The RC-S500 product is the FeliCa™ SAM for FeliCa readers that support AES and DES encryption systems. This product enables various terminals to utilize FeliCa security functions for a wide range of applications.

OVERVIEW
The RC-S500 product is a FeliCa SAM (Secure Application Module) for FeliCa readers that use AES/DES encryption systems. It also provides the necessary functionality for secure access to FeliCa Standard cards that use AES/DES encryption systems. To develop a FeliCa secure reader system, simply insert this product into the SIM card slot of the reader terminal.

FEATURES
- **Support for the new-generation AES encryption standard**
  For encrypted communication between a card and a reader, as well as between RC-S500 and a reader, further enhanced security is realized using the AES encryption system in addition to the existing DES encryption system.

- **High level of security**
  The security IC chip mounted in this product is expected to obtain Common Criteria (ISO/IEC 15408) EAL5+ certification. By storing the encryption keys and security algorithm in the IC chip, it is possible to create a high-security system with this product.

- **Fast data communication**
  The RC-S500 product can communicate with a reader, in which this product is inserted, at a maximum data transfer speed of 1.25 Mbps*, suitable for systems that require fast processing.
  * With the input clock running at 10 MHz.

- **Compatibility with current products ensured**
  The RC-S500 product is compatible with RC-S251 (in terms of commands* and electrical characteristics) to facilitate transfer to systems that use AES cards.
  * Not including control commands, such as initial settings, and so on.
**MAIN FUNCTIONALITY**

**RC-S500**

<table>
<thead>
<tr>
<th>Communication standard</th>
<th>· RC-S500 command transmitted and received on the Command / Response ADPU conforming to ISO/IEC 7816.</th>
</tr>
</thead>
</table>
| Security               | · Encrypted communication between RC-S500 and reader  
· Encrypted communication between RC-S500 and card |
| Key management         | · Managing System Key, Area Key, Service Key and Group Key for the FeliCa card  
· Mutual authentication with FeliCa card  
· Encryption of card command packet  
· Decryption of card response packet  
· Calculation of card response time-out time  
· Generation of command package  
· Generation of Group Key |
| Access to FeliCa card  |                                                                                                     |

**PRODUCT SPECIFICATIONS**

<table>
<thead>
<tr>
<th>External interface / transmission method</th>
<th>Conforms to ISO/IEC 7816 (T=1 protocol)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input clock</td>
<td>1 to 10 MHz</td>
</tr>
<tr>
<td>Communication speed</td>
<td>Max. 1.25 Mbps (Input clock: 10 MHz)</td>
</tr>
<tr>
<td>Operating temperature / humidity</td>
<td>-25 °C to +85 °C (10% RH to 90% RH)</td>
</tr>
<tr>
<td>Card external dimensions (plug section)</td>
<td>ISO/IEC 7810 ID-1/000 card (25 mm x 15 mm)</td>
</tr>
<tr>
<td>Non-volatile memory</td>
<td>Write endurance 100,000 times</td>
</tr>
<tr>
<td></td>
<td>Maximum key registration 512 (System/Area/Service Key, DES/AES total) 32 (Group Key,DES/AES total)</td>
</tr>
<tr>
<td>Operation voltage / consumption</td>
<td>Support ISO/IEC 7816 Class A (5 V), Class B (3 V)</td>
</tr>
</tbody>
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- FeliCa is a trademark of Sony Corporation. FeliCa is a contactless IC card technology developed by Sony Corporation.  
- Other system names and product names described in this catalog are generally registered trademarks or trademarks belonging to their respective development manufacturers.  
- Note that TM and ® symbols are intentionally omitted from the rest of this document.