GE Fanuc Automation

VersaMax® Micro 64 Controllers

The VersaMax Micro 64 is the latest control system from GE Fanuc Automation and is designed with the same high quality as the VersaMax Micro line of controllers. The Micro 64 quality construction provides reliable operation and is designed to minimize maintenance cost. To reduce field upgrades, the Micro 64 supports a user friendly Memory Module that can be easily connected to the controller to download the latest program changes without the need of a PC.

The Micro 64 is easy to use and support. The Proficy™ Machine Edition Logic Developer PDA software allows you to interface a Palm® handheld device to the VersaMax Micro 64. With Logic Developer PDA, you can monitor/change data, view diagnostics, force ON/OFF, and configure machine setup — saving you time and increasing productivity.

The Micro 64 meets global standards and is supported internationally with GE Fanuc Automation sales offices and distribution. GE Fanuc also offers 24/7 Technical Support to reduce time to market and downtime.

The Micro 64 provides a complete solution for your automation needs. There are a wide range of I/O expansion modules and a variety of communications options. GE Fanuc also offers a wide range of operator interfaces and motion solutions for simple integration to the Micro 64.

Performance: For your motion needs, the Micro 64 supports four independent 65Khz Pulse Train outputs and can easily be adapted to GE Fanuc's line of PowerCube stepper amplifiers and motors. The Micro 64 High Speed Counter supports four independent 100Khz type A counters or one type B counter for precise positioning.

Compatibility: The Micro 64 is compatible with all VersaMax Micro expansion units. There are over 25 discrete and analog I/O expansion options. Programming the Micro 64 is common to all GE Fanuc controllers and program migration is simple.

GE Fanuc has a full line of text (VersaMax DP) and graphical (QuickPanel™) operator interfaces that can be easily connected to the Micro 64. Tags created in Control can easily be shared with View and vice versa, simplifying development.

The GE Fanuc PowerCube Stepping Motor Drive Package (full, half, and "1000" step) motion solution provides high-speed stepper capability, along with precise positioning and/or velocity control and provides performance not available in lesser motors. Motors are available in NEMA 23 and NEMA 34 flange sizes. Torque ranges are 61 to 605 oz-in (0.43 to 4.27 Nm).

The integrated Motor Cube combines a stepper motor and amplifier into one compact package for direct connection to a pulse command interface. Motor Cubes are available in 50, 100 and 175 oz-in models.

Flexibility: The Micro 64 supports a wide range of communication options that include serial, USB and Ethernet (SRTP and Modbus TCP). The communications options enable the Micro 64 to easily interface to bar code readers, pagers, modems, Ethernet LANs, operator interfaces and much more.

The Micro 64 supports 48Kbytes of user ladder logic and 32K words of data registers. The abundance of memory enables the Micro 64 to solve complex applications requiring multiple program storage and large data storage. The data can also be written to internal Flash to eliminate the need for a battery.

Productivity: Proficy Machine Edition provides one tool for Control and View. The software gives you one universal engineering development environment for all programming, configuration and diagnostics, resulting in faster time to solution and reduced training time.

GE FANUC

Typical Micro 64 Applications

Material Handling, Packaging and Assembly Machines

Micro 64 Advantages

Flexible motion control to improve machine throughput

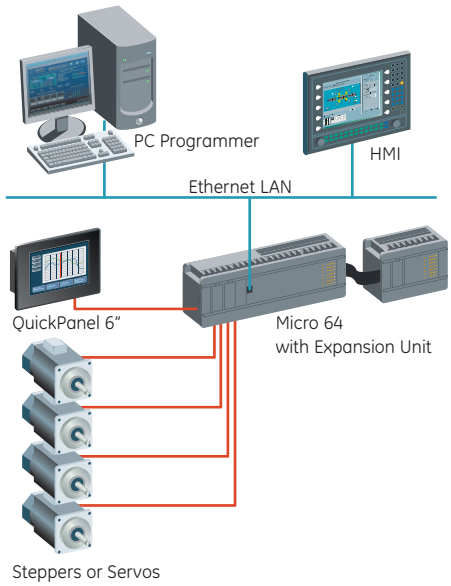
- Up to 4 axes of stepper or servo control (65Khz Pulse Train)
- Up to 4 high speed counters at 100Khz

Powerful Networking to improve data gathering

- 10/100Mbit Ethernet available
- Two built-in communication ports

Simple control for complex applications

- 48Kbytes of user program memory and 32Kwords of data storage
- Advanced programming instruction set
- Portable program storage and download device



SCADA

Micro 64 Advantages

Flexible Communications from Serial to Ethernet

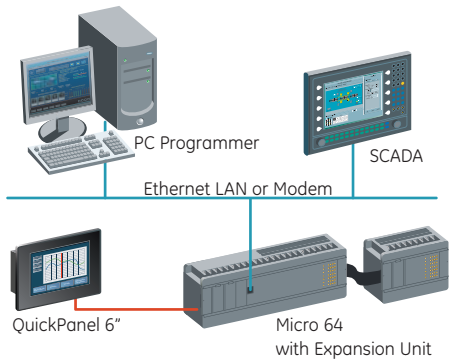
- Modbus Master, Modbus Slave and Report by exception
- Modem and Ethernet SRTP or Modbus TCP (Server) option

Abundance of data storage capability

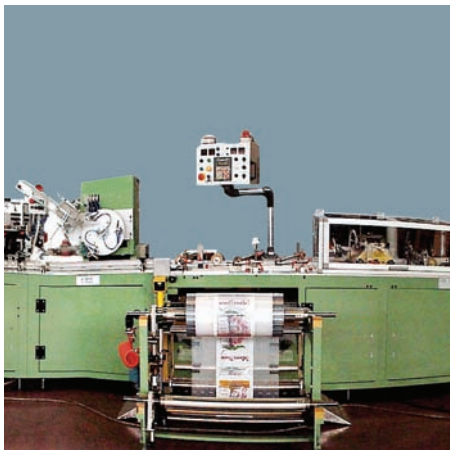
- 32Kwords of data storage

Powerful instruction set

- Floating point math and PID for process control
- Write and Read data to internal FLASH to protect data



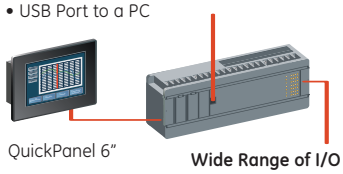
Other Key Applications



- Labeling Machine
- Trash Compactor
- Power Coating
- Waste Compactor
- Dispensing Machine
- Inspection Machine
- Industrial Dryer
- Industrial Washer
- Material Handling
- Paint Booth
- Elevator Control

Flexible Communication Ports

- Operator Interface
- Programmer
- Bar Code Reader
- Modem
- USB Port to a PC
- Scale
- Variable Frequency Drive
- Pager
- Cell Phone



Wide Range of I/O
(Up to 4 Expansion Bases)

- DC I/O
- Standard Relay Outputs
- High Capacity Relay Outputs (10 Amp)
- AC I/O
- Analog I/O

Technical Information

Micro 64 Controller	
Processor Type/Speed	32-bit RISC processor (SH 7043), 28Mhz
Memory Allocation	Total Memory
	48 Kbytes of User Program Storage and 32 Kwords of User Data Storage
	512 Kbytes of Solid State Drive Memory (Operating System and User Program/Configuration)
	256 Kbytes of SRAM
I/O and Data Storage Memory Reference Addresses	
Discrete Inputs/Outputs	512 Discrete Inputs and 512 Discrete Outputs
Analog Inputs/Outputs	128 Analog Inputs and 128 Analog Outputs
Internal Contacts	1,024 Internal Battery Backed Bits and 256 Temporary Bits
Register Data	32,640 words
Program Languages Supported and Programming Tools	
Languages	Relay Ladder and Instruction List
Program Blocks	Up to 64 program blocks. Maximum size for a block is 16Kbytes.
Instructions	Relay Functions, Floating Point Math, Ramping, PID, Data Moves, Data Conversions, Timers, Counters, Relational Functions, Math and Numerical Functions, Table Functions and more.
Write to Internal FLASH	Logic controlled Read/Write of data values to internal FLASH. Up to 100,000 writes are supported.
Hardware Specifications	
Number of I/O Supported	64 I/O on CPU (40 In and 24 Out) and supports up to 4 I/O expansion bases. Total of 176 physical I/O.
High Speed Counter	Up to 4 Type A high speed counters and 1 A QUAD B Counter is supported at 100Khz.
Pulse Train Outputs / PWM	Up to 4 Pulse Train Outputs / PWM Outputs supported at 65Khz (DC output CPU models only)
Pulse Train Ramping	Acceleration and deceleration can be selected from the range of 10 pulse per second squared to 1,000,000 pulse/sec^2
Output Protection	24 VDC Source Output models have ESCP (Electronic Short Circuit Protection) with self-healing. No external fusing required.
Battery Back-up	Battery back-up option backs data up to 1 year of continuous power outage.
Real-Time-Clock	Yes
Run/Stop Switch	Yes
Removable Terminals	Yes
Mounting	35mm DIN Rail or Panel Mount
Dimensions (W/H/D)	190mm x 90mm x 76mm
Communications Support	
Port 1	RS-232. Supports SNP (Master and Slave), SNPX, Modbus RTU (Slave and Master) and Serial Read/Write. Modem ready.
Option modules for Port 2 (Plug and Play Communications modules)	**RS-232 module** with two 0 to 10 VDC (10 bit) analog input channels. Supports SNP, SNPX, SNP Master, Serial Read/Write, Modbus Master and Slave and Modem ready. Supports Flash Memory Module.
	RS-485 module with two 0 to 10 VDC (10 bit) analog input channels. Supports SNP, SNPX, SNP Master, Serial Read/Write, Modbus Master and Slave and Modem ready. Supports Flash Memory Module.
	Ethernet module 10/100Mbits, 10baseT supports SRTP and can be used for programming and troubleshooting. Modbus TCP (Server) is also supported. Supports Flash Memory Module.
	USB module (Slave only, Version 2.0). Supports SNP, SNPX, Serial Read, Modbus Slave. No analog input support on module. Supports Flash Memory Module.
	Flash Memory Module. The Flash Memory Module provides a means of downloading a program (128Kbytes memory size) without a programmer. Module can be connected directly to Micro 64 or can be stacked onto communications option boards.
Environmental and Agency Specifications	
Temperature Range	0 to 55°C ambient (Storage temperature -40 to +85°C)
Agency Approvals	UL508, C-UL (Class I, DIV II, A, B, C, D), CE Mark

Additional Information can be found on: http://www.geindustrial.com/cwc/gefanuc/support such as:

- VersaMax Micro User Manual (GFK-1645)	- VersaMax firmware upgrades (free downloads)
- Revision History	- Application Notes
- VersaMax Micro CAD Drawings	- Knowledge Base

Ordering Information

Controllers with I/O

Part Number	Description
IC200UDD064	64 point PLC, (40) 24 VDC In, (24) 24 VDC Outputs with ESCP protection, 24 VDC Power Supply.
IC200UDD164	64 point PLC, (40) 24 VDC In, (24) 24 VDC Sink Outputs, 24 VDC Power Supply.
IC200UDR064	64 point PLC, (40) 24 VDC In, (24) Relay Out, 24 VDC Power Supply.
IC200UDR164	64 point PLC, (40) 24 VDC In, (24) Relay Out, 120/240 VAC Power Supply.

Micro 64 Port 2 Option Modules

IC200USB001	RS-232 option board with (2) 0 -10 VDC analog inputs. Connector to support Memory Board.
IC200USB002	RS-485 option board with (2) 0 -10 VDC analog inputs. Connector to support Memory Board.
IC200UUB001	USB option board (no analog option). No connector for Memory Board.
IC200UEM001	Ethernet 10/100Mbits, 10baseT supports SRTP and optional Modbus TCP (Server)
IC200UMB001	Flash Memory Board for program download to Micro 64.

Accessories

IC200ACC415	RS-232 to RS-485 Converter requires IC200CBL500 or equivalent.
IC200CBL500	Programming cable (RJ-45 to DB-9 pin) RS-232. 3 Meters.
IC200CBL505	I/O Expansion cable, 0.5 meter long. The expansion modules ship with a 0.1 meter cable.
IC200CBL510	I/O Expansion cable, 1 meter long. The expansion modules ship with a 0.1 meter cable.
IC200ACC414	Long-term battery backup for Real Time Clock and data. Approximately 1 year of backup.

Analog Expansion

IC200UEX626	6 Channel Analog expansion. (4) Analog Inputs and (2) Analog Outputs, 24 VDC Power Supply.
IC200UEX636	6 Channel Analog expansion. (4) Analog Inputs and (2) Analog Outputs, 120/240 VAC P/S.
IC200UEX724	4 Channel RTD expansion. Pt 100, 2 and 3 wire supports, 24 VDC Power Supply.
IC200UEX726	4 Channel RTD and 2 Analog Output expansion. Pt 100, 2 and 3 wire supports, 24 VDC P/S.
IC200UEX734	4 Channel RTD expansion. Pt 100, 2 and 3 wire supports, 120/240 VAC Power Supply.
IC200UEX736	4 Channel RTD and 2 Analog Output expansion. Pt 100, 2 and 3 wire supports, 120/240 VAC P/S.

Discrete I/O Expansion

IC200UEC008	8 Point combination (4) 24 VDC In, (4) 24 VDC Output with ESCP, 24 VDC Power Supply.
IC200UEC108	8 Point combination (4) 24 VDC In, (4) Output (Sink Outputs), 24 VDC Power Supply.
IC200UEC208	8 Point combination (4) 24 VDC In, (4) Relay Out, 24 VDC Power Supply.
IC200UEI008	8 Point Input 24 VDC In, 24 VDC Power Supply.
IC200UEI016	16 Point Input, 24 VDC In, 24 VDC Power Supply.
IC200UEO108	8 Point Output 24 VDC (Sink Outputs), 24 VDC Power Supply.
IC200UEO116	16 Point Output 24 VDC (Sink Outputs), 24 VDC Power Supply.

Discrete I/O Expansion (continued)

Part Number	Description
IC200UER008	8 Point Output Relay (2 amps), 24 VDC Power Supply.
IC200UER016	16 Point Output Relay (2 amps), 24 VDC Power Supply.
IC200UEX009	14 Point combination (8) 120 VAC In, (6) Relay Out (2 at 10 amp; 4 at 2 amp), 120/240 VAC P/S.
IC200UEX010	14 Point combination (8) 120 VAC In, (6) 120 VAC Out, 120/240 VAC Power Supply.
IC200UEX011	14 Point combination (8) 24 VDC In, (6) Relay Out, 120V/240AC Power Supply.
IC200UEX012	14 Point combination (8) 24 VDC In, (6) Relay Out, 24 VDC Power Supply.
IC200UEX014	14 Point combination (8) 24 VDC In, (6) 24V DC Out, 24 VDC Power Supply.
IC200UEX122	14 Point combination (8) 24 VDC In, (6) 24V DC Out with ESCP, 24 VDC Power.
IC200UEX209	28 Point combination (16) 120 VAC In, (12) Relay Out (two @ 10amps), 120V/240AC Power Supply.
IC200UEX211	28 Point combination (16) 24 VDC In, (12) Relay Out, 120V/240AC Power Supply.
IC200UEX212	28 Point combination (16) 24 VDC In, (12) Relay Out, 24 VDC Power Supply.
IC200UEX214	28 Point combination (16) 24 VDC In, (12) 24 VDC Out, 24 VDC Power Supply.
IC200UEX222	28 Point combination (16) 24 VDC In, (12) 24 VDC Out with ESCP, 24 VDC Power Supply.

Software Tools

BC646MPM101	Logic Developer - PLC Nano/Micro, Programming Cable included and Proficy GlobalCare Complete
IC646MPH101	Logic Developer PDA Single License with Adapters

PowerCube Motion Solution

IC800PCUB00300	PowerCube Stepping Motor Power Amplifier, 12-48 VDC, 4 Amp
IC800PCUBDINMTG	PowerCube DIN Rail Mounting Adaptor
IC800CUBDB15ADP	MotorCube or PowerCube DB15 to Screw Terminal Connector Adaptor
MTR-1216-N-D-E-0	61 oz-in Stepping Motor NEMA 23, Winding Determined by Cable
MTR-1220-N-D-E-0	116 oz-in Stepping Motor NEMA 23
MTR-1221-N-D-E-0	124 oz-in Stepping Motor NEMA 23, Winding Determined by Cable
MTR-1235-N-D-E-0	185 oz-in Stepping Motor NEMA 23
MTR-1231-N-D-E-0	230 oz-in Stepping Motor NEMA 23, Winding Determined by Cable
MTR-1331-J-N-D-E-0	327 oz-in Stepping Motor NEMA 34
MTR-1N31-I-N-D-S-0	605 oz-in Stepping Motor NEMA 34

Stepping Motor Cube Solution (Integrated Stepping Motor and Drive)

IC800MCUB12160XN	Stepping Motor Cube, 50 oz-in with Pulse/Direction, NEMA 23
IC800MCUB12210XN	Stepping Motor Cube, 100 oz-in with Pulse/Direction, NEMA 23
IC800MCUB12310XN	Stepping Motor Cube, 175 oz-in with Pulse/Direction, NEMA 23

Cables for both Stepping Motor Cube and Power Cube Motors

IC800PCUBC02S030	I/O Cable DB15 to flying leads, 200 Steps/Rev, 3 Meters
IC800PCUBC02S050	I/O Cable DB15 to flying leads, 200 Steps/Rev, 5 Meters
IC800PCUBC04S030	I/O Cable DB15 to flying leads, 400 Steps/Rev, 3 Meters
IC800PCUBC04S050	I/O Cable DB15 to flying leads, 400 Steps/Rev, 5 Meters
IC800PCUBC10S030	I/O Cable DB15 to flying leads, 1000 Steps/Rev, 3 Meters
IC800PCUBC10S050	I/O Cable DB15 to flying leads, 1000 Steps/Rev, 5 Meters
IC800MCC23P050	Motor Cube DC power cable, 5 Meters
IC800MCC23P100	Motor Cube DC power cable, 10 Meters

GE Fanuc Automation Information Centers

Americas:
1 800 GE FANUC or 434 978 5100

Asia Pacific:
86 21 3222 4555

Europe, Middle East and Africa:
800 1 GE FANUC or 800 1 4332682
or 1 780 401 7717

Europe, Middle East and Africa (CNC):
352 727979 1

Additional Resources

For more information, please visit the GE Fanuc web site at:

www.gefanuc.com

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