

**DataMaster™ Outdoor LED
Rate Displays**

Installation and Operation Manual

ED-13751

Rev 2 – 3 April 2006

DAKTRONICS

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Product 1279
Rev 2 – 3 April 2006

DAKTRONICS, INC.

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Section 1: Introduction

This manual explains the installation, maintenance, and troubleshooting of a Daktronics DataMaster™ DF-1030 and DF-1040 Rate Displays. For questions regarding the safety, installation, operation, or service of this system, please refer to the telephone numbers are listed on the cover page of this manual.

The manual is divided into nine sections: Introduction, Mechanical Installation, Electrical Installation, Maintenance and Troubleshooting, DataMaster Controller Operation, Appendix A, Appendix B, Appendix C, and Appendix D.

- **Introduction** covers the basic information needed to make the most of the rest of this manual – take time to read the entire introduction as it defines terms and explains concepts used throughout the manual.
- **Mechanical Installation** provides general information for mounting the display.
- **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 lists replacement parts.
- **Rate Display Operation** section gives an overview of the DataMaster controller and how is it used with the Lottery display.
- **Appendix A** lists drawings referenced in this manual.
- **Appendix B** contains the Frequently Asked Questions when operating this display.
- **Appendix C** contains a drawing that is a quick reference for installing the display.
- **Appendix D** contains a quick reference for the DataMaster controller.

Daktronics identifies manuals by an ED number located on the cover page of the manual. For example, this manual would be referred to as **ED-13751**.

Listed below are a number of drawing types commonly used by Daktronics, along with the information each is likely to provide.

- **System Riser Diagrams:** overall system layout from control room to display, power, and phase requirements.
- **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 the Daktronics drawing label. The drawing number is located in the lower-right corner of the drawing. Listing the last set of digits and the letter preceding them identifies drawings in the manual. In the example the drawing would be referred to as **Drawing A-181218**. Reference drawings are inserted in **Appendix A**.

DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ: DATATIME LED DISPLAYS			
TITLE: MECHANICAL SPECS, DF-1010-24, G3			
DES. BY: AVB		DRAWN BY: A GIBSON	DATE: 09 JAN 03
REVISION	APPR. BY:	1279-RO4A-181218	
	SCALE: 1 = 16		

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-181218** in **Appendix A** for the display dimensions.”

Additionally, any drawings referenced within a particular subsection are listed at the beginning of that subsection in the following manner:

Reference Drawing:

Mechanical Specs, DF-1020-13, G3 **Drawing A-181220**

The model numbers of a Daktronics display can be found on the ID label on the display. The label will be similar to the one shown in **Figure 2**. When calling Daktronics Customer Service, please have this information available to ensure that your request is serviced as quickly as possible.

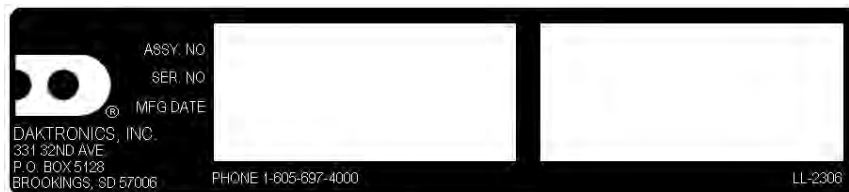


Figure 2: Display Identification Label

Daktronics displays are built for long life and require little maintenance. However, from time to time, certain display components may need replacing. The **Replacement Parts List** in **Section 4** provides the names and numbers of components that may need to be ordered during the life of the display. Most display components have a white label that lists the part number. The component part number is in the following format: OP-____-____ (component) or OA-____-____ (multi-component assembly).

Following the **Replacement Parts List** is an explanation of **Daktronics Exchange and Repair and Return Programs** in **Section 4.7**. Refer to these instructions if any display component needs replacement of repair.

1.1 Safety Precautions

Important Safeguards:



1. Read and understand these instructions before installing your display.
2. Do not drop the controller or allow it to get wet.
3. Properly ground the display with a ground rod at the sign location.
4. **Disconnect power when the display is not in use.**
5. **Disconnect power when servicing the display.**
6. Do not modify the display structure or attach any panels or coverings without the express written consent of Daktronics, Inc.

1.2 Network Concepts

The concept of using LED displays as a cost effective, high impact method of communication is rapidly growing throughout many industries and businesses.

There are three communication methods available: Current Loop, Radio, and Modem.

Current Loop

The DataMaster controller connects to the Rate 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.

Radio

The radio network is a standard communication method that uses radio waves at high frequencies to transmit signal. The radio network has a maximum distance of 450 meters (approximately 1,500 feet). A nearly straight line-of-sight path must be maintained between the Server Radio connected to the DataMaster controller, through a signal converter, and the Client Radio connected to the display. Refer to **Section 3** (Electrical Installation) and the **Section 5** (Rate Display Operation) for additional information.

Modem

The modem is a standard communication interface that utilizes standard phone transmission lines. The phone company assigns each phone line a number that the modem uses to communicate between DataMaster and display. Each modem network needs to have a dedicated phone line assigned to it. Refer to **Section 3** (Electrical Installation) and the **Section 5** (Rate Display Operation) for additional information.

1.3 Product Overview

DataMaster Rate Displays are part of a family of Daktronics products designed for easy installation, readability, and reliability.

The DataTime/DataMaster Series includes:

- **Rate Displays:** two- or four-digit signs, typically used to display hotel/motel room rates or commodity prices.
- **Gasoline Price Displays:** gas price signs with three standard digits, decimal, and $\frac{9}{10}$ fraction.
- **Lottery Displays:** Three digit signs typically used to display lottery jackpots.
- **Parking Garage Displays:** four-digit display used for parking locations requiring a DataMaster, switch inputs or third-party software.
- **Event Counters:** These displays are typically used to count to a designated goal. They will count either up or down, and 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 rate, gasoline, and parking 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 or amber LEDs.
- 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 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-1030-HH-C or DF-1040-HH-C

DF-1030 DF-1040	=	Outdoor Digit Display (DF-1030 displays use two digits and the DF-1040 displays use four digits)
HH	=	Digit height in inches (13, 18, 24, 36 and 48)
C	=	LED Color- R (Red) or A (Amber),

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 (DM-100): The handheld keyboard like device used to set the time, date, hold times, dimming etc. on the Rate 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 signs such as a Rate Display or Time & Temp display, the address will typically be “1”. If more than one display is used, 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 terminal block is used to connect to 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.

In addition, 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 4.6**, use the label to order a replacement. A typical label is shown in **Figure 3**. The part number is in bold.

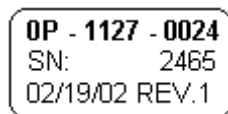


Figure 3: Typical Label

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 typically consists of mounting the display and any accompanying panels to the support structure.

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

Two-Digit Displays (DF-1030 Series) – Dimensions and Weights

Model	Dimensions Height, Width, Depth	Weight	Digit Size
DF-1030-13	H1'-6", W2'-0", D6" (457 mm, 609 mm, 152 mm)	20 lb 9 kg	13" (330 mm)
DF-1030-18	H2'-0", W2'-6", D6" (610 mm, 762 mm, 152 mm)	30 lb 14 kg	18" (457 mm)
DF-1030-24	H2'-6", W3'-0", D6" (762 mm, 914 mm, 152 mm)	45 lb 20 kg	24" (610 mm)
DF-1030-36	H3'-6", W4'-6", D8" (1067 mm, 1372 mm, 203 mm)	95 lb 43 kg	36" (914 mm)
DF-1030-48	H4'-6", W6'-0", D8" (1372 mm, 1829 mm, 203 mm)	135 lb 61 kg	48" (1219 mm)

Four-Digit Displays (DF-1040 Series) – Dimensions and Weights

Model	Dimensions Height, Width, Depth	Weight	Digit Size
DF-1040-13	H1'-6", W4'-0", D6" (457 mm, 1219 mm, 152 mm)	35 lb 16 kg	13" (330 mm)
DF-1040-18	H2'-0", W5'-0", D6" (610 mm, 1524 mm, 152 mm)	60 lb 27 kg	18" (457 mm)
DF-1040-24	H2'-6", W6'-0", D6" (762 mm, 1829 mm, 152 mm)	90 lb 41 kg	24" (610 mm)
DF-1040-36	H3'-6", W7'-6", D8" (1067 mm, 2591 mm, 203 mm)	95 lb 43 kg	36" (914 mm)
DF-1040-48	H4'-6", W9'-0", D8" (1372 mm, 2743 mm, 203 mm)	135 lb 61 kg	48" (1219 mm)

2.2 Support Structure Design

Reference Drawings:

Mounting Method, Flag Style, One Pole..... **Drawing A-166139**

Mounting Method, Single Line on One Pole..... **Drawing A-166142**

While DataMaster outdoor digit displays are designed for wall or pole mounting, every installation will be different. Actual site demands will dictate the appropriate mounting method. Most DataMaster models have fully finished exteriors, but other models are designed to be inserted into an existing sign cabinet and require a custom installation.

Drawing A-166139 and **A-166142** detail a number of mounting methods, from a single display on a single column support to multiple displays stacked above one another in a two-pole installation. The drawings include welding and hardware notes that will be applicable for most installations.

Note: The drawings suggest mounting methods and are not to be considered as specifications for construction. **It is the installer's responsibility to ensure the mounting structure and hardware is capable of supporting the sign, and will agree with local codes.**

2.3 Lifting the Display

Model DF-1030/DF-1040 displays are shipped equipped with $\frac{3}{8}$ " eyebolts that are used for lifting and positioning the modules. Eyebolts are located along the top outer edges of the cabinet.

Daktronics strongly recommends using a spreader bar, or lifting bar, to lift the display. Using a spreader bar ensures that the force on the eyebolts is straight up, minimizing lifting stress. **Figure 4** illustrates both the correct (left example) and the incorrect (right example) method for lifting a display. Lift the display as shown on the left, with a lifting bar. Be sure to use every lifting point provided.

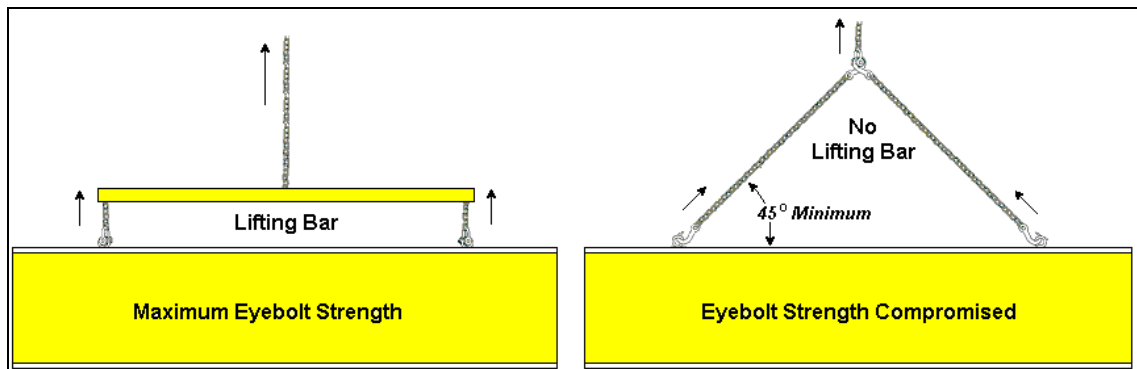


Figure 4: *Lifting the Display*

Note: Daktronics assumes no liability for display damage or injury resulting from incorrect setup or incorrect lifting methods.

Eyebolts are intended for lifting during installation only. **Do not attempt to permanently support the display by the eyebolts.**

In installations in which an ad panel or some other display section may be added to the base display, the lower section is installed first and secured to the support beams, and then the upper section is placed atop or above the lower sign section and attached to the beams. There may be cables extending from the top of the lower section. Guide these cables into the hole in the bottom of the upper section for later connection.

Installers may remove the lift eyebolts once the display is in place. If removing the eyebolts, adequately seal the holes using bolts and sealing washers. In addition, inspect the top and sides of the display for any holes or openings that may allow moisture to enter the display, and plug and seal those openings with silicone.

Section 3: Electrical Installation

Daktronics outdoor displays are ETL listed and tested to CSA standards for outdoor use. 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 Connection

Reference Drawings:

Quick Install, DF-1030 & DF-1040 Rate Displays..... **Drawing A-177150**

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

Drawing A-177150 provides instructions for power and signal connections for the DataMaster Rate Displays, including hookup of the connections between host and client displays. Refer to this drawing before undertaking any part of the electrical installation.

3.2 Power and Ground Connections

Correct power and grounding installation is imperative for proper display operation. The subsections that follow give details of display power 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 the power and control signal hookup has been simplified. Front panels are hinged to allow access to the digits, cabling, and other electronic components.

The DataMaster Rate Displays require a dedicated, 120 V circuit for incoming power. The display itself has no breakers or fuses.

WARNING: It is critical that the display circuit be fused at 15 A, and that all conductors used must be designed to pass a 15 A current in normal operation. Failure to meet wiring and over current protection device requirements is a violation of the National Electrical Code® and will void the display warranty.

The tables below show the circuit specifications and maximum power requirements for each model in this series. Models are listed in order by digit size.

Two-Digit Displays (DF-1030 Series) – Dimensions and Weights

Model	Dimensions Height, Width, Depth	Maximum Wattage	Circuit	Digit Size
DF-1030-13	H1'-6", W2'-0", D6" (457 mm, 609 mm, 152 mm)	150 W	120 V AC 1.3 A	13" (330 mm)
DF-1030-18	H2'-0", W2'-6", D6" (610 mm, 762 mm, 152 mm)	150 W	120 V AC 1.3 A	18" (457 mm)
DF-1030-24	H2'-6", W3'-0", D6" (762 mm, 914 mm, 152 mm)	150 W	120 V AC 1.3 A	24" (610 mm)
DF-1030-36	H3'-6", W7'-6", D8" (1067 mm, 1372 mm, 203 mm)	300 W	120 V AC 2.5 A	36" (914 mm)
DF-1030-48	H4'-6", W6'-0", D8" (1372 mm, 1829 mm, 203 mm)	300 W	120 V AC 2.5 A	48" (1219 mm)

Four-Digit Displays (DF-1040 Series) – Dimensions and Weights

Model	Dimensions Height, Width, Depth	Maximum Wattage	Circuit	Digit Size
DF-1040-13	H1'-6", W4'-0", D6" (457 mm, 1219 mm, 152 mm)	150 W	120 V AC 1.3 A	13" (330 mm)
DF-1040-18	H2'-0", W5'-0", D6" (610 mm, 1524 mm, 152 mm)	150 W	120 V AC 1.3 A	18" (457 mm)
DF-1040-24	H2'-6", W6'-0", D6" (762 mm, 1829 mm, 152 mm)	150 W	120 V AC 1.3 A	24" (610 mm)
DF-1040-36	H3'-6", W7'-6", D8" (1067 mm, 2286 mm, 203 mm)	300 W	120 V AC 2.5 A	36" (914 mm)
DF-1040-48	H4'-6", W9'-0", D8" (1372 mm, 2743 mm, 203 mm)	300 W	120 V AC 2.5 A	48" (1219 mm)

Grounding

Reference Drawings:

Schematic; Multipurpose 4 Col. LED Drvr	Drawing A-165028
Schematic; 16 Col Multipurpose LED Drvr	Drawing A-179599
Enclosed Driver, 4 Col. Reference.....	Drawing A-184918

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-184918**, for information on where to connect the earth-ground electrode. 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 neutral 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 Power and Signal Connection

Reference Drawings

Multipurpose 4 Column	
LED Driver II Specifications	Drawing A-166216
Quick Install, DF-1030 & DF-1040	
Rate Displays	Drawing A-177150
16 Col. MASC Driver Specification.....	Drawing A-184475
Enclosed Driver, 4 Column Reference	Drawing A-184918
Electrical Specification Drawings	Refer to Appendix A

Route power and signal cables into the display from the side or rear. There are $\frac{7}{8}$ " knockouts for $\frac{1}{2}$ " conduit fittings on the sides of all DataMaster cabinets and on the back panels. All power and signal wiring terminates at the driver enclosure. Refer to **Drawing A-177150** for a complete review of power and signal connections for DataMaster Rate displays. **Drawings A-184918** and **A-184475** illustrate and provide connection specifications for the 4- and 16-column drivers used in all DataMaster Rate displays. The schematics for drivers detail both the wiring in the enclosure and external connections to the display. Power and signal connections, illustrated in **Figure 5**, are similar for both drivers.

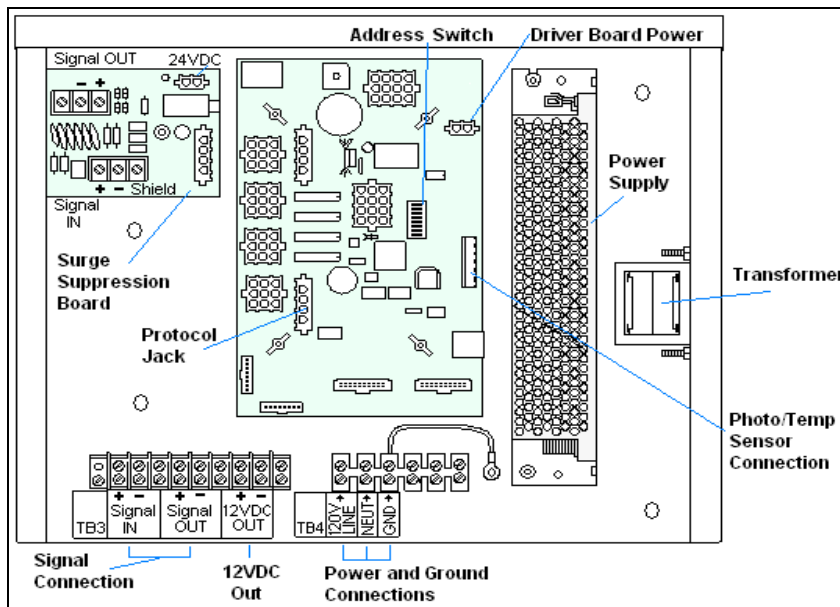


Figure 5: DataMaster Driver Enclosure with 4-Column Driver

To gain access to the driver enclosure, open the access door and remove the cover from the enclosure. Refer to the **Electrical Specifications Drawings** for the access location for your sign. For 13", 18" and 24" displays, access to the interior components is gained by removing the screws from the hinged door. In the 36" and 48" displays, there are door latches, providing for access to the interior components by removing the digits.

Current Loop (Direct)

Reference Drawings:

Riser Diagram, Outdoor Wire Control.....	Drawing A-164988
Riser Diagram, Indoor Wire Control.....	Drawing A-175342
Quick Install, DF-1030 & DF-1040 Rate Displays.....	Drawing A-177150
Enclosed Driver, 4 Column	Drawing A-184918

A direct controlled display uses a current loop connection from the j-box at the base of 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 **Drawing A-177150**.

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 and vandalism.

1. Mount the j-box near the display.
2. Route a 6-conductor, 22 AWG, shielded 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 6** and listed in the table. Refer to **Drawings A-164988** and **A-184918** for additional information.
4. Using a DB9M to DB9F serial cable, plug the DataMaster controller into the j-box, connected to the host display driver enclosure.

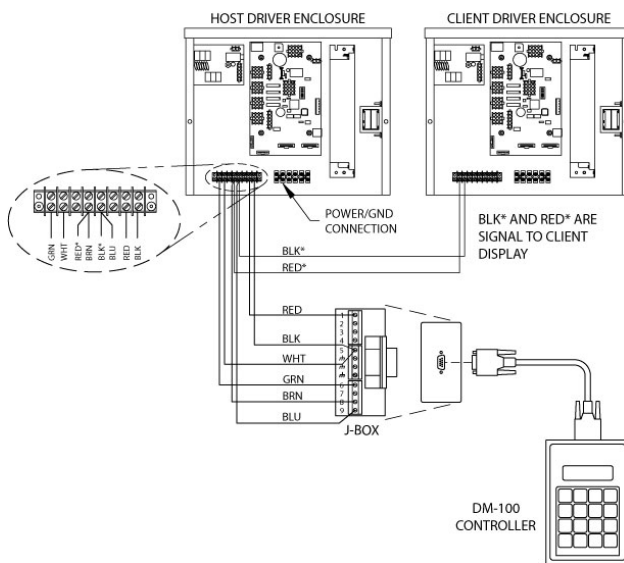


Figure 6: Direct Current Loop Connection

J-Box to Driver Enclosure Input Jack

J-Box Pin#	Cable Color	Enclosure Terminal Block
Pin 1	Red	12V DC Out (+) pin 7
Pin 5	Black	12 V DC Out (-) Pin 8
Pin 5	White	Signal IN (-) Pin 2
Pin 6	Green	Signal IN (+) Pin 1
Pin 8	Brown	Signal OUT (+) Pin 4
Pin 9	Blue	Signal OUT (-) Pin 5

If using the DataMaster handheld controller at an indoor location, two pairs of signal wires (white/green and blue/brown) will need to be connected to the j-box. A wall pack transformer, plugs into the indoor j-box, and provides power to the DataMaster controller. The distance from the indoor j-box to the host driver can up to 2000 ft. Refer to **Figure 7** and **Drawing A-175342** for system layout and signal connections.

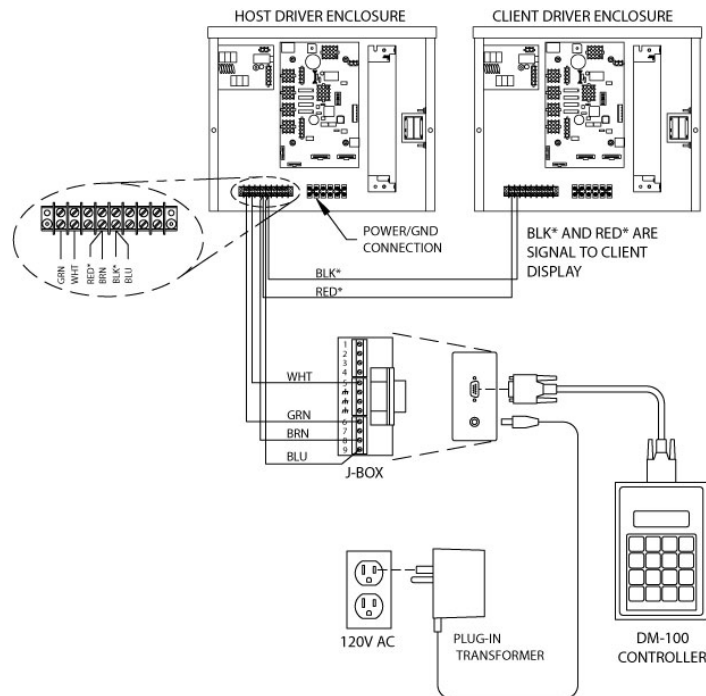


Figure 7: Direct Connection from Indoor Location

Radio (Direct)

Reference Drawings:

- Quick Install, DF-1030 & DF-1040 Rate Displays **Drawing A-177150**
- System Riser Diagram, Server/Client Setup **Drawing A-199834**

A radio controlled display uses the DataMaster controller connected to a j-box. The j-box is then wired to a server radio attached to the building. A second radio, called the client is connected to the Rate display. The DataMaster hand-held controller and server radio receive their power through the j-box. A wall pack transformer powers the j-box. The client radio receives its power from the display. The display layout is shown in **Figure 8** and **Drawing A-199834**.

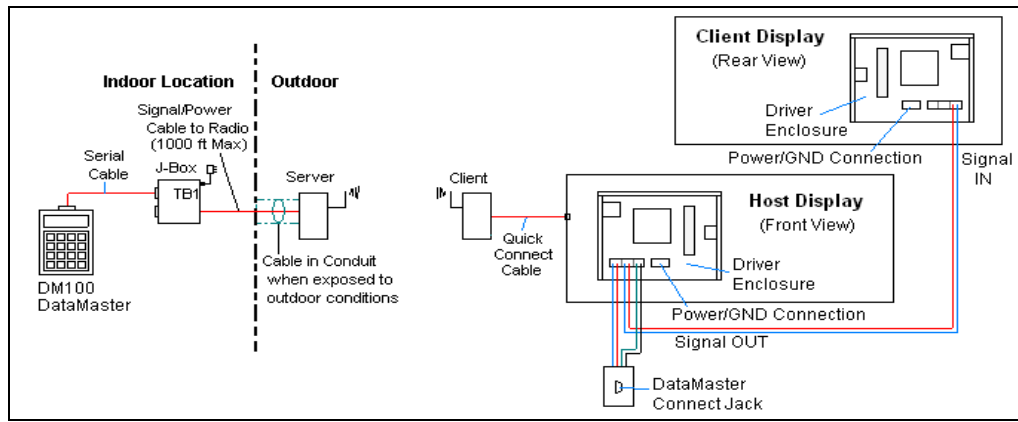


Figure 8: Radio Controlled Display Layout

1. Using the DB9M to DB9F serial cable, connect from the DataMaster controller to the j-box, at the “DB9 Male, DataMaster 100 connect” jack.
2. Using an 18-AWG, 6-conductor, shielded cable, (W-1370) connect from the j-box jack labeled “RS422 to Radio or 422 Device” to the TB2 jack on the Server radio, mounted to the building. See **Figure 9** and the table below for cable connections from the j-box to the radio.
3. Plug the wall pack transformer into the j-box and then into a 120V grounded outlet.
4. Mount the Client radio on the display or display pole, and within 25 feet of the display.
5. Plug the quick connect cable from the client radio into the 6-pin quick connect jack on the side of the Rate Display.

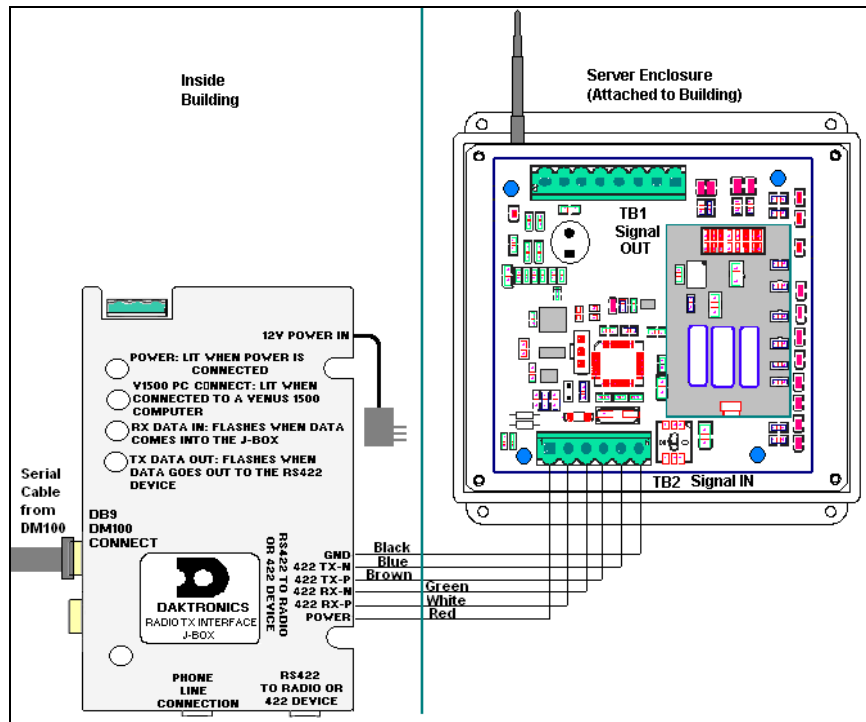


Figure 9: Direct Current Loop Connection

Connection from J-box to Server Radio Enclosure

J-Box		Cable Color	TB2 on Server	
Pin#	Function		Pin#	Function
Pin 1	Power	Red	Pin 1	Power
Pin 2	422 RX-P	White	Pin 2	422 TX-P
Pin 3	422 RX-N	Green	Pin 3	422 TX-N
Pin 4	422 TX-P	Brown	Pin 4	422 RX-P
Pin 5	422 TX-N	Blue	Pin 5	422 RX-N
Pin 6	GND	Black	Pin 6	GND

Notes:

1. The cable from the client radio to the display can to be routed through conduit or the display pole to protect it from weather and vandalism. The cable is weather and sunlight resistant.
2. The Server and Client radios must have a clear line-of-sight path and not be more than 1500 feet apart.
3. A current-loop j-box is often mounted at the base of the display pole in case of problems with communication though the radio network.
4. For additional connection and operation information see **ED-13894: DataMaster Radio Installation Manual.**

Modem (Indirect)

Reference Drawings:

- Modem Installation; 4 Col MASC Dvr. Enc. **Drawing A-177039**
- Quick Install, DF-1030 & DF-1040 Rate Displays **Drawing A-177150**
- System Riser Diagram, Modem Setup **Drawing A-200552**

A modem controlled display uses a DataMaster controller connected to a modem/ j-box, to call a second modem in the Rate Display. The DataMaster hand-held controller will receive its power from the j-box. A wall pack transformer powers the j-box. The display layout is shown in **Figure 10** and **Drawing A-200552**.

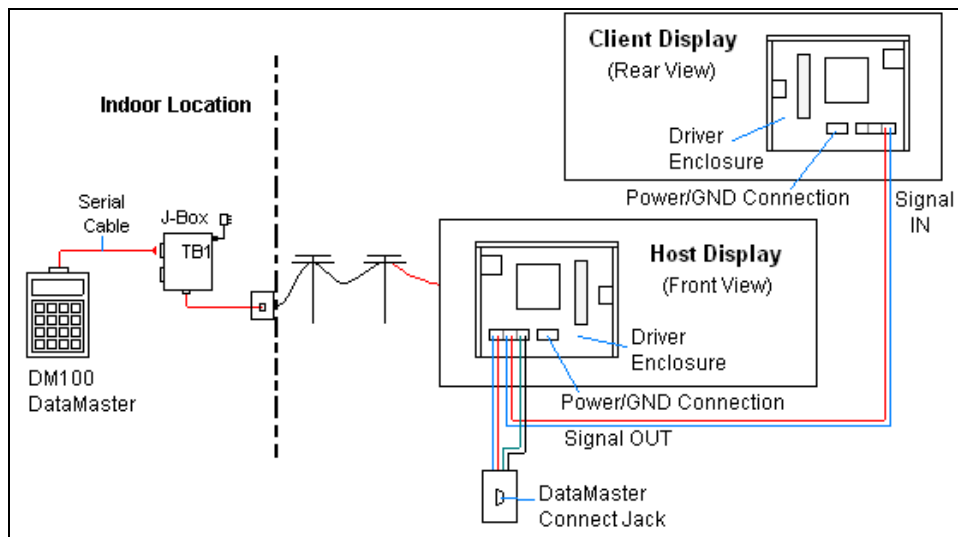


Figure 10: Modem Controlled Display Layout

1. Using the DB9M to DB9F serial cable, connect from the DataMaster controller to the modem/J-box, at the “DB9 Male, DataMaster 100 connect” jack.
2. Connect a phone line from a phone junction box on the wall to the modem/j-box jack labeled “Phone Line Connection.”
3. Plug the wall pack transformer into the modem/j-box and then into a 120V grounded outlet.
4. At the display, the local phone company must provide a dedicated phone line to the display and identify the color used for the tip wire and which color is for the ring wire.
5. The tip and ring phone wires will terminate to TB2 on the modem as shown in **Figure 12** and **Drawing A-177039**. If a phone cable is used inside the display, it will plug into J5.

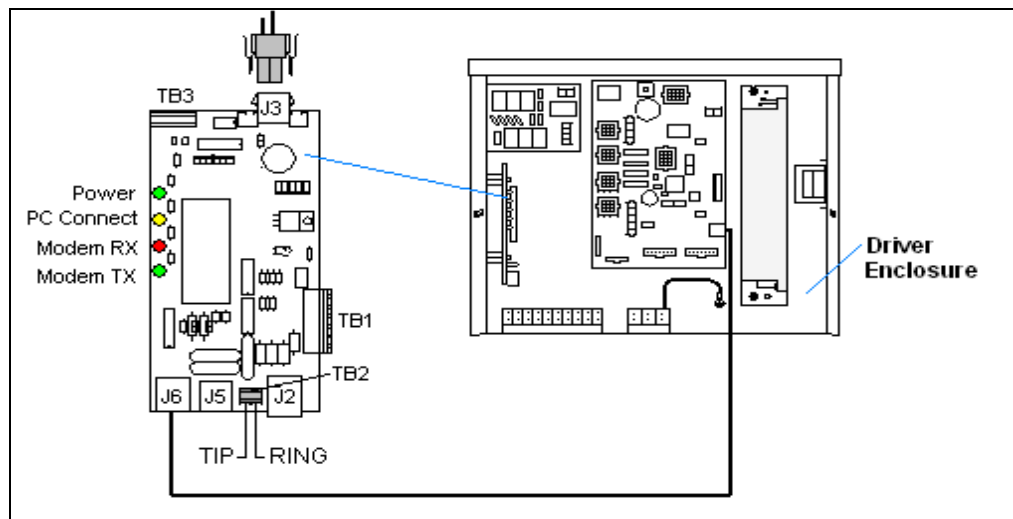


Figure 12: Phone line Connection to Display Modem

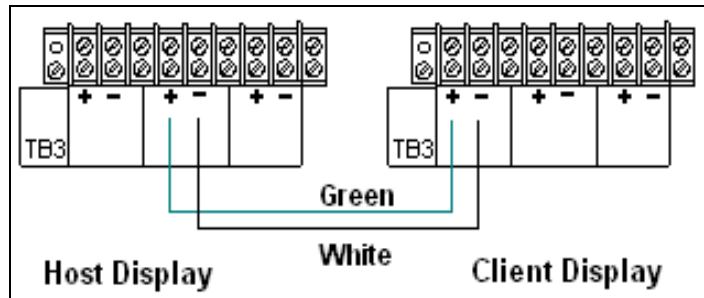


Figure 11: Host, Signal Out to Client, Signal In

Notes:

1. A current-loop j-box is often mounted at the base of the display pole for communication in the case of problems with the modem network.
2. The phone line and display power **cannot** be routed though the same conduit.
3. For additional operation and connection information see **ED-13953: DataMaster Modem Installation Manual**.

Host/Client Definitions and Address Settings

Reference Drawings:

4 Column MASC Driver Specifications.....	Drawing A-166216
8 Column MASC LED Driver Specifications.....	Drawing A-167237
16 Col. MASC Driver Specifications.....	Drawing A-184475
Host/Client Definitions	Drawing A-185236

Host/Client Definitions

One driver at each sign installation is designated as the “host driver.” This driver receives its signal directly from the controller on the “Signal IN” terminals, and it is the only driver that is connected to the photo/light sensor. The “Signal OUT” terminals are used to connect to “client drivers.” Refer to **Drawing A-185236** for an illustration of the client/host driver display setups.

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, A-167237** or **A-184475** for your specific display driver.

The 12 V DC terminals connected to the host driver (see “Signal Connections” in **Figure 5**) run to the controller junction box. This output is used to power the DataMaster 100 controller.

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.

Some multiple-module signs use “mirror/slave displays.” The terms “master/slave” or “primary/mirror” should not be confused with “host/client.” Mirror/slave displays do not contain a driver and may use either the client or host digit outputs.

Address Settings

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 in **Figure 13** for setting the address.

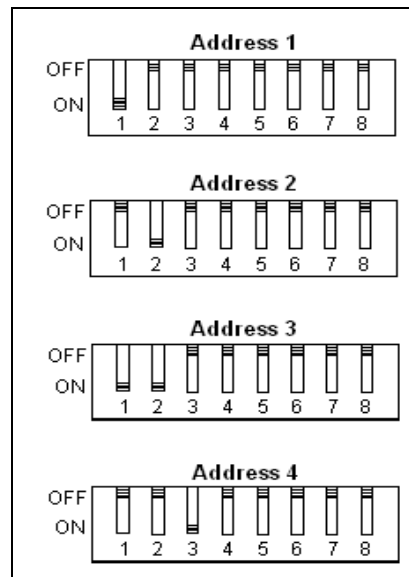


Figure 13: Example Address Settings

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 a 12-position 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: Display Maintenance and Troubleshooting

IMPORTANT NOTES:

1. Disconnect power before doing any repair or maintenance work on the display!
2. Allow only qualified service personnel access to internal display electronics.
3. Disconnect power when not using the display.

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**. Hinged panels for servicing digits and indicators and for component access are detailed in each model's **Mechanical Specifications Drawing**.

4.2 Component Location and Access

Reference Drawings:

Electrical Specification Drawings **Refer to Appendix A**

Mechanical Specification Drawings **Refer to Appendix A**

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

Display Digits:

- A single circuit board makes up the digits for the 13" and 18" digits
- The digits for 24", 36" and 48" are made up of LED segments
- The 4-digit Rate displays are made up of two different digit sizes, which vary depending on the display size

Each host or primary display (the mirror does not contain a driver enclosure) contains an enclosure that includes the following devices:

- Display Driver
- 24V DC power supply
- 10V AC transformer
- Signal/Power Input Terminal Jack
- Signal Board (Surge board on direct displays or a modem)
- Light (photo) sensor connection

For the front-access modules in this series, opening the hinged access doors on the front of the display or removing one of the digits can reach all internal electronic components and digits.

For the 13", 18" and 24" displays the hinged door swings outward when the two screws on the display face panel are removed, as shown in **Figure 14**. For the large displays, the enclosure is reached by removing one of the digits from the face of the display. Since component placement varies slightly with each DataMaster model, consult the **Electrical and Mechanical Specifications Drawings**.

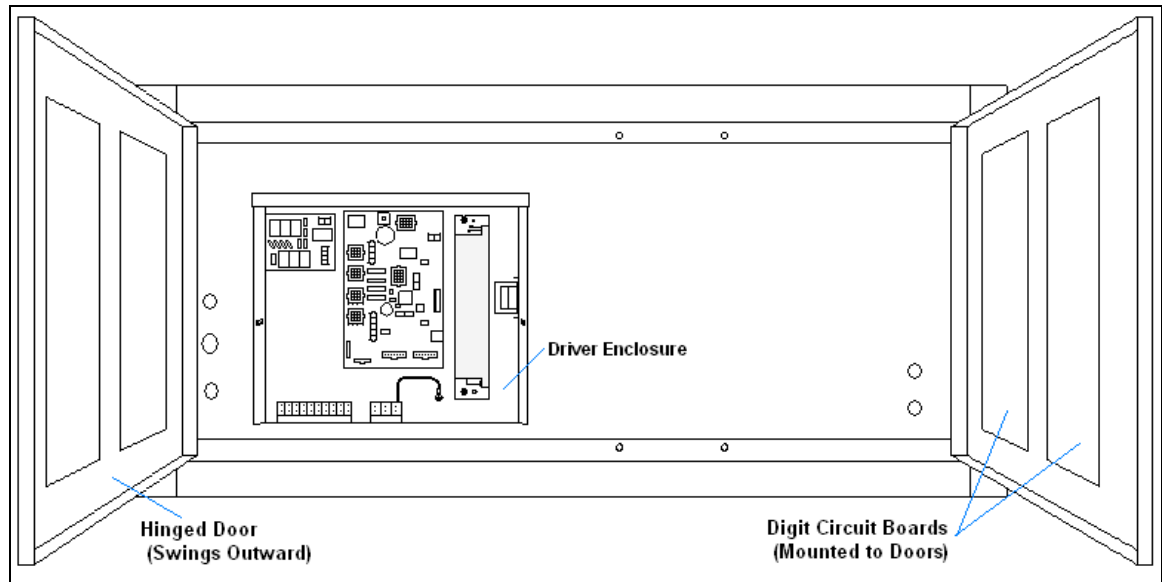


Figure 14: DataMaster Rate Display with Door Panels Open

Note: Disconnect power before servicing the display! Disconnect power, too, when the display is not in use. Prolonged power-on may shorten the life of some electronic components.

4.3 Service and Diagnostics

Replacing a Digit

The digit circuit board, the platform for the LEDs, is mounted to the back of the digit panel. Do not attempt to remove individual LEDs. In the case of a malfunctioning board, replace the entire digit panel (13" and 18" displays). Refer to **Figure 15** for the digit assembly.

To remove a display digit, follow these steps:

1. Open the digit panel as described in the preceding section.
2. Disconnect the power/signal connector from the back of the digit. Release the connector by squeezing together the locking tabs as you pull the connector free.

3. The digits are secured to the inside of the panel with fixed machine screws, spacers, and push nuts. Remove the nuts and lift the digit off the standoff screws. (The push nuts can be removed in several ways, but Daktronics recommends using a $\frac{9}{32}$ " nut driver.)
4. Position a new digit over the screws and tighten the nuts.
5. Reconnect the power/signal connector.
Note: This is a keyed connector it will attach in one way only. **Do not** attempt to force the connection!
6. Close and secure the digit panel and test the display.

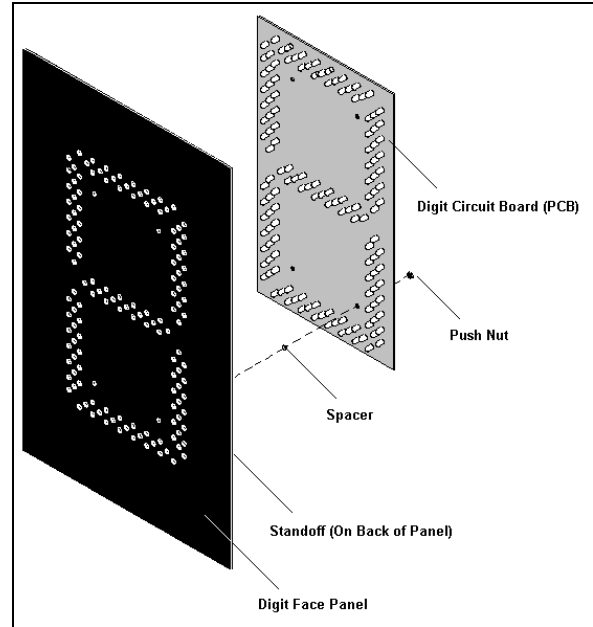


Figure 15: Digit Assembly

Replacing a Digit Segment

When a digit segment malfunctions, in most cases it is necessary to just replace that segment board. The larger digits (24", 36", 48"), as shown in **Figure 16**, are made up of LED segments. As with smaller digits, the digit segment circuit boards are mounted to the back of the digit panel. **Do not** attempt to remove individual LEDs.

To remove a digit segment, follow these steps:

1. Open the digit panel as described above.
2. Disconnect the 2-pin power/signal connector from the back of the individual segment. Release the connector by squeezing together the locking tabs as you pull the connector free.
3. The individual segments are secured to the inside of the panel with fixed machine screws, spacers, and push nuts. Remove the nuts and lift the segment off the standoff screws.
4. Position a new segment over the screws and tighten the nuts.
5. Reconnect the power/signal connector.
Note: This is a keyed connector it will attach in one way only. Do not attempt to force the connection!
6. Close and secure the digit panel and test the display.

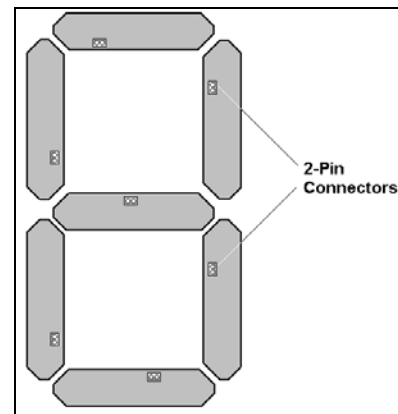


Figure 16: Segmented Digit Panel (Rear View)

Replace a malfunctioning colon, decimal, or indicator assembly in the same manner.

Segmentation and Digit Designation

Reference Drawing:

Segmentation, 7 Segment Bar Digit **Drawing A-38532**

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. It also details which connector pin is wired to each digit segment and the wiring color code used throughout the display.

The Electrical Specification

Drawings specify the driver connectors controlling the digits. Numbers displayed in hexagons in the upper half of each digit, as shown in **Figure 17**, indicate which connector or connectors are wired to that digit. Larger digits, like the 36" digits shown in **Figure 17**, are each wired to two connectors. (Digits for a 48" display use four connectors for each digit.)

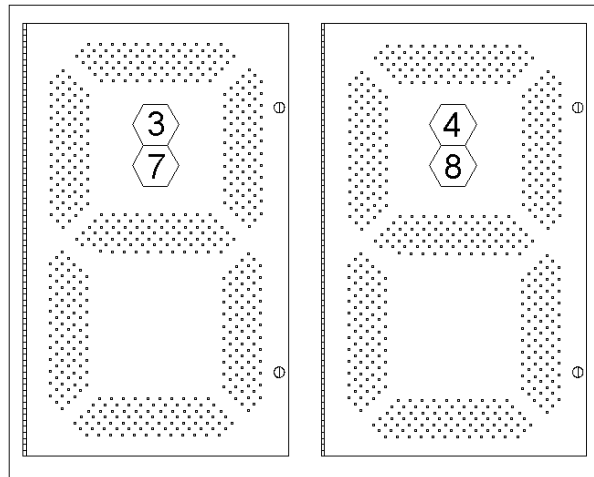


Figure 17: Digit Designation

Replacing an LED Driver

Reference Drawings:

4 Column MASC LED Driver Specifications **Drawing A-166216**
8 Column MASC Driver Specifications **Drawing A-167237**
16 Col. MASC Driver Specification **Drawing A-184475**
Electrical Specification Drawings **Refer to Appendix A**
Mechanical Specification Drawings **Refer to Appendix A**

Drivers are typically mounted inside the display and immediately behind a digit, but location and mounting varies by model. Refer to the **Electrical and Mechanical Specification Drawings** for the location of your driver. All displays in this manual are front-accessible.

To replace the driver in the display enclosure:

1. Open the digit panel or display face panel as described in **Section 4.2**.
2. Remove the cover from the driver enclosure.
3. It is helpful to have the cables labeled as to 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.

DataMaster Rate displays may use 4-, 8-, or 16-column drivers, depending on the model and size of digits. Each 16-column is so named because it has 16 outputs as compared to 8- and 4-column drivers.

Figure 18 identifies the major functions for a 4-column driver. (Major functions are the same on the 8- and 16-column drivers.)

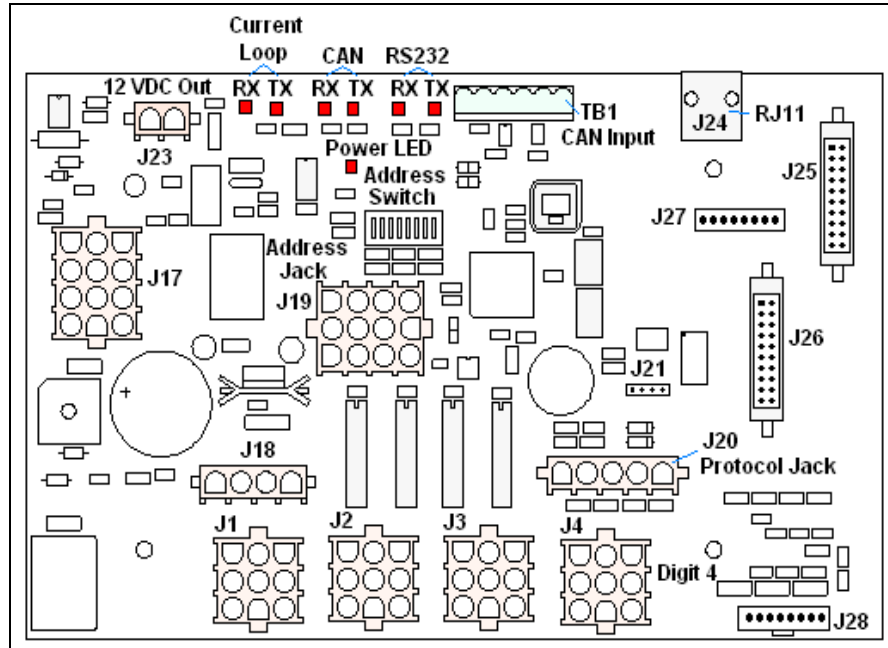


Figure 18: 4-column Digit Driver

In the display, the LED drivers perform the task of switching digits on and off. Refer to **Drawings A-166216, A-167237, or A-184475** for a complete listing of driver connector functions and wiring pin numbers for the correct driver for your display.

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

LED Driver Jack Functions

Jack Number	Function
J1-J4 (4-column) J1-J8 (8-column) J1-J16 (16-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 line controlled by the driver is set with a DIP-switch that is set at the factory 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.

Replacing a Signal Surge Board

Reference Drawings:

Enclosure Driver, 4 Column Reference..... **Drawing A-183775**
 Electrical Specification Drawings **Refer to Appendix A**
 Mechanical Specification Drawings..... **Refer to Appendix A**

The surge board is mounted inside the display enclosure and behind a digit, but location and mounting varies by model. Refer to the **Electrical** and **Mechanical Specification Drawing** for the location of your surge board. All displays are front-accessible.

1. Open the digit panel or display face panel as described in **Section 4.2**.
2. Remove the cover from the driver enclosure.
3. Disconnect all connectors from the surge board. 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.
4. Remove the nuts securing the driver to the inside of the enclosure.
5. Carefully lift the surge board from the display and place it on a clean, flat surface.
6. Follow the steps in reverse order to attach a new driver.

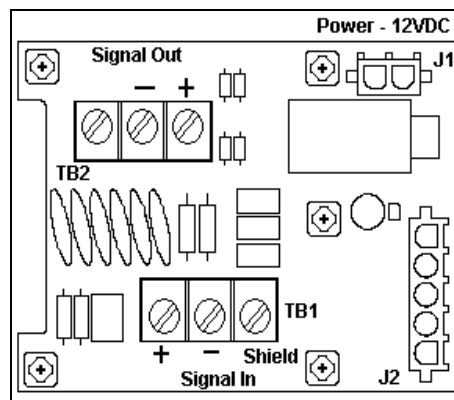


Figure 19: Signal Surge Suppression Board

In the display, the signal surge suppression board is an inline device used to filter the current loop data line. It suppresses surges down to a low voltage to protect the display's controller. Refer to **Drawing A-184918** for the location of the surge board inside the driver enclosure. The surge board is pre-wired before the display is shipped.

Note: The surge suppressor must be firmly connected to the driver enclosure, and the display must be properly grounded in order to be effective.

Replacing a Modem

Reference Drawings:

Modem Installation; 4 Col MASC Driver Enc.....	A-177039
Electrical Specification Drawings	Refer to Appendix A
Mechanical Specification Drawings	Refer to Appendix A

If a modem is included with the display, it is mounted inside the display enclosure, behind a digit, and near the driver but the location and mounting varies by model. Refer to **Drawing A-177039** and the **Electrical** and **Mechanical Specification Drawings** for the location of the modem. All displays in this series are front-accessible.

1. Open the digit panel or display face panel as described in **Section 4.2**.
2. Remove the cover from the driver enclosure.
3. Disconnect all connectors from the modem. 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.
4. Remove the nuts securing the modem to the inside of the enclosure.
5. Carefully lift the modem from the display and place it on a clean, flat surface.
6. Follow the steps in reverse order to attach a new modem.

LEDs

The modem has four LEDs.

- The power LED (DS1) should remain lit while power is applied to the modem.
- The modem RX (DS3) and TX (DS4) LEDs are normally off, but will flash when communicating.
- The carrier detect LED (DS5) will light when the modem has established communication to another modem.

Input/Output Jacks

The modem board also has several input and output jacks:

- TB2 is a phoenix connector to terminate the tip and ring wires.
- J3 is the AC power input into the modem board from the transformer in the driver enclosure.
- J6 is the RS232, RJ45 output jack from the modem board to the display driver.

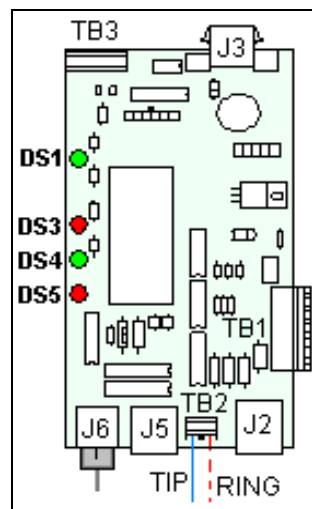


Figure 20: Modem Board

- J5 is an RJ11 jack for termination of a pre-terminated phone line (if needed).
- J2, TB1, and TB3 are not used in this application.

4.4 Light/Photo Sensor Installation

Reference Drawing:

Light Sensor Installation, G3 **Drawing A-183775**
 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 install the photo sensor in your DataMaster Rate display. If the sign or sign system has more than one display, install the light sensor in the primary/host display only.

1. Remove the screws on the front of the display and open the hinged access door.
2. Locate and remove the $\frac{5}{8}$ " plastic plug from front panel of the display. The location of the plug varies by model. Refer to the **Mechanical Specification Drawings** for model-specific information.
3. There are two 6-32 studs above and below the plughole. Position 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 provided plastic wing nuts.
4. Route the signal cable to the driver and insert the 6-position plug into the mating jack on the driver, TB1.
5. Close the hinged access doors and replace the screws.

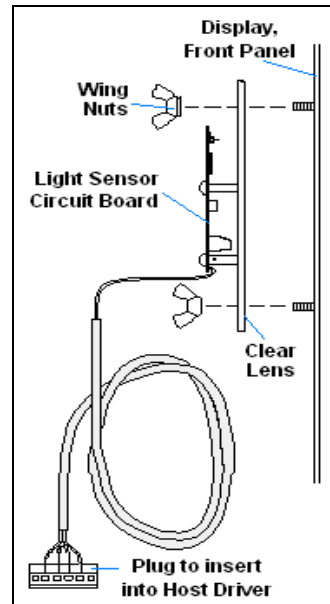


Figure 21: Internal Light Sensor

4.5 Troubleshooting

This section lists potential problems with the display, indicates possible causes, and suggests corrective action. This list does not include every possible problem, but it does represent some of the more common situations that may occur. (Refer to the appropriate manual for a list of potential problems with add-on or separately mounted message centers.

Symptom/Condition	Possible Cause
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 • Check power LED on driver and power supplies

Symptom/Condition	Possible Cause
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 via radio	<ul style="list-style-type: none"> • Check for power to signal converter connected to server • Check wiring from signal converter to server • Check connections from Client to display • Make sure DataMaster and display have power
Cannot communicate with display via modem	<ul style="list-style-type: none"> • Verify the correct phone number • Check the tip and ring connections to the modem at the display • Make sure display and DataMaster have power
Garbled display	<ul style="list-style-type: none"> • Internal driver logic malfunction • DataMaster malfunction
Digit will not light	<ul style="list-style-type: none"> • Black wire to digit broken • Poor contact at driver connection • Driver malfunction
Segment will not light	<ul style="list-style-type: none"> • Broken LED or connection • Broken wire between driver and digit • Poor contact at driver connector
Segment stays lit	<ul style="list-style-type: none"> • Driver shift register failure • Short circuit on 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 settings on drivers (Refer to "Power On Self-Test" in the following section, and consult tables to set correct addresses.)

Some displays have their own built-in troubleshooting mechanism. Failures that may occur in the display driver are described using codes. In the event a sign malfunctions, a failure code registers by displaying an "E (x)" value on the first two digits of the display. "E" simply indicates an error, and the letter "x" represents the actual code number. Refer to the following table for a description of each failure code and for possible solutions.

Note: The LCD screen on the DataMaster 100 controller will not show the failure codes described in the following table. Failure codes will be displayed only on the DataMaster sign.

Failure Code	Description	Possible Solution
E1	Protocol Setting Error: There is an unsupported driver protocol setting.	Check the value set in the protocol plug of the driver (J20).
E4	No Message Error: This code is shown when there are no messages downloaded to the display	Download a new message to the display using the <DISPLAY SEQUENCE> key on the DataMaster 100 controller.
E5	No Line Number Selected Error: The driver for this line has a Protocol 4 plug installed in J20, but all address switches are "OFF". (Note: in some older drivers this happens when no address plug is installed in J19.)	Set the line number by setting the binary address on S1 (or installing the correct plug in J19). The Protocol 4 plug designates this driver as the "host." If this is not the host, remove the Protocol 4 plug from J20.

Power On Self-Test:

A useful troubleshooting tool is the power on self-test the host driver performs every time it powers up:

- If the signal wiring between each controller is correct, the first two digits of each driver will display "Ad" momentarily, and the first digit will then flash three numbers indicating the decimal address that is set with the address plug in J19. (If a client driver displays "A <number>," followed by "P<number>," it is not receiving "signal in," and is performing its own self-test.)
- Next, the first two digits of each line will display "Lx", where "x" is the line number that the driver is set to control (set with address plug).
- Finally, each line will display "1234..." according to the column number of each of its digits. Every line should show "1" on the left-most digit, and all digits should be numbered consecutively from left to right. If this is not the case, either the wrong address plug is installed, or the driver or digit harness is connected incorrectly.

If there is no address set (or address plug installed) on the host driver, the host driver will display "E5," and all client drivers will continually cycle through the power on self-test.

4.6 Replacement Parts

Refer to the following table for Daktronics replacement parts.

Description	Daktronics Part No.
Driver, 4-column	0P-1192-0068
Driver, 8-column	0P-1192-0082
Driver, 16-column	0P-1192-0086
Light sensor, G3	0A-1279-0203
Protocol plug (Protocol 4)	0A-1279-0089
Transformer, Pri. 115V; Sec. 10 VCT@1.2A	T-1072
Transformer, wall pack (for DataMaster 100 and signal converter)	T-1118
Power supply, 24 V DC, 150 W	A-1720
Address #1 Plug (older drivers)	0A-1150-0122
Communication Boards and Accessories	
Signal surge suppression board	0P-1110-0011
Modem, RS232 coated, internal	0P-1279-0003
J-box, signal converter, w/modem	0A-1279-0162
J-box, signal converter, radio	0A-1279-0161
RJ11 to RJ45, M-M, straight, 18" cable	0A-1137-0300
Server Radio, outdoor	0A-1146-0079
Client Radio, w/Quick Connect	0A-1146-0078
Cable, 6-cond., 18 AWG, j-box to Server Radio	W-1370
Transformer, wall pack (for j-box/signal converter)	T-1118
DataMaster 100 Controller Parts	
DataMaster 100 hand-held controller	0A-1196-0088
Junction box, outdoor, 9-pin D-male	0A-1196-0093
Junction box, indoor, 9-pin D, male	0A-1196-0099
DataMaster 100 outdoor wired installation kit	0A-1279-0087
DataMaster 100 indoor wired installation kit	0A-1279-0103
Transformer, wall pack (for DataMaster 100)	T-1118
Cable, serial, DB9 male to DB9 female	W-1267
DM-100 Insert Time & Temp/Rate Display	0G-164998

Digits and Accessories	
Digit, 13" red, pc board	0P-1192-0200
Digit, 13" amber, pc board	0P-1192-0214
Digit, 18" 7-segment, red, pc board	0P-1192-0202
Digit, 18" 7-segment, amber, pc board	0P-1192-0216
Digit, 13" 7-segment, red, w/ faceplate	0A-1192-0223
Digit, 13" 7-segment, amber, w/ faceplate	0A-1192-0224
Digit, 18" 7-segment, red, w/ faceplate	0A-1192-0227
Digit, 18" 7-segment, amber, w/ faceplate	0A-1192-0256
Digit, 24" 7-segment, red, w/ faceplate	0A-1192-2231
Digit, 24" 7-segment, amber, w/ faceplate	0A-1192-2232
Digit segment, 24" red, vert	0P-1192-0204
Digit segment, 24" red horiz.	0P-1192-0205
Digit segment, 24" amber, vert	0P-1192-0218
Digit segment, 24" amber horiz.	0P-1192-0219
Digit, 36" 7-segment, red, w/faceplate	0A-1192-2260
Digit, 36" 7-segment, amber, w/faceplate	0A-1192-2261
Digit segment, 36" red, vert	0P-1192-0208
Digit segment, 36" red horiz.	0P-1192-0209
Digit segment, 36" amber, vert	0P-1192-0222
Digit segment, 36" amber horiz.	0P-1192-0223
Digit, 48" 7-segment, red, hinged	0A-1279-0181
Digit, 48" 7-segment, amber, hinged	0A-1279-0182
Digit segment, 48" red, vert	0P-1192-0212
Digit segment, 48" red horiz.	0P-1192-0213
Digit segment, 48" amber, vert	0P-1192-0226
Digit segment, 48" amber horiz.	0P-1192-0227
Colon, 13" red, pc board (used in DF-1010-13)	0P-1192-0236
Colon, 13" amber, pc board (used in DF-1010-13)	0P-1192-0237
Indicator, 2" red, pc board (18" and 24" displays)	0P-1192-0228
Indicator, 2" amber, pc board (18" and 24" displays)	0P-1192-0229
Indicator, 4" red, pc board (36" and 48" displays)	0P-1192-0244
Indicator, 4" amber, pc board (36" and 48" displays)	0P-1192-0245
Indicator, 4" red w/ face plate (36" and 48" displays)	0A-1192-2434
Indicator, 4" amber w/ face plate (36" and 48" displays)	0A-1192-2435

4.7 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.

Daktronics provides these plans to ensure users get the most from their Daktronics products, and it offers the service to qualified customers who follow the program guidelines explained below. 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 our 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.
PO Box 5128
331 32nd Ave
Brookings SD 57006

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

Fax: 605-697-4444

E-mail: helpdesk@daktronics.com

Section 5: Rate Display Operation

This section describes the DataMaster 100 controller, and how it is used to set the information on the Rate Display.

5.1 DataMaster 100 Overview

The DataMaster 100 Series controller, shown in **Figure 22**, 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 motel rates, gasoline price, and time and temperature data. 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 a display, refer to **Section 5.3: Rate Display Operation**.



Figure 22: DataMaster 100

5.2 DataMaster Insert and Code

Reference Drawing:

System Riser Diagram, Control Combinations **Drawing A-164988**

The DataMaster 100 uses a keypad insert to program rate information into Daktronics LED DataMaster Rate Displays.

Figure 23 illustrates the DM-100 insert used to control the displays. For details on the insert, refer to the DataMaster 100 insert drawings, **Drawing A-164988**.

If an insert is lost or damaged, a copy of the insert drawing located in **Appendix A** can be used until a replacement is ordered.

To start the controller and use the insert, read the next section carefully to fully understand the operation instructions.

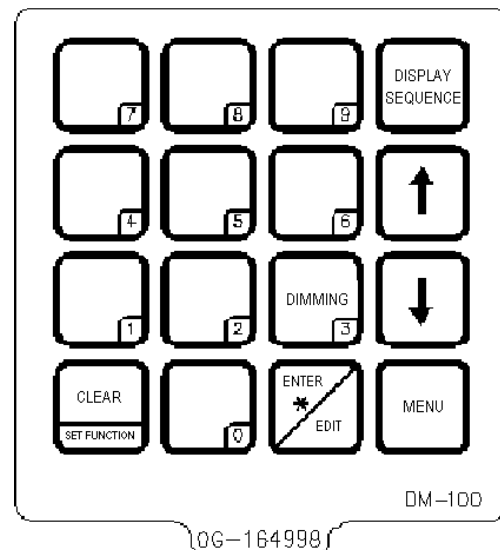


Figure 23: DataMaster 100 Insert, LL2551

5.3 Rate Display Operation

The DataMaster 100 controller can be configured to program price variances displayed on the LED DataMaster Rate sign. The instructions provided in this section discuss the functions the operator uses to control the Rate display. In the unlikely event that the Rate Display malfunctions, refer to **Appendix B** for the **Frequently Asked Questions** section for this display.

Connect the display with the DataMaster. Often when using either a modem or radio an output j-box will also be connected for use if the other means of communication fails.

Note: There is more than one way to get certain LCD screens on the DM-100. 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 gas price and then continue to enter through the additional screens.

Rate Display Startup

To operate the DataMaster Rate displays, the DataMaster 100 must first be programmed to the rate display 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 Rate Display you can continue, otherwise at the next frame: “Current Function? Press Set Function” you need to press <CLEAR/SET FUNCTION> and use the <↑↓> to select Rate Display.

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
	Power is provided to the DM-100 through the serial cable or through the wall pack transformer, either directly or by way of the j-box/signal converter. This display appears briefly.

<div style="border: 1px solid black; padding: 5px; text-align: center;"> <p><i>CHANGE FUNCTION? PRESS SET FUNCT</i></p> </div>	<p>This message appears next on the screen.</p> <p>If "RATE DISPLAY" was shown on the bottom line of the LCD during startup, do nothing. The controller will automatically default to previous Rate Display settings. (The controller will remember the last function used, so you should only have to do this with a new controller or when switching between DataMaster displays.)</p> <p>If a function other than "RATE DISPLAY" 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>You only have 1 or 2 seconds to push it. If you miss it, unplug the power to the DM-100 and try again.</p>
<div style="border: 1px solid black; padding: 5px; text-align: center;"> <p><i>SELECT FUNCTION RATE DISPLAY ↓↑</i></p> </div>	<p>Press the arrow up or down keys <↑↓> until the rate display option is shown. Press the <ENTER> key to accept.</p>

Note: The actual Rate Price 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. Price Line 1
2. Price Line 2
3. Price Line 3
4. Price Line 4
5. Price Line 5
6. LED Test?
7. Display Option
8. Modem Settings
9. Display Status
10. Set Time 12HR

Use Menu items 1-5 to edit the price on each line of the display. Lines are typically numbered top to bottom with 1 being the top of the display. For further details, refer to **Modifying Price Line Settings** discussed previously in this section.

For more information about the Modem Settings submenu, refer to **ED-13953: DataMaster Modem Installation Manual**. For additional information about the Display Status or the Set Time submenus, refer to **ED-13894: DataTime Radio Installation Manual, ED-13894**; that manual provides for complete details on installation and setup for a bi-directional radio system.

Rate Display Controller Operation

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

LCD Screen	Action
 	<p>The display will toggle between these two screens.</p> <p>DD.CC = dollars and cents value shown on line 1.</p> <p>Press the up or down arrow keys <↑↓> to scroll through the current setting for any of the lines on the display.</p> <p>Press the <ENTER/EDIT> key to modify any of the line settings.</p>


Modifying Price Line Settings

The rate price can be modified either by pressing the <EDIT> key during operation (Refer to the Rate Display controller operation) or using the <MENU> key (refer to the <MENU> key operation.)

Use the following key to identify the item to be edited.


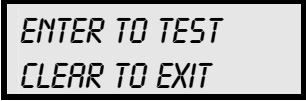
L= Current line number to be edited

D.CC= Current dollars and cents value to edit

LCD Screen	Action
	<p>Press any of the number keys to edit the price value for this line.</p> <p>Press <ENTER> to accept the new value or press <CLEAR> to abort the changes.</p> <p>Note: The flashing asterisk on the LCD shows the current data being edited.</p> <p>Press the down arrow key <↓> to modify the next line, or press the <↑↓> keys to move to the next item or the previous one on the list.</p>

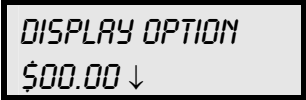
LED Test

Select menu item 6, LED Test, to test the LED digits on the display.

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

Display Option

Use the Display Option menu to select the display configuration.

LCD Screen	Action
	<p>The current configuration is shown on the bottom line of the LCD. Press the down arrow key to select any of the possible configuration values.</p> <p>Possible values are:</p> <ul style="list-style-type: none">\$00.00 (default)\$0.000\$.0000\$0000.00\$000.00\$00 <p>Select the configuration that matches the layout of your display.</p> <p>Note: If the wrong configuration is selected, the digits shown on the LCD may not be displayed correctly on the display.</p> <p>Press <ENTER> to accept and move on to the next screen.</p>

Modem Settings

The following items for a modem can be set using the DM-100:

1. Dial Number
2. Dial out prefix
3. Disconnect time
4. Multiple Dial

Display Status

This will look for a bi-directional link to the display, and will allow you to send the sequence changes.

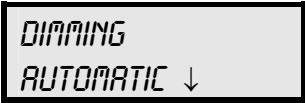
Set Time

This allows you to set the time and date with the DM-100.


Dimming

The dimming level of the Rate display can be adjusted in two ways. A temperature/light sensor, mounted near 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. When the manual dimming function is selected, the LEDs remain at the same level of brightness regardless of the level of light detected at the display.

To select either of these functions, press <DIMMING>. The current setting is shown on the bottom line of the LCD.

LCD Screen	Action
	<p>Press the down arrow key <↓> to toggle through dim 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 regardless of the level of light detected at the display.</p>

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

LCD Screen	Action
	<p>Press the <ENTER/EDIT> key to edit the auto dimming max intensity. 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
<div data-bbox="464 317 769 417" style="border: 2px solid black; padding: 5px; text-align: center;"> <p><i>INTENSITY XX↓↑</i> <i>ENTER TO SET</i></p> </div> <p data-bbox="440 464 748 522">XX – Current intensity (1-16) Max Intensity - 16</p>	<p data-bbox="818 323 1323 422">Press the up or down arrow key <↑↓> to modify the current intensity of the display (Note: The DataMaster must be connected to the display)</p> <p data-bbox="818 464 1323 667">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>

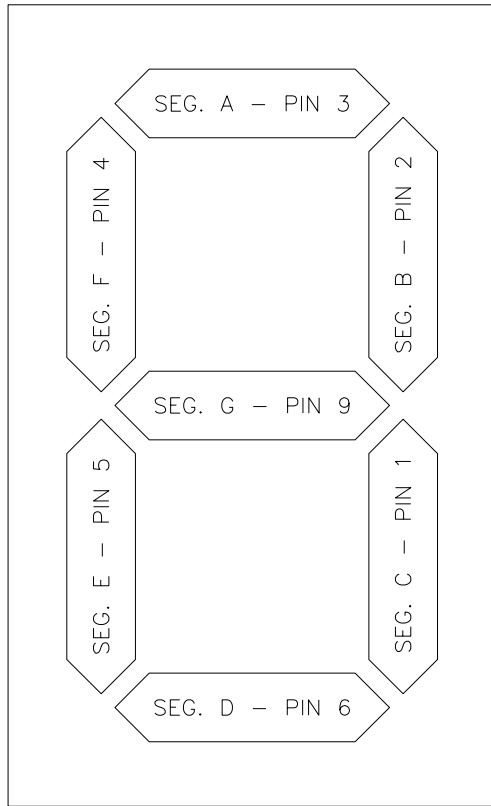
Display Sequence

Once connected to the display with a j-box, radio, or modem, press <DISPLAY SEQUENCE> to display the new sequence on the display. This button will also allow for a preview of the new sequence on the LCD.

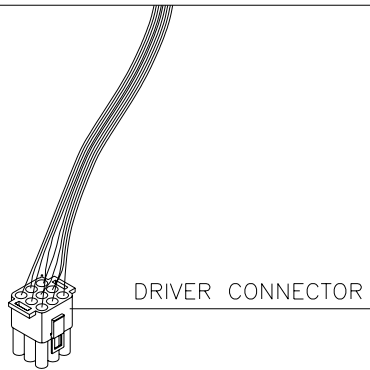
Appendix A: Reference Drawings

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

Segmentation, 7 Segment Bar Digit.....	Drawing A-038532
Riser Diagram; Outdoor Wire Control.....	Drawing A-164988
Insert, 0G-164988 Price/ T&T Display.....	Drawing A-164998
Schematic; Multipurpose LED Drvr.....	Drawing A-165028
Mechanical Specs, D-F-1030-36, G3.....	Drawing A-165833
Electrical Specs, D-F-1030-36, G3.....	Drawing A-165834
Mechanical Specs, D-F-1040-36, G3.....	Drawing A-165837
Electrical Specs, D-F-1040-36, G3.....	Drawing A-165838
Mounting Method, Flag Style, One Pole.....	Drawing A-166139
Mounting Method, Single Line on One Pole.....	Drawing A-166142
4 Column MASC Driver Specifications.....	Drawing A-166216
8 Column MASC Driver Specifications.....	Drawing A-167237
Riser Diagram, Indoor Wire Control.....	Drawing A-175342
Modem Installation; 4 Col MASC Driver, Enclosure.....	Drawing A-177039
Quick Install, DF-1030 & DF-1040 Rate Displays.....	Drawing A-177150
Schematic; 16 Col Multipurpose LED Drvr.....	Drawing A-179599
Mechanical Specs, DF-1030-13, G3.....	Drawing A-181237
Electrical Specs, DF-1030-13, G3.....	Drawing A-181238
Mechanical Specs, DF-1030-18, G3.....	Drawing A-181239
Electrical Specs, DF-1030-18, G3.....	Drawing A-181242
Mechanical Specs, DF-1030-24, G3.....	Drawing A-181243
Electrical Specs, DF-1030-24, G3.....	Drawing A-181247
Mechanical Specs, DF-1040-13, G3.....	Drawing A-181249
Electrical Specs, DF-1040-13, G3.....	Drawing A-181250
Mechanical Specs, DF-1040-18, G3.....	Drawing A-181251
Electrical Specs, DF-1040-18, G3.....	Drawing A-181252
Mechanical Specs, DF-1040-24, G3.....	Drawing A-181253
Electrical Specs, DF-1040-24, G3.....	Drawing A-181254
Mechanical Specifications, DF-1030-48, G3.....	Drawing A-181674
Electrical Specs, DF-1030-48, G3.....	Drawing A-181675
Mechanical Specifications, DF-1040-48, G3.....	Drawing A-181676
Electrical Specs, DF-1040-48, G3.....	Drawing A-181677
Light Sensor Installation, G3.....	Drawing A-183775
16 Col. MASC Driver Specification.....	Drawing A-184475
Enclosed Driver, 4 Column Reference.....	Drawing A-184918
Host/Client Definitions.....	Drawing A-185236
System Riser Diagram, Server/Client.....	Drawing A-199834
System Riser Diagram, Modem Setup.....	Drawing A-200552

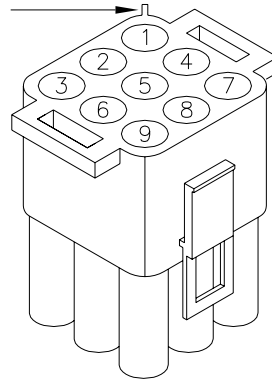


7 SEGMENT BAR DIGIT
FRONT VIEW



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.

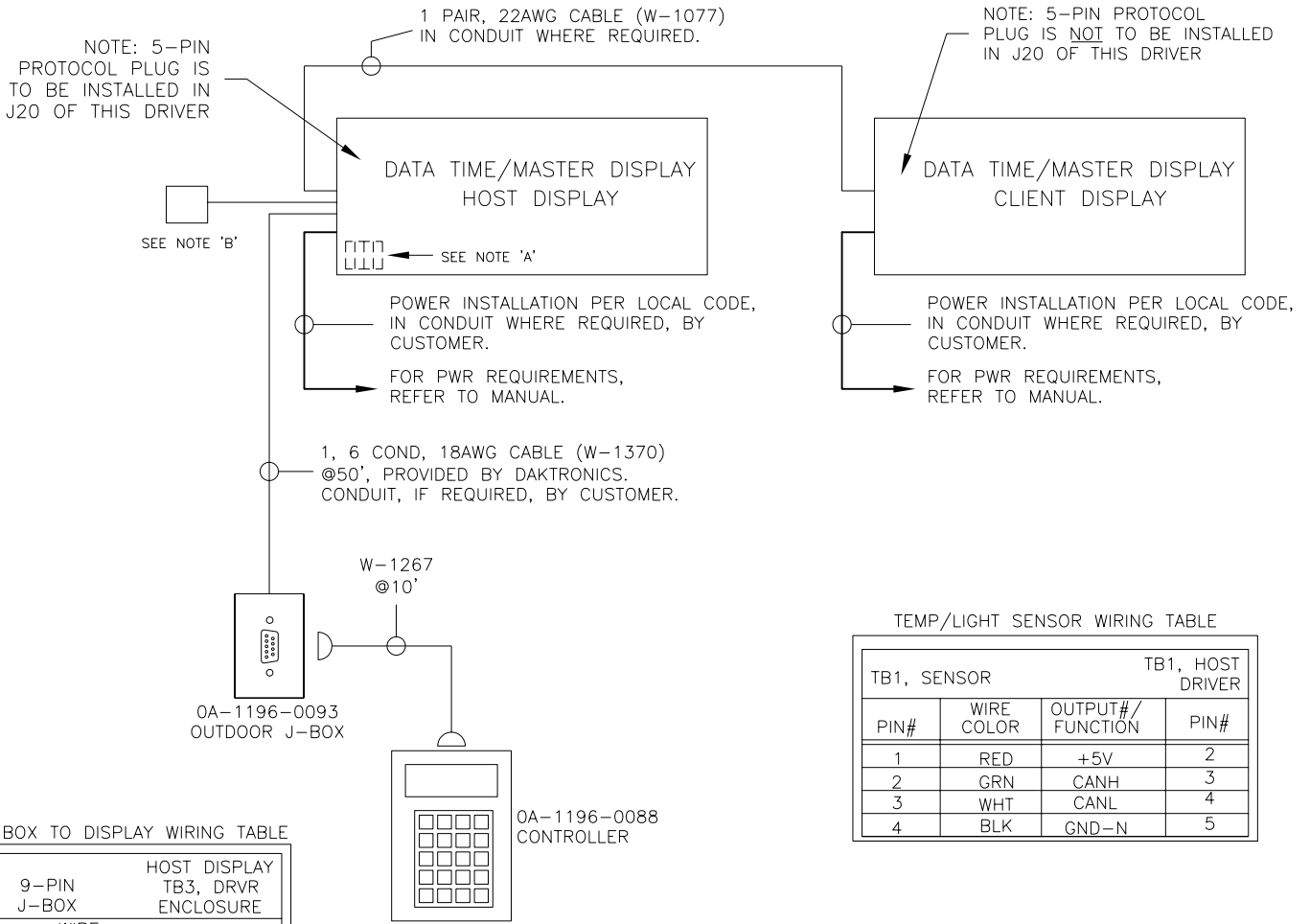
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DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: BASKETBALL
TITLE: SEGMENTATION, 7 SEGMENT BAR DIGIT
DES. BY: _____ DRAWN 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

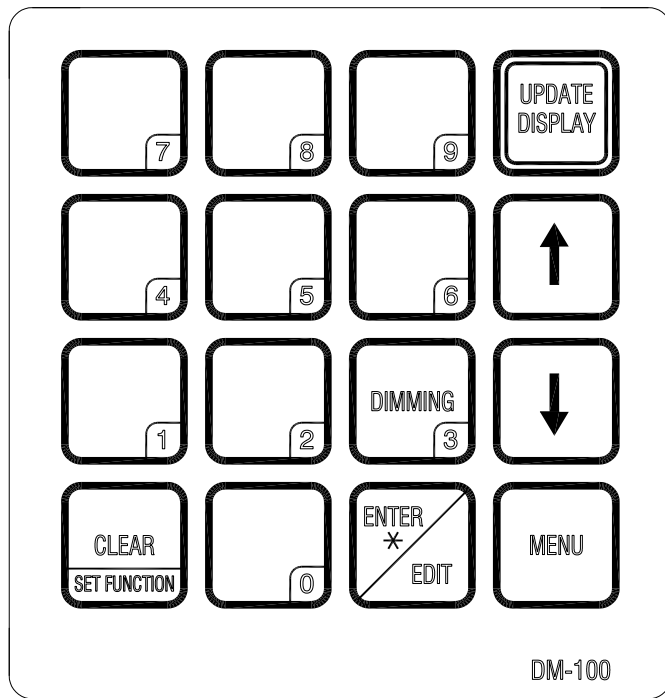
REV.	DATE	DESCRIPTION	BY	APPR.
07	06 APR 05	REVISED WIRING TABLE, CHANGED SOME CABLES.	ATP	
06	07 OCT 04	UPDATED PER NEW ASSEMBLES	RT	
05	19 SEP 02	CHANGED TO OUTDOOR CONTROL ONLY. ADDED HOST AND CLIENT DISPLAY FIGURES.	AVB	
04	10 SEP 02	REVISED CONFIGURATION OF CONTROL LOCATION FOR THE BUILDING LOCATION 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	

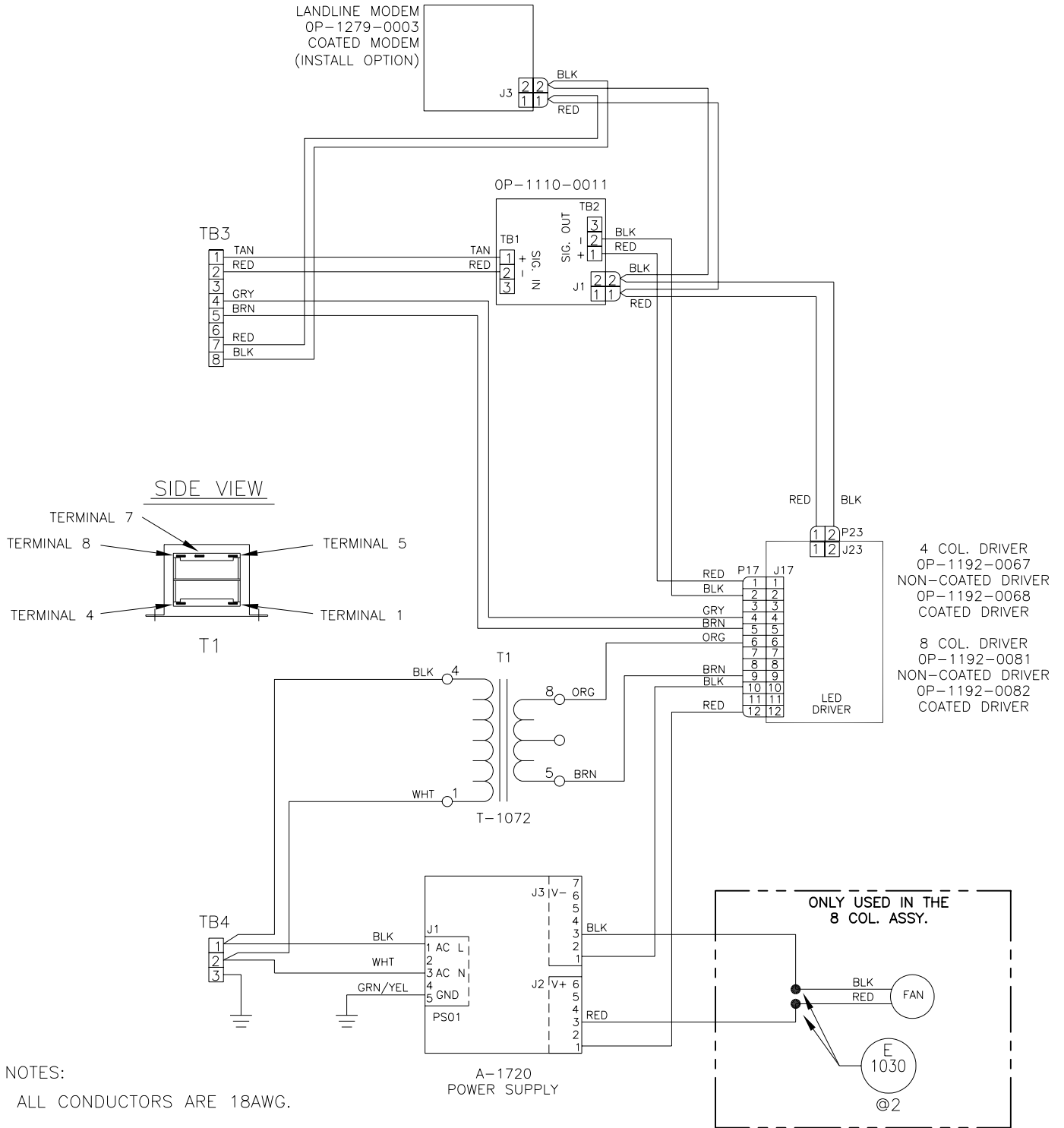


OG-164998

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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.

LANDLINE MODEM
OP-1279-0003
COATED MODEM
(INSTALL OPTION)



4 COL. DRIVER
OP-1192-0067
NON-COATED DRIVER
OP-1192-0068
COATED DRIVER

8 COL. DRIVER
OP-1192-0081
NON-COATED DRIVER
OP-1192-0082
COATED DRIVER

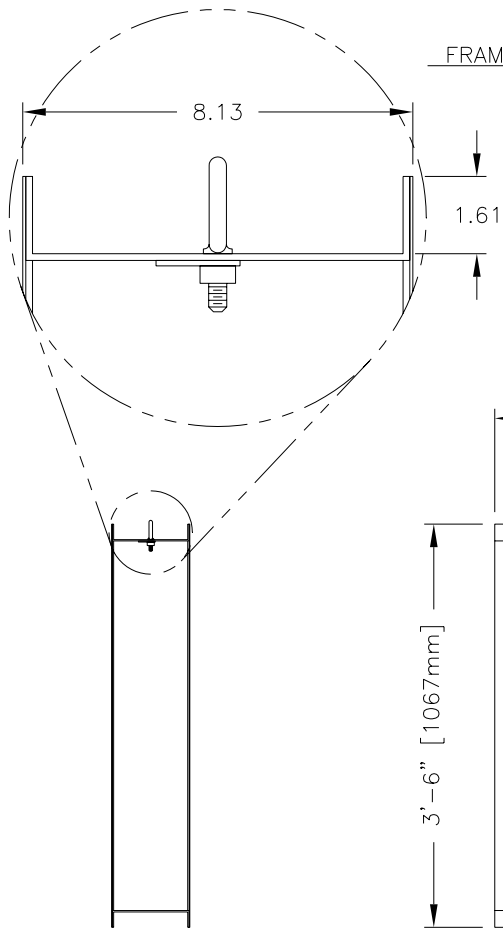
NOTES:
ALL CONDUCTORS ARE 18AWG.

A-1720
POWER SUPPLY

08	17 DEC 03	CHANGED WIRE COLORS OF T1 CONNECTIONS. ADDED SIDE VIEW OF T1.	JBS	
07	29 APR 03	ADDED T1, FOR TIMING.	TAS	MWM
06	24 FEB 03	CHANGED J3 ON POWER SUPPLY TO 7 PINS PER ECO-27985.	AVB	
05	14 JAN 03	CHANGED THE BLU TEXT TO RED ON TB3 CONNECTOR	CME	
04	24 OCT 02	CHANGED 12V DC WIRING CONNECTIONS FROM MASC DRIVER TO SIGNAL SURGE PROTECTOR, LANDLINE MODEM AND TERMINAL BLOCK	JBS	
03	29MAY02	MOVED WIRES GOING INTO PIN 6 & 9 OF P17 TO PIN 10 & 12 OF P17	NMB	
02	06 MAY 02	CHANGED WIRE COLORS FOR TB3 CONNECTIONS	MWM	
01	24APR02	ADDED TB3-7 & 8 CONNECTIONS TO 4 COL. LED DRIVER. ADDED P22 AND J22 ALSO.	THS	
REV.	DATE	DESCRIPTION	BY	APPR.

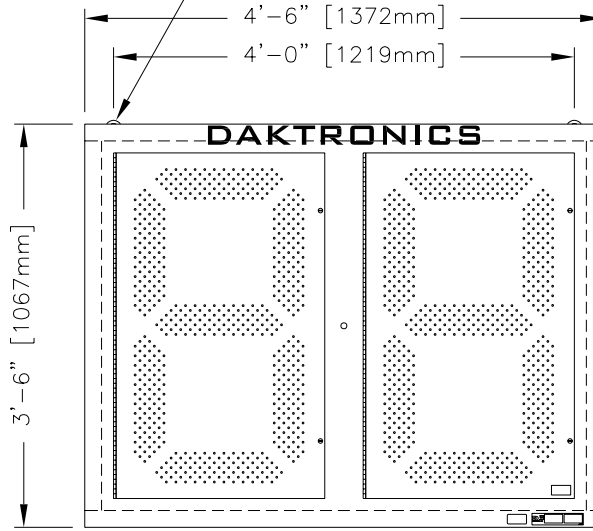
0A-1279-0086
MULTI PURPOSE HARNESS ASSY.

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DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ: DATA TIME LED DISPLAYS			
TITLE: SCHEMATIC; MULTIPURPOSE LED DRVR			
DES. BY: MMILLER		DRAWN BY: MMILLER	
		DATE: 08 APR 02	
REVISION	APPR. BY:	1279-R03A-165028	
08	SCALE: 1=1		



FRAME CHANNEL DETAIL
SCALE 1=4
DIMENSIONS TYPICAL
TOP, BOTTOM, AND SIDES

1/2" EYEBOLTS IN THE TOP FOR LIFTING DURING INSTALLATION ONLY AND MAY NOT BE USED FOR SUSPENDED INSTALLATION.



SIDE VIEW

FRONT VIEW

CONNECTOR FOR OPTIONAL MODEM OR RADIO

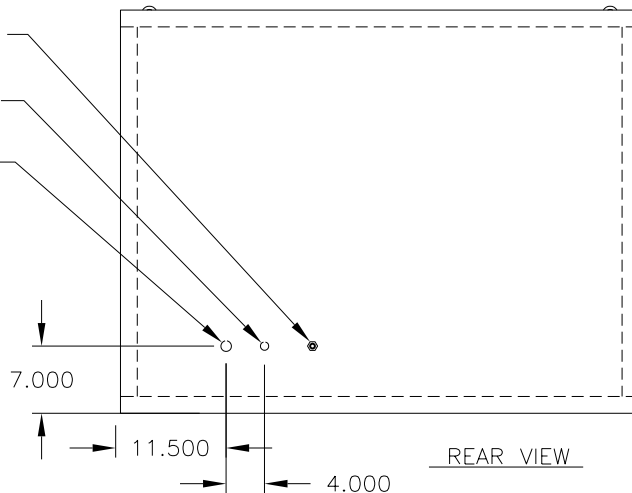
∅0.875 KNOCKOUT

∅1.109 KNOCKOUT

FRAME IS MADE OF EXTRUDED ALUMINUM CHANNEL, 8.000" X 1.750", 0.141" THICK.

FRONT AND BACK ARE 0.063" ALUMINUM SHEET.

KNOCKOUTS IN THE REAR ARE FOR USE WITH 1/2" AND 3/4" CONDUIT FITTINGS.



REAR VIEW

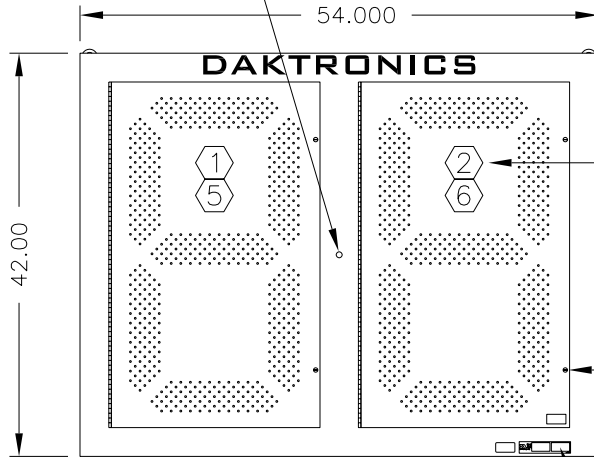
APPROXIMATE WEIGHT: 95 LB [43 KG]

DAKTRONICS, INC. BROOKINGS, SD 57006

REV.	DATE	DESCRIPTION	BY	APPR.
02	16 JUN 05	UPDATED DIGIT PANELS PER DESIGN CHANGES.	MGL	
01	01 APR 04	ADJUSTED BACK SHEET THICKNESS PER DESIGN CHANGES.	MGL	

PROJ: DATA TIME LED DISPLAYS	
TITLE: MECHANICAL SPECS, DF-1030-36, G3	
DES. BY: AVB	DRAWN BY: A VANBEMMEL DATE: 05 FEB 03
REVISION 02	APPR. BY: SCALE: 1=20
1279-R04A-165833	

REMOVE PLASTIC PLUG AND
INSTALL LIGHT SENSOR HERE.

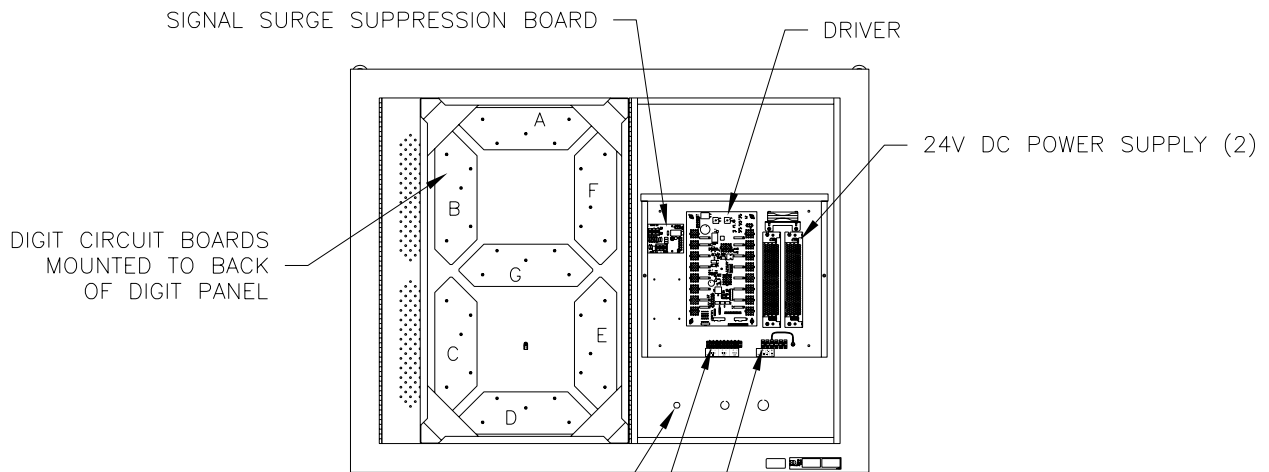


FRONT VIEW

THE NUMBERS IN THE DIGITS INDICATE WHICH
DRIVER CONNECTORS ARE WIRED TO THAT DIGIT.
36" DIGITS ARE WIRED TO TWO CONNECTORS
EACH.

TURN LATCHES TO OPEN THE DOORS AND
GAIN ACCESS TO INTERNAL COMPONENTS.

LOOK HERE FOR MODEL NUMBER
AND POWER REQUIREMENTS.



FRONT VIEW

WITH 2ND DIGIT OPEN AND
DRIVER COVER REMOVED
(WIRES ARE NOT SHOWN)

6-PIN JACK FOR CONNECTING
OPTIONAL MODEM OR RADIO

CONNECT SIGNAL INPUT HERE

CONNECT 120V AC
POWER HERE

ELECTRICAL REQUIREMENT:
120V AC, 15 AMP CIRCUIT

MAX. POWER CONSUMPTION
IS 300 WATTS.

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: DATA TIME LED DISPLAYS

TITLE: ELECTRICAL SPECS, DF-1030-36, G3

DES. BY: AVB

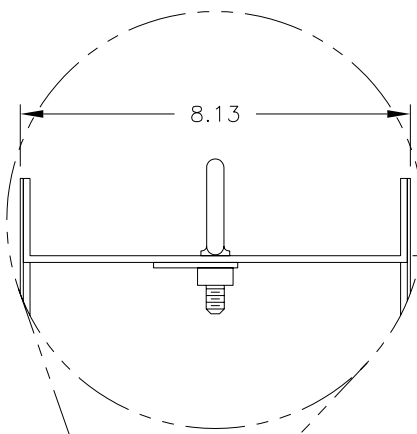
DRAWN BY: A VANBEMMEL

DATE: 05 FEB 03

REV.	DATE	DESCRIPTION	BY	APPR.
01	16 JUN 05	UPDATED DIGIT PANELS PER DESIGN CHANGES.	MGL	

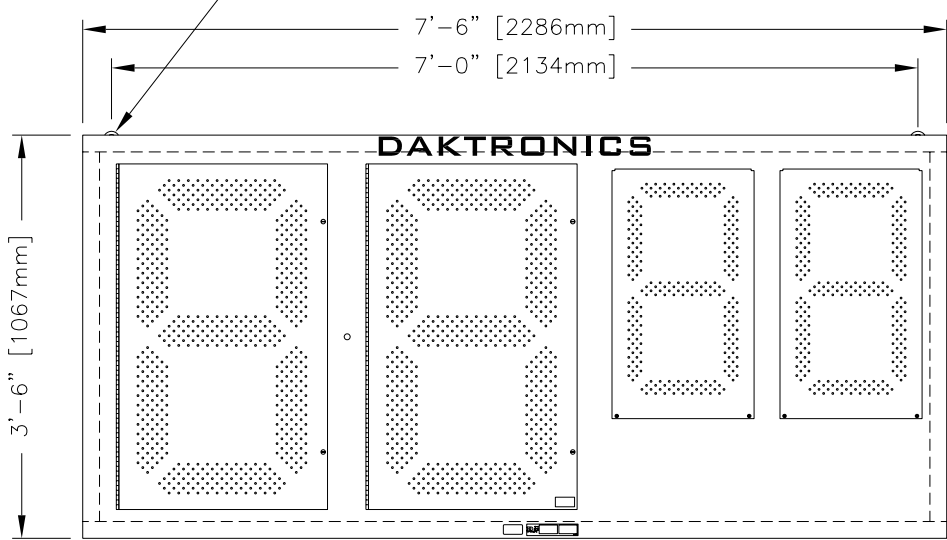
REVISION	APPR. BY:
01	SCALE: 1=20

1279-R04A-165834



FRAME CHANNEL DETAIL
SCALE 1=4
DIMENSIONS TYPICAL
TOP, BOTTOM, AND SIDES

1/2" EYEBOLTS IN THE TOP FOR LIFTING DURING
INSTALLATION ONLY AND MAY NOT BE USED FOR
SUSPENDED INSTALLATION.



SIDE VIEW

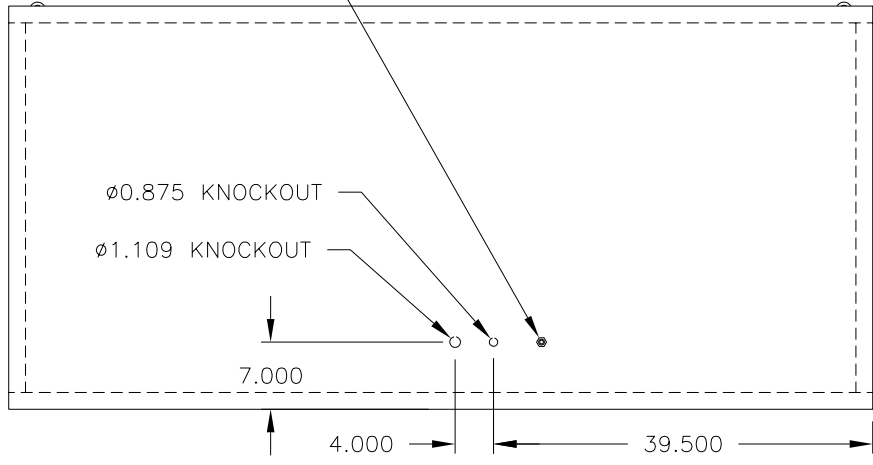
FRONT VIEW

CONNECTOR FOR OPTIONAL MODEM OR RADIO

FRAME IS MADE OF EXTRUDED
ALUMINUM CHANNEL, 8.000" X
1.750", 0.141" THICK.

FRONT AND BACK ARE 0.063"
ALUMINUM SHEET.

KNOCKOUTS IN THE REAR ARE
FOR USE WITH 1/2" AND 3/4"
CONDUIT FITTINGS.



REAR VIEW

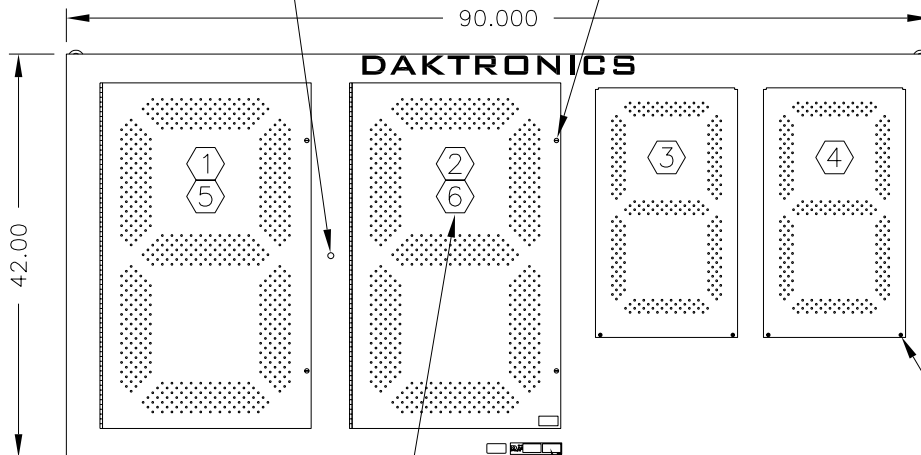
APPROXIMATE WEIGHT: 150 LB [68 KG]

02	16 JUN 05	UPDATED DIGIT PANELS PER DESIGN CHANGES.	MGL	
01	01 APR 04	ADJUSTED BACK SHEET THICKNESS PER DESIGN CHANGES.	MGL	
REV.	DATE	DESCRIPTION	BY	APPR.

DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ: DATA TIME LED DISPLAYS			
TITLE: MECHANICAL SPECS, DF-1040-36, G3			
DES. BY: AVB		DRAWN BY: A VANBEMMEL DATE: 05 FEB 03	
REVISION	APPR. BY:	1279-R04A-165837	
02	SCALE: 1=20		

REMOVE PLASTIC PLUG AND
INSTALL LIGHT SENSOR HERE.

TURN LATCHES TO OPEN THE DOORS AND
GAIN ACCESS TO INTERNAL COMPONENTS.

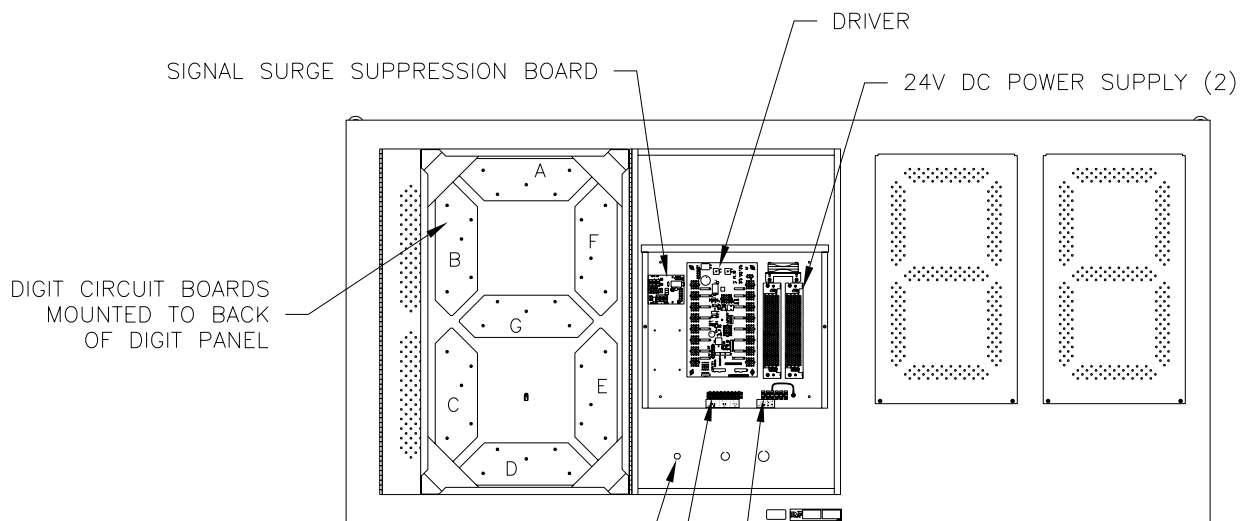


REMOVE THE SCREWS AT
THE BOTTOM OF THE 24"
DIGITS TO OPEN THEM.

THE NUMBERS IN THE DIGITS INDICATE
WHICH DRIVER CONNECTORS ARE WIRED
TO THAT DIGIT. 36" DIGITS ARE WIRED
TO TWO CONNECTORS EACH.

LOOK HERE FOR MODEL NUMBER
AND POWER REQUIREMENTS.

FRONT VIEW



6-PIN JACK FOR CONNECTING
OPTIONAL MODEM OR RADIO

FRONT VIEW
WITH 2ND DIGIT OPEN AND
DRIVER COVER REMOVED
(WIRES ARE NOT SHOWN)

CONNECT SIGNAL INPUT HERE

CONNECT 120V AC
POWER HERE

ELECTRICAL REQUIREMENT:
120V AC, 15 AMP CIRCUIT

MAX. POWER CONSUMPTION
IS 300 WATTS.

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: DATA TIME LED DISPLAYS

TITLE: ELECTRICAL SPECS, DF-1040-36, G3

DES. BY: AVB

DRAWN BY: A VANBEMMEL

DATE: 05 FEB 03

REV.	DATE	DESCRIPTION	BY	APPR.
01	16 JUN 05	UPDATED DIGIT PANELS PER DESIGN CHANGES.	MGL	

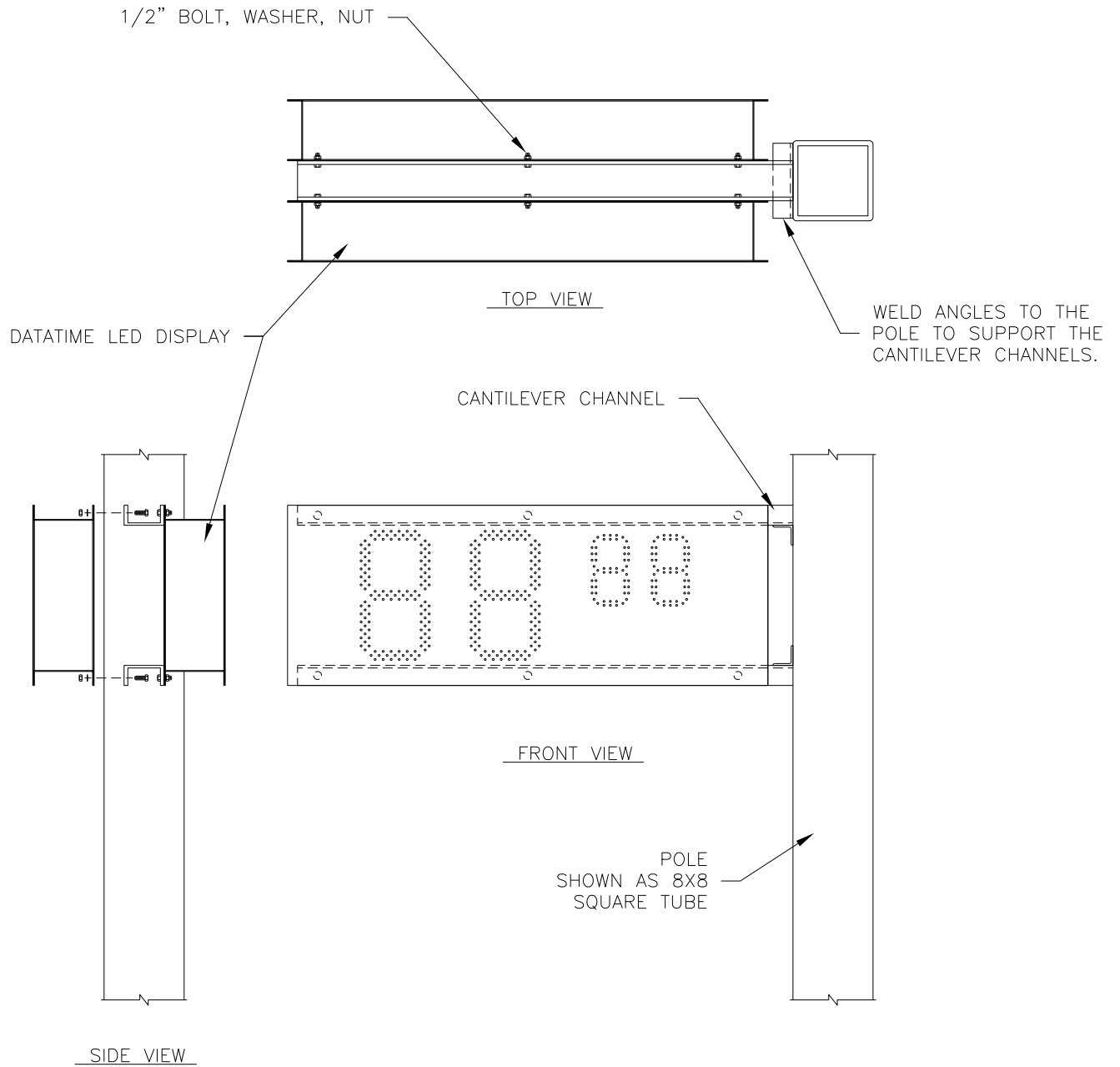
REVISION

APPR. BY:

01

SCALE: 1=20

1279-R04A-165838



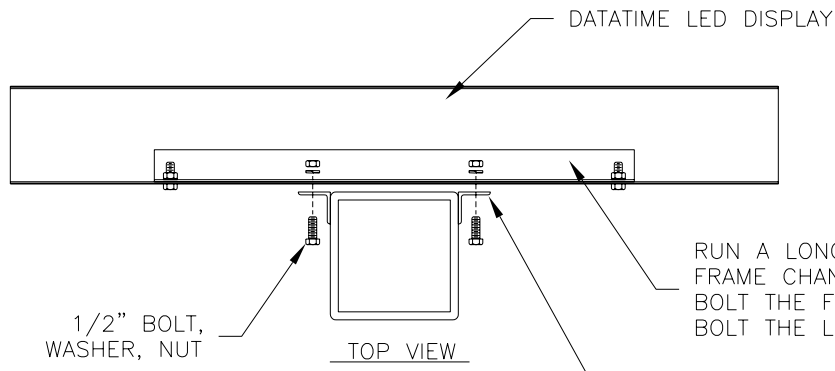
CANTILEVER OR FLAG MOUNTING METHOD

THIS METHOD MAY ALSO BE USED FOR MULTI-LINE DISPLAYS. LEAVE ADEQUATE SPACE BETWEEN DISPLAY LINES TO ALLOW ACCESS TO THE HARDWARE INSIDE THE CHANNELS.

THIS DRAWING SUGGESTS A MOUNTING METHOD AND IS NOT A SPECIFICATION FOR CONSTRUCTION. THE ACTUAL STRUCTURE AND MOUNTING HARDWARE MUST BE SPECIFIED BY A QUALIFIED ENGINEER.

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DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ: DATATIME® LED DISPLAYS			
TITLE: MOUNTING METHOD- FLAG STYLE- ONE POLE			
DES. BY: AVB		DRAWN BY: A VANBEMMEL DATE: 26 APR 02	
REVISION	APPR. BY:	1279-R10A-166139	
00	SCALE: 1=16		

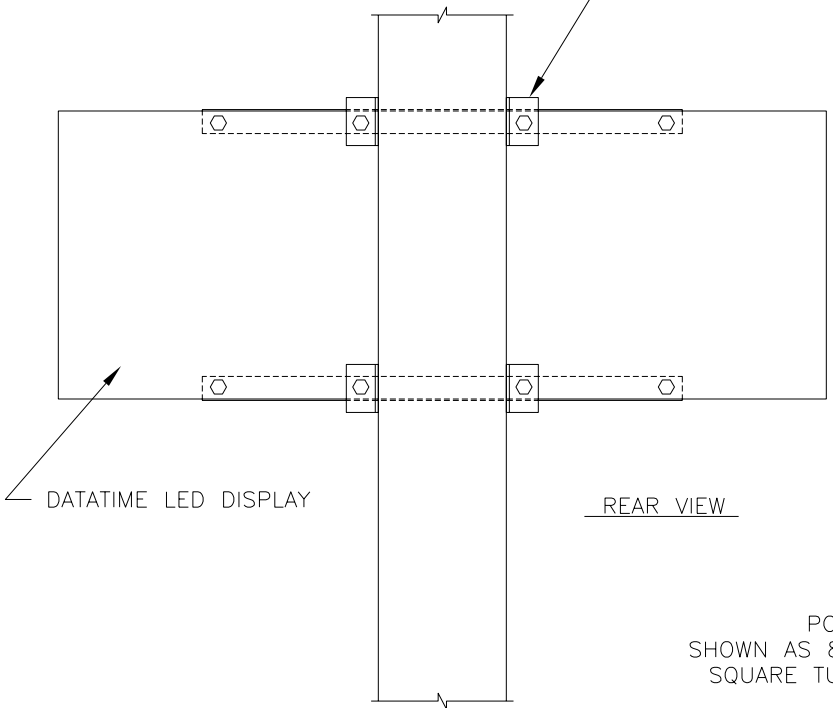
REV.	DATE	DESCRIPTION	BY	APPR.



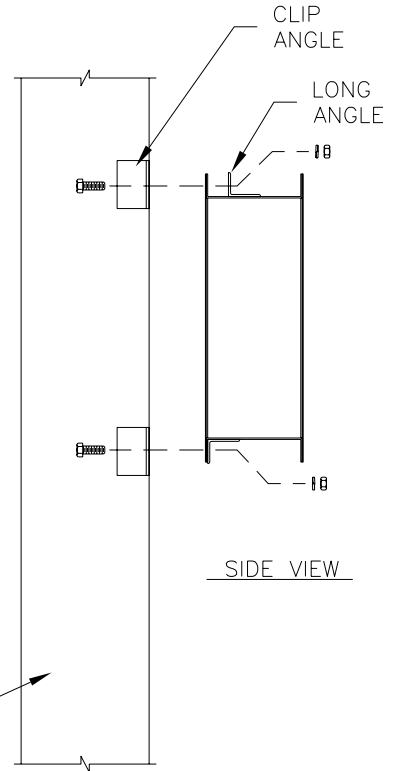
RUN A LONG ANGLE INSIDE THE DISPLAY FRAME CHANNEL TO REINFORCE THE FRAME. BOLT THE FRAME TO THE LONG ANGLES AND BOLT THE LONG ANGLES TO THE CLIP ANGLES.

DRILL THROUGH THE ANGLES AND THE DISPLAY'S FRAME CHANNEL AND MOUNT WITH 1/2" HARDWARE.

WELD CLIP ANGLES TO THE POLE TO PROVIDE A SURFACE TO ATTACH THE DISPLAY.



POLE:
SHOWN AS 8X8
SQUARE TUBE



SINGLE FACED DISPLAY IS SHOWN. DOUBLE FACED (2V) DISPLAYS MAY BE MOUNTED THE SAME WAY BY WELDING CLIP ANGLES ONTO THE BOTH SIDES OF THE POLE.

THIS DRAWING SUGGESTS A MOUNTING METHOD AND IS NOT A SPECIFICATION FOR CONSTRUCTION. THE ACTUAL STRUCTURE AND MOUNTING HARDWARE MUST BE SPECIFIED BY A QUALIFIED ENGINEER.

DAKTRONICS, INC. BROOKINGS, SD 57006	
PROJ: DATETIME LED DISPLAYS	
TITLE: MOUNTING METHOD, SINGLE LINE ON ONE POLE	
DES. BY: AVB	DRAWN BY: A VANBEMMEL DATE: 26 APR 02
REVISION	APPR. BY: _____
	SCALE: 1=12
1279-R10A-166142	

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

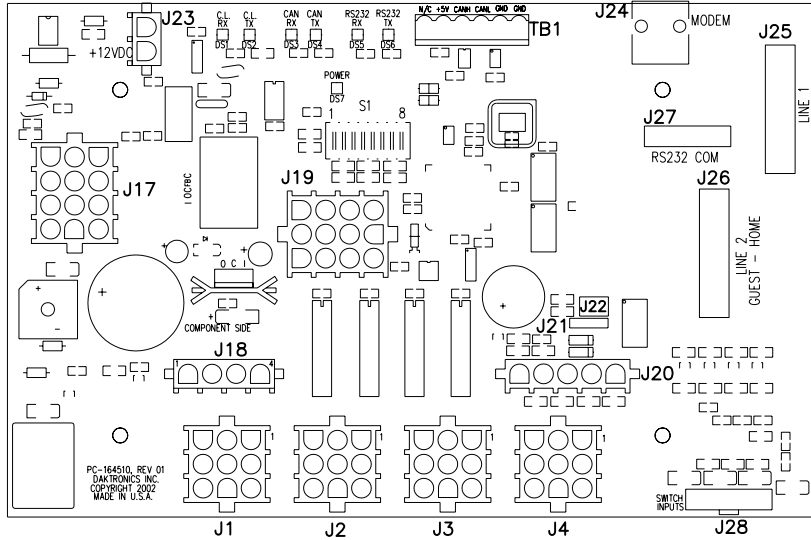
TB1 CAN	
PIN	FUNCTION
1	N/C
2	+5V-P
3	CANH-P
4	CANL-P
5	GND-N
6	GND-N

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

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

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

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

OP-1192-0081 UNCOATED
OR OP-1192-0082 COATED
8 COLUMN MASC LED DRIVER

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

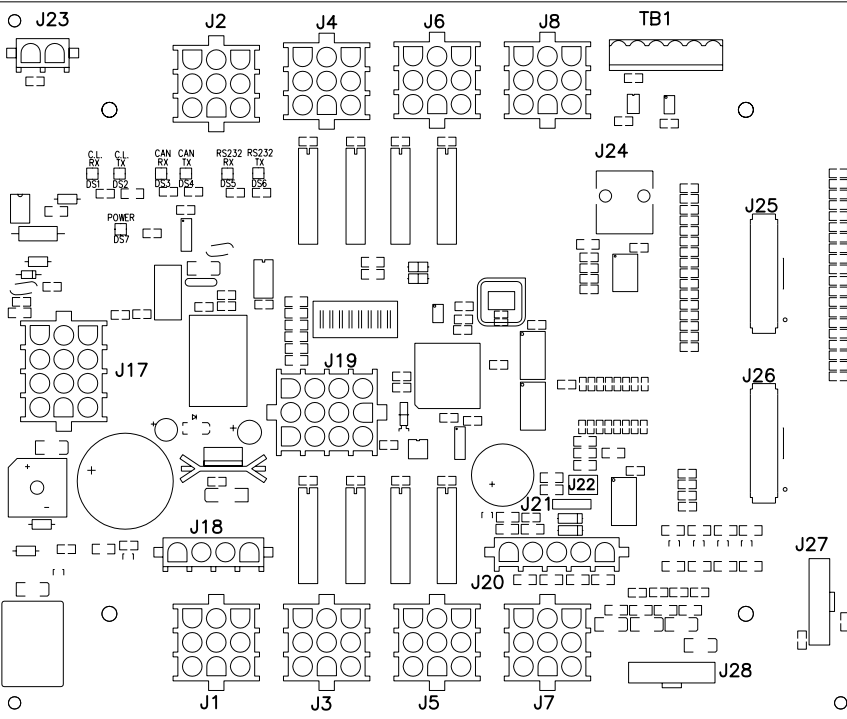
J25			
FUNCTION	PIN	PIN	FUNCTION
ID3-P	21	20	GND-N
FREE0-P	22	19	GND-N
ID2-P	23	18	GND-N
ROWSEL2-P	24	17	GND-N
GRN.DIM-P	25	16	GND-N
CLK-P	26	15	GND-N
GRN4-P	27	14	GND-N
RED4-P	28	13	GND-N
GRN3-P	29	12	GND-N
RED3-P	30	11	GND-N
GRN2-P	31	10	GND-N
RED2-P	32	9	GND-N
GRN1-P	33	8	GND-N
RED1-P	34	7	GND-N
RED.DIM-P	35	6	GND-N
LAT-P	36	5	GND-N
ROWSEL1-P	37	4	GND-N
ROWSEL0-P	38	3	GND-N
ID1-P	39	2	GND-N
ID0-P	40	1	GND-N

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

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	AUXOUT-N
3	120SW1-N
4	120SW1-P

J1-8 DIGITS	
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	PRO-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

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

J27 - TPIC	
PIN	FUNCTION
8	GND-N
7	GND-N
6	DIG.DATA-P
5	DIG.STROBE-P
4	DIG.CLK-P
3	DIG.OE-N
2	+VBB-P
1	+5V-P

J26			
FUNCTION	PIN	PIN	FUNCTION
N/C	21	20	GND-N
FREE0-P	22	19	GND-N
N/C	23	18	GND-N
ROWSEL2-P	24	17	GND-N
GRN.DIM-P	25	16	GND-N
CLK-P	26	15	GND-N
N/C	27	14	GND-N
N/C	28	13	GND-N
N/C	29	12	GND-N
N/C	30	11	GND-N
GRN2-P	31	10	GND-N
RED2-P	32	9	GND-N
GRN1-P	33	8	GND-N
RED1-P	34	7	GND-N
RED.DIM-P	35	6	GND-N
LAT-P	36	5	GND-N
ROWSEL1-P	37	4	GND-N
ROWSEL0-P	38	3	GND-N
N/C	39	2	GND-N
N/C	40	1	GND-N

NOTES:

- WITH NO ADDRESS PINS SELECTED THE DRIVER WILL DEFAULT TO STANDARD PROTOCOL.
- RED LED DS1 WILL BE ON WHEN THE DRIVER IS RECEIVING CURRENT LOOP SIGNAL AND OFF WHEN THERE IS NO SIGNAL.
- GREEN LED DS2 WILL BE ON WHEN THE DRIVER TRANSMITS CURRENT LOOP SIGNAL.
- RED LED DS3 WILL BLINK WHEN THE DRIVER RECEIVES CAN SIGNAL.
- GREEN LED DS4 WILL BLINK WHEN THE DRIVER TRANSMITS CAN SIGNAL.
- IF BOTH DS3 AND DS4 ARE ON CONTINUOUSLY, THE CAN BUS IS IN AN ERROR STATE (NO CONNECTION TO CAN NETWORK).
- RED LED DS5 WILL BE ON WHEN THE DRIVER RECEIVES RS-232 SIGNAL.
- GREEN LED DS6 WILL BE ON WHEN THE DRIVER TRANSMITS RS-232 SIGNAL.
- GREEN LED DS7 INDICATES THAT THE DRIVER HAS POWER.

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DAKTRONICS, INC. BROOKINGS, SD 57006

REV.	DATE	DESCRIPTION	BY	APPR.
02	22 NOV 04	CHANGED NOTES RELATING TO LED FUNCTIONS.	AVB	
01	06 JUN 02	ADDED NEW NOTES ADDED LABELS TO LEDS	JJS	

PROJ:	TITLE: 8 COLUMN MASC LED DRIVER SPECIFICATIONS		
DES. BY:	DRAWN BY: JSPAHR	DATE: 16 MAY 02	
REVISION	APPR. BY:	1192-R07A-167237	
02	SCALE: 1=2		

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.

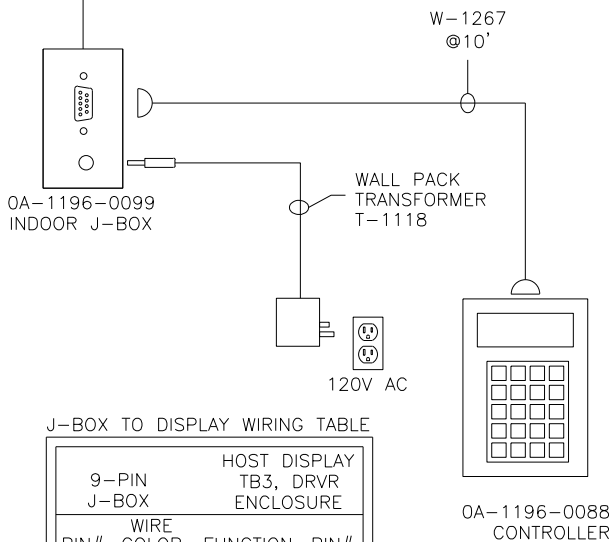
4-COND SIGNAL CABLE (W-1234)
RECOMMENDED WIRE SIZE: 18 TO 22 AWG.
PROVIDED BY INSTALLER, IN CONDUIT WHERE REQUIRED.

DATA TIME/MASTER DISPLAY
CLIENT DISPLAY

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

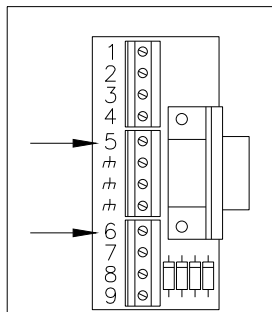
FOR PWR REQUIREMENTS,
REFER TO MANUAL.

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	



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

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	

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	<p>DAKTRONICS, INC. BROOKINGS, SD 57006 DO NOT SCALE DRAWING</p>	<p>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.</p>
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	<p>PROJ: DATATIME LED DISPLAYS</p>	
REV 02	DATE: 20-SEP-04	CHANGED PART NUMBER FOR LIGHT SENSOR	BY: JHF	<p>TITLE: RISER DIAGRAM- INDOOR WIRE CONTROL- DATA TIME/MAS.</p>	
REV 01	DATE: 13 MAR 03	ADDED J-BOX CIRCUIT BOARD PICTURE. CHANGED PART NUMBERS FOR LIGHT SENSOR AND TEMP SENSOR ASSEMBLIES.	BY: AVB	<p>DESIGN: SCALE: NONE</p>	<p>DRAWN: M MILLER DATE: 18 SEP 02</p>
				<p>SHEET 05</p>	<p>REV 05</p>
				<p>JOB NO: P1279</p>	<p>FUNC-TYPE-SIZE R-01-A</p>
				<p>175342</p>	

Modem Installation For Land Line

- 1.) Make sure power is off.
- 2.) Mount Modem on side of enclosure using supplied hardware.
- 3.) Plug in the RJ-45 cable end to J-6 on modem and the RJ-11 cable end into J-24 on driver.
- 4.) Plug in P3 (12VDC) to J3 on modem.
- 5.) Connect phone line to modem on J5 (RJ-11 jack) or wire to TB2, Tip and Ring inputs.
- 6.) Turn power on to display.

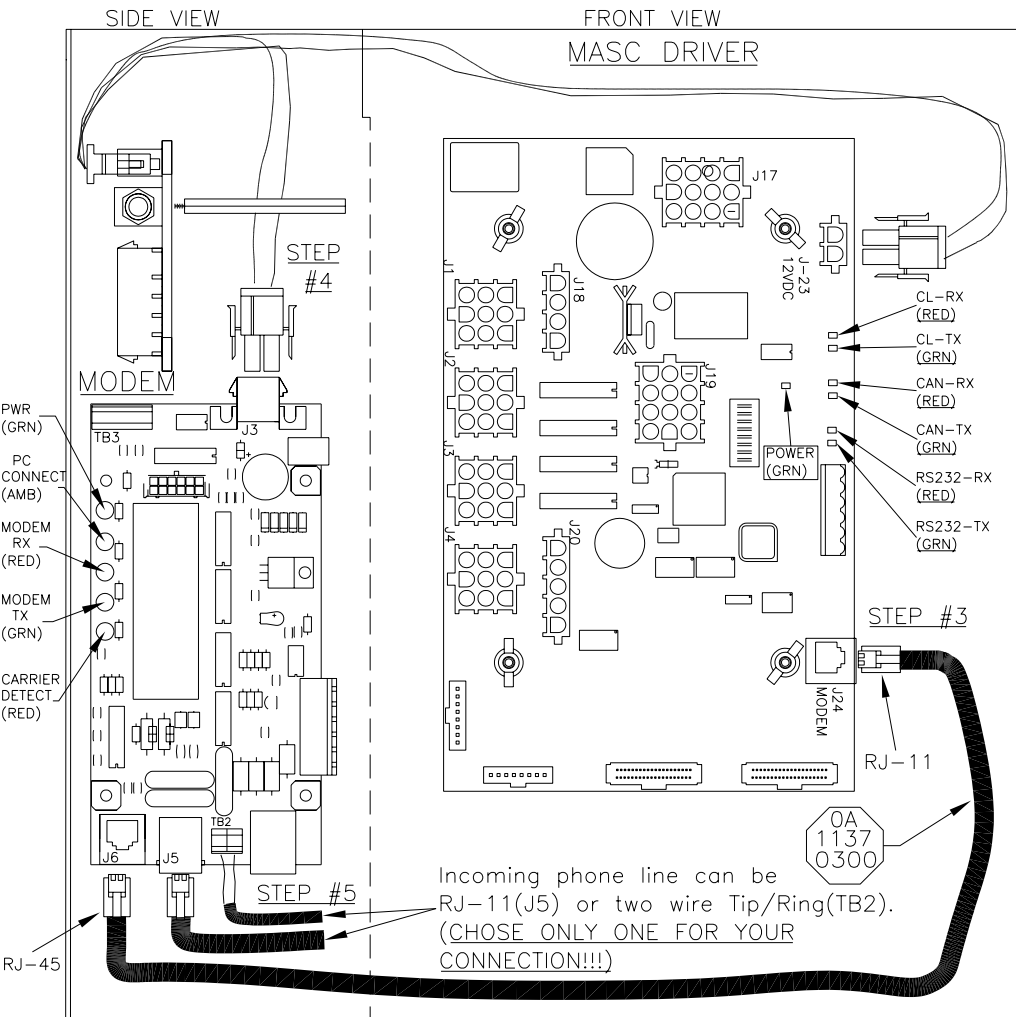
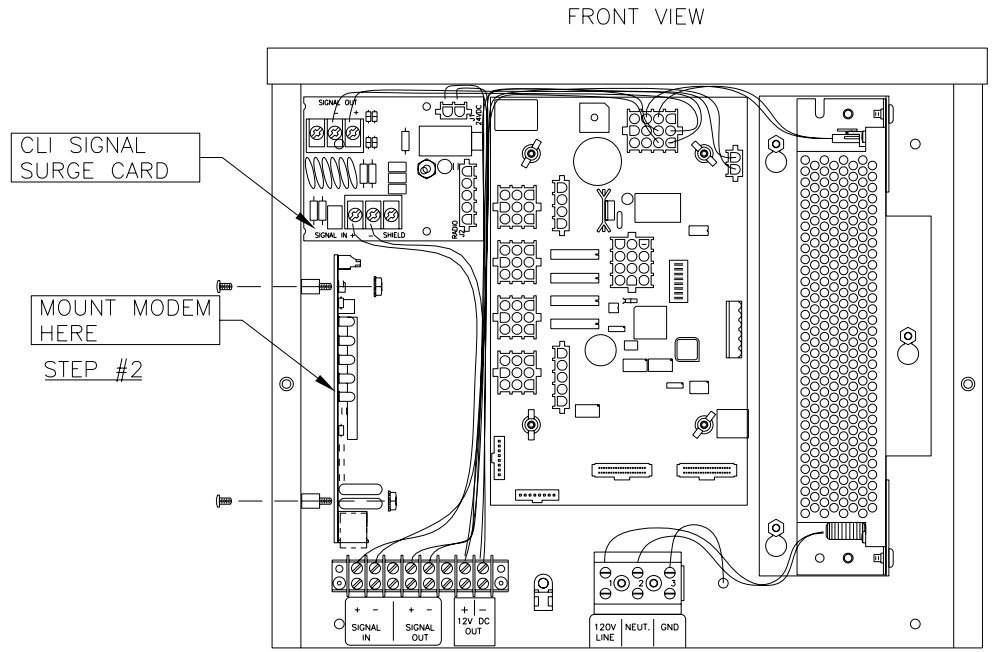
Land line Modem Status LEDs

- Power (Green) LED- ON when power is applied.
- Modem RX & TX LEDs - blink briefly after MASC driver power up initialization then remain off until dialup connection is made. When connection is made these LEDs blink when data is sent to and from the MASC driver via remote modem.
- Carrier Detect (Red LED)
This LED is on when remote modem is connected VIA the telephone network.
- PC Connect (AMB LED)
Not used in this configuration

MASC Driver Status LEDs

- Power LED - (Green LED) on when power is applied.
- RS232 RX- (Red LED) on when modem is connected. RS232 RX blinks off when RS232 TX is ON.
- RS232TX- (Green LED) should blink briefly during power up and stay off until dial-up connection is made. RS232 TX will blink when the driver responds to message sent through the modem and when the driver initializes the modem.

Refer ED-13694: Modem Connection and Troubleshooting Reference.



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DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: DATATIME LED DISPLAYS

TITLE: MODEM INSTALLATION; 4 COL MASC DRV. ENC. REFERENCE

DES. BY:

DRAWN BY: DDINING

DATE: 15 OCT 02

REVISION

APPR. BY:

01

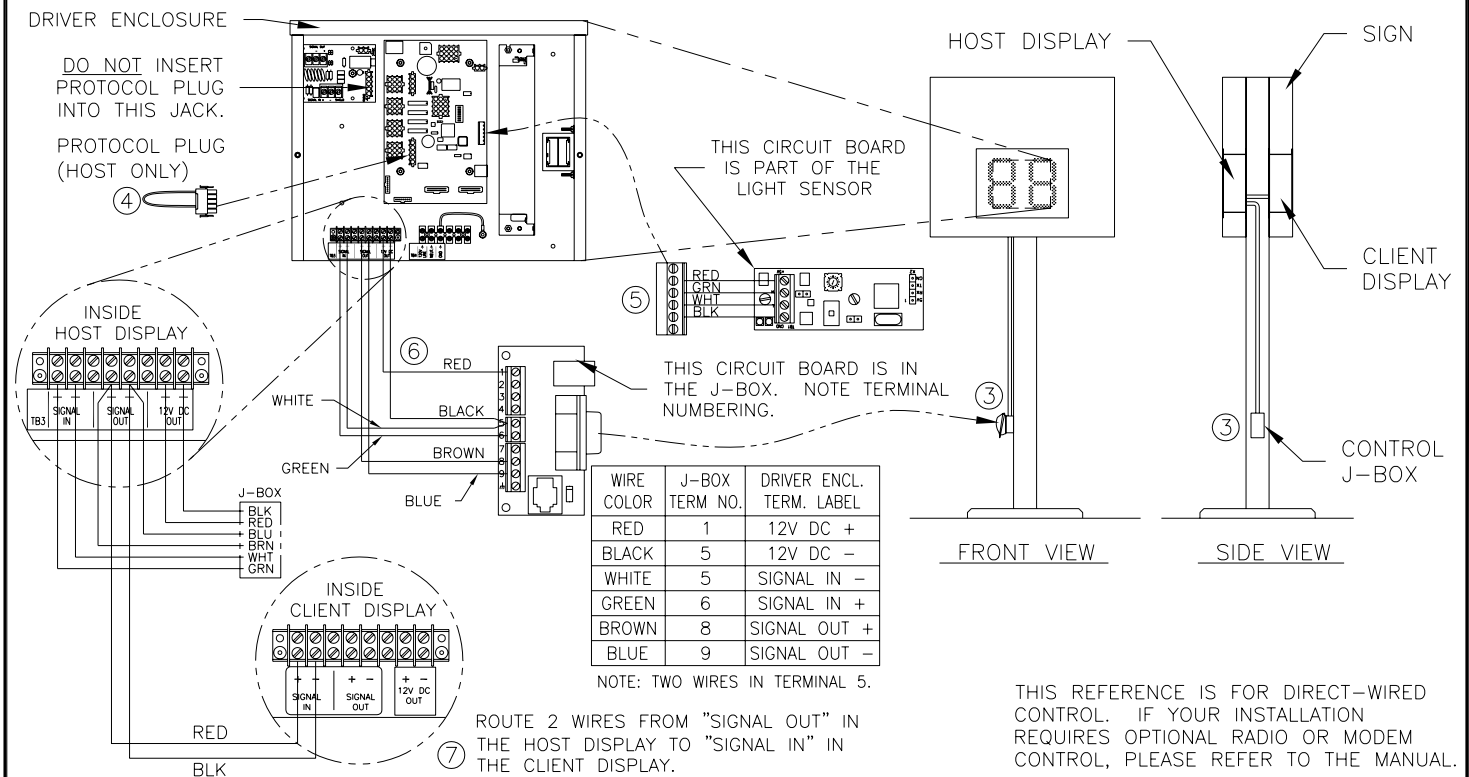
SCALE: 1=4

1279-R10A-177039

REV.	DATE	DESCRIPTION	BY	APPR.
01	24 JUL 03	CHANGED CABLE TO 0A-1137-0300	JJC	DMW

BASIC INSTALLATION PROCEDURE (SOME STEPS ARE INDICATED BY CIRCLED NUMBERS ON THE DRAWING)

1. MOUNT THE DISPLAY TO THE STRUCTURE OR GREATER SIGN.
2. PROVIDE 120V AC POWER TO THE SIGN. EACH DISPLAY SECTION WILL REQUIRE POWER. CONNECT 120V AC POWER WIRES TO THE POWER TERMINALS IN THE DRIVER ENCLOSURE OF EACH DISPLAY.
3. MOUNT THE CONTROL J-BOX NEAR THE BOTTOM OF A SUPPORT POLE, OR INSTALL THE INDOOR J-BOX INSIDE THE BUILDING.
4. IF MORE THAN ONE DISPLAY IS INSTALLED IN THE SIGN, SELECT WHICH DISPLAY IS TO BE THE HOST BY INSERTING THE 5-PIN "PROTOCOL 4" PLUG INTO THE MATING JACK (J20) ON THE DRIVER. IF THERE IS ONLY ONE DISPLAY, IT IS TO BE SET UP TO BE A HOST. ANY OTHER DISPLAYS ON THE SIGN ARE CLIENTS. DO NOT INSTALL A PROTOCOL PLUG IN THE DRIVER IN A CLIENT DISPLAY.
5. MOUNT THE LIGHT SENSOR INSIDE THE HOST DISPLAY'S FACE PANEL, AND CONNECT THE SENSOR'S CABLE TO THE 6-PIN JACK IN THE DRIVER ENCLOSURE.
6. ROUTE SIGNAL CABLE (6 COND, 18 AWG) IN CONDUIT FROM THE CONTROL J-BOX TO THE SIGN AND CONNECT TO THE TERMINALS IN THE HOST DISPLAY. CONNECT TO "SIGNAL IN", "SIGNAL OUT", AND "12V DC OUT" TERMINALS. NOTE: THE "12V DC OUT" TERMINALS ARE NOT USED WITH THE INDOOR J-BOX.
7. ROUTE SIGNAL WIRES (1 PAIR, 22 AWG) FROM THE HOST DISPLAY TO THE CLIENT DISPLAY(S). CONNECT FROM "SIGNAL OUT" ON THE HOST TO "SIGNAL IN" ON THE FIRST CLIENT. FOR ADDITIONAL CLIENT DISPLAYS, CONNECT "SIGNAL OUT" ON THE FIRST CLIENT TO "SIGNAL IN" ON THE NEXT CLIENT, AND SO ON UNTIL ALL CLIENTS ARE CONNECTED.
8. TURN ON THE POWER TO THE SIGN. THE DISPLAY WILL GO THROUGH A SELF-TEST CYCLE AND THEN THE MESSAGE "E4" SHOULD SHOW ON THE DIGITS OF THE HOST DISPLAY. THIS MEANS THAT NO DATA HAS BEEN LOADED INTO THE DISPLAY FROM THE CONTROLLER.
9. CONNECT THE DATAMASTER 100 CONTROLLER TO THE J-BOX AND SELECT THE "RATE DISPLAY" OPTION. OPERATE THE CONTROLLER ACCORDING TO THE RATE DISPLAY QUICK START REFERENCE, ED-13691, TO SET THE RATE DATA AND SEQUENCE. DISCONNECT THE CONTROLLER AND CLOSE THE J-BOX WHEN PROGRAMMING IS COMPLETE.



REV.	DATE	DESCRIPTION	BY	APPR.
05	23 SEP 08	SWAPPED SIGNAL IN + AND - ON DRIVER ENCL AND IN THE TABLE.	AVB	
04	30 NOV 07	CORRECTED J-BOX WIRE COLORS.	AVB	
03	08 JAN 07	UPDATED J-BOX PCB. ADDED WIRING TABLE.	AVB	
02	06 APR 05	CHANGED STEP 6, ADDED WIRES TO VIEW.	ATP	
01	21 NOV 02	ADDED TERMINAL NUMBERING ON J-BOX CARD	AVB	

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DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: **DATAMASTER LED DISPLAYS**

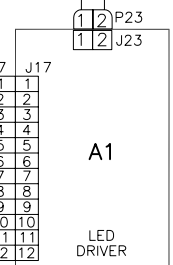
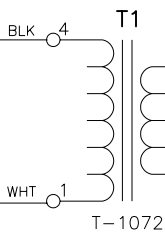
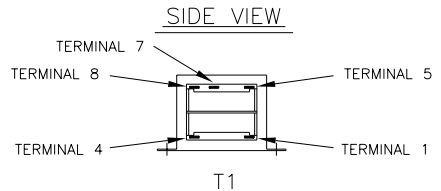
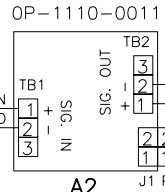
TITLE: **QUICK INSTALL- DF-1030 AND DF-1040 RATE DISPLAYS**

DES. BY: **AVB** DRAWN BY: **A VANBEMMEL** DATE: **21 OCT 02**

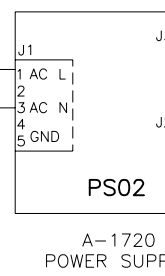
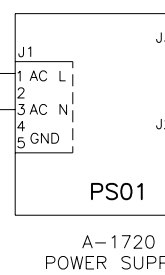
REVISION: **05** APPR. BY: _____ SCALE: **NONE**

1279-R04A-177150

LANDLINE MODEM
OP-1279-0003
COATED MODEM
(INSTALL OPTION)



16 COL. DRIVER
OP-1192-0085
NON-COATED DRIVER
OP-1192-0086
COATED DRIVER



NOTES:
ALL CONDUCTORS ARE 18AWG.

0A-1279-0177
MULTI PURPOSE HARNESS ASSY.

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REV.	DATE	DESCRIPTION	BY	APPR.
03	17 DEC 03	CHANGED WIRE COLORS OF T1 CONNECTIONS. ADDED SIDE VIEW OF T1.	JBS	
02	30 APR 03	ADDED T1, FOR TIMING.	TAS	MWM
01	14 JAN 03	CHANGED THE BLU TEXT TO RED ON TB3 CONNECTOR	CME	

DAKTRONICS, INC. BROOKINGS, SD 57006

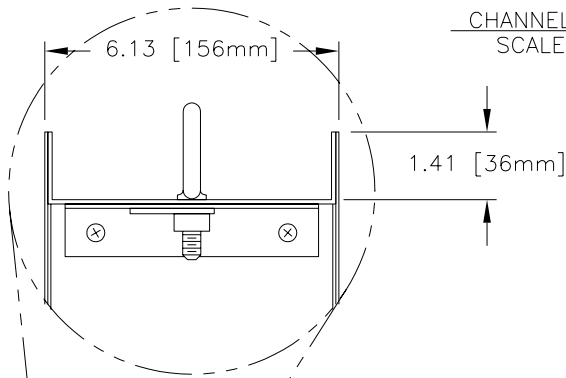
PROJ: DATA TIME LED DISPLAYS

TITLE: SCHEMATIC; 16 COL MULTIPURPOSE LED DRVR

DES. BY: MMILLER DRAWN BY: NBOWERS DATE: 05DEC02

REVISION 03 APPR. BY: SCALE: 1=1

1279-R03A-179599

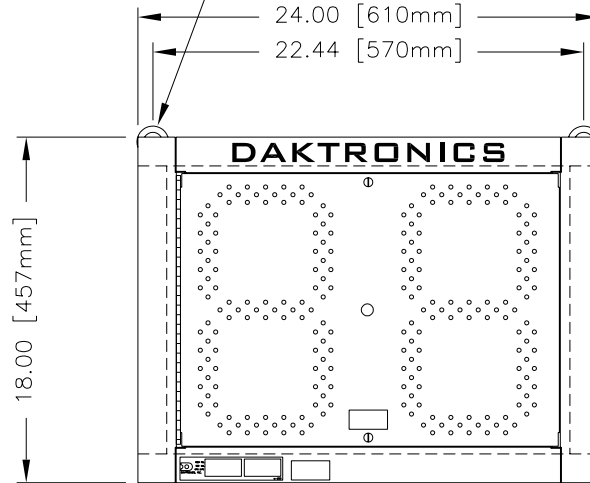


CHANNEL DETAIL
SCALE 1=4

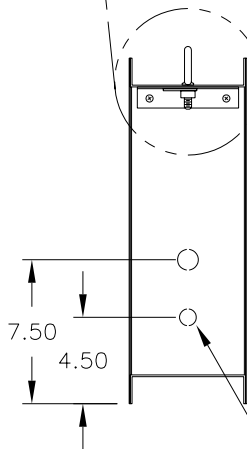
DIMENSIONS TYPICAL TOP,
BOTTOM, AND SIDES

TOP AND BOTTOM CHANNELS ARE FORMED 0.090" ALUMINUM SHEET.
FRONT, BACK, AND SIDE MEMBERS ARE 0.063" ALUMINUM SHEET.

LIFT EYES FOR USE DURING INSTALLATION AND ARE NOT FOR PERMANENT SUSPENSION



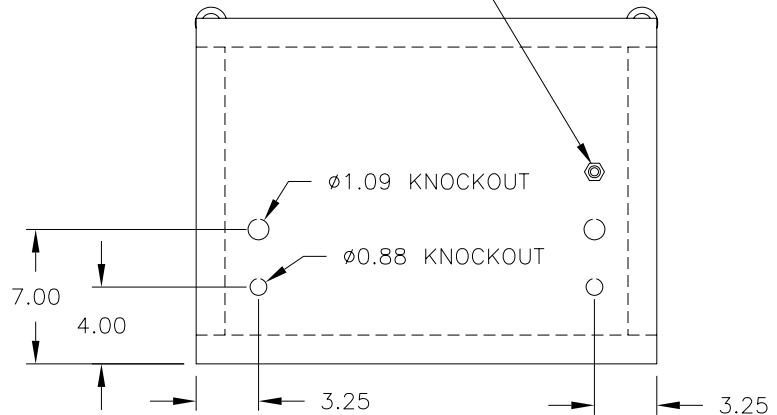
FRONT VIEW



SIDE VIEW

KNOCKOUTS IN SIDES AND REAR FOR USE WITH 1/2" AND 3/4" CONDUIT

CONNECTOR FOR OPTIONAL MODEM OR RADIO



REAR VIEW

ESTIMATED WEIGHT: 20 LB [9 KG]

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DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: DATA TIME LED DISPLAYS

TITLE: MECHANICAL SPECS, DF-1030-13, G3

DES. BY: AVB

DRAWN BY: AGIBSON

DATE: 09 JAN 03

REVISION

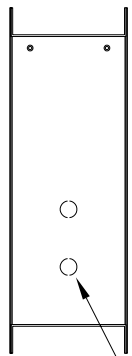
APPR. BY:

02

SCALE: 1=10

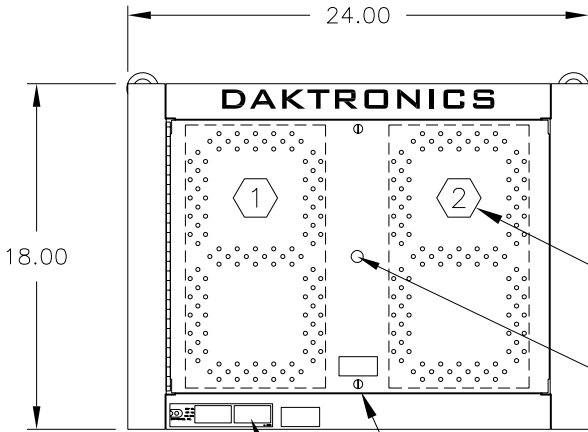
1279-R04A-181237

REV.	DATE	DESCRIPTION	BY	APPR.
02	01 JUN 05	UPDATED DIGIT PANEL PER DESIGN CHANGES.	MGL	
01	01 APR 04	ADJUSTED BACK SHEET AND SIDE CHANNELS PER DESIGN CHANGES.	MGL	



SIDE VIEW

KNOCKOUTS IN SIDES AND BACK FOR USE WITH 1/2" AND 3/4" CONDUIT



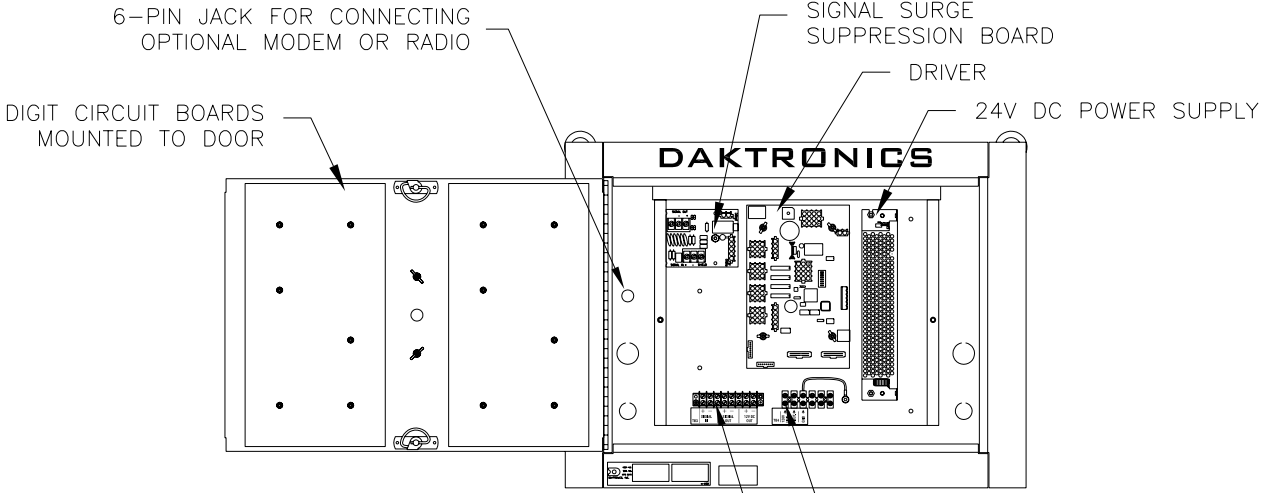
FRONT VIEW

NUMBER IN DIGIT INDICATES WHICH DRIVER CONNECTOR IS WIRED TO THAT DIGIT

REMOVE THE PLASTIC PLUG AND INSTALL THE LIGHT SENSOR HERE.

REMOVE THESE SCREWS TO GAIN ACCESS TO INTERNAL COMPONENTS.

LOOK HERE FOR MODEL NUMBER AND POWER REQUIREMENT



FRONT VIEW WITH DOOR OPEN AND DRIVER COVER REMOVED (WIRES NOT SHOWN)

CONNECT 120V AC POWER HERE

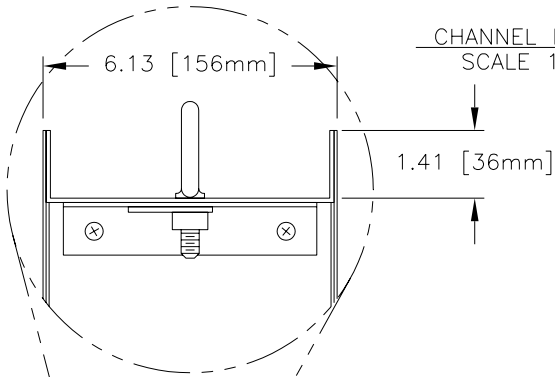
CONNECT SIGNAL INPUT HERE

ELECTRICAL REQUIREMENT:
120V AC, 15 AMP CIRCUIT

MAX. POWER CONSUMPTION IS 150 WATTS.

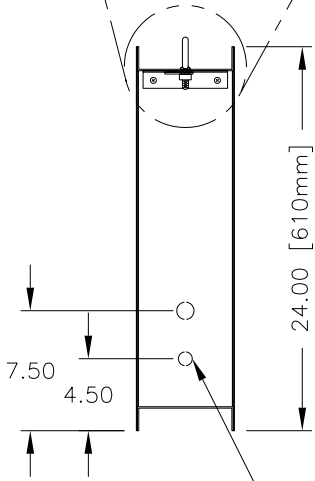
THE CONCEPTS EXPRESSED AND DETAILS SHOWN ON THIS DRAWING ARE CONFIDENTIAL AND PROPRIETARY. DO NOT REPRODUCE BY ANY MEANS, INCLUDING ELECTRONICALLY WITHOUT THE EXPRESSED WRITTEN CONSENT OF DAKTRONICS, INC. COPYRIGHT 2002 DAKTRONICS, INC.			
DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ: DATA TIME LED DISPLAYS			
TITLE: ELECTRICAL SPECS, DF-1030-13, G3			
DES. BY: AVB		DRAWN BY: AGIBSON	
		DATE: 09 JAN 03	
REVISION	APPR. BY:	1279-R04A-181238	
01	SCALE: 1=10		

01	01 JUN 05	UPDATED DIGIT PANEL PER DESIGN CHANGES.	MGL	
REV.	DATE	DESCRIPTION	BY	APPR.

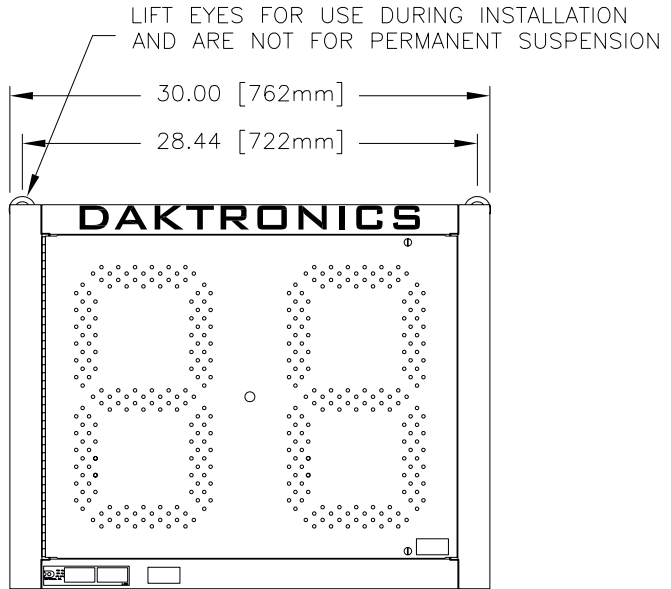


DIMENSIONS TYPICAL TOP,
BOTTOM, AND SIDES

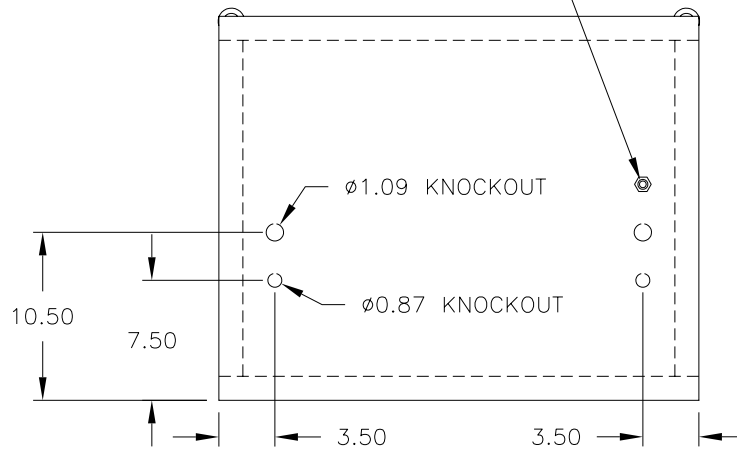
TOP AND BOTTOM CHANNELS ARE FORMED 0.090"
ALUMINUM SHEET.
FRONT, BACK AND SIDE MEMBERS ARE 0.063"
ALUMINUM SHEET.



KNOCKOUTS IN SIDES AND REAR
FOR USE WITH 1/2" AND 3/4" CONDUIT



CONNECTOR FOR OPTIONAL MODEM OR RADIO



ESTIMATED WEIGHT: 30 LB. [14 KG]

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DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: DATA TIME LED DISPLAYS

TITLE: MECHANICAL SPECS, DF-1030-18, G3

DES. BY: AVB

DRAWN BY: AGIBSON

DATE: 09 JAN 03

REVISION

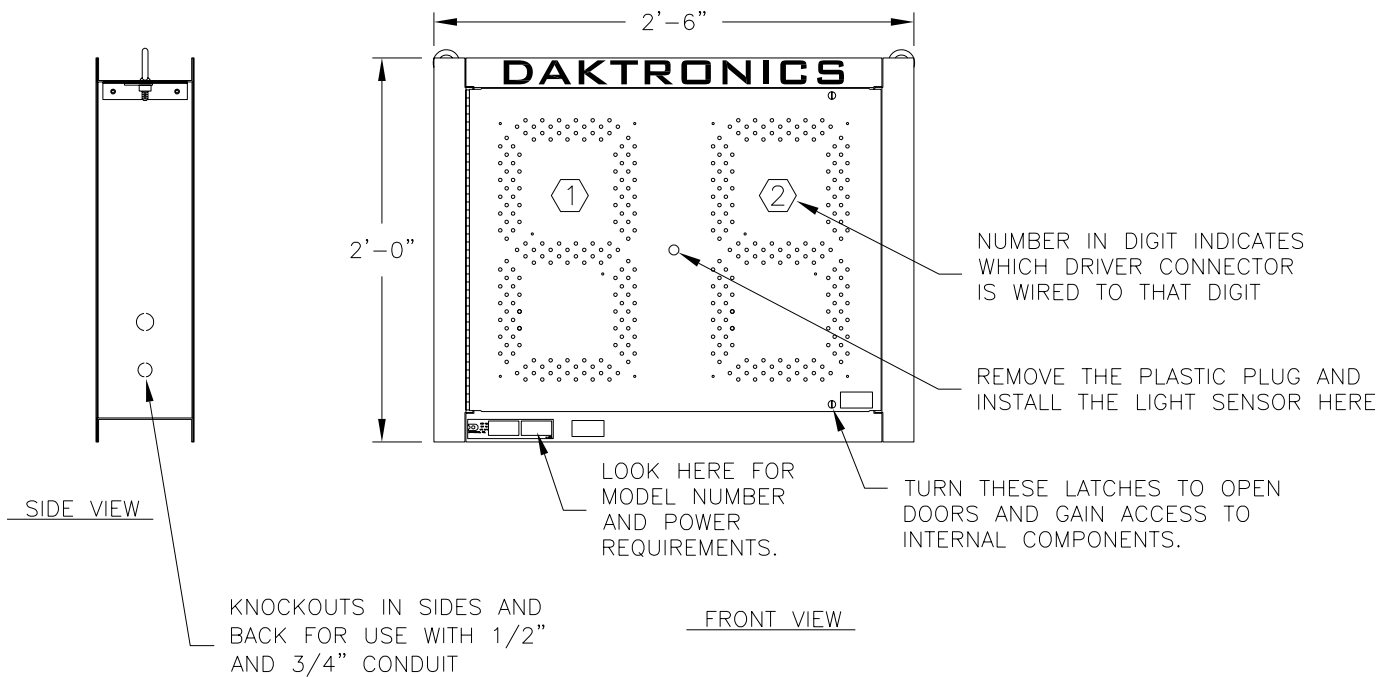
APPR. BY:

02

SCALE: 1=12

1279-R04A-181239

REV.	DATE	DESCRIPTION	BY	APPR.
02	09 JUN 05	UPDATED DIGIT PANELS PER DESIGN CHANGES.	MGL	
01	01 APR 04	ADJUSTED BACK SHEET AND SIDE CHANNELS PER DESIGN CHANGES.	MGL	

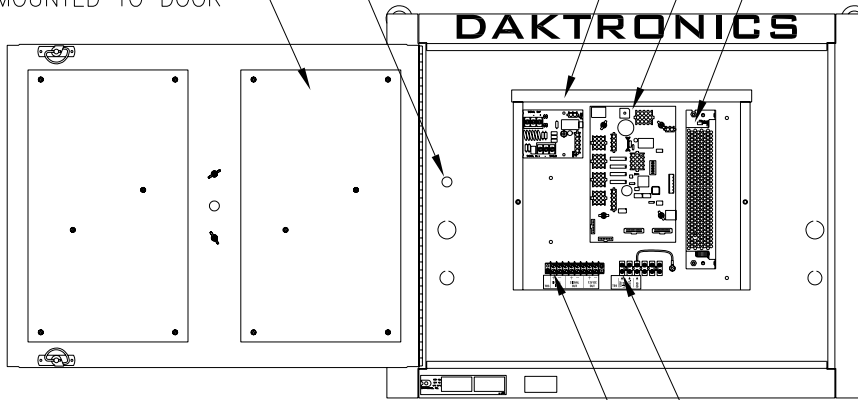


6-PIN JACK FOR CONNECTING
OPTIONAL MODEM OR RADIO

DIGIT CIRCUIT BOARDS
MOUNTED TO DOOR

SIGNAL SURGE
SUPPRESSION BOARD
DRIVER

24V DC POWER SUPPLY



ELECTRICAL REQUIREMENT:
120V AC, 15 AMP CIRCUIT

MAX. POWER CONSUMPTION
IS 150 WATTS.

FRONT VIEW
WITH DOOR OPEN AND
DRIVER COVER REMOVED

CONNECT 120V AC POWER HERE

CONNECT SIGNAL INPUT HERE

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: DATA TIME LED DISPLAYS

TITLE: ELECTRICAL SPECS, DF-1030-18, G3

DES. BY: AVB

DRAWN BY: AGIBSON

DATE: 09 JAN 03

REVISION

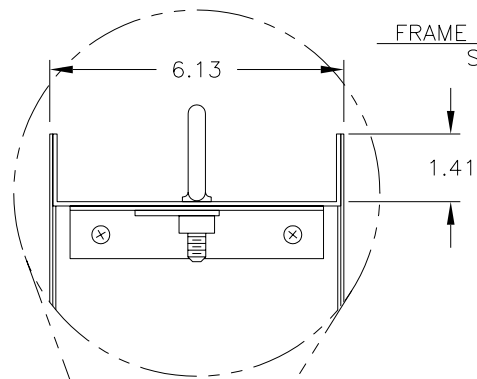
APPR. BY:

01

SCALE: 1=12

1279-R04A-181242

REV.	DATE	DESCRIPTION	BY	APPR.
01	09 JUN 05	UPDATED DIGIT PANEL PER DESIGN CHANGES. ADDED REAR VIEW OF DIGIT PANEL.	MGL	

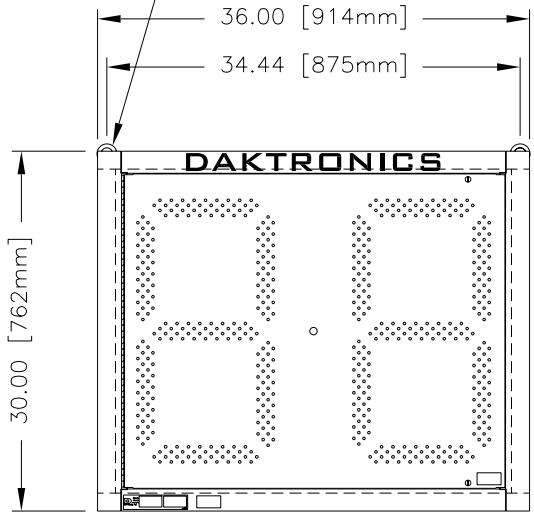


FRAME CHANNEL DETAIL
SCALE 1=4

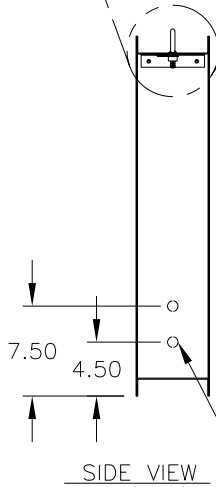
DIMENSIONS TYPICAL TOP,
BOTTOM, AND SIDES

TOP AND BOTTOM CHANNELS ARE FORMED 0.090" ALUMINUM SHEET.
FRONT, BACK, AND SIDE MEMBERS ARE 0.063" ALUMINUM SHEET.

EYEBOLTS IN THE TOP FOR LIFTING DURING INSTALLATION AND ARE NOT FOR PERMANENT SUSPENSION

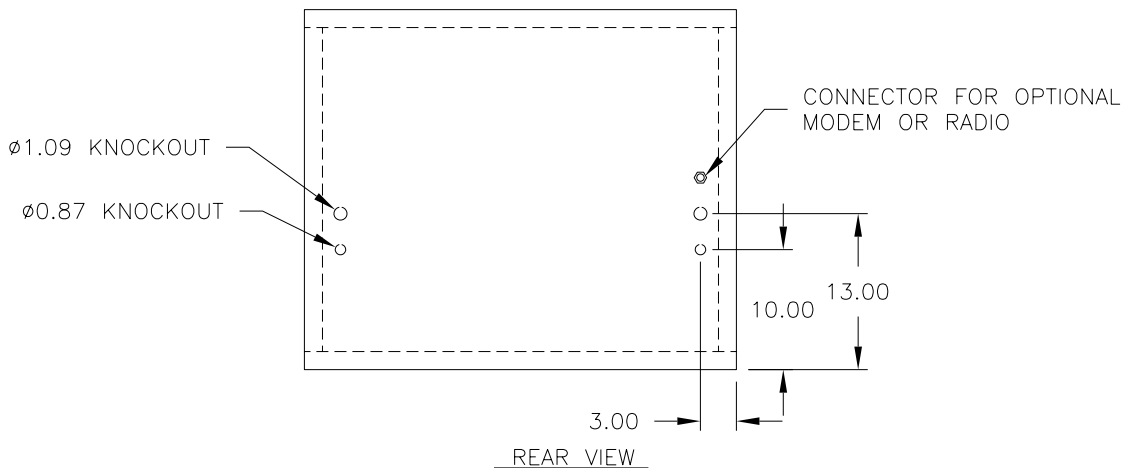


FRONT VIEW



SIDE VIEW

KNOCKOUTS IN SIDES AND REAR FOR USE WITH 1/2" AND 3/4" CONDUIT



REAR VIEW

APPROXIMATE WEIGHT: 45 LB. [20 KG]

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DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: DATA TIME LED DISPLAYS

TITLE: MECHANICAL SPECS, DF-1030-24, G3

DES. BY: AVB

DRAWN BY: AGIBSON

DATE: 09 JAN 03

REVISION

APPR. BY:

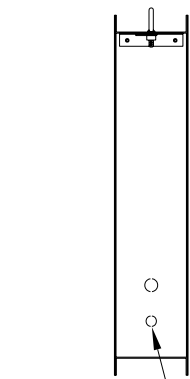
SCALE: 1=16

1279-R04A-181243

REV.	DATE	DESCRIPTION	BY	APPR.
02	14 JUN 05	UPDATED DIGIT PANELS PER DESIGN CHANGES.	MGL	
01	01 APR 04	ADJUSTED BACK SHEET AND SIDE CHANNELS PER DESIGN CHANGES.	MGL	

REMOVE PLASTIC PLUG AND
INSTALL LIGHT SENSOR HERE

TURN LATCHES TO OPEN THE
DOOR AND GAIN ACCESS TO
INTERNAL COMPONENTS

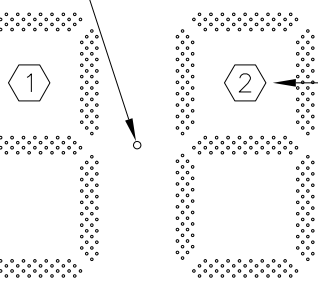


SIDE VIEW

2'-6"

3'-0"

DAKTRONICS



THE NUMBERS IN THE DIGITS
INDICATE DIGIT TO DRIVER
ASSIGNMENTS

KNOCKOUTS IN
SIDES AND BACK
OR 1/2" AND
3/4" CONDUIT

LOOK HERE FOR
MODEL NUMBER
AND POWER
REQUIREMENTS

DIGIT CIRCUIT BOARDS
MOUNTED TO DOOR

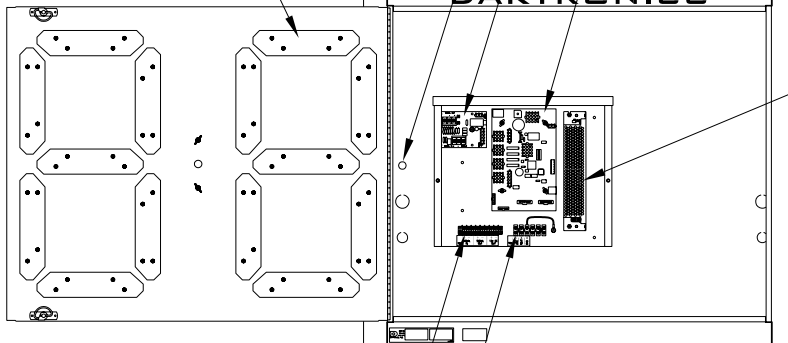
6-PIN JACK FOR CONNECTING
OPTIONAL MODEM OR RADIO

SIGNAL SURGE SUPPRESSION BOARD

DRIVER

DAKTRONICS

24V DC
POWER SUPPLY



FRONT VIEW

WITH DOOR OPEN AND
DRIVER COVER REMOVED
(WIRES NOT SHOWN)

CONNECT SIGNAL INPUT HERE

CONNECT 120V AC POWER HERE

ELECTRICAL REQUIREMENT:
120V AC, 15 AMP CIRCUIT

MAX. POWER CONSUMPTION
IS 150 WATTS.

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: DATA TIME LED DISPLAYS

TITLE: ELECTRICAL SPECS, DF-1030-24, G3

DES. BY: AVB

DRAWN BY: AGIBSON

DATE: 09 JAN 03

REVISION

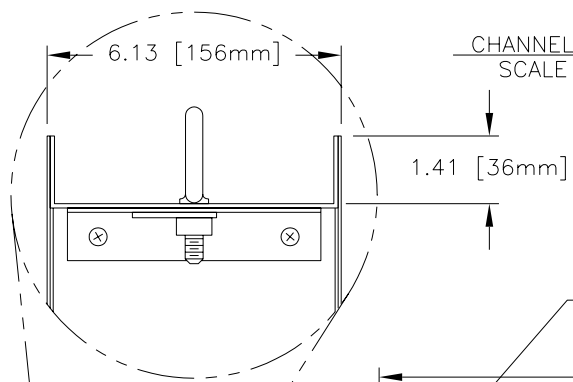
APPR. BY:

01

SCALE: 1=16

1279-R04A-181247

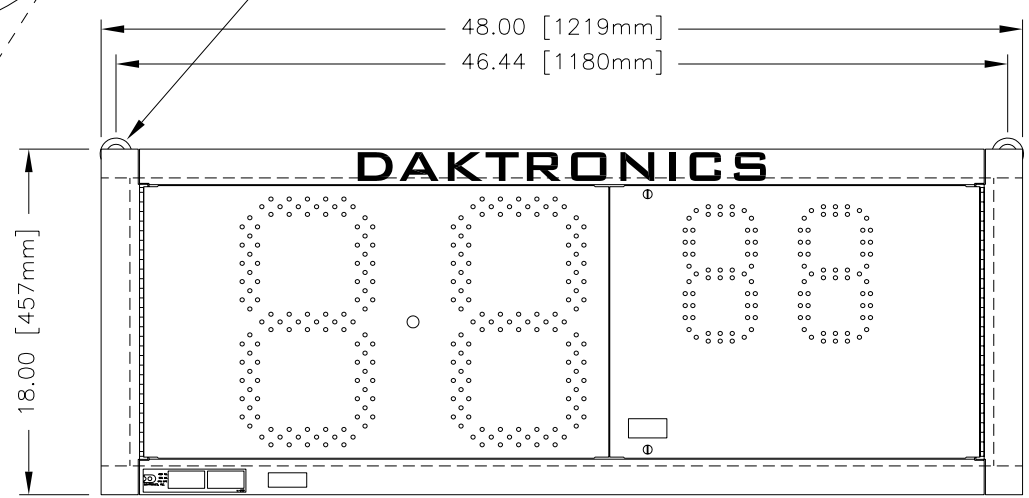
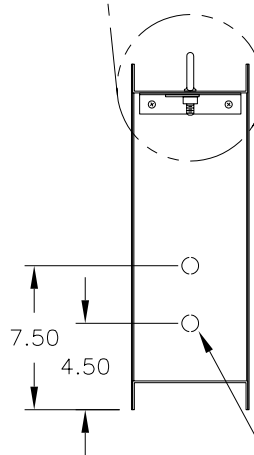
REV.	DATE	DESCRIPTION	BY	APPR.
01	14 JUN 05	UPDATED DIGIT PANELS PER DESIGN CHANGES. ADDED REAR VIEW OF DIGIT PANEL.	MGL	



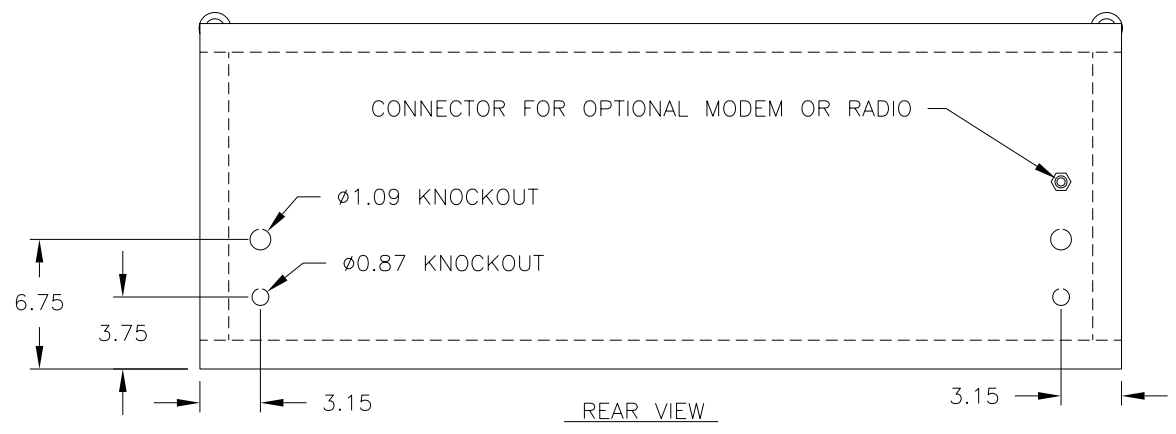
DIMENSIONS TYPICAL TOP,
BOTTOM, AND SIDES

TOP AND BOTTOM CHANNELS ARE FORMED 0.090" ALUMINUM SHEET.
FRONT, BACK, AND SIDE MEMBERS ARE 0.063" ALUMINUM SHEET.

LIFT EYES FOR TEMPORARY USE DURING INSTALLATION AND ARE NOT FOR PERMANENT SUSPENSION



KNOCKOUTS IN SIDES AND REAR FOR USE WITH 1/2" AND 3/4" CONDUIT



ESTIMATED WEIGHT: 36 LB [16 KG]

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DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: DATA TIME LED DISPLAYS

TITLE: MECHANICAL SPECS, DF-1040-13, G3

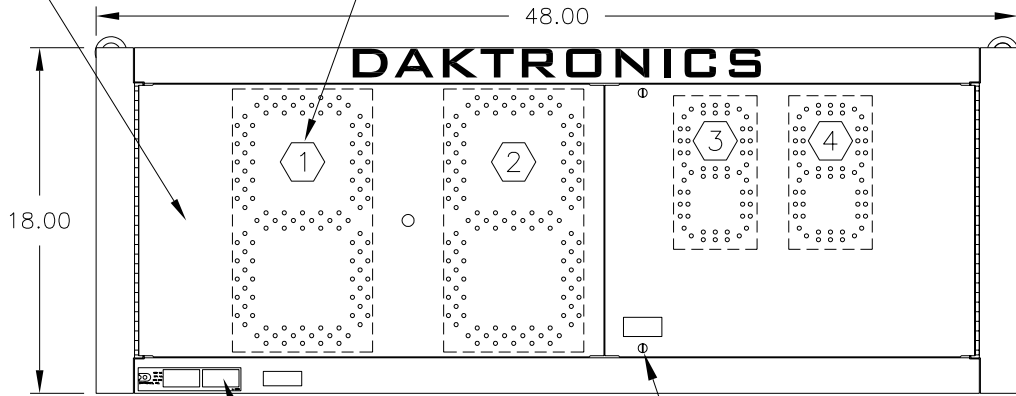
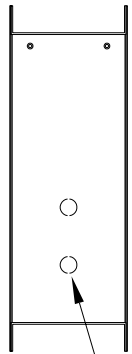
DES. BY: AVB DRAWN BY: AGIBSON DATE: 09 JAN 03

REVISION 02 APPR. BY: SCALE: 1=10 1279-R04A-181249

REV.	DATE	DESCRIPTION	BY	APPR.
02	01 JUN 05	UPDATED DIGIT PANELS PER DESIGN CHANGES.	MGL	
01	01 APR 04	ADJUSTED BACK SHEET AND SIDE CHANNELS PER DESIGN CHANGES.	MGL	

REMOVE THE PLASTIC PLUG AND INSTALL THE LIGHT SENSOR HERE

NUMBERS INDICATE DIGIT TO DRIVER ASSIGNMENT.



SIDE VIEW

FRONT VIEW

KNOCKOUTS IN SIDES AND BACK FOR 1/2" AND 3/4" CONDUIT

LOOK HERE FOR MODEL NUMBER AND POWER REQUIREMENTS.

TURN THESE LATCHES TO OPEN DOORS AND GAIN ACCESS TO INTERNAL COMPONENTS.

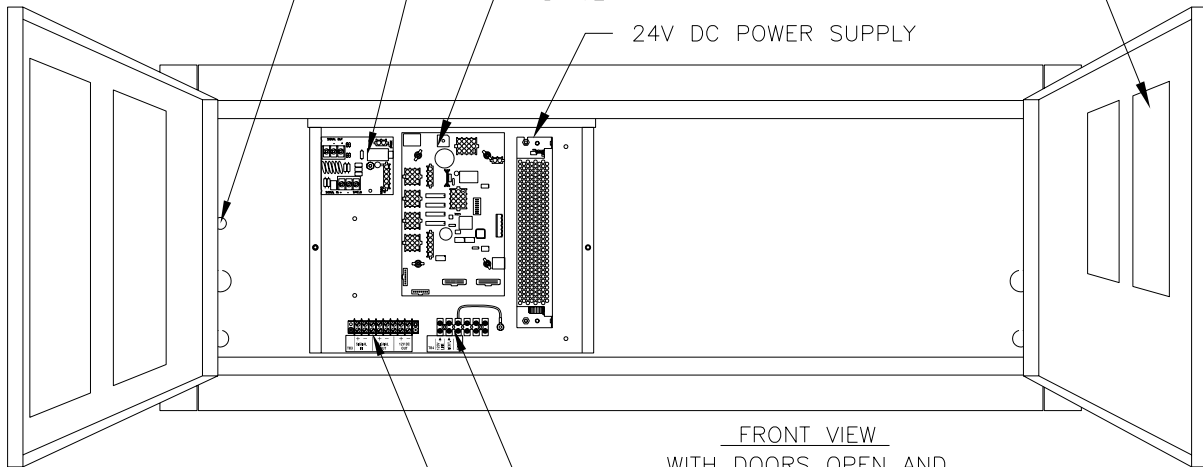
6-PIN JACK FOR CONNECTING OPTIONAL MODEM OR RADIO

SIGNAL SURGE SUPPRESSION BOARD

DIGIT CIRCUIT BOARDS MOUNTED TO DOORS

DRIVER

24V DC POWER SUPPLY



FRONT VIEW

WITH DOORS OPEN AND DRIVER COVER REMOVED (WIRES NOT SHOWN)

ELECTRICAL REQUIREMENT: 120V AC, 15 AMP CIRCUIT

MAX. POWER CONSUMPTION IS 150 WATTS.

CONNECT 120V AC POWER HERE

CONNECT SIGNAL INPUT HERE

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: DATATIME LED DISPLAYS

TITLE: ELECTRICAL SPECS, DF-1040-13, G3

DES. BY: AVB

DRAWN BY: AGIBSON

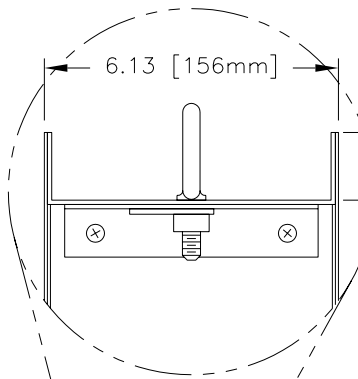
DATE: 09 JAN 03

REV.	DATE	DESCRIPTION	BY	APPR.
01	01 JUN 05	UPDATED DIGIT PANELS PER DESIGN CHANGES.	MGL	

REVISION 01

APPR. BY:
SCALE: 1=10

1279-R04A-181250

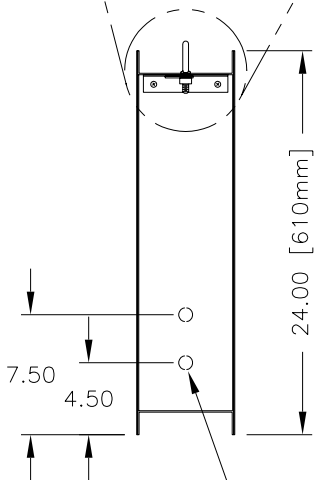


CHANNEL DETAIL
SCALE 1=4

DIMENSIONS TYPICAL TOP,
BOTTOM, AND SIDES

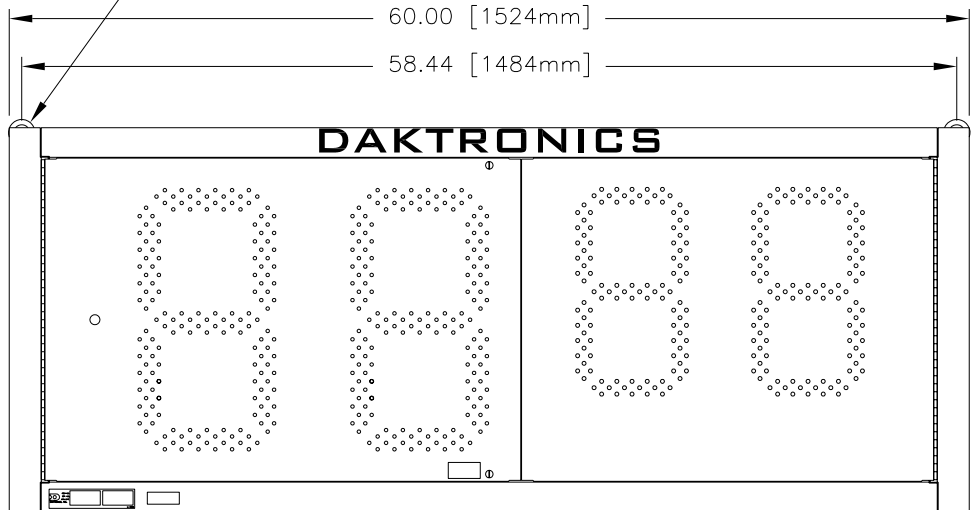
TOP AND BOTTOM CHANNELS ARE FORMED 0.090"
ALUMINUM SHEET.
FRONT, BACK, AND SIDE MEMBERS ARE 0.063"
ALUMINUM SHEET.

LIFT EYES FOR USE DURING INSTALLATION
AND ARE NOT FOR PERMANENT SUSPENSION

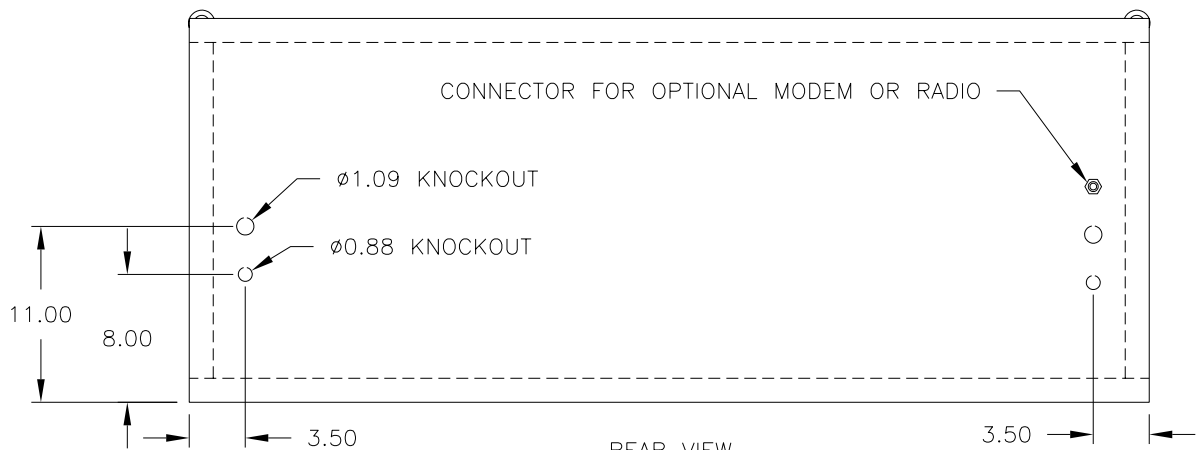


SIDE VIEW

KNOCKOUTS IN SIDES AND
REAR FOR USE WITH 1/2"
AND 3/4" CONDUIT FITTINGS



FRONT VIEW



REAR VIEW

ESTIMATED WEIGHT: 60 LB. [27 KG]

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DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: DATA TIME LED DISPLAYS

TITLE: MECHANICAL SPECS, DF-1040-18, G3

DES. BY: AVB

DRAWN BY: AGIBSON

DATE: 09 JAN 03

REVISION

APPR. BY:

02

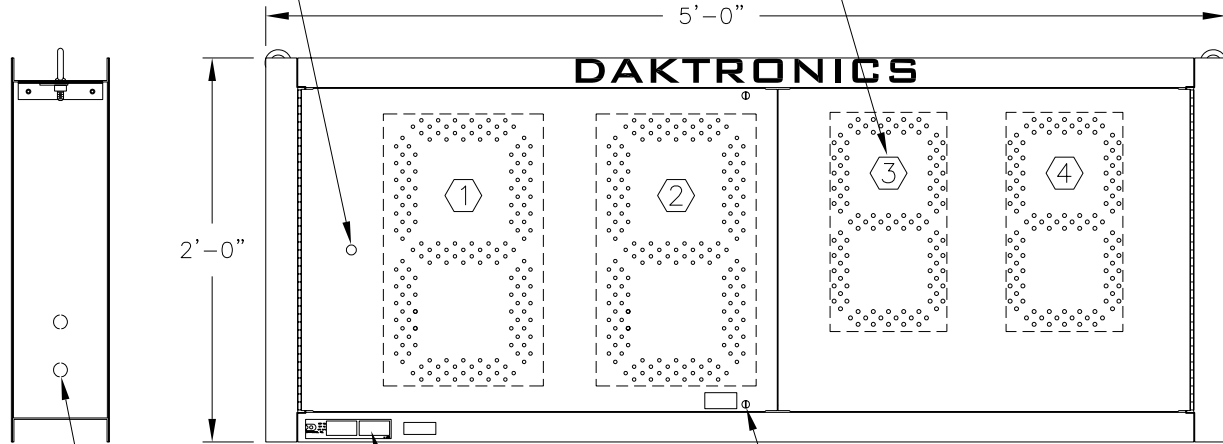
SCALE: 1=12

1279-R04A-181251

REV.	DATE	DESCRIPTION	BY	APPR.
02	09 JUN 05	UPDATED DIGIT PANELS PER DESIGN CHANGES.	MGL	
01	01 APR 04	ADJUSTED BACK SHEET AND SIDE CHANNELS PER DESIGN CHANGES.	MGL	

REMOVE THE PLASTIC PLUG AND INSTALL THE LIGHT SENSOR HERE

NUMBERS IN THE DIGITS INDICATE WHICH DRIVER CONNECTION THEY ARE WIRED TO.



SIDE VIEW

LOOK HERE FOR MODEL NUMBER AND POWER REQUIREMENTS.

TURN THE LATCHES TO OPEN DOORS AND GAIN ACCESS TO INTERNAL COMPONENTS.

KNOCKOUTS IN SIDES AND BACK FOR 1/2" AND 3/4" CONDUIT

FRONT VIEW

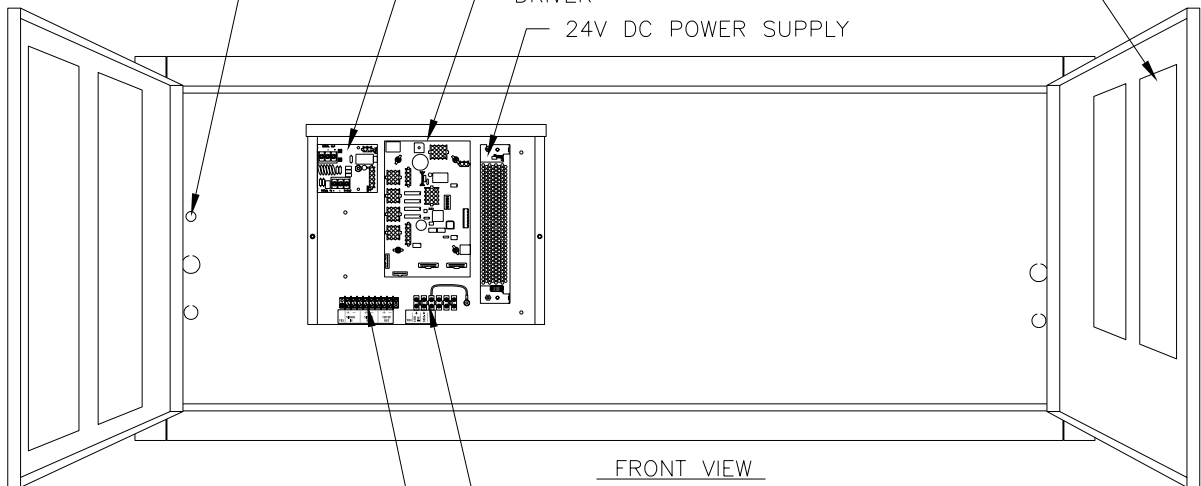
6-PIN JACK FOR CONNECTING OPTIONAL MODEM OR RADIO

SIGNAL SURGE SUPPRESSION BOARD

DIGIT CIRCUIT BOARDS MOUNTED TO DOORS

DRIVER

24V DC POWER SUPPLY



FRONT VIEW WITH DOORS OPEN AND DRIVER COVER REMOVED (WIRES NOT SHOWN)

ELECTRICAL REQUIREMENT: 120V AC, 15 AMP CIRCUIT

MAX. POWER CONSUMPTION IS 150 WATTS.

CONNECT 120V AC POWER HERE

CONNECT SIGNAL INPUT HERE

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: DATATIME LED DISPLAYS

TITLE: ELECTRICAL SPECS, DF-1040-18, G3

DES. BY: AVB

DRAWN BY: AGIBSON

DATE: 09 JAN 03

REV.	DATE	DESCRIPTION	BY	APPR.
01	09 JUN 05	UPDATED DIGIT PANELS PER DESIGN CHANGES.	MGL	

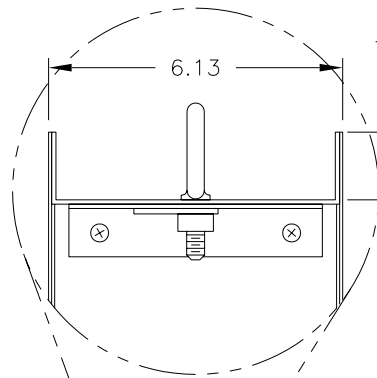
REVISION

APPR. BY:

01

SCALE: 1=12

1279-R04A-181252

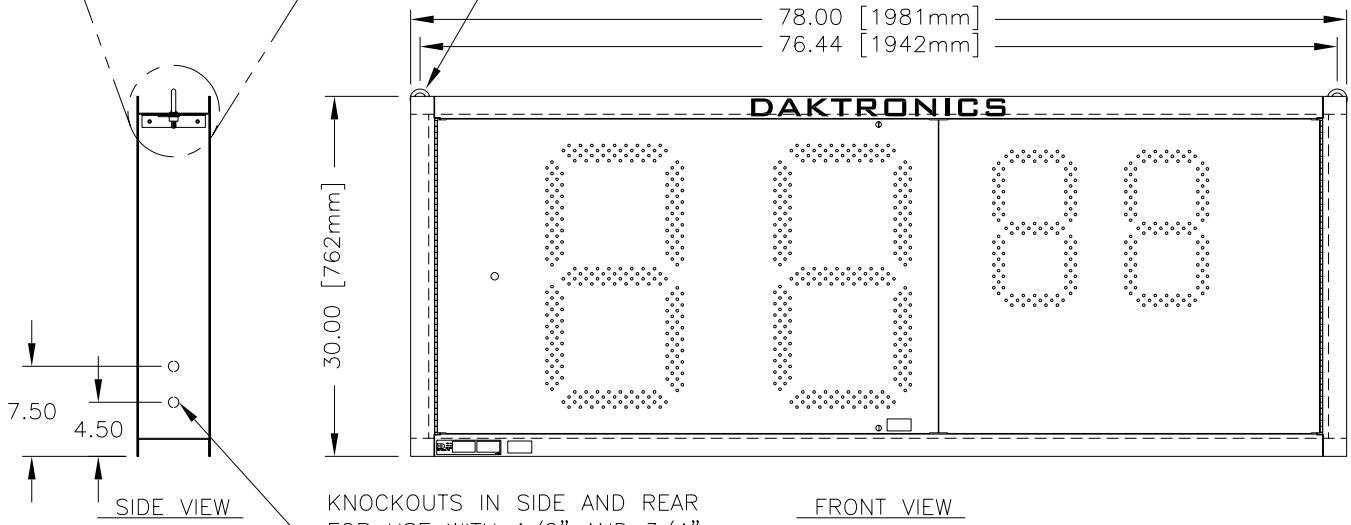


FRAME CHANNEL DETAIL
SCALE 1=4

DIMENSIONS TYPICAL TOP,
BOTTOM, AND SIDES

TOP AND BOTTOM CHANNELS ARE FORMED 0.090" ALUMINUM SHEET.
FRONT, BACK, AND SIDE MEMBERS ARE 0.063" ALUMINUM SHEET.

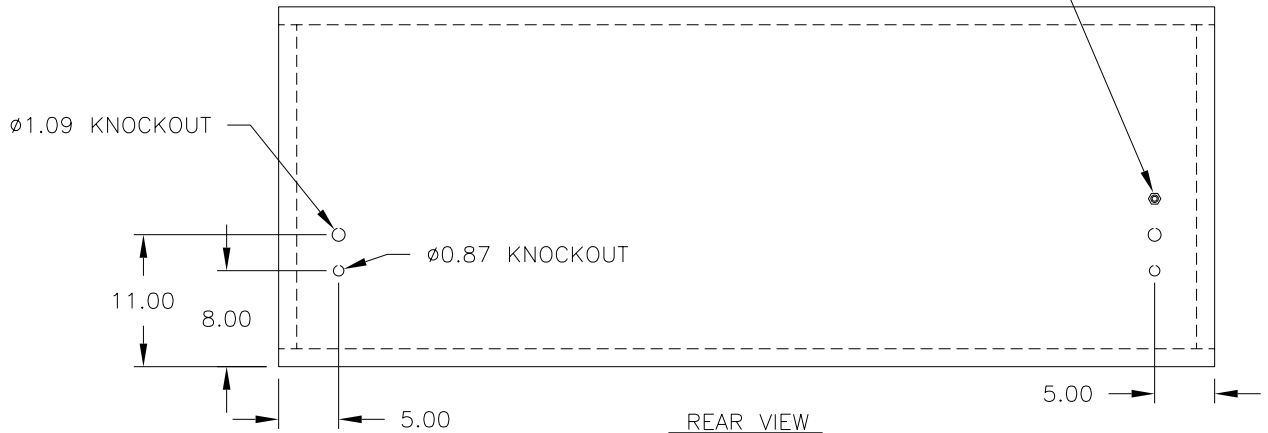
EYEBOLTS IN THE TOP FOR LIFTING DURING INSTALLATION AND ARE NOT FOR PERMANENT SUSPENSION.



FRONT VIEW

KNOCKOUTS IN SIDE AND REAR FOR USE WITH 1/2" AND 3/4" CONDUIT FITTINGS

CONNECTOR FOR OPTIONAL MODEM OR RADIO



REAR VIEW

APPROXIMATE WEIGHT: 95 LB. [43 KG]

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DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: DATA TIME LED DISPLAYS

TITLE: MECHANICAL SPECS, DF-1040-24, G3

DES. BY: AVB

DRAWN BY: AGIBSON

DATE: 09 JAN 03

REVISION

APPR. BY:

02

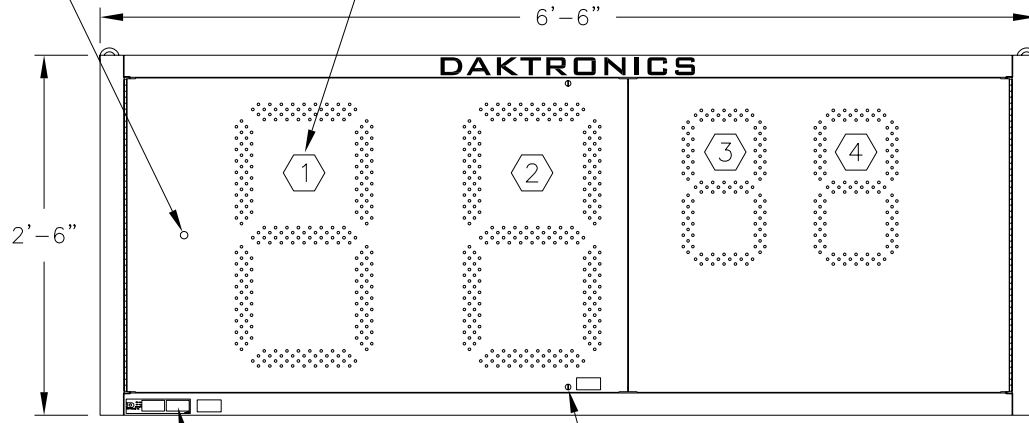
SCALE: 1=16

1279-R04A-181253

REV.	DATE	DESCRIPTION	BY	APPR.
02	15 JUN 05	UPDATED DIGIT PANELS PER DESIGN CHANGES.	MGL	
01	01 APR 04	ADJUSTED BACK SHEET AND SIDE CHANNELS PER DESIGN CHANGES.	MGL	

REMOVE THE PLASTIC PLUG AND INSTALL THE LIGHT SENSOR HERE

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



SIDE VIEW

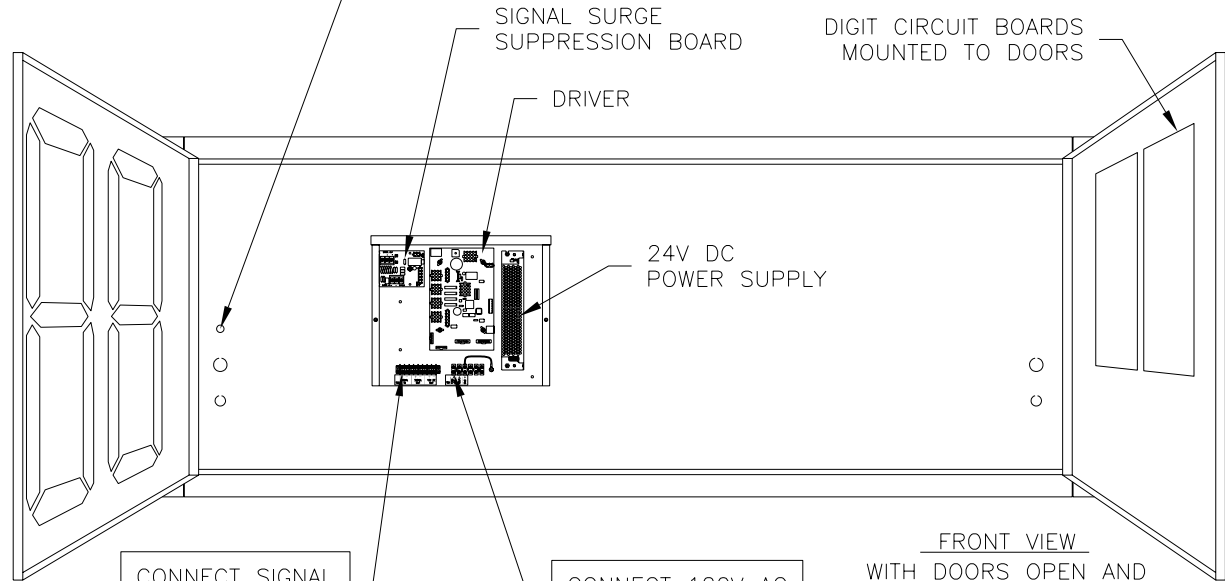
LOOK HERE FOR MODEL NUMBER AND POWER REQUIREMENTS.

TURN LATCHES TO OPEN THE DOORS AND GAIN ACCESS TO INTERNAL COMPONENTS.

KNOCKOUTS IN SIDES AND BACK FOR 1/2" AND 3/4" CONDUIT

FRONT VIEW

6-PIN JACK FOR CONNECTING OPTIONAL MODEM OR RADIO



CONNECT SIGNAL INPUT HERE

CONNECT 120V AC POWER HERE

FRONT VIEW WITH DOORS OPEN AND DRIVER COVER REMOVED (WIRES NOT SHOWN)

ELECTRICAL REQUIREMENT:
120V AC, 15 AMP CIRCUIT

MAX. POWER CONSUMPTION IS 150 WATTS.

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: DATA TIME LED DISPLAYS

TITLE: ELECTRICAL SPECS, DF-1040-24, G3

DES. BY: AVB

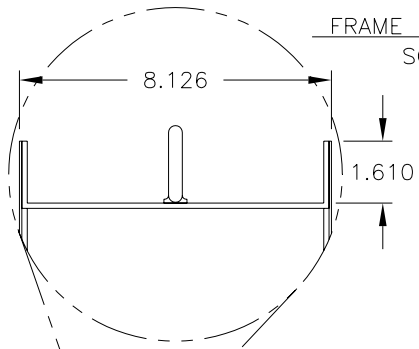
DRAWN BY: AGIBSON

DATE: 09 JAN 03

REV.	DATE	DESCRIPTION	BY	APPR.
01	15 JUN 05	UPDATED DIGIT PANELS PER DESIGN CHANGES.	MGL	

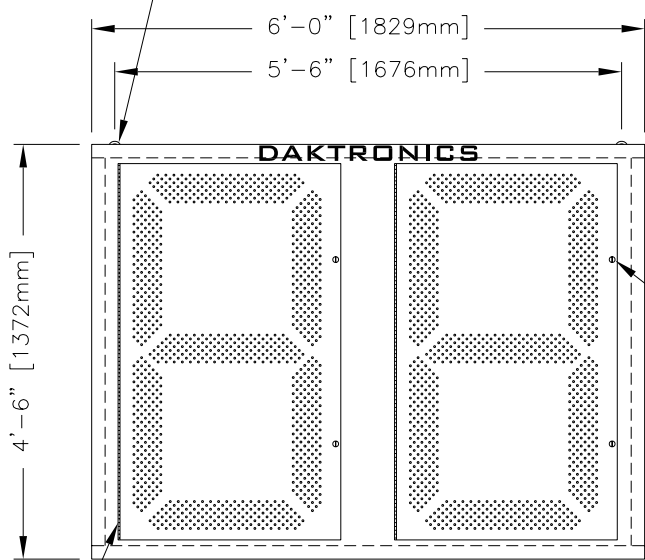
REVISION	APPR. BY:
01	SCALE: 1=16

1279-R04A-181254



DIMENSIONS TYPICAL TOP, BOTTOM, AND SIDES

EYEBOLTS IN THE TOP ARE FOR LIFTING DURING INSTALLATION ONLY. THEY ARE NOT TO BE USED FOR SUSPENDED INSTALLATION.



SIDE VIEW

FRONT VIEW

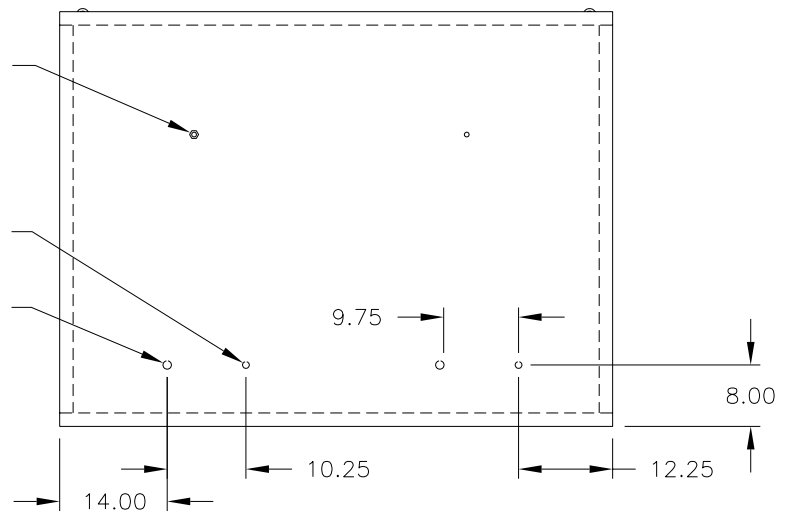
CONNECTOR FOR OPTIONAL MODEM OR RADIO

7/8" KNOCKOUT FOR 1/2" CONDUIT

1 1/8" KNOCKOUT FOR 3/4" CONDUIT

FRAME IS MADE OF EXTRUDED ALUMINUM CHANNEL, 8.000" X 1.750", 0.141" THICK.

FRONT AND BACK ARE 0.063" ALUMINUM SHEET.



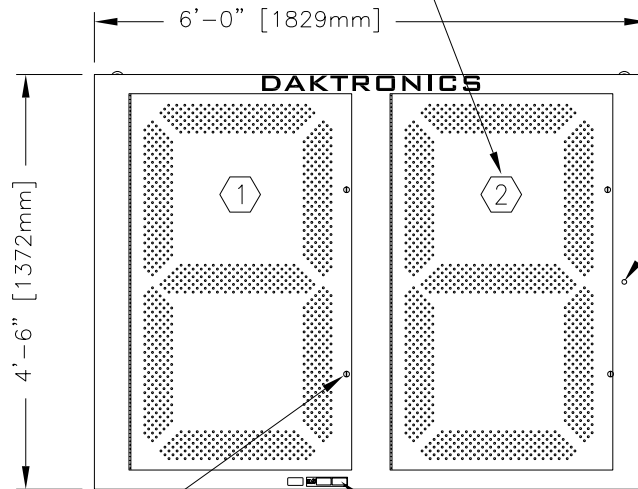
REAR VIEW

APPROXIMATE WEIGHT: 150 LB [68 KG]

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: DATA TIME LED DISPLAYS			
TITLE: MECHANICAL SPECS, DF-1030-48, G3			
DES. BY: AVB		DRAWN BY: A VANBEMMEL DATE: 17 JAN 03	
REVISION	APPR. BY:	1279-R08A-181674	
03	SCALE: 1=25		

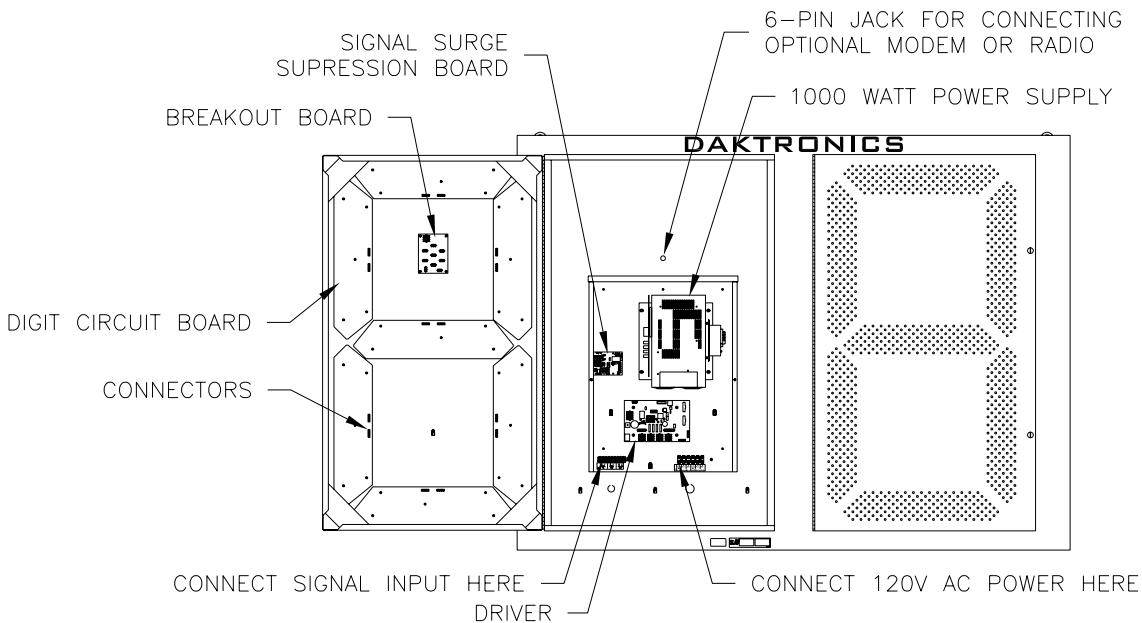
REV.	DATE	DESCRIPTION	BY	APPR.
03	10 MAY 06	UPDATED LOCATION OF KNOCKOUTS.	MGL	
02	08 MAR 05	UPDATED HOLE PATTERN IN BACKSHEETS.	MGL	
01	01 APR 04	ADJUSTED BACK SHEET THICKNESS PER DESIGN CHANGES.	MGL	

NUMBERS ON DIGITS INDICATE WHICH DRIVER CONNECTORS ARE WIRED TO EACH DIGIT. EACH 48" DIGIT IS WIRED TO FOUR DRIVER CONNECTORS.



TO ACCESS THE DRIVER AND HOOKUP TERMINALS, TURN THESE LATCHES COUNTER-CLOCKWISE AND OPEN THE DOOR.

LOOK HERE FOR MODEL NUMBER AND POWER REQUIREMENT.



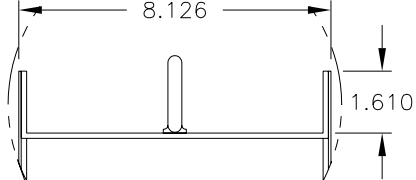
FRONT VIEW
LEFT DIGIT DOOR OPEN
WIRES ARE NOT SHOWN

ELECTRICAL REQUIREMENT:
120V AC, 15 AMP CIRCUIT
MAX POWER CONSUMPTION IS 1000 WATTS.

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: DATA TIME LED DISPLAYS			
TITLE: ELECTRICAL SPECS, DF-1030-48, G3			
DES. BY: AVB		DRAWN BY: AVB	
		DATE: 17 JAN 03	
REVISION	APPR. BY:	1279-R04A-181675	
02	SCALE: 1=25		

02	10 MAY 06	UPDATED DRIVER ENCLOSURE TO THE NARROWER 1000 WATT VERSION.	MGL	
01	08 MAR 05	UPDATED DRIVER ENCLOSURE AND DIGIT DESIGNATIONS.	MGL	
REV.	DATE	DESCRIPTION	BY	APPR.

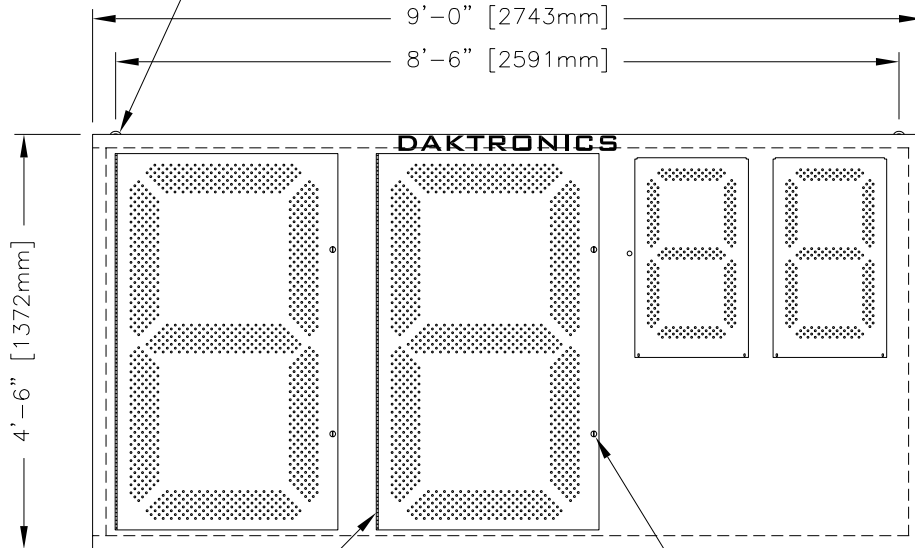
FRAME CHANNEL DETAIL
SCALE 1=5



DIMENSIONS TYPICAL TOP, BOTTOM, AND SIDES

EYEBOLTS IN THE TOP ARE FOR LIFTING DURING INSTALLATION ONLY AND ARE NOT TO BE USED FOR SUSPENDED INSTALLATION.

SIDE VIEW



HINGE

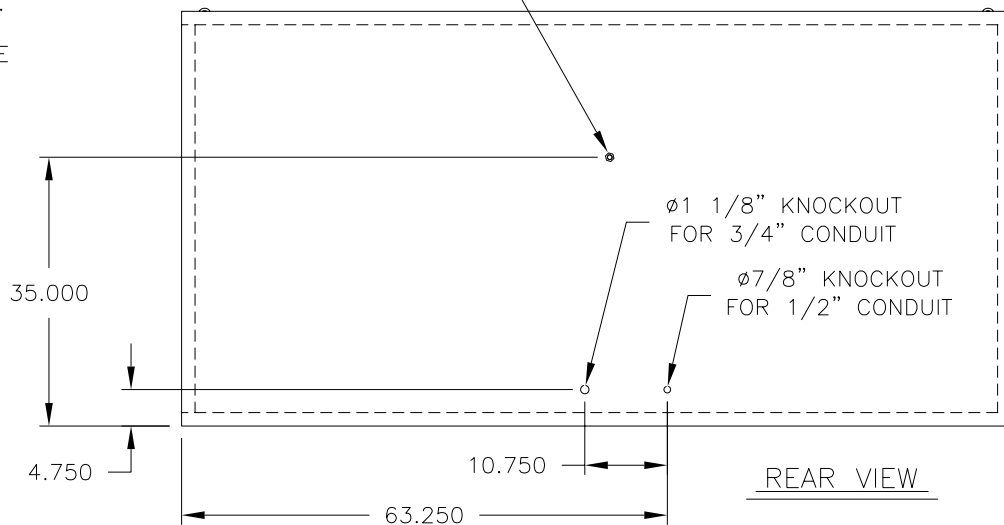
FRONT VIEW

DOOR LATCH @2 PER 48" DIGIT

FRAME IS MADE OF EXTRUDED ALUMINUM CHANNEL, 8.000" X 1.750", 0.141" THICK.

FRONT AND BACK ARE 0.063" ALUMINUM SHEET.

CONNECTOR FOR OPTIONAL MODEM OR RADIO

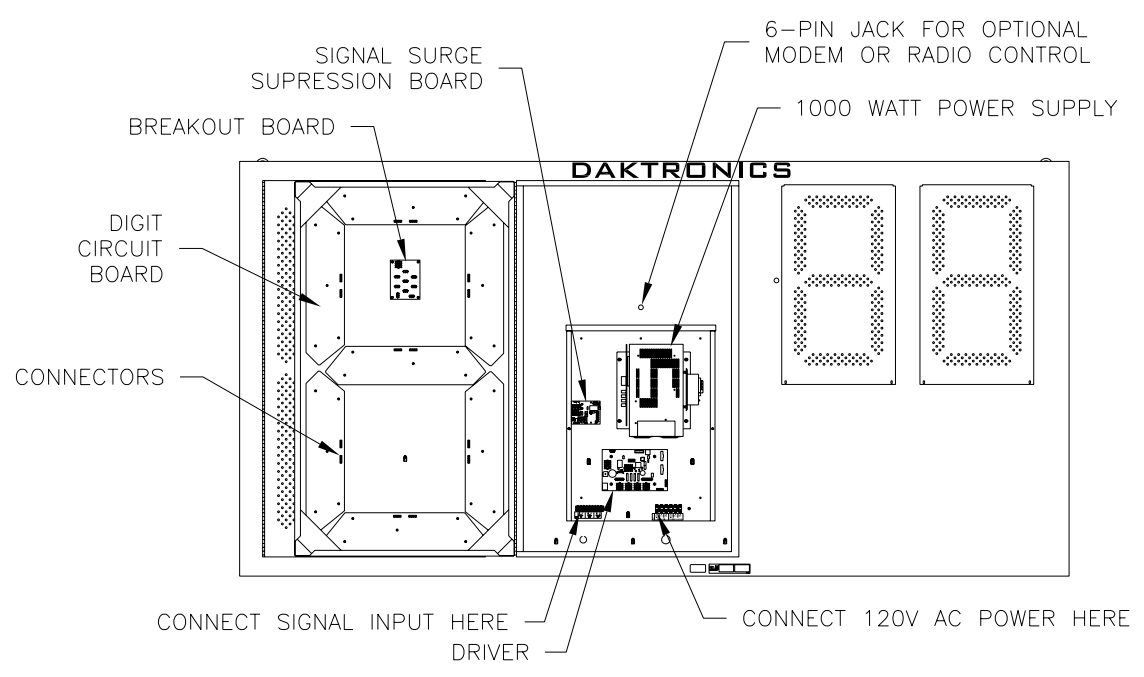
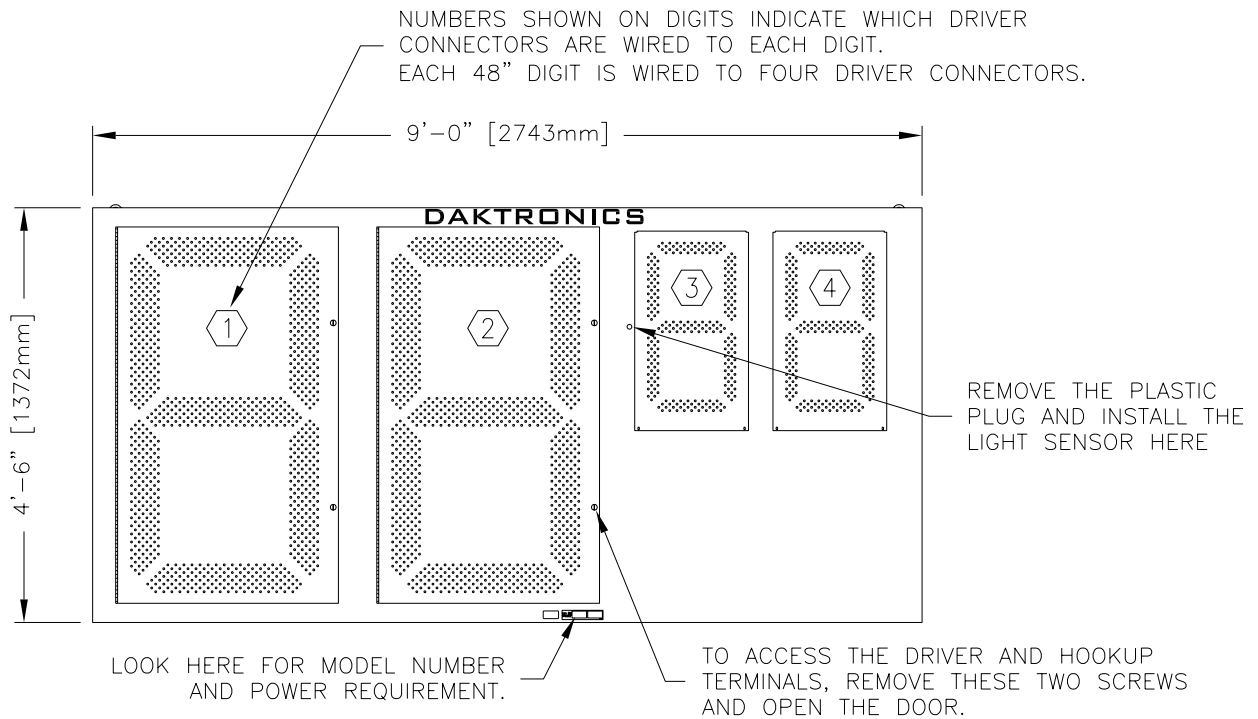


REAR VIEW

APPROXIMATE WEIGHT: 200 LB [100 KG]

REV.	DATE	DESCRIPTION	BY	APPR.
04	10 MAY 06	UPDATED LOCATION OF KNOCKOUTS.	MGL	
03	08 MAR 05	UPDATED HOLE PATTERN IN BACKSHEETS.	MGL	
02	01 APR 04	ADJUSTED BACK SHEET THICKNESS PER DESIGN CHANGES.	MGL	
01	24 OCT 03	REMOVED ACCESS DOOR DUE TO DRIVER ENCLOSURE RELOCATION.	MGL	

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DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ: DATA TIME LED DISPLAYS			
TITLE: MECHANICAL SPECS, DF-1040-48, G3			
DES. BY: AVB		DRAWN BY: A VANBEMMEL DATE: 31 JAN 03	
REVISION	APPR. BY:	1279-R08A-181676	
04	SCALE: 1=25		



FRONT VIEW
WITH 2ND DOOR OPEN
WIRES ARE NOT SHOWN

ELECTRICAL REQUIREMENT:
120V AC, 15 AMP CIRCUIT
MAX POWER CONSUMPTION IS 1000 WATTS.

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: DATETIME LED DISPLAYS			
TITLE: ELECTRICAL SPECS, DF-1040-48, G3			
DES. BY: AVB		DRAWN BY: AVB	
		DATE: 31 JAN 03	
REVISION	APPR. BY:	1279-R04A-181677	
03	SCALE: 1=25		

REV.	DATE	DESCRIPTION	BY	APPR.
03	10 MAY 06	UPDATED DRIVER ENCLOSURE TO THE NARROW 1000 WATT VERSION.	MGL	
02	08 MAR 05	UPDATED DRIVER ENCLOSURE AND DIGIT DESIGNATIONS.	MGL	
01	24 OCT 03	REMOVED ACCESS DOOR DUE TO DRIVER ENCLOSURE RELOCATION.	MGL	

FOR DM-100 OR VENUS 1500 CONTROLLED SYSTEMS:

IF THE SIGN HAS MORE THAN ONE DISPLAY, INSTALL THE LIGHT SENSOR IN THE HOST DISPLAY ONLY.

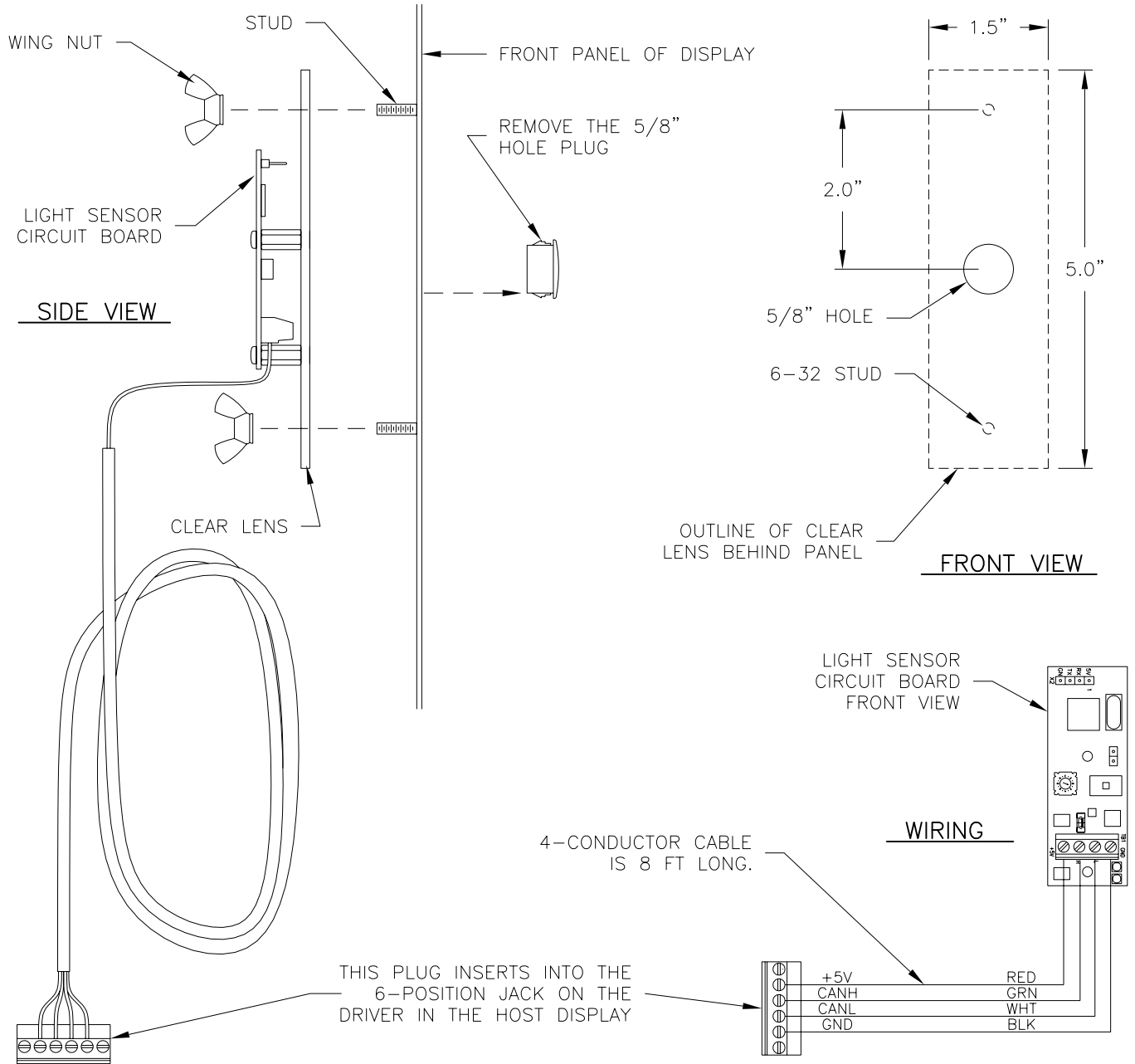
FOR DAKMAP (MULTIDROP) CONTROLLED SYSTEMS:

REFER TO DRAWING A-210516 FOR WIRING OPTIONS.

LOCATE THE 5/8" [16 MM] HOLE IN THE FRONT OF THE DISPLAY. THE LOCATION VARIES WITH THE SIZE AND MODEL OF THE DISPLAY. THE HOLE IS CAPPED WITH A BLACK PLASTIC PLUG. REMOVE THE PLUG. IF THE HOLES DO NOT EXIST IN THE DISPLAY, DRILL HOLES AS SHOWN AT RIGHT AND USE 6-32 MACHINE SCREWS TO MOUNT THE SENSOR ASSEMBLY.

THERE ARE TWO 6-32 STUDS ABOVE AND BELOW THE HOLE. POSITION THE LIGHT SENSOR ASSEMBLY OVER THE STUDS WITH THE CABLE AT THE BOTTOM. SECURE THE LIGHT SENSOR TO THE STUDS WITH THE TWO PLASTIC WING NUTS PROVIDED WITH THE LIGHT SENSOR KIT.

CONNECT THE 6-PIN PLUG ON THE END OF THE CABLE TO THE MATING JACK ON THE DRIVER.



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DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: DATATIME LED DISPLAYS

TITLE: LIGHT SENSOR INSTALLATION, G3

DES. BY: AVB DRAWN BY: A VANBEMMEL DATE: 21 FEB 03

REVISION 02 APPR. BY: SCALE: 1=2 1279-R10A-183775

REV.	DATE	DESCRIPTION	BY	APPR.
02	10 MAY 04	UPDATED TEXT.	RT	
01	03 JUN 03	ADDED HOLE PATTERN DIMENSIONS.	AVB	

OP-1192-0085 UNCOATED
OR OP-1192-0086 COATED
16 COLUMN MASC LED DRIVER

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

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	AUXOUT-N
3	120SW1-N
4	120SW1-P

J1-16 DIGITS	
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	PRO-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

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

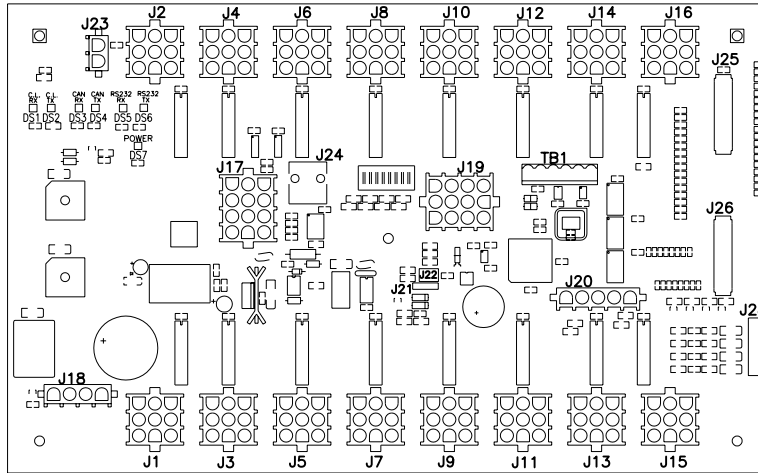
J27 - TPIC	
PIN	FUNCTION
8	GND-N
7	GND-N
6	DIG.DATA-P
5	DIG.STROBE-P
4	DIG.CLK-P
3	DIG.OE-N
2	+VBB-P
1	+5V-P

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

J25			
FUNCTION	PIN	PIN	FUNCTION
ID3-P	21	20	GND-N
FREE0-P	22	19	GND-N
ID2-P	23	18	GND-N
ROWSEL2-P	24	17	GND-N
GRN.DIM-P	25	16	GND-N
CLK-P	26	15	GND-N
GRN4-P	27	14	GND-N
RED4-P	28	13	GND-N
GRN3-P	29	12	GND-N
RED3-P	30	11	GND-N
GRN2-P	31	10	GND-N
RED2-P	32	9	GND-N
GRN1-P	33	8	GND-N
RED1-P	34	7	GND-N
RED.DIM-P	35	6	GND-N
LAT-P	36	5	GND-N
ROWSEL1-P	37	4	GND-N
ROWSEL0-P	38	3	GND-N
ID1-P	39	2	GND-N
ID0-P	40	1	GND-N

J26			
FUNCTION	PIN	PIN	FUNCTION
N/C	21	20	GND-N
FREE0-P	22	19	GND-N
N/C	23	18	GND-N
ROWSEL2-P	24	17	GND-N
GRN.DIM-P	25	16	GND-N
CLK-P	26	15	GND-N
N/C	27	14	GND-N
N/C	28	13	GND-N
N/C	29	12	GND-N
N/C	30	11	GND-N
GRN2-P	31	10	GND-N
RED2-P	32	9	GND-N
GRN1-P	33	8	GND-N
RED1-P	34	7	GND-N
RED.DIM-P	35	6	GND-N
LAT-P	36	5	GND-N
ROWSEL1-P	37	4	GND-N
ROWSEL0-P	38	3	GND-N
N/C	39	2	GND-N
N/C	40	1	GND-N



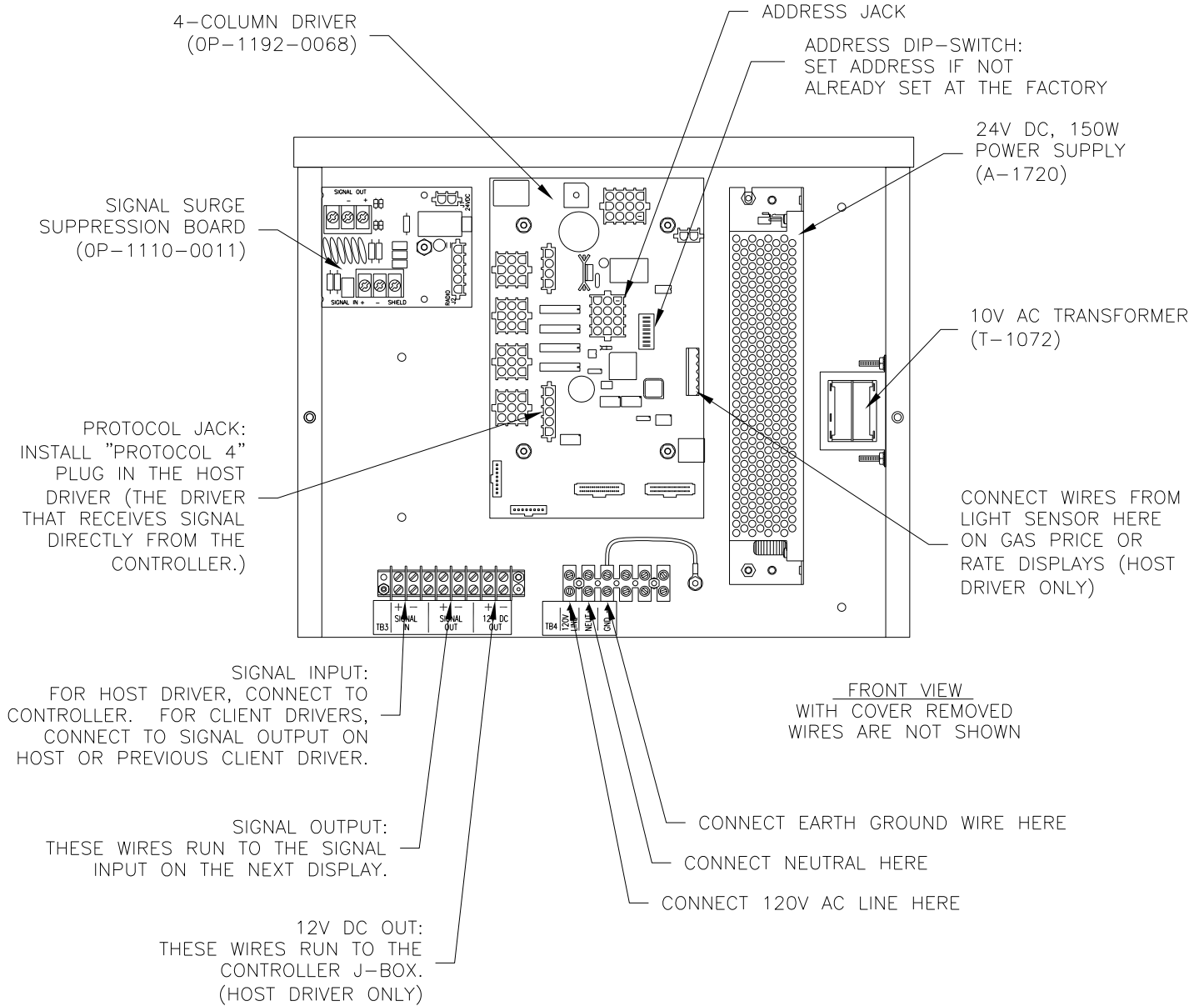
NOTES:

- WITH NO ADDRESS PINS SELECTED THE DRIVER WILL DEFAULT TO STANDARD PROTOCOL.
- RED LED DS1 WILL BE ON WHEN THE DRIVER IS RECEIVING CURRENT LOOP SIGNAL AND OFF WHEN THERE IS NO SIGNAL.
- GREEN LED DS2 WILL BE ON WHEN THE DRIVER TRANSMITS CURRENT LOOP SIGNAL.
- RED LED DS3 WILL BLINK WHEN THE DRIVER RECEIVES CAN SIGNAL.
- GREEN LED DS4 WILL BLINK WHEN THE DRIVER TRANSMITS CAN SIGNAL.
- IF BOTH DS3 AND DS4 ARE ON CONTINUOUSLY, THE CAN BUS IS IN AN ERROR STATE (NO CONNECTION TO CAN NETWORK).
- RED LED DS5 WILL BE ON WHEN THE DRIVER RECEIVES RS-232 SIGNAL.
- GREEN LED DS6 WILL BE ON WHEN THE DRIVER TRANSMITS RS-232 SIGNAL.
- GREEN LED DS7 INDICATES THAT THE DRIVER HAS POWER.

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DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ:	16 COL. MASC DRIVER SPECIFICATION		
DES. BY: CBRECZI	DRAWN BY: CBRECZI	DATE: 05 MAR 03	
REVISION	APPR. BY:	1192-R07A-184475	
02	SCALE: 1=3		

REV.	DATE	DESCRIPTION	BY	APPR.
02	22 NOV 04	CHANGED NOTES RELATING TO LED FUNCTIONS.	AVB	
01	9 SEP 04	EDITED TEXT TO INCLUDE ADDRESS DIP-SWITCH	JMC	

THIS IS THE ENCLOSED 4-COLUMN DRIVER USED IN MOST DATETIME LED DISPLAYS WITH 13", 18" AND 24" DIGITS.



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DAKTRONICS, INC. BROOKINGS, SD 57006				
PROJ: DATETIME® LED DISPLAYS				
TITLE: ENCLOSED DRIVER- 4 COLUMN REFERENCE				
DES. BY: AVB		DRAWN BY: A VANBEMMEL		DATE: 13 MAR 03
REVISION	APPR. BY:	1279-R04A-184918		
02	SCALE: 1=4			

02	09 SEP 04	EDITED ADDRESSING TEXT TO INCORPORATE ADDRESS DIP-SWITCH	JMC	
01	07 MAY 03	ADDED 10V TRANSFORMER	AVB	
REV.	DATE	DESCRIPTION	BY	APPR.

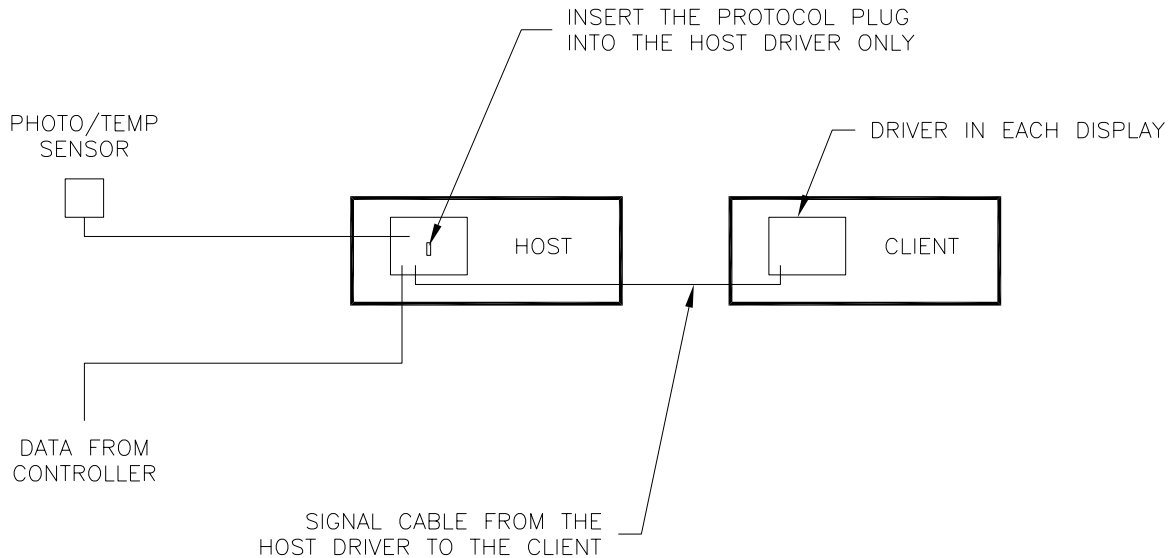
HOST/CLIENT DESIGNATIONS:

BEFORE INSTALLING, THE TWO DISPLAYS PROVIDED FOR A 2-V (DOUBLE-FACED) SIGN ARE IDENTICAL. EACH DISPLAY HAS A DRIVER TO CONTROL ITS DIGITS. EACH DISPLAY HAS A 5-PIN PROTOCOL PLUG IN A PACKAGE INSIDE THE DISPLAY, BUT NOT INSTALLED.

ONE DRIVER IN EACH SIGN INSTALLATION IS DESIGNATED AS THE HOST DRIVER. THIS DRIVER RECEIVES ITS SIGNAL (DATA) DIRECTLY FROM THE CONTROLLER AND IS ALSO CONNECTED TO THE PHOTO/TEMP SENSOR. THE DESIGNATION AS HOST IS DETERMINED BY WHICH DRIVER HAS THE PROTOCOL PLUG INSERTED.

THE OTHER DRIVER IS DESIGNATED AS A CLIENT DRIVER. THE CLIENT DRIVER RECEIVES ITS SIGNAL (DATA) FROM THE HOST. CONNECT SIGNAL WIRES FROM THE CONTROLLER TO THE HOST DRIVER'S "SIGNAL IN" TERMINALS. CONNECT WIRES FROM THE "SIGNAL OUT" TERMINAL IN THE HOST DISPLAY TO THE "SIGNAL IN" TERMINALS ON THE CLIENT DISPLAY.

IF A SIGN INSTALLATION HAS ONLY ONE DATETIME LED DISPLAY, IT IS TO BE DESIGNATED AS A HOST, EVEN THOUGH THERE IS NO CLIENT DISPLAY.



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DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ: DATETIME LED DISPLAYS			
TITLE: HOST/CLIENT DEFINITIONS			
DES. BY: AVB		DRAWN BY: A VANBEMMEL	
		DATE: 18 MAR 03	
REVISION	APPR. BY:	1279-R04A-185236	
	SCALE: NONE		

REV.	DATE	DESCRIPTION	BY	APPR.

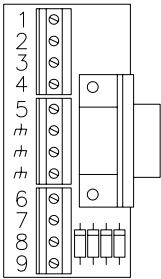
SERVER/CLIENT RADIO CONTROL

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

OA-1146-0078
 CLIENT RADIO, INSTALLED AT DISPLAY
 W/ 6 PIN ADAPTOR CABLE, 25'

J-BOX TO DISPLAY WIRING TABLE

9-PIN J-BOX		HOST DISPLAY TB3, DRV ENCLOSURE	
WIRE PIN#	COLOR	FUNCTION	PIN#
1	RED	12VDC-P	7
5	BLK	GND-N	8
6	GRN	SIGNAL-P	1
5	WHT	SIGNAL-N	2



THIS CIRCUIT BOARD IS LOCATED
 IN THE 9-PIN J-BOX.
 NOTE THE TERMINAL NUMBERING.

INSTALLATION PER LOCAL
 CODE, IN CONDUIT WHERE
 REQUIRED, BY CUSTOMER.
 FOR PWR REQUIREMENTS,
 REFER TO MANUAL.

1, 2 PAIR, 22AWG CABLE,
 (W-1234) IN CONDUIT
 WHERE REQUIRED.

OA-1196-0093
 OUTDOOR J-BOX,
 AT BASE OF HOST
 DISPLAY



1, 2 PAIR, 22AWG CABLE,
 (W-1234) IN CONDUIT
 WHERE REQUIRED.



INSTALLATION PER LOCAL
 CODE, IN CONDUIT WHERE
 REQUIRED, BY CUSTOMER.
 FOR PWR REQUIREMENTS,
 REFER TO MANUAL.

OA-1146-0079
 SERVER RADIO, INSTALLED EXTERNAL TO
 BUILDING WITH CLEAR LINE OF SIGHT
 TO THE CLIENT RADIO.

1, 6 COND, 18 AWG, CABLE (W-1370)
 @500' MAX., PROVIDED BY DAKTRONICS.
 CONDUIT, IF REQUIRED, BY CUSTOMER.

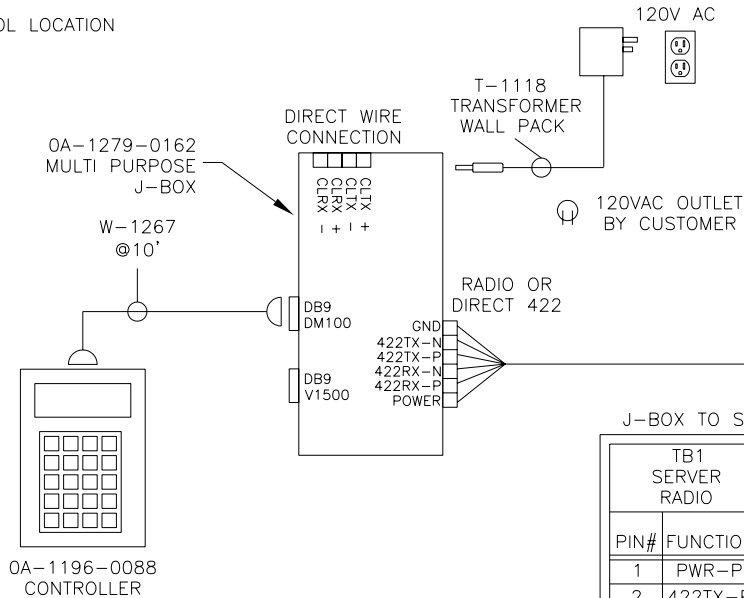
INSTALL "PROTOCOL 4" PLUG TO THE
 DRIVER IN THE HOST DISPLAY THAT IS
 CONNECTED TO THE RADIO CLIENT.

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

DAKTRONICS IS NOT RESPONSIBLE FOR
 THE QUALITY OF POWER OR
 GROUNDING TO DISPLAYS.

DAKTRONICS IS NOT RESPONSIBLE FOR
 ANY EXTERNAL INTERFERENCE THAT MAY
 AFFECT THE RADIO COMMUNICATIONS.

CONTROL LOCATION



J-BOX TO SERVER RADIO WIRING TABLE

TB1 SERVER RADIO		W-1370	TB1 MULTI-PURPOSE CONV. J-BOX	
PIN#	FUNCTION	COLOR	FUNCTION	PIN#
1	PWR-P	RED	PWR-P	1
2	422TX-P	WHT	422RX-P	2
3	422TX-N	GRN	422RX-N	3
4	422RX-P	BRN	422TX-P	4
5	422RX-N	BLU	422TX-N	5
6	GND-N	BLK	GND-N	6

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DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: DATA TIME LED DISPLAYS

TITLE: SYSTEM RISER DIAGRAM; DATATIME, SERVER/CLIENT SETUP

DES. BY: MMILLER

DRAWN BY: MMILLER

DATE: 12 NOV 03

REVISION

APPR. BY:

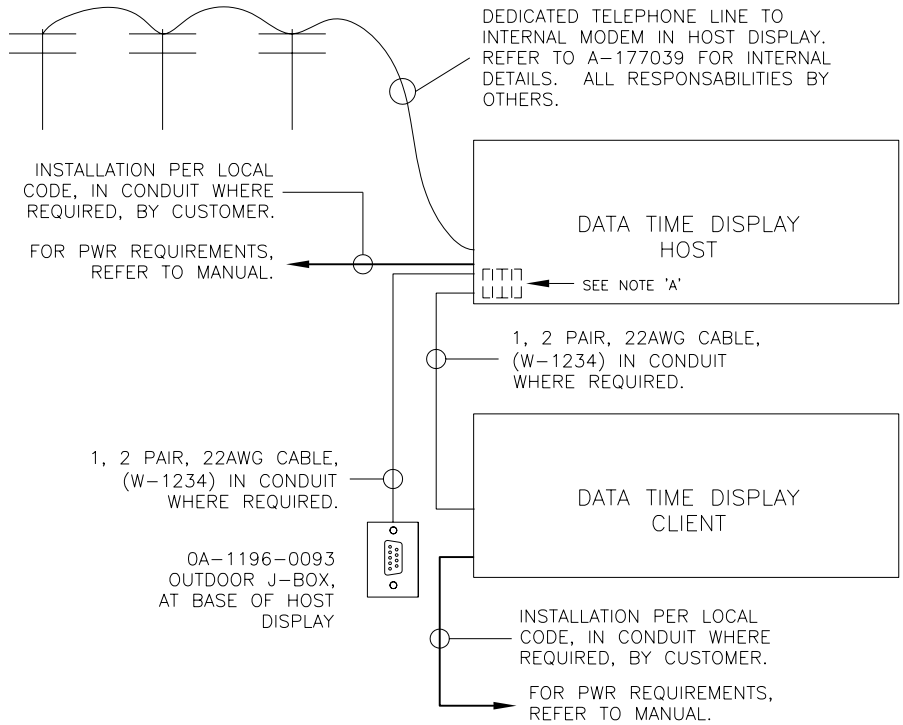
SCALE: NONE

1279-R01A-199834

REV.	DATE	DESCRIPTION	BY	APPR.
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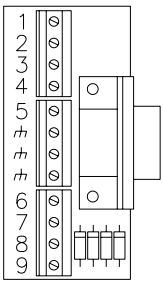
MODEM CONTROL

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



J-BOX TO DISPLAY WIRING TABLE

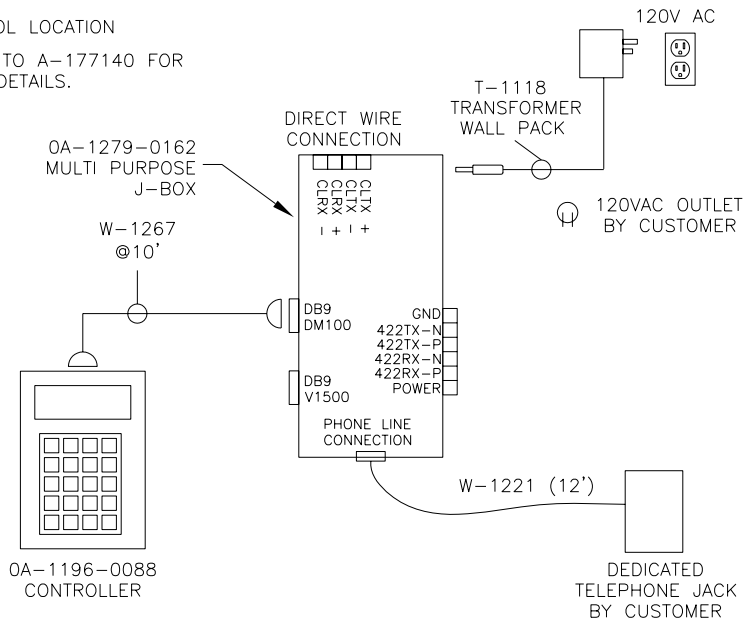
9-PIN J-BOX		HOST DISPLAY TB3, DRV ENCLOSURE	
WIRE PIN#	COLOR	FUNCTION	PIN#
1	RED	12VDC-P	7
5	BLK	GND-N	8
6	GRN	SIGNAL-P	1
5	WHT	SIGNAL-N	2



THIS CIRCUIT BOARD IS LOCATED
 IN THE 9-PIN J-BOX.
 NOTE THE TERMINAL NUMBERING.

CONTROL LOCATION

REFER TO A-177140 FOR
 MORE DETAILS.



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DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: DATA TIME LED DISPLAYS

TITLE: SYSTEM RISER DIAGRAM; DATATIME, MODEM SETUP

DES. BY: MMILLER

DRAWN BY: MMILLER

DATE: 02 DEC 03

REVISION

APPR. BY:

SCALE: NONE

1279-R01A-200552

REV.	DATE	DESCRIPTION	BY	APPR.
00				

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