



# GE Fanuc

## Series 90 & VersaMax

### Overview

Maple Systems' **BLU300 Series** Operator Interface Terminals (Maple OITs) communicate with GE Fanuc Series 90 and VersaMax PLCs using the SNP-X protocol. The GE PLC communication protocol must be set for SNP; in later versions of firmware the SNP protocol includes SNP-X which is what's actually used by the OIT's. When configured with BlueLeaf configuration software, the Maple OIT is the master in a point-to-point single master, single slave format.

| Compatible PLCs |  |
|-----------------|--|
| Family          | Model  |
| Series 90-30    | 311, 313, 323, 331, 340, 341, 351, 352, 363, 364 (requires RS232/422 converter), CMM311 (RS232 only)   |
| Series 90-70    | CMM711 (RS232 only)  |
| Series 90 Micro | IC693UDR005, IC693UAL006, IC693UAA007, IC693UDR010 (requires RS232/422 converter, also only if firmware version 3.01 or later is used which includes the SNP-X protocol) |
| VersaMax        | CPU001, 002, 005, E05 (RS232 port only), 10pt Nano, 14-28pt Micro (RS232 port only)  |

# Communications Cable

Important Note: The BLU300 Series operator interface terminal supports connection to the PLC using RS232 only. The GE Fanuc PLC's use RS232 or 4 wire RS485/RS422. If you wish to use the RS485/RS422 port on the GE, then you must use a RS232/422 converter to connect to the RS232 port on the BLU300.

For the Series 90-30, the Maple OIT can be connected to:

- the main SNP communications port located on the power supply module
- the CPU may have an RS232 or RS485 port that can be set up for SNP, this depends upon the model of CPU selected
- the port 1 or 2 on the CMM311 communications coprocessor module wye cable must be set up for SNP (the CMM311 is for the Series 90-30).

For the Series 90-70, the Maple OIT can be connected to:

- the port on the CMM711 communications coprocessor module must be set for SNP protocol (the CMM711 is for the Series 90-70). Note, for the Series 90-70 PLC's, only the CMM711 communications module supports the SNP-X protocol needed to communicate with the BLU300 OIT's.

For the VersaMax, the Maple HMI can be connected to:

- Port1 (via RS-232) located on the power supply module or main CPU of the PLC, set for SNP protocol
- Port2 (via RS-485 if converter is used get RS232 into BLU300) located on the power supply or main CPU set for SNP protocol.

A list of communications cables offered by Maple Systems as well as cable assembly instructions to assist you in assembling your own communications cable are available on our website at [www.maple-systems.com/cables.htm](http://www.maple-systems.com/cables.htm).

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

# PLC Settings

|  |
|--|
| The Modem Turnaround Delay must be set to 0.   |
| The Level 2 Password in the PLC must be set to NULL  |
| The port used must be set for SNP and the processor must use firmware version “S” or newer, which includes the SNP-X protocol. |
| The SNP-X port’s Baud Rate, Parity, Data Bits, and Stop Bits settings must match the settings in BlueLeaf                      |

## Accessible PLC Memory

### Register Memory

The following table lists the PLC’s register memory ranges that the Maple OITs are able to access. Please note that your PLC’s memory range may be *smaller* or *larger* than that supported by these OITs. The following register memory can be displayed in 16 or 32 bit format on the Maple OIT.

| PLC Register Type | Address Range | Format           | PLC Register Description |
|-------------------|---------------|------------------|--------------------------|
| %R                | 1-2048        | dddd (d=decimal) | Data Memory Registers    |
| %AI               | 1-128         | ddd              | Analog Input Registers   |
| %AQ               | 1-128         | ddd              | Analog Output Registers  |

## Discrete Memory

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

| PLC Bit Type | Address Range | Format          | PLC Register Description |
|--------------|---------------|-----------------|--------------------------|
| %I           | 1-512         | ddd (d=decimal) | Discrete Inputs          |
| %Q           | 1-512         | ddd             | Discrete Outputs         |
| %T           | 1-256         | ddd             | Discrete Temporaries     |
| %M           | 1-1024        | dddd            | Discrete Internals       |
| %SA          | 1-32          | dd              | SA Status Discrettes     |
| %SB          | 1-32          | dd              | SB Status Discrettes     |
| %SC          | 1-32          | dd              | SC Status Discrettes     |
| %S           | 1-32          | dd              | S Status Discrettes      |
| %G           | 1-1280        | dddd            | Genius Global Registers  |

## Important Memory Considerations

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

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

# BlueLeaf Settings

The following table lists the communications settings that must be configured in BlueLeaf. These settings can be found in the Tools...HMI-PLC Comm Settings menu under the PLC tab. Please note:

- the **Recommended Settings** column provides the recommended setting based upon the default settings most commonly used in the GE Fanuc Series 90 PLCs.
- the **Options** column lists BlueLeaf options; your PLC may not support every option

| Name       | Recommended Settings       | Options                               | Important Notes  |
|------------|----------------------------|---------------------------------------|--|
| PLC type:  | GE Fanuc Series 90 (SNP-X) |                                       |  |
| Com Port:  | RS232                      | RS232 only *                          | Tools...Set HMI-PLC Port   |
| Baud Rate: | 19200                      | 4800, 9600,19200, 38400,57600, 115200 | Must match the SNP-X port setting. Use the fastest baud rate supported by the PLC. |
| Data Bits: | 8                          | 7 or 8                                | Must match the SNP-X port setting.   |
| Stop Bits: | 1                          | 1 or 2                                | Must match the SNP-X port setting.   |
| Parity:    | Odd                        | Even, Odd, None                       | Must match the SNP-X port setting.   |
| Net Addr:  | 1                          | 0-255                                 | Does not apply to this protocol.   |

\* For RS485 - 4 wire/RS422 - user must use an RS232 to RS422 converter. The BLU300 RS485 port is currently a 2 - wire (half duplex) port and will not work with the GE Fanuc RS485 - 4 wire/RS422 port.