

**Petroleum Price Displays
DF-2100 Series
36" – 60" Digits**

Installation and Operation Manual

ED-16374

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DAKTRONICS

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DAKTRONICS, INC.

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DataMaster Petroleum Price Displays

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Section 1: Introduction

This manual explains the installation, maintenance and troubleshooting of the Daktronics DataMaster™ DF-2100 LED Petroleum Price Displays with 36” – 60” digits. For questions regarding the safety, installation, operation, or service of this system, please refer to the telephone numbers listed on the cover page of this manual.

This manual is divided into 9 sections: Introduction, Mechanical Installation, Electrical Installation, Maintenance and Troubleshooting, Petroleum Price Display 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 guidance on display mounting.
- **Electrical Installation** gives general guidance on terminating power and signal cables at the display.
- **Maintenance and Troubleshooting** addresses such things as removing basic display components, troubleshooting the display, performing general maintenance and exchanging display components.
- **Petroleum Price Display Operation** gives a product overview of the DataMaster controller used to program the Petroleum Price display.
- **POS Interface Installation and Operation** provides information on the optional Point of Sale (POS) interface for use with the DataMaster LED Petroleum Price displays.
- **Appendix A** lists the drawings referenced within this manual.
- **Appendix B** lists the Frequently Asked Questions when operating this display.
- **Appendix C** provides information and drawings as quick references when installing the display.
- **Appendix D** contains a quick reference to the DataMaster when operating the Petroleum Price displays.

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-16374**.

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

Figure 1, below, illustrates the Daktronics drawing label. The drawing number is located in the lower-right corner of each drawing. Listing the last set of digits and the letter preceding them identifies drawings in the manual. In the example below, the drawing would be referred to as **Drawing B-268948**. Reference drawings are inserted in alphanumeric order in **Appendix A**.

DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ: GAS PRICE DISPLAYS			
TITLE: SHOP DRAWING, DF-2100-36-T10-DF			
DES. BY:		DRAWN BY: M LEOPOLD	DATE: 07 APR 06
REVISION	APPR. BY:	1319 -R04 B -268948	
00	SCALE: 1=25		

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 B-268948** for the display dimensions.”

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

Reference Drawing:
 Shop Drawing, DF-2100-36-T10-DF..... **Drawing B-268948**

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.

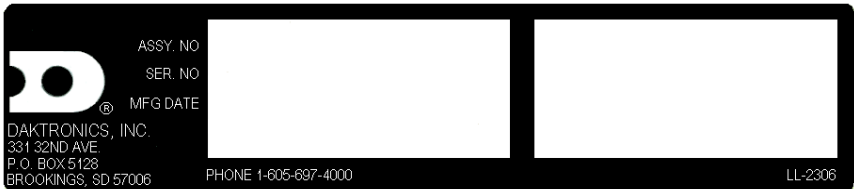


Figure 2: Display Identification Label

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 4.6** provides the names and part numbers of components that may require replacement during the life of the display. Most display components have white labels that list the part numbers. 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**. Refer to these instructions if any display component needs replacement or repair.

1.1 Safety Precautions

Important Safeguards:

1. Read and understand these instructions before installing 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. The common thread of most requests is a means of programming and controlling the displays in a variety of ways.

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

Current Loop

The DataMaster controller connects to the Petroleum Price 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 **Section 5** (Petroleum Price 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 the DataMaster and display. Each modem network needs to have a dedicated phone line assigned to it. Refer to **Section 3** (Electrical Installation) and **Section 5** (Petroleum Price Display Operation) for additional information.

1.3 Product Overview

DataMaster Petroleum Price displays are part of a family of Daktronics products designed for easy installation, readability, and reliability. Microprocessor control assures consistent operation and accuracy. The DF-2100 Series model Petroleum Price display is illustrated in **Figure 3**.



Figure 3: DF-2100 Petroleum Price Display with Top Caption

The DF-2100 series Petroleum Price displays with 36" or larger digits are available in a full-cabinet model with a backlit caption above the digits.

DataMaster displays use light emitting diodes to illuminate their numeric digits. (Light emitting diodes, or LEDs, are tiny, solid-state components that use a semiconductor to transform electrical current into light; they are high-intensity, low-energy lighting units).

The displays feature highly visible PanaView[®] digits 36" tall. All DataMaster displays are configured with red, amber or green LEDs.

Because of their LED technology, the displays consume little power, some barely more than a household lamp. However, the backlit panel does increase the power requirements. Power usage for individual displays in this series ranges from a minimum of 1300 W to a maximum of 1636 W.

DataMaster cabinets, specially developed for outdoor use, 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. Also available is a radio controlled RC-100 system, or the RC-50 mini remote control. All controller devices use a keyboard overlay (called an insert) for display control.

The DataMaster model numbers are described as follows:

DF-2100-HH-C-X#-XX

DF-2100	=	Outdoor Digit Display with backlit product ID panel
HH	=	Digit height in inches (36, 48 and 60)
C	=	LED Color- R (Red), A (Amber), G (Green - 13", 18", and 24")
X#	=	Illuminated product ID options: L# - Illuminated product panel to the left of digits, # indicates nominal cabinet width (ft) T# - Illuminated product panel on top of the digits, # indicates nominal cabinet width (ft)
XX	=	Cabinet style options: SF – Single Face, one cabinet DF – Double Face cabinet, one common cabinet, intended for between-pole mounting

1.4 Component Identification

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

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

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

DataMaster Controller (DM100): The handheld keyboard-like device used to set the time, date, hold times, dimming etc. on the Petroleum Price 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 Time & Temp display, the address will typically be “1.” For Petroleum Price displays, 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/light sensor. The Signal OUT terminals are used to connect to the client driver. The host driver is selected by inserting the protocol 4-plug into the protocol jack.

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

Mirror/slave: The mirror/slave receives power and a digit harness from the master but does not have a driver.

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

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

1.5 Daktronics Nomenclature

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

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

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

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

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

Most circuit boards and components within this display carry a label that lists the part number of the unit. If a circuit board or assembly is not listed in the **Replacement Parts List** in **Section 4.6**, use the label to order a replacement. A typical label is shown in **Figure 4**. The part number is in bold.

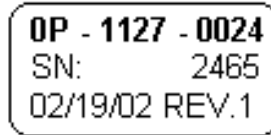


Figure 4: Typical Label

Section 2: Mechanical Installation

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

Full cabinet models with backlit product ID panel above digits

Model	Dimensions Height, Width, Depth	Weight	Digit Size
DF-2100-36-T8-SF	H5'-6", W8'-0", D8" (1676 mm, 2438 mm, 203 mm)	190 lb 73 kg	36" (914 mm)
DF-2100-36-T10-DF	H5'-0", W10'-0", D8" (1524 mm, 3048 mm, 203 mm)	300 lb 136 kg	36" (914 mm)
DF-2100-48-T11-SF	H7'-0", W11'-0", D8" (2134 mm, 3353 mm, 203 mm)	320 lb 145 kg	48" (1219 mm)
DF-2100-60-T14-SF	H9'-0", W14'-0", D8" (2743 mm, 4267 mm, 203 mm)	590 lb 268 kg	60" (1524 mm)

2.2 Lifting the Display

Model DF- displays are shipped equipped with $\frac{1}{2}$ " 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 5** 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.

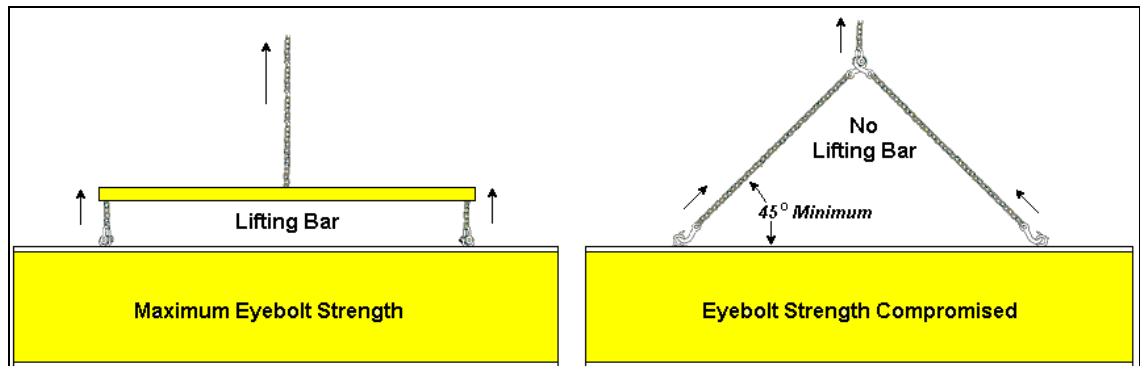


Figure 5: *Lifting the Display*

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 where ad panels 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. When 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 UL 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 Drawing:

Quick Install, Gas Price Displays w/MASC Driver**Drawing A-189768**

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-189768 provides detailed instructions for power and signal connections for the DataMaster Petroleum Price displays, including hook-up of the connections between host and client displays. Refer to this drawing before undertaking any part of the electrical installation.

3.2 Power and Grounding Connections

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

The DataMaster, Petroleum Price 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 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. Models are listed in order by digit size.

Petroleum Price Displays – Power Requirements

Model	Digit Size	Maximum Wattage	Circuit
DF-2100-36-T10-DF	36" (914 mm)	1336 W	120 V AC 15 A
DF-2100-36-T8-SF	36" (914 mm)	1300 W	120 V AC 15 A
DF-2100-48-T11-SF	48" (1219 mm)	1300 W	120 V AC 15 A
DF-2100-60-T14-SF	60" (1524 mm)	1636 W	120 V AC 15 A

Grounding

Reference Drawings:

Enclosed Driver, 1KW 4-Column Reference..... **Drawing A-276129**

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-276129**, for information on where to connect the grounding wire. Connection at the driver enclosure terminal block is illustrated at the bottom of the drawing.

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

Power Installation

There are two considerations for power installation: installation with ground and neutral conductors provided, and installation with only a neutral conductor provided. These two power installations differ slightly, as described in the following paragraphs:

Installation with Ground and Neutral Conductors Provided

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

Installation with Only a Neutral Conductor Provided

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

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

3.3 Lightning Protection

The use of a disconnect near the display to completely cut all current-carrying lines significantly protects the circuits against lightning damage. The National Electrical Code also requires it. In order for this device to provide protection, the power **must** be disconnected when the display is not in use. The control console should also be disconnected from power and from the signal j-box when the system is not being used. The same surges that may damage the display's driver can also damage the driver console's circuit.

3.4 Signal Connection

Reference Drawings

- 4 Column MASC LED Driver Specifications..... **Drawing A-166216**
- Quick Install, Gas Price Displays w/ MASC Driver..... **Drawing A-189768**

Route power and signal cables into the display from the back. There are knockouts for 1/2" and 3/4" conduit fittings on the back of all DF-2100 series cabinets. All power and signal wiring terminates at the driver enclosure.

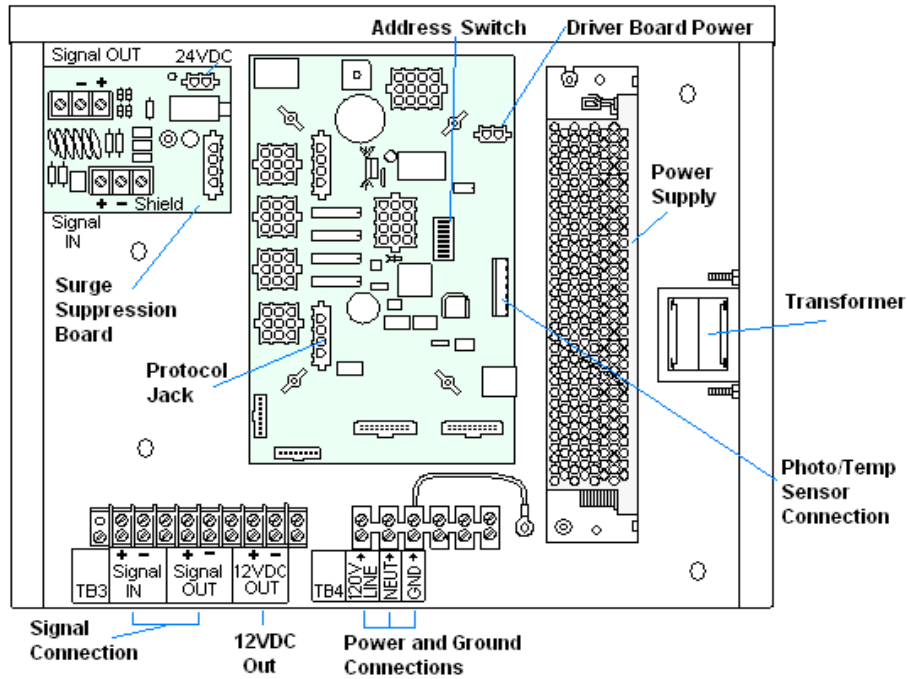


Figure 6: DataMaster Driver Enclosure with 4-Column Driver

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 smaller digit displays, access the interior components by removing the screws from the hinged door. In the larger digit displays, door latches allow access to the interior components by removing the digits.

Refer to **Drawing A-189768** for a complete review of power and signal connections for Petroleum Price displays. The power and signal connections are illustrated in **Figure 6**.

Current Loop (Direct)

Reference Drawings:

Riser Diagram, Outdoor Wire Control.....	Drawing A-164988
Riser Diagram, Indoor Wire Control.....	Drawing A-175342
Enclosed Driver, 4 Column	Drawing A-184918
Quick Install, Gas Price Displays w/MASC Driver	Drawing A-189768

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 terminate at the driver enclosure. The DataMaster hand-held controller receives its power from the display. The display layout is shown in **Figure 7** and **Drawing A-164988**.

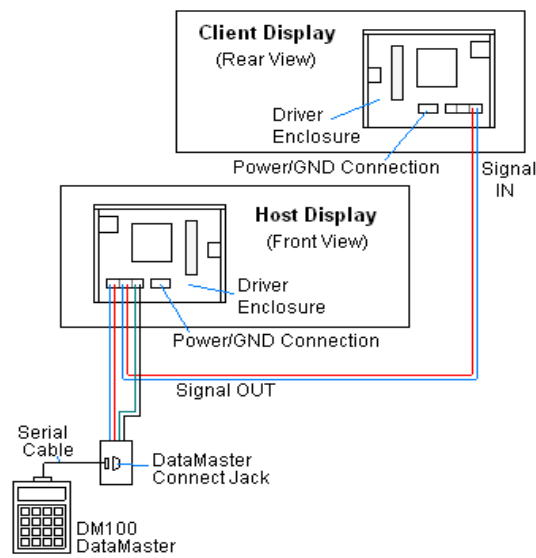


Figure 7: Direct, Current Loop Layout

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 4-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 8** and listed in the table. Refer to **Drawings A-175342** 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.

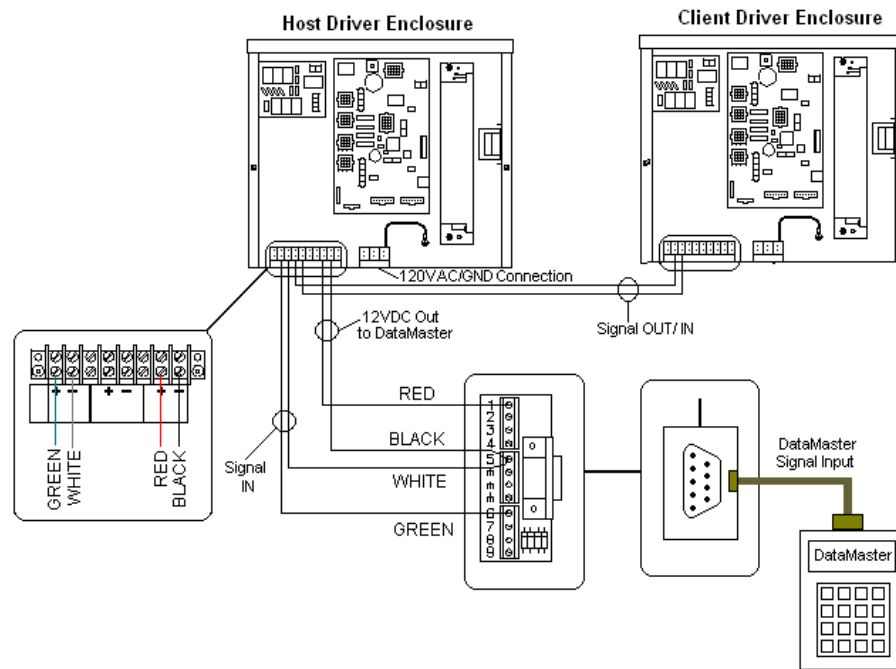


Figure 8: Direct, Current Loop Connection

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 9	Blue	Signal OUT (-)

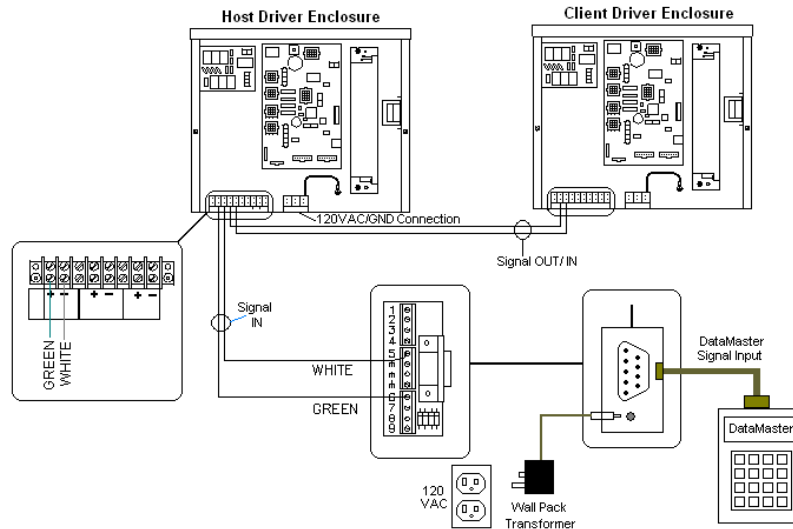


Figure 9: Direct Connection from Indoor Location

If using the DataMaster handheld controller at an indoor location, only the two, 22 AWG, signal wires (white and green) 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 be up to 2000 ft. Refer to **Figure 9** and **Drawing A-175342** for system layout and signal connections.

Radio (Direct)

Reference Drawings:

- Quick Install, Gas Price Displays w/MASC Driver **Drawing A-189768**
- 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 Petroleum Price display. The DataMaster hand-held controller and server radio receive their power from 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 10** and **Drawing A-199834**.

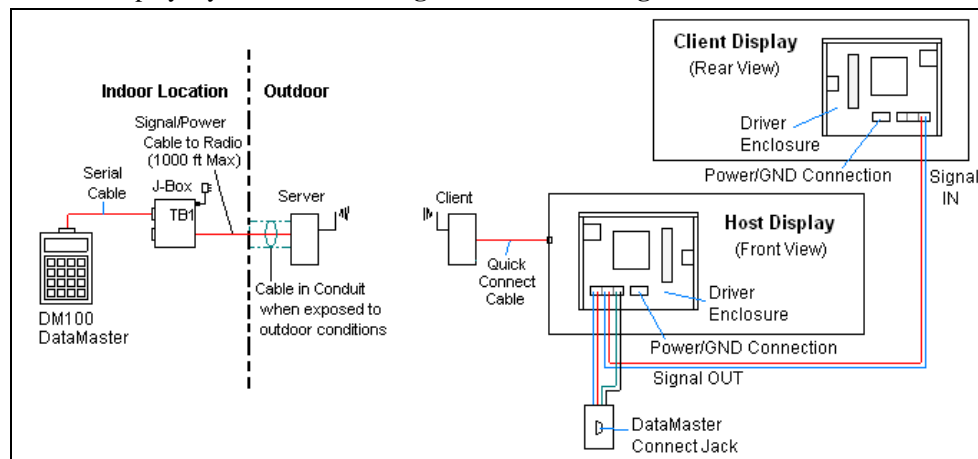


Figure 10: Radio Controlled Display Layout

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 TB1 jack on the Server radio mounted to the building. See **Figure 11** 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 Petroleum price display.

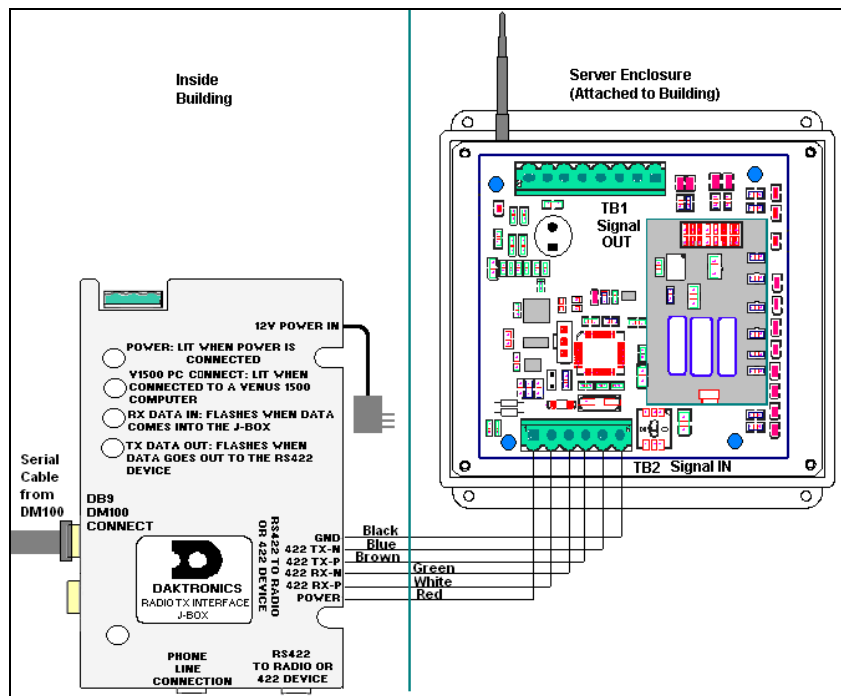


Figure 11: Direct, Current Loop Connection

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 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 through 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 Drvr. Enc.....**Drawing A-177039**
- Quick Install, Gas Price Displays w/MASC Driver**Drawing A-189768**
- 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 Petroleum Price 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 12** and **Drawing A-200552**.

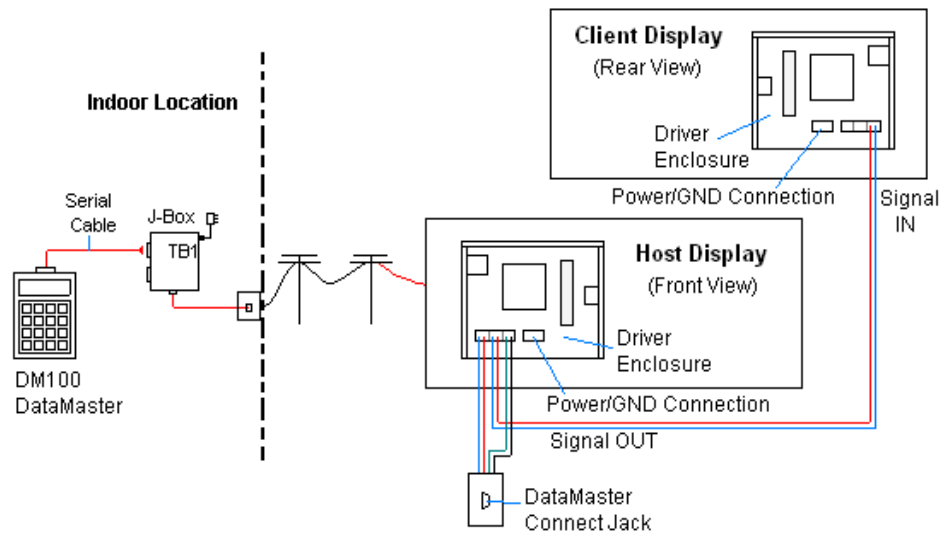


Figure 12: Modem Controlled Display Layout

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 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, identify the color used for the “Tip” wire and identify which color is for the “Ring.”
5. The Tip and Ring phone wires will terminate to TB2 on the modem as shown in **Figure 13** and **Drawing A-177039**. If a phone cable is used, it will plug into J5.

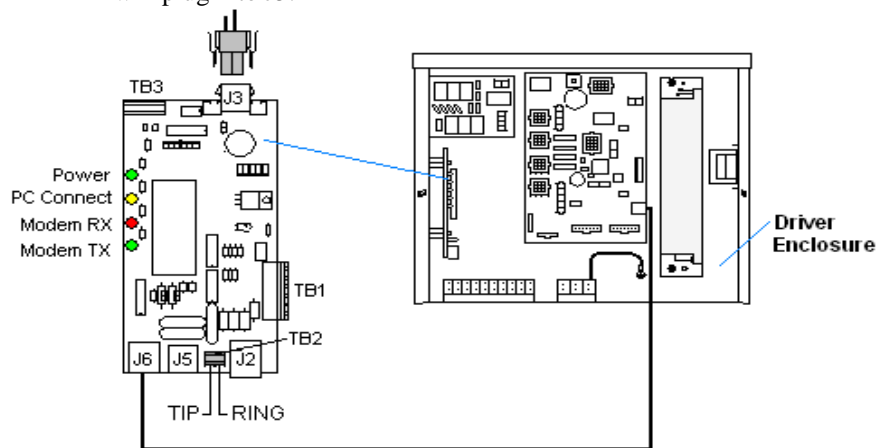


Figure 13: Phone line Connection to Display Modem

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 phone line.
2. The phone line and display power **cannot** be routed though the same conduit.
3. For additional operation and connection information see **ED13953: DataMaster Modem Installation Manual**

Host/Client Definitions and Address Settings

Reference Drawings:

- Host/Client and Master/Slave Definitions **Drawing A-168376**
- 4 Column MASC LED Driver Specifications **Drawing A-166216**
- Address settings, MASC drivers **Drawing A-227502**

Host/Client Definitions

One driver at each sign installation is designated as the “host driver.” This driver receives its signal directly from the controller on the “Signal IN” terminals, and it is the only driver that is connected to the light sensor. The “Signal OUT” terminals are used to connect to “client drivers.” Refer to **Drawing A-168376** and **Figure 14** for an illustration of the host/client display connection.

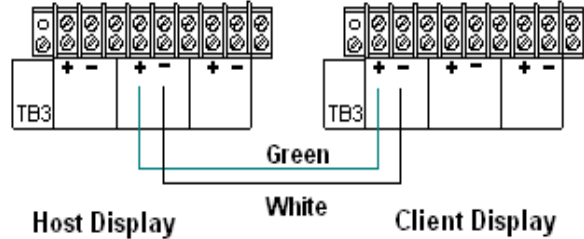


Figure 14: Host, Signal Out to Client, Signal In

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** on your specific display driver.

The 12 V DC terminals connected to the host driver (see “Signal Connections” in **Figure 6**) 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 displays.” These displays do not contain a driver and may use either the client or host digit outputs. Refer to **Drawing A-168376** for an illustration of the host/client driver and primary/mirror display setups.

Some displays only use one driver for multiple product lines in one common cabinet. In this case, the signal to each line is already connected.

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 for setting the address. **Drawing A-227502** shows how to set the address on the drivers used in DataTime and DataMaster products.

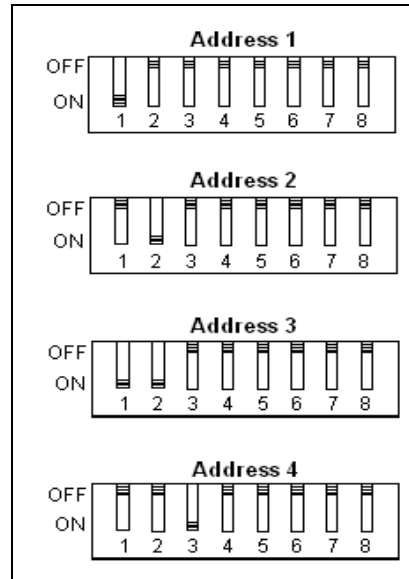


Figure 15: Common Address Settings

Binary Address Settings

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

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

Section 4: Maintenance and Troubleshooting

IMPORTANT NOTES:

1. Disconnect power before doing any repair or maintenance work on the display!
2. 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 accessing components 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 Petroleum Price series are made up of two main components: the circuit boards that make up the digits and the driver enclosure.

Display Digits:

- The digits for 36", 48" and 60" are made up of LED segments

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
- Signal/Power Input Terminal Jack
- Signal Board (Surge board on direct displays or a modem)

For the front-access modules in this series, all internal electronic components and digits can be reached by opening either the left hinged access door on the front of the display or by removing digits.

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 your model's **Electrical** and **Mechanical Specifications Drawings**.

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 Segment

When a digit segment malfunctions, in most cases it is necessary to replace just that segment board. Digits 36", 48" and 60" as shown in **Figure 16**, are made up of LED segments. 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 and 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.

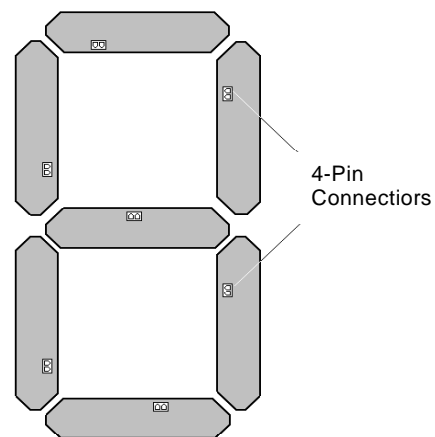


Figure 16: Segmented Digit Panel
(Rear View)

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**
Electrical Specification Drawings **Refer to Appendix A**

In each digit, certain LEDs always go on and off together. No matter if they are made up of one circuit board, or separate boards, 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.

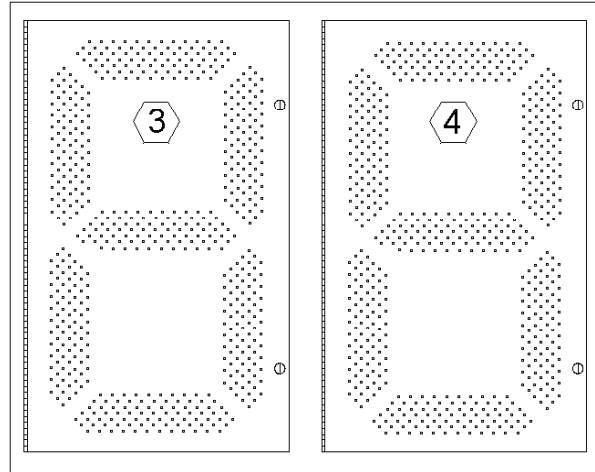


Figure 17: Digit Designation

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" and 60" displays use four connectors for each digit).

Replacing an LED Driver

Reference Drawings:

4 Column MASC LED Driver Specifications **Drawing A-166216**
Electrical Specification Drawings **Refer to Appendix A**
Mechanical Specification Drawings **Refer to Appendix A**

Drivers are typically mounted inside the display enclosure and behind a digit, but the location and mounting varies by model. Refer to the **Electrical** and **Mechanical Specification Drawing** for the location of your driver. All displays in the DataTime and DataMaster series 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 Petroleum Price displays may use 4-, 8-, or 16-column drivers, depending on the model and size of digits. Each 16-column driver is so named because it has 16 outputs to digits as compared to the 8- and 4-column drivers.

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

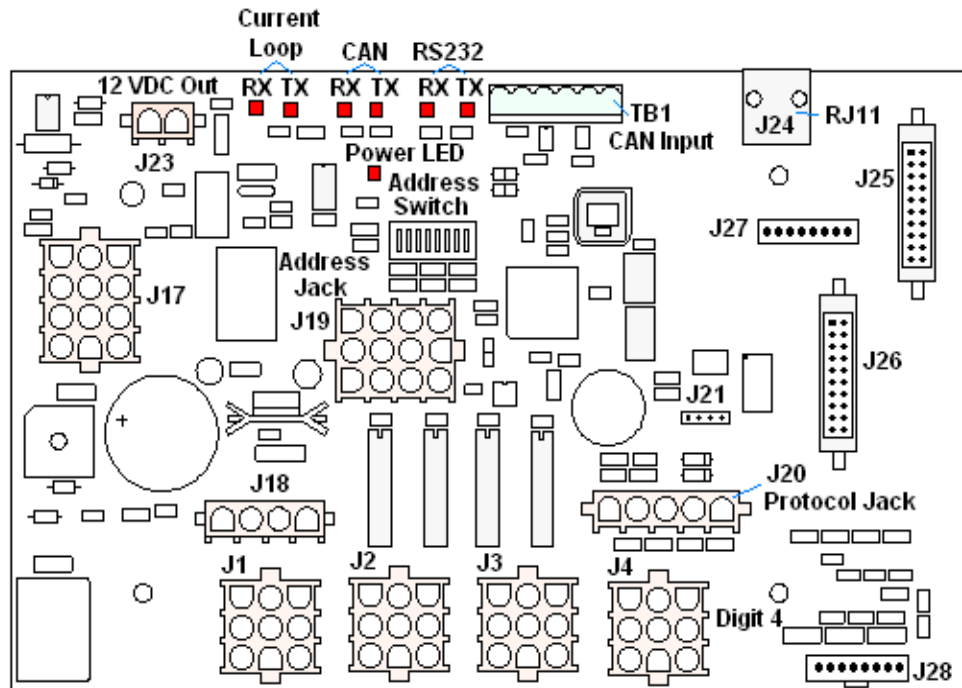


Figure 18: 4-column Digit Driver

In the display, the LED drivers perform the task of switching digits on and off. Refer to **Drawings A-166216, A-167237, and A-184475** for a complete listing of 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 No.	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 (light 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). Most DataMaster displays ship with the “Line 1” address already set. Displays that have multiple products or lines in one common cabinet have the proper address set during manufacturing.

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.

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.

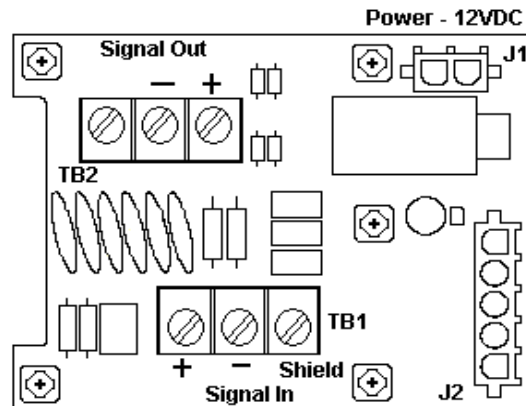


Figure 19: Signal Surge Suppression Board

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.

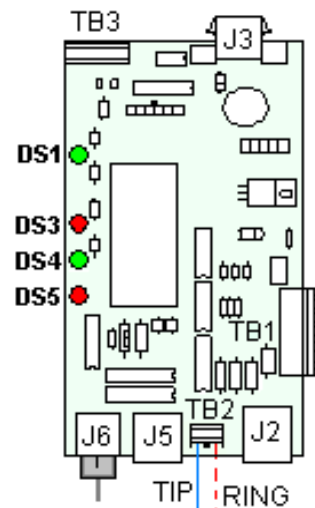


Figure 20: Modem Board

The modem has four LEDs.

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

The modem board also has several input and output jacks:

1. TB2 is a phoenix connector to terminate the Tip and Ring wires.
2. J3 is the AC power input into the modem board from the transformer in the driver enclosure.
3. J6 is the RS232, RJ45 output jack from the modem board to the display driver.
4. J5 is an RJ11 jack for termination of a pre-terminated phone line (if needed).
5. J2, TB1, and TB3 are not used in this application.

4.4 Light Sensor Location

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 replace the light sensor in your DataMaster Petroleum Price display. If the sign or sign system has more than one display, the light sensor is found in the host/primary display only.

1. Open the digit panel or display face panel as described in **Section 4.2**.
2. Locate the $\frac{5}{8}$ " sensor plughole on the front panel of the display. The location of the plug varies by model. Refer to the **Mechanical Specifications Drawings** for model-specific information.
3. There are two 6-32 studs above and below the plughole. The internal light sensor assembly (Daktronics part #0A-1279-0203) is positioned on the studs, with the clear lens toward the front of the cabinet and the cable at the bottom. Secure the sensor with the provided plastic wing nuts.
4. Route the signal cable to the driver and insert the 6-postion plug into the mating jack on the driver, TB1.

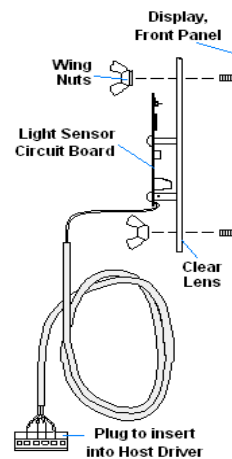


Figure 21: Internal Light Sensor

5. Close the hinged access doors and replace the screws.

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
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 • Remove screws and plug DataMaster directly into the J-box
Cannot communicate with display via radio	<ul style="list-style-type: none"> • Check for power to signal converter connected to Server • Check wire connections from signal converter to Server • Check connections from Client to display • Make sure display and DataMaster have power
Cannot communicate with display via modem	<ul style="list-style-type: none"> • Make sure modem at display is connecting via phone line • 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 DataMaster 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 table below. Failure codes will only be displayed 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).
E2	Time Error: There is no valid time stored in the driver; it may be a failure of the real-time clock on board or other timekeeping device.	Set the time in the display using the Set Time menu option on the DataMaster 100 controller. (DataMaster Time & Temp displays only)
E3	Temp Error: There is no response from the temp sensor or light sensor, or general temp sensor failure.	Check the temp sensor location and verify all connections. Refer to the instruction sheet for the CAN Temperature/Light Sensor mounting, ED13364 . Note: The temp sensor takes approximately 10 seconds to initialize on power-up. The sign will display this error until initialization is complete.
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 installed is 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

The power on self-test is a useful troubleshooting tool that 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) in 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 MASC, LED	0P-1192-0068
Light sensor	0A-1279-0203
Protocol plug (Protocol 4)	0A-1279-0089
Power supply, 24 V DC, 1 KW	A-1856R
Transformer, Pri. 115V; Sec. 10 VCT @1.2A	T-1072
Transformer, wall pack (for DataMaster 100 and signal converter)	T-1118
Address #1 Plug	0A-1150-0122
8-Segment breakout board	0P-1192-0326
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
DataMaster 100 Controller Parts	
DataMaster 100 hand-held controller	0A-1196-0088
Junction box, outdoor, DB9-M	0A-1196-0093
Junction box, indoor, DB9-M, w/power jack	0A-1196-0099
DataMaster 100 outdoor wired installation kit	0A-1279-0087

Description	Daktronics Part No.
DataMaster 100 indoor wired installation kit	0A-1279-0103
Cable, serial, DB9 male to DB9 female	W-1267
DM100 Insert Time & Temp/Petroleum Price	0G-164998
Digits and Accessories	
Speed nut, M3 Kingnut black nylon, Push nut	HS-1453
Spacer, washer with steel backing	HC-1221
Digit, 24" ⁹ / ₁₀ red, w/faceplate	0A-1192-2359
Digit, 24" ⁹ / ₁₀ amber, w/faceplate	0A-1192-2360
Digit, 24" ⁹ / ₁₀ green, w/faceplate	0A-1192-3082
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 segment, 36" green, vert	0P-1192-0333
Digit segment, 36" green horiz	0P-1192-0334
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
Digit segment, 48" green, vert	0P-1192-0337
Digit segment, 48" green, horiz	0P-1192-0338
Digit ½ segment, 60" red, vert	0P-1192-0281
Digit ½ segment, 60" red horiz	0P-1192-0280
Digit ½ segment, 60" amber, vert	0P-1192-0283
Digit ½ segment, 60" amber horiz	0P-1192-0282
Digit ½ segment, 60" green, vert	0P-1192-0323
Digit ½ segment, 60" green, horiz	0P-1192-0321
Digit, 24" ⁹ / ₁₀ red, pc board	0P-1192-0232
Digit, 24" ⁹ / ₁₀ amber, pc board	0P-1192-0233
Digit, 24" ⁹ / ₁₀ green, pc board	0P-1192-0325
Indicator, 4" red, pc board	0P-1192-0244
Indicator, 4" amber, pc board	0P-1192-0245
Indicator, 4" green, pc board	0P-1192-0248

Description	Daktronics Part No.
Ballast 2, 3, 4 lamps (6-12 feet)	A-1369
Ballast 2, 3, 4 lamps (12-24 feet)	A-1370
Ballast 4, 5, 6 lamps (24-48 feet)	A-1371
Lamps 5'	DS-1049
Lamps 5'4"	DS-1053
Lamps 6'	DS-1037
Lamps 7'	DS-1038
Lamps 8'	DS-1048
Lamps 10'	DS-1213

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.

Exchange Program

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

To participate in the Exchange Program, follow these steps.

1. **Call the local Daktronics representative or the Daktronics Customer Call Center:**
877-605-1115 (toll-free) or 605-697-4034. Choose option 2 to have a Customer Service Coordinator order a new part.

2. When the new exchange part is received, mail the old part to Daktronics.

If the replacement part fixes the problem, send in the problem part, which is being replaced.

- a. Package the old part in the same shipping materials in which the replacement part arrived.
- b. Fill out and attach the enclosed UPS shipping document.
- c. Ship the part to Daktronics.

3. You will be billed for the replacement part immediately, unless you have a qualifying service agreement in place.

In most circumstances, you will be invoiced for the replacement part at the time it is shipped. This bill, which represents the exchange price, is due when you receive it.

4. You must send the problem part to Daktronics within 30 days.

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

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

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

5. If the replacement part does not solve the problem, return the part within 30 working days or you will be billed for it at full purchase price.

If, after you make the exchange, the equipment still causes problems, please contact our Customer Call Center immediately. Daktronics expects *immediate return* of an exchange part if it does not solve the problem. The company also reserves the right to refuse parts that have been damaged due to acts of nature or causes other than normal wear and tear.

Repair and Return Program

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

1. Call your local Daktronics representative or the Daktronics Customer Call Center:

877-605-1113 (toll-free) or 605-697-4034.

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

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

4. Enclose:

- your name
- address
- phone number
- the RMA number
- a clear description of symptoms

How to reach us

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

Phone: Daktronics Customer Call Center:
877-605-1115 (toll-free) or 605-697-4034

Fax: 605-697-4444

Section 5: Petroleum Price Display Operation

These sections describe the DataMaster 100 controller, and how it is used to set the information on the Petroleum Price 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 petroleum price, motel rates, time and temperature data, etc. The displays in the LED DataMaster Series will use a junction box at the base of the sign, an indoor wire system, modem or radio. Refer to **Section 3** for information on possible connection procedures.

For details on configuring the DataMaster to operate the display, refer to **Section 5.3** (Petroleum Price Display Operation).

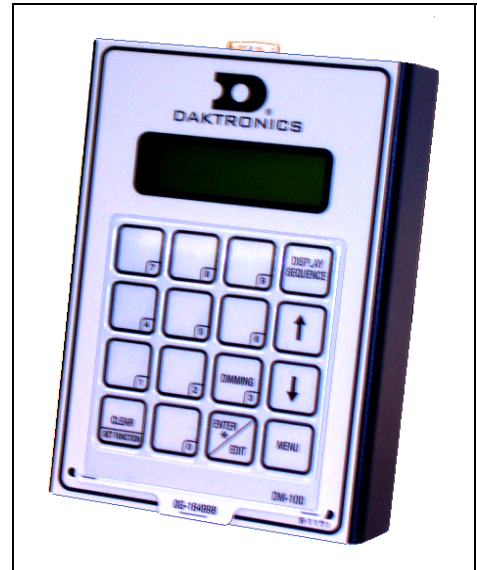


Figure 22: DataMaster 100

5.2 DataMaster™ Insert and Code

Reference Drawing:

Insert, DM-100 Price/T&T Display**Drawing A-167856**

The DataMaster 100 uses a keypad insert to program petroleum price information into Daktronics LED DataMaster Petroleum Price displays.

Figure 23 illustrates the DM-100 insert used to control the displays. For more details on the insert, refer to the DataMaster 100 insert drawing, **Drawing A-167856**.

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.

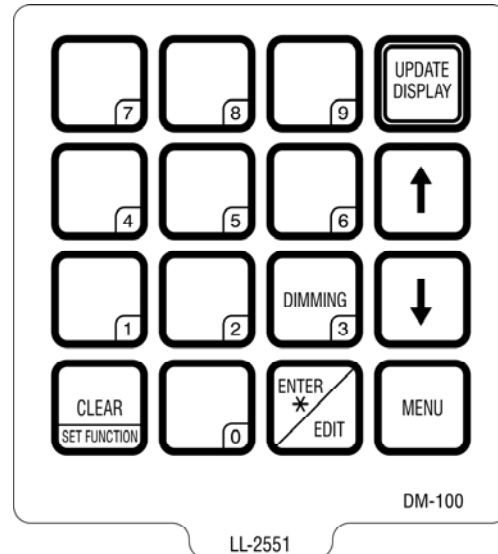


Figure 23: DataMaster 100 Insert LL-2551

5.3 Petroleum Price Display Operation

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

Connect the DataMaster 100 controller to the display. Often when using either a modem or radio an outdoor j-box will also be connected for use if the other means of communication fail.

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

Petroleum Price Display Startup

To operate the DataMaster Petroleum Price displays, the DataMaster 100 must first be programmed to the petroleum price 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 “Petroleum Price” 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 Petroleum Price.

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
<div style="border: 1px solid black; padding: 5px; text-align: center;"> <p><i>CURRENT FUNCTION PETROLEUM PRICE</i></p> </div>	<p>Power is provided to the DM100 through the serial cable or through the wall pack transformer, either directly or by way of the j-box/signal converter.</p> <p>This display appears briefly.</p>
<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 “PETROLEUM PRICE” was shown on the bottom line of the LCD during startup, do nothing. The controller will automatically default to previous Petroleum Price 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 “PETROLEUM PRICE” 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 and try again.</p>
<div style="border: 1px solid black; padding: 5px; text-align: center;"> <p><i>SELECT FUNCTION PETROLEUM PRICE ↓↑</i></p> </div>	<p>Press the arrow up or down keys<↑↓> until the petroleum price option is shown. Press the <ENTER> key to accept.</p>

Note: The actual Petroleum 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:


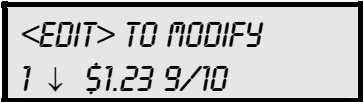
1. Price Line 1
2. Price Line 2
3. Price Line 3
4. Price Line 4
5. Price Line 5
6. LED Test
7. Modem Settings
8. Display Status
9. Set Time
10. POS Settings

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 more information about the Modem Settings submenu, refer to **ED13953: DataMaster Modem Installation Manual**. The following sections also provide information about the Display Status or the Set Time submenus. **Section 6** explains the Point of Sale interface option.

Petroleum Price Controller Operation

The Petroleum Price Controller LCD display will default to showing the current display settings on power up. The following text will be shown on the LCD.

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

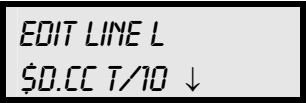
Modifying Price Line Settings

The petroleum price can be modified either by pressing the <EDIT> key during operation or using the <MENU> key. Refer to the following key to identify the item to be edited.

L = Current line number to be edited

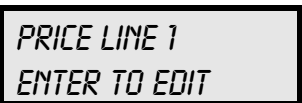
D.CC = Current dollars and cents value to edit

T = Current tenths of cent value to edit

LCD Screen	Action
	<p>Press any of the number keys to edit the price value for this line. Press the down arrow key <↓> to modify the value of the 1/10-cent data for this line (see note below).</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>Many displays do not have a changeable 1/10-cent digit. Changing the tenths-cent value from 9 on these digits will make the digit appear incorrect.</p>

Edit Price Line 1-5

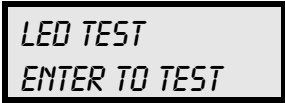
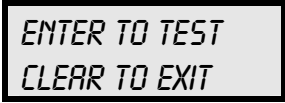
After pressing the <MENU> key, the following LCD prompt is displayed:

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

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).

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> to send the test command to the sign. Press <CLEAR> to exit the test mode.

Modem Settings

A DM-100 controller can be connected to a modem, allowing for control of a DataMaster display remotely via a telephone network.

The first time a modem system is used, modem settings (such as Dial-Out Number) must be programmed into the DM-100.

When a modem is detected and all configurations have been set, pressing the <DISPLAY SEQUENCE> key will show the following:



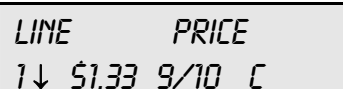
If more than one modem dial number is configured, the DM-100 will ask which displays to update before dialing.

The modem will dial the number shown on the bottom line of the LCD. When complete, the modem will send the sequence to the display and wait for a response. The result will be shown on the LCD.

To cancel connection to the display, press the <CLEAR> key twice.

If the modem is not able to connect to the display, a modem error message will be displayed.

When the modem is connected to the display, a "C" character will flash on the lower right corner of the LCD to show that a modem connection has been established.



The modem will automatically disconnect from the display after a period of inactivity that is set by the Disconnect Time set function in the menu. When less than 5 seconds of modem connection remain, the LCD will count down the time remaining, giving the user a chance to retain modem connection to the display.



The modem will disconnect from the display in 5 seconds. Press <CLEAR> to cancel and remain connected to the display.

Display Sequence

Once connected to the display, 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.

Set Time

Use the Set Time menu to set the time on the display.

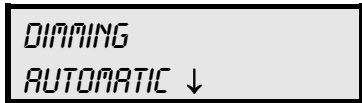
LCD Screen	Action
An LCD screen with a black border displaying "SET TIME-12HR" on the top line and "HH:MM AM ↓" on the bottom line.	<p>HH – Current hours value MM – Current minutes value AM – Current AM/PM setting (not shown when 24-hour time is selected)</p> <p>Using the number keys, enter the time in the 12-hour (or 24-hour) format. Press the down arrow key <↓> to modify the AM/PM setting.</p> <p>Note: The flashing asterisk shows the current data being edited.</p> <p>To save changes, press the <ENTER> key when finished editing.</p> <p>Press the <CLEAR> key to cancel changes.</p>

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


Dimming

The dimming level of the Petroleum Price display can be adjusted in two ways. A light sensor, mounted in the display face, 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 dimming functions, or to enter the **Blank Sign** function, 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> <p>Blank Sign –The display will blank all items.</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="456 422 803 520" style="border: 1px solid black; padding: 5px; text-align: center;"> <i>INTENSITY XX↓↑ ENTER TO SET</i> </div> <p>XX – Current intensity (1-16) Max intensity – 16 (Default is 16)</p>	<p>Press the up or down arrow key <↑↓> to modify the current intensity of the display</p> <p>Press <ENTER> to accept this intensity. If the manual-dimming mode is selected, this will be the new intensity for the display all the time. However, if the automatic dimming mode is selected, the display will dim between the dim mode and the maximum intensity level you have set.</p>

Radio Settings

The DataMaster controller is most often connected to an external radio device. When the DM-100 senses that an external device is connected, the following LCD prompt is shown at startup:

LCD Screen	Action
<div data-bbox="443 1094 800 1192" style="border: 1px solid black; padding: 5px; text-align: center;"> <i>SEARCHING FOR CONNECTED DEVICE</i> </div>	<p>(None necessary)</p>

This LCD display is shown for several seconds while the DM-100 attempts to configure the connected device.

Once the device is found and initialized, the LCD shows which device is connected:

LCD Screen	Action
<div data-bbox="415 1556 743 1654" style="border: 1px solid black; padding: 5px; text-align: center;"> <i>RADIO FOUND & INITIALIZED</i> </div>	<p>This message appears on the LCD when a radio is connected.</p>

For more information on the radio controlled display, refer to **ED13894: DataMaster Radio Installation Manual**.

Section 6: POS Interface Installation and Operation

A Point of Sale (POS) interface option is available with DataMaster LED Petroleum Price Displays. Displays with this option automatically update when product prices are changed in the POS. Displays with the POS interface option will be supplied with a POS Interface Kit (see table below for part numbers).

P.O.S. Interface Type	Interface Kit Required	Interface Cable	Riser Diagram
Gilbarco G-Site	0A-1279-0400	0A-1279-0402	200195
Gilbarco PAM 1000	0A-1279-0452	0A-1279-0229	224628
Allied	0A-1279-0443	0A-1279-0144	215840

6.1 Installation Preparation

1. Ensure that the POS system has a price sign output port, and refer to the POS manuals to enable and/or configure the port.
2. Locate the parts in the list below.

6.2 Hardware installation:

1. Locate the following parts:
 - a) POS Interface Kit containing:
 - i) DataMaster 100 w/POS option (0A-1196-0133)
 - ii) Wall mounting bracket for DM-100 (0M-200082)
 - iii) POS Interface Cable (refer to table 7-1 for part number)
 - iv) POS riser diagram (refer to table 7-1)
 - b) 10' cable, DB9 to DB9 (W-1267)
 - c) Indoor junction box (0A-1196-0099) for direct wired installations or Radio Interface junction box (0A-1279-0161) for wireless installations.
 - d) Wallpack transformer (T-1118).
2. The wall mount bracket (0M-200082) provides convenient storage for the DM-100 controller. If using the wall mount bracket for the DM-100, ensure that there is sufficient clearance above the bracket to allow the DM-100 to be removed from the bracket with both cables attached. Also ensure that the POS interface cable will reach from the DM-100 location to the price sign output of the POS. Fasten the wall mount bracket if desired. The DM-100 can be permanently attached to the wall mounting bracket by removing the two screws in the bottom edge of the DM-100, sliding the DM-100 into the wall mount bracket, and reinstalling the screws through the slots in the bottom bracket flange.

3. Mount the junction box (refer to step c. above). Ensure that the DB9 to DB9 cable (W-1267) will reach from the DM-100 to the junction box.
4. Complete junction box to sign, or junction box to radio wiring as shown on the riser diagram (drawing 200195).
5. Attach the POS interface cable to the POS price sign port. Coil any excess cable and cable tie it out of the way.
6. Attach the DB9 to DB9 cable (W-1267) to the junction box as shown on the riser diagram. Coil any excess cable and cable tie it out of the way.
7. Plug the transformer (T-1118) into an outlet, and connect the output to the power jack on the J-box.
8. Ensure that the DM-100 is up and running. Send a price change to the sign to verify communications between the sign and the DM-100.

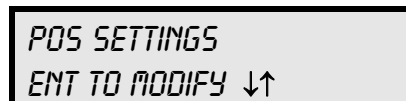
6.3 Configuring the DM-100 for Gilbarco G-Site Interface

Preparation

The DM-100 function must be set to “GAS PRICE”. The current function of the DM-100 is displayed during power up. To change to function, cycle power to the DM-100, and press the <SET FUNCTION> key when prompted.

Configuration


1. Press the <MENU> key and use the <↑> and <↓> keys to scroll to the “POS SETTINGS” menu item.



A rectangular box with a black border containing the text "POS SETTINGS" on the top line and "ENT TO MODIFY ↓↑" on the bottom line. The text is in a monospaced font.

Press <ENTER>.

2. Select the POS type by using the <↑> and <↓> keys to scroll to “GILBARCO GSITE”.



A rectangular box with a black border containing the text "POS INTERFACE" on the top line and "GILBARCO GSITE ↓↑" on the bottom line. The text is in a monospaced font.

Press <ENTER>.

- Each price in the Gilbarco G-Site is uniquely identified by ‘price category’. Each price category corresponds to the price assigned to a particular grade/service level/price level. Use the menu shown below to configure which price category you would like displayed on each line of the display.



Use the <↑> and <↓> keys to select a price category to be displayed on line 1 of the sign. Press <ENTER> to accept the setting. Pressing <ENTER> when the price category displayed is <NONE> will cause the price sign to ignore POS data for this line. (This may be useful for configuring some lines of a price sign to receive manual price changes only).

- Select a price category to be displayed on each line of the sign, and press <MENU>, or <ESC/CLEAR> when finished. The POS interface configuration is complete.

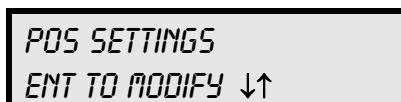
6.4 Configuring the DM-100 for Allied Interface

Preparation

The DM-100 function must be set to “GAS PRICE”. The current function of the DM-100 is displayed during power up. To change to function, cycle power to the DM-100, and press the <SET FUNCTION> key when prompted.

Configuration

- Press the <MENU> key and use the <↑> and <↓> keys to scroll to the “POS SETTINGS” menu item.



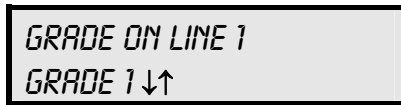
Press <ENTER>.

- Select the POS type by using the <↑> and <↓> keys to scroll to “ALLIED”.



Press <ENTER>.

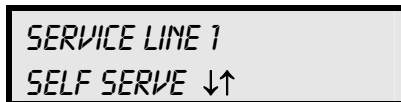
- Each price in Allied is uniquely identified by grade, service level, and price level. Use the <↑> and <↓> keys to select a grade for the line. (If a line is not used select <NONE DISPLAYED>).



A rectangular box with a black border containing two lines of text. The first line reads "GRADE ON LINE 1" and the second line reads "GRADE 1 ↓↑".

Press <ENTER>.

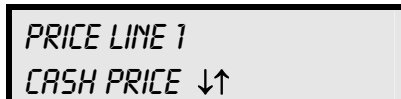
- Use the <↑> and <↓> keys to select a service level for the line.



A rectangular box with a black border containing two lines of text. The first line reads "SERVICE LINE 1" and the second line reads "SELF SERVE ↓↑".

Press <ENTER>.

- Use the <↑> and <↓> keys to select a price level (cash or credit).



A rectangular box with a black border containing two lines of text. The first line reads "PRICE LINE 1" and the second line reads "CASH PRICE ↓↑".

Press <ENTER>.

- Select a grade/service level/price level for each line of the sign, and press <MENU>, or <ESC/CLEAR> when finished. The POS interface configuration is complete.

6.5 Configuring the DM-100 for PAM 1000 Interface

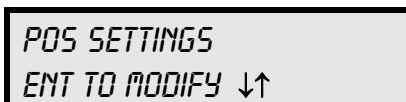
Preparation

The DM-100 function must be set to "GAS PRICE". The current function of the DM-100 is displayed during power up. To change to function, cycle power to the DM-100, and press the <SET FUNCTION> key when prompted.

Note: The Gilbarco PAM 1000 is a pump access module that allows 3rd party P.O.S. systems to interface to and control Gilbarco pumps. The PAM 1000 does not have a dedicated price sign port. The DM-100 "listens" to the price data that is sent from the P.O.S. to the PAM 1000 when prices are changed on the pumps.

Configuration

1. Press the <MENU> key and use the <↑> and <↓> keys to scroll to the “POS SETTINGS” menu item.

A rectangular box with a black border containing the text "POS SETTINGS" on the top line and "ENT TO MODIFY ↓↑" on the bottom line.

POS SETTINGS
ENT TO MODIFY ↓↑

Press <ENTER>.

2. Select the POS type by using the <↑> and <↓> keys to scroll to “PAM 1000”.

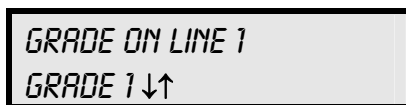
A rectangular box with a black border containing the text "POS INTERFACE" on the top line and "PAM 1000 ↓↑" on the bottom line.

POS INTERFACE
PAM 1000 ↓↑

Press <ENTER>.

3. Each price in the PAM 1000 is uniquely identified by a “system grade number” and a “price level” (cash or credit). For Verifone Ruby P.O.S. systems, the system grade numbers are the same as the product numbers in the Ruby (when setting prices in the Ruby, the first product listed in “system grade 1”). Use the <↑> and <↓> keys to select a grade for the line. (If a line is not used select <NONE DISPLAYED>.

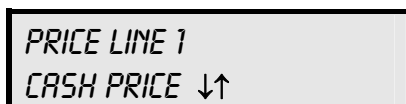
Note: Only self service prices may be displayed when using the Ruby.

A rectangular box with a black border containing the text "GRADE ON LINE 1" on the top line and "GRADE 1 ↓↑" on the bottom line.

GRADE ON LINE 1
GRADE 1 ↓↑

Press <ENTER>.

4. Use the <↑> and <↓> keys to select a price level (cash or credit).

A rectangular box with a black border containing the text "PRICE LINE 1" on the top line and "CASH PRICE ↓↑" on the bottom line.

PRICE LINE 1
CASH PRICE ↓↑

Press <ENTER>.

5. Select a grade for each line of the sign, and press <MENU>, or <ESC/CLEAR> when finished. The POS interface configuration is complete.

6.6 Changing Prices:

Each display line for which a price category is configured will automatically update when the price is changed in the POS system. Attempting to manually edit prices that are configured for POS control will cause the following screen to appear:



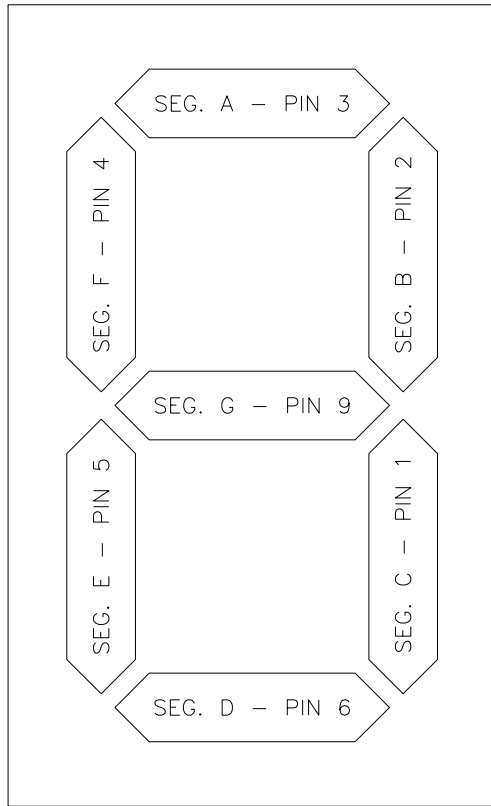
*THIS LINE POS
CTRLD. OVERRIDE?*

Press <ENTER> to manually edit the price, or <ESC/CLEAR> to cancel.

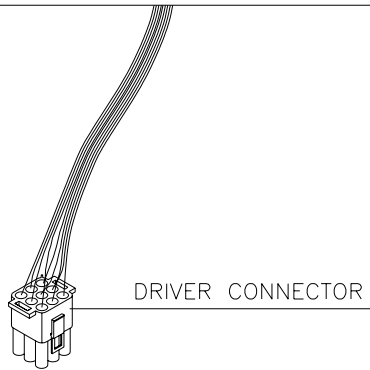
Appendix A: Reference Drawings

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-38532
Riser Diagram; Outdoor Wire Control	Drawing A-164988
Schematic; Multipurpose LED Drvr	Drawing A-165028
4 Column MASC LED Driver Specifications.....	Drawing A-166216
Insert, DM-100 Price/T&T Display.....	Drawing A-167856
Host/Client and Master/Slave Definitions.....	Drawing A-168376
Riser Diagram, Indoor Wire Control	Drawing A-175342
Modem Installation; 4 col MASC Drvr. Enc.	Drawing A-177039
Schematic; Gen III Outdoor LED, 8 Column Driver.....	Drawing A-177935
Schematic; 16 Col Multipurpose LED Drvr.....	Drawing A-179599
Light Sensor Installation	Drawing A-183775
Quick Install, Gas Price Displays w/MASC Driver.....	Drawing A-189768
System Riser Diagram, Server/Client Setup	Drawing A-199834
System Riser Diagram; Point of Sale Configuration	Drawing A-200195
System Riser Diagram, Modem Setup	Drawing A-200552
Quick Installation Drawing, Allied.....	Drawing A-215840
System Riser Diagram; PAM 1000 POS Interface.....	Drawing A-224628
Address settings, MASC drivers.....	Drawing A-227502
Shop Drawing, DF-2100-60-T14-SF	Drawing A-232509
Shop Drawing, DF-2100-48-T11-SF	Drawing A-236905
Enclosed Driver, 1 KW 4-Column Reference.....	Drawing A-276129
Shop Drawing, DF-2100-36-T10-DF	Drawing B-268948
Shop Drawing, DF-2100-36-T8-SF	Drawing B-269576



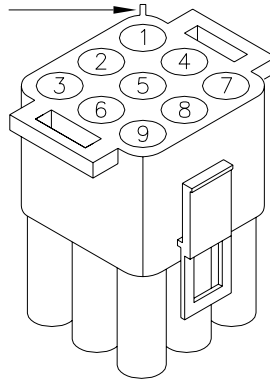
7 SEGMENT BAR DIGIT
FRONT VIEW



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

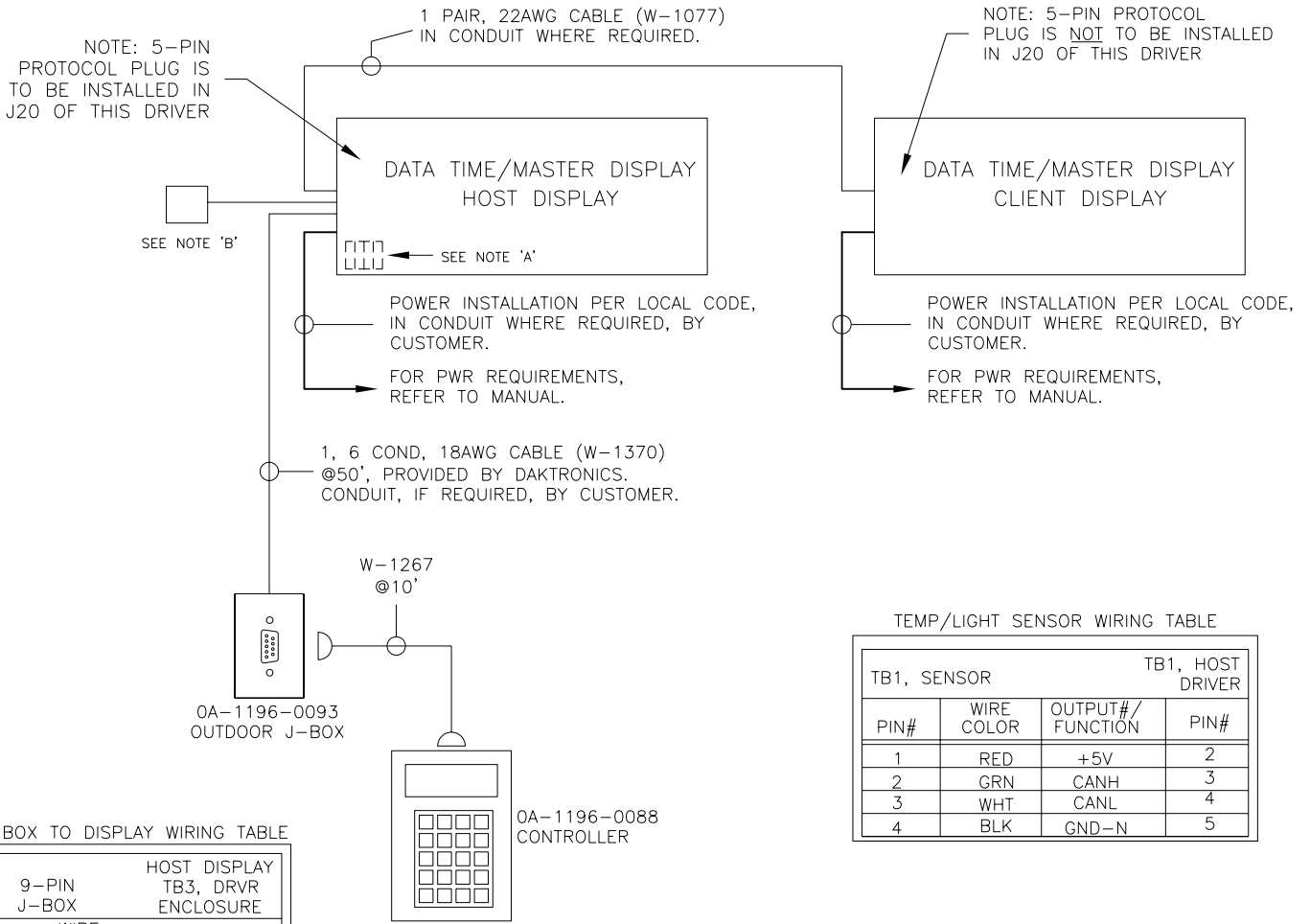
DES. BY: DRAWN BY: HEIDERSCHIEDT DATE: 5 JUN 89

REVISION APPR. BY: AVB
02 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

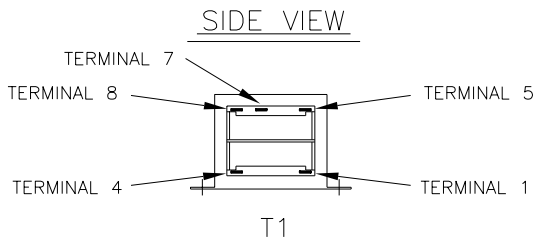
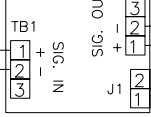
REVISION	APPR. BY:	1279-R01A-164988
07	SCALE: NONE	

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

OP-1110-0011

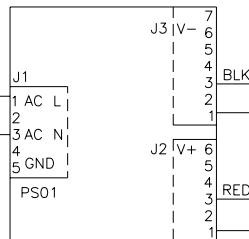
TB3

- 1 TAN
- 2 RED
- 3
- 4 GRY
- 5 BRN
- 6 RED
- 7 BLK
- 8

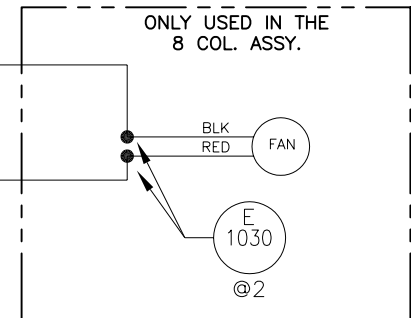


TB4

- 1
- 2
- 3



A-1720
POWER SUPPLY



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.

REV.	DATE	DESCRIPTION	BY	APPR.
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	

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	

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

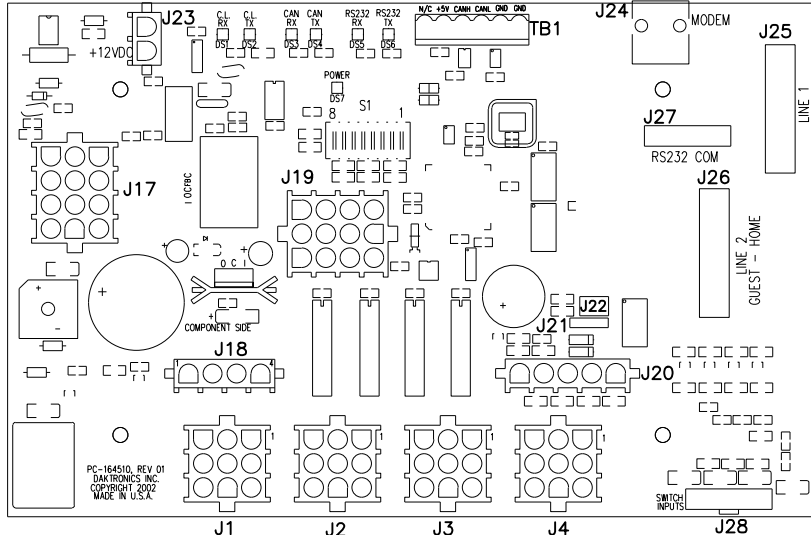
TB1 CAN	
PIN	FUNCTION
1	N/C
2	+5V-P
3	CANH-P
4	CANL-P
5	GND-N
6	GND-N

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	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

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

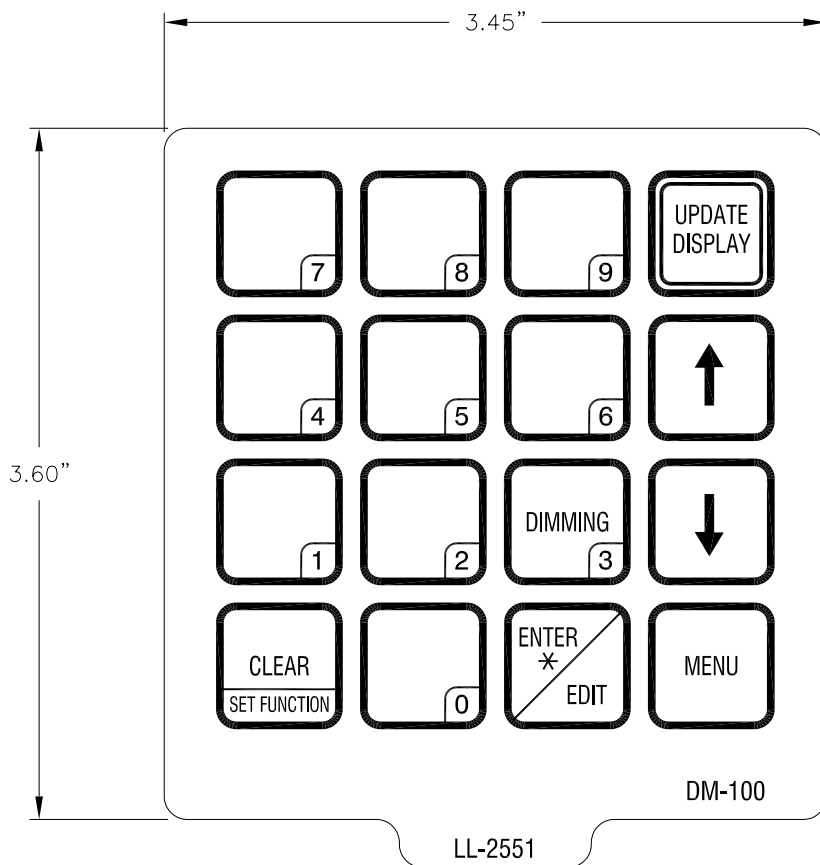
J22 ISP	
PIN	FUNCTION
1	BKD-P
2	GND-N
3	N/C
4	RESET-P
5	VFP-P
6	+5V-P

NOTE:

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

REV	DATE:	CORRECTED S1 PINOUT	BY:
04	01 FEB 13		RBN
3	27 NOV 04	UPDATE DRIVER J-27 FOR CORRECT PIN OUT	BY:
2	16 MAY 03	UPDATE DRIVER FOR LATEST REVISION OF MASC DRIVER.	BY:
1	06 JUN 02	ADDED LED LABELS ADDED NEW NOTES	BY: JJS

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	<p>DO NOT SCALE DRAWING</p>	
<p>PROJ: OUTDOOR LED SCOREBOARDS</p>		
<p>TITLE: 4 COLUMN MASC LED DRIVER SPECIFICATIONS</p>		
DESIGN:	DRAWN: JSPAHR	DATE: 29 APR 02
SCALE: 1=2		
SHEET	REV	JOB NO:
	04	P1192
		FUNC -TYPE-SIZE
		R - 07 - A
		166216



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DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ:			
TITLE: INSERT, DM-100 PRICE/T&T DISPLAY			
DES. BY: EBRAVEK		DRAWN BY: EBRAVEK	
		DATE: 28 MAY 02	
REVISION	APPR. BY:	1196-E07A-167856	
00	SCALE: 1=1		

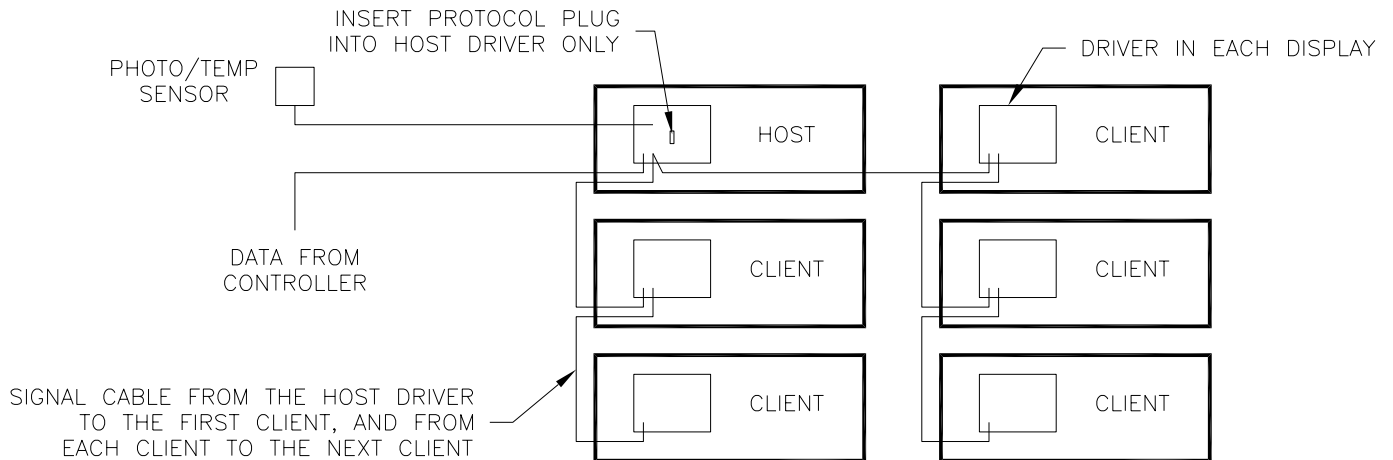
REV.	DATE	DESCRIPTION	BY	APPR.

HOST/CLIENT DESIGNATIONS:

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 PROTOCOL PLUG IS A 5-PIN PLUG SUPPLIED WITH THE PHOTO/TEMP SENSOR KIT.

THE OTHER DRIVERS ARE DESIGNATED AS CLIENT DRIVERS. THE FIRST CLIENT DRIVER RECEIVES ITS SIGNAL (DATA) FROM THE HOST AND THEN TRANSMITS SIGNAL TO THE NEXT CLIENT, AND THAT ONE TO THE NEXT UNTIL ALL CLIENTS IN THE SYSTEM HAVE BEEN CONNECTED.

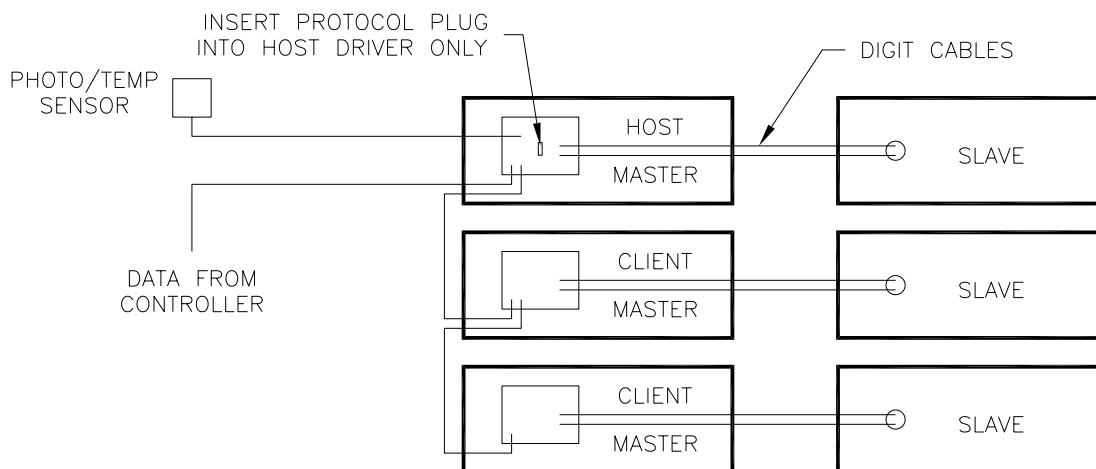
THIS HOST/CLIENT RELATIONSHIP MAY BE USED IN MULTI-LINE DISPLAYS, AS PICTURED, OR ON SINGLE-LINE 2V (DOUBLE SIDED) DISPLAYS, WHERE EACH DISPLAY FACE CONTAINS A DRIVER.



MASTER/SLAVE DESIGNATIONS:

SOME 2V INSTALLATIONS USE A DISPLAY WITH A DRIVER ON ONE SIDE OF THE SIGN, AND A DISPLAY WITHOUT A DRIVER ON THE OTHER SIDE OF THE SIGN. THE DISPLAY WITH A DRIVER IS DESIGNATED AS A MASTER, WHILE THE DISPLAY WITHOUT A DRIVER IS THE SLAVE. THE SLAVE DISPLAY HAS LONG CABLES EXTENDING FROM THE BACK, WHICH ARE TO BE ROUTED THROUGH A HOLE IN THE BACK OF THE MASTER DISPLAY. THE PLUGS ON THESE CABLES ARE TO BE CONNECTED TO THE MASTER'S DRIVER DURING INSTALLATION.

IF THE INSTALLATION IS MULTI-LINE, AS PICTURED, THE DRIVERS ON THE MASTER SIDE OF THE SIGN FOLLOW THE HOST/CLIENT RELATIONSHIP DESCRIBED ABOVE.



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DAKTRONICS, INC. BROOKINGS, SD 57006	
PROJ: DATATIME LED DISPLAYS	
TITLE: HOST/CLIENT AND MASTER/SLAVE DEFINITIONS	
DES. BY: AVB	DRAWN BY: A VANBEMMEL DATE: 06 JUN 02
REVISION	APPR. BY: NONE
1279-R04A-168376	

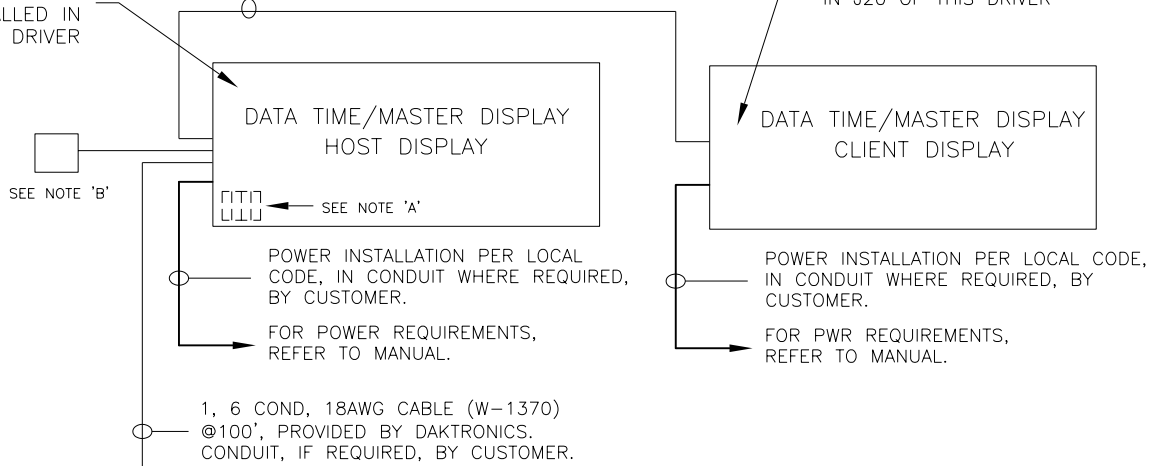
REV.	DATE	DESCRIPTION	BY	APPR.
02	23 SEP 02	ADDED PROTOCOL PLUG NOTE.	AVB	
01	09 JUL 02	REMOVED PHOTO/TEMP SENSOR PART NO.	AVB	

WIRE CONTROL FROM BUILDING LOCATION

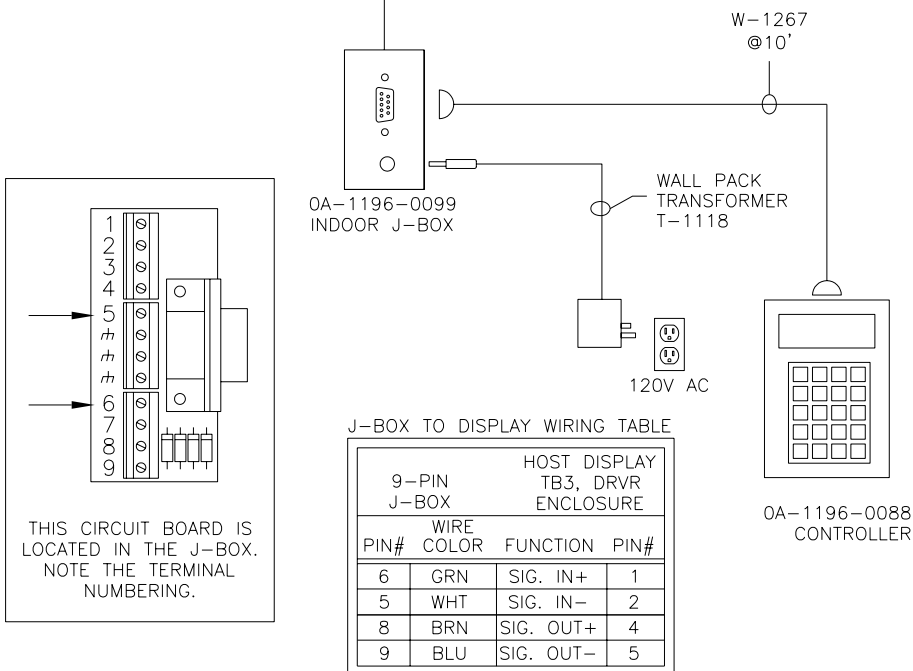
NOTE: 5-PIN PROTOCOL PLUG IS TO BE INSTALLED IN J20 OF THIS DRIVER

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



CONTROL LOCATION



TEMP/LIGHT SENSOR WIRING TABLE

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

J-BOX TO DISPLAY WIRING TABLE

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

DISPLAY TO DISPLAY WIRING TABLE

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

NOTE 'A':
0A-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':
0A-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-165028 FOR DRIVER ENCLOSURE SCHEMATIC

REV.	DATE	DESCRIPTION	BY	APPR.
04	06 APR 05	REVISED WIRING TABLE, CHANGED SOME CABLES.	ATP	
03	07 OCT 04	UPDATED PER NEW ASSEMBLES	RT	
02	20-SEP-04	CHANGED PART NUMBER FOR LIGHT SENSOR	JHF	
01	13 MAR 03	ADDED J-BOX CIRCUIT BOARD PICTURE. CHANGED PART NUMBERS FOR LIGHT SENSOR AND TEMP SENSOR ASSEMBLIES.	AVB	

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DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: DATETIME LED DISPLAYS
TITLE: RISER DIAGRAM, INDOOR WIRE CONTROL, DATA TIME/MAS.

DES. BY: DRAWN BY: M MILLER DATE: 18 SEP 02

REVISION	APPR. BY:	1279-R01A-175342
04	SCALE: NONE	

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.

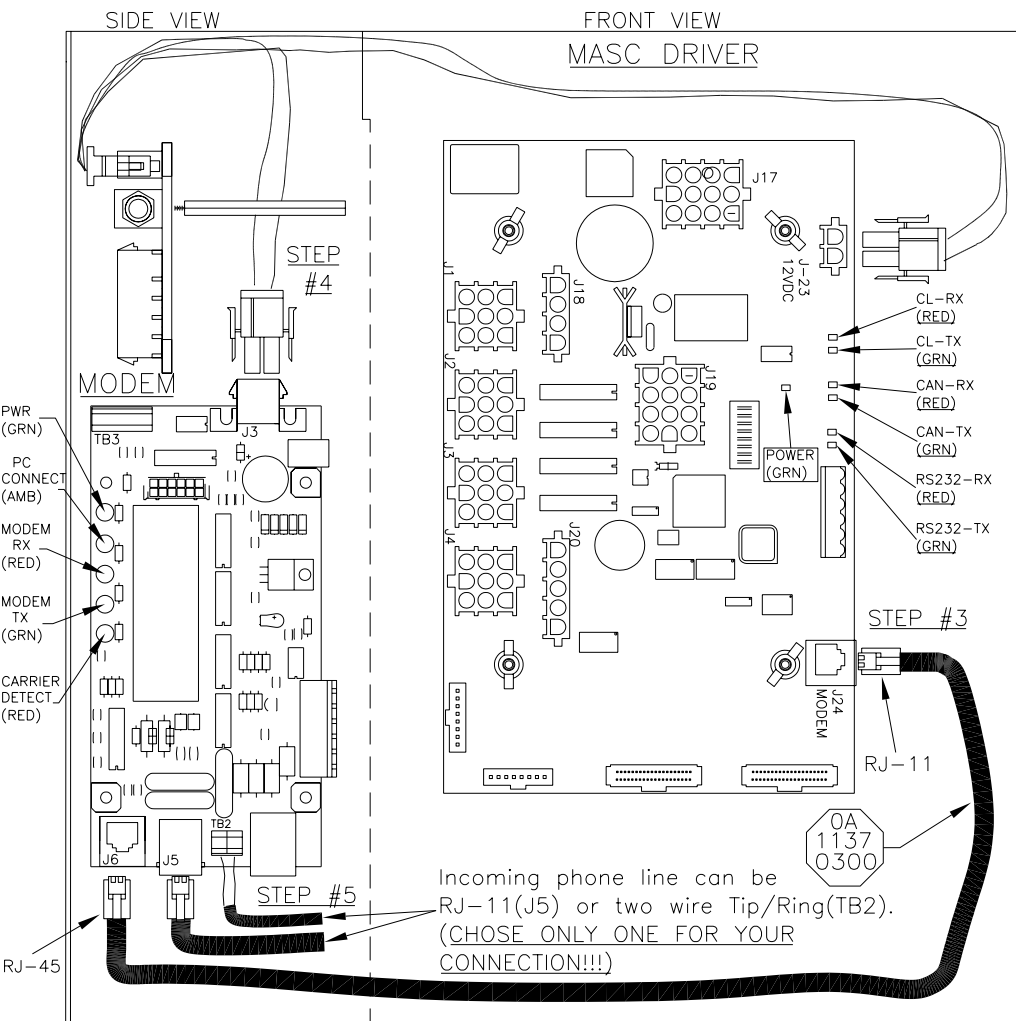
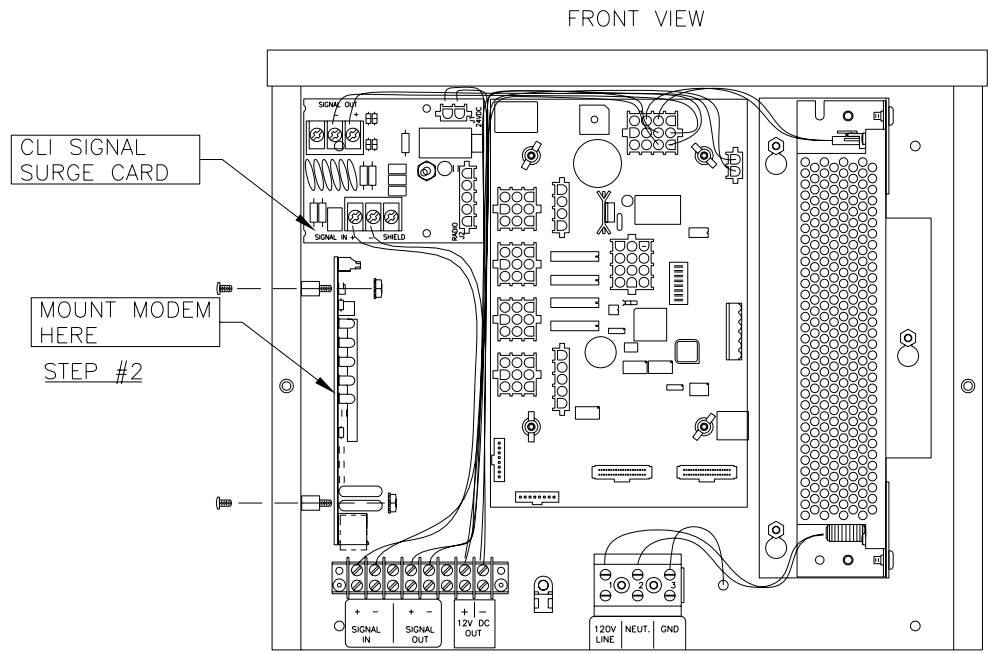
Land line Modem Status LEDs

- 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:

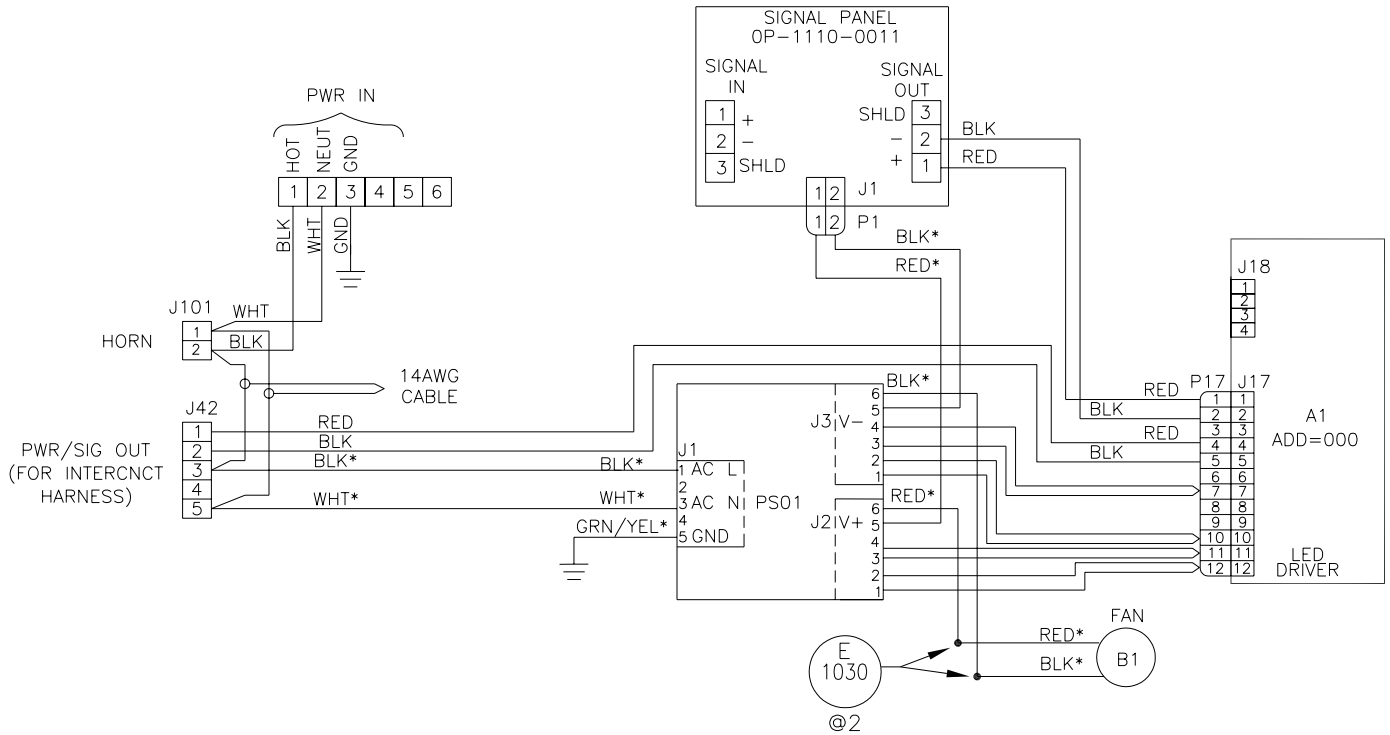
01

SCALE: 1=4

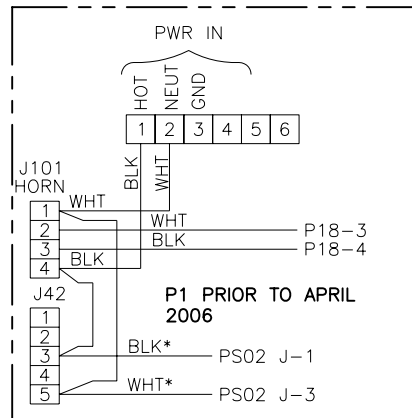
1279-R10A-177039

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

MASTER CONFIGURATION
0A-1192-2254



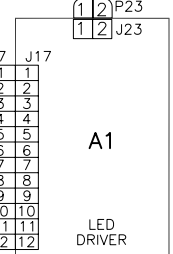
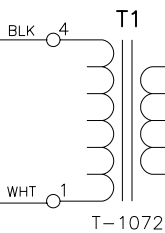
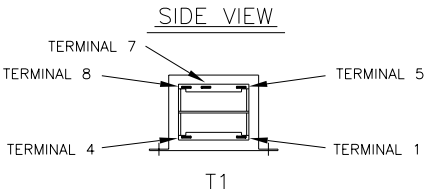
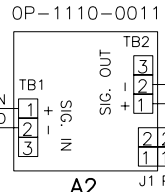
ALL POWER CONDUCTORS ARE 14AWG EXCEPT * INDICATES 18AWG CONDUCTORS.
ALL SIGNAL CONDUCTORS ARE 22AWG CONDUCTORS.
REFERENCE DWG 1192-R06C-178208 FOR DETAILED CABLE ASSEMBLY DIAGRAM.



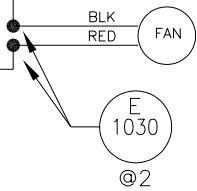
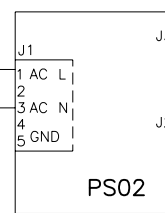
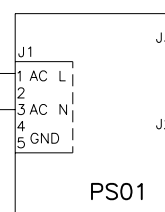
THE CONCEPTS EXPRESSED AND DETAILS SHOWN ON THIS DRAWING ARE CONFIDENTIAL AND PROPRIETARY. DO NOT REPRODUCE BY ANY MEANS, INCLUDING ELECTRONICALLY WITHOUT THE EXPRESSED WRITTEN CONSENT OF DAKTRONICS, INC. COPYRIGHT 2002 DAKTRONICS, INC.			
DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ: OUTDOOR LED SCOREBOARDS			
TITLE: SCHEMATIC; GEN III OUTDOOR LED, 8 COLUMN DRVR			
DES. BY: MMILLER		DRAWN BY: MMILLER	
DATE: 05 NOV 02			
REVISION	APPR. BY:	1192-R03A-177935	
02	SCALE: 1=1		

02	21 MAR 06	CHG HARNESS TO SHOW NEW HORN CARD	KZB	
01	10 DEC 02	ADDED BLOCKS 5 AND 6 TO PWR IN	AJL	MWM
REV.	DATE	DESCRIPTION	BY	APPR.

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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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	
REV.	DATE	DESCRIPTION	BY	APPR.

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

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.

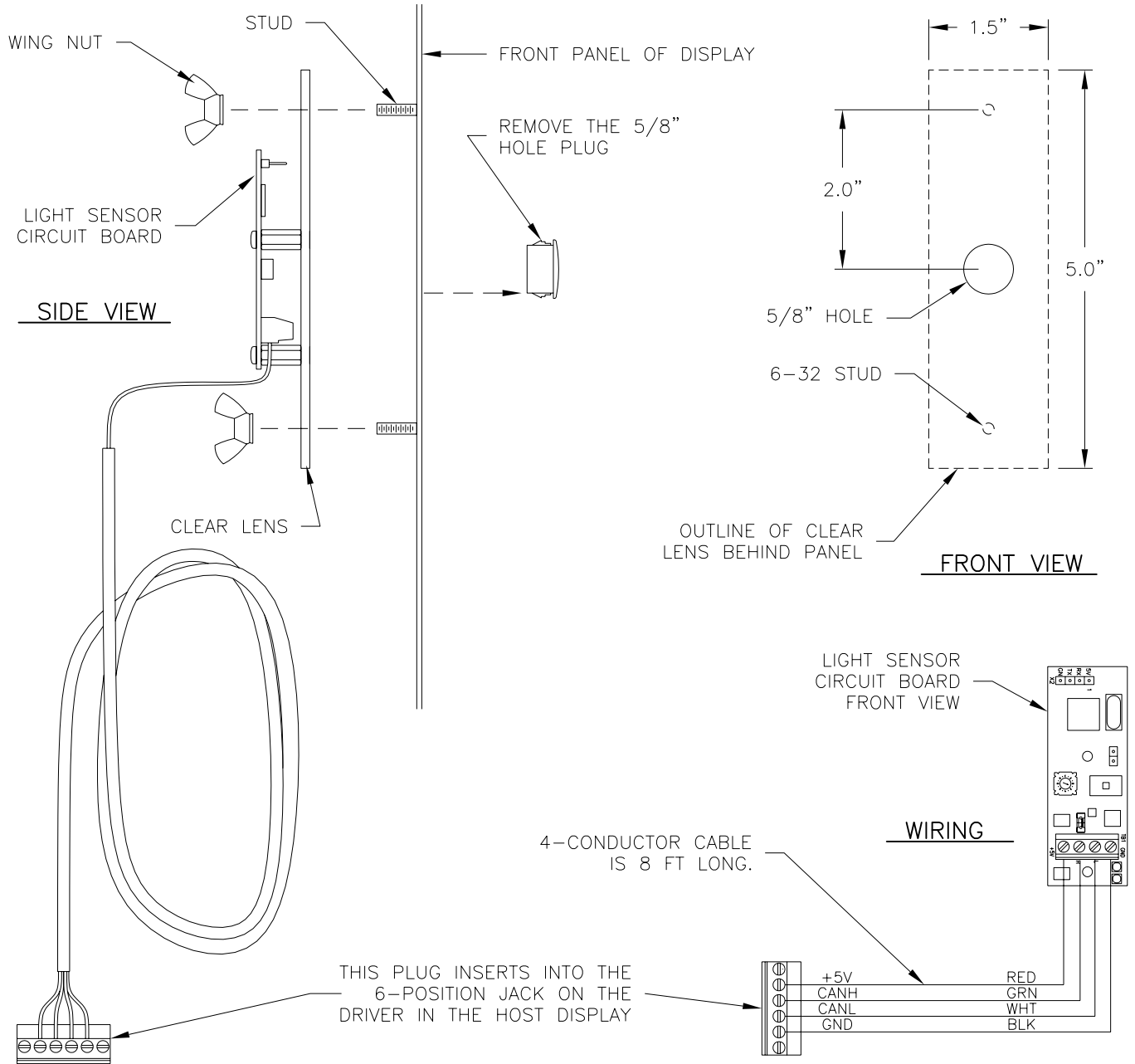
FOR DAKMAP (MULTIDROP) CONTROLLED SYSTEMS:

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

APPR. BY:

02

SCALE:

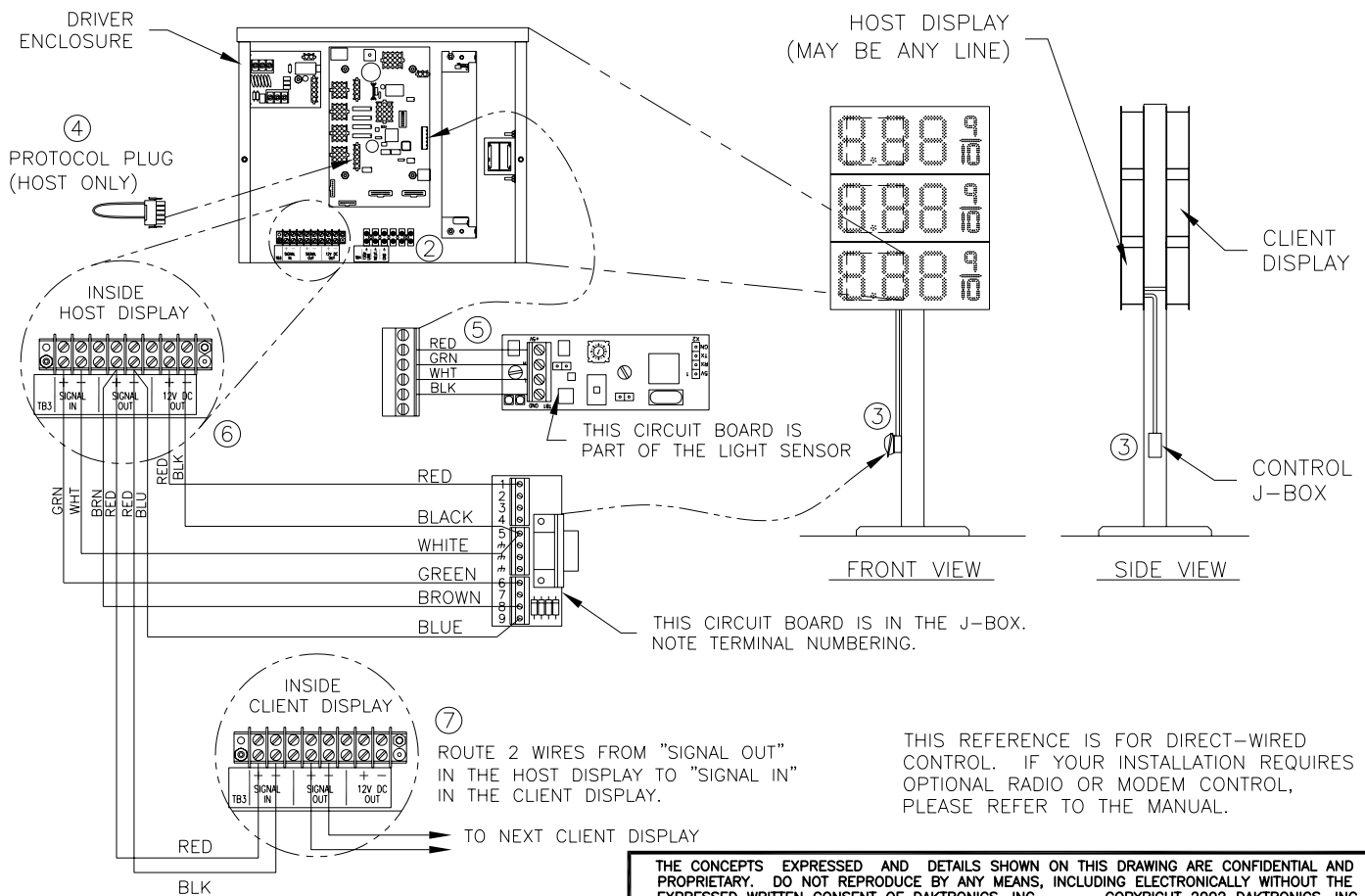
1=2

1279-R10A-183775

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

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. OUTDOOR J-BOX IS SHOWN.
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 "PRICE DISPLAY" OPTION. OPERATE THE CONTROLLER ACCORDING TO THE DM-100 CONTROLLER REFERENCE, ED-13960, TO SET THE GAS PRICE DATA. DISCONNECT THE CONTROLLER AND CLOSE THE J-BOX WHEN PROGRAMMING IS COMPLETE.



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DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ: DATAMASTER LED DISPLAYS			
TITLE: QUICK INSTALL, GAS PRICE DISPLAYS W/ MASC DRIVER			
DES. BY: AVB		DRAWN BY: A VANBEMMEL	
		DATE: 06 JUN 03	
REVISION	APPR. BY:	1279-R04A-189768	
02	SCALE: NONE		

02	22 JUN 06	CHANGED DRAWING TITLE.	AVB
01	06 APR 05	CHANGED STEP 6, ADDED WIRES TO VIEW.	ATP
REV.	DATE	DESCRIPTION	BY APPR.

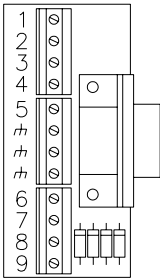
SERVER/CLIENT RADIO CONTROL

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

DATA TIME DISPLAY
 HOST

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

DATA TIME DISPLAY
 CLIENT

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.

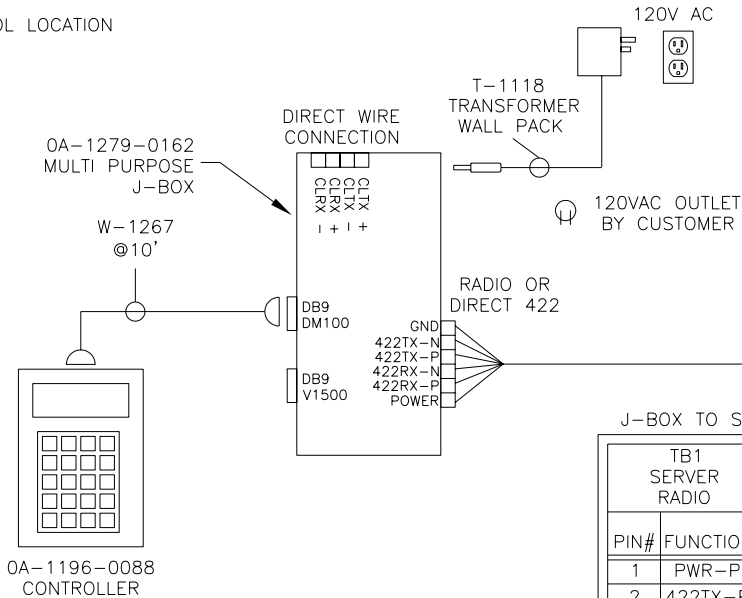
INSTALL "PROTOCOL 4" PLUG TO THE
 DRIVER IN THE HOST DISPLAY THAT IS
 CONNECTED TO THE RADIO CLIENT.

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

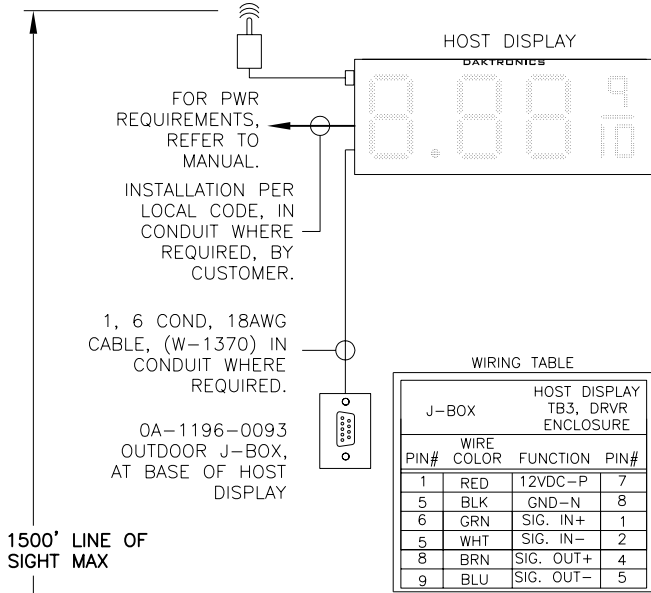
APPR. BY:

SCALE: NONE

1279-R01A-199834

REV.	DATE	DESCRIPTION	BY	APPR.
00				

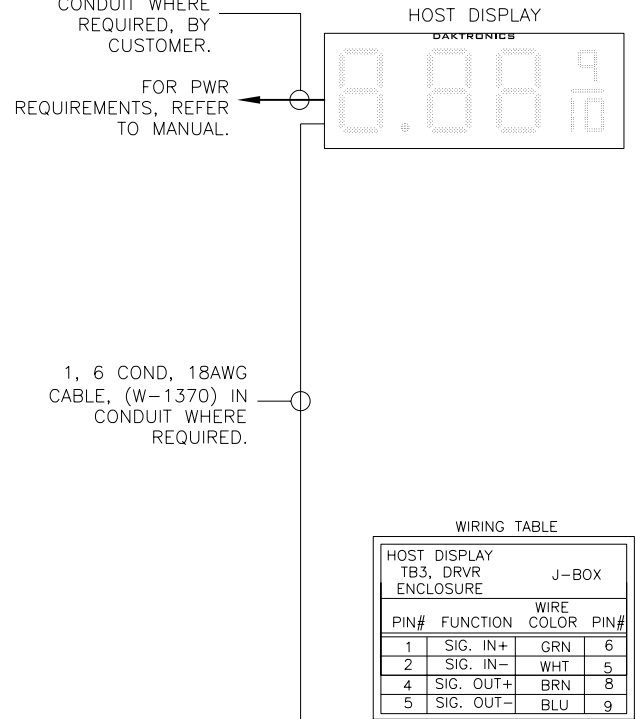
0A-1146-0078
CLIENT RADIO, INSTALLED AT DISPLAY
W/ 6 PIN ADAPTOR CABLE, 25'



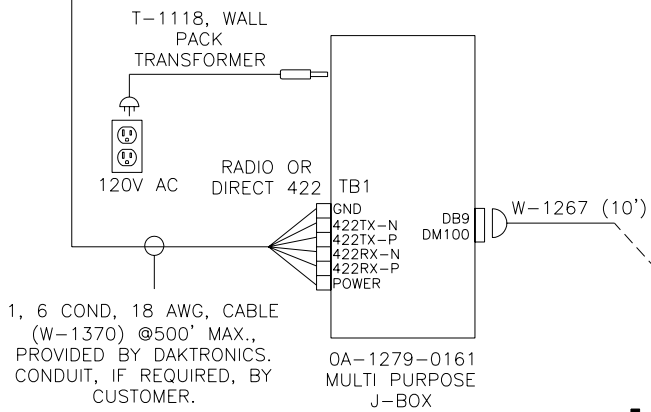
INSTALLATION PER LOCAL CODE, IN CONDUIT WHERE REQUIRED, BY CUSTOMER.

FOR PWR REQUIREMENTS, REFER TO MANUAL.

1, 6 COND, 18AWG CABLE, (W-1370) IN CONDUIT WHERE REQUIRED.



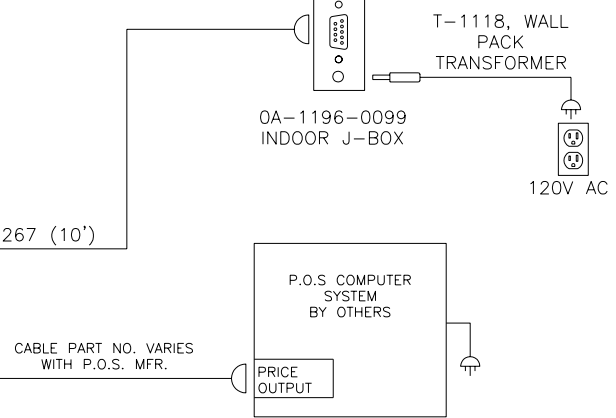
RADIO OPTION DIRECT WIRE OPTION



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

OM-200082 MOUNTING BRACKET (OPTIONAL)

0A-1196-0133 CONTROLLER



INSTALL "PROTOCOL 4" PLUG IN 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.

REV.	DATE	DESCRIPTION	BY	APPR.
04	06 APR 05	REVISED WIRING TABLES, CHANGED SOME CABLES.	ATP	
03	07 OCT 04	ADDED LINE OF SIGHT NOTE	RT	
02	04 MAY 05	CHANGED A FEW DETAILS TO MAKE THE DRAWING MORE GENERIC.	AVB	
01	19 DEC 03	UPDATED DETAILS OF CONTROLLER AND CABLE PART NUMBERS.	MWM	

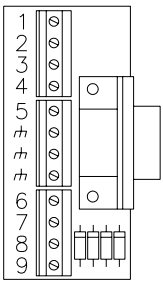
THE CONCEPTS EXPRESSED AND DETAILS SHOWN ON THIS DRAWING ARE CONFIDENTIAL AND PROPRIETARY. DO NOT REPRODUCE BY ANY MEANS, INCLUDING ELECTRONICALLY WITHOUT THE EXPRESSED WRITTEN CONSENT OF DAKTRONICS, INC. COPYRIGHT 2002 DAKTRONICS, INC.			
DAKTRONICS, INC. BROOKINGS, SD 57006			
PROJ: DATA TIME LED DISPLAYS			
TITLE: SYSTEM RISER DIAGRAM; POINT OF SALE CONFIGURATION			
DES. BY: MMILLER		DRAWN BY: MMILLER	
		DATE: 20 NOV 03	
REVISION	APPR. BY:	1279-R01A-200195	
04	SCALE: NONE		

MODEM CONTROL

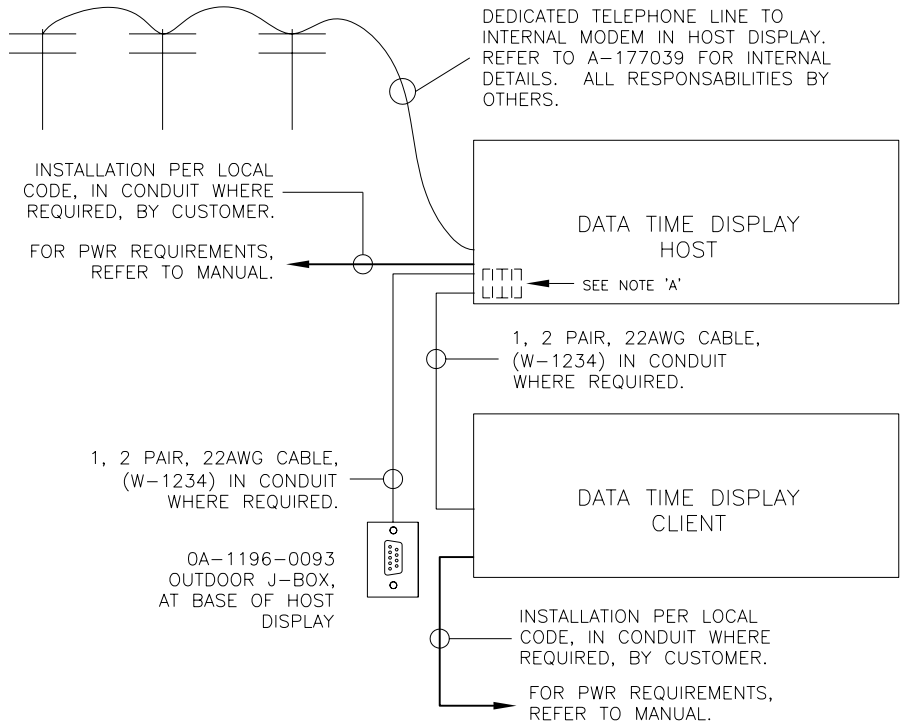
NOTE 'A':
 OA-1279-0203, INTERNAL LIGHT
 SENSOR INCLUDED ON SOME MODELS.
 REFER TO MANUAL FOR DETAILS.

J-BOX TO DISPLAY WIRING TABLE

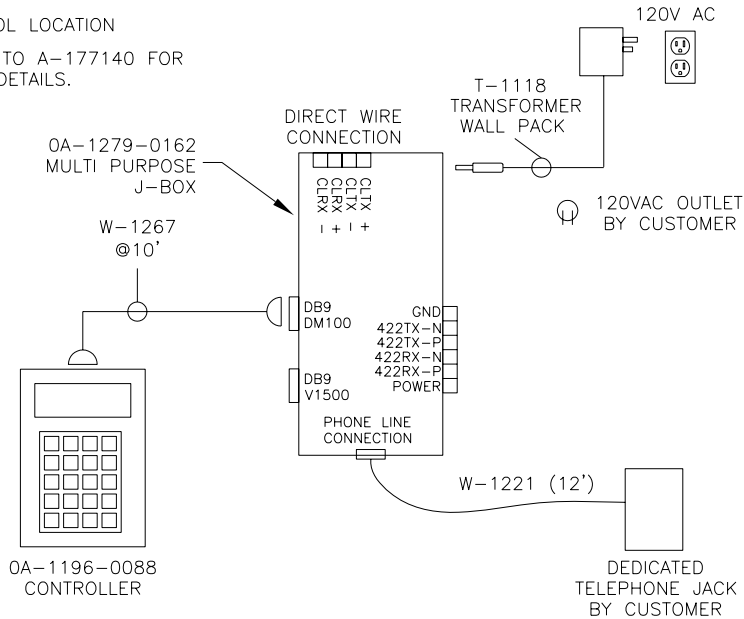
9-PIN J-BOX		HOST DISPLAY TB3, DRV ENCLOSURE	
WIRE PIN#	COLOR	FUNCTION	PIN#
1	RED	12VDC-P	7
5	BLK	GND-N	8
6	GRN	SIGNAL-P	1
5	WHT	SIGNAL-N	2



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



CONTROL LOCATION
 REFER TO A-177140 FOR
 MORE DETAILS.



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

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

ALL DISPLAYS MUST BE GROUNDED PER
 ARTICLE 250 AND 600 OF THE
 NATIONAL ELECTRICAL CODE WITH NO
 MORE THAN 10 OHMS GROUND
 RESISTANCE.

DAKTRONICS IS NOT RESPONSIBLE FOR
 TELEPHONE CONNECTIONS, OR
 DEDICATED LINES REQUIRED.

THE CONCEPTS EXPRESSED AND DETAILS SHOWN ON THIS DRAWING ARE CONFIDENTIAL AND
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 EXPRESSED WRITTEN CONSENT OF DAKTRONICS, INC. COPYRIGHT 2002 DAKTRONICS, INC.

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:

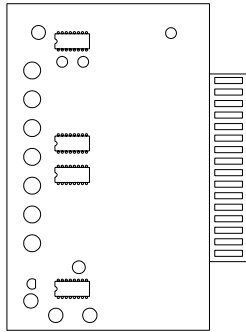
SCALE: NONE

1279-R01A-200552

REV.	DATE	DESCRIPTION	BY	APPR.
00				

RS232 INTERFACE CARD

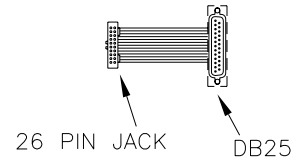
ALLIED PART #: 0399-1610-F



NOTE: CARD SHOULD BE INSERTED WITH COMPONENT SIDE FACING THE KEYPAD.

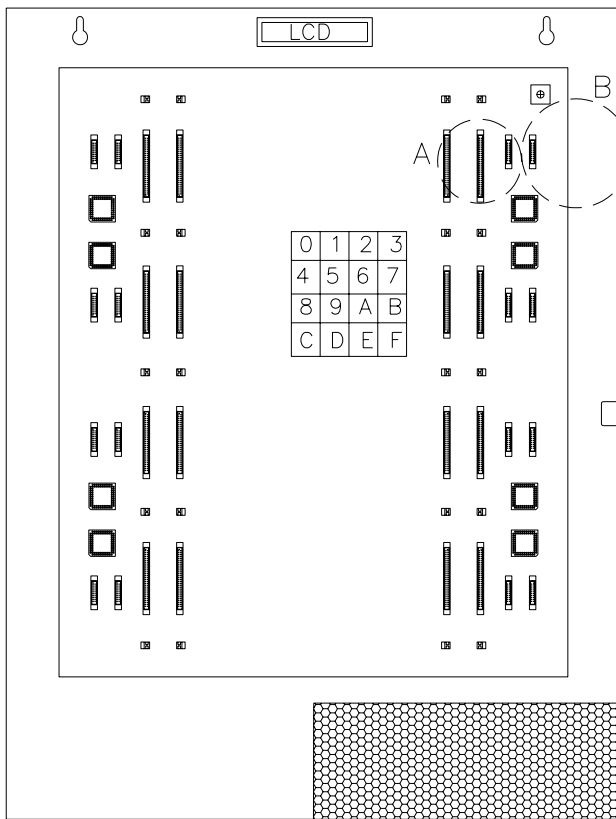
DETAIL A

RIBBON CABLE



DETAIL B

FRONT INSIDE VIEW



ALLIED FIELD CONTROL BOX

0A-1279-0443, ALLIED
INSTALLATION KIT.

0A-1279-0144 (10')

ALLIED PART #: 510-3161

TO CONTROLLER

ASSEMBLY INSTRUCTIONS

TURN OFF POWER TO ALLIED BOX.

INSERT POS CARD INTO CH 9, 10, OR 11.

RESTORE POWER TO ALLIED BOX.

REMOVE CORRESPONDING DB25 KNOCK OUT.

INSTALL RIBBON CABLE.

ATTACH ADAPTER "SSC/POS" AND CONNECT CABLE (0A-1279-0144).

NOTE: A CARD, RIBBON CABLE, OR ADAPTER MUST BE ORDERED FROM ALLIED IF MISSING.

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DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: LED DATETIME DISPLAYS

TITLE: QUICK INSTALLATION DRAWING, ALLIED

DES. BY: DSCHUTZ

DRAWN BY: DSCHUTZ

DATE: 23 JUN 04

REVISION

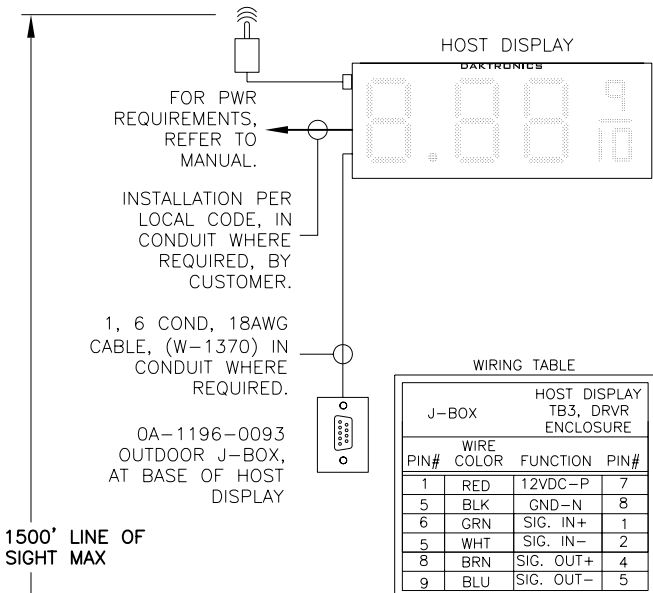
APPR. BY:

SCALE: NONE

1279-R04A-215840

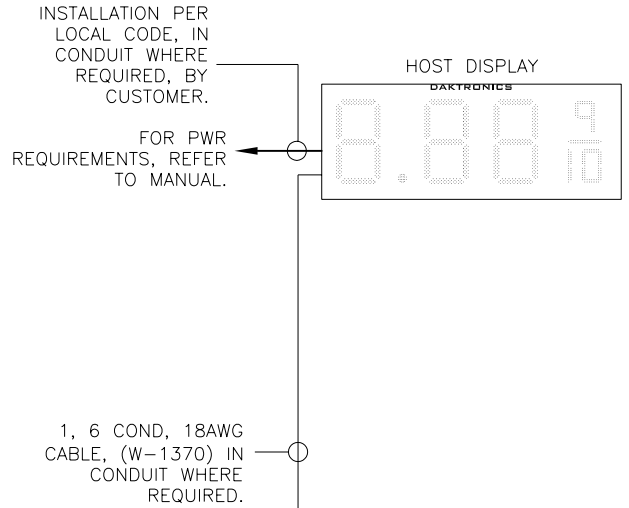
01	20 JUL 04	CHANGED FONTS	DDS	
REV.	DATE	DESCRIPTION	BY	APPR.

0A-1146-0078
CLIENT RADIO, INSTALLED AT DISPLAY
W/ 6 PIN ADAPTOR CABLE, 25'



WIRING TABLE

J-BOX		HOST DISPLAY TB3, DRVR ENCLOSURE	
PIN#	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

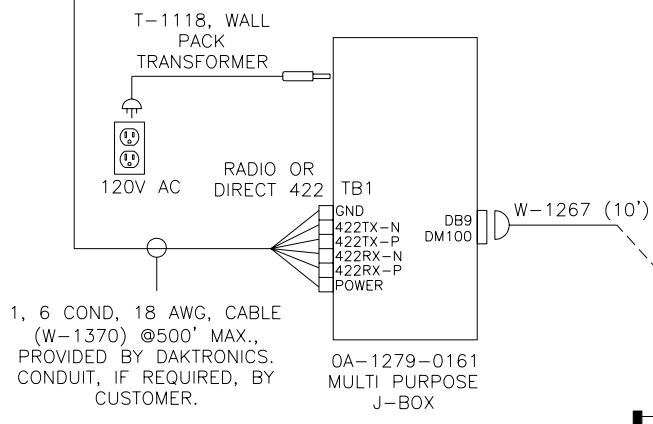


WIRING TABLE

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

0A-1146-0079
SERVER RADIO, INSTALLED EXTERNAL TO BUILDING WITH CLEAR LINE OF SIGHT TO THE CLIENT RADIO.

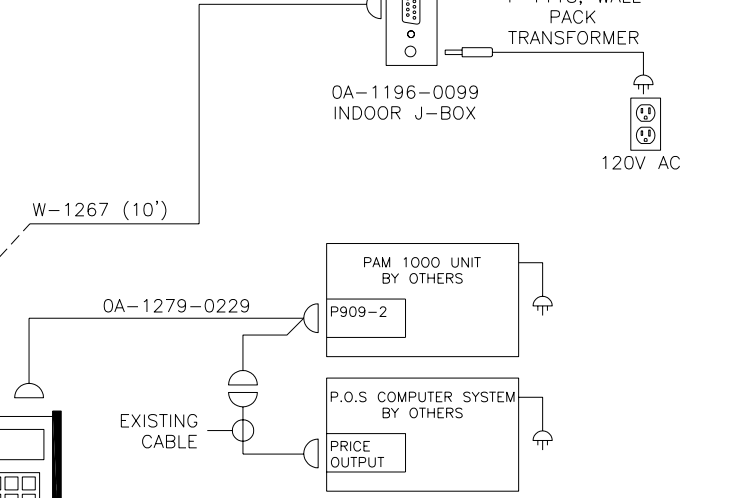
RADIO OPTION DIRECT WIRE OPTION



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

SERVER RADIO TO J-BOX WIRING TABLE

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



OM-200082 MOUNTING BRACKET (OPTIONAL)

0A-1196-0133 CONTROLLER

INSTALL "PROTOCOL 4" PLUG IN 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.

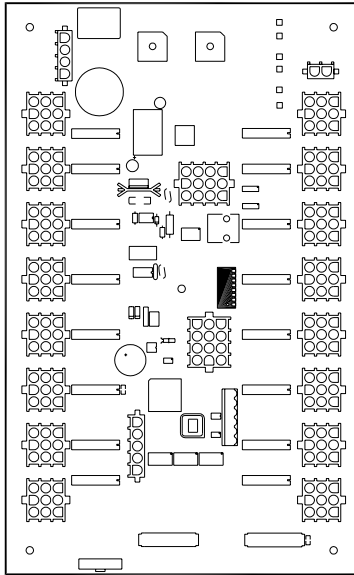
THE CONCEPTS EXPRESSED AND DETAILS SHOWN ON THIS DRAWING ARE CONFIDENTIAL AND PROPRIETARY. DO NOT REPRODUCE BY ANY MEANS, INCLUDING ELECTRONICALLY WITHOUT THE EXPRESSED WRITTEN CONSENT OF DAKTRONICS, INC. COPYRIGHT 2002 DAKTRONICS, INC.

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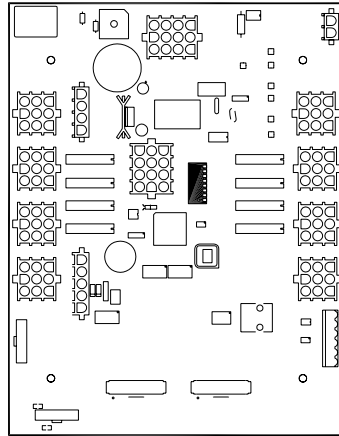
02	06 APR 05	REVISED WIRING TABLES, CHANGED SOME CABLES.	ATP
01	07 OCT 04	ADDED LINE OF SIGHT NOTE	RT
REV.	DATE	DESCRIPTION	BY APPR.

PROJ: DATA TIME LED DISPLAYS
TITLE: SYSTEM RISER DIAGRAM; PAM 1000 POS INTERFACE
DES. BY: MMILLER DRAWN BY: MMILLER DATE: 01 OCT 04

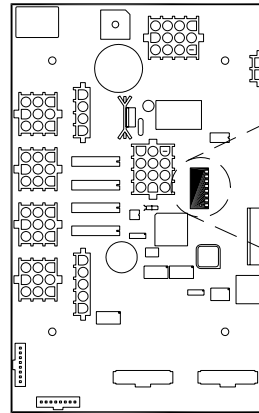
REVISION	APPR. BY:	1279-R01A-224628
02	SCALE: NONE	



16-COLUMN DRIVER



8-COLUMN DRIVER



4-COLUMN DRIVER

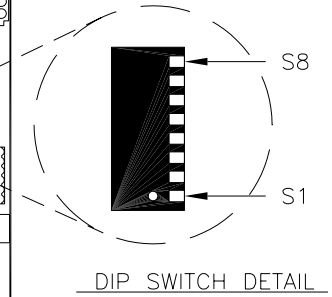


TABLE KEY:

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

SETTING THE ADDRESS:

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

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

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

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

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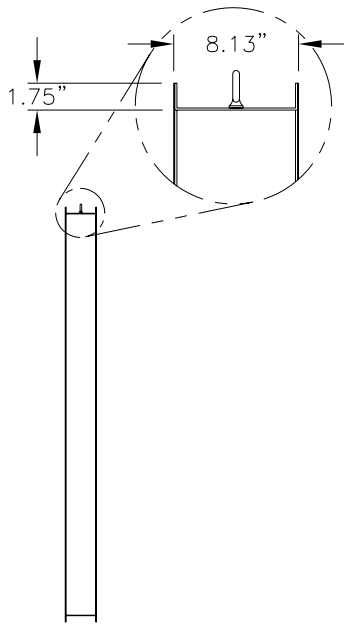
PROJ: DATA TIME LED DISPLAY

TITLE: ADDRESS SETTINGS, MASC DRIVERS

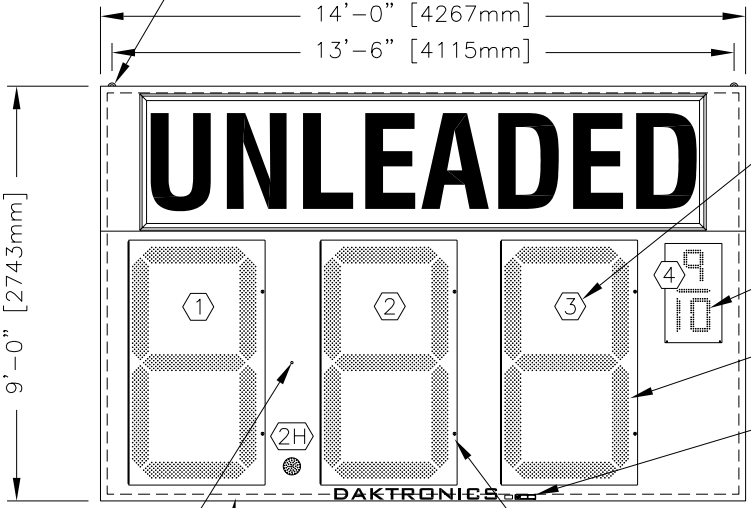
DES. BY: AVB DRAWN BY: A VANBEMMEL DATE: 11 NOV 04

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

REV.	DATE	DESCRIPTION	BY	APPR.



EYEBOLTS IN THE TOP ARE FOR USE DURING INSTALLATION ONLY AND ARE NOT TO BE USED FOR PERMANENT SUSPENSION.



THE NUMBER ON EACH DIGIT INDICATES THE DRIVER CONNECTOR THAT CONTROLS THE DIGIT.

24" 9/10 DIGIT

60" DIGITS

LOOK HERE FOR MODEL NUMBER AND POWER REQUIREMENTS

TURN THESE LATCHES TO OPEN HINGED DIGIT PANELS AND GAIN ACCESS TO INTERNAL COMPONENTS.

PERIMETER FRAME CHANNELS HAVE 1.75" FLANGES ALL AROUND THE DISPLAY. DRILL THROUGH THE REAR FLANGES TO MOUNT THE DISPLAY TO THE STRUCTURE.

SIDE VIEW

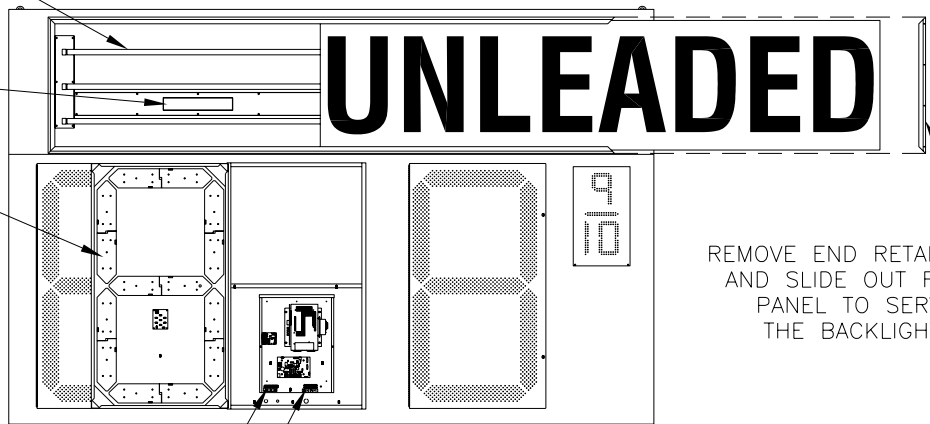
LIGHT SENSOR FOR AUTOMATIC DIMMING (TO BE FIELD INSTALLED IN HOST DISPLAY ONLY)

FRONT VIEW

6-FOOT FLUORESCENT LAMPS FOR CAPTION BACKLIGHTING

FLUORESCENT BALLAST

DIGIT CIRCUIT BOARDS ARE MOUNTED TO THE BACK OF THE DOORS



REMOVE END RETAINER AND SLIDE OUT FACE PANEL TO SERVICE THE BACKLIGHTING

CONNECT SIGNAL WIRES HERE

CONNECT 120V AC POWER HERE TWO 15A CIRCUITS REQUIRED

FRONT VIEW WITH ONE DOOR OPEN FOR DRIVER ACCESS

POWER REQUIREMENT:

TWO 120V AC, 15 AMP CIRCUITS, ONE FOR THE DIGIT SECTION AND ONE FOR THE BACKLIT CAPTION.

MAX CURRENT IS ABOUT 8.3 AMPS FOR THE DIGITS, 5.3 AMPS FOR THE BACKLIT CAPTION.

ESTIMATED WEIGHT IS APPROXIMATELY 600 LBS. [272 KG]

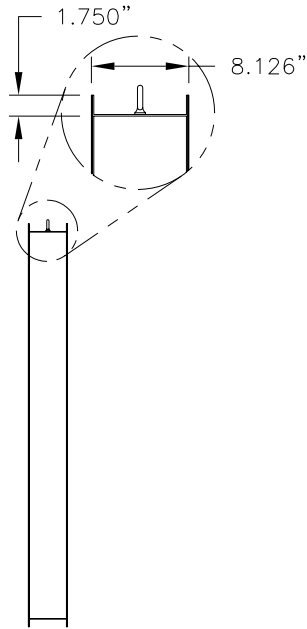
DISPLAY CABINET IS CONSTRUCTED OF AN EXTRUDED ALUMINUM FRAME AND ALUMINUM SHEET. CAPTION FACE IS POLYCARBONATE.

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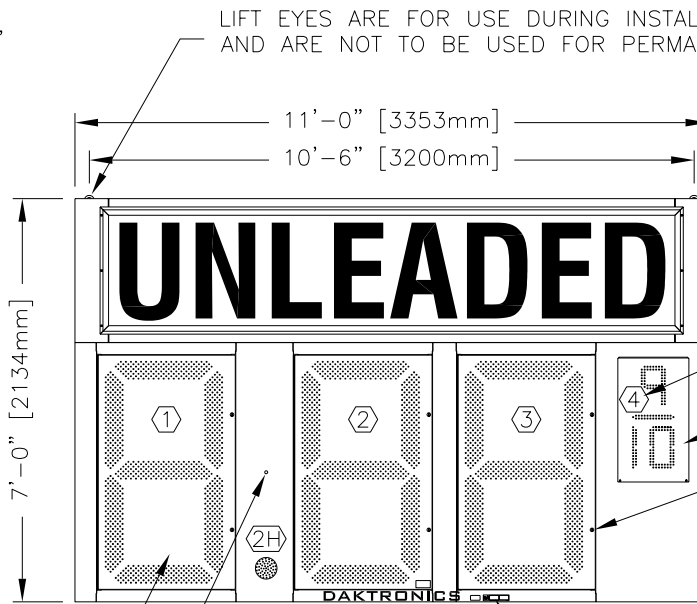
DAKTRONICS, INC. BROOKINGS, SD 57006

02	16 MAY 06	CHANGED THE MODEL NAME FROM DF-1024-60 TO DF-2100-60-T14-SF.	MGL	
01	15 MAY 06	UPDATED DRIVER ENCLOSURE TO THE NARROWER 1000 WATT VERSION.	MGL	
REV.	DATE	DESCRIPTION	BY	APPR.

PROJ: GAS PRICE DISPLAYS	
TITLE: SHOP DRAWING, DF-2100-60-T14-SF	
DES. BY: AVB	DRAWN BY: A VANBEMMEL DATE: 26 JAN 05
REVISION	APPR. BY:
02	SCALE: 1=50
1319-R04A-232509	



SIDE VIEW



FRONT VIEW

NUMBER INDICATES DRIVER CONNECTION
 24" 9/10 DIGIT
 TURN LATCHES TO OPEN HINGED DIGIT PANELS AND GAIN ACCESS TO INTERNAL COMPONENTS.

48" HINGED DIGIT PANELS

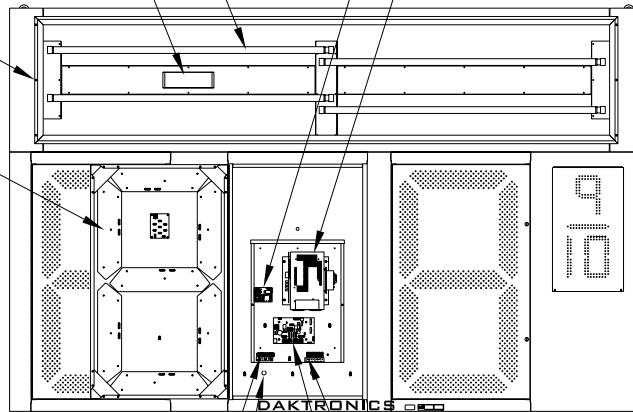
LOOK HERE FOR MODEL NUMBER AND POWER REQUIREMENTS.

REMOVE THE PLASTIC PLUG AND INSTALL LIGHT SENSOR FOR AUTOMATIC DIMMING

5-FOOT FLUORESCENT LAMPS
 FLUORESCENT BALLAST
 SIGNAL SURGE SUPPRESSION CARD
 1000 WATT POWER SUPPLY

REMOVE SCREWS IN THE CAPTION END RAILS TO REMOVE THE RAILS AND THE CAPTION PANEL.

DIGIT CIRCUIT BOARDS ARE ATTACHED TO THE BACK OF THE DOORS.



CONNECT SIGNAL INPUT HERE
 KNOCKOUTS FOR USE WITH 3/4" OR 1/2" CONDUIT
 CONNECT 120V AC POWER HERE.
 DRIVER

FRONT VIEW

(WITH ONE DOOR OPEN)
 (WIRES NOT SHOWN)

PROVIDE A 120V AC, 15 AMP CIRCUIT

ESTIMATED WEIGHT: 350 LBS [159 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 2005 DAKTRONICS, INC.

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: GAS PRICE DISPLAYS	
TITLE: SHOP DRAWING, DF-2100-48-T11-SF	
DES. BY: M LEOPOLD	DRAWN BY: M LEOPOLD
DATE: 17 MAR 05	
REVISION	APPR. BY:
02	SCALE: 1=40

1319-R04A-236905

REV.	DATE	DESCRIPTION	BY	APPR.
02	16 MAY 06	CHANGED THE MODEL NAME FROM DF-1024-48 TO DF-2100-48-T11-SF.	MGL	
01	10 MAY 06	UPDATED DRIVER ENCLOSURE TO THE NARROWER 1000 WATT VERSION.	MGL	

24V DC, 150W
POWER SUPPLY
(A-1856R)

10V AC TRANSFORMER
(T-1072) (NOT USED
ON ALL MODELS)

SIGNAL SURGE
SUPPRESSION BOARD
(OP-1110-0011)

CONNECT WIRES FROM
LIGHT SENSOR HERE
ON GAS PRICE OR
RATE DISPLAYS (HOST
DRIVER ONLY)

ADDRESS DIP-SWITCH:
SET ADDRESS IF NOT
ALREADY SET AT THE
FACTORY

ADDRESS JACK

PROTOCOL JACK:
INSTALL "PROTOCOL 4"
PLUG IN THE HOST
DRIVER (THE DRIVER
THAT RECEIVES SIGNAL
DIRECTLY FROM THE
CONTROLLER.)

4-COLUMN DRIVER
(OP-1192-0068)

SIGNAL INPUT: FOR HOST DRIVER,
CONNECT TO CONTROLLER. FOR
CLIENT DRIVERS, CONNECT TO
SIGNAL OUTPUT ON HOST OR
PREVIOUS CLIENT DRIVER.

SIGNAL OUTPUT:
THESE WIRES RUN TO THE SIGNAL
INPUT ON THE NEXT DISPLAY.

12V DC OUT:
THESE WIRES RUN TO THE
CONTROLLER J-BOX.
(HOST DRIVER ONLY)

CONNECT EARTH GROUND WIRE HERE

CONNECT NEUTRAL HERE

CONNECT 120V AC LINE HERE

FRONT VIEW

WITH COVER REMOVED
WIRES ARE NOT SHOWN

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DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: DATETIME LED DISPLAYS

TITLE: ENCLOSED DRIVER, 1KW 4-COLUMN REFERENCE

DES. BY:

DRAWN BY: MFODNES

DATE: 26JUN06

REV.	DATE	DESCRIPTION	BY	APPR.
00				

REVISION
00

APPR. BY:

SCALE:

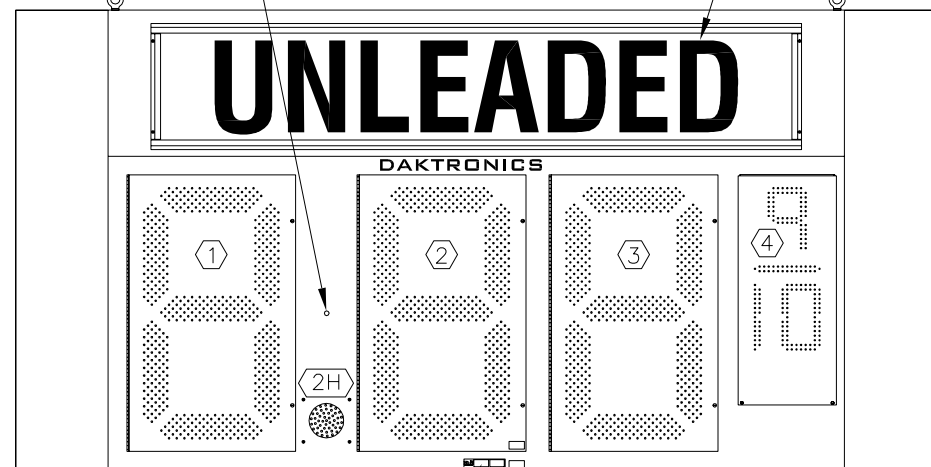
1=5

1279-E07A-276129

REMOVE PLASTIC PLUG AND INSTALL LIGHT SENSOR HERE.

CAPTION PANEL WORDING TO BE SPECIFIED AT TIME OF ORDER

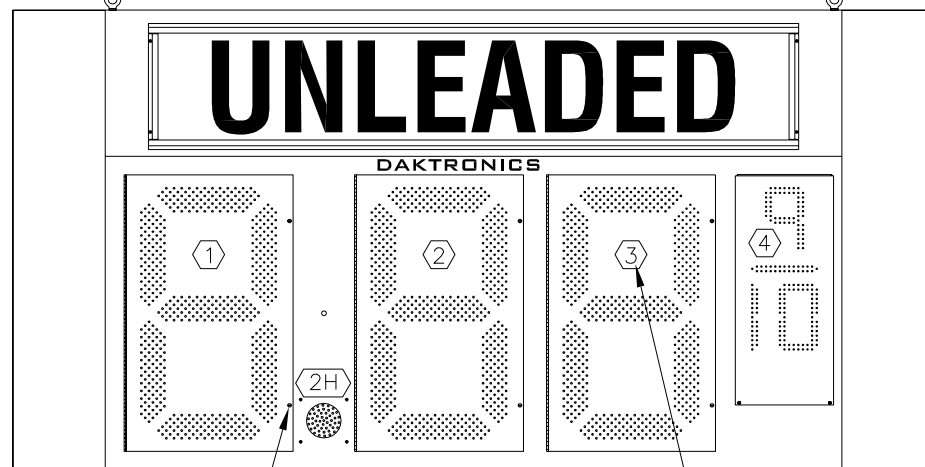
10'-0" [3048mm]
7'-10" [2388mm]



LOOK HERE FOR MODEL NUMBER AND POWER REQUIREMENTS

FRONT VIEW

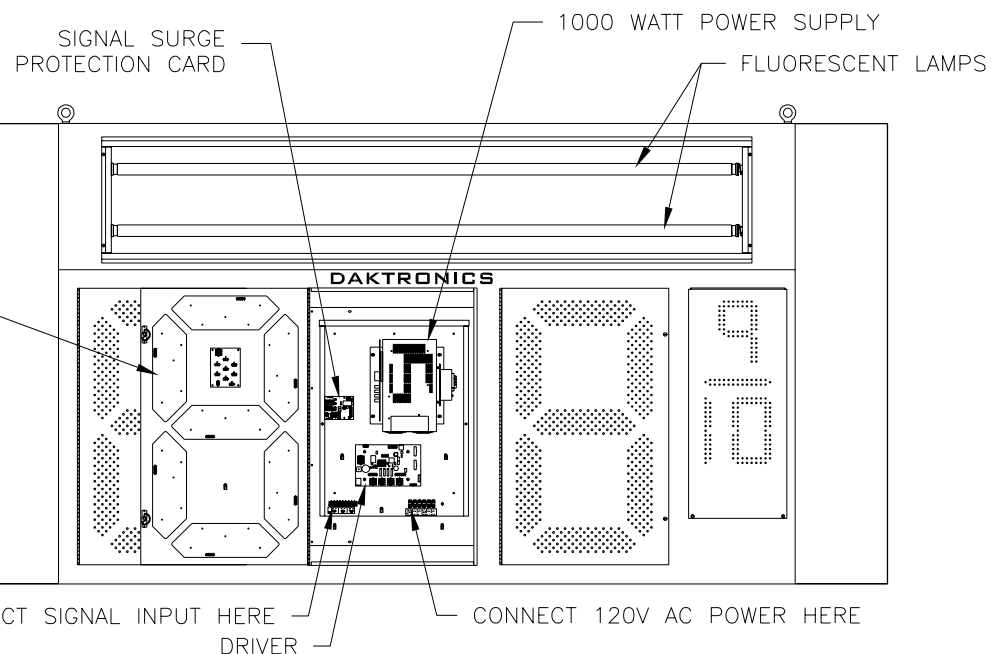
LIFT EYES ARE FOR USE DURING INSTALLATION ONLY, AND ARE NOT TO BE USED FOR PERMANENT SUSPENSION.



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

REAR VIEW

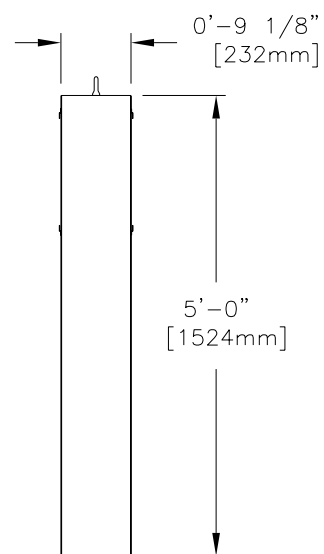
NUMBERS IN THE DIGITS INDICATE WHICH DRIVER PLUG IS WIRED TO EACH DIGIT.



DIGIT CIRCUIT BOARDS ARE MOUNTED TO THE BACK OF THE DOORS

CONNECT SIGNAL INPUT HERE
CONNECT 120V AC POWER HERE
DRIVER

FRONT VIEW
WITH ONE DOOR OPEN
(WIRES NOT SHOWN)



SIDE VIEW

NOTES:

GENERAL

THIS IS A DOUBLE FACED DISPLAY. IT WILL LOOK THE SAME ON BOTH SIDES. THE FRONT IS THE SIDE THAT THE DRIVER CAN BE ACCESSED FROM. IT CANNOT BE ACCESSED FROM THE REAR.

DIGITS ARE 36" NOMINAL HEIGHT. THE 9/10 DIGIT IS 24" NOMINAL HEIGHT. DIGIT LEDS MAY BE RED, AMBER, OR GREEN; TO BE SPECIFIED AT TIME OF ORDER.

MECHANICAL

CABINET FRAME IS EXTRUDED ALUMINUM CHANNEL, 0.10" THICK. FRONT AND BACK ARE ALUMINUM SHEET, 0.063" THICK.

ESTIMATED WEIGHT IS ABOUT 300 LBS.

IF THE EYEBOLTS ARE TO BE REMOVED AFTER INSTALLATION, PLUG HOLES BY THREADING IN 1/2"-13 BOLTS, NOT PROVIDED.

DRILL THROUGH THE SIDES OF THE CABINET TO ATTACH THE DISPLAY TO BASE STRUCTURE USING APPROPRIATE HARDWARE FOR THE SITE CONDITIONS.

DAKTRONICS IS NOT RESPONSIBLE FOR THE MOUNTING STRUCTURE OR FOR THE ADEQUACY OF ATTACHMENT TO THE STRUCTURE. STRUCTURE AND ATTACHMENT MUST CONFORM TO ALL APPLICABLE BUILDING CODES.

ELECTRICAL

MAXIMUM POWER CONSUMPTION IS ABOUT 1000 WATTS. PROVIDE A 120V AC, 15 AMP CIRCUIT FOR POWER.

CONTROL CONNECTION REQUIRES TWO-PAIR CABLE, 22 AWG.

SERVICE AND ELECTRICAL HOOKUP ACCESS IS THROUGH THE FRONT OF THE DISPLAY ONLY.

IF THE POWER TO THE DISPLAY IS TEMPORARILY INTERRUPTED, DISPLAY FUNCTIONS WILL BE RETAINED IN MEMORY TO CONTINUE OPERATION WHEN POWER IS RESTORED.

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 2006 DAKTRONICS, INC.

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: GAS PRICE DISPLAYS

TITLE: SHOP DRAWING, DF-2100-36-T10-DF

DES. BY: DRAWN BY: M LEOPOLD DATE: 07 APR 06

REVISION 00 APPR. BY: SCALE: 1=25 1319-R04B-268948

REV.	DATE	DESCRIPTION	BY	APPR.

0'-8 1/4"
[206mm]

8'-0" [2438mm]
7'-6" [2286mm]

5'-6"
[1676mm]

UNLEADED

CAPTION PANEL WORDING
TO BE SPECIFIED AT TIME
OF ORDER

NUMBERS IN THE DIGITS
INDICATE WHICH DRIVER
PLUG IS WIRED TO EACH
DIGIT

REMOVE PLASTIC PLUG
AND INSTALL THE LIGHT
SENSOR HERE

LOOK HERE FOR MODEL NUMBER
AND POWER REQUIREMENTS

SIDE VIEW

FRONT VIEW

DRILL THROUGH THE FLANGES
OR THE SIDES TO MOUNT THE
DISPLAY

NOTES:

GENERAL

DIGITS ARE 36" NOMINAL HEIGHT. THE 9/10
DIGIT IS 24" NOMINAL HEIGHT. DIGIT LEDS MAY
BE RED, AMBER, OR GREEN; TO BE SPECIFIED
AT TIME OF ORDER.

MECHANICAL

CABINET FRAME IS EXTRUDED ALUMINUM
CHANNEL, 0.140" THICK. FRONT AND BACK
ARE ALUMINUM SHEET, 0.063" THICK.

ESTIMATED WEIGHT IS ABOUT 190 LBS.

IF THE EYEBOLTS ARE TO BE REMOVED AFTER
INSTALLATION, PLUG HOLES BY THREADING IN
1/2"-13 BOLTS, NOT PROVIDED.

DRILL THROUGH THE SIDES OR FLANGES OF
THE CABINET TO ATTACH THE DISPLAY TO BASE
STRUCTURE USING APPROPRIATE HARDWARE FOR
THE SITE CONDITIONS.

DAKTRONICS IS NOT RESPONSIBLE FOR THE
MOUNTING STRUCTURE OR FOR THE ADEQUACY
OF ATTACHMENT TO THE STRUCTURE.
STRUCTURE AND ATTACHMENT MUST CONFORM
TO ALL APPLICABLE BUILDING CODES.

ELECTRICAL

MAXIMUM POWER CONSUMPTION IS ABOUT 1000
WATTS. PROVIDE A 120V AC, 15 AMP CIRCUIT
FOR POWER.

CONTROL CONNECTION REQUIRES TWO-PAIR
CABLE, 22 AWG.

SERVICE AND ELECTRICAL HOOKUP ACCESS IS
THROUGH THE FRONT OF THE DISPLAY ONLY.

IF THE POWER TO THE DISPLAY IS TEMPORARILY
DISRUPTED, DISPLAY FUNCTIONS WILL BE
RETAINED IN MEMORY TO CONTINUE OPERATION
WHEN POWER IS RESTORED.

LIFT EYES ARE FOR USE DURING
INSTALLATION ONLY, AND ARE NOT
TO BE USED FOR PERMANENT
SUSPENSION

FLUORESCENT LAMPS
FOR BACKLIGHTING

1000 WATT POWER SUPPLY
LOCATION OF BALLAST

REMOVE SCREWS TO REMOVE
THE END RAIL AND CAPTION
PANEL

DIGIT CIRCUIT BOARDS ARE
MOUNTED BEHIND THE DOORS

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

SIGNAL SURGE
PROTECTION BOARD

CONNECT SIGNAL INPUT HERE

CONNECT 120V AC POWER HERE

DRIVER

KNOCKOUTS FOR USE WITH
1/2" OR 3/4" CONDUIT

FRONT VIEW

WITH ONE DOOR OPEN AND CAPTION PANEL REMOVED
(WIRES NOT SHOWN)

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DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: GAS PRICE DISPLAYS

TITLE: SHOP DRAWING, DF-2100-36-T8-SF

DES. BY: DRAWN BY: M LEOPOLD DATE: 17 APR 06

REVISION 00 APPR. BY: SCALE: 1=22 1319-R04B-269576

REV.	DATE	DESCRIPTION	BY	APPR.

Appendix B: DataMaster Frequently Asked Questions (FAQ)

DataMaster FAQ.....ED-13481

Appendix C: DataMaster Gasoline Price Quick Installation Reference

Gasoline Price Displays

Direct-Wire Installation Quick Install ReferenceED-13965

Appendix D: DataMaster Gasoline Price Quick Start Reference

DataMaster 100 Controller Quick Start Guide.....ED-13960