

Analog I/O Modules

The Do-more T1H Series PLC supports all analog I/O modules available for the Terminator I/O product line.

**T1F-08AD-1****T1F-08AD-2****T1F-16AD-1****T1F-16AD-2****T1F-16RTD****T1F-16TMST****T1F-14THM****T1F-08DA-1****T1F-08DA-2****T1F-16DA-1****T1F-16DA-2****T1F-8AD4DA-1****T1F-8AD4DA-2**

Analog Input Modules*

| Part Number | Number of Channels | Description | Price |
|--------------------------|--------------------|----------------------|----------|
| <u>T1F-08AD-1</u> | 8 | Analog Current Input | \$503.00 |
| <u>T1F-08AD-2</u> | 8 | Analog Voltage Input | \$503.00 |
| <u>T1F-16AD-1</u> | 16 | Analog Current Input | \$708.00 |
| <u>T1F-16AD-2</u> | 16 | Analog Voltage Input | \$710.00 |
| <u>T1F-16RTD</u> | 16 | RTD | \$697.00 |
| <u>T1F-16TMST</u> | 16 | Thermistor | \$629.00 |
| <u>T1F-14THM</u> | 14 | Thermocouple | \$915.00 |

*Terminal Bases sold separately

Analog Output Modules*

| Part Number | Number of Channels | Description | Price |
|--------------------------|--------------------|-----------------------|------------|
| <u>T1F-08DA-1</u> | 8 | Analog Current Output | \$645.00 |
| <u>T1F-08DA-2</u> | 8 | Analog Voltage Output | \$694.00 |
| <u>T1F-16DA-1</u> | 16 | Analog Current Output | \$995.00 |
| <u>T1F-16DA-2</u> | 16 | Analog Voltage Output | \$1,069.00 |

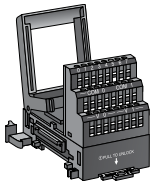
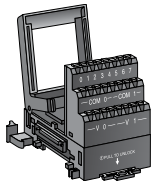
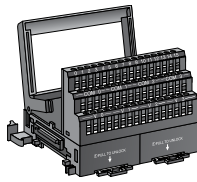
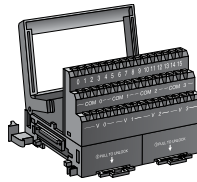
*Terminal Bases sold separately

Analog Input/Output Modules*

| Part Number | Number of Channels | Description | Price |
|----------------------------|--------------------|-----------------------------|----------|
| <u>T1F-8AD4DA-1</u> | 8/4 | Analog Current Input/Output | \$613.00 |
| <u>T1F-8AD4DA-2</u> | 8/4 | Analog Voltage Input/Output | \$613.00 |

*Terminal Bases sold separately

Analog I/O modules above are shown installed in the Terminal Base. Terminal Bases are sold separately and are listed in the table below.

**T1K-08B****T1K-08B-1****T1K-16B****T1K-16B-1**

Terminal Bases

| Part Number | Number of Terminals | Description | Price |
|-------------------------|---------------------|--------------|----------|
| <u>T1K-08B</u> | 8 | Screw Type | \$155.00 |
| <u>T1K-08B-1</u> | 8 | Spring Clamp | \$168.00 |
| <u>T1K-16B</u> | 16 | Screw Type | \$192.00 |
| <u>T1K-16B-1</u> | 16 | Spring Clamp | \$201.00 |

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

Analog I/O Modules

The following table may be helpful for you to select the right modules for your application.

| Analog Input Modules | | | | |
|----------------------|--|--|---------------------------|----------------------------|
| Input Type | Specification | Number of Input Points per Module | | |
| | | 8 | 14 | 16 |
| Current | -20 to 20 mA, 0–20 mA, 4–20 mA | T1F-08AD-1 T1F-8AD4DA-1 | | T1F-16AD-1 |
| Voltage | 0–5 V, 0–10V, $\pm 5V$, $\pm 10V$ | T1F-08AD-2 T1F-8AD4DA-2 | | T1F-16AD-2 |
| RTD | Pt100, Pt1000, iPt100, CU-10V, CU-25V, 120V Nickel | | | T1F-16RTD |
| Thermistor | 10K-AN (Type 3), 10K-CP (Type 2) 5K, 3K, 2252, 1.8K | | | T1F-16TMST |
| Thermocouple | Type J, E, K, R, S, T, B, N, C | | T1F-14THM | |

| Analog Output Modules | | | | |
|-----------------------|-----------------------------------|------------------------------------|----------------------------|----------------------------|
| Output Type | Specification | Number of Output Points per Module | | |
| | | 4 | 8 | 16 |
| Current | 0–20 mA, 4–20 mA | | T1F-08DA-1 | T1F-16DA-1 |
| | 4–20 mA | T1F-8AD4DA-1 | | |
| Voltage | 0–5V, 0–10V, $\pm 5V$, $\pm 10V$ | T1F-8AD4DA-2 | T1F-08DA-2 | T1F-16DA-2 |

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

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 | | |
|---|---------------------------|---------------------------|----------------------|
| | <i>T1H-DM1 / T1H-DM1E</i> | | <i>T1H-DM1E</i> |
| | <i>USB Port</i> | <i>RS-232 Serial Port</i> | <i>Ethernet Port</i> |
| 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: | Solid: |
| | 25–12 AWG Stranded: 26–12 AWG | 25–14 AWG Stranded: 26–14 AWG |

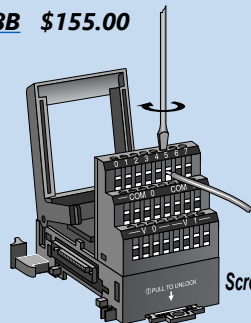
Field device wiring options

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.

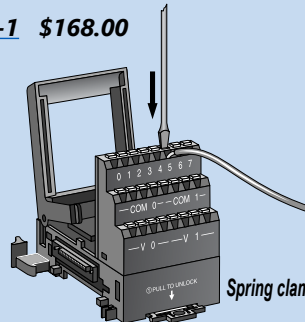
This is a convenient solution for powering analog I/O and discrete DC output devices whose modules do not have direct access to the internal bussed 24VDC. If current consumption increases, simply add additional T1K-01AC power supplies into the system.

T1K-08B \$155.00



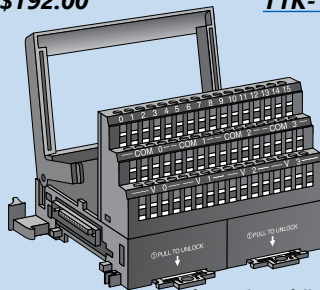
Screw clamp, half-size

T1K-08B-1 \$168.00



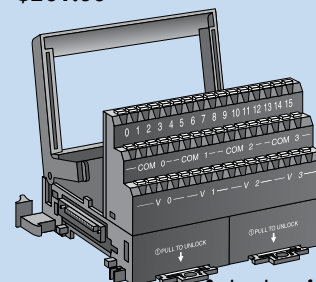
Spring clamp, half-size

T1K-16B \$192.00

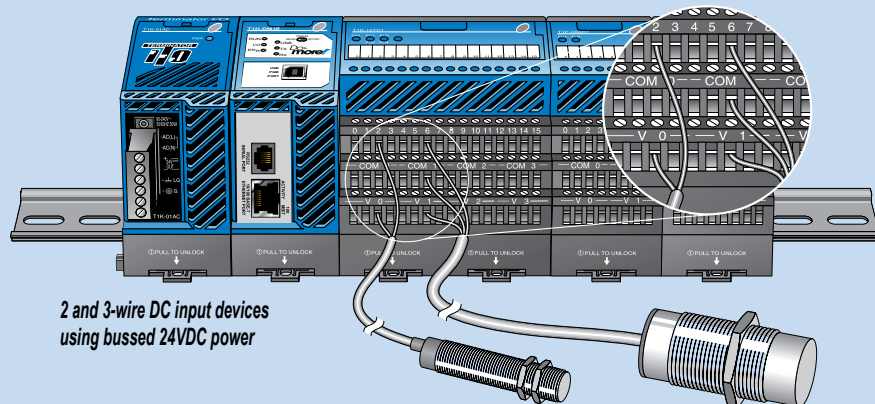


Screw clamp, full-size

T1K-16B-1 \$201.00



Spring clamp, full-size



Use externally supplied 24VDC power or 24VDC auxiliary power from T1K-01AC



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

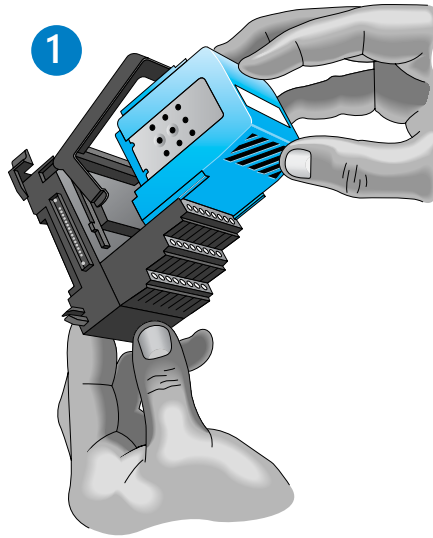
I/O Module Installation

I/O module installation

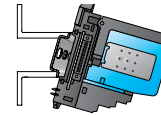
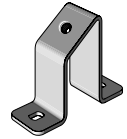
I/O modules feature separate terminal bases for easy installation.

To install I/O modules:

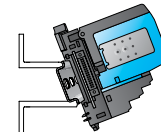
1. Slide the module into its terminal base (until it clicks into position)
2. Hook upper DIN rail tabs over the top of DIN rail, and press the assembly firmly onto the DIN rail.
3. Slide the module along the DIN rail until it engages with the adjacent module.



**DN-ASB1
angled mounting
bracket**

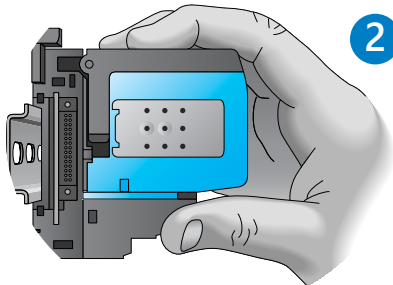


Great for mounting
in upper locations

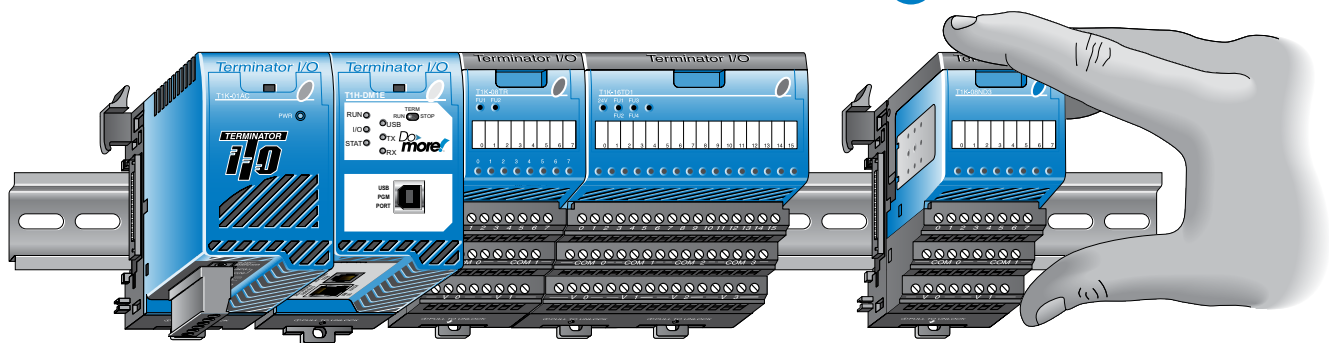


Great for mounting
in lower locations

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.



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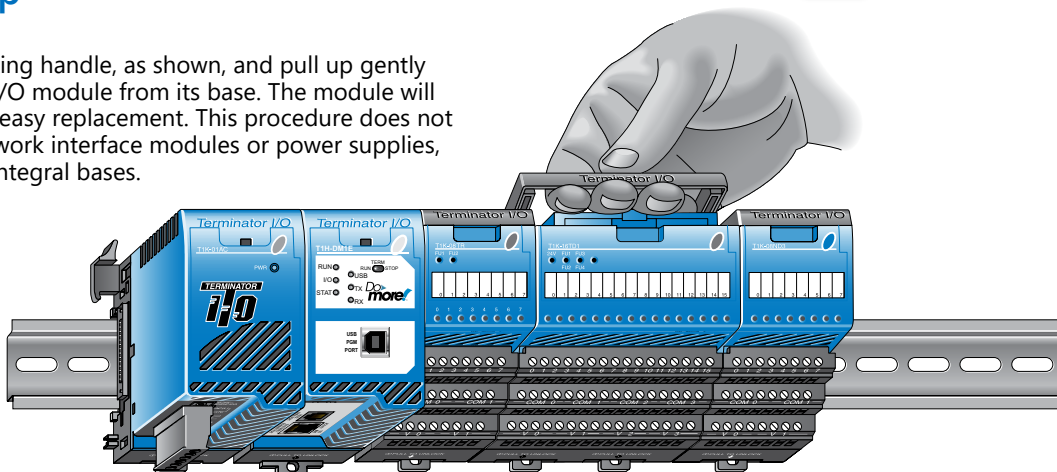


Removing I/O modules is a snap

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

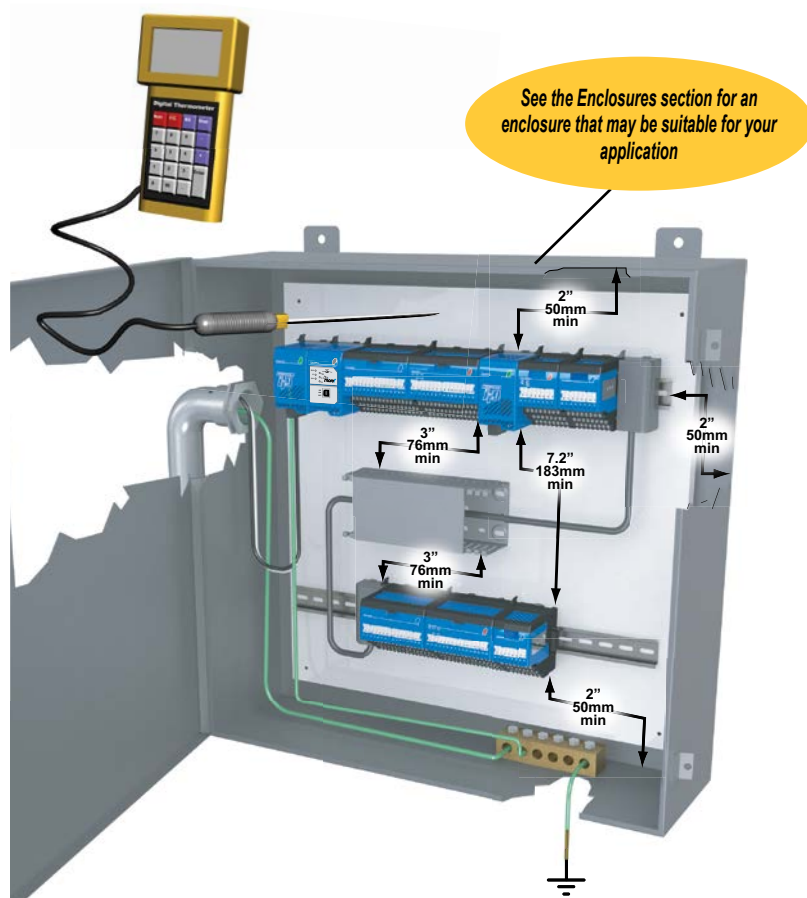
It is important to understand the installation requirements for your T1H Series PLC system. This will ensure that the PLC system works within their environmental and electrical limits.

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 |

