

**Multi-Media Validator
(VAL3M)**

Datasheet



1. Introduction

VAL3M is a validator for automatic fare collection (AFC) in public transport. It incorporates both a contactless smart card reader and a magnetic card reader with thermal printer, enabling unique flexibilities in the public transport ticketing.

VAL3M is based on a **powerful digital media CPU** with large memories, thus capable of running high level OS:

- 600 MHz ARM Cortex A8 CPU + Video DSP coprocessor, totally 1200Mips,
- 256 Mbytes RAM,
- 512 Mbytes NAND Flash,
- 2 pcs. of SD Flash memory slot.

VAL3M has a rich set of **user interface** peripherals:

- Large 7" 18 bit colors TFT LCD with optional touch screen,
- High quality stereo sound and speech system,
- Video output for connecting a separate screen for digital signage,
- RGB LED indicators,
- Second screen support.

On the second screen VAL3M is capable of running **GPS** location based **digital signage** - advertisement video files, news, useful information, e.t.c. Such rich multimedia features offer a high comfort to the riders along with a shortening of the boarding time.

VAL3M has a plenty of **communication channels**, allowing easy integration of/to other systems:

- 2 x UART,
- GPRS,
- ISM RF running at 868MHz that eases implementation of in vehicle wireless sensor network
- 100 Mb/s Ethernet,
- 2 x USB,
- CAN Bus,

VAL3M incorporates an EMV L1 & L2 certified **contactless card** and NFC reader:

- Supports all layers ISO14443A/B,
- Supports ISO18092,
- Supports all Mifare type cards
Mifare Standard,
Mifare Plus,
Mifare Ultralight,
- Master Card's PayPass,
- Visa's payWave.

Another key feature of VAL3M is the **magnetic card reader with thermal printer** that makes use of paper magnetic tickets for one or a limited times.

VAL3M is a **perfect choice** for various types of AFC, e.g. for buses, subways, trams and other public transportation means.

2. Diagrams

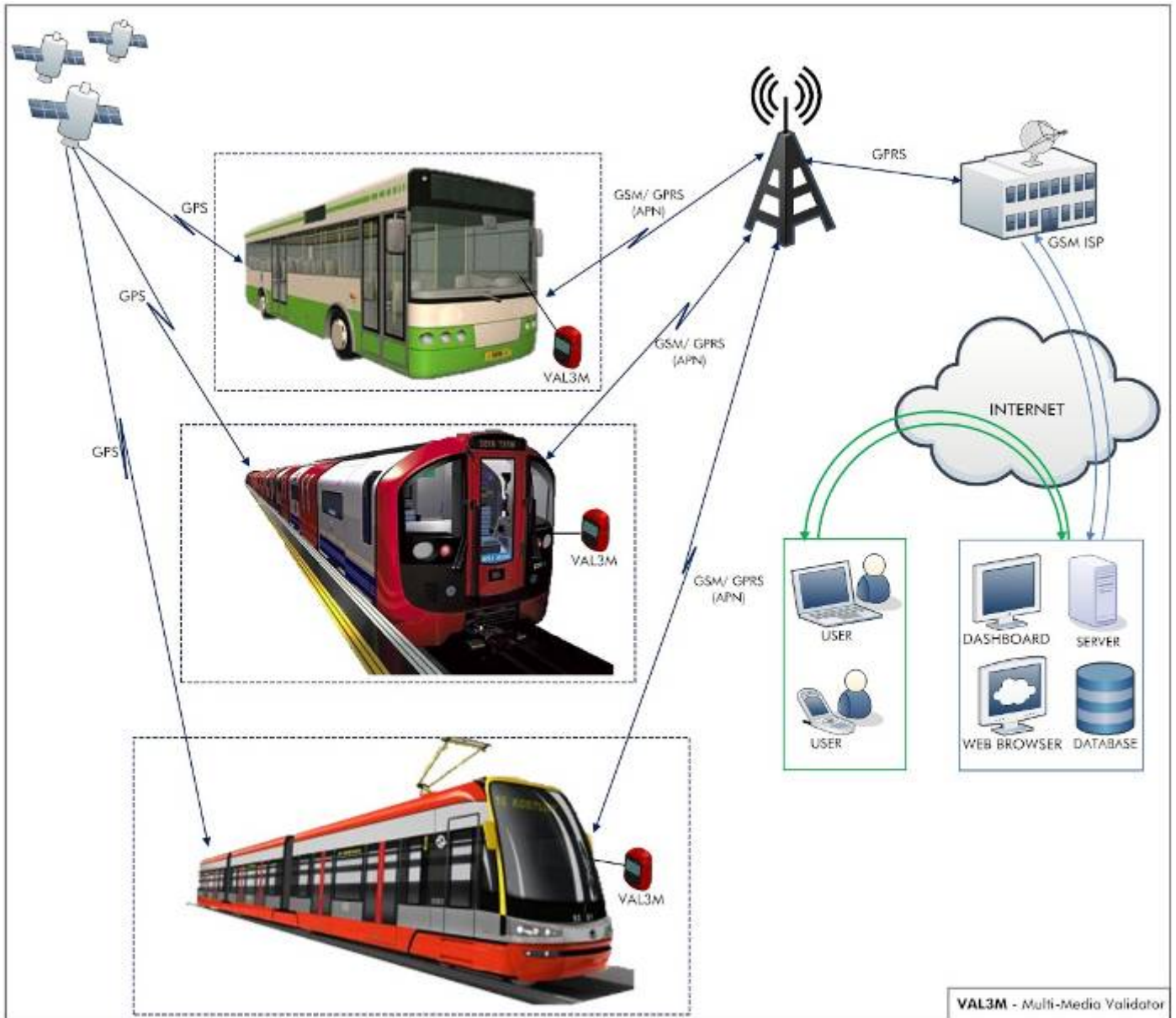
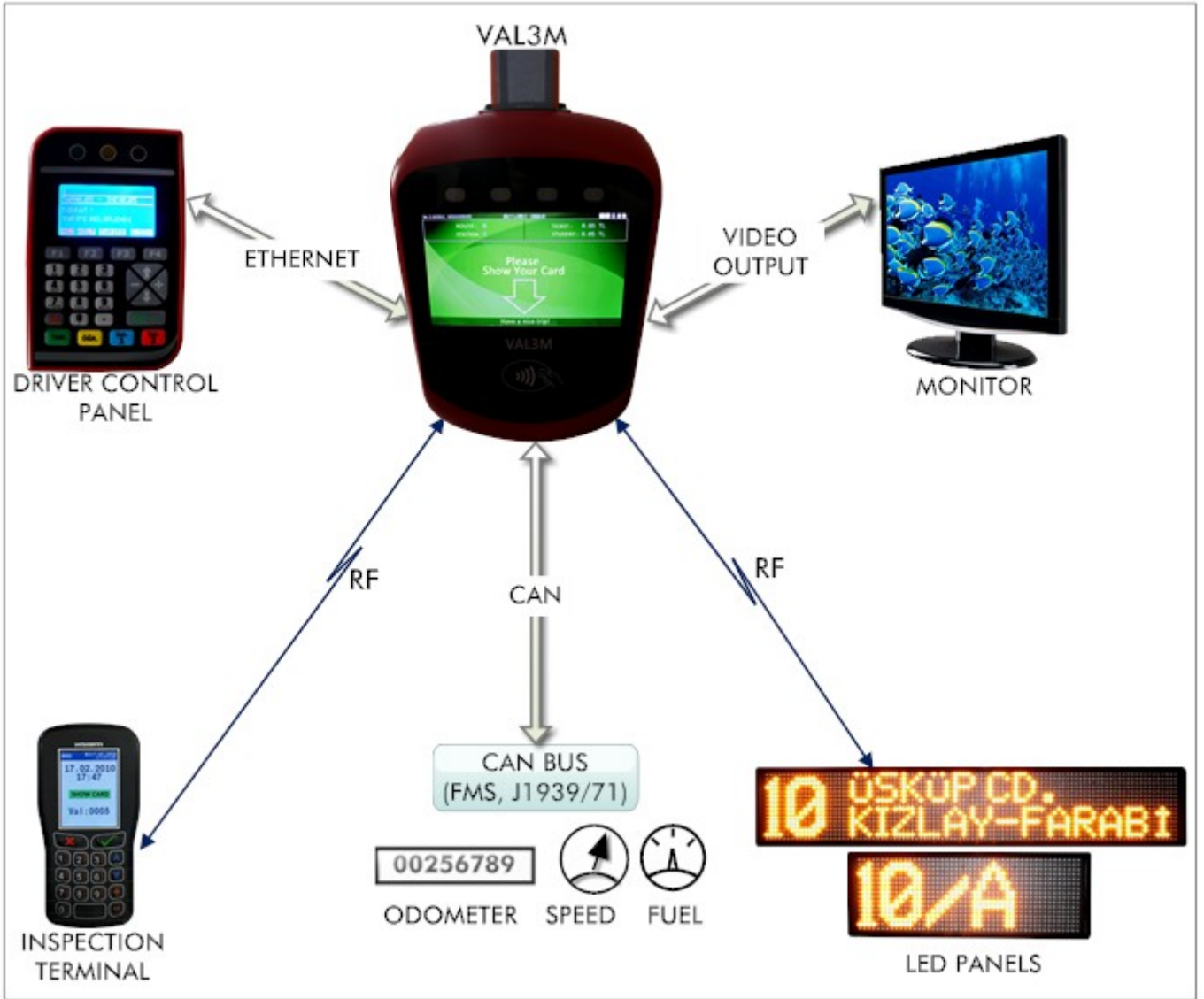


Fig 1: VAL3M System Diagram



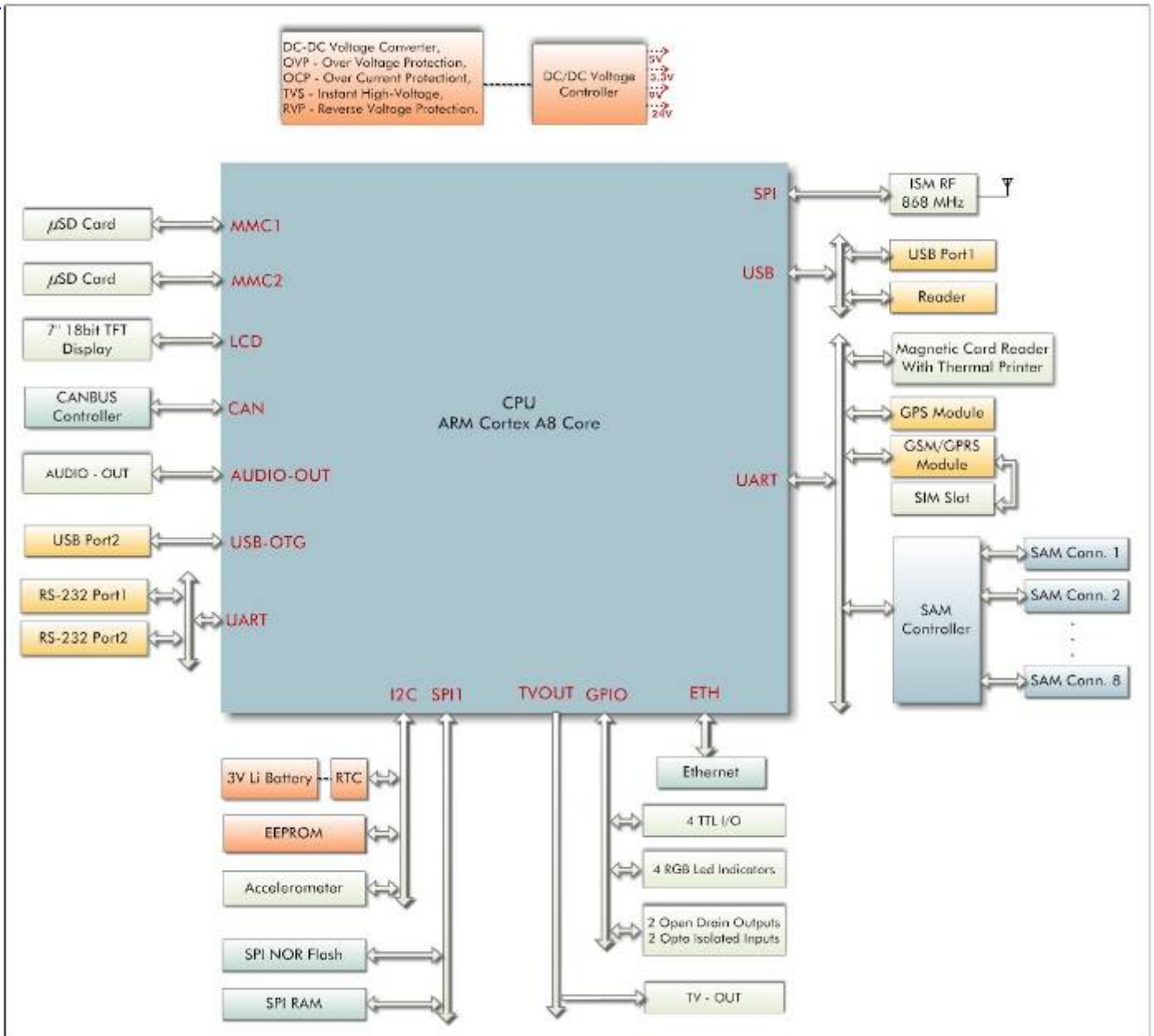


Fig 2: VAL3M Block Diagram

3. Technical Specifications

Peripheral	Description
CPU	: up to 800 MHz ARM Cortex A8 Core + 600 MHz Video DSP
Memory	: 256 MB - DDR RAM, 512 MB - NAND Flash Memory, 2 x MicroSD Flash Memory slots, 64 KB - High Endurance EEP, 32 KB – SPI SRAM, 4 MB – SPI Data Flash,
Communication	: GPRS Class10, Quad Band, 2 x RS232, 1 x USB OTG, 1 x USB 2.0 Host, 100 Mbps Ethernet ISM RF 868 Mhz CAN Bus
GPS Chipset	: MT3329, -165 dbm sensitivity,
I/O	: 2 Power MOSFET Open-Drain Outputs, 2 Optically Isolated Inputs,
Compatible Cards	: All ISO/IEC 1443A and ISO/IEC 1443B Contactless Communication Protocols, including: <ul style="list-style-type: none">• Mifare 1k• Mifare Ultralight• Mifare Plus• PayPass• Paywave
Card Readers	: EMV L1 & L2 certified contactless Card Reader, Magnetic Card Reader with Thermal Printer,
Data Encryption	: 8 pcs. Of SAM Slots,
Video Output	: Composite Video Output,
Video Decoders	: MPEG4 HD (VGA/30 fps), H.264 (VGA/30 fps)
Display	: 800 x 480 Dots, 18 bits, 7" TFT Coloured LCD with Touchpad,
Indicators	: 4 pcs. LEDs,
Audio Buzzer	: 24 bits/32kHz Stereo, 2 x 2W Speaker,
RTC	: With a battery back-up (3V CR2450-Li Battery),
Supply voltage	: DC 28V ÷ DC 31V, OVP - Over Voltage Protections, OCP – Over Current Protections, TVS – Instant High Voltage, RVP – Reverse Voltage Protections.
Operating t°	: (-35 C° ÷ + 85 C°),
Storage t°	: (-55 C° ÷ +110 C°),
Dimensions	: 320.67 x 209.50 x 214.24