International
Lift Equipment

Technical manual for the ILE positioning device

Issue 3 – 05/12/2023 - Last technical change 21/11/2000

WE RESERVE THE RIGHT TO ALTER WITHOUT GIVING PRIOR NOTICE TECHNICAL DATA, DIMENSIONS AND WEIGHTS DESCRIBED IN THIS MANUAL

LONDON OFFICE
DNL House
17 Hickman Avenue
London E4 9JG
0208 527 9669

LEICESTER OFFICE
Unit 3, Wanlip Road
Syston, Leicester
LE7 1PD
0116 269 0900

KEIGHLEY OFFICE
Aireworth Distribution Centre
Aireworth Road, Keighley
West Yorkshire BD21 4DW
01535 609 311

ileweb.com

Contents

1) Introduction

The ILE positioning device is a dedicated high performance system optimised to provide accurate, repeatable position and switching signals to lift control systems.
The position is determined using an overspeed governor mounted encoder with correction magnets at each floor to allow continuous self-diagnostics.

Outputs are in the form of a “Virtual Tapehead system” to provide an easy to understand interface to lift controllers. Extra outputs provided contribute to optimum performance by using solid-state devices to connect direct to drives. These outputs provide repeatable switching times of just a few microseconds.
Serial communications is also available for connection to lift controllers and drives.

When used with an external battery and charger, can provide a position for fire fighting and hand winding using the ILE hand operation positional indicator.

2) Operation

Position Sensing

Position sensing is achieved by counting the pulses from an encoder, normally mounted on the overspeed governor. Direction is determined by comparing the A & B channels.

Correction magnets

Magnets are mounted at each floor. They are used during the learning run to determine the number and position of floors. During normal operation they are used to continually monitor the lift position to compensate for external factors i.e. rope slip etc.

Modes

There are 2 modes of operation, **standby mode** and **normal mode**.

Normal mode provides the correct switching points for normal lift operation.

Standby mode is used if the positioning device has not been commissioned or if the exact position is not known, for example after power has been restored on a none battery backed system, where the lift has not yet moved to the reset floor. Standby mode provides timed a px signal when movement is detected, to allow running between terminal floors prior to an during a learning run. Standby mode is also used to run to a reset floor and for movement on inspection control.

Reset after power up

The positioning device can be used both with and without battery backup. When operating without battery backup and the device is switched off during normal operation, it must be returned to the correction point magnet which is within the RSD zone. This is necessary because the lift may have been moved without power.

Battery operation

Battery operation is provided to allow the following:-

Fire fighting position to be sent to the lift controller in order to provide an accurate position in the event of power failure.

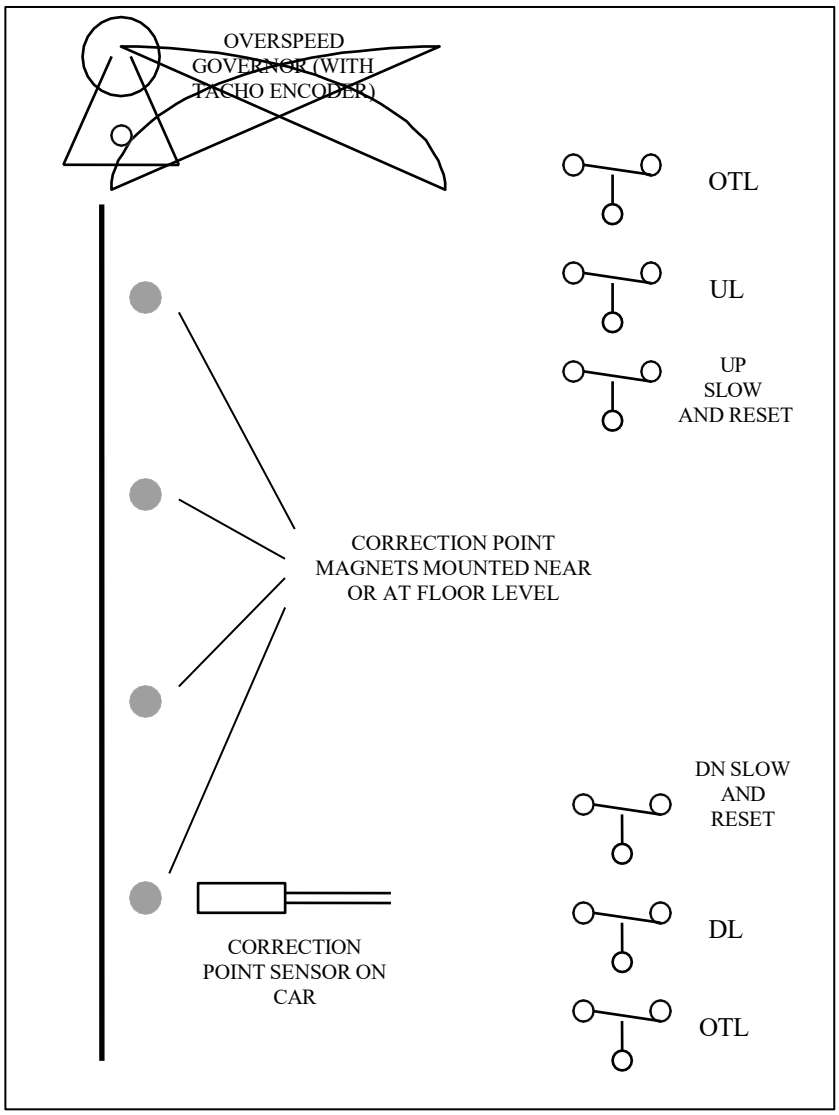
Outputs to allow a hand operation position indicator to display the position of the lift during handwinding / lowering operation.

3) Installation instructions

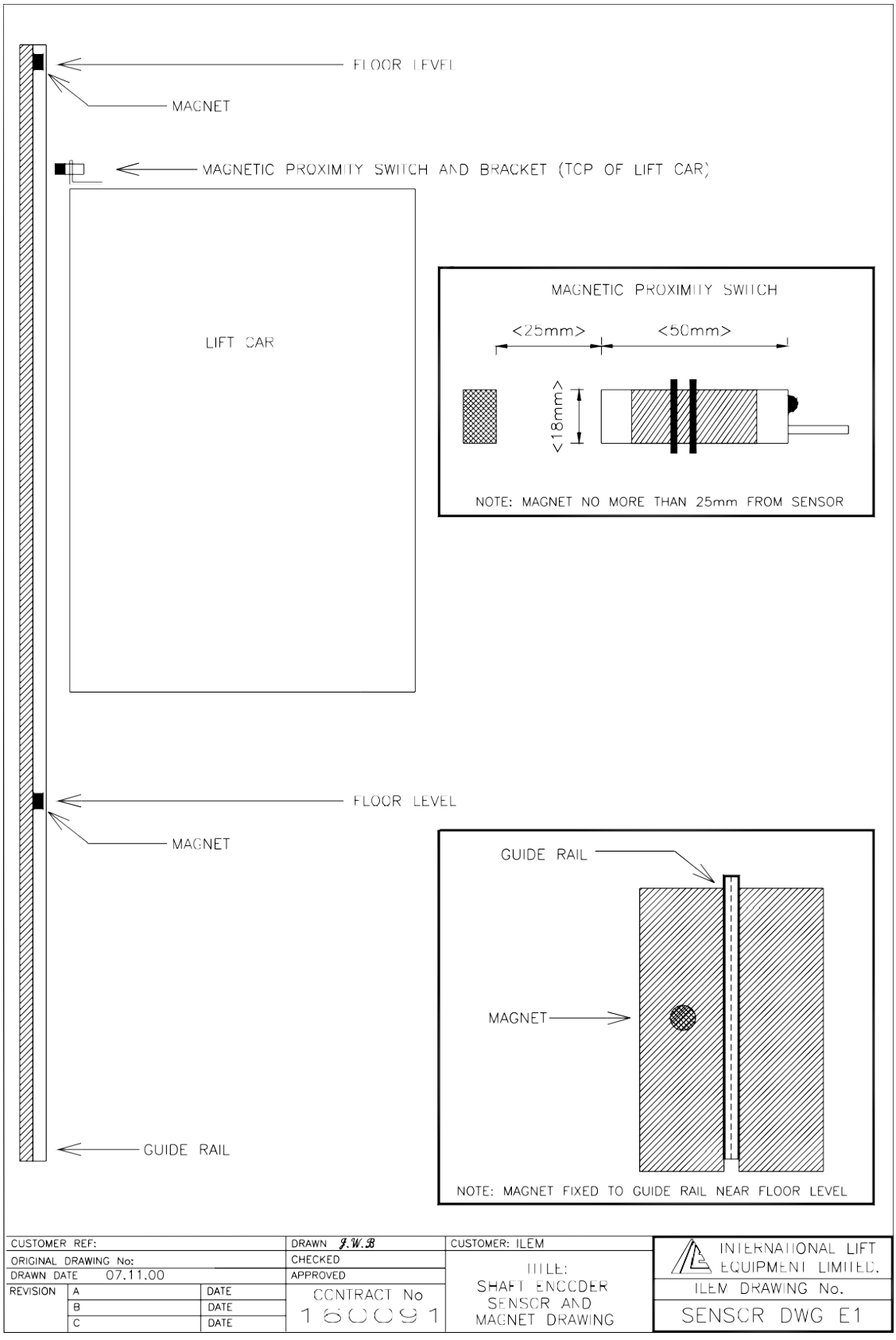
Tacho wires should be twisted pairs and if possible correction point wiring also.

Ensure that the lift can only pass one correction point whilst the bottom reset (RSD) is on.

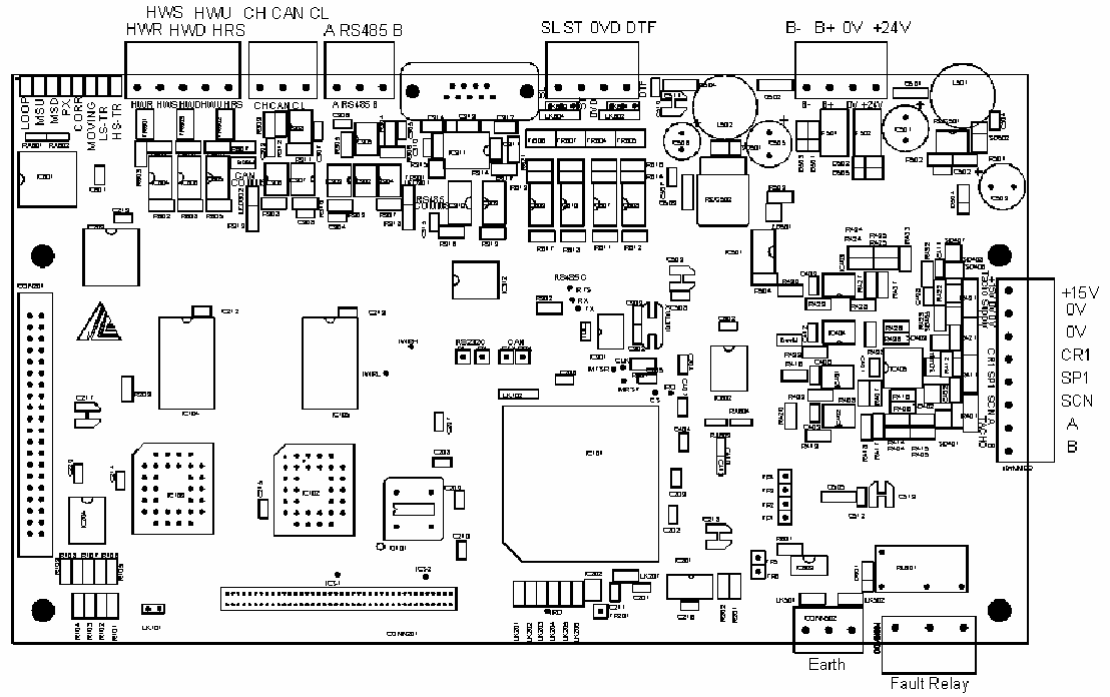
Correction point magnets should be mounted near or at floor level.



The correction point proximity switch should be mounted on the car with the distance from the magnets as shown below:-

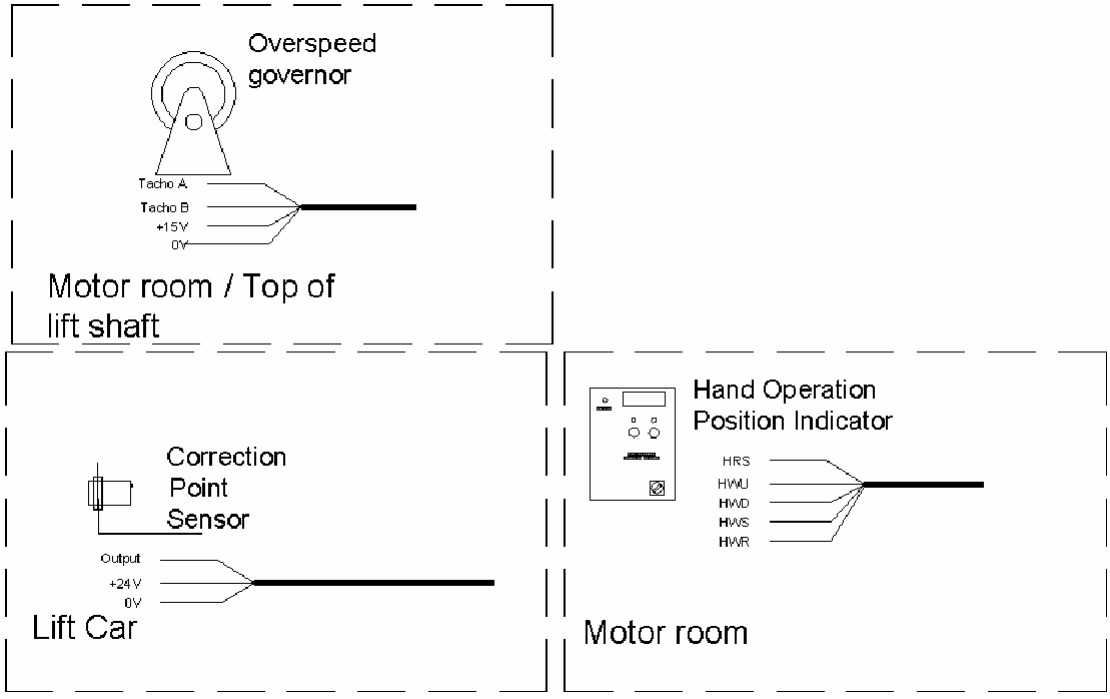


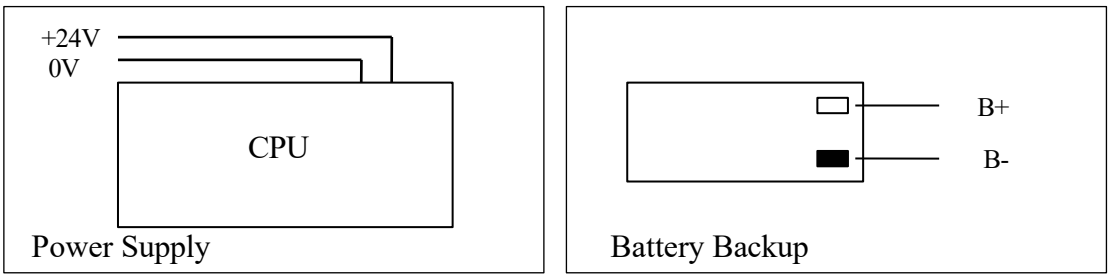
4) Micro Processor Board Connections

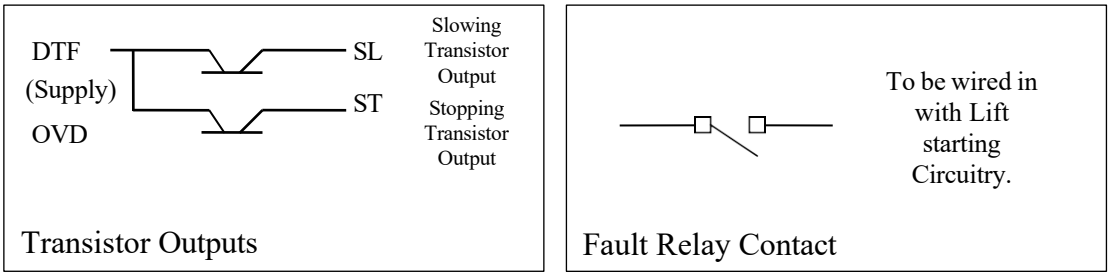


HWD, HWU, HRS	Outputs to hand operation positional indicator
HWR, HWS	External supply for Handwind outputs.
CAN CH, CL	Can communication port
RS485A, B	RS485 communications for drives.
SL, ST	Solid state speed outputs to drive.(SL=SLOW, ST=STOP)
0VD, DTF	External supply for drive outputs.
B+, B-	Backup Battery connections
0V, +24V	Power supply input
+15, 0V	Supply for tacho.
CR1	Correction point sensor input.
SP1	Spare sensor input.
A, B	Tacho connections
FAULT	Fault relay contact

5) Interface Connection Diagrams







IP1	-	HSR
IP2	-	HSR2
IP3	-	HSR3
IP4	-	STR
IP5	-	UPR
IP6	-	DNR
IP7	-	NOT USED
IP8	-	RSD

Auxiliary Board Inputs

OP1	-	PX
OP2	-	MSU
OP3	-	MSD
OP4	-	STOP
OP5	-	SLOW
OP6	-	HS1
OP7	-	HS2
OP8	-	HS3

Auxiliary Board Outputs

6) LED Indication

LOOP	Indicates CPU activity
MSU	Lights when within the msu zone
MSD	Lights when within the msd zone
PX	Lights when within the px zone
CORR	Lights when on a correction point
MOVING	Lights when movement has been detected
LS-TR	Lights when the low speed/stop output is on.
HS-TR	Lights when the high speed/slow output is on.
CAN Comms	Lights to indicate CAN communication activity.
RS485 Comms	Lights to indicate RS485 communication activity.

7) Set-up procedure
(Refer to hyper terminal set up for PC commands)

Learning mode

All movement during a learning run is to be at reduced speed.

Prior to commencing the learning run, the lift should be able to run between terminal floors at reduced speed, stopping on the terminal limits. The encoder will provide PX signals while moving to prevent double journey.

Lift to be positioned at the bottom floor on the down terminal(stopping limit) and whilst below the bottom floor correction point magnet. The RSD limit switch should also be activated.

While the lift is moving on the learning run the encoder will provide PX signals while moving, to prevent double journey.
Enter a top floor call, the lift will run to the top and stop on the terminal limit, just above the top floor correction point magnet and the RSU limit switch should also be activated.
Enter a bottom floor call, the lift will run to the bottom and stop on the terminal limit.

The encoder will present a map of floors to ensure a correct learning run has been carried out.

Setting stopping and slowing distances.

At a non-terminal floor (datum floor), and at reduced speed, adjust for correct floor level using the default stopping distance and floor level adjustment only.

At all other floors adjust the floor level, and (if needed) the stopping distances for that floor only to set each floors level.

At the datum floor increase the speed to contract speed and set all slowing distances to achieve the desired levelling distance.

At all other floors adjust the slowing distances for that floor only (if needed).

8) Technical Data

Power Supply

24V dc	200mA
12V Battery	350mA

Tacho power supply

15V dc / 12v on battery operation.	60mA

Inputs (main Board)

Tacho A+B	10 to 30V D.C.
Correction point + spare	10 to 30V D.C.

Inputs (extension board)

RSU, RSD, UP, DN, Speed1, 2, 3, STR	24V Negative Switched

Outputs (main Board)

Solid state outputs for drives, selectable as NPN or PNP.
Fault relay.
Interface to ILE Hand operation position indicator

Outputs (extension board)

PX, MSU, MSD, HS1, HS2, HS3, STOP, SLOW (Volt free Contacts)

Communications Ports

RS232
CAN(Controller Area Network)
RS485

Misc

Maximum system speed	3.5 m/S
System levelling accuracy	±1mm
Max encoder P.R.F.(pulse repetition frequency)	40µS

9) Dimensions