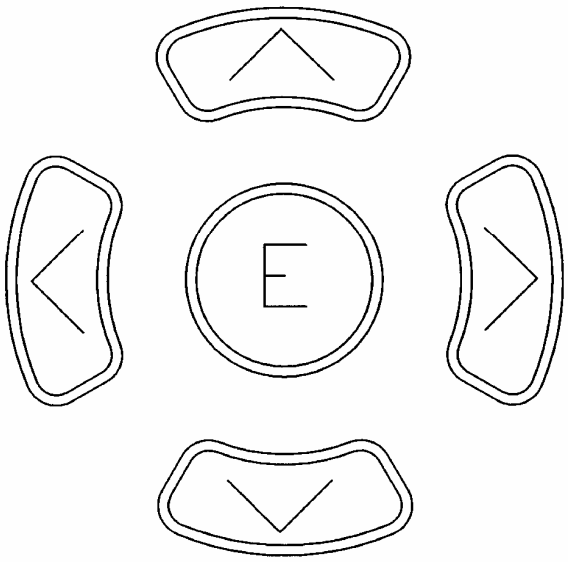
Stannah

NEXUS

LV LIFT CONTROLLER

REFERENCE MANUAL



Issue 7

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APPENDICES

1 INTRODUCTION

The 3rd Generation Lift Controller, here after referred to as the Nexus Lift Controller, has been developed to incorporate the best features of the previous generations of lift controllers and to comply to the latest Lift directives EN81/2 and EMC EN12015 and EN12016, as well as specific customer requirements. Such as: short floor travel, double doors, output short circuit protection, clear labelling of inputs and outputs, front panel LED indication and built in programmer with fault logging in plain English on a 4 by 20 back lit liquid crystal display (LCD). Faults are logged with the time and floor position where the faults occurred.

Future developments include remote monitoring and serial communication for lift car and landing wiring.

The call handling capabilities of the standard Nexus Lift Controller is 8 floors for a single button, up or down collective and 6 floors for a full collective system. The unit can be expanded, by addition of plug in boards, to 15 floors for both types of call system.

Setup security is assured by the use of an electronic key. The programmable parameter can only be set when the key is plugged into the RS232 port. Without the key it is not possible to change the programmed parameters. This ensures that the Nexus Lift Controller programmable parameter settings are only adjusted by competent personnel. Electronic keys have a limited life. **The expiry date for the key is marked on each key. It is the responsibility of the user to ensure that their key is still valid. Only authorised personnel can obtain a replacement key from Stannah Lifts Ltd.**

The Nexus Lift Controller and software have undergone extensive in house and site testing to ensure product reliability and performance meet the requirements of a modern lift controller and customers expectations.

1.1 Nexus Lift controller standard features

- General.
  - Designed using state of the art Microprocessor Technology.
  - Incorporates the best of generation 1 and 2 Lift controllers.
  - Complies with the latest lift directive EN81/2. (1998).
  - Clear labelling of inputs and outputs.
  - Input and output LED status indication.
  - Connection to unit via plug and sockets.
  - Built in programming and fault logging.
  - Messages displayed in Plain English.
  - Front Panel LED lift status indication.
  - Program security by the use of a plug in electronic key.
  - Communication ports RS232 and two RS485 ports.
  - Self-test and CPU status indication.
  - Stuck button detection and indication.

- Call Handling.
  - Multi car group operation.
  - 8 Floor operation for Single Button Collective.
  - 6 Floor operation for Fully Directional Collective.
  - Expandable up to 15 Floors.
  - Call acceptance illumination outputs for all call inputs.

- Door controls.
  - Programmable for automatic or manual doors.
  - Door open pushbutton.
  - Extended Door open pushbutton.
  - Programmable park open per floor.
  - Door close pushbutton.
  - Door nudge (low torque close) option.
  - Door protection sensitive edge input.
  - Double door operation.
  - Door control speech trigger outputs.
  - Door alarm output for manual doors.

- Lift control outputs.
  - Automatic re-levelling.
    - Programmable options for re-levelling.
  - Floor position output options.
    - One per floor.
    - Binary.
    - Gray code.
  - Direction arrow outputs.
  - Hall lantern outputs.
  - Directional arrival gong outputs.
  - Lift in service output.
  - Overload warning output.

- Control options.
  - Goods control. (Landing call buttons disabled).
  - Test control.
  - Firecontrol compliant to EN81/2.
  - Two shutdown inputs.
  - Two overload condition inputs.
  - Alarm input.
  - Motor over temperature shutdown to EN81/2
  - Short floor travel inputs.
  - Built in over journey timer.
  - Built in latching of dangerous fault conditions, such as Ultimate limit and over journey time out.

- Future options.
  - Remote monitoring.
  - Serial communications.

2 OVERVIEW

2.1 Environment requirements and standards

See Appendix A for full specification.

The controller has been designed to work in the following environment:

Ambient Temperature (operating): 0 to 40 ºC.

Ambient Temperature (storage): -10 to +70 ºC.

Ambient Humidity: The assembly can be manufactured for environments with high levels of humidity or pollution, such as conductive dust particles. The requirement for the unit to work in a high humidity or polluted environment must be specified when placing the order.

The Nexus Lift Controller has been designed to meet the requirements of the latest Lift and EMC directives:

Lift directive EN 81/2:1998.

EMC standards EN 12015 for emissions.
EMC standards EN 12016 for immunity.

2.2 Unit construction **Dim: 404 x 200 x 128mm**

See Appendix B for template of mounting points.

The unit has two unhanded M5 keyholes for mounting the unit to the controller panel. Because of this, ensure unit is the correct way up before mounting on the control panel.

The standard Nexus Lift Controller assembly consists of an Aluminium enclosure with a label / keypad mounted on a hinged front panel. Inside the enclosure there are four circuit boards, these are.

LED board: Mounted on the front panel, used to indicate the status of the Lift.

LCD board, mounted on the Processor board (CPU), is used to display lift status information.

Processor board (CPU): Mounted on to the Main I/O board. The CPU board contains the lift software and controls the unit.

Main I/O board: Mounted in the base of the unit. This board provides the interface to the outside world.

The standard unit can be expanded for up to 15 floors by the addition of one or two expansion boards, these plug into the Main I/O board.

Connection to the unit is via plug and socket Wago cage clamp connectors. These enable the removal of the unit without the need to rewire terminals.

2.3 Power supply requirements — 9 V ac or dc, 1.3 A ac.

The Nexus controller can be powered from 9 Volts ac or dc supply and draws a worst case current of 1.3 Amperes. A transformer winding with a 20 VA Rating would provide a suitable power source. This transformer or winding should not be used to power any other devices as heavy inductive loads may cause noise problems. This is a precautionary measure rather than a necessity.

2.4 Input voltages — 12/24 V dc or 110 V ac.

See Appendix E for detailed list of Inputs and ratings.

All the inputs with the exception of the Alarm input, of the Nexus Lift Controller are rated for a nominal voltage of 110 Vac or 25Vdc. The Alarm input is rated for 12 or 24 V ac or dc, as shown on the label.

Connection to the inputs is via Wago cage clamp plug and socket connectors, supplied with the unit.

2.5 Output voltages — 12/24 V dc or 110 V ac.

See Appendix F for detailed list of outputs and ratings.

The outputs of the Nexus Lift Controller source/feed a voltage when in the ON condition.

The call acceptance, position, direction, signal outputs and LIS and OLW outputs, are driven by solid state devices: Transistors or Mosfets. These outputs are 12 or 24 Vdc. The voltage is selected by wiring to two separate feed inputs marked 12V/24V. One feed is used for call acceptance, position and RU/RD, the other feed is used for the signal outputs.

The Run and Door outputs are relay driven outputs with volt free contacts, the feed to relay contacts are grouped by function:
The Run outputs URR, DRR, HSR are fed from the input marked GR, this should be wired to contacts on the safety chain contactor GR.
The re-levelling/anticreep output AC feed is marked AF, this should be wired to the AF terminal, which is before the door lock circuit.

The Door outputs ODR, CDR and DOA are labelled for the relay contact terminals.

The feed for the outputs AC, SPA3, SPA4, RR and DNR is labelled AF. This should be wired to the AF terminal point on the control panel.

The nominal voltage for these outputs on a Stannah Lifts control panel is 110Vac.

Connection to the outputs of the Nexus Lift Controller is via Wago cage clamp plug and socket connectors.

2.6 Output short circuit protection

The Call acceptance, Position and Direction arrow outputs will current limit at 0.3 A. If a short circuit occurs the output group will turn OFF and a fault message will be logged. The output group will turn back ON when the fault is cleared.

The Run and Door outputs are protected by two circuit breakers. These are labelled GR and AF. The circuit breakers trip at approximately 5A. To clear a fault requires the circuit breaker to be manually reset. To reset the circuit breaker push in the circuit breaker levers recessed in the side of the unit, below the circuit breaker symbols shown on the label.

The Signal, LIS and OLW outputs are protected by plug in 1A quick blow fuses. These are mounted on the main PCB close to the FET devices. See Figure 2 for fuse location. The fuse may be removed by simply unplugging the device, a pair of pointed nose pliers may be required for the removal of a fuse.

The 12V/24V dc output circuits are protected from reverse connection by blocking diodes in the output circuit.

2.7 Front panel LED indication

See Appendix C for details of abbreviations and status.

The LEDs on the front panel are used to indicate the status of the lift and are laid out in a similar manner as the key wiring diagram. The lift signals that are shown are grouped as follows:

Nexus status: CPU, SCAN, FAULT, SB, RS232, RS485, RS485.

Power and Safety chain status: 110VAC, 24VDC, 12VDC, 9VAC, ULR, AF, G1, G2, G3.

Run, Door, Proximity and Control inputs: UC, DC, HSC, AC, ODL, CDL, ODLA, CDLA, UPR, DPR, ACR, GCR, TRC, FMC, SDL.

Position, Car, Up and Down Call acceptance: The LEDs 1 to 15 are used to indicate the Lift position and call acceptance information. The leds marked ‘POSITION’, ‘CAR’, ‘UP’, and ‘DOWN’ indicate what information leds 1 to 15 are displaying.

The key marked S, is used to select which of the four options is displayed on the leds 1 to 15. The default display is position.

2.8 Programming and fault logging

The built in programmer/logger incorporates a 4 x 20 character Liquid Crystal Display (LCD), which enables lift menus, status, event and programmable options to be displayed in plain English

The front panel of the unit has five keys marked $\wedge$, $\vee$, $<$, $>$, E and R. The arrangement of the keys are shown in Figure 1, below. These are used to select one of eleven menu items and set programmable parameters. See section 6 for information on programming and logging.

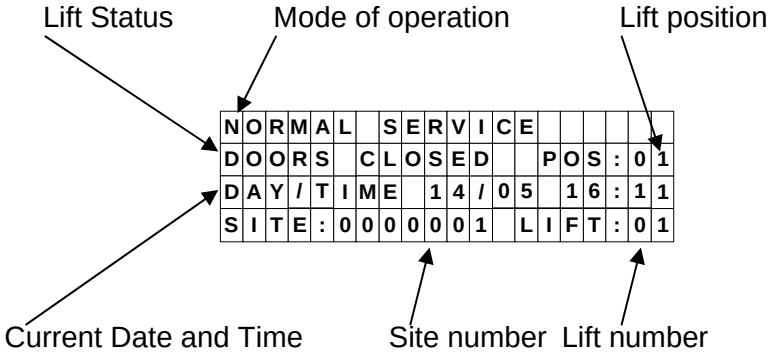
The programmer/logger is structured using menus, these are used to view the lift status, events, clear the event memory, disable event logging, view the lift starts log, register calls, set and view registers, set the clock, set site and lift number, set programmable parameters and door options.

The menu items are selected by use of the keys $<$, $>$. As the keys are pressed or held, the unit will step or scroll through the menus available. Once the required menu is displayed, it

can be selected by pressing the key ∨. When in a menu, the keys ∧,∨ can be used to step up or down the menu or by holding the key, scroll through the menu parameters.

For the menus that allow values to be set, the keys <, > and E are used to select and set the values, the keys <, > are used to select a value or Yes or No and the Key E is used to enter the value. A value or state that is not already programmed into the logger is indicated prefixed by an asterisk (∗) or star. If no '∗ 'symbol is present, then the item is already programmed into memory. The R button can be used to take the user back to the top of the menu again.

The display format is similar throughout the various menus, an example of which is shown below:



2.9 Dimensions and mounting points

SEE APPENDIX B FOR TEMPLATE OF MOUNTING POINTS.

3 MANNER OF OPERATION

It should be noted that with the dongle in position the lift operation will be different in response to lock faults or the latched faults such as EEPROM CORRUPT, ULR or JTT. This is to enable test and service personnel to work on the lift and not have to continually reset the controller.

3.1 Lift Call handling in Normal service

For the different modes of call handling, the call input and call acceptance are wired in different configurations. For specific information on call wiring see Appendix D.

The call handling is a programmable option, see programming and fault logger interface, section 6. For instructions on how to select required call handling.

3.1.1 Single Button Collective (SBC)

The lift will run to, stop and service any landing calls on the system.

The standard unit can handle up to 8 Floors or with the addition of an expansion board up to 15 floors.

3.1.2 Fully Directional Collective (FDC)

The lift will run to, stop and service any landing calls required in the direction of travel.

The Standard unit can handle up to 6 Floors or with the addition of expansion boards up to 15 floors.

3.1.3 Down call Collective (HCDC)

The lift will run to, stop and service landing calls only in the downward direction. The lift runs up to the highest down call, then collects any calls as it runs down.

The standard unit can handle up to 8 Floors or with the addition of an expansion board up to 15 floors.

3.1.4 Up call collective (LCUC)

The lift will run to, stop and service landing calls only in the upward direction. The lift runs down to the lowest up call, then collects any calls as it runs up.

The standard unit can handle up to 8 Floors or with the addition of an expansion board up to 15 floors.

3.2 Stuck Button

Any one of the push button inputs will be ignored if it is continuously ON, for more than the programmed stuck button delay time. The range for the delay is from 10 to 60 seconds. The default value is 20 seconds. See section 6 for details on how to adjust this value.

3.3 Call Handling - Out of Normal service

Please note that with the dongle in place the manner of operation of Shutdown 1 is modified so that the lift ignores landing calls but will accept and run to car calls.

Landing calls will not be accepted when either the Goods control, Test control, Fire control, Shutdown 1 or 2, Overload 2 or 3 or the over temperature input (SPA1) is active.

Car calls will not be accepted when Test control, Shutdown 1 or 2, Overload 3 or when the Over temperature (SPA1) input is active.

3.4 Lift Travel / Movement and floor level Controls

See Appendix H for vane dimensions.

The outputs URR, DRR, HSR and AC are used to feed the drive circuit to the motor circuit and speed control.

URR and DRR: Up Run Relay and Down Run Relay are the low speed run outputs and are active when the lift is in motion in low speed and high speed.

HSR: High speed relay is the High Speed Relay output, when active this output enables the lift to run in high speed.

AC: AntiCreep output will turn ON for re-levelling the lift or for advance door opening. This output is used to enable a lock by pass circuit.

A moving lift car is controlled by the ACR, UPR and DPR inputs. These are grouped together under the inputs labelled PROXIMITY. They indicate the location of a floor and are used in the following manner.

When ACR, UPR and DPR are all ON, the lift is level at a floor.

When the lift is moving in an up direction, the first occurrence of a UPR signal, on its own, will cause the controller to increment the floor position. If there is a call present at the new floor position the lift begins to slow to the floor, HSR is dropped. If there is no call present, the lift will remain in high speed and ignore the UPR input when ACR is ON, the lift will increment the floor position at the next occurrence of UPR, on its own, it will then repeat the cycle as above.

The DPR input, with no ACR input present is ignored when the lift is travelling in an up direction.

The lift will slow to a floor by dropping HSR and running in slow speed until ACR, DPR and UPR are all seen to be ON. The lift will then stop after the programmed **STOP DELAY**, see section 6 for details on how to program this value, and open its doors, If Advance door open is selected the doors will begin to open when ACR and DPR are ON.

For the lift running in the downward direction, the operation is the same as above, but the lift decrements the position and slows to the floor on the occurrence of the DPR input. UPR on its own is ignored.

3.5 Operation of floor levelling

The presence of UPR, DPR and ACR tells the Nexus Lift Controller that the lift car is at floor level and to stop. To enable accurate levelling of the lift car, the controller has a programmable **STOP DELAY**, see section 6 for details. The delay allows for an overlap of UPR and DPR, which means the lift car can drift from floor level by approximately 20mm before the automatic re-levelling occurs. This occurs if the lift is left stationary for a long period of time. Due to the expansion or contraction of the hydraulic oil with temperature change, the lift will slightly rise above or sink below floor level. If safety conditions are met the lift is re-levelled automatically by engaging the anticreep circuit.

3.6 Operation of floor re-levelling (Anticreep)

The UPR and DPR inputs are used to indicate the position of floor level. These inputs are monitored by the Nexus Lift Controller so that the lift can maintain its floor level. If UPR or DPR are seen to turn OFF the lift will wait the initial re-level programmable delay, before re-levelling. The delay is to allow for passengers to enter the lift, insert a call and hence close the doors and run the lift. Under this condition there is no need to re-level the lift.

The lift will only re-level if the door zone input is valid, ACR energised.

To enable re-levelling, the anticreep (AC) output is turned ON; this by passes the lock circuit and provides a feed to the RUN contactors. There is an electrical interlock that does not allow the by passing of the lock circuit if the lift is not in the door zone, ie, if ACR, UPR or DPR inputs are not present.

There are five programmable options associated with re-levelling. See section 6 for information on these parameters.

3.7 Short Floor Travel

See Appendix I for Short floor vane arrangement.

For short floor travel installations the inputs UPS and DPS are used to indicate the proximity of a short floor.

When the lift is running up it will operate as per normal travel and increment its floor position on the occurrence of a UPR signal. If there is no requirement to stop and UPS input is ON, the lift will increment the floor position again on the occurrence of UPS, UPR, DPR and ACR. If there is a requirement for the lift to stop, it will slow to the floor when the floor position is incremented.

When the lift is running in the down direction the lift operates as above, but the position decrements on the occurrence of DPS and ACR.

When the lift is running from one short floor to an adjacent short floor, the lift only runs in low speed.

3.8 Floor Reset

The RSU and RSD inputs can be found on the RUN group of inputs.

The floor reset inputs RSU (Reset Up) and RSD (Reset Down) are used to reset the lift position. When one of the inputs is seen to be ON the current lift position is dropped and replaced with the programmed floor RSU or RSD value. See Section 6 for setting of RSU value.

3.9 Lift Ultimate Limit protection. Fault: ULR

Please note, that with the dongle in place a ULR fault will be logged but the lift will not be latched lift out of service.

This can be found on the RUN group of inputs.

Once the Ultimate Limit Input has been energised, the lift will stop immediately, log an ultimate limit fault and latch the lift out of service. The lift can only be returned to normal service once both the fault and latched condition have been cleared.

To clear a latched fault, Push in the reset link on the control panel and cycle the power. A latched fault can also be cleared by use of the logged interface, see section 6 for details.

Caution: **The reset link should not be left pushed in, as this will disable the latched faults and could compromise safety.**

3.10 Lift Over journey protection. Fault JTT:

Please note, that with the dongle in place a JTT fault will be logged but the lift will not be latched lift out of service.

Over journey fault conditions are taken care of by an internal, programmable over journey timer. The range of the timer is 60 to 180 seconds.
When a journey time fault condition occurs, such as, lift continually running in low speed. The lift controller will log an over-journey event after a time of half the programmed over-journey fault time. The lift will then run on until either the full over-journey time has elapsed or the lift reaches floor level. Once the over-journey timer has timed out or the lift car is at floor level an over-journey fault will be logged and the lift shutdown out of service. To clear the latched fault, Push in the reset link on the control panel and cycle the power. A latched fault can also be cleared by use of the logged interface, see section 6 for details.

When programming the lift controller, the over-journey fault timer should be set up so that the lift can complete a run between floor levels in slow speed.
Caution: **The reset link should not be left pushed in, as this will disable the latched faults and could compromise safety.**

3.11 Door Operation

The Doors will only open when in a valid door zone, this is indicated by the ACR input being ON and the presence of one of the floor level inputs: UPR or DPR.

The door journey time and door open time, are programmable parameters. See section 6 for details on how to set these values.

3.12 Advance Door opening

Advance Door opening is a programmable option. When selected the doors will begin to open on the occurrence of ACR and UPR or DPR. The lift will stop when ACR, UPR and DPR are all ON. To enable advance door opening the anticreep (AC) output is turned ON, this by passes out the lock circuit and provides a feed to the RUN contactors. There is an electrical interlock that does not allow the bypassing of the locks if the ACR, UPR or DPR inputs are not present.

3.13 Door controls and door nudge

The door control inputs DOP (Door Open Push), DCP (Door Close Push), SE (Safety Edge) and DORX (Extend Door Open Time), cause the doors to open, close or extend the door open time, see section 4 for detailed descriptions of the inputs operation.

The DNR (Door Nudge) output is a programmable option. This output is used to enable the low torque door drive. If the unit has had door nudging enabled, see section 6 for instructions on setting programmable options. The doors will attempt to nudge close in low torque. Nudging will only occur if the doors have failed to close after the programmed door attempts.

When Door Nudge is active the photo cell sensor (SE input to the Nexus Lift Controller) is inactive, but the mechanical safety edge is still operational. If the mechanical Safety Edge is activated the doors will stop moving, as long as the Safety Edge is active, once the Safety edge is released the doors will attempt to close (nudge), for the remaining programmed door journey time. When the door journey timer times out the doors will open. The doors will attempt to close again once the door open time has timed out or a car call is input.

3.14 Auxiliary Doors

The Nexus Lift Controller can be expanded to cater for double door installations by the addition of a plug in expansion board. This board provides the door control inputs and outputs for the auxiliary doors. Operation of the door and control inputs is the same as for the main doors.

The additional door control inputs and outputs are:

<u>INPUTS</u>

Auxiliary doors safety edge input (SEA),
Auxiliary door enable (DEA),
Auxiliary door open contactor (ODCA)
Auxiliary door close contactor (CDCA)
Auxiliary door open limit (ODLA)
Auxiliary door close limit (CDLA)

<u>OUTPUTS</u>

Auxiliary door open feed (ODRA)
Auxiliary door open output (ODRA)
Auxiliary door close feed (CDRA)
Auxiliary door close output (CDRA)

3.15 Open through car with sequential door opening.

The input DE (Main Door Enable) and the DEA (Auxiliary Door Enable) on the expansion board, are used to identify the door control inputs and which doors to open. The door control signals are fed into a diode matrix to provide the required feed to DE or DEA. A typical circuit is shown in Appendix J.

3.16 Programmable parameters for Main doors and Auxiliary doors

The parameters for the operation of the doors can be reprogrammed using the in built programming facility. The factory programmed values and ranges, are listed below.

See Section 6 for instruction on how to set these parameters.

NOTE: No prior notice will be given of any changes. It is up to the user to ensure the manual is up to date.

PARAMETER	DEFAULT	RANGE	COMMENT
AUX: Aux door enable	No	Yes	Set for Aux doors
PFL: Per floor lock out	No	Yes	Set for sequences door
MND: Manual doors	No	Yes or No	
ADO: Advance doors Open	No	Yes or No	See Door parameters
DJT: Door motion.	10	5 to 15	Seconds.
DOT: Door open time	6	1 to 60	Seconds.
DHT: Door extend open time	20	5 to 30	Seconds.
DDT: Door reverse delay time	0.2	0.1 to 0.9	Seconds
DJA: Aux door motion	10	5 to 15	Seconds.
DOA: Aux door open	6	1 to 30	Seconds.
DHA: Aux extended open time	10	5 to 60	Seconds.
DDA: Aux reverse delay	0.2	0.1 to 0.9	Seconds.
PFL: Per floor lockout	No	Yes or No	
DNR: Door Nudge	No	Yes or No	
DNO: Door Operation	4	1 to 10	Operations.
CDD: Lock delay	0.5	0.1 to 2	Seconds.
COT: Contact delay	0.5	0.1 to 0.5	Seconds.
CRT: Contact Release Delay	0.5	0.1 to 0.5	Seconds.

3.17 Door programmable options for specific floors

The **'PROGRAM DOOR OPTIONS'** menu offers the following parameters to enable operation of the doors specific to a floor.

See Section 6 for instruction on how to set parameters.

PARAMETER	VALUE	RANGE	COMMENT
DZM: Main Door Zone 1 to 15	No	Yes or No	Doors open this floor.
DZA: Aux Door Zone 1 to 15	No	Yes or No	Doors do not open.
DPO: Doors park open.	No	Yes or No	Do not park open.
DPA: Aux Doors park open	No	Yes or No	Do not park open.

4 INPUTS AND FUNCTION

The inputs to the Nexus Lift Controller are grouped together as per function. These groups are: Power Supply, Safety Circuit, Doors, Run, Proximity, Lift control and Call Inputs. The inputs are situated along the bottom edge and right hand side of the unit and are clearly identified on the label.

Terminal numbering is from left to right, when viewed from end on. That is, Pin 1 is at the left hand end.

A summary list of all the inputs and ratings can be found in Appendix E.

Connection to the unit is via Wago cage clamp plug and socket connectors; these are supplied with the unit.

4.1 Power supply inputs

Summary.

FP- SENSE, S+ SENSE, 24Vdc, 110Vac, COM, 9V ac/dc, FP-, S+, COM-10.

FP- and S+ SENSE Inputs **12V ac or dc.**

FP- and FP+ are used to monitor the 12v dc feed circuit. If no voltage is present, a F40: PS3: S+ Feed lost fault will be logged.

110v ac Input. **110V ac.**

This input is used to monitor the 110v ac circuit. If no voltage is present, an F38: PS1: 110Vac fault will be logged.
The 110Vac input is also used to synchronise the reading of the inputs with the mains cycle. If this input is not present the unit is unable to function.

24Vdc Input.

This input is used to monitor the 24Vdc control circuit voltage. If this voltage is not present the Nexus will log an F39:PS2: C+ feed supply lost fault.

COM Input.

This input is the return point for the 110V ac input.

9Vac/dc Inputs. **9V ac or dc.**

These are the power supply inputs to the Nexus Lift Controller. The input is protected by an internal resetable fuse. To reset the fuse the power must be cycled.

The 9V supply draws a worst case current of 1.3 Amperes. A transformer winding with a 20 VA rating would provide a suitable power source. This supply Inputs and function should not be used to power any other circuits as heavy inductive loads may cause noise problems.

FP- and S+ Inputs. **12V ac or dc.**

This input is used to monitor the +12V floor position circuit.

COM-10 Input.

This input provides a return point for the suppression devices on the unit. This should be run separate to the power source common return.

4.2 Safety Circuit Inputs.

B-, G3, G2, G1, AF, ST.

See Appendix G: Typical key wiring diagram, for details.

ST: Safety Terminal Input. 110V ac or dc.

The ST input monitors the presence of the Safety chain voltage up to the ST point. If no voltage is present a SCF: Safety Circuit fault, will be logged and the lift will not run.

AF: Safety Gear Switch. 110V ac or dc.

The AF input is used to monitor the presence of the safety chain at the AF point. If no voltage is present a 'PS4: AF Signal not present', fault will be logged.

G1: Car Gatelock Relay. 110V ac or dc.

The G1 input monitors the state of the car gate doors: open or closed.
When ON the doors are closed and locked. The lift is safe to run, allowing that all other safety inputs are also ON.

For manual doors, G1 is used to monitor the landing beak relay (LBR).

If the G1 input breaks, while the lift is running, the safety chain has been broken and the lift will stop. A GLH: G1 Lock Tripped in High Speed or GLL: G1 Lock Tripped in Low Speed fault will be logged and the lift will remain out of service until the control panel has been reset, this is done by cycling the power.

If the dongle is in place the lift will not cancel calls but will restart once the lock circuit is remade.

G2: Main Gatelock Relay. 110V ac or dc.

The G2 input monitors the state of the landing doors: open or closed.
When ON, the landing doors are closed and locked. The lift is safe to run, allowing that all other safety inputs are also ON.

For Manual doors, G2 is used to monitor the locking ramp.

If the G2 input breaks, while the Lift is running, the safety chain has been broken and the lift will stop. A GLH: G2 Lock Tripped in High Speed or GLL: G2 Lock Tripped in Low Speed fault will be logged and the lift will remain out of service until the control panel has been reset, this is done by cycling the power.

If the dongle is in place the lift will not cancel calls when the but will restart once the lock circuit is remade.

If G2 fails to make when the doors have closed and the programmed

CDD: Lock Delay, has timed out. The doors will reopen and attempt to close again.

G3: Manual doors car gatelock.

The G3 input monitors the state of the manual doors car gatelock: open or closed. When ON the doors are closed and locked. The lift is safe to run, allowing that other safety inputs are also ON.

If the G3 input breaks, while the Lift is running, the safety chain has been broken and the lift will stop. A GLH: G3 Lock Tripped in High Speed or GLL: G3 Lock Tripped in Low Speed fault will be logged and the lift will remain out of service until the control panel has been reset, this is done by cycling the power.

If the dongle is in place the lift will not cancel calls when the but will restart once the lock circuit is remade.

COM Input.

The COM input is the common return point for the of inputs circuits.

This terminal should be wired to the ‘COM‘ rail in the control panel.

4.3 Doors Inputs. 110V ac or dc.

Summary.

DOP, SE, DCP, DE, ODC, CDC, ODL, CDL.

DOP: Door Open Push.

The DOP input will cause the doors to open or remain open under all valid conditions, that is, the Lift is operational and in a door zone.

The DOP input will be ignored if the input is continuously ON for more than the Programmed **stuck button delay time.** See section 6 for details on how to set this value.

SE: Safety Edge.

The SE input is usually wired to the sensitive edge or photocell device.

For a lift in normal service the SE input, when ON, will cause the doors to remain open or if the doors are closing, to reopen the doors.

If the Lift is in a fire mode (FMC = ON), the SE input is ignored.

DCP: Door Close Push.

The DCP input will cause the door to immediately close.

This input is very rarely used, as inserting a car call will also cause the doors to close.

DE: Door Enable. (used for double door installation with per floor lockout)

The DE input is used for double door installations where only one set of doors are allowed to open at any one time. It is used to identify the door controls for the main set of doors. The

signal for this input is derived from the door control inputs connected to a diode matrix connected to the DE input. See Appendix J for circuit diagram.

ODC: Open Door Contactor and CDC: Close Door Contactor.

The ODC and CDC inputs are used to confirm that the ODC and CDC contactors have pulled in and that a fault condition has not occurred.

When the output ODR or CDR turns ON, the ODC or CDC input must turn ON before the programmed COT: Contactor delay times out, see section 6 for details on setting this value. If the ODC or CDC input does not turn ON within the delay, the unit will log an ODN: ODC Not Energised or CDN: CDC Not Energised fault will be logged.

ODL: Open Door Limit and CDL: Close Door Limit.

The ODL and CDL inputs are used to determine the state of the doors.
These are as follows.

Doors closed:	ODL = ON,	CLD = OFF.
Doors in motion:	ODL = ON,	CDL = ON.
Doors open:	ODL = OFF,	CDL = ON.

4.4 Run Inputs. 110V ac or dc.

Summary.

UC, DC, HSC, LS, RSD, RSU, ULR, DORX.

UC: Up Contactor and DC: Down Contactor.

The UC and DC inputs are used to confirm that the UC and DC contactors have pulled in and that a fault condition has not occurred.

When the output UR or DR turns ON the UC or DC input must turn ON before the programmed COT: Contactor delay times out, see section 6 for details on setting this value.

If the UC or DC input does not turn ON within the delay, The fault URN: UC Not Energised or DRN: DC Not energised will be logged.

If UC or DC fail to pull in, the Lift will cancel all calls. It will attempt to run again only when new calls are entered.

HSC: High Speed Contactor.

The HSC input is used to confirm that the HSC contactor has pulled in and that a fault condition has not occurred.

When the output HSR turns ON, the HSC input must turn ON before the programmed COT: Contactor delay times out, see section 6 for details on setting this value.

If the HSR input does not turn ON within the delay a HSC: HSC Not Energised fault is logged.

If HSC fails to pull in, all calls will be cancelled and the lift will not attempt to run again unless further calls are entered.

LS: Lag Start.

For installations where there is a limited power supply and the starting current for two lifts at the same time could cause the supply voltage to dip. The LS input can be used to delay the starting of the lift. This input is connected to the 'STAR' starting circuit of the other lift controller and when LS is energised the lift will not run.

RSD: Reset Down and RSU: Reset Up Inputs.

The RSD and RSU inputs are used to reset the current lift car position to the programmed RSD and RSU values. When one of these inputs is ON the current lift car position will be overridden by the RSU or RSD value.

See section section 6 for setting details.

ULR: Ultimate limit input.

Please note, that with the dongle in place a ULR fault will be logged but the lift will not be latched lift out of service.

The ULR input is fed from a switch operating in conjunction with the ultimate limit switch in the safety chain. When the Ultimate Limit Input has been energised, the lift will stop immediately, log an ultimate limit fault and latch the lift out of service. The lift can only be returned to normal service once both the fault and latched condition have been cleared.

To clear a latched fault, Push in the reset link on the control panel and cycle the power. A latched fault can also be cleared by use of the logged interface, see section 6 for details.

Caution: **The reset link should not be left pushed in, as this will disable the latched faults and could compromise safety.**

DORX: Door Open Extend time.

This is not a run signal but a door control input but it lives here.

The DORX Input is used to extend the door open time. The range for the extended door open time can be set from 5 to 60 seconds.

This feature is mainly used for installations where, at certain times, the doors are required to stay open longer than normal such as nursing homes or hospitals.

4.5 Proximity Inputs. 110V ac or dc.

Summary.

See Appendix H for dimensions of vanes.

ACR, UPR, DPR, UPS, DPS, OVT, LTS, SPA3.

ACR: Door Zone Input.

The ACR input is used to indicate the presence of a valid door opening zone. The doors are unable to open without this input being ON.

UPR: Up Proximity Relay and DPR: Down Proximity Relay.

These inputs are used to increment (UPR) or decrement (DPR) the floor position and to indicate the presence of the floor level (UPR and DPR).

UPS: Up Proximity Short floor and DPS: Down Proximity Short floor

See Appendix I, for short floor vane arrangement.

These inputs are used to indicate the presence of a short floor:

UPS indicates that there is a short floor in the up direction after the next floor.

DPS indicates that there is a short floor in the down direction after the next floor.

OVT (SPA1): Over Temperature Input. (Normally ON).

The Over Temperature input is used to shut the lift down when an over temperature condition occurs with the motor unit. When the input is seen to turn OFF, the lift will attempt to run to the next floor and stop, open its doors, close its doors and park with its doors closed. The doors will reopen to a DOP input. If the lift fails to see a floor level within 20 seconds it will stop and shutdown. A OVT: Over temperature fault condition will be logged.

LTS (SPA2): Latched fault clear switch.

This input is connected to the normally open push/pull ‘latched fault’ reset link on the control which is fed from 110v ac.

To clear a latched fault, push in the reset link, cycle the power and pull out the reset link.

Caution: LTS reset link must not be left pushed in when lift is in normal operation.

SPA3.
Spare input for future options.

4.6 Lift control Inputs.

Summary.

GCR, TRC, FMC, SDL1, SDL2, OL2, OL3, ALRM.

GCR: Goods Control Relay input.

This is the car preference input, when this input is ON the lift will be under car preference control. The lift will ignore landing calls and park with the doors open. It will only run to one car call at a time.

TRC: Test Control. (Normally ON).

The Nexus Lift Controller is placed in Test Control when this input is OFF. All the RUN and DOOR control outputs are inactive and the lift is controlled by the car top controls. The lift will track the floor position and sound a built in buzzer when the lift passes a floor level. No faults are logged while in test control.

FMC: Fire Control Input.

The FMC input is used to place the lift into the programmed fire mode.

See section 6 for programming information.

This can be fire shutdown or fire control. The two modes comply with the lift directive EN81/2 and are briefly described below.

Operation of FMC input has priority over GCR, SDL1, SDL2 and OL2.

Fire shutdown: When FMC input turns ON, all landing and car calls are cancelled and further call inputs are ignored. The lift will then run to the programmed fire floor, if the lift is running in the opposite direction it will stop at the next floor NOT open the doors and then reverse direction and run to the fire floor. On arriving at the floor the door will open, then, after the door open time, close and park out of service.
The doors will reopen to a DOP input or if the FMC input is cycled.

Fire Control: When FMC input turns ON, the lift operates as above but the doors park open at the fire floor. The doors will only close when continuous pressure is applied to a car call button, if the button is released before the doors fully close, the doors will reopen. When the lift runs to a car call, it will run to the call floor, stop and NOT open the doors. The doors will only open to continuous pressure on the DOP button, if this is released before the doors are fully open the doors will re_close. Once the doors are fully open they will park open and only close to continuous pressure on a car call button, as described above.

SDL1(normally ON) and SDL2(normally OFF): ShutDown Lift 1 and 2.

Please note that with the dongle in place the manner of operation of Shutdown 1 is modified so that the lift ignores landing calls but will accept and run to car calls.

When Shutdown 1 or Shutdown 2 is active, all calls will be cancelled and no further calls will be registered. The lift will run to the programmed shutdown floor, open the doors, close the doors after the door open time and park with the doors closed. The doors will only reopen to a DOP input.

Operation of the Shutdown inputs has priority over GCR and OL2.

OL2 and OL3: Overload 2 and 3.

There are two Overload conditions, overload 2 and overload 3.

Overload 2: The lift will only accept and service car calls. New landing calls will not be accepted.

Overload 3: This input is only effective when the lift is stationary at a floor with the doors open. If OL3 input is energised the lift will remain at floor level with the doors parked open and the OLW output will turn ON, also an overload OLW fault will be logged.

If the overload condition has not been cleared by the time the call cancel timer times out, all calls on the system will be cancelled.

ALRM: Alarm input. (12 to 24V ac/dc).

The Alarm input monitors the Alarm push in the lift car. If the input is energised for more than 3 seconds, an ALR: Alarm Push Operated fault will be logged. The Alarm acknowledge (ALRL (SPA1) Output) will be activated.

4.7 Call Inputs.

The allocation of the call inputs is dependant upon the call handling mode selected. See section 6 for details on selection.

A full list of the call inputs allocations for the different mode of operation can be found in Appendix D. A summary is shown below.

Each call input is to be directly wired to its corresponding call output. This method helps to reduce the number of trailers needed to the lift car. As a call input is placed on the system, Nexus will turn the corresponding call output on and leave it on as the call input is lost.

SINGLE BUTTON COLLECTIVE: 8 Floor.

CALL INPUTS

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
C	C	C	C	C	C	C	C	L	L	L	L	L	L	L	L

FULL COLLECTIVE: 6 Floors.

CALL INPUTS

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	2	3	4	5	6	1	2	3	4	5	2	3	4	5	6
C	C	C	C	C	C	U	U	U	U	U	D	D	D	D	D

5 OUTPUTS AND FUNCTION

5.1 Call Acceptance outputs

The call acceptance outputs voltage source is the 12v/24v input feed on the Position and Direction outputs. Therefore the output voltage is dependent upon the feed voltage.

The call acceptance outputs are current limited and have been designed to drive LED call acceptance illumination. If incandescent lamps are required the control panel will have to be fitted with a relay interface board, Part No: 9300-16.

The allocation of the call acceptance outputs is dependant upon the call handling mode selected. See section 6 for details on program facility.

A full list of the call inputs allocations for the different mode of operation can be found in Appendix D. A summary is shown below.

SINGLE BUTTON COLLECTIVE: 8 Floor.

CALL ACCEPTANCE

8	7	6	5	4	3	2	1
1	2	3	4	5	6	7	8
CL	CL	CL	CL	CL	CL	CL	CL

8	7	6	5	4	3	2	1
1	2	3	4	5	6	7	8
LL	LL	LL	LL	LL	LL	LL	LL

FULL COLLECTIVE: 6 Floors.

CALL ACCEPTANCE

8	7	6	5	4	3	2	1
1	2	3	4	5	6	1	2
CL	CL	CL	L	CL	CL	UI	UI

8	7	6	5	4	3	2	1
3	4	5	2	3	4	5	6
UI	UI	UI	DI	DI	DI	DI	DI

For installations greater than 6 and 8 floors see Appendix D.

5.2 Position and Direction outputs Transistor 12 to 24vdc.

The position and direction outputs are fed from the 12v/24 feed input on the same connector. Therefore the output voltage is dependent upon the feed voltage.

The position and direction outputs are current limited and have been designed to drive up to 100mA loads per output. If higher drive currents or incandescent lamps drive are required the control panel will have to be fitted with relay interface board, Part No: 9300-16

FP1 to FP6: Floor Position. Transistor 12 to 24vdc

The position outputs are used to indicate the current floor position.
The output can be programmed to be One per floor, Binary or Gray code.

See section 6 for information on programming of required output.

RU and RD: Run Up and Run Down. **Transistor 12 to 24vdc**

The RU and RD outputs are used to indicate the direction of travel of the lift. The relevant outputs will be ON all the time that the lift has a direction of travel and will only turn OFF when the lift has no further calls to answer.

5.3 Signal outputs

Summary.

AU, AD, AGU, AGD, ALRL, CLT, CALL, FFR.

The Signal, LIS and OLW outputs are protected by plug in 1A quick blow fuses, excluding AU and AD which have 2A fuses fitted. These are mounted on the Main I/O PCB close to the FET devices. The fuse may be removed by simply unplugging the device, a pair of pointed nose pliers may be required for the removal of a fuse.

AU and AD outputs are rated for 1A continuous and 2A instantaneous.
The outputs are rated for 0.5 A continuous and 1A instantaneous.

AU and AD: Direction of departure arrows Up and Down. **FET output 12 to 24vdc.**

These indicate the intended direction of departure. These outputs are energised whenever there is a direction of travel and the lift is not running in highspeed (HSR = OFF).

AGU and AGD: Arrival Gongs Up and Down. **FET output 12 to 24vdc.**

Whenever the lift changes to slow speed to stop at a floor the output AGU or AGD will turn ON for the programmed Gong time duration. Which output turns ON is dependent upon the direction of travel. The output will not turn ON again until the lift stops at another floor.

ALRT (SPA1): Alarm Acknowledge. **FET output 12 to 24vdc.**

This output will energise when there is an input on the alarm input (ALRM). The output is used to acknowledge that the alarm has been reported. This feature will be fully implemented when the unit has been fully developed for remote monitoring.

CLT (SPA2): Car Lighting Control Output. **FET output 12 to 24vdc.**

This output is used to control the car lighting and will be energised when the lift is in a door zone with the doors closed and the lift has been inactive for the programmed ‘CLT: Lights OFF Delay time’. See section 6 for programming details.

If the Alarm input has been activated the car light output is disabled: The lights will stay ON.

CALL : currently not used

FFR: Fire Fighting Mode Relay. **FET output 12 to 24vdc.**

The FFR output will turn ON when the FMC: Fire control input is energised. This output is gated with the Test control Circuit to sound an alarm to warn service personnel that the Fire control has been activated. The lift cannot go into Fire control if on Test control.

5.4 Run outputs

Summary.

GR, URR, DRR, HSR, AF, AC, ODT (SPA3), CDT (SPA4), LIS, OLW.

The RUN outputs consist of six Relay outputs which are current limit protected by an in built circuit breaker marked as GR –o x , on the label. There are two more outputs marked LIS and OLW, these are FET driven, see section 5.3 for protection information.

GR: Gatelock Relay. (Feed for the run circuit) FEED INPUT.

The run outputs are fed from the GR input, which is connected to the end of the safety chain. This input is only fed when the lift is safe to run.

URR and DRR: Up Run Relay and Down Run Relay. Relay contact.

The URR or DRR output turns on when there is a requirement for the lift to run. The output feeds the UR or DR contactor and hence the UC or DC contactor and drive circuit.

If after the programmed contactor delay time (COT), see section 6 for programming details, the UC or DC input to the unit has not been seen to turn ON, the outputs will turn OFF, and Nexus will log a 'URN: UC NOT ENERGISED' or 'DRN: DC NOT ENERGISED' fault. Any calls on the system will be cancelled.

HSR: Highspeed relay. Relay contact.

The Highspeed relay is energised when the lift is running in high speed and is used in conjunction with URR or DRR outputs to make the drive circuit. As the lift approaches a floor with a requirement to stop, the HSR output will be dropped when the UPR slowing vane is seen. The lift will then run in SLOW speed until ACR, DPR and UPR are seen to be ON.

If after the programmed contactor delay time (COT), see section 6 for programming details, the HSR input to the unit has not been seen to turn ON, the output will turn OFF and Nexus will log a 'HSC: HSC NOT ENERGISED' fault.

AF: Anticreep (levelling) Feed. Relay contact.

The anticreep (AC) output is fed from the AF input, which is connected to the safety chain prior to the lock circuit. This input is only fed when the lift is in the door zone and safe to run.

AC: Anticreep (levelling) output. Relay contact.

The AC output is energised for re-levelling the lift or for advance door opening. The output is used to enable the lock by pass circuit. See Appendix G for Typical wiring diagram.

ODT (SPA3): Doors opening speech trigger output. Relay contact.

ODT will trigger a Speech unit 'Doors opening' phrase, if fitted.
This occurs when ACR and UPR or DPR turns ON.

CDT (SPA4): Doors closing speech trigger output. Relay contact.

CDT will turn ON to trigger the 'Door close' phrase, 3 seconds before the doors attempt to close; this is to enable passengers to move away from the doors.

LIS: Lift in Service. **FET output 12 to 24vdc.**

The LIS output will be energised the whole time that the lift is in normal service. The output will turn OFF, when any of the control inputs are active or if an out of service fault condition has been detected.

OLW: Overload Warning. **FET output 12 to 24vdc.**

The overload warning output will be energised when an overload level 3 condition is detected, OL3 input ON.

5.5 Door outputs.

ODR and CDR: Open Door Relay and Close Door Relay.

Volt free contact for opening and closing lift doors. The ODR or CDR is energised to open or close the doors when the lift is in a valid door zone and there is a command to open or close the doors.

When the ODR or CDR outputs are energised the unit waits the programmed 'COT: contactor delay time', for the ODC or CDC input to turn ON, if these inputs fail to turn ON before the delay time a 'ODN: ODC NOT ENERGISED' or 'CDC NOT ENERGISED' fault will be logged. See section 6 if programming of contactor delay time.

RR: Retiring ramp. **Relay contact.**

For Manual doors this output is energised to lock the Landing doors when the lift is in motion.

DNR: Door Nudge Relay. **Relay contact.**

For installations where the door control has a low torque facility, this output can be used to try to nudge the obstruction and attempt to close the doors. When Door Nudge is active the photo cell sensor (SE input) is inactive, but the mechanical safety edge is still operational. If the mechanical Safety Edge is activated the doors will stop moving, as long as the Safety Edge is active, once the Safety edge is released the doors will attempt to close (nudge), for the remaining programmed door journey time. When the door journey timer times out, the doors will open and cancel all calls. The doors will attempt to close again once the door open time has timed out or a car call is input.

DOA: Door Open Alarm. **Relay Contact.**

This is a volt free contact for sounding an alarm if the doors are left open. This is used in manual door installations.

6 PROGRAMMING AND FAULT LOGGING

6.1 Introduction

Note: It is not possible to program any of the parameters without the electronic key plugged into the RS232 port.

The Nexus Lift Controller incorporates a built in logger facility for logging lift status, events and programmable information.

The logger consists of a liquid crystal display (LCD) and 5 keys marked ∧, ∨, >, < , E and R. See Figure 1, for layout of front panel. The LCD is used for displaying lift status, events and programmable information. The keys are used to step through menu options and programming parameters.

The programmer / logger interface is via a list of menus which are accessed using the keys >, <. The menu options are shown below.

Lift Status ⇔ View Lift events ⇔ Clear event log ⇔ Event options ⇔ Lift starts log ⇔ Register calls ⇔ Set and view registers ⇔ Set current date and time ⇔ Set Site No ⇔ Program Facility ⇔ Program door options ⇔ Inverted inputs ⇔ Char Set ⇔ return to Lift Status.

See Appendix K for menu details.

6.2 Description of Operation

Note: If the programmed parameters are corrupted the lift will log an 'EEPROM CORRUPT' fault and latch the lift out of service.

To clear a latched fault, Push in the reset link on the control panel and cycle the power. A latched fault can also be cleared by use of the logged interface, see section 6 for details.

Caution: **The reset link should not be left pushed in, as this will disable the latched faults and could compromise safety.**

The interface to the programmer and logger functions is via 11 menus. The menus are made up of a list of items relevant to the menu name, as listed above.
The menu list is stepped through using the keys <, >. As the menus are stepped through, each option is displayed on the LCD. When the last menu is reached, the menu will wrap around to the first option.

To access a menu, press the key > until the display shows the required menu. Press the key ∨, to enter into the menu. If the key > has no effect, you are already in a menu and must return to the main menu selection. This is done by either pressing the key ∧, until the display offers you the option 'To Exit Press < or >', pressing either of these keys will return you to the main menu or alternatively press the R button.

You should then be able to step through the menu as described above.

To select a particular menu option, use the keys ∨, ∧. These keys enable a user to run up and down the menu items. For details of each menu item see Appendix K for a list of menu items.

The menu items can be stepped through by repeatedly pressing the keys ∧ or ∨. To scroll through the menu hold the key down.

To set a programmable value use the keys <, > and E. This is done by stepping through the selection of values and pushing the key E, to enter the option YES/NO or the selected value, depending on the selection offered.

Programmable values **that are not** programmed into the unit are prefixed by an asterisk '∗' symbol next to the value. Once the value has been programmed into memory no asterisk '∗' symbol will be next to the value.

6.3 Lift status

This is the default and is displayed after power up. The display shows information on the lift mode of operation and status, such as: Normal service, doors closed or Goods control ON, doors open. The floor position and current date and time are also displayed with the message.

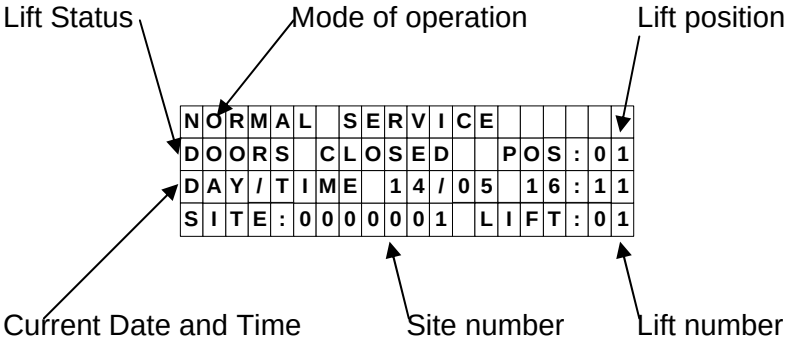
Examples of the lift message are:

Normal service: Lift is operating in normal service and working.

Out of service: The lift has a fault that has stopped it from working.

See Appendix K for a full list and explanation of messages.

Example of Status display format.



6.4 View Lift Events

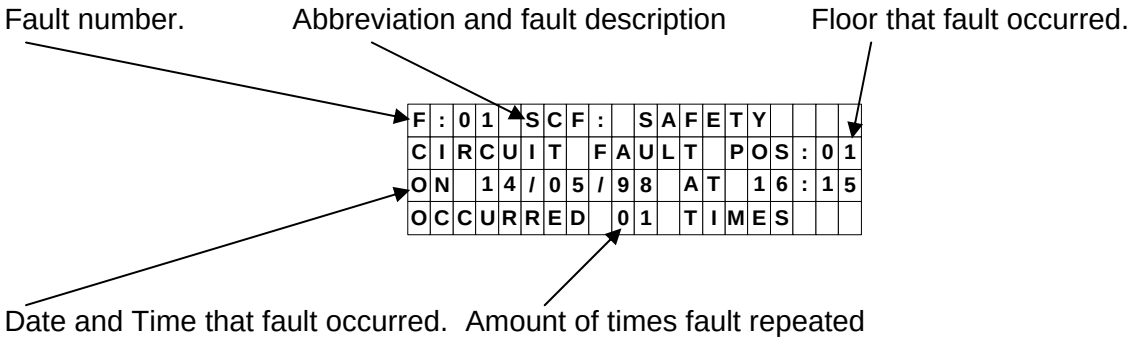
The Nexus Lift Controller records all events or faults that effect the lift's performance. To view the event log menu the key >, should be pressed until the LCD reads as 'View Lift Events'. The key ∨, should then be pressed to enter into the event log. Once in the event log the keys ∨ and ∧ are used to step up and down the event log. Holding the key will scroll the menu.

Up to 30 faults are logged with the previous 10 lift operations leading up to the fault. These are accessed by pushing the keys < or >, to step through the operations. Once the last operation is displayed the message wraps round to the event/fault message.

Faults are logged with the date, time, floor position and the amount of times the fault has occurred. For subsequent repeats of the same fault only the occurrence will be incremented. The same fault will only be logged again if the floor position has changed or another type of fault has occurred.

A full list of Event\Fault messages can be found in Appendix L.

Example of Event/Fault message.



6.5 Clear Event Log.

It is only possible to clear the event log if the electronic key is plugged into the RS232 communication port.

To clear the event/fault log press the key >, until the display reads as 'Clear Event Log'. Press key ∨, to enter clear event menu.

The messages 'Clear Event Log ?ON' and 'Are you sure?' 'press E to clear' will be displayed. Press the key E, to clear the event log or keys <, >, ∧ or ∨ to exit without clearing the event log. If you press the key E, the message 'Event log cleared' or 'Event log will be cleared when lift stops' will be displayed. To exit the clear event log menu press keys < or >.

6.6 Event Options.

Event options allows for the logging of a fault condition to be disabled by selection of YES to log a fault or NO **not to** log a fault, the default is YES. The option **that is not** programmed into the unit is prefixed by an asterisk '∗' symbol next to the option. Once the choice has been programmed into memory no asterisk '∗' symbol will appear next to the value.

To access the Event Options menu, press the key > until the display reads as 'Event Option'. Press the key ∨, to enter into the menu. Use the keys ∧ or ∨ to step through the event option list, holding the key will scroll the menu.

To enable or disable an event from being logged, select the event, then select YES to log the fault or NO to disable logging of the fault. Then use the key E, to enter the selection.

The event option list is the same as the event fault log list, See Appendix L, for details.

6.7 Lift Starts Log.

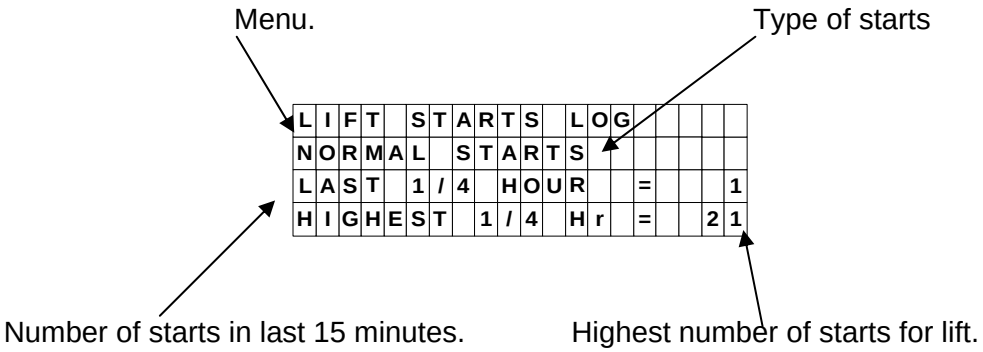
The start log records the number of 'Normal Starts' and 'Re-level starts'. The display shows the number of starts in the last 15 minutes and the maximum number of starts within a 15 minute period.

To access the Lift Starts log menu, press the key > until the display reads as ' Lift Starts Log'. Press key ∨, to enter into the menu.

Firstly, the Normal starts will be displayed, press key ∨ to display re-level starts.

To clear the starts log press the key ∨ until the display reads as 'Lift Starts Log, Clear Max Starts'. Press key E, to clear the log. The display will then read as 'Max Starts Cleared'. Press key < or > to exit. The starts log should be zero. To exit without clearing the log Press keys <, >, ∧ or ∨.

Example of Starts log message.



6.8 Register Calls.

It is only possible to enter calls if the Lift is in Normal Service. If the lift is in car preference or any other control input is active, the calls will be ignored.

To access the Register calls menu use the key >, until the display reads as 'Register Calls'. To enter in to the menu press key ∨.

The Register call menu allows the engineer to enable automatic call insertion to terminal floors by setting 'Test Cycle Lift' to ON, using the keys < or > to select ON or OFF. **It is only possible to set the lift to cycle test if the electronic key is plugged into the RS232 port.**

To manually insert a call use the keys ∨ or ∧, to step up and down the call table, until the desired floor is selected. Then use the keys < or > to select YES or NO. Once all the required calls have been selected press the key E, to enter the calls. The call pattern entered, is maintained until it is cleared by the user.

6.9 Set and View Registers.

It is only possible to set registers if the electronic key is plugged into the RS232 communications port.

The Set and View register option cannot override the inputs to the Nexus Lift Controller. Therefore, if the Car Preference input is ON, it's not possible to turn it OFF from the menu option.

The Set and View Register menu allows the engineer to view the state of the inputs, outputs and to set some of the control inputs, such as, change floor position, set Car preference, Firecontrol, Door open and Door close. A full list of the options can be found in Appendix M.

To access the Set and View Options menu, press the key > until the display reads as ' Set / View Registers'. Press key ∨, to enter into the menu.

Use the keys ∧, ∨ to step through the Set and View Register options.
To set a value or select an option used the keys < or >. Press key E to enter a selected option.

6.10 Set Current Time / Day.

It is not possible to set the current date and time unless the electronic key is plugged into the RS232 Communication port.

The internal clock will automatically update from winter to summer time on the 31st day of October and March, respectively. If the unit is not powered on these dates it will be necessary to update the clock manually.

This is achieved by selecting the set current time/date menu, by pressing the key >, until the display reads as, 'Set Current Time/Day'. Press key ∨, to enter into the menu.

The internal clock is set using this menu. Use the key ∨ or ∧ to select the required digit. The keys < and > are used to decrease or increase the value selected. Once the required date and time have been set, press the key E, to enter the time. The internal clock will be updated at this time. To exit, press the keys ∨ or ∧ until the exit message is displayed, then press keys < or > to exit.

6.11 Set Site Number.

It is not possible to set the site number unless the electronic key is plugged into the RS232 Communication port.

To set the site number, press the key > until the display reads as 'Set Site Number '. Press the key ∨, to enter into the menu.

The site number can be set using this menu. Use the key ∨ or ∧ to select the required digit. The keys < and > are used to decrease or increase the value selected. Once the required numbers have been set, press the key E, to enter the number. The Site Number will be updated at this time. To exit, press the keys ∨ or ∧ until the exit message is displayed, then press keys < or > to exit.

A non programmed value is prefixed by an asterisk '*' (star) symbol.

6.12 Program facility

It is only possible to set programmable parameters if the electronic key is plugged into the RS232 communications port.

The program facility allows for on site programming of up to 58 lift parameters, a full list of the programmable parameters can be found in Appendix N.

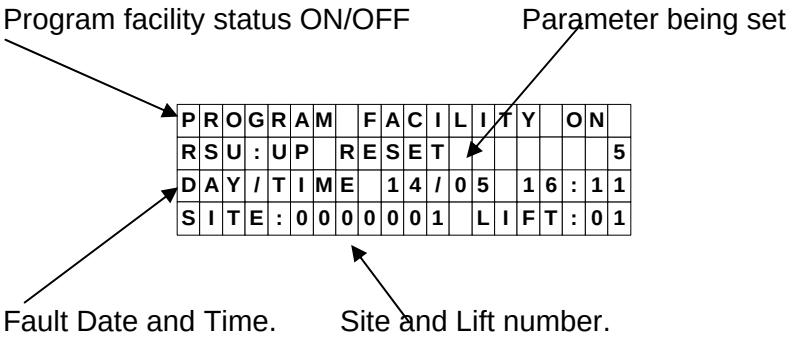
A parameter **that is not** programmed into the unit is prefixed by an asterisk '∗' symbol next to it. Once the choice has been programmed into memory the asterisk '∗' will disappear.

To access the program facility menu, press the key > until the display reads as 'Program Facility'. Press the key ∨, to enter into the menu.

To view the programmable parameters use the keys ∧ and ∨ to step up and down the menu, holding the key will scroll the menu. To set a value or option use the keys < or > to decrease or increase the value or select YES or NO. To enter a value press key E.

The first few messages to be displayed are for information only and cannot be edited in this menu. These are: Site number, Program type, and Version.

Example of Program Facility message.



6.13 Program Door Opt

It is only possible to set Programmable Door Options if the electronic key is plugged into the RS232 communications port.

The manner in which the doors operate for one or two sets of doors can be specified with this menu. The operation that can be specified is for a given floor. These are floors where the doors are allowed to open (door zones) and where the doors can park open, for main and auxiliary doors. Up to 15 floor can be programmed. See section 3.17 for a list of the parameters.

A parameter **that is not** programmed into the unit is prefixed by an asterisk '∗' symbol next to it. Once the choice has been programmed into memory no asterisk '∗' symbol will appear next to the option.

To access the Door Options menu, press the key > until the display reads as ' Program Door Opt'. Press the key ∨, to enter into the menu.

To view the door options use the keys ∧ and ∨ to step up and down the menu, holding the key will scroll the menu.

To set an option, use the keys < or > to select YES or NO. To enter a value press key E.

6.14 Inverted Inputs

It is not possible to set inverted inputs unless the electronic key is plugged into the RS232 Communication port.

This feature offers the ability to invert certain inputs to the Nexus controller such that they can operate from a normally open or normally closed input. Only a limited number of inputs are available for this feature.

To access this menu, press the key > until the display reads 'Inverted inputs'. Press the ∨ key to enter the menu. Press the ∨ key until you have selected the required input.

To set an option, use the keys < or > to select YES or NO. To enter a value press key E.

6.15 Character Set

This menu allows the modification of the text that is to be displayed on the Digital Display Units (DDU's).

In normal service all the DDU's display the same data, the data/text that is displayed on the DDU's relates to the car position i.e. the floor that the car is at or passing. This therefore means that there is a new piece of data/text for every floor level that the lift car is at.
For example, when at floor 1 the number '1' maybe displayed. When at floor 2 the number '2' may be displayed. Alternatively this could be 'GND' displayed for floor 1 or '1ST' for floor 2 etc.

You may program up to three characters per floor level, however they may not all be displayed on the DDU as this will depend upon what DDU display option you have i.e. one, two or a three character display unit. Only one character can be displayed per block, this obviously means that if a one block unit is present you cannot display 'GND' since this would require a 3 block unit.

The Nexus contains default values for all floors; these are as follows:

LCD Display	Seen On DDU	Characters Stored
FLR: FLOOR 1 = 0	" 0"	space, space, zero
FLR: FLOOR 2 = 1	" 1"	space, space, one
FLR: FLOOR 3 = 2	" 2"	space, space, two
FLR: FLOOR 4 = 3	" 3"	space, space, three
FLR: FLOOR 5 = 4	" 4"	space, space, four
FLR: FLOOR 6 = 5	" 5"	space, space, five
FLR: FLOOR 7 = 6	" 6"	space, space, six
FLR: FLOOR 8 = 7	" 7"	space, space, seven

To modify the data/text displayed at each floor you will need to edit the 'Character Set' Menu.

To access this menu, press the key < until the display reads 'Character Set'.

Press the ∨ key until you have selected the required floor that you wish to change the characters on.

To change the character press key E, this will cause the cursor to flash on the first character. Use the keys < or > to scroll through all letters and numbers. To enter/store a character press key E, this then moves the cursor onto the next character. Repeat the previous steps or keep pressing E until the cursor is no longer displayed.

6.16 Character Option

The character option menu describes the behaviour of the DDU when the car is in motion. This may include the displaying of arrows, scrolling of arrows and characters or flashing of arrows and characters whilst the car is in motion.

The following table relates to the menu found under the 'Character Option' header and describes the motions available.

LCD Display	Option Description
-- --	When set to 'YES': Neither the arrow nor floor number scroll in any car direction.
DN --	When set to 'YES': When lift travelling up the down arrow will scroll down. Floor number will not scroll. When lift travelling down the up arrow will scroll up. Floor number will not scroll.
UP --	When set to 'YES': When lift travelling up the up arrow will scroll up. Floor number will not scroll. When the lift is travelling down the down arrow will scroll down. Floor number will not scroll. This is also the system default.
-- DN	When set to 'YES': When lift travelling up the arrow will not scroll. The floor number will scroll down. When lift travelling down the arrow will not scroll. The floor number will scroll up.
-- UP	When set to 'YES': When lift travelling up the arrow will not scroll. The floor number will scroll up. When lift travelling down the arrow will not scroll. The floor number will scroll down.
UP UP	When set to 'YES': When lift travelling up the arrow will scroll up and the floor number will scroll up. When lift travelling down the arrow will scroll down and the floor number will scroll down.
DN DN	**When set to 'YES':** When lift travelling up the arrow will scroll down and the Floor number will scroll down. When lift travelling down the arrow will scroll up and the Floor number will scroll up.
DN UP	When set to 'YES': When lift travelling up the arrow will scroll down and the Floor number will scroll up. When lift travelling down the arrow will scroll up and the Floor number will scroll down.
UP DN	**When set to 'YES':** When lift travelling up the arrow will scroll up and the Floor number will scroll down. When lift travelling down the arrow will scroll down and the Floor number will scroll up.

Note: Only one of the above options can be set to 'YES' at any one time.

FLC: FLASH CHAR	When set to 'YES' the character will flash when the car is travelling. CHARACTER FLASHING OVERRIDES ANY CHARACTER SCROLLING.
FLA: FLASH ARROW	When set to 'YES' the arrow will flash when the car is travelling. ARROW FLASHING OVERRIDES ANY ARROW SCROLLING
DUA: DISPLAY UP ARROW	Set to 'YES' to enable displaying of the up arrow. This must be set if you wish to scroll, flash or display the up arrow.
DDA: DISPLAY DOWN ARROW	Set to 'YES' to enable displaying of the down arrow. This must be set if you wish to scroll, flash or display the down arrow.
DDU TEST MODE	When set to YES all DDU's on the network (if wired correctly) will flash there address. Every DDU should have a different address.
DISP SW VERSION	When set to YES all DDU's on the network (if wired correctly) will scroll there software version number.

NOTE: If display arrow has been set it will appear on the left most display block. This will therefore overwrite any character on that block when the lift is travelling i.e. for a three block display, displaying 'GND' the 'G' will be replaced with an arrow when the car is in motion. This is a limitation of the DDU.

To access this menu, press the key > until the display reads 'Character Options'. Press the ∨ key until you have selected the required input. To set an option, use the keys < or > to select YES or NO. To enter a value press key E.

7 MULTI CAR GROUP CONTROL

7.1 Introduction

The Stannah Nexus lift controller operates a multi car group control network to ensure load sharing between lifts and to provide the shortest wait time for passengers.

Load sharing is achieved by starting the search for a suitable lift for answering a call with the lift with the least amount of runs logged. If two or more lifts are found to be able to answer the call, the lift with the least amount of runs will be dispatched to service the call. If a lift is found to be nearer and suitable but have more runs, it will be dispatched to the call. Thereby providing the shortest wait time.

Up to 8 lifts can be connected together to form a multi car group. The group is formed by all the lifts on the network being wired to the same landing call inputs and landing call acceptance outputs. Call dispatching is communicated over a RS485 twisted pair communication link, which is also connected to all the lifts on the network. The dispatcher function is internal to the Nexus lift controller and requires no additional hardware.

The function of call dispatcher is assumed by the lift with the lowest lift number but not zero. A lift number of zero denotes that the lift is a simplex lift and does not run its group control software. The lift with the lowest lift number becomes the master and hence forms a master to many slaves relationship over the network.

7.2 Multi car group system configuration

CAUTION: For a Group control system landing inputs can be live even when lift is isolated. To fully isolate lift the Group of lifts must be isolated.

All the units connected together on the network have their landing call inputs/outputs wired together and a common RS485 communication link between the units. Figure 1, shows a block diagram of a typical network. Drawing number 9333_383 and 9333/389 give a more detailed interconnection list.

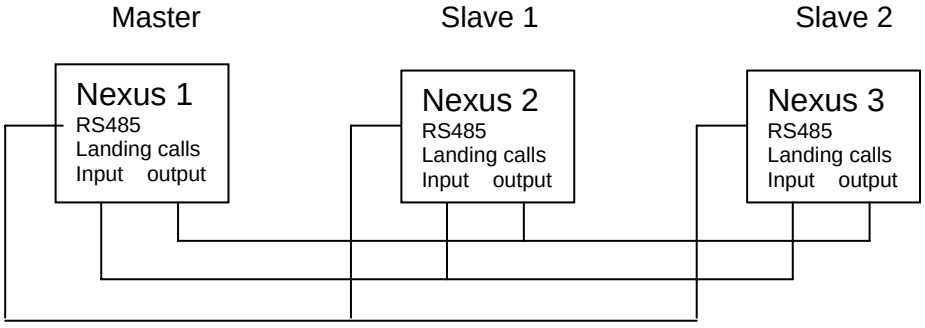


Figure 1: A Triplex group control.

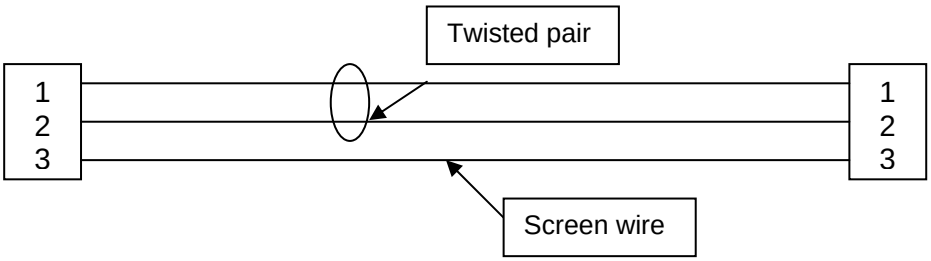
For odd or skip floor installations the landing input/output for a specific floor will not be wired and the door zone for that floor must be set to no. If the door zone is not set to no, the master could attempt to pass a call to a lift that cannot answer the call.

7.3 The communication link

The communication link has been designed and tested to be robust enough for the inherently electrically noisy environment of a lift installation. The RS485 communication link is fully isolated from the internal power supply of the Nexus lift controller ensuring that a faulty unit or one that does not have power applied to it will not pull the network down. Also it removes any ground shift faults that may occur between lifts supplies. The RS485 drivers are short circuit current limited and are protected against excessive power dissipation by thermal shutdown circuitry that places the driver in a high impedance state output, again not pulling the network down.

The software checks for errors in the received data by checking for loss of stop bits indicating a break in communications, framing errors, parity errors or overrun errors. The checksum for the received data is also calculated and compared with the transmitted checksum. If there are communication errors or the checksum values do not match the data is discarded and the unit will wait for the next transmission.

The cable for the RS 485 link must be a screened twisted pair with a cable impedance of 120R. The screen should be connected to pin 3 of the RS485 terminal. This should also be connected to the nearest earth point at one end only. The polarity of the connection for each end of the cable must be the same. Figure 2 shows a schematic for the connection.



*Note: Keep polarity of wires the same for each end.
Earth at one end only.

Figure 2. RS 485 communication link wiring.

The communication link is terminated by two 120 Ω resistors. These are internally mounted on the Nexus CPU board. If more then two units are connected the links for the terminating resistors on the additional units must be removed.

7.4 Call sorting and dispatching of calls

Calls are sorted by the master allocating calls to a slave lift based on a prioritised list of comparisons. The call handling for single button, highest down collective, lowest up collective or fully directional is handled by the individual lift but all the lifts on the network must be set for the same type of call handling.

For a lift to take part in call sharing it must meet the criteria for call passing, these are that the lift must have a door zone set for the floor, it must be in normal service, not be homing, overloaded or overloaded with calls. If the criteria are met the status of the lift will be compared against other lifts on the network and the most suitable lift will be sent a command to accept the call, all the other lifts will be sent a command to cancel the call.

7.5 Call sorting

Listed below are descriptions of how calls are sorted (See appendix L, for call sorting flow diagram).

The network is continually polled by the master lift controller for the status of all the lifts connected to the network. This status data is used for making comparisons against a prioritised list to determine which lift is most suitable to service the call.

When a call is placed at a floor, its position is compared against the position of all the lifts that are in service on the network. The nearest lift to the floor will be sent a command to service the call.

The comparison of the floor where the call was placed against the lift status data held by the master unit, starts from the lift that has the least amount of runs logged. For each prioritised comparison, the status table will be searched from the lift number with the least amount of runs, then again from start of the table to the same lift number. This will ensure that over time all the lifts will have done the same amount of work. If no suitable match is found the next comparison is made. As the table is worked through and the comparisons are made the requirements for a call to be passed to a lift are less. This will become evident as we look at the priority of the tests listed below.

If a match is found then the command to accept the call is sent to that lift. Once the status data for the selected lift shows that the call has been accepted, a command to cancel the call will be sent to all the other lifts and the routine is exited. If the call has not been accepted the search will be repeated.

The first comparison made is to determine if **a lift already has a landing call to the floor** where the call has been placed. If a lift in the status table held by the master has a call for the floor the command to cancel the call is sent to all the lifts on the network and the call sort routine will be exited.

If no match is found then the status table is searched for **a lift with a car call to the floor**. If a match is found a command to accept the call is sent and a cancel command is sent to the other lifts once the call acceptance has been seen.

If no match is found then the status table is searched for **a lift at the floor with its doors open and no direction of travel**. If a match is found a command to accept the call is sent and a cancel command is sent to the other lifts once the call acceptance has been seen.

If no match is found then the status table is searched for **a lift at the floor with its door closed and no direction of travel**. If a match is found a command to accept the call is sent and a cancel command is sent to the other lifts once the call acceptance has been seen.

The search will then use an offset that is incremented by one every time a search is made. This is used to look for the **nearest lift above or below the floor where the call was placed. Again the search is prioritised.**

Search the status table for **the nearest lift that does not have a direction of travel away from the floor where the call was placed**. If a match is found a command to accept the call is sent and a cancel command is sent to the other lifts once the call acceptance has been seen.

If no match is found the offset search will be repeated but the status table will be searched for **the nearest lift to the floor where the call was placed, it does not matter about the direction of travel**.

If no match is found, the offset search will be repeated but **the criteria for a lift being overloaded with calls is dropped.** The status table will be searched for **the nearest lift that does not have a direction of travel away from the floor where the call was placed**.

If no match is found the offset search will be repeated but **the criteria for a lift being overloaded with calls is dropped.** The status table will be searched for **the nearest lift to the floor where the call was placed, it does not matter about the direction of travel**.

This is the complete list of prioritised comparisons to find a suitable lift. If no match is found the search will be repeated until a lift meets the requirements to answer the call. If no lifts are in service or able to answer the call, the call acceptance light for this floor will not illuminate. The call will be allocated when a lift becomes available.

7.6 Homing of lift to main floor

See appendix M for Homing flow diagram.

When Homing is enabled the master unit, which acts as the call dispatcher, will attempt to ensure that a lift is always present at the main homing floor, this would normally be the lobby. Thereby offering immediate service to any passengers entering the building. This is achieved by use of a search routine similar to that used for call sorting except that **the search starts with the lift that has done the least amount of runs**.

The homing floor is set in the program parameter list; all the lifts on the network must be set to the same main homing floor for homing to work properly. See the section on programming and logging interface in the Nexus reference manual for instructions on how to set programmable parameters.

The decision for setting a lift to home is prioritised as with call dispatching. The search for a lift to home will start with the lift that has the least runs logged. Comparisons are made to find the first free lift to set to homing. Once a lift has been set to homing it will run immediately to the homing floor not answering any call as it runs to the homing floor and does not open its doors on arrival.

For a lift to be sent a command to home it must be in normal service, free of calls, not be overloaded and not homing. If a lift meets these criteria then it will take part in the search for being the nearest free lift to the homing floor. The following prioritised comparisons are made to identify the nearest lift.

The search starts with a check of the status of the lifts on the network for **a lift that is at the homing floor.** If a lift is present at the floor, no lift will be sent the command to home to the floor.

If no lift is present at the homing floor the lifts are then checked to see if **a lift is already homing**. If a lift is homing no lift will be sent the command to home.

If no lift is homing the lifts are checked for **a lift that already has a call to the homing floor**, if a lift has a call to the floor no lift will be sent the command to home.

If no call is present to the homing floor the lifts are searched for a **lift that does not have any calls to service, no direction of travel, its door are closed and is the nearest lift to the homing floor**. If a match is found the nearest free lift will be sent a command to home to the main floor. There is a 30 Second delay before a lift is sent a command to home.

If no match is found the search will be repeated until a match is found. Once a match is found the command for the lift to home will be sent.

7.7 Lift status data and commands

It is established over the network which lift is the master and hence will assume the role of dispatcher, the master unit will then continuously poll the slave lifts for their status. The lift status data is made up of the following segments:

1. Type of call handling lift is programmed for.
2. Main door zones.
3. Auxiliary door zones.
4. Current floor position of lift.
5. The number of times the lift has run.
6. Lift status byte:
    - Up direction on/off.
    - Down direction on/off.
    - Doors open limit on/off.
    - Doors closed limit on/off.
    - Lift overloaded. (OLW = on/off).
    - Lift has too many calls.
    - Lift Homing.
    - Lift in normal service.
7. Main I/O board car call acceptance.
8. Main I/O board landing call acceptance.
9. Expansion board 1 car call acceptance.
10. Expansion board 1 landing call acceptance.
11. Expansion board 2 car call acceptance.
12. Expansion board 2 landing call acceptance.

The status data is held in a table by the master lift controller. The master will then use the table to compare the floor where a call has been placed against the status of the lifts on the table to find the most suitable lift to service the call.

Once a suitable lift has been identified a command will be sent to the lift to accept the call, all the other lifts are sent a command to cancel the call from their call input.

7.8 Command Structure

The commands sent are made up of a duplex data ID byte, the lift number being addressed, the command, and two checksum bytes. The checksum bytes are used to check for corruption of the data being sent.

The command codes that are sent are:

0	Global command used to address all lifts on network.
a	Token flag used to pass master function to another lift.
b	Flag to initialize unit on to network.
c	Command used to set a lift to learn mode for network setup.
d	Poll request used to learn lift number of lifts on network.
e	Poll response to poll request from master, sent with lift number.
f	Command used to set slave lifts to listen mode.
g	Status request sent by master, lift number used as address.
h	Response to status request, sent with lift number.
I	Command for lift with lift number to accept call.
j	Command for slave lift (spare).
k	Command for lift to cancel call from input buffer.
L	Command for lift to go to homing floor, sent with a lift number.
x	ID for duplex data on network.

A typical command structure would look like: ‘x02I84’

Where: x = duplex data flag.
02 = Lift number of lift being addressed.
I = Command to accept call.
84 = Checksum value used to test for data corruption.

Other commands follow a similar format except for status data, which is much larger and not shown here.

If data received is found to be corrupt, it is discarded and the status data will not be updated until the next poll of the lift. If a lift is lost from the network or the network breaks down and no communication occurs within 10 seconds, the lifts on the network will attempt to restart the communication network. If the network fails completely, the operation of the lifts will default to simplex operation. This should ensure a continuation of service for passengers but call chasing can occur between the lifts when operating in this fault condition.

7.9 Setup procedure for multi car group control

The Nexus lift controllers are fitted with the same software whether they are simplex, duplex, triplex or more. The programmable lift number is used to set the manner of operation. The default value for the lift number is zero, this sets the operation of the lift to simplex mode. If the lift number is set to any value but zero the lift will operate in multi car group mode and expect the allocation of calls to come from the master unit. The lift with the lowest lift number will assume role of master and talk to the other lifts as slave units.

The addition of a RS485 driver is required to the CPU board. The driver part is the MAX 1480B and is placed in the IC8 socket nearest to the RS232 port connector. If more than two units are being connected together, link LK1 must be removed this will isolate the terminating resistor from the communication network.

The unit should be connected together via a RS485 twisted pair cable terminated as per Drawing 9333_385 and the landing call and call acceptance should be wired together as per Drawing 9333_383 or 9333_389. These cables must be routed away from electrically noisy areas and ideally be contained in their own trunking.

The Nexus lift controllers should be allocated an individual lift number. Note: The lift with the lowest lift number will be the master unit, which will be responsible for dispatching calls to other lifts. If more than one lift has the same lift number, except zero, there will be contention on the network and the system will fail to communicate.

Once the network has initialised itself, the RS485 LED on the front panel of the Nexus is used to indicate that communication is taking place. The frequency of flashing is an indication of the unit relationship on the network. The RS485 LED on the lid flashing at approximately a 1 Second interval indicates that the unit is the master. A flash rate of two seconds indicates that the unit is a slave. An irregular flash rate where the LED stays on or off for five second intervals indicates that it is not communicating with other units and will be working in simplex mode, call chasing may result.

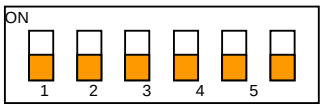
Once the communication link has been established, the master lift controller will be responsible for call passing and homing of slave lifts. If the communication network collapses, after 10 seconds of no activity the network will try to re-establish a communication link. If the network fails to recover, the lift will default to simplex operation. Call chasing is also an indication that there are communication problems over the network. If this is the case the route of the RS 485 should be checked.

8 DIGITAL DISPLAY UNIT

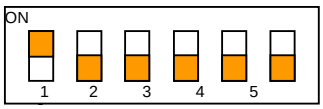
8.1 Setting the DDU

Before a DDU can be installed the DIP switches must be set. These DIP switches determine the address of the DDU and that address relates to the floor level that the DDU is situated at. **Each DDU must have its own unique address** as all the DDU's are constantly talking with the Nexus controller to let it know who they are, what floor they are at and that they are operational. If we consider an eight floor lift there will be a total of nine DDU's present, one at every floor level and then one in the COP panel of the car. This therefore requires nine different DIP switch settings to get the nine unique DDU addresses.

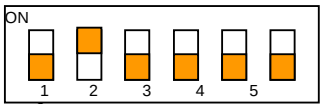
The switches are set in a binary pattern this therefore allows a total of 64 addresses from the 6 switches. So for the nine DDU's required for an eight floor lift the DIP switches will be set as follows:



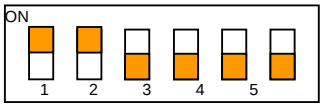
DDU 0, **Must be located in the COP** of the lift car as it displays extra information for the passengers.
This DDU must have LK1 fitted.



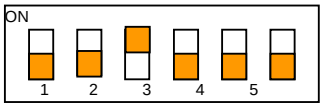
DDU 1, To be located at the lowest floor level (1, Ground, -1 etc).



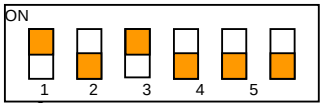
DDU 2, To be located at the second lowest floor.



DDU 3.

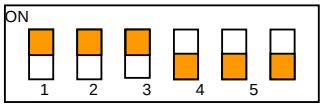


DDU 4.

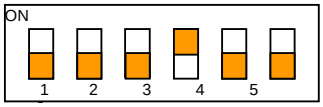


DDU 5.

DDU 6.



DDU 7.



DDU 8, To be located at the highest floor (Floor 8 etc).
The DDU furthest from the Nexus must also have LK1 fitted.

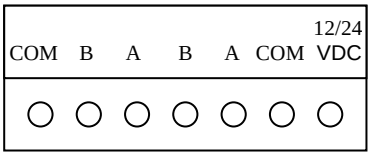
NOTE: It is vital that the DDU in the COP and the DDU furthest from the Nexus controller must have the link LK1 fitted to ensure correct operation.

8.2 DDU Connections

See drawing **9333/543 Nexus/Nexi Shaft Wiring – DDU**, for the diagram of how to wire the DDU network.

There are two sockets on the DDU CPU board, these are PL1 and PL2 and are detailed below for there function and pin connections.

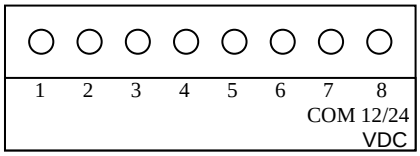
PL1 as viewed from top of PCB



From left to right the connections are:

- COM – Screen connection from the twisted pair cable of the RS485 communications lead.
- B – This is a communication wire input from the RS485 and should be connected to the black wire of the twisted pair.
- A – This is a communication wire input from the RS485 and should be connected to the red wire of the twisted pair.
- B –This is a communication wire output from the RS485 and is to be connected to the B input of the next DDU on the network. This again should be connected to the black wire of the twisted pair.
- A –This is a communication wire output from the RS485 and is to be connected to the B input of the next DDU on the network. This again should be connected to the red wire of the twisted pair.
- COM – is the ground of the power supply.
- 12/24VDC – This is the main power input for the DDU.

PL2 as viewed from top of PCB



From left to right the connections are:

- 1 – Up departure arrow/gong
- 2 – Down departure arrow/gong
- 3 – Up Lantern.
- 4 – Down Lantern.
- 5 – Landing down call.
- 6 – Landing up call.
- COM – Common connection for power input.
- 12/24V VDC – DC input tofeed FET output circuit, must be either 12 or 24 volt.

Link 1 (LK1)

See section 8.1 Setting the DDU. LK1 must be fitted to the highest floor DDU and the DDU in the COP. These links terminate the ends of the network and ensure correct operation of the DDU's.

8.3 DDU Trouble Shooting

1. **The DDU does not light/show any characters.**
   - Is there power to the DDU, check wiring and voltage at PL1. You should have 12 or 24 volts and ground connected to PL1.
   - Press the reset switch in the Nexus. This will force the Nexus to reinitialise the DDU's and send a display character command.
   - Are there any characters set in the 'Character Set' menu on the Nexus. Have spaces been set instead of characters/numbers for a floor level.

2. **All DDU's display a single dot in the bottom left of the display.**
   - This means that the DDU is not receiving any communications.
   - Is IC13 fitted on NEXUS CPU board?
   - Is LK2 jumper link present on Nexus CPU board (9300/10), if so remove it.
   - Correct version of software (v4.03 onwards).
   - Are the DDU's wired correct, check wiring to PL1 of every DDU and check that correct colour wire is connected to inputs/outputs A, B, and COM.
   - LK1 fitted to end DDU's? Should be fitted to DDU in COP and the DDU at the highest floor.

3. **Some or all DDU's display two dots in bottom left corner of display.**
   - This means that the DDU is receiving, but cannot decode the data. i.e. the data is corrupt.
   - Check the wiring to PL1 is correct and that wires A or B have not been swapped.
   - Check that the DDU's have different addresses; they should all have different DIP switch settings.
   - Set the DDU's onto 'DDU TEST MODE' by setting the Nexus controller. Go to the 'Character Option' menu and scroll down to 'DDU TEST MODE' and set to 'YES'. The DDU's if wired correctly will flash there individual address. Make sure that every DDU has a different number/address. Make sure that the DDU in the COP of the car has address '00'. Set 'DDU Test Mode' to 'NO' to stop the test.

4. **What DDU SW version do I have?**
   Select the 'Character Option' menu on the Nexus controller. Scroll down until you see 'DISP SW VERSION' and set to 'YES'. The DDU will now continuously scroll the version number until 'DISP SW VERSION' is set to 'NO'.

5. **Can I test the DDU's?**
   Set the DDU's onto 'DDU Test Mode' by setting the Nexus controller. Go to the 'Character Option' menu and scroll down to 'DDU Test Mode' and set to 'YES'.
   The DDU's if wired correctly will flash there individual address. Make sure that every DDU has a different number/address. Make sure that the DDU in the COP of the car has address '00'. Set 'DDU TEST MODE' to 'NO' to stop the test.
   *Note: If the DDU does not flash its address it is probably wired incorrectly.

9. REMOTE PROGRAMMER

9.1 Why a Remote Programmer

The remote programmer is to be used in conjunction with the MRLi lift. The need for a remote programmer has become necessary since the Nexus controller for the MRLi is located in the lift pit and is not easily accessible. The Remote Programmer overcomes this problem by connecting to the landing override station located in the landing architrave allowing safe inspection of the lift.

Upon connection the programmer will initialise, once initialised the programmer displays data in the same format as the Nexus does on its display. The programmer can be used to view faults, see the lifts current operation and set parameters just as the Nexus controller does.

9.2 Getting started

Note that there are three connectors on the Remote Programmer, a positive (red) and negative (black) connector and a third D-type communication connector. All three of these connectors connect into the landing override station.

1. Remove the cover from the landing override station.
2. Insert the black connector to the test terminal labelled ‘COM’.
3. Insert the red connector to the test terminal labelled ‘S+’.
4. Insert the communication plug, located just above the other two connectors.

Now the programmer is connected it will begin initialising. This initialisation may take up to a minute and during this time you will see a progress bar on the display.
Note that the programmer currently only operates on lifts with MLRi Nexus software version V4.00 or above. This is not standard Nexus SW and is specific to MRLi lifts only.

9.3 How to Use

The Remote Programmer operates in the same manner as the Nexus keypad/display; all menu structures appear and operate the same. However there are a few points to note when using it:

1. If there is a cursor flashing in the top right of the display, the programmer is saving data and the keypad will not respond whilst the cursor is present.
2. When viewing the lift status i.e. ‘Normal Service’ and ‘Doors Opening’ etc, you should be aware that there is up to a five second delay on the programmer. This may mean that the doors etc may have closed but the programmer could still be displaying doors open before it updates to show that the doors have closed.
3. For safety reasons when the lift is looking for floor level the Nexus ignores commands from the Remote Programmer. This may mean that inserted calls or parameter changes etc performed on the programmer may not be accepted by the Nexus controller during this period.

APPENDIX A: TECHNICAL SPECIFICATION

DIMENSIONS	**404 x 200 x 128mm. (159 x 78 x 50.5 inches) – 2.025Kg (4lb 8oz)**
WEIGHT	2.025 Kg (4lb 8oz)
COLOUR	Grey
POWER SUPPLY	9 V ac or dc, 1.3 Amperes. (20 VA Transformer winding)
INPUT CIRCUITS	Typically 110 V ac or dc, 1.4 A.
	For Alarm 12/24V , 1.2/2.4 mA
OUTPUT CIRCUITS	Run and Door 110 V ac or dc, Current limit 1 A
	Signal 12/24 V dc (unsmoothed), 0.5 A continuous, 1 A instantaneous
	Call and position 12/24 V (smoothed), 0.3 A.
ENVIRONMENT	Operating ambient Temperature: 0 to +40 ºC.
	Storage ambient Temperature: -10 to + 70 ºC
	Humdity ambient: Manufactured to customer requirements. Please specify.
STANDARDS	Operation complies to Lift Directive EN 81/2 1998.
	EMC Emissions comply to EN 12015.
	EMC Immunity complies to EN 12016.

Specifications are subject to change without prior notification.

Stannah Lifts Ltd, Anton Mill, Andover, Hampshire, SP10 2NX, England.
Tel: (01264) 339090.
Fax: (01264) 337942.
Email: uksales@stannah.co.uk.

APPENDIX B: NEXUS SPECIFICATION

Please contact Stannah for this information.

APPENDIX C: NEXUS FRONT PANEL ABBREVIATIONS

NEXUS STATUS LEDS

CPU	Microprocessor running ok.
SCAN	Inputs are being scanned and 110vac input present
FAULT	A fault is present on the system
SB	Stuck button on system
RS232	RS232 communication port active
RS485	RS485 communications port active
RS485	RS485 communications port active

POWER AND SAFETY CHAIN

110VAC	Indication that 110 volts AC is present.
24VDC	Indication that 24 volts DC is present.
S+	Indication that S+ (12 volts DC) is present.
9VAC	Indication that 9 volts AC is present.
ULR	Ultimate Limit fault, when led ON.
AF	Anticreep Feed signal is present in safety chain
G1	Gatelock for door close
G2	Gatelock for door close
G3	Gatelock for door close

LIFT CONTROL INPUTS

UC	When ON, Up run contactor input energised.
DC	When ON, Down run contactor input energised
HSC	When ON, High speed contactor input energised
AC	When ON, Anticreep output energised
ODL	When ON, Main doors are closed
CDL	When ON, Main doors are open
ODLA	When ON, Aux doors are closed
CDLA	When ON, Aux doors are open
UPR	Up proximity vane input ON
DPR	Down proximity vane input ON
ACR	Door zone vane input ON
GCR	Goods control input ON
TRC	Test control input active ON
FMC	Fire control input ON
SDL	Shutdown 1 or 2 ON

CALL AND POSITION INPUTS

1 to 15	Leds used to show lift position and call acceptance for Car, up and down landing buttons. Depending on selection using S button on label.

APPENDIX D: CALL INPUT AND ACCEPTANCE WIRING

Terminal allocations

The wiring of the call inputs and call acceptance outputs is dependant upon the programmed call handling for the Lift installation. Listed below are the terminal allocations for each configuration.

NOTE: Terminals are numbered from left to right, pin 1 at left most end, when unit viewed from side on.

SINGLE BUTTON COLLECTIVE: MAIN I/O BOARD WIRING INFORMATION.

CALL ACCEPTANCE

8	7	6	5	4	3	2	1
1	2	3	4	5	6	7	8
C	C	C	C	C	C	C	C
L	L	L	L	L	L	L	L

8	7	6	5	4	3	2	1
1	2	3	4	5	6	7	8
L	L	L	L	L	L	L	L
L	L	L	L	L	L	L	L

CALL INPUTS

1	2	3	4	5	6	7	8
1	2	3	4	5	6	7	8
C	C	C	C	C	C	C	C

9	10	11	12	13	14	15	16
1	2	3	4	5	6	7	7
L	L	L	L	L	L	L	L

FULL COLLECTIVE: MAIN I/O BOARD WIRING INFORMATION.

CALL ACCEPTANCE

8	7	6	5	4	3	2	1
1	2	3	4	5	6	1	2
C	C	C	C	C	C	U	U
L	L	L	L	L	L	I	I

8	7	6	5	4	3	2	1
3	4	5	2	3	4	5	6
U	U	U	D	D	D	D	D
I	I	I	I	I	I	I	I

CALL INPUTS

1	2	3	4	5	6	7	8
1	2	3	4	5	6	1	2
C	C	C	C	C	C	U	U

9	10	11	12	13	14	15	16
3	4	5	2	3	4	5	6
U	U	U	D	D	D	D	D

NOTE: Terminals are numbered from left to right, pin 1 at left most end, when unit viewed from side on.

SINGLE BUTTON COLLECTIVE: EXPANSION BOARD WIRING INFORMATION.

CALL ACCEPTANCE

8	7	6	5	4	3	2	1
9	10	11	12	13	14	15	16
C	C	C	C	C	C	C	C
L	L	L	L	L	L	L	L

8	7	6	5	4	3	2	1
9	10	11	12	13	14	15	16
L	L	L	L	L	L	L	L
L	L	L	L	L	L	L	L

CALL INPUTS

1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	16
C	C	C	C	C	C	C	C

9	10	11	12	13	14	15	16
9	10	11	12	13	14	15	16
L	L	L	L	L	L	L	L

FULL COLLECTIVE: EXPANSION BOARD WIRING INFORMATION.

CALL ACCEPTANCE

8	7	6	5	4	3	2	1
9	10	11	12	13		6	7
C	C	C	C	C		U	U
L	L	L	L	L		I	I

8	7	6	5	4	3	2	1
8	9	10	7	8	9	10	11
U	U	U	D	D	D	D	D
I	I	I	I	I	I	I	I

CALL INPUTS

1	2	3	4	5	6	7	8
9	10	11	12	13		6	7
C	C	C	C	C		U	U

9	10	11	12	13	14	15	16
8	9	10	7	8	9	10	11
U	U	U	D	D	D	D	D

Notes: For second expansion board, terminal allocation is the same but floor numbers are for 12 to 16.

C denotes car calls and acceptance illumination.
L or I Denotes landing calls and acceptance illumination.
U denotes up landing calls and acceptance illumination.
D denotes down landing calls and acceptance illumination.

APPENDIX E: INPUT RATINGS AND DESCRIPTION

NOTE: Terminals are numbered from left to right, pin 1 at left most end, when unit viewed from side on.

MAIN I/O BOARD

CALL INPUTS FOR SINGLE BUTTON COLLECTIVE.

No	INPUT	DESCRIPTION	VOLTAGE	NOTES
1	**1**	Car Call input floor 1	**24Vdc**	**Single Button operation**
2	**2**	Car Call input floor 2	**24Vdc**	
3	**3**	Car Call input floor 3	**24Vdc**	
4	**4**	Car Call input floor 4	**24Vdc**	
5	**5**	Car Call input floor 5	**24Vdc**	
6	**6**	Car Call input floor 6	**24Vdc**	
7	**7**	Car Call input floor 7	**24Vdc**	
8	**8**	Car Call input floor 8	**24Vdc**	
1	**9**	Landing call input 1	**24Vdc**	**Single Button operation**
2	**10**	Landing call input 2	**24Vdc**	
3	**11**	Landing call input 3	**24Vdc**	
4	**12**	Landing call input 4	**24Vdc**	
5	**13**	Landing call input 5	**24Vdc**	
6	**14**	Landing call input 6	**24Vdc**	
7	**15**	Landing call input 7	**24Vdc**	
8	**16**	Landing call input 8	**24Vdc**	

EXPANSION I/O BOARD (If Fitted)

CALL INPUTS FOR SINGLE BUTTON COLLECTIVE.

No	INPUT	DESCRIPTION	VOLTAGE	NOTES
1	**1**	Car Call input floor 9	**24Vdc**	**Single Button operation**
2	**2**	Car Call input floor 10	**24Vdc**	
3	**3**	Car Call input floor 11	**24Vdc**	
4	**4**	Car Call input floor 12	**24Vdc**	
5	**5**	Car Call input floor 13	**24Vdc**	
6	**6**	Car Call input floor 14	**24Vdc**	
7	**7**	Car Call input floor 15	**24Vdc**	
8	**8**			**Not used**
1	**9**	Landing call input 9	**24Vdc**	**Single Button operation**
2	**10**	Landing call input 10	**24Vdc**	
3	**11**	Landing call input 11	**24Vdc**	
4	**12**	Landing call input 12	**24Vdc**	
5	**13**	Landing call input 13	**24Vdc**	
6	**14**	Landing call input 14	**24Vdc**	
7	**15**	Landing call input 15	**24Vdc**	
8	**16**			**Not used**

MAIN I/O BOARD

CALL INPUTS FOR FULL COLLECTIVE.

No	INPUT	DESCRIPTION	VOLTAGE	NOTES
1	**1**	Car Call input for floor 1	**24Vdc**	**Full collective operation**
2	**2**	Car Call input for floor 2	**24Vdc**	
3	**3**	Car Call input for floor 3	**24Vdc**	
4	**4**	Car Call input for floor 4	**24Vdc**	
5	**5**	Car Call input for floor 5	**24Vdc**	
6	**6**	Car Call input for floor 6	**24Vdc**	
7	**7**	Landing UP input 1	**24Vdc**	
8	**8**	Landing UP input 2	**24Vdc**	
1	**9**	Landing UP input 3	**24Vdc**	**Full collective operation**
2	**10**	Landing UP input 4	**24Vdc**	
3	**11**	Landing UP input 5	**24Vdc**	
4	**12**	Landing DOWN input 2	**24Vdc**	
5	**13**	Landing DOWN input 3	**24Vdc**	
6	**14**	Landing DOWN input 4	**24Vdc**	
7	**15**	Landing DOWN input 5	**24Vdc**	
8	**16**	Landing DOWN input 6	**24Vdc**	

EXPANSION I/O BOARD (If Fitted)

CALL INPUTS FOR FULL COLLECTIVE.

No	INPUT	DESCRIPTION	VOLTAGE	NOTES
1	**1**	Car Call input floor 7	**24Vdc**	**Full collective operation**
2	**2**	Car Call input floor 8	**24Vdc**	
3	**3**	Car Call input floor 9	**24Vdc**	
4	**4**	Car Call input floor 10	**24Vdc**	
5	**5**	Car Call input floor 11	**24Vdc**	
6	**6**			**Not used.**
7	**7**	Landing UP input 6	**24Vdc**	
8	**8**	Landing UP input 7	**24Vdc**	
1	**9**	Landing UP input 8	**24Vdc**	**Full collective operation**
2	**10**	Landing UP input 9	**24Vdc**	
3	**11**	Landing UP input 10	**24Vdc**	
4	**12**	Landing Down input 7	**24Vdc**	
5	**13**	Landing Down input 8	**24Vdc**	
6	**14**	Landing Down input 9	**24Vdc**	
7	**15**	Landing Down input 10	**24Vdc**	
8	**16**	Landing Down input 11	**24Vdc**	

NOTE: For second Expansion board, terminal allocation is the same but floor numbers are for 12 to 16.

LIFT CONTROL INPUTS.

No	INPUT	DESCRIPTION	VOLTAGE	NOTES
1	**GCR**	Goods Control	**24Vdc**	
2	**TRC**	Test Control Input	**24Vdc**	
3	**FMC**	Fire Control Input	**24Vdc**	**Home to Fire Floor**
4	**SDL1**	Shutdown Lift 1	**24Vdc**	**Home to Shutdown 1 Floor**
5	**SDL2**	Shutdown Lift 2	**24Vdc**	**Home to Shutdown 2 Floor**
6	**OL2**	Overload Warning 2	**24Vdc**	**Bypass Landing calls**
7	**OL3**	Overload Warning 3	**24Vdc**	**Does not shut doors or run**
8	**ALRM**	Alarm Input	**12v ac/dc**	**Monitor for Alarm button**

LIFT PROXIMITY INPUTS.

No	INPUT	DESCRIPTION	VOLTAGE	NOTES
1	**ACR**	Door Zone	**24Vdc**	**Doors can open.**
2	**UPR**	Up Proximity Relay	**24Vdc**	**Up position sequencing**
3	**DPR**	Down Proximity Relay	**24Vdc**	**Down position sequencing**
4	**UPS**	Up Short Floor Travel	**24Vdc**	**Up travel short floor**
5	**DPS**	Down Short Floor Travel	**24Vdc**	**Down travel short floor**
6	**OVT**	Over Temperature input	**24Vdc**	**Motor over temp input**
7	**LTS**	Spare Input	**24Vdc**	**Clear latch fault input**
8	**SPA3**	Spare Input	**24Vdc**	**Not used**

RUN, LIMITS AND DOOR EXTENSION INPUTS.

No	INPUT	DESCRIPTION	VOLTAGE	NOTES
1	**UC**	Up Contactor	**24Vdc**	
2	**DC**	Down Contactor	**24Vdc**	
3	**HSC**	High Speed Contact	**24Vdc**	
4	**LS**	Lag start	**24Vdc**	**Used to delay start of lift.**
5	**RSD**	Reset Bottom	**24Vdc**	
6	**RSU**	Reset Top	**24Vdc**	
7	**ULR**	Ultimate Limit Relay	**24Vdc**	
8	**DORX**	Door Extension	**24Vdc**	

DOOR CONTROL INPUTS.

No	INPUT	DESCRIPTION	VOLTAGE	NOTES
1	**DOP**	Door Open Pushbutton	**24Vdc**	
2	**SE**	Safety edge	**24Vdc**	
3	**DCP**	Door Close Pushbutton	**24Vdc**	
4	**DE**	Main Door Enable	**24Vdc**	
5	**ODC**	Door Open Contactor	**24Vdc**	
6	**CDC**	Door Close Contactor	**24Vdc**	
7	**ODL**	Door Open Limit	**110v ac/dc**	
8	**CDL**	Door Close Limit	**110v ac/dc**	

SAFETY CIRCUIT INPUTS.

No	INPUT	DESCRIPTION	VOLTAGE	NOTES
1				
2				
3				
4	**COM**	Common Return	**-**	
5				
6	**G3**			**Manual Doors Car Gate**
7				
8	**G2**	Main Gate Lock relay	**110v ac/dc**	**Manual Doors Lock Ramp**
9				
10	**G1**	Car Gate Relay	**110v ac/dc**	**Manual Doors LBR**
11				
12	**AF**	Safety Gear Switch	**110v ac/dc**	

POWER SUPPLY INPUTS.

No	INPUT	DESCRIPTION	VOLTAGE	NOTES
1	**ST**	SAFETY TERMINAL	**110v ac/dc**	**Caution safety chain cable**
2				
3	**FP-SENSE**	12v Common Return		
4	**S+ SENSE**	12v Supply Monitor	**12v dc Feed**	**Connect to fused supply**
5	**24Vdc**	24v dc Supply Monitor	**24v dc**	**Connect to fused supply**
6	**110Vac**	110v ac Supply Monitor	**110v ac**	**Connect to fused supply**
7	**COM**	Common Return		
8	**9Vac/dc**	Nexus Power Supply	**9v ac/dc**	**Only connect 9v to Nexus**
9	**9Vac/dc**	Nexus Power Supply	**9v ac/dc**	
10	**FP-**	Battery Return	**0v**	**Optional battery feed to**
11	**S+**	Battery Feed	**12v dc**	**power CPU and LCD**
12	**COM-10**	Varistor Return		**Connect direct to Negative bar**

EXPANSION BOARD AUXILIARY DOOR CONTROL INPUTS.

No	INPUT	DESCRIPTION	VOLTAGE	NOTES
1	**SEA**	Aux Safety Edge input	**24Vdc**	
2	**DEA**	Aux door enable	**24Vdc**	
3	**ODCA**	Aux door open contactor	**24Vdc**	
4	**CDCA**	Aux door close contactor	**24Vdc**	
5	**ODLA**	Aux open door limit	**110v ac/dc**	
6	**CDLA**	Aux close door limit	**110v ac/dc**	
7	**SPA4**	Spare input	**24Vdc**	
8	**SPA5**	Spare input	**24Vdc**	

NOTE: Terminals are numbered from left to right, pin 1 at left most end, when unit viewed from side on.

APPENDIX F: OUTPUT RATINGS AND DESCRIPTION

MAIN I/O BOARD

CALL ACCEPTANCE OUTPUTS FOR SINGLE BUTTON COLLECTIVE.

No	OUTPUT	DESCRIPTION	VOLTAGE	NOTES
1	**8**	Car Call acceptance 8	**12v/24vdc**	**Single Button operation**
2	**7**	Car Call acceptance 7	**12v/24vdc**	
3	**6**	Car Call acceptance 6	**12v/24vdc**	
4	**5**	Car Call acceptance 5	**12v/24vdc**	
5	**4**	Car Call acceptance 4	**12v/24vdc**	
6	**3**	Car Call acceptance 3	**12v/24vdc**	
7	**2**	Car Call acceptance 2	**12v/24vdc**	
8	**1**	Car Call acceptance 1	**12v/24vdc**	
1	**16**	Landing call acceptance 8	**12v/24vdc**	**Single Button operation**
2	**15**	Landing call acceptance 7	**12v/24vdc**	
3	**14**	Landing call acceptance 6	**12v/24vdc**	
4	**13**	Landing call acceptance 5	**12v/24vdc**	
5	**12**	Landing call acceptance 4	**12v/24vdc**	
6	**11**	Landing call acceptance 3	**12v/24vdc**	
7	**10**	Landing call acceptance 2	**12v/24vdc**	
8	**9**	Landing call acceptance 1	**12v/24vdc**	

EXPANSION I/O BOARD (If Fitted)

CALL OUTPUTS FOR SINGLE BUTTON COLLECTIVE.

No	OUTPUT	DESCRIPTION	VOLTAGE	NOTES
1	**8**			**Not used**
2	**7**	Car Call acceptance 15	**12v/24vdc**	**Single Button operation**
3	**6**	Car Call acceptance 14	**12v/24vdc**	
4	**5**	Car Call acceptance 13	**12v/24vdc**	
5	**4**	Car Call acceptance 12	**12v/24vdc**	
6	**3**	Car Call acceptance 11	**12v/24vdc**	
7	**2**	Car Call acceptance 10	**12v/24vdc**	
8	**1**	Car Call acceptance 9	**12v/24vdc**	
1	**16**			**Not used**
2	**15**	Landing call acceptance 15	**12v/24vdc**	**Single Button operation**
3	**14**	Landing call acceptance 14	**12v/24vdc**	
4	**13**	Landing call acceptance 13	**12v/24vdc**	
5	**12**	Landing call acceptance 12	**12v/24vdc**	
6	**11**	Landing call acceptance 11	**12v/24vdc**	
7	**10**	Landing call acceptance 10	**12v/24vdc**	
8	**9**	Landing call acceptance 9	**12v/24vdc**	

MAIN I/O BOARD

CALL OUTPUTS FOR FULL COLLECTIVE.

No	OUTPUT	DESCRIPTION	VOLTAGE	NOTES
1	**8**	Car Call acceptance 1	**12v/24vdc**	**Full collective operation**
2	**7**	Car Call acceptance 2	**12v/24vdc**	
3	**6**	Car Call acceptance 3	**12v/24vdc**	
4	**5**	Car Call acceptance 4	**12v/24vdc**	
5	**4**	Car Call acceptance 5	**12v/24vdc**	
6	**3**	Car Call acceptance 6	**12v/24vdc**	
7	**2**	Up call acceptance 1	**12v/24vdc**	
8	**1**	Up call acceptance 2	**12v/24vdc**	
1	**16**	Up call acceptance 3	**12v/24vdc**	**Full collective operation**
2	**15**	Up call acceptance 4	**12v/24vdc**	
3	**14**	Up call acceptance 5	**12v/24vdc**	
4	**13**	Down call acceptance 1	**12v/24vdc**	
5	**12**	Down call acceptance 2	**12v/24vdc**	
6	**11**	Down call acceptance 3	**12v/24vdc**	
7	**10**	Down call acceptance 4	**12v/24vdc**	
8	**9**	Down call acceptance 5	**12v/24vdc**	

EXPANSION I/O BOARD (If Fitted)

CALL OUTPUTS FOR FULL COLLECTIVE.

No	OUTPUT	DESCRIPTION	VOLTAGE	NOTES
1	**8**	Up Call acceptance 7	**12v/24vdc**	**Full collective operation**
2	**7**	Up Call acceptance 6	**12v/24vdc**	
3	**6**		**12v/24vdc**	**Not used.**
4	**5**	Car Call acceptance 11	**12v/24vdc**	
5	**4**	Car Call acceptance 10	**12v/24vdc**	
6	**3**	Car Call acceptance 9	**12v/24vdc**	
7	**2**	Car Call acceptance 8	**12v/24vdc**	
8	**1**	Car Call acceptance 7	**12v/24vdc**	
1	**16**	Down call acceptance 10	**12v/24vdc**	**Full collective operation**
2	**15**	Down call acceptance 9	**12v/24vdc**	
3	**14**	Down call acceptance 8	**12v/24vdc**	
4	**13**	Down call acceptance 7	**12v/24vdc**	
5	**12**	Down call acceptance 6	**12v/24vdc**	
6	**11**	Up call acceptance 10	**12v/24vdc**	
7	**10**	Up call acceptance 9	**12v/24vdc**	
8	**9**	Up call acceptance 8	**12v/24vdc**	

NOTE: For second Expansion board, terminal allocation is the same but floor numbers are for 12 to 16.

POSITION AND DIRECTION.

No	OUTPUT	DESCRIPTION	VOLTAGE	NOTES
1	**RD**	Up direction arrow	**12v/24vdc**	
2	**RU**	Down direction arrow	**12v/24vdc**	
3	**FP6**	Floor position o/p 6	**12v/24vdc**	
4	**FP5**	Floor position o/p 5	**12v/24vdc**	
5	**FP4**	Floor position o/p 4	**12v/24vdc**	
6	**FP3**	Floor position o/p 3	**12v/24vdc**	
7	**FP2**	Floor position o/p 2	**12v/24vdc**	
8	**FP1**	Floor position o/p 1	**12v/24vdc**	
9	**12v/24v**	Feed input.		

SIGNAL OUTPUTS.

No	OUTPUT	DESCRIPTION	VOLTAGE	NOTES
1	**FFR**	Fire Fighting relay	**12v/24vdc**	**Alarm output for firecontrol**
2	**CALL**	*Not used*	**12v/24vdc**	
3	**CLT**	Car light control	**12v/24vdc**	**SPA2**
4	**AGD**	Gong/Chime Down	**12v/24vdc**	
5	**AGU**	Gong/Chime Up	**12v/24vdc**	
6	**AD**	Arrow Down	**12v/24vdc**	
7	**AU**	Arrow Up	**12v/24vdc**	
8	**12V/24V**	Feed Input	**12v/24vdc**	**Input**

RUN OUTPUTS.

No	OUTPUT	DESCRIPTION	VOLTAGE	NOTES
1	**OLW**	Overload warning output	**12v/24vdc**	
2	**LIS**	Lift in service	**12v/24vdc**	
3	**CDT**	Close door trigger	**12v/24vdc**	**SPA 4 Trigger for speech**
4	**ODT**	Open door trigger	**12v/24vdc**	**SPA3 Trigger for speech**
5	**AC**	Anticreep output	**110vac**	**Lock bypass circuit**
6	**AF**	Feed input for above	**110vac**	**Wire to safety chain**
7	**HSR**	High speed relay	**110vac**	
8	**DRR**	Down run relay	**110vac**	
9	**URR**	Up run relay	**110vac**	
10	**GR**	Feed for run outputs	**110vac**	**Wire to safety chain**

DOOR CONTROL OUTPUTS.

No	OUTPUT	DESCRIPTION	VOLTAGE	NOTES
1	**DOA**	Door open alarm	**Volt free contact**	**For Manual doors**
2	**DOA**	Door open alarm	**Volt free contact**	
3	**DNR**	Door nudge relay	**110vac**	
4	**RR**	Retiring Ramp	**110vac**	**For Manual doors**
5	**CDR**	Close doors relay	**Volt free contact**	
6	**CDR**	Close doors relay		
7	**ODR**	Open doors relay	**Volt free contact**	
8	**ODR**	Open doors relay		

EXPANSION BOARD AUXILIARY DOOR CONTROL OUTPUTS.

No	OUTPUT	DESCRIPTION	VOLTAGE	NOTES
1				
2				
3				
4				
5	**CDRA**	Aux door close output	**Volt free contact**	
6	**CDRA**	Feed for aux door close	**Volt free contact**	
7	**ODRA**	Aux door open output	**Volt free contact**	
8	**ODRA**	Feed for aux door open	**Volt free contact**	

APPENDIX G: TYPICAL WIRING DIAGRAM

Please contact Stannah for the latest copy.

APPENDIX H: DIMENSIONS FOR UPR, DPR AND ACR

The Nexus lift controller has been designed such that position inputs must be present for at least 0.08 seconds before it is registered as a valid input. This time delay is to negate any spurious spikes or blips, which could cause inaccurate signals to be seen by the controller.

The following chart shows the distance travelled into a slowing vane on high speed before the processor registers the input from the opto-switch.

LIFT SPEED	FORMULA	DISTANCE
1.0 M/S	1000 /12.5	80 mm
0.9 M/S	900/12.5	72 mm
0.8 M/S	800/12.5	64 mm
0.63 M/S	630/12.5	51 mm
0.5 M/S	500/12.5	40 mm
0.4 M/S	400/12.5	32 mm
0.3 M/S	300/12.5	24 mm
0.15 M/S	150/12.5	12 mm

The chart shows that the longest distance travelled into the slowing vane on high speed is 80 mm at a lift speed of 1.0 M/S.

Based on these calculations all slowing vanes should be cut to a length of 115 mm, which will account for any lift speed up to and including 1.0 M/S.

The floor level stopping vanes (UPR & DPR) should be cut to a length of 115 mm, which allows a nominal levelling speed and advanced door opening, if required.

The door zone vane (ACR) should be cut to a length of 250 mm.

Document prepared by Mr A. Mitchell.

APPENDIX I: SHORT FLOOR VANE ARRANGEMENT

Travelling up: When the lift is travelling up it will increment the floor position when UPR turns ON.

If there is a requirement to stop, the lift will slow to the floor.

If there is NOT a requirement to stop and then the UPS input turns ON, the floor position will increment when the UPR, DPR and ACR inputs are seen to be ON.

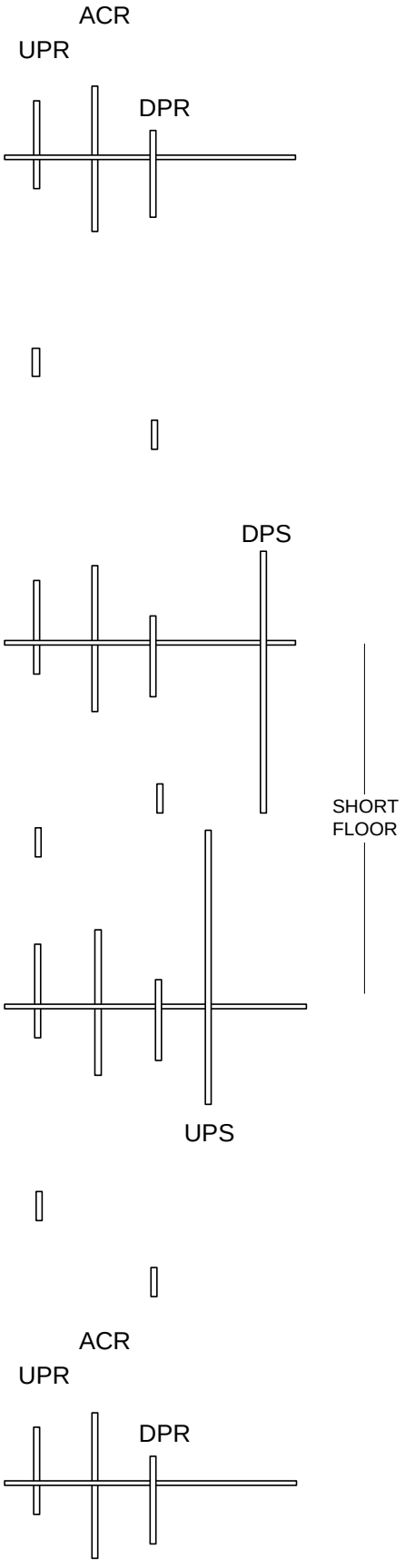
If there is a requirement to stop the lift at the new floor position the lift will go into slow speed and stop at floor level.

If the UPS input is present as the lift starts to run up from a stationary position, the lift will increment the floor position.

If there is a requirement to stop at the new floor position, the lift will run in slow speed until UPS turns OFF, and UPR, DPR and ACR are turn ON.

If there is not a requirement to stop the lift will run in high speed to the next call.

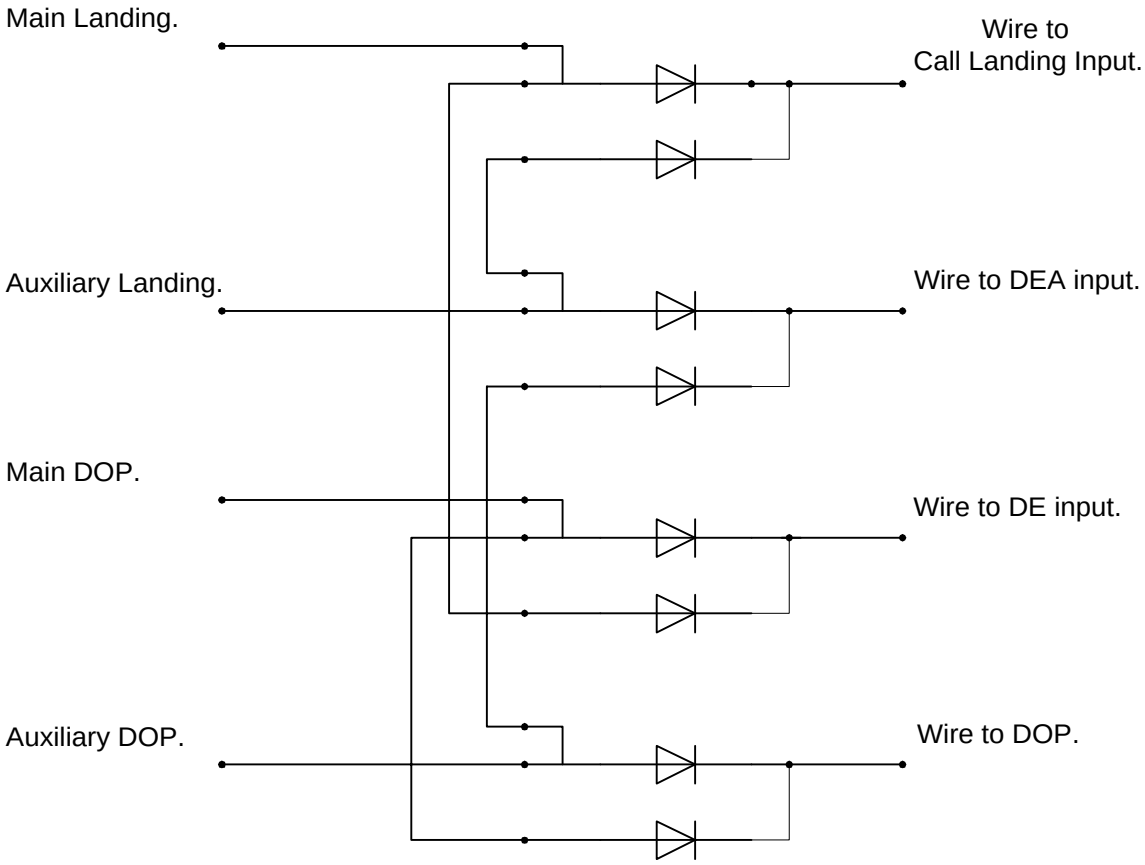
Travelling down: As above except lift will decrement the floor position when DPR turns ON and ignore DPR and UPR when DPS is ON.



APPENDIX J: CIRCUIT FOR DOUBLE DOOR ACCESS

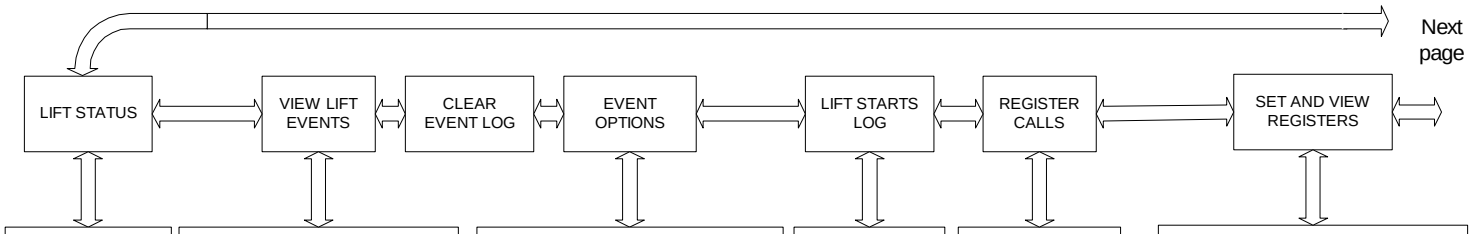
Lift pushbutton signals

Nexus controller inputs



1N4007 DIODES

APPENDIX K MENU LIST FOR NEXUS LIFT CONTROLLER



EVENT
Doors Closed
Doors Open
Doors Closing
Doors Opening
Running up
Running Down

STATUS
Normal Service
Goods Control
Test Control
Fire Control
Lift Shutdown 1
Lift shutdown 2
Out of Service

EVENTS
SCF: Safety circuit fault
GLT: Gate lock tripped
DJC: Main door close fault
DCA: Aux door close fault
DJ0: Main door open fault
DOA: Aux door open fault
DNR: Door nudge
COC: Call Cancelled
LSO:No door zone
GLH: Locks tripped in HS
GLL: Locks tripped in LS
OLW: Overloaded Lift
TRC: Lift on test control
FMC: Fire control ON
URS: Top reset activated
DRS: Reset activated
USL: Up limit broken
DSL: Down limit broken
LTF: Lift ran through floor
URN: UC not energised
DRN: DC not energised
CDN: CDC not energised
CAN: CDCA Not energised
ODN: ODC Not energised
OAN: ODCA Not energised
DPO: DOP stuck in
DPA: Aux DOPA stuck in
RES: Lift reset on power
RSH: Starts exceeded
JTT: Journey time out
PIA: I/O Board fault
DPX: Fault on duplex link
DPL: Corrupted duplex link
RAM: Corrupt memory
ULR: Ultimate limit broken
HSC: HSC not energised
PS1: 110vac Supply lost
PS2: 110vdc Supply lost
PS3: FP feed lost
PS4: AF signal not present
ALR: Alarm push operated
SBF: Stuck button
LIM: Current limit
RLL: Re-level timeout
BWN: Power brown out
OVT: Over temp shutdown
OL2: Bypass landing calls
JTE: Journey time event

EVENTS
SCF: Safety circuit fault
GLT: Gate lock tripped
DJC: Main door close fault
DCA: Aux door close fault
DJ0: Main door open fault
DOA: Aux door open fault
DNR: Door nudge activated
COC: Call Cancelled
LSO: Lift stop, no door zone
GLH: Gatelock tripped in HS
GLL: Gatelock tripped in LS
OLW: Overloaded Lift
TRC: Lift on test control
FMC: Fireman's control ON
URS: Top reset activated
DRS: Bottom reset activated
USL: Up limit broken
DSL: Down limit broken
LTF: Lift ran through floor
URN: UC not energised
DRN: DC not energised
CDN: CDC not energised
CAN: CDCA Not energised
ODN: ODC Not energised
OAN: ODCA Not energised
DOP: Door open push stuck in
DOA: Aux DOPA stuck in
RES: Lift reset on power
RSH: Starts exceeded
JTT: Journey time exceeded
PIA: I/O Board fault
DPX: Fault on duplex link
DPL: Corrupted duplex link
RAM: Corrupt memory
ULR: Ultimate limit broken
HSC: HSC not energised
PS1: 110vac Supply lost
PS2: 110vdc Supply lost
PS3: FP feed lost
PS4: AF signal not present
ALR: Alarm push operated
SBF: Stuck button
LIM: Current limit
RLL: Re-level timeout
BWN: Power brown out
OVT: Over temp shutdown
OL2: Bypass landing calls
JTE: Journey time event

Normal Starts
Relevel starts
Clear starts

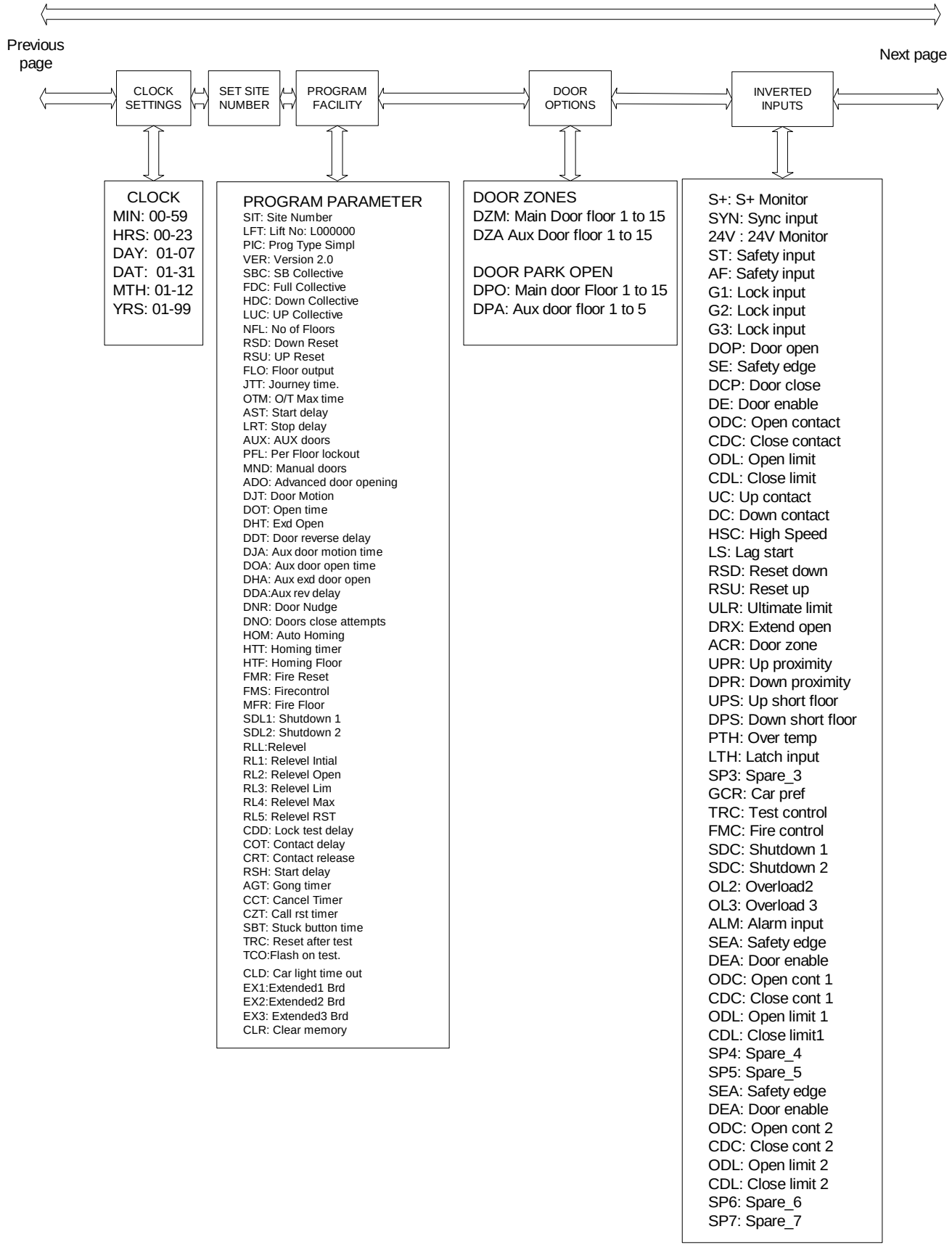
INSERT CALL
Cycle lift OFF
Car call 1
Car call 2
Car call 3
Car call 4
Car call 5
Car call 6
Car call 7
Car call 8
Landing call 1
Landing call 2
Landing call 3
Landing call 4
Landing call 5
Landing call 6
Landing call 7
Landing call 8
Car call 9
Car call 10
Car call 11
Car call 12
Car call 13
Car call 14
Car call 15
Car call 16
Landing call 9
Landing call 10
Landing call 11
Landing call 12
Landing call 13
Landing call 14
Landing call 15

SET AND VIEW REGISTERS
FP: Floor position of lift. 1 to 16
GCR: Goods control. on or off
FMC: Fireman's control
DOP: Door open push
DCP: Door close push
DOA: Aux door open push
DCA: Aux door close push
DORX: Doors open extend
OL2: Landing bypass
OL3: Lift overloaded.
SDL1: Shutdown 1
SLD2: Shutdown 2
ALR: Alarm input
HOM: Home in 5 seconds

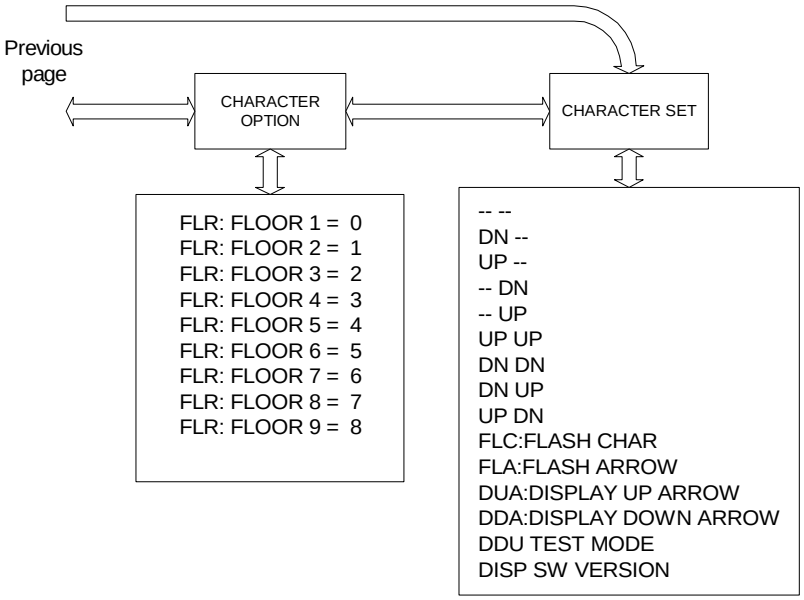
VIEW ONLY:

Safety: 00000000B.
Door I/P: 00000000B.
Run I/P: 00000000B.
Proximity: 00000000B.
Lift ctrl: 00000000B.
CALL 1-8: 00000000B.
CALL 9-16: 00000000B.
EXP1 I/P1: 00000000B.
EXP1 I/P2: 00000000B.
EXP2 I/P1: 00000000B.
EXP2 I/P2: 00000000B.
Door O/P: 00000000B.
Run O/P: 00000000B.
Signal: 00000000B.
Position: 00000000B.
ACK 1-8: 00000000B.
ACK 9--16: 00000000B.
EXP1 O/P1: 00000000B.
EXP1 O/P2: 00000000B.
EXP2 O/P1: 00000000B.
EXP2 O/P2: 00000000B.

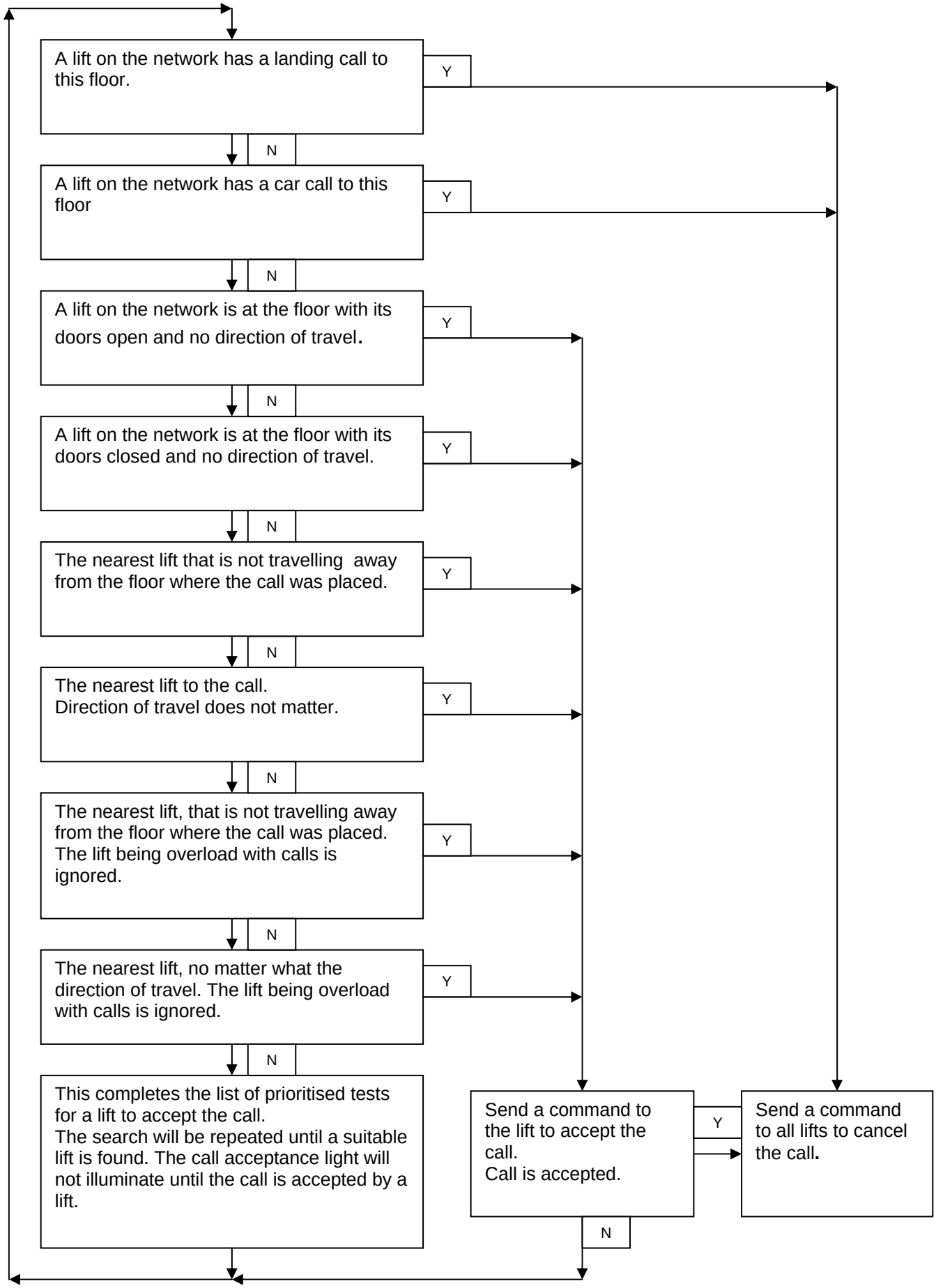
Cont..... MENU LIST FOR NEXUS LIFT CONTROLLER



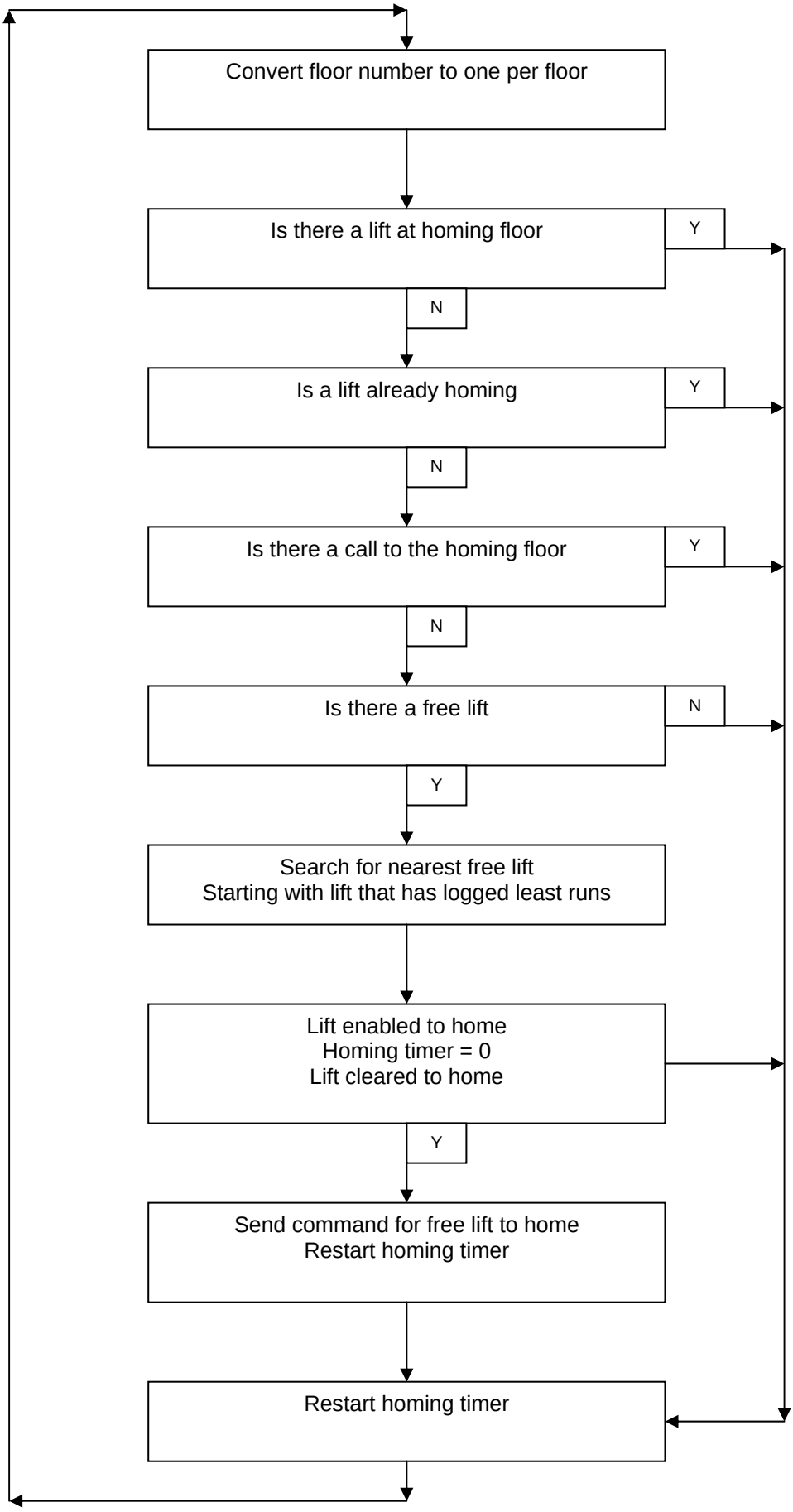
Cont..... MENU LIST FOR NEXUS LIFT CONTROLLER



APPENDIX L: CALL SORT FLOW DIAGRAM



APPENDIX M: Homing flow diagram



APPENDIX N: EVENT MESSAGES AND EVENT OPTION LIST

FAULT MESSAGE DISPLAY	FAULT DESCRIPTION	POSSIBLE CAUSE
F:00 NFF: NO FAULTS LOGGED,	There are not faults logged.	Memory has been cleared by user.
F:01 SCF: SAFETY CIRCUIT FAULT,	There is a break in the Safety Circuit chain,	No voltage at ST point of safety chain.
F:02	Not used see lock fault F10.	Not used, as per original fault log.
F:03 DJC: MAIN DOOR CLOSE FAULT,	The main doors failed to close in the programmed time	Check door gear or for obstructions
F:04 DCA: AUX DOOR CLOSE FAULT,	The auxiliary doors failed to close in the programmed time	Check door gear or for obstructions
F:05 DJO: MAIN DOOR OPEN FAULT,	The main doors failed to open in the programmed time	Check door gear or for obstructions
F:06 DOA: AUX DOOR OPEN FAULT,	The auxiliary doors failed to open in the programmed time	Check door gear or for obstructions
F:07 DNR: DOOR NUDGE ACTIVATED,	The door nudge was activated.	Obstruction to door movement.
F:08 COC: CALLS CANCELLED,	Calls were cancelled.	Lift failed to run to calls or close doors.
F:09 LSO: LIFT STOP, NO DOOR ZONE,	Lift stopped outside door zone.	Break in run circuit while lift running.
F:10 GLH: G1 LOCK TRIPPED IN HIGH SPEED	G1 Lock tripped while in high speed.	Doors opened while lift running in highspeed
F:10 GLH: G2 LOCK TRIPPED IN HIGH SPEED	G2 Lock tripped while in high speed.	
F:10 GLH: G3 LOCK TRIPPED IN HIGH SPEED	G3 Lock tripped while in high speed.	
F:11 GLL: G1 LOCK TRIPPED IN LOW SPEED	G1 Lock tripped while in low speed.	Doors opened while lift running in low speed
F:11 GLL: G2 LOCK TRIPPED IN LOW SPEED	G2 Lock tripped while in low speed.	
F:11 GLL: G3 LOCK TRIPPED IN LOW SPEED	G1 Lock tripped while in low speed.	
F:12 OLW: OVERLOADED LIFT,	Lift overloaded.	Overload level 3 shutdown condition
F:13 TRC: LIFT ON TEST CONTROL,	Lift on test control, TRC = OFF.	Lift on car top control.
F:14	There is no fault F:14.	
F:15 FMC: FIREMAN'S CONTROL ON,	Fireman's control activated.	Fire control activated.
F:16 URS: TOP RESET ACTIVE,	UP terminal floor reset activated	Lift out of position check UPR vanes
F:17 DRS: BOTTOM RESET ACTIVE,	Down terminal floor reset activated	Lift out of position check DPR vanes
F:18 USL: UP LIMIT BROKEN,	Lift stopped by UP stop limit.	Lift overrun, check vane settings.
F:19 DSL:DOWN LIMIT BROKEN,	Lift stopped by DOWN stop limit.	Lift overrun, check vane settings.
F:20 LTF: LIFT RAN THROUGH FLOOR,	Lift travelled through floor.	Check vane and stop delay.
F:21 URN: UC NOT ENERGISED,	UC contactor not energised.	UC input not seen within programmed delay.
F:22 DRN: DC NOT ENERGISED,	DC contactor not energised.	DC input not seen within programmed delay.
F:23 CDN: CDC NOT ENERGISED,	CDC not energised.	CDC input not seen within delay.
F:24 CAN: CDCA NOT ENERGISED,	CDCA not energised.	CDCA input not seen within delay.
F:25 ODN: ODC NOT ENERGISED,	ODC not energised.	ODC input not seen within delay.
F:26 OAN: ODCA NOT ENERGISED,	ODCA not energised.	ODCA input not seen within delay.
F:27 DPO: DOOR PUSH OPEN, STUCK IN,	Main door open push stuck in.	Check push button for sticking or misuse.
F:28 DPA: AUX PUSH OPEN, STUCK IN,	Auxiliary door open push stuck in.	Check push button for sticking or misuse.
F:29 RES: LIFT RESET ON POWER UP,	Power up caused lift to reset.	If frequent, check electrical supply for noise

FAULT MESSAGE DISPLAY	FAULT DESCRIPTION	POSSIBLE CAUSE
F:30 RSH: STARTS PER HOUR EXCEEDED,	Lift exceeded rated starts per 15 minute.	Check traffic requirements.
F:31 JTT: JOURNEY TIME EXCEEDED,	Lift journey timer tripped.	Check run circuit and vanes.
F:32 PIA: I/O BOARD FAULT,	Minor fault detected with unit hardware.	Nexus internal fault detected.
F:32 PIA: I/O BOARD FAULT,	Fault detected with unit hardware.	Nexus internal fault detected.
F:33 DPX: FAULT ON DUPLEX LINK,	Communication problem on duplex comms link.	Check terminations or cable routing.
F:34 DPL: CORRUPTED DUPLEX LINK,	Excessive communication errors on duplex comms link.	Check terminations or cable routing.
F:35 RAM: EEPROM CORRUPT,	CPU, EEPROM memory fault.	Check power source for electrical noise.
F:36 ULR: ULTIMATE LIMIT BROKEN,	Lift over ran the ultimate limit.	Check setting of vanes and limits.
F:37 HSC: HSC NOT ENERGISED,	HSC contactor failed to energise.	HSC input not seen within delay.
F:37 HSC: HSC NOT RELEASED,	HSC contactor failed to release.	HSC input not turned OFF within delay.
F:38 PS1: 110vac SUPPLY LOST,	Failure of the 110v ac Supply.	Check supply wiring and fuses.
F:39 PS2: C+ FEED SUPPLY LOST,	Failure of the 24v dc Supply.	Check supply wiring and fuses.
F:40 PS3: FP FEED SUPPLY LOST,	Failure of the FP Feed.	Check supply wiring and fuses.
F:41 PS4: AF SIGNAL NOT PRESENT,	Failure of the AF Signal feed.	No voltage at AF point of safety chain.
F:42 ALR: ALARM PUSH OPERATED.	Alarm push operated for more than 3 seconds.	
F:43 SBF: STUCK BUTTON,	Button ON for more than set time.	Check for sticking buttons or misuse.
F:44 LIM: POSITION CURRENT LIMIT,	Over current condition on a unit output.	Check load and wiring for short circuits.
F:44 LIM: CALL ACC 1-8 CURRENT LIMIT,	Over current condition on a unit output.	Check load and wiring for short circuits.
F:44 LIM: CALL ACC 9-16 CURRENT LIMIT,	Over current condition on a unit output.	Check load and wiring for short circuits.
F:44 LIM: EXP 1 O/P1 CURRENT LIMIT,	Over current condition on a unit output.	Check load and wiring for short circuits.
F:44 LIM: EXP 1 O/P2 CURRENT LIMIT,	Over current condition on a unit output.	Check load and wiring for short circuits.
F:44 LIM: EXP 2 O/P1 CURRENT LIMIT,	Over current condition on a unit output.	Check load and wiring for short circuits.
F:44 LIM: EXP 2 O/P2 CURRENT LIMIT,	Over current condition on a unit output.	Check load and wiring for short circuits.
F:45 RLL: RE-LEVEL TIMEOUT,	Anticreep ran for more than time limit.	Check run circuit, vanes and Hydraulics.
F:46 BWN: POWER BROWN OUT,	Recovered from power brown out.	Check power source for noise.
F:47 OVT: OVER_TEMP SHUTDOWN,	Motor over temperature shutdown input.	Check motor cooling and lift use.
F:48 OL2: BYPASS LANDING CALLS,	Lift overloaded, landing calls will be bypassed.	Overload 2 call bypass, check lift use
F:49 JTE: JOURNEY TIME EVENT,	Journey timer has timed out, lift will shutdown at next floor.	Check run circuit and vanes.

NOTES:

1. Faults are only logged if the unit operates in a different manner to the programmed parameters.
   That is: If the unit has not been programmed to open its doors at a floor, it will not open the doors and will NOT log a fault, as no fault has occurred.
2. If the contactor delay time is programmed to be too short, UC, DC, ODC, CDC, or HSC faults will be logged. Even though the circuit works. The contactor delay times COT: Contact Delay and CRT: Contact release delay, must be programmed for longest possible delay. That is, for an output to propagate through the circuit to the contactor wired to the relevant input.

APPENDIX 0: SET AND VIEW REGISTER OPTIONS

SET AND VIEW REGISTER MESSAGES	DESCRIPTION OF FUNCTION
FP: FLOOR POSITION 01	The Floor position can be modified using this screen
GCR: GOODS CONTROL	Control of the Goods control input (GCR) is possible using this screen.
FMC: FIRE CONTROL	Control of the Fire control input (FMC) is possible using this screen.
DOP: OPEN PUSH	Control of the Door open button (DOP) is possible using this screen.
DCP: CLOSE PUSH.	Control of the Door close button (DCP) is possible using this screen.
DOA: AUX OPEN	Control of the Auxiliary Door open button (DOP) is possible using this screen.
DORX: DOOR EXTEND	Control of the Extend Door open button (DORX) is possible using this screen.
OL2: CALL BYPASS	Control of the Overload 2 input (OL2) for landing call by pass is possible using this screen.
OL3: OVERLOAD	Control of the Overload 3 input (OL3) for shut down of lift is possible using this screen.
SLD1: SHUTDOWN 1	Control of the Shutdown 1 (SDL1) is possible using this screen.
SDL2: SHUTDOWN 2	Control of the Shutdown 2 (SDL2) is possible using this screen.
ALR: ALARM INPUT	Control of the Alarm input (ALRM) is possible using this screen.
HOM: HOME IN 5s	Lift will home to homing floor in 5 seconds time when this input set to ON. **DOES NOT WORK.**
SAFETY: 00000000B	Allows Safety inputs to be viewed but not modified.
DOORS I/P: 00000000B	Allows Door inputs to be viewed but not modified.
RUN I/P: 00000000B	Allows Run inputs to be viewed but not modified.
PROXIMITY: 00000000B	Allows Proximity to be viewed but not modified.
LIFT CTRL: 00000000B	Allows Lift control inputs to be viewed but not modified.
CALL 1-8: 00000000B	Allows Call inputs 1 to 8 can be viewed but not modified.
CALL 9-16: 00000000B	Allows Call inputs 9 to 16 can be viewed but not modified.
EXP1 I/P1: 00000000B	Allows Expansion board 1 input group 1 to be viewed but not modified.
EXP1 I/P2: 00000000B	Allows Expansion board 1 input group 2 to be viewed but not modified.
EXP2 I/P1: 00000000B	Allows Expansion board 2 input group 1 to be viewed but not modified.
EPX2 I/P2 : 00000000B	Allows Expansion board 2 input group 2 to be viewed but not modified.
DOOR O/P: 00000000B	Allows Door outputs to be viewed but not modified.
RUN O/P: 00000000B	Allows Run outputs to be viewed but not modified.
SIGNAL O/P: 00000000B	Allows Signal outputs to be viewed but not modified.
POSITION: 00000000B	Allows Position outputs to be viewed but not modified.
ACK 1_8: 00000000B	Allows Call acceptance outputs 1 to 8 to be viewed but not modified.
ACK 1_16: 00000000B	Allows Call acceptance outputs 9 to 16 to be viewed but not modified.
EXP1 O/P1: 00000000B	Allows expansion board 1 outputs 1 to be viewed but not modified.
EXP1 O/P2: 00000000B	Allows expansion board 1 outputs 2 to be viewed but not modified.
EXP2 O/P1: 00000000B	Allows expansion board 2 outputs 1 to be viewed but not modified.
EXP2 O/P2: 00000000B	Allows expansion board 2 outputs 2 to be viewed but not modified.

APPENDIX P: List of programmable parameters

PROGRAM MESSAGES	DEFAULT	MIN	MAX	DESCRIPTION OF PROGRAM MESSAGE.
SIT: SITE No: L000001,	L000001			Site number for lift. This will be the job number.
LFT: LIFT No: 00,	0	1	99	Lift number. For multiple lifts on a site each will be programmed with a lift number.
PIC: PROG TYPE SIMPL,	GROUP			Type of program fitted: Simplex, Group (Multi car group control).
VER: VERSION 2.00,	2.00			Version number of program fitted to unit.
SBC:SB, COLLECTIVE,	YES	NO	YES	If selected, Lift will operate as a Single Button collective.
FDC: FULL COLLECTIVE,	NO	NO	YES	If selected, Lift will operate as a Full collective.
HDC: DOWN COLLECTIVE,	NO	NO	YES	If selected, Lift will operate as a DOWN collective.
LUC: UP COLLECTIVE,	NO	NO	YES	If selected, Lift will operate as a UP collective.
NFL: No OF FLOORS,	3	1	15	Programmed for the number of floors.
RSD: DOWN RESET,	1	1	1	Programmed for the bottom reset floor. Default is position 1..
RSU: TOP RESET,	3	1	15	Programmed for the top reset floor. Default is position 5.
FLO: FLOOR O/P	1 / FLOOR	BINARY	GRAY	Floor display output format.
JTT: JOURNEY TIME,	180 SEC	20 SEC	180 SEC	Set for maximum allowable travel time.
OTM:O/T MAX TIME	180 SEC			The over temperature time will be set to the same value as the journey timer.
AST: START DELAY,	0.9 SEC	0.1 SEC	0.9 SEC	Set for delay before Lift runs.
LRT: STOP DELAY,	0.1 SEC	0.1 SEC	0.8 SEC	Set for delay before lift stops, used for levelling.
AUX: AUX DOORS,	NO	NO	YES	Set if auxiliary doors fitted.
PFL: FLR LOCKOUT,	NO	NO	YES	set to YES to inhibit main and auxiliary doors opening at the same floor
MND: MANUAL DOOR,	NO	NO	YES	Set to yes if Manual doors fitted.
ADO: ADV OPEN,	YES	NO	YES	Set to yes if advanced door open required.
DJT: DOOR MOTION,	10 SEC	5 SEC	15 SEC	Set for door opening and closing time.
DOT: OPEN TIME,	6 SEC	1 SEC	30 SEC	Set to the main door open pause time.
DHT: EXD OPEN,	20 SEC	5 SEC	60 SEC	Set for the main door extended open time.
DDT: REVERSE DLY,	0.2 SEC	0.1 SEC	0.9 SEC	Set for the Main door quick reverse delay.
DJA: AUX MOTION,	10 SEC	5 SEC	15 SEC	Set for the Auxiliary door opening and closing time.
DOA: AUX OPEN,	6 SEC	1 SEC	30 SEC	Set for the Auxiliary door open pause time.
DHA: AUX EXD OPEN,	20 SEC	5 SEC	60 SEC	Set for the Auxiliary door extended open time.
DDA: AUX REV DLY,	0.2 SEC	0.1 SEC	0.9 SEC	Set for the auxiliary door quick reverse.
DNR: DOOR NUDGE,	NO	NO	YES	Set to YES to enable door nudge.
DNO: DOOR OPS,	10	1	10	Set for the number of door ops before door nudge starts.
HOM: AUTO HOMING,	YES	NO	YES	Enable automatic Homing.
HTT: HOMING TIMER,	15 MIN	1 MIN	60 MIN	Set for time before homing occurs.
HTF: HOMING FLOOR,	1	1	15	Set for floor Lift will run to when homing.

PROGRAM MESSAGES	DEFAULT	MIN	MAX	DESCRIPTION OF PROGRAM MESSAGE.
FMR: FIRE RESET,	YES	NO	YES	Set to YES for Lift to run to fire floor upon Fireman's control turning ON.
FMS: FIRECONTROL,	NO	NO	YES	Set to YES if Lift i a firefighting Lift.
MFR: FIRE FLOOR,	1	1	15	Set for floor that Lift will run to when Fireman's control turns ON.
SDL1: SHUTDOWN 1,	1	1	15	Set to floor that Lift will run to when shutdown 1 turns ON.
SDL2: SHUTDOWN 2,	1	1	15	Set to floor that Lift will run to when shutdown 2 turns ON.
RLL: RELEVEL,	YES	NO	YES	To disable Anticreep fit link LK6, next to IC13 socket, and selected to be OFF, on menu.
RL1: RELEVEL INT,	5 SEC	5 SEC	20 SEC	Initial relevel delay: Programmed delay before Lift relevels.
RL2: RELEVEL OPEN,	10 SEC	1 SEC	10 SEC	Programmed delay before lift relevels, if doors are open.
RL3: RELEVEL LIM,	8 SEC			Time limit for anticreep to be ON.
RL4: RELEVEL MAX ,	5	1	10	Maximum number of relevels allowed at any one floor.
RL5: RELEVEL RST,	10 MIN	10 MIN	120 MIN	Time after exceeding downwards relevel limit before lift will attempt to relevel down again
CDD:LOCK TEST DLY,	5 SEC	1 SEC	20 SEC	Set for delay before locks are checked.
COT: CONTACT DLY,	0.9 SEC	0.1 SEC	1 SEC	Set for time for contactors to make after being energised
CRT: CONTACT REL,	0.9 SEC	0.1 SEC	1 SEC	Set for time for contactors to release after being energised.
RSH: START / HOUR,	23	1	99	Set for number of starts allowed with a 15 minute period.
AGT: GONG TIMER,	1	1	9	Set for continuous or instantaneous, in tenth of a second
CCT: CANCEL TIMER,	60 SEC	60 SEC	10 MIN	Set for time before calls are automatically cancelled.
CZT: CALL RST TIME,	60 SEC	60 SEC	10 MIN	Set for time that lift will shutdown due to a call cancel shutdown.
SBT:STUCK BUTTON,	60 SEC	10 SEC	60 SEC	Set for time that a call button can be continuously ON.
TRC: TRC RESET,	NO	NO	YES	Set to YES, if Lift is to reset to bottom floor after Test control turns OFF.
TCO:FLASH ON TEST,	YES	NO	YES	Set to YES if position indicator is to flash when Lift not in normal service.
CLD: CAR LAMP DELAY,	2 MIN	1 MIN	60 MIN	Delay before car lights are turned OFF.
EX1: EXTEND1 BRD,	NO	NO	YES	The unit will automatically display YES, if the board is present.
EX2: EXTEND2 BRD,	NO	NO	YES	The unit will automatically display YES, if the board is present.
EX3: EXTEND3 BRD,	NO	NO	YES	The unit will automatically display YES, if the board is present.
CLR: CLEAR MEMORY,	NO	NO	YES	Set this flag to clear memory at next power up.

APPENDIX Q: INSTRUCTIONS FOR CHANGING PROGRAM MEMORY

Safety first:

1. Ensure Lift programmable parameters and door options have been recorded and are up to date.

2. Set Lift to a safe condition and isolate control panel from all power feeds.

Changing program memory:

1. Open the Nexus Lift Controller front panel by releasing the retaining screw, located near the power supply inputs.

2. The program memory chip is located beneath the display module, release the display module by undoing the two M3 nuts either side of the display module. The display module can be supported by its cable but it must not be unduly stretched or twisted.

3. The program memory chip is mounted in a socket and is labelled ‘NEXUS VER x.xx’, the version number may have changed. Note the orientation of the chip. The orientation of the chip is denoted by a NOTCH at one end.

4. Remove the chip by carefully ‘prizing’ it out of the socket. Care must be taken not to damage any adjacent component or the circuit board. Once the chip has been removed it should be kept in a safe place until the lift has been tested. It should then be discarded.

5. Fit the replacement chip in the correct orientation ensuring that the legs do not bend.

6. Inspect the chip for bent legs.

7. Refit the display module and secure with the two M3 nuts. Washers are not fitted to the display module.

8. Close the Nexus Lift Controller unit front panel.

9. Apply power to the unit and check the programmable parameters, if these have changed reprogram unit to original values. See section 6 for information on how to program the unit.

10. Updating of the Lift software is now complete.

END OF INSTRUCTION