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Vuolas Electronics Oy Ltd.

PRELIMINARY

Part No.	**LCD240B/W/S**
Description	**Graphic LCD Display Device for Lifts**
Hardware	**5.0**
Documentation	**Rev. 2.1**

DATA

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Introduction

LCD240B/W/S is a graphic LCD display with a resolution of 240 by 128 pixels. The display is optimized for lift applications. It can be assembled either to the car or to the level. It can present floor markings, direction arrows and the other graphical symbols needed for special indications. Also other information, such as time and date or a company logo, can be presented. Specific versions include user editable floor info pictures, which are shown in the logo area. Floor info pictures enable presentation of any useful information associated with certain floor(s) in addition to regular car position indication. Depending on the device version, audible signaling can be done by a standard gong or by a voice announcer. The voice can indicate the car position or a warning message in the local language. Device can be configured to take action in blackout situation automatically (requires external back-up power supplied to corresponding connector).
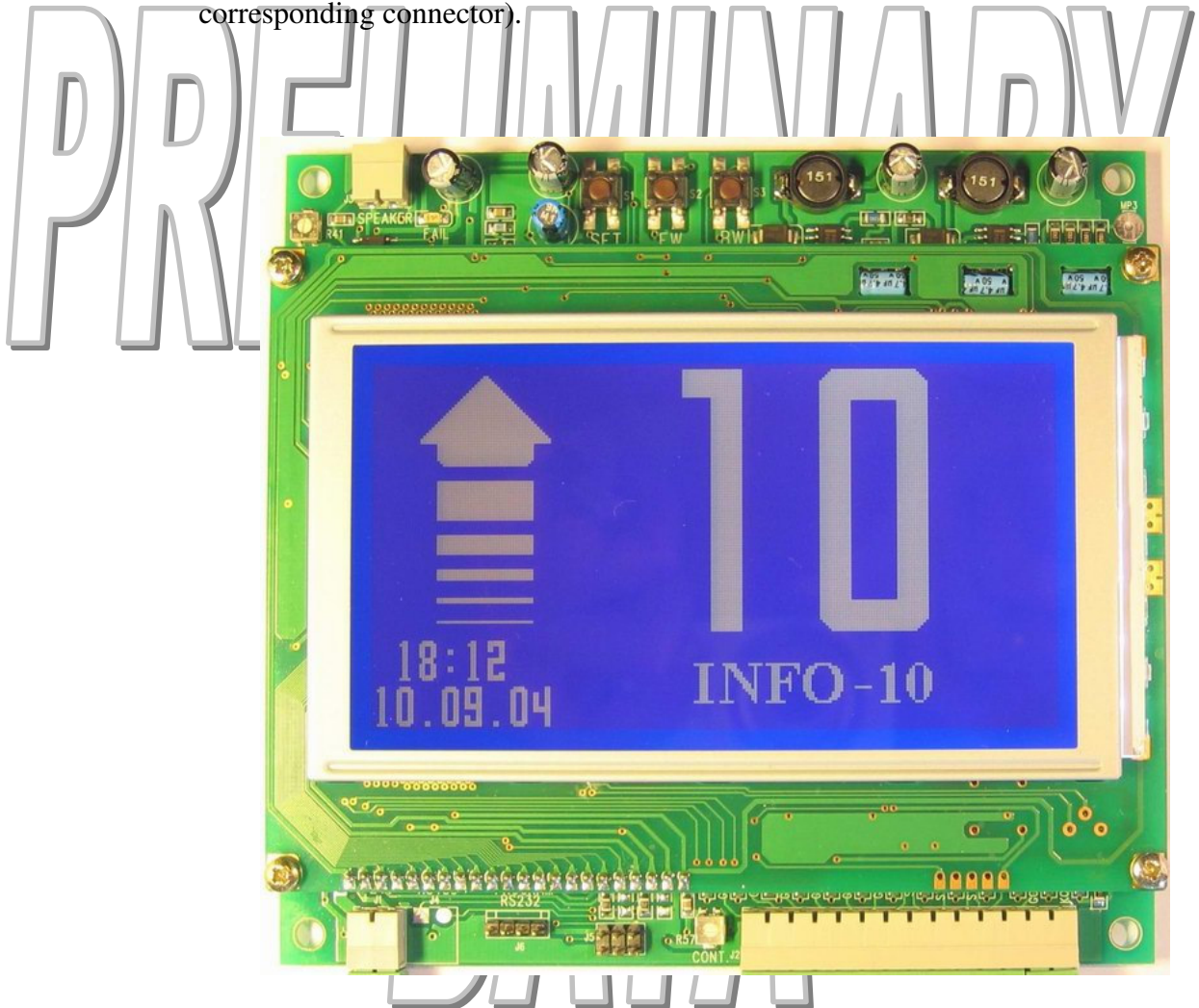
Electrical connections

The device is provided with and robust connectors for practical detachable electrical connections. Supply voltage and back-up battery voltage are applied to a 3-pin connector. Wide range of nominal supply voltages (12V…24V DC) is accepted, that is possible because device is equipped with high efficiency on board switched mode power supply (SMPS). The device is controlled through a 14-pin connector. It has 5 inputs for parallel mode position status (Binary or Grey coded), 4 inputs for the symbol indications control, 2 inputs for the gong control, 2 inputs for arrow direction control and 1 input that activates arrow scrolling. Device is adaptable to different (even mixed) input signal polarity environments by two jumpers (one for the position status inputs and one for the others). Please refer to electrical specifications for more detailed information.
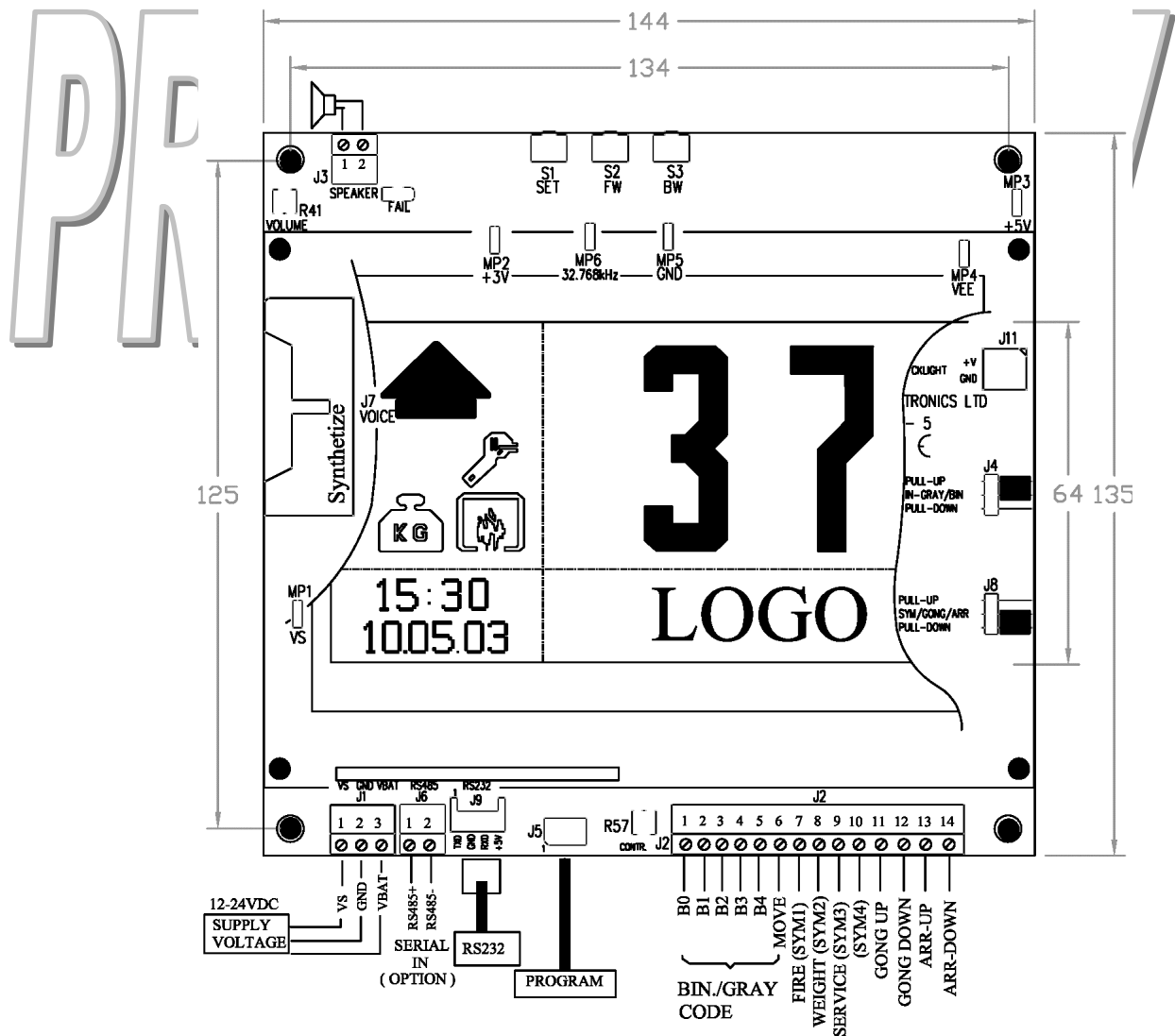
Electrical adjustment

Gong circuit sound volume can be adjusted by trimming potentiometer R41 next to text "VOLUME" on printed circuit board. Default volume setting has been made on factory.

LCD display contrast can be adjusted by trimming potentiometer R57. Default contrast setting has been made on factory.

Display sub-areas, fields

Display is divided to sub-areas. Names of these fields are as follows:

Arrow/symbol field

Floor marking field

Date and time field

Logo field

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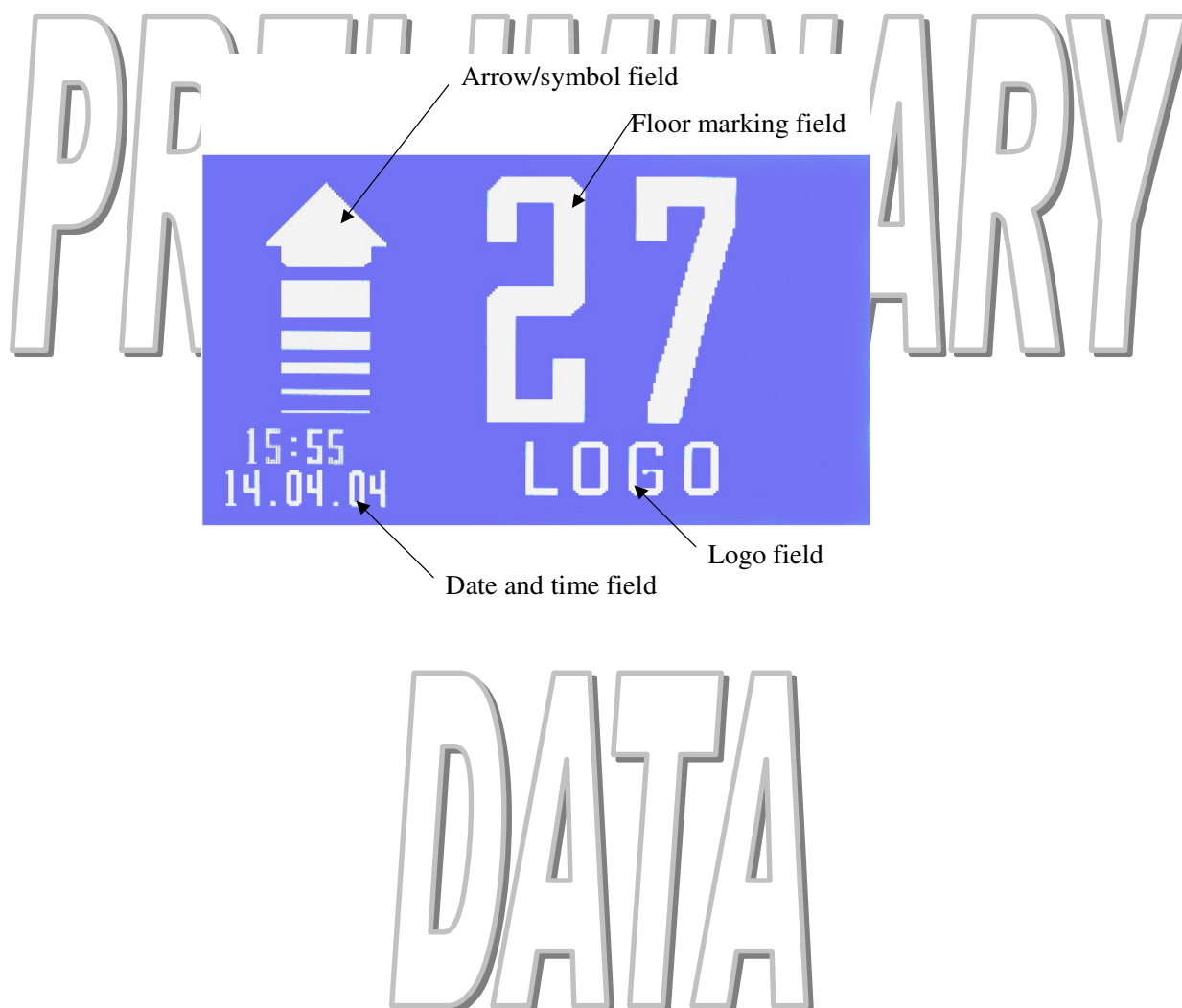
Configuration

Device can be configured in two different ways: By means of devices own setup menu or with "LCDtool" application. We recommend using LCDtool software; it is easier and more illustrative. Setup menu is a useful "backbone" for service technician, not always equipped with a laptop computer.

Setup menu

With the aid of the setup menu the user can make changes to certain properties of the device. Three push buttons are assigned to browsing of the menu.

Setup menu:
- Input coding (BIN/GRAY)
- Car/landing-selection (CAR/LANDING)
- Logo graphics (OFF/ON)
- Time and date settings (RTC SET)
- Level for SYM4 (SYM4 FLOOR)
- Level for gong if in landing-mode (GONG FLOOR)
- Floor marks (BUS 00...BUS 31)

LCDtool

LCDtool is an optional PC-software for advanced configuration of LCD240 devices. It makes possible modifications to all displayed graphical information. Configuration data is edited on PC, composed to a downloadable configuration file and downloaded to LCD240 device.

Floor mark for each level is constructed simply by writing it between quotation marks in floor marks list. Floor mark consists of one or two letters or numbers (0...9, A...Z, minus sign). It is also possible to leave any floor without floor marking.

Floor pictures are graphic items to be presented in conjunction with certain floors. LCDtool is delivered with sample bitmap files, which are suitable for uploading to the display device. User can edit these pictures; size of pictures cannot be changed. Maximum number of different floor pictures is 12. Same bitmap can be assigned to many floors. Any floor can also be left without associated bitmap.

More detailed information is in LCDtool application documentation.

The three versions of LCD240

Standard LCD240B

LCD240B has 3 fields:
1. Floor marking field (max. two digits)
2. Arrow field (this is the standard field for the arrow but the arrow can be displayed in the floor marking field when the symbol is in use)
3. Logo field

Optional PC-software (LCDtool) covers the modification of all three fields.

Intermediate LCD240BW

LCD240BW has 4 fields:
1. Floor marking field (max. two digits)
2. Arrow field (this is the standard field for the arrow but the arrow can be displayed in the floor marking field when the symbol is in use)
3. Logo field
4. Date and time field

LCD240BW version includes also 12 editable floor pictures displayed in logo field (e.g. advertisement; small logo or small text) as an additional feature.

Optional PC-software (LCDtool) covers the modification of all four fields.

Advanced LCD240BWS

LCD240BWS includes the functions described in LCD240BW version, with voice announcer as an additional feature.

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Technical Specifications

Electrical Specifications

- Wide operating voltage range, 11…30 VDC (max. 5% ripple voltage)
- Low current consumption, 65…113 mA @ 24 VDC (without gong or Sound Announcer)
- High efficiency gives low warming and long life
- Parallel input control:
    - Pull-down or pull-up according to input polarity
        - pull-down/-up resistor: 10 kΩ
    - Nominal input voltage range: 0…30 VDC
    - Logical levels:
        - logic 0: 0...1 VDC
        - logic 1: 10...30 VDC
    - Max. input current: ±3mA (depending on input polarity)
    - Input code selectable: Binary/Gray
- Gong :
    - speaker impedance (J3 connector): 8...32 Ω
    - adjustable volume (potentiometer R41)

Visual Specifications

- Display resolution: 240 x 128 pixels (H x V)
- LCD type: STN, negative, blue, transmissive
- Backlight: long life white LED
- Active area: 114 mm x 64 mm
- Viewing angle: min. 40° (with contrast ratio ≥ 1.4)
- Contrast ratio: 5 (when $\Phi = 10°$ and $\theta = 0°$)
- Adjustable contrast (potentiometer R57)

Other Specifications

- Maximum number of floors is 32
- Device configuration can be made by the displayed menu and 3 push buttons
- RS-232 serial interface for downloading graphics and parameters
- All graphics (bitmap) are editable with a PC
  - Requires LCDtool software and a cable, also picture editing software is needed (for example Windows Paint)
  - Floor marks and twelve floor pictures can be easily modified by editing the text file
  - LCDtool also sets device clock up to date
- Real time clock operates until year 2099
- Automatic daylight saving time change
  - Operates to year 2035 (the last Sunday in March and October at 02.00)
  - After year 2035 change is made the last day of March and October
- Sound Announcer card is connected via flat cable (max. length 40 cm)
- RS-485 bus connector for future update (not currently available)
- Physical dimensions: 145 mm x 136 mm x 24 mm
- Weight: 245 g
- Operation environment:
  - Temperature: 0…70 °C
  - Dry environment, RH: <85%
  - Not to be used in wet, moist or dusty environment

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Disclaimer

Vuolas electronics reserves the right to change the product and/or specifications without notice.