

VTAP50 OEM NFC reader board (USB + RS232)



The VTAP50 from Dot Origin can selectively read and decrypt NFC pass data from iPhone or Android devices, and transfer this data to a connected system. It can also read unique IDs and secure encoded data from many RFID and NFC cards and tags, including MIFARE Classic and DESFire.

VTAP50 is a streamlined version of the VTAP100 from Dot Origin, for integration into your own enclosure or kiosk. This small form factor reader can be used in many environments, including retail loyalty, cashless payment, gym check-in, and sports ticketing. The VTAP50 remains logically separate from any payment mechanism. This simplifies data and security considerations, and the human interaction. It does not support EMV payments, but can be used for stored value and points redemption applications.

VTAP50 has been designed to support a smooth transition from plastic to mobile NFC passes so, alongside mobile passes, the VTAP50 will also read popular contactless RFID or NFC smartcards and tags, to support mixed-use applications. It is fully certified by both Apple and Google to work with their respective VAS and Smart Tap protocols, supporting automatic pass selection on iOS, as well as on-board decryption.

A USB connection from any PC is used to configure the VTAP50, by editing simple text files. Keys can be easily updated but cannot be extracted from the device. The configuration can be locked, so that the device is password protected or read-only in general use.

The VTAP50-OEM can output pass data over USB in the same way as a mag-stripe, barcode or QR code scanner. This can be a keyboard emulation or over a virtual COM port on the USB interface, or a serial RS232 interface can be enabled, for more advanced command, data transfer and logging purposes. This makes it possible to add the VTAP50 to existing systems without software changes, to update an established card or ticket experience, to one where passes are wholly electronic.

The VTAP50-OEM is ready for you to integrate into your own housing. It comes without cables, but includes a micro-USB connector on board as well as a standard 8 pin 2mm pitch connector with both USB and serial RS-232 connections.

This is all you need to get started with mobile NFC pass reading, as it includes access to create demonstration mobile passes, so that you can test your application. For production purposes you will need to use a third-party pass provider, or integrate directly with Apple and Google.

The larger VTAP100 is available in a neat case for desktop or wall mounting, either as a VTAP100-USB or as VTAP100-PAC-W which has a Wiegand interface for access control and turnstiles. Please contact us to discuss availability of these and other interface options.

Compact mobile NFC pass reader with USB and RS232 interfaces, compatible with Apple VAS and Google Smart Tap. Supplied as pre-certified reader board for integrators.

To buy, visit:

<https://www.smartcardfocus.com/shop/ilp/id~956/p/index.shtml>

This Product Briefing has been produced by [Dot Origin Ltd](#), the smart card experts behind [SmartcardFocus.com](https://www.smartcardfocus.com). If you have a query email sales@smartcardfocus.com or call us on +44 (0)1428 685250.

Technical Specifications

Physical characteristics

Dimensions: 32mm x 58mm (1.26in x 2.28in) with integrated rectangular antenna;

Optional smaller size 20mm x 52mm (0.79in x 2.05in) when using an external antenna

Power Supply: 5V DC (typ. 110mA, max 150mA)

Mounting options: 4 x integrated mounting holes

Weight: 6g (0.21oz)

Operating Temperature: -25 to +70°C (-13 to 158°F)

Operating Humidity: 0 to 95% RH non-condensing

NFC Interface

Frequency/standards: 13.56MHz, ISO 14443A/B, ISO 15693 and ISO 18092

Antenna(s): Integrated 26mm x 49mm (1.02in x 1.97in) rectangular antenna (removable)

Read range: Typically 25mm (1in) depending on environment and phone/card/tag antenna

Mobile wallet compatibility:

- Apple Wallet NFC pass (VAS for loyalty/membership/ticketing plus ECP2.0 for Apple Access)
- Google Wallet NFC pass (Smart Tap, extensible, including generic private passes)
- Pass auto-selection, including Apple ECP1, ECP2 and Express Mode compliance
- Mobile device type detection and inclusion
- Multiple simultaneous pass IDs
- ECC key auto-select
- Apple enrolment URL and Google STUID capture, where supported

Card/tag compatibility:

- MIFARE Ultralight, MIFARE Classic, MIFARE DESFire,ICODE, NFC Forum Types 2,4,5;
- UID/CSN reading as standard on all card types;
- Secure data reading on MIFARE Classic and MIFARE DESFire;
- NDEF record reading on Type 2 & 4 (Ultralight/NTAG and DESFire/HCE)

Other NFC modes: Dynamic tag emulation (text, URI, raw data) with smart write-back
Pass IDs: Up to 6 x Apple merchant IDs and 6 x Google collector IDs, if supported
Encryption key slots key slots: 6 x ECC key slots (for Apple & Google merchant IDs); 6 x Application key slots (DES or AES)

USB/Serial interfaces

USB device types (can enable/disable as required):

- USB Mass storage (for easy configuration, key loading & firmware updates);
- Human interface device(standard barcode reader/keyboard emulation);
- USB Virtual COM port (includes active, passive and file transfer modes)

Serial interface: Physical RS-232 serial port (includes active, passive and file transfer modes)

Connectors: Micro USB socket and 8-pin captive cable connector for USB and RS-232 (2mm pitch); Optional FFC connector for USB

Operating system support: Full support on Windows, Linux, OSX; support for keyboard emulation and virtual COM device types on Android; most embedded and other operating systems support keyboard emulation as a minimum

Other features

Operator feedback: Buzzer and on-board serial LEDs. Optional external RGB or serial LED(s) via connector. Configurable default LED colour/animation + automatic card and pass read beep/flash

Field configurable: Yes, using configuration files, and with password and hardware-based lock

Field upgradeable: Yes, using encrypted firmware file and secure bootloader, and factory reset feature

External antenna: Optional via connector (requires re-tuning/certification)

Encryption algorithms: ECDH, NIST P-256, ECDSA, HMAC SHA-256, AES-128 CTR, AES-256 GCM, ANSI-X9.63-KDF and HKDF according to RFC5869 using HMAC-SHA256

Compliance / Certification

Apple VAS, Google SmartTap, UKCA, CE, FCC, ISED, RoHS

24-month limited hardware warranty

Manufacturer's part number: VTAP50-OEM

Manufacturer: Dot Origin