IC600YB930

New In Stock!

GE Fanuc

http://www.pdfsupply.com/automation/ge-fanuc/ge-series-six-6/IC600YB930

Ge Series Six 6

1-919-535-3180

In Stock! 115Vac Protected Output Module (4 points) IC600Y IC600YB

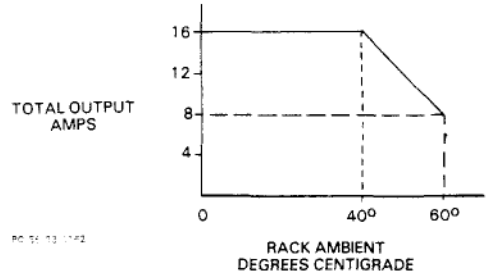
www.pdfsupply.com

Email: sales@pdfsupply.com

- Dimensions:
  Circuit Board: 8.15 x 11.0 inches (208 x 280 mm)
  Faceplate: 12.46 x 1.175 inches (317 x 30 mm)
  Module occupies one slot in I/O or Model 60 rack
- Storage Temperature: -20°C to + 80°C
- Operating Temperature: 0°C to + 60°C (air outside rack)
- Humidity: 5% to 95% (non-condensing)
- Altitude: Up to 10,000 feet above sea level (operating)
- Power Requirements:
  Supplied by I/O or Model 60 rack: +5 Vdc, 400 MA maximum or 8 power units Refer to I/O module load, Installation and Maintenance Manual, GEK-25361.
- User Supplied Voltage: 90-130 Vac, 47 to 63 Hz.
- Number of Outputs: Four (4) isolated, each with separate source (H), output (O) and neutral (N) connections.
- Output Leakage Current: Less than 4 ma (off state).
- Output "ON State" Load Current Ratings: Maximum per point: 4A.
  Maximum per module: 16 A; follow derating curve below for ambients above 40°C.

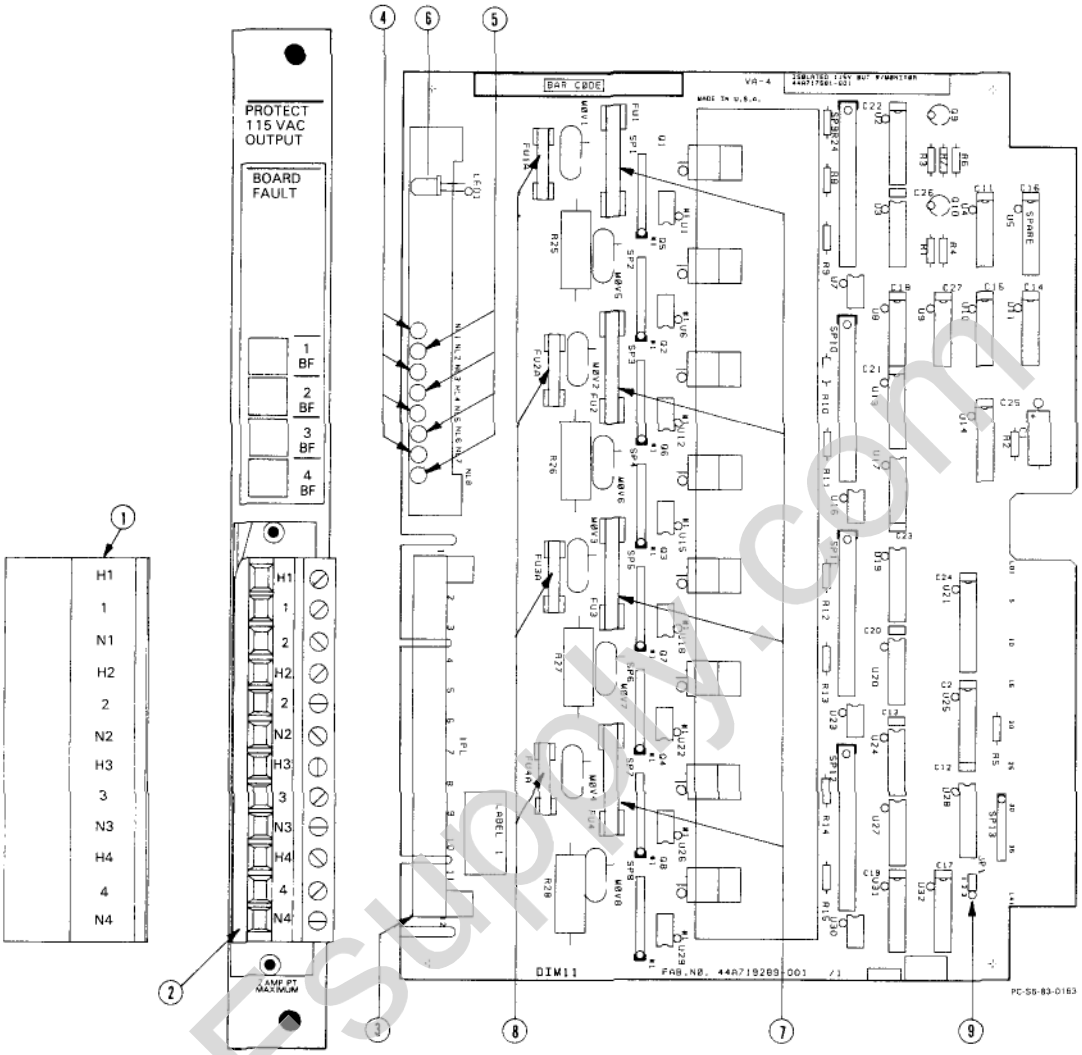
  Inrush: 40 amps for 33 MS per point.

  Minimum Load: 35 Milliamps resistive.
  50 Milliamps inductive (P.F. less than .7).
- Output Voltage Drop: 1.3V typical, 2.3V maximum at rated load.
- Isolation: (Between outputs or to Series Six common);
  Continuous: 240 Vdc or RMS AC, 50/60 Hz,
  Transient: 1500 Vdc, 1 second maximum, non-repetitive.
- Output turn on delay: 1/2 cycle maximum
- Output turn off delay: 1/2 cycle maximum
- Blown Fuse (BF) Input: This is present when output "on state" is required and no voltage is sensed on output. Response time 50 milliseconds maximum.
- Fault (FLT) Input: This indicates a detected failure to turn off. This responds within 250 milliseconds and remains latched so long as rack power is on.
- Noise and Transient Immunity: Not affected by: Showering arcs per NEMA ICS 2,230.40
  Surges per ANSI C37.90.9
  5W RF transmitter 27-450 MHZ
- Module current derating



NOTE

Total output amps equals sum of product of load current times duty cycle for all points.



① Terminal Cover

② User Terminal Block: Refer to Figure 4, Typical User Connections.

③ Circuit Board Terminal Block: Mates with the User Terminal Block.

④ Output NEON 1-4:

On: Corresponding Output is in the ON state.

Off: Corresponding Output is in the OFF state.

⑤ Blown Fuse NEON 1-4:

On: The fuse for corresponding output is open (blown).

Off: The fuse for corresponding output is OK.

⑥ Board Fault LED:

On: Board Fault detected; replace board.

Off: Board OK.

⑦ US Output Circuit Fuses: 5A, Normal Blow 1/4 X 1 1/4 inch (AGC5).

⑧ Metric Output Circuit Fuses: Used as alternative to 7 above 5 X 20mm, 5A.

⑨ Program Fault Monitor Jumper: Normal Position 1-2, Refer to Installation Notes for application (Paragraph 4.4 and Paragraph 6.1).

FIGURE 2. USER ITEMS

INSTALLATION

1. The Protected AC Output may be installed in an I/O rack or the I/O section of the Model 60 CPU rack. Before installing the module, the Dual-In-line Package (DIP) switches on the rack backplane should be set to establish the correct module address location. A group of eight consecutive I/O points are required to communicate with both the Output Status Table and the corresponding points on the Input Status Table. The DIP switch setting is done in the same fashion as for an eight point input or output board. For further information on the I/O Dip Switch Setting refer to the Installation and Maintenance Manual, GEK-25361. Tables 2 and 3 show the output and input table status displays.

2. The "Program Fault Monitor" jumper position should be verified. Refer to Sections 4.4 and 6.1 below for setting.

3. It is recommend that one use the extraction/insertion tool furnished with the CPU to remove or install the circuit board. With the board in place in the rack, the faceplate should be slipped over the circuit board so that the terminals near the bottom of each are mated. Then secure the faceplate to the rack using the thumbscrews at top and bottom.

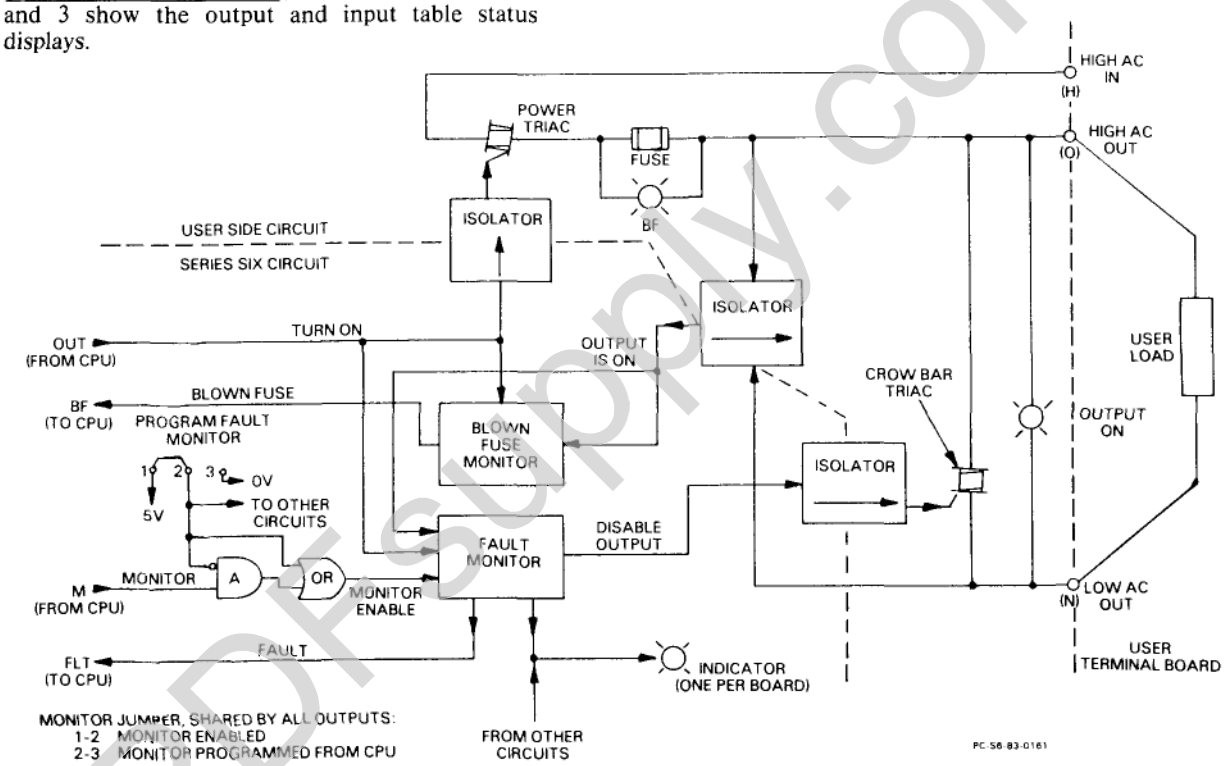


FIGURE 3. BLOCK DIAGRAM
AC OUTPUT WITH FAULT DETECTION FOUR DRIVERS PER MODULE

4. A simplified module block diagram is shown in Figure 3. The following signals shown on the block diagram are defined as follows:

   4.1 OUT: This CPU signal turns on the AC output at the next zero crossing of the AC line.

   4.2 BLOWN FUSE (BF) Output Signal: This input to the CPU is turned on when the output is called for and no load voltage is detected. This detects either a blown fuse or a loss of the user AC load power source. This signal is not latched and is independent of the monitor enable signal. Note that the module faceplate BF light indicates open fuse only, and relies on user AC input power, applied to the faceplate (H) terminal, to light.

   4.3 Fault (FLT) Output Signal: The fault monitor compares the actual module output voltage to the CPU "OUT" command or status. If voltage is detected across the output when the CPU "OUT" instruction is in the "OFF" state, and the monitor is enabled, the FLT output to the CPU is turned ON. This signal is also used to turn on a "CROWBAR" triac to blow the fuse, and to light a shared module front indicator light. The FLT signal to the CPU and indicator is latched, and cannot be reset except by removing rack logic power.

4.4 Monitor (M) Input Signal: When the program fault monitor jumper is in the "ENABLED" position, (l-2). the monitor (M) output table states from the CPU are ignored by the module and these (M) outputs may be used for other purposes, One of these uses might be as internal ladder diagram coils. When the jumper is in the "PROGRAM FAULT MONITOR" position (2-3) the monitor (M) output table states from the CPU are read into the fault monitor circuit of the module. This mode of operation is used when it is desired to switch between two output circuits to drive a single load. This allows ladder diagram programming to control the change to backup driver operation when a problem is detected in the primary driver. This backup configuration wiring is shown in Figure 5. The backup driver operation is described in more detail in Section 6. Note that the jumper and M signals affect only the "FAULT MONITOR" circuit operation and crowbar triac operation after the FLT condition exists.

4.5 Table 2 shows the interface signals from the CPU to the module as they appear in the CPU output tables.

Table 3 shows the interface signals from the module to the CPU as they appear in the CPU input tables.

TABLE 2. OUTPUT STATUS TABLE DISPLAY

OUTPUT DATA TABLE*							
8	7	6	5	4	3	2	1 I
M4	M3	M2	M1	OUT4	OUT3	OUT2	OUT1

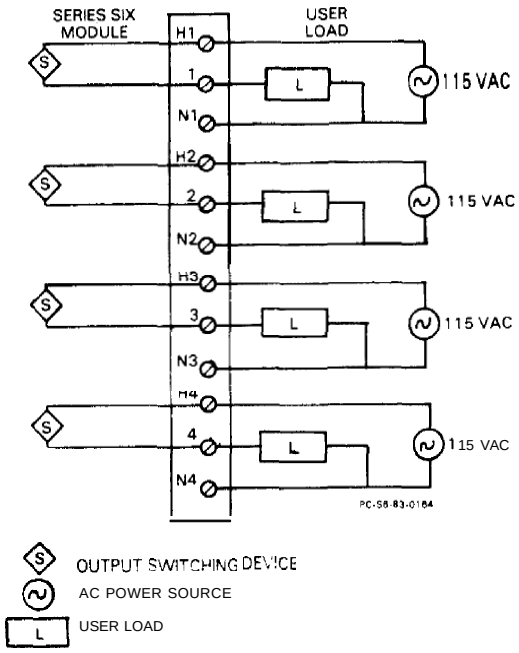
0 STATE = OFF
1 STATE = ON

TABLE 3. INPUT STATUS TABLE DISPLAY

INPUT DATA TABLE*							
8	7	6	5	4	3	2	1
FLT4	FLT3	FLT2	FLT1	BF4	BF3	BF2	BF

* In each case Data Bit 1 is the first address set by the backplace dip switch.

5. Typical customer connections are shown in Figure 4.



WARNING

Voltages from user field devices could be present on the faceplate terminals, even if the power supply in the I/O rack is off. Care should be taken when handling the faceplate of this module or any wires connected to it.

CAUTION

Connect only loads to the output terminals (01, 02, 03 and 04). Never connect a user power source to the output terminals (01, 02, 03, and 04) for any reason. If a power source is connected to the output terminals damage to the module will occur. In this instance the monitor will mistake this power source connection for a shorted output triac and attempt to blow the internal fuse to prevent and incorrect output. In attempting to blow the internal fuse the crowbar triac in this module will place a short on the incorrectly connected user power source. This will result in the module crowbar circuit becoming overheated because of excessive current and destroying itself.

FIGURE 4. TYPICAL CUSTOMER CONNECTIONS

6. A TYPICAL CONNECTION for a "STANDBY REDUNDANCY" circuit is shown in Figure 5. In a standby redundant circuit, one output drives the load in the normal fashion while the standby output is forced off by CPU ladder diagram. If a fault is detected in the main driver and the proper program is contained within the user ladder diagram, then control is switched to the standby driver so operation can continue. This redundant mode is applicable to operations where it is desirable to delay shutdown for repairs until after a critical operation or batch process is completed. It is not to be implied that the operation is fail safe, bumpless transfer, or that the system is repairable while in operation.

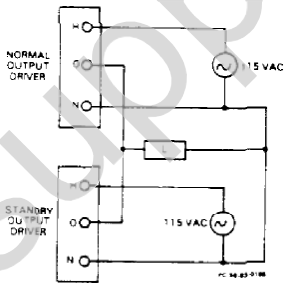
6.1 If a standby redundancy system of two drivers connected to the same user load is used as shown in Figure 5, several precautions must be observed. The output drivers may be in the same module or different modules of the same type, The user's power source to the two drivers may **be** the same or different sources. If separate sources are used, one side of the line must be common and the AC phase must be the same to prevent over voltaging whichever driver is off. The program fault monitor jumper should be set for "Programmable Monitor" position 2-3 on each driver module. The normal output driver being used should have the CPU output "M" signal set high or 1 while the standby output driver should have the CPU output "M" signal set low or 0.

If a "BF" (Blown Fuse or loss of user power to the "H" terminal) fault is detected on the normal output driver the "BF" signal will be returned to the CPU as an input. The user ladder diagram program should then acknowledge this signal by turning off the "Output Signal" to this normal output circuit, turning off the "monitor input" signal to this normal output circuit, turning on the CPU output signal to the standby driver, turning on the "monitor input" signal to the standby driver, and turning on an alarm output to acknowledge to the user that a blown fuse has been detected in the normal output driver and a transition has been made to the standby driver.

If an "FLT" (output triac or output circuit) fault is detected on the normal output driver the "FLT" signal will be latched into memory within the Output Driver module, returned to the CPU as an input, and used within the normal Output Driver module to turn on the crowbar triac and blow the output driver fuse. This blowing of the fuse will prevent wrong outputs from this driver. The user ladder diagram program should acknowledge this "FLT" input signal by first watching for the corresponding "BF" (Blown Fuse) input signal. When the "BF" signal is received the ladder diagram program should then turn off the monitor input signal to this normal output circuit. The CPU output signal should then be switched to control the standby output driver. The ladder diagram program should at this time enable the "MONITOR" input signal to the standby output driver. Finally the user ladder diagram program should signal that the transition has been made by turning on an alarm output to acknowledge that an output "FLT" signal has been received, acted upon, and transition has been made to the standby driver. The only way to reset this latched in "FLT" (output triac fault) signal from the driver module to the CPU is to remove and reapply AC power from the rack containing the driver module.

Using this standby redundancy type of output operation is not to be implied that the operation is fail safe, bumpless transfer, or that the system is repairable while in operation. This type of operation is only used where it is desirable to delay shutdown until after a critical or batch process is complete.

6.2 Attention is called to the warning note and caution note that is part of Figure 4. If separate power sources are used care should be taken to insure that one side of the line is common, and the AC phase must be the same to prevent over voltaging whichever driver is off. Also steps should be taken in the user ladder diagram program to prevent both outputs from being programmed on at the same time. This could cause circulating currents between the sources through the drivers and cause a fuse to blow. The "program fault monitor" jumper should be in Position 2-3 on both the normal and the standby output driver modules.



Monitorjumper in "Program Fault Monitor" position (2-3) for both output drivers.

FIGURE 5. STANDBY REDUNDANT OPERATION

ORDERING INFORMATION

Circuit Board and Faceplate	Circuit Board	Faceplate
IC600BF930A	IC600YB930A	IC600FP930A

CATALOG NUMBER REVISION SUFFIX

The equipment listed above with catalog numbers as shown or with a higher alpha suffix in the last position is designed for UL applications as auxiliary control devices. This equipment is a direct replacement for equipment with a prior alpha suffix.

The UL symbol on the nameplate means the product is listed by Underwriters Laboratories Inc. (UL Standard No. 508, Industrial Control Equipment, subsection Electronic Power Conversion Equipment.)

For further information, contact your local GE Fanuc sales office.

GE **Fanuc Automation North America, Inc., Charlottesville, Virginia**