NAUTRONIC

GRAPHIC

SCOREBOARD

User manual

RESUME

This manual will describe how to get started with Nautronic Graphic scoreboard

# Nautronic Graphic Scoreboard manual

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1. Settings for the Nautronic graphic scoreboard

Before we can begin designing our video screen, we need to setup a few key elements that defines your led video screen. If you are using a predefined template you need to check that the setting described below correspond to your actual setup.

Under file, choose new which will open the screen settings window. Locate the full screen menu and update width and height in pixels of the video screen. (Eg. 1280x768)
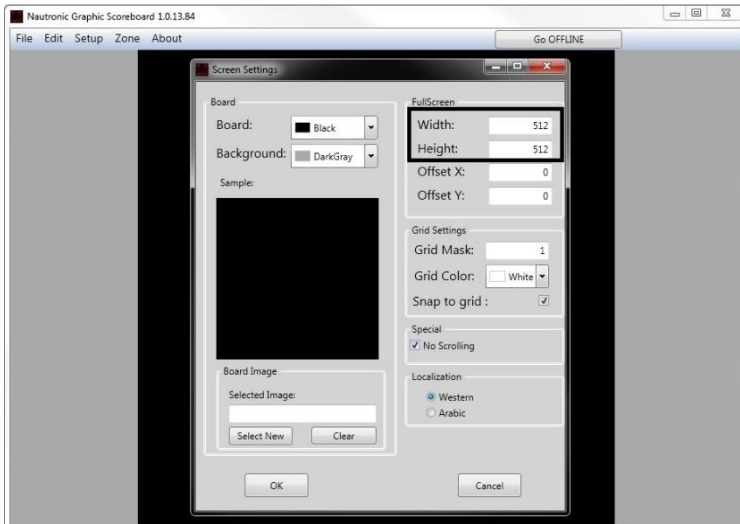
Please check the video screen pixel size on your order confirmation.

With the pixel size defined, we need to choose where on the PC monitor we want the active screen to be shown. When the screen is active it will be shown on the LED video screen but also on the pc screen so we need to allocate an area on the PC screen for this. The active screen will be an overlay on the desktop, so it is recommended that an area on the PC screen will be dedicated for this, meaning that icons should be moved to another part of the desktop.

With the screen settings window open, locate the Offset X and Y where we can define on the PC screen, where the active screen will be located. As default the window will be shown in the top left corner (0,0) but this can easily be changed. If your screen resolution is for example 1920 X 1080 (see the windows configuration) you can set the active screen within this.

Note: If you have a 2nd screen connected to the PC you can choose to place the active screen on this monitor by setting the X offset greater than 1920 pixels.

With this defined we can now start defining the layout of the video screen.

Note: If you are using a predefined template, you can skip the next section and go to the NAUCON-1000 control section.
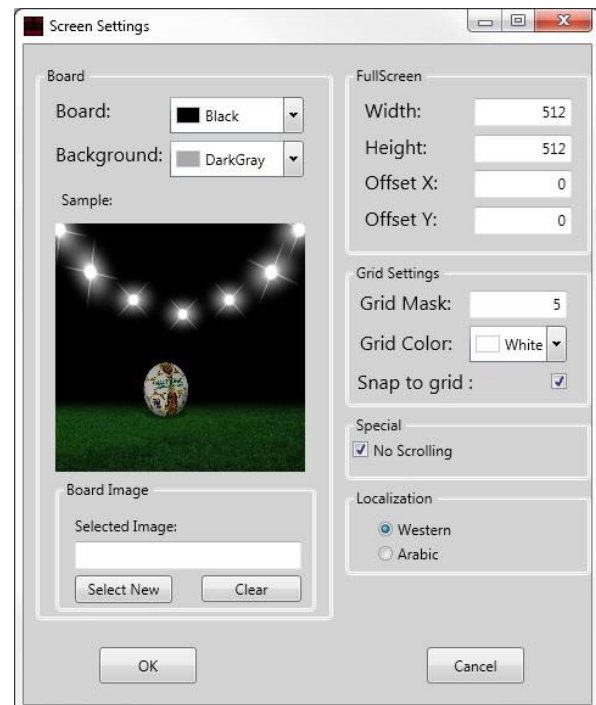
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2. Designing your video screen layout

2.1.   Background info

Before placing any objects on the screen it is important to know that every object must be assigned to an address, otherwise they will not be visible on the active screen. Whenever the NAUCON-1000 is being used it will send a control event with an address telling the objects on the board what to do. So, if you press home score goal button on the NAUCON-1000 it will send out the event to the board telling it to change from 0 to 1. A full overview of the addresses can be found in the Appendix A

2.2.   Addresses

When assigning addresses to digits it is possible to assign for 1's, 10th and 100'ers but if the number is limited to two digits it is only necessary to assign one address and then adjust the digit to 2 characters. For example if you are designing for a soccer match where the score does not get over 100, it is possible to add one digit to the screen and assign address 0. If the character is adjusted to two, the score can now go as far as 99 points. If a score can go over 100 we need to add an extra digit on the left side and give it address 2.We will go in details with all the objects inserted in the following setup. For a full overview of the addresses, see Appendix A.

2.3.   NAUCON-1000 control panel

When pressing a key on the NAUCON-1000 control panel, which has an impact on the game, an event will be send, containing an address so a normal scoreboard will know which digit or text line has to be changed. When used together with Nautronic Graphic scoreboard® we have to consider our setup so the right events will be received. In the service menu on the NAUCON-1000 it is possible to set combined team text displays to ON or OFF. When set to ON, the team name for home and guest team will be included in the same line. This means that when designing the graphic scoreboard only one-text line and one address needs to be assigned. If separate text line is used the alignment of the guest team text must be considered.

If text line is used it is possible to decide the text flow direction if it should run from left to right or right to left. This setting is located in the general setup menu.

The NAUCON-1000 is working with zones in order to avoid collisions with other controllers. In this program, we need to set the zone according to the setup of the NAUCON-1000. This is done by selection the correct zone under the zone menu. Please refer to the NAUCON-1000 manual for more information about setup of zones.

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2.4.   Universal settings

When inserting an object on the screen the object has some properties such as address, digit size, characters, and more that can be customized. It can be accessed by double-clicking on the object where a new window will open and depending on the object the properties menu can differ.
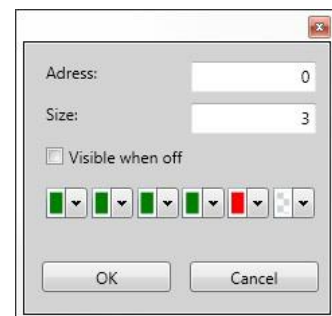
2.4.1. Text line and text digits

- PosX and PosY tells the location on the board. It can be used to align objects against each other.
- Addresses: See section on top of this page.
- Digit Size is used to make text or digits larger or smaller on the board.
- The font of the text or digit can be changed by choosing an available font from the PC.
- Color can be changed for an object and can be changed to any desired standard color. If needed, an advanced menu is available for more customized colors.
- Width is used to set the length of the text line. When using combined team text display the width will normally be the same as the board width.
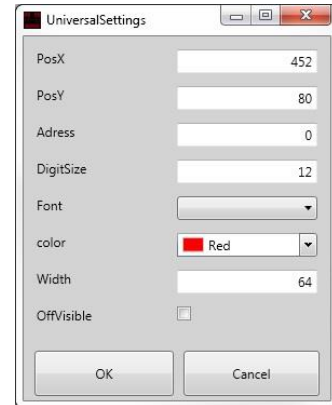
2.4.2. Dot stripe

- Addresses: See section 2.2 on page 3.
- Size is used to make dot stripe larger or smaller on the board
- Visible when off makes the dot stripe visible at all time. If the address is not used the dots will be semitransparent.
- It is possible to set the color of each dot in the stripe. Press the drop down list for each dot to set the color.

2.4.3. Possession arrow

- Addresses: See section 2.2 on page 3.
- Digit Size is used to make text or digits larger or smaller on the board.
- Color can be changed for an object and can be changed to any desired standard color. If needed, an advanced menu is available for more customized colors.
- Visible when off makes the possession arrow visible even if the connection to the NAUCON-1000 is disconnected.
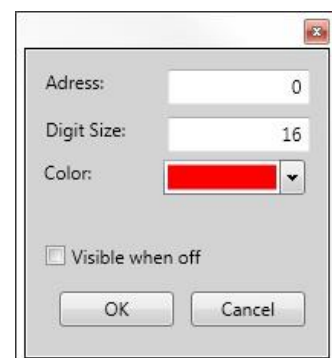
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2.4.4. 7-segment and colon

- PosX and PosY tells the location on the board. It can be used to align objects against each other.
- Addresses: See section 2.2 on page 3
- Off visible makes the 7-segment or colon visible even if the connection to the NAUCON-1000 is disconnected.
- Digit Size is used to make text or digits larger or smaller on the board.
- Color can be changed for an object and can be changed to any desired standard color. If needed, an advanced menu is available for more customized colors.

2.4.5. Picture

- PosX and PosY tells the location on the board. It can be used to align objects against each other.
- Locate image opens a file browser window to find the picture.
- Color can be changed for an object and can be changed to any desired standard color. If needed, an advanced menu is available for more customized colors.
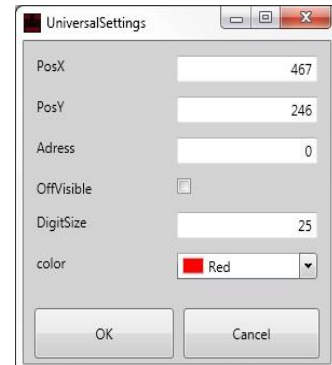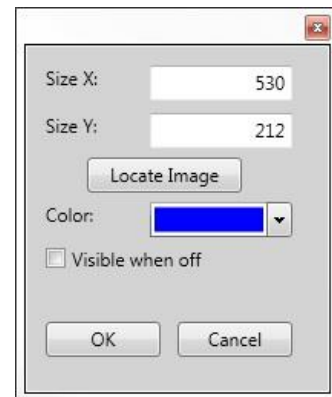- Visible when off makes the picture visible even if the connection to the NAUCON-1000 is disconnected.

2.4.6. Dot

- Addresses: See section 2.2 on page 3.
- Digit Size is used to make text or digits larger or smaller on the board.
- See 8Appendix A for information about connect bit.
- Color can be changed for an object and can be changed to any desired standard color. If needed, an advanced menu is available for more customized colors.
- Visible when off makes the picture visible even if the connection to the NAUCON-1000 is disconnected.
- Special text gives the possibility to insert characters instead of a dot.

- The font of the text or digit can be changed by choosing an available font from the PC.
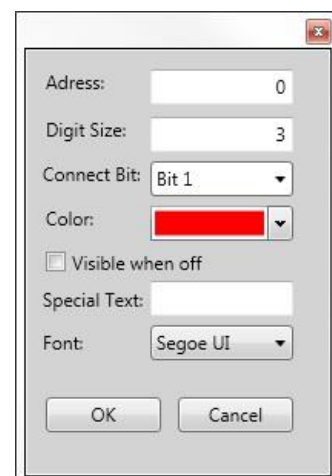
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2.4.7. Horn

- Addresses: See section 2.2 on page 3.
- The test button will play the selected file.
- The … button opens a file browser window to find the sound.
- Limit duration tells if the sound should play full length or if selected play a predefined time.
- If Duration is set to, 0 and limit duration is set the sound will play at the time specified in the NAUCON-1000. If Duration is set to higher than 0 and limit duration is set the sound will play in in the number of seconds specified.
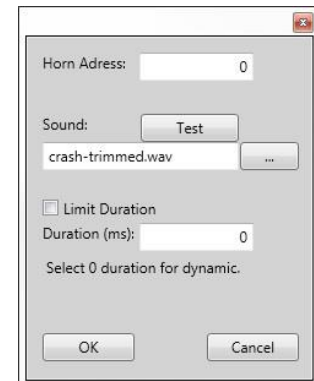
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3. Objects and layout

By default, the design window will have a black background and the sides will be dark gray but can at all times be changed to a desired color.

Before we can design anything we need to go into edit mode by going to the edit menu and choose edit mode.
When the edit mode is enabled, it is possible to add objects to the screen as well as edit the properties for each object.

To add an object to the screen press one of the icons under the menu line. Each object represents different kind of text or digits.
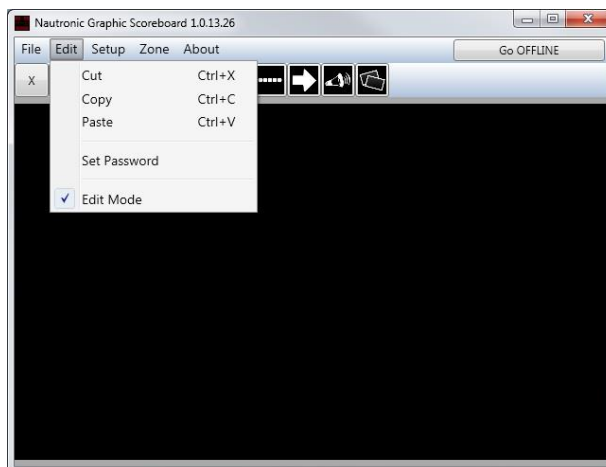
3.1. Objects available

The following objects are available:

The grid can be added to the main screen to make it easier to align the objects.

The colon object could be used to set between hours and minutes in the time.
Needs an address to work.

A 7-segment digits object could be used to show score, time or a player number.
Needs an address to work.

The same as above but shown as a normal digit.
Needs an address to work.

The text line object could be used to show team or player name.
Needs an address to work.

The dot object could be used for indication of a team time-out.
Needs an address to work.

The multiple dot line is normally used in basketball to show faults.
Needs an address to work.

The arrow is used in sports where the serve (badminton) or ball possession (Basketball) should be shown. Needs an address to work.

The horn can be inserted and set up to play a sound when the time is up.
Needs an address to work.

The image object is used to place team logos or an advertising banner.
To place an object on the screen press on it with the mouse and then again somewhere on the board.

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3.2. Inserting a board image or color

When designing a video screen layout we need to determine if we want to work with one color board or using a picture. By default, the background is dark gray and the board is black but this can easily be changed to another color if needed. As a video screen can show all colors, it is also possible to insert a board picture. If designing for a soccer stadium a grass court or a soccer goal could be an option.

When choosing a board picture bear in mind that too many details in the picture could be a disturbance for the audience when looking at the objects placed on top of the picture. To insert a background picture go to setup and choose screen settings, which will bring up a new window:
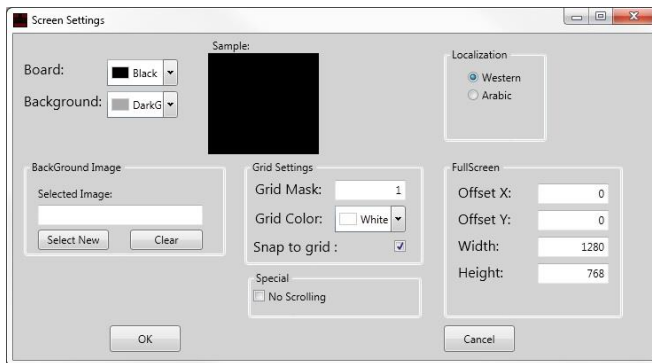
When choosing a board picture the board color will be irrelevant, as the picture will take its place. Click on the select new button and for a picture but bear in mind that only jpeg, bitmap and gif files can be used.

If no picture is needed, just leave the field empty or press the clear button if a picture is already chosen. It is also possible to change the board color by pressing the drop down menu for the board. From here it is possible to choose any color or if a special color is needed the advanced menu is available.

In this example and in the following pages we have chosen the picture shown below.
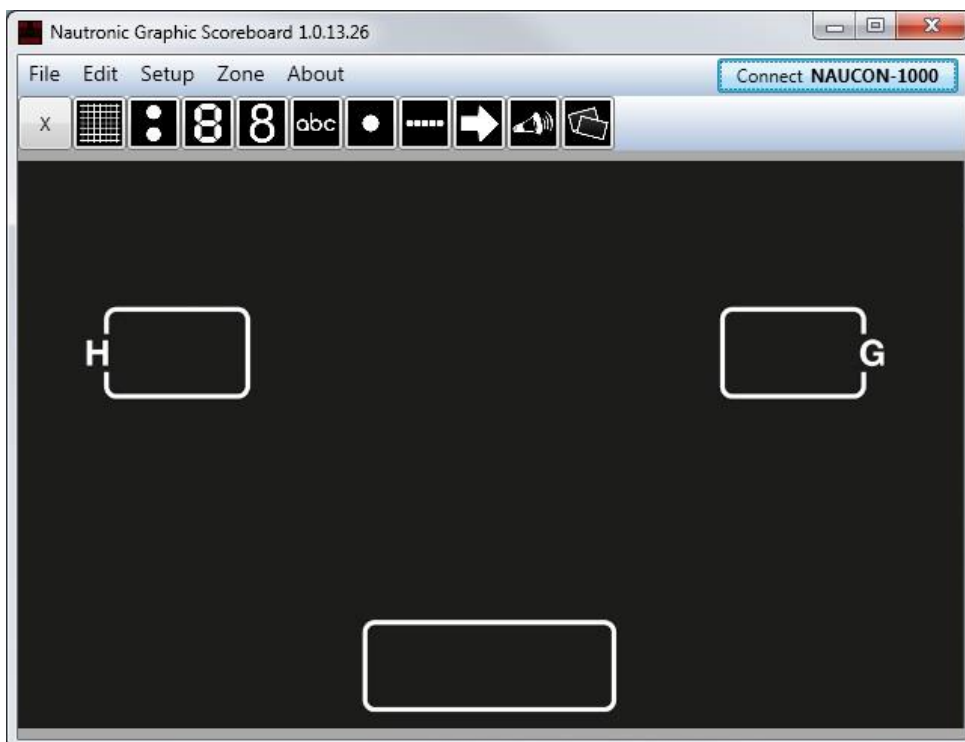
Note: we can, at any time go to the setup menu, choose screen settings, and change the picture.

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3.3. Inserting objects

Now we are ready to design our layout for the video screen. In the following example, we will be designing a general template that can be used to show the score and time together with logo's as well as team names.

Now place all the objects on the screen as you need.
In the following example, we will show how a screen layout could be placed.
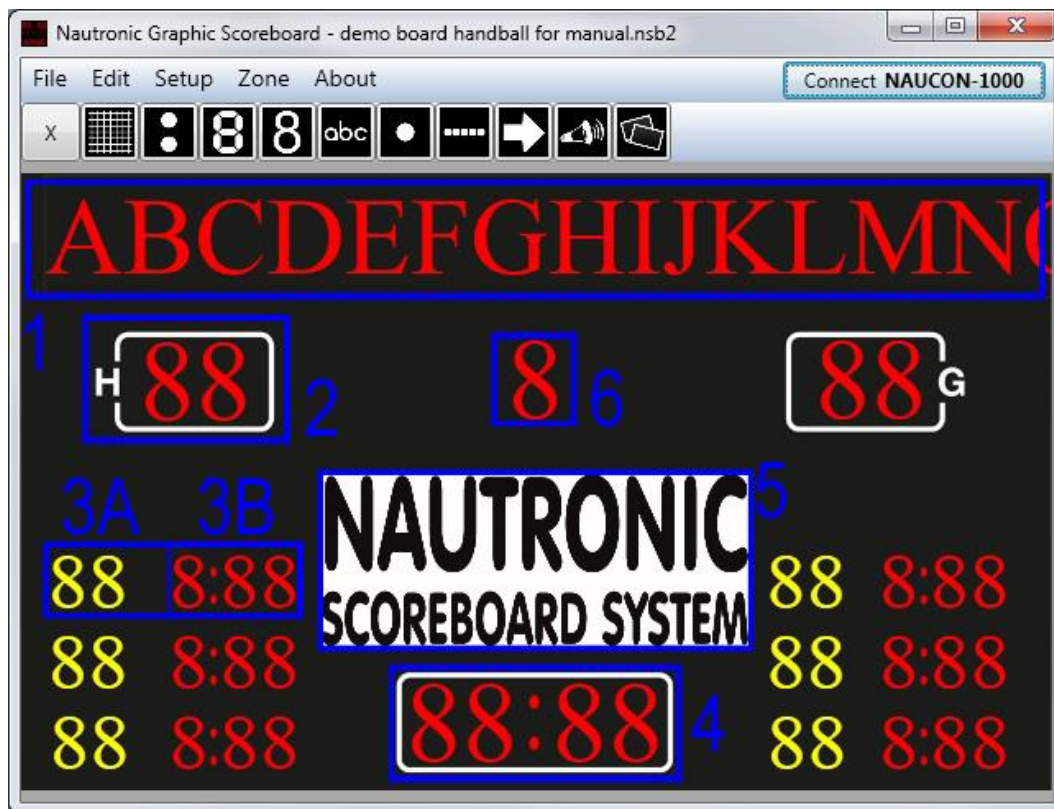
1. A text line is placed on the top and will contain the home and guest team name with address 0. Digit size has been set to 120 (adjusted so it fits the whole screen) with 26 characters.
   In the NAUCON-1000 service menu the "team text display length" must be set to 26 and "combined teem text displays" must be set to ON.
   With this setup, it will show the home team name on the left side and the guest team name on the right side.

2. A text digit is placed under the text line in the left side where the home team score will appear at address 0. The digit size is set to 140 and characters have been set to 2.
   With this setup, the digit will show the home teams score. (If used with eg. basketball the score could get over 100 point so in this case another digit should be placed in front with address 2)

3. **A**: A text line is placed where the home team penalty player number will be shown and will appear on address 17. The digit size is set to 100 and characters has been set to 2.
   B: Two text lines is placed to the right of the player number which should contain minutes and seconds for the penalty. Minutes is defined at one character at adderss 19 and characters it set to 1. The second text line should show seconds so the address is set to 20 and the character is set to 2 as seconds contains 2 numbers. For both text lines the digit size is defines at 100.
   The colon is defined at address 20 and will be cleared when the time runs out.

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4. Two text digits have been placed in the center and will show the clock. The address has been set to 12 for the left side and 14 for the right side. Characters have been set to 2 and digit size is set to 140. Between the digits, a colon has been placed which will flash with the seconds. The address has been set to 14 and the digit size has been set to 120. (a bit smaller than the clock digits)

5. An image is placed above the match clock. The image size has been set to 500x200 under properties. As default, the image is shown as a blue square but in properties, the picture is chosen.

6. A text digit is placed between home and guest score and will show the match period. The address is set to 7 and characters is set to 1. The digit size is set to 140 to match the other objects.

All the other digits that is shown in the setup is defined in the same way as the above description. Please refer to 8Appendix A for a full overview of the addresses.

Save the current setup by going to File →save and choose a folder and a name for the save file.

4. Go online with NAUCON-1000

The Graphic scoreboard is now ready to go live with the NAUCON-1000. Press the button "connect NAUCON-1000" to connect to the NAUCON-1000 control panel.
The active screen will now look like this:
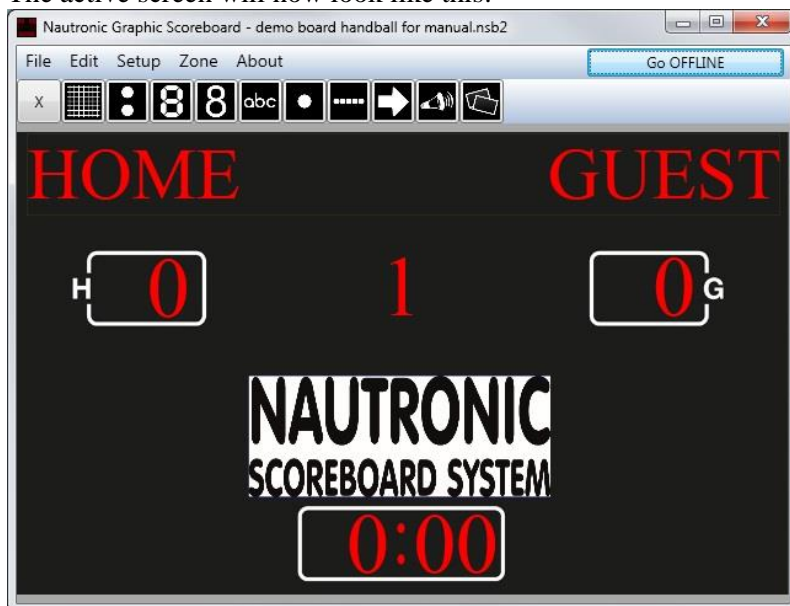
The screen changes to show what the NAUCON-1000 is transmitting. All the addresses that have been set for each character has now changed according to the NAUCON-1000. When changing something on the screen, it can sometime take up to 20 sec before all the objects on the screen has changed state. When then screen has been fully updated all events will change in live time when using the NAUCON-1000.

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Now, start the match time on the NAUCON-1000 and give the home and guest team some goals. In the following example, the NAUCON-1000 has been started and the score is 3-1 to the home team. ☺
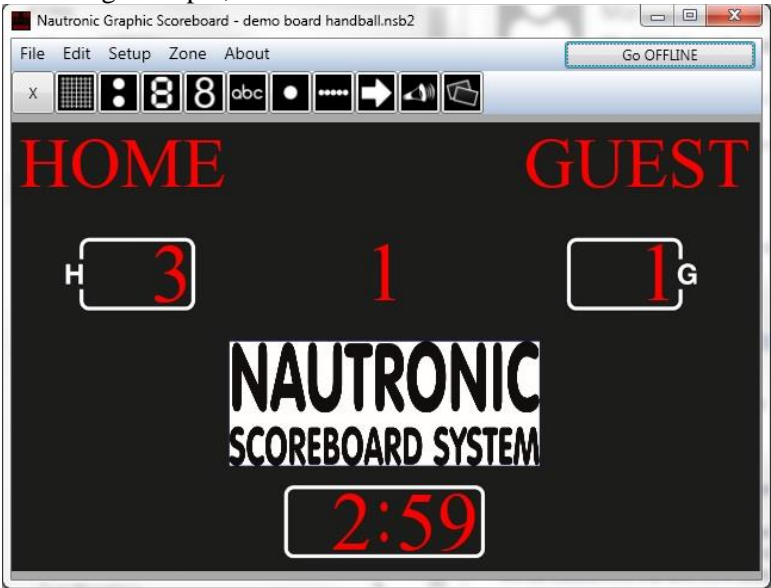
In this example the penalty's is shown for both home and guest team.
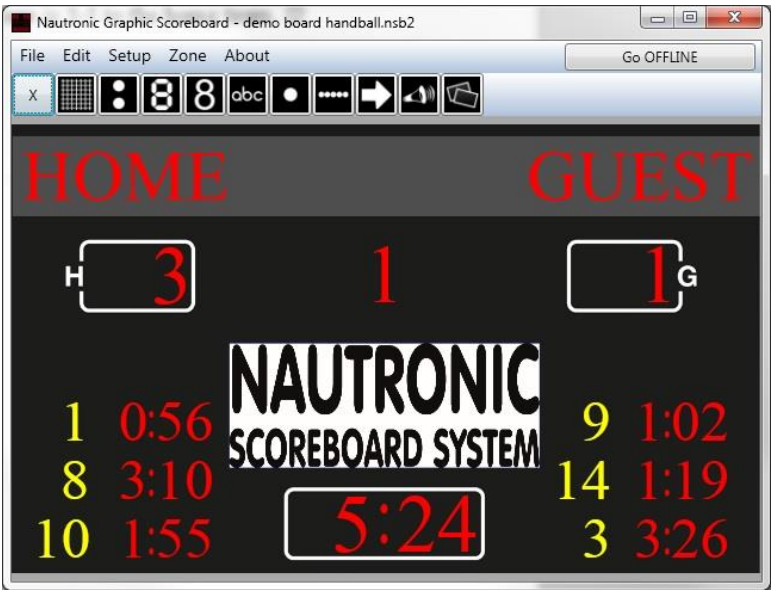
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5. Fullscreen mode

With the objects placed on the board and configured and the connection to the NAUCON-1000 established, we are now ready to send the content to the video screen. To send the active screen to the video screen, go to File→Fullscreen or press the F12 function key. When going to fullscreen the active screen will be shown on the desktop which was defined in the section: *Settings for the Nautronic graphic scoreboard*

The picture below shows the full screen when active.
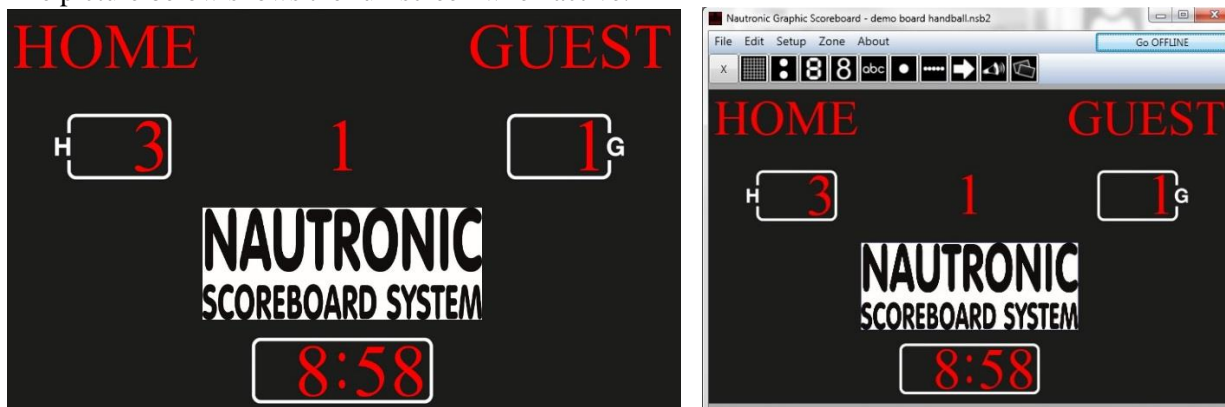
With this setup, it is possible to view the content of the active screen on the video screen.
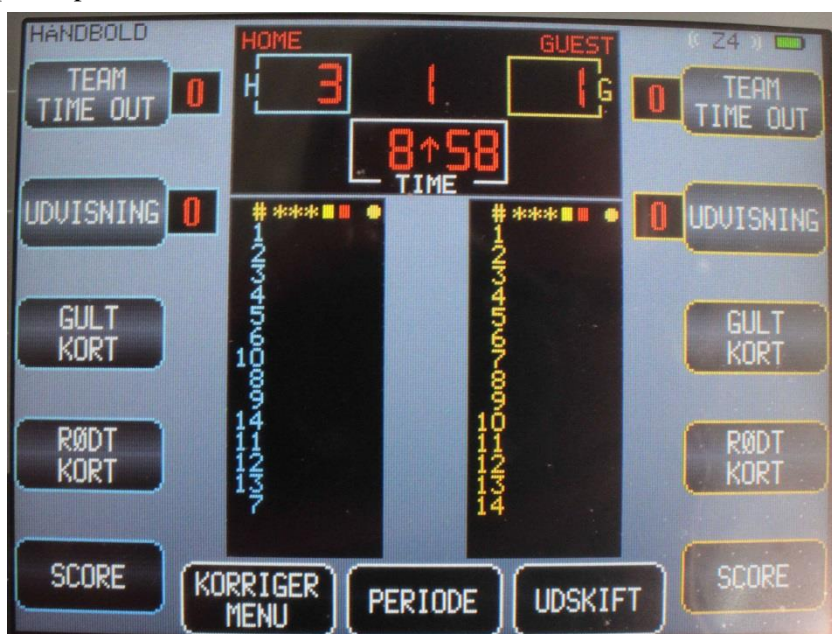
Screenshot of the NAUCON-1000 touch screen

6. Media settings

6.1.   Show screens

The Show Screens button is where we define where the events that we create later will be shown as it is possible to have multiple screens. This means that you can have a main screen for the score board and a screen for the events. You can also define that the events has to be shown on the main screen but only on a specific area of the main screen. When clicking on the show screens button the window will change and a new button "reload definitions" is revealed.
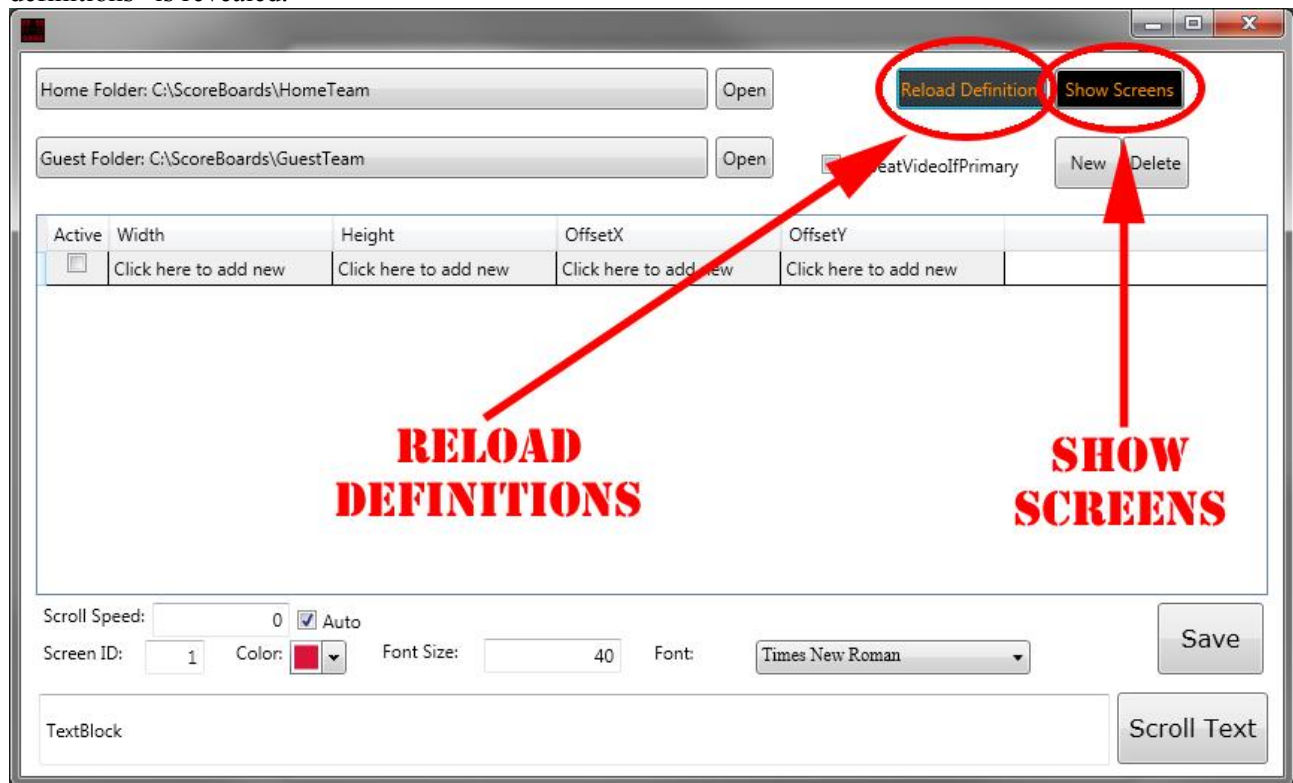
Click on the first line that says: Click here to add new.

Now we must define the area where the events will be played. In this guide we will use the same dimensions as the main screen to show the events which means that we must create the area of 1280 by 768 pixels. In the section: 1Settings for the Nautronic graphic scoreboard it is also possible to set the X and Y position but as this was not defined we will also leave the offset for X and Y here to 0. This means that the events that will be created will be played on top of the main video screen.

Eg. setup could now look like this:

Active	Width	Height	OffsetX	OffsetY
☑	512	512	0	0
☐	Click here to add new	Click here to add new	Click here to add new	Click here to add new

If you press the reload definition button, you will now see a red square with a number. As it is possible to connect more video screens, the number in the middle will define your screen. In this case we are only using 1 video screen so the number will be '1'.

The media screen has now been setup and by clicking on the show screens button again the red square will disappear and the window will return to the normal view for setting up events.

6.2. Media setup

In media settings, it is possible to create events for things like for example goals, yellow and red card. This means that you can get an animation shown when the home team has scored a goal or a player on the guest team has received a yellow or red card. In here, you can also define the home and guest team folders that contain the pictures of the players. To access the media settings go to Setup →Media Settings.

When the program is installed, a folder called "scoreboards" is created on the root of the C drive. In this folder, there will be some basic templates for sports and a folder with some default animations. These basic animations show a referee giving a yellow and red card for a player as well as an animation for a goal.

6.3. Home and guest team

As default, the home and guest team folder is located under "c:\ScoreBoards\". If another folder placement is required, you can press the home or guest folder and navigate to another path. To open the specified folder, click on "open". In these folders it is possible to put pictures of the players of the match. As default, there will be a picture with the name "1_someplayer" and this is basically how the pictures should be named. So if a player is playing in jersey no. 17 the name of the picture file should be "17_player name". This is done for all players. File extension should be either jpeg, bmp or png.

6.4. Create events
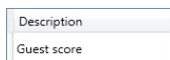
To add a new media event click on the "New" button. This will add a new line below like the following example.

For each new entry, it is possible to add 2 actions.

To describe an example we will make an entry that is called when a yellow card is pressed for the home team on the NAUCON-1000.
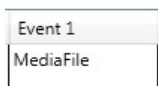
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First, you give the entry a description that describes what it does so in this case we will call it.: "Guest score"
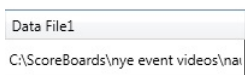
Now choose which screen it should be displayed on. If you do not know your screen number press the button on top of the screen "Show Screens" and the screens that has been configured will be shown on the monitor. Normally the main screen will have number 1.

Now double click on the "Event 1" field, which will give you a drop down menu where you can choose between 'None', 'Team', 'Player' and "Mediafile". In this case, we will choose Specific File because we want to show an animation first.

If the primary data type is set to none it means that nothing will happen. If set to Team or player the picture for the team or player located in the home or guest folder will be shown. When a user defined animation or picture file needs to be shown, "mediafile" is chosen instead.

With "MediaFile" chosen, you can now double click on the "Data File 1" field, which will open a file browser. Now choose a short video that shows a referee with a yellow card. You can find such sample under "c:\ScoreBoards\Animations\"

Supported formats is AVI, MPG, MP4, BMP and JPEG.
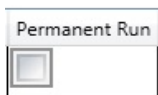
Under mode set it to "full" by clicking with the mouse. This tells the program that, it should be shown as a full screen video.

Under 'mode' it is possible to setup where and how the event should be shown. If set to 'primary' the event will only be shown on the main screen. If set to 'hidden' it means that the event has been created but will not be used in this setup. So it is possible to create all the events needed but hide some of them if they should not be used. If mode is set to 'full' the event will be maximized on the screen. It is also possible to set the mode to 'split' which means that you can setup 2 animations for an event and it will be showed side by side.
If set to "ShowPimaryOnly" only the primary event will be shown and opposite if "ShowSecondaryOnly" is chosen.

The test button can be used to test the video or animation chosen under data file. When pressed the video will start to play and on the screen and will stay on the screen until the "test" button is pressed again. It is also possible to remove the video by clicking on the active video with the mouse.
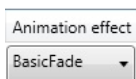
Event 2 and DataFile 2 is the same as Event 1 and DataFile 2 but defines an extra event if needed, to show both an animation and a picture. Depending on the mode selection it will be shown together or after each other.

With permanent run enabled the video will run continuously when it has been started the first time. If you want to show a video continuously on the video screen, you can use this setting and then press the test button to start it.

Under duration, you can specify how long time a picture should be shown on the active screen. In this case we have used a video so the duration will not have any effect on the video. If a picture has used instead, the duration would tell how long time the picture will be showed.

From the drop down menu in animation effect, you can choose between "Random Edge", "Throw" and BasicFade. This option tells how the animation should be presented on the active screen. In this case, we will choose "BasicFade".

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Under animation, it is possible to define how the event will be presented on the screen. When using 'random edge' the animation or picture will be rolled onto the screen from different directions. If 'Throw' is used the animation will be presented different each time but always at an angle. Basic fade will show the animation or picture normally by presenting it to the screen without any style.

Under "Event type it is possible, from this drop down box, to choose from all the events from the NAUCON-1000. In this example, we want the score for the guest team so scroll down the list until you find the entry "GUEST_PLAYER_SCORE"
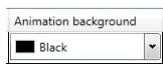
With background animation you can specify if the video or picture should have a background color. This setting is used if the video or picture size does not fill the whole screen

Now you can press the save button and close the window.
If you are online with the NAUCON-1000, try to give the guest team a score. The event that has been created will now be activated and the animation that has just been created should now appear on the screen and after that, return the normal screen that you have designed.

You will have to create an action for each event on the NAUCON-1000 where you want a picture or an animation to be shown. This should be made for each team meaning that the above example should also be made for the guest team.

7. Scroll text

It is possible to send a live scroll text directly to the screen if you want to eg. Advertise something to the spectators. Under Setup →media settings at the bottom of the window, you can find a scroll text option.

1. Start by configuring the settings for the scroll text. As standard, it is set to zero but can be slowed down by changing the number upwards. The screen ID will be the active screen number where the text will be shown. Like with the actions you can see the active screen number by clicking on the "show Screens" button on the top of the window.

2. Now choose the color of the text. Please bear in mind that the color of the text must be different from the background picture that you have chosen. In this case, you can choose white from the drop down menu.

3. Font size defines how large the text will be and from the font drop down menu, you can chose from all the fonts available on the current machine.

With this setup, you are now ready to write a text and send it to the led video screen. Write your own text and press the "Scroll Text" button to send it to the screen. If you have the active screen open, you will see that the text appears on the bottom of the screen.

Repeat video if primary:
Right next to the guest folder setup there is an option called "RepeatVideoIfPrimary".
With this option, it is possible to set a video on repeat. This can be used in the break time where an ex. sponsor video can be shown repeatedly until the game is resumed. To set this up configure a new event and specify the description and screen, set primary data type to specific file and then under primary data file chose which file

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should be shown on the screen. Mode it set to Primary, animation is set to default basic fade and with this setup, it is now possible to show a video on repeat.
To start the video enable the "RepeatVideoIfPrimary" and under mode press the primary button. As long as the media settings screen is open then video will run. To stop the video again press the primary button again and close the media settings screen.

Special event type:
There is an event called "connection lost". With this event type and permanent run set, it is possible to run a video (advertising) when the video screen is not used as a scoreboard.

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8. Appendix A

The following appendix shows the addresses used to setup the different objects on the video board.
The color blue means that the address belongs to the home team and the yellow color is for the guest team.
Each text has a corresponding address and some of them are marked out. This means that it is possible to use only this address and then format the object to show 2 or 3 characters.

8.1.   Basketball

Digits

Information	Address
Home score 10'	0
Home score 1'	1
Home score 100'	2
Guest score 10'	128
Guest score 1'	129
Guest score 100'	130
Match Period 10'	6
Match Period 1'	7
Match 10min	12
Match 1min	13
Match 10sec	14
Match 1sec	15
ShotClock 10sec.	8
ShotClock 1sec.	9
Home Player faults	19
Home Player faults No. 10'	20
Home Player faults No. 1'	21
Guest Player faults	147
Guest Player faults No. 10'	148
Guest Player faults No. 1'	149

Dots

Match Time colon	14
Home timeout 1st	0 bit 1
Home timeout 2nd	0 bit 3
Home timeout 3rd	0 bit 5
Guest timeout 1st	128 bit 1
Guest timeout 2nd	128 bit 3
Guest timeout 3rd	128 bit 5
Ball Possession Arrow	137

Text

Home team	0
Guest team	128

Team fouls

Home team	5
Guest team	133

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8.2. Icehockey

Digits Information

Information	Address
Home score 10'	0
Home score 1'	1
Home score 100'	2
Guest score 10'	128
Guest score 1'	129
Guest score 100'	130
Match Period 10'	6
Match Period 1'	7
Match 10min	12
Match 1min	13
Match 10sec	14
Match 1sec	15
H icehockey pen PNO*10	17
H icehockey pen PNO*1	18
H Penalty mins	19
H Penalty10's sec.	20
H Penalty 1's sec.	21
H icehockey 2'pen PNO*10	22
H icehockey 2'pen PNO*1	23
H icehockey 2'Penalty mins	24
H icehockey 2'Penalty10's sec.	25
H icehockey 2'Penalty 1's sec.	26
H icehockey 3'pen PNO*10	27
H icehockey 3'pen PNO*1	28
H icehockey 3'Penalty mins	29
H icehockey 3'Penalty10's sec.	30
H icehockey 3'Penalty 1's sec.	31
G icehockey pen PNO*10	145
G icehockey pen PNO*1	146
G Penalty mins	147
G Penalty 10's sec.	148
G Penalty 1's sec.	149
G icehockey 2'pen PNO*10	150
G icehockey 2'pen PNO*1	151
G icehockey 2'Penalty mins	152
G icehockey 2'Penalty10's sec.	153
G icehockey 2'Penalty 1's sec.	154
G icehockey 3'pen PNO*10	155

Information	Address
G icehockey 3'pen PNO*1	156
G icehockey 3'Penalty mins	157
G icehockey 3'Penalty10's sec.	158
G icehockey 3'Penalty 1's sec.	159
H: Shot statistics 10'	4
H: shot statistics 1'	5
G: Shot statistics 10'	132
G:Shot statistics 1'	133

Dots

Information	Address
Match Time colon	14
Home timeout 1st	0 bit 1
Home timeout 2nd	0 bit 3
Home timeout 3rd	0 bit 5
Guest timeout 1st	128 bit 1
Guest timeout 2nd	128 bit 3
Guest timeout 3rd	128 bit 5
H: 1st Penalty time colon	20
H: 2nd Penalty time colon	25
H: 3rd Penalty time colon	30
G: 1st Penalty time colon	148
G: 2nd Penalty time colon	153
G: 3rd Penalty time colon	158

Texts

Information	Address
Home team	0
Guest team	128

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8.3. Volleyball

Digits

Information	Address
Home score 10'	0
Home score 1'	1
Hone score 100'	2
Guest score 10'	128
Guest score 1'	129
Guest score 100'	130
Match Period 10'	6
Match Period 1'	7
Sets Home Team	12
Serve Home Team	13
Serve Guest Team	14
Sets Guest Team	15
Score Home 1. prev. Set 10'	17
Score Home 1. prev. Set 1'	18
1. prev. Set -	19
Score Guest 1. prev. Set 10'	20
Score Guest 1. prev. Set 1'	21
Score Home 3. prev. Set 10'	22
Score Home 3. prev. Set 1'	23
3. prev Set -	24
Score Guest 3. prev. Set 10'	25
Score Guest 3. prev. Set 1'	26
Score Home 2. prev. Set 10'	145
Score Home 2. prev. Set 1'	146
2. prev. Set -	147
Score Guest 2. prev. Set 10'	148
Score Guest 2. prev. Set 1'	149
Score Home 4. prev. Set 10'	150
Score Home 4. prev. Set 1'	151
4. prev Set -	152
Score Guest 4. prev. Set 10'	153
Score Guest 4. prev. Set 1'	154

Dots

Information	Address
Ball Possession Arrow	137
Home timeout 1st	0 bit 1
Home timeout 2nd	0 bit 3
Home timeout 3rd	0 bit 5
Guest timeout 1st	128 bit 1
Guest timeout 2nd	128 bit 3
Guest timeout 3rd	128 bit 5

Text

Information	Address
Home team	0
Guest team	128

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8.4.   Soccer

Digits

Information	Address
Home score 10'	0
Home score 1'	1
Hone score 100'	2
Guest score 10'	128
Guest score 1'	129
Guest score 100'	130
Match Period 10'	6
Match Period 1'	7
Match 10min	12
Match 1min	13
Match 10sec	14
Match 1sec	15

Dots

Information	Address
Match Time colon	14

Text

Information	Address
Home team	0
Guest team	128

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8.5. Handball

Digits

Information	Address
Home score 10'	**0**
Home score 1'	**1**
Hone score 100'	**2**
Guest score 10'	**128**
Guest score 1'	**129**
Guest score 100'	**130**
Match Period 10'	**6**
Match Period 1'	**7**
Match 10min	**12**
Match 1min	**13**
Match 10sec	**14**
Match 1sec	**15**
Home Player faults	**19**
Home Player faults No. 10'	**20**
Home Player faults No. 1'	**21**
Guest Player faults	**147**
Guest Player faults No. 10'	**148**
Guest Player faults No. 1'	**149**

Dots

Information	Address
Match Time colon	**14**
Home timeout 1st	**0 bit 1**
Home timeout 2nd	**0 bit 3**
Home timeout 3rd	**0 bit 5**
Guest timeout 1st	**128 bit 1**
Guest timeout 2nd	**128 bit 3**
Guest timeout 3rd	**128 bit 5**

Text

Information	Address
Home team	**0**
Guest team	**128**

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8.6. Common used

Horn

Match & Timeout	0
Timeout	3
Shotclock	8

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8.7. Basketball sideboard

Digits	Information	address
4 H Player Nr. 10'		32
4 H Player Nr. 1'		33
5 H Player Nr. 10'		34
5 H Player Nr. 1'		35
6 H Player Nr. 10'		36
6 H Player Nr. 1'		37
7 H Player Nr. 10'		38
7 H Player Nr. 1'		39
8 H Player Nr. 10'		40
8 H Player Nr. 1'		41
9 H Player Nr. 10'		42
9 H Player Nr. 1'		43
10 H Player Nr. 10'		44
10 H Player Nr. 1'		45
11 H Player Nr. 10'		46
11 H Player Nr. 1'		47
12 H Player Nr. 10'		48
12 H Player Nr. 1'		49
13 H Player Nr. 10'		50
13 H Player Nr. 1'		51
14 H Player Nr. 10'		52
14 H Player Nr. 1'		53
15 H Player Nr. 10'		54
15 H Player Nr. 1'		55
16 H Player Nr. 10'		56
16 H Player Nr. 1'		57
17 H Player Nr. 10'		58
17 H Player Nr. 1'		59
18 H Player Nr. 10'		60
18 H Player Nr. 1'		61
19 H Player Nr. 10'		62
19 H Player Nr. 1'		63
20 H Player Nr. 10'		64
20 H Player Nr. 1'		65
21 H Player Nr. 10'		66
21 H Player Nr. 1'		67

Information	address
4 G Player Nr. 10'	160
4 G Player Nr. 1'	161
5 G Player Nr. 10'	162
5 G Player Nr. 1'	163
6 G Player Nr. 10'	164
6 G Player Nr. 1'	165
7 G Player Nr. 10'	166
7 G Player Nr. 1'	167
8 G Player Nr. 10'	168
8 G Player Nr. 1'	169
9 G Player Nr. 10'	170
9 G Player Nr. 1'	171
10 G Player Nr. 10'	172
10 G Player Nr. 1'	173
11 G Player Nr. 10'	174
11 G Player Nr. 1'	175
12 G Player Nr. 10'	176
12 G Player Nr. 1'	177
13 G Player Nr. 10'	178
13 G Player Nr. 1'	179
14 G Player Nr. 10'	180
14 G Player Nr. 1'	181
15 G Player Nr. 10'	182
15 G Player Nr. 1'	183
16 G Player Nr. 10'	184
16 G Player Nr. 1'	185
17 G Player Nr. 10'	186
17 G Player Nr. 1'	187
18 G Player Nr. 10'	188
18 G Player Nr. 1'	189
19 G Player Nr. 10'	190
19 G Player Nr. 1'	191
20 G Player Nr. 10'	192
20 G Player Nr. 1'	193
21 G Player Nr. 10'	194
21 G Player Nr. 1'	195

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4 H Player score 10'	80
4 H Player score 1'	81
5 H Player score 10'	82
5 H Player score 1'	83
6 H Player score 10'	84
6 H Player score 1'	85
7 H Player score 10'	86
7 H Player score 1'	87
8 H Player score 10'	88
8 H Player score 1'	89
9 H Player score 10'	90
9 H Player score 1'	91
10 H Player score 10'	92
10 H Player score 1'	93
11 H Player score 10'	94
11H Player score 1'	95
12 H Player score 10'	96
12 H Player score 1'	97
13 H Player score 10'	98
13 H Player score 1'	99
14 H Player score 10'	100
14 H Player score 1'	101
15 H Player score 10'	102
15 H Player score 1'	103
16 H Player score 10'	104
16 H Player score 1'	105
17 H Player score 10'	106
17 H Player score 1'	107
18 H Player score 10'	108
18 H Player score 1'	109
19 H Player score 10'	110
19 H Player score 1'	111
20 H Player score 10'	112
20 H Player score 1'	113
21 H Player score 10'	114
21 H Player score 1'	115

4 G Player score 10'	208
4 G Player score 1'	209
5 G Player score 10'	210
5 G Player score 1'	211
6 G Player score 10'	212
6 G Player score 1'	213
7 G Player score 10'	214
7 G Player score 1'	215
8 G Player score 10'	216
8 G Player score 1'	217
9 G Player score 10'	218
9 G Player score 1'	219
10 G Player score 10'	220
10 G Player score 1'	221
11 G Player score 10'	222
11 G Player score 1'	223
12 G Player score 10'	224
12 G Player score 1'	225
13 G Player score 10'	226
13 G Player score 1'	227
14 G Player score 10'	228
14 G Player score 1'	229
15 G Player score 10'	230
15 G Player score 1'	231
16 G Player score 10'	232
16 G Player score 1'	233
17 G Player score 10'	234
17 G Player score 1'	235
18 G Player score 10'	236
18 G Player score 1'	237
19 G Player score 10'	238
19 G Player score 1'	239
20 G Player score 10'	240
20 G Player score 1'	241
21 G Player score 10'	242
21 G Player score 1'	243

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Text	Information	address		Dots	Information	address
	4 H Player Name	8			4 H Player Fouls	64
	5 H Player Name	12			5 H Player Fouls	65
	6 H Player Name	16			6 H Player Fouls	66
	7 H Player Name	20			7 H Player Fouls	67
	8 H Player Name	24			8 H Player Fouls	68
	9 H Player Name	28			9 H Player Fouls	69
	10 H Player Name	32			10 H Player Fouls	70
	11 H Player Name	36			11 H Player Fouls	71
	12 H Player Name	40			12 H Player Fouls	72
	13 H Player Name	44			13 H Player Fouls	73
	14 H Player Name	48			14 H Player Fouls	74
	15 H Player Name	52			15 H Player Fouls	75
	16 H Player Name	56			16 H Player Fouls	76
	17 H Player Name	60			17 H Player Fouls	77
	18 H Player Name	64			18 H Player Fouls	78
	19 H Player Name	68			19 H Player Fouls	79
	20 H Player Name	72			20 H Player Fouls	80
	21 H Player Name	76			21 H Player Fouls	81

Information	address		Information	address
4 G Player Name	136		4 G Player Fouls	192
5 G Player Name	140		5 G Player Fouls	193
6 G Player Name	144		6 G Player Fouls	194
7 G Player Name	148		7 G Player Fouls	195
8 G Player Name	152		8 G Player Fouls	196
9 G Player Name	156		9 G Player Fouls	197
10 G Player Name	160		10 G Player Fouls	198
11 G Player Name	164		11 G Player Fouls	199
12 G Player Name	168		12 G Player Fouls	200
13 G Player Name	172		13 G Player Fouls	201
14 G Player Name	176		14 G Player Fouls	202
15 G Player Name	180		15 G Player Fouls	203
16 G Player Name	184		16 G Player Fouls	204
17 G Player Name	188		17 G Player Fouls	205
18 G Player Name	192		18 G Player Fouls	206
19 G Player Name	196		19 G Player Fouls	207
20 G Player Name	200		20 G Player Fouls	208
21 G Player Name	204		21 G Player Fouls	209

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8.8.   Handball sideboard

Digits   Information   Address

Information	Address
1 H Player Nr. 10'	32
1 H Player Nr. 1'	33
2 H Player Nr. 10'	34
2 H Player Nr. 1'	35
3 H Player Nr. 10'	36
3 H Player Nr. 1'	37
4 H Player Nr. 10'	38
4 H Player Nr. 1'	39
5 H Player Nr. 10'	40
5 H Player Nr. 1'	41
6 H Player Nr. 10'	42
6 H Player Nr. 1'	43
7 H Player Nr. 10'	44
7 H Player Nr. 1'	45
8 H Player Nr. 10'	46
8 H Player Nr. 1'	47
9 H Player Nr. 10'	48
9 H Player Nr. 1'	49
10 H Player Nr. 10'	50
10 H Player Nr. 1'	51
11 H Player Nr. 10'	52
11 H Player Nr. 1'	53
12 H Player Nr. 10'	54
12 H Player Nr. 1'	55
13 H Player Nr. 10'	56
13 H Player Nr. 1'	57
14 H Player Nr. 10'	58
14 H Player Nr. 1'	59

Information	Address
1 G Player Nr. 10'	160
1 G Player Nr. 1'	161
2 G Player Nr. 10'	162
2 G Player Nr. 1'	163
3 G Player Nr. 10'	164
3 G Player Nr. 1'	165
4 G Player Nr. 10'	166
4 G Player Nr. 1'	167
5 G Player Nr. 10'	168
5 G Player Nr. 1'	169
6 G Player Nr. 10'	170
6 G Player Nr. 1'	171
7 G Player Nr. 10'	172
7 G Player Nr. 1'	173
8 G Player Nr. 10'	174
8 G Player Nr. 1'	175
9 G Player Nr. 10'	176
9 G Player Nr. 1'	177
10 G Player Nr. 10'	178
10 G Player Nr. 1'	179
11 G Player Nr. 10'	180
11 G Player Nr. 1'	181
12 G Player Nr. 10'	182
12 G Player Nr. 1'	183
13 G Player Nr. 10'	184
13 G Player Nr. 1'	185
14 G Player Nr. 10'	186
14 G Player Nr. 1'	187

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1 H Player score 10'	80
1 H Player score 1'	81
2 H Player score 10'	82
2 H Player score 1'	83
3 H Player score 10'	84
3 H Player score 1'	85
4 H Player score 10'	86
4 H Player score 1'	87
5 H Player score 10'	88
5 H Player score 1'	89
6 H Player score 10'	90
6 H Player score 1'	91
7 H Player score 10'	92
7 H Player score 1'	93
8 H Player score 10'	94
8 H Player score 1'	95
9 H Player score 10'	96
9 H Player score 1'	97
10 H Player score 10'	98
10 H Player score 1'	99
11 H Player score 10'	100
11H Player score 1'	101
12 H Player score 10'	102
12 H Player score 1'	103
13 H Player score 10'	104
13 H Player score 1'	105
14 H Player score 10'	106
14 H Player score 1'	107

1 G Player score 10'	208
1 G Player score 1'	209
2 G Player score 10'	210
2 G Player score 1'	211
3 G Player score 10'	212
3 G Player score 1'	213
4 G Player score 10'	214
4 G Player score 1'	215
5 G Player score 10'	216
5 G Player score 1'	217
6 G Player score 10'	218
6 G Player score 1'	219
7 G Player score 10'	220
7 G Player score 1'	221
8 G Player score 10'	222
8 G Player score 1'	223
9 G Player score 10'	224
9 G Player score 1'	225
10 G Player score 10'	226
10 G Player score 1'	227
11 G Player score 10'	228
11 G Player score 1'	229
12 G Player score 10'	230
12 G Player score 1'	231
13 G Player score 10'	232
13 G Player score 1'	233
14 G Player score 10'	234
14 G Player score 1'	235

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Text	Information	Address
	1 H Player Name	8
	2 H Player Name	12
	3 H Player Name	16
	4 H Player Name	20
	5 H Player Name	24
	6 H Player Name	28
	7 H Player Name	32
	8 H Player Name	36
	9 H Player Name	40
	10 H Player Name	44
	11 H Player Name	48
	12 H Player Name	52
	13 H Player Name	56
	14 H Player Name	60

Dots	Information	Address
	1 H Player Fouls	64
	2 H Player Fouls	65
	3 H Player Fouls	66
	4 H Player Fouls	67
	5 H Player Fouls	68
	6 H Player Fouls	69
	7 H Player Fouls	70
	8 H Player Fouls	71
	9 H Player Fouls	72
	10 H Player Fouls	73
	11 H Player Fouls	74
	12 H Player Fouls	75
	13 H Player Fouls	76
	14 H Player Fouls	77

Information	Address
1 G Player Name	136
2 G Player Name	140
3 G Player Name	144
4 G Player Name	148
5 G Player Name	152
6 G Player Name	156
7 G Player Name	160
8 G Player Name	164
9 G Player Name	168
10 G Player Name	172
11 G Player Name	176
12 G Player Name	180
13 G Player Name	184
14 G Player Name	188

Information	Address
1 G Player Fouls	192
2 G Player Fouls	193
3 G Player Fouls	194
4 G Player Fouls	195
5 G Player Fouls	196
6 G Player Fouls	197
7 G Player Fouls	198
8 G Player Fouls	199
9 G Player Fouls	200
10 G Player Fouls	201
11 G Player Fouls	202
12 G Player Fouls	203
13 G Player Fouls	204
14 G Player Fouls	205