

January 28, 2014

Do-more PLC: Terminator VS DL 205



What is a Do-more PLC:

A programmable logic controller, or PLC for short, is a digital computer that is designed to take in multiple inputs and produce multiple outputs. However, don't mistake this computer as your ordinary home computer. It is built for a wide range of temperatures, stability over vibration, and resistance to electrical noise. PLCs are programmed by a user to execute a certain series of tasks depending on the inputs and then producing the required output. Most PLCs are generally used to control large machines or systems; such as the ones found in the food and manufacturing industry, hospitals, and even leisure activities, such as roller coasters.

The Do-more is a PLC manufactured by Automation Direct. It is fairly inexpensive when compared to other PLCs manufactured by companies such as Allen Bradley and Siemens. It can consist of 192k words, where 64k words are

flash memory and 128k words are data memory. The Do-more can have up to 3 communication ports: RS-232, USB, and Ethernet.

Similarities between Terminator I/O and DL 205:

For the most part, the hardware specifications for the Do-more are almost identical to those of the DL 205; for example, the operating and storage temperatures are the same, vibration and shock resistance are both certified under the same test, as well as noise immunity.

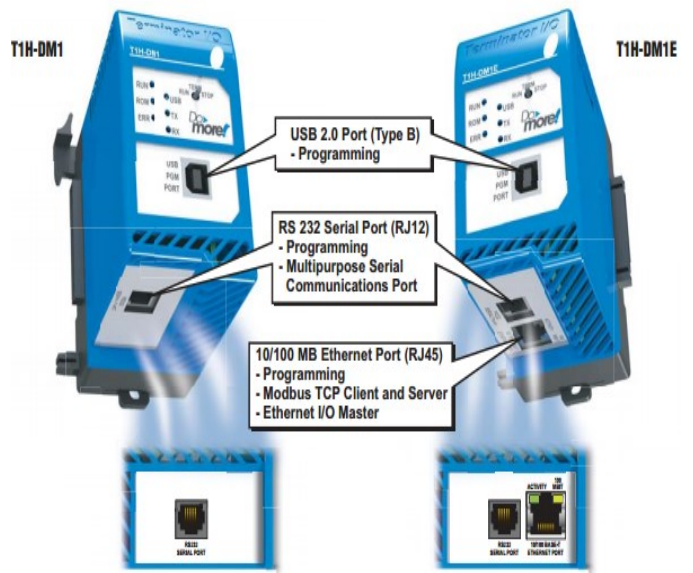
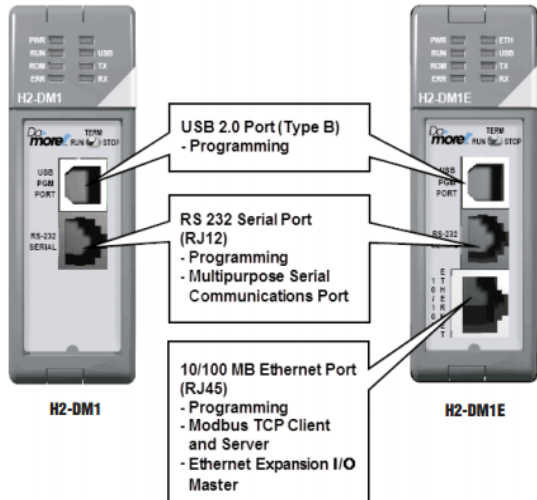
The communication ports for both the Terminator and DL 205 function exactly the same. They both have 3 communication ports in order for flexibility in designing your system. The USB can be used for programming and monitoring. The RS-232 can be used for modbus RTU, ASCII, and custom protocol. The RJ-45 can be used for the modbus TCP Client and server connection. It is also used for the expansion I/O on the Master.

General Specifications	
<i>Operating Temperature</i>	32°F to 131°F (0°C to 55°C)
<i>Storage Temperature</i>	-4°F to 158°F (-20°C to 70°C)
<i>Ambient Humidity</i>	30% to 95% relative humidity (non-condensing)
<i>Environmental Air</i>	No corrosive gases
<i>Vibration</i>	MIL STD 810C, Method 514.2 IEC60068-2-6 JIS C60068-2-6 (Sine wave vibration test)
<i>Shock</i>	MIL STD 810C, Method 516.2 IEC60068-2-27 JIS C60068-2-27
<i>Noise Immunity</i>	NEMA ICS3-304
<i>Agency Approvals</i>	UL508 (File No. E157382, E316037) CE (EN61131-2)

DL 205

General Specifications	
<i>Ambient Operating Temperature</i>	32°F to 131°F (0°C to 55°C)
<i>Storage Temperature</i>	-4°F to 158°F (-20°C to 70°C)
<i>Ambient Humidity</i>	5% to 95% (Non-condensing)
<i>Atmosphere</i>	No corrosive gases. The level of environmental pollution = 2 (UL 840)
<i>Vibration Resistance</i>	MIL STD 810C, Method 514.2
<i>Shock Resistance</i>	MIL STD 810C, Method 516.2
<i>Voltage Withstand (Dielectric)</i>	1500 VAC, 1 minute
<i>Insulation Resistance</i>	500 VDC, 10 MΩ
<i>Noise Immunity</i>	NEMA ICS3-304 Impulse noise 1µs, 1000 V FCC class A RFI (144 MHz, 430 MHz 10 W, 10 cm)
<i>Agency Approvals</i>	UL E185989, CE, FCC class A, NEC Class 1 Division 2

Terminator



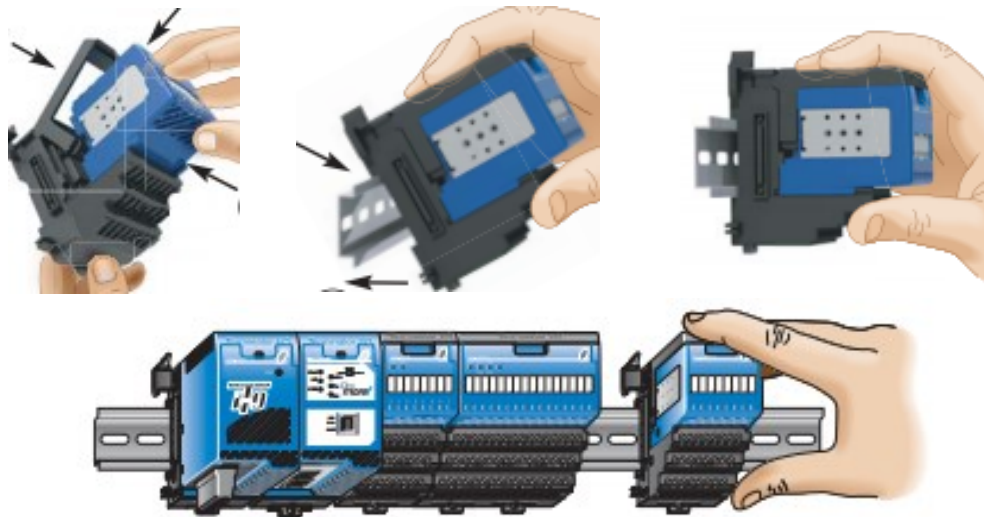
Feature	H2-DM1	H2-DM1E
Total Memory (bytes)	262,144 bytes	
Ladder Memory (instruction words)	65,536 instruction words	
V-Memory (words)	Configurable up to 65536 (4096 default)	
Non-volatile V Memory (words)	Configurable up to 65536 (4096 default)	
D-memory (DWORDS)	Configurable up to 65536 (4096 default)	
Non-volatile D Memory (DWORDS)	Configurable up to 65536 (4096 default)	
R-memory (REAL DWORDS)	Configurable up to 65536 (4096 default)	
Non-volatile R Memory (REAL DWORDS)	Configurable up to 65536 (4096 default)	
Boolean execution/K	50 uSec	
Stage Programming	Yes	
Number of Stages	128 per Program code-block; number of code-blocks configurable to memory limit	
Handheld Programmer	No	
Programming Software for Windows	FREE Do-more Designer	
Built-In communications ports	USB, RS-232	USB, RS-232, Ethernet (10/100 Base-T)
Program Memory	Flash ROM	
Total I/O points available	X, Y, each configurable up to 65536 (2048 default); WX, WY (analog in/out) each configurable up to 65536 (256 default)	
Local I/O points available	256	
Ethernet Remote I/O Discrete points	131,072	
Ethernet Remote I/O Analog I/O Channels	32,768	
Max Number of Ethernet slaves per Channel	16	
I/O points per Remote Channel	32,768	
Discrete I/O Module Point Density	4/8/12/16/32	
Slots per Base	3/4/6/9	
Number of instructions available	>160	>170
Control relays	Configurable up to 65536 (2048 default)	
Special relays (system defined)	1024	
Special registers (system defined)	512	
Timers	Configurable up to 65536 (256 default)	
Counters	Configurable up to 65536 (256 default)	
System Date/Time structures	8	
User Date/Time structures	Configurable up to 65536 (32 default)	
ASCII String/Byte buffer structures	Configurable up to memory limit (192 default)	
Modbus Client memory	Yes, configurable up to memory limit, default 1024 input bits, 1024 coil bits, 2048 input registers, 2048 holding registers	
DL Classic Client memory	Up to memory limit, default 512 X, 512 Y, 512 C, 2048 V	
Immediate I/O	No	
Interrupt input (hardware / timed)	No	
Subroutines	Program and Task code-blocks, up to memory limit	
Drum Timers	Yes, up to memory limit	
Table Instructions	Yes	
Loops	FOR/NEXT, WHILE/WEND, REPEAT/UNTIL loops	
Math	>60 operators and functions: Integer, Floating Point, Trigonometric, Statistical, Logical, Bitwise, Timing	
ASCII	Yes, IN/OUT, Serial, Ethernet TCP and UDP; 11 output script commands	
PID Loop Control, Built In	Yes, configurable to memory limit (over 2,000)	
Time of Day Clock/Calendar	Yes	
Run Time Edits	Yes	
Supports True Force	Yes	
Internal Diagnostics	Yes	
Password security	Multi-user, credentialed, session-based security	
System error log	Yes	
User error log	Yes	
Battery backup	Yes (Battery included)	

Feature	T1H-DM1	T1H-DM1E
Total Memory (bytes)	262,144 bytes	
Ladder Memory (instruction words)	65,536 instruction words	
V-Memory (words)	Configurable up to 65536 (4096 default)	
Non-volatile V Memory (words)	Configurable up to 65536 (4096 default)	
D-memory (DWORDs)	Configurable up to 65536 (4096 default)	
Non-volatile D Memory (DWORDs)	Configurable up to 65536 (4096 default)	
R-memory (REAL DWORDs)	Configurable up to 65536 (4096 default)	
Non-volatile R Memory (REAL DWORDs)	Configurable up to 65536 (4096 default)	
Boolean execution	50 uSec	
Stage Programming	Yes	
Number of Stages	128 per Program code-block; number of code-blocks configurable to memory limit	
Handheld Programmer	No	
Programming Software for Windows	FREE Do-more Designer version 1.2 or newer	
Built-in communications ports	USB, RS-232	USB, RS-232, Ethernet (10/100 Base-T)
Program Memory	Flash ROM	
Total I/O points available	X, Y, each configurable up to 65536 (2048 default); WX, WY (analog in/out) each configurable up to 65536 (256 default)	
Max Number of Local I/O Modules	16	
Local I/O points available	256	
Ethernet I/O Discrete points	131,072	
Ethernet I/O Analog I/O Channels	32,768	
Max Number of Ethernet slaves per PLC	16	
I/O points on Ethernet I/O	32,768	
Discrete I/O Module Point Density	8/16	
Number of instructions available	>160	>170
Control relays	Configurable up to 65536 (2048 default)	
Special relays (system defined)	1024	
Special registers (system defined)	512	
Timers	Configurable up to 65536 (256 default)	
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System Date/Time structures	8	
User Date/Time structures	Configurable up to 65536 (32 default)	
ASCII String/Byte buffer structures	Configurable up to memory limit (192 default)	
Modbus Client memory	Yes, configurable up to memory limit, default 1024 input bits, 1024 coil bits, 2048 input registers, 2048 holding registers	
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Immediate I/O	No	
Interrupt input (hardware / timed)	No	
Subroutines	Program and Task code-blocks, up to memory limit	
Drum Timers	Yes, up to memory limit	
Table Instructions	Yes	
Loops	FOR/NEXT, WHILE/WEND, REPEAT/UNTIL loops	
Math	>60 operators and functions: Integer, Floating Point, Trigonometric, Statistical, Logical, Bitwise, Timing	
ASCII	Yes, IN/OUT, Serial, Ethernet TCP and UDP; 11 output script commands	
PID Loop Control, Built In	Yes, configurable to memory limit (over 2,000)	
Time of Day Clock/Calendar	Yes	
Run Time Edits	Yes	
Supports True Force	Yes	
Internal Diagnostics	Yes	
Password security	Multi-user, credentialed, session-based security	
System error log	Yes	
User error log	Yes	
Battery backup	Yes (Battery included)	

Differences between Terminator I/O and DL 205:

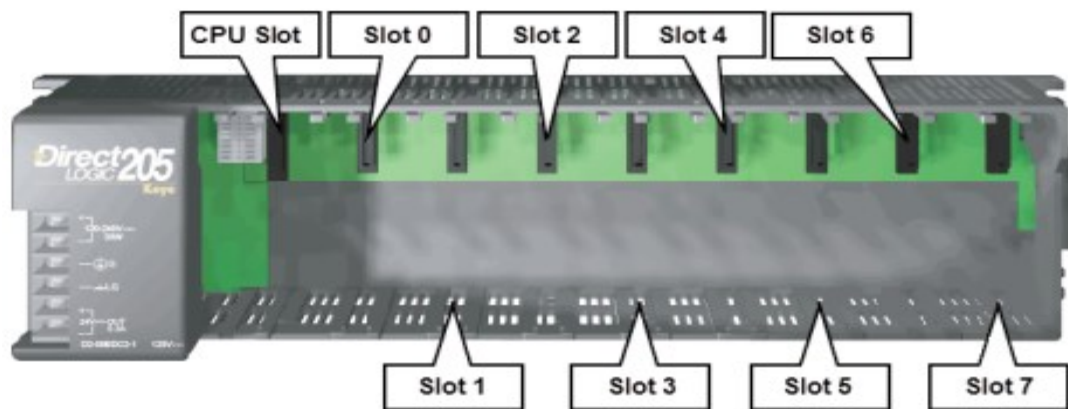
The main differences between the Terminator and the DL 205 are the bases that they connect to and the modules that go along with the bases. The Terminator design allows for easy wiring. They have two types of bases that will allow the user to either use the screw clamp or the spring clamp. Also, the terminator has a triple stack design that clearly labels where two and three wire devices should go. This is a major benefit to the end user because it saves time by terminating the extra step of wiring to the terminal block. This makes it easier to keep everything organized and a lot easier to follow, especially when all the inputs or outputs are being occupied.

The installations for the modules are fairly easy. Simply slide in the module into the base, snap the base onto a DIN rail, and then slide the base to the adjacent rail. Another great feature about the Terminator is that the modules are hot swappable. This means, that without stopping the PLC, you can replace the module without harming the system,



The DL 205 comes in 3, 4, 6, and 9 slot bases but have the ability to expand to much more. The first slot of the bases is reserved for the CPU. The great thing about the DL 205 is that they have a built-in power supply. The output relay can supply up to 10A whereas the terminator can only supply 7A.

The installation for the DL 205 is easy as well. The DL 205 base has slots for modules to slide into. Just place the module into the slot and that's it. However, the amounts of modules are limited to the size of the base unless the Ethernet expansion is used.



Conclusion:

The Terminator allows for easier wiring and a cleaner look. It also reduces the time needed for wiring since you will be wiring straight to the I/O. However, the DL 205 has a built in power supply and also produces a higher output current. Besides the small hardware design and aesthetics, they are both complete PLC systems that can complete most industry jobs today without breaking the bank.

Question?

Why would a designer chose the Terminator Base over the DL 205 or vice versa?

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