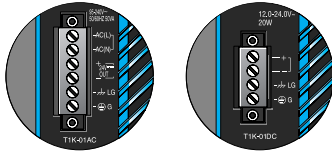


# Power Supplies and Power Requirements

## Power supplies

The Terminator I/O product line offers two power supply options: AC or DC. The power supplies are always positioned to the left of the modules to which they supply power. Consult the system configuration examples and the power budgeting example for more information on positioning power supplies.



## Power supply specifications

Power Supply Specifications		T1K-01AC \$116.00	T1K-01DC \$111.00
<b>Input Voltage Range</b>		110/220 VAC	12/24 VDC
<b>Input Frequency</b>		50/60 Hz	N/A
<b>Maximum Power</b>		50 VA	30 W
<b>Max. Inrush Current</b>		20 A	10 A
<b>Insulation Resistance</b>		> 10 MΩ @ 500 VDC	
<b>Voltage Withstand</b>		1 min. @ 1500 VAC between primary, secondary and field ground	
<b>5VDC PWR</b>	<b>Voltage</b>	5.25 VDC	5.25 VDC
	<b>Current Rating</b>	2000 mA max (see current option note below)	2000 mA max
	<b>Ripple</b>	5% max.	5% max.
<b>24VDC PWR</b>	<b>Voltage</b>	24 VDC	N/A
	<b>Current Rating</b>	300 mA max. (see current option note below)	N/A
	<b>Ripple</b>	10% max.	N/A
<b>Fuse</b>	1 (primary), not replaceable		
<b>Replacement Terminal Block (Phoenix Contact)</b>	MVSTBW 2.5/4-ST-5.08 BK	MVSTBW 2.5/6-ST-5.08 BK	
Note: 500 mA @ 24 VDC can be achieved by lowering the 5VDC from 2000 mA to 1500 mA.			

## Power requirements

Module	5VDC	24VDC	Module	5VDC	24VDC	Module	5VDC	24VDC
<b>Interface Modules</b>			<b>DC Output Modules</b>			<b>Analog Input Modules</b>		
T1H-EBC100	300	0	T1H-08TDS	200	0	T1F-08AD-1	75	50*
T1H-PBC	530	0	T1K-08TD1	100	200*	T1F-08AD-2	75	50*
T1K-DEVNETS	250	45	T1K-16TD1	200	400*	T1F-16AD-1	75	50*
T1K-MODBUS	300	0	T1K-08TD2-1	200	0	T1F-16AD-2	75	50*
<b>DC Input Modules</b>			<b>AC Output Modules</b>			<b>Analog Output Modules</b>		
T1K-08ND3	35	0	T1K-08TA	250	0	T1F-16RTD	150	0
T1K-16ND3	70	0	T1K-16TA	450	0	T1F-16TMST	150	0
<b>AC Input Modules</b>			<b>Relay Output Modules</b>			<b>Combination Analog Modules</b>		
T1K-08NA-1	35	0	T1K-08TR	350	0	T1F-08DA-1	75	75*
T1K-16NA-1	70	0	T1K-16TR	700	0	T1F-08DA-2	75	75*
			<b>Specialty Modules</b>			<b>Relay Output Modules</b>		
			T1K-08TRS			T1F-16DA-1		
			T1H-CTRIO			T1F-16DA-2		
			400			75		
			0			75		
			* Use either internal or external source for 24VDC			* Use either internal or external source for 24VDC		

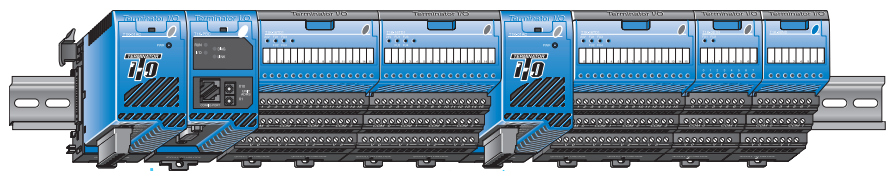
## Calculating the power budget

To calculate the power budget, read the available power (current rating) from the Power Supply Specifications table and subtract the power consumed by each module to the right of the power supply. Do not include modules to the right of an additional power supply.

## Adding additional power supplies

Each power supply furnishes power only to the network interface and I/O modules to its right. Inserting a second power supply closes the power loop for the power supply to the left, while also powering the modules to its right. Perform a power budget calculation for each power supply in the system.

Power Budget Example		
Module	5VDC	24VDC
T1K-01AC	+2000 mA	+300 mA
T1H-EBC100	-300 mA	-0 mA
T1K-16ND3	-70 mA	-0 mA
T1K-16TD2	-200 mA	-0 mA
T1F-08AD-1	-75 mA	-50 mA
Remaining	+1355 mA	+250 mA



This power supply powers the network interface module and the next two I/O modules

This power supply powers these three I/O modules

# Dimensions and Installation

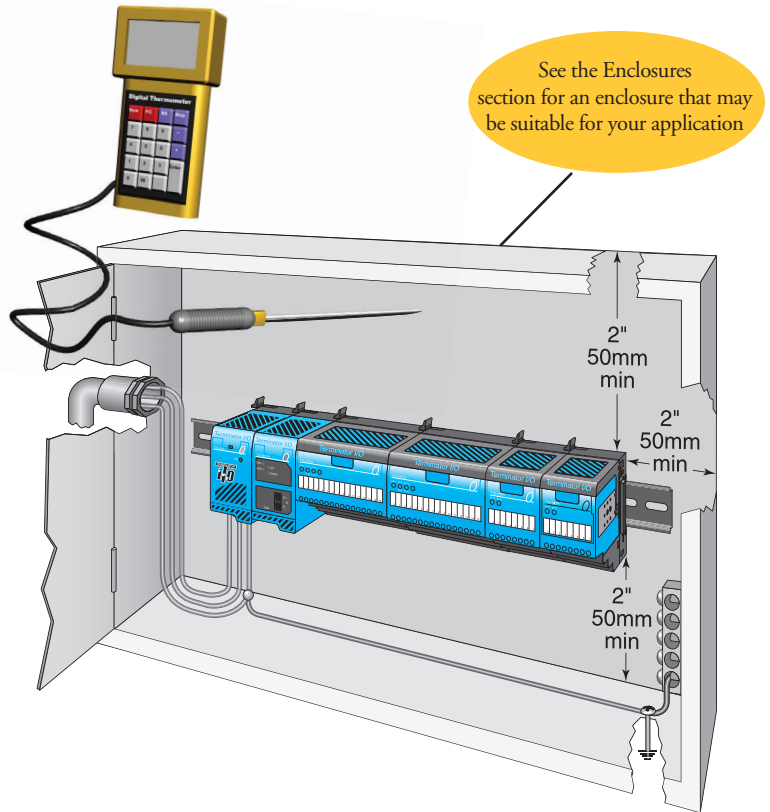
It is important to understand the installation requirements for your Terminator I/O system. This will ensure that the Terminator I/O products work within their environmental and electrical limits.

## Plan for safety

This catalog should never be used as a replacement for the technical data sheet that comes with the products or the T1K-INST-M Installation and I/O Manual (available online at [www.automationdirect.com](http://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 Terminator I/O system can be installed in your application. Terminator I/O units should be mounted horizontally. To ensure proper airflow for cooling purposes, units should not be mounted upside-down. It is important to check the Terminator I/O 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 I/O Environmental Specifications	
<b>Ambient Operating Temperature</b>	32°F to 131°F (0°C to 55°C)
<b>Storage Temperature</b>	-4°F to 158°F (-20°C to 70°C)
<b>Ambient Humidity</b>	5% to 95% (Non-condensing)
<b>Atmosphere</b>	No corrosive gases. The level of environmental pollution = 2 (UL 840)
<b>Vibration Resistance</b>	MIL STD 810C, Method 514.2
<b>Shock Resistance</b>	MIL STD 810C, Method 516.2
<b>Voltage Withstand (Dielectric)</b>	1500 VAC, 1 minute
<b>Insulation Resistance</b>	500 VDC, 10 MΩ
<b>Noise Immunity</b>	NEMA ICS3-304 Impulse noise 1μs, 1000 V FCC class A RFI (144 MHz, 430 MHz 10 W, 10 cm)
<b>Agency Approvals</b>	UL, CE, FCC class A, NEC Class 1 Division 2

