

24/14 SECOND DEVICE AND MULTI-SPORT TIMING / SCOREBOARD SYSTEM

TECHNICAL SPECIFICATION

1. Scope and Purpose

This technical specification defines the procurement, installation, and operational conditions of the timing/scoreboard system consisting of **24/14 second Shot Clock indicators**, game time indicators, **Backboard Lights**, and related control/integration infrastructure for use in sports halls.

The scope includes FIBA Level 1 approved basketball use, as well as compliance requirements with water polo, hockey (ice/field/inline), and futsal. The core technical provisions of this document are based on the 24/14 second device technical content.

2. Definitions

- **Game Time Indicator:** Indicator showing match duration, synchronized with the shot clocks.
 - **Shot Clock Indicator:** Countdown display showing offensive possession time (24/14 s).
 - **Backboard Lights:** Lights mounted around/above the basket that visually signal the end of game time and shot clock.
 - **Control Console:** Command unit managing game/shot timing with multi-sport mode support.
-

3. Compliance and Approvals

- 3.1. System components must meet **FIBA Level 1 approval** standards.
 - 3.2. Basketball competition modes must include **3x3, FIBA, NBA, and EuroLeague**.
 - 3.3. The system must comply with the time, period, and signal requirements of water polo, hockey (various types), and futsal, with hardware/software mode support.
 - 3.4. The proposed brand's timing, videoboard, or scoreboard systems must have been used in at least five major events such as **EuroLeague, EuroCup, AfroBasket, BAL (Basketball Africa League), and the World Championship** (to be documented).
-

4. System Architectural Requirements

4.1. Placement

- For one basket direction, either two double-sided shot clock units or one four-sided unit shall be provided.
- Installation must comply with FIBA placement rules: mounted above the basket or, if not possible, suspended from the ceiling directly above.

4.2. Visual / Numeric Indicators

- **Shot Clock Range:** 0–99 s.
- **Start/Stop/Resume:** Start from 24 s; resume from paused value.
- **When Game Time <24 s:** Shot clock displays must either switch off or run synchronized with game time.
- **When Game Time <24 or <14 s:** If the relevant keys are pressed, shot clock digits must auto-turn off.
- **Simultaneous 24s+14s key press:** Shot clock must switch off completely, digits blank.
- **Digit Heights:** Game time ≥ 13 cm; Shot Clock ≥ 25 cm.
- **Colors:** Game time = yellow; Shot Clock = red. Game time color must match scoreboard game time indicator.

4.3. Backboard Lights

- Red Backboard Lights surrounding baskets must remain lit ≥ 2 s at the end of game time.
- Yellow Backboard Lights above baskets must remain lit ≥ 2 s at the end of shot clock.

4.4. Audible Warnings

- Audible warning must be given at end of shot clock.
- Different tones must be used for shot clock end vs. game time end.
- Signal strength ≥ 120 dBA (1 m).

5. Materials and Production

- 5.1. Panel body: aluminum; panel dimensions ≥ 50 cm (height), ≥ 55 cm (width).
- 5.2. Displays: SMD LED, 7-segment structure.
- 5.3. Single LED failure must not darken entire segment.
- 5.4. **Static drive technology** must be used for camera recording clarity.
- 5.5. Front face: anti-reflective plexiglass (reflect/lexan type transparent protection).

6. Electrical, Signal, and Protection

- 6.1. Connectors must be easy to attach/detach and moisture resistant.
- 6.2. Internal wiring grouped with data cables, neat layout.
- 6.3. No cut/spliced/unsocketed cables inside.
- 6.4. Driver boards must be short-circuit protected.
- 6.5. Power supplies must be CE-certified.
- 6.6. LED lifetime $\geq 50,000$ h.
- 6.7. Circuit IC/processors: **ST, Toshiba, Texas, NXP, Green Micro.**

7. Environmental Conditions and Cabling

- 7.1. Operating temperature: $-40^{\circ}\text{C} \dots +55^{\circ}\text{C}$.
- 7.2. External power/data cables must conform to manufacturer-approved standards.
- 7.3. Installation wiring diagram and fuse values must be submitted for manufacturer approval.
- 7.4. Data/power cables must be protected and concealed; application must be manufacturer-approved.

8. Integration and Operation

- 8.1. When shot clocks stop, game time indicators must continue.
- 8.2. The system must maintain synchronization and matching colors with the main scoreboard's game time indicator.
- 8.3. Basketball compliance: Hardware/software must align with **EuroLeague/EuroCup rules.**

9. Certification, Warranty, and Delivery

- 9.1. Manufacturer must hold **ISO 9001 Quality Management System certificate.**
- 9.2. Product must comply with **RoHS and CE** directives.
- 9.3. User manual and warranty certificate must be delivered.
- 9.4. System must provide at least **2 years warranty.**

10. Multi-Sport Support – Modes

- 10.1. Basketball: 3x3 / FIBA / NBA / EuroLeague modes.
- 10.2. Water Polo: branch-specific time and period management support.

10.3. Hockey: Ice/field/inline variations with compliance for time/period/signal needs.

10.4. Futsal: branch-specific timing and violation signaling.

All modes must work with integrated visual/audible warnings and **Backboard Lights** in compliance with rules.

11. Reference Organization Requirement

The proposed brand's timing, videoboard, or scoreboard systems must have been used in at least 5 major events such as **EuroLeague, EuroCup, AfroBasket, BAL, World Championship** and documented with official letters, certificates, or organizer confirmation. This is a mandatory qualification criterion for bid evaluation.

SUMMARY TABLE – System-Wide (Key Mandatory Features)

Title	Mandatory Feature
FIBA Approval	FIBA Level 1 compliant
Basketball Modes	3x3 / FIBA / NBA / EuroLeague
Multi-Sport Support	Water polo, hockey (ice/field/inline), futsal
Shot Clock Range	0–99 s (24/14 s management; simultaneous 24s+14s key = off)
Digit Heights	Game time ≥13 cm; Shot Clock ≥25 cm
Colors	Game time: Yellow; Shot Clock: Red; match scoreboard
Backboard Lights	Red: game end ≥2 s; Yellow: shot clock end ≥2 s
Audible Warnings	≥120 dBA (1 m); distinct tones for game/shot clock end
Body & Optics	Aluminum body (≥50×55 cm); SMD LED 7-segment; static drive; anti-reflective plexiglass
Electrical/Hardware	CE-certified PSU; short-circuit protected driver boards; moisture-proof connectors
Durability	LED ≥50,000 h; –40...+55 °C
Certification	ISO 9001, CE, RoHS; user manual + warranty certificate; ≥2 years warranty
Installation	Above basket mounting / ceiling suspension; concealed cabling
Major Event Use	Brand systems proven in ≥5 major events (EuroLeague, EuroCup, AfroBasket, BAL, World Championship)