

Remote Branch Terminal RT51

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A remote branch terminal (hereinafter referred to as the "RBT") is a customer-operated terminal (**Fig. 1** and **Photo 1**) used by customers to apply for various contracts or to file notifications through interactive dialog with operators in remote locations (call centers).

The operating rates of operators can be increased and an improvement in their work efficiency can be attained by concentrating work operations relating to responses to inquiries, providing consultations and assessing contract applications from customers to operators, known as specialists. This means that highly capable operators able to satisfy customers can respond to a large number of customers, leading to teller services with a higher level of quality.

At Oki Electric we started the sale of RBT units loaded with a card loan contracting feature for consumer financing companies in 1995. Because this coincided with the needs of customers wanting to make loan applications at any time using machines, the RBT market expanded at a burst as the number of unmanned branches increased. Since then the operation of RBT units expanded to teller and consultation work at banks, including different contracts and various applications. With business alliances being formed between financial

institutions and consumer financing companies recently, features to meet a diverse range of operations and duties are required of these units.

The new type of RBT, the "RT51" and the main component unit, the "scanner printer", described below, were developed based on know-how and experience accumulated at Oki Electric over the years and through our pursuit for a high level of security, expandability and operability.



Photo 1 External view of RT51

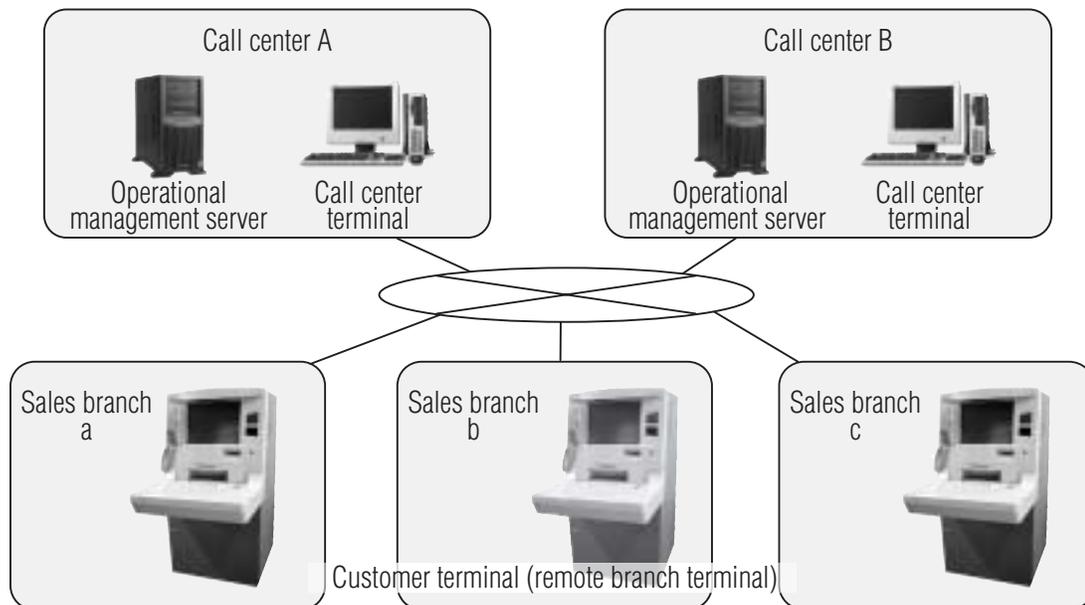


Fig. 1 System configuration

Features of RT51

(1) High level security

Since RBT units installed at unmanned branches are not provided with the means to prevent intrusion by suspicious individuals from the outside, there is a need for protection against peeking when customers enter their personal information, as well as proper precautions and thorough management with regards to the handling of documents containing personal information, such as contracts.

① Consideration for entry of information by customers

Units are designed to accommodate the mounting of a special angle of visibility limiting filter that limits the view of the customer operation screen, as well as a PIN pad, making it more difficult to observe the entry of a personal identification number than when it is entered using a touch panel on the customer operation screen, in order to prevent sneak peeks of personal information from the surrounding area as it is entered.

Furthermore, features to support IC cards with a high level of security, as well as to accommodate operations and duties involving the use of biometric authentication functions, such as “finger vein authentication”, “palm vein authentication” and “iris authentication”, can also be provided.

② Handling of cards and contracts

A collection box that stores the contracts containing personal information, as well as a card cassette, which stocks the cards issued when the contracts are finalized, have locks installed. Since they can both be taken out of the unit locked, the level of security during transport is increased, preventing information from leaking to persons other than those in charge of managing the keys for the locks.

(2) Expandability improvements

Scanner printers and card issuing units can be adapted to accommodate a diverse range of operations and duties by providing expandability so that additional printing paper trays or card cassettes can be installed.

Examples of expansion types are shown in **Table 1**. Up to a maximum of four different types of cards or documents, such as contracts, can be issued and printed.

Table 1 Examples of expansion types

		Standard	Maximum	Minimum
Card issuing unit	Card cassette	1	4	1
Scanner Printer	Paper tray	2	4	-
	Collection box	1	1	1

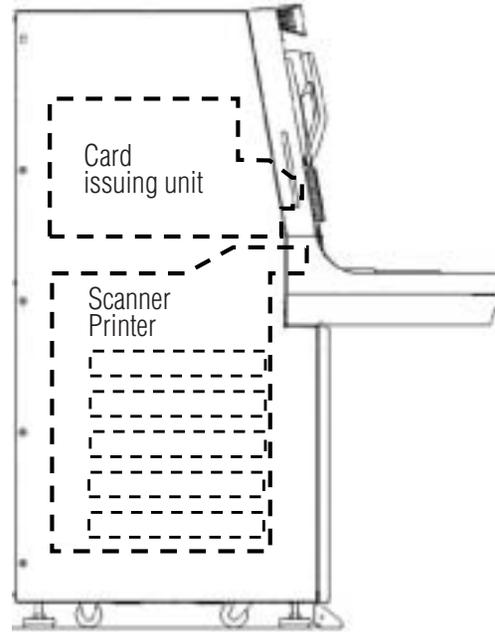


Fig. 2 Lateral diagram of RT51

Furthermore, by miniaturizing the card issuing unit and scanner printer, the unit depth was reduced by 20cm in comparison with the existing model (RT21) (**Fig. 2**).

This dramatically increased a freedom of space in the layout at branches, increasing the space provided to customers for writing or seating at existing branches, whereas implementation of these units at smaller branches became viable, where space limitations had in the past hindered the installation of the existing model.

(3) Operability improvements

The image of RT51 has departed from the edgy image at the front section of the existing model, where interaction takes place with customers, to a softer image with a rounder form. The following operational comforts were realized.

① Operability consideration for customers

The documents handed over to customers are passed to them in an upright angle, with the back, front, as well as up and down orientations facing the customers at the tellers so that they may immediately start reading the contents (**Fig. 3** on the next page).

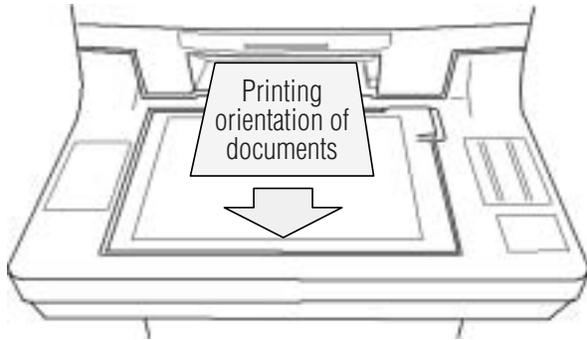


Fig. 3 Orientation of printed documents

② Substantiation of automatic phone feature

An automatic phone, which automatically initiates a call to a set destination when the handset is lifted, is used to provide guidance to customers through conversation. Since the configuration for the set call destination can be changed via LAN from call centers, it is possible to easily switchover call destinations for individual units to suit multiple operational modes or to match particular operating hours.

Furthermore, since calls initiated by operators at call centers are automatically received, it is possible to call up or engage in conversations with customers through the use of the hands-free call feature if they do not respond to the ringing without lifting the handset. By listening for environmental sounds around the customer terminal through the microphone, it is also possible to monitor the customer to ensure that there are no third parties forcing the customer to sign up for a contract.

Features of scanner printers

A scanner printer is a main component of the unit that performs the scanning, collecting and printing of critical media, such as contracts for contracting operations. The adopted structure integrates both the scanner and printer into a single unit for the sake of miniaturization, as was the case with the existing model, while reliability, security and operability have been improved over the existing model.

The configuration of the scanner printer is shown in Fig. 4.

(1) Reliability improvements

By reviewing the allocation of the sub units, such as the “scanner”, “printer”, “media sorter”, “collection box” and “paper tray” in the RT51 model, diversions that existed on feed routes in the existing model were eliminated to dramatically simplify the feeding routes while the number of parts were also reduced. Through all this, it was possible to reduce the number of feeding jams and increase reliability.

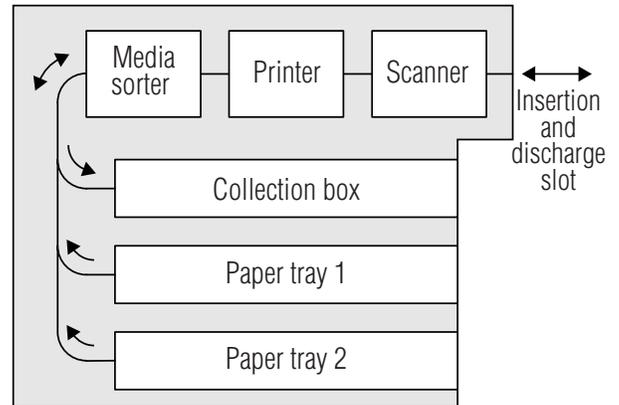


Fig. 4 Configuration of scanner printer (lateral diagram)

Contracts and applications inserted by customers are stored in the collection box. However, since customers handle these documents prior to their insertion they are often curled up or folded. In order to securely store such documents a tray structure was adopted for the collection section of the existing model. With the know-how gained from accumulating bank notes in ATM units, we developed a mechanism using a box structure the same size as the existing model as well as a lock to securely store the documents and raise the stability for storing the documents while sustaining a capacity of 100 sheets (Photo 2).



Photo 2 External view of collection box

(2) Media collection security

In order to finalize a contract, it is necessary to receive contractual documents that have been reviewed by the customer (to collect them in the unit) without being switched with some other documents.

Once the customer places the documents in the insertion slot the scanner printer automatically scans the inserted documents while feeding them through to the inside. Therefore, it is possible to ensure the collection of the original documents, such as contracts, when they have been scanned and store them securely inside the unit to prevent malicious action, such as the switching of documents (Fig. 5).

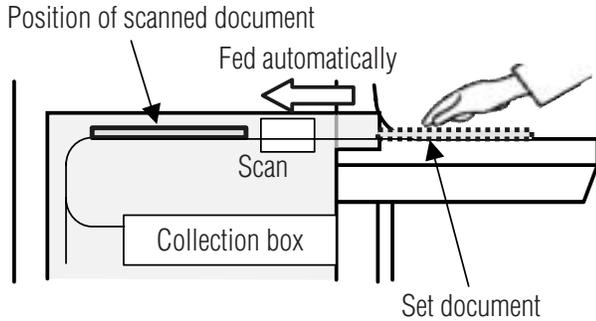


Fig. 5 Scanning mechanism for documents (lateral diagram of unit)

(3) Operability improvements for attendants and security personnel

Paper trays and collection boxes have been configured in a way that allows them to be inserted or extracted from the front of the unit simply by opening the unit door, with consideration given to minimizing the frequency of operations for paper replenishing and collecting.

This made it possible to reduce the operation time, malfunctions and operation errors arising from the insertion and extraction of such component units.

(4) Printing method requires no consumable supplies

Printers that use printing methods involving toners and ink raise concerns, such as print thinning, which make them unsuitable for unmanned operations. They also increase the running costs related to consumables (such as the replacement of expensive toner and drum cartridges).

Since there is no need for consumable supplies, such as ink, with the direct thermal (thermal sensitive) method adopted by Oki Electric, print thinning does not occur and running costs are kept low. Furthermore, since there is no need for a heater warming up time, as with printing methods that use toners, printing can be initiated instantly. Thermal papers for which there may be concerns regarding their life can actually be stored for approximately ten to 100 years, making it possible to select their type in accordance with the operating conditions.

As mentioned above the RT51 unit is a product that incorporates the needs of the market, such as the operation of multiple modes with a higher security level, while offering increased reliability and operability by taking advantage of the mechatronics technologies at Oki Electric.

By providing products that can be used for a wider range of business operations, such as unmanned procedures, consultations or reception duties and more efficient operations in the future we hope to keep on pushing the envelope to make it possible to offer services that rival those provided by tellers at manned branch offices, with a smaller unmanned space and lower operating costs.

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