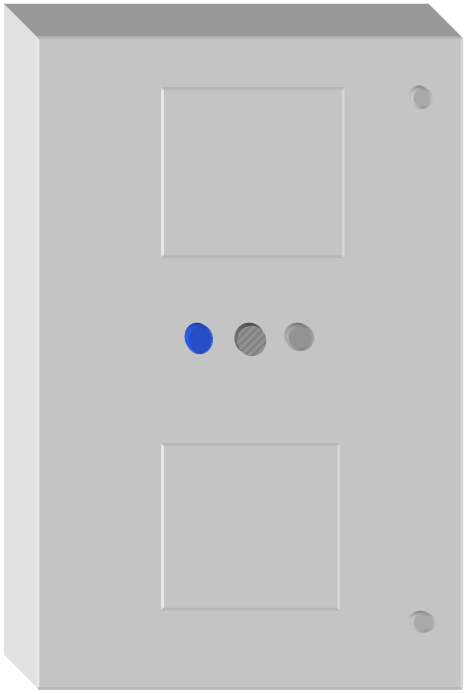
Hylite

Hydraulic Lift Control System



Lifteknic Limited
11 Victoria Road • Chester • Cheshire CH2 2AX
Tel. +44(0)1244 389690 • Fax. +44(0)1244 389691
www.lifteknic.co.uk

General Information

The manufacturer accepts no liability for any consequences resulting from inappropriate, negligent, incorrect installation or adjustment of the optional operating parameters of the equipment.

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

Contents:

LIFTEKNIC

Declaration Of Conformity

The Hylite control system has been designed and manufactured in accordance with the following European, national and international standards:

EN12015 : 2004	EMC Emissions
EN12016 : 2004	EMC Immunity
NEN-EN81-1 / NEN-EN81-2 *	Type Examination

*(article 14.1.1, 14.1.2.3, annex H)

Paul Catherall
General Manager

Lifteknic Limited
11 Victoria Road
Chester
Cheshire
CH2 2AX
Phone +44(0) 1244 389690
Fax +44(0) 1244 389691
http://www.lifteknic.co.uk

This controller is intended to be used with an appropriate motor, drive, electrical components and other equipment to form a complete system.
It must only be installed by a professional who is familiar with the requirements for safety and electromagnetic compatibility (EMC).
The installer is responsible for ensuring that the end product complies with all the relevant laws of the country of installation.

1 Safety Information

Assessment of risks during installation of lift control equipment

Personnel

All installation, commissioning and servicing of electrical and electronic components within the lift control system must be performed by, or supervised by, suitably qualified personnel (i.e. personnel that have appropriate training and knowledge of regulations that allow them to judge the quality of the work performed and identify the possible dangers).
Any personnel working on Lifteknic products are responsible for their own safety.

Documentation

All documentation supplied with the lift control system must be made available to personnel working on the lift control equipment, with particular attention being paid to the safety notices and the recommendations contained therein.
This manual is not contract specific and must be read in conjunction with the contract electrical diagrams related to the specific lift installation(s).

Residual dangers

Residual dangers that exist when installing or working on lift control equipment are listed below.

Danger to personnel

Danger to life

- Risk of electric shock from live parts when working on electrical equipment.
- Risk of falling down the lift shaft when working on the car top or in the lift shaft

Risk of injury

- When moving or lifting control cubicle if equipment falls or tips over
- When working in lift shaft while lift is moving
- When working on control equipment that may be very hot due to recent use

Damage to equipment

- Risk of damage to control componentry due to excess voltages or short circuits

This list is not considered exhaustive and due consideration for the safety of personnel and equipment must be exercised at all times.

Compliance with regulations

Observation of and adherence to all applicable safety regulations, guidelines and statutory instruments is the pre-requisite for avoiding injuries to personnel and damage to the lift/elevator installation during its installation, maintenance and repair.

Reference BS7255 - Safe working on Lifts.

Warnings

Throughout this manual, important safety advice and danger warnings are emphasized with the following symbols:


General danger warning.


High danger risk warning.


Potential component damage from improper installation.


Important information sign.

Liability and Guarantee

This manual is intended for use by personnel who are familiar with the installation and maintenance of lifts/elevators. It is essential that they possess sufficient knowledge of lift/elevator construction.
Lifteknic Limited does not accept responsibility for damage incurred through unauthorised or improper actions carried out in contradiction of these instructions thereby compromising the performance or integrity of the product.
The guarantee obligations of Lifteknic Limited are rendered void if the equipment is used other than as described in these instructions.
No modifications or alterations to the circuits or components to be made without consultation and permission.

2 System Overview

Introduction

The Hylite control system is the product of many years experience and investment in lift control technology. Based on the Qube control system it is optimised for use with hydraulic lift systems.

Design & Build Quality

Only the highest quality components and manufacturing techniques are used throughout production, resulting in a highly reliable product that can be considered without question as a sound investment in the future of a lift installation.

Floor Capability

The Hylite control system serves up to 8 floors in any call mode (i.e. APB, non-selective collective, down collective or full collective) with all signals being wired directly back to the controller.
Where DDA compatibility is required, a landing CAN network is utilised and the landing calls and associated call registration buzzer are interfaced to the main controller via a universal interface, connected to the landing CAN network at each floor.

Door Capability

The Hylite control system provides controls for a single door operator but may be configured to operate two door operators in non-selective mode to suit the specific application.

Pump systems

The Hylite system can be adapted to suit any site condition and is available to suit any pump format that includes the following:
Star Delta
Direct on line
Soft Start

Some of the valve blocks currently supported by the Hylite lift control system are;

- Omar (Wittur)
- GMV
- Blain
- Bucher
- Algi

The philosophy behind the Hylite dictates that an interface to any pump/valve system must be possible, allowing maximum flexibility and choice for the end-user or installer.

3 Hardware Overview

3.1 Hylite Power System

Safety circuit voltage - 110Vac
Signal voltage - 24Vdc

3.2 Hylite Motherboard (QMB)

Power supply connector (JP25)
24Vdc supply from PSU

Car CAN (port 1 on JP23)
CAN port for expansion I/O modules, position system encoder & Qube DMI in the lift car.

Landing CAN (port 2 on JP30 & JP18)
CAN port for landing calls, duplexing data & Qube DMI on landings.

Landing feature CAN (port 3 on JP13)
CAN communication port for additional per lift landing signals.

Serial port (P1)
Serial port for downloading new software.

Inputs (JP6, JP8 & JP4)
The inputs to the Hylite control system are connected to the left-hand side of the motherboard. Each of the three connectors has an earth pin and a common pin.
In the case of the 110Vac inputs (1-16), the common track must be connected into the control circuit return, between the supply and the return feed of the main contactors.
This is to ensure that if a problem arises with the safety circuit monitoring inputs that the main contactor return path is disabled (i.e. preventing further movement of the lift).

The input connections are arranged in the following way;
Input Connector 1 (JP6) Inputs 1-8 110Vac - safety circuit
Input Connector 2 (JP8) Inputs 9-16 110Vac - safety circuit
Input Connector 3 (JP4) Inputs 17-24 24Vdc - positioning signals

Outputs (JP2, JP3, JP5 & JP7)
All the outputs on the Hylite motherboad (QMB) are fed via an Output Enable relay (OEN). This relay, mounted on the top left-hand side of the QMB, ensures that the supply for the output relays is only switched on if the main program is functioning correctly.
If the main program does not execute in the correct way, the output enable relay will be released causing all output relays to be released.
The output connections are arranged in the following way;
Output Connector 1 (JP2) Outputs 1-4
Output Connector 2 (JP3) Outputs 5-8
Output Connector 3 (JP5) Outputs 9-16
Output Connector 4 (JP7) Outputs 17-24

3.3 CPU Module

The central processor module contains the Hylite software employs a software and hardware watchdog, that monitors code execution and resets the device if a problem is detected.

3.4 HMI - Human Machine Interface

The on-board HMI (Human Machine Interface) comprises a 4 line x 20 character LCD module with 4-buttons and is a simple to use, fully featured user interface that allows easy access to the Hylite system information.

Functions accessible through the HMI are listed below;

Entering calls
Setting up contract specific parameters
Securing floors
Monitoring data
Viewing system events
Setting time and date, etc.

(see sections 4, 5 & 6)

3.5 Expansion I/O Module (Inputs 24vdc)

The standard expansion I/O module consists of;

i) Expansion node
   2 digital I/O (can be configured as inputs or outputs)
ii) Expansion I/O card's x 2
   8 opto-isolated inputs
   8 relay outputs

These boards are mounted alongside the QMB motherboard behind the perspex cover inside the controller.
The cover is idented to give a clear indication of all the input and output signals for easy diagnosis and fault-finding.

3.6 Speech Card

The speech card (if fitted) is mounted on a bracket at the top of the controller.

3.7 Power Supply Unit

A switch mode PSU is utilised for all electronics and signal supplies.

Input voltage	-	85Vac - 250Vac
Output voltage	-	24Vdc @ 100W

3.8 CAN Networks

The Hylite control system includes 3 CAN networks as follows;

Car CAN (JP23)
CAN port for expansion I/O modules, position system encoder & Qube DMI in the lift car.

Landing CAN (JP30 & JP18)
CAN port for landing calls, duplexing data & Qube DMI on landings.

Landing feature CAN (JP13)
CAN communication port for additional per lift landing signals.

The basic network topology for each network is exactly the same, with a line loading resistor of 120 ohms being fitted at either end of each network as shown below.

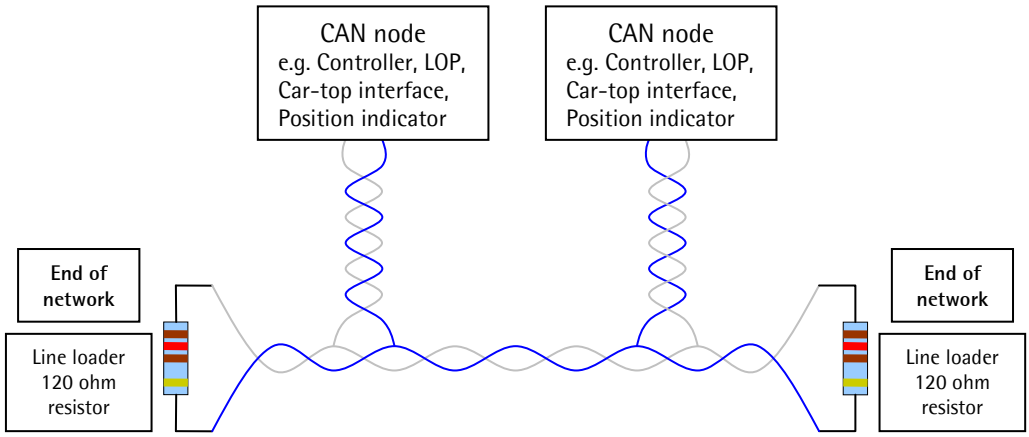


Fig: CAN Network Topology

Usually, the maximum number of CAN nodes on any one network is 64. However, this may be extended by fitting a CAN bridge.

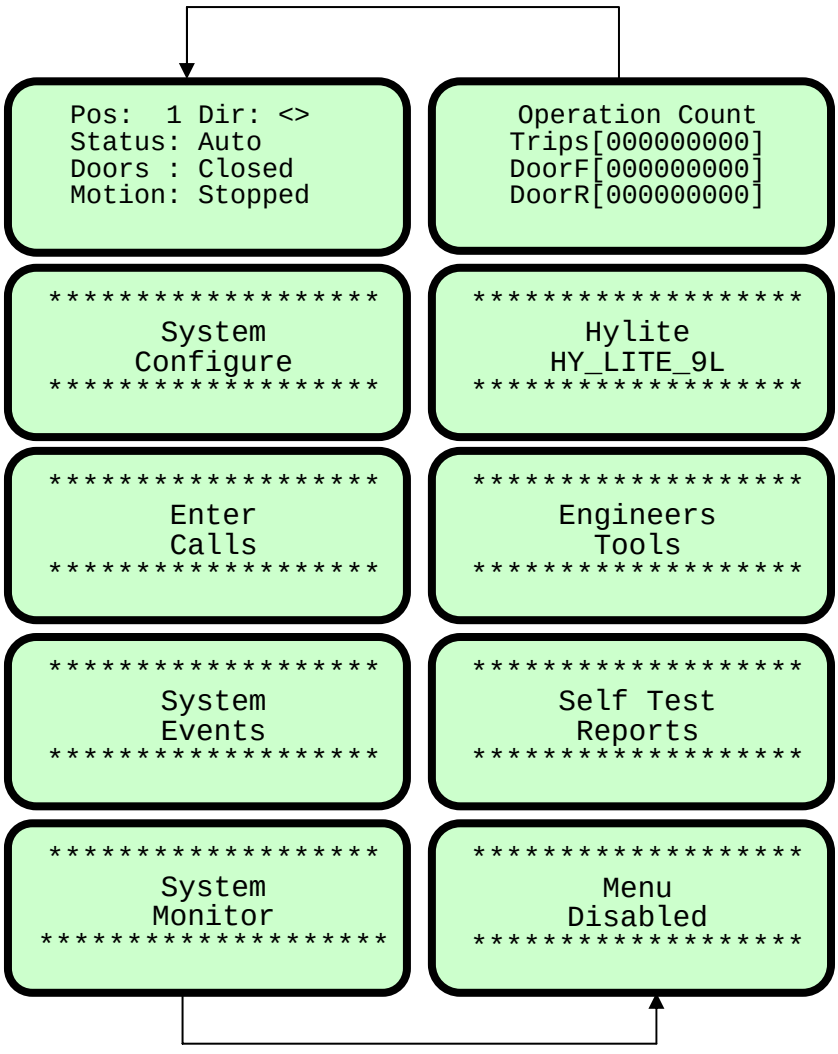
4 System Operation

The Hylite firmware is contained in Flash memory on the CPU board mounted on the Hylite motherboard. Firmware updates can be loaded into the CPU via the serial port P1 located on the top right-hand side of the QMB.

The Hylite parameters can be modified by the user in the menu system, accessible via the MMI mounted on the QMB or via the Handheld MMI.

4.1 Menu Structure

The main menu (status display) is shown after a power-up or CPU reset.



Press ↑ (anti-clockwise) or ↓ (clockwise) to view each screen in turn, then press E to enter.

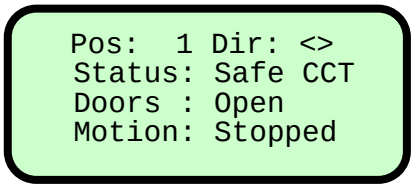
4.2 Menu Options

Main Screen	Setting Summary	
System Configure	Timers	Tim1 Hall Dwell
		Tim2 Car Dwell
		Tim3 Rev Dwell
		Tim4 DJR Time
		Tim5 Low Speed
		Tim6 Re-level
		Tim7 Nudge Time
		Tim8 Pre-open
		Tim9 Door Hold
		Tim10 Stop Delay
		Tim11 Retry Time
		Tim12 Homing
		Tim13 Brake Switch
		Tim14 Car Light
		Tim15 Door Protection
		Tim16 Car Preference
		Tim17 Star Delta
		Tim18 PWR Sve Tim
		Tim19 PWR Recover
		Tim20 Zero Speed
		Tim21 Brake Lift
		Tim22 Brake Set
		Tim23 Hyd Homing
		Tim24 Sec Homing
		Tim25 Idle Time
		Tim26 Close Limit
	Contract	See Table in Section ??
	Speeds	PSE Resolution
		Handwind Speed Limit
		SMU Percentage
		Contract Speed
		Door Zone Speed

	Time & Date	Set Time
		Set Date
		View Time & Date
	Call Maps	Config Blank Floors - Front
		Config Trigger Strategy - Car Front
		Config Trigger Strategy - Up Call Front
		Config Trigger Strategy - Dn Call Front
		Config Blank Floors - Rear
		Config Trigger Strategy - Car Rear
		Config Trigger Strategy - Up Call Rear
		Config Trigger Strategy - Dn Call Rear
	Save Config	Save All Settings
Enter Calls	Front Car Call	
	Front Hall Up Call	
	Front Hall Down Call	
	Rear Car Call	
	Rear Hall Up Call	
	Rear Hall Down Call	
System Events	View Log	100 Events Max.
	Download Event Data	
	Download Parameters	
	Place Engineers Entry Stamp	
	Reset & Clear Event Table	
	Reset Operations Counters	
System Monitor	Front Call 1-16	
	Front Call 17-32	
	Rear Call 1-16	
	Rear Call 17-32	
	QMB Input State	
	I/O Block 1 Input State	
	I/O Block 2 Input State	
	I/O Block 3 Input State	
	I/O Block 4 Input State	
	QMB Output State	
	I/O Block 1 Output State	
	I/O Block 2 Output State	
	I/O Block 3 Output State	
	I/O Block 4 Output State	
	Door1 I/O Status	

	Door2 I/O Status	
	PSE System Status	
	Network 1 Status	
	Network 2 Status	
	Network 3 Status	
	Door1 Op/Cl/Pk Status	
	Door2 Op/Cl/Pk Status	
	Cars in Group & Posn	
	ETA Calculation	
	Data	
	Front call flags	
	Rear call flags	
Menu Disabled		
Self Test Reports	View Log	
Engineers Tools	Prepare to Test	ON/OFF
	Door Disable	ON/OFF
	Overtravel Test	ON/OFF
	Auto Run Lift	ON/OFF
	Direct to Floor Disable	ON/OFF
Software Version	e.g. Hylite_9L	
Operation Counter	Journney Counter	
	Front Door Counter	
	Rear Door Counter	

4.3 Status Display



This display provides useful data for the Engineer when working on the system.

a) Position - Indicates the current position status of the control system
- Pos:1 - Current lift position (Single-high speed system only)

b) Direction - Indicates the current direction status of the control system
- Dir: <> - No direction
- Dir: Up (Dn) - Committed direction of travel, lift stationary
- Dir: >Up> (<Dn<) - Committed direction of travel, lift in motion

c) Status - Indicates the current operating mode of the control system
- Automatic - Lift is operating in normal service (accepts all calls)
- Inspection - Lift is operating under car top test control
- Panel Test - Lift is operating under panel test control (local inspection mode)
- Special Sv - Lift is operating under service control (car preference)
- Disable Dr - Automatic door control is disabled
- Safety CCT - The primary safety circuit is broken (e.g. limits, stop push, etc..)
- Fire Srv.1 - Lift being recalled under fire control (e.g. firefighting, alarm, etc.)
- Fire Srv.2 - Lift is operating under fire control
- Shutdown - Lift has shutdown due to non-resettable fault (manual reset)

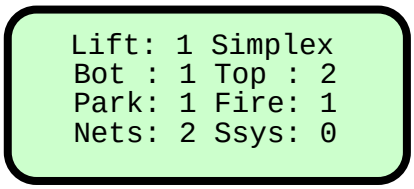
d) Doors - Indicates the current status of door movement
- Closed][- Doors are fully closed. (CL off AND OL on, AND GL on)
- Closing >< - Doors are closing (command to close until closed)
- Opening <> - Doors are opening (command to open until open)
- Open [ ] - Doors are fully open. (CL on AND OL off AND GL off).

e) Motion - Indicates the current status of the lift movement.
- Stopped - The lift is stationary at floor level.
- Starting - The lift is starting to move away from floor level.
- High Speed - The lift is travelling on high speed.
- Slowing - The lift has been commanded to slowdown.
- Levelling - The lift is in the levelling zone preparing to stop.
- Stop Os DZ - The lift has stopped outside the door zone.
- Car Diving - The lift is searching for a floor to reset the system position.

The status display will show a system event as it occurs.

The event flash on/off on the "Status:" line on the LCD display for 6 seconds, after which the display will revert to "Status:" once again. The event can be cleared immediately by pressing the E (Enter) key.

Pressing and holding the E key whilst on the "Main Menu" screen displays a system summary screen. This screen shows some of the key configuration settings at a glance.

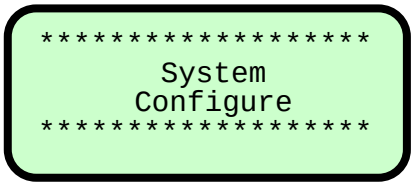


Releasing the E key returns the "Main Menu" screen.

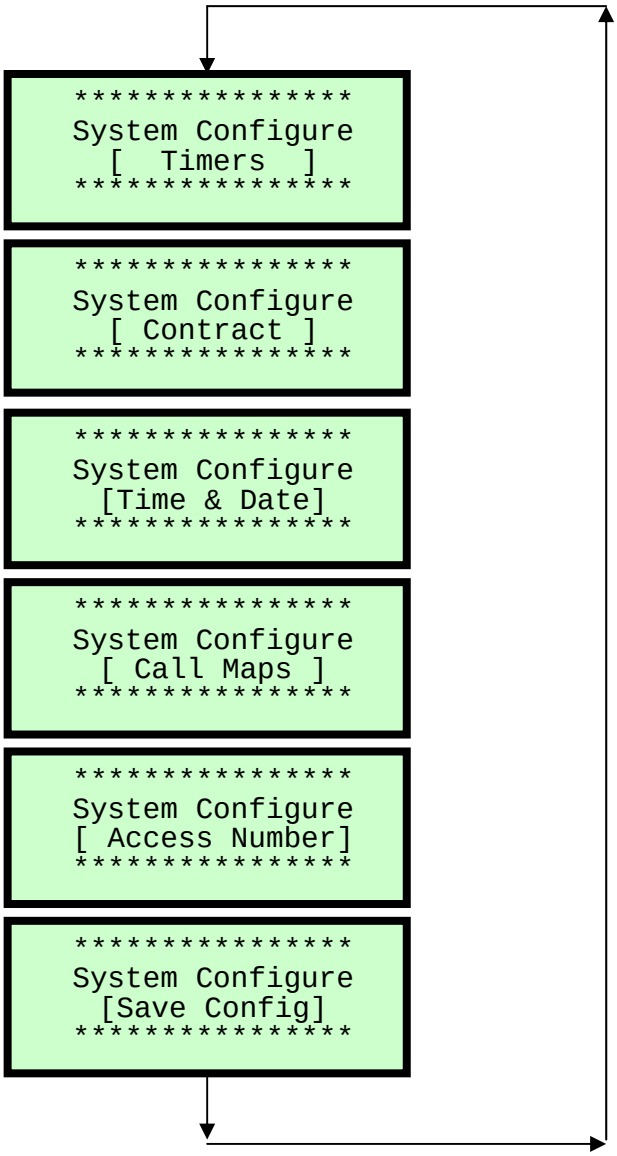
5 Controller Configuration

Ensure that motor data is entered into the drive unit before the first travel on inspection control. Undertake motor self-tune if possible/applicable (refer to appendix for drive specific set-up instructions)

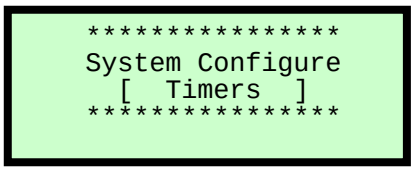
System Configure



From the "System Configure" screen press **E** to access the sub-menu options as shown below Press ↑ or ↓ to view each screen.

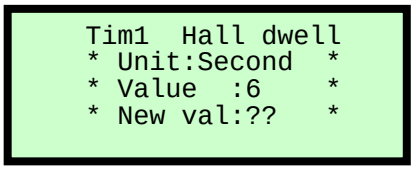


5.1 System Configure [Timers]

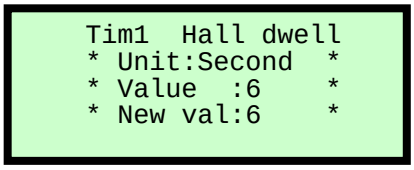


From the [Timers] screen, press E to access each timer to view or change settings (see "Timer descriptions and settings table" for complete list).

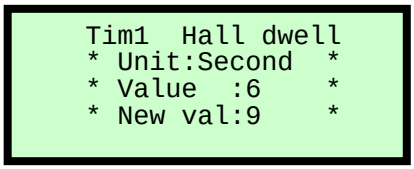
Press ↑ or ↓ to view each timer



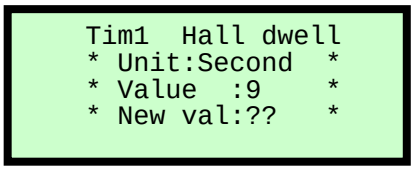
To change a timer setting press E



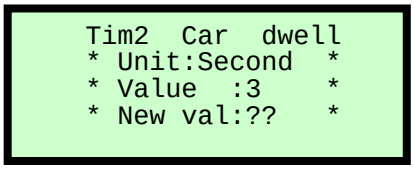
Press ↑ or ↓ to adjust the value



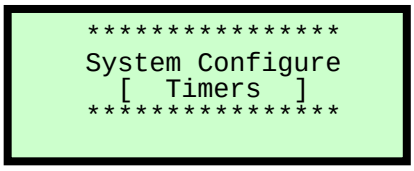
To accept the value press E



Press ↑ or ↓ to view next timer



To exit timer settings, press ←

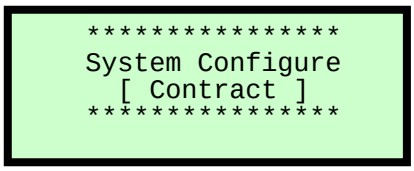


5.1.1 Timer descriptions and settings table

Timer	Name	Description	Def'lt	Max.	Min.	Units
1	Hall dwell	Landing call dwell timer Door open dwell time after the lift has answered a landing call.	6	30	3	Secs
2	Car dwell	Car call dwell timer Door open dwell time after the lift has answered a car call.	3	30	1	Secs
3	Rev dwell	Differential dwell timer Door open dwell time after the doors have been re-opened by a door reversal device.	1	30	0	Secs
4	DJR time	Motor run limit timer. Sets the time allowed for the lift to travel after the MC signal comes on. Timer is reset each time the lift changes position.	45	45	10	Secs
5	Low speed	Low speed limit timer Sets the time allowed for the lift to reach floor after a slowdown from high speed.	30	180	5	Secs
6	Re-level	Re-levelling limit timer. Sets the time allowed for the lift to re-level after the MC signal comes on.	10	20	4	Secs
7	Nudge time	Door nudge timer Sets to time allowed for the doors to be continuously obstructed before nudging is initiated (if set).	20	30	3	Secs
8	Pre-open	Pre-open delay timer. Sets the time between a valid door zone signal and a command to pre-open the doors.	4	40	1	Secs. /10
9	Door hold	Door hold open timer. Sets the time between activation of a door hold push or switch and automatic closing of the doors	60	3600	10	Secs
10	Motor hold	Motor contactor hold timer. Sets the time between the stop signal and the un-conditional release of the motor contactors.	1	80	1	Secs. /10
11	Retry Time	Retry after fault timer Sets the time before the lift tries to automatically re-start after a retry type fault.	180	3600	60	Secs
12	Homing	Primary homing Timer. Sets the time before the lift returns automatically to the main floor after all calls have been serviced.	30	60	5	Secs
13	Brake Swt	Brake Switch Timer. Sets the time allowed for the brake switch to operate after a start command has been issued.	1	7	1	Secs

14	Car light	Car light timer Sets the time before the car light control is switched off after all calls have been serviced.	2	120	1	Mins
15	Door Prot	Door open/close protection time Sets the time allowed for the doors to successfully open or close	9	30	7	Secs
16	Not used		4	30	1	Secs
17	Star Delta	Star-Delta timer Sets the time between a start command and delta contactor command. *Hydraulic or MG set control only.*	4	10	1	Secs
18	MG ShutDn	MG Shutdown time Sets the time before the MG set shuts down after all calls have been serviced. *MG set control only.*	15	60	1	Secs
19	MG DOL Tim	MG Drive On Line time. Sets the time between the MG start demand and the MG running signal coming on. *MG set control only.*	7	30	1	Secs. /10
20	Zero speed	Zero-speed holding time. Sets the time between brake lift confirmed and the generator field reg. pattern enable. *MG set control only.*	7	30	1	Secs. /10
21	Brake Lift	Brake lift time. Sets the time allowed for the brake to lift if brake switch is not available. *MG set control only.*	7	30	1	Secs. /10
22	Brake Set	Brake set timer. Sets the time allowed for the brake to set if brake switch is not available. *MG set control only.*	7	30	1	Secs. /10
23	Hyd Home	Hydraulic dormant parking timer. Sets the time before the lift returns to the bottom level after all calls have been serviced. *Hydraulic only.*	15	15	1	Mins
24	Sec Homing	Secondary homing Timer. Sets the time before the lift returns automatically to the main floor after all calls have been serviced and the primary homing floor has been serviced by another lift in the group. *Duplex or group operation only*	1	5	1	Mins
25	Idle time		1	5	1	Mins
26	Close limit	Close limit overdrive timer. Sets the time between loss of door close limit breaking (Input DCL) and drop of door close signal (Output DCC). Typically required for Schindler QKS door operators	3	20	1	Secs. /10

5.2 System Configure [Contract]



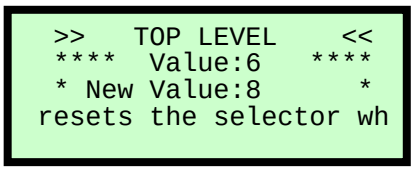
From the [Contract] screen, press E to access each parameter to view or change settings (see "Contract Parameter descriptions table" for complete list).

Press ↑ or ↓ to view parameters.

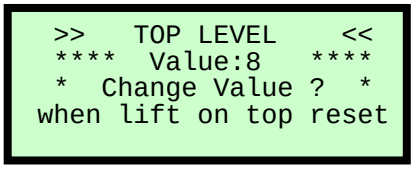
Bottom line of display scrolls a short description of the parameter

To change parameter value press E

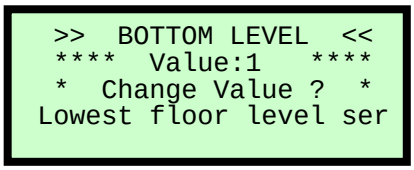
Press ↑ or ↓ to adjust the value



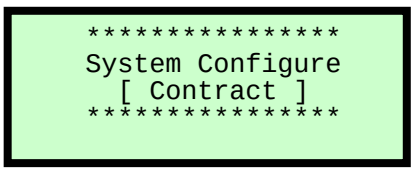
To accept the value press E



Press ↑ or ↓ for next parameter



To exit parameters, press ←



5.2.1 Contract Parameter Descriptions

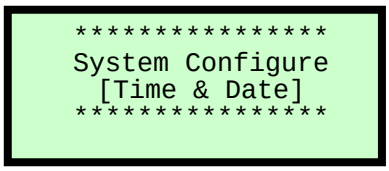
Name	Description	Max	Min
TOP LEVEL	Highest floor level served. This value resets the selector when lift on top reset.	32	2
BOTTOM LEVEL	Lowest floor level served this value resets the selector when lift on bottom reset.	31	1
LOBBY LEVEL	Primary parking/recall floor usually the main/lobby level.	32	1
SECOND PARK LEVEL	Force park level for one other car or zero = Auto calculate.	32	1
THIRD PARK LEVEL	Force park level for one other car or zero = Auto calculate.	32	1
FOURTH PARK LEVEL	Force park level for one other car or zero = Auto calculate.	32	1
FIFTH PARK LEVEL	Force park level for one other car or zero = Auto calculate.	32	1
SIXTH PARK LEVEL	Force park level for one other car or zero = Auto calculate.	32	1
SEVENTH PARK LEVEL	Force park level for one other car or zero = Auto calculate.	32	1
EIGHTH PARK LEVEL	Force park level for one other car or zero = Auto calculate.	32	1
LOBBY PARK OPEN	Sets doors to park open at Lobby level.		
FIRE RETURN LEV	Fire return level – when recall activated.		
FIRE ALT RET LEV	Alternate fire level – if feature implemented 0= OFF.		
FIRE CONTROL TYPE	0=Recall only,1=BS5655,1inp /2=BS5588,1inp /3=BS5655,2inp /4=BS5588,2inp.		
FIRE PARK OPEN	Doors to park open after Fire return when two stage operation.		
ENABLE HOMING	Enable automatic Parking feature.		
DUPLEX ENABLE	Enables Duplex/Group operation Set Car number on lifts, Lowest number is Master.		
CAR NUMBER	Car Number 1-8 – number of this lift in the duplex/group 1 = master when duplex.		
HOLD DIRECTION	ON = direction preference is held until doors are closed, OFF =start to close.		
BEHIND CANCEL	Prevent car calls behind the car's direction of travel.		
NUISANCE COUNT	0 = OFF, Set the max number of car calls allowed with no car entry/exit.		
RESERVED	Enables UP & DN PEAK, 0 = OFF, When set value = No. of down calls to trigger DPK.		
CONST PRESS SRV	Enable Constant press close when on car service control.		
PRE-OPENING	Enables pre-opening of the doors when car slows and in DZ.		

HALL CALL REOPEN	Sets the maximum door reversal count from a Landing call.		
STALL CLOSED	Stall doors Closed – keep door close pilot energised when doors not open/opening.		
STALL MOVING	Stall doors on move – energise door close pilot when lift moving.		
STALL OPEN	Stall doors Open – keep door open pilot energised when doors not close/closing.		
No OF PERSON CAR	Set the max number of persons for car to provide nuisance call cancelation		
ANTI QUICK REV	Set ON to add delay between door open/close change over .		
MAX DOOR REV	Max door reversals allowed before Nudging (when implemented) .		
GONG CHIMES	Chimes - 0=(none) / 1=(1Up,1Dn) / 2=(1Up,2Dn) / 3=(2Up,1Dn) / 4=(2Up,2Dn).		
HALL LANTERNS	OFF = External Hall lanterns connected, ON = Indicator display used for Hall lanterns.		
NO ROLL DISPLAY	Prevents the position indicator display from rolling when Hylite Ind's used.		
2 SPEED DISPLAY	Changes roll speed on position indicator display on slowing when Hylite Ind's used.		
POSITION DISPLAY	1=GF,1-63/2=LG,GF,1-62/3=LB,B,GF,1-61/4=LB,B,LG,GF,1-60/5=1-64/6=B,GF,1-62/7=Custom		
POSITION OFFSET	Position offset value :- can be used to add an offset to POSITION CHARS.		
SPEECH OFFSET	Speech offset value :- can be used to add an offset to speech messages.		
VERTICAL HALL IND	When set the Hall position display is rotated 90 degree's (Overridden by Indicator Switch).		
VERT CAR IND	When set ON the Car position display is rotated 90 degree's (Overridden by Indicator Switch).		
INSPECTION MESS	When on test ctrl ON= ENGINEER ON SITE, OFF= OUT OF SERVICE (Display >V7.n only) .		
SECURE STRATEGY	Secure. 0=OFF/1=Input/2=Up calls/3=Down calls/4=Car calls/5=Up & down calls/6=All calls.		
CYCLE LIFT/LEVEL	Cycle. 0=OFF/(n)=Lift will travel between the LOBBY LEVEL and (n) continuously.		

	Start of factory settable parameters		
TYPE OF CONTROL	Type of call control – 1=Full/2=Down/3=Non Selective/4=FAPB		
TYPE OF DOORS	Type of doors – 1=Automatic/2=Swing landing/3=Manual gates		
INVERT TFR/BFR	Invert the terminal reset switch signals, default is N/O		
BINARY SPEED	Convert speed selection to Binary		
LAND FEATURE NET	Selects the network used for Pos Ind's/Hall lantern 1= STD/2=JP13 for group		

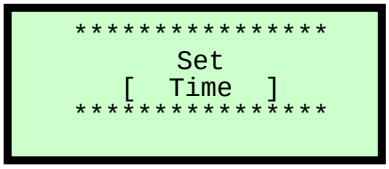
DISCRETE ACCEPT	Enables use of discrete accept messages on 2x2 & 4x4 (V7.n or higher)		
NUDGING ENABLE	Door nudging enable (reduced torque closing of doors)		
ZONE LOCK MODE	Zone locking invert (OFF = ZLR OFF WHEN DOORS IN USE, 1= ITS INVERSE)		
DRIVE SELECTION	6=Hydraulic_STND, 8=Hydraulic_ELRV		
FIRE SWT RESET	This enables the Fire operation Phase 2 to be reset to Phase 1 10sec delay		
RE-LEVEL ENABLE	This enables the Re-levelling operation		
NUM OF ENTRANCES	Sets the number of door entrances e.g. FRONT AND REAR = 2		
SELECTIVE DOORS	Set to enable fully selective rear door entrance functions		
TEST DOOR LIMITS	This enables the car door limits to be referenced when on inspection		
DEBOUNCE JP6	This value allows input loss to be delayed in 40ms increments		
IND LANGUAGE	1= English,2= Francais,3= Deutsch. Text on indicators		
HOT_TEST x10	Number of stops for Hot Testing		
FLOOR MASKING	Open-Fail masking of floor levels from landing calls OFF= Disable, ON= Enable		
SE_PHASE_1	Enables safety edge to work on phase 1 fire service OFF= Disable, ON= Enable		
QUICK CLOSE	Enables Quick Close 0 = Off, 1 = 4 Wire Calls 2 = 3 Wire Calls		
SHOW BLANK FLOORS	If set to 1 shows blanked floors on the indicators		
INVERT SAFE EDGE	If set to 1 Safe Edge is N/C else if set to 0 N/O contact is used		
LCD INDICATOR MODE	Sets mode of LCD Indicators		
TEST BOARD MODE	Set this parameter to enable board test mode		

5.4 System Configure [Time & Date]

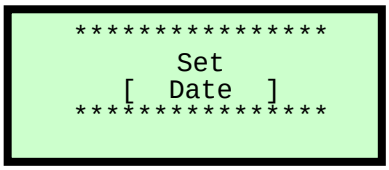


From the [Time & Date] screen, press E to view or change the time and date settings.

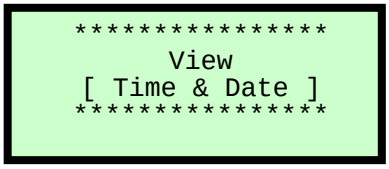
Press ↑ or ↓ to for options.

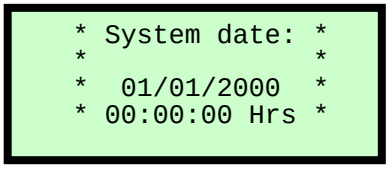


To change time or date, press E

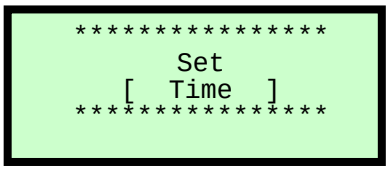


To view current settings, press E

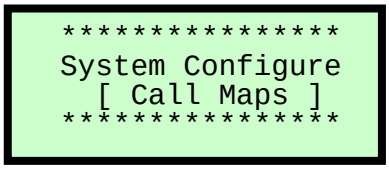




To exit parameters, press ←



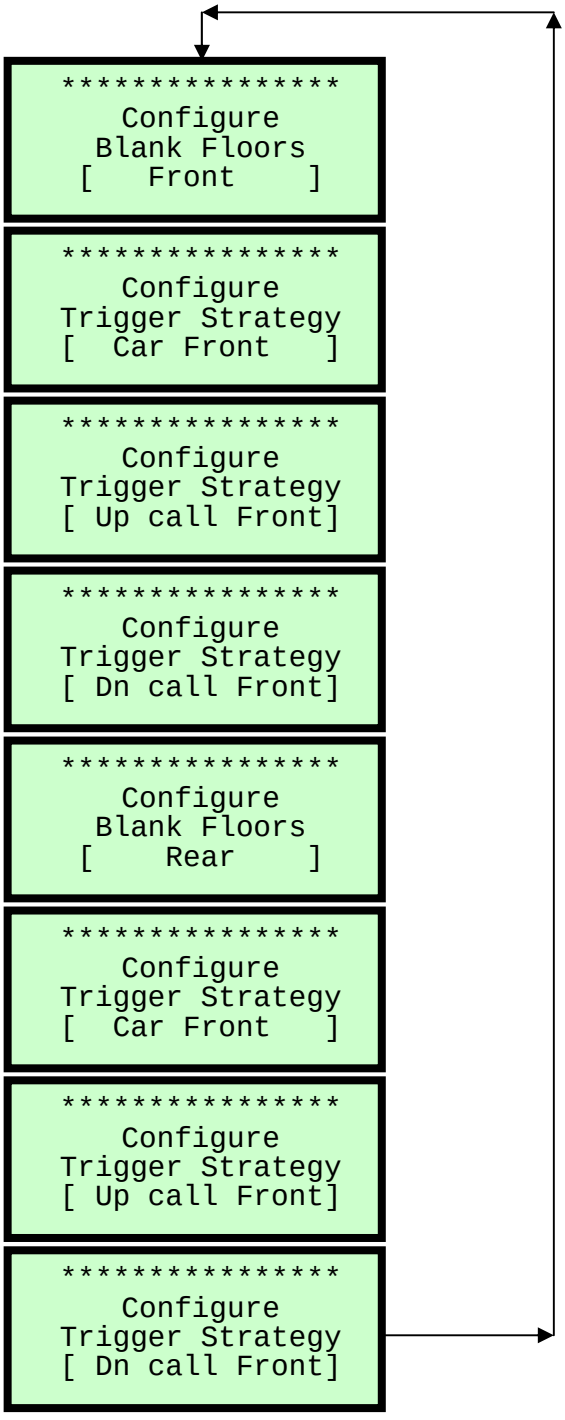
5.5 System Configure [Call Maps]



From the [Call Maps] screen,

Press E to blank off a floor, or to secure / unsecure specific entrances in the building.

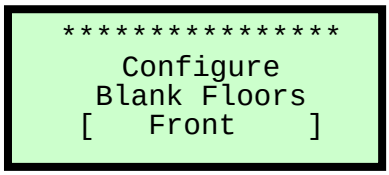
Press ↑ or ↓ to for options.



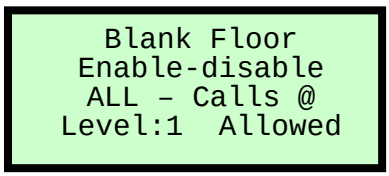
To exit Call Maps, press ←

When the lift serves front & rear entrances, the car & landing calls for any entrance not served by the lift should be blanked out using the "Blank Floors [Front]" & "Blank Floors [Rear]" functions.

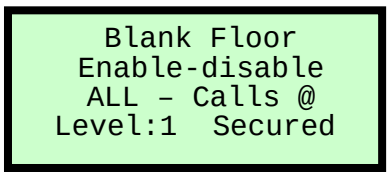
To blank a front floor, press E



Press ↑ or ↓ to select floor

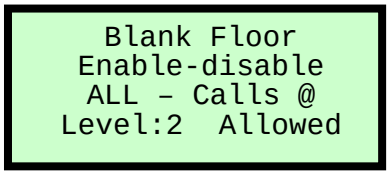


To blank the floor, press E

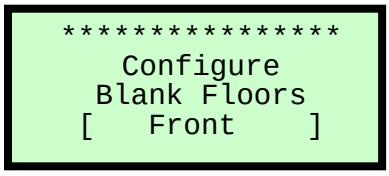


Note: Pressing E toggles the blank floor status between Allowed/Secured

Press ↑ or ↓ to select next floor



To exit, press ←



Individual calls may be secured in a similar way by using the Trigger Strategy screens (shown on previous page).
Once set up, these strategies can be implemented on an input (keyswitch, timeclock etc.,) to allow securing of specific calls by building security systems or by setting the "SECURE STRATEGY" parameter in "System Configure [Contract]".

5.6 System Configure [Access No.]

All of the user adjustable parameters in the Hylite controller are accessed via the keypad located on the main motherboard or via the Handheld MMI unit.
These parameters are all located in the "System Configure" menu. However, when the controller is powered up the most of the sub-menu options are locked.

Access Code for adjustment (firmware before Hylite_9 only)

The code **15:01:20** must be entered in the sub-menu **"Access Code"** to unlock the other sub-menu options available in the "System Configure" menu. Once this code is entered and confirmed, access to all "System Configure" sub-menus is enabled.

At

```
**********
System Configure
[Access No.]
**********
```

press E to view

```
**********
Access Number
[00:??:??]
**********
```

Using ↓ or ↑ buttons, enter number **15** and then press E to view

```
**********
Access Number
[15:00:??]
**********
```

Using ↓ or ↑ buttons, enter number **01** and then press E to view

```
**********
Access Number
[15:01:00]
**********
```

Using ↓ or ↑ buttons, enter number **20** and then press E to view

```
**********
Access Number
[15:01:20]
Set Number ?
```

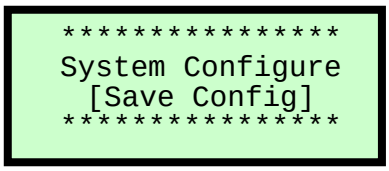
Press E to view

```
**********
Access Number
[15:01:20]
Access Enabled
```

then press ← to return to the main screen.

Access is enabled for approx 30 minutes after entering the code. After this time, or after a processor reset, access is denied and the code must be re-entered.

5.7 System Configure [Save Config]

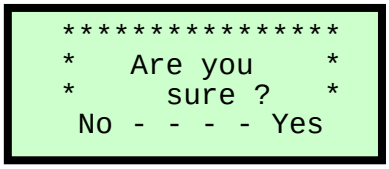


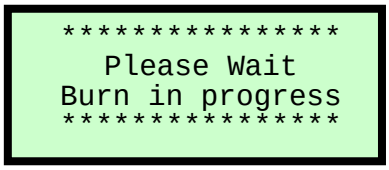
From the [Save Config] screen, press E to save the current configuration.

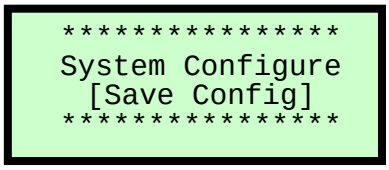
To save settings, Press E

To confirm save, Press E

Or press ← to exit





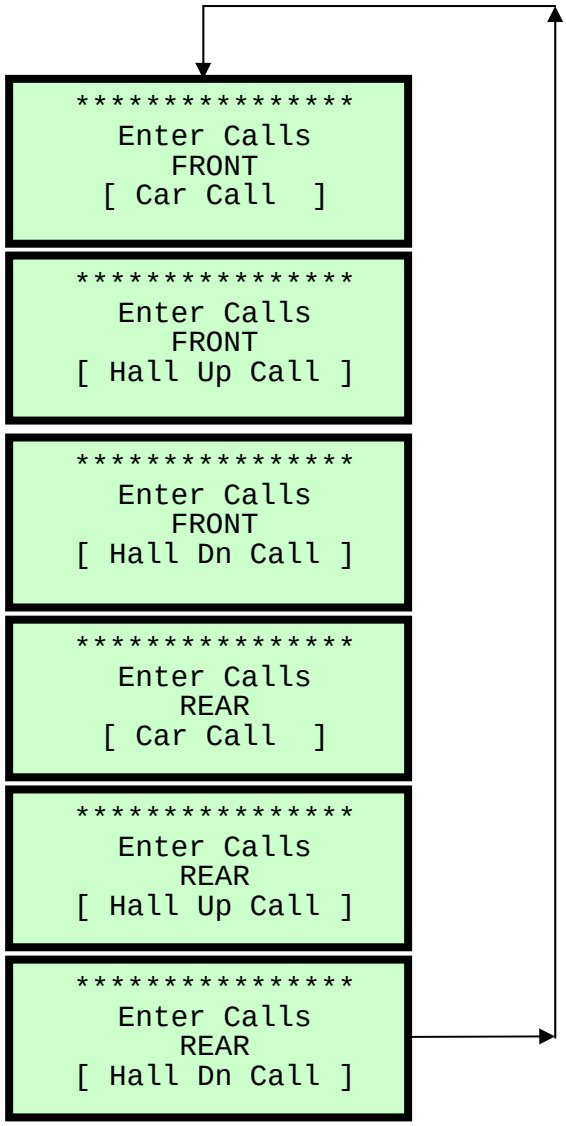


To exit, Press ←

6 Enter Calls

When the lift is operating on Normal Control, it is possible to enter any "allowed" call via the keypad, described as follows.
Checking the "System Monitor" will indicated which calls are allowed/secured.

From the "Enter Calls" screen press **E** to access the sub-menu options as shown below Press ↑ or ↓ to view each screen.



6.1 Entering a Car Call

Each of the "Enter Calls" functions work in the same way

To enter a front car call, press **E**

```
****************
   Enter Calls
      FRONT
   [ Car Call  ]
```

Press ↑ or ↓ to select floor

```
Ent Call at:2
Pos:1
Doors : Closed
Stopped M/s 0.00
```

To enter call, press **E**

```
Ent Call at:2
Pos:1  Done
Doors : Closed
Stopped M/s 0.00
```

Note: If call is accepted, "Done" is displayed but if the call is secured or the lift is not on Normal control, then "Failed" is displayed.

Press ↑ or ↓ to select next floor

```
Ent Call at:4
Pos:2
Doors : Closed
Stopped M/s 0.00
```

To enter call, press **E**

```
Ent Call at:4
Pos:2  Failed
Doors : Closed
Stopped M/s 0.00
```

To exit, press ←

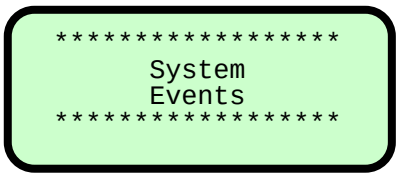
```
****************
   Enter Calls
      FRONT
   [ Car Call  ]
```

7 System Events

The Hylite Micro has a large number of specific event messages, designed to give concise information about the operating history of the control system.
The event messages provide information about the operating mode of the lift controller (e.g. Fire Control, Special Service etc..) and fault finding information in the event of a fault or failure.
The event logger stores up to 100 events and when the event logger is full, a new event is stored and the oldest event drops out of the log.

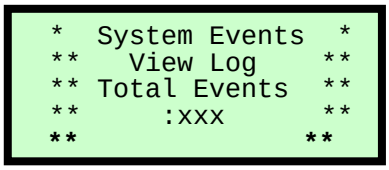
7.1 Accessing System Events

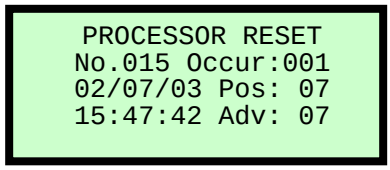
To access the "System Events" screen, press ↓ or ↑ from the "Main Menu" screen, until the following screen appears.



Press E to enter the system event menu and use ↓ or ↑ to view the system event options.

Accessing Event Logger



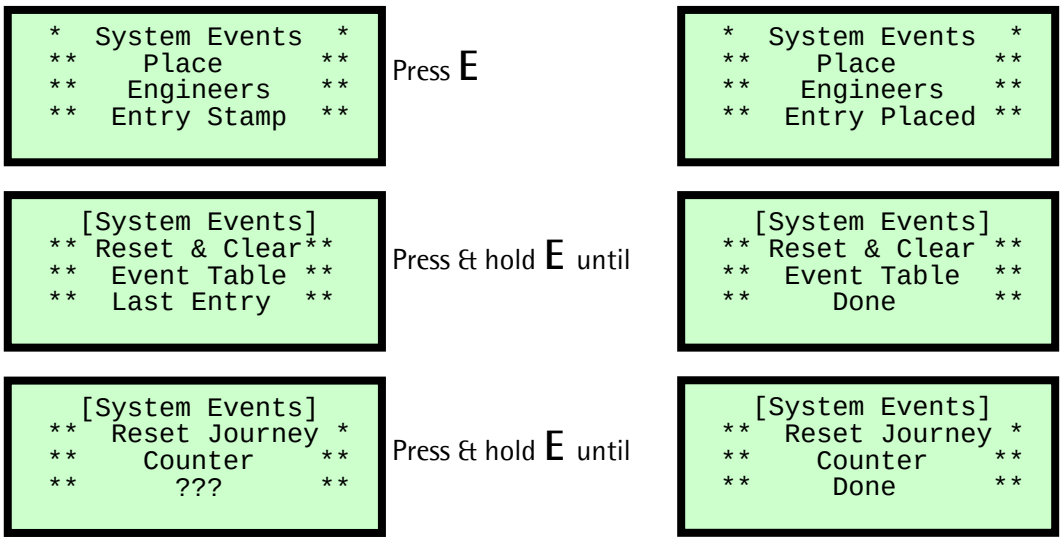


Event Screen Detail
EVENT TEXT
No. – position of event in log
Occur - number of occurrences of a given event since the log was last cleared.
Date - dd/mm/yy
Pos – actual position when event occurred
Time - hh:mm:ss
Adv - advance position when event occurred

Pressing E whilst a given event is displayed will show a line of help text that scrolls across the bottom of the screen.

Pressing E again will show the status of the QMB inputs/outputs at the instant of the event.

Resetting the event log, journey/door operation counters and placing a marker event in the event log can all be done in the "System Events" menu by accessing the screens shown below.



Note: The event log and the journey/door operation counters should always be reset/cleared before putting the lift in service after initial installation only.

7.2 Event message descriptions

A complete listing of events is shown below along with a short description.
** The help text that is displayed on the LCD screen is shown in italics **

Event	Name	Description	Event Type
0	SYSTEM CHECK OK		Standard
1	GATE LOCK 1 TIP	Car gate contact opened during travel. Error is logged if GL1 signal is lost unexpectedly during travel. Lift will stop immediately, unless re-levelling or ADO is in progress.	Standard
2	DIRECTION ERROR	Lift is travelling in the wrong direction. Error is logged if TFR signal comes on during down travel or BFR signal comes on during up travel.	Standard
3	SAFETY CCT OPEN	The primary safety circuit has been interrupted. Error is defined by the simultaneous lost of NORM, TEST & EMOP inputs.	Disable calls _park open_retry
4	DOUBLE JOURNEY	The motor run time limit has been reached. Error is logged if the system does not receive a position stepping signal within the "DJR Time" after the MC signal comes on.	Disable calls _park open
5	START FAILURE	The lift has failed to start . Error is logged if the system does not receive MC signal within a few seconds of a start command being given.	Standard
6	FAILED TO ESC DZ	The lift has failed to escape from floor after starting. Error is logged if the system does not lose the floor level or door zone signals within a few seconds after the MC signal comes on	Standard
7	DRIVE OFF SHUTDN	The drive is off-line and the system has shutdown. Error is logged if the drive ok signal is lost. When in this condition the system will attempt to reset the drive (if available).	Disable calls _park open_retry
8	MC LOST IN MOTN	The lift has stopped unexpectedly during travel. Error is logged if the main contactor feedback signal MC has been lost without a stop command being issued by the system.	Standard
9	LOW SPEED TIMER	The lift has failed to stop after slowdown. Error is logged if the system does not receive a stop signal within the "Low speed time" after the slowdown signal is given	Standard
10	LEVELING FAILURE	The door zone/levelling signals have operated incorrectly. Error is logged if one of the door zone or levelling signals stays on during normal travel. Any ADO or re-levelling operations are subsequently disabled.	Standard
11	DOORS HELD	The doors have been held open excessively by lift user	Standard
12	DOOR OPEN FAIL	The doors have failed to open fully. Error is logged if the DOL signal is not lost within the	Standard

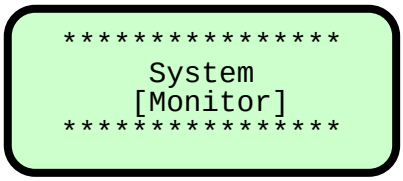
		"Door protection time" after the open command is given.	
13	SYSTEM CHK OK 1		Standard
14	GATE LOCK 2 TIP	Landing gate contact opened during travel. Error is logged if GL2 signal is lost unexpectedly during travel. Lift will stop immediately, unless re-levelling or ADO is in progress.	Standard
15	EVENT DOWNLOAD	The event log data has been downloaded from the controller via the serial communications port.	Standard
16	FIRE CONTROL	The firemans control switch adjacent to the main floor landing entrance has been activated.	Standard
17	SPECIAL SERVICE	The service/goods keyswitch in the lift car has been activated	Standard
18	CAR STATION LOST		Standard
19	LAND PUSH LOST		Standard
20	ALARM PRESSED	The Alarm button in the lift car has been pressed	Standard
21	ENGINEERS ENTRY	The engineer has entered a reference marker in the event list	Standard
22	CLOCK RESET	The real time clock on the motherboard has been reset or adjusted via the MMI	Standard
23			
24	BRAKE LIFT FAIL	The mechanical brake has failed to lift correctly	Standard
25	RESERVED 1		Standard
26	INSPECTION CTRL	The selector switch on the car-top has been switched to inspection	Standard
27	OUT OF SERVICE	The lift has gone out of service due to a fault	Disable calls _park open
28	EMERGENCY RETURN	The emergency recall system has been activated	Standard
29	MULT CLOSE FAILS	Doors have failed to close after 3 consecutive attempts	Standard
30	MULT OPEN FAILS	Doors have failed to open after 3 consecutive attempts	Standard
31	PFRR FAULT	The supply fault monitoring device has been operated	Standard
32	CLOSE FAILED	The doors have failed to fully close within the allowed time	Standard
33	UP FROM TOP	The lift has attempted to travel up from the top floor	Standard
34	DN FROM BOTTOM	The lift has attempted to travel down from the bottom floor	Standard
35	NO DIRECTION SET		Standard
36	PROCESSOR RESET	The Hylite processor reset push has been pressed	Standard
37	DRIVE OFF LINE	The drive regulator is offline but may be reset	Standard
38			
39			

40			
41	JOURNEY CNT RST	The journey counter has been reset via the MMI	Standard
42	LAZY HANGER TIP	The lazy hanger contact has been lost during travel	Disable calls _park closed
43	EEPROM ERROR	There is a problem with the EEPROM that stores the system configuration data	Disable calls _park open
44	NET 1 PROCESS	CAN network 1 (car/expansion I/O) has been reset	Standard
45	CAR OVERLOADED	The 110% load switch has been activated whilst the lift is stationary	Standard
46	MULT START FAILS	The lift has tried to start three consecutive times without success	Standard
47	CAR PUSH STUCK	A car push signal has been present for 3 mins. or more	Standard
48	UP PUSH STUCK ON	A landing up push signal has been present for 3 mins. or more	Standard
49	DN PUSH STUCK ON	A landing down push signal has been present for 3 mins. or more	Standard
50	GATE LOCK BRIDGE	One/both of the gate lock signals is present whilst the doors are open	Cancel calls _pause
51	NET 2 PROCESS	CAN network 2 (landing calls) has been reset	Standard
52	EVENTS CLEARED	The event list has been cleared	Standard
53			
54			
55	CLOSE TIMEOUT	The doors have failed to close successfully (not reached close limit or Gate locks not present)	Disable calls _park open
56	STOP OUTSIDE DZ	The lift has stopped but not in a door zone	Standard
57	CONTACTOR STUCK	Controller contactors have not dropped out before start	Standard
58	BOT RESET SLOW	Bottom slowing limit has been reached without prior slowdown message from position system	Disable calls _park open
59	TOP RESET SLOW	Top slowing limit has been reached without prior slowdown message from position system	Disable calls _park open
60	MULT BRAKE FAULT	The brake has failed to lift after three successive attempts	Disable calls _park open
61	ZERO MOVEMENT	No movement signal from drive has been detected after speed command issued	Cancel calls _pause
62	RAMP SWT FAULT	Door Retiring ramp operated switch has not been detected	Cancel calls _pause
63	EMOP CONTROL	Control system switched to Emergency operation	Standard
64	AUTO CONTROL	Control system switched to Automatic operation	Standard

65	PARAM DOWNLOAD	Program Parameters have been downloaded	Standard
66	MBX TRIGGERED	Lift has slowed on a Music box (speed monitor/policing limit)	Disable calls _park open
69	OVERTRAVEL TRIP	The Overtravel limit has been operated (Hydraulic only)	Disable calls _park open
70	ENGINEER ON SITE	Engineer has logged on via keypad or by switching lift to inspection or EMOP control	Standard
71	ENGINEER OFFSITE	Engineer has logged off via keypad	Standard
72	1000 NEW STARTS	Lift has made 1000 starts since last occurrence of this event	Standard
73	2000 DOOR OPS F	Front doors have opened 2000 times since last occurrence of this event	Standard
74	2000 DOOR OPS R	Rear doors have opened 2000 times since last occurrence of this event	Standard
75	LIFT AVAILABLE		Standard
76	LANDING LOCK 1 TIP	Landing gate lock at floor 1 has opened unexpectedly whilst lift was elsewhere in the shaft.	Standard
77	LANDING LOCK 2 TIP	Landing gate lock at floor 2 has opened unexpectedly whilst lift was elsewhere in the shaft.	Standard
78	LANDING LOCK 3 TIP	Landing gate lock at floor 3 has opened unexpectedly whilst lift was elsewhere in the shaft.	Standard
79	LANDING LOCK 4 TIP	Landing gate lock at floor 4 has opened unexpectedly whilst lift was elsewhere in the shaft.	Standard

8 System Monitor

The "System Monitor" screens give more detailed information regarding the operational state of the Qube microprocessor system.



From the "System Monitor" screen press E to access the sub-menu options as shown below Press ↑ or ↓ to view each screen. As with all the menu sections, the first sub-menu screen will be shown again after the last sub-menu screen.

In this menu it is possible to check the status of the following;

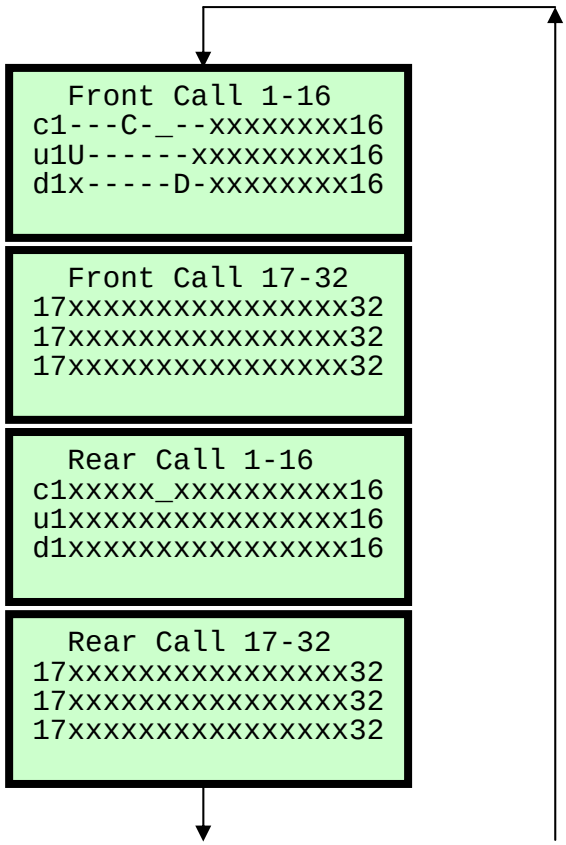
- Floor Maps showing allowed & secured floors/individual calls, registered car & landing calls
- QMB motherboard & I/O block input status
- QMB motherboard & I/O block output status
- Front & rear door flag status
- PSE flag status
- CAN network status

8.1 Floor Maps

The floor maps show which calls are allowed (denoted by "-") or secured (denoted by "x") by floor for both front and rear calls.

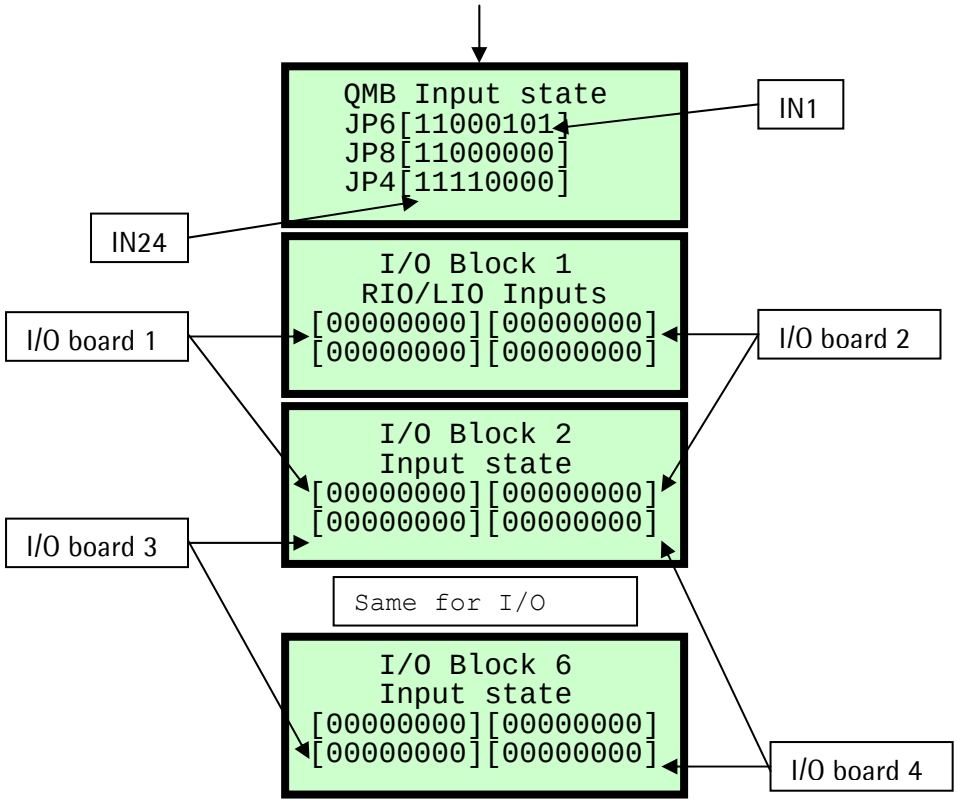
The following screens are shown for 8 floors full collective and where calls are allowed, a registered call will display "C" for a car call, "U" for up landing call and "D" for down landing call.

On the floor map screens shown below, the lift position, denoted by a flashing cursor, is shown at floor 6 on the front & rear screens, a front car call is present at floor 4, a front up landing call is present at floor 1 and a down landing call is present at floor 7.



8.2 QMB Motherboard & I/O Block Input Status

The input status blocks show whether or not that the Qube microprocessor has correctly read and processed the system inputs.
The QMB input state screen shows the motherboard input status, where the JP6 shows IN1-IN8, JP8 shows IN9-IN16 and JP4 shows IN17-IN24. However, in each case the inputs should be read from right to left.



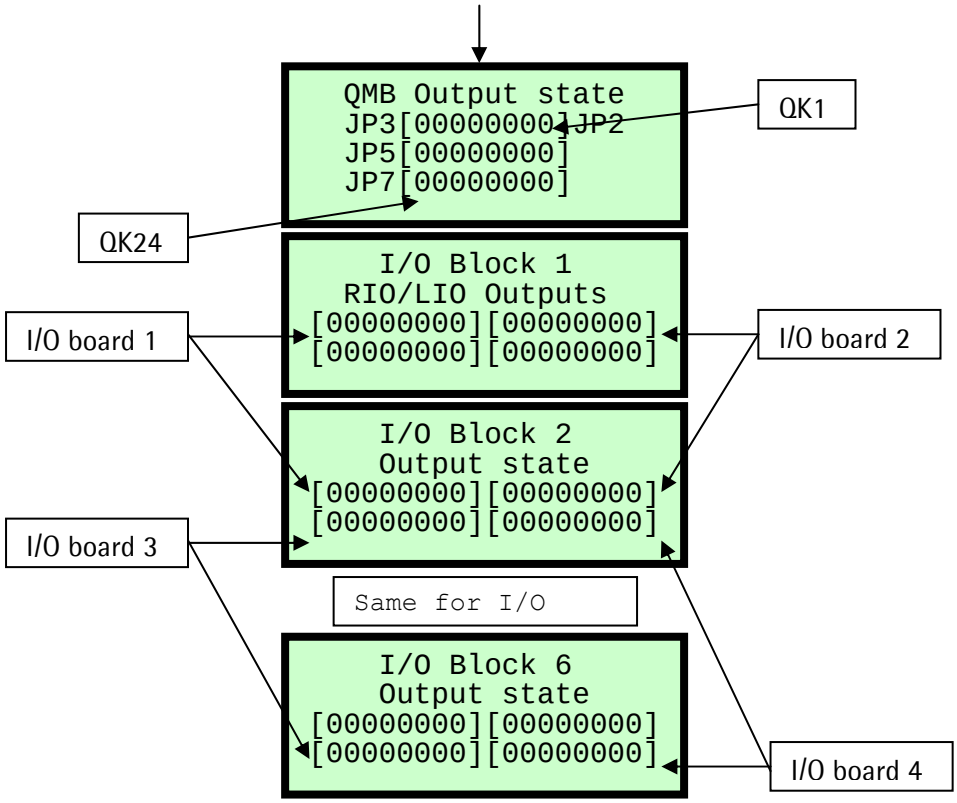
Each I/O Block screen represents the input status of each of the I/O boards attached to one of the expansion node boards, usually addressed as node 1 - 6. The RIO/LIO car interface is always addressed as node 1, other functions have different addresses (see RIO Interface section for details).
On the I/O Block screen, the boards are represented as shown above, and as with the motherboard screen, the inputs for each board block should be read from right to left.

When the input status screens are used in conjunction with the LED's mounted adjacent to each of the input terminal, it is possible to determine whether the software is correctly responding to the hardware state.

8.3 QMB Motherboard & I/O Block Output Status

The output status blocks show which outputs have been switched ON by the Qube microprocessor.

The QMB output state screen shows the motherboard output status, where the JP2/JP3 shows QK1-QK8, JP5 shows QK9-QK16 and JP7 shows QK17-QK24. However, in each case the outputs should be read from right to left.

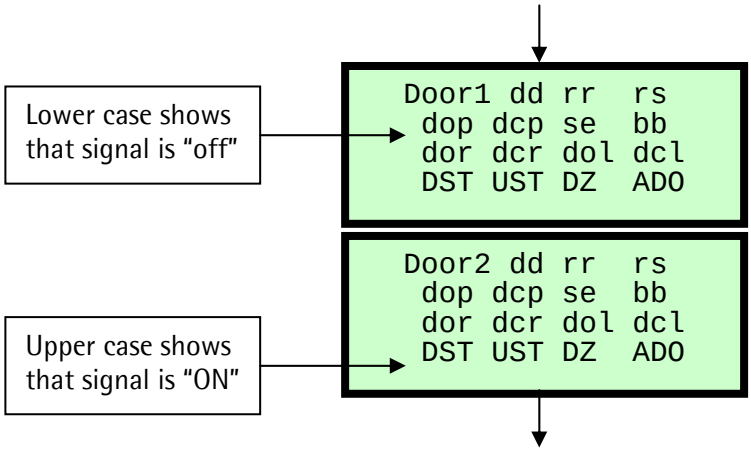


Each I/O Block screen represents the output status of each of the I/O boards attached to one of the expansion node boards, usually addressed as node 1 - 6. The RIO/LIO car interface is always addressed as node 1, other functions have different addresses (see RIO Interface section for details). On the I/O Block screen, the boards are represented as shown above, and as with the motherboard screen, the outputs for each board block should be read from right to left.

When the output status screens are used in conjunction with the LED's mounted adjacent to each of the output relays, it is possible to determine whether the output hardware is correctly responding to the software commands.

8.4 Door Flag Status

The door status screens confirm which of the door related inputs, outputs & parameters have been activated.

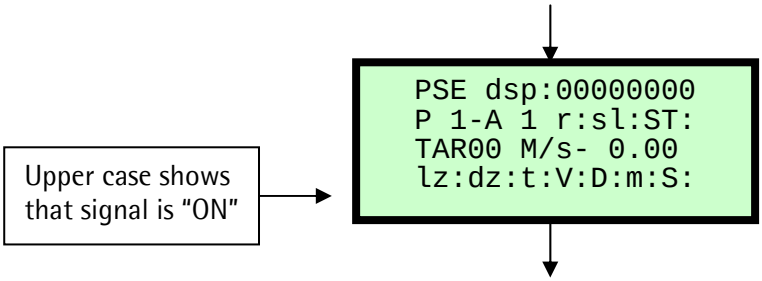


Door 1 screen shows front door status & Door 2 screen shows rear door status, although some of the signals are common to both doors.

Signal	Description
dd/DD	Door Disable Parameter in Engineers Tools menu
rr/RR	Retiring Ramp Output
rs/RS	Ramp Switch Input
dop/DOP	Door Open Push Input
dcp/DCP	Door Close Push Input
se/SE	Safety Edge Input
bb/BB	Broken Beam Input
dor/DOR	Open Door Output
dcr/DCR	Close Door Output
dol/DOL	Door Open Limit Input
dcl/DCL	Door Close Limit Input
dst/DST	Down Slow/Stop Input
ust/UST	Up Slow/Stop Input
dz/DZ	Door Zone Input
ado/ADO	Pre-open Doors Parameter in System Configure [Contract] menu

8.5 PSE Flag Status

The PSE status screen show the status of the internal positioning variables in the Qube & PSE encoder.



dsp:	Door speed (speed at which doors may start pre-opening) set via parameter.
r:	Reset switch (State of position reset switch).
sl:	Slowdown - used to initiate a slowdown sequence.
st:	Stop - used to initiate a controlled stop.
lz:	Level zone - used to identify the relevel zone position.
dz:	Door zone - used to identify the calculated door zone position.
t:	Terminal control – used to identify when system is in setup shaft process.
V:	DPS Valid - used to identify when system is valid i.e been passed the reset switch after power up.
u: or d:	Up or Down – used to identify the rotation of encoder.
m:	Magnet zone – used to identify when the encoder is reading the magnets at each floor.
s:	DPS Setup – used to identify if the DPS has been setup (learnt).

Further information on the PSE system can be found in the Digital Position System Installation Manual.

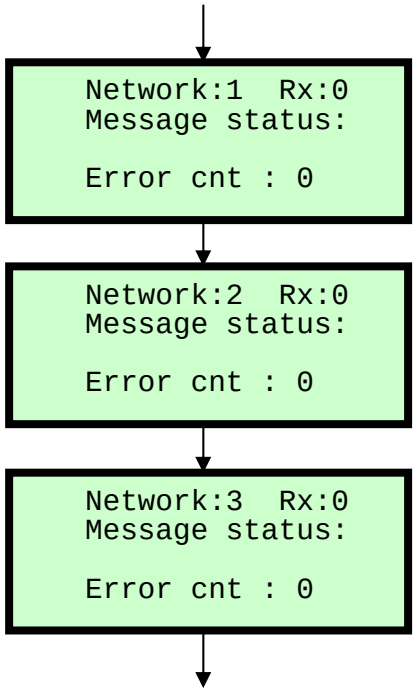
8.6 CAN Network Status

The Network Status screens show the status of the CAN networks on the Qube motherboard.

Network 1 – Car

Network 2 – Landing Group

Network 3 – Landing Feature



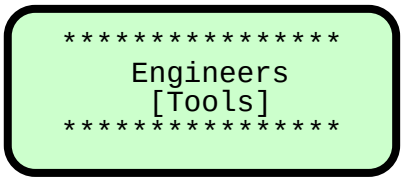
Displays Rx status of each network. When working correctly Rx is changing between 0 and 1 and the error count is 0.

The Message status: displays information regarding the operation of the CANbus for the selected network, where typical messages are - Buss Off, Ewrn 96, RxOk Int, Tx Ok, Stuff Err, Form Err, ACK Err, Bit1 Err, Bit0 Boff, Bit0 Bon, CRC Err, Msg Lost.

9 Engineers Tools

The Engineers Tools menu contains options to assist with commissioning and fault finding.

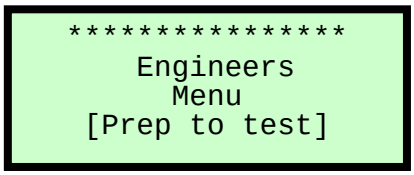
9.1 Using Engineers Tool Options



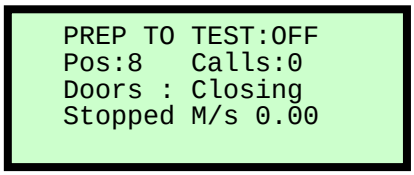
From the "Engineers [Tools]" screen press E to access the sub-menu options as shown below Press ↑ or ↓ to view each screen.

Press ↑ or ↓ to view options.

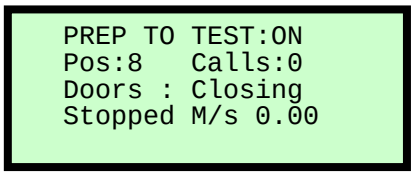
Bottom line displays the option.



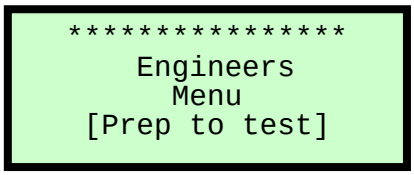
To select the option, press E



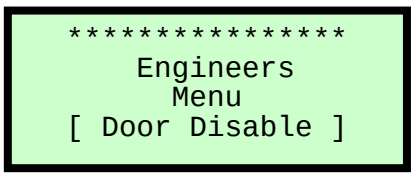
To enable the option, press E



To exit the option, press ←



Press ↑ to view next option.



In each case, select the tool required and then press the E button to toggle ON/OFF.

9.2 Engineers Tools Descriptions

Tool Option	Function
Prep to Test	Disables landing calls to prevent further use of the lift prior to switching to Test / EMOP control. All outstanding landing calls will be cancelled, or transferred where the lift is part of a group of 2 or more lifts. Car calls operate normally until the last call is answered, then the doors will close allowing the engineer to take control of the lift.
Door Disable	Prevents the doors opening after answering a call entered from the controller. This is useful for tuning of the drive system without allowing passengers to use the lift. In this mode, landing calls are disabled and the lift is removed from group operation but car calls can still be entered from the controller or the car.
Over travel test	Allows the lift to be driven beyond the terminal floor stopping switches in order to test the functionality of the final limit switches. Only when operating on EMOP control.
Auto run lift	Automatically runs the lift for a set number of calls as defined by the "HOT TEST x 10" in the System Configure [Contract] menu.
Disable Direct To Floor	Disables floor correction operation by cutting off the floor correction switch input into the CT Unidrive.

In all cases, each engineers tool option will remain ON until turned off or the processor is reset via the reset button or by cycling the power to the motherboard.

NOTE: It is not possible to save the state of an engineers tool option.

10 System I/O Descriptions

10.1 Standard Input Designations on QMB

10.1.1 Hylite Motherboard

Inputs	Key	Description	Plug	Terminal
1	MS2A	Final limit feed	JP6	3
2	MS3	Final limit switch	JP6	4
3	MS7	Normal	JP6	5
4	MS6	Test	JP6	6
5	TUP	Test up push	JP6	7
6	TDN	Test down push	JP6	8
7	GS1	Car gate contact	JP6	9
8	GS2	Landing gate contacts	JP6	10
9	SI1	Door test open	JP8	1
10	SI2	Door test close	JP8	2
11	SI3	Fire Alarm	JP8	3
12	SI4	Fire switch	JP8	4
13	PFRR	Pump fault	JP8	5
14	KD	Pump running	JP8	6
15	K4	Contactor release check	JP8	7
16	LRV	ELRV ok	JP8	8
Warning 24v signals only below				
17	SS1	Top floor reset	JP4	1
18	SS2	Bottom floor reset	JP4	2
19	SS3	Spare	JP4	3
20	SS4	Anti-Creep stop	JP4	4
21	DST	Down stopping signal	JP4	5
22	UST	Up stopping signal	JP4	6
23	DSM	Re-Leveling	JP4	7
24	DZ	Door Zone	JP4	8

10.2 Input Descriptions

NORM (Normal control)
The test switch in the car-top control must be in the NORMAL position and the primary safety circuit must be complete for the NORM input to be present.
When this input is ON, the lift may operate in normal.
Car-top test functions are disabled.
Loss of this input signifies that one of the following conditions is true,
Car-top test switch is in the TEST position.
Primary Safety circuit is broken.

TEST (Car-top test control)
The test switch in the car-top control must be in the TEST position and the primary safety circuit must be intact for the TEST input to be present.
When this input is ON, car top test functions are activated as follows,
Allow movement of the lift in response to the test UP/DN/FST push buttons.
Allow movement of the doors in response to the door test switch.
Control any auxiliary devices related to a demand from 1)&t2) above.
Loss of this input signifies that either,
The test switch in the car top control is in the NORMAL position or,
The primary safety circuit is broken.
Note: Loss of input NORM on the host controller and input TEST on the car top interface signifies a primary safety circuit failure.

GATE LOCK 1 (Car gate contact)
Monitors the state of the car gate contact, this signal must be present before a normal run is allowed. Loss of this signal during travel will cause an emergency stop of the lift.
The gate lock function check ensures that this signal is lost when the doors have opened fully. If the signal is still present with the doors fully open, then the lift will be prevented from further operation.

GATE LOCK 2 (Landing Gate Contacts)
Monitors the state of the landing gate contacts. Operation as GL1 above.
Note: The gate lock circuit may be by-passed during pre-opening of the doors. If the doors reach the fully open position before the stopping sequence has completed the DOL signal will be lost before the gate lock signals (causing the gate lock function check to fail). In this case the software must perform an Emergency stop, ensuring that all movement controls are released immediately. The gate lock function check may then be re-validated.

TOP FLOOR RESET
Monitors the state of the top floor reset switch. When the input is on, the reset switch is made and the microprocessor will synchronise its internal position counter to the top floor set in the system. The lift uses the position of the top floor reset limit as its slowdown point during an upwards terminal floor dive operation to allow a controlled stop at the top floor level.

BOTTOM FLOOR RESET
Monitors the state of the bottom floor reset switch. When the input is on, the reset switch is made and the microprocessor will synchronise its internal position counter to the bottom floor set in the system.
The lift uses the position of the bottom floor reset limit as its slowdown point during a downwards terminal floor dive operation to allow a controlled stop at the bottom floor level.

TEST UP (Car-top Test Up Push)
When the control system is in car top test mode and the test up push button is pressed, TUP input is active and power is fed to the gate lock circuit.
The control will then energise the necessary outputs to allow the lift to move in the up direction at test speed providing the gate lock circuit is made.

TEST DOWN (Car-top Test Down Push)
When the control system is in car top test mode and the test down push button is pressed, TDN input is active and power is fed to the gate lock circuit.
The control will then energise the necessary outputs to allow the lift to move in the down direction at test speed providing the gate lock circuit is made.

DOOR TEST OPEN (Car-top Door Open Test Switch)
When activated, gives the DOOR OPEN output to command the doors to open. Only operates when in Car-top test mode.

DOOR TEST CLOSE (Car-top Door Close Test Switch)
When activated, gives the DOOR CLOSE output to command the doors to close. Only operates when in Car-top test mode.

FINAL LIMIT FEED
Monitors the supply to the Top Final Limit

TOP FINAL LIMIT SWITCH
Monitors the top final limit. If the FINAL LIMIT FEED input is on and the TOP FINAL LIMIT input is lost then the microprocessor will register the fault and shutdown. If the lift sinks down re-making the input, the system will remain in the shutdown state. The power to the lift controller must be switched off/on to reset this condition.

UST/DST (Up/Down Slowing and Stopping signals) * Dual Mode dependant on Door Zone *****
Mode 1 (Door Zone OFF)
Inputs provide the stepping signals from the tapehead e.t.c.t when running on high speed 1.
The internal position counter of the processor is incremented or decremented, depending on the direction of the lift, on the leading edge of the signal, if a call is present at the next floor the lift will slow down on the trailing edge of the signal.
Mode 2 (Door Zone ON)
Inputs are used as stopping signals and also act as levelling signals during re-level operation when the Door zone input is present.

ANTI-CREEP STOP (Re-levelling stop signal)
This input is only monitored during a re-levelling operation. When the lift strays away from the floor level, but remains inside the door zone the input should be in the on position. The input will switch off to give the stop signal after a re-levelling operation has been performed

RE-LEVELLING ENABLE (Advance Door Open/Re-levelling Enable)
When this input is present it means that the safety circuit by-pass module (DSM) is satisfied that the door zone switching sequence has been successfully achieved during the previous operation of the lift.
Unless this input is present, the gate lock by-pass contact DSM(23/24) will not operate.
This means that any operation that allows movement of the lift with open doors, such as advance door opening or re-levelling, will be disabled.

DOOR ZONE
When this input is present, in conjunction with UST or DST, the control board can begin the door open sequence prior to the lift stopping at the target floor providing that the safety circuit by-pass module has verified the door zone switching sequence.
This signal must also be present, in conjunction with UST or DST, in order for re-levelling operation to occur.
This signal is also used to select the function of UST/DST input Stepping or Stopping. See UST/DST

Note: The signals DST/UST/DZ must be proven to have released during the each travel of the lift. An error in operation of one of these signals means that and any operation that allows movement of the lift with open doors, such as advance door opening or re-levelling, will be disabled.

ELRV OK
This input monitors the Fault/Alarm contact from the motor-drive system. This contact should be in the closed position if the drive is on-line and opens if a drive fault occurs.
If a drive fault occurs during a travel of the lift then the an Emergency
stop will occur.

PFRR (HYDRAULIC RECALL)
Checks the status of the pump motor supply/thermistor monitor (PFRR). If a fault is detected, by loss of the input, any travel in the up direction will be aborted and the lift will return to the lowest level and shut down after opening and closing the doors to allow any passengers to vacate the lift car.

PUMP RUNNING
Monitors the lift running contactors indicate that the lift is moving. Failure of this signal to operate, within an adjustable time of a start command, will result in a start failure fault being recorded in the event logger.
The lift doors will cycle before a further attempt to start is made.
Loss of this signal during travel will cause an emergency stop.
A variable, accessible from the keypad will allow the customer to set the number of restarts before the lift is shutdown.

CONTACTOR RELEASE CHECK

This input monitors all the relays, contactors and other devices that should release after each journey.
The input should be present before initialisation, but will be lost immediately after initialisation of each journey.
If the input remains in the off state after the lift has stopped, further use of the lift will be prohibited and a fault will be recorded in the event logger.

DOOR OPEN LIMIT (DOL)

Monitors the state of the door open limit. This input should be off when the doors are in the fully open position and on at all other times. If this signal remains off with the doors fully closed and the gate lock signals present or the doors are fully open and the gate lock signals are still present the gate lock function check ensures that the lift is prevented from further operation.

DOOR CLOSE LIMIT (DCL)

Monitors the state of the door close limit. This input should be off when the doors are in the fully closed position and on at all other times. The lift will be prevented from starting if this signal is not lost when the doors have closed. Once the lift has started the signal may be switched on again, as is the case when a stall condition is applied to the door operator during lift travel.

DOOR OPEN PUSH (DOP)

This input is operated by the door open push situated within the lift car. When the door open push is pressed the doors will always attempt to open as long as the lift is stopped and is within a valid door zone.

SAFETY EDGE/LIGHT SCREEN (SE)

This input is operated by the safety detector situated on the car door edge. When an obstruction is detected by the safety edge the doors will attempt to re-open if they are closing.
This input is only active as long as the lift is stopped within a valid door zone.

GOODS/SPECIAL SERVICE (SSIP)

Operated by keyswitch in the lift car. When this input is activated all landing calls are cancelled and the car will park at a floor level with open doors and only respond to car calls. The doors can only be closed by pressing and holding a car call push until the doors have fully closed and the lift has started. When the first car call in the direction of travel has been answered the doors will open automatically and cancel all remaining calls.

FIRE SERVICE (Fire Recall Switch)

This signal is activated by operation of the fire recall switch mounted at the main entrance floor of the building, adjacent to the lift entrance. When activated the lift will return to the fire recall level.

90% LOAD SWITCH (WS90)

Detects the fully loaded condition of lift. When this input is set the car will remain at a landing with the doors parked in the open position until a car call is entered. Once moving the lift will by-pass all landing calls, stopping only for the next car call in the direction of travel. When the lift is at the main floor and operating on up peak mode the doors will automatically close once this input is activated.

110% LOAD SWITCH (WS110)
Detects the overloaded condition of the lift. When this input is set the car will remain at a landing with the doors parked in the open position until the load is reduced. During this time an indicator in the lift car will be illuminated, a buzzer will sound and if a speech synthesiser is fitted to the lift, an announcement advising a reduction of the lift load will be made.

CP1-8 Car call push (Floors 1-8) Located on I/O expansion 2

10.3 Standard Output Designations

10.3.1 Hylite Motherboard

Outputs	Description	Plug	Terminal
QK1	Up demand	JP2	9 & 10
QK2	Down demand	JP2	7 & 8
QK3	Door zone channel 1	JP2	5 & 6
QK4	Door zone channel 2	JP2	3 & 4
QK1 – QK4 are volt free n/o contacts			
QK5	Star/Delta control	JP2	1 & JP3/10
QK6	DSM start	JP3	7 & 9
QK7	Inspection	JP3	4 & 6
QK8	Gate lock bypass n/o	JP3	1 & 3
	Gate lock bypass n/c	JP3	1 & 2
QK5 – QK8 are volt free change over contacts			
QK9	Up fast	JP5	10
QK10	Up slow	JP5	9
QK11	Down fast	JP5	8
QK12	Down slow	JP5	7
QK9 – QK12 fed from common connection			
QK13	Spare	JP5	5
QK14	Spare	JP5	4
QK15	Spare	JP5	3
QK16	Spare	JP5	2
QK13 – QK16 fed from common connection			
QK17	Open Door	JP7	10
QK18	Close Door	JP7	9
QK19	Nudge Door	JP7	8
QK20	Ramp/ZLR	JP7	7
QK17 – QK20 fed from common connection			
QK21	Rear Open Door	JP7	5
QK22	Rear Close Door	JP7	4
QK23	Rear Nudge Door	JP7	3
QK24	Rear Ramp/ZLR	JP7	2
QK21 – QK24 fed from common connection			

Note:
QK1 and QK2 output contacts are electrically interlocked to ensure that the UP and DN commands cannot be given simultaneously.

Output enable relay
The output enable relay, mounted on the Hylite motherboard, ensures that the supply for the output relays is only switched on if the main program is functioning correctly.
If the main program does not execute in the correct way, the output enable relay will be released causing all output relays to be released.

10.4 Output Descriptions

TRAVEL UP (Up Demand)
Initiates an UP travel in response to a call above the lift. The gate lock inputs must be present and all safety checks completed before the up demand relay is energised.
UR must stay on for a short time after the speed outputs are released to allow the stopping action to be controlled by the Electronic valve unit.

TRAVEL DOWN (Down Demand)
Initiates a DOWN travel in response to a call below the lift. The gate lock inputs must be present and all safety checks completed before the down demand relay is energised.
DR must stay on for a short time after the speed outputs are released to allow the stopping action to be controlled by the Electronic valve unit.

DOOR ZONE CHANNEL 1 & 2
These output relays invert the logic of the shaft signals to provide the stimulus for safety module logic check.

DSM START
This output relay, initialises the safety module.

STAR/DELTA
This output manages the changeover between "Star" and "Delta" and switches "ON" after the Star-delta timer has elapsed to energise the delta contactor KD. Once travel is complete, the output is released after any pump delay time has elapsed, this then releases the delta contactor KD.

GATE LOCK BY-PASS
This output is energised only when the lift is in automatic mode and allowed to move with the doors open, such as during advance door opening or re-levelling. If any error is detected in the operation of the door zone switches or safety circuit by-pass module, the output will be disabled.

RAMP (Ramp Contactor Control)
Controls the retiring ramp solenoid when used with Express/Bennie AC doors or manual gates.

UP FAST (High Speed Up)
This output is energised when starting on automatic mode in the up direction and releases immediately at the up slowing point.
Also operates during car-top test mode in the up direction if the high speed test push is also pressed.

UP SLOW (Levelling Speed Up)
This output is energised when starting on automatic mode in the up direction and releases immediately at the up stopping point.
Also operates during car-top test mode in the up direction, irrespective of whether the high speed test push is pressed or not.

DOWN FAST (High Speed Down)
This output is energised when starting on automatic mode in the down direction and releases immediately at the down slowing point.
Also operates during car-top test mode in the down direction if the high speed test push is also pressed.

DOWN SLOW (Levelling Speed Down)
This output is energised when starting on automatic mode in the down direction and releases immediately at the down stopping point.
Also operates during car-top test mode in the down direction, irrespective of whether the high speed test push is pressed or not.

INSPECTION (Inspection Speed)
This output is energised all the time that the controller is on car-top test mode or emergency electrical operation mode. The lift speed is selected by this input in conjunction with the relevant speed input as described above.

OPEN DOOR (Door Open Control)
Provides the door open signal to the door operator, either directly to a door regulator or via a contactor.
In automatic mode DOC will energise to open the lift doors providing the door open limit is not broken and the lift is stopping or stopped within a valid door zone.
In car top test mode DOC will energise to open the lift doors when the door test open switch is operated, irrespective of the state of the door open limit.

CLOSE DOOR (Door Close Control)
Provides the door close signal to the door operator, either directly to a door regulator or via a contactor.
In automatic mode DCC will energise to close the lift doors providing the door close limit is not broken and all other safety conditions are met.
In car top test mode DCC will energise to close the lift doors when the door test close switch is operated, irrespective of the state of the door close limit.

NUDGE DOOR (Door Nudging Control)
Provides the door nudging signal to the door operator, either directly to a door regulator or via a contactor.
Required to forcibly close the doors, at a reduced torque and speed, under emergency conditions or when the lift is held up for an unreasonable time period by the user. When nudging is active the safety edge input is ignored but the door open push input remains active.

FSI **Fire service indicator**

COLI **Car overloaded indicator**

Input	Input	Output
Expansion I/O 1		
IP1	DOL	POA
IP2	DCL	POB
IP3	DOP	POC
IP4	DCP	POD
IP5	SE	IU
IP6	SSIP	ID
IP7	WS90	CBZR
IP8	WSOL	COLI

CA1-8 Car call accepted indicator (Floor 1-8) Located on I/O expansion

11 Standard Call Strategy

The location of the car and landing call inputs and outputs can vary according to the following chart, depending on the number of floors and the type of call system set within the Hylite configuration parameters.

In all cases the car call I/O is allocated first, landing down call I/O is allocated next followed by the landing up call I/O. When the system is APB or non-selective collective, landing call 1 I/O is allocated at the end of the call I/O map.

Applicable to the following types of control

- Non Collective - **APB**
- Non-Selective Collective - **NSC**
- Down Collective - **DC**
- Full Collective - **FC**

Expansion I/O Card 1 – Used for Control signals

Input	Full Collective	Down Collective	NSC & FAPB
Expansion I/O 2			
IP1	CP1	CP1	CP1
IP2	CP2	CP2	CP2
IP3	CP3	CP3	CP3
IP4	CP4	CP4	CP4
IP5	CP5	CP5	CP5
IP6	CP6	CP6	CP6
IP7	CP7	CP7	CP7
IP8	CP8	CP8	CP8

* NOTE:-
Landing calls may be located on additional I/O cards (Special request).

12 Switch settings for node board

Switch 1.8 selects either Landing Interface Node or I/O board. When used as a Landing Interface Node, SW1.1-1.5 become the level number. When in I/O mode, SW1.1-1.5 become the board number.

Example of Landing Interface Node:

Switch	Function
SW1.1	Level Select Binary 1
SW1.2	Level Select Binary 2
SW1.3	Level Select Binary 4
SW1.4	Level Select Binary 8
SW1.5	Level Select Binary 16
SW1.6	Always OFF
SW1.7	Protocol Select (set ON)
SW1.8	I/O Expansion Module Select (set OFF)
SW2.1	Riser 1
SW2.2	Riser 2
SW2.3	Riser 4
SW2.4	Not used

Switch 1

SW1.1	SW1.2	SW1.3	SW1.4	SW1.5	SW1.6	SW1.7	SW1.8	Floor Level
ON	OFF	OFF	OFF	OFF	OFF	ON	OFF	Floor Level 1
OFF	ON	OFF	OFF	OFF	OFF	ON	OFF	Floor Level 2
ON	ON	OFF	OFF	OFF	OFF	ON	OFF	Floor Level 3
⇩	⇩	⇩	⇩	⇩	⇩	⇩	⇩	
ON	ON	ON	ON	ON	OFF	ON	OFF	Floor Level 31

Switch 2

SW2.1	SW2.2	SW2.3	SW2.4	Car
OFF	OFF	OFF	Not Used	Car 1
ON	OFF	OFF	Not Used	Car 2
OFF	ON	OFF	Not Used	Car 3
⇩	⇩	⇩	⇩	
ON	ON	ON	Not Used	Car 8

Note: Switch SW1.6 always OFF
Switch SW1.7 set ON
Switch SW1.8 set OFF
Switch SW2.4 not used

Switch 1.8 selects either Landing Interface Node or I/O board. When used as a Landing Interface Node, SW1.1-1.5 become the level number. When in I/O mode, SW1.1-1.5 become the board number.

Example of Node used as I/O Board:

Switch	Function
SW1.1	Board number Binary 1
SW1.2	Board number Binary 2
SW1.3	Board number Binary 4
SW1.4	Not Used
SW1.5	Not Used
SW1.6	Always OFF
SW1.7	Protocol Select (set ON)
SW1.8	I/O Expansion Module Select (set ON)
SW2.1	Not used
SW2.2	Not used
SW2.3	Not used
SW2.4	Not used

Switch 1

SW1.1	SW1.2	SW1.3	SW1.4	SW1.5	SW1.6	SW1.7	SW1.8	I/O Board No.
OFF	OFF	OFF	OFF	OFF	OFF	ON	ON	Board 1
ON	OFF	OFF	OFF	OFF	OFF	ON	ON	Board 2
OFF	ON	OFF	OFF	OFF	OFF	ON	ON	Board 3
⇩	⇩	⇩	⇩	⇩	⇩	⇩	⇩	
OFF	ON	ON	OFF	OFF	OFF	ON	ON	Board 6

Switch 2

SW2.1	SW2.2	SW2.3	SW2.4	Car
OFF	OFF	OFF	Not Used	Car 1

Note: Switch SW1.4 set OFF
Switch SW1.5 set OFF
Switch SW1.6 always OFF
Switch SW1.7 set ON
Switch SW1.8 set ON

Switch SW2 all switches are OFF

13 Binary Reference Table

Level	SW1.1	SW1.2	SW1.3	SW1.4	SW1.5	SW1.6
XX	*OFF*	*OFF*	*OFF*	*OFF*	*OFF*	*OFF*
1	**ON**	*OFF*	*OFF*	*OFF*	*OFF*	*OFF*
2	*OFF*	**ON**	*OFF*	*OFF*	*OFF*	*OFF*
3	**ON**	**ON**	*OFF*	*OFF*	*OFF*	*OFF*
4	*OFF*	*OFF*	**ON**	*OFF*	*OFF*	*OFF*
5	**ON**	*OFF*	**ON**	*OFF*	*OFF*	*OFF*
6	*OFF*	**ON**	**ON**	*OFF*	*OFF*	*OFF*
7	**ON**	**ON**	**ON**	*OFF*	*OFF*	*OFF*
8	*OFF*	*OFF*	*OFF*	**ON**	*OFF*	*OFF*
9	**ON**	*OFF*	*OFF*	**ON**	*OFF*	*OFF*
10	*OFF*	**ON**	*OFF*	**ON**	*OFF*	*OFF*
11	**ON**	**ON**	*OFF*	**ON**	*OFF*	*OFF*
12	*OFF*	*OFF*	**ON**	**ON**	*OFF*	*OFF*
13	**ON**	*OFF*	**ON**	**ON**	*OFF*	*OFF*
14	*OFF*	**ON**	**ON**	**ON**	*OFF*	*OFF*
15	**ON**	**ON**	**ON**	**ON**	*OFF*	*OFF*
16	*OFF*	*OFF*	*OFF*	*OFF*	**ON**	OFF
17	**ON**	*OFF*	*OFF*	*OFF*	**ON**	*OFF*
18	*OFF*	**ON**	*OFF*	*OFF*	**ON**	*OFF*
19	**ON**	**ON**	*OFF*	*OFF*	**ON**	*OFF*
20	OFF	OFF	**ON**	OFF	**ON**	*OFF*
21	**ON**	*OFF*	**ON**	*OFF*	**ON**	*OFF*
22	OFF	**ON**	**ON**	*OFF*	**ON**	*OFF*
23	**ON**	**ON**	**ON**	*OFF*	**ON**	*OFF*
24	OFF	OFF	OFF	**ON**	**ON**	*OFF*
25	**ON**	*OFF*	*OFF*	**ON**	**ON**	*OFF*
26	OFF	**ON**	*OFF*	**ON**	**ON**	*OFF*
27	**ON**	**ON**	*OFF*	**ON**	**ON**	*OFF*
28	OFF	OFF	**ON**	**ON**	**ON**	*OFF*
29	**ON**	*OFF*	**ON**	**ON**	**ON**	*OFF*
30	OFF	**ON**	**ON**	**ON**	**ON**	*OFF*
31	**ON**	**ON**	**ON**	**ON**	**ON**	*OFF*

Lifteknic Limited
11 Victoria Road • Chester • Cheshire CH2 2AX
Tel. +44(0)1244 389690 • Fax. +44(0)1244 389691
e-mail:sales@lifteknic..co.uk