1 GENERAL

1.01 SECTION INCLUDES

.1 Single-sided aquatics LED scoreboard and timing system.

1.02 REFERENCES

.1 Standard for Electric Signs, UL-48, 13th Edition.

.2 Standard for Control Centres for Changing Message Type Signs, UL-1433, 1st Edition.

.3 Standard for latest edition of CAN/CSA C22.2.

.4 Federal Communications Commission Regulation Part 15.

.5 National Electrical Code.

1.03 SUBMITTALS

.1 Product Data: Submit manufacturer's product illustrations, data, and literature that fully describe the pool equipment proposed for installation.

.2 Shop Drawings: Submit Mechanical and Electrical Drawings.

.3 Maintenance Data: Submit manufacturer's installation operation, and maintenance manual.

1.04 DELIVERY, STORAGE, AND HANDLING

.1 Product delivered on site.

.2 Scoreboard and equipment to be stored in a clean, dry environment.

1.05 PROJECT CONDITIONS

.1 Environmental Limitations: Do not install display equipment until spaces are enclosed and weatherproof, wet work in spaces in complete and dry, and ambient temperature and humidity conditions are maintained at the levels indicated for project when occupied for its intended use.

.2 Field Measurements: Verify position and elevation of floor inserts and layout for display equipment. Verify dimensions by field measurements.

.3 Verify that building structure is capable of supporting the scoreboard's weight in addition to the auxiliary equipment.

1.06 QUALITY ASSURANCE

.1 For indoor/outdoor use.

.2 Source Limitations: Obtain each type of pool equipment through one source from a single manufacturer.

.3 ETL listed to UL Standards 48 and 1433.

.4 NEC compliant.

.5 FCC compliant.

.6 ETLC listed to CAN/CSA 22.2.

1.07 WARRANTY/SERVICE PLAN

.1 Provide one (1) year of coverage.

.2 Provide an exchange program to supply replacement parts for components that fail during the coverage period. To minimize downtime, the exchange parts will be shipped on the same day the order is received, or on the following day. The manufacturer will also enclose an air bill for return of the defective components.

.3 Provide access to a local Authorized Service Company.

.4 Provide help desk staffed by experienced technicians and coordinators who are thoroughly familiar with the scoreboard and available for technical support. This staff must be available at no additional cost to the customer and provide an "on-call" service during weekends.

2 PRODUCTS

2.01 PRODUCT

.1 Single-sided scoreboard will be capable to score swimming, diving, and water polo. It displays lane, place, and time.

.2 This system will contain all components for a single-ended timing system and a six-line scoreboard.

2.02 SCOREBOARD

.1 General Information.
- .1 Dimensions: 2489 mm high, 2743 mm wide, 152 mm deep.
- .2 Weight: 132 kg.
- .3 Power requirement: 400 watts.
- .4 Colour: Black.

.2 Construction:
- .1 All-aluminum construction.
- .2 Scoreboard face and perimeter: 1.60 mm.
- .3 Scoreboard back: 1.60 mm.
- .4 Digit faceplates: 1.60 mm.

.3 Digits:
- .1 AS AIINGaP LED digits.
- .2 Seven (7) bar segments per digit.
- .3 LED digit technology: PanaView discrete LED digits protrude through the digit faceplates with a 140º viewing angle.

.4 All digits: 254 mm high.
.5 Digits: Red, amber, or alternating rows of both colours.

.4 Captions:
.1 All captions: 127 mm high.
.2 All captions: White vinyl and are applied directly to changeable panels.

.5 Power Cord:
.1 Cord is 3353 mm long.
.2 Cord plugs into a standard grounded 120 V AC outlet.

.6 Optional Equipment:
.1 355.6 mm high x scoreboard width advertisement/sponsor panels.
.2 Additional backup buttons.
.3 Wireless microphone Horn Start System.
.4 Tripod for Horn Start System.
.5 40 W auxiliary starting speakers with 125 ft. cable.
.6 Auxiliary modules to display team scores and event/heat.

2.03 AQUATICS SCORING COLSOLE

.1 Capable of scoring swimming, diving, and water polo, and includes pace-clock software through the use of keyboard inserts. All necessary software will be supplied for these sports.

.2 Capable of controlling single-line or multi-line scoreboards, event/heat module, lengths/record time module and score modules.

.3 Console will be capable of timing to either .01 or .001 of a second precision.

.4 Console will be configured to time 1-10 lanes, labelled 1-10 or 0-9.
.1 Each lane will have one (1) – three (3) backup buttons.
.2 Each lane will be configurable for judging relay exchanges.

.5 Console will be capable of timing in normal or reverse lane order.

.6 Console will be capable of timing 25Y, 25M or 50M courses; with near- and far-end touch pads.

.7 Console will be capable of handling inputs from touchpads, start system, backup buttons, and relay take-off sensors.

.8 Console will have a computer expansion port, giving it the ability to upgrade to the 2000 PRO Windows®-based software to provide for additional timing and event-management features and synchronized swimming.

.9 Console will have a meet manager port, and shall be capable of bi-directional communication with HyTek Ltd. Meet Management and Team Manager systems for downloading of results event orders, and workouts. Console will have an automated interface to update and automatically display team score information for up to four (4) teams.

.10 Console will have two (2) scoreboard ports.

.11 Console will provide real-time data output port to matrix scoreboard controller.

.12 Console will have game clock and shot clock external switch inputs.

.13 Console will be capable of labeling up to five hundred (500) event numbers, in any order with alpha (A-Z) designator, i.e. 1A to 999Z and round information, i.e. preliminary, semi-final, final or blank.

.14 Console will have the ability to accept a start pulse even when the timer has not been reset.

.15 Console will have revolving memory capacity for up to fifty (50) races, and will store up to sixty-six (66) splits per lane, with near- and far-end touchpads and backup button times.
- .1 Stored split times, including turning (far) end splits, will be printed as they occur, and stored in electronic memory during a race for later recall.
- .2 Spit times format will be user selectable to provide individual lap spits, cumulative splits, or both.

.16 Console will be capable of configuring page times of results on scoreboard, as well as subtractive and/or cumulative splits.

.17 Printout of relay judging will include both “plus” and “minus” takeoff times for each leg of the relay.

.18 Console software will allow automatic ranking or re-ranking in the case of disqualification.

.19 Any corrections generated by the operator (edit or disqualification) will be automatically and clearly identified on the results printout.

.20 Console has a maximum power requirement of 50 watts.

.21 Console includes:
- .1 A rugged anodized aluminum enclosure to house electronics.
- .2 A sealed membrane water-resistant keyboard.
- .3 Three (3) 32-character liquid crystal prompting displays to verify entries and recall information currently displayed.
- .4 Keyboard functions: plus or minus touches, lane on/off, next event, heat +1, Heat -1, and disqualification to allow for ease of meet management.
- .5 Safeguarded reset keystrokes to avoid the timer from being reset accidentally.
- .6 A built-in, high-resolution, high-speed compact thermal printer.
- .7 A transformer assembly to plug into a standard grounded 120 V AC outlet.
- .8 A 6096 mm control cable to connect to the control receptacle junction box.

.22 Optional Equipment:
- .1 Carrying case for console.

2.04 DECK CABLING:

.1 Supply 1 lane module per lane to connect touchpads and push buttons to timing console.
- .1 Lane module: Module connections are colour-coded to assist in making proper connection to touchpads and push buttons. The timing harness includes one (1) lane module per lane, using an extension cable back to the timer.
  - .1 Dimensions: 65 m x 120 m x 4 m with 2438 m cord.
  - .2 Material: Durable, molded ABS plastic.
  - .3 Operating Temperature: 0 to 50º Celsius.

2.05 WATERPOLO GAME/SHOT CLOCK:

.1 Supply two (2) LED water polo game clocks and shot clock timers. Each unit to display time to 99:59 and shot times up to a value of 99 seconds; countdown from any preset time between 0 and 99 seconds; and during last minute of the period, display game time in 1/10 of a second. Timer to have carrying handle and internal batteries. Shot clocks to be hardwired.
- .1 Digit Size: 127 mm, 178 mm.
- .2 Dimensions: 559 mm x 559 mm x 203 mm.
- .3 Digit technology: PanaView.
- .4 Material: Durable, lightweight aluminum.
- .5 Finish: Semi-gloss black.

2.06 PORTABLE HORN START SYSTEM:

.1 Start system will have a water shedding enclosure.

.2 Start system will house one (1) 40-watt corrosion-resistant speaker.

.3 Start system will have an external 360-degree strobe.

.4 Start system will have external connections for additional speakers, start output, microphone, and power/battery charger.

.5 System microphone will have a 1.8 m coiled cord, a 4.6 m extension cable, and locking 4-pin connector to prevent accidental unplugging.

.6 System will operate either by internal rechargeable 12 V battery or 120 V AC power. Battery shall operate the system for up to fifteen (15) hours on a full charge.

.7 System will provide both normally open and normally closed contacts for connection flexibility.

.8 System will have a built-in handle to allow for ease of mobility.

.9 System will have a bracket for mounting to a flagpole or tripod.

.10 System will be ETL listed and tested to latest CSA standards.

.11 Supply mounting tripod.

2.07 GUTTER-HUNG TOUCHPADS:

.1 Touchpads will be 1905 mm wide by 914 mm high, with one (1) required per lane.

.2 Touchpads will be manufactured of stainless steel.

.3 Touchpads markings will overlay the existing pool markings and have a defined target and border with contrasting background.

.4 Touchpads will not be greater than 8 mm thickness each.

.5 Touchpad surface will be non-slip in any direction.

.6 Touchpads will be free of general maintenance and shall be suitable for operation at any altitude without being pressurized.

.7 Touchpads will be capable of operating indoors or outdoors without the possibility of being stressed due to temperature changes during normal use or storage.

.8 Touchpad cable length will be 2896 mm.

.9 Touchpad brackets will be available for most types of pool configurations.

.10 Touchpads will allow water to flow into the touchpad in order to equalize the inside and outside pressure of the touchpad. Pressure equalization will act to increase stabilization, virtually eliminating the ability of the touchpad to float away from the pool wall.

.11 Supply touchpad storage cases.

2.08 BACKUP BUTTON TIMING:

.1 One (1) pushbutton per lane will be provided for backup timing.

.2 Pushbutton will have 1524 mm long cable.

.3 Pushbutton will connect to deck plates via dual banana plugs.

3 EXECUTION

3.01 EXAMINATION

.1 Verify that surfaces which scoreboard will be mounted on are ready to receive work. Verify that placement of conduit and junction boxes are as specified and indicated on plans and shop drawings.

3.02 INSTALLATION

.1 All power and control cables to scoreboards and displays will be concealed in wall in conduit. Power to the scoreboards/displays as well as raceways shown on electrical plans by the Electrical Contractor. Scoreboard control wiring coiled cable to the bleacher jack location shall be the responsibility of the contractor assigned the scoreboard equipment.

.2 Mount scoreboards and interior displays to wall in location detailed and in accordance with manufacturer's instructions. Unit to be plumb and level.

3.03 INSTALLATION

.1 Provide boxes, cover plates, and jacks in locations per plans for remote operation of control cables to control-panel jacks will be concealed in wall or under floor in conduit.

.2 Test connect control unit to all jacks, and check for proper operation of control unit, scoreboard, and all features. Leave control unit in carrying case and other loose accessories with Owner's Departmental Representative.

.3 Conduit operator training on the scoreboard/controller operation.

END OF SECTION