

**VM-1020**  
Using DDMS controller  
Field Test Procedure

DD1750012

Rev:8—15 January 2018

# DAKTRONICS

117 Prince Drive PO Box 5120 Brookings SD 57006  
tel: 800-833-3157



**DD1750012**

**Rev:8—15 January 2018**

## **DAKTRONICS, INC.**

### **Copyright © 2018**

All rights reserved. While every precaution has been taken in the preparation of this manual, the publisher assumes no responsibility for errors or omissions. No part of this book covered by the copyrights hereon may be reproduced or copied in any form or by any means—graphic, electronic, or mechanical, including photocopying, taping, or information storage and retrieval systems—without written permission of the publisher.

*Vanguard® is a trademark of Daktronics, Inc. National Electrical Code® and all other trademarks are property of their respective companies*

## Introduction

This test procedure describes the field tests for a VM sign site for this project. The purpose of this test is:

1. To check that the sign and related equipment supplied by Daktronics has been installed properly.
2. To check that all sign and related equipment supplied by Daktronics is functioning. Special emphasis is placed on items that, if bad, are not expected to show up as being bad during normal operation. Example: earth grounding not connected.
3. To put the sign into the state needed so that it is ready for normal operation without the need for an additional visit before beginning normal operation.
4. As a record that all tests and setup tasks have been performed at each particular site so that it will not be necessary to re-visit sites later because of not being sure whether or not certain tests or setup items have been done.

Note that this is not a test of all software functions or hardware design limits; this would be very time consuming, and would be redundant, as those tests need to be done only once.

This test should be performed for every sign site at the completion of installation of the particular site.

The test messages to be used should be the test messages listed or messages such as "Testing; Message 1" or moving rows, moving columns, etc., that will not misdirect traffic.

This test requires the cooperation of an operator at the central controller with personnel at the sign site.

Test equipment required:

- Boom truck, or whatever is required to get up into the sign
- Digital multi-meter
- Laptop computer, with central controller software, miscellaneous software, and null modem cable.
- Common hand tools
- Ground resistance tester
- Cellular telephone or other means of communication with the central controller operator.

## Site Information

Daktronics Representative: \_\_\_\_\_

Contract number and name: \_\_\_\_\_

Field test procedure addendum ED number, if any ("NA" if not applicable):  
\_\_\_\_\_

Sign site: \_\_\_\_\_  
(Typically highway number, direction, and mile-post number or intersection)

Sign model no.: \_\_\_\_\_

Sign 1 serial no.: \_\_\_\_\_

Field controller serial no.: \_\_\_\_\_

Field controller address no.: \_\_\_\_\_

Site telephone number: \_\_\_\_\_

Site IP address: \_\_\_\_\_

**Important: Make sure that the firmware listed below is the most current version, if not make sure to download the latest version of the firmware.**

Sign dimension: \_\_\_\_\_

Firmware:

Version number:

- |                            |       |       |
|----------------------------|-------|-------|
| 1) Controller Firmware ED- | _____ | _____ |
| 2) Module - EPLD           |       | _____ |
| 3) Control Panel           |       | _____ |
| 4) Display Module          |       | _____ |
| 5) DIST BRD firmware       |       | _____ |
| 6) ED13309 - Boot loader   |       | _____ |

## Traffic Cabinet Inspection

- \_\_\_ 1.0 Turn off the power to the traffic cabinet.
- \_\_\_ 1.1 Inspect the inside and outside of the traffic cabinet for damage and check for loose parts or connections. Also check that the nuts are installed on the anchor bolts (if ground-mounted traffic cabinet).
- \_\_\_ 1.2 Check that earth grounding wires are secured to earth ground rod from sign, traffic cabinet conduit grounding collars, traffic cabinet panel board, traffic cabinet case, and power source.
- \_\_\_ 1.3 Verify that ground wire and ground rods are connected properly per site riser.
- \_\_\_ 1.4 Remove the panel board cover. Check that the 2 hot wires, neutral, and earth ground wires from the 120/240 VAC power source are connected into the panel board main breaker terminals, neutral bus, and earth ground bus, respectively.
- \_\_\_ 1.5 Visually inspect the outside of the sign controller for damage, check that all necessary connectors are plugged into the outside of the sign controller, and check that the connector screws (if any) are tight.
- \_\_\_ 1.6 Inspect the modem panel or other communication interface panel for loose parts or wiring, and check that the wiring or fiber(s) for the communication system is terminated properly.
- \_\_\_ 1.7 Terminate communication from controller to sign.

## Traffic Cabinet Power Test

- \_\_\_ 2.0 Check that all traffic cabinet panel board circuit breakers are off, except for the "Panel board Surge Suppressor" breaker, which should be on. Apply power to the traffic cabinet only.
- \_\_\_ 2.1 Using a safe procedure, measure the AC voltage from the panel board main breaker input lugs to neutral; it should measure between 105 and 125 VAC. Also, check the voltage from neutral to earth ground. It should measure less than 10 VAC. (This is a no-load test of the input voltage.) Record below.
  - a. L1 to neutral: \_\_\_\_\_ L2 to neutral: \_\_\_\_\_ Neutral to earth ground: \_\_\_\_\_
- \_\_\_ 2.2 Re-install the panel board cover.
- \_\_\_ 2.3 Check that all control equipment is plugged into the control equipment outlet strip.
- \_\_\_ 2.4 Check that all control equipment inside the traffic cabinet is switched off, and turn on the main circuit breaker and all circuit breakers in the traffic cabinet except for the **sign** breaker (if equipped).

### **Sign Panels Exterior Inspection**

\_\_\_ 3.0 Visually inspect the outside of the signs panel.

\_\_\_ 3.1 Check that the light sensors are unobstructed.

### **Power Connection Inspection**

\_\_\_ 4.0 Turn off the power to the sign panels.

\_\_\_ 4.1 Check that the positive, and negative wires are landed into the DC power in and are landed on the correct polarity on the terminal block.

\_\_\_ 4.2 Check that the signal wiring is terminated on signal terminal block inside sign.

### **Display Panel Interior Inspection**

\_\_\_ 5.0 Make sure the Site Information is filled out for each display panel: sign serial number, sign model number, sign assembly number, etc.

\_\_\_ 5.1 Inspect the inside of each display panel for damage and signs of water intrusion. Check for loose parts, connections, and wiring.

\_\_\_ 5.2 **If equipped with Can distribution external communication box.** Verify that the fiber-optic are connected to the proper location on the Distribution board

\_\_\_ 5.3 Check that all conduits that enter the sign panels are sealed.

### **Sign Power Test**

\_\_\_ 6.0 Apply power to the sign panels.

\_\_\_ 6.1 Using a safe procedure, measure the DC voltage it should measure 24 VDC (+/- 10%). Record below.  
a. Voltage Reading \_\_\_\_\_

\_\_\_ 6.2 Module power indicator lights are on

### **Functional Test**

\_\_\_ 7.0 Turn on the sign controller power switch, check that the power indicator LED is on and the active light is blinking.

\_\_\_ 7.1 Enter all the necessary data into the sign controller such as address, module type, sign height, sign width, sign type, access type, and peripherals.  
a. Reference display configuration sheet to configure peripherals.

\_\_\_ 7.2 Perform a reset only on the DDMS to save the configuration.

\_\_\_7.3 **Note: If testing at night do the all on 10% test patterns.** Display the “All On 100% Burn” test pattern; check that all fans turn on for each sign panel. Once complete set test pattern to “None”.

\_\_\_7.4 Check that the value indicated by each of the light sensor for each panel appears reasonable for the current ambient lighting conditions. Record below for each sign panel.

Date: \_\_\_\_\_ Time: \_\_\_\_\_ Sky conditions: \_\_\_\_\_

Module Light sensor readings: 1: \_\_\_\_\_

\_\_\_7.5 Check that the module temperature appears correct, and record below:

**Note:** Temp sensors utilize digital integrated circuits, which are calibrated at the integrated circuit factory, and do not require additional calibration.

Module Temp 1, degrees F.: \_\_\_\_\_

\_\_\_7.6 Check that all LED power supplies (Isolation Boards) in Traffic Cabinet indicate "OK" (figure 8 pattern of the 7-segment display). Check that each power supply indicates pass on the controller.

\_\_\_7.7 Run the following test patterns individually and verify that all the test patterns display properly.

- a. Alphabet
- b. LineID
- c. Module ID
- d. **Note: If testing at night do not run this test.** Auto Test Pattern

\_\_\_7.8 Set the time, date, and correct time zone.

\_\_\_7.9 Display a message (not a test pattern) that will not misdirect traffic and that has characters that butt up to the top, bottom, left, and right edges of the sign and verify that it displays correctly on each sign panel. This verifies proper message display capability for this sign size.

\_\_\_7.10 **Note: if testing at night do the all on 10% test patterns.** Display the all on 100% test pattern, and check that the it is displaying. Turn off one power supply, check in the peripherals screen that all the power supplies (isolation boards) that are on indicates 24.1 to 25.2 VDC and the one that is off says fail. Repeat the above step for each remaining power supply.

\_\_\_7.11 Perform a pixel test and verify that all pixels are reported as good.

\_\_\_7.12 Sign panel door signal switches.

- a. Display the View Peripherals Menu on the controller. Check that the LCD indicates that door is closed.

\_\_\_ 7.13 **If TC provided by DAK:** Traffic cabinet door detection switches. **Note:** Operate the doors, not just the switches, to be sure that the switches adjustments are correct. It may take up to 10 seconds after the door position is changed to indicate the change. Some traffic cabinets have only one door:

- a. Display the View Peripheral Menu on the LCD. Close both traffic cabinet doors for 15 seconds and then open the door, and quickly check that the LCD indicates that the doors are closed.
- b. With the door currently open, wait 15 seconds for the controller to update, and then check that the LCD indicates that the door is open.
- c. Open the other door and wait 15 seconds for the controller to update, then check
- d. That the LCD indicates that the door is open.

\_\_\_ 7.14 **If TC provided by DAK:** Parallel surge suppressor with remote reporting

- a. Display the "View Peripherals" screen on the controller, and check that the Surge Suppressor entry indicates "Pass" for each sign panel.

\_\_\_ 7.15 Reinstall all enclosure covers.

\_\_\_ 7.16 Record the installed firmware version numbers (from the sign controller "Version Information" page), and the dimensions of the sign. (If the dimension of the sign doesn't match the actual sign size, correctly configure the sign controller for this site.) Record the following information under the Site Information:

### **Final Details**

\_\_\_ 8.0 Confirm that all traffic cabinet thermostats are set properly, and all equipment covers are installed properly.

\_\_\_ 8.1 Verify the displays are blank.

\_\_\_ 8.2 Verify that any test messages you created have been removed from the sign controller.

\_\_\_ 8.3 Record if main breaker is left on or off: On: \_\_\_ Off: \_\_\_ Date: \_\_\_\_\_

\_\_\_ 8.4 Make sure the Site Information is filled out: serial numbers, site location, phone number, sign dimension, firmware versions, etc.



It is acknowledged that the following field test procedure has been completed for this site and the display is operational.

**Daktronics Technician**

_____	_____	_____
Printed Name	Signature	Date

**Customer**

_____	_____	_____
Printed Name	Signature	Date

DAKTRONICS PERSONNEL MUST RETURN THIS COMPLETED DOCUMENT AND QUALITY FEED BACK FORM TO THE DAKTRONICS CONTRACT PROJECT MANAGER.

## Transportation Quality Feedback form

*For Internal Daktronics use only. This is not part of the field Test Procedure. This form needs field out and sent back to Daktronics with the Field Test Procedures*

Submitted By \_\_\_\_\_ Contract# \_\_\_\_\_  
Display Type (i.e. VF2400\_27x105-66-A) \_\_\_\_\_  
Location of Display \_\_\_\_\_  
Display Serial # \_\_\_\_\_ nearest City and State \_\_\_\_\_  
Commissioning Date \_\_\_\_\_ Project Manager \_\_\_\_\_

Did you experience any issues or unplanned work during the commission of this display? **Yes/No** (if no skip to additional comments/Punch list items)

Failed Part Description	Part Number	Part Serial #

### Describe the issues and or unplanned work

---

---

---

---

---

---

---

---

---

---

### Additional Comments/Punch list Items

---

---

---

---

---

---

---

---

---

---

FTP completed **Yes/No**

Site Complete **Yes/No** (if no documents punch list items above)