

Generic “good practice guide” for the installation and commissioning of LCSL control systems.

This information sheet is designed to assist engineers in the installation of control systems and associated equipment.

For EMC conformity, adherence to current IEEE regulations should be made with respect to mains wiring, hoist motor wiring and screening.

1. A suitably rated SY type cable (not armoured) should be provided between the Mains supply Isolator and the mains supply connections within the control panel AND the controller mains terminals and the hoist motor.

2. The outer screen of the SY cable should be connected to earth at BOTH ends with suitable clamp.

Pic 1, typical SY type cable.



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3. High voltage cables such as mains / hoist motor wiring should be short and segregated from other cables. The exposed motor wire tails should also be kept to a minimum.

4. The main incoming earth cable for the controller should be of good condition to satisfy the current IEEE regulations and should not rely on earth bonding via metal trunking or tubing.

5. If a motor encoder is to be used, then consideration should be made to the installation of the encoder and its wiring. The encoder should be installed mechanically correctly, that is free from “oscillation” as this will affect the operation and working life of the encoder bearings etc.

The encoder is a highly sensitive electrical device, and its cable should be kept away from the motor mains cable and run in separate conduit or cable tray if possible. If using a Magnetek inverter, the operating voltage of the encoder should be checked and the voltage selector jumper pin within the inverter moved to suit. If a Zeihl Abegg 4C inverter has been supplied refer to sections 5.10 for electrical installation and & 5.17 for the encoder installation of the manual.

If an Invertek inverter has been supplied refer to section 8 page 23 of the manual.

6. When LCSL HDI - TFT - TC3 indicator / hall lantern displays are supplied, the following should be noted:

A suitable two twisted pair screened cable of not less than 0.5 mm should be provided and its route should be segregated from other cables. If there are more than eight (8) floors then we recommend “ring maining” the indicator supply (nominally PI+, PI-) please refer to the specific site wiring diagrams as VIC or VIC-SP car top interface boards may have been supplied.

7. Please refer to manufactures manual /data sheets for installation / wiring requirements if indicators / other signalisation systems are supplied by alternative suppliers.

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FURTHER INFORMATION FOR LESTER CONTROL SYSTEMS PANELS.

LCSL colour code the controller wiring to aid fault finding and voltage recognition as below;

- a) **RED**, is used for mains (nominally 3ph-415 vac), motor, inverter output etc.
 - b) **GREY**, is used for LCSL control voltage (110vac), safety circuit etc.
 - c) **BLACK**, is used as a common (0v to earth) for the 110vac control voltage and 12/24v indicator return 0v.
 - d) **PURPLE**, is used for 12-24vdc (call acceptances, position outputs).
 - E) **BROWN + BLUE**, is used for 240vac single ph wiring (door gear supply, cooling fans etc)
 - F) **WHITE**, is used for low or volt free application, such as inverter signals, BMS, Motor Thermistors.
 - G) **ORANGE**, is used for the 18-vac output from the CPU transformer on Almega 2.
 - H) **PINK** is used for the 28-vac output from the CPU transformer on Almega 2.
 - I) **GREEN** is use for the 18vac CPU wiring on Almega 1 & MP2G Processors.
- MAINS & MOTOR CABLE SIZING**; for guidance only, if in doubt consult an electrical consultant.

Motor Cable Sizing (with Magnetek HPV1000 Inverters as of 14/08/2019)								
Inverter kW	Motor FLC	Cable Size	Hydraulic S/D			Hydraulic D.O.L		
			FLC	Cable Size	FLC	Cable Size		
4 kw	15A	4mm	6 kw	9.5A	4mm	6kw	16A	4mm
5.5kw	20A	4mm	8.5 kw	13A	4mm	8.5kw	22.5	4mm
7.5kw	26A	6mm	12kw	15A	6mm	12kw	25.5	6mm
11kw	34A	6mm	16kw	19A	6mm	16kw	33A	10mm
15kw	43A	10mm	20kw	25A	10mm			
18.5kw	51A	10mm	28kw	35A	10mm			
22kw	65A	10mm	33kw	42A	16mm			
30kw	66A	16mm						

to transpose kW to HP, divide by 0.747
to transpose HP to kW, multiply by 0.747

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