GE Fanuc Automation

Series 90™- 30 PLCs

Versatility and Power in One Small Package

GE Fanuc's Series 90-30 PLCs are a family of controllers, I/O systems, and specialty modules designed to meet the demand for a versatile industrial control. The variety and flexibility of I/O and specialty modules make automation integration easy. There are 14 powerful CPUs to choose from, over 100 different I/O module types, a wide range of intelligent modules, high level communications options, and a variety of bus interfaces.

Programming options for the Series 90-30 are Ladder Logic, SFC, "C", or State Logic®. "C" programming enables users to handle complex calculations that were once only handled by large PLCs.

GE Fanuc uses industry standards, such as Ethernet TCP/IP for the Series 90-30 family. The Ethernet interface allows you to attach the Series 90-30 PLC directly to an Ethernet LAN and upload or download Ladder Logic. In addition, data can be transferred between PLCs and PCs simultaneously. Access can also be handled over the Internet.

The Series 90-30 is suited for applications requiring as little as 32 I/O or as much as 4,000 I/O. Remote I/O is handled easily using industry standards like Genius® Bus, World FIP, Profibus-DP™, Interbus-S™, LonWorks®, DeviceNet™, or SDS™.

To ensure that the Series 90-30 PLC provides a full range of application solutions, GE Fanuc works closely with third-party manufacturers of peripherals, modules, and software packages to provide complex automation solutions. Application tools are available for redundancy, Sequence of Event Recording, injection molding, chemical delivery, and much more.

GE Fanuc also offers a full line of Operator Interfaces, Human Machine Interfaces, Motion Control products, and various integration services. In addition, the Series 90-30 integrates easily with GE Fuji Variable Frequency Drives, GE Motor Control Centers, and other automation products.

The Series 90-30 is one of the world's most versatile PLCs on the market today. The Series 90-30 is ideal for the simple to the most complex applications.

Powerful CPUs

Standard Models CPU311, CPU313, CPU323

Entry level applications with low I/O counts are ideal for these CPUs. The CPU is embedded into the backplane allowing all slots available for I/O. These models are compatible with advanced modules such as Ethernet, the various bus modules, and motion control.

Standard Models CPU331, CPU341

These are the mid-range models for the Series 90-30 family. Each CPU model is modular and comes in various memory sizes, performance capability and increased functionality such as overrides, battery backed clock, and Programmable Coprocessor module support.

High Performance Models CPU350, CPU351, CPU352, CPU360, CPU363, CPU364

If high performance is required, then these are the CPUs of choice. Each CPU is based on the Intel 386EX processor for fast computation and high through-put. They can handle up to 4,096 I/O and start at 32K of memory and can be programmed in ladder logic, SFC, "C" or in all of these. These high performance CPUs are ideal for complex applications that were once reserved for large controllers.

These CPUs are also supported by CIMPLICITY® Control, Windows® 95 and Windows NT® programming.

Models CSE311, CSE313, CSE323, CSE331, CSE340

State Logic Programming is a practical alternative to traditional control languages, and is used for machine systems and processes. State Logic works the way an engineer thinks. It gives the user the ability to break a large application into smaller, more manageable "Tasks" and "Steps" utilizing Natural Language Processing technology.

Communication Options

The Series 90-30 has a variety of communications options available including Ethernet, Genius, Series 90 Protocol (SNP), and RTU.

Ethernet TCP/IP

The Ethernet Interface can transfer data between PLCs, communicate simultaneously with multiple devices, and program upload and download the PLC over the LAN. The Ethernet Interface allows you to attach the Series 90-30 directly to an Ethernet LAN. The module can operate on media specified by IEEE802.3.

Genius Communications Modules

The GCM+ is an intelligent module that provides automatic global data communications between Series 90-30, Series 90-70 and other devices. Up to 32 devices can be on a Genius Bus.

Communication Coprocessor Module

The CMM provides two serial communications ports with a variety of built-in user selectable protocols such as SNP/SNPX (Master/Slave), CCM, and Modbus RTU.

Part Number	IC693CPU311	IC693CPU313	IC693CPU323	Standard IC693CPU331
Total I/O Discrete	160	160	320	1024
Total Analog	64 In/32 Out	64 In/32 Out	64 In/32 Out	128 In/64 Out
User Logic Memory	6K bytes	12K bytes	12K bytes	16K bytes
Registers	512	1024	1024	2048
Programming Language	Ladder Logic and SFC	Ladder Logic and SFC	Ladder Logic and SFC	Ladder Logic and SFC
Boolean Execution Speed	18ms/K	0.6ms/K	0.6ms/K	0.4ms/K
Built In Serial Ports	1	1	1	1
Max. I/O Module Slots	5	5	10	49
Floating Point Math	No	No	No	No
Battery Backed Clock	No	No	No	Yes

*Supported by CIMPLICITY Control only

Over 100 I/O Module Types

The power of the Series 90-30 is in its I/O. GE Fanuc offers one of the widest selections of I/O on the market. There are over 38 different discrete I/O types, 17 analog I/O types and a wide variety of specialty modules to choose from.

High Speed Counter Module
This module accepts type A, B and C inputs. It has four inputs up to 80Khz, and can control four outputs.

I/O Processor Module
The I/O Processor module provides direct processing of rapid pulse signals from parallel output Gray Code Encoders, or an AQUADB Encoder. It reports encoder position and velocity to the PLC.

Programmable Coprocessor Module
The Programmable Coprocessor is a high-performance microcomputer that is programmed in either MegaBasic or "C". It is ideal for interfaces to Bar Code Readers, RTUs and other ASCII devices.

Temperature Control Module
The Temperature Control Module is a high performance control module providing eight channels of thermocouple input and eight channels of control output in a single Series 90-30 module. Each channel can operate in closed or open loop mode, relieving the PLC of providing the temperature control functions. The module also provides Auto-Tuning.

Servo Motion Control Modules
GE Fanuc offers several options for motion control. The DSM module is a two axis high performance digital system that includes GE Fanuc PLC control module, servos and amplifiers. The APM module comes in either one or two axis of analog control. Multi-axis Stepper module and Absolute Resolvers/Encoder modules are also available.

PC Coprocessor
The PC Coprocessor module from Horner Electric can be placed in any Series 90-30 PLC. A PC Processor is also available as a slot one controller (available in 386SL or 486DX versions).

Other Specialty Modules include:
- Thermocouple
- RTD
- Millivolt/Strain Gauge
- Sequence of Event Recorder
- Isolated Analog
- Modem Module

Field Bus Interfaces

The Series 90-30 supports a variety of Field Bus networks. These busses can easily be integrated into a Series 90-30 system.

Genius Bus
The Genius Bus Controller is a communication and single-channel distributed I/O controller module all in one. It supports global data communications and provides datagrams, a direct peer-to-peer messaging system. The module also supports many third party interfaces such as PCs, RF tag readers, pneumatic valves, VFDs, and more.

Other popular bus networks available include:

- *World FIP (Master and Slave)*
- *Profibus-DP (Master and Slave)*
- *Interbus-S (Slave)*
- *LonWorks (Master)*
- *DeviceNet (Master)*
- *SDS (Master)*
- *CAN Open (Master)*
- *Modbus RTU (Master and Slave)*

	High Performance				
IC693CPU341	*IC693CPU350*	*IC693CPU351 IC693CPU363***	*IC693CPU352*	*IC693CPU360*	*IC693CPU364***
1024	*4096*	*4096*	*4096*	*4096*	*4096*
1024 In/ 256 Out	*2048 In/ 512 Out*	*2048 In/ 512 Out*	*2048 In/ 512 Out*	*2048 In/ 512 Out*	*2048 In/ 512 Out*
80K bytes	*32K bytes*	*80K bytes****	*80K bytes****	*80K bytes****	*246K bytes****
9999	*9999*	*9999*	*9999*	*9999*	*up to 32K*
Ladder Logic and SFC	*Ladder Logic, C, and SFC**	*Ladder Logic, C, and SFC*	*Ladder Logic, C, and SFC*	*Ladder Logic, C, and SFC**	*Ladder Logic C, and SFC*
0.3ms/K	*0.22ms/K*	*0.22ms/K*	*0.22ms/K*	*0.22ms/K*	*0.22ms/K*
1	*1*	*3*	*3*	*1 (3 Future)*	*1-RS485, 1-Ethernet TCP/IP Built In*
49	*79*	*79*	*79*	*79*	*79*
No	*Yes****	*Yes****	*Yes, Hardware*	*Yes****	*Yes****
Yes	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*

**CPU363 and CPU364 available third quarter 1998.   ***Memory will be increased to 246K (except CPU350) and all models will have Floating Point Math third quarter 1998

Ordering Information

Part Number	Description
Series 90-30 CPU Bases and Expansion Bases	
IC693CHS391	Base, CPU, 10 Slots
IC693CHS392	Base, Expansion, 10 Slots
IC693CHS393	Base, Remote Expansion, 10 Slots (700 ft.)
IC693CHS397	Base, CPU, 5 Slots
IC693CHS398	Base, Expansion, 5 Slots
IC693CHS399	Base, Remote Expansion, 5 Slots (700 ft.)
Series 90-30 Communications Modules	
IC693CMM301	Genius Communications Module, GCM (256 bits)
IC693CMM302	Genius Communications Module, (1K byte) GCM+
IC693CMM311	Communications Module, CCM, RTU, SNP, SNPX
IC693CMM321	Ethernet Interface Module
*HE693RTUXXX	Various RTU/Modbus Modules
Series 90-30 Power Supplies	
IC693PWR321	Power Supply, 120/240VAC, 125VDC, Standard
IC693PWR322	Power Supply, 24/48VDC, Standard
IC693PWR330	Power Supply, 120/240VAC, 125VDC, High Capacity
IC693PWR331	Power Supply, 24VDC, High Capacity
Series 90-30 Specialty Modules	
IC693ACC300	Input Simulator Module
IC693APU300	High Speed Counter (HSC)
IC693APU301	Axis Positioning Module (APM), 1 Axis Analog
IC693APU302	Axis Positioning Module (APM), 2 Axis Analog
IC693DSM302	Digital Servo Module, 2 Axis
*HE693STPXXX	Various Stepper Positioning Modules
IC693APU305	I/O Processor Module (reads parallel Gray Code Encoder)
IC693PCM300	Prog. Coproc. Mdl., 160 KB (35 KB Basic Prgm), 2 Ports
IC693PCM301	Prog. Coproc. Mdl., 192 KB (47 KB Basic Prgm), 2 Ports
IC693PCM311	Prog. Coproc. Mdl., 640 KB (190 KB Basic Prgm), 2 Ports
*HE693PCCXXX	Various PC Coprocessors
IC693TCM302	Temperature Control Module with Auto Tuning, (8) Thermocouple In, (8) 24VDC Output
††CS693ATM300	PID Auto-Tuning Module
‡DL693MDMXXX	Various Modem Modules
Series 90-30 Bus Networks	
IC693BEM331	Genius Bus Controller Module
IC693BEM340	WorldFIP Bus Module (Master)
IC693BEM330	WorldFIP Bus Module (Slave)
*HE693DNT250	DeviceNet Interface Modules (Master)
*HE693IBS100	Interbus-S Interface Modules (Slave Only)
*HE693BEM310	SDS Interface Module (Master)
*HE693PBM100	Profibus-DP Interface Modules (Master)
*HE693PBS105	Profibus-DP Interface Modules (Slave)
†PE693BEM350	I/Open LonWorks Bus Interface Modules (Master), FTT-10
†PE693BEM351	I/Open LonWorks Bus Interface Modules (Master), TPXF-78
†PE693BEM352	I/Open LonWorks Bus Interface Modules (Master), TPXF-1250
Series 90-30 Specialty Software	
‡‡TM693SWP151	Sequence of Events Software—256 Inputs, 1ms resolution
‡‡TM693SWP152	Sequence of Events Software—256 Inputs, 10 ms resolution
‡‡TM693SWP202	Hot Standby using Genius Bus; 480 Inputs, 512 Outputs; 7,999 synchronized Variables. Requires CPU340.
‡‡TM693SWP203	Hot Standby using Genius Bus; 2048 I/O; 8,000 synchronized Variables. Requires CPU351 or CPU352.

Part Number	Description
Series 90-30 Discrete I/O	
IC693MDL230	120VAC Isolated Input (8 Points)
IC693MDL231	240VAC Isolated Input (8 Points)
IC693MDL240	120VAC Input (16 Points)
IC693MDL241	24VAC/VDC Input (16 Points)
IC693MDL632	125VDC Input (8 Points)
IC693MDL634	24VDC Input, Negative/Positive Logic (8 Points)
IC693MDL645	24VDC Input, Neg/Pos Logic (16 Points)
IC693MDL646	24VDC Input, Neg/Pos Logic, 1 ms (16 Points)
IC693MDL654	5/12VDC (TTL) Input, Neg/Pos Logic (32 Points)
IC693MDL655	24VDC Input, Neg/Pos Logic, 1 ms,(32 Points)
IC693MDL310	120VAC Output, 0.5 Amp (12 Points)
IC693MDL330	120/240VAC Output, 2 Amp (8 Points)
IC693MDL340	120VAC Output, 0.5 Amp (16 Points)
IC693MDL390	120/240VAC Isolated Output, 2 Amp (5 Points)
IC693MDL734	125VDC Output, (6 Points)
IC693MDL730	12/24VDC Output, 2 Amp, Pos. (8 Points)
IC693MDL731	12/24VDC Output, 2 Amp, Neg. (8 Points)
IC693MDL732	12/24VDC Output, 0.5 Amp, Pos. (8 Points)
IC693MDL733	12/24VDC Output, 0.5 Amp, Neg. (8 Points)
IC693MDL740	12/24VDC Output, 0.5 Amp, Pos. (16 Points)
IC693MDL741	12/24VDC Output, 0.5 Amp, Neg. (16 Points)
IC693MDL742	12/24VDC Output, 1 Amp, Pos. (16 Points), Fused
IC693MDL752	5/12/24VDC (TTL) Output, Neg., (32 Points)
IC693MDL753	12/24VDC Output, Pos. (32 Points)
IC693MDL930	Relay Output, Isolated, 4 Amp (8 Points)
IC693MDL931	Relay Output, 8 Amp Form B/C, Iso. in groups of 4 (8 Points)
IC693MDL940	Relay Output, 2 Amp (16 Points)
*HE693DQM220	Relay Output, Breaker Control, 30A@125VDC (4 Points)
IC693MAR590	Mixed I/O, 120VAC In (8 Points), Relay Out (8 Points)
IC693MDR390	Mixed I/O, 24VDC In (8 Points), Relay Out (8 Points)
Series 90-30 PLC Analog I/O	
IC693ALG220	Analog Input, Voltage/Current, 4 Channels
IC693ALG221	Analog Input, Current, 4 Channels
IC693ALG222	Analog Input, Voltage 16 Single/ 8 Differential Channels
IC693ALG223	Analog Input, Current, 16 Single Channels
IC693ALG390	Analog Output, Voltage, 2 Channels
*HE693ADC4XX	Various Isolated Analog Input Modules
*HE693DAC4XX	Various Isolated Analog Output Modules
*HE693RTD6XX	Various RTD Modules
*HE693STG8XX	Various Strain Gauge/Multivolt Modules
*HE693THMXXX	Various Thermocouple Modules
IC693ALG391	Analog Output, Current, 2 Channels
IC693ALG392	High Density Analog Output, 8 Channels
IC693ALG442	Analog Combo Module (4 Input Channels/ 2 Output Channels)

Modules Available from Horner Electric   † Modules Available from Pensar Corporation   †† Module Available from ControlSoft   ‡ Module Available from DataLinc   ‡‡ Software Available from Trimation

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SDS is a trademark of Honeywell.
Windows and Windows NT are registered trademarks of Microsoft Corporation.
Profibus-DP is a trademark of Profibus International.
Interbus-S is a trademark of Phoenix Contact.

With its innovative architecture and modular design, the Series 90-30 family of PLCs offer a low-cost solution to a surprisingly wide range of PLC applications, from simple relay replacement to sophisticated mid-range processes and discrete automation.

For every great solution, there is a better one.

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