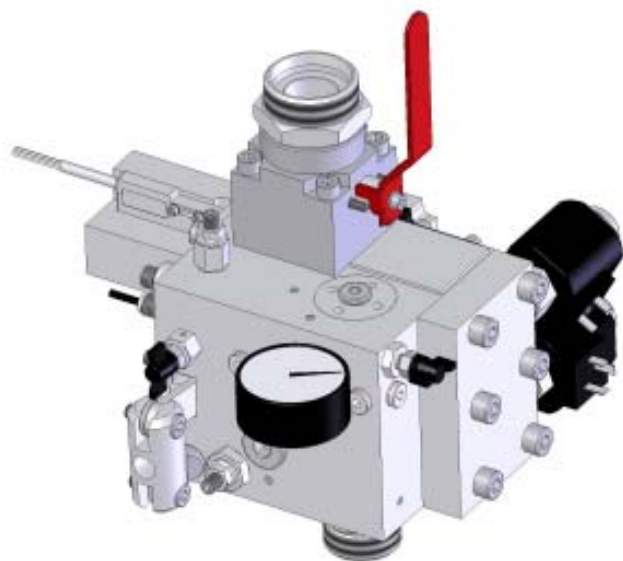




Start Elevator Srl
COMPONENTI OLEODINAMICI PER ASCENSORI

Operating instructions

VALVE UNIT HSe250 - 1"1/4 and BOARD SCH001



G

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Cap. Soc. Euro 40.000 i.v

GENERAL INDEX

GENERALITY

02308 00

- DESCRIPTION	Pag. 1/2
- INSPECTION ON DELIVERY	Pag. 1/2
- STORAGE	Pag. 1/2
- DISPOSING	Pag. 1/2
- DIRECTIVES AND TECHNICAL STANDARDS CONSIDERED	Pag. 1/2
- CONDITIONS OF USE	Pag. 2/2
- DECLARATION OF CONFORMITY	Pag. 2/2

DIAGRAMS AND ADJUSTMENTS

02310 03

- MAIN COMPONENTS AND OPERATING LIMITS	Pag. 1/9
- HYDRAULIC DIAGRAM	Pag. 2/9
- BOARD SCH001 CONNECTION AND MAIN COMPONENTS	Pag. 3/9
- RSW SELECTOR POSITION	Pag. 4/9
- W-IFI CONNECTION (Optional)	Pag. 4/9
- SD-CARD PARAMETERS RECOVERY	Pag. 4/9
- SD-CARD PARAMETERS LOADING	Pag. 5/9
- OVERLOAD PRESSURE AUTOMATIC SETTING	Pag. 5/9
- SOFTWARE UPDATING PROCEDURE	Pag. 5/9
- WORKING CYCLES PARAMETERS	Pag. 6/9
- SIGNAL AND SPEED PARAMETERS COMBINATION	Pag. 7/9
- COMMAND DEVICE WORKING DIAGRAM	Pag. 8/9
- VALVES FUNCTIONAL DIAGRAM	Pag. 9/9

MOUNTING ARRANGEMENT

02311 01

- VALVE UNIT	Pag. 1/2
- SCH001 BOARD	Pag. 2/2

WORKING

02312 03

- 1. UPWARD WORKING CYCLE	Pag. 1/6
- 2. DOWNWARD WORKING CYCLE	Pag. 3/6
- 3. UPWARD RELEVELING	Pag. 4/6
- 4. DOWNWARD RELEVELING	Pag. 4/6
- 5. DROP TEST	Pag. 4/6
- 6. MAXIMUM PRESSURE VALVE TEST	Pag. 5/6
- 7. ERROR CONDITION	Pag. 5/6
- 8. WORKING CYCLE DIAGRAMS	Pag. 6/6

PROTECTION AGAINST THE UNCONTROLLED MOVEMENT OF THE CABIN

02313 02

- INTRODUCTION	Pag. 1/7
- SCHEDULE OF OPERATION SIGNALS AND CONTROLS	Pag. 1/7
- 1.0 DEVICE TEST AGAINST UNCONTROLLED MOVEMENT	Pag. 2/7
- 2.0 SELF-CONTROL OF TYPE OF FUNCTIONAL REDUNDANCY	Pag. 3/7
- 2.1 CYCLE WITH SELF MONITORING FUNCTIONAL REDUNDANCY	Pag. 4/7
- 2.2 VERIFICATION OF THE PERIODIC AUTODETECTOR FUNCTION OF REDUNDANCY	Pag. 4/7
- 3.0 SELF-CONTROL OF MONITORING PNP1 SIGNAL	Pag. 5/7
- 3.1 CONTROL OF THE CYCLE OF MONITORING PNP1 SIGNAL	Pag. 5/7
- 3.2 VERIFICATION OF THE SUPERVISORY FUNCTION OF MONITORING PNP1 SIGNAL	Pag. 6/7
- 4.0 IDENTIFICATION AND TRACEABILITY	Pag. 7/7

MANOEUVRES OF EMERGENCY

02314 00

- DOWNWARD MOVEMENT OF THE CABIN
- UPWARD MOVEMENT OF THE CAB

Pag. 1/1
Pag. 1/1

PARAMETERS ERRORS CODES

02315 02

- P1 BASE PARAMETERS
- P2 UPWARD PARAMETERS
- P3 DOWNWARD PARAMETERS
- P4 ADVANCED PARAMETERS
- P5 VIEW PARAMETERS
- P7 COMMANDS
- P8 TECHNICAL PARAMETERS
- ERROR TABLE

Pag. 1/6
Pag. 1/6
Pag. 2/6
Pag. 2/6
Pag. 4/6
Pag. 5/6
Pag. 5/6
Pag. 6/6

AUTOMATIC REDUCTION OF TRAVEL TIMES

02316 01

- INTRODUCTION
- RECOVERY SPACE LEVELING
- REDUCTION OF STARTING TIME AND MAXIMUM UPWARD SPEED

Pag. 1/2
Pag. 1/2
Pag. 2/2

WITH VVVF DRIVE WORKING

02317 01

MAINTENANCE

02318 00

- MAINTENANCE PROGRAM AND PERIODIC CHECKS
- DESCRIPTION OF CONTROLS

Pag. 1/2
Pag. 1/2

SCHEMES AND ADJUSTMENTS MULTI-VALVE

02320 00

- DESCRIPTION
- HYDRAULIC DIAGRAM
- CONNECTIONS MASTER-SLAVE
- DIAGRAM OF FUNCTIONING CONTROL DEVICES

Pag. 1/4
Pag. 2/4
Pag. 3/4
Pag. 4/4

This book is integrant part of the unit therefore must be kept for the lasting in operation of the unit, in a place accessible and known by the installation, use and maintenance personnel.

The herewith instructions aim to permit the positive and safe execution of the installation operations, starting-up, working, control, maintenance and possible repair of the unit.

If any situation or event, not specified in the following pages, should occur, please refer to our Technical Department. For any request of general technical information or spare parts, please quote the identification data of the unit.

SYNBOLS LEGEND



This symbol warns that not observing the related instruction involves a risk of damage to the unit or to the system



This symbol warns that not observing the related instruction involves an electric shock risk

The instructions, drawings and documentation contained in this manual are reserved for technical, narrow property of the manufacturer and may not be reproduced in any way, either in full, or in part.

DESCRIPTION

The HSe250 Valve unit is a component designed for use in lifting systems such as elevators and goods lifts. The function of the valve assembly, is to control the speed of the cabin and is to represent the stop element, downward. It is forbidden the commissioning of the valve unit as part of a lifting system that has not been declared in conformity with local regulations.

The room where the unit is installed must be ventilated, free from dust and moisture.

INSPECTION ON DELIVERY

On delivery, check that the material has not been damaged during transportation from the production plant; check that the packing is undamaged and that you have all the necessary accessories and / or required; also check the correspondence of data on delivery and identification plates with those of the expected material. In the event of faults, defects or deficiencies, promptly notify our Technical Department.

STORAGE

In the installation waiting, the group must be stored away from the elements (can be especially damaged by water, damp and sun) and in a stable position.

The temperature of the storage location should be between 0 and + 50 ° C (32 and 122 ° F)

DISPOSING

The device must be disposed of according to applicable regulations.

DIRECTIVES AND TECHNICAL STANDARDS CONSIDERED

The groupe is designed in accordance with the Technical Standards listed below:

Standard - Directive	Title
2014/33/UE	Lift Directive
EN 81-20:2014	Safety rules for the construction and installation of lifts
EN 81-50:2014	Design rules, calculations, examinations and tests of lift components
2006/42/CE	Machinery Directive
2014/35/UE	Low voltage Directive
2014/30/UE	Electromagnetic compatibility Directive
EN 12015:2014	Electromagnetic compatibility - Emission
EN 12016:2016	Electromagnetic compatibility - Immunity
EN 60068-2-6	Vibration
	Environmental testing - Part 2: Tests - Test Fc: Vibration
EN 60068-2-14	Temperature
	Environmental testing - Part 14: Tests - Test N. Change of temperature
EN 60068-2-27	Shock
	Environmental testing - Part 2-27: Tests - Test Ea and guidance: Shock
EN 60664-1: 2007	Insulation coordination for equipment within low-voltage systems
Grado di inquinamento 2	
2011/65/EU	RoHS 2 Directive - on the restriction of the use of certain hazardous substances in electrical and electronic equipment

**GENERALITY
VALVE UNIT
HSe250**



Start Elevator

02 308 / G

rev. 0

1/2

CONDITIONS OF USE

- The part connected to the electrical safety devices is suitable to operate with the degree of pollution 3.
- In industrial environments, provide an IP54 protective casing for the SCH001 board.
- Nevertheless, use in a environment with permanent presence of conductive powder is excluded.
- Usage altitude limit: 3000 m s.l.m.

For special conditions of use, please contact the Start Elevator Technical Department.

DECLARATION OF CONFORMITY'

Below an example of the declaration of conformity issued for each component

```
*-----*
* Start Elevator Srl                *          *          *
* Incrociata di Calendasco          * EU DRECLARATION * N. AANNNN *
* (Piacenza) Italia                 * OF CONFORMITY FOR *-----*
* tel.0523 771131-772774            * A SAFETY COMPONENT * PAGE 1 * OF 1 *
* www.startelevator.it              *          *          *
*-----*
*
* The manufacturer :                START ELEVATOR SRL
*                               29010 INCROCIATA DI CALENDASCO - ITALY
*
* Declares that the product        Valve unit
* Type - Model                     HSe250
*
* Year of constr. - Serial number : MAA - AANNNN
* Customer - Reference              : ASCENS.ROSSI - IMP. 100
*
* It is part of a device against uncontrolled downward movement
* of the cabin, composed of two hydraulic valves controlled
* electrically operating in series.
* Harmonized standard used          : EN 81-20, 81-50 :2014
* EU-type examination certificate NR. : CCCCCC
* Released by:
* [ ]
* Implementing entity of the production checks in accordance with Annex IX
* of the Directive 2014/33/UE:
* [ ]
*
* Calendasco 07/11/2016
*
* Legal representative .
*-----*
```

**GENERALITY
VALVE UNIT
HSe250**

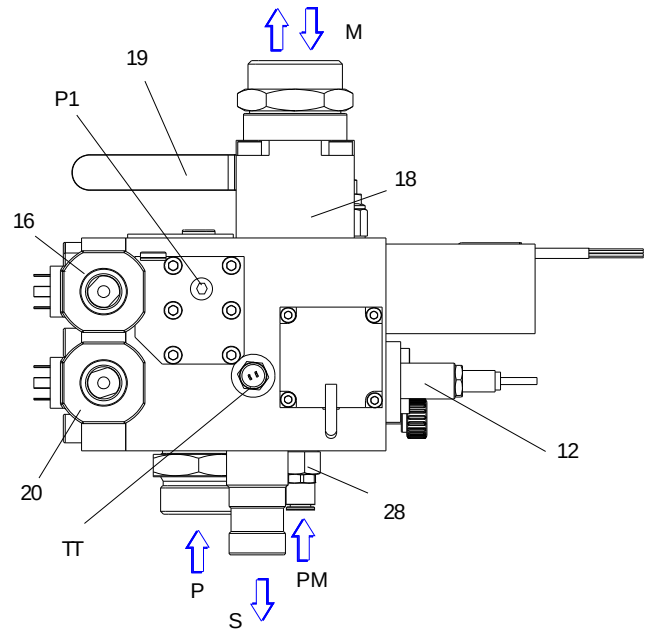


Start Elevator

02 308 / G

rev. 0

2/2



HYDRAULIC DIAGRAM

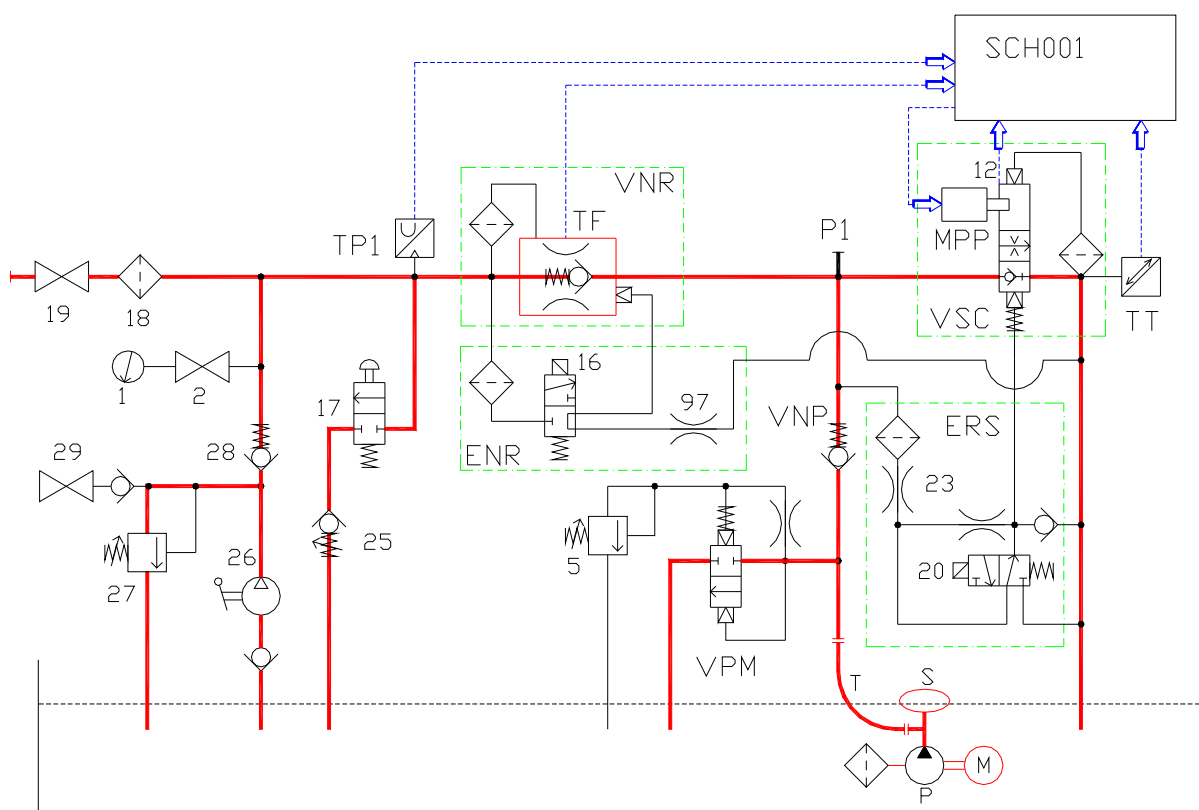
LEGEND

- 1 Gauge
- 2 Gauge cut-out cock
- 5 Maximum pressure valve adjusting screw
- clockwise increase (+) - anticlockwise decrease (-)
- 12 VSC valve zero contact
- 16 ENR solenoid valve (unblock VNR valve)
- 17 Emergency manual lowering (clockwise rotation)
- 18 Filter
- 19 Ball valve
- 20 ERS solenoid valve (unblock VSR valve)
- 23 VSC valve block control throttle
- 25 Emergency manual lowering minimum pressure
- clockwise increase (+) - anticlockwise decrease (-)
- 26 Hand pump
- 27 Hand pump maximum pressure valve
- clockwise increase (+) - anticlockwise decrease (-)
- 28 Hand pump non-return valve
- 29 Hand pump air-release screw
- 97 VNR valve block control throttle

- TF Flow meter
- TP1 Pressure meter
- TT Temperature meter
- ENR VNR valve unblock solenoid valve
- ERS VSC valve unblock solenoid valve
- MPP VSC valve command Stepper motor
- VNP Pump no return valve
- VNR No return and downstroke safety valve
- VPM Pump maximum pressure valve
- VSC Flow control valve
- P1 Auxiliary microrelevelling port

OTHER PUMP UNIT COMPONENTS

- M Pump motor
- P Pump
- S Pump silencer
- T Flexible pump connection pipe



**DIAGRAMS AND ADJUSTMENTS
VALVE UNIT
HSe250**



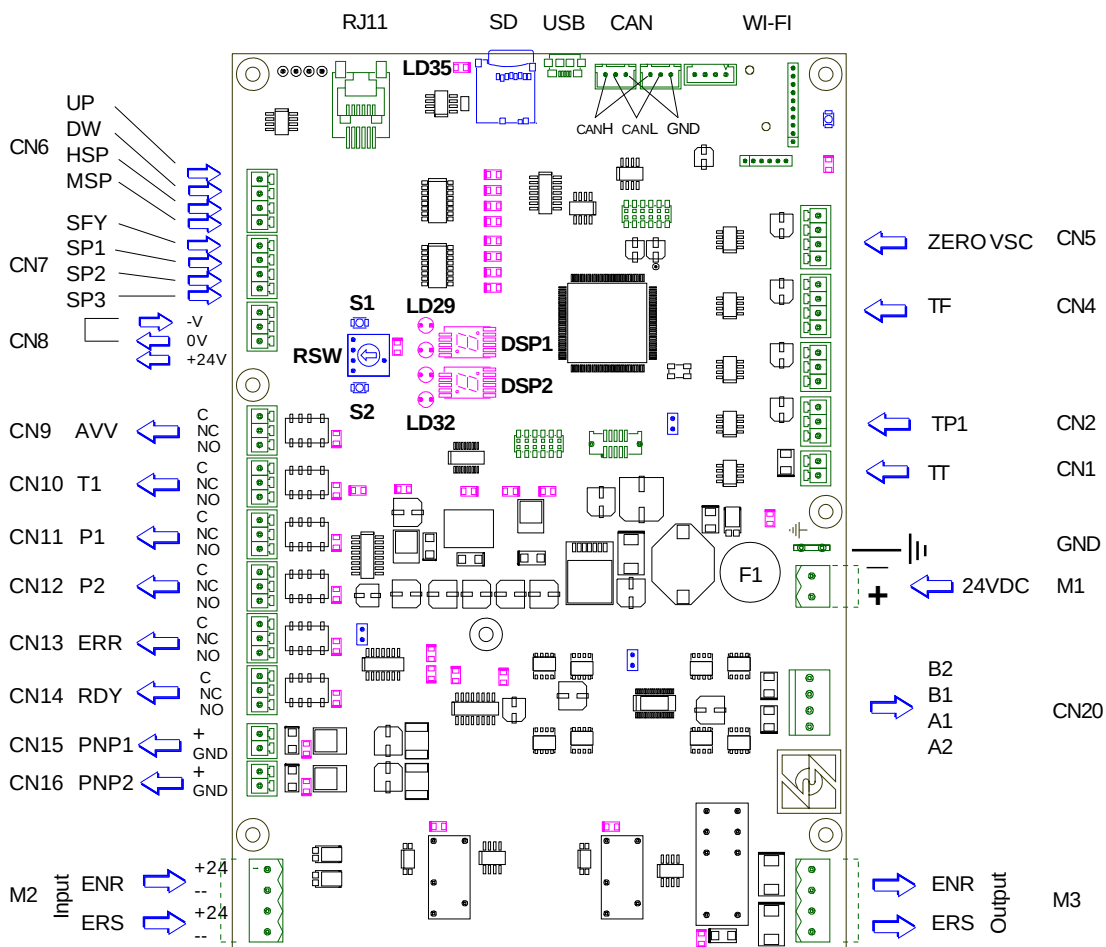
Start Elevator

02 310 / G

rev. 3

2/9

BOARD SCH001 CONNECTION



- M1 Input Voltage 24-30 VDC
 - Max input power 25 W
 - Standby consumption 24VDC: 200mA,
 300 mA with connected data entry device
 F1 Fuse 5A-T

- M2 Solenoid valve ENR 24-30 VDC 35 W input
 Solenoid valve ERS 24-30 VDC 35 W input

- LD29 Red LED ON = Error condition
 LD30 Yellow LED CAN operating
 LD31 Green LED ON = Normal condition
 LD32 Blue LED ON = Wi-Fi module activated
 LD35 Orange LED ON = SD memory activated

- OPTO-ISOLATED DIGITAL INPUT
 - Working voltage 20 - 60 VDC - 100 mA

- CN6 UP Upward command input
 DW Downward command input
 HSP Upward high speed command input
 (Downward also when Par. 453 = 0)
 MSP Maintenance and V2 speed command (Par. 205 e 305)
 combined with high speed command when Par.454=1
 CN7 SFY Motor Pump ON signal
 SP1 V3 Speed (together high speed command input)
 SP2 V4 Speed (together high speed command input)
 SP3 Downward high speed command input (when Par. 453 = 1)
 CN8 -V Digital input negative common
 0V Bridge with -V negative for dry contacts
 +24V Voltage for dry contacts utilization max 100 mA

SWITCHING RELAY OUTPUT 2A-220VDC/250VAC

- CN9 AVV Motor Pump starting
 CN10 T1 TMAX-TMIN (Par.105-110) temperature range exit:
 > Par.105 always active,
 < Par. 110 during waiting command only active.
 CN11 P1 PMAX-PMIN pressure range exit, (Par.106-107)
 always active if Par.457 =1 otherwise
 during waiting command only active if Par. 457=0
 CN12 P2 Overload PS pressure limit overcoming, (Par.108)
 during waiting command only active
 CN13 ERR Error condition
 CN14 RDY Ready condition

DIGITAL OUTPUT V = 23 VDC - 500mA - PNP type

- CN15 PNP1 Valve monitoring signal
 CN16 PNP2

- M3 ENR solenoid valve connection
 ERS solenoid valve connection

- RSW Working selector with 10 position
 S1-S2 Confirmation keys
 RJ11 Hand terminal connection
 SD Micro SD 2-16 GB FAT32
 CN20 Stepper motor connection
 USB Micro-Usb PC direct connection
 CAN CAN net connection
 Wi-Fi Wi-Fi net connection module
 ZERO VSC, TF, TP1, TT, sensor input
 DSP1-2 digit signaling display

DIAGRAMS AND ADJUSTMENTS VALVE UNIT HSe250



Start Elevator

02 310 / G

rev. 3

3/9

RSW SELECTOR POSITION	DSP1-2 BUTTON	CONFIRMATION	DSP1-2
0 NORMAL WORKING CONDITION	(00) (**)	/	
1 HAND TERMINAL PARAMETER MODIFICATION	(*)	/	
2 WI-FI NET PARAMETER MODIFICATION (**)	(UF)	/	
3 DROP TEST CONDITION	(FL)	S1	(FP) (***)
4 UCM TEST	(UL)	S1	(UP) (***)
5 SD-CARD PARAMETERS READING	(oL)	S2	
6 PNP1 SIGNAL TEST	(L-)	S1/S2	(Lu)(Ld) (***)
7 SD-CARD PARAMETERS WRITING	(oL)	S2	
8 MAXIMUM PRESSURE VALVE TEST CONDITION	(PP)	S1	(HP) (***)
9 LAST ERROR NUMBER DISPLAY	(--)	S1=RESET	

With the selector in a position other than 0, the Ready signal (Pos.CN14) is normally deactivated and reactivated momentarily during the execution of a specific command.

The Red LED near the RSW selector shows the position of the selector itself:

The always-on LED corresponds to position 0, while it executes a flash sequence corresponding to the number of other selected positions.

(*) Sensor pressure value display

(**) The DSP1-2 display turns off after 10 s in the absence maneuvers

(***) Switching the RSW selector in 0 position and pressing the S1 button the command is deleted

WIFI CONNECTION (Optional)

To Using a Wi-Fi device for managing parameters, you must download and install the Start Elevator application from the App Stores or Google play.

- Switches the RSW selector in the position 2.
- Wait until the LD32 blue light is fixed ON.
- In Your device, to find and connect the WiFi network, with the name of serial number (ex. 16187901 or 16187902).
- Start the application and when the login key is required, enter the name of WiFi network (ex. 16187901 or 16187902).

With the RSW selector in the position number 2 you can change the parameters.

With the RSW selector in others position, you can only view the parameters until the blue light remains fixed.

If the RSW selector is not in the position number two, the WiFi blue light and the WiFi network fall when there is no connection for more that one minute.

However, remember to return to the position 0 of the switch RSW.

SD-CARD PARAMETERS RECOVERY

To save the parameters via SD CARD must use a Micro SD 2 to 16 GB already formatted FAT 32.

- Switch **the RSW selector in position 7**, the display will then show [oL] and will turn on (ON) Yellow LED LD35.
- Then press **S2 button** once and the Yellow LED will start flashing (ON-OFF) until the completion of the writing of the parameters on the SD card.

The file containing the parameters on the SD card is named with the number corresponding to network ID stored in the 499 parameter and PAR extension (ex. 16187901.PAR) with the 31/12/2097 generic creation date .

Then the display will show [00] and the Yellow LED will turn off (OFF) and the Green LED executes a blinking (ON-OFF-ON).

After the display shows [oL] and will turn on again (ON) LED Yellow.

However, remember to return to the position 0 of the switch RSW.



SD-CARD PARAMETERS LOADING

To read the parameters from SD CARD must use a Micro SD 2 to 16 GB, formatted FAT 32 and containing the file with the number corresponding to network ID stored in the 499 parameter and PAR extension (ex. 16187901.PAR) with the data to be loaded.

- Switch **the RSW selector in position 5**, the display will then show [**L**] and will turn on (ON) Yellow LED LD35.
- Then press **S2 button** once and the Yellow LED will start flashing (ON-OFF) until the completion of parameters loading from the SD card.

Then the display will show [**00**] and the Yellow LED will turn off (OFF) and the Green LED executes a blinking (ON-OFF-ON).

After the display shows [**IL**] and will turn on again (ON) LED Yellow.

However, remember to return to the position 0 of the switch RSW.

OVERLOAD PRESSURE AUTOMATIC SETTING

It is possible to put automatically the overload pressure in the P108 parameter, with the **RSW selector in position = 1**, which is normally displayed actual pressure value that is detected by the sensor.

There are two input modes:

- The first is to place the load in the cabin of the overload switching.
In this case the parameter P111, which stores the nominal load rate, must contain the value 0 and the acquisition in the parameter P108 will be that of pressure sensor reading in the current condition.
- The second is to acquire the overload value with empty cabin.
In this case, the P111 parameter must contain the value of the nominal load rate and therefore will be entered in parameter P108, the calculated pressure, according to the characteristics given in the parameters P101, P103, P104 and P109, whereas as overload, the load rate increased by 10%, with a minimum of 75 kg (165 lb).

In both cases, pressing the **S1 button** toggles the insert mode, where the display shows [**AP**], and then pressing the **S2 button** is acquired or calculated, in the P108 parameter, the overload value.

Instead using the hand terminal, you must set the parameter **P711 = 1**, the first time to switch to insert mode [**AP**], and the second time the parameter **P711 = 1**, to acquire or calculate, in the P108 parameter, the overload value .

However, remember to return to the position 0 of the switch RSW.

SOFTWARE UPDATING PROCEDURE

Before the upgrade of board software should save the current operating parameters (Ex. SD-CARD PARAMETERS RECOVERY).

- To update the software must be present on SD CARD the file FIRMWARE.DAT to install.
- **Insert the SD CARD in the SD slot.**
- Disconnect and reconnect the power connector M1.
- After powering the M1 power connector of the card, the DISP1-2 "wheel" for 8 s, and during this time, keep **the S1 button** pressed until [**F**] appears on the DSP1-2.
Then press **the S2 button** once to confirm the update command.
- At the end of the update appears on DISP1-2 [**oH**]
- **Remove the SD CARD from the SD slot**
- Disconnect and reconnect the power connector M1.



WORKING CYCLES PARAMETERS

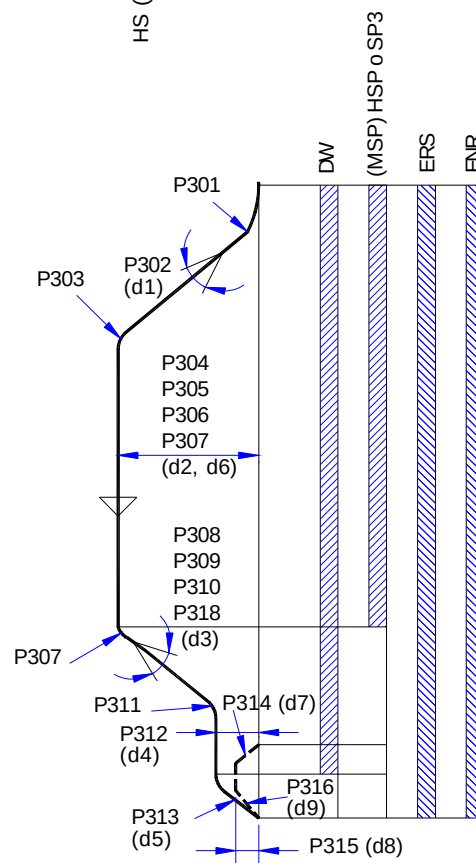
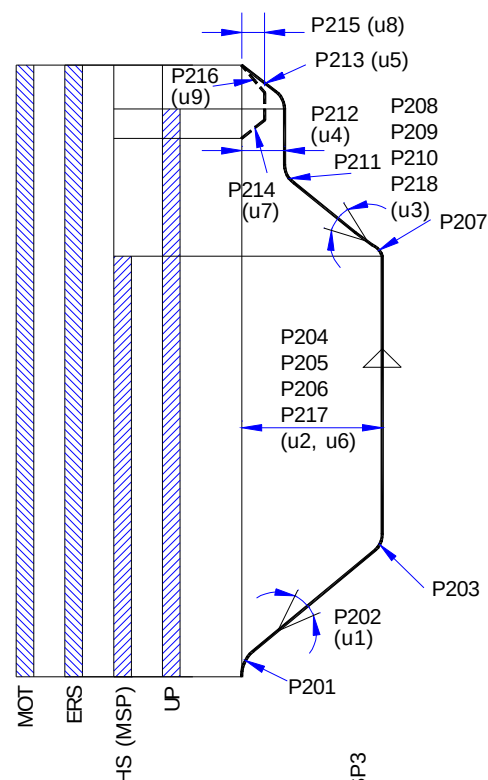
P2 UPWARD PARAMETERS

- P201 Upward initial acceleration change rate
- P202 Upward acceleration distance (m, ft)
- P203 Upward final acceleration change rate
- P204 Upward high speed (m/s, fpm)
- P205 Second upward high speed (maintenance) (m/s, fpm)
- P206 Third upward high speed (m/s, fpm)
- P207 Upward initial deceleration change rate
- P208 Upward deceleration distance (m, ft)
- P209 Second upward deceleration distance (m, ft)
- P210 Third upward deceleration distance (m, ft)
- P211 Upward final deceleration change rate
- P212 Upward low speed (m/s, fpm)
- P213 Upward stopping distance (m)
- P214 Upward releveing acceleration distance (m, ft)
- P215 Upward releveing speed (m/s, fpm)
- P216 Upward releveing stopping distance (m, ft)
- P217 Fourth upward high speed (m/s, fpm)
- P218 Fourth upward deceleration distance (m, ft)
- (uX) Display on DSP during phase execution

- UP Upward command input
- DW Downward command input
- HSP Upward high speed command input (Downward also when Par. 453 = 0)
- MSP Mainenanans and V2 speed command combined with high speed command when Par.454=1
- SP3 Downward high speed command input (when Par. 453 = 1)
- MOT Motor pump input (corresponding to AVV output relay)
- ENR Solenoid valve ENR input
- ERS Solenoid valve ERS input
- (For signal and device management see section 02312)

P3 DOWNWARD PARAMETERS

- P301 Downward initial acceleration change rate
- P302 Downward accelation distance(m, ft)
- P303 Downward final acceleration change rate
- P304 Downward high speed (m/s, fpm)
- P305 Second downward high speed (maintenance) (m/s, fpm)
- P306 Third downward high speed (m/s, fpm)
- P307 Downward initial deceleration change rate
- P308 Downward deceleration distance (m, ft)
- P309 Second downward deceleration distance (m, ft)
- P310 Third downward deceleration distance (m, ft)
- P311 Downward final deceleration change rate
- P312 Downward low speed (m/s, fpm)
- P313 Downward stopping distance (m)
- P314 Downward releveing acceleration distance (m, ft)
- P315 Downward releveing speed (m/s, fpm)
- P316 Downward releveing stopping distance (m, ft)
- P317 Fourth downward high speed (m/s, fpm)
- P318 Fourth downward deceleration distance (m, ft)
- (dX) Display on DSP during phase execution



SIGNAL AND SPEED PARAMETERS COMBINATION

			Upward starting combination					
			1.1	1.2.1	1.2.2.1	1.2.2.2	1.2.3	1.2.4
Advan.par am.	P453		0 or 1	0 or 1	0 or 1	0 or 1	0 or 1	0 or 1
	P454		0 or 1	0 or 1	0	1	0 or 1	0 or 1
Digital Input / Priority Level	UP	1	1	1	1	1	1	1
	DW	2	0	0	0	0	0	0
	HSP	6	0	1	0	1	1	1
	MSP	3	0	0	1	1	0	0
	SP1	4	0	0	0	0	1	0
	SP2	5	0	0	0	0	0	1
	SP3	7	0 or 1	0 or 1	0 or 1	0 or 1	0 or 1	0 or 1
Cycle param.	Accel.		P214	P202	P202	P202	P202	P202
	Speed		P215	P204	P205	P205	P206	P217
	Deceler.		P216	P208	P209	P209	P210	P218

- 1.1 Upward releveing
- 1.2.1 Normal Upward (first) Cycle
- 1.2.2.1 Maintenance (inspection) Upward (second) Cycle without deceleration to low speed
- 1.2.2.2 Maintenance (inspection) Upward (second) Cycle with deceleration to low speed
- 1.2.3 Third Upward Cycle
- 1.2.4 Fourth Upward Cycle

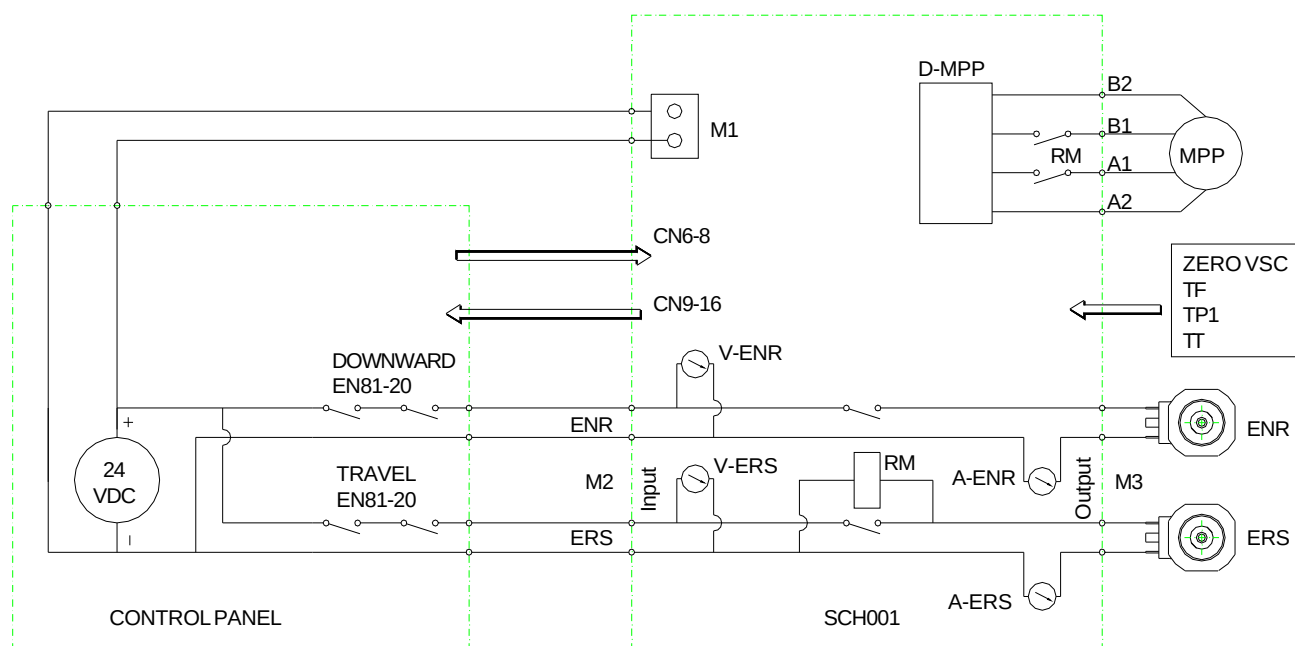
			Downward starting combination					
			2.1	2.2.1	2.2.2.1	2.2.2.2	2.2.3	2.3.4
Advan.par am.	P453		0 or 1	0 1	0 or 1	0 1	0 1	0 1
	P454		0 or 1	0 or 1	0	1	0 or 1	0 or 1
Digital Input / Priority Level	UP	1	0	0	0	0	0	0
	DW	2	1	1	1	1	1	1
	HSP	6	0	1 0	0	1 0	1 0	1 0
	MSP	3	0	0	1	1	0	0
	SP1	4	0	0	0	0	1	0
	SP2	5	0	0	0	0	0	1
	SP3	7	0	0 1	0	0 1	0 1	0 1
Cycle param.	Accel.		P314	P302	P302	P302	P302	P302
	Speed		P315	P304	P305	P305	P306	P317
	Deceler.		P316	P308	P309	P309	P310	P318

- 2.1 Downward releveing
- 2.2.1 Normal Downward (first) Cycle
- 2.2.2.1 Maintenance (inspection) Downward (second) Cycle without deceleration to low speed
- 2.2.2.2 Maintenance (inspection) Downward (second) Cycle with deceleration to low speed
- 2.3.3 Third Downward Cycle
- 2.3.4 Fourth Downward Cycle

Note: Simultaneous activation of SP1 and SP2 digital inputs, for 3 seconds, allows you to send a Reset Errors command to the card.



COMMAND DEVICE WORKING DIAGRAM



M1 BOARD INPUT CONNECTION
M2 SOLENOID VALVES INPUT CONNECTION
M3 SOLENOID VALVES CONENCTION
V-ENR ENR INPUT CONTROL
V-ERS ERS INPUT CONTROL
A-ENR ENR CURRENT CONTROL
A-ERS ERS CURRENT CONTROL
ENR VNR VALVE UNBLOCK SOLENOID VALVE
ERS VSC VALVE UNBLOCK SOLENOID VALVE
ZERO VSC VALVE POSITION SENSOR
TF FLOW SENSOR
TP1 PRESSURE SENSOR
TT TEMPERATURE SENSOR

MPP VSC VALVE COMAMND STEPPER MOTOR
D-MPP STEPPER MOTOR CONTROL DRIVER
RM STEPPER MOTOR CONNECTION RELAY
A1-A2 STEPPER MOTOR A PHASE
B1-B2 STEPPER MOTOR B PHASE

CN6-8 BOARD SIGNALS INPUT CONNECTIONS
CN9-16 BOARD SIGNALS OUTPUT CONNECTIONS

EN81-20 DOWNWARD DOWNWARD COMMAND DEVICES
EN81-20 TRAVEL UPWARD AND DOWNWARD COMMAND DEVICES

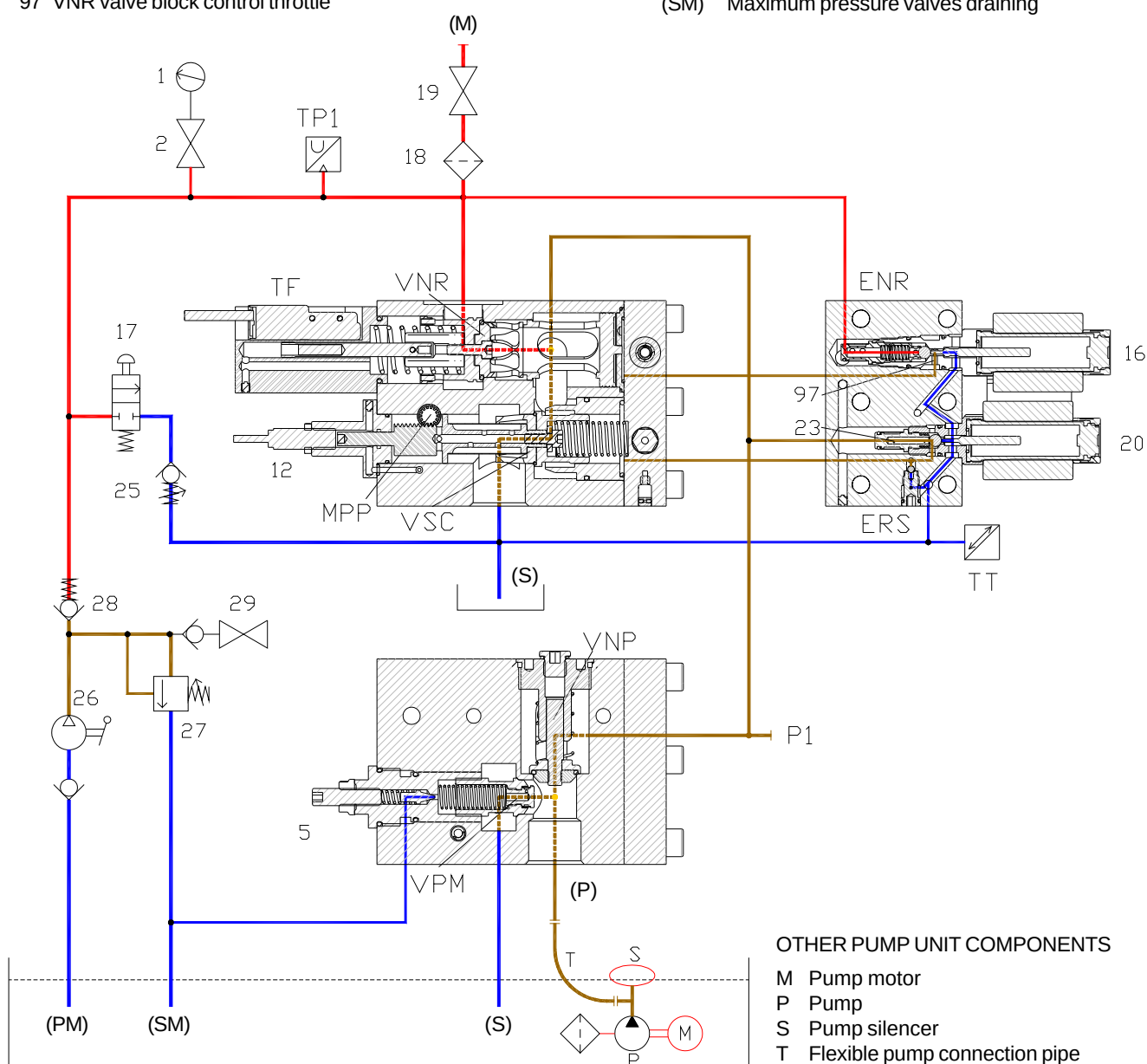


VALVES FUNCTIONAL DIAGRAM

LEGEND

- 1 Gauge
- 2 Gauge cut-out cock
- 5 Maximum pressure valve adjusting screw
- clockwise increase (+) - anticlockwise decrease (-)
- 12 VSC valve zero contact
- 16 ENR solenoid valve (unblock VNR valve)
- 17 Emergency manual lowering (clockwise rotation)
- 18 Filter
- 19 Ball valve
- 20 ERS solenoid valve (unblock VSR valve)
- 23 VSC valve block control throttle
- 25 Emergency manual lowering minimum pressure
- clockwise increase (+) - anticlockwise decrease (-)
- 26 Hand pump
- 27 Hand pump maximum pressure valve
- clockwise increase (+) - anticlockwise decrease (-)
- 28 Hand pump non-return valve
- 29 Hand pump air-release screw
- 97 VNR valve block control throttle

- | | |
|------|---------------------------------------|
| TF | Flow meter |
| TP1 | Pressure meter |
| TT | Temperature meter |
| ENR | VNR valve unblock solenoid valve |
| ERS | VSC valve unblock solenoid valve |
| MPP | VSC valve command Stepper motor |
| VNP | Pump no return valve |
| VNR | No return and downstroke safety valve |
| VPM | Pump maximum pressure valve |
| VSC | Flow control valve |
| P1 | Auxiliary microrelevelling port |
| (M) | Cylinder port |
| (P) | Pump port |
| (S) | Tank port |
| (PM) | Hand pump input port |
| (SM) | Maximum pressure valves draining |



DIAGRAMS AND ADJUSTMENTS
VALVE UNIT
HSe250

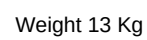
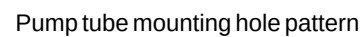
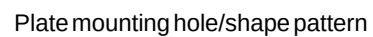


Start Elevator

02 310 / G

rev. 3

9/9

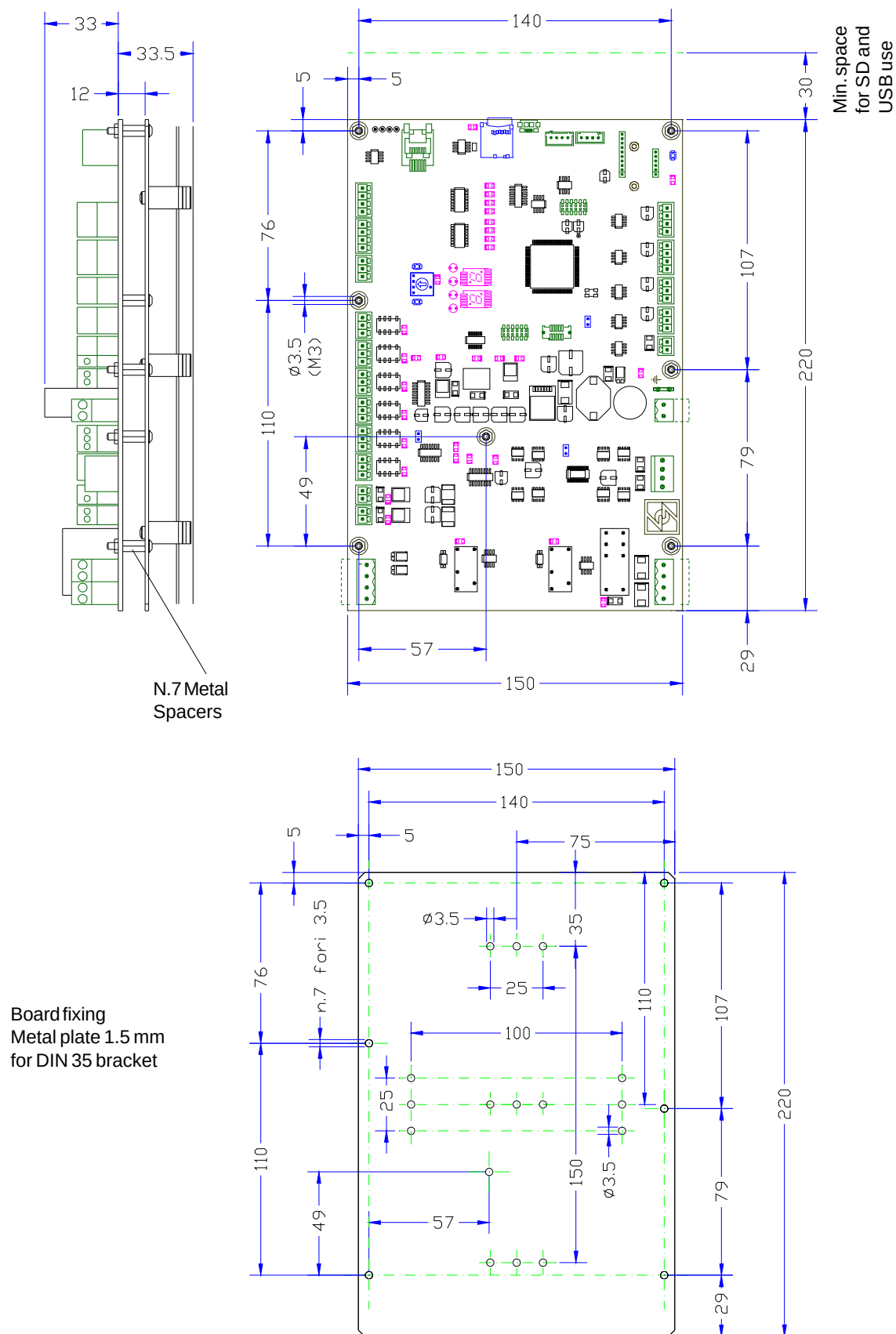


02 311 / G

rev. 1

1/2

BOARD SCH001 DIMENSIONS AND FIXING



**MOUNTING ARRANGEMENT
VALVE UNIT
HSe250**



Start Elevator

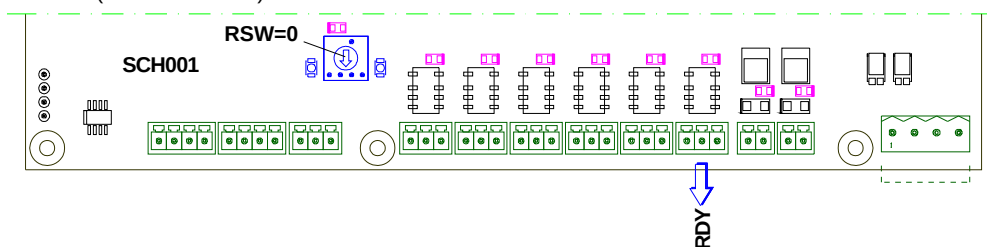
02 311 / G

rev. 1

2/2

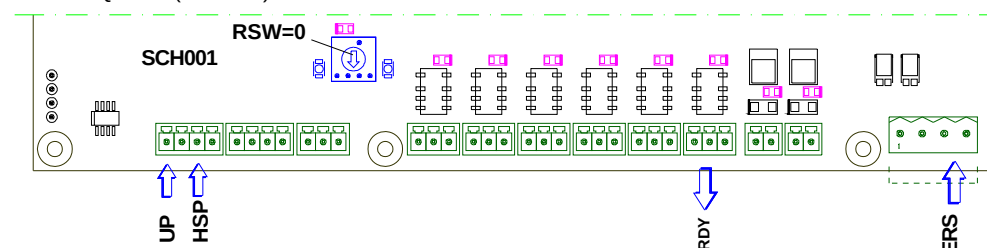
1.UPWARD WORKING CYCLE

UPWARD 1/8 - STATIONARY (DSP=00 or OFF)



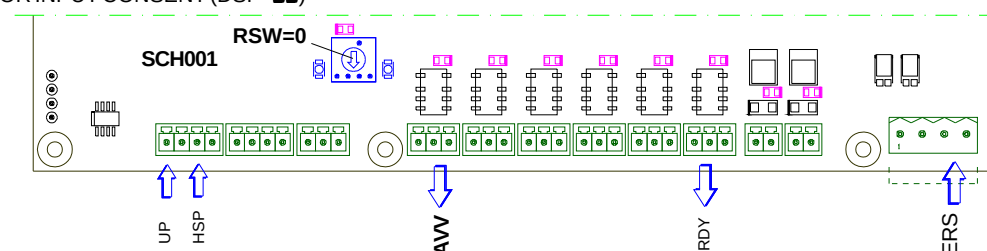
Ready signal RDY from board to control panel during the waiting commands..

UPWARD 2/8 - STARTING REQUEST (DSP=U0)



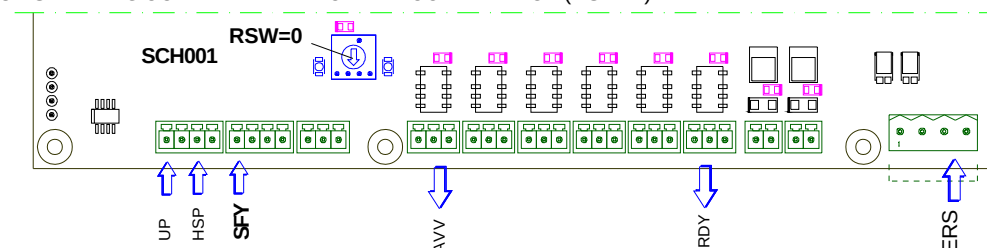
To activate Upward UP and high speed HSP command input and make put on the solenoid valve ERS.
The HSP high speed command can be replaced by MSP maintenance command (P454=0) or work together to signals MSP (P454=1), SP1 o SP2 to determine different values of high-speed set in the corresponding parameters.

UPWARD 3/8 - MOTOR INPUT CONSENT (DSP=U0)



The board commutes the AVV output to give consent for motor pump starting .
In the case of non-use of this signal, the motor starting must occur after a time of about 1.5 s from the phase 2/8.
In this phase, the pump oil flow is discharged in the tank at low pressure to allow a proper motor starting and avoid hit in the cabin caused by pump direct flow to piston.

UPWARD 4/8 - MOTOR STARTING COMPLETED AND CABIN ACCELERATION (DSP=U1)



Once finish the motor starting (direct, star-delta or soft starter) the control must return a signal to SFY board input.
If the SFY signal is not available, it is useful to adjust the parameter P403 which sets the valve pre-starting time, after which, however, the valve unit executes the starting phase.
The starting phase provides for the load taking, with a small movement of the cabin, and the execution of the acceleration curve according to corresponding parameters setting: P201, P202, P203.

UPWARD 5/8 - HIGH SPEED (DSP=U2,U5)

The speed obtained corresponds to the parameter connected to the used high speed signal (P204 or P205, P206, P217).
In case the speed selected in the parameter corresponds to a oil flow higher than the real pump flow rate, however the valve unit adapts its operation to the real maxim speed.

**WORKING
VALVE UNIT
HSe250**



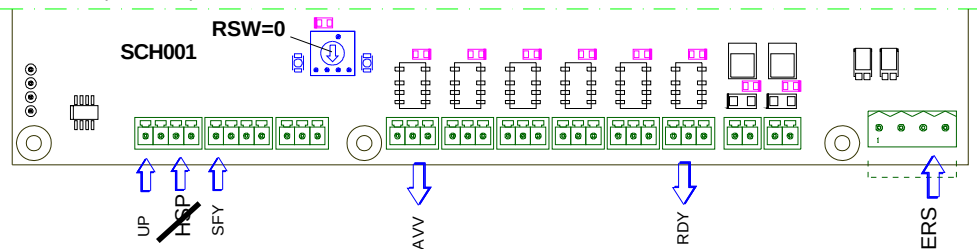
Start Elevator

02 312 / G

rev. 3

1/6

UPWARD 6/8 - DECELERATION (DSP=~~U3~~)

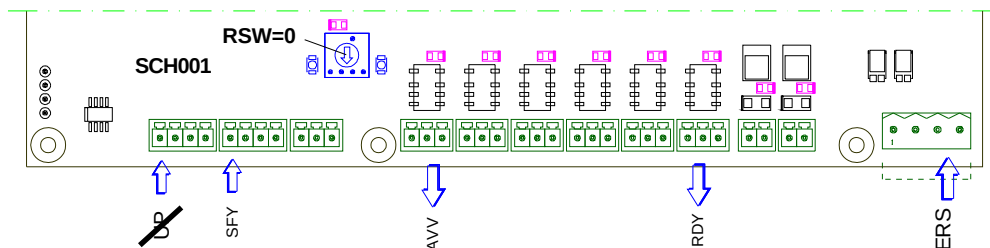


Upon arrival at the deceleration contact in the shaft, turn off the high speed HSP signal and the valve unit executes the deceleration curve seted up in the parameters P207, P208 (209,210,218) and P211 for to obtain the low speed value corresponding to P212 parameter.

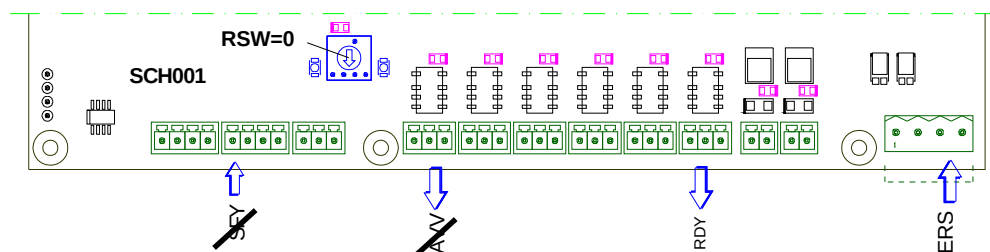
UPWARD 7/8 - LOW SPEED (DSP=~~U4~~)

The duration of low speed phase depends on the difference between the space from the contacts of deceleration and stopping in the shaft and the deceleration distance programmed in the parameters.
When the parameter P 456 = 1, during the deceleration and low speed phases, is calculated the distance traveled until the stop contact that allows to run the next deceleration with a minimum low residual distance setted in the P458 parameter.
The calculation is reset when the board is off.

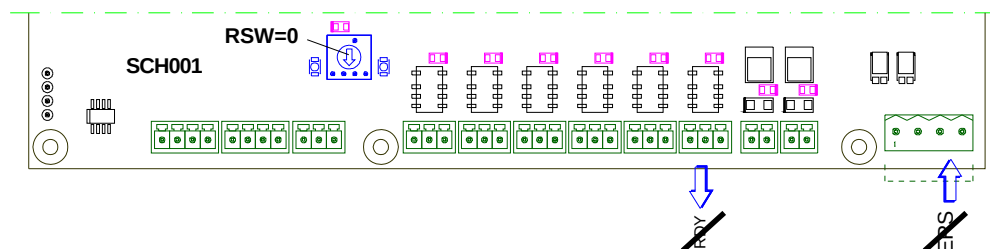
UPWARD 8/8 - STOPPING (DSP=~~U5~~)



Upon arrival at the stopping contact in the shaft, it must turn off the upward UP signal.
If the Soft-Stop parameter P232 = 1, the valve unit executes the stopping curve seted up in the parameter P213.



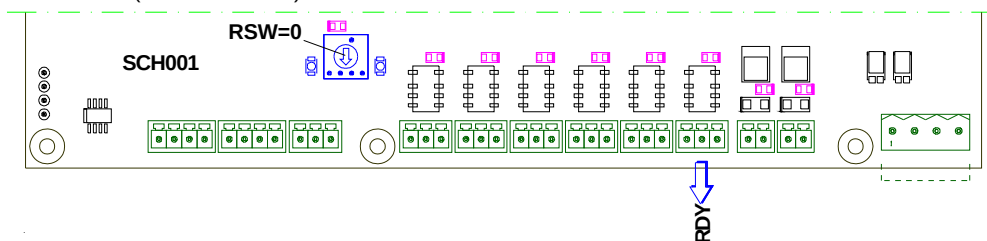
If during the starting phase it has not used the AVV motor contact activation, to stop the motor with a delay of 1.5 s, otherwise when the signal AVV turns off, to stop the motor (and then the input signal SFY).
However not to delay the stopping of the motor more than 2 s from the arrival on the stopping contact in the shaft.



Subsequently the shutdown of the RDY board signal also remove the ERS solenoid input.
The RDY board signal is active again after about 0.5 s, when the valve unit will be ready for the next travel.
However not to delay to remove the ERS solenoid input more than 2 s from the arrival on the stopping contact in the shaft.

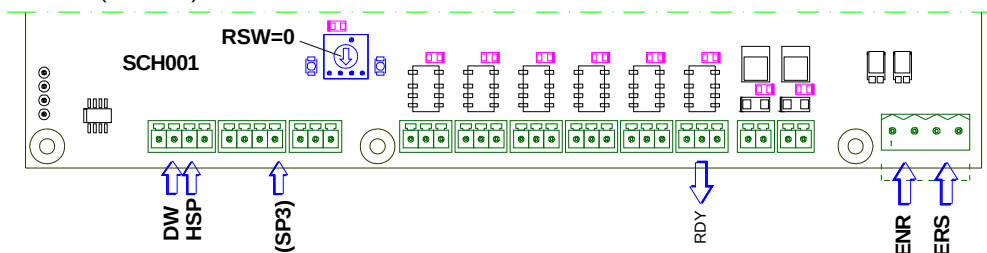
2.DOWNWARD WORKING CYCLE

DOWNWARD 1/7 - STATIONARY (DSP=**00** or OFF)



Ready signal RDY from board to control panel during the waiting commands..

DOWNWARD 2/7 - STARTING (DSP=**d0**)



To activate Downward DW and high speed HSP (or SP3 if the parameter P453=1) command input and make put on the solenoid valves ENR and ERS.

The HSP (or SP3) high speed command can be replaced by MSP maintenance command (P454=0) or work together to signals MSP (P454=1), SP1 o SP2 to determine different values of high-speed set in the corresponding parameters.

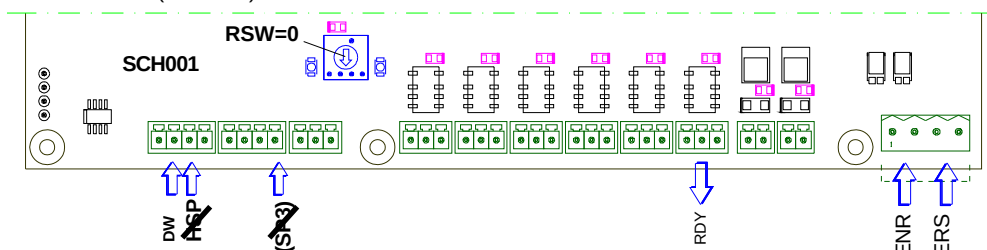
DOWNWARD 3/7 - ACCELERATION (DSP=**d1**)

This phase provides the execution of the acceleration curve according to corresponding parameters setting: P301, P302, P303.

DOWNWARD 4/7 - HIGH SPEED (DSP=**d2,d5**)

The speed obtained corresponds to the parameter connected to the used high speed signal (P304 oppure P305, P306, P317).

DOWNWARD 5/7 - DECELERATION (DSP=**d3**)



Upon arrival at the deceleration contact in the shaft, turn off the high speed HSP signal (or the SP3 signal if the parameter P453=1) and the valve unit executes the deceleration curve seted up in the parameters P307, P308 (309,310,318) and P311 for to obtain the low speed value corresponding to P312 parameter.

DOWNWARD 6/7 - LOW SPEED (DSP=**d4**)

The duration of low speed phase depends on the difference between the space from the contacts of deceleration and stopping in the shaft and the deceleration distance programmed in the parameters.

When the parameter P 456 = 1, during the deceleration and low speed phases, is calculated the distance traveled until the stop contact that allows to run the next deceleration with a minimum low residual distance setted in the P459 parameter.

The calculation is reset when the board is off.

**WORKING
VALVE UNIT
HSe250**



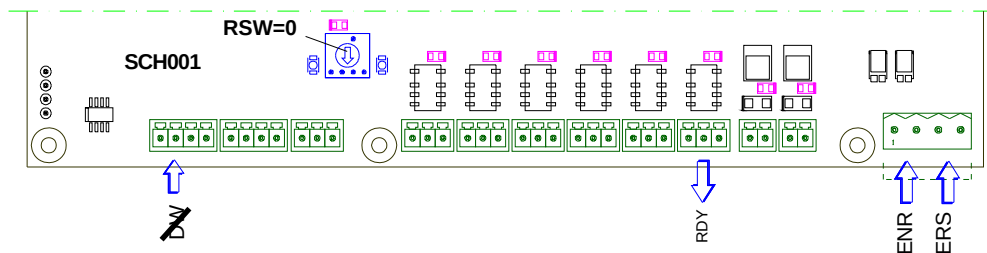
Start Elevator

02 312 / G

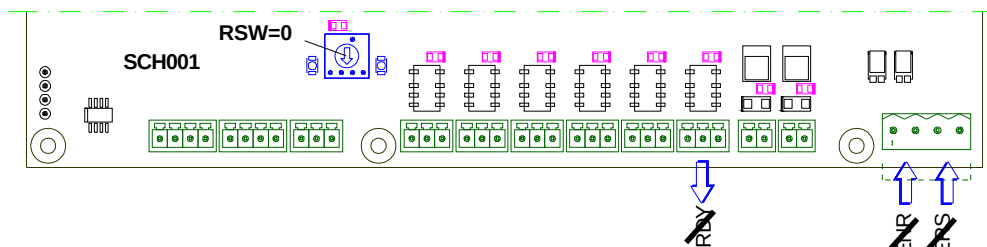
rev. 3

3/6

DOWNWARD 7/7 - STOPPING (DSP=d5)



Upon arrival at the stopping contact in the shaft, it must turn off the downward DW signal.



Subsequently the shutdown of the RDY board signal also remove the ERN and ERS solenoid inputs.

The RDY board signal is active again after about 0.5 s, when the valve unit will be ready for the next travel.

However not to delay to remove the ENR and ERS solenoid inputs more than 2 s from the arrival on the stopping contact in the shaft.

3.UPWARD RELEVELING (DSP=U7, U8, U9)

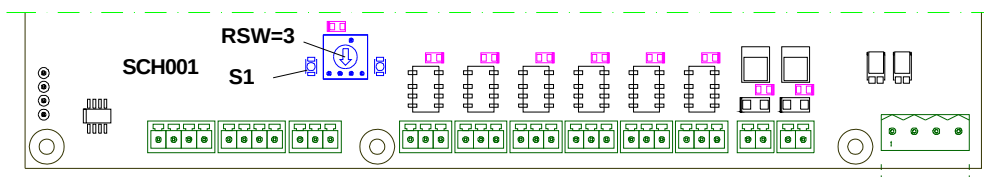
Relevelling operations follow the sequence indicated in the normal upward cycle but without the use of the HSP high speed signal. The parameters P214, P215 e P216 define the acceleration distance, the movement speed and the stopping distance.

4.DOWNWARD RELEVELING (DSP=d7, d8, d9)

Relevelling operations follow the sequence indicated in the normal downward cycle but without the use of the HSP high speed signal.(or SP3 if the parameter P453 = 1).

The parameters P314, P315 e P316 define the acceleration distance, the movement speed and the stopping distance.

5.DROP TEST (DSP=FL, FP)



Set the working selector RSW = 3 (**DSP=FL**) and then press S1 button until appear **FP** on display.

This prepares the valve unit to execute the next descent with increased speed to verify the intervention of the rupture valve of the piston.

Go upward, with half load in the cabin, on a high floor then run a normal downstroke (to see the point DOWNWARD 2/7 in the present instruction),

the increase of speed compared to the normal speed is defined by parameter P422.

During drop test the value of reached maximum speed is stored in parameter P556.

At the end of the downward maneuver the board no more provide the signal RDY if not performing a new drop test, by pressing the button S1 as described above, or a normal maneuver setting the selector RSW = 0.

Note: As an alternative to the use of RSW switch, you can activate the test condition setting parameter 705 to the value 1. At the end of the test the value of the parameter returns automatically to 0.

**WORKING
VALVE UNIT
HSe250**



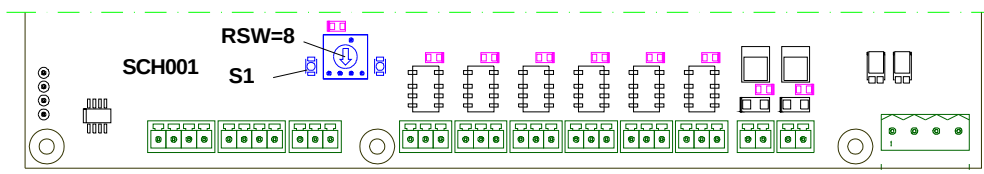
Start Elevator

02 312 / G

rev. 3

4/6

6. MAXIMUM PRESSURE VALVE TEST (DSP=PP, HP)



Set the working selector RSW = 8 (**DSP=PP**) and then press S1 button until appear **HP** on display.

This prepares the valve unit to execute the next upward working cycle with a progressive pressure starting and without flow error condition.

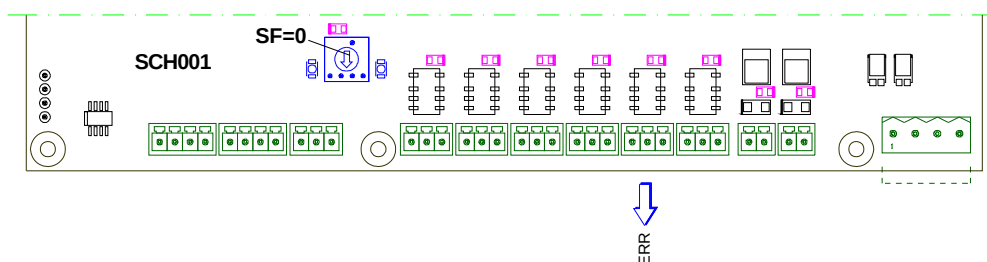
To close the ball valve.

Run a normal upstroke (to see the point UPWARD 2/8 in the present instruction) , it will be progressive and takes more time than usual (at least 10 s).

At the end of the upward maneuver the board no more provide the signal RDY if not performing a new maximim pressure test, by pressing the button S1 as described above, or a normal maneuver setting the selector RSW = 0.

Note: As an alternative to the use of RSW switch, you can activate the test condition setting parameter 704 to the value 1. At the end of the test the value of the parameter returns automatically to 0.

7. ERROR CONDITION



Any operation must be disabled if the error signal ERR on relay is active.

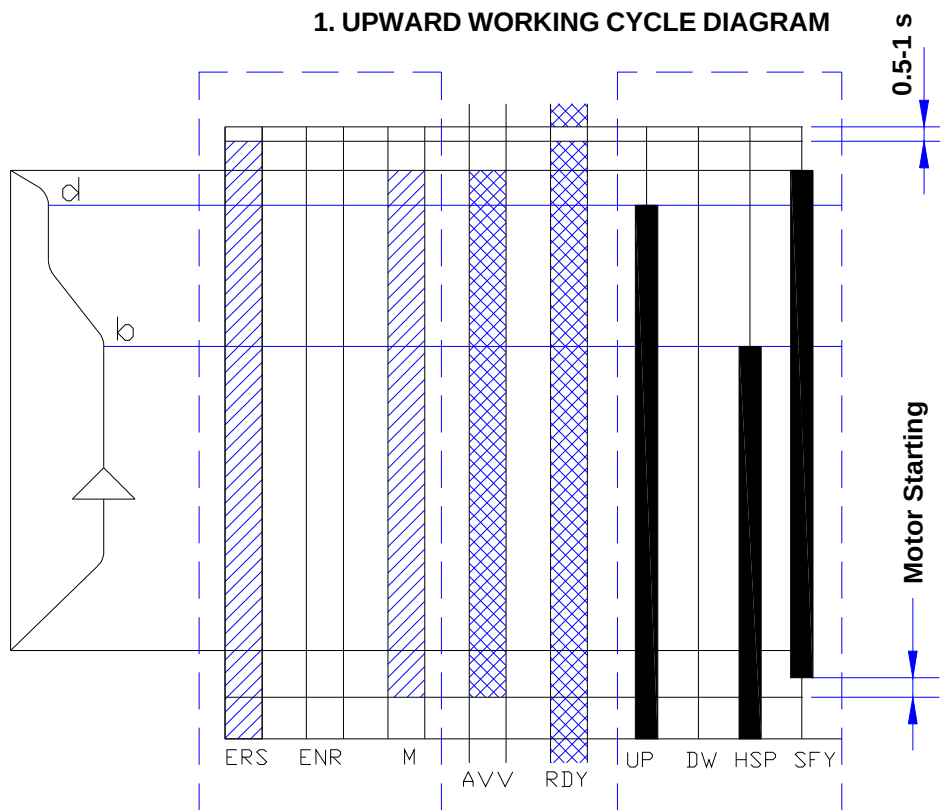
For error handling see the section 02315 "Parameters and Errors codes"

You can force on the error condition the signal ERR by setting the parameter 463 to the value 1

This allows to verify the block of the control panel to the switching of the error signal ERR.

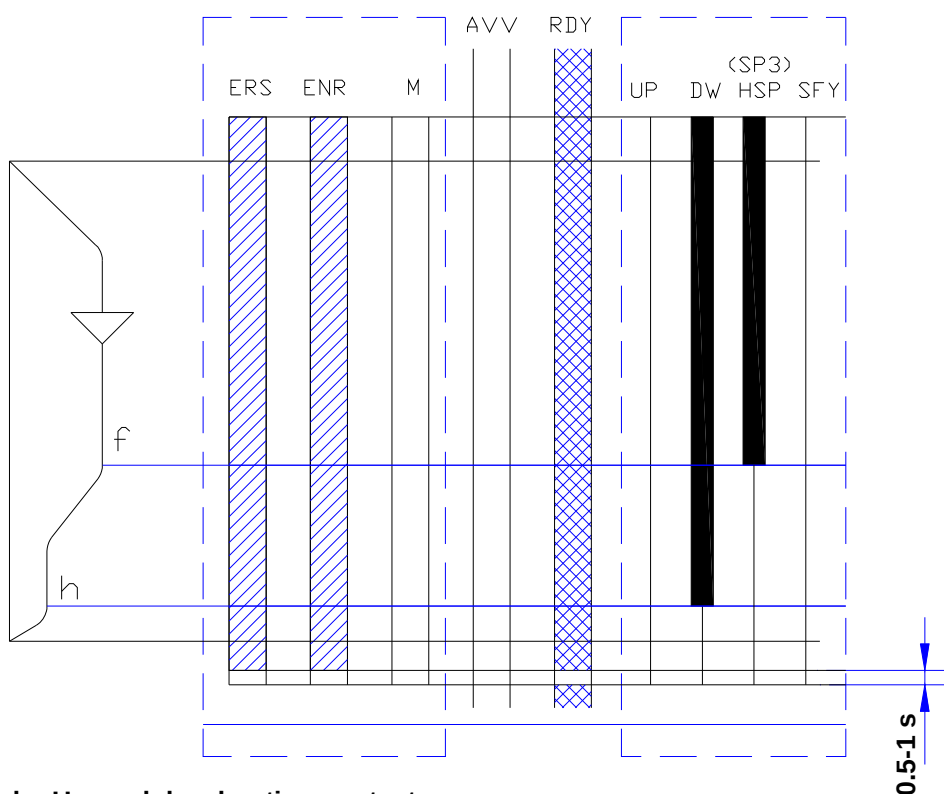
At the end of the test remember to set the value of parameter 463 to 0 to resume the normal state of error.

1. UPWARD WORKING CYCLE DIAGRAM



M - Motor input
ENR - ENR Solenoid valve input
ERS - ERS Solenoid valve input

2. DOWNWARD WORKING CYCLE DIAGRAM



SCH001 Input ON

SCH001 Output ON

Device Command ON >>

b - Upward deceleration contact
d - Upward stopping contact
f - Downward deceleration contact
h - Downward stopping contact

**WORKING
VALVE UNIT
HSe250**



Start Elevator

02 312 / G

rev. 3

6/6

INTRODUCTION

The valve unit is a part of the protective device against the uncontrolled movement of the lift, with the door not locked up or with the door open cabin, provided for in section 5.6.7 of the EN 81.20 standard.

The device must detect the uncontrolled movement of the lift, cause it to stop, and keep it still.

The valve unit is the stop element, downhill, provided as a subsystem in point 5.8.1 of the standard EN 81.50.

The protection against uncontrolled movement must act, uphill, interrupting the electrical supply of the motor / pump, while, in descent, the Start Elevator involved the use of a system formed by two electrically controlled valves and the hydraulic block ENR solenoid valves and ERS) operating in series, that participate in the normal operation of the lift.

It is expected, for this type of device, a self-monitoring by the electrical panel, according to point 5.6.7.3 of EN 81.20.

To run the self-control of redundant descent devices, the electrical panel can operate in two modes:

- Functional, operating periodically, automatically, the two valves for leaks (see section 2.0)
- Checking the supplied tracking signal from the electronic board of the valve group (see section 3.0).

When the circuit required in Section 5.6.7.7 of the EN 81-20 identifies uncontrolled movements of the cabin doors open, It must activate the stop element, interrupting any signal and command to the valve group.

In particular, must be disconnected, on SCH001 electronic card, the inputs of ENR solenoid valves and ERS on the M2 terminal block, and in any case we have to stop the input signals to the card, the CN6-7 connector.

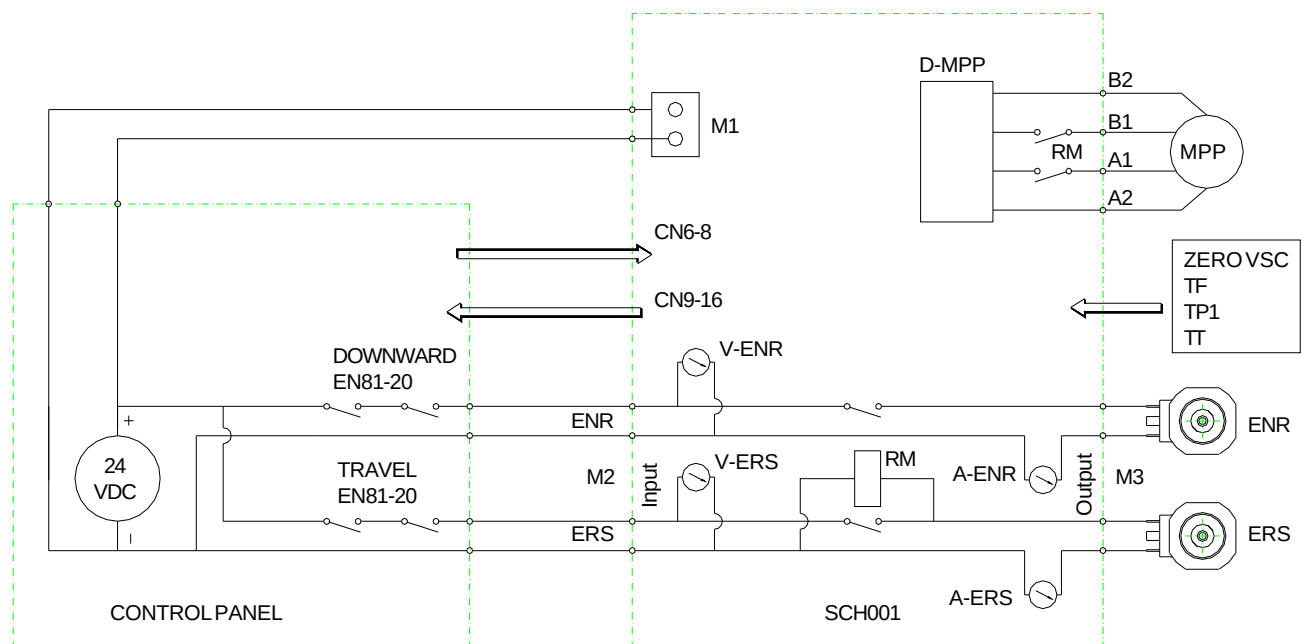
The device must be actuated (interruption of the input signals), before the cab moves away 200 mm from the floor.

There shall be a test of the device in accordance with Section 6.3.13 of the standard EN81-20 (see point 1.0)

When the device is activated or self-control redundancy has indicated a fault element

device arrest, as required in section 5.6.7.9 of 81-20 standard, his release or the lift recovery must be checked by a competent person.

SCHEDULE OF OPERATION SIGNALS AND CONTROLS



M1	BOARD INPUT CONNECTION
M2	SOLENOID VALVES INPUT CONNECTION
M3	SOLENOID VALVES CONENCTION
V-ENR	ENR INPUT CONTROL
V-ERS	ERS INPUT CONTROL
A-ENR	ENR CURRENT CONTROL
A-ERS	ERS CURRENT CONTROL
ENR	VNR VALVE UNBLOCK SOLENOID VALVE
ERS	VSC VALVE UNBLOCK SOLENOID VALVE

MPP	VSC VALVE COMAMND STEPPER MOTOR
D-MPP	STEPPER MOTOR CONTROL DRIVER
RM	STEPPER MOTOR CONNECTION RELAY
A1-A2	STEPPER MOTOR A PHASE
B1-B2	STEPPER MOTOR B PHASE

CN6-8	BOARD SIGNALS INPUT CONNECTIONS
CN9-16	BOARD SIGNALS OUTPUT CONNECTIONS

EN81-20 DOWNWARD	DOWNWARD COMMAND DEVICES
EN81-20 TRAVEL	UPWARD AND DOWNWARD COMMAND DEVICE

ZERO VSC	VALVE POSITION SENSOR
TF	FLOW SENSOR
TP1	PRESSURE SENSOR
TT	TEMPERATURE SENSOR

PROTECTION AGAINST THE UNCONTROLLED MOVEMENT OF THE CABIN VALVE UNIT HSe250



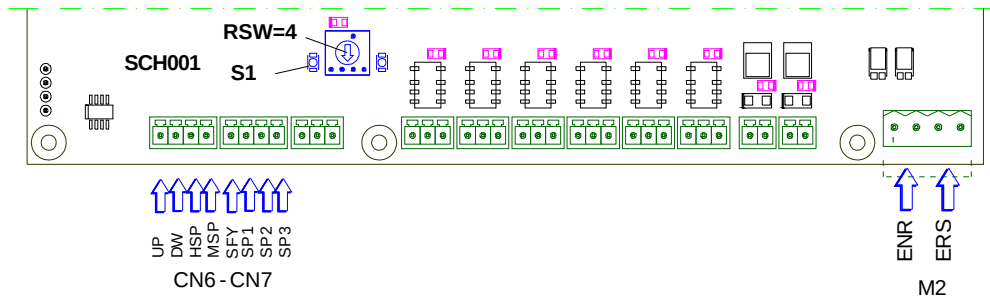
Start Elevator

02 313 / G

rev. 2

1/7

1.0 DEVICE TEST AGAINST UNCONTROLLED MOVEMENT (DSP=UC, UP)



It describes a procedure to verify the conformity of the device in accordance with Section 6.3.13 of the EN81-20 norm.

Before proceeding, verify, however, the manual of the electrical panel, the operations necessary for the tests. Usually it predisposes the implant so as to exclude the possibility of calls and open the electric chain safeties at the level of the floor doors (for the system doors must be open even if physically closed) So the cab has to move up out of the door zone and stop responding for intervention of the safety circuit ..

Setting on the electronic board SCH001 the switch RSW = 4 (DSP = UC) and pressing the S1 button until UP appears on the display, It predisposes the valve group to perform the next cycle of ascent or descent with nominal speed, even during the respective releveling maneuvers.

1.1 Ascent with empty car, and positioned in the upper part of the compartment

Open, manually, the emergency lowering valve, pulling down the cabin until the intervention of re-leveling uphill. When the re-leveling intervenes, the system will start uphill at nominal speed and the switch intended to detect the movement uncontrolled must act by stopping the cab. Check that the stop position of the cab complies with the requirements in section 5.6.7.5 of EN 81-20.

1.2 Descent with a full load in the cabin, and the cabin located at the bottom of the compartment

Using the hand pump, moving uphill the plant, until the start of the downhill re-leveling. Intervenes when re-leveling, the plant will start descending at nominal speed and the switch purpose of identifying the uncontrolled movement must act by stopping the cabin. The device must operate the stop element, i.e., interrupt signals to the valve group during the descent, before the cab moves away from 200 mm from the floor. In particular, to activate the stop element, the device must disconnect, on SCH001 card, the inputs of the ENR solenoid valves and ERS on the M2 terminal board, and in any case are to exclude the input signals to the card, the CN6-7 connectors. Check that the stop position of the cab complies with the requirements in section 5.6.7.5 of EN 81-20.

At the end of each maneuver, performed during the test, the card no longer provide the RDY signal, if not setting a new test, by pressing the S1 button again, or a normal operation changing the switch RSW = 0.

At the end of the test, restore normal system operation.

Note: As an alternative to the use of RSW switch, you can activate the test condition by setting the parameter P711 to the value 1. At the end of the test the value of the parameter returns automatically to 0.

For the verification of the monitoring function of the protective equipment refer to steps 2.2 or 3.2, depending on the type of self-control expected in the electrical panel.



2.0 SELF-CONTROL OF TYPE OF FUNCTIONAL REDUNDANCY

An automatic test is expected to check the seal of the hydraulic valves that participate in the cab block, at least once in 24 hours, and surely it happens if it is run when the car is automatically sent to the bottom floor.

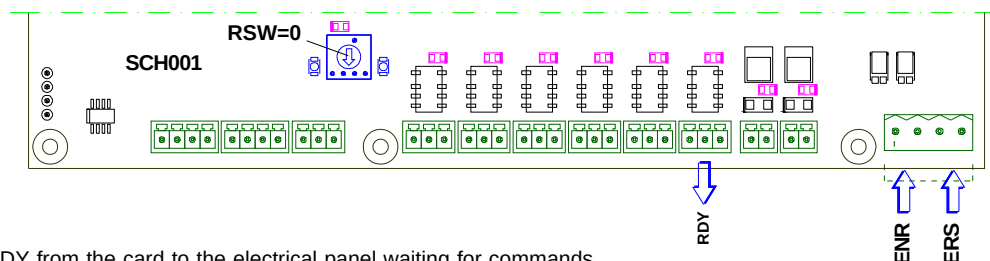
The sequence involves the activation of the solenoid ENR for a time of 5-10 s and, after a pause time between 5 and 10 s, the solenoid activation ERS for 5-10 s.

If, during the self-test detects an abnormal lowering of the cabin , it must be taken out of service.

And 'advisable, in case of re-leveling, repeat again once the test before putting the system out.

The control panel, or the specific devices must have the possibility to easily perform the proof test and verification of the monitoring system.

SIGNALS INVOLVED



Ready signal RDY from the card to the electrical panel waiting for commands.

ENR activation solenoid valve VNR release

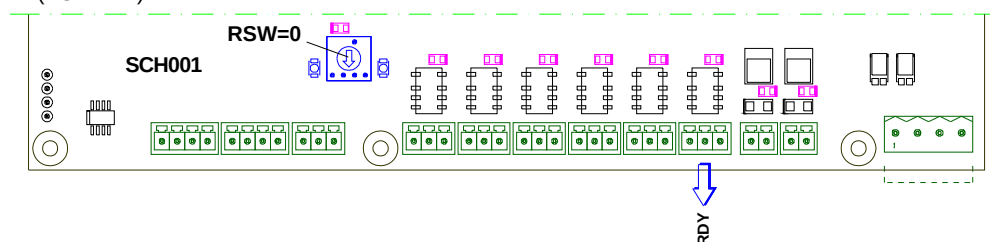
ERS activation of the VSC solenoid valve release

Section 2.1 describes the functional self-control cycle redundancy downhill

Section 2.2 describes the verification of self-monitoring provided for in section 6.3.13 of the norm EN81-20

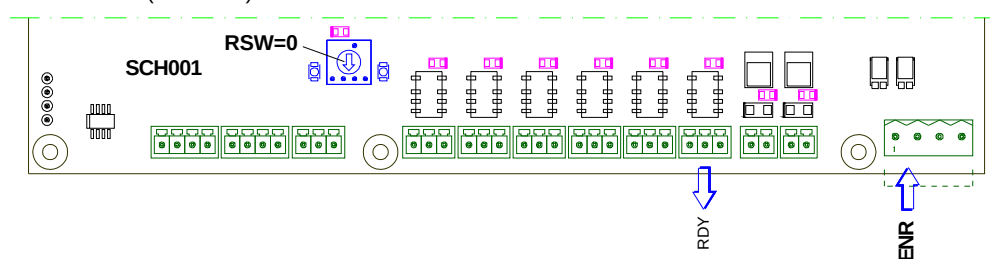
2.1 CYCLE WITH SELF MONITORING FUNCTIONAL REDUNDANCY

2.1.1/4 - SIGNAL WAIT (DSP = 00)



Ready signal RDY from the card to the electrical panel waiting for commands.

2.1.2/4 - ACTIVATION VALVE ENR (DSP = A1)



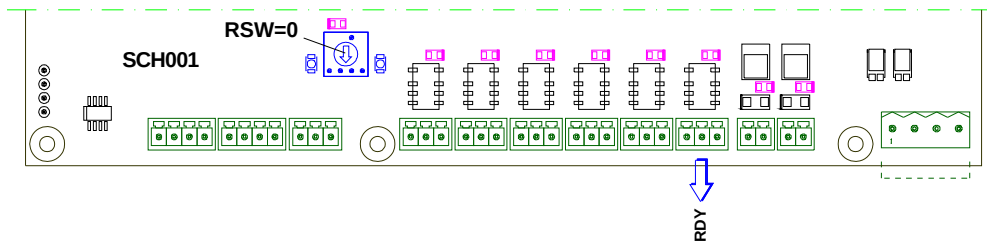
Power input of only solenoid valve ENR

The electronic board detects the necessary conditions and activates the output solenoid ENR, which controls the valve VRN.

The card goes in error (error code = 19, DSP = E3) in one of the following streams situations:

- Incorrect coil power consumption solenoid valvole ENR
- Valve position VSC not on Zero
- Power input ENR Solenoid valve for more than 12 s.

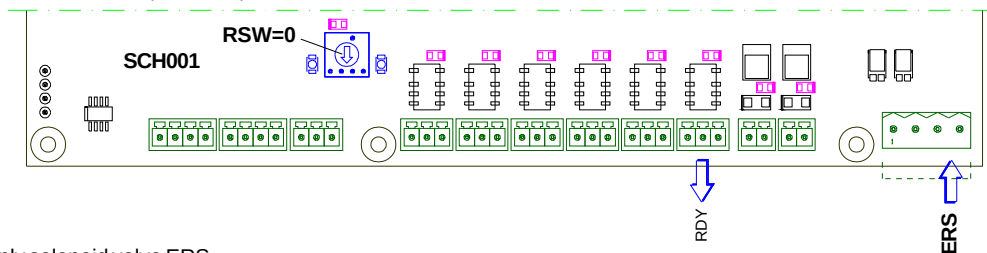
2.1.3/4 - SIGNAL WAIT (DSP= **A2**)



Ready signal RDY from the card to the electrical panel waiting for commands or ERS valve activation.

The card goes in error (error code = 19, DSP = **E3**) if the waiting time signals exceeds 12 s.

2.1.4/4 - ACTIVATION VALVE ERS (DSP= **A3**)



Power input of only solenoid valve ERS.

The electronic board detects the necessary conditions and activates the output solenoid ERS, which controls the valve VSC.

The card goes in error (error code = 19, DSP = **E3**) in one of the following streams situations:

- Incorrect coil power consumption solenoid valve ERS
- Valve position VNR not on Zero
- Non-opening sensing valve VSC
- Power input ERS Solenoid valve for more than 12 s..

2.2 VERIFICATION OF THE PERIODIC AUTODETECTOR FUNCTION OF REDUNDANCY

Before proceeding, check the manual of the control panel steps to be taken, to perform a verification test of the descent valves.

2.2.1 Check the VSC valve sealing

Perform the test as indicated on the instructions of the control panel.

When solenoid valve ERN activated, on DSP of the board, appears the indication **A1**.

During the solenoid ERN activation, activate the manual emergency device until the intervention of the relevelling.

If at the end of the relevelling, the control panel repeats the test with the solenoid activation ERN (DSP = **A1**), cause, as previously, a new relevelling.

The control panel must, at this point, lock the elevator and obtain service for its release.

2.2.2 Check the VNR valve sealing

Perform the test as indicated on the instructions of the control panel.

When solenoid valve ERN activated, on DSP of the board, appears the indication **A1**.

Wait the end of the activation of the solenoid valve and the ERN and the following pause time when it appears on the board, the indication **A2**.

When solenoid valve ERS activated, on DSP of the board, appears the indication **A3**.

During the solenoid ERS activation, activate the manual emergency device until the intervention of the relevelling.

If at the end of the relevelling, the control panel repeats the test with the solenoid activation ERS (DSP = **A3**), cause, as previously, a new relevelling.

The control panel must, at this point, lock the elevator and obtain service for its release.

3.0 SELF-CONTROL OF MONITORING PNP1 SIGNAL

An automatic control of PNP1 monitoring signal can be performed, alternatively or in addition to the functional control of the downhill redundancy (point 2.0), to check, for each maneuver, including releveling, the correct sequence of opening and closing of the valves hydraulic participating at the block of the cabin.

The monitoring must be carried by controlling the timing of PNP1 following a change of state of the switching signal, corresponding, on the electronic board SCH001, the entrance solenoid ERS + the up signal or down.

The framework must be able to detect two different errors:

Error 1: When the maneuver signal switches from high to low level, the PNP1 signal switches to the high state within a time from 0.1s to 1s.

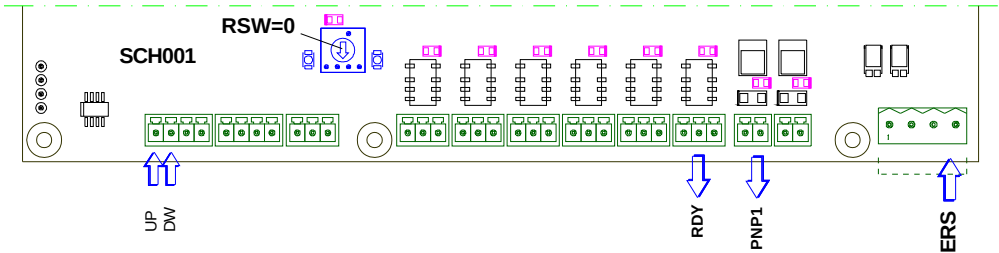
If the deadlines are not met an alarm to manage , as required by the standard , to be generated.

Error 2: When the maneuver signal goes from low to high level, the PNP1 signal switches to the low state within 0.1s.

If the deadlines are not met an alarm to manage, as required by the standard ,to be generated.

Note: The schedule in the PNP1 signal handling are compatible with those used in the monitoring of the valves to signal + SMA iValve Bucher Group.

SIGNALS INVOLVED



Ready signal RDY from the card to the waiting framework commands.

Section 3.1 describes the monitoring of PNP1 signal check cycle.

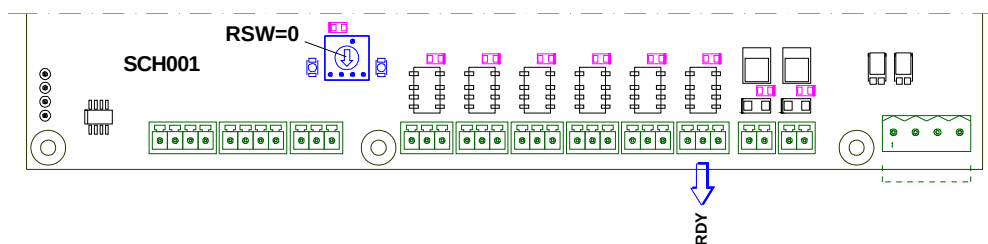
Section 3.2 describes the verification of self-monitoring provided for in section 6.3.13 of the norm EN81-20

3.1 CONTROL OF THE CYCLE OF MONITORING PNP1 SIGNAL

	Maneuver signal ERS + (UP o DW)		Error condition	PNP1 signal (0-7) switching phases
3.1.1/3- SIGNAL WAITING 3.1.2/3- MANEUVER ACTIVATION 3.1.3/3- MANEUVER STOP	OFF	ON		OFF ON
				0) when ERS-on + (UP-on o DW-on)
			se > 0,1 s Error 2	1) if VSC and VNR closed -- > OFF
				2) if VSC and VNR opened
				3) when ERS-off + UP-off + DW-off
			se < 0,1 s or > 1 s Error 1	4) Temporit = 0,1 s
				5) if VSC and VNR closed --> ON
				6) Tempoext = 6 s
				7) if VSC and VNR closed -- > OFF

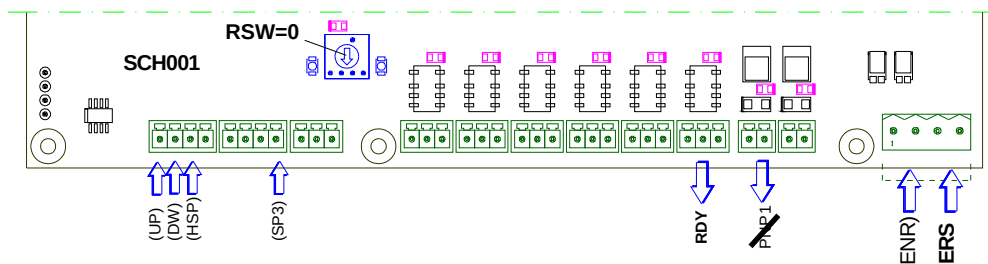


3.1.1 / 3 - SIGNALS WAITING (DSP = 00)



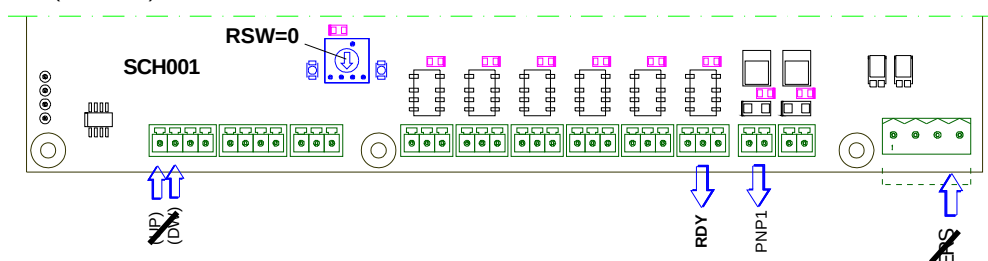
Ready signal RDY from the card to the waiting framework commands.

3.1.2 / 3 - OPERATION ACTIVATION (DSP = 00)



The signals in parentheses are used together or alternatively as in normal maneuvers

3.1.3 / 3 - OPERATION STOP (DSP = 00)



3.2 VERIFICATION OF THE SUPERVISORY FUNCTION OF MONITORING PNP1 SIGNAL

With the P461 parameter it is possible to lock them always PNP1 the signal at high level (P461 = 1) or low level (P461 = 2).

The block of the the signal allows to check error detection from the electrical control panel.

Only with the parameter P461 = 0 the PNP1 signal switches according to the normal operation.

It is possible to change the value of parameter P461 by setting on the SCH001 board the selector RSW = 6 (**DSP=---**)

and pressing the S1 button until the display shows **Lu**, to set P461 = 1 or, by pressing the S2 button until that **Ld** appears on the display, to set P461 = 2.

3.2.1 Always check ON signal

Change the parameter P461 to the value 1.

Perform a maneuver in any direction.

At the end of the maneuver, the control system, must indicate an error state corresponding to the signal PNP1 (Error 2).

Reset on the panel the error, re-start the lift.

3.2.2 Always check signal OFF

Change the P461 parameter to 2.

Perform a maneuver in any direction.

At the end of the maneuver, the control system, must indicate an error state corresponding to the signal PNP1 (Error 1).

Reset on the panel the error, re-start the lift.

3.2.3 Verification normal operation.

At the end of a maneuver as described in point 3.2.1 or 3.2.2 the P461 parameter automatically returns to the value 0, which corresponds to the normal operating condition, otherwise manually modify the P461 parameter to return to the value 0.

Perform a maneuver, in any direction to ensure that, does not appear no error corresponding to PNP1 signal.



4.0 IDENTIFICATION AND TRACEABILITY

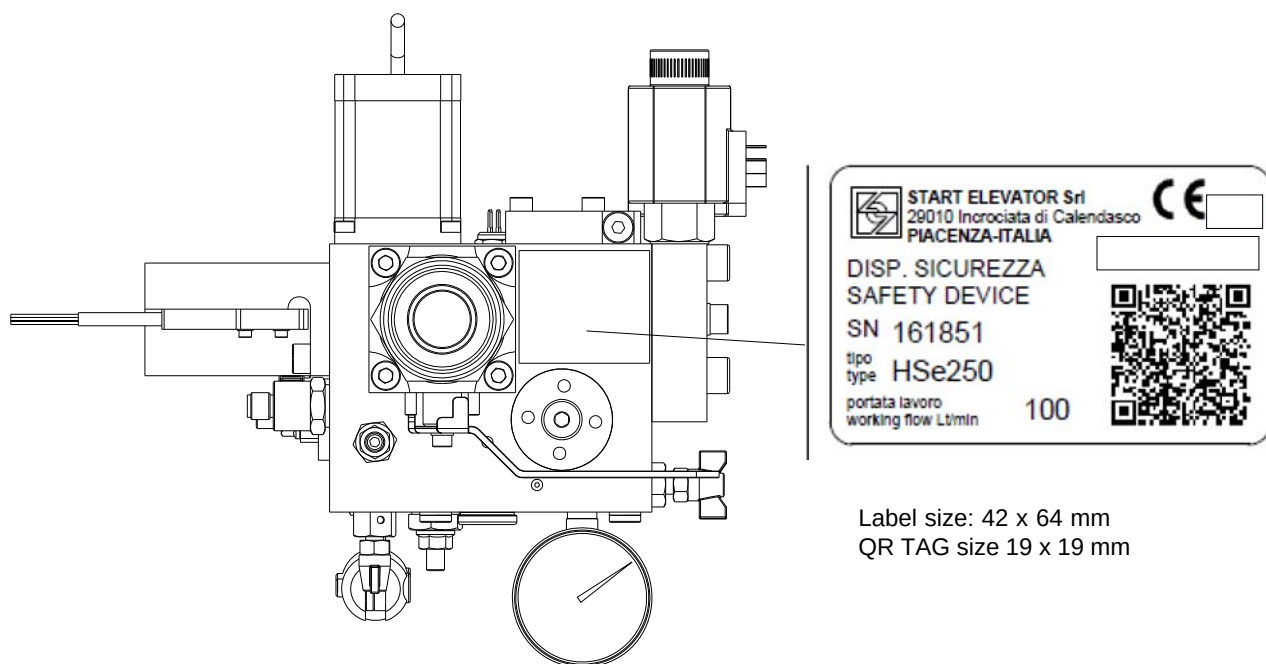
4.1 The valve group is applied a plaque showing the name and address of Start Elevator, serial number, the type / model and the certification data in addition to a barcode (QR TAG).

The serial number matches that of the Order confirmation concerning the part or unit on which it is mounted.

The number of the order confirmation also appears on the material delivery note.

4.2 The customer receives the documentation "EC Declaration of Conformity" which contains, in addition to data seen in Section 4.1, the Customer's name and the reference of the customer. The certificate number is the number of the safety component series and then to that of the corresponding order confirmation.

4.3 Start Elevator keeps a database in the list of Customer, Customer Order Reference, number of component series which allows traceability with historical sampling archives and manufacture of components.



The content QR TAG is shown in the following table.

Pos.	Field content	type	Length max	Sample content
1	Type and component model	CHAR	40	HSe250
2	Not used	CHAR	2	
3	Not used	CHAR	2	
4	Sales Reference	CHAR	35	IMP. 16/020
5	Serial number	CHAR	18	161851
6	Not used	CHAR	10	- - -
7	Maker	CHAR	30	Start Elevator
8	Postal code	CHAR	10	29010
9	City	CHAR	30	Calendasco (PC)
10	Country code	CHAR	5	IT
11	Not used	CHAR	30	- - -
12	Not used	CHAR	10	- - -
13	Not used	CHAR	30	- - -
14	Not used	CHAR	5	- - -

DOWNWARD MOVEMENT OF THE CABIN

The automatic emergency, in the case of mains failure, must use devices of the valves of the group, that working during the normal descent maneuver, powered by a battery 24 VDC and 100 W.

For the manually downhill maneuver, operate the knob 17, in a clockwise direction, up to a level where the passengers can get out of the cab.

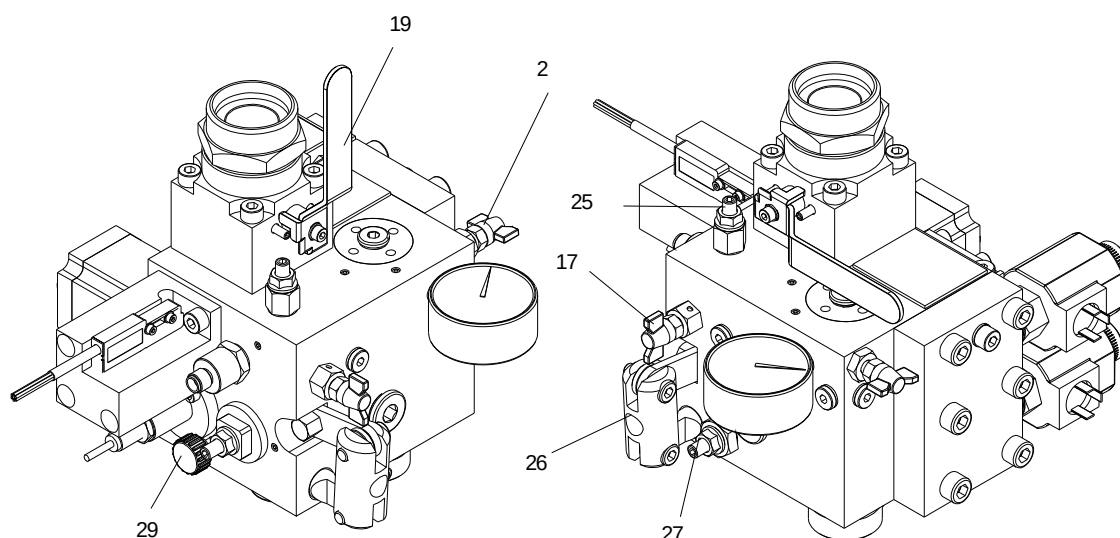
The regulation of the N° 25 determines the residual pressure of the piston manual lowering.
Turn clockwise to increase pressure, counterclockwise decreases.

To check the minimum pressure adjustment:

- turn on the tap 2 of the gauge cut,
- turn off the faucet valve assembly 19 and
- turn the knob 17.

The gauge should show 5-6 bars, if not open the tap 19, adjust the screw n. 25, and then test again.

At the end remember to close the gauge cut tap.



UPWARD MOVEMENT OF THE CAB

The displacement of the cabin upwards is possible by acting on the hand pump 26, through the appropriate actuating lever.

If the hand pump is not triggered:

- Unscrew one turn the vent screw 29 and pump until oil comes out from the same screw,
- tighten the vent screw.

The hand pump is equipped with an overpressure valve which limits the maximum pressure.

the screw N° 27 allows you to adjust the maximum pressure which, normally, must not exceed 2.3 times the maximum static pressure.

Turn clockwise to increase pressure, counterclockwise decreases.

To test the pressure relief valve:

- turn on the tap 2 of the gauge cut,
- turn off the faucet valve assembly 19 and
- operate the hand pump 26 until the pressure continues to increase.

The gauge should show the pressure defined by installation specifications.

Otherwise, release the pressure by turning the knob 17, adjust the screw 27 and then test again.

At end remember to close the gauge cut tap.

The parameters of the series P1, P2, P3, P5 and P6 have free access, while those of series P4, P7 and P8 need the setting of parameter P199 with the value = 8369111 (user password), which will reset when you disconnect the device or you re-enter in P199 parameter.

The P5 and P6 parameters (error stack) are read-only.

The parameters change has on the SCH001 board effect only with the selector position RSW = 1

Parameter Nr Desc. Hand term.	Large Description	Unit	Setting Range		Default Value	Nota
P1 Base Par.	BASE PARAMETERS		Min	Max		
101 Piston Dia	Piston working diameter	mm	5	999	80	
102 Pump Flow	Pump nominal flow	lt/min	1	1000	100	
103 Tackle X:1	Roping Ratio		1	4	2	
104 Pist.	Pistons number		1	4	1	
105 TMAX limit	Maximum temperature limit	°C	10	80	60	> P110
106 PMAX limit	High pressure limit	bar	1	200	45	> P107
107 PMIN limit	Low pressure limit	bar	0	200	10	< P106
108 PS overload	Load Weighing	bar	0,1	200,0	30,0	
109 Pist.Stages	Pistons stages number		1,000	4,000	1,000	
110 TMIN limit	Low temperature limit	°C	0	80	4	< P105
111 Cabin Load	Cabin nominal load	kg	0	200000	600	
199 User Pass	User password		0000000	9999999	0000000	8369111

Parameter Nr Desc. Hand term.	Large Description	Unit	Setting Range		Default Value	Nota
P2 Upward Par.	UPWARD PARAMETERS		Min	Max		
201 %AccStart U	Upward initial acceleration change rate	%	0	100	1	
202 Acc Dist U	Upward accelation distance	m	0,000	10,000	1,500	
203 %Acc End U	Upward final acceleration change rate	%	0	100	100	
204 HighSpeedU1	Upward high speed	m/s	0,000	2,000	0,600	
205 HighSpeedU2	Second upward high speed (maintenance)	m/s	0,000	2,000	0,300	< P204
206 HighSpeedU3	Third upward high speed	m/s	0,000	2,000	0,200	< P204
207 %DecStart U	Upward initial deceleration change rate	%	0	100	50	
208 Dec Dist U1	Upward deceleration distance	m	0,000	10,000	0,400	
209 Dec Dist U2	Second upward deceleration distance	m	0,000	10,000	0,400	
210 Dec Dist U3	Third upward deceleration distance	m	0,000	10,000	0,400	
211 %Dec End U	Upward final deceleration change rate	%	0	100	50	
212 Low Speed U	Upward low speed	m/s	0,000	0,300	0,050	< P204,P205
213 Stop Dist U	Upward stopping distance	m	0,000	10,000	0,010	
214 Acc Dist UR	Upward releveing acceleration distance	m	0,000	10,000	0,010	
215 RelevSpeedU	Upward releveing speed	m/s	0,000	0,300	0,050	< P204, P205
216 Stop DistUR	Upward releveing stopping distance	m	0,000	10,000	0,020	
217 HighSpeedU4	Fourth upward high speed	m/s	0,000	2,000	0,119	< P204
218 Dec Dist U4	Fourth upward deceleration distance	m	0,000	10,000	1,000	
231 Y/N VVVF U	Upward travel: with VVVF driver = 1, with microlevelling = 2, hybrid with VVVF=3		0	3	0	
232 Y/N SoftS U	Soft stop setting, if = 1 upward travel with soft stop		0	1	1	
233 OverSpeed U	Nominal speed maximum increasing	%	0	20	8	

**PARAMETERS
ERRORS CODES
VALVE UNIT HSe250**



Start Elevator

02 315 / G

rev. 3

1/7

Parameter Nr Desc. Hand term.	Large Description	Unit	Setting Range		Default Value	Nota
P3 Downward Par	DOWNWARD PARAMETERS		Min	Max		
301 %AccStart D	Downward initial acceleration change rate	%	0	100	1	
302 Acc Dist D	Downward acceleration distance	m	0,000	10,000	1,500	
303 %Acc End D	Downward final acceleration change rate	%	0	100	100	
304 HighSpeedD1	Downward high speed	m/s	0,000	2,000	0,600	
305 HighSpeedD2	Second downward high speed (maintenance)	m/s	0,000	2,000	0,300	< P304
306 HighSpeedD3	Third downward high speed	m/s	0,000	2,000	0,200	< P304
307 %DecStart D	Downward initial deceleration change rate	%	0	100	50	
308 Dec Dist D1	Downward deceleration distance	m	0,000	10,000	0,400	
309 Dec Dist D2	Second downward deceleration distance	m	0,000	10,000	0,400	
310 Dec Dist D3	Third downward deceleration distance	m	0,000	10,000	0,400	
311 %Dec End D	Downward final deceleration change rate	%	0	100	50	
312 Low Speed D	Downward low speed	m/s	0,000	0,300	0,050	< P304,P305
313 Stop Dist D	Downward stopping distance	m	0,000	10,000	0,010	
314 Acc Dist DR	Downward releveing acceleration distance	m	0,000	10,000	0,010	
315 RelevSpeedD	Downward releveing speed	m/s	0,000	0,300	0,050	< P304, P305
316 Stop DistDR	Downward releveing stopping distance	m	0,000	10,000	0,020	
317 HighSpeedD4	Fourth downward high speed	m/s	0,000	2,000	0,259	< P304
318 Dec Dist D4	Fourth downward deceleration distance	m	0,000	10,000	1,000	
319 MinSpeedERS	Minimum speed for ENR stop	m/s	0,000	0,300	0,050	

Parameter Nr Desc. Hand term.	Large Description	Unit	Setting Range		Default Value	Nota
P4 Advanced Par	ADVANCED PARAMETERS		Min	Max		
401 Open Time2U	Starting opening time 2	s/1000	0	20000	1000	
402 Max Pos MPP	STEPPER MOTOR maximum opening position	step	0	23000	13000	
403 Wait Time2U	Opening waiting time 2	dec	0	30	5	
404 CloseTime2U	Starting closing time 2	s/1000	0	20000	2000	
406 TargetMPP U	Upward MPP opening initial position	step	0	23000	2300	<= P402
407 Open Time4U	Arrival opening time 4	s/1000	0	20000	1000	
408 TargetMPP D	Downward MPP opening initial position	step	0	23000	0	<= P402
409 Wait Time4U	Opening waiting time 4	dec	0	30	10	
410 CloseTime4U	Arrival closing time 4	s/1000	0	20000	2000	
411 FlowMaxStop	Max downward flow with closed MPP	lt/min	0	30	5	
412 Stop Time D	Downward stopping time	s/1000	0	20000	5000	
422 %SpeedIncrD	Drop test parameter increase rate	%	0	100	60	
423 ZeroPos MIS	Flow meter zero position		0	50000	850	
424 Pause ERS U	STEPPER upward start time delay from ERS	dec	0	30	1	
425 Pos Min MPP	STEPPER position inferior limit	step	0	23000	2000	<= P402
426 Pause ERS D	STEPPER downward start time delay from ERS	dec	0	30	1	
427 TemperZeroM	Flow meter zero temperature	°C	0	80	0	



Parameter Nr Desc. Hand term.	Large Description	Unit	Setting Range		Default Value	Nota
430 Start Time1	STEPPER starting time 1	s/1000	0	20000	150	
432 StopPos MPP	STEPPER stopping position	step	0	23000	10	<= P402
433 StartPos2 D	Downward starting target position 2	step	0	23000	7000	<= P402
434 StartPos1 D	Downward starting ENR activation position 1	step	0	23000	1800	<= P402
435 StartTime2D	Downward starting opening time 2	s/1000	0	20000	4000	
436 Pos Max MIS	Flow meter max position		0	10000	2400	
437 Oil Vis 40	Oil viscosity at 40 °C	cSt	0,00	999,99	46,00	> P438
438 Oil Vis 100	Oil viscosity at 100 °C	cSt	0,00	999,99	8,40	< P437
441 Min Speed U	Upward minimum speed	m/s	0,000	0,100	0,010	
442 Min Speed D	Downward minimum speed	m/s	0,000	0,100	0,005	
443 Minim. Temp.	Minimum temperature limit	°C	0	80	5	
444 StartTime3U	Upward starting time 3	s/1000	0	20000	4000	
445 P0WaitTime	Waiting time at pressure 0	s/1000	0	20000	10000	
446 StartTimeP0	Time searching flow at pressure 0	s/1000	0	20000	3000	
451 ControlType	Control type: 1=PID, PID+Map, 0=Map		0	2	1	
452 SP Calcul.	Deceleration space recalculation, 1=Activate		0	1	0	
453 SignalSpeed	Downward high speed signal: 1=Activate		0	1	0	
454 OnOff V2+V1	Maintenance with high speed signal: 1=Activate		0	1	0	
456 SP recovery	Levelling space recovery: 1=Activate		0	1	0	
457 OnOff P1-P2	During manoeuvre P1 relay updating : 0=OFF, 1=ON, +2 speed bloccok under P107		0	3	0	
458 MinSP Low U	Upward minimum levelling space	mm	0	1000	150	
459 MinSP Low D	Downward minimum levelling space	mm	0	1000	150	
460 OnOff CompT	Flow meter temperature compensation: 1=Activate		0	3	1	
461 PNP1 Test	PNP1 signal check test: 0=normal, 1= fixed ON, 2= fixed OFF		0	9	0	
462 RotDisplay	Display direction 0=right, 1=left		0	1	0	
463 ErrRelay ON	Error output relay test: 0= nomal, 1= blocked ON		0	1	0	
464 E1 E2 Block	E1 E2 error block in PNP1		0	1	0	
475 CanNodeType	CAN node type: 0=no ; 1=master; 2=slave		0	2	0	
476 CanNodeAddr	CAN node address		1	99999999	1	
477 Slaves	Slave nodes total number		1	7	1	
478 CAN Active	CAN node activation: 0=OFF, 1=ON		0	1	0	
479 Offset CAN	Offset value for CAN addresses		0	99999999	0	
480 ConBoardCAN	CAN address control board		0	99999999	0	
488 Test Cond.	Test condition with solenoid valve always supplied: 1=ON , 0=OFF		0	1	0	
489 MinPressure	Minimum Pressure limit		0,1	20,0	2,0	
491 Offset MST1	Flow meter zero temperature 1	°C	0	80	20	
492 Offset Mis1	Flow meter zero position 1		0	10000	893	
493 Offset MST2	Flow meter zero temperature 2	°C	0	80	60	
494 Offset Mis2	Flow meter zero position 2		0	10000	976	
497 A3 Error	A3 monitoring during error: 1=Activate, 2=Also maximum time		0	2	1	
499 Network ID	Network ID		0	99999999	12345678	



Parameter Nr Desc. Hand term.	Large Description	Unit	Setting Range		Default Value	Nota
P5 View	VIEW PARAMETERS		Min	Max		
501 MPP step	MPP position	step	0	23000		
502 Temperature	Temperature sensor	°C	0	100		
509 Speed	Cabin speed	m/s	0	2		
510 Flow sensor	Flow sensor value		0	10000		
511 Flow	Flow meter	l/min	0	999		
512 Pressure	Pressure sensor	bar	0,0	999,0		
513 OnOffI zero	STEPPER zero sensor		0	1		
514 OnOffI ENRI	ENR downward solenoid valve consumption		0	1		
515 OnOffI ERSI	ERS discharg solenoid valve consumption		0	1		
516 OnOffI ENRV	ENR downward solenoid valve input		0	1		
517 OnOffI ERSV	ERS discharg solenoid valve input		0	1		
521 OnOffI UP	Upward command input		0	1		
522 OnOffI DOWN	Downward command input		0	1		
523 OnOffI HS	High speed command input		0	1		
524 OnOffI MAN	Maintenance command input		0	1		
525 OnOffI DHS	Downward high speed optional command input		0	1		
526 OnOffI PWM	Motop pump started input		0	1		
527 OnOffI HS1	Auxiliary speed 1 commad input		0	1		
528 OnOffI HS2	Auxiliary speed 2 commad input		0	1		
531 OnOff0 ERR	Error relay output		0	1		
532 OnOff0 RDY	Ready relay output		0	1		
533 OnOff0 PWM	Motor pump relay output		0	1		
534 OnOff0 T1	TMAX-PMIN temperature out of gap T1 relay output		0	1		
535 OnOff0 P1	PMAX-PMIN pressure out gap P1 relay output		0	1		
536 OnOff0 P2	Overload pressure P2 relay output		0	1		
537 OnOff0 ENR	ENR downward solenoid valve switching on		0	1		
538 OnOff0 ERS	ENR discharg solenoid valve switching on		0	1		
541 OnOff0 PNP1	PNP1 transistor output		0	1		
542 OnOff0 PNP2	PNP2 transistor output		0	1		
545 URelCyclesN	Up releveing cycles number		0	99999999		
546 UpCyclesNum	Up working cycles number		0	99999999		
547 DRelCyclesN	Down releveing cycles number		0	99999999		
548 DwCyclesNum	Down working cycles number		0	99999999		
551 Input	14 bit input view		0	16383		
552 Output	14 bit output view		0	16383		
553 Sensor FL	Flow sensor value		0	10000		
554 A3 Phase	A3 test phase		0	1000		
555 A3 PhaseErr	A3 test error phase		0	1000		
556 MaxSpd SVT	Max speed during safety valve drop test	m/s	0	2		
569 Mach Time	Machine time	min	0	33554431		
571 VNR closed	VNR valve closed		0	1		
572 Active Node	Multi-Valve system attive CAN nodes		0	8		
580 A3 TimeTest	Time between A3 tests	min	0	33554431		
596 Vers Boot	Bootloader version		0	99999999		
597 SoftW Vers	Software version		0	99999999		
598 Board SN	Board SN		0	99999999		
599 Board Vers	Board Version		0	99999999		

**PARAMETERS
ERRORS CODES
VALVE UNIT HSe250**



Start Elevator

02 315 / G

rev. 3

4/7

Parameter Nr Desc. Hand term.	Large Description	Unit	Setting Range		Default Value	Nota
P7 Commands	COMMANDS		Min	Max		
701 Default Rec	Default data recovery		0	9999		
702 Del Err Mem	Errors memory reset		0	9999		
703 Memory Res	Machine time reset		0	9999		
704 Filling	Vmax adjusting and filling phases		0	9999		
705 RuptureTest	Rupture valve testing		0	9999		
706 Dist. Reset	Low speed distance recovery reset		0	9999		
707 OverloadSet	Overload pressure acquisition		0	9999		
711 UCM test	UCM stopping test condition		0	9999		
712 Copy Master	Master parameters duplication in the slave nodes		0	9999		
713 Reset Err	Errors reset master+slave		0	9999		
P8 Technic.Par	TECHNICAL PARAMETERS		Min	Max		
851 Gain U4	Upward gain U4		0	5000	2000	
852 Gain SP U	Upward gain set-point import		0	5000	100	
853 Deriv U	Upward derivative		0	5000	1000	
854 Gain U2-3	Upward gain U2-3		0	5000	2000	
855 Gain U3	Upward gain U3		0	5000	2000	
856 Gain U3-4	Upward gain U3-4		0	5000	2000	
857 Gain U1	Upward gain U1		0	5000	1000	
858 Gain U2	Upward gain U2		0	5000	100	
859 Gain U5	Upward gain U5		0	5000	3000	
860 Gain U1-2	Upward gain U1-2		0	5000	1000	
861 Gain D4	Downward gain D4		0	5000	2000	
862 Gain SP D	Downward gain set-point import		0	5000	100	
863 Deriv D	Downward derivative		0	5000	1000	
864 Gain D2-3	Downward gain D2-3		0	5000	500	
865 Gain D3	Downward gain D3		0	5000	1000	
866 Gain D3-4	Downward gain D3-4		0	5000	1500	
867 Gain D1	Downward gain D1		0	5000	1000	
868 Gain D2	Downward gain D2		0	5000	100	
869 Gain D5	Downward gain D5		0	5000	3000	
870 Gain D1-2	Downward gain D1-2		0	5000	1000	
871 Gain D0-1	Downward gain D0-1		0	5000	1000	
872 Gain U0-1	UPward gain U0-1		0	5000	1000	
881 Integrat U	Upward integrative factor		1	1000	50	
882 Integrat D	Downward integrative factor		1	1000	50	
883 IntegStop D	Downward stopping integrative factor		1	1000	50	
887 Flux Cor U	Up flow valve mapping correction	% +/-	0	2000	0	
888 Flux Cor D	Down flow valve mapping correction	% +/-	0	2000	0	
889 Map Flow %	Mapping flow correction	% +/-	0	199	0	
890 RDY Pause	Cycle RDY OFF-ON signal pause time	s/1000	0	20000	1200	
891 MaxOffRDY U	Upward max time from stop and RDY OFF signal	s/1000	0	20000	3500	
892 MaxOffRDY D	Downward max time from stop and RDY OFF signal	s/1000	0	20000	4000	
893 MaxOffPause	Cycle travel OFF-ON signal pause max time	s/1000	0	20000	2500	
895 MinCoilCurr	Minimum coils current		0	2000	180	< P896
896 MaxCoilCurr	Maximum coils current		0	2000	500	> P895

**PARAMETERS
ERRORS CODES
VALVE UNIT HSe250**



Start Elevator

02 315 / G

rev. 3

5/7

The errors are stored in parameters P600 (most recent error) to P679 (oldest error) in which appears the error code and the machine time spent, en minutes, from the event that caused it.

In parameters P680 to P699 stores the last commands (from newest to oldest), performed with the P7 series saddle parameters or performed with the RSW selector.

Errors 25(E1), (26)E2, (19)E3 and (27)E4 are at once blocking the maneuver and are only resettable with a specific command.

The errors that block the maneuver, marked in the list by (Er), are still reset every 5 sec for 20 times.

It may be possible to reset this error with specific command or switching off the power to the board.

The error status resetting is performed with the RSW selector in position = 9 and confirm with key S1, or with command 713 from hand terminal, or with SP1 and SP2 inputs active for 3 s, in the absence of other signals.

Num #	ERROR Description	Cause / Corrective Action
0	Maneuver blocked with a specific error that follows (Er)	Analyze the number of next error
1	(Er) Auxiliary power absence	Check board voltage supply
2	(EA) High temperature limit TMAX	Check the P105 parameter value and the fluid working temperature
3	(EA) Low temperature limit TMIN	Check the P110 parameter value and the fluid working temperature
4	(Er) At rest pressure meter error	Check pressure sensor TP1
5	(Er) At rest flow meter error	Check connection of the sensor TF
6	(Er) Pressure in a disabled node in Multi-valve system	Close the group ball of valve group excluded from the operation and discharge the pressure
7	(Er) Pressure too low	Check system sliding or heat the oil
8	(Er) Stepper driver already busy	Try restarting the board
9	Not used	/
10	(Er*)ERS solenoid valve already active without relay activation	Try restarting the board
11	(Er) Not properly activated ERS solenoid valve	Check ERS solenoid valve coil
12	Not used	/
13	(Er*) ENR solenoid valve already active without relay activation	Try restarting the board
14	(Er) Not properly activated ENR solenoid valve	Check ENR solenoid valve coil
15	(Er) Travel command failure	Check TP1 and TF sensor, ERS and ENR and manoeuvre input
16	(Er) In movement flow meter error	Check if there are impediments to the flow
17	(Er) At the working anomaly of a solenoid valve	Check starting input voltage ERS and ERN solenoid valves
18	(Er) At rest VSC zero sensor error	Verify sensor 12 zero valve VSC in the waiting phase
19	(E3) A3 test not properly terminated when P497 >0	Repeat A3 functional test
20	Not used	/
21	Not used	/
22	(Er) Between upward stop and RDY signal OFF excessive delay (P891)	Reduce upward stopping distance or increase low speed
23	(Er) Between downward stop and RDY signal OFF excessive delay (P892)	Reduce downward stopping distance or increase low speed
24	(Er) At rest temperature meter error	Check the connection and reading of the temperature sensor
25	(E1) Sequence PNP1 monitoring signal Error1 if P464=0	Check TF and 12 zero valve VSC sensors
26	(E2) Sequence PNP1 monitoring signal Error2 if P464=0	Check TF and 12 zero valve VSC sensors
27	(E4) Valves working Error	Check working and leakage valves



Num #	ERROR Description	Cause / Corrective Action
28	(E5) VSC valve movement error in relay test phase	Try restarting the board
29	(Er) Checksum error	Try to reload the software
30	(Er) Solenoid valves always supplied	Check the connection circuit of the solenoid valves
31	Not used	/
32	(EA) During reading/writing SD absence	Insert SD-CARD and check orange LED LD35 lighting
33	(EA) Reading SD error	Check SD CARD content
34	(EA) Writing SD error	Check SD CARD formatting
35	(Er) Reading EEPROM error	Board memory problems
36	(Er) Writing EEPROM error	Board memory problems
37	(EA) WiFi error	WiFi module is not installed or defective
38	(Er) Stepper driver undervoltage	Check voltage supply board
39	(Er) Stepper driver overcurrent	Check voltage supply board
40	(Er) MPP starting anomaly	MPP or ERS valve or 12 zero sensor problem
41	Not used	/
42	(Er) Stepper step loss	MPP driver signaling valve ERS electro \ mechanical problem
43	(Er) Stepper temperature warning	MPP driver temperature attention level
44	(Er) Stepper overtemperature	MPP driver thermal protection for valve ERS problem
45	Not used	/
46	Not used	/
47	(Er*) CAN error in Multi-valve system	(Er*) CAN error with the framework system
48	Not used	/
49	(Er) CAN error with the lift system	(Er) CAN error with the framework system
50	(Er) Checksum error	Try to reload the software
51	(Er) Hardware error	Upload appropriate software
52	Not used	/
53	(EA) Flow error during upward stopping	Delay the closing of the MPP with 409 and 410 parameters
54	Not used	/

The error status is displayed on DISP display as follows:

EA = Warning error not blocking the maneuver:

The relay ERR does not turn on and the error message disappears at the first maneuver.

Er = Generic error blocking the maneuver.

E* = Generic error blocking the maneuver without automatic reset.

E1 = Error 25, which also considers the malfunction on a Slaves board.

E2 = Error 26, which also considers the malfunction on a Slaves board.

E3 = Error 19.

E4 = Error 27, which also considers the malfunction on a Slaves board.

The reference value for manoge the error is quoted in P411.

E- = It appears on the Master board for a generic error on a Slave board, on which it will be displayed and stored the type.

An error reset via specific command on the Master board, run the same command also on all the Slave boards of Multi-Valve system.



INTRODUCTION

Reduce travel times it allows to increase performance of 'elevators and upward, in the presence of a constant speed motor-pump, reduce consumption and oil heating.

In HSe group the reduction of travel times is realized in two modes:

- automatic reduction of upward and downward leveling space,
- reduction of the time of starting and maximum obtainable upward speed.

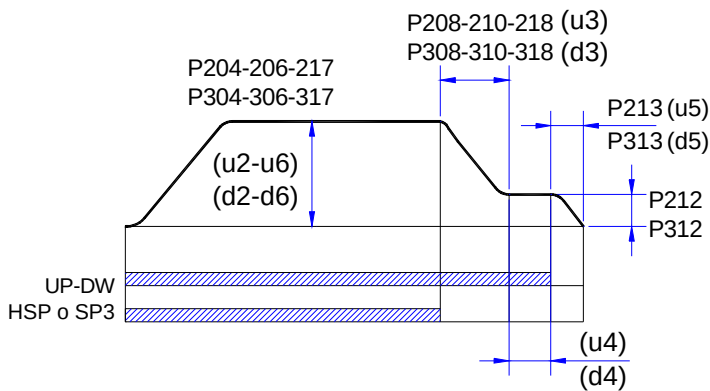
RECOVERY LEVELING SPACE

The automatic recovery of leveling spaces is activated by setting the Par. 456 = 1.

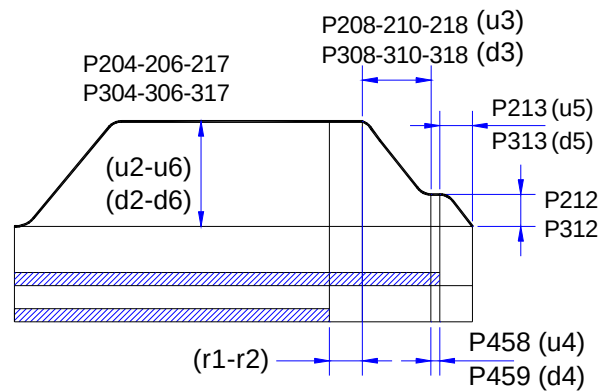
So, the first up and down stroke, the system calculates the value of the leveling space, and if space is different from the minimum provided by Par. 458 for upstroke, and Par. 459 for downstroke, implements a deceleration space correction to reflect the value provided in the parameter.

The self-learning system is reset every time is turned off the control board or the operating parameters are modified (speed or space).

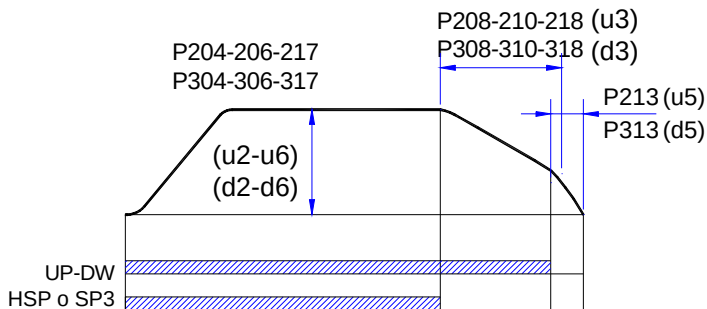
1.A Normal stroke with "short" deceleration



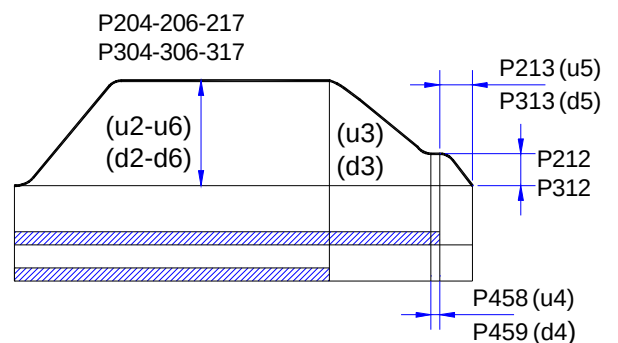
1.B Deceleration delay r1 o r2



2.A Normal stroke with "long" deceleration



2.B Deceleration correction



(u2-u6,d2-d6,u3,d3,u4,d4,u5,d5,r1-r2) Display on DSP during phase execution

**AUTOMATIC REDUCTION
OF TRAVEL TIMES
VALVE UNIT HSe 250**



Start Elevator

02 316 / I

rev. 1

1/2

REDUCTION OF STARTING TIME AND MAXIMUM UPWARD SPEED

The reduction of the total upstroke time reduces the consumption and oil heating.

The synchronization between the output contact AVV and digital input SFY electronic card, allows you to start the engine when the VSC valve, which controls the discharge of the oil coming from the pump is open and begin to close the VSC soon as the engine is started, reducing to a minimum the engine operation during the "dead" times, this also occurs during stoppage of the engine in the soft-stop.

Once started the engine, to optimize the starting time of equipment, the system prepares the closing of the valve to the mapped VSC position, depending on the pressure in the circuit and of the value of the nominal flow of the pump (Par. 102) and from that moment start the taking charge of the cabin.

When a minimum flow to piston is detected, the system enters a control to implement the acceleration prescribed in the corresponding parameters.

However, setting a short acceleration space, it allows to reduce the acceleration time and therefore the dissipation during this phase.

Based on the pressure and the operating temperature, the flow rate of the pump can have variations of +/- 10%.

The uphill reference speed are however limited, during operation, to the value corresponding to the nominal capacity of the pump set in Par.102, increased by a percentage set in Par. 233.

So to ensure to arrive at the maximum flow rate to the piston, you must set the Par. 233 to a value that compensates for the variability of the pump, and which enables however not exceed the legal limit of increase of the nominal speed.

It must then set the speed parameter provided with a value equal to or greater than the limit reference speed.

It is generally sufficient to increase the speed prescribed value, the percentage set in Par.233.

The value of the limit reference speed (VRL) uphill, you can still calculate as follows:

$$VRL = P102 \times (P233 / 100 + 1) / (P101)^2 \times P103 / P104 \times P109 \times 21.22$$

The system can then work to always make the most of the flow supplied by the pump and direct it to the piston, blocking the control when the VSC valve reaches a considered closing position.

During operation in this position on the DSP display **U6**.

In the deceleration position the system acquires the current speed and the control returns to act to calculate the deceleration necessary to obtain the deceleration distance set in the parameters.

Notes :

To reduce the consumption and ensure the functionality of the system, set the low-speed value and of the stop space so as to limit the stopping time to 1-1.5 s max, according to the following formula

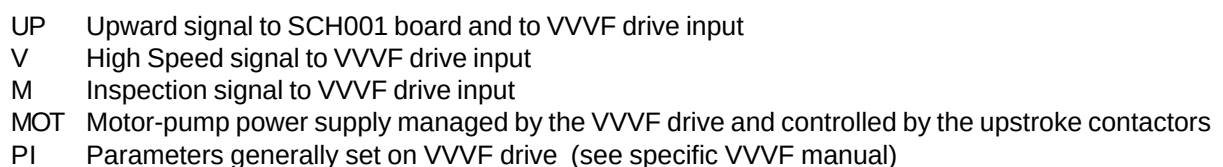
$$\text{Time [s]} = 2 \times \text{Stop space [m]} / \text{Low-speed [m/s]}$$

$$\text{ex.: } 2 \times 0.02 \text{ [m]} / 0.05 \text{ [m/s]} = 0.8 \text{ s}$$



In this condition the valve unit remains passive throughout the upstroke and the flow coming from the pump is, at all times, addressed to the piston.

- 1) In the upward the single input recognized by the board is UP
- 2) The test command relief valve is not executed
- 3) The upward UCM test command is not executed
- 4) During the upstroke the PNP1 monitoring signal is not operated and remains at level 0
- 5) The output contact AVV (motor-pump management) is activated for to manage the motor stopping
- 6) During the upstroke is not used the ERS solenoid



**WITH VVVF DRIVE WORKING
VALVE UNIT
HSe250**



Start Elevator

02 317 / G

rev. 0

1/1

MAINTENANCE PROGRAM AND PERIODIC CHECKS

N.	Control operations List	Recommended time			
		Installation	Months	Annual	10 years
1	SCH001 BOARD ERROR STORAGE	X	2		
2	GROUP AND GAUGE SHUT-OFF VALVE		6		
3	VALVES LEAKAGES	X	2	X	
4	EXTERNAL LEAKAGES	X	2		
5	WORKING PRESSURES	X		X	
6	PRESSURE RELIEF VALVE CALIBRATION	X		X	
7	MANUAL LOWERING CHECKING	X		X	
8	HAND PUMP CHECKING	X		X	
9	CHECK TO DOUBLE PRESSURE	X	6		
10	OIL CHECKING	X		X	
11	MOTOR PROTECTION CHECKING	X	6		
12	FILTERS	X		X	
13	FLEXIBLE HOSE	X		X	
14	FLEXIBLE HOSE REPLACEMENT				X
15	GROUP REVIEW				X
16	PLATES AND SCHEMES	X		X	

DESCRIPTION OF CONTROLS

1. Check the list of errors through the terminal or Wi-Fi device.
Using terminal you need access to read parameters from P600 to P679 indicate that, from newest to oldest, the error code and time of storing machine.
Via Wi-Fi device, it reads through the access to the specific section of its application.
However, it is possible to reset the fault history through command P702.
2. Close the ball valve (19) and open the manometer shut off valve (2). Release all pressure by manually adjusting the knob (17). Check that the level of pressure on the pressure gauge is next to zero (equal to the valve setting 25),
then, after one minute, re-open the valve (19).
3. With oil at room temperature close the ball valve (19) and open the manometer shut off valve (2). Verify that the pressure indicated on the pressure gauge does not drop more than 4 bar in 5 minutes.
4. If there are traces of oil outside the group, check the tightness of the adjustment screws (5, 25, 27) and the vent plug (29). Check also the drain of the seals of the group under the MPP motor.
5. Proceed, after installation, the recognition, up and down, the static and dynamic pressure.
Periodically check that the pressure values are unchanged
6. Execute the maximum pressure test, as shown in the "Operation valve group", to verify that the calibration value corresponds to that expected. The calibration of the maximum pressure value is determined by the adjustment (5) of the valve group.
7. Execute a test of the cabin downward displacement and a verification of the minimum operating pressure adjust (25), as provided in the "emergency maneuvers."
8. Execute a test of the cab moving upward and a check of pressure relief valve (27), as provided in the "emergency maneuvers."
9. The double pressure test allows you to check the integrity of all the entities under normal pressure.
Use the hand pump valve group to reach a value gradually double pressure than the static maximum expected in the system.
10. Check that the oil level with the cabin top floor, is in the tank, above the minimum mark on the dipstick.
Make sure the color of the oil is not changed and that it does not present a strange smell.

**MAINTENANCE
VALVE UNIT
HSe250**



Start Elevator

02 318 / I

rev. 0

1/2

11. If present, disconnect one of the ends of the motor protection series and verify that the motor protection device is intervened.
12. Check the status of the solenoid valves and filters the tap to the drawing 1.
13. Check the hose not leaking or deformation on the outside and on the fittings and it is visible the test marking (manufacturer, date and test pressure).
14. If not specified by the manufacturer of the hose, necessary to replace, within a period of 10 years from its installation.
15. The revision of the valve unit provides for the replacement of the seals on the valves and filters. After a review performed all the initials tests.
16. Verify that the group's identification number plate is in the correct position and legible.
Also check the instructions of the emergency maneuvers, the oil plate, the wiring diagrams of the picture and the hydraulic diagram of the control unit.

DRAWING 1 - filters and solenoid valve

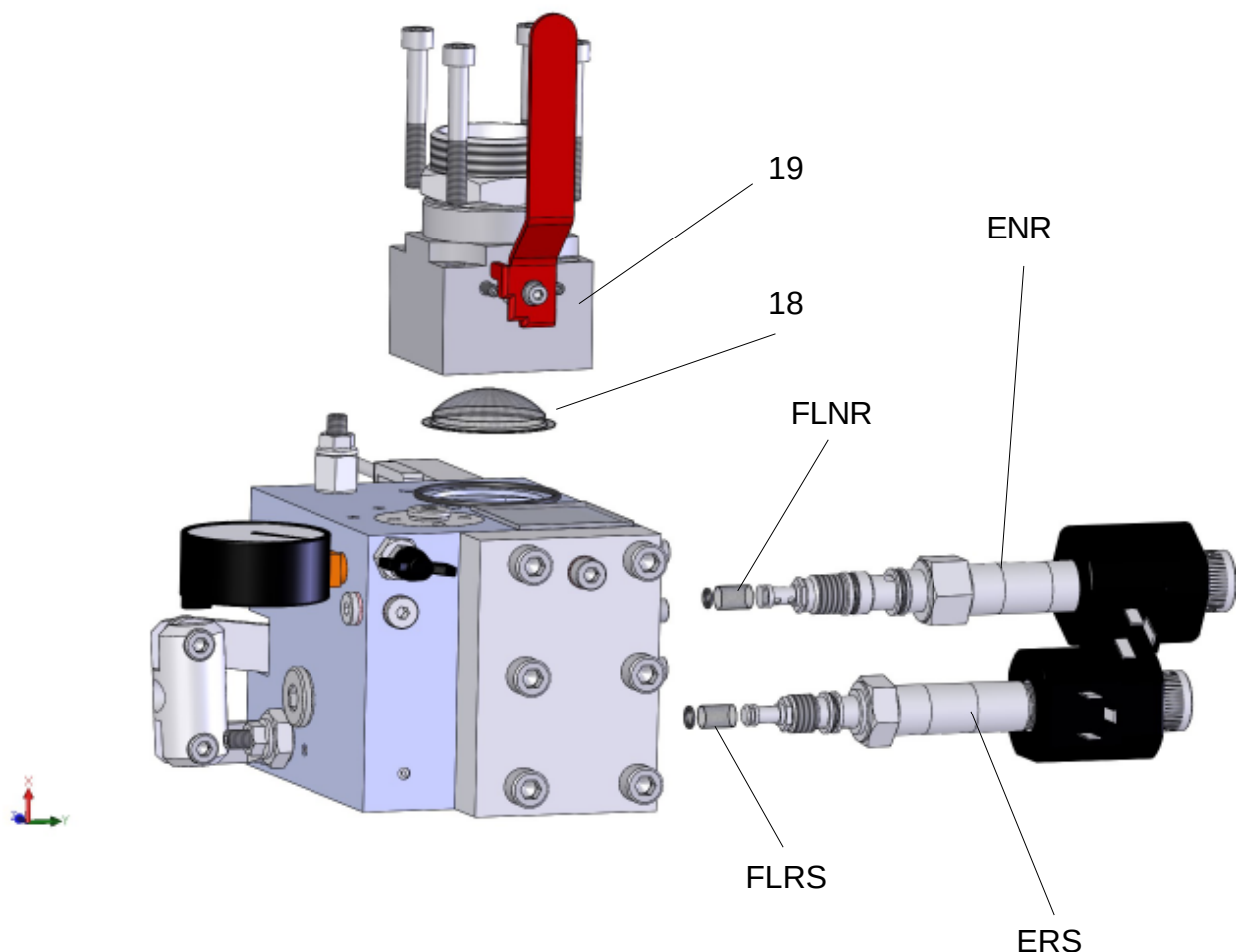
Attention all filters are normally pressurized!

18 - Flow Filter - code DSG02316200

19 - Exclusion tap valve group

FLNR - Solenoid valve filter ENR - code DSG09903201

FLRS - Solenoid valve filter ERS - code DSG09903201



**MAINTENANCE
VALVE UNIT
HSe250**



Start Elevator

02 318 / I

rev. 0

2/2

DESCRIPTION

The SCH001 card uses more HSe groups acting in parallel, to increase performance in terms of speed of the plant, in a hierarchical system with A CARD HOME (MASTER) AND MORE 'CARDS SECONDARY (SLAVES), connected by a CAN communication network.

The characteristics of the multi-valve system are the following:

- minimizing signal connections with the Slaves cards,
- automatic sharing of the operating parameters, the Master card with the Slaves,
- Automatic setting of the plant test commands, the Master card with the Slaves,
- be able to exclude, in the operation, one or more tabs and the related groups, with the lowest performance decay.

Requirements for the operation of the Multi-valve system are:

- matches of the nominal capacity of the pump of each group,
- separate management for each of the motor adapter connected to its own pump,
- the ERR error output management of all the board to report to the framework also problems with hardware,
- separate management from the framework of the solenoid inputs ENR and ERS.

All the parameters that define the speed, the space and the general operating characteristics, have the values related to those of the system it is connected to the multi-valve system, while the value of the parameter P102 defines the rated flow of the pump of the individual HSe groups.

A series of specific parameters allow the configuration of the multi-valve system:

- Par. 475 (normally = 0) defines the hierarchy of the corresponding card (Master = 1, Slaves = 2),
- Par. 476 defines the address of the CAN node (1 to 127) of the corresponding card,
- Par. 477 defines the total number of Slaves in the Multi-specific valves system (1 to 7),
- Par. 478 defines the active status (1) or inactive (0) of the corresponding card.

Initialization (operation to be performed at first installation or whenever a CAN node is added or removed)

- 1) Set on all the Slaves, and in the order as indicated, the following parameters:
 - Par. 476 = node address arbitrarily chosen, making sure that each card has a different address (also from the Master node);
 - Par. 478 = 1 if you want the unit participates in the movement of the lift, Par. 478 = 0 otherwise;
 - Par. 475 = 2.
- 2) Set on the Master, and in the order as indicated, the following parameters:
 - Par. 476 = node address chosen arbitrarily making sure it is different from that of all other Slaves nodes;
 - Par. 477 = number of slaves connected to the CAN bus;
 - Par. 478 = 1 if you want the unit participates in the movement of the lift, Par. 478 = 0 otherwise;
 - Par. 475 = 1.
- 3) Restart the multi-valve system by removing power and then reigniting each system circuit board (if a separate power supply, Power up for the latest Master Card)
The successful completion of initialization will be confirmed by the lighting of all of the yellow cards (LD30 LED), which will also indicate that the exchange of data on the CAN bus is active.
N.B. : if an error occurs, the yellow LED will flash and the display will show "Er" (error code: 47).
To solve the problem, refer to the specific section.
- 4) Set on the Masters Par. 712 = 1 to automatically copy all of Slaves basic parameters, rise and fall of the master himself.

In case of disabling a Slaves group, the system allows to keep unaltered the deceleration spaces, the low speed and stopping distances.



HYDRAULIC DIAGRAM

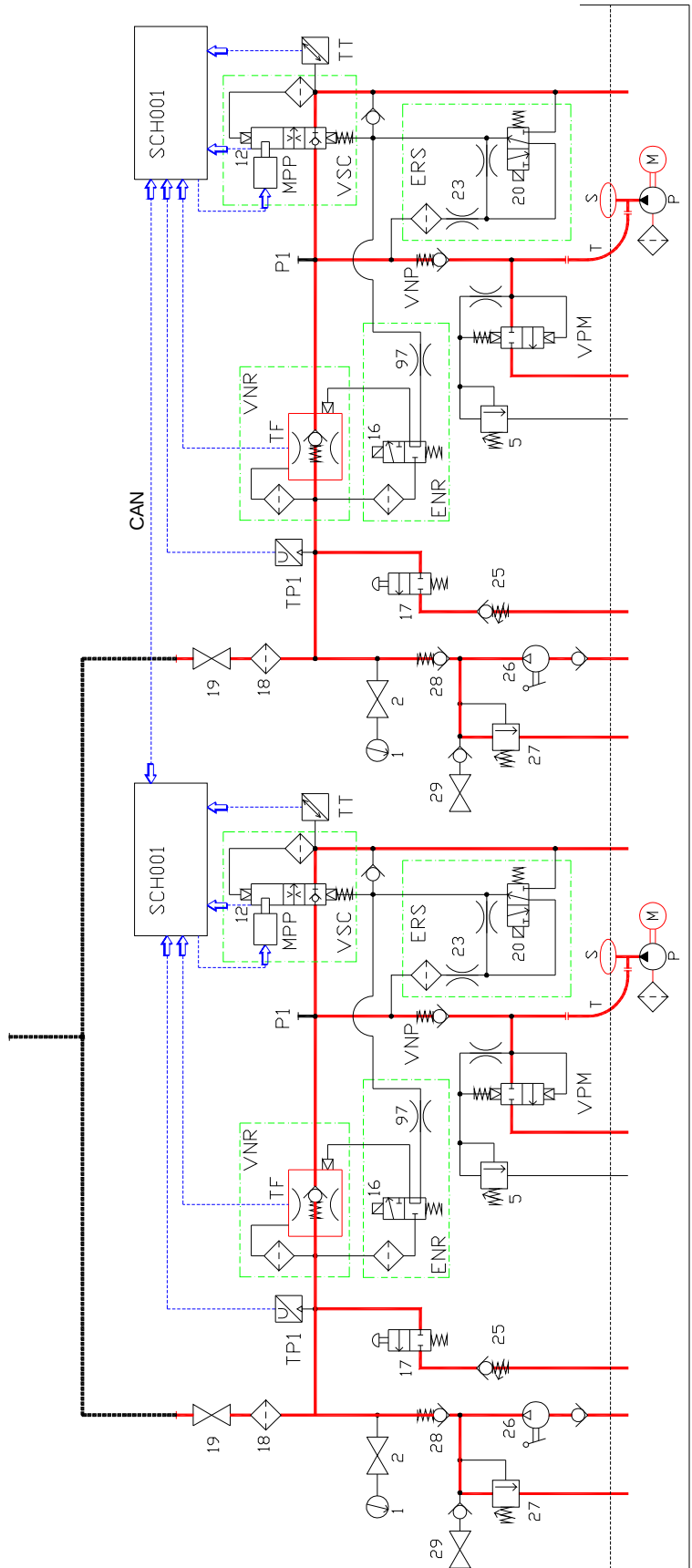
LEGEND

- 1 Gauge
- 2 Gauge cut-out cock
- 5 Maximum pressure valve adjusting screw
- clockwise increase (+) - anticlockwise decrease (-)
- 12 VSC valve zero contact
- 16 ENR solenoid valve (unblock VNR valve)
- 17 Emergency manual lowering (clockwise rotation)
- 18 Filter
- 19 Ball valve
- 20 ERS solenoid valve (unblock VSR valve)
- 23 VSC valve block control throttle
- 25 Emergency manual lowering minimum pressure
- clockwise increase (+) - anticlockwise decrease (-)
- 26 Hand pump
- 27 Hand pump maximum pressure valve
- clockwise increase (+) - anticlockwise decrease (-)
- 28 Hand pump non-return valve
- 29 Hand pump air-release screw
- 97 VNR valve block control throttle

OTHERSPUMP UNIT COMPONENTS

- Flow meter
Pressure meter
Temperature meter
VNR valve unblock solenoid valve
VSC valve unblock solenoid valve
MPP
VNP
VNR
VPM
VSC
P1
CAN
- Pump no return valve
No return and downstroke safety valve
Pump maximum pressure valve
Flow control valve
Auxiliary microlevelling port
Signal communication line and configuration

- M Pump motor
P Pump
S Pump silencer
T Flexible pump connection pipe



CONNECTIONS MASTER-SLAVE

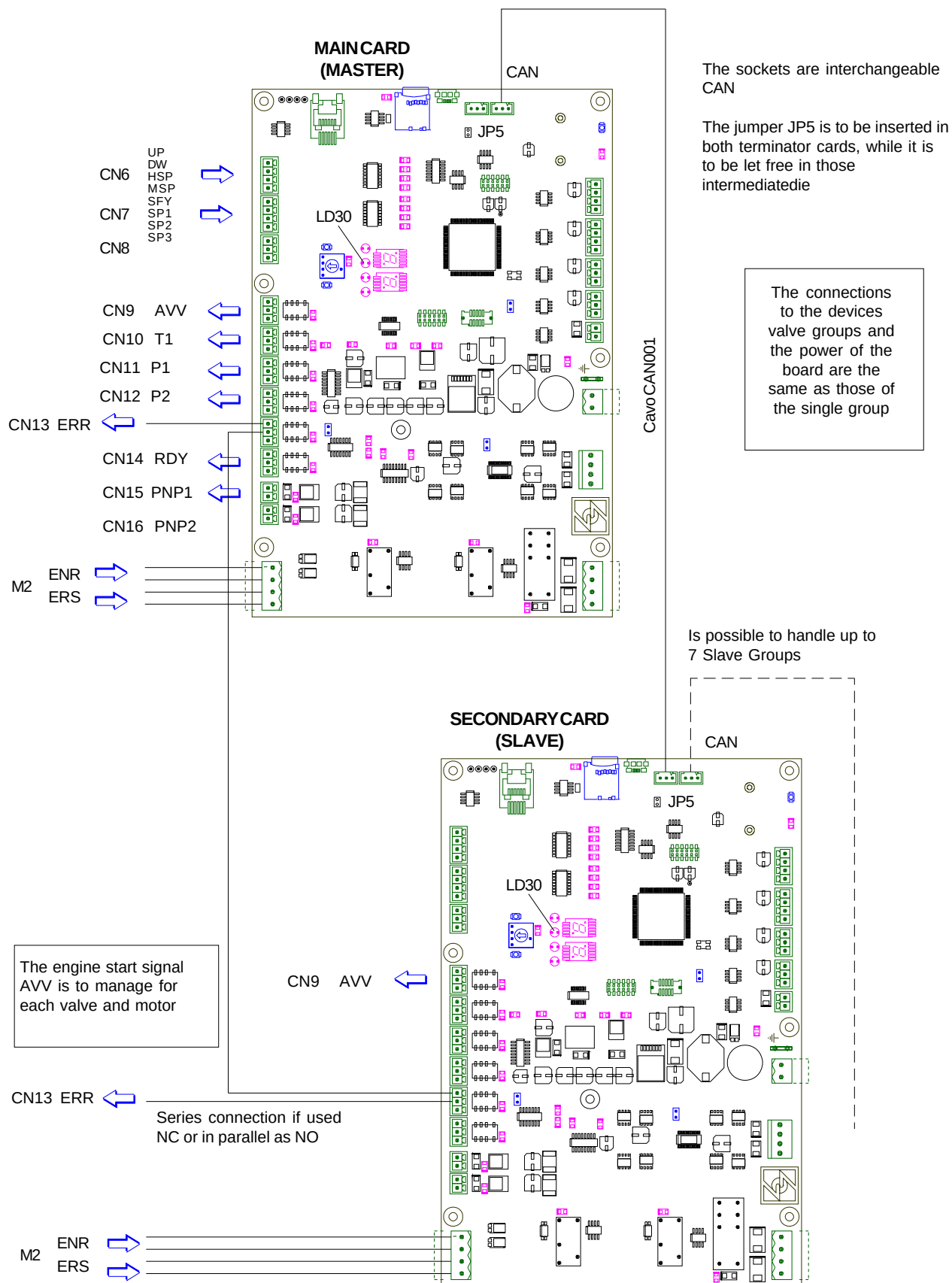
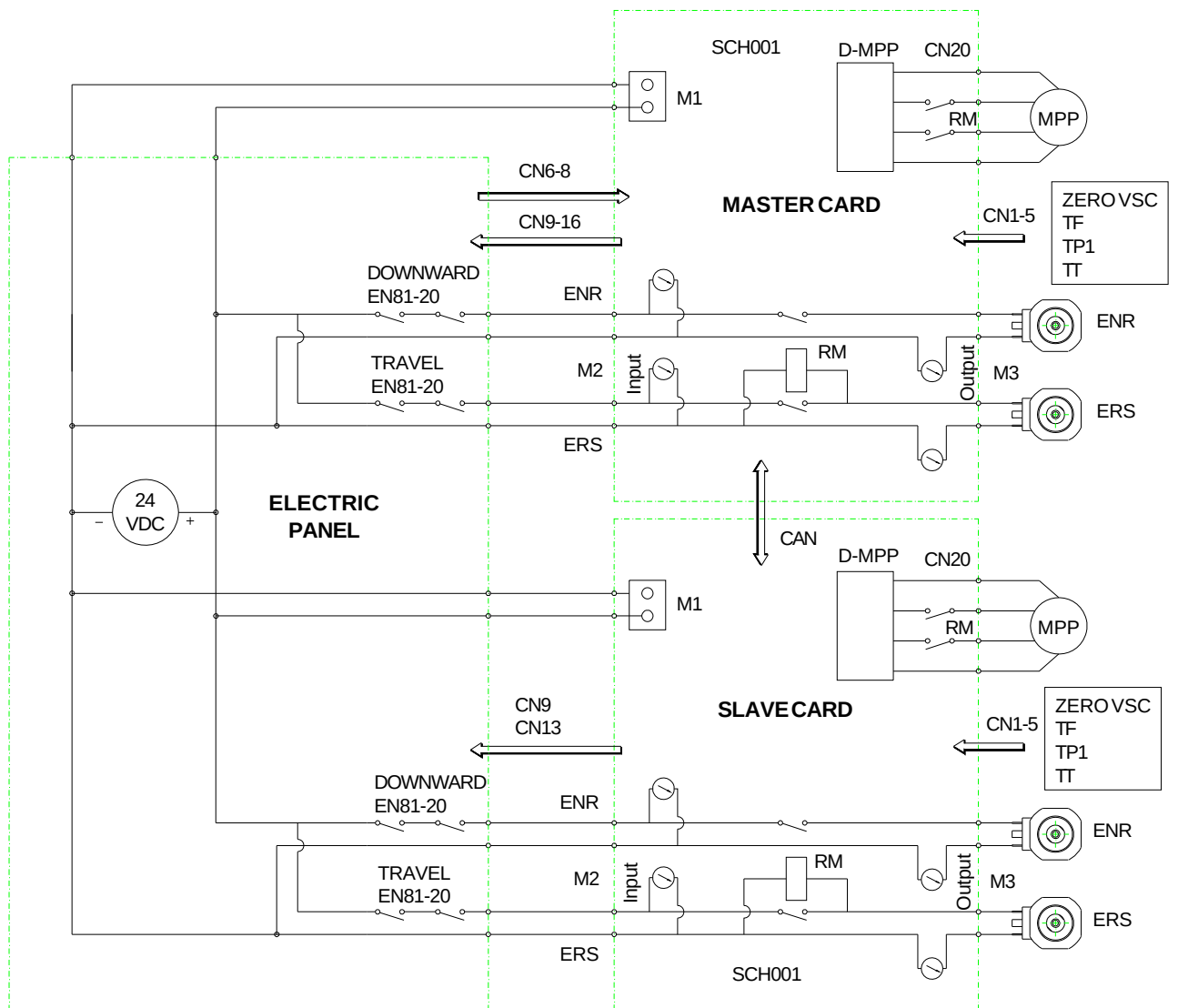


DIAGRAM OF FUNCTIONING CONTROL DEVICES



M1 BOARD INPUT CONNECTION
M2 SOLENOID VALVES INPUT CONNECTION
M3 SOLENOID VALVES CONNECTION
ENR VNR VALVE UNBLOCK SOLENOID VALVE
ERS VSC VALVE UNBLOCK SOLENOID VALVE
ZERO VSC VALVE POSITION SENSOR
TF FLOW SENSOR
TP1 PRESSURE SENSOR
TT TEMPERATURE SENSOR

MPP VSC VALVE COMMAND STEPPER MOTOR
D-MPP STEPPER MOTOR CONTROL DRIVER
RM STEPPER MOTOR CONNECTION RELAY
CN1-5 BOARD SENSOR INPUT CONNECTIONS
CN6-8 BOARD SIGNALS INPUT CONNECTIONS
CN9-16 BOARD SIGNALS OUTPUT CONNECTIONS
CN20 STEP MOTOR CONNECTOR CONNECTION
CAN LINE COMMUNICATION AND SIGNALS CONFIGURATION
EN81-20 DOWNWARD DOWNWARD COMMAND DEVICES
EN81-20 TRAVEL UPWARD AND DOWNWARD COMMAND DEVICES



NOTE

A CURA DELL'UFFICIO TECNICO
HSe250 1-2018



Start Elevator Srl

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