FIBA TIMING & SCORING SYSTEM

HARDWARE MANUAL

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Caution and safety precautions

- Never use any other charger than the supplied or a type approved by Swiss Timing. This could destroy the battery, cause damage to unit, and possible cause personal injury due to fire or/and electrical shock.
- Never bypass a power cord ground lead by breaking off the ground pin, or by using inappropriate extension cords or adapters.
- Never plug a power cord into the AC power source until you have made sure that all installation, cabling and power levels, are proper, and that the applicable procedures in this manual have been followed.
- Protect the equipment against splashing, rain and excessive sun rays.
- Never use the device if it is damaged or insecure.
- Verify the selection of the power distribution.
- Verify that the voltage quoted on the rating plate is the same as your voltage. Connect the appliance only to power sockets with protective earth. The use of incorrect connection voids warranty.
- This program may be modified at any time without prior notification.
- Do not open the case; there is nothing that needs servicing inside it. Nevertheless, if the case must be opened, you must call for some qualified personnel. The power supply cable must be disconnected before opening the case.
- During the transport of all Swiss Timing equipment delivered with a reusable carry case, the said case should be used at all times. This is imperative to limit the damage, such as shocks or vibration that can be caused to the units during transport.
- The same cases should also be used when returning equipment to Swiss Timing for repair. Swiss Timing reserves the right to refuse all guarantees if this condition is not fulfilled.
- If the installation includes a horn, be sure to maintain a sufficient security distance from the public.

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TABLE OF CONTENTS

1 INTRODUCTION

About this Document

This document is intended as a user manual for the **FIBA Timing & Scoring System hardware** components. This document is part of the **FIBA Timing & Scoring System user documentation**.

Information provided in this document is generalized. Arena-specific information may be prioritized over this document.

Intended Audience

This manual is intended for end users, explicitly for arena technicians and game operators.

Related Documents

Document Name	Filename
Operator Manual – FIBA TIMING & SCORING SYSTEM	

2 SYSTEM OVERVIEW

This chapter provides basic information on the FIBA Timing & Scoring System, including a system scheme and instructions for a regular function test.

2.1 System Architecture

The following scheme shows the all system components and outlines their locations and connections within the arena.

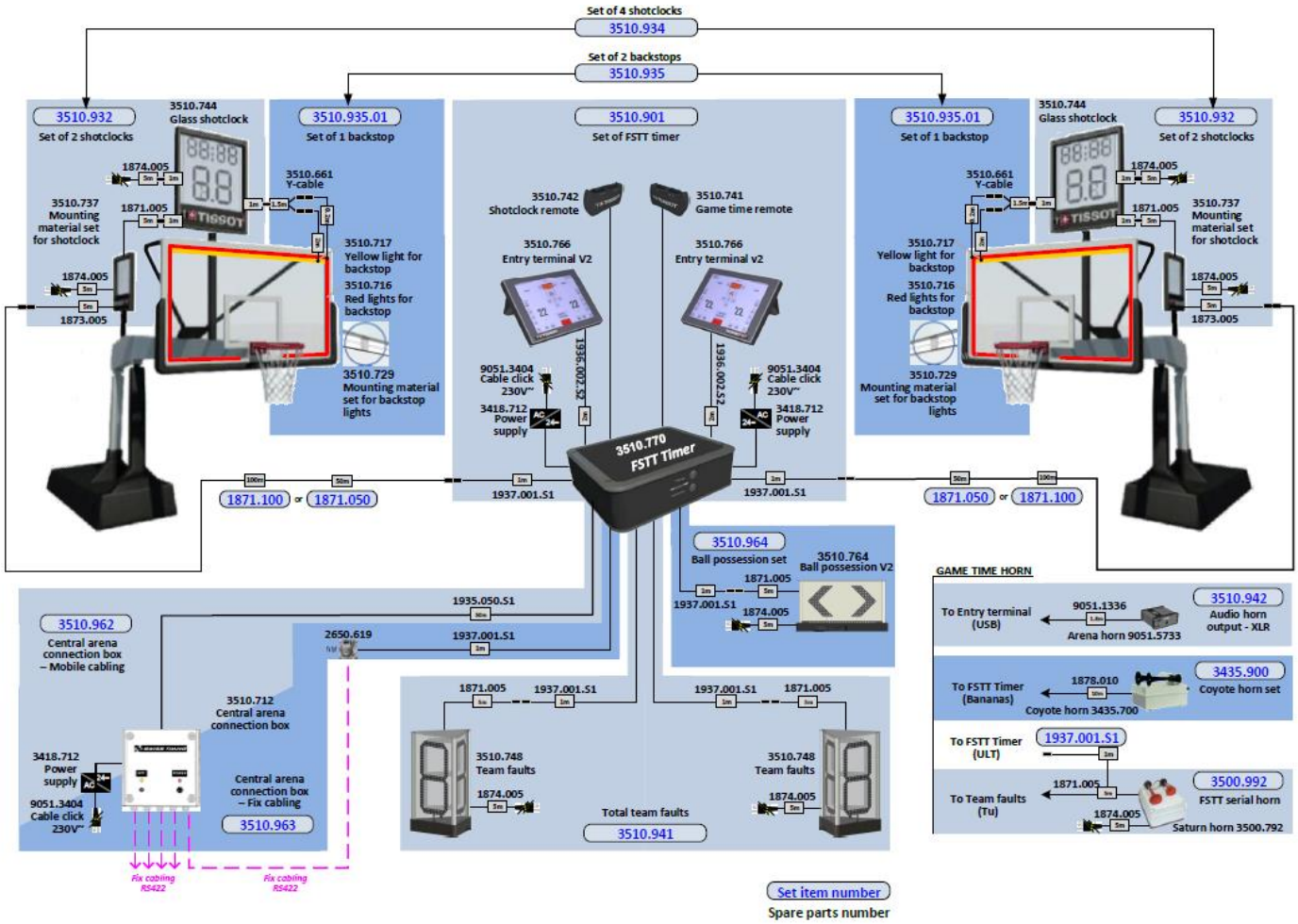

Figure 1 – FIBA T&S System Scheme (Sales)

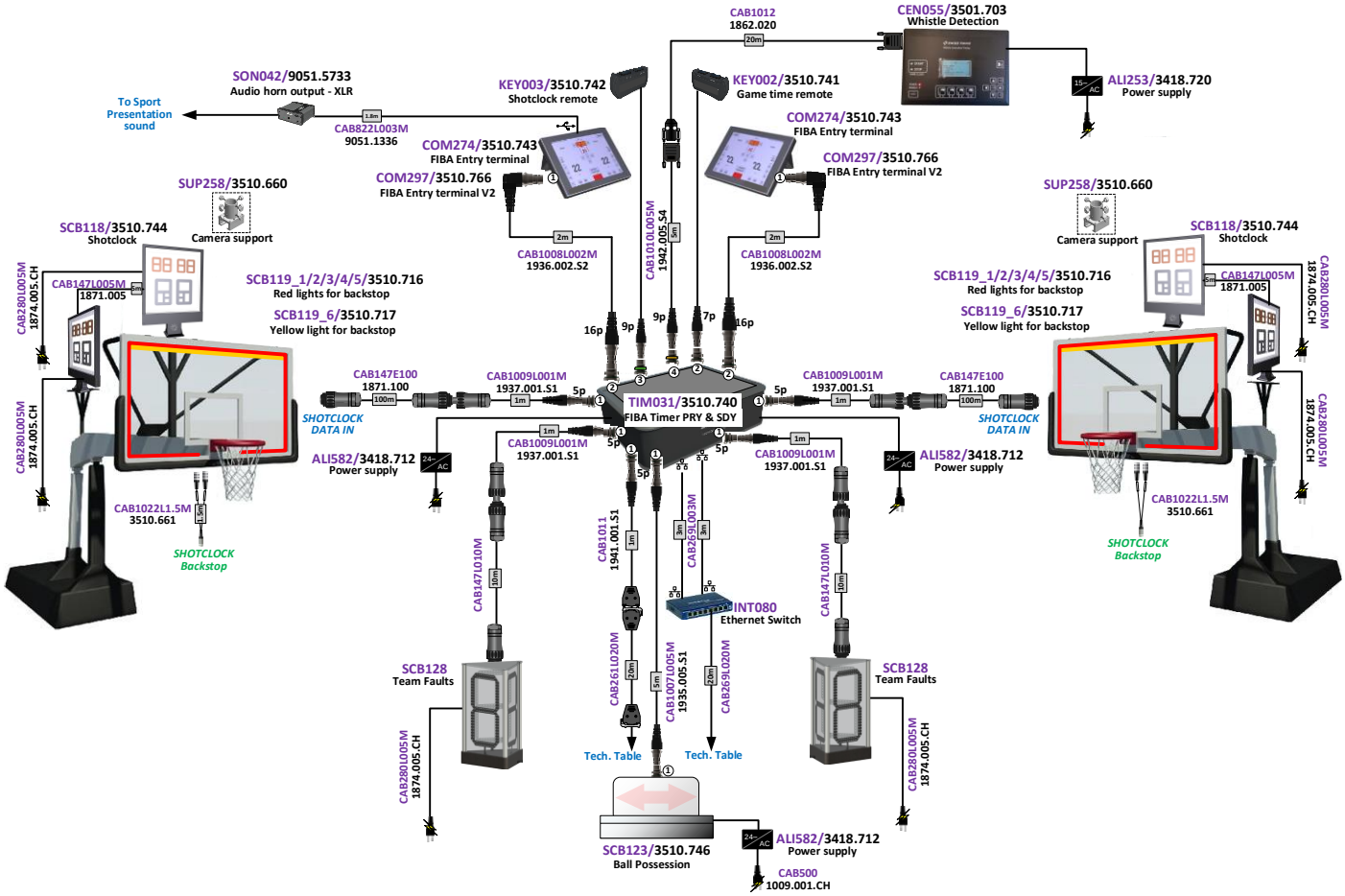

Figure 2 – FIBA T&S System Scheme (Event)

2.2 Initial System Test

It is strongly recommended to verify the proper functioning of all system components prior to each game.

Follow the instructions given below, in order to ensure a hassle-free operation of the FIBA Timing & Scoring System. The verification process will probably take 15 to 25 minutes.

1) Scorer Table Verification

1. Ensure that all system components at the Scorer Table are readily set up and connected. This includes:
   - Cable connection between FSTT and both Entry Terminals
   - Cable connection between Game Time Remote/Whistle Detection and FSTT
   - Cable connection between Shot Clock Remote and FSTT

2. Ensure that the FSTT has its two power supplies connected ('Primary' and 'Secondary')

   Note: The FSTT's primary power connector should be connected to an uninterruptable power supply (UPS).

   Note: In order to ensure the functioning of both of the FSTT's integrated power circuits (primary and secondary), temporarily remove one power supply while retaining the other. Do this for both power supplies consecutively. The function test is positive, if the FSTT remains powered with either of both power supplies connected to the 'Primary' or 'Secondary' power connector. Don't forget to reconnect both power supplies after finishing the function test.

3. Ensure that the FSTT's timing circuit is set to 'Primary'. The push button [Primary] located on the front panel of the FSTT illuminates, if correctly selected.
4. Ensure that both Entry Terminals are ready for operation.
   (see document **Entry Terminal Operator Manual** for detailed information)

2) Left and Right Stanchion

1. Ensure that the mechanical components of the system are firmly fastened. This includes:
   - The connections between the Shot Clock and its mounting plate.
   - The mounting bars connecting the backboard with the Shot Clock frame.
   - See also section *given. Regular Safety Check*.

   Note: Particularly for this connection, make sure that the cable is securely fastened and positioned in a way that the connection is adequately protected against mechanical and thermal stresses.

3) Data Connection Test

1. On the primary Entry Terminal, access the "Test Inputs" dialog (see document **Entry Terminal Operator Manual** for detailed information). With the dialog visible on the Entry Terminal, proceed as follows:
   - Check the functioning of individual Shot Clock indications as well as the functioning of Backboard by tapping the corresponding buttons in the "Test displays" pane of the dialog.
   - Check the functioning of the Buzzer by tapping the [Horn SC] and [Horn GT] buttons on the dialog.
   - Check the functioning of the Game Time and Shot Clock Remotes by pressing their individual buttons. Pressing any of the buttons will increase the corresponding counter on the "Test Inputs" dialog.

In case the data connection test was successful, the system should be ready for operation.

3 COMPONENT DESCRIPTION

This chapter contains descriptions of all components used in the FIBA Timing & Scoring System, including cable connections and specific operating instructions, where appropriate.

3.1 FSTT

The FSTT is the central controlling unit in the system (TIM031 Timer). It integrates a timer device as well as connectors for all input and output components of the system. The integrated timer consists of two individual circuits, a primary circuit and a secondary circuit. The secondary circuit can be toggled in case of a malfunctioning primary circuit.

Figure 3 - FSTT

3.1.1 Installation

The FSTT shall be placed on the scorer table.

In order to secure a hassle-free functioning, the FSTT is equipped with two separate power connectors that both must be connected to a power supply.

We strongly recommend that you connect the power supply of the first timing circuit (MAIN) to an uninterruptable power supply (UPS) during operation of the system.

3.1.2 Connections

Connect all supplied cables according to the connection scheme below.

Figure 4 - Connection panel of the FSTT

Connector name	Connector type	Connector description/target	Event article number	Sales article number
2x POWER (PRIMARY / SECONDARY)	DIN 4pin, male	Power supply (24VDC) for primary and secondary timing circuit (connect 'PRIMARY' to an UPS)	ALI582	3418.712
2x TERMINAL (PRIMARY / SECONDARY)	Fischer 16pin, female	Serial and network connection with the Entry Terminal (incl. power supply for the Entry Terminal)	CAB1008 (2m)	1936.002.S2
ARENA SERIAL	Fischer 5pin, female	Serial connection with the Tech Table	CAB1011 (1m)	1941.001.S1
ARENA NETWORK	RJ45 connector	Network connection with the Tech Table	none	none
STANCHION (LEFT / RIGHT)	Fischer 5pin, female	Serial connection with Shot Clocks	CAB1009 (1m)	1937.001.S1
SHOT CLOCK REMOTE	Fischer 9pin, female	Input connector for the Shot Clock Remote	KEY003	3510.742
GAME TIME REMOTE	Fischer 7pin, female	Input connector for the Whistle Detection System or Game Time Remote (see section below this table)	KEY002	3510.741
WHISTLE DETECTION	Fischer 9pin, female	Output connector for the whistle detection system	CAB1010 (5m)	none

Connector name	Connector type	Connector description/target	Event article number	Sales article number
2x Network connector (PRIMARY / SECONDARY)	RJ45	Network connection to the Entry Terminal	CAB269	none
2x TEAM FAULTS (LEFT / RIGHT)	Fischer 5pin, female	Output to Team Faults Counter	CAB1009 (1m)	1937.001.S1
BALL POSSESSION	Fischer 5pin, female	Output to the Ball Possession Indicator	CAB1009 (1m)	1937.001.S1
HORN	Banana	Optional Horn connection output		
SYNC	Banana	Input for time synchronization	CAB172 (1m)	none

Game Time Control Options

The game time is usually controlled via Whistle Detection System and thus connecting the FSTT to the Whistle Detection System shall be prioritized. However, in case the Whistle Detection System is not functioning or cannot be used, instead connect the Game Time Remote to the FSTT.

3.1.3 Operation

Switching between Primary and Secondary Timer Unit

In case of a malfunctioning primary Entry Terminal or NNT timing circuit, press the [Secondary] button located on the front panel of the FSTT. You must then continue operating the secondary Entry Terminal.

More information on how to operate the Entry Terminals is provided in the document **FIBA Timing System Entry Terminal Operation Manual**.

3.1.4 Specifications

		Remarks
Dimensions	306x101x253mm (WxHxD)	
Weight	4kg	
Power supply	24VDC, max. 3.75A	
Device number	TIM031 (3510.770)	

3.2 Entry Terminal

The Entry Terminal is a touchscreen device used to perform timing and scoring actions (e.g. team fouls, timeouts) on a graphical user interface. Instructions on how to use the Entry Terminal are provided in the document **Entry Terminal Operator Manual**.

Note: Although the Entry Terminal provides all controls for timing and scoring actions, it is mandatory to use the provided hardware controllers, the Game Time and Shot Clock Remote (or Whistle Detection System), to perform critical timing actions. See next section for further information.

Figure 5 - Entry Terminal

Two Entry Terminals are provided, a primary and a secondary one. The secondary (i.e. backup) Entry Terminal must be used in case either the primary timing circuit on the FSTT, or the primary Entry Terminal is malfunctioning.

3.2.1 Installation

Both Entry Terminals shall be placed on the scorer table. Remember that the operator must be able to easily access these devices during a game. This also applies to both Remotes (Game Time and Shot Clock Remote), which should be placed next to the Entry Terminals (see next section).

Important: Always connect both Entry Terminals to the FSTT. Else, there is no backup solution available in case of a malfunctioning.

3.2.2 Connections

The single socket on the left side of the Entry Terminal is a combined data and power connector. Connect both Entry Terminals to the FSTT using the supplied cables.

Connector name	Connector type	Connector description/target	Event article number	Sales article number
ENTRY TERMINAL	Fischer 16 pin, female	Connection to FSTT, including power supply for the Entry Terminal	CAB1008 (2m)	1936.002.S2
2x USB	USB Type A	Connection to the Audio Interface (SON042)	CAB822 (3m)	9051.1336

3.2.3 Operation

Status LED

The status LED on the Entry Terminal illuminates in blue while the device is switched on (green LED switched on Entry Terminal V2). While the Entry Terminal is shut down, the status LED illuminates in orange (green LED switched off Entry Terminal V2).

Switching On and Off

The Entry Terminal has no power switch. Instead the Entry Terminal is directly powered by the FSTT. Instructions on shutting down and switching on the Entry Terminal (via software) is described in the document **Entry Terminal Operator Manual**.

Note: You can switch on an Entry Terminal that has been shut down (i.e. the status LED illuminates in orange) by double-tapping on its screen.

3.2.4 Specifications

		Remarks
Dimensions	311x112x238mm (WxHxD)	
Weight	3.3kg	
Power supply	24VDC, max. 1.25A	
Device number	COM274 or COM297 (3510.743 or 3510.766)	

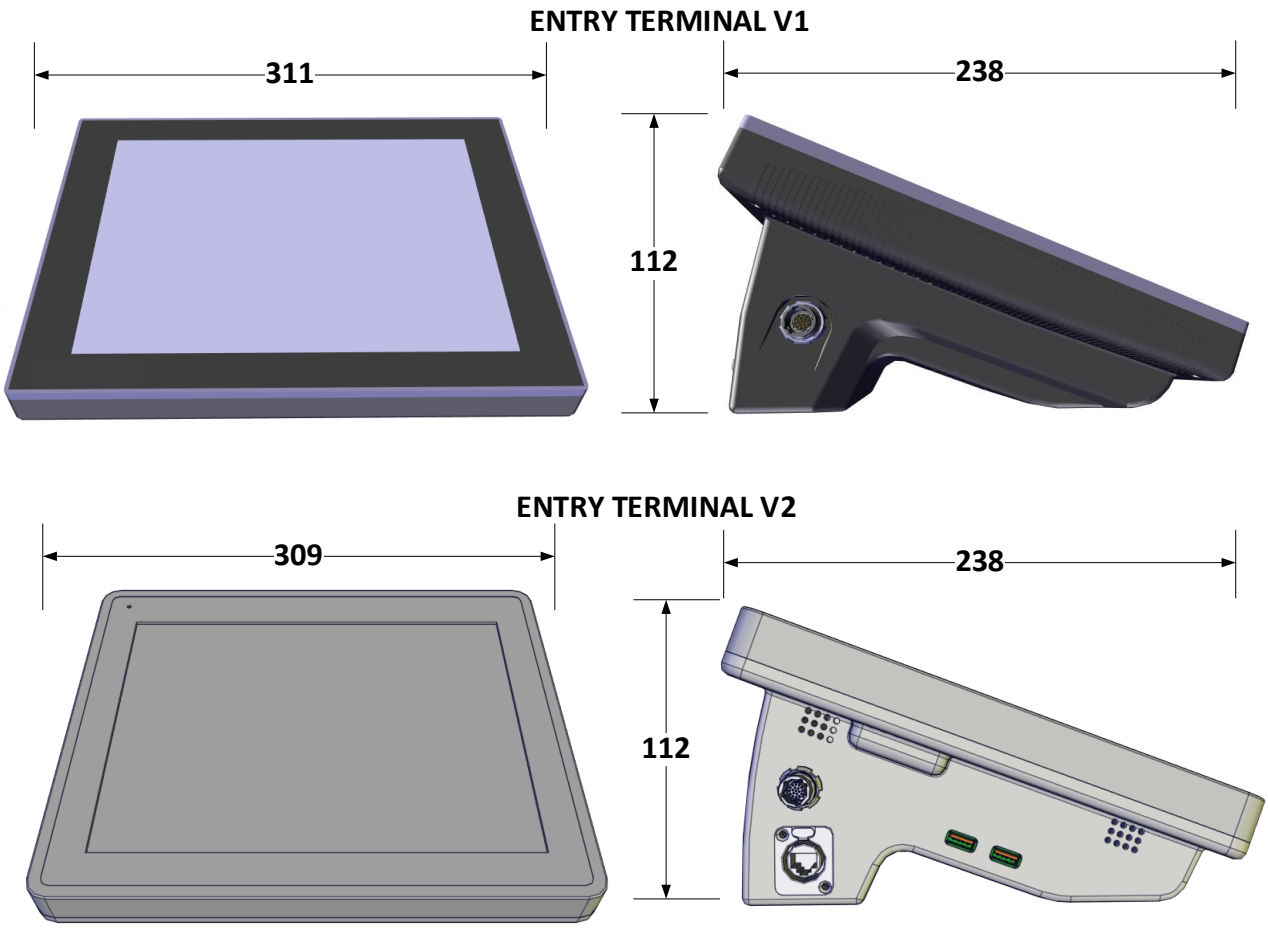

Figure 6 - Entry Terminal dimensions

3.3 Game Time & Shot Clock Remote

The Game Time Remote and Shot Clock Remote are two external hardware controllers featuring a set of mechanical buttons to trigger critical timing actions. Using the hardware-based triggers is mandatory, although the corresponding functions are also available on the Entry Terminal's touchscreen.

Figure 7 - Shot Clock Remote

Figure 8 – Game Time Remote

3.3.1 Installation

The remotes shall be positioned on the scorer table, next to the Entry Terminal. Fixing or mounting the remotes is not required as they will be held in hand by the operator during a match.

Note: Connect the Game Time Remote only in case a Whistle Detection System is not available (i.e. missing or malfunctioning).

3.3.2 Connections

Each hardware controller is equipped with a fixed cable which plugs into its corresponding connector on the FSTT (see connection table below).

Connector name	Connector type	Connector description/target	Event article number	Sales article number
GAME TIME REMOTE	Fixed wired	Connection with the FSTT (only in case a Whistle Detection System is not available)	KEY002	3510.741
SHOT CLOCK REMOTE	Fixed wired	Connection with the FSTT	KEY003	3510.742

3.3.3 Operation

Using the Game Time Remote

- To start the game time, press [start].
- To stop the game time, press [stop]
- To trigger the arena horn, press [horn]. Note that you can use both sides of the rocker button to trigger the horn.

Using the Shot Clock Remote

- To start the Shot Clock, press [start].
- To stop the Shot Clock, press [stop]
- To reset the 24s or 14s timer, press the corresponding button.

3.3.4 Specifications

Note: Both controllers share the same specifications.

		Remarks
Dimensions	120x34.5x65.2mm (WxHxD)	
Weight	0.19kg	
Power supply	None	
Device number	KEY002/3510.741 (Game Time Remote) KEY003/3510.742 (Shot Clock Remote)	

3.4 Shot Clock

The Shot Clock is the central display component in the FIBA T&S System. Two Shot Clocks are mounted to the stanchion: The Front Shot Clock and the Side Shot Clock.

Each Shot Clock provides an optional camera mount (SUP258) on top of its frame (see picture below).

The picture below shows the left Stanchion with the all system components mounted.

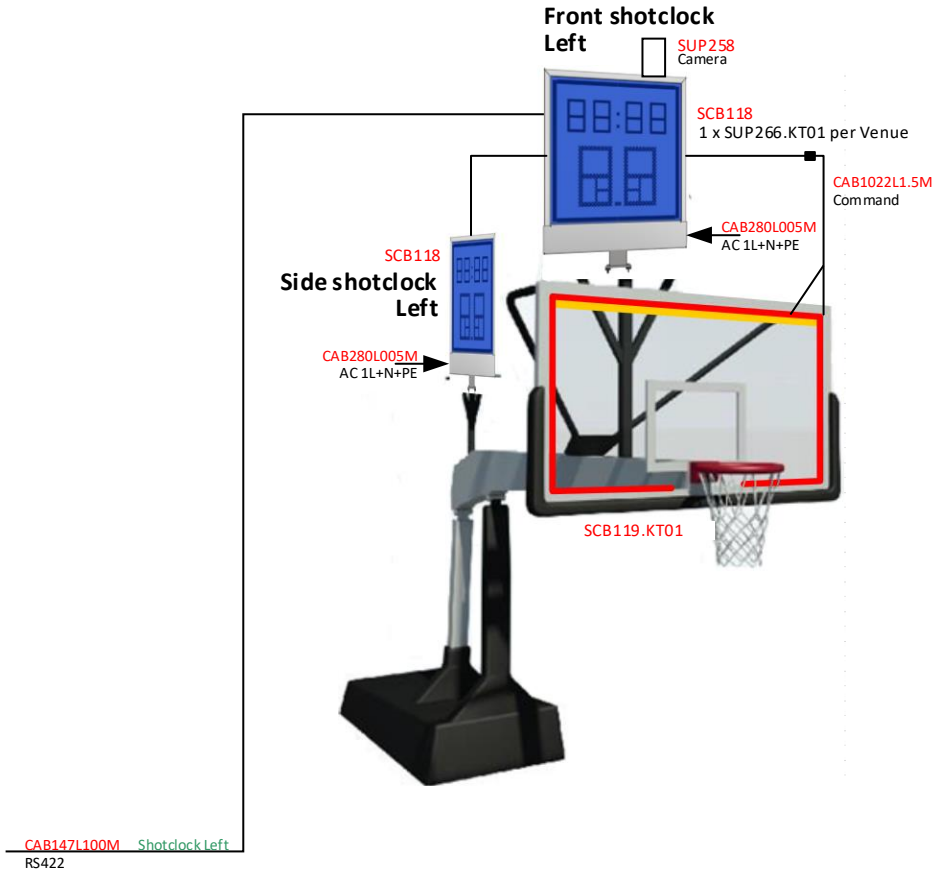

Figure 9 - Shot Clocks on the stanchion

3.4.1 Indicator Elements

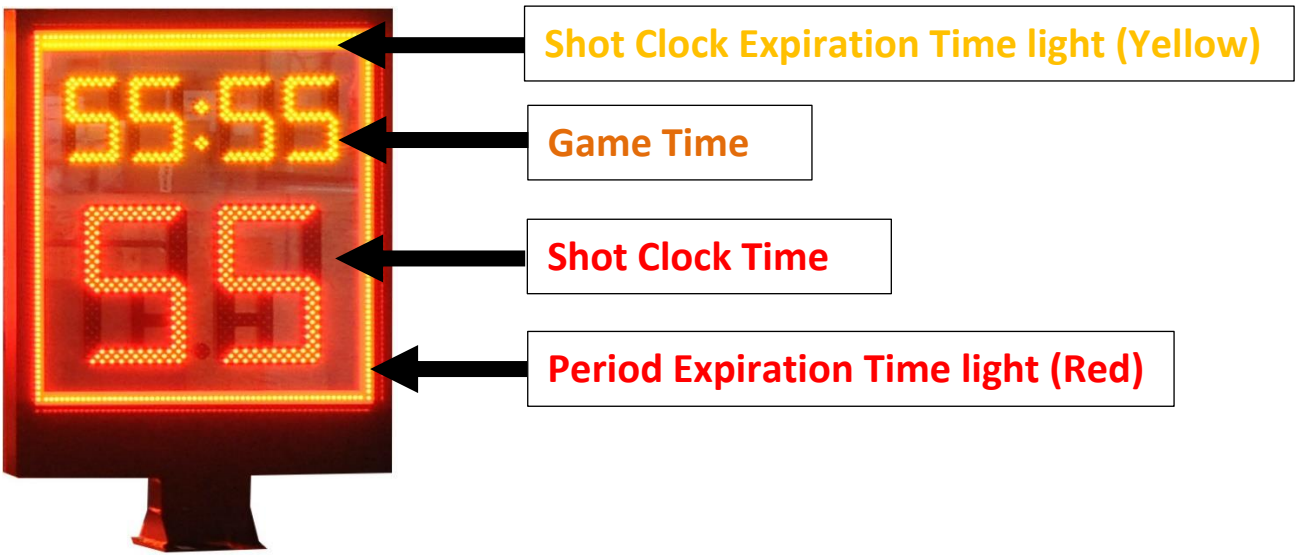

Figure 10 - Front Shot Clock indicators

All Shot Clocks feature additional LED stripes for indication of stopped times (see also section 3.5). Half-time breaks and pregame times are displayed via game time indicator. Quarter break times are displayed on the time-out time indicator.

3.4.2 Installation

Both Shot Clocks are mounted to the stanchion using a dedicated frame.

3.4.3 Connections

Each Stanchion is normally equipped with two identical shot clocks. Details on each shot clock's connectors are set out in the table below.

Connector name	Connector type	Connector description/target	Event article number	Sales article number
Data IN	Tuchel 7pin	RS422 data connection input from the FSTT (or from the Front shot clock to the Side shot clock via daisy chain)	CAB147 (50m) CAB147 (100m)	1871.050 1871.100
Data OUT	Tuchel 7pin	RS422 data connection to the other shot clock	CAB147 (50m) CAB147 (100m)	1871.050 1871.100
Backlights	DIN 4pin	Connector for the Backlights	CAB1022 (1.5m)	3510.661
Power IN	Tuchel 3pin	Connection for the power supply	CAB280 (5m)	1874.005

The Front shot clock receives its control data from the FSTT, while the Side shot clock receives its data from the Front shot clock through a daisy chain. Additionally, the Backlights are usually connected to the Front shot clock.

See Figure 9 for a typical cabling scheme of the shot clocks on a single Stanchion.

3.4.4 Regular Safety Check

Prior to every game, perform the following safety check:

1. Verify the firmness of the bolt connections between the Shot Clock and its mounting plate. Some of the relevant nuts are highlighted in the following picture.

Figure 11 - Positions of bolted connections between Front Shot Clock and frame

2. Verify the firmness of the mounting bars connecting the backboard with the Shot Clock frame. The relevant nut (left position) and screw (right position) are highlighted in the following picture.

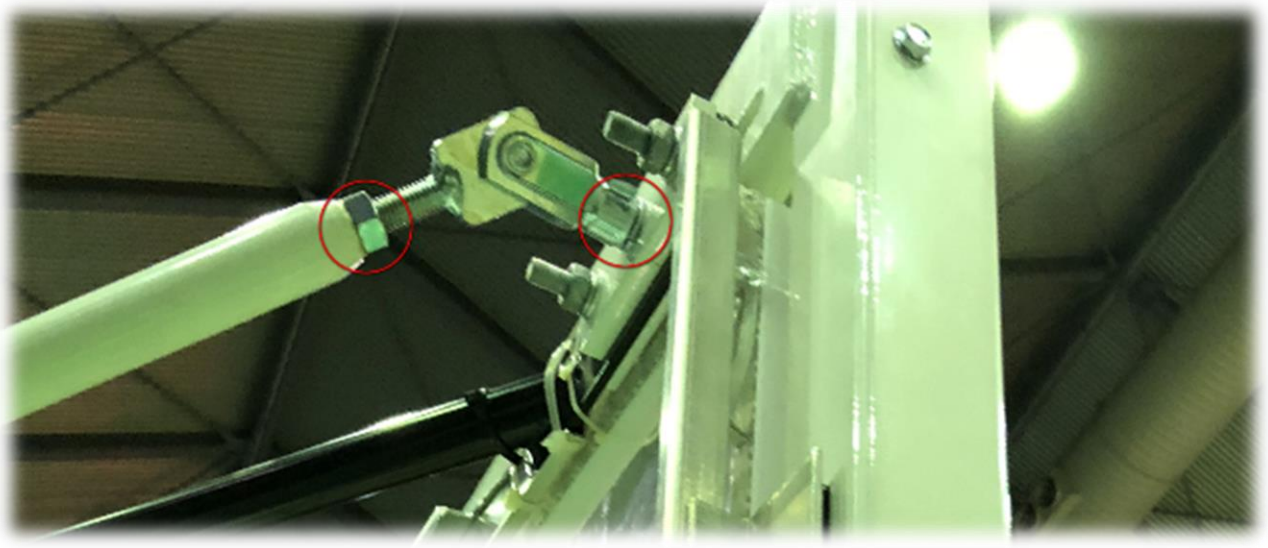

Figure 12 - Bolted connections between backboard and frame

3.4.5 Specifications

		Remarks
Dimensions	716x1023x200mm (WxHxD)	
Weight	23kg	
Power supply	100-240VAC	
Device number	SCB118/3510.744	

3.4.6 Glass Cleaning

The glass can be cleaned with any standard commercial glass cleaner. Other than that, there is no special procedure required.

General maintenance is limited to cleaning the glass and checking the electric / electronic connections.

3.4.7 Camera Support (Option)

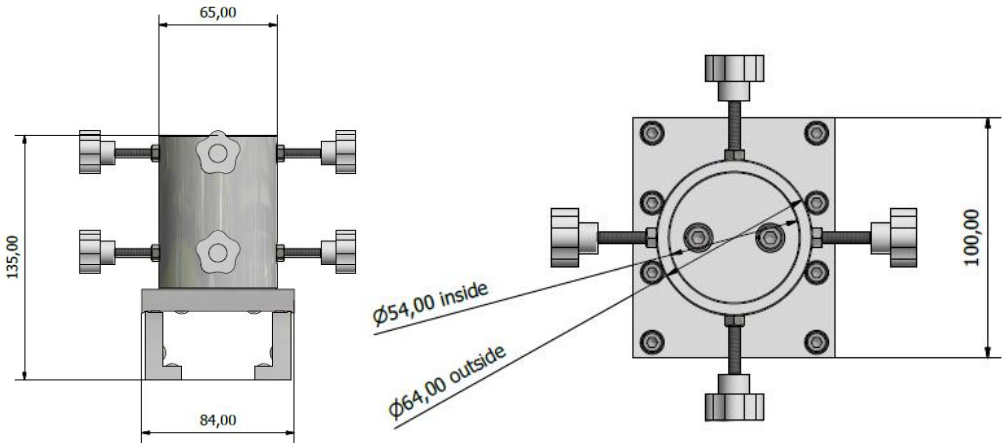

Figure 13 – Camera support dimensions

3.5 Backboard Light

There are two different LED indicators mounted behind the backboard of the stanchion.

The Backboard Light Red (BBLight red) is a red-colored LED stripe currently encompassing the entire back of the backboard on all four sides. This light indicates the expiration of the game time clock. It illuminates as soon the period is expired.

The Backboard Light Yellow (BBLight yellow) is an amber-colored LED stripe located in the top center and indicates the expiration of the 24 second shot clock.

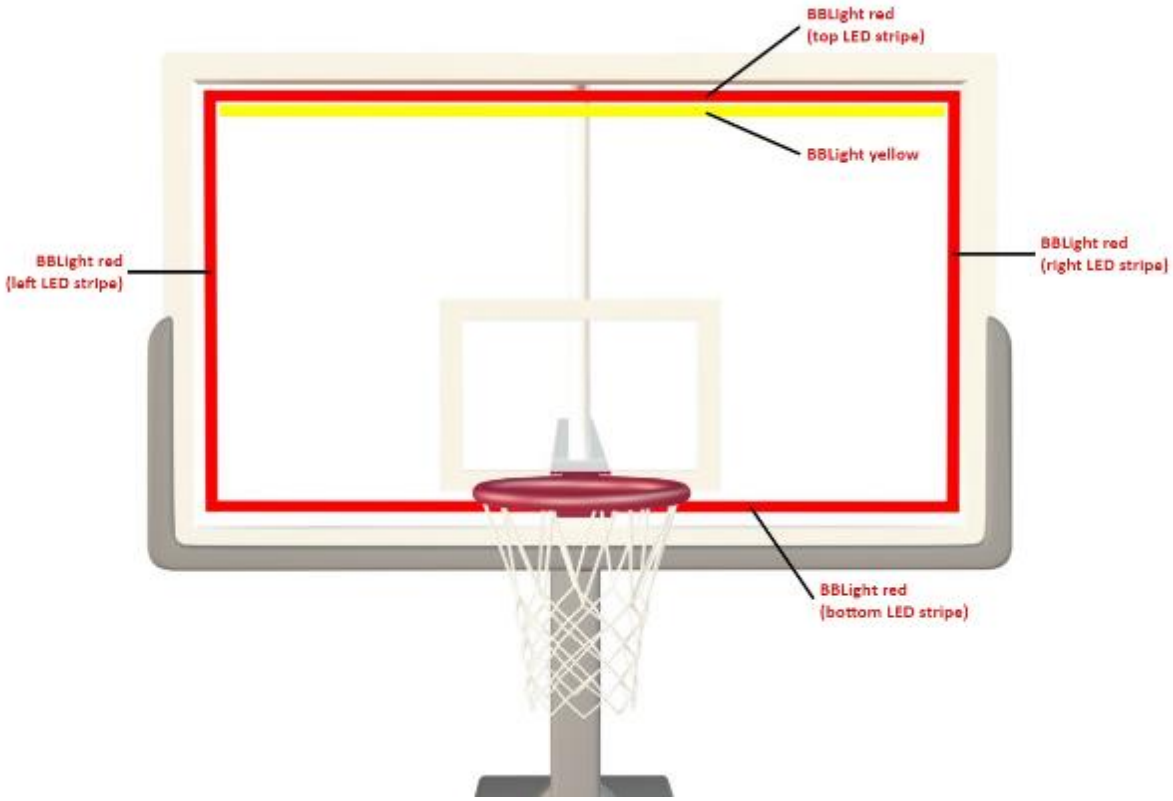

Figure 14 - BBLight overview

3.5.1 Installation

Both BBLights shall be fastened on the Backboard using a number of mounting angles. Their positions are outlined in the illustration below.

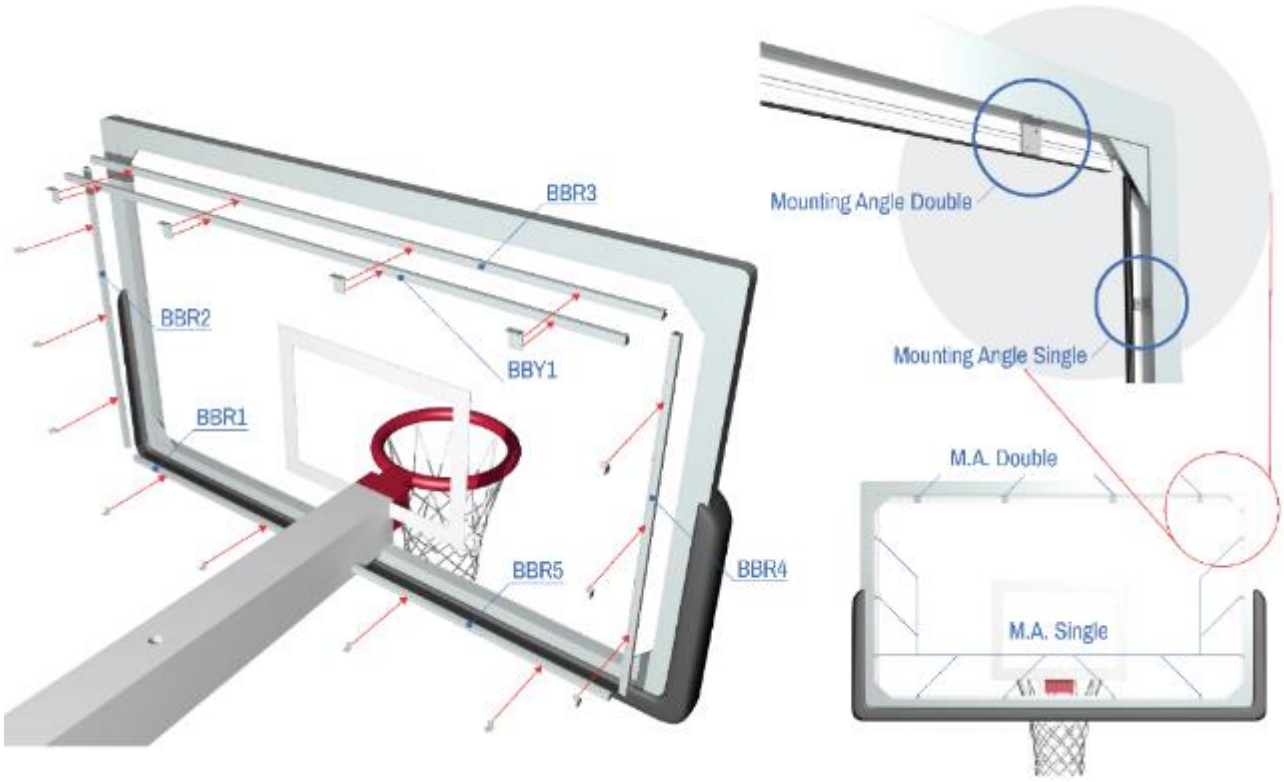

Figure 15 - BBLight mounting angle positions

LED Stripe Connection

All LED segments are interconnected by MOLEX connectors. The first segment of each BBLight however is equipped with a DIN4 plug for connecting it to the Stanchion Box.

3.5.2 Connections

Connector name	Connector type	Connector description/target	Event article number	Sales article number
BBLight red	DIN 4pin, male	Connection with the Shot clock	Fixed cabled + CAB1022(extension cable)	3510.661
BBLight yellow	DIN 4pin, male	Connection with the Shot clock	Fixed cabled + CAB1022(extension cable)	3510.661

3.5.3 Specifications

		Remarks
BBLight red (top)	1640mm	
BBLight red (left/right))	860mm	
BBLight red (bottom)	680mm (2x)	
BBLight yellow (top)	1580mm	
Power supply BBLight red	24VDC, 1.8A	
Power supply BBLight yellow	24VDC, 0.8A	
Device number	SCB119_1-5/3510.716 (BBLight red) SCB119_6/3510.717 (BBLight yellow)	

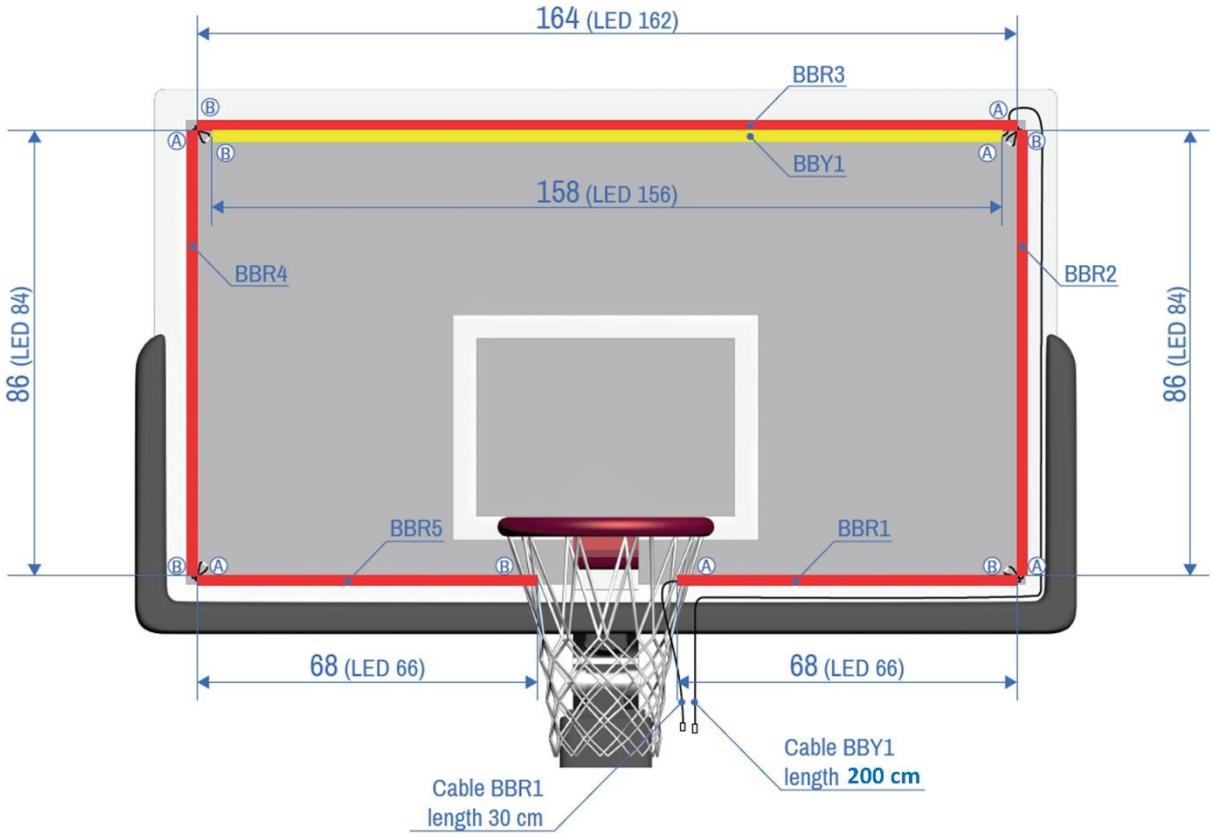

Figure 16 - BBlight dimensions

3.6 Team Faults Counter

The Team Faults Counter is a numeric display used to indicate the current amount of team fouls on each side.

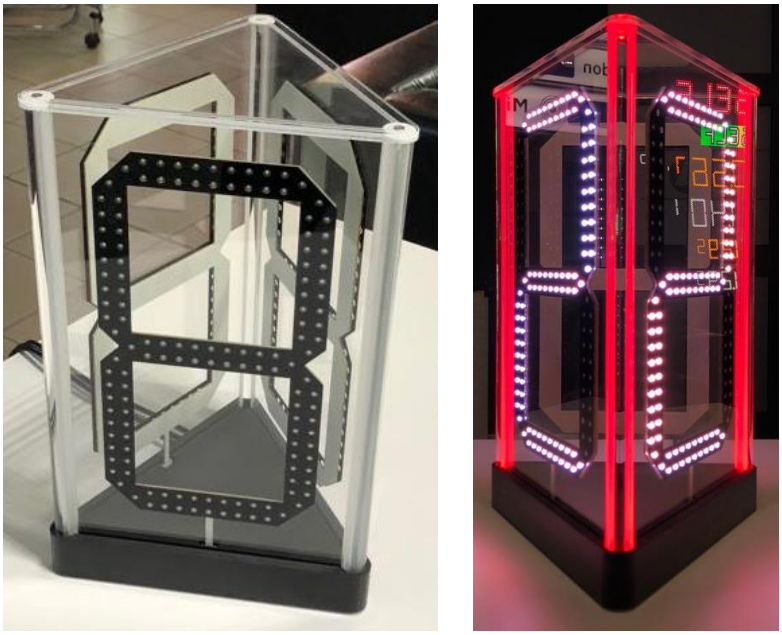

Figure 17 – Team faults specifications

3.6.1 Installation

The Team Faults Counter shall be placed on each side of the scorer table.

3.6.2 Connections

One Team Faults Counter receives its control data from the FSTT and the other through a daisy chain.

Connector name	Connector type	Connector description/target	Event article number	Sales article number
Data IN	Tuchel 7pin	RS422 data connection input from the FSTT	CAB147 (5m)	1871.005
Data OUT	Tuchel 7pin	RS422 data connection to the other team fault counter	CAB147 (5m)	1871.005
Power IN	Tuchel 3pin	Connection for the power supply	CAB280 (5m)	1874.005

3.6.3 Specifications

Dimensions	270x420x270mm (WxHxD)	
Weight	5.1kg	
Power supply	100-240VAC	
Device number	SCB128/3510.748	

3.7 Whistle Detection System (CEN055)

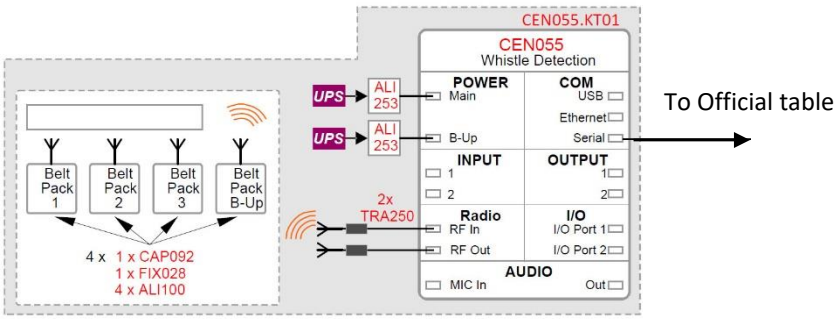

Figure 18 – Whistle Detection System

3.8 External Horn (SON098)

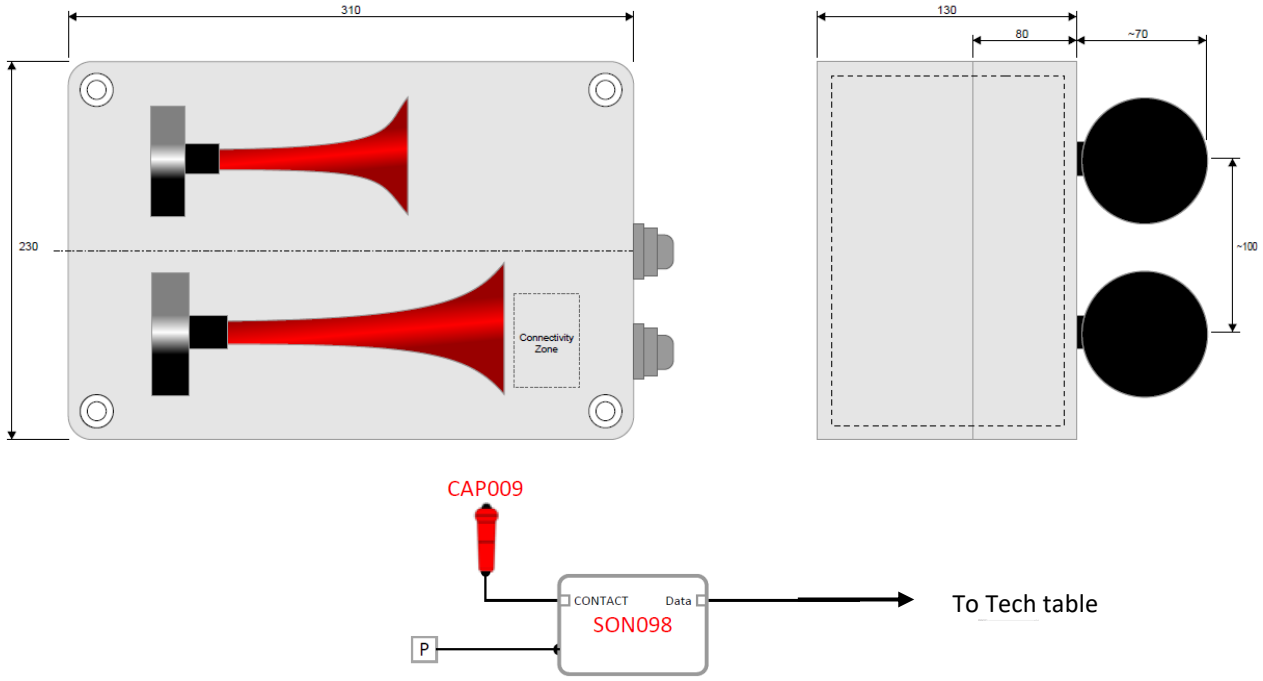

Figure 19 – SON098 wiring

3.9 Public Announcement Output (SON042)

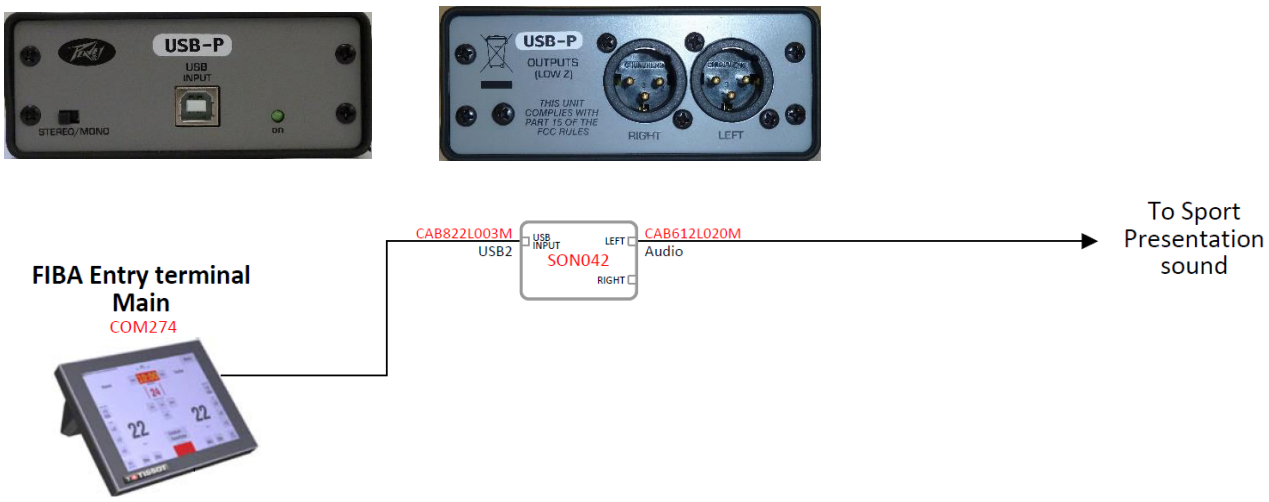

Figure 20 – SON042 wiring

3.10 Ball Possession Indicator

The Ball Possession Indicator is used to indicate which team (i.e. side) is currently in ball possession by means of LED-illuminated arrows.

Figure 21 – Ball Possession indicator (Event Version)

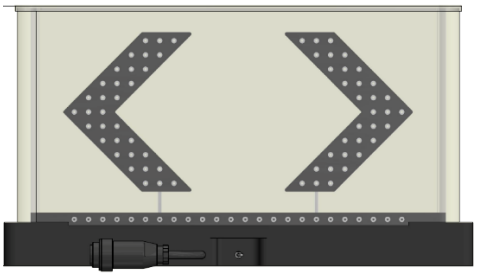

Figure 22 – Ball Possession indicator (Sales Version)

3.10.1 Installation

The Ball Possession Indicator shall be positioned on the Scorer Table. The actual possession indicator must face the field of play.

The Possession Indicator must only be connected to the FSTT using a single cable connection (including an extension cable).

3.10.2 Operation

There is a toggle switch on the back of the device (see picture below).
The middle position of the switch set the arrow illumination in automatic mode (drive by FSTT).
The left & right positions of the switch set the arrow illumination in manual mode (left or right arrow).

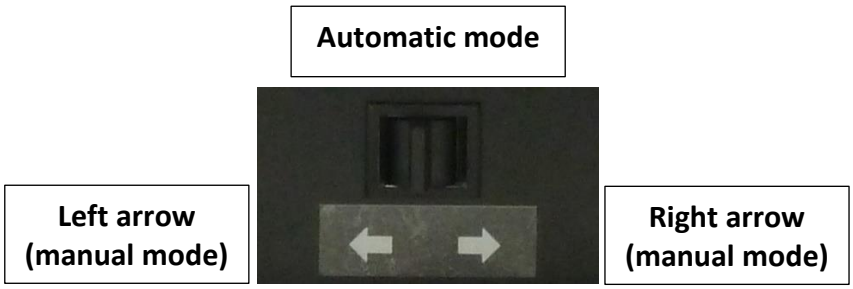

Figure 23 – Ball Possession toggle switch

3.10.3 Connections

Event Version

Connector name	Connector type	Connector description/target	Event article number	Sales article number
Power IN	DIN 4 pin, male	Power supply (15VDC)	ALI253	3418.720
Serial	Fischer 5 pin, female	RS422 data connection input from the FSTT	CAB1007 (5m)	1935.005.S1

Sales Version

Connector name	Connector type	Connector description/target	Event article number	Sales article number
Data IN	Tuchel 7pin	RS422 data connection input from the FSTT	CAB147 (5m)	1871.005
Power IN	Tuchel 3pin	Connection for the power supply	CAB280 (5m)	1874.005

3.10.4 Specifications

Dimensions	490x90x210mm (WxHxD)	
Weight	2.1kg	
Power supply	9-26VDC, 3.75A	
Device number	SCB123/3510.746 (Event version)	
	3510.764 (Sales version)	

4 TROUBLESHOOTING

Problem	Possible Cause	Solution
Shot Clocks		
Both Stanchion Shot Clocks won't illuminate after switching on power. The power-on self-test was not successful.	No mains voltage supplied.	Check and possibly change power outlet.
One Stanchion Shot Clock won't illuminate after switching on power. The power-on self-test was not successful.		1) Check the cable connection. 2) Connect the concerning Shot Clock connection cable to the second (working) Shot Clock connector. 3) Replace the possibly defective connection cable.
	The Shot Clock is defective.	1) Replace with the spare Shot Clock. 2) Check/replace the 10A fuse in the Shot Clock (via service technician only).
Backboard Lights		
Both BBLights (red and yellow) won't illuminate and the Buzzer won't work. However, the concerning cables on the Stanchion Box are properly connected.		1) Check the cable connection between FSTT and Stanchion Box. 2) Temporarily connect the plug of the concerning Stanchion Box on the FSTT to the socket of the second Stanchion Box or Floor Shot Clock (in order to see whether it is a cable or FSTT/connector problem).
Both BBLights (red and yellow) won't illuminate and the Buzzer won't work. However, the concerning cables on the Stanchion Box are properly connected. Only one BBLight (red or yellow) won't illuminate.	The concerning connection cable could be defective.	1) Check the cable connection between the concerning BBLight and the Stanchion Box. 2) Temporarily plug the connector of the concerning BBLight into the socket of the working BBLight (i.e. swap BBLight connections on the Stanchion Box), to check the

		functioning of the concerning power supply). 3) Replace the connection cable for the concerning BBLight with the one from the spare stanchion.
		1) Replace the concerning Stanchion Box with the spare Stanchion Box.
Only one BBLight (red or yellow) won't illuminate.		

5 APPENDIX

5.1 Index of Figures

5.2 Version history

Version	Modifications since last version
1.0	Initial Version
1.1	Second Version
1.2	Third Version

NOTES

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