



Errata Sheet

This Errata Sheet contains corrections or changes made after the publication of this manual.

Product Family: Terminator I/O **Date:** December 2018
Manual Number T1K-DEVNETS-M
Revision and Date 1st Edition; November 2001

Changes to Chapter 2. Installing the T1K-DEVNETS Base Controller

Page 2-9. Configuring the Controller; Status Indicators

Replace the top portion of the table [MS (Module Status) Indicator] with the table below.

Two new rows were added for Flashing Green and Flashing Red.

No changes were made to the lower portion of the table [NS (Network Status) Indicator].

MS (Module Status) Indicator	
Indication	Status
OFF	No power to Controller. Check wiring.
ON (Green)	Power applied to Controller, no fault
ON (Red)	Critical Controller Fault
Flashing Green	In Firmware Update Mode
Flashing Red	I/O system error Missing module error New module present error I/O diagnostic error

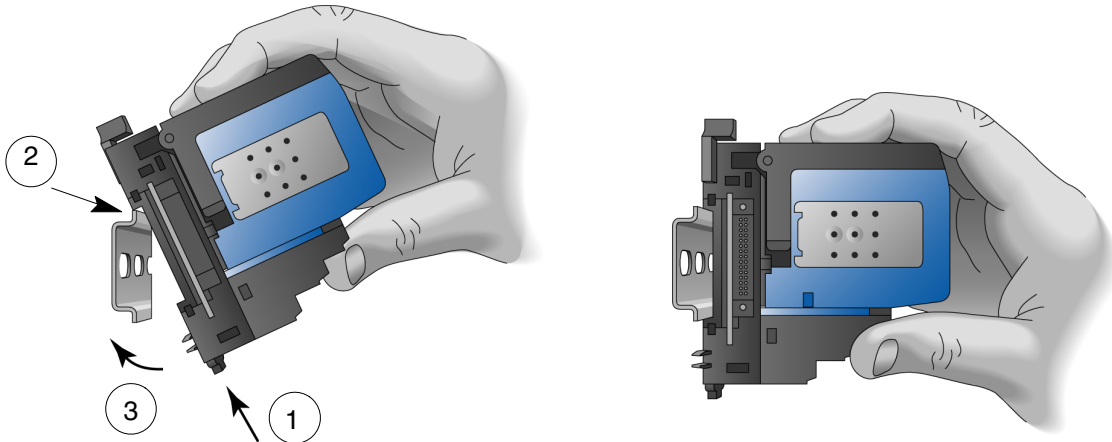
Installing the T1K–DEVNETS Base Controller

In This Chapter. . . .

- Installing the T1K–DEVNETS Base Controller
 - Configuring the Controller
 - Master/Slave Communications
 - Terminator I/O Backplane Communications
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Installing the T1K-DEVNETS

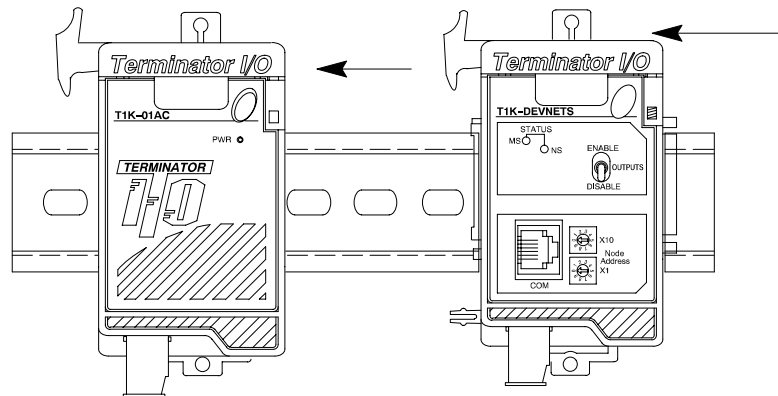
Mounting on DIN Rail



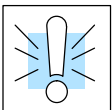
NOTE: Do not force the base controller onto the DIN rail. Due to slight size variations in different manufacturer's DIN rail, it may be necessary to first unlatch the locking tab, rotate the module into place, then latch the locking tab.

1. Make sure the locking tab is in the latched position (pushed in).
2. Hook upper tab over upper flange of DIN rail.
3. Tilt the unit toward DIN rail until it snaps securely to DIN rail.

Connecting the Controller to a Power Supply

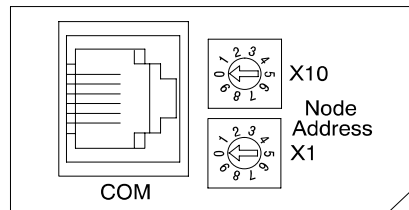


Slide the controller onto the DIN rail until the clip arm attaches securely to the power supply.



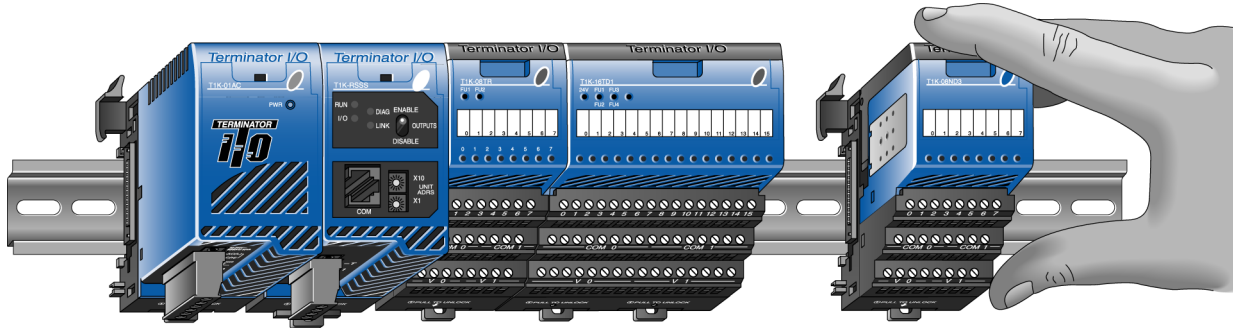
WARNING: Power to the T1K Power Supply **must** be disconnected before installing or removing the T1K-DEVNETS. Failure to disconnect power could result in serious damage to the module, to the power supply or both.

Setting the Node Address



Use a small flat screwdriver to set the Node Address to an *available* Node Address (or MAC ID), from 0 – 63. Note that X10 represents the tens place and X1 represents the units place.

Connecting the Components on the DIN Rail

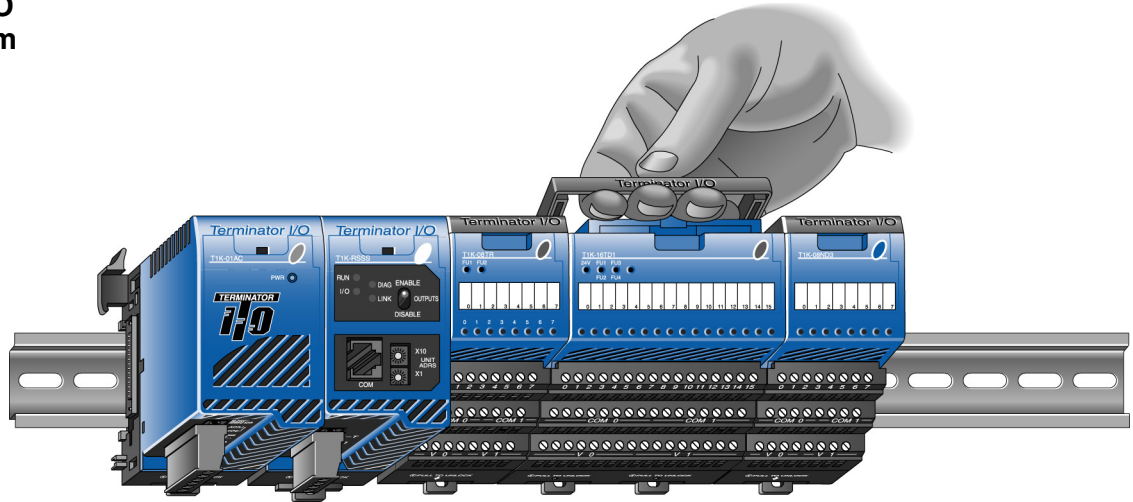


Slide the module assembly onto the DIN rail until the clip arm attaches securely to the adjacent module.



WARNING: Again, be sure that the power to the T1K Power Supply is **disconnected** before installing or removing the module assembly. Failure to disconnect power could result in serious damage to the modules, to the power supply or to the entire assembly.

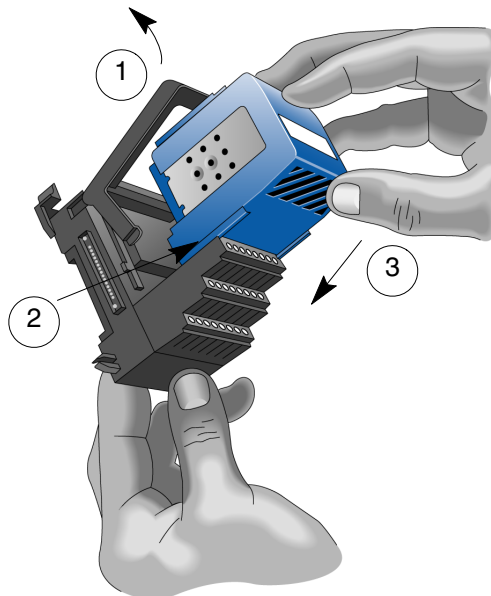
Removing I/O Modules from the Base



To remove the module from the base, grip the center of the base arm and rotate outward releasing the module.

To remove the module assembly from the DIN rail, lift the clip arm up and slide the module assembly away from the adjacent module. Pull the locking tab down (out) and lift the assembly off the DIN rail. Refer to the “I/O Module Hot Swap Feature”, page 3-17, in the *Terminator I/O Installation and I/O Manual (T1K-INST-M)*, to remove an I/O module with Terminator I/O system power ON.

Assembling the I/O Modules and Bases



Insert Module into Base

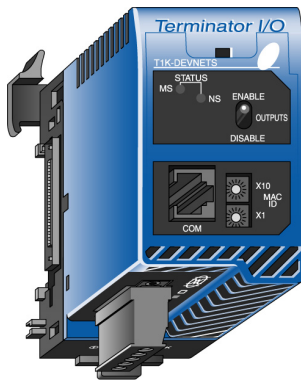
1. Pull base arm back to allow space for module to enter base
2. Align module slides with base track
3. Press module firmly into base

DIP Switch Settings

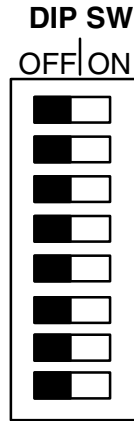
The T1K-DEVNETS controller has a DIP Switch which is used to set baud rates, initializing and the state of outputs if a communication error occurs. The DIP Switch is located on the side of the unit, opposite the power supply.



Note: Be sure to look closely at the default settings below. If you are connecting to an existing DeviceNet network, you may need to change the DeviceNet Baud Rate on your T1K-DEVNETS. *The factory default baud rate is 125kbps.*



The DIP Switch is on this side.



- SW1 } DeviceNet Baud Rate
- SW2 }
- SW3 16/32 Bit/Channel Analog Selection
- SW4 I/O Polling Diagnostics Enable/Disable
- SW5 Hold Outputs (on Comm. Error)
- SW6 Maintenance Port Baud Rate
- SW7 Maintenance Port Protocol Selection
- SW8 Maintenance Port RTS/CTS Control Enable/Disable

Factory Default Settings Shown (all OFF)

Set the DeviceNet baud rate.

DeviceNet Baud Rate		
Baud Rate	SW1	SW2
125 kbps	OFF	OFF
250 kbps	ON	OFF
500 kbps	OFF	ON
Reserved	ON	ON

Analog Bit Selection		
No. of Bits	SW3	Description
32	OFF	Defaults to original 2-word (32 bits) per analog channel.
16	ON	N/A

Parameter Table

System V-Memory	Description	SW3=OFF	SW3=ON	Comment
V7614	Input register: Starting location	V3000	V3000	Read only
V7615	Input Register: Number of bytes	58 Bytes	128 Bytes	Read only
V7616	Output Register: Starting location	V3100	V3100	Read only
V7617	Output Register: Number of bytes	52 Bytes	128 Bytes	Read only

Disable I/O Polling Diagnostics *	
I/O Diagnostics	SW 4
Enable	OFF
Disable	ON

* If DIP Switch 4 is in the OFF (default) position, you must allow for two additional bytes on the input (RX) and two additional bytes on the output (TX) for Terminator I/O diagnostic functions. Refer to page B-6 for the I/O diagnostic information.

Hold Outputs		Maintenance Port Baud Rate		Maintenance Port Protocol Selection	
Outputs	SW5	Baud Rate	SW 6	Protocol	SW7
Turn Off	OFF	9600 bps	OFF	Normal	OFF
Hold	ON	19200 bps	ON	ASCII	ON

Maintenance Port RTS/CTS Control		
SW 8	RTS/CTS	Description
OFF	Disable	RTS/CTS not available
ON	Enable	RTS/CTS available

T1K-DEVNETS setup parameters

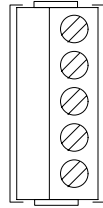
Setting up the parameters of the T1K-DEVNETS will set the values to special registers when power is applied to it. When the registers are set to the correct range, their parameters will be stored in EEPROM, and the parameters will be retained when power is turned off. Refer to the following table.

Parameter Table

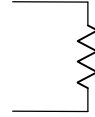
System V-Memory	Description	Value when the scratch pad is initialized	Range
V7614	Input register: Starting location	V3000	V0 - V7377
V7615	Input Register: Number of bytes	58 Bytes	0 - 128
V7616	Output Register: Starting location	V3100	V0 - V7377
V7617	Output Register: Number of bytes	52 Bytes	0 - 128

Wiring the Controller to a DeviceNet Network

Connect the DeviceNet cable (Belden 3085A, YR-29832 or equivalent) to the removable connector as shown below. The wire colors are also labeled on the Controller front. Be sure to connect a terminating resistor (121 Ohm 1%, 1/4W).



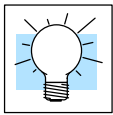
- V+ (red)
- CAN* High (white)
- Shield (bare)
- CAN* Low (blue)
- V- (black)



Connect a terminating resistor across the CAN High (white) and CAN Low (blue) screw terminals.

The terminating resistor is 121 Ohm 1%, 1/4 Watt. (2 resistors are included with each T1K-DEVNETS).

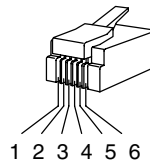
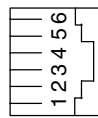
* Controller Area Network (CAN)



Tip: Be sure that each end of the DeviceNet network 'trunk' has a proper terminating resistor connected as shown above.

Serial Port (RS-232)

The T1K-DEVNETS serial port is used to update the firmware of the base controller when necessary. Use cable part number **D2-DSCBL** to connect the T1K-DEVNETS to a PC, or use the following information to make a cable.



Serial Port Pinout	
Pin	Signal
1	0V
2	+5V
3	RXD
4	TXD
5	RTS
6	CTS

Configuring the Controller

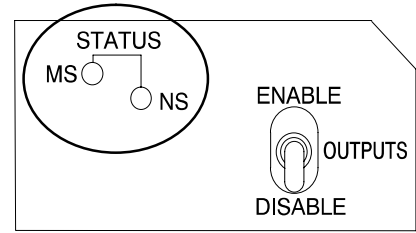
Configuring the DeviceNet Base Controller

Use the software of your DeviceNet master to configure the controller for your network. *Refer to the software Help file and/or manual for help with configuration.* Follow these basic steps when configuring your T1K-DEVNETS controller.

- 1. Set the Controller Node Address:**
In the DeviceNet master software, make sure the Controller node address is set to an available node number on the DeviceNet network (from 0 to 63).
- 2. Add the EDS file (if required by the software):**
In your DeviceNet software, add the T1K-DEVNETS Electronic Data Sheet (EDS) file from the disk which came with this manual or from our web site www.automationdirect.com. Some software may not provide for the use of EDS files.
- 3. Commission the Node:**
Use the DeviceNet software to “Commission the Node” of your Controller. Again, some software may not require this.
- 4. Add the T1K-DEVNETS to the Scan List:**
Add the T1K-DEVNETS to the Scan List in your DeviceNet Master software.
- 5. Set the Input/Output Bytes:**
If required by your DeviceNet software, set the I/O Parameters to Tx = Output bytes and Rx = Input bytes (on the Scanner’s Scan List tab), for Polled I/O. *Either use the tables located in the appendixes or go to page E-18 and follow the steps in the example.*
- 6. Map the I/O to the Master:**
Map the T1K-DEVNETS I/O to the Scanner using Auto Map, or map the I/O to another location if desired.
- 7. Scan:**
Go Online (or Scan) to verify the configuration and check for errors.
- 8. View Indicators on the Controller:**
Refer to the Status Indicators when connecting to the network.

Status Indicators

The Controller has two Status Indicators, one for Module Status and the other for Network Status.



See Errata Sheet at the beginning of this file. Two new rows were added to this table.

Flashing Green
Flashing Red

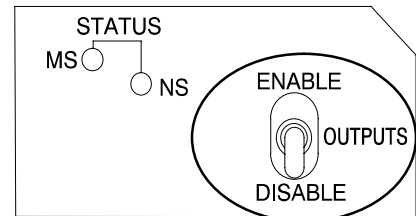


MS (Module Status) Indicator	
Indication	Status
OFF	No power to Controller. Check wiring.
ON (Green)	Power applied to Controller, no fault
ON (Red)	Critical Controller Fault
NS (Network Status) Indicator	
Indication	Status
OFF	No power to Controller or no Network Access
Flashing Green	Online but not connected
Solid Green	Online, link okay and connected
Flashing Red	Recoverable fault
Solid Red	Critical Controller Fault (Duplicate ID or Bus off)

Installing the DeviceNet Base Controller

Outputs Switch

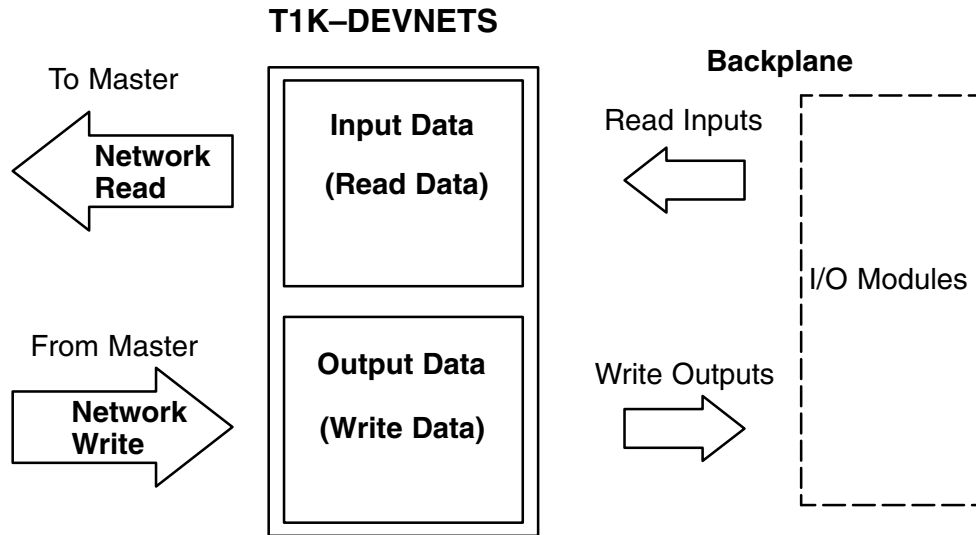
The Outputs switch enables or disables outputs connected to the Controller.



Note: It is good safe practice to disable outputs before Hot Swapping modules if the application allows this.

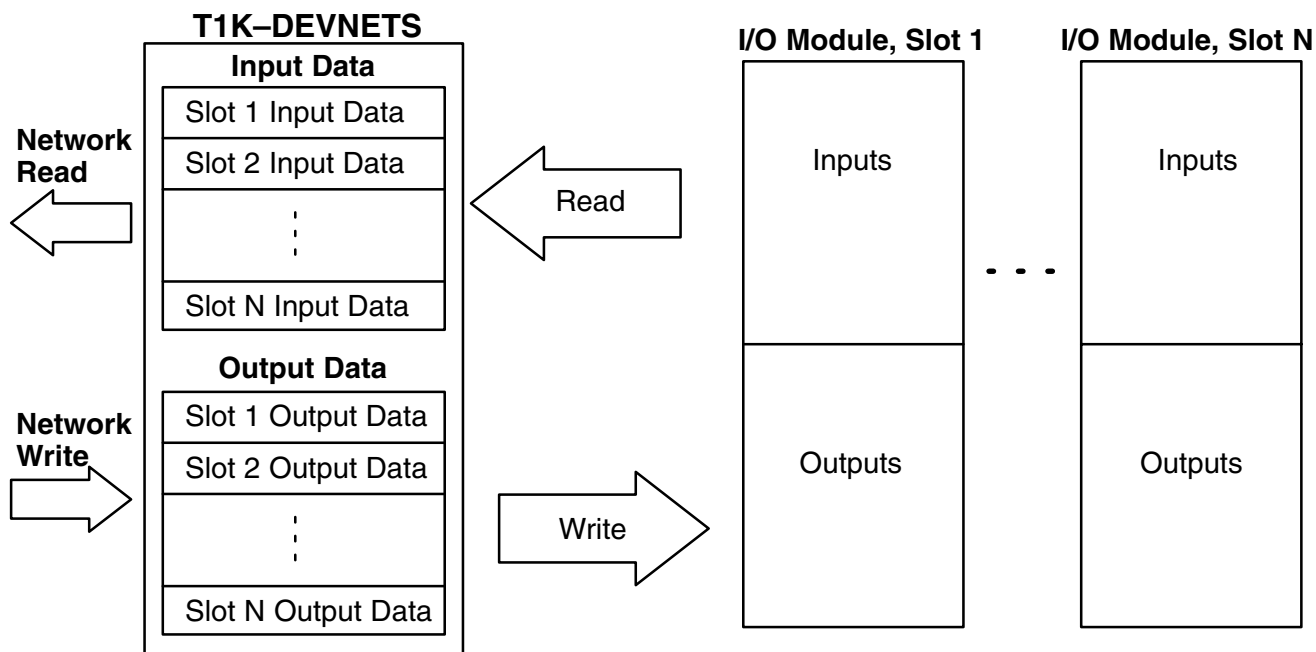
Master/Slave Communications

The T1K-DEVNETS controller (slave) communicates with the DeviceNet scanner (master) by sending Input Data and receiving Output Data. The controller *reads* Inputs from I/O Modules and *writes* Outputs to I/O Modules.



Terminator I/O Backplane Communications

The Controller communicates with its I/O modules over the backplane. The I/O is mapped in consecutive order as shown.



Installing the DeviceNet Base Controller

I/O Module Memory Map

Refer to the *Terminator I/O Installation and I/O Manual (T1K-INST-M)* for the memory map for individual Discrete and/or Analog I/O Modules.