

BALL POSSESSION ARROW INDICATOR

TECHNICAL SPECIFICATION

Scope

This technical specification covers the mandatory minimum requirements for the procurement, production, and acceptance of the **Ball Possession Arrow Indicator**, which will be used in indoor sports (Basketball, Volleyball, Handball, Hockey, Futsal) to indicate the team in possession of the ball.

1. Compliance, Approval, and References

- 1.1 **FIBA Approval:** The indicator shall be FIBA-approved for basketball use.
 - 1.2 **Rule Compliance:** It shall comply with IHF and FIVB rules for the relevant branches.
 - 1.3 **Product Certificates:** The product shall meet CE and RoHS requirements. The power supply shall also be CE-certified.
 - 1.4 **Production Quality System:** The manufacturer shall hold an ISO 9001 Quality Management System certificate.
 - 1.5 **Major Event Experience:** 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), World Championship.
-

2. Functional Features

- 2.1 **Display Type:** There shall be an arrow-shaped indicator for left and right direction display.
 - 2.2 **Direction Selection:** Direction selection shall be performed with a switch located at the top section.
 - 2.3 **Rear Indicator:** On the back of the panel, an LED/LED group confirming the arrow direction shall be present.
 - 2.4 **Display Technology:** Static drive technology shall be used to ensure clarity in camera recordings.
-

3. Optical and Visual Requirements

- 3.1 **LED Technology:** Indicators shall be manufactured with SMD LED.
- 3.2 **Color:** The Ball Possession Arrow shall be red.
- 3.3 **Front Protection:** The front face shall include anti-reflective (reflex/lexan-type) transparent plexiglass to prevent light reflection.

4. Mechanical Design and Dimensions

4.1 **Body Material:** The panel body shall be made of aluminum.

4.2 **External Dimensions:** Height ≥ 15 cm, Width ≥ 30 cm, Thickness ≤ 3.5 cm.

4.3 **Arrow Indicator Size:** Arrow width and height shall each be at least 11 cm.

4.4 **Internal Layout:** For ease of service and maintenance, internal arrangement shall be simple and clean. Cables shall not be cut, spliced, or unsocketed.

4.5 **Connection Elements:** Connectors shall be easy to attach/detach and resistant to humidity.

5. Electrical Requirements and Safety

5.1 **Operating Voltage:** The panel shall operate with 12 V.

5.2 **Driver Board:** Must be protected against short circuits.

5.3 **Component Preference:** Integrated circuits/processors must be from ST, Toshiba, Texas, NXP, or Green Micro.

6. Durability and Environmental Conditions

6.1 **Operating Temperature:** -40°C to $+55^{\circ}\text{C}$.

6.2 **LED Lifetime:** Minimum 50,000 hours.

7. Delivery, Documentation, and Warranty

7.1 **Documentation:** User manual and warranty certificate shall be delivered.

7.2 **Warranty Period:** The system shall be covered by a 2-year warranty.

8. Installation and Serviceability

8.1 **Service Access:** Internal arrangement shall be designed to minimize fault detection and intervention time.

8.2 **Removability:** Quick disassembly and reassembly with connector-based structures must be possible for field replacements.

SUMMARY TABLE – System-Wide

Item	Value / Requirement
Purpose	To indicate the team in possession of the ball in indoor sports
Approval	FIBA approved
Rule Compliance	IHF, FIVB
Display Technology	Static drive
LED Type	SMD LED
Indicator Color	Red
Arrow Indicator Size	Width $\geq$ 11 cm, Height $\geq$ 11 cm
Panel Dimensions	Height $\geq$ 15 cm, Width $\geq$ 30 cm
Thickness	$\leq$ 3.5 cm
Operating Voltage	12 V
Front Protection	Anti-reflective plexiglass (reflex/lexan-type)
Body	Aluminum
Rear Indicator	LED/LED group present
Direction Selection	Switch-based
Connectors	Easy to attach/detach; moisture resistant
Driver Board	Short-circuit protected
Component Brands	ST / Toshiba / Texas / NXP / Green Micro
Operating Temperature	-40 °C ... +55 °C
LED Lifetime	$\geq$ 50,000 hours
Certificates	CE, RoHS
Manufacturer Quality	ISO 9001
Major Event Experience	Brand used in $\geq$ 5 major events (EuroLeague, EuroCup, AfroBasket, BAL, World Championship)