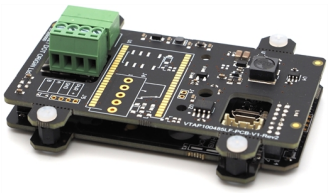
VTAP

DATASHEET

VTAP100-PAC-485-OEM

VTAP100 embedded reader - RS-485/OSDP

Access control reader with OSDP interface



Universal contactless NFC reader assembly designed for mobile wallet membership, ticketing and access control applications at doors and turnstiles.

Open and secure RS-485 and OSDP protocols enable powerful remote management and firmware update capabilities.

Supports a wide range of cards, tags and secure NFC credentials, including Apple Wallet, Google Wallet, MIFARE® and NFC tag types.

Key features and benefits

- Fully certified by Apple and Google for VAS and Smart Tap. Tested and qualified for ECP2 access control - boards generally require certification in final enclosure to meet Apple requirements.
- RS-485 interface for connection to modern door controllers, including both OSDP and VTAP protocols
- OSDP secure mode supports easy file transfer of configuration, keys and firmware updates
- MIFARE & NFC tag support including UID, MIFARE sector, secure DESFire, Ultralight AES, NDEF, HCE and MIFARE2Go
- Secure on-board decryption of many pass types and storage of multiple ECC and AES keys
- Support for external serial barcode scanner input
- Configuration, keys and firmware updates either managed locally over USB or via RS-485/OSDP
- Designed to be embedded into other products and housings
- Conformally coated boards for indoor or outdoor applications

Why choose VTAP technology?

VTAP technology is available with a wide range of form-factors and interfaces, offering unrivalled capabilities and features.

VTAP readers support all types of NFC mobile wallet passes and credentials, with extended support for many common RFID/NFC cards and tags.

It is easy to integrate a VTAP reader into any system — platform independent, with no SDK required. And it is simple to configure, deploy, use and update any VTAP reader in the field. Connectivity options include a wide range of host interfaces and protocols.

The VTAP Cloud option adds remote configuration and a unique 'taps to apps' gateway on selected models.

All models are certified for Apple VAS, Google Smart Tap and Apple ECP2/Access Control.

Why choose Dot Origin?

Dot Origin is a trusted partner of Apple and Google, licensed and certified to deliver NFC reader hardware that supports their Wallet programs

We are also long-established partners of NXP, which enables us to support many RFID and NFC technologies such as MIFARE DESFire, NTAG and MIFARE2Go.

We have an extensive partner ecosystem of NFC Wallet card and pass providers, cloud application providers, resellers, installers and distributors.

We offer comprehensive service and support including dedicated consulting and engineering services.

Our VTAP products are engineered in the UK and available in many form-factors as finished products or embedded modules.

Learn more about the VTAP advantage and VTAP readers at **https://vtapnfc.com**.

https://vtapnfc.com

North America +1 (562) 262-9642
Rest of the world +44 (0) 1428 685861

vtap-sales@dotorigin.com

DOT ORIGIN

VTAP100 Access control RS-485/OSDP NFC reader assembly specification

Physical characteristics	VTAP100-PAC-485-OEM: Access control reader assembly with OSDP interface
Dimensions	41mm x 79mm x 18.4mm (1.61in x 3.11in x 0.72in), with integrated 40mm (1.57in) square antenna
Mounting options	4 x mounting holes/lugs, also used to connect the two boards of the assembly
Form factor	
Power supply	USB 5V DC (typ. 110mA, max 150mA)or RS-485 8V-16V DC
Weight	42g (1.5oz), no cable
Operating conditions	-25 to +70°C (-13 to 158°F); 0 to 95% RH non-condensing; conformally coated boards
NFC interface	
Frequency/standards	13.56MHz, ISO 14443A/B, ISO 15693 and ISO 18092
Antenna	Integrated 40mm (1.57in) square antenna
Read range	Typically 50mm (2in) depending on environment and phone/card/tag
Mobile wallet compatibility & features	Apple Wallet NFC cards (VAS for loyalty/membership/tickets, ECP2 DESFire for Access/ID); Google Wallet NFC cards (Smart Tap, including extensions, MIFARE2Go DESFire); Card auto-selection with VAS, ECP2, Smart Tap and DESFire; Express Mode & CDCVM with ECP2; Mobile device type detection; ECC key auto-selection and reporting; Multiple pass type IDs, Apple enrolment URL and Google STUID capture where supported.
Card/tag compatibility & data reading capability	UID/CSN reading from all supported card/tag types – including NFC Type 1 (Topaz), Type 2 (MIFARE Ultralight & NTAG), Type 3 (FeliCa), Type 4 (DESFire, T=CL & HCE), Type 5 (ICODE) & MIFARE Classic; NDEF records from NFC Type 2, 3 & 4; Block data from MIFARE Classic, Ultralight/NTAG (NFC Type 2) & ICODE (NFC Type 5); Secure data reading from MIFARE Classic, MIFARE DESFire, MIFARE Ultralight AES.
Other NFC modes	Dynamic NFC format NDEF card/tag emulation with smart write-back; GymKit handoff; low power mode
Pass IDs	6 x Apple merchant IDs and 6 x Google collector IDs
Encryption key slots	6 x ECC key slots (for Apple & Google ID keys); 9 x Application key slots (for MIFARE Classic, DESFire, Ultralight AES and/or OSDP secure channel)
Encryption algorithms	NIST P-256 modes ECDH and ECDSA, HMAC SHA-256, AES-128 and AES-256 in CTR, GCM, CMAC and CBC modes, ANSI-X9.63-KDF & HKDF according to RFC5869 using HMAC-SHA256, key derivation following NXP AN 10922
USB interface	
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 (for configuration, file transfer and command interface, including OSDP over USB COM)
USB connectors	Micro USB socket or 8-pin captive cable connector for USB (2mm pitch)
Access control interface	
Interface type	RS-485 2-wire bi-directional comms plus nominal 12V power input
Protocols	VTAP serial (active & passive) plus OSDP (basic & secure) for data, configuration, file transfer & dynamic commands
Connectors	4-pin 3.5mm removable screw terminal block - combined power and A/B interface
Cabling	24 AWG twisted pair shielded cable
Other features	
Operator feedback	Buzzer and LED provide device status and tap transaction feedback from reader and/or connected device/application, with customised colours and buzzer frequency and sequences
Reader management	USB/serial interface using configuration text files that can be locked and encrypted firmware file for field upgrades; Full remote management facilities over RS-485/OSDP using either VTAP or OSDP secure file transfer modes
Input/Output options	Built in serial RS-232 interface, supporting external barcode scanner input or alternative serial output/command mode/cable

Compliance/Certification

Apple VAS, Apple ECP2/Access, Google Smart Tap, UKCA, CE, FCC, ISED, RoHS; Will require certification tests in final enclosure to meet Apple ECP2 requirements, according to your use.

JULY 2025

DOT ORIGIN