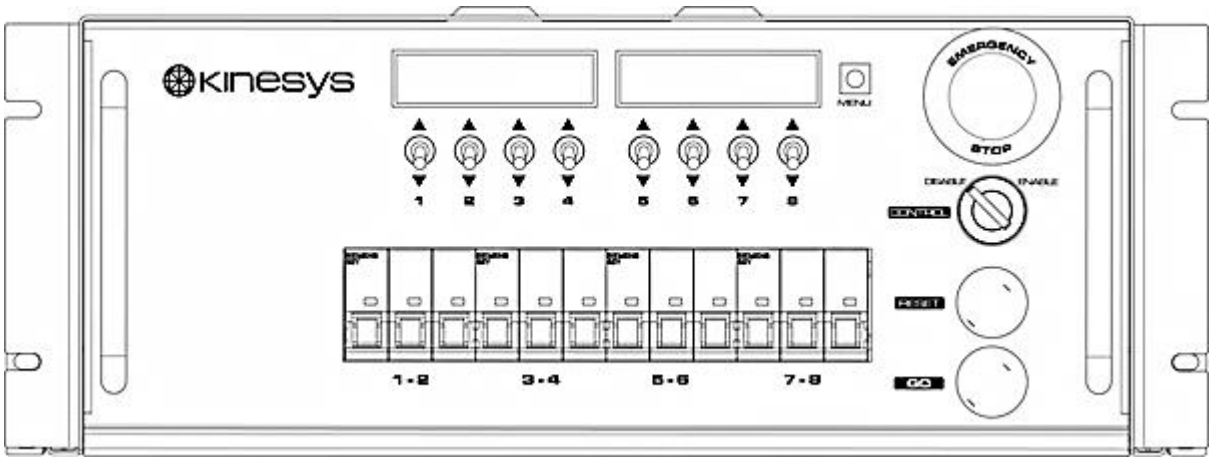
DIGIHOIST

Digital Fixed Speed Hoist Controller

Operating Manual



IMPORTANT
READ CAREFULLY BEFORE USE
KEEP FOR FUTURE REFERENCE

DigiHoist Digital Fixed Speed Hoist Controller

Kinesys Projects Limited accepts no liability for any consequences resulting from inappropriate, negligent or incorrect installation or use of the equipment.

The contents of this manual are believed to be correct at the time of printing. In a commitment to a policy of continuous development and improvement, Kinesys reserves the right to change the specification of the product, its performance, or the contents of this manual, without notice.

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Contents

1. Important Information

WARNING - Information which is essential for avoiding safety hazards.

CAUTION – information on avoiding damage to the equipment through improper use.

INFORMATION – Advice on specific features or applications.

Identification

A DigiHoist Controller can be identified by the model number on the rear panel or in the DigiHoist Display by accessing the Information screen. Refer to “Displays and menu options” on Page 41.

Model Number

This operating manual pertains to the following models:

Low Voltage		Direct Control	
Standard	Upgrade	Standard	Upgrade
DGH-00-0020	DGH-00-1020	DGH-00-0040	DGH-00-1040
DGH-00-0021	DGH-00-1021	DGH-00-0041	DGH-00-1042
DGH-00-0022	DGH-00-1022	DGH-00-0042	DGH-00-1043
DGH-00-0023	DGH-00-1023	DGH-00-0043	
DGH-00-0024	DGH-00-1024		
DGH-00-0025	DGH-00-1025		
DGH-00-0026	DGH-00-1026		
DGH-00-0027	DGH-00-1027		

Manual Version:	v5	Ethernet:	v3.29
Controller Software:	v4.11	Encoder:	v3.15
Handset Software:	v3.02		

2. Safety Information

WARNING

- **All operators and maintenance personnel should be aware of the location of the emergency stop buttons and facilities**
- **Test the emergency stop system daily**
- **In the event of an unexpected move, use an emergency stop button to bring all movement to an immediate stop**
- **Use extreme caution when using any bypass facilities in the system**
- **Carry out a full risk assessment for your particular application**

Intended use/limitations of use

The DigiHoist Controller is a Fixed Speed Electric Hoist Control system designed for use in the entertainment and event industry.
It is made to be used in conjunction with electric hoists designed to raise and lower loads vertically. It can also be used in combination with a Beam Trolley for controlled horizontal movement. It is not recommended to use in any other way. Doing so is prohibited by the manufacturer and any risk in improper use of this product is the operator's responsibility.

Operating environment

The DigiHoist Controller is designed for indoor use only and to work in ambient temperatures between 0°C and 40°C (32°F and 104°F). The DigiHoist controller has an Ingress Protection (IP) rating of IP40.

Do's and Don'ts

- **Do not** use a DigiHoist Controller to control hoists transporting or lifting people.
- **Do not** use DigiHoist to control hoists while persons are beneath the moving load
- **Do not** run the system without all Emergency Stop switches/buttons connected and in position.
- **Do not** start initial operations before a competent person or a trained specialist has inspected the equipment.
- **Do not** connect a DigiHoist Controller to lifting equipment with a current consumption higher than specified in the instruction manual.
- **Do not** use hoist without having carried out the regular inspection as specified by the manufacturer
- **Do not** connect a DigiHoist Controller to a power source other than specified on the unit and in this manual.
- **Do not** modify a DigiHoist Controller in anyway unless expressly advised by the manufacturer.
- **Do not** connect more than 8 hoists to a DigiHoist Controller.
- **Do not** use additional splitters to connect more than one hoist per channel.
- **Do not** open the DigiHoist Controller or remove the outer casing if the system is connected to a power source even if the DigiHoist Controller itself is not powered on. Doing so can result in damage to the product and is a health hazard.

Do's and Don'ts Continued

- **Do not** enable the GO button in any other way than described in this manual. The GO button should always be under manual operator control.
- **Do not** use a DigiHoist Controller if it does not appear to be in 100% perfect working order.
- **Do not** use any spare parts other than those supplied by Kinesys.
- **Do not** subject a DigiHoist Controller to shocks or drops.
- **Do not** distract the operator's attention while they are operating the system.
- **Do** stop and investigate immediately if hoists connected to the DigiHoist controller move in a direction opposite to that expected.
- **Do Not** operate hoists without having a clear view of the load or reliable communication with someone who does.
- **Do** ensure that all cables, adapters and hoists connected to the DigiHoist have the correct connector wired to the same standard as the DigiHoist outputs. If in doubt do not connect hoists or cables without checking for compatibility. Physically identical connectors may be wired differently by various suppliers.

Competent personnel

The equipment described in this manual may only be operated by personnel qualified to do so for the specific task as detailed above.
Qualified personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with this and associated equipment.

CAUTION

If in doubt about any aspect of moving objects always seek professional advice.

SAFETY MUST ALWAYS BE THE FIRST PRIORITY!

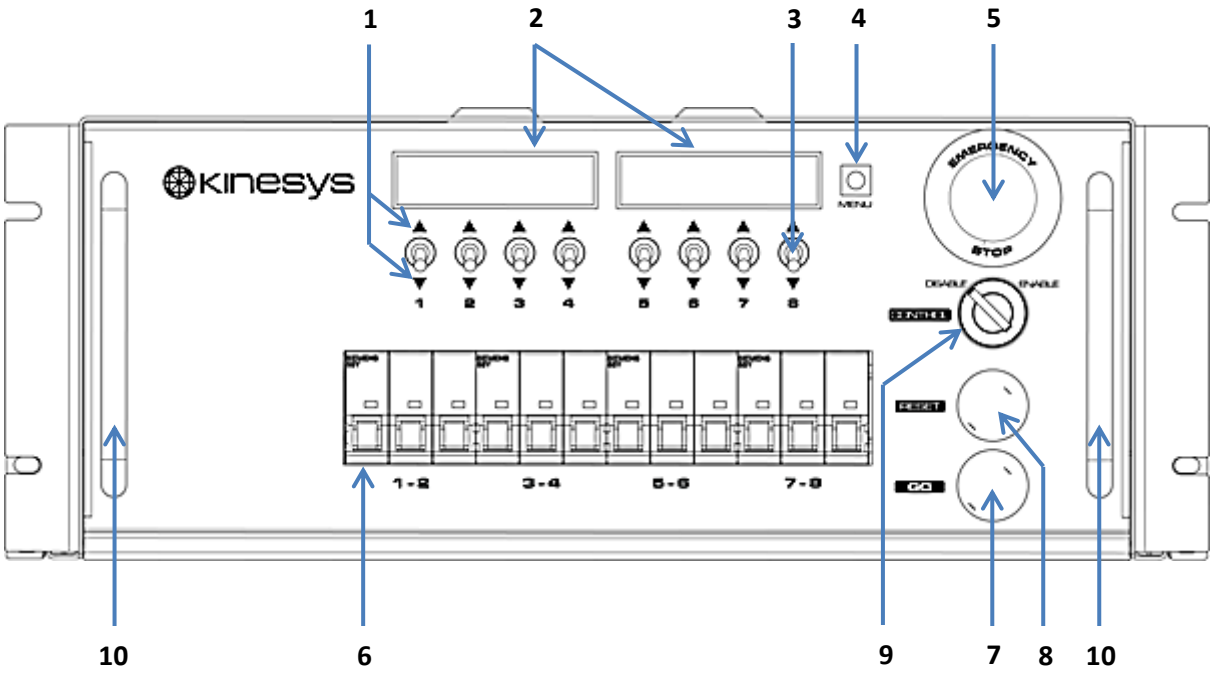
3. Overview

Layout

DigiHoist Controllers are available in various configurations of features and power connections. The following section covers the possible versions of the DigiHoist 8 channel Direct Control and Low Voltage motor controllers.

Front panel

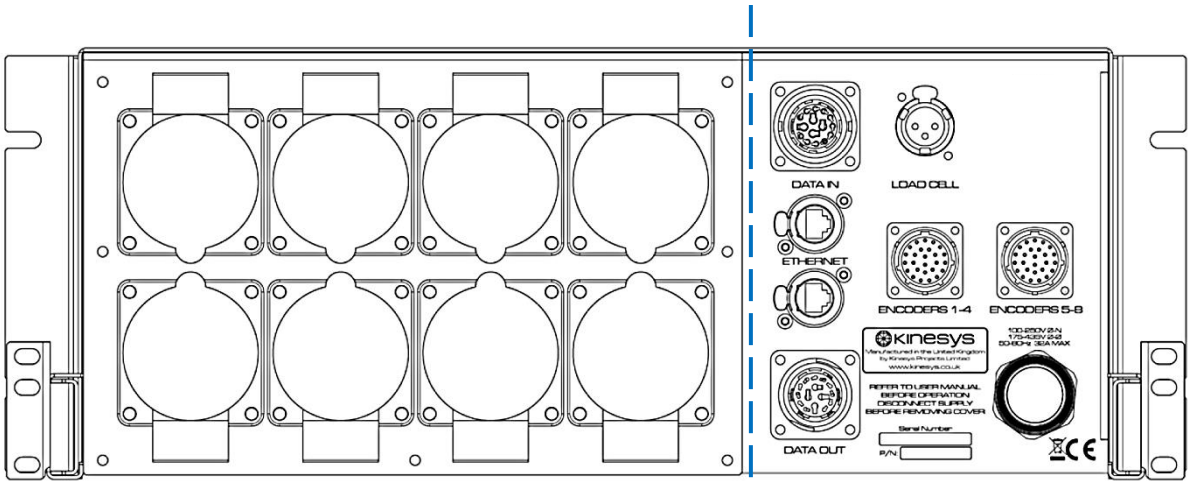
All controls are applicable for all models of DigiHoist Controller.



1. **Channel Direction Indicators** - Shows direction of movement for each channel
2. **OLED Displays** - Main information displays
3. **Channel Direction Toggle Switches** - Select the direction of movement
4. **MENU Button** - Used to access the main settings menu
5. **EMERGENCY STOP Button** - Used in the event of an emergency to stop all movement in the system
6. **Channel Breakers (one per pair of outputs)** - Used to isolate power to particular channels
7. **GO Button** – Will light when ready and used to initiate movement
8. **RESET button** – Will flash to indicate a reset is required and used to reset the system
9. **Hoist Power Key Switch** –Used to enable the power supply to a hoist
10. **Transportation Handles** – Used when handling and transporting the Controller
11. **Rack Mount Ears**- Used to install the DigiHoist into standard 19" rack space. See "Installation" on page 14.

Rear panel

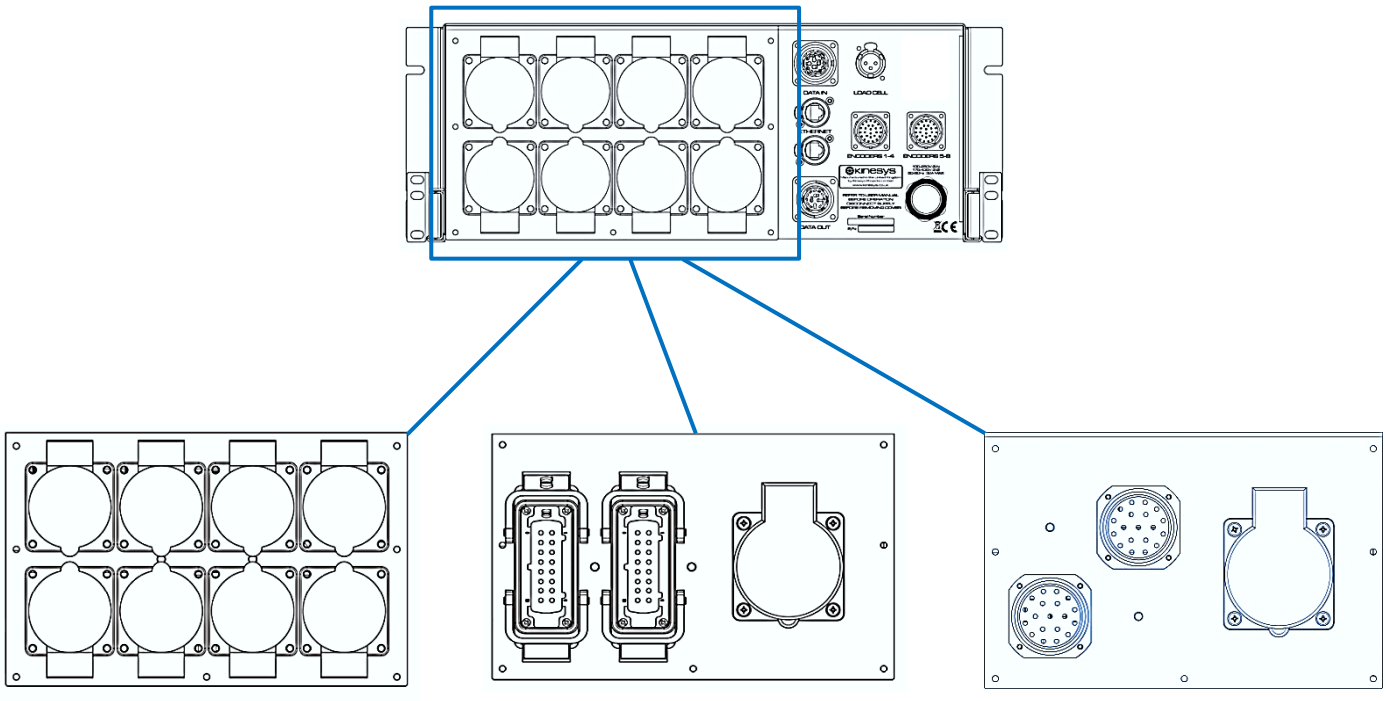
The rear panel on a DigiHoist controller is split into two sections, “Power” and “Control”. The “Power” section is used for connection to the hoists. The “Control” section is for connecting to other equipment or linking DigiHoists Controllers together.



“POWER” Section “CONTROL” Section

The “POWER” section rear panel: Direct Control Versions

Shown below are all the various hoist connection options available for the Direct Control DigiHoist Controller.



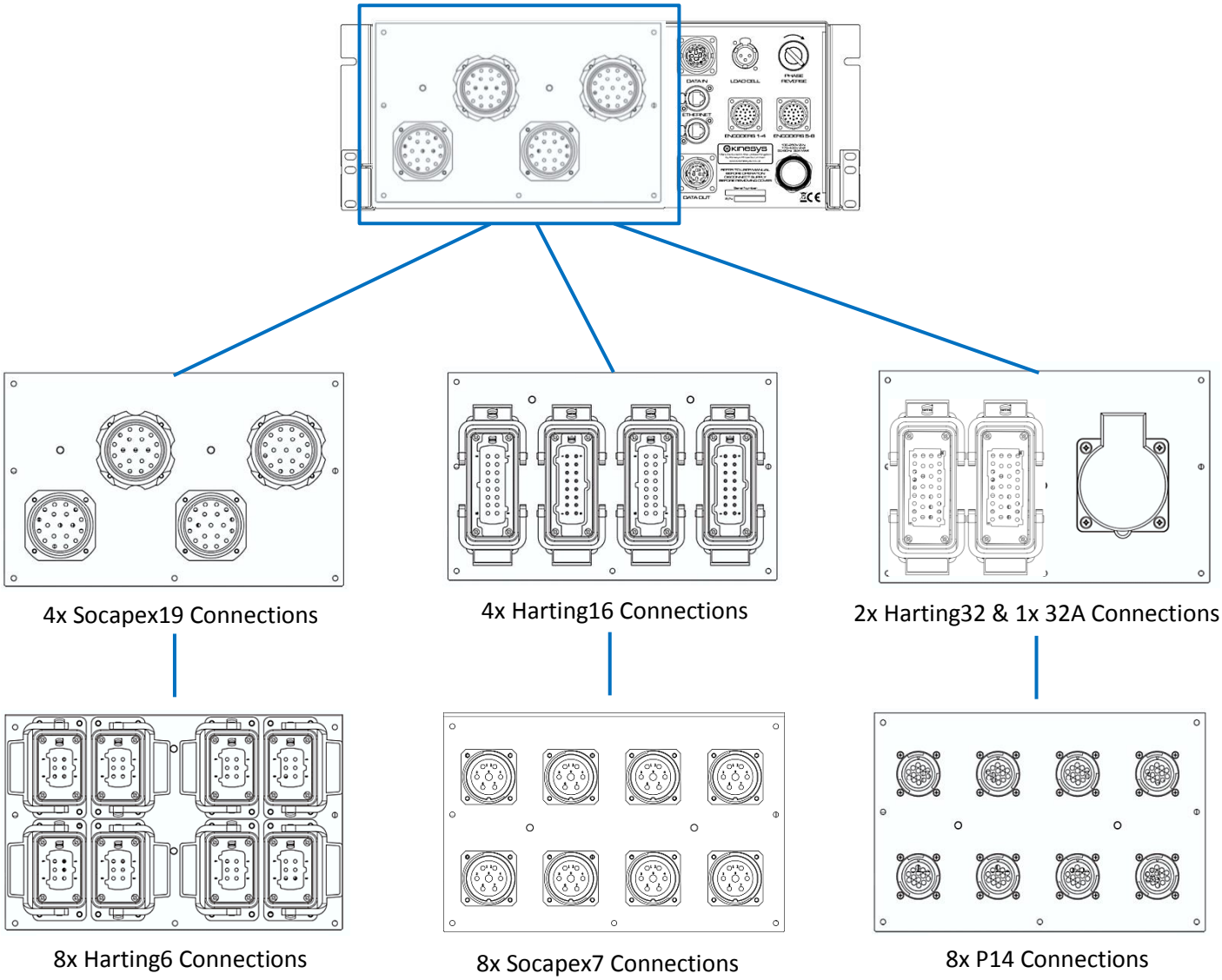
8x CEE Form Connections

2x Harting16 & 1x 32A Connections

2x Socapex 19 & 1x 32A Connections

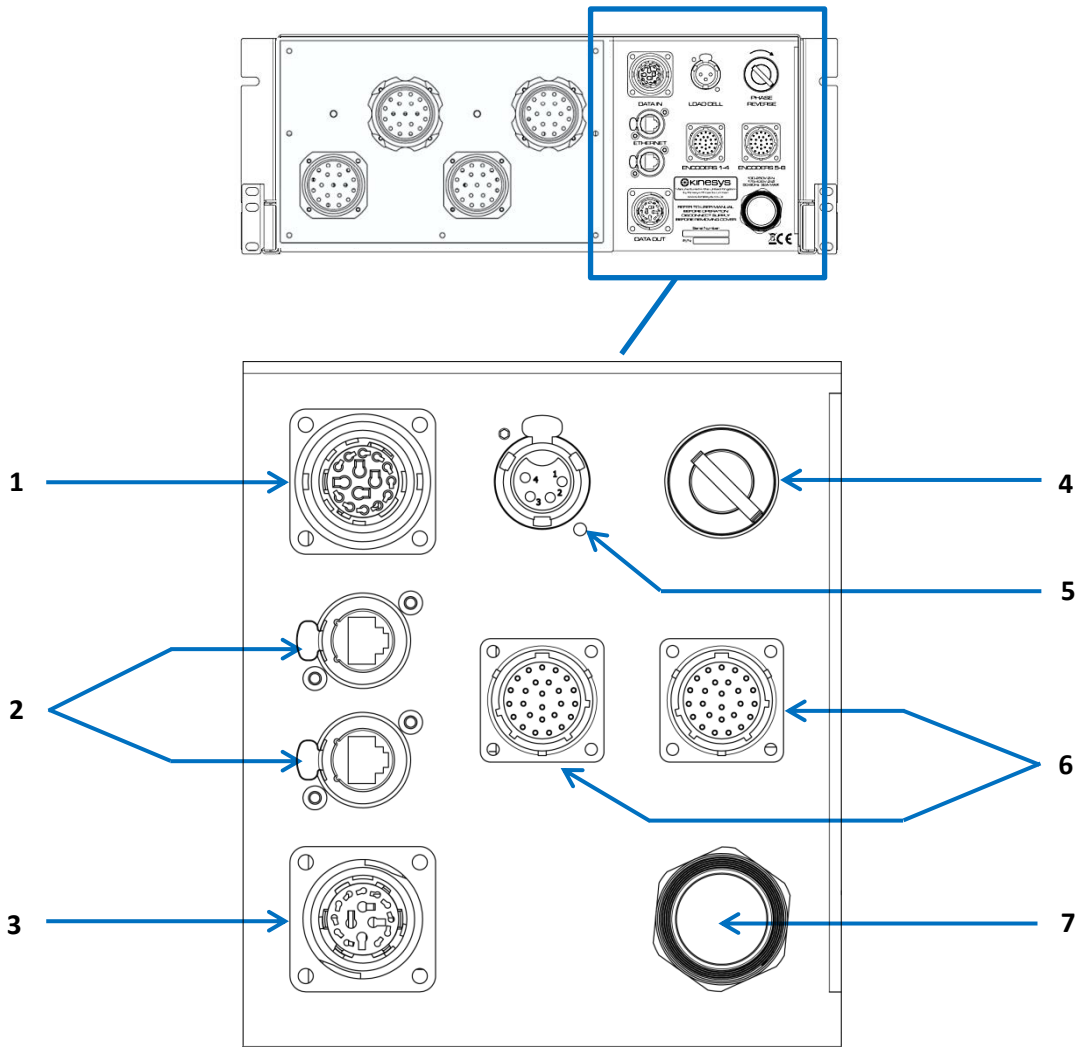
The “POWER” section rear panel: Low Voltage Versions

Shown below are all the various hoist connection options available for the Low Voltage DigiHoist Controller.



The “CONTROL” section rear panel

Shown below are all the various connection options available for the Low Voltage and Direct Control DigiHoist Controllers.



1 **DigiHoist Data IN** For linking DigiHoists together or connecting a DigiHandset or DigiLink.

2 **Ethernet Port 1 & 2** For connecting to a computer or Ethernet Hub for computer controlled movements (only available with Positioning & Ethernet upgrade option)

3 **DigiHoist Data OUT** For linking DigiHoists together or connecting Emergency Stop Buttons

4 **Phase Reverse Key** (Low Voltage DigiHoist versions only) See page 22

5 **Loadcell Input** For connection to a Kinesys LibraCELL load monitoring shackle or LibraWifi power Injector.

6 **Encoder Input 1-4 & 5-8** For connection to a hoists encoder to read positioning information (only available with Positioning & Ethernet upgrade option)

7 **Main power input** (3 phase+Neutral+Eeath (Ground) power supply)

4. Preparing The DigiHoist Controller For Use

CAUTION

Transportation and storage

Condensation

The DigiHoist Controller is expressly designed for indoor use only. If the DigiHoist Controller has been exposed to drastic temperature fluctuations i.e. during transport, do not connect it to a power source immediately. The change of temperatures can cause condensation to form on both the exterior casing and interior parts which can damage the DigiHoist Controller if powered on. Leave the DigiHoist Controller disconnected form a power source until it has equalised with the temperature in the location where it is to be installed.

Shocks

Do not shake or drop the DigiHoist Controller. Avoid excessive force when installing and operating the product.

Handing

Never lift the DigiHoist Controller by any of its cables or connectors as this will cause damage to the device. Always handle the Controller by use of the transportation handles on the front of the unit.

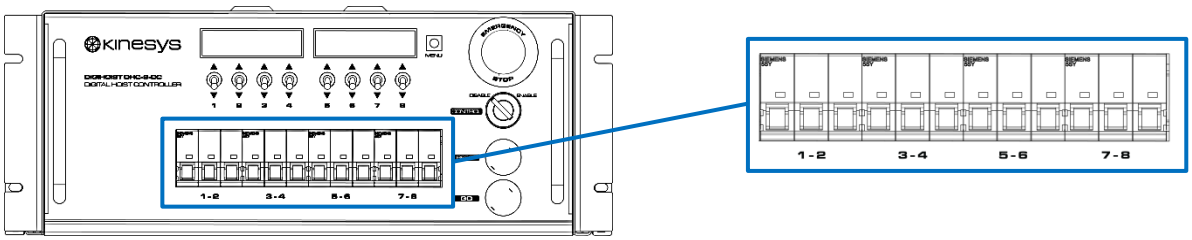
Packaging

Where possible, use the original packaging to transport the DigiHoist Controller. Alternatively a purpose made flight case should be used (commercially available separately).

Channel Breakers

The channel breakers on the front of the DigiHoist Controller can be used to isolate power to specific channels. One circuit breaker is provided for each pair of outputs. To isolate power to a pair of channels move the channel breaker switches DOWN. To restore power move the channel breaker switches UP.

If a Circuit breaker repeatedly trips when a hoist is connected or moved, stop and investigate the problem. Do not attempt to hold the circuit breaker on or continue to reset.



Installation

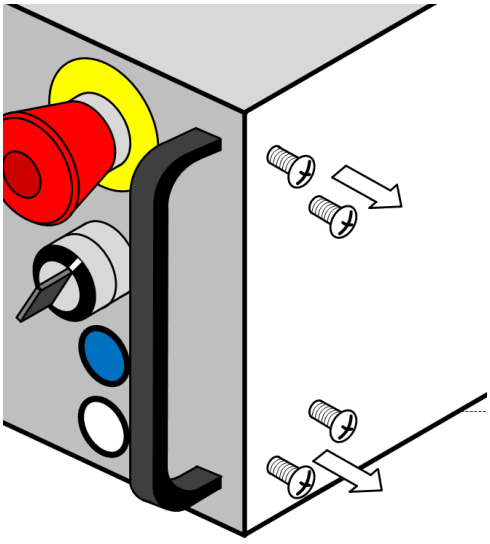
Installation location

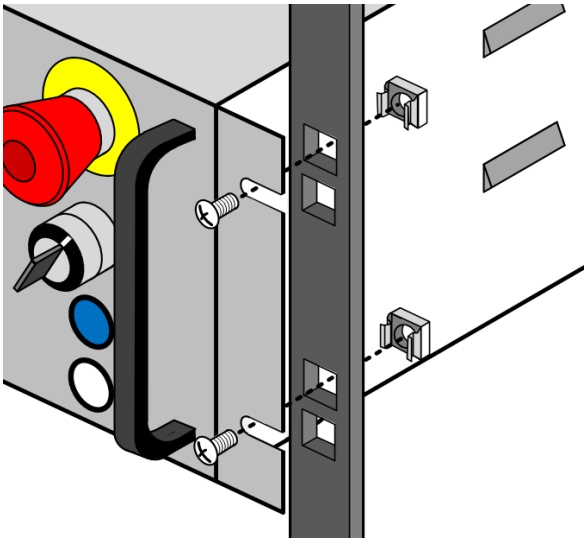
When considering the location to install a DigiHoist Controller, make sure the device will not be exposed to extreme heat/cold, moisture/ humidity or dust.

Rack Mount installation

The DigiHoist Controller comes supplied with rack mounts to enable it to be installed into 4U of space in an industry standard 19” rack. To install the DigiHoist Controller follow the process below.

1) Unscrew the 4 bolts on each side of the DigiHoist towards the front.
2) Install the Rack Mounts to the sides of the DigiHoist using the previously unscrewed bolts.
3) Position the DigiHoist within the case and line up rack mount holes with those of the rack in the desired position on both sides of the Controller.
4) Using cage nuts and bolts, secure the DigiHoist Controller to the frame of the rack on both sides.
5) Make sure there is enough space within the rack to allow for cables and connections at the rear and the switches and controls at the front.
6) Make sure there is adequate ventilation when using the DigiHoist Controller when installed into a rack.





5. Connections

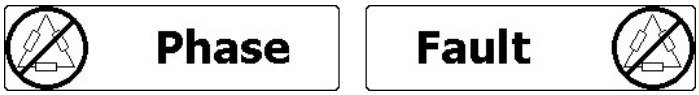
Always make sure the mains power connection to the DigiHoist Controller is the last connection made.

Mains connection

Mains Input – All of the variations of DigiHoist Controller require a 3phase+Neutral+Earth (Ground) power supply. 100-250V Ø-N 175-435V Ø-Ø 50-60Hz. The supply to the DigiHoist should be protected by an external fuse or circuit breaker with a rating not exceeding 32A.
If the supplied mains connector is removed a replacement mains connector of a suitable voltage and current rating must be installed by a competent electrician. The wires in the supplied main cable are colour-coded as follows:
Phase L1 – Brown
Phase L2 – Black
Phase L3 – Grey or Black
Neutral – Blue
Earth (Ground) – Green/Yellow

Phase Sequence

The DigiHoist Controller will automatically detect the phase rotation on the incoming supply and correct for reverse-phased supplies. If the incoming 3 phase power supply is missing either the second or third phases, the display on the front of the DigiHoist will indicate “Phase Fault”.



In the event that the “Phase Fault” message is displayed, determine if the fault is present on the incoming power supply. If the incoming supply is correct check the internal fuses in the DigiHoist Controller. For more information on the internal fuses refer to “Internal Fuse layout” on page 67.
If the first phase of the 3 phase power supply is missing the DigiHoist Controller will not power on.

Hoist Multicore Cable Pin Out Variations

Manufacturers and end users may wire the same connectors in different ways. This means it is possible to have physically mating connectors which may not function correctly or may cause an electrical hazard. Details of the different connector pin outs are shown in “Pin Out Configurations” on page 63. A label on the rear of the DigiHoist Controller clearly states which version of the pin out is being used on which connector.

Connecting the Hoist Power Cable

The process of connecting the Hoist Power Cable to the DigiHoist Controller will depend on the connection used. If you have a Direct Control or Low Voltage version of the DigiHoist Controller the power connection to your hoist may differ. For more details of available connection options refer to “The POWER section rear panel: Direct Control versions” and “The POWER section rear panel: Low Voltage versions” on pages 10 and 11.

- Make sure all connections are made firmly and all locking or securing methods are used in accordance with the cable manufacturer’s requirements.
- Ensure there is adequate cable length and that connections are not under strain or unnecessary load.
- Ensure you know which hoist is connected to which channel on the DigiHoist Controller. This is especially important when connecting more than one DigiHoist Controller together in a system with more than 8 hoists.

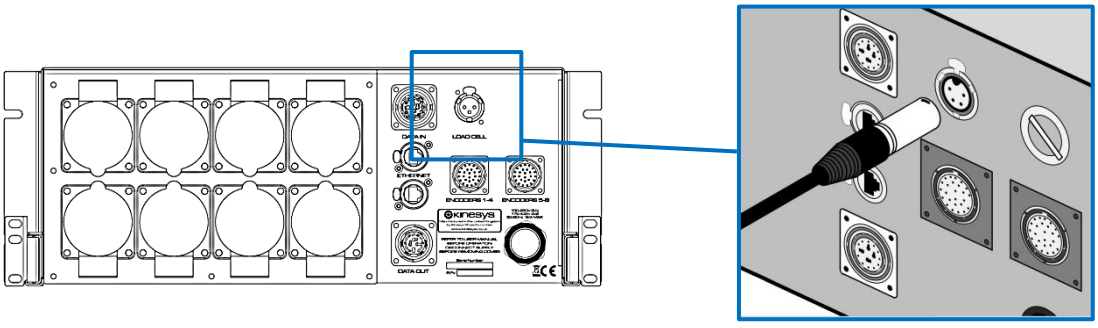
The “Pin Out Configurations” section on page 63 should also be used to confirm the connections you are using are correct and compatible with the hoist you intend to control. You should also refer to the instructions supplied with your hoist.

Connecting a LibraCELL Load Monitoring Shackle

Up to 8 Kinesys LibraCELL load monitoring shackles can be used to convey live load information to the DigiHoist Controller.

1) Connect an XLR4 data cable (available separately) to the “Load Cell” socket on the rear of the DigiHoist Controller.
2) Connect the other end of the XLR4 data cable to the Load Cell’s Data Socket and daisy chain up to 8 cells together.
3) If configured correctly, as soon as it’s connected, the DigiHoist will automatically display the load cell information.

For more details on settings and display information for Load Cells refer to “Display and Menu Options” on page 41.

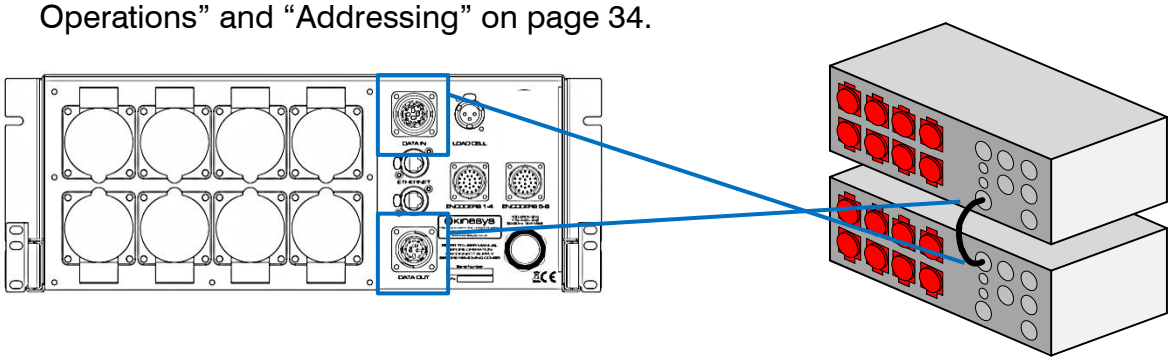


Connecting more than one DigiHoist Controller together

DigiHoist Controllers can be linked together in order to control up to 96 channels/hoists. To link controllers together follow the procedure below.

1) Connect a Kinesys DigiLink cable (sold separately) to the DigiHoist Data OUT socket on the first controller.
2) Connect the other end of the DigiLink cable to the DigiHoist Data IN socket on the second controller.
3) Repeat steps 1 and 2 for up to 12 Digihoist Controllers.

For more details on linking DigiHoist Controllers together refer to “Advance Operations” and “Addressing” on page 34.

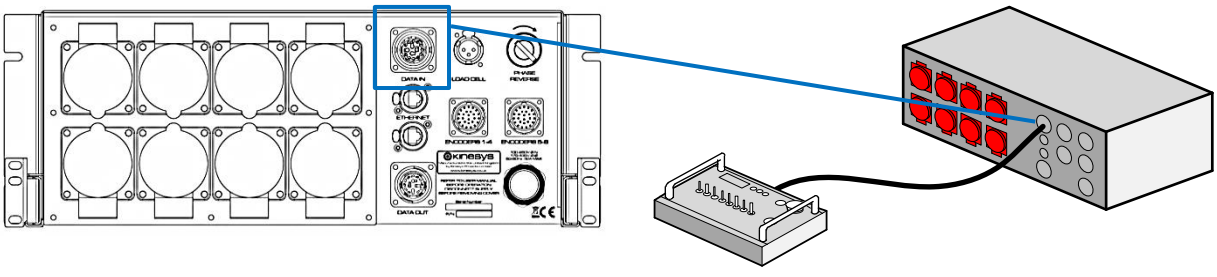


Connecting a DigiHandset

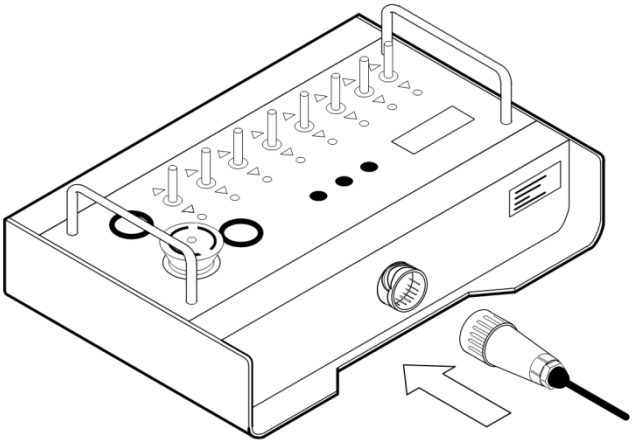
As well as the local controls on the front panel, a Kinesys DigiHandset may also be connected to a DigiHoist Controller to control the movement of hoists from a remote position.

1) Connect one end of a Kinesys DigiLink cable (sold separately) to the Data IN socket on the DigiHoist Controller.
2) If you are using a chain of DigiHoist Controllers, connect the DigiLink cable to the Data IN socket on the first controller in the chain.
3) Connect the other end of the DigiLink cable to the socket on the top of the DigiHandset.

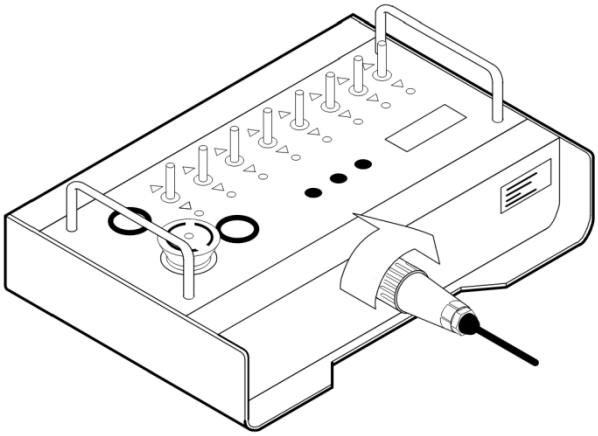
Addressing of the channels and handset will happen automatically. For further details on Addressing, how to operate the DigiHoist Controller using a DigiHandset or using a DigiHandset with more than one DigiHoist Controller linked together refer to “Controlling a DigiHoist Controller Remotely with a DigiHandset” and chapter 9 “Advanced Operations” on pages 29 and 34.



Connecting a DigiHandset



Push connector onto socket



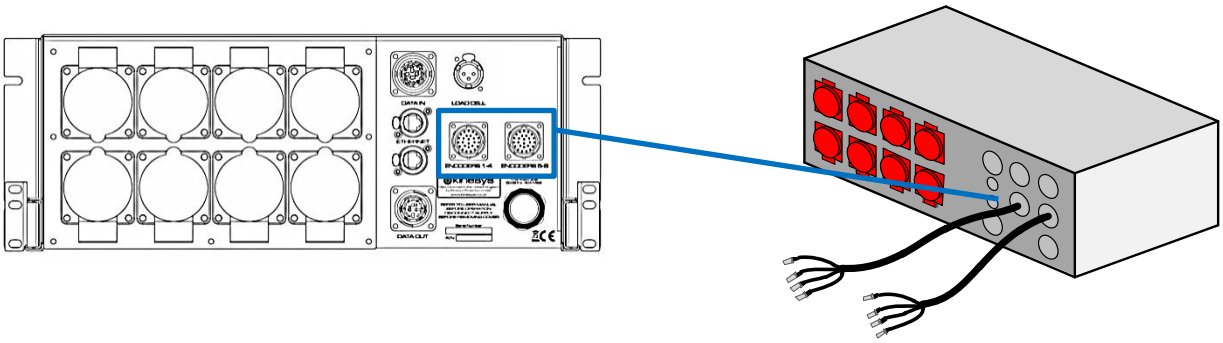
Twist locking ring to secure the connector

Connecting to a Hoist Encoder for positioning information

If the DigiHoist Controller has the Positioning and Ethernet upgrade option positioning information relating to each channel/hoist may be shown on the DigiHoists display.

1) Connect a Kinesys Encoder Fan Out cable (sold separately) to the DigiHoist Controllers Encoder Input 1-4 or 5-8.
2) Connect from the 4 way split end of the Encoder Fan Out cable to the encoder cable from your hoist.
3) Make sure to connect the correct hoist encoder to the correct encoder cables.

For more details on positioning information that can be displayed on the DigiHoist Controller refer to “Display and Menu Options” on page 41.

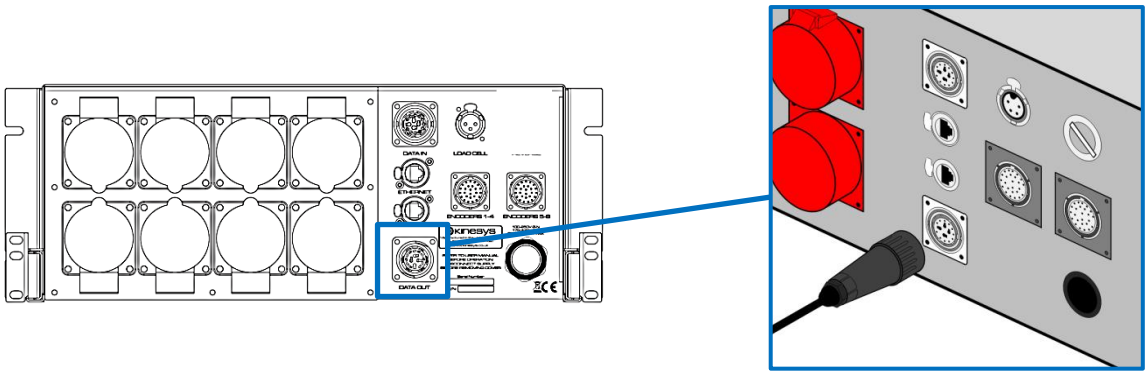


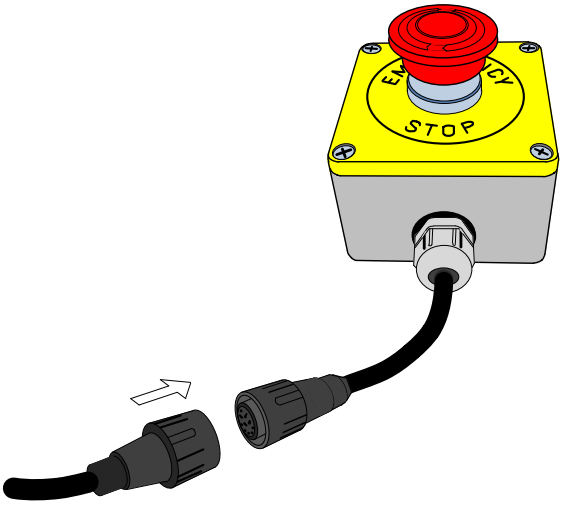
Connecting a remote Emergency Stop button

An additional remote Emergency Stop button can be connected to a DigiHoist Controller to give Emergency Stop functionality in a remote location.
Note: An Emergency Stop button is required for DigiHoists with the Ethernet and Positioning upgrade in order to receive control commands via Ethernet.

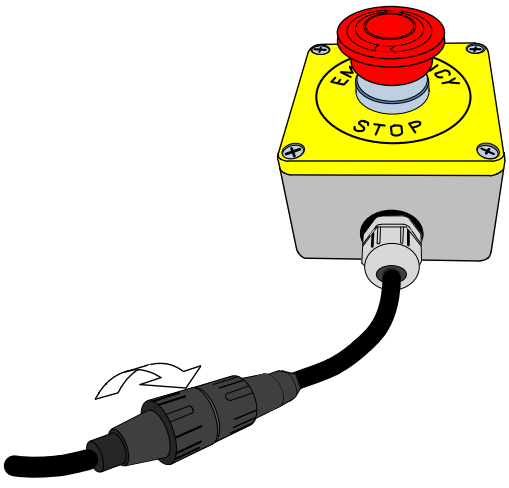
1) Connect the end of the Emergency Stop buttons cable (sold separately) to the DigiHoist Data Out socket. Twist the locking ring to secure it.
2) Position the Emergency Stop button within easy reach and visibility of an observer.

If a chain of DigiHoist Controllers is being used, connect the Emergency Stop button to the DigiHoist Data Out socket on the last unit in the chain. For more details on operating an Emergency Stop button or resetting from an Emergency Stop refer to “Testing and resetting the Emergency Stop system” on page 23.





Push connector onto socket



Twist locking ring to secure the connector

6. Getting Started

Hoist Power Key Functions

The Hoist Power Key governs the supply of power from the DigiHoist Controller to the connected Hoists. Its function will vary between the Low Voltage and Direct Control versions of the DigiHoist Controller.

Low Voltage Only

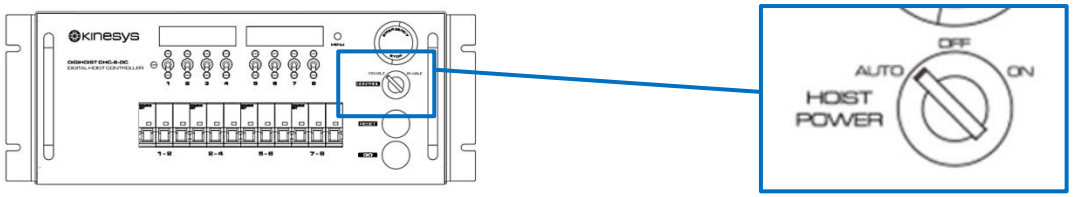
- Key Position OFF – No power is supplied to any hoists connected to the DigiHoist Controller.
- Key Position ON – Power is supplied to all connected hoists at all times other than when an Emergency Stop button has been pressed.
- Key Position AUTO – Power is supplied to all the connected hoists only when the “GO” button is pressed. Hoists connect will receive power even if they have not been selected to move. If DigiHoists are linked together the linked DigiHoists will only supply power to their hoists when selected to move.

Direct Control Only

- Key Position DISABLE – No power is supplied to any hoists connected to the DigiHoist Controller.
- Key Position ENABLE – Power is only supplied to the hoists that have been selected to move when the “GO” button is pressed. Any other hoists connected, but not selected to move, will not receive power.

The RESET button must be pressed whenever the Hoist Power Key switch position has been changed.

DigiHoist Controller Low Voltage



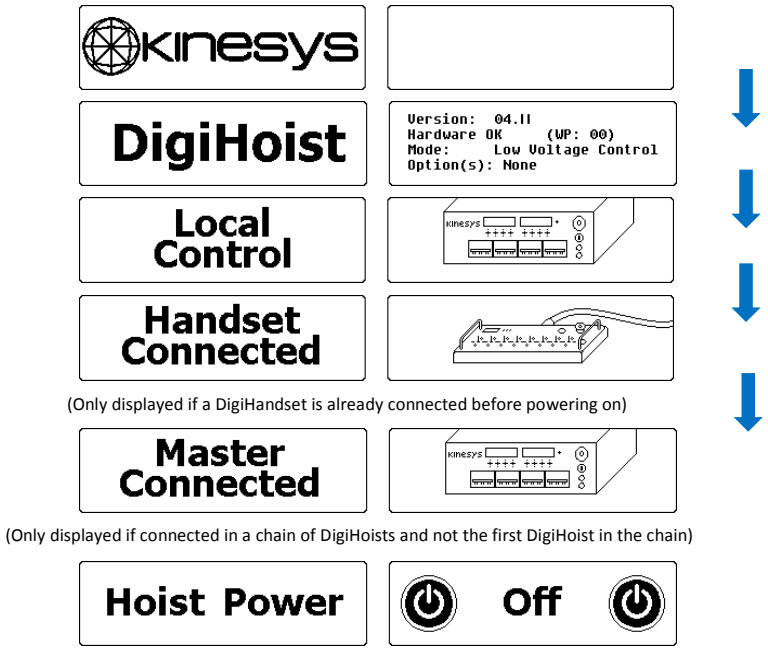
DigiHoist Controller Direct Control

The Hoist Power Key may only be removed while in the Disable, AUTO or OFF positions.

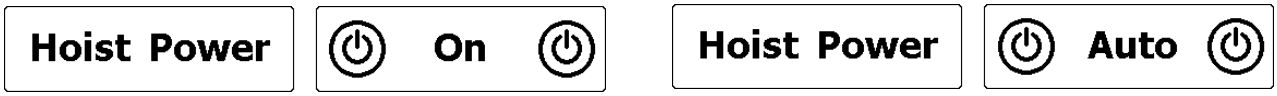
Powering on

Once all connections have been made to the DigiHoist Controller you are ready to power on. Supplying power to the DigiHoist controller will depend on where the unit is installed and the local set up. Please refer to a qualified person at the location the Digihoist Controller has been installed for confirmation of how to safely supply power to it.

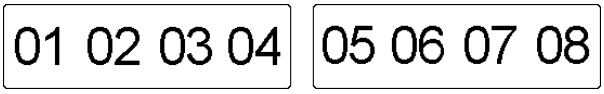
1) Make sure all Channel Breakers are set to the UP/ON position.
2) Set the Hoist Power Key to either the DISABLE or OFF position. For full details on the differences in Hoist Power Key functions refer to “Hoist Power Key Functions” on page 20.
3) Turn on the power supply to the DigiHoist Controller.
4) The RESET button will flash blue and the following messages will appear on the displays of the controller:



5) Switch the Hoist Power Key to either the ON, AUTO or ENABLE setting. For full details on the differences in Hoist Power Key functions refer to “Hoist Power Key Functions” on page20.
6) One of the following screens will appear:



7) Press the RESET button. The RESET buttons flashing blue light will stop and the following screen will appear:



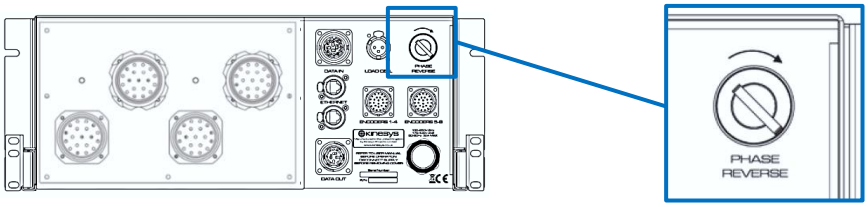
8) The GO button will illuminate and the system is now ready.
9) Test all emergency stop buttons prior to operating any hoists. See page 23 “Testing and resetting the Emergency Stop system.”

Phase Reverse Key (Low Voltage versions only)

The DigiHoist Controller will automatically adjust itself to take account of the incoming supply phase rotation. The Phase Reverse Key enables automatic adjustment to be over-ridden.

WARNING

- **Manually reversing the phasing of the incoming power supply can be dangerous. This action should only be carried out by a competent person.**
- **When moving hoists with the Phase Reverse Key switch set to ON the hoists will move in the opposite direction to that commanded and all hardware limit switches will be inoperable**
- **Some types of hoist use limit switches that can be damaged if the hoist is moved beyond the limit of travel. Check the manual supplied with the hoist or contact the hoist manufacturer for more information.**
- **Hoists with ultimate limits connected to a separate line contactor may operate the ultimate limits if bypassed. This will inhibit movement in any direction and may require removing the hoist cover to reset. Refer to the manual supplied with the hoist or contact the hoist manufacturer.**



To manually reverse the phase, follow the procedure below:

1) Follow the previous procedures “Connections” on page 15 and “Powering On” on page 21.
2) Turn and hold the Phase Reverse Key all the way to the right.
3) Press the flashing RESET button to reset the system.
4) While the Reverse Phase key is held in this position the incoming phase will be revered.
5) All on screen displays will report true movement and indications taking into account the change of phase.
6) As soon as the key is released the DigiHoist Controller will revert to its normal operation.

If the key is turned or released while movement is in progress all movement will cease. A reset of the system will be required to continue. Refer to “Resetting the System” on page 28.

Testing and resetting the Emergency Stop system

Once the DigiHoist Controller has been connected up and powered on and before commencing any operations, the Emergency Stop System must be tested to be sure it is fully operational.

Test the Emergency Stop System by following the procedure below.

1) Check the DigiHoist Controller is connected and powered on.
2) Press the Emergency Stop button on the DigiHoist Controller. Check to make sure the red light flashes in the centre of the Emergency Stop button and the “ESTOP Pressed” message appears on the displays.

ESTOP	Pressed

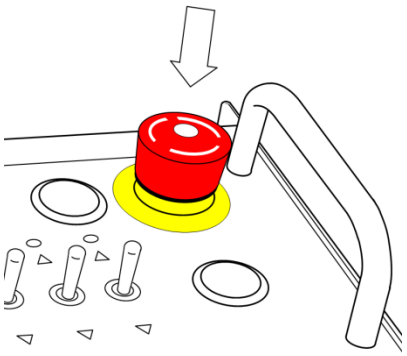
3) Turn the Emergency Stop button clockwise to release it.
4) The RESET button will be flashing blue to indicate the system needs to be reset. Press the RESET button on the DigiHoist Controller to reset the system.
5) The display will revert to its normal display.

01 02 03 04	05 06 07 08

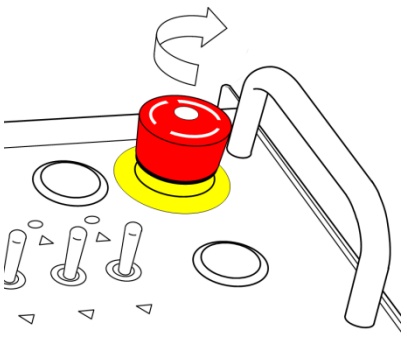
6) Test the other Emergency Stop buttons in the system by pressing each one in turn.
7) Check to make sure that that each time an Emergency Stop button, other than the one on the front of the DigiHoist Controller is pressed, the “ESTOP” message appears in the display of the DigiHoist Controller.

ESTOP	

8) Reset the system each time by turning the Emergency Stop button that has been pressed clockwise.
9) Either press the RESET button on the DigiHoist Controller or, if using a DigiHandset, press the RESET button on the DigiHandset.
10) Repeat steps 8 to 10 with each Emergency Stop button in the system until all the Emergency Stop buttons have been tested, the system has been stopped and a message displays for each button press.



Push to activate Emergency Stop



Turn to release Emergency Stop button

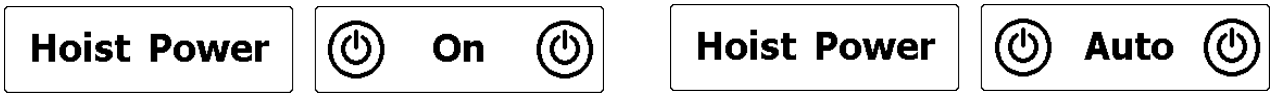
7. Controlling Hoists

Controlling a single Hoist

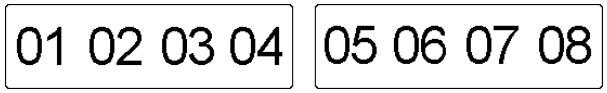
Once the DigiHoist Controller has been connected, powered on and the Emergency Stop system has been fully tested you are ready to commence controlling a hoist and moving a load.

To commence moving operations follow the procedure below.

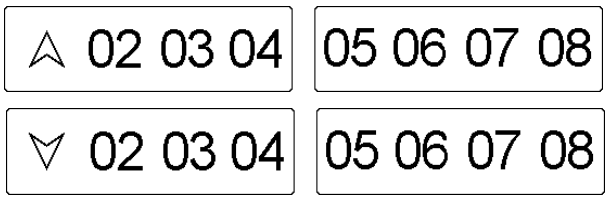
1) Depending on if you have a Direct Control or Low Voltage version of the DigiHoist Controller, set the Hoist Power Key to ENABLE, ON or AUTO. For full details on the differences in Hoist Power Key functions refer to “Hoist Power Key Functions” on page 20.
2) One of the following screens will appear:



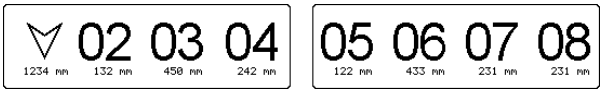
3) Press the flashing blue RESET button to reset the system.
4) The following screen will appear:



5) Identify which hoist you want to control. Make sure you know which of the 8 channels it is assigned to on the DigiHoist Controller and you have clear line of sight to the load that will be moving.
6) Select the direction of movement by moving a Channel Direction Toggle Switch for that specific channel UP or DOWN. The toggle switches are “momentary” switches. This means they will always return back to the centre position when released.
7) The UP or DOWN arrow above or below the toggle switch will illuminate to indicate the selected direction of movement: Green for UP and red for DOWN.
8) If the hoist selected is ready and able to move the GO button will illuminate white.
9) To activate the hoist press and hold the GO button. The hoist will continue to move in the selected direction while the GO button is pressed. The direction of movement is shown on the display with an Up or Down Arrow Icon.



10) If the DigiHoist Controller has the Positioning and Ethernet upgrade, the current hoist position will be indicated below each channel and will change as the hoist moves. For details on setting and configuring encoders refer to “System Setup Menu explanation” on page 50 and “Troubleshooting and FAQ’s” on page 68.



11) To cease movement release the GO button.
12) To de-select the channel currently set to move, move the Channel Direction Toggle Switch once in the opposite direction to that currently selected. The direction arrow, red or green, will stop illuminating.
13) If at any point an unexpected movement occurs press one of the Emergency Stop buttons to stop all movement and investigate the problem before continuing. For more details refer to “Testing and resetting the Emergency Stop system” on page 23.

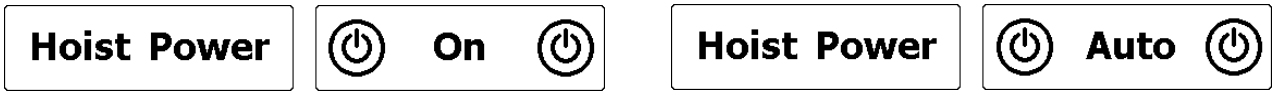
It is commonly thought of as best practice to set the Hoist Power Key Switch on the DigiHoist Controller to the OFF or DISABLE position when not using the DigiHoist Controller even if powered on. This stops the possibility of accidental channel selection or unintentional movements.

Controlling a group of Hoists

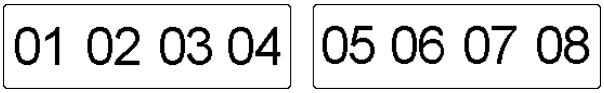
It is possible to control up to 8 hoists at the same time. This is referred to as a group. If a group of hoists contain different types or speed of movement it is important to remember that the distance traveled by each hoist may be different even though they are being moved for the same length of time.

To control a group of hoists follow the procedure below.

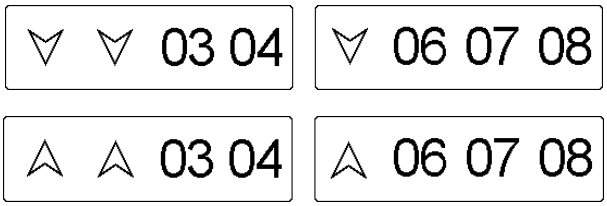
1) Depending on if you have a Direct Control or Low Voltage version of the DigiHoist Controller, set the Hoist Power Key to ENABLE, ON or AUTO. For full details on the differences in Hoist Power Key functions refer to “Hoist Power Key Functions” on page 20.
2) One of the following screens will appear:



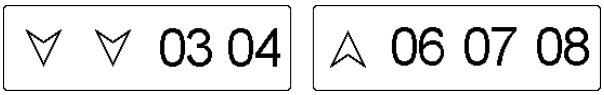
3) Press the flashing blue RESET button to reset the system.
4) The following screen will appear:



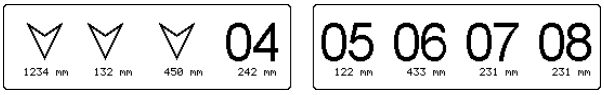
5) Identify the group of hoists you wish to control making sure you know which of the 8 channels they are assigned to on the DigiHoist Controller and that you have a clear line of sight to the load to be moved.
6) Select the direction of movement by moving the Channel Direction Toggle Switches for each channel you want to control UP or DOWN. The toggle switches are “momentary” switches. This means they will always return back to the centre position when released.
7) The UP or DOWN arrows above or below each selected toggle switch will illuminate to indicate the selected direction of movement. Green for UP and red for DOWN.
8) If all the selected hoists in the group are ready and able to move the GO button will illuminate white.
9) To activate the hoists press and hold the GO button. The group of hoists will continue to move in the selected direction while the GO button is pressed. The direction of movement is shown on the display with Up or Down Arrow icons.



10) If you chose different directions for different hoists, the direction of movement will be indicated on screen with Up or Down Arrow icons



11) If the If the DigiHoist Controller has the Positioning and Ethernet upgrade, the current hoist position will be indicated below each channel and will change as the hoist moves. For details on setting and configuring encoders refer to “System Setup Menu explanation” on page 50 and “Troubleshooting and FAQ’s” on page 68.



12) To cease movement release the GO button.
13) To de-select the channels currently set to control, move the Channel Direction Toggle Switches once in the opposite direction to that currently selected. The direction arrows, green or red, will stop illuminating.
14) If at any point an unexpected movement occurs press one of the Emergency Stop buttons to stop all movement and investigate the problem before continuing. For more details refer to “Testing and resetting the Emergency Stop system” on page 23.

It is commonly thought of as best practice to set the Hoist Power Key Switch on the DigiHoist Controller to the OFF or DISABLE position when not using the DigiHoist Controller even if powered on. This stops the possibility of accidental channel selection or unintentional movements.

Group Halt

A Group Halt is defined as a group of hoists that were moving together at the same time that have been stopped due to one or more hoists developing a fault, reaching a pre-determined limit or certain other situations as defined below. In these instances the movement of all hoists in the group will cease until the problem is resolved and the system is reset.

Circumstances that can trigger a group halt include:

- If a hoist or loadcell is not present but selected
- Overload detected (Load monitoring device required)
- Underload detected (Load monitoring device required)
- Software Up Limit setting reached (Ethernet and Positioning version only) Refer to “System Setup Menu” on page 48.
- Software Down Limit setting reached (Ethernet and Positioning version only) Refer to “System Setup Menu” on page 48.
- Hard Up limit setting reached (Low Voltage version only)
- Hard Down limit setting reached (Low Voltage version only)

Other instances that can stop hoists from moving:

- The activation of any Emergency Stop button connected to the system while a move is taking place
- Connecting a DigiHandset to a DigiHoist Controller while using front panel controls or computer control software
- Disconnecting a DigiHandset while using it
- Taking control of the DigiHoist Controller with Vector control software while using front panel controls or a DigiHandset
- Interruption to the power supply of the DigiHoist Controller
- The RCD being tripped while a move is taking place
- A fault developing with any of the hoists moving in the group

The list above is by no means the only possible cause or reason a Group Halt could happen. For more information on limits and settings that can trigger a Group Halt refer to “Displays and Menu Options” on page 41.

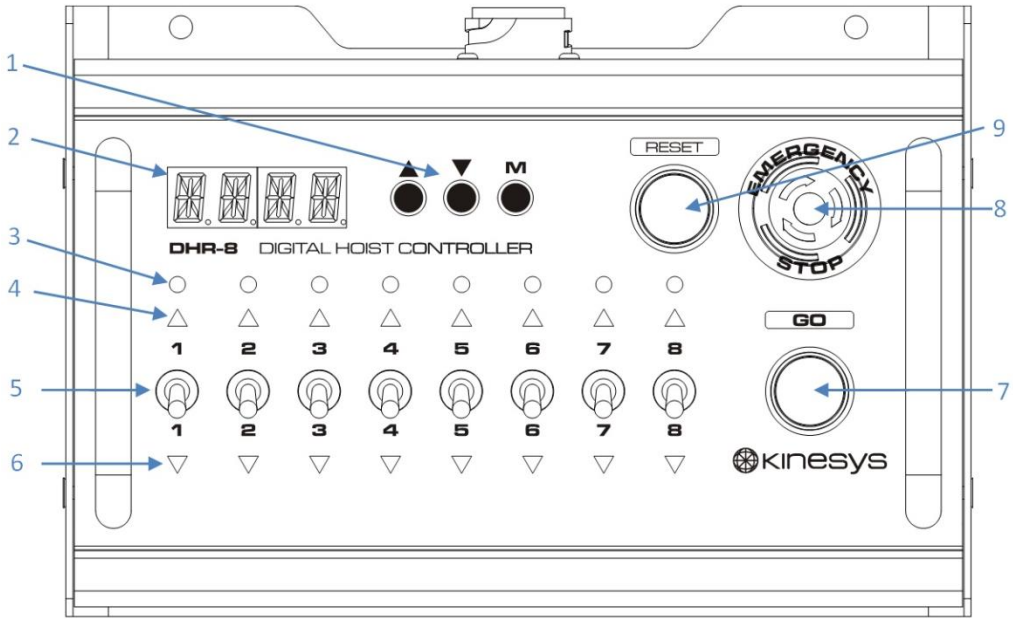
Resetting the system

If the system needs to be reset from a fault, a limit being reached or for other reasons, the RESET button will flash and you may also see “PRESS RESET” displayed on the DigiHoist screens, RST or RSTL on a DigiHandset display. The system may also need to be reset even after an issue has been resolved. In these cases press the flashing RESET button and the system will be reset. If for any reason pressing RESET does not reset the system investigate the issue and refer to “Troubleshooting and FAQ’s” on page 68.

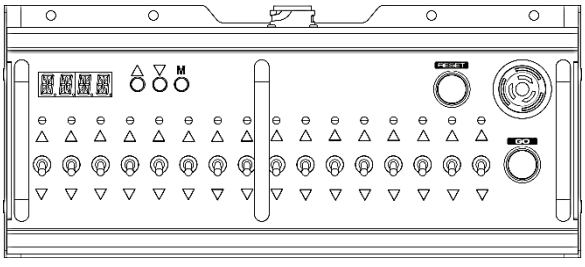
8. Controlling A DigiHoist Controller Remotely With A DigiHandset

There are 3 versions of the DigiHandset available, 8, 16 or 32 channels (sold separately). The following operating instructions pertain to all variants.

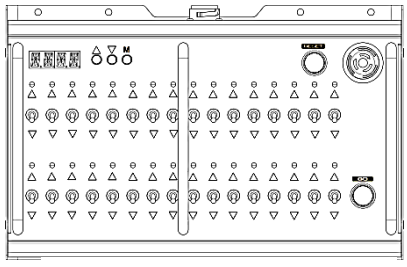
Layout



1 **Menu and Menu Navigation Buttons**
2 **LED Display**
3 **Channel Status Indicator** - Will light blue when a hoist is present on that channel
4 **Channel UP Direction Indicator** - Will light green to indicate the direction selected
5 **Channel Direction Toggle Switch** - Used to select required direction of movement
6 **Channel DOWN Direction Indicator** - Will light red to indicate the direction selected
7 **Go Button** - Will light when ready and used to initiate movement
8 **Emergency Stop Button** - Used in the event of an emergency to stop all movement in the system
9 **RESET button** - Will flash to indicate a reset is required and used to reset the system



16 Channel DigiHandset



32 Channel DigiHandset

Overview

When a DigiHandset is connected to a DigiHoist Controller it will automatically take over control from all the front panel controls with the exception of the Emergency Stop button. Any attempt to use the GO, RESET, or Channel Direction Toggle Switches on the DigiHoist Controller will have no effect and will result in an information message being displayed.

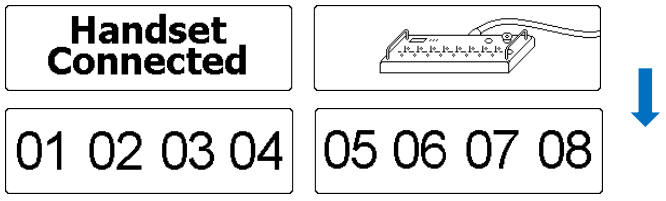
The addressing of channels will happen automatically when the DigiHandset is connected. For more information on addressing refer to “Addressing” on page 34. Hoists status will be indicated by the blue Channel Status Indicator lights and Handset Display on the DigiHandset. For more details on the DigiHandset menu and displays refer to “The DigiHandset Display” on page 60

Controlling a single Hoist using a DigiHandset

Once the DigiHoist Controller has been connected up, powered on, and the Emergency Stop system has been fully tested you are ready to connect the DigiHandset and commence controlling a hoist and moving a load.

To control a single hoist connected to a DigiHoist Controller from a DigiHandset follow the procedure below.

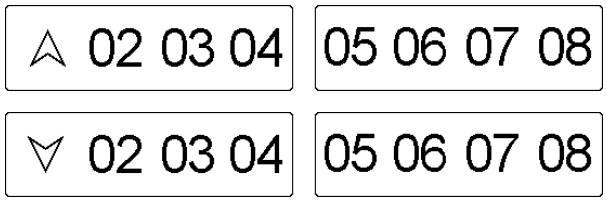
1) Connect the DigiHandset to the DigiHoist Controller. For details on how to connect a DigiHandset refer to “Connecting a DigiHandset” on page 18.
2) The display of the DigiHoist Controller will briefly indicate that you have taken over control with the following display.



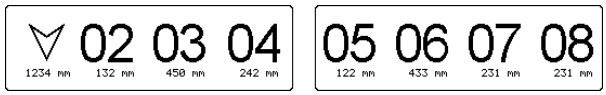
3) The display of the DigiHandset will show RSTL and the blue reset button will flash to indicate the system needs to be reset.

4) Depending on if you have a Direct Control or Low Voltage version of the DigiHoist Controller, set the Hoist Power Key to ENABLE, ON or AUTO. For full details on the differences in Hoist Power Key functions refer to “Hoist Power Key Functions” on page 20.

5) Press the RESET button on the DigiHandset. With Direct Control DigiHoists the Channel Status Indicators will all come on steady blue. For Low Voltage versions only those channels with a hoist connected will light. If any of the Channel Status Indicators are flashing blue this indicates an issue with the hoist connected to that channel. For more details refer to “The DigiHandset Display” on page 60.
6) The DigiHandset display will show RDY to indicate it is connected, the channels have been addressed and it’s ready to use.
7) Identify which hoist you want to control. Make sure you know which of the 8 channels it is assigned to on the DigiHoist Controller and you have clear line of sight to the load that will be moving.
8) Select the direction of movement by moving a Channel Direction Toggle Switch for that specific channel UP or DOWN on the DigiHandset.
9) The UP or DOWN arrow above or below the toggle switch will illuminate green for UP and red for DOWN to indicate the selected direction of movement.
10) If the hoist selected is ready and able to move the GO button on the DigiHandset will illuminate white.
11) To activate the hoist press and hold the GO button on the DigiHandset. The hoist will continue to move in the selected direction while the GO button is pressed. The direction of movement is shown on the display of the DigiHoist with an Up or Down Arrow Icon.



12) If the DigiHoist Controller has the Positioning and Ethernet upgrade, the current hoist position will be indicated below each channel and will change as the hoist moves.



13) To cease movement release the GO button on the DigiHandset.
14) To de-select the channel currently set to move, move the Channel Direction Toggle Switch back to the centre position. The direction arrow will stop illuminating.

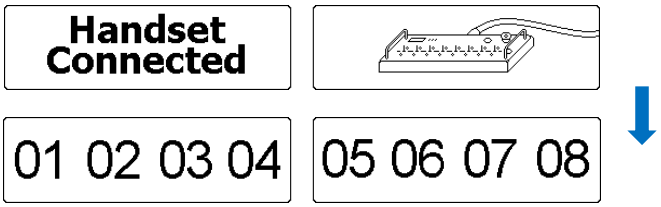
It is commonly thought of as best practice to set the Hoist Power Key Switch on the DigiHoist Controller to the OFF or DISABLE position when not using the DigiHoist Controller even if powered on. This stops the possibility of accidental channel selection or unintentional movements.

Controlling a group of Hoists using a DigiHandset

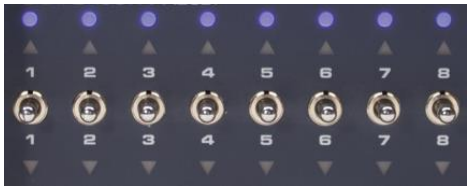
It is possible to control up to 8 hoists at the same time. This is referred to as a group. If a group of hoists contain different types or speed of movement it is important to remember that the distance traveled by each hoist may be different even though they are being moved for the same length of time.

To control a group of hoists follow the procedure below.

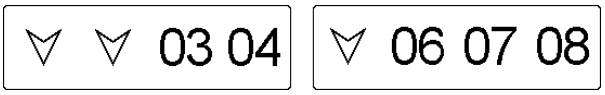
1) Connect the DigiHandset to the DigiHoist Controller. For details on how to connect a DigiHandset refer to “Connecting a DigiHandset” on page 18.
2) The display of the DigiHoist Controller will briefly indicate that you have taken over control with the following display.



3) The display of the DigiHandset will show RSTL and the blue reset button will flash to indicating the system needs to be reset.
4) Depending on if you have a Direct Control or Low Voltage version of the DigiHoist Controller, set the Hoist Power Key to ENABLE, ON or AUTO. For full details on the differences in Hoist Power Key functions refer to “Hoist Power Key Functions” on page 20.
5) Press the RESET button on the DigiHandset. With Direct Control DigiHoists the Channel Status Indicators will all come on steady blue. For Low Voltage versions only those channels with a hoist connected will light. If any of the Channel Status Indicators are flashing blue this indicates an issue with the hoist connected to that channel. For more details refer to “The DigiHandset Display” on page 60.
6) The DigiHandset display will show RDY to indicate it is connected, the channels have been addressed and it’s ready to use.
7) Identify which group of hoist you want to control. Make sure you know which of the 8 channels they are assigned to on the DigiHoist Controller and you have clear line of sight to the load that will be moving.
8) Select the direction of movement by moving the Channel Direction Toggle Switches for each channel UP or DOWN on the DigiHandset.

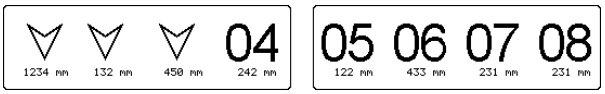


9) The UP or DOWN arrows above or below the toggle switches will illuminate green for UP and red for DOWN to indicate the selected direction of movement.
10) If the hoists selected are ready and able to move the GO button on the DigiHandset will illuminate white.
11) To activate the hoists press and hold the GO button on the DigiHandset. The hoist will continue to move in the selected direction while the GO button is pressed. The direction of movement is shown on the display of the DigiHoist with an Up or Down Arrow Icon.



12) If you chose different directions for different hoists, the direction of movement will be indicated on screen with Up or Down Arrow icons

13) If the DigiHoist Controller has the Positioning and Ethernet upgrade, the current hoist position will be indicated below each channel and will change as the hoist moves.



14) To cease movement release the GO button on the DigiHandset.
15) To de-select the channel currently set to move, move the Channel Direction Toggle Switch back to the center position. The direction arrow will stop illuminating.

It is commonly thought of as best practice to set the Hoist Power Key Switch on the DigiHoist Controller to the OFF or DISABLE position when not using the DigiHoist Controller even if powered on. This stops the possibility of accidental channel selection or unintentional movements.

9. Advanced Operations

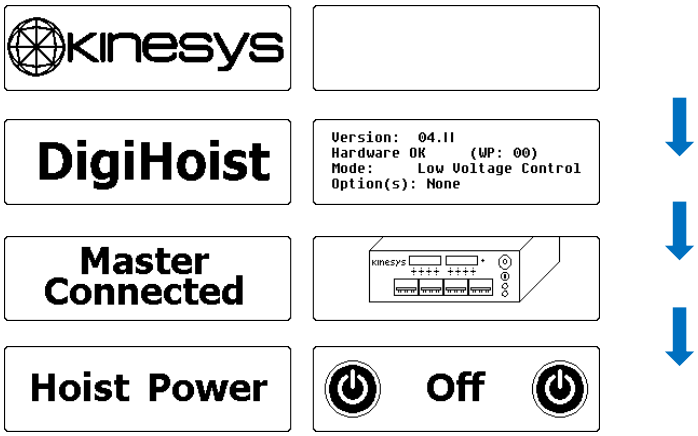
Addressing

A DigiHoist Controller will automatically assign channels to the hoists connected to it from 1 to 8. When connecting hoists to a DigiHoist Controller you should make sure you know which hoist is connected to which channel. For more details on connecting hoists to a DigiHoist Controller refer to “Connecting the Hoist Power Cable” on page 16 as well as the literature supplied with the hoist.

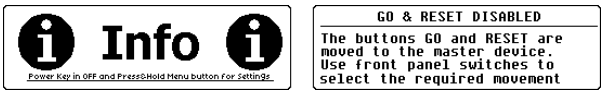
Linking and addressing more than one DigiHoist Controller

When linking DigiHoist Controllers together the first DigiHoist Controller in the chain will be assigned the “Master” controller and will assign all subsequent channels in sequence, for example the first “Master” DigiHoist will be channels 1-8, the second DigiHoist Controller will be channels 9-16, the third DigiHoist Controller will be channels 17 to 24 and so on for a maximum of 12 DigiHoist Controllers controlling 96 hoists. In this configuration the “Master” DigiHoist will be the only unit with its GO and REST buttons active.

Upon powering on a chain of DigiHoist Controllers, all but the fist DigiHoist Controller in the chain will briefly display the following sequence of displays.



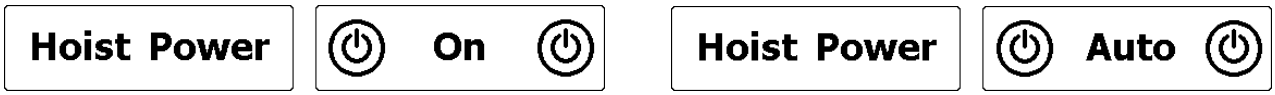
If an attempt is made to use the GO or RESET buttons on any but the first DigiHoist Controller the following message will appear.



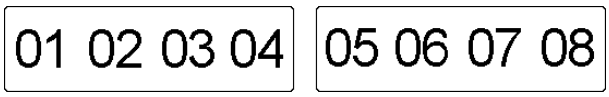
Controlling Hoists when DigiHoist Controllers are linked together

To control hoists when DigiHoist Controllers are linked together, powered on and the Emergency Stop system tested, follow the process below. For more details on linking DigiHoist Controllers together, powering on or testing the Emergency Stop System refer to “Connecting more than one DigiHoist Controller together” on page 17 “Powering On” on page 21 and “Testing and Resetting the Emergency Stop system” on page 23.

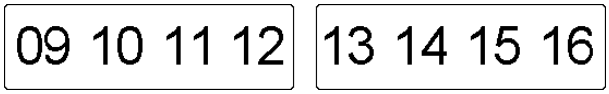
1) Depending on if you have a Direct Control or Low Voltage version of the DigiHoist Controller, set the Hoist Power Key to ENABLE, ON or AUTO on all of the connected DigiHoist Controllers in the system. For full details on the differences in Hoist Power Key functions refer to “Hoist Power Key Functions” on page 20.
2) One of the following screen will appear on each DigiHoist Controller:



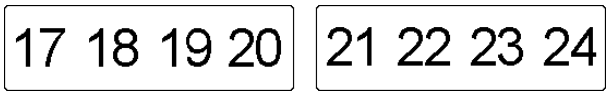
3) Press the flashing blue RESET button on the “Master” DigiHoist Controller to reset the system.
4) The following screens will appear in groups of 8 for up to a maximum of 96 channels:



Master Main Display



Second DigiHoist Main Display

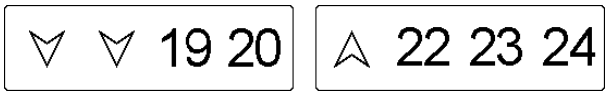


Third DigiHoist Main Display

5) Identify which hoist or group of hoists you want to control. Make sure you know which of the hoists are assigned to which channel on which DigiHoist Controller and you have clear line of sight to the load that will be moving.
6) Select the direction of movement by moving the Channel Direction Toggle Switches UP or DOWN on the relevant DigiHoist Controller in the system. The toggle switches are “momentary” switches. This means they will always return back to the centre position when released.

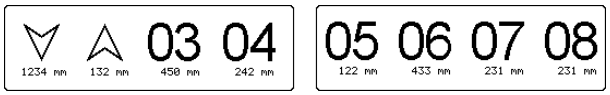
7) The UP or DOWN arrow above or below the toggle switches will illuminate to indicate the selected direction of movement. Green for UP and red for DOWN.
8) If the hoist or group of hoists selected are ready and able to move the GO button on the “Master” DigiHoist Controller will illuminate white.
9) To activate the hoist or group of hoists press and hold the GO button on the Master DigiHoist Controller. The hoists will continue to move in the selected direction while the GO button is pressed. The direction of movement is shown on the display of the DigiHoist Controller being controlled with an Up or Down Arrow Icon.

If the Master DigiHoist is being controlled



If the Third DigiHoist is being controlled

10) If the DigiHoist Controllers being controlled have the Positioning and Ethernet upgrade, the current hoist position will be indicated below each channel and will change as the hoist moves.



If the Master DigiHoist is being controlled

If the Second DigiHoist is being controlled

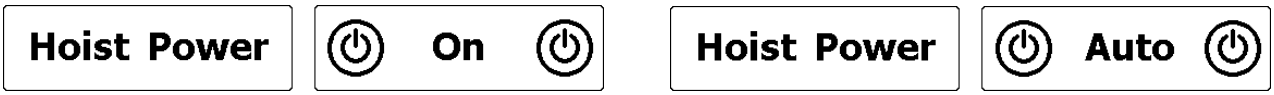
11) To cease movement release the GO button on the Master DigiHoist Controller.
12) To de-select the channel currently set to move on the relevant DigiHoist Controllers, move the Channel Direction Toggle Switch once in the opposite direction to that currently selected. The direction arrow, red or green, will stop illuminating.

It is commonly thought of as best practice to set the Hoist Power Key Switch on the DigiHoist Controller to the OFF or DISABLE position when not using the DigiHoist Controller even if powered on. This stops the possibility of accidental channel selection or unintentional movements.

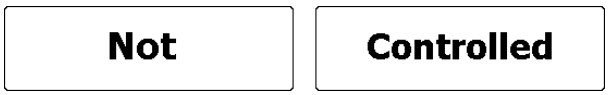
Controlling Hoists with a DigiHandset when DigiHoist are linked together

To control hoists from a DigiHandset when DigiHoist Controllers are linked together, powered on and the Emergency Stop system tested, follow the process below. For more details on linking DigiHoist Controllers together, connecting a DigiHandset, powering on or testing the Emergency Stop System refer to “Connecting more than one DigiHoist Controller together” and “Connecting a DigiHandset” on page 18, “Powering On” on page 21 and “Testing and Resetting the Emergency Stop system” on page 23.

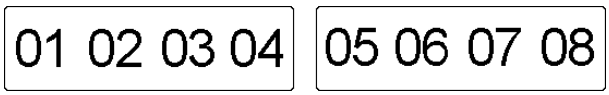
1) Depending on if you have a Direct Control or Low Voltage version of the DigiHoist Controller, set the Hoist Power Key to ENABLE, ON or AUTO on all of the connected DigiHoist Controllers in the system. For full details on the differences in Hoist Power Key functions refer to “Hoist Power Key Functions” on page 20.
2) One of the following screen will appear on each DigiHoist Controller:



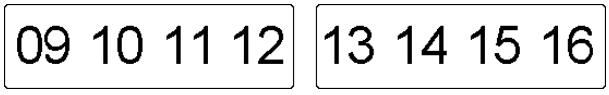
3) In the event that there are more hoists assigned than controls on the DigiHandset the following message will appear on the displays of the DigiHoist Controllers that cannot be controlled. For more details on display messages and troubleshooting refer to “Display and menu options” on page 41 and “Troubleshooting and FAQ’s” on page 68.



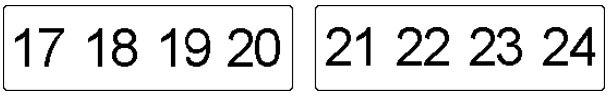
4) Press the flashing blue RESET button on the DigiHandset to reset the system.
5) The following screens will appear in groups of 8 on each DigiHoist Controller in the system for up to a maximum of 96 channels:



Master Main Display

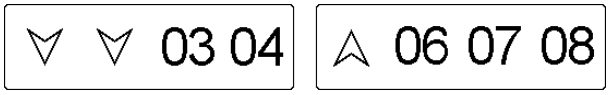


Second DigiHoist Main

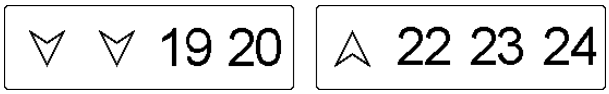


Third DigiHoist Main Display

6) Identify which hoist or group of hoists you want to control. Make sure you know which of the hoists are assigned to which channel on which DigiHoist Controller and you have clear line of sight to the load that will be moving.
7) Select the direction of movement by moving the Channel Direction Toggle Switches UP or DOWN on the DigiHandset
8) The UP or DOWN arrow above or below the toggle switches will illuminate to indicate the selected direction of movement. Green for UP and red for DOWN.
9) If the hoist or group of hoists selected are ready and able to move the GO button on the DigiHandset will illuminate white.
10) To activate the hoist or group of hoists press and hold the GO button. The hoists will continue to move in the selected direction while the GO button is pressed. The direction of movement is shown on the display of the DigiHoist Controller being controlled with an Up or Down Arrow Icon.

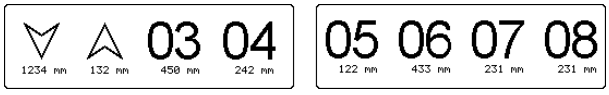


If the Master DigiHoist is being controlled

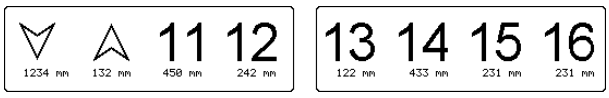


If the Third DigiHoist is being controlled

11) If the DigiHoist Controllers being controlled have the Positioning and Ethernet upgrade, the current hoist position will be indicated below each channel and will change as the hoist moves.



If the Master DigiHoist is being controlled



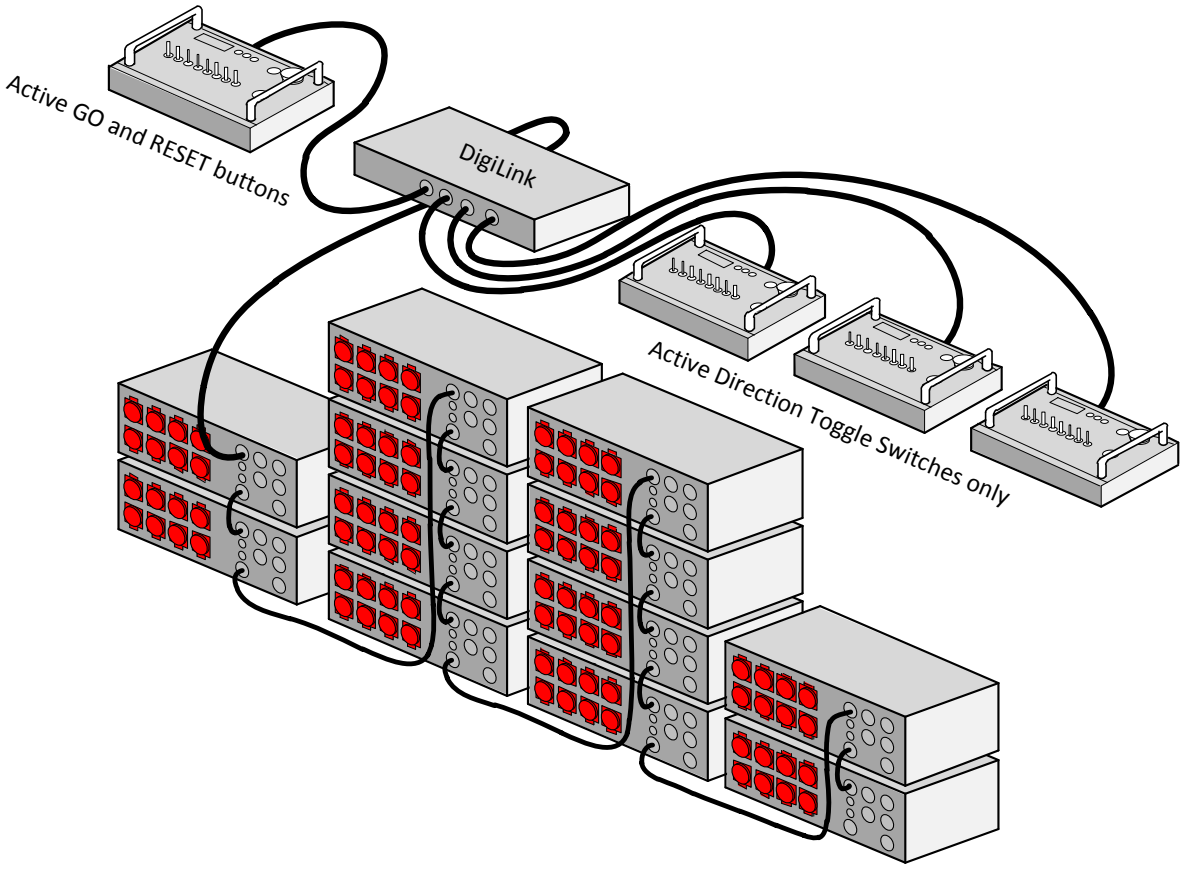
If the Second DigiHoist is being controlled

12) To cease movement release the GO button on the DigiHandset.
13) To de-select the channel currently set to move, on the DigiHandset, move the Channel Direction Toggle Switch back to the centre position. The direction arrow, red or green, will stop illuminating.

It is commonly thought of as best practice to set the Hoist Power Key Switch on the DigiHoist Controllers to the OFF or DISABLE position when not using the DigiHoist Controllers even if powered on. This stops the possibility of accidental channel selection or unintentional movements.

Using a DigiLink with multiple handsets in a large system

In order to control a system of greater than 32 channels, multiple DigiHandsets are required. The Kinesys DigiLink connects up to four DigiHandsets together so that a single handset GO button can control up to 96 hoists. The DigiLink will limit the start of movement to a single GO button on the first DigiHandset while ensuring that all Emergency Stop buttons remain active at all times.

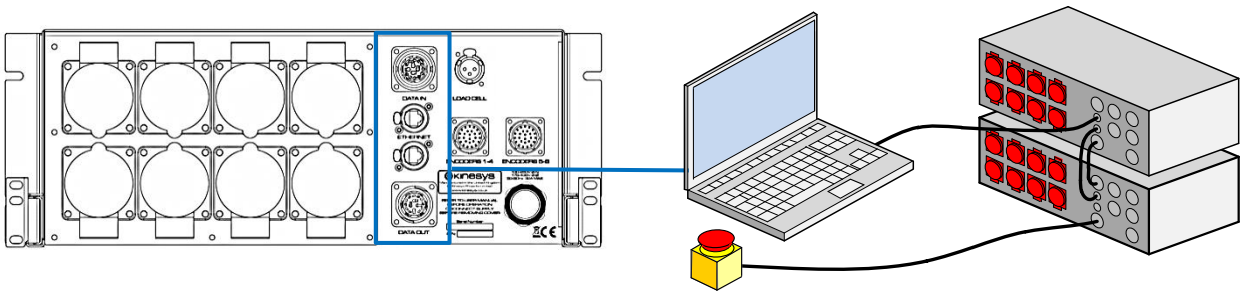


For more details on connecting and using the other features of a DigiLink refer to the manual supplied with the DigiLink. For more details on operating a DigiHoist from a DigiHandset connected to a DigiLink refer to “Linking and Addressing More Than One DigiHoist Controller” on page 34 and “Controlling Hoists with a DigiHandset when DigiHoist are Linked Together” on page 37.

Computer controlled movements

If the DigiHoist Controller has the Ethernet and Positioning upgrade it is possible to program moves and cues through Kinesys software programs such as Vector or K2. In order to control a DigiHoist Controller from computer software follow the process below.

1) Connect an Ethernet cable (sold separately) from the DigiHoist Controllers Ethernet port to the computers Ethernet port or an Ethernet Switch/Hub.



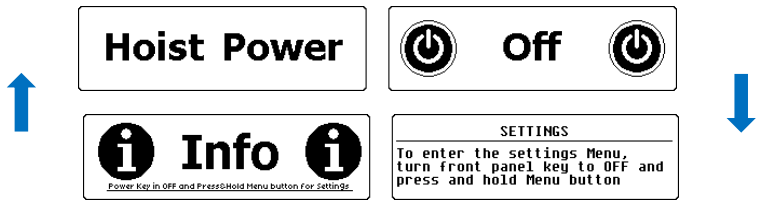
2) Connect an Ethernet and DigiLink cable between each DigiHoist Controller. For more information on linking DigiHoist Controllers together refer to “Connecting more than one DigiHoist Controller together” on page 17 and “Linking and addressing more than one DigiHoist Controller” on page 34.
3) Connect an Emergency Stop button to the Data OUT connection on the last DigiHoist in the chain.
4) While the DigiHoist Controller is being controlled by software, the GO/ RESET buttons and Direction Toggle Switches will be inactive.
5) After 60 seconds of inactivity, the front panel controls on the DigiHoist Controller will become active again.
6) Motion Control Software can take control of the DigiHoist Controller at any time by launching cues sending movement commands.
7) If a movement is being performed by the front panel controls of the DigiHoist Controller, the software can take control at any time regardless of any current movements. As an example if someone were to press the space bar on the keyboard of the computer running Vector while someone else were controlling the DigiHoist Controller with its front panel controls, all movement would stop and Vector would then take control.
8) In the event a DigiHandset is connected to the DigiHoist Controller when being controlled by software, all movement will cease and control will be transferred to the DigiHandset. As soon as the DigiHandset is disconnected, control is re-established with the computer automatically.
9) Refer to the operating manual for the software for information on how to install and set up as well as running and controlling moves, cues and other features.

10. Displays And Menu Options

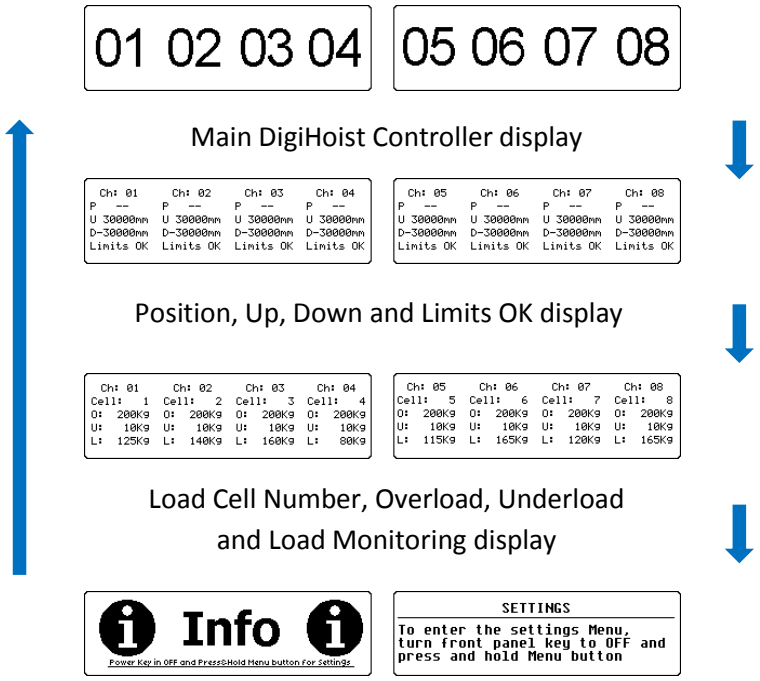
The DigiHoist Controller has two OLED Display windows to convey system and channel specific information.

Information screens

With the Hoist Power Key in the OFF or DISABLE positions pressing the MENU button will cycle between the following displays:



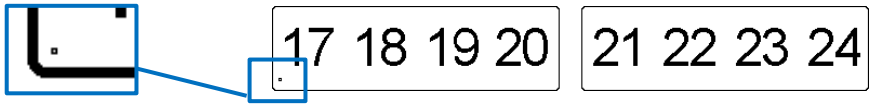
With the Hoist Power Key in the ON, ENABLE or AUTO positions pressing the Menu button can show various screens depicting information for hoist position, limit settings, load limits and live load information. The information displayed will depend on which DigiHoist Controller it is, if it has the Ethernet and Positioning option, is connected to the hoists encoders and if Load Monitoring shackles are present or not. Pressing the MENU button will cycle through the following displays:



Pressing RESET at any stage will take you back to the Main Display

System wide messages

System wide messages are icons and screens that relate to all channels and the DigiHoist Controller as a whole.

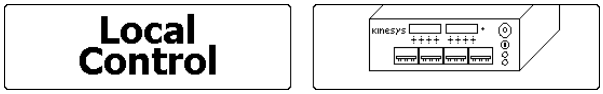


A flashing square in the bottom left corner of the left hand display indicates the system is working correctly.

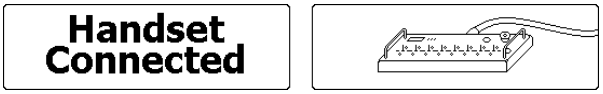
Listed below are the system wide messages that may appear on the DigiHoist Controller displays.

The Kinesys Logo will display when the DigiHoist Controller is first powered on.

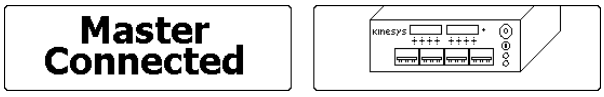
DigiHoist Controller information screen showing software version and model type.



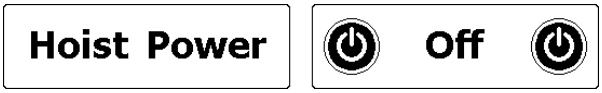
"Local Control" will show on screen briefly when powering up to indicate local front panel controls are currently active.



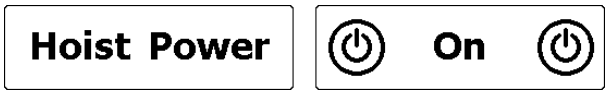
"Handset Connected" will show briefly when a DigiHandset is connected to the DigiHoist Controller or if it powers on with one already connected.



"Master Connected" will show briefly when the DigiHoist Controller powers on if it is linked in a chain of DigiHoist Controllers to show that the GO and RESET buttons are now active on the Master Controller only.



The Hoist Power Key is in the "OFF" position. For more details refer to "Hoist Power Key Functions" on page 20.



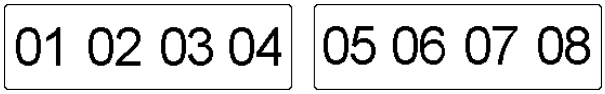
The Hoist Power Key is in the "ON/ENABLE" position. For more details refer to "Hoist Power Key Functions" on page 20.

System wide messages continued

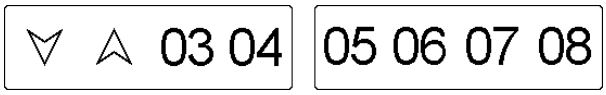
Hoist Power / On	The Hoist Power Key is in the “AUTO” position. (Low Voltage versions only). For more details refer to “Hoist Power Key Functions” on page 20.
Press / Reset	The system needs to be reset. Press the RESET button to continue.
ESTOP / Pressed	The Emergency Stop button has been pressed on the DigiHoist Controller. Refer to “Testing and resetting the Emergency Stop system” on page 23.
ESTOP /	The Emergency Stop button has been pressed somewhere in the system. This could be any of the Emergency Stop buttons connected to the system. Refer to “Testing and resetting the Emergency Stop system” on page 23.
Phase / Fault	“Phase Fault” indicates there is an issue with the incoming power supply to the DigiHoist Controller. Refer to “Mains Connection” and “Phase Sequence” on page 15 and “Troubleshooting and FAQ’s” on page 68.
Not / Addressed	If connecting lots of DigiHoist Controllers together in a chain, “Not Addressed” will display if there are not enough channels available for the Master Controller to control this unit, if there is a fault with a connecting cable or no DigiHandsets connected.
Not / Controlled	“Not Controlled” will display if there is a DigiHandset connected but there are more hoists connected to the system than controls on the DigiHandset.

Channel specific messages

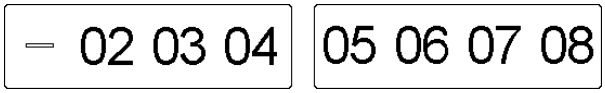
Channel specific messages are icons and messages that may appear on the display of the DigiHoist Controller to show specific information relating to a particular channel/hoist or group of channels/ hosts.



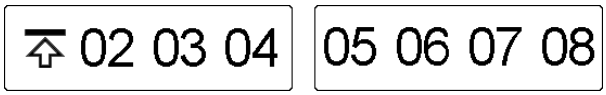
Channel Numbers will indicate which Direction Toggle Switch relates to which channel up to a maximum of 96.



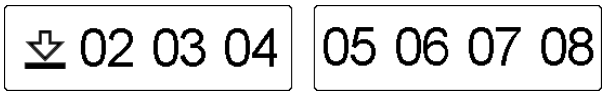
An UP or DOWN arrow icon indicates the current direction of movement of a specific channel. It will only display while the GO button is pressed and the hoist is moving.



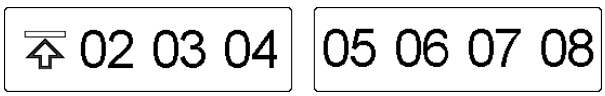
A line icon in place of a channel number indicates an issue with a hoist or that a hoist is not connected to that channel. (Low Voltage versions only) Refer to “Troubleshooting and FAQ’s” on page 68.



An UP arrow Icon with a solid line indicates a “Hard” Up Limit has been reached for that channel (Low Voltage version only). For more details refer to “System Setup Menu explanation” on page 50.

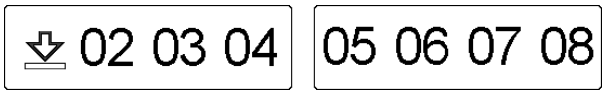


A DOWN arrow icon with a solid line indicates a “Hard” Down Limit has been reached for that channel (Low Voltage version only). For more details refer to “System Setup Menu explanation” on page 50.

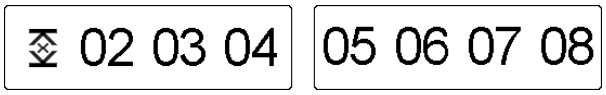


An UP arrow icon with an outlined line indicates a ”Soft” Up Limit has been reached for that channel (Ethernet and Positioning version only). For more details refer to “System Setup Menu” on page 48.

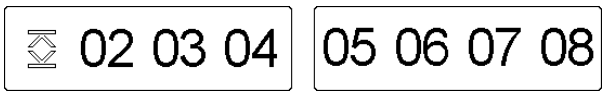
Channel specific messages continued



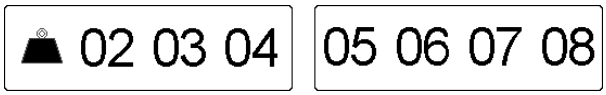
A DOWN arrow icon with an outlined line indicated a “Soft” Down Limit has been reached for that channel (Ethernet and Positioning version only). For more details refer to “System Setup Menu” on page 48.



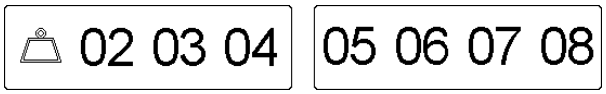
This icon indicates that Hard Limits have been bypassed for that channel (Low Voltage versions only). For more details refer to “System Setup Menu” on page 48.



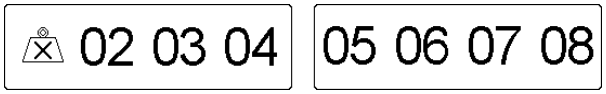
This icon indicates that the Soft Limits have been bypassed on that channel. For more details refer to “System Setup Menu” on page 48.



A solid weight icon indicates an Overload has been detected according to the Overload Limits that have been set for that channel (only when connected to a LoadCell). For more details on limit settings refer to “System Setup Menu” on page 48.

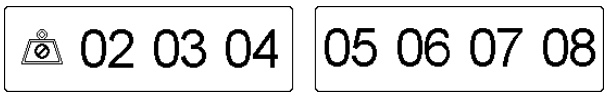


An outlined weight icon indicates an Underload has been detected according to the Underload Limits that have been set for that channel (only when connected to a LoadCell). For more details refer to “System Setup Menu” on page 48.

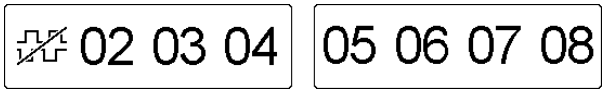


An outlined weight icon with a cross indicates there are settings relating to Underload and Overload set but no Load Monitoring Shackle present at that address.

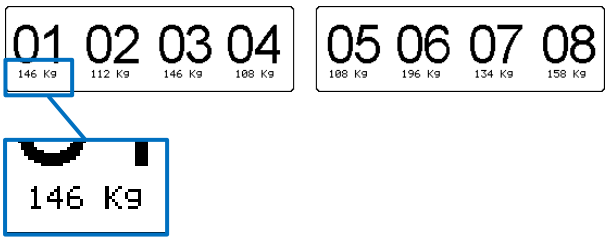
Channel specific messages continued



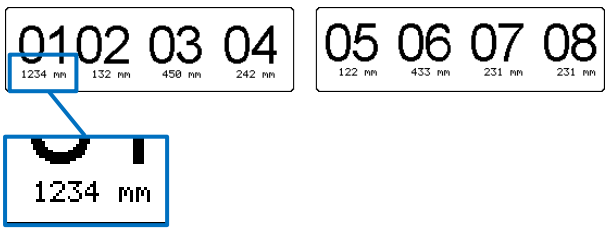
A weight icon with a “No Entry” sign indicates that Underload settings have been bypassed on that channel (only when connected to a LoadCell). For more details refer to “System Setup Menu” on page 48.



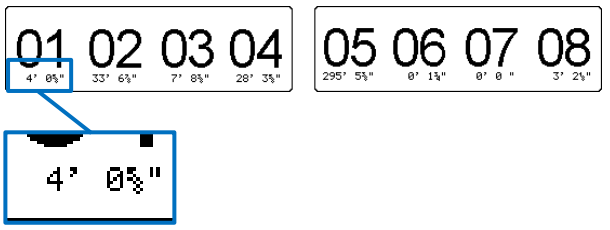
This icon indicates a possible fault with a connected encoder on that channel. For more details refer to “System Setup Menu” on page 45 and “Troubleshooting and FAQ’s” on page 68.



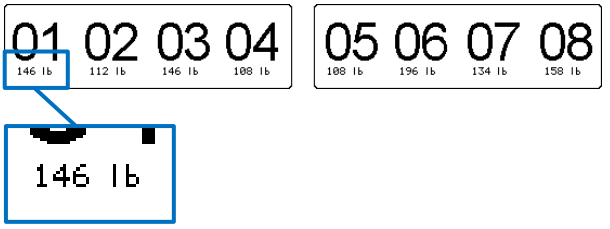
When connected to a LoadCell the DigiHoist Controller can display live load information below each channel. For more details refer to “System Setup Menu” on page 48.



If the DigiHoist Controller has the Ethernet and Positioning upgrade it can show positioning information of each channel. Refer to “System Setup Menu” on page 48.

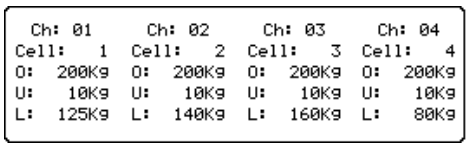


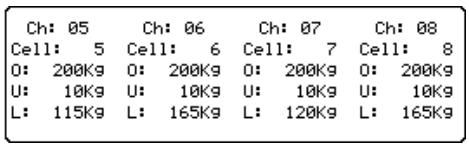
It is possible to display positioning information in imperial measurements. For more information on how to change the positioning display refer to “System Setup Menu” on page 48.



It is possible to display LoadCell information in imperial measurements. For more information on how to change the display refer to “System Setup Menu” on page 48.

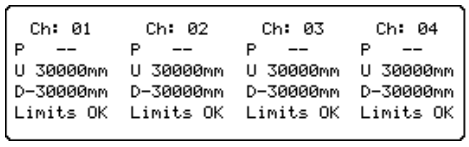
Channel specific messages continued

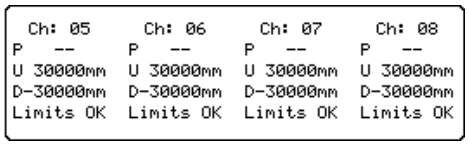




When a DigiHoist Controller is connected to a LoadCell it can display an information screen with LoadCell number, what the Overload and Underload settings are for each LoadCell as well as live current load information for each channel. When not connected this screen with just show 0 values.

For details on how to display this screen and how to set Under and Overload settings refer to “Information Screens” on page 41 and “System Setup Menu” on page 48.





A DigiHoist Low Voltage or DigiHoist Direct Control with the Ethernet and Positioning upgrade can display an information screen with current position, Up and Down Limit settings and an indication as to if the Limits are currently OK or not for each channel.

For details on how to display this screen and how to set Up and Down limits refer to “Information Screens” on page 41 and “System Setup Menu” on page 48.

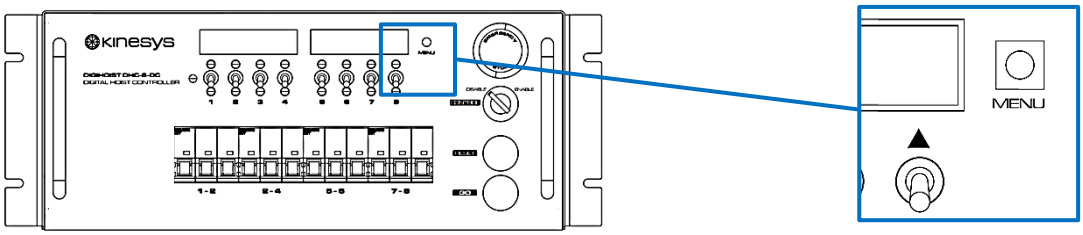
11. System Setup Menu

Accessing and navigating the System Setup Menu

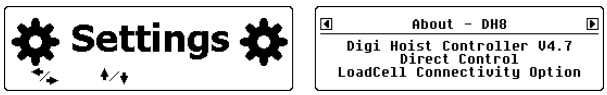
The System Setup menu is used to set various parameters and settings that relate to how the DigiHoist Controller will work. To access the System Setup Menu follow the process below.

1) With the DigiHoist Controller connected and powered on, set the Hoist Power Key to the OFF position. The following screen will be displayed.

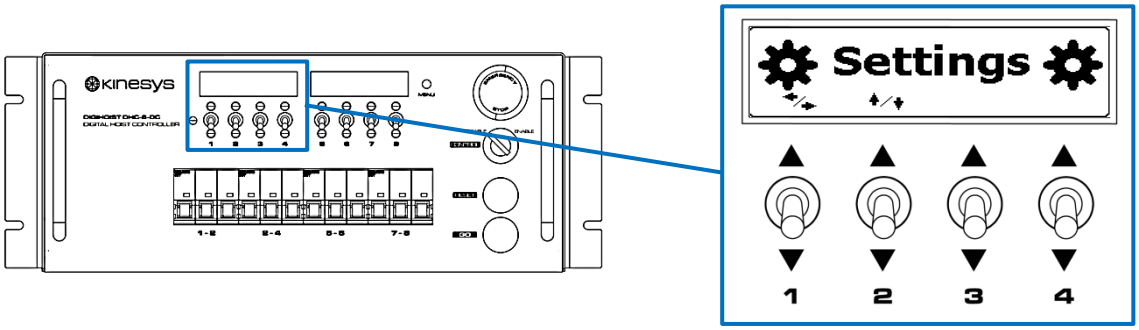
2) Press and hold the MENU button to access the System Setup Menu.



3) A screen giving information about the DigiHoist Controller will be displayed. Version number, model type (Low Voltage or Direct Control) and if there is the option for connecting a LoadCell will be displayed.



4) Navigation of the System Setup Menu is via the Channel 1 and 2 Direction Toggle Switches in the following way.
   - Moving the Channel 1 Toggle Switch UP moves LEFT in the menu
   - Moving the Channel 1 Toggle Switch DOWN moves RIGHT in the menu
   - Moving the Channel 2 Toggle Switch UP moves UP in the menu
   - Moving the Channel 2 Toggle Switch DOWN moves DOWN in the menu



5) Press the Menu button at any time to exit the System Setup Menu.

System Setup Menu options

Menu	Menu Options	Settings	Explanation
About - DH8			Information screen about the DigiHoist
Global Settings	Display Brightness:	5% to 100%	Select this to adjust the brightness of the Digihoist Display
	Demo Mode Active:	Yes / No	Select this to set the demo mode on or off
Internal Settings	Password:	0 to 9999	Displays the current password (no password is set as a default)
	New Password:	0 to 9999	Select this to change the 4 digit password
	Set Factory Default?	Yes / No	Select this to set all settings back to the Factory Default
Load Cell Setting	Load Cell Units:	kg / lb	Select this to change the display between kg and lb
	Bypass Underload Limit:	On / Off	Select this to set Underload Bypass On or Off
Load Cell Address	Set auto address from Ch1?	Yes / No	Select this to let the DigiHoist automatically set the LoadCell address for each channel starting from the address used for channel 1
	Address Cell Ch 1: Through to Address Cell Ch 8:	1 to 255	Select this to change the Load Cell Address for each individual channel from channel 1 through to channel 8
Overload Settings	Copy Overload 1 to All?	Yes / No	Select this to copy the setting for channel 1 to all other channels
	Overload Cell 1: Through to Overload Cell 8:	0kg to 10000kg	Select this to change the Overload setting for each individual channel from channel 1 through to channel 8
Underload Settings	Copy Underload 1 to All?	Yes / No	Select this to copy the setting for channel 1 to all other channels
	Underload Cell 1: Through to Underload Cell 8:	0kg to 10000kg	Select this to change the Underload setting for each individual channel from channel 1 through to channel 8
Tare Settings	Copy Tare 1 to All?	Yes / No	Select this to copy the setting for channel 1 to all other channels
	Tare Cell 1: Through to Tare Cell 8:	0kg to 10000kg	Select this to change the Tare setting for each individual channel from channel 1 through to channel 8
Reeving Settings	Copy Reeving 1 to All?	Yes / No	Select this to copy the setting for channel 1 to all other channels
	Reeving Cell 1: Through to Reeving Cell 8:	-2 to 2	Select this to change the Reeving setting for each individual channel from channel 1 through to channel 8
Encoder Type (Ethernet & Positioning upgrade only)	Copy Enc 1 to All?	Yes / No	Select this to copy the setting for channel 1 to all other channels
	Enc Ch 1: Through to Enc Ch 8:	No Encoder Dummy Encoder Pulse (A) Quad (A B) Quad (A B) Inv Pulse (A /A) Quad (A /A B /B) Quad (A /A B /B) Inv Abs SSI Abs SSI Inv Limit Sw (A:Up B:Dn)	Select this to change the Encoder Type for each individual channel from channel 1 through to channel 8
Encoder Scale Settings (Ethernet & Positioning upgrade only)	Copy Enc Scale 1 to All?	Yes / No	Select this to copy the setting for channel 1 to all other channels
	Enc Scale 1: Through to Enc Scale 8:	1215752 to -1215752	Select this to change the Encoder Sale setting for each individual channel from channel 1 through to channel 8
Position Settings (Ethernet & Positioning upgrade only)	Copy Position 1 to All?	Yes / No	Select this to copy the setting for channel 1 to all other channels
	Position 1: Through to Position 8:	1000000 to -1000000	Select this to change the Position setting for each individual channel from channel 1 through to channel 8
Up Limit Settings	Copy Up Limit 1 to All?	Yes / No	Select this to copy the setting for channel 1 to all other channels
	Up Limit 1: Through to Up Limit 8:	1000000 to -1000000	Select this to change the Up Limit setting for each individual channel from channel 1 through to channel 8
Down Limit Settings	Copy Down Limit 1 to All?	Yes / No	Select this to copy the setting for channel 1 to all other channels
	Down Limit 1: Through to Down Limit 8:	1000000 to -1000000	Select this to change the Down Limit setting for each individual channel from channel 1 through to channel 8
Position Card Settings	IP Address:	0 to 200	Select this to change the currently set IP Address (Default 61)
	Bypass Soft Limits:	On / Off	Select this to turn the Bypass Soft Limits setting On or Off
	Soft Limits Group Halt:	On / Off	Select this to turn the Soft Limits Group Halt setting On or Off
	Position Units	mm / ft	Select this to set the units to Millimetres or Feet

Additional Menu only available with Low Voltage DigiHoist Controllers

Limit Settings (Low Voltage versions only)	Copy Limit 1 to All?	Yes / No	Select this to copy the setting for channel 1 to all other channels
	Limit Ch 1: Through to Limit Ch 8:	For 24v Hoist For 110V Hoist No Limits	Select this to change the Limit Setting for each individual channel from channel 1 through to channel 8

System Setup Menu explanation

Below is an explanation of each of the settings in the System Setup Menu.

Setting	Explanation
About DH8	An information screen showing the current software version number, model type (Low Voltage or Direct Control) and possibility of a LoadCell option.
Global Settings Display Brightness	This setting allows you to adjust the brightness of the displays on the DigiHoist Controller. To adjust the brightness refer to “Adjusting settings from the Edit Mode with a Pencil Icon” on page 58.
Demo Mode Active	This setting allows you to activate or deactivate the Demo Mode. This mode will cycle through all the possible screens on the DigiHoist displays to illustrate what might be shown. To activate or deactivate the Demo Mode refer to "Adjusting settings with a Tick icon" on page 57.
Internal Settings Password	There is no password set as default on a DigiHoist Controller. If a password has been set it is not possible to edit any of the System Settings. For details on how to enter the 4 digit numerical password refer to “Adjusting settings from the Edit Mode with a Pencil Icon” on page 58.
New Password	This setting enables you to set a new 4 digit numerical password. To set a new password, refer to “Adjusting settings from the Edit Mode with a Pencil Icon” on page 58.
Set Factory Default?	This setting enables you to set all the settings in the System Setup Manu back to their factory default. To adjust this setting, refer to "Adjusting settings with a Tick icon" on page 57.

System Setup Menu explanation continued

Setting	Explanation
Load Cell Settings	The DigiHoist Controller can be connected to LoadCells for monitoring the weight of a load.
Load Cell Units	The DigiHoist Controller can display units of weight in either kg or lb. This setting enables you to select the measurement you require. To adjust this setting, refer to "Adjusting settings with a Tick icon" on page 57.
Bypass Underload Limit?	An Underload setting is used to identify if a load on the hoist weighs less than required and will stop all movement of an individual or group of hoists if the Underload limit is reached. The “Bypass Underload Limit” setting enables you to bypass or ignore this limit. If set to ON the DigiHoist will ignore the fact that the load may be lighter than what has been set in the Underload Limit settings. To adjust this setting, refer to "Adjusting settings with a Tick icon" on page 57.
Load Cell Address	This setting gives any LoadCells connected to the DigiHoist their own address linked to the channels of the DigiHoist.
Set Auto Address from CH1?	This setting enables the DigiHoist to automatically address any connected LoadCells.
Address Cell Ch1 to Ch8	This setting enables you to manually address each LoadCell to each of the 8 channels individually from 1 to a maximum of 255. To adjust this setting, refer to “Adjusting settings from the Edit Mode with a Pencil Icon” on page 58.
Overload Settings	The Overload Limit is a weight measurement you do not want the load to exceed. If it does it will stop all movement of an individual or group of hoists.
Copy Overload 1 to All?	This setting enables you to copy the weight set for channel 1 to all remaining channels. To Adjust this setting, refer to "Adjusting settings with a Tick icon" on page 57.
Overload Cell 1 to Cell 8	This setting enables you to manually set the Overload weight setting of each channel individually. To adjust this setting, refer to “Adjusting settings from the Edit Mode with a Pencil Icon” on page 58.

System Setup Menu explanation continued

Setting	Explanation
Underload Settings	The Underload Limit is a weight measurement that you do not want the load to drop below. If it does it will stop all movement of an individual or group of hoists.
Copy Underload 1 to All?	This setting enables you to copy the weight set for channel 1 to all remaining channels. To adjust this setting, refer to "Adjusting settings with a Tick icon" on page 57.
Underload Cell 1 to Cell 8	This setting enables you to manually set the Underload weight setting of each channel individually. To adjust this setting, refer to “Adjusting settings from the Edit Mode with a Pencil Icon” on page 58.
Tare Settings	Tare weight is sometimes referred to as unladen weight. The Tare setting enables you to make allowances for existing weights like the chain and hoist itself depending on installation so you just see the weight of the load itself.
Copy Tare 1 to All?	This setting enables you to copy the weight set for channel 1 to all remaining channels. To adjust this setting, refer to "Adjusting settings with a Tick icon" on page 57.
Tare Cell 1 to Cell 8	This setting enables you to manually set the Tare weight setting of each channel individually. To adjust this setting, refer to “Adjusting settings from the Edit Mode with a Pencil Icon” on page 58.
Reeving Settings	Reeving refers to a situation where you need to loop or double up the chain which can create a difference between the load reported by the loadcell and the load actually being lifted.
Copy Reeving 1 to all?	This setting enables you to copy the setting for channel 1 to all remaining channels. To adjust this setting, refer to "Adjusting settings with a Tick icon" on page 57.
Reeving Cell 1 to Cell 8	This setting enables you to manually set the Reeving setting for each channel individually. To adjust this setting, refer to “Adjusting settings from the Edit Mode with a Pencil Icon” on page 58.

System Setup Menu explanation continued

Setting	Explanation
Encoder Type (Ethernet & Positioning only)	An Encoder is an electo-mechanical device used to convert the rotation of a hoist's shaft into digital code for determining precisely how far the shaft has rotated. Hoist Encoders show how far the hoist has physically moved in Millimetres. Different hoists can use different encoders:
	- **No Encoder** = No Encoder present.
	- **Dummy Encoder** = Operates without a physical encoder. Hoist speed can be set via Vector or K2 software.
	- **Pulse (A)** = Incremental Encoder where only input A is detected. Position is stored in the DigiHoist. Direction is determined by the channel direction toggle switch.
	- **Quad (A B)** = Incremental Encoder where inputs A and B are detected. Position is stored in the DigiHoist. Direction is determined by the A and B line phase.
	- **Quad (A B) Inv** = The same as above but with A and B being reversed.
	- **Pulse (A /A)** = Incremental Encoder were input A and A Inverted are detected. Position is stored in the DigiHoist and direction is determined by the channel directed toggle switch. There is redundancy on the lines that helps to avoid hardware issues and increases the strength of the encoder signal.
	- **Quad (A /A B /B)** = Incremental Encoder where inputs A and A Inverted and B and B Inverted are detected. Redundancies on each line to help avoid hardware issues and increase the strength of the encoder signal.
	- **Quad (A /A B /B) Inv** = The same as above but with A and B reversed.
	- **Abs SSI** = Absolute Encoder where the A line is used for Data and the B line is used as a Clock. Position is determined in the encoder and the DigiHoist will apply an offset to it.
	- **Abs SSI Inv** = The same as above with the position inverted by the DigiHoist software.
	- **Limit Sw (A:Up B:Dn)** = No physical encoder present. When the A line is detected the system shows Soft Up Limit. When the B line is detected the system shows Soft Down Limit.

System Setup Menu explanation continued

Setting	Explanation
Copy Enc 1 to All?	This setting enables you to copy the type of encoder set for channel 1 to all remaining channels. To adjust this setting, refer to "Adjusting settings with a Tick icon" on page 57.
Enc Ch1 to Ch8	This setting enables you to manually set the type of encoder for each individual channel. To adjust this setting, refer to “Adjusting settings from the Edit Mode with a Pencil Icon” on page 58.
Encoder Scale Settings (Ethernet & Positioning Only)	Encoders use pulses created by the movement of the shaft in a hoist. These pulses can then be scaled to give a distance travelled in millimetres. For more information on Encoder Scaling and how to calculate it please refer to "Encoder Scaling" on page 70.
Copy Enc Scale 1 to All?	This setting enables you to copy the scaling measurement set for channel 1 to all remaining channels. To adjust this setting, refer to "Adjusting settings with a Tick icon" on page 57.
Enc Scale 1 to 8	This setting enables you to manually set the encoder scaling measurement for each individual channel. To adjust this setting, refer to “Adjusting settings from the Edit Mode with a Pencil Icon” on page 58.
Position Settings (Ethernet & Positioning Only)	With the Positioning upgrade it is possible to accurately see the position of the load in a measurement that shows how far it has travelled in mm.
Copy Position 1 to All?	This setting enables you to set what the current position is for channel 1 and copy that same position to all remaining channels. To adjust this setting, refer to "Adjusting settings with a Tick icon" on page 57.
Position 1 to 8	This setting enables you to set the position for each channel individually. To adjust this setting, refer to “Adjusting settings from the Edit Mode with a Pencil Icon” on page 58.

System Setup Menu explanation continued

Setting	Explanation
Up Limit Settings	The Up Limit setting enables you to set an upper limit measurement in mm that the hoist cannot go beyond.
Copy Up Limit 1 to All?	This setting enables you to copy the measurement set for channel 1 to all remaining channels. To adjust this setting, refer to "Adjusting settings with a Tick icon" on page 57.
Up Limit 1 to 8	This setting enables you to set the Up Limit measurement for each channel individually. To adjust this setting, refer to “Adjusting settings from the Edit Mode with a Pencil Icon” on page 58.
Down Limit Settings	The Down Limit setting enables you to set a lower limit measurement in mm that the hoist cannot go beyond.
Copy Down Limit 1 to All?	This setting enables you to copy the measurement set for channel 1 to all remaining channels. To adjust this setting, refer to "Adjusting settings with a Tick icon" on page 57.
Down Limit 1 to 8	This setting enables you to set the Down Limit measurement for each channel individually. To adjust this setting, refer to “Adjusting settings from the Edit Mode with a Pencil Icon” on page 58.
Position Card Settings	The DigiHoist Controller has its own IP Address for communicating via a network.
IP Address	The DigiHoist Controller's default IP Address is 61 but this setting can be used to change the IP Address. To adjust this setting, refer to “Adjusting settings from the Edit Mode with a Pencil Icon” on page 58.
Bypass Soft Limits	A “Soft” Limit is a programmed measurement limit that is determined by software. If the DigiHoist has been set with “soft” Up and Down limits, this option enables you to temporarily bypass these settings so the hoist will move beyond the measurements that have been set. To adjust this setting, refer to "Adjusting settings with a Tick icon" on page 57.

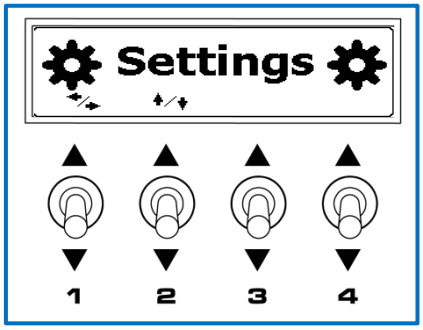
System Setup Menu explanation continued

Setting	Explanation
Soft Limits Group Halt	The Group Halt function will stop all movement of hoists currently moving if one of them reaches a “Soft” Up or Down Limit. The Soft Limits Group Halt setting enables you to turn this function ON or OFF. In the ON position, if any hoists reach a “Soft” Up or Down limit, movement of all hoists is stopped. If the setting is OFF then only the hoist to reach the “soft” Up or Down limit will stop moving. All other hoists being controlled to move will continue to do so until they reach a limit, the GO button in released or an Emergency Stop button is pressed. To adjust this setting, refer to "Adjusting settings with a Tick icon" on page 57.
Position Units	Use this option to select which format positioning measurements are displayed, either in millimetres (mm) or feet (ft).
Hard Up/Down Limit Settings (Low Voltage Versions only)	“Hard” limits differ from “Soft” limits in that the DigiHoist monitors the connection to the hoist to determine if the hoist is moving or not. If it is not physically moving then it determines that it has reached a “Hard” Up or Down limit. A “Soft” Limit is a programmed measurement limit that is determined by software.
Limit Settings	This setting sets the sensitivity of the limit detection circuitry and will depend on the hoists being used. Please refer to the hoist operating manual and specification.
Copy Limit 1 to All?	This setting enables you to copy the Limit Setting set for channel 1 to all remaining channels. To adjust this setting, refer to “Adjusting settings with a Tick Icon” on page 57.
Limit 1 to 8	This setting enables you to set the Limit setting for each channel individually. To adjust this setting, refer to “Adjusting settings from the Edit Mode with a Pencil Icon” on page 58.

Adjusting settings with a Tick icon

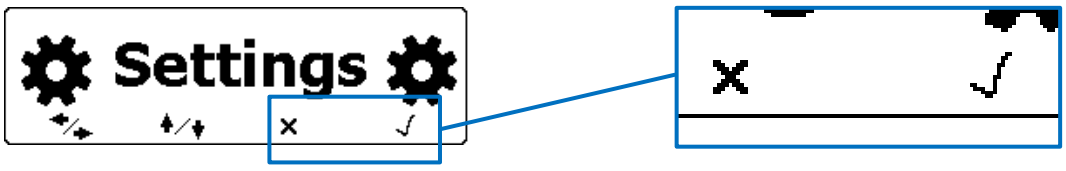
Settings that have a Yes / No or On / Off setting will be indicated by a tick icon above the channel 4 Direction Toggle Switch. To edit settings follow the process below.

1) Access the System Setup Menu as detailed on page 48.



2) Use the channel 1 Direction Toggle Switch Up for Left and Down for Right to navigate through the menu system until you reach the desired menu.
3) Use the channel 2 Direction Toggle Switch Up or Down to move through the menu until the setting to be changed is highlighted.
4) If the setting requires a Yes / No or On / Off option a tick icon will be displayed above the channel 4 Direction Toggle Switch.
5) Move the channel 4 Direction Toggle Switch up or down to enter the setting.
6) Use the channel 2 Direction Toggle Switch up or down to select either Yes / No or On / Off.
   Once the desired setting has been selected move the channel 4 Direction Toggle Switch up or down to confirm the selection.
7) To cancel a selection and exit the setting use the channel 3 Direction Toggle Switch up or down. This is shown with a cross icon above the channel 3 Direction Toggle Switch.

Channel 3 and 4 Cross and Tick icons



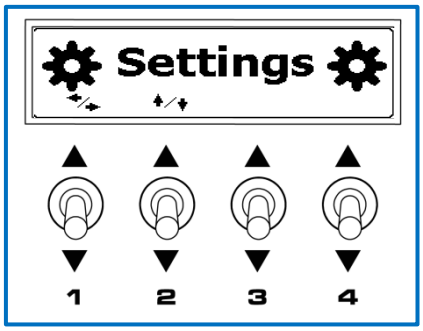
8) Press the Menu button at any time to exit the System Setup Menu.

For more details of available menu options and values refer to chapter 11. “System Setup Menu” from page 48.

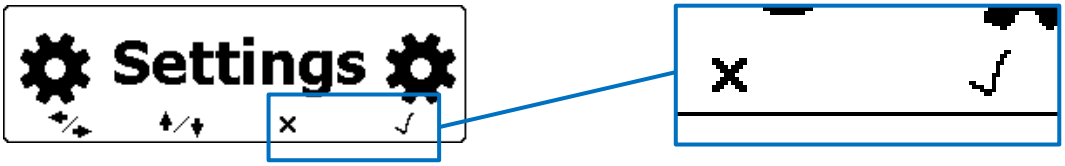
Adjusting settings from the Edit Mode with a Pencil icon

To alter settings that have more than one option or a numerical value, follow the process below to enter the Settings Edit Mode.

1) Access the System Setup Menu as details on page 48.

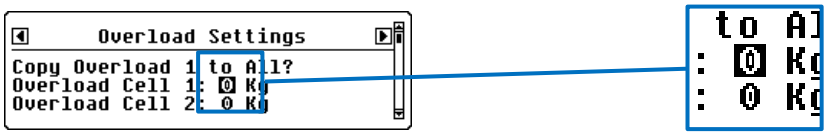


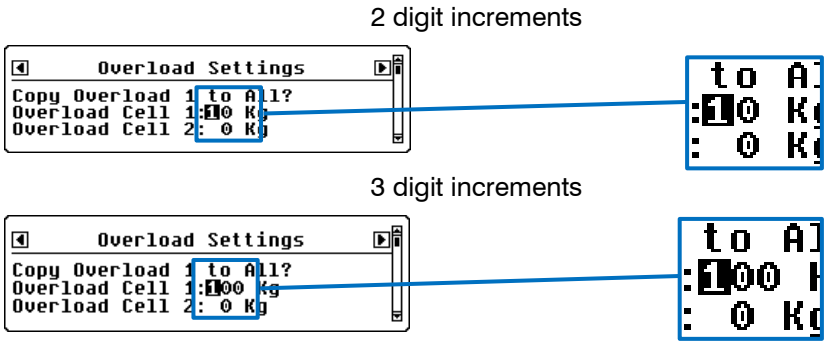
2) Use the channel 1 Direction Toggle Switch Up for Left and Down for Right to navigate through the menu system until you reach the desired menu.
3) Use the channel 2 Direction Toggle Switch Up or Down to move through the menu until the setting to be changed is highlighted.
4) Press the channel 4 Direction Toggle Switch Up or Down to enter the Edit Mode.
5) The Pencil icon above the channel 4 Direction Toggle Switch will be replaced with a cross and tick icon above the channels 3 and 4 Direction Toggle Switches.



6) Moving the channel 2 Direction Toggle Switch Up or Down will move up and down the highlighted list of options available or will raise or lower the value by one digit increments.
7) By moving the channel 1 Direction Toggle Switch Up for Left you can increase the number of digits the value can be raised or lowered by. Moving left once will change the increments from 1 digit to double digits. Moving twice will change the increments to triple digits. Moving a third time will change the increments to 4 digits and so on up to the maximum for the specific value of the setting.

1 digit increments



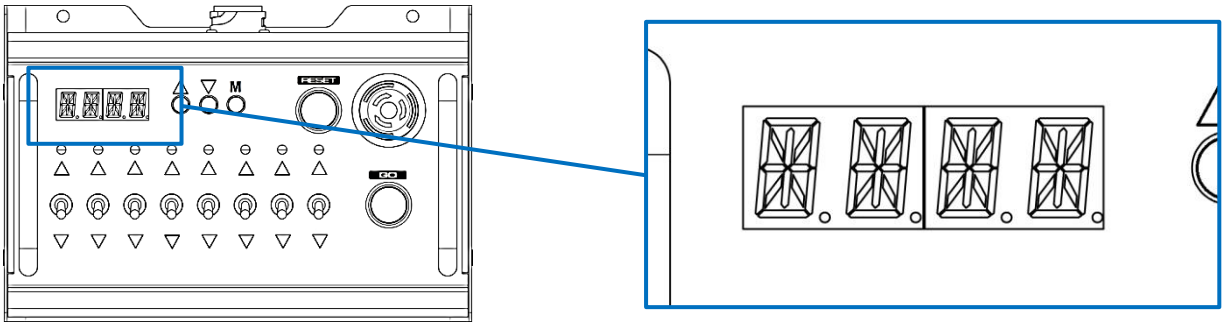


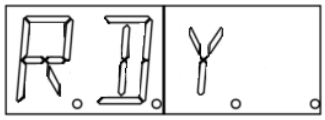
8) At the maximum position left, moving the channel 1 Direction Toggle Switch Up or Down will cycle between the minimum and maximum values for the specific setting.
9) To accept the setting move the channel 4 Direction Toggle Switch up or down.
10) To cancel a selection and exit the setting, move the channel 3 Direction Toggle Switch Up or Down.
11) Press the Menu button at any time to exit the System Setup Menu.

For more details of available menu options and values refer to chapter 11. “System Setup Menu” from page 48.

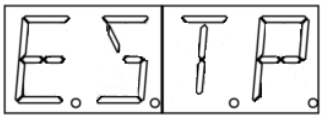
The DigiHandset display

DigiHandsets have a 14 segment LED display to convey information and the status of the system including a small LED that flashes in the bottom right corner to indicate the system is connected and working OK.

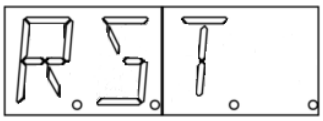




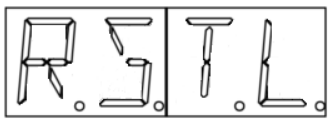
The system is ready to operate.



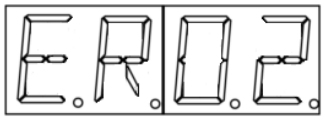
An Emergency Stop button has been pressed. Refer to “Testing and resetting the Emergency Stop system” on page 23.



A reset of the system is required. Refer to “Resetting the System” on page 28.



The system has stopped movement due to a fault condition or limit and needs to be reset. Refer to “Resetting the System” on page 28.



The Emergency Stop button has been released with the GO button held down.

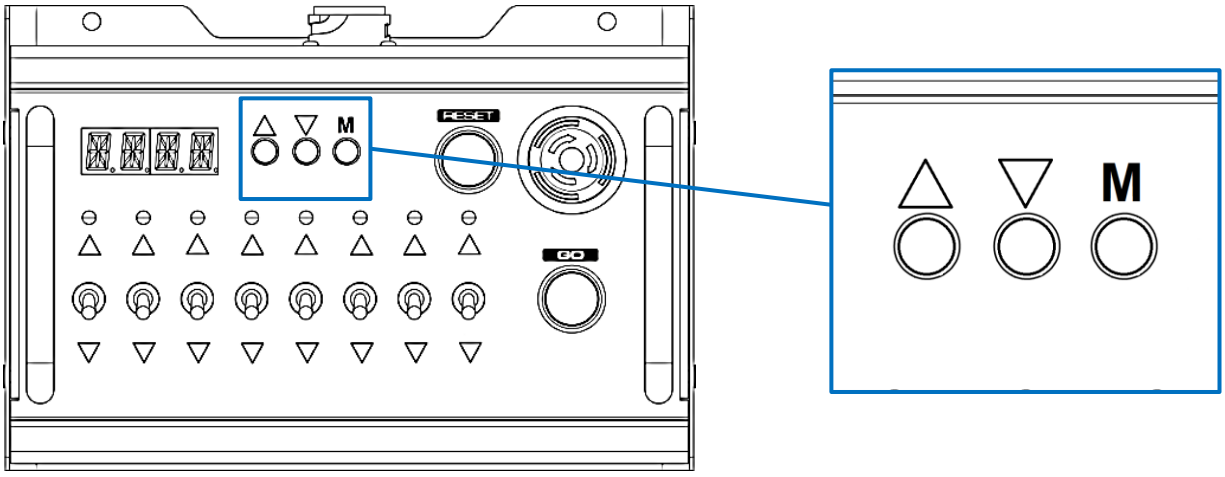
The DigiHandset channel status indicators

DigiHoist Direct Control		
	Not Lit	No hoist connected to this channel
	Steady on	Connection to a DigiHoist
	Flashing	An issue has been detected on this channel. See "Troubleshooting" on page 68.
DigiHoist Low Voltage		
	Not Lit	No hoist connected to this channel
	Steady on	Hoist detected on this particular channel
	Flashing	An issue has been detected on this channel. See "Troubleshooting" on page 68.

Accessing and editing the DigiHandset menu

The DigiHandset has options in its menu that can be changed. To access and change settings follow the process below.

1) Connect the DigiHandset to the DigiHoist as detailed on page 16 “Connecting a DigiHandset”.
2) Set the DigiHoist Hoist Power Key to DISABLE or OFF as detailed on page 17, “Hoist Power Key Functions”.
3) Press and hold the “M” button on the DigiHandset for 2 seconds to access the DigiHandset menu.
4) The display will flash between the menu option and the currently set setting.
5) Press up or down to move up and down through the menu list.
6) When the menu option to adjust is displayed, press the “M” button.
7) The menu option setting currently set will be displayed.
8) Press up or down to select the required menu option. Refer to the “DigiHandset Menu” table below for details of menu options and settings.
9) Press the “M” button to exit the currently selected menu option.
10) Exit the DigiHandset menu completely by pressing and holding the “M” button for 2 seconds at any time.



The DigiHandset Menu

Menu	Menu Options	Settings	Explanation
Limit	"LIMT"	110V	This setting will set the sensitivity of the Limit detect circuitry
		24V	
		NONE	
Version	"VER"	N/A	Displays the currently installed software version
Clear Switch Fault	"CLRF"	YES	Select to clear a remembered fault with one of the switches
		NO	
Clone Mode	"CLON"	ON	Only available when connected to a DigiLink
		OFF	

Limit

This setting will set the sensitivity of the Limit detect circuitry. The 110V setting is used for motors that use a 110V control voltage, like Lodestar hoists. The 24V setting is used for motors that use a 24V control voltage, like Liftket hoists. Long multi core cable runs (greater than 100m) can cause false hoist detection in 24V mode, this is due to excessive cable capacitance. If the Status and Direction indicators are seen to be flickering then the Handset is set to 110V mode and is being used with 24V hoists. Setting 24V mode will eliminate this effect with the possibility of falsely detecting hoists if very long multi core cables are used.

If required limit detection can be temporarily turned off by setting this parameter to NONE. When in NONE mode the display will alternate between RDY and NONE to indicate limit sensing is disabled. The handset will start up with the same limit settings that were present when it was shut down. When the limit setting is set to NONE the system will act like a more traditional motor controller and will assume motors are always present.

Note: This option is used on older DigiHoist Controllers. Please refer to your supplier to Kinesys for further details.

Version

Selecting this will alternate the display between VER and the currently installed software version number.

Clear Switch Fault

Should a fault develop with one of the switches on a DigiHandset the Status, Up and Down LED's for that switch will all flash. The DigiHandset remembers if there has been a fault with a switch even if it's been disconnected and powered off. The Clear Switch Fault option can be used to resolve a switch fault. If the fault persists after selecting YES in the CLRF menu option, the switch may be faulty. In this instance contact Kinesys Support from the contact details on page 74.

Clone Mode (Only available when connecting to a DigiLink)

When connecting to a DigiLink, Clone Mode allows a single DigiHandset to take control of the whole system and to be able to switch between handsets. For more details refer to the DigiLink manual.

12. Pin Out Configurations

Hoist power cable options

(All illustrations of sockets are as viewed from the DigiHoist back panel) It is possible to request different pin configurations for the Hoist Power Connections depending on your particular requirement. This is something that will need to be requested at the time of purchase either from your supplier or Kinesys directly.

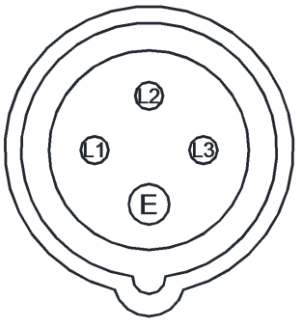
WARNING!

Where there are more than one set of pin out options for any particular socket you must check with your supplier or Kinesys which pin out version your DigiHoist Controller has.

WARNING!

Serious damage will occur if the wrong pin out combination is used.

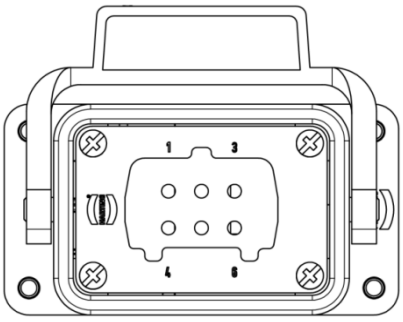
"CEE Form" IEC 60309



Direct Control only

Pin 1	L1
Pin 2	L2
Pin 3	L3
Pin 4	Earth

Harting 6

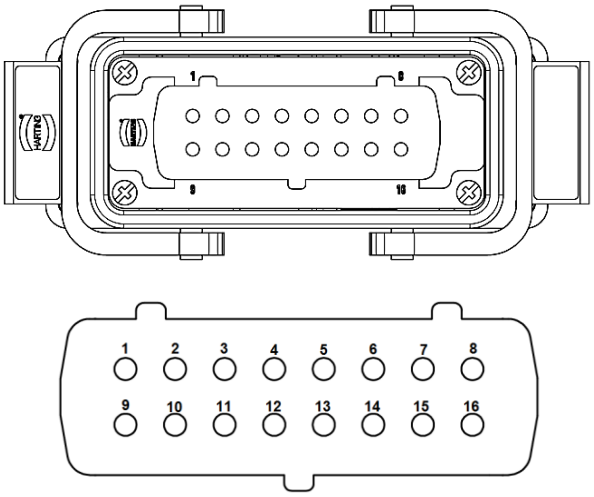


Low Voltage Control only

Pin 1	L1
Pin 2	L2
Pin 3	L3
Pin 4	Common
Pin 5	Up
Pin 6	Down
Shell	Earth

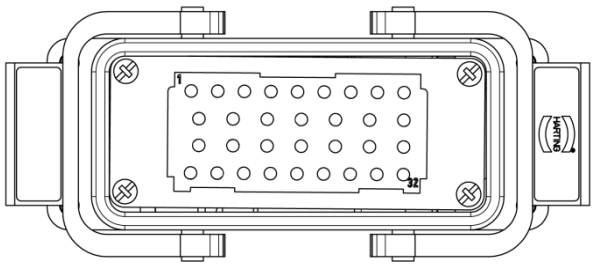
Hoist power cable options continued

Harting 16



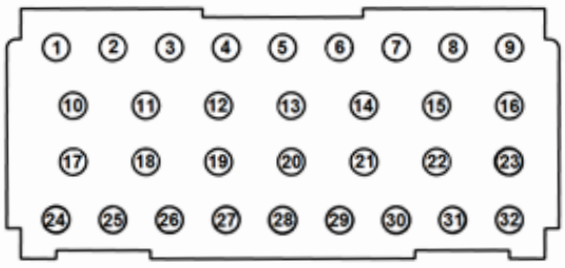
	Power (Female)	Control (Male)
Pin 1	Motor 1 L1	Motor 1 Common
Pin 2	Motor 1 L2	Motor 1 Down
Pin 3	Motor 1 L3	Motor 1 Up
Pin 4	Motor 2 L1	Motor 2 Common
Pin 5	Motor 2 L2	Motor 2 Down
Pin 6	Motor 2 L3	Motor 2 Up
Pin 7	Earth 1	Earth 1
Pin 8	Earth 2	Earth 2
Pin 9	Motor 3 L1	Motor 3 Common
Pin 10	Motor 3 L2	Motor 3 Down
Pin 11	Motor 3 L3	Motor 3 Up
Pin 12	Motor 4 L1	Motor 4 Common
Pin 13	Motor 4 L2	Motor 4 Down
Pin 14	Motor 4 L3	Motor 4 Up
Pin 15	Earth 3	Earth 3
Pin 16	Earth 4	Earth 4
Shell	Earth	Earth

Harting 32



Version A

Pin 1	Motor 1 L1	Pin 17	Motor 3 L1
Pin 2	Motor 1 L2	Pin 18	Motor 3 L2
Pin 3	Motor 1 L3	Pin 19	Motor 3 L3
Pin 4	Motor 1 Common	Pin 20	Motor 3 Common
Pin 5	Motor 1 Up	Pin 21	Motor 3 Up
Pin 6	Motot 1 Down	Pin 22	Motor 3 Down
Pin 7	Earth 1	Pin 23	Earth 3
Pin 8	No Connection	Pin 24	Motor 4 L1
Pin 9	No Connection	Pin 25	Motor 4 L2
Pin 10	Motor 2 L1	Pin 26	Motor 4 L3
Pin 11	Motor 2 L2	Pin 27	Motor 4 Common
Pin 12	Motor 2 L3	Pin 28	Motor 4 Up
Pin 13	Motor 2 Common	Pin 29	Motor 4 Down
Pin 14	Motor 2 Up	Pin 30	Earth 4
Pin 14	Motor 2 Down	Pin 31	No Connection
Pin 16	Earth 2	Pin 32	No Connection
Shell	Earth (Ground)		

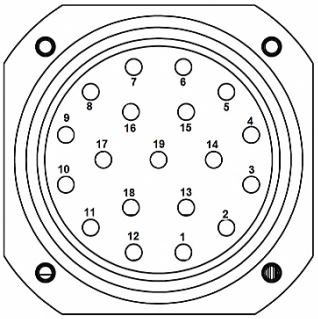


Version B

Pin 1	Motor 1 L1	Pin 17	Motor 3 Up
Pin 2	Motor 1 L2	Pin 18	Motor 3 Down
Pin 3	Motor 1 L3	Pin 19	Motor 4 L1
Pin 4	Motor 1 Common	Pin 20	Motor 4 L2
Pin 5	Motor 1 Up	Pin 21	Motor 4 L3
Pin 6	Motor 1 Down	Pin 22	Motor 4 Common
Pin 7	Motor 2 L1	Pin 23	Motor 4 Up
Pin 8	Motor 2 L2	Pin 24	Motor 4 Down
Pin 9	Motor 2 L3	Pin 25	Earth
Pin 10	Motor 2 Common	Pin 26	No Connection
Pin 11	Motor 2 Up	Pin 27	No Connection
Pin 12	Motor 2 Down	Pin 28	No Connection
Pin 13	Motor 3 L1	Pin 29	No Connection
Pin 14	Motor 3 L2	Pin 30	No Connection
Pin 15	Motor 3 L3	Pin 31	No Connection
Pin 16	Motor 3 Common	Pin 32	No Connection
Shell	Earth		

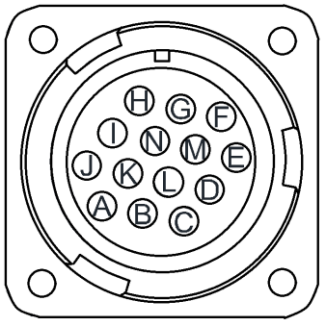
Hoist power cable options continued

Socapex 19



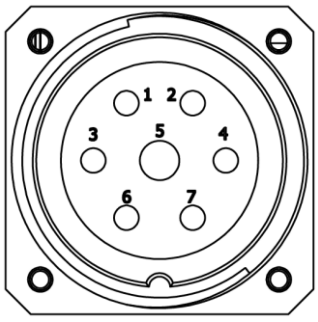
	Power (Female)	Control (Male)
Pin 1	Motor 1 L1	Motor 1 Common
Pin 2	Motor 1 L2	Motor 1 Down
Pin 3	Motor 1 L3	Motor 1 Up
Pin 4	Motor 2 L1	Motor 2 Common
Pin 5	Motor 2 L2	Motor 2 Down
Pin 6	Motor 2 L3	Motor 2 Up
Pin 7	Motor 3 L1	Motor 3 Common
Pin 8	Motor 3 L2	Motor 3 Down
Pin 9	Motor 3 L3	Motor 3 Up
Pin 10	Motor 4 L1	Motor 4 Common
Pin 11	Motor 4 L2	Motor 4 Down
Pin 12	Motor 4 L3	Motor 1 Up
Pin 13	Earth 1	Earth 1
Pin 14	Earth 2	Earth 2
Pin 15	Earth 3	Earth 3
Pin 16	Earth 4	Earth 4
Pin 17	Earth	Earth
Pin 18	Earth	Earth
Pin 19	Earth	Earth

P14



Pin A	Motor 1 L1
Pin B	Motor 1 L2
Pin C	Motor 1 L3
Pin D	Motor 1 Up
Pin E	Motor 1 Common
Pin F	Motor 1 Down
Pin G	No Connection
Pin H	No Connection
Pin I	No Connection
Pin J	No Connection
Pin K	No Connection
Pin L	No Connection
Pin M	No Connection
Pin N	Earth
Shell	No Connection

Socapex 7



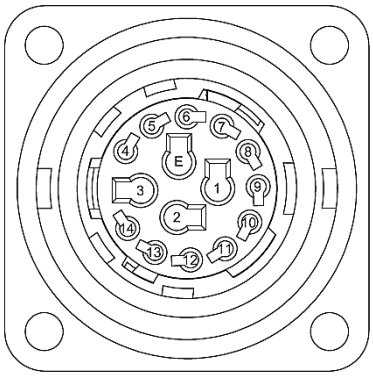
Version A Verson B Version C Version D

Pin 1	Motor 1 L1	Pin 1	Motor 1 L1	Pin 1	Motor 1 L1	Pin 1	Motor 1 L3
Pin 2	Motor 1 L2	Pin 2	Motor 1 L2	Pin 2	Motor 1 L2	Pin 2	Motor 1 L2
Pin 3	Motor 1 L3	Pin 3	Motor 1 L3	Pin 3	Motor 1 L3	Pin 3	Motor 1 L1
Pin 4	Earth	Pin 4	Motor 1 Up	Pin 4	Motor 1 Up	Pin 4	Motor 1 Up
Pin 5	Motor 1 Up	Pin 5	Earth	Pin 5	Earth	Pin 5	Earth
Pin 6	Motor 1 Common	Pin 6	Motor 1 Common	Pin 6	Motor 1 Down	Pin 6	Motor 1 Down
Pin 7	Motor 1 Down	Pin 7	Motor 1 Down	Pin 7	Motor 1 Common	Pin 7	Motor 1 Common
Shell	No Connection	Shell	No Connection	Shell	No Connection	Shell	No Connection

DigiHoist Data connections and DigiLink Cables

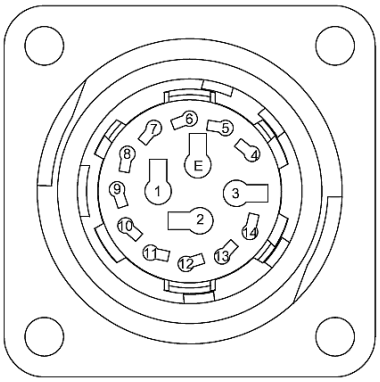
Kinesys recommend using original Kinesys DigiLink cables when connecting DigiHoist Controllers, DigiHandsets and DigiLink units.

DigiHoist Data IN (Amphenol C16 14+E Female socket)



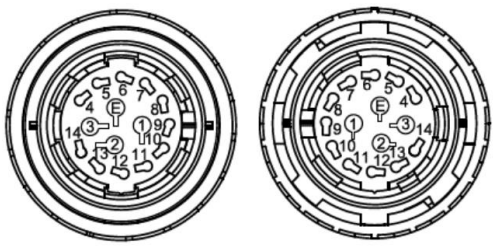
Pin 1	No Connection
Pin 2	No Connection
Pin 3	No Connection
Pin 4	24v
Pin 5	0v
Pin 6	E-Stop +
Pin 7	E-Stop -
Pin 8	Data -
Pin 9	Data +
Pin 10	E-Stop Return +
Pin 11	E-Stop Return -
Pin 12	Presence +
Pin 13	Presence -
Pin 14	Shield
E	No Connection

DigiHoist Data OUT (Amphenol C16 14+E Male socket)



Pin 1	No Connection
Pin 2	No Connection
Pin 3	No Connection
Pin 4	Presence +
Pin 5	Presence -
Pin 6	E-Stop +
Pin 7	E-Stop -
Pin 8	Data -
Pin 9	Data +
Pin 10	E-Stop Return +
Pin 11	E-Stop Return -
Pin 12	24v
Pin 13	0v
Pin 14	Shield
E	No Connection

DigiLink Cable (Male to Female Amphenol C16 14+E connectors)



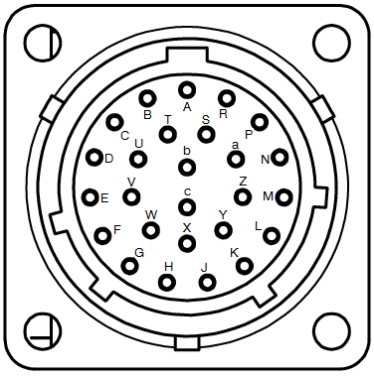
VIEW ON CABLE ENTRY FEMALE CONNECTOR

VIEW ON CABLE ENTRY MALE CONNECTOR

		Size	Colour
Pin 1	No Connection	-	-
Pin 2	No Connection	-	-
Pin 3	No Connection	-	-
Pin 4	24v	1mm^2	Brown
Pin 5	0v	1mm^2	White
Pin 6	E-Stop +	0.25mm^2	Red
Pin 7	E-Stop -	0.25mm^2	Black
Pin 8	Data -	0.25mm^2	Brown
Pin 9	Data +	0.25mm^2	Green
Pin 10	E-Stop Return +	0.25mm^2	Grey
Pin 11	E-Stop Return -	0.25mm^2	Pink
Pin 12	Presence +	0.25mm^2	Blue
Pin 13	Presence -	0.25mm^2	Violet
Pin 14	Shield	1mm^2	-
E	No Connection	-	-

Encoder connection (Ethernet and Positioning Upgrade Only)

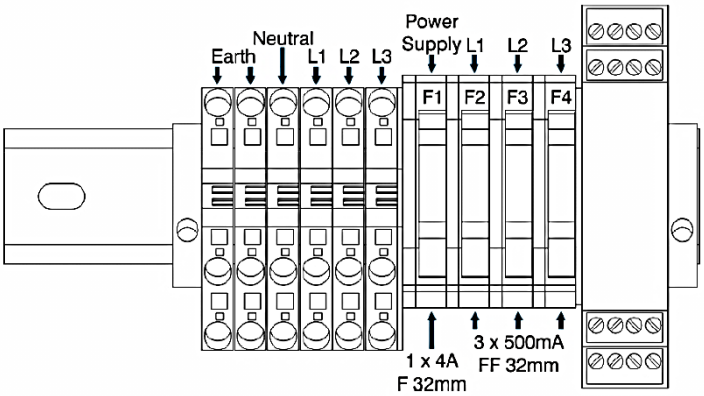
MIL-C-26482



Circuit	Pin	Function
1	U	12V
	A	A
	B	/A
	C	B
	D	/B
	T	0V
2	W	12V
	E	A
	F	/A
	G	B
	H	/B
	V	0V
3	Y	12V
	J	A
	K	/A
	L	B
	M	/B
	X	0V
4	a	12V
	N	A
	P	/A
	R	B
	S	/B
	Z	0V
	b	No Connection
	c	No Connection

Internal Fuse Layout

The following illustrates the layout of fuses used inside the DigiHoist Controller.



Fuses must only be replaced with the types and ratings shown below and on the fuse label fitted inside the DigiHoist case.

F1 – Internal low-voltage power supply	4A F (fast acting)
F2 – Phase 1 supply monitoring	500mA FF (super-fast acting)
F3 – Phase 2 supply monitoring	500mA FF (super-fast acting)
F4 – Phase 3 supply monitoring	500mA FF (super-fast acting)

(All fuses are 32mm ceramic cartridge types.)

WARNING!

Always disconnect the mains power supply before inspecting or replacing fuses.

13. Troubleshooting and FAQ's

DigiHoist Controller Troubleshooting and FAQ's

Problem	Possible Solution
General	
- No Power	- Is the power cable connected? See Chapter 5. "Connections" on page 15. - Check that all 3 phases of power are present in the incoming power supply. See Chapter 5. "Connections" on page 15.
- What is the safety rating of the DigiHoist Controller?	- The DigiHoist Controller incorporates an Emergency Stop system to SIL2. The DigiHoist can be used as part of a Category A (BS7906-1:2001) or D8+ (SQ P2:2010) system. In order to comply with these two standards the hoists used must meet or exceed the same rating and load monitoring must be used on each hoist. Please refer to the hoist manufacture and specification supplied with your hoists.
Display	
- What do the various symbols in the display mean?	- Refer to Chapter 10. "Displays and Menu Option" on page 41.
- What is the little blinking light in the corner of the display?	- The blinking light in the left hand corner of the display is an indicator that the system is powered on and everything is working OK. For more details refer to "System wide messages" on 42.
- I am unable to adjust the System Setup menu / there is no Pencil Icon to edit settings	- If a password has been set on the DigiHoist Controller the System Setup Menu is viewable but not able to be edited. In order to edit settings the correct password needs to be entered. Refer to "System Setup Menu explanation" on page 50.
- The display is too dark/bright	- The brightness level of the display can be adjusted from the System Setup Menu. Refer to Chapter 11. "System Setup Menu" from page 48.

DigiHoist Controller Troubleshooting and FAQ's continued

Problem	Possible Solution
Controls	
- Reset and Go Button not active	- The DigiHoist controller may be in a Group. Only the Main Controller in a group has its Reset and Go buttons active. Check how the DigiHoist Controller has been connected. See Chapter 5. "Connections" on page 15. - A DigiHandset may be connected to the DigiHoist Controller. See "Connecting a DigiHandset" on page 17 - The DigiHoist Controller may be being controlled by computer software. Check how the DigiHoist Controller has been connected. See Chapter 5. "Connections" on page 15.
- Pressing Reset does not clear the "Press Reset" screen	- The safety relay may be in a locked state. Press and release all Emergency Stop buttons, and then try pressing Reset again. If the problem persists contact your supplier or Kinesys Support
- One or more of the channel direction indicators are flashing.	- This may indicate a fault with the hoist connected to that channel. Check the hoist is working correctly and refer to the manual supplied with it. - Is the Reset button also flashing? The hoist on this channel may have reached one of its predetermined limits. For more details on Limits refer to "System Setup Menu explanation" on page 50 and "Resetting the System" on page 28.
Functions	
- Hoist movement suddenly stops	- A Limit may have been reached. Check the display of the DigiHoist Controller or DigiHandset for indications of issues and refer to "System wide messages" on page 39, "Channel specific messages" on page 44 and "System Setup Menu explanation" on 50.
- The DigiHoist is showing as Disabled in Vector or K2	- Check the power supply to the DigiHoist Controller. - Check that an RCD or Circuit Breaker has not been tripped either on the DigiHoist Controller or in the power supply to it. '- A remote E-Stop button must be connected to a DigiHoist with Ethernet and Positioning in order to receive control commands via Ethernet.

DigiHoist Controller Troubleshooting and FAQ's continued

Problem	Possible Solution
Functions	
- Hoist movement suddenly stops	- Has a DigiHandset been connected to or disconnected from the DigiHoist Controller? Connecting or disconnecting a DigiHandset while movement is in progress will halt all movement and a system reset will be required. See refer to "Resetting the System" on page 28 and "Connecting a DigiHandset" on page 17. - If local control of the DigiHoist has been obtained while still connected to a computer running motion control software, the control of the DigiHoist may have been returned to the software. See "Computer Controlled movements" on page 40.
- Which Encoders are compatible with the DigiHoist Controller?	- Pulse (A) - Quad (AB) - Quad (AB) Inv - Pulse (A/A) - Quad (A/A B/B) - Quad (A/A B/B) Inv - Abs SSI - Abs SSI Inv - Limit Sw (A:Up B:Dn)
- How do I calculate encoder scaling?	- Encoder scaling converts the number of encoder pulses derived from the hoist to physical distance travelled in millimetres. The encoder scaling is defined as the distance travelled per encoder pulse edge. The units are the distance measured in mm x 100,000. The number of encoder pulse edges per encoder revolution is 4 x the number of encoder pulses per revolution (a 100 pulse encoder will produce 400 encoder pulse edges per revolution). As an example an encoder scaling of 55060 means the encoder produces a pulse edge every 0.5506mm. If the encoder scaling value is incorrect the result may be no movement from the hoist, it may overshoot or fail to reach its target position. An example encoder calculation= A winch with a 1024 pulse encoder connected directly to a drum of 788mm circumference. - Distance travelled per encoder edge (mm) = Drum Circ / (Encoder pulses x4). - Distance travelled per pulse = 788/(1024x4) = 0.19238mm. This would equate to an encoder scale of 19238

DigiHandset Troubleshooting and FAQ's

Problem	Possible Solution
General	
- What is the little blinking light in the corner of the display?	- The blinking light in the corner of the display is an indicator that the system is powered on and everything is working OK. For more details refer to "System Wide messages" on page 42.
- No reaction from the direction switches/Go Button/Reset Button	- Make sure the DigiHandset is connected correctly. Refer to "Connecting a DigiHandset" on page 17.
	- The DigiHoist Controller may be being controlled by computer software. Check how the DigiHoist Controller has been connected. See Chapter 5. "Connections" on page 15.
- The handset seems to be always in Reset Mode	- Disconnect and re-connect the DigiHandset to the DigiHoist Controller. If the problems persists contact Kinesys Support.
- I am unable to access the menu.	- Make sure the DigiHoist Hoist Power Key in set to DISABLE or OFF. For more details refer to "Hoist Power Key Functions" on page 20 and "Accessing and editing the DigiHandset Menu" on page 61
- One or more of the channel status lights is flashing / when I select a direction using one of the Channel Direction Toggle switches the direction indicator flashes.	- There may be a fault with the hoist connected to that channel. Check the hoist is connected correctly. Refer to Chapter 5. "Connections" on page 15. Also check the hoist is working correctly by connecting it to a different channel or power supply. - This could indicate a fault with one of the switches on the handset. Follow the process for clearing a switch fault on 60. If the fault persists contact Kinesys Support.

Glossary of terms

3 Phase	Refers to a system of power distribution of 3 electric power conductors carrying alternating current voltages that are offset by 120° from each other.
Addressing	Refers to designating a location for a specific channel. See page 31.
Beam Trolley	A motor designed to move loads horizontally along a beam.
CEE Form	A type of power connector which meets IEC EN 60309. Also known as “Commando” or “Pin and Sleeve”.
Direct Control	Refers to a type of hoist where the direction of the rotation of the three-phase supply to the hoist is controlled externally.
Encoder	A device used to measure the movement of a hoist.
E-Stop	Emergency Stop used to stop all movement in the system.
Ethernet	A family of computer networking technologies.
Fan Out	A set of cables that branch from one connection to many connections.
Fixed Speed	Refers to the hoist moving at one constant speed.
Group Halt	A group of hoists moving together that have been stopped. See page 25.
Hard Limit	Refers to a physical limit. See page 45.
Harting	A brand name for a type of multipin connector. Aslo known as “Wieland”, EPIC” or “Lactriflex”.
LCD	Liquid Crystal Display.
LED	Light-Emitting Diode.
LibraCELL	A Kinesys product name for a shackle that measures weight.
Limit	A set point beyond which a hoist cannot move. See page 45.
Loadcell	A device used to measure weight.
Low Voltage	Refers to a type of hoist where the hoist incorporates reversing control contactors controlled by external switches or relays.
Momentary	A switch that will return to its original position once released.
Multicore	A cable consisting of multiple smaller cables. See page 14.
OLED	Organic Light-Emitting Diode.
Overload	A measurement of weight higher than that required. See page 45.
P14	A type of circular multipole power connector.
Pin Out	The designated use for each of the pins in a socket or connector.
Positioning	Identifying and monitoring the current position of the chain or load.
RCD	Residual Current Device used to monitor and cut power supplies in the event of a current leakage to earth, to avoid accidental electrocution. Also referred to as “ELCB” (Earth Leakage Circuit Breaker) or “GFCI” (Ground Fault Circuit Interrupter).
Reeving	A process of suspending a load by looping chain from a hoist.
Shackle	A U-shaped piece of metal secured with a clevis pin or bolt across the opening.
Socapex	A brand name for a type of circular multipole connector.
Soft Limit	Refers to a limit set by software. See page 45.
Tare	Makes allowance for the chain, hoist or container when measuring a loads weight.
Underload	A measurement of weight lower that that required. See page 45.
Vector	Kinesys Motion Control Software.
XLR4	A standard of cable and connector that uses 4 pins.

Specifications

Power Supply

- 3-phase + Neutral + Earth 50-60Hz
- 175-435v phase-phase 32A maximum

Mains Input

- 5 pin 32A Red “CEEform” type plug to IEC60309 on 1.5m trailing lead
- Alternative connectors available upon request.

Controls

- Phase reverse switch (Low Voltage versions only)
- Emergency stop button
- 3-position direction toggle switches for manual up-off-down operation
- Mode select switch to select OFF, AUTO, and ON
- RESET and GO buttons

Indications

- Individual channel status LED`s and OLED Displays

Hoist Connection Options

Low Voltage	Direct Control
- 4x Harting 16	- 8x CEEform
- 8x Harting 6	- 2x Harting 16 + 32A
- 2x Harting 32	- 2X Socapex 19 + 32A
- 8x Socapex 7	
- 4x Socapex 19	
- 8x P14	

Control Connections

- Amphenol C16-3 Link In Male 14+PE
- Amphenol C16-3 Link Out Female 14+PE
- Ethercon input
- XLR4 input for Loadcells

Enclosure

- 1.5mm steel, matt black powder coat finish

Environmental

- IP40

Operating Temperature

- 0 – 40°C (32-104 °F)

Cooling

- Natural air cooling

Dimensions

- 424mm x 178mm x 400mm (Excluding cables, connectors and mounting hardware)
- 4U 19” rack mountable

Weight

- 18-25kg (depending on configuration)

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