

STAGEMAKER SYSTEM

R8CPU-VS CONTROLLER & OPERATING DESK CC48



INSTALLATION AND OPERATING MANUAL

CONTROLLER AND OPERATING DESK
for
STAGEMAKER SM10 CHAIN HOIST
VERSION C or V
Rev.04

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INTRODUCTION

Fore word;

We congratulate you with the purchase of the STAGEMAKER controller R8CPU-VS and operating desk CC48 for controlling and positioning of electric chain Hoists type STAGEMAKER SM. It will soon become apparent to you that operation and programming are relative easy and convenient to apply.

STAGEMAKER controller R8CPU-VS stands for:

- Easy to use hardware, manual operations possible without operating desk
- Simple installation, all intelligence is centralised
- Convenient graphic user interfaces in Windows™ as standard
- Maximum ergonomics in software design
- a) R8CPU-VS for STAGEMAKER Hoists version C or D, fixed single speed (two speed on demand)
- b) R8CPU-VS for STAGEMAKER Hoists version V, variable speed

Please read the operating instructions thoroughly before to push the buttons, or to start programming. We know this might sound tedious, but please take the time to do so. After all, keep in mind, you will be moving loads above people.

We wish you success and many successful productions!

Scope of supply

Supplied with each rack:

- 1 Link cable 1m
- 1 Network cable RJ45 1m
- 1 Operating instructions (hard ware & software)
- 2 Key's

Rack power requirements

3 x 400 V + N + Gr / 32 A

Intermediary cabling requirements

Cabling between Hoists and controller rack:

- Multi cable 18 x 1.5mm² up to 70m for SM5 and 40m for SM10
 - Multi cable 18 x 2.5mm² up to 125m for SM5 and 70m for SM10
- Cables with 16p Harting / 16Amp, female with 2 clips.

Cabling between controller rack and operating desk:

- Network connection; CAT5 professional cable up to 70m
- Control functions;
 - Up to 25 m 10 x 0.5 mm² up to 25 m
 - Up to 70 m on request

Warranty

On the equipment, there is a warranty effective for a period of one year in accordance to our general warranty conditions. A special note however is to be made with respect to the warranty on the laptop supplied with your system, as this warranty is not covered by us but worldwide by Dell.

However in order to make advantage of the warranty, you have to transfer the warranty rights for which to follow the Dell TAG transfer procedure:

Make note of the TAG number at the bottom of your lap-top and got to:

www.dell.com/globaltagtransfer

Read the instructions and scroll to the lower section of the page to fill-in all *marked pockets.

On places that refer to us as supplier, fill-in:

- email address : contact@verlinde.com
- original owner : Verlinde SA
- country : France
- service level : NBD

The transfer will be confirmed to your email address, from that moment on may apply on full service from the Dell helpdesk in you country. See www.dell.com for the nearest station.

NOTES ON SAFETY



General

- This device is designed for the control of professional stage equipment and is not suitable for any other purpose. It should only be used by or under the supervision of qualified and trained personnel.
- Read the information in this manual carefully as it contains important information on installation, safety and operation.
- It is very important that this manual accompanies the system if sold or passed on to others, so that the any operator can inform himself about the mode of operation of the device.
- After unpacking check that the device is intact and complete. If this should not be the case, please immediately contact our service department.
- The device must only be used by competent persons.
- Electrical work necessary for the installation of the device must be undertaken by a qualified electrician or person with the necessary specialised knowledge.
- Do not use the device in damp environments and avoid ambient temperatures above 42 °C and below 2 °C.
- Do not dismantle or modify the device in any way.
- Prevent any ingress of liquids or the insertion of metallic objects in the device.
- In case of serious malfunction, switch off the device and contact the service department or the manufacturer.
- Do not open the device. It contains only user non-repairable components.
- Never attempt to repair the device yourself.

System

A system comprises of minimum one (1) R8CPU-VS controller rack and the corresponding operator's desk CC48. For manual operations however it is possible to run the Hoists without the operator's desk connected, provided the 24Vdc IN and OUT connectors are equipped with a blind plug.

Hoists

As the control with connected Hoists represents a system, it is essential that the connected Hoists are adapted to match the controller's configuration. In case of an advanced level of security such as BGV-C1 or BGV-D8+, it is important that this level is being applied to the Hoists as well. If this is not the case, the entire system including the controller may be regarded as such.

Power supply

It must be ensured that all three phases (400 V), neutral and ground are present at the device and phases are in clockwise sequence. In the event of a phase fault, the "Phase Fault" LED at the front the controller lights up. Operation is then NOT possible. To remedy this condition, the phases can be reversed with the phase reverser in the CEE connector. If this fails to remedy the fault, the supply cable must be checked.

Use a wide-bladed screwdriver, pressure must be applied on the satellite together with a rotating motion. When the pressure is relieved, the two poles are clamped in place.

Software

Be aware at all times that from software point of view the system is not able to verify whether there are obstacles within the operational area of the moving object. It is not able to take distances and object angles in to account and thus can't determine whether the programmed motion is feasible or not. The operator is fully responsible for the consequences of any kind of damage that might occur due to un thoughtful programming, or lack of attention during the performance of a

motion. Target positions, object angles and speeds are to be chosen by the operator in a way that all Hoists are carrying the object at all times and no important slack chain occurs during the complete run of the cue.

Note:

The software is pre-installed on the operator's desk CC48. In case of an update, first remove the previous version using the Windows Uninstall features, than enter the CD, select the Set-up icon and follow the instructions.



Note:

The new software may run under Vista, however we can't guarantee as the firm ware is not tested in conjunction with the Vista platform. New systems provided will remain to be Windows XP.



Emergency stop

The Emergency Stop button on the rack front panel or on the operating desk switches off the respective rack completely. For linking with further racks, the devices must be connected with the interlink cables. If only one device is used, the 2Vdc out connector must be closed with the provided blind plug.

Improper use

In order to secure safety, it is essential to use the link cables provided with the equipment. If not doing so, the manufacturer won't take any responsibility and warranty will be considered as obsolete in such case.



USE OF PROGRAMABLE HOISTS

Applications

Programmable Hoists usually are being used for scenic over-head operations in places of public entry. For that reason specific precautions in terms of safety are required. These precautions could be, different from country to country yet we recommend Hoists with a safety factor 10:1 and equipped with a double brake as a minimum.

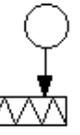
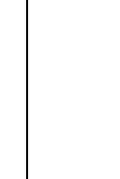
Provision

It is the purchasers obligation to precise the applicable code's and standards for the Hoist and the Hoist controls if any beyond the International accepted once as listed in the enclosed CEE Declaration of Conformity.

Use

Depending on the type of use, and applicable code of praxis, the necessary minimum requirement must be selected in accordance with table 1 at next page.

LOAD CONFIGURATIONS

Load types		Type of use	
		Equipment for	
		Setting with visual contact	scenic movement
1. Single loads		G	G
2. Straight structures suspended from two Hoists		G	G + Z 1
3. Straight structures suspended from more than two Hoists		G + Z 1	G + Z 3 or G + Z 1 + Z 2 + Z 4
4. Connected structures suspended from different Hoists		G + Z 1	G + Z 1 + Z 2
5. Combined structures suspended from three Hoists		G + Z 1	G + Z 3 or G + Z 1 + Z 2 + Z 4
6. Combined structures suspended from more than three Hoists		G + Z 3 or G + Z 1 + Z 4	G + Z 3
7. Rigidly guided structures		G + Z 1 + Z 4	G + Z 3 + Z 4
G = Basic equipment Z = Additional equipment Z 1 = Asynchronous Group movements with Group deactivation Z 2 = Reset via synchronous point		Z 3 = Synchronous Group movements (path and time synchronous) or synchronic control Z 4 = Shutdown on overload (slack rope/slack chain safety mechanism)	

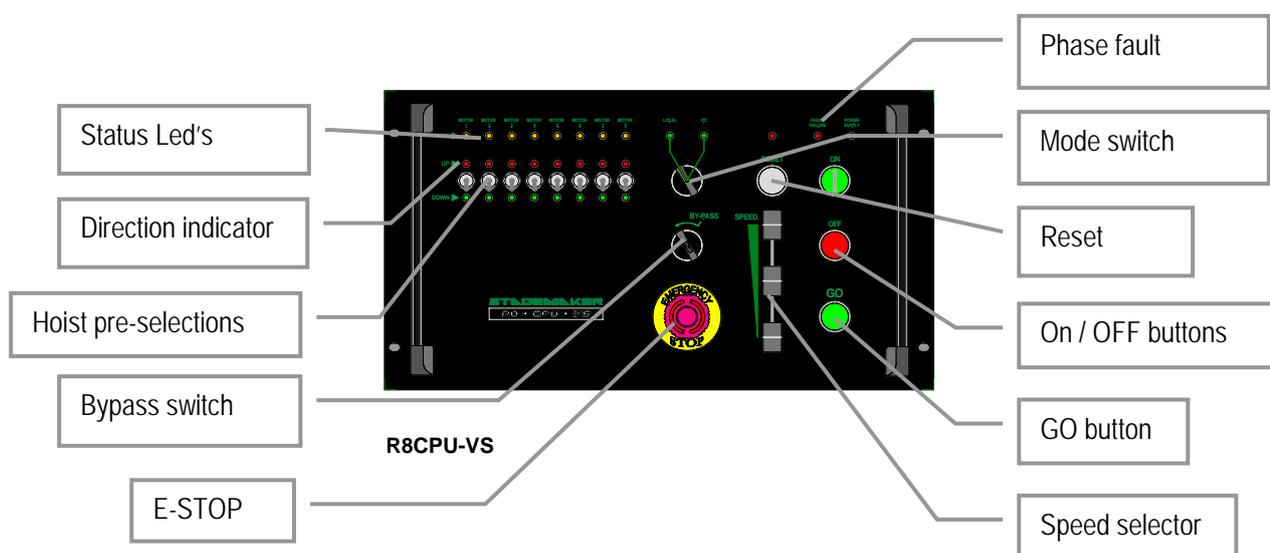
CONTROLLER DESCRIPTION

RACK

The rack is the link between the STAGEMAKER operating desk CC48 and the Hoists. It controls the Hoist movements and positions and stores the corresponding data in its memory. Manual system override makes operations without the operating desk CC48 possible.

Front view of control rack R8CPU-VS

The following view shows the positions of the individual control elements:



ON / OFF Buttons

To power the rack push the On button and keep it pressed for 1 second to allow the system to check phase's sequence. The OFF button should be used to achieve a power-down. However before to do so be sure the operating desk has been powered down correctly first. This to ensure all position data has been stored in the rack memory.

Note:

The main power will be switched off once pressing the OFF button on the controller. However the 24Vdc remains standby and so the green LED remains lit. For a complete shut-off use the fuse switches at the back of the controller.



Emergency stop

Button to be pressed in case of emergencies. Main contactor is de-activated and all movements are stopped immediately. The emergency stop is a safety device and should not be used otherwise.

In order to cancel an applied Emergency stop button, turn the knob anticlockwise to release it. In order to continue operation press the ON button to activate the main contactor and start re-initialisation.

Hoist pre-selection

Up or Down motion are to be made with the toggle pre-set switches. These are effective in the Local mode only. A selection will be overruled once the Mode selector is set to Remote again.

Speed selector

In manual mode this feeder potentiometer could be used to adjust the speed between 1 and 100% and thus adapted to the application. Ramps for acceleration and deceleration are pre-set in the inverter on the Hoist. These should not be modified without consultation. See also the Hoist manual.

Note:

The speed selector is only effective in case of variable speed Hoists..



GO button

By pressing this button, all pre-selected Hoists will be activated, provided the mode selector is set in Local mode. The button must be kept pushed for as long as the operation is required.

If several racks are linked, the Go command is also effective on the other racks connected.

Direction indicator

These LED's indicate the selected direction of the motion for the corresponding channel.

Status LED's

These LED's have a multifunction;

- Not blinking no Hoist connected, or Hoist in failure
- Blinking with interval means unit is initialising
- Constant blinking, Hoist is in correct operational status

Note:

When switching on, the Hoist fault indicator lights may light up. This is normal and not a fault. After a short delay, needed for internal check-up, these LED's go out.



Bypass (key-switch)

This switch is to be used in case the slack chain detection is activated and prohibits further operation up- or downwards. For this purpose, the switch must be kept in the respective position to neutralise the situation.

Reset

The reset button serves to reset a Hoist fault (overload, thermal etc.) or the selected Hoist direction can be cancelled.

Mode

This switch is to be used to select the Local (manual) or PC remote mode (CC48 operating desk).

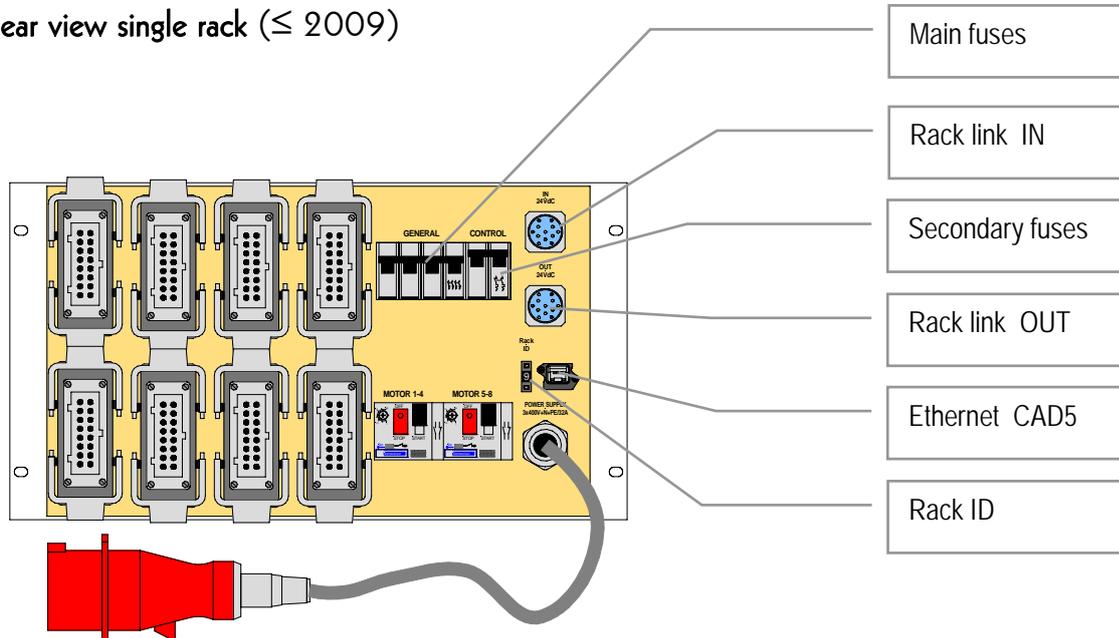
In local mode, all Hoists could be controlled from the rack front.

With the selector in the PC remote mode, manual operations from the rack are no longer possible except the emergency stop button. Operation of the system is to be made from the control desk CC48.

Phase fault indicator

If the power connection is not a clockwise phase sequence, or one phase is missing, this LED shows red and starting is not possible. A clockwise phase sequence can be established by reversing two phases. With the phase reverser in the CEE plug. Press with a screwdriver the satellite with the two phases downwards and rotate it 180 degrees.

Rear view single rack (≤ 2009)



Rack link IN and OUT

This feature is to meet safety requirements in line with EN61508 and is the hard wired link between the Emergency Stop and Dead-mans button. Rack link IN is to be used to connect the operating desk CC48. The OUT must be closed with the supplied blind plug. If a rack is used without operating desk, IN and OUT must be connected by means of the supplied link cable.

When several racks are used, for instance 2, connect the rack link OUT of the first with rack link IN of the second and use the blind plug to close the line.

Rack ID

In order to identify a rack, the ID switch should be set at 1. In case more racks are connected to the CC48 operator's desk, select for the next 2 – 3 etc. For a correct communication between rack's and operator's desk, each rack must have a unique number.

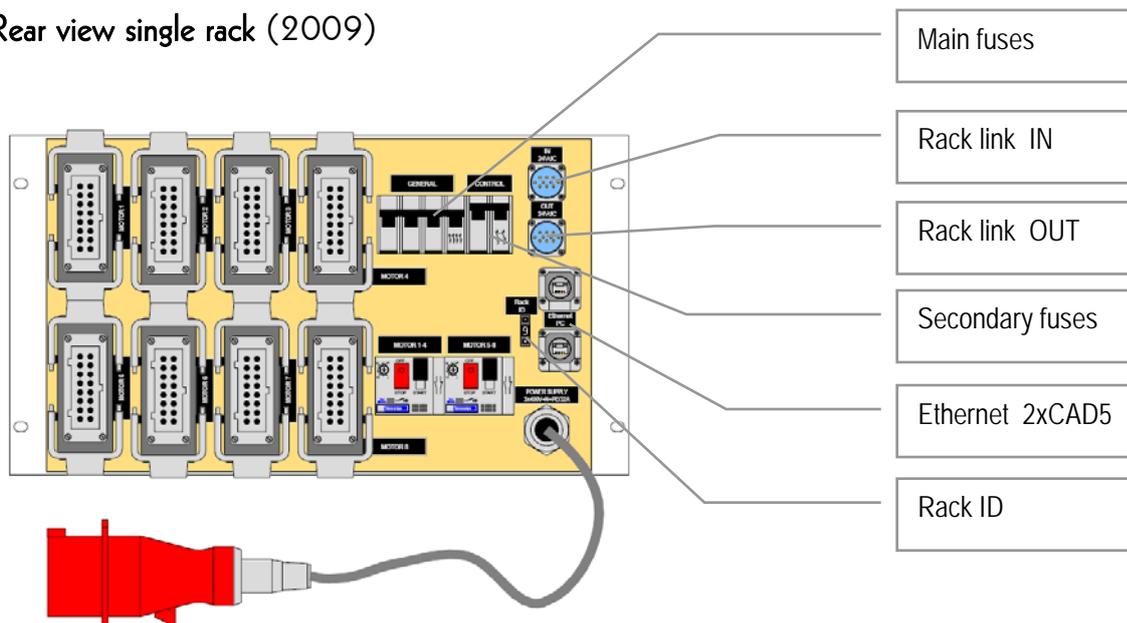
Ethernet

Use at this point a CAD 5 quality cable and connect it with the operator's desk CC48. A proper communication is achieved when the communication icon is moving constantly.

Circuit breakers

Per Group of 4 Hoists there is one circuit breaker with manual reset. In case of tripping all activated Hoist will stop.

Rear view single rack (2009)



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When several racks are used, for instance 2, connect the rack link OUT of the first with rack link IN of the second and use the blind plug to close the line.

Rack ID

In order to identify a rack, the ID switch should be set at 1. In case more racks are connected to the CC48 operator's desk, select for the next 2 – 3 etc. For a correct communication between rack's and operator's desk, each rack must have a unique number.

Ethernet

Use at this point a CAD 5 quality cable and connect it with the operator's desk CC48 and / or link to the next controller. A proper communication is achieved when the communication icon is shown.

Circuit breakers

Per Group of 4 Hoists there is one circuit breaker with manual reset. In case of tripping all activated Hoist will stop.

OPERATORS DESK DESCRIPTION

The operator's desk has a control computer for remote operations and programming of pre-sets. rack is the link between the STAGEMAKER operating desk CC48 and the Hoists. It controls the Hoist movements and positions and stores the corresponding data in its memory. Manual system override makes operations without the operating desk CC48 possible.

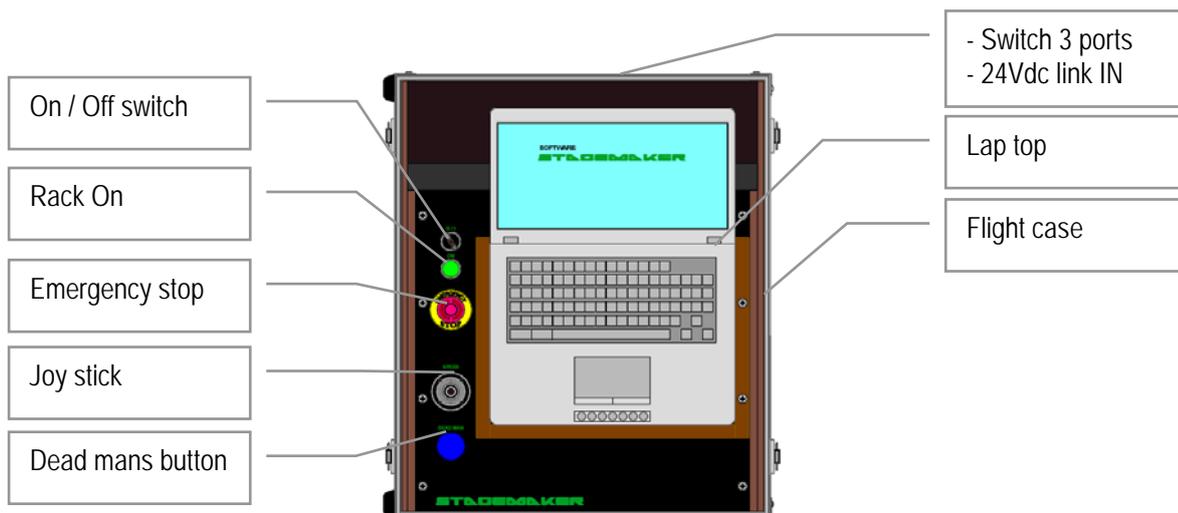
Front view of operators desk CC48 (≤ 2009)

This view shows the positions of the individual control elements:



Front view of operators desk CC48 (2009)

This view shows the positions of the individual control elements:



On/Off switch

Main power switch of the CC48 operators desk.

Rack On button

To activate the main contactor of the rack(s). Only on CC48 revision 2009.

Emergency stop

Button to be pressed in case of emergencies. Main contactor is de-activated and all movements are stopped immediately. The emergency stop is a safety device and should not be used otherwise.

In order to cancel an applied Emergency stop button, turn the knob anticlockwise to release it. In order to continue operation press the ON button to activate the main contactor and start re-initialisation.

In the event the emergency stop has been activated, one could continue the cue sequence after restarting the system and pressing the GO button.

Note:

After a complete supply power down situation and system restart, there might be a slight difference between actual Hoist positions and defined reference position. This is due to the difference in braking distance and eventual substantial asymmetric load pattern. In such case the best is to redefine the reference position if positions are critical. The use of the emergency stop in this respect is not to be considered as a power down situation.



Dead mans button

Safety button that needs to be pressed down for as long as the motion is required or takes place.

In the event the dead mans button is released before the cue ended, one could continue the cue sequence after pressing the dead mans button again and activating the GO button.

Joy-stick

Stick to adapt the speed in manual mode to the given circumstances once the direction is pre-selected. The stick position is a reference for the speed. The button on top of the Joy-stick is the dead-mans handle. If used, there is no need to press the blue button as well. The Joy-stick could be used also to interfere with the pre-programmed speed of the current cue. This allows the operator to accelerate or slow-down the length of the current cue and adapt it to the scene on stage. This option is only effective in combination with variable speed Hoists.

Note:

The joy-stick has a certain response time, start slow and increase speed once there is a interaction. This to avoid unexpected fast speed changes.



Hub data In / Out

On CC48 version \leq 2009, the lap top and one or more R8CPU-VS controllers are connected via the hub built-in to the CC48 operating desk to create a network. With CC48 version 2009, R8CPU controllers could be linked via In-Out switch ports on the rack and operating desk CC48.

Rack link IN

This feature is to meet safety requirements in line with EN61508 and is the hard wired link between the Emergency Stop and Dead-mans button. Rack link IN is to be used to connect the operating desk CC48 with the first R8CPU-VS.

Lap top

The lap top is an integrated part of the operator's desk CC48. It has been configured to serve the system as visualisation- and operating tool. It is not allowed to add or run other programs than originally installed on this laptop, this to assure trouble free operations.

COMMISSIONING

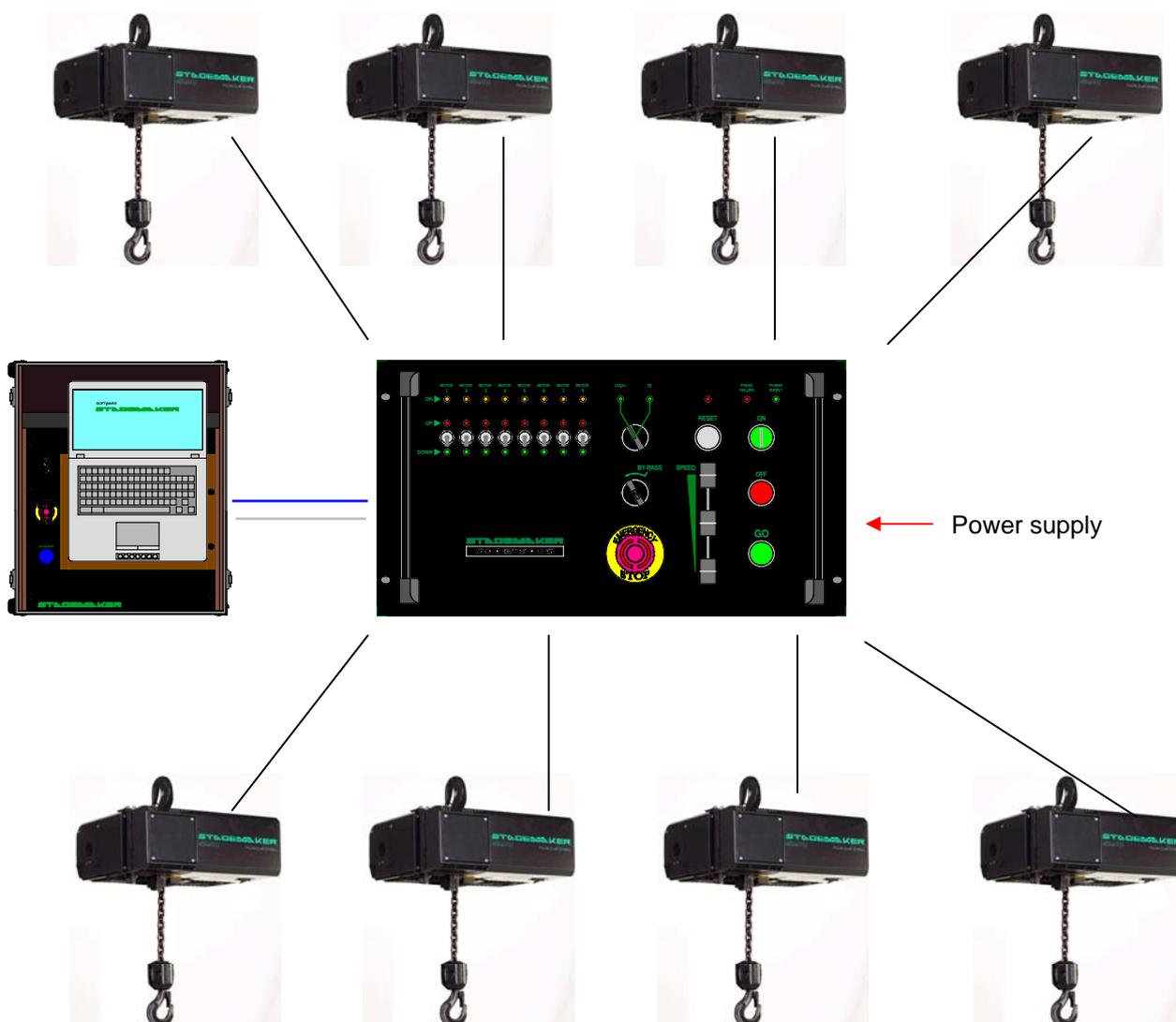
First familiarise yourself with the position of the individual connectors at the rear of the rack. Read carefully the section **CONTROLLER DESCRIPTION**.

Note:

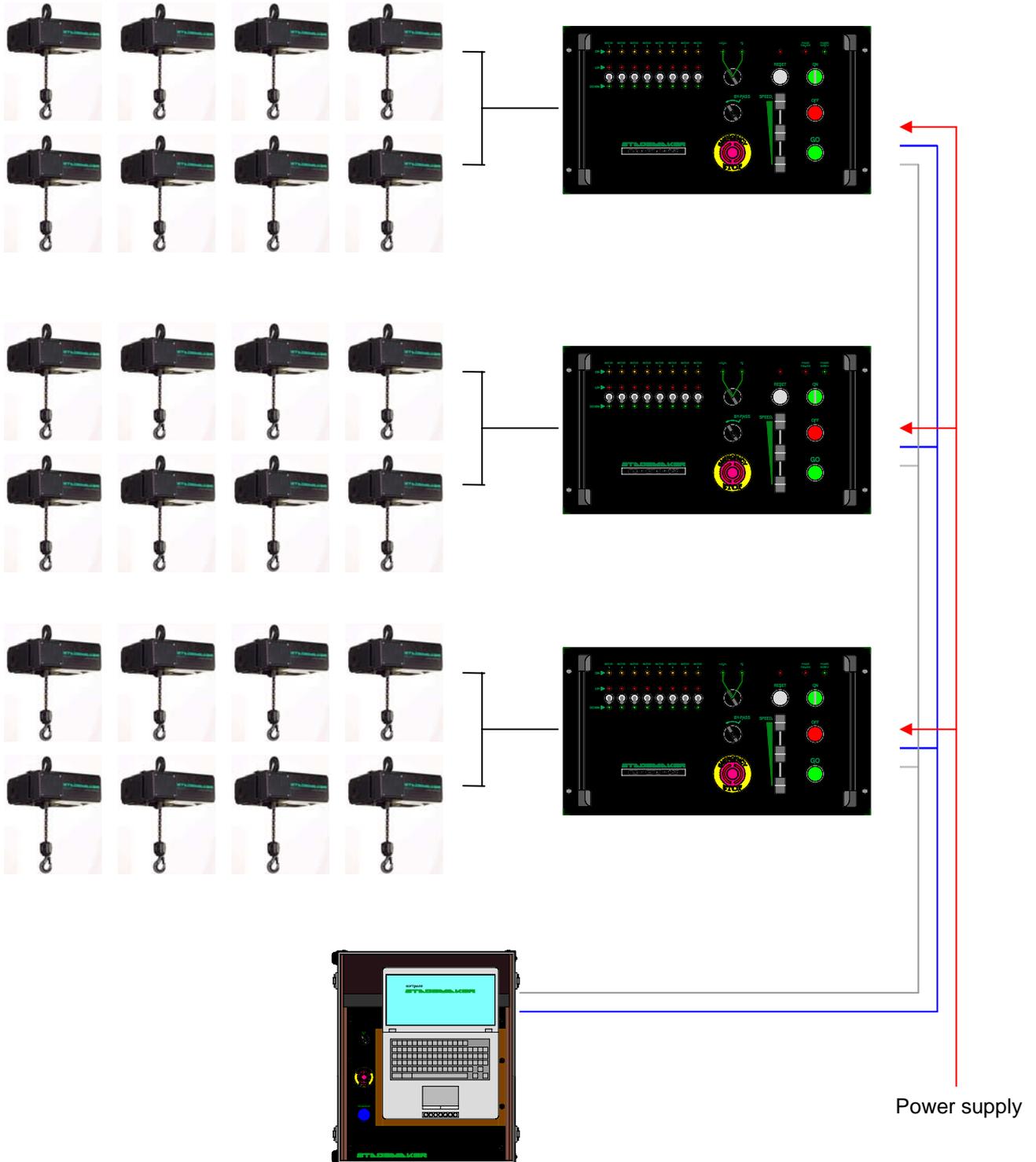
Be sure that the rack(s) and operating desk are still switched until all cables are properly connected.



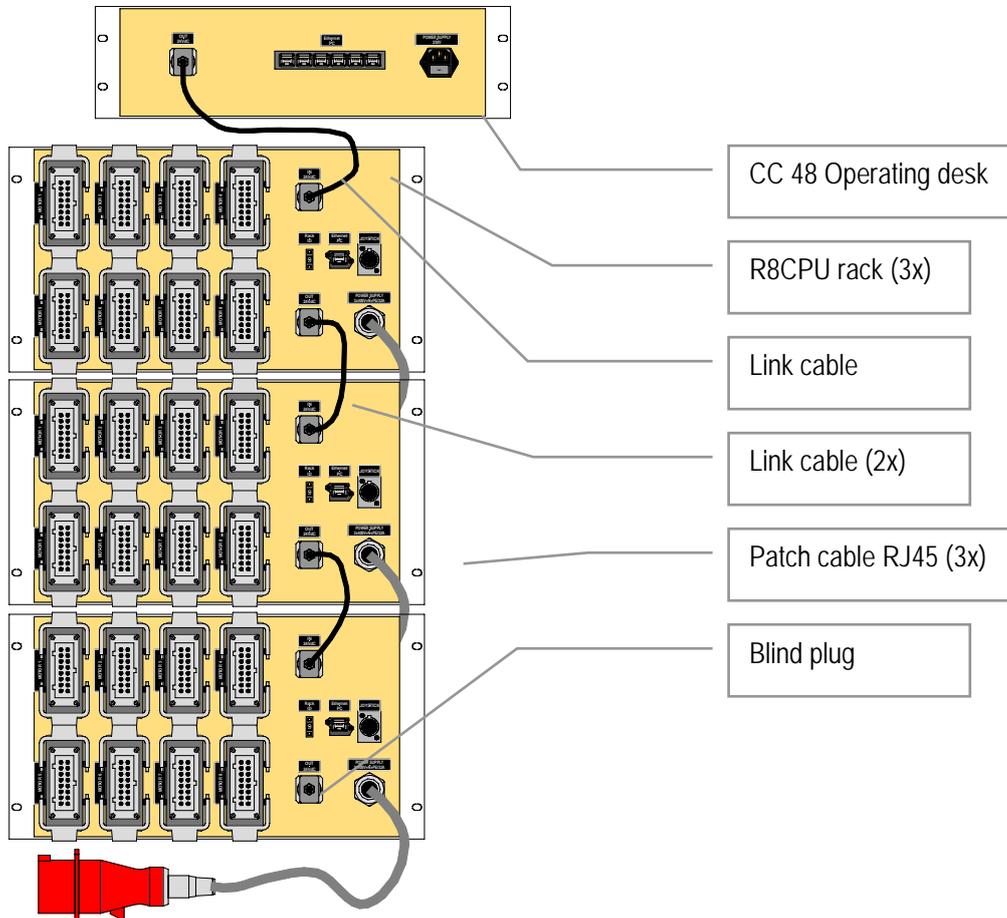
Single rack configuration



Multi rack configurations



Multi rack connections (≤ 2009)

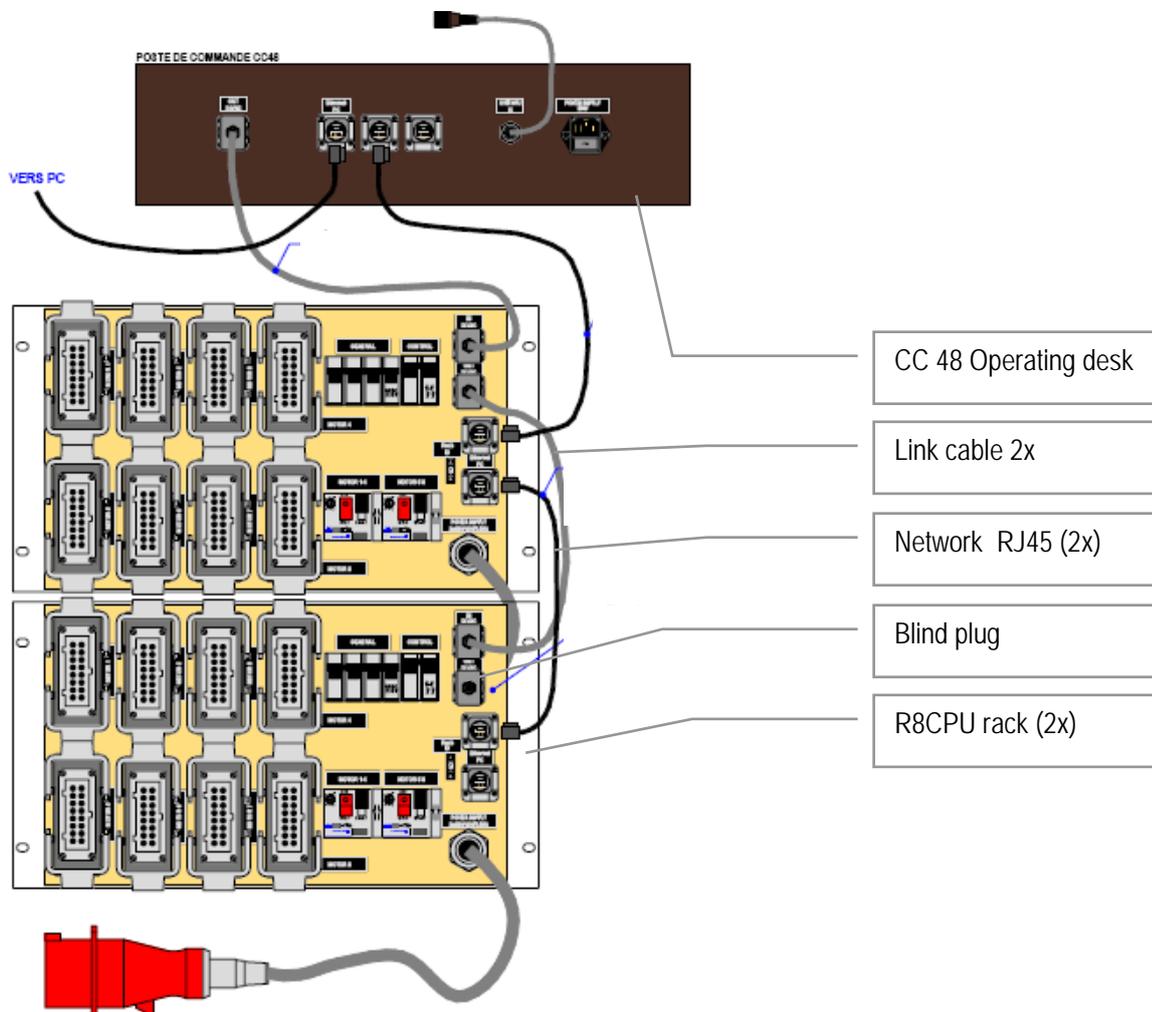


Note:

- Length of intermediary cabling between controller and Hoists should, in line with EN 60 204, not exceed:
 - a) motor power up to 0.9 kW 70m if leads are 1.5mm² or 125m with 2.5mm² leads.
 - b) motor power up to 1.8 kW 40m if leads are 1.5mm² or 70m with 2.5mm² leads.
- Safe working of emergency stop circuit is secured up to link cable length of 75m.
- Network cables should not be longer than 100m.



Multi rack connections (2009)



Note:

- Length of intermediary cabling between controller and Hoists should, in line with EN 60 204, not exceed:
 - a) motor power up to 0.9 kW 70m if leads are 1.5mm² or 125m with 2.5mm² leads.
 - b) motor power up to 1.8 kW 40m if leads are 1.5mm² or 70m with 2.5mm² leads.
- Safe working of emergency stop circuit is secured up to link cable length of 75m.
- Network cables should not be longer than 100m.



Manual operations in Local mode

In this mode, the R8CPU controller could be used for set-up purposes without the add of the operators desk CC48.

1. First connect the Hoists to the rack. Double check the connectors for a secure fit. Each Hoists needs to be connected with the controller trough a 16p / 16Amp multi connector.
2. Ensure that the all circuit breakers at the back of the rack's are switched to ON.
3. Connect the rack to the main supply (CEE 32 Amp 3x400V-Gnd+N), whereby the main-switch must be set to the OFF position with each new commissioning. The red power LED lids as soon as power is applied to the rack.
4. Check the phase sequence and reverse if necessary. For this purpose, simply rotate the satellite with two poles in the CEE plug, using a screwdriver. By exerting light pressure on the recess until the lock releases to enable the satellite to rotate.
5. Press the ON button to activate the main contactor and to power the rack. In case of multiple racks, start the racks in correct order, first the one with IP digit No.1 wait until it is ready than continue with No.2 etc. For testing purposes, the Emergency Stop button must subsequently be actuated once and release.

Note:

When switching on, or after the reset command, the system runs an internal automatic safety check program. The red Local / PC LED as well as all channel indicators remain lit shortly. The system is ready for operation once in Local mode the LED PC goes out.



6. Set the rack mode switch to Local and select the direction of the Hoist (s) using the Hoist pre-set toggle switches.
7. Set the speed selector at the lower speed range (fader down) and push the RUN button to activate the Hoist(s) pre-selected. Adapt the speed to the operating circumstances using the fader up or down wards whilst pressing the RUN button.

Note:

Before to arrive on the point to stop, reduce the speed using the speed regulator, fader downwards. If the RUN button is released and de speed is not lowered before to reach the point to stop, the motion will come to an immediate stop instead of a controlled stop.



Note:

If in a set-up of R8CPU-VS controllers of the first generation (≤ 2009) are mixed with R8CPU-VS controllers manufactured from 2009, beware that the green power ON button on the CC48 desk is not effective in PC mode. Restart needs to be done on the controller, or from the desk after switch to Local mode.



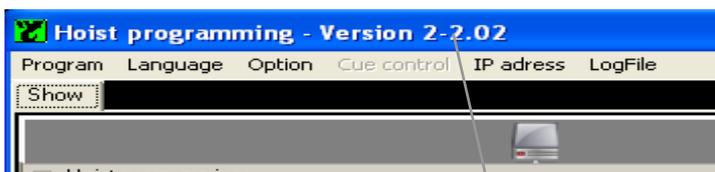
SOFTWARE START-UP

The software enables convenient and pre-programmable cue operation for up to 64 Hoists. Initially familiarise yourself with the software before using it to start programming or activate movements.

Installation

The operator's software is installed on the laptop provided with the operators desk. It runs on Windows XP platform.

New software versions are supplied on CD and provided with a self installer. For some older versions a special procedure has to be followed for which an instruction is provided



The software version could be found in the upper left corner of the screen. Installation only takes five minutes.

Version

TCP/IP Address

The installed Ethernet card on your PC requires an address in order to address the racks. For this purpose go to your network environment.

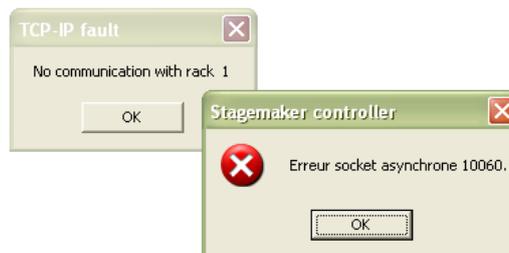
Under the CONFIGURATION folder, mark the TCP/IP driver -> "name of your Ethernet card" and choose PROPERTIES.

The following addresses can be defined in the IP address folder:

IP address : 192.168. 1. 205
Subnet Mask : 255.255.255. 0

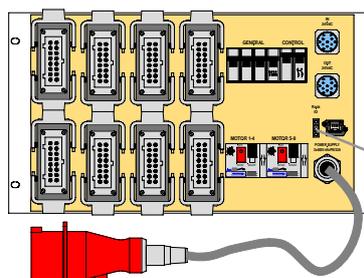
Confirm the entry with OK to apply the address.

The software on the Laptop cannot be used without installed TCP/IP driver(s) of the controller rack R8CPU-VS. If the local network between laptop, operating desk CC48 and controller R8CPU-VS is not set or connected properly, the following error message(s) appear.



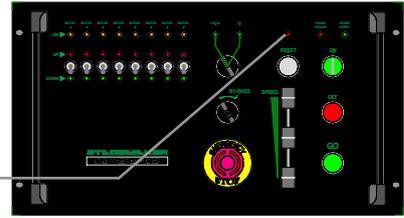
Apart of the laptop IP address, each controller rack has also its unique IP address of which the last digit has to be set on the corresponding controller.

- first R8CPU-VS rack 192.168. 1. 211
- second rack 192.168. 1. 212
- third rack 192.168. 1. 213
- forth rack 192.168. 1. 214
- etc.



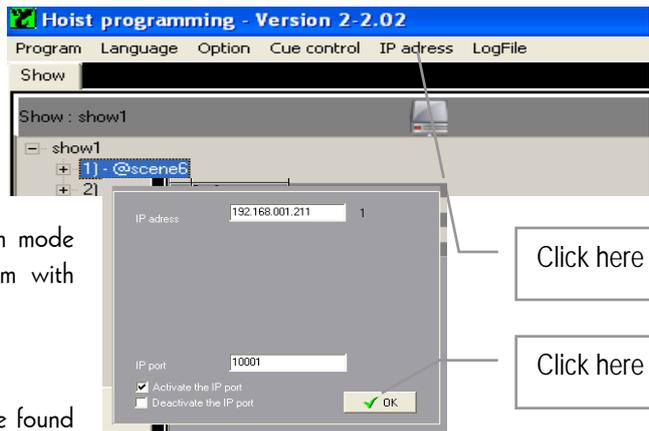
Thumb wheel to set last digit of IP address

After changing the last IP digit on the controller, wait until the LED "CPU default" on the front stops flashing and restart the software before to continue any operation or command. During the flashing, an internal security routine checks the system.



Default LED

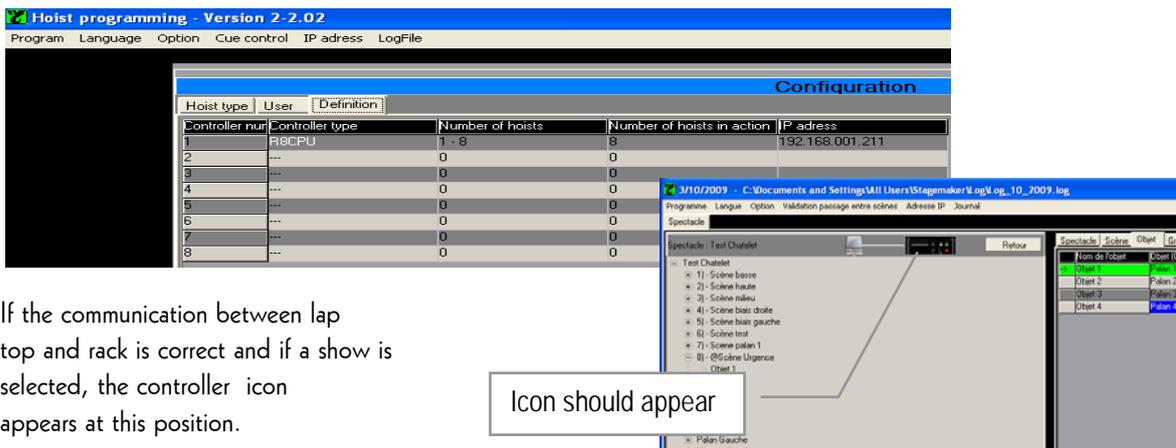
To check the correct setting of the rack IP address, click on the tab IP address. Eventual corrections could be made at this point.



If the software is being used only in the simulation mode, the TCP/IP driver could be switched off after clicking on the IP address tab in the program mode and by deactivating the TCP/IP port and confirm with OK.

At start-up the port is set to active automatically.

The complete rack port settings over view could be found under Option / Configuration/Definition:



If the communication between lap top and rack is correct and if a show is selected, the controller icon appears at this position.

Notes:

- If data connection is broken during a Cue performance, the motion will come to a stop. After solving the problem, the software needs to be restarted and the Cue could be finished by giving a new start command. This however is possible only in Speed mode, not in time mode.
- If a new start command is given while in time mode, the Hoists will return to the starting position of the effect.
- The new software may run under Vista, however it is not tested as such. Systems provided will remain to be Windows XP.
- If data connection is broken during a Cue performance, the motion will come to a stop. After solving the problem, the software needs to be restarted and the Cue could be finished by giving a new start command. This however is possible only in Speed mode, not in time mode.



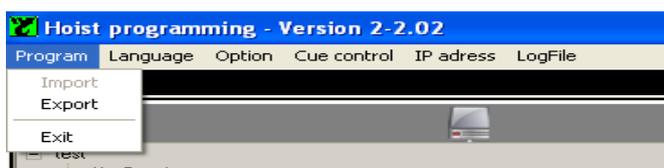
SYSTEM INTIALISATION & OPERATING TOOLS

Since a proper operation of your system is not possible without completing the system initialisation procedure, it is essential to go through the following menu sections step by step and complete the corresponding tables.

The following sections will explain the available commands in the upper command section on the program mode page, as well as the ones in the lower command field of the operation mode page.

Program

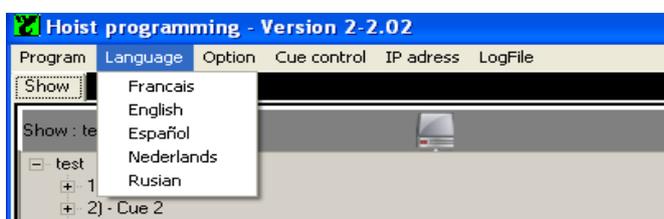
The program tab gives you the opportunity to Import or export files. It also includes the Exit mode to close the software.



Language

The program command texts are available in different languages. Select language in the upper command section in the program mode. And confirm modification.

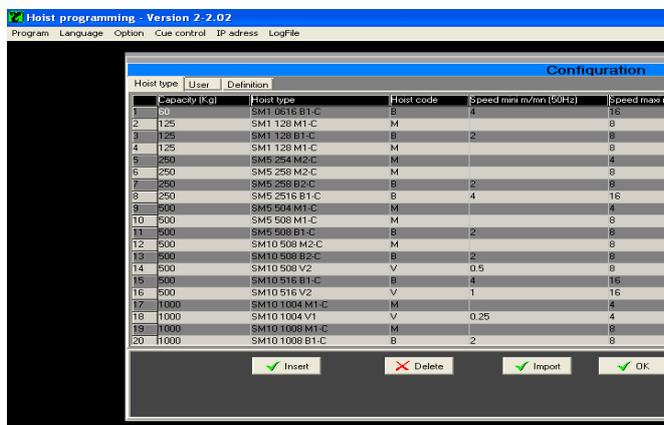
The language change will be effective after closing and opening the program folder.



Option Configuration Hoist type

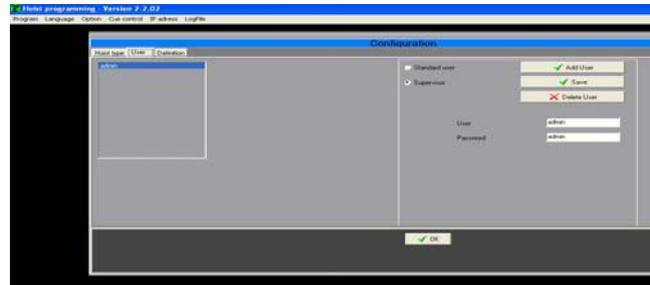
This table shows all Hoist(s) that could be selected and patched in accordance with the Hoists you are using. This implements that one controller could run different Hoists at the same time.

New Hoists could be added to the list, non relevant could be deleted.



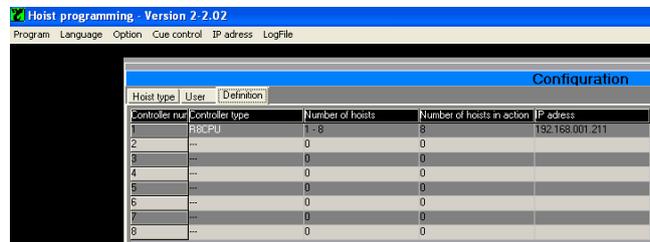
Option Configuration Users

Under the User menu, new system operators could be identified, with unique names and password. The password is case sensitive, i.e. distinction is made between upper and lower case characters. A new user can be designated as a user by the supervisor. The supervisor is able to access all program functions and operating parameters. The operator is only able to execute pre-programmed shows, he cannot enter or change any data. When using the system for the first time, ask your supplier for the installed user name and password (admin)



Option Configuration Definition

At this page, controllers are to be defined, each with their own address and corresponding Hoist sequence number defined by the last digit of the IP address. See also section TCP/IP address

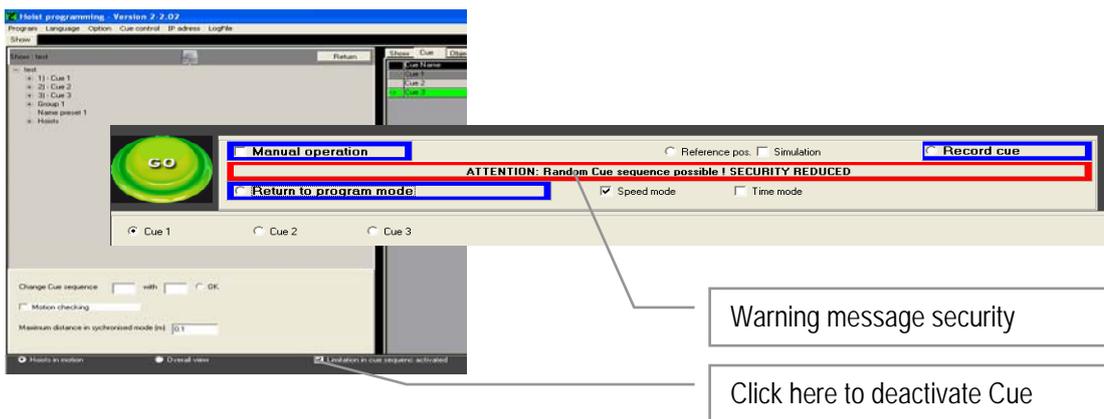


Cue Control

This feature allows you to avoid conflicts between Cue's in a certain sequence. Click the corresponding pocket to activate the condition YES or NO.



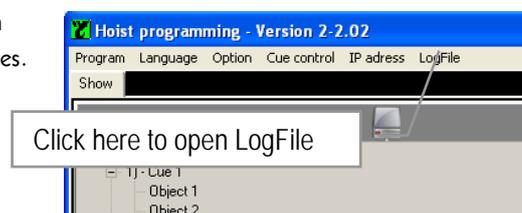
It is not recommended, but this safety features could be by-passed, for that purpose select the corresponding pocket and a warning will be given in the command field.



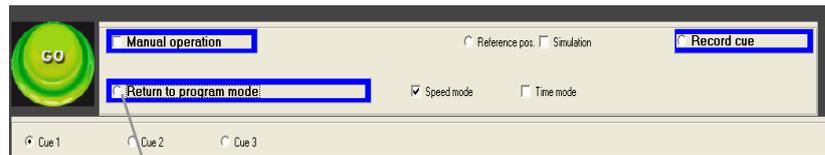
Log file:

This feature is still under construction. It contains feedback system information that may be useful for future developments and updates. It is for factory use only.

Programming mode



Being in the operating mode, click at the box in the lower command section of this page to return to the programming mode.



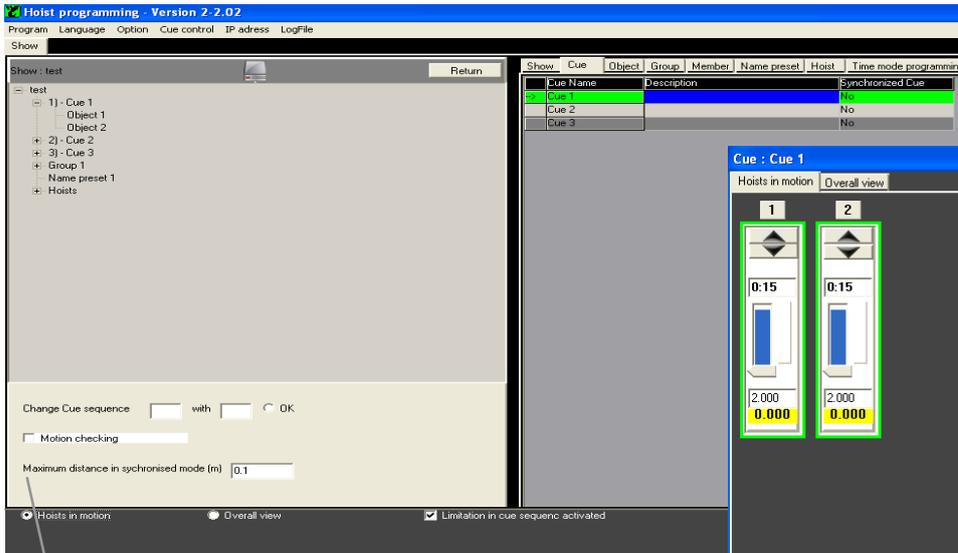
The programming mode is the main programming field where Shows, Cue's, Groups are created and all specific Cue parameters and conditions are defined.

Click here to return to program mode

etc.

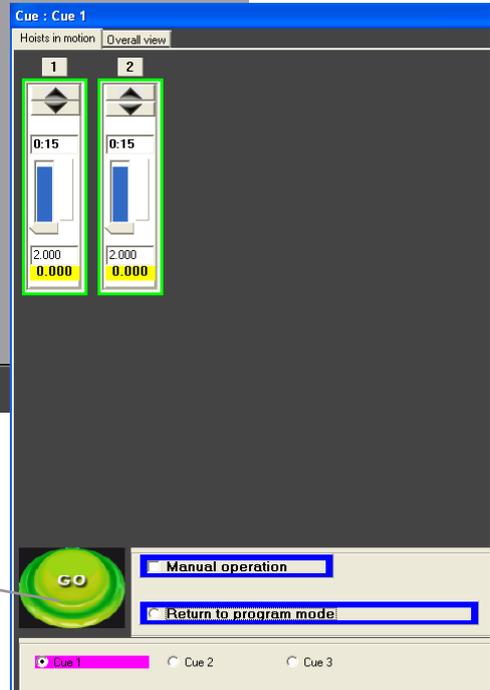
Operating mode

Click at the box Hoist in Motion once in the programming mode, to switch to the operating mode.



Click here to go back to operating mode

Current Cue indication



In the operating mode, the screen only will show the graphics of the Hoists that are part of the selected Cue.

Click on the box Overall view in the programming mode to go to a separate window.

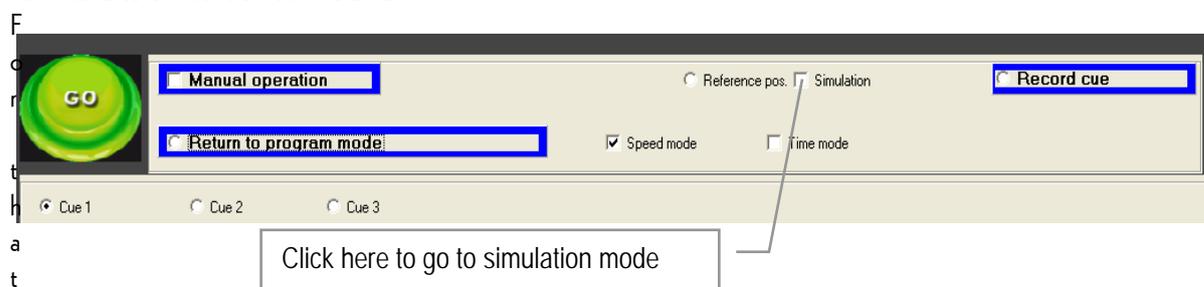
The overall view shows all available Hoist positions with their actual status.

Click on Movement in the upper corner to go back to operating mode.



Simulation

For simulation purposes, the operating desk CC48 or the individual lap top, could be used without being connected to the control rack R8CPU-VS.



purpose click on Simulation in the command section of the program mode.

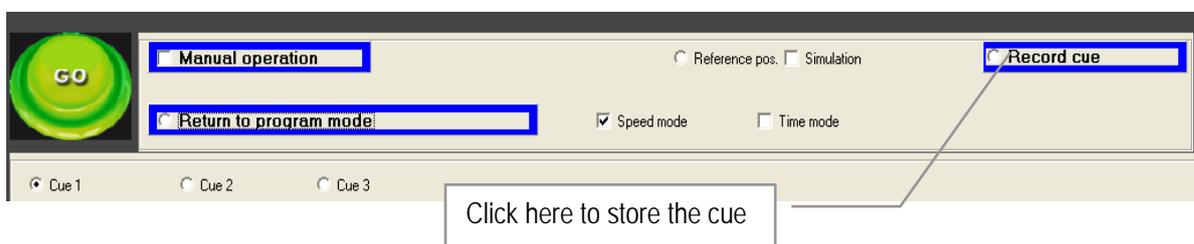
If TCP/IP address is still in active mode, a warning message will appear. Go to IP address and de-activate the address to continue operations in simulation mode. See section TCP/IP Address.

In the simulation mode you are able to program (blind) shows or familiarise yourself with the software completely independent of the racks.

Record Cue

For easy and fast programming use the Record Cue function. By clicking this box the current positions of the selected Hoists will be stored in the corresponding selected Cue. If the Cue already contained positions, these will be overridden after a warning message.

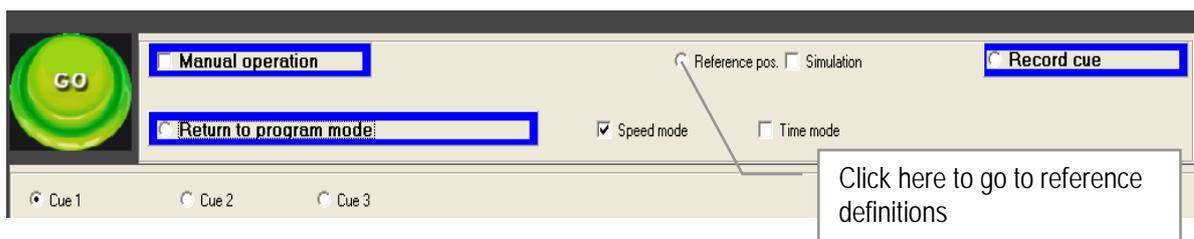
This function is not available in Simulation mode.



Reference position

This function provides the tool to set a zero position as reference between the position value's in the software and the reality on stage. Setting the zero position is the first thing to do after completion of the set-up, but before to enter or alter any Cue positions.

The reference position is a hook position towards a fixed point on stage, as such it is most essential to define it with accuracy.



Note:

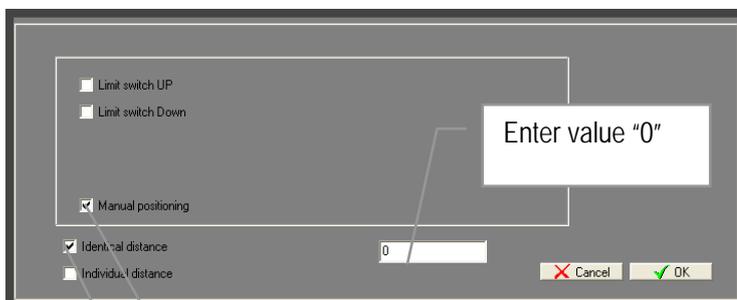
A falls or non adapted reference value might lead to life treating situations and may cause serious damage to the equipment.



Before to open the reference position folder, the program will ask you if you want to continue. If so, select Yes.

There are three possibilities to use as reference:

- Limit switch UP: in this case the position buffers will be reset to zero if this limit switch is activated. It is recommended to use this function only for permanent installations.
- Limit switch Down: in this case the position buffers will be reset to zero if this limit switch is activated. It is recommended to use this function only for permanent installations.
- Manual positioning: this is the most common way to set the reference position.



permanent installations.

Click here for manual reference

Click here for identical position

References could be set identical for all Hoists, or per individual Hoist. It is recommended to use the first option. In case "individual references" is selected, a table with Hoists will open and the reference value has to be entered for each Hoist.

See also Option Configuration Reference position, for alternative zero references.

Example of reference procedure;

- switch the controller to manual mode, lower all hooks till stage level.
- switch back to PC mode, select Reference position at Hoist in Motion page
- select OK on the pop-up screen to confirm
- select Manual positioning
- select Identical distance
- enter a "zero" 0 or any other value that is effective
- select OK to confirm

They operating mode will appear and all position indicators (lower display) will show the new reference. The reference will be stored in the rack memory.

Note:

Since the incremental encoder in the Hoist is considered as a relative value, the reference position might be subject of reset. It also needs to be reset if Hoist has been moved to another height or location, as well as when the Hoist has been activated without being connected to the controller.



Recommended limit levels and software operation area

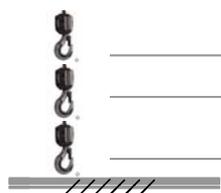


Under side hoist

0.2 m upper hardware limit *)

0.1 m upper software limit

0.1 m max. upper software position



+ 2.1 m max. lower software position

+ 2.2 m lower software limit

+ 0.1 m lower hardware limit *)

- 0 stagelevel

*) to be set on the hoist

Note:

It is recommended to use a reference value outside the operating area and limit switch positions. See diagram. If the used reference value is not zero "0", be ware to enter the value in meter.



Note:

In some cases there will be an extra emergency limit set between upper hardware limit and Hoist body level. Be sure to respect a descent distance (min. 0.3m) from the emergency limit to avoid un wanted activation.



If Individual Hoist reference setting is required, use the following procedure:

- select Manual positioning
- select Identical distance
- enter a "zero" 0 or any other value that is effective
- select OK to confirm

Click here for manual reference

Click here for identical position

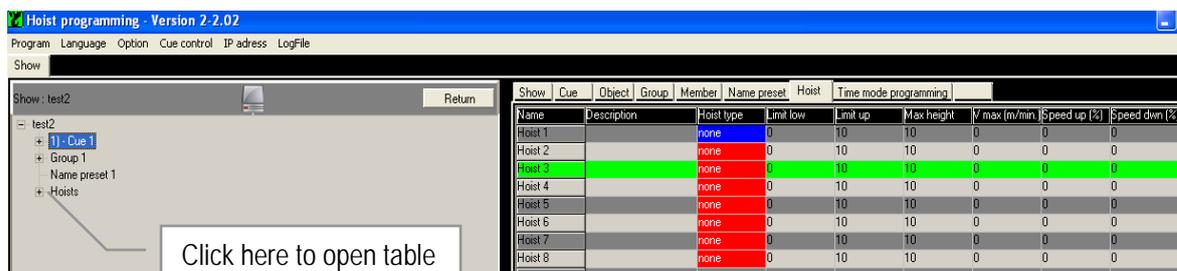
Hoist	Height
Hoist 1	0
Hoist 2	0
Hoist 3	0
Hoist 4	0

Enter the value for each Hoist individually

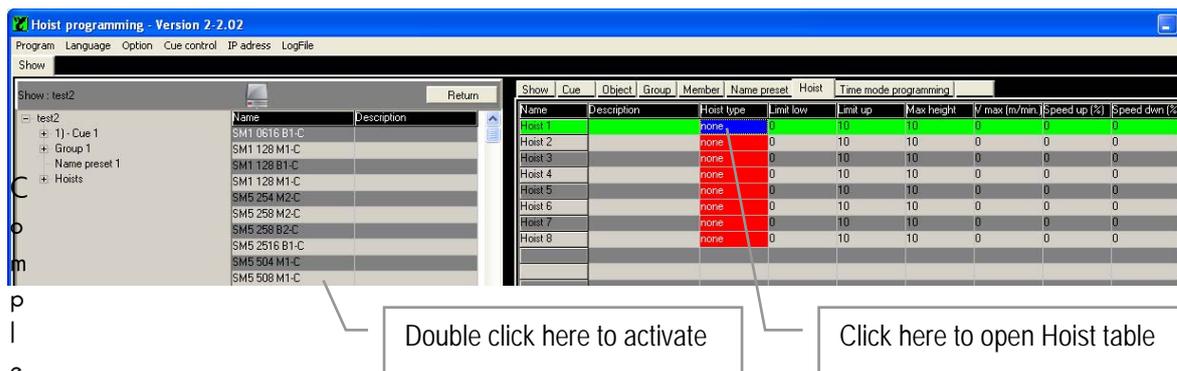
Hoist Initialisation

From the Hoist type list created under Option Configuration Hoist range, Hoists need to be selected and patched with the Hoist appointed to a Cue or Group once a new Show has been created.

Select the new Show and click on "Hoist" in the tree at left side to open the Hoist list.



Click in the column Hoist range on the box of your choice to open the list with different Hoist types on the left side. Select the Hoist type that corresponds to your Hoist (see name plate on the Hoist) and double click on the box behind the type code. Your selection will now appear in the Hoist range list.



Complete the list by entering the software limits for Up and Down as well as for the safety limit Max. Height related to the Show location. Keep in mind that the Hoist has also a mechanical safety limit switch that should be adjusted with the lifting hook for Upper position as well as the chain stopper for Lower position at minimum 0.2m from the Hoist body. The "Max. Height" setting is an additional safety limit and should be set between upper limit switch level and upper software limit.



These given values might be subject of change as they are depending on type of mechanical limit switch applied. A proper setting is essential in order to avoid interference of these safety devices during normal operations. The operational software limit could be set at any convenient position with a minimum of 0.1m from the Max. Height position.

The speed in the last column will be given automatically once the Hoist type selection is made. In the column Vmax/min. You can enter a value lower than the rated hoist speed. This value overrides the rated speed and will be used as All

Note:

This procedure is linked to a Show and has to be done for each new Show as Hoist types could be different from case to case. However if you have only one type of Hoist in your fleet, we advise you to create a Blanc Show in which all the Hoist of your fleet are identified once. This Blanc Show could be copied and used for each new Show as a basis.



Note:

In case less than eight Hoists are connected to a rack it is important to start with the first, second etc channels. If one channel is out of order, random connection is possible, but only when all eight channels are patched with an Hoist.



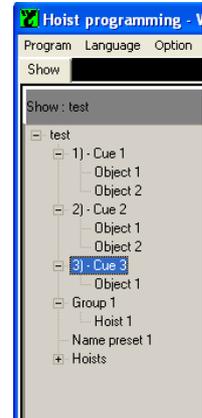
PROGRAM TOOLS & DEFINITIONS

The program has a three architecture, starting with a Show, Cue, Object, Group and Group member. The different program steps defining a Show, the creation of Cue's with its Objects (Hoists or Group of Hoist), Group definition and assignment of Group members, all has to be done first before to be able to create any kind of programmed action.

Show

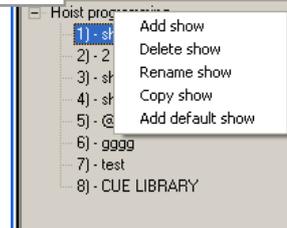
A Show is the combination of all pre-programmed sequences of motions for an event whatever this may be. To create a new Show, click right mouse button on "Hoist Programming" at the top of the three and select the Add Show option from the menu that appears.

Enter the name in the activated field and confirm OK.



To Delete, Rename or Copy a Show, select the corresponding Show and click with right mouse button to open the Show menu. Make your selection, apply the corresponding changes and confirm action.

If the Copy function has been chosen, click right mouse button on "Hoist Programming" again to open the Show menu. Select Paste Show, give the new show a name and confirm action.

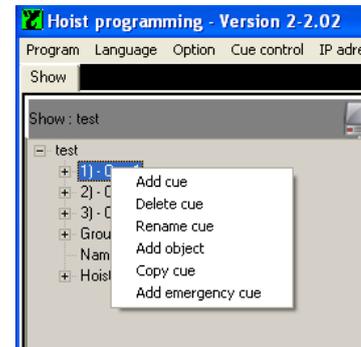


Cue

A cue is a Group of pre-programmed sequences of motions. Any number of Hoists can be combined under a cue. In a cue a single Hoist or a Group of Hoists are defined, each to go to their target position when the cue is started.

To add a Cue, select the Show in which the Cue has to be added, click left mouse button to open the Add.. menu and select Add Cue. Enter the name in the activated field and confirm OK.

To Delete, Rename, add Object or Copy a Cue, select the corresponding Cue and click with right mouse button to open the Cue menu. Make your selection, apply the corresponding. If the Copy function has been chosen, click right mouse button on the selected Cue again to open the cue menu. Select Paste Cue, give the new cue a name and confirm action.



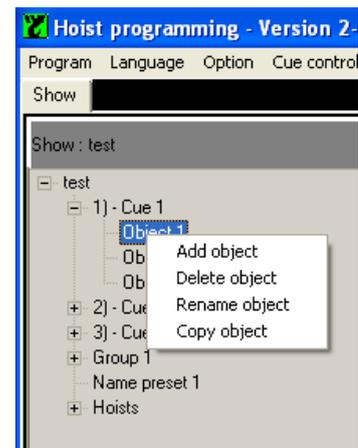
Object

An object is a part of a cue and represents a single Hoists or a Group of Hoists. The object is assigned to a random position or a pre-set position from the pre-set list. Within the cue objects are able to start at different moments using the time delay function.

To add an Object to a Cue, select the first Object in the Cue in which the New Object has to be added, click left mouse button to open the Object menu and select Add Object. Enter the name in the activated field and confirm OK.

To Delete, Rename, d Object or Copy a Cue, select the corresponding Cue and click with right mouse button to open the menu. Make your selection, apply the corresponding changes and confirm action.

If the Copy function has been chosen, click right mouse button on the selected object again to open the object menu. Select Paste Object, give the new object a name and confirm action.



Group

A Group consists of minimum two Hoists called members. Working with Groups has the advantage that programming or alterations in positions are made simultaneously for all Group members in once.

There are two different type of Groups available:

- Independent Group (non conditional Group)
- synchronous Group

A loose Group is a number of single Hoists defined as Group. This may simplify the programming and the operation. Instead of clicking at each individual Hoist when Hoists are not defined as Group, activation of all the Hoists in the Group is effected by one single click. The Group transfers the commands to the individual Hoists.

There is no mechanical link between two individual Hoists, so it remains possible to add or retract an Hoist from the Group at any time. Even during the run of a cue, an single Hoist could be stopped while the rest in the Group continues to their target positions.

If the Group is defined as synchronized, safety features of the individual members are interlocked. If one stops, they all stop.

A show that is built together using just Groups, meaning even single Hoists are configured as Groups, remains flexible in set-up and modifications. Groups could be easily modified or transferred from rack no.1 to rack no.2 etc. This avoids a lot of changes at Cue level with all its details.

In a non conditional Group the end position could be the same for all the Hoists.

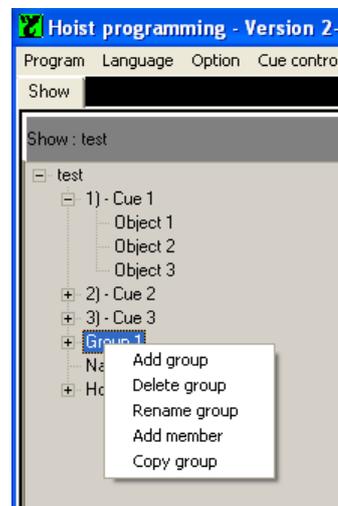
To create a Group, select the Show in which the Group has to be added, click right mouse button to open the Group menu and select Add Group. Enter the name in the activated field and confirm OK.

To Delete, Rename, or Copy a Group, select the corresponding Group and click with right mouse button to open the menu. Make your selection, apply the corresponding changes and confirm action.

If the Copy function has been chosen, click right mouse button on the selected Group again to open the Group menu. Select Paste Group, give the new Group a name and confirm action.

Note:

Because of required speed regulation (with variable speed Hoists only), in this mode it is not possible to run at full speed. Electric limits Up/Down remain active at single Hoist. Safety related functions like Emergency limits, over- and under-load remain active for the Group.



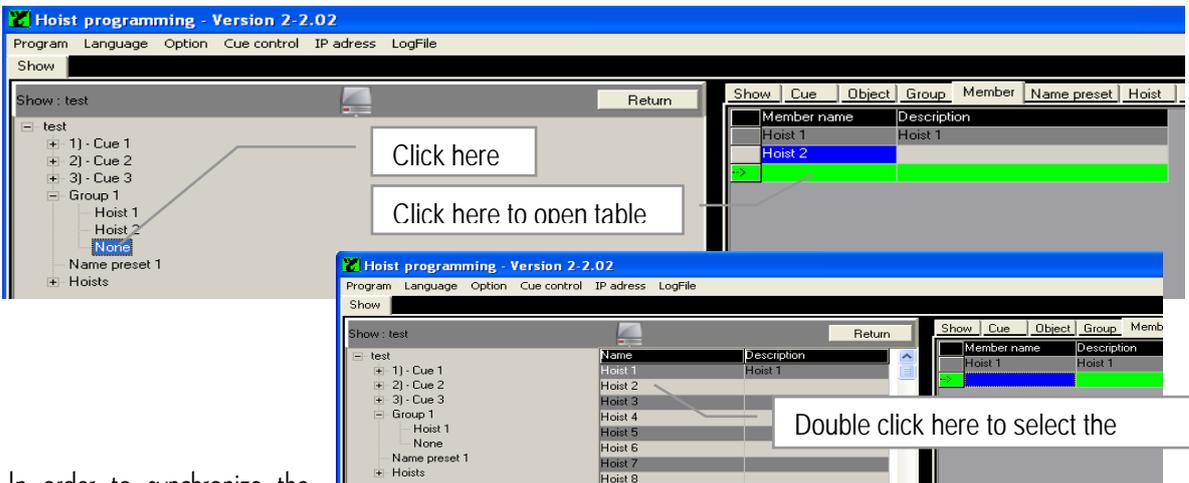
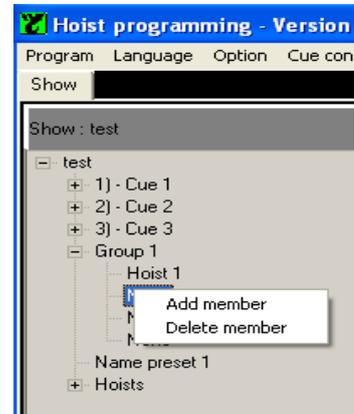
Members

A Group is the combination of several individual Hoists called members. Once a Group has been created, the members have to be appointed.

To add a member, select the corresponding Group and click with right mouse button to open the Group menu. Select Add Member and give the new member a name and confirm action.

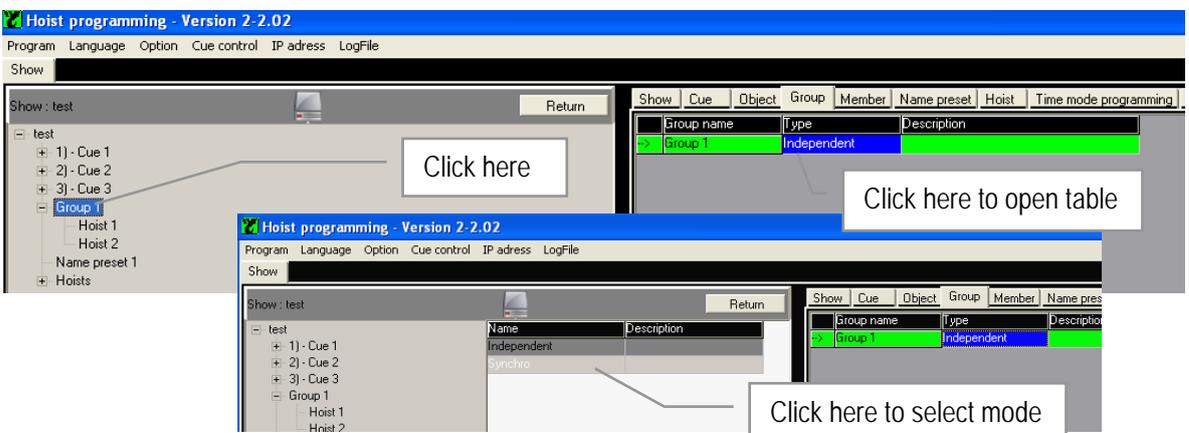
To add another member, or to delete one, select the corresponding member and click with right mouse button to open the Member menu. Make your selection, apply the corresponding changes and confirm action.

Once the members are created, then Hoists have to be assigned to a member position. Click on the empty box indicated in the green line to open the list of Hoist. Double click on the Hoist of your choice and the name appears in the box.



In order to synchronize the members of a Group, Click on the Group in the tree, than at the corresponding box in the "Type" column at the left side to open the selection menu.

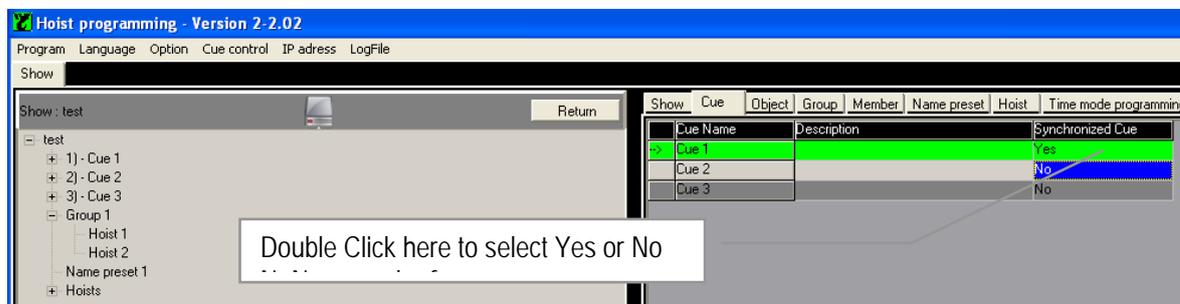
The standard mode is "Independent", select to change in to Synchro by double click at the corresponding box.



Synchronisation:

The Hoists (object) or a Group of Hoists within a Cue could be defined as Synchronised or Loose.

Select the Cue and double click in the pocket behind the selection in the column Synchronised Cue to activate No for non synchronised or Yes for synchronised mode.



- Synchronised mode: the Hoists are kept synchronised in actual positions as well as in time to reach the target position.
- Non synchronised mode: the Hoist are arriving in the same time at the target position, eventual each in different speed.

Note:

This feature is only valid for Hoists with variable speed.

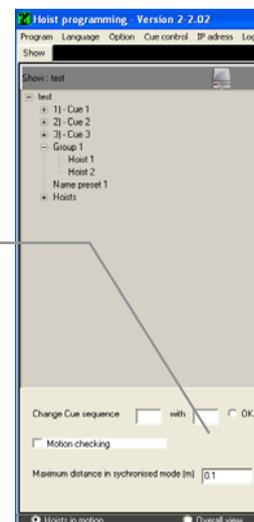
Synchronisation during the acceleration time is not possible. In the event of substantial load differences the distance between the Hoists therefore might be slightly out of synchronisation tolerance during this short period. However this will be compensated once the acceleration time is passed provided the synchronisation mode is selected.

It is advised to activate the synchronisation mode in all cases where multiple Hoists carrying one ridged object.



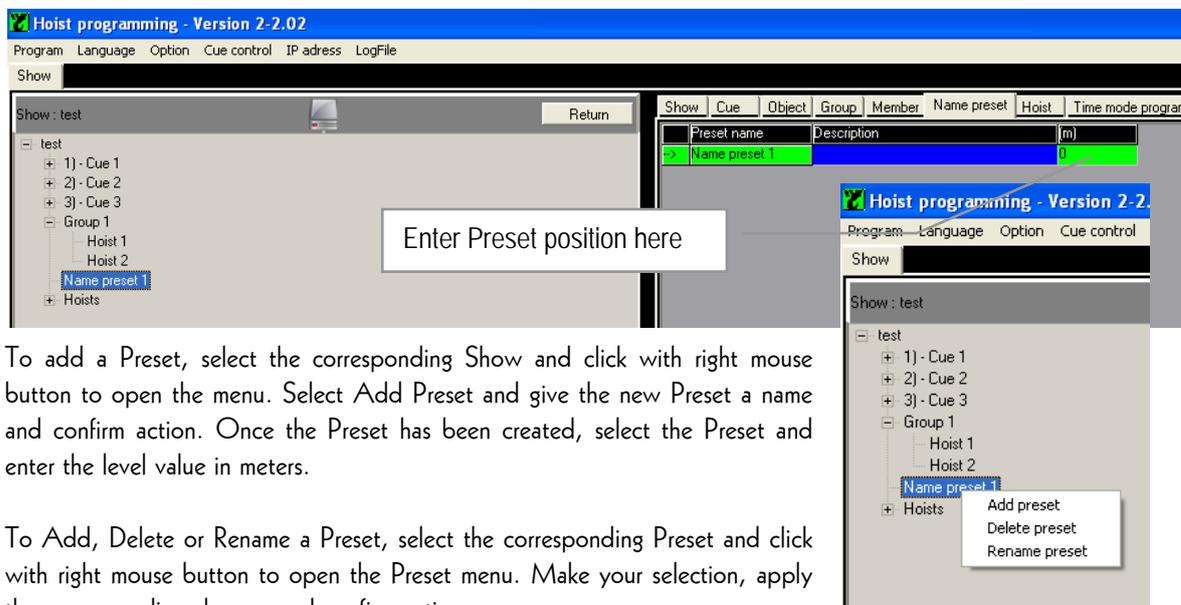
Enter the required synchronisation tolerance in meter. Beware that A proper correction can't be achieved if the value is to small in relation to the acceleration time.

Enter tolerance here



Presets

A Preset is a programming tool that can help you to improve the speed of programming. It is a pre-programmed target position. Using pre-sets in a cue instead of individual random settings, does have the advantage that whenever an identical target positions in all cue's has to be changed, all Hoist with the same target position are modified in one pre-set change action. This instead of modifying all the individual details at Hoist level.



To add a Preset, select the corresponding Show and click with right mouse button to open the menu. Select Add Preset and give the new Preset a name and confirm action. Once the Preset has been created, select the Preset and enter the level value in meters.

To Add, Delete or Rename a Preset, select the corresponding Preset and click with right mouse button to open the Preset menu. Make your selection, apply the corresponding changes and confirm action.

Hoist

In important part of the initial settings is the definition of the operating area , the maximum height, the operational distance, reference position and eventually the maximum speed. This needs to be defined for each individual Hoist in each show.

For further details see Hoist Initialisation.

MANUAL OPERATIONS IN REMOTE MODE

In this mode, the R8CPU controller has to be connected with the operator's desk CC48.

1. First connect the Hoists to the rack. Double check the connectors for a secure fit. Each Hoists needs to be connected with the controller through a 16p / 16Amp multi connector.
2. Connect the RJ45 patch cables, one from each rack to the operating desk CC48. If more than one rack is in use, and the operator's desk is not in the immediate location as the racks are, an intermediary hub might be used to limit the number of patch cables.
3. Set the ID of each rack in the correct mode, starting with 1 for rack 1, rack 2 – 2 etc.
4. Connect by means of the link cable, the OUT plug on the operator's desk CC48 with the IN plug on the rack. Close the safety circuit by plugging the blind plug on the OUT position of the rack. If there are more than one rack's, connect each time the IN and OUT plugs and close the loop with the blind plug. (See diagram)

Note:

The link cable(s) and blind stop provides a hard wired connection to secure the safety functions E-stop and Dead-man's button. Without the link cable(s) and blind plug properly connected, the controller(s) cannot be switched on.



5. Ensure that the all circuit breakers at the back of the rack's are switched to ON.
6. Connect the rack to the main supply (CEE 32 Amp 3x400V-Gnd+N), whereby the main-switch must be set to the OFF position with each new commissioning. The red power LED lights as soon as power is applied to the rack.
7. Check the phase sequence and reverse if necessary. For this purpose, simply rotate the satellite with two poles in the CEE plug, using a screwdriver. By exerting light pressure on the recess until the lock releases to enable the satellite to rotate.
8. Press the ON button to activate the main contactor and to power the rack. In case of multiple racks, only one ON button has to be pressed. For testing purposes, the Emergency Stop button must subsequently be actuated once and release.

Note:

When switching ON, or after the reset command, the system runs an internal safety routine check program. The red Local / PC LED as well as all channel indicator LED's lit shortly. The system is ready for operation once the in PC mode the LED Local goes off.



9. Set the rack mode switch to Remote and select the direction of the Hoist (s) using the Hoist pre-set switches.
10. Set the speed selector at the lower speed range (fader down) and push the RUN button to activate the Hoist(s) pre-selected. Adapt the speed to the operating circumstances using the fader up or down wards whilst pressing the RUN button.

Note:

Before to arrive on the point to stop, reduce the speed using the speed regulator, fader downwards. If the RUN button is released and de speed is not lowered before to reach the point to stop, the motion will come to an immediate stop instead of a controlled stop.



11. Start the Laptop and open the Windows XP program; click on the Verlinde program Icon at the desk top and enter name and password. The factory setting for both name and password is "admin" to start with.



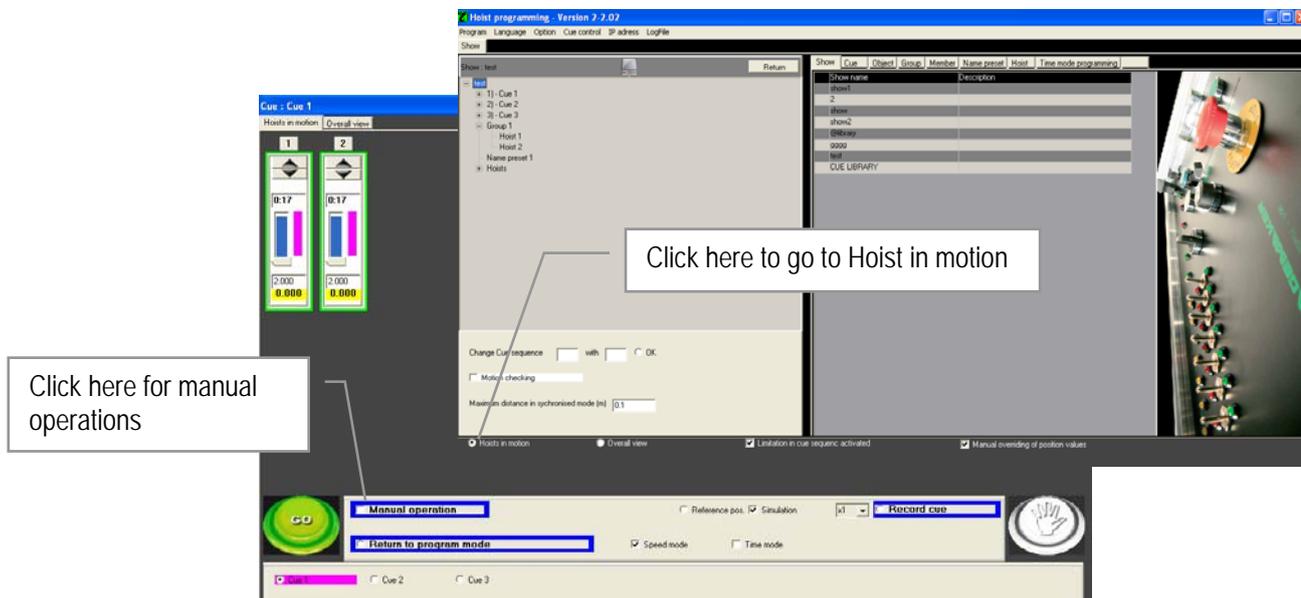
Click on the box to confirm that good notice is taken of all "Notes on Safety" as mentioned in the Hoist and controller manual. The start up procedure won't proceed if this confirmation is not made.

Note:

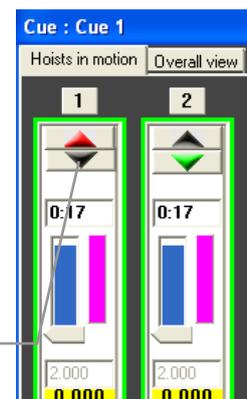
Reading carefully "Notes on Safety" as well as all notes marked  as such, is essential as to avoid eventual damage to material and / or individuals.



12. Open the over view page by clicking on “Hoist in Motion” button on the program page. Select Manual operation.



13. Click once on the arrow ▲ Up or Down ▼ of the corresponding Hoist(s) to select the motion. The selected arrow turns in to green ▲ Up and red ▼ for down when activated. Select the same button again to deselect. If all connected Hoists have to go Up or Down, press F4 and then select Up or Down on just one Hoist. To deselect all follow the same procedure. In case of Groups, the members always will be selected by pointing just one out of the Group.



14. Press the ● blue Dead mans button on the operators desk, keep it pressed, click on START and click on GO to start the motion. Click again on green ▲ Up or red ▼ down to de-select and stop the motion. Release the blue Dead mans button once the motion has come to a complete stop.



15. Use the Joy-stick to select the speed suitable for the operation of that moment. Adapt the speed to the operating circumstances pressing the stick more or less forward whilst pressing the ● dead mans button or the little button on top of the joy-stick. This option is only effective in combination with variable speed Hoists

Note:

Once the "GO" command is given, the Hoist starts moving in the chosen direction at the minimum speed. With the joy-stick, the speed is affected from minimum to maximum speed. It doesn't control the speed from zero.



Note:

Before to arrive at the point to stop, reduce the speed using the fader on the rack or the joy-stick on the desk. If the ● dead mans button is released and the speed is not lowered before to reach the target position, the motion will come to an immediate stop instead of a controlled stop. Depending of load, speed and intensity of use, this may cause the inverter to trip. If so switch off the power to the Hoist and restart. .



PROGRAMMING A SHOW

Before to start the programming, be sure that the Hoists connected to the system matches with the selections made. See also Initialisation of Hoists op pagina 33. The next step to take is the creation of a new show, next define and create the number of Cue's within this show. Create and define Groups, Group Members and Objects.

In case of Groups don't forget to define the Group to be Synchronised or not, see op pagina 35.

See also section Program tools & Definitions op pagina 35, how to create a show, a cue and objects.

Once the show with it's Cue's and respective Objects are defined the remaining thing to do is to enter the Object details, like position, timing, ramps and speed.



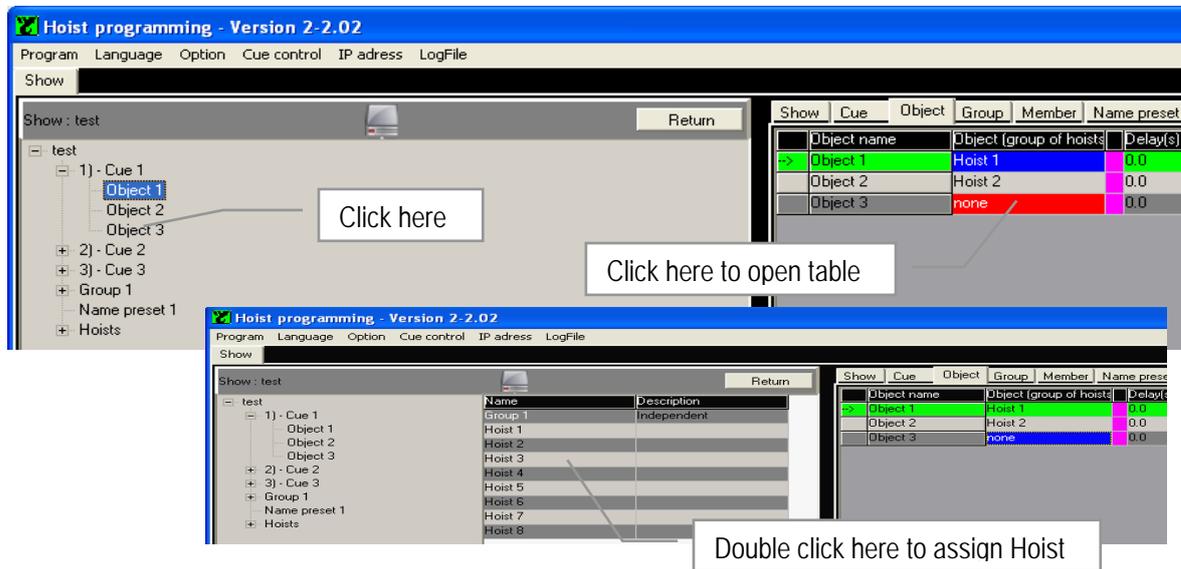
Object details and patching

Objects are to be pre-defined as an single Hoist, or could be also a Group of Hoists. In that case the Group with its members (Hoists) should be defined first. See also section Program tools & Definitions **Fout! Bladwijzer niet gedefinieerd.** how to create a Group.

Select the Cue (Scene) double click in the three to open the table.

Single Hoist patching:

Select the Object from the cue and click in the corresponding pocket in the column Object to open the selection table.



Double click in the Hoist box of your choice to patch the Hoist or the Group with the Object.

Group patching:

Before to define an Object as Group the Group must be created and members assigned to it. See section Program Tools & Definitions op pagina 35 how to create a Group.

Select the Cue in the tree, double click to open it and click on the Object of your choice to view the details on the right side of the page.

Click on the pocket behind the Object of your choice in the green line to open the list on the left side and assign the required Group from the list to Object by double clicking in the corresponding box.

The screenshot shows the 'Hoist programming - Version 2-2.02' interface. On the left, a tree view shows a cue 'test' containing objects 'Object 1', 'Object 2', and 'Object 3'. A callout box points to 'Object 3' with the text 'Click here'. On the right, a table lists objects and their assigned groups. A callout box points to the 'Object 3' row with the text 'Click here to open table'. Below this, a second screenshot shows the 'Object 3' details window with a table of available groups. A callout box points to the 'Group 1' row with the text 'Double click here to assign Group'.

Object name	Object (group of hoists)	De
Object 1	Hoist 1	0.1
Object 2	Hoist 2	0.1
Object 3	Group 1	0.1

Click on the Cue in the tree to close the window.

If not already done, the Group must be defined as Synchronised or Loose. See also Program Tools & Definitions section Groups op pagina 35.

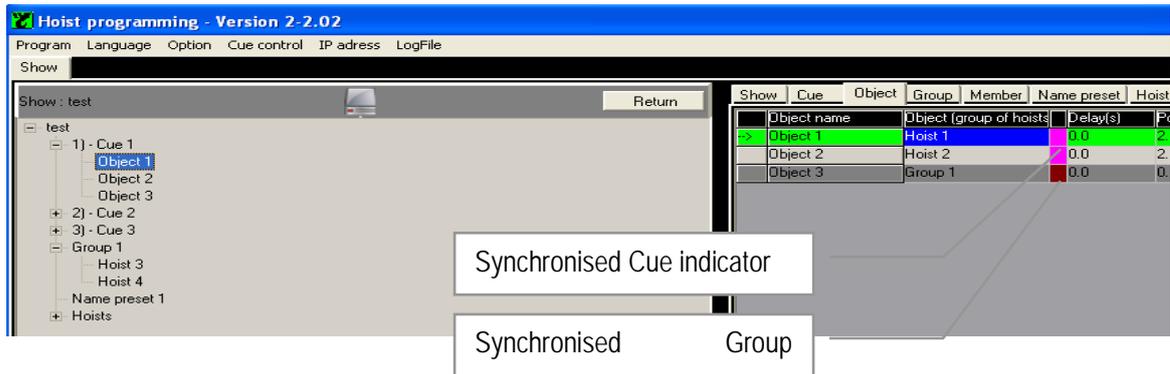
Click on the Group in the tree, than at the corresponding box in the "Type" column at the left side to open the selection menu. The standard mode is "Independent", select to change in to Synchro by double click at the corresponding box.

The screenshot shows the 'Hoist programming - Version 2-2.02' interface. On the left, a tree view shows a cue 'test' containing a group 'Group 1'. A callout box points to 'Group 1' with the text 'Click here'. On the right, a table lists groups and their types. A callout box points to the 'Group 1' row with the text 'Click here to open table'. Below this, a second screenshot shows the 'Group 1' details window with a table of available types. A callout box points to the 'Synchro' row with the text 'Double click here to select'.

Group name	Type	Description
Group 1	Synchro 1	Independent

Click on the Group in the tree to close the window.

If the Objects in a Cue are synchronised, they are marked with a colour. Different colours are used for Objects representing Hoists or Groups.



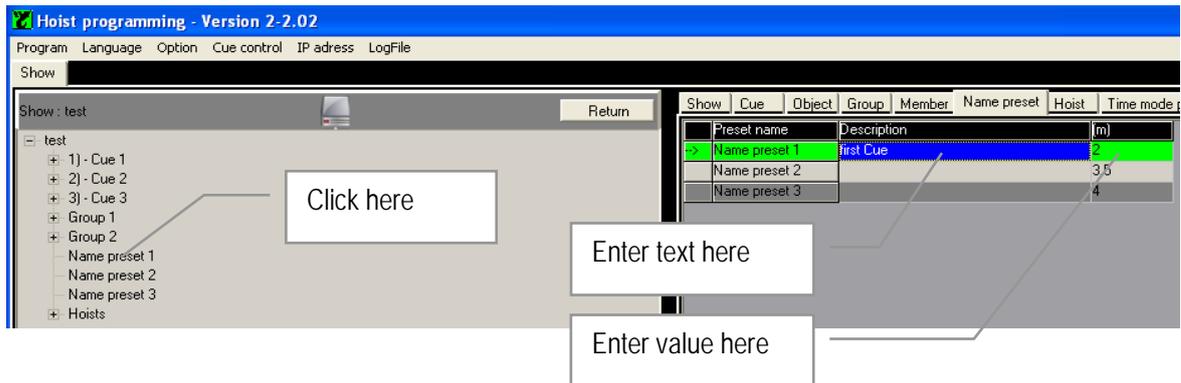
Note:

It is not possible to synchronise individual Hoists with one or more Groups, or Groups among each other.



Preparing Presets:

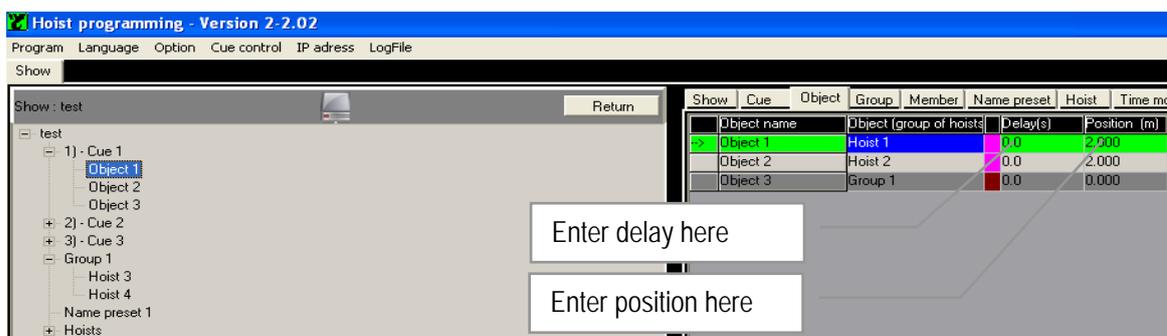
Create upfront as many Presets as may needed. See also Program Tools & Definitions section Presets op pagina 35. Click on the Preset to open the Preset table. Add comment in the description box to identify the Preset and enter the Preset position in the last column. (Value's in meter, use point as decimal)



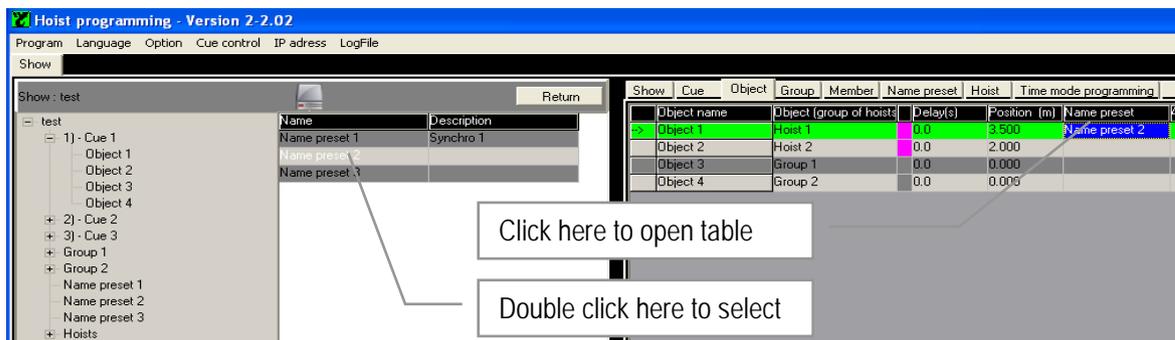
Building a Cue:

Once the Objects are defined as individual Hoists or as Groups with dedicated members (Hoists) and Presets are set, all elements are present to configure the Cue after these have been defined in the Show. See also section Program tools & Definitions how to patch Objects to a Cue on pagina 35 and on pagina 46 for Groups.

1) Specify a time delay in the column "Delay" if desired and enter the target position, or select a Preset.



To use a Preset, click in column "Preset" on the empty box to open the list of prepared Presets on the left side. Than double click to assign the Preset to the Cue. The Preset position will appear in the column "Preset" and the corresponding value in the column "Position".



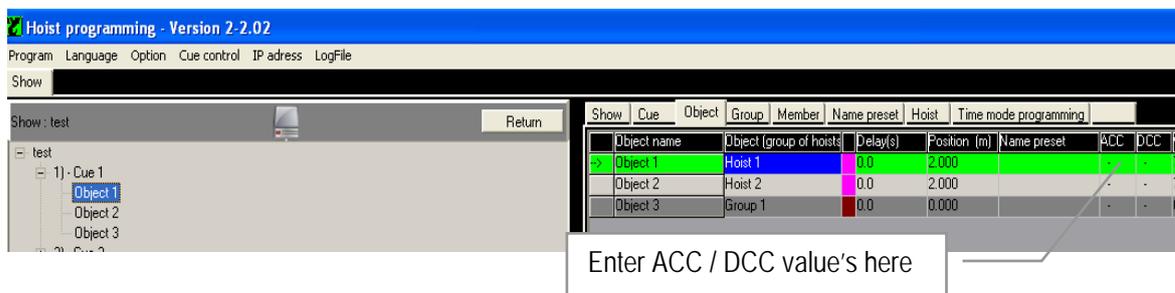
Note:

A selected Preset will override the value in the corresponding box, if one was entered before.



2) Alter acceleration ACC and deceleration DCC if the application requires an adapted, more smooth, starting or braking ramp effect. The value entered should be one on the scale of 1 to 10. The effect is related to the speed and represents the ratio between 1 for minimum influence where 10 stands for maximum sloop. This effect is added on top of the default setting of the inverter on the Hoist, which are set as ACC 1.5 and DCC 0.5 second.

ACC and DCC values are only valid for hoists with variable speed.



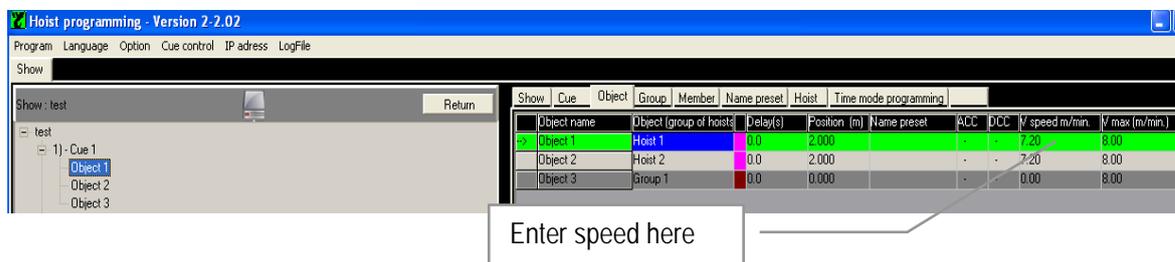
Note:

If ACC setting is relative long in relation to the speed, the target position may be overridden for a short distance, yet will be corrected immediately before to come to a stop. This may cause a collision if target position is close to any kind of structure or object below.

If so, double check these limitations and adapt the ACC value to avoid inconveniences.



3) Enter a speed value adapted to the application in column "V speed". The last column shows the maximum speed being the rated speed of the Hoist type selected. This only valid for hoists with variable speed. See also Hoist Initialisation op pagina 35.



Note:

If the synchronised mode is selected, the speed cannot be more than 90% of the maximum speed, this to allow the system to correct speed discrepancies. Synchronised Hoists are marked with a purple pocket.



Note:

In time mode with a relative high speed over a relative short distance (approx. 1m), the target position may be overridden for a short distance but will be corrected immediately before to come to a stop. This may cause a collision if target position is close to any kind of structure or object below.

If so, double check these limitations and adapt time or distance to avoid inconveniences.



Live Cue building

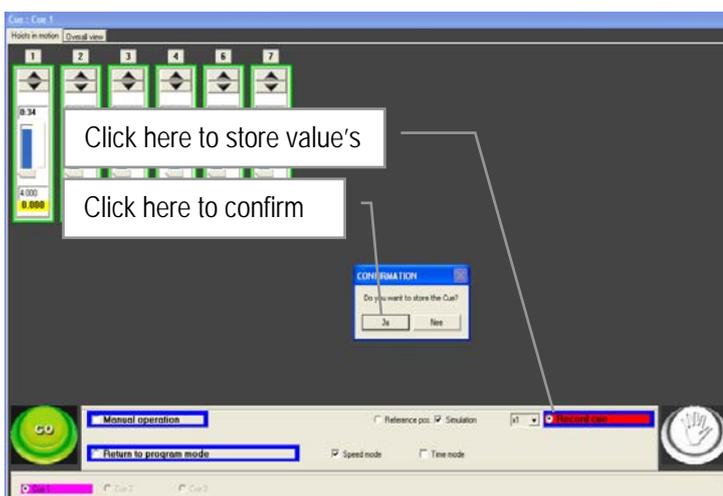
For an alternative and easy Cue programming method proceed as follows:

Set mode switch at the controller in Manual mode and place the Object (Hoists or Group of Hoists) in the required position using the toggle switches on the R8CPU controller for Hoist Up or Down selection and the RUN button to start the motion.

In case of Hoists with variable speed, the speed could be affected using the speed fader.

See also Manual Operations in Local mode op pagina 35.

Switch back to PC mode select a CUE, or create a new CUE, in which to store the actual position. The CUE should already contain the number of Hoists that are manually selected. Click on the "Record Cue" button in the command field to store the Hoists positions and confirm if O.K.



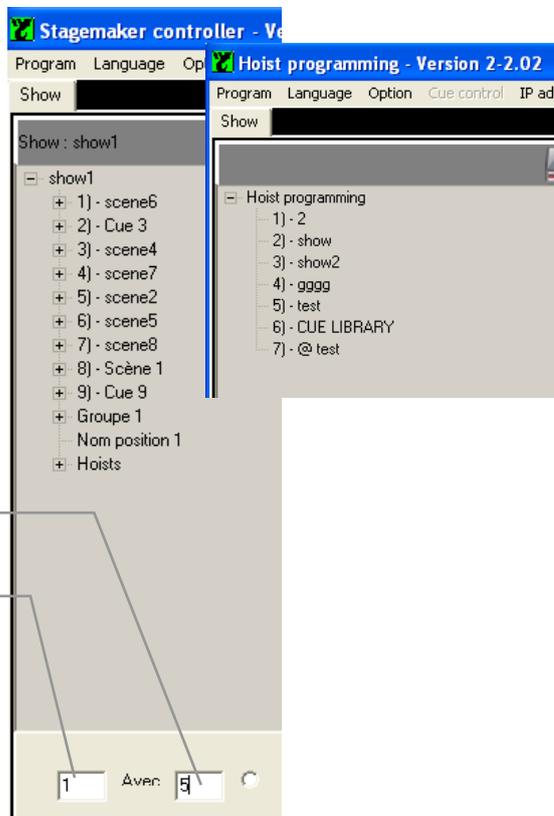
Using the Record Cue button, see also System Initialisation & Operating Tools section Record Cue op pagina 35, it is possible to define and record all Hoist positions of that moment in once.

In particular for multi point suspended objects this feature is a valuable programming tool.

Show or Cue sequence change:

All Shows and Cue's do have a sequence number. The position in the tree list could be changed. Type in the first box the number of the Show or Cue that is to be replaced, Type in the second box the position to go to and confirm to click on the box.

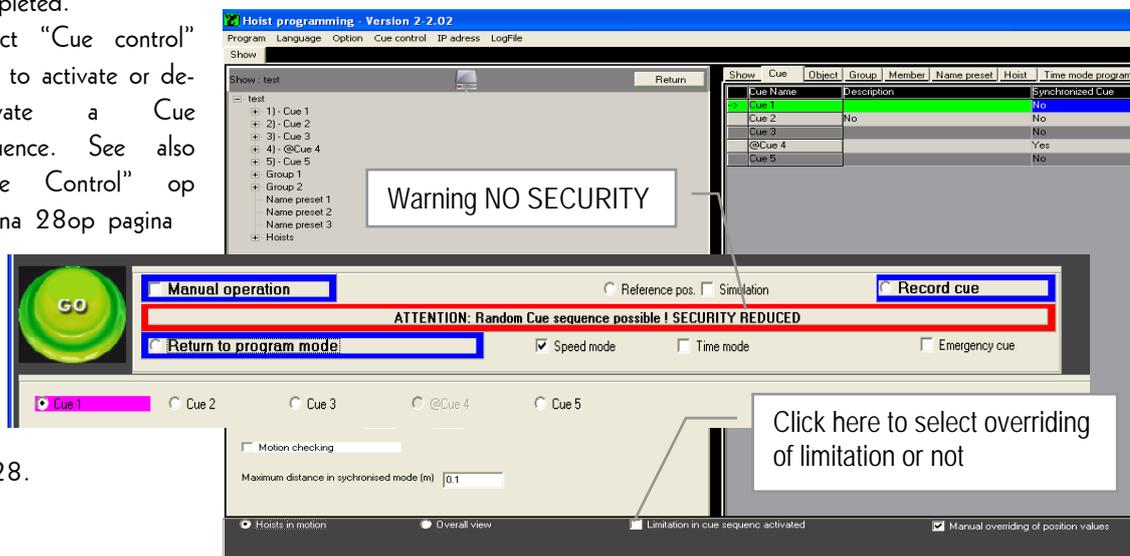
It is not possible to insert a Cue in between to existing Cue's. In order to insert a Cue, a new dummy Cue has to be created first and all cues must be exchanged one by one afterwards.



Cue sequence and progress limitation:

If "Limitation in Cue sequence" is activated, It is not possible to select a next Cue before the previous one is completed.

Select "Cue control" tab, to activate or deactivate a Cue sequence. See also "Cue Control" op pagina 28op pagina



3528.

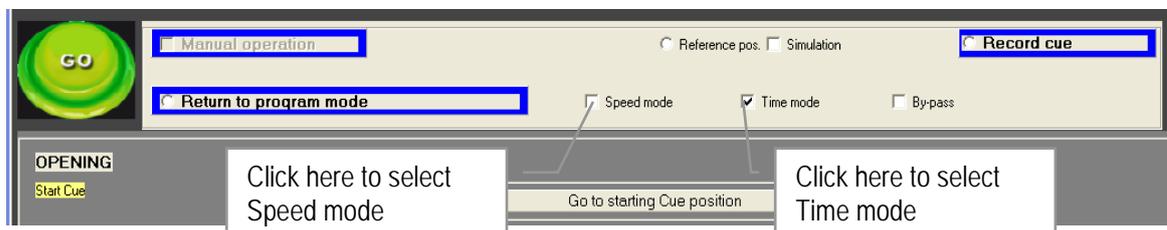
Click here to select overriding of limitation or not

Be aware that if "Limitation in Cue sequence" is not activated, any random Cue selection is possible and sequence protection is overridden. Each hoist may proceed to go to it's next Cue position wherever it is at that moment, no matter the previous Cue is ended or that motion is feasible or not.

In stead of selecting the "Limitation in Cue sequence" button, one also may us the F5 button on the key board

Speed Mode and Time Mode

The program allows you to run a Cue either in Speed Mode or in Time Mode.



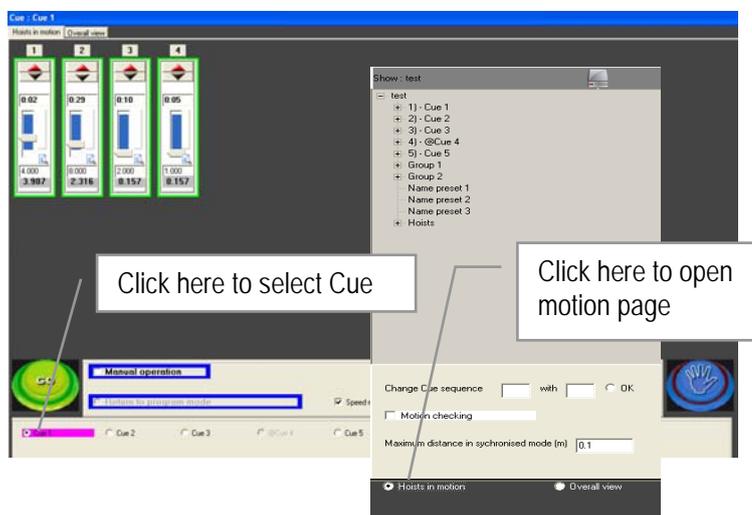
Speed Mode:

In Speed Mode, the object, hoist or groups, goes from its starting point to its target position in a fixed speed. The duration of the Cue therefore is related to the speed and the distance.

Speed Mode procedure:

Select your Show from the tree in the first field after program start-up. Select Hoist in Motion, select the Cue to run, press the blue dead mans button and press Go to execute the Cue.

Once finished select the second Cue etc.



Note:

In Speed mode Hoist(s) or Groups may not arrive in the same moment as travelling time is depending on the speed and distance. Second, the hoist will try to reach the programmed speed even when the distance is relative short, which in case of multi point suspended objects, may generate dynamics resulting in to swing effects or unwanted behaviour of the object.



Time Mode:

This mode allows you to specify the time in which a Cue has to reach its target position. The speed of the Hoists will be automatically adapted and optimised to the distance taking the ramps for acceleration and deceleration in to account.

Using the synchronized option, Time Mode optimises the motion no matter the individual distances, all hoists are approaching the target position in the same speed and with the same ramp and minimum tolerance on accuracy. Eventual speed differences due to asymmetric load pattern are already compensated and corrected by the start.

Time Mode allows you to link Cue's, and run a Cue list, with or without a time delay between the Cue's.

Note:

Since objects in Time Mode are running time synchronic instead of position synchronic, one has to beware of eventually slack chain that might occur if substantial asymmetric load patterns are at stake in combination with very short travel distances.

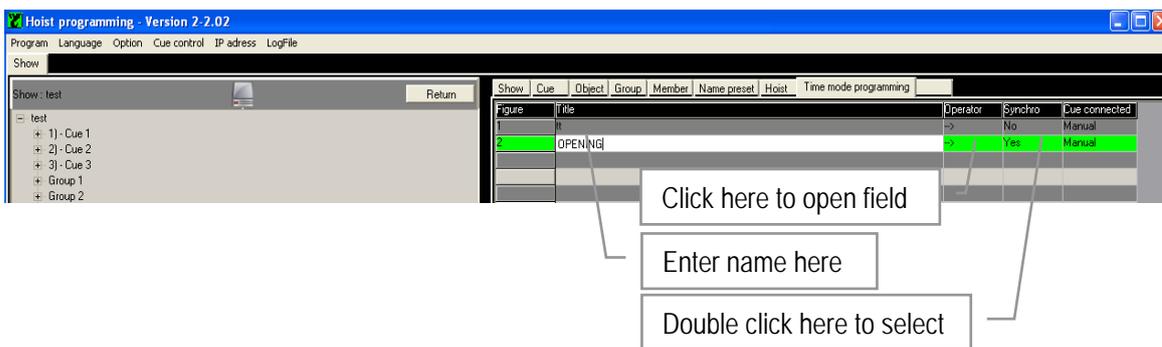


Time mode procedure:

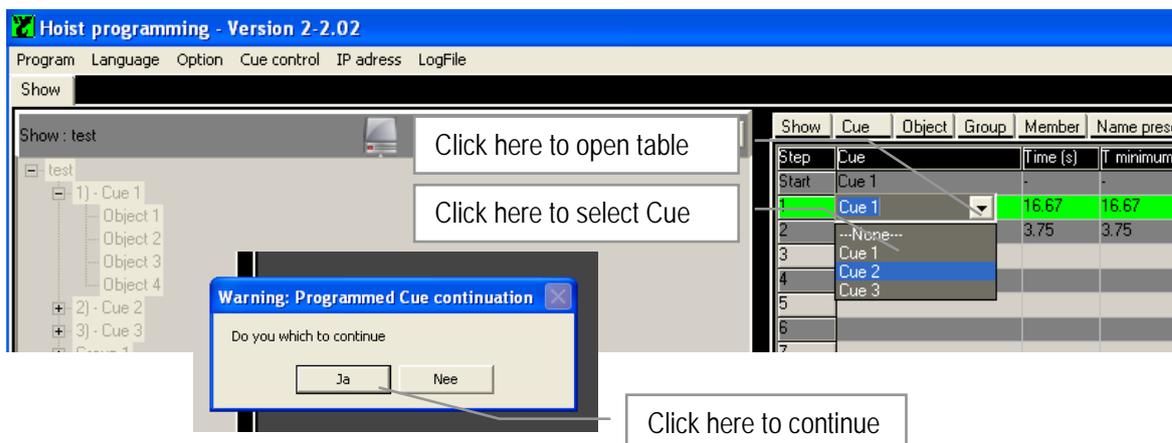
1) Click at the show of your choice to open the program tree, and click on the "Time Mode programming" tab to open the Time mode list.



2) Enter a reference or give the effect a name in the Title field. Double click in the column Synchro to activate Yes for synchronised operations in time mode, or No for non synchronised operations in fixed speed mode. The option Yes for time based operations is not available in case of Hoists with fixed speed. Select Manual or Automatic in the last column Cue connect, if the next Cue in sequence start after manual command or automatically.

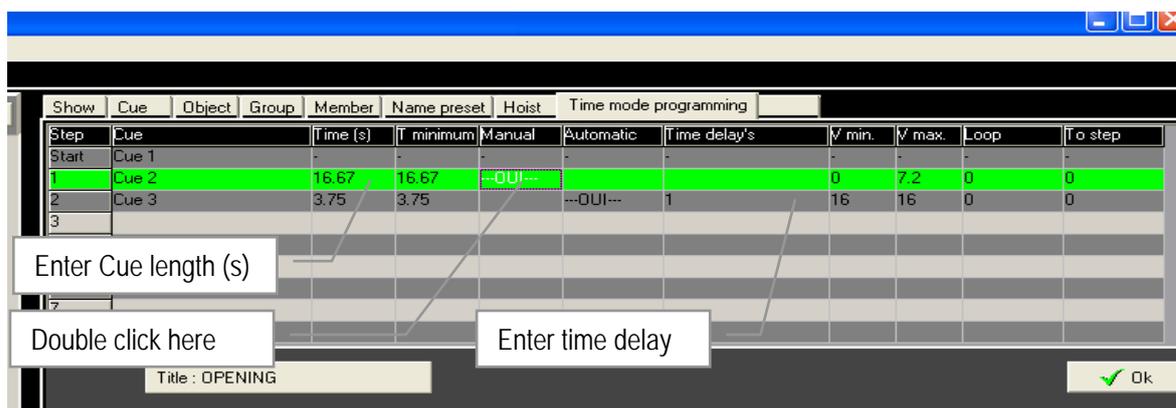


3) Click in the column Cue at the First line to open the pre-programmed Cue list and select the first Cue as from where to start the Cue list and cycle. After the selection of the Cue, a confirmation field opens, Click yes to continue.



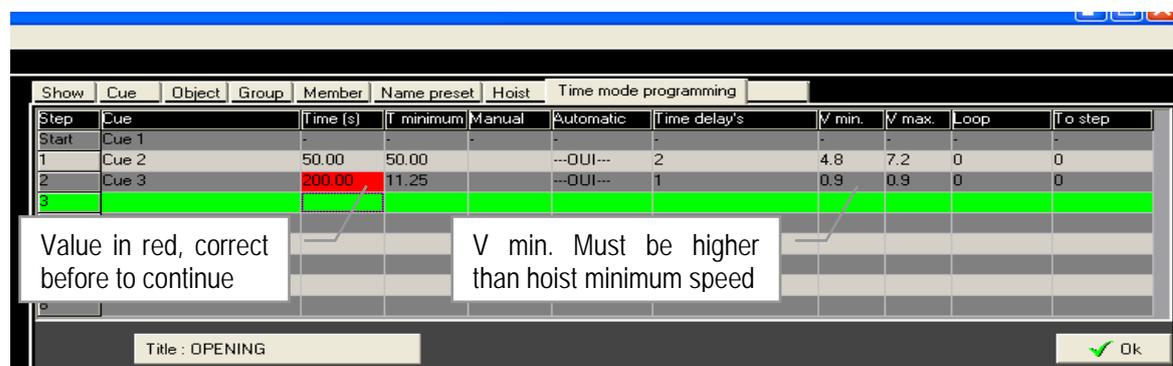
4) Click in the column Cue at the second line to open the pre-programmed Cue list and select the second Cue in sequence of your choice. (See step 1). Enter the desired Cue length in seconds. The minimum time is given in the box next to it.

Double click in the column "Manual" to select manual start of each Cue using the GO button once in operation mode. Double click in the column "Automatic" if the next Cue in line should start automatically after min. 1 second once the previous has ended. Enter in the column Time delay a time if a delay between two Cue's longer than 1 second is required.



Notes:

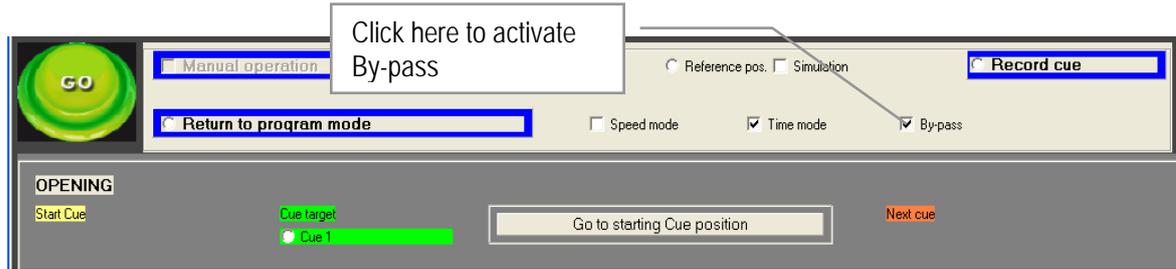
- Timing is only effective in combination with Automatic Cue continuation.
- If the entered time is too low, it automatically will be changed in to the minimum value. If the time is too long, it will turn in to red and when continued, a warning appears. "Minimum speed is lower than hoist minimum speed"
- With a relative high speed over a relative short distance (approx. 1m), the target position may be overridden for a short distance but will be corrected immediately before to come to a stop. This may cause a collision if target position is close to any kind of structure or object below. If so, double check these limitations and adapt time or distance to avoid inconveniences.
- The shortest distance between two sequential Cue positions of the same Hoist or Group, must be more than 40 cm. If not the calculated speed is less than the minimum speed and the value will turn in to red. Value's in red must be sorted before to continue programming.



The effective calculated speed during the Cue based on the given time and programmed Cue length, is given in the column V min. The maximum speed is the values equal to the maximum speed of the Hoist, or the adapted limited maximum. See also Hoist Initialisation op pagina 35,
Repeat the above process for all Cue's to complete the required list in the correct sequence.

Minimum speed limitation by-pass :

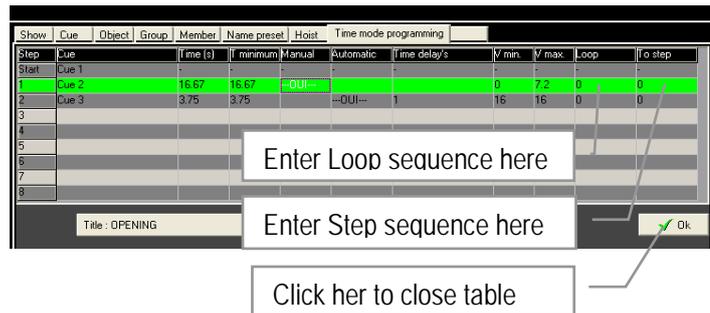
If in Time Mode the By-Pass is selected, the time speed relation is overridden and the Cue may run at lowest speed for the duration of the given time provided the hook didn't reach its software limit meanwhile.



5) The program allows you to create a repetitive sequence of Cue's. Enter in the column Loop the number of times the position has to be repeated, enter in the column To Step the next step in the sequence.

If value's in Loop and Step remain zero, the sequence will start in generic order and come to a stop at the end of the list.

Beware to check if random sequence of the various Cue's are not creating conflicts. See also Cue control op pagina 3528.



Note:

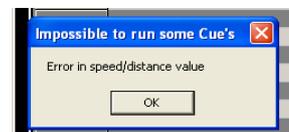
To make a closed loop within the Cue run list, select the last Cue from the list and direct it to the first step in the list. It is not possible to make a loop between two run lists.

There are no limitations in the sequence of the Cue's or the number of loops within the run list. The number of loops declared has to be at least 1.



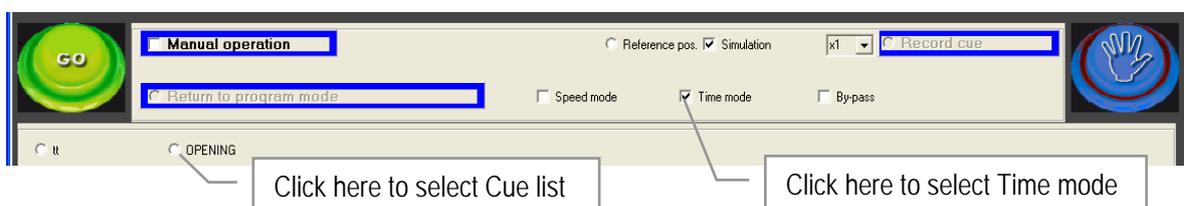
6) Once the table is completed, close by Click OK. If there is an error in speed / distance ratio, a warning messages appears. Click OK to remove the warning and resolve the errors.

Click at the "Hoist in Motion" in the left bottom side of the page to close the Time mode programming session and to go back to the overview and command page.

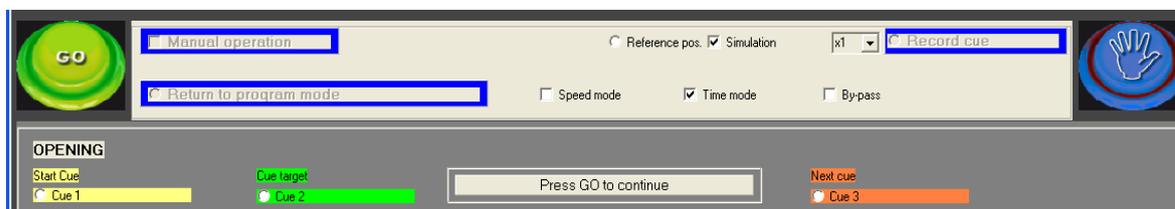


7) Once back on the command page, select the Time mode and Click on the Cue list of your choice.

Press  the dead man button and select GO to go to the starting Cue.



The bottom line provides the progress of the action, Starting Cue, the Target Cue and Next Cue in line. The centre bar shows additional information. Once arrived at the starting Cue, the system stops and requires a new GO command. In manual mode the system stops after arriving at each Cue position waiting for a new GO command. In automatic the complete Cue list will run automatically.



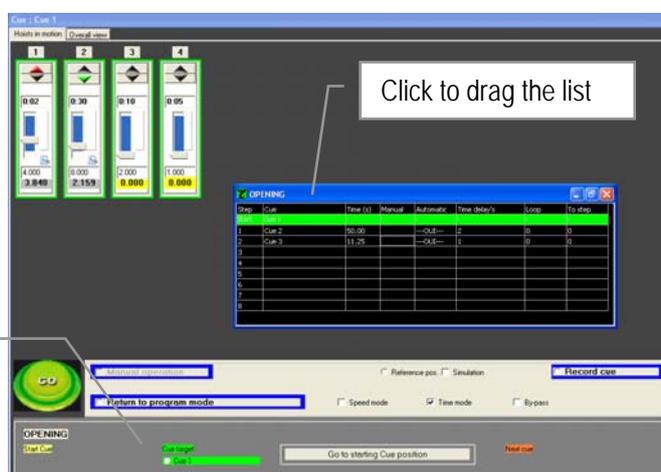
Cue progress is visualized in colours:

yellow : Position of Cue departure **green**: Current position **purple**: Cue target position

Display of Cue run list:

Select the run list from in the lower gray area, right click the mouse in this field and while keep it clicked, drag the pointer to place you want to display the list. Click the list in the upper blue bar and drag it to it position.

It is not possible to make changes in the run list from this place.



Notes:

- The blue dead-mans button must be pressed down for as long as the process takes.
- Once the GO button is activated, the Object (Hoists or Group of Hoist) will first proceed to it's starting position provided it wasn't there already.
- While stopping and leaving the Time mode before the programmed Cue list is ended and select for Speed Mode, a pop up warning appears asking for confirmation.
- If in Time mode a Cue is stopped before the Cue list is ended and reached it's final target position, a text message appears "Warning: Cue run list is not finished" Do you wish to continue. The program will exit time mode if you click YES"
- If after some changes in an existing Show the tables do not accept new changes, the data buffers require refreshment. Click Return and re-open the Show from the root.
- After changes in an existing Cue, the Cue list needs to be refreshed by switching from Time Mode to Speed Mode or from Speed mode to Time Mode and return.



- *If a value turns in to red or the box turns in to red, there is a programming error that needs to be resolved before to continue. After the correction, you have to refresh the data by closing and re-opening the Show application.*
- *If one hoist in a Cue has a problem or stops, all hoists in that Cue will stop consequently, no matter they are grouped or synchronized.*
- *If the Cue sequence is changed, or if a new Cue is added to a Show, the Cue Control table needs to be updated as well. Newly added Cue's will turn in red in that overview. After verification if sequence is feasible, the operator has to click on the box of every combination to release the new Cue. If this is not done, all Cue combinations that are blocked will stay in gray and not available to select.*
- *The number of Cue's under one Show is limited to 32 and cannot be extended. If a show requires more Cue's, the best is to create a second Show and divide the Cue's among these two.*
- *The Cue run list in Time mode is maximised to 8 Cue's in dedicated sequence. However if the effect requires more than 8 Cue's, just create a second effect. Make the last Cue from the effect 1 the starting Cue of effect 2 followed by the next Cue of your choice. Be sure to select "automatic". If on manual, the second effect will start only after a new command Starting cue and first step cue must be different*

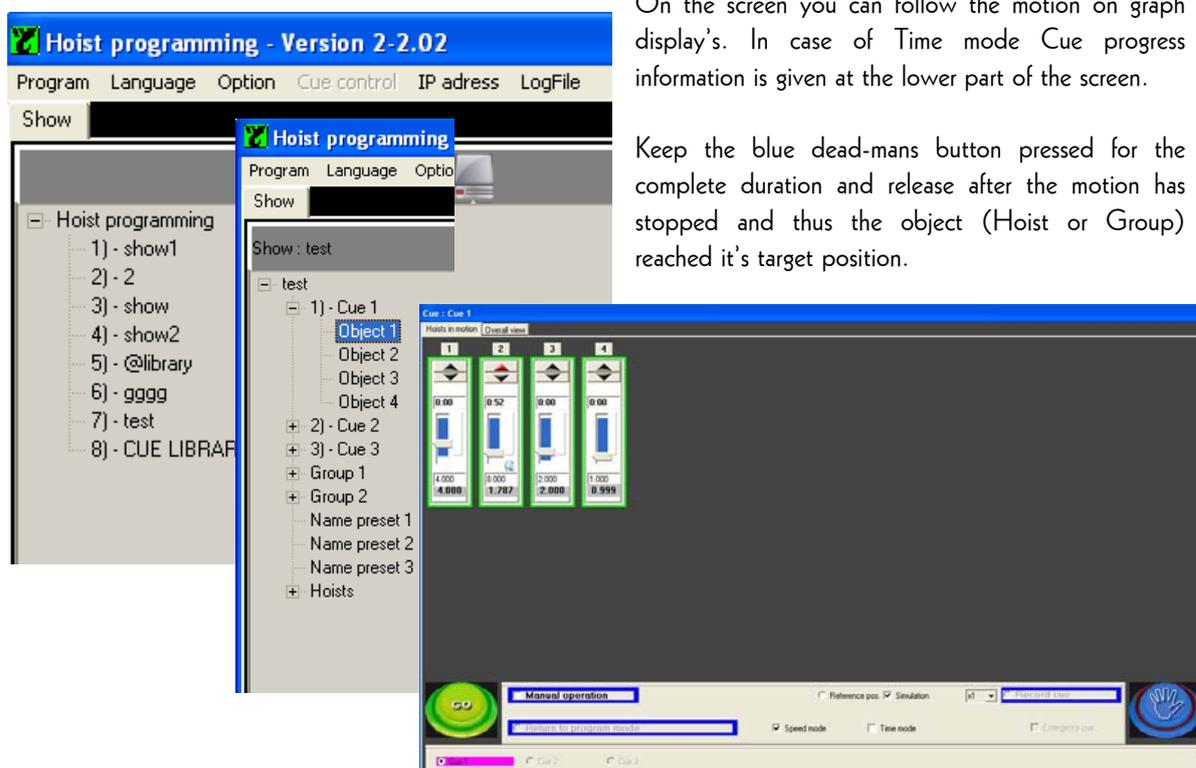
RUNNING A SHOW

To run a Show first all preparations should have taken place as described in the Programming a Show section, op pagina 35 and further. See also Manual operations in Remote mode, op pagina 3541.

- 1) Select the Show of your choice from the tree and double click on it to open the "Show". If the tree is still closed, first double click on "Hoist programming" to open it.
- 2) Double click at the Show of your choice to open it.
- 3) Click on the Cue of your choice to check it for execution, and click at the "Movement" button to return to the overview page.
- 4) Select for Speed mode or for Time mode.
- 5) Select in Speed mode the Cue to run or in the Time mode the Cue list to proceed.
- 6) Press the blue dead-mans button at the operator's desk and click the GO button to start the motion.

On the screen you can follow the motion on graph display's. In case of Time mode Cue progress information is given at the lower part of the screen.

Keep the blue dead-mans button pressed for the complete duration and release after the motion has stopped and thus the object (Hoist or Group) reached it's target position.



Note:

If data connection is broken during a Cue performance, the motion will come to a stop. After solving the problem, the software needs to be restarted and the Cue could be finished by giving a new Go command.

This however is possible only in Speed mode, not in Time mode.

If a new Go command is given while in time mode, the Hoists will return to the starting position of the Cue list.



SPECIAL FEATURES:

Fast operation tools:

For convenience, the following fast function key's are available:

- F1 : Go direct to "Hoist in Motion" page
- F2 : Go to program mode
- F3 : Go to "Overall view" page
- F4 : In manual mode select motion of all hoists
- F5 : Direct selection of Cue protection override
- F6 : Go direct to "Time Mode" programming

Spacebar: The space bar can now be used instead of a mouse click on the GO button.

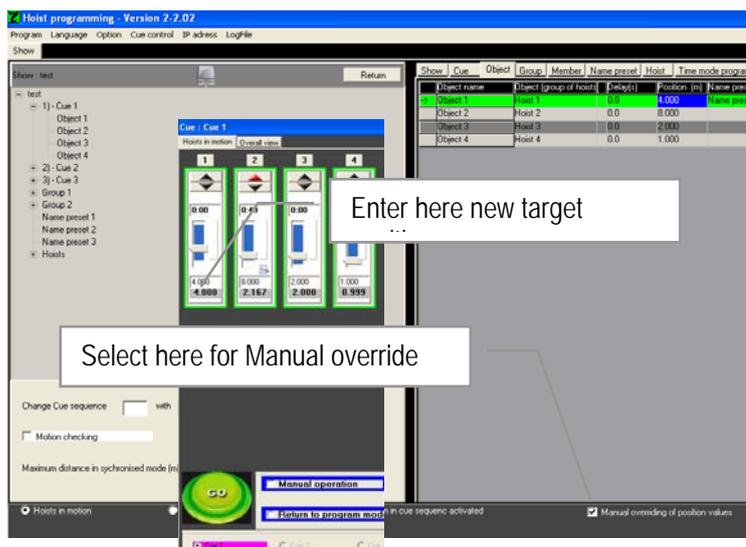
Speed mode: During a cue, press the space bar once and the cue is stopped in its position.

Either click the GO button to resume the cue or press and maintain the pressure on the spacebar: if the spacebar is released, the cue is stopped again.

Time mode: Function not available

Manual position override:

With the selection "Manual overriding of position value" on the Program page, it is possible to modify the target value of a selected Cue direct in the graph of an hoist on the overview page. The new value will not be stored in the memory, thus pre-programmed value remains in the memory but will be overridden only once.



Note:

In case of manual alteration of an hoist belonging to a Group, be sure this won't affect the Group behaviour.



Joy-stick

Use the Joy-stick to interfere manually with the pre-programmed speed of the current cue. This allows the operator to accelerate or slow-down the speed in order to affect the length of the current cue and adapt it to the timing of the scene on stage. Pressing the stick forward whilst pressing the blue dead mans button or the little button on top of the joy-stick, the current speed will increase. Pulling it back wards, the current speed reduces. This option is only effective in combination with variable speed Hoists

The Joy-stick could be used in manual mode as well. In that case it only works in conjunction with the pre-selected direction Up or Down. While pushing it forward, the speed will increase. Pulling it back wards is not operational. This function is also available from the screen.

Electronic Joy-stick:

In order to increase the systems flexibility in a way that it is no longer essential to have the operating desk CC48 next to the controllers R8CPU, there is an electronic Joy-stick feature appearing once selecting the Manual mode.

When Manual mode is selected, the box "Joystick" is automatically selected, de-select the box to activate the electronic joystick.

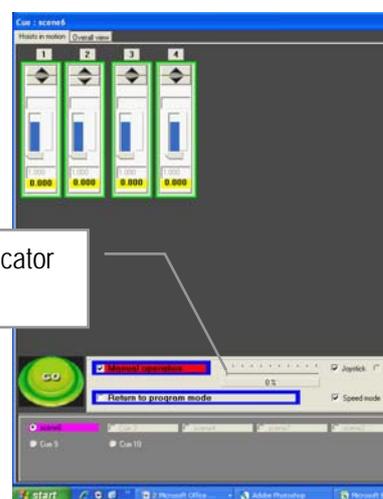
When moving the bar graph indicator with the mouse, the speed will increase / decrease consequently. It only works in conjunction with the pre-selected direction Up or Down.

Note:

The joy-stick has a certain response time, start slow and increase speed once there is a interaction. This to avoid unexpected fast speed changes.

Important:

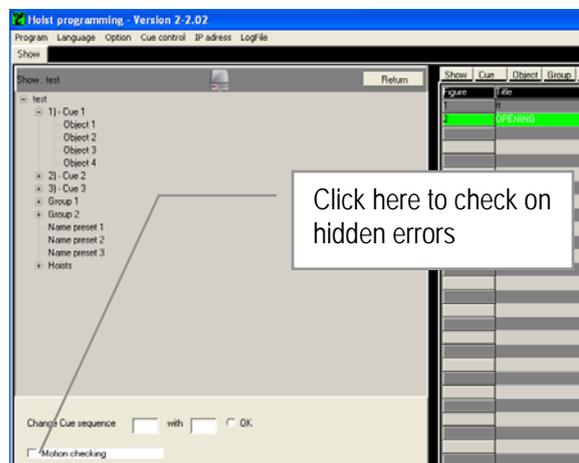
With the joy-stick, the pre-programmed speed is overruled and affected from minimum to maximum speed. It doesn't control the speed from zero. This implements that the stick should be back in zero position before the Object's target position is reached, taken the deceleration time in to account. If not, the motion will stop abrupt once the target position is reached which could generate unpleasant strong dynamic effects.



Effect checking:

This feature allows checking of the programmed values before validation of the effect.

It is effective in Effect Synchro mode only and supervises the time to go to the goal position in relation to the programmed minimum speed of the hoist. If time is too long, the effect will be blocked and value turn in to red. For checking, click on Motion checking before to click OK for continuation. If error message appears, check the corresponding Cue to find and resolve to error. If low speed is required regardless of the time, use the "By-pass" feature as described below.



Emergency Cue:

The Emergency Cue feature provides a position that ensures a safe escape from stage, in case of a serious incident. Define the Emergency positions in a way that it won't generate a collision or conflict with other objects within the vicinity of the moving object, or within the moving object itself.

In this respect a horizontal position would be most favourable at height of minimum 2.5m above stage, but as close as possible to the average working level. This to minimize the time to go to the Emergency positions if needed.

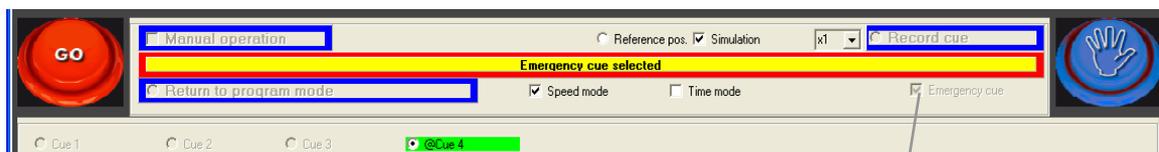
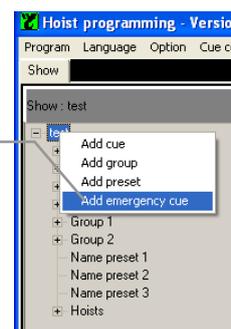
The emergency cue is programmed in a way that all target positions are reached at the same time (i.e. the speed is calculated accordingly) Slow down of the emergency cue is feasible via the use of the joystick.

Click with right mouse on the corresponding Show to get the pop-up menu and select "Add Emergency Cue". The @ character will appear in front of the Cue name. Proceed to define positions as for a normal Cue.

Any existing Cue could be transferred in to an Emergency Cue, just by adding the @ in front of the Cue name. When removing the @ character, the cue becomes a normal Cue again.

The Emergency Cue is always available from the operating field Cue list, and could be activated at any time, provided such Cue is created.

Once an Emergency Cue has been created and assigned, the program field will show the selection button Emergency Cue appear.



To execute the Emergency Cue, select first Speed Mode, than click the Emergency Cue button. All hoist will go from their current position to the defined Emergency positions. It is advised to preset the hoist speeds in the Emergency Cue at a relative low level, using the speed reduction function. The Emergency Cue overrides any Cue sequence and is operational from Speed mode only.

Note:

Be sure to define the Emergency positions in a way that it won't generate a collision or conflict with other objects within the vicinity of the moving object, or within the moving object itself.



Note:

The Emergency Cue is only active in Speed mode.



Hoist speed adjustment:

The real lifting and lowering speed of a hoist is different from its theoretical value. An hoist defined at 16 m/min might only achieve a 15.8 m/min whilst lifting and 16.2 m/min when lowering. This phenomenon is due to the electrical slip of the motor and might be even affected by the load.

In some cases these differences may affect the motion, particular in Speed mode. The option offers the possibility to manually fine tune speed differences in Up and Down of the individual hoists.

When operating in a synchronised system, the speed difference can be noticeable and limit some executions.

The definition of the new speed is based on the rated speed plus a percentage of it.

In order to adapt the speed, go to "Hoist" in the tree and add the values in the column called "Speed up (%)" and "Speed down (%)".

Fore example: Hoist 1 speed should increase with 5%, enter "5" or Hoist 1 speed should decrease with 10%, enter "-10"

Note

With a cell value "0" the speed that is taken in to consideration is the rated hoist speed as indicated in column $V_{max/min}$.



Name	Description	Hoist type	Limit low	Limit up	Max height	V max (m/min)	Speed up [%]	Speed down [%]
Hoist 1		SM10 516 V2 1	10	10	16	0	0	
Hoist 2		SM10 516 V2 1	10	10	16	0	0	
Hoist 3		SM10 516 V2 0	10	10	16	0	0	
Hoist 4		SM10 516 V2 0	10	10	16	0	0	
Hoist 5		SM10 516 V2 0	10	10	16	0	0	
Hoist 6		SM10 516 V2 0	10	10	16	0	0	
Hoist 7		SM10 516 V2 0	10	10	16	0	0	
Hoist 8		SM10 516 V2 0	10	10	16	0	0	

Fine tuning procedure:

1. Create a Cue with all hoist and enter the same position for all hoists. The Cue should not be synchronised
2. The hoist speed should be the same for all hoists and must be different from the rated hoist speed. A good value is 50% of maximum speed fore example if hoist speed is 16m/min, the speed defined in the cue should be 8 m/min. See also Program Tools & Definitions op pagina 35.
3. Lift the structure for some meters to identify the hoist that runs slower or faster in upwards direction.
4. Lower the structure and indentify the hoist running slower or faster in lowering direction.
5. Adapt the speed as described above and repeat the steps 4 and 5 to arrive at the best possible tolerance.

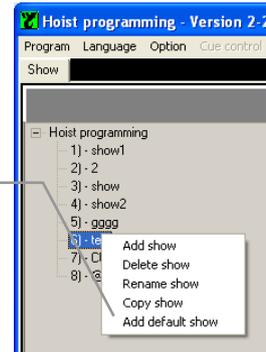
Default Show and Cue Library:

This feature simplifies set-up and programming of a new Show once a default Show has been created. Especially for permanent installations or Shows that run always in the same venue, this tool reduces the time of programming considerably. Once done, the procedure eliminates each time when a new Show is created, the need of hoist patching, the setting of the software limits, the reference point etc.

At the same time a Cue library is built from where Cue's could be copied to a new Show. Cue's created in the default Show and added to a new Show automatically insert all the corresponding hoist details originally set during the creation of the default Show.

Click on "Hoist programming" in the tree to open the Show menu. Select Add default Show, give the Show a name starting with @ for example "@Showcase". Define the default Show from here as usually. See also Initialisation of Hoists op pagina 35 and Programming a Show op pagina 35.

Click here to add Default Show



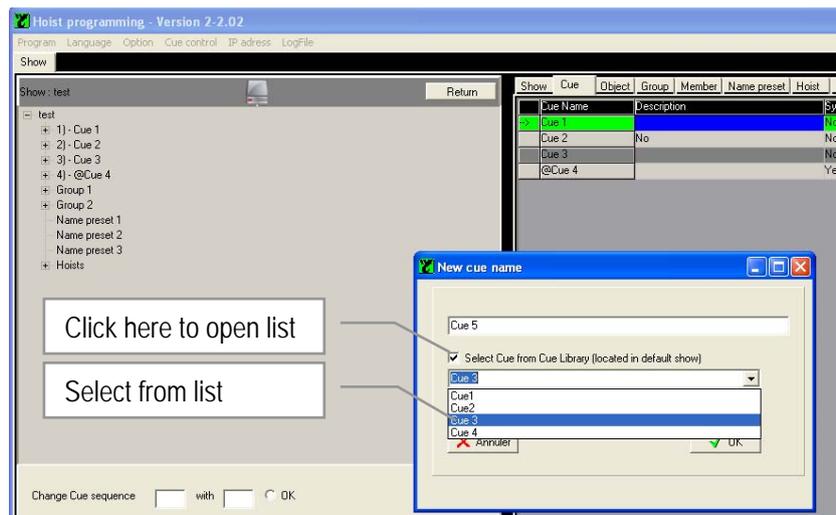
Built your Cue's as usual, see also Building a Cueop pagina 33.

Notes:

- Cue's in the "@Showcase" list can be copied and pasted.
- Cue's from existing Shows cannot be copied in to the Default Show
- Cue's chosen from the Default show list will be numbered in sequence of the Cue's in the new Show. They don't keep their original name as in the list.
- Only one default show can be created
- An existing Show could be selected as default Show by adding the "@" in front of the name. Use the Rename feature.
- Only cue's can be retrieved from the default show, groups and presets have to be re-defined in each show



To insert a Cue's from the Default Show list to a new Show, click on the new Show name to open the Cue menu and click on Add Cue. See also Program Tools & Definitions op pagina 35. Enter new Cue name or select for Cue from list. If so the list will open and choice could be made.



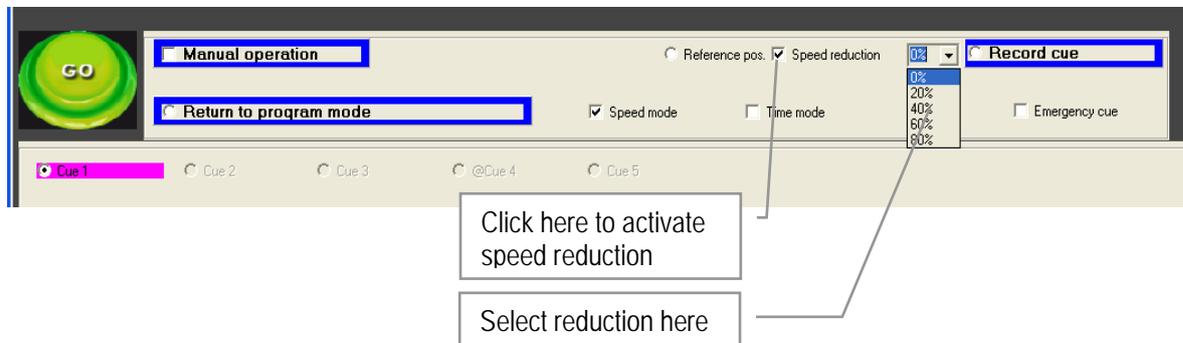
Note:

In order to avoid programming errors, it is advised not to use groups or presets when defining a Cues in the default show.



Try –out mode:

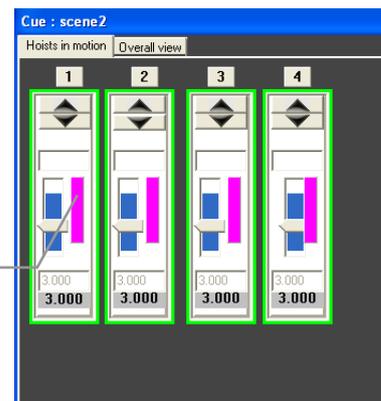
After completion of programming, it is possible to go step by step in Manual mode through the Cue list at reduced speed. Select the Cue, click the “Reduced speed box” and select the speed reduction in percentage of the programmed speed.



Messages:

- While stopping and leaving the Time mode before the programmed Cue list is ended and select for Speed Mode, a pop up warning appears asking for confirmation.
- If in Time mode a Cue is stopped before the Cue list is ended and reached it's final target position, a text message appears “Warning: cue run list is not finished”” Do you which to continue. The program will exit time mode if you click YES”
- Cue progress is visualized in colours:
 - yellow : Position of Cue departure
 - purple : Cue target position
 - green : Current position
- Vertical bar in Hoist graph symbolizes hoists are synchronized

Colored bar shows hoists are synchronized



ON SCREEN INFORMATION

The diagram shows a vertical hoist control interface with the following callout boxes:

- Motion up indicator , going up turns in Red**: Points to the upward arrow icon.
- Motion down indicator, going up turns in Red**: Points to the downward arrow icon.
- Run time current cue, or actual load if load sensors are installed (future option)**: Points to the '0:01' timer display.
- Blue operational area between software limits Up and Down**: Points to the blue bar in the vertical scale.
- Target position**: Points to the horizontal line in the vertical scale.
- Current position on Grey background, colour changes to Red by reaching upper software limit and Yellow at reaching the lower software limit.**: Points to the numerical value '2.159' at the bottom of the scale.
- Hoist or channel number. It turns in Red when hoist is in error.**: Points to the number '2' at the top.
- Hoist status; green if Hoist is connected and stand-by, red if not connected or in error**: Points to the green downward arrow.
- Point with mouse to get details on Hoist position and settings**: Points to the upper section of the vertical bar.
- Collared bar shows Hoist in synchronisation mode**: Points to the pink bar in the vertical scale.
- Hook position in relation to Up / Down limits**: Points to the horizontal line in the vertical scale.
- Indicates Hoist part of Group, max. 8 different colours**: Points to the blue bar in the vertical scale.

To check the current Hoist values and settings, point with the cursor on the upper section of the bar of the Hoist to activate a pup-up screen with the information.

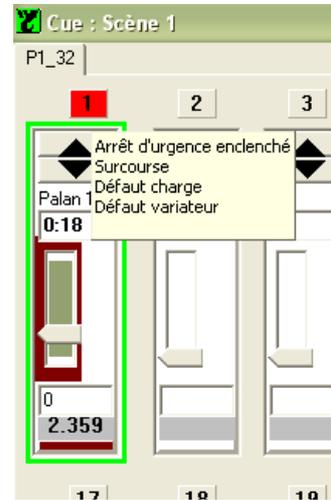
The screenshot shows the hoist control interface with a pop-up information window. A box labeled "Point here" points to the upper section of the vertical bar. The pop-up window displays the following information:

- Name : Hoist 2
- Description :
- Type : SM10 516 V2
- Limit low : 0.100
- Limit up : 10.000
- Max height : 10.000
- V Up m/mn : 14.400
- pulses / m : 268.190

FAULT MESSAGES

In case the software detects a fault coming from one Hoist, a RED indicator will appear. Select the Hoist with the cursor to open a pup-up menu with the fault list.

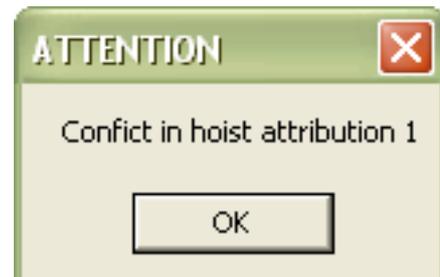
If the error message « n'est pas une valeur en virgile flottante correct » appears, there is a conflict as because of the decimal setting in Windows. Change point to comma or vice versa.



Click on OK to return and make the change.

Conflict in Hoist attribution message appears in case one Hoist is assigned twice to a Cue or Group.

Click on OK to return and make the change.



FREQUENTLY ASKED QUESTIONS

My system doesn't start up:

- Check if power is connected and phase are in good order. If phase indicator and channel LED's flashes, check presence of all phases and / or change phases by turning the satellite in the power plug of the controller 180°.
- Check at the back side of the controller if the 3 phase circuit breaker is switched on.

My system starts up, but trips off now and then:

- Check if power is stable within fluctuations of max. +/- 5% of nominal voltage 400V. Phase supervision relay trips also at overvoltage peaks \geq than 440V.
- Check all power connections from source to rack.

My system starts up, but power source differential switch trips off now and then:

- Check if rated value of differential switch is minimum . 100mA

My system doesn't start up, there is power, phases are in good order:

- Check at the back side if blind plugs, supplied with the system, are fitted on both 24Vdc IN and OUT. If you have more than one rack connected, the blind plug should be on the first rack in the 24Vdc IN, a cable between from OUT to IN of the second controller and a blind plug in the OUT of the second controller.
- Check at the back side if 24 Vdc circuit breaker is switched on

My system doesn't start up, there is power, phases are in good order, blind plugs and cables are fitted and 24Vdc switched on:

- Check if Emergency stop at front is active or not, release by turning anti-clockwise and pull out, if needed.
- Press green ON button at front.

Hoists are not moving after system start up, green LED is on:

- Check if Local / PC switch on the rack is in Local mode
- Check if on of the pre-selector switches for Up or Down are in the required position.

Hoists are moving only in slow speed after system start up, green LED is on:

- Press RUN button further down to activate the second speed if available
- In case of variable speed hoists move the speed regulator to increase the speed

Hoist is not moving, yellow LED channel indicator remains off:

- Main contactor on hoist is not active, no 48Vac feed back. Check fuses; 1 x secondary 2 x primary side of transformer.

Hoist is not moving, yellow LED channel indicator flashes:

- Inverter on the hoist tripped; reset the hoist by power down the controller and switch OFF and ON the secondary fuses at the backside of the controller.

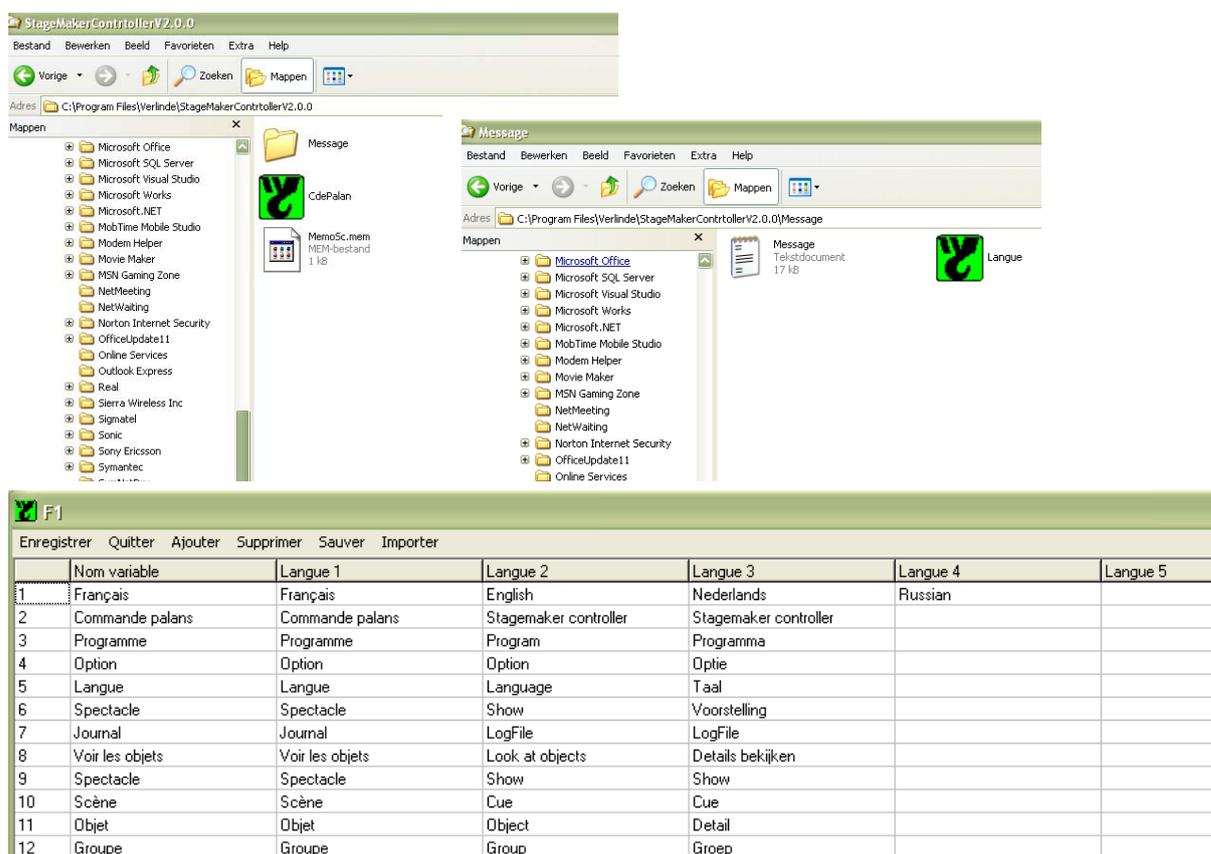
Note:

This phenomena may happen in case of an E-emergency stop action, or release of RUN button or Blue Dead mans button while running in downwards direction at speed.



TEXT MESSAGES

To add or alter text messages, go to the Verlinde folder in Windows Program files, open the Stagemaker controller folder and open the Message folder called "Langue".



The text in the first column can't be modified. Any new language table could be created provided the characters are supported by the program software. Just mention the language in the top box of the new column (Langue 4 e.f.) and translate the wordings line by line.

Once ready, close the window and restart the R8CPU application to effectuate the changes.

SYSTEM SHUTDOWN

In both the R8CPU-VS controller and CC48 operators desk, software is running for operation, Hoist control and memorizing positions. It is there for essential to follow the shut-down procedure.

check the local / remote selector to be in the Remote

click with the mouse on the "return to program" button

click on "Program", select "Exit" and wait until the program is closed

switch-off the control computer using the Windows commands

press the OFF button on the rack. If several racks are in use, by switching of one rack, the others will follow automatically.