

## Series 90-70 Specialty PLCs

Utilizing field-proven Series 90-70 PLC, Genius I/O, and VersaMax I/O products, GMR (Genius Modular Redundancy) system is a modular redundancy system developed by GE, forming a flexible and powerful safety system up to and including SIL 3.

GMR contains three subsystems; the control unit is the PLC subsystem, and there is an input subsystem and an output subsystem. All of the subsystems can be formed to simplex, duplex or triplex redundancy.

GMR provides advanced and abundant diagnostic abilities that are easily programmed by using Proficy Machine Edition software. The safety system must be configured using all parts that are TUV certified, as defined in the specified configuration of the GMR documentation.



**CPUs** [page 1.77](#)

**Power Supplies** [page 1.80](#)

**I/O Interface Modules** [page 1.81](#)

**Accessories** [page 1.83](#)

**Racks** [pages 1.78-1.79](#)

**Communications Modules** [page 1.82](#)

### Publication Reference Chart

GFK-0262	Series 90-70 Programmable Controller Installation Manual	GFK-0646	C Programmer's Toolkit for Series 90-70 PLCs User's Manual
GFK-0265	Series 90-70 PLC Reference Manual	GFK-0868	Series 90 Ethernet Communications User's Manual
GFK-0448	Series 90-70 Programmable Controller User's Guide to the Integration of 3rd Party VME Modules	GFK-1527	Series 90-70 Enhanced Hot Standby CPU Redundancy User's Guide
GFK-0582	Series 90 PLC Serial Communications User's Manual	GFK-1541	TCP/IP Ethernet Communications for the Series 90 PLC User's Manual
GFK-0600	Series 90-70 Programmable Controller Datasheets Manual	GFK-2017	Series 90-70 Genius Bus Controller



**CPU**

Series 90-70 Genius Modular Redundancy CPU is a single slot programmable controller CPU that allows floating point calculations. The CPU is programmed and configured with Windows based programming software for use in Emergency Shut-Down (ESD), fire and gas, and other critical control applications. It communicates with I/O and smart option modules over the rack-mounted backplane.

**IC697CPM790**

<b>Product Name</b>	<b>Central Processing Unit, 64 MHz, 32-Bit, Floating Point, 1 Mbyte On-Board User Memory, (requires 70 CFM forced air cooling)</b>
<b>Lifecycle Status</b>	Mature
<b>CPU Type</b>	Redundant (Genius Triple Modular)
<b>CPU Memory</b>	1 Mbyte of User Logic RAM
<b>Non-Volatile User Flash Memory</b>	No
<b>Floating Point Math</b>	Yes
<b>Processor Speed</b>	64 MHz (80486DX2)
<b>I/O Discrete Points</b>	12288
<b>Boolean Execution Speed (us/boolean function)</b>	0.4
<b>Analog I/O</b>	8 Kbytes Input, 8 Kbytes Output
<b>Embedded Communications</b>	Serial
<b>Protocols Supported</b>	SNP Serial
<b>Built-in Serial Ports</b>	1 (RS-422/485 compatible serial attachment)
<b>Redundancy Featured Scan Extension</b>	N/A
<b>Current Required from 5V Bus</b>	1.6 Amps



## Racks

Series 90-70 PLC Racks are available in a variety of configurations to meet the needs of your application. The choices vary from 5- and 9-slot Standard Racks, to 9-slot Redundant Racks and 17-slot VME Integrator Racks, each giving you the option of Front (Rack) Mount or Rear (Panel) Mount. These racks can be used for CPU, local and remote I/O and accept all plug-in IC697 Power Supplies. With available accessories, any of these racks can function as an Expansion Rack, and two racks can be run off a single Power Supply. GE offers standard-length cables for easy installation and provides wiring information for custom applications.

	IC697CHS750	IC697CHS770	IC697CHS771	IC697CHS790
<b>Product Name</b>	Standard Series 90-70 Rack, 5-slot, Rear (Panel) Mount	Redundant Series 90-70 Rack, 9-Slot, Rear (Panel) Mount	Redundant Series 90-70 Rack, 9-Slot, Front (Rack) Mount	Standard Series 90-70 Rack, 9-slot, Rear (Panel) Mount
<b>Lifecycle Status</b>	Mature	Mature	Mature	Mature
<b>Rack Type</b>	Standard 90-70	Redundant 90-70	Redundant 90-70	Standard 90-70
<b>Number of Slots</b>	5 Double Width (plus one for power supply)	6 Double Width (plus one for power supply)	6 Double Width (plus one for power supply)	9 Double Width (plus one for power supply)
<b>Mounting Location</b>	Rear (Panel)	Rear (Panel)	Front (Rack)	Rear (Panel)
<b>Rack Configurations</b>	All IC697 PLC module types	All IC697 PLC module types, IC687 (VME) I/O and Communications module types	All IC697 PLC module types, IC687 (VME) I/O and Communications module types	All IC697 PLC module types
<b>Rack Slot Size</b>	1.6 inch	1.6 inch	1.6 inch	1.6 inch
<b>Compatible Power Supplies</b>	Plug-in AC or DC IC697	Plug-in AC/DC and DC IC697, or external power supply	Plug-in AC/DC and DC IC697, or external power supply	Plug-in AC or DC IC697
<b>Dimensions</b>	11.15" x 12.6" x 7.5"	11.15" x 19.00" x 7.5"	11.15" x 19.00" x 7.5"	11.15" x 19.00" x 7.5"



**Racks**

Series 90-70 PLC Racks are available in a variety of configurations to meet the needs of your application. The choices vary from 5- and 9-slot Standard Racks, to 9-slot Redundant Racks and 17-slot VME Integrator Racks, each giving you the option of Front (Rack) Mount or Rear (Panel) Mount. These racks can be used for CPU, local and remote I/O and accept all plug-in IC697 Power Supplies. With available accessories, any of these racks can function as an Expansion Rack, and two racks can be run off a single Power Supply. GE offers standard-length cables for easy installation and provides wiring information for custom applications.

	IC697CHS791	IC697CHS782	IC697CHS783
<b>Product Name</b>	Standard Series 90-70 Rack, 9-slot, Front (Rack) Mount	VME Integrator Rack, 17-slot, Rear (Panel) Mount	VME Integrator Rack, 17-slot, Front (Rack) Mount
<b>Lifecycle Status</b>	Mature	Mature	Mature
<b>Rack Type</b>	Standard 90-70	VME Integrator	VME Integrator
<b>Number of Slots</b>	9 Double Width (plus one for power supply)	17 Single Width, 8 Double Width (plus one for power supply)	17 Single Width, 8 Double Width (plus one for power supply)
<b>Mounting Location</b>	Front (Rack)	Rear (Panel)	Front (Rack)
<b>Rack Configurations</b>	All IC697 PLC module types	All IC697 PLC module types, 3rd party VME modules with 0.8" spacing	All IC697 PLC module types, 3rd party VME modules with 0.8" spacing
<b>Rack Slot Size</b>	1.6 inch	0.8 inch	0.8 inch
<b>Compatible Power Supplies</b>	Plug-in AC or DC IC697	Plug-in AC/DC and DC IC697, or external power supply	Plug-in AC/DC and DC IC697, or external power supply
<b>Dimensions</b>	11.15" x 19.00" x 7.5"	11.15" x 19.00" x 7.5"	11.15" x 19.00" x 7.5"



### Power Supplies

Series 90-70 Power Supply modules simply slide into the PLC rack just like I/O, and they work with any Series 90-70 CPU. Available with a variety of power ratings and Input Voltage Ranges for powering up systems of different sizes, Series 90-70 power supplies also have built-in protection for autoranging power factor corrections as well as overcurrent and overvoltage fault conditions. Depending on your application, it is possible to use one power supply for operation of two racks.

	IC697PWR710	IC697PWR711	IC697PWR724	IC697PWR748
<b>Product Name</b>	Power Supply, 120/240 VAC or 125 VDC, 55W	Power Supply, 120/240 VAC or 125 VDC, 100W	Power Supply, 24 VDC, 90W	Power Supply, 48 VDC, 90W
<b>Lifecycle Status</b>	Mature	Mature	Mature	Mature
<b>Module Function</b>	Power Supply	Power Supply	Power Supply	Power Supply
<b>Power Source</b>	120/240 VAC or 125 VDC	120/240 VAC or 125 VDC	24 VDC	48 VDC
<b>Output Source</b>	55 Watts; 5 VDC @ 11 Amps	100 Watts; 5 VDC @ 20 Amps, +12 VDC @ 2 Amps, -12 VDC @ 1 Amp	90 Watts; 5 VDC @ 18 Amps, +12 VDC @ 1.5 Amps, -12 VDC @ 1 Amp	90 Watts; 5 VDC @ 18 Amps, +12 VDC @ 1.5 Amps, -12 VDC @ 1 Amp



### I/O Interface Modules

PACSystems and Series 90-70 feature a variety of communications options for distributed control and/or I/O, supporting a wide range of communication protocols and configurations. These communication modules are easy to install and quick to configure. Some distributed I/O communications modules allow for numerous remote drops or additional racks, while others provide an interface for GE products up to 7500 feet away from the controller.

	IC697BEM731	IC697BEM713	IC697BEM711	IC697BEM733
Product Name	Genius Bus Controller	Bus Transmitter Module	Bus Receiver Module	Remote I/O Scanner
Lifecycle Status	Active	Mature	Mature	Mature
Module Type	Bus Controller	Bus Transmitter	Bus Receiver	Remote I/O Scanner
Supports Redundancy	Yes	No	No	Yes
Discrete Points Available	N/A	N/A	N/A	128 Bytes Per Drop
Programmer Effective Data Rate	N/A	500 Kbytes/sec	N/A	N/A
Time to Store 16 Kbyte Program	N/A	20 - 30 Seconds	N/A	N/A
Effective Data Rate	N/A	500 Kbytes/sec	500 Kbytes/sec	38.4 Kbaud
Total Allowed Distance of Interconnecting Cable	N/A	50 feet (15 meters)	50 feet (15 meters)	N/A
Maximum Distance from Controller	N/A	N/A	N/A	7500 feet (2275 meters)
Electrical Isolation	N/A	Non-isolated differential communication	Non-isolated differential communication	N/A
Built-in Serial Ports	1 (Hand Held Monitor Port)	2 (Programmer Port, Expansion Port Out)	2 (Expansion Port In, Expansion Port Out)	2 (RS-422 Compatible Serial Port, Hand Held Monitor Port)
Current Required from 5V Bus	1.3 Amps	1.4 Amps	0.8 Amp	0.8 Amp



### Communications Module

PACSystems and Series 90-70 feature a variety of communications options for distributed control and/or I/O, supporting a wide range of communication protocols and configurations. These communication modules are easy to install and quick to configure. Some distributed I/O communications modules allow for numerous remote drops or additional racks, while others provide an interface for GE products up to 7500 feet away from the controller.

#### IC697CMM742

Product Name	Ethernet Interface (Type 2) Module
Lifecycle Status	Mature
Module Type	Ethernet Interface
Supports Redundancy	No
Protocols Supported	SRTP Channels and EGD
Effective Data Rate	19200 bps Serial, 10 Mbps IEEE
Electrical Isolation	N/A
Communications Processor Speed	N/A
Simultaneous Communication Speed	N/A
Individual Communication Speed	N/A
RCM Maximum Cable Length	N/A
Built-in Serial Ports	5 (RS-232, RS-485, 10BaseT, AUP, 10Base2)
Current Required from 5V Bus	2.0 Amps

**Accessories**

IC690ACC901	Miniconverter Kit with cable (RS-232 to RS-485)	Active
IC690CDR002	User Manuals, InfoLink CD-ROM Documentation, Single-user License	Active
IC697ACC700	Terminal Block, 40 Contacts (qty 6)	Mature
IC697ACC701	Replacement Battery for CPU and PCM (qty 2)	Mature
IC697ACC702	I/O Bus Terminator Plug	Mature
IC697ACC715	VME Option Kit, J2 Backplane Mounting	Mature
IC697ACC720	Blank Slot Filler (qty 6)	Mature
IC697ACC721	Rack Fan Assembly, 120VAC	Active
IC697ACC722	VME Backplane Connector, Interrupt Jumper (qty 6)	Mature
IC697ACC723	Clear Plastic Doors (qty 6)	Mature
IC697ACC724	Rack Fan Assembly, 240VAC	Active
IC697ACC726	Top PWA Cover, CPU-style (qty 6)	Mature
IC697ACC727	Top and Bottom PWA Cover, GBC (qty 2)	Mature
IC697ACC728	Top and Bottom PWA Cover, BTM/BTR (qty 2)	Mature
IC697ACC729	Top and Bottom PWA Cover, I/O Link (qty 2)	Mature
IC697ACC730	Spare Slot Terminal Strip Retainer	Mature
IC697ACC732	Top PWA Cover, CPU77x and CPU78x (qty 2)	Mature
IC697ACC736	Cable Shield Clamping Assembly	Active
IC697ACC744	Rack Fan Assembly, 24VDC	Active
IC697MLX000	Series 90-70 Labels Kit	Active

**I/O Cables**

IC600WD002	I/O Expansion Cable, 2 feet (0.6 meters)	Mature
IC600WD005	I/O Expansion Cable, 5 feet (1.5 meters)	Mature
IC600WD010	I/O Expansion Cable, 10 feet (3.0 meters)	Mature
IC600WD025	I/O Expansion Cable, 25 feet (7.5 meters)	Mature
IC600WD050	I/O Expansion Cable, 50 feet (15 meters)	Mature
IC690CBL701	Cables - PCM to IC640 or PC-XT Computer, 10 feet (3 meters)	Active
IC690CBL702	Cables - PCM to PC-AT Computer, 10 feet (3 meters)	Mature
IC690CBL705	Cables - PCM to IC642 or PS/2 Computer, 10 feet (3 meters)	Mature
IC697CBL709	Cable, MAP Controller to Broadband Modem	Mature
IC697CBL811	Cable, RCM Communications (10 feet) I/O Expansion Cable	Mature
IC697CBL826	Cable, RCM Communications (25 feet) I/O Expansion Cable	Mature