Hoist Controller for Low Voltage Hoist

Instruction Manual

Models:

AHD4-LV-1H16, AHD4-LV-CEE, AHD4-LV-4H6
AHD4-LV-DSX19-PR
AHD8-LV-2H16, AHD8-LV-8H6,
AHD12-LV-12H6,
AHD16-LV-D4SX19-63-PR

version 1.1 since 14 June 2023

ATTENTION!

This instruction manual contains important information about the installation and the use of the equipment. Please read and follow these instructions carefully.

Always ensure that the power to the equipment is disconnected before opening the equipment or commencing any maintenance work.

AHD-LV_en_manual_M296

Safety information

IMPORTANT INSTRUCTIONS

All safety and operating instructions should be read before the equipment is installed or operated.

IMPORTANT SAFETY INFORMATION

The following general safety precautions have to be observed during all phases of operation, service, and the repair of this equipment. Failure to comply with these precautions or with specific warnings in this manual violates safety standards of design, manufacture, and the intended use of this equipment.

Do not operate in an explosive atmosphere!

Do not operate this equipment in the presence of flammable gases or fumes. Operation of any electrical instrument in such an environment constitutes a definite safety hazard.

Water, moisture, heat and humidity

Do not operate this equipment near water or in areas with wet floors or in high humidity atmosphere, where condensation forms on the equipment. It should never be placed near or over a heat register or other source of heated air and it should not be installed or operated without proper ventilation.

Functions and Control

AHD4-LV, AHD8-LV has been designed to control from 1 to 12 electrically compatible low voltage controlled hoist, either separately or simultaneously – controlled via switches located on front panel or cable remote/pendant. Optionally you can link GO/STOP button by link connector.

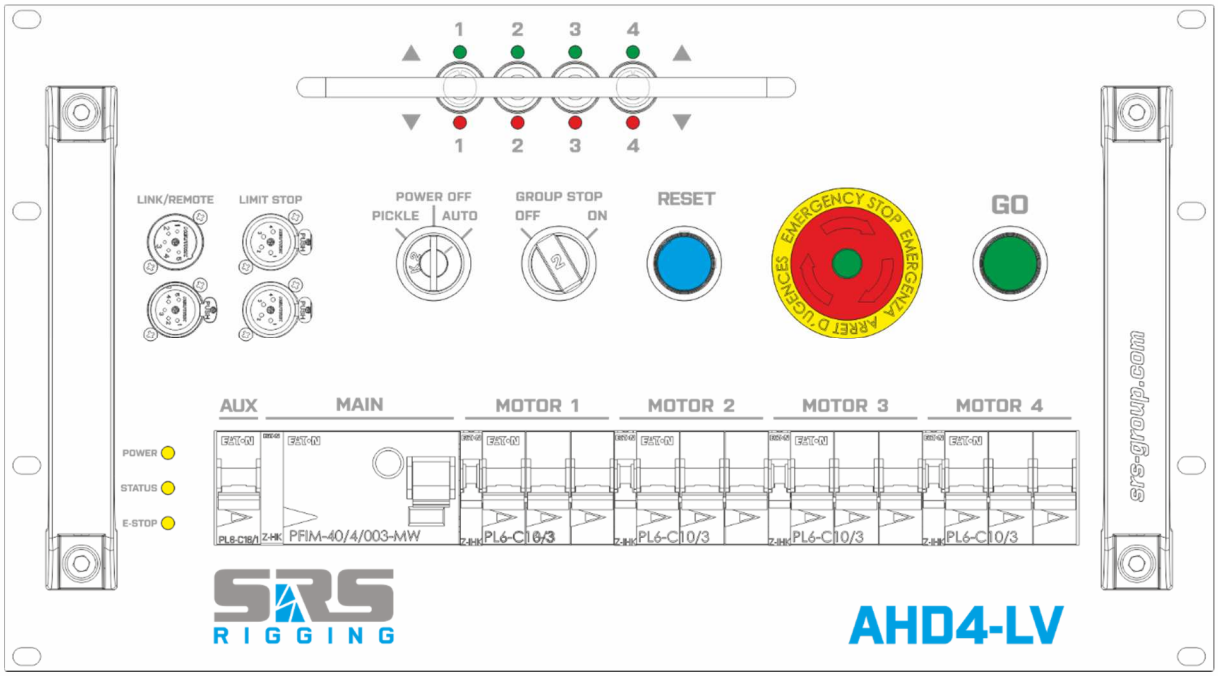
Each device is equipped with unique APA /Automatic Phase Align/ module that guarantees that on any alignment of input phases the motors will move in the correct direction. If any line wire is disconnected, the hoist controller stops to ensure safe operation. Unit is also equipped with AVM /Automatic Voltage Metering/ module. This module checks the main voltage for AC400V +-20% and the star configuration. if there is any problem with the main voltage, you're notified, and unit will not run any hoist.

Unit will not work when:

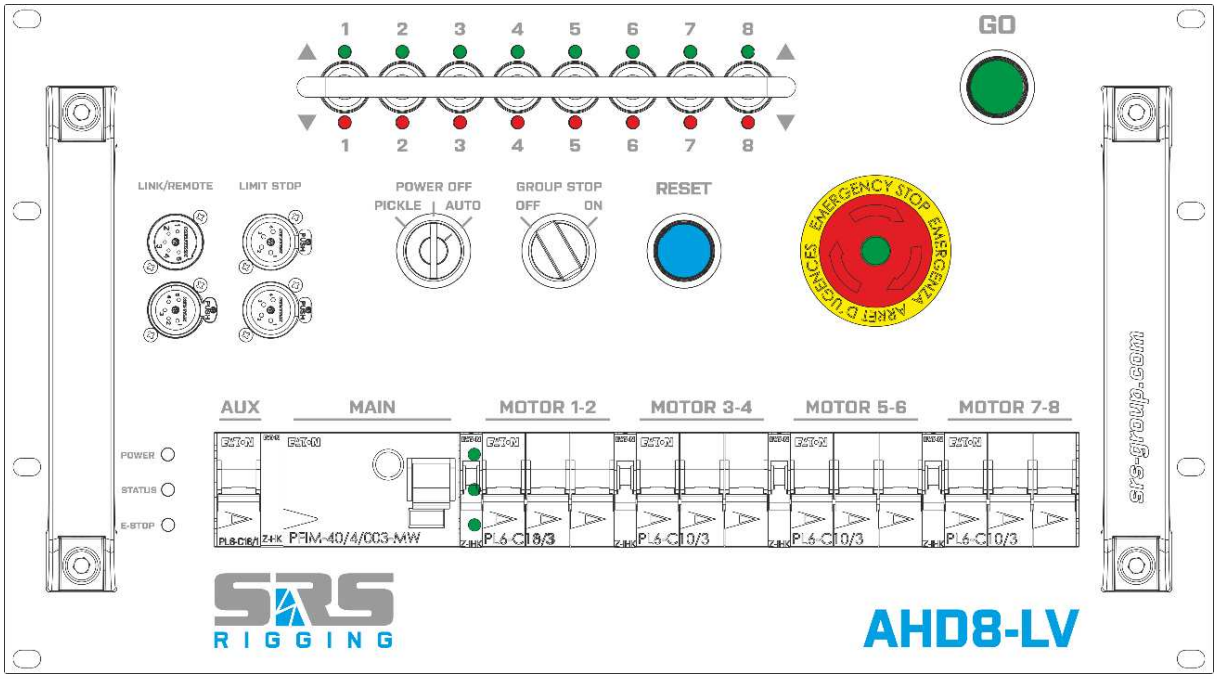
- One phase is missing
- Under-voltage is present on lines
- Over-voltage is present on lines

All electrical components carry their own individual cSA/UL, CE and comply with European Directives. The components are housed in robust steel 19" rack casing with powder coating. Complete unit complies with the CE according the Certification of conformity attached to this manual.

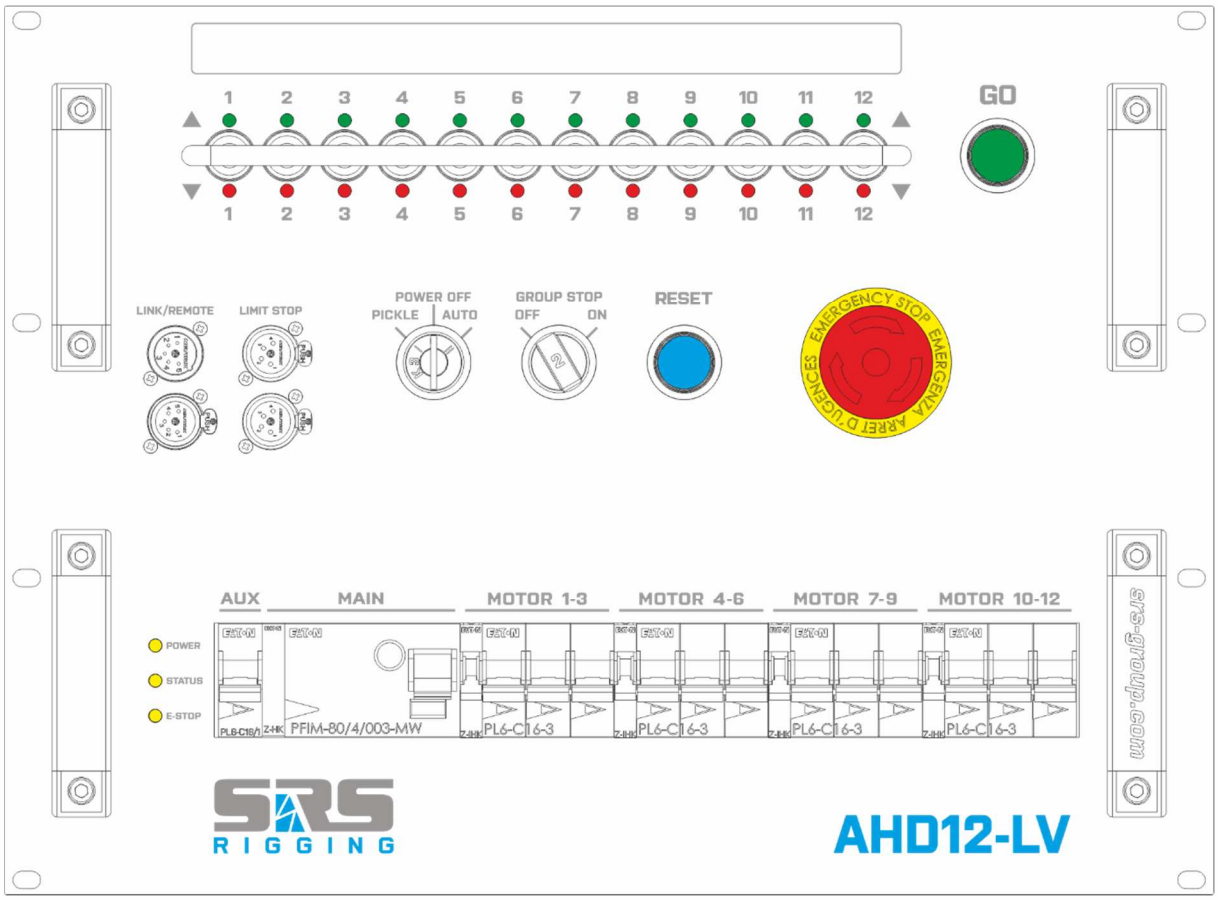
AHD4-LV front panel



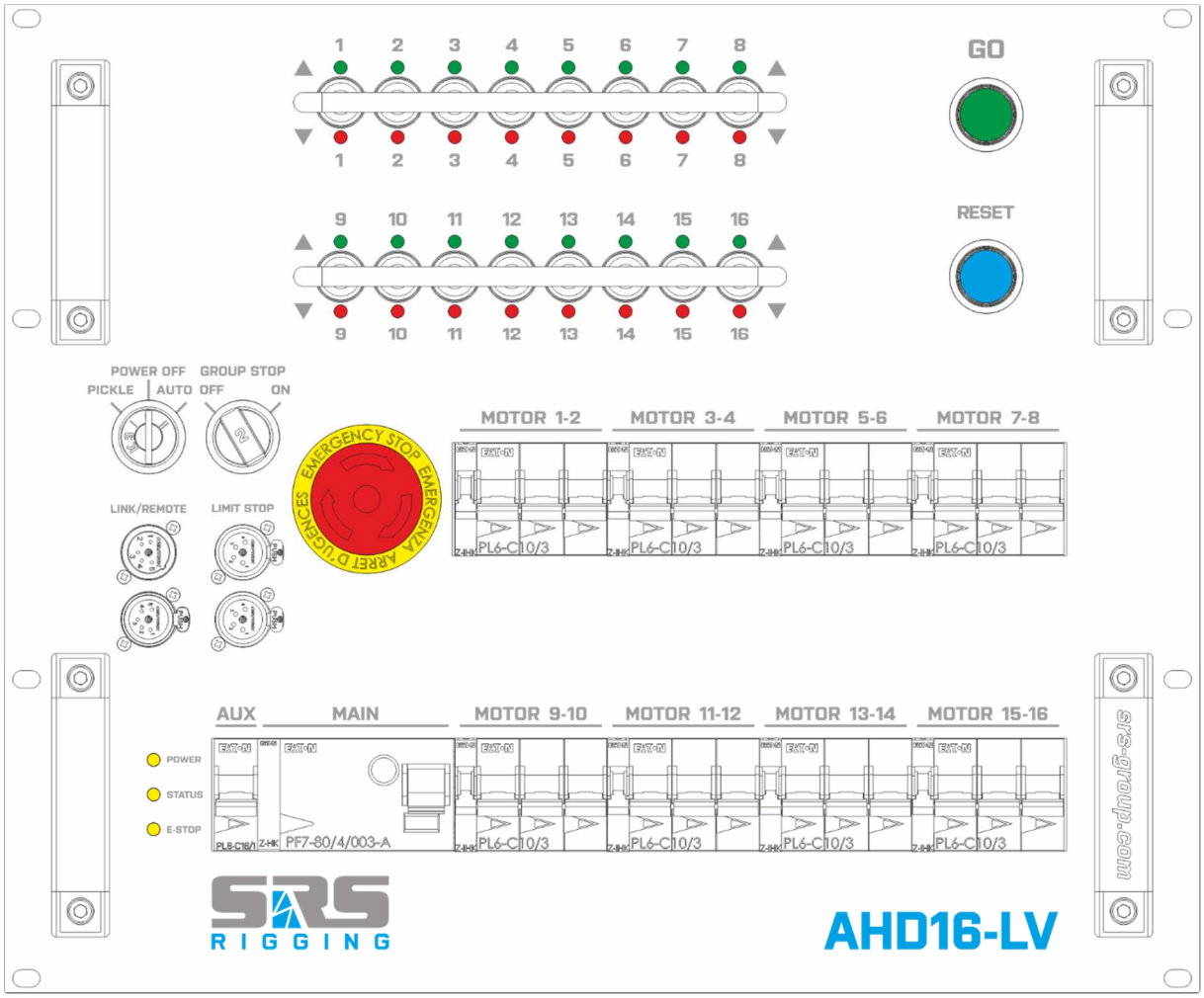
AHD8-LV front panel



AHD12-LV front panel



AHD16-LV front panel



HOIST protection:

AHD4-LV-1H16-AU:	Each four hoists are protected by single C10/3p MCB
AHD4-LV-CEE:	Each one hoists are protected by single C10/3p MCB
AHD4-LV-CEE-63:	Each one hoists are protected by single C16/3p MCB
AHD8-LV-2H16:	Each one hoists are protected by single C10/3p MCB
AHD8-LV-2H16-AU:	Each two hoists are protected by single C16/3p MCB
AHD8-LV-8H6-AU:	Each one hoists are protected by single C10/3p MCB
AHD12-LV-12H6:	Each three hoists are protected by single C16/3p MCB
AHD16-LV-D4SX19-63-PR	Each two hoists are protected by single C10/3p MCB

POWER switch positions:

- OFF: Power OFF
- PICKLE: Power to the hoist is enabled permanently
- AUTO: Power to the hoist is enabled ONLY when GO command is received

GROUP STOP switch positions:

- OFF: Trip of any breaker or mains GFI breaker will not cause E-STOP.
- ON: Trip of any breaker or mains GFI will cause E-STOP of unit.
  This E-STOP is transferred also to the linked devices.

RESET:

RESET button for SIL3 E-STOP relay reset.

E-STOP:

E-STOP is a red color mushroom. Once the E-STOP button has been pressed, it locks the unit into active position and must be rotated clockwise and released before disengaging. After engaging the E-STOP button, the RESET button needs to be pressed to reset the system.

GO:

This pushbutton switch turns the selected channels of Hoist Control system ON, when the unit is active. Once the GO button has been pressed, the energizing of the hoists is ON.

DIRECTION SWITCHES:

They allow changing the direction of movement for each motor/hoist separately or in groups. LED close to the switch indicates the movement direction.

LIMIT STOP input:

LIMIT STOP connectors for external E-STOP from NLP device or another stop source. Short circuit on pair 1+2 or 3+4 will stop the controller. Please follow RESET procedure to resolve limit STOP.

REMOTE/LINK:

Link input for linking of AHD units. For linking, you will need a 5-pin DMX data cable.
Only first three pins 1,2,3 are used on cable.
Due to different software platform and encoding the AHD units are not compatible with GMC, GMD units. For more details contact us at sales@srs-group.com

POWER LED indication:

- OFF: Power OFF
- GREEN: Power OK
- YELLOW: Power OK, PICKLE mode enabled
- RED: Power failure, please check mains

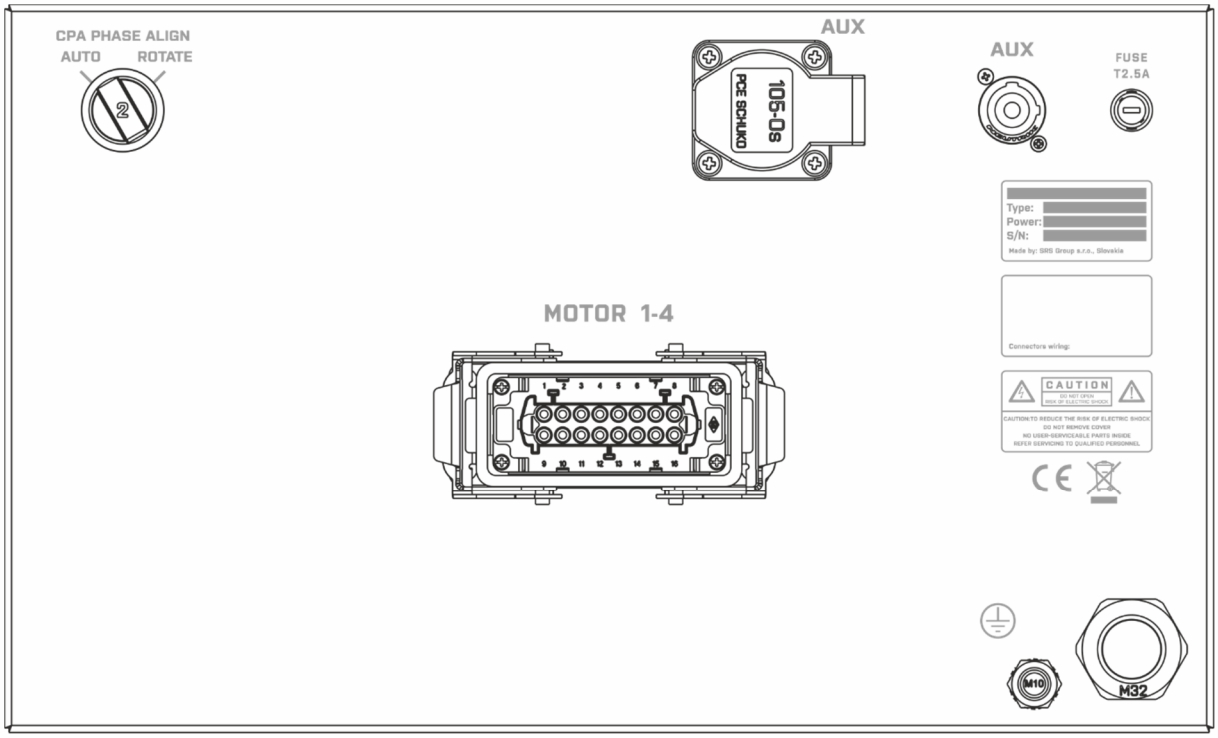
STATUS LED indication:

- GREEN: READY to work in auto mode
- RED: GO is activated
- YELLOW: Direction switch is changing status

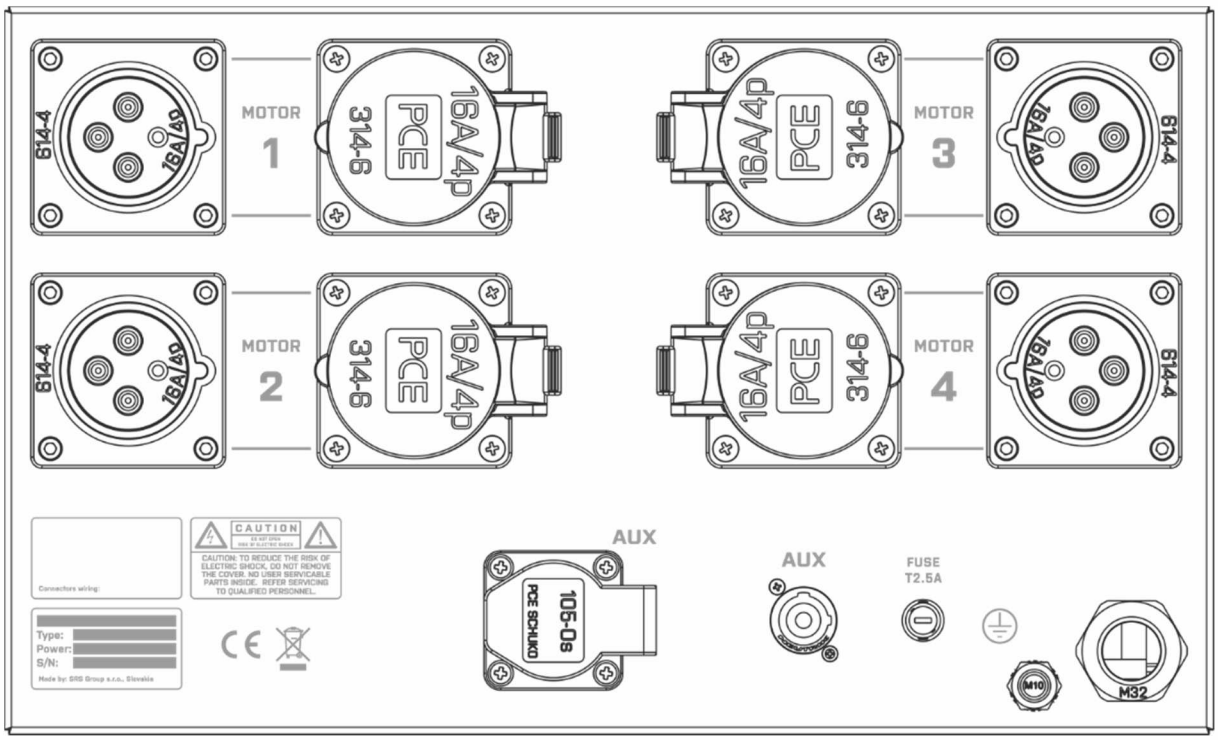
E-STOP LED indication:

- YELLOW: Unit is waiting for RESET or linked unit is waiting for RESET
- GREEN: Unit after reset, READY TO WORK
- RED steady: GROUP STOP or remote GROUP STOP is activated
- RED blinking: E-STOP from another linked device is activated
- RED double blink: LOCAL E-STOP is activated /mushroom pressed/

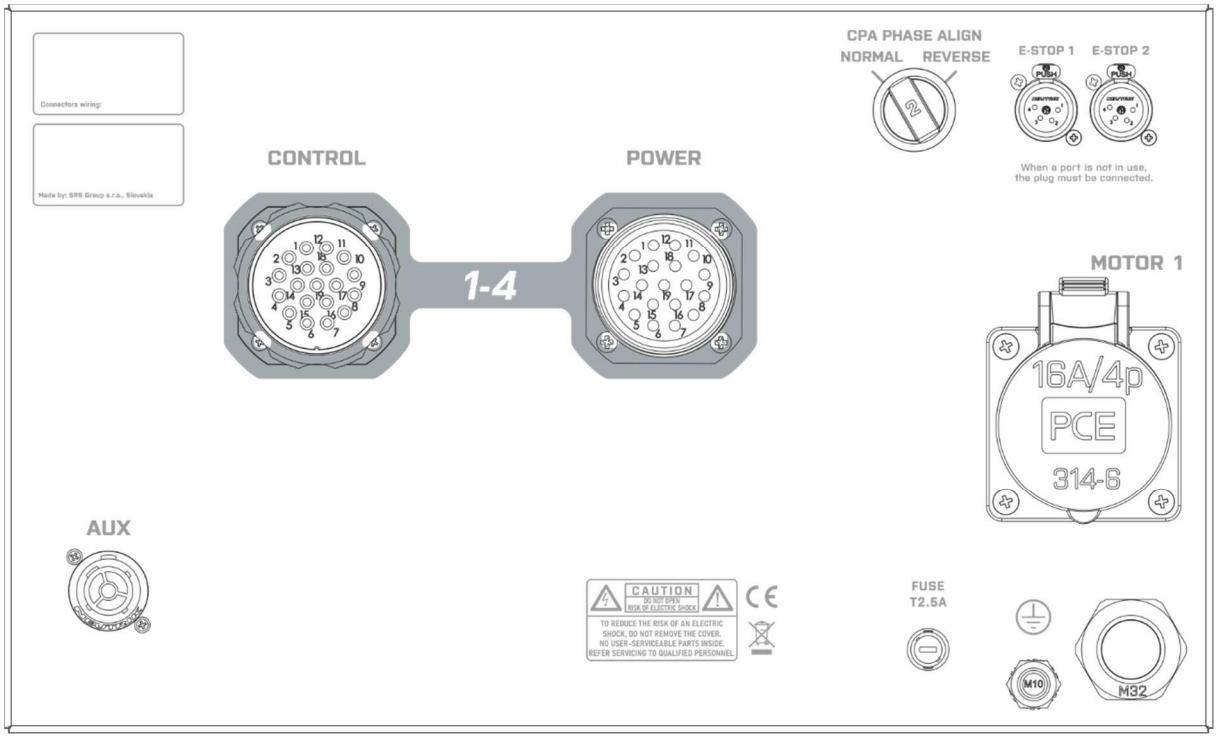
AHD4-LV-1H16 rear panel



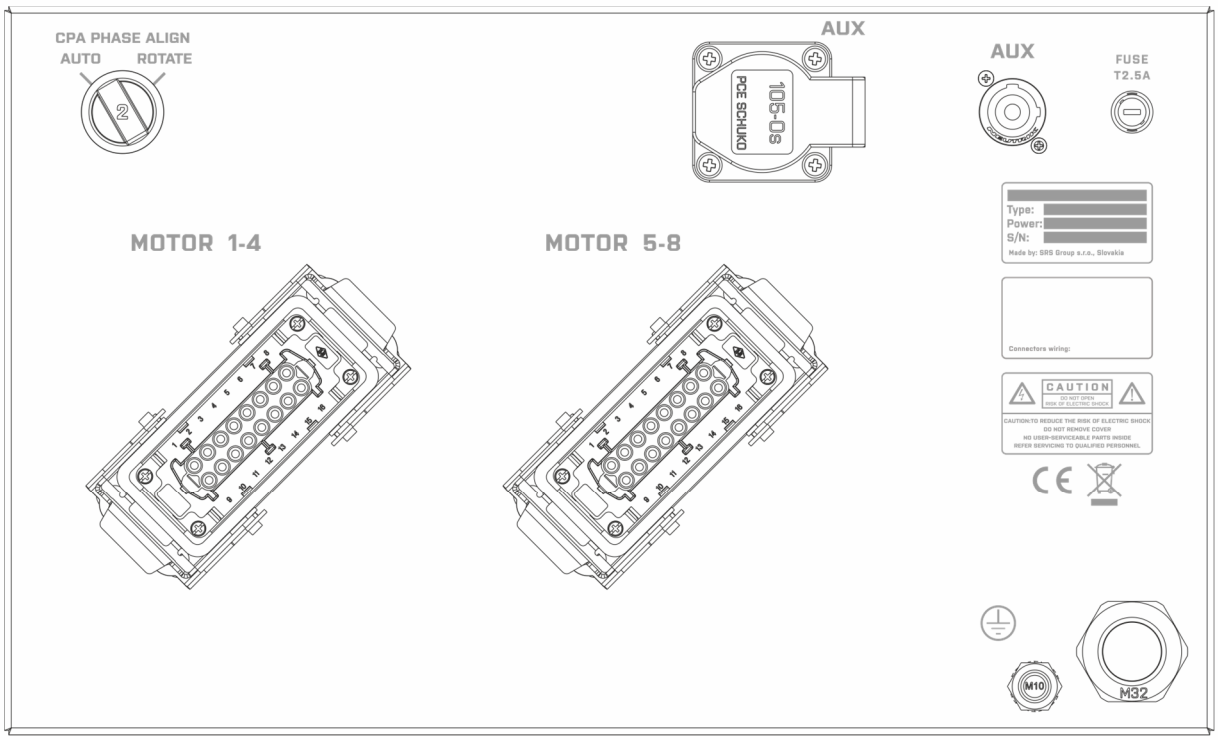
AHD4-LV-CEE rear panel



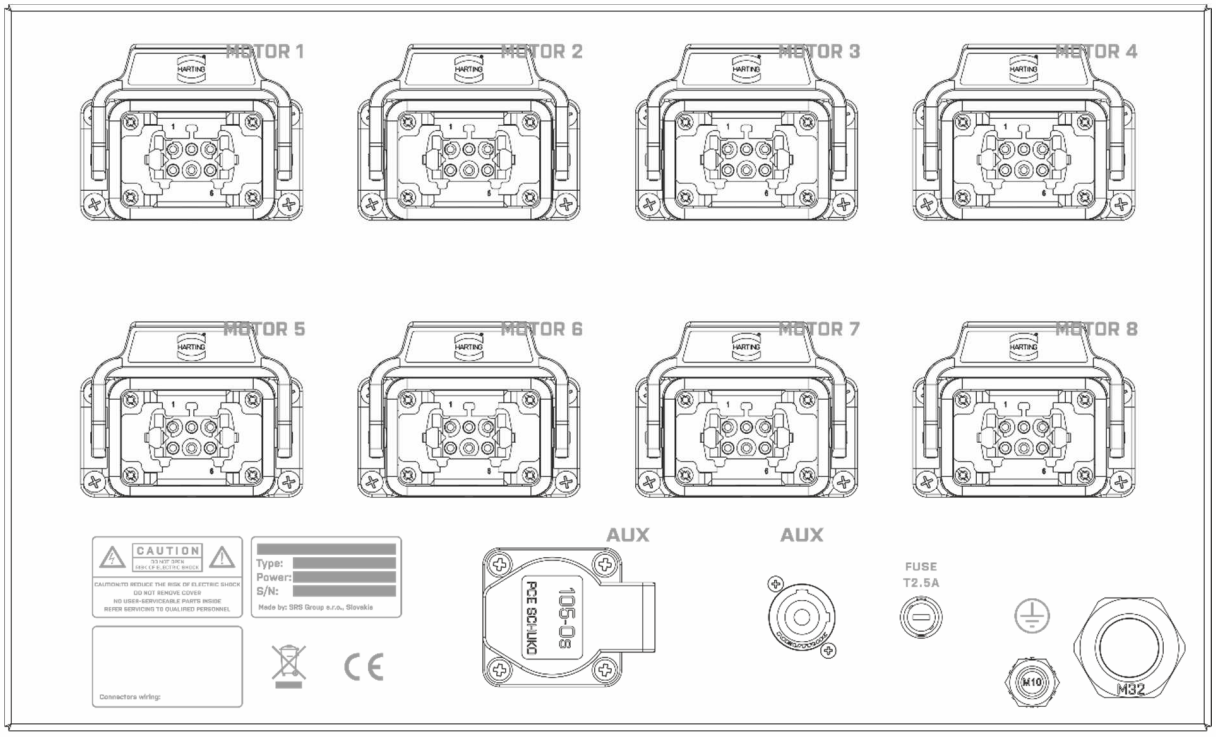
AHD4-LV-DSX19 rear panel



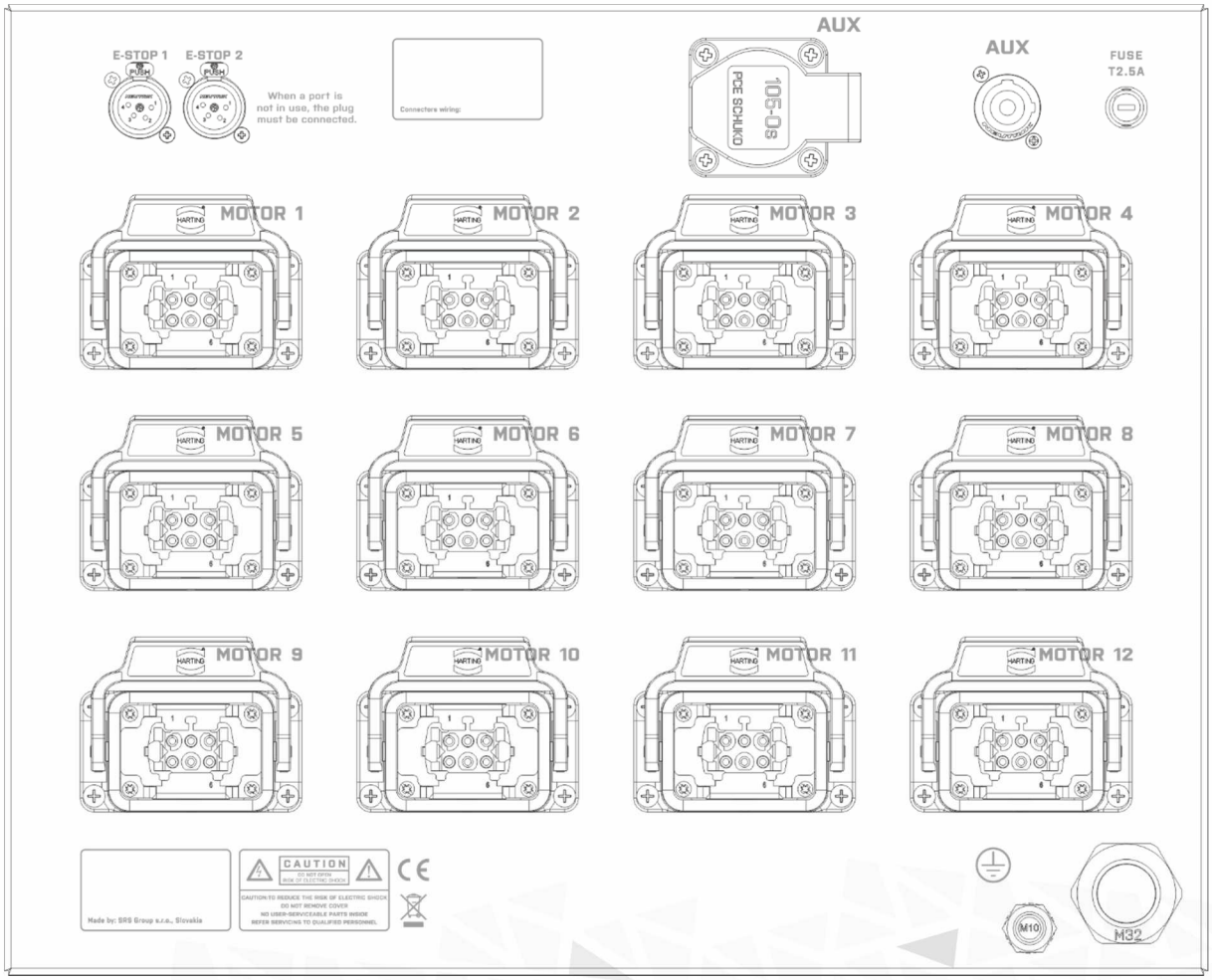
AHD8-LV-2H16 rear panel



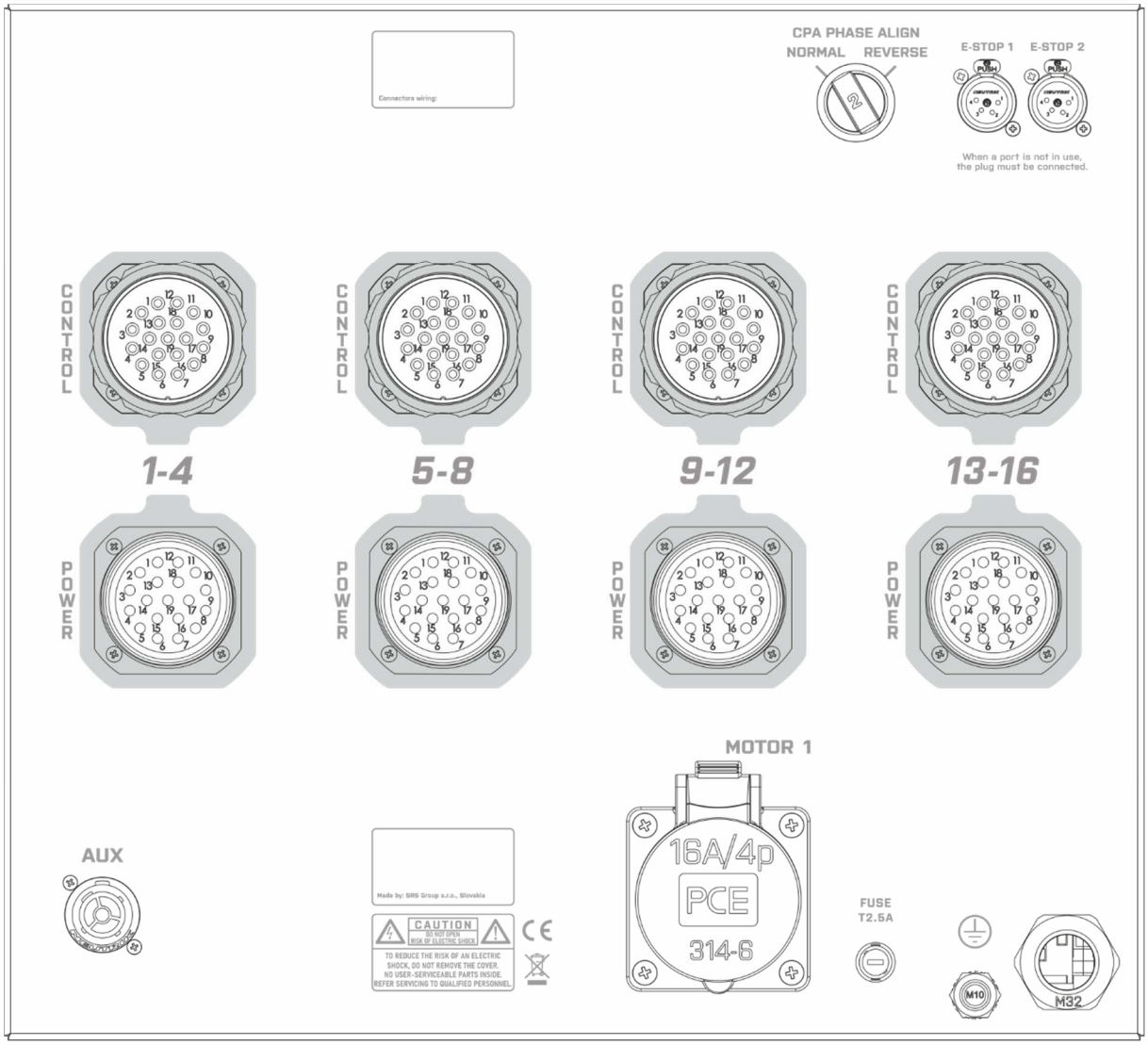
AHD8-LV-8H6 rear panel



AHD12-LV-12H6 rear panel



AHD16-LV-D4SX19 rear panel



MAINS:

Mains input CEE63/5p (CEE32/5p) on 1.5m cable, cable is not displayed on preview

OUTPUTS:

CEE 16A/4 pin hoist controller outputs. Check wiring diagram for more details
Harting 6 female hoist controller outputs. Check wiring diagram for more details
Harting 16 female hoist controller outputs. Check wiring diagram for more details
Socapex 19 female hoist controller outputs. Check wiring diagram for more details

AHDxx-LV

NC E-STOP:

Two independent wires for the SIL3 E-STOP. For correct operation, S1+S2 must be connected and isolated from S3+S4 that are also connected. All external E-STOP wires must be connected in series with NC contacts.

FUSE:

Fuse used for mains transformer T2.5A.

AUX:

AUX output for additional AC230 powered devices. German Schuko socket and AC3FCB panel mount. AUX is protected by C16/1p breaker on front panel.

Operation

The Motor/hoists connected with the AHD8-LV controller, can be activated individually or simultaneously using the GO switch located on the front panel or CABLE remote. Units can be optionally linked together to create bigger systems. In linked mode, the controllers will have their address set up via USB tool. Consult the details with sales@srs-group.com regarding it.

How to start to use system

- Connect the power plug to the AC400V +-20% power supply – turn the key to ON position. When the main is OK there will be power LED lit in green, otherwise the LED is set RED. In that case please check phase voltages, frequency and presence of all phases.

- Connect the plugs for the electric hoists to the output sockets.

- Check that the E-STOP mushroom is not engaged on device or any other linked device in system.

How to RESET system

- Turn ON the unit via KEY to AUTO position
- RESET button with blue backlight should be ON, if not contact us.
- Make cycle so press and release E-STOP
- Press the BLUE reset button. After press, it'll be turned off.
- GO button should start to blink which indicates that controller is ready for work.

Move lever on front panel or emote corresponding to each motor, to the position required:

  - UP - Lever in upper position
  - STAY – Lever in middle position
  - DOWN - Lever in lower position

- Pushing the GO button will activate the motors to move simultaneously
- Releasing the GO button will stop the movement of the motors simultaneously.
- When is device not used is highly recommended to turn it OFF by key located on front panel.
-

To Move a Single/Several hoist:

- Set the UP/DOWN toggle switch for that motor to the desired direction. The associated LED should light Green for UP, or Red for DOWN direction

- Hold the GO button and hoist are moving to the desired height until you hold the button. On final position release GO button

Remote/link connector

Neutrik NC5-MAH/FAH

Connectors are used for a link operation of the unit or for an additional digital remote connection. Up to 30 units can be linked. They are then controlled via one GO and E-STOP button in the local operation mode.

Pin	Function	note
1	**Data CMN**	*Data Common*
2	**Data -**	*Data Minus*
3	**Data+**	*Data Plus*
4	**DC1**	*Power supply for CMC DC12-36V*
5	**DC2**	*Power supply for CMC DC12-36V*



LIMIT STOP connector

Neutrik NC4-FAH

Pin	Function	note
1	**DC24-36V**	Connected to 3
2	**Active 1**	Active line 1
3	**DC24-36V**	Connected to 1
4	**Active2**	Active line 2



Both safety lines are separate and NO /normally open/. If you need an NC contact, we can set it up via USB programming tool. Contact us at sales@srs-group.com.

For loadcell STOP activation, make short circuit of at least single pair of contacts. For reset of the loadcell STOP function, please follow the RESET procedure.

Technical data

Mains connection:

- Mains input AC400V +-20% 50/60Hz
- Mains screw terminals: up to 35mm2
- Output screw terminals: up to 4mm2

Protections and Safety:

- Short circuit protection for group of three hoists by automatic circuit breakers
- Mains leakage current protection 40/80A 30mA
- APA – Automatic Phase Align
- AVM – Automatic Voltage Metering
- ADR – Automatic Digital Reset
- Double mechanical blocking contactors
- Double - Recessed E-STOP with SIL3 certification

Metal Housing:

- Compact 6U size
- 3mm Steel front panel
- 1.5mm Steel housing with gray powder coating

Warranty

AHD8-LV hoist controller comes with a 2-year manufacturer's warranty. For extended warranty conditions, please contact the manufacturer at sales@srs-group.com.

The warranty covers the original factory installed components of the controller and their correct functioning.

The warranty voids if:

- any part or replacement components is installed or modified without authorization from the manufacturer and/or the internal circuit is tampered or modified, and/or the controller is operated outside normal use conditions
- electrical power supply does not conform or there is a connection error or mechanical damage of the controller, including overload and improper use.

The manufacturer always helps you to repair your unit.

DECLARATION OF CONFORMITY

According to the specification of Machinery Directive 2006/42/CE, Annex II A:

Name of producer:	SRS Group s.r.o.
Address of producer:	Pri majer 4 821 07 Bratislava Slovakia

Declares that the product

Name of product:	**AHD4-LV-1H16-AU, AHD4-LV-CEE, AHD4-LV-4H6, AHD4-LV-CEE-63, AHD4-LV-DSX19-PR AHD8-LV-2H16, AHD8-LV-2H16-AU AHD8-LV-8H6, AHD12-LV-12H6 AHD16-LV-D4SX19-63-PR**
Type:	**945066, 945032, 945050, 945033, 945088, 945017, 945065, 945018 945020, 945086**
Year of construction:	**2017**

Corresponds with the following harmonized standards:

Safety:	EN 60065	EN 60950
	EN 60204-1	EN 13850
	EN 12100-2	
EMC:	EN55103-1, resp. EN55103-2	

And is in compliance with following requirements:

Machinery directive:	2006/42/CE
Low Voltage directive:	2014/35/CE
Electromagnetic compatibility directive:	2014/30/CE

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Bratislava, 9.2.2017

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