

HF | NFC CANBUS READER

IGNITE-SMART



PRODUCT DESCRIPTION

The IGNITE-SMART Reader is a battery-powered smart RFID reader which can work as a lock for E-Mobility vehicles, such as electric scooters, electric cars or e-bikes. Its integrated HF and NFC reader supports DESFire and NFC tags and transponders. During production you can program DESFire tags to become RFID keys.

In standard mode, the reader automatically detects a valid RFID key, wakes up the ECU and sends the key number to the ECU. The key number is password-protected and encrypted in the DESFire file system. It communicates with a CANbus (SAE J1939 or CANopen) interface.

The IGNITE-SMART Reader was developed for demanding outdoor usage with its integrated IP64 protection class. It also withstands temperature fluctuations from -10 °C to +50 °C.

The IGNITE-SMART Reader is certified according to RoHS 2 and REACH. It is supplied with a software development kit for Windows systems. This supports the programming languages: Binary command protocol, VS2005 C++ Library. The SDK simplifies the integration into your existing systems.

► APPLICATIONS

- Electric Mopeds / Scooters
- Electric Cars & Trucks
- E-Bikes
- Golf Carts, Go-Karts, Quads
- Any conventional vehicle with CANbus

► FEATURES

- RFID HF | NFC Reader
- Reads DESFire & NFC Tags
- Integrated Antenna
- Battery Powered
- CANbus (SAE J1939 or CANopen)
- IP64 Protection Class

► RFID OPTIONS

- HF (ISO 14443 A/B, ISO 15693)
- NFC (NFC-IP1, NFC-IP2)

TECHNICAL DATA

ELECTRICAL SPECIFICATIONS

Power Supply	7.6 ... 13.8 Vdc (battery powered)
Power Consumption	< 120 mA, standby current < 1 mA (low power mode)
Operating Frequency	HF NFC: 13.56 MHz*
Antenna	Integrated*
Reader IC	CL 663
RF TX Speed	up to 848 kBd
Interfaces	CANbus (SAE J1939 or CANopen) with custom-specific communication protocol
Baudrate CANbus	250 kbit/s
Connectors	JST 04T-JWPF-VSLE-S, 0.33 mm ² /AWG22 wire gauge

MECHANICAL SPECIFICATIONS

Dimensions	81.4 × 68.6 × 24.1 mm
Material	ABS (Acrylonitrile Butadiene Styrene)
Weight	90 g (incl. cable)

ENVIRONMENTAL CONDITIONS

Operating Temperature	-10 °C to +50 °C
Storage Temperature	-20 °C to +60 °C
Humidity	up to 95 %, non condensing
MTBF	200'000 h
Protection Class	IP64 (potted electronics)

*Reading distance depends on tag, antenna and environmental conditions.

SUPPORTED STANDARDS | TAGS

ISO 14443 A and compatible	Read/write: MIFARE® DESFire® EV1 2K / 4K / 8K, MIFARE® Classic Mini / 1K / 4K, MIFARE Ultralight®, MIFARE Ultralight® C, MIFARE® Plus S / X, MIFARE® Pro X, NTAG 21x Read UID only: all other ISO14443A RFID tags
ISO 14443 B and compatible	SRI4K, SRIX4K, AT88RF020, 66CL160S, SR176
ISO 15693 and compatible	EM4135, EM4043, EM4x33, EM4x35, I-Code SLI / SLIX, M24LR16/64, TI Tag-it HF-I, SRF55Vxx (my-d vicinity)
ISO 18092:2013	NFC-IP1, NFC-IP2

APPLICABLE STANDARDS

EMC	EN 301489-1:2012-04 (v1.9.21) EN 301489-3:2013-12 (V1.6.1)
Radio Regulation	EN 300330-1:2015-08 (V1.8.1) EN 300330-2:2015-08 (V1.6.1)
Safety	EN 60950-1:2014-08 EN 62369-1:2010-03 EN 50364:2010-11
RoHS 2	EC Guideline 2011/65/EU and amendment 2015/863/EU, updated by 2017/2102/EU EN 50581:2012 (valid till 2024-07-07) EN 63000:2018
REACH	EU Guideline 1907/2006, updated by 2020/171/EU
Certificates	FCC, CE

SDK INFORMATION

Supported OS	Windows 7, 8, 8.1, 10
Supported Languages	C++, Binary command protocol
Demo Software	Windows

APPLICATION EXAMPLE



IGNITE-SMART AS SMART LOCK FOR ELECTRIC MOTOR SCOOTERS

The IGNITE-SMART Reader is the best practice solution for the smart start/stop functionality of an electric motor scooter. It can be embedded at the front below the handlebar. The integrated CANbus interface can be connected with the electronics of the ignition switch inside the motor scooter.

This enables the driver to start and stop the engine without the need of an ignition key. IGNITE-SMART can read all supported HF/NFC transponders and tags, including DESFire chips. During the production you can program DESFire tags to become RFID smart keys.

This RFID reader can be integrated into all common electric vehicles (cars, buses, e-bikes, etc.) as well as conventional fuel vehicles, such as construction vehicles or truck fleets.

ORDER CODES

VERSION	ORDER CODE
HF NFC CANbus Reader - IGNITE-SMART	S021075HA0