

C O N T R O L L E R I N F O R M A T I O N S H E E T

Maple Model(s)	PLC or Controller
HMI5000 Series	Danfoss ECL Apex 20



Summary

Maple Systems' **HMI5000 Series** Human/Machine Interface Terminals (Maple HMIs) communicate with Danfoss Controllers. When configured with EZware-5000 the Maple HMI is the master in a point-to-point single master, single slave format. Please refer to the *HMI5000 Series Programming Manual* for information on connecting multiple Maple HMIs to a single PLC port.

Compatible PLCs

Family	Model(s)
ECL	Apex 20

Communications Cable

The Maple HMI should be connected to the controller's 9-pin or terminal strip connection. 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 www.maplesystems.com.

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

PLC Controller Settings

The PLC station # in EasyBuilder-5000 must match the controller's Node ID.

Accessible PLC Memory

Register Memory

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

PLC Register Type	Address Range	Format	PLC Register Description
Register	0 to 4095	dddd	Inland Registers
Counter	0 to 1599	dddd	Counts
Timer	0 to 1599	dddd	Timers
Reg_Float	0 to 4095	ddd	Registers as 32-bit floating point values

Discrete Memory

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

PLC Bit Type	Address Range	Format	PLC Bit Description
Flag	0 – 8191	dddd (d=decimal)	Internal Bits
Output	0 – 511	ddd	Output Bits
Input	0 – 511	ddd	Input Bits

Important Memory Considerations

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

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

EZware Settings

The following table lists the communications settings that must be configured in EZware-5000. These settings can be found in the *Edit-System Parameters* menu under the *PLC* tab.

Please note:

- The **Recommended Settings** column provides the recommended setting based upon default settings most commonly used in the Danfoss controllers.
- The **Options** column lists EZware-5000's options; your controller may not support every option.

Name	Recommended Settings	Options	Important Notes
Name:	Danfoss ECL Apex 20		Description label
HMI or PLC:	PLC		
Location:	Local	Local, Remote	Select <i>Local</i> if PLC directly connected to HMI, <i>Remote</i> if PLC connected through another HMI.
PLC type:	Danfoss ECL Apex 20		
PLC I/F:	RS-232	RS-232, RS-485 2W, RS-485 4W, Ethernet	Must match the PLC's port setting.
PLC default station no.:	1	0-255	Must match the controller's port setting.
Settings: COM.:	COM1	COM1-COM3	Serial port of HMI connected to PLC.
Settings: Baud rate:	9600	9600, 19200, 38400, 57600, 115200	Must match the controller's port setting. Use the fastest baud rate supported by the controller.
Settings: Data bits:	8	7 or 8	Must match the controller's port setting.
Settings: Stop bits:	1	1 or 2	Must match the controller's port setting.
Settings: Parity:	None	Even, Odd, None	Must match the controller's port setting.
Settings: Timeout (sec):	1.0	0.1 to 25.5	Adjust if longer timeout is required.

Name	Recommended Settings	Options	Important Notes
Settings: Turn around delay (ms):	0	0 to 1000	Timeout period between HMI polls.
Send ACK Delay:	0	0 to 9999	Not Applicable
Settings: Parameter 1:	0		Not applicable
Settings: Parameter 2:	0		Not applicable
Settings: Parameter 3:	0		Not applicable
Interval of block pack (words):	5	0-512	See <i>HMI5000 Series Programming Manual</i> (Maple p/n 1010-1007)
Max. read-command size (words):	32		Not adjustable
Max. write command size (words):	32		Not adjustable