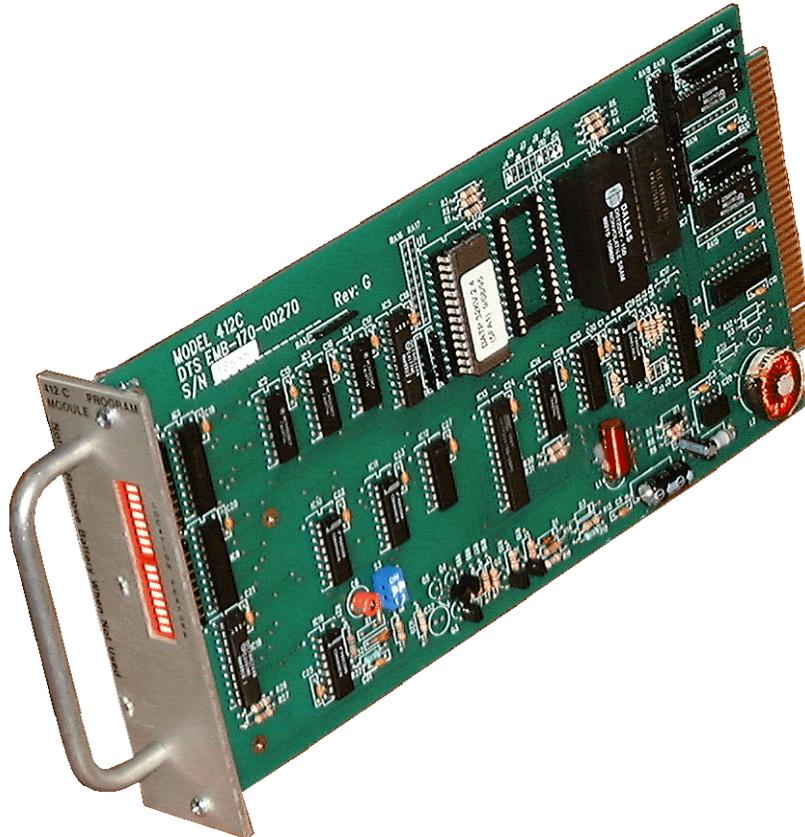




MODEL 412C SYSTEM MEMORY MODULE



DESCRIPTION

The Model 412C System Memory Module plugs directly into the slot provided for the Traffic PROM Module in any Model 170 Controller meeting the State of California TSCE Specification. The Module is fully buffered on sixteen address and eight data lines. It provides various jumper selectable configurations of SRAM (Static Random Access Memory), EPROM (Electrically Programmable Read Only Memory), and NOVRAM (Nonvolatile SRAM). Capability of the Module includes two eight position slide switches, mounted through the front panel and addressable from the 170 Controller, a Write Protect circuit to protect all RAM contents during power failures, a Real Time Clock Adjuster (RTCA) with stable master clock, an on-board +12 vdc to +5 vdc converter power supply, and a voltage sense/battery switch-over circuit.

MEMORY

The 412C System Memory Module incorporates four twenty-eight pin sockets to accommodate a variety of memory chip configurations. The most common maximum configuration consists of 32K of EPROM and 20K of SRAM. The minimum configuration would consist of 8K of EPROM and no SRAM (170 Controller contains 2K of SRAM). During a power failure the contents of SRAM are protected from corruption by a WRITE PROTECT circuit that monitors the DC voltage of the Module.

DC/DC CONVERTER

Power to the Module is supplied from a DC/DC converter that supplies +5 vdc from +12 vdc with a conversion efficiency of 81%.

REAL TIME CLOCK ADJUSTER

The 412C contains a circuit, powered by battery, that accurately develops and accumulates 1/60 th second increments in a twenty-four bit counter. This counter runs continuously during both power on and power off conditions and can be reset by command from the 170 Controller. The RTCA may be used in place of the 170 Controller Down Time Accumulator to increase down time accuracy.

IDENTIFICATION SLIDE SWITCHES

Two eight position slide switches are provided at the front panel labeled FEATURE and LOCATION. The sixteen bits represented may be used to uniquely identify a controller location, capabilities, or any other parameter needed for area control.

SPECIFICATIONS

Memory	EPROM: 2764,27128,27256 @ 200 nsec.; SRAM: 6264,62256 @ 200 nsec., 20 microamp @ 2vdc battery mode; NOVRAM: Dallas 1225Y @ 200 nsec.
DC/DC Converter	Type: Motorola MC34063P1; Current: 1.5 amp max. w/current limit; Input: 2.5 to 40 vdc; Efficiency: 81% at an output of 5 vdc, 1 amp.
RTCA w/Clock	Frequency: 30.72 kHz +/- 10 ppm; Resolution: 1/60th second; Capacity: 24 bit; Standby: < 1 ma. from 3.6 vdc battery
I.D. Switches	2-8 position, low profile, right angle, slide. TRUE=closure, FALSE=open circuit, pulled up to +5 vdc
Write Protect	Toggle function (write to address \$7000) to enable/disable write to RAM memory
Battery	1.8 amp-hr., 3.6 vdc open circuit, lithium thiononyl chloride
Voltage Sense	FAIL @ +9 vdc +/- 0.5 vdc; RECOVER @ +11 vdc +/- 0.5 vdc
Circuit Board	5" x 10.375" x 0.063" thick, NEMA F-4 glass cloth, soldermask both sides, component silkscreen, gold plated edge connector contacts, and humidity resistant conformal coating.
Front Panel	1.5" x 5.0" x 0.125" thick, clear anodized aluminum, 2-8 position slide switches, handle, and anti-insertion device.
Miscellaneous	Weight: 11 oz.; Operating Temperature: -37 to +74 degrees C; Power Requirements: 95 ma max. @ +5 vdc, 234 ma max. @ +12 vdc