

**DataMaster™ Four-Digit LED
Parking Garage Displays**

Models DF-1050/51

Installation and Operation Manual

ED-14139

Rev 4-11 January 2005

DAKTRONICS

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DAKTRONICS, INC.

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Section 1: Introduction

This manual explains the installation, maintenance and troubleshooting of the Daktronics DataMaster™ DF-1050/DF-1051 LED Parking Garage 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 7 sections: Introduction, Mechanical Installation, Electrical Installation, Maintenance and Troubleshooting, Parking Garage Display Information, Appendix A and Appendix B.

- **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.
- **Parking Garage Display Operation** gives a product overview of the DataMaster controller used to program the Parking Garage display.
- **Appendix A** lists the drawings referenced in this manual.
- **Appendix B** lists the Frequently Asked Questions when operating this display.

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-14139**.

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:

- **System Riser Diagrams:** overall system layout from DataMaster control location to the display.
- **Electrical and Mechanical Specification Drawings:** driver enclosure locations, mounting information, display dimensions, power and signal entrance points and access method (front or rear).
- **Schematics:** power wiring, signal wiring, panel board or power termination panel assignments, signal termination panel assignments and transformer assignments.

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 A-69945**.

DAKTRONICS, INC. BROOKINGS, SD 57006		
PROJ: BASKETBALL		
TITLE: SEGMENTATION, 7 SEG BAR DIGIT		
DES. BY: BPETERSON DRAWN BY: TNELSON DATE: 8 JUL 02		
APPR. BY: AVB	7087-P08A-69945	
SCALE: 1 = 4		

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-69945**, 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:

Component Placement Diagram..... **Drawing A-69945**

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: OP-____-____ (circuit board) or OA-____-____ (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. Do not drop the control console or allow it to get wet.
3. Be sure the display is properly grounded with a grounding electrode at the display location.
4. **Disconnect power to the display when it is not in use.**
5. **Disconnect power when servicing the display.**
6. **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 a means of programming and controlling the displays in a variety of ways.

The Parking Garage displays can be controlled via wire current loop, fiber optic or manual functions.

Current Loop (DataMaster)

The DataMaster controller connects to the Parking Garage display either from a j-box located outside near the display or from an indoor location. The communication method is current loop to the host display, and from the host to the client. Current loop is a standard communication method that uses a maximum cable length of 600 meters (approximately 2000 feet). Refer to **Section 3** for additional information and connections.

Current Loop (Signal Converter)

Two types of signal converters can be used in the case of some Parking Garage displays. In each case the computer connected to the signal computer will be running custom software for the displays. Refer to **Section 3** for additional information and connections.

In one case, a serial cable connects to the signal converter, and then current loop wire will run to the display at a maximum length of 300 meters (approximately 1000 feet).

In the second case, a serial cable connects to the first signal converter, and fiber connects it to a second signal converter. The fiber cable between displays can be up to 1.2 k (approximately 4000 feet). From the second signal converter a current loop wire can go another 300 meters to the display.

Manual Control Functions

In some cases, a manual switch box can be wired to the Parking Garage display to either increment or decrement the number on the display. The switch box is outdoor rated, and has a maximum length of 300 meters (approximately 1000 feet) from the display.

1.3 Product Overview

DataTime and DataMaster Parking Garage displays are part of a family of Daktronics LED digit displays designed for easy installation, readability, and reliability.

The DataTime/DataMaster Series includes:

- **Parking Garage Displays:** four-digit displays used for parking locations requiring a DataMaster, switch inputs or third-party software.
- **Gasoline Price Displays:** gas price signs with three standard digits, decimal and $\frac{9}{10}$ fraction.

- **Rate Displays:** two- or four-digit signs, typically used to display hotel/motel room rates or commodity prices.
- **Lottery Displays:** three-digit signs typically used to display lottery jackpots.
- **Event Counters:** these displays are typically used to count to a designated goal. They will count either up or down, and values can be up to 9 digits long.
- **Time & Temperature Displays:** automatic time & temp signs capable of displaying temperatures in Fahrenheit or Celsius (three digits, degree symbol and F and C character) and 12- or 24-hour time.

The DataMaster series includes parking, gasoline, and rate displays, along with lottery and event counters. The DataTime series name is used for time and temperature displays only.

These displays have the following features:

- These displays use LEDs to illuminate their numeric digits.
- Power usage for individual displays in this series is a maximum 300 W. All models have a 120 V power requirement.
- All DataMaster displays are configured with red, amber or green LEDs, depending on the display type ordered.
- DataMaster cabinets are constructed of heavy-gauge aluminum.
- Digit faceplates are black, and they 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 may be equipped with an optional light sensor for automatic dimming in changing-light environments.
- The DataMaster outdoor LED displays have been designed for use with a DataMaster™ 100 hand-held controller. The device uses a keyboard insert for display control. **Section 5** of this manual provides operating instructions.
- The DataMaster model numbers are described as follows:
DF-105X-L-HH-C

DF-105X	=	Outdoor Digit Display (1050 full cabinet and 1051 drop-in cabinet)
L	=	Number of Levels (DF-1050)
HH	=	Digit height in inches (5", 7" and 10") Front insert model, DF-1051, is available in 5", 7", 10" or 13"
C	=	LED Color- R (Red) or A (Amber) for 1050 and 1051

Parking Garage Display Specifications

There are two basic models in the numeric, or fixed-digit, parking display series: DF-1050 and DF-1051. **Figure 2** and **Figure 3** shows that both are modular displays, but DF-1050 signs are typically used in a tower arrangement with end caps, while DF-1051 signs have a drop-in cabinet, designed for placement in an existing parking garage structure, in a wall cutout or in a new custom sign.

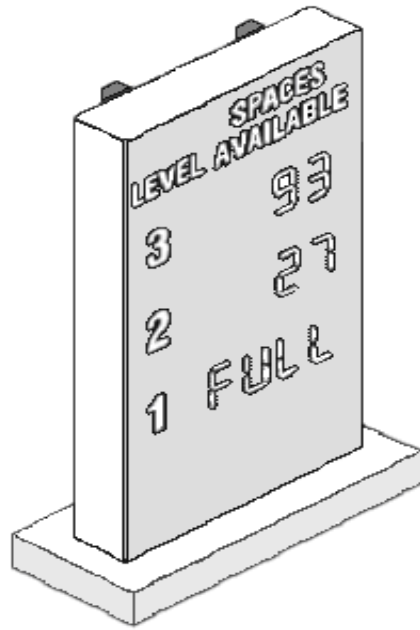


Figure 2: Model DF-1050

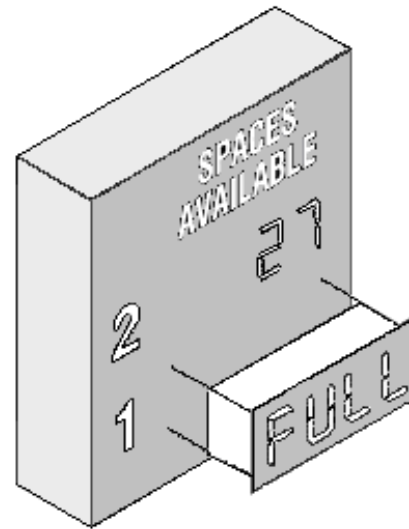


Figure 3: Model DF-1051

Because this series is based on a modular design, there can be any number of module and caption combinations. Some displays may utilize a single module, while others may consist of multiple modules arranged vertically. Each model has four digits that can display the words “OPEN” and “FULL” as well as any number from 0 to 9999. The text messages or numbers are controlled via signal protocol.

Caption modules are un-powered units that attach to the top or bottom of a digit module. Caption modules all use permanent vinyl lettering. Some signs may also use optional “blank” modules as filler or spacer panels.

Each section in this manual contains model-specific information, including physical dimensions, digit configuration and power requirements. Display drawings, located in **Appendix A**, also list dimensions, weight and mounting instructions for each display. Additionally, model number and electrical requirements can be found on a label located on the display's entrance panel.

The Parking Garage displays have been designed for use with the Daktronics DataMaster™ 100 hand-held console. Other controllers may be used to control Daktronics DataMaster parking garage software and the appropriate interface. Refer to **Section 5** for detailed operating information.

1.4 Component Identification

The following terms include some of the more commonly used terms when referring to these displays. Because Daktronics occasionally alters standard design to meet customer needs, the actual display design may vary slightly from the illustrations below.

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

Client: The client display contains a client driver that receives signal from the “host” driver on the Signal IN terminals. These drivers can re-drive signal to other client drivers.

DataMaster Controller (DM100): The handheld keyboard like device used to set the time, date, hold times, dimming etc. on the Parking Garage display. See **Section 5** for more information on the DataMaster controller.

Display Address: The display address is an identification number assigned to each driver in a network. The address is set using an 8-position binary switch on the driver board. For single-line displays, the address will typically be “1”. For Parking Garage displays with several levels, the top display is often set to address “1” and the others are set to “2”, “3” etc. The address will be displayed each time the display powers up.

Digit Circuit Board: The LEDs are mounted to a circuit board, which mounts to the back of a digit panel. Problems with individual digits, segments or LEDs may require accessing or replacing this board.

Host/Primary: The host display contains the host driver which relays signal directly from the DataMaster controller on its Signal IN terminals. It is the only driver connected to the temperature/photo sensor. The Signal OUT terminals are used to connect the client driver. The host driver is selected by inserting the “Protocol-4” plug into the protocol jack.

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

Mirror/slave: receives a signal from the master but does not have a driver.

Power Supply: Converts AC line voltage from the load center to low DC voltage for one or more digit circuit boards.

Protocol plug: The “Protocol-4” plug is inserted in the 5-pin protocol jack to select the host driver for a set of host-client displays.

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.

Finally, 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.)

- “OP-____-____” denotes an individual circuit board, such as a driver board.
- “OA-____-____” 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 4**. The part number is in bold.

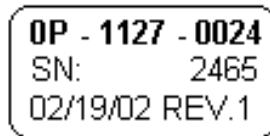


Figure 4: Typical Label

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 attaching end caps, mounting the display to support columns or mounting the units in parking facility walls or into existing signage.

The table below shows all of the weights and dimensions for each model in this series. Models are listed in order by digit size.

Model	Digit Height/Color	Dimensions (Height, Width, Depth)	Approximate Weight (per Section)
DF-1050	5" (127 mm) Red or amber	H10", W28", D6.2" (254 mm, 711 mm, 157 mm)	14 lb (6.4 kg)
DF-1050	7" (178 mm) Red or amber	H12", W40", D6.2" (305 mm, 1016 mm, 157 mm)	20 lb (9.1 kg)
DF-1050	10" (254 mm) Red or amber	H15", W52", D6.2" (381 mm, 1321 mm, 157 mm)	32 lb (14.5 kg)
DF-1051	5" (127 mm) Red or amber	H8", W18", D5.56" (203 mm, 711 mm, 141 mm)	6 lb (2.7 kg)
DF-1051	7" (178 mm) Red or amber	H12", W27", D5.75" (305 mm, 711 mm, 146 mm)	14 lb (6.4 kg)
DF-1051	10" (254 mm) Red or amber	H15", W36", D5.75" (381 mm, 711 mm, 146 mm)	23 lb (10.4 kg)
DF-1051	13" (330 mm) Red or amber	H19", W50", D5.75" (483 mm, 711 mm, 146 mm)	43 lb (19.5 kg)

2.2 Mechanical Installation

Reference Drawings:

- Mechanical Spec, DF-1050 **Drawing A-191157**
- Mechanical Specification Drawings **Refer to Appendix A**

As noted previously, the DataMaster Parking Garage displays are designed for either tower or flush wall mounting. Refer to the **Mechanical Specifications Drawings** for installation details.

DF-1050 Installation

DF-1050 modules are assembled with end caps and attached with angles to a support structure provided by the customer. Refer to **Drawing A-191157** for detailed mounting information. Individual drawings for each DF-1050 model are listed in **Appendix A**.

End caps are manufactured to have an appropriate height based on the number of sections or modules the finished display has. The following table provides a guide for vertical display heights:

DF-1050 Display Heights							
Digit Size	Overall Height According to Number of Sections						
	4	5	6	7	8	9	10
5"	40"	50"	60"	70"	80"	90"	100"
7"	48"	60"	72"	84"	96"	108"	–
10"	60"	75"	90"	105"	–	–	–

Figure 5 illustrates a typical DF-1050 installation. Note that the individual cabinets attach to the end caps with a single screw on either side of the display (front and back surfaces). Holes for the end caps and for the steel mounting angles are pre-drilled, and hardware for those components is provided by Daktronics.

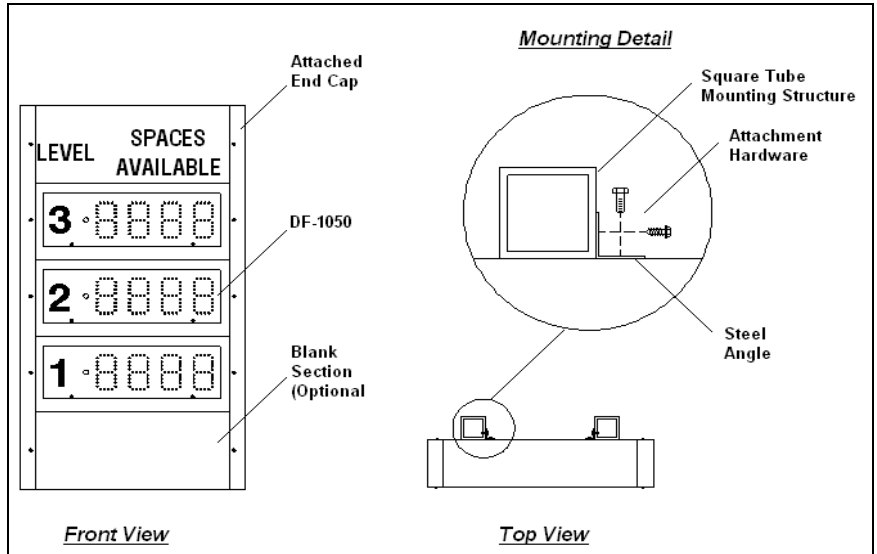


Figure 5: DF-1050 Mounting

DF-1051 Installation

DF-1051 displays are “drop in” models, intended for flush wall mounting or placement in a cutout of an existing sign. (The cabinet is complete with a front flange or bezel that provides a finished border for flush wall or in-sign applications.) The drop-in feature is illustrated in **Figure 6**.

The size of the sign or wall cutout varies, depending on the model, as shown in the following table:

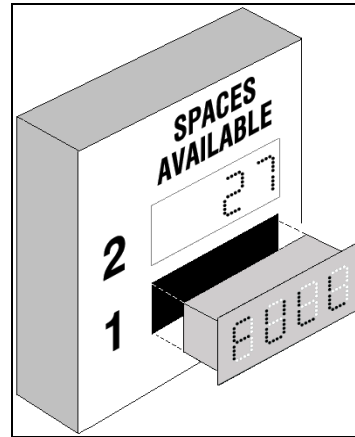


Figure 6: DF-1051 Drop-In

DF-1051 Series: Cutout Needed for Mounting	
Model	Cutout Dimensions
DF-1051-5	H6.25", W16.25", D5.56" (159 mm, 419 mm, 141 mm)
DF-1051-7	H9.5", W25", D5.75" (241 mm, 635 mm, 146 mm)
DF-1051-10	H12.5", W34", D5.75" (318 mm, 864 mm, 146 mm)
DF-1051-13	H16.38", W47.75", D5.75" (416 mm, 1213 mm, 146 mm)

Prior to mounting, run conduit to the display location and make all power and signal wiring connections. With the electrical hookup completed, simply slide the display into the wall cutout and secure it at the mounting holes across the top, sides and bottom. Be sure to use anchors and other mounting hardware appropriate for the wall material.

The **Mechanical Specification Drawings** give details on the cutouts needed and the location of the mounting holes.

Section 3: Electrical Installation

Daktronics Parking Garage 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:

Enclosed Driver, 4-col MASC, Wide **Drawing A-191943**
Electrical Specification Drawings **Refer to Appendix A**

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 driver enclosure.
- Connecting the ground to a grounding electrode at the display location.
- Routing the control signal cable from the control location to the display location.

Electrical Specifications Drawings for displays in this series show the locations of internal components and display signal and electrical access holes. Refer to these drawings before making power and signal connections. All power and signal terminates to blocks within the driver enclosure, immediately below the power supply. Termination is to be completed by the customer's electrician to the power terminal block (TB4). Refer to **Drawing A-191943**.

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 DataMaster displays have been designed for easy access to components, and to power and control signal hookup. Front panels are hinged to allow access to the digits, cabling and other electronic components.

The DataMaster, Parking Garage 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 $\frac{7}{8}$ " and located on the both sides of the display.

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

Model	Digit Height/Color	Maximum Wattage	Power	Amps per Line
DF-1050	5" (127 mm) Red or amber	30 W	120 V AC	0.3A
DF-1050	7" (178 mm) Red or amber	150 W	120 V AC	1.3 A
DF-1050	10" (254 mm) Red or amber	150 W	120 V AC	1.3 A
DF-1051	5" (127 mm) Red or amber	30 W	120 V AC	0.3 A
DF-1051	7" (178 mm) Red or amber	150 W	120 V AC	1.3 A
DF-1051	10" (254 mm) Red or amber	150 W	120 V AC	1.3 A
DF-1051	13" (330 mm) Red or amber	150 W	120 V AC	1.3 A

Grounding

Reference Drawings:

Enclosed Driver, 4 Col MASC, Wide **Drawing A-191943**

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 **Drawing A-191943**, 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, and 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 driver/power enclosure.
- Use a disconnect that opens all of 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. The control console should also be disconnected from power and from the signal j-box when the system is not being used. The same surges that may damage the display's driver can also damage the driver console's circuit.

3.4 Signal Connection

Reference Drawing:

- Enclosure Driver, 4 Col MASC, Wide **Drawing A-191943**
- Electrical Specification Drawings **Refer to Appendix A**

To gain access to the driver enclosure, open the access door and remove the cover from the enclosure. Refer to the **Electrical Specification Drawings** for the access location for your sign.

Route power and signal cables into either side of the display, where there is a separate knockout for signal conduit. The signal cable terminates to the signal terminal block (TB3) in the driver enclosure, immediately below the power supply and to the right of the power connectors. The component is a dual-row barrier terminal block, and it accommodates "Signal In," "Signal Out," and "12 V DC Out" as well as "Inc" (increment), "Dec" (decrement), "Open," "Full" and "Common" terminals for operating the display from switches.

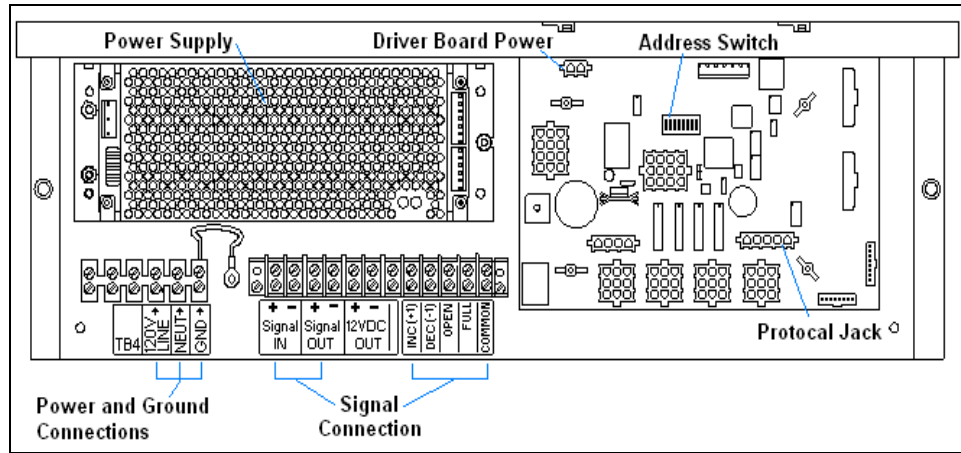


Figure 7: DataMaster Driver Enclosure with 4-Column Driver

The customer's electrician completes the signal termination as shown on the schematic, **Drawing A-191943**. Recommended signal conductor is 2-pair, 22 AWG, stranded with shield (Daktronics part number W-1234), but 18 AWG may be used as indicated on the drawing. If the sign is to be operated from switches, this wiring may be done using 22 AWG cable. Shielded cable is recommended if the switch wiring is run next to other cables that may induce noise in the switch wiring.

Daktronics provides the protocol plug for the signal, and the customer may use standard DataMaster software or may provide his or her own software.

Current Loop (DataMaster)

Reference Drawing:

Enclosure Driver, 4 Col MASC, Wide..... **Drawing A-191943**

A directly controlled display uses a current loop connection from the j-box at the display to the driver enclosure in the sign. All the power and signal wiring terminates at the driver enclosure. The DataMaster hand-held controller receives its power from the display. The display layout is shown in **Figure 8**.

Note: The cable from the j-box to the display needs to be routed through conduit or the display pole to protect it from weather or vandalism.

1. Mount the j-box near the display.
2. Route a 4-conductor cable through conduit from the j-box to the driver enclosure in the host display. (**Distance limit** from the j-box to the display is 50 ft.)
3. Connect the signal/power cable from the j-box to the driver enclosure as shown in **Figure 9** and listed in the table. Refer to **Drawing A-191943** for additional information.
4. Using a DB9M to DB9F serial cable, plug the DataMaster controller into the j-box connected to the driver enclosure.

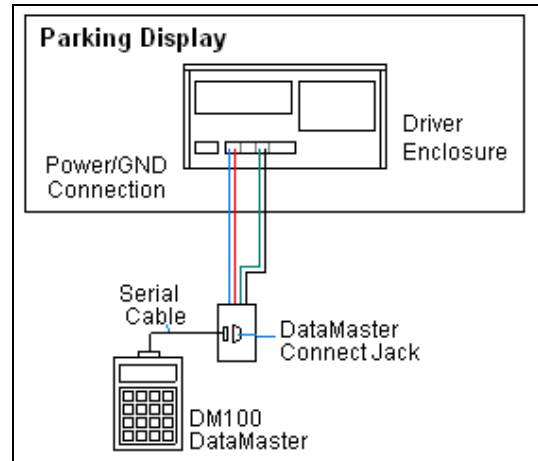


Figure 8: Direct, DataMaster Control

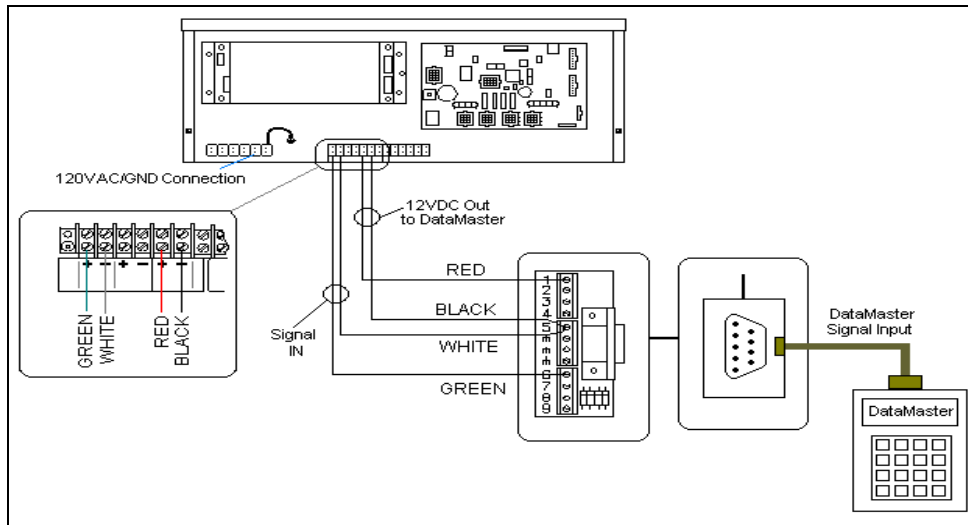


Figure 9: DataMaster Connections

DataMaster Signal Connections

J-Box Pin#	Cable Color	Enclosure Terminal Block
Pin 1	Red	12V DC Out (+) pin 7
Pin 2	Black	12 V DC Out (-) Pin 8
Pin 5	White	Signal IN (-) Pin 2
Pin 6	Green	Signal IN (+) Pin 1

A typical control setup for parking garages will be one in which the signs are controlled remotely from a booth or office in the facility. Signal cabling is similar to wired, base-of-sign control, except that the controller requires a wall pack transformer. The transformer plugs into both the hand-held controller and into a 120VAC outlet. The DataMaster controller also connects to a junction box to send signal to the display, but the j-box will be located within the booth or office. The operator then changes the display by entering current parking information and operating instructions on the keypad of the DataMaster controller. For complete details on sign operation, refer to **Section 5**.

Current Loop (Signal Converter)

Reference Drawing:

- Enclosure Driver, 4 Col MASC, Wide **Drawing A-191943**
- System Riser Diagram; DF Display, Parking Lot **Drawing A-196787**

A display, or set of displays, can be programmed using a current loop signal from a signal converter. The signal into the display can be sent directly from the computer, through the signal converter, and then into the display, or the signal can be extended through the use of two signal converters. The following sections will explain the two different communication methods.

Standard Wire Current Loop Setup

A standard wire connection requires a computer connected to a signal converter, and then signal cable connected to the display. Refer to **Figure 10** and **Drawing A-196787** for system layout.

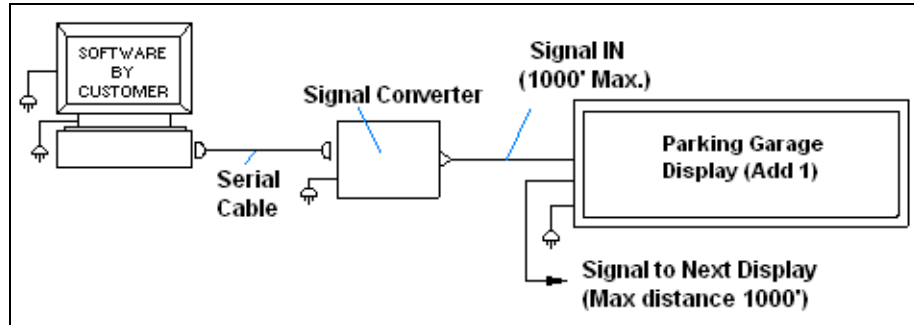


Figure 10: Standard Wire (Current Loop) Layout

1. Using a DB9M to DB9F serial cable (W-1267) connect from the computer to J1 on the signal converter (0A-1065-0173).
2. Using a two-conductor, 22AWG, shielded cable (W-1077) to connect from TB1 on the signal converter to the terminal block in the display. The maximum distance is 1000 feet.
3. Connect from pin 1 of TB1 of the signal converter to pin 1 of the terminal block in the display, and pin 2 to pin 2.
4. Refer to **Figure 11** and **Drawing A-191943** for the display connections.

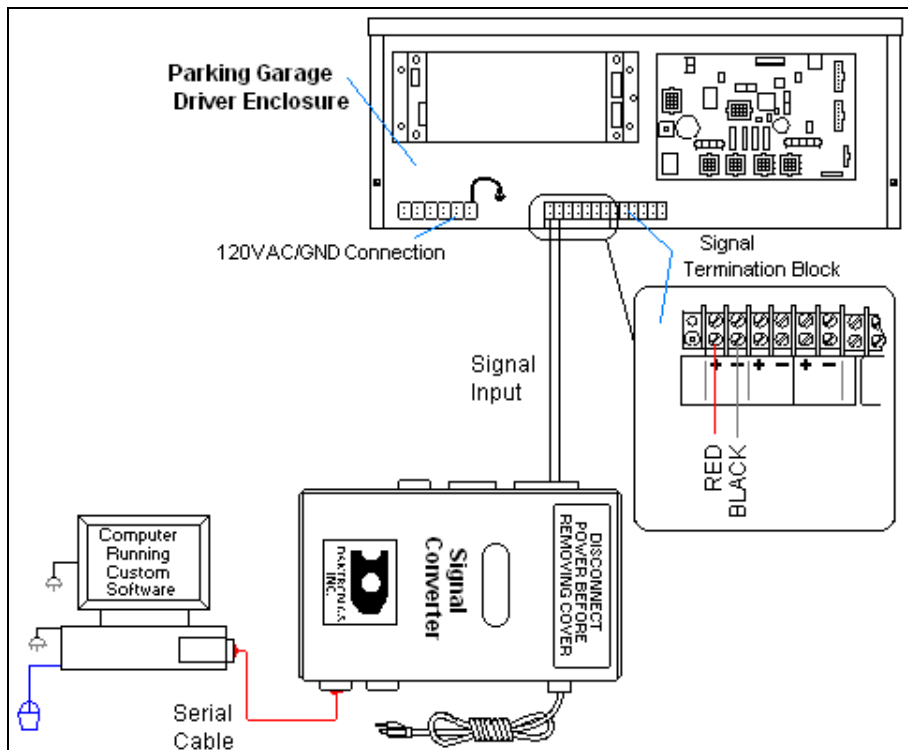


Figure 11: Standard Wire Signal Connections

Standard Fiber Optic Setup

A standard fiber optic connection requires a computer connected to a signal converter, a fiber optic cable connected to a second signal converter, and then signal cable connected to the display. Refer to **Figure 12** and **Drawing A-196787** for system layout.

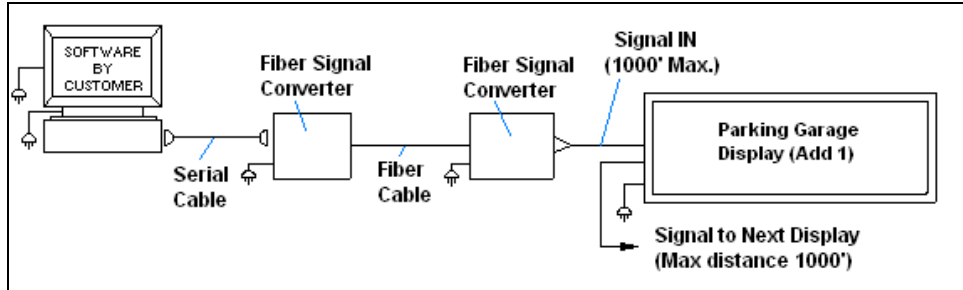


Figure 12: Standard Fiber Optic Layout

1. Using a DB9M to DB9F serial cable (W-1267) connect from the computer to J1 on the fiber optic signal converter (0A-1065-1074).
2. Connect from J5 (TX) on the first signal converter to J4 (RX) on the second signal converter. The maximum distance is 4000 ft.
3. Using a two-conductor, 22 AWG, shielded cable (W-1077) to connect from TB1 on the signal converter to the terminal block in the display. The maximum distance is 1000 ft.
4. Connect from pin 1 of TB1 of the second fiber optic signal converter to pin 1 of the terminal block in the display, and pin 2 to pin 2.
5. Refer to **Figure 13** and **Drawing A- 191943** for the display connections.

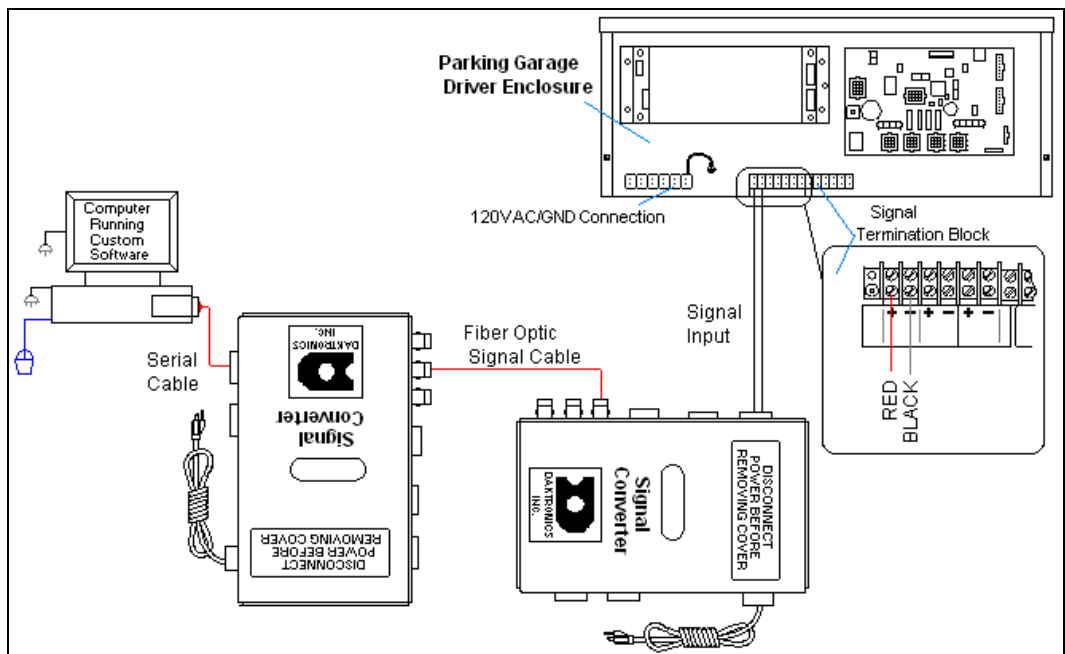


Figure 13: Stand Fiber Optic Signal Connections

Manual Control Functions

Reference Drawing:

Enclosure Driver, 4 Col MASC, Wide..... **Drawing A-191943**
System Riser Diagram; DF Display, Parking Lot **Drawing A-196787**

This is the simplest control scheme, suitable for low cost applications where an integrated, remote control system is not needed. Using the switches, a four-digit display can be made to count from 0 to 9999, blank, or display 'OPEN', or 'FULL'. Data sent to the display from third party software, or from the DM-100 controller will override the switch inputs. When the data signal is removed, the display will be blank until a switch closure is sensed.

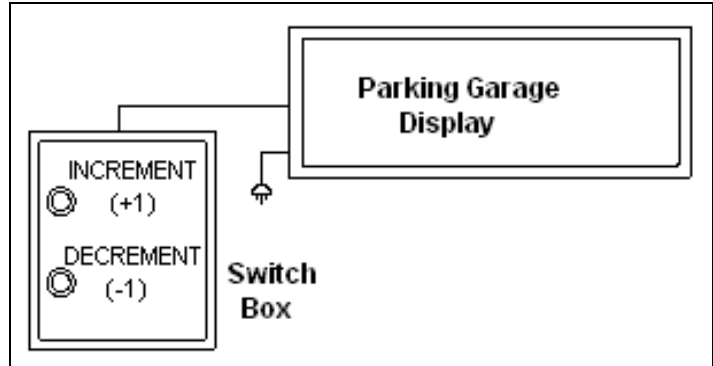


Figure 14: Manual Control Layout

The signal will be sent using three wires from the switch box to the display. Refer to **Figure 14** and **Drawing A-196787** for system layout.

1. The switch box has three pre-attached wires that will need to be connected to the wires going to the display using wire nuts.
2. Using a 2-pair, 22AWG, cable, connect to the wires going to the display. The maximum distance is 1000 feet.
3. Use the table and figures to connect the manual switch box to the display. (**Note:** The switch box can control the display to either increment or decrement a number or to switch between open and full.)

As shown on **Drawing A-191943**, the terminal block inside the driver provides connections for 4 switches: INC. (+1), DEC. (-1), 'OPEN' and 'FULL'. Switch control is implemented by wiring from these terminals to normally open switches, as shown on **Drawing A-196787**. An optional switch assembly containing momentary toggle switches in an outdoor enclosure is available from Daktronics (0A-1279-0403).

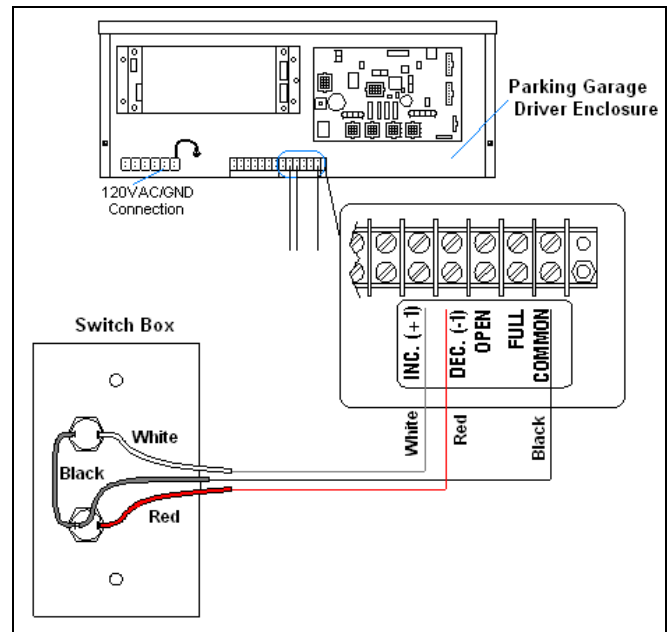


Figure 15: Manual Control Connections

- INC. (+1):** Closing this switch momentarily increments the count by 1. Holding the switch closed will cause the display to increment rapidly. If the count is at '9999', incrementing will cause the display to blank. Incrementing again will roll the count over to '0'.
- DEC. (-1):** Closing this switch momentarily decrements the count by 1. Holding the switch closed will cause the display to decrement rapidly. If the count is at '0', decrementing will cause the display to blank. Decrementing again will roll the count over to '9999'
- OPEN:** Closing this switch momentarily makes the display show 'OPEN'. A toggle switch may be connected to this input to hold it closed if it is desired to have the display revert to 'OPEN' whenever the data signal is not present.
- FULL:** Closing this switch momentarily makes the display show 'FULL'. A toggle switch may be connected to this input to hold it closed if it is desired to have the display revert to 'FULL' whenever the data signal is not present.

To Quickly Reset the Count to '0':

Hold the INC. and DEC. switches closed at the same time until the count resets.

To Blank the Display:

Reset the count to '0' and then decrement once.

Connecting Client Displays:

The display controller will transmit its display information on the "Signal Out" terminals available inside the control enclosure. Any display, set to the same address as the sending display, can receive this signal and show the exact same information.

3.5 Host/Client and Address Settings

Reference Drawing:

- 4 Column MASC LED Driver Specification**Drawing A-166216**
- Enclosed Driver, 4-col MASC, Wide**Drawing A-191943**
- Address settings, MASC drivers.....**Drawing A-227502**

Host/Client Definitions

One driver at each sign installation is designated as the "host driver." This driver receives its signal from the DM100 controller or signal converter. The "Signal OUT" terminals are used to connect to "client drivers." Refer to **Drawing A-191943** and

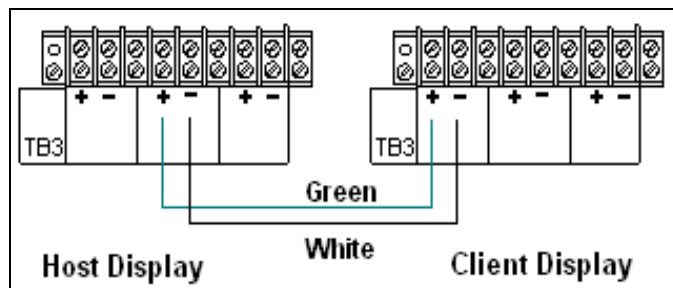


Figure 16: Host, Signal Out to Client, Signal In

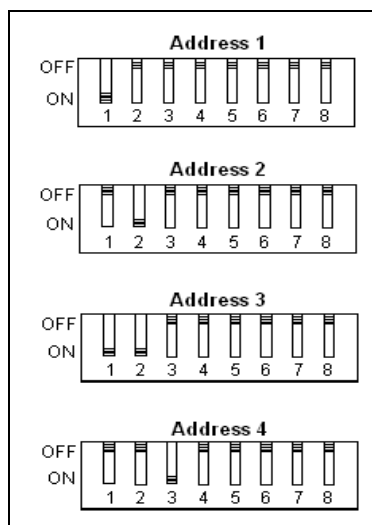
Figure 16 for an illustration of the host/client display connection.

Select the host driver by inserting the Protocol 4 plug into the 5-pin protocol jack (J20.) For protocol jack location, refer to **Drawings A-166216**.

All other drivers in the display system are client drivers. These drivers receive signal from the host driver on the Signal IN terminals and can re-drive this signal to other “client drivers” on the Signal OUT terminals.

The address is an identification number assigned to each sign or display in a network. **Drawing A-227502** shows how to set the address on the drivers used in the DataMaster and DataTime products. The control software uses the address to locate and communicate with each sign. Because of the variety of installations using DataMaster displays, addressing for each unit will be determined at point of sale or installation.

In general, a typical Level 1 parking display would have an address of 1, a Level 2 would have an address of 2, and so on.



The address of each driver is set using an 8-position DIP-switch (S1), and the address is based on that driver’s position in the sign or display system. If a single-line sign is used, the address will typically be Address “01.” This means that switch 1 is turned “ON” and the remaining 7 switches are in the “OFF” position. This is the default address, set when each display is shipped. In multiple-product displays, the address determines which line of information is shown on the driver’s digits. The switch is set using a binary address. Use the table and the examples for setting the address.

Figure 17: Common Address Settings

Binary Address Settings

Address	1	2	3	4	5	6	7	8
1	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF
2	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF
3	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF
4	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF
5	ON	OFF	ON	OFF	OFF	OFF	OFF	OFF
6	OFF	ON	ON	OFF	OFF	OFF	OFF	OFF
7	ON	ON	ON	OFF	OFF	OFF	OFF	OFF
8	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF
9	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF
10	OFF	ON	OFF	ON	OFF	OFF	OFF	OFF
11	ON	ON	OFF	ON	OFF	OFF	OFF	OFF
12	OFF	OFF	ON	ON	OFF	OFF	OFF	OFF
13	ON	OFF	ON	ON	OFF	OFF	OFF	OFF
14	OFF	ON	ON	ON	OFF	OFF	OFF	OFF
15	ON	ON	ON	ON	OFF	OFF	OFF	OFF

Note: Some older drivers set the address of each driver using an address plug (Daktronics part # 0A-1279-0122) in J19. The address, either using a switch or a plug, needs to be set for each driver.

Section 4: Maintenance and Troubleshooting



IMPORTANT NOTES:

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

4.1 Cabinet Specifications

Reference Drawings:

Mechanical Specification Drawings Refer to Appendix A

Cabinets for the Daktronics outdoor LED digit displays are constructed of heavy gauge aluminum. Exact dimensions and weights for each model are listed in the chart in **Section 2**. The **Mechanical Specification Drawings** and the following sections detail the access and location to the displays interior components.

4.2 Component Location and Access

Reference Drawing:

Electrical Specification Drawings Refer to Appendix A

Mechanical Specification Drawings Refer to Appendix A

Displays in the DataMaster Parking Garage display series are made up of two main components: the circuit boards that make up the digits and the driver enclosure.

Display digits are made up of a single circuit board that is mounted to the face plate of the display.

Each host display contains an enclosure that includes the following parts:

- Display driver
- 24V DC power supply
- Signal/power input terminal locks

The DataMaster Parking Garage displays are front-access, meaning that the displays open from the front for all service. The face panel is held to the display by a variable number of screws depending on the display size and type. Removing the faceplate will allow access to all the internal components. Refer to the **Mechanical Specification Drawings** for locations and numbers of screws in the panel.

1. The drop-in cabinet style displays have screws holding the faceplate in place. The other cabinets have screws along the bottom and the faceplate will then slide down and out when they are removed.
2. Remove the No. 10 screws (four or six, depending on the model) securing the digit face panel to the display cabinet.
3. Carefully pull the face panel out of the display.
4. Unplug the 9-pin connectors on the rear of the digits by squeezing the two tabs together and carefully pulling the connector from the digit.

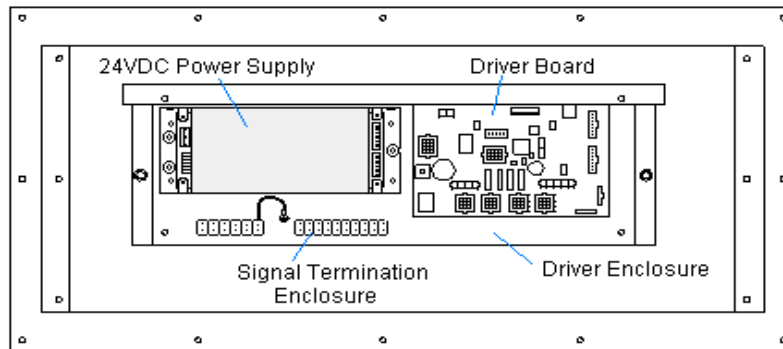


Figure 18: Parking Garage Display

4.3 Service and Diagnostics

Digit Replacement

The digit circuit board, the platform for the LEDs is mounted to the back of the face panel. Do not attempt to remove individual LEDs. In the case of a malfunctioning board, replace the entire digit panel. Refer to **Figure 19** for the digit assembly.

To remove and replace a digit, follow these steps.

1. Follow the steps in **Section 4.2** to gain access to the digits.
2. Unplug the connector on the back of the digit.
3. Unscrew the four nuts, securing the failed digit to the panel.
4. Lift the digit off of the panel. (Take note of the digit orientation.)
5. Replace the digit with a new one. Secure the replacement with the nuts you removed from the failed digit. Note that standoffs, or spacers, are used between the front of the digit and the face panel, but the LEDs must protrude through holes in the face panel.
6. Plug the 9-pin connector into the rear of the digit. These are keyed connectors, which means they will only fit one way. **Do not** force the connection!
7. Replace the digit panel by securing it with the No.10 screws.

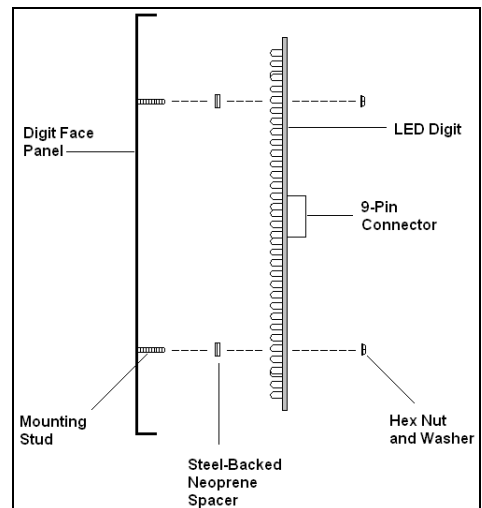


Figure 19: Digit Replacement

Segmentation and Digit Designation

Reference Drawings:

Segmentation, 7 Segment Bar Digit..... **Drawing A-38532**
Electrical Specification Drawings **Refer to Appendix A**

In each digit, certain LEDs always go on and off together. These groupings of LEDs are referred to as segments. **Drawing A-38532** illustrates digit segmentation and details which connector pin is wired to each digit segment along with the wiring color code used throughout the display.

The **Electrical Specifications Drawings** for each model specify the driver connectors controlling the digits. Numbers shown in hexagons in the upper half of each digit, as illustrated in **Figure 20**, indicate which connector is wired to that digit.

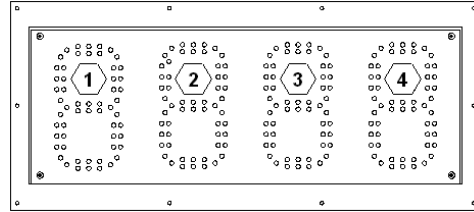


Figure 20: Digit Designation

LED Driver

Reference Drawings:

4 Column MASC LED Driver Specifications **Drawing A-166216**
Enclosed Driver, 4-Col MASC, Wide **Drawing A-191943**
Electrical Specification Drawings **Refer to Appendix A**
Mechanical Specification Drawings **Refer to Appendix A**

Drivers are typically mounted inside the display enclosure and behind the digit face panel. Refer to the **Electrical** and **Mechanical Specification Drawings** for the location of your driver enclosure. In each driver enclosure there is an LED driver, a power supply, and termination blocks. **Drawing A-191943** illustrates the complete driver enclosure.

To replace the driver in the display enclosure:

1. Follow the steps in **Section 4.2** to gain access to the driver enclosure.
2. Refer to **Drawing A-191943** and remove the enclosure cover by loosening the two side screws and then sliding the cover up to the larger part of the keyhole opening. Lift the cover off the enclosure.
3. It is helpful to have the cable labeled, noting which was removed from which connector.
4. Disconnect all connectors from the driver. Release each connector by squeezing together the locking tabs as you pull the connector free. **Note:** When reconnecting, remember that these are keyed connectors and will attach in one way only. **Do not** attempt to force the connections.
5. Remove the wing nuts, securing the driver to the inside of the enclosure.
6. Carefully lift the driver from the display and place it on a clean, flat surface.
7. Follow the steps in reverse order to attach a new driver

In the display, the LED driver performs the task of switching digits on and off. Refer to **Drawing A-166216** and **Figure 21** for the major functions of a 4-column driver.

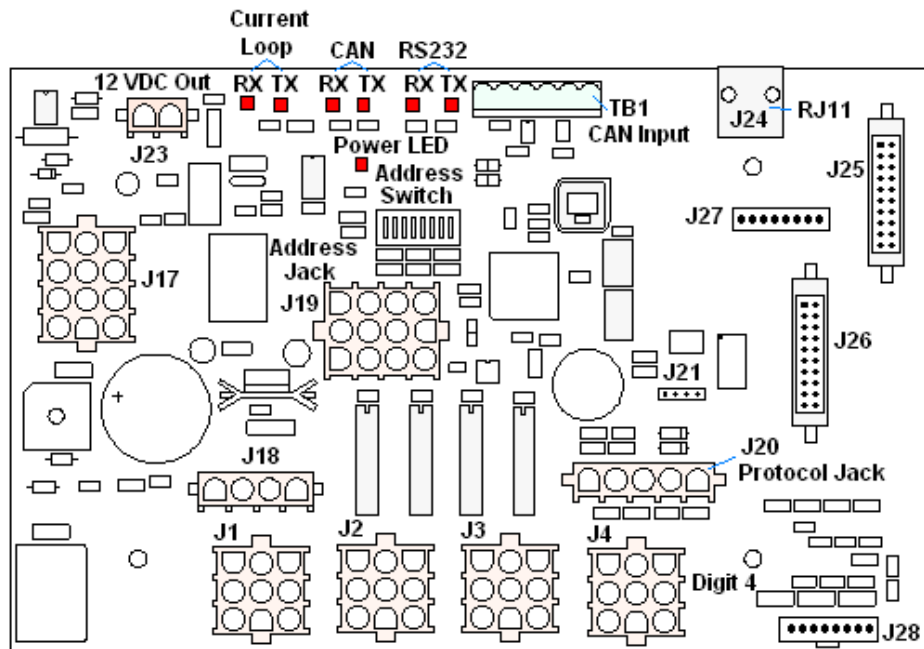


Figure 21: 4-Column Digit Driver

The following table lists the functions of the various jacks, including those that are not used in this application.

Driver LED Driver Jack Functions

Jack No.	Function
J1-J4 (4-column)	Digits Output
J17	Signal/Power Input
J20	Protocol-5 Location
J23	12 VDC Power Out
J24	Modem
TB1	CAN (photo sensor)
J19	Address Plug (older drivers only)
J18, J21, J22, J25, J26, J27, J28	Jacks not used in this application

The display address is set with a DIP-switch on the display driver at Daktronics before shipment. (**Note:** Some older drivers use a 12-pin address plug inserted in J19). All DataMaster displays ship with the “Line 1” address already set.

Light Sensor Installation

Reference Drawings:

- Light Sensor Installation, G3.....**Drawing A-183775**
 System Riser; Light Sensor**Drawing A-210516**
 Mechanical Specification Drawings **Refer to Appendix A**

Displays in the DataMaster series use a light sensor to regulate sign dimming functions. Use **Drawing A-183775** and the following instructions to replace the light sensor in your DataMaster Parking Garage display.

If the sign or sign system has more than one display and is being controlled by the DM-100 controller or using software based on the Daktronics Venus 1500 protocol, install the light sensor in the host display only. If the system is controlled by software based on the Daktronics multi-drop protocol, refer to **Drawing A-210516** for wiring options.

1. Open the display as described in **Section 4.2**. The light sensor will usually be mounted to the panel between the first and second digits.
2. Locate and remove the $\frac{5}{8}$ " plastic plug from front panel of the display, as shown in **Figure 22**.
3. There are two 6-32 studs above and below the plughole. The internal light sensor assembly (Daktronics part #0A-1279-0203) is positioned on the studs, with the clear lens toward the front of the cabinet and the cable at the bottom. Secure the sensor with the plastic wing nuts provided with the assembly kit.
4. Route the signal cable to the driver and insert the 6-position plug into the mating jack (TB1) on the driver.
5. Close the display face panel.

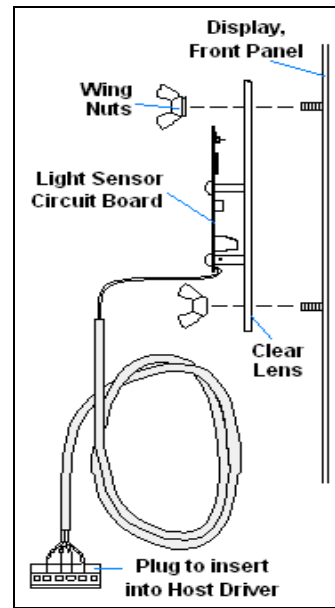


Figure 22: Light Sensor Installation

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	<ul style="list-style-type: none"> • Check for proper line voltage at termination panel • Check connections from power supply to driver (J17) • Check power LED on driver
Cannot communicate with display via current loop	<ul style="list-style-type: none"> • Check connections at J-box and display • Make sure DataMaster is receiving power • Check serial cable from DataMaster to j-box

Cannot communicate with display using the signal converter	<ul style="list-style-type: none"> • Check power to the signal converter and display • Check connections between signal converter and display • Check serial cable from computer to signal converter • Check use of the software
Garbled display.	<ul style="list-style-type: none"> • Control console malfunction • Internal LED driver malfunction
Digit will not light.	<ul style="list-style-type: none"> • Black wire to the digit is broken • Poor contact at driver connector • Driver malfunction
Segment will not light.	<ul style="list-style-type: none"> • Driver malfunction • Broken wire between LED driver and digit • Poor contact at driver connector
Segment stays lit.	<ul style="list-style-type: none"> • Driver malfunction • Short circuit on the digit
Data appears in the wrong place on the display/ Wrong data on a particular line of the display	<ul style="list-style-type: none"> • Incorrect address on drivers (consult table to set correct address) • Incorrect wiring between displays

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
Driver, 4-col MASC LED, DC	0P-1192-0068
Power supply, 24 V, 150 W	A-1720
Power supply, 12 V, 30 W	A-1498
Signal Converter, 120V, CL output	0A-1065-0173
Signal Converter, 120V, CL out, w/Fiber	0A-1065-0174
Switch box, outdoor rated	0A-1279-0403
Light Sensor assembly	0A-1279-0203
Digit, 5" red LED, 7-seg, G3, 12V	0P-1192-0263
Digit, 5" amber LED, 7-seg, G3, 12V	0P-1192-0264
Digit, 7" red LED, 7-seg, G3	0P-1192-0242
Digit, 7" amber LED, 7-seg, G3	0P-1192-0243
Digit, 10" red LED, 7-seg, G3 (Model DF-1050)	0P-1192-0251
Digit, 10" amber LED, 7-seg, G3 (Model DF-1050)	0P-1192-0252
Digit, 10" red LED, 7-seg, 2 row, 24 V, G3 (Model DF-1051-10)	0P-1192-0255

Digit, 10" amber LED, 7-seg, 2 row, 24 V, G3 (Model DF-1051-10)	0P-1192-0256
Digit, 13" (15") red LED, 7-seg, G3	0P-1192-0200
Digit, 13" (15") amber LED, 7-seg, G3	0P-1192-0214
Address plug	0A-1150-0064

4.6 Daktronics Exchange and Repair and Return Programs

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

Daktronics' unique Exchange Program is a quick, economical service for replacing key components in need of repair. If a component fails, Daktronics sends the customer a replacement, and the customer, in turn, sends the failed component to Daktronics. This not only saves money but also decreases display downtime. The company offers the service to qualified customers who follow the program guidelines explained below.

Daktronics provides these plans to ensure users get the most from their Daktronics products. Please call the Help Desk – (877) 605-1113 – if you have questions regarding the Exchange Program or any other Daktronics service.

When you call the Daktronics Help Desk, a trained service technician will work with you to solve the equipment problem. You will work together to diagnose the problem and determine which exchange replacement part to ship. If, after you make the exchange, the equipment still causes problems, please contact the Help Desk immediately.

If the replacement part fixes the problem, package the defective part in the same box and wrapping in which the replacement part arrived, fill out and attach the enclosed UPS shipping document, and RETURN THE PART TO DAKTRONICS. In most circumstances, you will be invoiced for the replacement part at the time it is shipped. This bill is due when you receive it.

Daktronics expects immediate return of an exchange part if it does not solve the problem. The company also reserves the right to refuse equipment that has been damaged due to acts of nature or causes other than normal wear and tear.

If the defective equipment is not shipped to Daktronics within 30 working days from the invoice date, it is assumed you are purchasing the replacement part, and you will be invoiced for it. This second invoice represents the difference between the exchange price and the full purchase price of the equipment. The balance is due when you receive the second invoice. 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.

To avoid a restocking charge, please return the defective equipment within 30 days from the invoice date.

Daktronics also offers a Repair and Return program for items not subject to exchange.

Return Materials Authorization: To return parts for service, contact your local representative prior to shipment to acquire a Return Material Authorization (RMA) number. If you have no local representative, call the Daktronics Help Desk for the RMA. This expedites repair of your component when it arrives at Daktronics.

Packaging for Return: Package and pad the item well so that it will not be damaged in shipment. Electronic components such as printed circuit boards should be installed in an enclosure or placed in an antistatic bag before boxing. Please enclose your name, address, phone number and a clear description of symptoms.

This is how to reach us:

Mail: Customer Service
Daktronics, Inc.
P.O. Box 5128
331 32nd Avenue
Brookings, SD 57006

Phone: Daktronics Help Desk: 1 (877) 605-1113 (toll free)
or 1 (605) 697-4034

Fax: 1 (605) 697-4444

E-mail: helpdesk@daktronics.com

Section 5: Parking Garage Display Operation

These sections describe the DataMaster 100 controller, and how it is used to set the information on the Parking Garage Display.

5.1 DataMaster 100 Overview

These sections describe the DataMaster 100 controller, and how it is used to set the information on the Parking Garage Display.

The DataMaster 100 Series controller, shown in **Figure 23**, is a hand-held controller designed to operate Daktronics LED DataMaster displays. The console's liquid crystal display (LCD) guides the user through the operation of the system.

The DataMaster 100, identified by the series number DM-100, can be configured to display parking numbers, gasoline price, time and temperature data, etc. The displays in the LED DataMaster Series will use a junction box at the base of the sign, an indoor wire system, modem or radio. Refer to **Section 3** for information on possible connection procedures.

For details on configuring the DataMaster to operate the display, refer to **Section 5.3: Parking Garage Display Operation**.



Figure 23: DataMaster 100

5.2 DataMaster Insert and Code

Reference Drawing:

Insert, 0G-164998 (LL-2551) Price/T&T Display **Drawing A-164998**

The DataMaster 100 is a hand-held controller that uses a keypad insert to program information into DataMaster Parking Garage displays.

Figure 24 illustrates the DM-100 insert used to control the displays. If an insert is lost or damaged, a copy of the insert drawing, **A-164998**, can be used until a replacement is ordered. The drawing is located in the **Appendix A**.

To start the controller and begin programming with the insert, refer to the following display operation information. Read each subsection carefully to fully understand the operating procedures.

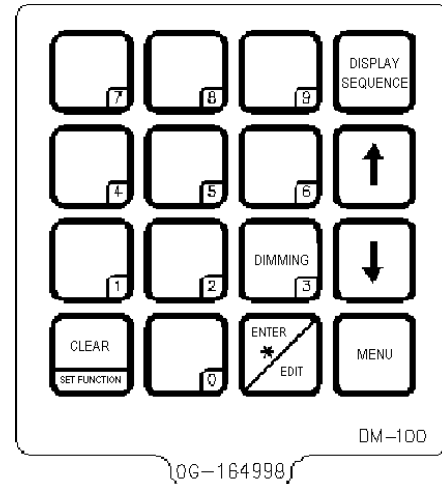


Figure 24: DataMaster 100 Insert LL-2551

5.3 Parking Garage Display Operation

The DataMaster 100 controller can be configured to program information displayed on the DataMaster Parking Garage sign. The console can program “OPEN” or “FULL” for each level, or a numeric value, (9999-0), representing the number of open positions. The instructions provided in this section discuss the functions the operator uses to control the Parking Garage display.

In the event that the Parking Garage display malfunctions, refer to **ED13481: Frequently Asked Questions** in **Appendix B**, and to the troubleshooting tables in **Section 4.4** of this manual. Both of those subsections detail measures that can be taken to correct various problems.

Note: There is more than one way to reach certain LCD screens on the DM100. One way is by using the menu and then the arrows to reach the desired programming location. The other way is to set the first parking garage display and then continue to enter though the additional screens.

Parking Garage Display Startup

To operate the DataMaster Parking Garage displays, the DataMaster 100 must first be programmed to the parking function. Use the <CLEAR/SET FUNCTION> key on startup. The following text will be displayed on the LCD during startup:

Daktronics, Inc.
Brookings, SD

DataMaster 100
ED-13374 V3.X




The controller will then list the “Current Function” if it is Parking you can continue, otherwise at the next frame:

Current Function?
Press Set Funct

At this frame you need to press <CLEAR/SET FUNCTION> and use the <↑↓> to select Parking.

Note: Press the <CLEAR/SET FUNCTION> key quickly to enter the function mode. If you miss this step, unplug the power to the DataMaster controller and start again.

Use the following table as a guide to startup procedures.

LCD Screen	Action
	<p>Plug the wall pack transformer into a 120 V AC power outlet, and connect it to the DataMaster 100.</p> <p>This display appears briefly.</p>
	<p>This message appears next on the screen.</p> <p>If “PARKING” was shown on the bottom line of the LCD during startup, do nothing. The controller will automatically default to previous Parking Garage display settings.</p> <p>If a function other than “PARKING” was shown on the bottom line of the LCD during startup, press the <SET FUNCTION> key while the second LCD prompt is displayed.</p>
	<p>Press the up or down arrow keys <↑↓> until the Parking Garage display option is shown. Press the <ENTER> key to accept.</p>

The handheld controller should now be ready for use. The controller will “remember” the last function setting, so this step should only need to be done with a new controller, or one that is configured for different displays.

Note: The actual Parking values will not be displayed on the DataMaster 100 LCD screen because these values are kept in the display itself.

Menu Items

Pressing the <MENU> key accesses the following settings:

1. Display Level 1
2. Display Level 2
3. Display Level 3
4. Display Level 4
5. Display Level 5
6. Display Level 6
7. Display Level 7
8. Display Level 8
9. Display Level 9
10. Display Level 10
11. LED Test?
12. Modem Settings
13. Display Status
14. Set Time 12HR

Use Menu Items 1-10 to edit the value on each level of the display. For further details, refer to **Modifying Level Settings**.

Parking Garage Display Controller Operation

The DataMaster 100, configured to the Parking Garage display option, defaults to showing the current display settings on power-up. The following text will be shown on the LCD.

LCD Screen	Action
The LCD screen displays the text "LEVEL VALUE" on the top line and "1 ↓ <OPEN>" on the bottom line. The text is in a monospaced font.	<p>Press the up or down arrow keys <↑↓> to scroll through the current setting for any of the levels on the display.</p> <p>Press the <ENTER/EDIT> key to modify any of the level settings.</p>


Modifying Level Settings

The Parking Garage display value can be modified either by pressing the <EDIT> key during operation or using the <MENU> key.

LCD Screen	Action
The LCD screen displays the text "EDIT LEVEL L" on the top line and "<OPEN> ↓↑" on the bottom line. The text is in a monospaced font.	<p>Press any of the number keys to set the value for this level.</p> <p>Press the up or down arrow keys <↑↓> to select OPEN, FULL, or number entry</p> <p>Note: A flashing asterisk appears on the LCD when a numeric value is being edited.</p>

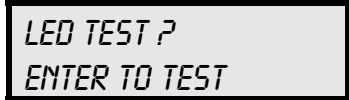

Display Level Editing

When using the menu to edit the controller items, the first one is the display level editing. Use the <↑↓> to select the level (1-10) to be modified, and then press <ENTER> to make the modifications.

LCD Screen	Action
	<p>Pressing the <MENU> key displays this message. Press <ENTER> to edit the current item shown on the LCD.</p> <p>Press the up or down arrow keys <↑↓> to move to the previous or next item in the list.</p> <p>Press the <MENU> key a second time or press the <CLEAR> key (press twice if editing) to exit the menu.</p>

LED Test

The next menu item is the LED test, which is used to test the LED digits on the display.

LCD Screen	Action
	<p>Press the <ENTER> key to cycle the display digits between all LEDs on and all LEDs off.</p>
	<p>Press the <ENTER> key to send the test command to the sign.</p> <p>Press <CLEAR> to exit the test mode</p>

Modem Settings

The DM100 can be connected to a modem, allowing for control of a DataMaster display remotely via a telephone network.

For further information on this option, please contact your Daktronics account representative or service provider.

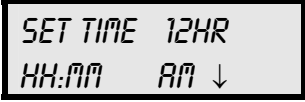
Display Status

The DM100 can be connected to a radio or other bi-directional device. This command is used to search for that device.

For further information on this option, please contact your Daktronics account representative or service provider.

Set Time

The display driver has the ability to retain the time for the display. In most cases this will not be necessary and will not need to be set. In those cases when the time is necessary, the following directions are used to the time on the display.

LCD Screen	Action
	<p>HH – Current hours value MM – Current minutes value AM – Current AM/PM setting (not shown when 24-hour time is selected)</p> <p>Using the number keys, enter the Time in the 12-hour format. Press the down arrow key <↓> to modify the AM/PM setting.</p> <p>Note: The flashing asterisk shows the current data being edited.</p> <p>To save changes, press the <ENTER> key when finished editing.</p> <p>Press the <CLEAR> key to cancel changes</p>

After setting the time you will need to set the date. If the date is already correct, enter through the date and press <ENTER> to send the time to the display.

Display Sequence

With the DM-100 connected to the display you may press <DISPLAY SEQUENCE> to display the new sequence on the display. Pressing this button will also display the new sequence on the LCD.

After pressing the <MENU> key, the following LCD prompt is displayed:

Dimming

The dimming level of the Parking Garage display can be adjusted in two ways. A light sensor, mounted in the display, can detect the level of ambient light at the display location and dim the sign's LEDs accordingly. This function is known as Automatic Dimming. With the second option, Manual Dimming, LEDs remain at the same level of brightness regardless of the level of light detected at the display.

To select either of these functions, or to enter the Blank Sign function, press <DIMMING>. The current setting is shown on the bottom level of the LCD.

LCD Screen	Action
<p>The LCD screen displays the word "DIMMING" at the top and "1) AUTOMATIC" with a downward arrow below it.</p>	<p>Press the down arrow key <↓> to toggle through dimming settings:</p> <p>Automatic – The display automatically dims based on the light detected at the display</p> <p>Manual – The display dimming level is set manually. Once set, this value remains in effect, regardless of the level of light detected at the display.</p> <p>Blank Sign – Will blank the display of all items</p>

If AUTOMATIC Dimming is selected, the following LCD prompt will be shown:

LCD Screen	Action
<p>The LCD screen displays "SET AUTO DIMMING" at the top and "MAX INTENSITY?" below it.</p>	<p>Press the <ENTER/EDIT> key to edit the maximum intensity for auto dimming. This is the maximum intensity that the display will use in full-bright modes (during daylight hours.)</p> <p>Press <CLEAR> to keep the current auto dimming maximum setting</p>

The following LCD prompt is shown for either Manual or Automatic Dimming selections:

LCD Screen	Action
<p>The LCD screen displays "INTENSITY XX" with a downward arrow and an upward arrow, and "ENTER TO SET" below it.</p> <p>XX – Current intensity (1-16) Max Intensity – 16 (Default is 16)</p>	<p>Press the up or down arrow keys <↑↓> to modify the current intensity of the display</p> <p>Press <ENTER> to accept this intensity. If the Manual Dimming mode is selected, this will be the new intensity for the display. If the Automatic Dimming mode is selected, the display will illuminate in full-bright mode, which is the maximum intensity level.</p>

A third option controlled by the <DIMMING> key is the **Blank Sign** command, which clears the display completely.

LCD Screen	Action
<div data-bbox="407 281 751 380" style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p><i>DIMMING</i> <i>BLANK SIGN ↓</i></p> </div> <div data-bbox="396 415 764 558" style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p><i>BLANK THE SIGN?</i> <i><ENT> YES</i> <i><CLR> NO</i></p> </div> <div data-bbox="410 611 748 753" style="border: 1px solid black; padding: 5px;"> <p><i>RESTART SIGN?</i> <i><ENT> YES</i> <i><CLR> NO</i></p> </div>	<p>Press <ENTER> to accept this option.</p> <p>The next LCD dialog will ask whether you want to blank the screen or escape. The LCD toggles between Yes and No. Pressing <CLR> resumes normal operation; pressing <ENT> actually blanks the sign.</p> <p>To resume normal operation from a blanked sign, press the <DIMMING> key again. The DM-100 will display a Restart Sign message. If the answer is: Yes. Press <ENT> to restart; if No, press <CLR>.</p>

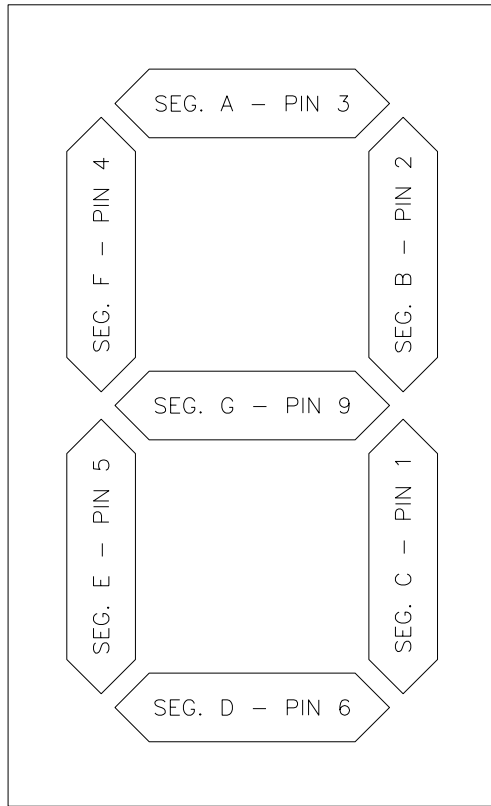
Appendix: Reference Drawings

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.

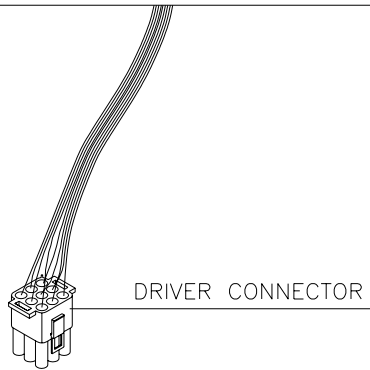
Segmentation, 7 Segment Bar Digit	Drawing A-38532
Riser Diagram, Outdoor Wire Control	Drawing A-164988
Insert, 0G-164998 (LL-2551) Price/T&T Display	Drawing A-164998
4 Column MASC LED Driver Specifications	Drawing A-166216
Riser Diagram, Indoor Wire Control	Drawing A-175342
Mechanical Spec, DF-1050	Drawing A-191157
Enclosed Driver, 4-Col MASC, Wide	Drawing A-191943
Mechanical Spec; DF-1051-7	Drawing A-192352
Electrical Spec; DF-1051-7	Drawing A-192515
Mechanical Spec; DF-1051-13	Drawing A-192534
Electrical Spec; DF-1051-13	Drawing A-192537
Mechanical Spec; DF-1051-10	Drawing A-192548
Electrical Spec; DF-1051-10	Drawing A-192549
Schematic; 4 Col Driver w/PS; GIII	Drawing A-192611
System Riser Diagram; DF Display, Parking Lot	Drawing A-196787
Electrical Specs, DF-1050-7	Drawing A-198345
Electrical Specs, DF-1050-5	Drawing A-198349
Electrical Specs, DF-1050-10	Drawing A-198357
Mechanical Specs, DF-1050-5	Drawing A-198359
Mechanical Specs, DF-1050-10	Drawing A-198430
Mechanical Specs, DF-1050-7	Drawing A-198431
Address settings, MASC drivers	Drawing A-227502

B Drawings

F. Assy; DF-1051-13; G3	Drawing B-192011
-------------------------------	-------------------------

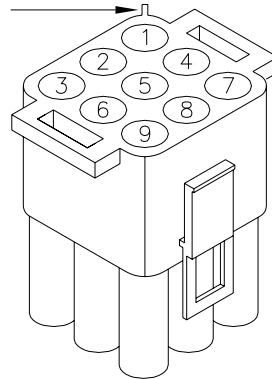


7 SEGMENT BAR DIGIT
FRONT VIEW



COLOR CODE		
PIN NO.	WIRE COLOR	DRIVER SEGMENT
1	ORN	C
2	RED	B
3	BRN	A
4	BLU	F
5	PNK	E
6	TAN	D
7	BLK	COM.
8	GRY	H
9	VIO	G

CONNECTOR PIN NUMBERING
NOTE SPLINE NEAR NO. 1



NOTE: "H" SEGMENT, GRAY WIRE IS NOT USED ON 7 SEGMENT BAR DIGIT.

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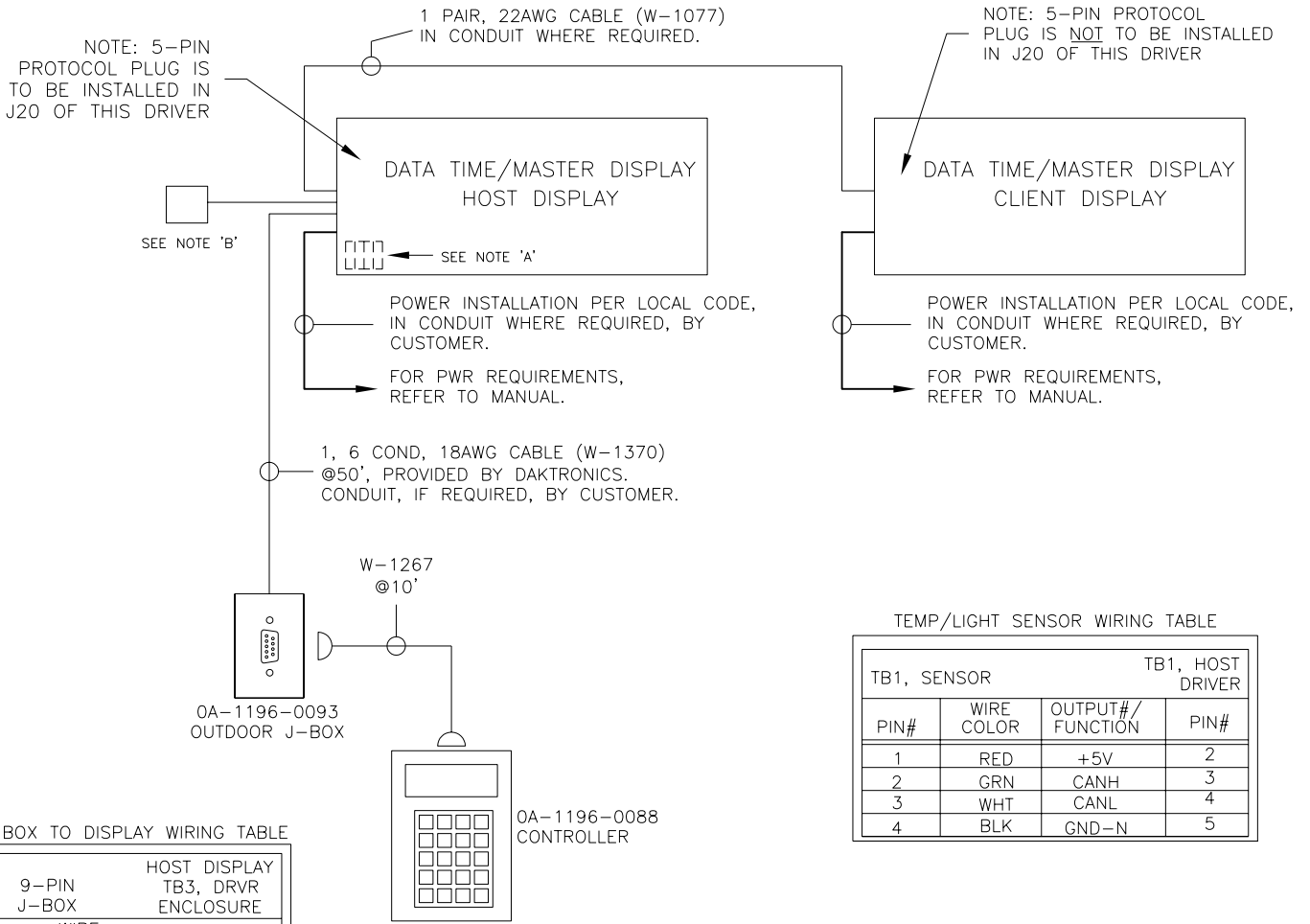
DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: BASKETBALL
TITLE: SEGMENTATION, 7 SEGMENT BAR DIGIT
DES. BY: HEIDERSCHIEDT DATE: 5 JUN 89

REVISION 02 APPR. BY: AVB SCALE: 1=4 1009-R04A-38532

REV.	DATE	DESCRIPTION	BY	APPR.
2	30 APR 97	ADDED SEGMENT DESIGNATIONS TO DIGIT FIGURE.	AVB	AVB
1	2 JAN 92	CHANGED FROM B-SIZE TO A-SIZE DWG.	C FICK	

WIRE CONTROL AT BASE OF SIGN



J-BOX TO DISPLAY WIRING TABLE

9-PIN J-BOX		HOST DISPLAY TB3, DRVR ENCLOSURE	
PIN#	WIRE COLOR	FUNCTION	PIN#
1	RED	12VDC-P	7
5	BLK	GND-N	8
6	GRN	SIG. IN+	1
5	WHT	SIG. IN-	2
8	BRN	SIG. OUT+	4
9	BLU	SIG. OUT-	5

TEMP/LIGHT SENSOR WIRING TABLE

TB1, SENSOR			TB1, HOST DRIVER
PIN#	WIRE COLOR	OUTPUT#/ FUNCTION	PIN#
1	RED	+5V	2
2	GRN	CANH	3
3	WHT	CANL	4
4	BLK	GND-N	5

DISPLAY TO DISPLAY WIRING TABLE

HOST DISPLAY TB3, DRIVER ENCLOSURE		CLIENT DISPLAY TB3, DRIVER ENCLOSURE	
PIN#	WIRE COLOR	FUNCTION	PIN#
4	GRN	SIGNAL-P	1
5	WHT	SIGNAL-N	2

NOTE 'A':
0A-1279-0100, INTERNAL PHOTO CELL KIT INCLUDED ON DATA TIME
MODELS. REFER TO MANUAL FOR DETAILS.

NOTE 'B':
0A-1151-0005 EXTERNAL TEMP/LIGHT SENSOR /W 8' OF 2 PAIR,
22 AWG CABLE (W-1234), INCLUDED ON DATA MASTER MODELS.
INSTALLED ONSITE BY OTHERS.

INSTALL "PROTOCOL 4" PLUG IN THE
DRIVER IN THE HOST DISPLAY ONLY.

REFER TO DRAWING 1279-R03A-165028 FOR
DRIVER ENCLOSURE SCHEMATIC

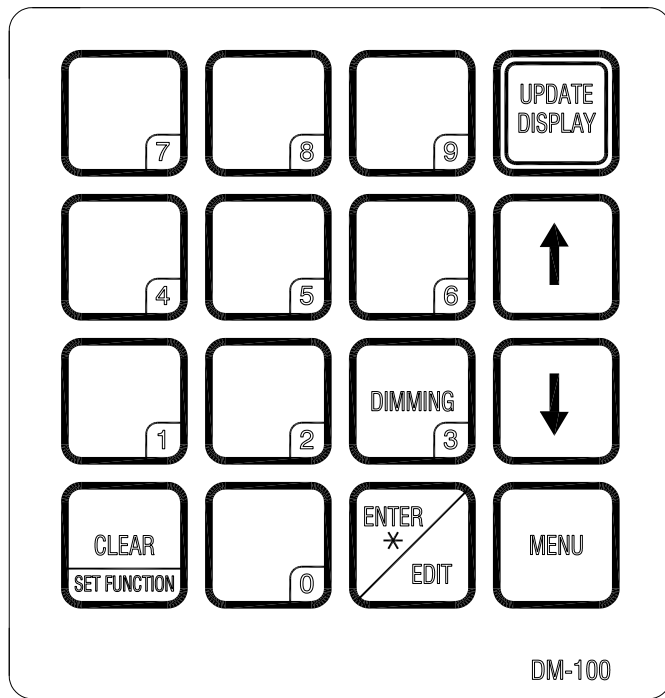
REV.	DATE	DESCRIPTION	BY	APPR.
07	06 APR 05	REVISED WIRING TABLE, CHANGED SOME CABLES.	ATP	
06	07 OCT 04	UPDATED PER NEW ASSEMBLES	RT	
05	19 SEP 02	CHANGED TO OUTDOOR CONTROL ONLY. ADDED HOST AND CLIENT DISPLAY FIGURES.	AVB	
04	10 SEP 02	REVISED CONFIGURATION OF CONTROL LOCATION FOR THE BUILDING LOCATION WITH NEW J-BOX, 0A-1196-0099.	NMB	
03	14 JUL 02	ADDED NEW NOTES FOR LIGHT AND TEMP SENSORS.	MWM	
02	25 JUN 02	CHANGED WALL PACK TRANSFORMER FROM 0F-1056-0004 TO T-1118	MWM	
01	30 MAY 02	REVISED ALL WIRING CHARTS AND ADDED PROPRIETARY NOTES.	MWM	

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DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: DATATIME LED DISPLAYS
TITLE: RISER DIAGRAM, OUTDOOR WIRE CONTROL, DATA TIME/MAS.
DES. BY: MMILLER DRAWN BY: MMILLER DATE: 15 APR 02

REVISION	APPR. BY:	1279-R01A-164988
07	SCALE: NONE	



OG-164998

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<p align="center">DAKTRONICS, INC. BROOKINGS, SD 57006</p>			
PROJ:			
TITLE: INSERT, OG-164998 PRICE/T&T DISPLAY			
DES. BY: EBRAVEK		DRAWN BY: EBRAVEK	
DATE: 5 APR 02			
REVISION	APPR. BY:	1196-E07A-164998	
00	SCALE: 1=1		

REV.	DATE	DESCRIPTION	BY	APPR.

OP-1192-0067 UNCOATED OR OP-1192-0068 COATED
4 COLUMN MASC LED DRIVER

J-27 RS232 COM	
PIN	FUNCTION
1	RX-P
2	TX-P
3	GND-N
4	+12V -P
5	DCD-P
6	RESET-P

J19 ADDRESS	
PIN	FUNCTION
1	GND-N
2	ADD0-N
3	ADD1-N
4	GND-N
5	ADD2-N
6	ADD3-N
7	GND-N
8	ADD4-N
9	ADD5-N
10	GND-N
11	ADD6-N
12	ADD7-N

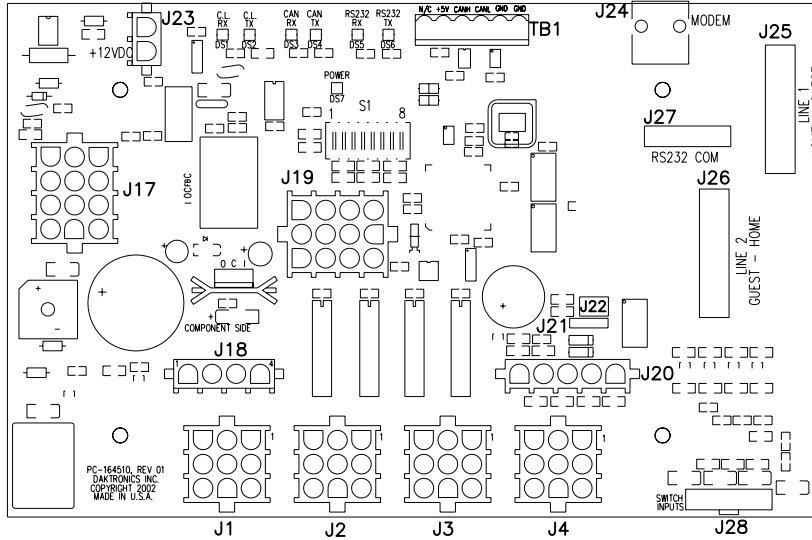
TB1 CAN	
PIN	FUNCTION
1	N/C
2	+5V-P
3	CANH-P
4	CANL-P
5	GND-N
6	GND-N

J24	
PIN	FUNCTION
1	MODEM_RTS-P
2	MODEM_RESET-P
3	MODEM_TX-P
4	GND-N
5	MODEM_RX-P
6	MODEM_DCD-P

J23 +12VDC	
PIN	FUNCTION
1	+12VDC-P
2	GND-N

J17 MAIN	
PIN	FUNCTION
1	CLIN-P
2	CLIN-N
3	232IN-P
4	CLOUT-P
5	CLOUT-N
6	16VAC-P
7	GND-N
8	N/C
9	16VAC-N
10	GND-N
11	N/C
12	+VBB-P

J18 RELAY	
PIN	FUNCTION
1	HORNOUT-N
2	AUXOUT2-N
3	120SW1-N
4	120SW1-P



J25			
FUNCTION	PIN	PIN	FUNCTION
L1_ID0-P	1	20	RED1-P
L1_ID1-P	2	19	GRN1-P
GND-N	3	18	L1_LATCH-P
GND-N	4	17	L1_DIM-P
GND-N	5	16	RED2-P
GRN2-P	6	15	RED3-P
GND-N	7	14	L1_CLK-P
GND-N	8	13	GRN3-P
L1_ID2-P	9	12	RED4-P
L1_ID3-P	10	11	GRN4-P

J26			
FUNCTION	PIN	PIN	FUNCTION
L2_ID0-P	1	20	RED1-P
L2_ID1-P	2	19	GRN1-P
GND-N	3	18	L2_LATCH-P
GND-N	4	17	L2_DIM-P
GND-N	5	16	RED2-P
GRN2-P	6	15	RED3-P
GND-N	7	14	L2_CLK-P
GND-N	8	13	GRN3-P
L2_ID2-P	9	12	RED4-P
L2_ID3-P	10	11	GRN4-P

J1-4 DIGIT	
PIN	FUNCTION
1	SEGC-N
2	SEGB-N
3	SEGA-N
4	SEGF-N
5	SEGE-N
6	SEGD-N
7	+VBB-P
8	SEGH-N
9	SEGG-N

J20 PROTOCOL	
PIN	FUNCTION
1	GND
2	PR0-N
3	PR1-N
4	PR2-N
5	PR3-N

J21 ISP	
PIN	FUNCTION
1	VFP-P
2	BKD-P
3	GND-N
4	RESET-P

J28 SWITCH	
PIN	FUNCTION
1	SWITCH1-P
2	SWITCH1-N
3	SWITCH2-P
4	SWITCH2-N
5	SWITCH3-P
6	SWITCH3-N
7	SWITCH4-P
8	SWITCH4-N

J22 ISP	
PIN	FUNCTION
1	BKD-P
2	GND-N
3	N/C
4	RESET-P
5	VFP-P
6	+5V-P

NOTE:

- RED LED CL RX WILL BE ON OR BLINKING WHEN THE DRIVER IS RECEIVING SIGNAL AND OFF WHEN THERE IS NO SIGNAL WITH CL
- GREEN LED CL TX WILL BE ON OR BLINKING WHEN THE DRIVER IS RECEIVING SIGNAL AND OFF WHEN THERE IS NO SIGNAL WITH CL
- RED LED CAN RX WILL BE BLINKING WHEN THE DRIVER IS RECEIVING SIGNAL AND ON WHEN THERE IS NO SIGNAL WITH CAN
- GREEN LED CAN TX WILL BE BLINKING WHEN THE DRIVER IS RECEIVING SIGNAL AND ON WHEN THERE IS NO SIGNAL WITH CAN
- IF THERE IS NOT A CAN DEVICE CONNECTED TO TB1, CAN RX AND TX LEDS WILL BE ON AND STEADY.
- RED LED RS232 RX WILL BE ON OR BLINKING WHEN THE DRIVER IS RECEIVING SIGNAL AND OFF WHEN THERE IS NO SIGNAL WITH RS232
- GREEN LED RS232 TX6 WILL BE ON OR BLINKING WHEN THE DRIVER IS RECEIVING SIGNAL AND OFF WHEN THERE IS NO SIGNAL WITH RS232
- GREEN LED POWER INDICATES THE DRIVER HAS POWER

3	27 NOV 04	UPDATE DRIVER J-27 FOR CORRECT PIN OUT	DMD	DAKTRONICS, INC. BROOKINGS, SD 57006	
2	16 MAY 03	UPDATE DRIVER FOR LATEST REVISION OF MASC DRIVER.	CJB	PROJ: OUTDOOR LED SCOREBOARDS	
1	06JUN02	ADDED LED LABELS ADDED NEW NOTES	JJS	TITLE: 4 COLUMN MASC LED DRIVER SPECIFICATIONS	
REV.	DATE	DESCRIPTION	BY	APPR.	DES. BY: JSPAHR DRAWN BY: JSPAHR DATE: 29 APR 02
				REVISION: 03	APPR. BY: 1=2 SCALE: 1=2
					1192-R07A-166216

WIRE CONTROL FROM BUILDING LOCATION

NOTE: 5-PIN PROTOCOL PLUG IS TO BE INSTALLED IN J20 OF THIS DRIVER

1 PAIR, 22AWG CABLE (W-1077)
IN CONDUIT WHERE REQUIRED.

NOTE: 5-PIN PROTOCOL PLUG IS NOT TO BE INSTALLED IN J20 OF THIS DRIVER

SEE NOTE 'B'

DATA TIME/MASTER DISPLAY
HOST DISPLAY

SEE NOTE 'A'

POWER INSTALLATION PER LOCAL CODE,
IN CONDUIT WHERE REQUIRED,
BY CUSTOMER.

FOR POWER REQUIREMENTS,
REFER TO MANUAL.

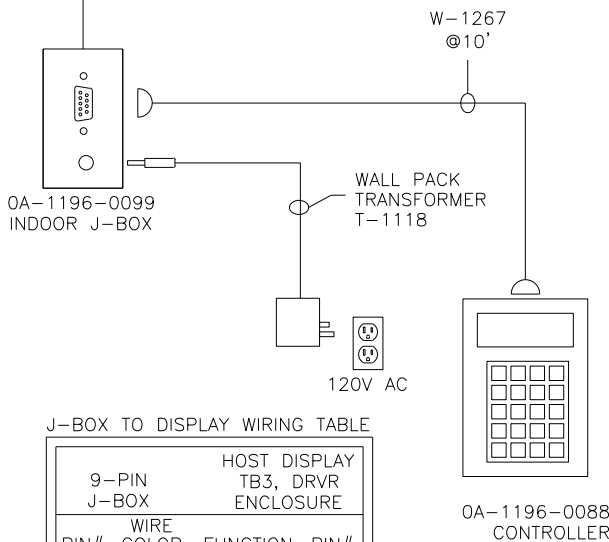
4-COND SIGNAL CABLE (W-1234)
RECOMMENDED WIRE SIZE: 18 TO 22 AWG.
PROVIDED BY INSTALLER, IN CONDUIT WHERE REQUIRED.

DATA TIME/MASTER DISPLAY
CLIENT DISPLAY

POWER INSTALLATION PER LOCAL CODE,
IN CONDUIT WHERE REQUIRED, BY
CUSTOMER.

FOR PWR REQUIREMENTS,
REFER TO MANUAL.

CONTROL LOCATION



TEMP/LIGHT SENSOR WIRING TABLE

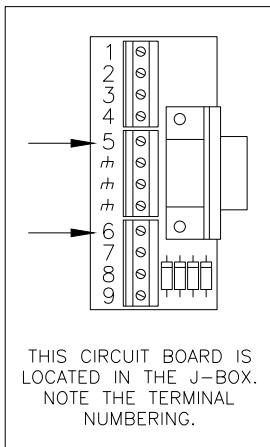
TB1, SENSOR			TB1, HOST DRIVER	
PIN#	WIRE COLOR	OUTPUT# / FUNCTION	PIN#	
1	RED	+5V	2	
2	GRN	CANH	3	
3	WHT	CANL	4	
4	BLK	GND-N	5	

J-BOX TO DISPLAY WIRING TABLE

9-PIN J-BOX		HOST DISPLAY TB3, DRVR ENCLOSURE		
PIN#	WIRE COLOR	FUNCTION	PIN#	
6	GRN	SIG. IN+	1	
5	WHT	SIG. IN-	2	
8	BRN	SIG. OUT+	4	
9	BLU	SIG. OUT-	5	

DISPLAY TO DISPLAY WIRING TABLE

HOST DISPLAY TB3, DRIVER ENCLOSURE		CLIENT DISPLAY TB3, DRIVER ENCLOSURE		
PIN#	WIRE COLOR	FUNCTION	PIN#	
4	GRN	SIGNAL-P	1	
5	WHT	SIGNAL-N	2	




THIS CIRCUIT BOARD IS LOCATED IN THE J-BOX. NOTE THE TERMINAL NUMBERING.

NOTE 'A':
OA-1279-0203, INTERNAL LIGHT SENSOR KIT INCLUDED ON DATA TIME MODELS. REFER TO MANUAL FOR DETAILS.

INSTALL "PROTOCOL 4" PLUG IN THE DRIVER IN THE HOST DISPLAY ONLY.

NOTE 'B':
OA-1151-0005 EXTERNAL TEMP/LIGHT SENSOR /W 8' OF 2 PAIR CABLE INCLUDED WITH DATA MASTER MODELS, INSTALLED ON SITE BY OTHERS.

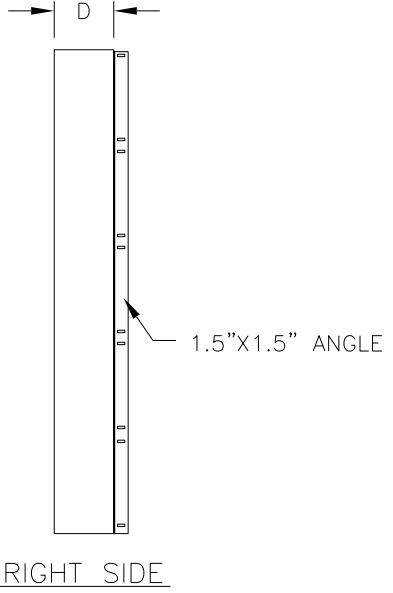
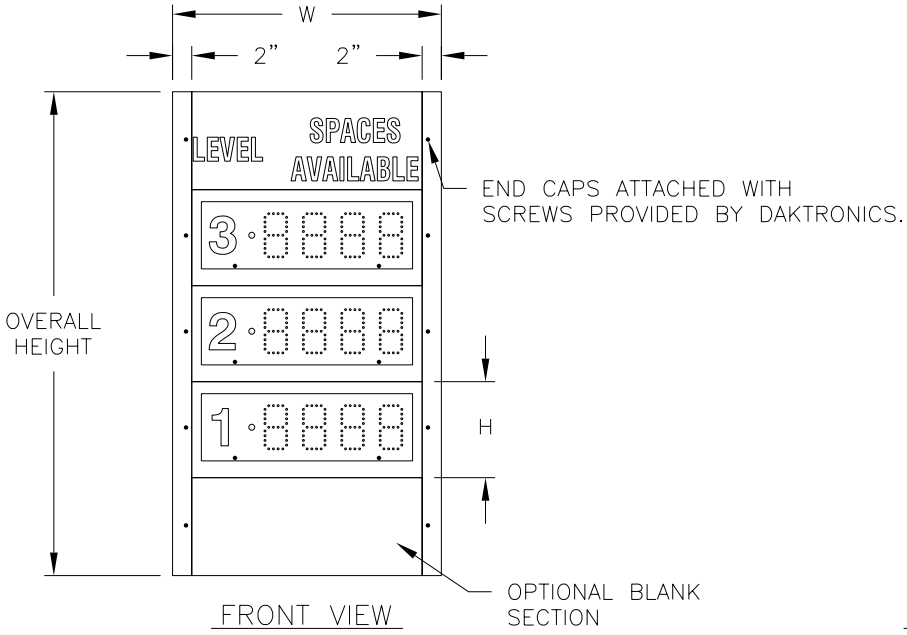
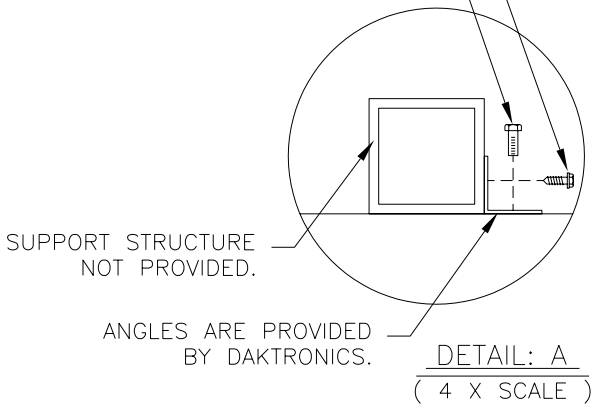
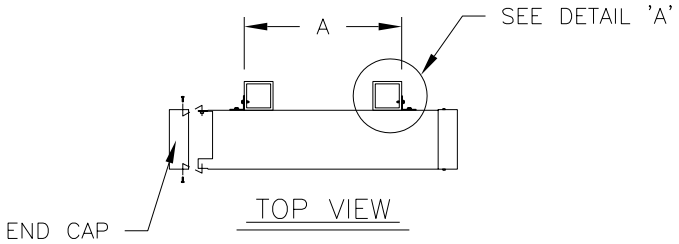
REFER TO DRAWING 1279-R03A-897103 FOR DRIVER ENCLOSURE SCHEMATIC

REV 05	DATE: 22 DEC 11	REMOVED NOTE ABOUT 100' OF CABLE INCLUDED.	BY: AVB	 DAKTRONICS, INC. BROOKINGS, SD 57006 DO NOT SCALE DRAWING	THE CONCEPTS EXPRESSED AND DETAILS SHOWN ON THIS DRAWING ARE CONFIDENTIAL AND PROPRIETARY. DO NOT REPRODUCE BY ANY MEANS WITHOUT THE EXPRESSED WRITTEN CONSENT OF DAKTRONICS, INC. COPYRIGHT 2011 DAKTRONICS, INC.
REV 04	DATE: 06 APR 05	REVISED WIRING TABLE, CHANGED SOME CABLES.	BY: ATP		
REV 03	DATE: 07 OCT 04	UPDATED PER NEW ASSEMBLES	BY: RT	PROJ: DATATIME LED DISPLAYS TITLE: RISER DIAGRAM- INDOOR WIRE CONTROL- DATA TIME/MAS.	
REV 02	DATE: 20-SEP-04	CHANGED PART NUMBER FOR LIGHT SENSOR	BY: JHF	DESIGN: _____ SCALE: NONE	DRAWN: M MILLER DATE: 18 SEP 02
REV 01	DATE: 13 MAR 03	ADDED J-BOX CIRCUIT BOARD PICTURE. CHANGED PART NUMBERS FOR LIGHT SENSOR AND TEMP SENSOR ASSEMBLIES.	BY: AVB	SHEET: _____ REV: 05	JOB NO: P1279 FUNC-TYPE-SIZE: R-01-A 175342

DF-1050

HARDWARE TO ATTACH ANGLES TO STRUCTURE NOT PROVIDED.

HARDWARE TO ATTACH ANGLES TO DISPLAYS PROVIDED BY DAKTRONICS.



MODEL DF-1050-5 SHOWN FOR 3 PARKING LEVELS

DIGIT SIZE	H	W	D	A (±0.25")	OVERALL HEIGHT FOR NO. OF SECTIONS								APPROXIMATE WEIGHT PER SECTION
					4	5	6	7	8	9	10		
5"	10"	28"	6.2"	16.40"	40"	50"	60"	70"	80"	90"	100"	14 LB (6 KG)	
7"	12"	40"	6.2"	24.5"	48"	60"	72"	84"	96"	108"	-	20 LB (9 KG)	
10"	15"	52"	6.2"	34.5"	60"	75"	90"	105"	-	-	-	32 LB (15 KG)	

REFERENCE DWG-228670 FOR MORE ASSY DETAILS.

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DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: _____

TITLE: MECHANICAL SPECS, DF-1050

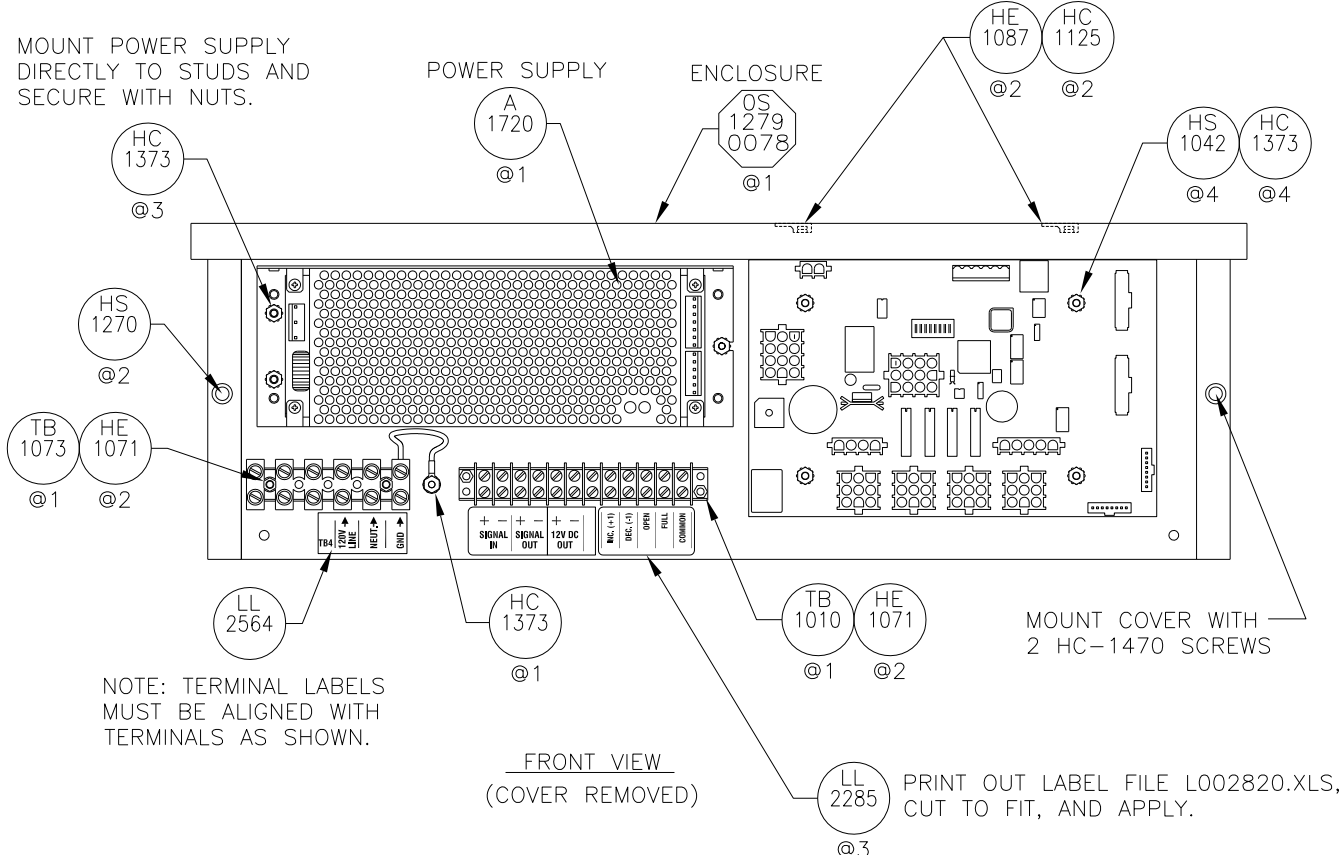
DES. BY: AVANBEMMEL DRAWN BY: JJSYRSTAD DATE: 25 JUN 03

REVISION	APPR. BY:	1279-E10A-191157
01	SCALE: 1=20	

01	23 NOV 04	REVISED THE MOUNTING PROCEDURE.	MGL	
REV.	DATE	DESCRIPTION	BY	APPR.

CABLE TIE ANCHORS ARE ATTACHED INSIDE THE TOP OF THE ENCLOSURE.

MOUNT POWER SUPPLY DIRECTLY TO STUDS AND SECURE WITH NUTS.

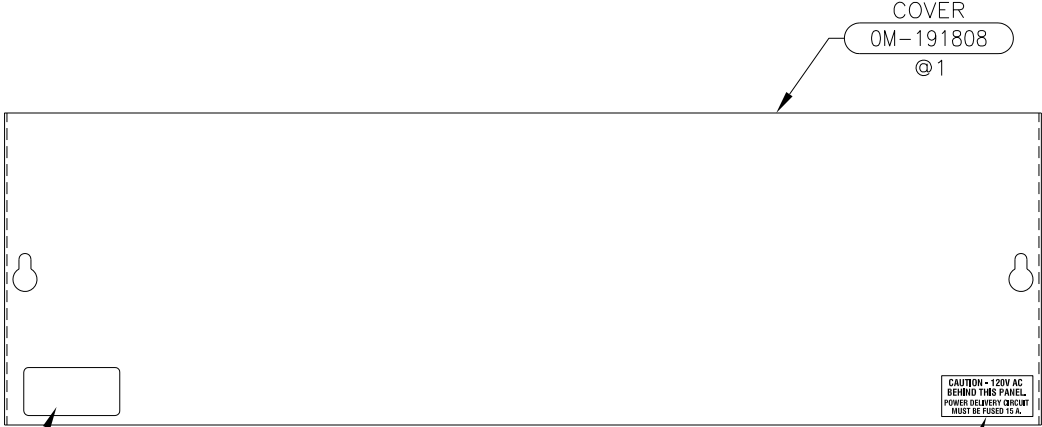


NOTE: TERMINAL LABELS MUST BE ALIGNED WITH TERMINALS AS SHOWN.

FRONT VIEW (COVER REMOVED)

PRINT OUT LABEL FILE L002820.XLS, CUT TO FIT, AND APPLY.

MOUNT COVER WITH 2 HC-1470 SCREWS



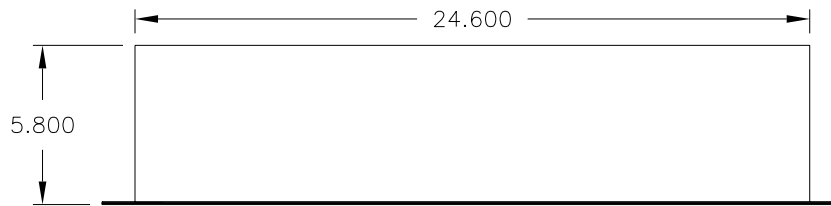
COVER, FRONT VIEW

SEE GLOVIA PACKET FOR INSTRUCTIONS FOR LL-2285.

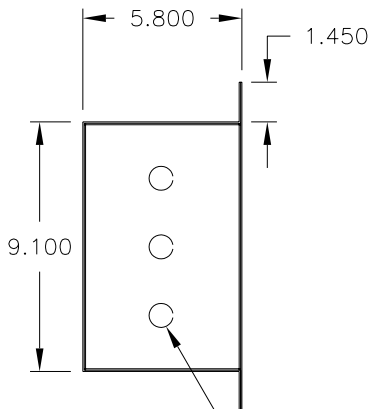
APPLY THE CAUTION 120V LABEL TO THE FRONT OF THE COVER, DOWN IN THE CORNER.

THE CONCEPTS EXPRESSED AND DETAILS SHOWN ON THIS DRAWING ARE CONFIDENTIAL AND PROPRIETARY. DO NOT REPRODUCE BY ANY MEANS, INCLUDING ELECTRONICALLY WITHOUT THE EXPRESSED WRITTEN CONSENT OF DAKTRONICS, INC. COPYRIGHT 2003 DAKTRONICS, INC.			
DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ: OUTDOOR LED SCOREBOARDS			
TITLE: ENCLOSED DRIVER- 4-COL MASC- WIDE			
DES. BY:		DRAWN BY: M LEOPOLD	
		DATE: 10 JUL 03	
REVISION	APPR. BY:	1279-E10A-191943	
03	SCALE: 1=4		

REV.	DATE	DESCRIPTION	BY	APPR.
03	28 JUL 09	REPLACE HC-1238 WITH HC-1373	RLB	
02	10 JUN 05	REPLACED HE-1071 WITH HS-1042, HC-1364 WITH HC-1238 FOR MOUNTING THE DRIVER.	MGL	
01	23 JAN 04	CHANGED TB-1008 TO TB-1010 AND MOVED POWER TERMINAL BLOCK TO LEFT.	AVB	

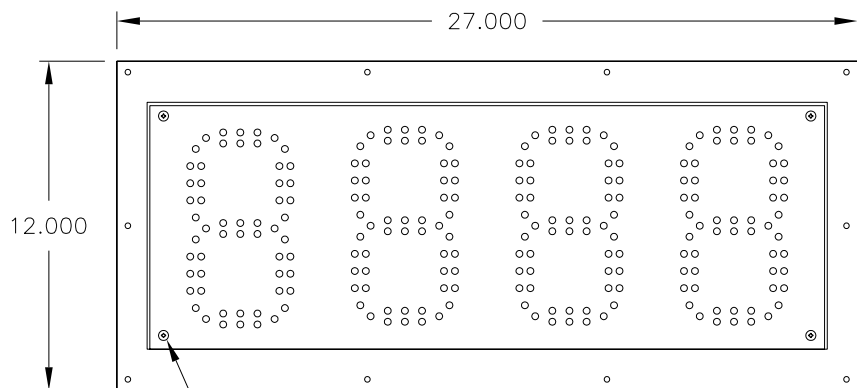


TOP VIEW



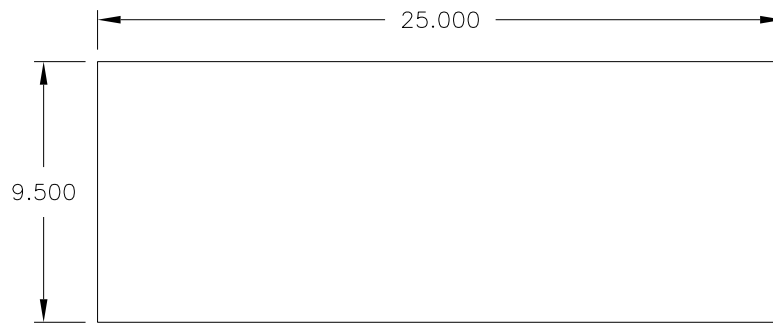
SIDE VIEW
TYP. BOTH SIDES

7/8" KNOCKOUT HOLES @3 FOR SIGNAL IN/OUT AND POWER.



FRONT VIEW

DIGIT PANEL IS ATTACHED WITH 4 SCREWS.



CUTOUT SIZE IN SIGN FACE FOR THE DISPLAY

THE OUTSIDE SHELL OF THE DISPLAY IS CONSTRUCTED OF FORMED 0.050" ALUMINUM SHEET WELDED TOGETHER.

THE DIGIT PANEL IS MOUNTED TO THE DISPLAY USING FOUR SCREWS.

ESTIMATED WEIGHT IS 15 POUNDS.

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DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: OUTDOOR LED SCOREBOARDS

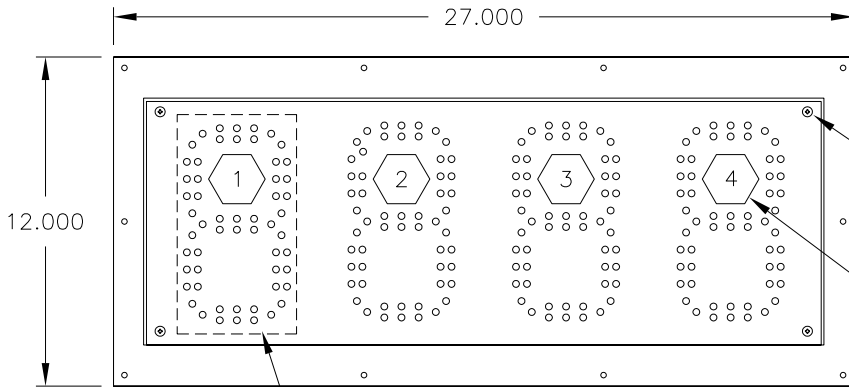
TITLE: MECHANICAL SPECS, DF-1071-7

DES. BY: DRAWN BY: M LEOPOLD DATE: 15 JUL 03

REV.	DATE	DESCRIPTION	BY	APPR.
01	13 JUN 06	CHANGED THE MODEL NAME FROM DF-1051-7 TO DF-1071-7.	MGL	

REVISION	APPR. BY:
01	SCALE: 1=7

1279-R04A-192352

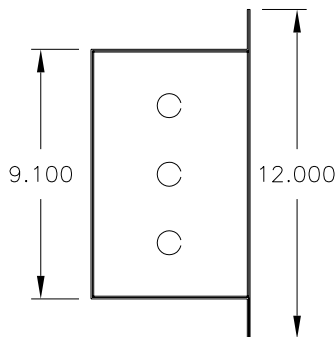


DIGIT CIRCUIT BOARDS
ARE BEHIND THE PANEL.

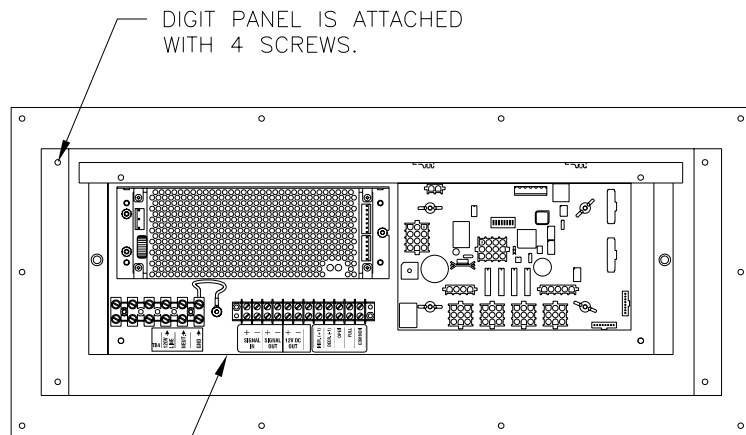
FRONT VIEW

REMOVE THESE SCREWS TO
OPEN THE PANEL AND GAIN
ACCESS TO INTERNAL
COMPONENTS.

NUMBERS ON DIGITS INDICATE
WHICH DRIVER CONNECTOR IS
WIRED TO THAT DIGIT.



SIDE VIEW
TYP. BOTH SIDES



DIGIT PANEL IS ATTACHED
WITH 4 SCREWS.

DRIVER ENCLOSURE
(OA-1279-0263)

FRONT VIEW

SHOWN WITH DIGIT PANEL
AND DRIVER ENCLOSURE
COVER REMOVED.

MODEL: DF-1071-7 120V AC
MAX POWER DEMAND: 150 W

THE CONCEPTS EXPRESSED AND DETAILS SHOWN ON THIS DRAWING ARE CONFIDENTIAL AND PROPRIETARY. DO NOT REPRODUCE BY ANY MEANS, INCLUDING ELECTRONICALLY WITHOUT THE EXPRESSED WRITTEN CONSENT OF DAKTRONICS, INC. COPYRIGHT 2003 DAKTRONICS, INC.

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: OUTDOOR LED SCOREBOARDS

TITLE: ELECTRICAL SPECS, DF-1071-7

DES. BY:

DRAWN BY: M LEOPOLD

DATE: 15 JUL 03

REVISION

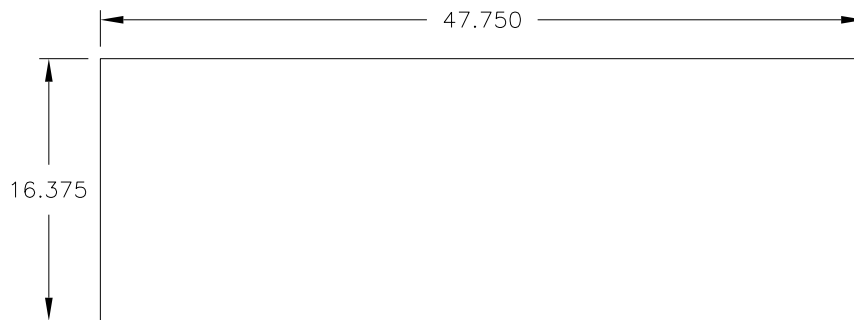
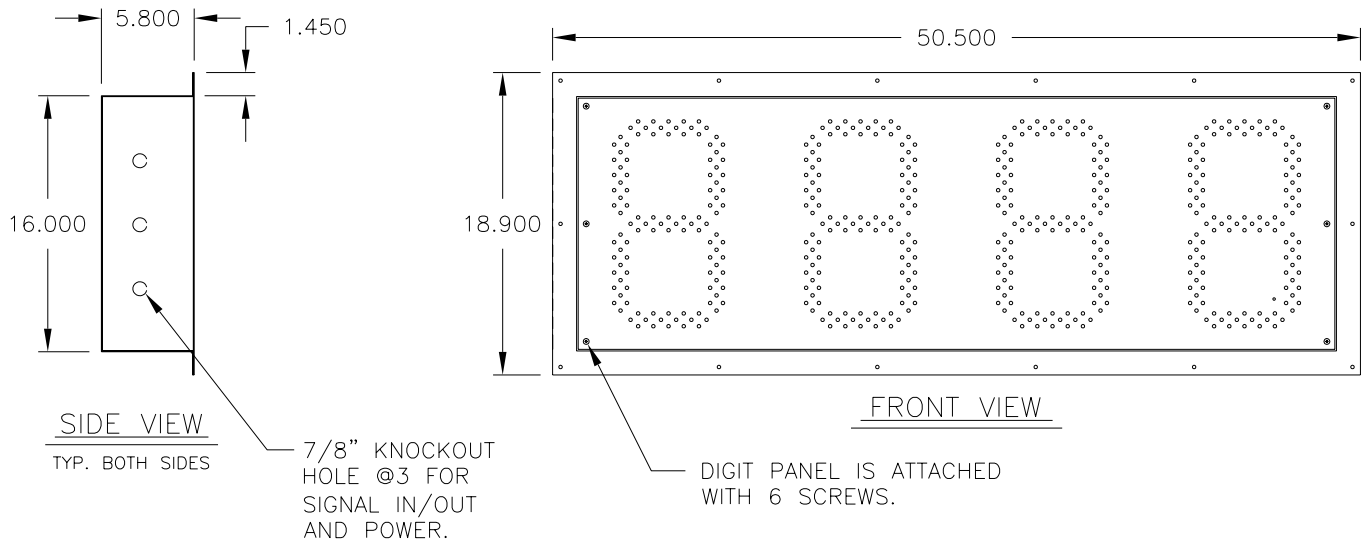
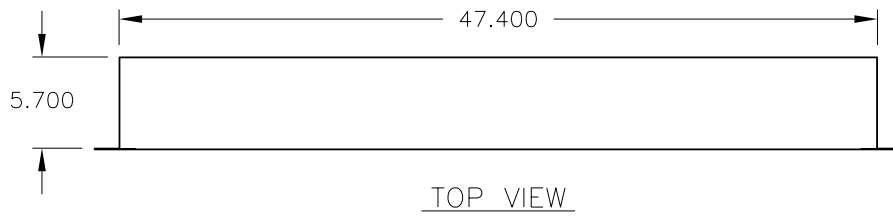
APPR. BY:

02

SCALE: 1=7

1279-R04A-192515

REV.	DATE	DESCRIPTION	BY	APPR.
02	13 JUN 06	CHANGED THE MODEL NAME FROM DF-1051-7 TO DF-1071-7.	MGL	
01	26 JAN 04	UPDATED PICTURE OF OA-1279-0263.	MGL	



CUTOUT SIZE IN SIGN FACE FOR THE DISPLAY

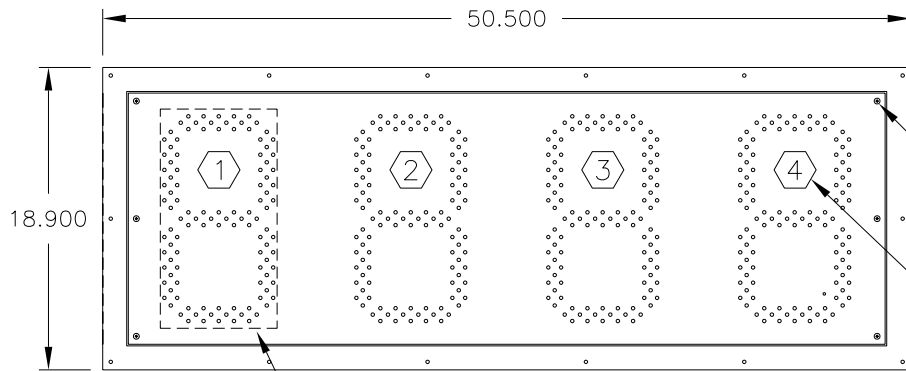
THE OUTSIDE SHELL OF THE DISPLAY IS CONSTRUCTED OF FORMED 0.050" ALUMINUM SHEET WELDED TOGETHER.

THE DIGIT PANEL IS MOUNTED TO THE DISPLAY USING SIX SCREWS.

ESTIMATED WEIGHT IS 30 POUNDS.

THE CONCEPTS EXPRESSED AND DETAILS SHOWN ON THIS DRAWING ARE CONFIDENTIAL AND PROPRIETARY. DO NOT REPRODUCE BY ANY MEANS, INCLUDING ELECTRONICALLY WITHOUT THE EXPRESSED WRITTEN CONSENT OF DAKTRONICS, INC. COPYRIGHT 2003 DAKTRONICS, INC.			
DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ: OUTDOOR LED SCOREBOARDS			
TITLE: MECHANICAL SPECS, DF-1071-13			
DES. BY:	DRAWN BY: M LEOPOLD	DATE: 15 JUL 03	
REVISION	APPR. BY:	1279-R04A-192534	
01	SCALE: 1=12		

01	13 JUN 06	CHANGED THE MODEL NAME FROM DF-1051-13 TO DF-1071-13.	MGL	
REV.	DATE	DESCRIPTION	BY	APPR.

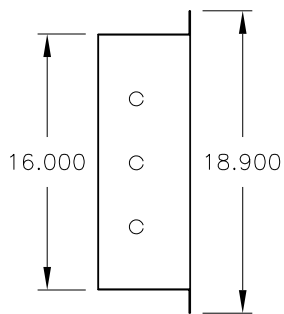


FRONT VIEW

REMOVE THESE SCREWS TO GAIN ACCESS TO INTERNAL COMPONENTS.

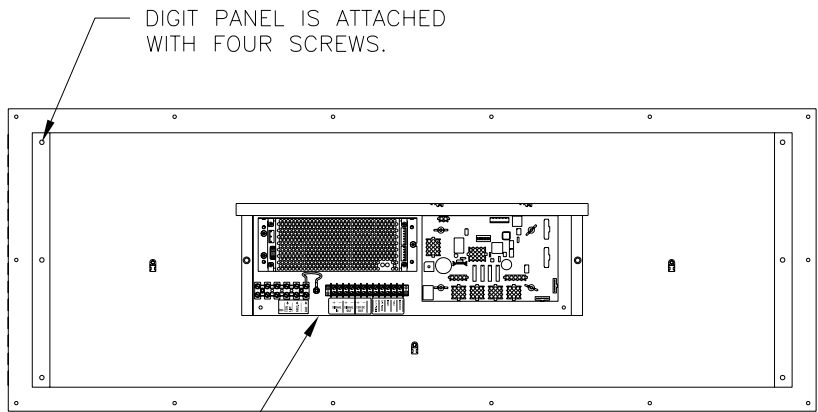
NUMBERS ON DIGITS INDICATE WHICH DRIVER CONNECTOR IS WIRED TO THAT DIGIT.

DIGIT CIRCUIT BOARDS ARE BEHIND THE PANEL.



SIDE VIEW

TYP. BOTH SIDES



FRONT VIEW

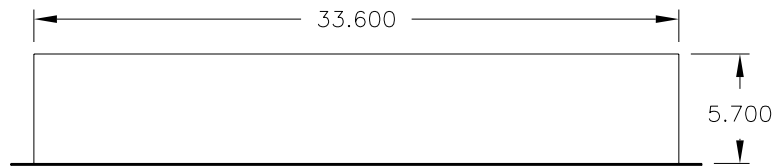
SHOWN WITH DIGIT PANEL AND DRIVER ENCLOSURE COVER REMOVED.

DRIVER ENCLOSURE (OA-1279-0263)

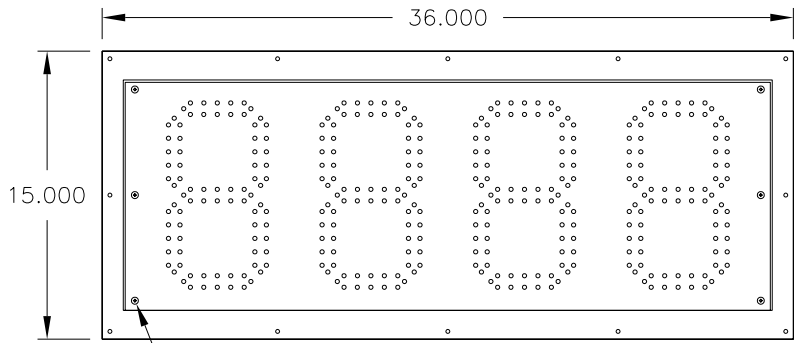
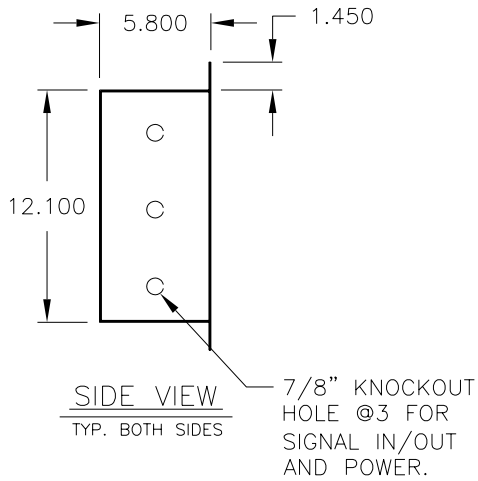
MODEL: DF-1071-13 120V AC
MAX POWER DEMAND: 150 W

THE CONCEPTS EXPRESSED AND DETAILS SHOWN ON THIS DRAWING ARE CONFIDENTIAL AND PROPRIETARY. DO NOT REPRODUCE BY ANY MEANS, INCLUDING ELECTRONICALLY WITHOUT THE EXPRESSED WRITTEN CONSENT OF DAKTRONICS, INC. COPYRIGHT 2003 DAKTRONICS, INC.			
DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ: OUTDOOR LED SCOREBOARDS			
TITLE: ELECTRICAL SPECS, DF-1071-13			
DES. BY:		DRAWN BY: M LEOPOLD	
		DATE: 15 JUL 03	
REVISION	APPR. BY:	1279-R04A-192537	
02	SCALE: 1=12		

02	13 JUN 06	CHANGED THE MODEL NUMBER FROM DF-1051-13 TO DF-1071-13.	MGL	
01	26 JAN 04	UPDATED PICTURE OF OA-1279-0263.	MGL	
REV.	DATE	DESCRIPTION	BY	APPR.

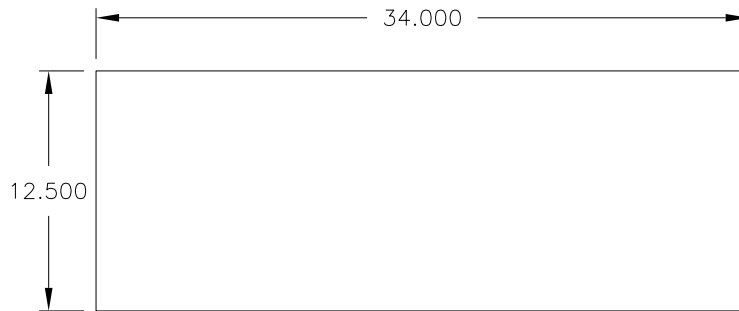


TOP VIEW



FRONT VIEW

DIGIT PANEL IS ATTACHED WITH SIX SCREWS.



CUTOUT SIZE IN SIGN FACE FOR THE DISPLAY

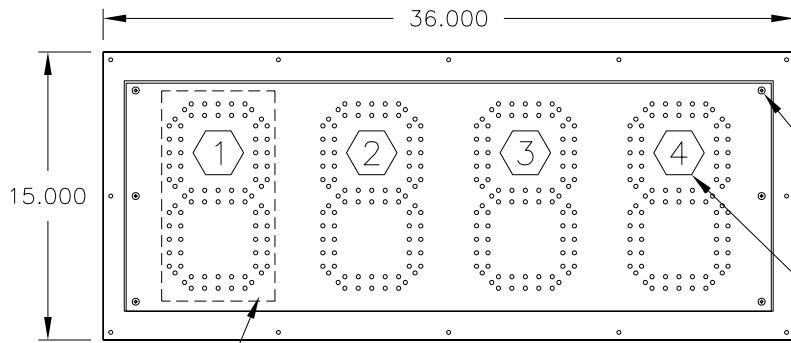
THE OUTSIDE SHELL OF THE DISPLAY IS CONSTRUCTED OF FORMED 0.050" ALUMINUM SHEET WELDED TOGETHER.

THE DIGIT PANEL IS MOUNTED TO THE DISPLAY USING SIX SCREWS.

ESTIMATED WEIGHT IS 20 POUNDS.

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DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ: OUTDOOR LED SCOREBOARDS			
TITLE: MECHANICAL SPECS, DF-1071-10			
DES. BY:	DRAWN BY: M LEOPOLD	DATE: 15 JUL 03	
REVISION	APPR. BY:	1279-R04A-192548	
01	SCALE: 1=10		

01	13 JUN 06	CHANGED THE MODEL NAME FROM DF-1051-10 TO DF-1071-10.	MGL	
REV.	DATE	DESCRIPTION	BY	APPR.

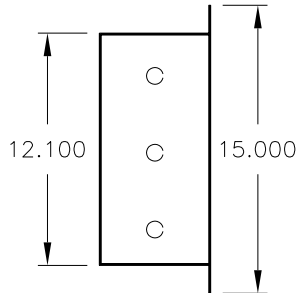


FRONT VIEW

DIGIT CIRCUIT BOARD IS BEHIND PANEL.

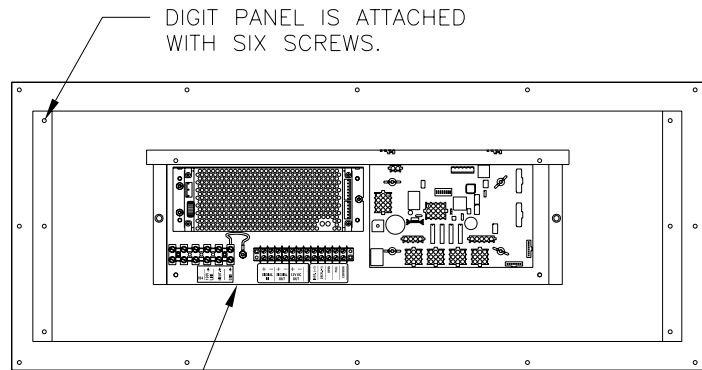
REMOVE THESE SCREWS TO GAIN ACCESS TO INTERNAL COMPONENTS.

NUMBERS ON DIGITS INDICATE WHICH DRIVER CONNECTOR IS WIRED TO THAT DIGIT.



SIDE VIEW

TYP. BOTH SIDES



DRIVER ENCLOSURE (0A-1279-0263)

FRONT VIEW

SHOWN WITH DIGIT PANEL AND DRIVER ENCLOSURE COVER REMOVED.

MODEL: DF-1071-10 120V AC
MAX POWER DEMAND: 150 W

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DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: OUTDOOR LED SCOREBOARDS

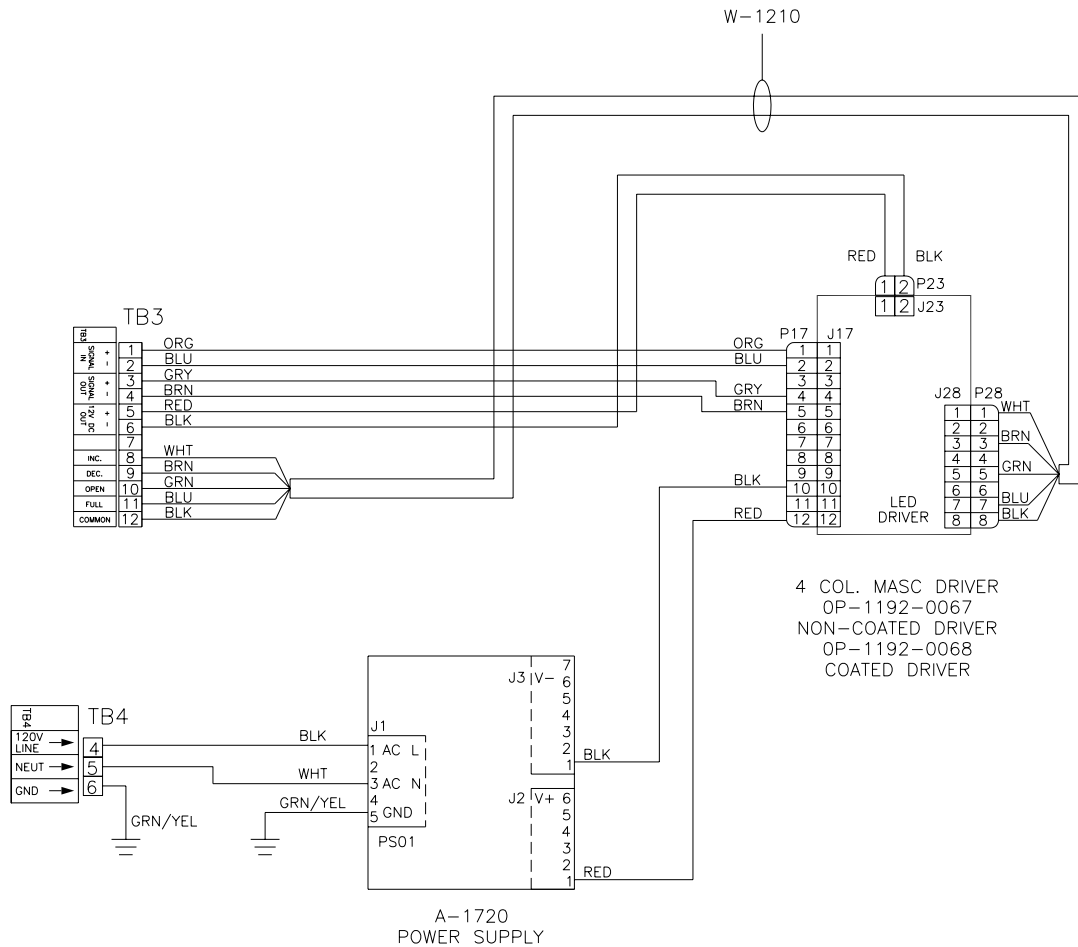
TITLE: ELECTRICAL SPECS, DF-1071-10

DES. BY: DRAWN BY: M LEOPOLD DATE: 15 JUL 03

REVISION	APPR. BY:
02	SCALE: 1=10

1279-R04A-192549

02	13 JUN 06	CHANGED THE MODEL NAME FROM DF-1051-10 TO DF-1071-10.	MGL	
01	26 JAN 04	UPDATED PICTURE OF 0A-1279-0263.	MGL	
REV.	DATE	DESCRIPTION	BY	APPR.



NOTES:

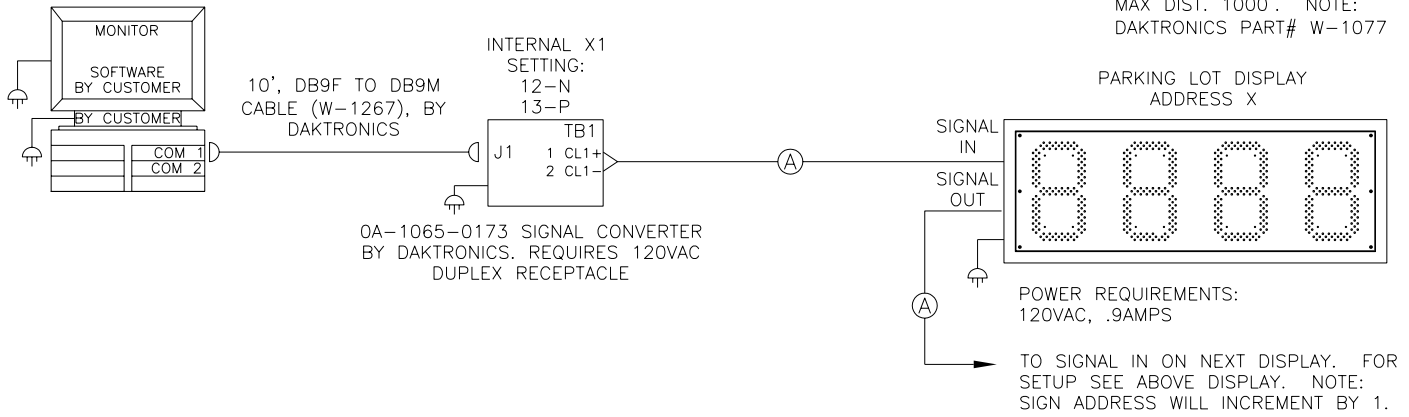
ALL CONDUCTORS ARE 18AWG, EXCEPT W-1210.

0A-1279-0404
 HARNESS; 4 COL DRVR W/ SWITCH INPUTS/ PS; G3

THE CONCEPTS EXPRESSED AND DETAILS SHOWN ON THIS DRAWING ARE CONFIDENTIAL AND PROPRIETARY. DO NOT REPRODUCE BY ANY MEANS, INCLUDING ELECTRONICALLY WITHOUT THE EXPRESSED WRITTEN CONSENT OF DAKTRONICS, INC. COPYRIGHT 2002 DAKTRONICS, INC.			
DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ: OUTDOOR LED SCOREBOARDS			
TITLE: SCHEMATIC; 4 COL DRIVER W/SWITCH INPUTS/ PS; G3			
DES. BY: THENDRI		DRAWN BY: THENDRI	
		DATE: 17 JUL 03	
REVISION	APPR. BY: MWM	1279-R03A-192611	
01	SCALE: NONE		

01	26 JAN 04	ADDED SWITCH INPUT HARNESS	DJU	
REV.	DATE	DESCRIPTION	BY	APPR.

STANDARD WIRE (CURRENT LOOP) SETUP



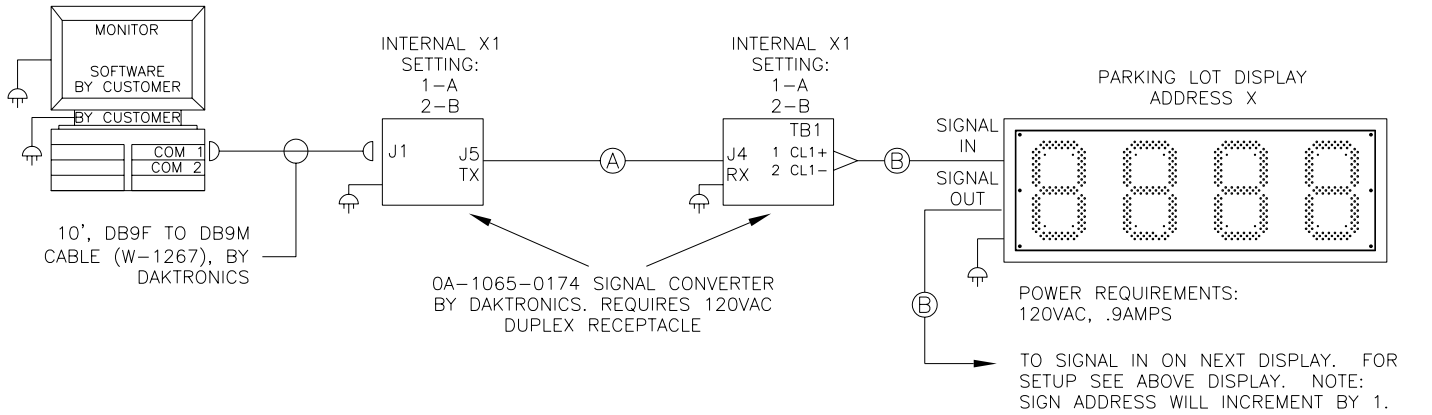
(A) 1 PAIR, 22 AWG /W SHIELD, BY CUSTOMER
MAX DIST. 1000'. NOTE:
DAKTRONICS PART# W-1077

PARKING LOT DISPLAY
ADDRESS X

POWER REQUIREMENTS:
120VAC, .9AMPS

TO SIGNAL IN ON NEXT DISPLAY. FOR
SETUP SEE ABOVE DISPLAY. NOTE:
SIGN ADDRESS WILL INCREMENT BY 1.

STANDARD FIBER OPTIC SETUP



(A) 2 FIBER, FIBER OPTIC CABLE (W-1242)
BY DAKTRONICS. MAX DIST. 4000'

(B) 1 PAIR, 22 AWG /W SHIELD, BY
CUSTOMER MAX DIST. 1000'. NOTE:
DAKTRONICS PART# W-1077

PARKING LOT DISPLAY
ADDRESS X

POWER REQUIREMENTS:
120VAC, .9AMPS

TO SIGNAL IN ON NEXT DISPLAY. FOR
SETUP SEE ABOVE DISPLAY. NOTE:
SIGN ADDRESS WILL INCREMENT BY 1.

MANUAL CONTROL FUNCTIONS

NOTES:

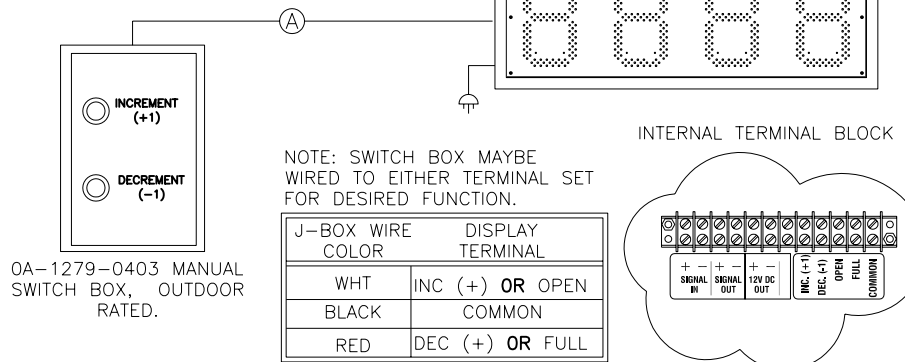
THIS DRAWING IS NOT TO SCALE, AND SHOULD BE USED FOR SYSTEM SETUP GUIDELINES ONLY. SIGNAL PROTOCOL INFORMATION FOR THE DISPLAYS CAN BE ACQUIRED BY CONTACTING YOUR DAKTRONICS REPRESENTATIVE.

ALL SIGNAL CONVERTERS SHOWN NEED TO BE CONFIGURED. SEE THE SIGNAL CONVERTER MANUAL AND VERIFY EACH JUMBER SETTING.

REFER TO INSTALLATION MANUAL FOR MOUNTING, INTERNAL CONNECTIONS FOR SIGNAL AND POWER, AND POWER REQUIREMENTS OF EACH DISPLAY PURCHASED.

(A) 2 PAIR, 22 AWG /W SHIELD, BY
CUSTOMER MAX DIST. 1000'. NOTE:
DAKTRONICS PART# W-1234

PARKING LOT DISPLAY
ADDRESS X



NOTE: SWITCH BOX MAYBE WIRED TO EITHER TERMINAL SET FOR DESIRED FUNCTION.

J-BOX WIRE COLOR	DISPLAY TERMINAL
WHT	INC (+) OR OPEN
BLACK	COMMON
RED	DEC (-) OR FULL

INTERNAL TERMINAL BLOCK

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DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: DATATIME LED DISPLAYS

TITLE: SYSTEM RISER DIAGRAM; DF DISPLAY, PARKING LOT

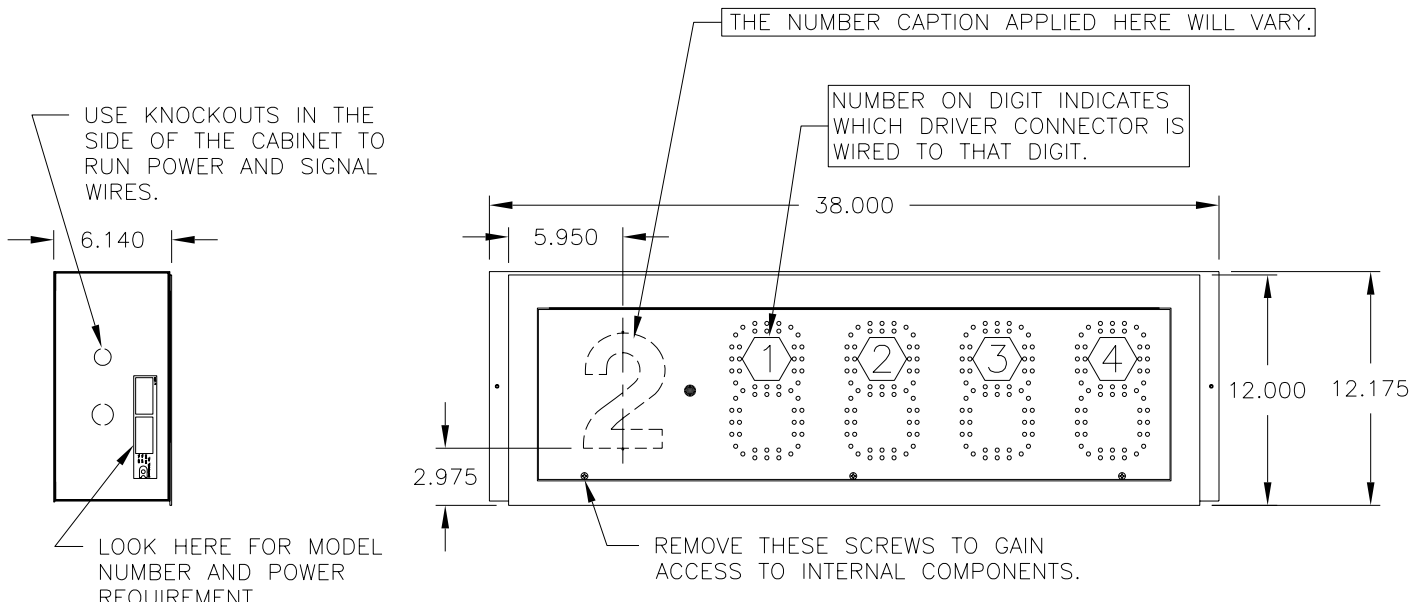
DES. BY: MMILLER

DRAWN BY: MMILLER

DATE: 15 SEP 03

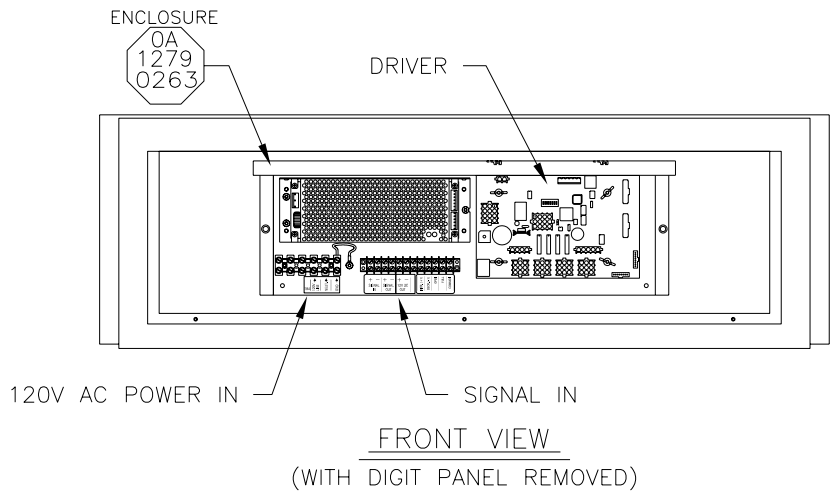
REV.	DATE	DESCRIPTION	BY	APPR.
01	29 JAN 04	ADDED THIRD DETAIL, MANUAL CONTROL FUNCTION	MWM	

REVISION 01 APPR. BY: SCALE: NONE 1279-R01A-196787



SIDE VIEW

FRONT VIEW



FRONT VIEW

(WITH DIGIT PANEL REMOVED)

SPECIFICATION LABEL DATA	
MODEL NO:	DF-1050-7
	120 V AC PRIMARY, 1.25 AMP
	24 V SECONDARY

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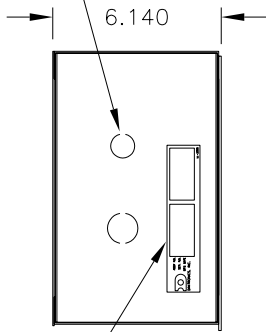
DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ:	DATATIME LED DISPLAYS		
TITLE:	ELECTRICAL SPECS, DF-1050-7		
DES. BY:	A VANBEMMEL	DRAWN BY:	M LEOPOLD
		DATE:	13 OCT 03

REVISION	APPR. BY:	1279-R04A-198345
02	SCALE: 1=10	

REV.	DATE	DESCRIPTION	BY	APPR.
02	26 JAN 04	UPDATED PICTURE OF 0A-1279-0263.	MGL	
01	27 OCT 03	PUT DIFFERENT DRIVER ENCLOSURE IN DISPLAY. CHANGED SECONDARY VOLTS SPEC TO 24 VOLTS.	MGL	

USE KNOCKOUTS IN THE SIDE OF THE CABINET TO RUN POWER AND SIGNAL WIRES.

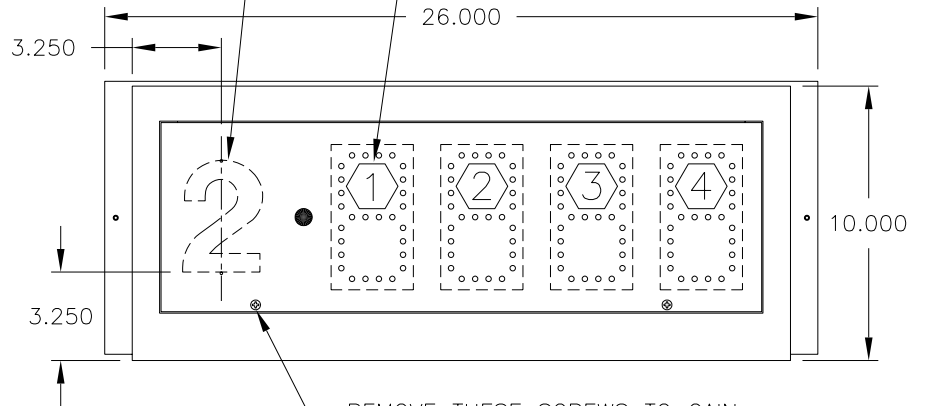


LOOK HERE FOR MODEL NUMBER AND POWER REQUIREMENT.

SIDE VIEW

THE NUMBER CAPTION APPLIED HERE WILL VARY.

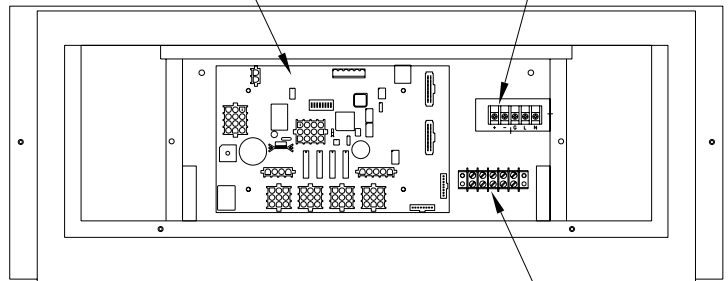
NUMBER ON DIGIT INDICATES WHICH DRIVER CONNECTOR IS WIRED TO THAT DIGIT.



REMOVE THESE SCREWS TO GAIN ACCESS TO INTERNAL COMPONENTS.

FRONT VIEW

DRIVER 120V AC POWER IN



SIGNAL IN

FRONT VIEW

(WITH DIGIT PANEL REMOVED)

SPECIFICATION LABEL DATA

MODEL NO: DF-1050-5
 120 V AC PRIMARY, 0.2 AMP
 12 V SECONDARY

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DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: DATATIME LED DISPLAYS

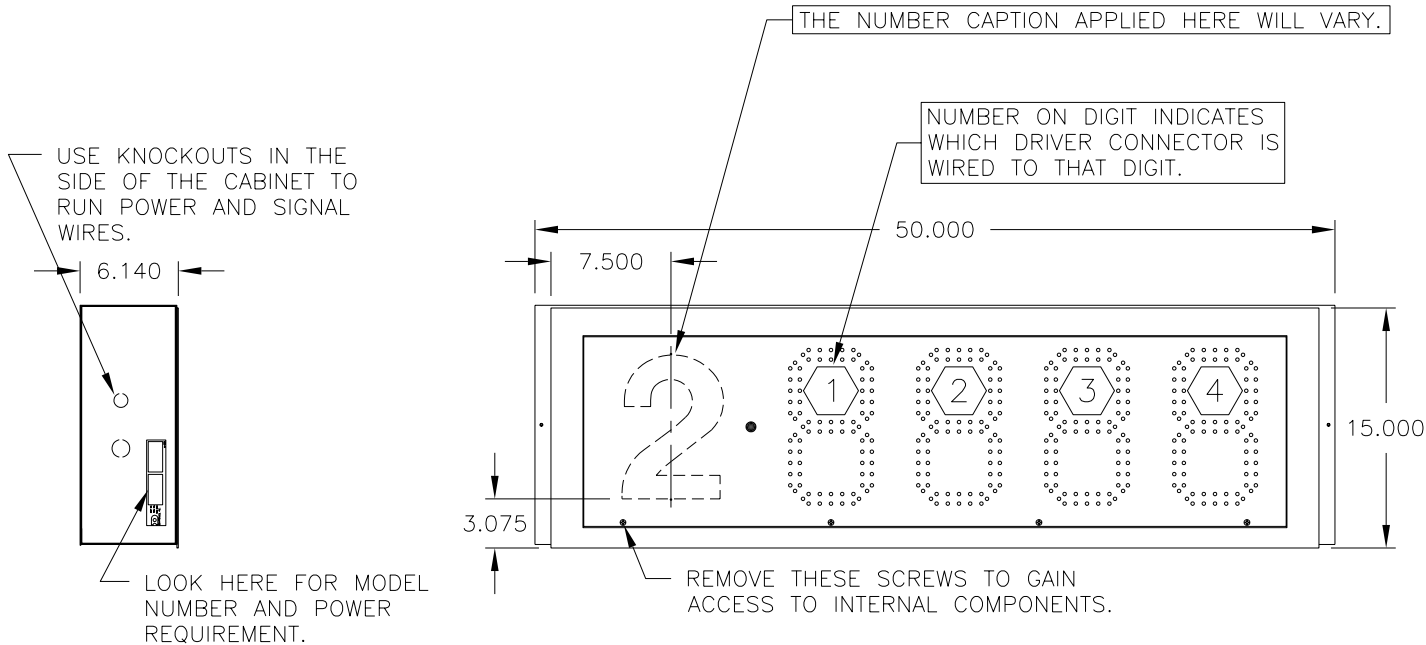
TITLE: ELECTRICAL SPECS, DF-1050-5

DES. BY: A VANBEMMEL DRAWN BY: M LEOPOLD DATE: 13 OCT 03

REVISION 01 APPR. BY: SCALE: 1=7

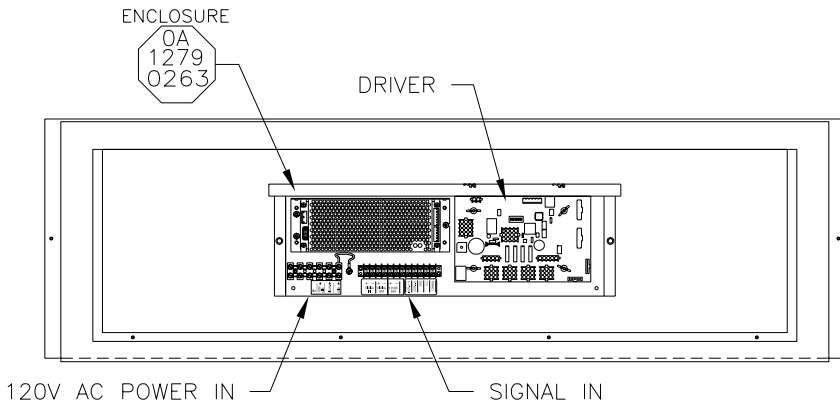
1279-R04A-198349

01	27 OCT 03	CHANGED SECONDARY VOLTS SPEC TO 12 VOLTS.	MGL	
REV.	DATE	DESCRIPTION	BY	APPR.



SIDE VIEW

FRONT VIEW



FRONT VIEW

(WITH DIGIT PANEL REMOVED)

SPECIFICATION LABEL DATA	
MODEL NO:	DF-1050-10
	120 V AC PRIMARY, 1.25 AMP
	24 V SECONDARY

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DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: DATATIME LED DISPLAYS

TITLE: ELECTRICAL SPECS, DF-1050-10

DES. BY: A VANBEMMEL

DRAWN BY: M LEOPOLD

DATE: 13 OCT 03

REVISION

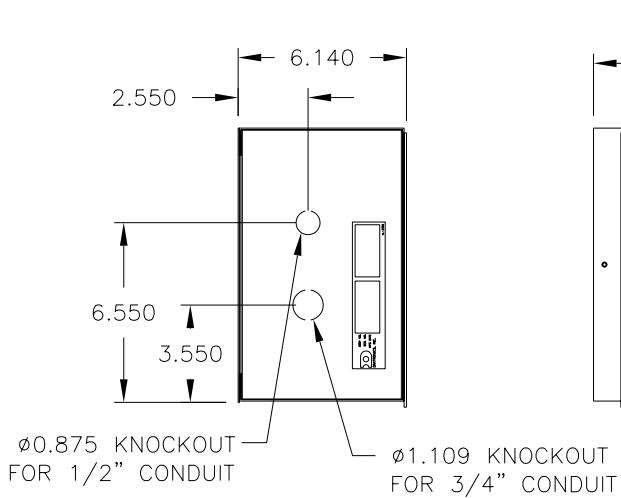
APPR. BY:

02

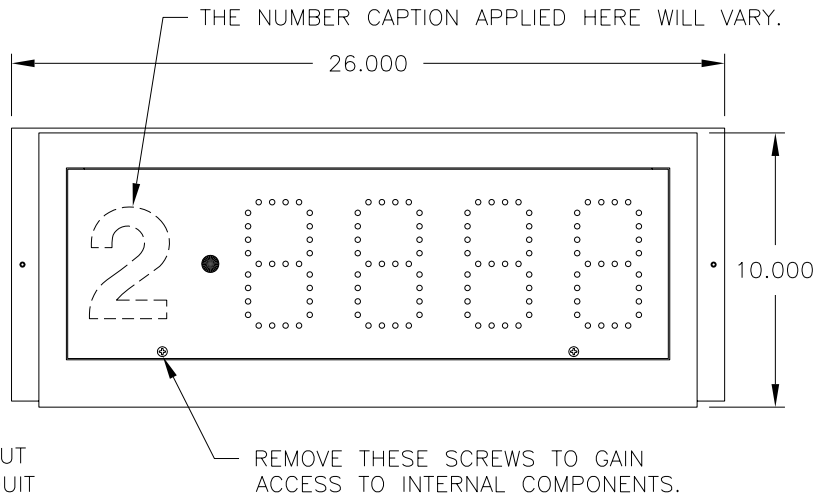
SCALE: 1=12

1279-R04A-198357

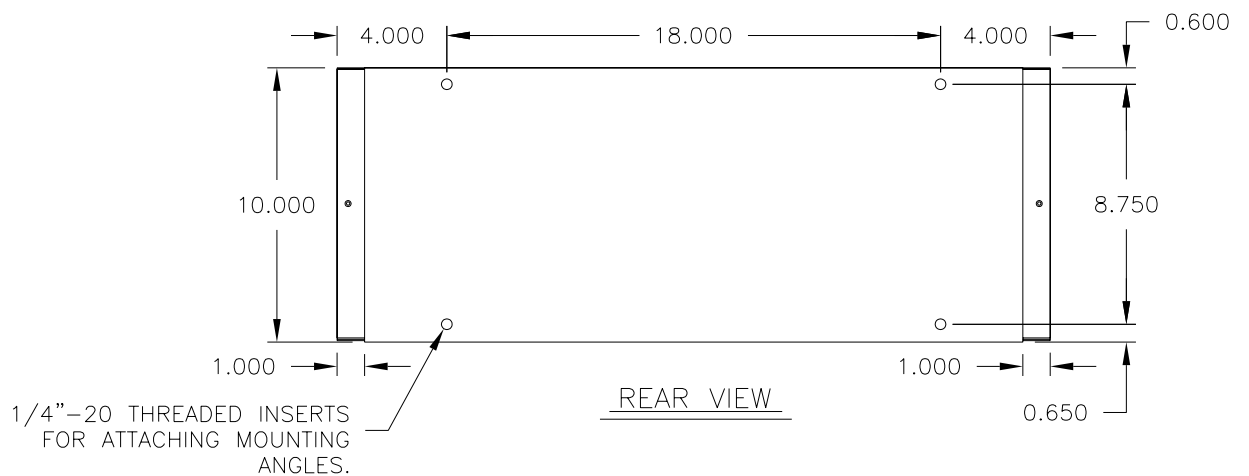
REV.	DATE	DESCRIPTION	BY	APPR.
02	26 JAN 04	UPDATED PICTURE OF 0A-1279-0263.	MGL	
01	27 OCT 03	PUT DIFFERENT DRIVER ENCLOSURE IN DISPLAY. CHANGED SECONDARY VOLTS SPEC TO 24 VOLTS.	MGL	



SIDE VIEW



FRONT VIEW



REAR VIEW

NOTES:

TO REMOVE FACE PANEL FOR INTERNAL SERVICE, REMOVE SCREWS ON THE BOTTOM OF THE PANEL, THEN SLIDE IT DOWN AND OUT.

MAIN BODY, END CAPS, AND BACK SHEET ARE CONSTRUCTED OF 0.050" ALUMINUM SHEET.

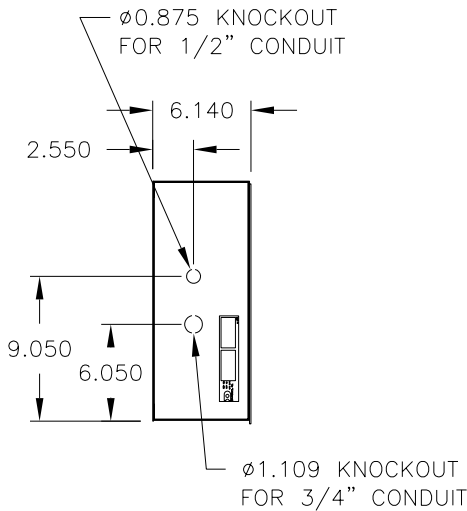
FACE PANEL IS CONSTRUCTED OF 0.063" ALUMINUM SHEET.

FRONT BEZEL IS CONSTRUCTED OF 0.090" ALUMINUM SHEET.

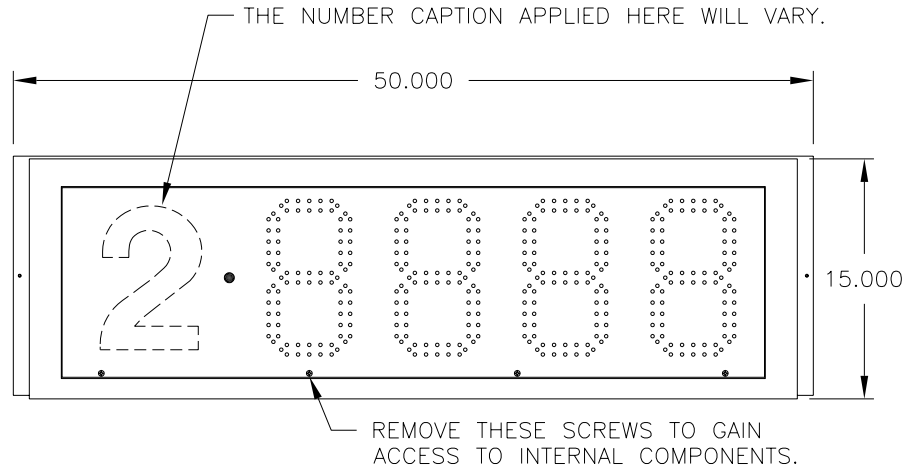
APPROXIMATE WEIGHT: 20 LBS

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DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ: DATATIME LED DISPLAYS			
TITLE: MECHANICAL SPECS, DF-1050-5			
DES. BY: A VANBEMMEL		DRAWN BY: M LEOPOLD	
DATE: 13 OCT 03			
REVISION	APPR. BY:	1279-R04A-198359	
01	SCALE: 1=7		

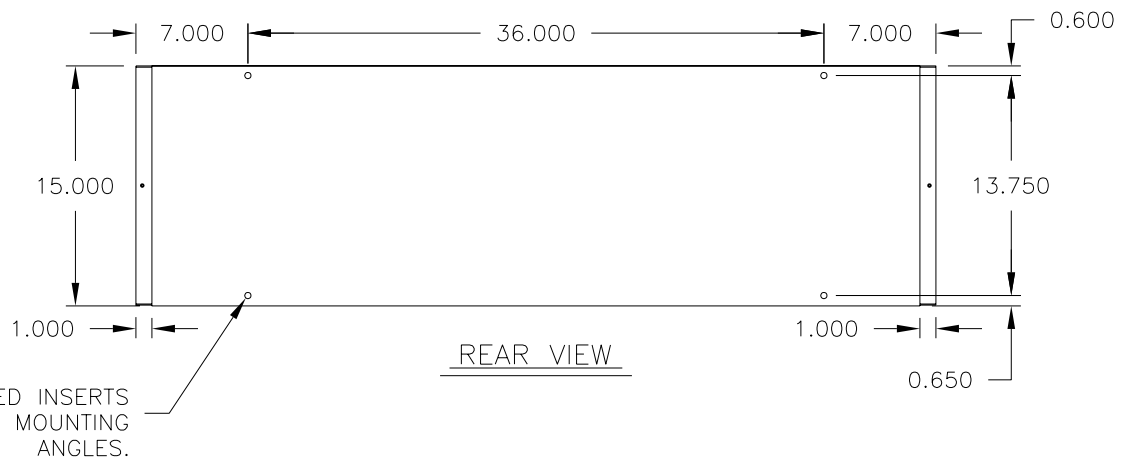
01	18 NOV 04	ADDED MOUNTING HOLES TO THE REAR VIEW.	MGL	
REV.	DATE	DESCRIPTION	BY	APPR.



SIDE VIEW



FRONT VIEW



REAR VIEW

NOTES:

TO REMOVE FACE PANEL FOR INTERNAL SERVICE, REMOVE SCREWS ON THE BOTTOM OF THE PANEL, THEN SLIDE IT DOWN AND OUT.

MAIN BODY, END CAPS, AND BACK SHEET ARE CONSTRUCTED OF 0.050" ALUMINUM SHEET.

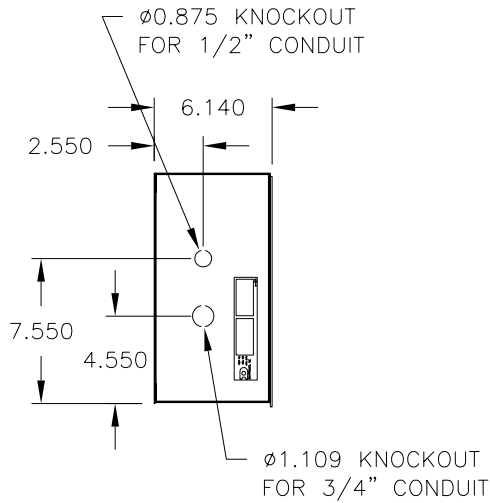
FACE PANEL IS CONSTRUCTED OF 0.063" ALUMINUM SHEET.

FRONT BEZEL IS CONSTRUCTED OF 0.090" ALUMINUM SHEET.

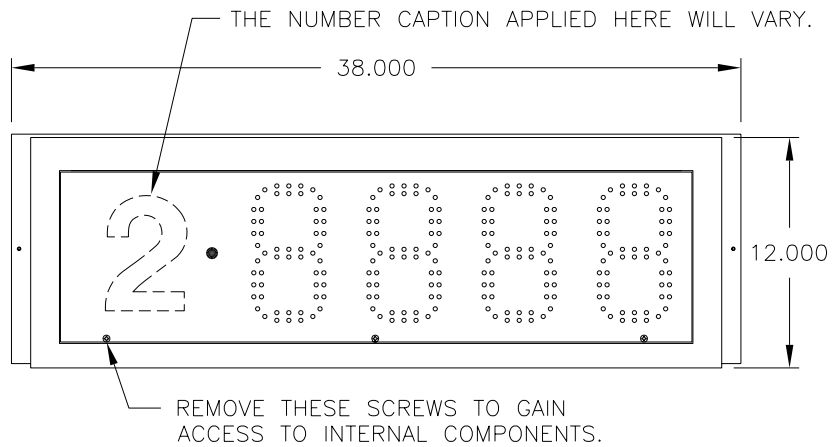
APPROXIMATE WEIGHT: 30 LBS

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DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ: DATATIME LED DISPLAYS			
TITLE: MECHANICAL SPECS, DF-1050-10			
DES. BY: A VANBEMMEL		DRAWN BY: M LEOPOLD	
DATE: 14 OCT 03			
REVISION	APPR. BY:	1279-R04A-198430	
01	SCALE: 1=12		

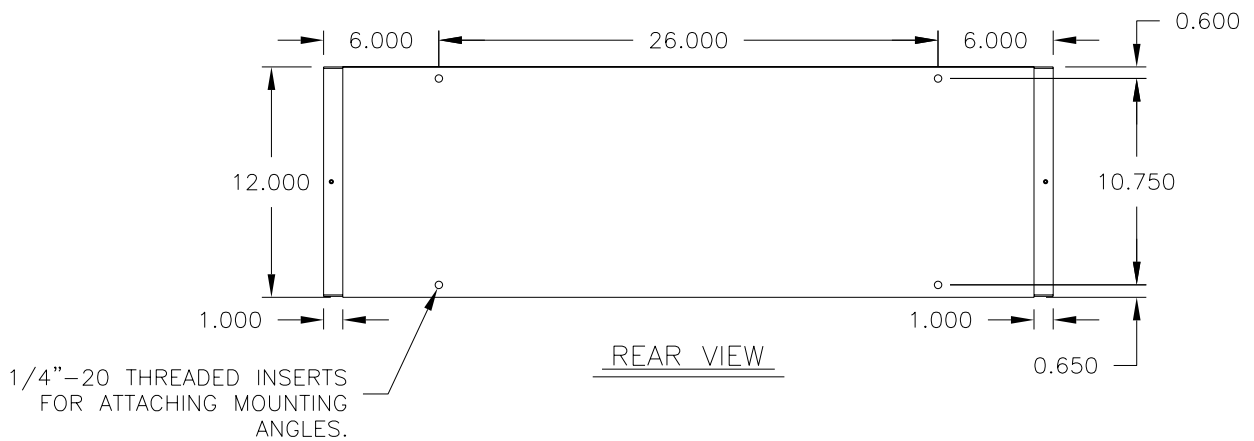
01	18 NOV 04	ADDED MOUNTING HOLES TO THE REAR VIEW.	MGL	
REV.	DATE	DESCRIPTION	BY	APPR.



SIDE VIEW



FRONT VIEW



REAR VIEW

NOTES:

TO REMOVE FACE PANEL FOR INTERNAL SERVICE, REMOVE SCREWS ON THE BOTTOM OF THE PANEL, THEN SLIDE IT DOWN AND OUT.

MAIN BODY, END CAPS, AND BACK SHEET ARE CONSTRUCTED OF 0.050" ALUMINUM SHEET.

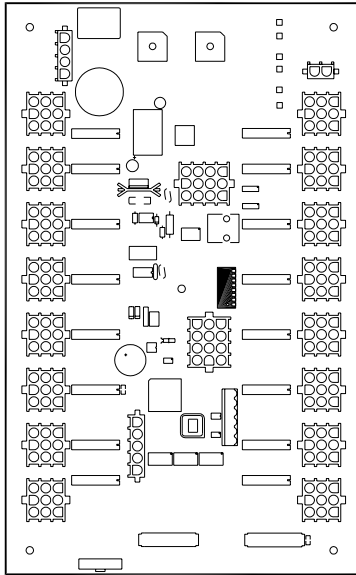
FACE PANEL IS CONSTRUCTED OF 0.063" ALUMINUM SHEET.

FRONT BEZEL IS CONSTRUCTED OF 0.090" ALUMINUM SHEET.

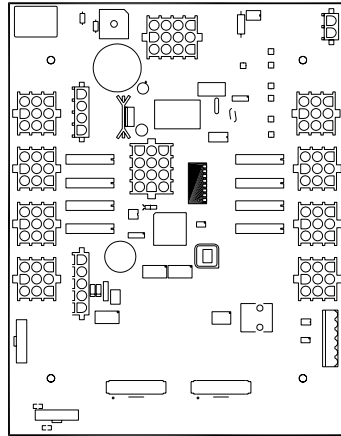
APPROXIMATE WEIGHT: 25 LBS

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DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ: DATATIME LED DISPLAYS			
TITLE: MECHANICAL SPECS, DF-1050-7			
DES. BY: A VANBEMMEL		DRAWN BY: M LEOPOLD	
DATE: 14 OCT 03			
REVISION	APPR. BY:	1279-R04A-198431	
01	SCALE: 1=10		

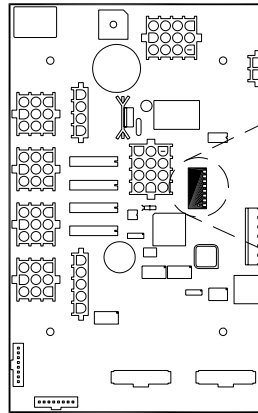
01	18 NOV 04	ADDED MOUNTING HOLES TO THE REAR VIEW.	MGL	
REV.	DATE	DESCRIPTION	BY	APPR.



16-COLUMN DRIVER



8-COLUMN DRIVER



4-COLUMN DRIVER

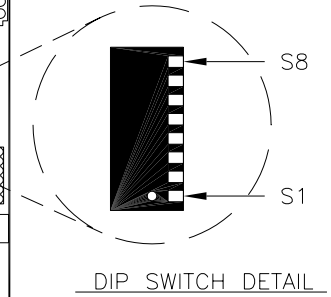


TABLE KEY:

SWITCH IS DOWN (ON)	●
SWITCH IS UP (OFF)	○

SETTING THE ADDRESS:

THE "DIP" SWITCH IS A DEVICE WITH EIGHT TINY SWITCHES, DESIGNATED AS S1 THROUGH S8.

THE LOCATION OF THE DIP SWITCH ON THE DRIVER IS SHOWN IN THE FIGURE ABOVE.

SET THE ADDRESS IN THIS DRIVER BY TURNING THE SWITCHES ON OR OFF, ACCORDING TO THE TABLE AT LEFT.

ADDRESS NUMBER	SWITCH NUMBER							
	S8	S7	S6	S5	S4	S3	S2	S1
1	○	○	○	○	○	○	○	●
2	○	○	○	○	○	○	●	○
3	○	○	○	○	○	○	●	●
4	○	○	○	○	○	●	○	○
65	○	●	○	○	○	○	○	●
66	○	●	○	○	○	○	●	○
67	○	●	○	○	○	○	●	●
68	○	●	○	○	○	●	○	○
81	○	●	○	●	○	○	○	●
82	○	●	○	●	○	○	●	○
83	○	●	○	●	○	○	●	●

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DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: DATA TIME LED DISPLAY

TITLE: ADDRESS SETTINGS, MASC DRIVERS

DES. BY: AVB DRAWN BY: A VANBEMMEL DATE: 11 NOV 04

REVISION	APPR. BY:	1279-R04A-227502
00	SCALE: NONE	

REV.	DATE	DESCRIPTION	BY	APPR.

DataTime[®]/DataMaster[™] FAQ

The following frequently asked questions (FAQ) list was designed to provide DataTime or DataMaster display owners with answers to common questions as well as additional troubleshooting information. Reviewing this FAQ list before calling the Daktronics Customer Service Help Desk will result in a better, more complete information exchange.

Note: This FAQ refers to specific sections in following installation and operation manuals.

DataTime Outdoor LED Display Series:

- **ED13752: Time & Temperature Displays**

DataMaster Outdoor LED Display Series:

- **ED14475: Event Counter Displays**
- **ED14305: Lottery Displays**
- **ED14139: Parking Garage Displays**
- **ED13750: Gas Price Displays**
- **ED13751: Rate Displays**

Q. How do I know which driver is the “host” (that is, which driver connects to the DataMaster[™] 100 controller)?

A. All driver boards are identical until you install the Protocol 4 plug. The driver containing the Protocol 4 plug becomes the host. (Refer to the section titled **Power and Signal Connection** of the manual.)

Q. Which driver do I connect the temperature and light sensor to?

A. Connect the sensor to the host driver only (the driver that is connected to the DataMaster 100 controller).

Q. I have a price display with multiple lines. Which line do I put the host driver on?

A. You can designate any driver as the host driver by installing the protocol plug in jack J20. Be sure to set the line number of each driver by installing the correct address plug. Use the Signal Out terminals of this display to go to the driver on the next line. Connect signal to all other displays using the Signal Out terminals of the previous line. (Refer to the section titled **Power and Signal Connection** of the manual.)

Q. I powered up the display for the first time, and nothing happened; no digits lit up or anything. What’s wrong?

A. First, open the display containing the host driver (the driver connected to the DataMaster 100 controller). Is the green LED labeled POWER illuminated? If not, the driver is either not getting 24 V DC, or there is a problem with the power supply circuit on the driver board. If there is 24 V DC on J17, and J17 is secure, the driver is defective. If the POWER LED is illuminated, check the protocol and address settings.

Check to make sure that the protocol plug is loaded in J20 of the host driver. The protocol plug should be installed only on the host driver (the driver connected to the DataMaster 100 controller.)

If the host driver has power and the proper protocol and address settings, it will always display something on power-up (it may be just an error code). If this does not resolve the problem, the driver is probably defective. You can try swapping the host driver with one from a different display. Make sure that the host driver always has a protocol plug installed on J20.

Q. My sign is displaying “Ex” (x is a number). What’s wrong?

A. The driver displays error codes for common problems; refer to the **Troubleshooting** section of the manual to resolve the problem.

Q. My sign is displaying garbage. What’s wrong?

A. Most likely the protocol and/or address plug settings are incorrect. The protocol plug should be installed in jack J20 only on the host driver (the driver connected to the DataMaster 100 controller). (Refer to the **Power and Signal Connection** section of the manual.)

Q. I don’t want to show __ (°C/°F/time) on my Time & Temp display. How do I remove this?

A. Use the DataMaster 100 controller to set the hold time for this item to 0.0.

Q. When I try to set the hold times on my Time & Temp display to less than 1.1 seconds, it doesn’t work. Why?

A. DataTime displays with driver software versions earlier than 2.0 did not support hold times of less than 1.1 seconds. Versions 2.0 and newer do not have this issue.

Q: I just connected my DataTime display, and instead of showing temp, it shows an error message. What's wrong?

A: Refer to **Drawing A-166883** for temp sensor jumper settings and LED indicator information. Refer to **Drawing A-166216** for the 4-column MASC LED driver (or appropriate 8- or 16-column driver specifications) for troubleshooting information. The CAN RX and CAN TX LEDs should blink once every few seconds. If both LEDs are on constantly, suspect the wiring between the MASC LED driver and the temp/light sensor.

Q: I have a multiple line display and all lines of the display show the information set on the first line. How do I get the correct information on each line of the display?

A: The line number for the display is set using address plug J19. All displays ship with an address plug that defaults to Line 1. The install kit includes a set of 12-pin Mate-N-Lok™ plugs that are labeled with the line number of the display driver to which they should be installed. If a driver is located inside a display on a line other than Line 1, remove the Address plug and install the corresponding plug to the line of price data you would like to show.

- Q: My Time and Temp display doesn't keep accurate time. Every month I have to reset the time. What's up with that?**
- A:** Signs shipped before 4/29/03 may exhibit this problem. It can be corrected by installing a 60Hz reference retrofit kit (0A-1279-0283), and updating the driver software to version 3.0 or newer.

The following table lists problems that have been found with older versions of the display driver software. If you see this problem, look at the version label on the MASC driver. If the version is earlier than the one listed in the fix column, this driver needs to be sent back for reprogramming. Contact Daktronics Customer Service:

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

Phone: 877-605-1113 (toll free) or 605-697-4034

Fax: 605-697-4444

E-mail: helpdesk@daktronics.com

Problems with Old Driver Software Versions		
<i>Display Issues</i>	<i>Fixed with Software Version</i>	<i>Fix Date</i>
Decimal point does not work on price display.	1.1	5/22/02
Tens digit is blank when the temperature display should be over 100°.	1.2	5/30/02
Automatic daylight savings time correction does not work.	1.3	8/06/02
Hold times of less than 1.1 seconds do not work.	2.0	10/22/03
Old sequence may show for 16 minutes under certain circumstances.	2.0	10/22/03
Hours value toggles between 2 and 1 on last Sunday in October. (Just after Daylight Savings.)	2.0	10/22/03
Multiple stroke digits do not show error codes correctly.	3.0	4/29/03
No support for Event Counter displays.	3.7	12/31/03