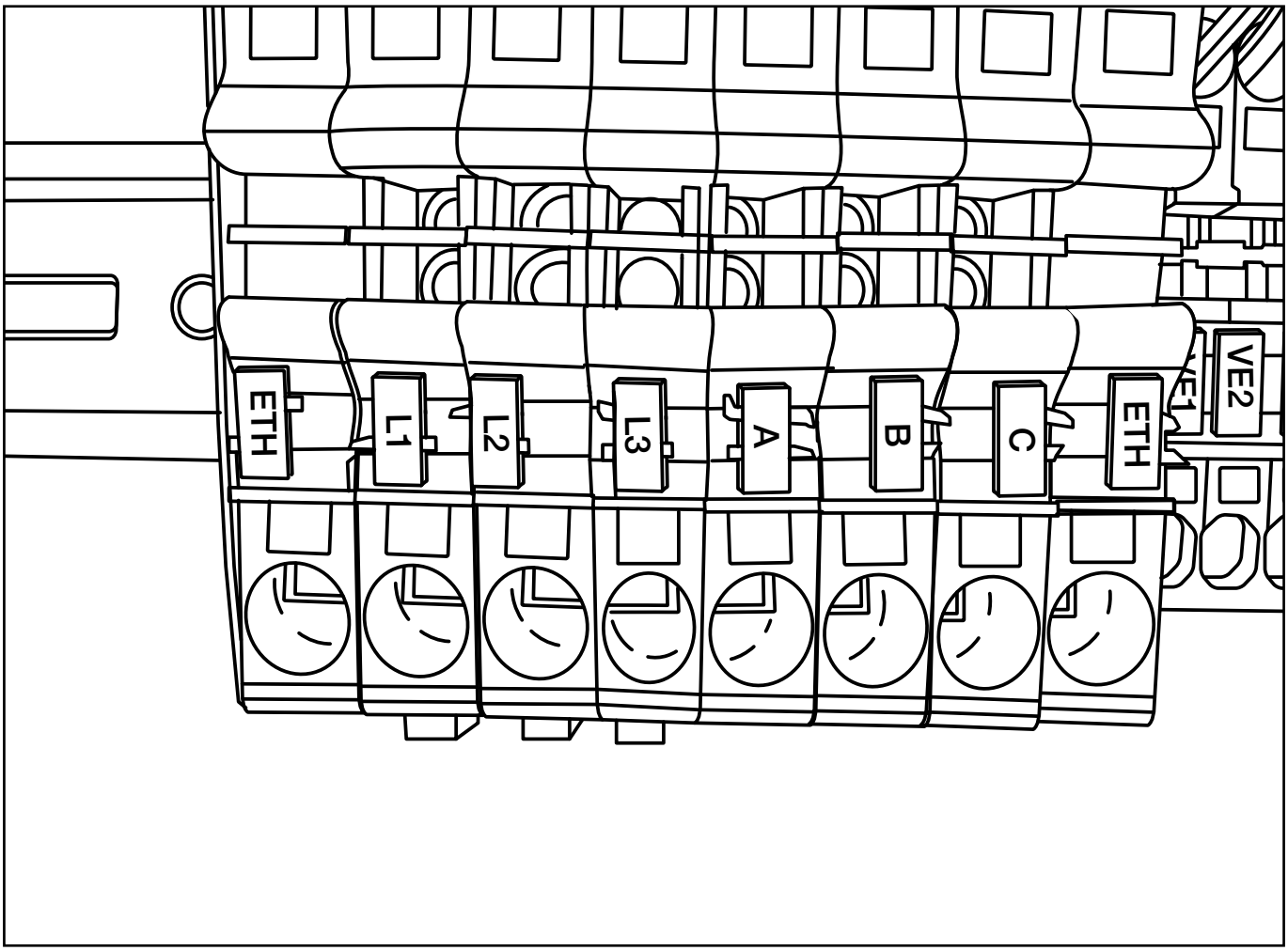
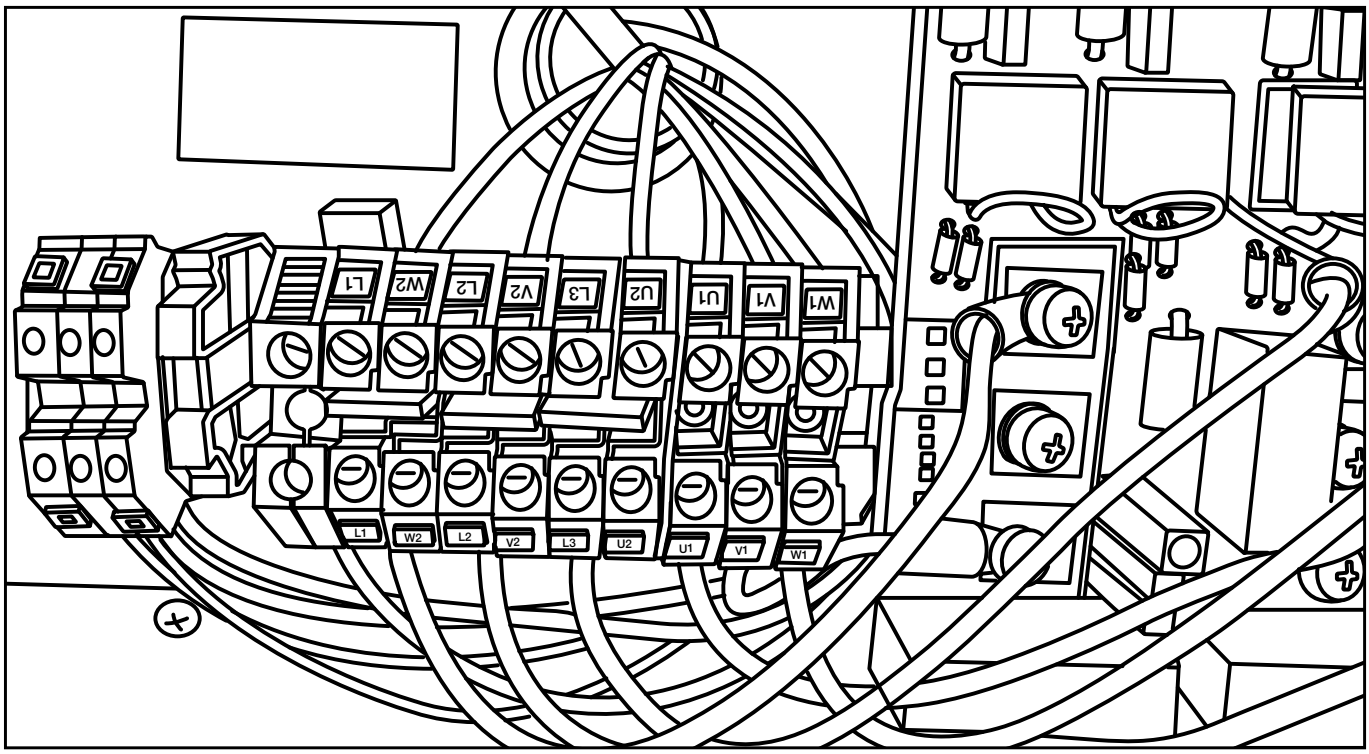
BEFORE COMMENCING ANY WIRING ENSURE THE ISOLATOR IS LOCKED AND TAGGED OUT AND CONFIRM ZERO ENERGY STATE

1. Connect pre-wired 5m SY Cable to isolator mains L1, L2, L3, N (if applicable) and Earth (ETH) to controller terminals



2. Remove the cover on the soft start unit on the tank
(6 cross head screws)



3. Connect L1 on soft starter to A Terminal on controller
Connect L2 on soft starter to B Terminal on controller
Connect L3 on soft starter to C Terminal on controller
Connect Earth (Green/Yellow) terminal on soft starter to ETH Terminal on controller

4. Connect thermistors P1 & P2. P1 connect to THA and P2 to THB

5. Connect Soft Starter Valve Enable contact. Connect terminal 11 on soft starter to terminal VE1 on controller and 14 on soft starter to VE2.

6. Connect solenoid plugs. Grey plug is for solenoid UP/DOWN travel and is connected to the cylindrical silver solenoid to the right of the iBox. The Black plug is for the solenoid UCM/A3 which is the black square solenoid to the left of the iBox.

7. Connect the solenoid wiring as follows:

    a. Yellow wire to D-
    b. Green wire to D+
    c. Brown wire to UD-
    d. White wire to UD+

8. Connect the iBox sensor cable to the iCon card and plug in icon parameter card.

9. Plug in and connect the pre-wired shunting leads that are delivered with the controller.

10. Plug in motor room pendant control.

11. Temporarily short out Bucher iBox pressure sensors TR-44 to OTL.

12. Remove LOTO and switch on the isolator.

13. Check the ALMEGA 2 display. If 'EMER STOP' is displayed, check and rectify the safety circuit fault. (Note on EN81-20 optioned panels you need to press the 'PIT RESET' button to complete safety circuit).

14. After correcting the safety circuit fault (if any) press the up and common button on the hand terminal to check motor rotation. If the motor runs backwards swap soft start wires A and B in the controller. Run the motor for a few seconds to get pressure on the gauge.

15. Remove temporary short between TR-44 and OTL.

16. For further information refer to the relevant manuals supplied with the equipment.

Hydratec

QUICK SMART GUIDE
BUCHER VALVE i250

Series iValve i250

BUCHER
hydraulics

BUCHER PRODUCTS AVAILABLE FROM HYDRATEC

eco smart
Hydratec

Series iValve_ i250

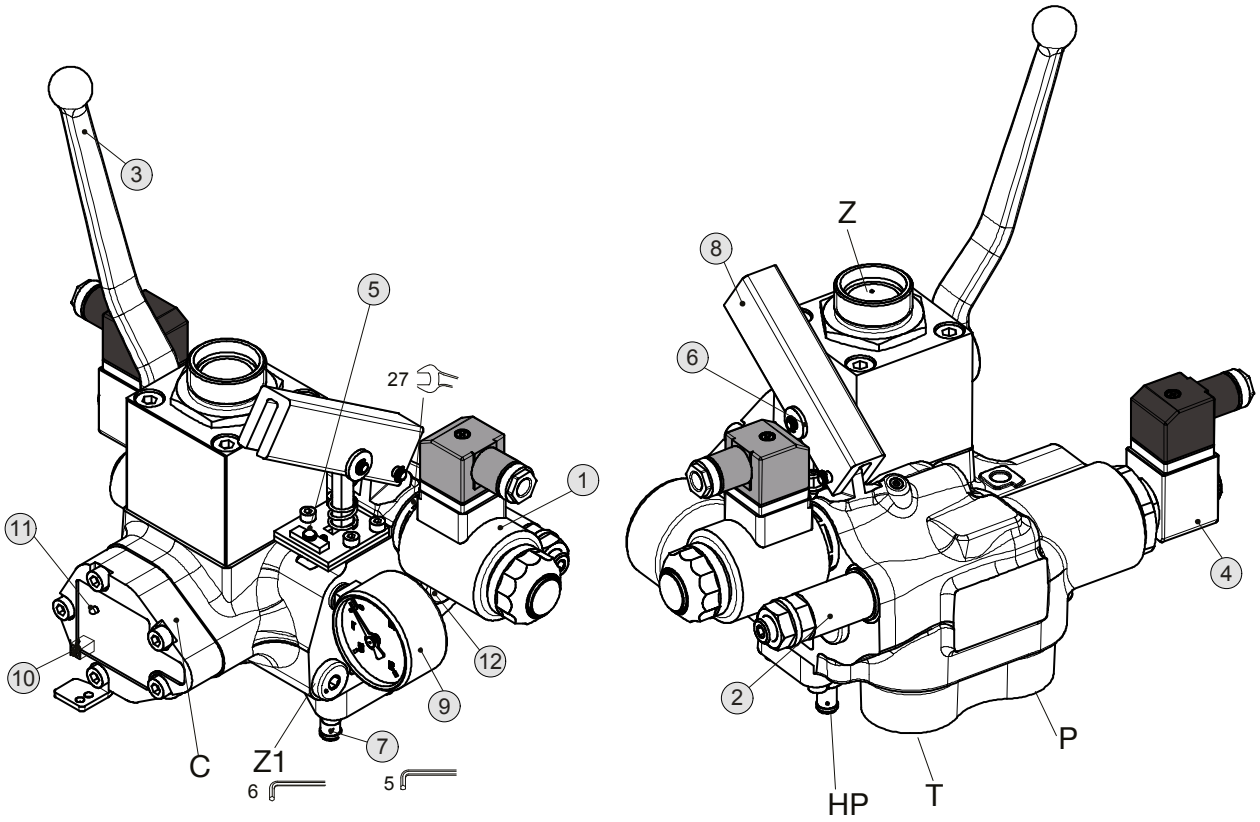
The iValve i250 are intelligent valves. It is important to ensure that all slowing distances are the same so, it is recommended that an absolute positioning system is used to guarantee the slowing distance.

After connecting and installing the new power unit, set the slowing distances. Once set and the lift has been checked and is ready to run on normal, ensure the iTeach function is active and allow the lift to run. After no more than 20 journeys the iTeach will have learnt and optimised the drive curve. No other adjustments to the ride should be necessary.

The relief valve is set at a nominal 1.4 times maximum pressure from the factory but may need some adjustment on site depending on individual site conditions.

1 Construction and Function

1.1 Components iValve – i250

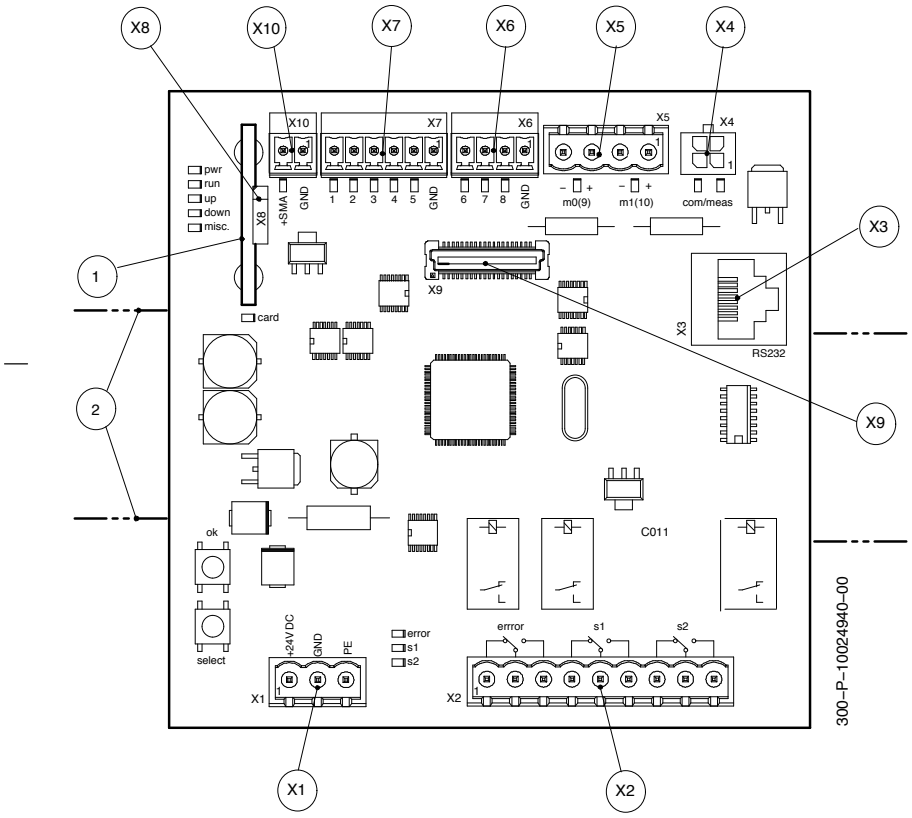


Item	Description
1	Solenoid UP/DOWN travel (grey plug)
2	Pressure relief valve
3	Ball valve
4	Solenoid UCM / A3 (black plug)
5	Piston-creep prevention
6	Hand pump / emergency lowering
7	Pressure relief valve for the hand pump
8	Handle for hand pump (tube supplied loose)
9	Pressure gauge

Item	Description
10	Connection, sensor cable iBox
11	LED
12	Nameplate
C	iBox
P	Pump port
T	Tank port
HP	Tank port, hand pump, emergency stop
Z	Cylinder port
Z1	Port for relevelling/test port

2 Interfaces

2.1.1 Pin assignments iCon



Item	Description
1	ParamCard
2	Top-hat rail TS15, TS35 (EN50022) or G-type rail G32 (EN50035)
X1	Connector block, power supply
X2	Connector block, switching outputs
X3	Connection, Handterminal / PC
X4	Connection, iBox

Item	Description
X5	Connector block, solenoids
X6	Connector block, command signals K6…K8
X7	Connector block, command signals K1…K5
X8	Socket for ParamCard
X9	Socket for options boards
X10	Connector block, SMA

IMPORTANT!:
Violation of safety rules
The switching outputs (error, s1, s2 of the iCon and s3, s4 of the options board) must NOT be looped directly into the safety circuit.
If a switching output function is to affect the safety circuit, then external isolation relays, which comply with the required specifications for use in the safety circuit, must be used for this purpose.

IMPORTANT!:
Two independent switching outputs are available on the iCon. For each switching output, a relay (s1and s2) is available, each with one break and one make contact. For Option board a relay (s3 and s4) is available each with one break and one make contact.

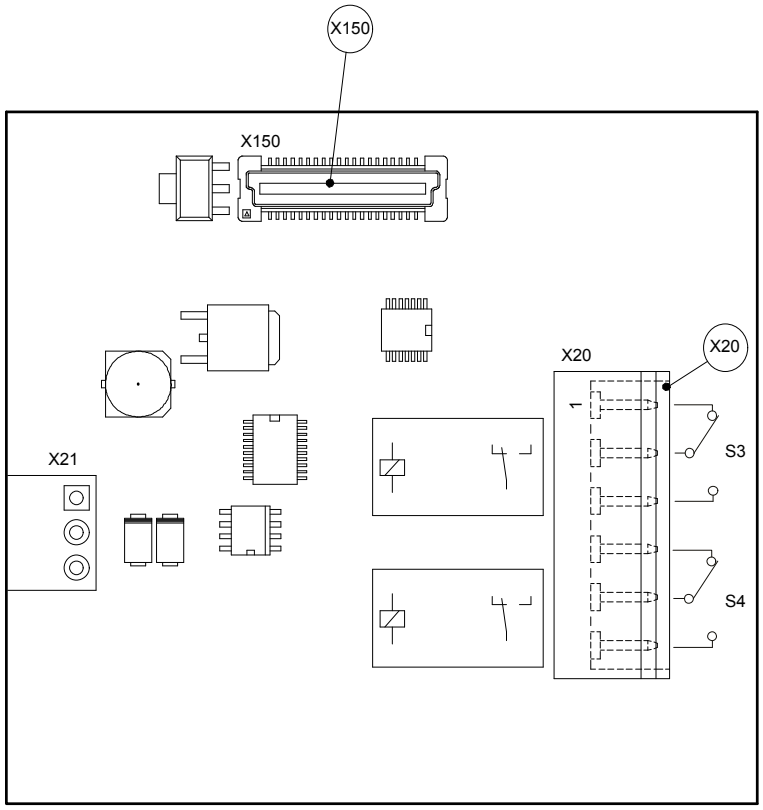
2 Interfaces

2.1.1 Pin assignments iCon

Item	Description	Description
X1-1	+24VDC	Input, power supply 24VDC
X1-2	GND	Ground, power supply
X1-3	PE	Protective earth
X2-1	error	Break contact ("normally closed" = closed when de-energised) of the switching output error relay / demand/feedback monitoring
X2-2	error	Common contact of the switching output error relay/demand/ feedback monitoring
X2-3	error	Make contact ("normally open" = open when de-energised) of the switching output error relay / demand/feedback monitoring
X2-4	s1	Break contact ("normally closed" = closed when de-energised) of the switching output relay s1
X2-5	s1	Common contact of the switching output relay s1
X2-6	s1	Make contact ("normally open" = open when de-energised) of the switching output relay s1
X2-7	s2	Break contact ("normally closed" = closed when de-energised) of the switching output relay s2
X2-8	s2	Common contact of the switching output relay s2
X2-9	s2	Make contact ("normally open" = open when de-energised) of the switching output relay s2
X5-1	m1(10)+	Solenoid UP/DOWN travel, pos. terminal
X5-2	m1(10)-	Solenoid UP/DOWN travel, neg. terminal
X5-3	m0(9)+	Magnet UCM / A3, pos. terminal
X5-4	m0(9)-	Magnet UCM / A3, neg. terminal
X6-1	GND	Ground/reference potential for command inputs (K1…K8)
X6-2	8	Command input 8 (auxiliary speed)
X6-3	7	Command input 7 (auxiliary speed)
X6-4	6	Command input 6 (auxiliary speed)
X7-1	GND	Ground/reference potential for command inputs (K1…K8)
X7-2	5	Command input 5 (K5 inspection speed)
X7-3	4	Command input 4 (K4 slow DOWN)
X7-4	3	Command input 3 (K3 fast DOWN)
X7-5	2	Command input 2 (K2 slow UP)
X7-6	1	Command input 1 (K1 fast UP)
X10-1	GND	Monitoring of the integrated UCM/A3-valve (“Self Monitoring Acknowledgement”), ground/reference potential
X10-2	+SMA	Monitoring of the integrated UCM/A3-valve (“Self Monitoring Acknowledgement”), signal

2 Interfaces

2.1.2 Options board, OP/SO switching outputs



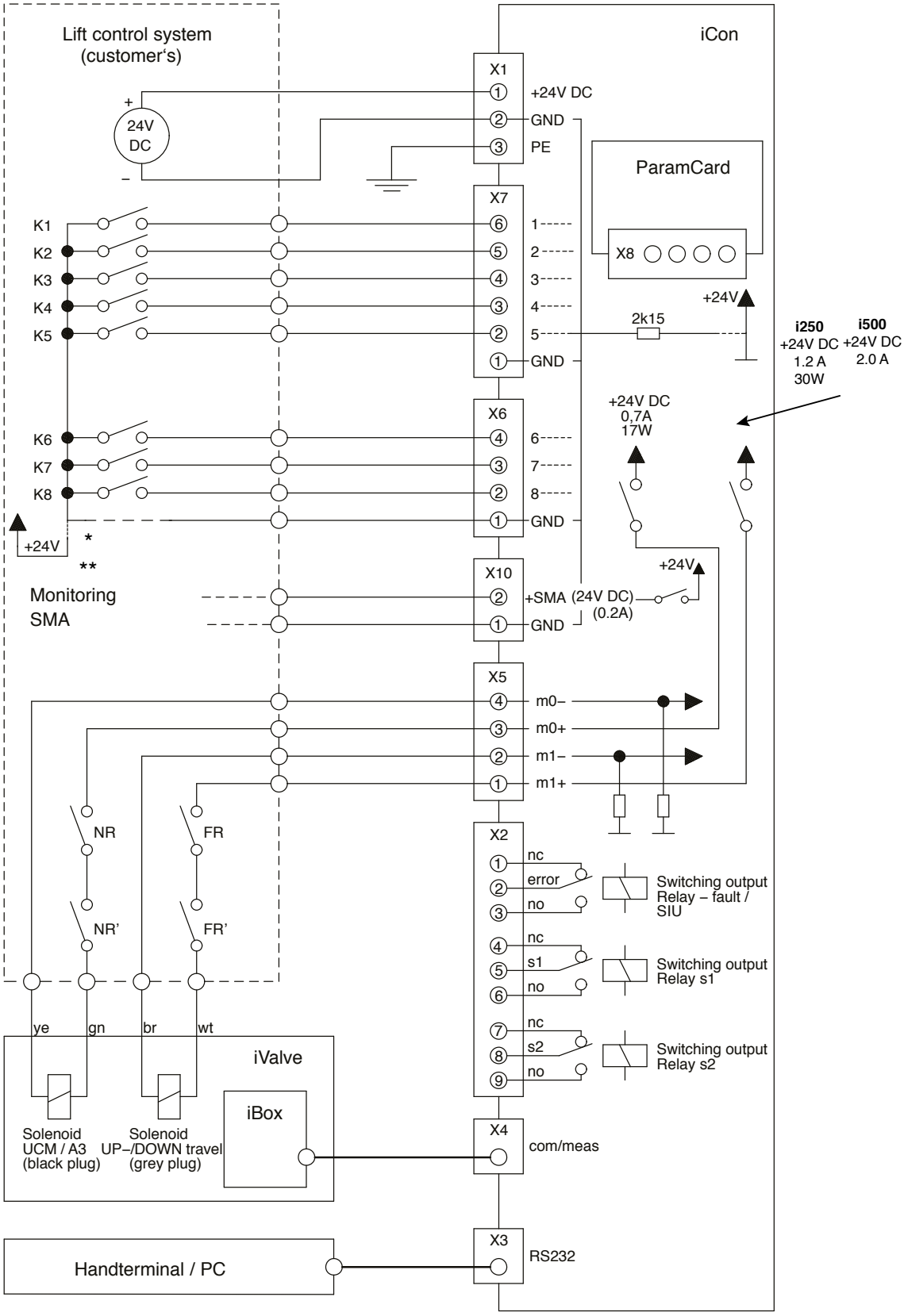
Item	Description
X-20	Connector block, switching outputs
X-21	Not used

Item	Description
X-150	Socket for options board

Item	Description	Description
X20-1	s3	Break contact ("normally closed" = closed when de-energised) of the switching output relay s3
X20-2	s3	Common contact of the switching output relay s3
X20-3	s3	Make contact ("normally open" = open when de-energised) of the switching output relay s3
X20-4	s4	Break contact ("normally closed" = closed when de-energised) of the switching output relay s4
X20-5	s4	Common contact of the switching output relay s4
X20-6	s4	Make contact ("normally open" = open when de-energised) of the switching output relay s4

2 Interfaces

2.1.3 Block diagram, operation (standard)

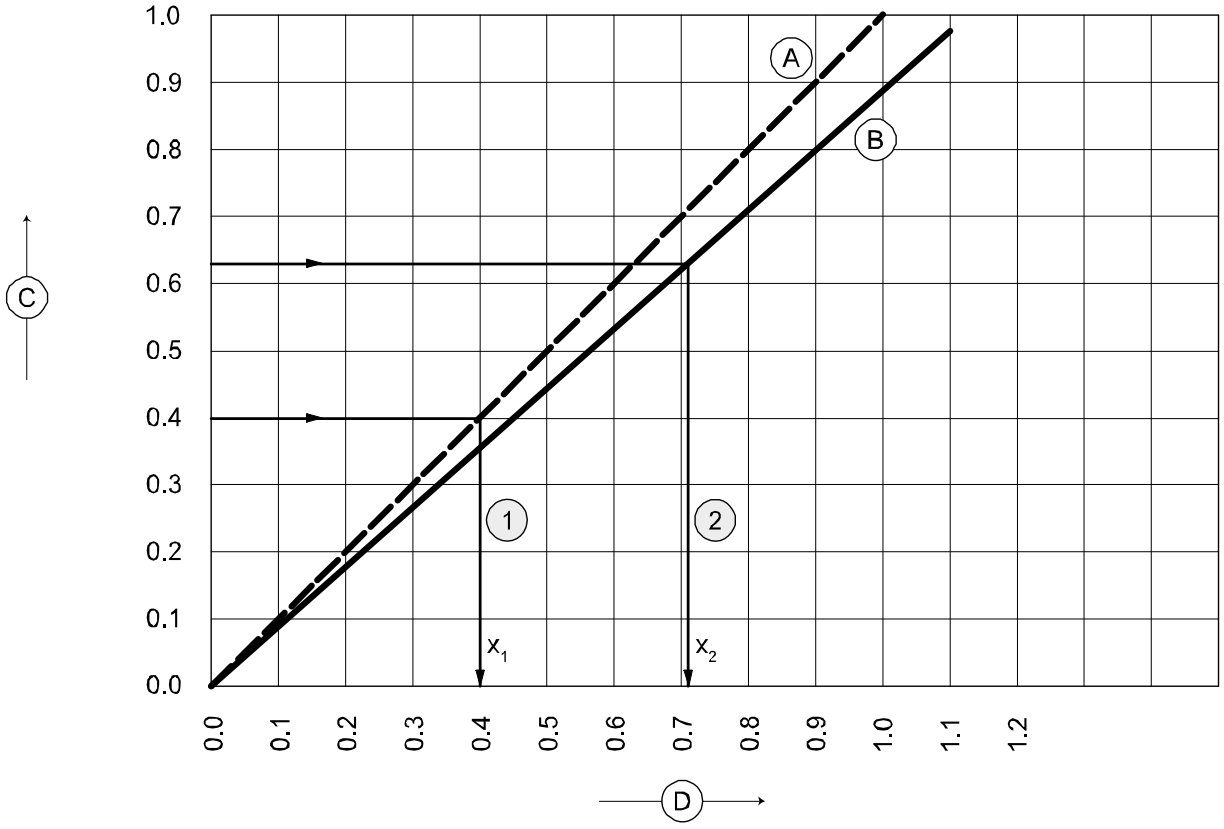


* Configurable via software, GND-active/ +24V-active (applies to all inputs K1 ... K8) Default GND-active

2 Interfaces

2.2 Positioning of the deceleration switches

Guidelines for positioning the deceleration switches



Item	Description
1	Deceleration distance ”X” for direct (1:1) drive e.g.: v = 0.4m/s, x1 = 0.4m
2	Deceleration distance ”X” for indirect (2:1) drive e.g.: v = 0.63m/s, x2 = 0.71m

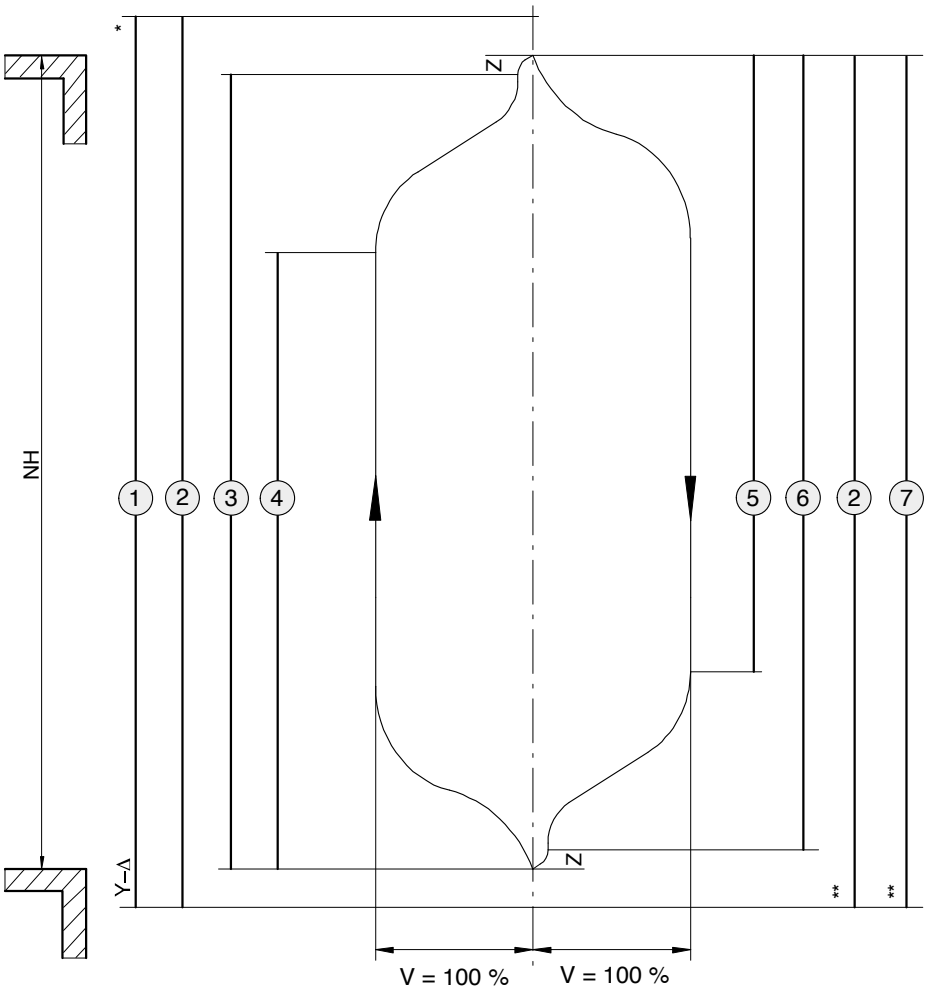
Item	Description
A	Direct drive (1:1)
B	Indirect drive (2:1)
C	Car speed [m/s]
D	Distance of deceleration switches before landing [m]

IMPORTANT!:
Correct positioning of the deceleration switches is important for the proper functioning of iTeach. The separation distance must be the same at all stops. The distance must match the setting of the "deceleration" parameter. Parameter 6 for UP direction and Parameter 7 for down.

2 Interfaces

2.3 Travel and switching diagram

ATTENTION!:
Uncontrolled lowering of the cabin It must not be given a DOWN command if the motor is running!



Item	Description
1	Motor contactor ON
2	Travel relays FR/FR' closed
3	K2 “Slow UP” is present
4	K1 “Fast UP” is present
NH	Normal distance between floors
*	Enginrun, Drop-out delay of 0.5 ... 1 s after drop-out of K2, dependent on soft-stop lengths
Z	Soft stop

Item	Description
5	K3 "Fast DOWN" is present
6	6 K4 "Slow DOWN" is present
7	7 UCM/A3 DOWN relays NR/NR' closed
	Y starting time up to approx. 3 s with Y-Δ, Y-Δ normally 0.5s. K1 and K2 not until Δ-DELTA connection
**	Drop-out delay of 0.5 ... 1 s after drop-out of K4, dependent on soft-stop lengths

IMPORTANT!: The travel relays FR/FR' must be closed for travel UP AND DOWN Y - STAR Δ - DELTA

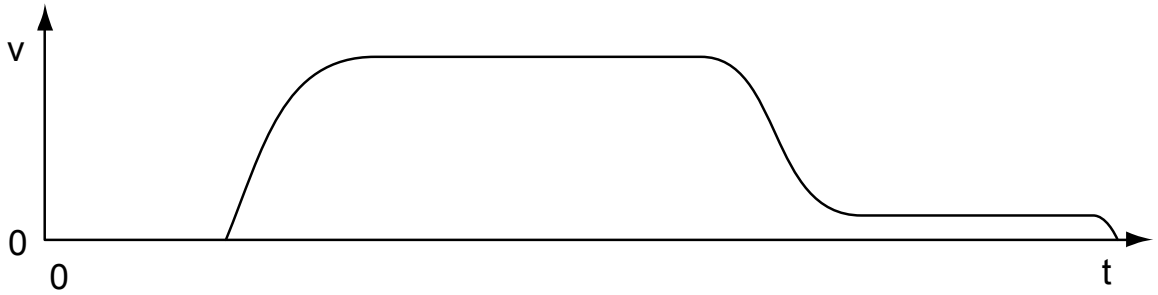
2 Interfaces

2.4 iTeach

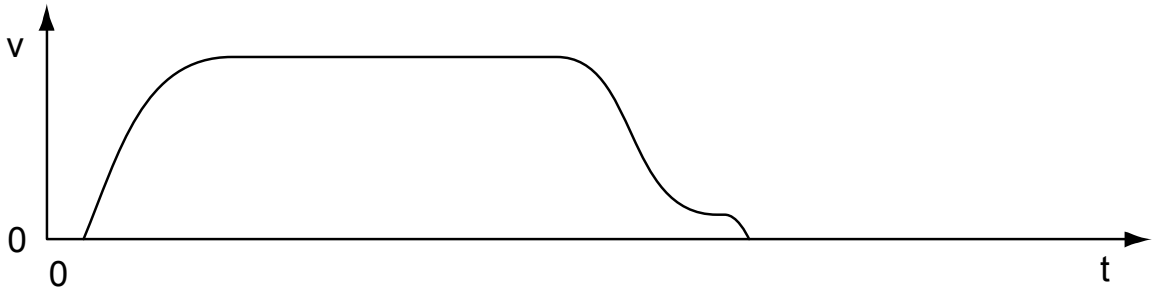
iTeach comprises self-learning algorithms in order to optimise the following dimension:

- S Starting time UP and DOWN (iTeach function T1)
- S Slow speed duration UP and DOWN (T3)

Typical travel curve without iTeach:



Typical travel curve with iTeach:



iTeach characteristics:

- iTeach can be switched on and off individually by function and travel direction
- When switched on: i Teach adjusts continuously i.e. each new travel is optimised
- Maximum allowed correction (i.e. deviation from factory setting) can be parametrised
- ITeach optimisations are not stored permanently, i.e. iTeach starts all over again after every power-on
- Only a few travels are required to come satisfactorily close to the optimum

IMPORTANT!:
iTeach for the starting time (T1) always leave switched on, otherwise the current cabin load will not be taken into account when regulating the bypass pressure.

After setting slowing distances run lift with iTeach Active the ride will optimise after no more than 20 lift travels.

NOTE:
All slowing distances must be equal and in accordance with chart on Page 8.

3 Product description

3.1 Handterminal

Keys

1 Menu direction-dependent parameters
2 Menu direction-independent parameters
3 Menu iTeach / adjustments / tests
4 Menu functions / information
↑ Steps to previous parameter
↓ Steps to next parameter
\+ Increases the value of the current parameter
\- Decreases the value of the current parameter

Connection

- Connect the handterminal to the iCon using the cable provided
- Connecting cable is a standard ethernet network cable

7.1.1 Description of function

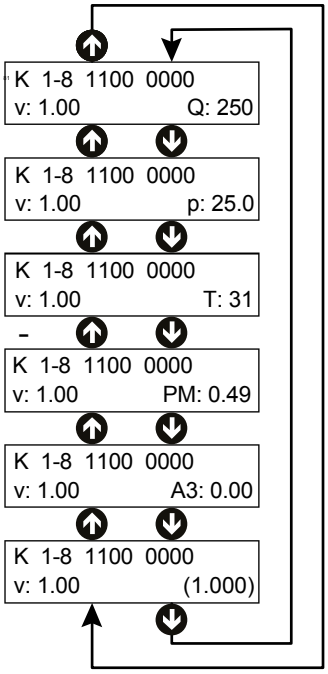
- By pressing any of the keys 1 to 4 the program switches from the run mode to the menu mode. Travels can be executed nevertheless, however, setting changes will be applied only after the end of the travel
- Select the desired parameter using the ↑ or ↓ key
- Increase value with + key, de crease value with – key
- Set parameter to factory setting value: keep + key pressed, then press – key
- Set parameter to maximum value: keep + key pressed, then press □key
- Set parameter to minimum value: keep –key pressed, then press □key
- With ↑ or ↓ key, save the value and return to parameter selection
- With keys 1, 2, 3 or 4, do not save the value and return to menu mode

Note: In order to quit menu mode:

- Either press keys ↑ and ↓ simultaneously (changes to the currently displayed parameter are saved)
- Unplug cable and wait for about 3seconds (changes to the currently displayed parameter are NOT saved)
- For the change language option, use key 2

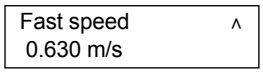
3 Product description

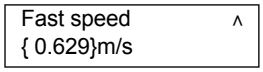
3.1.1 Description of function

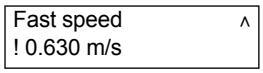


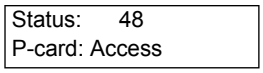
Example: Display in run mode

- The first line always indicates the state of the command signals K1 … K8
- The left part of the second line always indicates the current speed (v) in m/s.
- Pressing the or key changes the indication in the right part of the second line:
- Indication of current flow Q in l/min
- Indication of current pressure p in bar
- Indication of current temperature T in °C
- Indication of current solenoid current UP/DOWN (PM) in A
- Indication of current solenoid current UCM/A3 (A3) in A
- Indication of current demand speed in m/s







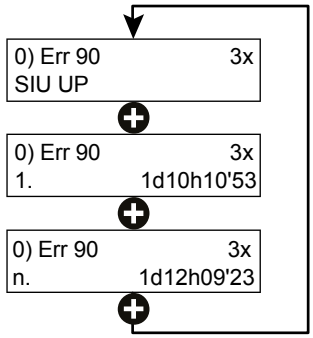


Example: Display in menu mode, parameterisation (menu bar 2)

- Default indication
- Parameter value is being edited, indicated value not yet saved
- Invalid parameter value (saved value outside permissible range, value could not be read, …), indication of default value

Example: Display in menu mode, event log, status (menu bar 4)

- Default indication
- Indication with error present

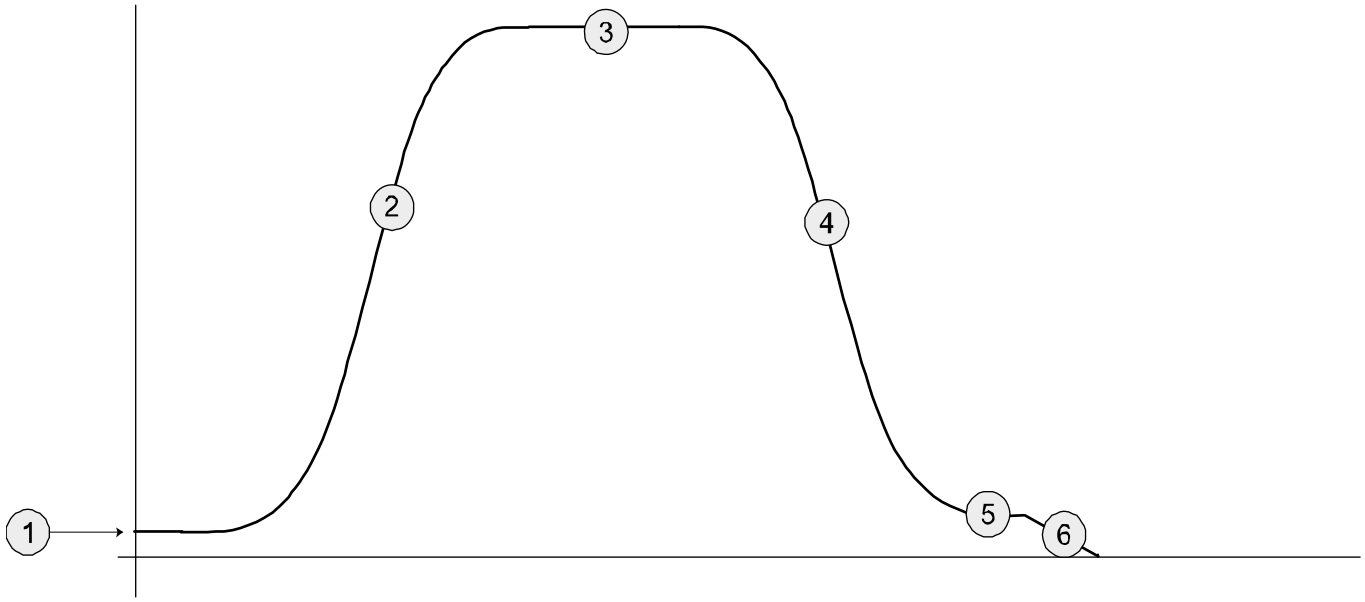


Example: Display in menu mode, event log, status, error/event stack (menu bar 2)

- Basic indication
  1st line: list entry, error/event no., number of occurrences
  2nd line: description
- 2nd line: reading of operating hour counter at first occurrence
- 2nd line: reading of operating hour counter at last occurrence (if error occurred more than once, else change to basic indication)

4 Operation

4.1 Overview of travel curve parameters

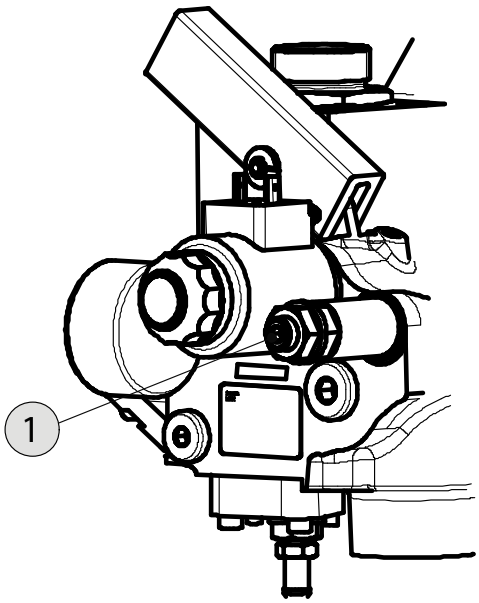


Legend	**1**	Start speed	**4**	Deceleration
	2	Acceleration	**5**	Slow speed
	3	Fast speed	**6**	Soft-Stop

5 Mechanical adjustment/testing

5.1 Check/setting of the max. operating pressure (EN 81-2, art. 12.5.3)

i250



To check the minimum static load pressure (with empty car):

1. Read the minimum static load pressure on the pressure gauge with lift empty at bottom floor
2. Compare the minimum static load pressure on the Quality-Certificate with actual minimum static system pressure on the pressure gauge
3. If the difference is more than 5bar, but less than 10bar: decrease or increase the maximum pressure setting valve resp. by the amount of the difference (see below)
4. If the difference is more than 10bar: contact the customer service

Adjusting the maximum pressure (Pressure relief adjust)

1. Slacken the locknut for screw (1)
2. Turn screw (1) approx. 2 turns counterclockwise
3. Bypass the overload pressure switch (switching output s1)
4. Press emergency-lowering lever until a relevelling is triggered and close the ball valve immediately (before the relevelling is completed)
5. Slowly turn screw (1) clockwise until calculated pressure is reached
6. Tighten locknut for screw (1)
7. Open the ball valve
8. Remove the bypass from the overload pressure switch (switching output s1)
9. Overwrite the value of the max. pressure setting valve given on the Quality-Certificate with the new value

5 Mechanical adjustment/testing

5.2 Pipe rupture valve test

A precondition for testing the pipe-rupture valve is that the lift must be working properly, without any faults.

DANGER!

Uncontrolled descent (free fall)

Leads to death or serious injuries.

Before testing the pipe-rupture valve, make sure that there are no people or materials in the lift shaft.

1. Load the car to half of its rated capacity

ATTENTION!

Do not carry out the test if the car is too close to the lowest floor.

2. Drive the car to the top floor
3. Prepare the Handterminal

ATTENTION!

Uncontrolled descent (free fall)

Can cause damage to the support frame and car.

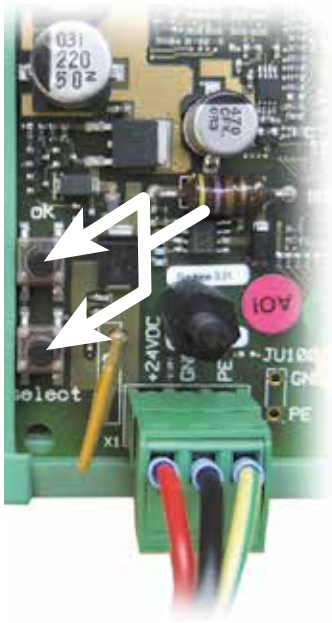
The elevator car must come to rest within 3 … 5 metres.
If it does not, immediately release the push buttons on the iCon.
Resolve the problem and repeat the test.

ATTENTION!

Pipe rupture valves do not close completely leakage free.
In case of a simulated pipe rupture, as described in this test procedure, the leakage causes the pipe between the pipe rupture valve and the lift control valve to assume the same pressure as the hydraulic cylinder after a certain time.
This pressure compensation causes the automatic reopening of the pipe rupture valve.
This does not impede the safe function of the pipe rupture valve in case of an actual pipe rupture, since in case of an actual pipe rupture the pipe between the rupture valve and the lift control valve would remain pressure-less, the pressure compensation would not occur.
If the pipe rupture valve is meant to remain closed after the test, the pipe between the rupture valve and the lift control valve must remain pressure-less, e.g. by continuous pressing of the manual emergency lowering valve.

5 Mechanical adjustment/testing

5.3 Carrying out Pipe rupture valve test with Handterminal



1. On the Handterminal select menu 3, then “Adjust./tests”, then “Pipe rupt. test”

The LED ”down“ on the iCon starts to flash.

2. On the iCon press and hold the push buttons ”ok” and “select”

3. Send DOWN command

4. Wait until the car is accelerating
   The LED ”down“ on the iCon flashes faster.

When the triggering speed is reached, the pipe rupture valve closes and travel stops.

	ATTENTION!
	If one of the two buttons "ok" or "select" on the iCon is released during this examination before the pipe rupture valve has tripped, the iValve closes immediately and the down travel is stopped. When using the Handterminal the max. actual value / maximum speed is shown on the display.

In order to finish the pipe rupture test sequence properly:

5. Withdraw the DOWN command

6. On the handterminal, press the "-" key

7. In order to reopen the pipe rupture valve and make the lift ready for service: build up pressure using the hand pump or carry out an UP travel

For further information regarding the adjustment and troubleshooting please refer to the manufacturers information supplied with the equipment or download from **www.hydratec-lifts.co.uk/about/downloads**

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