

# Installation Guideline

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## 2.1 General

### Environmental Specifications

The following table lists the environmental specifications that generally apply to the ADAM-5000 system (System kernel and I/O modules).

Specification	Rating
Storage temperature	-13 to 185°F (-25 to 85°C)
Ambient operating temperature	14 to 158°F (-10 to 70°C)
Ambient humidity*	5 to 95%, non-condensing
Atmosphere	No corrosive gases

\* Equipment will operate below 30% humidity. However, static electricity problems occur much more frequently at lower humidity levels. Make sure you take adequate precautions before you touch the equipment. Consider using ground straps, antistatic floor coverings, etc. if you use the equipment in low humidity environments.

### Power Requirements

Although the ADAM-5000 systems are designed for standard industrial unregulated 24 V<sub>DC</sub> power supply, they accept any power unit that supplies within the range of +10 to +30V<sub>DC</sub>. The power supply ripple must be limited to 100 mV peak-to-peak, and the immediate ripple voltage should be maintained between +10 and +30 V<sub>DC</sub>.

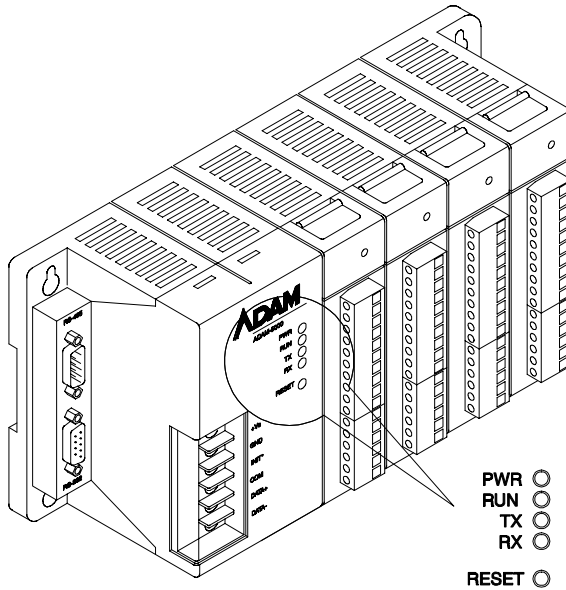
### Diagnostic Indicators

Diagnostic indicators are located on the front panel of the ADAM system. They show both normal operation and system status in your remote I/O system. The indicators are:

- System status (PWR, RUN)
- Communication status (TX, RX)
- I/O module status

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A complete description of the diagnostic indicators and how to use them for troubleshooting is explained in Chapter 7.



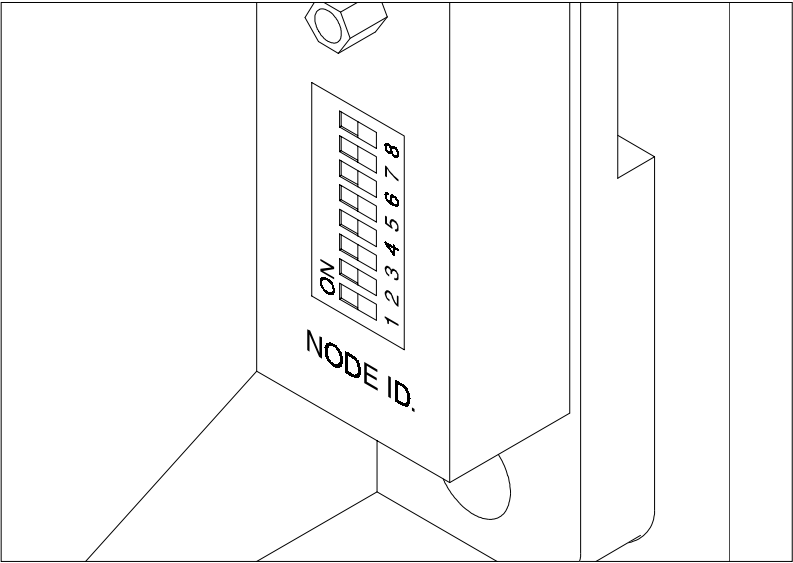
**Figure 2-1** ADAM-5000 Diagnostic indicators

### Setting the Network Address Switch

Set the network address using the 8-pin DIP switch. Valid settings range from 0 to 255 (00h to FFh) where ON in any of the 8 DIP switch positions equates to a binary 1, and OFF equates to a binary 0.

For example, if the Node ID is 03h the DIP switch settings for switches 1 and 2 (representing bits 1 and 2) would both be ON while the rest of the switches would be OFF. The default Node ID is 01h.

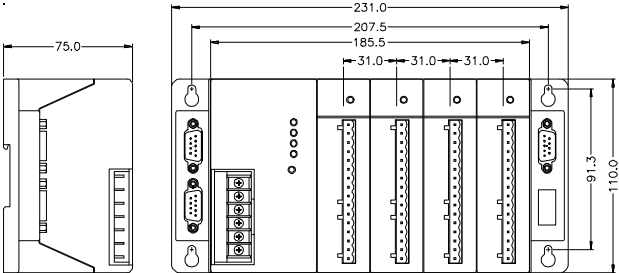
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**Figure 2-2** ADAM-5000 Network address DIP switch

## Dimensions and Weights

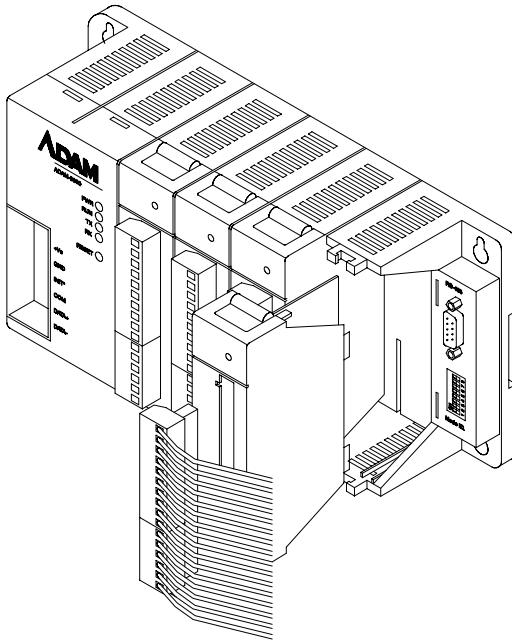
The following diagrams show the dimensions of the system unit and an I/O unit. All dimensions are in millimeters.



Module	5000/485	5017	5018	5024	5051	5056	5060
Weight	470g	79g	72g	75g	65g	68g	85g

### 2.2 Module Installation

When inserting modules into the system, align the PC board of the module with the grooves on the top and bottom of the system. Push the module straight into the system until it is firmly seated in the backplane connector. Once the module is inserted into the system, push in the retaining clips (located at the top and bottom of the module) to firmly secure the module to the system.



**Figure 2-3** *Module alignment and installation*

### 2.3 I/O Slots and I/O Channel Numbering

The ADAM-5000 system each provides 4 slots for use with I/O modules. The I/O slots are numbered 0 thru 3, and the channel numbering of any I/O module in any slot starts from 0. For example, ADAM-5017 is a 8-channel analog input module, its channel numbering is 0 thru 7.

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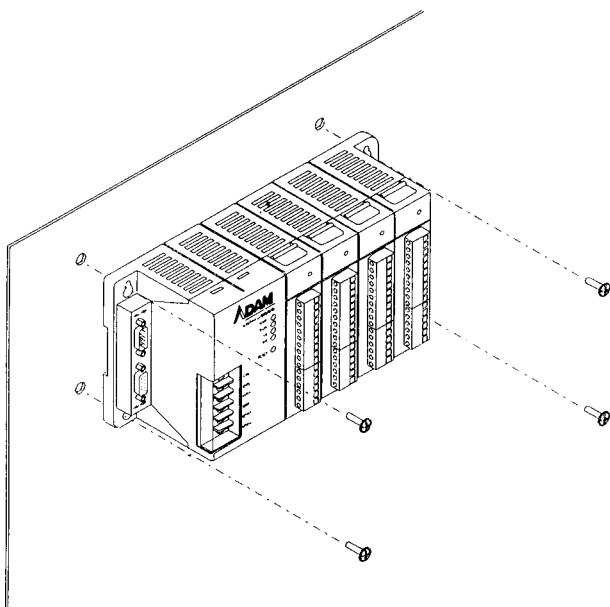
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## 2.4 Mounting

The ADAM-5000 system can be installed on a panel or DIN rail.

### Panel Mounting

Mount the system on the panel horizontally to provide proper ventilation. You cannot mount the system vertically, upside down or on a flat horizontal surface. A standard #7 tating screw (4mm diameter) should be used.



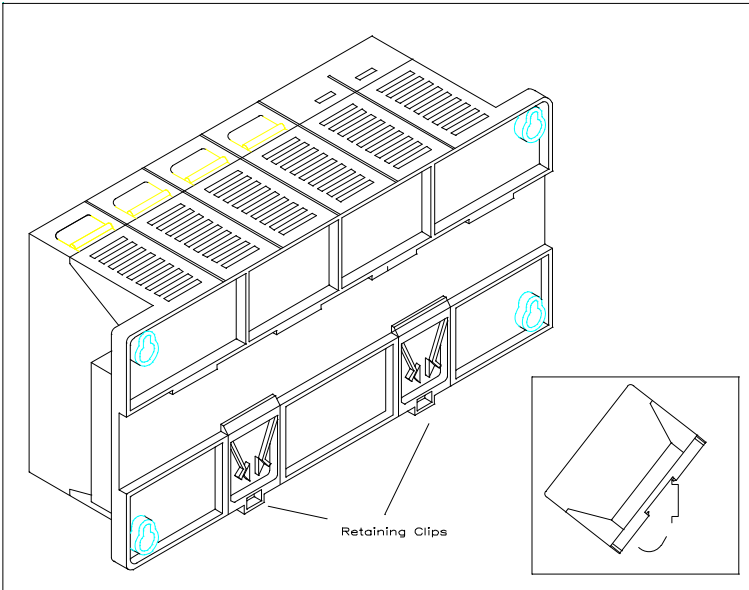
**Figure 2-4** ADAM-5000 Panel mounting

### DIN Rail Mounting

The system can also be secured to the cabinet by using mounting rails. If you mount the system on a rail, you should also consider using end brackets on each end of the rail. The end brackets help keep the system from sliding horizontally along the rail. This helps minimize the possibility of accidentally pulling the wiring loose. If you

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examine the bottom of the system, you will notice two small retaining clips. To secure the system to a DIN rail, place the system onto the rail and gently push up on the retaining clips. The clips lock the system on the rail. To remove the system, pull down on the retaining clips, lift up on the base slightly, and pull it away from the rail.



**Figure 2-5** ADAM-5000 Rail mounting

### 2.5 Wiring and Connections

This section provides basic information on wiring the power supply and I/O units, and on connecting the network.

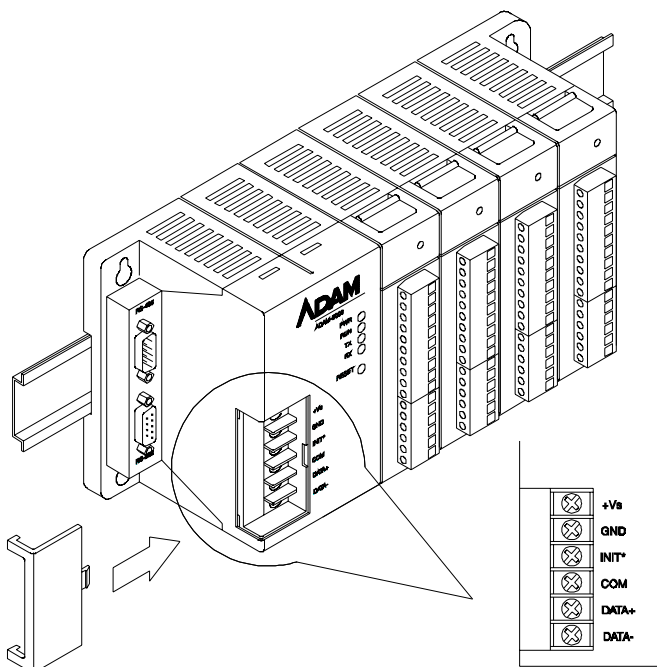
#### DC Power Supply Unit Wiring

Be sure that the DC power supply voltage remains within the allowed fluctuation range of between 10 to 30 V<sub>DC</sub>. Terminals +V<sub>s</sub> and GND are for power supply wiring.

**Note:** The wire(s) used should be at least 2mm<sup>2</sup>.

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INIT\* is used for changing baud rate and checksum. COM is provided as reference to the RS-485 ground signal. DATA+ and DATA- are provided for the RS-485 twisted pair connection.



**Figure 2-6** ADAM-5000 Wiring and connections

## I/O Modules Wiring

The system uses plug-in screw terminal blocks for the interface between I/O module and field devices. The following information must be considered when connecting electrical devices to I/O modules.

1. The terminal block accepts 0.5 mm<sup>2</sup> to 2.5 mm<sup>2</sup> wires
2. Always use a continuous length of wire, do not combine wires to attain needed length
3. Use the shortest possible wire length

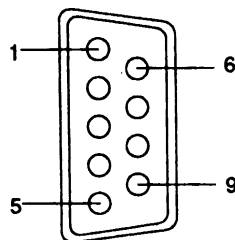
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4. Use the wire trays for routing where possible
5. Avoid running wires near high energy wiring
6. Avoid running input wiring in close proximity to output wiring where possible
7. Avoid creating sharp bends in the wires

### RS-485 Port Connection

There is a pair of DB9 ports in the ADAM-5000 system. The ports are designed to link the RS-485 through a cable to a network in a system. The pin assignment of the port is as follows:

Pin No.	Description
Pin 1	RS-485 Data -
Pin 2	RS-485 Data +
Pin 3	Not Used
Pin 4	Not Used
Pin 5	RS-485 Signal Ground
Pin 6	Not Used
Pin 7	Not Used
Pin 8	Not Used
Pin 9	Not Used



**Note:** *The wiring of the RS-485 should be through a **twisted** pair. To reduce electrical noise, it should be twisted as tightly as possible.*



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## RS-232 Port Connection

The RS-232 port is designed for field configuration and diagnostics. Users may connect a notebook PC to the RS-232 port to configure or troubleshoot your system in the field. Further, the ADAM-5000 system can also be configured as the slave of the host computer through this port connection. The pin assignment of the port is as follows:

Pin No.	Description
Pin 1	Not Used
Pin 2	Data Receive (Rx/D)
Pin 3	Data Send (Tx/D)
Pin 4	Not Used
Pin 5	RS-232 Signal Ground (GND)
Pin 6	Not Used
Pin 7	Not Used
Pin 8	Not Used
Pin 9	Not Used

