

Operating manual OPTIKA-2

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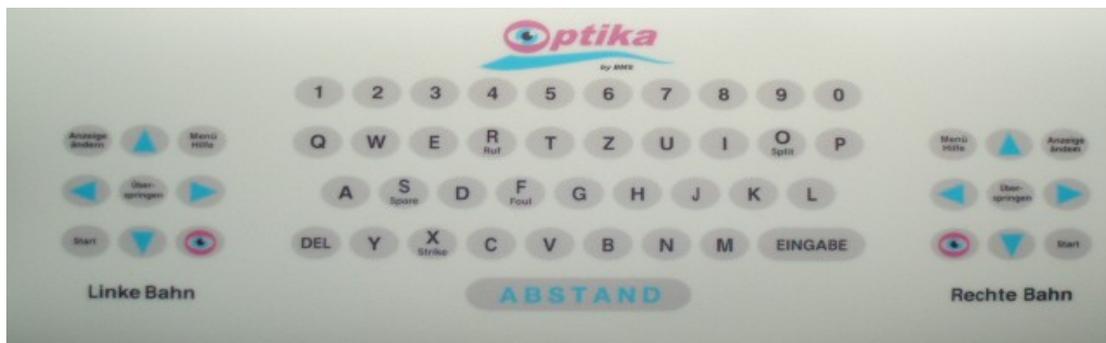
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Preface:

Optika is an automatic scoring system for the bowling industry. Optika is compatible to all pinsetter types regardless of manufacturer.

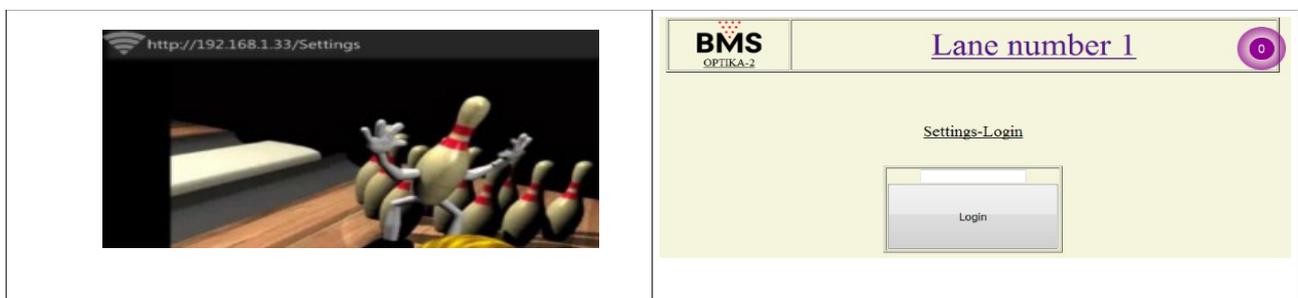
Optika consists of various components, such as CCD camera for recording the results, machine interface for control of the bowling machine and a keyboard console for operating the system (name input, configuration, etc.).

This documentation describes how Optika is configured and operated from the keyboard console.



If no keyboard console is present, then OPTIKA-2 can also be operated by app or via web browser:

To this, a network cable has to be connected*, before the OPTIKA-2 has loaded, depending on the settings, OPTIKA can be operated by APP or via web browser. Access via web browser to the settings is always possible.



*The network router has to assign (dhcp) ipV4 addresses.

Select game:

Press HELP key to display the Game Selection:

HELP



Use arrow keys to select a game:

- Open: 10-frame bowling game
- kids bowling: 5-frames bowling game with simplified counting points.
- Bingo: Game of skill
- Car race: The game results are shown graphically according to a race game.
- Ludo: Dexterity game with up to 6 players
- Ligue: Two teams play against each other on a double lane.

Hint: To change the language (temporarily and specific to one lane only) press:



+ **D** for (Deutsch) German or + **E** for English or + **F** for French

Touch- or APP-Keybaord shows:



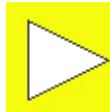
Enter names:



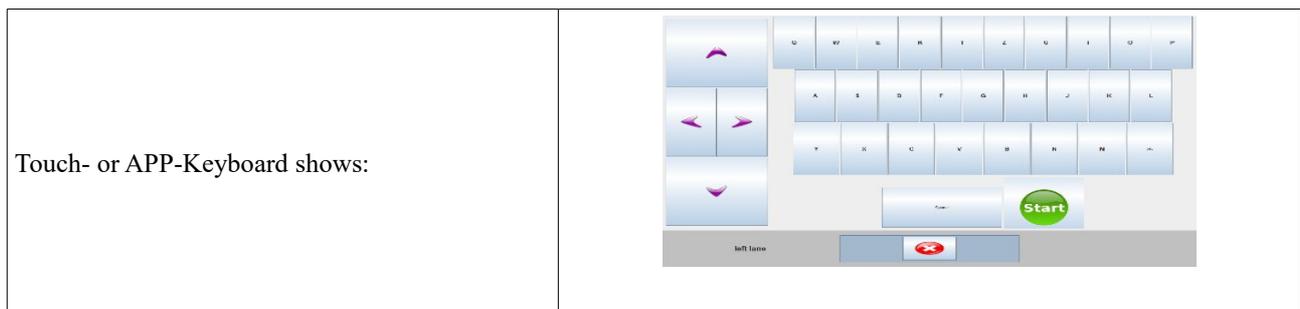
The display depends on the settings. The button to activate the bumpers is shown only if this hardware is present and enabled. By default, up to 9 players can enter their names, this number can be limited in the settings to 6. Use the arrow keys UP and DOWN to change the players fields:



Use the arrow key RIGHT to highlight the bumper button, press key “B” to activate or deactivate bumpers.



The scrollpane scrolls automatically.

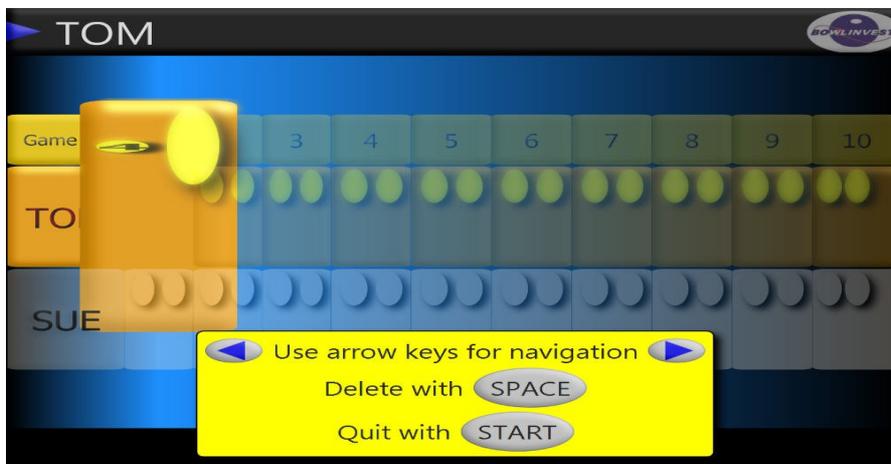


Correct score:

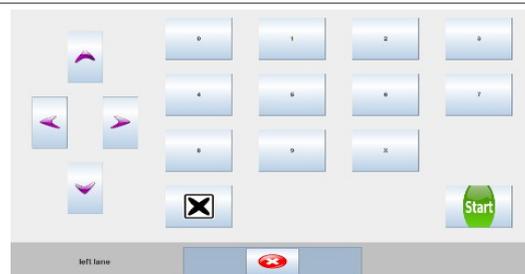
Press key **HELP** to display the menu:



Use the arrow keys to select “Modify score”, press START key



Touch- or APP-Keybaord shows:



Use the arrow keys to highlight the frame, use the numeric keys to enter the new scores, X for Strike. Use the space key to delete scores.

Hint: Shortcut to enter the score correction state: Press key



Hint: Delete the last score directly: Press the keys



Add or remove players:

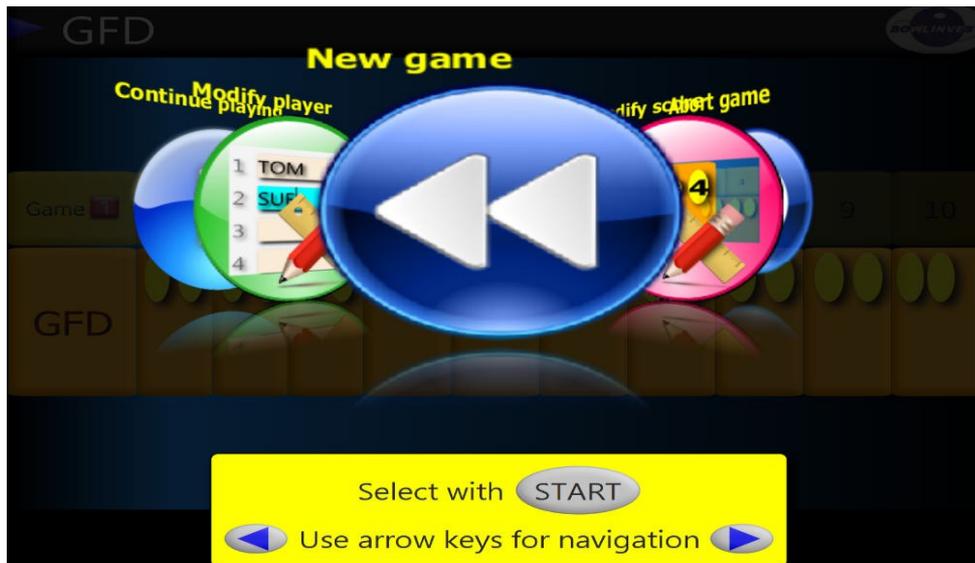
Press key  to display the menu:



Use the arrow keys to select “Modify player”, press START key. Players can be added or removed during the active game. The new player (or the new players) will play until they arrived in the active frame. Remove players by deleting the player names.

Reset an active game:

Press key  to display the menu:



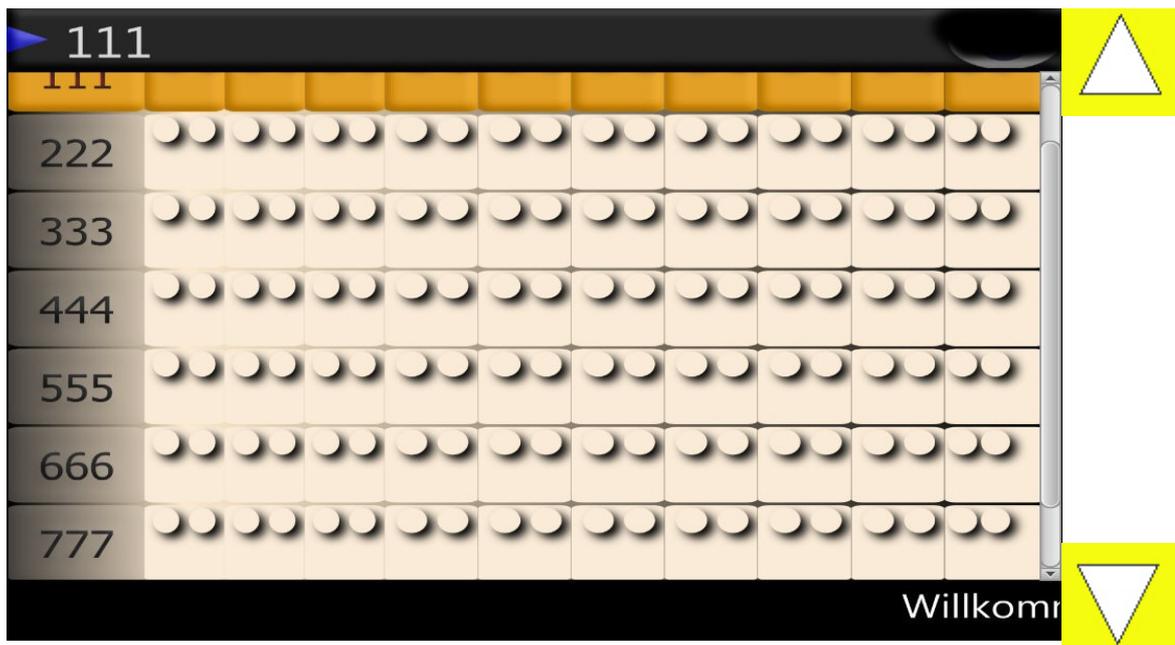
Use the arrow keys to select “New game”, press START key to reset all scores on the current game.

Touch- or APP-Keybaord shows:



More than 6 players display management:

For 6 or more players, the score grid is displayed within a scroll pane, which automatically scrolls to the active player. Press the arrow buttons to scroll manually:



Kidsbowling (OPEN-5):



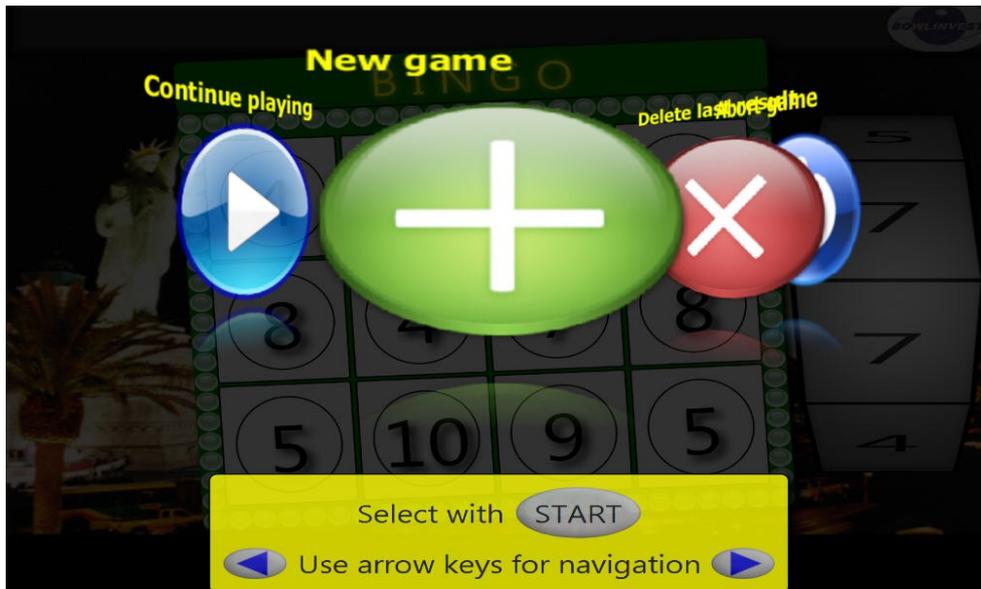
Kids bowling is a shortened and simplified version of the normal bowling game (OPEN). The game consists of 5 frames and the points are counted different than in OPEN. A strike and a spare count exactly 10 points without any further bonus.

Bingo:



The bingo game is played with only one player or a group. The goal is to have all the fields marked. The bingo numbers are automatically generated and can be renewed manually in the menu.

Use the arrow keys to select “New game”, press START key:



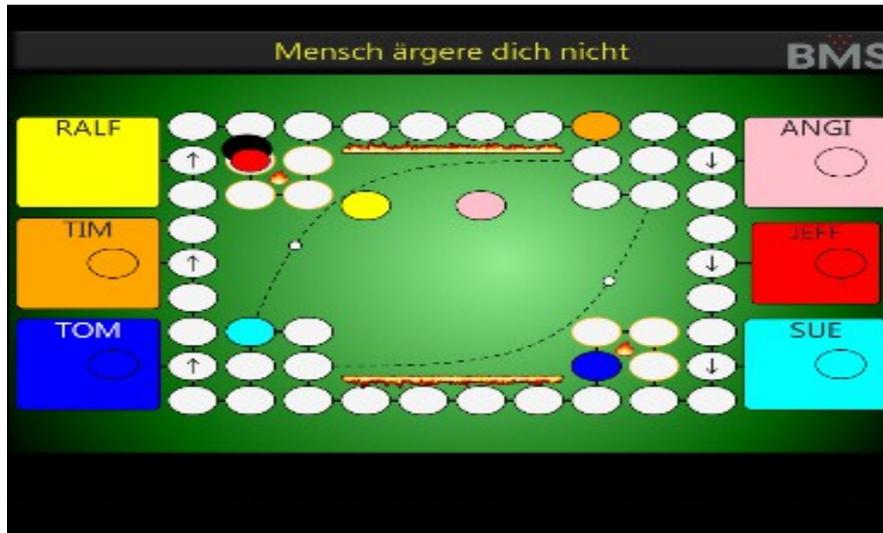
Carrace:



In the game: Car racing, the results are displayed as a car race. The number of players is limited to 6. Names can be changed, added or deleted, even during the running

game.

Ludo:



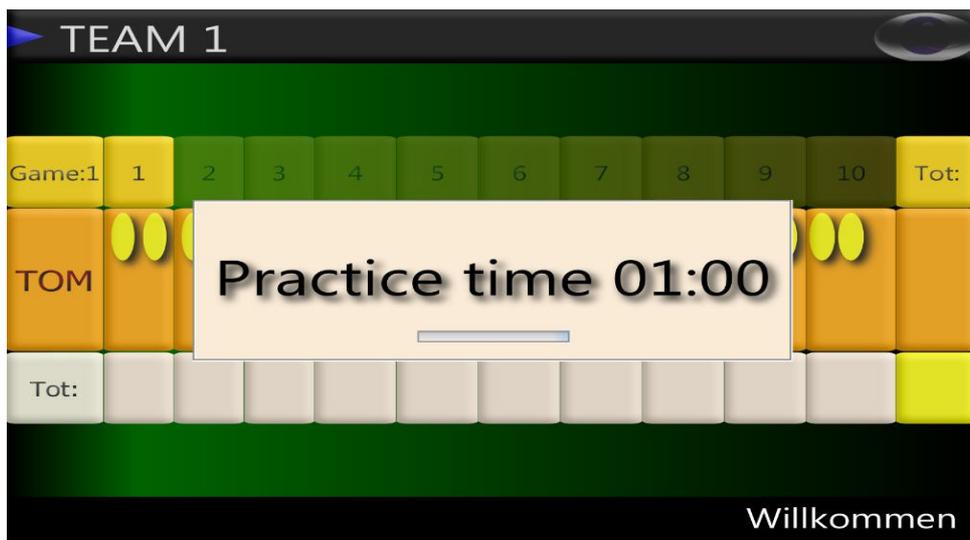
Up to 6 players play against each other. Each player tries to drive his 2 "stones" through the labyrinth in the middle. If a field is already occupied, then this stone will be sent home, other fields will kindle a fire. The game continues until only 1 player remains.

Ligue:

In this game type two teams play against each other on a double lane. After the end of each frame, the lanes are switched. The automatic lane change can be disabled in the name input. Specifying handicap and the series is optional:



The duration of the practice time is adjustable in the settings.



The lane switch can be achieved manually:



Ligue with only one team:

Without the input of team and player names on the right lane a league with only one team is placed. (With automatic lane change).

Settings:

The settings are divided into:

Machine-Settings:	Machine type, bumper, keyboard type etc..
Display-Settings:	Display options
Network-Settings:	<u>(Only visible when network available)</u>
Graphic-Settings:	Multimedia gallery
Camera-Settings:	CCD calibration

The settings menu is accessible only if both lanes are in idle, then on the left lane enter the keys:



PROGP (keep the eye key pressed)

In order to get to the settings via webbrowser, the display IP address must be entered in the Browser:

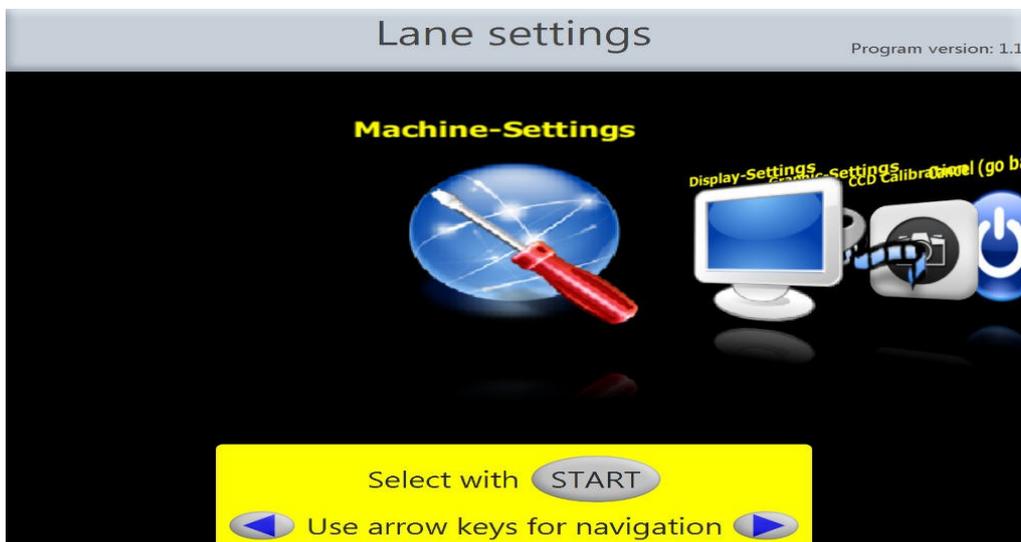


The login is: bms2

After successful login:

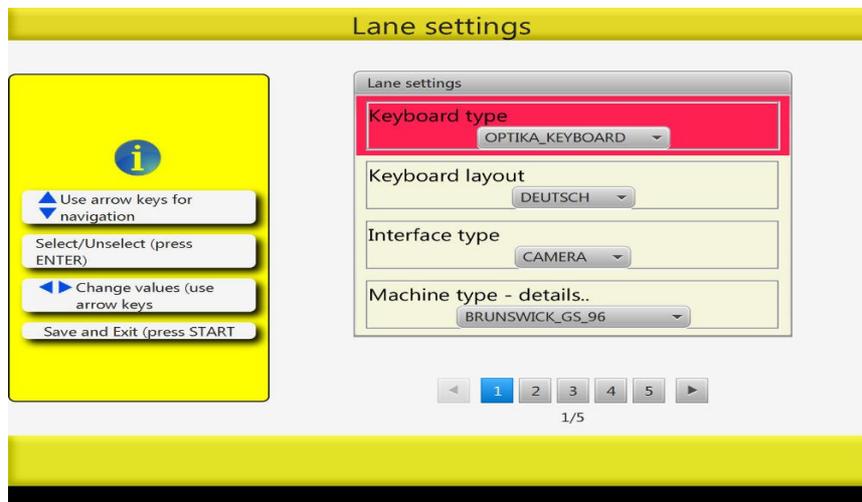


Navigate with the arrow keys, select the menu with the middle selection key



<p>Touch- or APP-Keybaord shows:</p>	
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Machine settings:



Use the arrow keys to navigate:

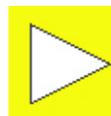


Modify values:

Select the corresponding field and press the ENTER key to make it editable:

ENTER

Select a new value using the arrow keys:



<p>Use the arrow keys to navigate. Change a setting: 1) Use the middle button to select / activate the field (the corresponding field will be green, 2) then use the left / right arrow keys to select the new entry and 3) Close the input with the middle button.</p>	
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Field:	Options:	Description:
Keyboard type	OPTIKA-KEYBOARD	Standard OPTIKA keyboard
	TOUCH-SCREEN	
	NO KEYBOARD	

Keyboard layout	DEUTSCH	German layout
	ENGLISH	
	FRENCH	
	ITALIAN	

Interface type: This value depends on the machine type. For all “non string” machines (AMF, Brunswick, Dacostar a camera interface is used whereas for string pinsetters with their own control (Funk, Spellman, etc.) a so called Seil-camera interface is used.

For string pinsetters of type K800 (SES or Vilati) where Optika has the machine control integrated, the interface type: SES

For Brunswick machines GS-92, GS-96 and GS-98 Optika provides an interface that electronically reads the throw results from the Gamesetterbox, the interface type in this setup is GS-96

Interface type	CAMERA	String pinsetters Funk, Spellmann etc..
	SES	* String pinsetters S.E.S. / Vilati
	GS-96	Brunswick GS92-98
	SES-Control	**Control S.E.S.
	Kamenz-Control	Kamenz-Controller for SES machine OR Kamenz-Adapter for Funk/Spellmann controllers

- * Control produced from BMS
- ** Control produced from S.E.S.

When the interface type CAMERA machine types are further divided into subclasses:

Interface type	Machine type - details	
CAMERA	UNIVERSAL_SEILKAMERA	String pinsetters Funk, Spellmann etc..
	AMF_82_90	AMF Machines
	BRUNSWICK_GS_96	Brunswick GS92-98 (with CCD-Interface)

The settings are machine-specific, the display is therefore dependent on the selection of the interface type and the type of machine.

String pinsetters (S.E.S / Vilati):



Lane settings

FRANCE_SES

Spick delay after UP-position [ms]
_400

use bumpers
YES

use green light (Machine ready)
NO

use 2nd ball light
YES

use pindeck light
YES

◀ 1 2 3 4 ▶
2/4

i

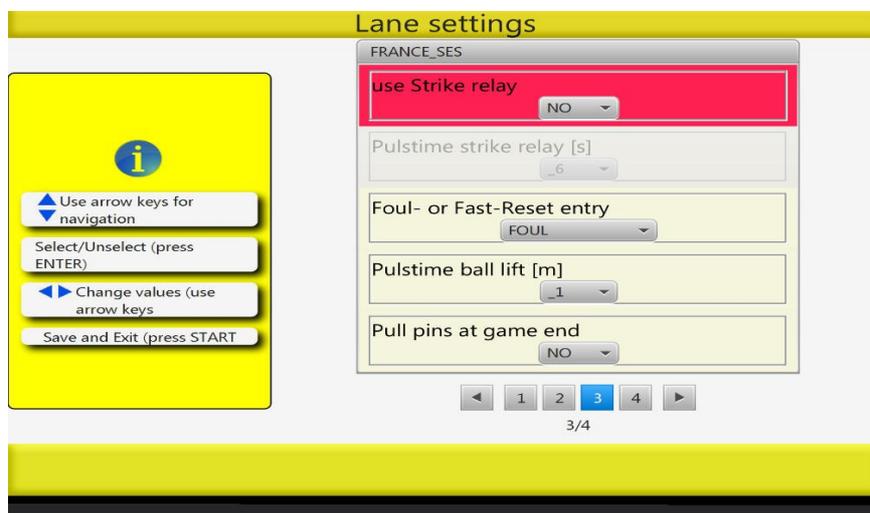
▲ Use arrow keys for navigation

Select/Unselect (press ENTER)

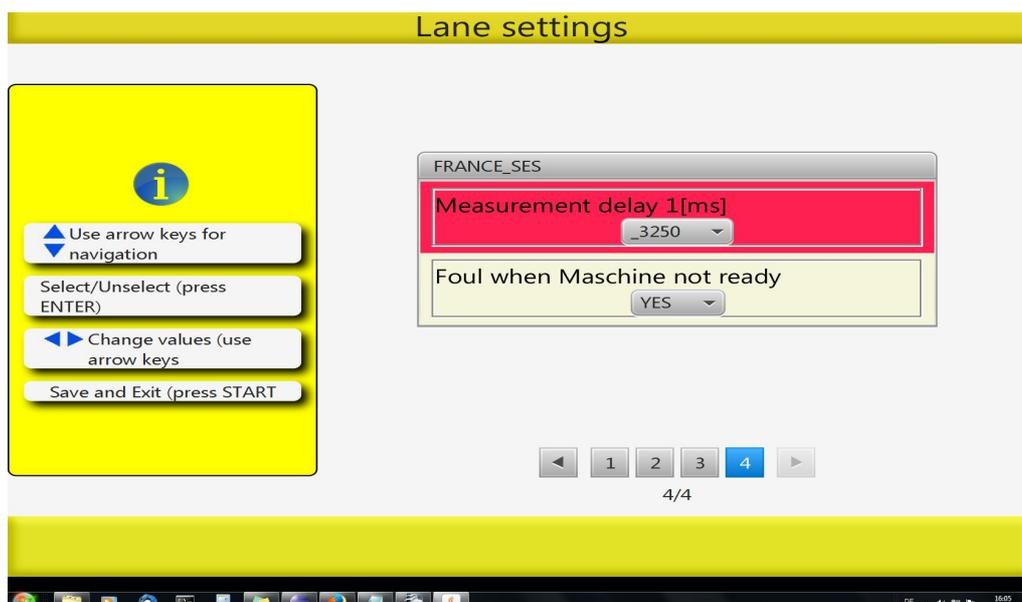
◀▶ Change values (use arrow keys)

Save and Exit (press START)

Spick delay after UP-position [ms]	This value defines the cable length for the spicks: The machine provides the Optika interface the signals above (O) and Bottom (U). The spick magnets are pulled after this delay time (after negative edge of the O signal).
Use bumpers	Bumpers are installed and controlled by Optika
Use green light (machine ready)	Lamp for display when the machine is ready.
Use 2 nd ball lamp	Lamp for display when machine is in 2 nd throw.
Use pindeck light	Pindeck light is powered and controlled by Optika.

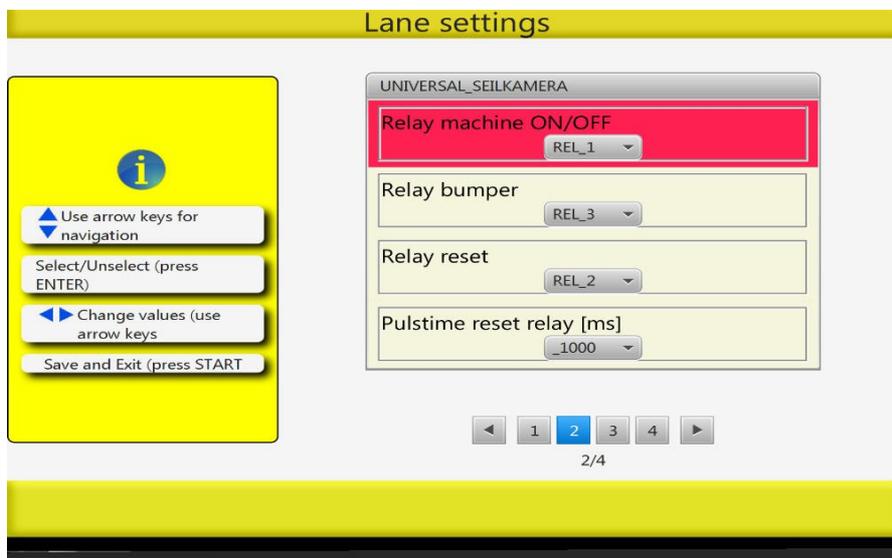


Use strike relay	A relay is pulled on the interface when a strike is thrown.
Pulstime strike relay [s]	Defines the duration of how long this relay is pulled
Foul- or Fastreset entry	Defines how the input signal is processed on the interface: Foul: The throw is considered a foul. Fast Reset: The machine makes a reset and respots 10 pins
Pulstime ball lift [m]	Defines the duration of how long the ball lift or accelerator is on after a ball passed the photocells
Pull pins at game end	Pulls up the pins at the end of an OPEN-game. The game may become continued by the counter desk computer (CCS).

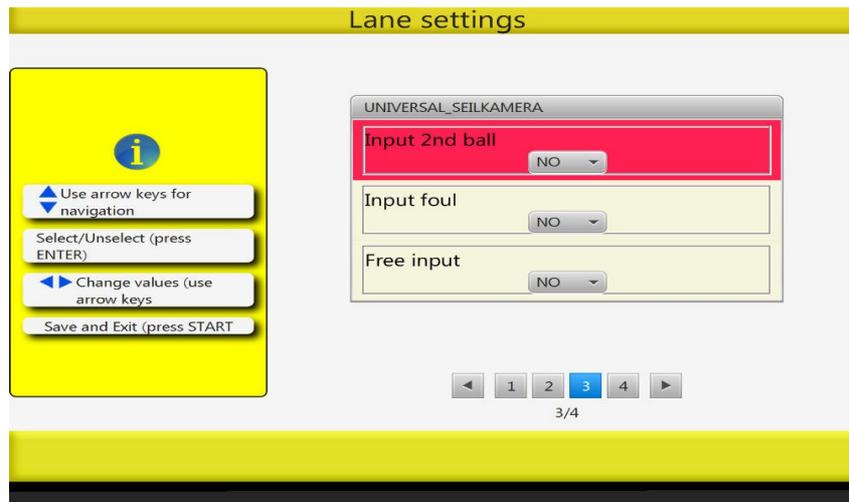


Measurement delay 1 [ms]	Delay between the ball passes the photocell and measurement.
Foul when Machine not ready	Scores a foul when the ball was thrown too early (Ball passed photocell before machine has stopped).
Delay Stop in O [ms]	Delay time Switch off the motor after "Top" signal. Fine tuning: Park the carriage in the lock (normally 200ms). *Requires Interface-chip 4.97+

String pinsetters (Spellmann / Funk etc.):



Relay machine ON/OFF	Relay to turn machine ON or OFF.
Relay bumper	Relay to turn bumpers ON or OFF
Relay reset	Relay to perform a RESET on the pinsetter
Relay invert	Relay which is to become inverted: E.g. Spellmann control requires the reset-relay to be inverted.
Pulstime reset relay [ms]	Defines the duration of how long this relay is pulled



Input 2 nd ball	The signal from the machine, indicating that the machine is in the 2nb throw. This synchronizes the Optika with the machine
Input foul	The signal from the foul detector, which is triggered when crossing the foul line.
Free input	An externally connected switch that supplies the signal. Is used to make the machine manually on or off.
Bumper Relay Pulstime	Normally this must be 0. Only used for the older BMS-Bumpersystem that requires only a pulse.

Measurement delay 1 [ms]	Delay between the ball passes the photocell and measurement.
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String pinsetters (with Kamenz Control):



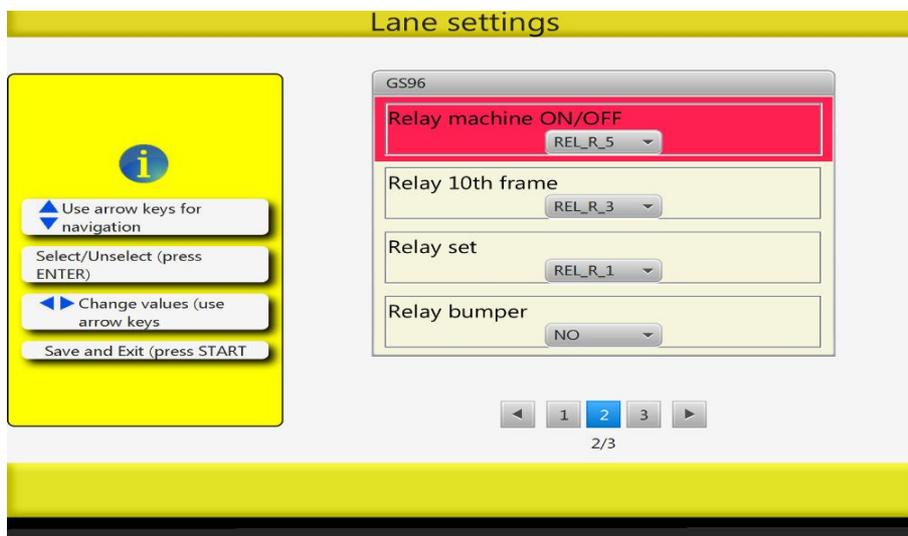
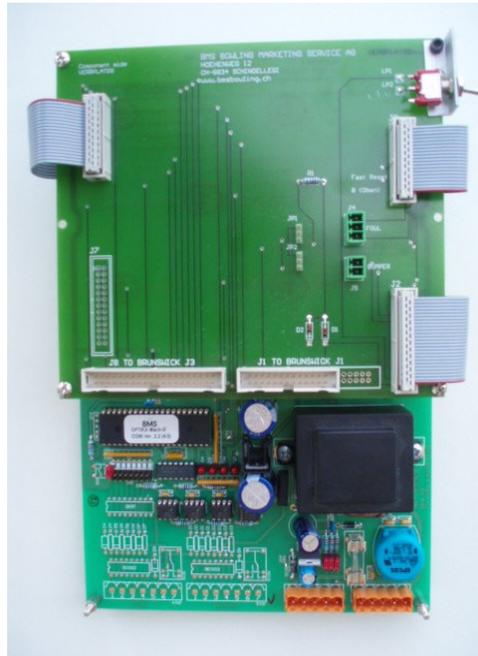
Optika-2 is compatible with the Kamenz-Control for stringpinsetters. The lanecomputer is simply connected with 2 serial RS232 cables to this control.



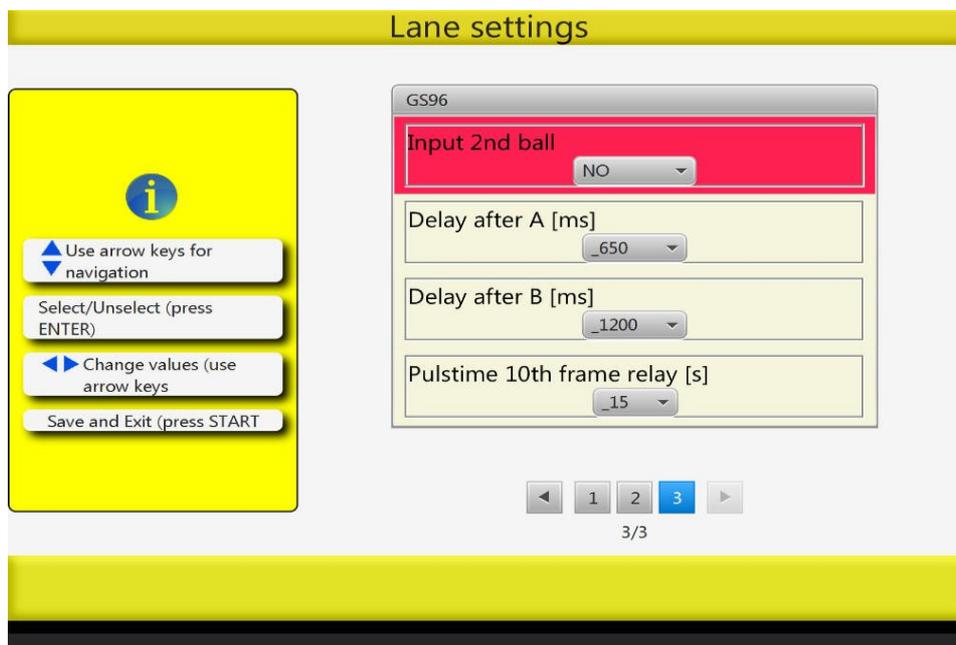
There exists also an adapter from Kamenz which interfaces existing machine controllers from Funk/Spellmann machines.

Bumper relays	If bumpers are available
Foul-Entry	If foul line is available
Scan interval	Interval in [ms] for polling results from the control

Brunswick GS92- 98(without Camera):

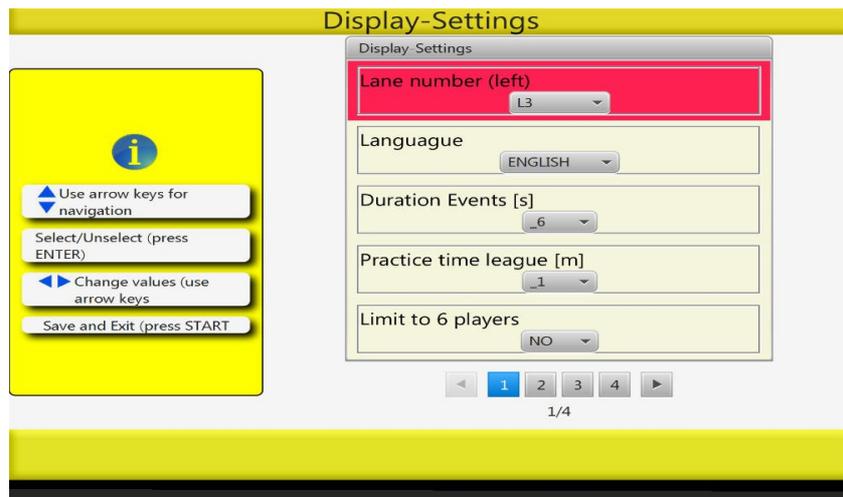
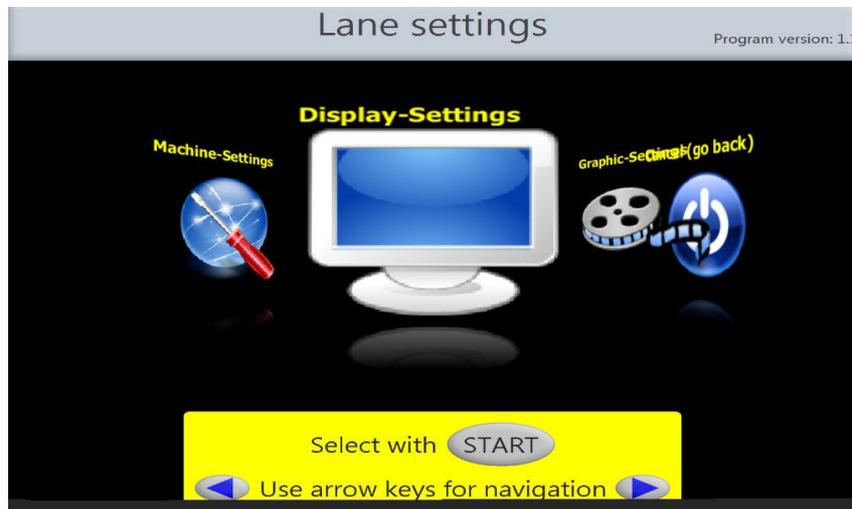


Relay machine ON/OFF	Relay to turn machine ON or OFF.
Relay 10th frame	The relay, which performs a RESET after the 3 rd ball in the 10 th frame to reset the machine back into the first throw.
Relay set	The relay which performs a SET. This action is executed by pressing the key combination eye +0 on the keyboard console. The machine respots the pins.
Relay bumper	Relay to turn bumpers ON or OFF

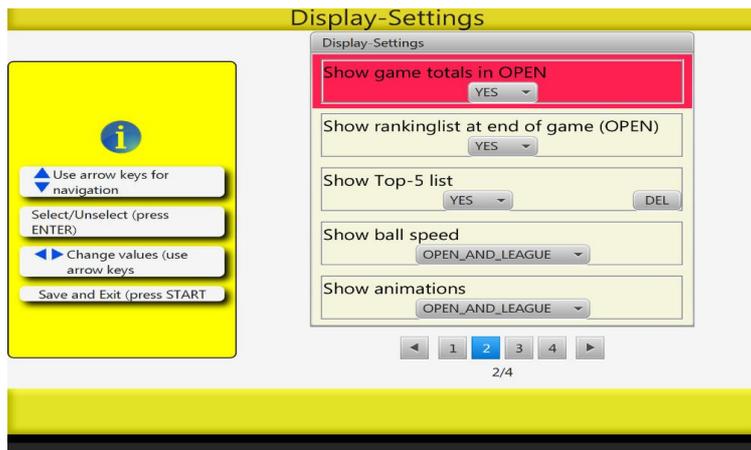


Input 2 nd ball	The signal from the machine, indicating that the machine is in the 2nb throw. This synchronizes the Optika with the machine
Delay after A [ms]	Delay time on which the first reference measurement is taken from the pin signals
Delay after B [ms]	Delay time on which the seconds reference measurement is taken from the pin signals
Pulstime 10th frame Relay [s]	Defines the duration of how long this relay is pulled (pulsed)

Display-Settings:

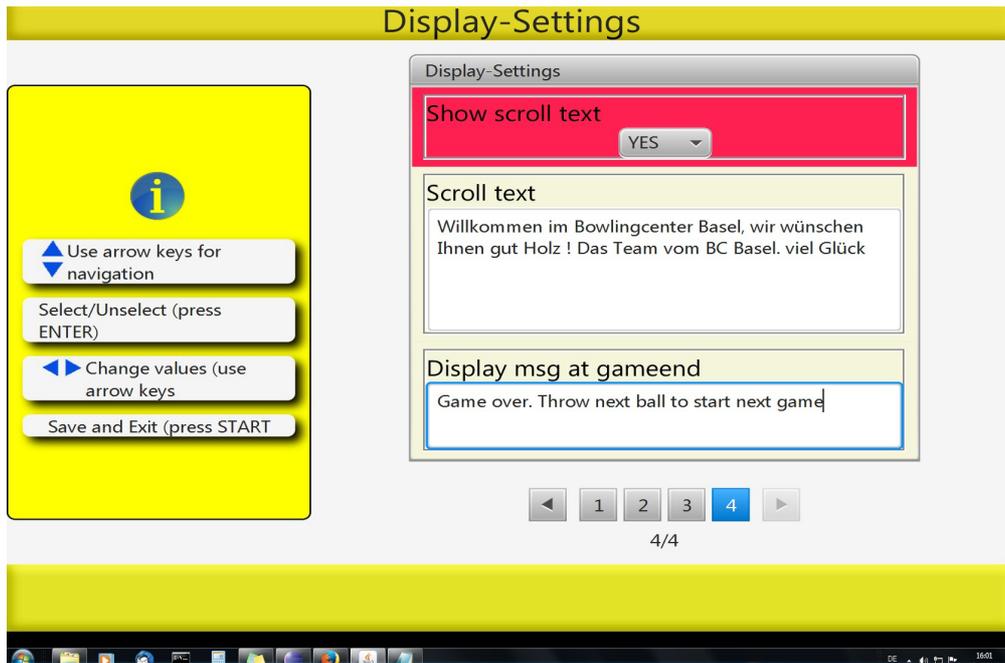


Lane number (left)	Lane number of left lane.
Language	The default language.
Duration events	Die display time for video clips or images during the game
Practice time league [m]	
Limit to 6 players	Limit the max number of players to 6



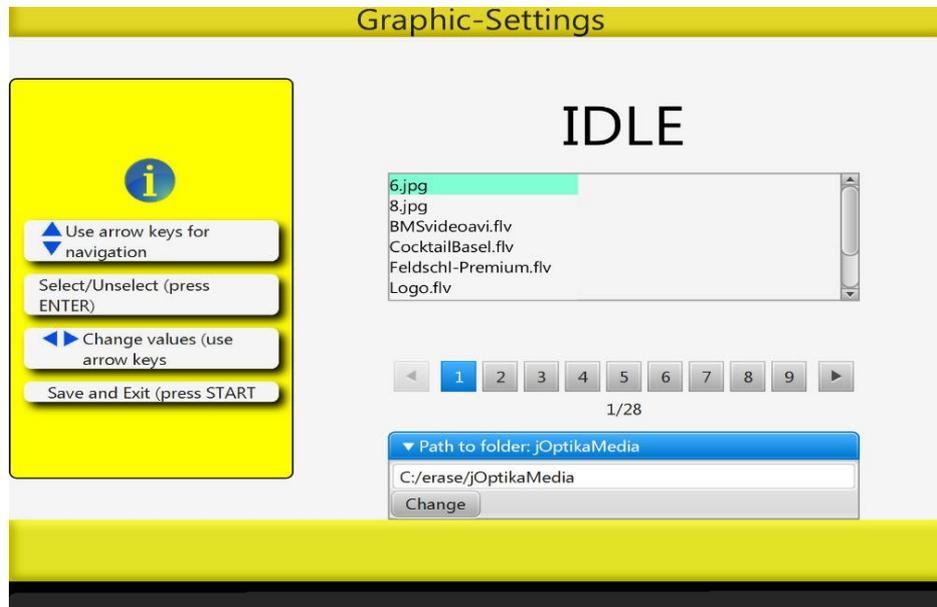
Show game totals in OPEN	Displays the game totals in an additional column on the right side (from the 2nd game on)
	<u>Hint:</u> Use the arrow keys, this column can be hidden on and off again
Show ranking list at end of game (OPEN)	At game end a ranking list is displayed for ca. 10 seconds (if number of players > 2).
Show ball speed	NO: No
	OPEN_AND_LEAGUE: Only in OPEN and LEAGUE.
	LEAGUE: Only in LEAGUE
Show animations	NO: No
	OPEN_AND_LEAGUE: Only in OPEN and LEAGUE.
	LEAGUE: Only in LEAGUE

<p>Show bumpers on name entry screen</p>	<p>Displays a button for activating the bumpers at the name entry. Hint: The bumpers can also be activated without this button is visible.</p>
<p>Show sign when machine ready</p>	<p>Displays a green lamp on the scoresheet when the machine is ready (This option is only available for stringpinsetters type SES and Brunswick GS-92-98 pinsetters)</p>
<p>Machine Wrong throw: Warn or correct?</p>	<p>If the 2nd throw input is defined in the machine settings, then this field is editable: WARNING: Only a warning hint that machine is not synchronized is getting displayed CORRECT: Automatic correction: When 2nd throw input signal is present and if scorer is expecting the 1st ball, then the result is getting ignored</p>
<p>Keypad lock at the start:</p>	<p>At startup, the keyboard is by default unlocked. A default screen lock is useful e.g. when the the "Free input" is programmed in the machine settings: Open/Close the lanes from a remote input signal</p>
<p>Show Bumper field on Nameentry-Screen</p>	<p>Show or hide this field (Activation of bumper still possible)</p>



Show scroll text	
Scroll text	(Enter best with normal PC keyboard instead of using keyboard console)
Display msg at gameend	Customized text that is getting displayed at the end of a game. It replaces the standard text at game end.

Multimedia settings:



The graphics (picture and video) files, which are displayed in Optika, are located in a folder directory. The events for these media files are arranged in sub-directories. If an event occurs Optika randomly picks a media file from the appropriate directory and displays it on the screen.

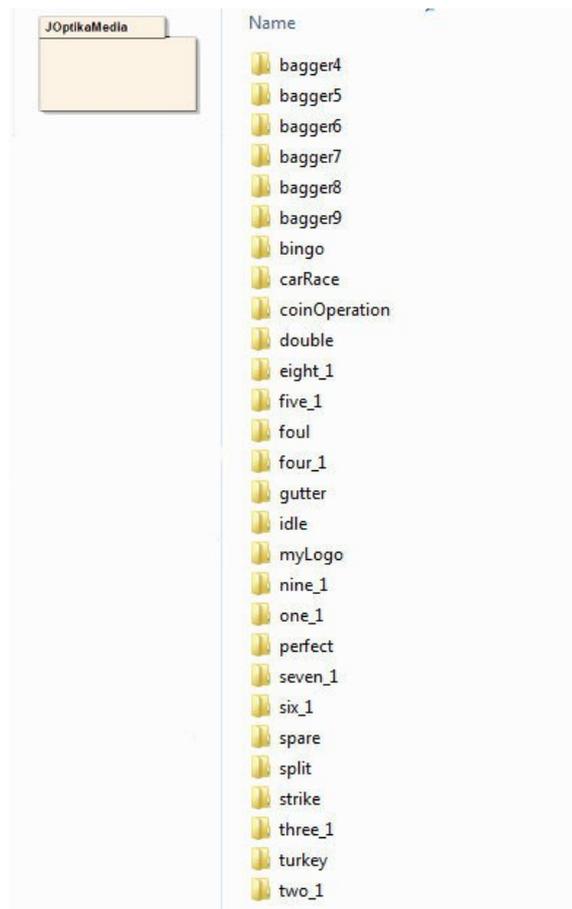
A list of all events:

Description:	Definition:
IDLE	Idle or standby, no game is on.
FOUL	Foul
GUTTER	Gutter, 0 Pins after 1 st ball
SPARE	Spare, 10 Pins after 2 nd ball
STRIKE	
DOUBLE	2x Strike one after another
TURKEY	3x Strike one after another
BAGGER_4	4x Strike one after another
BAGGER_5..etc	5x Strike one after another..etc

SPLIT_FIRST_THROW	Split after 1 st ball
SPLIT_SECOND_THROW_S PARE	Spare, after split
NINE_FIRST_THROW	9 pins after 1 st ball
EIGHT_FIRST_THROW	8 pins after 1 st ball
.	..
BINGO_START	Start-up video clip
BINGO_MISSED	Graphic when no bingo number hit.

Folder structure for graphic files:

The directory structure must be constructed as follows:



The multimedia directory of all sub-directories is arbitrary. Several of these directory structures can coexist.

By default, the home directory is: /public/JOptikaMedia

This folder is shared on the network and graphics can become uploaded or removed.
Login/Pass: **shareuser/samba**

Hint: Special sub-directories:

The logo image file which is displayed in the game on the top right corner is located in the folder /mylogo.

In each subfolder optionally another subfolder **/evening** can be generated. Graphics that are in a **/evening** folder are only displayed within the time 19:00 - 05:00 o'clock. For example, Advertising for alcoholic beverages etc. could be placed there

Supported graphic formats:

Optika has been developed using JavaFX and supports all formats that are supported by JavaFX:

FLV container with VP6

These are standardized containers for multimedia resources. All key formats such as WMV, AVI, MPEG, etc. may become wrapped into this container.

(<https://www.videohelp.com/software/Riva-FLV-Encoder>)

All supported formats can be found on the following website:

docs.oracle.com/javafx/2/media/overview.htm

The size of the image or video clip is unimportant since Optika automatically zooms to the appropriate resolution.

The images must have the extension: .jpg or .png. The latter are semi-transparent images, the background is transparent, if they have an alpha channel.

Using own media files:

Create your own video clip (in WMV or AVI or MPEG format), **best 800x600 pixel** resolution (later automatically zoomed to this size). Copy the container into the corresponding sub-directory.

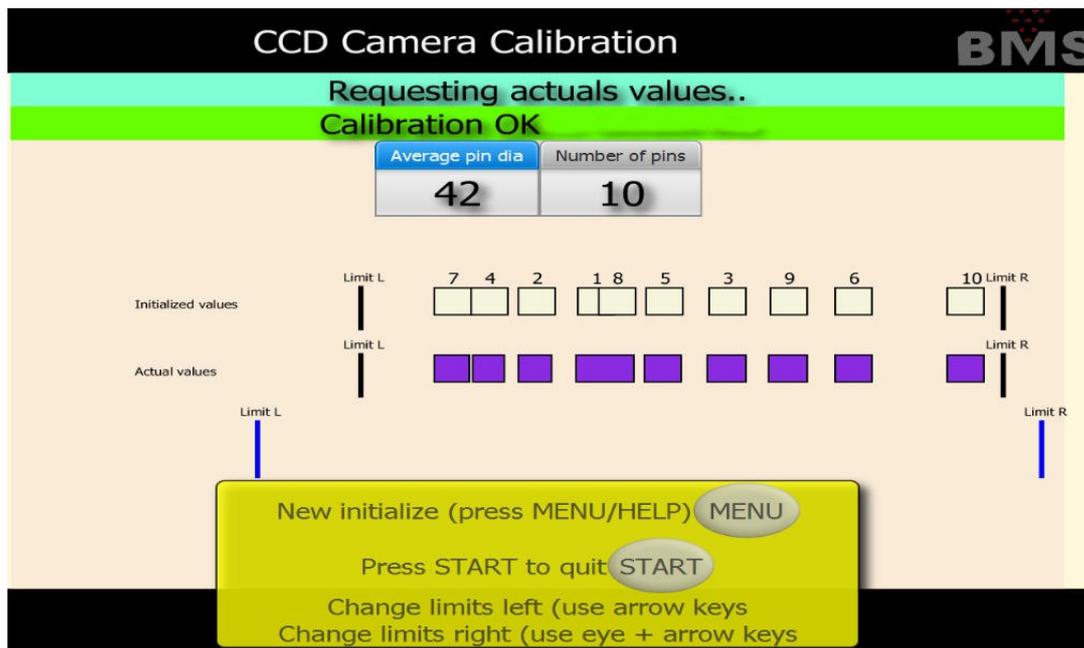
Note: The filenames may not contain spaces or special characters in the case of Optika program versions before 1.2.37.

CCD Calibration:

This menu is only visible when the interface type is set in the machine settings to CAMERA. The CCD calibration must be performed 1x for aligning the camera on the lighting conditions of the pindeck.



Both lanes have to be in idle or menu state to perform the calibration. All 10 pins and the pindeck light have to be on.



The "Initialized values" indicate the areas where the camera expects signals from the pins due to the last initialization and the limitations of left + right.

The "Current Values" show the actual measured signals.

Use the arrow keys to adjust the measuring range, eliminate possibly interfering signals (which are not signals from pins but impurities etc..) which prevent the initialization.

The "Average pin diameter" is supposed to be equal (+/- 4) on both lanes.

Perform a new initialization with the key:



Quit with the START key.

Network-Settings:

The network feature offers:

- 1) Access to the media folder, add or remove graphics
- 2) Make the OPTKIA accessible by an app-Keyboard or webbrowser.



This menu is only visible when a network is available before the OPTIKA system is launched

Activate Http-Server	Always active when a network is available
Activate CCS-Server	Only activate in cooperation with the Networking-Version of CCSFX.*
Activate Hardware-Server	Only activate in cooperation with Touch- or app-Keyboard*
Public access	Allows public access: Anyone can open the ip address in any webbrowser, the generated HTML page is acting as a keyboard.

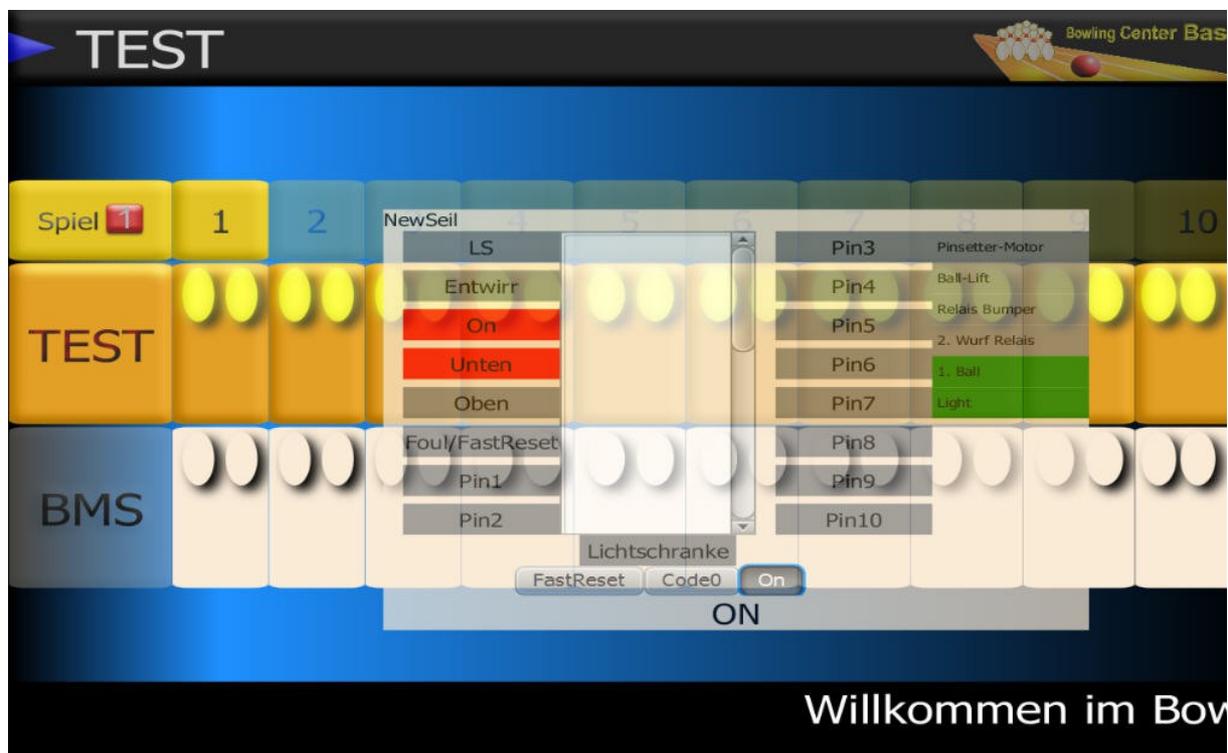
* if activated: the system is repeatedly trying to establish a connection which is useless when no network is present.



Display additional machine related information for installation or troubleshooting:

These information are helpful during installation or trouble-shooting. It displays all signals and relay states on the interface. For each interface type, there is a separate presentation:

Press the keys: Eye + 1 to show up the information window:
In this example the interface type is SES (String pinsetter):



On the left side: The input signals from interface are shown, marked with a red color if the signal is ON.

In this example:

The interface receives the ON signal (which comes from the “Seilzug” switch).

The machine is in position “Unten”, that means “down” and all pins are supposed to be spotted on the pindeck.

On the right side: The Relays, highlighted in green color if pulled:

In this example:

The relay for the 1st throw lamp is pulled and the the relay that activates the pindeck

light.

On the bottom panel: The state of the machine is displayed:

ON: Machine is on.

Other possible states:

WAIT_FOR_U: machine cycles until the signal “Unten” is reached.

WAIT_FOR_O: machine cycles and stops when the “Oben” signal (= UP) is reached.

More states:

UNDEF	Undefined, receiving no information from the interface
OFF	Machine off
ON	Machine on
ON_BUT_PINS_PULLED_UP	Machine is on but the pins are pulled up. This is the state when a game finishes and in the settings the option: “Pull pins at game end” is activated.
WAIT_FOR_MANUAL_ENTWIRR	At this state the detangling of the pins has to be done manually.
WAIT_FOR_O_PULL_PINS_ONLY	This is the state before ON_BUT_PINS_PULLED_UP is reached. The machine cycles until the “Oben-” signal is reached then it goes into the next state: ON_BUT_PINS_PULLED_UP