

GE Fanuc Series 90 & VersaMax

Overview

Maple Systems' MAP Family & OIT Family Operator Interface Terminals (Maple OITs) communicate with GE Fanuc Series 90 and VersaMax Series Programmable Logic Controllers (PLCs) using the SNP protocol in a point-to-point single master, single slave format. Refer to Technical Note 1044 for information on connecting multiple Maple OITs.

Compatible PLCs	
PLC Family	PLC Model
GE Fanuc Series 90-30	311, 313, 323, 331, 340, 341, 351, 352, 363, 364, CMM311
GE Fanuc Series 90-70	731, 771, 772, 780, 781, 782, 788, 789, 790, 915, 925, CSE784, CSE924, CMM711
GE Fanuc Series 90 Micro	IC693UDR001, IC693UDR002, IC693UAA003, IC693UDR005, IC693UAL006, IC693UAA007, IC693UDR010
GE Fanuc VersaMax Series	CPU001, 002, 005, 10pt Nano, 4-28pt Micro

Communications Cable

For the Series 90, the Maple OIT should be connected to:

- the main SNP communications port located on the power supply module
- The CPU may have a RS232 or RS485 port that can be set up for SNP, this depends upon the model CPU selected
- The port 1 or 2 on the CMM311 communications coprocessor module wye cable, the port used must be set up for SNP

Refer to www.maple-systems.com and select Support Center for information on communication cable part numbers and cable assembly instructions. If you will be assembling your own communications cable, cable assembly instructions are available on our web site at www.maple-systems.com.

WARNING: If your communications cable is not wired exactly as shown in our cable assembly instructions, damage to the Maple OIT or loss of communications can result.



PLC Settings

The Modem Turnaround Delay must be set to 0.
The Level 2 Password must match the Password setting in OITware-200 or MAPware-100.
The port used must be set for SNP. (The OITs actually use the SNP protocol, unlike our HMIs, which use the SNP-X protocol).
The SNP port's Baud Rate, Parity, Data Bits and Stop Bits settings must match the settings in OITware-200 or MAPware-100.

Accessible PLC Memory

PLC Register Memory

The following table lists the PLC register memory ranges that Maple's OITs are able to access. Please note that your PLC's memory range may be *smaller* or *larger* than that supported by Maple's OITs. The following PLC register memory is displayable in 16-bit or 32-bit formats on the Maple OIT.

PLC Register Address	Address Range	Format	PLC Register Description
%R1	1-32640	dddd (d=decimal)	Data Memory Registers
%AI1	1-16384	dddd	Analog Input Registers
%AQ1	1-16384	dddd	Analog Output Registers

PLC Discrete Memory

The following table lists the PLC discrete memory ranges that Maple's OITs are able to access. Please note that your PLC's memory range may be *smaller* or *larger* than that supported by Maple's OITs. The following discrete PLC memory is displayable in single-bit and bank formats on the Maple OIT.

PLC Bit Address	Address Range	Format	PLC Bit Description
%M1	1-12288	dddd	Discrete Internals
%T1	1-256	ddd	Discrete Temporaries
%SA1	1-128	ddd	SA Status Discrettes
%SB1	1-128	ddd	SB Status Discrettes
%SC1	1-128	ddd	SC Status Discrettes
%S1	1-128	ddd	S Status Discrettes
%G1	1-1280	dddd	Genius Global Data
%I1	1-12288	dddd	Discrete Inputs
%Q1	1-12288	dddd	Discrete Outputs

Important PLC Memory Considerations

If your PLC's memory range is smaller than the range supported by Maple's OITs, it is possible to configure the Maple OIT to monitor a PLC memory address which does not exist. Since this can cause unpredictable results, when you configure the Maple OIT please ensure that all selected PLC memory addresses are valid for your PLC model.

Do not configure the Maple OIT to write to any PLC memory address which should only be written to by the PLC.

On using Bank 8 or Bank 16 formats

When using the Bank 8 or Bank 16 register monitor formats to display information from PLC discrete memory, the bits displayed must start on a byte boundary. The byte boundaries leave no remainder when the following formula is used: $(\text{PLC discrete memory address} - 1) / 8$.

OITware-200 Settings

The following table lists the communications settings that must be configured in OITware-200.

Please note:

- the Default column lists OITware-200's default setting; your PLC's default may be different
- the Options column lists OITware-200's options; your PLC may not support every option

Name	Default	Options	Important Notes
Baud Rate	19200	19200, 9600, 4800, 2400, 1200, 600, 300	Must match the SNP port setting. Use the fastest baud rate supported by both.
Parity	Odd	Even, Odd, None, Mark, Space	Must match the SNP port setting.
Data Bits	8	7, 8	Must match the SNP port setting.
Stop Bits	1	1, 2	Must match the SNP port setting.
Status Coils (optional)	%M945 to %M960	%M1 to %M12288	Must be within the PLC's supported memory range.
Address, Source Address, Destination Address	N/A		
Password	Null (Empty)	1 to 8 digit hexadecimal number (use 0-9 & A-F)	Must exactly match the PLC's Level 2 password. Otherwise, the Maple OIT will not be able to log on to the PLC.
Message Request Register (optional)	%R500	%R1 to %R32640	Must be within the PLC's supported memory range.
Current Message Register (optional)	%R502	%R1 to %R32640	Must be within the PLC's supported memory range.
Function Key Coils (optional)	%M961 to %M976 max.	%M1 to %M12288	Must be within the PLC's supported memory range.

Screen Dependent Function Key Coils (optional)	%M929 to %M936 max.	%M1 to %M12288	Must be within the PLC's supported memory range. Applies to OITs with Screen Dependent Function Keys.
Control Key Coils (optional)	%M993 to %M1020 max.	%M1 to %M12288	Must be within the PLC's supported memory range.
Status LED Coils (optional)	%M1 to %M8 max.	%M1 to %M12288	Must be within the PLC's supported memory range. Applies to OITs with Status LEDs.
Function Key LED Coils (optional)	%M977 to %M992 max.	%M1 to %M12288	Must be within the PLC's supported memory range. Applies to OITs with Function Key LEDs.

MAPware-100 Settings

The following table lists the communications settings that must be configured in MAPware-100. Please note:

- the Default column lists MAPware-100's default setting; your PLC's default may be different
- the Options column lists MAPware-100's options; your PLC may not support every option

Name	Default	Options	Important Notes
Baud Rate	19200	19200, 9600, 4800, 2400, 1200, 600, 300	Must match the SNP port setting. Use the fastest baud rate supported by both.
Parity	Odd	Even, Odd, None, Mark, Space	Must match the SNP port setting.
Data Bits	8	7, 8	Must match the SNP port setting.
Stop Bits	1	1, 2	Must match the SNP port setting.
Status Coils	%M945 to %M960	%M1 to %M1024	Must be within the PLC's supported memory range.
Address, Source Address, Destination Address	N/A		
Password	Null (Empty)	1 to 8 digit hexadecimal number (use 0-9 & A-F)	Must exactly match the PLC's Level 2 password. Otherwise, the Maple OIT will not be able to log on to the PLC.
Message Request Register	%R500	%R1 to %R2048	Must be within the PLC's supported memory range.
Function Key Coils (optional)	%M961 to %M976 max.	%M1 to %M1024	Must be within the PLC's supported memory range.