

NION-48M

Product Installation Document

This document covers the procedures and specifications for installing the above listed unit and when appropriate, information regarding configuration on the monitored device. For more detailed configuration and operation information, refer to Network Installation Manual, Echelon Local Area Server Manual, or BCI 3 Manual as appropriate.

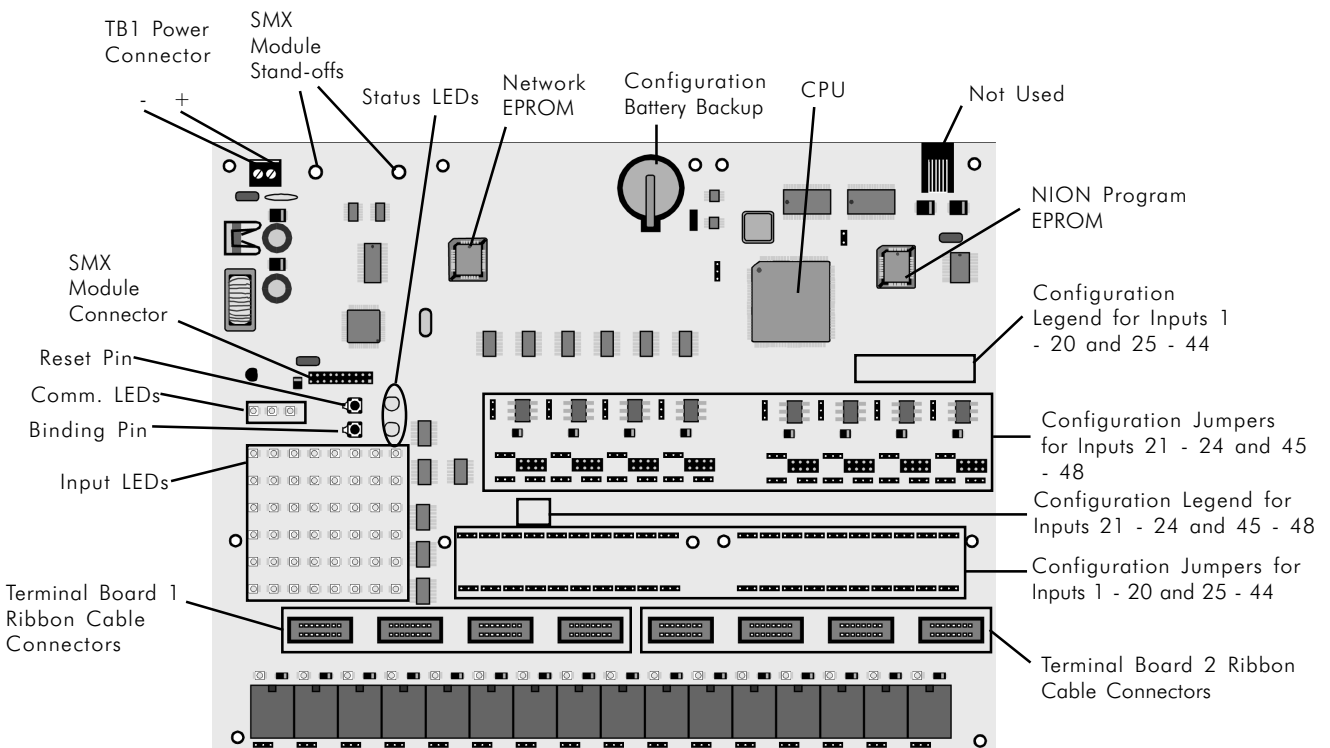
Description of the NION-48M

Similar in function to the NION-2C8M, the NION-48M is a discrete input interface used on the network. All of the system components are based on LonWorks™ (Local Operating Network) technologies. The NION-48M provides a gateway to the network for discrete monitored devices, equipment and control panels that have dry contacts. It allows discrete devices to operate on the same network as equipment with an EIA-232 output.

The NION-48M connects a LonWorks™ FT-10 or FO-10 network with discrete monitored devices and conventional control panels. It provides a single, two-way communication channel for discrete inputs. NIONs are specific to the type of network to which they connect (FT-10 or FO-10). The transceiver type must be specified and ordered separately when ordering the NION.

The NION-48M can be powered by any 24VDC power limited source with battery backup which is UL listed for use with fire protective signaling units however, this unit does include an MPS24B power supply. Power must be supervised or placed within 20 ft of the NION with connections run in conduit.

The NION-48M mounts in an enclosure (NIS CAB-3) with conduit knockouts. It cannot be rack mounted.



NION-48M Board Layout

Document 50856 NION-48M Installation Rev. A 9/30/98

Document 50956
9/30/98 Rev **A**
50956:A ECN 98-112

The NION-48M is designed to be wired to control panels and the network through plug-in terminal strips.

The NION-48M has the following features:

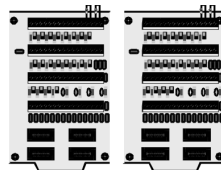
- Accepts normally open or normally closed dry contact inputs in any combination.
- Powered from an included UL listed power supply, the monitored UL listed control panels or an auxiliary power supply which is power limited, supervised and UL listed for use with fire protective signaling units.
- Alarm and trouble input LEDs.
- Status, service, input LEDs.
- Inputs can be configured as either two-state unsupervised or four-state supervised with EOL resistors.
- Transformer coupled network connection using SMX style transceivers.
- Software configurable from the workstation plug-in utility.
- Transient protection to 2400V on all terminals.
- Included wall mount enclosure (NIS CAB-3).

NION Components

The following illustration displays components included and required to install a 48M on the network. All of these items must be ordered separately.

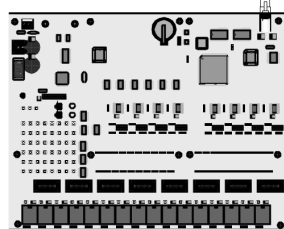


NOTE: Line cord not included.



48MTB Terminal Boards

Each NION comes with two terminal boards which mount directly on the mother board with stand-offs. These boards provide terminal connections to monitored inputs.



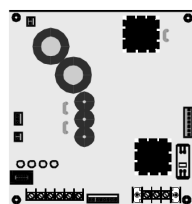
48M Mother Board

The NION motherboard contains all relays, LEDs, CPU, configuration jumpers, network interface, firmware and terminal board connections.



SMX Network Transceiver

One SMX transceiver daughter board is required for local network connection. Three styles are available for different topologies and media. This daughter board mounts on the mother board with a header strip and two standoffs. *SMX transceiver must be ordered separately.*



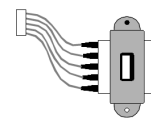
MPS24BRB Power Supply

The MPS24BRB supplies 2.0A of 24VDC regulated power to operate the NION. Up to 200mA of resettable auxiliary power is also available. This supply contains an integral battery charger which can support 6.5 to 17AH batteries.



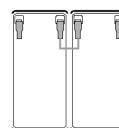
NIS CAB-3

The NION-48M mounts in a locking cabinet with a Lexan dress plate.
(12.25"H X 9.25"W X 2.75"D)



Transformer Assembly

One 4000TA, 110VA transformer and connector.



Batteries

The cabinet provides space for 12AH batteries. To use 17AH capacity batteries use the BB-17 battery box. *Batteries must be ordered separately.*

Installation Requirements

The NION-48M can be installed in the following environmental conditions:

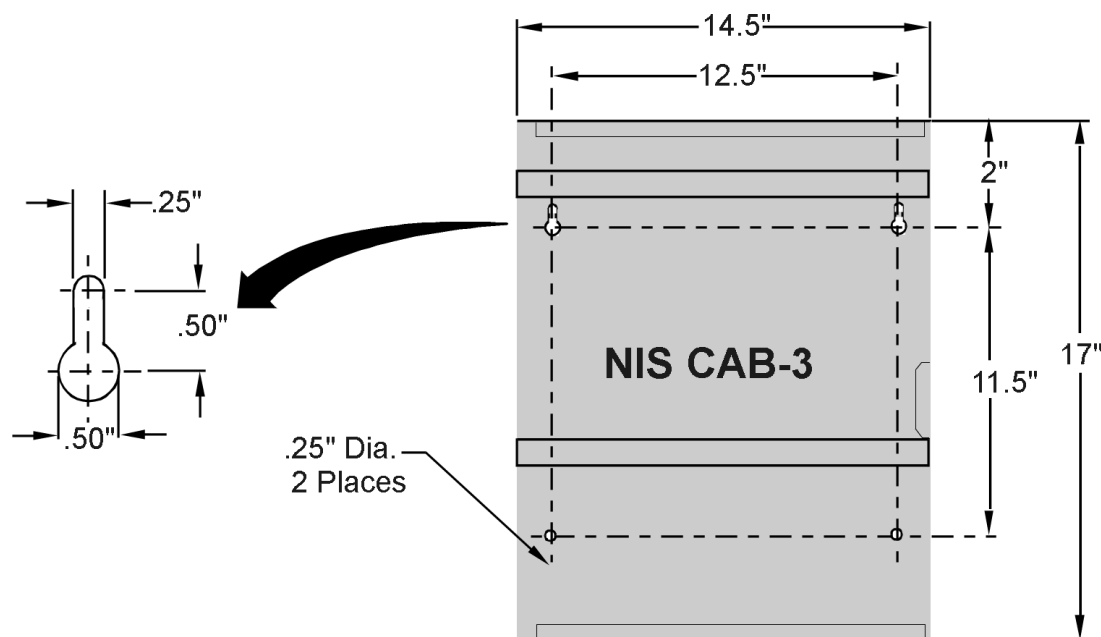
- Temperature range of 0°C to 49°C (32°F - 120°F).
- 93% humidity non-condensing at 30°C (86°F).

NIS-CAB3

The NION-48M comes standard with a wall mount enclosure, the NIS-CAB3. This enclosure has a locking door and mounting hardware for the 48M assembly (motherboard, terminal boards and network transceiver), MPS24BRB power supply, transformer and batteries.

Mounting the enclosure to its wall position

- 1) Use the provided key to unlock the enclosure cover.
- 2) Remove the enclosure cover.
- 3) Mount the enclosure to the wall. Refer to the enclosure mounting hole layout below.
- 4) Mount the MPS24B power supply and transformer to the stand-offs in the back of the cabinet using the provided hardware.
- 5) Mount the 48M motherboard to the mounting rails in the same manner.



Mounting Location

The NION-48M is designed to be installed on a wall within 20 feet of the monitored equipment in the same room. The type of hardware used is at the discretion of the installer, but must be in accordance with local code requirements.

48M Device Addressing

Device addressing at the workstation uses the following convention:

Inputs - IN1 through IN48

NION Power Requirements

The NION-48M is powered by the included MPS24BRB power supply. The MPS24BRB uses 110VAC, 1.8A(max.) of power and provides 2.0A of 24VDC power and battery backup in accordance with local code requirements.

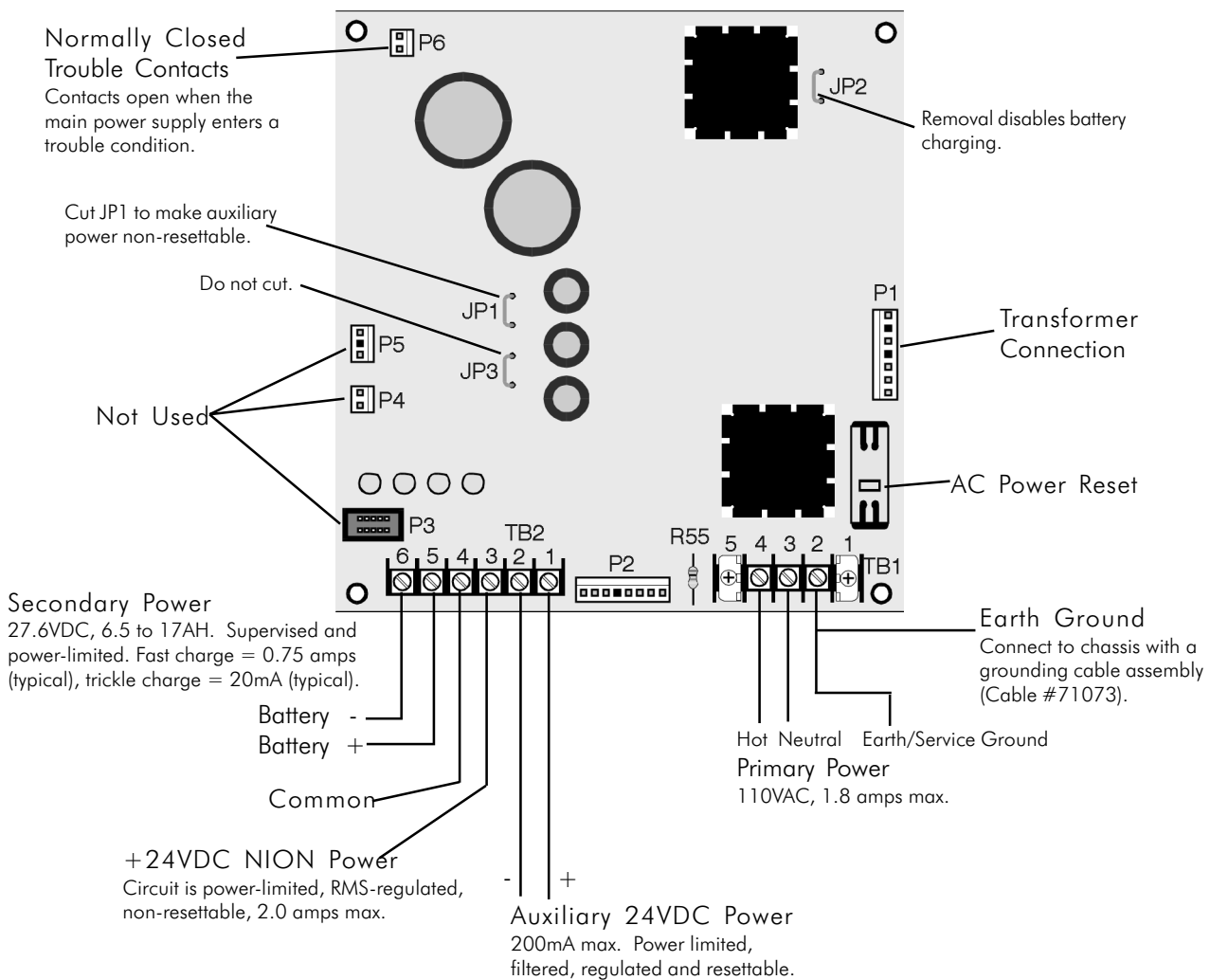
The MPS24BRB contains a built in battery charging circuit capable of supporting 6.5 to 17AH 24VDC batteries.

Alternately, the NION can be powered by any power limited 24 VDC source which is UL or ULC listed, as appropriate for your area, for use with fire protective signaling units. For replacement part orders specify *MPS24BRB* for Replacement Board.

Power connections from the MPS24BRB to the NION must be as follows:

TB1 on the 48M motherboard to pins 3 and 4 of TB2 on the MPS24BRB.

Terminals on both boards are labelled for proper connections.



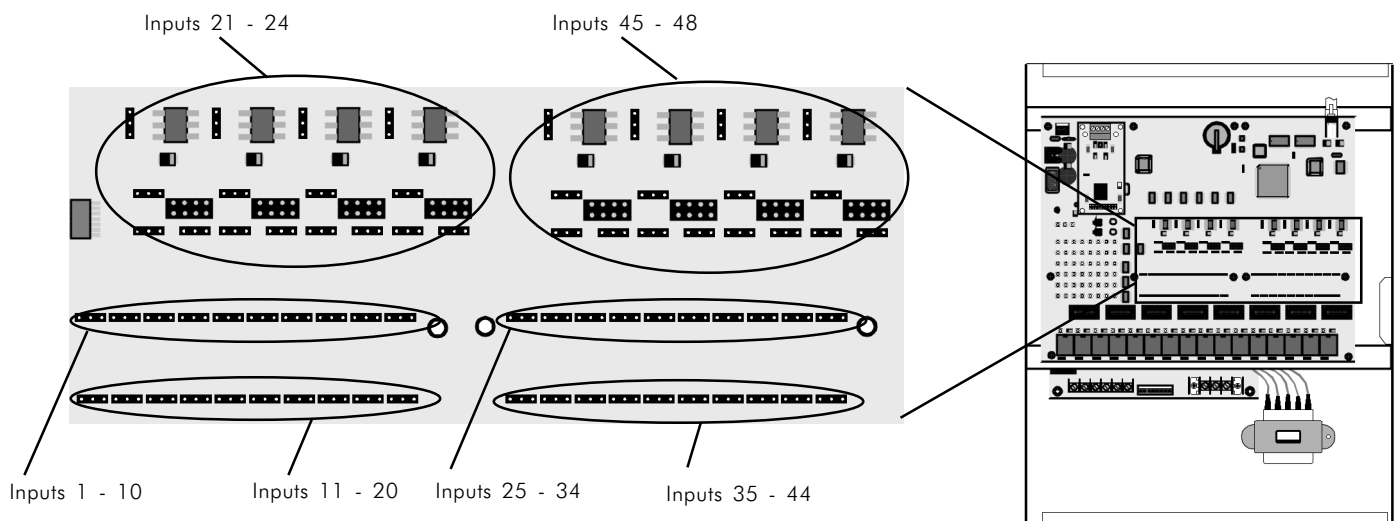
MPS24BRB Power Supply



NOTE: Always remove power from the NION before making any changes to switch settings and removing or installing option modules, SMX network modules and software upgrade chips or damage may result.

Input Configuration

Inputs can be configured for two-state unsupervised or four-state supervised operation. In addition, 8 inputs (21 - 24, 45 - 48) can be configured to monitor switched voltage inputs. These configuration settings are made with jumpers on the 48M motherboard. These jumpers are grouped in an area beneath the terminal boards.



Input Configuration Jumpers



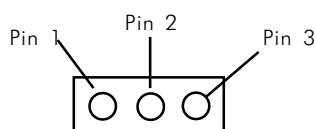
NOTES: Two-state, unsupervised inputs cannot be used for fire applications.
All input jumpers are arranged left to right, top to bottom.

Discrete Only Inputs (1 - 20, 25 - 44)

Inputs one through 20 and 25 through 44 can be configured as either two-state or four-state discrete inputs. To define the input type, a single jumper is set for each input. The diagram above displays the location of these jumpers and the following table describes which jumper applies each input.

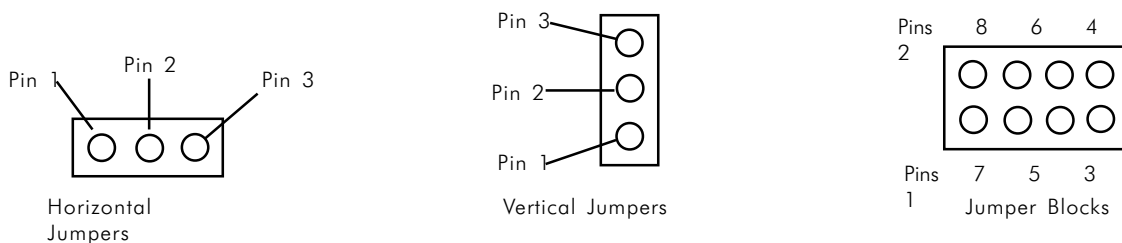
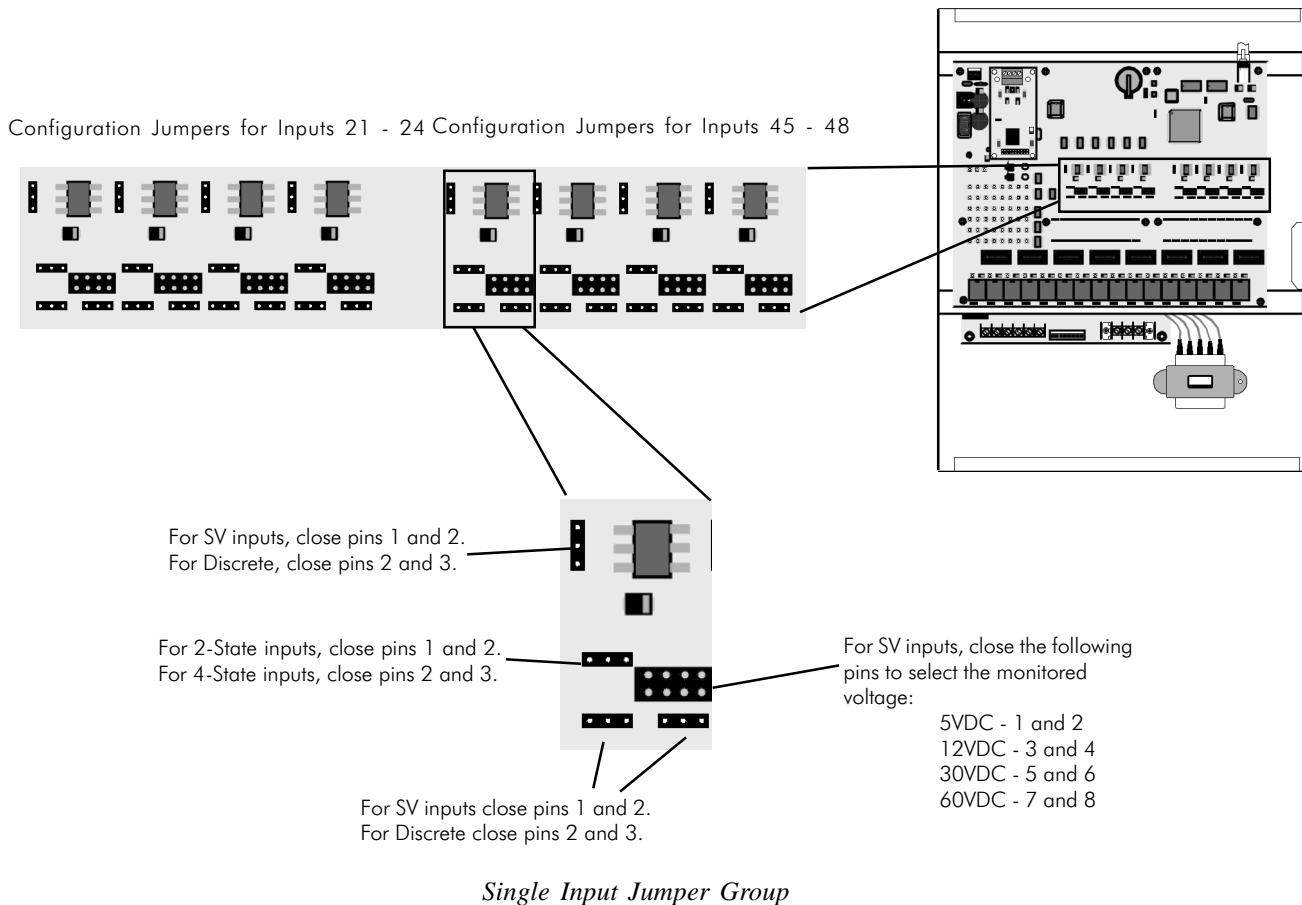
Input	1	2	3	4	5	6	7	8	9	10
Jumper	JP11	JP23	JP35	JP47	JP12	JP24	JP36	JP48	JP13	JP25
Input	11	12	13	14	15	16	17	18	19	20
Jumper	JP5	JP17	JP29	JP41	JP6	JP18	JP30	JP42	JP7	JP19
Input	25	26	27	28	29	30	31	32	33	34
Jumper	JP37	JP49	JP14	JP26	JP38	JP50	JP15	JP27	JP39	JP51
Input	35	36	37	38	39	40	41	42	43	44
Jumper	JP31	JP43	JP8	JP20	JP32	JP44	JP9	JP21	JP33	JP45

To configure an input for two-state unsupervised operation place the associated jumper across pins one and two (left and center). For four-state supervised operation, place the jumper across pins two and three (center and right).



Discrete or Switched Voltage Inputs (21 - 24 and 45 - 48)

Inputs 21 through 24 and 45 through 48 can be configured to operate as discrete, two-state unsupervised or four-state supervised inputs or, switched voltage (SV) inputs. Each input can be individually configured for maximum flexibility. To define the function of each of these inputs, five jumpers must be set. These jumpers are grouped together for easy identification. The diagram below shows the location of these jumper groups and a breakdown of each jumper setting for the defined functions.



Jumper Pin Key

Switched Voltage Input Jumpers

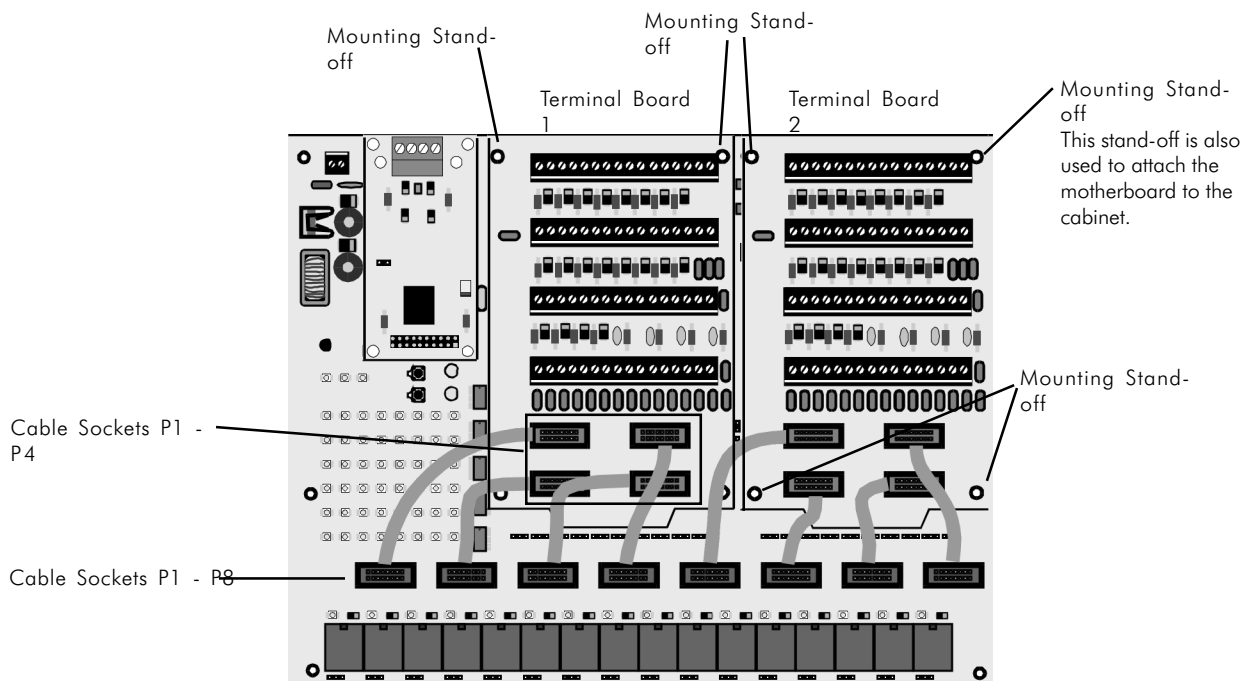
Software Configuration

In order to utilize all features available with the NION-48M, the 48M Plug-In utility must be configured at the system workstations. Features include a scheduler for all inputs and configuring each input as normally open or normally closed. Each Plug-In is described in detail in the Product Installation Description shipped with each NION. General Plug-In setup information can be found in the workstation manual.

NION-48MTB Terminal Boards

The Terminal Boards

The NION-48M incorporates two terminal daughter boards which are mounted directly to the motherboard using included stand-offs. Both terminal boards are identical and interchangeable. Each terminal board is connected to the motherboard via included ribbon cables (four per terminal board). Point designation for each terminal is determined by the position of the terminal board on the motherboard. Refer to the diagrams below for terminal board mounting and ribbon cable connections.



48MTB Terminal Board Mounting

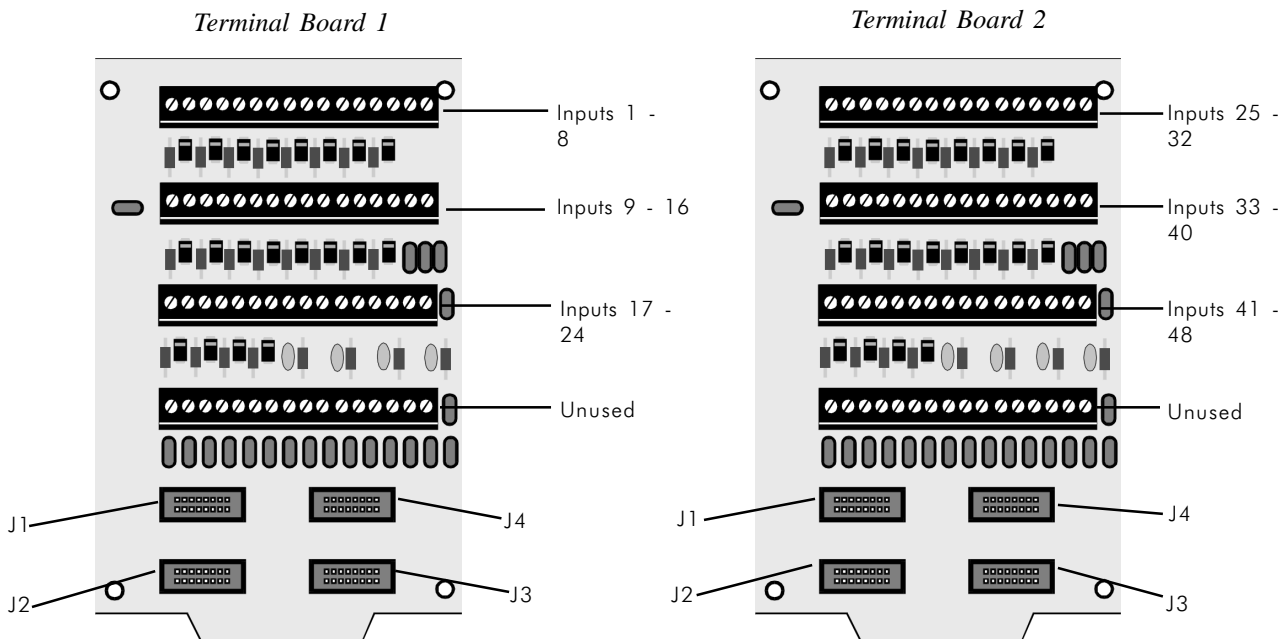
Ribbon cables have universal ends and are keyed for proper connection. The motherboard has eight cable sockets, P1 through P8. Each terminal board has four sockets labelled P1 through P4. Terminal board one (T1) is mounted on the left and terminal board two (T2) is mounted on the left. The chart below maps the motherboard sockets to the terminal board sockets.

Motherboard Socket	Terminal Board	Terminal Socket
P1	T1	P1
P2	T1	P2
P3	T1	P3
P4	T1	P4
P5	T2	P1
P6	T2	P2
P7	T2	P3
P8	T2	P4

Ribbon Cable Mapping

Input Connections

Each terminal board has four rows of plug-in screw terminal connectors to land input points. All inputs are rated at 5VDC nominal, 2.5mA maximum current and 500 ohms maximum resistance. The inputs map to the connectors as described by the following diagrams:

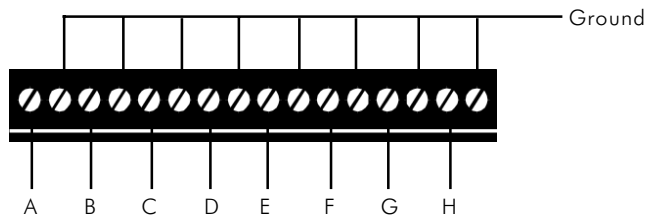


Terminal Input Mapping



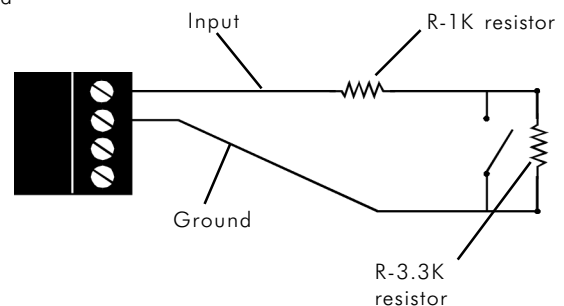
NOTE: For each terminal connector the inputs are numbered from left to right.

Input Terminals (A - H represent any 8 inputs)



NOTE: Use only wire for power limited systems. Power limited wire runs use type FPLR, FPLP, FPL or equivalent cabling per NEC 760.

Four-state Input Wiring



Input Connections



NOTE: Input ground is common except for inputs 21 - 24 and 45 - 48 when they are used for switched voltage monitoring.