

VTAP100 PAC NFC reader - RS-485, compact case



The VTAP100 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.

The VTAP100-PAC-485 is a version of the VTAP100 which can transfer pass data over a standard RS-485 interface, with optional OSDP support, for use in appropriate access control applications, as a door or turnstile reader. The narrow, compact case can be positioned horizontally, or easily mounted on walls or door frames.

VTAP100 has been designed to support a smooth transition from plastic to mobile NFC passes so, alongside mobile passes. All VTAP100 readers will also read UID or data from MIFARE, DESFire and NTAG smartcards and tags, to support mixed-use applications. MIFARE secure sector and DESFire secure file reading is also implemented to support migration from legacy systems. Each VTAP reader 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.

The VTAP100 RS-485 reader can be used in many environments, including gym check-in and sports ticketing, and is suitable for outdoor use. Pass data can be transferred over the RS-485 interface using various protocols and formats to suit your access controller, including the latest Open Supervised Device Protocol (OSDP), for secure communications with a compatible access control unit.

A USB connection from any PC is used to configure the VTAP100, 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. Settings include support for multiple pass profiles, private keys, OSDP commands and tailored user feedback over RGB LEDs and a buzzer.

The VTAP100-PAC-485-CC is supplied in a compact plastic case. We can supply customised front labels for a small additional fee, typically for orders of 100 or more units.

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.

Other versions of VTAP100 are available, for example the VTAP100-PAC-W which has a Wiegand interface and is presented in a compact case, and the VTAP100-OEM which is a pre-certified PCB module available to integrators, providing both USB and RS-232 serial connectivity. Please contact us to discuss availability of these options.

Mobile NFC pass reader with RS-485 interface and optional OSDP support, compatible with Apple VAS and Google Pay Smart Tap, neatly presented in a compact case that can be installed horizontally or vertically, indoors or outdoors

To buy, visit:

<https://www.smartcardfocus.com/shop/ilp/id~980/p/index.shtml>

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

Technical Specifications

Physical characteristics

Dimensions: 97mm x 49mm x 40mm (3.8in x 1.9in x 1.6in)

Front label: 41mm x 57mm (1.61in x 2.24in) with 2mm (0.08in) radius corners

Power Supply: USB 5V DC (typ. 110mA, max 150mA) or RS485 8V-16V DC

Mounting options: 2 x mounting holes in base plate, 1 x security screw fixing front part

Weight: 86g (3.0oz)

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 40mm (1.57in) square antenna

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

Mobile wallet compatibility:

- Apple Wallet NFC passes (VAS for loyalty/membership/ticketing plus ECP2.0 for Apple Access)
- Google Wallet NFC passes (Smart Tap, extensible, including generic private passes)
- Pass auto-selection, including full 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: 6 x ECC key slots (for Apple & Google merchant IDs); 6 x
Application key slots (DES or AES)

Access control interface

Interface type: RS-485 half-duplex

Protocols: VTAP serial comms (active/passive mode, file transfer); configurable
OSDP (basic + secure)

Connector: 4-pin 3.5mm removable screw terminal block - combined power and A/B
interface lines

Recommended cabling: 24 AWG minimum, multicore shielded

USB

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)

Connectors: Micro USB socket or 8-pin captive cable connector for USB (2mm pitch)

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

Other features

Operator feedback: Buzzer and RGB LEDs (configurable default colour + 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

Hardware security: Optional cryptographic co-processor with secure hardware-based
key storage

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

Compliance / Certification

Apple VAS, Google Smart Tap, UKCA, CE, FCC and ISED (pending), RoHS

24-month limited hardware warranty

Manufacturer's part number: VTAP100-PAC-485-CC

Manufacturer: Dot Origin