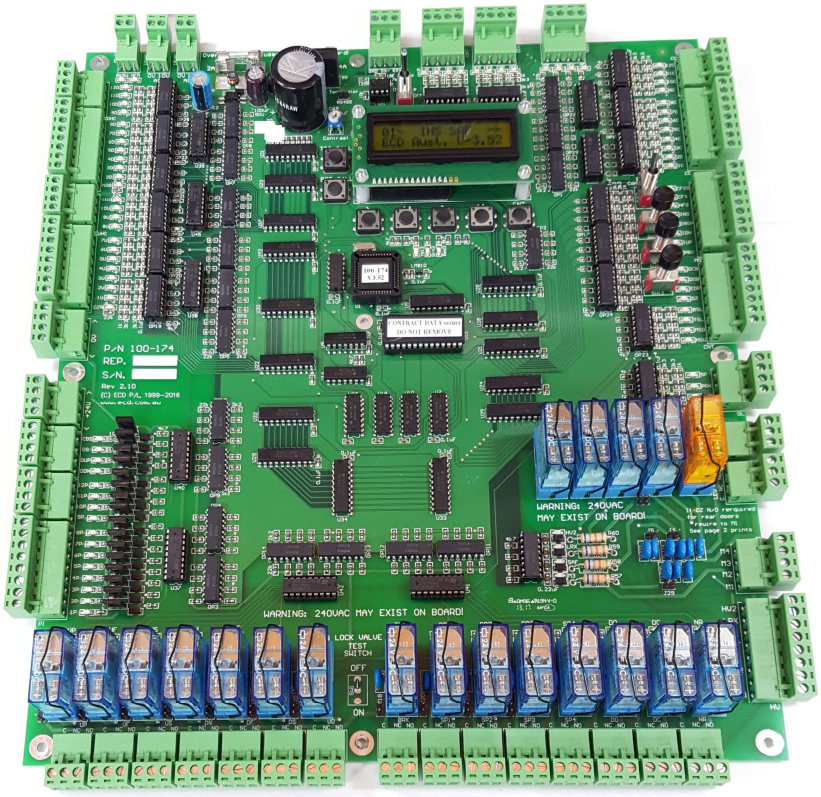
100-174 EN81-20-50 Controller Manual



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ECD System Manual

ELECTRONIC CIRCUIT DESIGNS PTY. LTD.

Operation Guide

This manual covers all versions of 100-174 hardware and EN81:20 software variants. Some features and operative descriptions mentioned in this manual may differ or not be available on earlier 100-174 versions

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Section 1

Section 1: Safety Regulations & Introduction

Section 1.1 Safety Regulations

Elevator controllers and other electrical components can cause serious harm or death if installation guides are not met. It is the responsibility of the installer of our equipment to ensure that once installed, the equipment does not pose any threat, danger or hazard.

Installation of this equipment shall be done in accordance with AS1735 for Australia and with all applicable local codes.

As per AS 60038-2012, Table 1, nominal supply voltage shall be 230(4 wire)/400(3 wire). Highest supply voltage shall be 253/440. Lowest supply voltage shall be 216/376.

Section 1.2 Obligations and Liability

1.2.1 Following operating instructions.

- In order to ensure safe handling and problem free operation of this equipment, it is absolutely essential for the relevant personal to be fully acquainted with the relevant safety regulations.
- These operating instructions contain the most important information for operating the machine correctly and safely.
- These operating instructions, in particular the safety regulations, must be observed by all those persons who work on the equipment.
- Furthermore, all locally applicable rules and regulations relating to accident prevention and installation must be observed.

1.2.2 Obligations of operator.

The operator undertakes to allow only those persons to work on the equipment who

- Are fully acquainted with the basic regulations relating to safety in the workplace and accident prevention and to have been trained in handling the equipment.
- Have read the safety regulations and the warning notices contained in these the operating instructions.
- Regular checks are conducted to ensure that personnel perform their duties with safety considerations foremost in their minds.

1.2.3 Obligations of personnel.

All personnel charged with working on the machine undertake prior to starting work to

- Observe the basic regulations relating to safety in the workplace and accident prevention.
- Read the operating instructions, in particular the safety regulations, and confirm by way of their signature that they have understood them.

1.2.4 Hazards associated with the equipment.

The equipment is built with state-of-the-art technology and recognized safety regulations. Nevertheless, use of the equipment can result in dangers to life and limb for the installer, user or a third party and in impairments to the equipment or to other material property. The equipment must only be used

- For its intended purpose.
- In perfect condition in terms of safety requirements.

Operate the equipment in technically perfect condition and for its intended use only while bearing in mind all safety and hazard considerations and following the operating instructions. In particular, faults which restrict safety must be rectified immediately after they have been identified and at the latest before the equipment is started up.

Compliance Testing for AS/NZS CISPR 22:2002 Class A

WARNING !
This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Compliance Testing for FCC Title 47 Part 15, Subpart B Class A

FCC PART 15
This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:
1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

1.2.5 Warranty and liability.

Our "Sales terms and conditions" apply. These terms and conditions will have been available to the purchaser at time of sale. Warranty and liability shall be limited to repairs and replacement to the equipment purchased from us. Warranty and liability claims shall not be entertained if they can be traced back to one or more of the following causes.

- Equipment not used for its intended purpose.
- Improper installation, startup, operation and maintenance of the equipment.
- Operation of the equipment with faulty safety devices or improperly installed or non-operational safety and protective equipment.
- Failure to observe the information, instructions and notices contained in the operating instructions relating to transportation, storage, installation, startup, operation, maintenance and setting up of the equipment.
- Inadequate monitoring of the equipment parts which are subject to wear.
- Improperly conducted repairs.
- Catastrophes caused by the influence of foreign bodies and force majeure.

1.2.6 Organizational measures.

- The installer and or maintainer shall provide the necessary protective equipment for the personnel
- All existing safety equipment must be checked at regular intervals.

1.2.7 Protective equipment.

- At all times, prior to putting the machine into operation, all protective equipment must be correctly installed and in proper working condition.
- Protective equipment may only be removed
  - after the machine has come to a complete stop and the machine has been disabled to ensure it cannot be started up again.
  - if subcomponents are delivered, the operator must install the protective equipment in accordance with regulations

1.2.8 Informal safety measures.

- Keep the operating instructions and circuit diagrams permanently at the site where the equipment is installed.
- In addition to the operating instructions, the generally valid and local regulations relating to accident prevention and environmental protection must be provided and observed.
- Maintain all safety and danger notices on/next to the machine in legible condition and comply with them.
- If the equipment is sold or transferred, the operating instructions must be included with the equipment.

1.2.9 Training of personnel.

- Only personnel who have been trained and instructed are allowed to work on the machine.
- The responsibilities of the personnel must be clearly defined for the machine/controller installation, start up, operation, setting-up, maintenance and repairs.
- Personnel still in the process of being trained are only permitted to work at the machine under the supervision of an experienced person.

1.2.10 Machine controls.

- Under no circumstances carry out any program modifications to the software!
- Only properly instructed personnel are permitted to operate the controls.
- The machine must not be operated if potential electromagnetic interference sources are acting on the machine. Interference sources are e.g. welding equipment, portable phones.

1.2.11 Safety measures during normal operation.

- Only operate the machine when all protective equipment is fully operational.
- Prior to switching on the machine, ensure that the start up can cause no harm to personnel.
- Regularly maintain and check machine for externally identifiable damage and check that all the safety devices are operational.

1.2.12 Hazards caused by electric power.

- **Ensure 0v and +24V are free from other voltages. High voltages may be superimposed on 0V and +24V lines as no reference to ground exists. See Warning 1.2.14**
- Work on the electric power supply may only be carried out by a qualified electrician.
- Check the electrical equipment of the machine at regular intervals.
  Repair loose connections and scorched cables immediately.
- Keep the control cabinet locked at all times. Access is only permitted to authorized personnel with a key or tool.

- If work has to be carried out on live parts, do this only in the presence of a second person who can switch off the master switch in an emergency.

- The machine causes electromagnetic interference sources. For this reason, do not use any sensitive equipment in its vicinity.
- For EMC reasons, the controller must not be modified.

1.2.13 Hazards caused by hydraulic power.

- Only personnel with special knowledge and experience in the field of hydraulics may work on hydraulic equipment.
- Before beginning repairs, depressurize system sections and pressure lines which are to be opened.

1.2.14 Special danger areas (examples).

- When on inspection, always ensure either of the common or direction control buttons stops the lift.
- The common button shall break the safety line and the 0V up/down direction input.
- Never place yourself or any party in a position of danger where relying on any single safety measure.
- Automatic machines start without warning. Care must be taken at all times.

WARNING !
Always treat terminals and conductors as dangerous. High voltages may be superimposed on 0v and 24VDC lines as no reference to ground exists. Always meter these points to ensure correct voltage exists.

1.2.15 Controller Installation Environmental Requirements

Controller cabinet must be installed in a location free from;

- Dust and dirt.
- Excessive heat and humidity. Ambient temperature should not exceed 40°C /104°F.
- Excessive vibrations.
- Mist or water

When mounting controller cabinet, ensure it is suitably supported.

1.2.16 Introduction

The 100-174 lift controller can operate up to a 12 stop **simplex or duplex**, fully collective controller that can be up to a 6 car group. They are inter-connected using 3 wire serial communication. A separate group controller is therefore, not required.

Processor

Under normal operation;

- The red Red3 LED blinks to confirm that the microprocessor is running.
- The yellow Yel3 LED comes on to confirm outputs are enabled.
- The green Grn3 LED comes on during power up and turns off during normal operation. It will also flash once when a new value has been written in to EEPROM..

When re-powering; ensure the lift is off for 10 seconds before turning back on.
On power up, a delay of approximately 2 seconds is given on start up to ensure voltages are stable prior to reading and writing outputs.

Section 2

Section 2: EEPROM Settings

EEPROM: How to read and modify settings

This EEPROM holds settings for the particular contract data including number of floors, door type and drive types.

The EEPROM holds values for various contract settings which may be altered on site. Each setting has a definition followed by its value in hex followed by its value in bit format.

Settings from the power up state.

```
01-  NOR IDL  ][
ECD Aust. V-3.60
```

To inspect the settings from the power up state, press the forward ">" button located to the left below the LCD until the EEPROM setting appears.

```
01-  NOR IDL  ][
BOT: 01:00000001
```

Now you can use the up "∧" and down "∨"buttons to scroll through the settings. If you want to change a setting press the enter "ENT" button and a * shall appear on the screen to indicate you are in edit mode.

```
01-  NOR IDL  ][
TOP:*08:00000010
```

Now use the up "∧" and down "∨" buttons to change the setting. When you are at the required value press the enter "ENT" button again and the * shall disappear.

```
01-  NOR IDL  ][
TOP: 06:00000010
```

EEPROM Security

A special write sequence has been added to ensure unauthorized writes to the EEPROM are not made. Only operates with EEPROMs with this capability. These EEPROMs are recommended and identified by a "contract data secure" label.

EEPROM Version 3.60 Summary

The EEPROM holds values for various contract settings which may be altered on site. Each setting has a definition followed by its value in hex and then its value in bit format.

Note: Refer to EEPROM Definitions (Full description) for more information.

BOT Bottom floor number (VALUE)
Setting example: - BOT 01: 00000001 (Level 1)

TOP Top floor number (VALUE)
Setting example: - TOP 0A: 00001010 (Level 10 is top floor)

BCC Bottom car call for "DN" button on the circuit board (MASK)
Setting example: - BCC 80: 10000000 (Bottom call Level 1)

TCC Top car call for "UP" button on the circuit board (MASK)
Setting example: -TCC 00: 00000000

TC1 Top car call extension. Ext. of TCC (MASK)
Setting example: -TC1 40: 01000000 (Set to Level 10)

CCM Car call mask. Floors allowed. (MASK)
Setting example: -CCM FF: 11111111 (Levels 1-8)

CC1 Car call mask extension. Ext. of CCM. Floors allowed ext. (MASK)
Setting example: -CC1 C0: 11000000 (Levels 9-10)

UCM Up call mask. Floors allowed. (MASK)
Setting example: - UCM FF: 11111111 (Levels 1U-8U)

UC1 Up call mask extension. Ext. of UCM. Floors allowed ext. (MASK)
Setting example: - UC1 80: 10000000 (Level 9U)

DCM Down call mask . Floors allowed. (MASK)
Setting example: - DCM 7F: 01111111 (Levels 2D-8D)

DC1 Down call mask extension. Ext. of DCM. Floors allowed ext. (MASK)
Setting example: - DC1 C0: 11000000 (Levels 9D -10D)

LOB Lobby floor. (MASK)
Setting example: - LOB 40: 01000000 (Level 2 master)

LO1 Lobby floor mask extension. Ext. of LOB (MASK)
Setting example: - LOB 00: 00000000

ZON Zone floor. (MASK)
Setting example: -ZON 10: 00010000 (Zone to Level 4)

ZO1 Zone floor mask extension. Ext. of ZON. (MASK)
Setting example: -ZO1 00: 00000000

ZTM Zoning time. (VALUE)
Setting example: -ZTM 06: 00000110 (= 60seconds)

HFS Hall fire service floor. (MASK)
Setting example: -HFS 80: 10000000 (Level 1)

HF1 Hall fire service floor mask extension. Ext. of HFS. (MASK)
Setting example: -HF1 00: 00000000

SFR Short Floor Run (MASK)
Setting example: - SFR 9F: 10011111 (Short floor between 2&3)

SF1 Short Floor Run mask extension. Ext. of SFR. (MASK)
Setting example: - SFR CF: 00111111 (Short floor between 9&10)

L.# Lift Number (VALUE)
Setting example: - L.# 02: 00000010 (Lift #2)

#.L Number of Lifts (VALUE)
Setting example: - #.L 03: 00000011 (3 Lifts in group)

EEPROM SETTINGS

MOD Mode inputs (MASK)
Setting example: - MOD 02: 00000010 (CFS input inverted)

CNT CNT inputs (MASK)
Setting example: - CNT 02: 00000010 (DOB input inverted)

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RPT Run protection timer
Setting example: -RPT 19: 00011001 (25s)

DRV Drive control type.
Setting example: -DRV 02: 00000010 (3010/2CH/S block)

ST2 Star Delta time. (VALUE)
Setting example: -ST2 08: 00001000 (= 800ms)

SDX Star Delta Exchange time. (VALUE)
Setting example: -SDX 01: 00000001 (= 100ms)

MSL Magnet slowing type.
Setting example: - MSL 00: 00000000 (MSU/MSD slowing)
MSL 01: 00000001 (Pulse slowing)

RTM Extend run time. – If slowing is obtained less than this time, then add the value of in XTM on before dropping high speed.
Setting example: -RTM 00: 00000000 (No extended run time.)

XTM Extend run time. – If a short floor determined by RTM then add this amount of Time on before dropping high speed.
Setting example: -XTM 00: 00000000 (No extended run time.)

StF Start Fast. - Number of pulses it takes to reach fast speed.

StM Start Medium.- Number of pulses it takes to reach medium speed.

SlF Slow Fast. - Number of pulses it takes to slow from fast speed.

SlM Slow Medium.-Number of pulses it takes to slow from medium speed.

BST Brake Switch Time
Setting example: -BST 03: 00000011 (3s)

DPT Door Protection Time

UDT Delay time for UD to drop out after SIN5 goes low (DRV=0B)

BSW Brake Switch Polarity

DLM Door limit mask.
Setting example: -DLM 00: 00000000 (Single doors.)
DLM 01: 00000001 (Multi doors.)
DLM 02: 00000010 (Door cam.)

DLI Door limit invert. (MASK)
Setting example: -DLI 00: 00000000 (Limits not inverted.)

NR Nudging Relay for door nudging/Passing tone (MASK)
Setting example: -NR 00: 00000000 (Nudging off.)

ADO Advanced Door Opening.
Setting example: -ADO 00: 00000000 (Off)

DTC Door time car call. (VALUE)
Setting example: -DTC 32: 00110010 (= 5000ms, “5 seconds”)

DTH Door time hall call. (VALUE)
Setting example: -DTH 32: 00110010 (= 5000ms, “5 seconds”)

DTL Door time lobby. (VALUE)
Setting example: -DTL 32: 00110010 (= 5000ms, “5 seconds”)

ANS Anti Nuisance EDP. (VALUE)
Set to the number of times a car call is answered without EDP activation before calls are cancelled.

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FD1 Front doors 1-8 mask.
Setting example: -FD1 F0: 11110000 (Front doors 1-4.)

EEPROM SETTINGS

FD2 Front doors 8-16 mask.
Setting example: -FD2 00: 00000000

RD1 Rear doors 1-8 mask.
Setting example: -RD1 08: 00001000 (Rear doors 5.)

RD2 Rear doors 8-16 mask.
Setting example: -RD2 00: 00000000

SD1 Selective rear doors 1-8 mask.
First floor of selective front/rear doors.
Setting example: -SD1 10: 00010000 (Levels 4 & 5 selective.)

SD2 Selective rear doors 9-16 mask.
First floor of selective front/rear doors.
Setting example: -SD2 10: 00010000 (Levels 12 & 13 selective.)

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PRK Park/Zone with doors closed/open. Set to 00 – doors closed.

IND Independent service operation. Set to 00.

FS Fire service type
Setting example: -FS 00: 00000000 (Australian fire service.)
FS 01: 00000001 (Code 17.1 U.S.A..)

EP Emergency power operation. Set to 00.

PI Position Indication
Setting example: -PI 00: 00000000 (Decimal outputs.)

DT Door Time Close Setup (Enable "DTC/DTH Canceling Function")
Setting example: -DT 01: 00000001 (DTC/DTH Canceling Activated)

LCK EEPROM Lock (Unlock default 67)

COD Lock code (Unlock default 89)

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EEPROM Definitions (Full description)

ADO - Advanced Door Opening setup

Sets the doors to open whilst traveling into the floor. The doors shall commence opening when the lift is within the door zone and the MSU or MSD vane pending direction.
ADO EEPROM Advanced Door Opening.
00: 00000000 "Off – Default"
01: 00000001 "On"

ANS – Anti Nuisance setup

Set to the number of times a car call is answered without EDP activation before calls are cancelled. Counter is reset to zero if EDP is activated. If a hall call is present as well as a car call, the counter will not increment.

ANS EEPROM Anti Nuisance.
00: 00000000 "Off"
03: 00000011 "On – operates after 3 car calls of no EDP in a row."
1e: 00011110 "On – operates after 30 car calls of no EDP in a row - Default"

BCC Bottom Car Call setup

BCC EEPROM Bottom car call for the "BOT" button on the circuit board (MASK)
First floor served for this lift only.
The controller shall enter a car call to this setting when the "BOT" button on the circuit board is pressed.

80: 10000000 (Level 1)
40: 01000000 (Level 2)
20: 00100000 (Level 3)
10: 00010000 (Level 4)
08: 00001000 (Level 5)
04: 00000100 (Level 6)
02: 00000010 (Level 7)
01: 00000001 (Level 8)

BOT - Bottom floor setup

BOT EEPROM Bottom number (VALUE)
Set value to lowest floor served. (01 to 07 valid values)
Lift resets to "BOT" value when BSL limit is activated.
This signal can be used when a lift in the group doesn't go all the way to the bottom.

01: 00000001 (Level 1)
02: 00000010 (Level 2)
03: 00000011 (Level 3)
04: 00000100 (Level 4)
05: 00000101 (Level 5)
06: 00000110 (Level 6)
07: 00000111 (Level 7)

BST – Brake Switch Time

To prove the brake has lifted, brake monitoring switches in conjunction with BST setting, may be used.
BST sets the time for BKSW and HFM input to be initiated, once the brake command (BRK relay pulled in) has been given.

Setting example 01-05: **(Immediate stop)**

01: 00000001 = 1s
02: 00000010 = 2s
03: 00000011 = 3s
04: 00000100 = 4s
05: 00000101 = 5s

If the input is not detected within the specified time (setting 01-05) the lift shall stop immediately and display BST in LCD Lift Status.

Setting example 11-15: **(stop next floor)**

11: 00010001 = 1s
12: 00010010 = 2s
13: 00010011 = 3s
14: 00010100 = 4s
15: 00010101 = 5s

If the input is not detected within the specified time (setting 11-15) the lift shall stop at the next available floor and display BST in LCD Lift Status. Door open button will still operate.

BST is a fatal error. Reset is only via a processor POR.
Any other setting than above will turn the brake switch monitoring OFF.
See also Input - Output, BKSW, HFM
See also LCD lift status BSD, BST.

BSW – Brake Switch Polarity

Used to set brake switch inputs to normally open or closed:
00: 00000000 "Normally Open"
01: 00000001 "Normally Closed."

CCM - Car Call Mask setup

CCM EEPROM Car call mask. Floors allowed. (MASK). For this lift only.
This setting lets you define the floors which the lift can serve via car calls.

Set bits to a "1" car call allowed or a "0" for not allowed.
C0: 11000000 (1c,2c)
E0: 11100000 (1c,2c,3c)
F0: 11110000 (1c,2c,3c,4c)
F8: 11111000 (1c,2c,3c,4c,5c)
FC: 11111100 (1c,2c,3c,4c,5c,6c)
FE: 11111110 (1c,2c,3c,4c,5c,6c,7c)
FF: 11111111 (1c,2c,3c,4c,5c,6c,7c,8c)

Note: This feature shall not to be used for security purposes, as it shall disable the car calls in Fire Service and other modes of operation.

CC1 - CCM extended setup

Extension of CCM.
80: 10000000 (9c)
C0: 11000000 (9c,10c)
E0: 11100000 (9c,10c,11c)
F0: 11110000 (9c,10c,11c,12c)

Note: This feature shall not to be used for security purposes, as it shall disable the car calls in Fire Service and other modes of operation.

CNT – CNT Input setup

Enables the following CNT inputs to be inverted; DCB, DOB and EDP
CNT EEPROM (MASK)
00: 00000000 No inputs inverted.
01: 00000001 DCB. Door close input inverted
02: 00000010 DOB. Door open input inverted
04: 00000100 EDP. EDP input inverted

eg. 06: 00000110 = both DOB and EDP inputs inverted.

COD – Parameter lockout function

To stop unauthorised adjustments to the EEPROM parameters the COD and LCK parameters are used.
COD and LCK must both be set to default values to allow other parameters to be adjusted.
See also EEPROM setting LCK
COD default. 89: 10001001
LCK default. 67: 01100111

DCM - Down Call Mask setup

DCM EEPROM (MASK) Dn hall calls allowed for this lift only.
This setting lets you define the DOWN floors which the lift can serve via DOWN HALL CALLS
With this setting you may disable DOWN hall calls to floors not allowed.
Set bits to a "1" hall call allowed or a "0" for not allowed.
40: 01000000 (2d)
60: 01100000 (2d,3d)
70: 01110000 (2d,3d,4d)
78: 01111000 (2d,3d,4d,5d)
7C: 01111100 (2d,3d,4d,5d,6d)
7E: 01111110 (2d,3d,4d,5d,6d,7d)
7F: 01111111 (2d,3d,4d,5d,6d,7d,8d)

DC1 - DCM extended setup

Extension of DCM.
80: 10000000 (9d)
C0: 11000000 (9d,10d)
E0: 11100000 (9d,10d,11d)
F0: 11110000 (9d,10d,11d,12d)

DLI - Door Limit Invert setup

DLI is only valid when DLM is set to 00, 03 , 04 or 06. See also EEPROM setting DLM.
DLI setting is used to invert the DFO and DFC inputs when normally open (n/o) door limit contacts are used.
DLI EEPROM Door limit invert. (MASK)
DLI: 00 "Limits not inverted."
DLI: 01 " Limits inverted." Any setting other than 00 shall default to inverted limits.

DLI set to 00 - Limits not inverted. Using n/c limits.
Doors fully open – DFC LED will be on. DFO LED will off
Doors fully closed – DFC LED will be off. DFO LED will on
Doors midway – DFC LED will be on. DFO LED will on

DLI set to 01 - Limits inverted. Using n/o limits.
Doors fully open – DFC LED will be off. DFO LED will on
Doors fully closed – DFC LED will be on. DFO LED will off
Doors midway – DFC LED will be off. DFO LED will off

DLM - Door Limit setup

DLM setting is used to configure the DFO and DFC inputs and the DO and DC relay operation.
Generally; if you have a single door operator, set DLM to 00.
For two door operators, set DLM to 01. (DLI setting shall be ignored).
See also EEPROM setting DLI, DFC, DFO.
DLM EEPROM Door limit mask.

Setting example: DLM 00: 00000000	The door open and door close limits are wired directly to DFO and DFC inputs. These inputs may be inverted using the DLI setting.
DLM 01: 00000001	(Used for front and rear doors) The door open and door close limits are used to operate open and close relays. Normally open contacts from these relays are wired to DFO and DFC inputs (DLI setting shall be ignored)
DLM 02: 00000010	(Door cam control) DC relay output used to control Cam operation. Nb: 2 sec delay from DO picking up after DC has dropped. (to allow time for cam to drop and locks to break, to avoid lock "snagging"). See also Input - Output, DFC.
DLM 03: 00000011	As per DLM setting "00", except DO and DC are held up
DLM 04: 00000100	(Used to hold door closed when running) As per DLM setting "00", except DC relay picks up whilst running
DLM 05: 00000101	Used for Goods lifts with Peele door operators that automatically Open but are manual close.
DLM 06: 00000110	(Used to hold door closed when running) As per DLM setting "00", except DO has a 400 millisecond drop delay after DFO changes state and DC relay picks up whilst running and door locks may be opened whilst no demand i.e the door spear has relaxed.

DPT - Door Protection Time

Sets the amount of time for doors to reach fully open or fully closed, before DOP or DCP failure.
ff: 11111111 = 25 seconds. Default
02: 00000010 = 50 seconds.
All other remaining settings will default to the value of 25s.

DRV - Drive type setup

This sets the drive output type. Relay output configurations are changed to suit equipment installed.
Refer to operation section for motion outputs.
DRV…EEPROM…Drive control type.
00: 00000000 "Standard hyd. block valve. 3010EN"
01: 00000001 "DA DynaHyd valve."
02: 00000010 "Soft valve. 3010/2CH/S"
03: 00000011 "VF type 1". Keb, B&F, Gefran, Zetadyn, C.T.
04: 00000100 "1,2 speed AC"
05: 00000101 "GMV 3010/S, Blain EV100", Maxton, Bucher LRV, EECO
06: 00000110 "VF type 2" C.T.
07: 00000111 "VF type 3; ABB VF drive"
08: 00001000 "Bucher VF hydraulic"
09: 00001001 "CPIK VF drive"
0A: 00001010 "Same as DRV=03, except with 1.0 sec delay on UD drop (for DB contactor motor short)
Keb, B&F, Gefran, Zetadyn, C.T. See also Inputs-Outputs IRO
0B:00001011 "Wittur VF Hydraulic"
0C:00001100 "Bucher I-Valve"
0D:00001101 "Blain EV-4"

DT - Door Time close setup

This setting allows the door fully open time NOT to be cancelled when a car-call or door closed button (DCB) is pressed.
Setting example:
DT 00: 00000000 (De-activated, NOT allowed to cancel DTC/DTH time by pressing either DCB or any car call).
DT 01: 00000001 (Activated. ALLOW pressing a car-call or DCB to cancel DTC/DTH time).
DT 02: 00000000 (Partially de-activated, NOT allowed to cancel DTC/DTH time by pressing any car call).

DTC - Door Time Car call close setup

Sets the amount of time before the doors close for a car call whilst on normal operation.
DTC EEPROM Door time close. (VALUE)
Set value for door close time.
The time is set in 100ms increments.
1e: 00011110 = 3000ms, "3 seconds"
32: 00110010 = 5000ms, "5 seconds"
37: 00110111 = 5500ms, "5.5 seconds"
90: 10010000 = 14400ms, "14.4 seconds"
(01 to FF valid values.)

DTH - Door Time Hall call close setup

Sets the amount of time before the doors close for a hall call whilst on normal operation.
Lobby time (DTL) overrides this setting when lift is at the lobby floor.
Recommend DTH is set equal to or greater than DTC.
DTH EEPROM Door time close. (VALUE)
Set value for door close time.
The time is set in 100ms increments.
32: 00110010 = 5000ms, "5 seconds"
37: 00110111 = 5500ms, "5.5 seconds"
90: 10010000 = 14400ms, "14.4 seconds"
(01 to FF valid values.)

DTL - Door Time Lobby call close setup

Sets the amount of time before the doors close after a lobby call is answered when on normal operation.
DTL value overrides DTH value when answering a hall call at the lobby floor.
Recommend DTL is set equal to or greater than DTH and DTC.
DTL EEPROM Door time close. (VALUE)
Set value for door close time.
The time is set in 100ms increments.
32: 00110010 = 5000ms, "5 seconds"
37: 00110111 = 5500ms, "5.5 seconds"
90: 10010000 = 14400ms, "14.4 seconds"
(01 to FF valid values.)

EP – Emergency Power type

Hydraulic operation only – Set to 00: 00000000
Traction operation only – Set to 01: 00000001
See also Inputs-Outputs SP

FD1 – Front Doors setup, Levels 1-8

This sets the levels for the front doors to operate.
May be used in conjunction with RD1 and SD1 for selective rear door operation

FD1 setting example: A0: 10100000 (Level G and 2). See table below.
FD1 A0: 10100000 (Level G and level 2 have front doors)
RD1 50: 01010000 (Level 1 and level 3 have rear doors)

FLOOR DESIG.	FRONT DOORS	REAR DOORS
3		3 (rear) 4C, 4D
2	2 (front) 3C, 3U, 3D	
1		1 (rear) 2C, 2U, 2D
G	G (front) 1C, 1U	

FD2 – Front Doors setup, Levels 9-16

This sets the levels for the front doors to operate.
Setting example: E0: 11100000 (Levels 9-11)
May be used in conjunction with RD2 and SD2 for selective rear door operation

FS – Fire Service type

Australia: Set to 00: 00000000
USA Only. Fire Service Code 17.1. FS EEPROM setting must be set to 01: 00000001

HFS - Hall Fire Service return floor setup

This sets the hall fire service return floor activated when HFS input is active whilst in normal mode.
HFS…EEPROM Hall fire service floor. (MASK)
80: 10000000 (Level 1)
40: 01000000 (Level 2)
20: 00100000 (Level 3)
10: 00010000 (Level 4)
08: 00001000 (Level 5)
04: 00000100 (Level 6)
02: 00000010 (Level 7)
01: 00000001 (Level 8)

HF1 - HFS extended setup

Extension of HFS.
80: 10000000 (Level 9)
40: 01000000 (Level 10)
20: 00100000 (Level 11)
10: 00010000 (Level 12)

IND – Independent Service type

Australian. – Set to 00: 00000000

LCK – Parameter lockout function

To stop unauthorised adjustments to the EEPROM parameters the LCK and COD parameters are used.
LCK and COD must both be set to default values to allow other parameters to be adjusted.
See also EEPROM setting COD
LCK default. 67: 01100111
COD default. 89: 10001001

LOB - Lobby floor setup

This signal sets the master zoning floor. After the zone time period as defined by ZTM, a lift shall zone to floor defined by LOB, if unoccupied. If LOB floor is occupied then the lift shall alternatively zone to ZON floor.
A lift shall zone to floor defined by LOB and ignore ZON, when working in simplex.
LOB EEPROM Lobby floor. (MASK) Master zoning floor.
LOB must be set to the same value in all lifts belong to the group.

00: 00000000 (No zoning). **To disable zoning** set "LOB" and "ZON" to "00".
80: 10000000 (Level 1)
40: 01000000 (Level 2)
20: 00100000 (Level 3)
10: 00010000 (Level 4)
08: 00001000 (Level 5)
04: 00000100 (Level 6)
02: 00000010 (Level 7)
01: 00000001 (Level 8)

LO1 - Lobby floor extended setup

Extension of LOB.
80: 10000000 (Level 9)
40: 01000000 (Level 10)
20: 00100000 (Level 11)
10: 00010000 (Level 12)

L.# - Lift Number setup

Lift number setup. Example: In a 2 car group you must have one lift set to 01 and the other set to 02. It doesn't matter which way around they are as long as each lift is different.
L.#…EEPROM…Lift # (VALUE). Set value to lift number. (01 to 06 valid values.)
01: 00000001 (Lift 1)
02: 00000010 (Lift 2)
03: 00000011 (Lift 3)
04: 00000100 (Lift 4)
05: 00000101 (Lift 5)
06: 00000110 (Lift 6)

MOD – MODE Inputs setup

Enables the 8 MODE inputs to be inverted. (CFSS to PRV)
MOD EEPROM (MASK)
02: 00000010 CFS. Car fire service input inverted
04: 00000100 HFS. Hall fire service input inverted
08: 00001000 IND. Independent Operation input inverted

MSL – Magnet Slowing type

Sets the slowing/counting type.
00: 00000000 MSU/MSD magnet slowing.
01: 00000001 Pulse slowing.
02: 00000001 Pulse slowing. 2 BSL limit switches required.
03: 00000011 Pulse slowing with no position update. Requires circuit to remove DZ input above levelling speed
See also Section 6: Motion – EEPROM MSL setting "00", "01", "02" and "03"

NR - Door Nudging setup

Sets the door nudging feature on or off. (Nudging time is preset) See also Input - Output, NR.
Sets "NDG" output on or off to control the floor passing tone. See also Input - Output, NDG.
00: 00000000 No door nudging or passing tone. Sets EDP/OS time to 30 secs. See also Input - Output, EDP
01: 00000001 Door nudging only
02: 00000010 Door nudging and passing tone
03: 00000011 Passing tone only. Sets EDP/OS time to 30 secs. See also Input - Output, EDP
04: 00000100 Sets EDP/OS time to 180 secs. See also Input - Output, EDP

PI - Position Indication setup

PI EEPROM Position Indication output type
This setting changes the PI transistor output sequence to the following values.
00: 00000000 "Decimal outputs."
01: 00000001 "Binary outputs."
02: 00000010 "Grey code outputs."

PRK – Park/Zone with doors open

This setting sets the lift to Zone with the doors open.
PRK EEPROM value.
00: 00000000 "Normal."
01: 00000001 "PRK doors open."

RD1 – Rear Doors setup, Levels 1-8

This sets the levels for the rear doors to operate.
DZR relay used for rear door control, is switched by the controller DZR/IO5 output
RD1 eliminates the need for a rear door/DZR sensor in shaft
May be used in conjunction with FD1 and SD1 for selective rear door operation

RD1 setting example: 50: 01010000 (Level 1 and 3). See table below.
Controller switches DZR/IO5 output to 0V when lift at level 1 or 3
FD1 A0: 10100000 (Level G and level 2 have front doors)
RD1 50: 01010000 (Level 1 and level 3 have rear doors)

EEPROM SETTINGS

FLOOR DESIG.	FRONT DOORS	REAR DOORS
3		3 (rear) 4C, 4D
2	2 (front) 3C, 3U, 3D	
1		1 (rear) 2C, 2U, 2D
G	G (front) 1C, 1U	

RD2 – Rear Doors setup, Levels 9-16

This sets the levels for the rear doors to operate.
DZR relay used for rear door control, is switched by controller DZR/IO5 output
Eliminates the need for a rear door/DZR sensor in shaft
May be used in conjunction with FD2 and SD2 for selective rear door operation
Setting example: 40: 01000000 (Level 10)
Controller switches DZR/IO5 output to 0V when lift at level 10

RPT - Run Protection Timer / Motor Run timer setup

The motor Run Protection Timer shall be set to stop the machine when the lift does not move after run signals from the controller have been issued.
No movement is detected by MSU or MSD inputs not changing state
To set RPT;
Measure the time taken to complete one full travel of the lift shaft and add 10 secs. Enter this time as a HEX value in the RPT parameter. See following table for converting the time in seconds to HEX.

SECS	20	21	22	23	24	25	26	27	28	29	30	31	32
HEX	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F	20

SECS	33	34	35	36	37	38	39	40	41	42	43	44	45
HEX	21	22	23	24	25	26	27	28	29	2A	2B	2C	2D

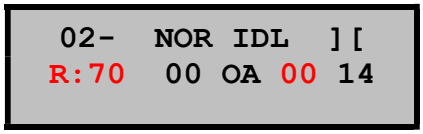
Nb: Minimum RPT is 20 secs and maximum is 45 secs, as per EN81 5.9.2.7.2
RPT is a fatal error. Reset is only via a processor POR or Inspection on/off sequence.
RPT shall NOT operate on;

- Inspection - Top of car, Pit or Onboard. See also Inputs - Outputs, INS / HFA.
- Emergency lowering. See also Inputs - Outputs, SP.
- DRV setting "01" (DA valve).

RTM – Run Time short floor run setup

Nb: DRV must be set to a traction lift setting.

If a short floor exists where the lift starts slowing prior to reaching full speed, a long creep into floor may occur. RTM setting, in conjunction with XTM setting, reduces this long creep time by holding in the fast speed relay for a defined time (XTM) after the initial slowing point.
Setting RTM. – Look at Ram address R:72. (Motion Timer).



To access R:72 on the LCD see also Section 5: LCD Display Options
R: 72 shown in red at left.

When performing the shortest floor run take note of the highest value R:72 reaches (in hex). Add approx. 5 (in hex) to this value and set RTM to this value.
If slowing is obtained before the value in RTM is reached, the fast speed relay (UF or DF) will be held up for extra time as defined by XTM.
Set XTM to 20. If the lift fails to slow down to leveling speed before reaching the floor, (fast speed relay is being

held up too long) reduce XTM value. If there is still too much creep (fast speed relay is being held up not long enough) increase XTM time. Continue until desired result is obtained.

SD1 – Selective rear doors setup, Levels 1-8

This sets the first floor of the selective front and rear doors.
Used in conjunction with FD1 and RD1

Selective Rear Door floors are treated as two separate floors requiring separate car and landing buttons. See 1(front) and 1(rear) in table below
Setting Example: Refer to table below
SD1 40: 01000000 (Level 1 has selective front and rear doors)
FD1 D0: 11010000 (Level G, level 1(front) and level 2 have front doors)
RD1 40: 00101000 (Level 1(rear) and level 3 have rear doors)

This sets the levels for the rear doors to operate by turning on DZR (I/O5) output to 0V when lift answers call to 3C,3U,3D or 5C,5U,5D. See RD1.

FLOOR DESIG.	FRONT DOORS	REAR DOORS
3		3 (rear) 5C, 5D
2	2 (front) 4C, 4U, 4D	
1	1 (front) 2C, 2U, 2D	1 (rear) 3C, 3U, 3D
G	G (front) 1C, 1U	

SD2 – Selective rear doors setup, Levels 9-16

This sets the first floor of the selective front and rear doors.
Used in conjunction with FD2 and RD2
Setting example: 80: 10000000 (Level 9 & 10 selective)

SDX - Star Delta Exchange Time setup

This sets the amount of time from Star dropping out and Delta picking up.
SDX EEPROM Star Delta Exchange time. (VALUE)
Set value for delay between star dropping and delta pulling in.
The time is set in 100ms increments.
08: 00001000 = 800ms
Set between 01 & 08

SDX – VF Drive setting 06,07,08 brake drop time

Valid only when EEPROM setting "DRV" is set to "06, 07, 08".
This sets the amount of time after a run for the brake drop in 10ms increments.
SDX value must be less than ST2 value
Set between 01 & ff

SFR - Short Floor Run setup

Note: this setting only works on MSL 00
This signal sets a short floor between floors, i.e the controller will not set the fast speed relays (UF & DF).
SFR…EEPROM Must be FF: 11111111 unless stated.
A setting for a short floor between levels 2 & 3 would be as follows.
12345678
10011111

SF1 - Short Floor Run setup extension

Note: this setting only works on MSL 00

This signal sets a short floor between floors, i.e the controller will not set the fast speed relays (UF & DF).
SF1…EEPROM Must be FF: 11111111 unless stated.
A setting for a short floor between levels 10 & 11 would be as follows.
91011120000
10 0 1 1111

Spares

--- EEPROM Spare

StF – Start Fast

Number of pulses (in hex) it takes to reach fast speed
StF EEPROM Start Fast pulses. (VALUE)
Eg. 30: 00110000 (30 pulses in hex or 48 in decimal)
See also Section 6: Motion – EEPROM MSL setting "01", "02" & "03"

StM – Start Medium

Number of pulses (in hex) it takes to reach medium speed.
StM EEPROM Start Medium pulses. (VALUE)
Eg. 20: 00100000 (20 pulses in hex or 32 in decimal)
See also Section 6: Motion – EEPROM MSL setting "01", "02" & "03"

SlF – Slow Fast

Number of pulses (in hex) it takes to slow from fast speed.
SlF EEPROM Slow Fast pulses. (VALUE)
Eg. 30: 00110000 (30 pulses in hex or 48 in decimal)
See also Section 6: Motion – EEPROM MSL setting "01", "02" & "03"

SlM – Slow Medium

Number of pulses (in hex) it takes to slow from medium speed.
SlM EEPROM Slow Medium pulses. (VALUE)
Eg. 20: 00100000 (20 pulses in hex or 32 in decimal)
See also Section 6: Motion – EEPROM MSL setting "01", "02" & "03"

ST2 - Star Delta Changeover Time setup

Star connected motor running time.
The amount of time the motor runs in Star, before changing to Delta.
ST2 EEPROM Star Delta time. (VALUE)
The time is set in 100ms increments.
08: 00001000 = 800ms
0a: 00001010 = 1000ms, "1 second"
12: 00010010 = 1800ms, "1.8 seconds"

ST2 – VF Drive setting 06,07,08 end run time

Valid only when EEPROM setting "DRV" is set to "06, 07, 08".
This sets the amount of time after a run for the Up/Dn relays to drop in 10ms increments.
Set between 01 & ff .
ST2 value must be greater than SDX value

TCC - Top Car Call setup

TCC EEPROM Top car call for the "TOP" button on the circuit board (MASK)
Top floor served for this lift only.
The controller shall enter a car call to this setting when the "TOP' button on the circuit board is pressed
The 8Flr link (Version 2 software) or 12Flr link (Version 3 software) to bottom right corner of the LCD, must be set to achieve this function.
40: 01000000 (Level 2)
20: 00100000 (Level 3)
10: 00010000 (Level 4)
08: 00001000 (Level 5)
04: 00000100 (Level 6)
02: 00000010 (Level 7)
01: 00000001 (Level 8)

TC1 - TCC extended setup

Extension of TCC.
80: 10000000 (Level 9)
40: 01000000 (Level 10)
20: 00100000 (Level 11)
10: 00010000 (Level 12)

TOP - Top floor setup

TOP EEPROM Top floor number (VALUE)
Set value to number floors served. (02 to 0c valid values).
Lift resets to "TOP" value when TSL limit is activated.
02: 00000010 (Level 2)
03: 00000011 (Level 3)
04: 00000100 (Level 4)
05: 00000101 (Level 5)
06: 00000110 (Level 6)
07: 00000111 (Level 7)
08: 00001000 (Level 8)
09: 00001001 (Level 9)
0a: 00001010 (Level 10)
0b: 00001011 (Level 11)
0c: 00001100 (Level 12)

UCM - Up Call Mask setup

This setting lets you define the UP call floors which the lift can serve.
With this setting you may disable UP hall calls to floors not allowed.
UCM EEPROM Up call mask. Floors allowed. (MASK) Up calls allowed for this lift only.
80: 10000000 (Level 1u)
C0: 11000000 (Level 1u,2u)
E0: 11100000 (Level 1u,2u,3u)
F0: 11110000 (Level 1u,2u,3u,4u)
F8: 11111000 (Level 1u,2u,3u,4u,5u)
FC: 11111100 (Level 1u,2u,3u,4u,5u.6u)
FE: 11111110 (Level 1u,2u,3u,4u,5u,6u,7u)
FF: 11111110 (Level 1u,2u,3u,4u,5u,6u,7u,8u)

UC1 - UCM extended setup

Extension of UCM.
80: 10000000 (Level 9u)
C0: 11000000 (Level 9u,10u)
E0: 11100000 (Level 9u,10u,11u)

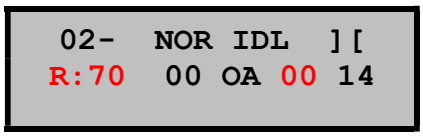
UDT – UD delay time setup

N/A

XTM – Extend run time short floor run

Nb: DRV must be set to a traction lift setting.

If a short floor exists where the lift starts slowing prior to reaching full speed, a long creep into floor may occur. RTM setting, in conjunction with XTM setting, reduces this long creep time by holding in the fast speed relay for a defined time (XTM) after the initial slowing point.
Setting RTM. – Look at Ram address R:72. (Motion Timer).



To access R:72 on the LCD see also Section 5: LCD Display Options
R: 72 shown in red at left.

When performing the shortest floor run take note of the highest value R:72 reaches (in hex). Add approx. 5 (in hex) to this value and set RTM to this value.
If slowing is obtained before the value in RTM is reached, the fast speed relay (UF or DF) will be held up for extra time as defined by XTM.
Set XTM to 20. If the lift fails to slow down to leveling speed before reaching the floor, (fast speed relay is being held up too long) reduce XTM value. If there is still too much creep (fast speed relay is being held up not long enough) increase XTM time. Continue until desired result is obtained.

ZON - Zoning/Parking floor setup

ZON is only used in duplex configurations.
After the zone time period as defined by ZTM, a lift shall zone to floor defined by LOB. If LOB floor is occupied then the lift shall alternatively zone to ZON floor.
Recommend to set ZON to the same value in all lifts belong to the group.
A lift shall zone to floor defined by LOB and ignore ZON, when working in simplex.
ZON EEPROM Zone floor. (MASK) Zoning floors for other lifts.

00: 00000000 (No zoning). **To disable zoning** set "LOB" and "ZON" to "00".
80: 10000000 (Level 1)
40: 01000000 (Level 2)
20: 00100000 (Level 3)
10: 00010000 (Level 4)
08: 00001000 (Level 5)
04: 00000100 (Level 6)
02: 00000010 (Level 7)
01: 00000001 (Level 8)

ZO1 - ZON extended setup

Extension of ZON.
80: 10000000 (Level 9)
40: 01000000 (Level 10)
20: 00100000 (Level 11)
10: 00010000 (Level 12)

ZTM - Zoning time setup

This sets the amount of time prior to zoning to the "LOB" or "ZON" setting.
To disable zoning set "LOB" and "ZON" to "00".
ZTM EEPROM Zoning time. (VALUE)
The time is set in 10s increments.
06: 00001000 = 60s
0a: 00001010 = 100s, "1 minute 40 seconds"
12: 00010010 = 180s, "3 minutes"

#.L - Number of Lifts setup

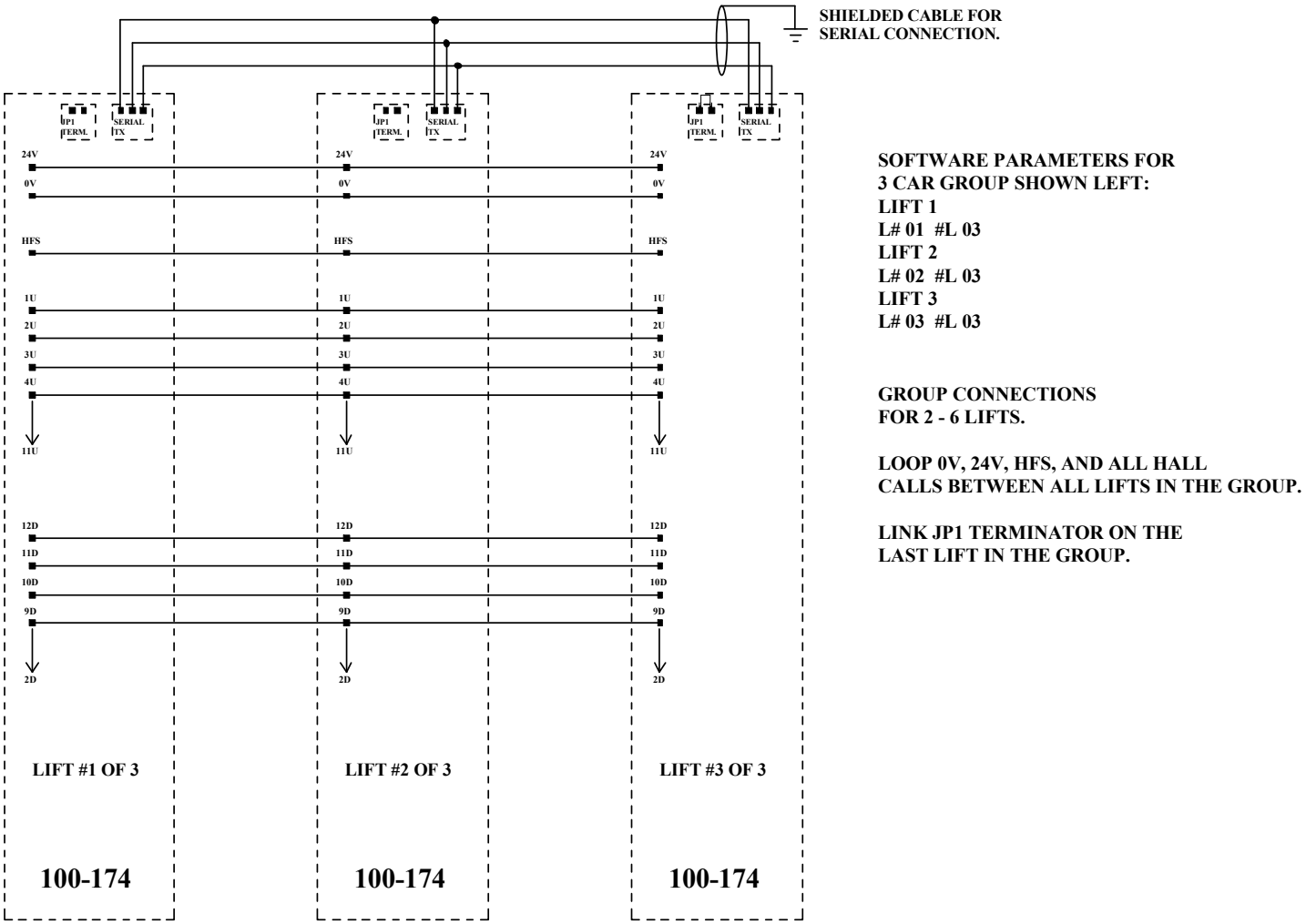
This sets the number of lifts in the group.
All lifts within the group must be set to the same value.
#.L EEPROM Number of Lifts (VALUE)
01: 00000001 (1 Lift)
02: 00000010 (2 Lifts)
03: 00000011 (3 Lifts)
04: 00000100 (4 Lifts)
05: 00000101 (5 Lifts)
06: 00000110 (6 Lifts)
Set value to number of lifts. (01 to 06 valid values.)

Section 3

Section 3. Group

Group Connections and Communication

- 24vdc and 0vdc, up and down hall calls, HFS and HFA (if USA) inputs MUST be looped between all elevators in the group.
- Group serial communication uses RS485 3-wire system.
- Controllers in the group are linked at the Serial TX terminals, SX+, SX- and GND, using shielded 3 wire serial cable.
- Install link JP1 on the last lift of the group only.
- **The same version software (build date) must be used in all grouped controllers.**
- See connection diagram below.



SOFTWARE PARAMETERS FOR
3 CAR GROUP SHOWN LEFT:
LIFT 1
L# 01 #L 03
LIFT 2
L# 02 #L 03
LIFT 3
L# 03 #L 03

GROUP CONNECTIONS
FOR 2 - 6 LIFTS.

LOOP 0V, 24V, HFS, AND ALL HALL CALLS BETWEEN ALL LIFTS IN THE GROUP.

LINK JP1 TERMINATOR ON THE LAST LIFT IN THE GROUP.

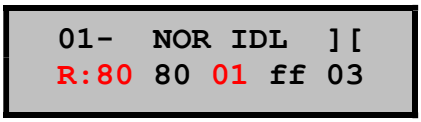
Group Checks

To ensure all the lifts in the group are communicating with each other, check the RAM address which shows the position of each lift.

Each lift has its position shown at the following RAM addresses.

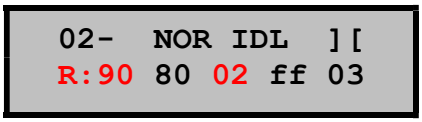
- Lift 1. - Ram location 81
- Lift 2. - Ram location 91
- Lift 3. - Ram location a1
- Lift 4. - Ram location b1
- Lift 5. - Ram location c1
- Lift 6. - Ram location d1

To obtain RAM (R) address see Section 5, LCD Controller Status Options.



80 81 82 83

LIFT 1



90 91 92 93

LIFT 2

e.g. For a 2 car group. Lift 1 is on level 1. Lift 2 is on level 2.

From lift 1 controller look at RAM address 91. (lift 2 position). This should read a value of 02.
From lift 2 controller look at RAM address 81. (lift 1 position). This should read a value of 01.

This proves each controller knows the position of the other lift in the group, therefore indicating serial communication established.
If controllers are not communicating correctly, a value of 00 will be shown.

Group / Duplex faults

If group system is faulty check all wiring and connections as per Section 3.
Also, ensure EEPROM settings L# and #L have been set correctly. See section 2.

NB: Due to looping of 24V and 0V between all boards in the group, 24VDC shall still exist on any board, even though it may have been turned off at the main Circuit Breaker.

DO NOT remove the 0V or 24V from such boards as backfeeding shall occur which can false fire inputs.

Alternatively, it is ok to remove ALL plugs from the board. (ie removal for repair)

Section 4

Section 4. Inputs – Outputs

All inputs except LR, SAF, HV1 and HV2 switch low to 0 Volts in respect to 24VDC. The input shall draw approx 12mA. The input LED is in series with the input. All inputs are OPTO isolated to avoid noise-related problems.

Darlington outputs switch low to "0V" 0 volts in respect to 24VDC. **The output can switch a maximum of 500mA.** The output LED indicates the output status and shall be illuminated when the output has switched low. All outputs are OPTO isolated to avoid noise-related problems.

Transistor outputs switch high to "24V" in respect to 0VDC. **The output can switch a maximum of 1.5A.** The output red LED indicates transistor output on, e.g. 1P, 2P, 3P, 4P.

BKSW - Brake Switch 1 Input

BKSW LED shall be on to indicate Brake 1 has lifted fully.
Brake lift is monitored via a brake switch on the hoist machine, which inputs 0V to BKSW input for Brake 1 when fully lifted. If 2 brakes are used, HFM input monitors Brake 2. If only 1 brake used, connect brake switch to both BKSW and HFM inputs.
Malfunctioning brake shall cause either of 2 fatal errors – BSD or BST. Reset is only via a processor POR.

BSD – BRK Drop Timeout error - When the brake does not drop 1 second from when lift stops.
Note: BSD error shall only set when the doors are closed to enable lift to re-level with the doors open

BST – BRK Lifting Timeout error – When the brake has not lifted after a run has been initiated
The door open button shall remain operative to allow passengers to exit the lift. Re-levelling is inhibited
BST error can be selected as an "immediate stop" or "stop next floor" error. See EEPROM settings, BST
See also LCD lift status BST.
See also Inputs – Outputs BKSW.

BRK - Brake relay output

BRK RELAY OUTPUT Brake relay output
See Section 6: Motion, for more on the relay operation

BSL – Bottom Slowing input

Bottom floor position correction limit and forced slowdown limit for terminal floor.
BSL LED shall be off when BSL limit is activated.
BSL LED must remain off when lift is on the buffer

CBS - Hall Button Stop output

CBS TRANSISTOR OUTPUT
Hall button stop output. CBS activates when the lift answers a hall call.

I N P U T S – O U T P U T S

CC - Car Call inputs/Darlington outputs

inputs / outputs
1C - I/O - 1st floor car call/tell tale light
2C - I/O - 2nd floor car call/tell tale light
3C - I/O - 3rd floor car call/tell tale light
4C - I/O - 4th floor car call/tell tale light
5C - I/O - 5th floor car call/tell tale light
6C - I/O - 6th floor car call/tell tale light
7C - I/O - 7th floor car call/tell tale light
8C - I/O - 8th floor car call/tell tale light
9C - I/O - 9th floor car call/tell tale light
10C - I/O - 10th floor car call/tell tale light
11C - I/O - 11th floor car call/tell tale light
12C - I/O - 12th floor car call/tell tale light

CFS - Car Fire Service input

Australia: CFS - Car Fire Service signal input.
LED on when keyed to CFS unless inverted with MOD setting.
CFS over rides HFS.
CFS shall allow only one car call to be entered and shall toggle to the latest pressed call.
When CFSS is pressed, CFS input must stay on.

USA: Fire Service Code 17.1. FS EEPROM setting must be set to 01
CFS – **Phase 2.** In Car Fire Operation input.

CFSS - Car Fire Service Start input

Australia: CFSS – Car Fire Service Start signal input.
The CFSS LED is on when keyed to CFSS unless inverted with MOD setting.
The input is switched low to 0 Volts.
When on CFS this signal shall close the doors. The DOB and EDP shall be ignored. When the doors are closed the lift shall run to the floor selected.
USA: CFSS – **Phase 2.** In Car Call Cancel input.

DC - Door Close Relay output

DC RELAY OUTPUT Door Close relay output. See also DFC Input.

DCB - Door Close Button input

LED on when door close button is pressed unless inverted with CNT setting.
The door close button closes the doors on Independent Service.
DCB cancels door timing on normal operation if DT is set to 01h.
Both the door detector EDP and door open button DOB shall override the DCB.

DDN - Direction Down output

DDN TRANSISTOR OUTPUT Down Direction indication output.
Output switches to 24VDC for indication of lift advanced down direction.

DDO - Door Open Disable input / Toggle Switch

Door Open Disable input
LED on when DDO input is activated.
Toggle switch also provided on board. When switch is on (down) DDO is activated.
Allows the lift to be sent to floors via car calls without the doors opening. Useful for testing/adjusting etc.
OS output shall be activated. Lift shall be taken out of the group.

DO button, Independent Service and Fire Service override DDO

DF - Down Fast relay output

DF RELAY OUTPUT Down Fast output
See Section 6: Motion, for more on the relay operation

DFC - Door Fully Closed input

DFC input must change state when the doors reach the fully closed limit/position.
Single Doors:
Input state can be inverted with DLI setting. See DLI in EEPROM settings.
To close the lift doors, DC relay shall pull up and stay up until the DFC input is switched and the locks are made. **If DFC input does NOT switch, DCPfail** shall appear on the LCD after a period of 25 seconds and drop DC relay. After a further period of 15 seconds, the doors will re-open and display **DCP (Door Close Protection)** on the LCD. This process is repeated until the fault has been cleared and the DFC input switches.
While in DCPfail/DCP mode, the controller switches on the **OS output**. See Inputs - Outputs, OS.

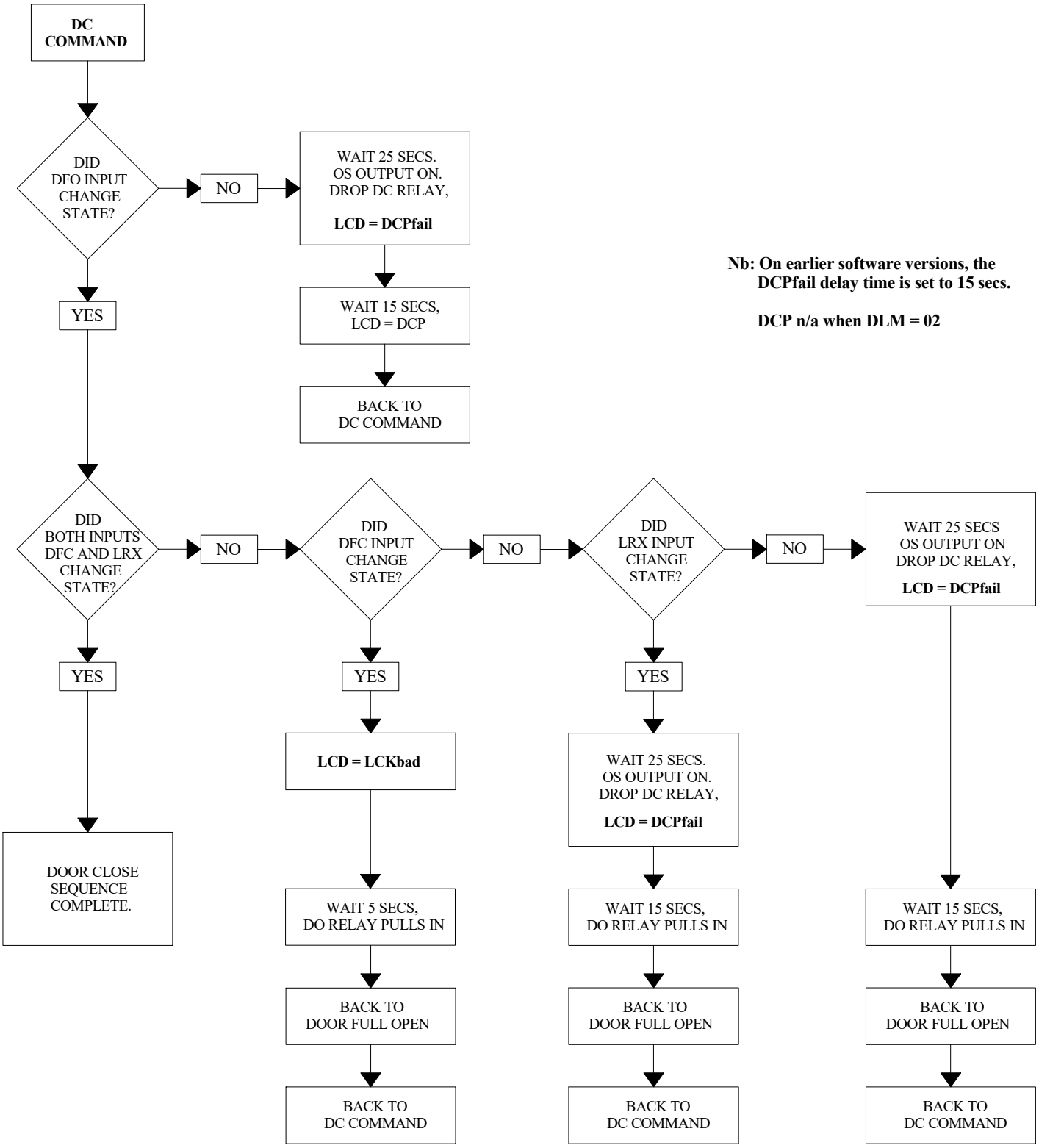
Nb: When DLM = 02, DCPfail does not apply. When on Fire Service, DCP does not apply.

Alternatively, **If DFC input is switched and the door locks do not make, LCK-bad** shall appear on the LCD. DC shall stay active for a period of 5 seconds to try to push the doors closed. If the door locks still fail to make then the doors shall then re-open. This process will be repeated until the fault has been cleared and the locks make.
Nb: When DLM = 02, FLCK-bad does not apply, due to locks not making until a call is registered and cam lifting.

Dual Doors:
DLM EEPROM setting must be set to 01 for dual doors when DFC input is switched via door close relays..
DLI EEPROM setting shall be ignored. . See DLI in EEPROM settings.
DFC input is switched via the external front or rear door close relay n/o contacts.
The door close relays drop out via the door fully closed limit switches.
When the external front or rear door close relay is in DFC LED will be on.

If DFC is directly controlled by the front and rear limits wired in parallel then DLM 00 will be used.

See the following DC-DCPfail flow chart for more detail.


DC COMMAND
DID DFO INPUT CHANGE STATE?
NO
WAIT 25 SECS. OS OUTPUT ON. DROP DC RELAY,
LCD = DCPfail
WAIT 15 SECS, LCD = DCP
BACK TO DC COMMAND
YES
Nb: On earlier software versions, the DCPfail delay time is set to 15 secs.
DCP n/a when DLM = 02
DID BOTH INPUTS DFC AND LRX CHANGE STATE?
NO
DID DFC INPUT CHANGE STATE?
NO
DID LRX INPUT CHANGE STATE?
NO
WAIT 25 SECS OS OUTPUT ON DROP DC RELAY,
LCD = DCPfail
YES
YES
YES
DOOR CLOSE SEQUENCE COMPLETE.
LCD = LCKbad
WAIT 25 SECS. OS OUTPUT ON. DROP DC RELAY,
LCD = DCPfail
WAIT 5 SECS, DO RELAY PULLS IN
WAIT 15 SECS, DO RELAY PULLS IN
WAIT 15 SECS, DO RELAY PULLS IN
BACK TO DOOR FULL OPEN
BACK TO DOOR FULL OPEN
BACK TO DOOR FULL OPEN
BACK TO DC COMMAND
BACK TO DC COMMAND
BACK TO DC COMMAND

DFO - Door Fully Open input

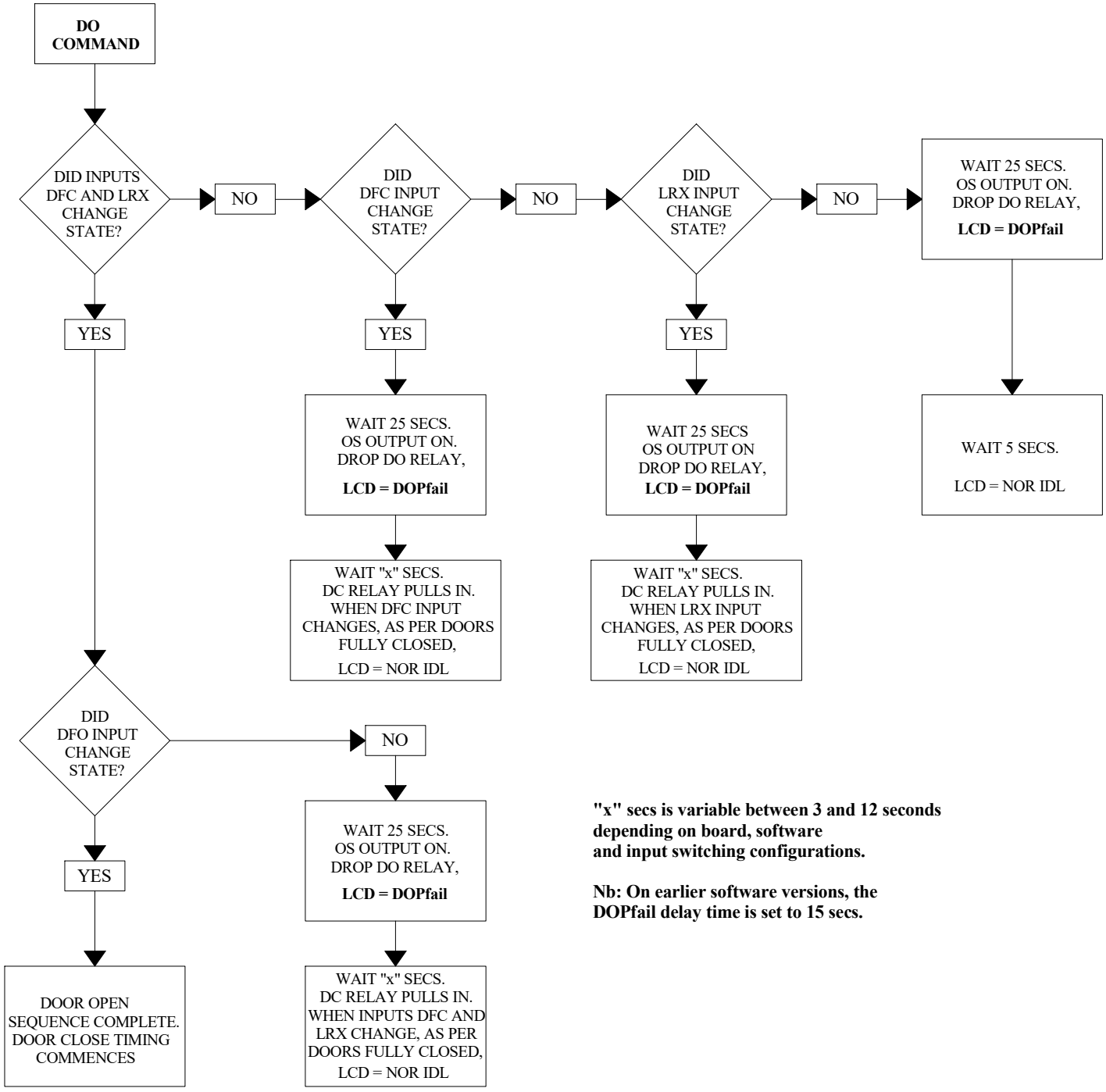
DFO input must change state when the doors reach the fully open limit/position.

Single Doors:
Input state can be inverted with DLI setting. See DLI in EEPROM settings.
To open the doors, DO relay shall pull up and stay up until the DFO input is switched. **If DFO input does NOT switch, DOPfail** shall appear on the LCD after a period of 25 seconds and drop DO relay. After 3-5 seconds (depending on the state of locks and DFC) DC will then pull in and display **DOP (Door Open Protection)** on the LCD and close the doors. If a demand to open still exists, the doors will try to re-open. If not NOR-IDL shall appear on the LCD.
Alternatively, **If DFO input is switched and the car gate switch or door locks are still made, BDL (Bridged Door Lock monitoring)** shall appear on the LCD. Lift will remain in BDL state with doors open until the bridge has been removed from the locks, therefore insuring the lift cannot run with the doors open and the locks bridged.
When on inspection BDL is still displayed as previous, however the lift can run via inspection buttons.
While in DOP/DOPfail mode, the controller switches the OS output on. See Input - Output, OS.

When on Fire Service, DOP does not apply.

Dual Doors:
DLM EEPROM setting must be set to 01 for dual doors.
DLI EEPROM setting shall be ignored. . See DLI in EEPROM settings.
DFO input is switched via the external front or rear door open relay n/o contacts.
The door open relays drop out via the door fully open limit switches.
When the external front or rear door open relay is in DFO LED will be on.

See the following DO-DOPfail flow chart for more detail.



"x" secs is variable between 3 and 12 seconds depending on board, software and input switching configurations.

Nb: On earlier software versions, the DOPfail delay time is set to 15 secs.

DHC - Down Hall Call inputs/Darlington outputs

inputs/outputs

2D – 12D I/O 2^{nd} – 12^{th} floor DN call/tell tale light

DN - Down Relay output

DN RELAY OUTPUT Down relay output

See Section 6: Motion, for more on the relay operation

DO - Door Open Relay output

DO RELAY OUTPUT Door Open relay output. See also DFO Input.

DOB - Door Open Button input

LED off when door open button is pressed unless inverted with CNT setting..
The door open button is used to open the doors at floor level. (DZ on)
The DOB shall override the door close button (DCB).
When DOB input is off for extended periods (doors being held open) OS output will turn on as per EDP operation. See Inputs – Outputs, EDP.

DS - Down Slow Relay output

DS RELAY OUTPUT Down slow output
See Section 6: Motion, for more on the relay operation

DUP - Direction Up output

DUP TRANSISTOR OUTPUT Up Direction indication output.
Output switches to 24VDC for indication of lift advanced up direction.

DZ - Door Zone input

DZ LED shall be on when lift is in the Door Zone.
DZ input controls DZ relay.
See also Inputs – Outputs, DZ - Door Zone Relay Output
Note: At floor level both MSD and MSU zones must be within the door zone (DZ).

DZ – Door Zone Relay output

DZ RELAY OUTPUT
DZ relay pulls up when DZ input is on.
Only on older version 100-174 boards. The external DZ C, N/O and N/C contacts are NOT to be used. Both contacts are already used. (see P2 of ECD circuit diagrams).
See also Inputs – Outputs, DZ – Door Zone Input

DZR – Rear Door Zone output

DZR/IO5 – DARLINGTON OUTPUT Rear door output.
Used to control DZR (rear door zone relay) when using RD1 EEPROM setting
Also used for selective rear door operation. See EEPROM settings, RD1 and SD1

EDP - Electronic Door Protection input

EDP - Electronic Door Protection input.
EDP LED shall be off when the light ray is obstructed, unless inverted with CNT setting.
The loss of EDP input shall reopen the doors when on normal or independent modes. The doors shall remain open until the obstruction is removed and EDP input turns back on.

EDP operation with Eeprom setting NR = 00 or 03;
After 30 secs with EDP off and demand exists for the lift via latched hall or car calls, the lift shall be determined Out of Service. OS output will turn on, cancelling all hall calls (not car calls). Lift will remain in OS state until EDP turns back on and doors are allowed to close.

EDP operation with Eeprom setting NR = 04;
After 180 secs with EDP off and demand exists for the lift via latched hall or car calls, the lift shall be determined Out of Service. OS output will turn on, cancelling all hall calls (not car calls).
Lift shall remain in OS state for 10 secs. OS then turns off and lift goes back into service and hall calls can be latched again. Sequence repeats if EDP remains off. This setting is used for nursing homes to allow for longer door open times.
See Inputs – Outputs, OS.
See also EEprom settings, NR

EQK – Earthquake Detection input. (Siesmic or Counterweight displacement switch)

EQK LED shall be on when EQK input is activated.
EQK shall be shown as the lift status on the LCD screen.
a: If the lift is in motion and EQK is activated, the lift shall stop at the next possible floor and remain stopped with the doors open.
b: If the lift stops between floors due to a power failure and power is restored with EQK input on, the lift shall remain stopped.
c: If the lift is stopped at a floor and EQK is activated, the lift shall remain stopped with the doors open.
d: If a power failure occurs while at the floor, then is restored with EQ activated, the lift shall remain stopped at that floor and re open the doors.
EQK status, once activated, shall not reset if the EQK input turns off.
EQK status, once activated, shall not reset, if a power off/on cycle occurs as the EQK status is stored in EEPROM
EQK status shall reset by an inspection on/off cycle with EQK input off

Lifts with rear doors shall require a DRZ relay, operated by an inductor, rather than by DZR output;
This will ensure the correct front or rear door opens when power is restored (as per "d" above) as the controller will not know the current lift position unless at a terminal floor.

HFA – PIT Inspection input

HFA LED shall be OFF when the lift is switched to PIT Inspection. LCD shall display "PIT".
If the lift is switched to PIT Insp and Top of Car Insp, the LCD shall display "INS"
To turn lift off PIT Insp, HFA input must be on and HFR input turned on for 3 seconds, using the electrical reset device outside the lift shaft.
See also Inputs – Outputs HFR
See also Inputs – Outputs INSP

HCB – OIL overheat input

Hydraulic lifts only. LED shall be on when the hydraulic motor and/or oil design temperature is exceeded.
Car shall stop directly (immediately) and return to the bottom landing and open the doors to evacuate passengers. Doors will then close and lift shall remain out of service until HCB turns off. Door open button shall remain operative.
Re-levelling is disabled with HCB on.

HFL - Hall Fire Light output

Darlington output
USA Only. Fire Service Code 17.1. FS EEPROM setting must be set to 01
This output shall be activated when on fire service to control HFL relay which disconnects HF- (see page 3 and 4 of ECD circuit diagrams) to render call registered, directional lights and landing indicators inoperative as per code requirement.
Note: Car position indicators and position indicators at the designated level and fire control station shall remain operative when on fire service.

HFM – Brake Switch 2 input

HFM LED shall be on to indicate Brake 2 has lifted fully.
Brake lift is monitored via a brake switch on the hoist machine, which inputs 0V to HFM input for Brake 2 when fully lifted. If 2 brakes are used, BKSW input monitors Brake 1. If only 1 brake used, connect brake switch to both HFM and BKSW inputs.
Malfunctioning brake shall cause either of 2 fatal errors – BSD or BST. Reset is only via a processor POR.

BSD error - When the brake does not drop within 1 second of the lift stopping.
The door open button shall remain operative to allow passengers to exit the lift. Re-levelling remains operative.
See also LCD lift status BSD.

See also Inputs – Outputs BKSW.

BST error – When the brake has not lifted after a run has been initiated.
The door open button shall remain operative to allow passengers to exit the lift. Re-levelling is inhibited.
BST error can be selected as an "immediate stop" or "stop next floor" error. See EEPROM settings, BST.
See also LCD lift status BST.
See also Inputs – Outputs BKSW.

HFR – PIT Inspection reset input

HFR LED shall be turned on to reset PIT Insp.
To turn lift off PIT Insp, HFA input must be on and HFR input turned on for 3 seconds, using the electrical reset device outside the lift shaft. See EN81 5.12.1.5.2.2.
See also Inputs – Outputs HFA

HFS - Hall Fire Service input

HFS initiates the fire service recall operation
Australia: HFS LED shall be on when HFS recall is activated. (Unless inverted with MOD setting) via the fireman's hall fire service key switch
If lift is on normal operation mode and HFS is activated, the lift shall return to the HFS floor as defined by EEPROM setting HFS.
USA: Fire Service Code 17.1. FS EEPROM setting must be set to 01
HFS LED shall be on when **HFS/PHASE 1** recall is activated. (Unless inverted with MOD setting) via the fire recall switch or a fire alarm initiating device
If lift is on normal operation mode and HFS/PHASE 1 is activated, the lift shall return to the HFS floor as defined by EEPROM setting HFS.
See also EEPROM setting HFA.

HFV - Hall Fire Visual signal output

Darlington output
USA Only. Fire Service Code 17.1. FS EEPROM setting must be set to 01
This output shall be activated to control the illuminated visual signal.
HFV output will turn on intermittently (flash) if the HFM input is activated. See Inputs – Outputs, HFM.

HRI – Top of Car Inspection common input

HRI LED shall be on when the Top of Car common inspection button is pressed.
HRI input shall be on, with either IUP or IDN, to move the car with the Top of Car Insp buttons.
To move the car when Pit Insp and Top of Car Insp are both switched on., HRI input and UDI input shall be on.
See also Inputs – Outputs UDI
See also Inputs – Outputs INSP

HRO – HR Output

Darlington output
While the lift is in HR mode output HRO is turned on for indication, if required.
See also Inputs – Outputs HRI

HV2 - High Voltage input

HV2 – High voltage processor input for monitoring 'BDL' (Lift Status) for the car gate switch.
HV2 LED shall be on when the car gate switch is made.
HV2 - Ram address R:43

IDN - Inspection Down input

IDN - Inspection down signal input

I N P U T S – O U T P U T S

IDN LED shall be on when down inspection button pressed.
Momentary push button switch also provided on board for IDN

IND - Independent Service input

IND - Independent service input.
IND LED shall be on when keyed to IND unless inverted with MOD setting.
Independent service is the same as exclusive service.
If the lift is on normal operation mode and the lift is keyed to independent service the operation shall be as follows. The car doors shall remain open. When a car call is entered the doors shall close only whilst the call button is being pressed. This call button operates as a dual call enter and door close button. Alternatively you may enter the call with the car call button and then use the door close button to close the doors.
Only one call may be entered at a time.
To change the desired destination floor, press the new car call button to toggle the call.
Operation modes including Car Fire Service, Hall Fire Service, Inspection and Emergency lowering operation shall override Independent Service.

INSP - Inspection Control input

INSP LED shall be OFF when the lift is switched to Top of Car and/or Onboard inspection.
LCD shall display "INS".
Onboard toggle used to switch to Onboard INSP**.** When switch is down, INSP is on.
Top of Car Insp and PIT Insp must be off for on board Inspection switch/buttons to operate.
If the lift is switched to Pit Insp and Top of Car Insp, the LCD shall display "INS"

IRO – Inspection Relay Output

Darlington output
This output shall be activated when the lift is on inspection.
Used for driving an external inspection relay, where extra inspection contacts may be required. E.g. Inspection contact in series with up fast speed valve, so lift travels on slow speed when on inspection.
Not applicable when DRV is set "OA". When DRV = 0A, this output shall be activated when the lift is performing a correction run. To be used for driving an external relay, where the contacts may be required for a correction speed input to the drive.

IUP - Inspection Up input

IUP - Inspection up signal input
IUP LED shall be on when up inspection button pressed.
Momentary push button switch also provided on board for IUP

LEV - Leveling Relay output

LEV RELAY OUTPUT
Relay pulls up when lift levelling or re-levelling to floor

LR – Lock Relay input.

LR - Lock Relay input for **LR Relay**. High voltage input.
LR input controls LR relay. The LR n/o contacts are used in the safety circuit. (See page 2 of ECD circuit diagrams)
LR and LRX inputs are wired in parallel. See also Inputs – Outputs LRX

LR – Lock Relay output

LR RELAY OUTPUT
Relay pulls up when LR input is on.

LRX – Aux LR input.

LRX/HV1 - Lock input for **processor**. High voltage input. Also used for monitoring 'BDL' (Lift Status).
LRX and LR inputs are wired in parallel. See also Inputs – Outputs LR
(See page 2 of ECD circuit diagrams)
LRX - Ram address R:44

M3 - Door Locks input

M3 - Lock input for **processor**. High voltage input
(See page 2 of ECD circuit diagrams)
M3 - Ram address R:46

MSD – Magnetic Switch Down input

MSD – Input pulls up on board relay MSD which is used in the masking/re-leveling circuit and inputs to tell the lift to re-level and count.
Ensure the MSD slowing input is activated **before** the Bottom Slowing Limit (BSL) at the bottom floor.

Counting Operation (MSL=00) **–** When the lift is running down between floors it shall advance the position count when a MSD input is received. The lift indicator outputs 1P to 8P shall change accordingly. The LCD position shall remain the same until the lift passes through DZ. At floor level the MSD magnets must be within the DZ magnet or a dual advance count may occur.

Re-levelling Operation **–** If the lift is stationary at a floor and MSD is off with DZ and MSU on then the lift shall re-level up (**LUP** displayed on LCD) until MSD is switched on again.
A re-level shall only occur approximately 3 seconds after a run or previous re-level whilst lift is on an appropriate mode. A re-level shall only occur if the doors are fully closed or fully open

MSU - Magnetic Switch Up input

MSU – Input pulls up on board relay MSU which is used in the masking/re-leveling circuit and inputs to tell the lift to re-level and count.
Ensure the MSU slowing input is activated **before** the Top Slowing Limit (TSL) at the top floor.

Counting Operation (MSL=00) **–** When the lift is running up between floors it shall advance the position count when a MSU input is received. The lift indicator outputs 1P to 8P shall change accordingly. The LCD position shall remain the same until the lift passes through DZ. At floor level the MSU magnets must be within the DZ magnet or a dual advance count may occur.

Re-levelling Operation **–** If the lift is stationary at a floor and MSU is off with DZ and MSD on then the lift shall re-level down (**LDN** displayed on LCD) until MSU is switched on again.
A re-level shall only occur approximately 3 seconds after a run or previous re-level whilst lift is on an appropriate mode. A re-level shall only occur if the doors are fully closed or fully open

NDG - Nudging Buzzer output

NDG/BUZ – DARLINGTON OUTPUT
NDG is used to activate an audible signal when lift on HFS recall
NDG can also be used to operate an audible floor passing tone device
NDG can also be used to operate a door nudging buzzer
The nudging buzzer shall operate when the nudging relay NR, is activated. See Inputs – Outputs, NR
See also EEPROM settings, NR

NR - Nudging Relay output

NR RELAY OUTPUT Nudging relay output

NR relay pulls up when the lift is on door nudging mode.
In door nudging mode, the doors will close regardless of "EDP" input state. The NR relay contacts are used to signal the door operator to close the doors at a reduced speed and torque to avoid injury.
Nudging mode occurs when doors are held open via EDP for more than 20 seconds after door timing (DTC, DTH, DTL) has expired. Lift must be in NOR mode (normal operation) for nudging to operate.
See also Inputs – Outputs, NDG
See also EEPROM settings, NR

OS - Out of Service output

OS TRANSISTOR OUTPUT Out of service output
This signal turns on whenever the lift is out of the group and therefore not available to answer hall calls.
If safeties are lost or the lift is not in normal mode of operation this signal shall activate.
NB: If EEprom setting, DRV = 0A, CFS and IND do not turn on OS output

PI - Position output

PI transistor position outputs switch high to 24VDC and are used for indication of lift position.
This signal is the advanced lift position count.
Note: The LCD displays the actual and not the advanced position (PI) count.
The PI output may be in decimal, binary or grey code depending on the PI Setting. See EEPROM settings, PI

P1-P12 TRANSISTOR OUTPUT Position 1-12 output

PRK – Lift Overload input

PRK LED shall be on when lift is on Overload as determined by an external load weighing device.
When PRK input is active, the lift shall remain at the floor with the doors open, when on normal or independent operation.
All car calls and door close buttons shall be ignored.
The controller switches the OS output on. See Input - Output, OS.

PRV - Proving Circuit input

PRV input is used to ensure the drive contactor is opened whilst stationary, thereby checking the stopped condition.
All DRV settings shall require the PRV input to be ON, prior to a run (see Section 6: Motion).

PULSE – Pulse Counting Input

PULSE – Pulse Counting input.
The controller uses this input only when EEPROM MSL is set to "01" or "02". See section 6: Motion – EEPROM MSL setting "01", "02" and "03"
0V input pulse recommended every 20mm of car travel.

SAF - Safety Circuit input

SAF – Safety Circuit input for **processor**. High voltage input
SAF LED shall be on when safety circuit is made.
Safety circuit input SAF must be on for normal operation. SAF input is supplied from the end of the safety circuit (normally terminal 16 - See page 2 of ECD circuit diagrams). If this input is lost then the SAF LED shall be off and the LCD lift status shall show SAF.
SAF - Ram address R:45

Sin3/HCB - Input

See also Inputs – Outputs HCB (pg. 36)

Sin4/HRI - Input

See also Inputs – Outputs HRI (pg. 37)

SIn5/UDI - Input

See also Inputs – Outputs UDI (pg.42)

SO3/HRO – HR Output

See also Inputs – Outputs HRO

SO4/IRO – Inspection Relay Output

See Inputs – Outputs, IRO

SP - Emergency Power input

SP LED shall be on when emergency power is activated.

Hydraulic Operation (EP=00)

When SP input is on, following a power failure, the lift shall return to the lowest level and open its doors. The doors will then close and shall remain closed until SP turns off or the door open button is pressed.
Lift shall remain out of service (OS output turns on) while SP is on.

Traction Operation (EP=01)

If the lift stopped out of floor level following power failure;
When SP input is on, following a power failure the lift shall travel in the down direction at levelling speed and stop at the next available floor (MSU, MSD, DZ on) and open its doors. The doors will then close and shall remain closed until SP turns off or the door open button is pressed.
Nb: A rear door zone sensor (EDZR) shall be required to operate DZR relay in EP mode if there are rear door only floors present.

If the lift stopped at floor level following power failure;
When SP input is on, following a power failure the doors shall open. The doors will then close and shall remain closed until SP turns off or the door open button is pressed.
Nb: A rear door zone sensor (EDZR) shall be required to operate DZR relay in EP mode if there are rear door only floors present.

Lift shall remain out of service (OS output will activate.) while SP is on.
See also EEPROM settings EP – Emergency Power

SP1 - Multi Purpose output 1

SP1 RELAY OUTPUT Star contactor output
See Section 6: Motion, for more on the relay operation
See also EEPROM settings ST2 - Star/Delta changeover time and SDX - Star Delta Exchange time

SP2 - Multi Purpose output 2

SP2 RELAY OUTPUT Delta contactor output
See Section 6: Motion, for more on the relay operation
See also EEPROM settings ST2 - Star/Delta changeover time and SDX - Star Delta Exchange time

SP3 - Multi Purpose output 3

SP3 RELAY OUTPUT Spare relay output 3
SP3 may be used for Inspection Speed input, depending on DRV setting

SP3 may be used for auxiliary leveling pump operation, if "aux pump" software is used
See Section 6: Motion, for more on the relay operation

SP4 - Multi Purpose output 4

SP4 RELAY OUTPUT Spare relay output 4
Australia: SP4 relay pulls in when SAF input is active.
On loss of safety circuit (and SAF input), SP4 relay drops out.
SP4 relay contacts may be used to disconnect the door operator from the supply on loss of the safety circuit.
USA: Fire Service Code 17.1. FS EEPROM setting must be set to 01
When Fire Recall - Phase 1 activated, SP4 n/o relay contact is used to override the emergency stop switch in the car.

SX- Serial communication input

Group RS485 connection.
See Section 3: Group

SX+ Serial communication input

Group RS485 connection.
See Section 3: Group

TSL – Top Slowing input

Top floor position correction limit and forced slowdown limit for terminal floor.
TSL LED shall be off when TSL limit is activated.
TSL LED must remain off when lift is at the highest point in the shaft, ie counterweight landed or ram fully extended

UD - Up/Dn Relay output

UD RELAY OUTPUT Com. UP/DN output.
See Section 6: Motion, for more on the relay operation

UDI – PIT Inspection common Input

UDI LED shall be on when the PIT common inspection button is pressed.
UDI input shall be on, with either IUP or IDN, to move the car with the PIT Insp buttons.
To move the car when Pit Insp and Top of Car Insp are both switched on., HRI input and UDI input shall be on.
See also Inputs – Outputs HRI
See also Inputs – Outputs INSP

UF - Up Fast Relay output

UF RELAY OUTPUT Up fast output
See Section 6: Motion, for more on the relay operation

UHC - Up Hall Call inputs / outputs

inputs / outputs
1U -11U I/O 1st – 11th floor UP call/tell tale light

UP - Up Relay output

UP RELAY OUTPUT Up relay output
See Section 6: Motion, for more on the relay operation

US - Up Slow Relay output

US RELAY OUTPUT Up slow output
See Section 6: Motion, for more on the relay operation

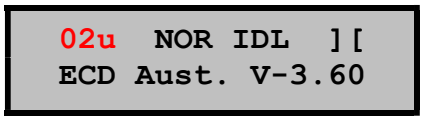
Section 5. Liquid Crystal Display

Understanding the LCD

Reading the liquid crystal display Modes, Position, Address' and status.
Note: LCD contrast is set via POT located to the upper left of LCD. (POT 2.)

LCD Status Line

LCD Position & Direction



The lift position is shown in the top left of the LCD display, followed by the current demand direction.
The above example shows the lift on the 2nd floor with an up direction

LCD Lift Modes

The lift modes are shown in the top left centre of the LCD display.
The above example shows the lift on Normal

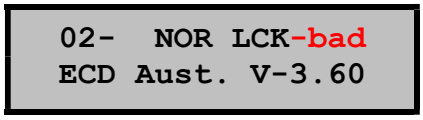
- CFS Lift on Car Fire Service
- COR Lift performing a correction run due to loss of position
- DDO Door Open Disable *(Toggle switch provided on board)*
- EP Lift on Emergency power
- EQK Earthquake input activated
- HCB Hall Call Bypass
- HFA Lift on Hall Fire Alternate Service *(USA-Fire Service Code 17.1 only)*
- HFS Lift on Hall Fire Service
- HR Lift on Hospital / Hall Recall
- IND Lift on Independent service
- INS Lift on Inspection
- NOR Lift on Normal
- NPT No Pulse Time out *(Fatal error. See Section 6, counting method 01, NPT)*
- OIL Oil temperature thermistor triggered
- OVL Lift Overload sensor triggered
- PIT Lift on Pit Inspection
- ZON Lift zoned/zoning to floor

LCD Lift Status

The lift status is shown to the top right centre of the LCD display. The above example shows the lift Running Down

- BDL Bridged door lock. Doors shall remain open until bridge is removed. *See DFO input*
- BSD Brake did not drop. Fatal error. See BKSW, HFM input.
- BST Brake did not lift. Fatal error. See BKSW, HFM input. See EEPROM settings - BST
- DCP Fail door close protection. *See DFC input*
- DOP Fail door open protection. *See DFO input*
- IDL Lift idle
- LCK Door Locks not made. *See DFC input*
- LDN Leveling down, displays on re-level down. *See MSU input*
- LRN Learning floor operation in progress.
- LUP Leveling up, displays on re-level up. *See MSD input*
- PRV Waiting PRV input to run. *See PRV input*
- RDN Running down
- RPT Run protection time exceeded. *Fatal error. See EEPROM settings - RPT*
- RUP Running up
- SAF Lost safety circuit. *See SAF input*

LCD Door Modes

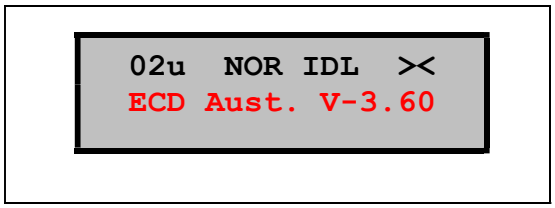


The door mode is shown to the top right of the LCD display. It has the following status.

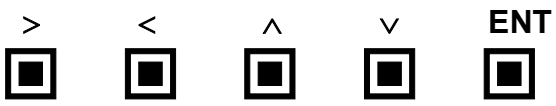
- <> Doors opening
- [ ] Doors open
- >< Doors closing
-] [Doors closed
- -bad Doors fully closed but door locks not made. *See DFC input*
- -fail Doors failed on DOP or DCP. *See DFC/DFO input*
- - - Doors on other control. ie – Inspection.

LCD Control Buttons

The Control buttons are used for accessing and programming the second line of the LCD display



Buttons -



- > =FORWARDS
- < = BACKWARDS
- ^ = UP
- v = DOWN

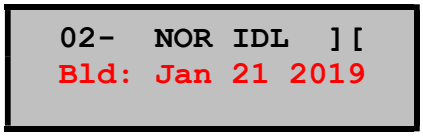
- ENT = ENTER

LCD Display Options

Use the forwards and backwards buttons to cycle through the available options

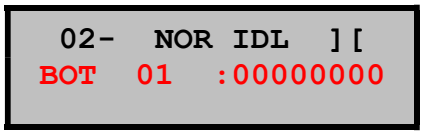
Text plus software version

∧ UP



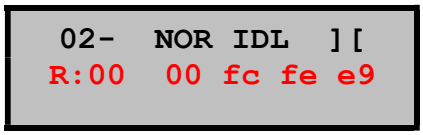
Software Build date

> FORWARDS



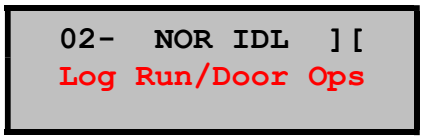
EEPROM settings and values
Press ∧ and ∨ to scroll through the adjustable EEPROM settings.
See Section 2, EEPROM settings

> FORWARDS



R - internal **ram address'** and values
X - internal ram address' and values (V3 software only).

> FORWARDS



Number of runs or door operations
Earlier software versions count in hex. Later software versions count in decimal.

> FORWARDS

Floor Positioning
See Motion. Counting method 01.

Section

6

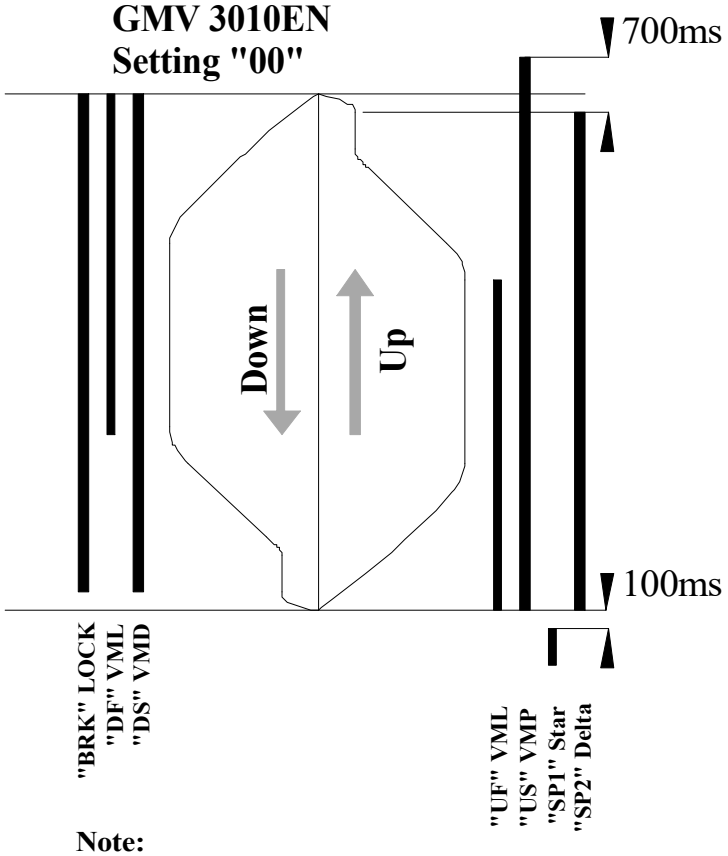
Section 6. Motion

Motion Control Outputs

Drive settings and their output status.

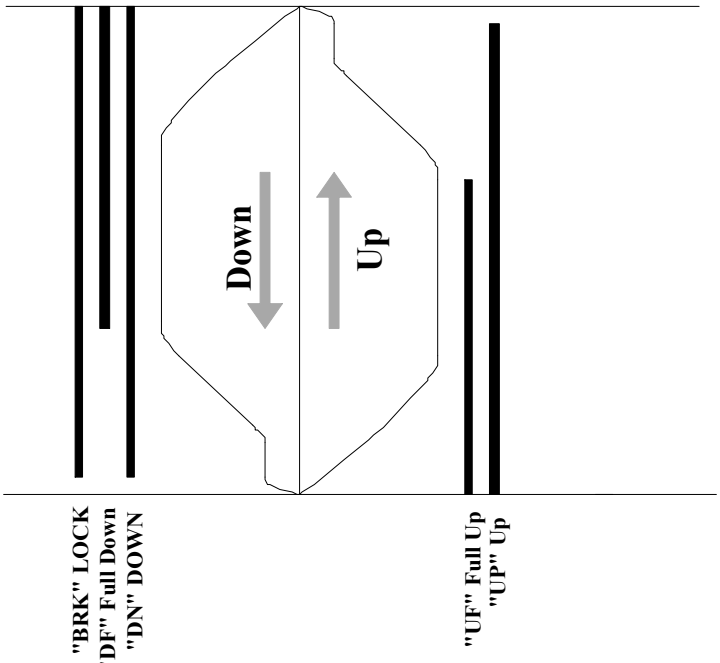
The controller may output to various different drives as per the list below depending on the DRV EEPROM setting.
The following diagrams only indicate the drive outputs but do not show re-leveling functions and timing.

DRV…EEPROM…Drive control type.



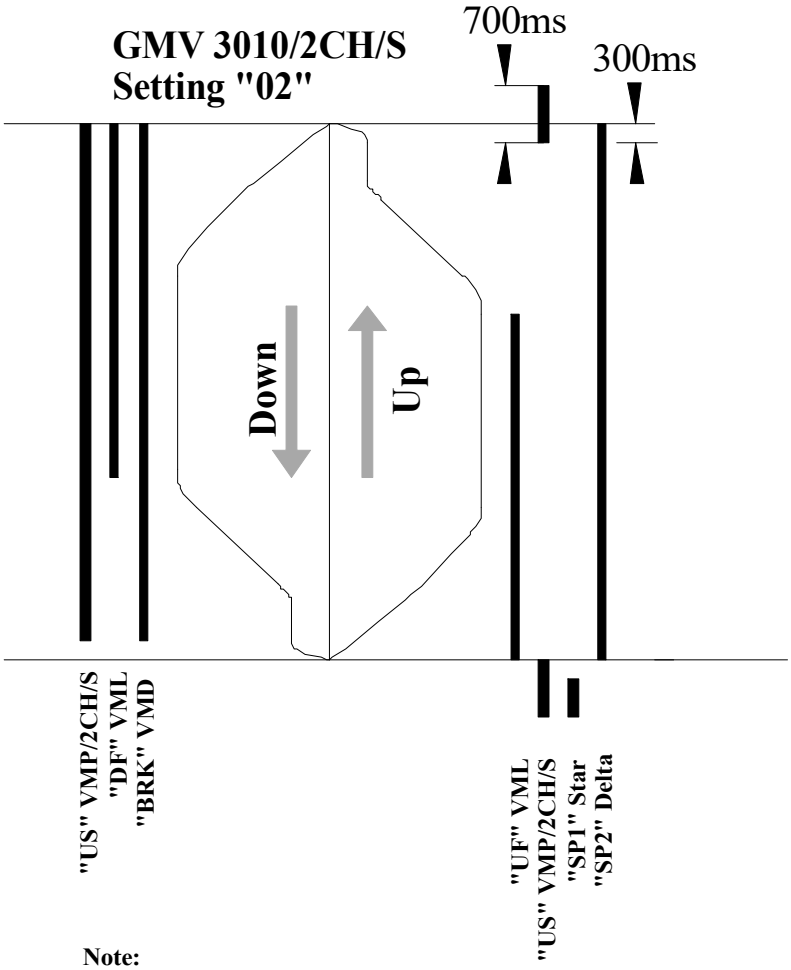
Note:
1. On inspection, SP3 turns on for inspection speed.
2. PRV input must be ON, prior to a run.

DYNAHYD "DA VALVE"
Setting "01"



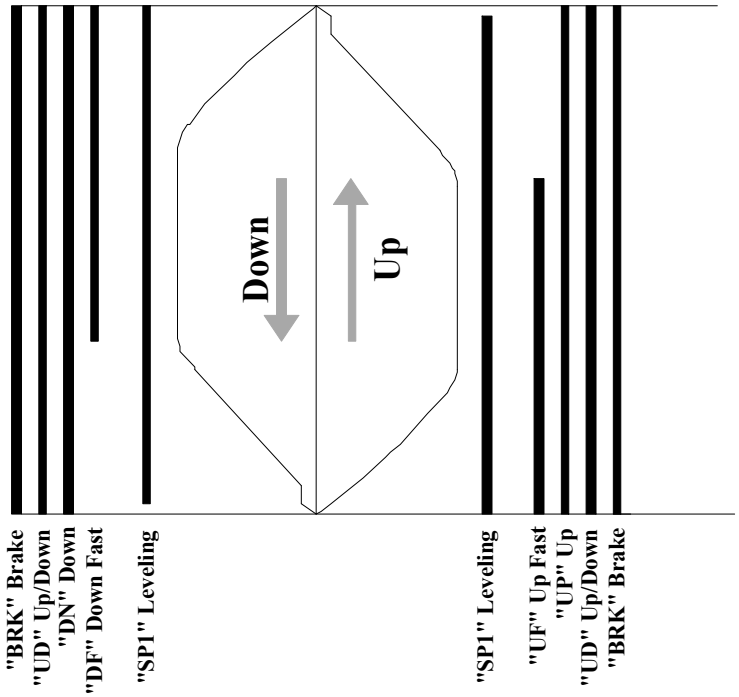
1. On inspection, SP3 turns on for inspection speed.
2. PRV input must be ON, prior to a run.

GMV 3010/2CH/S
Setting "02"



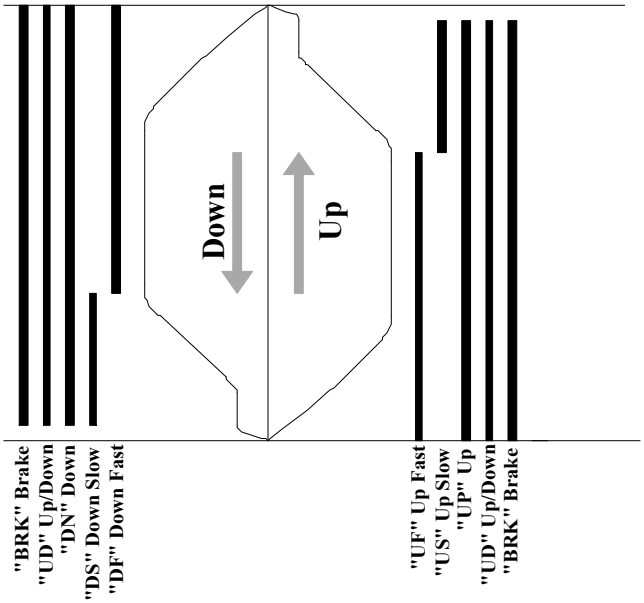
Note:
1. On inspection, SP3 turns on for inspection speed.
2. PRV input must be ON, prior to a run.

VF Drive Type 1. KEB, B&F, Zetadyn, C.T.
Setting "03"



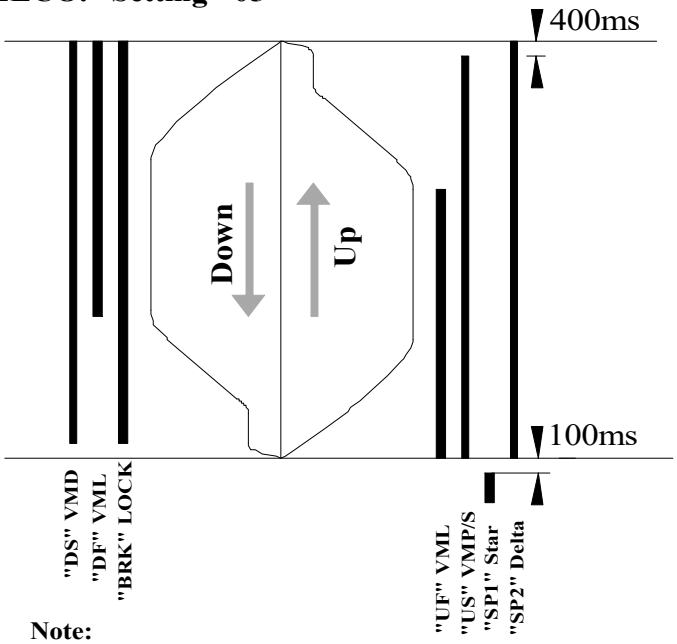
Note:
1. On inspection, SP3 turns on for inspection speed.
2. PRV input must be ON, prior to a run.
3."PRV" turns off during entire run and
   becomes active to complete the run.
4. On inspection UF and DF turn off.
5. SP2 turns on for intermiediate speed (MSL=01 only)
6. US/ DS used for terminal speed check on lifts above 1m/s

2 Speed AC
Setting "04"



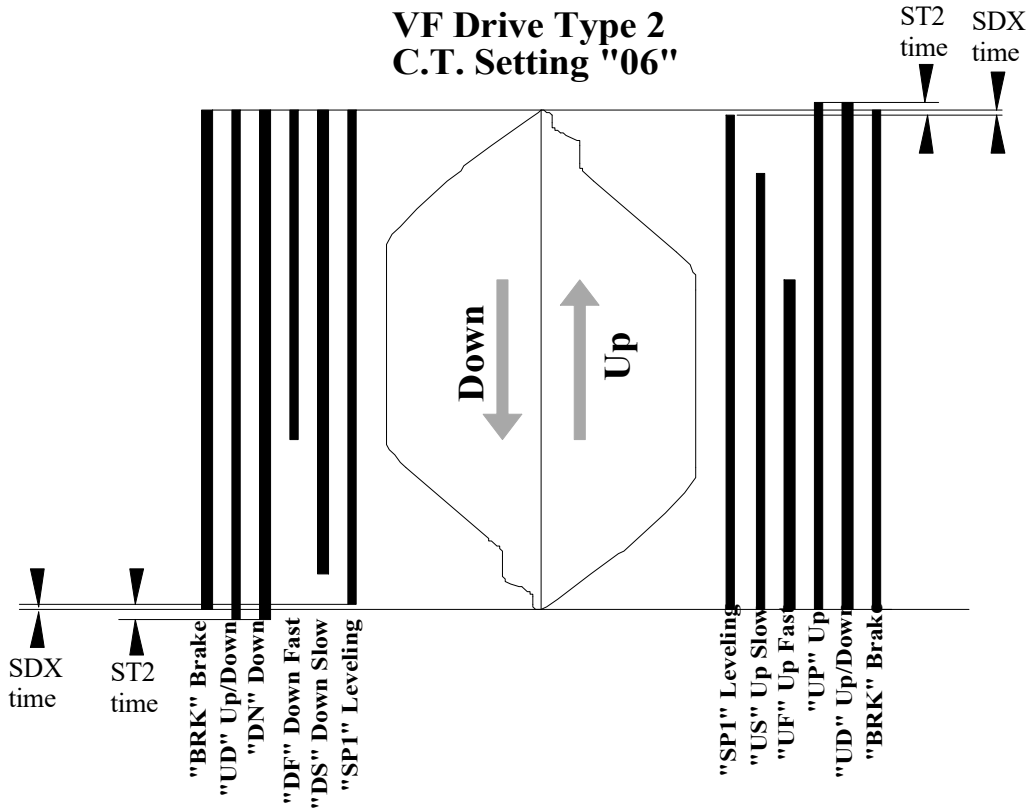
Note:
1. On inspection, SP3 turns on for inspection speed.
2. PRV input must be ON, prior to a run.

GMV 3010/S, Blain EV100, Maxton, Bucher LRV, EECO. Setting "05"



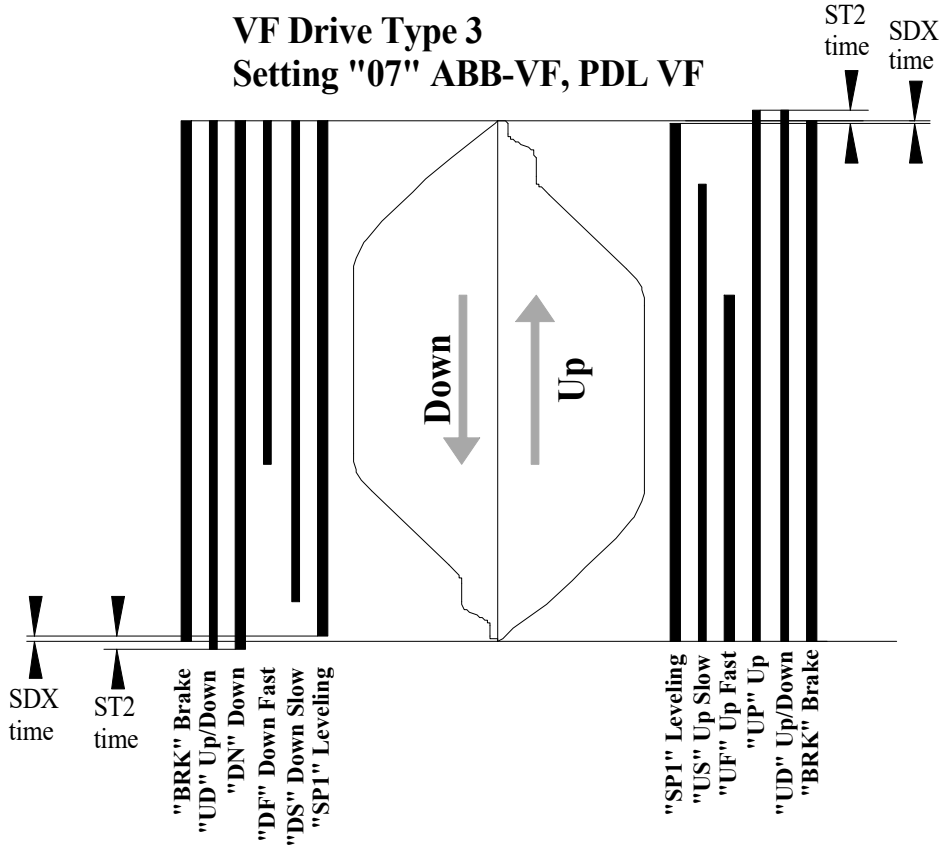
Note:
1. On inspection, SP3 turns on for inspection speed.
2. PRV input must be ON, prior to a run.

VF Drive Type 2
C.T. Setting "06"



Note:
1. On inspection, SP3 turns on for inspection speed.
2. PRV input must be ON, prior to a run.
3. The end of the run is initiated by loss of leveling. BRK then holds up for SDX time and then UD,U/D is held up for ST2 time in 10ms increments. SDX time must be less than ST2 time
4. On inspection UF and DF turn off.

VF Drive Type 3
Setting "07" ABB-VF, PDL VF



Note:

1. **On inspection, SP3 turns on for inspection speed.**
2. **PRV input must be ON, prior to a run.**
3. **The end of the run is initiated by loss of leveling. BRK then holds up for SDX time and then UD,U/D is held up for ST2 time in 10ms increments. SDX time must be less than ST2 time**
4. **On inspection SP1 turns off.**

ABB VF

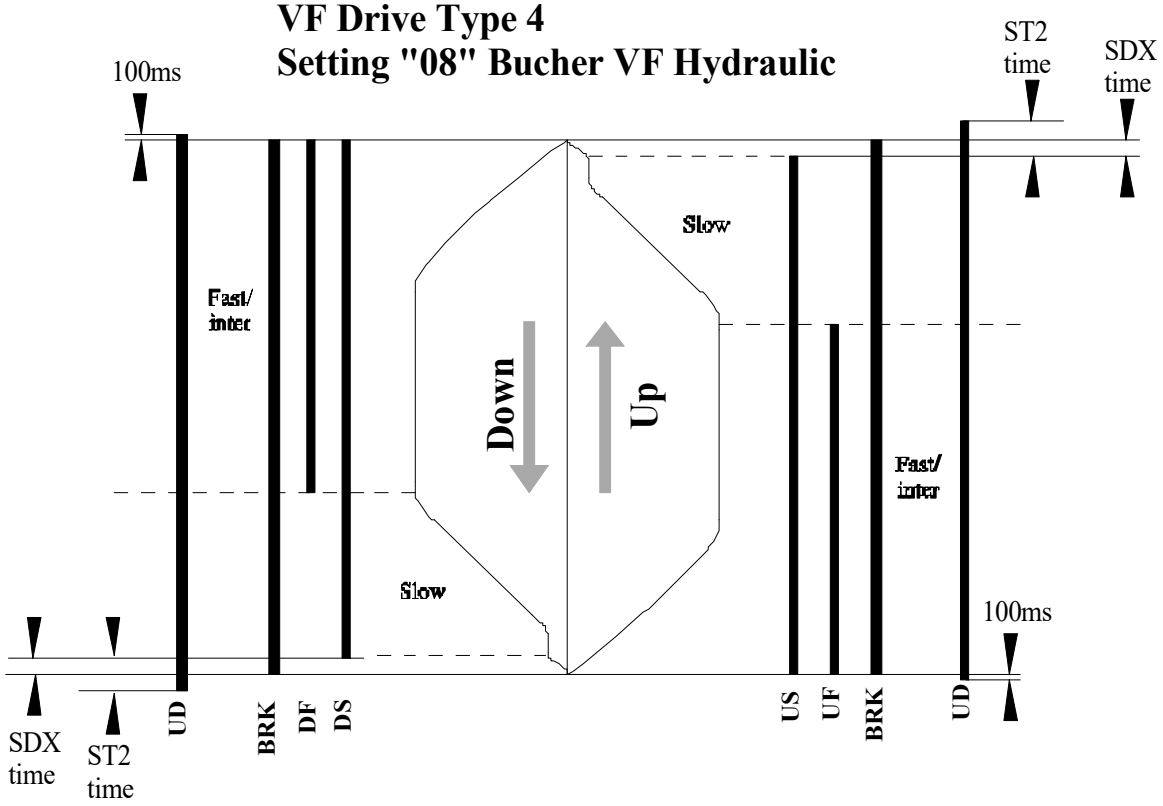
SPEED	DS/US	UF/DF	SP1	FUNCTION
N/A	1	0	0	N/A 0 rpm
INSP SLOW	0	1	0	RPM / Contract fpm x 10 = set for 10fpm
INSP FAST	1	1	0	RPM / Contract fpm x 50 = set for 50fpm
LEV	0	0	1	RPM / Contract fpm x 10 = set for 10fpm
SLOW	1	0	1	RPM / Contract fpm x 25 = set for 25fpm
INTER	0	1	1	RPM / 0.75 = set for 75% Cont Spd
FAST	1	1	1	Set as per motor rpm sync spd (RPM)

PDL VF. MULTI REF. 3 WIRE CONTROL

MF14 MF15 MF16

SPEED	DS/US	UF/DF	SP1	MULTI REF. FUNCTIONS
N/A	1	0	0	N/A 0 rpm
INSP SLOW -M2	0	1	0	Set for 10fpm
INSP FAST -M6	1	1	0	Set for 50fpm
LEV -M1	0	0	1	Set for 10fpm
SLOW -M5	1	0	1	Set for 25fpm
INTER -M3	0	1	1	Set for 75% Cont Spd
FAST -M7	1	1	1	Contract Speed (as a %)

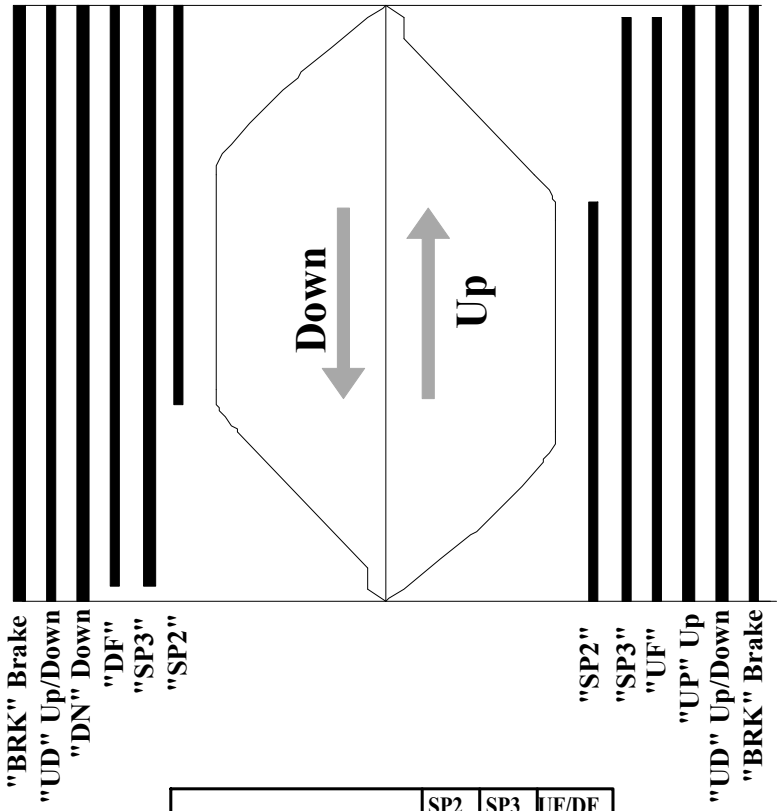
VF Drive Type 4
Setting "08" Bucher VF Hydraulic



Note:

1. **On inspection, SP3 turns on for inspection speed.**
2. **PRV input must be ON, prior to a run.**
3. **The end of the run is initiated by loss of leveling.**
   BRK then holds up for SDX time and then UD is held up for ST2 time in 10ms increments.
   SDX time must be less than ST2 time.
   Default SDX=32, ST2=33.
4. **SP2 will energise between the door zones if short floor (SFR) is active**

VF Drive Type 5. THY CPIK-VF.
Setting "09"



	SP2	SP3	UF/DF
CREEP SPEED	0	1	1
INSPECTION SPEED	0	1	0
MIDDLE1 SPEED	1	1	0
HIGH SPEED	1	1	1

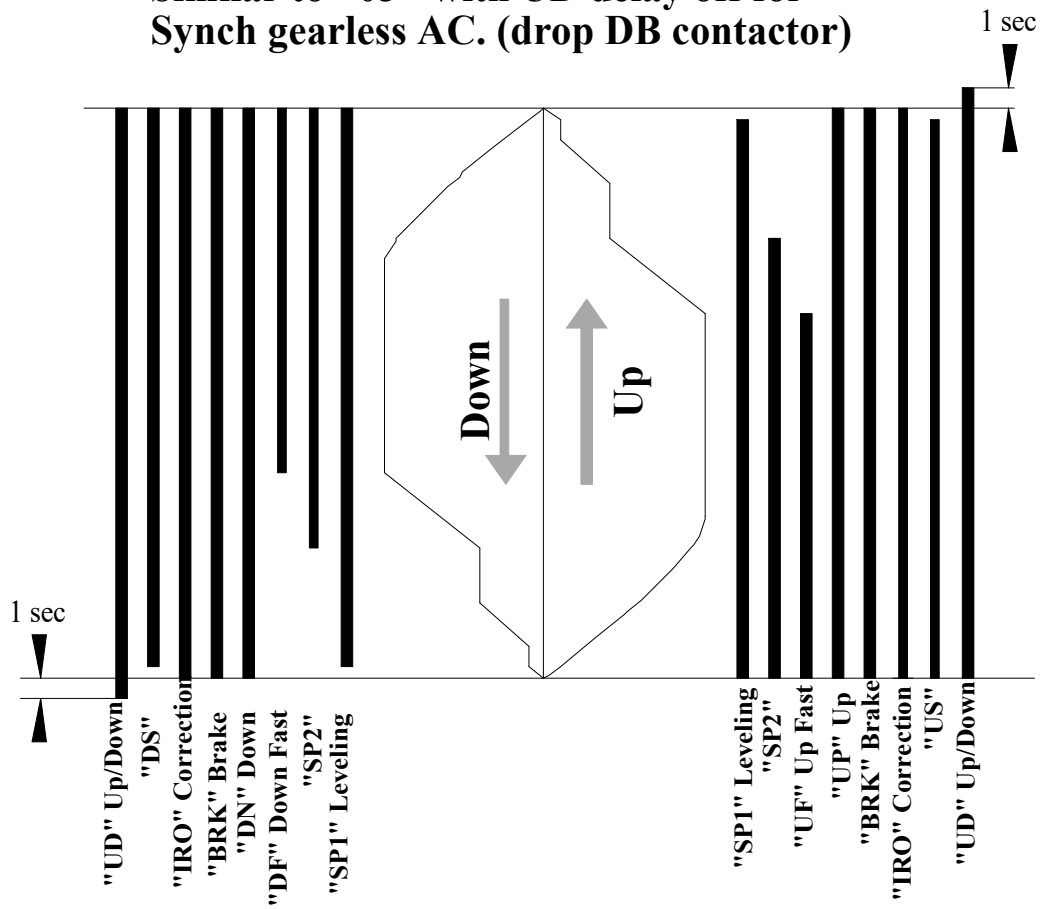
Note:

1. On inspection, SP3 turns on for inspection speed.

2. PRV input must be ON, prior to a run.

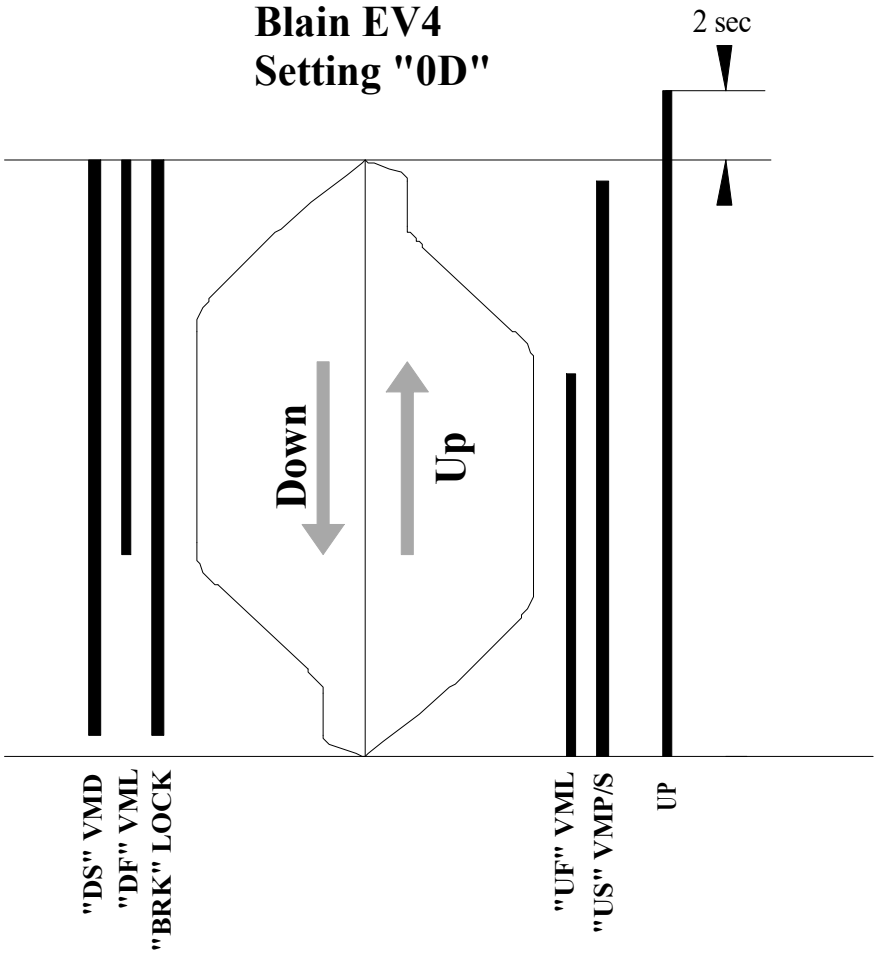
3. "PRV" turns off during entire run and becomes active to complete the run.

VF Drive Type 6
Setting "0A" KEB, Gefran with DB
Similar to "03" with UD delay off for
Synch gearless AC. (drop DB contactor)



Note:

1. On inspection, SP3 turns on for inspection speed.
2. PRV input must be ON, prior to a run.
3. PRV turns off during entire run and becomes active to complete the run.
4. On inspection UF and DF turn off.
5. SP2 turns on for intermiediate speed (MSL=01 only)
6. UD relay has 1.0 sec delay off after completion of run
7. US/ DS used for terminal speed check on lifts above 1m/s
8. SO4/IRO turns on when performing a correction run. NOT used for INSP ou
9. CFS and IND do not turn on OS output



Note:
1. On inspection, SP3 turns on for inspection speed.
2. PRV input must be ON, prior to a run.

Counting Method "00" - Magnet Counting.

EEPROM MSL setting "00"

The controller counts its position within the lift shaft using the DZ – Door Zone Input, MSU – Magnet Switch Up Input, MSD – Magnet Switch Down Input, TSL – Top Slowing Limit and BSL – Bottom Slowing Limit.

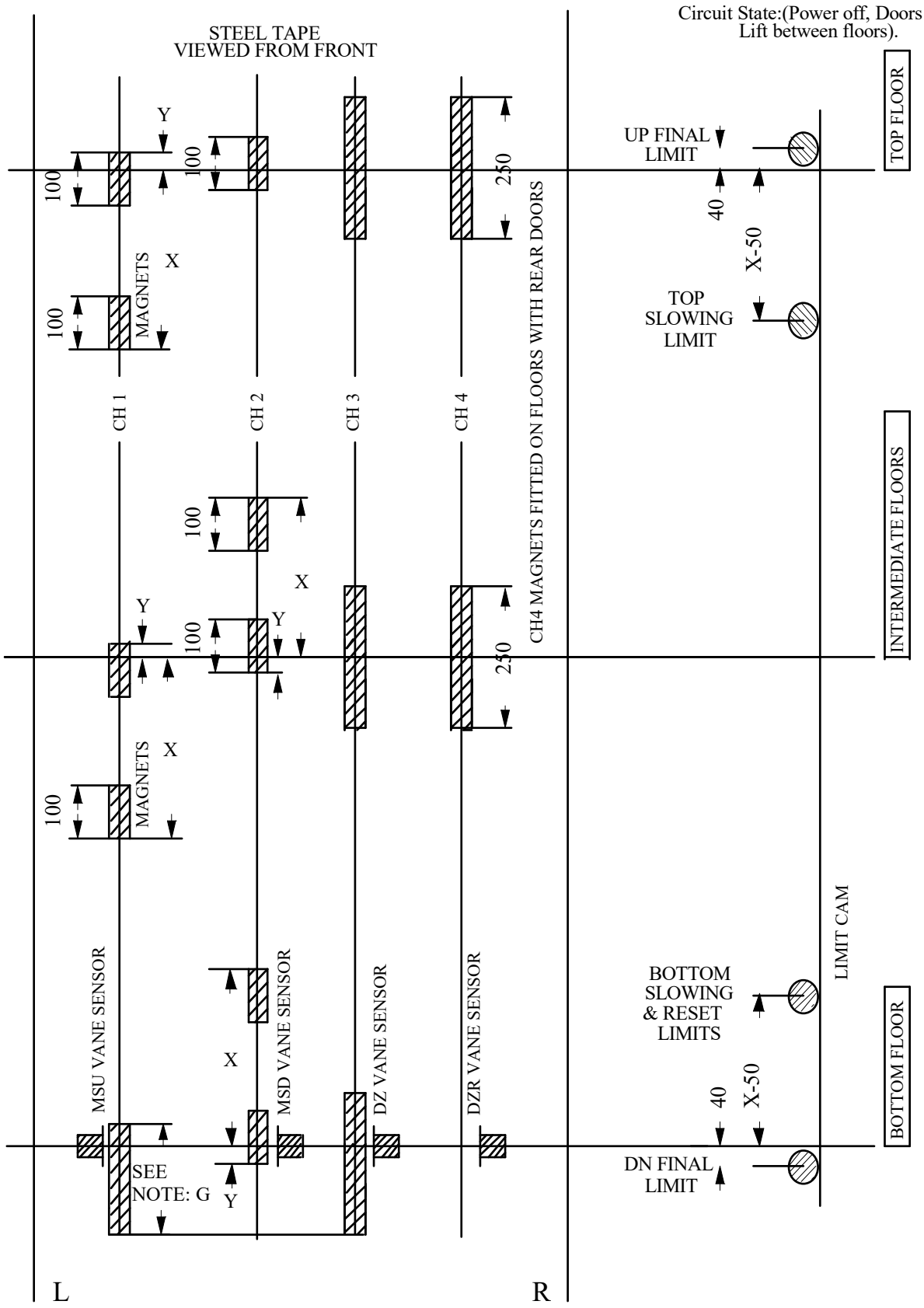
If the lift is stationary or running down and BSL input is removed, the lift shall reset to the bottom floor. If running down in fast speed, the fast speed inputs shall be turned off.

If the lift is stationary or running up and TSL input is removed, the lift shall reset to the top floor. If running up in fast speed, the fast speed inputs shall be turned off.

The shaft information at floor level must be as per the Counting Method "00" Shaft Layout drawing in that the MSD and MSU vanes must be within the door zone. See the diagram; "*Counting Method "00" Shaft Layout" at the end of this section.*

If the lift was to leave the bottom floor in the up direction heading to the third landing it would count as follows.

- While traveling up fast all MSD out of the DZ shall be ignored.
- As the lift travels up fast and passes MSU slowing magnet for level 2, the advance count is shown by transistor outputs 1P-8P.
- As the lift travels up fast and passes the DZ magnet for level 2 (MSU and MSD ignored/masked by DZ) the position count as shown on the LCD shall increment to level 2.
- As the lift travels up fast and passes MSU slowing magnet for level 3, the advance count is shown by transistor outputs 1P-8P. As the lift advance counts, slowing shall be initiated for level 3.
- The lift shall now level into the third floor. The position count shall increment to level 3 when the DZ vane is entered. The lift shall remain running until both MSU and MSD are on. LEV relay output shall turn on when either MSU or MSD is on.



Counting Method "00' Shaft Layout

Counting Method "01" - Pulse Counting.

Also used for short floors that requires an intermediate speed, to avoid long creep times. Long creep times can be caused on a shorter floor where the lift does not reach rated speed before receiving a slow down signal. As the lift has not reached rated speed, it will decelerate quicker and arrive at leveling speed further away from floor level, than had it been at rated speed. This results in the long creep time into the floor.

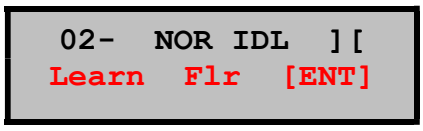
EEPROM MSL setting "01"
The controller counts its position within the lift shaft using the pulse input. See also Inputs-Outputs, PULSE
The number of pulses are counted from the lowest landing.
The number of pulses are converted to a HEX value and stored for each level. (for processor calculations)
(The lowest level is recorded with a HEX value of 40)
Using these values in conjunction with the associated **EEPROM settings Stf, Stm, Slf and Slm,** the processor makes calculations for speed selections and slowing distances.
The 0V input pulse is recommended approximately every 40mm of car travel.
No MSU or MSD inputs are required between the floors for slowing (as per setting 00).
DZ, MSU and MSD inputs are required at floor levels for accurate leveling and position count check/reset and learn floor procedures.
TSL and BSL operate as per setting 00

The shaft information at floor level must be as per the Counting Method "01" Shaft Layout drawing in that the MSD and MSU vanes must be within the door zone. See the diagram; "*Counting Method "01" Shaft Layout" at the end of this section.*

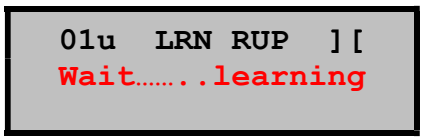
Note: For a learn floor (Learn Run), if the MSU and MSD vanes are not in the correct order – the position shall not be stored at those floors.

Learn Run:
To perform a learn run to store the Hex count for each floor

- **Ensure BSL and TSL operate to slow lift from fast speed.**
- **Set MSL to "01"**
- **Ensure all DZ, MSU and MSD inductors/magnets are accurately placed at each floor level.**
- MSU and MSD magnets between floors are not required (as per setting MSL "00")
- From the "text plus software version" display on the LCD, scroll through the available options using the ">" button until you get to the Floor Positioning display. (See Section 5, LCD Display Options). Now use the "^" button to scroll through to Learn Floor and press [ENT]. Lift is now "out of service" - OS output on.

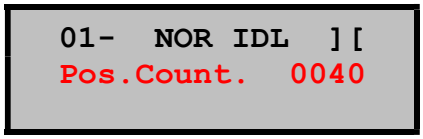


- The cycle shall first run the lift to the bottom floor (if not already there).
- The lift shall then run to the top, counting and saving the floor position data into each floor address while running up. (The position data is calculated by the processor from the DZ, MSU and MSD inputs at each floor level).

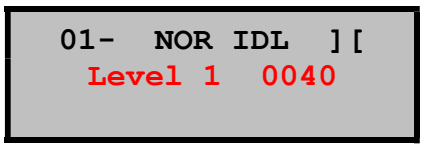


- As the lift passes floors you shall see the green LED beside the watchdog flash to confirm the saving of the floor data.
- Once the lift has reached the top floor the lift shall revert to normal operation.

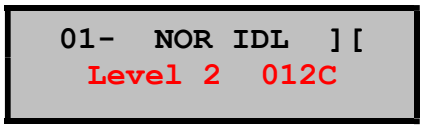
- The HEX value/count of each floor can be viewed by pressing the "^" button to scroll through to the various levels



"Pos Count" displays the **current** lift position in HEX



Level 1 **stored** HEX Position Count



Level 2 **stored** HEX Position Count

The hex count for each floor/level should be recorded in the following <u>Pulse distance table</u>;

Pulse distance table:

Level	Hex Count	Diff. in Hex	Diff. in Decimal	Multiply by pulse distance in mm	= Floor Height in mm	
12. _____						
						(11 to 12)
	>					
11. _____						
						(10 to 11)
	>					
10. _____						
						(9 to 10)
	>					
9. _____						
						(8 to 9)
	>					
8. _____						
						(7 to 8)
	>					
7. _____						
						(6 to 7)
	>					
6. _____						
						(5 to 6)
	>					
5. _____						
						(4 to 5)
	>					
4. _____						
						(3 to 4)
	>					
3. _____						
						(2 to 3)
	>					
2. _____						
						(1 to 2)
	>					
1. _____						

STF	SLF	STF + SLF		STM	SLM	STM + SLM

- No MSU or MSD magnets between floors when MSL = 01, 02 and 03

Variable speed selection:
All values are referred to in HEX.
Before a run, the speed (fast, medium or slow) is selected after calculating the distance to the selected floor.

- Rated (max) speed is selected when (Stf + Slf) **<** the commencing floor run hex value.
- Medium speed is selected when (Stf + Slf) **>** the commencing floor run and (Stm + Slm) **<** the commencing floor run hex value.
- Slow or leveling speed (depending on DRV setting) shall be selected when (Stm + Slf) **>** the commencing floor run hex value.

On EEPROM DRV setting 03;

- Fast speed is selected by DF and UF relay. The relay contacts are used for the max/rated speed input to the drive.
- Medium or intermediate speed is selected by SP2 relay. The relay contacts are used for the intermediate speed input to the drive.

Example:
Speed selection. Nb: HEX calculator recommended

A lift needs to travel from level 1 to level 2.
Level 2 hex count = 12C.
Level 1 hex count = 40.
Distance between level 1 and 2 is 12C – 40 = **EC.** (the commencing floor run hex value)
Assuming equal accel and decel rates and lift slows as soon as the rated speed is reached, the minimum distance required for a fast speed run will be **5A(Stf) + 5A(Slf) = B4**

As shown in Fig 6a, B4 is less than EC, which means the processor will calculate that the full speed relay **can** be picked for a run between level 1 and 2. Ie, rated (max) speed is selected when Stf + Slf (B4) **<** the commencing floor run hex value (EC).
Pulses to get to Fast speed (Stf) + Pulses to slow from Fast speed (Slf) = distance required for a fast speed run.

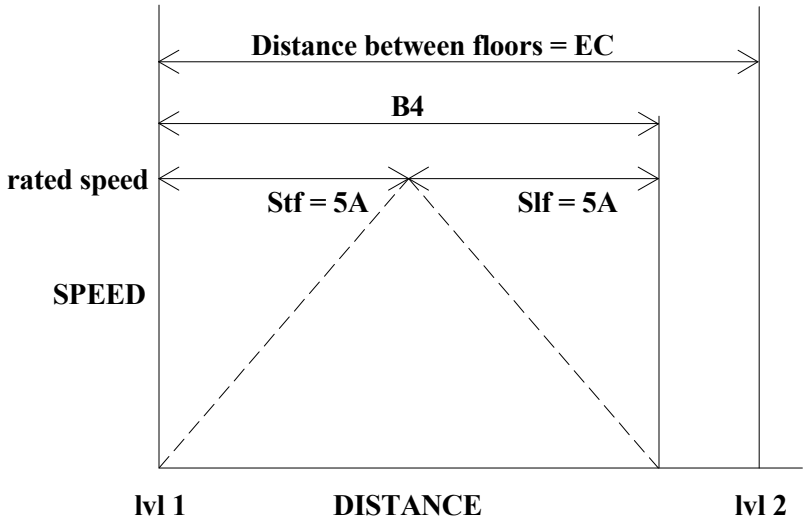


Fig 6a. (Ref. TurboCad – Pulse Graphs)

A run from level 1 to 2 will look like the following graph, Fig 6b;
As explained by Fig 6a, fast speed can be selected.

After Stf distance of 5A hex pulses lift is at full speed.
Lift stays at full speed for distance of 38 hex pulses
At a distance of Slf (5A hex pulses) from level 2, the fast speed relay is dropped to initiate the slowdown
(5A + 38 + 5A = EC)
MSU, MSD and DZ inputs are then used to control the final stop.

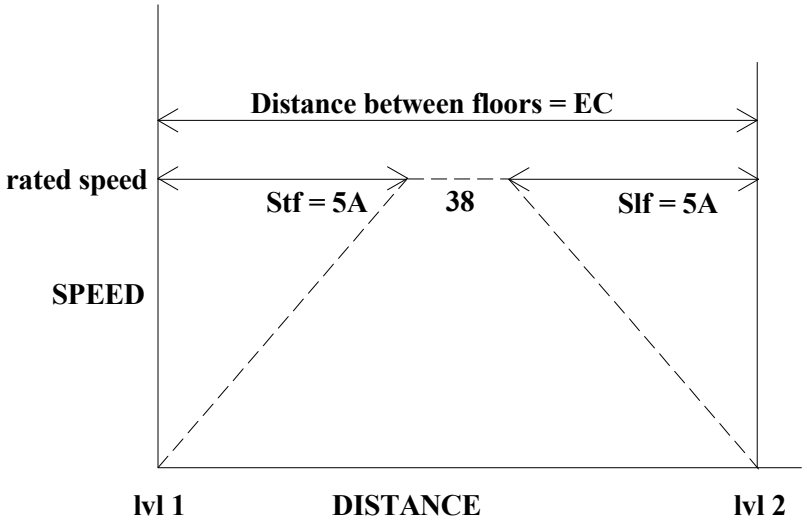


Fig 6b. (Ref. TurboCad – Pulse Graphs)

If, for example, the drive is adjusted for a quicker decel rate, you can decrease Slf. This lower value allows the lift to stay at rated speed longer (now distance of 48 hex pulses) by dropping the fast speed relay later (closer to, or 4A hex pulses from, level 2).
This will mean a faster floor to floor run than Fig 6b.
Nb: If the decel rate is made quicker and Slf is not decreased, the lift will slow down too early, which will result in long "creep time" into the floor

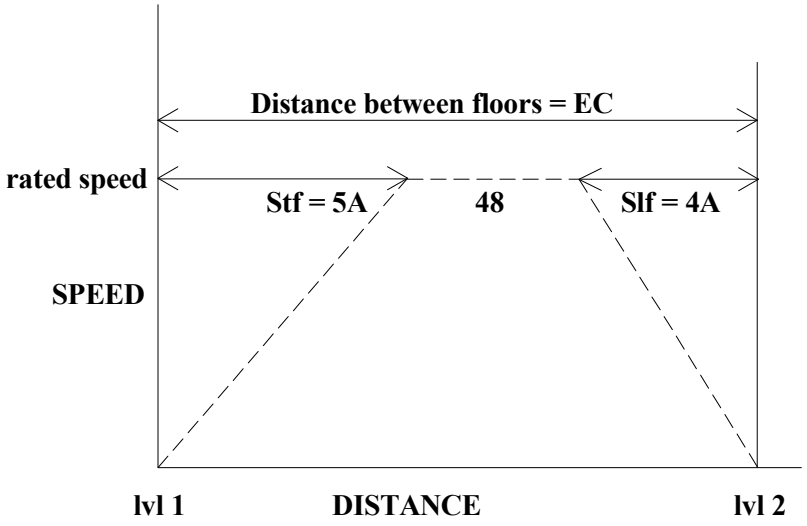


Fig 6c. (Ref. TurboCad – Pulse Graphs)

The medium or intermediate speed is used for shorter floor(s). See Fig 6d.
Assume the distance between another 2 floors has a hex pulse count of **A6.**
A6 is less than B4, which is the minimum count required for a fast speed run.
Therefore a fast speed run **cannot** be selected (not enough distance) between these 2 floors.

The required distance for a medium speed run is now checked.
4C(Stm) + 4C(Slm) = 98.
98 is less than A6 so a medium speed run is now selected. Ie, the medium speed is selected when Stf + Slf (B4) **>** the commencing floor run (A6) and Stm + Slm (98) **<** the commencing floor run (A6).

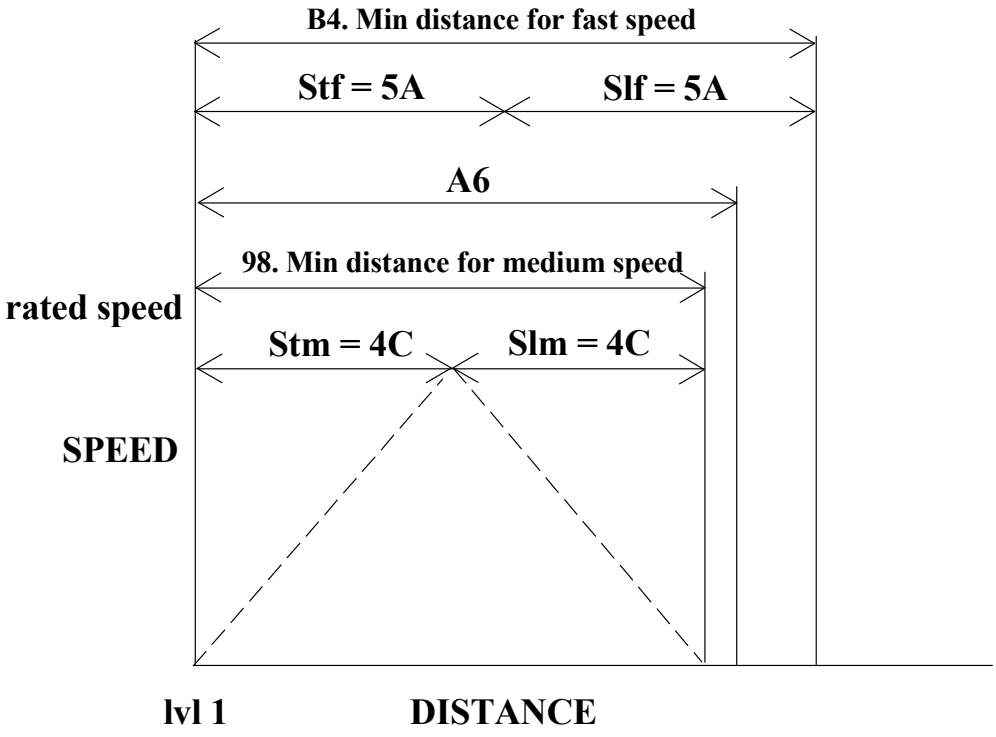
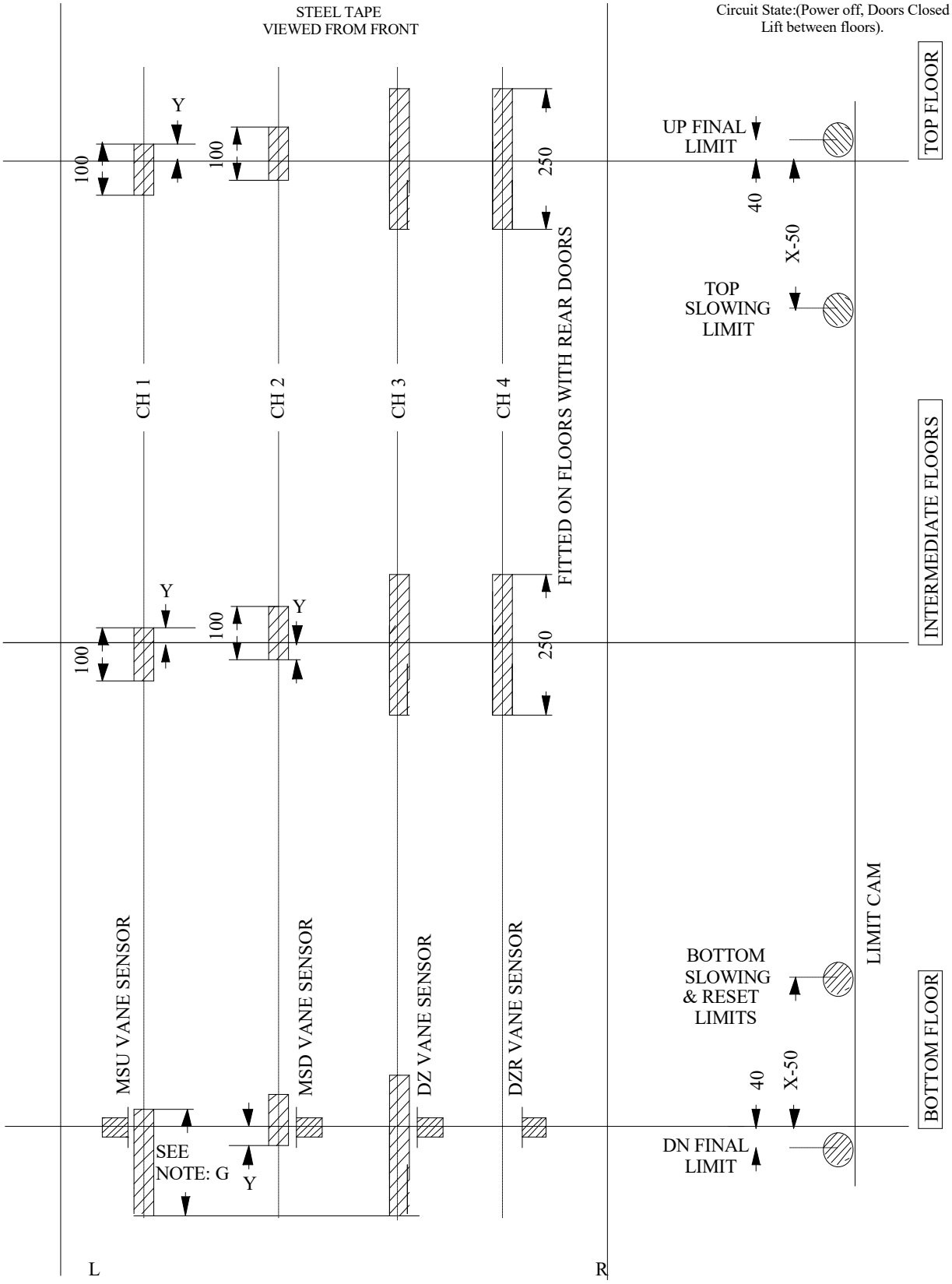


Fig 6d. (Ref. TurboCad – Pulse Graphs)

Terminal floors:
BSL and TSL drop out the fast speed relay, which overrides Slf. These limits do not affect medium speed. Depending on the medium speed, an additional limit at the top and bottom may be required to drop out the medium speed input to the drive.
If the fast speed slowing is required more than a floor from the terminal floors, additional limits (to the TSL and BSL) shall be required to drop out the fast speed input to the drive. This is because BSL & TSL must not overlap other floors. If they did, this would cause the lift to set to a terminal floor before the lift was actually there.
On a correction run the lift shall perform a correction run to the lowest floor unless BSL is off. In some circumstances the lift may require a correction run just above BSL. In this situation the lift will take off on fast speed, then get its slow down very soon afterwards, resulting in a very long creep time. The XTM and RTM settings may be used to overcome this.



Counting Method "01' Shaft Layout

NPT: No Pulse Time out Mode. (MSL = 01, 02 & 03)
During an up run, if the controller loses the pulse input, the lift shall travel to the top floor and stop, then perform a correction run down to the bottom floor and display NPT on the LCD.
During a down run, if the controller loses the pulse input, the lift shall travel to the bottom floor and stop and display NPT on the LCD.
See also Inputs-Outputs, PULSE
Check by observing flashing of PULSE – LED input
NPT is a fatal error. Reset is only via a processor POR or Inspection on/off sequence.

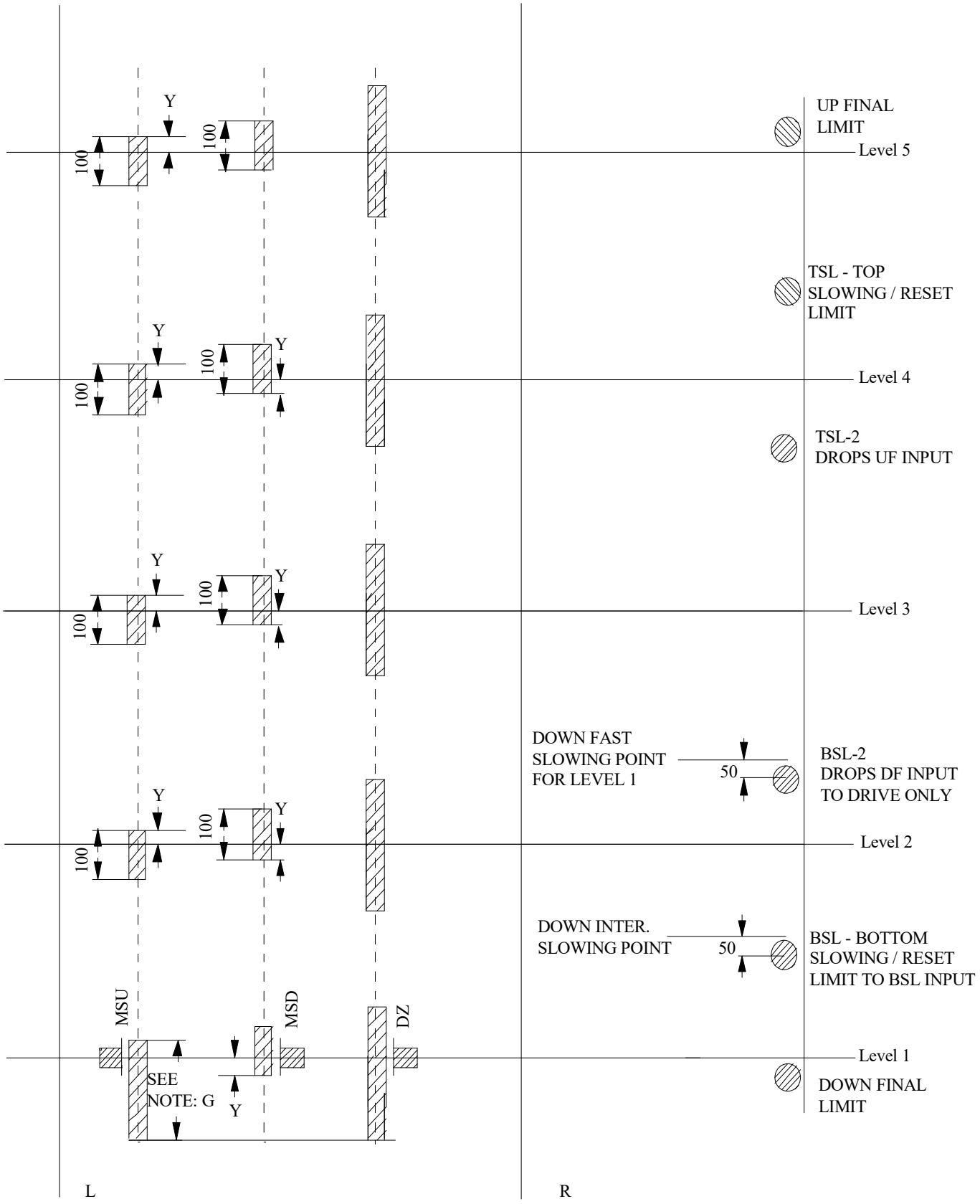
Counting Method "02" - Pulse Counting.

Refer to the following explanation and "Counting Method 02 Shaft Layout" diagram;

If the fast speed slowdown distance for level 1 exceeds the distance from level 2 to level 1, BSL would need to be placed above level 2. This creates a problem, as the lift would reset to level 1, when on level 2.
In this case, the extra limit switch, BSL-2 must be installed and MSL set to 02.
BSL-2 is wired in series with the DF relay contact, to ensure the DF input to the drive is lost when approaching level 1 on fast speed or when a correction run is being performed.
BSL-2 limit switch should switch approx 50mm below the down fast slowdown point.
The normal BSL limit switch (wired to BSL input) is placed between levels 1 and 2 for position correction.
In this case, the lift cannot perform a fast speed (DF) run from level 2 down to level 1, so the medium or intermediate speed (SP2 relay) would be selected.
MSL = 02 ensures the loss of BSL input shall drop the SP2 intermediate speed relay. Nb: When MSL = 01 loss of BSL input does not drop SP2

BSL limit switch (wired to BSL input) should be approx 50mm below the down intermediate speed slowdown point.
BSL must remain activated all the way down to the car being on the buffer.
BSL-2 limit switch (wired in series with DF) must remain activated, at least, until BSL limit becomes activated.

The same applies for the TSL and TSL-2 limit switches, except in the up direction;
TSL limit switch (wired to TSL input) should be approx 50mm below the up intermediate speed slowdown point.
TSL must remain activated all the way up, to the point where the counterweight is landed.
TSL-2 limit switch (wired in series with UF) must remain activated, at least, until TSL limit becomes activated.



Counting Method "02' Shaft Layout

Counting Method “03” - Pulse Counting.

EEPROM MSL setting “03”

Is the same as MSL 01 except that it will not update the pulse count position whilst running.
This setting also requires that the DZ input not be active whilst the lift is travelling above leveling speed.
Eg, Use ODS in series with DZ input.

This setting may be useful for curing “out of step” faults occurring due to electrical noise within the installation.

Section 7

Section 7: Faults – Fault finding.

Upgrade Controller software.

Controller software may be required to be updated depending on the version installed and the options the lift has. While we try to make it as simple as possible for software upgrades, unfortunately some EEPROM address' may be required to be edited due to additional features being added.
It is recommended that the Service Mechanic that changes this software knows how to change EEPROM settings and has a definition list for the new version being installed.

Group/Duplex Faults

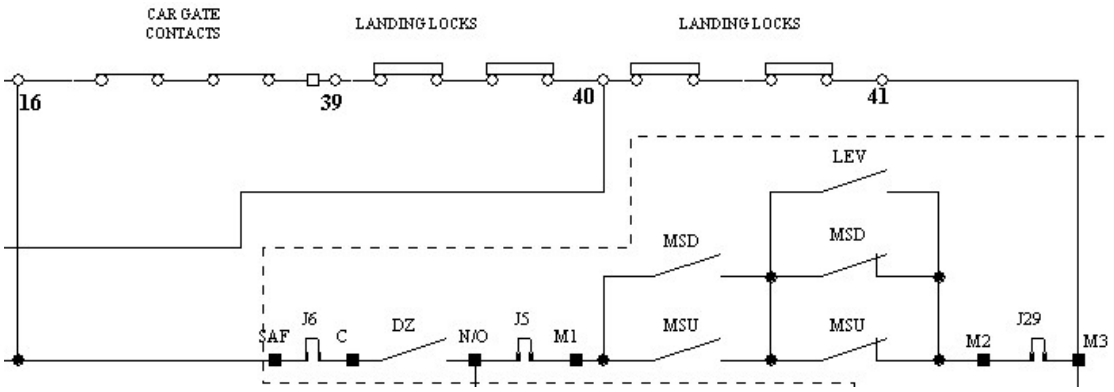
See Section 3. Group faults

Run protection timer. RPT

RPT is a fatal error and can be reset only via a processor POR or Inspection on/off sequence.
See also EEPROM setting RPT for more information on RPT sequence.

Lift won't re-level with doors open

The most common cause for this is the masking circuit.
Note: For this to operate correctly you require one of MSU or MSD inputs but not both. This shall initiate a re-level, which shall be indicated by the UP or DN and slow speed onboard relays to energize.
Also ensure lift is on operating mode normal.
We must ensure we have a circuit from terminal 16 through to M3. Check your links and status of onboard relays.



If you have the supply to M3 and onboard direction relays up you can then check the neutral side.
The neutral is also switched through a "LR" or "DZ" contact onboard. This switches "N" through to M4.

On board fuse blows

There are 2 fuses mounted on the controller board.
The 2A fuse protects the 5Vdc supply to all the logic on board.

The 4A fuse protects the 24Vdc supply.

If 2A (5Vdc) fuse blows check that the **6V Zener diode** is not short circuited. (return for repairs)

If 4A (24Vdc) fuse blows.

1. Test for fault on 24Vdc circuits (inputs/outputs)
2. Remove all external plugs except 18Vac and 10Vac
3. Replace fuse. If 4A fuse still blows, check that the **30V Zener diode** is not short circuited. (return for repairs)
4. If fuse does not blow plug in external inputs/outputs one plug at a time and test for external fault.

Testing 24Vdc

Ensure 0V and +24V are free from other voltages. High voltages may be superimposed on 0V and +24V lines as no reference to ground exists. See Warning 1.2.14

1. Turn the meter to the HIGH VAC range.
2. Meter between 0V and Neutral. (Should be 0V)
3. Meter between 0V and L2A (if applicable). (Should be 0V)
4. Meter between +24V and Neutral. (Should be 0V)
5. Meter between 0V and +24V. (Should be 24Vdc)

If 24Vdc is low or unstable, check large capacitor C69 on PCB. This capacitor may have been hit or knocked, which can break off one of the legs soldered into the PCB. A gentle twist will reveal if one leg has broken. If so, replace the capacitor

Testing supplied RCD on 110vac Safety circuit.

To correctly test the operation of the RCD supplied with the 110Vac safety circuit a 3.6K ohm resistor must be used.

Doors do not open

Check door disable switch DDO on PCB is off
See Inputs-Outputs, DDO

Doors close on park

If the doors close when keyed to park after EDP is opened you may require a software update. Upgrade to latest Version software.

Doors don't open at terminal floors

Ensure the MSU slowing input is activated **before** the Top Slowing Limit (TSL) at the top floor
Ensure the MSD slowing input is activated **before** the Bottom Slowing Limit (BSL) at the bottom floor.

Lift gets out of step

If the lift gets out of step check the following.

1.MSU and MSD magnets must be within DZ (DoorZone) at floor level.
2. If lift resets incorrectly at top floor check TOP EEPROM setting.
3. See MSL = 03

Lift does not answer car calls

Check CCM, CC1 setting.

Lift does not answer hall calls

Check UCM, UC1, DCM, DC1 setting.

Lift misses hall calls

If the lift misses only some hall calls but answers car calls whilst on normal operation

1. Ensure SIS unit is mounted firmly.
2. Some magnets may have dead spots. Change faulty magnets.
3. Ensure software is latest Version.
4. On terminal floors – ensure that MSU/MSD initiates slowing before TSL/BSL respectively.

Re-leveling won't operate

Check RLV setting.

Red3 LED is not blinking

The microprocessor has locked up (possibility caused by electrical noise interference, power failure). Reset via a processor power on reset (POR);

- Turn the power supply off
- Wait for 10s
- Turn the power supply back on
- Observe LEDs status.

Under normal operation;

- The red Red3 LED blinks to confirm that the microprocessor is running.
- The yellow Yel3 LED comes on to confirm outputs are enabled.
- The green Grn3 LED comes on during power up and turns off during normal operation. It will also flash once when a new value has been written in to EEPROM..

When re-powering; ensure the lift is off for 10 seconds before turning back on.
On power up, a delay of approximately 2 seconds is given on start up to ensure voltages are stable prior to reading and writing outputs.

Processor errors/Lockup:

Ensure 0V and 10V AC supply present at board terminal
Try new microprocessor IC.
35V 470uF capacitor damaged.
Crystal damaged.
Lockup may be due to spike/noise. All relays, valves, brakes, door motors etc must be suppressed with an appropriate filter or surge absorber unit to prevent voltage spikes and back emf/noise.

Section

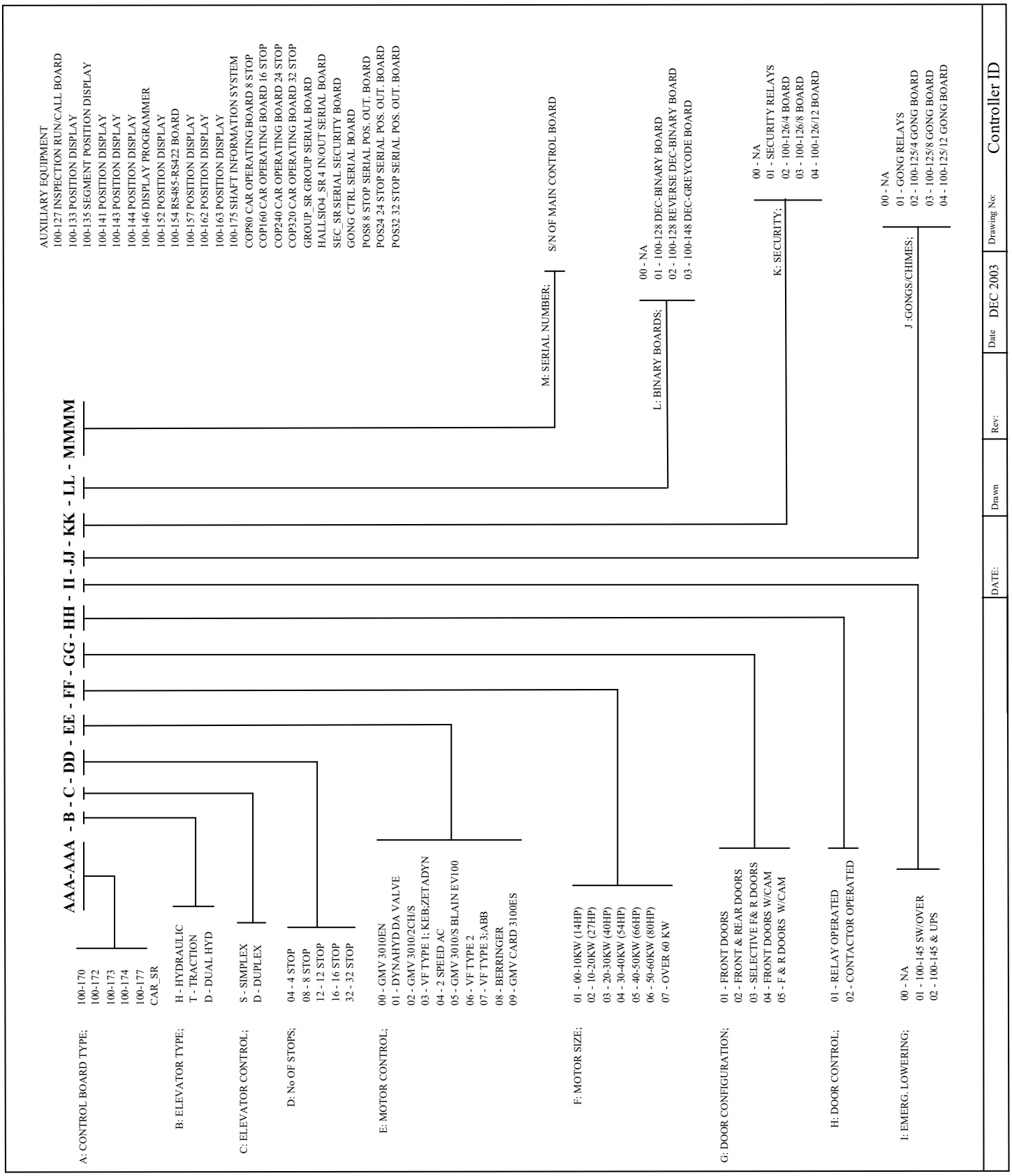
8

Section 8. Upgrades, Changes & Technical Information

Upgrades, changes and modifications

When contacting us please have the board's part number (printed in white on PCB), software version and software build date (see Section 5).

Controller ID.



Terminal Screw Torque Settings.

TIGHTENING TORQUES FOR 3 POLE CONTACTORS

TYPE	CONTACTOR TERMINAL SCREW SIZE	TORQUE (Nm)	TORQUE (Ft-lbs)
GMC-9	M4	2.3	1.7
GMC-12	M4	2.3	1.7
GMC-18	M4	4.0	3.0
GMC-22	M4	4.0	3.0
GMC-32	M5	4.0	3.0
GMC-40	M5	4.0	3.0
GMC-50	M6	5.0	3.7
GMC-65	M8	5.0	3.7
GMC-75	M8	5.0	3.7
GMC-85	M8	5.0	3.7
GMC-100	M8	9.0	6.6

TIGHTENING TORQUES FOR THERMAL OVERLOADS

TYPE	TERMINAL SCREW SIZE	TORQUE (Nm)	TORQUE (Ft-lbs)
GTK-22	M4	2.3	1.7
GTK-40	M4	4.0	3.0
GTK-85 (28-40A)	M6-M8	5.1	3.8

TIGHTENING TORQUES FOR MODULAR SCREW TERMINALS

TYPE	TERMINAL SCREW SIZE	TORQUE (Nm)	TORQUE (Ft-lbs)
2.5mm	M2.5	0.4 - 0.6	0.30 - 0.44
4.0mm	M3	0.5 - 0.7	0.37 - 0.52
10.0mm	M5	2.0 - 2.5	1.48 - 1.84
16.0mm	M6	2.5 - 3.0	1.84 - 2.21
35.0mm	M8	6.0 - 10.0	4.00 - 7.38
75.0mm	M8	6.0 - 10.0	4.00 - 7.38

ELECTRONIC CIRCUIT DESIGNS PTY. LTD.

Operation Guide

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