

Mobile pass NFC reader – Access

A contactless access reader that interacts with mobile phones as well as popular RFID cards and tags. VTAP100 from Dot Origin retrieves NFC wallet passes from iPhone and Android devices, using a simple tap, then decrypts and transfers pass data to other systems, including over RS485 with optional OSDP support.

Pass users only need the Apple or Google Wallet app. The VTAP100 is fully certified by both Apple and Google for VAS and Smart Tap protocols.



Quick deployment

The VTAP100 has been designed for mobile pass applications. It includes features such as automatic pass selection, even when the screen is off (on iOS). It can also read popular contactless NFC and RFID cards and tags, to support mixed use applications and easy migration away from plastic. It can emulate a barcode/QR code scanner and can be configured to selectively extract and send on pass data in formats already in use. The VTAP100 can be easily retrofitted to existing systems, or quickly integrated into new platforms, for a smooth transition to an Apple and Google digital wallet card experience. Pass data can be transferred over the RS-485 interface using various protocols and formats to suit your access controller, including OSDP.

Easy management

Configuration of VTAP100 operating parameters is done over any host interface, USB or RS-485. The file-based approach is platform independent and requires no drivers or dedicated software. Flexible and intuitive settings can be edited manually or by software, and real-time commands can be sent along with secure updates of encryption keys and firmware. They include support for multiple pass profiles, private keys, OSDP commands plus tailored user feedback over RGB LEDs and a buzzer.

Strong security

The VTAP100 has been designed with security in mind, to protect the merchant private keys needed to decrypt pass data. So it is not possible to extract the keys once loaded, although they can be updated easily, in standard file formats. The device firmware can also be updated as an encrypted file.

Password protection of all configuration data is available, with reset to factory defaults if needed, clearing all sensitive data. MIFARE secure sector and DESFire secure file reading is also implemented to support migration from legacy systems. VTAP100 RS-485 reader also optionally offers the latest Open Supervised Device Protocol (OSDP), for secure comms with a compatible access control unit.

Flexible form factor

The VTAP100 access reader is in a compact desktop and wall-mounting case. It has a recess for a custom-printed front label, for your application and branding.

Other models offer different electronic interface options, including USB, RS-232 and Wiegand for access control. A pre-certified OEM reader-board is also available for embedded applications.

Learn more on the VTAP website at <https://vtapnfc.com>.

VTAPI00-PAC-485-CC SPECIFICATION

For information on pricing and availability email vtap-sales@dotorigin.com

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 conditions	Temperature: -25 to +70°C (-13 to 158°F) ; 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 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	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 GCM ANSI-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	

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Wallmount

or Desktop

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