Status/Lane Indicator Displays
MF-1000 Series

Models MF-1001/1002/1003/1004

Installation and Operation Manual

ED-16705 ***Rev 0*** ***3 January 2007***

DAKTRONICS

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DAKTRONICS

ED-16705
Product 1390
Rev 0 – 3 January 2007

DAKTRONICS, INC.

Reproduction Reference
ED-16705 – Product 1390
MF Series Status/Lane Displays

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1. This page is for reproduction reference only and will not be included in the manual.

2. This manual is to be copied on FRONT AND BACK PAGES – $8^1/_2$ x 11 paper. Note: The first two pages, Cover Page and Copyright Page, use only the front of the page (blank on back). Section heading pages always start on a new page; they are never printed on the back of another page.

3. Insert the drawings in alphanumeric order in **Appendix A.** Use the drawing list in Appendix A to print and arrange the drawings. Print C-size as B-size.

4. Use a blue window cover and a blue back.

5. Punch all pages, window cover, and back cover along the left edge and bind with a binder.

7. Please direct questions and suggestions to Engineering Support.

Table of Contents

List of Figures

Section 1: Introduction

This manual explains the installation, maintenance and troubleshooting of the Daktronics MF-1000 Series Status/Indicator displays. For questions regarding the safety, installation, operation, or service of this system, please refer to the telephone numbers that are listed on the cover page of this manual.

This manual is divided into five (5) sections: **Introduction, Mechanical Installation, Electrical Installation, Maintenance and Troubleshooting,** and **Appendix A**.

- **Introduction** covers the basic information needed to make the most of the rest of this manual. Take time to read the entire introduction because it defines terms and explains concepts used throughout the manual. It also contains an overview of the product and product safety information.
- **Mechanical Installation** provides general guidance on display mounting.
- **Electrical Installation** gives general guidance on terminating power and signal cables at the display.
- **Maintenance and Troubleshooting** addresses such things as removing basic display components, troubleshooting the display, performing general maintenance and exchanging display components.
- **Appendix A** lists the drawings referenced in this manual.

Daktronics identifies manuals by the ED number located on the cover page of each manual. For example, this manual would be referred to as **ED-16705.**

Listed below are a number of drawing types commonly used by Daktronics, along with the information that each is likely to provide. This manual might not contain all these drawings. All drawings referenced in this manual will be found in **Appendix A.**

- **Shop Drawings:** Fan locations, light and temperature sensor locations, sign dimensions, mounting information, power and signal entrance points, and access method (side).
- **System Riser Diagrams:** Overall system layout from control location to the display.
- **Schematics:** Power wiring, signal wiring, panel board or power termination panel assignments, signal termination panel assignments and transformer assignments.
- **Assembly:** Component locations and part numbers for the various circuit boards.

Figure 1 illustrates a Daktronics drawing label. The drawing number is located in the lower-right corner of each drawing. This manual refers to drawings by listing the last set of numbers and the letter preceding them. In the example below, the drawing would be referred to as **Drawing B-206465**.

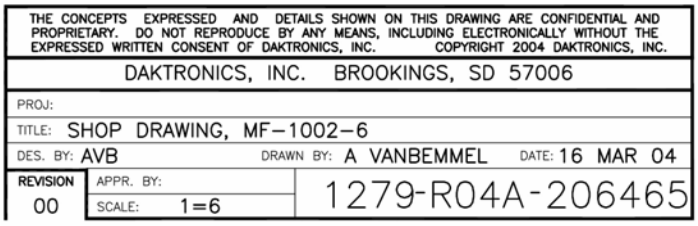


Figure 1: *Daktronics Drawing Label*

All references to drawing numbers, appendices, figures or other manuals are presented in **bold** typeface, as shown below:

"Refer to **Drawing A-206465** in **Appendix A** for the power supply location."

In addition, any drawings referenced within a particular section are listed at the beginning of that section as shown in the following example:

Reference Drawing:

Shop Drawing, MF-1002-6..... **Drawing A-206465**

Daktronics displays are built for long life and to require little maintenance. However, from time to time, certain display components will need to be replaced. The **Replacement Parts List** in **Section 4.5** provides the names and part numbers of components that you may need to order during the life of this display. Most display components have a white label that lists the part number. The component part number is in the following format: 0P-____-____ (circuit board) or 0A-____-____ (multi-component assembly).

Following the **Replacement Parts List** is an explanation of the **Daktronics Exchange and Repair and Return Programs.** Refer to these instructions if any display component needs replacement or repair.

1.1 Safety Precautions

Important Safeguards:

1. Read and understand these instructions before installing the display.
2. Be sure the display is properly grounded with a grounding electrode at the display location.
3. **Disconnect power to the display when it is not in use.**
4. **Disconnect power when servicing the display.**
5. **Do not** modify the display structure or attach any panels or coverings to the display without the written consent of Daktronics, Inc.

1.2 Network Concepts

The concept of using LED technology displays as a cost effective, high impact method of communication is rapidly growing throughout many industries and businesses. The common thread of most requests is the available methods of programming or controlling the displays.

Manual Control (Switch Inputs)

The Daktronics MF Series displays are controlled manually with a switch wired to the display. A two-position switch configuration forces the display to show either of the two message options. A three-position switch configuration forces the display to show either of the two message options or the display can be turned off.

1.3 Product Overview

The MF Series Status and Lane Indicator displays are part of a family of Daktronics LED digit displays designed for easy installation, readability, and reliability.

These displays have the following features:

- These displays use LEDs to illuminate their status or indicator.
- Power usage for individual displays in this series is a maximum 25 W. All models have a 120 V power requirement.
- All MF Series displays are configured with red and green LEDs.
- MF Series cabinets are constructed of heavy-gauge aluminum.
- Digit faceplates are black and are set directly into the surface of the display.
- Mounting weights and dimensions for each model are listed in **Section 2** of this manual.
- The models are equipped with a photo sensor for automatic dimming in changing-light environments.

1.4 Component Identification

The following terms include some of the more commonly used terms when referring to these displays.

This is only a brief overview. Refer to **Section 4** for additional information on maintaining the various display components.

Circuit Board: The LEDs are mounted to a circuit board, which mounts directly to the back of the power supply board.

LED (light emitting diode): LEDs are high-intensity, low-energy lighting units.

1.5 Daktronics Nomenclature

To fully understand some Daktronics drawings, such as schematics, it is necessary to know how various components are labeled in those drawings. You will find this information useful when trying to communicate maintenance or troubleshooting efforts.

The following labeling formats might be found on various Daktronics drawings:

- "TB _ _" denotes a termination block for power or signal cable.
- "E _ _" denotes a grounding point.
- "J _ _" denotes a power or signal jack.
- "P _ _" denotes a power or signal plug for the opposite jack.

Daktronics part numbers are commonly found on drawings. Those part numbers can be used when requesting replacement parts from Daktronics Customer Service. Take note of the following part number formats. (Not all possible formats are listed here.)

- "0P- _ _ _ _- _ _ _ _" denotes an individual circuit board, such as a driver board.
- "0A-_ _ _ _ - _ _ _ _" denotes an assembly, such as a circuit board and the plate or bracket to which it is mounted. A collection of circuit boards working as a single unit may also carry an assembly label.
- "W- _ _ _ _ " denotes a wire or cable. Cables may also carry the assembly numbering format in certain circumstances. This is especially true for ribbon cables.

Most circuit boards and components within this display carry a label that lists the part number of the unit. If a circuit board or assembly is not listed in the **Replacement Parts List** in **Section 4.5**, use the label to order a replacement. A typical label is shown in **Figure 2**. The part number is in bold.

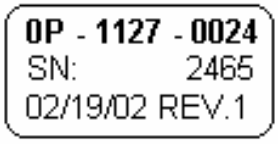


Figure 2: *Typical Label*

Section 2: Mechanical Installation

Note: Daktronics **does not** guarantee the warranty in situations where the display is not constantly in a stable environment.

Daktronics engineering staff must approve **any** changes that may affect the weather-tightness of the display. If any modifications are made, detailed drawings of the changes must be submitted to Daktronics for evaluation and approval, or the warranty may be void.

Daktronics is not responsible for installations of structural integrity of support structures done by others. It is the customer's responsibility to ensure that a qualified structural engineer approves the structure and any additional hardware.

2.1 Mechanical Installation Overview

Mechanical installation consists of mounting the display on parking facility walls.

The table below shows all of the weights and dimensions for each model in this series.

Model	Digit Height/Color	Single Face Cabinet Dimensions (Height, Width, Depth)	Approx. Weight (per Section)
MF-1001-4	4" (102 mm) Red plus Green	H7", W17.25", D2.5" (178 mm, 438 mm, 64 mm)	10 lb (4.5 kg)
MF-1001-6	6" (153 mm) Red plus Green	H10", W23.25", D2.5" (254 mm, 591 mm, 64 mm)	15 lb (6.8 kg)
MF-1002-4	4" (102 mm) Red plus Green	H7", W17.25", D2.5" (178 mm, 438 mm, 64 mm)	10 lb (4.5 kg)
MF-1002-6	6" (153 mm) Red plus Green	H10", W23.25", D2.5" (254 mm, 591 mm, 64 mm)	15 lb (6.8 kg)
MF-1003-9	9" (229 mm) Red plus Green	H11.5", W11.5", D2.5" (292 mm, 292 mm, 64 mm)	10 lb (4.5 kg)
MF-1003-14	13.5" (343 mm) Red plus Green	H18", W18", D2.5" (457 mm, 457 mm, 64 mm)	15 lb (6.8 kg)
MF-1004-9	9" (229 mm) Red plus Green	H11.5", W11.5", D2.5" (292 mm, 292 mm, 64 mm)	10 lb (4.5 kg)
MF-1004-14	13.5" (343 mm) Red plus Green	H18", W18", D2.5" (457 mm, 457 mm, 64 mm)	15 lb (6.8 kg)

MF-1000 Series Installation

Reference Drawings:

MF-1000 Series Display Installation..... **Drawing A-222256**
Shop Drawings ..... **See Appendix A**

The MF Series cabinets contain two horizontal extrusions, two end plates, a polycarbonate face, and a backsheet. The LEDs are all contained in one circuit board that slides into grooves in the extrusions. Another circuit board attached to the LED board has the transformers mounted to it.

Installation of the MF Series displays consists of the following steps:

1. Remove the backsheet by first unscrewing the two #6 screws on the bottom of the display and then sliding the backsheet down and away from the display.
2. Knock out one of the two access holes, as shown in **Drawing A-222256**, from the inside of the backsheet to the outside. This hole will be used to route pigtail wires to the driver circuit of the display.
3. Attach the backsheet to the wall where desired. Two keyholes in the backsheet allow mounting to two #10 screws.

Section 3: Electrical Installation

Daktronics MF Series Status/Lane Indicator displays are ETL listed and tested to CSA standards. Contact Daktronics with any questions regarding the testing procedures.

Only qualified individuals should perform power routing and termination to the display. It is the responsibility of the electrical contractor to ensure that all electrical work meets or exceeds local and national codes.

3.1 Preparing for Power/Signal Connections

Reference Drawings:

Shop Drawings..... **Refer to Appendix A**
MF-1000 Series Display Installation ..... **Drawing A-222256**

Electrical installation consists of the following processes:

- Providing power and ground to a disconnect near the display.
- Routing power and ground from the main disconnect to the display enclosure.
- Connecting the ground to a grounding electrode at the display location.

Drawing A-222256 for displays in this series shows the locations of internal components and electrical access holes. Refer to these drawings before making power connections. Power terminates to the control board in the display enclosure. Termination is to be completed by the customer's electrician.

3.2 Power and Grounding Connections

Correct power and grounding installation is imperative for proper display operation. The subsections that follow give details of display power and installation. Only qualified individuals should attempt to complete the electrical installation. Improper installation could result in serious damage to the equipment and could be hazardous to personnel.

Power

Daktronics status/lane indicator displays have been designed for easy access to components and to power.

Daktronics MF Series Status/Lane Indicator displays require a dedicated 120 VAC circuit for incoming power. The display itself has no breakers or fuses.

Power conductors and conduit are to be sized and installed by the customer's electrician. Knockout-type access holes for the conduit are $^{7}/_{8}$" and located on the back plate.

The table below shows the circuit specifications and maximum power requirements for each model in this series. Models are listed in order by size and display type.

Model	Digit Height/Color	Maximum Wattage	Power	Amps per Line
MF-1001-4	4" (102 mm) Red plus green	15 W	120 VAC	0.125 A
MF-1001-6	6" (152 mm) Red plus green	15 W	120 VAC	0.125 A
MF-1002-4	4" (102 mm) Red plus green	15 W	120 VAC	0.125 A
MF-1002-6	6" (152 mm) Red plus green	15 W	120 VAC	0.125 A
MF-1003-9	9" (229 mm) Red plus green	15 W	120 VAC	0.125 A
MF-1003-14	13.5" (343 mm) Red plus green	15 W	120 VAC	0.125 A
MF-1004-9	9" (229 mm) Red plus green	15 W	120 VAC	0.125 A
MF-1004-14	13.5" (343 mm) Red plus green	15 W	120 VAC	0.125 A

Grounding

Reference Drawings:

Shop Drawings .....**Refer to Appendix A**

Displays **MUST** be grounded according to the provisions outlined in Article 250 of the National Electrical Code and according to the specifications in this manual. Daktronics requires a resistance-to-ground of 10 ohms or less.

The contractor performing the electrical installation can verify ground resistance. Technicians from Daktronics Sales and Service offices can also provide this service.

The display system **must** be connected to an earth electrode installed at the display. Proper grounding is necessary for reliable equipment operation. It also protects the equipment from damaging electrical disturbances and lightning. **The display must be properly grounded, or the warranty will be void**. Refer to the shop drawings in **Appendix A** for information on where to connect the grounding wire. Connection at the driver enclosure terminal block is illustrated at the bottom of the drawing.

The material for an earth-ground electrode differs from region to region and may vary according to conditions present at the site. Consult the National Electrical Code and any local electrical codes that may apply. The support structure of the display cannot be used as an earth-ground electrode. The support is generally embedded in concrete. If it is in earth, the steel is usually primed, or it corrodes, making it a poor ground in either case.

Power Installation

There are two considerations for power installation: installation with ground and neutral conductors provided, and installation with only a neutral conductor provided.

These two power installations differ slightly, as described in the following paragraphs:

Installation with Ground and Neutral Conductors Provided
For this type of installation, the power circuit **must** contain an isolated earth-ground conductor. Under this circumstance, **do not** connect neutral to ground at the disconnect or at the display. This would violate electrical codes and void the warranty. Use a disconnect so that all hot lines and neutrals can be disconnected. The National Electrical Code requires the use of a lockable power disconnect within sight of or at the display.

Installation with Only a Neutral Conductor Provided
Installations where no grounding conductor is provided must comply with Article 250-32 of the National Electrical Code. If the installation in question meets all of the requirements of Article 250-32, the following guidelines must be observed:

- Connect the grounding electrode cable at the local disconnect, never at the display power enclosure.
- Use a disconnect that opens all the ungrounded phase conductors.

3.3 Lightning Protection

The use of a disconnect near the display to completely cut all current-carrying lines significantly protects the circuits against lightning damage. The National Electrical Code also requires it. In order for this device to provide protection, the power **must** be disconnected when the display is not in use.

3.4 Manual Control Functions (Switch Inputs)

Reference Drawing:

Models MF-1001, MF-1002, MF-1003, and MF-1004.. **Drawing A-208524**
MF-1000 Series Display Installation ..... **Drawing A-222256**

This is the simplest control scheme, suitable for low cost applications where an integrated, remote control system is not needed. Using the switch, a display can show 'OPEN', 'CLOSED', 'FULL', 'X', or a diagonal arrow, depending on the model. An optional three way switch will give a blank display as well. Refer to **Drawing A-208524**.

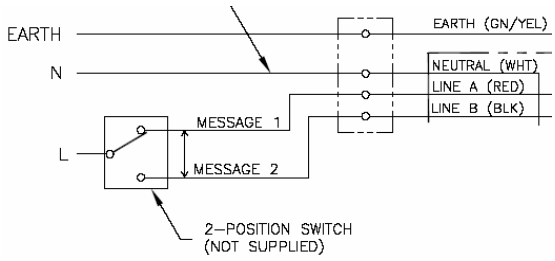


Figure 3: *Manual Control Layout*

The signal will be sent using two wires from the switch to the display. The switch is switching 120 VAC between Lines A & B; it is not switching a signal. Refer to **Figure 3** and **Drawing A-222256** for system layout.

Use 18 AWG or larger cable to connect the switch to the display as shown in **Drawing A-222256**.

3.5 Automatic Dimming Operation

The display's brightness is automatically adjusted by the use of a photo cell circuit. The display brightness can also be adjusted be the potentiometer (POT) located on the power supply. The POT controls the display's brightness limit. Rotate the knob clockwise to increase the display's brightness limit and rotate it counter clockwise to lower the display's brightness limit.

Section 4: Maintenance and Troubleshooting

IMPORTANT NOTES:

- **Disconnect power before doing any repair or maintenance work on the display.**
- **Permit only qualified service personnel to access internal display electronics.**
- **Disconnect power when the display is not in use.**

4.1 Cabinet Specifications

Reference Drawing:
MF-1000 Series Display Installation ..... **Drawing A-222256**

Cabinets for the Daktronics outdoor LED digit displays are constructed of heavy gauge aluminum. Refer to **Drawing A-222256** in **Appendix A** for instructions on mounting the cabinet.

4.2 Component Location and Access

Displays in the MF Series consist of three main components: the enclosure, the power supply circuit board, and the display circuit board.

Displays are made up of a single circuit board that slides into grooves in the horizontal extrusions of the enclosure.

The MF Series displays are side-access, meaning that the displays open from the side for all service. Removing an end plate will allow access to all the internal components.

To remove an end plate and access components, complete the following steps:

1. Disconnect power to the display.
2. Unscrew the four #6 flathead screws on the side of the display that secure the end plate onto the enclosure.
3. Carefully slide the panel out the open end of the display.
4. Disconnect all wires for easier access to the internal components.

4.3 Service and Diagnostics

Panel/Power Supply Circuit Replacement

The circuit board is the platform for the LEDs. Do not attempt to remove individual LEDs. In the case of a malfunctioning board, replace the entire panel and power supply circuit.

To remove and replace a panel, follow these steps:

1. Disconnect power to the display.
2. Follow the steps in **Section 4.2** to gain access to the panel.
3. Completely remove the panel/power supply circuit assembly from the display.
4. Locate the replacement panel and attach the wiring to this new panel.
5. Slide the replacement panel into the enclosure.

4.4 Troubleshooting

This section lists some symptoms that may be encountered with the display. For these symptoms, possible cause and corrective actions are indicated. This list does not include every possible problem, but does represent some of the more common situations that may occur.

Symptom/Condition	Possible Cause or Corrective Action
Entire display fails to work	• Check for proper line voltage at termination panel • Has coating covering the contacts on the board(s) • 4-pin Mate-N-Lok is not secured properly • Power supply malfunction
One LED set won't light	• Has coating covering the contacts on the board(s) • Power supply malfunction
Both sets of LEDs are on	• Power contacts 1 and 3 are shorted together • Power supply malfunction
Single or multiple LEDs won't light	• Broken leads • Bad solder joints • Damaged LEDs
Display brightness does not automatically adjust	• The jumper on X1 of the power supply is not on the middle two pins (pins 2 and 3) • Make sure POT is rotated all the way on (clockwise) **Note:** The POT sets the maximum brightness of the auto dimming circuit; if it isn't all the way on, you may not notice a change in brightness • Verify photo cell is lined up with its corresponding hole in the display board • Power supply malfunction

4.5 Replacement Parts

To prevent loss due to theft, Daktronics recommends purchasing a lockable cabinet to store manuals and replacement/spare parts.

Following is a list of parts used in the Daktronics parking displays:

Description	Daktronics Part Number
Power Supply, Dual Transformer, 120 V	0P-1279-0005
Display; 4”, Open/Closed, Green/Red, Parking Garage	0P-1390-0001
Display; 4”, Open/Full, Green/Red, Parking Garage	0P-1390-0011
Display; 6” Open/Closed, Green/Red, Parking Garage	0P-1390-0002
Display; 6”, Open/Full, Green/Red, Parking Garage	0P-1390-0012
Display; 9"; Down Arrow/X, Green/Red, Parking Garage	0P-1390-0021
Display; 9", Diagonal Arrow/X, Green/Red, Parking Garage	0P-1390-0031
Display; 14", Down Arrow/X, Green/Red, Parking Garage	0P-1390-0022
Display; 14", Diagonal Arrow/X, Green/Red, Parking Garage	0P-1390-0032

4.6 Daktronics Exchange and Repair & Return Programs

To serve customers' repair and maintenance needs, Daktronics offers both an Exchange Program and a Repair & Return Program.

Exchange Program

Daktronics' unique Exchange Program is a quick, economical service for replacing key parts in need of repair. If a part requires repair or replacement, Daktronics sends the customer a replacement, and the customer sends the problem part to Daktronics. This not only saves money but also decreases display downtime.

To participate in the Exchange Program, follow these steps.

1. **Call the local Daktronics representative or the Daktronics Customer Call Center:** (800) 833-3157 (toll free) or 605-697-4958. Choose option 2 to have a Customer Service Coordinator order a new part.

2. **When the new exchange part is received, mail the old part to Daktronics.** If the replacement part fixes the problem, send in the problem part that is being replaced.
    - **a.** Package the old part in the same shipping materials in which the replacement part arrived.
    - **b.** Fill out and attach the enclosed UPS shipping document.
    - **c.** Ship the part to Daktronics.

3. **You will be billed for the replacement part immediately, unless you have a qualifying service agreement in place.**
   In most circumstances, you will be invoiced for the replacement part at the time it is shipped. This bill, which represents the exchange price, is due when you receive it.

4. **You must send the problem part to Daktronics within 30 days.**
   If you do not ship it to Daktronics within 30 working days from the invoice date, Daktronics assumes you are purchasing the replacement part outright with no exchange. You will therefore be invoiced for the replacement part at the full purchase price, with the balance due upon receipt. The second invoice represents the difference between the exchange price (billed previously) and the full purchase price of the part. If you return the exchange equipment after 30 working days from the invoice date, you will be credited for the amount on the second invoice, minus a restocking fee.

   Note: Second invoice policies also apply to customers with qualifying service agreements in place.

To avoid a restocking charge, return the part which has been replaced within 30 days of the invoice date.

5. **If the replacement part does not solve the problem, return the part within 30 working days or you will be billed for it at full purchase price.**
   If, after you make the exchange, the equipment still causes problems, please contact our Customer Call Center immediately. Daktronics expects immediate return of an exchange part if it does not solve the problem. The company also reserves the right to refuse parts that have been damaged due to acts of nature or causes other than normal wear and tear.

Repair & Return Program

For items not subject to exchange, Daktronics offers a Repair & Return Program. To send a part for repair, follow these steps.

1. **Call your local Daktronics representative or the Daktronics Customer Call Center:** (800) 833-3157 (toll free) or 605-697-4958

2. **Receive a Return Materials Authorization (RMA) number before shipping.**
   This expedites repair of your part.

3. **Package and pad the item carefully to prevent damage during shipment.**
   Electronic components, such as printed circuit boards, should be placed in an antistatic bag before boxing.

4. **Enclose:**
   - your name
   - address
   - phone number
   - the RMA number
   - a clear description of symptoms

How to reach us

Mail: Customer Service, Daktronics
PO Box 5128
331 32nd Ave
Brookings, SD 57006

Phone: Daktronics Customer Call Center:
(800) 833-3157 (toll free) or 605-697-4958

Fax: 605-697-4444

Email: vanguardhelp@daktronics.com

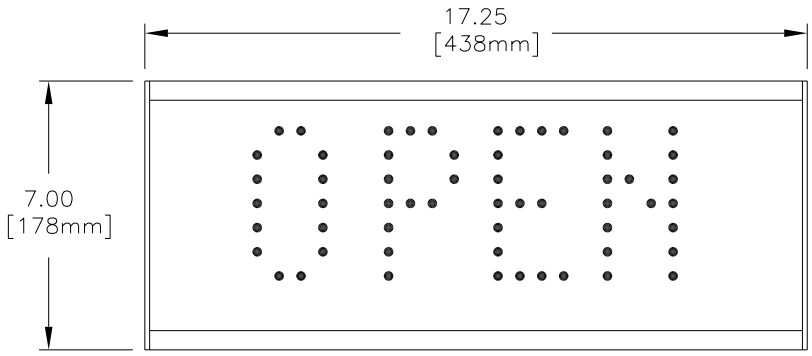
Before Contacting Daktronics

If any problems or questions arise, do not hesitate to contact Daktronics. During a service call, several items are necessary to assist the technician. Having the following information on hand during the call or included in the email, fax, or letter will help us to better serve our customers' needs.

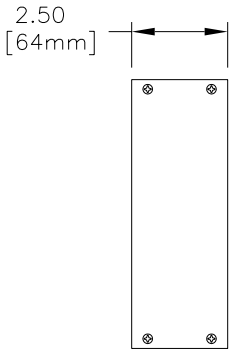
- Sign location:
- Site Register:
- Contract Number:
- Customer Number:

Appendix: Reference Drawings

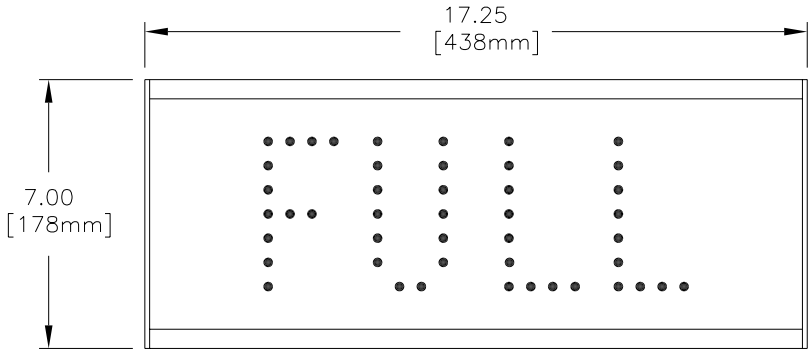
Drawings in this manual are referenced by their last set of digits and the letter preceding them. Drawings in this appendix are listed in alphabetical order.



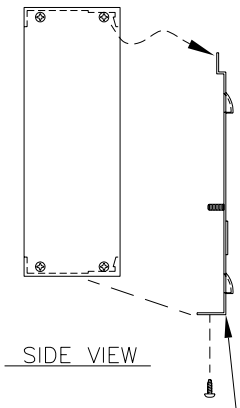
FRONT VIEW, "OPEN"



SIDE VIEW

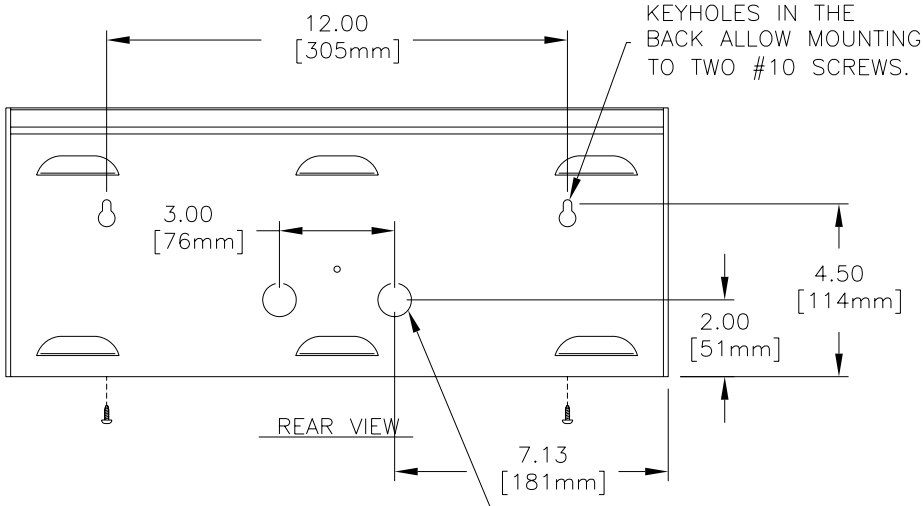


FRONT VIEW, "FULL"



SIDE VIEW

ATTACH THE BACK PLATE TO THE WALL. THE DISPLAY CABINET ATTACHES TO THE BACK PLATE AND IS SECURED WITH TWO SCREWS IN THE BOTTOM.



REAR VIEW

7/8" KNOCKOUTS ACCOMMODATE 1/2" CONDUIT FITTINGS

THIS DISPLAY WEIGHS ABOUT 10 LB. [4.5 KG]

MAX. POWER CONSUMPTION IS 25 WATTS.
PROVIDE A 120V AC 15 AMP CIRCUIT FOR POWER.

DAKTRONICS, INC. BROOKINGS, SD 57006

REV.	DATE	DESCRIPTION	BY	APPR.
02	20 DEC 06	CHANGED BACKSHEET GRAPHIC TO REFLECT ADDITION OF LOUVRES AND GROUND STUD. ADDED KNOCKOUT REFERENCE DIMENSION.	MNH	
01	12 MAY 04	REDUCED WIDTH BY 0.75"	AVB	

PROJ:

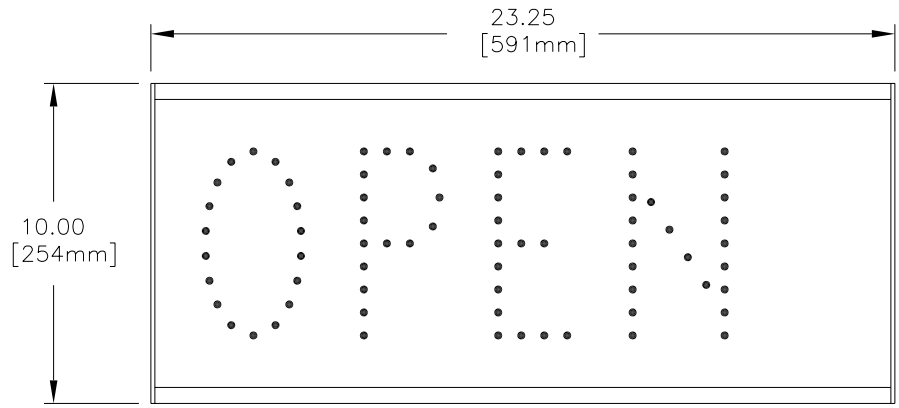
TITLE: SHOP DRAWING, MF-1002-4

DES. BY: AVB DRAWN BY: A VANBEMMEL DATE: 16 MAR 04

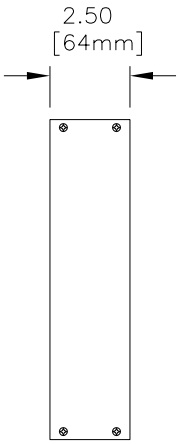
REVISION 02 APPR. BY:

SCALE: 1=5

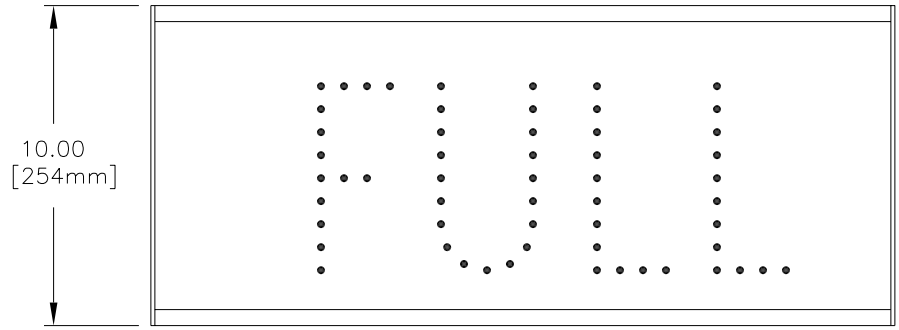
1279-R04A-206444



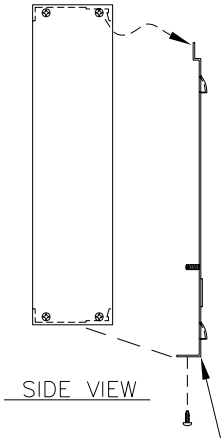
FRONT VIEW, "OPEN"



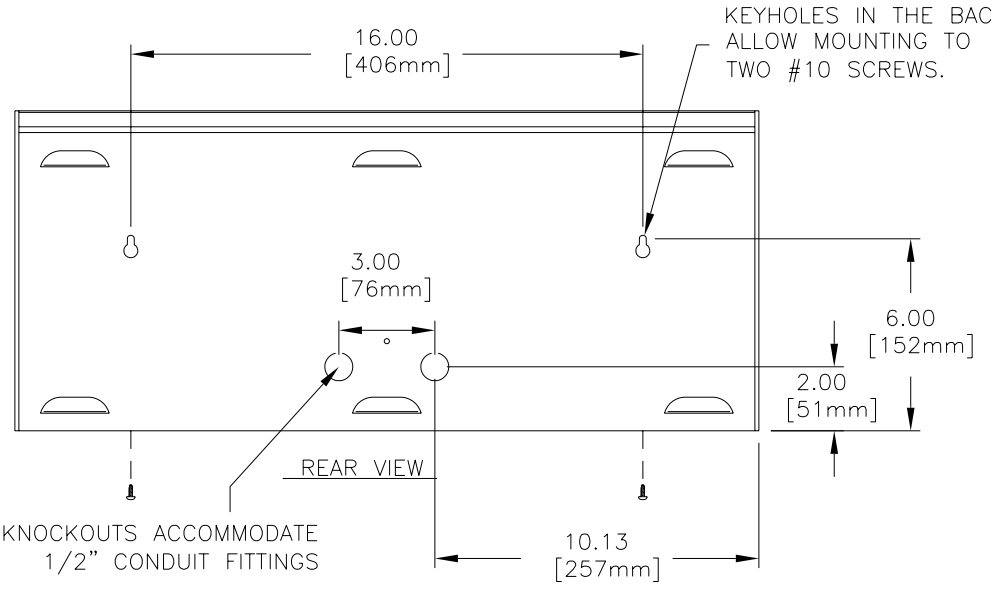
SIDE VIEW



FRONT VIEW, "FULL"



SIDE VIEW



ATTACH THE BACK PLATE TO THE WALL. THE DISPLAY CABINET ATTACHES TO THE BACK PLATE AND IS SECURED WITH TWO SCREWS IN THE BOTTOM.

THIS DISPLAY WEIGHS ABOUT 15 LB. [6.8 KG]

MAX. POWER CONSUMPTION IS 25 WATTS.
PROVIDE A 120V AC 15 AMP CIRCUIT FOR POWER.

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ:

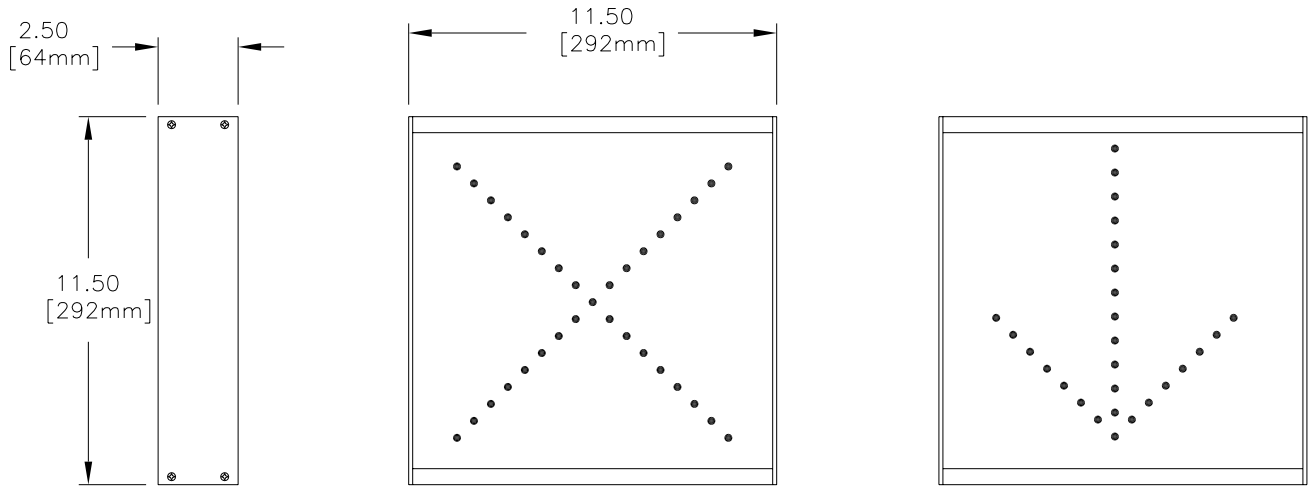
TITLE: SHOP DRAWING, MF-1002-6

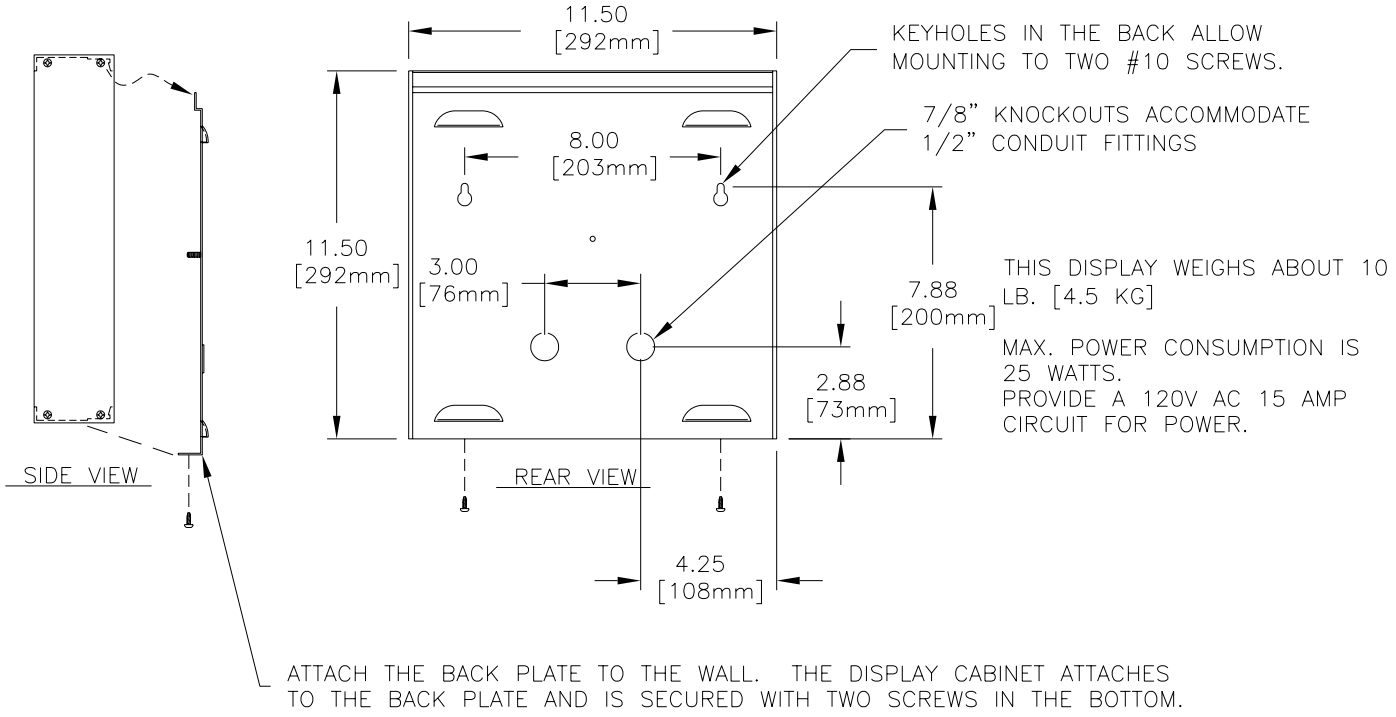
DES. BY: AVB DRAWN BY: A VANBEMMEL DATE: 16 MAR 04

REVISION 01 | APPR. BY: | SCALE: 1=6

1279-R04A-206465

REV.	DATE	DESCRIPTION	BY	APPR.
01	20 DEC 06	CHANGED BACKSHEET GRAPHIC TO REFLECT ADDITION OF LOUVRES AND GROUND STUD. ADDED KNOCKOUT REFERENCE DIMENSION.	MNH	





DAKTRONICS, INC. BROOKINGS, SD 57006

REV.	DATE	DESCRIPTION	BY	APPR.
02	20 DEC 06	CHANGED BACKSHEET GRAPHIC TO REFLECT ADDITION OF LOUVRES AND GROUND STUD. ADDED KNOCKOUT REFERENCE DIMENSION.	MNH	
01	12 MAY 04	REDUCED HEIGHT AND WIDTH BY 0.25"	AVB	

PROJ:

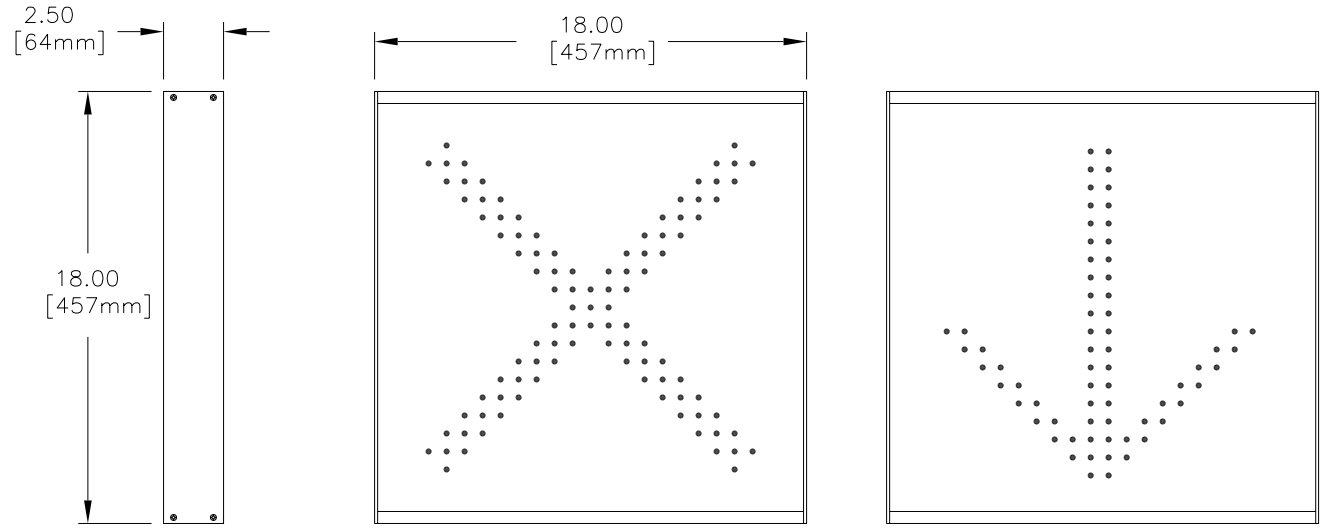
TITLE: SHOP DRAWING, MF-1003-9

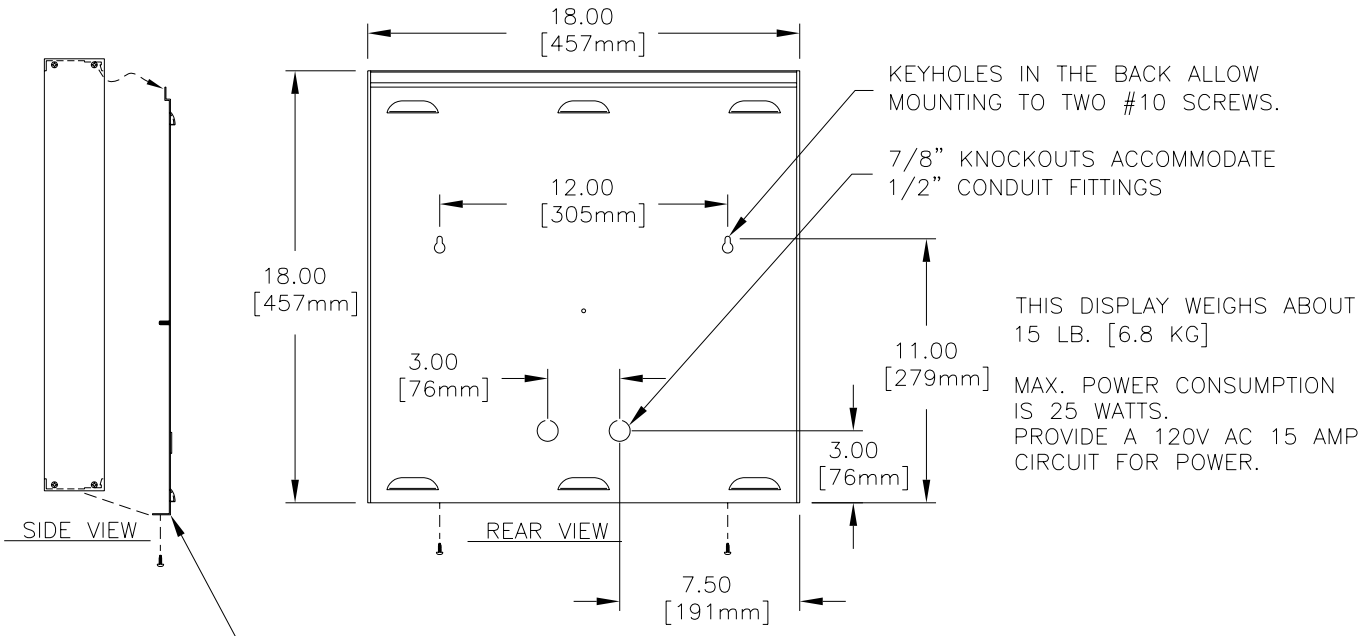
DES. BY: AVB DRAWN BY: A VANBEMMEL DATE: 26 MAR 03

REVISION 02 APPR. BY:

SCALE: 1=6

1279-R04A-207454





DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ:

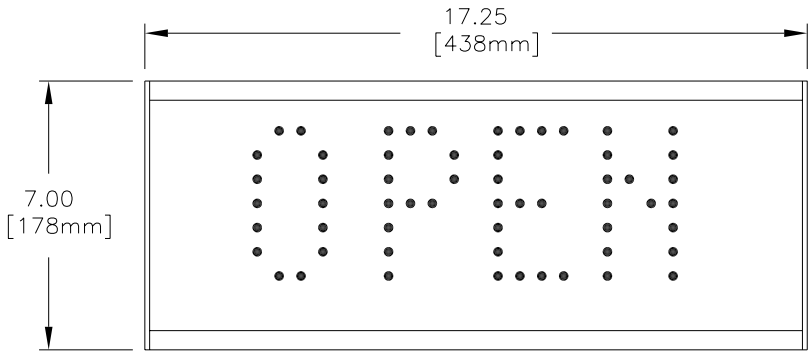
TITLE: SHOP DRAWING, MF-1003-14

DES. BY: AVB DRAWN BY: A VANBEMMEL DATE: 26 MAR 03

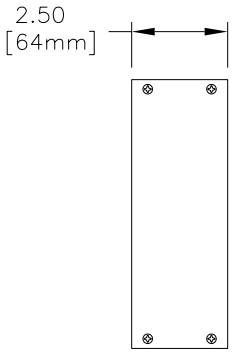
REVISION 01 APPR. BY: SCALE: 1=8

1279-R04A-207455

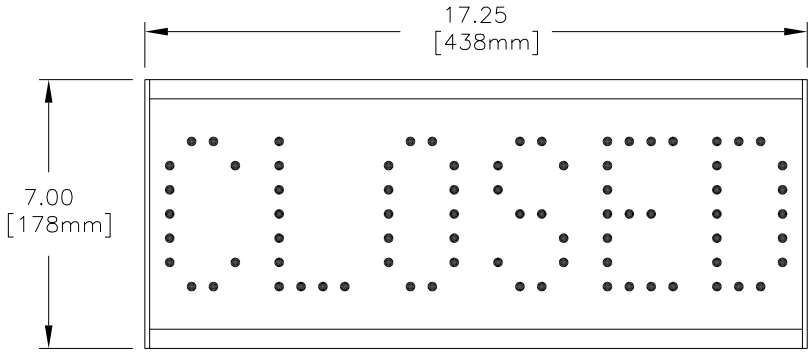
REV.	DATE	DESCRIPTION	BY	APPR.
01	20 DEC 06	CHANGED BACKSHEET GRAPHIC TO REFLECT ADDITION OF LOUVRES AND GROUND STUD. ADDED KNOCKOUT REFERENCE DIMENSION.	MNH	



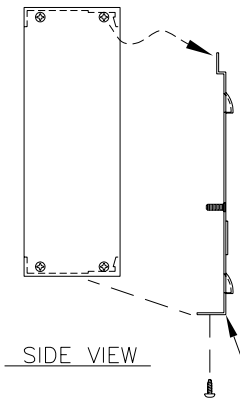
FRONT VIEW, "OPEN"



SIDE VIEW

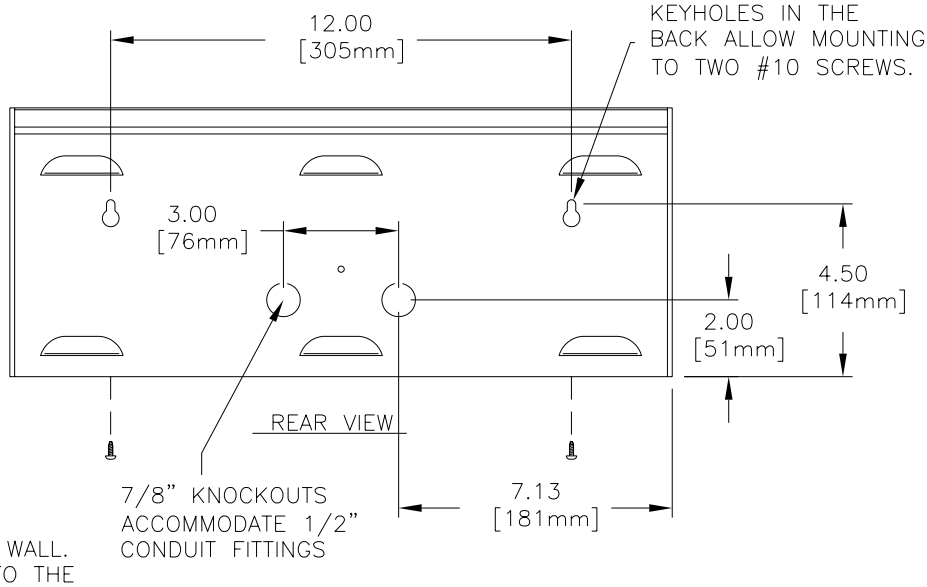


FRONT VIEW, "CLOSED"



SIDE VIEW

ATTACH THE BACK PLATE TO THE WALL. THE DISPLAY CABINET ATTACHES TO THE BACK PLATE AND IS SECURED WITH TWO SCREWS IN THE BOTTOM.



THIS DISPLAY WEIGHS ABOUT 10 LB. [4.5 KG]

MAX. POWER CONSUMPTION IS 25 WATTS.
PROVIDE A 120V AC 15 AMP CIRCUIT FOR POWER.

DAKTRONICS, INC. BROOKINGS, SD 57006

REV.	DATE	DESCRIPTION	BY	APPR.
02	20 DEC 06	CHANGED BACKSHEET GRAPHIC TO REFLECT ADDITION OF LOUVRES AND GROUND STUD. ADDED KNOCKOUT REFERENCE DIMENSION.	MNH	
01	12 MAY 04	REDUCED WIDTH BY 0.75"	AVB	

PROJ:

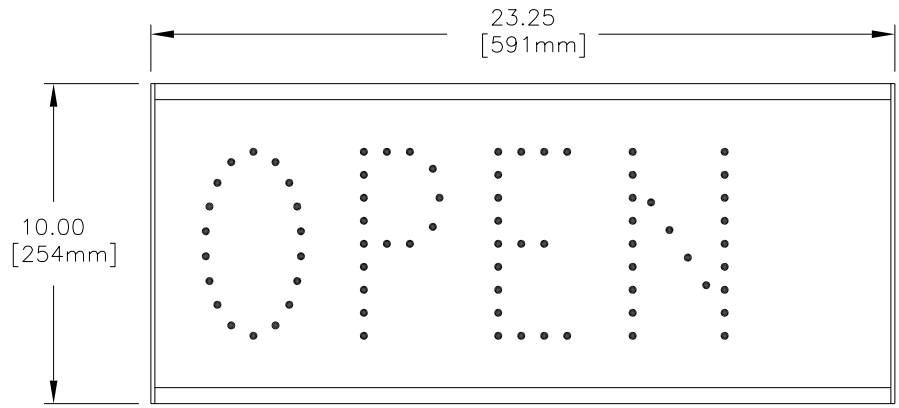
TITLE: SHOP DRAWING, MF-1001-4

DES. BY: AVB DRAWN BY: A VANBEMMEL DATE: 02 APR 04

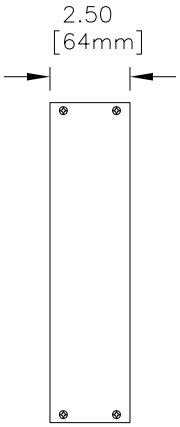
REVISION 02 APPR. BY:

SCALE: 1=5

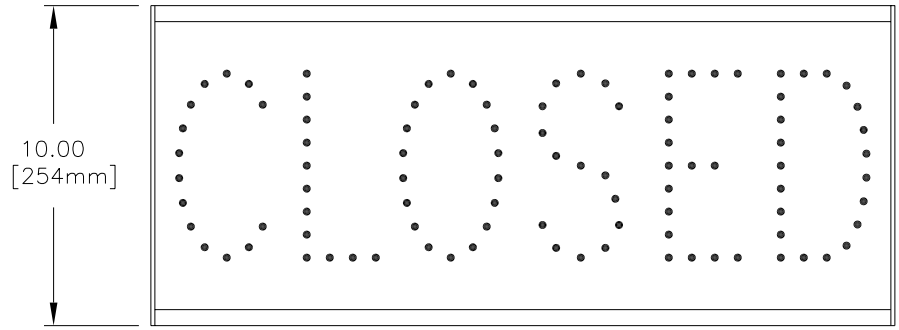
1279-R04A-208059



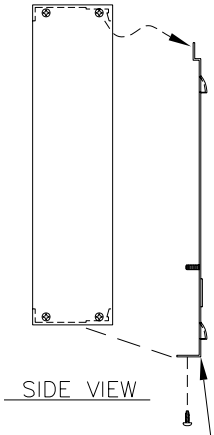
FRONT VIEW, "OPEN"



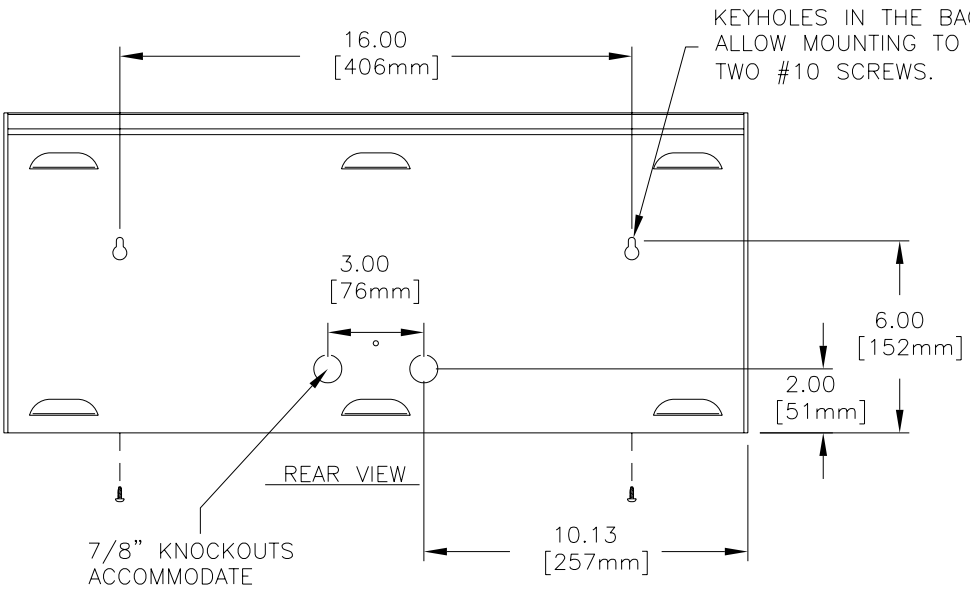
SIDE VIEW



FRONT VIEW, "CLOSED"



SIDE VIEW



ATTACH THE BACK PLATE TO THE WALL. THE DISPLAY CABINET ATTACHES TO THE BACK PLATE AND IS SECURED WITH TWO SCREWS IN THE BOTTOM.

THIS DISPLAY WEIGHS ABOUT 15 LB. [6.8 KG]

MAX. POWER CONSUMPTION IS 25 WATTS.
PROVIDE A 120V AC 15 AMP CIRCUIT FOR POWER.

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ:

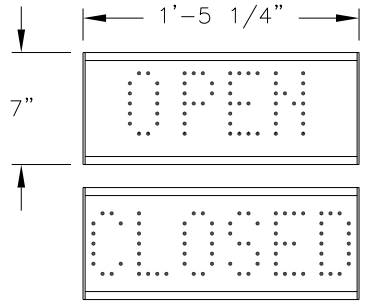
TITLE: SHOP DRAWING, MF-1001-6

DES. BY: AVB DRAWN BY: A VANBEMMEL DATE: 02 APR 04

REVISION 01 | APPR. BY: | SCALE: 1=6

1279-R04A-208060

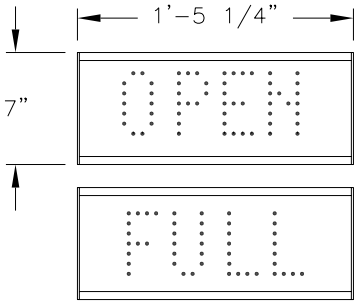
REV.	DATE	DESCRIPTION	BY	APPR.
01	20 DEC 06	CHANGED BACKSHEET GRAPHIC TO REFLECT ADDITION OF LOUVRES AND GROUND STUD. ADDED KNOCKOUT REFERENCE DIMENSION.	MNH	



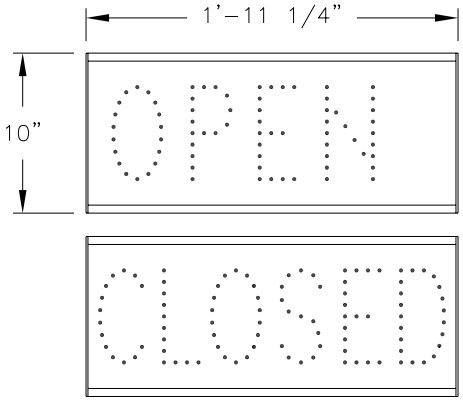
MF-1001-4

"OPEN" USES GREEN LEDS.
"CLOSED" AND "FULL" USE
RED LEDS.

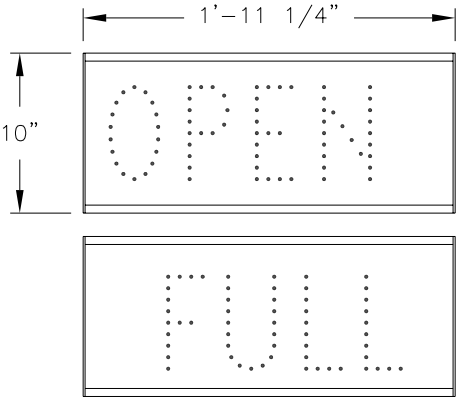
ALL DISPLAYS ARE 2.5" DEEP.



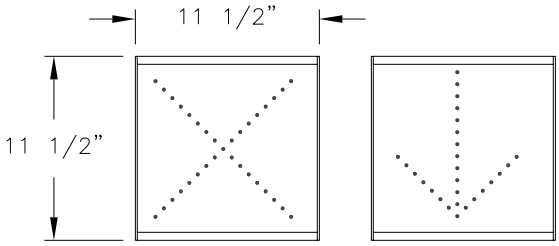
MF-1002-4



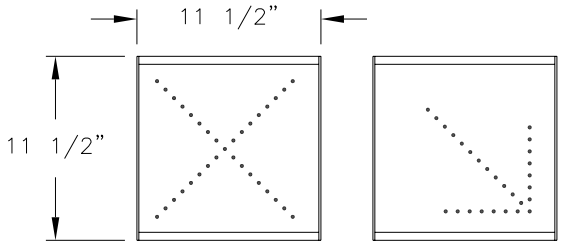
MF-1001-6



MF-1002-6

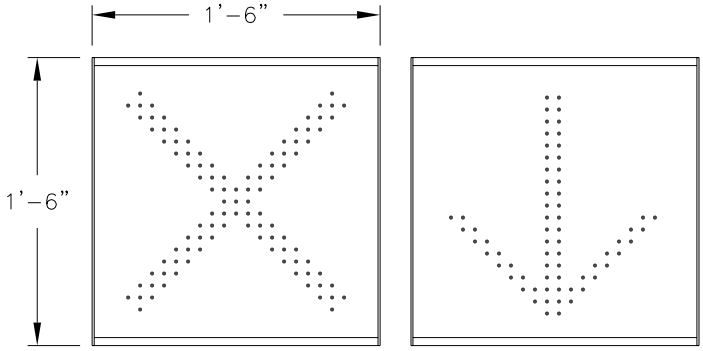


MF-1003-9

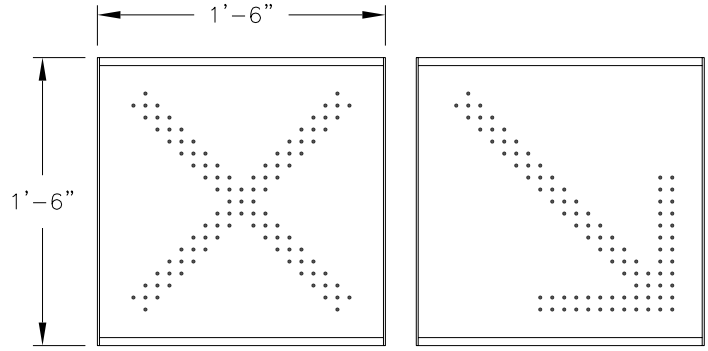


MF-1004-9

ARROWS USE GREEN LEDS.
"X" CHARACTER USES RED LEDS.



MF-1003-14



MF-1004-14

DAKTRONICS, INC. BROOKINGS, SD 57006

REV.	DATE	DESCRIPTION	BY	APPR.
02	24 NOV 04	REDUCED DIMENSIONS ON -6 AND -9 MODELS.	AVB	
01	12 MAY 04	REDUCED DIMENSIONS ON -6 AND -9 MODELS.	AVB	

PROJ:

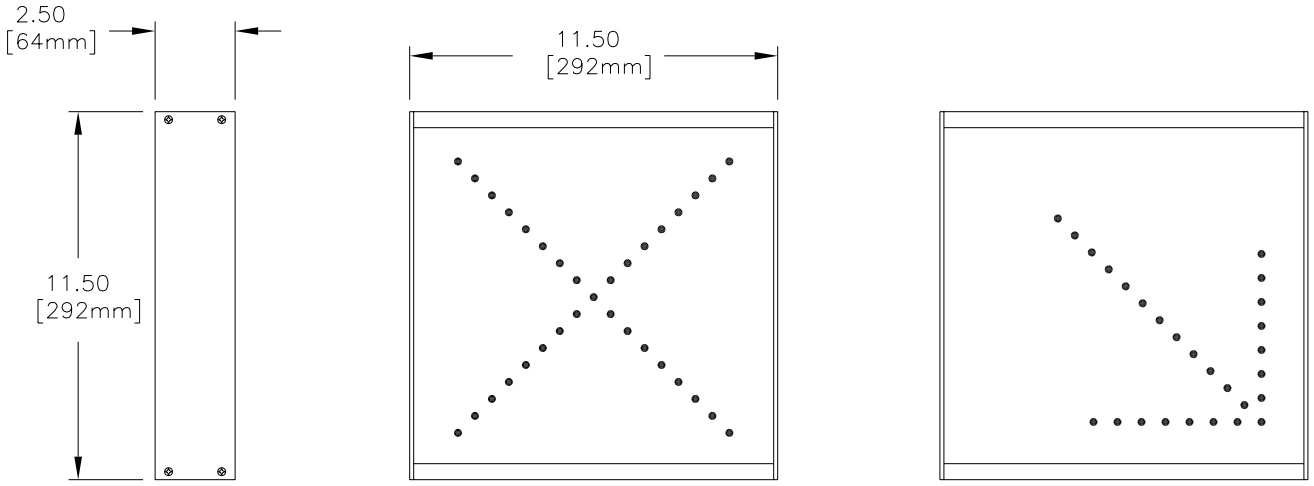
TITLE: MODELS MF-1001, MF-1002, MF-1003, AND MF-1004

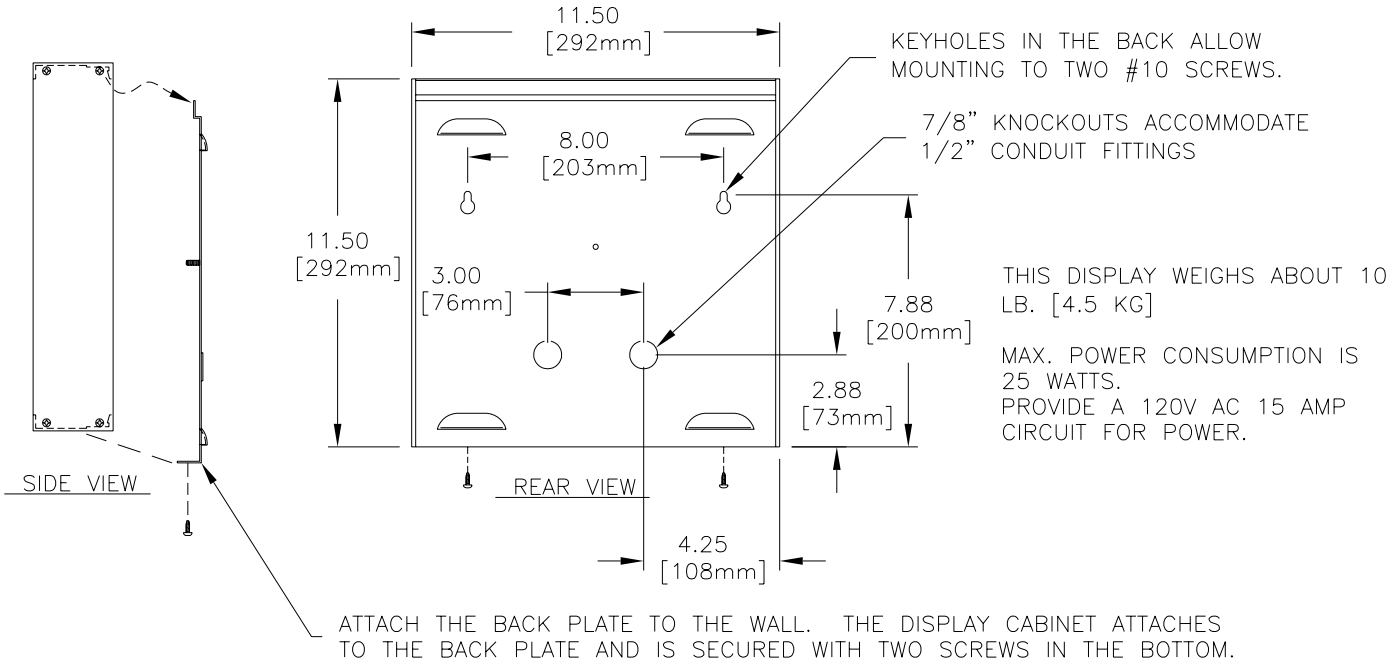
DES. BY: AVB DRAWN BY: A VANBEMMEL DATE: 08 APR 04

REVISION 02 APPR. BY:

SCALE: 1=12

1279-R08A-208524





REV.	DATE	DESCRIPTION	BY	APPR.
02	20 DEC 06	CHANGED BACKSHEET GRAPHIC TO REFLECT ADDITION OF LOUVRES AND GROUND STUD. ADDED KNOCKOUT REFERENCE DIMENSIONS.	MNH	
01	12 MAY 04	REDUCED HEIGHT AND WIDTH BY 0.25" EACH.	AVB	

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ:

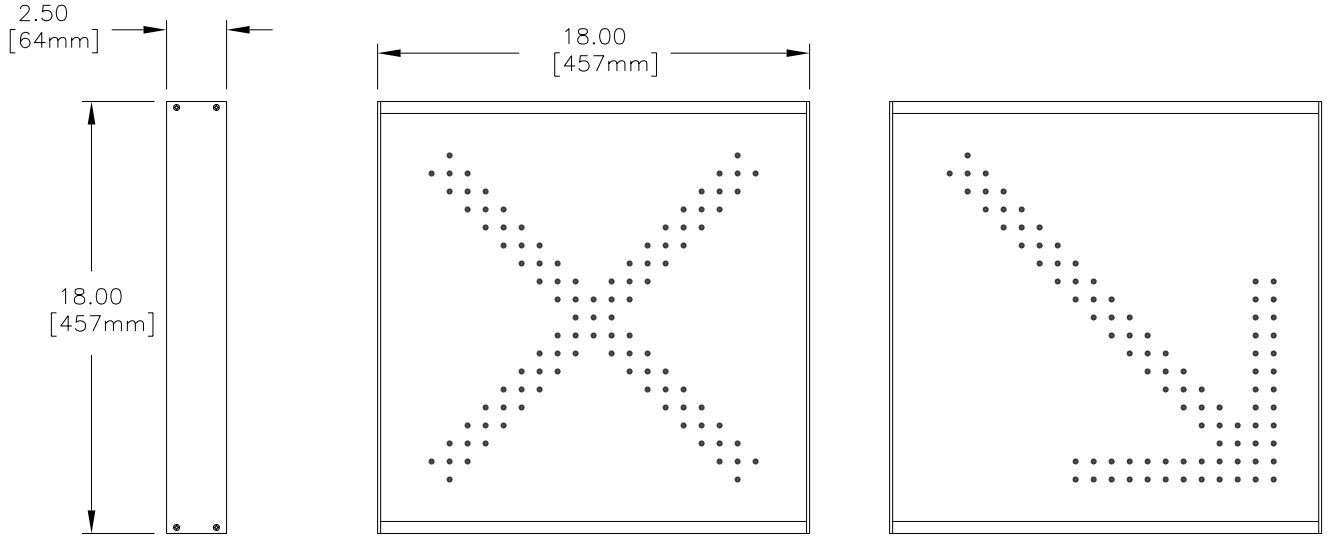
TITLE: SHOP DRAWING, MF-1004-9

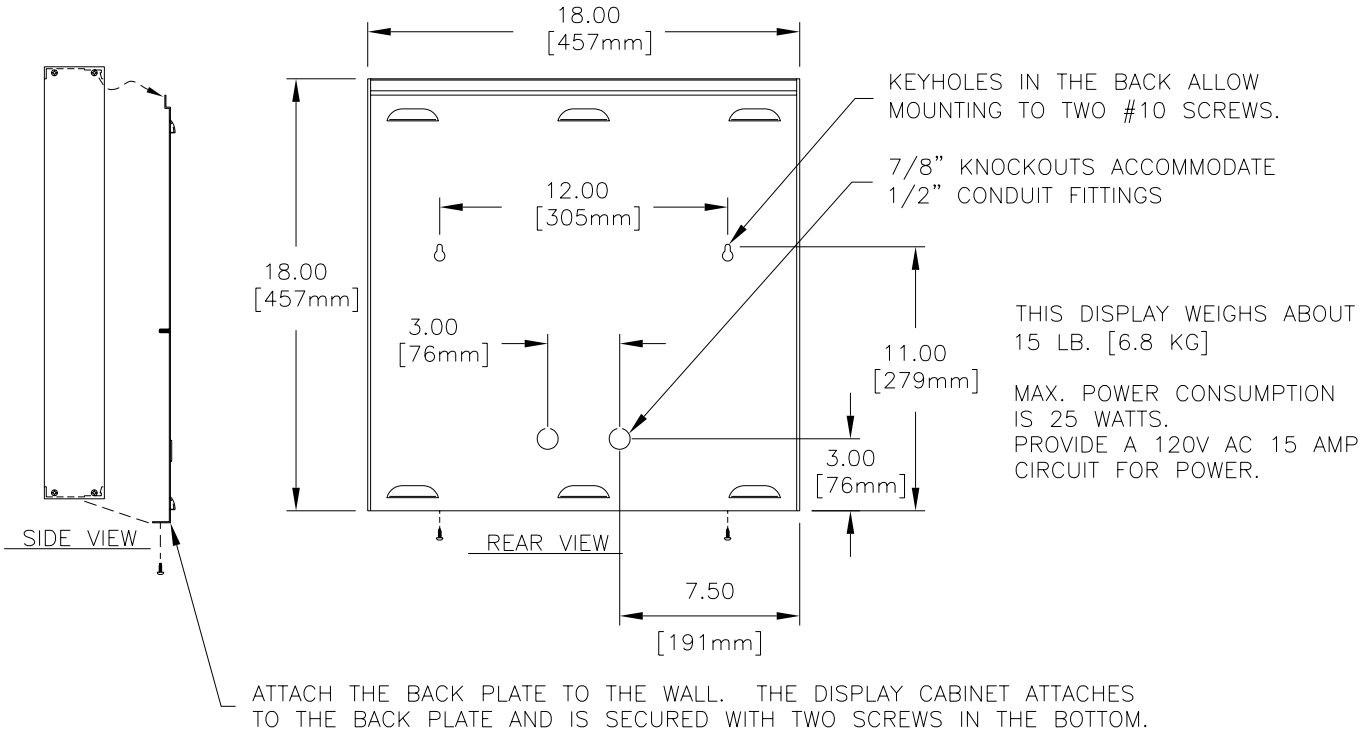
DES. BY: AVB DRAWN BY: A VANBEMMEL DATE: 12 APR 03

REVISION 02 APPR. BY:

SCALE: 1=6

1279-R04A-208727





DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ:

TITLE: SHOP DRAWING, MF-1004-14

DES. BY: AVB DRAWN BY: A VANBEMMEL DATE: 12 APR 04

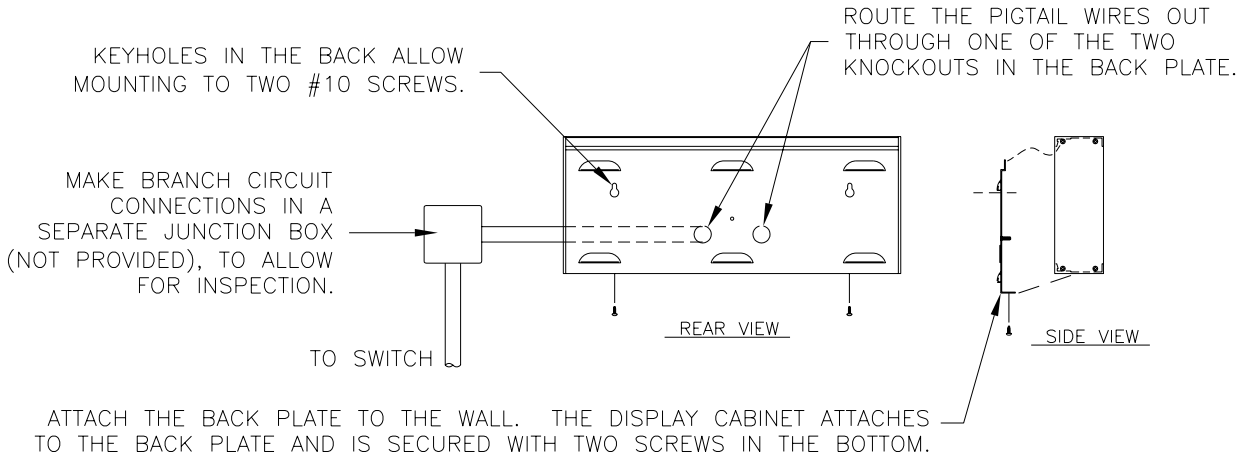
REVISION 01 APPR. BY: SCALE: 1=8

1279-R04A-208728

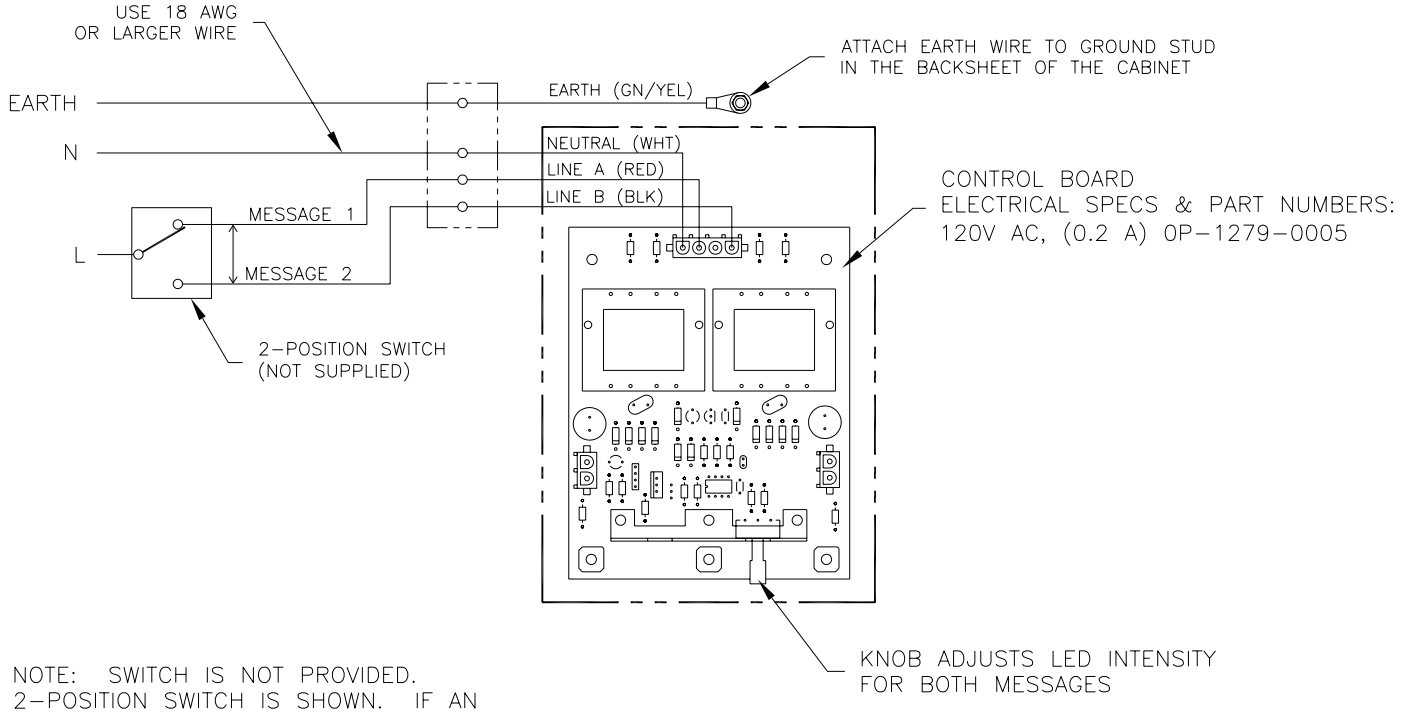
REV.	DATE	DESCRIPTION	BY	APPR.
01	20 DEC 06	CHANGED BACKSHEET GRAPHIC TO REFLECT ADDITION OF LOUVRES AND GROUND STUD. ADDED KNOCKOUT REFERENCE DIMENSIONS.	MNH	

STEP 1: MOUNT THE CABINET

NOTE: THIS DRAWING COVERS MULTIPLE DISPLAY SIZES.



STEP 2: CONNECT CONTROL WIRES



NOTE: SWITCH IS NOT PROVIDED. 2-POSITION SWITCH IS SHOWN. IF AN ALL-OFF SETTING IS DESIRED, A 3-POSITION SWITCH WITH CENTER OFF IS REQUIRED.

NOTE: THESE DISPLAYS ARE NOT FIELD SERVICEABLE. CONTACT DAKTRONICS DIRECTLY FOR REPAIR OR REPLACEMENT.

STEP 3: SET INTENSITY

-TURN ON MESSAGE 1 AND ADJUST KNOB FOR DESIRED BRIGHTNESS.

-TURN ON MESSAGE 2 AND BE SURE IT HAS THE SAME BRIGHTNESS.

REV.	DATE	DESCRIPTION	BY	APPR.
04	19 DEC 06	CHANGED BACKSHEET GRAPHIC TO REFLECT ADDITION OF GROUND SCREW AND LOUVRES. REMOVED 240V OPTION.	MNH	
03	23 AUG 06	MIRRORED WIRING LAYOUT FOR INCREASED CLARITY.	AVB	
02	03 MAY 06	ADDED SEPARATE JUNCTION BOX.	AVB	
01	12 DEC 05	ADDED ELECTRICAL SPECIFICATIIONS, EARTH GRD, AND 18 AWG WIRE NOTE	JRA	KRK

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ:

TITLE: MF-1000 SERIES DISPLAY INSTALLATION

DES. BY: AVB DRAWN BY: DSCHUTZ DATE: 26 AUG 04

REVISION 04 APPR. BY:

SCALE: NONE

1279-R08A-222256