Forward Referee

Forward Referee

The Workplace
of the Video Goal Judge
system's operator

*Revision as of
April 01, 2021*

User's Guide

FCC Information

FCC ID:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.
Increase the separation between the equipment and receiver.
Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
Consult the dealer or an experienced radio/TV technician for help.

Shielded cables and I/O cards must be used for this equipment to comply with the relevant FCC regulations. Changes or modifications not expressly approved in writing by SoftLab-NSK, Ltd. may void the user's authority to operate this equipment.

Limited Warranty

Our company warrants this product against defects in materials and workmanship for a period of one year from the date of purchase. During the warranty period, products determined by us to be defective in form or function will be repaired or replaced at our option, at no charge. This warranty does not apply if the product has been damaged by accident, abuse, misuse, or as a result of service or modification other than by us.

This warranty is in lieu of any other warranty expressed or implied. In no event shall we be held liable for incidental or consequential damages, such as lost revenue or lost business opportunities arising from the purchase of this product.
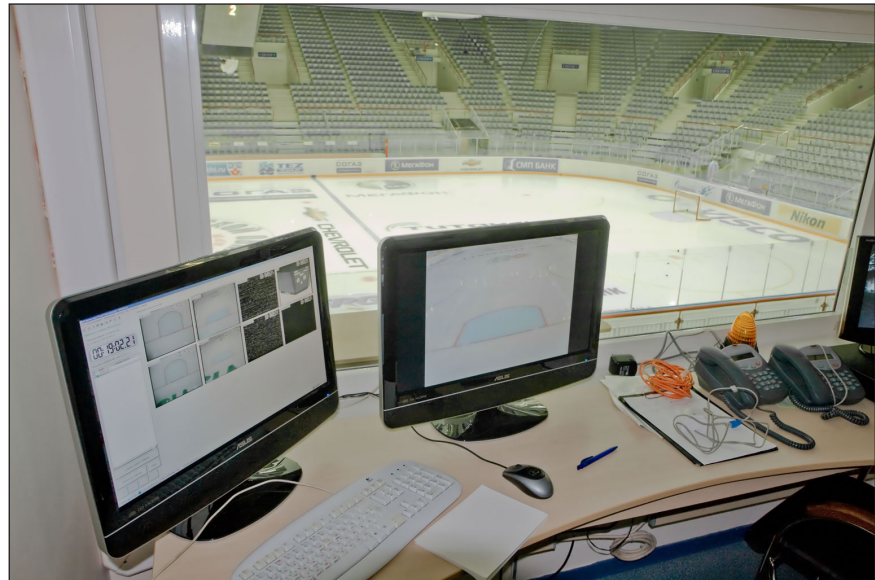
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Introduction

The Forward Referee system is a software-hardware system used in refereeing sports competitions by a video referee.

The system is designed for video recording and prompt viewing of disputed moments of the game.

This guide contains brief instructions for working with the Forward Referee system: pre-game setup, recording and replaying moments during the game, saving the game to the archive.
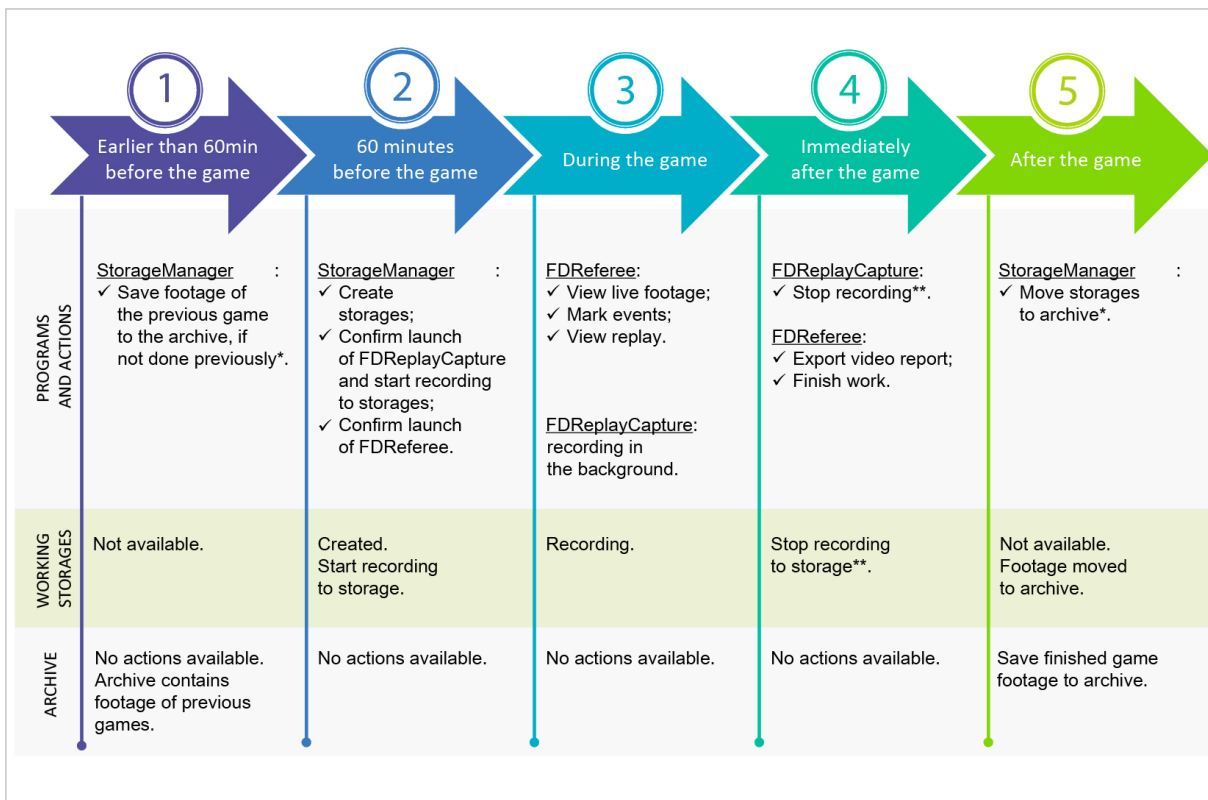
The program's full description and the instructions for the system operator can be found in the «FDReferee. Workplace For «Video Goal Judge» system's operator'» manual (on the «SoftLab-NSK» website).

Workflow

1. General procedure

The diagram below shows the recommended procedure for working with the Forward Referee system: the sequence in which programs should be used and the main actions to be performed at each step.

	1 — Earlier than 60min before the game	2 — 60 minutes before the game	3 — During the game	4 — Immediately after the game	5 — After the game
PROGRAMS AND ACTIONS	StorageManager : ✓ Save footage of the previous game to the archive, if not done previously*.	StorageManager : ✓ Create storages; ✓ Confirm launch of FDReplayCapture and start recording to storages; ✓ Confirm launch of FDReferee.	FDReferee: ✓ View live footage; ✓ Mark events; ✓ View replay. FDReplayCapture: recording in the background.	FDReplayCapture: ✓ Stop recording**. FDReferee: ✓ Export video report; ✓ Finish work.	StorageManager : ✓ Move storages to archive*.
WORKING STORAGES	Not available.	Created. Start recording to storage.	Recording.	Stop recording to storage**.	Not available. Footage moved to archive.
ARCHIVE	No actions available. Archive contains footage of previous games.	No actions available.	No actions available.	No actions available.	Save finished game footage to archive.

Note: * – we strongly recommend saving the game footage to the archive immediately after the game is over (step 5 on the diagram). If the footage is saved at a later time, while preparing for a new game, for example, it may be difficult to identify the video data in storage, and in the worst case, the footage may be lost altogether.
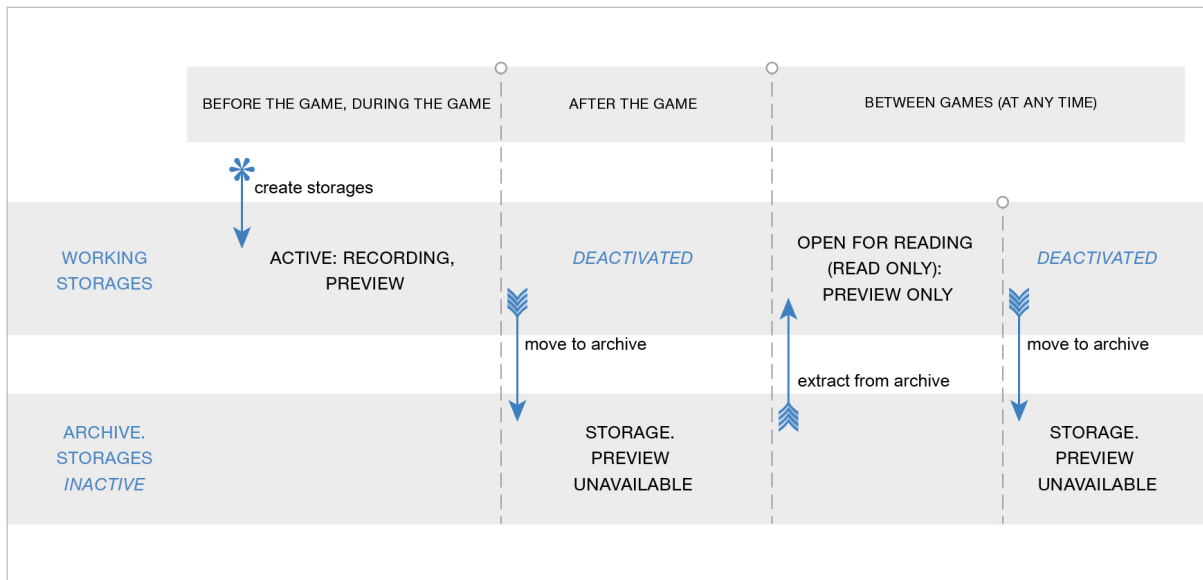
** – we strongly recommend that you manually stop the recording of footage to storages immediately after the match ends: click the Stop button in the FDReplayCapture program. You can continue to work in the FDReferee program afterwards – view events, export video files for a report, etc. But stopping the recording manually means that unnecessary data will not be recorded to storage, which prevents it from taking up disk space and increasing the size of the archive.

2. Working storages and archive

Particular attention should be given to the actions performed when working with storages and the video archive.

If everything is performed correctly, the working storages are active only for a limited period of time: from their moment of creation, shortly before the game, to the moment of archiving the recording immediately after the game. After the video footage is transferred to the archive, the working storages are deactivated.

	BEFORE THE GAME, DURING THE GAME	AFTER THE GAME	BETWEEN GAMES (AT ANY TIME)	
	create storages		OPEN FOR READING (READ ONLY): PREVIEW ONLY	
WORKING STORAGES	ACTIVE: RECORDING, PREVIEW	*DEACTIVATED*		*DEACTIVATED*
		move to archive	*extract from archive*	*move to archive*
ARCHIVE. STORAGES *INACTIVE*		STORAGE. PREVIEW UNAVAILABLE		STORAGE. PREVIEW UNAVAILABLE

In addition, the working storages can be opened between games, when it is required to review the footage of past games. In this case, the game footage is extracted from the archive – the working storages are opened and can be viewed in FDReferee. After the review is complete, the footage must again be transferred to the archive.
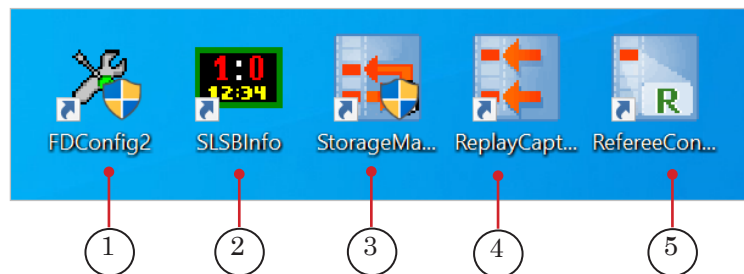
There are no working storages at any other time.

Pre-game setup

1. Programs used by the system operator

1. Turn on the computer.

2. The desktop contains shortcuts for launching Forward Referee programs.

3. The order in which to start the programs and their purpose:

✔

Important: The standard operating procedure requires the operator to manually start only the SLSBInfo and StorageManager programs. The FDReplayCapture and FDReferee programs are launched automatically.

The FDConfig2 program is generally opened only during system configuration, i.e. when settings for input signal formats need to be changed or signals need to be checked.

- FDConfig2 (1) – signal format configuration of the board inputs and outputs, managing input signals and their formats;
- SLSBInfo (2) – managing the receival of the game data from the refereeing system by the Video Goal system;
- StorageManager (3) – managing storages with game footage: creating storages for recording a new game and transferring the recorded footage to the archive after the game.

Under standard procedure the FDReplayCapture and FDReferee programs should be launched automatically

after creating storages in the StorageManager in order to capture and replay game events.

- FDReplayCapture (4) – start and stop recording to storage. Standard procedure starts the recording automatically;
- FDReferee (5) – provides the main tools of the operator during and after the game:
  - viewing live footage from cameras as well as recorded footage;
  - marking important/controversial moments of the game – events;
  - showing the judge video replays of the required footage;
  - export of controversial moments to files – creation of a video report at the end of the game.

2. Managing interactions with the judging system

Information about the status of the Video Goal system receiving data from the judging system (scoreboard) is displayed in the SLSBInfo program window. To start the program, click on the desktop shortcut:
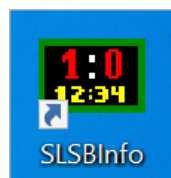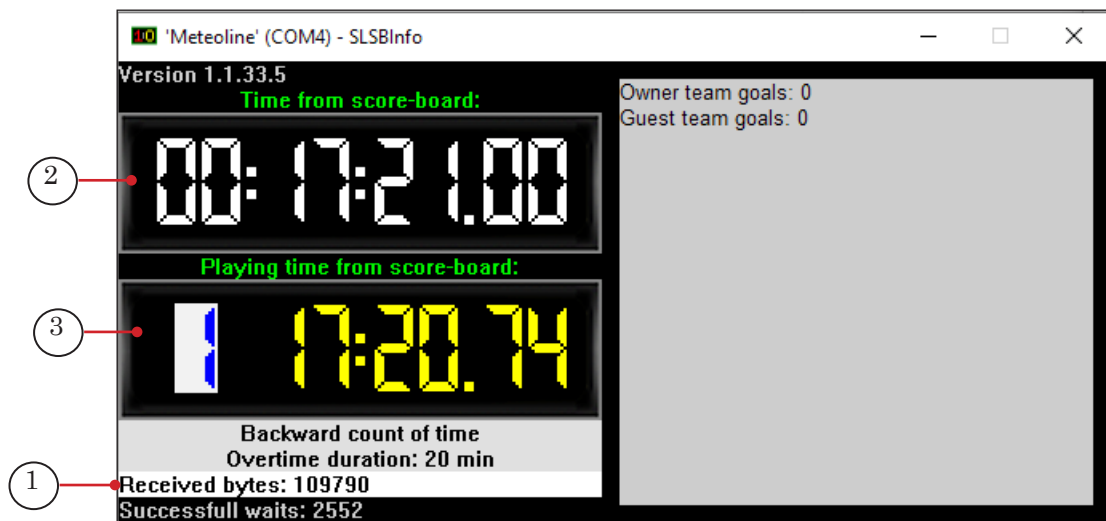

If the data from the scoreboard is not being received, the window will look like the image below. In this case, check that the scoreboard is turned on and properly connected to the system.
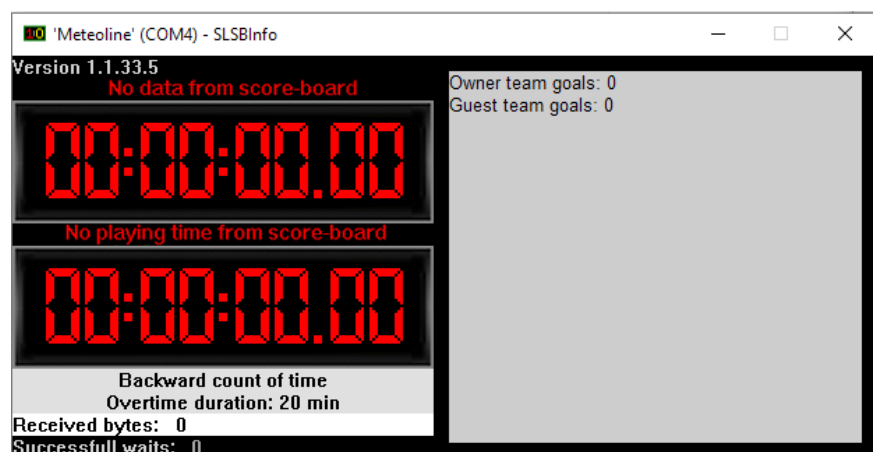
If the data from the scoreboard is being received, a non-zero value is displayed in the Received bytes field (1), which will increase with time.

In the Time from score-board field (2) the time from the judging system (countdown, game time, etc.) is displayed when the countdown is started.

In the Playing time from score-board field (3), only the scorebord game time is displayed. It is also displayed in the FDReferee window.

We recommend that you enable the option Always on top in the system menu of the SLSBInfo program window. Before the start of the game, periodically check that data is being received from the referee console.
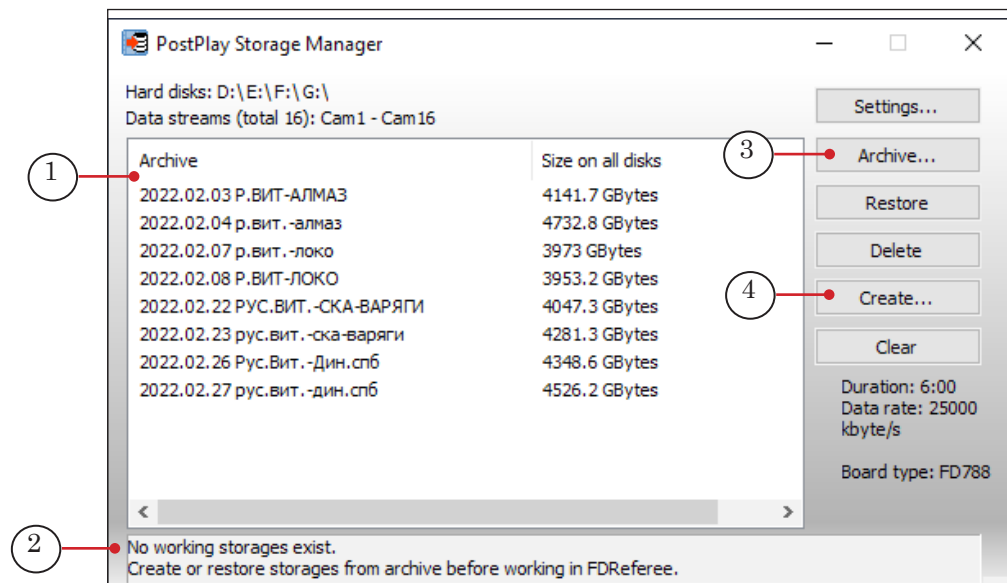
3. Preparing storages

Launch the StorageManager program by clicking on the desktop shortcut:

The program window displays a list of game archives (1) and information about the availability of working storages (2).

Note:

Storages are files to which footage from all cameras is recorded. Working storage are storages that are currently active and can into which footage can be recorded and in which it can be viewed. Normally there will be no Working storages active before a game. An Archive contains the archived footage from storages. Footage is transferred to the archive immediately after the game.

1. If there are non-empty working storages left from the previous game, move the video recordings from them to the archive: click the Archive button (3).

    We recommend that, when naming archives, additional information is added to the name other than the recording date, such as the team names, for example.

2. If the information field (2) displays No working storages, create working storage for the footage of the upcoming game shortly before the start of the 60-minute countdown.

✔

Important: We strongly recommend that you create storages for your upcoming game just before the 60-minute countdown or at the beginning of the countdown.

Note: If the recording is started long before the game starts, additional, non-game data will be recorded to storage. If FDReferee is launched long before the game, all information on any actions on the referee's

console will be recorded, including those performed during the console check.

To create storages and start recording to them, complete the following:

1. Click Create (4). The Storages Creation window will open.

2. In the newly opened window, the Duration field (5) will have a default storage capacity of 6 hours. Set enough time (hours:minutes) for the game to be recorded to the storages. We recommend a value of no less than 3 hours.

Note: The storage capacity must be set so that it would completely record the entire event: a hockey match, for example.
The actual duration of the recorded footage tends to be shorter than the specified capacity, with a storage margin. When transferring game footage to an archive, all unused storage space is freed up. If the storages are created with a capacity of 6 hours, and only 2 hours are recorded in them, only the recorded 2 hours will be saved to the archive, the rest of the space will be freed.

3. By default, the Data rate field (6) is set to 15000 kb/s. For HD systems the recommended value is 15000, for 1080p50 – 25000.
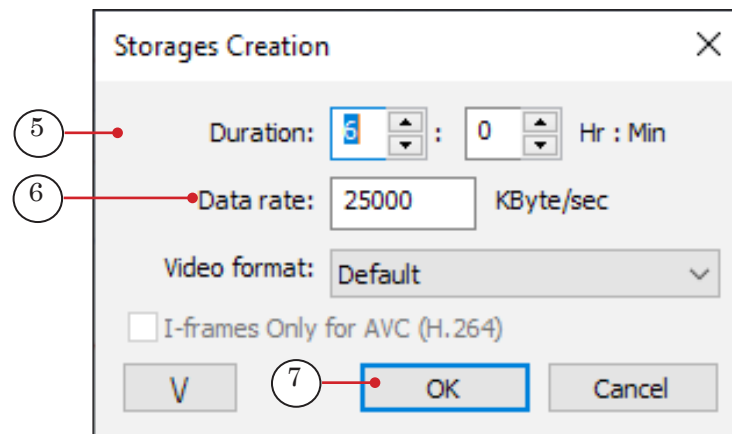
4. Click OK (7). The window will close.

   The storages will be created, named: Cam1, Cam2, Cam3, ..., CamN (where N is the number of cameras).

5. When the storages have all been created, a window will pop up, notifying the user that the storages have been created, and request starting to record to the storages (8).
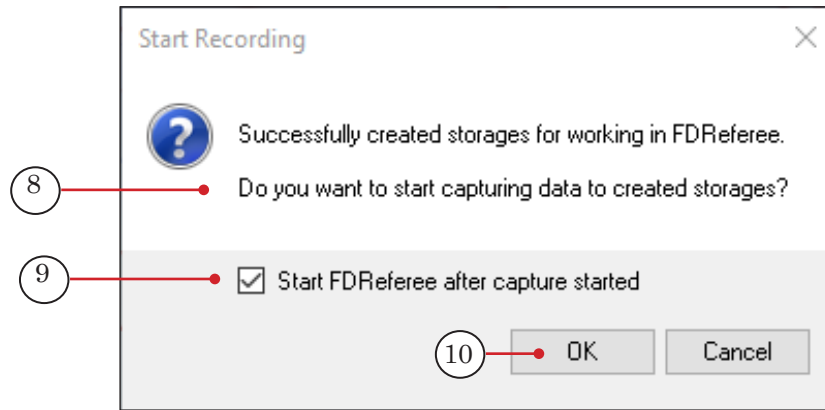
Make sure that the Start FDReferee after capture started checkbox (9) is checked in the query window.

Click OK (10).

6. As a result of the performed actions:

1. The FDReplayCapture multichannel recording program will be launched. The program window will be automatically minimized. The recording will not stop, the program will not be closed. The program icon (11) will appear in the Windows taskbar notification area.

2. The FDReferee program will be launched. The main program window will open.
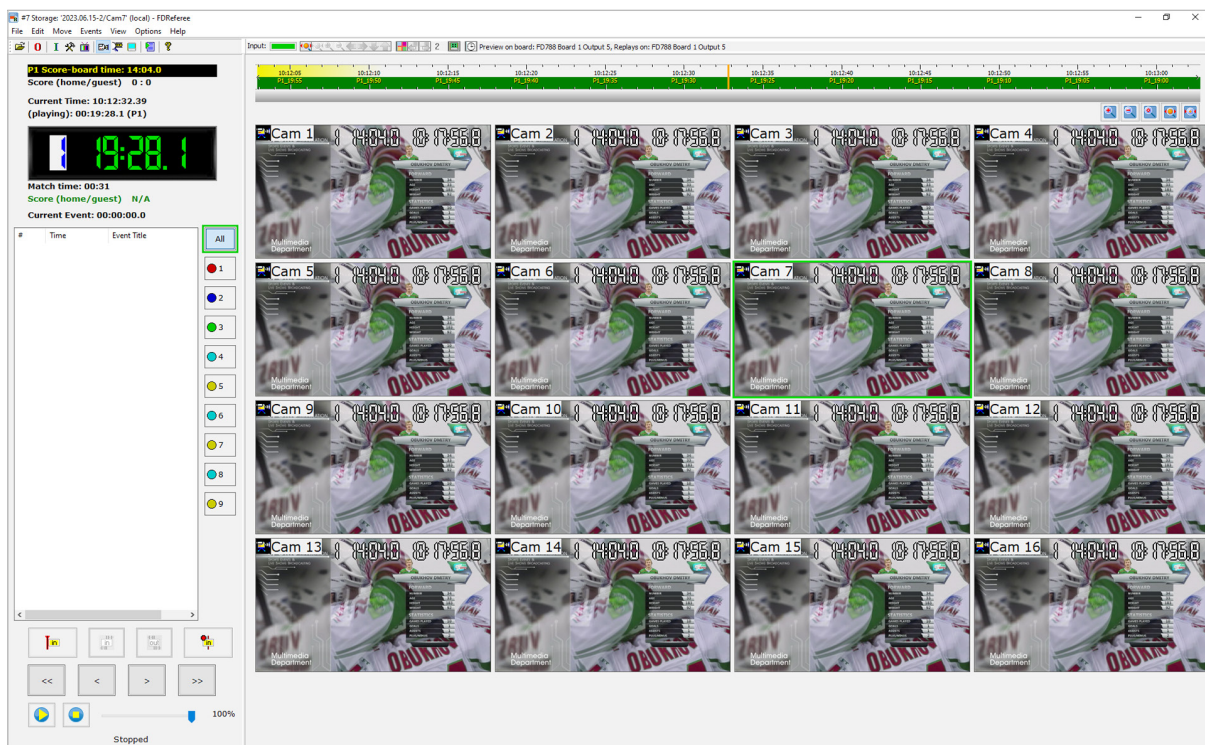
During the game

In the FDReferee program

1. When the game time countdown starts, it will appear in the window of the FDReferee program, and the event mark Start of period 1 will be automatically created.

2. The preview windows (1) – one for each connected camera – are located in the main program window. Depending on the selected mode, they display:

   - current camera footage;
   - selected footage from the archive.
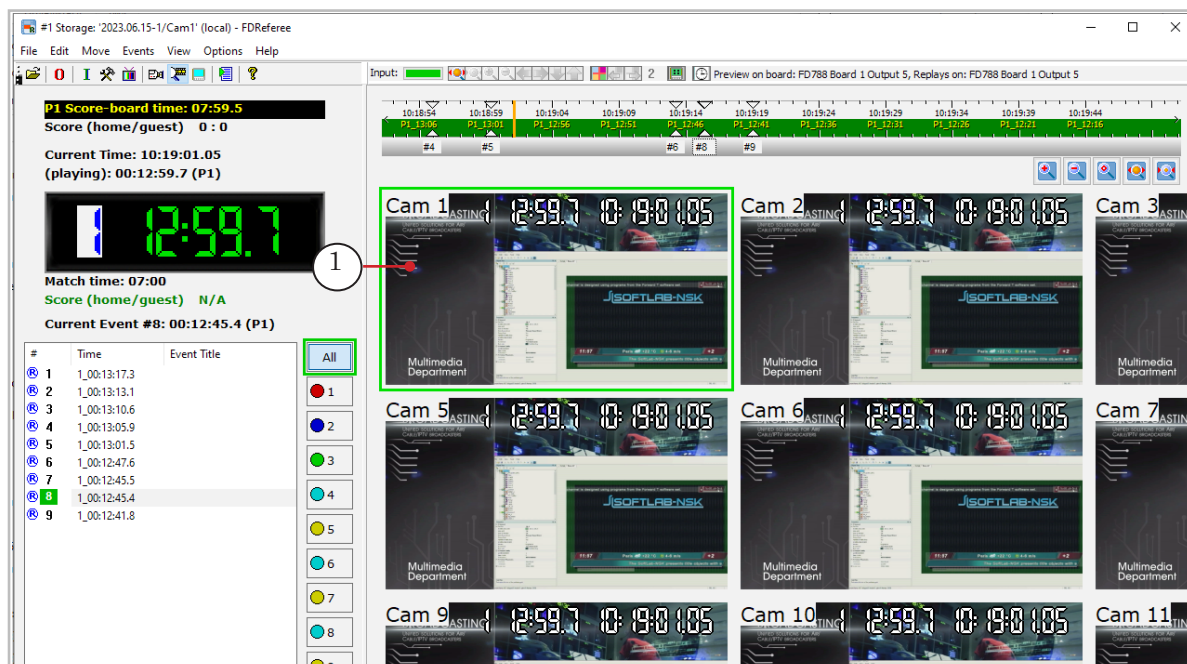
3. We recommend that you enable viewing of live video from camera inputs in the viewing windows at the beginning of the game. Use the Tab key on your keyboard or the Live/Rec button on the Jog/Shuttle to switch between Live View and Record View.
The View menu commands (1) and the buttons on the toolbar can also be used to switch viewing modes:

   - (2) – Switch to viewing input video (Ctrl+I);

- (3) – Switch to storage footage (Ctrl+T).
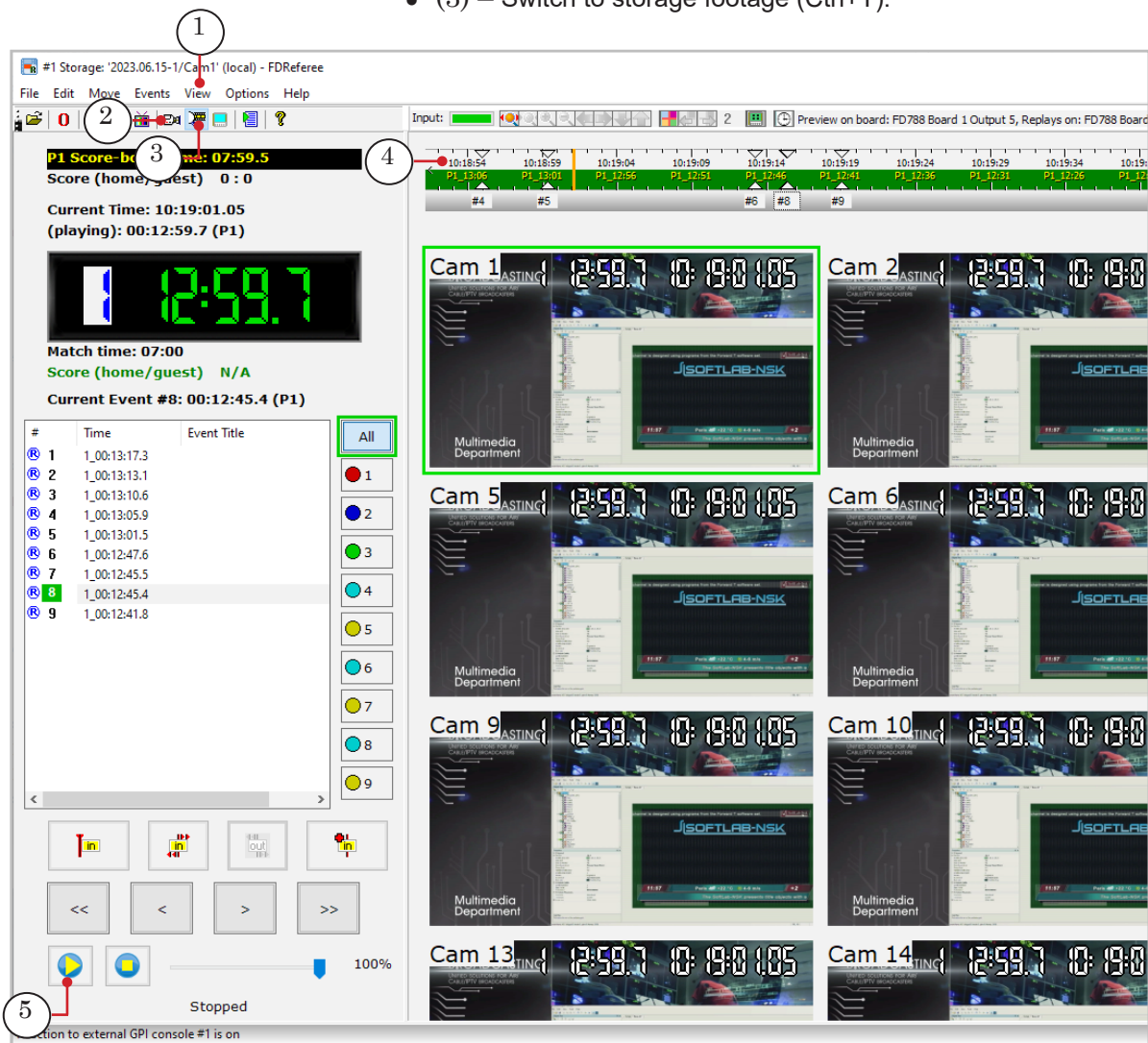
4. When a controversial or important event occurs (for example, a goal), mark the event. To do so, press the Space key on the keyboard or the MarkIn button on the controller.

5. To view a disputed event at the request of the replay judge:

    1. Switch to the required camera with the button on the remote control or by clicking on the viewport for this camera.

    2. To navigate through the recording, use either the ring and jog/shuttle wheel, or click on the timeline (4) with the mouse cursor. You can also hold down the left mouse button and move the mouse left/right.

    3. To view the moment in slow-motion, start playback by pressing the Play button (5) in the FDReferee program window or on the remote control. During playback, you can change the playback speed using the ring around the wheel on the controller.

After the game

1. Stopping the game recording

Immediately after the end of the game, stop recording to storages (this way unnecessary data will not be recorded to the storages, which will take up disk space and increase the size of the archive, but you can continue working in the FDReferee program – view events, export video files for reporting and etc.):

1. In the Windows taskbar, click the FDReplayCapture program icon (1).
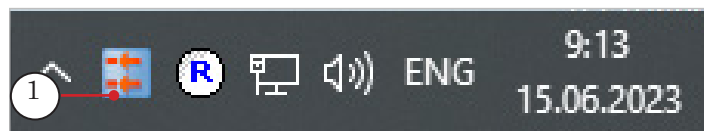
2. In the program window that opens, click Stop (2).
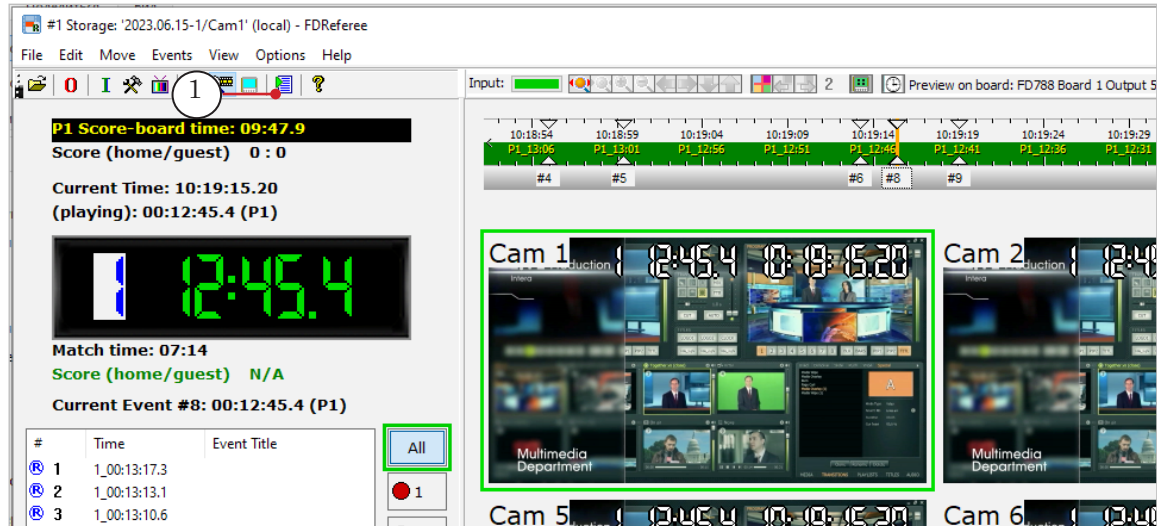

3. Click the Exit button (3). The program window will close.

2. Saving events to video files

In the FDReferee program window:

Save controversial moments to video files, if required. To do this, open the Playlist window (Ctrl+P or the toolbar button (1)).
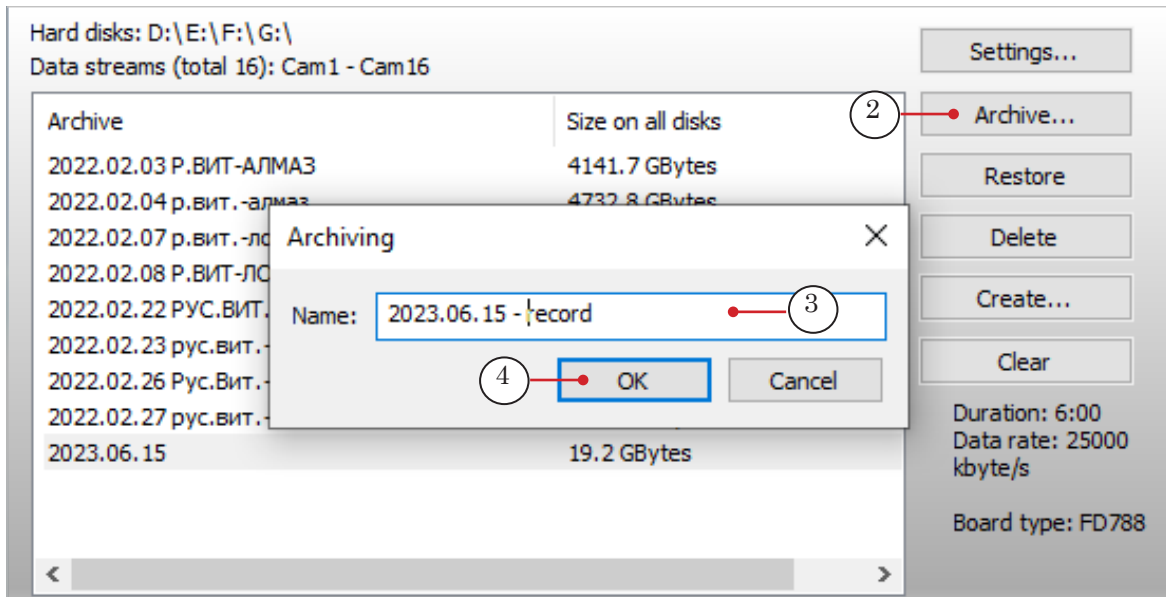

3. Closing FDReferee and recording storages to archive

1. Close the FDReferee program by closing its window.

2. A window will automatically appear with a notification and a request to save the active storages to the archive. Click Yes (1).
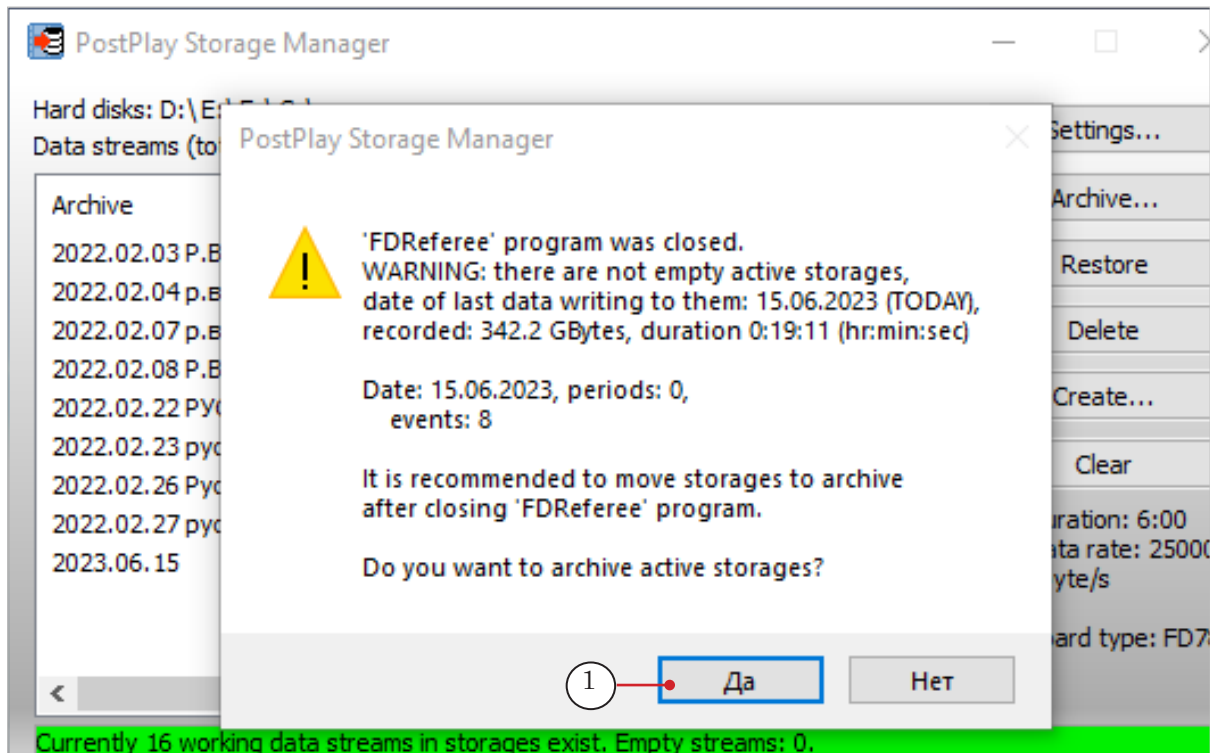
Note: If it is necessary to archive storages manually, go to the StorageManager window and click Archive (2).


3. The archive name (3) will be automatically filled with the date of recording. We recommend adding additional information to the date to make it easier to identify the entry later: the names of the competing teams, as an example (for example, add "Sochi – CSKA" after the date). Having specified the name of the archive, click OK (4).

4. Wait for the archiving to finish. Read the information in the notification window that opens.
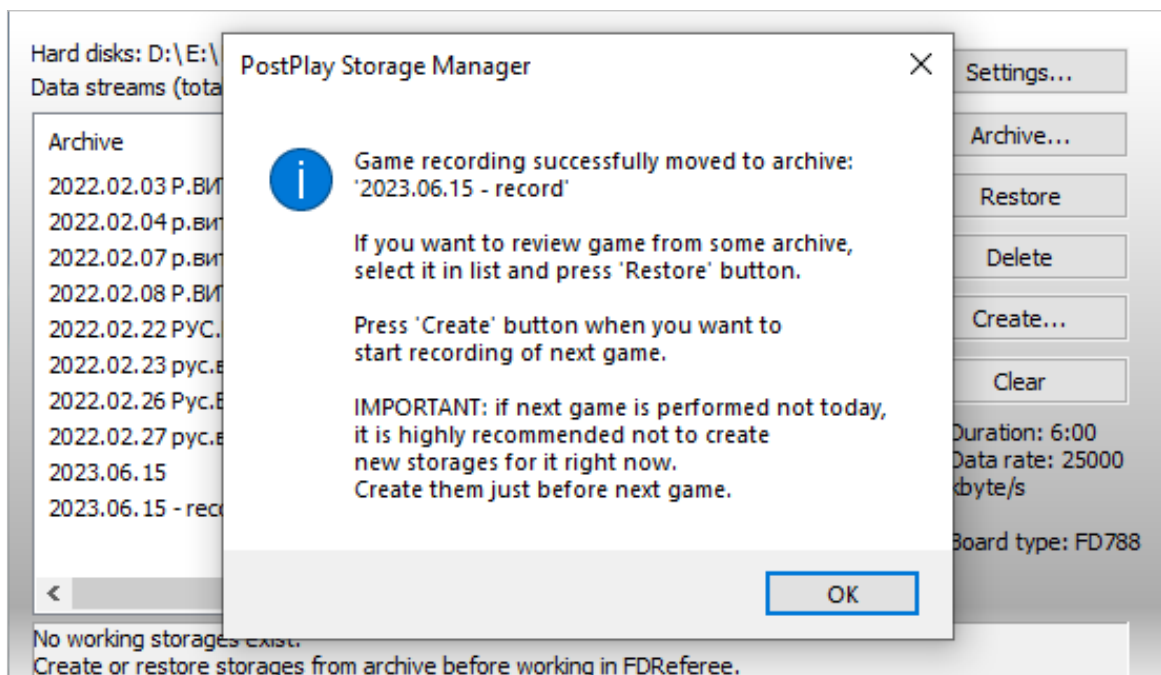
5. After the archiving is complete, make sure that the information field displays (5) No working storages.
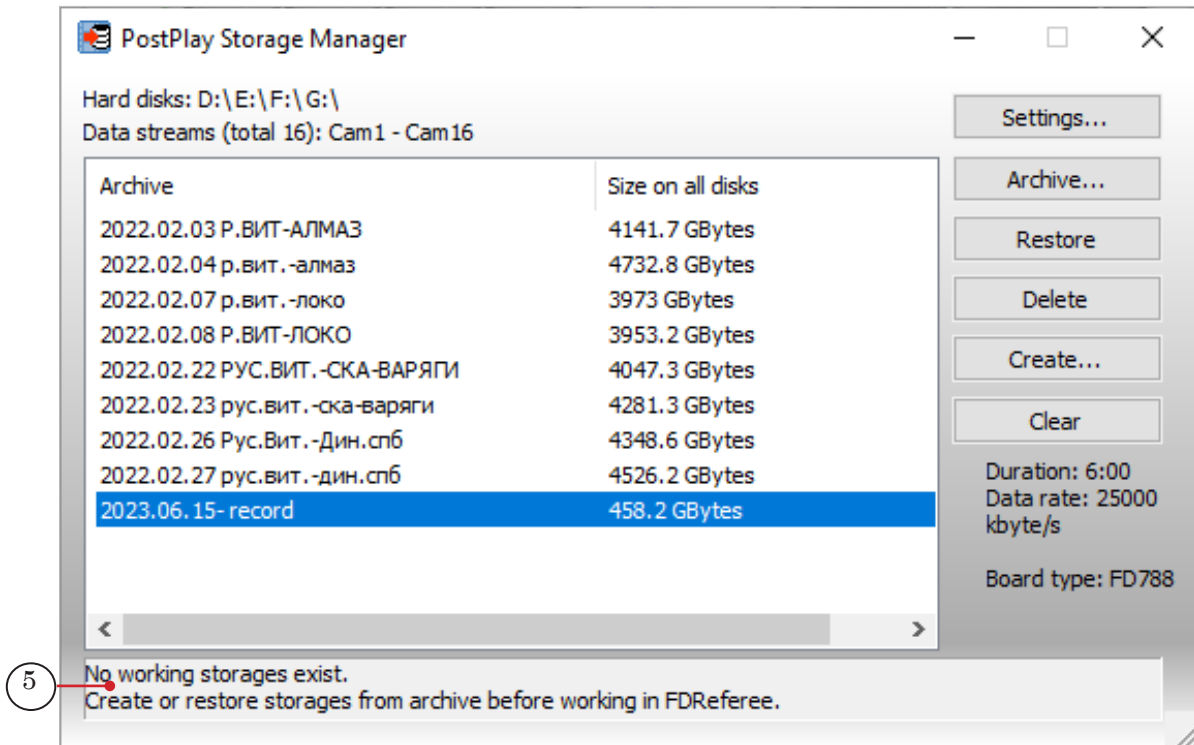
6. Close the StorageManager program window.

4. Turning off the computer

From the system Start menu, click Shut down. Make sure the computer is turned off.

X-keys XK68 controller. Button assignment

1	Select camera: 1–16, respectively.	21–24	Frame by frame: Several frames back; One frame back; One frame forward; Several frames forward.
2	Switch preview: from live video to archive footage and vice versa.	25	Move 1–9 seconds back from the current event.
3–5	Playback control: Start; Pause; Stop.		
6	Start slow motion: 50% of real-time speed.	26	Move to 0 seconds: Move to the start of the current event.
7	Start real time playback: 100%.		
8	Turn multi-channel preview on/off.	27	Scroll wheel and scroll ring.
9, 10	Select multi-channel preview format: previous; next.	28	Move to the end of the current event.
		29	Create a new event in the current position.
11, 12	Move to "Stop Game Time" position: previous, next.	30	Turn "Camera Zoom" on/off (image zoom).
13, 14	Move to "Stop Game Time"/"Start Game Time" position: previous, next.	31–33	Change zoom settings: Default; Zoom in; Zoom Out.
15–17	Mark the event with the selected tag: Goal; Dangerous Moment; Rule-break.	34–37	Move the zoom in window: left; right; up; down.
18, 19	Move to event: previous event; next event.	38	Edit the event start.
20	Mark the event with the selected tag: Other 1–Other 6.	39	Mark event.
		40	Mark event end.
		41	Edit the event end.

Notes: 1. The table shows the default assignments of the console buttons to the commands of the "Video Goal" system. If required, the assignment of any console button can be changed by assigning them to a different command.
2. While slow-motion playback is on the speed can be smoothly changed using the ring around the scroll wheel (27). If the speed is set to 0 during playback (by pressing the Pause button, for example) you can use the wheel to scroll through the video frame by frame.

Useful Links

Description, Software Delivery, Documentation, Ready Solutions

http://softlab.tv/rus/

Tech Support

e-mail: forward@softlab.tv

       forward@sl.iae.nsk.su

       forward@softlab-nsk.com

Forums

http://www.softlab-nsk.com/forum (currently available in Russian only)

Documentation for more information:

«FDReferee. Workplace For «Video Goal Judge» system's operator»