

OPERATING INSTRUCTIONS I-MOTION-NET / SOFTWARE gen.3 for EXPERT-T III / BASIC-C II (Translation)



**Control system for kinetic drives
in accordance to DGVV-V54 and DGVV-V VI7/18, D8 Plus / IGW SQ P2
as well as EN 61508 SIL 3**

Safety first – made in German

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1. Safety instructions, intended use

The safety instructions apply to the software as well as to the entire system.



1.1. General

- Observe the operating instructions of the system and the safety information listed there.
- This system is designed to control professional kinetic stage systems. Use for other purposes is prohibited. It must only be operated by experienced system operators trained by the manufacturer.
- Read the instructions in this manual carefully, as they contain important information about installation, operation, and, in particular, safety.
- This manual is to be used without fail in the event of sale, transfer or instruction of additional operators to ensure that new users of the system are fully informed on the operation and safety instructions.
- The system may only be put into operation by persons of legal age. Minors may not handle this system in any way.
- Electrical work required for installation and maintenance of the plant must be performed by a qualified technician/electrician or by properly trained personnel.
- The system must be protected from moisture, dust and high temperatures:
 - Prevention of ambient temperatures of 40° C and above
 - Protection against penetration of liquids or metallic objects and dust
 - Care during closure of system parts such as control cabinets, panels and terminal boxes
- In the event of severe malfunctions, the system is to be shut down or brought into a safe state. In this case, it is essential to contact the manufacturer's service.
- Devices must not be opened. There are no internal parts that can be repaired by the user.
- Equipment must not be disassembled or modified.
- Never attempt to repair equipment yourself.

1.2. System safety

The control system in conjunction with the I-MOTION-Software and the V-MOTION, V-MOTION-E, NDB, NMB, NBB, EXPERT-T III und BASIC/-S/-C system components fulfil the standards of EN 61508, SIL 1 to SIL 3 (depending on the technical equipment), and is therefore suitable for scenic, kinetic movements over people if the system is fully extended. Since the control with the connected drives, controllers and networking components makes up a system, it is essential that all connected components are tested according to their purpose and the specifications and output all signals required by the I-Motion-Software. If this is not the case, then the entire system, and thus the control, is not to be considered as a safety-related system in accordance with the provisions of EN 61508 and the corresponding SIL (1-3).



Rule: the weakest link in the chain determines the level of security classification.

Accordingly, all slings and suspension points used are to be considered. The selection and design of all supporting elements (e.g. suspension points, beam clamps, shackles, steel wire ropes, slings, trusses, etc.) in the flux must be done under consideration of the hazards and stresses occurring in each case (see DGVU-I 215-313). In addition, dynamic factors, particularly in high-speed drives (>10 m/min) are to be observed and used in calculations.

Attention:

The operator always has the overall responsibility for the system he or she operates. He or she has to familiarize him- or herself with the relevant and applicable guidelines and comply with them. Therefore, we recommend creating a risk assessment for each system configuration used, and accordingly, determining the necessary safety standards for the individual components, the entire system as well as for the movement parameters to be programmed. It might be useful, to keep a written record of those risk assessments.

The basis for the assembly, disassembly and operation is always based on the degree of hazard (risk analysis) which might be effected by the operator.

Furthermore, all specific country regulations and planning requirements are to be observed.



German rules and legal regulations for use in Germany:

- DGVU-V17/18 (former BGV C1 / GUV-V C1)
- DIN 56950
- DGVU-V54 (former BGV D8 / GUV-V D8)
- igvw SQ P2
- DIN EN 61058 SIL 1 to SIL 3
- DIN EN ISO 13849-1
- DIN EN 60204-32
- DGVU-I 215-310 (former BGI 810-D – Sicherheit bei Produktionen und Veranstaltungen – Leitfaden)
- DGVU-I 215-313 (former BGI 810-3 – Sicherheit bei Produktionen und Veranstaltungen – Lasten über Personen)

- DGVU-I 215-320 (former GUV-I 8636 – Arbeitsmittel zum szenischen Bewegen von Personen)

1.3. Supply and usage of machinery installation according to DGVU V-17 and DIN 56950

1.3.1. Area of application

Machinery installation is used in event locations to hold and move loads and people (e.g. sceneries, trussing, lighting and audiovisual gear) overhead.

1.3.2. Provision

The contractor is obliged to provide machinery installation and hoists according to DIN 56950. Drives according to DIN 56950 have to be labeled (e.g. "according to DGVU-V 17") to rule out confusion with drives according to other standards.

The drives have to be inspected by an authorized expert before entry into service according to DIN 56950 / DGVU-G 315-390 (former BGG 912). Furthermore, there is an annual service by a qualified person, and every 4 years by a authorized expert to be done.

Mobile, non-stationary devices have to be checked on an annual basis according to DGVU-V3 / VDE 0701/0702.

A use of machinery installation in connection with moving of performers during an artistic performance a separate inspection by an authorized expert according to DGVU-G 315-390 is mandatory.

1.3.3. Use

Tasks and responsibility of all involved persons have to be defined clearly (see DGVU-V 1 and DGVU-I 215-310). The operator's overall responsibility for the system remains unaffected. The operator is responsible in particular for execution, load capacity and condition of the attachment points (suspension points) he or she applies at the building site. For this purpose, he or she has to provide appropriate documentation (e.g. load plan). Assembly, disassembly and operation of kinetic stage facilities and equipment may only be carried out by qualified persons. The qualification required for planning, assembly and disassembly as well as operation depends on the degree of hazard. The person responsible for the management and supervision must prepare instructions for the behaviour during assembly and disassembly as well as operation of the equipment and installation work based on a risk assessment and tailored to the specific applications and make these available to the employees.

The person responsible for the management and supervision of the system must release the system. The release can only take place if the basic checks have been proven to maintain the required safety standards. A transfer to other users must be documented in writing (see EN DIN 15750).

TIP: It is always advisable to run through the entire performance including all details after the set-up and programming with significantly reduced speed (approx. 10%) in order to detect and correct any expiration or programming errors. Only after a successful and error-free run is the speed to be increased to the maximum and more test runs executed. Only then the system should be released for use.

In the case of scenic movements in which continuous monitoring cannot be ensured, supplementary, remote E-stop points are to be set up if necessary.

1.3.4. Risk assessment

At the supply of machinery installation all possible risks and hazardous situations that could be anticipated in specific operating conditions have to be taken into account. Specific measures have to be defined to avert potential hazards in relation to the risk assessment. The analysis has to be based on the list of significant hazards according to DIN EN ISO 12100.

1.3.5. Stop-Category in case of Emergency-Stop

In accordance to DIN 56950 there are two different categories for emergency-stops.

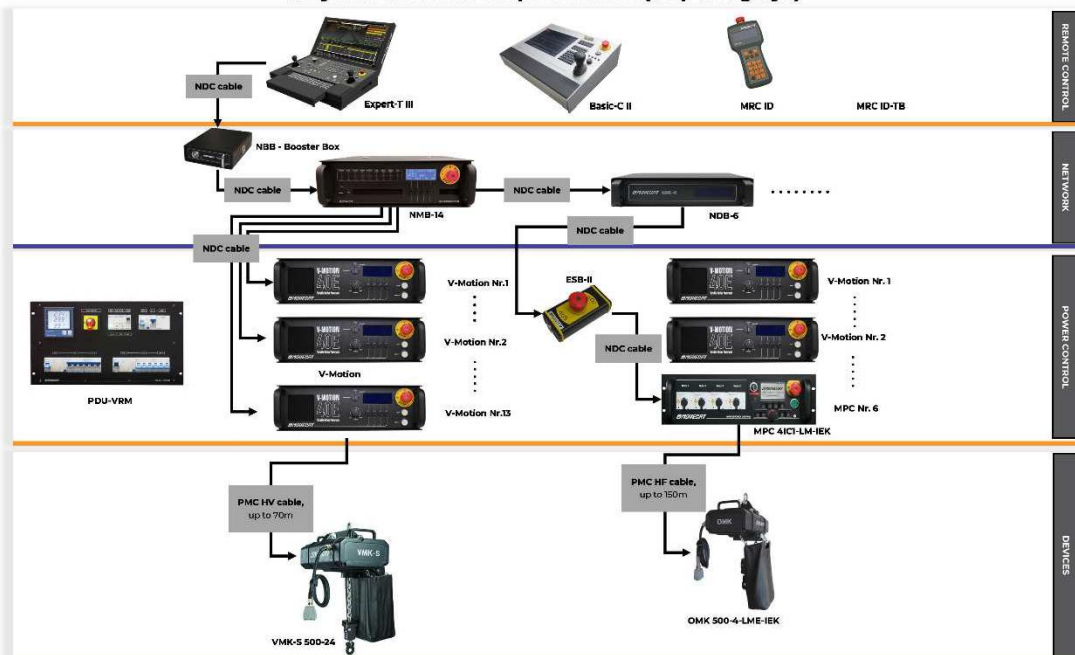
Stop-Category 0 in accordance to EN 60204-1:

Stopping by immediate removal of power to the machine actuators, immediate activation of all breaks and/or other mechanical stopping mechanism. This applies to all fixed-speed hoists as well as Vario-Drives in a standard network without delayed Emergency-Stop-Signal [2.3].

Stop-Category 1 in accordance to EN 60204-1:

A controlled stop of the drivemovement with power available for the machine actuators to achieve the stop. The power will be removed if the drivemovement has stopped. This applies to Vario-drives in connection with a NMB (Network-Master-Box) only!

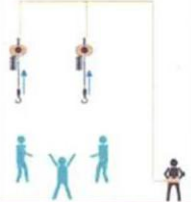
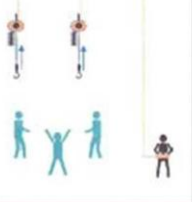
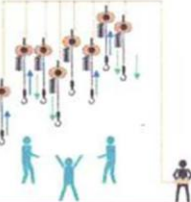
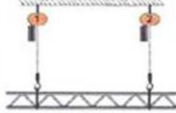
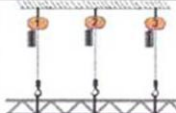
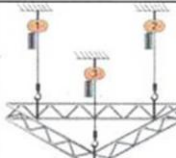
C1 system with variable speed devices (Stop Category 1)



1.4. Usage and selection of hoisting machines (DGUV V-17 and DIN 56950)

Depending on the type of usage there is a necessary minimum feature configuration of the hoisting machines to be picked according to the table below.

At a synchronous group drive an error in the group stop can result in an overload in the mounting suspensions. If during scenic movements a continually observation is not ensured, the total load must not exceed the bearing load of one hoist. If applicable, additional relocated emergency stop facilities have to be installed.

	Used for Building and setting up	Simple scenic drive with visual contact	Complex scene drives with visual contact and mutually dependent movements
			
Loadsystem			
	C 1	C 1	C 1 bei Kollisionsgefahr +E1 +E4
	C 1	C 1 +E2	C 1 +E1+E2+E4
	C 1 +E3 oder C 1 +E1+E2	C 1 +E3 oder C 1 +E1+E2	C 1 +E1+E3+E4
	C 1	C 1 +E1+E2 oder C 1 +E3	C 1 +E1+E2+E4
	C 1 +E3 oder C 1 +E1+E2	C 1 +E3	C 1 +E1+E3+E4
	C 1 +E3 oder C 1 +E1+E2	C 1 +E1+E3 oder C 1 +E1+E2	C 1 +E1+E3+E4

C 1 = DGUV V17/18

Extensions of the control

- E1 = Underload shutdown
- E2 = Asynchronous group travel with group shutdown
- E3 = Synchronous group travel
- E4 = Control request with collision lock

2. Control of stage drives

2.1. Operating level

The **EXPERT-T III** and **Basic-C-II** control panels have been provided for the operation of the drives; it is / they are installed on a mobile trolley (optional). The control panel is pluggable and can be connected to the associated plug-in points or the first network distribution box, **NBB**, **NDB**, **NMB**, using a cable connection.

2.1.1. Control panel plug-in points

The plug-in points feature a heavy-duty circular connector with a bayonet locking mechanism to which the cable is connected to the control panel. In addition, the plug-in points are coded so that assignment in the system with operating restrictions is possible.

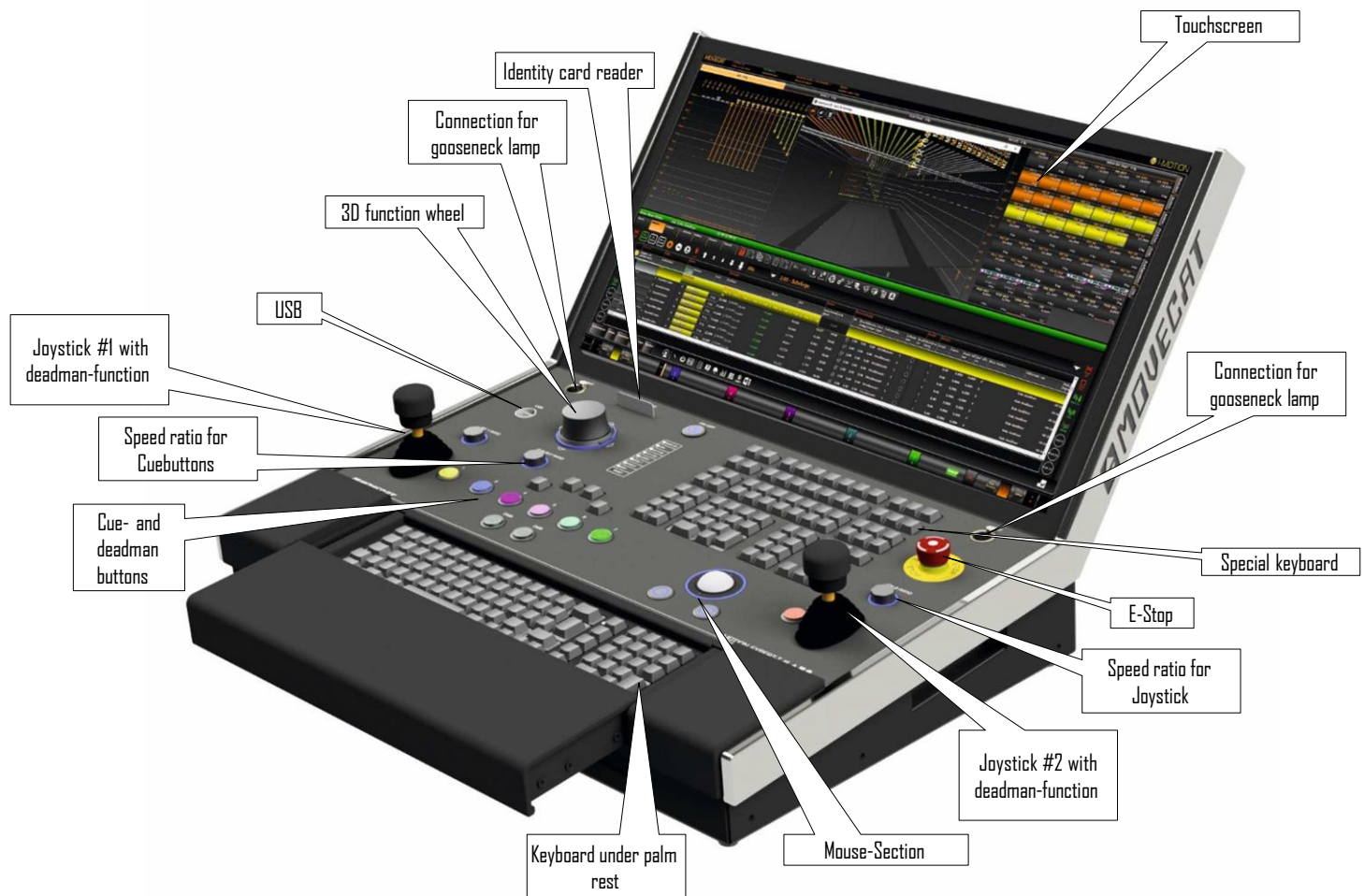
The plug-in points for the I-Motion-Network are available in different designs and are made specifically for mobile applications together with I-Motion-Net components NDB-6 / NMB-14, in case of fix installation a wall mounted intelligent connection box might be used.



2.1.2. EXPERT-T III operating computer

The control system along with the EXPERT-T III operating computer offers access to all drives. The operating computer is a complete workstation, allowing you to meet all control tasks on the stage. These include the different stages of production, such as performance, test, installation and retraction mode or the programming of transformations, called cues.

This scheme shows the maximum version according components and functions. The operating desk Basic-CII may have less components but the same software based functions.



2.1.2.1. Identity card reader, identity card (only an option, depending on the system configuration)

The user-specific operation authorizations are stored on the identity card. Depending on the version, parts of the software, i.e. certain functions, cannot be selected. Without a valid identity card, the operating computer remains locked. Changing a card is possible even during operation.

In addition to the identity card, log-in with username and password can also be activated for special reasons. Read Chapter 19. "".

Instruction 1: Log-in with identity card

1. Insert your ID card in the card reader of the console.
2. Your username appears in the title bar.
3. You can now use the operating computer and the **I-MOTION**-software.

Instruction 2: Log-out with identity card

1. Pull your identity card out of the card reader of the console. All drives are deselected.
2. There is no longer a user name in the title bar.
3. The desk and the **I-MOTION**-software are locked for all inputs.

2.1.2.2. Contact screen

The user interface of the **I-MOTION**-software is represented on the contact screen (second screen optional) and is operated by touch. All functions are also available in combination with the keyboard and the trackball or a connected mouse.

Attention:

Never use sharp objects on the contact screens. Only contact pins that are used for normal PDAs are suitable.

Never spray cleaning agents directly on the touchscreens, as liquids can penetrate the contact strip surrounding the screen and cause functional defects in the system, or even total system failure. For cleaning, use only special cleanser (e.g. TFT foam) and soft, lint-free cloths. Best suited are special cleaners for touchscreens provided by the computer industry.

2.1.2.3. Joystick-Control with incremental limiters

Both controls are equipped with mechanically locking deadman's control switches. Releasing them stops any moving drive according to the system emergency stop-level (see 7. "). Above each control is a regulator for fine adjustment between 0% and 100%. If a control is active, it is shown by an arrow-shaped indicator light.

Moving the control backwards (towards the operator) means that the drives will move from their current to the target position. If the control is bend forwards (away from the operator), the drives will move from their current to the start position.

2.1.2.4. Cue buttons with incremental limiters

Programmed movements can be executed via cue buttons – if existing (**Expert T III**). If a movement is present on a cue button, this cue button lights up in the corresponding colour. The movement can be triggered by pushing a deadman's button and the cue button at the same time. Movements can be started precisely if the brakes of the drives are initially released. Quickly pressing the cue button suffices (while holding down the dead man's button). This process requires up to two seconds depending on the drive. The drive then remains ready for about two minutes and can be put into motion with renewed pressure on the cue button. The cue button can be released as soon as the movement has started, the deadman's button has to be held down until the moving object has reached its target. If the cue button is pushed again during movement the movement pauses (after it drove the configured deceleration ramp) and can be continued via the cue button. Releasing the dead man's button during a movement causes the fastest possible stop of all moving drives.

As for the Joystick-Controls there is a control knob for fine adjustment from 0% to 100%. It refers to all cue buttons.

The coloured indicator lights of the cue buttons indicate readiness or the start and end of a drive movement with their blink rate.

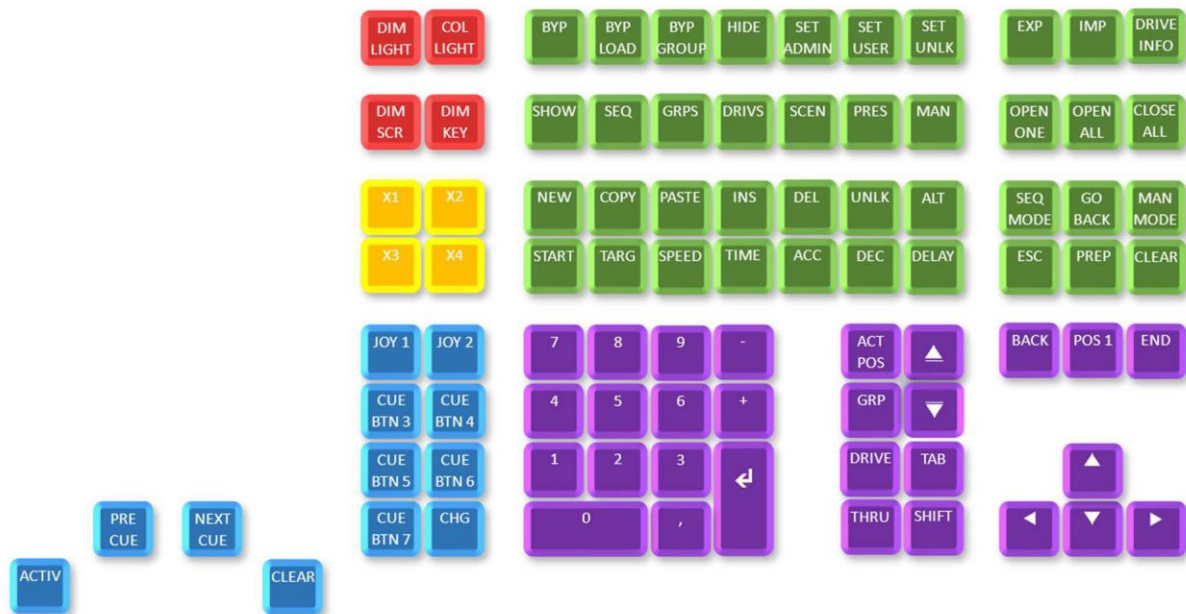
- Continuous light signalizes a cue is selected.
- Fast blinking light indicates that the brakes are released and the switch is active.
- Slow blinking light indicates a movement.

The arrangement of the cue buttons/control and their colour coding correspond to the user interface of the **I-MOTION**-software.

2.1.2.5. 3D function wheel

To the left of the screen is the 3D function wheel which is only used in the 3D view. It allows precise navigation for selecting the desired view. The zoom is activated by pressing and dragging. The view is shifted laterally when the function wheel is turned to the right or left. Turning clockwise or counter clockwise allows movement around the stage. Furthermore, two buttons are integrated at the bottom side of the function wheel. You can always open and close the 3D view with the left button. You always go back the start point with the right button, i.e. to a predefined angle in the 3D view.

2.1.2.6. Special keyboard



The keyboard can be subdivided into five different areas:

- General Input / Navigation (PURPLE)
- Cue/Sequence/Drive (BLUE)
- Special keys (YELLOW)
- Screen / keyboard adjustment (RED)
- Programmer keys (GREEN)

General Input

Beside the numeric keys there are some special keys to select drives or groups

ACT POS:	Current Position
GRP:	Group
DRIVE:	to select a Drive
THRU:	Through

For example "DRIVE 1 THRU 10 ENTER" selects Drive 1 through 10.

Cue/Sequence/Drive

JOY1 / JOY2:	to select a lever
CUE BTN 3-7:	to select a cue-button
CHG:	change
ACTIV:	active
PRE CUE:	previous Cue
NEXT CUE:	next Cue
CLEAR:	Clear

Special keys

Functionality not yet defined, until that they are not utilized

Screen / Keyboard adjustment

DIM LIGHT:	press plus +/- dims or brightens the gooseneck lights
COL LIGHT:	press to change the color of the gooseneck lights (red/white)
DIM SCR:	press plus +/- dims or brightens the backlight of the screen
DIM KEY:	press plus +/- dims or brightens the backlight of the keys

Programmer keys

BYP:	Bypass Trigger
BYP LOAD:	Bypass Load and Underload
BYP GROUP:	Bypass Group
HIDE:	opens a menu to hide the drives in the actual show
SET ADMIN:	opens Admin-menu (only when user have admin rights)
SET USER:	opens Super-User-menu (only when user have Super-User rights)

SET UNLK:	opens the lock
EXP:	Export Show
IMP:	Import Show
DRIVE INFO:	opens ICU-Machine
SHOW:	opens the show tab
SEQ:	opens sequence tab
GRPS:	opens group tab
DRIVS:	opens drive tab
SCEN:	opens scenery tab
PRES:	opens preset tab
MAN:	opens manual tab
OPEN ONE:	opens the details of the selected cue
OPEN ALL:	opens the details of all cues
CLOSE ALL:	closes the details of all cues
NEW:	e.g. new show, new cue, new preset...
COPY:	copies the selected to the clipboard
PASTE:	pastes the clipboard
INS:	cuts the selected
DEL:	deletes the selected
UNLK:	opens the lock
ALT:	alternate function
SEQ MODE:	activates the sequence-mode in sequence-tab (cue-Followon mode)
GO BACK:	changes start to targetposition in sequence-tab (Followon backwards)
MAN MODE:	manual mode in sequence-tab
START:	switch to start row
TARG:	switches to target row
SPEED:	switches to speed row
TIME:	switches to time row
ACC:	switches to acceleration row
DEC:	switches to deceleration row
DELAY:	switches to delay row
ESC:	Escape
PREP:	prepare the drives for the selected cue
CLEAR:	clears the programmer

2.1.2.7. Special keyboard with numeric keypad

Parameter settings are made via the alphanumeric keyboard or the numeric keypad. A field with special keys is arranged above the numeric keypad which allows for so-called syntax programming. Direct access to the control and setpoints via these function keys enables fast programming.



The special keyboard

<u>Button</u>	<u>Meaning</u>
CHG	Joy Change – for replacing positioning instruments

Example:

CHG ⇒ **Joy 1** ⇒ **Cue BTN 3** = The selected drives that are on control 1 are placed on cue button 3.

DRIVE	Drive selection
--------------	-----------------

Example:

DRIVE ⇒ **2** ⇒ **Enter** = Drive 2 is selected.

DRIVE ⇒ **2** ⇒ **+** ⇒ **4** ⇒ **+** ⇒ **16** ⇒ **Enter** = Drives 2, 4 and 16 are selected.

DRIVE ⇒ **1** ⇒ **THRU** ⇒ **6** ⇒ **-** ⇒ **4** ⇒ **Enter** = Drives 1 to 6 excluding drive 4 are selected.

CLEAR	CLEAR – The selection is cleared (all selected drives which are not assigned to a positioning instrument).
--------------	--

Example:

2x Clear – The entire selection is canceled.

CLEAR ⇒ **3** ⇒ **Enter** = only drive 3 is deselected.

Cue-/Joy-Buttons	to select a control
-------------------------	---------------------

GRP	Selection of groups.
------------	----------------------

Example:

GRP ⇒ **1** ⇒ **Enter** = Group 1 is selected.

2.1.2.8. Hidden main keyboard and trackball

Pulling out the upholstered armrest, you reach the main keyboard. The main keyboard is used for systemwide input of numbers and characters. On the top of the control panel, a trackball is located to the right of the cue buttons, which is used to navigate on the screen surface. Its functions are the same as a computer mouse.

2.1.2.9. USB connection

The USB interfaces can be used to connect more peripheral devices. A newly connected mouse is detected during operation and integrated as a pointing device as an alternative to the touchscreen and trackball. To avoid interference and influence by external devices, we recommend using only wired devices.

2.2. Switching system on/off

Since the control panels must be properly shut down, the software and operating system are automatically shut down in a given period of time after shutdown of the entire system (No voltage on the system). If the control panel is switched off at the plug-in point and the system remains in operation, it must be shut down as follows in order to avoid data loss.

Approach in the software:

⇒ right menu bar ⇒ 'Exit' ⇒ "Shut Down MOVEKET Desk" (or Basic/Basic-S/Basic-C)

2.3. E-stop functions of plug-in points, V-MOTIONS, NMB and control panels

Each **V-Motion**, **NMB**, plug-in point and each control panel is equipped with an E-stop mushroom switch which works on the entire machinery and is automatically acknowledged after rotary release.

All components connected to the **I-Motion** Network are equipped with a monitored emergency chain. Pressing just one E-Stop button deactivates the entire network. Please check carefully before using the system if there is any E-Stop button pressed otherwise the system would not work anyway.

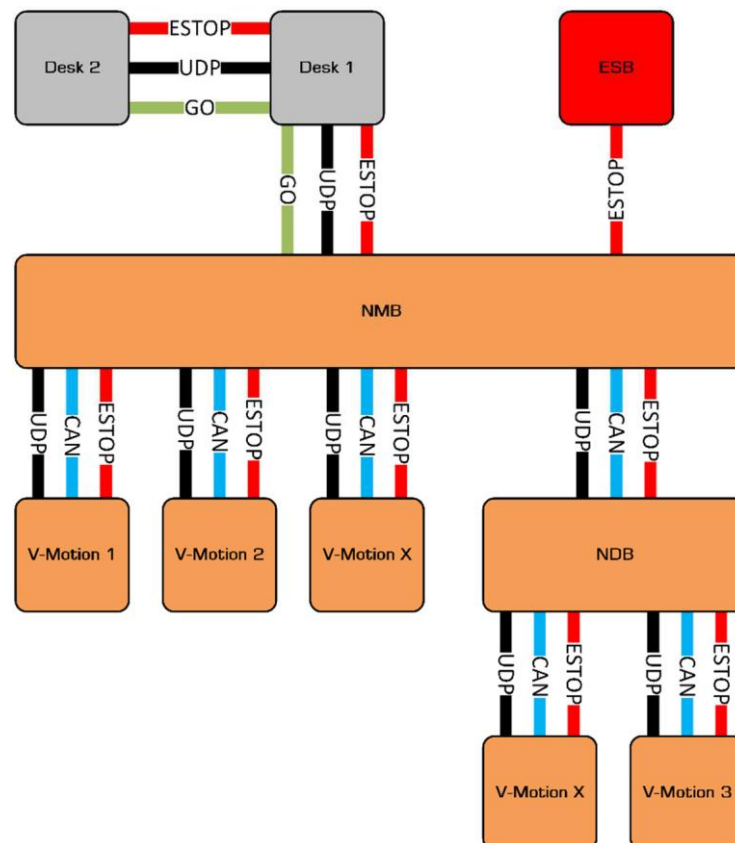
If your system is equipped with the additional **MOVEKET E-Interface** module, the **I-MOTION**-program displays which E-Stop element has been activated and its location.

Instructions 1: Triggering E-stop

1. Press down the E-stop button until it locks into place.
2. All drive movements are stopped as soon as possible.

Instructions 2: Unlocking emergency stop button

1. Turn the E-stop button in the direction of the arrow until it pops out of place.
2. After re-selecting the drives, the system can be run again.



This diagram shows the different data protocols of the **I-Motion** System. It doesn't matter whether the **NDC**-cable is used between the consoles and the **NMB** / **NDB** or between the **NMB** / **NDB** and the **V-Motions**, as the cables are manufactured to cover all protocols.

2.4. V-MOTION control device (V-MOTION 30 / 40 / 55 / 75 E-Version and/or SIL3 upgrade kit)

A **V-MOTION** is a universal control device that provides the interface between the power level of the drives and the operating computers. Communication with the control level is done via Ethernet. Via a second network via CAN (Controller Area Network) and an additional ICU control device (master ICU), movements are monitored and synchronized and are also group E-Stop capable.



This compact module combines all drive control electronics for one drive - whether electric, hydraulic or pneumatic. All these types of drives can be moved with variable speed and accelerated and decelerated via ramps. The **V-MOTION** control device communicates with frequency inverters and converters as well as the controllers for electric drives. With hydraulic or pneumatic drives, the corresponding control valves are controlled directly.

The diverse interfaces as well as the internal structure enable a variety of service areas and modes. If the drive is equipped with an absolute encoder, it can be moved by position control positioned with millimetre accuracy. Incremental encoders enable controlled operation.

A corresponding encoder on the drive also enables load measurement with the **V-MOTION** control device. If a drive exceeds or falls under the set load threshold

during the movement, it is switched off and can only be move opposite to the direction of travel for safety reasons. Using load cells, more complex dependencies between the current load and selectable speed can also be implemented. Without an external encoder, the current consumption of electric drives may be used for simple load measurement. Otherwise, the usual over- or underload switch off is effective.

In addition to the common electromagnetic brakes, operation and E-stop buttons as well as the encoders mentioned, the **V-MOTION** control device is open for other safety devices. It can monitor the states of valves, gates and doors, knows how to deal with bar initiators and can also evaluate shear edge sensors. With the V-Motion control device, all kinds of scenic drives can be controlled, including mobile chain hoists, winches of the upper machinery or heavy load stages of the lower machinery like podiums or turn tables.

For further information please see the corresponding **MOVEKET V-Motion** user-manual.

2.5. I-Motion Server

The server device manages all performance data in a relational database. All connected operating desks receive the performance parameters from this server for data acquisition.

The device is protected against power failure by an uninterruptible power supply (UPS). It will shut down automatically and in a controlled manner in case of error. A RAID disk system and regular data backups on rewritable media protect against data loss.

For further information please see the corresponding **MOVEKET I-Motion** Server user-manual and Chapter 3.14 Action bar.

3. The I-MOTION-Software

3.1. Introduction to I-MOTION

The **I-MOTION**-Software is a product of **MOVEKET**, used to program and to control moving stage technology with electrical and/or hydraulic drives, controlled with advanced ergonomic consoles.

In this software manual, you will find all information about the use of the professional and convenient **MOVEKET** SIL3 control (depending on your technical equipment) concerning all kind of applications (fix installation, touring and rental). Its usage allows the positioning of chain hoists, winches, turntables, podiums as well as the programming of complex, automated show processes.

The **EXPERT-T III** desk (as well **Basic-CII**) in conjunction with the **I-Motion**-software stands for:

- Easy-to-use hardware
- Convenient graphical user interface
- Intuitive operation with maximum ergonomics in the software design
- Highest level of security

In the following, attention is drawn to important parts of the control system and their meaning and use is explained. Please read the instructions carefully before use.

We wish you success in all your productions!

Your **MOVEKET**-Team

3.2. I-MOTION-Software glossary

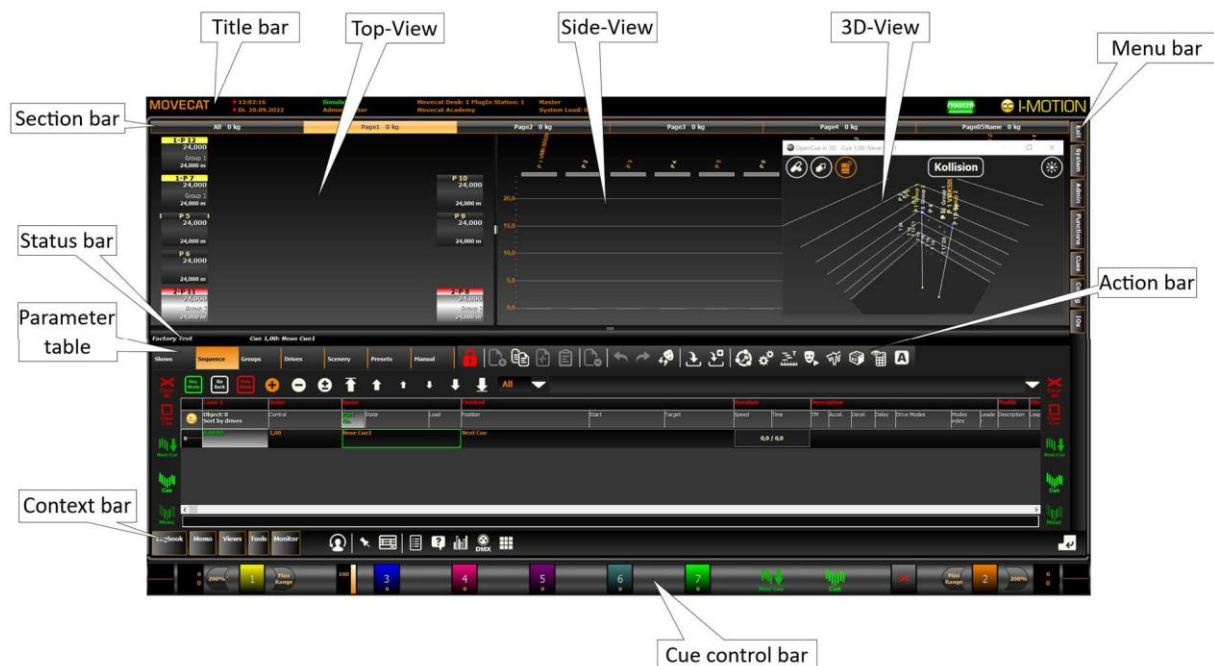
Using **I-MOTION** Software, you will often encounter the following terms:

Selection: Once you have selected and configured an object, you can assign it to a positioning instrument (cue button/joystick-control). During the selection, the corresponding drives check whether the parameters for the next movement are plausible. If this is the case, the drive is

presented in the software with the corresponding color of the positioning instrument.

<i>Cue:</i>	A cue is the predefined, reproduceable movement of one or the combination of several drives.
<i>Cue details:</i>	Movement parameters of individual objects. These also include the start and target positions, the target speed as well as delay times for the acceleration and braking ramps or other specific tasks.
<i>Cue button:</i>	Positioning instrument to execute predefined movements (Cues). After activation, all drives move to the target position stored in the cue.
<i>Range of Movement:</i>	Distance between start and target position.
<i>Control:</i>	Joystick-control with which the drives can be moved between their start and target position.
<i>Flip screen:</i>	Rotates entire screen horizontally.
<i>Current position:</i>	Current position of a drive.
<i>Loops:</i>	Repetitions of a specific movement between start and target position.
<i>Object:</i>	A drive or a group of drives.
<i>Position hub:</i>	Stretch - with the same position hub, all selected drives cover the same distance, regardless of their start and target positions.
<i>Presets:</i>	Position memory -an unlimited number of position presets for each object/drive can be stored. The presets can be used for convenient programming.
<i>Profile:</i>	Recorded deflection of a control.
<i>Secure Build-Up:</i>	Secure set-up - in Manual mode, you can turn on this feature so that drives approach the stage floor at reduced speed.
<i>Selection:</i>	You can select an object using the software by mouse, touch-screen or the function keys. The object is shown in white and its settings can be determined.
<i>Sequence:</i>	A sequence corresponds to a cue. The terms cue and sequence are used interchangeably in this manual.
<i>Show:</i>	Performance - in every show you can set maximum areas for drives, create a group of drives, make presets for these objects, and save movements in cues.
<i>Position instrument:</i>	General term for joystick-control or cue button.
<i>Dead man:</i>	Hardware-run line to any drive which has to be released for and during any movement. Integrated in the joystick-controls and for the cue buttons designed as an extra deadman's button.

Overview



3.4 Login

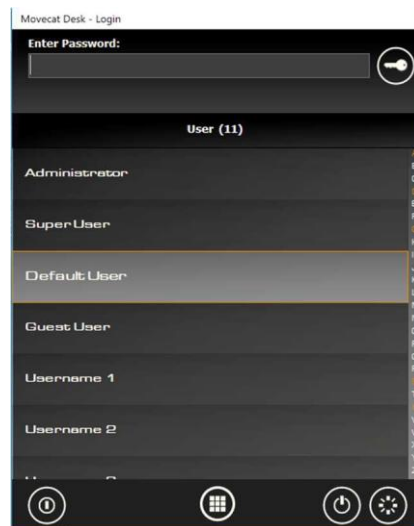
Following the Software start the identity of any user is queried. Identification is processed by inserting the personal usercard. The personal usercard proves the individual qualification acquired by special training at the **MOVEKET ACADEMY**.

3.4.1 Userlevel

Depending on the acquired userlevel the users have different rights within the software:

- 'Administrator' is only available for the system manufacturer as well for special trained super users. Core item is to set up the machineries and drives.
- 'Super user' is a user specifically and specially instructed by the customer who can and may make system-specific settings.
- A 'normal user' can work in Set-up, Program and Performance modes.
- The 'guest user' is able to move individual drives and entire performances. However, a guest user cannot delete items or change parameters.

3.4.2 Log-in with password



1. To login, start the I-Motion-software
2. Choose your own or a predefined username.
3. Click on the password field or press the 'Enter' key.
4. Enter your password.
5. Confirm your username and password with the 'Enter' key.
6. The log-in window closes. You can now use the operating computer and the I-Motion-software.

If there is not enough space for all users in the registration window, you can look for your username in the alphabetically sorted bar on the right side. By selecting the first letter of the user, the list will jump to the appropriate section.

3.4.3 Changing the user while using the software



If you are in the "Login with password"-mode, this can be done by clicking on this symbol.
For the chipcard authentication you can simply replace the previous inserted chipcard with another one.

3.5 Title bar

The title bar shows the current system status and some basic information. Status lights are located in front of some information; they provide more information. Green stands for 'OK', red for 'Not OK' or 'Not connected'.

The first part of information is the current time showed in the title bar. The adjacent status lights signalize the control computer in the control panel is connected properly. The status light next to the indicated date gives information on the Ethernet connection. The currently logged-on user and the project name are also stored in the title bar. Furthermore, the number of the operating computer and the plug-in point to which the operating computer is connected is displayed. The upstream status light provides information about the external 'IO 6416' module (optional). In addition, the total load of all scenery elements can be read off when the control system has a load measurement. If the system has a central host (master computer), its status is displayed in colour. Red means 'the computer is offline', orange signalizes 'online'.



The title bar also displays whether the operating computer is also online, e.g. communicates with the control system, or whether the simulation mode is enabled. In simulation mode, the drive movements only occur on the screen. The movement commands are not sent to the control system.

If you click or touch the "I-Motion" icon on the right-hand side of the title bar, an overview opens in which you can find the currently installed OpenCue version and information about MOVEKET GmbH.



3.6 Menu bar

3.6.1 Menu bar > 'Exit'



Selecting the 'Exit' button makes functions for exiting the I-Motion software and switching off and restarting the operating computers available.

The 'Log-out Expert-T III' user change offered here enables logging the operating system user in and out - not to be confused with the log-in and log-out procedure for using the **I-Motion** software.

Instructions 1: Exiting the I-Motion software

1. Click on the 'Exit I-Motion' button.
2. The I-Motion software is terminated. The operating system remains active.

Instructions 2: Shutting down the operating computer

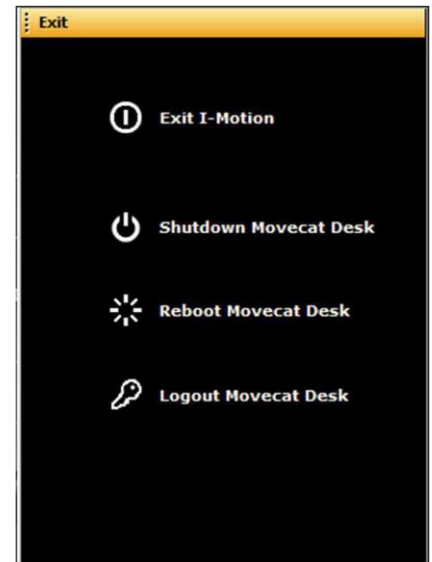
1. Click on the 'Shutdown MOVEKET Desk' button.
2. The I-Motion software and the operating system is terminated. The operating computer is shut down.

Instructions 3: Rebooting the operating computer

1. Click the 'Reboot MOVEKET Desk' button.
2. The I-Motion software and the operating system is terminated. The operating computer is then switched off.
3. Then the operating computer, the operating system and the I-Motion software are restarted.

Instructions 4: Logging off the operating system user

1. Click on the 'Logout MOVEKET Desk' button.
2. The I-Motion software is terminated and the current user is signed off. The operating system remains active.



3.6.2 Menu bar > 'System'

The 'System' button includes several functions for configuring the user interface and behaviour of the I-Motion software for certain actions. Thus, settings can be made to adapt the program to your own requirements.

Option: 'Simulation'

All procedures that you perform in live operation can also occur in a simulation. This allows you to, for example, program movement and display them on the screen. The movement commands are not passed on to the drives.

If the Simulation mode is active, this is indicated by a blinking 'Simulation' logo in the title bar. In addition, the status bar (see 3.11 Status bar) is highlighted in blue.

Option: 'Collision control'

The 'collision control' prevents scenery elements from being damaged or causing damage. Only the 'super user' can turn them on and off.

If you have assigned a drive the dimensions of the corresponding scenery (see 3.12.5 Parameter table > 'Scenery'), the I-Motion software automatically stops all movements on the corresponding positioning instrument before the scenery would collide with other elements (stage floor, ceiling, trolleys, other scenery elements and other drives).

Option: 'Deadlock'

The activated function (default setting) specifies certain dependencies referred to a specific theater/venue. For example, the maximum drive speed of selected drives may be restricted in accordance with a defined height. The deadlock function is installed by a MOVEKET-administrator. Only "Super-Users" or higher can deactivate the function.

Option: 'Touch Keyboard'

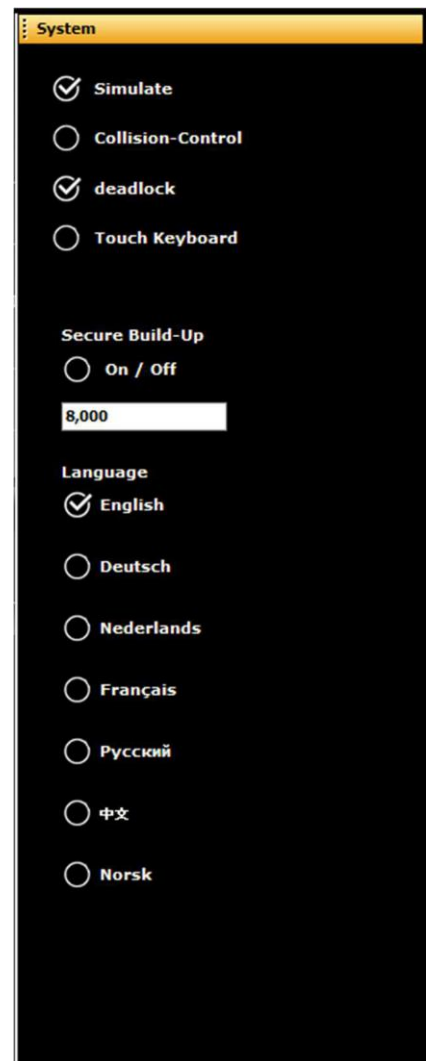
The activated function makes a virtual keyboard pop up on the main screen. This is useful for Basic C, not provided with a keyboard hardware.

Option: 'Secure build up'

You can arrange the drives to only approach the stage floor with 10% of the maximum speed from a height you specify. However, this function is only effective in Set-up mode, i.e. you are on the 'Manual' tab of the parameter table or have activated the 'Manual mode' in the 'Sequence' tab. Switching the function on or off and setting the height is only possible for the 'super user'.

Option: 'Language'

Here you can select a language for the I-Motion software.



3.6.3 Menu bar > 'Admin'

Option: "Administration"

The functions in the 'Admin' (Administration) window are restricted to service engineers or specifically trained 'super users'.

Option: 'Super-User'

Only if you are logged in as a super user you get access to the SuperUser section to realize settings that affect all performances. Parameters such as the heights of the operating ends, the maximum speeds or the minimum and maximum loads can be changed here. (See 3.13 Super User tables)

Option: ICU Master OFF/ON

If your system has a central synchronization computer, a master ICU in the NDB / NMB, it can be bridged by software in case of error. If this should be defective, this is signalled by the red 'Master' lettering in the title bar. All drives also show the 'MasterSync Missing' message.



Deactivate the central computer via software click on the 'Master OFF' icon. All drives then go back to the 'Ready' state, but show their status as 'Standalone mode'. You can move all axes again now, but a safe synchronous drive is no longer guaranteed.

After the master ICU is ready for use again, you must turn on the central computer via software. After every time the system is switched on, all drives go to the "Fault" operating state if the central computer is not working, even if you have previously bridged it with software.

3.6.4 Menu bar > 'Functions'

The positions of drives can be redefined under 'Functions'. For example, chain hoists with **incremental** position detection, **only**. To redefine the reference position of an absolute encoder (virtual position) you need Super-User status.

Instructions: Changing reference position

1. Select a drive whose position value is to be changed.
2. Move the drive to a measurable height or distance from a reference point, for example, just a few meters above stage level.
3. Click on 'Functions' in the menu bar and select the drive or its abbreviation using the arrow keys.
4. Enter the measured value in the input field in meters. This value is now accepted as the new reference position and displayed in the graphical view and the parameter table.



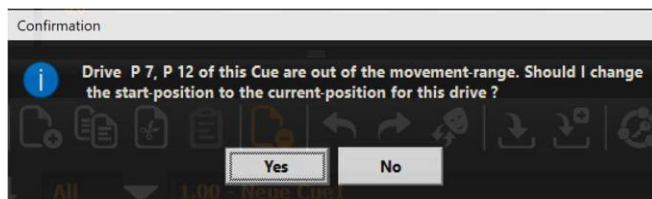
3.6.5 Menu bar > 'Cues'

The 'Cues' menu item controls the selection and calling of cues. Thus, influence is made on the movement behaviour of the drives in reference to the start and target positions.

'Cues always to target'

The 'Cues always to target' option ensures that the drives of a cue always move to the target position, even if the drive is not located in a given range of movement. Should this be the case when calling up a cue, the current position is used as the start position. The drive therefore always travels to the target position, but with a modified path length and duration.

If the function is deactivated, the following window opens up as soon as you try to activate a cue while the referring drives are not in the range of movement.

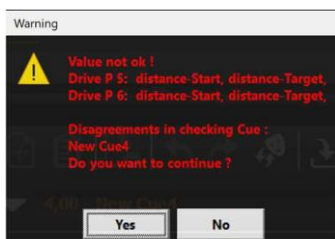


If you confirm with 'Yes', you go directly from the current position to the target position. If you select the 'No' option, you first have to move the drives into the range of movement to automatically reach the target position of the cue. You will also be shown in red text that the drives are outside the driving range.

1	0 - Kein	0	Selektiert	0 kg	28,000	10,000 / 20,000	10,000	20,000
6	0 - Kein	0	Selektiert	0 kg	22,000	2,000 / 8,000	2,000	8,000

'Cues check before'

If the "Cues check before" option is activated, if you have programmed a synchronous cue and the drives are not in the previously programmed position when selecting the cue, an error message will appear, which can be seen in the figure below. This function is responsible, among other things, for the fact that any scenery or similar are damaged by incorrectly positioned or moving drives.



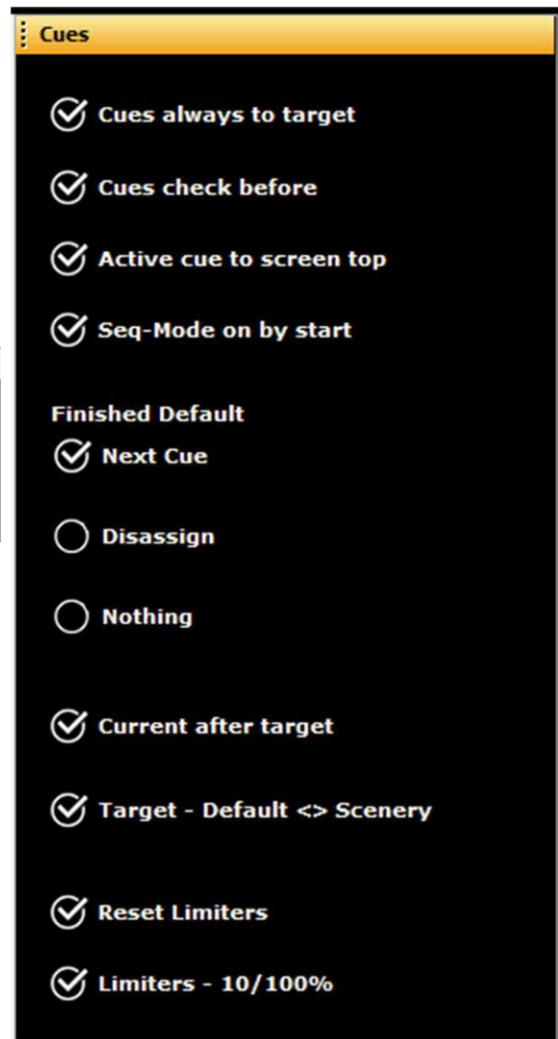
The affected drives and the fields of the responsible parameters are listed in the error message. If you confirm the message with "Yes", the discrepancies will be corrected automatically, and the corresponding drive lever or cue button will be selected. If you choose "No", the window will close and you can adjust the discrepancies according to your cue.

'Active cue to screen top'

Automatic scrolling - using the 'Active cue to screen top' option sets the active cue back to the top of the page of the cue list. If the function is switched off, automatic scrolling is deactivated, and the desired section of the cue list must be selected manually.

'Seq-mode on by start'

By selecting the 'Seq-mode on by start' function, the Sequence mode is activated when starting the I-Motion program. This makes possible to run through the list of cues according to the programming specifications (see 3.12.2 Parameter table > 'Sequence').



'Finished Default'

Determinates action after completed run of cues in "Seq.-Mode" as default setting in cues to be programmed.

Next Cue: Once the cue is finished, the software jumps to the next cue in the list

Disassign: The cue is deselected and the focus remains on the selected cue.

Nothing: All drives remain selected and can be moved.

'Current after target'

The "Current after target" function means that when calling up a drive/a group in the 'Manual' tab, the standard start position, displayed in the parameter table, is replaced by the current position of the drive(-s), after a target position is set. This allows to temporarily store drive positions without creating a 'Preset'.

'Reset limiters'

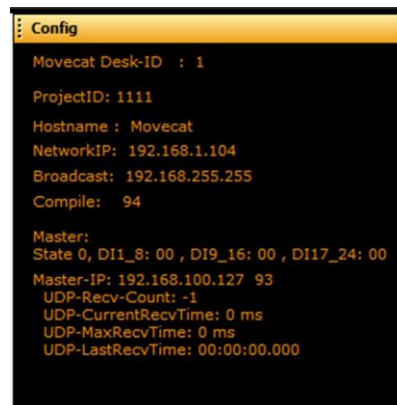
The activated 'Reset limiters' function causes the incremental limiter to be reset to 100% after movements to be speed-limited are complete and limited drives get deselected. The following movement will be executed with 100% of the programmed speed.

'Limiters - 10/100%'

Pushing the incremental limiter button sets the drive speed to 10% of the programmed speed while pushing the button again resets the drive speed to 100%.

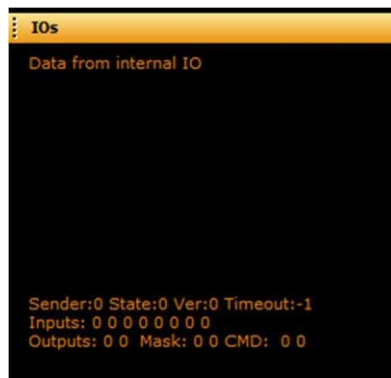
3.6.6 Menu bar > 'Config'

By selecting the 'Configuration' menu item, a number of settings and parameters are displayed such as IP addresses, data of internal and external I/O modules including.



3.6.7 Menu bar > 'IOs'

The 'IO' (inputs/outputs) menu item gives information about the data flow of the 'IO 6416' interface of the system (optional). If you have connected external devices, you can find out about their condition here.



3.7 Section bar

The section bar is, if activated, located above the drives window. It helps to arrange drives into different thematic groups, created by an Administrator in the 'General'-settings of the 'Administration-menu'. The thematic groups are displayed on different pages. Drives can be added and deleted to the different pages via the 'Drives' table of the 'Administration-menu'.



The section bar displays the given names of the thematic groups and the current loads of the different areas (requirement: load measurement by the system). The value following the name of each page/thematic group, is the load of the page/thematic group in total.

The number of pages / thematic groups and their names are project related. They can only be created individually by a MOVEKET Administrator.

3.8 Drive view

The drive view is located in the main window. The names/abbreviations of the objects are specified in the header as well as in the group index, if applicable. The current position is located on the icon below. It is shown numerically in meters. Moreover, the description and the icon of the corresponding scenery are displayed. If a load measurement system is installed, the measured load is also displayed.



Depending on the status, the buttons and their headers are marked with different colours.

3.8.1 Colour of the bottom

Red	The drive is not available or the network connection has been disconnected. The drive does not send any parameter.
Black	The drive is ready
Dark grey	The drive is ready, but there is a fault on the drive or on the control unit. The current fault status is displayed as text on the icon. There are several possibilities for the cause of the error, e.g. the drive was blocked using the I-Motion program via software or the control device is performing a self-test. Even if the hand-held device is connected for manual control or the service switch has been actuated, the drive is not released. Always read the latest notices in the logbook in the event of an error (see 3.15.1 Context bar > 'Logbook').
Light grey	The drive is selected. Values can be entered or changed in the parameter table. It can be assigned to a joystick/cue button.
Colour of joystick/cue button	The drive is selected and ready to move
Brown	The drive is used by another operating computer.

3.8.2 Header

Orange header	The drive is not assigned to any group.
Yellow header	The drive is assigned to a group, group type 'Synchronous'. In this case, all drives move with the same position hub and the same speed.
Green header	The drive is assigned to a group, group type 'Target synchronous'. All drives move towards the same start and target position in the same time but eventually at different speed.
Blue header	The drive is assigned to a group, group type 'Free'. All drives can be assigned to different start and target positions as well as speeds.
Turquoise header	The drive is assigned to a group, group type 'Object'. Three-dimensional movements can be created with the group type. A detailed description is given in section 3.14.7 Action bar > 'Manual'.
Pink header	The drive is assigned to a group, group type 'Light bridge'. It has the same functions as the synchronous group, but an external signal must be present so that the group can be moved.
Decor header	The drive is assigned to a group, group type 'Coupled'. The coupled drives are programmed one by one as in a 'Free' group, while the movements of the group members are monitored similar to a 'Synchronous' group.
Flashing header	The drive has a start delay or programmed start conditions are not met. If this time expires, the drive goes to the specified target position and stops flashing.

3.9 Graphical views

The graphics of the Side, 3D and Top views show the drives of the stage area. Depending on customer requirements, the entire machinery or only a part is shown. (see 3.7 Section bar).

It is possible to display the top view and the side view together or both separately. How to open, set up and handle the different views see in Chapter 3.15.3 Context bar > 'Views'.

3.9.1 Top view

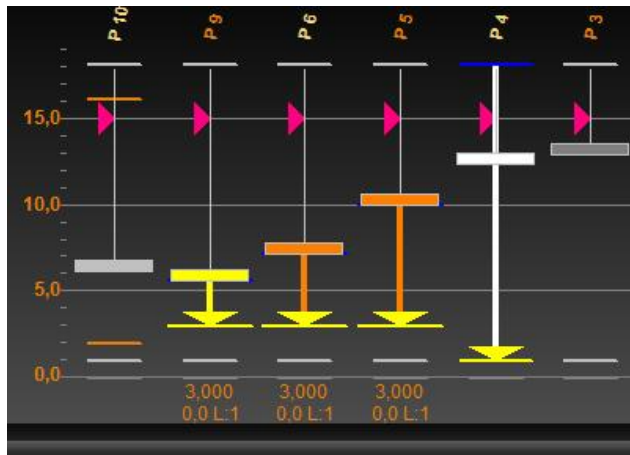


There are three different possibilities to display the drives in the top view:

- In **'Auto Topview'** the symbols are lined up in order from the left to the right and from the top to the bottom.
- In **'User Topview'** the symbols can be positioned freely in the top view window. This serves a better overview. (see 3.15.7 Context bar > 'Setup 2D')
- In **'Real Topview'** the symbols are displayed according to the coordinates from the 'Drives' table ('left-right' and 'depth'). These values are also used by the I-motion software for further calculation e.g., for the 'Object calculator'.

To switch between the top views, press the 'Topview switch' button in the context bar in the tab 'views'. (see 3.15.3 Context bar > 'Views')

3.9.2 Side view



In the side view, the range of movement limits of a drive are indicated by coloured crosslines.

Colour of range of movement limit

Meaning

Gray	The grey crossblines mark the physical end operating end positions as they were set by the super user.
Orange	The orange crosslines mark the software-based operating ends as they were set for this show in the parameter table ('Drives' ⇒ tab 'Bottomlimit', 'Toplimit' field).
Dark blue	The blue crossline indicates the start position.
Dark yellow	The yellow crossline indicates the target position.

The position of the drives is represented by a crossbar and the range of movement is shown as a vertical line.

Colour of the position crossbar

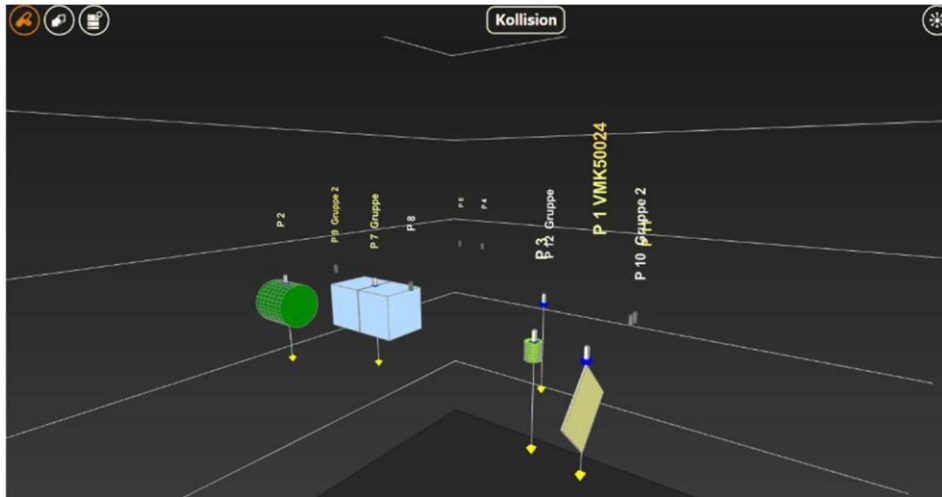
Meaning

Red	The communication connection to the drive has been interrupted.
Light gray	The drive is blocked using the I-Motion program or there is a fault on the drive.
Dark gray	The drive is ready.
Dark green	The target position has been reached.
White	The drive is selected.
Color of a positioning instrument	The drive is selected and the correspondingly coloured positioning instrument is assigned.

'Preset' positions can be displayed as triangles in the color assigned to the 'Preset'. (see Chapter 3.15.3 Context bar > 'Views')

3.9.3 3D View

The '3D view' opens in an extra window that you can position freely on the screen. It opens by clicking on 'Views' in the context bar ⇒ '3D View' (see 3.15.3 Context bar > 'Views') or on the 3D function wheel.



Setting the viewing area:

Three icons are located in the upper left of the 3D view, which can be used to freely define the display. You have the following functions:



'Rotate'



'Slide left-right/up-down'



'Zoom in/out'

The navigation is done with the left trackball or mouse button pushed down.

In addition, the 3D function wheel available specifically for this view. Using this wheel, the desired angle can be easily adjusted by turning and pushing/pulling (see 2.1.2.5 3D function wheel).

More Options in the 3D View window:



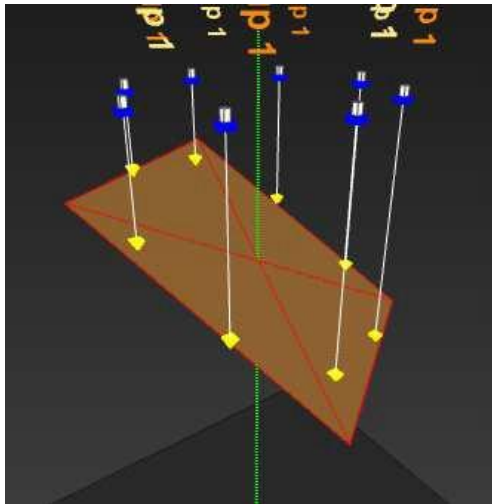
By clicking on this icon, you activate or deactivate the collision control. This is possible if you are assigned as "Super-User" or "Admin".



This function shows a table with X,Y and Z coordinates of your drives by clicking on it.

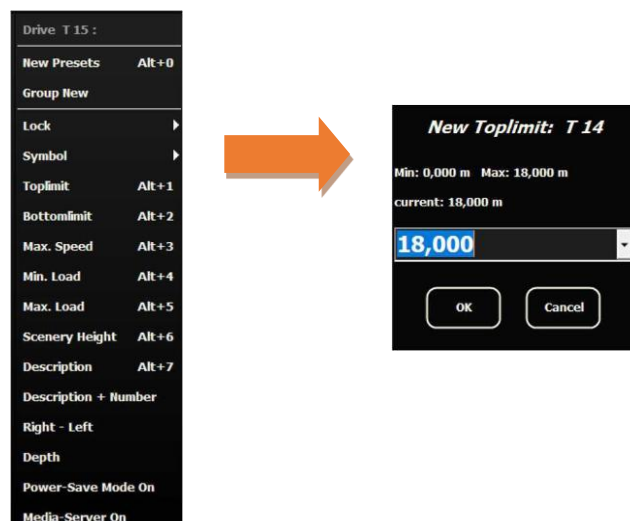
Visualization for the object calculator:

An important application for the "3D view" is the display of the object calculator. When the object calculator is started, a schematic brown plate appears that represents the object. Using the 'object calculator' is possible with a 'Free' group or 'Object' group (see Chapter 4.3.7 Programming with usage of the object calculator).



3.10 Quick access to the most important parameters

A special function is assigned to the right button of the trackball or an external mouse or a long touch of the touchscreen in the drive and side view or top view. If a drive is selected with the right button or a long touch, a menu opens. This provides quick access to the most common parameters. You can edit several parameters directly via the menu. In the sample images you can see how the "top end of operation" is redefined. Comparable windows open for all other parameters.



The new value can now either be entered using the keyboard with three decimal places or specified using the arrow and page up/down keys (P.up or P.down). The various entries in the parameter table are used as templates. The new values are entered in the 'drives' or 'Scenery' table.

Key



P. UP

P. Down

2x +

2x -

Meaning

The value that was specified as the maximum by the super user or the maximum value in the "Drives" parameter table is adopted.

The value that was set as the minimum by the super user or the minimum value in the "Drives" parameter table is adopted.

The value from the "Drives" parameter table is adopted.

The current position is taken over.

The following entry is added to the current value.

The following entry is subtracted from the current value.

In addition, changing parameters on the 'drives' and 'scenery' table, there are some other common options here:

New Preset	Creates a new preset. (see Chapter 4.2.3.1	Create presets)
New Group	Creates a new group. (see Chapter 4.2.2 'Groups')	
Power-save mode on/off	Possibility to switch off unused drives to save energy.	
Media server on/off	Switch on for sending position data to an external device. (is not needed for sending PSN, is only need for Openposition)	
Virtual Position	Possibility to set the virtual position. The new value is entered in the column 'Virtual Position' in the 'super user' table. To teach in the new position you must change to the 'super user - drives' table. (see Chapter 3.13.1 Super User tables > 'Drives')	

3.11 Status bar

The status bar lists the current 'show' and the selected cue with the drives involved.

Schulung	Cue 1,00: Neue Cue1	P 4, P 5,	21.09. 16.06.25.218 - Movecat Desk1: Neue Cue1 P 4: Speed changed from: -0,66000 to: -0,40000
----------	---------------------	-----------	---

Further information is stored in the status bar with coloured markings. Once a drive, a group or cue is selected, i.e. assigned to a positioning instrument, the status bar will begin to flash green (optional). If drives are currently in motion, the status bar permanently lights green. Green text on black background signals the successful end of the programmed events. Red text, however, indicates an error. All types of messages can be viewed in the logbook (see 3.15.1 Context bar > 'Logbook').

3.12 Parameter table

The settings in the cues, groups, presets, among others, can be viewed and changed using the tabs in the parameter table.

Shows	Sequence	Groups	Drives	Scenery	Presets	Manual
-------	----------	--------	--------	---------	---------	--------

Depending on the selected tab, you can influence values such as driving type, target position, speed, etc. Multiple values of the same type can also be modified simultaneously by holding down the shift key. If you want to change all values in a column, select the header field of the respective column. Enter the value using the keyboard and confirm the entry with the Enter key. This allows you, for example, to change the speed for all drives by entering a single value.

You get quick access to the most common parameters by selecting the drive in the drive, side view or top view with the right mouse button or a long touch on the touchscreen. For details, please refer to Chapter 3.10 Quick access to the most important parameters.

3.12.1 Parameter table > 'Shows'

The parameter table of the 'Shows' tab contains all the performances that are stored in the database.

Order	Showname	Readonly	Updated	Created	Description
0	Default Show	☒	Mo. 19.11.2018 13:13:50	Di. 04.07.2006 17:01:06	
1	New Show 1	☐	Mi. 30.01.2019 15:19:47	Mi. 14.11.2018 09:50:59	
2	New Show 2	☐	Mi. 30.01.2019 15:19:51	Do. 03.01.2019 10:03:27	

Order:	Determine the order of shows with a numerical value.
Showname:	Select a unique name for each performance.
Readonly:	You can enable write protection which protects the parameters of a performance from accidental changes. The write protection, however, can be removed at any time and by any user.
Description:	On the right side, you can enter a detailed description for each show.

As a preset, the software includes the standard 'Default show' performance. This is always read-only and can not be deleted. Only the super user can influence the 'Default show'. Some settings in this show are automatically adopted in all other performances. For example, the groups and presets are automatically integrated into all other shows. Especially in the groups created here, the drives integrated into them can no longer be selected individually and the group cannot be deleted.

More information on the topic 'Shows' can be found in Chapter 4.3.1 'Shows'.

3.12.2 Parameter table > 'Sequence'

The parameter table contains all the necessary attributes to better describe sequences or cues.



The information in the parameter table may be reduced for clarity, meaning the view only contains the most important data. The red headings in the example image apply for them. The red text at the same time indicates the write protection is activated in the parameter table (see Chapter 3.14.2 Action bar > 'Sequence' 'Block details'). To gain insight into the details of each cue, press the '+' icon at the left edge of the table or the icon button in the upper part (). Hide the details with the '-' icon.

Description	Meaning
Cues	Number of available cues.
Order	Here you can determine the order of the cues (including two decimal places).
Name	Choose a unique name for each cue.
Finished	Specify what should happen when this cue has been terminated (for default setting, see 3.6.5 Menu bar > 'Cues' > 'Finished Default'). A cue is complete when all drives are in their target position. You can choose between the following options: 'Nothing': no action. All drives remain selected. 'Disassign': all drives on the positioning instrument are deselected. 'Next Cue': all drives on the '-' instrument are deselected and the next cue is automatically selected. If the 'Control' specification of the next cue is on the same positioning instrument, it is started automatically without interruption! 'Cue nn': all drives on the positioning instrument are deselected and cue nn is automatically selected.
Duration	The duration of the cue will be displayed as plain text here, as will the the current course as a progress bar.
Description	You can add a description to each cue. For longer descriptions, an additional field is located below the table.
Profile	If the cue contains a recorded profile, its name is displayed here. (For more on recording profiles, see Chapter 4.3.5 Record cues with the profile recorder)

Effects By clicking in the header of the "effects" column, an input window for batch processing of midi triggers is called up (optional).

The view of the cue Details is opened by the '+' icon buttons. Each drive embedded in the cue is then displayed with all its stored parameters. The drive parameters to be adjusted during programming are displayed in the second line of the parameter table.

<u>Name</u>	<u>Meaning</u>
Object (number of integrated drives)	Name of the integrated drive/group
Sort by	By clicking on the "Object" field: Sort by nn' you can determine whether the cues are sorted by drive numbers of the chronological order of selection.
Control	Positioning instrument with which the cue is selected by default.
Part no.	Each cue can be divided up into 16 different sections (parts). For more details, see 4.4.3 Divide cue into parts and the following chapters.
State	Displays the current status of the drive:
Selected	cue has been selected.
Assigned	drive has been assigned to the correspondingly colored positioning instrument.
Moves up/down	drive is in motion.
Load	Current load of drive/group. [kg]
Position	Current position start position / target position of drive/group. [meters]
Start	Enter a start position here. This can either be a numeric value [meters] or a previously stored preset position. You will get a list of all presets for this object by clicking in the field with the cursor and pressing the Enter key when the cell is in focus.
Target	Enter a target position here. This can either be a numeric value [meters] or a previously stored preset position. You will get a list of all presets for this object by clicking in the field with the cursor and pressing the Enter key when the cell is in focus.
Speed	Enter the speed for the movement here. Then, the associated movement time is calculated in the 'Time' column. If the speed is changed, the check mark in the TM column disappears. [meters/seconds]
Time	Enter the time for the trip here. Then, the speed is automatically recalculated. The check mark for TM is activated. [seconds]
TM	Time is master - If the box is checked, the speed is adjusted when you change the start or target positions, but the chosen travel time remains the same. This is important if you work with preset positions which you can also change after the fact. If the check mark is deactivated, the movement is performed at the stored speed.
Acceleration ramp	Specify the time after which the drive is to reach its programmed speed. [seconds]
Deceleration ramp	Specify how long the drive will need to come to a halt. [seconds]
Delay	After the preset time has elapsed, the drive will start the movement. The time is counted down after the control is deflected. [seconds]
Drive Modes	Determine the dependence of the drives to each other (see 4.3.2 'Sequence', 'Cue' und 'Drive Modes).
(Drive) Modes index	Determine which drives with the same movement modes create a group (see 4.3.2.4 Cue with several, equal movement types).
Leader	Determine the group leader by setting a checkmark into the checkbox
Description	Add an additional description

Loops	'Loops' specifies how often a movement takes place between start and target. 1 = Start → Target, 2 = Start → Target → Start ... The maximum is 99. (see 4.3.3.6 Define number of repetitions, 'loops' of a movement)
Pause	In combination with loops: break time after reaching a start or target position (see 4.3.3.7 Define breaks between the loops) [seconds].
Start offset	Value by which the start position is increased/reduced at each start (see 4.3.3.8 Determine start and target offsets) [meters].
Target offset	Value by which the target position is increased/reduced at each start (see 4.3.3.8 Determine start and target offsets) [meters].
Way-points	You can enter intermediate positions at which the object is to change its velocity (see 4.3.3.4 Define speed change during a movement with 'way-points').
Depend type	Typically, a cue is started when a positioning instrument is actuated. Optionally, it can also be triggered by the following:
Drive position <	the cue starts as soon as the position of the drive, selected in the 'Depend object' box, is inferior to the value entered in the 'Depend Value' box.
Drive position >	the cue starts as soon as the position of the drive, selected in the 'Depend object' box, is superior to the value entered in the 'Depend Value' box.
Drive speed >	the cue starts as soon as the speed of the drive, selected in the 'Depend object' box, is superior to the value entered in the 'Depend Value' box.
Extern Trigger	the trigger can be executed via an external digital input. The connection point is located at the 'IO 6416' interface in the system.
Extern Release	the release can be executed via an external dead man's button. The connection point is located at the 'IO 6416' interface in the system.
DMX Channel =	The cue starts if the DMX-value is on the selected value (not recommended, better use DMX > or DMX <).
Output x ON position </>	The output of the MOVEKET E-interface selected under 'Dependent object' is activated when your own position is smaller or larger than the height stored under 'Dependent value'.
Output x OFF position </>	The output of the MOVEKET E-interface selected under 'Dependent object' is deactivated when your own position is smaller or larger than the height stored.
DMX Channel </>	The cue starts if the DMX-value is smaller or higher than the selected value.
PC-Time	The cue starts if the PC-Time (Time of your desk -> see 3.5 Title bar) has the selected value.
Remote-PC-Time	The cue starts if the PC-Time of a Remote computer has the selected value.
Midi-Time	The cue starts when the selected Midi-Time appears.
Depend Device:	Determine on which device/drive the start of the cue should depend.
Depend Value:	Determine the value, corresponding to selected 'Depend Type' and 'Depend Device'.

For a detailed description of the use of 'cues' and their details, see 4.3.2 'Sequence', 'Cue' und 'Drive Modes' as well as the following chapters.

With the key combination CTRL + F you can search for any text in the sequence table.



The vertically arranged buttons for the 'cue activation bars' are used for selecting and deselecting cues. They are located on the left and on the right side of the parameter table. Their functions are defined as follows:

Icon	Name	Function
	Clear All	Deactivates all selected drives
	Clear Cue	Deactivates all selected drives of the selected cue.
	Next Cue	Selects the next cue with the positioning instruments that are stored in the 'Control' field. If '0 - none' is entered there, they are selected with a control: with 'control 1' when activated by the left icon button, with 'control 2' when activated by the right icon button. (see Chapter 4.3.2.6)
	Cue	Activates the selected cue with the positioning instruments that are stored in the 'Control' field. If '0 - none' is entered there, they are selected with a control: with 'control 1' when activated by the left icon button, with 'control 2' when activated by the right icon button. (see Chapter 4.3.2.5)
	Move	Activates only the selected drive of a cue. (see Chapter 4.3.2.8)
	Part 1 to 16	Each cue can be subdivided into a total of 16 parts. By selecting the desired drives of a cue and the subsequent selection of a 'Part nn' button, the subdivisions are made. For more information on this topic, see Chapter 4.4.4.

Furthermore, horizontally arranged buttons are lined up over the parameter table. Their functions are as follows:



Icon	Name	Function
	Sequence Mode	Activates the 'Sequence mode' (green signal light). The cues will now run consecutively, dependent, however on the entries in the 'Terminated' fields (see Chapter 4.3.2.10). If a drive or a group is stored several times in a cue, all programmed movements are processed. Is the 'Sequence mode' is switched off, only the first movement is carried out.
	Go Back	If the 'Go back' mode is activated, the start and target positions are exchanged in all cues to allow the movement to go back to the start position. Activation is represented by a purple indicator light in the switching icon. The values can only be exchanged within the system. Visually, the table of parameters therefore remains unchanged for the user.
	Manual Mode	If 'Manual mode' is activated (red signal light), all drives can be moved freely. It is no longer dependent on the cues. This make the change to the 'Manual' tab unnecessary.
	Open all Details	With this button, the cue details of all cues are displayed.
	Close all details	With this button, the cue details of all cues are hided.
	Open details	The cue details are displayed for the currently selected cue.
	Top position	The cue list jumps to the top or to the next active cue (if blinking red).
	Previous Cue	The Cue list jumps to the previous cue.
	Up	The Cue list jumps to the previous line.
	Down	The Cue list jumps to the next line.
	Next Cue	The Cue list jumps to the next cue.
	Lowest position	The cue list jumps to the bottom or to the next active cue (if blinking red).

During operation, the icons for 'Top/Bottom position' can change as follows:



Caution! Cue no. 2 is activated and is located below the currently visible area of the cue list. Clicking on this icon button will take you directly to the activated cue.

Another function that facilitates the handling of the OpenCue software is the search function of the parameter table in the 'Sequence' tab.



In the left scroll bar, all drives can be selected which are integrated into the cues of the current show. Once a drive has been selected, all cues in which this drive is integrated appear in the right scroll bar. If the desired cue is now selected, the cue list automatically jumps to the corresponding position and the cue can be edited.



The 'Cue MultiSelect' is located in the upper left of the 'Sequence' parameter table. This button is useful for managing the cue list. It facilitates the simultaneous copying, cutting, pasting and removal of multiple cues. The exchange of cues on the show level is also made possible with its help. After pressing the button, a grey selection field appears in every cue. By clicking in this box, a check mark is set. Alternatively, you can also use the arrow keys and then the Enter key. The cues marked in this way can now be edited. They can be copied, cut or deleted.

3.12.3 Parameter table > 'Groups'

Drives can be grouped together. The corresponding properties of a group are stored in the parameter table. However, the operator cannot change any values directly because there are some parameters that make up the individual drives. Generally, there are six types of groups:

Group type	Meaning
Synchron	All drives move with the same position hub and the same speed.
Targetsynchron	All drives move towards the same 'Groups' target position at the same speed.
Free	All drives can be assigned to different start and target positions as well as speeds.
Object	With all the drives involved, movements can be executed in the form of three-dimensional objects (see Chapter . The group members then run with different speed but reach their individual targets at the same time (Time synchron).
Coupled	All drives move with the same position hub and the same speed. Here you can determine which drive moves to the target position.



No.	Groupname	State	Position	Load	Leader	Type	Drives	Color-Connecting line	Flaglimit	Bottomlimit	Max. Speed	Max. Load	Min. Accel.	Min. Decel.	Reel	Description
Group 1 [1]	Group 1	Ready	10,000	0 kg	Name	Synchron	P 1, HK30024, P 3	Maroon	10,000	0,000	0,400	750	1,00	1,00	0	
Group 2 [2]	Group 2	Ready	9,806	0 kg	Name	Targetsynchron	P 4, P 5	Green	10,000	0,000	0,400	800	1,00	1,00	0	
Group 3 [3]	Group 3	Ready	10,000	0 kg	Name	Free	P 6, P 7	Navy blue	10,000	0,000	0,400	1000	1,00	1,00	0	
Group 4 [4]	Group 4	Ready	10,000	0 kg	Name	Object	P 8, P 9	Light blue	10,000	0,000	0,400	1000	1,00	1,00	0	
Group 5 [5]	Group 5	Ready	10,000	0 kg	Name	Coupled	P 10, P 11	Blue	10,000	0,000	0,400	1000	1,00	1,00	0	

The individual parameters of the table have the following meanings:

Parameter	Meaning
No.	Group number
Group name	Assign a unique name for each group.
State	State of the group as a result of all drives.
Position	The group position is always the position of the lowest drive.
Load	Total load of all drives in the group.
Leader	Displays a determined group leader
Type	Synchronous, target synchronous, free, object or coupled (see above).
Drives	Displays all group members
Colour connection line	In the 3D view, a connection line will be displayed in the desired colour. You get a list of all the colours by clicking in the cell or by pressing the 'Enter' key in a cell in focus.

Top limit	Upper operating end of the group. [meters]
Bottom limit	Lower operating end of the group. [meters]
Max. Speed	maximum Group speed. [meters/second]
Max. Load	maximum Load of all drives in the group
Min. Accel.	Setting specifying the minimum amount of time a drive needs to reach its programmed speed. [seconds]
Min. Decel.	Setting specifying the minimum amount of time a drive needs to come to a standstill from the programmed speed. [seconds]
Reel (optional)	You can add a cable reel here (optional feature)
Description	A description can be added
Z-Angle	Angle of inclination of the Z-axis of an object group
X-Angle	Angle of inclination of the X-axis of an object group.

For a detailed description of how to handle groups, see Chapter 4.2.2 'Groups' 4.2.2.

3.12.4 Parameter table > 'Drives'

An important parameter table is that of the drives, as this can influence most parameters. If the values are set once, they can no longer be exceeded in Manual or Sequence mode. The value ranges are limited by the physical properties of the drive or those determined by the super user (see Chapter 3.13.1 Super User tables > 'Drives'). If a value is delimited in the 'Drives' table, it appears in yellow writing in and a yellow lightning appears in the drives tab.

Shows	Sequence	Groups	Drives	Scenery	Presets	Manual												
Name	State	Position	Load	Toplimit	Bottomlimit	Max. Speed	Min. Accel.	Min. Decel.	Max. Load	Min. Load	Lock	Right - Left	Depth	Load KG				
P 1	3 3 Ready	18,000	0%	18,000	0,000	0,400	1,00	1,00	500	0	None	9,000	-0,180	0				
P 2	3 3 Ready	18,000	0%	18,000	0,000	0,400	1,00	1,00	500	0	None	1,000	0,020	0				
P 3	5 3 Selected	18,000	0%	18,000	0,000	0,400	1,00	1,00	500	0	None	8,000	0,220	0				
P 4	5 3 Assigned	18,000	0%	18,000	0,000	0,400	1,00	1,00	500	0	None	6,000	0,420	0				
P 5	3 3 Ready	18,000	0%	18,000	0,000	0,400	1,00	1,00	500	0	None	3,000	0,620	0				
P 6	3 3 Ready	18,000	0%	18,000	0,000	0,400	1,00	1,00	500	0	None	1,000	0,820	0				

Header	Meaning
Name	Name of the drive
Status	Drive state as plain text and also color-coded: - White: drive is selected - Color: drive is assigned to the correspondingly colored positioning instrument - Grey: drive has a fault or is disabled/ignore - Red: drive is offline
Position	Current position of the drive [meters]
Load	Current net load [%]
Top limit	Upper operating end [meters]
Bottom limit	Lower operating end [meters]
Max. speed	Maximum speed [meters/second]
Min. acceleration ramp	Setting specifying the minimum amount of time a drive needs to reach its programmed speed [seconds]
Min. deceleration ramp	Setting specifying the minimum amount of time a drive needs to come to a standstill from the programmed speed [seconds].

Max. Load	Exceeding this value, machinery stops immediately for overload. Then it is only possible to lower the involved machinery. [kg]
Min. Load	If measured load falls below this value, machinery stops immediately for underload. Then it is only possible to lift the involved machinery. [kg]
Lock	Drives can be disabled individually for each show (see 4.2.1.3 Block drives). - None: No restriction (default). - Locked: The drive is locked and can not be moved. (Icon: ) - Ignored: The drive is not taken into account in cue movements. But, it can be moved in Manual mode. 
Right-Left	Specifies location of machinery on the x-axis for a precise graphic representation of the conditions on site. There is no '0' of the coordinate system. For the depiction, the ratio in between the drives must be correct. Left and right is realized by positive and negative values. [meters]
Depth	Specifies the position of the drive on the z-axis - downstage-upstage. [meters]
Load KG	Current net load. [kg]
Position BIN	Current position in a binary representation
Temp CPU 1	Temperature of the first CPU. [Celsius]
Temp CPU 2	Temperature of the second CPU. [Celsius]
In/Out	Information about digital inputs and outputs of the drive in hexadecimal notation.
Referenz	Set point of the drive
Devi	Controller offset of the drive
Run Time	Running time of the axis control computer
Side ID	The value defines the position of the drive in the parameter tables. [first row is 0]
Drive ID	The value is fix connected with the network address of the Drive. [Drive ID 0 = address ending 128 = Channel 1]

3.12.5 Parameter table > 'Scenery'

You can assign each drive exactly one piece of scenery. You have to manage the dimensions of the sceneries yourself. Sceneries are not only for better visualization, but also for collision avoidance via their parameters.

Shows	Sequence	Groups	Drives	Scenery	Presets	Manual																																																																																																																																																																																																																																																																				
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Header

Meaning

Name	Name of the drive
State	Drive state as plain text and also color-coded - WHITE: drive is selected. - COLOUR: drive is assigned to the correspondingly colored positioning instrument. - GREY: drive is locked/ignored. - RED: drive is offline
Position	Current position of the drive. [meters]

Load	Current net load. [%]
Description	You can add a description to each drive which is also displayed in the drive view.
Type	To facilitate orientation in the drive view, you can assign an icon to each drive. Clicking in the field will open a list with different icons.
Form	In the side and 3D view, you can select different shapes for the scenery (sphere, cylinder, cube, etc.). Its size and color can be determined in the 3D view using the following parameters. These values at the same time affect the movement with activated collision control (3.6.2 Menu bar > 'System').
Colour	For better clarity, a color can be assigned to each piece of scenery
Height	Height of the scenery. [meters]
Slack Height	You can enter the length of the suspension here, i.e. the distance between the scenery and the support (load bars, hooks ...). [meters]
Depth	The depth of the scenery is needed (Y-axis) for graphical representation in the 3D view. [meters]
Point depth	The depth of the attachment point on the Y-axis is needed for graphical representation in the 3D view. The value '0' stands for central suspension. [meters]
Width	Specify the width (width, X-axis) of the scenery. [meters]
Point Width	The attachment point on the X-axis is needed for graphical representation in the 3D view. The value '0' stands for central suspension. [meters]
Pan	Rotate the scenery object around its Z-axis [degree]
Tilt	Rotate the scenery object around its X-axis [degree]
Roll	Rotate the scenery object around its Y-axis [degree]

In Chapter 4.2.1.5 'Add scenery to a drive' more information is given on managing the scenery parameters.

3.12.6 Parameter table > 'Presets'

In the parameter table of the 'Presets', fixed positions can be defined for each drive which serve as the start or target position. The drives can also be moved in the table so that a direct approach of the preset positions is possible. For this select a preset in the left table and click on 'Object'. A manual movement with all members of the preset is created (change to 'Manual' table to check it).

Shows

Sequence

Groups

Drives

Scenery

Presets

Manual

</

Selecting the 'Presets' tab opens two tables in the left table, the desired preset is selected; in the right, the corresponding drives and their settings are shown.

Parameter	Meaning
Preset name	Names of presets
Description	You can add a description to each preset. It is automatically copied to the right table in the 'Description' column.
Colour	For better distinction, a color can be assigned to each preset (triangle marker in 2D view). You get a list of all the colors by clicking in the cell or by pressing the 'Enter' key in a field in focus.

Properties table of Presets (Right side):

Parameter	Meaning
Object	Name of the drive or the group which is stored in the 'Preset'.
State	Drive state as plain text and also color-coded.
WHITE:	drive is selected.
COLOUR:	drive is assigned to the correspondingly coloured positioning instrument.
	GREY: drive is locked/ignored. RED: drive is offline
Position	Current position, top limit, bottom limit of the drive [meters]
Load	Current net load. [%]
Preset name	Displays the name of the 'Preset'.
Value	stored position value [meters]
Description	You can add a description for the selected 'Preset' to each object. However, this is overwritten with a new entry of a description in the 'Preset' table (left table).
Updated	Time and date of the last modification
Created	Time and date of the creation

For a detailed description for handling 'Presets', see Chapter 4.2.3 'Presets'.

3.12.7 Parameter table > 'Manual mode'

The 'Manual mode' parameter table is used for manual operation of the drives. The parameters entered here cannot exceed or fall below the values of the 'Drives' and 'Groups' table. Incorrect entries will be corrected automatically. In addition, the entries in the parameter table 'Manual' are volatile, meaning they are not automatically saved. Once the corresponding control is deselected, the parameter set is reset. But you can save your configurations by clicking 'Save movements to a cue'. (see 4.1.4)

Shows	Sequence	Groups	Drives	Scenery	Presets	Manual										
Object	State	Load	Position	Start	Target	Speed	Time	TM	Accel.	Decel.	Delay					
P 5	Run	0 kg	17,779 17,779 / 6,000	current	preset3	0,400	30,45	○	1,00	1,00	0,00					
P 4	Run	0 kg	18,000 18,000 / 5,000	current	preset3	0,400	33,50	○	1,00	1,00	0,00					
P 6	Run	0 kg	18,000 18,000 / 1,100	current	1,100	0,400	43,25	○	1,00	1,00	0,00					
P 7	Run	0 kg	18,000 18,000 / 1,100	current	1,100	0,550	31,73	○	1,00	1,00	0,00					
P 8	Selected	0 kg	18,000 18,000 / 0,000	18,000	0,000	0,550	33,73	○	1,00	1,00	0,00					
P 9	Selected	0 kg	18,000 18,000 / 0,000	18,000	0,000	0,550	33,73	○	1,00	1,00	0,00					

To assign all objects the same value in a column, click on the appropriate heading. The entire column is now selected, and a common value can be assigned. Confirm your entry by pressing the Enter key. To assign some objects of a column, click in one field and use Shift+arrow up/down keys.

Parameter	Meaning
Object	Name of the drive or the group
State	Drive state as plain text and also color-coded.
Load	Current net load. [%]
State	Drive state as plain text and also color-coded.
WHITE:	drive is selected.
COLOUR:	drive is assigned to the correspondingly colored positioning instrument.

GREY: drive is locked/ignored.
RED: drive is offline

Position	Current position, start position, target position of selected drive / group [meters]
Start	Enter a start position here. This can either be a numeric value or a previously stored preset position. You will get a list of all presets for this object by clicking in the field and pressing the Enter key when the cell is in focus. [meters or preset name]
Target	Enter a target position here. This can either be a numeric value or a previously stored preset position. You will get a list of all presets for this object by clicking in the field and pressing the Enter key when the cell is in focus. [meters or preset name]
Speed	Enter the speed for the movement here. Then, the associated movement time is calculated in the 'Time' column. If the speed is changed, the check mark in the 'TM' column disappears. [meters/second]
Time	Enter the time for the movement here. Then, the speed is automatically recalculated. The check mark for 'TM' is activated. [seconds]
TM	Time is master - If the box is checked, the speed is adjusted when you change the start or target positions, but the chosen travel time remains the same. This is important if you work with preset positions which you can also change after the fact. If the check mark is deactivated, the movement is performed at the stored speed.
Accel(-eration ramp)	Specify the time after which the drive is to reach its programmed speed. [seconds]
Decel(-eration ramp)	Specify how long the drive will need to come to a halt. [seconds]
Delay	After the preset time has elapsed, the drive will start the movement. Countdown starts as soon as the programmed movement is activated [seconds]
Drive Modes	Determine the dependence of the drives to each other (see 4.3.2 'Sequence', 'Cue' und 'Drive Modes').
Modes index	Determine which drives with the same movement types belong together (see 4.3.2.4 Cue with several, equal movement types).
Leader	If the box is checked, the related drive is selected leader of a group. Limits and specifications of this drive are relevant then for the movement of the whole group.
Loops	Loops specifies how often a movement takes place between start and target. 1 = Start ⇔ Target, 2 = Start ⇔ Target ⇔ Start ... The maximum is 99.
Pause	In combination with loops: waiting time after reaching a start or target position (see 4.3.3.7 Define breaks between the loops) [seconds].
Start offset	In combination with loops: value by which the start position is increased/reduced at each start (see 4.3.3.8 Determine start and target offsets) [meters].
Target offset	In combination with loops: value by which the target position is increased/reduced at each start (see 4.3.3.8 Determine start and target offsets) [meters].
Speed offset	In combination with loops: value by which the speed is increased/reduced at each start.
Way-Points	You can enter intermediate positions at which the object is to change its speed without stopping (see 4.3.3.4 Define speed change during a movement with 'way-points').
Description	You may add a specific description to any drive or group
Updated	Time and date of the last modification
Created	Time and date of the creation

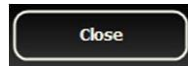
For a detailed description of the use of 'cues' and their details, see Chapter 4.3.2 'Sequence', 'Cue' und 'Drive Modes' as well as the following chapters.

3.13 Super User tables

If you are logged in as a super user or as an admin, you can reach the 'Super user' parameter tables via the 'menu bar' ⇒ 'Admin' ⇒ 'super user' icon button. Here you can make settings that affect all shows.



To make any changes in the tables, the red lock at the bottom of the screen must be pressed. Then the icon turns to green, and the table is unlocked.

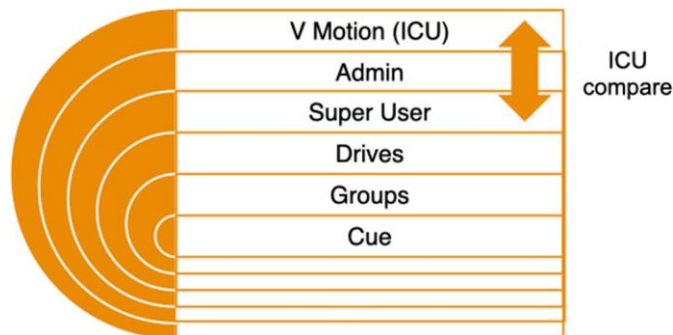


Pressing the button 'Close' closes the table and returns to the operating level.

3.13.1 Super User tables > 'Drives'

The values set in this table indicate the maximum range for all parameters. Exceeding or falling below these values in all other parameter tables is not possible (except in the administration table). The values changed in this table appear in yellow letters. The changes here are all over your shows.

Hierarchy of the operating parameters:



Drives		User		Global Presets				Trigger-Combinations					
Name	State	Position	Lock	Toplimit	Bottomlim	Max. Speed	Min. Accel.	Min. Decel.	Min. Load	Max. Load	Overload %	Virtual Position	Default Start
P 1	Ready	18,000	None	18,000	0,000	0,400	1,00	1,00	0	500	100	0,000	18,000
P 2	Ready	18,000	None	18,000	0,000	0,400	1,00	1,00	0	500	100	0,000	18,000
P 3	Ready	18,000	None	18,000	0,000	0,400	1,00	1,00	0	500	100	0,000	18,000
P 4	Ready	18,000	None	18,000	0,000	0,400	1,00	1,00	0	500	100	0,000	18,000
P 5	Locked	18,000	Locked	18,000	0,000	0,400	1,00	1,00	0	500	100	0,000	18,000
P 6	Ready	18,000	None	18,000	0,000	0,400	1,00	1,00	0	500	100	0,000	18,000
P 7	Ready	18,000	None	18,000	0,000	0,550	1,00	1,00	0	250	100	0,000	18,000
P 8	Ready	18,000	None	18,000	0,000	0,550	1,00	1,00	0	250	100	0,000	18,000
P 9	Ready	18,000	None	18,000	0,000	0,550	1,00	1,00	0	250	100	0,000	18,000
P 10	Ready	18,000	None	18,000	0,000	0,550	1,00	1,00	0	250	100	0,000	18,000
P 11	Ready	18,000	None	18,000	0,000	0,660	1,00	1,00	0	250	100	0,000	18,000
P 12	Ready	18,000	None	18,000	0,000	0,660	1,00	1,00	0	250	100	0,000	18,000
Spare-ICU													

Close





Reset Limits: If this button is pressed, all limits in this table are deleted and the values are set back to the maximum/ minimum. There is an extra query, if the 'virtual position' should also be reset. The Columns for default values aren't changed.

<u>Parameter</u>	<u>Function</u>
Name	Name of the drive.
State	Drive state as plain text and also color-coded.
Position	Current position of the drive. [meters]
Lock	Drive can be locked [4.2.1.3 Block drives]
Toplimit	Setting for the upper operating end, and thus the highest point that can be selected and approached for all other applications. [meters]
Bottomlimit	Setting for the lower operating end, and thus the lowest point that can be selected and approached for all other applications. [meters]
Max. Speed	The maximum speed which is possible for this type of construction can be reduced here. [meters/second]
Min. Accel(-eration ramp)	Setting specifying the minimum amount of time a drive needs to reach its programmed speed. [seconds] If the ramp is increased, jerky movements and increased power moments in the suspension points and the attached loads are prevented when starting. Thus, "soft" and flowing movements are created.
Min. Decel(-eration ramp)	Setting specifying the minimum amount of time a drive needs to come to a standstill from the selected speed. [seconds] If the ramp is increased, jerky movements and increased power moments in the suspension points and the attached loads are prevented when stopping. Thus, "soft" and flowing movements are created.
Min. Load	Value at which the drive goes into underload. [kg]
Max. Load	Value at which the drive goes into overload. The effective maximum value, however, is limited by the drive specifications. [kg]
Overload %	Value cannot be changed and is adjusted to drive specifications.
Virtual Position	Value shows the difference between the modified/real maximum travel distance and the maximum possible travel distance of the drive. A new/real position can be set here. Detailed description follows below. [TeachIn Virtual Position]
Default Start*	Default start up setting - the value entered here is automatically assigned to the drive as the 'Start' at each selection.
Default Target*	Default target setting - the value entered here is automatically assigned to the drive as the 'Target' at each selection.
Default Speed*	Default speed setting - the value entered here is automatically assigned to the drive as the 'Speed' at each selection.
Default Accel(-eration ramp) *	Default acceleration setting – the value entered here is automatically assigned to the drive as acceleration ramp after each selection
Default Decel(-eration ramp) *	Default deceleration setting – the value entered here is automatically assigned to the drive as deceleration ramp after each selection

*: these values are only guidelines. The values can be changed at any time in the parameter tables in the context of the operational parameters.

There is an additional switch panel on the right side of the super user 'Drives' table. It is used to manage the ICUs of the entire system. Using the following functions, you can teach in the desk the specific parameter of each drive and read out and exchange the data of ICUs.

TeachIn Virtual Position:

Define the real position of a drive. To do this move the drive to a position easy to measure (e.g. real zero), set the value in the 'Virtual Position' column and push the touch field 'TeachIn Virtual Position'. The "real / new" position is now displayed in the column 'Position'. The top limit will be adjusted accordingly.
To delete the modified position, type "0" and press 'Enter'. The entire moving range of the drive is released again. Multiple selection is possible.

ICU Download / Compare:

Select a drive in the table whose data you wish to download. Then push the touch field 'ICU Download' to get the main data of the ICU-file on the related V-Motion. The name of the ICU-file and the name of the drive is shown on the right side. To teach in the parameters of the drive to the console push the touch field 'Compare' and then accept all changes. The Parameters off the ICU-file are set in the administrator table.

Caution: The value of the maximum load must be set manually in the administrator table.

ICU Upload:

The data of an opened ICU-file are replayed to a ICU (V-Motion).

ICU Open File:

This feature allows you to open any previously saved ICU data (format extension: icu). From the disc.

Save File:

The downloaded data of the ICUs are stored. Please note the storage location.

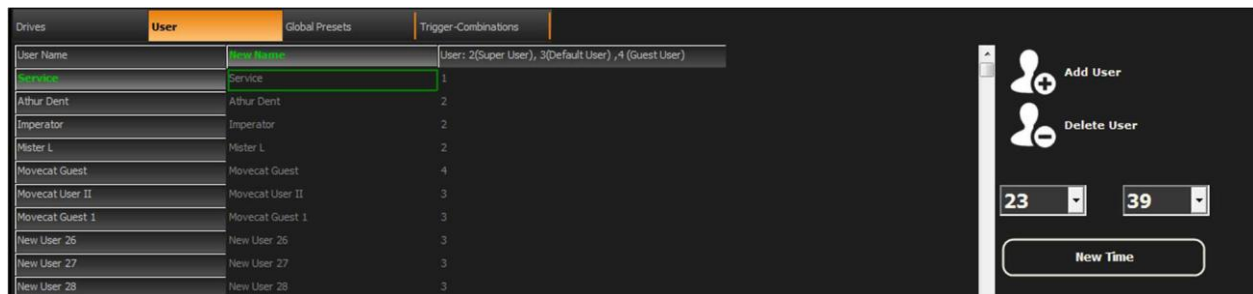
Compare:

This function informs you of all differences between the parameters set in the Administrator table and the data set of the ICUs via a message window.



3.13.2 Super User tables > 'User'

Via the 'User' tab, you can reach another table. It is used to manage access rights and login options for systems with password login. Moreover, the system time can be set here.



Furthermore, there are assigned certain rights via the 'User level'. The 'User-level' differs in the following ways:

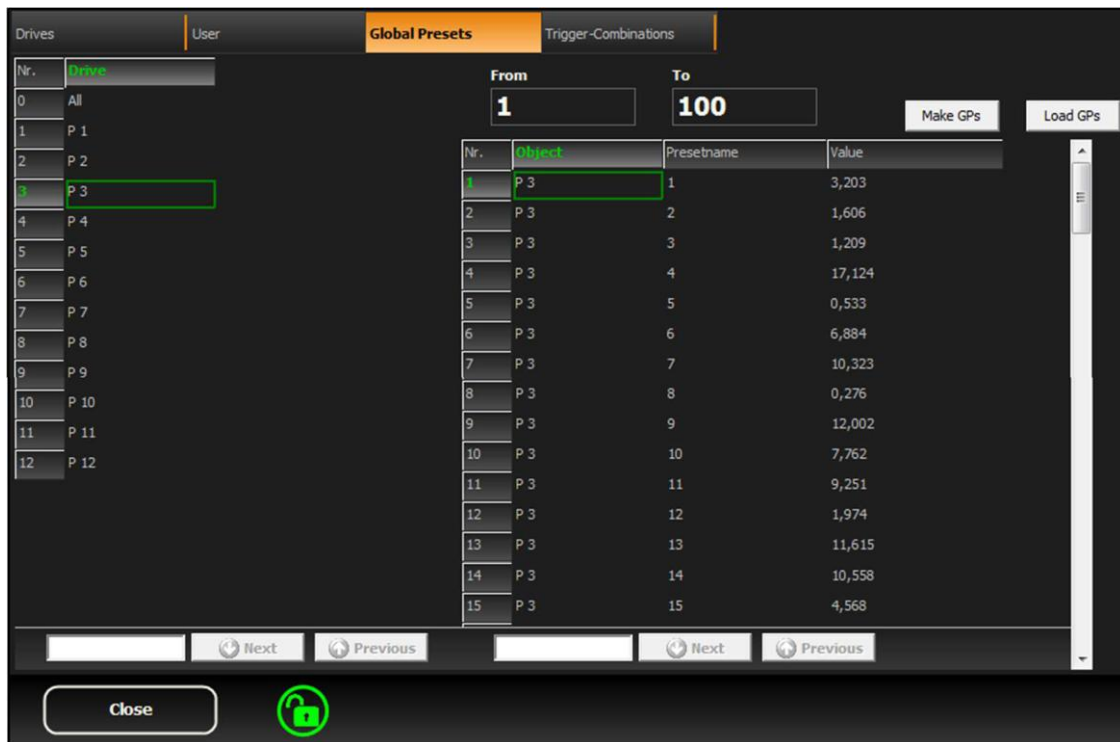
User level :

- 1: Administrator
- 2: Super User
- 3: Default User
- 4: Guest User

Default setting for new created User Access is Default User (3) with password 1234. The password must be changed after installation. In the Super-User level it is not possible to add User Level 1. You need to do this in the Admin-Menu.

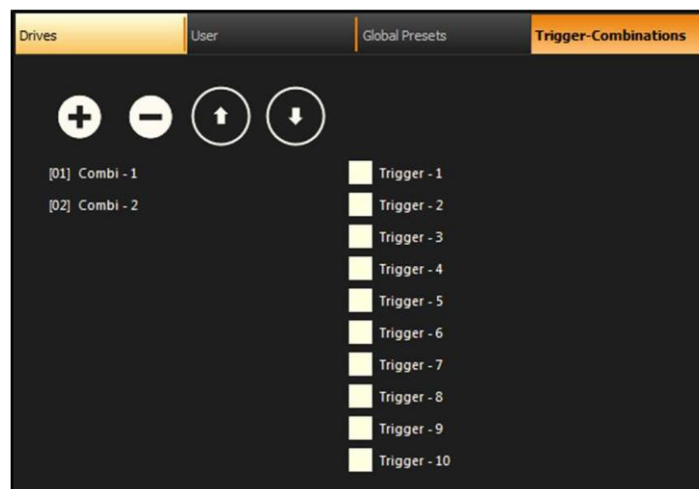
3.13.3 Super User tables > Global Presets

The graphic below shows that global presets can be assigned and named to the respective drive in the "Global Presets" table. Furthermore, the entered values can be reset. You can create global position presets effective for all shows stored in the database.



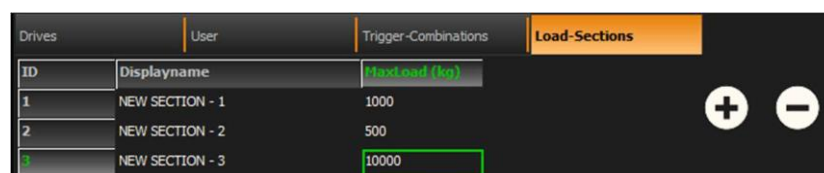
3.13.4 Super User table > Trigger-Combinations

This page is needed to handle multiple external triggers. It is possible to combine and name multiple external triggers. These combinations can be used in the cues at "Sequence" > "Depend Type". There you can select "Extern Trigger Combi". Now you can set a Combi at "Depend Device".



3.13.5 Super User table > Load-Sections

In this table, a maximum load can be specified for different areas. A drive can be used in several sections. The sum of the load of the drives must not exceed the specified maximum load, otherwise the system stops due to overload. In this way it can be avoided that, for example, a 'Prerig', a beam or other structure of the venue/ stage is overloaded.



3.14 Action bar

Using the Action bar, different actions are executed which are described in more detail in this chapter. The number of icon buttons varies depending on which tab of the parameter table is currently active. Only the relevant functions are described for each table.

Action bar > 'Show-Update' (for multiple-user mode – option: Motion-server required)



The 'Show update' icon facilitates the programming of a joint show with several users simultaneously. It appears as soon as the console is connected to the server and helps you to realize changes which were made by other operators on other control panels. It also prevents two users from changing something in the same table at the same time. Once a change was made on another desk, the background of the sign will change the colour. The colour of the symbol gives information on the status.

White icon:	No changes has been made on another desk
Orange icon (blinking):	A change has been made in the cue list ('Sequence' tab).
Light-Blue icon (blinking):	One or more changes has been made in another tab, e.g. an end of operation was changed, a new 'Preset' was created, a new group was formed, etc.
Blue icon (blinking):	One or more changes have been made in the 'super user' or 'admin' 'Drives' table.
Red icon:	The table on which you are currently located is being edited by another user. You cannot change anything in this table at this time.

For the use of the server there is a detailed manual.

3.14.1 Action bar > 'Show'



Only the relevant functions are described for this table.

Action bar 'Show' > 'New', 'Copy', 'Paste', 'Delete'



The 'New', 'Copy', 'Paste' and 'Delete' buttons are the standard functions that are available for editing each instance. With them, you can for example create a show or copy an existing one, paste or delete it. [keyboard shortcuts: 'F1', 'F2', 'F3', 'F4']

Action bar 'Show' > 'last show'



This function loads the last modified show without changing the tab.

Action bar 'Show' > 'Working Copy'

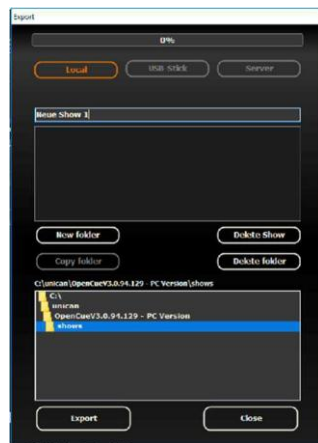


The 'Working copy' function, allows you to create a working copy of the currently selected show. This means a temporary copy of the show is created where you can make changes. Once you change the show, the last working copy will be deleted.

Action bar 'Show' > 'Import', 'Export'



With the 'Import' and 'Export' icon buttons, you can save performances as files and retrieve them. You can access the hard drive of the operating computer on a connected USB mass storage device or on the server computer. All data from the show level is saved, i.e., all data from 'Sequence', 'Groups', 'Drives' and 'Presets' tables. The parameters of the higher-level tables ('Super User' and 'Administration') are not included (see Chapter 4.3.1.5 / 4.3.1.6). [keyboard shortcut import: 'CTRL' + 'I'; keyboard shortcut export: 'CTRL' + 'E']



3.14.2 Action bar > 'Sequence'



Only the relevant functions are described for this table.

Action bar 'Sequence' > 'Blockdetails' (lock)



The 'Blockdetails' button is only available in if the 'Sequence' parameter table. It is used for safety purposes to prevent unintentional changes. By pressing the button, the lock will be deactivated, and the parameters can be edited. This is also indicated by the change of the colour from red to green. Each time the 'Sequence' tab is exited, the blocking is re-activated [keyboard shortcut: 'CTRL' + 'M']

Action bar 'Sequence' > 'New', 'Copy', 'Cut', 'Paste', 'Delete'



The 'New', 'Copy', 'Cut', 'Paste' and 'Delete' buttons are the standard functions that are available for editing each instance. With them, you can for example create a cue or copy an existing one, paste or delete it. The 'Cut' function is available if the 'Sequence' tab is activated (see Chapter 4.3.4.2). [keyboard shortcuts: 'F1', 'F2', 'F5', 'F3', 'F4']

Action bar 'Sequence' > 'Undo', 'Redo'



You can use the 'Undo' and 'Redo' icons to revoke or restore the input of text or values. By pressing one of the icon buttons, the software jumps a step back or forward. A change can be revoked in this way.

Action bar 'Sequence' > 'Last Show'



This function loads the last modified show without changing the tab.

Action bar 'Sequence' > 'TeachIn current position'



With this function the current position of the drives, can be entered as parameters. In the 'Sequence' table it can be used for the 'Start position' and the 'Target position'. If the desired parameter has previously been focused on and the 'TeachIn current position' button has been pressed, the entered value is then replaced by the current position. Multiple cells can be changed at once. [keyboard shortcut: 'CTRL' + 'T']

Action bar 'Sequence' > '+ Scenery Hight'



This function adds the 'Hight' including 'Slackhight' to the focused value. This refers to the parameters of the fields 'Start', 'Target' and 'Preset Value'.

Action bar 'Sequence' > '+ Bypass Groups'



With the 'Bypass groups' function, groups (also assembled drives of 'Global groups') can be temporarily dissolved in order to move the drives individually. This can be necessary for programming and for making corrections, for example for arranging the individual drives of a group back into a horizontal line. A detailed description of this topic can be found in Chapter 4.2.2.7 Configure individual group members. The group bypass is also required if you want to integrate a drive into several groups. For more information on this process, see Chapter 4.2.2.3 Integrate drives into several groups. If the bypass is active the Icon flashes red and orange. [keyboard shortcut: 'CTRL' + 'G']

Action bar 'Sequence' > 'Patch a drive in cues'



This option is for exchanging drives in a cue. A detailed description of the process can be found under 4.3.6. [keyboard shortcut: 'CTRL' + 'P']

Action bar 'Sequence' > 'Bypass Trigger'



In case a cue is started by a trigger this function is necessary. It allows you to start the cue without the trigger signal. If the signal is not received, the cue can be started with the selected Positioning instrument. The icon turns into red if the bypass is active. [keyboard shortcut: 'CTRL' + 'B']

Action bar 'Sequence' > 'Prepare show for starting from this cue'



With this function you can prepare the scenic structure from any cue at any time. The I-Motion software automatically calculates all starting positions for the next scenic sequences. A manual move, with all drives of the cue, to the start position of the cue is prepared (see Chapter 4.5). [keyboard shortcut: 'CTRL' + 'R']

Action bar 'Sequence' > 'Profile-Recorder'



With the 'Profile-Recorder' you can record control movements of the lever and use them later in a cue (see Chapter 4.3.5 'Sequence', 'Cue' and 'Drive Modes').

Action bar 'Sequence' > 'Bypass Overload + Underload'



Pressing the 'Bypass overload + underload' buttons does not take into consideration the values stored for 'Min. load' and 'Max. load' in the 'Drives' parameter table. After activating the function, the icon button turns red. Now only the maximum physical load on the drives is valid as a reference. This function can be useful in exceptional situations, such as when a drive becomes caught or jammed. The activated overload underload monitoring process is bridged and the drive can be moved again. [keyboard shortcut: 'CTRL' + 'L']

Action bar 'Sequence' > 'Asynchron / Synchron'



With the 'Asynchron/Synchron' function, you can select one of the two driving modes as the default, which remains selected until you restart the I-Motion software. This means that the next time you start the software, the 'Asynchron' setting is automatically selected, as this is the most used driving mode (see 4.3.2 'Sequence', 'Cue' and 'Drive Modes').

3.14.3 Action bar > 'Groups'



Only the relevant functions are described for this table.

Action bar 'Groups' > 'New', 'Copy', 'Paste', 'Delete'



The 'New', 'Copy', 'Paste' and 'Delete' buttons are the standard functions that are available for editing each instance. With them, you can for example create a show or copy an existing one, paste or delete it (see Chapter 4.2.2 'Groups'). [keyboard shortcuts: 'F1', 'F2', 'F3', 'F4']

Action bar 'Groups' > 'Last Show'



This function loads the last modified show without changing the tab.

Action bar 'Groups' > 'Reset Limits'



If this button is pressed, all limits of the focused group are deleted and the values are set back to the maximum/ minimum. [keyboard shortcut: 'CTRL' + 'S']

3.14.4 Action bar > 'Drives'



Only the relevant functions are described for this table.

Action bar 'Drives' > 'Copy', 'Paste'



The 'Copy' and 'Paste' buttons are the standard functions that are available for editing each instance. It is possible to copy and paste the values in the table (see Chapter 4.2.1 Drives). The buttons 'New' and 'Delete' have no function here. [keyboard shortcuts: 'F2', 'F3']

Action bar 'Drives' > 'Last Show'



This function loads the last modified show without changing the tab.

Action bar 'Drives' > 'Reset Limits'



If this button is pressed, all limits of the focused drives are deleted, and the values are set back to the maximum/ minimum. The coordinates ('Right-Left' and 'Depth') can also be reset after an extra query to the stored values. [keyboard shortcut: 'CTRL' + 'S']

Action bar 'Drives' > 'Teach In current position'



With this function the current position of the drives, can be used to enter as parameters. In the 'Drives' table you can use it for the 'Bottomlimit' and 'Toplimit'. If the desired parameter has previously been focused on and the 'Teach In current position' button has been pressed, the entered value is then replaced by the current position. Multiple cells can be changed at once. [keyboard shortcut: 'CTRL' + 'T']

3.14.5 Action bar > 'Scenery'



Only the relevant functions are described for this table.

Action bar 'Scenery' > 'Copy', 'Paste', 'Delete'



The 'Copy', 'Paste' and 'Delete' buttons are the standard functions that are available for editing each instance. It is possible to copy and paste all parameters of an object (see Chapter 4.2.1.5 'Add scenery to a drive' and the following chapters). The button 'New' has no function for the 'Scenery' table. [keyboard shortcuts: 'F2', 'F3', 'F4']

Action bar 'Scenery' > 'Last Show'



This function loads the last modified show without changing the tab..

Action bar 'Scenery' > 'Reset Limits'



If this button is pressed in the 'Scenery' tab, all parameters of the focused objects are deleted. [keyboard shortcut: 'CTRL' + 'S']

Action bar 'Scenery' > 'Teach In current position'



In the 'Scenery' table, with this function the current position of the drive can be used to enter as the 'Hight' of the object ('Scenery'). If the desired parameter has previously been focused on and the 'Teach In current position' button has been pressed, the entered value is then replaced by the current position. [keyboard shortcut: 'CTRL' + 'T']

3.14.6 Action bar > 'Presets'



Only the relevant functions are described for this table.

Action bar 'Presets' > 'New', 'Delete'



The 'New', 'Copy', 'Cut', 'Paste' and 'Delete' buttons are the standard functions that are available for editing each instance. With them, you can for example create a preset or delete it (see Chapter 4.2.3 'Presets'). The buttons 'Copy' and 'Paste' have no function for the 'Presets' table (keyboard shortcuts: 'F1', 'F4')

Action bar 'Presets' > 'Last Show'



This option loads the last modified show without changing the tab.

Action bar 'Presets' > 'Teach In current position'



In the 'Presets' table, with this function the current position of the drive can be used to enter as the 'Value' of the preset. If the desired parameter has previously been focused on and the 'Teach In current position' button has been pressed, the entered value is then replaced by the current position. [keyboard shortcut: 'CTRL' + 'T']

Action bar 'Presets' > 'Teach In current position'



This function adds the 'Hight' including 'Slackhight' to the focused value. This refers to the parameters of the fields 'Start', 'Target' and 'Preset Value'.

3.14.7 Action bar > 'Manual'



Only the relevant functions are described for this table.

Action bar 'Manual' > 'Last Show'



This option loads the last modified show without changing the tab.

Action bar 'Manual' > 'Teach In current position'



In the 'Manual' table, with this function the current position of the drive can be used to enter as 'Start' value or 'target' value. If the desired parameter has previously been focused on and the 'Teach In current position' button has been pressed, the entered value is then replaced by the current position. [keyboard shortcut: 'CTRL' + 'T']

Action bar 'Manual' > 'Teach In current position'



This function adds the 'Hight' including 'Slackhight' to the focused value. This refers to the parameters of the fields 'Start', 'Target' and 'Preset Value'.

Action bar 'Manual' > '+ Bypass Groups'



With the 'Bypass groups' function, groups (also assembled drives of 'Default show') can be temporarily dissolved in order to move the drives individually. This can be necessary for programming and for making corrections, for example for arranging the individual drives of a group back into a horizontal line. A detailed description of this topic can be found in Chapter 4.2.2.7 'Configure individual group members'. The group bypass is also required if you want to integrate a drive into several groups. For more information on this process, see Chapter 4.2.2.3 'Integrate drives into several groups'. If the bypass is active the Icon flashes red and orange. [keyboard shortcut: 'CTRL' + 'G']

Action bar 'Manual' > 'Bypass Overload + Underload'

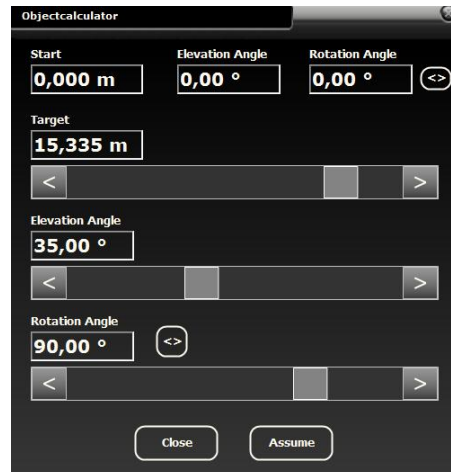


Pressing the 'Bypass overload + underload' buttons does not take into consideration the values stored for 'Min. load' and 'Max. load' in the 'Drives' parameter table. After activating the function, the icon turns red. Now only the maximum physical load on the drives is valid as a reference. This function can be useful in exceptional situations, such as when a drive becomes caught or jammed. The activated overload underload monitoring process is bridged and the drive can be moved again. [keyboard shortcut: 'CTRL' + 'L']

Action bar 'Manual' > 'Objectcalculator'



The 'object calculator' is used to create three-dimensional movements. This function is only available after a group of the 'Object' or 'Free' type has been selected. This type of group runs time-synchronously. After pressing the switch icon, the area of the 'Objectcalculator' window opens.



The 'Objectcalculator' can be influenced by six parameters. Three parameters are used to set the start position (these values are automatically transferred from the current position of the group); the target position can be determined through the other values. In the 'Start' and 'Target' fields, the height of the group is determined for the initial and target position. This position always refers to the lowest drive of the group. With the settings under 'Rotation angle', rotation on the X-axis (tilt axis of the object) is defined (positive value: object tilts to the right side of the stage (as seen from the spectator area), negative value: object tilts to the left side of the stage). With the 'Elevation angle' values, tilting on the Z-axis is defined. In order to get a better idea of the position, it is advisable to use the "3D view" (see Chapter 4.3.7 Programming with usage of the object calculator).

By varying these parameters, different movements can be created. For example, you can create a rotating cube if you create different positions and string them together in several cues.

Action bar 'Manual' > 'Asynchron / Synchron'



With the "Asynchron/Synchron" function, you can select one of the two driving modes as the default, which remains selected until you restart the I-Motion software. This means that the next time you start the software, the "Asynchron" setting is automatically selected, as this is the most used driving mode (see 4.3.2 'Sequence', 'Cue' und 'Drive Modes').

Action bar 'Manual' > 'Save movements to a cue'



This function allows to save a programmed 'manual' movement into a cue. All drives including their parameters are saved from the 'Manual' table into a cue. The cue is added on the last position of the cue list. When saving you can choose a name and a description for the new cue (see 4.1.4 Save movements to a cue).

3.15 Context bar

The context bar features technical system functions. In addition, the 'Logbook' and 'Memo' modules are opened.



3.15.1 Context bar > 'Logbook'

```

Logbook
28.01.15.08.00.313 - Movecat Desk1: User logged in. Administrator Last login: Mo. 28.01.2019 15:05:41
28.01.15.07.55.160 - Movecat Desk1: -----
28.01.15.07.55.150 - Movecat Desk1: Application ready...
28.01.15.07.54.985 - Movecat Desk1: View loaded ...
28.01.15.07.54.974 - Movecat Desk1: Load View...
28.01.15.07.54.694 - Movecat Desk1: Simulate On Disassign all Controls
28.01.15.07.53.855 - Movecat Desk1: Do DriveSet...
28.01.15.07.53.781 - Movecat Desk1: Start VisualUpdate...
28.01.15.07.53.755 - Movecat Desk1: current Show (1) 'Default Show' loaded
28.01.15.07.53.650 - Movecat Desk1: Load current Show (1) 'Default Show'
28.01.15.07.53.640 - Movecat Desk1: current Show (1) 'Default Show'
28.01.15.07.53.609 - Movecat Desk1: Sync Started ...
28.01.15.07.53.496 - Movecat Desk1: Start Realtime-System...
28.01.15.07.53.494 - Movecat Desk1: ICU-receiving started
28.01.15.07.53.493 - Movecat Desk1: ICU-sending started
28.01.15.07.53.483 - Movecat Desk1: Start 3DConnexion
28.01.15.07.53.476 - Movecat Desk1: Setting up ICU-System ...
28.01.15.07.53.461 - Movecat Desk1: Load Global Presets
28.01.15.07.53.425 - Movecat Desk1: Adjusting drive parameters ...
28.01.15.07.53.390 - Movecat Desk1: Loading application global parameters ...
28.01.15.07.53.313 - Movecat Desk1: Set Defaultparameter...
28.01.15.07.53.232 - Movecat Desk1: Open Database...
28.01.15.07.53.225 - Movecat Desk1: Check Database-Version...
28.01.15.07.53.211 - Movecat Desk1: Verifying DB...
28.01.15.07.53.205 - Movecat Desk1: Hide Taskbar...
28.01.15.07.53.195 - Movecat Desk1: Connecting successful !
28.01.15.07.53.142 - Movecat Desk1: Connecting to local database ... C:\unican\OpenCueV3.0.94.129 - PC Version\data\MCS-Doku.fdb
28.01.15.07.53.131 - Movecat Desk1: Setting up ICU-System ...
28.01.15.07.53.126 - Movecat Desk1: Loading database configuration ...
28.01.15.07.53.121 - Movecat Desk1: Load Memo ...
28.01.15.07.53.071 - Movecat Desk1: Adjusting visuals ...
28.01.15.07.53.057 - Movecat Desk1: Plugin-ID: 1
28.01.15.07.53.046 - Movecat Desk1: Activating system ...
28.01.15.07.51.474 - Movecat Desk0: Version: 3.0.94.129
28.01.15.07.51.468 - Movecat Desk0: Application started... Mo. 28.01.2019
28.01.15.07.51.467 - Movecat Desk0: *****
28.01.15.07.51.402 - Movecat Desk0: Automatic bolt-/unbolt OFF by
28.01.15.07.51.402 - Movecat Desk0: Secure-Build-Up OFF by
28.01.15.07.51.387 - Movecat Desk0: Collision-Control OFF by

Close Stop Clear Print Find USB

```

The logbook shows all status and error messages of the system. The text messages are stamped with the date and exact time. Use the scroll bar to scroll through the chronological messages. If a fault occurs in the system, you can track the course in order to locate the error and correct it where necessary. In addition, all user entries and changes are listed here. The newest entry appears on the top, the oldest at the bottom.

Note:

The logbook records all events that occur and stores these in relation to the operator, day and time in the device. On the one hand, this enables the operator to analyse possible errors quickly during the workflow and correct them. Secondly, this helps the MOVEKET team to understand the process flow in the event of errors. Although the data can be removed using the 'Clear' button on the screen, it remains in the internal memory which a MOVEKET system technician can read out. It is a "black box", which allows a clarification of all processes in retrospect.



'Close' button

Pressing the 'Close' button closes the logbook.

'Stop' button

If no other entries are to be made in the logbook, push the 'Stop' button. No more entries are displayed, but the status and error messages from the system will continue to be saved.

'Clear' button

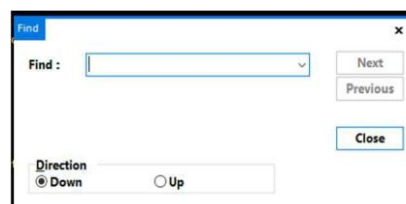
Pressing the 'Clear' key deletes all entries in the logbook. Only the entries from the display window are deleted, but the status and error messages from the system will continue to be saved.

'Print' button

Pressing the 'Print' button prints the entire logbook on your default printer.

'Find' button

Pressing the 'Find' button opens a help window. You can use this window to search for certain terms in the logbook. The search can be refined by selecting search criteria.



'Day selection' field

Via the 'Day selection', logbooks of past days can be displayed. The logs are sorted by date. This means that if, for example, '1' is selected in the drop-down menu, the log from the last saved date that starts with '1' is displayed.

'USB' button

If a USB mass storage unit is connected, the data of the logbook can be saved externally as a text document (.log).

Note:

In case of an error, it may be helpful to send the error message to MOVEKET's service team. To export the logbook, you can use the "USB" button, then all the entries of 31 days will be saved on the USB mass storage. It is also possible to send only the relevant passage. To do this it is first important to find the first error message, because each error cause further error messages. Then highlight the desired passage and press "Print". In the window that opens you can select the PDF printer and save only the marked passage to the USB mass storage.

3.15.2 Context bar > 'Memo'

The 'Memo' button shows a window where you can enter messages, remarks and notes for yourself and your colleagues. Once the I-Motion program has started, the memo window will appear automatically. All messages are stamped with date and time.

If the system is used with a server and the consoles access the database on the server. The message is displayed on all consoles.

'Close' button

Pressing the 'Close' button closes the Memo.

'Save' button

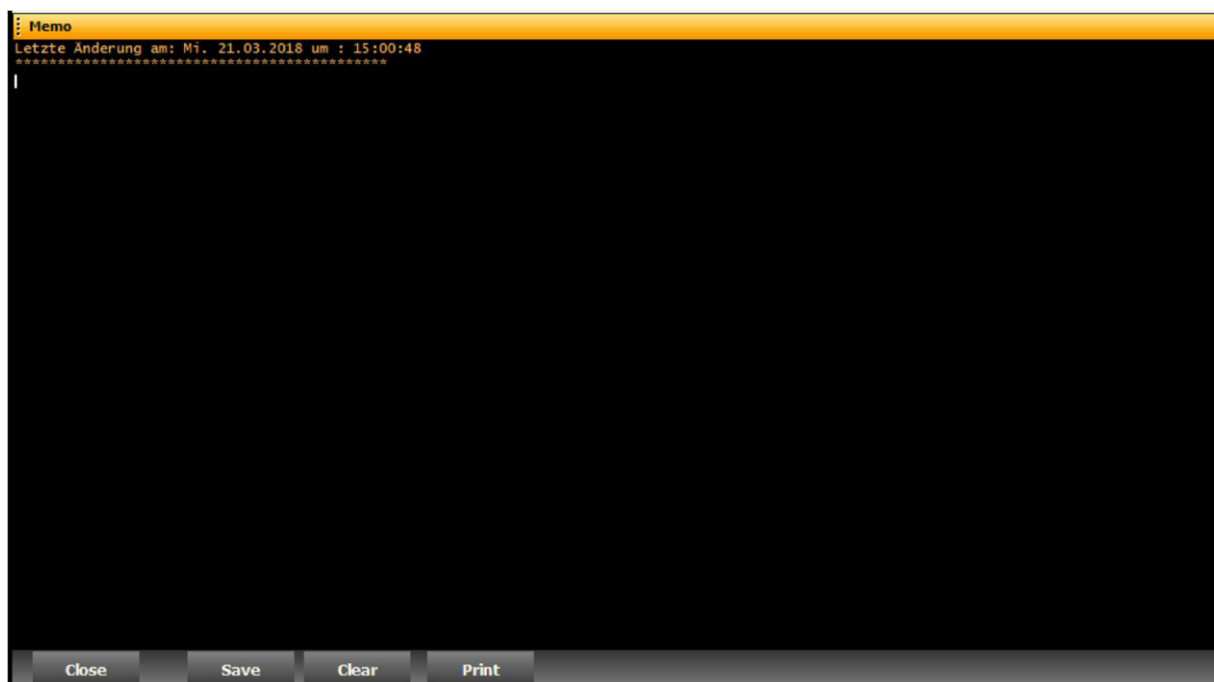
After you have entered a message, a remark or a note, press the 'Save' button. The time and date are updated.

'Delete' button

Pressing the 'Delete' button will remove all messages.

'Print' button

Pressing the 'Print' button will print the entire Memo or save it as PDF.



3.15.3 Context bar > 'Views'

The parameter table, Drive, Side and 3D view can be configured in many ways via the 'View' menu item. Since views change immediately after selection, you can quickly create your personally required configuration.



Context bar 'Views' > 'TopView / SideView'

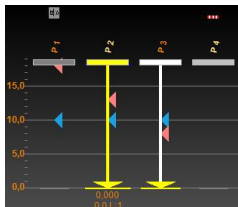


With the 'SideView / TopView' button you can choose between the views 'Side View' and 'Top View', or you can display both together.

Top View ('Auto TopView'):

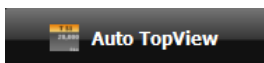
P 1	P 2	P 3	P 4
18,000	18,000	18,000	18,000
0 kg	0 kg	0 kg	Locked 0 kg

Side view:



Context bar 'Views' > 'TopView switch'

There are three different ways to display the drives in the top view. Press the button to switch between the options.



The symbols are lined up in order from the left to the right and from the top to the bottom.



The symbols can be positioned freely in the top view window. This serves only the overview (see 3.15.7 Context bar > 'Setup 2D').



The symbols are displayed according to the coordinates from the 'Drives' table ('left-right' and 'depth'). These values are also used by the I-motion software for further calculation, e.g., for the 'Object calculator' (see 3.12.4 Parameter table > 'Drives').

Context bar 'Views' > 'Views 1-4'



The 'Views 1-4' button can be used if 'TopView + SideView' is switched on. This allows you to select which view is located on which position on the screen. For example, the top view can be placed in the upper part and the side view in the lower part of the screen.

Context bar 'Views' > '3D View'

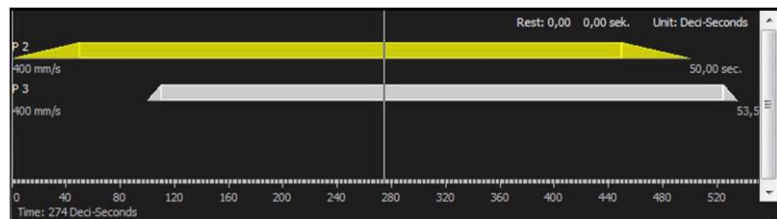


Additional to the side and top view, the 3D view can be activated. When using the 'Objectcalculator', this view is very helpful. The 3D view appears in an extra window that can be freely positioned. The navigation of the 3D view is described in chapter 3.9.3 '3D View'.

Context bar 'Views' > 'Speed/Time Diagram'



If required, speed-time diagrams can be displayed for the currently selected drives. There, it is graphically displayed how long and at what speed each drive runs. This can be also helpful by checking the cues in the Sequence-Tab.

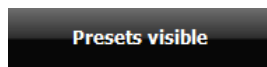


Context bar 'Views' > 'Symbols in Sideview'



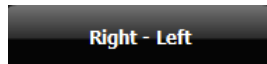
When the 'Symbols in Sideview' function is activated, the icons that can be assigned to the drives for better identification are shown in the side view (see 3.12.2 Parameter table > 'Sequence').

Context bar 'Views' > 'Presets visible'



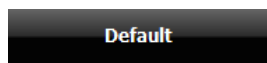
Upon activation of 'Presets visible', all preset positions of the drives are displayed in the side view by colored markers (triangles).

Context bar 'Views' > 'Left - Right'



Depending on the position of the operating computer, it may be useful to change the order of the drives in the side view. The order can be from 'left to right' or 'right to left'.

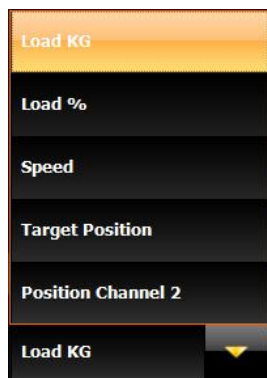
Context bar 'Views' > 'Default'



With this option the default setting can be restored.

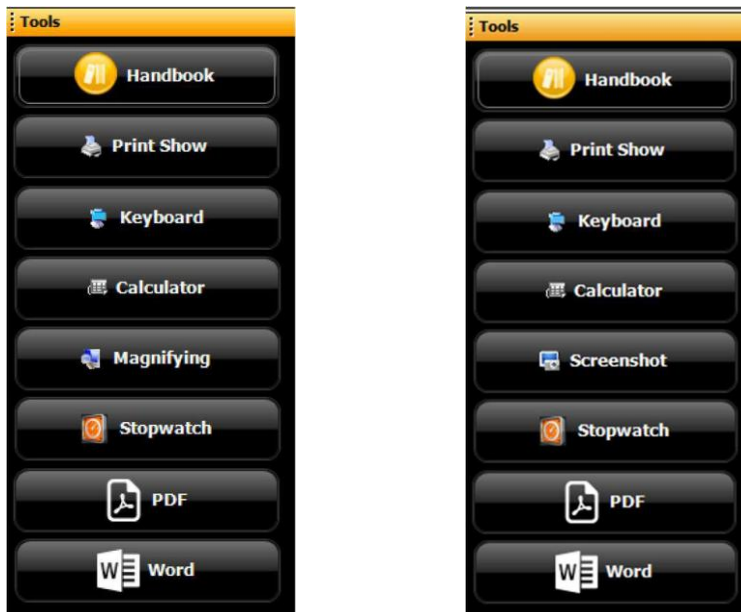
Note: If the 'Default' button is selected with the right mouse button, the current settings can be changed to the new default. This is only possible if you are logged in as a super user or administrator. The new default settings include all settings in the "Views" tab and the checkmarks set in the menu bar. This does not apply for the safety-relevant checkmarks for 'Simulate', 'Collision-Control', 'deadlock' and 'Secure Build-Up'.

Context bar 'Views' > 'View mode'



In the lower part of the 'Views' menu, you can click on the arrow, which will bring up a scroll down menu that allows you to display additional informations in the drive view (top view). You can choose between load [in kg], load [in %], the current velocity [in m/s], the target position [in m], the position of the second position encoder [in m] or the reference (virtual Position/ Referenz).

3.15.4 Context bar > 'Tools'

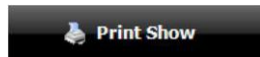


Context bar 'Tools' > 'Handbook'



You can access this handbook using the 'Handbook' button. It is available in PDF format. The 'CTRL' + 'F' keyboard shortcut opens an additional window at the top right which allows you to search the handbook for certain terms.

Context bar 'Tools' > 'Print Show'



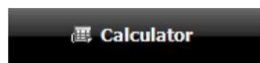
The "Print Show" button allows you to print all information of the current show. This includes all parameters of the drives, groups, cues, etc. This option is intended for fixed installations with integrated printer.

Context bar 'Tools' > 'Keyboard'



The 'Keyboard' button opens the 'On-screen keyboard' window. This graphical keyboard can be operated by cursor (mouse) or finger (touch screen) and is equivalent to that of the control panel.

Context bar 'Tools' > 'Calculator'



Pressing the 'Calculator' button calls up a calculator on the screen. This is not a system-relevant application; however, experience shows that a flexible calculator can often be helpful.

Context bar 'Tools' > 'Magnifying'

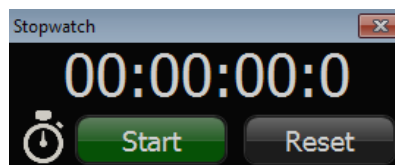


This allows you to use the windows internal magnifier to see badly visible images or text in the I-Motion software.

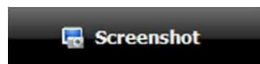
Context bar 'Tools' > 'Stopwatch'



The 'Stopwatch' is an additional feature. It can be used universally. The stopwatch has four different functions. If you click on the clock symbol you switch between the modes 'Stopwatch', 'Time' (clock of the console), 'Midi-MTC' (received timecode) and 'Remote-PC Time' (clock of another computer).



Context bar 'Tools' > 'Screenshot'



With this feature you can take a screenshot on your PC-Software.

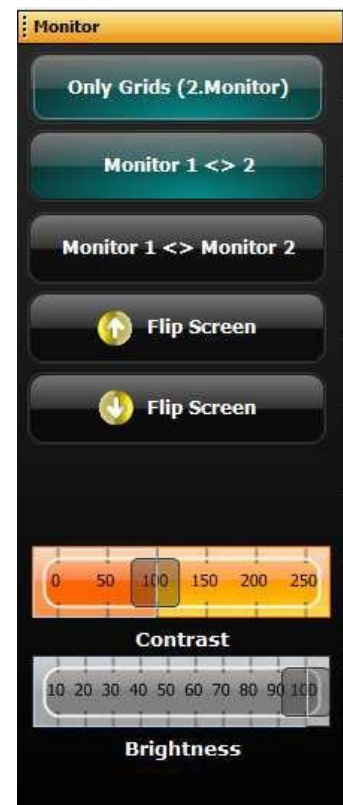
Context bar 'Tools' > 'PDF'



Context bar 'Tools' > 'Word'



Here opens a window with 'Word' which you can use to write and save a text.



3.15.5 Context bar > 'Monitor'

Context bar 'Monitor' > 'Only Grids (2.Monitor)'

If your Console features two monitors, you can activate or deactivate the second monitor here. The entire parameter table is displayed on this monitor.

Context bar 'Monitor' > 'Monitor 1 <-> 2'

This function allows you to set one of the two screens (if there is a second one) as the main monitor.

Context bar 'Monitor' > 'Monitor 1 <-> Monitor 2'

Use this option to swap the contents of the monitors. All the information from the one monitor will be displayed on the other one and vice versa.

Context bar 'Monitor' > 'Flip Screen'

With the 'Flip screen' functions, you can rotate the display of your operating computer's screen. The display can be turned by 180 degrees with the upper icon button. With the lower function, you can revoke this process.

You can also use the 'Ctrl' + 'Alt' + '⇧' / '⇩' key combination to turn the display of the screen on which the cursor of the trackball is currently located.

Context bar 'Monitor' > 'Contrast' and 'Brightness'

Moving the sliders changes the brightness or the contrast of the screens.

3.15.6 Context bar > 'Login as different user' (optional)



This function is only available for systems with password login. You can change the user at any time by clicking the "Login as other user" button. The different user types are described in Chapter 3.4.2 'Log-in with password'. In addition, this function can be used to lock the console. If a user logs off, access to the I-Motion software is only possible again after successful login with password or chip card. Thus, it is not possible for unauthorized persons to use the control panel.

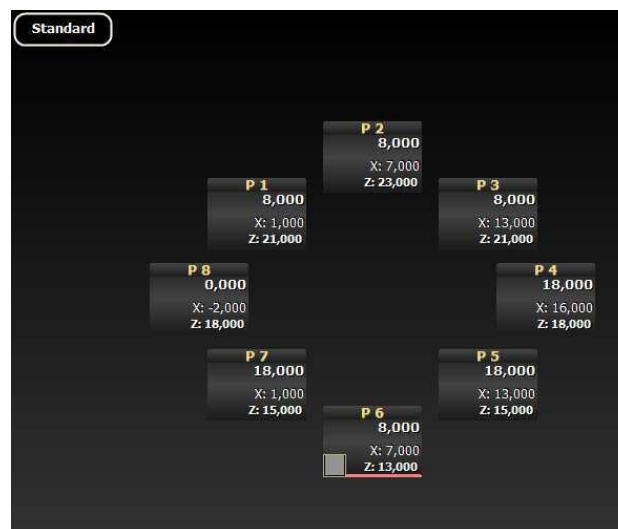
3.15.7 Context bar > 'Setup 2D'



By pressing the 'setup 2D' button, you can position your drives in the 'User Topview' as you wish, using the mouse or touch. When the function is active, the icon (pin) turns green, and the coordinates can be seen in the drive icons. The icons snap to a one-meter grid. If you press the 'Standard' button, the symbols are reset to the default position.



Note: If you are in "Real Top View" you change the "Right-Left" and "Depth" coordinates in the "Drives-Menu" by using this function.

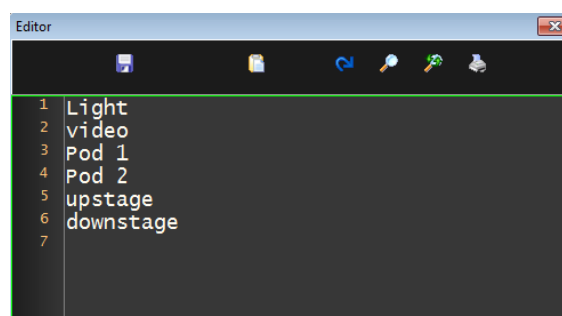


3.15.8 Context bar > 'Scenerylist'



The 'Scenery list' simplifies the programming of shows. With its help, names which are frequently used can be generated. The entries in this list are used when you want to save a group name or description for a drive, for example. With two mouse clicks in the corresponding field or by pressing the 'Enter' key when the cell is in focus, a selection list opens in which the user offers all entries in the 'Scenery list'.

The editor opens after the 'Scenery list' button has been pressed. It is used to manage the individual entries.



To expand the list, place the cursor at the end of an entry. Press the 'Enter' key to add a new entry. A freely-defined name can be assigned. Some icons are available for managing the list which are also used in the action bar. In addition, the list can be searched for entries. Replacing items is also possible.

3.15.9 Context bar > 'Driveinfo'



When using the 'Drive information' button, you can retrieve the current data of the individual axle control computer. To do so, first activate the button and then select the corresponding drive whose ICU you want to read out.

The DIG IN inputs can be used to determine why a V-Motion is not switched on properly. You can use the "Missing Bits" button to see which Signal is missing for the movement.



Machine: P 4, Toplimit: 18,000 m, Bottomlimit: 0,000 m, Max. Speed: 0,400 m/s, Nominal Load: 500 kg

ICU	Abs	Inkr	Bin	Load V	Load %	Inv Ref	Devi	Speed
P 1	18000 mm	18000 mm	0	-1	0,0	0	0	0
P 2								
P 3								
P 4	Load: 0 kg	Own-Load: 0 kg						
P 5	Inverter: Off							
P 6	State: [3 3] Ready							
P 7	Bits:							

Missing Bits Digi CS:0000 IO:00 DI:00 00 00 DO:00 DIX:00 Miss CS:0000 IO:00 DI:00 00 00 DO:00 DIX:00 **Find Next** **Close**

POSITION_OK	IO - 1	Dig. IN - 9 Sknt_a	DO - 1
RS232_OK	IO - 2	Dig. IN - 10	DO - 2
CAN_OK	IO - 3	Dig. IN - 11 StkG	DO - 3
ANA_ULOAD_OK	IO - 4	Dig. IN - 12	DO - 4
UDPSYNC_OK	IO - 5	Dig. IN - 13	DO - 5
PARA_OK	IO - 6	Dig. IN - 14	DO - 6
SYNCPOS	IO - 7	Dig. IN - 15 BR 1 FB	DO - 7
COUNTER_OK	IO - 8	Dig. IN - 16 BR 2 FB	DO - 8
SELECTED	Dig. IN - 1 ready	Dig. IN - 17 Prelimit dwn	Analog IN 1 : 0
GO_CMD	Dig. IN - 2 active	Dig. IN - 18 Prelimit up	Analog IN 2 : 0
GO_DWN_CMD	Dig. IN - 3 BR 1	Dig. IN - 19 Limit dwn	Analog IN 3 : 0
GO_UP_CMD	Dig. IN - 4 BR 2	Dig. IN - 20 Limit up	Analog IN 4 : 0
NO_ESTOP_OK	Dig. IN - 5 Temp.	Dig. IN - 21 ReL-feedb.	Analog IN 5 : 0
STAT_POS_OK	Dig. IN - 6	Dig. IN - 22 Maintenance	Analog IN PTC: 0
POS_CTRL_OK	Dig. IN - 7 Slagwire	Dig. IN - 23 Overtra. up	Analog OUT 1 : 0
ANA_OLOAD_OK	Dig. IN - 8	Dig. IN - 24 Overtra. dwn	Analog OUT 2 : 0

ICU ID	StartPos	TrueSpeed	DI External
131	0	0	0 h
ICU Name	EndPos	Deviation	UIN1
State CH1	TargetSpeed	FirmwareVersion	UIN2
State CH2	Deceleration	InverterReferenz	UIN3
ComState	Acceleration	LOAD Permit CH1	UIN4
PWR Save	EStopDecel	LOAD Permit CH2	UIN5
Position MM CH1	StartDelay	IO1 8	UIN PTC
Position MM CH2	BoltRate	IO1 8	UOUT1

3.15.10 Context bar > 'Hide Drives'



This function is used to remove all drives which are not actively involved in the current shows from all views ("Hide for this show"). This serves better clarity so that the drives do not move unintentionally. However, the function has no system-related effects and only refers to the respective control panel. For the software to understand this, the drives must be in a preset, a cue, a group or it has parameters in a scenery. By clicking "Cues" only the drives that are involved in a cue are shown. "Cancel" closes the window without changes.



3.15.11 Context bar > 'DMX' (optional)



If your system is equipped with a DMX interface, the status of the interface is displayed here.

Green = Online, Red = Offline

By clicking on the icon, the DMX table opens to assign DMX Channels to Cue Buttons to remote the hoist speed.

3.15.12 Context bar > 'Keyboard'



Using the "Keyboard" function, a separate touch numpad keyboard can be called up.

3.16 Cue control bar

The symbols of the positioning instruments (control and cue buttons) are placed in the cue control bar. The two controls of the operating computer are located to the left and right and are marked with '1' and '2'. The Cue buttons are located in the middle of the control bar and are numbered from '3' to '7'.



The colours of the positioning instruments of the control panel correspond to the colors of the cue control panel.

Selecting a button assigns all previously selected drives to the corresponding positioning instrument. The drives are then selected and can be moved. Deselection is just as easy: simply click the button again. The 'Clear all' button marked with  The red 'X' is used for quick de-selection of all controls and cue buttons.



The two controls '1' and '2' also have other features. The two outer displays indicate the current deflection of the control. The one gives a graphical representation and the other a numeric value as a percentage (in this example, 0%). The second value provides information about the possible maximum displacement which is determined by the incremental limiter on the control panel surface. This display is also seen in simple form with the cue buttons, but

all buttons have only an incremental limiter and therefore only a shared display.

The '200%' function is optional. By activating the buttons, you can influence the maximum speed of the control (left button for control '1', right button for control '2'). The drives will then move at twice the programmed speed. However, the value for 'Max speed' of the 'Drives' parameter table cannot be exceeded. While the "200%" function is active, a yellow-red flashing warning message appears in the title bar area, which looks like this:

Attention: 200 % ! Attention: 200 % !

The same applies for the 'Max range' buttons. However, this function refers to the programmed operating ends above and below the 'Drives' parameter table. If 'Max range' is activated (left for control '1', right for control '2'), the programmed operating ends are approached. The drives, however, only move with 20% of the maximum speed (slow movement) after exceeding the actual start or target position. While the Max Range feature is active, a flashing yellow-red warning message appears in the title bar area that looks like this:

Attention: Max Range ! Attention: Max Range !

The **BASIC/BASIC-S/BASIC-C** control panel only has one control. This is labelled by '1' and shown in blue. All other controls/cue buttons are hidden.

4. Operating modes

After you are familiarized with the user interface of the I-Motion software, now the first steps on the way to a safe performance will be explained. The following chapters are organized according to so-called operating modes that are not found as separate functions in the program, but correspond to the typical workflow in venues.

4.1 Manual mode

When the 'Manual mode' tab of the parameter table is activated, you can select drives in the Side or Top views and directly assign a control or cue button by simply selecting. This is done with the default values of the parameters table, i.e. with maximum speed over the entire area of movement. You can choose between different types of movement, set the parameters for speed, target position and the ramps for starting and braking. Individual values can be set via the keyboard. When entering numerical values, a validity check is always performed when the 'Enter' key is pressed. The entry of a speed which is too high, for example, is automatically adjusted to the maximum speed. Position values which are outside the movement range are reduced to the limit value.

Generally, the values for speed, path length and time duration of the movement are calculated according to the formula $v = s/t$. For a given start and target position, that is a unique path length, the movement can be determined by specifying the speed or the time. Due to these dependencies, movements are particularly easy to create. Units are meters with three decimal places and seconds with two decimal places.

The assignment of a drive to a positioning instrument is done by selecting the desired drive and then selecting an icon button of the cue control bar.

In Set-up and Manual mode, motion control using the control is recommended because its handling is particularly flexible. Correct handling of controls and cue buttons is described below.

4.1.1 Moving drives with the control

After starting the software and logging in with the chip card or the password window, the 'Default show' is first loaded. It is recommended to create and load a new show with an appropriate name corresponding to the current project. All drives can be moved with their maximum values, which are determined by the super user.

1. Select the 'Manual mode' tab of the parameter tables.
2. Select the desired drive(s) via the Side/Top views or the numerical keypad. The 'Asynchronous' movement type is preset in the parameter table for each drive.
3. Select the left or right control from the cue control bar. The arrows on the selected control light up.
4. Drag the dead man's button under the control knob. This releases the brakes of the selected drive(s).
5. Steer the control in the desired direction (towards you = direction to target; away from you = direction to start). The drives will then move according to the deflection.
6. Stop the motion by moving the control into the neutral position.
7. Release the dead man's button. The brakes of the drives are then activated.
8. Deselect drive(s) with the 'X' icon button (Clear all) on the cue control bar.

4.1.2 Moving drives with the cue button

The process on the cue button is mainly needed in Performance mode.

1. Select the 'Manual mode' tab of the parameter table.
2. Select the desired drive(s) via the Side/Top views or the numerical keypad. The 'Asynchronous' movement type is preset in the parameter table for each drive.
3. Select one of the five cue buttons of the cue control bar. The corresponding hardware cue button lights up.
4. Press one of the two dead man's buttons and keep it pressed
5. Press the previously selected cue button once while keeping the dead man's button permanently pressed. The cue button starts flashing fast. This indicates the brakes are released and drive(s) is (are) ready to move.
6. Press the cue button a second time while keeping the dead man's button permanently pressed. The drive(s) start moving immediately and the button starts flashing slowly.
7. Stop the motion by pressing the cue button again. The cue button starts to flash fast again. Pressing the button again continues the movement. Releasing the dead man's button can also stop the movement, but this leads to an abrupt end of the movement. The settings of the brake ramps are not considered.
8. After reaching your target, release the dead man's button. The brakes of the drive(s) are then activated.
9. Deselect the drive(s).

Deselecting the drives can be done in several ways: either by reselecting the positioning instruments in the cue panel or with the 'Clear all' (red 'X') button also located there. In addition, individual drives can be deselected by selecting them again in the Drive, Side or Top views. With this method, a menu window will appear on the screen. Using the 'Disassign object' menu item, the drive is deselected.

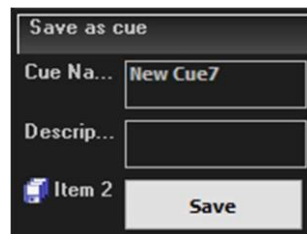
4.1.3 Moving drives into position

Note: Before you start, please do a reference to the drives. Do this with the description at [3.13.1 "Teach In Reference"].

1. Select the 'Manual mode' tab of the parameter tables.
2. Select the desired drive via the Drive icon buttons, the Side/Top views or the numerical keypad.
3. Enter the target position for the drives under the 'Target' parameter field, e.g. 4.56 m.
4. In the 'Start' field, you can specify a start position, e.g. 'current'. If the start position value is smaller than the target position, it is an opposing movement. This is represented by a negative sign in the 'Speed' field.
5. With the 'Speed' field, you can determine the speed. You can influence the duration of the trip in the 'Time' field.
6. Select the left or right control from the cue control bar. The arrows on the selected control lights up.
7. Drag the dead man's button under the control knob and steer the control in the desired direction. The drives move within the start and target positions corresponding to the deflection.
8. Stop the motion by moving the control into the neutral position.
9. Release the dead man's button. The brakes of the drives are then activated.
10. Deselect drive(s) with the 'X' icon button (Clear all) on the cue control bar.



With the 'Save movements to a cue' icon, you can save already defined movements that you would like to reuse and insert them into the selected show.



4.1.4 Save movements to a cue

1. Select the 'Manual mode' tab of the parameter table.
2. Select the desired drive via the Side/Top views or the numerical keypad.
3. Select the type of movement and determine the start and target positions as well as other parameters
4. Select the 'Save movements to a cue' icon button of the action bar. Then, the parameter table in the left part is extended by two input fields and the 'Save' button.
5. Provide information in the fields for 'Cue name' and 'Cue description'.
6. Click on the 'Save' button. The cue is automatically added to your cue list ('Sequence' tab).

In Set-up and Manual mode, mostly 'single' movements are performed. This is the standard movement type which is preset in the parameter table. You can find more details on the various movement modes in Chapter 4.3.2 'Sequence', 'Cue' und 'Drive Modes'.

4.2 Setup mode

In Set-up mode, you usually set the basic parameters for the drives involved in a performance. All settings made here, therefore, affect the currently active performance and are saved automatically.

4.2.1 Drives

The 'Drives' tab of the parameter table shows all drives with their settings. The first columns contain immutable values: 'name', 'status', 'current position' and 'load'. Set the range of movement of the drives by defining the values of the 'Toplimit' and 'Bottomlimit' limit positions. Whenever you call up the operating ends, the values defined here are used automatically. Numerical values, which are outside the operating ends, will be automatically adjusted and set to the maximum threshold. You should always limit the maximum movement range when rigid scenery, load bars or hooks may conflict with other stage sets or the stage floor. Even with lighting features or load bars with cable guides, it makes sense to limit the range of movement.

4.2.1.1 Set range of movement of a drive

1. Select the 'Drives' tab of the parameter table.
2. Select a drive in the parameter table with the Side/Top views.
3. Move the drive to the upper operating end to define the new limit position. Set the lower operating end by moving in the opposite direction.
4. Enter the current position [meters] in the field for the "Toplimit" or "Bottomlimit" operating end. The "Save the current position" function is helpful for doing so (see 3.14.4 "Save the current position" action bar).
5. Confirm the entry by pressing the 'Enter' key.

The maximum speed, the minimum acceleration ramp and minimum braking ramp can also be configured by changing the values in the appropriate fields. The column headings in the table of parameters are: 'Max speed', 'Min accel.' and 'Min Decel.'. To set the values of a column to the same value for all drives, click on the heading of the corresponding column. Now enter the desired value for the chosen parameter and confirm with the 'Enter' key.

4.2.1.2 Set maximum speed of a drive

1. Select the 'Drives' tab of the parameter table.
2. Select a drive in the parameter table with the Side/Top views.
3. In the 'Max. speed' field, enter the desired value for the maximum speed. [meters/second]
4. Confirm the entry by pressing the 'Enter' key.

If you want to make the handling of a drive dependent on its current load, change the values for 'Max. Load' and 'Min. Load'. The drive in question stops or cannot be set in motion when its measured load is outside these limits. But keep in mind when making changes that dynamic load values can often reach several times the static load. If you would like to move the scenery gently, it is often sufficient to adjust the values for 'Max. Speed', 'Min Accel. Ramp' and 'Min. Decel. Ramp'. The switch-off for 'Max. Load' only occurs in the upward journey and the switch-off for 'Min Load' in the downward journey. With the 'Bypass overload + underload' function, you can switch the show-specific dynamic load temporarily on or off.

If a drive is not used, you can lock it from continued use in the 'Drives' tab in the 'Lock' column. There are two types of locks: 'Locked' and 'Ignored'. 'Locked' means the drive is deactivated for all movements and cannot be operated. In the 'Ignored' state, the drive can still be moved manually, but is ignored in all cues, i.e. motion cannot be started from a cue.

4.2.1.3 Block drives

1. Select the 'Drives' tab of the parameter table.
2. Select a drive in the parameter table with the Side/Top views.
3. Set state in the 'Lock' column to 'Locked' or 'Ignored'. The drive cannot be moved and is ignored in all cues.

For a simple identification of 'locked'/'ignored' drives, additional icons are added. In the state 'Locked' state, this is a red-white dashed line (). If the drive is 'Ignored', this is a green-white dashed line ().

4.2.1.4 Define coordinates of movable drives (point hoists, chain hoists...)

1. Select the 'Drives' tab of the parameter table.
2. Choose a drive which you want to configure.
3. In the 'Depth' column, you can define the depth of the drive in space on the Z-axis.
4. In the 'Right-left' column, you can define the position of the drive on the X-axis.

The entry of these positions is necessary for 3D display, for the correct operation of the collision control as well as for the calculation of tilting motions for object groups. In fixed drives, no entry is possible. To change a fixed drive to a movable drive you need Administration-Rights.

4.2.1.5 Add scenery to a drive

An individual description can be added to each drive. It can, for example, contain information on the scenery connected to the drive. Via the 'Type' column in the 'Scenery' tab, an icon for the corresponding setting can be added to each drive. This then appears in the Drive, Side and Top views. In the other columns, you can specify the dimensions of the scenery.

1. Select the 'Scenery' tab of the parameter table.
2. Select a drive in the parameter table with the Drive icon buttons or in the Side/Top views.
3. In the 'Description' column, you can enter a text that is displayed in addition to the drive name.
5. You can select an icon in the "Type" column.
6. In the 'Form' column, you can choose a geometric figure which is visualized in the 3D view.

7. In the 'Color' column, you can choose a color for the figure.
8. In the 'Height' column, you can specify the height of the scenery.
(Tip: mount your setting and move the drive so that the scenery just touches the stage floor.) Click on the 'Save the current position' icon of the action bar. In the 'Height' field, the current position of the drive is inserted automatically.
9. In the 'Rope length' column, you can define whether there is still a support or sling between the rod bar and scenery.
10. In the 'Depth' column, you can define the depth of the scenery in space on the Z-axis.
11. In the 'Point depth' column, you can define the suspension point of the scenery on the Z-axis. The value 'zero' stands the center of the scenery.
12. In the 'Width' column, you can define the width of the scenery in space on the X-axis.
13. In the 'Point width' column, you can define the suspension point of the scenery on the X-axis. The value 'zero' represents the center of the scenery.

4.2.1.6 Copy scenery

1. Select the 'Scenery' tab of the parameter table.
2. Select the drive in the parameter table you want to copy.
3. Press the 'Copy' button on the action bar or press "F2" on your keyboard.
4. Select the drive in the parameter table in which you want to insert the copied scenery specifications.
5. Press the "Insert" button on the action bar or press "F3" on your keyboard.
6. You need to confirm at the Pop-up window

4.2.1.7 Delete scenery

1. Select the 'Scenery' tab of the parameter table.
2. Select the drive in the parameter table like to reset.
3. Press the 'Delete' button on the action bar or press "F4" on your keyboard.
4. You need to confirm at the Pop-up window.

With 'Patch a drive in cues' or "Ctrl + P" on your keyboard all scenery elements from the original drive can be copied to the new drive.

4.2.2 'Groups'

Using the "Groups" tab of the parameter table, you can manage the group memberships of the drives. All drives in a group will be automatically selected when a member of the group is selected. The movement limits of the group are determined by the limit parameters of the drives involved. An individual description can be added to each group, for example with information about the scenery attached to the group. Groups are part of the current show and are not transferred to other shows. The groups that were generated by the super user in the 'Default show', however, are special. These groups are adopted in all shows and they cannot be separated from one another. Only via the 'Bypass groups' it is possible to temporarily influence the individual drives.

In general, before programming cues or presets, you should consider which drives must be grouped together. Depending on the chosen 'type', the drives behave in a specific way.

- The 'Synchronous' group only allows all group members moving together. Same distance, same speed. Select this group type if a scenery element must be supported by several drives. The alignment of the scenery thus always remains the same.
- With the 'Target synchronous' group type, you move several drives towards the same start or target position at the same speed. This group type is, for example, necessary for drives with no positioning so that all drives move into their end positions.
- In the 'Free' group type, all drives can be assigned to different start and target positions as well as speeds. They can be individually configured and moved.
- With the 'Object' group type, three-dimensional, time synchronous movements can be created. A detailed description of this topic can be found in Chapter 3.14.7 Action bar > 'Manual'.
- The "Coupled-Group" means that all drives move with the same position hub and the same speed. Here you can determine which drive moves to the target position (Leader).

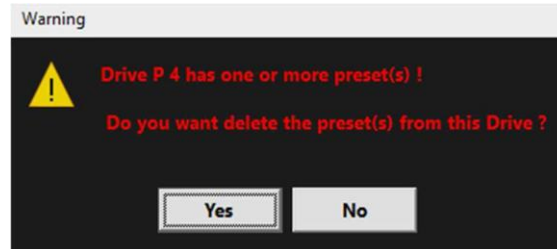
4.2.2.1 Group drives

1. Select the 'Groups' tab of the parameter table.

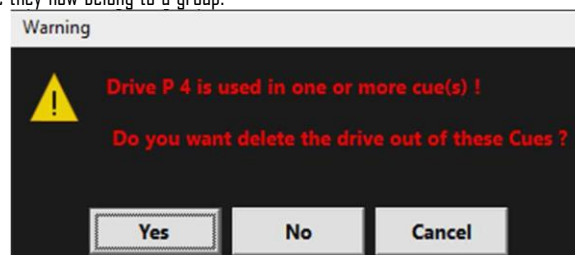
2. Select the desired drive via the Side/Top views or the numerical keypad.
3. Click on the 'New' icon button of the action bar or press the 'F1' key.
4. Select the group type, assign a unique name and add a description to the group if necessary.

Special feature of synchronous and target synchronous groups:

If one or more drives already derive their parameters from presets, you are prompted to confirm the deletion of this link. Presets for groups must be newly created.

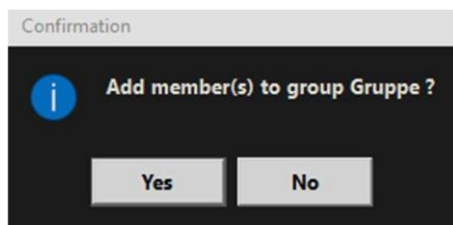


If one or more drives are already integrated in cues, you are prompted to confirm the removal of this link. This is because pre-programmed single movements cannot be performed any more because they now belong to a group.



4.2.2.2 Add drives to groups

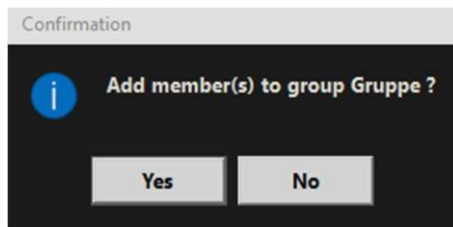
1. Select the 'Groups' tab of the parameter table.
2. Select a group and the drives that you want to add to it with the Side/Top views.
3. Click on the 'New' icon button of the action bar or press the 'F1' key on your keyboard.
4. Confirm the window that opens with 'Yes'. The group is expanded by the selected drive



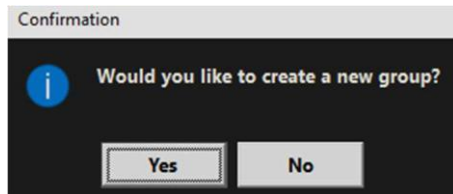
4.2.2.3 Integrate drives into several groups

Drives can also be integrated into several groups.

1. Select the 'Groups' tab of the parameter table.
2. Activate the 'Bypass groups' function in the action bar. The button flashes red.
3. Select the drives that you want to merge into one group. Even those who are already in another group. This is possible in the parameter table with the Side/Top views.
4. Click on the 'New' icon button of the action bar or press the 'F1' key on your keyboard.
5. Confirm the first window that opens with "No".



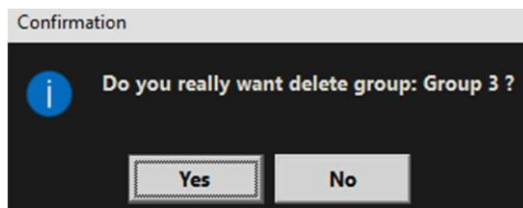
6. Confirm the second window that opens with 'Yes'. The group is created.



7. Deactivate the 'Bypass groups' function in the action bar.

4.2.2.4 Delete groups

1. Select the 'Groups' tab of the parameter table.
2. Select the desired group in the parameter table with the Drive icon buttons or in the Side/Top views.
3. Click on the 'Remove' button of the action bar or press the 'F4' key.
4. Confirm the window that opens with 'Yes'. The group is deleted.

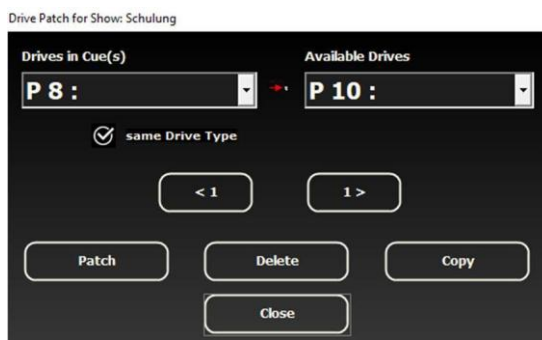


4.2.2.5 Delete drives from a group

1. Select the 'Groups' tab of the parameter table.
2. Click on the 'Bypass group' icon button of the action bar or press the 'CTRL' + 'G' keys. The icon button flashes red.
3. Select the drive to be removed in the Side/Top views.
4. Click on the 'Remove' button of the action bar or press the 'F4' key.
5. Confirm the window that opens with 'Yes'. The drives are removed from the group.
6. Click again on the 'Bypass group' icon button of the action bar or press the 'CTRL' + 'G' keys. The 'Bypass group' icon button turns white again.

4.2.2.6 Replace individual drive of a group

1. Select the 'Groups' tab of the parameter table.
2. Select the desired group in the parameter table with the Drive icon buttons or in the Side/Top views.
3. Click on the 'Patch a drive in cues' button of the action bar.
4. You can replace the drives in the window that opens. Via 'Drives in cue(s)', select the drive to be replaced; via 'Available drives', select the new drive.



5. Click on the 'Patch' button.
6. Confirm the window that opens with 'Yes'. The group members are replaced.

4.2.2.7 Configure individual group members



With the 'Bypass groups' function, groups can be temporarily dissolved in order to move the drives individually. This may be necessary to make corrections to the load distribution in drives that carry a common load. To do this, press the 'Bypass group' icon of the action bar. The icon turns red. Now you can select and move all drives, independent of their group membership. To finish the process, press and release the button. The symbol will now turn white again.

4.2.3 'Presets'

For every show, you can program presets (memory positions) for individual drives or groups. These memory positions are then available in the selection fields for the start and target positions. Use short, unique names for memory positions. Terms such as 'top', 'middle', 'bottom', possibly supplemented with a number, have proven to be practical.

Memory positions are essential for accurate, timely transformations during programming and facilitate the creation of cues. If the values of a memory position are subsequently changed, the change will affect all cues and drives that access this preset. Memory positions therefore function as variables.

It has proven to be extremely useful to set memory positions for drives when they are already carrying a scenery element, a curtain or lighting systems. Drive the scenery element into the desired location and set the memory position using this position. Assign a unique designation for the respective preset. In this way, you should also specify the storage positions for all other drives.

In the Side view, presets are represented by a triangle next to the driving axle. You can set the color for the marker in the parameter table itself.

Selecting the 'Presets' tab opens two tables. In the left tables, the desired preset is selected, in the right, the corresponding drives and their parameters are shown.



4.2.3.1 Create presets

1. Select the 'Presets' tab of the parameter table.
2. Move one or more drives into the desired position (also possible in simulation mode).
3. Click on the 'New' icon button of the action bar or press the 'F1' key on your keyboard.
4. Assign a unique designation in the input field for the memory position.

4.2.3.2 Move drives to a preset position

1. Select the 'Manual mode' tab of the parameter table.
2. Select the desired drive via the Side/Top views or the numerical keypad.
3. Enter the preset position for the drives, e.g. 'high' under the 'Target' parameter field.
4. In the 'Start' parameter field, you can assign a start position as 'current', "Top", "Bottom" or another preset position.
5. Select the left or right control from the cue control bar. The arrows on the selected control light up.
6. Steer the control in the desired direction with the dead man's button pushed down. The drives move within the start and target positions corresponding to the deflection.

The drives can also be moved to the preset position directly from the 'Presets' parameter table.

4.2.3.3 Alternative - move drives to a preset position

1. Select the 'Presets' tab of the parameter table.
2. Select the desired presets in the left table, or 'All' if you want to see the list of all existing presets.
3. Select the right table from one or more drives by clicking on the object name (1st column). The drives are selected. If you want to select all the drives of a preset, click on the field labeled 'Object'.
4. Select a positioning instrument.
5. Actuate the positioning instrument. The selected drives move from their current position to the preset position.

4.2.3.4 Change a preset

1. Select the 'Presets' tab of the parameter table.
2. Select the desired presets in the left table.
3. Select the 'Value' parameter field in the right table of the respective drive.
4. Move the drive into the new position and press the 'Save the current position' icon button of the action bar or enter the new preset position using the numeric keyboard. You can also add or subtract 2.5m to the current preset position, for example, by entering "++2.5" for adding or "- -2.5" for subtracting and confirming with Enter.

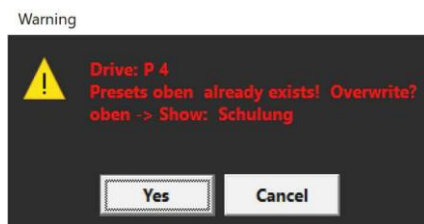
4.2.3.5 Alternative 1 - change a preset

1. Select the 'Sequence' tab (deactivate 'Blockdetails') or 'Manual mode' of the parameter table.
2. Select the the corresponding preset under the start or target position and click on this field with the right mouse button or click "Alt+8".
3. In the selection menu, select 'Change preset: xx of drive nn'
4. In the window that opens, enter the new value for the preset.

The third option is to overwrite an existing preset name:

4.2.3.6 Alternative 2 - change a preset

1. Select a drive whose existing preset you want to add a new position to.
2. Go to the Presets tab.
3. In the selection menu, select "New" (F1) to create a new preset.
4. Now enter the existing preset name and confirm with Enter.
5. The following warning message opens:



6. Select "Yes" then overwrite the existing preset name, storing the current position on that preset. If you choose "No", the program will suggest the same preset name with the corresponding numbering, which will then be inserted in the preset table. If you click the "Cancel" button, the process will be aborted.

4.2.3.7 Change a preset name

1. Select the 'Presets' tab of the parameter table.
2. Select the preset name in the left table.
3. Change the preset name, the description or the color.

4.2.3.8 Delete a preset

1. Select the 'Presets' tab of the parameter table.
2. Select the preset name in the left table.
3. Select the respective drives in the table on the right. (Tip: If you want to delete the entire preset, select one of the headings from the table on the right.)
4. Click on the 'Remove' button of the action bar or press the 'F4' key.
5. Confirm the deletion of this preset.

If cues are already programmed in which the corresponding preset is used, you should note this. The value of the deleted preset is entered into the start and target positions of the cues.

4.3 Program mode

This chapter is about the handling of shows and the creation of transformation, thus the programming of cues. The tab of the parameter table provides an overview of the present show with its components - the cues, groups and locations already created. The programming of a show can also be done offline (simulation mode) or from a PC with an installed I-Motion software outside of the stage area.

4.3.1 'Shows'

In the 'Shows' parameter table of the I-Motion software, you can manage any number of shows with an unlimited number of cues. To begin, create a new show, called 'New Show', or choose an existing one. In the selected show, any changes you make are stored, unless you select write protection under 'Shows'.

4.3.1.1 Select show

1. Click on the 'Shows' tab of the parameter table.
2. Select a show from the table.
3. Click on another tab of the parameter table to load the desired show.
4. All objects now visible are always related to the selected show.

4.3.1.2 Create new show

1. Click on the 'Shows' tab of the parameter table.
2. Click on the 'New' button of the action bar or press the 'F1' key on your keyboard.
3. Select a unique name for the new show. In the right field, you can enter a detailed description for this show.

4.3.1.3 Copy and inserting a show

1. Click on the 'Shows' tab of the parameter table.
2. Select a show.
3. Press the 'Copy' function or press "F2" key on your keyboard.
4. Press the 'Paste' function or press "F3" key on your keyboard.
5. Select a unique name for the newly inserted show.

Create backup copies of your show by copying and reinserting. You can change the copied show in any way, but always have the option to access the original.

4.3.1.4 Delete a show

1. Click on the 'Shows' tab of the parameter table.
2. Select a show.
3. Press the 'Delete' function or press "F4" key on your keyboard.
4. Confirm the deletion of this show.

Note: With a click on the right mouse button or a longer touch on the "Delete" button you have the possibility to restore the last deleted show. This also works if this happened the day before.

You can also import and export shows. This is useful for making backups on external media (USB stick) or importing shows that were created on a computer outside of the system (office PC) into the system.

4.3.1.5 Export a show

1. Click on the 'Shows' tab of the parameter table.
2. Select a show.
3. Press the 'Export' button of the action bar.
4. Choose a location: local hard drive, server or USB stick.
5. Assign a file name.
6. Press the 'Export' button in the window.
7. Press the 'Close' button in the window.

4.3.1.6 Import a show

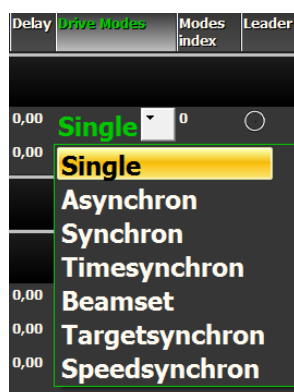
1. Click on the 'Shows' tab of the parameter table.
2. Press the 'Import' icon button of the action bar.
3. Select the folder of the show to be imported.
4. Press the 'Import' button in the window.
5. Press the 'Close' button in the window.
6. A new show is now located in the 'Shows' tab

4.3.2 'Sequence', 'Cue' und 'Drive Modes'

In Sequence mode you create cues with all common types of movement and detailed parameter information. A cue can contain several movements with different movement types and drives.

Movement types can be defined via 'Sequence' 'Drive Modes' of the fixed parameter table. Depending on the chosen movement type, the drives involved in a cue behave differently in relation to another.

For all following movement types, except the single movement, a group switch off takes place for the corresponding control if an error occurs in a drive. When using groups, the drive mode is automatically set to the corresponding type.



- A single movement is the movement of one or more drives with any setpoints. If multiple drives are combined into a common movement, their movements are independent. A group switch-off for the selected control does not occur.
- An asynchronous movement is identical to the single movement, but a group switch-off takes place. It is the movement of one or more drives with any setpoints.
- A synchronous movement is the movement of several drives that move the same distances (position hub), regardless of the individual start and target positions. This movement mode is well-suited for large, rigid decorative parts for which the suspension points are not mounted at the same height, for example. Opposing movements are not possible.
- A time synchronous movement is the movement of several drives which require the same movement time for different stretches and speeds. Even opposing movements are possible.
- A beamset movement is a special type of time synchronous movement. The set positions of all involved drives always form an imaginary line, the beam. This is defined by the position of the first/foremost and of the last/rear drive. All other drives which are involved in driving move on the imaginary beam between the two drives.
- A target synchronous movement is the movement of several drives that reach the same target position in different movement times and speeds.
- A speed synchronous movement is the movement of several drives which cover different stretches and movement times with the same speed.

For synchronous movement types, the parameters of the first selected drive determine all the remaining drives. Their parameters are recalculated for each change and automatically adjusted.

The procedure for creating a new cue works as follows:

4.3.2.1 Create cue with asynchronous or single movement

1. Select the 'Sequence' tab of the parameter table.

2. Click on the 'Block details' icon of the action bar.
3. Click on the 'New' icon button of the action bar or press the 'F1' key on your keyboard. The new cue will be inserted below the selected cue, and all following cues slip back one position. (Example: cue no. 3 is now selected. After pressing the 'New' button, the new cue becomes cue no. 4. The numbers of all following cues will increase by one.)
4. Select a unique name for the new cue.
5. Select the desired drive with the Drive icon on the Side/Top views. The drives are added to the cue.
6. Select the 'Single' or 'Asynchronous' movement type in the parameter table for each drive.
7. Determine the start and target positions, preferably by the selection of presets.
8. If necessary, set other parameters.

4.3.2.2 Cue with path, time, target or speed synchronous movement type

1. Select the 'Sequence' tab of the parameter table.
2. Click on the 'Block details' icon of the action bar.
3. Click on the 'New' button of the action bar or press the 'F1' key on your keyboard. The new cue will be inserted below the selected cue and all following cues slip back one position. (Example: cue no. 3 is now selected. After pressing the 'New' icon button, the new cue becomes cue no. 4. The numbers of all following cues will increase by one.)
4. Select a unique name for the new cue.
5. Select the desired drive with the Drive icon on the Side/Top views. The drives are added to the cue.
6. Select the desired drive mode in the parameter table for each drive.
7. Determine the start and target positions, preferably by the selection of presets.
8. If necessary, set other parameters.

Even in hindsight, you can switch the drives involved in a cue or delete and change the parameters. The changes are saved automatically.

With a cue with beamset movement, you mainly change the start and target positions of the first and last drive to get the desired effect. Select the drives in their physical order.

4.3.2.3 Cue with beamset movement

1. Select the 'Sequence' tab of the parameter table.
2. Click on the 'Block details' button of the action bar.
3. Click on the 'New' button of the action bar or press the 'F1' key on your keyboard. The new cue will be inserted below the selected cue, and all following cues slip back one position. (Example: cue no. 3 is now selected. After pressing the 'New' button, the new cue becomes cue no. 4. The numbers of all following cues will increase by one.)
4. Select a unique name for the new cue.
5. Select the 'Beamset' drive mode in the parameter table for each drive.
6. Determine the start and target position of the first drive.
7. Determine the start and target position of the last drive.
8. If necessary, set other parameters.

A cue can contain several identical movement types such as two synchronous movements. The 'Movement modes index' column is used to determine the membership of the drives for the same type of movement with a key figure.

4.3.2.4 Cue with several, equal movement types

1. Select the 'Sequence' tab of the parameter table.
2. Click on the 'Block details' button of the action bar.
3. Click on the 'New' button of the action bar or press the 'F1' key on your keyboard. The new cue will be inserted below the selected cue, and all following cues slip back one position. (Example: cue no. 3 is now selected. After pressing the 'New' icon button, the new cue becomes cue no. 4. The numbers of all following cues will increase by one.)
4. Select a unique name for the new cue.
5. Choose a movement type, e.g. 'Synchronous' in the parameter table for each drive.
6. Define which drives belong together by entering numeric key figures in the 'Modes index' column. All drives with the same key figure form a group.
7. Determine the start and target positions of the drives.
8. If necessary, set other parameters

4.3.2.5 Activate a cue via cue activation bar

1. Select the 'Sequence' tab of the parameter table.

2. Select a cue. In the 'Control' column, select the lever or cue button with which the cue is to be activated.
3. Click in the cue activation bar on the 'Activate cue' button. All drives of the cue can be selected with the specified control lever/cue button.
4. The cue can now be moved over the corresponding positioned instruments.
5. To deactivate the cue, press the 'Deactivate cue' button of the cue activation bar.

It is crucial here that you select the left or right cue activation bar. If no specifications (entry: '0 - none') have been made in the 'Control' field, 'control 1' is selected when activating the left 'Activate cue' button. If you decide on the right 'Activate cue' button, 'control 2' is prepared for movement. If, however, specifications are saved in the 'Control' field, the choice of the side is not relevant - all drives with their assigned positioning instruments are selected. However, only the drives are activated then that have a specification for the control. All others remain deactivated.

4.3.2.6 Activate the next cue via cue activation bar

1. Select the 'Sequence' tab of the parameter table.
2. Click on the 'Activate next cue' button of the cue activation bar. The current cue is deselected. All drives that are located in the next cue are selected with the specified control lever/cue button.
3. The cue can now be moved with the corresponding positioned instruments.
4. To deactivate the cue, press the 'Deactivate cue' icon button of the cue activation bar.

The previously active cue is cancelled by pressing the 'Activate next cue' button. It is again crucial here whether you select the left or right button of the cue activation bar. If the drives have no specifications in the 'Control' field, they are either activated by the first or second control. If they have a specification, the corresponding positioning instrument is activated. The drives without specifications ('0 - none') are, however, not taken into account.

4.3.2.7 Activate a cue via cue control bar

1. Select the 'Sequence' tab of the parameter table.
2. Select a cue.
3. Press the desired positioning instrument in the 'Cue control bar'. Alternatively, you can select the corresponding positioning instrument using the special keyboard.
4. All drives of the cue are then activated with the selected control lever/cue buttons, even if another positioning instrument was pre-programmed under 'Control'.
5. The cue can now be moved over the corresponding positioning instrument.
6. To deactivate, press the positioning instrument in the cue control bar or the 'Deactivate cue' button of the cue activation bar.

In this type of cue selection, it is not important which specifications were created in the 'Control' fields of the 'Sequence' parameter table.

4.3.2.8 Activate an individual drive via a cue

1. Select the 'Sequence' tab of the parameter table.
2. Select a drive of a cue. If applicable, select the control or cue button in the 'Control' column with which the drive is to be activated.
3. The drive can now be moved over the corresponding positioning instrument.
4. To deactivate the cue, press the 'Deactivate cue' icon button of the cue activation bar.

It is again crucial here whether you select the left or right button of the cue activation bar. If the drive has no specifications in the 'Control' field, is either activated by the first (left side) or second (right side) control. If it has a specification, the corresponding positioning instrument is activated.

4.3.2.9 Alternative - activate an individual drive via a cue

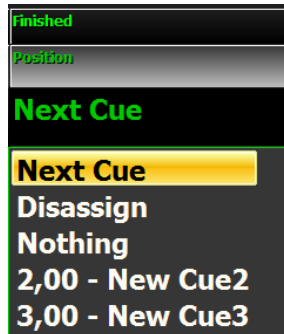
1. Select the 'Sequence' tab of the parameter table.
2. Select a drive in a cue.
3. Press the desired positioning instrument in the 'Cue control bar'. Alternatively, you can select the corresponding positioning instrument using the special keyboard.
4. The drive is then activated with the selected control/cue button, even if another positioning instrument was pre-programmed under 'Control'.
5. The drive can now be moved over the corresponding positioning instrument.
6. To deactivate, press the positioning instrument in the cue control bar or the 'Deactivate cue' icon button of the cue activation bar.

4.3.2.10 Link cues together



This function is only possible after the 'Sequence mode' button has been activated. If the button is not green (activated), the following settings have no effect. After a cue has been run through, no other action is taken.

Via the 'Finished' column in the 'Sequence' tab, you can define which action should take place when all movement of a cue have been completed and the 'Sequence mode' is activated. The choices are:



- 'Next Cue' - once the cue is finished, the software jumps to the next cue in the cue list.
- 'Disassign' - the cue is deselected and the software remains on the selected cue.
- 'Nothing' - all drives remain selected and can be moved back to start position with the control.
- 'Cue nn' - once the cue is finished, the software jumps to cue programmed here.

Caution: If the entry of the following cue under 'Control' corresponds to the currently active positioning instrument, the next cue automatically starts after completing the cue. The cues are thus linked. This means there is one fluid motion from one cue to the next. If this is not desired, the specification should be programmed differently under 'Control'.

4.3.3 Special parameters of a movement, 'Cue-Details'

The 'Open all details' icon button of the 'Sequence' parameter table releases all the details that describe a cue in more detail. In addition to the self-explanatory position, velocity and time parameters, there are others.

4.3.3.1 Influence movement time and speed of a movement with the 'TM' function

You can decide whether the speed or the timing (movement time) is the decisive factor. The 'TM' (TM = 'Time is Master') is used for this purpose. If the box is checked, the speed is adjusted when you change the start or target positions, but the chosen travel time remains the same. If the check mark is deactivated, the movement is performed at the stored speed.

4.3.3.2 Define the ramp of a movement

Via the acceleration ramp or deceleration ramp, you can determine the driving behavior with respect to the start-up and braking of each movement. If these values are increased, the drive is gently started up or braked. This is useful for effects on the one hand, but also when heavy scenery elements are located on the drive.

4.3.3.3 Define the delay of a movement

Each movement can be started with a time delay. Enter the desired time [in s] in the "Delay" column.

4.3.3.4 Define speed change during a movement with 'way-points'

3
None Trigger

Way-Points for P 5

Speed	Position
0,200	10,000
0,300	8,000
0,400	6,000
0,000	0,000
0,000	0,000

Start: 16,000
Target: 2,000
Speed: 0,400

Ok

Clicking in the 'Way-points' column opens an additional window. You can define several positions and corresponding speeds for a movement in the two columns. The selected positions must be in the movement area between start and target position.

During the movement, the drive goes through these intermediate positions and then changes its speed, as the values in the table specify.

First, the position from which the new speed is to be adopted must be entered. Then you can

4.3.3.5 Define delay time of a movement

Every single trip can be started with a time delay. In the 'Delay' column, enter the desired time in seconds for the selected hoist(s). The counter starts when you move the joystick or press the cue button once again after you opened the brakes.

4.3.3.6 Define number of repetitions, 'loops' of a movement

In the 'Loops' column, enter a whole number indicating how many times the movement will take place. A '1' represents a movement from the start to the target position. A '2' stands for the movement from the start to the target position and back to the starting position. A '3' represents the movement from the start to the target position, back to the starting position and back to the target position, etc. The maximum is 99.

With an odd number of repetitions, the movement always ends at the target position, with an even number at the start position.

4.3.3.7 Define breaks between the loops

If you have programmed a value > 2 under 'Loops', an additional break time can be defined [seconds]. Once a drive reaches the start or target position, it stays there for the programmed time.

4.3.3.8 Determine start and target offsets

If you have programmed a value > 3 under 'Loops', additional way hubs can be programmed via the offsets which are added or subtracted when reaching the target or start. Thus, the entry of positive and negative values is possible. The software checks the input to determine whether the corresponding hub fits with the number of loops in the maximum movement range of the drive.

4.3.4 Other parameters of cue

In the parameter table of the 'Sequence' tab, further properties of a cue can be set. Here the sequence of cues is defined and their start made dependent on certain conditions and events.

4.3.4.1 Define order of cues

The cues of a show are listed in the order in which they occur. You can change this order in the 'Sequence' parameter table. In the field of the 'Order' column, enter the number for the desired position. It can have up to two decimal places. The list of cues is then sorted again.

4.3.4.2 Copy, cut, paste and delete cues.



Using the 'Cue Multi-Select' button, you can edit the cue list. It is located in the upper left of the 'Sequence' parameter table. After pressing the button, a gray selection field appears in every cue. Mark the cues that you want to copy, cut, or delete (with mouse or Enter key). The corresponding icon are in the action bar. After copying or cutting, the place for re-insertion must be defined (also possible in other shows, see the following instructions). Mark the position in the cue list behind which the selected cues should be inserted and press the 'Paste' icon button. A window which opens asks you to confirm your action.

	Object: 8 Sort by drives	Control
	0:00:00	 1,00
	0:00:00	 2,00
	0:00:26	 3,00
	0:00:52	 4,00
	0:01:18	 5,00

Note:

With a click of the right mouse button or a longer touch on the "Delete" button, you have the option of restoring the last deleted cue. Incidentally, this also works if this happened the day before. However, it should be mentioned here that if you delete several cues at the same time, restoring is not possible because, as already mentioned, restoring is only possible from a single cue. You will then be prompted to confirm the restore process.

4.3.4.3 Move/copy cues into other shows

Also, moving and copying of cues into other shows is done using the 'Cue Multi-Select' button. After pressing the button, mark the cues that you want to move/copy (with mouse or Enter key). Select the corresponding icon button (copy or move) in the action bar. Select the show you want to insert cues into under the 'Shows' tab. Now click on the 'Sequence' tab and lift the details block (action bar > button: 'Block-details'). Mark the position in the cue list behind which the selected cues should be inserted and press the 'Paste' icon button. A window which opens asks you to confirm your action.

4.3.4.4 Assign positioning instrument to a cue

When creating a cue, no default positioning instrument is given. The entry '0 - none' is found in the 'Control' column. Clicking in the 'Control' column allows a default control to be defined via a scroll bar. By clicking "Cue" in the left or right cue activation bar the cue can be selected with the specified positioning instrument. Since the selection of a cue can also be made through the cue control bar, is this a setting that is not mandatory.

It is useful to assign various control instruments to the following cues. In this way, you can run the cues in parallel and operate them independently with the assigned control or cue buttons.

Note: It makes sense to assign consecutive cues to different setting instruments. You can run cues in parallel and operate them independently with the assigned joysticks or cue buttons.

4.3.4.5 Determine 'Depend type', 'Depend device' and 'Depend value' of a cue

With the 'Depend type', 'Depend Device' and 'Depend value' parameters, you can make the start dependent on the position or speed of a drive. There is also the possibility of integrating an external command device in the 'Depend type' column. The default value of each cue is 'No trigger'.

In the 'Depend type' column, select for example 'Drive positions >' and in the 'Depend device' column, select the drive whose position is to be evaluated, such as 'Drive no. I'. In the 'Depend value' column, enter the position which 'Drive no. I' must reach for the cue to start, for example 15 meters. If 'Drive no. I' is between a height of 'Bottomlimit' and 15 meters, it has no effect. If 'Drive no. I' moves above a height of 15 meters, however, the cue will start automatically. The different trigger types are described in Chapter 3.14.2 Action bar > 'Sequence'.

To start a cue as a function of the position or speed of a different drive, this drive must be part of a parallel selected cue. The drive should therefore be active in one of the preceding cues.

If you want to use an external command device (optional), you can select this in the 'Depend Device' column. If a release is issued via this command device, the cue starts. The drive gets stopped when the signal stops.

4.3.4.6 Determine actions after the cue end

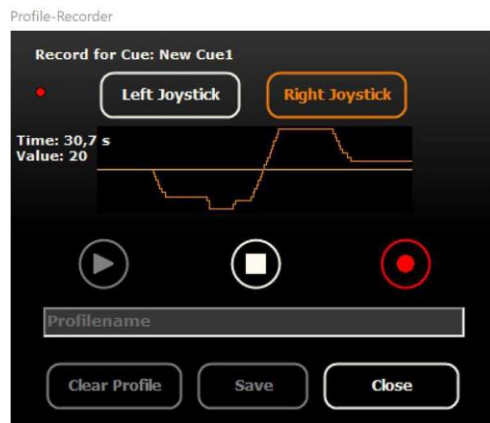
In the 'Finished' column, you can select whether a further cue should be automatically selected. You then link two cues together. You can automatically select the next cue in the list in the selection field or one of the other cues that are listed with its cue name. Using the 'Disassign' command, all drives of the control are deselected after passing through the cue. Ending a cue has no effect if 'Nothing' is saved in the 'Finished' field (see 4.3.2.10 Link cues together).

4.3.5 Record cues with the profile recorder



Although the **I-MOTION** software already provides many parameters for defining complex cues, the 'Profile-Recorder' is an interesting alternative for creating movements with variable speed and even changing the direction of movement.

A cue with one or more movements is selected with the control and the deflections of the control are continuously recorded. In show-mode, control deflections and therefore the drive movements are played back.



1. Select the 'Sequence' tab of the parameter table.
2. Press the 'Block details' icon button.
3. Select the desired cue.
4. Click on the 'Profile-Recorder' icon button. A dialog window opens.
5. Select the control whose deflections are to be recorded.
6. Click on the 'Record' (circle) icon button.
7. Begin the movement by deflecting the control.
8. Once you release the dead man's button on the control, the recording stops.
9. Confirm the recording via the 'Stop' (square) icon button.
10. Give a descriptive name for the profile in the input field.
11. Click on the 'Save' button.
12. Click on the 'Close' button to close the dialog window.
13. The profile is now saved in the 'Profile' column of the 'Sequence' parameter table.
14. You can use the recorded profile of this cue now, e.g. with a cue button.

You can also delete existing profiles via the 'Profile-Recorder' dialog window. To do this, select the relevant cue and open the 'Profile-Recorder'. Click the 'Delete profile' button.

To copy a profile, simply copy the appropriate cue.

4.3.6 Replace drives



You can change a single drive that is being used in an already created cue. This may be necessary, for example, when a drive has to be exchanged or a scenery is to be hung on another drive.

With the 'Patch a drive in cues' icon button, you access a dialog window with two list fields. In the left field, all drives in the show are listed. The right list box shows all drives that are not yet used in cues. Use the 'Replace drive' button to confirm your choice. If a drive is replaced, it is replaced by the new one in all cues in which it was integrated. Also, all scenery elements, presets and group memberships are changed from the original drive to the new drive.

In principle, only identical or very similar drives come into consideration for the drive exchange. They should therefore have the same basic parameters.

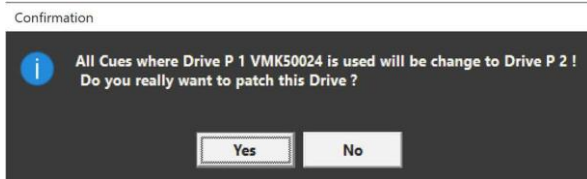
Drive Patch for Show: New Show 5



Note: This function is primarily intended for fixed installations in theaters and television studios with load bars arranged one behind another on winches. It may make sense here to move the hanging loads to drive axles for special applications or modified show processes. For applications with freely positionable drives, such as chain hoists, the user must explicitly check whether the drives to be exchanged are technically capable of this and the required movement parameters are transferable at all.

4.3.6.1 Replace drives in the cue list

1. Click on the 'Patch a drive in cues' icon of the action bar.
2. In the left list field, select the drive that you no longer want to use.
3. Select the new drive in the right selection field.
4. Click on the 'Patch' button.
5. In the message window that appears, you will be notified that the new drive has taken over the parameters of the previous drive. Confirm this with 'Yes'. The exchange process is complete.



6. Repeat steps 2 through 5 for all drives that you want to exchange. To end the exchange process, click on the 'Close' button.

4.3.6.2 Removing drives from the cue list

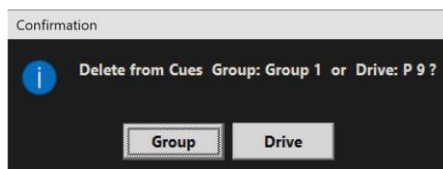
Removing drives and groups from the entire cue list is also possible with this function. This function is called up via the 'Remove' button.

1. Click on the 'Patch a drive in cues' icon of the action bar.
2. In the left list field, select the drive that you want to delete from all cues. The content of the right selection field is not relevant for this action.
3. Press the 'Delete' button.
4. Confirm the 'Remove drive nn from cues?' window that opens with 'Yes'.
5. The drive has been removed from the cue list. Repeat steps 2 through 4 for all drives that you want to remove. To end the process, click on the 'Close' button.

If the drive you want to delete is in a group, you will be informed.

4.3.6.3 Remove groups or drives of a group from the cue list

1. Click on the 'Replace drive in cues' icon button of the action bar.
2. In the left list box, select the drive you want to delete from all cues or a drive of the groups that you want to delete from all cues. The content of the right selection field is not relevant for this action.
3. Press the 'Remove' button.
4. The window that opens informs you that the drive is in a group.



You now have two options available:

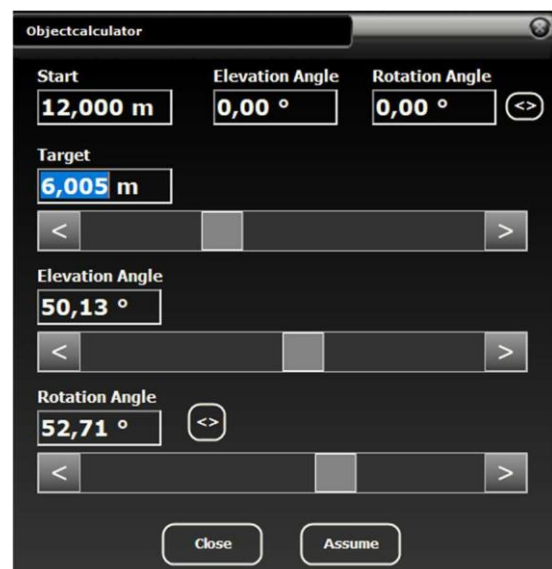
- "Group": You delete the entire group in which the drive is located from all cues.
- "Drive": You just delete the drive from all cues in which it is executed separately. To adopt individual group members in the cue list, you must use the 'Bypass group' function. This has no effect on cues in which it is saved in the form of a group.
5. If 'Group' is selected, you must confirm the window with the 'Remove group xx cues?' content with 'Yes'.
 6. If 'Drive' is selected, you must confirm the window with the 'Remove group xx cues?' content with 'Yes'.
 6. The group or the drive is removed from the entire cue list. (If the drive you want to delete is NOT inserted using the 'Bypass group' function in the cue list, i.e. the drive is only listed as a group in the cue list and not as a separate entry, deleting a drive has no effect.)

4.3.7 Programming with usage of the object calculator

1. Setup a group of devices as 'Object Group' or 'Free Group' at 'Groups'.
2. Please be sure that you set the height at Super-User-Menu and the x/y positions at the "Drives" Menu correctly. Otherwise the calculator can not count.
3. Go to 'Manual' and move your devices to the desired start position.
4. Now open the object calculator on the action bar.



5. With the first slider you define the height of the lowest device.
6. The second slider defines the elevation angle. If you have e.g. a truss on 3 hoists, you define the angle of the truss.
7. Now you can grab the third slider to select the rotation angle. When you have the hoists in line you can choose if the line is up on one side (positive values) or down (negative values). If you have e.g. a circle on different hoists, you can select which hoist is the lowest. It is really helpful to open the 3D-View for this.
8. You can also set the values in the little fields above the sliders. Please confirm your settings with ENTER.



9. Click on 'Assume' and the values will set on 'Target'.
10. Drive carefully to these positions.
11. Store these positions as a 'Preset'.
12. If you want to 'rotate' the circle you can program the next positions with the object calculator by changing the rotation angle.
13. Store all the positions you want as 'Presets' and then create a cue which has all the 'Presets' behind each other.
14. When you start the cue, the circle moves. Please note that the devices stop after every movement.

4.4 Show mode

When you operate a show, we recommend controlling movements with the cue buttons so that the chronological sequence of the cues is maintained. However, you can also use the control if the situation requires it.

Shows

Sequence

Groups

/ Drives

Scenery

Presets

Manual

Sequence-Table-Overview

4.4.1 Start a cue

1. Select the 'Sequence' tab from the parameter table.
2. Select a cue by clicking on any field of the cue.
3. Assign a joystick or cue button by selecting an icon from the cue control bar. The context bar flashes green.
4. Press the appropriate control or cue button. Once the release is activated by the dead man's button, the drives are set in motion. The context bar turns green.

Drives can be deselected, stopped or reactivated from a selected or running cue.

4.4.2 Stopping and restarting one or more drives in a cue

1. While a cue is running, select an involved drive with the drive button or the Side/Top views. A menu appears:



2. If you want to deselect the drive, select 'Disassign object'. The drive stops and is disassigned, but stays selected.
3. If you want to deselect the positioning instrument with which the selected drive is moved, select 'Disassign control'. All drives that are assigned to the same control or cue button stops and are disassigned from the joystick or the button but remain selected.
4. If you want to deselect the running cue, select 'Disassign all'. All drives stops and are disassigned. Only the drives of the last selected cue remain selected.
5. If you want to assign the selected drive to another positioning instrument, select 'Change Object to Control' and choose a positioning instrument from the list that opens. The selected drive continues as soon as the corresponding positioning instrument is activated.
6. If you want to move all drives of the cue with another positioning instrument, then select 'Change control' and rename the new positioning instrument. The drives of the cue continue as soon as the corresponding positioning instrument is activated.

To start the disassigned drives, select the drive again in the parameter table, Side, Drive or Top views and assign it to a positioning instrument again. If you have deselected the whole cue, you can restart it in the same way (selection via parameter table).

The **I-Motion** software offers the option of dividing the cues again. For this purpose, a total of 16 sub-divisions, or parts, are available. These parts help the user to keep track of things in larger cues and allow each user to have an individual programming mode.

4.4.3 Divide cue into parts

1. Select the 'Sequence' tab from the parameter table.
2. Select a cue by clicking on any field of the cue.
3. Click on the 'Block details' button of the action bar.
4. Assign a value from 1 to 16 for every desired value in the 'Part no.' column. The drives of the cue are automatically sorted by number.

All drives that are assigned to parts 1 to 8 automatically receive the left control as default ('Control' column). Parts 9 to 16 are automatically assigned to the right-hand control. A change is possible at any time by simply selecting the field. The entry '0 - none' can only occur if the part assignment is '0'.

4.4.4 The use of parts

1. Select the 'Sequence' tab from the parameter table.
2. Select a cue by clicking on any field of it.
3. Select one or several parts of the cue by using the buttons 'Part 1' to 'Part 16' attached to the side (right and left).
4. Move the drives of the selected part with the specified positioning instruments.

By selecting one of the 'Part 1' to 'Part 16' buttons, all drives are activated with the same part number, regardless of their positioning instrument specifications. Pressing a 'Part 1' to 'Part 16' button again causes all drives that are assigned to the part number to be deselected.

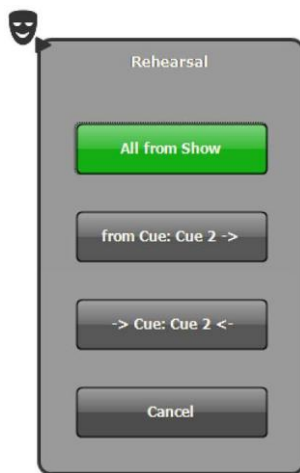
If you select a cue by assigning it to a positioning instrument via the cue control bar, the sub-divisions in parts have no effect. This is the same if you activate a cue via the 'Activate cue' or 'Activate next cue' icon.

4.5 Begin show with a certain cue

At the beginning of a show, you should make sure that all drives are in the start position for their first transformation. This can be done manually or by using the 'Prepare show to start from this cue' function.



The 'Prepare show to start from this cue' button is available in all parameter tables and always refers to the last cue. Selecting the icon causes a message window to open (see below). Thereafter, the manual mode is activated. The I-Motion software automatically calculates all movements that are necessary for starting the show from the selected cue. The movements are listed in the 'Manual' parameter table. The drives must now be assigned to a positioning instrument for them to proceed to their start positions. Even for rehearsal mode, this function is extremely useful because a show can be started from any cue.



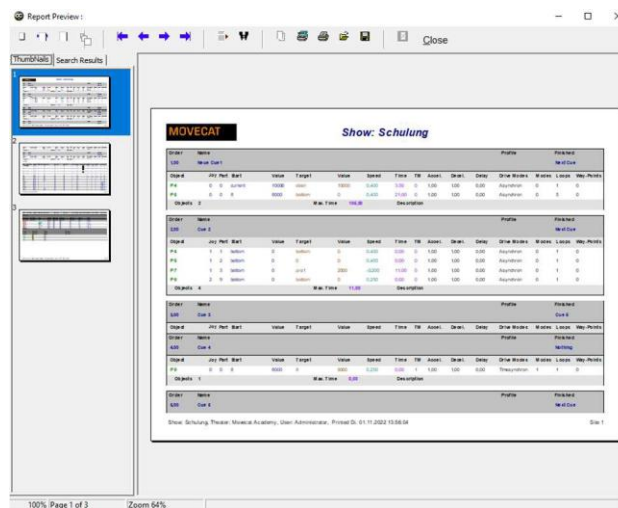
The buttons have the following meanings:

- All from Show: All drives of all cues are moved to their start positions. The performance can then be started from the selected cue.
- From Cue: Cue nn ->: All drives of the selected cues are moved to their start positions. The drives of all other cues are not considered.
- > Cue: Cue 2 <-: Only the selected drive moves to the start position.
- Cancel: The action is cancelled.

4.6 Printing show with all settings



You can print a show with all your programmed values. You get to the print window via the 'Print show' icon at "Tools". The printout is divided into categories (drives, groups, cues ...).



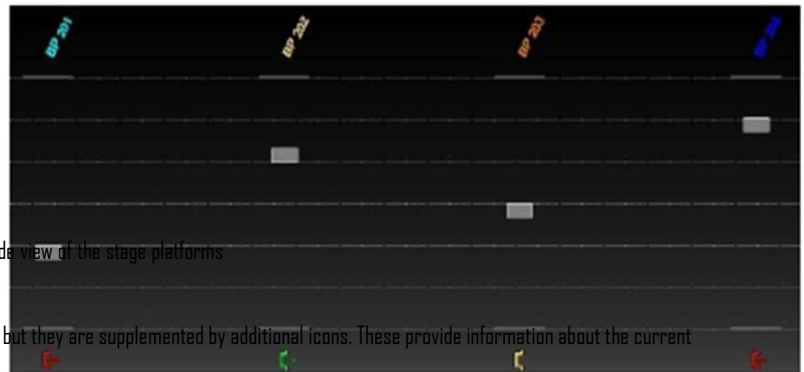
Note: This function is intended for fixed installation systems. For this purpose, a project-specific printer with integrated print server is installed (optional) on which the printout can be directly executed but you can also use this function with the I-Motion-Offline program (optional) on your computer.

5. Theatre specific functions > stage platforms

I-Motion software is also developed to control stage platforms. However, since many different podium systems with various types of drive systems are available, this function is only an option, as the **I-Motion** software must be tailored to the specific needs of the podium system. For the stage platforms described here, interlocks are used on which the podiums are rested to relieve the drivetrain.

5.1 View of stage platforms

The stage platforms are shown in the Side, Drive and Top views. The stage podiums can be selected via their own tab in the section bar (see 3.7 Section bar). In addition, they are also integrated in the 3D view.



The views do not differ essentially from those of the other drives, but they are supplemented by additional icons. These provide information about the current bar position. The following meanings are assigned to the icons:
The circular symbols in the header refer to the podium:

Blue:	The panel is located in a position where it can be locked or unlocked (bar position). This is also indicated by blue numbers of the current position in the parameter table.
Orange:	The panel is in an undefined position. Locking or unlocking is not possible.
Turquoise:	The panel is locked, set down and thus relieved (down position).

The bar recess icons of driving surfaces and the Side view refer to the bolts of the podium:

Green:	The bars of the podium are retracted. The podium can be moved freely.
Yellow:	The bars of the podium are in an undefined state or the bolts are currently extended or retracted. The podium can be moved only within the bar recess.
Red:	The bars of the podium are extended. The podium can be moved only within the bar recess.

If the bar recess icon remains yellow permanently, please contact our service team.

5.5 Drive stage platforms

Driving the stage platforms is not much different from moving the conventional drives. However, if the stages are set down on the bars, a special operation must take place.

Instructions 1: Drive stage platform from locked position

1. Select a podium.
2. Select a positioning instrument.
3. Drive the podium into a bar position in which the bars can be retracted (blue bar recess icon). If you have selected a control as a positioning instrument, the deflection must be downwards (toward the operator).
4. Once you have reached a bar position (blue circular symbol), release the dead man's button.
If the 'Automatic locking and unlocking' function is switched on (see 3.6.4 Menu bar > 'Functions'), the bars automatically retract. The bar recess icon turns green. The panel will be selected with its stored start and target values.
If this automatic function is deactivated, you must manually trigger the interlock. Release the dead man's button to do this. Then, select the podium in the Drive view with a right mouse click or the trackball button. Select the 'Unlock' item in the menu that opens. After the bars are retracted, the panel will be selected with its stored start and target values.
5. With the positioning instruments, you can now move the podium into the desired position.

Instructions 2: Drive and lock stage platform to target (bar position)

1. Select a stage podium.
2. Select a target. The predefined bar positions are offered via the selection menu (mouse click in the 'Target' field). Confirm your selection with "Enter".
3. Assign a positioning instrument to the podium.
4. Activate the positioning instrument until the target is reached. The circular icon turns blue when it reaches the bar position.
6. Release the dead man's button.

If the 'Automatic locking and unlocking' function is switched on (see 3.6.4 Menu bar > 'Functions'), the bars automatically extend. The bar recess icon turns red. The positioning instrument remains selected.

If this automatic function is deactivated, you must manually trigger the interlock. To do this, select the podium in the Drive view with a right mouse click or the trackball button. Select the 'Lock' item in the menu that opens.

7. Activate the positioning instrument. When selecting a control, the deflection must be forwards (away from the operator). If the down position of the interlock has been reached, this is displayed with a circular turquoise icon. The stage platform is now set down on the interlock.

8. Release the positioning instrument

6. Desktop-View

When you close the I-Motion software, the following desktop view appears.

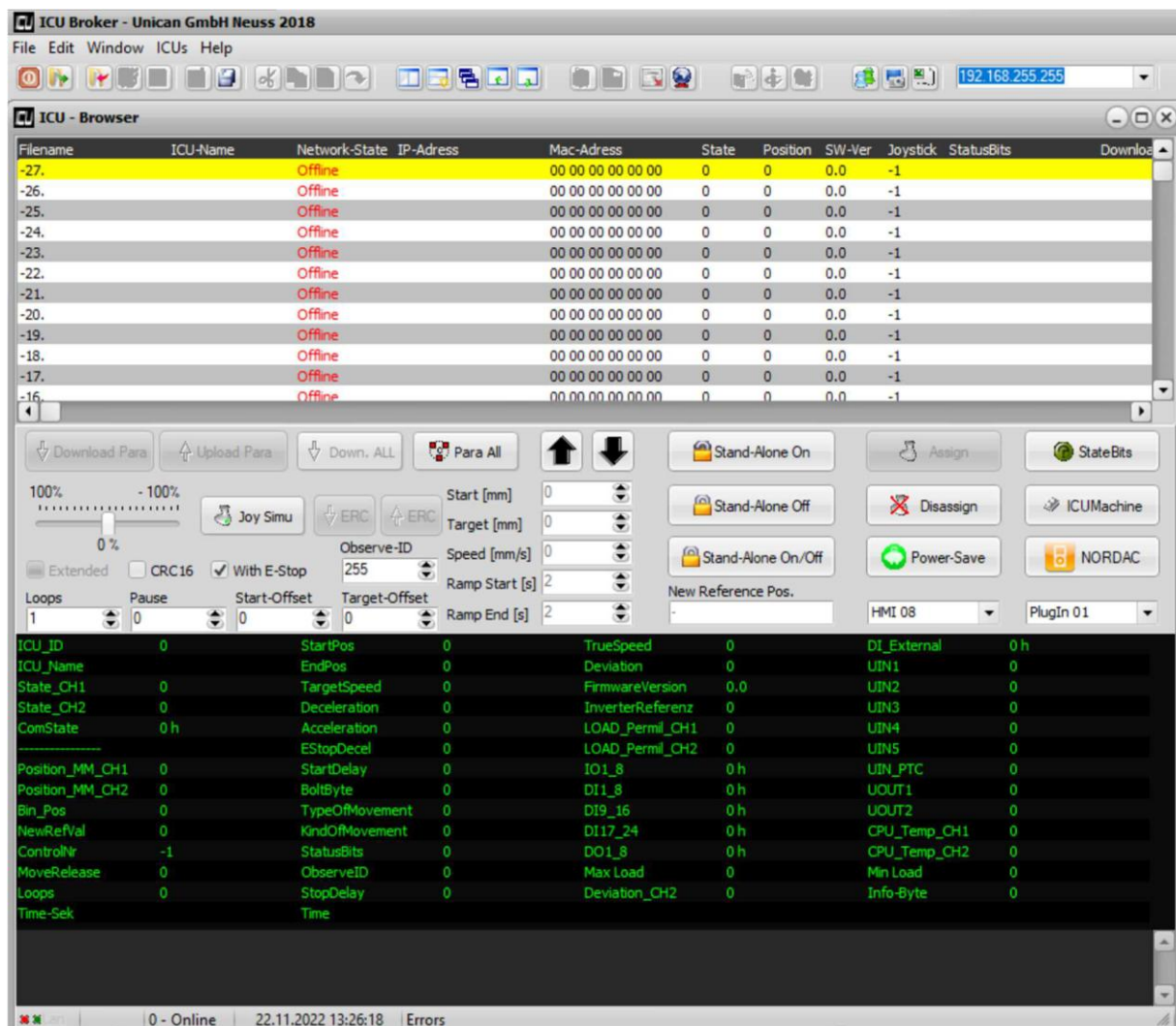
There are a couple of helpful programs. Please note that you need only one click on the icons to open the software.

6.1 I-Motion

Clicking once on this icon opens the I-Motion software which is described in this manual.

6.2 ICU Broker

The ICU Broker is a software to set or configure the parameters of your drives. It is only for advanced users and has a password protection. Please ask the support for the ICU-Broker manual if you need it.



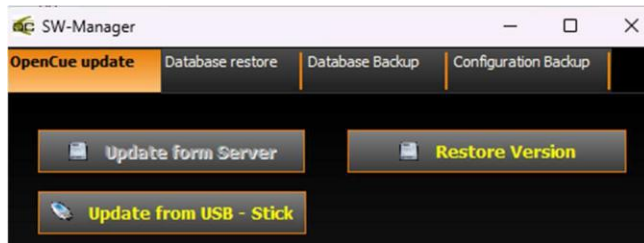
6.3 SW-Manager

This tool allows you to update the software (SW) of your desk. There are also other helpful functions on it.

6.3.1 OpenCue update

By selecting the rider "OpenCue update" there are three options. If you have the I-Motion server integrated in your system, you can select the update software from there. When you have the software on an USB-Stick click "Update from USB - Stick" and select the file. You also can Restore a version, which was used on this desk before the last update.

Please ask our sales-department for new software versions.

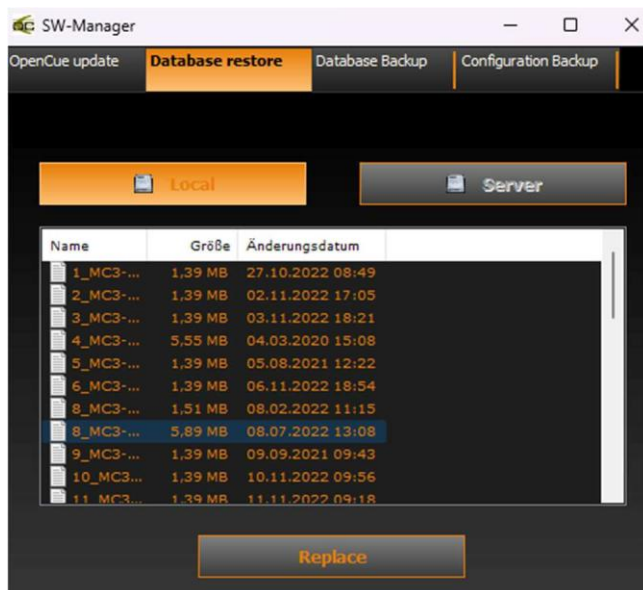


6.3.2 Database restore

The database includes all your hoists, the shows and the configurations in the I-Motion Software. The logbook is excluded, so be sure that you save it separate, if you need it.

Selecting the second rider is to restore the database of your desk. There you can see the older versions of the databases of your desk (Local) or located on the I-Motion server. You can select the desired file by clicking once with the mouse on it and then click "Replace". Now the actual database is changed by your selected one.

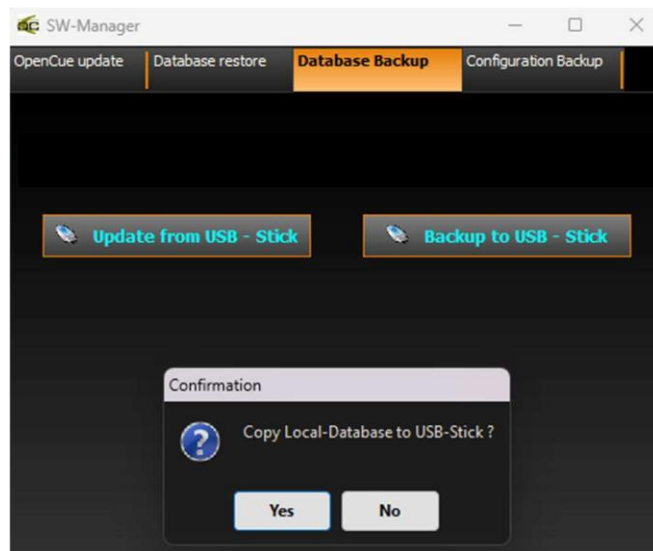
The database includes all your hoists, the shows and the configurations in the I-Motion Software. The logbook is excluded, so be sure that you save it separate, if you need it.



6.3.3 Database Backup

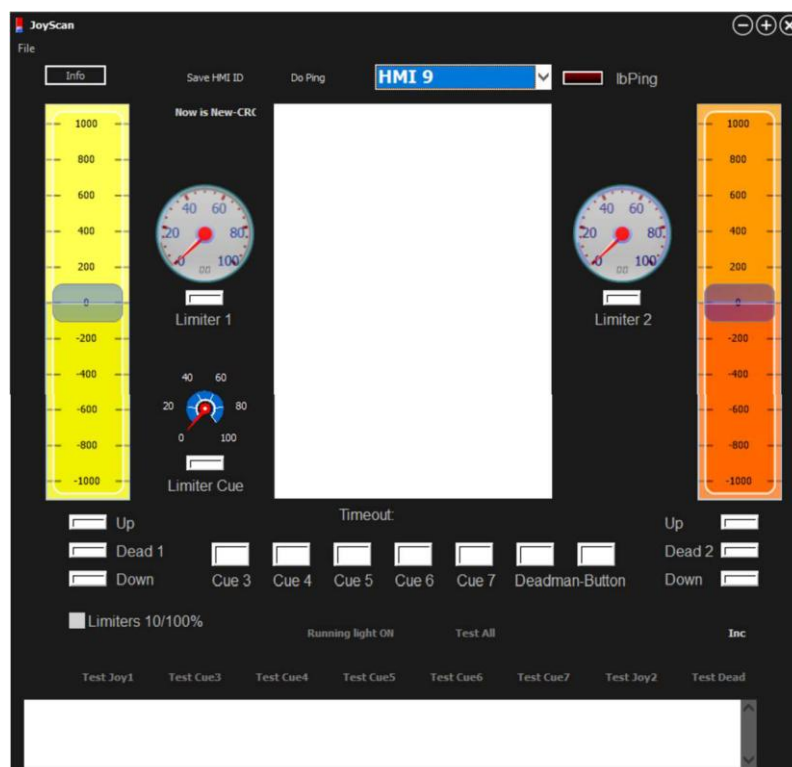
You can overwrite the database of your desk with another database from an USB-Stick. For that stick in an USB with a valid database in .fdb format and then open the SW-Manager. In other direction it is possible, that the icon "Update from USB - Stick" is not available. Now you can click this button and the SW-Manager automatically stores the database with the right database name in the desk and make it to the actual.

You can also store the database on the desk to your USB-Stick. You need this when you need your shows and all configurations on another desk or just to save as a backup. Another reason can be to send it to the support for further actions. Just click "Backup to USB - Stick". Then confirm that you want to copy the database by clicking "Yes". Now you have a backup database on your USB.



6.4 Joy-Scan

This is a great tool to figure out, if you have hardware or software issues with the controls. When you open the Joy-Scan a window opens and you can click the cue buttons or move the Joy-Sticks and the software shows you the i.e. the deflection. You can also check the ratios for the lever or the cue buttons and the dead-man functions. When you click on the icons cue3 till cue 7 or one of the Deadman-Button in the software the hardware buttons will glow.



6.5 Touch Keyboard

This icon opens the soft keyboard at the screen.

6.6 IP Adress

This tool opens the network-configuration of your desk. The following settings should apply by default:

When you use a second desk in your system it needs to have another IP address. You can change it here. You need a password for this, because changing the network settings is only advanced users allowed.

6.7 Log Off

This is only for changing the windows user as a windows admin. There is no need to do this and the Windows Users are password locked. To get back to the normal User Mode you need to log-in again with the password ++++.

6.8 Shut Down

Turns off the I-Motion Desk.

Please note that the main switch 'Power' on the back must also be pressed, after the '12V DC' status LED on the front has gone out.

6.9 Restart

Clicking on this icon lets the console shut down and start again.

6.10 Time and Date

Sets the date, time, and time zone of the system clock.

6.11 Display

Controls the display mode (clone or extend) for use from an external Monitor.

6.12 Touch Calibrate

The touch screen monitor can be calibrated via this tool. The touch mode optimizes the computer for touch input and eliminates the need for a keyboard and mouse. If the resolution setting does not match the screen, the touch position will also be affected. For example, when you click certain locations, the screen responds to the correct points, but clicks in other locations respond incorrectly.

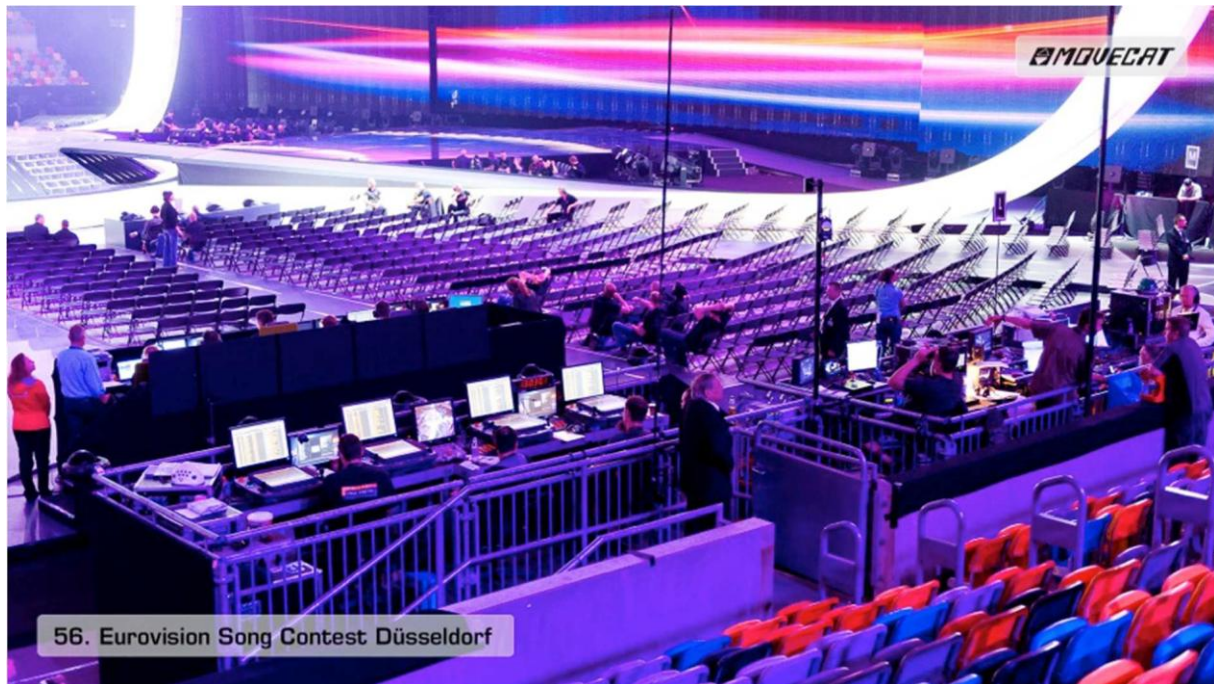
After you click this icon, the tool opens. Please follow the on-screen steps to complete the calibration and save the configuration.

7. Service and Support

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E-Mail: support@moveket.de
www.moveket.de



8. Annex 1: External screen

This explanation is a sample, the final adjustment depends on motherboard version as well the model of external screen.

8.5 Requirement

The external screen has to get connected to the desk before powering the desk, otherwise it could be that the desk does not recognize the screen. If you try restart, please turn off, and then turn on again.

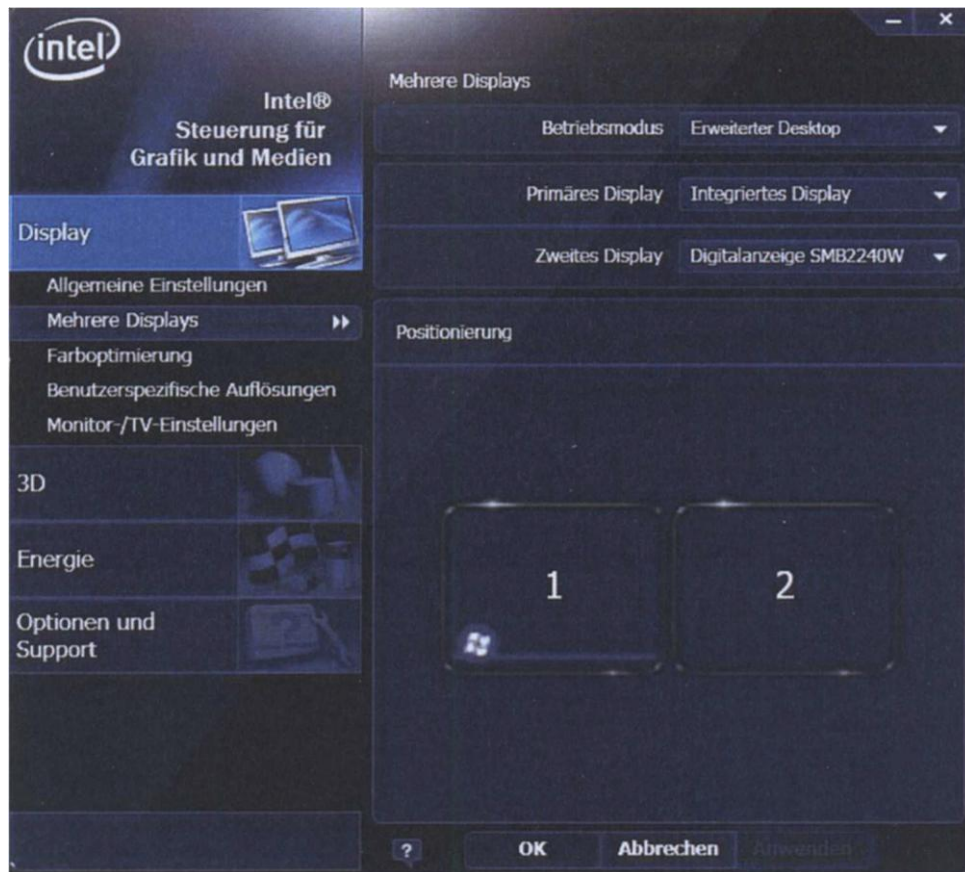
8.6 driver configuration

Configuration of internal and external display is done on the Windows desktop, start bar right side (e.g. INTEL GMA). Please proceed like this

Menü "Display" -> "Mehrere Displays" wählen

Zuordnen; >> Primäres Display -> Integriertes Display oder auch Notebook

Zuordnen >> Zweites Display -> Digitalanzeige z.B. SMB2240W



8.7 Reset of configuration

If there is no view (it might happen after a restart that the screen stays black) on the internal screen please reset:
Press keys (STRG + ALT + F3) > this is activating the internal screen.

