GE FANUC

Series Six
Programmable Controllers

GFK-0146

Memory Modules

November 1987

GENERAL DESCRIPTION

The Combined Memory modules contain the entire Series Six Plus Central Processor Unit (CPU) memory configuration, including Internal, Register and Logic (user) memory. Also included is parity memory for each of these six memory types. The modules are available in six versions. They are: 5K, 12K, 16K, 24K, 48K and 80K. The features and benefits of the Combined Memory modules are summarized in table 1.

The Logic memory section contains the user program, comprised of ladder diagram logic and/or mnemonic instructions; modules containing 4K, 8K, 16K, 32K or 64K 16-bit words of Logic memory are available. The Register memory stores 1K user-defined 16-bit words in the 8K version; 8K words in the 12K, 16K or 24K versions; l6K words in the 48K or 64K versions. The Internal Memory section contains data stored in Table and Scratchpad formats.

The Combined Memory module uses CMOS-RAM for its memory storage devices. When power is removed,

intentionally or not, the contents of these devices are maintained by a Lithium-Manganese Dioxide battery. This battery is located on the circuit board along with circuitry to monitor the battery voltage level.

Two LED's are visible through a lens on the module faceplate. An LED marked, 'BATTERY', indicates that the on-board Lithium battery has enough charge to preserve memory contents. Another, marked, "PARITY", indicates there are no parity errors resulting from a Logic Memory access, a Register Memory access or an Internal Memory access.

Refer to table 2 for Combined Memory module specifications.

NOTE

The faceplate packaged with the Combined Memory module is labeled. LOGIC MEMORY.

Table 1. FEATURES AND BENEFITS

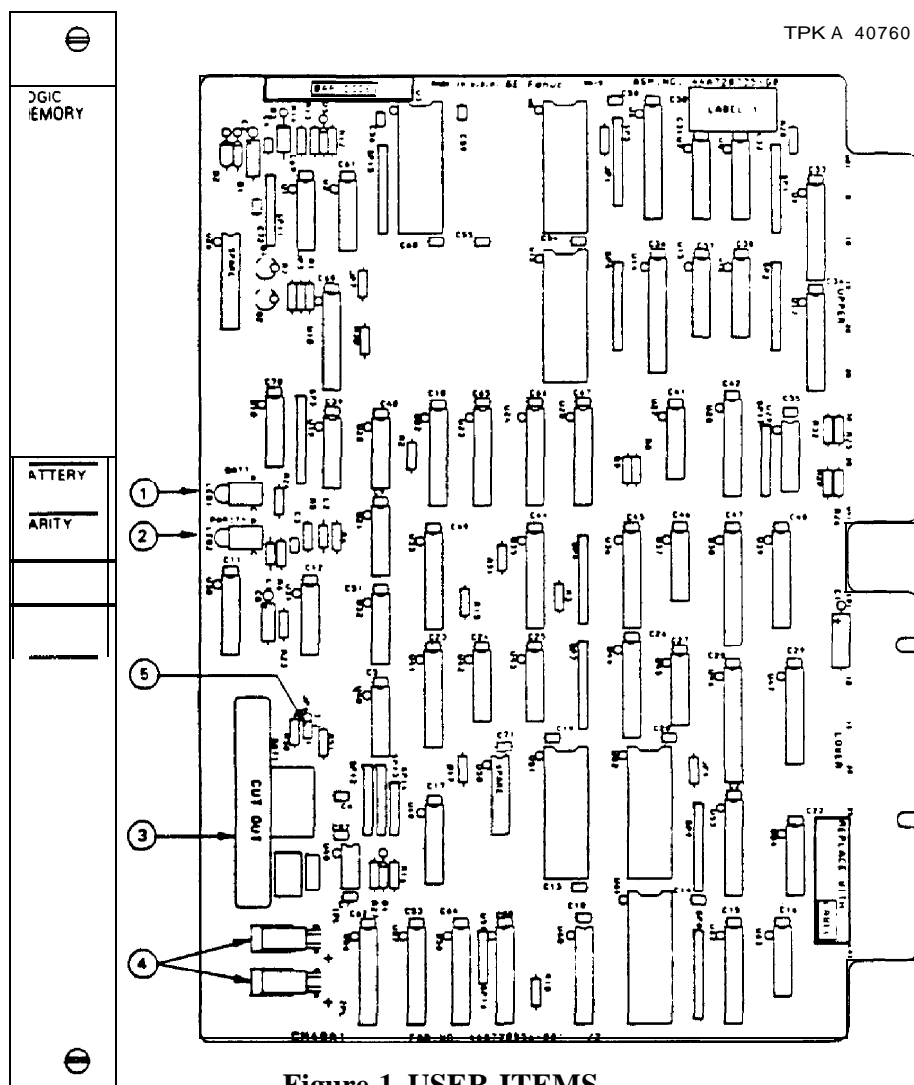| FEATURES	BENEFITS
-Six Versions Available: 4K of User Memory; 1K Words of Register Memory 4K of User Memory; 8K Words of Register Memory 8K of User Memory; 8K Words of Register Memory 16K of User Memory; 8K Words of Register Memory 32K of User Memory; 16K Words of Register Memory 64K of User Memory; 16K Words of Register Memory	Expandable Memory Capacities
Battery back-up of CMOS Memory through on board battery of auxiliary battery.	All data maintained when power is removed ALlows system **to restart** after power is restored.
Parity-error indicator.	Simplifies troubleshooting. Preserves data integrity.
Battery-Status indicator.	Wams user of need for battery replacement.

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Figure 1. USER ITEMS

I. BATTERY Light

Steady On: Battery Normal

Flashing: Battery Low: The CPU continues run-
ning. No. 2 (advisory) alarm is activated. To protect
the memory contents, replace the battery before it
fails. When the light begins to flash, battery failure
will occur in approximately 30 days.

Steady Off: Battery Failed: CPU continues run-
ning, but will not restart if stopped. No. 2 alarm
remains activated. Memory contents will be lost when
power is switched off or lost.

2. PARITY Light

on: Internal Memory, Register Memory and Logic
Memory Parity are OK.

off: Internal Memory and/or Register Memory or
Logic Memory parity error occurred when reading
memory.   An error message appears on the
Workmaster Computer display or in the work area
of the Program Development Terminal display.
Causes CPU to stop.

3. Lithium-Manganese Dioxide Battery

4. Battery Connectors

5, External Auxiliary Battery Select

NOTE

For battery replacement information, consult the
Series Six Plus Installation and Maintenance
Manual, GEK-96602.

INSTALLATION

The Combined Memory module (LOGIC MEMORY) is installed in the card slot to the immediate left of the Arithmetic Control module in the CPU rack. Follow **these** steps for installation:

1. Connect 2-pin l**ithum** battery connector to either male jack beneath battery if not using auxiliary battery inputs on power supply terminal strip.

2. If auxiliary battery is used, the battery does not have to be on the board.

3. Use extraction/insertion tool furnished with CPU to insert (or remove) module into rack.

4. Secure faceplate to rack using screws at top and bottom.

5. Clear parity errors detected at initial power-up of the CPU. Refer to Chapter 11, of the Logicmaster 6 User's Manual, GEK-25379.

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│   **CAUTION**   │
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Do not allow the bottom of this circuit board to come into contact with a conductive (metal) surface when the board cover has been removed. Failure to observe this caution could result in the discharge of the non-rechargeable lithium battery and the loss of the memory contents.

Relatively small amounts of excess charge can cause very intense electrostatic fields in metal-oxide-semiconductor (MOS) devices, **damaging** their gate structure. Avoid handling this circuit board in a manner which might cause electrostatic charges. Failure to observe this caution could result in the destruction of the CMOS-RAM devices in this module.

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│   **WARNING**   │
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Do **not discard the lithium-manganese diox- ide battery in either fire or water. Do not place** a **short circuit between the contacts at the ends of the battery. Do not attempt** to **recharge the battery. Failure to observe any** of **these warnings map cause the battery to burst or burn or release hazardous materials.**

Table 2. SPECIFICATIONS

Dimensions:
Circuit Board: 8.15 x 11.0 (inches), 208 x 280 (mm)
Faceplate: 12.46 x 1.175 (inches), 317 x 30 (mm)
Power Requirements: 5 V dc, 1.5 A (max), -12 V dc, 10 mA (max)
(Supplied by CPU power supply)
*Register Memory Capacity: 1K l6-Bit words; 5K version

8K 16-Bit words; 12K, 16K or 24K versions

16K 16-Bit words; 48K and 80K versions

*Logic (user) Memory Capacity: 4,096 (4K) 16-Bit words

8,192 (8K) 16-Bit words

16,384 (16K) 16-Bit words

32,768 (32K) 16-Bit words

65,536 (64K) l6-Bit words
Operating   Temperature: 0 to 60° C (32 to 140F)

(outside of rack)

Storage   Temperature: -20 to 70C (-4 TO 158F')
Humidity: 5%-95% {non-condensing)

*with battery back-up

Table 3. ORDERING INFORMATION

DESCRIPTION	CATALOG NUMBER
4K/lK Logic/Register Memory	IC600LX 5K
4K/8K Logic/Register Memory	IC600LX612K
8K/8K Logic/Register Memory	IC600LX616K
16K/16K Logic//Register Memory	IC600LX624K
32K./16K Logic/Register **Memory**	IC600LX648K
64K/16K Logic/Register Memory	IC600LX68OK

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