

SECTION 116843**NEVCO, INC. MODEL 3621 EXTERIOR ELECTRONIC FOOTBALL SCOREBOARD****PART 1 - GENERAL****1.1 SUMMARY**

- A. Section includes: Exterior, electronic scoreboard[s] including control center and other accessories for complete functional installation.
 - 1. Section 03 30 00 Cast-in-Place Concrete: Concrete footings for posts supporting scoreboards.
 - 2. Section 05 12 00 Structural Steel: Steel posts and other structural framing to support scoreboards.
 - 3. Section 26 05 26 Grounding and Bonding: Grounding of scoreboard and support structure.
 - 4. Section 26 20 00 Low Voltage Electrical Distribution
 - 5. Section 27 41 16 Integrated Audio-Video Systems
 - 6. Section 10 14 63 Electronic Message Signage

1.2 REFERENCES

- A. American Society for Testing and Materials (ASTM) Publications:
 - 1. ASTM B221 - Aluminum-Alloy Extruded Bar, Rod, Wire, Shape, and Tube.
- B. National Electrical Code.
- C. Federal Communications Commission, Part 15 Rules & Regulations.
- D. UL and C-UL Standard for Electric Signs

1.3 SUBMITTALS

- A. Provide in accordance with Section 01 33 00 - Submittal Procedures:
 - 1. To minimize the environmental impact of multiple paper copies, product installation prints, instructions and diagrams of manufacturer will be submitted in a paperless fashion. The end user shall receive all pertinent hard-copy documentation at delivery.
 - 2. Product data for scoreboards, controls, and accessories shall include descriptions of control functions etc.
 - 3. Installation drawings, face layout, dimensions, construction, electrical wiring diagrams, and method of anchorage. (Paperless when applicable).
 - 4. Copy of guarantee required by Paragraph 1.5 for review by Architect. (Paperless when applicable).
 - 5. Manufacturer's installation instructions. (Paperless when applicable).
 - 6. Finish Samples.

1.4 QUALITY ASSURANCE

- A. Source limitation: All components including scoreboard, control center, control cable, and other accessories and installation hardware shall be products of a single manufacturer.
- B. Manufacturer qualifications: Company specializing in manufacturing electronic scoreboards with 10 years minimum successful world-wide experience.
- C. Scoreboards shall be designed for exterior installation with weatherproof housing and optical isolation interface to reduce potential damage from electrical storms.
- D. Should service be necessary, specialized personnel shall not be required. Modular "plug and play" components will be housed in an internal protective enclosure.
- E. Scoreboards and other electrical components shall be certified for use in United States and Canada by

- Underwriter Laboratories, (UL) Inc. and shall bear either UL or C-UL label only.
- F. Scoreboards and other electrical components shall be electrically grounded in accordance with National Electrical Code (NEC), Article 600.
 - G. Scoreboard cabinetry and attachment shall meet or exceed the 2009 IBC standard of 150 mph wind loading.

1.5 GUARANTEE

- A. Provide under provisions of Section 01 78 00 - Closeout Submittals: Guarantee to cover defects in materials and workmanship.
 - 1. Scoreboards, scoring tables, marquees, message centers, video boards* and Stadium Pro loudspeaker enclosures are guaranteed for a period of five (5) years from the date of invoice against defects in workmanship or materials.
**Video Board exclusions include 8815, 8825, 8835, 8845.
 - 2. Wireless components, portable scoreboards and solar power kit carry a two (2) year guarantee from date of invoice. Hand-held controls and switches carry a one (1) year guarantee from date of invoice. The Stadium Pro loudspeaker front printed scrim is guaranteed for one (1) year from the date of invoice. Video Board Models 8815, 8825, 8835, and 8845 are guaranteed for one (1) year from date of invoice, unless additional years of warranty is purchased. For products supplied by third-party suppliers (i.e. cameras, computers, computer monitors, radar guns, loudspeakers, amplifiers and associated electronics), Purchaser agrees to accept the manufacturer's warranty, if any, in lieu of any warranty by Nevco.
 - 3. Lifetime telephone support.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. Nevco, Inc., 301 East Harris Avenue, Greenville, Illinois 62246; 800-851-4040; www.nevco.com.
- B. Requests to use equivalent products of other manufacturers shall be submitted in accordance with Section 01 25 00 - Product Substitution Procedures.

2.2 MATERIALS

- A. Aluminum faces and perimeter frame: Fabricated from .050 minimum thickness, ASTM B221 aluminum sheet with reinforcement and slotted mounting brackets top and bottom.
- B. Finish: Acrylic polyurethane paint. Color as selected by Architect from manufacturer's standard range. [Color to be [No. 70 - Desert Tan] [No. 72 - Electronic Blue] [No. 73 - Maroon] [No. 74 - Forest Green] [No. 76 - Print Black] [No. 95 - Silver Gray] [No. 99 - Golden Yellow] [No. 102 - Team Orange] [No. 103 - Cardinal Red] [No. 104 - Medium Purple] [No. 120 - Teal Blue] [No. 121 - Midnight Blue] [No. 140 - Royal Blue] [No. 141 - Navy Blue] [No. 142 - Kelly Green] as provided by Nevco, Inc.] [PMS Color No. _____]
 - 1. Provide [white] [specify alternate color] striping to separate scoreboard features.
- C. Brackets: Integrated universal bracket system.
- D. Fasteners, anchors, and other exposed hardware: Corrosion resistant.
- E. Electronics: Low voltage, solid state, 2-wire cable, multiplex system, quartz crystal controlled.
- F. Provide gold plated electrical contacts on interconnecting wiring to reduce corrosion and improve reliability.
- G. Provide optical communication interface to reduce threat of damage from electrical storms and ESD.
- H. LED (light emitting diode) units: Seven-bar, segmented digits with protective aluminum cover, rated typical life 100,000 hours and be designed to provide excellent visibility from all angles and sides.
- I. Junction boxes where required: Sheet metal box and cover, [4-1/2 x 2-1/8 x 2-1/8 inches] [114 x 54 x 54 mm] min. complying with NEMA standards.

- J. Gasketed Digits: Digit faces shall contain an integrated seal to guard against moisture intrusion.
- K. Control cable: UL listed, 2-wire, RG-58/U, coaxial cable, [1/4 inch] [6 mm] diameter.

2.3 SCOREBOARD

- A. Type: Exterior, electronic football scoreboard with integral horn and LED displays for time, scores, quarter, down, yards to go, ball location, and ball possession and time outs left; Model 3621 as manufactured by Nevco, Inc.
 - 1. Size: [20 feet long x 8 feet high x 8 inches deep.] [6.1 m long x 2.4 m high x 203 mm deep.]
 - 2. Approximate weight: [540 pounds] [245 kg]. OR [600 pounds] [272 kg.] with optional Electronic Team Names (ETN)
 - 3. White on black captions, [15 inches] [381 mm] high: "HOME", "GUESTS", "QTR", "DOWN", "YDS TO GO", and "BALL ON".
 - 4. High intensity red, amber, or translucent white LED displays, [24 inches] [610 mm] high digits: Time in minutes and seconds separated by colon, quarter, scores, down, yards to go, and ball location.
 - 5. High intensity red, amber, or translucent white LED ball possession or hit/run indicators: One football shaped indicator per team.
 - 6. High intensity red, amber, or translucent white LED displays, [18 inches] [457 mm] high digits: Time Outs Left (T.O.L.)
 - 7. Power requirement:
 - a. POWER without ETNs (Red/Amber): 120 VAC, 2.9 Amps, 50/60 Hz. / 240 VAC, 1.4 Amps, 50/60 Hz. Requires earth ground.
 - b. POWER with ETNs (Red/Amber): 120 VAC, 4.1 Amps, 50/60 Hz. / 240 VAC, 2.0 Amps, 50/60 Hz. Requires earth ground.
 - c. POWER without ETNs (Translucent White): 120 VAC, 4.9 Amps, 50/60 Hz. / 240 VAC, 2.5 Amps, 50/60 Hz. Requires earth ground.
 - d. POWER with ETNs (Translucent White): 120 VAC, 6.0 Amps, 50/60 Hz. / 240 VAC, 3.0 Amps, 50/60 Hz. Requires earth ground.
 - 8. Provide optional conversion caption plates for:
 - a. Baseball: "INN", "OUT", "BALL", "STRIKE", "AT BAT", "H", and "E".
 - b. Soccer: Two "SHOTS".

2.4 ACCESSORIES

- A. Provide each scoreboard or accessory with control cable of length required. Electrical junction boxes, conduits, mounting hardware, and other accessories as required for installation are to be provided by
- B. Electronic Team Names: On certain models "HOME" and "GUEST" caption plates can be replaced with programmable Electronic Team Names as manufactured by Nevco, Inc. Provision additional electrical connections as required in installation documents.
 - 1. Specify changeable team names as ETN. Shall not require controller upgrade, use of additional accessories or computer.
 - 2. Specify (R)ed, (A)mber, or (W)hite ETN LED's (Example: 15xx ETN-R)
- C. Additional available accessories include but are not limited to; please specify if required.
 - 1. Protective Nets.
 - 2. Team Name caption plate to replace "Home"
 - 3. Decorative Truss and Lettering
 - 4. Nevco, Inc. "A", "AD", or "ADL" signs including Artwork.
 - 5. Nevco, Inc. 9605 Time display.
 - 6. Nevco, Inc. Locker Room Clocks.
 - 7. Nevco, Inc. Full Color, Red or Amber Message Centers.
 - 8. Nevco, Inc. Video Displays.

2.5 CONTROL CENTER

- A. **Type: Wired or Wireless**, microprocessor based operator's control center designed to operate different models of scoreboard by interchange of keyboard overlay; Model MPC as manufactured by Nevco Inc. Console will operate earlier scoreboards from Nevco Inc.
1. Console: High impact, break-resistant black plastic with improved UV resistance. [11 x 9-1/2 x 4-1/8 inches] [279 x 241 x 105 mm].
 2. Features:
 - a. Provide with LED displays, lithium cell battery backup to maintain scoreboard memory and time of day, self test mode, power on-off switch, alternate time control, and multiple scoreboard operation.
 - b. Split and raised 40 key soft touch keyboard.
 - c. Keyboard shall be spill resistant.
 - d. Internal beeper acknowledging each entry
 - e. System Profiles feature set all parameters of operation including choice of controlled accessories and scoreboards.
 - f. Colorful graphic rich keyboard overlays for scoreboard or accessory.
 - g. Remote hand-held main time switch with programmable integral horn button.
 - h. [25 feet] [7.6 m] control cable with connectors.
 - i. Timer features: Time of day display, multiple time out timers with warning, interval horn, up-count auto stop with horn, 1/10th second display during last minute, changeable horn tone on scoreboards with the feature.
 - j. Segment timing for practice and workout.
 - k. Dimmer control for scoreboard.
 - l. MPC features shall be accessed through yes/no abbreviated questions in a drop down menu format.
 - m. Multiple receiver management shall be accomplished through direct keyboard input.
 - n. Electronic Team Names and automatic Electronic Caption Plates shall be controlled from MPC control without need to change overlays.
 3. Power requirements: 120 volts, 12 watts, 50/60 Hz.
 4. Provide option of battery supply for control operation if utility power not available.
 5. Provide carrying case for control center, cable, and hand-held switch; Model CC-3 as manufactured by Nevco Inc.
 - a. Size: [18-1/2 x 14-1/2 x 6 inches] [470 x 368 x 152 mm].
 - b. Construction: Double wall, high density black polyethylene with padded interior, mechanical latches, and hinges.
 6. Receiver WHEN ORDERED SEPARATELY;
 - a. Sturdy impact resistant construction, [6 x 4 x 1.5 inches] [152 x 102 x 38 mm]
 - b. Integrated antenna, mounted flush in scoreboard face. Protruding antennas shall not be used.
 7. Maximum range: [1,000 feet] [305 m] from control center to receiver.
 8. Receiver shall require no additional source of power or separate control cable.
- B. **Type: Handheld** wireless, basic, AA battery operated, sport specific, control center with receiver unit mounted at scoreboard; Model MPCX₂ as manufactured by Nevco. Control will have operability with earlier scoreboards from Nevco.
1. Unit shall comply with Part 15 of FCC Rules and Regulations.
 2. Control unit: High impact, break-resistant black ABS plastic Size: 3-1/4" x 5-1/2" x 7/8" [80 x 140 x 20 mm].
 3. Features:
 - a. Wireless operation within [1000 feet] [305 m].
 - b. Operate multiple scoreboards simultaneously.
 - c. System allows multiple controllers to link to individual scoreboards.
 - d. High visibility LCD display with a sealed keyboard.
 - e. Long battery life with indicator; include two AA batteries.
 - f. Single hand operation with a no slip grip.
 - g. Built-in belt clip.

- h. Wireless signal strength meter and internal antenna.
- 4. Receiver: Injection molded case, [5-1/2 by 3-3/4 by 2 inches] [140 by 95 by 51 mm] mounted at scoreboard in accordance with instructions.
- 5. Maximum range: [1,000 feet] [305 m] from control center to receiver.
- 6. Power adapters: Provide for each scoreboard receiver.
 - a. Input: 120 volts, 0.4 amps, 50/60 Hz.
 - b. Output: 9 volts, 1.67 amps, 15 watts.
- 7. Provide carrying case for up to two control centers, Model CC-4 as manufactured by Nevco.
 - a. Size: [18-1/2 x 14-1/2 x 6 inches] [470 x 368 x 152 mm].
 - b. Construction: Double wall, high density black polyethylene with padded interior, mechanical latches, and hinges.
- 8. Provide suitable, RF transparent, NEMA 4 enclosure for receiver, to be located upon scoreboard supporting structure per installation diagrams.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Verify exact scoreboard and control center quantities and junction box locations with Architect.
- B. Coordinate requirements for electrical power, concrete, steel erection, auxiliary framing and supports, suspension cables, and other components to be provided under other Specification Sections to ensure adequate provisions are made for complete, functional installation of scoreboards.
- C. Coordinate scoreboard electrical requirements to ensure proper power source, conduit, wiring, and boxes are provided. Prior to installation, verify type and location of power supply.

3.2 INSTALLATION

- A. Install scoreboards and accessories in accordance with manufacturer's instructions and approved installation drawings.
- B. Before installation, field test scoreboards and accessories for operating functions. Ensure that scoreboards accurately perform all operations. Correct deficiencies.
- C. Rigidly mount scoreboards and accessories level and plumb with brackets and fasteners.
- D. Clean exposed surfaces.
- E. Protect scoreboards and finishes from other construction operations.

3.3 DEMONSTRATING AND TRAINING

- A. In accordance with Section 01 75 00 - Starting, Adjusting, and Demonstrating, provide demonstration and training session for Owner's representative covering operation and maintenance of electronic scoreboard.

END OF SECTION