MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Reference package for procurement and maintenance review

GE FANUC

IC670MDL730

8-POINT 24 V DC POSITIVE-LOGIC OUTPUT MODULE

Used with the applicable Field Control configuration.

REFERENCE PACKAGE

OFFICIAL DOCUMENT

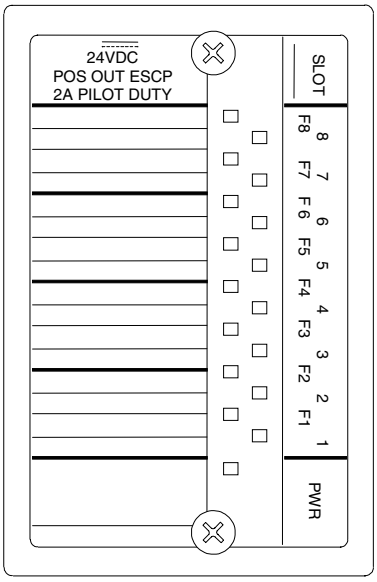
Selected official manufacturer pages follow this cover.

Source: GE Fanuc Field Control I/O Modules User's Manual GFK-0826J

Chapter 13

24VDC Positive Logic ESCP Discrete Output Module IC670MDL730

The 24 VDC Electronic Short-Circuit Protection Output Module (IC670MDL730) provides a single group of 8 discrete outputs. Each point has electronic overcurrent and short circuit protection, and generates a fault if either condition exists.



Power Sources

Power for the module itself comes from the power supply in the Bus Interface Unit. An external source of DC power must be provided for the switches that power the loads.

LEDs

Individual green LEDs (logic side) indicate the on/off status of each output. The green LEDs remain off when user power is not present, regardless of the state of the outputs. Individual yellow LEDs show the fault status of each output. The green 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 output default and fault reporting. The module has 8 bits (one byte) of discrete output data. A Bus Interface Unit is required to obtain this output data from the host and/or local processor.

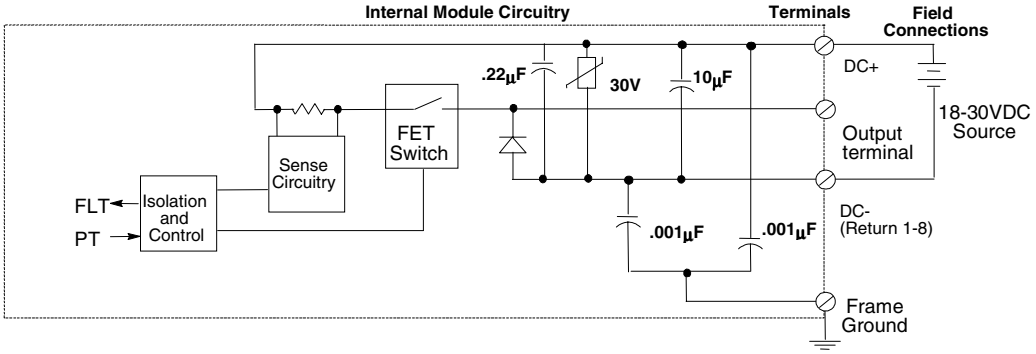
24 VDC Positive Logic ESCP Output Module GFK-1288B
June 1997

Compatibility

This module must be used with a Genius Bus Interface Unit IC670GBI002 (revision 2.10) or later. This module can be used with a Profibus Bus Interface Unit or Interbus-S Bus Interface Unit version 1.0 or later.

Module Operation

After checking the Board ID, the Bus Interface Unit sends output data to the module in serial format. During transmission, the module automatically loops this data back to the Bus Interface Unit for verification. Serial to parallel converters convert this data into the parallel format needed by the module. Opto-isolators isolate the module's logic components from field outputs. Power from the external power supply is used to drive the FETs that source current to the loads.



A MOV across the power supply lines protects the module from transient voltage surges. Capacitors across the supply lines and from each supply line to frame ground provide further noise protection.

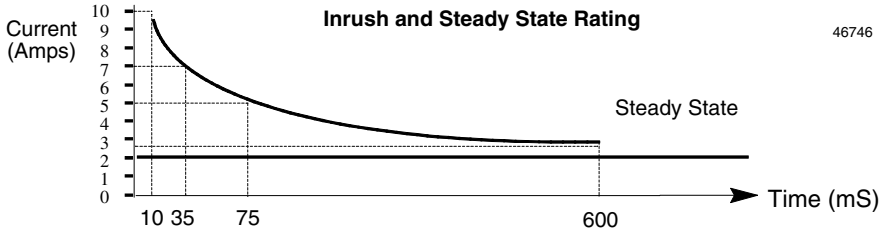
Current Limit Per Point

The illustration below shows the current limits for the inrush cycle and steady-state conditions.

Built-in overcurrent protection trips if the current exceeds the specified value or duration or if the steady state current exceeds the specified value. The short circuit protection trips if the load is shorted. An automatic 1.5mS retry feature helps prevent false circuit trips caused by noise. Once an overcurrent or short circuit is detected, retry circuitry will turn the point off and back on within 1.5mS. If the problem remains, the module generates a circuit fault. The module then turns the point off, regardless of its commanded state. Both LEDs are on when a fault occurs. When a fault is present, the state of the point cannot be changed--the fault must be cleared before the point can be turned on. Faults can be cleared by sending the appropriate datagram or clearing the fault table or by cycling user power. The steady state overcurrent protection is set to trip at approximately 2.5 Amps. This protects the module from excessive currents that do not trip the short circuit protection.

Caution

Steady state current must be limited to 2 Amps per point and 8 Amps per module. Failure to observe these maximum load guidelines could result in misoperation or destruction of the module.



External Power Supply Requirements

The external power supply used with the module must provide sufficient field power for the module during short circuit events.

When a load is shorted, an inadequate external power supply may allow field power to drop below the specified operating range, causing misoperation of the module. The external power supply must be capable of providing short circuit energy without degradation of output voltage levels. The amount of energy required depends on the number of simultaneously-shorted points that might occur. Refer to power supply short circuit operation specifications prior to selecting the power supply to be used with the module.

Local energy storage (either batteries or capacitors) can be used to compensate for insufficient power supply characteristics.

Important Note: Additional best practices including minimizing wiring resistance from the external power supply to the module, preventing voltage drop during short circuit energy transfer.

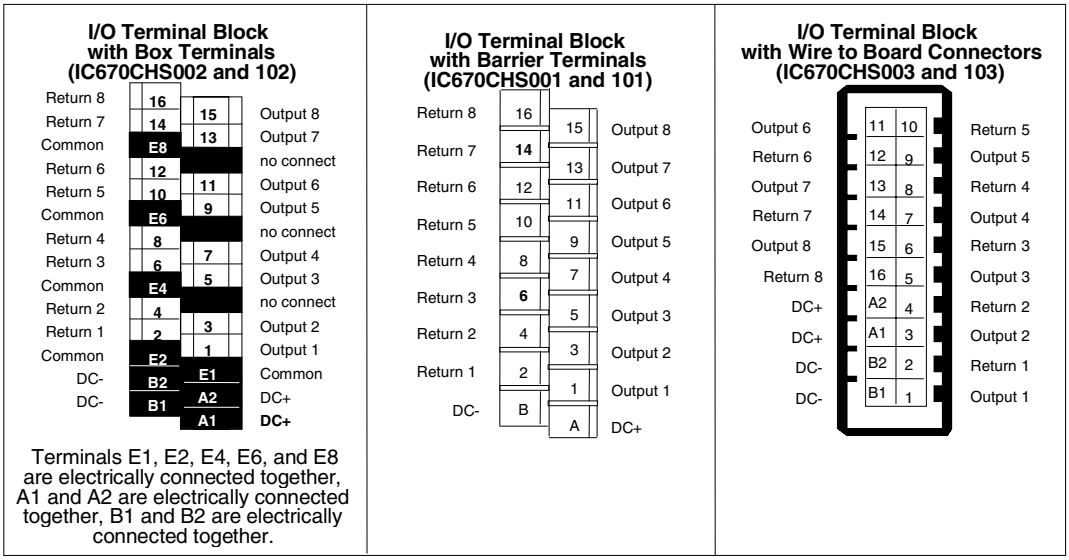
Field Wiring

The Terminal Block with box terminals has 25 terminals per module, each of which accommodates one AWG #14 (avg 2.1mm^2 cross section) to AWG #22 (avg 0.36mm^2 cross section) wire, or two wires up to AWG #18 (avg. 0.86mm^2 cross section). Using an external jumper reduces wire capacity from AWG #14 (2.10mm^2) to AWG #16 (1.32mm^2).

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 2.10mm^2 cross section).

The I/O Terminal Block with Connectors has one 20-pin male connector per module.

The following illustration shows terminal assignments for the 24 VDC Electronic Short Circuit Protection Output Module. The eight outputs form one group, with a common return.



Wiring Examples with Auxiliary Terminal Blocks

The following illustration shows example module wiring to the module.

