

## DESCRIPTION

2027 is a memory module with battery back-up to provide non-volatile data storage at power-down. It can be used in both Single Board as Double Board Computer Systems. 2027 provides an alternative storage media to common input/output devices as cassette tape, paper tape etc.

The memory is based on CMOS-RAM that provides very low dissipation. The module retains, after a loss of power, the data integrity for 100 hours, dependant on chosen type of RAM and condition of the batteries. The module is supplied with an on-board packet of three 1.2 V Nickel/Cadium batteries. Charging capability is included and attained via a serial resistor to the + 5 V supply. The batteries are switched ON/OFF by an on-board switch. Battery charge can thus be preserved during stock holding.

The module provides programmed write protection. Write access must be preceeded by a special opening command which is done with an I/O output instruction on port 252Q, namely OUT 252Q. Common memory addressing is the allowed during 10  $\mu$ sek. Read access does not differ from normal memory operations. The module prohibits automatically writing when the supply voltage drops below a level of safety operation.



Following general data apply when configuring the module into a 4680-system:

- The module is shipped with full memory capacity(= 1Kbytes)mounted.
- The module memory array is placed in multiples of 1K in the 4680 memory map.

The base address is selected on an on-board code plug.

- The batteries are included and mounted at shipping. The switch is positioned in OFF-state (stock holding).
- No refresh required.
- Wait-state signalling is provided.

The "STR OUT"-signal is provided on standard Double Board Computer backplanes. In case of the Single Board Computer pass the "STR OUT"-signal over the concerned slot and wire,wrap the C3-command from the I/O-bus.

## SPECIFICATION

Power Supply	+ 5 V $\pm$ 5 %, 200 mA
Battery	DEAC - cell, 1.2 V Data integrity is maintained during 100 h at power loss.
Write control	OUT 252Q opens for write access in 10 $\mu$ sec.
Read control	Normal
Bus connection	Memory-side of the 4680-bus.
Connector	B 64 pin two-row Europe connector (DIN 41612).
Battery	Three 1.2 V DEAC - cells.

## PIN NUMBERING

The signal STR OUT (The I/O-strobe for OUT-command) or OUT-command C3 (or any other) in case of Single Board Computer applications is connected on pin 26B.

## SIGNALLING CPU - 2027

- 16 bits address bus
- 8 bits tri-state data bus
- The "Mem control" contains the signals for read - MEMFL\* - and write - W\*. Optional MEMRDY\* is provided for wait-state signalling.
- STR OUT to open the write protection.

Refer to System Manual for further information on memory signalling.

## OPTION

2027 is also available for Single Board Computer application. This is accomplished by modifying the write protection logic. Modify by removing the on-board circuit 03. This circuit is then short circuited by a jumper from pin 7 to pin 8 on the specific socket. Write access is then available with an opening I/O-command C3 (data parameter is of no significance). The function is the same as in standard version.

## ADDRESS SELECTION

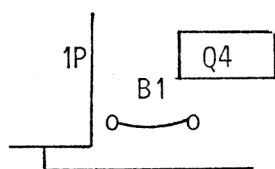
Select the module base address and the boundary in the main memory, on the code plug location OM1 (between Q3 and Q8)

32K	16K	8K	4K	2K	N.C.	1K
○	○	○	○	○	○	○
○	○	○	○	○	○	○
1	2	3	4	5	6	7

Refer to System Manual about coding

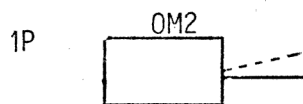
Example: 7 and 4 cut gives  
base address = 5 - 6K  
(1 + 4 = 5)

Jumper B1 provides optional wait-state signalling by the signal MEMRDY\*. Jumper not installed = no wait-state signalling



Jumper B1 location.

#### Battery ON/OFF



Switch positions:

Battery ON - one of the outer positions.

Battery OFF (stock holding) - mid position

The battery ON-position is set when the module is connected to a 4680-system. The ON-position connects the charging circuit for the batteries and retains data when power is lost. The OFF-position is used when stock-holding the module.