



Installation and setting  
instructions

## **UL16 - 16 SEGMENT DISPLAY SERIAL SYSTEM**

**Publication Number: II038/0698**

**Part Number: 002066 - 000038**

### Important

These instructions must remain with the product to ensure correct installation. If extra copies are required please contact Dewhurst plc and quote publication number and issue.

If you have any problems or questions, please contact our technical support desk direct on +44(0)20 8607 7322/7383 during office hours.

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## CAUTION

1. **SWITCH OFF** the mains supply before any installation, maintenance or repair work is carried out.
2. **DO NOT** work on live equipment unless it is essential to do so, in which case extreme care must be taken to avoid electrical shocks, including the use of rubber mats.
3. Installation, maintenance or repair must only be carried out by a competent person who is trained on this equipment.
4. Replace all covers on completion of work and ensure the unit is safe for installation and use.

## EMC NOTE

This component is considered to be benign. Its effect on a system is dependent upon the type of load switched and the suppression fitted. Suppression devices must NOT be wired across the contact in safety circuits.

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## INTRODUCTION

Welcome to the Dewhurst display serial system. The aim of the Dewhurst system is to provide the maximum amount of lift display and status information from the minimum of wiring. To achieve this, most of the indicator functions usually seen in a lift installation can now be controlled via the Dewhurst UL16 display unit over a serial link. The functions available can be seen in Figure 4.

Control of the functions supported by the system is achieved with a combination of components, these are: an encoder unit, landing/car display units and a power source, which must be  $24V \pm 10\%$  d.c. smoothed d.c.

The encoder unit inputs may be one per floor, binary or gray code (with  $\emptyset$  or 1 starting code).

The serial link, shown in Figure 1 comprises a twisted pair and two power cables, rated for a maximum current of 0.35A per display. The current rating of the power cables in the lift well shall be determined by the installer taking into account the number of displays and the necessity to keep full load volt-drop less than 5%.

Spurs from the lift well wiring, shown in Figure 2 can be achieved with a multi-way terminal block, IDC connector or spliced using crimp connections. The method chosen shall be determined by the installer.

Connections between the UL16 and the spur are via WAGO cage clamp plug and socket connectors supplied with the UL16.

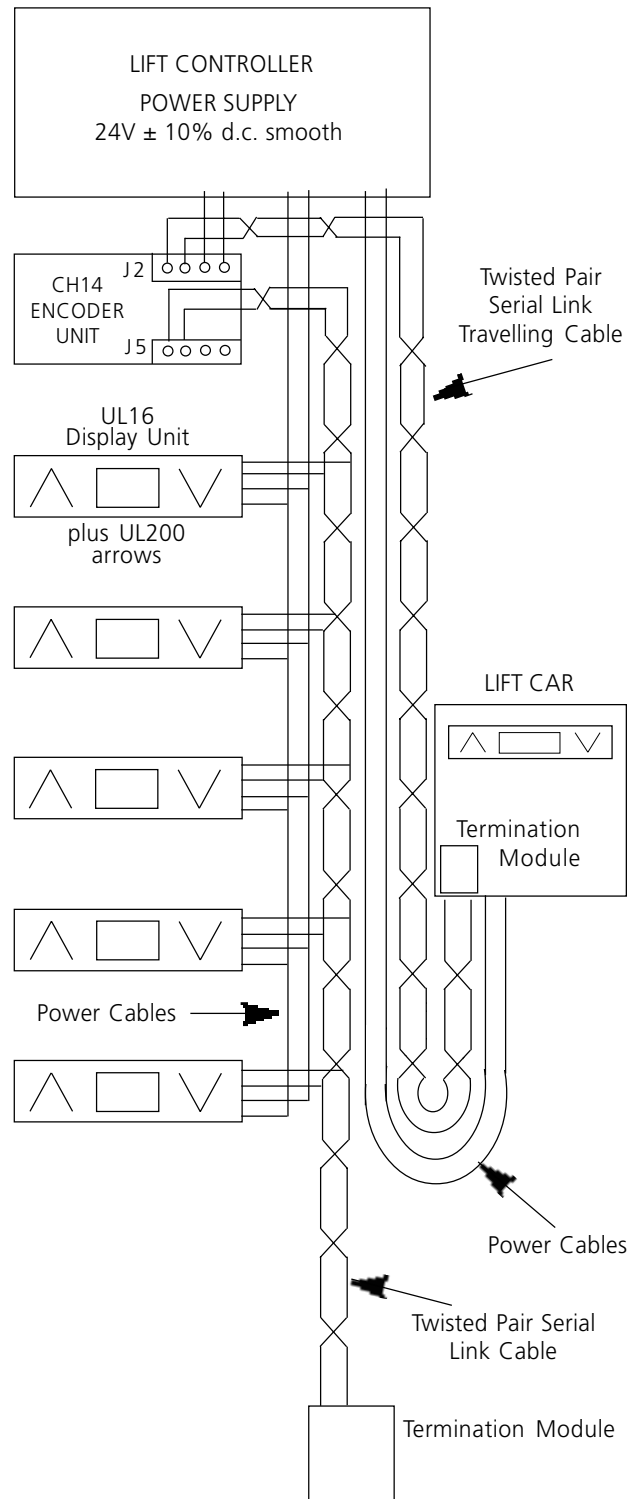
The remote ends of the serial link must each be terminated with a Dewhurst cable termination module, part number 002066-410000.

One termination module must be fitted at the furthestmost point from the encoder unit, the bottom/top floor, the other must be fitted at the lift car.

Connections to the local functional units, such as direction arrows, hall lanterns and hidden legends are via a Wago Cage Clamp terminal block at the UL16 PCB end and 0.25" Faston crimps at the remote end using 0.5mm<sup>2</sup> insulated cables.

Connections to Dewhurst CJ30 chimes are via UL16 Relay Interface PCB Assemblies, Part Number 002066-621300.

**FIGURE 1 - System Overview**

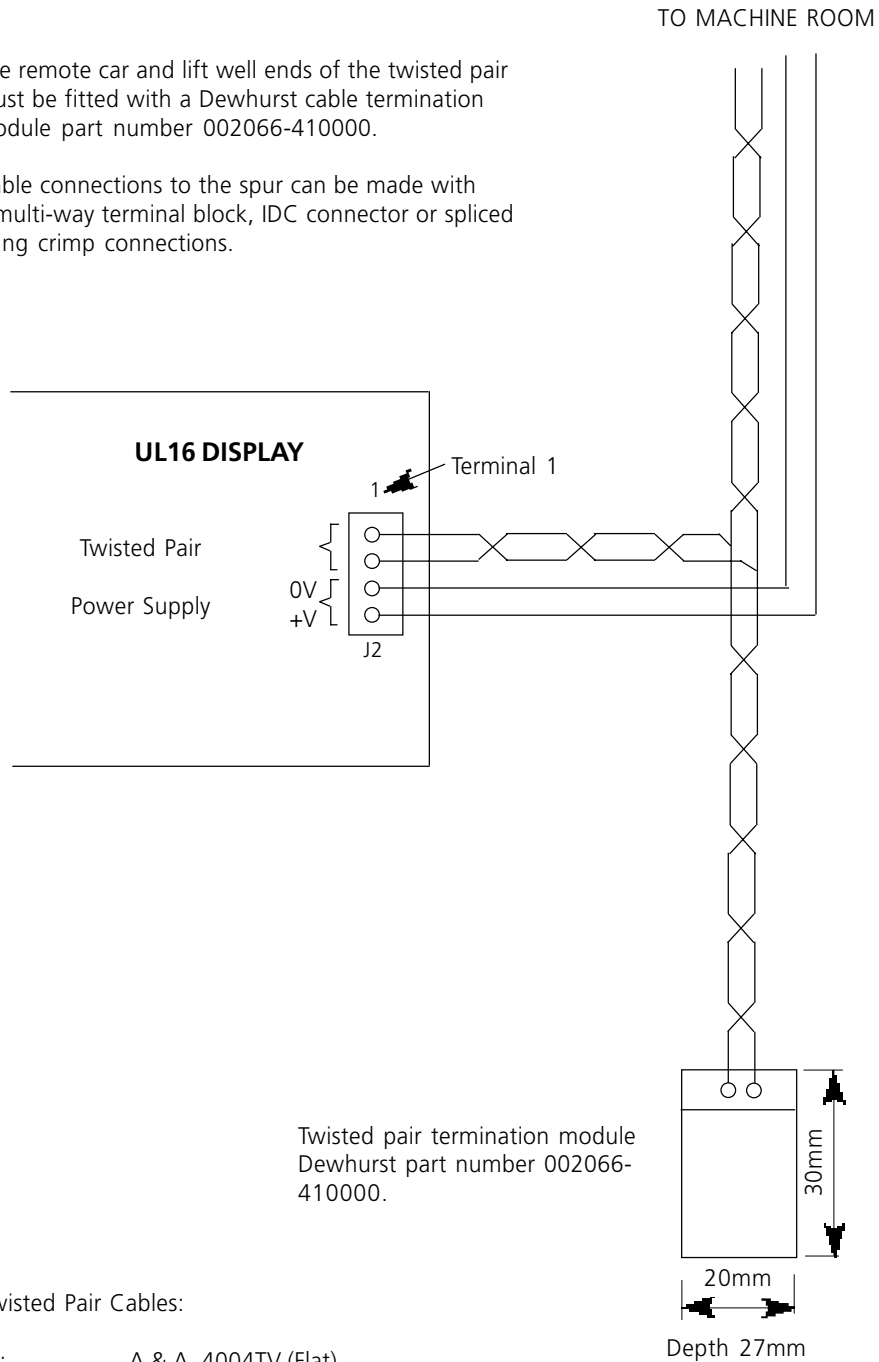


**NOTES:** A maximum of 63 displays (car + landing) may be connected to the twisted pair Serial Link cables originating from one CH14 Encoder.

**FIGURE 2 - Spur Wiring Connection Detail**

**NOTE:**

1. The remote car and lift well ends of the twisted pair must be fitted with a Dewhurst cable termination module part number 002066-410000.
2. Cable connections to the spur can be made with a multi-way terminal block, IDC connector or spliced using crimp connections.



Application of Twisted Pair Cables:

Travelling Cables:	A & A, 4004TV (Flat)	
	A & A, 7004 RT (Round)	
Lift Well Cable (20 AWG): & Spur Wiring	Beldon 8205 (stranded)	RS822-888
Spur Connectors: (2-per display)	Terminal Shroud Kit (max 2.5mm <sup>2</sup> )	RS234-4649

RS Trade Counters

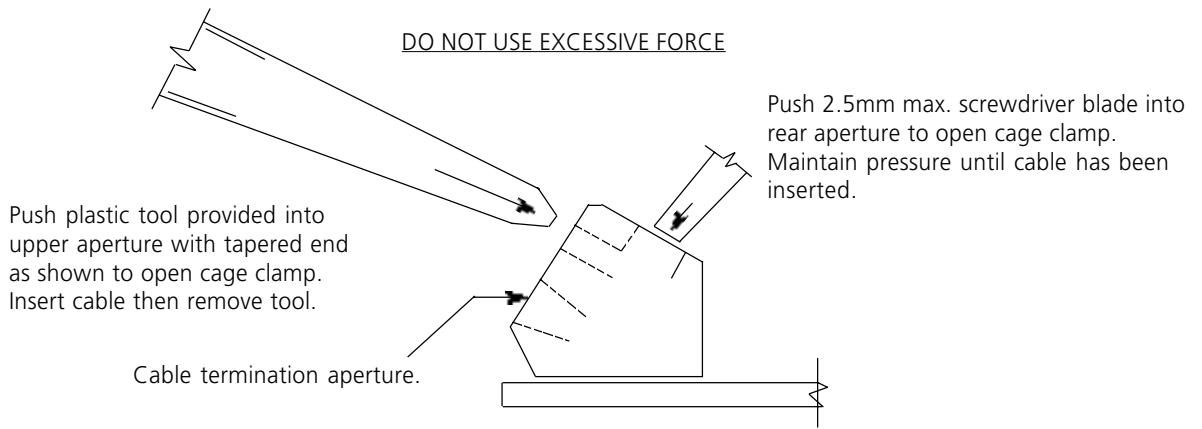
**NOTES:**

Screened cables are not recommended for lift well and spur wiring.

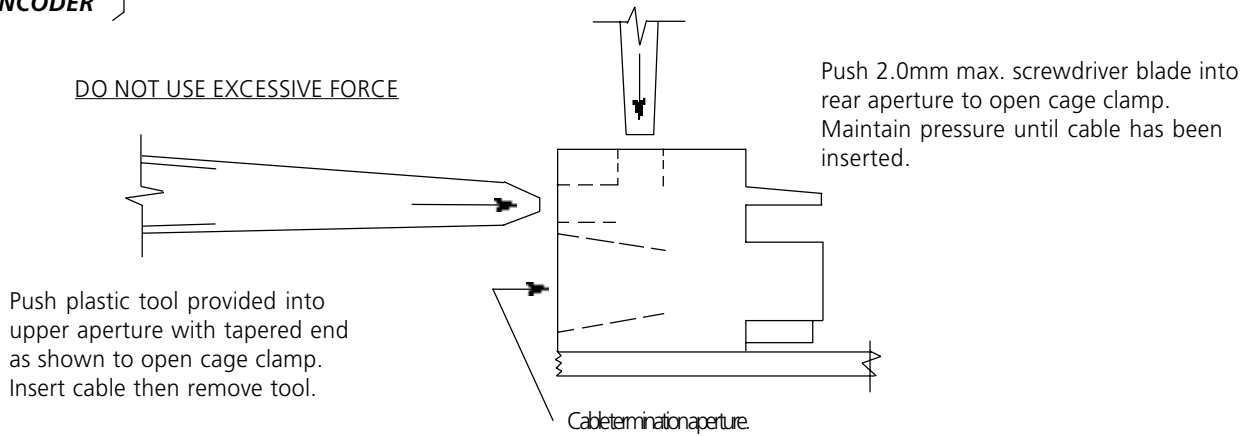
All necessary earthing should be implemented by means of a separate earth conductor cable.

**FIGURE 3 - Use of Tools with WAGO Cage Clamp Terminals**

**UL16 DISPLAY - CONTROL TERMINAL BLOCK**



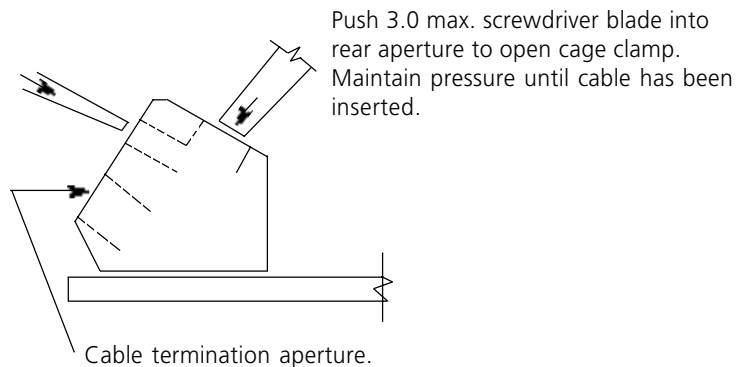
**UL16 DISPLAY } - Power/Serial Link Plug-in Terminal Block(s)**  
**CH14 ENCODER }**



**CH14 ENCODER - Control Terminal Blocks**

- 1) DO NOT USE EXCESSIVE FORCE
- 2) DO NOT USE PLASTIC TOOL PROVIDED
- 3) SUPPORT TERMINAL BLOCK WHILST APPLYING PRESSURE

Push 3.0mm max. screwdriver blade into upper aperture to open cage clamp. Insert cable then remove screwdriver.



## UL16 DISPLAY UNIT

The UL16 Display Unit, when combined with a CH14 Serial Encoder Unit provides operation for all lift auxiliary functions usually provided on a landing or in a lift car.

The auxiliaries provided for are: floor identification, messages, up, down arrows, three hidden legend outputs, up, down hall lantern and chime outputs. For the car unit, passing chimes are provided.

Floor identification is presented on a 1 or 2 character, 56mm high, 16 segment display. The display also shows messages by moving the characters from right to left - up to 8 messages can be provided for.

All this is controlled via a serial twisted pair link and powered by a 24V d.c. smooth supply.

Connection of the auxiliary functions are via WAGO cage clamp connectors. The connectors can be actuated with a tool provided with the CH14 Encoder or with a small screw driver.

## SERVICE & REPAIR

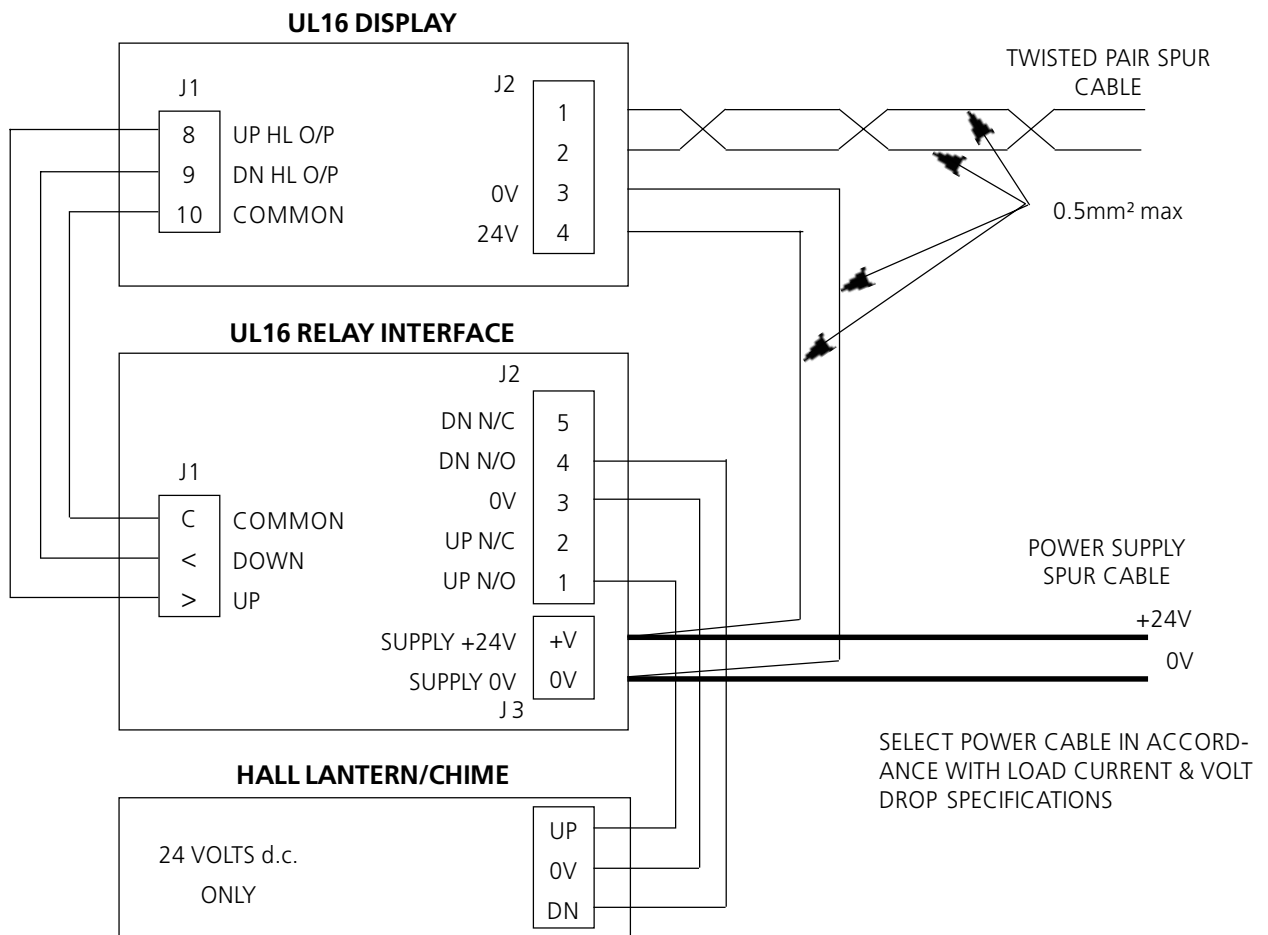
Each unit has a label attached printed with the original order number. This number must be quoted if a replacement or repair is required. This enables us to configure the unit with the correct message text and floor display information.

## INSTALLATION OF UL16 DISPLAYS FOR USE WITH HALL LANTERNS AND CHIMES

When UL16 Display Units are required to actuate incandescent hall lanterns and chimes with load currents greater than 150mA continuous, 300mA peak. It is necessary to install an intermediate UL16 Relay Interface PCB Assembly, Dewhurst Part No. 002066-621300, within each display assembly. The relay interface is designed to electrically isolate the switching transients of the hall lanterns and chimes from the UL16 display electronics.

The UL16 Relay Interface associated with each UL16 Display Unit is wired as shown in the diagram below. It should also be noted that the system power supply must be 24V d.c. smoothed. The associated hall lanterns and chimes must also operate at this voltage.

The power supply spur cables must be connected to the larger terminals on the relay interface and loop to the power terminals on the UL16 Display as shown.



For chimes and hall lanterns to operate only at the current lift position, the UL16 displays must be configured to only produce these output signals when the lift car position coincides with the floor location of the UL16 display. This is achieved by logically comparing lift car position with the UL16 display position held in memory.

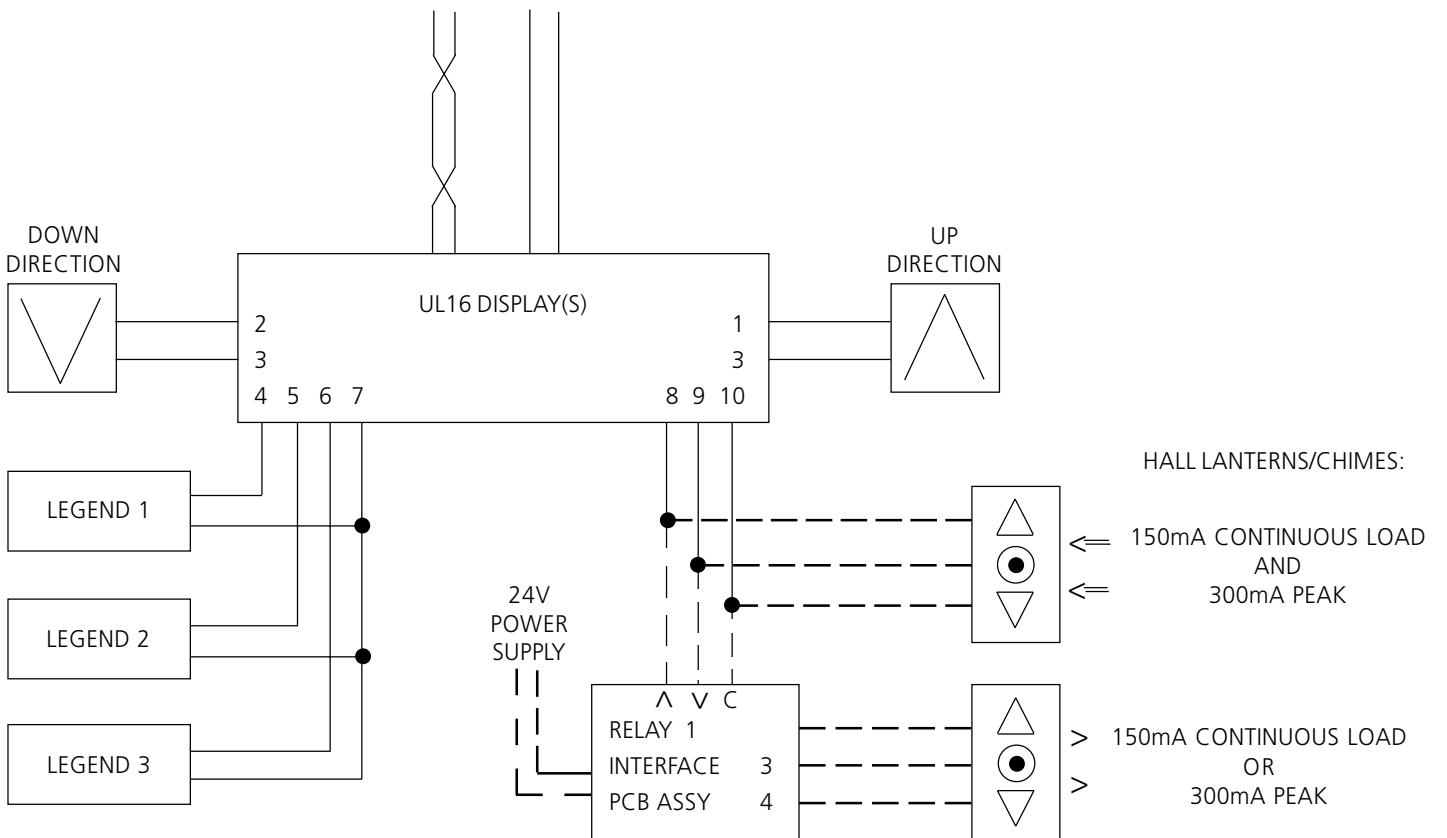
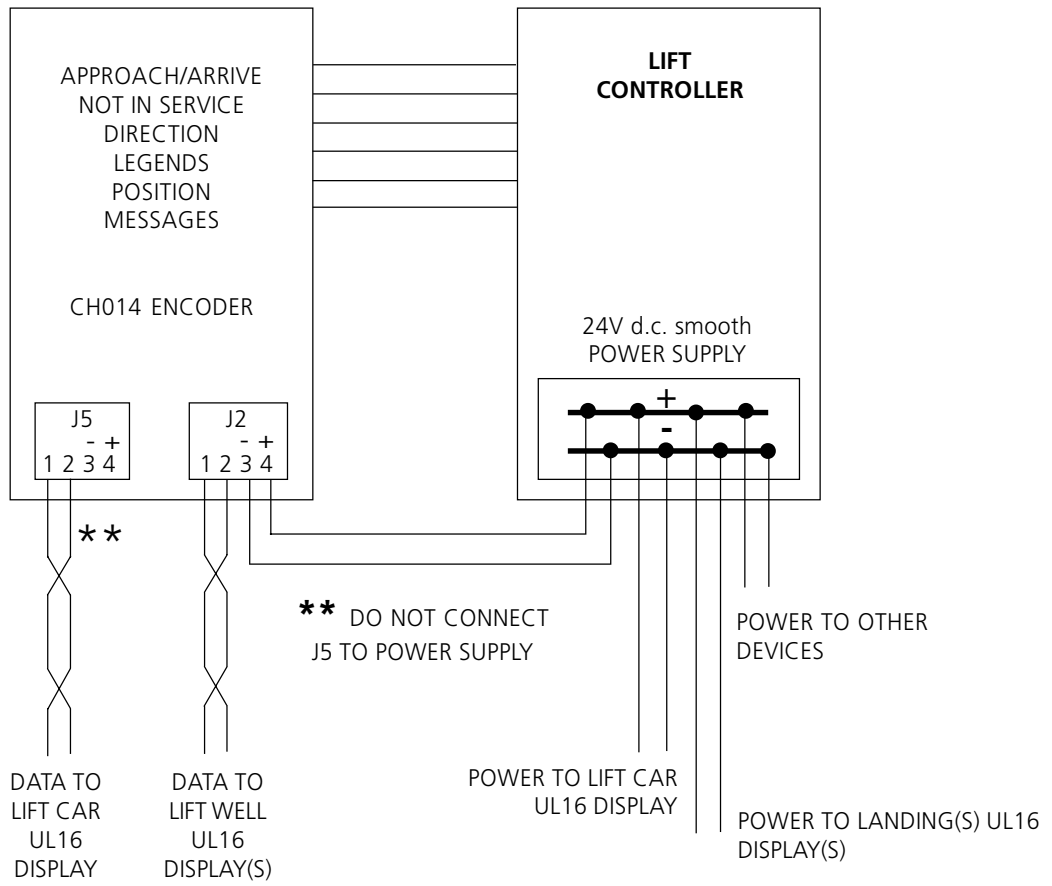
To configure a UL16 display for its installed floor, the CH14 Encoder must initially be put into INSTALL mode. This is achieved by temporarily removing and insulating any wiring in control input terminal 10 (NIS) and Message Input Terminal 8. Temporarily add flying leads in each of the above mentioned terminals and connect them to the 12V to 24V a.c./d.c. lift controller power supply feeding the position signals etc. Pressing the RESET button on the CH014 Encoder will now place it in INSTALL mode.

In order to allocate each UL16 display to its installed floor, move the lift car to each UL16 display installed floor in turn, pressing the SERVICE button on the UL16 display(s) at that floor. The UL16 display will logically allocate its floor position in its memory and will then only actuate its hall lantern and chime when lift car position matches the UL16 display installed floor.

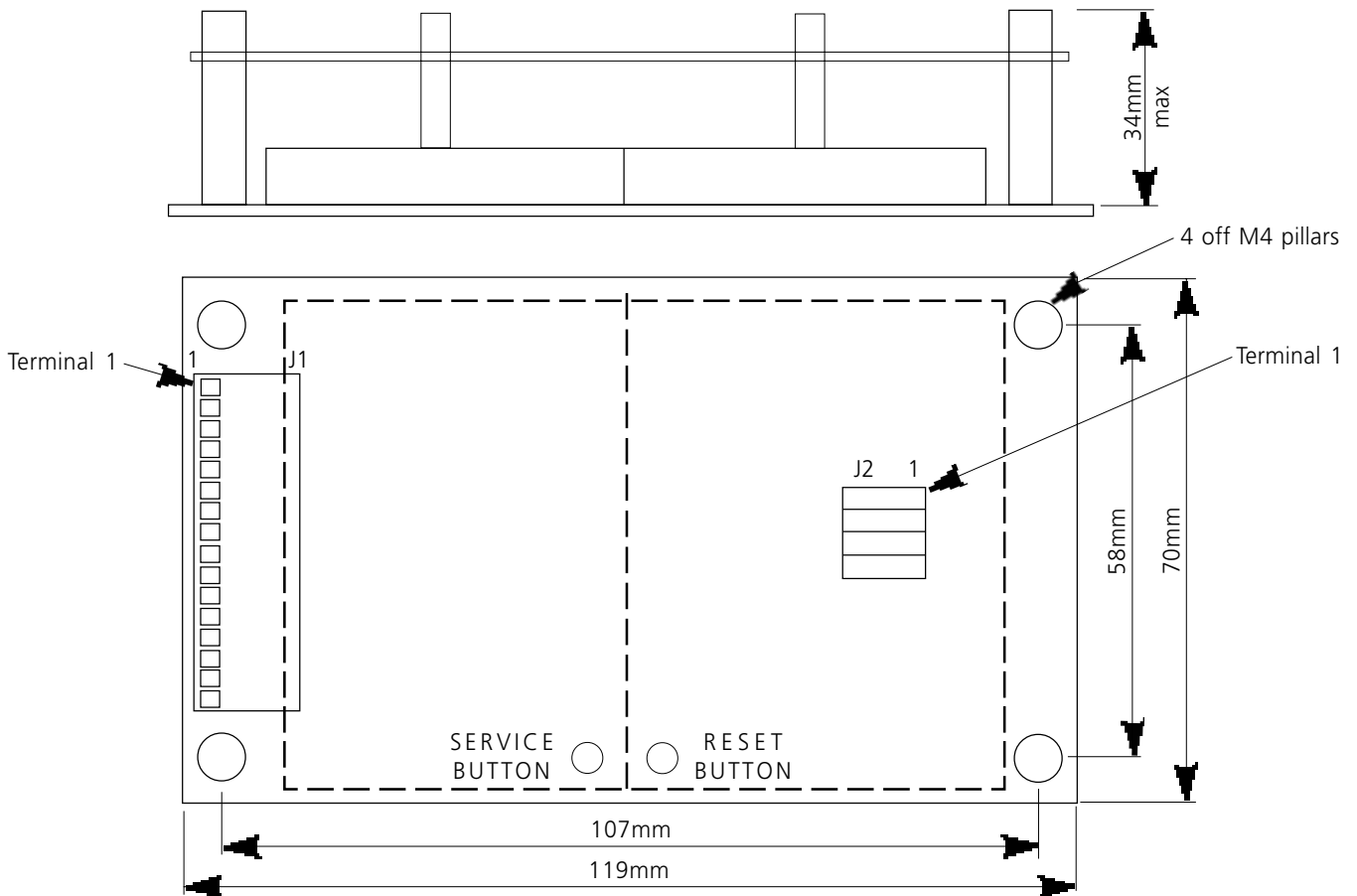
To remove floor configuration from a UL16 display, press and hold its SERVICE button then press and release the RESET button. After 5 seconds release the SERVICE button.

When all UL16 displays have been configured, remove the CH14 from INSTALL mode by removing the temporary connections from control input 10 (NIS) and message input 8 terminals. Replace any previously removed wiring in these same terminals. Press the RESET button on the CH14 encoder, which will now actuate normally.

**FIGURE 4 - 16 Segment Display Serial System Functional Connections**



**FIGURE 5 - Display Unit UL16**



**J1  
WIRING DETAIL**

Terminal	Function	
1	UP DIRECTION ARROW LEDES	O/P
2	DOWN DIRECTION ARROW LEDES	O/P
3	COMMON	
4	LEGEND 1	O/P
5	LEGEND 2	O/P
6	LEGEND 3	O/P
7	COMMON	
8	UP HALL LANTERN/CHIME*	O/P
9	DOWN HALL LANTERN/CHIME*	O/P
10	COMMON*	
11	RESERVED	O/P
12	RESERVED	I/P
13	RESERVED	O/P
14	RESERVED	I/P
15	RESERVED	O/P
16	RESERVED	I/P
17	COMMON	

**J2  
WIRING DETAIL**

Terminal	Function
1	TWISTED PAIR WIRE
2	TWISTED PAIR WIRE
3	COMMON (OV) POWER
4	24V d.c. SMOOTH, INPUT

**CABLE SPECIFICATION**

DATA CABLE: Twisted pair  
 LIFT CAR 0.5mm<sup>2</sup> screened  
 LIFT WELL 0.5mm<sup>2</sup> unscreened

POWER CABLE:  
 LIFT CAR 0.5mm<sup>2</sup>  
 LIFTWELL SPURS ONLY 0.5mm<sup>2</sup>

VERTICAL DROP - Select in accordance with load current and volt drop specifications

\* It may be necessary to connect a UL16 relay interface (002016-621300) to these terminals when hall lanterns/chimes are used. See Page 5.

## **CH14 SERIAL ENCODER UNIT**

The CH14 Serial Encoder Unit is wired to the lift controller position and control signal outputs (12V to 24V a.c./d.c.). The CH14 uses these signals to generate the character pattern and floor function controls which are then transmitted over a serial twisted pair link to the UL16 Display Units, on the landings or in the lift car.

In addition there are message inputs which can provide for up to 8 messages which move across the display. These are prioritised, so that the least significant input will override any higher inputs.

The status of the inputs for each connector can be examined by pushing the STATUS button, see Figure 7. An LED next to the connectors will illuminate to indicate that the status LED's represent which inputs are 'ON' for that connector.

Pushing the STATUS button repeatedly will illuminate the STATUS LED's to show:

Once	-	Control inputs which are ON
Twice	-	Message inputs which are ON
Third	-	Position inputs which are ON
Fourth	-	Scanning ON, functioning correctly

## **SERVICE AND REPAIR**

Each unit has a label attached printed with the original order number. This number must be quoted if a replacement or repair is required. This enables us to configure the unit with the correct message text and floor display information.

## **INSTALLATION OF CH14 ENCODER FOR USE WITH HALL LANTERNS & CHIMES**

For chimes and hall lanterns to operate only at the current lift position, the UL16 displays must be configured to only produce these output signals when the lift car position coincides with the floor location of the UL16 display. This is achieved by logically comparing lift car position with the UL16 display position held in memory.

To configure a UL16 display for its installed floor, the CH14 Encoder must initially be put into INSTALL mode. This is achieved by temporarily removing and insulating any wiring in control input terminal 10 (NIS) and message input terminal 8. Temporarily add flying leads in each of the above mentioned terminals and connect them to the 12V to 24V a.c./d.c. lift controller power supply feeding the position signals etc. Pressing the RESET button on the CH014 encoder will now place it in INSTALL mode.

In order to allocate each UL16 display to its installed floor, move the lift car to each UL16 display installed floor in turn, pressing the SERVICE button on the UL16 display(s) at that floor. The UL16 display will logically allocate its floor position in its memory and will then only actuate its hall lantern and chime when lift car position matches the UL16 display installed floor.

To remove floor configuration from a UL16 display, press and hold its SERVICE button then press and release the RESET button. After 5 seconds release the SERVICE button.

When all UL16 displays have been configured, remove the CH14 from INSTALL mode by removing the temporary connections from control input 10 (NIS) and message input 8 terminals. Replace any previously removed wiring in these same terminals. Press the RESET button on the CH14 encoder, which will now actuate normally.

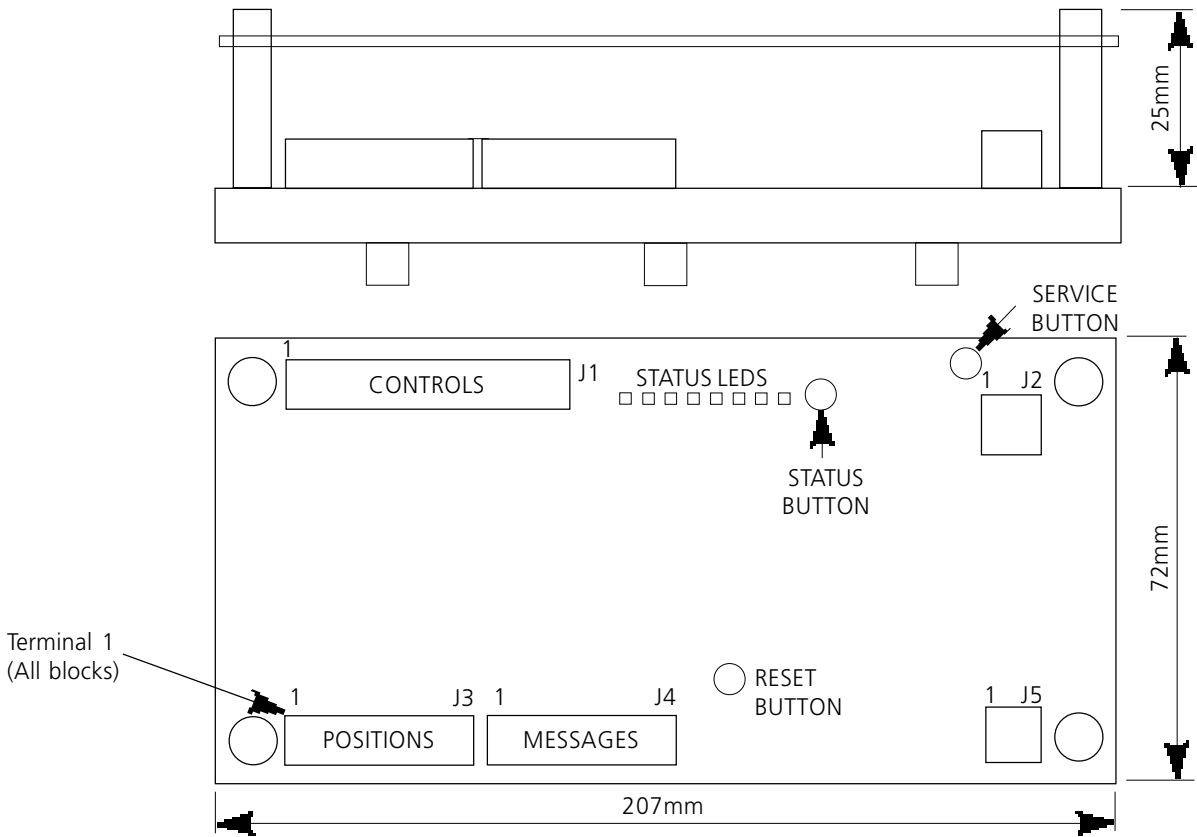
## **APPLICATION OF HALL LANTERN/CHIME INPUTS 8 & 9**

Inputs 8 and 9 can be used separately or in combination to control hall lanterns and chimes at the same time. If independent operation is required, then additional circuitry provided by others will be necessary, connected between each hall lantern/chime and the UL16 Display Unit terminals 8, 9, 11 & 13.

The Approach and Arrive inputs provided actuate as follows:

- Approach (8) AND/OR Arrive (9) ON, with Direction ON
- The UL16 Display Unit at the floor which matches the current lift position will actuate its chime and illuminate the hall lantern for the direction set, while either or both of these inputs are ON.
- Approach (8) AND Arrive (9) OFF (Direction ON or OFF)
- The chime and hall lantern are OFF.

**FIGURE 7 - Encoder Unit CH14**



**J1 WIRING DETAIL**

Terminal	Function	
1	UP DIRECTION	I/P
2	DOWN DIRECTION	I/P
3	COMMON	
4	LEGEND 1	I/P
5	LEGEND 2	I/P
6	LEGEND 3	I/P
7	COMMON	
8	HALL LANTERN/CHIME APPROACH	I/P
9	HALL LANTERN/CHIME ARRIVE	I/P
10	NOT IN SERVICE	I/P
11	COMMON	
12	COMMON	

**J2 + J5 WIRING DETAIL**

Terminal	Function
1	TWISTED PAIR WIRE
2	TWISTED PAIR WIRE
3	COMMON (OV) POWER
4	12 TO 24V d.c. SMOOTH, INPUT

**CABLE SPECIFICATION**

DATA CABLE: Twisted pair (see Page 7)  
 POWER SUPPLY: 0.5mm<sup>2</sup>  
 LOCAL SIGNALS: 0.5mm<sup>2</sup>

**J3 WIRING DETAIL**

Terminal	Function	
1	POSITION INPUT 1	I/P
2	POSITION INPUT 2	I/P
3	POSITION INPUT 3	I/P
4	POSITION INPUT 4	I/P
5	POSITION INPUT 5	I/P
6	POSITION INPUT 6	I/P
7	POSITION INPUT 7	I/P
8	POSITION INPUT 8	I/P
9	COMMON RETURN	

**J4 WIRING DETAIL**

Terminal	Function	
1	MESSAGE INPUT 1	I/P
2	MESSAGE INPUT 2	I/P
3	MESSAGE INPUT 3	I/P
4	MESSAGE INPUT 4	I/P
5	MESSAGE INPUT 5	I/P
6	MESSAGE INPUT 6	I/P
7	MESSAGE INPUT 7	I/P
8	MESSAGE INPUT 8	I/P
9	COMMON RETURN	

POWER SUPPLY: 20mA continuous load.  
 @ 24V d.c. 100 mA peak load.