## Installation

1. A single M1XIN Expander can be mounted inside the M1 enclosure on the left hand side of the M1 board using the supplied SWG Circuit Board Glides. If additional expanders are required, they can be mounted in either an SWB14, SWB28 enclosure (or remotely in a Ness DX housing). Up to 8 expanders can be mounted in an SWB14 while up to 16 expanders can be mounted in an SWB28.

   The SWG Circuit Board Glides attach to the enclosure at strategically placed 2-hole punch patterns. Note that one hole in each pattern is slightly larger than the other. The small hole is for a 6/32 type "F" mounting screw and the large hole is for a half-moon shape locator tab on the bottom of each glide.

   ELK-SWG
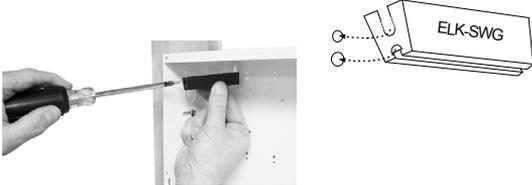
2. Starting at the top left corner, loosely start a 6/32" mounting screw in the small hole of the first 2-hole pattern. Place the slotted edge of a board glide under this screw, making sure that the half-moon tab fits into the larger hole and the grooved edge is facing down. Tighten the screw using a long shafted screwdriver. Install a second board glide in the 2-hole pattern 152mm below. Attach the second board glide using the same procedures. The grooved edge of this glide should face up.

3. Slide the M1XIN board into the grooves provided by the glides. The circuit board should slide freely. If loose or too tight, simply loosen one of the mounting screws and adjust the glide to assure a good fit.
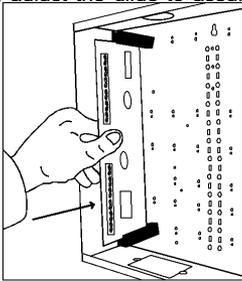
## Wiring Connections

1. Turn Control Panel Master Power Switch Off.
2. Use a 4 wire cable to connect terminals +VKP, Data A, Data B, and Neg from Control to terminals 12V, A, B, and Neg on the M1XIN. NOTE: If the zone expander is remotely mounted, refer to information on the back and in the M1 Installation Manual for important information about data bus devices connected to multiple homerun cables.
4. Set Address Switches according to Table 1.
5. Power up the Control and the expander(s).
6. Use Keypad to access the Installer Programming Mode and go to Menu 01-Bus Module Enrollment. Press the right arrow key to start enrollment. To view the results, press the right arrow "edit" key.
6. Go to Menu 05-Zone Definitions and enable any of the new zones. Zone numbers printed on the boards are relative to that board only. The actual zone ID is based on the starting address setting.

NOTE: If it becomes necessary to replace an enrolled device, set the new unit to the same address and repeat the enrollment. If permanently removing a device, un-enroll it to prevent a trouble condition.

05/05

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# 16 Zone Expander
# ELK-M1XIN

**APPLICATION:**
The **M1XIN** adds 16 hardwired zones (EOL resistor supervised) to the M1 or M1G Control. It operates on the 4-wire data bus and features flash memory which allows field updating of its operating firmware. Up to 12 zone M1XIN boards may be connected, increasing total zones (inputs) to 208.

N55

*Ness*

## 16 Zone Expander M1XIN    *101-210*

## FEATURES:
- 16 EOL Resistor Supervised Hardwire Zones
- Operates on the 4-Wire Data Bus
- DIP Switch Address Settings
- Flash Memory for Firmware Updating
- Plug-In Terminal Strips
- Status and Diagnostic LED
- On-Board EOL Bus Termination Jumper
- Vertical Mounting using ELK-SWG Glides (included)
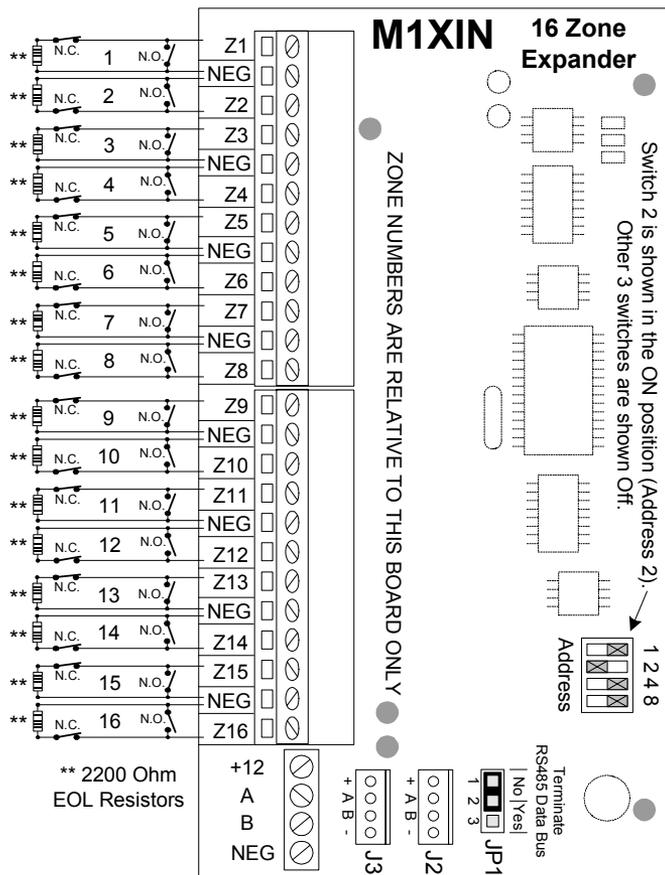
## SPECIFICATIONS:
- Inputs: Plug-In Terminals with Elevator Style Wire Clamps and Screws
- Operating Power Range: 9 to 14 VDC
- Current Draw: 65 mA
- Size: 152.4mm x 82.5mm x .190.5 H

**Instructions Printed On Inside**

**M1XIN** **16 Zone Expander**

** 2200 Ohm EOL Resistors

ZONE NUMBERS ARE RELATIVE TO THIS BOARD ONLY

Switch 2 is shown in the ON position (Address 2) Other 3 switches are shown Off.

Address

Terminate RS485 Data Bus | No |Yes|

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**ADDRESS SETTING:** Locate the four "Address" switches. Each has a position of OFF or ON (binary 0 or 1) with a decimal equivalent of (1, 2, 4, or 8). The total decimal value for the "ON" switches sets the bus address. This determines which inputs (banks of 16) are assigned to the expander. E.G. Address 5 would be set with switches 1 and 4 ON (1+4=5) and switches 2 and 3 OFF. Inputs Expanders are factory pre-set to address 2 (Zones "Inputs" 17 to 32).

| Addr | Input Expander | Addr | Input Expander |
|------|----------------|------|----------------|
| 1 = | N/A (main bd) | 8 = | Zones 113-128 |
| 2 = | Zones 17-32 | 9 = | Zones 129-144 |
| 3 = | Zones 33-48 | 10 = | Zones 145-160 |
| 4 = | Zones 49-64 | 11 = | Zones 161-176 |
| 5 = | Zones 65-80 | 12 = | Zones 177-192 |
| 6 = | Zones 81-96 | 13 = | Zones 193-208 |
| 7 = | Zones 97-112 | | |

**TABLE 1**

## Utilizing an M1DBH Data Bus Hub (Ness Part # 101-207)

Since the M1XIN connects to the M1's RS-485 Data Bus, it can be installed inside the Control or virtually anywhere along the data bus. The Data Bus requires only 4 wires, 2 for power + 2 for data. However, due to the relatively high speed of the data bus, special wiring connections are necessary to avoid data reflection errors on long cables OR multiple cable "homeruns". **See the M1 Installation Manual for important information about Data Bus termination, including methods and recommendations for avoiding data bus problems.** The primary goal is to have no more than 2 data bus branches (cables) running from the control, with each being terminated at its end using a 120 Ohm end of line resistor. There are two ways to accomplish this goal. 1) Using 4-wire cable, run no more than 2 cables and connect all devices paralleled (daisy chained) along this cable path. OR 2) Using 6 or 8 wire cables (CAT5 or CAT6 is ideal), run as many cables as you want so long as the data A & B wires are connected to a spare pair of wires so that they double back (return) to the control and are connected in series to the outgoing data A & B lines of the next cable. By keeping the data lines in a series circuit it will appear to be one long cable. This virtually eliminates data reflection errors. This is easily done using an M1DBH Data Bus Hub.