12 MHz, Expandable Central Processing Unit

Features

- Single slot CPU

- 2K inputs and outputs (any mix)

- Up to 8K analog I/O

- 0.4 microseconds per boolean function

- 12 Mhz, 80C186 microprocessor

- Supports IC660/IC661 and IC697 PLC

- Programmed by MS-DOS® or Windows based software products running on Windows® 95 or Windows NT® over Ethernet TCP/IP or through the SNP port.

- Supports up to 512 Kbytes of battery-backed expansion memory in the same slot

- Configurable data and program memory

- Battery-backed calendar clock

- Three position operation mode switch

- Password controlled access

- Three Status LEDs

- Software Configuration (No DIP switches or jumpers)
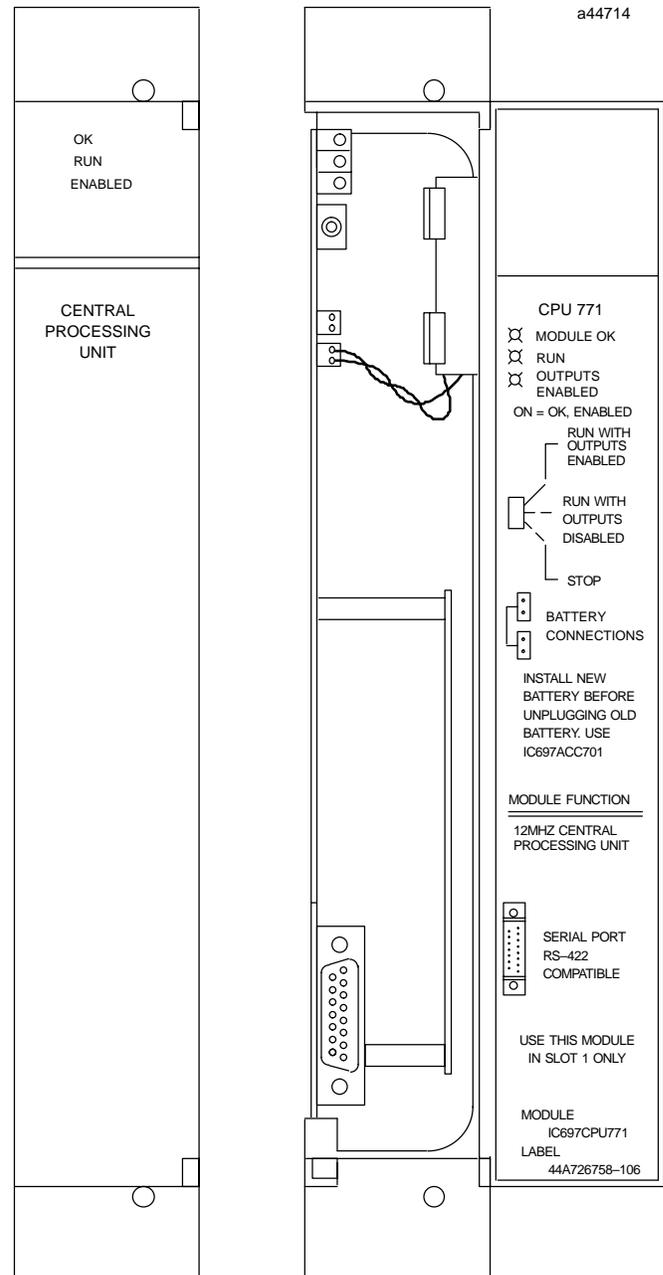
- Reference information inside front door.

Functions

The CPU 771 is a single slot PLC CPU which is programmed and configured by MS-DOS or Windows based programming software to perform real time control of machines, processes and material handling systems.

The CPU 771 CPU 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.

Supported option modules include all IC697 LAN interface modules, several Coprocessor modules, Bus Controller for IC660/661 I/O and Communications modules, in addition to all of the IC697 family of discrete and analog I/O modules (see the applicable *Programmable Controller Installation Manual* for more information on supported modules).

Program and data memory is available by the attachment of an expansion memory board with up to 512 Kbytes of battery-backed CMOS RAM.

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Operation of this module may be controlled by the three position switch on the module or remotely by an attached programmer and programming software. CPU status is indicated by three green LEDs on the front of the module.
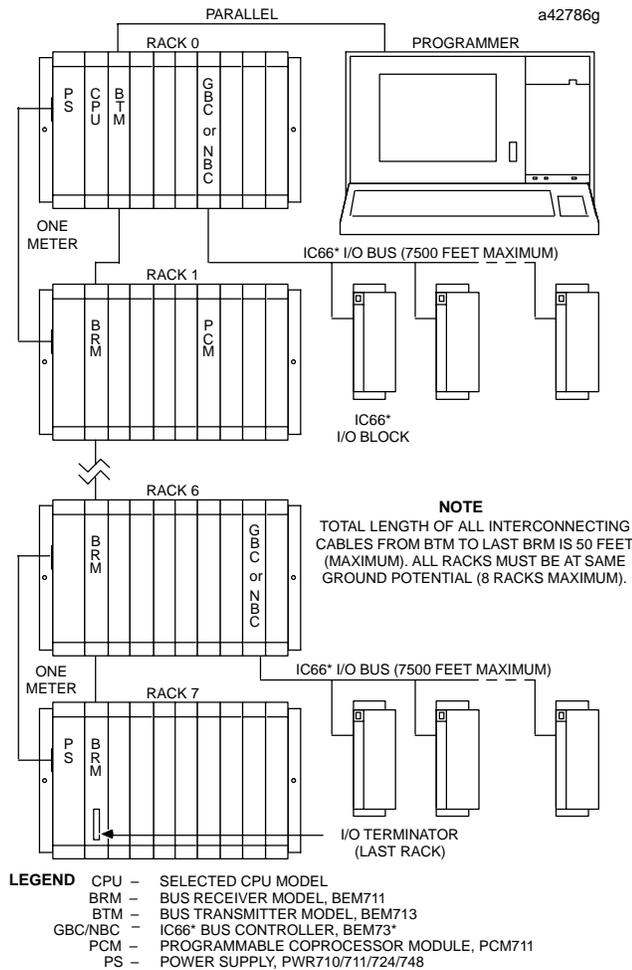

Figure 1. Typical PLC System Configuration

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 refer- ring to the applicable *Programmer Controller Instal- lation Manual* (See reference 5).
- Make sure rack power is off.
- Install expansion memory.
- Connect the battery to either of the battery con- nectors on the module.
- Put toggle switch in Stop position.
- Install in slot 1 of rack 0. (See figure 1)
- Turn on power.

The module should power up and blink the top LED. When the diagnostics have completed successfully the top LED stays on and the middle and bottom LEDs are off. 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 and the state of the program.

Expansion Memory

The CPU 771 must have a CMOS expansion memory board. The CMOS expansion memory board provides CMOS RAM memory of 64, 128, 256 or 512 Kbytes. The battery which supports this memory is located on the main CPU board housing. (See figure 2)

Installation of a CMOS expansion memory board on the CPU will require initialization of the CPU with the programmer (See reference 1).

Programmer Connection, Parallel

For a parallel interface (MS-DOS programmer only) the programmer is connected to the top port on the Bus Transmitter Module (IC697BEM713) as shown in Figure 1. Consult Reference 1 for a description of program- ming functions.
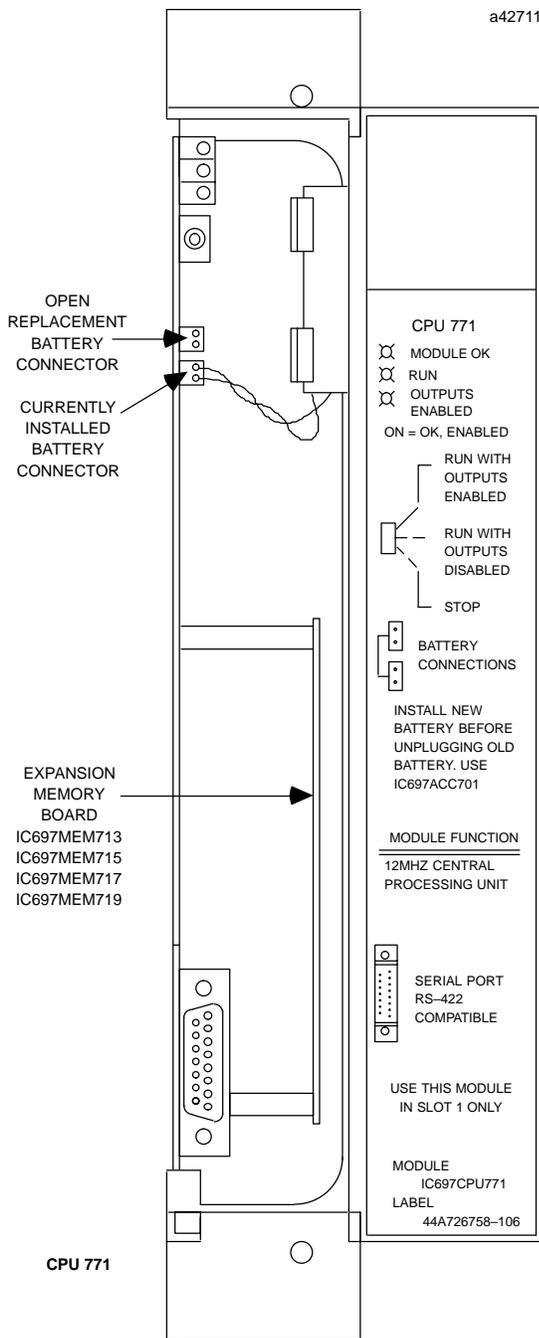
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Figure 2. CPU 771 - Location of Major Features

Serial Port

The 15-pin D-connector provides the connection to an RS-485 compatible serial port as shown in Figure 3.

This port provides a serial connection to a Work Station Interface board installed in the programming computer.

The serial connection can also be 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 application.
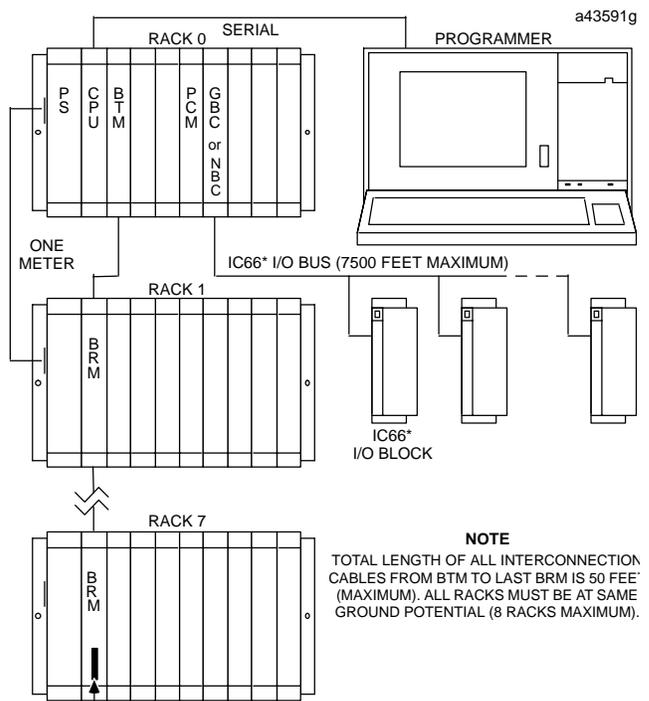

Figure 3. System Configuration, Serial Connection to Programmer

Programmer Connection, Ethernet TCP/IP

Connecting your programmer via an Ethernet TCP/IP network requires installation of an Ethernet Interface module in the PLC. This can be either the Ethernet Controller, IC697CMM741, or Ethernet Interface (Type 2), IC697CMM742. Before connecting your programmer and PLC to the Ethernet TCP/IP network you must set the IP address in the Ethernet Interface. After setting the IP address, connect the PLC and the programmer running Windows software to the Ethernet Interface. For more detailed information on Ethernet TCP/IP, refer to the *TCP/IP Ethernet Communications (Type 2) User's Manual,* and the Windows programming manual, GFK-1295.

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Configuration

The IC697 CPU and I/O system is configured with MS-DOS or Windows based 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.

Batteries

A lithium battery (IC697ACC701) is installed as shown in figure 2. 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.

If during power-up diagnostics a low battery is detected the Module OK LED (top) will not stay on. 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.

Table 1. References

Reference	Title
1	ProgrammingSoftware User's Manual
2	ProgrammableControllerReferenceManual
5	ProgrammableControllerInstallationManual

Table 2. Specifications for IC697CPU771 †

Battery **Shelflife** **Memory retention**	10 years at $20°C$ ($68°F$) 6 months nominal without applied power.
Current Required from 5V Bus	1.1 Amps with Expansion Memory (all sizes) 1.2 Amps
Time of Day Clock accuracy **ElapsedTime Clock (internal timing) accuracy**	" 3.5 seconds per day maximum " .01% maximum
Serial Port **RS422compatible**	Serial connection to programmer
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
CPU, 12 Mhz, Expandable	IC697CPU771
64 Kbyte CMOS Expansion Memory	IC697MEM713
128 Kbyte CMOS Expansion Memory	IC697MEM715
256 Kbyte CMOS Expansion Memory	IC697MEM717
512 Kbyte CMOS Expansion Memory	IC697MEM719
Lithium Battery	IC697ACC701

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