## Installation

1. The M1DBHR can be mounted inside the M1 enclosure on the left or right hand side of the M1 board using the supplied ELK-SWG Circuit Board Glides. If all the mounting locations are consumed, an additional ELK-SWB14 or ELK-SWB28 enclosure may be installed.

   The ELK-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.

2. Starting at the top, 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 4" below. Attach the second board glide using the same procedures. The grooved edge of this glide should face up.

3. Slide the M1DBHR 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.
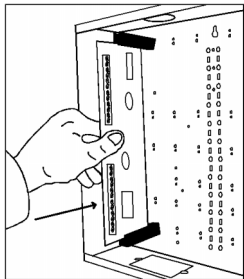
Wiring Connections

1. Turn Control Panel Master Power Switch Off.
2. Use a 4 wire cable to connect the Controls' Data Bus terminals +VKP, Data A, Data B, and Neg from Control to terminals +, A, B, and - on the M1DBHR. NOTE: If existing wires are already attached to the Data Bus terminals, remove them and follow the detailed wiring diagram on the next page. One of the main purposes of the M1DBHR is to connect and distribute most devices and homeruns through it, as opposed to directly to the main control board.
3. Make all connections as per the diagram on the next page.
4. Power up the Control.

REMEMBER: Any data bus devices that are added to the Control MUST have the address switches properly set and they must be enrolled using the Bus Module Enrollment process under the Installer Level Programming.

Data Bus Hub Retrofit
ELK-M1DBHR

APPLICATION:
The **ELK-M1DBHR** is an "active" RS-485 data bus hub designed for jobs where an M1 Control is retrofitting an older panel that has multiple homerun 4 conductor keypad/data wires. It splits the main 485 data bus into 4 managed 485 branches. Each branch can have 2 parallel home run cables for a total of 8 home runs. The end of each cable is EOL terminated to insure proper operation and supervision.

ELK
PRODUCTS, INC.

FEATURES:
- Splits The Controls' RS-485 Data Bus Output Into 4 Managed Branches
- Each Managed Branch Can Have 2 Parallel Home Run Cables (Total Of 8 Home Runs)
- EOL Termination Of Each Branch Insures Proper Operation And Supervision
- Works With Std. 4 Conductor Home Run Wire
- An Additional Unit May Be Connected In Parallel To The Control For Expanding Total Capacity
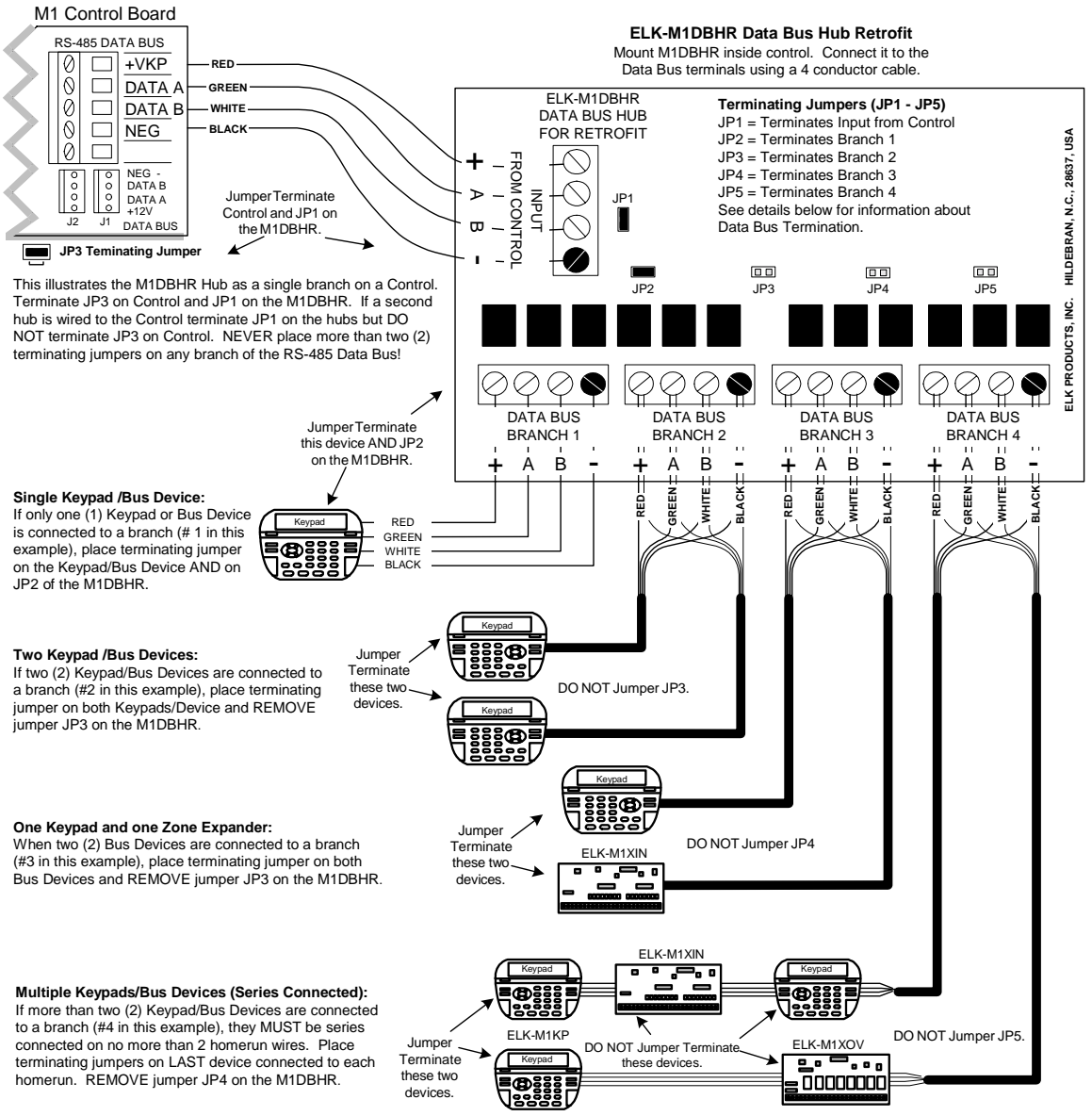- Includes Mounting Rails for ELK-SWB Boxes

SPECIFICATIONS:
- Inputs: Elevator Screw Terminals, 4 Position
- Output: Elevator Screw Terminals, 4 Position
- Circuit Board Dimensions: 4.9" x 2.75"

Instructions Printed On Inside

The **ELK-M1DBHR "Active" Data Bus Hub Retrofit** is ideal for connecting multiple home run cables to the M1. It splits the Controls' main RS-485 Data Bus into 4 managed RS-485 branches. Each branch can have 2 parallel home run cables for a total of 8 home runs. The last (end of line) device on each home run should be jumper terminated to insure proper operation and supervision.

M1 Control Board

RS-485 DATA BUS

+VKP — RED
DATA A — GREEN
DATA B — WHITE
NEG — BLACK

NEG -
DATA B
DATA A
+12V
DATA BUS

J2 J1

JP3 Terminating Jumper

Jumper Terminate Control and JP1 on the M1DBHR.

ELK-M1DBHR Data Bus Hub Retrofit

Mount M1DBHR inside control. Connect it to the Data Bus terminals using a 4 conductor cable.

ELK-M1DBHR DATA BUS HUB FOR RETROFIT

INPUT FROM CONTROL
+
A
B
–

JP1

Terminating Jumpers (JP1 - JP5)
JP1 = Terminates Input from Control
JP2 = Terminates Branch 1
JP3 = Terminates Branch 2
JP4 = Terminates Branch 3
JP5 = Terminates Branch 4
See details below for information about Data Bus Termination.

ELK PRODUCTS, INC.   HILDEBRAN, N.C., 28637, USA

JP2   JP3   JP4   JP5

DATA BUS BRANCH 1 | DATA BUS BRANCH 2 | DATA BUS BRANCH 3 | DATA BUS BRANCH 4
+ A B – | + A B – | + A B – | + A B –

RED GREEN WHITE BLACK (for each branch)

This illustrates the M1DBHR Hub as a single branch on a Control. Terminate JP3 on Control and JP1 on the M1DBHR. If a second hub is wired to the Control terminate JP1 on the hubs but DO NOT terminate JP3 on Control. NEVER place more than two (2) terminating jumpers on any branch of the RS-485 Data Bus!

Jumper Terminate this device AND JP2 on the M1DBHR.

Single Keypad /Bus Device:
If only one (1) Keypad or Bus Device is connected to a branch (# 1 in this example), place terminating jumper on the Keypad/Bus Device AND on JP2 of the M1DBHR.

Keypad
RED
GREEN
WHITE
BLACK

Two Keypad /Bus Devices:
If two (2) Keypad/Bus Devices are connected to a branch (#2 in this example), place terminating jumper on both Keypads/Device and REMOVE jumper JP3 on the M1DBHR.

Jumper Terminate these two devices.

Keypad
Keypad

DO NOT Jumper JP3.

One Keypad and one Zone Expander:
When two (2) Bus Devices are connected to a branch (#3 in this example), place terminating jumper on both Bus Devices and REMOVE jumper JP3 on the M1DBHR.

Jumper Terminate these two devices.

Keypad
ELK-M1XIN

DO NOT Jumper JP4

Multiple Keypads/Bus Devices (Series Connected):
If more than two (2) Keypad/Bus Devices are connected to a branch (#4 in this example), they MUST be series connected on no more than 2 homerun wires. Place terminating jumpers on LAST device connected to each homerun. REMOVE jumper JP4 on the M1DBHR.

Keypad   ELK-M1XIN   Keypad

ELK-M1KP

Jumper Terminate these two devices.

Keypad

DO NOT Jumper Terminate these devices.

ELK-M1XOV

DO NOT Jumper JP5.

The Maximum length of the RS-485 Data Bus or any single Branch is 4000 ft.
Max. devices varies by product.   +VKP protected with 1.25A PTC

END-OF-LINE DATA BUS TERMINATION IS VERY IMPORTANT ! All data bus devices (keypad, expanders, etc.) have terminating jumpers. The jumpers engage a 120 Ohm resistor across data A & B lines. Refer to the individual instruction manuals and the Control hardware pack for the location of these jumpers. *WARNING! DO NOT place more than two (2) terminating jumpers on any branch of the RS-485 Data Bus. Reliability and response will be negatively affected!.*

M1 Control Board

RS-485 DATA BUS

+VKP
DATA A — GREEN
DATA B — WHITE
NEG — BLACK

NEG -
DATA B
DATA A
+12V
DATA BUS

J2 J1

JP3 Terminating Jumper

NOTE: As additional data bus devices are added to the Control the total calculated current draw must be considered. If the total current draw exceeds the limits of the control it will be necessary to add an auxiliary 12 VDC Power Supply. See diagram.

Do Not Connect +VKP to the M1DBHR if it is being powered from an Aux. Power Supply.

ELK-M1DBHR DATA BUS HUB FOR RETROFIT

INPUT FROM CONTROL
+
A
B
–

JP1

Connect all Negatives (-) together to form a "common" negative path.

12 VDC Aux. Power Supply
+ — RED
– — BLACK

AC XFMR

+
–

12V Battery