Contactless Technology

Just tap for an easier life

FeliCa
More "Contactless" Convenience

We began developing contactless IC chips in the latter half of the 1980s, since then we have continued to invest in the technology to provide even greater convenience, security and value-add to public infrastructure, including e-tickets for transportation and e-money for payment. As a leading company, Sony endeavors to develop new markets through NFC-based products. Sony will continue to create even more "contactless" convenience.

Adopted in various mobile contactless services

"Mobile Wallet" services in Japan have been in use since 2004, thanks to Mobile FeliCa technology. Apple Pay and Google Pay™ began to support FeliCa in 2016. We will continue to promote Mobile FeliCa as a global mobile platform, based on international standards, and make use of this platform for all types of contactless services.

Fast transactions
Transactions with compatible readers are fast (about 0.1 sec.) thanks to the FeliCa IC chip. Contactless communication means there’s no need to remove the card from a wallet or purse.

High security
Transmission between FeliCa cards, readers and controllers is encrypted. What’s more, a new encryption key is generated for each transaction, protecting users from security risks.

Many possibilities
Data for a range of applications can be managed in files and folders on a FeliCa card. Potential services include e-tickets, e-money, loyalty point services and many other applications.

ISO/IEC 18092 and FeliCa

The communication system for FeliCa contactless technology conforms to ISO/IEC 18092 (NFCIP-1), the standard jointly proposed by Sony and NXP Semiconductors. NFC technical specifications were decided by the NFC Forum based on international standards set by ISO/IEC and support ISO/IEC 14443 and ISO/IEC 18092. FeliCa is one standard within the NFC framework.

*1: The world’s first certification for a product that contains an embedded software and functions as a contactless IC card
*2: EAL6+ Certification of Common Criteria (ISO/IEC 15408), the International Standard for IT Security
IC card tickets throughout Asia Pacific

Recognized for their high level of security, FeliCa IC card tickets have been introduced by public transportation operators throughout Asia Pacific region.

- **Hong Kong: Octopus Card & Mobile**
  Introduced in Hong Kong in 1997, the FeliCa-based Octopus card was one of the world’s first IC card transit tickets. Since 2013, Octopus has been offering a mobile service.

- **Vietnam: ETC Card**
  FeliCa has been adopted as an ETC smart card for the automated expressway toll collection system that connects the cities of Ho Chi Minh and Dau Giay.

- **India: Chennai Metro Travel Card**
  FeliCa has been adopted as an IC transit ticket by Chennai Metro, which was constructed in India to ease traffic congestion in the city of Chennai.

- **Indonesia: KCI Transit Ticket**
  PT KERETA COMMUTER INDONESIA (KCI), a leading rail operator in Indonesia, has adopted FeliCa technology for its IC ticket operation. KCI has launched contactless prepaid card tickets as well as FeliCa embedded wristbands.

- **Sri Lanka: Combination Bank card & IC Transport Ticket**
  FeliCa has been adopted for bank cards that can also be used for public transportation.

- **Vietnam: ETC Card**
  FeliCa has been adopted as an ETC smart card for the automated expressway toll collection system that connects the cities of Ho Chi Minh and Dau Giay.

- **Bangladesh: Rapid Pass Card**
  Bangladesh has introduced a FeliCa transit card in the fare collection system for the state-run bus company and several private bus companies.

IC card transit tickets / interoperable services throughout Japan

FeliCa IC cards are used as tickets for public transportation throughout Japan. Since spring 2013, 10 different types of IC transit cards have become interoperable throughout Japan. More transport systems can now accept more operators’ cards than ever before. IC card tickets can also be used as e-money at a growing number of stores.

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E-payment

FeliCa is used in various prepaid/postpaid e-money services. These services can also be incorporated in mobile phones (Osaifu-Keitai).

The flexibility of FeliCa

In addition to card format, FeliCa technology can be used in a variety of form factors, such as mobile phone and coin-type tokens. FeliCa can also be incorporated into wristwatches or key fobs.
ANA: SKiP Service
SKiP Service by All Nippon Airways enables passengers to check in and board simply by tapping a mobile wallet phone or ANA card compatible with Rakuten Edy or Suica to a reader. Earned mileage points can be converted to e-money.

JAL Touch & Go Service
Touch & Go Service by Japan Airlines enables passengers to pass through boarding gates simply by tapping their mobile wallet phone or JAL IC card to the reader. Earned mileage points can be converted to e-money.

Golf course membership card
FeliCa cards can be used as membership cards for a golf course in Kuala Lumpur, Malaysia. The multi-application function can be used for loyalty programs, access control, and payment at the golf facilities.

FeliCa Lite-S fan club cards
Fan club cards using FeliCa Lite-S enable smooth access control with a simple tap at event venues, stamp rallies, and as proof of purchase, among other things.

ID cards at US universities
Sony has partnered with Blackboard to provide campus solutions using FeliCa-based ID cards and NFC readers. Starting with Santa Clara University, Blackboard has now expanded to introduce FeliCa/NFC infrastructure into more than 365 universities, of which more than 60 also use FeliCa card.

ID cards for students, faculty, and employees
FCF, a shared usage format of FeliCa for ID cards, has been introduced in Japan at 347 universities and other educational institutions, as well as 110 companies and local governments. A total of 159 companies have joined the FCF Promotion Forum launched in 2004, and each company is providing diverse services. They began offering a new format in 2013, making FeliCa usable on even more systems.
**e-Application, Logical Access**

### NFC reader supporting various IC Cards

NFC reader RC-S380 (PaSoRi) has read/write capability with FeliCa cards / FeliCa-compatible devices and ISO/IEC 14443 Type A / Type B cards, such as Individual Number Card, Passport, and Driver’s License Card.

![PaSoRi](image)

### Filing tax returns at home

You can perform final return procedures for income tax at home with the Individual Number Card and NFC reader RC-S380 connected to your PC. So you do not have to visit the tax office in person.

### Login authentication for telework

To cope with various workstyles, it is necessary to protect the important information on laptops and tablets by ensuring the appropriate level of data security. Companies are introducing two-factor login authentication: ownership authentication using FeliCa credentials, and knowledge-based authentication using the ID and password.

**Login with PaSoRi**

### CE, IoT, other

**One-touch functions that use NFC**

Using NFC technology to authorize devices with a single tap, Sony has developed the One-touch functions capable of data transmission. An increasing range of products comes equipped with this capability.

- Glass Sound Speaker LSPK-S1
- Wireless Noise-Canceling Headphones WH-1000XM3
- Digital Still Camera DSC-RX100M7

**Cleansui water purifier**

Mitsubishi Chemical Cleansui Corp. incorporates a FeliCa Link in a faucet-mounted water purifier. Simply by touching the water purifier with the smartphone, you can check information such as the cartridge condition and expected date of replacement.

**Cleansui CSP801i**

**Terumo HR Joint-compatible devices**

Daily vital data measured with an HR Joint-compatible device can be transferred to a PC and shown in a graph simply by placing the device over a reader.

- Blood pressure monitor
- Electronic Thermometer
Major Products

**FeliCa Standard Contactless IC Product**
**RC-SA01**
This is a highly versatile IC product with secure standard FeliCa capability, supporting AES encryption standard. This product is suitable for high end secure applications, such as transportation and e-payment.

**FeliCa Lite-S Contactless IC Product**
**RC-S966**
With a simplified security functionality and optimized file system, FeliCa Lite-S can be used in stickers, posters, and other such items. They conform to NFC Forum Type 3 Tag Specification.

**FeliCa SAM for Reader**
**RC-S500**
The FeliCa Secure Access Module (SAM) enables various terminals to support FeliCa security functionality for a wide range of applications. This product supports both AES and DES encryption systems.

**SDK for NFC/FeliCa (Software Development Kit)**
A range of SDK products for NFC/FeliCa operating on a Windows® or Linux PC to support efficient development of FeliCa applications.

**USB NFC Reader Product**
**RC-S380/S**
RC-S380 is an NFC capable reader which can be connected to a PC via a USB port.

**Embedded NFC Reader Modules**
A range of NFC modules for PC, tablet and other consumer electronic devices. They can communicate with any device conforming to the NFC Forum Specifications.

**NFC Dynamic Tag**
**FeliCa Link**
FeliCa Link inherits the functionality of FeliCa Plug and FeliCa Lite. In addition, it supports reader/writer functionality as well as NFC-DEP function.

**FeliCa Plug**
This product can be integrated into various types of electronic devices. It is especially suitable for health equipment, electronic toys and other small, low-power-consumption devices as its power consumption on standby is less than 0.1 uA.

Visit our website for detailed information on NFC/FeliCa technology, products and applications.

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