

PART 1 GENERAL

1.1 SUMMARY

- .1 Section includes: Indoor electronic LED scoreboards including wireless controllers and other accessories for complete installation.

1.2 RELATED WORK

- .1 Include the grounding of scoreboards and support structures, site grounding and wiring methods in conformance with electronic scoreboard manufacturers written instructions.

1.3 REFERENCES

- .1 American Society for Testing and Materials (ASTM) Publications:
 - 1. ASTM B221 – Aluminum-Alloy Extruded Bar, Rod, Wire, Shape and Tube.
 - 2. Federal Communications Commission (FCC), Part 15 Rules and Regulations.
 - 3. CSA, UL, C-UL, UL-48 Standards for Electric Signs.
 - 4. National Electrical Code (NEC).
- .2 Provide in accordance with Section 01 33 00 – Submittal Procedures.
 - .1 Product data for scoreboards, controls and accessories. Include descriptions of control functions.
 - .2 Shop Drawings showing locations, face layout, dimensions, construction, electrical wiring diagrams, interface with structural supports, and method of anchorage.
 - .3 Finish samples.
 - .4 Copy of guarantee for review by Contract Administrator.
 - .5 Manufacturer's installation instructions.

1.4 QUALITY ASSURANCE

- .1 Source limitation: All components including scoreboard, control center, control cable, and other accessories and installation hardware shall be products of a single manufacturer. All parts components must be manufactured in North America. All scoreboard cabinets must be manufactured from aluminum.
- .2 Manufacturer qualifications: Company specializing in manufacturing electronic scoreboards with 5 years minimum successful experience.
- .3 Scoreboards shall be designed for interior installation, not rated for outdoor use.
- .4 Scoreboards and other electrical components shall be certified for use in Canada by Underwriter Laboratories, (UL) Inc. or Canadian standards association and shall bear either UL, CSA, or C-UL label.
- .5 Scoreboards and other electrical components shall be electrically grounded in accordance with National Electrical Code (NEC), Article 600.

1.5 GUARANTEE

- .1 Provide under provisions of Section 01 78 00 – Closeout Submittals: Warranties to cover defects in materials and workmanship.

PART 2 PRODUCTS

1.1 ACCEPTABLE PRODUCTS – SCOREBOARD(S)

- .1 Acceptable Product: LED Electronic Scoreboards,
Model No. 6229, 7.010 m long x 1.168 m high x 102 mm deep dimensions, 82 kg. weight, Red SMT LED displays for time, scores, period, possession and bonus indicators, as manufactured by OES Scoreboards Inc., or an approved alternate in accordance with B7 - Substitutes.
- .2 Enclosures: Shall be constructed of 5052-H32 aluminum, 1.6 mm thick front and back faces. Top, bottom and sides shall be 2.3 mm thick.
- .3 Finish: Powder coated on all sides, front and back of scoreboard with die cast aluminum complete with option of white stripping to separate scoreboard features. Colour shall be selected by Contract Administrator.
- .4 Hardware: Stainless steel or corrosion resistant coating steel fasteners, screws and other exposed hardware.
- .5 Plexi Digit Covering: Standard colour is red. Clear will be used on digits that are yellow, green, blue and white. Plexi glass is standard for indoor scoreboards.
- .6 Digits: Seven segment digit control per digit display. Provide acrylic coating for moisture resistant use in indoor application with high humidity. Digital boards are FR4 fire rated fiber glass with 1 OZ copper boards. All digit and indicator boards will use a black screen and solder mask on the face of the board to help hide the board from view.
- .7 LED's: Scoreboards shall use LED's for digits, dots, arrows, team names and possession indicators. The digits shall use 7 segment configuration type.
- .8 LED Indoor: LED's shall be SMT with a viewing angle of 120^o.
 1. Rated life/viewing angle:

Red	-	100,000 hours/120 ^o
Yellow	-	100,000 hours/120 ^o
White	-	100,000 hours/120 ^o
Green	-	100,000 hours/120 ^o
Blue	-	100,000 hours/120 ^o
 - .2 Viewing Distance: Digits have a clear viewing distance of approximately 50 feet for 1 inch of digit size.
- .9 Digit Control Boards: Control boards shall be conformal coated in arenas that suffer from high humidity.
- .10 Battery Back-up: Scoreboards shall utilize RTC (Real Time clock) with a 10-year lithium battery back-up chip.
- .11 Power Requirements: 110 volts, 5 amps, 50/60 Hz, requires earth ground.
- .12 Letters and Captions: Standard lettering used on the face of the scoreboards shall be made of UV and weather resistant vinyl with pressure sensitive adhesive. Standard colour is white with Swiss Font 721.
- .13 Scoreboard Horn: Horn shall be made with a stainless steel diaphragm, 4 feet in width, 4" in height and 2 ½" in depth, produce 100 dba at 10 feet distance, electrical input of 120 VAC, 60 Hz at 0.8 Amps.

- .14 Control Cable: Belden 9502 twisted pair cable with professional XLR connections.
- .15 Ad Box: Matches with and depth of scoreboard and 18" tall.

2.2 ACCESSORIES

- .1 Provide each scoreboard with control cable of length required and approved Shop drawings, mounting hardware, and other accessories as required for complete functional installation.

2.3 ACCEPTABLE PRODUCTS - CONTROL CENTER(S)

- .1 Locations: Century Arena, Billy Mosienko Arena & Terry Sawchuk Arena:

Quantity 3 - Model No. ISC9000-X9 Wireless Microprocessor based operator's control centers designed to operate different models of scoreboards and accessories by interchange of keyboard overlay and changing user accessible software settings, as manufactured by OES Scoreboards, Inc., or an approved alternate in accordance with Clause B7 – Substitutes.
- .1 Quantity 3 - Consoles: One (1) piece powder coated die-cast aluminum case (320 mm width x 210 mm depth x 100 mm height, and 2 kg. weight).
- .3 Control Center Features:
 - .1 Microprocessor and quartz crystal-based operation.
 - .2 Operating Frequencies: ISM 902-928 MHz.
 - .3 Power Output: 250 mW.
 - .4 Range: 300 feet (90 m) indoor.
 - .5 Certification: Shall comply with Part 15 of FCC rules and regulations.
 - .6 Input: Full function keyboard with 4x8 key and 3x4 keyboards with separate dedicated run, stop and horn keys, and interchangeable keyboard overlays for 4x8 keyboard used for different sports.
 - .7 Three (3) configurable remote input ports.
 - .8 Battery backed memory game data saved on power off position.
 - .9 Display: 129.5 mm full graphic backlit LCD display.
 - .10 Outputs: One (1) RS485 2-wire communication port for game data. One (1) RS232 communication port for game data. Additional RS485 2-wire communication port for multi-controller setups or stat system. One (1) USB communication port for diagnostics and upgrades.
 - .11 WIFI/Ethernet cable port.
 - .12 Dimmer Control: 10 level dimmer control for scoreboards.
 - .13 Wired hand-held remote control time switch.
- .4 Power Requirements: 120 volts, 20 watts, 50/60 Hz, 1 Amp fuse.
- .5 Carrying Case: Medium duty, 388 mm x 343 mm x 140 mm, 1.03 kg. weight, black polyethylene with foamed padded interior, mechanical latches and hinges.

END OF SECTION