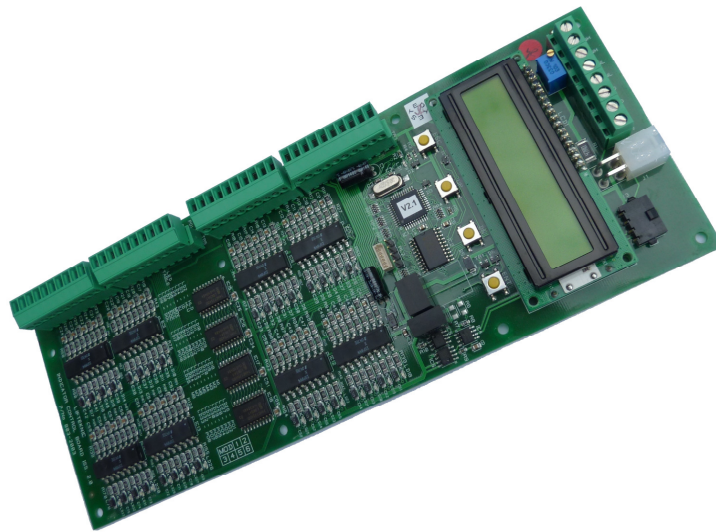


EN81-70 (DDA) Overlay Indicator Installation Manual

V2.1



Read the manual
before installing the
equipment

Contents

2.	Introduction.....	4
3.	LCD configuration settings.....	5
3.1	Per Controller interface unit.....	5
4.	System Overview.....	12
5.	Operation and features.....	14
6.	Power Supply.....	15
7.	Signal requirements.....	16
7.1.	Per-controller connections.....	17
8.	Schematic of indicator controller interface.....	18
9.	Magnetic switch input:.....	19
9.1	Reset floor.....	19
9.2	Top floor.....	19
9.3	Bottom floor.....	19
9.4	Other floors.....	19
10.	Test modes.....	21
10.1	Speech.....	21
10.2	Indicator.....	21
10.3	Inputs.....	21
11.	User Forms.....	21
1.	Left Blank	

2. Introduction.

The overlay kit utilises tried and tested hardware with a labour saving networked communication system to reduce installation time and lift service disruption. The additional surface mount user interface equipment enables quick installation.

***** NOTE *****
***** This system is only suitable for Non-network based lift controllers *****

To achieve this only a small proportion of the functionality of the existing lift controller system is overlaid, without affecting any of the existing controllers operational features. Essentially the overlay is transparent to the controller.

Features provided by the overlay system to meet the EN81-70 requirements are : -
DDA compliant Landing indicator for next direction of travel arrow
Landing arrival gong
Speech synthesis
Car Position indicator

Additional benefits that are available with the overlay are: -

Position Indicators on all landings
Scrolling Lift status messages on all landings
Additional Lifts status messages visual and audible
Provides partial modernisation for future lift system

All input signals to the Interface are 24 Volts DC. Signals can be switched positive or negative depending on where the Input Common is connected.

For positive signals the Input Common is connected to 0 Volts, the return of the 24 Volt power supply. Input signals are then +24 Volt DC to turn an input on.

For negatively switched signals the Input Common is connected to the +24 Volts from the power supply. Input signals are then switched to 0 Volts or the power supply return to turn an input on.

The interface does not use any of the output signals from the I/O boards.

Landing and car indicators are connected on a common network (CHI, CLO, 24V and 0V). Each end of the network should have a 120 ohm resistor fitted as a termination resistor across CHI and CLO. If both car and landing indicators are fitted, the resistor in the terminal rail between CHI and CLO should be removed when both terminating resistors are fitted.

3. LCD configuration settings

There are a number of user-configurable settings designed to suit a variety of different lift installations.

e.g. Floor markings, Positional information type.

The settings are made possible with the use of the 16x2 LCD and 4 push buttons on the communication nodes in the **Per Controller Interface**.

3.1 Per Controller interface unit

The per controller interface unit comprise of 16x2 LCD and 4 push buttons providing on site programming flexibility. Displays welcome note after Power up or Reset as shown in Fig 5.0.

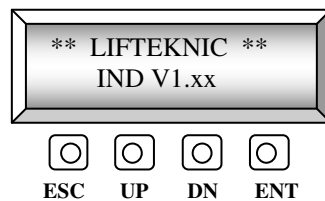


Fig 1.0

Keypad Description

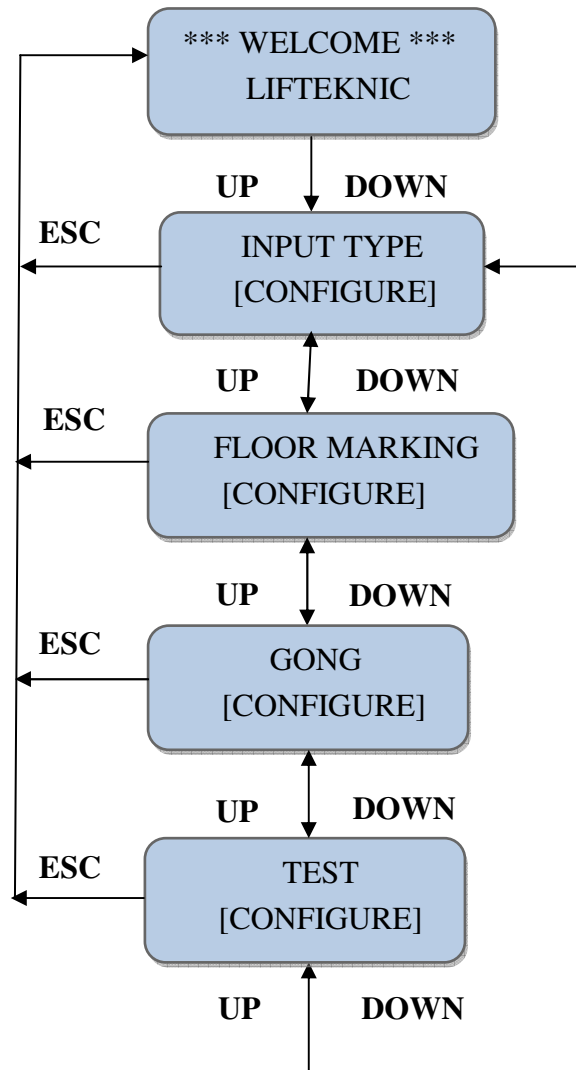
ENT – To enter a menu or change parameter value.

UP or DN –When on the welcome screen brings up input configuration screen.

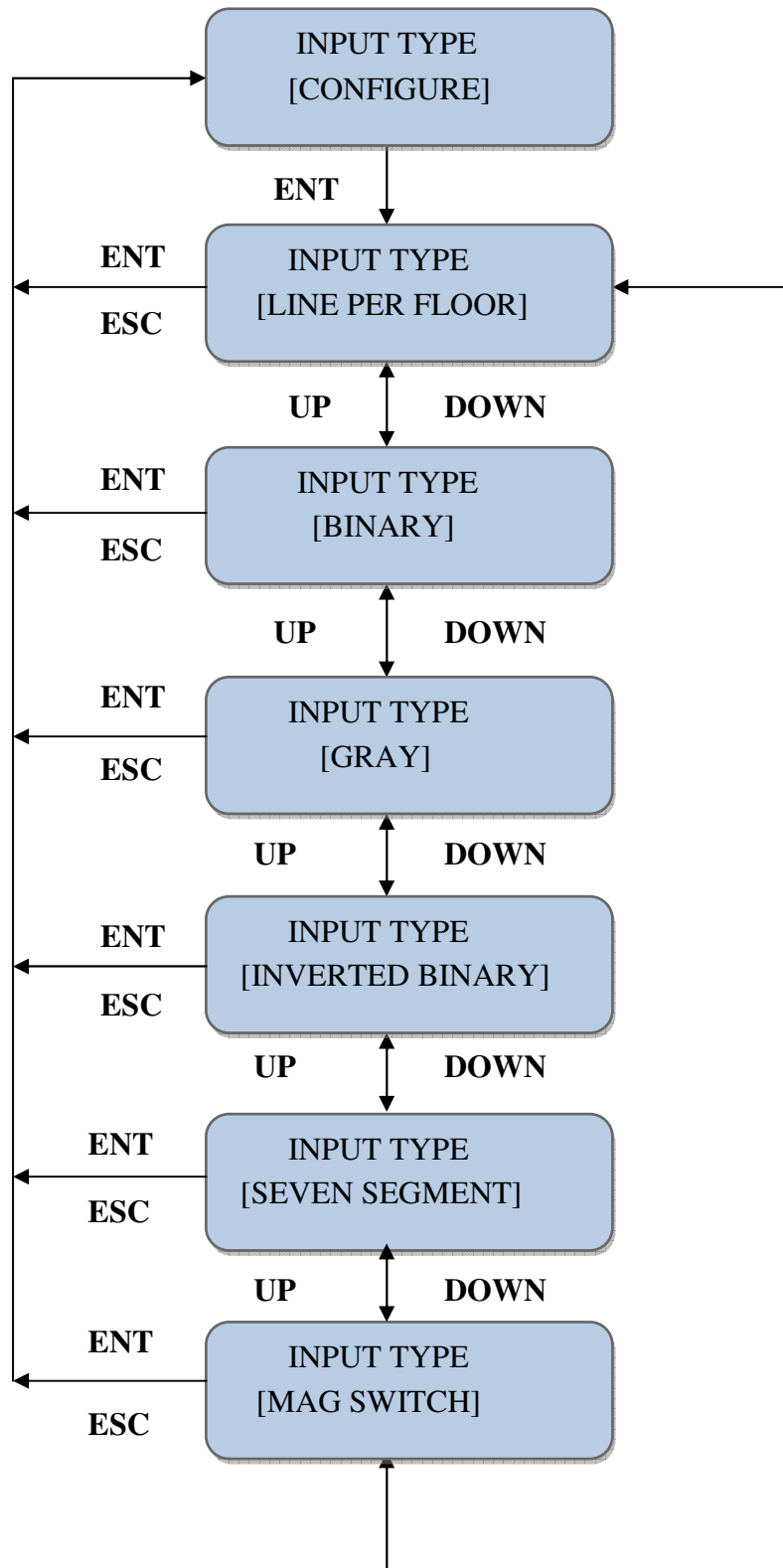
UP – To scroll menu options or parameters or values up.

DN – To scroll menu options or parameters down and LCD cursor position left and right while setting floor values manually.

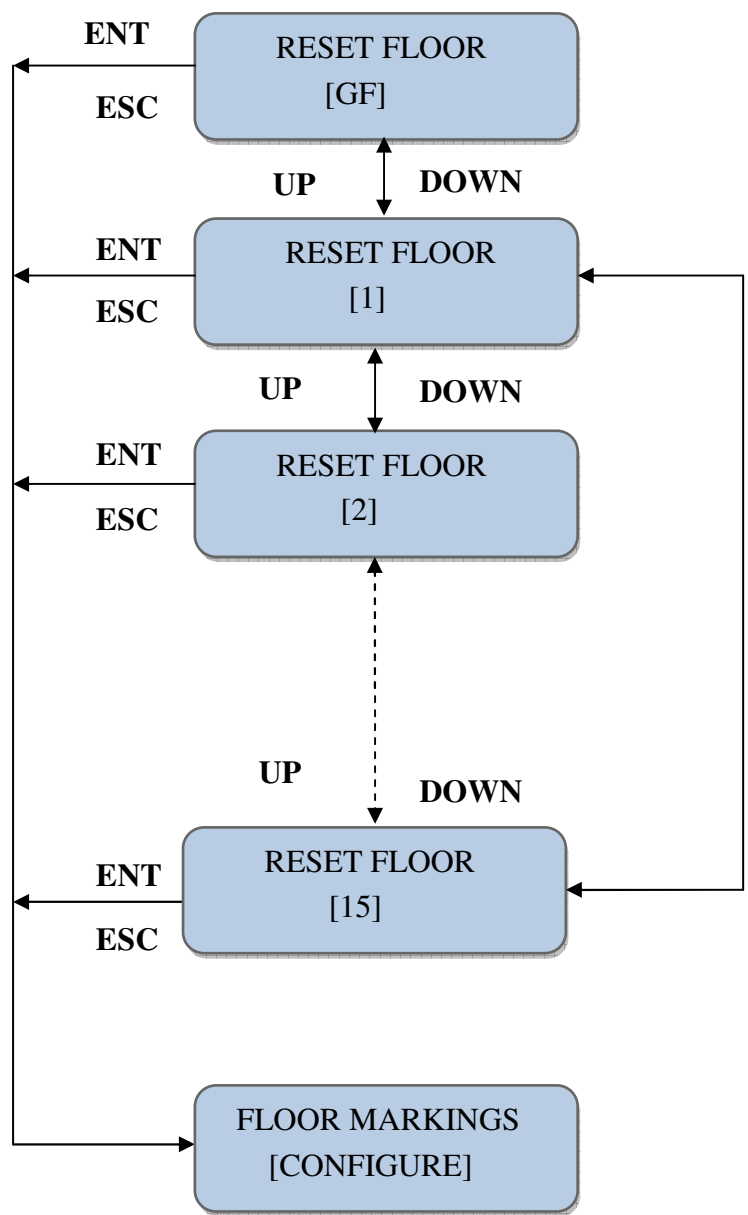
ESC – Press to leave the present menu you are working in and go back to the previous menu option and to leave the parameters unchanged.



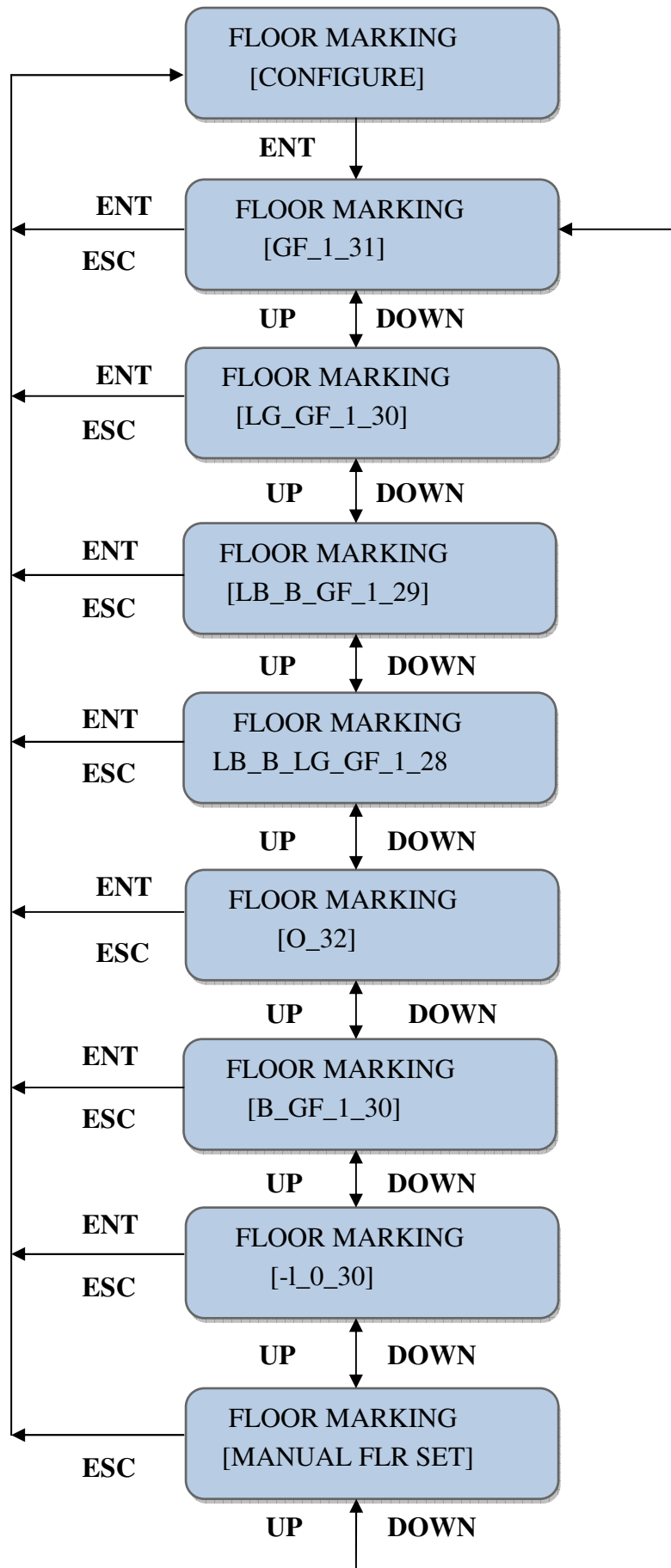
Input configuration menu



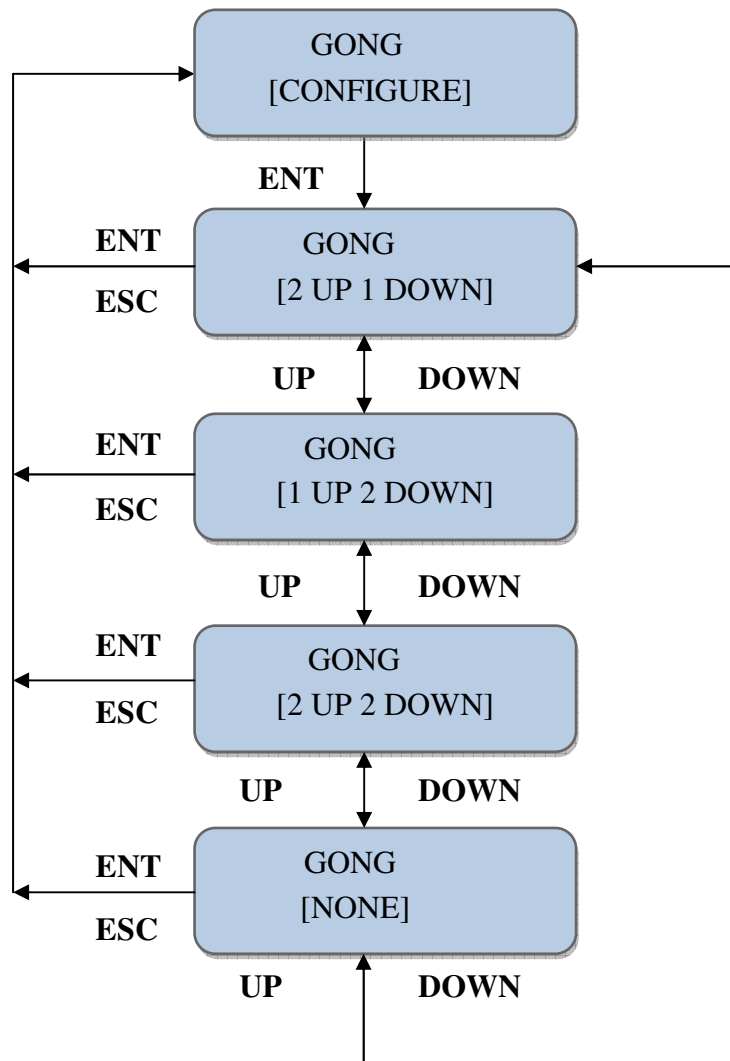
If magnetic reed switch input selected in input type menu it is necessary to configure the reset floor.



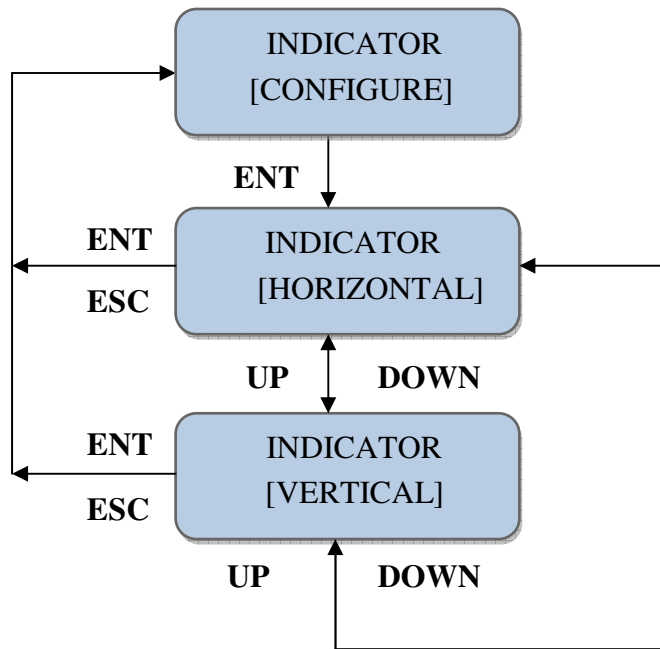
Floor configuration marking menu



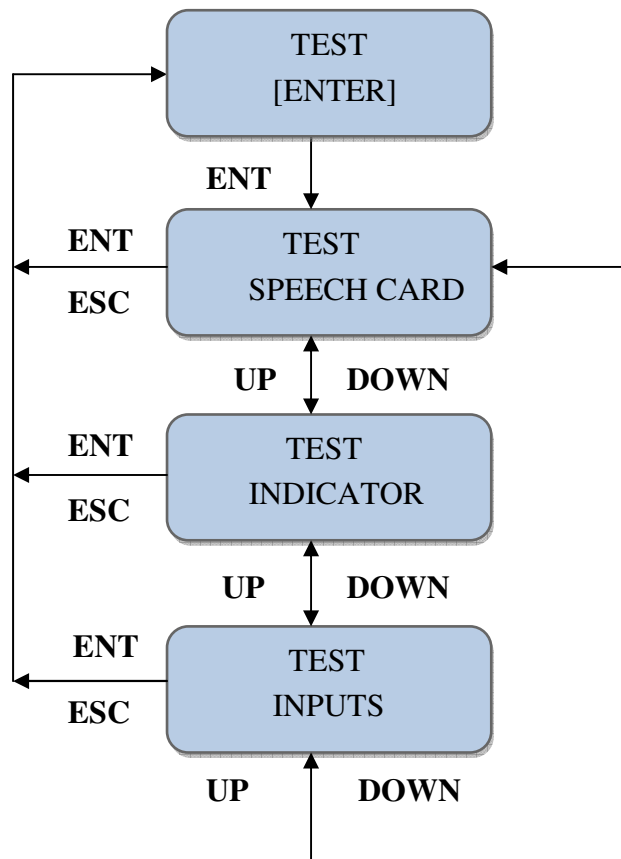
Gong menu.



Indicator menu.



Test menu.



4. System Overview.

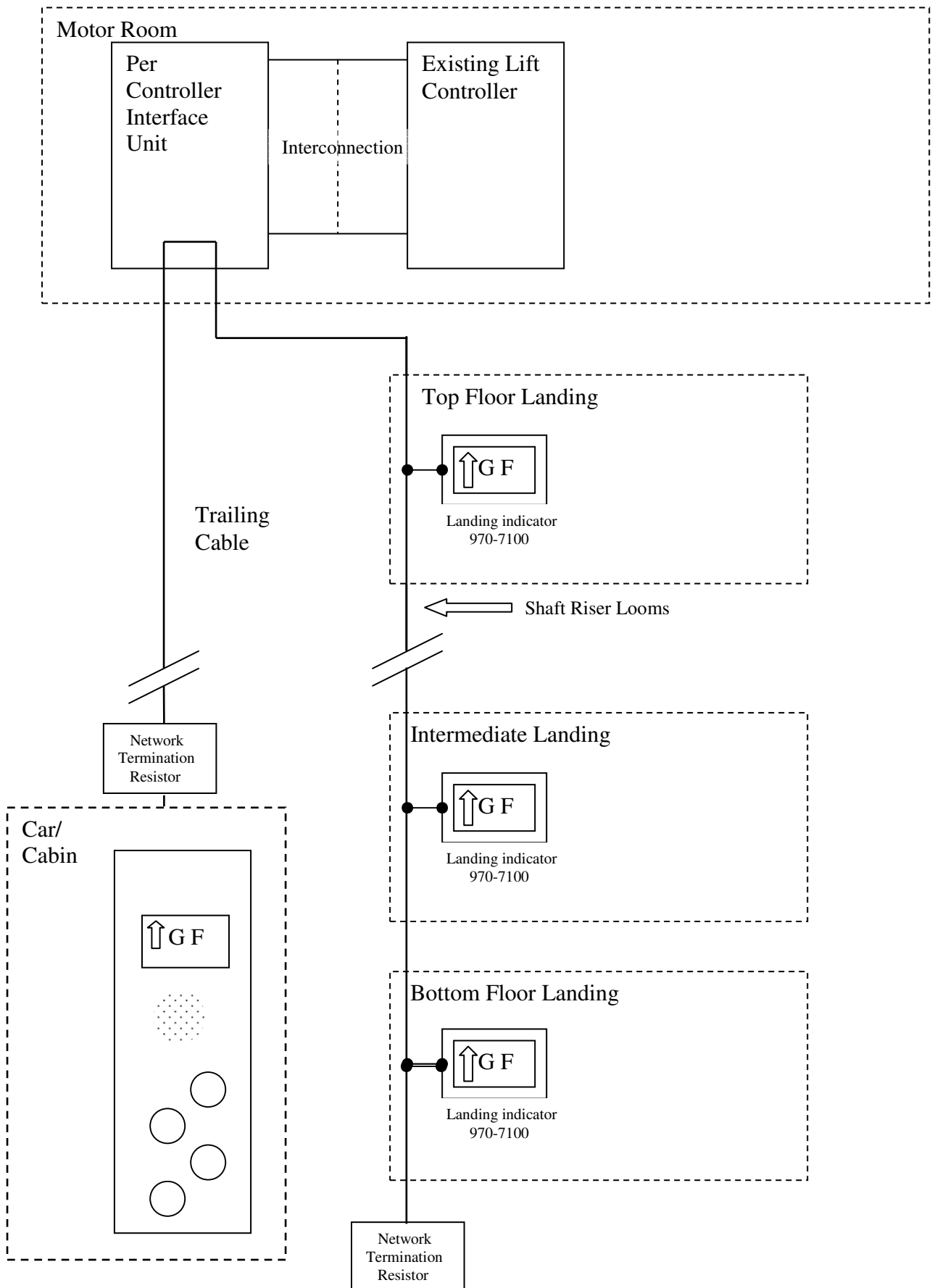
The system uses a CAN (Controller Area Network) based serial network as used in many vehicle applications, to reduce wiring and enable quick installation and reliable operation.

The overlay kit consists of a Per Controller kit for each lift.

Controller kit consists of: -

- A “Per Controller interface” unit
- Arrival gongs
- Hall Lantern arrow (Next direction of travel)
- Surface mount enclosure
- Scrolling messages
- Lift Position/Direction information
- Fully assembled and wired
- Speech synthesiser
- Position indicator
- Twisted pair Shaft network loom for Landing Indicators
- Twisted pair Shaft network loom for Car Indicator
- Landing Indicator to Shaft loom spurs

Fig 2.0 System Overview



5. Operation and features

All signals required to enable the operation of the overlay are fed into the purpose designed interface unit.

These units should be fitted on or in close proximity to the existing controller that is to be overlaid for ease of wiring also the network data from the Car trailing cable and the Shaft riser looms are fed into these units.

***** Note *****

It is the responsibility of the installer to locate the appropriate signals required from the existing lift controller.

A list of the minimum signal requirements and their logic can be found in Section 4.

Due to EMC requirements and in order for the system to operate correctly the landing call and indicator looms must be routed separately from any and all motor cables.

It is a requirement for any motors with regulator or inverter control to have in addition screened cables between motor and inverter.

Landing/Car Position Indicators

Positional information from the controller is read via signals wired to the Per Controller interface unit at predefined input locations, and converted into a network data that can be read by any indicator device attached to that network.

See fig 3.0 System Overview

Similarly lift direction, and various lift status information is also read via the Controller interface unit at predefined input locations, so indicators can display the current position, current direction, current lift status generate the Hall lanterns, and gongs features.

This network information is also available to the speech synthesiser unit in the COP to enable its operation.

6. Power Supply.

The interfaces require a 24Vdc supply to operate. If the control panel does not have a 24Vdc power supply a separate power supply can be ordered with the interface kit. It is advisable to connect the interfaces to the supply as described below.

If a separate 24Vdc power supply is used connect the power supply mains input cable to a suitable supply point within the controller so that the interface will be powered down when the panel is turned off.

If necessary, the car light supply may be used, however, this may remain **live** if the main isolator within the panel is used to power down the controller. If this is the case, then it is advisable to label clearly, that the interface may remain live.

Alternatively, use a relay to switch the car light supply off to the interface, when the panel is turned off.

All inputs to the interface from the lift panel are 24 Volts, either switching high or low to be active depending upon the position of the link for the input common.

As shown in the schematic(page 18) input common is 24 Volts, so for triggering any input connect that input to 0 Volt.

7. Signal requirements

The “Per Controller interface unit” provide the connection points to the existing controller. These signals are hard wired to the existing lift controller.

Please refer to signal functions in the next section.

Input Specifications	
DC inputs	These may be used to switch High or Low, dependant on the Input Common signal (All inputs share 1 input common).
On the interface unit terminal rail , the Input Common has a jumper which can be selected between the 0 Volt return and the 24 Volt power supply inputs. This jumper selects the Input Common signal that determines whether the active inputs switch high or low.	

7.1. Per-controller connections

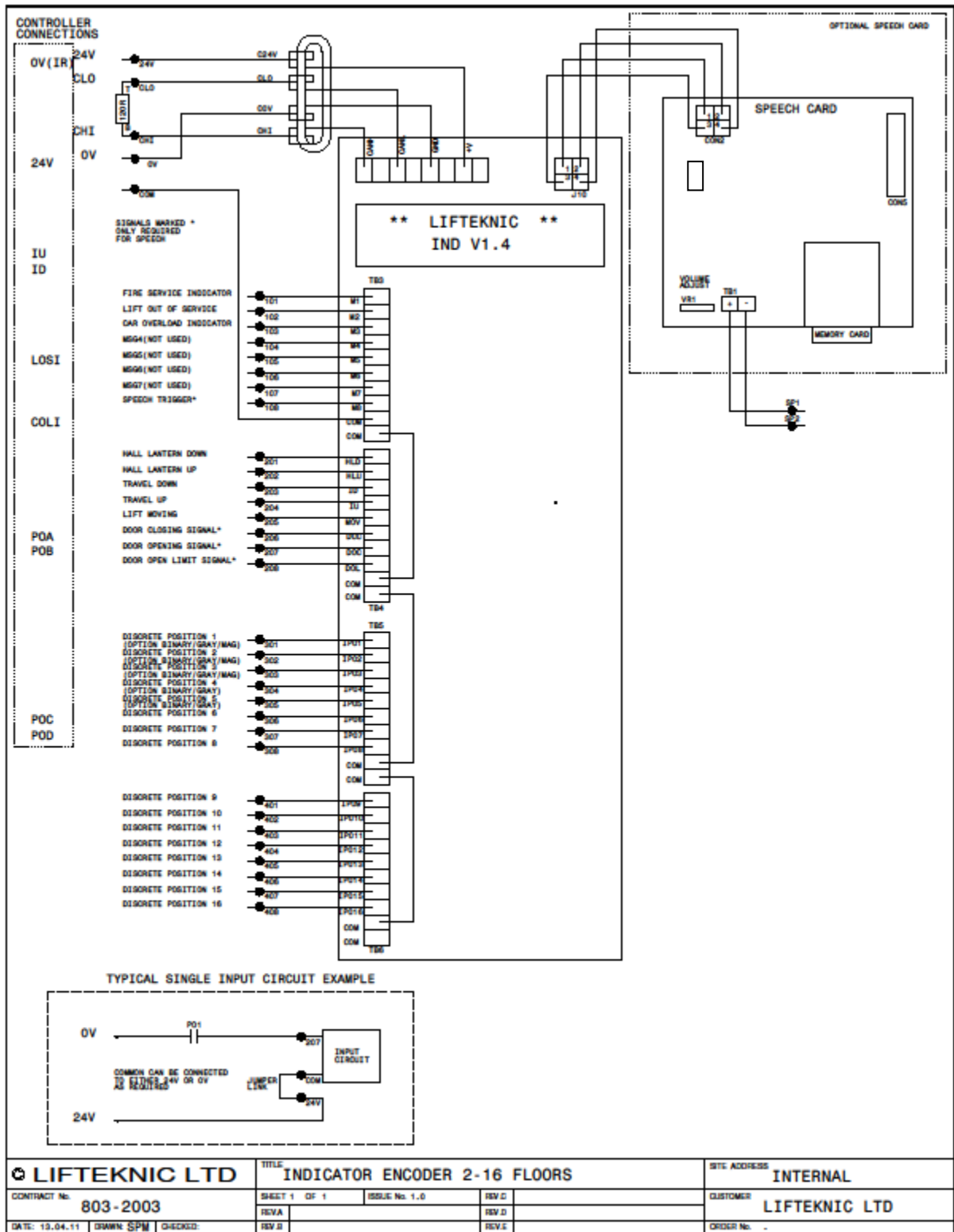
User Connections to the system:-

The shaded signals are required to achieve DDA compliance.

All other signals should be connected when available to enable the additional features.

PER CONTROLLER INTERFACE UNIT INPUTS			
Ref	Input Name	Signals to controller	
101/IP1	M1/FSI	Fire service	
102/IP2	M2/LOSI	Lift out of service - TEST/SERVICE CONTROL	
103/IP3	M3/COLI	Car overloaded - WEIGHT SWITCH 110	
104/IP4	M4	Configurable MSG	
105/IP5	M5	Configurable MSG	
106/IP6	M6	Configurable MSG	
107/IP7	M7	Configurable MSG	
108/IP8	M8/FAT	Signal for speech trigger - SLOWING	
201/IP9	HLD	Hall lantern DOWN signal	
202/IP10	HLU	Hall lantern UP signal	
203/IP11	ID	Car direction indicator - DOWN	
204/IP12	IU	Car direction indicator - UP	
205/IP13	MOV	Car moving signal - RUN	
206/IP14	DCC	Door closing - DOOR CLOSING CONTACT	
207/IP15	DOC	Door opening - DOOR OPEN CONTACT	
208/IP16	DOL	Door open limit – DOOR FULLY OPEN	
301/IP17	PO 1	Position 1 – Signal per floor - Position A Binary – Floor switch magnetic switch input	
302/IP18	PO 2	Position 2– Signal per floor - Position B Binary – Up switch magnetic switch input	
303/IP19	PO 3	Position 3 – Signal per floor - Position C Binary - Down switch magnetic switch input	
304/IP20	PO 4	Position 4 – Signal per floor - Position D Binary	
305/IP21	PO 5	Position 4 – Signal per floor - Position E Binary	
306/IP22	PO 6	Position 6 – Signal per floor - Position F Binary	
307/IP23	PO 7	Position 7 – Signal per floor	
308/IP24	PO8	Position 8 – Signal per floor	
401/IP25	PO9	Position 9 – Signal per floor	
402/IP26	PO10	Position 10 – Signal per floor	
403/IP27	PO11	Position 11 – Signal per floor	
404/IP28	PO12	Position 12 – Signal per floor	
405/IP29	PO13	Position 13 – Signal per floor	
406/IP30	PO14	Position 14 – Signal per floor	
407/IP31	PO15	Position 15 – Signal per floor	
408/IP32	PO16	Position 16 – Signal per floor	

8. Schematic of indicator controller interface



N.B. when connecting the CAN network via the screw terminals connect blue wire to CANH, white wire to CANL, black wire to GND and red wire to V+.

9. Magnetic switch input:

When interfacing to magnetic reed switches to determine the position and direction of travel of the lift car the magnets need positioning as follows.

9.1 Reset floor

At the reset floor all three reed switches are in line with their respective magnet. The up magnet should be positioned such that when the lift car travels in a downwards direction the up switch is still in line with the up magnet when both the floor switch and down switch have been released. Similarly the down magnet needs to be positioned such that when the lift car travels in an upwards direction the down switch is still in line with the down magnet when both the floor switch and up switch have been released.

9.2 Top floor

For the top floor the floor magnet should be position so that the floor reed switch is in line with the floor magnet when at floor level. The Up magnet is positioned slightly below the floor level. Other than the reset floor there should only ever be one reed switch at a time in line with a magnet.

9.3 Bottom floor

For the bottom floor the floor magnet should be position so that the floor reed switch is in line with the floor magnet when at floor level. The down magnet is positioned slightly above the floor level.

9.4 Other floors

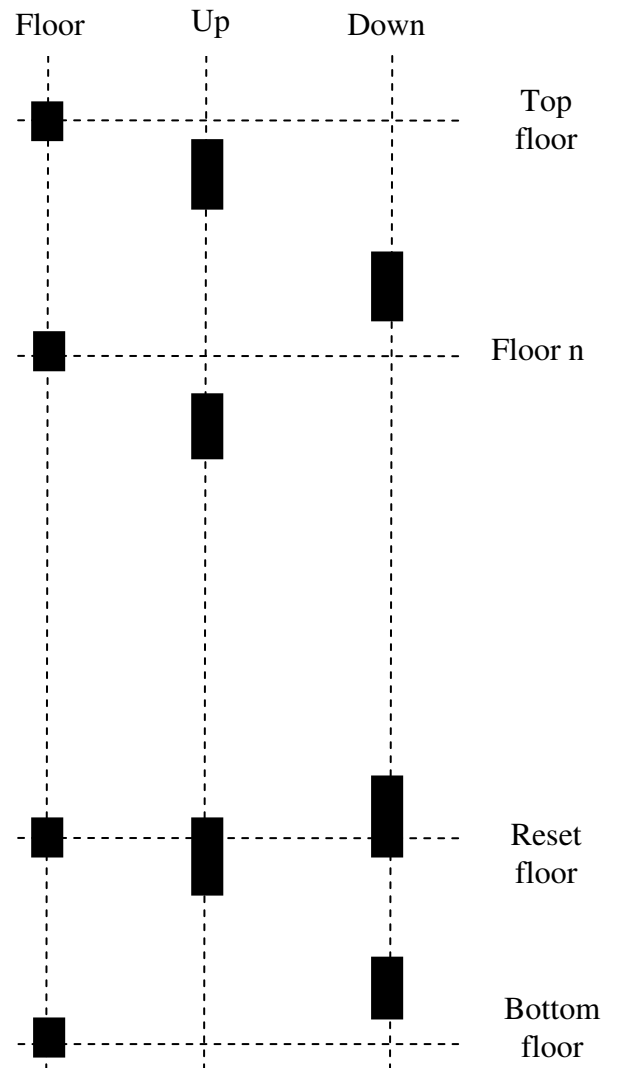
For the all other floors the floor magnet should be position so that the floor reed switch is in line with the floor magnet when at floor level. The Up magnet is positioned slightly below the floor level.

The down magnet is positioned slightly above the floor level.

Minimum switch time on magnet 80 msec

Speed ms-1	Magnet length mm
0.5	50
1.0	100
1.5	150
2.0	200
2.5	250
3.0	300
4.0	400

Minimum separation between magnets
400 mm



10. Test modes

The indicator board features three test modes:-

10.1 Speech

If a speech card is attached to the CAN network it can be tested by selecting the speech card option from the test menus. Note in order for the speech card to be activated M8 needs to be asserted if common is connected to 0v M8 is asserted by applying 24v to it, if common is connected to 24v M8 is asserted by applying 0v to it.

10.2 Indicator

If an indicator is attached to the CAN network it can be tested by selecting the indicator option from the test menus. The indicator will then display floor numbers 1 to 7 with the up arrow and 16 down to 9 with the down arrow.

10.3 Inputs

It is possible to test that all inputs are working by selecting the input option from the test menus. Each input needs to be asserted individually when asserted the lcd on the board will show which connector it is (e.g. if M5 is asserted M5 will be displayed). If common is connected to 0v an input is asserted by applying 24v to it, if common is connected to 24v an input is asserted by applying 0v to it. To exit the input test press the ESC button.

11. User Forms

Use these forms to Log the location on the controller where the connections have been made.

PER CONTROLLER INTERFACE UNIT INPUTS			
No	Terminal	Input Name	Connection location
	CHI	CAN BUS HIGH	Interface Terminal Rail
	CLO	CAN BUS LOW	Interface Terminal Rail
	24V	24 Volt Supply	Interface Terminal Rail
	ICOM	INPUT COMMON	Interface Terminal Rail
	0V	Zero Volt Return	Interface Terminal Rail
101	M1	Fire Service indicator	
102	M2	Lift out of service	
103	M3	Car Overload Indicator	
104	M4	Not Used	
105	M5	Not Used	
106	M6	Not Used	
107	M7	Not Used	
108	M8	Speech Trigger	
201	HLD	Hall lantern DOWN	
202	HLU	Hall lantern UP	
203	ID	TRAVEL DOWN	
204	IU	TRAVEL UP	
205	MOV	LIFT MOVING	
206	DCC	DOOR CLOSING	

207	DOC	DOOR OPENING	
208	DOL	DOOR OPEN LIMIT	
301	PO1	Position 1	
302	PO2	Position 2	
303	PO3	Position 3	
304	PO4	Position 4	
305	PO5	Position 5	
306	PO6	Position 6	
307	PO7	Position 7	
308	PO8	Position 8	
401	PO9	Position 9	
402	PO10	Position 10	
403	PO11	Position 11	
404	PO12	Position 12	
405	PO13	Position 13	
406	PO14	Position 14	
407	PO15	Position 15	
408	PO16	Position 16	