



Idec

Micro³ & OpenNet Series

Overview

Maple Systems' OIT Family Operator Interface Terminals (Maple OITs) communicate with Idec Micro³, MicroSmart or OpenNet Programmable Logic Controllers (PLCs) using the Expansion Link, Data Link, and Computer Link (1:1 peer-to-peer) communications protocols. The Maple OIT is the master in a point-to-point single master, single slave format.

Compatible PLCs	
Family	Model
Micro ³	Micro ³ (10-48 I/O), Micro ³ C (16-48 I/O)
OpenNet	FC3A-CP2/K/KM/S/SM

Communications Cable

The Maple OIT should be connected to the Micro³ via the programming port located on the front of the Base/Master PLC, to the OpenNet via the RS-485 port on the terminal block. 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.

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.

Accessible PLC Memory

Register Memory

The following table lists the PLC's 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	Format*	Access	PLC Register Description
I0 to I597	1, 8, 16, 32	Read/Write	Input Relays, decimal-octal address
Q0 to Q597	1, 8, 16, 32	Read/Write	Output Relays, decimal-octal address
M0 to M2557	1, 8, 16, 32	Read/Write	Internal Memory Relays, decimal-octal address
M8000 to M8237	1, 8, 16, 32	Read/Write	Special Internal Relays
R0 to R255	1, 8, 16, 32	Read/Write	Shift Register
D0 to D7999	16, 32	Read/Write	Data Registers
D8000 to D8999	16, 32	Read/Write	Special Data Registers
T0 to T255	16, 32	Read Only	Timer Registers (preset value)
t0 to t255	16, 32	Read/Write	Timer Registers (current value)
C0 to C255	16, 32	Read Only	Counter Registers (preset value)
c0 to c255	16, 32	Read/Write	Counter Registers (current value)
U0 to U3	32	Read Only	High Speed Counter Registers (preset value)
u0 to u3	32	Read Only	High Speed Counter Registers (current value)
W0 to W6	32	Read Only	Calendar/Clock, decimal

*Access: Indicates the bit-sizes that are valid, where the following formats can be used:

- 1: 1/0 Coil, On/Off Coil, ASCII String
- 8: Bank8
- 16: Signed, Decimal, 4 Digit BCD, Bank 16, ASCII Character
- 32: 8 Digit BCD, Long

T, C, U, (Variable Preset) cannot be written to. They have associated 'D' registers for Read/Write access of the T, C, and U registers. (They use the same range of 'D' registers available for each type of register.)

Important 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 these formats, each PLC coil (bit) is individually displayed in terms of 1 and 0, with the lowest addressed coil displayed in the right-most position in the field. Therefore, if using coils 0-15, the 0 is the least significant bit displayed in the right-most position and 15 is the most significant bit displayed in the left-most position.

Using the PLC Clock/Calendar:

Year:	W0, Decimal, 2-digit
Month:	W1, Decimal, 2-digit
Day:	W2, Decimal, 2-digit
Week Day:	W3, Decimal, 2-digit
Hour:	W4, Decimal, 2-digit
Minute:	W5, Decimal, 2-digit
Second:	W6, Decimal, 2-digit

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	9600	19200, 9600, 4800, 2400, 1200, 600, 300	Must match the IDEC programming port settings. Use the fastest baud rate supported by both.
Parity	Even	Even, Odd, None, Mark, Space	Must match the IDEC programming port settings.
Data Bits	7	7, 8	Must match the IDEC programming port settings.
Stop Bits	1	1, 2	Must match the IDEC programming port settings.
Status Coils	M20	M0 to M2540	Must be within the PLC's supported memory range.

Name	Default	Options	Important Notes
Address	0	0 to 31	Must match the IDEC programming port settings.
Source Address, Destination Address	N/A		
Password	N/A		
Message Request Register	D30	D0 to D8999	Must be within the PLC's supported memory range.
Current Message Register (optional)	D32	D0 to D8999	Must be within the PLC's supported memory range.
Function Key Coils (optional)	M0	M0 to M2540	Must be within the PLC's supported memory range.
Screen Dependent Function Key Coils (optional)	M80	M0 to M2540	Must be within the PLC's supported memory range. Applies to OITs with Screen Dependent Function Keys.
Control Key Coils (optional)	M100	M0 to M2540	Must be within the PLC's supported memory range.
Status LED Coils (optional)	M40	M0 to M2540	Must be within the PLC's supported memory range. Applies to OITs with Status LEDs.
Function Key LED Coils (optional)	M60	M60 to M2540	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	9600	19200, 9600, 4800, 2400, 1200, 600, 300	Must match the IDEC programming port settings. Use the fastest baud rate supported by both.
Parity	Even	Even, Odd, None, Mark, Space	Must match the IDEC programming port settings.
Data Bits	7	7, 8	Must match the IDEC programming port settings.

Name	Default	Options	Important Notes
Stop Bits	1	1, 2	Must match the IDEC programming port settings.
Status Coils	M20	M0 to M270	Must be within the PLC's supported memory range.
Address	0	0 to 31	Must match the IDEC programming port settings.
Source Address, Destination Address	N/A		
Password	N/A		
Message Request Register	D30	D0 to D99	Must be within the PLC's supported memory range.
Function Key Coils	M0	M0 to M270	Must be within the PLC's supported memory range.

PLC Error Messages

<p>“PLC: Invalid Access of Word Register...”</p> <p>Attempted to access a Word (16-bit) register in a Bit of Byte wise fashion or to write to a read-only Word register.</p>
<p>“PLC: Invalid Access of DWord Register...”</p> <p>Attempted to access a DWord (32-bit) register in a Bit, Byte or Word wise fashion or to write to a read-only DWord register.</p>
<p>“PLC: No Connection Error...”</p> <p>The OIT cannot communicate with the PLC during initialization. This is most likely due to a bad connection (cable, connector, or attachment faulty) or loss of proper power to the PLC.</p>
<p>“PLC: No Response Error...”,</p> <p>“PLC: Data Reception Error...”,</p> <p>“PLC: BCC Checksum Error...”</p> <p>The OIT cannot communicate properly with the PLC after initialization. This is most likely due to noise, a bad connection (cable, connector or attachment faulty) or loss of proper power to the PLC. Remote possibilities include a faulty PLC or faulty OIT.</p>
<p>“PLC: HSC number not found error...”</p> <p>The PLC reported it could not find the specified High Speed Counter.</p>

“PLC: Invalid Command...”,
“PLC: Invalid Register...”,
“PLC: Invalid Access of Bit Register...”,
“PLC: Invalid Address...”,
“PLC: Invalid Data Pointer...”,
“PLC: Procedure/Data Internal Error...”

An internal error occurred in the OIT. Contact Maple Systems technical support.

PLC Errors:

“PLC: NG00: Expansion Station error...”,
“PLC: NG01: Program Size error.”,
“PLC: NG02: Protect error...”,
“PLC: NG03: RUN error...”,
“PLC: NG04: CRC error...”,
“PLC: NG05: NG05 error...”,
“PLC: NG06: Data Range error...”,
“PLC: NG07: Preset Change error...”,
“PLC: NG08: Calendar/Clock Data error...”,
“PLC: NG09: Data Clear error...”,
“PLC: NG10 Data error...”,
“PLC: NGxx: (unknown) NG error...” (any NG number > 10)

The MICRO³ reported an NG error. For further information, refer to the IDEC documentation or contact IDEC technical support.