



NA-2

Two Door Controller

12VDC, Surface Mounted Enclosure

Installation and Service Manual



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Publicly traded on NASDAQ Symbol: NSSC

FCC WARNING

Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE (Pending)

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which the user will be required to correct the interference at his own expense.

DISCLAIMER

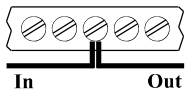
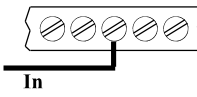
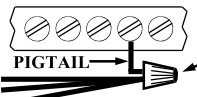
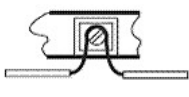
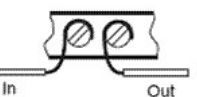
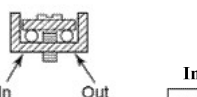
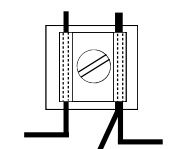
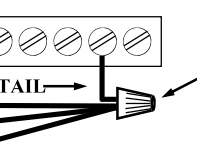
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A NAPCO SECURITY TECHNOLOGIES COMPANY

IMPORTANT WIRING METHODS

 For single-conductor terminal blocks (like the type shown at left), to terminate more than one conductor to a terminal, use the wiring methods shown at right:	 Incorrect	 Correct -- Single incoming and/or pigtail with wire nut / crimp connectors	 WIRE NUT OR CRIMP CONNECTOR
 For "barrier" type terminal blocks (like the type shown at left), to terminate two conductors to a terminal, use the wiring methods shown at right:	 Incorrect	 Correct -- Separate incoming and outgoing conductors	 WIRE NUT OR CRIMP CONNECTOR
To terminate more than two conductors or conductors of different wire sizes to a terminal, use the "pigtail" type wiring method as shown at right. Use insulated wire for the pigtail, and firmly secure the conductors to the pigtail using an appropriate wire nut or crimp connector for the number and gauge of conductors used.	 Incorrect	 Correct -- Use pigtail and wire nut / crimp connector	 WIRE NUT OR CRIMP CONNECTOR

THE INSTALLATION AND SERVICE OF THIS PRODUCT MUST BE PERFORMED BY QUALIFIED SERVICE PERSONNEL AND SHOULD CONFORM TO ALL LOCAL CODES

CAUTION ATTENTION VORSICHT RISK OF ELECTRIC SHOCK DO NOT OPEN RISQUE DE CHOC ÉLECTRIQUE NE PAS OUVRIR GEFAHR EINES ELEKTRISCHEN SCHLAGS NICHT ÖFFNEN CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK DO NOT REMOVE COVERS (OR BACK). NO USER-SERVICEABLE PARTS INSIDE REFER SERVICING TO QUALIFIED SERVICE PERSONNEL ATTENTION: POUR REDUIRE LE RISQUE DE CHOC ÉLECTRIQUE NE PAS RETIRER LES COUVERTURES (OU L'ARRIÈRE). AUCUNE PIÈCE UTILISATEUR À L'INTÉRIEUR CONFIER L'ENTRETIEN DE PERSONNEL ALIFIÉ VORSICHT: UM DIE GEFAHR EINES ELEKTRISCHEN SCHLAGS ZU VERMEIDEN ENTFERNEN SIE KEINE ABDECKUNGEN (ODER RÜCKSEITE). KEINE BENUTZER-SERVICEBARE TEILE INNERHALB WERDEN, WENN DAS QUALIFIZIERTE SERVICEPERSONAL WARTET	The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of un-insulated 'dangerous voltage' within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons. Le symbole éclair avec une flèche dans un triangle équilatéral, est destiné à alerter l'utilisateur de la présence de non isolée "tension dangereuse" dans l'enceinte du produit qui peut être d'une ampleur suffisante pour constituer un risque de choc électrique pour les personnes. Der Blitz mit dem Pfeilspitzen-Symbol in einem gleichseitigen Dreieck soll den Benutzer darauf hinweisen, dass sich keine unisolierte "gefährliche Spannung" innerhalb des Produktgehäuses befindet, die ausreichend groß ist, um die Gefahr eines elektrischen Schlags für Personen darzustellen. The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product. Le point d'exclamation dans un triangle équilatéral est destiné à alerter l'utilisateur de la présence d'instructions dans la documentation accompagnant le produit d'exploitation et de maintenance (entretien). Das Ausrufezeichen in einem gleichseitigen Dreieck soll den Benutzer auf wichtige Bedienungs- und Wartungsanweisungen in der dem Produkt beiliegenden Literatur hinweisen.
WARNING This product generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this product in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.	UNPACKING AND INSPECTION Unpack carefully. This is an electronic product and should be handled as such. Compare the items received with the packing list with your order. BE SURE TO SAVE THE SHIPPING CARTONS AND INSERT PIECES. THEY ARE THE SAFEST MATERIAL IN WHICH TO MAKE FUTURE SHIPMENTS OF THE PRODUCT.
WARNING To reduce the risk of fire or shock hazard, do not expose this product to rain or moisture. ATTENTION Pour réduire le risque d'incendie ou de choc électrique, ne pas exposer ce produit à la pluie ou à l'humidité. WARNUNG Um das Risiko von Brand- oder Stromschlaggefahr zu verringern, darf dieses Produkt weder Regen noch Feuchtigkeit ausgesetzt werden.	MAINTENANCE User maintenance of this unit is limited to external cleaning and inspection. ENTRETIEN l'entretien de l'utilisateur de cet appareil se limite au nettoyage et l'inspection externe. INSTANDHALTUNG Die Bedienung dieses Gerätes ist auf externe Reinigung und Inspektion beschränkt.

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NA-2 Description

The NA-2 is a versatile and fully programmable two-door access control panel designed to provide scalable and flexible security solutions. Operating independently within a networked environment, each panel makes autonomous access control decisions for up to two doors, with support for various authentication methods, including Wiegand/Proximity, Magnetic Stripe, Prox and PIN, and RS485 OSDP. The NA-2 also integrates a Fire Alarm Input, which automatically releases door strikes upon activation of a fire alarm, enhancing safety compliance. The system ensures that all interconnected devices are UL or ETL listed, maintaining industry standards for security and performance.

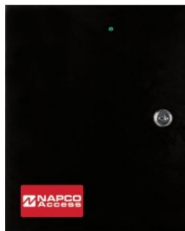
Equipped with a user-programmable database, the NA-2 can store up to 25,000 cardholders, utilizing 16MB of Flash memory for reliable and efficient operation. It offers two reader outputs, two supervised door position contacts, two request-to-exit devices, and one accessory alarm inputs, as well as Form-C relays for controlling door locking and access mechanisms. The NA-2 is powered by an external 12V DC supply and when equipped with a 12VDC 7AH backup battery, provides up to 4 hours of full access control functionality during power disruptions (with maximum reader load), while also meeting the mandatory 30-minute battery backup requirement in Canada. Additionally, a replaceable 3V lithium battery maintains the real-time clock, ensuring accurate timekeeping during power failures. The Ethernet connection enables seamless communication with access control management software, allowing for easy updates and firmware upgrades directly from the cloud.

ORDERING INFORMATION

SINGLE DOOR CONTROLLER

Part # NA-1

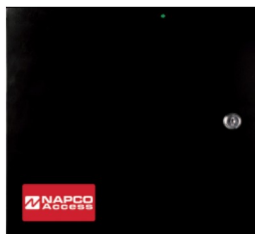
12VDC/POE Option
Surface Mounted



TWO DOOR CONTROLLER

Part # NA-2

12VDC, Surface Mounted



MVP Gateway

Part # MVP-IM3-80211

(Ethernet & WiFi):

Part # MVP-IM3-POE

(Power over Ethernet)

For use with all wireless access
Networx™ / ArchiTech Locks™

Supports up to 63 Locks / 7 Expanders



NA-2 PARTS & ACCESSORIES

Part # MX1680: 12VDC 2.5A Switching Power Supply Adapter , AC 100-240V 50/60Hz to DC 12VDC Wall Plug

Part # CICP1300IOCOMBO: Input/Output Expansion board with battery backed 12v accessory power. Features 16 supervised alarm inputs and 16 relay outputs per board. (Note: The NA-2 supports up to 3 I/O boards, for a total of an additional 48 relays and 48 inputs)

Part # R-PH: Napco Branded Proximity Card Reader. Wiegand Interface, 125 kHz Proximity Reader, designed for metal single-gang wall box.

Part # R-MI: Napco Branded 13.56Mhz MIFARE Smart Card Reader for use with Napco's MIFARE EV1/EV2/EV3 smart cards and designed for single-gang wall box. (For ordering card credentials contact customer service).

NA-2 FEATURES

- 2 Door Controller.
- 25,000 cards standard
- 2 Wiegand Reader Outputs, Five-wire
- 2 OSDP V1 / RS485 Reader Outputs
- 2 Door Position Inputs
- 2 Request to Exit Inputs
- Built-In Ethernet Port 10/100Base-T Ethernet Interface
- AES 128-bit encryption
- Reader Power: Each Reader is rated for 12VDC @ 200mA
Total 12VDC @ 400ma combined
- 1 Alarm / Supervised Input
- 2 Relays on board. Form C jumper selectable Dry/Wet. Dry relay max load 12/24V up to 28V AC/DC, 2 Amp (Power Limited Circuit). Wet Relay rated at 12VDC, Total 1.6A for both relays (Power Limited Output)
- 1 Console Relay
- Built-In Relay Contact Overvoltage Protection
- 12VDC Aux Power, total power up to 1.6A. combined with wet relays
- 1 Dedicated Fire Alarm Input
- 48 Additional inputs/outputs (Supervised) using IO Board
- 1,250 Standard transaction buffer. FRAM 512KB Dedicated
- 16MB On Board Memory
- 256 Time schedules
- 1,000 Access groups
- 100 holidays
- Battery Backup up to 4 Hours with max reader load. (UL Listed Sealed Lead Acid 7Ah Battery recommended)
- Enclosure Size 11.25"H x 12.25"W x 3"D
- ETL Listed UL294

IMPORTANT SAFETY INFORMATION

The NA-2 is defined as a Stand-Alone Access Control System. The cloud software provides convenient setup and monitoring of the system, but all decision-making for a Cardholder's Authorizations at a particular Time and Place are made by the Access Control Panel.

Disruptions to the communication link with the cloud software, or to the operation of the cloud software itself will not result in impaired operation of the Access Control System, once its programmed. Thus, the use of any software or cloud software used with the NA-2, has not been evaluated by ETL and is not controlled by ETL.

Nevertheless, safe operation of the system requires that the connected Accessory Computer Equipment carry markings showing the units are UL-Listed to UL 1950, UL 6095 or EN62368-1. Power line surge protection must be used, with these devices listed to UL 1449, and marked to show the maximum rating as 330 V. Serial Data Lines and Ethernet equipment must be protected by signal line surge suppressors carrying UL 497B markings and a maximum marked rating of 50 V. The NA-2 should also be equipped with a power backup in the event of a power failure.

The NA-2 Access Control Panel is designed to be installed in a secured area. While the case assembly does not come with a tamper switch installed, one can be added if necessary. The tamper switch is important because opening the enclosure door provides access to terminals that could potentially allow unauthorized entry. When installed, the tamper switch must be configured in software to trigger an alert when activated. Additionally, the tamper switch can be configured to activate the Console Relay, which can then be wired into an Alarm Signal Circuit or an Alarm Sounding Circuit.

NOTE: ETL verified the construction, performance and operation of the NA-2 Access Control Panel with Napco [Model R-PH] Prox readers and HID® [Model HID® Signo™ 40] Prox readers with 36-bit cards. ETL did not evaluate any other Card Reader Formats or Card Technologies supported by the Napco Access Control Panels.

In some localities, the Access Control System Reader, Ethernet Communication, Door Lock Circuits and other signal wiring may use UL Type CM or UL Type CL2 foil-shielded multi-conductor and multi-pair cable. Where the AHJ's (Authorities Having Jurisdiction) require Plenum-Rated Cabling, UL Type CL2P cabling will be acceptable. In Canadian Installations, CSA CMG FT4 foil-shielded cabling may be used in non-plenum installations, and CSA CMP FT6 foil-shielded cabling may be used in installations requiring plenum ratings.

Replace the Lithium Memory Backup Battery with a Panasonic or Rayovac CR2032. Use of Another Battery may present a risk of Fire or Explosion.

The NA-2 must be installed on a wall, permanently connected to the 12VDC 2.5A Power Supply Plug-In Wall Transformer. For EN62368-1 installations to ensure compliance, use an unswitched AC outlet for continuous power and properly grounding the system. The transformer should provide electrical isolation, overcurrent protection, and be placed in a well-ventilated area to prevent overheating. Maintain proper separation of AC and DC circuits, and ensure all connections are secure to avoid electrical hazards. Always follow manufacturer recommendations and safety guidelines for maintenance and servicing.

Fault-Tolerance, Fault Isolation, and Conditions that may result in impaired operation.

As described, a faulted communication link with the network will not impact the ongoing access management of the Access Control Panel. Furthermore, the transactions occurring during the equipment outage will be recorded in the Access Control Panel, then forwarded to the software when the fault is removed.

If the Access Control Panel itself fails due to a long term DC power failure or internal fault, the Access Control Software will normally detect this failure, signal an alert, and log the time of this event.

Sensing the status of the Door Monitor Contacts, the Request to Exit (REX) and the Accessory Alarm Inputs will be impaired by a cut cable or short-circuit in the Signal Circuit Wiring. By installing end-of-line termination resistors, as described in this manual, the Alarm and Signal Circuits may be supervised to detect such faults and indicate the need for a repair.

Installation

Only qualified service personnel familiar with all local building codes should attempt this installation. Take appropriate safeguards to avoid unintentional operation by employees and maintenance personnel working about the premises.

Each NA-2 system should be fully installed and tested individually to ensure proper operation. Testing each system separately helps to identify and resolve any wiring or installation issues before further integration

The NA-2 is categorized as PERMANENTLY CONNECTED EQUIPMENT with fixed wiring. This system must be installed within the protected premise in accordance with the National Electrical Code (NFPA70), local codes, and the Authorities Having Jurisdiction.

The following warnings are designed for the safety of the NA-2 install/service technician and for the continued proper function of the NA-2 unit.

NOTES: NOTIZEN:	Notes are included with a procedure informing the installer about related material. Les notes sont incluses dans une procédure informant le programme d'installation sur le matériel connexe. Die Hinweise sind in einem Verfahren enthalten, das den Installateur über das entsprechende Material informiert.
CAUTION PRUDENCE VORSICHT 	Cautions indicate that a particular process requires special attention. Précautions indiquent qu'un processus particulier nécessite une attention particulière. Vorsichtsmaßnahmen indiquer qu'un processus particulier nécessite une attention particulière.
WARNING ATTENTION WARNUNG 	Warnings indicate that a particular process exposes the installer to live circuits or that making wrong connections can lead to equipment failure. Mises en garde indiquent qu'un processus particulier expose l'installateur aux circuits sous tension ou que des connexions erronées peut conduire à une défaillance de l'équipement. Warnungen zeigen an, dass ein bestimmtes Verfahren den Installateur zu lebenden Schaltungen freigibt oder dass falsche Verbindungen zu einem Ausfall der Geräte führen können.

CAUTION PRUDENCE VORSICHT 	Do not place accessory circuit cables in the same conduit sections containing power cables. Ne placez pas les câbles de circuits accessoires dans les mêmes sections de conduit contenant les câbles d'alimentation. Stellen Sie keine zusätzlichen Stromkreiskabel in dieselben Leitungsabschnitte mit Stromkabeln.
CAUTION PRUDENCE VORSICHT 	This model is powered by an external AC plug-in transformer, and all power-related servicing is limited to this external component. There are no internal fuses or user-serviceable power components within the NA-2 cabinet. In the event of a power issue, the transformer should be unplugged from the AC outlet and replaced if necessary. Ce modèle est alimenté par un transformateur CA externe enfichable, et tous les services liés à l'alimentation sont limités à ce composant externe. Il n'y a pas de fusibles internes ni de composants d'alimentation réparables par l'utilisateur dans l'armoire NA-2. En cas de problème d'alimentation, le transformateur doit être débranché de la prise secteur et remplacé si nécessaire. Dieses Modell wird von einem externen Wechselstrom-Steckertransformator mit Strom versorgt und alle Wartungsarbeiten im Zusammenhang mit der Stromversorgung sind auf diese externe Komponente beschränkt. Im NA-2-Schrank gibt es keine internen Sicherungen oder vom Benutzer zu wartenden Stromkomponenten. Im Falle eines Stromproblems sollte der Transformator aus der Steckdose gezogen und bei Bedarf ausgetauscht werden.
WARNING ATTENTION WARNUNG 	While the plug-in AC transformer used to power the system converts to 12VDC and poses minimal electrical risk, caution is still required. A potential hazard exists if the AC plug remains connected while handling the transformer or its receptacle, particularly at the AC input point. Always unplug the transformer from the AC outlet before servicing or disconnecting any components (see Figure 6, page 13). Bien que le transformateur CA enfichable utilisé pour alimenter le système se convertisse en 12 V CC et présente un risque électrique minime, la prudence est toujours de mise. Un danger potentiel existe si la fiche CA reste connectée lors de la manipulation du transformateur ou de sa prise, en particulier au point d'entrée CA. Débranchez toujours le transformateur de la prise secteur avant de réparer ou de déconnecter des composants. (voir Figure 6, page 13). Obwohl der für die Stromversorgung des Systems verwendete Wechselstrom-Steckertransformator in 12 VDC umwandelt und ein minimales elektrisches Risiko darstellt, ist dennoch Vorsicht geboten. Es besteht eine potenzielle Gefahr, wenn der AC-Stecker beim Umgang mit dem Transformator oder seiner Steckdose angeschlossen bleibt, insbesondere am AC-Eingangspunkt. Trennen Sie den Transformator immer von der Wechselstromsteckdose, bevor Sie Wartungsarbeiten durchführen oder Komponenten trennen (siehe Abbildung 6, Seite 13).

Installation Preparation

First, select a mounting location within a secure, limited access area (see Figure 1). Make note of the wall construction type to which the NA-2 will be installed.

- **Important:** To ensure proper power delivery, the wire from the AC Power Adapter to the NA-2 board should be 18 gauge (or less) and not exceed 8 ft.
- Ensure adequate space is available for mounting the NA-2 enclosure on the wall with no interference from wires, pipes, or other obstructions.
- Where necessary, plug unused knockouts that have been removed with UL listed knockout plugs.
- Confirm that adequate free space exists on both sides of the NA-2 cabinet for cabling.
- Proper Installation of the NA-2 requires an area of free spacing measuring:

Height: 16" (406.4 mm)

Width: 16" (406.4 mm)

Depth: 4" (101.6 mm)

NOTE: For Actual Enclosure dimensions, see Specifications on Page 31.

- Determine the directions of the cabling exiting the NA-2 enclosure. Confirm sufficient access to ceilings and /or

walls before fitting the conduit lengths.

- Use all 4 mounting screws to secure NA-2 to the wall.

NOTE: All NA-2 signal wiring and accessory power circuits are power limited. The use of conduit is optional for these circuits (if accepted by your Authority Having Jurisdiction [AHJJ]).

About This Manual

This manual describes the installation of the NA-2 Access Control Unit and the specific accessories that connect to it.

End-User Periodic Tests and Emergency Planning

The MVP Access cloud supervises the Access Control System, reporting failures at an individual panel within seconds of the occurrence. Nevertheless, failures can occur at the Door Sense and Bypass contact monitoring hardware, the individual Card Reader electronics and wiring, or the Electric Door Lock Hardware that will not be detected until the equipment is used. For this reason, please instruct staff at the installation to perform a "walk through" test at every controlled entrance and verify operation of all the monitored contacts at least once per week, especially at sites that are less frequently used. Assist the Security Staff at the installation to devise acceptable alternates to allow entrance and monitoring of access at controlled sites impacted by equipment failures, especially in high-traffic areas. Provide staff members at the facility with contact information that will help assure the swift correction of equipment outages.

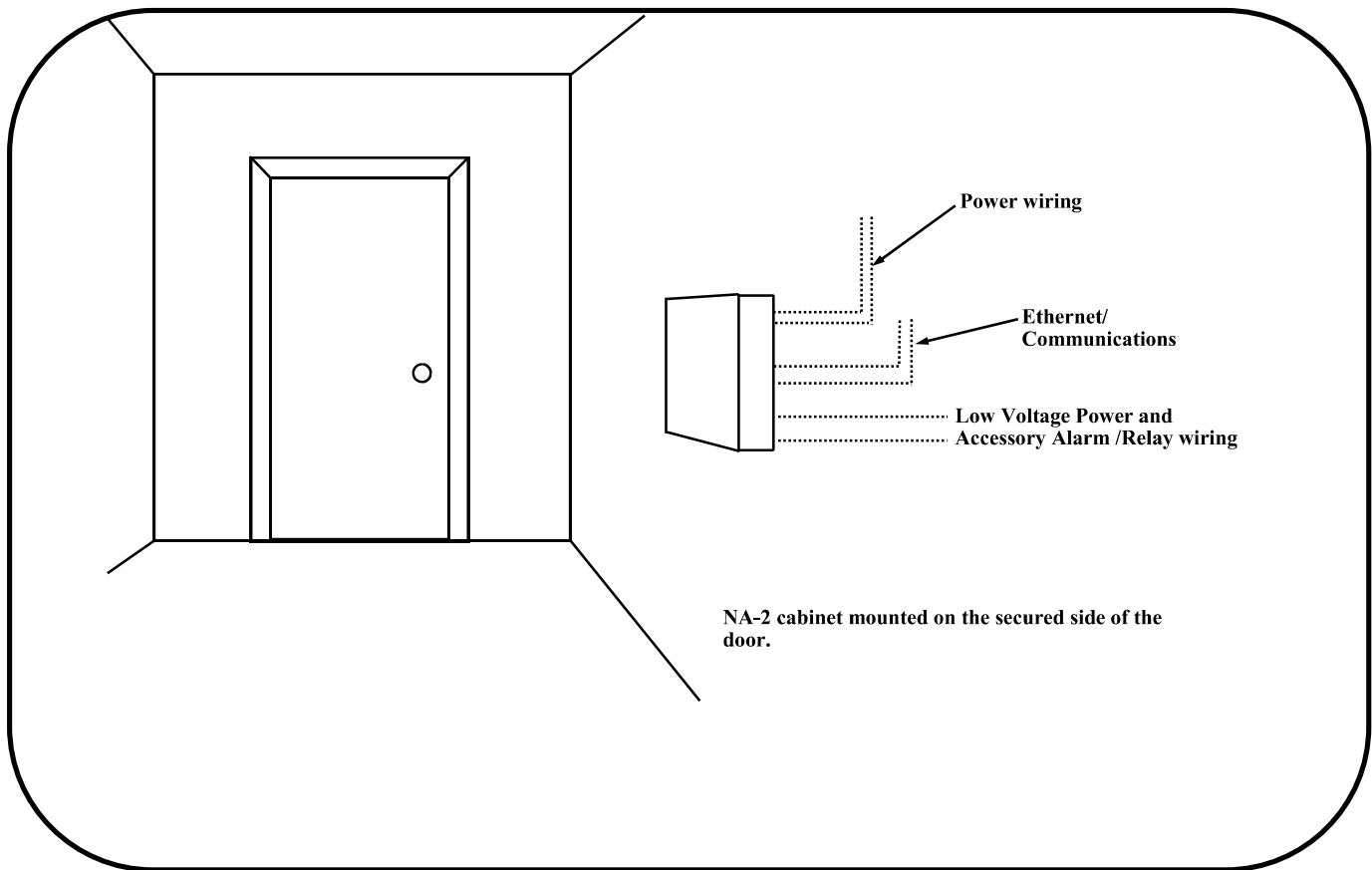


Figure 1 - NA-2 Installation Location

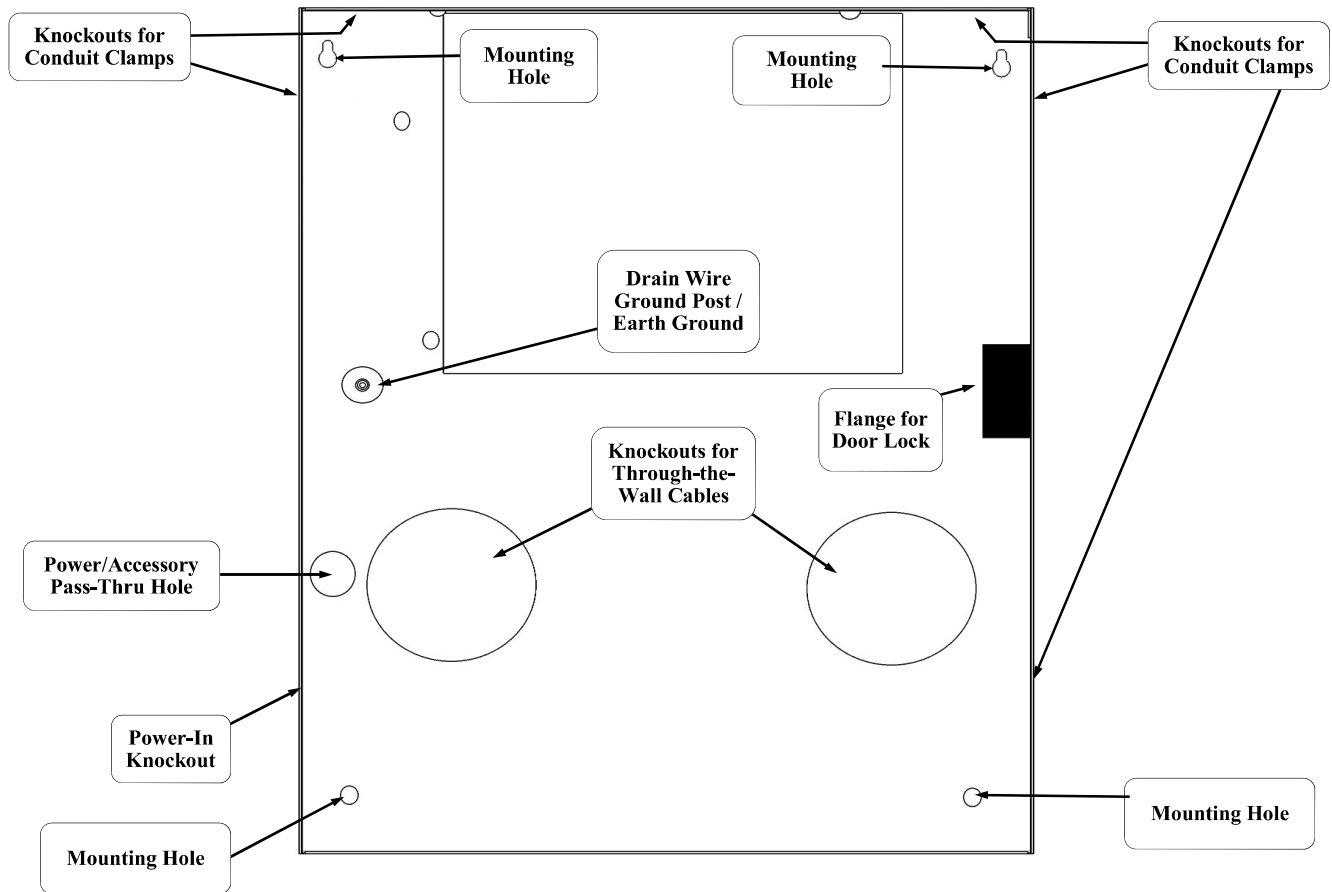


Figure 2 - NA-2 Enclosure Configuration

Earth Ground

The NA-2 main circuit board is equipped with built-in surge suppression device that helps protect the system from voltage spikes. To ensure these suppressors work effectively, it is highly recommended to connect to an earth ground. Without a solid ground, the surge suppression devices may not function properly, potentially compromising the equipment and protection they provide.



WARNING: Verify that the DC source voltage is off the panel before proceeding with connections.

AVERTISSEMENT : Vérifiez que la tension de la source CC est hors du panneau avant de procéder aux connexions.

NA-2 Cabinet Mounting

Inspect the mounting surface around the proposed installation site. The mounting surface must be capable of supporting 10 pounds (4.535Kg) plus any additional weight of the installation hardware.



CAUTION
Use only suitable mounting hardware for the type of wall construction encountered.

1. Determine the NA-2 cabinet mounting location.

Important: To ensure proper power delivery, the wire from the AC Power Adapter to the NA-2 board should be 18 gauge (or less) and not exceed 8 ft.

2. Mark the four mounting holes against the mounting surface using the NA-2 cabinet as a template or using the measurements provided in Figure 3.

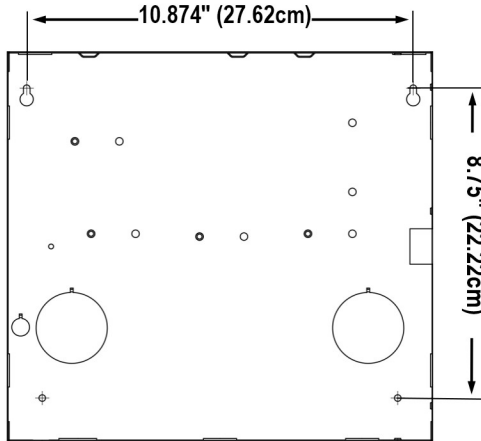


Figure 3 - NA-2 Cabinet Mounting Hole Dimensions

NOTE: Mark the small oval portion of the cabinet screw holes (see Figure 4, Detail A and B).

3. Place the NA-2 cabinet out of the way.
4. Drill pilot holes to the required depth and size for the mounting screws.
5. Insert the top two mounting screws into the wall. Leave approximately one quarter of the screw's length protruding from the wall.

NOTE: Do not tighten screws completely at this time.

6. Place the NA-2 cabinet over the mounting screws.

Secure the NA-2 cabinet to the mounting surface using the two lower screws, and then tighten the remaining length of the screws.

NOTE: Use all 4 mounting screws to secure cabinet to wall. For mounting to 3/4" thick plywood, use four 1/4" x 3/4" wood screws. For mounting to sheetrock, use four 1/4" toggle bolts.

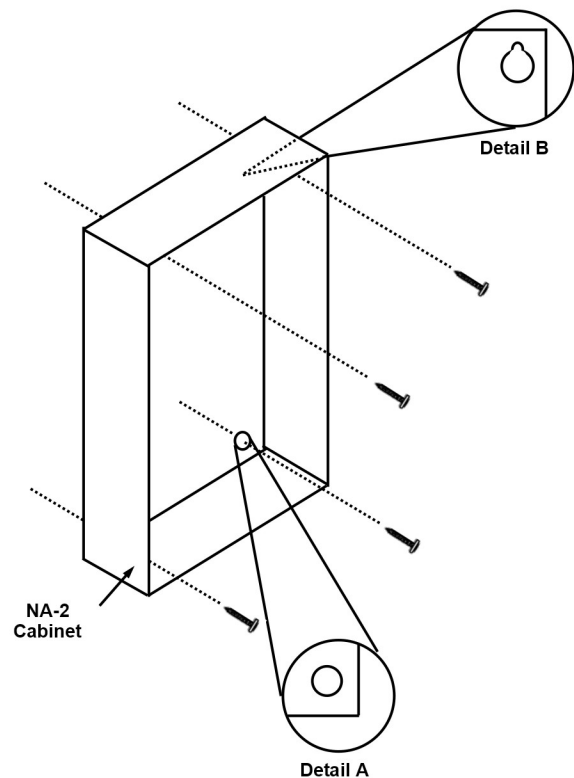


Figure 4 - NA-2 Mounting Screws

Cable and Wiring Categories

The wiring and cabling for the NA-2 are divided into three categories:

DC Power Cables and Wiring

This category includes the main DC power cables for the NA-2. These are power-limited circuits, and normally do not require a licensed electrician to complete this work. **DO NOT mix alarm and communication cables in the same conduit or knockout as relay and power cables.**

Low-Voltage Power and Accessory Relay Devices

12 Volt Reader Power, any accessory relay controlled devices connected to the Panel (These are power-limited circuits, and normally do not require a licensed electrician to complete this work). All power-limited wiring to remain away from the circuit boards. **Do not allow power-limited wiring to cross over circuit boards.**



Communication Cables

This category contains all the communication cabling between the NA-2 and all communication equipment, all alarm circuits, and all card reader devices. (These are power-limited circuits, and normally do not require a licensed electrician to complete this work). All power-limited wiring to remain away from the circuit boards. **Do not allow power-limited wiring to cross over circuit boards.**

NOTE: For proper operation of the NA-2, route EACH category of cabling in SEPARATE conduit or bundle (i.e., **DO NOT mix alarm and communication cables in the same conduit as relay and power cables**). Plenum-Rated cabling may be required in certain installations. See Important Safety Information, page 6.

Incoming DC Power Conduit Knockout

The NA-2 Controller requires a 12VDC power supply at 2.5A, connected to the DC Input Power Terminal Block (refer to

page 13). Power wiring is routed to the NA-2 through a knockout on the lower center of the left side cabinet wall or can be routed through the in-wall pass thru hole if wires will be hidden (see Figure 5). The 1/2 inch knockout accepts EIA standard conduit connectors.



NOTE: This system must be installed indoors within the protected premise in accordance with the National Electrical Code (NFPA70), local codes, and the authorities having jurisdiction.

Accessory Conduit Knockouts

All cabling for the NA-2 is routed through EIA standard 3/4" knockouts located on the sides of the NA-2 cabinet.

Grounding Accessory Drain and Shield Wires

Ensure electromagnetic compatibility and reliable performance by keeping all accessory drain and cable shield wires as short as possible.

The drain and cable shield wires connect to the drain wire ground post. We recommend using a Ground Pigtail with a wire nut.

The following procedures assure proper installation of the drain and cable shield wires.

- Carefully remove the cable jacket after the cable enters the NA-2 cabinet.
- Place the drain wire under the drain wire ground post or connect to a pigtail connected to the ground post. Trim as needed.
- Verify a good connection and tighten to the drain wire ground post and or pigtail wire nut.
- Connect the accessory wires to the appropriate terminal strip on the NA-2 Interface circuit board.

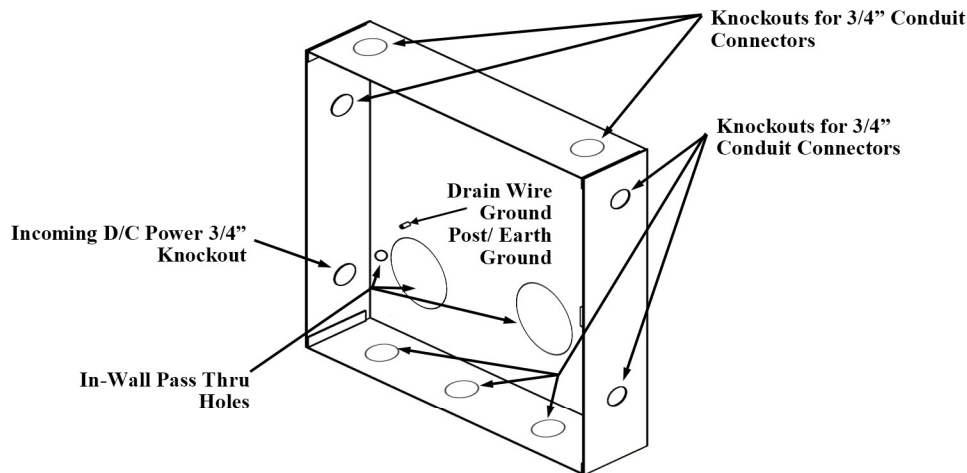


Figure 5 - NA-2 Cabinet Cabling Conduit Knockouts

POWER CONNECTIONS

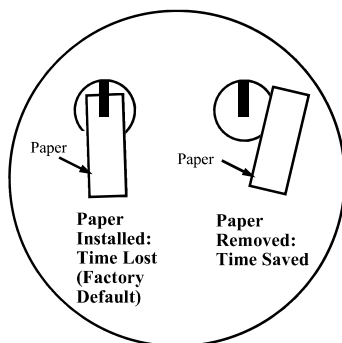
Battery Activation for Real Time Clock

The NA-2 contains a 3.0 volt Lithium battery used solely to preserve the real time clock in case of a power failure. The expected life of the Lithium Cell is ten years. Changing the battery every five years is recommended.

The NA-2 is shipped with a paper isolator between the battery and the battery holder to prevent unnecessary drainage.

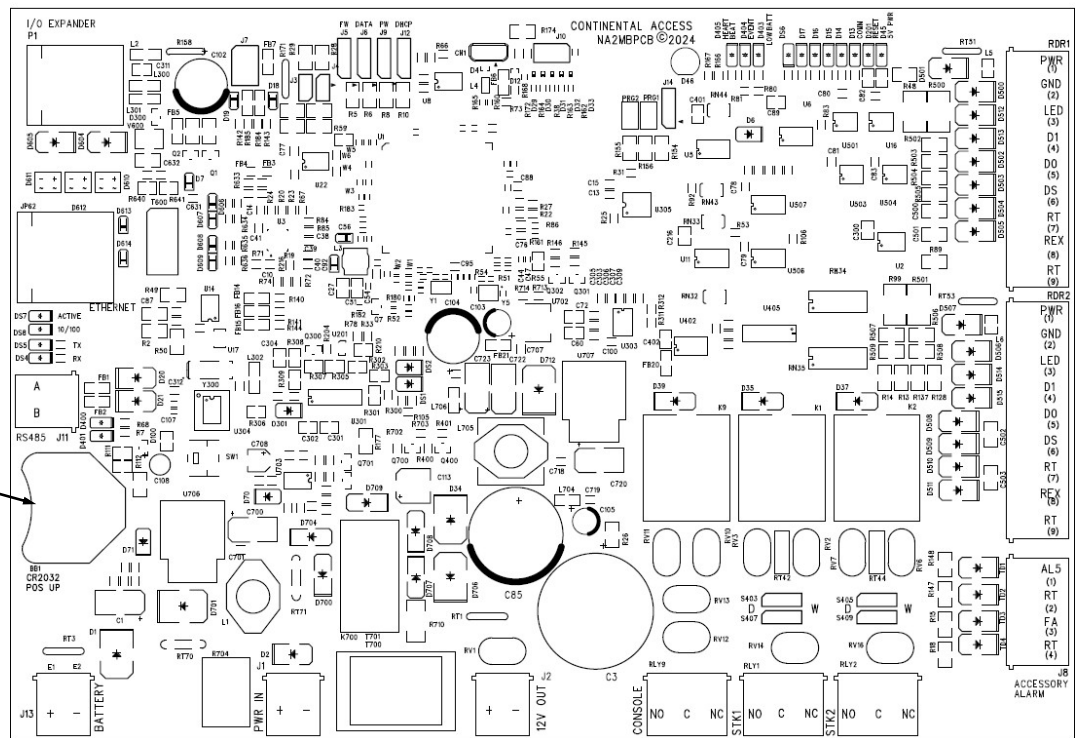
Remove the paper isolator before powering up the NA-2 .

REAL TIME CLOCK BATTERY ACTIVATION



Replace the 3V Lithium Memory Battery only with a **Panasonic or Rayovac CR2032**. Use of another Battery may present a risk of Fire or Explosion.

NOTE: When installing the new cell, use a plastic forceps, or handle the cell by its edge to avoid contaminating the conductive surfaces of the device. For battery type, see above.



Power Connections

DC Power Supply

The NA-2 comes with a 12VDC 2.5A Switching Power Supply Adapter, which converts AC 100–240V, 50/60Hz to 12VDC via a wall plug. This transformer requires a dedicated, unswitched AC outlet for optimal performance and minimal interference. A pull-apart DC power-in terminal block is included for convenient wiring of the incoming DC power. The DC input connects to the terminal block labeled **J1** on the NA-2 control board, located on the left side, center of the board (see Figure 6).

- Connect the positive (+) lead to the top screw terminal on **J1**.
- Connect the negative (–) lead to the bottom screw terminal on **J1**.

Important: To ensure proper power delivery, the wire from the AC Power Adapter to the NA-2 board should be 18 gauge (or less) and not exceed 8 ft. Route the DC wiring from the transformer through the cable clamp into the enclosure. Conduit may be used. **Do not run power or relay cables in the same conduit or clamp as alarm or communication lines.**

Notes:

- Table 1 provides 12VDC input power connection. Table 2 provide cable wiring requirements and distance.
- A knockout is provided on the back of the metal housing for conduit fittings, which may be used in hidden or in-wall cable installations.

Incoming DC	Wire Color	DC Input Terminal Block
12V+	Red	Left Screw Terminal J1
Ground	Black	Right Screw Terminal J1

Battery Backup

During power interruptions, the NA-2 normally continues operating for up to 4.0 hours via an on-board 7 Amp Hour back-up battery with max reader load.

The backup battery provides DC power for all NA-2 access control and alarm monitoring functions. After charging for 48-hours, the battery carries the rated load for 4.0 hours of standby power with max reader load. A low-voltage battery sensing circuit protects the NA-2 by disconnecting the battery from the main circuit before it becomes too deeply discharged.

NOTE: The NA-2 may also be used to power 12 Volt Electro-magnetic (EM) Locks / Door Strikes, as well as standard Access Control Readers and Accessories. Should DC power fail, the internal 12 Volt, 7AH battery will power the panel, readers, locks and accessories for up to 2.0 hours, with full load, max readers and a typical 400mA EM locks, assuming normal operating conditions.

Backup Battery Installation (UL Listed Sealed Lead Acid 7Ah Battery recommended)

1. Place the backup battery onto to the bottom right or left depending upon wiring.
2. Push the terminal of the BLACK lead onto the NEGATIVE (Black) Tab of the battery.
4. Push the terminal of the RED lead onto the POSITIVE (Red) Tab of the battery.

NOTE: Because of the Low Battery Voltage Disconnect feature, the NA-2 will not operate until DC power is connected.

Unit	Distance (maximum)	Wire Gauge
12VDC Power Supply	8ft	18AWG Shielded w/drain

Use 18 AWG (or less) wire, max 8 ft, for proper power to NA-2

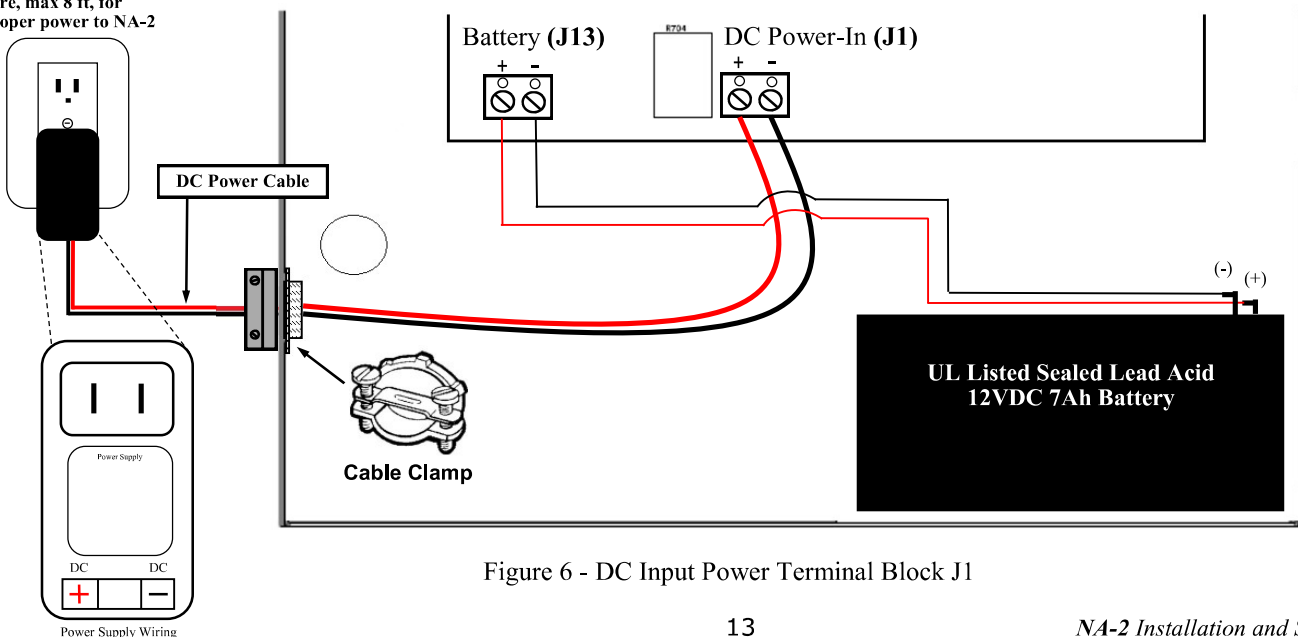


Figure 6 - DC Input Power Terminal Block J1

NA-2 Main Interface Board Wiring Diagram

The NA-2 Main Interface board (see Figure 7) includes removable wiring terminal strips for connecting external access control devices, such as card readers/keypads, exit devices, door position switches, alarms, communications, and relays.

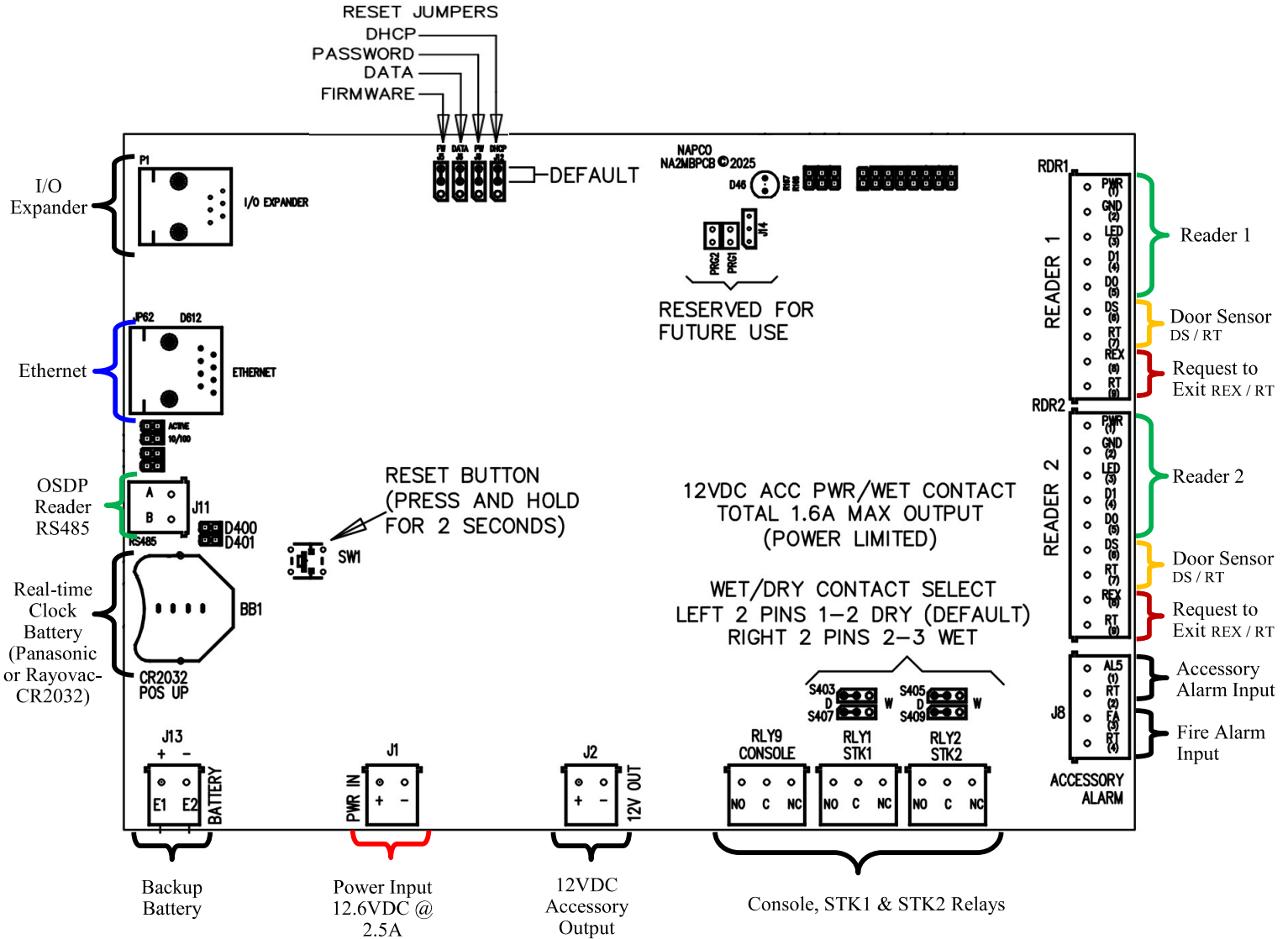


Figure 7 - NA-2 Main Interface Board Wiring Diagram

Reader 1 & Reader 2 Wiegand/Proximity Connections

Card Readers & Keypad/Card Readers connect to the NA-2 via the two terminal strips on the right side of the board labeled RDR 1 and RDR 2. The NA-2 supports the connection of **two Wiegand Reader** via the Reader 1 and Reader 2 terminals, with a maximum of **two readers total**.

Important: Reader power is set to 12VDC

Table 3 below lists the connections for Wiegand Proximity readers, Reader 1 and Reader 2.

Table 3 - RDR 1/RDR 2 Connection Table for Wiegand/Proximity Readers		
Reader and Pwr Terminal Strips	Function	Wire Color
Reader PWR	+12VDC	Red
Reader PWRGND	Ground	Black
LED	LED Input	Brown or Orange*
D1	Data-1	White
D0	Data-0	Green

*Refer to Reader Manufacture for correct Input wire color for LED Input (GRN)

NOTE: ETL verified the construction, performance and operation of the NA-2 Access Control Panel with Napco [Model R-PH] Prox readers and HID® [Model HID® Signo™ 40] Prox readers with 36-bit cards. ETL did not evaluate any other Card Reader Formats or Card Technologies supported by the Napco Access Control Panels.

Wiegand/Proximity Reader Cable Requirements

Wiegand/Proximity Readers require a 5-conductor cable between the NA-2 and the particular unit (see Figure 8, next page). **Do not use twisted pair cable.**

NOTE: Readers may have a total maximum current draw of 400mA at +12VDC

EXAMPLE: If two identical +12VDC Readers are connected to one NA-2, each Reader could draw up to 200mA each, not to exceed the 400mA total.

Table 4 lists the cable gauge-vs.-length requirements for proper operation of the NA-2 and a Wiegand/Proximity Reader.

Table 4 - RDR 1/RDR 2 Cable Requirements for Wiegand/Proximity Readers		
Unit	Distance (maximum)	Wire Gauge
Wiegand Reader	500ft/153m	22AWG Shielded w/drain
Proximity Reader**	500ft/153m	22AWG Shielded w/drain
**500ft/153m maximum for un-buffered Wiegand units.		

CAUTION



Keep all drain and cable shield wires between the NA-2 and any Wiegand/Proximity Readers short. Connect drain and cable shield wires to the Ground Pigtail connected to the drain wire ground post. **DO NOT** ground drain wires and cable shields at any other point.

PRUDENCE

Conservez tous les fils de drain et le câble entre le blindage NA-2 et tous les lecteurs Wiegand / Proximity courts. Connecter les fils de drain et de blindage du câble à la terre Pigtail. NE PAS mouler fils de drain et les blindages des câbles à tout autre point.

VORSICHT

Halten Sie alle Drain- und Kabelschirmdrähte zwischen dem NA-2 und allen Wiegand / Proximity Readern kurz. Die Abschirm- und Kabelabschirmdrähte an die Erdanschlussleitung anschließen. Die Drain - Drähte und Kabelschirme NICHT an einer anderen Stelle abziehen.

READER 1 / READER 2 WIRING DIAGRAM

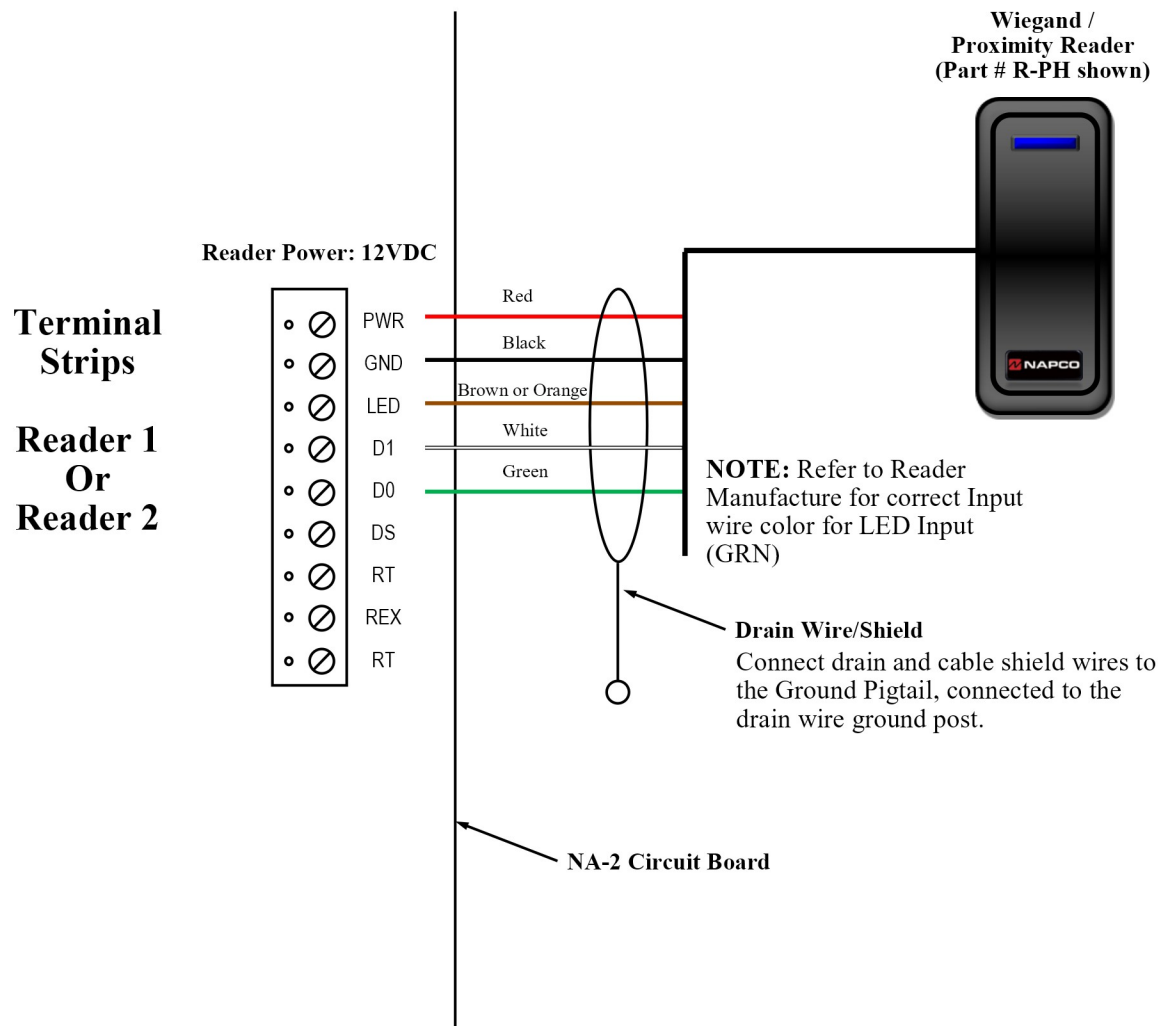


Figure 8 - Wiegand / Proximity Reader Connection to NA-2 Board Reader 1 or Reader 2

OSDP Reader Connections

OSDP (Open Supervised Device Protocol) readers utilize encryption and mutual authentication to enhance security in access control systems, ensuring secure data transmission and preventing unauthorized access by verifying the identity of both the reader and the door controller.

The NA-2 allows for the connection of up to two OSDP (2-wire) readers wired in parallel to the RS485 terminals, with a maximum of two readers total that the controller can handle. You cannot use Wiegand readers in addition to the two OSDP readers; however, you can mix and match, as long as the total reader count does not exceed two. The data wires for the readers are connected to J11. For detailed information on the data connections, please refer to Table 5, which outlines the configurations for the J11 terminal strip.

NOTE: Before powering your OSDP readers using the Reader Terminal Strips, verify that the reader voltage is 12VDC.

Table 5 - Connection Table for OSDP Readers		
Terminal Strip	Function	Wire Color
Reader Power +	+12VDC	Red
Reader Power -	Ground	Black
Reader LED	LED Input	Brown or Orange*
J11 / A	Data	White**
J11 / B	Data	Green**

*Refer to Reader Manufacture for correct Input wire color for LED Input (GRN)

**The color of the OSDP reader wires can vary by manufacturer. While green and white are the most common colors, different manufacturers may use their own unique OSDP color schemes. Please refer to reader wiring diagram for correct color.

OSDP Reader Cable Requirements

OSDP Readers require a 5-conductor cable between the NA-2 and the OSDP Reader (see Figure 9, next page). **Do not use twisted pair cable.**

Table 6 lists the cable gauge-vs.-length requirements for proper operation of the NA-2 and a Wiegand/Proximity Reader.

Table 6 - Cable Requirements for OSDP Readers		
Unit	Distance (maximum)	Wire Gauge
OSDP Reader	500ft/153m	22AWG Shielded w/drain

500ft/153m maximum for RS485 Readers.

CAUTION



Keep all drain and cable shield wires between the NA-2 and any Wiegand/Proximity/OSDP Readers short. Connect drain and cable shield wires to the Ground Pigtail, connected to the drain wire ground post. DO NOT ground drain wires and cable shields at any other point.

PRUDENCE

Conservez tous les fils de drain et le câble entre le blindage NA-2 et tous les lecteurs Wiegand / Proximity courts. Connecter les fils de drain et de blindage du câble à la terre Pigtail. NE PAS mouler fils de drain et les blindages des câbles à tout autre point.

VORSICHT

Halten Sie alle Drain- und Kabelschirmdrähte zwischen dem NA-2 und allen Wiegand / Proximity Readern kurz. Die Abschirm- und Kabelabschirmdrähte an die Erdanschlussleitung anschließen. Die Drain - Drähte und Kabelschirme NICHT an einer anderen Stelle abziehen.

OSDP READER WIRING DIAGRAM

IMPORTANT: Before powering your OSDP readers using the Reader Terminal Strips, verify the readers are rated for 12VDC as you may need a separate power supply. Additionally, you can use the 12VDC Output Accessory Power to power the readers.

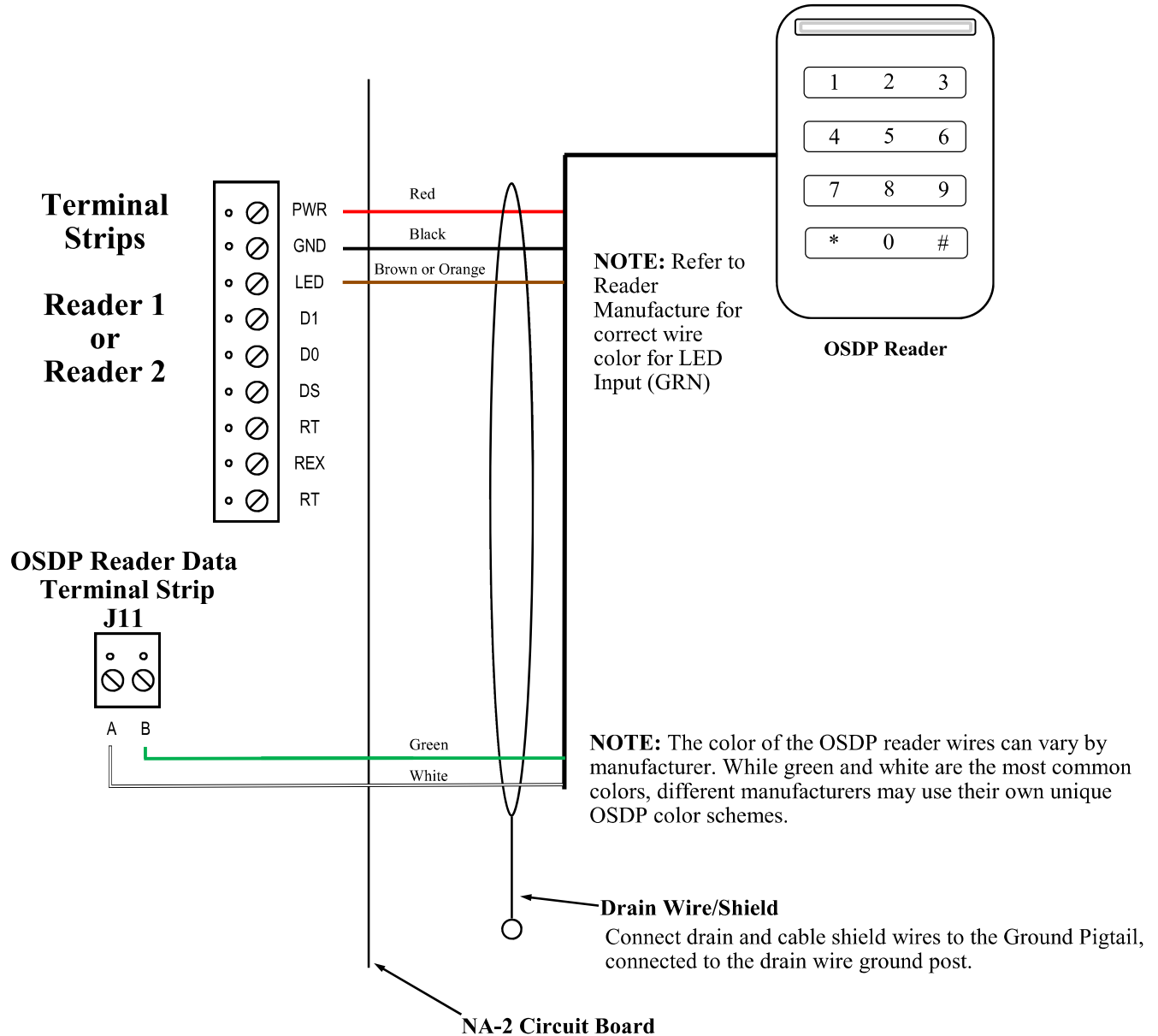


Figure 9 - OSDP Reader Connection to NA-2 Board

Door Status Sensor Connection

Door Status sensors connects to the NA-2 through the two terminal strips labeled RDR1 and RDR2. The Door Status Contact gets wired to screw terminals labeled **DS / RT** on the reader terminal block and can be wired unsupervised or supervised on either reader (see figure 10). For Input Mapping See Appendix A on page 33.

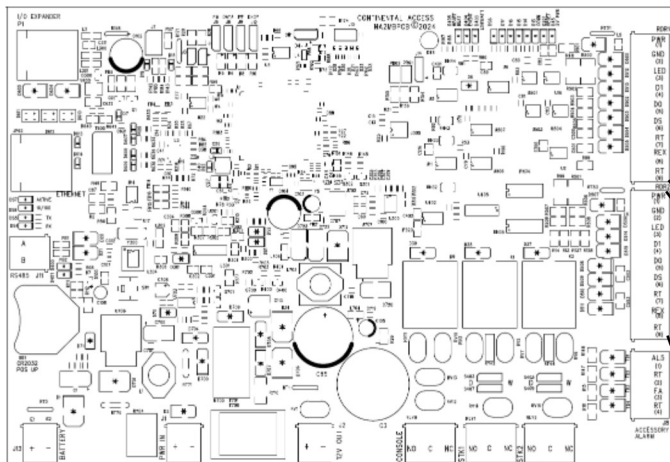
Table 7 lists the connections on Reader 1 and Reader 2 terminal strips for the Door Status sensor.

Table 7 - Connection Table for Door Sensor Input		
Input Terminal Strip	Signal	Door Status Sensor Function
Reader 1- DS	Alarm	Positive
Reader 1- RT	Return	Negative
Reader 2-DS	Alarm	Positive
Reader 2-RT	Return	Negative

Door Status Sensor Cable Requirements

Door Status sensors require a 22AWG, 2-conductor, stranded, shielded, cable with drain wire between the NA-2 and the particular unit (see Figure 10). Table 8 lists the cable gauge-vs.-length requirements for proper operation of the NA-2 and the Door Status sensor.

Table 8- Cable Requirements for Door Status Sensor		
Unit	Distance	Wire Gauge
Door Status Sensor	500ft/153m	22AWG Shielded w/drain



NA-2 Main Circuit Board

The Door Status sensor is normally used to turn off the lock after the door is opened. It also senses if the door was forced open which will trigger a Door Forced Alert.

Configuring an Alarm in the Supervised Condition

1. Use two 1K Ohm, 1/4W, $\pm 5\%$ carbon film resistors per alarm.
2. Install R1 in parallel with the alarm contacts (see Figure 10).
3. Install R2 in series with the alarm input conductor.
4. Under **Configuration > Inputs** add the input #, select "Normal Open," and "Supervised"

NOTE: For maximum protection, install the resistors close to the alarm contacts and embed them in epoxy.



CAUTION

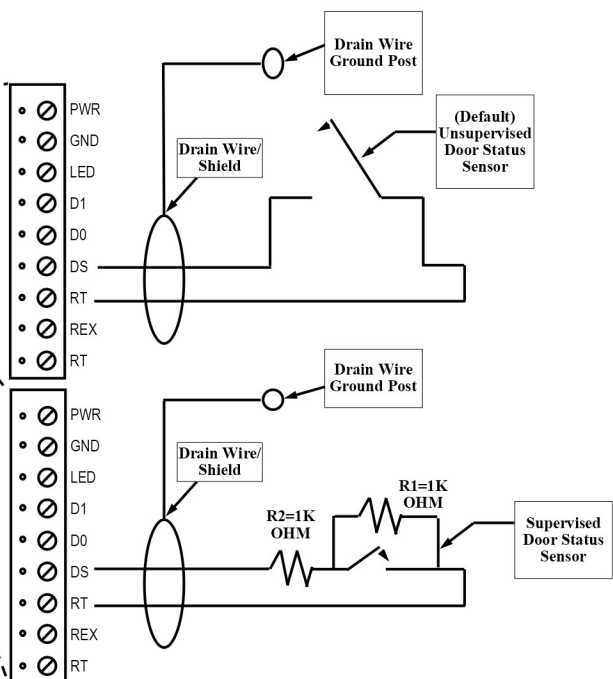
Keep all drain wires short. Connect drain wires to the Ground Pigtail, connected to the drain wire ground post. **DO NOT** ground drain wires and cable shields at any other point.

PRUDENCE

Conservez tous les fils de drain court. Connecter les fils de drain à la masse Pigtail. NE PAS mouler fils de drain et les blindages des câbles à tout autre point.

VORSICHT

Halten Sie alle Drain Drähte kurz. Die Drain - Drähte an die Masseanschlussleitung anschließen. Die Drain - Drähte und Kabelschirme NICHT an einer anderen Stelle abziehen.



EXAMPLE: DOOR STATUS SENSOR ALARM TERMINALS WIRED UNSUPERVISED AND / OR SUPERVISED

Figure 10 - Door Status Sensor to NA-2 Input Connections. Plain (Unsupervised) Contacts, and Supervised Contacts

Request-to-Exit (Bypass) Sensor Connection

Request-to-Exit (REX) sensors, also referred to as Bypass sensors, work alongside Door Status Sensors to ensure full facility entry and exit control. The REX sensor input connects to the same NA-2 terminal strip (Reader 1 and Reader 2) as the corresponding Door Status Sensor. Both sensors are wired to the screw terminals labeled **REX / RT** on the reader terminal block and can be configured for unsupervised or supervised wiring on either reader (see Figure 11). For input mapping details, refer to Appendix A on page 33.

Table 9 lists the connections on Reader 1 and Reader 2 terminal strips for the Request to Exit Sensor.

Table 9 - Connection Table for Request-to-Exit Sensor		
REX Terminal Strips	Signal	Request-to-Exit Sensor Function
Reader 1 - REX	Alarm	Positive
Reader 1- RT	Return	Negative
Reader 2-REX	Alarm	Positive
Reader 2- RT	Return	Negative

Request-to-Exit Sensor Cable Requirements

Request-to-Exit sensors require a 22AWG, 2-conductor, stranded, shielded, cable with drain wire between the NA-2 and the particular unit (see Figure 11).

Table 10 lists the cable gauge-vs.-length requirements for proper operation of the NA-2 and the Request-to-Exit sensor.

Table 10 - Cable Requirements for Request-to-Exit Sensor		
Unit	Distance	Wire Gauge
Request-to-Exit Sensor	(maximum) 500ft/153m	22AWG Shielded w/drain

Configuring an Alarm in the Supervised Condition

1. Use two 1K Ohm, 1/4W, $\pm 5\%$ carbon film resistors per alarm.
2. Install R1 in parallel with the alarm contacts (see Figure 11).
3. Install R2 in series with the alarm input conductor.
4. Under **Configuration > Inputs** add the input #, select "Normal Open," and "Supervised"

NOTE: For maximum protection, install the resistors close to the alarm contacts and embed them in epoxy.



CAUTION

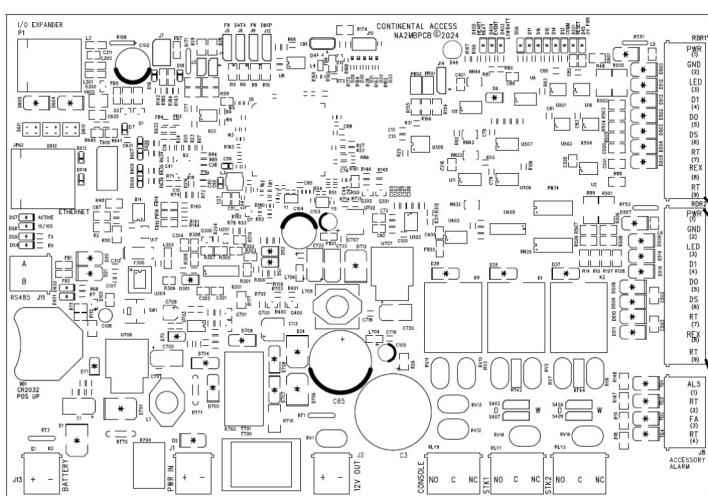
Keep all drain wires short. Connect drain wires to the Ground Pigtail, connected to the drain wire ground post. DO NOT ground drain wires and cable shields at any other point.

PRUDENCE

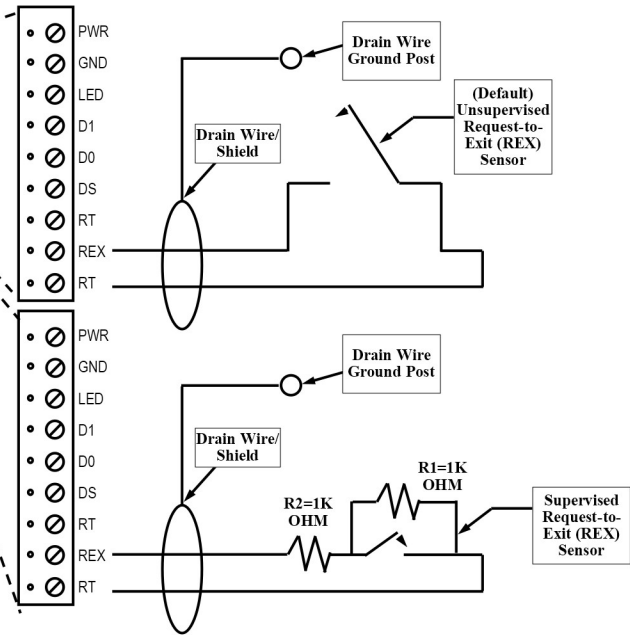
Conservez tous les fils de drain court. Connecter les fils de drain à la masse Pigtail. NE PAS mouler fils de drain et les blindages des câbles à tout autre point.

VORSICHT

Halten Sie alle Drain Drähte kurz. Die Drain - Drähte an die Masseanschlussleitung anschließen. Die Drain - Drähte und Kabelschirme NICHT an einer anderen Stelle abziehen.



NA-2 Main Circuit Board



EXAMPLE: REQUEST TO EXIT ALARM TERMINALS WIRED UNSUPERVISED AND/OR SUPERVISED

Figure 11 - Request-to-Exit Sensor to NA-2 Connections. Plain (Unsupervised) Contacts, and Supervised Contacts

Relay Connections

Description

The NA-2 is equipped with three **Form C** relays designed to control door strikes, door alarm shunts, console functions, and other operations. These relays are categorized into two types: **Door Strike Relays** and **Console Relay**. Above the two **STK** relays, you will find two sets of jumpers, which can be configured for either a **Dry** or **Wet** output. By default, the relay jumpers are set for **Dry Output**, with a maximum load of 12/24V up to 28V AC/DC at 2 Amps. Alternatively, you can configure the jumpers for a **Wet Output**, which provides a **Wet Relay** rating of 12VDC, with a total of 1.6A for both relays combined. Both jumpers must be set to either **W** or **D**. For detailed relay mapping, refer to **Appendix A** on page 33.

Door Strike Relays

Two relays are designated as **Door Strike Relays**, which work in coordination with Wiegand/Proximity readers, Magnetic Stripe readers, and Keypads to control access at specific door locations. These relays, labeled **STK1** and **STK2**, are located at the bottom of the NA-2 Circuit Board (see **Figure 12**).

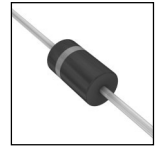
Console Relay

The **Console Relay** is typically used to manage door alarm shunts or is linked to events such as invalid door access, alarm input, or tamper switch input. This relay cannot be used for a wet contact. The **Console Relay** is activated via software and its output is labeled **CONSOLE** (refer to **Figure 12**).

Relay Characteristics

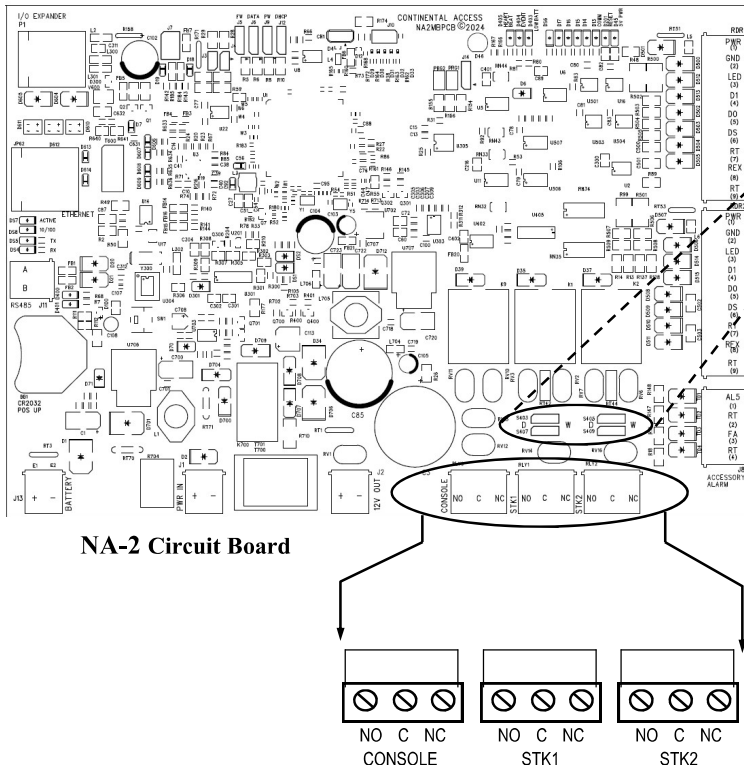
By default, both the **Door Strike Relay** and the **Console Relay** are configured as **Dry Relays**. The default states of the **Normally Open (NO)** and **Normally Closed (NC)** contacts are for non-energized relays. All Wet Relays are equipped with a built-in relay contact overvoltage protection, which helps minimize electrical noise. This built-in protection reduces any noise caused by the strike coil to 56 volts. Since this overvoltage protection is integrated, no external diode is needed.

Note: For dry contact relays, it is recommended to install a diode (1N4004 or equivalent) directly across the strike or mag lock coil for additional noise and surge protection. Connect the diode with the gray-striped side to positive (+) and the black side to negative (-). This helps protect the circuit by suppressing voltage spikes generated by the inductive load when the coil is de-energized. For more detailed guidance, please refer to the specific installation instructions provided with the strike or mag lock.



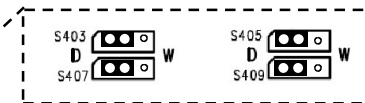
Ex. Diode

Due to potential electrical noise, **door strike wiring must not be run in the same conduit as other wiring**. For door strikes with a coil voltage exceeding **28VDC** or **28VAC**, external relays capable of being driven by the NA-2 relays are required.



Dry / Wet Relay Jumper Selectable:

Both Jumpers Left 2 Pins = Dry Relay
Both Jumpers Right 2 Pins = Wet Relay



Output Relays: 2 Relay on board, Form C, Jumper Selectable Dry/Wet. Dry relay max load 12/24V up to 28V AC/DC, 2 Amp (Power Limited Circuit, Strike Coil Diode Recommended). Wet Relay rated at 12VDC, Total 1.6A for both relays and 12V power out, combined (Power Limited Output)

Note: The 12V output which is shared with the Wet Relay selectable outputs on the STK1/STK2 onboard relay, must not exceed the maximum current draw of 1.6A for both the STK1/STK2 Relays and the 12V output, so extreme caution should be exercised to avoid overloading.

Console Relay Output: Form C, *Dry Relay Only* rated 12/24V up to 28V AC/DC, 2 Amp (Power Limited Circuit)

Figure 12 - Relay Outputs

Strike/Mag Lock Power Wiring Examples: Using both Dry and Wet Relay Outputs

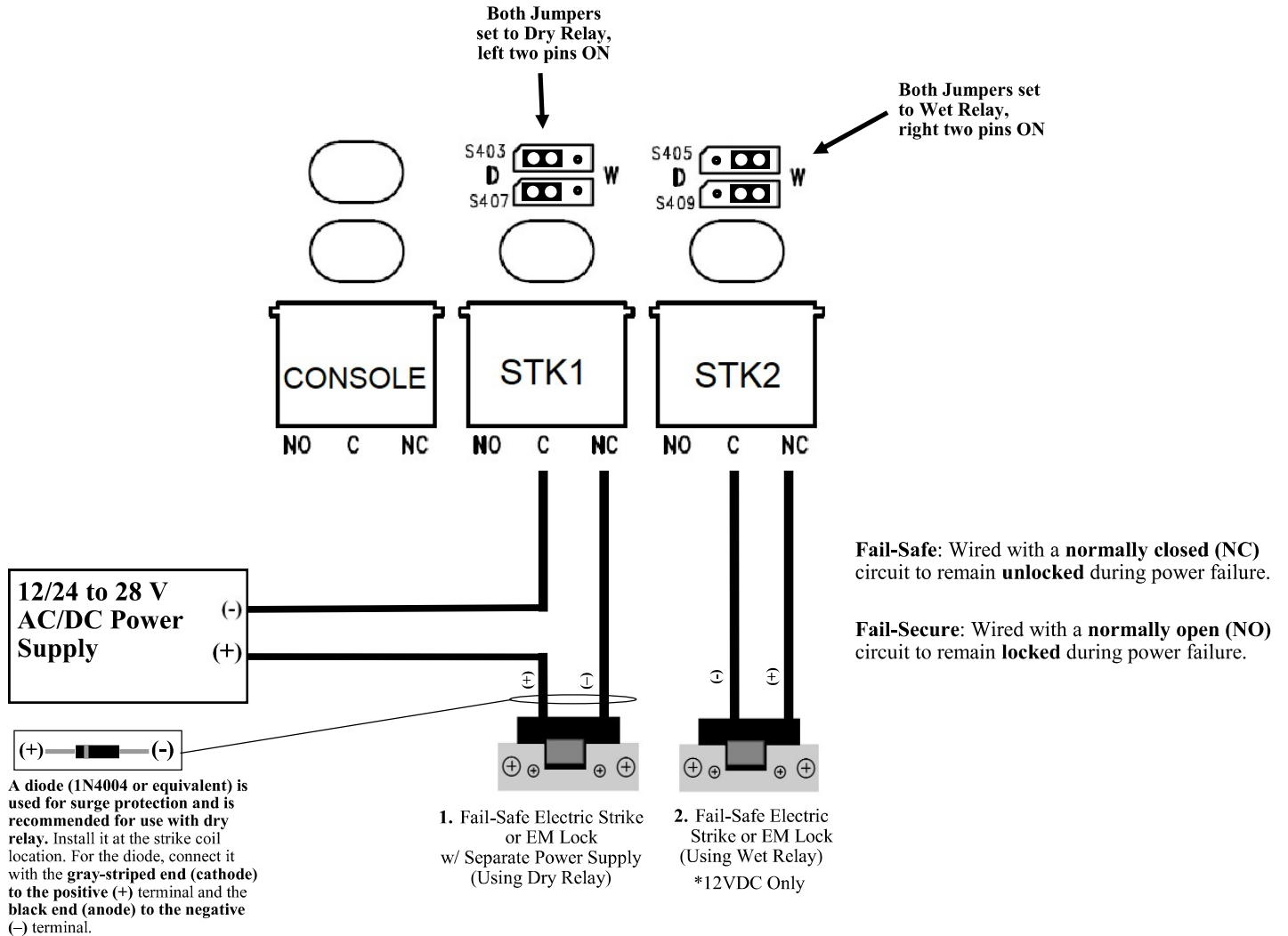


Figure 13 - Strike/Mag Lock Power Examples Using both Dry and Wet Relay Outputs

Example 1: A *fail-safe* Electric Strike or electro-mechanical (EM) lock powered by an external 12/24 up to 28V, AC/DC source. Maximum circuit current is 2.0A. Diode Recommended. The configuration jumpers are set to "D" for "Dry" contact output.

Example 2: A *fail-safe* Electric Strike or electro-mechanical (EM) lock powered by the NA-2 internal battery-backed 12VDC power. Maximum recommended lock current rating when using a wet relay is 1.6A or less. Total system current may not exceed 1.6A for the two STK relays and the 12VDC Aux Output.. The configuration jumpers are set to "W" for "Wet" contact output.

Considerations for use of 24VDC Equipment

- Magnetic locks drain half the current at 24V than at 12V for the same holding force.
- Losses in the wiring resistance are ¼ that of the lower voltage. This is significant if high-holding force locks must be used.
- Many UL 294 / UL 603 power-limited power supplies offer selectable voltage, at the same current and cost.

12VDC ACCESSORY POWER OUTPUT

The ACCESSORY POWER terminal strip (labeled 12V OUT) provides battery backed +12VDC power outlets for EM Locks, Electric Strikes or auxiliary devices.

Table 11 lists the ACC. POWER terminal strip Pin numbers and their associated functions.

Table 11 - ACCESSORY POWER (12V) Terminal Strip Functions	
Pin	Function
1	+12
2	GND

NOTE: +12VDC current draw is limited to a total maximum of 1.6 Amps for Readers, EM Locks, and Accessories.

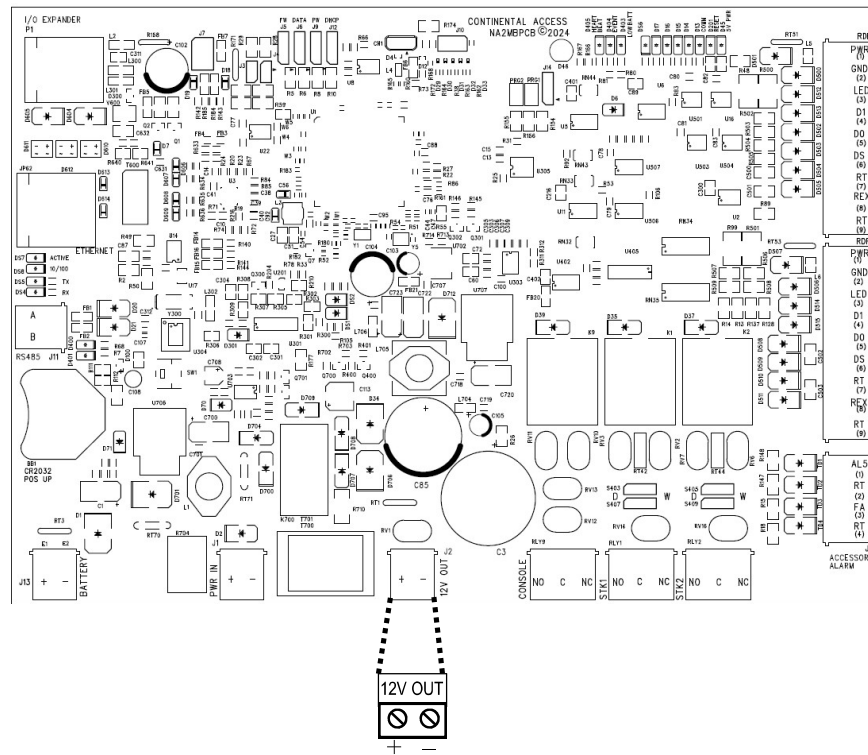


WARNING

Observe Positive and Negative wire polarity between 12VDC accessory devices and the NA-2.

NOTE: +12VDC current draw is limited to a total maximum of 1.6A for all Readers, EM Locks, and Accessories. The 12V output is shared with the Wet Relay selectable output that's available for the two on-board relays. **Take extreme caution** not to exceed the maximum allowed current draw of 1.6 Amp (maximum +12VDC current draw for the two STK relays and the 12V output).

NA-2 Circuit Board



12V Accessory Power Output

Figure 14 - Powering Electro Magnetic Locks or Strikes using Accessory Power

Accessory Alarm Inputs

One accessory supervised alarm input is available for use, located on the J8 Terminal block (see Figure 15). By default the input is set for a dry contact only and is unsupervised. Accessory alarms can be used for a tamper switch or any other alarm input device. If needed, see below on using Supervised Alarms.

Supervised Alarm Input

Supervised alarms provide monitoring of alarm inputs for fault conditions. Two additional alarm states may be detected by installing two-1K Ohm) resistors near the alarm contacts. In addition to the standard Normal and Abnormal alarm conditions, the supervised alarms report Line Open and Line Short conditions.

- A Line **Open** condition is the result of a cut wire.
- A Line **Short** condition is the result of a short in the alarm wiring.

These fault conditions may be the result of tampering, and indicate the system cannot correctly detect the state of the alarm contacts.

Configuring an Alarm in the Supervised Condition

1. Use two 1K Ohm, 1/4W, $\pm 5\%$ carbon film resistors per alarm.
2. Install R1 in parallel with the alarm contacts (see Figure 15).
3. Install R2 in series with the alarm input conductor.
4. Under **Configuration > Inputs** add the input #, select "Normal Open," and "Supervised"

NOTE: For maximum protection, install the resistors close to the alarm contacts and embed them in epoxy.

Alarm Cable Requirements

Connecting alarm sensor inputs to the NA-2 board requires 22 AWG, stranded, shielded, cables with drain wires.



CAUTION

Keep all drain wires short. Connect drain wires to the Ground Pigtail, connected to the drain wire ground post. **DO NOT** ground drain wires and cable shields at any other point.

PRUDENCE

Conservez tous les fils de drain court. Connecter les fils de drain à la masse Pigtail. NE PAS mouler fils de drain et les blindages des câbles à tout autre point.

VORSICHT

Halten Sie alle Drain Drähte kurz. Die Drain - Drähte an die Masseanschlussleitung anschließen. Die Drain - Drähte und Kabelschirme NICHT an einer anderen Stelle abziehen.

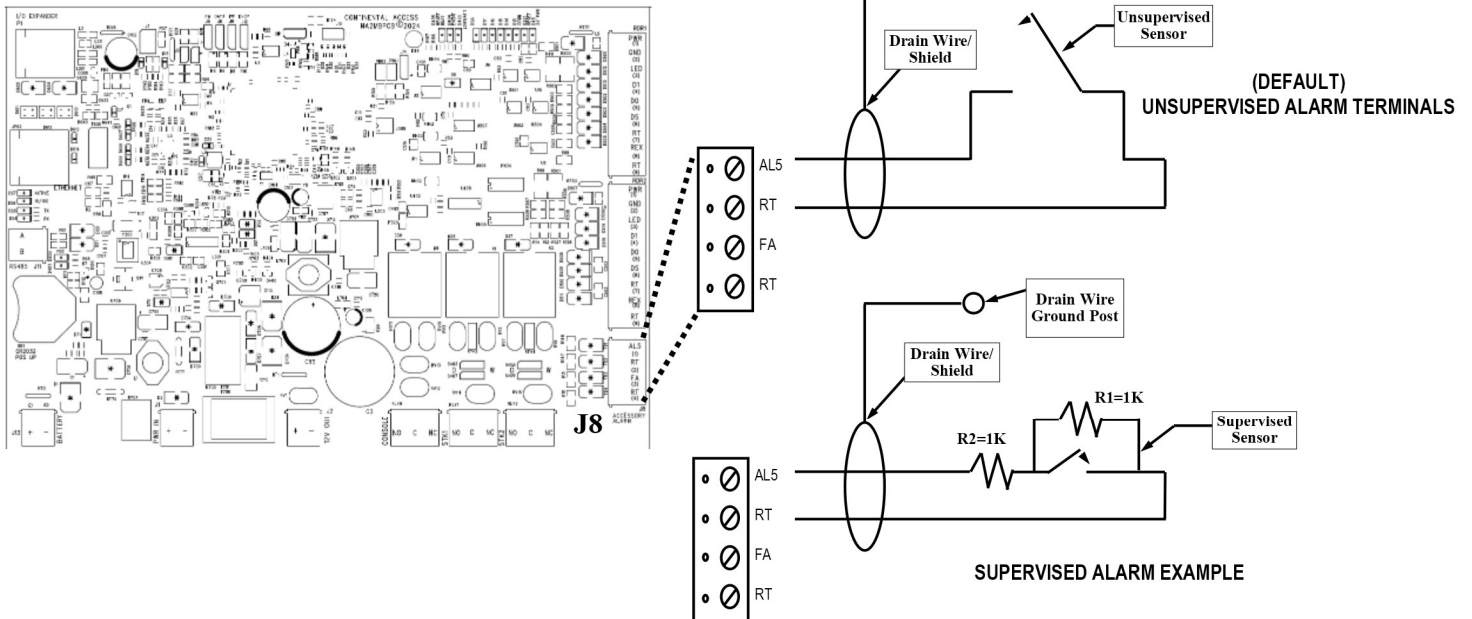


Figure 15 - ALARM Terminals - Unsupervised and Supervised Alarm Connections

Fire Alarm Control Panel (FACP) Connection Input

Emergency Disconnect of the Fail-Safe EM Lock Power or Door Strike can be accomplished by wiring a Unsupervised Normally Open (N/O) input, directly to the Fire Alarm Input screw terminals labeled **FA** and **RT** located on **J8**. See figure 16 below.

FA and **RT** located on **J8** is dedicated to a Fire Alarm input connection. There is no programming required in software, except if you plan to use a Supervised Alarm input, in which you will need to program the specific input as a Normal Open and Supervised. See Appendix A, on page 33, for Fire Alarm Input Mapping.

When the Fire Alarm input is shorted, it will automatically change state on all relays on board (CONSOLE, STK1, STK2).

Alarm Cable Requirements

To connect a fire alarm input to the NA-2 board, use fire-rated wiring that is at least 18 AWG, solid (Shielded if necessary). Ensure that the wiring is installed and connected by a licensed fire alarm installer. **Consult with AHJ for any local codes or regulations.**

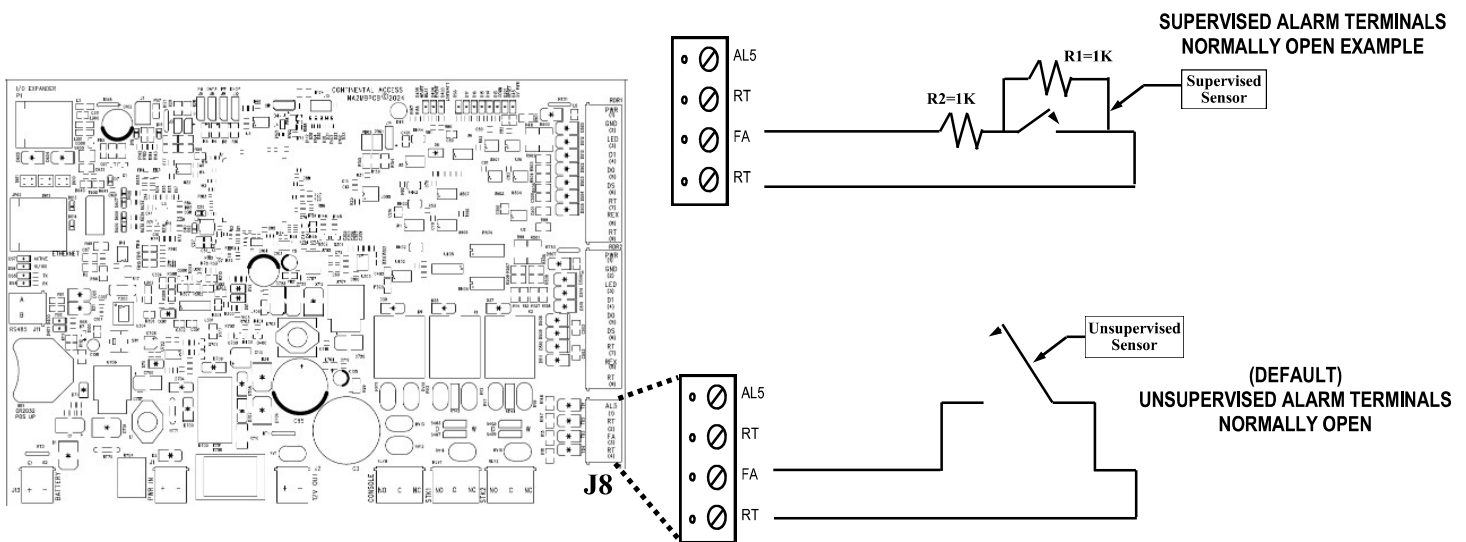


Figure 16 - Fire Alarm Input Terminals - Unsupervised and Supervised Connections

Ethernet Communication

The NA-2 establishes a connection to the MVP cloud via the internet. Each controller requires an individual Ethernet connection to communicate with the MVP cloud. By default, the controller's Ethernet adapter is set to DHCP, allowing it to automatically obtain an IP address once connected to the customer's network (Internet access is required). If a static IP address is needed, you can use the uniVerse Finder Utility Software. For the wiring diagram, refer to Figure 17 on the next page for more details. See Appendix B, on page 34, for Ethernet Reset Procedures.

Network Cable Requirements

Using the Ethernet 10/100 Base-T communications requires the use of Cat5, Cat5e or Cat6 24/26 AWG UTP cable. The length should not exceed 100 meters (or 328 feet)

uniVerse Finder Utility

If a static IP address is needed, you can use the **uniVerse Finder Utility Software**. To download the latest version, go to <http://tech.napcosecurity.com> and navigate to **Software Downloads > Napco Access Pro**.

Programming

The NA-2 controller is compatible with both MVP platforms: **MVP Access** and **MVP EZ**.

By default, the controller's Ethernet adapter is set to DHCP. To configure a static IP address, use the uniVerse Finder Utility, available on our technical website at <https://tech.napcosecurity.com> under **Software Downloads > Napco Access Pro**.

Programming for MVP Access:

To program the NA-2 with **MVP Access**, refer to the, "[MVP Access with Napco Access Controllers - Getting Started Guide WI2891LF](#)," which is also available on the MVP Access Website Dashboard at <https://mvpaccess.online>

Programming for MVP EZ:

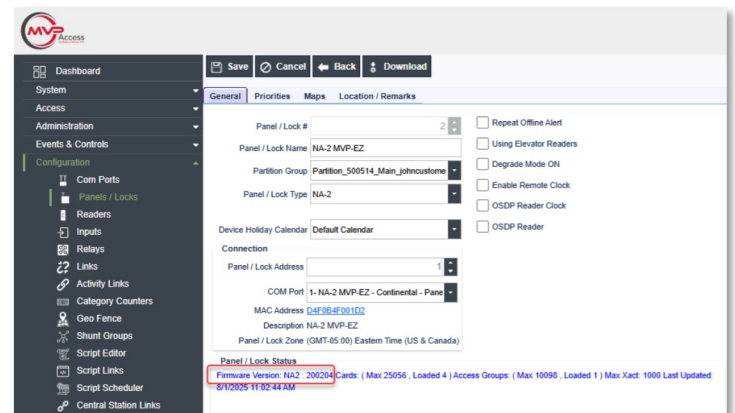
To program the NA-2 with **MVP EZ**, download the **MVP EZ Mobile App** from the Apple App Store or Google Play store and refer to the "[MVP EZ- Getting Started Guide WI2880](#)."

IMPORTANT: When adding the new panel type to the software, select **NA-2**.

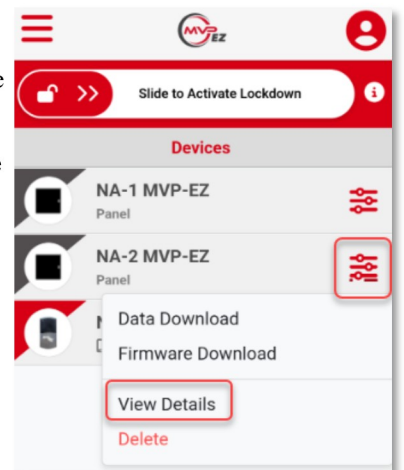
Accessing Firmware Version Information

To identify the current firmware version of the device, follow the steps below, depending upon software platform being used:

In MVP Access: Login using <https://mvpaccess.online>, navigate to **Configuration > Panels/Locks > Select the NA-2 Panel**. Under **Panel / Lock Status** the firmware version will display.



In MVP EZ: Login using the MVP EZ Mobile App, navigate to **Devices > Select the View Hardware Icon for the NA-2 Panel > Click View Details**. The firmware version will display under **Version**.



Ethernet Connection Example

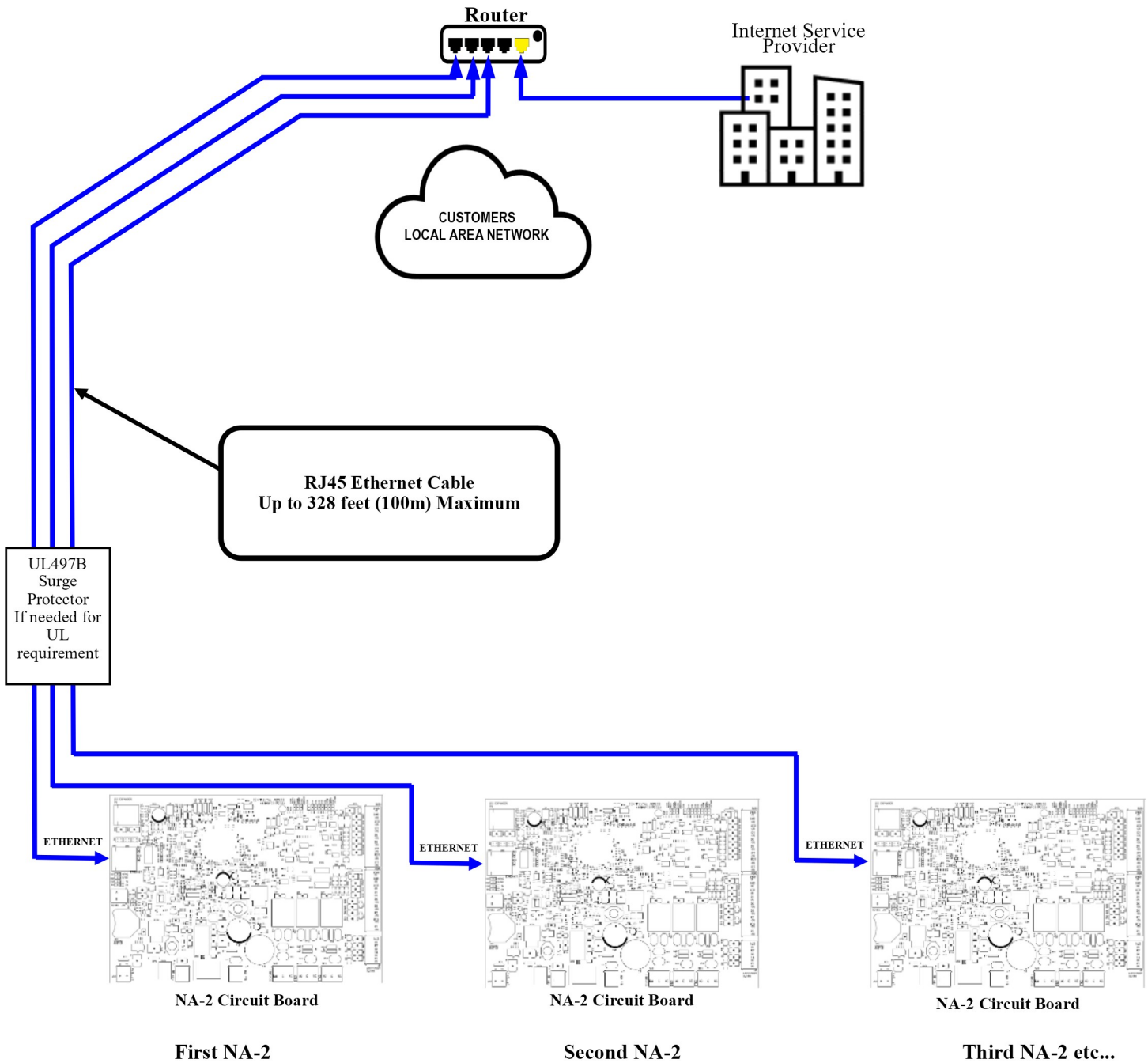


Figure 17 - NA-2 Ethernet Typical Setup

UL294A compliant installation requires **UL497B**-Listed Surge arrestors be installed on all data lines connected to Computer Accessory Equipment. On the downstream side, Ground Loop currents are limited by the low-capacitance, high-voltage disc capacitor. This connection assures compatibility with nearby Radio-Frequency equipment.

LED Diagnostics

The NA-2 circuit board uses LEDs to indicate the presence of a particular voltage, communication and diagnostics functions. Figure 18 shows the LED locations on the NA-2 circuit board and their individual LED functions.

Table 12 - Main Board LED Diagnostic Functions

Marking	Function	Notes
D46	AC On Indicator	AC Power connected and 12 Volt Power Supply Working
D405	Heart Beat OK	Normal Flashing "Heartbeat" verifies operation of CPU, Memory, etc.
D404	Event	Transmitting Event Data
D403	Low Battery	Battery has a low charge or is faulty and requires replacement
D13	Communication	Mainboard Communication
D201	Reset Switch / LED	Used for performing Factory Reset Procedures. The LED will flash to indicate that the reset was successful
D45	System Power	System Power Voltage OK
D20	RS-485	RS-485 Transmit Data
D21	RS-485	RS-485 Receive Data

NOTE: If "OK" D405 LED is not flashing, press and hold the Reset (RST) button for two seconds to re-start the unit.

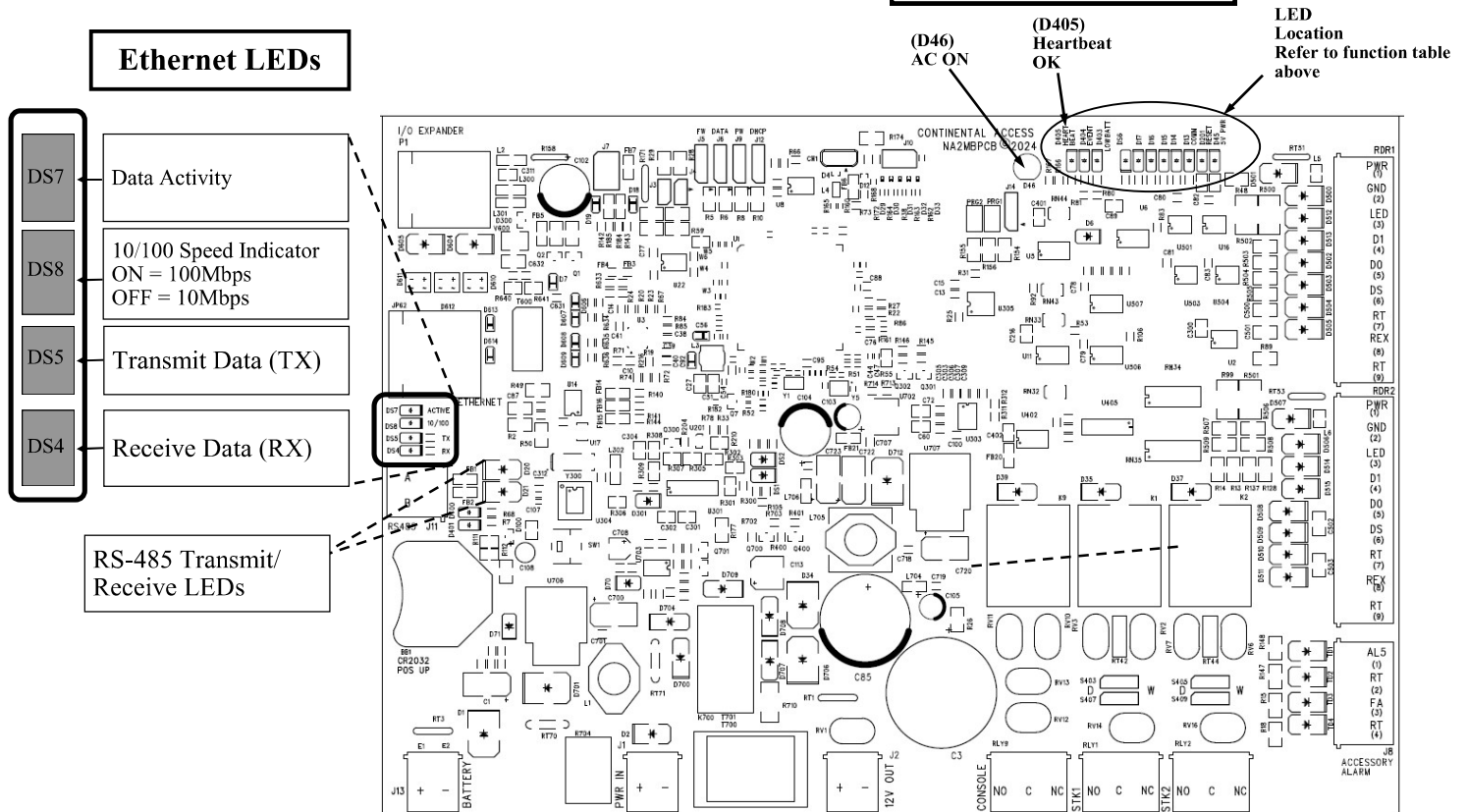


Figure 18 - NA-2 Main Board and Ethernet Status LED's

CIRCUIT PROTECTION

Transient Protection

Nearby lightning discharges induce high-voltage transients into the field wiring of electronic equipment. The NA-2 Access Control Panel provides protection from high-voltage transients at all field wiring terminals. This includes all Alarm Inputs, all Reader Connections, and 12V Accessory power outputs, etc. The normal dielectric isolation of the relay circuits is supplemented by MOV snubbing devices that are active for the dry contact circuits. MOV snubbing devices improve the life of the relay contacts.

Dielectric Isolation

The Ethernet Port meets the IEEE 802.3 Specification Standard for 1500V RMS Dielectric Isolation. Dielectric Isolation is the appropriate technology because both ends of the cable are connected to grounded equipment, and would be subject to very high ground loop currents if the circuits were not isolated.

Note that UL294 states that the connected communication equipment (Ethernet Bridge, Host Computer, or Server) must use signal-line transient protection equipment compliant to UL497B, having a maximum marked rating of 50V. **NOTE:** Suitably qualified third-party equipment is available from several vendors.

NA-2 Accessory Circuit Protection

A 0.75 Amp resettable fuse protects the Battery Charger Circuit, and a 3 Amp resettable fuse limits the output to the Accessory Circuits to safe levels. These devices limit the Accessory Current even when the product is operating under backup power from the battery.

Under conditions of moderate overloads, the power supply will shut down its output, but periodically power-up briefly to test to determine if the overload is removed. This will be visible because the PWR Lamp will flash on about once per second. Power will be restored immediately upon removal of the overload condition.

NA-2 +12V Reader Circuit Protection

0.3 ampere (0.30A) Resettable Fuses (RT1 and RT2) are used to limit the Reader current for RDR1 and RDR2. These are found near the RDR1 and RDR2 Terminal Blocks. A fault in the Reader Circuit may be indicated by one of these devices becoming warm to the touch.

NOTES:

- A fault in one Reader Circuit will **not** result in the other Reader Circuit losing power.
- Removing the cause of the over-current fault will normally restore power to the affected circuit. If power is not restored after the fault is removed, disconnect the load by removing the RDR1 or RDR2 Terminal Block for about a half-minute. The Resettable Fuse will cool, and allow power to the circuit again when the Terminal Block is plugged onto the PC Board again.

MAINTENANCE

Backup Battery Replacement (UL Listed Sealed Lead Acid 7Ah Battery recommended)



WARNING

Verify that the DC source voltage is disconnected before proceeding with backup battery replacement.

1. Open the NA-2 cabinet and locate the backup battery secured to the lower right of the cabinet.
2. Disconnect the RED lead from the POSITIVE terminal of the battery.
3. Disconnect the BLACK lead from the NEGATIVE terminal of the battery.
4. Remove the old battery.
5. Install the new battery in the reverse order of the removal.
6. Replace the Backup Battery at least once every five years.
7. The battery must be fully charged to get full backup capacity.

NOTE: Because of the Low Battery Voltage Disconnect feature, the NA-2 will not operate until DC power is connected.

Coin Cell Battery Replacement for Real Time Clock

1. Open the NA-2 cabinet and locate the Memory Coin Cell on the left side of the PC Board.
2. Remove the old cell by pressing backward and downward.
3. Replace the Lithium Cell only with a Panasonic or Rayovac CR2032. Use of another Battery may present a risk of Fire or Explosion.
4. When installing the new cell, use plastic forceps, or handle the cell by its edge to avoid contaminating the conductive surfaces of the device.
5. The expected life of the Lithium Cell is ten years. Changing

CAUTION

RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE MANUFACTURERS RECOMMENDATION.

ing the battery every five years is recommended.

SPECIFICATIONS

POWER RATINGS

The NA-2 comes equipped from the factory with a 12.6VDC, 2.5A switching power supply adapter. This adapter is compatible with both 120VAC/60Hz (North America) and 230VAC/50Hz (European Union) power sources and requires no configuration by the installer. Napco Access recommends connecting the unit to a dedicated, unswitched power outlet to minimize the risk of interference from other devices sharing the same electrical circuit.

Power Supply Input Voltage	Power Supply Output Current (Maximum)	12V 7AH Standby Battery	Battery Backup
		Standby Power with Max Reader Load	4.0 HRS (NA-2)
AC 120VAC/60Hz AC 230VAC/50Hz	12.6VDC @ 2.5Amps	With Max Reader Load and 400mA EM Locks or Accessory Power	2.0 HRS (NA-2)

Environmental and Regulatory (Surface Mounted)		Comments
Temperature Range Operating Temperature Range Storage		32 - 120°F (0 - 49°C) 32 - 149°F (0 - 65°C)
Relative Humidity		0% to 85% non-condensing
Compliance		UL 294 Access Control (USA)

Configurable from Software	Quantity	Comments
Time Schedules	256	Standard
Access Groups	1000	Standard
Link Programs	64	Standard
Facility Codes	10	Standard
Holidays	50	Standard
Transaction Buffer	1000	Standard

Cables	AWG	Type	Maximum Length
Power Cable (12VDC)	18 ga.	Stranded, shielded, w/drain 2-conductor	9.4ft. (2.87m)
Alarm Inputs	22 ga.	Stranded, shielded, w/drain 2-conductor	500 ft. (153m)
Readers: Magnetic Stripe , Wiegand/Proximity and RS485	22 ga.	Stranded, shielded, w/drain 5-conductor (Twisted pair is only used with RS485)	500 ft. (153m)
Ethernet	23/24 ga.	Shielded or Unshielded Cat 5, Cat 5e, Cat 6 or Cat 6a cable	328 ft. (100m)
Relay Lock Circuits	18 ga.	Stranded, shielded, w/drain	500 ft. (153m)
12VDC Accessory Output	18-22 ga.	Stranded, shielded, w/drain	500 ft. (153m)

SPECIFICATIONS

Feature	Specifications
CardAccess Compatibility	Full function on or off line
Card Holder Credential Capacity	25,000 Card Holders
Number of Doors Supported	2 doors
Reader Types	Wiegand / Proximity, Magnetic Stripe, Prox / PIN and OSDP support using port J11. (4 bit, 8bit, Weigand 26 bit)
Reader Capacity	2 Readers
Reader Power Output	12VDC, 200mA max per reader (Total 400mA)
Reader LED Outputs	2 active low LEDs, one per Reader (50mA limit)
Supervised Alarm Inputs	5 on Board: (2) Door Contacts (2) Request to Exit Devices plus (1) Accessory Alarm Inputs. All inputs are dry contacts only.
Output Relays	2 on board. Form C, Selectable for Wet/Dry. Dry Relay, 2 Amps per Relay @ 12/24V up to 28V AC/DC; Wet Relay 1.6 Amps Total for both relays including the 12V Accessory Output @ 12VDC.
Console Relay	1 on board. Form C, Dry Relay Only, 2 Amps @ 12/24V up to 28V AC/DC
12V Out	12VDC Output, 1.6A total combined, shared with the two Wet Relay Outputs (Power Limited Output). Battery Backed.
Relay Circuit Protection	All relays - Circuit protected
Memory	16MB on board
FRAM	1,250 Standard transaction buffer. FRAM 512KB Dedicated
Access Modes	Card Only, Unique PIN only, Card and PIN, Common Code, Free Access
Ethernet Port	One 10/100 Base-T (Built-in)
Communication Modes	Ethernet—10/100 Base-T
Data Encryption	AES128 Encryption
Downloadable Firmware	Via Software Request with Fast Server Loaded to FLASH memory in 20 seconds or less.
Diagnostic LEDs	Main Interface Board DC Power Indicator—(1 LED) - Viewable through cabinet door
Clock Battery Backup	Greater than 5 years at 25°C (field-replaceable by qualified service personnel only)
Battery Backup	12V 7AH Battery (UL Listed Sealed Lead Acid 7Ah Battery recommended) Standby Power with max reader load: 4 HRS (NA-2) Standby Power with max reader load and 400mA EM Locks: 2 HRS (NA-2)
Enclosure Dimensions (Height x Width x Depth)	Cabinet: Height: 11" (279.4 mm) Width: 12" (304.8 mm) Depth: 3" (76.2 mm)
Weight	5 pounds (2.267Kg), approx. 10 lbs. (with a 7AH battery installed)

OTHER RATINGS

Summarized levels of Access Control Units according to UL 294

Access Control Features

Models	Destructive Attack	Line Security	Endurance	Standby power
NA-2	1	1	IV	III

All Models	Class (Level)	1
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APPENDIX A: Relays, Inputs, I/O and Virtual Inputs Board Mapping

Relay Mapping

Main Board

<u>Board Label</u>	<u>Relay # Mapped</u>
STK 1	Relay # 1
STK 2	Relay # 3
CONSOLE	Relay # 73

Input Mapping

Main Board

<u>Board Label</u>	<u>Input # Mapped</u>
Reader 1 DS / RT (Door Sensor)	Input # 1
Reader 1 REX / RT (Bypass Input)	Input # 2
Reader 2 DS / RT (Door Sensor)	Input # 3
Reader 2 REX / RT (Bypass Input)	Input # 4
AL 5 / Tamper Input (optional)	Input # 5
Fire Alarm Input	Input # 73

I/O Board Mapping (CICP1300IOCOMBO)

If using an I/O Board (CICP1300IOCOMBO) the relays are mapped utilizing **Relays #5-52** and the inputs are mapped utilizing **Inputs #9-56**. If using an I/O Board, please refer to the CICP1300IOCOMBO “**Installation and Service Manual, WI1473.**”

Virtual Inputs

NOTE: Virtual Inputs for Reader 1 and Reader 2 will not be available if Expansion Board # 3 is used.

Reader 1

<u>Function</u>	<u>Input</u>
Forced Door	49
Valid Tracked	50
Void / Denied Card	51
Open Too Long	52

Reader 2

<u>Function</u>	<u>Input</u>
Forced Door	53
Valid Tracked	54
Void / Denied Card	55
Open Too Long	56

APPENDIX B: Factory Reset Procedures

Clear Memory and Force Full Download to Panel

Performing this reset will clear all the memory in the panel and will request a full data download from software.

1. Note location of default switches, see image below.
2. Move the **DATA** jumper to the **bottom two pins**
3. Press and hold the reset (RST) button for at least 2-5 seconds.
4. Wait about 15 seconds.
5. Move the **DATA** jumper back to the **top two pins**.

Panel memory is cleared. The panel will request a full download.

Clear Firmware and Force Firmware Download to Panel

Performing this reset will clear all the firmware in the panel and will request a new firmware download from software.

1. Note location of default switches, see image below.
2. Move the **FW** jumper to the **bottom two pins**
3. Press and hold the reset (RST) button for at least 2-5 seconds.
4. Wait about 15 seconds.
5. Move the **FW** jumper back to the **top two pins**.

Panel firmware is cleared. The panel will request a firmware download.

Ethernet Reset Procedures

Default Network Settings to DHCP

Performing this reset will default the network settings back to DHCP from STATIC.

1. Note location of default switches, see image below.
2. Move the **DHCP** jumper to the **bottom two pins**
3. Press and hold the reset (RST) button for at least 2-5 seconds.
4. Wait about 15 seconds.
5. Move the **DHCP** jumper back to the **top two pins**.

Network Settings will be set back to DHCP.

Reset NLM Username and Password

Performing this reset will default the NLM user name and password back to the factory settings

1. Note location of default switches, see image below.
2. Move the **PW** jumper to the **bottom two pins**
3. Press and hold the reset (RST) button for at least 2-5 seconds.
4. Wait about 15 seconds.
5. Move the **PW** jumper back to the **top two pins**.

User name and password will be set back to
username=admin
Password=admin

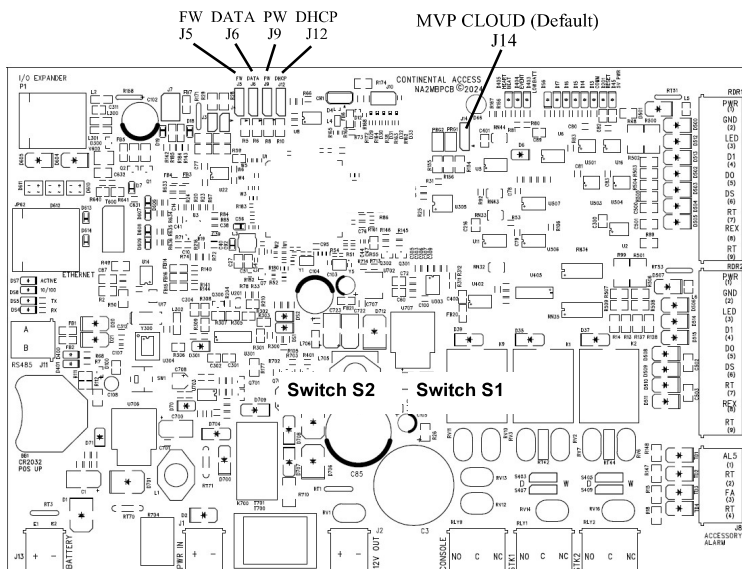
Setting Default Values for MVP Cloud URL and Port

Performing this reset will default the Cloud URL and Remote port back to MVP.

1. Note location of default switches, see image left.
2. Put a Jumper onto the **bottom two pins** on **J14**
3. Press and hold the reset (RST) button for at least 2-5 seconds.
4. Wait about 15 seconds.
5. Remove the jumper from **J14** completely.

MVP Cloud settings have been restored

Default Jumpers Locations



NAPCO LIMITED WARRANTY

NAPCO SECURITY TECHNOLOGIES, INC. (NAPCO) warrants its products to be free from manufacturing defects in materials and workmanship for *thirty-six months* following the date of manufacture. NAPCO will, within said period, at its option, repair or replace any product failing to operate correctly without charge to the original purchaser or user.

This warranty shall not apply to any equipment, or any part thereof, which has been repaired by others, improperly installed, improperly used, abused, altered, damaged, subjected to acts of God, or on which any serial numbers have been altered, defaced or removed. Seller will not be responsible for any dismantling or reinstallation charges.

THERE ARE NO WARRANTIES, EXPRESS OR IMPLIED, WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. THERE IS NO EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY OR A WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE. ADDITIONALLY, THIS WARRANTY IS IN LIEU OF ALL OTHER OBLIGATIONS OR LIABILITIES ON THE PART OF NAPCO.

Any action for breach of warranty, including but not limited to any implied warranty of merchantability, must be brought within the six months following the end of the warranty period. IN NO CASE SHALL NAPCO BE LIABLE TO ANYONE FOR ANY CONSEQUENTIAL OR INCIDENTAL DAMAGES FOR BREACH OF THIS OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED, EVEN IF THE LOSS OR DAMAGE IS CAUSED BY THE SELLER'S OWN NEGLIGENCE OR FAULT.

In case of defect, contact the security professional who installed and maintains your security system. In order to exercise the warranty, the product must be returned by the security professional, shipping costs prepaid and insured to NAPCO. After repair or replacement, NAPCO assumes the cost of returning products under warranty. NAPCO shall have no obligation under this warranty, or otherwise, if the product has been repaired by others, improperly installed, improperly used, abused, altered, damaged, subjected to accident, nuisance, flood, fire or acts of God, or on which any serial numbers have been altered, defaced or removed. NAPCO will not be responsible for any dismantling, reassembly or reinstallation charges.

This warranty contains the entire warranty. It is the sole warranty and any prior agreements or representations, whether oral or written, are either merged herein or are expressly cancelled. NAPCO neither assumes, nor authorizes any other person

purporting to act on its behalf to modify, to change, or to assume for it, any other warranty or liability concerning its products.

In no event shall NAPCO be liable for an amount in excess of NAPCO's original selling price of the product, for any loss or damage, whether direct, indirect, incidental, consequential, or otherwise arising out of any failure of the product. Seller's warranty, as hereinabove set forth, shall not be enlarged, diminished or affected by and no obligation or liability shall arise or grow out of Seller's rendering of technical advice or service in connection with Buyer's order of the goods furnished hereunder.

NAPCO RECOMMENDS THAT THE ENTIRE SYSTEM BE COMPLETELY TESTED WEEKLY.

Warning: Despite frequent testing, and due to, but not limited to, any or all of the following; criminal tampering, electrical or communications disruption, it is possible for the system to fail to perform as expected. NAPCO does not represent that the product/system may not be compromised or circumvented; or that the product or system will prevent any personal injury or property loss by burglary, robbery, fire or otherwise; nor that the product or system will in all cases provide adequate warning or protection. A properly installed and maintained alarm may only reduce risk of burglary, robbery, fire or otherwise but it is not insurance or a guarantee that these events will not occur. CONSEQUENTLY, SELLER SHALL HAVE NO LIABILITY FOR ANY PERSONAL INJURY, PROPERTY DAMAGE, OR OTHER LOSS BASED ON A CLAIM THE PRODUCT FAILED TO GIVE WARNING. Therefore, the installer should in turn advise the consumer to take any and all precautions for his or her safety including, but not limited to, fleeing the premises and calling police or fire department, in order to mitigate the possibilities of harm and/or damage.

NAPCO is not an insurer of either the property or safety of the user's family or employees, and limits its liability for any loss or damage including incidental or consequential damages to NAPCO's original selling price of the product regardless of the cause of such loss or damage.

Some states do not allow limitations on how long an implied warranty lasts or do not allow the exclusion or limitation of incidental or consequential damages, or differentiate in their treatment of limitations of liability for ordinary or gross negligence, so the above limitations or exclusions may not apply to you. This Warranty gives you specific legal rights and you may also have other rights which vary from state to state.



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