

# **Nevco**

## **Outdoor LED Scoreboard**

### **Installation Manual**



**Retain this manual in your permanent file.**

## **Installation Instructions**

Installation consists of three steps, Unpacking the Equipment, Scoreboard mounting, and Electrical Connections. Be sure to read and understand all of the instructions before installing the equipment. Consult the “installer’s troubleshooting guide” following this section for verifications each step has been installed and is working correctly.

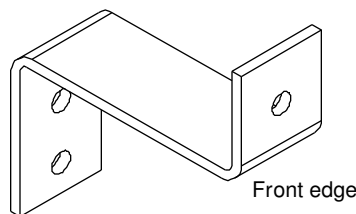
### **1. Unpacking the Equipment**

- ❑ Inspect the shipping container for damage. If any damage can be seen, contact the carrier immediately.
- ❑ Carefully remove all equipment from its packing carton. **Do not** pry against the scoreboard in any way.

### **2. Scoreboard Mounting**

**Note:** For scoreboards that are shipped in more than one section, doors on the back of the scoreboard provide access to cables that must be connected and routed between sections during installation.

- ❑ Refer to installation prints for mounting method, mounting centers, power service location, and cable routings.
- ❑ A wide flanged steel support system recommended by Nevco on the installation print, can tolerate a nominal 90-mph wind loading. This may not be adequate for some locales. Nevco strongly encourages you to check local codes before beginning the installation. You may wish to contact a local engineer, architect, or sign installer for assistance. Your Nevco Sales Representative may be able to assist you in finding professional installers who are familiar with this type of equipment.



**S Bracket**

- ❑ Before mounting the supplied **S** brackets to the beams, measure the slot locations on the scoreboard. Manufacturing tolerances, temperatures and other variables may affect the actual slot location.
- ❑ Mount an **S** bracket to each beam where the bottom edge of the scoreboard will rest with two 5/8” bolts.
- ❑ After the bottom **S** brackets are secured, position the scoreboard by aligning the holes in the front edge of the **S** brackets with the 1-1/2-in. x 11/16-in. slots on the face of the scoreboard.
- ❑ Install the top **S** brackets securely against the top of the scoreboard, aligning the **S** bracket holes with the scoreboard slots.
- ❑ When all **S** brackets are in place, insert a 5/8-in. bolt through the front of the **S** brackets, scoreboard, and wide flange beam. Secure the bolt with a flat washer and locking nut.

**Note:** A self-locking nut must be used to prevent loosening. Do not over-tighten this bolt.

Always use good mechanical practices when mounting the scoreboard:

- ❑ The distance between the mounting posts must be maintained within a tolerance of  $\pm 0.5$  in. so that the mounting devices can be properly secured.
- ❑ Use only plated fastening devices to prevent rust or corrosion.

## Assembling Sectional Scoreboard

For scoreboards with multiple bottom sections, slide the pieces together aligning the pre-drilled holes. Fasten sections with the sheet metal screws provided.

**Note:** The screws are shipped in the accessory package with the S brackets.

Use silicon caulk and join vertical seams with screws provided. Position the top section(s) in place above the bottom section(s). Fasten sections with the sheet metal screws provided.

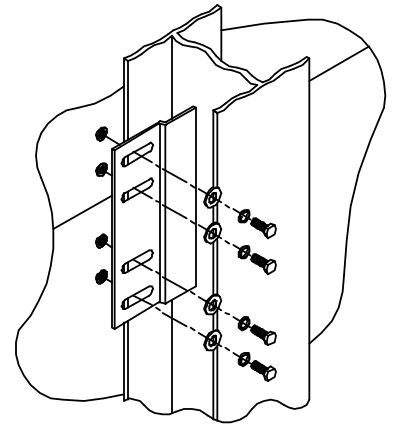
Locate and remove the access doors on the back of the scoreboard. Make sure all cables are connected as necessary at cabinet joints.

Check all electronic devices for loose connectors. See Installation Print for detail.

### J-TYPE MOUNTING BRACKET

Use the included J-type mounting brackets to secure the scoreboard to the posts at the section joints.

**Note:** These mounting brackets should be used on the section joints, even if you do not use the posts that Nevco specifies.



Number of Columns	Scoreboard Models
1 Post	PSD-A, DGT-5A, 9505-A, PCD, 9520
2 Post	1500, 1510, 1520, 1525, 1540, 1550, 3502, 3550, 3555, 9560, 1508, 1515, 1530, 1535, 3500, 3514, 3525, 3534, 5525, 7504, 7524, 9550
3 Post	1506, 3515, 3520, 7520, 7530, 7505, 7525
4 Post	3504, 1503, 3516, 7516

### Rain Tight Enclosure Box

For scoreboards that will be operated wirelessly, a rain tight enclosure box must be mounted on one of the posts holding the scoreboard. This rain tight box houses the wireless receiver and must be mounted on the same side of the post as the scoreboard (Clear line-of-sight, facing the operator's control) and must have power supplied to it (See drawing).

### 3. Electrical Connections

- Refer to installation prints for illustration of electrical connections.

#### *Power Service*

- *This sign is intended to be installed in accordance with the requirements of Article 600 of the National Electrical Code and/or other applicable local codes. This includes proper grounding and bonding of the sign.*
- Consult *table 1* for Full Load power requirements for your scoreboard model. Provide for a 30% safety factor when sizing wire and selecting breakers to guard against tripping of the circuit breaker under low line conditions.
- Be sure to include any lighted signs, and message centers when sizing the supply wiring necessary to support the circuit load.
- A disconnect switch should be lockable or within sight of the sign per NEC article 600.
- Two holes in the back of the scoreboard provide an entrance point for the power and the coax signal cable. These holes are plugged at the factory and you may make your own entry points if desired; take care not to drill into or damage any of the internal components of the scoreboard. A removable panel on the front of the scoreboard opposite the holes in the back allows access to an Electrical Enclosure box. Remove the front of the Electrical Enclosure box to gain access to the power splice box where the scoreboard power connections are made. The coax signal cable terminates on a BNC connector on the bottom of the Electrical Enclosure box.
- The rain tight enclosure box, mounted on one of the scoreboard posts, houses the receiver in a wireless scoreboard system and will need power to it. The rain tight receiver box must be facing the field, providing clear line-of-sight from the wireless control. See drawings for more details.
- Electronic Team Names, on the large 3516 and 7516 require separate power to be run to them. Power must be run to Home and Guest. Power entrance labels on the back of the scoreboard identify the default locations.

Model #	Current @ 120V	Current @ 240V	With ETN @ 120V	With ETN @ 240V
1500	0.7 A	0.4 A	1.1 A	0.6 A
1503	5.1 A	2.6 A	5.7 A	2.8 A
1506	3.1 A	1.6 A	3.7 A	1.8 A
1508	2.0 A	1.0 A	2.4 A	1.2 A
1510	0.7 A	0.4 A	N/A	N/A
1515	1.3 A	0.6 A	1.7 A	0.9 A
1520	0.9 A	0.4 A	N/A	N/A
1525	1.0 A	0.5 A	N/A	N/A
1530	2.2 A	1.1 A	2.8 A	1.4 A
1535	1.2 A	0.6 A	1.6 A	0.8 A
1540	1.5 A	0.8 A	2.1 A	1.0 A
1550	0.4 A	0.2 A	N/A	N/A
3500	2.5 A	1.2 A	3.1 A	1.5 A
3502	1.3 A	0.7 A	1.7 A	0.9 A
3504	3.3 A	1.6 A	3.9 A	1.9 A
3514	2.8 A	1.4 A	3.4 A	1.7 A
3515	2.8 A	1.4 A	3.4 A	1.7 A
3516	4.7 A	2.3 A	6.6 A	3.3 A
3520	3.3 A	1.6 A	3.9 A	1.9 A
3525	2.7 A	1.4 A	3.3 A	1.6 A
3534	3.0 A	1.5 A	3.6 A	1.8 A
3550	0.8 A	0.4 A	N/A	N/A
3555	1.8 A	0.9 A	2.2 A	1.1 A
5525	2.8 A	1.4 A	N/A	N/A
7504	3.4 A	1.7 A	4.0 A	2.0 A
7505	4.3 A	2.2 A	4.9 A	2.4 A
7516	5.0 A	2.5 A	6.9 A	3.5 A
7520	3.4 A	1.7 A	4.0 A	2.0 A
7524	3.0 A	1.5 A	3.6 A	1.8 A
7525	4.0 A	2.0 A	4.6 A	2.3 A
7530	3.3 A	1.6 A	3.9 A	1.9 A
9505-A	0.4 A	0.2 A	N/A	N/A
9550	2.9 A	1.5 A	N/A	N/A
9560	1.6 A	0.8 A	N/A	N/A
DGT-5A	0.6 A	0.3 A	N/A	N/A
PSD-A	0.6 A	0.3 A	N/A	N/A
PCD	0.3 A	0.2 A	N/A	N/A
9520	0.4 A	1.2A	N/A	N/A

*Table 1*

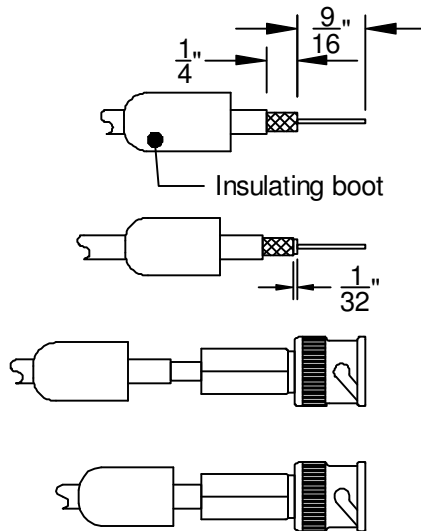
## 2-Wire Coax Cable (RG58/U)

All 2-WIRE cable ordered from Nevco is direct burial type. It has a minimum dielectric strength of 300V, and conforms to UL standard 1365.

If the wiring is buried above the freeze line, bury the cable with sand to provide drainage and prevent damage from shifting soil.

### Installing Cable Connectors

The 2-WIRE cable that comes with your scoreboard does not have connectors attached.

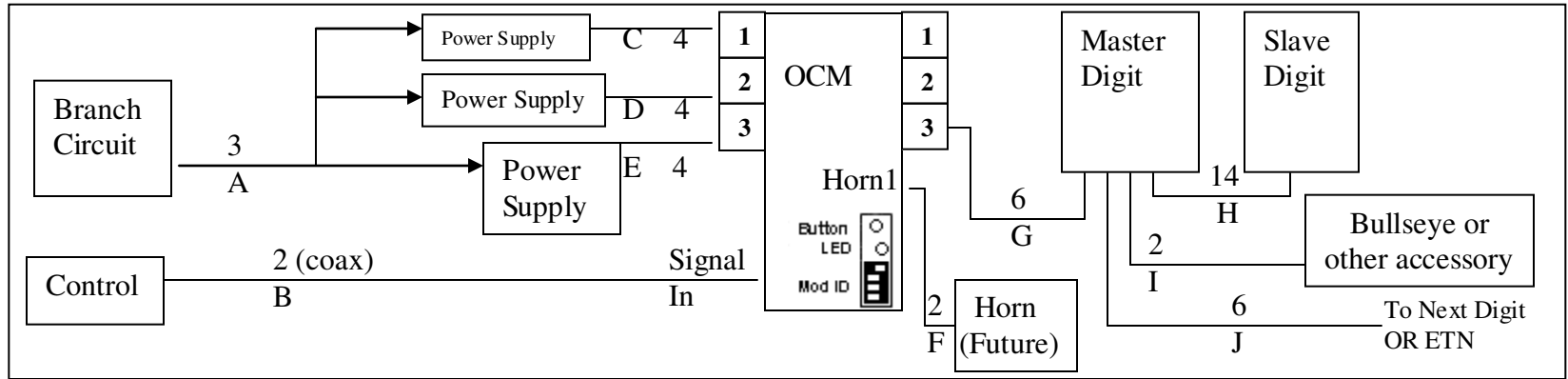


To install connectors on each end of the cable:

- ❑ Slide the insulating boot onto the cable and trim the cable as shown.
- ❑ Twist the outer braid in a **clockwise** direction so that at least 1/32 in. of the inner dielectric is bared and the braid is left flat. Be sure no strands of the outer braid are touching the center conductor.
- ❑ Insert the center conductor into the back of the connector, feeding it into the guide hole.
- ❑ Push the cable as far as possible into the connector.
- ❑ Screw the connector onto the cable in a clockwise direction until the connector stops turning.
- ❑ Slip the insulating boot over the back of the connector.

## WIRED INSTALLER'S TROUBLESHOOTING GUIDE

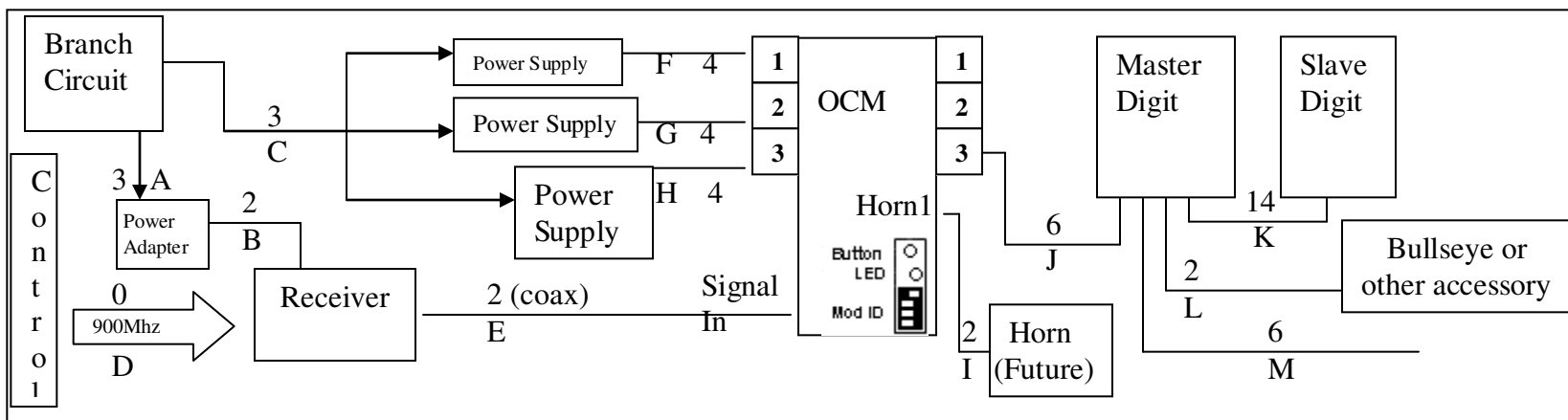
The figure to the right labels the connections made by the installer from A & B as well as other useful internal connections C - J. The chart below lists the problem that can be identified should each connection be faulty. Check the control and service manual for more detailed information.



Situation	Symptom	Connection	Solution
The Scoreboard has no digits illuminated	The fans on ALL the power supplies are not running	A	Check branch circuit breaker, connections, and disconnect switch external to scoreboard
			Check connections in disconnect box (power hookup)
			Check Power Switch on disconnect box inside scoreboard
			Replace Power supply
	OCM LED ON solid	B	Check Coax connections. Plug control directly into OCM to eliminate buried coax cable. If that works, the cable run or terminations are bad. Try the 301 Model code, see control users manual on testing.
			Holding the Button on the OCM down for 4 seconds will display a test pattern on the scoreboard digits further confirming that the signal connection is bad
	OCM LED is flashing rapidly	C or D	The power cable plugged into port 3 powers the OCM, but connections to power supplies on plug 1 & 2 power the digits/ETN's powered by 1 & 2 outputs
G		Check connections on OCM outputs 1, 2, & 3 as well as first master digits	
OCM LED is completely OFF	E	OCM board has no power. Check connection E, power supply feeding E, and connections to the power supply E.	
Some digits not illuminated, or non-working accessory	Only one digit	H	Check 14-pin connection on Driver card and 2-pin on segments
	Horn, colon, decimal, possession indicator, etc.	I	Check 2-pin connection on Driver card and on accessory
	More than one Digit, starts at one point in cabling	J	Check 6-pin connection from working driver card to next digit driver card

# Wireless Troubleshooting Guide

The figure to the right labels the connections potentially made by the installer (A – E) and other internal connections (F – M) useful to troubleshooting. The chart below lists the problem that can be identified should each connection be faulty. Check the control and service manual for more detailed information.



Situation	Symptom	Connection	Solution
The Scoreboard has no digits illuminated	The fans on the ALL power supplies are not running	C	Check branch circuit breaker, connections, and disconnect switch external to scoreboard
			Check connections in disconnect box (power hookup)
			Check Power Switch on disconnect box inside scoreboard
			Replace Power supply
	Receiver has No LEDs illuminated during first 5 seconds after power up	A	Check branch circuit breaker, connections, duplex receptacle, and disconnect switch external to scoreboard
			If the duplex receptacle has power, but the adapter LED is OFF, replace adapter
			B
	Receiver LED Not ON solid	D	Replace Receiver
			Follow control troubleshooting procedures, wrong wireless group, etc.
	OCM LED ON solid	E	Receiver should be in clear line of sight from control.
Check Coax connections. Plug control directly into OCM to eliminate buried coax cable. If that works, the cable run or terminations are bad. Try the 301 Model code, see control users manual on testing.			
OCM LED is flashing rapidly	F or G	Check Coax connections. Plug control directly into OCM to eliminate buried coax cable. If that works, the cable run or terminations are bad. Try the 301 Model code, see control users manual on testing.	
		Holding the Button on the OCM down for 4 seconds will display a test pattern on the scoreboard digits further confirming that the signal connection is bad	
OCM LED is completely OFF	H	The power cable plugged into port 3 powers the OCM, but connections to power supplies on plug 1 & 2 power the digits/ETN's powered by 1 & 2 outputs	
		Check connections on OCM outputs 1, 2, & 3 as well as first master digits	
Some digits not illuminated, or non-working accessory	OCM LED is completely OFF	H	OCM board has no power. Check connection E, power supply feeding E, and connections to the power supply E.
	Only one digit	K	Check 14-pin connection on Driver card and 2-pin on segments
	Horn, colon, decimal, possession indicator, etc.	L	Check 2-pin connection on Driver card and on accessory
	More than one Digit, starts at one point in cabling	M	Check 6-pin connection from working driver card to next digit driver card



**NEVCO GUARANTEE**

To view or receive the most recent copy of the Guarantee, please visit our website,  
www.nevco.com or call 1-618-664-0360

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NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

This class A digital apparatus meets all requirements of the Canadian Interference- Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouleur du Canada.