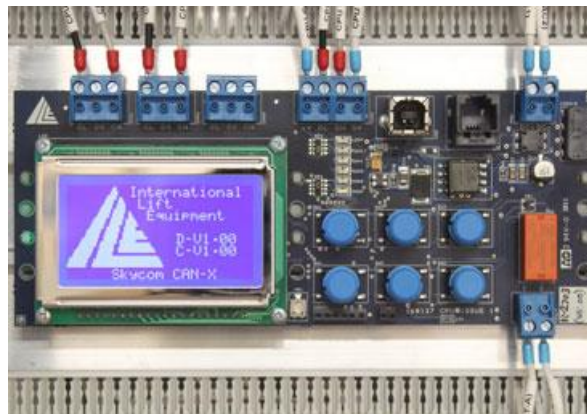


INTERNATIONAL LIFT EQUIPMENT LTD

SKYCOM CAN-X

Manual



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Contents

Introduction	3
EcoMode	3
The Hardware	4
CAN-X Processor Module	4
IO Node	4
Relay Node	5
Node Addressing	6
Panel Nodes	7
Car Nodes	7
Landing Nodes	8
Menu System	9
Event History	9
The Event Log	9
Parameters	10
Passwords	10
I/O	10
Lift Viewer	11
Speech & Indicators	11
Allocations	11
Drive	11
Parameter Control	11
LED Dimming	11
Parameters	12
Job & System	12
Doors	12
General	14
Homing	14
Travel	15
Hydraulic	15
Anti Nuisance	16
OSI Indication	16
ERET 1-6	16
Speech and Indicators	17
Time & Date	17
APPENDIX A – Parameter List	18
APPENDIX B – Speech List	25
APPENDIX C – Event List	26
APPENDIX D – INPUT LIST	28
APPENDIX E – OUTPUT LIST	29

Contract Number.....
CAN-X Software Version Number.....

Introduction

The manual gives details on the skycom CAN-X lift controller, detailing the hardware that goes to make up the controller along with instructions for the setup of the lift. The modular system allows variable lift configurations.

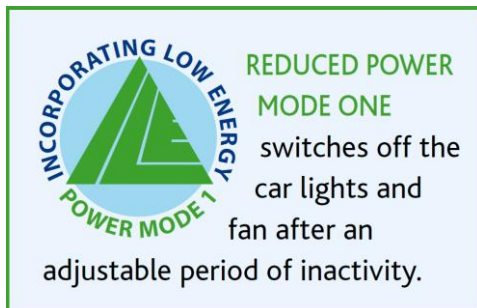
Skycom CAN-X consists of a main processor board, with expandable I/O via the addition of I/O and RELAY Nodes. The controller is fully configurable and all peripherals connected to the processor via the CAN network are also configurable.

The processor has a LCD screen to help in both the setup and fault diagnosis of the lift. This can be used to modify parameters in order to fine tune the operation of the lift.

The processor connects directly via a CAN network to all ILE peripheral products such as serial indicator, LCD indicator, and speech unit.

EcoMode

The Skycom CAN-X controller also incorporates EcoMode offering two reduced power modes:



The savings using just Reduced Power Mode One are 1035.3 kW/h per annum. This equates to a saving indicative of £120 per annum.*



The savings using both Reduced Power Mode One & Two are 4554.893 kW/h per annum. This equates to a saving indicative of £525 per annum.*

*Calculations based on 240 starts per hour between the hours of 5.30am to 7.30pm on a 12 floor lift with position indicators at all landings and 60 watts of car lighting with dual illuminated landing and car pushes.

The Hardware

All boards have clips that allow them to be mounted on DIN rail.

CAN-X Processor Module



The Skycom CAN-X processor module has the following features:

- USB serial connection to PC
- CAN connection to peripherals
- RTC with external onboard battery
- Automatic discovery of I/O Nodes
- LED Indication (loop, fault, CAN1, 2, 3, Drive Comms)
- Energy efficient isolated switch mode power supply
- Non-active processor hardware components power down
- Serial Drive Communication

The CPU board has a 128x64 pixel resolution LCD screen, with a 6 button keypad interface to enable easy configuration and modification of parameters. The LCD screen has a backlight timeout.

The 6 buttons are as follows:

- ESC** – to go back one level in the menu system
- UP** – to move up
- ENT** – to select an item in the menu
- LEFT** – to move left
- DN** – to move down
- RIGHT** – to move right

For a full explanation on how to utilise the keypad to parameterise or modify the lift installation please refer to the Menu System section of this manual.

IO Node

The IO nodes can be 2 or 8 way, both have the following features:

- Isolated internal logic supply with protection
- Isolated CAN interface with protection
- User selectable I/O address and CAN terminating resistor
- On board piezo sounder (call recognition)
- inputs/outputs discrete/linked via software
- Diagnostic and thermal monitoring
- LED indication for CAN

The input stage

- 5-30VDC opto-isolated
- Over voltage and reverse polarity protection
- Current limiting and dissipation

The output stage

- 24VDC (via internal supply)
- 0.7A per channel output current
- Operating voltage upto 36V
- Short circuit and overvoltage protection
- Loss of ground protection
- Under voltage diagnostic and overvoltage shutdown
- Junction over temperature shutdown
- Shorted load protection
- Suitable for inductive loads
- Opto-isolated



2-way IO node



8-way IO node



Relay Node

Relay Node

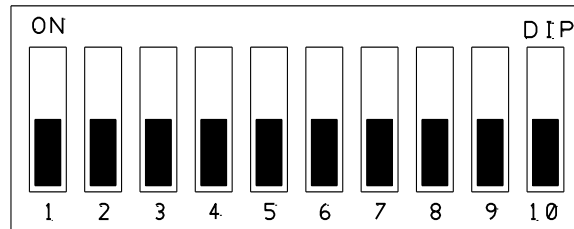
The Relay node has the following features:

- Isolated internal logic supply with protection
- Isolated CAN interface with protection
- User selectable I/O address and CAN terminating resistor
- 4 relay outputs (N/O or N/C user selectable via wiring option)
- Double pole independent N/O and N/C contact rated at 8A
- Opto isolated driver
- Status LED indication for each relay

Node Addressing

The nodes need to be set with the correct node address according to what network they are on. There are 3 networks, LANDING (CAN1) CAR (CAN2) and PANEL (CAN3).

Each board requires the correct binary address to be set relative to its position on the network. The node address can be set by the 10 way switch as shown below (switches shown in the OFF position):



The switches should be set as dictated in the relevant tables below.

Due to the number of addresses needed on the landing network switch 8 is used for addressing if switch 9 is set ON, if switch 9 is OFF then switch 8 is not used for addressing but dictates whether the node is on the CAR or the PANEL network.

Switch 9:	ON - LANDING	OFF - CAR/PANEL
Switch 8:	ON - CAR	OFF - PANEL

Switch 10 dictates whether the onboard resistor for the CAN is being used. Only 1 node per network should have switch 10 in the ON position. This facility means no external resistors are needed for the correct topology of the CAN network.

Switch 10:	ON - 120 ohms resistor inline	OFF - no resistor
------------	-------------------------------	-------------------

In the tables below:

Blank cell - switch in the OFF position.

ON - switch in the ON position.

ON* - check where you need the resistor to dictate the end of the network.

Panel Nodes

Switch 1-7: address
 Switch 8: should be OFF to signal the PANEL network
 Switch 9: should be OFF to signal CAR/PANEL
 Switch 10: As above

Node	1	2	3	4	5	6	7	8	9	10
1	ON									
2		ON								
3	ON	ON								ON*
4			ON							ON*
5	ON		ON							ON*
6		ON	ON							ON*

Panel nodes are addressed with the node closest to the processor as node 1.

Car Nodes

Switch 1-7: Address
 Switch 8: Should be ON to signal the CAR network
 Switch 9: Should be OFF to signal CAR/PANEL
 Switch 10: As above

Node	1	2	3	4	5	6	7	8	9	10
1	ON							ON		
2		ON						ON		
3	ON	ON						ON		
4			ON					ON		ON*
5	ON		ON					ON		ON*
6		ON	ON					ON		ON*

Car Nodes are addressed with the car top box being nodes 1-3, and then the nodes in the Car operating panel nodes 4 onwards. The last node in the car operating panel should have switch 10 set to ON.

Landing Nodes

Switch 1-8: address

Switch 9: Should be ON to signal the LANDING network

Switch 10: Set to ON for Node 1 (assuming floor 1 furthest from the panel)

Node	1	2	3	4	5	6	7	8	9	10
1	ON								ON	ON
2		ON							ON	
3	ON	ON							ON	
4			ON						ON	
5	ON		ON						ON	
6		ON	ON						ON	
7	ON	ON	ON						ON	
8				ON					ON	
9	ON			ON					ON	
10		ON		ON					ON	
11	ON	ON		ON					ON	
12			ON	ON					ON	
13	ON		ON	ON					ON	
14		ON	ON	ON					ON	
15	ON	ON	ON	ON					ON	
16					ON				ON	
17	ON				ON				ON	
18		ON			ON				ON	
19	ON	ON			ON				ON	
20			ON		ON				ON	
21	ON		ON		ON				ON	
22		ON	ON		ON				ON	
23	ON	ON	ON		ON				ON	
24				ON	ON				ON	

Menu System

The main menu is accessed by pressing the **ENT** key from the ILE splash screen. This will present you with a screen giving the following options:

```
Event History
Parameters
I/O
Lift Viewer
Speech & Ind
Allocations
Drive
Parameter Control
```

You can traverse the menu system using the **UP** and **DN** buttons. If you wish to select an option then please press the **ENT** button. If you wish to go back in the menu structure please press the **ESC** button.

Event History

```
Event History >
Event Log
Event Viewer
Clr CAN-X Events
Journey Counter
Door Cycle Counter
Reset Counter
Drive Fault Log
```

The Event history menu allows you to access the log of events and also gives you the ability to clear the events on the processor.

The number of door cycles and journeys that have occurred on the lift can be viewed and these counters can also be reset if required. CAN monitoring can also be accessed, along with drive faults. See separate drive manual for more detail.

The Event Log

```
Event History 01-07 >
SELECTOR RESET BOTTOM
LOST DIR ON HIGH SPEED
MSU STUCK
SLOWED: DN SLOW LIMIT
EMERGENCY STOP
FAULT RELAY DROPPED
PRIORITY SERVICE 1
```

The events being displayed in this example are number 1-7 in the event log, and the log can be traversed using the **UP** and **DN** buttons, or each page can be skipped by using the **LEFT** and **RIGHT** arrow buttons. If it is possible to skip a page then the '<' and/or '>' characters are displayed in the top left and right hand corners of the screen respectively.

```
INSPECTION CONTROL
Event List No=41
Position=1 Occur=1
18/01/2010 14:32:28
-----
Lift operating under
Inspection control
Engineer on site
```

More information about an event can be accessed by pressing the **ENT** button while an event is selected. This will give you information about the position the lift was at, the number of occurrences of the event, the time and date, and if relevant possible solutions to the problem. In order to return to the event log, press the **ESC** button.

Parameters

The parameters section of the menu has a number of sub menus as follows:

- Job & System
- Doors
- General
- Homing
- Travel
- Hydraulic
- Anti Nuisance
- OSI Indication
- Time & Date
- ERET 1-6

For a full list of the parameters and their constraints please see appendix A of this manual or contact ILE for assistance. For information on the functionality that the parameters provide see the Parameters Section of this manual.

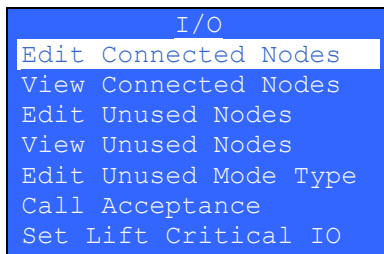
Passwords

When attempting to edit a parameter if you have not entered the relevant password level the processor will prompt you with a message on the screen for the level required. In order to enter the password press the ENT and UP buttons on the keypad to shortcut to the password entry screen.

There are 2 password levels. Level 1 password is 111111, for the level 2 password please call ILE and ask for technical support. To enter a password the left and right arrow keys will move you through the characters, the down key will select a character and the up key will delete a character.

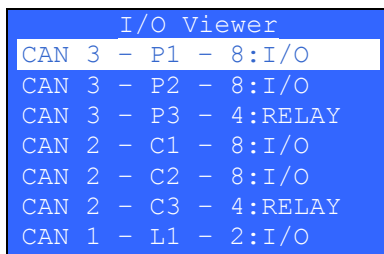
I/O

If you want to see what inputs are on then you can use the I/O viewer as follows.



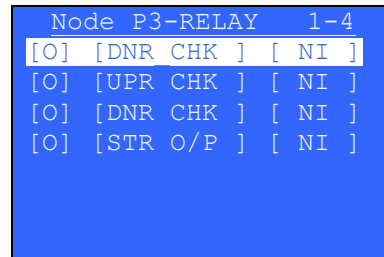
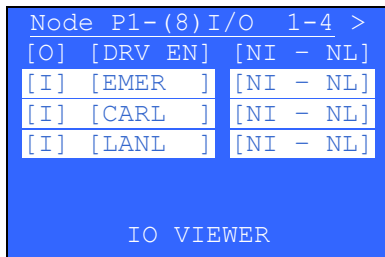
The I/O screen gives a number of options for editing and viewing the nodes. Connected nodes are those currently connected to the system. If a node is faulty or has been removed from the system it will be in the unconnected section.

The call acceptance can also be set from here dictating where the call acceptance buzzer will sound.

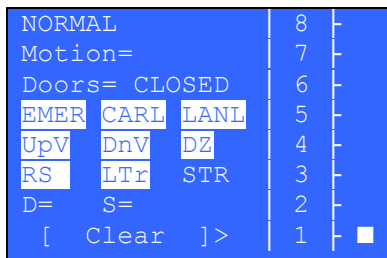


The node list screen details the CAN the node is on (P – Panel, C – Car, L – Landing) and the type of the node. For full explanation of these please contact ILE technical support.

Screens for I/O and RELAY are shown below, with highlighted I/O currently on.



Lift Viewer



The Lift Viewer is the heart of the Skycom CAN-X, this screen gives a lot of information about the status of the lift. It details the lift mode, motion, direction of travel, doors status, vanes, reset, limit trip, start relay, destination, and speed, as well as providing the ability to enter any kind of call.

Speech & Indicators

The Speech and Indicator menu allows the modification of speech positions and events, as well as I/O triggered messages, along with indicator floor designations, I/O triggered messages for the indicators and configuration of position in travel and enabling/disabling of the indicator hall lanterns. For further explanation of how to modify these parameters please refer to Appendix B or contact ILE for assistance.

Allocations

The allocations menu provides an interface to change the allocations of the lift installation for all types of call, (car, landing up, landing down, and priority). This menu also provides the settings for timed allocations.

Drive

The drive menu provides the interface to the Fuji drive, allowing the setting of parameters, the viewing of drive status information, and access to the setup wizards, one for the commissioning and one for the tuning. For further information about parameters please refer to the CAN-X Fuji Manual.

Parameter Control

The parameter control menu allows the verification of parameters between the main processor and the display processor as well as access to factory setup, and password entry.

LED Dimming

Illumination levels for car and landing pushes is configurable from the CPU, 7 levels of dimming are available to allow users to tailor the level to their requirements. DOP illumination level is also controlled from this setting.

Parameters

Job & System

The first 3 parameters, **Job Number**, **Customer Name**, and **Site Name** all provide information about the lift installation.

Collective Type details the way in which the calls are collected.

The **Number of Floors**, **Bottom Floor** and **Top Floor** give the basic amount of floors that the lift installation will service and the lower and upper bounds of the lift.

Prepare to test con allows the site engineer to put the lift into an intermediary state while calls are still being answered in readiness for putting the lift into full inspection/test control.

Doors

The **Spec** of the doors details whether the doors on the lift installation are automatic or manual. The **ACK Feedback** parameter details the type of feedback acknowledgment the doors will give to the lift controller.

DCR on When Closed dictates whether you want the door close relay (DCR) on or off when the doors are fully closed and **DOR on when Opened** dictates whether you want to door open relay (DOR) on or off when the doors are fully opened. **DCR on when Running** dictates whether the door close relay (DCR) needs to be on to hold the doors closed during travel.

Stop Closing on Locks dictates when the DCR relay will be dropped by the lift controller.

Adv Doors Opening dictates whether the doors will start to open as the lift arrives at floor or once arrived at a floor.

Quick Close dictates whether the doors will close on a car call and bypass the dwell time or wait until the dwell time has passed before commencing the close sequence.

Park Open dictates whether the doors park open or closed.

Relax Locks dictates whether the doors need to be re closed before a travel can occur.

SE Count gives the threshold for the number of safe edge events seen before the doors park open.

DLR Count gives the threshold for the number of door light ray events seen before the doors nudge closed. In order to turn nudging off set to 0 in conjunction with DLR held time set to 0.

Norm Const Open and **Norm Const Close** dictate whether the normal operation of the doors requires constant pressure.

Open on Init, **Open on Reset**, **Open on Homing**, and **Open on Lost Dir** dictate the reaction of the doors and whether they will open or stay closed in each situation.

Disable Doors dictates whether the doors are in operation.

Door Close on Rev dictates whether the doors need to close before accepting a reverse landing call at a floor when no other calls and no car calls have been entered in reaction to answering a landing call.

DCR on Init dictates whether the door close relay needs to be on after initialisation to force a relaxed set of doors to be fully closed before any travel occurs.

Reverse Time dictates the earliest amount of time after the close relay has been dropped that the open relay can be activated and vice versa.

Car Preference Time is used only when the APB collective parameter has been set, landing calls are inhibited while this timer is still running.

CC Drop Time dictates the time from the doors being fully closed to the time the door close relay drops.

Lock Time dictates the amount of time after the doors have fully closed before the checking of the limits and the locks.

DOP Held Time, SE Held Time, DLR Held Time give the threshold value of when the processor will ignore the input still being held and close the doors. In order to turn nudging off set to 0 in conjunction with DLR Count set to 0.

ACK Time is the amount of time allowed for the feedback from the doors to be given to the controller.

Ramp Time is the time for a ramp to lift before travel will commence.

Car LAN Dwell Time, LAN Dwell Time, Car Dwell Time, DOP Dwell Time, SE Dwell Time, DLR Dwell Time, Door Hold Dwell Time all give the threshold value when the processor will initiate the doors to close.

Locktip Reopen Time is the amount of time after a locktip is seen that the processor will then attempt to cycle the doors to get the lift back in service.

Landing Call Ignore is the threshold value at which the processor will ignore repeated future landing calls at a floor in order to let the lift car get away from that landing and give priority to the people already in the lift car.

Door Close Prot Time and **Door Open Prot Time** give the threshold value when the processor will stop the current door sequence, this is in order to not burn out the door gear.

Nudge Release Time is the threshold value after a nudge condition has occurred that the processor will release the condition, this is so that the lift can get away to answer calls but that at the next floor a nudge condition can be assessed if necessary.

Delay Open After Stop sets the delay between the lift car stopping and the door starting to open.

General

No of Self Test dictates the number of times the lift controller will attempt to get the lift back into service.

Self Test Top Floor and **Self Test Bot Floor** dictate the bounds of the self test, so if the lift is in the bottom half of the shaft a call will be entered according to the self test top floor parameter, and vice versa if the lift is in the top half of the shaft.

Man Gate Late Cancel keeps the acceptance on until the gates open.

Position Outputs dictates the type of the position outputs, they can be normal, binary, gray code or seven segment.

Daylight Saving automatically adjusts the real time clock according to GMT.

LED Dimming is the illumination level for car, landing pushes, and DOP illumination.

Pre Flite Checking dictates whether a check is made of the acknowledge feedback once the locks are made before a travel will commence.

Reset Top Power Init dictates whether the lift will reset to the top or bottom floor on a power initialisation.

Dis CAR Acceptance and **Dis LAN Acceptance** disable/enable the respective acceptances.

Seven Segment Start dictates whether the seven segment indicators start at 0 or 1.

Self Test Time is the amount after a lift fault that the self test will be initiated.

Dive Time is the amount of time before a dive is initiated on initialisation or when leaving inspection mode to enter normal mode.

Speech Timeout Time the amount of time before a timeout of communication event with the speech unit is logged.

Eco Mode 1 Time and **Eco Mode 2 Time** are the timers that dictate when the lift has been idle for a period of time and as a result certain devices will be shutdown. The mode 2 timer starts when the mode 1 timer has timed out.

Re-leveling dictates whether the lift has the releveling facility.

Show Limit Events removes or includes the limit events in the event logger.

Auto Reset Enable is for ILE engineers use only.

Homing

Homing Floor is the floor the lift will home to after the lift has been idle for the **Homing Time**.

Travel

Low Speed Prot Time is the amount of time the lift will travel at low speed/levelling speed before reporting a fault.

Start Fail Time is the amount of time the controller will allow, after the travel outputs are set, before a start failure event is logged, if the correct feedback is not seen from the drive.

Stop Time is the amount of time, after seeing the second vane, before the controller will drop the travel and direction relays.

Journey Time is the amount of time allowed without seeing a px signal before the lift controller will issue a journey timer event.

Pause Time is the amount of time after the end of a journey before the controller will try to start another journey.

Stop Fail Time is the amount of time, after seeing the second vane, before which the controller will issue a str stop timeout event, if the str feedback has not been dropped by the drive.

Ramp Fail Time is the amount of time to see the ramp feedback input, otherwise no travel is attempted.

Enable Time is the amount of time, after the lift has stopped, before the enable output is dropped.

Stuck Vane Time is the amount of time that a vane needs to be on in order for the controller to issue a stuck vane event.

Re-level Stop Time is the amount of time, after seeing the second vane, before the controller will drop the travel and direction relays, when in a relevel condition.

STR Delay Time is the amount of time after UPR/DNR drop out that the STR output will be dropped.

Up Direction dictates the rotation of the motor for the up direction.

Hydraulic

Hyd Homing Time is the amount of time after normal homing has been achieved that the hydraulic homing call will be entered at the bottom floor of the lift.

Max Relev Period is the maximum time that the controller will allow the relevel output to be on.

Relev Yoyo count is the maximum number of times the controller will keep releveling, each time the lift successfully relevels at a floor a counter is incremented, when it exceeds this value it will no longer attempt to relevel, and will put a call into the bottom floor.

Relev Yoyo Period is the amount of time the controller will allow for the yoyo count to be incremented and eventually exceeded.

Anti Nuisance

DOP Held Dump Calls dictates whether, when the door open push is permanently held in, the calls in the system will get dumped or not.

Num of Reverse Calls this is the number of reverse calls that are allowed in the previous direction of travel just prior to a change in direction.

Fwd Calls Remaining this is the number of calls entered in front of the lift in its current direction of travel that are allowed if no light ray is seen repeatedly.

Stops No Light Ray is the number of stops with no door light ray being seen before all car calls will get cleared.

Stuck Button Detect is the amount of time a button is to be held before it will register a stuck button event.

Stuck Button Reinit is the amount of time, after seeing a stuck button event for a button, before it will reinitialise the button.

OSI Indication

All parameters in this section dictate whether the out of service indication is shown or not.

ERET 1-6

There are 6 emergency return profiles that are fully configurable using the following set of parameters.

Name is the name of the profile.

Drop off Floor this is the floor at which passengers, in the lift when the eret input is seen, will be dropped off at.

Return Floor is the floor the lift will return to once the drop off facility has been completed.

Alt Return Floor if the return floor can not be achieved this floor will be used instead.

Const Pres Open and **Const Pres Close** dictate whether constant pressure open and closed are used within the eret.

Park Open and **Park Closed** dictate what the doors do when arriving at a floor.

LAN Call Open dictates whether a landing call at the floor the lift car is at will open the door or not.

Car Calls dictates whether car calls are allowed in the eret.

Enable DLR dictates whether the DLR input is active or not.

Dwell Time is the time used for the door dwell while in the eret condition.

Ph1 Clear Calls dictates whether the calls are cleared or not when the eret condition is first entered.

Ph2 Activation dictates whether phase 2 of the eret needs an input to initiate it or not.

Dive Power Init dictates whether the lift will dive on a power initialisation in the eret.

No Entry Sign dictates whether the no entry sign output is set when in the eret condition.

OSI Indication dictates whether the out of service indicator is activated when in the eret condition.

Ignore DOP dictates whether the door open push is ignored or accepted in the eret condition.

Speech and Indicators

Pos in Travel dictates whether the position of the lift is annunciated as it passes each floor.

Ind HLR Enable dictates whether the indicators are to show the hall lanterns (ILE Indicators only).

Full Volume, Hush Volume sets the level of volume for the speech unit.

Time & Date

Year, Month, Day, Hour, and **Minute** allow the setting of the real time clock.

APPENDIX A – Parameter List

Job & System

Name	Type	Min	Max	Default	Step	Password Level
Job Number				xxxx		V
Customer Name	a-z					1
Site Name	a-z					1
Collective Type	Spec			Full Collective		2
Prep to Test Control	Spec			Disabled		1
Number of Floors	0-9	2	24		1	2
Bottom Floor	0-9	1	23		1	2
Top Floor	0-9	2	24		1	2

Collective Type – Full Collective/Down Collective/Non Sel Collective/APB

Prep to Test Control – Disabled/PTT Park Open/PTT Park Closed

Doors

Name	Type	Min	Max	Default	Step	Password Level
Spec	Spec			Auto Car/Lan		2
ACK Feedback	Spec			Door Limits		2
DCR on when Closed	Yes/No			No		2
DCR on when Running	Yes/No			No		2
DOR on when Opened	Yes/No			No		2
Stop Closing on Locks	Yes/No			No		2
Adv Doors Opening	Yes/No			No		1
Quick Close	Yes/No			Yes		1
Park Open	Yes/No			No		1
Relax Locks	Yes/No			No		1
SE Count	0-9	0	30	4	1	1
DLR Count	0-9	0	30	4	1	1
Norm Const Open	Yes/No			No		2
Norm Const Close	Yes/No			No		2
Open on Init	Yes/No			Yes		1
Open on Reset	Yes/No			Yes		1
Open on Homing	Yes/No			Yes		1
Open on Lost Dir	Yes/No			Yes		1
Disable Doors	Yes/No			No		1
Door Close on Rev	Yes/No			No		1
DCR on Init	Yes/No			No		1

Spec - Auto CarLan/Auto Car Man Lan/Man Gates

Ack Feedback – Door Limits/DOC Input

Name	Type	Min	Max	Default	Step	Password Level
Reverse Time	MS	20	1000	100	20	2
Car Preference Time	MS	0	30	1	1	2
CC Drop Time	MS	20	3000	400	20	2
Lock Time	MS	20	3000	1000	20	2
DOP Held Time	S	0	60	20	1	1
SE Held Time	S	0	60	20	1	1
DLR Held Time	S	0	60	20	1	1
ACK Time	S	0	10	2	1	2
Ramp Time	S	0	30	0	1	2
CAR LAN Dwell Time	S	0	60	7	1	1
LAN Dwell Time	S	0	60	5	1	1
CAR Dwell Time	S	0	60	3	1	1
DOP Dwell Time	S	0	60	4	1	1
SE Dwell Time	S	0	60	1	1	1
DLR Dwell Time	S	0	60	1	1	1
Door Hold Dwell Time	S	0	1200	45	1	1
Locktip Reopen Time	S	0	10	4	1	1
Landing Call Ignore	S	0	600	10	1	1
Door Close Prot Time	S	0	60	20	1	1
Door Open Prot Time	S	0	60	20	1	1
Nudge Release Time	S	0	60	5	1	1
Delay Open After Stop	S	0	10	0	1	1

General

Name	Type	Min	Max	Default	Step	Password Level
No of Self Test	0-9	0	10	5	1	1
Self Test Top Floor	0-9	1	24	8	1	1
Self Test Bot Floor	0-9	1	24	1	1	1
Man Gate Late Cancel	Yes/No			No		1
Position Outputs	Spec			Normal		1
Daylight Saving	Yes/No			Yes		1
LED Dimming	0-9	0	7	3		1
Pre Flite Checking	Yes/No			Yes		1
Reset Top Power Init	Yes/No			No		1
Dis CAR Acceptance	Yes/No			No		2
Dis LAN Acceptance	Yes/No			No		2
Seven Segment Start	0-9	0	1	0	1	1
Self Test Time	S	0	600	120	1	1
Dive Time	S	0	600	15	1	2
Speech Timeout Time	S	0	600	30	1	2
ECO Mode 1 Time	MS	1	20	10	1	1
ECO Mode 2 Time	MS	1	20	10	1	1
Re-leveling	Yes/No			No		1
Show Limit Events	Yes/No			Yes		1
Auto Reset Enable	Yes/No			No		View Only

Position Outputs – Normal/Binary/Gray Code/Seven Segment

Homing

Name	Type	Min	Max	Default	Step	Password Level
Homing Time	S	20	1200	360	1	1
Homing Floor	0-9	1	24	1	1	1

Travel

Name	Type	Min	Max	Default	Step	Password Level
Low Speed Prot Time	S	0	120	20	1	1
Start Fail Time	S	0	30	2	1	1
Stop Time	MS	20	3000	200	20	1
Journey Time	S	0	120	20	1	1
Pause Time	S	0	10	2	1	1
Stop Fail Time	S	0	30	2	1	1
Ramp Fail Time	MS	20	5000	0	20	1
Enable Time	MS	20	3000	200	20	1
Stuck Vane Time	S	0	30	10	1	1
Re-Level Stop Time	MS	20	3000	200	20	1
STR Delay Time	MS	0	3000	200	20	1
UP Direction	Spec			Forward		2

UP Direction – Forward/Reverse

Hydraulic

Name	Type	Min	Max	Default	Step	Password Level
Hyd Homing Time	S	0	1200	0	1	1
Max Relev Period	S	0	60	20	1	2
Relev Yoyo Count	0-9	1	24	11	1	2
Relev Yoyo Period	S	0	120	60	1	2

Anti Nuisance

Name	Type	Min	Max	Default	Step	Password Level
DOP Held Dump Calls	Yes/No			Yes		1
Num of Reverse Calls	0-9	0	10	3	1	1
Fwd Calls Remaining	0-9	0	10	3	1	1
Stops No Light Ray	0-9	1	10	3	1	1
Stuck Button Detect	S	10	50	20	1	1
Stuck Button Reinit	M	1	20	2	1	1

OSI Indication

Name	Type	Min	Max	Default	Step	Password Level
Error In Position	Yes/No			Yes		1
Double Journey Time	Yes/No			Yes		1
Hydraulic Overtravel	Yes/No			Yes		1
Start Failure	Yes/No			Yes		1
Relevel Error	Yes/No			Yes		1
Open Prot Fault	Yes/No			Yes		1
Close Prot Fault	Yes/No			Yes		1
Lan Lock Failure	Yes/No			Yes		1
Car Lock Failure	Yes/No			Yes		1
Motion Failure	Yes/No			Yes		1
Inspection	Yes/No			Yes		1
Drive Tripped	Yes/No			Yes		1
LW110	Yes/No			No		1
Thermistor Tripped	Yes/No			Yes		1
Prepare To Test	Yes/No			Yes		1
EMER Stop Broken	Yes/No			Yes		1
Both Resets	Yes/No			Yes		1
Pre Flite Failure	Yes/No			Yes		1
Stuck Vanes	Yes/No			Yes		1
Proving Circuit Failure	Yes/No			Yes		1

ERET 1-6

Name	Type	Min	Max	Default	Step	Password Level
Name	a-z					1
Drop off Floor	0-9	0	24	0	1	1
Return Floor	0-9	0	24	1	1	1
Alt Return Floor	0-9	0	24	0	1	1
Const Press Open	Yes/No			No		2
Const Press Close	Yes/No			No		2
Park Open	Yes/No			No		1
Park Closed	Yes/No			No		1
LAN Call Open	Yes/No			No		1
Car Calls	Yes/No			No		1
Enable DLR	Yes/No			No		1
Dwell Time	0-9	0	180	5	1	1
Ph1 Clear Calls	Yes/No			No		1
Ph2 Activation	Yes/No			No		1
Dive Power Init	Yes/No			No		1
No Entry Sign	Yes/No			No		1
OSI Indication	Yes/No			Yes		1
Ignore DOP	Yes/No			Yes		1

Speech & Indicator

Name	Type	Min	Max	Default	Step	Password Level
Pos in Travel	Yes/No			Yes		1
Ind HLR Enable	Yes/No			Yes		1
Full Volume	0-9	0	10	5		
Hush Volume	0-9	0	10	5		

Time & Date

Name	Type	Min	Max	Default	Step	Password Level
Year	0-9	7	99	9		1
Month	0-9	1	12	1		1
Day	0-9	1	31	1		1
Hour	0-9	0	23	1		1
Minute	0-9	0	59	1		1

APPENDIX B – Speech List

1:	THIS LIFT IS OVERLOADED	65:	SEVENTEEN
2:	THIS LIFT IS UNDER MAINTENANCE CONTROL	66:	EIGHTEEN
3:	THIS LIFT IS OUT OF SERVICE	67:	NINETEEN
4:	THIS LIFT IS UNDER FIRE CONTROL OPERATION	68:	TWENTY
5:	THIS LIFT IS UNDER EVACUATION CONTROL	69:	TWENTYX
6:	MAIN EXIT FLOOR	70:	THIRTY
7:	THIS LIFT IS RETURNING	71:	THIRTYX
8:	TO	72:	FORTY
9:	TO THE	73:	FORTYX
10:	THIS LIFT IS RETURNING UNDER FIRE SERVICE	74:	FIFTY
11:	THIS LIFT IS	75:	SUB BASEMENT
12:	ARRIVING AT	76:	THIS WAY OUT
13:	xxxxxxxxxx	77:	1ST
14:	THE ALARM HAS BEEN ACTIVATED	78:	2ND
15:	ACCESS	79:	3RD
16:	UNDER GOODS CONTROL	80:	4TH
17:	THIS LIFT IS UNDER SERVICE CONTROL	81:	5TH
18:	UNDER FIRE FIGHTERS CONTROL	82:	6TH
19:	CAR	83:	7TH
20:	PLEASE MIND THE DOORS	84:	8TH
21:	LIFT	85:	9TH
22:	ON TEST	86:	10TH
23:	FAILED TO START	87:	11TH
24:	COMING	88:	12TH
25:	DOORS OPENING	89:	13TH
26:	DOORS CLOSING	90:	14TH
27:	STAND CLEAR	91:	15TH
28:	STAND CLEAR OF THE DOORS	92:	16TH
29:	PLEASE REDUCE WEIGHT IN LIFT	93:	17TH
30:	PLEASE EXIT LIFT	94:	18TH
31:	GOING UP	95:	19TH
32:	GOING DOWN	96:	20TH
33:	UNDER EVACUATION CONTROL	97:	xxxxxxxxxx
34:	UNDER PRIORITY SERVICE	98:	A
35:	UNDER FIRE SERVICE	99:	B
36:	UNDER FIRE CONTROL OPERATION	100:	C
37:	UNDER FIRE CONTROL	101:	D
38:	UPPERX	102:	E
39:	LOWERX	103:	F
40:	XFLOOR	104:	G
41:	FLOORX	105:	H
42:	XLEVEL	106:	I
43:	LEVELX	107:	J
44:	ZERO	108:	K
45:	MINUS ONE	109:	L
46:	BASEMENT	110:	M
47:	MINUS TWO	111:	BEING SERVICED
48:	GROUND	112:	UNAUTHORISED CAR TOP ACCESS
49:	ONE	113:	PENTHOUSE
50:	TWO	114:	PODIUM
51:	THREE	115:	CAR PARK
52:	FOUR	116:	MEZZANINE
53:	FIVE	117:	RECEPTION
54:	SIX	118:	SERVICE
55:	SEVEN	119:	SHOP
56:	EIGHT	120:	FRONT
57:	NINE	121:	REAR
58:	TEN	122:	MINUS
59:	ELEVEN	123:	BING
60:	TWELVE	124:	BONG
61:	THIRTEEN	125:	BING BONG
62:	FOURTEEN	126:	WAY OUT
63:	FIFTEEN	127:	PAUSE (100 MilliSeconds)
64:	SIXTEEN		

APPENDIX C – Event List

EMERGENCY STOP	The live voltage feed to input EMER was removed
LAN LOCK TIP HIGH SPD	The live voltage feed to input LANL was removed on high speed
CAR LOCK TIP HIGH SPD	The live voltage feed to input CARL was removed on high speed
LAN LOCK TIP LOW SPD	The live voltage feed to input LANL was removed on low speed
CAR LOCK TIP LOW SPD	The live voltage feed to input CARL was removed on low speed
LAN LOCK NOT MAKING	Landing lock failed to make contact whilst doors closing
CAR LOCK NOT MAKING	Car lock failed to make contact whilst doors closing
FAILURE TO START	No STR input to processor, check THERM, limit, RunContact, PFRR
RE-LEVELING ERROR	Lift error whilst releveing due to wrong or no vanes
RE-LEVELING TIMEOUT	Lift releveing error due to excess releveing time
SELECTOR RESET BOTTOM	the lift has reset to bottom floor: input RSD on
LOW SPEED TIMER	Lift travelling on low speed exceeded low speed protection timer
JOURNEY TIMER	Lift travelling on high speed and exceeded journey time
DOOR OPEN PROT TIMER	Door timer exceeded whilst doors opening
DOOR CLOSE PROT TIMER	Door timer exceeded whilst doors closing
LAN LOCK FAILED	Landing lock failed to make contact 4 times consecutively
CAR LOCK FAILED	Car lock failed to make 4 times consecutively
RE-LEVELING FAULT	Releveing fault, check levelling vanes
110% OVERLOADED	The lift has been overloaded by 10% check car/load device
MOTION FAILURE	STR input lost when moving, check THERM, limit, RunContact, PFRR
90% OVERLOADED	The lift has been loaded with 90% load, check car/load device
RE-LEVELING YOYO ERR	Releveing error doe to excess yoyo levels in yoyo relev time
HYDRAULIC OVERTRAVEL	Hydraulic fault overtravel at top floor input HYDOTL asserted
MSU AND MSD STUCK	MSU MSD levelling proximity switches stuck on
MSU STUCK	MSU up levelling proximity stuck on
MSD STUCK	MSD dn levelling proximity stuck on
SELECTOR RESET TOP	The lift has reset to the top floor, input RSU on
RESETS TOP AND BOT ON	Selector resets top and bottom, both on, inputs RSU/RSD on
TOP FLOOR SELF TEST	Lift has performed top floor self test
BOT FLOOR SELF TEST	Lift has performed bottom floor self test
SELF TEST PASSED	Self test performed by the lift passed
SELF TEST FAILED	Self test performed by the lift failed
LEVEL VANE FAULT UP	Processor seen the wrong vane going UP, MSD instead of MSU
LEVEL VANE FAULT DN	Processor seen the wrong vane going DN, MSU instead of MSD
THERMISTOR TRIPPED	Motor thermistors tripped
SLOWED: UP SLOW LIMIT	Lift slowed on limit instead of PX vane, check vanes/tapehead
SLOWED: DN SLOW LIMIT	Lift slowed on limit instead of PX vane, check vanes/tapehead
STR STOP TIMEOUT	Processor time dout whilst waiting for STR input to disable
PRIORITY SERVICE 1	Lift operating according to priority service 1
PRIORITY SERVICE 2	Lift operating according to priority service 2
PRIORITY SERVICE 3	Lift operating according to priority service 3
PRIORITY SERVICE 4	Lift operating according to priority service 4
PRIORITY SERVICE 5	Lift operating according to priority service 5
PRIORITY SERVICE 6	Lift operating according to priority service 6
PRIORITY SERVICE 7	Lift operating according to priority service 7
PROCESSOR REBOOTED	The processor has rebooted whilst the power was on
INSPECTION CONTROL	Lift operating under inspection control, engineer on site
PREP TO TEST CONTROL	Lift operating under prepare to test control
STUCK CAR BUTTON	Stuck button in lift car, check car pushes
STUCK UP LAN BUTTON	Stuck button on landing, check UP landing pushes
STUCK DN LAN BUTTON	Stuck button on landing, check DN landing pushes
STR INPUT HELD ON	STR input held on lift will not restart check, BKC, STR, MC
PRE FLITE CHK FAILED	Short circuit detected on the locks when doors fully open
NODE/NODES REMOVED	Lift travel inhibited due to removal of node
NODE/NODES ADDED	Lift travel inhibited due to addition of node
NODE TYPE CHANGED	IO board type changed, possible faulty board or corrupt data
PX SIGNAL FAULT	PX signal stuck on or on with MSU/MSD sequence incorrect
LOW SPEED ERROR FAULT	Low speed timer timed four time consecutively
CAR LOCK TIP FAIL	Locks failed to make after locktip on doors

DOOR OPEN PUSH HELD	Door open push held, all calls cancelled
SAFE EDGE HELD	Safe edge held all calls cancelled
DETECTOR EDGE HELD	Detector edge held, check door light ray
SPEECH UNIT COMS LOST	Serial communication to speech unit lost, check cables
SPEECH UNIT COMS REST	Serial communication to speech unit restored
ACK F.BAK NOT SEEN OP	Door open limit/doc feedback not seen within ack timer
ACK F.BAK NOT SEEN CL	Door close limit/doc feedback not seen within ack timer
SE COUNT EXCEEDED	Lift out of service safe edge repeatedly operated
DLR COUNT EXCEEDED	Door light ray seen repeatedly, nudging invoked
DOOR CLOSE PROT FAULT	Door close protection timeout seen repeatedly
START FAILURE	No STR input to micro processor check THERM limit, RunContact, PFRR
LAN LOCKTIP FAILURE	Lan locks not remade after locktip timeout
PRE FLIGHT CHK FAULT	Short circuit detected on the locks when doors fully open
DOOR OPEN PROT FAULT	Repeated door open protection timeouts
CRITICAL I/O LOST	Nodes with critical I/O have been removed. Reconnect or edit I/O
FAULT RELAY DROPPED	Lift out of service due to unsafe panel condition
DRIVE TRIPPED	Check fault logger on drive
PROVING CIRCUIT FAULT	Check N/C contacts into proving circuit input on processor
PROVING CIRCUIT FAIL	Check N/C contacts into proving circuit input on processor
COUNTER/TIMER CLEARED	Counter / timer cleared by handheld or PC
UMR / PLR FLR	Pre-lock or unintended movement device failure
UMR/PLR TIP ON LOW SP	Pre-lock or unintended movement device failure
UMR/PLR TIP ON HI SP	Pre-lock or unintended movement device failure
CAN BUS 1 FAULT	Check for short circuit or reverse connection
CAN BUS 2 FAULT	Check for short circuit or reverse connection
CAN BUS 3 FAULT	Check for short circuit or reverse connection
CAN BUS 4 FAULT	Check for short circuit or reverse connection
PANEL NODE X ALERT	Check no coiled CAN cable. Only last node terminating resistor
CAR NODE X ALERT	Check no coiled CAN cable. Only last node terminating resistor
LANDING NODE X ALERT	Check no coiled CAN cable. Only last node terminating resistor
PANEL NODE X ADDED	An unconnected node has been detected and joined the network
CAR NODE X ADDED	An unconnected node has been detected and joined the network
LANDING NODE X ADDED	An unconnected node has been detected and joined the network
PANEL NODE X REMOVED	A connected node has been removed/rejected from the network
CAR NODE X REMOVED	A connected node has been removed/rejected from the network
LAN NODE X REMOVED	A connected node has been removed/rejected from the network
PANEL NODE X REBOOT	A connected node had momentary power loss
CAR NODE X REBOOT	A connected node had momentary power loss
LAN NODE X REBOOT	A connected node had momentary power loss
PANEL NODE X EDIT	A connected node I/O was edited by the user with PC/keypad
CAR NODE X EDIT	A connected node I/O was edited by the user with PC/keypad
LAN NODE X EDIT	A connected node I/O was edited by the user with PC/keypad
CANBUS 1 NODE HEARTBEAT	Check node connected/powering, CAN S/C or reverse connection
CANBUS 2 NODE HEARTBEAT	Check node connected/powering, CAN S/C or reverse connection
CANBUS 3 NODE HEARTBEAT	Check node connected/powering, CAN S/C or reverse connection
PROCESSOR POWERED UP	The processor has been powered up
LIMIT TRIP	The limit input has been tripped
LTR FEEDBACK ERROR	Both limits failed during initialisation
DN LIMIT FAIL	Down limit failed during initialisation
UP LIMIT FAIL	Up limit failed during initialisation
FIND ERROR	Check movement of lift in inspection, check reser/limit/vanes
DOOR LIMITS LOST	Door feedback was lost during travel check door limits

APPENDIX D – INPUT LIST

LU1	LD20	TEST 2
LU2	LD21	T OPEN
LU3	LD22	T CLOSE
LU4	LD23	TST UP1
LU5	LD24	TST UP2
LU6	CP1	TST UP3
LU7	CP2	TST DN1
LU8	CP3	TST DN2
LU9	CP4	TST DN3
LU10	CP5	D OL
LU11	CP6	D CL
LU12	CP7	D OC
LU13	CP8	D HOLD
LU14	CP9	D DIS
LU15	CP10	D ZONE
LU16	CP11	HYDOTL
LU17	CP12	BATT OP
LU18	CP13	RESET
LU19	CP14	UP VANE
LU20	CP15	DN VANE
LU21	CP16	LW90
LU22	CP17	LW110
LU23	CP18	RAMP FB
LD2	CP19	THERM
LD3	CP20	ERET1
LD4	CP21	ERET2
LD5	CP22	ERET3
LD6	CP23	ERET4
LD7	CP24	ERET5
LD8	DOP	ERET6
LD9	DCP	PH2 ACT
LD10	STR	ERET 1A
LD11	SE	ERET 2A
LD12	DLR	ERET 3A
LD13	EMER	ERET 4A
LD14	CARL	ERET 5A
LD15	LANL	ERET 6A
LD16	PROVING	ENG OS1
LD17	LMT TR	ENG OS2
LD18	DRV TR	* OSI *
LD19	TEST 1	* ENG *

APPENDIX E – OUTPUT LIST

LU1	LD20	NUDGE
LU2	LD21	D HOLD
LU3	LD22	D ZON I
LU4	LD23	D OL I
LU5	LD24	SE I
LU6	CP1	HSR
LU7	CP2	MSU I
LU8	CP3	MSD I
LU9	CP4	STOP
LU10	CP5	TEST I
LU11	CP6	STR OP
LU12	CP7	STR OPD
LU13	CP8	DRV EN
LU14	CP9	ECO M1
LU15	CP10	ECO M2
LU16	CP11	RAMP
LU17	CP12	OSI
LU18	CP13	LW90 I
LU19	CP14	LW 110 I
LU20	CP15	NO E SI
LU21	CP16	RE-LEV
LU22	CP17	GATE OP
LU23	CP18	ERET1 I
LD2	CP19	ERET2 I
LD3	CP20	ERET3 I
LD4	CP21	ERET4 I
LD5	CP22	ERET5 I
LD6	CP23	ERET6 I
LD7	CP24	ALRM FI
LD8	DOP	IU
LD9	DCP	ID
LD10	HLRU	STAR
LD11	HLRD	DELTA
LD12	UPR	POS 1
LD13	DNR	POS 2
LD14	UPR CHK	POS 3
LD15	DNR CHK	POS 4
LD16	UPR DEL	POS 5
LD17	DNR DEL	POS 6
LD18	DOR	POS 7
LD19	DCR	POS 8

