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VAL35 - AFC Validator:

“Mini yet mighty”

Web document



1. Overview

VAL35 is a compact, full-featured validator for automatic fare collection (AFC) systems in public transport and offers a convenient way for cashless payment in busses, trams, metro, etc. transportation vehicles. The validator incorporates an EMV certified NFC reader and a QR scanner, capable of reading 1D and 2D codes reliably both from paper and mobile handset screen.

VAL35 provides advanced communication interfaces such as Ethernet port, LTE/3G/GPRS, Wi-Fi, Bluetooth, USB ports, RS-232. VAL35 also integrates a GNSS (GPS+GLONASS) receiver, allowing for flexible distance-based payment schemes.

VAL35 has a rich set of user interfaces:

- 3.5 inch IPS LCD display and a capacitive touch panel with a scratch-resistant, special tempered, highly durable front glass.
- Four RGB LEDs
- 24 bit audio over 2W speaker

VAL35 incorporates a system control MCU - high speed, deterministic microcontroller, taking care of all high speed hardware events, which otherwise could not be kept under control with the means of the main application CPU. The mentioned MCU also provides hardware watchdog function, i.e. if for some reason the main CPU gets stuck, the MCU will automatically detect it and restart the validator. In other words, VAL35 never stops working.

VAL35 is rated IP54 for dust and water protection. Special countermeasures have been taken to prevent the negative impacts of vibrations. All connectors are automotive type, i.e. with a latch, avoiding undesired accidental disconnections. The validator comes with metal brackets that support a pole mount.

VAL35 is designed and manufactured in full compliance with ISO9001:2008 and ISO9002 quality and manufacturing standards. The product is provided with certificates for EMC, EMI, environmental tests (vibrations, impact, ingress, temperature). Each validator is being exposed to 2 hours accelerated thorough tests - electromagnetic shocks, mechanical impacts, vibrations and temperature deviations. 24 hours long test of the above mentioned are carried out for %1 of the whole manufactured party.

The application software runs under a high level OS – Linux, with special regulations and measures for unattended use. In addition to the ready-to-use AFC software, a well-documented development environment and SDK with reliable software libraries and modules are provided, allowing integrators to implement their own software. Training is also provided, if requested.

2. Application areas

AFC (Automated Fare Collection) cashless payment validator

3. Specifications

OS	: Linux
CPU	: ARM Cortex, Quad Core, 1500 MHz
RAM	: 1GB/2GB DDR4 RAM
System memory	: 8GB/16GB/32GB eMMC Flash Memory
SD Card support	: 1 slot supporting up to 64GB micro SD cards
Real Time Clock	: With Li backup battery, 10 years maintenance free
Display	: 24 bits, 3.5" TFT color LCD with white LED backlight
Touch Screen	: Capacitive Touch Screen
Sound	: 24 bits, 2W speaker
Indicators	: 4 x RGB LEDs
NFC Interface	: EMV Level 1 certified
QR & Barcode	: High performance QR Scanner
Data Security	: SAM Interface – 2 SAM slots
Communication	: 100 Mbps Ethernet : 2 x USB2.0 : 2 x UART RS-232/RS-485 : LTE/3G/GPRS (LTE Class 4) : Wi-Fi (802.11n) : BT 5.0
GPS	: GPS & GLONASS receiver
Digital Inputs	: 1 x ignition input : 1 x digital input with optical isolation
Digital Outputs	: 2 x Digital Outputs (Over-current protected)
Sensors	: Ambient Light Sensor : Temperature sensor, measures cabinet temp.
Supply	: Operating Voltage: 9 ~ 36VDC
Power Consumption	: Max 10 Watt
Dimensions	: 170 x 110 x 30 mm
Operating t°	: -20 C°... + 55 C°
IP grade	: IP54