Specialty Modules

T1H-CTRIO $576.00

T1H-CTRIO

General Specifications	
Specifications	***T1H-CTRIO***
Discrete I/O Points Used	None (I/O map directly in T1H-DM1/E data structure)
Base Power Required*	400mA Max
Isolation	2500V I/O to Logic, 1000V among Input Channels and All Outputs

***Terminal Base sold separately**

Input Specifications	
Specifications	***T1H-CTRIO***
Inputs	8 pts sink/source
Maximum Input Frequency	100kHz
Minimum Pulse Width	5µs
Input Voltage Range	9–30 VDC
Maximum Voltage	30VDC
Input Voltage Protection	Zener Clamped at 33VDC
Rated Input Current	8mA typical 12mA maximum
Minimum ON Voltage	9.0 VDC
Maximum OFF Voltage	2.0 VDC
Minimum ON Current	5.0 mA
Maximum OFF Current	2.0 mA
OFF to ON Response	Less than 3µs
ON to OFF Response	Less than 3µs

Output Specifications	
Specifications	***T1H-CTRIO***
Outputs	4 pts (sink/source), independently isolated
Pulse Outputs	2 channels, 20Hz to 25kHz Pulse/Direction or CW/CCW
Minimum Pulse Width	5µs
Output Voltage Range	5–36 VDC
Maximum Output Voltage	36VDC
Maximum Load Current	1.0 A
Maximum Leakage Current	100µA
Inrush Current	5.0 A for 20ms
ON State V Drop	0.3 VDC or less
Overcurrent Protection	15A max.
OFF to ON Response	less than 3µs
ON to OFF Response	less than 3µs
Maximum Output Frequency	
Velocity Mode	25 kHz
Run to Limit Mode	
Run to Position Mode	
Trapezoid	
S-Curve	
Symmetrical S-Curve	
Dynamic Positioning	
Home Search	
Free Form	
Dynamic Velocity	
Dynamic Positioning Plus	N/A
Trapezoid Plus	
Trapezoid with Limits	

Overview

The T1H-CTRIO Counter I/O module is designed to accept high-speed pulse input signals for counting or timing applications. This module provides high-speed pulse output signals for servo/stepper motor control, monitoring and alarming as well as other discrete control functions.

The CTRIO module offers greater flexibility for applications which call for precise counting or timing based on input events or for high speed control output applications. It can also be used for applications that call for a combination of both high-speed input and high-speed output control functions.

The CTRIO module has its own microprocessor and operates asynchronously with respect to the CPU. Therefore, the response time of the on-board outputs is based on the module's scan time, not the CPU's scan time.

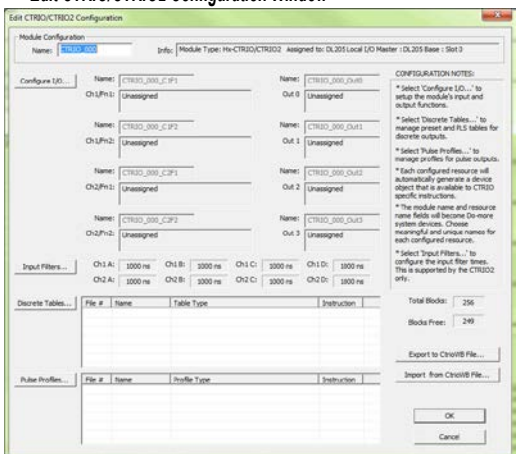
Note: T1H CPU modules can support the H2-CTRIO and H2-CTRIO2 modules in the Ethernet I/O bases.

Software Configuration

All scaling and configuration is done from within the Edit CTRIO/CTRIO2 Configuration window of Do-more Designer. This eliminates the need for PLC ladder programming or other interface device programming to configure the module.

For more detailed specifications and wiring diagrams, please refer to the Terminator I/O (Field I/O) section in this catalog.

Edit CTRIO/CTRIO2 Configuration Window



Inputs Supported:

- Counter
- Quad Counter
- Pulse Catc
- Edge Timer
- Dual Edge Timer

Outputs Supported:

- Pulse train - used for servo/stepper motor control. Configurable for
- CW/CCW or step and direction
- Discrete outputs - assigned to Counter/Timer input functions
- Raw output - outputs controlled directly from the CPU interface program

Do-more T1H Series PLC Overview

Module Compatibility

The following table shows which Terminator I/O product line components are supported by the T1H-DM1 and T1H-DM1E Do-more CPUs.

Module Compatibility Table					
Module	***Part Number***	***Status***	***Module***	***Part Number***	***Status***
Base Units	T1K-08B	✓	***Analog I/O Modules***	T1K-08B	✓
	T1K-08B-1	✓		T1K-08B-1	✓
	T1K-16B	✓		T1K-16B	✓
	T1K-16B-1	✓		T1K-16B-1	✓
Discrete I/O Modules	T1K-08ND3	✓		T1K-08ND3	✓
	T1K-16ND3	✓		T1K-16ND3	✓
	T1K-08NA-1	✓		T1K-08NA-1	✓
	T1K-16NA-1	✓		T1K-16NA-1	✓
	T1K-08TD1	✓		T1K-08TD1	✓
	T1K-16TD1	✓		T1K-16TD1	✓
	T1K-08TD2-1	✓		T1K-08TD2-1	✓
	T1K-16TD2-1	✓		T1K-16TD2-1	✓
	T1H-08TDS	✓		T1H-08TDS	✓
	T1K-08TA	✓	***Specialty Module***	T1K-08TA	✓
	T1K-16TA	✓			
	T1K-08TAS	✓			
	T1K-08TR	✓			
	T1K-16TR	✓			
	T1K-08TRS	✓			

✓ = Supported

Do-more T1H Series PLC Overview

Communications

The Do-more T1H Series PLC supports many communication protocols. The following table shows which CPU module communications port supports each protocol.

Protocols	CPU Modules		
	T1H-DM1 / T1H-DM1E		T1H-DM1E
	USB Port	RS-232 Serial Port	Ethernet Port
Do-more Designer Programming	Yes	Yes	Yes
Modbus/RTU Client (Master)		Yes	
Modbus/RTU Server (Slave)		Yes	
Modbus/TCP Client (Master)			Yes
Modbus/TCP Server (Slave)			Yes
DirectLOGIC RX/WX Client (Master)			Yes
DirectLOGIC RX/WX Server (Slave)			Yes
K-Sequence Server (Slave)		Yes	
DirectNET Server (Slave)			
HEI Ethernet I/O Master			Yes
SMTP (EMail) Client w/Authentication			Yes
Simple Network Time Protocol (SNTP) Client			Yes
Do-more/PEERLINK			Yes
Do-more Time Synchronization Protocol (Client, Server, Alternate Client)			Yes
Do-more Logger/UDP			Yes
Serial ad-hoc ASCII/Binary Programatic Control		Yes	
UDP ad-hoc Programmatic Control			Yes
TCP Client Programmatic Control			Yes
TCP Server Programmatic Control			Yes

Blank = Not Supported

Field Device Wiring and Power Options

Terminal base specifications

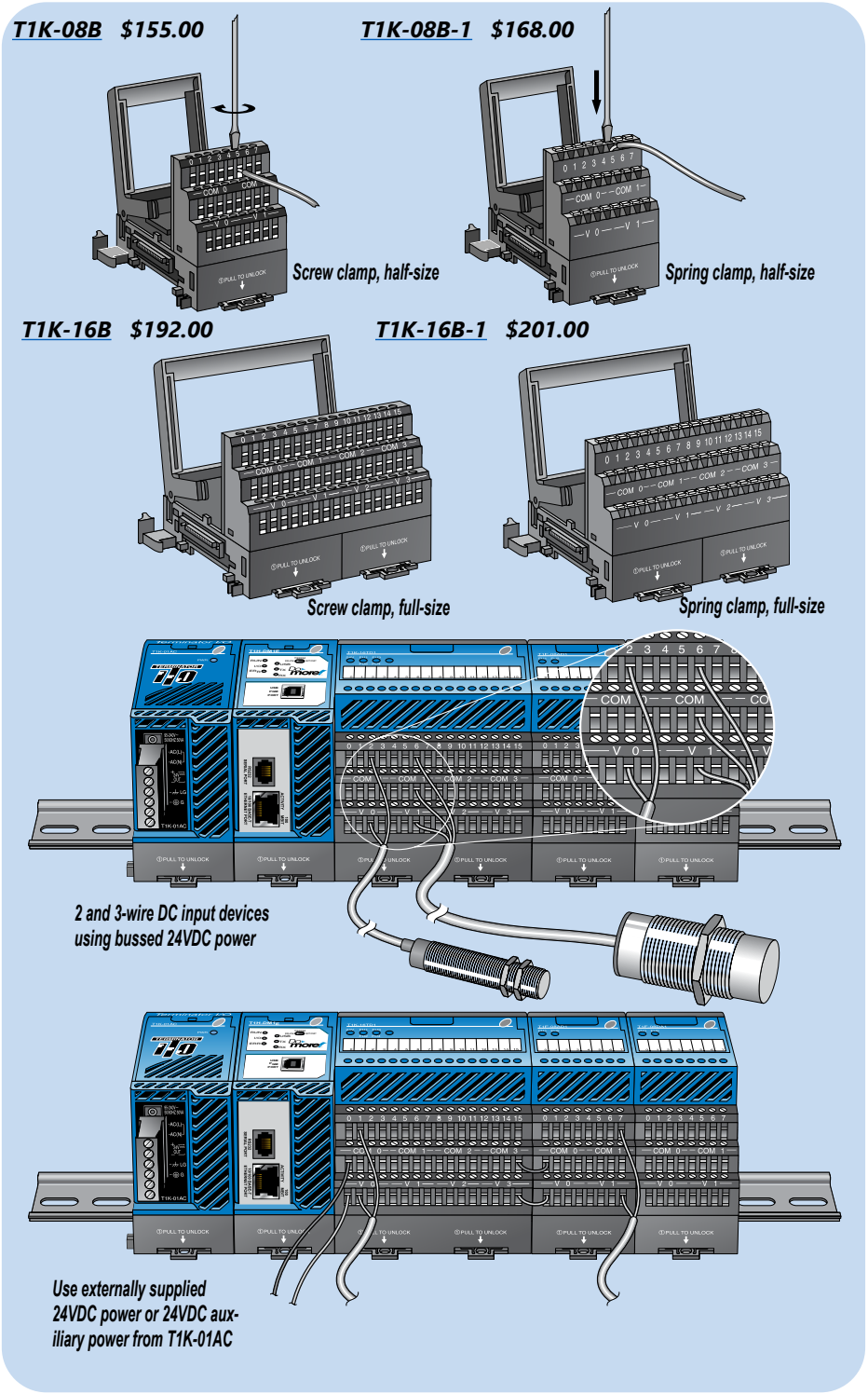
Terminator I/O terminal bases are available in screw clamp and spring clamp versions for both half-size and full-size modules. Hot stamp silkscreen labeling is used for numbering I/O points, commons, and all power terminals.

Terminal Base Specifications		
Terminal Type	Screw type	Spring clamp
Recommended Torque	1.77–3.54 lb·in (0.2–0.4 N·m)	N/A
Wire Gauge	Solid: 25–12 AWG Stranded: 26–12 AWG	Solid: 25–14 AWG Stranded: 26–14 AWG

Field device wiring options
Power your DC input devices from the integrated 24VDC power supply bus. T1K-08ND3 and T1K-16ND3 DC input modules include jumpers for selecting the internal 24VDC power supply available for 2- and 3-wire field devices. Clearly labeled triple stack terminals make it easy to wire 2- and 3-wire devices ensuring clean wiring with only one wire per termination.

External user supplied 24VDC power, or auxiliary 24VDC terminals from T1K-01AC, can be easily applied directly to one end of the terminal rows and jumpered across each base in the system.

This is a convenient solution for powering analog I/O and discrete DC output devices whose modules do not have direct access to the internal bussed 24VDC. If current consumption increases, simply add additional T1K-01AC power supplies into the system.



WARNING: *THE T1H SERIES PLC DOES NOT SUPPORT THE HOT-SWAP FEATURE.*

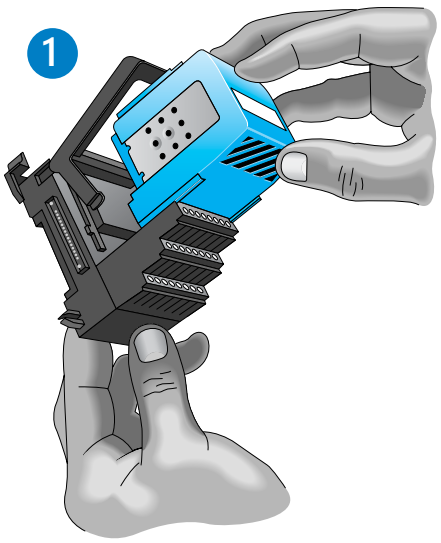
I/O Module Installation

I/O module installation

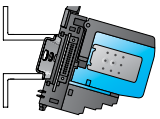
I/O modules feature separate terminal bases for easy installation.

To install I/O modules:

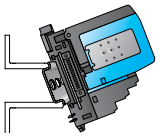
1. Slide the module into its terminal base (until it clicks into position)
2. Hook upper DIN rail tabs over the top of DIN rail, and press the assembly firmly onto the DIN rail.
3. Slide the module along the DIN rail until it engages with the adjacent module.



DN-ASB1 angled mounting bracket

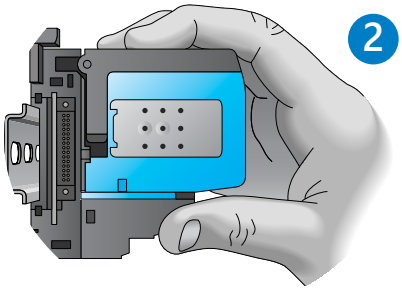


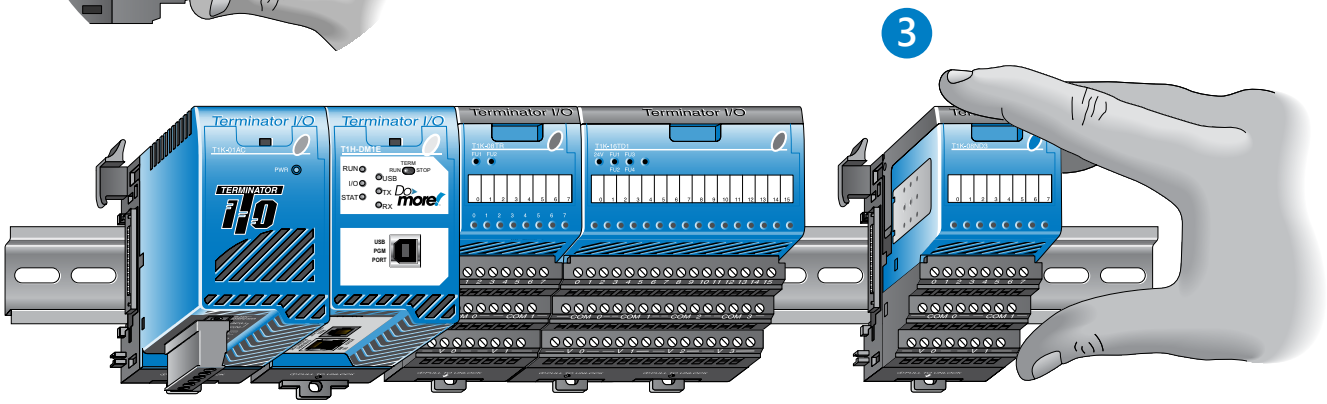
Great for mounting in upper locations



Great for mounting in lower locations

Optional angled support bracket raises and tilts the mounting rail for easier access and wiring. Use with 35mm DIN rail. See the Connection Systems in this catalog for details.

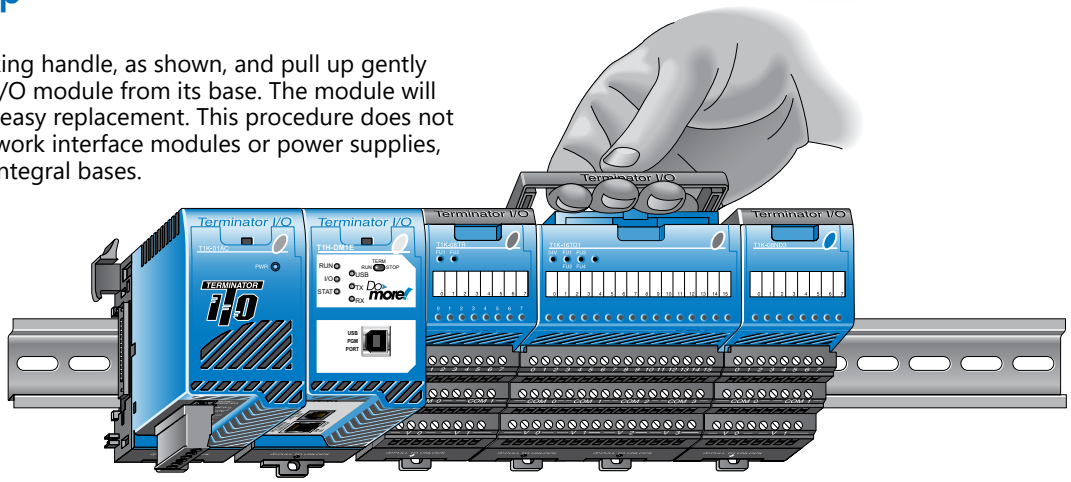




Removing I/O modules is a snap

Grip the locking handle, as shown, and pull up gently to eject the I/O module from its base. The module will slide out for easy replacement. This procedure does not apply to network interface modules or power supplies, which have integral bases.

WARNING: *THE T1H SERIES PLC DOES NOT SUPPORT THE HOT-SWAP FEATURE.*



Dimensions and Installation

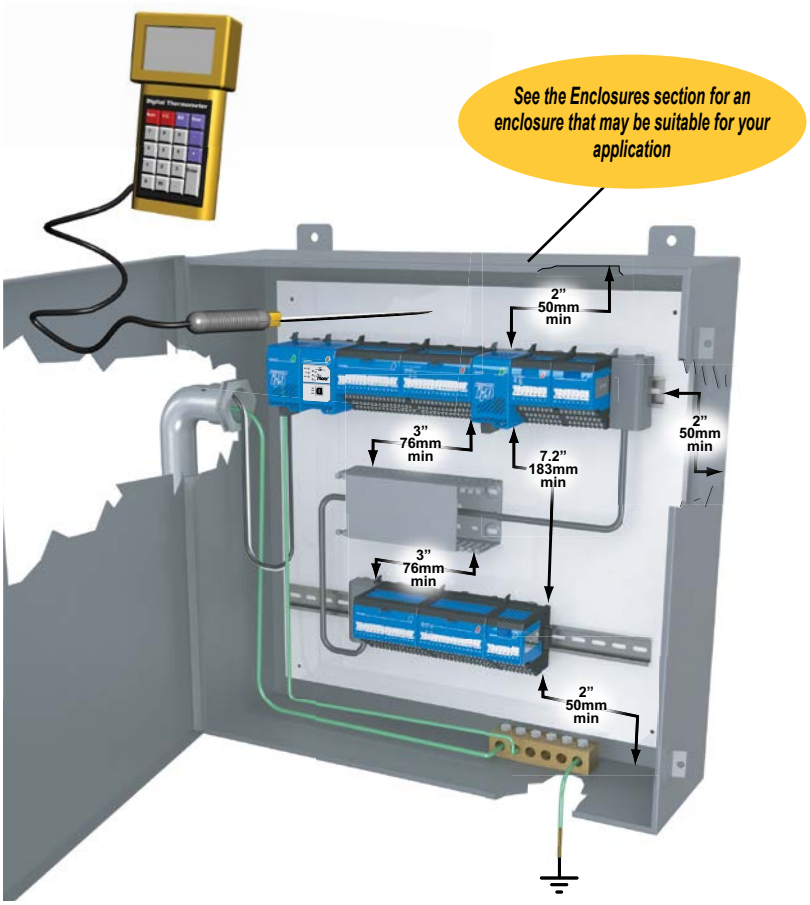
It is important to understand the installation requirements for your T1H Series PLC system. This will ensure that the PLC system works within their environmental and electrical limits.

Plan for safety

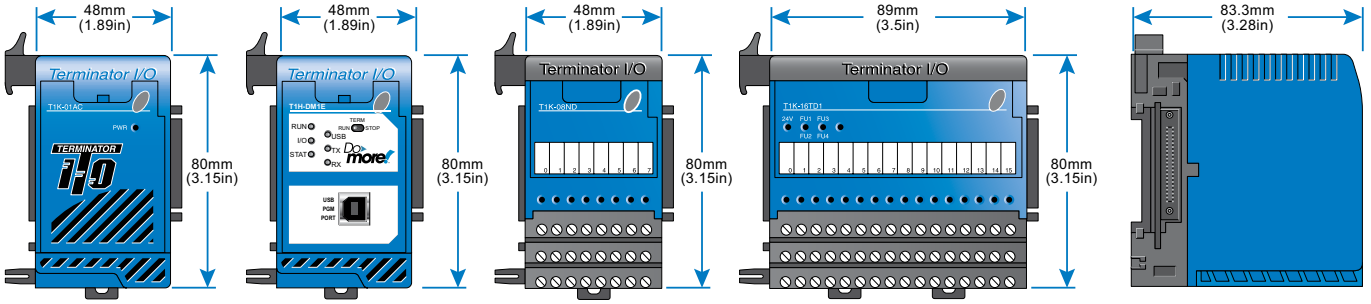
This document should never be used as a replacement for the technical data sheet that comes with the products or the Do-more T1H Series PLC Hardware User Manual (available online at www.automationdirect.com.) The technical data sheet contains information that must be followed. The system installation should comply with all appropriate electrical codes and standards.

Unit dimensions and mounting orientation

Use the following diagrams to make sure the T1H Series PLC system can be installed in your application. The PLC system should be mounted horizontally. To ensure proper airflow for cooling purposes, units should not be mounted upside-down. It is important to check the PLC system dimensions against the conditions required for your application. For example, it is recommended to leave 2" depth for ease of access and cable clearance. However, your distance may be greater or less. Also, check the installation guidelines for the recommended cabinet clearances.



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



Power Supply | *CPU Module* | *Half-size I/O Module with Base* | *Full-size I/O Module with Base* | *System Depth*