Small Receipt Printer Unit
FTP-627USL Series

A small, incorporated receipt printer unit that pursues convenience in paper changing and cutter handling. It utilizes an USB interface with an OPOS driver. It is optimal as an incorporated printer in small devices that require receipt issuance such as multimedia kiosks and ticketing machines.

Introduction

Using our original cutter concept, FUJITSU has developed a small incorporated receipt printer unit featuring easy cutter operation. Nearly 50% miniaturization over our conventional product has been realized in this receipt unit that offers excellent operability and mountability.

Overview

FUJITSU has conventionally developed and distributed custom units and standard 3-inch incorporated receipt units for ATMs and multimedia kiosk applications. In such applications, various operators receive the receipts, and problems related to cutter damage and cutter jamming as a result of pulling the paper forcefully during cutting occur frequently. As such, it was conventional to provide a presenter mechanism, etc. as a countermeasure.

Size reduction in customer devices has advanced in recent years and has led to demand for a small incorporated receipt unit that can realize miniaturization and price reduction.
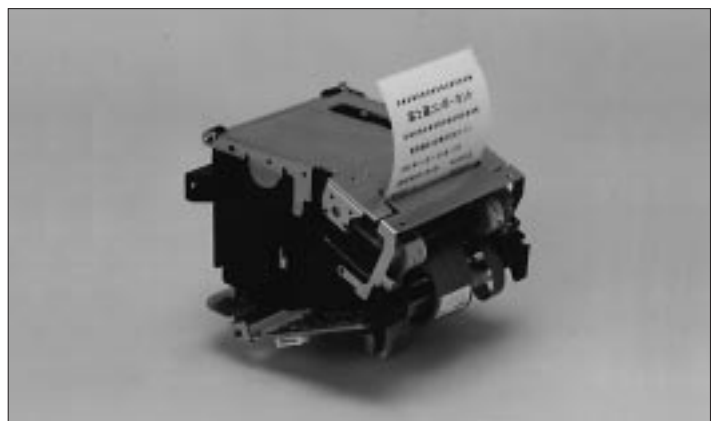
Design Concept

This product offers a safe work environment to on-site operators. It provides solutions to the on-site problems of receipt printer use such as easy cancellation in the case of cutter jamming, cutter protection against paper being pulled

Photo 1 External View (Panel Mount Type)

Photo 2 External View (Desktop Mount Type)

during cutting, etc.

Fig.1 shows the external dimensions, **Fig.2** an illustration of the conventional cutter principle, and **Fig.3** an illustration of the low-height cutter principle.

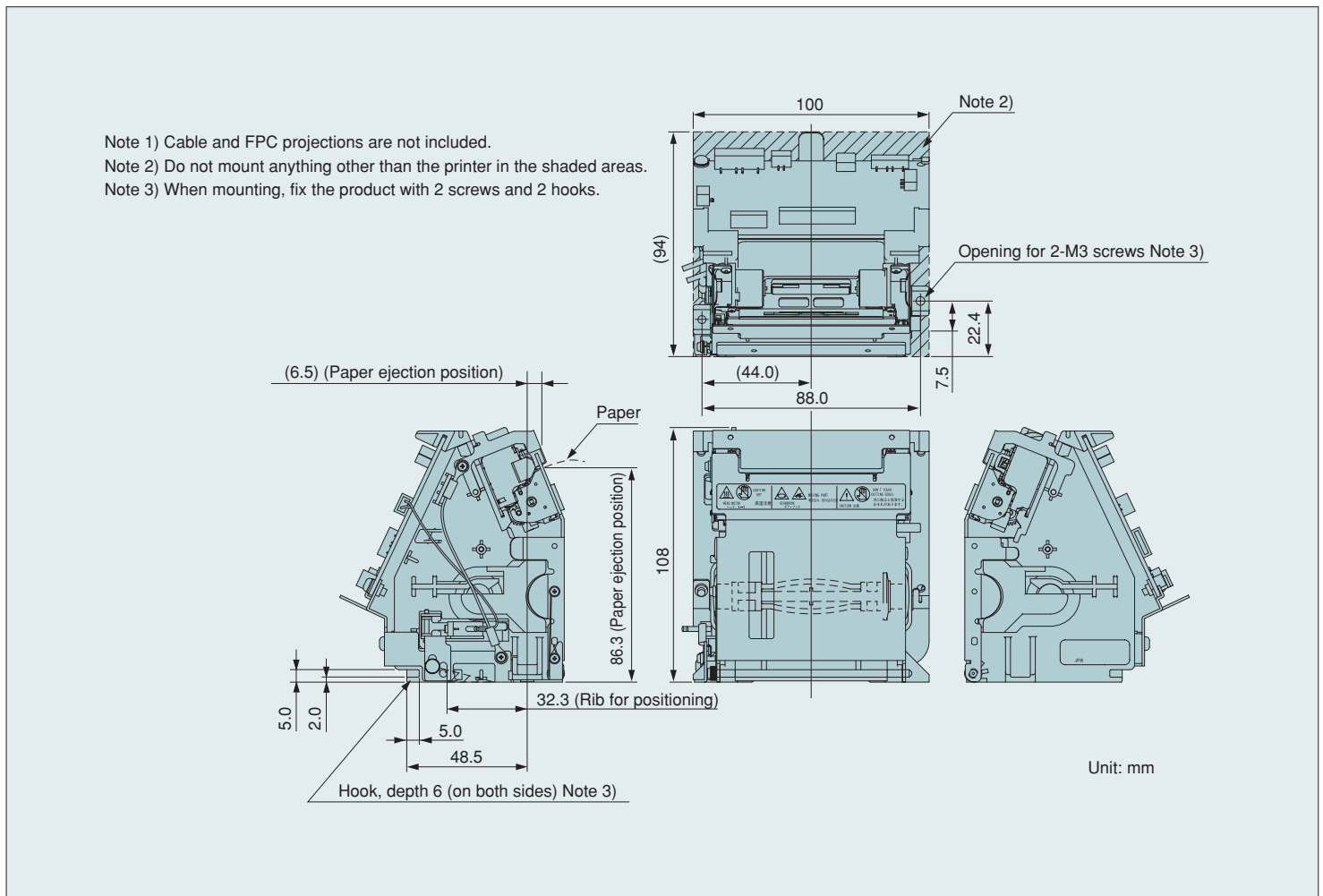### ■ Concept 1: Easy cancellation of cutter jamming

Problem: In conventional cutters, the moving blade is located on the top of the printer machine and the fixed blade is on the platen side. The moving blade slides under pressure— the blade pressure of the fixed blade comes via the spring of the moving blade. As such, pressure is maintained between the moving blade and the fixed blade when the cutter blade stops due to cutter jamming. In this situation, the top of the fixed blade becomes blocked and the cutter locks because the fixed blade is mounted on the paper cover side. In conventional models, the operator needs to open the device cover on the printer side and turn the manual knob or insert a screwdriver into the operation opening on the side of the device, etc. to return the moving blade of the cutter to its home position and then open the paper cover.

Proposal: FUJITSU has developed an original method by establishing the moving blade on the paper cover side and the cutter compression spring on the fixed blade side. The spring used for automatic home positioning is positioned on the moving blade.

Since the cutter compression spring is mounted on the bottom of the fixed blade in this method, the moving blade moves slightly upward via the paper cover opening operation and provides a gap between it and the fixed blade. The freed moving blade automatically returns into the cutter storage

Figure 1 External Dimensions

Note 1) Cable and FPC projections are not included.
Note 2) Do not mount anything other than the printer in the shaded areas.
Note 3) When mounting, fix the product with 2 screws and 2 hooks.

Unit: mm

block via the home positioning spring. As a result, locking is eliminated and the paper cover can be opened and closed freely.

The superiority of this method lies in the fact that recovering from a cutter jam can be carried out using the same procedure as that used to exchange paper-it can even be performed by operators who are unfamiliar with the printer.
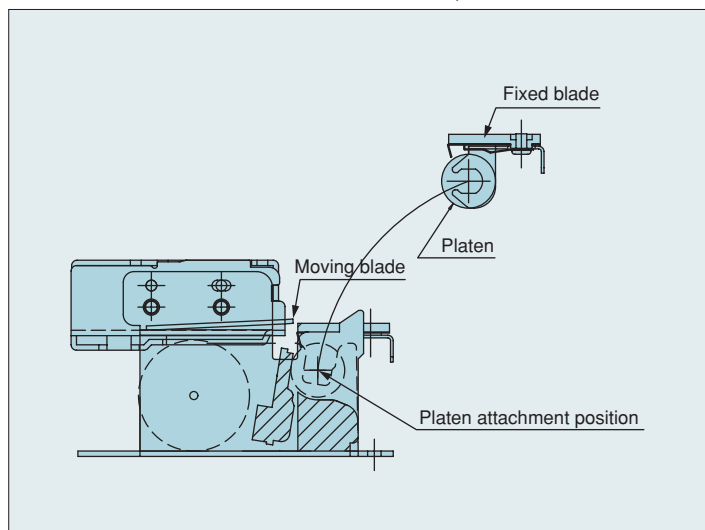
■ Concept 2: Cutter protection

Problem: One of the most difficult problems for printers with cutters in the market relates to cutter protection. Due to the principle of conventional cutters explained in Concept 1, the moving blade is twisted and becomes deformed, leading to cutting errors if the paper is pulled during a cutting operation. Proposal: In the cutter method proposed by FUJITSU, the moving blade slides using a pinion gear and the blade pressure necessary for cutting is provided from below at the fixed blade. In this way, the blade pressure spring is not affected by irregular operation, and proper cutting operation is guaranteed afterwards.

■ Concept 3: Fully fail-safe

Problem: The conventional cutter method requires the detection of paper cutter opening to prevent the moving blade from moving. The operator is exposed to danger if the moving blade moves by mistake during paper exchange-as such, safe design is essential.

Proposal: In our newly proposed method, the sole driving force for the moving blade is the home positioning spring. The

moving blade is always positioned in the storage block and safety is maintained when the cover is open.

The above design concepts are solutions to assure safe and stable operation in devices with various operators. This product can provide an advantageous factor to differentiate the customer devices as well.
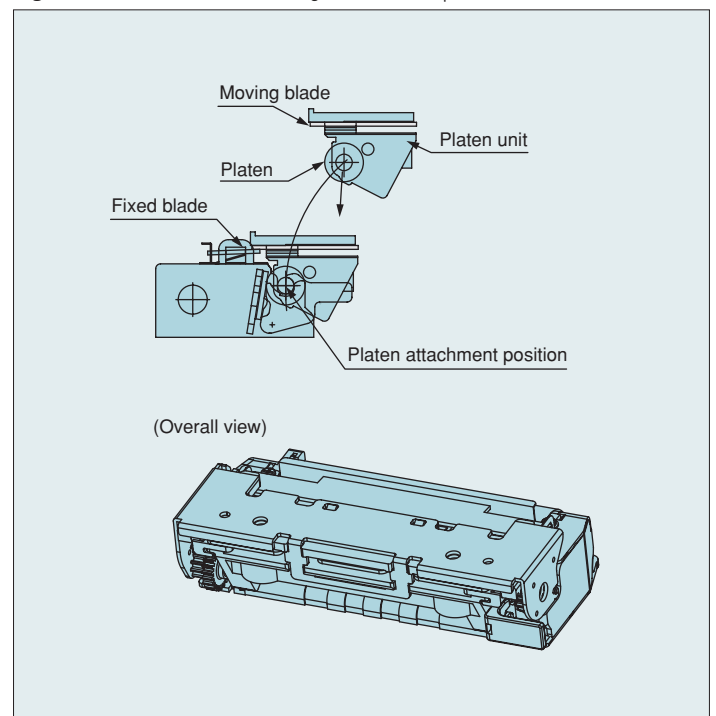
In addition, our cutter method adopts a stepping motor, unlike the conventional DC motor driving method. As such, cutter operation is easy even under low voltage. While DC motors require large current for initial movement and a special power supply must be used, the motor utilized in our method can be controlled using an equivalent power supply as a normal printing carrier motor. Furthermore, no abnormal current flows take place when cutter lock occurs. The motor steps out and prevents mechanical damage, etc. due to abnormal load.

Product Features

■ Easy loading

Setting is only completed by inserting the paper roll. Speedy paper roll exchange is possible even during busy times.

Figure 3 Illustration of the Low-height Cutter Principle

Figure 2 Illustration of the Conventional Cutter Principle

■ **Easy cutter operation**

Jamming can be cancelled by the same procedure as paper exchange when cutter jamming occurs. In addition, the cutter will not become damaged by pulling the paper during cutter operation. It offers safe operation even in applications with various operators.

■ **Safe design**

Fail-safe design provides the various operators with a safe working environment.

■ **High-speed USB interface realized**

It supports USB and realizes high-speed printing.

■ **Substantiated driver software**

Drivers supporting Windows® XP/2K, OPOS, and Linux are available, thus allowing use in various OS environments.

■ **Compact design**

Approximately 50% miniaturization has been realized over our conventional product; as such, it contributes to space-saving designs flexibly.

■ **Various sensing functions supported**

It supports the detection of paper shortage, open platen, cutter initialization error, and temperature anomaly as well as impending paper shortage.

Application Examples

This product is optimal for applications with various operators including those at multimedia kiosks, digital camera self-print stands, and ticketing devices for parking tickets or numbered tickets. Two mounting forms, panel mount type and desktop type, are available.

Specifications

Table 1 presents the main specifications of this product.

Future Development

FUJITSU will continue to develop and release large-diameter paper rolls, high-speed printer products, etc. in order to address ever-diversifying customer needs. ✳

NOTES

✳ Windows is a registered trademark of the U.S. Microsoft Corporation in the U.S. and other nations.

✳ Linux is a registered trademark or a trademark of Linus Torvalds in the U.S. and other nations.

✳ OPOS is an abbreviation of Open POS for OLE.

Table 1 Main Specifications（FTP-627USL401）

Printing method		Thermal printing
Head	Resolution	8 lines/mm
	Qty of heating element	432 dots
Valid printing width		54mm
Paper	Width	58mm ＋0/−1
	Paper roll diameter	Φ60mm (max.)
Printing speed		100mm/sec
Character type		1st-level Japanese characters, 2nd-level Japanese characters, ANK, international characters, registered extended characters
Barcode	One-dimensional	UPC A/E，JAN8/13，CODE39，ITF，CODABAR
	Two-dimensional	QR, Maxi, PDF417
Power supply voltage	Head/motor	24V
	Logic	5V
External dimensions　W×H×D		100mm×108mm×94mm
Interface		USB V1.1