable Controllers Reference Manual* for detailed information.

Module Mechanical Keying

This module includes a mechanical key that prevents inadvertent substitution of one module type for another in a given slot. The key fits a uniquely shaped area on the board below the connector. Each module has a key packaged with it.

When the module is first installed, the key latches onto the backplane center rail. When the module is extracted, the key remains in the center rail, configuring the slot to accept only identical module types.

If it is necessary to change the module location in the rack after the key has been latched onto the center rail of the rack, the key can be removed by pushing it upward to unhook the latch while pulling it off the rail. It may then be reinserted onto the module and the module inserted into the rack in the desired location.

Note that in an IC697 PLC rack only the power supply can be placed in the leftmost rack position, and slot 1 (adjacent to the power supply) must always contain a CPU (in rack 0 - the CPU rack), or a Bus Receiver Module (in an expansion rack).

Field Wiring

The module is wired as shown in Figure 3. Since each group of eight inputs is isolated from the others, a wire from the power source to the power input terminal (10, 20, 30, or 40) for each group is required (power input terminals for each group are not connected inside the module).

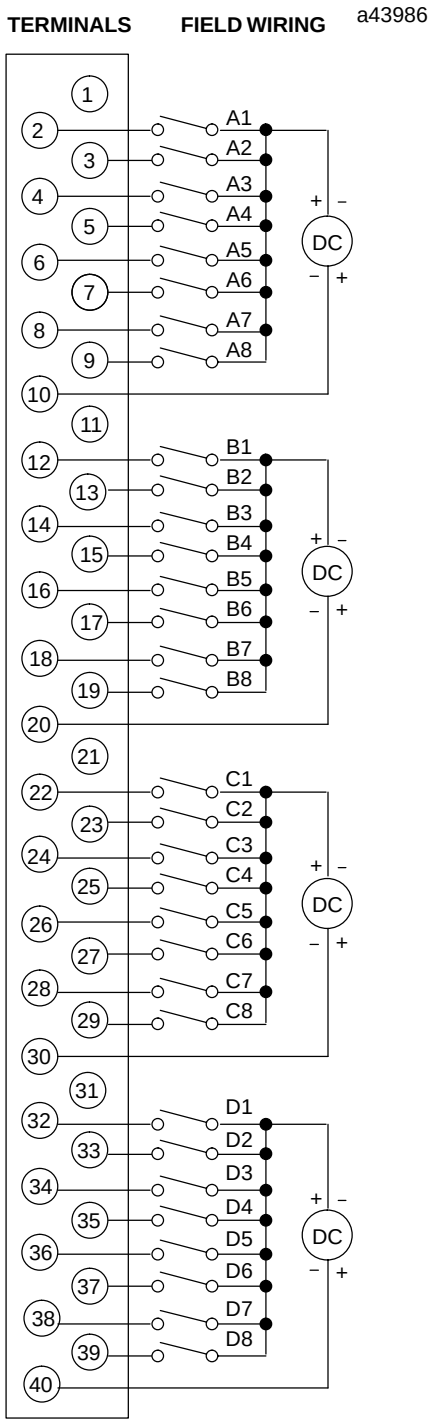

Figure 3. Field Wiring Connections for IC697MDL653