# F1-130 PLC V-Memory

When designing a PLC application, it is important for the PLC User to understand the different types of memory in the PLC. Two types of memory are used by the 130 CPU, RAM and EEPROM. This memory can be configured by the PLC User as Retentive or Non-Retentive.

Retentive Memory is memory that is configured by the user to maintain values through a power cycle or Program to Run transition. Non-Retentive Memory is memory that is configured by the PLC user to clear data after a power cycle or Program to Run transition. AUX 57 is used to configure the retentive ranges.

The contents of RAM memory can be Written To and Read From an infinite number of times but RAM requires a power source to maintain the contents of memory. While the PLC is powered up, the contents of RAM are maintained by the internal power supply (5VDC) derived from the PLC power source (Usually 120VAC). When the PLC is powered down, the contents of RAM are maintained by a Super-Capacitor. When the Super-Capacitor discharges the contents of RAM will be lost. The data retention time of Super-Capacitor backed RAM is 3 weeks maximum 4½ days minimum (at 60 Degrees C).

The contents of EEPROM memory can be Read From an infinite number of times but there is a limit to the number of times it can be Written To (Typical specification is 100000 writes). EEPROM does not require a power source to maintain the contents of memory and will retain the contents of memory indefinately.

PLC User V-Memory is stored in both Volatile RAM and Non-Volatile EEPROM memory. V2000-V2377 is stored in RAM. V4000-V4177 and V7630-V7647 are stored in EEPROM.

Data values that must be maintained through long periods of no power to the PLC should be stored in EEPROM based V-memory. EEPROM based V-memory should not be used for values that are constantly changing.

Data values that are continually changing or that can be intialized with ladder logic should be stored in RAM based V-memory.

This appendix should be referenced from the following places in the DL105 User Manual:

- Page 4-3 (Total V-Memory Spec)
- Page 4-9 (Setting Retentive Memory)
- Page 4-21 (V-Memory)
- Page 4-25 (Word Memory)
- Page 4-28 (Data Words / Data Words Non-volatile)
- Page 5-48 (OUT, OUTD Instruction)
- Page 5-73 (MOV Instruction)
- Page 5-74 (MOVMC Instruction)
- A-6 (Aux 57)
- C-2 (V-Memory Data Registers)