

RTPI DISPLAY

Project Metronit Haifa

TECHNICAL SPECIFICATION

V1.0

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1 GENERAL

Products described in this document belong to LEA's new generation LED Multi-line Information Displays family, which are composed of SMD LED modules. Modularity of product allows easy access and replacement of any component. Only 1st class LEDs from the best manufacturers (Osram, Avago, Nichia) are used in our products, so we can guarantee a long life and uniform luminosity of display.

Multi-line information displays are suitable for presentation of different alphanumeric information on several lines, presenting fixed or scroll text, in each particular line.

All the offered displays have double density lines (16 pixels in vertical) thus allowing presentation of text in Latin, Arabic and Hebrew characters.

Following types of signs are specified in this technical specification:

- **Type 1 (IPM-32/10/32 Y):** 10 lines, single-sided, 32-64 mm character height, max. 32 characters per line
- **Type 2 (IPM-32/4/32 Y):** 4 lines, single-sided, 32-64 mm character height, max. 32 characters per line
- **Type 3 (IPM-32/2/32 Y):** 2 lines, single-sided, 32-64 mm character height, max. 32 characters per line
- **Type 4 (IPM-32/2/32 Y):** 2 lines, single-sided, 32-64 mm character height, max. 32 characters per line, GSM/GPRS and battery backup

2 MECHANICS

2.1 *HOUSING*

- Dimensions (WxHxD): **Type 1:** approx.: 1000 mm x 1200 mm x 150 mm
Type 2: approx.: 1000 mm x 550 mm x 150 mm
Type 3: approx.: 1000 mm x 350 mm x 150 mm
Type 4: approx.: 1000 mm x 350 mm x 150 mm
- Material: AlMg3, 2 mm
- Protection class: IP54
- Front window: 4mm polycarbonate, antireflective, amber
- Service access: Front side

2.1 *MATRIX*

- Pixel pitch: 4 mm
- Number of pixels per row: 192 x 16
- Dimensions of row: 768 mm x 64 mm
- Character height: 32-64 mm
- Number of characters per row: max. 32 (depends on applied font)

3 ELECTRICAL CHARACTERISTICS

3.1 *EXTERNAL POWER SUPPLY*

- Nominal voltage: 230 VAC
- Nominal frequency: 50 Hz
- Voltage range: 85 – 265 VAC
- Frequency range: 47 – 63 Hz
- Current protection: Internal fuses, current limiter on power supply

- Maximum power*:
 - Type 1: 800 W
 - Type 2: 350 W
 - Type 3: 170 W
 - Type 4: 170 W
- Average power:
 - Type 1: 270 W
 - Type 2: 120 W
 - Type 3: 60 W
 - Type 4: 60 W

*....50% LED on, at 100% luminance

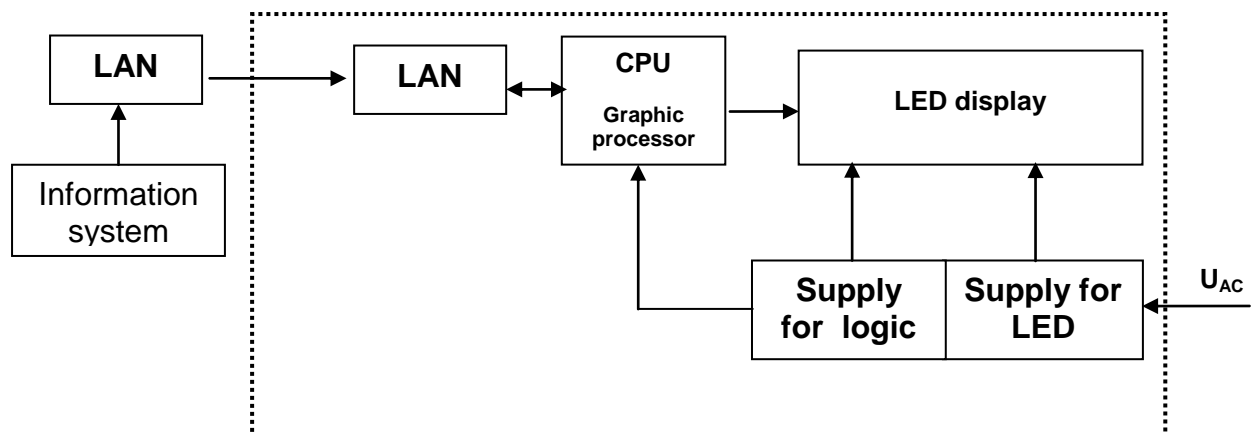
3.2 INTERNAL POWER SUPPLY

- Voltage LED boards (LED) 5 VDC
- Voltage LED boards (logic) 5 VDC
- Voltage controller 5 VDC

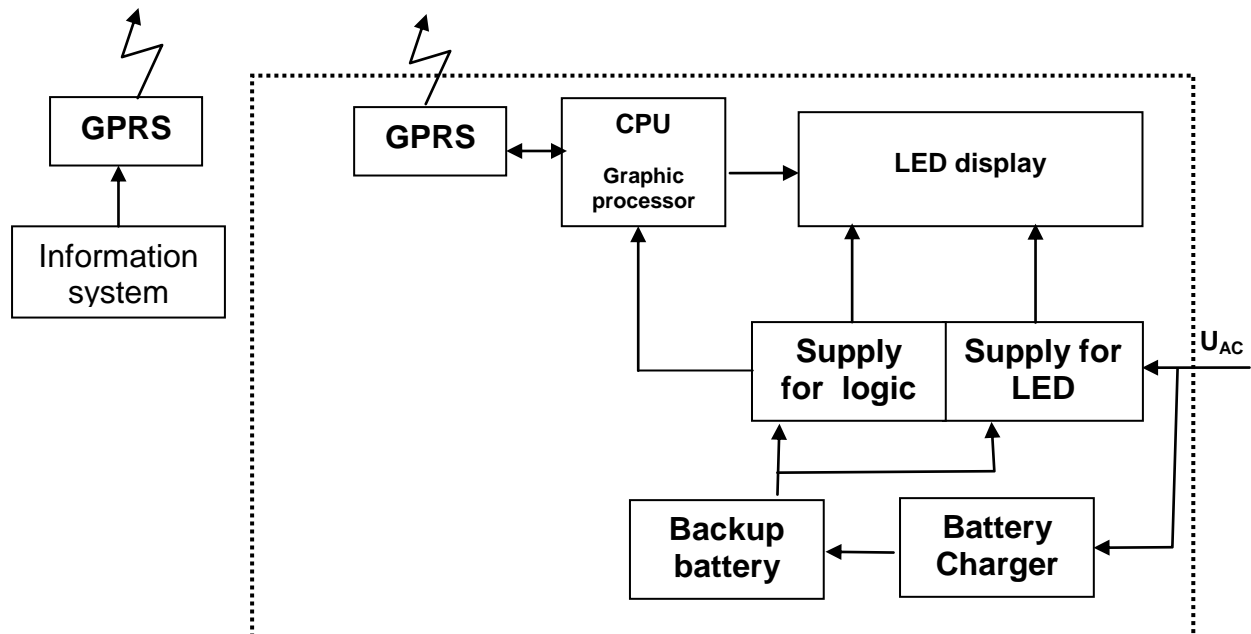
4 CONTROLLING CONCEPT

4.1 BLOCK DIAGRAM

4.1.1 Display 1-3



4.1.2 Display 4



4.2 GRAPHIC PROCESSOR

Based on Hitachi 16bit CPU and FPGA XILINX Spartan, running RTOS, File system and interpreter for scripts.



4.2.1 Features

- CPU speed: 33 MHz
- On board FLASH: 32 Mbyte
- RAM: 1 Mbyte
- BAT RAM: 512 Kbyte
- Number of parallel processes: 16
- Communication: 3 x serial (RS232/RS485), 1xUSB, 1xEthernet
- Power consumption: 600 mA @ 5 V

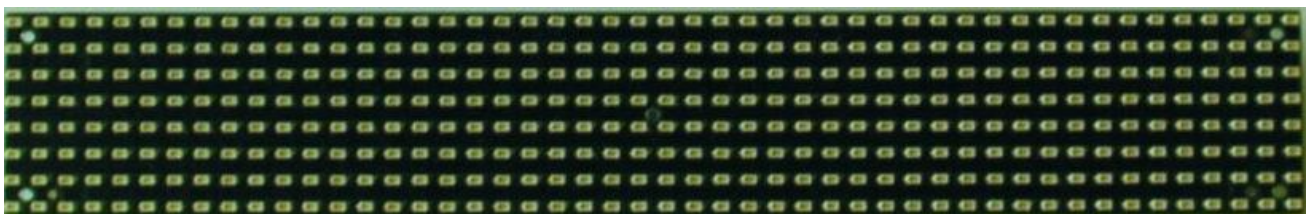
4.2.2 Graphic processing

- Static or blinking text
- Scrolling text in all directions (max speed 100pix/sec)
- Bitmaps
- Animations up to 30 frames/second
- Multiple panel displays (combining any contents on real time)
- Refresh rate 200Hz
- Number of simultaneous fonts 16

4.2.3 Diagnostic data

- Externally triggered or automatic individual pixel LED error detection
- Position of broken LED
- Full or active pixel LED error detection mode
- Automatic data line error detection
- Direct access to video RAM – reading of displayed contents
- Power supply error
- Luminosity sensor error

4.3 LED BOARDS



- Pixel pitch 4 mm
- Number of LED 384
- Dimensions 192x32mm
- LED colour Amber (592 nm)
- Driving Mux 1:4

4.4 COMMUNICATION INTERFACE

- 100BASE-TX
- GSM/GPRS (only for display 4)

5 OPTICAL CHARACTERISTICS

- Technology: SMD LED
- Colour: amber (592 nm)
- Viewing angle horizontal: >150°
- Viewing angle vertical: >150°
- Visibility: 15 m (32mm char.), 30 m (64mm char.)
- Luminance: >3000 cd/m²
- Luminance setting: automatic 24 level, manual 256 level

6 ENVIROMENT

- Operating temperature: -20 °C to +60 °C
- Storage temperature: -40 °C to +85 °C
- Humidity: 5 % - 100 % (non condensing)

7 QUALITY MANAGEMENT

Passanger information displays from LEA are produced and tested under highest quality demands according to EN ISO 9001: 2000.