

GFK-1036B
March 2010

64 MHz, 32-Bit Floating Point State Logic Central Processing Unit

Features

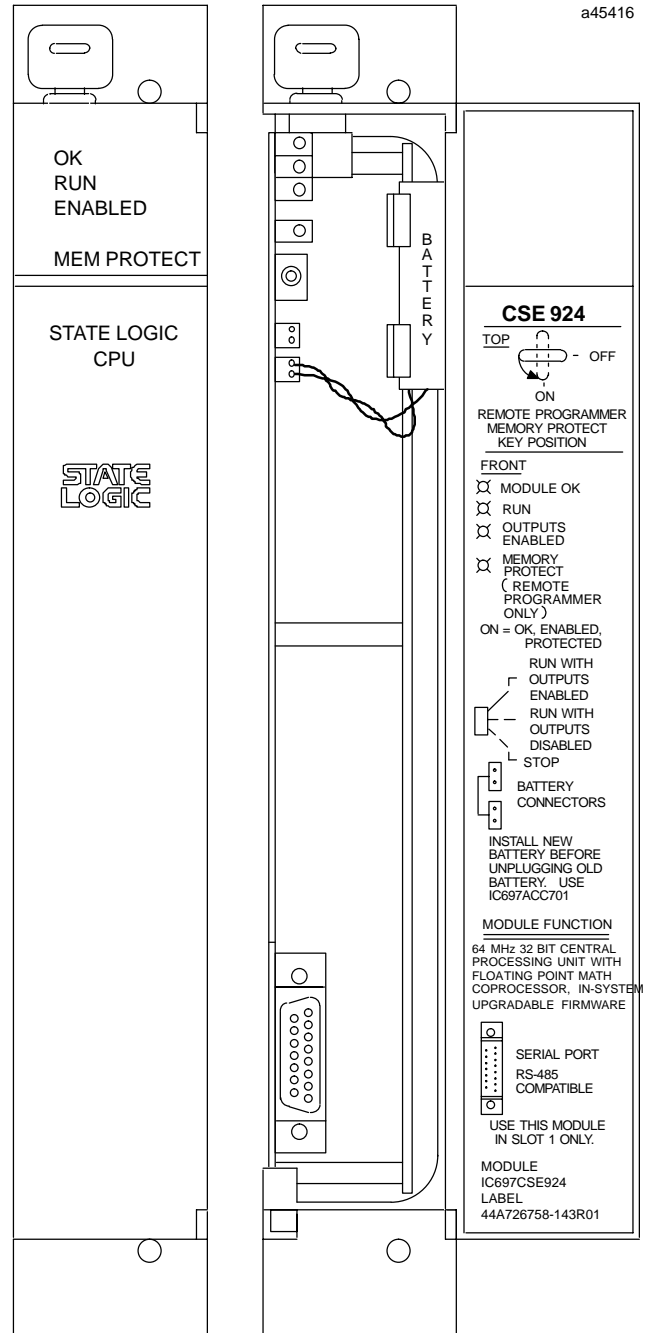
- Supports State Logic control programming
- Supports floating point calculations
- Single slot CPU.
- 12K inputs and outputs (any mix).
- Up to 8K analog I/O.
- 0.4 microseconds per boolean function.
- 64MHz, 80486DX2 microprocessor.
- Supports IC660/IC661 and IC697I/O products.
- Programmed by AD641 and IC641 (MS-DOS®) software products.
- Provides 512 Kbytes of battery-backed memory in the same slot.
- Configurable data and program memory.
- Battery-backed calendar clock.
- Three position operation mode switch.
- Password controlled access.
- Remote programmer keyswitch memory protection
- Four status LEDs.
- Software configuration (No DIP switches or jumpers to set).
- Reference information inside front door.
- In-system upgradable firmware.

Functions

The CSE 924 is a single slot programmable controller CPU which provides State Logic control programming and floating point calculations. The CSE 924 may be programmed in State Logic, Relay Ladder Logic, and C to perform real-time control of machines, processes, and material handling systems.

The AD641 software products are used to program the CSE 924 in State Logic; the IC641 (MS-DOS) software products are used to program in Relay Ladder Logic and C. The IC641 (MS-DOS) software is also used to perform all configuration functions for the CSE 924.

The CSE 924 communicates with I/O and smart option modules over the rack mounted backplane (IC697CHS750, 782, 783, 790, 791) by way of the VME C.1 Standard format.



GFK-1036B
March 2010

64 MHz, 32-Bit Floating Point State Logic Central Processing Unit

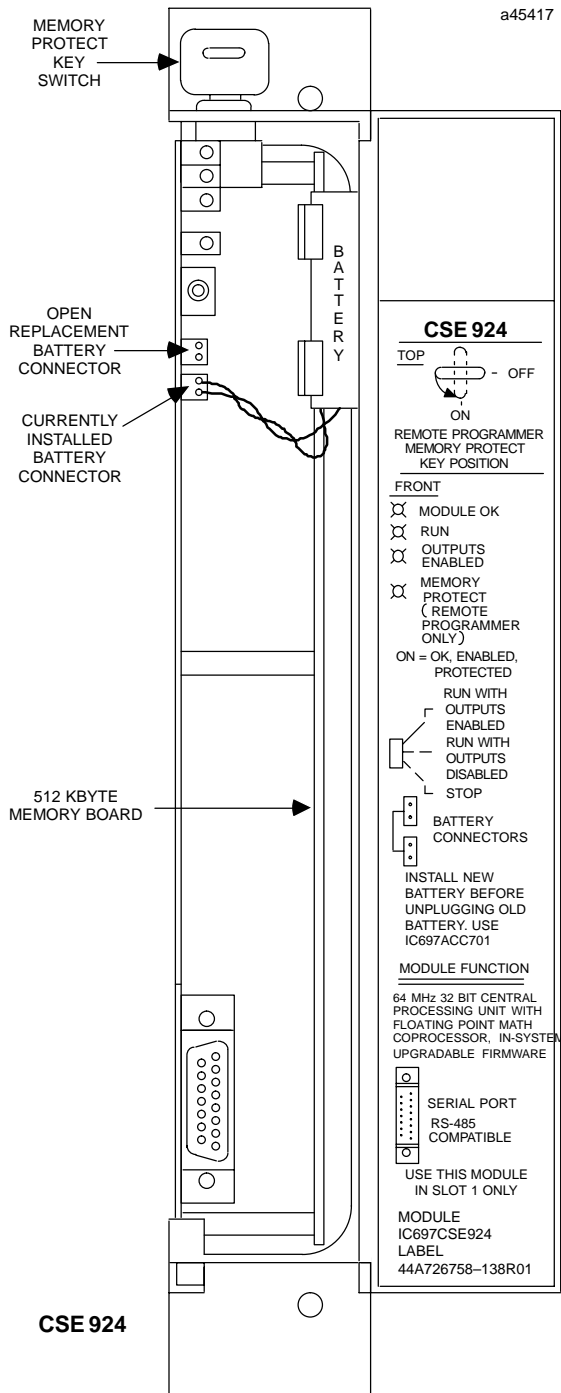


Figure 1. CSE 924 - Location of Major Features

Supported option modules include IC697 LAN Interface modules, Programmable Coprocessor, Alphanumeric Display Coprocessor, Bus Controller for IC660/IC66II/O products, Communications modules,

I/O Link Interface, and all of the IC697 family of discrete and analog I/O modules.

Program and data memory for the CSE 924 is provided by a memory board with 512 Kbytes of battery-backed CMOS RAM. This memory board is an integral part of the CSE 924 module and does not need to be ordered separately.

Operation of this module may be controlled by the three-position RUN/STOP switch or remotely by an attached programmer, and AD641 or IC641 (MS-DOS) software. Program and configuration data can be locked through software passwords or manually by the memory protect keyswitch. When the key is in the protected position, program and configuration data cannot be changed. The status of a CPU is indicated by the four green LEDs on the front of the module.

The CSE 924 requires forced air cooling for proper operation in ambient temperatures greater than 40°C (104°F). A fan capable of 70 CFM (including filters) should be located beneath slot 1 of the rack containing the CPU.

Fan assemblies (IC697ACC 721 and IC697ACC724) can be ordered for direct mounting on the IC697 rack. Refer to the applicable *Programmable Controller Installation Manual* for detailed information.

Installation

It is the responsibility of the OEM, system integrator, or end user to properly install the PLC equipment for safe and reliable operation. Product manuals provide detailed information about installation, startup, and proper use of the PLC equipment. The installation manual, shipped with your PLC programming software, describes how to properly install the equipment. If the PLC installation must comply with supported standards, such as FCC or CE Directives, please refer to the *Installation Requirements for Conformance to Standards*, shipped with the PLC programming software, for additional guidelines.

- Installation should not be attempted without referring to the applicable *Programmable Controller Installation Manual*.
- Connect the battery to either of the battery connectors on the module (see Figure 1).
- Put the toggle switch in the STOP position.
- Put the keyswitch in the *Memory Protection OFF* position.

64 MHz, 32-Bit Floating Point State Logic Central Processing Unit

GFK-1036B
March 2010

- Make sure that rack power is off.
- Install the CSE 924 module in slot 1 of rack 0 (see Figure 2).
- Turn on power.

The module should power up and the top LED should blink. When the diagnostics have completed successfully, the top LED stays on and the second and third LEDs are off. The fourth LED is off if the keyswitch is in the OFF position. The CPU is now ready to be programmed.

After the program has been verified the toggle switch may be moved to the appropriate operation mode position. The LEDs indicate the position of the toggle switch, memory protection status, and the state of the program.

The IC641 (MS-DOS) software is also used to load the State Logic operating system into the CSE 924 CPU module. The operating system is provided on a floppy disk with the CSE 924. For information on loading the operating system, see the *State Logic Control System User's Manual*.

Serial Port

The 15-pin D-connector provides the connection to an RS-485 compatible serial port on the CPU as shown in Figure 1.

The serial connection is made from the serial port on the CPU to the serial port on the programming computer, or other serial device, through the RS-422/RS-485 to RS-232 Converter (IC690ACC900) or RS-232 to RS-422 Miniconverter (IC690ACC901). This connection can be made with available cables or you may build cables to fit the needs of your particular application. See reference 3 for more information on serial communications.

Configuration

The IC697 CPU and I/O system is configured with IC641 (MS-DOS) programming software. There are no DIP switches or jumpers used to configure the system. The CPU verifies the actual module and rack configuration at power-up and periodically during operation. The actual configuration must be the same as the programmed configuration. Deviations are reported to the CPU alarm processor function for configured fault response. Consult Reference 1 for a description of configuration functions.

Batteries

A lithium battery (IC697ACC701) is installed as shown in Figure 1. This battery maintains program and data memory when power is removed and operates the calendar clock. Be sure to install the new battery before removing the old battery. Specific indication of a low battery state is detailed in Reference 2.

Removing a Module

The instructions below should be followed when removing a module from its slot in a rack.

- Grasp the board firmly at the top and bottom of the board cover with your thumbs on the front of the cover and your fingers on the plastic clips on the back of the cover.
- Squeeze the rack clips on the back of the cover with your fingers to disengage the clip from the rack rail and pull the board firmly to remove it from the backplane connector.
- Slide the board along the card guide and remove it from the rack.

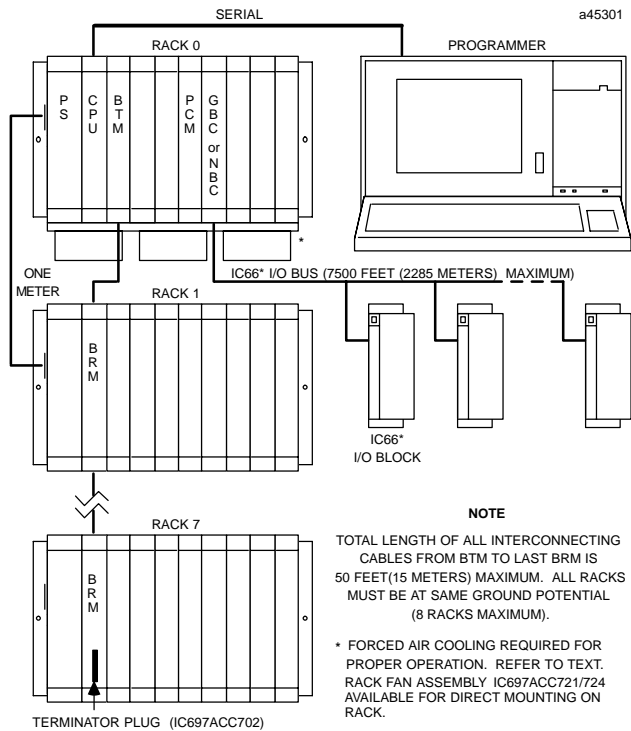


Figure 2. System Configuration, Serial Connection to Programmer

GFK-1036B
March 2010

64 MHz, 32-Bit Floating Point State Logic Central Processing Unit

Table 1. References

Reference	Title
1	Programming Software User's Manual
2	Programmable Controller Reference Manual
3	Programmable Controller Installation Manual
4	State Logic Control System User's Manual

Table 2. Specifications for IC697CSE924 †

Battery	
Shelf life	10 years at 20° C (68° F)
Memory retention	6 months nominal without applied power.
Current required from 5V bus	3.3 Amps nominal
Operating Temperature	0 to 60°C (32°F to 140°F); <i>70 CFM forced air required</i> 0 to 40°C (32°F to 104°F); <i>without forced air</i>
Time of Day Clock accuracy	" 3.5 seconds per day maximum
Elapsed Time Clock (internal timing) accuracy	" .01% maximum
Serial Port	
RS422/485 compatible	Programmer Serial Attachment
VME	System designed to support the VME standard C.1

† Refer to GFK-0867B, or later for product standards and general specifications.

Table 3. Ordering Information

Description	Catalog Number
Central Processing Unit CSE 924, 64 MHz, 32-Bit, Floating Point, State Logic	IC697CSE924
Lithium Battery	IC697ACC701
Rack Fan Assembly, 120 VAC	IC697ACC721
Rack Fan Assembly, 240 VAC	IC697ACC724

Note: For Conformal Coat option, or Low Temperature Testing option please consult the factory for price and availability.