Dijtital TANIMA Sistemleri

DCP101 – 10.1” AI based Driver Computer

“Versatile”

Web document

DCP101 – AI based Driver Computer

Overview

DCP101 is a state-of-the-art AI based driver computer that provides convenient management of the equipment belonging to the onboard AFC equipment. DCP101is aconsequence of vast experience and long studies in the field of AFC systems.

The core element of DCP101 is its powerful CPU subsystem:

- quad core ARM Cortex 55 CPU, 1.6GHz;
- 1TOP NPU (network processing unit, i.e. AI coprocessor)
- GPU and video codecs;
- 2GB or 4GB DDR memory;
- 8GB/16GB/32GB e-MMC flash memory;

DCP101integrates a rich set of user interfaces:

- 10.1 inch FHDcolor IPS LCD display and a capacitive touch panel with a scratch-resistant front glass;
- two RGB LEDs;
- 2W speaker;
- NFC reader (either for driver authorization or for other purposes);
- 2 video outputs – HDMI and VGA, both FHD;
- Audio lineout.

Thanks to the powerful CPU subsystem, video outputs (HDMI and VGA) and audio line out, DCP101 is capable of simultaneously displaying different content on them, i.e. can carry out passenger information functions on the relevant HDMI/VGA monitors and speakers.

DCP101has two cameras: a 2MP RGB camera for daytime and a 2MP Infrared camera for nighttime use. VAL70 integrates both white LEDs and IR illumination LEDs, providing high performance facial recognition (driver authorization) even in no light conditions.

DCP101 provides advanced connectivity interfaces such as:

- LTE/3G/GPRS;
- GNSS (GPS+GLONASS) receiver;
- Wi-Fi and Bluetooth;
- two Ethernet ports;
- RS-232, RS-485;
- CAN Bus,
- USB.

When paired with an appropriate Ethernet switch, DCP101can work as a board computer, i.e. reliably provides WAN connectivity and management to the rest of the on-board equipment – validators, vending machines, Intercom (push-to-talk with passengers) terminals, NVR and others.

DCP101incorporates 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. That MCU also provides hardware watchdog function, ie: if for some reason the main CPU gets stuck, the MCU will automatically detect it and restart the validator. In other words, DCP101never stops working.

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DCP101is rated IP54 for dust and water protection. Special countermeasures have been taken to prevent the negative impact of vibrations. All connectors are automotive type, i.e. with a latch, avoiding undesired accidental disconnections. The terminal comes with metal brackets that support a pole mount.

DCP101is 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 terminal 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.

1. Application areas

Driver Computer in the AFC (Automated Fare Collection) Systems

2. Specifications

OS	: Linux
CPU	: ARM Cortex A55, Quad Core, 1500 MHz
RAM	: 2GB/4GB DDR4 RAM
System memory	: 8GB/16GB/32GB e-MMC Flash Memory
SD Card support	: 1 slot supporting up to 64 GB micro SD cards
Real Time Clock	: With Li backup battery, 10 years maintenance free
Data Security	: SAM Interface – 1 SAM slots
Display	: 1920 x 1200 pixels 10.1'' TFT color LCD with white LED backlight
Touch Screen	:Capacitive Touch Screen
Indicators	: 2 x RGB LEDs
NFC Interface	: ISO14443A/B compliant, up to 6 cm reading distance
Communication	: 2 x 100 Mbps Ethernet : 2 x USB2.0 : 2 x UART - RS-232/RS-485 : 1 x CAN Bus : LTE/3G/GPRS (LTE Class 4) : WiFi (802.11n) : BT 5.0
GPS	: GPS & GLONASS receiver
Video outputs	: HDMI, Full HD : VGA, Full HD
Audio outputs	: 4W speaker : Audio lineout
Audio input	: integrated microphone
Cameras for Face Recognition	: 1 x 2MP RGB camera : 1 x 2MP IR camera : IR LED and white LED illumination
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, Max 20 Watt
Dimensions	: 272 x 202 x 123
Operating t°	: -20 Cº … + 55 Cº
IP grade	: IP54