DF-1219 DataMaster® Outdoor LED Gasoline Price Display

Installation and Operation Manual

DAKTRONICS

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

2. This manual is to be copied on FRONT AND BACK PAGES –8 ½ x 11 paper.

3. Note: The first and second pages, Cover Page and Copyright Page, use the front of the page (blank on back). Section heading pages always start on a new page; they never start on the back of another page.

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

5. Insert **ED-13481** within **Appendix B**.

6. Insert **ED-13965** within **Appendix C**.

7. Insert **ED-13960** within **Appendix D**.

8. All sections and all Appendices are to be tabbed with the following labels:

Section 1:	**Introduction**
Section 2:	**Mechanical Installation**
Section 3:	**Electrical Installation**
Section 4:	**Maintenance and Troubleshooting**
Section 5:	**Gas Price Display Operation**
App A:	**Reference Drawings**
App B:	**DataMaster FAQ**
	ED13481
App C:	**Gas Price Quick Install**
	ED13965
App D:	**Gas Price Quick Start**
	ED13960

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

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

11. Please direct questions and suggestions to Engineering Support.

Table of Contents

List of Figures

Section 1:   Mechanical Installation

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.**

Do not modify the display structure or attach any panels or coverings without the express written consent of Daktronics, Inc.
Note: Daktronics **does not** guarantee the warranty in situations where the display is not constantly in a stable environment.

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

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

1.2   Mechanical Installation Overview

Reference Drawings:
Shop Dwg, DF-1219, 18" Drop-in w/ BL Grade ID   **Drawing B-225876**

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

Product specifications
Model:
DF-1219, Drop-in with backlit grade ID panel
Dimensions:
Height 3'0" (914 mm)
Width: 5'0" (1524 mm)
Depth: 6 1/8" (156 mm)
Weight:
75 lb (34 kg)
Digit Size
Digits are 18" (457 mm) and 10" (254 mm)
Letters in backlit grade caption are 8" (203 mm) high
Note: This display is a drop-in model that is inserted into a rectangular opening in a

larger sign. For further details on product dimensions refer to **Drawing 225876.**

Section 2:   Electrical Installation

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.

2.1   Preparing for Power/Signal Connection

Reference Drawing:
    Shop Dwg, DF-1219, 18" Drop-in w/ BL Grade ID ......**Drawing B-225876**

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 B-225876 provides detailed instructions for power and signal connections for the display, including hookup of the connections between host and client displays. Refer to this drawing before undertaking any part of the electrical installation.

2.2   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.

The DataMaster, Gas Price displays require a dedicated, 120 V/15 A circuit for incoming power. The display itself has no breakers or fuses.

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

Grounding
Reference Drawings:
    Enclosed Driver, 4 Column Reference ....**Drawing A-184918**

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

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

The display system **must** be connected to an earth electrode installed at the display. Proper grounding is necessary for reliable equipment operation. It also protects the equipment from damaging electrical disturbances and lightning. The display **must be** properly grounded, or the warranty will be void. Refer to **Drawing A-184918**, for information on where to connect the 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 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.

2.3   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.

2.4 Signal Connection

Reference Drawings

Route power and signal cables into the display from the side or rear. There are knockouts for $^1/_2$" and $^3/_4$" conduit fittings on the sides of all DataMaster cabinets and on the back panels. All power and signal wiring terminates at the driver enclosure.
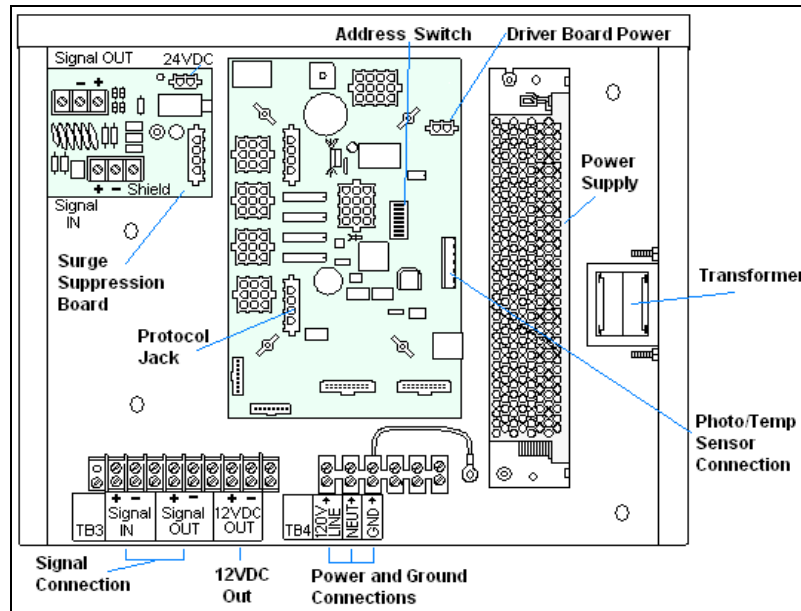
Figure 1: *DataMaster Driver Enclosure with 4-Column Driver*

To gain access to the driver enclosure, open the access door and remove the cover from the enclosure. Refer to **Drawing-225876** for the access location for your sign. For this display, access to the interior components is gained by removing the screws from the hinged door.

Refer to **Drawing-225876** for a complete review of power and signal connections for Gasoline Price displays.

Current Loop (Direct)
Reference Drawings:

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

Figure 2: *Direct Current Loop Connection*
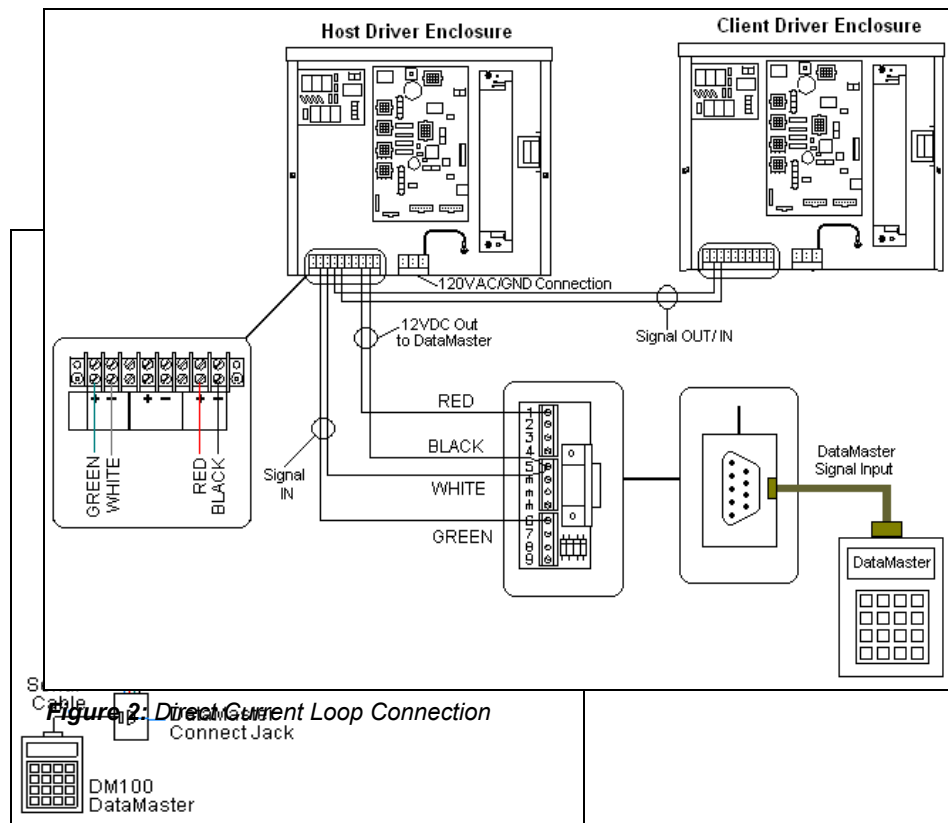
Figure 1: *Direct, Current Loop Layout*

terminates at the driver enclosure. The DataMaster hand-held controller receives its power from the display. The display layout is shown in **Figure 1** and **Drawing A-164988**.

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 2** 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

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

Electrical Installation

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 up to 2000 ft. Refer to **Figure 3** and **Drawing A-175342** for system layout and signal connections.

Radio (Direct)

Reference Drawings:

System Riser Diagram, Server/Client Setup................**Drawing A-199834**

A radio controlled display uses the DataMaster controller inside 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 Gas 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 4** and **Drawing A-199834**.
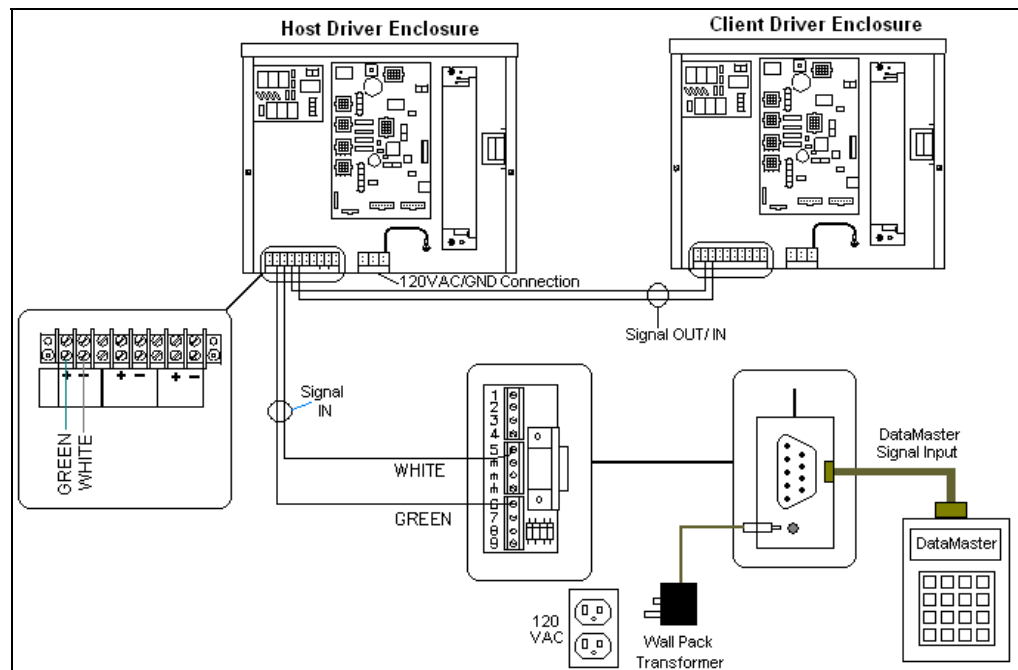
Figure 3: *Direct Connection from Indoor Location*

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 5** 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.
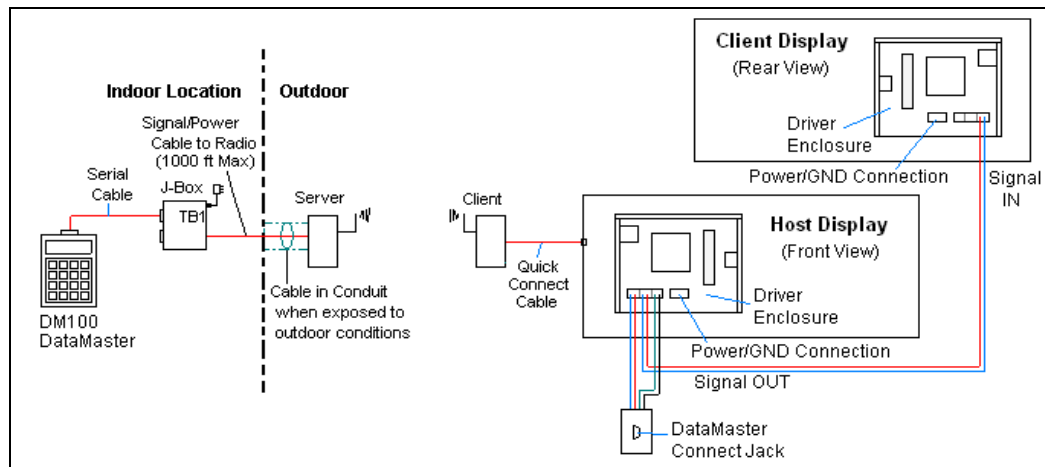
Figure 4: *Radio Controlled Display Layout*

5. Plug the quick connect cable from the client radio into the 6-pin quick connect jack on the side of the Gas price display.

Connection from J-box to Server Radio Enclosure

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

Notes:
1. The cable from the client radio to the display can to be routed through conduit or the display pole to protect it from weather and vandalism. The cable is weather and sunlight resistant.
2. The Server and Client radios must have a clear line-of-sight path and not be more than 1500 feet apart.

3. A current-loop j-box is often mounted at the base of the display pole in case of problems with communication though the radio network.
4. For additional connection and operation information see **ED13894: DataMaster Radio Installation Manual**

Modem (Indirect)
Reference Drawings:

A modem controlled display uses a DataMaster controller connected to a modem/j-box, to call a second modem in the Gas Price display. The DataMaster hand-held
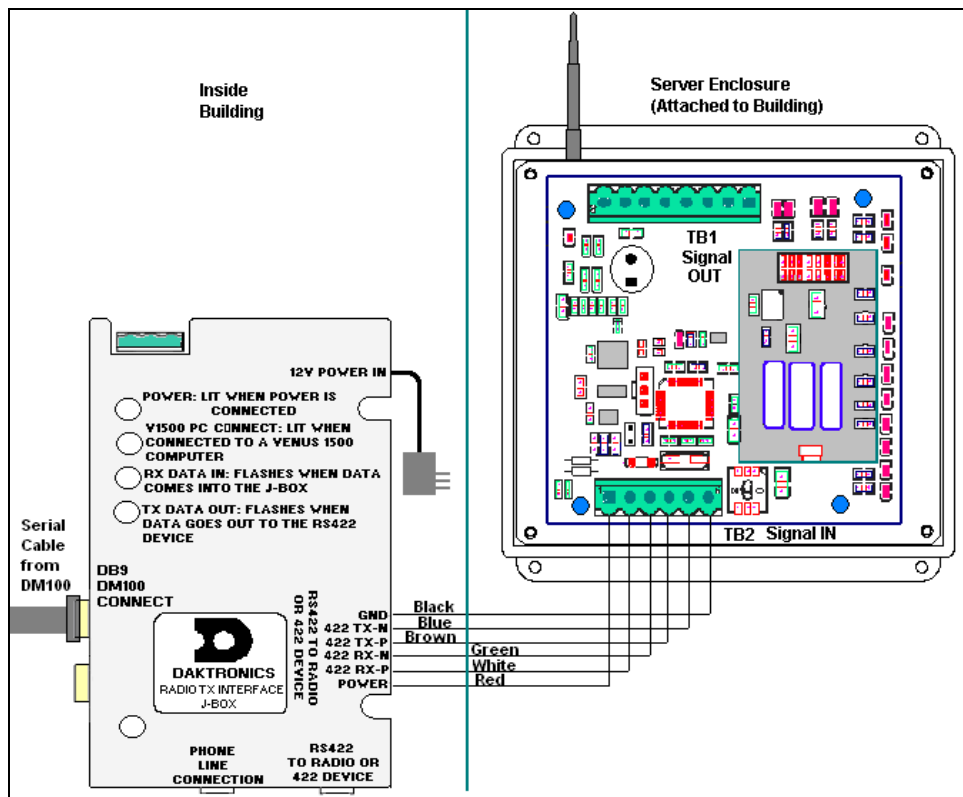
Figure 5: Direct Current Loop Connection

controller will receive its power from the j-box. A wall pack transformer powers the j-box. The display layout is shown in **Figure 6** and **Drawing A-200552**.
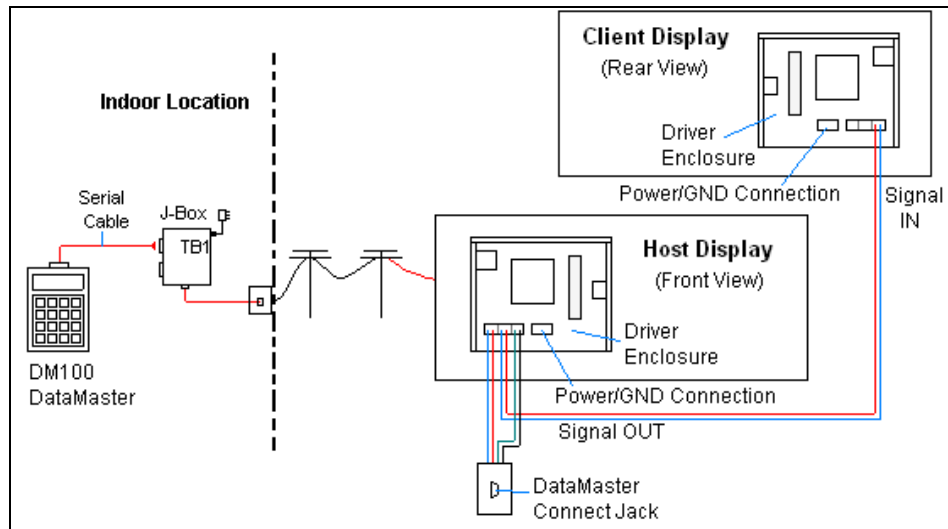
Figure 6: *Modem Controlled Display Layout*

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 and identity the color used for the "Tip" wire and which color is for the "Ring".
5. The Tip and Ring phone wires will terminate to TB2 on the modem as shown in **Figure 7** and **Drawing A-177039**. If a phone cable is used, it will plug into J5.
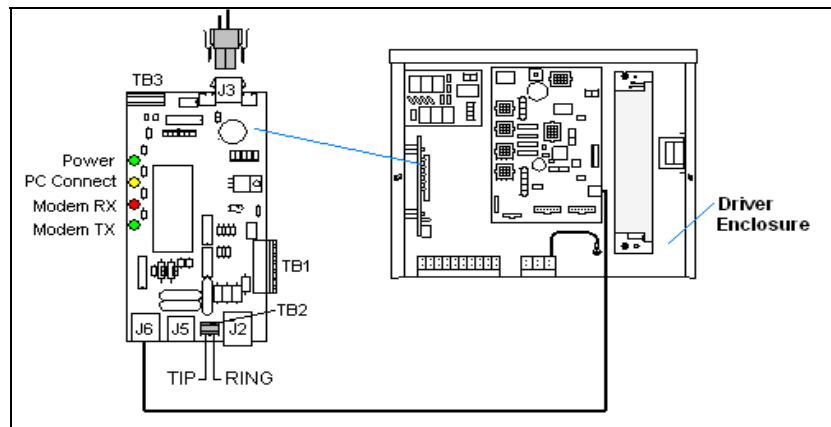
Figure 7: *Phone line Connection to Display Modem*

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**

Host/Client Definitions

One driver at each sign installation is designated as the "host driver." This driver receives its signal directly from the controller on the "Signal IN" terminals, and it is the only driver that is connected to the photo sensor. The "Signal OUT" terminals are used to connect to "client drivers." Refer to **Drawing A-168376** and **Figure 8** for an illustration of the host/client display connection.

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

The 12 V DC terminals connected to the host driver 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.
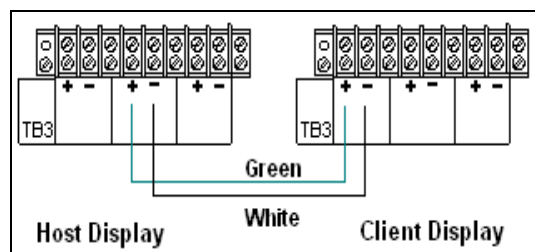
Figure 8: *Host, Signal Out to Client, Signal In*

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.
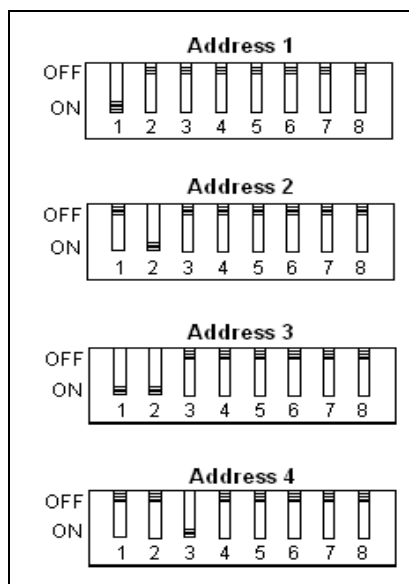
Figure 9: *Common Address Settings*

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.

Electrical Installation

Section 3: 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.**

3.1 Cabinet Specifications

Reference Drawings:
Shop Dwg, DF-1219, 18" Drop-in w/ BL Grade ID   **Drawing B-225876**

3.2 Component Location and Access

Reference Drawings:
Shop Dwg, DF-1219, 18" Drop-in w/ BL Grade ID   **Drawing B-225876**

The DF-1219 is made up of two main components: the circuit boards that make up the digits and the driver enclosure.

Display Digits:
- A single circuit board makes up the digits for the 10" and 18" digits

Each host or primary display (the mirror does not contain a driver enclosure) contains an enclosure that includes the following devices:
- Display Driver
- 24V DC power supply
- 10V AC transformer
- Signal/Power Input Terminal Jack
- Signal Board (Surge board on direct displays or a modem)
- Light (photo) sensor

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

The display has a hinged door that swings outward when the two screws on the display face panel are removed, as shown in **Figure 10**.
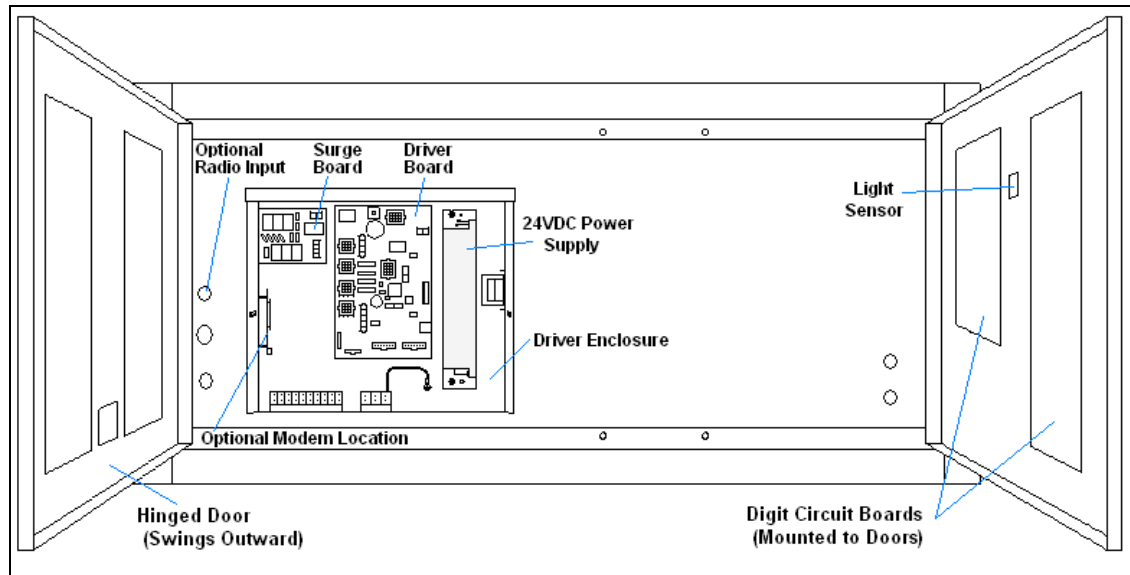
Figure 10: DataMaster Gas Price Display with Door Panels Open

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

3.3 Service and Diagnostics

Replacing a Digit

The digit circuit board, the platform for the LEDs, is mounted to the back of the digit panel. Do not attempt to remove individual LEDs. In the case of a malfunctioning board, replace the entire digit panel. Refer to **Figure 11** for the digit assembly.

To remove a display digit, follow these steps:

1. Open the digit panel as described in the preceding section.
2. Disconnect the power/signal connector from the back of the digit. Release the connector by squeezing together the locking tabs as you pull the connector free.
3. The digits are secured to the inside of the panel with fixed machine screws, spacers, and push nuts. Remove the nuts and lift the digit off the standoff screws. (The push nuts can be removed in several ways, but Daktronics recommends using a $^9/_{32}$" nut driver.)
4. Position a new digit over the screws and tighten the nuts.
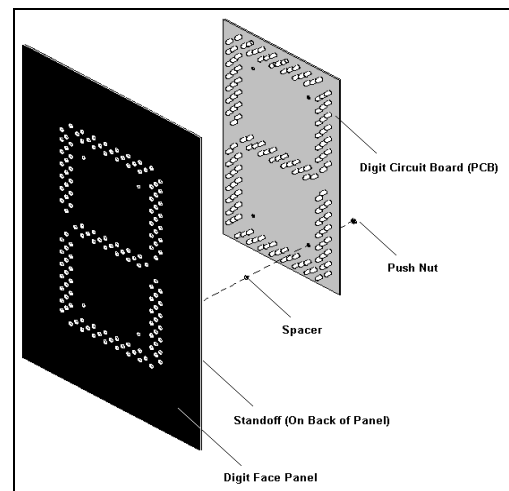
Figure 11: Digit Assembly

5. Reconnect the power/signal connector. **Note:** This is a keyed connector it will attach in one way only. **Do not** attempt to force the connection!
6. Close and secure the digit panel and test the display.

Replacing an LED Driver
Reference Drawings:

4 Column MASC LED Driver Specifications ....**Drawing A-166216**
Shop Dwg, DF-1219, 18" Drop-in w/ BL Grade ID ......**Drawing B-225876**

The driver is mounted inside the display enclosure and behind a digit. Refer to **Drawing-225876** for location of the driver. This display is only front-accessible.

To replace the driver in the display enclosure:

1. Open the digit panel or display face panel..
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. This display uses a 4- column driver. The major functions are identified in **Figure 12**.
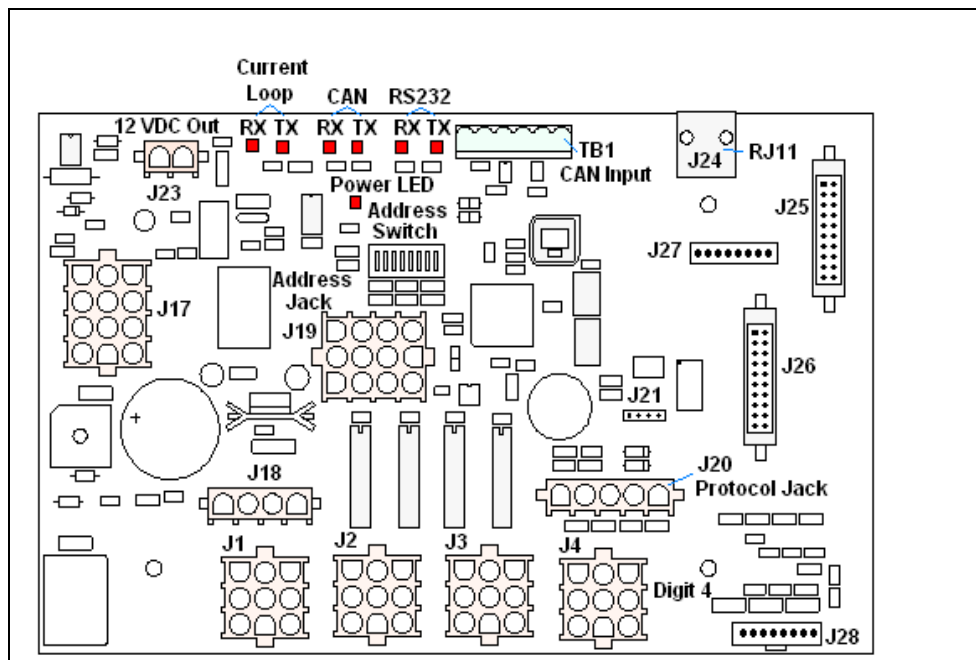
Figure 12: 4-column Digit Driver

In the display, the LED drivers perform the task of switching digits on and off. Refer to **Drawing A-166216** 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)	Digits Output
J17	Signal/Power Input
J20	Protocol-5 Location
J23	12 VDC Power Out
J24	Modem
TB1	CAN (photo sensor)
J19	Address Plug (older drivers only)
J18, J21, J22, J25, J26, J27, J28	Jacks not used in this application

The display line controlled by the driver is set with a DIP-switch that is set at the factory before shipment. (Note: Some older drivers use a 12-pin address plug inserted in J19). All DataMaster displays ship with the "Line 1" address already set.

Replacing a Signal Surge Board
Reference Drawings:
Enclosure Driver, 4 Column Reference....................... **Drawing A-183775**

The surge board is mounted inside the display enclosure and behind a digit. Refer to **Drawing 183775** for the location of your surge board. This display is front-accessible.

1. Open the digit panel or display face panel.
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.
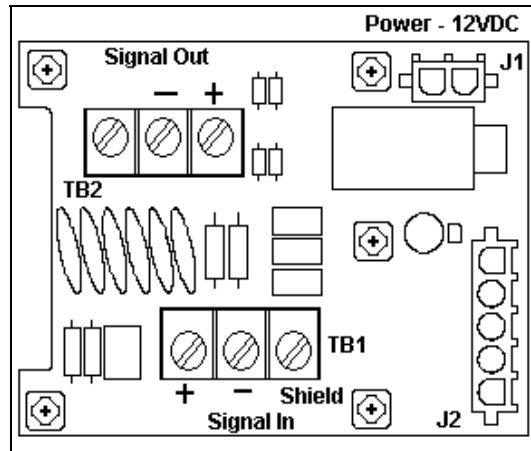
Figure 13: Signal Surge Suppression Board

Replacing a Modem
Reference Drawings:

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** for the location of the modem. This display is front accessible.

1. Open the digit panel or display face panel.
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.

The modem has four LEDs.
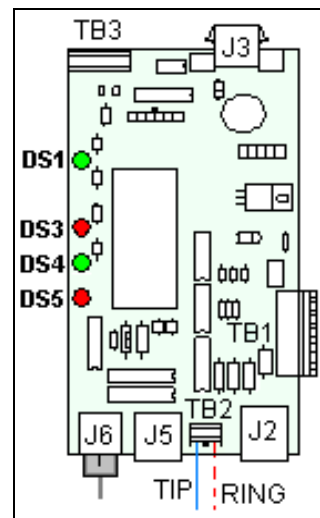
Figure 14: Modem Board

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.

3.4   Light Sensor Location

Reference Drawing:

This display uses a light/photo sensor to regulate sign dimming functions. Use **Drawing A-183775** and the following instructions to replace the light sensor in your DataMaster Gasoline 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.
2. Locate the $^5/_8$" sensor plughole on the front panel of the display. The location of the plug varies by model.
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.
5. Close the hinged access doors and replace the screws.
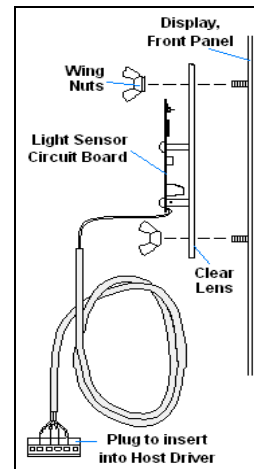
Figure 15: *Internal Light Sensor*

3.5   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	• 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	• 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	• 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	• Make sure modem at display is connecting via phone line • Make sure display and DataMaster have power
Garbled display	• Internal driver logic malfunction • DataMaster malfunction
Digit will not light	• Black wire to digit broken • Poor contact at driver connection • Driver malfunction
Segment will not light	• Broken LED or connection • Broken wire between driver and digit • Poor contact at driver connector
Segment stays lit	• 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	• Incorrect address settings on drivers (Refer to "Power On Self-Test" in the following section, and consult tables to set correct addresses.)

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:

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

- If the signal wiring between each controller is correct, the first two digits of each driver will display "Ad" momentarily, and the first digit will then flash three numbers indicating the decimal address that is set with the address plug in J19. (If a client driver displays "A <number>," followed by "P <number>," it is not receiving "signal in," and is performing its own self-test.)
- Next, the first two digits of each line will display "Lx", where "*x*" is the line number that the driver is set to control (set with address plug).
- Finally, each line will display "1234…" according to the column number of each of its digits. Every line should show "1" on the left-most digit, and all digits should be numbered consecutively from left to right. If this is not the case, either the wrong address plug is installed, or the driver or digit harness is connected incorrectly.If there is no address set (or address plug installed) in the host driver, the host driver will display "E5," and all client drivers will continually cycle through the power on self-test.

3.6   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	P-1279-203
Protocol plug (Protocol 4)	0A-1279-0089
Power supply, 24 V DC, 150 W	A-1720
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
Communication Boards and Accessories	
Signal surge suppression board	0P-1110-0011
Modem, RS232 coated, internal,	0P-1279-0003
J-box, signal converter, w/modem	0A-1279-0162

J-box, signal converter, radio	0A-1279-0161
RJ11 to RJ45, M-M, straight, 18" cable	0A-1137-0300
Server Radio, outdoor	0A-1146-0079
Client Radio, w/Quick Connect	0A-1146-0078
Cable, 6-cond., 18 AWG, j-box to Server Radio	W-1370
Transformer, wall pack (for j-box/signal converter)	T-1118
DataMaster 100 Controller Parts	
DataMaster 100 hand-held controller	0A-1196-0088
Junction box, outdoor, 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
DataMaster 100 indoor wired installation kit	0A-1279-0103
Transformer, wall pack (for DataMaster 100)	T-1118
Cable, serial, DB9 male to DB9 female	W-1267
DM100 Insert Time & Temp/Gas Price	0G-164998
Digits and Accessories	
Speed nut, M3 Kingnut black nylon, Push nut	HS-1453
Spacer, washer with steel backing	HC-1221
Decimal, 10" red, pc board	0P-1192-0278
Digit, 18" 7-segment, red, pc board	0P-1192-0202
Indicator, 2" red, pc board (used in 18" and 24" displays)	0P-1192-0228
Lamps, fluorescent (3 ft)	DS-1035
Ballast	A-1368
Socket, fixed	X-1132
Socket, spring loaded	X-1133

3.7 Daktronics Exchange and Repair and Return Programs

To serve customers' repair and maintenance needs, Daktronics offers both an Exchange Program and a Repair and Return Program. Daktronics' unique Exchange Program is a quick, economical service for replacing key components in need of repair. If a component fails, Daktronics sends the customer a replacement, and the customer, in turn, sends the failed component to Daktronics. This not only saves money but also decreases display downtime. Daktronics provides these plans to ensure users get the most from their Daktronics products, and it offers the service to qualified customers who follow the program guidelines explained below. Please call the Help Desk – 877-605-1113 – if you have questions regarding the Exchange Program or any other Daktronics service.

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

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

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

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

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

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

Return Materials Authorization: To return parts for service, contact your local representative prior to shipment to acquire a Return Material Authorization (RMA)

number. If you have no local representative, call the Daktronics Help Desk for the RMA. This expedites repair of your component when it arrives at Daktronics.

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

This is how to reach us:

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

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

Fax: 605-697-4444

E-mail: helpdesk@daktronics.com

Section 4: Gas Price Display Operation

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

4.1 DataMaster 100 Overview

The DataMaster 100 Series controller, shown in **Figure 16**, 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 gasoline 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 4.1: Gas Price Display Operation.**

Figure 16: *DataMaster 100*

4.2 DataMaster™ Insert and Code

Reference Drawing:
>   Insert, LL-2551 Price/T&T Display ....**Drawing A-164998**

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

Figure 17 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-164998**.

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.
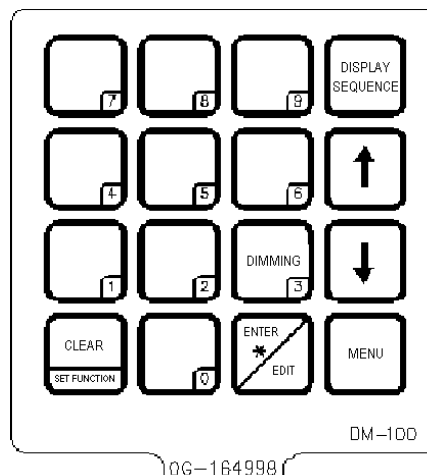
Figure 17: DataMaster 100 Insert LL-2551

4.3   Gas Price Display Operation

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

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

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 set the first gas price and then continue to enter through the additional screens.

Gas Price Display Startup
To operate the DataMaster Gas Price displays, the DataMaster 100 must first be programmed to the gas price function. Use the <**CLEAR/SET FUNCTION**> key on startup. The following text will be display 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 Gas 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 Gas 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
CURRENT FUNCTION *GAS PRICE*	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. This display appears briefly.
CHANGE FUNCTION? *PRESS SET FUNCT*	This message appears next on the screen. If "GAS PRICE" was shown on the bottom line of the LCD during startup, do nothing. The controller will automatically default to previous Gas Price settings. (The controller will remember the last function used, so you should only have to do this with a new controller or switching between DataMaster displays.) If a function other than "GAS PRICE" was shown on the bottom line of the LCD during startup, press the <**SET FUNCTION**> key while the second LCD prompt is displayed. You only have 1 or 2 seconds to push it. If you miss it, unplug the power and try again.
SELECT FUNCTION *GAS PRICE ↓↑*	Press the arrow up or down keys<**↑↓**> until the gas price option is shown. Press the <**ENTER**> key to accept.

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

Menu Items

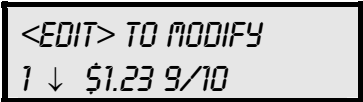Pressing the <**MENU**> key accesses the following settings:

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 4.4** explains about the Point of Sale interface option.

Gas Price Controller Operation

The Gas 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
LINE PRICE 1 ↓ $1.23 9/10 \<EDIT> TO MODIFY 1 ↓ $1.23 9/10	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 gas 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
EDIT LINE L *$D.CC T/10 ↓*	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). Press <**ENTER**> to accept the new value or press <**CLEAR**> to abort the changes. **Note:** The flashing asterisk on the LCD shows the current data being edited. 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.

Edit Price Line 1-5
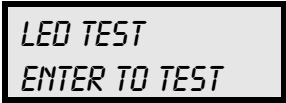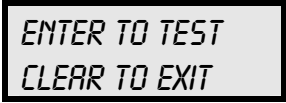
After pressing the <MENU> key, the following LCD prompt is displayed:

LCD Screen	Action
PRICE LINE 1 *ENTER TO EDIT*	Pressing the <**MENU**> key displays this message. Press <**ENTER**> to edit the current item shown on the LCD. Press the up or down arrow keys to move to the previous or next item in the list. Press the <**MENU**> key a second time or press the <**CLEAR**> key (press twice if editing) to exit the menu.

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
LED TEST *ENTER TO TEST*	Press the <**ENTER**> key to cycle the display digits between all LEDs on and all LEDs off.
ENTER TO TEST *CLEAR TO EXIT*	Press <**ENTER**> send the test command to the sign. Press <**CLEAR**> to exit the test mode

Modem Settings

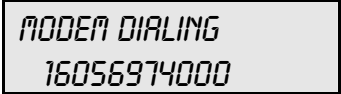A DM-100 controller can be connected to a modem, allowing for control of a DataMaster display remotely via a telephone network.

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:

MODEM DIALING
  16056974000
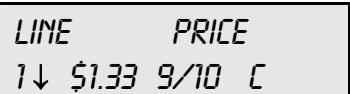
If more than one modem dial number is configured, the DM-100 will ask which displays to update before dialing.

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.

LINE   PRICE
1↓ $1.33 9/10 C

The modem will automatically disconnect from the display after a period of inactivity, 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.

```
MODEM
DISCONNECT IN 05
```

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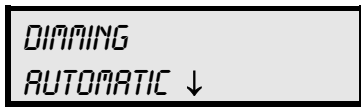
LCD Screen	Action
`SET TIME-12HR` `HH:MM  AM ↓`	HH – Current hours value MM – Current minutes value AM – Current AM/PM setting (not shown when 24-hour time is selected) Using the number keys, enter the Time in the 12-hour (or 24-hour) format. Press the down arrow key <↓> to modify the AM/PM setting.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

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 Gas 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
DIMMING *AUTOMATIC ↓*	Press the down arrow key <↓> to toggle through dim settings: **Automatic** – The display automatically dims based on the light detected at the display. **Manual** – The display dimming level is set manually. Once set, this value remains regardless of the level of light detected at the display. **Blank Sign** – Will blank the display of all items.

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

LCD Screen	Action
SET AUTO DIMMING *MAX INTENSITY?*	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.) Press <**CLEAR**> to keep the current auto dimming maximum setting

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

LCD Screen	Action
INTENSITY XX↓↑ *ENTER TO SET* XX – Current intensity (1-16) Max intensity – 16 (Default is 16)	Press the up or down arrow key <↑↓> to modify the current intensity of the display 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.

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
SEARCHING FOR *CONNECTED DEVICE*	(None necessary)

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
RADIO FOUND *& INITIALIZED*	This message appears on the LCD when a radio is connected.

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

4.4   POS Installation and Interface

Reference Drawings:
>   System Riser Diagram; Point of Sale Configuration ... **Drawing A-200195**

A Point of Sale (POS) interface option is available with DataMaster LED Gasoline
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 (0A-1279-0400 for Gilbarco G-Site).

BEFORE YOU START:
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.

Hardware Installation:
1.   Locate the following parts:
      a)   POS Interface Kit containing:
             - DataMaster 100 w/POS option (0A-1196-0133)
             - Wall mounting bracket for DM-100 (0M-200082)
             - POS Interface Cable
                   o   For Gilbarco G-Site POS: RJ45 to DB9 cable (0A-
                       1279-0402)
             - POS riser diagram (**Drawing A-200195**)
      b)   10' cable, DB9 to DB9 (W-1267)
      c)   Wall pack transformer (T-1118).
      d)   Indoor junction box (0A-1196-0099) for direct wired installations
             OR…
             Radio Interface junction box (0A-1279-0161) for wireless installations.
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 (c. or d. 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.

Configuring the DM100 for Gilbarco G-Site Interface

BEFORE YOU START:
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.

1. Press the <**Menu**> key and use the <↑> and <↓> keys to scroll to the "POS SETTINGS" menu item.

> ```
> POS SETTINGS
> ENT TO MODIFY ↓↑
> ```

   Press <**ENTER**>.

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

> ```
> POS INTERFACE
> GILBARCO GSITE ↓↑
> ```

   Press <**ENTER**>.

3. 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.

> ```
> PRICE CATEGORY
> LINE 1: 1 ↓↑
> ```

Use the <↑> and <↓> keys to select a price category to be displayed on line 1 of the sign. Press <**ENTER**> to accept the setting. When the price category displayed says <**NONE**>, pressing <**ENTER**> 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.

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.

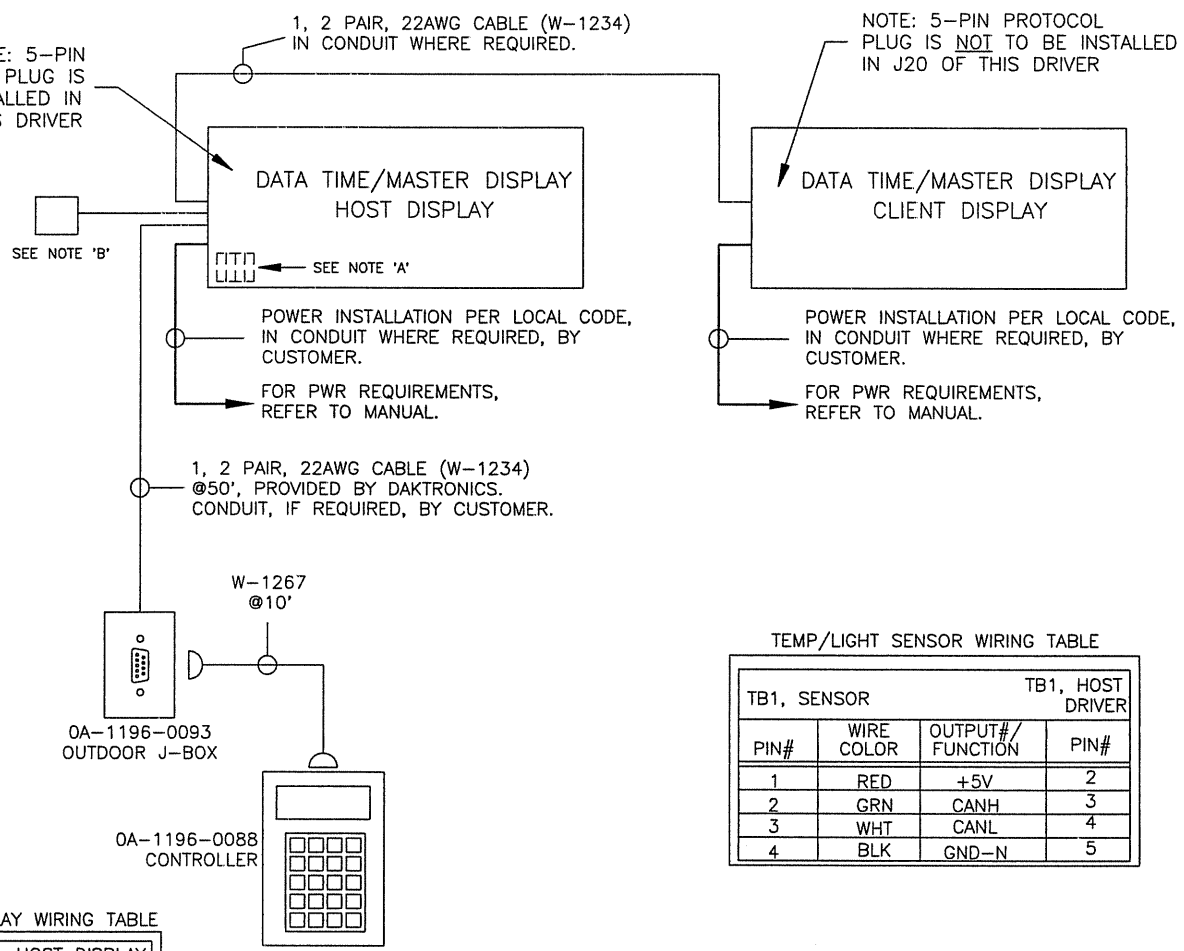# Appendix A: Reference Drawings

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.

WIRE CONTROL AT BASE OF SIGN

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

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

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

DATA TIME/MASTER DISPLAY HOST DISPLAY

SEE NOTE 'B'

SEE NOTE 'A'

DATA TIME/MASTER DISPLAY CLIENT DISPLAY

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

FOR PWR REQUIREMENTS, REFER TO MANUAL.

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

FOR PWR REQUIREMENTS, REFER TO MANUAL.

1, 2 PAIR, 22AWG CABLE (W-1234) @50', PROVIDED BY DAKTRONICS. CONDUIT, IF REQUIRED, BY CUSTOMER.

W-1267 @10'

0A-1196-0093 OUTDOOR J-BOX

0A-1196-0088 CONTROLLER

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#
1	RED	12VDC-P	7
5	BLK	GND-N	8
6	GRN	SIGNAL-P	1
5	WHT	SIGNAL-N	2

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

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 OF-1056-0004 TO T-1118	MWM	
01	30 MAY 02	REVISED ALL WIRING CHARTS AND ADDED PROPRIETARY NOTES.	MWM	
REV.	DATE	DESCRIPTION	BY	APPR.

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 06   APPR. BY: SCALE: NONE

1279-R01A-164988

DISPLAY SEQUENCE

7 8 9

↑

4 5 6

DIMMING

↓

1 2 3

CLEAR

SET FUNCTION

ENTER
*
EDIT

0

MENU

DM–100

OG–164998

DAKTRONICS, INC.   BROOKINGS, SD 57006

PROJ:

TITLE: INSERT, OG–164998 PRICE/T&T DISPLAY

DES. BY: EBRAVEK   DRAWN BY: EBRAVEK   DATE: 5 APR 02

REVISION 00

APPR. BY:

SCALE: 1=1

1196-E07A-164998

REV.	DATE	DESCRIPTION	BY	APPR.

LANDLINE MODEM
0P-1279-0003
COATED MODEM
(INSTALL OPTION)

J3 2 2 BLK
   1 1 RED

0P-1110-0011

TB3
1 TAN
2 RED
3
4 GRY
5 BRN
6
7 RED
8 BLK

TB1 TAN
    RED
1 +
2 – SIG. IN
3

TB2
3
2 SIG. OUT
1 +

BLK
RED

J1 2 2 BLK
   1 1 RED

RED   BLK

1 2 P23
1 2 J23

P17 J17
RED   1 1
BLK   2 2
GRY   3 3
BRN   4 4
ORG   5 5
      6 6
      7 7
BRN   8 8
BLK   9 9
      10 10
RED   11 11
      12 12
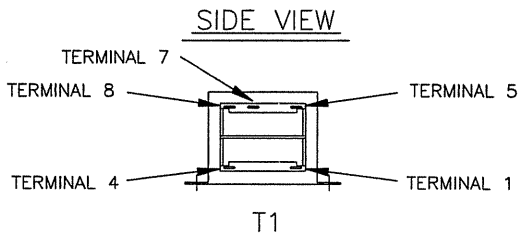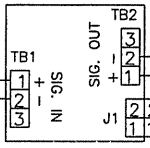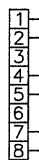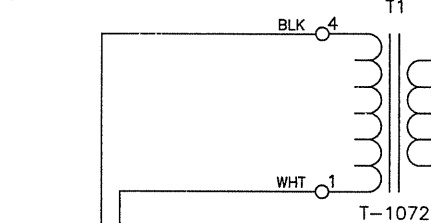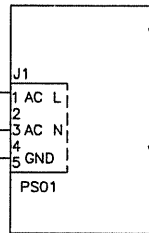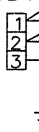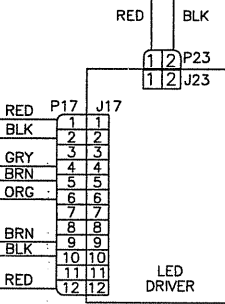
LED DRIVER

4 COL. DRIVER
0P-1192-0067
NON-COATED DRIVER
0P-1192-0068
COATED DRIVER

8 COL. DRIVER
0P-1192-0081
NON-COATED DRIVER
0P-1192-0082
COATED DRIVER

SIDE VIEW

TERMINAL 7
TERMINAL 8   TERMINAL 5
TERMINAL 4   TERMINAL 1
T1

T1
BLK 4
WHT 1
8 ORG
5 BRN
T-1072

TB4
1 BLK
2 WHT
3 GRN/YEL

J1
1 AC L
2
3 AC N
4 GND
5 GND
PS01

J3 V–
7
6
5
4
3
2
BLK

J2 V+
6
5
4
3
2
RED

A-1720
POWER SUPPLY
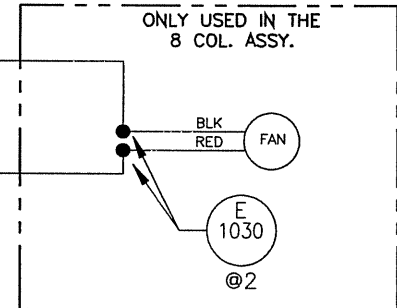
ONLY USED IN THE
8 COL. ASSY.

BLK
RED FAN

E
1030
@2

NOTES:
ALL CONDUCTORS ARE 18AWG.

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

0A-1279-0086
MULTI PURPOSE HARNESS ASSY.

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 08
APPR. BY:
SCALE: 1=1
1279-R03A-165028

OP−1192−0067 UNCOATED OR 0P−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
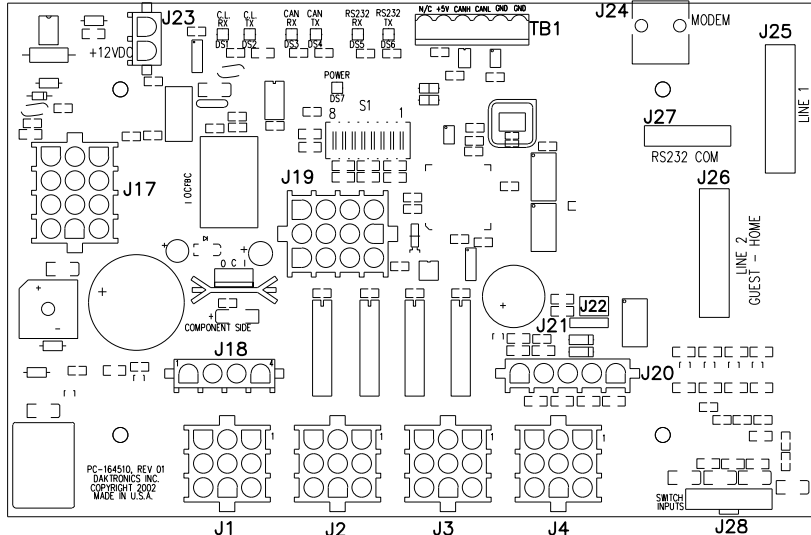
J25

FUNCTION	PIN	PIN	FUNCTION
L1_IDO−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_IDO−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

PC-164510, REV 01
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J1−4 DIGIT

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

J20 PROTOCOL

PIN	FUNCTION
1	GND
2	PR0−N
3	PR1−N
4	PR2−N
5	PR3−N

J21 ISP

PIN	FUNCTION
1	VFP−P
2	BKD−P
3	GND−N
4	RESET−P

J22 ISP

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

J28 SWITCH

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

NOTE:

−RED LED CL RX WILL BE ON OR BLINKING WHEN THE DRIVER IS RECEIVING SIGNAL
 AND OFF WHEN THERE IS NO SIGNAL WITH CL

−GREEN LED CL TX WILL BE ON OR BLINKING WHEN THE DRIVER IS RECEIVING SIGNAL
 AND OFF WHEN THERE IS NO SIGNAL WITH CL

−RED LED CAN RX WILL BE BLINKING WHEN THE DRIVER IS RECEIVING SIGNAL
 AND ON WHEN THERE IS NO SIGNAL WITH CAN

−GREEN LED CAN TX WILL BE BLINKING WHEN THE DRIVER IS RECEIVING SIGNAL
 AND ON WHEN THERE IS NO SIGNAL WITH CAN

−IF THERE IS NOT A CAN DEVICE CONNECTED TO TB1, CAN RX AND TX LEDS WILL BE ON
 AND STEADY.

−RED LED RS232 RX WILL BE ON OR BLINKING WHEN THE DRIVER IS RECEIVING SIGNAL
 AND OFF WHEN THERE IS NO SIGNAL WITH RS232

−GREEN LED RS232 TX6 WILL BE ON OR BLINKING WHEN THE DRIVER IS RECEIVING SIGNAL
 AND OFF WHEN THERE IS NO SIGNAL WITH RS232

−GREEN LED POWER INDICATES THE DRIVER HAS POWER

DAKTRONICS, INC.
BROOKINGS, SD 57006
DO NOT SCALE DRAWING

PROJ: OUTDOOR LED SCOREBOARDS
TITLE: 4 COLUMN MASC LED DRIVER SPECIFICATIONS
DESIGN:
DRAWN: JSPAHR
DATE: 29 APR 02
SCALE: 1=2

SHEET	REV	JOB NO:	FUNC-TYPE-SIZE	
	04	P1192	R - 07 - A	166216

REV	DATE:		BY:
04	01 FEB 13	CORRECTED S1 PINOUT	RBN
3	27 NOV 04	UPDATE DRIVER J-27 FOR CORRECT PIN OUT	DMD
2	16 MAY 03	UPDATE DRIVER FOR LATEST REVISION OF MASC DRIVER.	CJB
1	06JUN02	ADDED LED LABELS ADDED NEW NOTES	JJS

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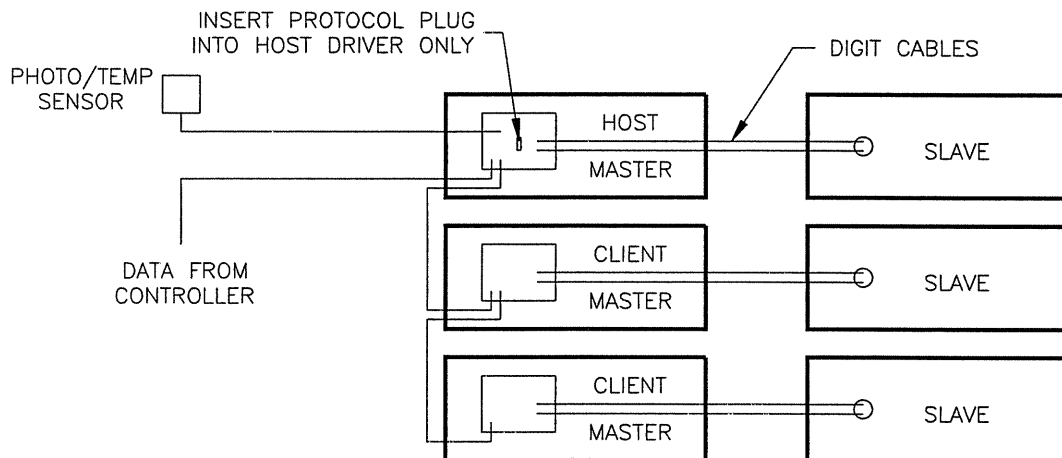
THIS HOST/CLIENT RELATIONSHIP MAY BE USED IN MULTI-LINE DISPLAYS, AS PICTURED, OR ON SINGLE-LINE 2V (DOUBLE SIDED) DISPLAYS, WHERE EACH DISPLAY FACE CONTAINS A DRIVER.
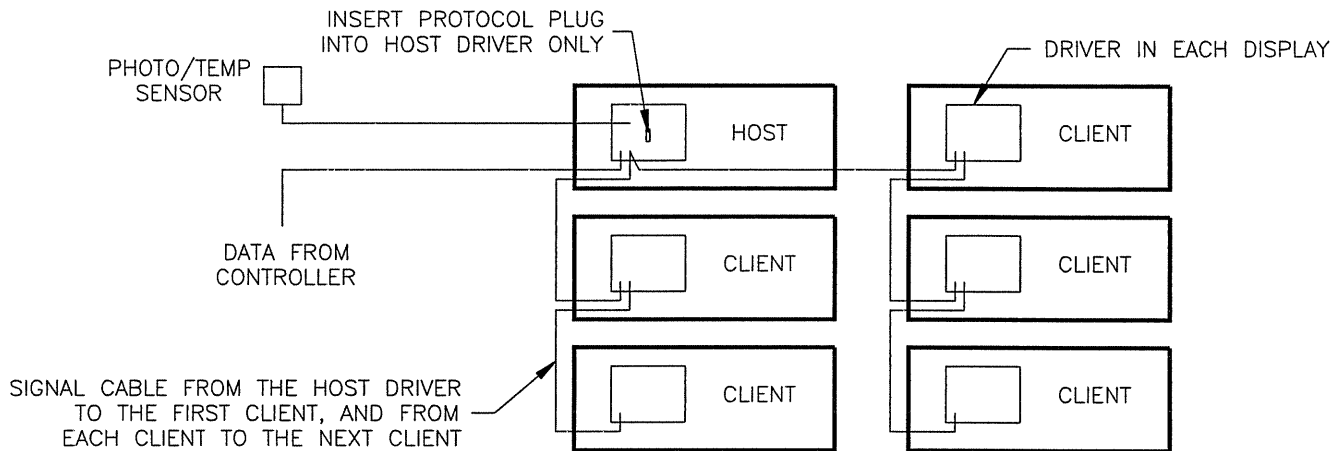
MASTER/SLAVE DESIGNATIONS:

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.

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:

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

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

DATA TIME/MASTER DISPLAY HOST DISPLAY

SEE NOTE 'B'

SEE NOTE 'A'

DATA TIME/MASTER DISPLAY CLIENT DISPLAY

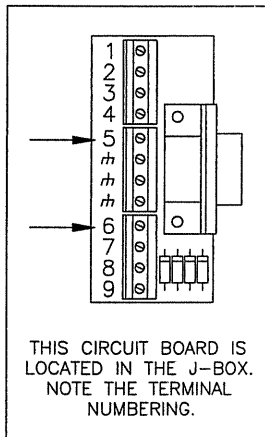POWER INSTALLATION PER LOCAL CODE, IN CONDUIT WHERE REQUIRED, BY CUSTOMER.

FOR POWER REQUIREMENTS, REFER TO MANUAL.

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

FOR PWR REQUIREMENTS, REFER TO MANUAL.

1, 2 PAIR, 22AWG CABLE (W-1234) @100', PROVIDED BY DAKTRONICS. CONDUIT, IF REQUIRED, BY CUSTOMER.

CONTROL LOCATION

W-1267 @10'

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

0A-1196-0099 INDOOR J-BOX

WALL PACK TRANSFORMER T-1118

120V AC

0A-1196-0088 CONTROLLER

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

J-BOX TO DISPLAY WIRING TABLE

9-PIN J-BOX		HOST DISPLAY TB3, DRVR ENCLOSURE
PIN#	WIRE COLOR	FUNCTION	PIN#
6	GRN	SIGNAL-P	1
5	WHT	SIGNAL-N	2

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.

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.

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

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

DAKTRONICS, INC. BROOKINGS, SD 57006

PROJ: DATATIME LED DISPLAYS

TITLE: RISER DIAGRAM, INDOOR WIRE CONTROL, DATA TIME/MAS.

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

REVISION 03   APPR. BY: SCALE: NONE   1279-R01A-175342

REV.	DATE	DESCRIPTION	BY	APPR.
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	

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.

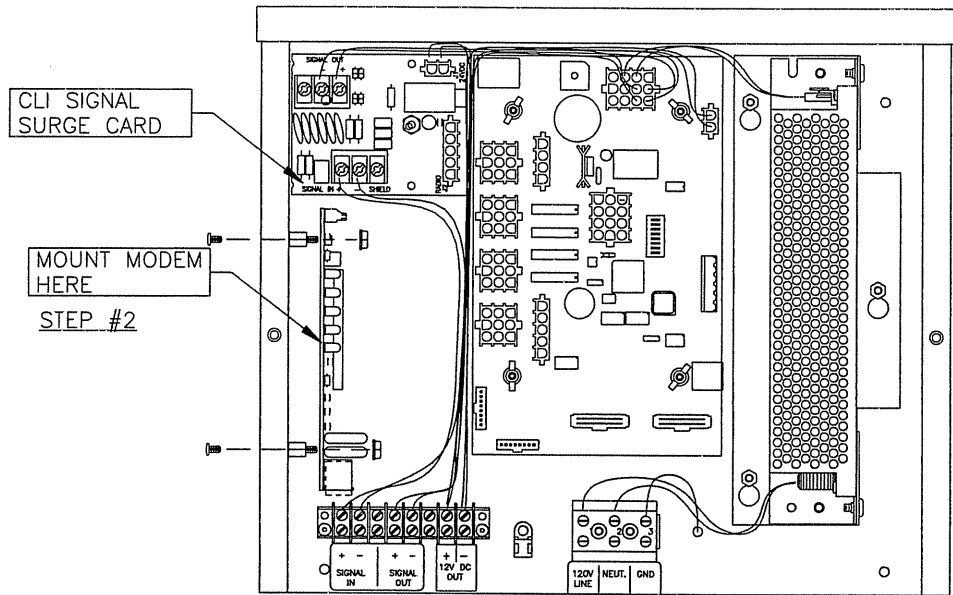6.) Turn power on to display.

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
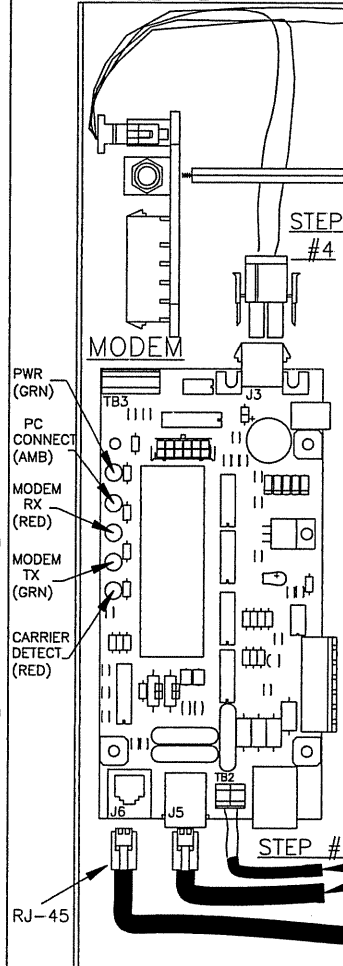
MASC Driver Status LEDs

− 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.
.

FRONT VIEW

CLI SIGNAL SURGE CARD

MOUNT MODEM HERE

STEP #2

SIGNAL IN   SIGNAL OUT   12V DC OUT   120V LINE   NEUT.   GND

SIDE VIEW   FRONT VIEW MASC DRIVER
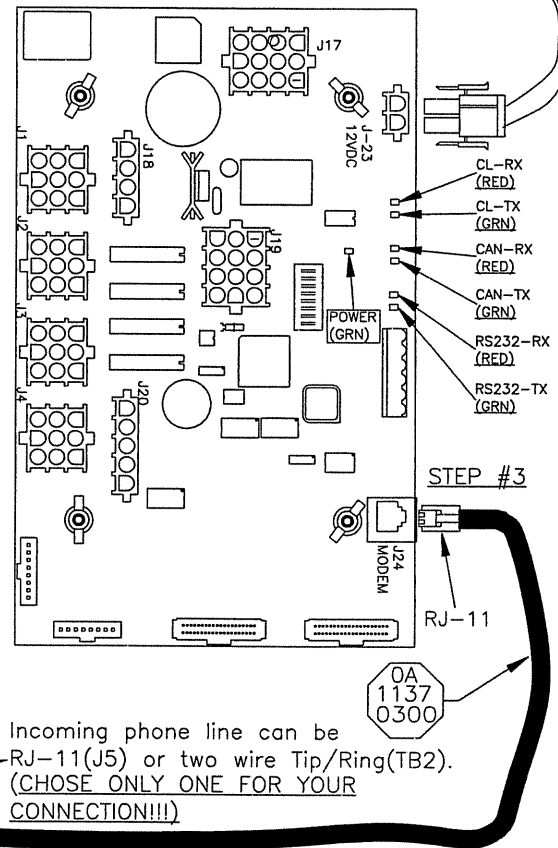
STEP #4

MODEM

PWR (GRN)
PC CONNECT (AMB)
MODEM RX (RED)
MODEM TX (GRN)
CARRIER DETECT (RED)

TB3   J3

J17
J18
J19
J20
POWER (GRN)
J−23 12VDC

CL−RX (RED)
CL−TX (GRN)
CAN−RX (RED)
CAN−TX (GRN)
RS232−RX (RED)
RS232−TX (GRN)

STEP #3

J24 MODEM

RJ−11

0A 1137 0300

TB2

J6   J5

STEP #5

RJ−45

Incoming phone line can be RJ−11(J5) or two wire Tip/Ring(TB2). (CHOSE ONLY ONE FOR YOUR CONNECTION!!!)

DAKTRONICS, INC.   BROOKINGS, SD 57006

PROJ: DATATIME LED DISPLAYS

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

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

DES. BY: DRAWN BY: DDINING   DATE: 15 OCT 02

REVISION 01   APPR. BY: SCALE: 1=4

1279−R10A−177039

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.
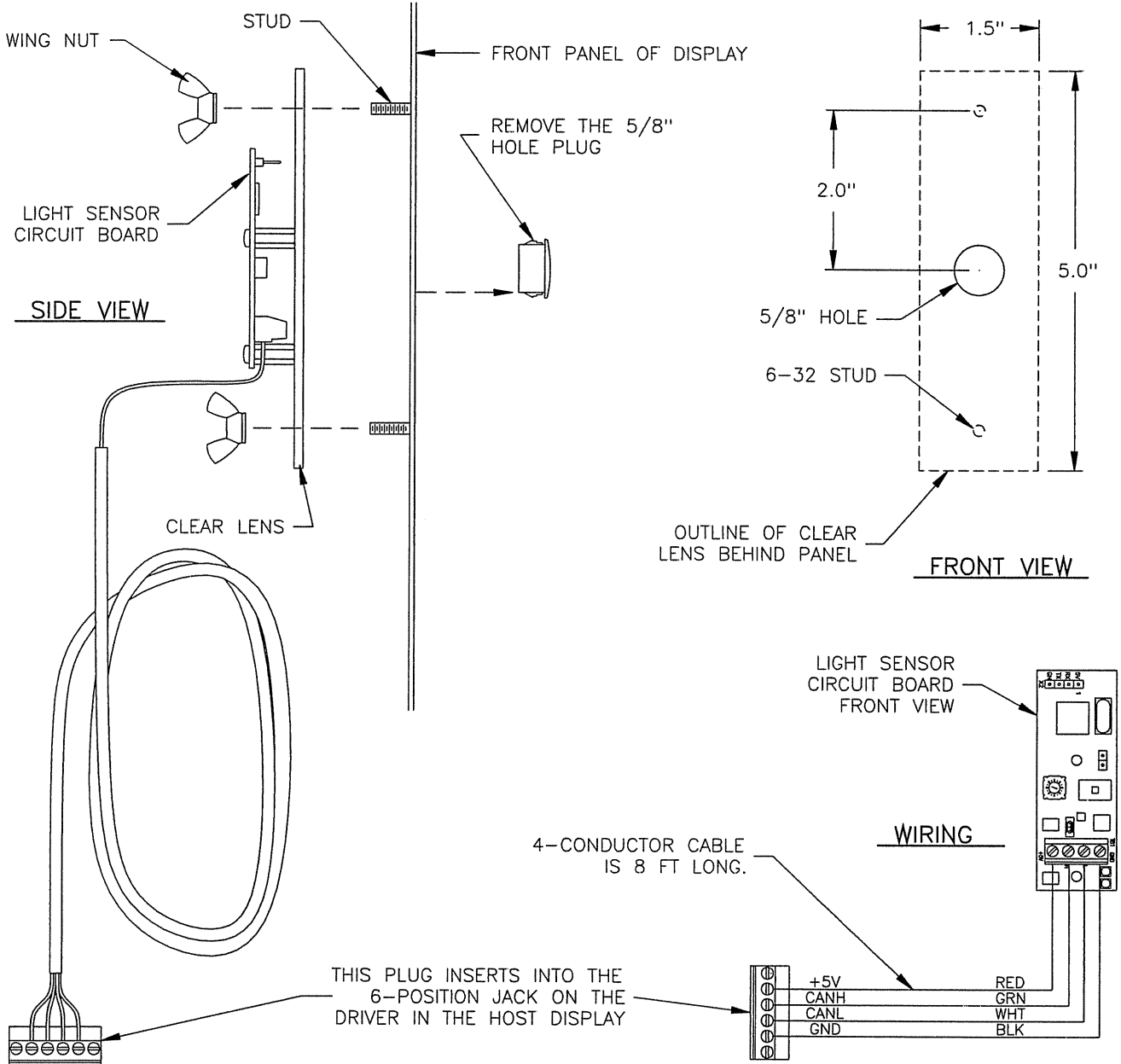
FOR DAKMAP (MULTIDROP) CONTROLLED SYSTEMS:
REFER TO DRAWING A-210516 FOR WIRING OPTIONS.

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.

WING NUT

STUD

FRONT PANEL OF DISPLAY

REMOVE THE 5/8"
HOLE PLUG

LIGHT SENSOR
CIRCUIT BOARD

SIDE VIEW

CLEAR LENS

1.5"

2.0"

5.0"

5/8" HOLE

6-32 STUD

OUTLINE OF CLEAR
LENS BEHIND PANEL

FRONT VIEW

LIGHT SENSOR
CIRCUIT BOARD
FRONT VIEW

WIRING

4-CONDUCTOR CABLE
IS 8 FT LONG.

THIS PLUG INSERTS INTO THE
6-POSITION JACK ON THE
DRIVER IN THE HOST DISPLAY

+5V	RED
CANH	GRN
CANL	WHT
GND	BLK

DAKTRONICS, INC.   BROOKINGS, SD 57006

PROJ: DATATIME LED DISPLAYS

TITLE: LIGHT SENSOR INSTALLATION, G3

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

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

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

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

4-COLUMN DRIVER
(OP-1192-0068)

ADDRESS JACK

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

24V DC, 150W
POWER SUPPLY
(A-1720)

SIGNAL SURGE
SUPPRESSION BOARD
(OP-1110-0011)

10V AC TRANSFORMER
(T-1072)

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

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

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

FRONT VIEW
WITH COVER REMOVED
WIRES ARE NOT SHOWN

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

CONNECT EARTH GROUND WIRE HERE

CONNECT NEUTRAL HERE

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

CONNECT 120V AC LINE HERE

NOTE 'A':
0A-1279-0203, INTERNAL LIGHT
SENSOR INCLUDED ON SOME MODELS.
REFER TO MANUAL FOR DETAILS.

SERVER/CLIENT RADIO CONTROL

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.

DATA TIME DISPLAY
HOST

--- SEE NOTE 'A'

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

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

DATA TIME DISPLAY
CLIENT

0A-1196-0093
OUTDOOR J-BOX,
AT BASE OF HOST
DISPLAY

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

FOR PWR REQUIREMENTS,
REFER TO MANUAL.

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	SIGNAL-P	1
5	WHT	SIGNAL-N	2

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

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

CONTROL LOCATION

120V AC

T-1118
TRANSFORMER
WALL PACK

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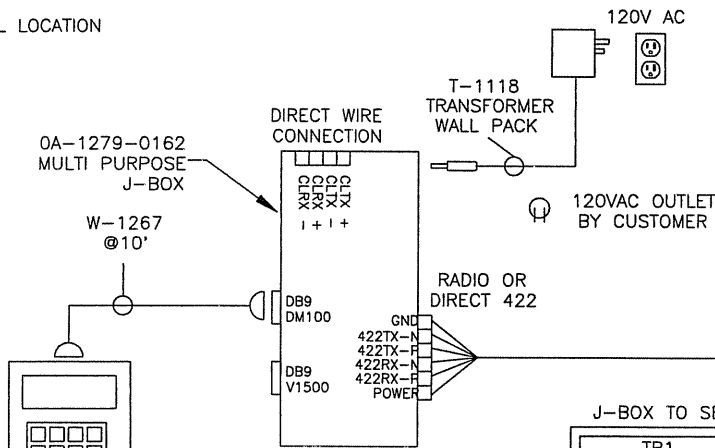CONDUIT, IF REQUIRED, BY CUSTOMER.

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.

DIRECT WIRE
CONNECTION

0A-1279-0162
MULTI PURPOSE
J-BOX

W-1267
@10'

CLTX
CLTX
CLRX
CLRX
I + I +

120VAC OUTLET
BY CUSTOMER

DB9
DM100

DB9
V1500

RADIO OR
DIRECT 422

GND
422TX-N
422TX-P
422RX-N
422RX-P
POWER

0A-1196-0088
CONTROLLER

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

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
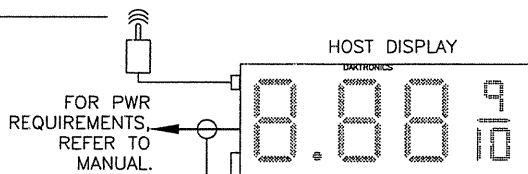
REVISION	APPR. BY:		1279-R01A-199834
00	SCALE: NONE		

REV.	DATE	DESCRIPTION	BY	APPR.

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

HOST DISPLAY
DAKTRONICS
8.88 %/10

FOR PWR
REQUIREMENTS,
REFER TO
MANUAL.

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

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

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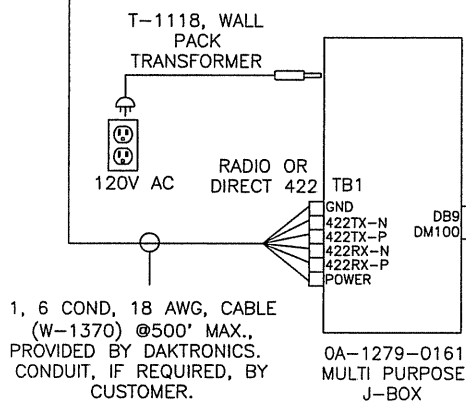DISPLAY

1500' LINE OF
SIGHT MAX

WIRING TABLE

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

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

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

HOST DISPLAY
DAKTRONICS
8.88 %/10

FOR PWR
REQUIREMENTS, REFER
TO MANUAL.
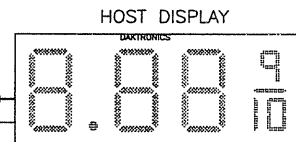
1, 2 PAIR, 22AWG
CABLE, (W-1234) IN
CONDUIT WHERE
REQUIRED.

WIRING TABLE

HOST DISPLAY TB3, DRVR ENCLOSURE		J-BOX	
PIN#	FUNCTION	WIRE COLOR	PIN#
1	SIGNAL-P	GRN	6
2	SIGNAL-N	WHT	5

RADIO OPTION | DIRECT WIRE OPTION

T-1118, WALL
PACK
TRANSFORMER

120V AC

RADIO OR
DIRECT 422

TB1
GND
422TX-N
422TX-P
422RX-N
422RX-P
POWER

DB9
DM100

W-1267 (10')   OR   W-1267 (10')

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

OA-1279-0161
MULTI PURPOSE
J-BOX

T-1118, WALL
PACK
TRANSFORMER

OA-1196-0099
INDOOR J-BOX

120V AC

P.O.S COMPUTER
SYSTEM
BY OTHERS

PRICE
OUTPUT

CABLE PART NO. VARIES
WITH P.O.S. MFR.

OM-200082
MOUNTING BRACKET
(OPTIONAL)
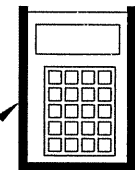
OA-1196-0133
CONTROLLER

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.

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

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
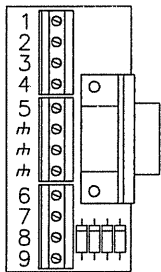
REVISION 03

APPR. BY:

SCALE: NONE

1279-R01A-200195

REV.	DATE	DESCRIPTION	BY	APPR.
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	

MODEM CONTROL

NOTE 'A':
0A-1279-0203, INTERNAL LIGHT
SENSOR INCLUDED ON SOME MODELS.
REFER TO MANUAL FOR DETAILS.

DEDICATED TELEPHONE LINE TO
INTERNAL MODEM IN HOST DISPLAY.
REFER TO A-177039 FOR INTERNAL
DETAILS. ALL RESPONSABILITIES BY
OTHERS.

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

FOR PWR REQUIREMENTS,
REFER TO MANUAL.

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	SIGNAL-P	1
5	WHT	SIGNAL-N	2

DATA TIME DISPLAY
HOST

SEE NOTE 'A'

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

DATA TIME DISPLAY
CLIENT

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

0A-1196-0093
OUTDOOR J-BOX,
AT BASE OF HOST
DISPLAY

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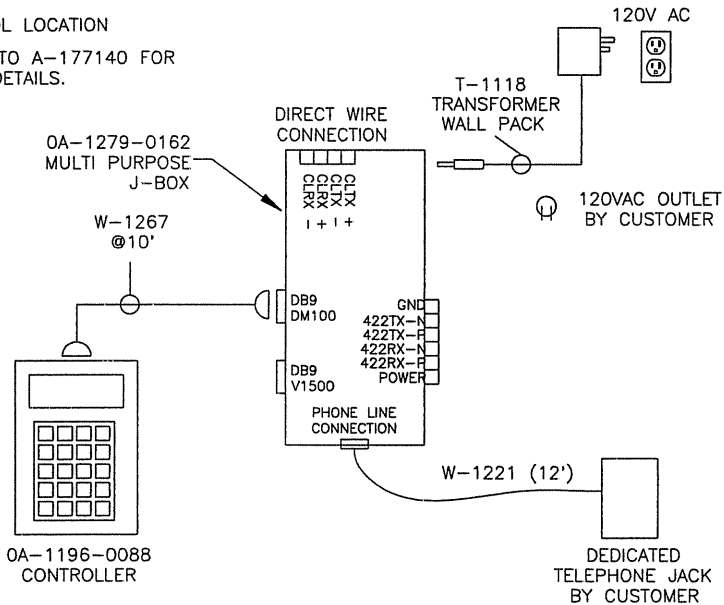REQUIRED, BY CUSTOMER.

FOR PWR REQUIREMENTS,
REFER TO MANUAL.

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

CONTROL LOCATION

REFER TO A-177140 FOR
MORE DETAILS.

120V AC

0A-1279-0162
MULTI PURPOSE
J-BOX

DIRECT WIRE
CONNECTION

CLTX
CLTX
CLRX
CLRX
I + I +

T-1118
TRANSFORMER
WALL PACK

120VAC OUTLET
BY CUSTOMER

W-1267
@10'

DB9
DM100

DB9
V1500

GND
422TX-N
422TX-P
422RX-N
422RX-P
POWER

PHONE LINE
CONNECTION

W-1221 (12')

0A-1196-0088
CONTROLLER

DEDICATED
TELEPHONE JACK
BY CUSTOMER

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.

DAKTRONICS, INC. BROOKINGS, SD 57006

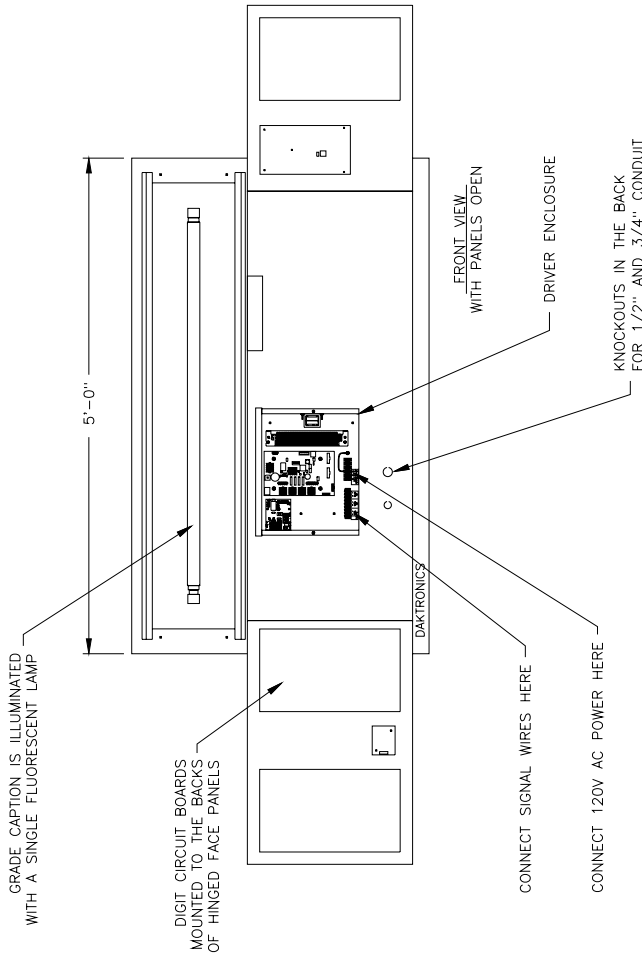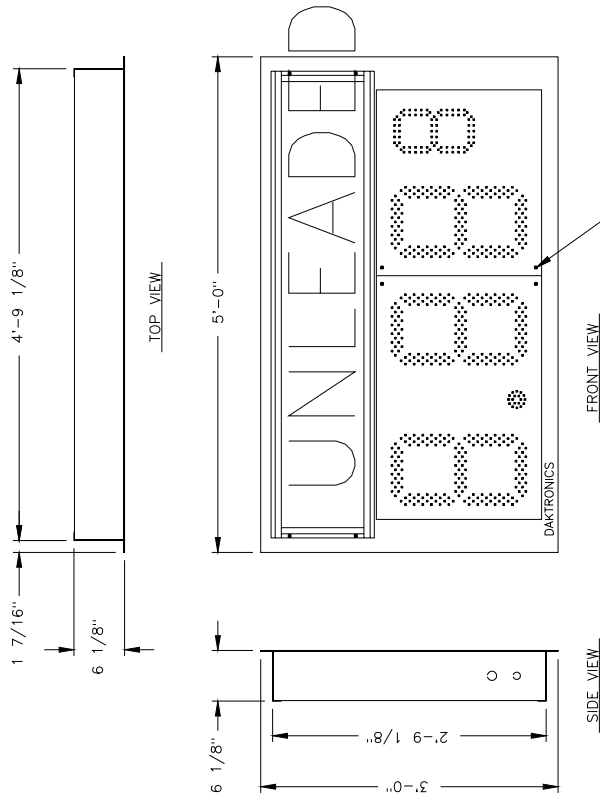|	
PROJ:	DATA TIME LED DISPLAYS
TITLE:	SYSTEM RISER DIAGRAM; DATATIME, MODEM SETUP
DES. BY: MMILLER	DRAWN BY: MMILLER	DATE: 02 DEC 03

REVISION	APPR. BY:	
00	SCALE: NONE	1279-R01A-200552

REV.	DATE.	DESCRIPTION	BY	APPR.

FRONT VIEW
WITH PANELS OPEN

DRIVER ENCLOSURE

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

GRADE CAPTION IS ILLUMINATED
WITH A SINGLE FLUORESCENT LAMP

DIGIT CIRCUIT BOARDS
MOUNTED TO THE BACKS
OF HINGED FACE PANELS

CONNECT SIGNAL WIRES HERE

CONNECT 120V AC POWER HERE

5'-0"

DAKTRONICS

TOP VIEW

4'-9 1/8"

1 7/16"

6 1/8"

FRONT VIEW

5'-0"

DAKTRONICS

REMOVE SCREWS TO OPEN
FRONT PANELS AND ACCESS
DRIVER AND HOOKUP TERMINALS

SIDE VIEW

6 1/8"

3'-0"

2'-9 1/8"

NOTES:

GENERAL

DIGITS ARE 18" AND 10" NOMINAL HEIGHT.
ALL DIGITS USE RED LEDS.

LETTERS IN BACKLIT GRADE CAPTION ARE 8" HIGH.

THIS DISPLAY IS A DROP-IN MODEL, INTENDED TO BE INSERTED INTO A RECTANGULAR OPENING IN A LARGER
SIGN. RECOMMENDED OPENING DIMENSIONS ARE 57.50" WIDE X 33.50" HIGH.

MECHANICAL

CABINET IS FORMED ALUMINUM SHEET, 0.063" THICK.
ESTIMATED WEIGHT IS ABOUT 75 LBS.

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

MAX. POWER CONSUMPTION IS ABOUT 350 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.

REV. | DATE | DESCRIPTION | BY | APPR.

Appendix B: DataMaster Frequently Asked Questions (FAQ)

Appendix C: DataMaster Gasoline Price Quick Installation Reference

Gasoline Price Displays

Appendix D: DataMaster Gasoline Price
                    Quick Start Reference