TAPCO

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Attn: Joe Bembnister

This is the final documentation for the Wisconsin Department of Transportation for the WISDOT Project ID#1022-09-80 Eau Claire – Osseo USH53 to Mallard Road

Item SPV.0060 SPECIAL 01. Install Ground Mounted DMS

Location Eau Claire - Osseo USH53 to Mallard Road

TAPCO PROJECT MANAGER Jeffery Tarczewski **DATE:** 10.17.14

NEI Electric PROJECT MANAGER Joe Bembnister **DATE:** 10.17.14

Comments:

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DMS, DMS Cabinet and Communications Test Procedure

Site Information

Sign Site: I-94 WB @ Frase Road
Cabinet #: DMS-18-0012
Sign Serial #: JM00002052
Drawing #: 18
Project #: 1022-09-80
Contractor: NEI Northern Electricians, Inc.
Tested By: Scott Hogden

Traffic Cabinet Inspection

__X__ 1.1 Turn off the power to the traffic cabinet.

__X__ 1.2 Inspect the inside and outside of the traffic cabinet for damage and check for loose parts or connections.

__X__ 1.3 Nuts installed on anchor bolts (if ground-mounted traffic cabinet).

__X__ 1.4 Earth grounding wires secured to earth ground rod from sign, traffic cabinet conduit grounding collars, traffic cabinet load center, traffic cabinet case, and power source.

__X__ 1.5 Remove the load center cover. Check that the two hot wires, neutral, and earth ground wires from the 120 vac power source are connected into the load center main breaker terminals, neutral buss, and earth ground buss, respectively. Check that the two black wires from the Square D surge suppressor mounted in the load center are connected to the main breaker terminals and the white wire is connected to the neutral buss.

Traffic Cabinet Power Test

__X__ 2.1 Check that all traffic cabinet load center circuit breakers are off, and apply power to the traffic cabinet.

__X__ 2.2 Using a safe procedure, check the AC voltage from the load center main breaker input lugs to neutral; it should be between 105 and 125 VAC. Also check the voltage from neutral to earth ground; should be less than 10 VAC. (This is a no-load test of the input voltage.)

__X__ 2.3 Re-install the load center cover.

__X__ 2.4 Check that all control equipment inside the traffic cabinet is switched off, and turn on the main circuit breaker and circuit breakers for traffic cabinet lighting and power. Check that all AC outlets inside the traffic cabinet are live.

__X__ 2.5 Turn the vent fan thermostat down below the ambient air temperature; the fan should turn on. Check that air blows out of the exterior roof vents. Turn the thermostat up above the ambient air temperature; the fan should turn off. Set the thermostat to 90 degrees F.

Field Controller Inspection

NA 3.1 With the field controller power cord disconnected, visually inspect the inside and outside of the field controller for damage and check for loose parts and connections inside and outside.

NA 3.2 Check that all earth ground wire (green wire) connections are secure inside the field controller.

NA 3.3 Set field controller address into the controller.

NA 3.4 VFC3000 field controllers only: Check that there are no terminals pushed back in the circular plastic connectors on the control cables, and then reconnect to the field controller.

NA 3.5 Connect the power cord to the field controller. Check that all connectors are plugged into the outside of the field controller, and the connector screws (if any) are tight.

Sign Inspection

X 4.1 Check that the face of the sign is properly oriented to the roadway.

X 4.2 Visually inspect the outside of the sign for damage. Visually inspect that the sign is mounted properly.

X 4.3 Check that the light sensors are unobstructed. If obstructed move to a new location.

X 4.4 Turn off the power to the sign, from outside the sign.

X 4.5 Check that the earth grounding wire is secure from the case of the sign (inside or outside) to the earth ground rod(s) near the base of the sign.

X 4.6 Check that all load center circuit breakers are off, and apply power to the sign.

X 4.7 Using a safe procedure, check the AC voltage from the load center main breaker input lugs to neutral; it should be between 105 and 125 VAC. Also check the voltage from neutral to earth ground; should be less than 10 VAC. (This is a no-load test of the input voltage.)

X 4.8 If equipped: Turn on the circuit breaker for the interior lighting. Check that both light switches work properly and check that all lamps light.

X 4.9 Inspect the inside of the sign for damage and check for loose parts or connections. Check that all fans and power supplies are secure, and check for signs of water intrusion.

X 4.10 Remove the signal termination panel cover and inspect for loose parts or wiring. Check that the proper field wires are installed into the proper terminal block positions.

X 4.11 Remove the DMS I/O enclosure cover and inspect for loose parts or wiring.

X 4.12 Check that all conduits that enter the sign are sealed inside at the end that enters the sign.

X 4.13 Check that all lift eyes have been removed and replaced with a bolt and sealing washer, and that the rivets that attach the eye bolt nut plate (if any) have been sealed on top of the sign.

Sign Power Test

X 5.1 Turn on all circuit breakers.

X 5.2 Check the sign utility outlets by plugging the heat gun or hair dryer into each.

X 5.3 Check that all exhaust fans, all pixel fans (behind display modules), and all intake fans (if equipped) run.

Functional Test Procedure

NA 6.1 Turn on the field controller power switch. Check that the Controller Screen is on.

NA 6.2 Check that the Screen on the field controller is operational.

NA 6.3 Connect a laptop computer to the field controller, and run the Vanguard central controller software in this laptop computer. Establish communication with the field controller.

NA 6.4 Download the correct configuration file for this project to both the download directory and the default directory in the field controller.

NA 6.5 Clear sign memory and reset the field controller via the software.

NA 6.6 Check that all LED power supplies indicate "Pass" on the controller (via Diagnostics under the Sign Maintenance tab).

X 6.7 Run each test pattern listed below (via test patterns under Sign Maintenance tab). If this sign model has a master brightness scaler, set it to 100%. Important: Check that all pixels display correctly (no swapped pixels, for example,) and ensure that each line and display module is in the correct position via the Line ID and Alphabet test patterns, respectively. (Note: For color signs, the colors that the test patterns use are indicated after the test pattern name, and are not user configurable.)

Test pattern:
All On/Off (All on, all off, repeat)
Moving Columns
Moving Rows

X 6.8 Set the following test patterns, and manually set the LED intensity as indicated. Stand a distance away from the sign, and check that all pixels appear to be the proper brightness: (This checks that all modules display brightness properly, and in the case of signs with 1x5 pixel boards checks for loose or crooked pixel boards.)
If so equipped: All on 100%, 100% manual brightness.
If so equipped: All on 100%, 1% manual brightness.

X 6.9 Turn off sign fans and heaters, if desired.

X 6.10 Set "Normal mode" and exit the test pattern mode, then blank the sign by using the "Blank Sign" function from the computer.

X 6.11 Reinstall all enclosure covers.

X 6.12 Set the "Cabinet Cooling" and "Front Cooling Fans" thermostats to 90 degrees, and the "Defog" thermostat (if equipped) to 45 degrees.

X 6.23 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. (This verifies proper message display capability for this sign size.)

X 6.24 Verify that the Windows software in the laptop computer is set to the correct time zone, time, and date, and check via the Vanguard software that the field controller is set to the correct time zone.

X 6.25 Check that message defaults are set to Blank Message for Long, End.

Communication Test Procedure

__X__ 7.1 If necessary (depends on the device), configure the telephone modem, fiber modem, or radio by powering-up the field controller with the modem/radio on and connected to the field controller.

__X__ 7.2 Have the central controller operator call the sign. Have the central controller operator download a new test message that will not misdirect traffic into the field controller.

__X__ 7.3 Have the central controller operator display the message, then blank the sign and delete the message, then terminate the call to the sign. Verify that the message displays properly on the sign.

Final Details

__X__ 8.1 Confirm that all sign and traffic cabinet thermostats are set properly, and all equipment covers are installed.

__NA__ 8.2 Turn off sign interior lights.

__X__ 8.3 If the site is not yet officially accepted and not turned over to the end user for operation at this time, the sign should be left blank.

__X__ 8.4 Record if main breaker is left on or off: On: __X__ Off: ___

TAPCO

Field Cabinet
Operational Checks

Cabinet # DMS-18-0012
Location: I-94 WB @ Frase Road
Drawing # 18
Date: 9/26/2014

Project # : 1022-09-80
Contractor: NEI Northern Electricians, Inc.
Tested By: Scott Hogden
Date: 9/26/2014

ITEMS	ITEMS INSTALLED THIS PROJECT	OPERATIONAL	REMARKS
HEATER	x	x	
FAN	x	x	
LIGHT			
THERMOSTAT	x	x	
DOOR SEAL	x	x	
POWER	x	x	
OUTLET	x	x	
PDA3			
MODEL 200			
MODEL 208			
2070 CONTROLLER			
MODEL 602			
MODEL 222			
LOOP EMULATION			
DATE	x	x	
TIME	x	x	
MODEM	x	x	Cellular IP: 166.150.248.156
SIGNALS OPERATIONAL			
LOOP REPORT			
COUNT REPORT			
SPEED REPORT			
DOCUMENTATION	x	x	
TELESTE VIDEO ENCODER			

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SERIAL #s

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SERIAL NUMBER LIST

Equipment Description	Serial #
Cell Modem	**680X2413676045**