# FUJITSU

# 24V DRIVEN RECEIPT, TICKET PRINTER

# 3" KIOSK PRINTER UNIT

# FTP-639USL100/200-R Series

## ■ OVERVIEW

The FTP-639USL Series is 24V driven receipt printer unit with cutter for 3 inch wide paper. The unit has our high-speed FTP-639MCL mechanism, cutter and control board, with an integrated paper feed and built-in paper guide section.

The receipt printer unit is most suitable for applications such as Kiosk, ATM, receipt, label, and ticket issuing printers for various other equipment.

FTP-639USL100
horizontal, without presenter

## ■ FEATURES

- External presenter option
- Medium duty unit (mounting is easy)
- Ultra high speed printer (125/200mm / sec.)
- Auto cutter included
- Paper near end-detection function
- Up to 6 inch paper roll diameter
- Rear paper auto loading
- Paper jam detection
- Prints 2-D barcodes

FTP-639USL100
vertical, without presenter

FTP-639USL200 - with presenter

## ■ DESIGNATION

| Item | | Part Number | Comment |
|---|---|---|---|
| Printer module interface | USB (ver 2.0) | FTP-639USL101* | without presenter and with paper arm |
| | Serial (RS-232C) / USB | FTP-639USL102* | |
| | USB (ver 2.0) | FTP-639USL111* | without presenter and without paper arm |
| | Serial (RS-232C) / USB | FTP-639USL112* | |
| | USB (ver 2.0) | FTP-639USL201* | with presenter and with paper arm |
| | Serial (RS-232C) / USB | FTP-639USL202* | |
| Cables | USB interface | FTP-629Y301 | |
| | Serial interface | FTP-629Y302 | |
| | Power for logic, head, motor | FTP-629Y603 | |

*: Interface board is FTP-629DSL350 series

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# FTP-639USL100/200-R Series

## ■ SPECIFICATIONS

| Item | | Specifications |
|---|---|---|
| Part number | | FTP-639USL101/102/201/202 |
| Printing method | | Thermal-sensitive line dot method |
| Dot structure | | 576 dots/line |
| Dot pitch (Horizontal) | | 0.125 mm (8 dots/mm)—Dot density |
| Dot pitch (Vertical) | | 0.125 mm (8 dots/mm)—Line feed pitch |
| Effective printing area | | 72 mm |
| Paper width | | $80^{+0}_{-1}$ mm |
| Paper thickness | | 60 to 100 μm |
| Paper print length | | 60 to 254mm |
| Cutting type | | Full or partial |
| Number of columns | | 48 columns/line (12×24 dot font) |
| Maximum printing speed | | 1600 dotlines/s (200 mm/s) |
| Page mode | Middle speed mode | 80mm/sec. without automatic division |
| | High speed mode | 125 mm/sec.without automatic division |
| | Ultra high speed mode | 200 mm/sec.without automatic division |
| Character types | | Alphanumeric KANA: 159, Registered: 94, International: 195, OCR I: 103, OCR III: 23, OCR IV: 103, JIS KANJI: approximately 6800 |
| Character composition, dimensions (H×W), Number of characters | | 24 × 12 dots, (3.0 × 1.5 mm), 48 columns<br>24 × 24 dots, (3.0 × 3.0 mm), 24 columns<br>16 ×  8 dots, (2.0 × 1.0 mm), 72 columns<br>16 × 16 dots, (2.0 × 2.0 mm), 36 columns<br>OCR I:   24 × 40, 24 columns<br>OCR III:  24 × 48, 24 columns<br>OCR IV:  36×60, 16 columns<br>Expanded: 24×48, 24 columns |
| Interface | | Serial (RS232C), USB |
| Power supply | For head | 24VDC ± 5%, Voltage<br>Current : average[1]  (   ): Peak 12.5% printing ratio<br>1.5 (2.2) A (at 200 mm/s printing speed, 1 division)<br>0. 8(1.1) A (at 125 mm/s printing speed, 2 divisions)<br>0.7 (1.1) A (at 80 mm/s printing speed, 2 divisions)<br>0.6 (2.0) A (at 80mm/s printing speed, automatic division) |
| | For print motor | 24VDC ± 5%, 1.3 A maximum, 1.0A average |
| | For presenter | 24VDC ± 5%, 1.3 A maximum, 1.0A average |
| | For cutter | 24VDC ± 5%, 1.4 A maximum |
| | For logic | 5VDC ± 5%, 0.2 A maximum (converted from 24V) |

(Continued)

(Continued)

| Item | | Specifications |
|---|---|---|
| Dimensions | | 120.0(W) × 100.0(D) × 80.0(H) mm |
| Weight (mechanism, cutter, board, frame) | | Approx. 760g without arm, 990g with arm. 1200g with arm & presenter |
| Expected life | Mechanism | Pulse durability : 100 million pulse/dot (using Fujitsu's standard driving method)<br>Wear resistance: 100 km (at 12.5% printing ratio) |
| | Cutter | 1,000,000 cuts |
| | Platen | 5,000 cycles |
| Environmental conditions | Operating temperature | –20˚C to +60°C |
| | Operating humidity | 10 to 85% RH (no condensation) |
| | Storage temperature | –25˚C to +65°C (excluding paper) |
| | Storage humidity | 5 to 90% RH (no condensation) |
| Detection | Head temperature | By thermistor (applied energy control, abnormal temperature detection) |
| | Paper out/Mark detect | By photointerrupter |
| | Platen open | By microswitch |
| | Near end paper | By mechanical switch |
| Recommended thermal sensitive paper | | For rear insertion use (80 mm width)  : FTP-030P0701/P0102<br>Recommended papers<br>· Oji Paper  : PD150R,PD160R-N,PD170R<br>· NIPPON Paper  : TF50KS-E,TF60KS-E, TF50KS-E4<br>· MITSUBISHI Paper Mills  : P220VBB-1,AFP-235 |
| Paper diameter | Standard | 83mm |
| | Extended | 150mm |

*1:  24VDC, minimum head resistance.

## ■ FUNCTIONS

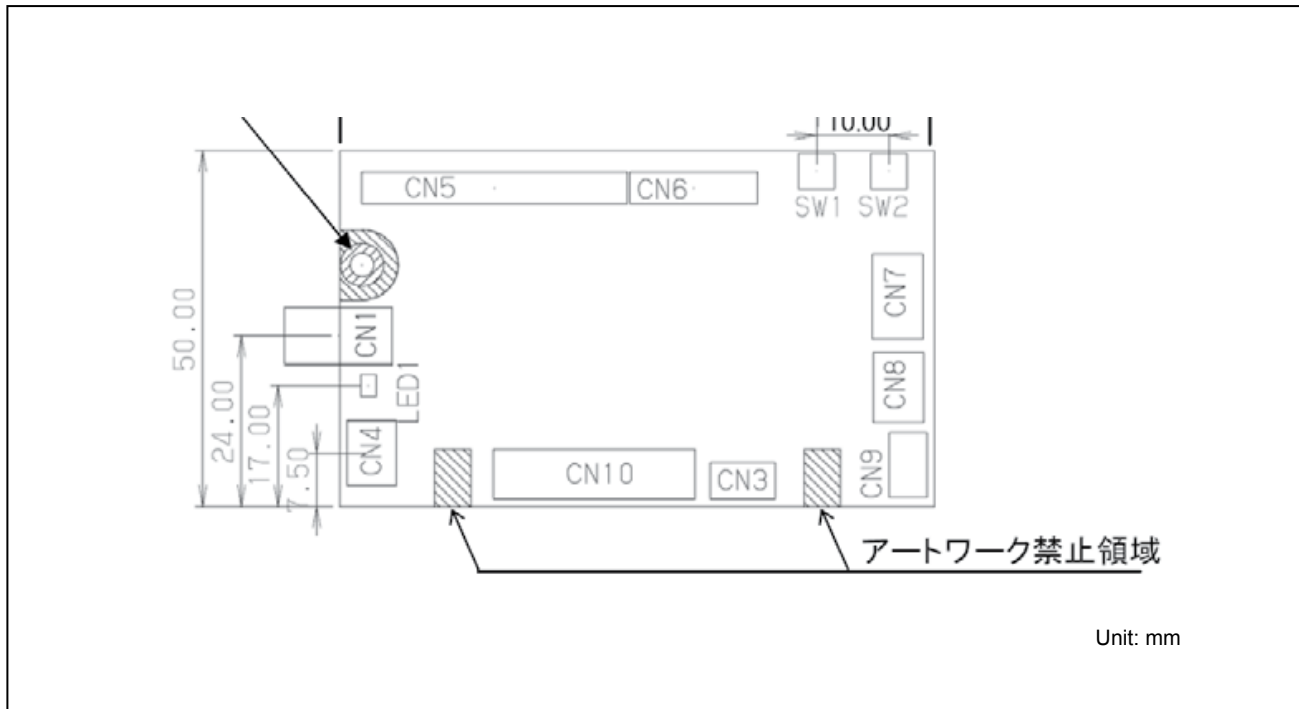| | Item | | | Item |
|---|---|---|---|---|
| 1. | Test print function | | 9. | Internal RAM abnormality detection |
| 2. | Paper feed | | 10. | Cutter abnormality detection |
| 3. | Paper out detection | | 11. | Mark detection |
| 4. | Paper near end detection | | 12. | MCU operation abnormality detection |
| 5. | Platen open detection | | 13. | Motor power saving |
| 6. | Thermal head temperature abnormality detection | | 14. | Power supply disconnection protection |
| 7. | Motor temperature detection | | 15. | Motor protection |
| 8. | Voltage abnormality detection | | 16. | Thermal head protection |

## ■ INTERFACE , COMMAND, OPTIONS

Please refer to the FTP-629DSL350 series. Interface command options, please see FTP-609 datasheet.

■ **EXTERNAL DIMENSION SPECIFICATIONS**

**1. External Dimension Chart of the Control Board**



Unit: mm

**2. Connector Types of Control Board for Printer and Cutter**

| No. | Name | Function | Remarks |
|---|---|---|---|
| CN1 | Power connector | Connect +24V power supply | - |
| CN2 | RS-232 connector | Connect RS-232 interface | depends on models |
| CN3 | Operation panel connector | Connect to operation panel | - |
| CN4 | USB interface connector | Connect USB interface | depends on models |
| CN5 | Thermal head connector | Connect thermal head | - |
| CN6 | Paper feed motor | Connect paper feed motor | - |
| CN7 | Cutter connector | Connect cutter motor | - |
| CN8 | Near end connector | Connect near end switch or sensor | - |
| CN9 | External sensor connector | Connect external sensor | optional |
| CN10 | Presenter connector | Connect control board | depends on model |

**3. Connector Types of Control Board for Presenter**

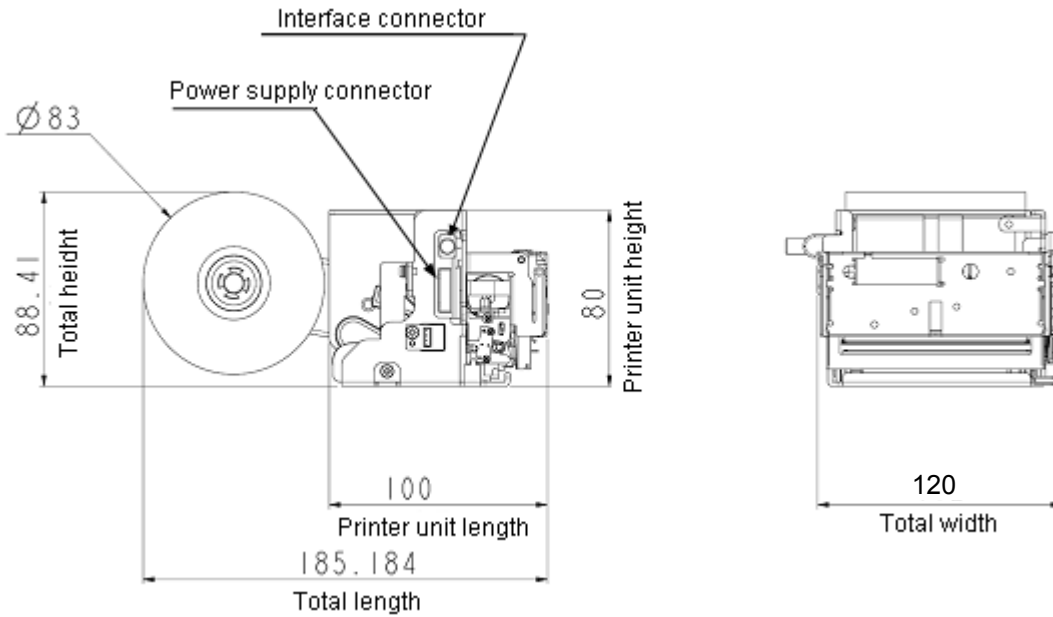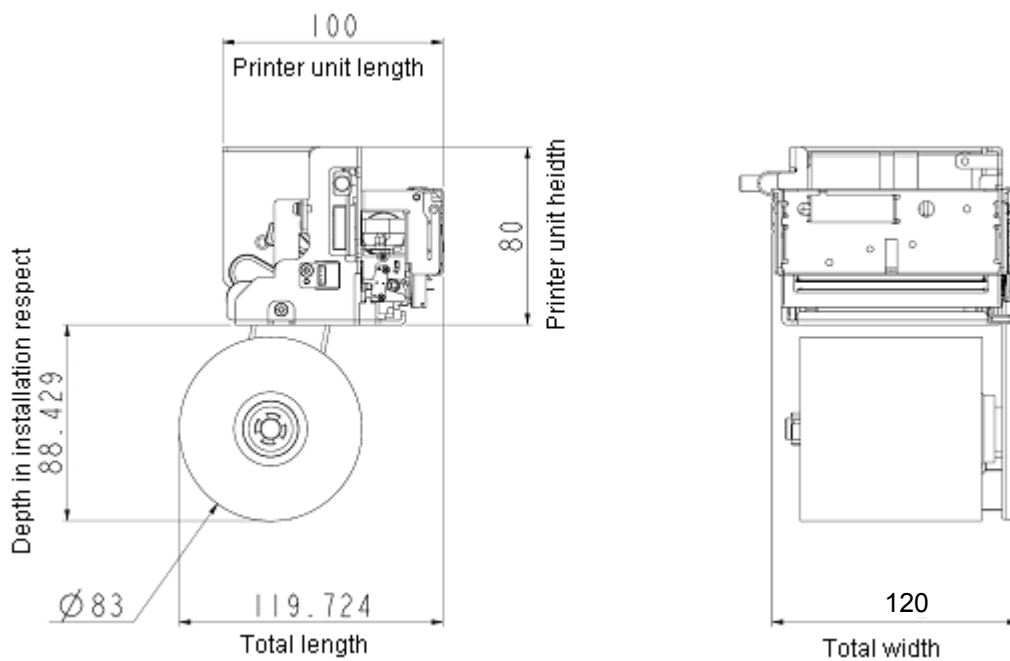| No. | Name | Function | Remarks |
|---|---|---|---|
| CN1 | Control board connector | Connect control to board | - |
| CN3 | Paper sensor connector | Connect to paper feed sensor | - |
| CN5 | Paper feed motor connector | Connect to paper feed motor | - |
| CN6 | Motor and sensor connector | Connect to motor and sensor | - |

## ■ DIMENSIONS

### Modular printer without presenter and standard paper roll

(1) Paper Diameter: 83mm
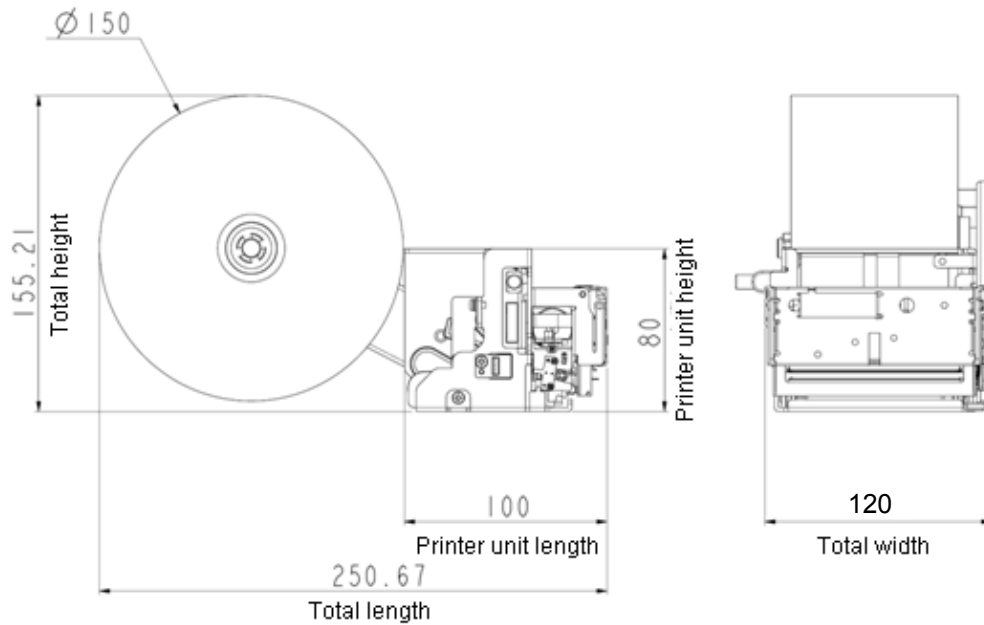
Horizontal installation



Lower installation

## ◼ DIMENSIONS

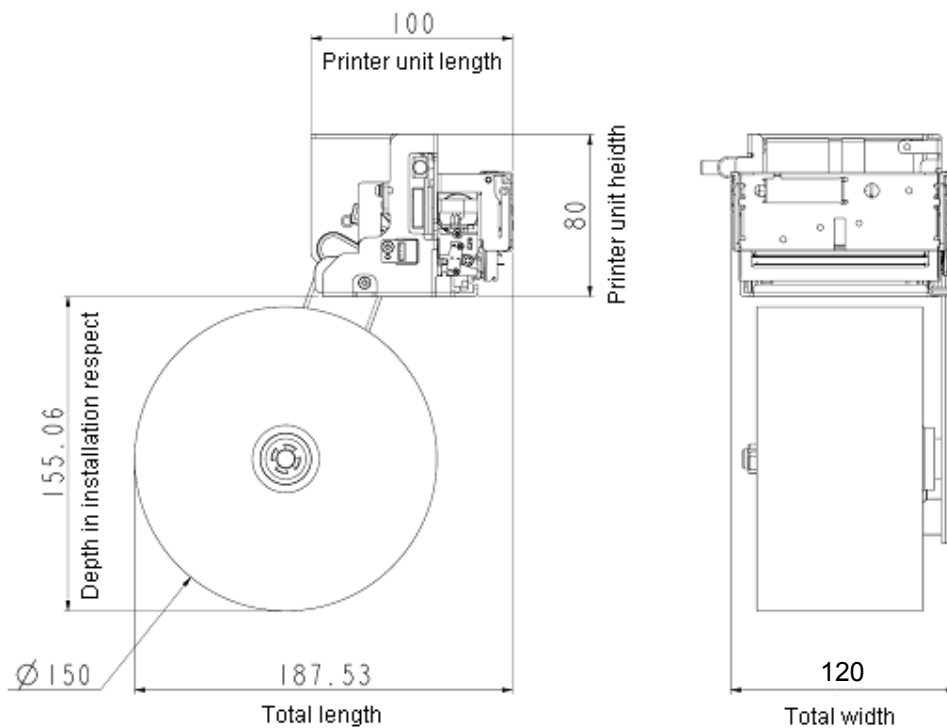### Modular printer without presenter and large paper roll

(1) Paper Diameter: 150mm

Horizontal installation



Ø150

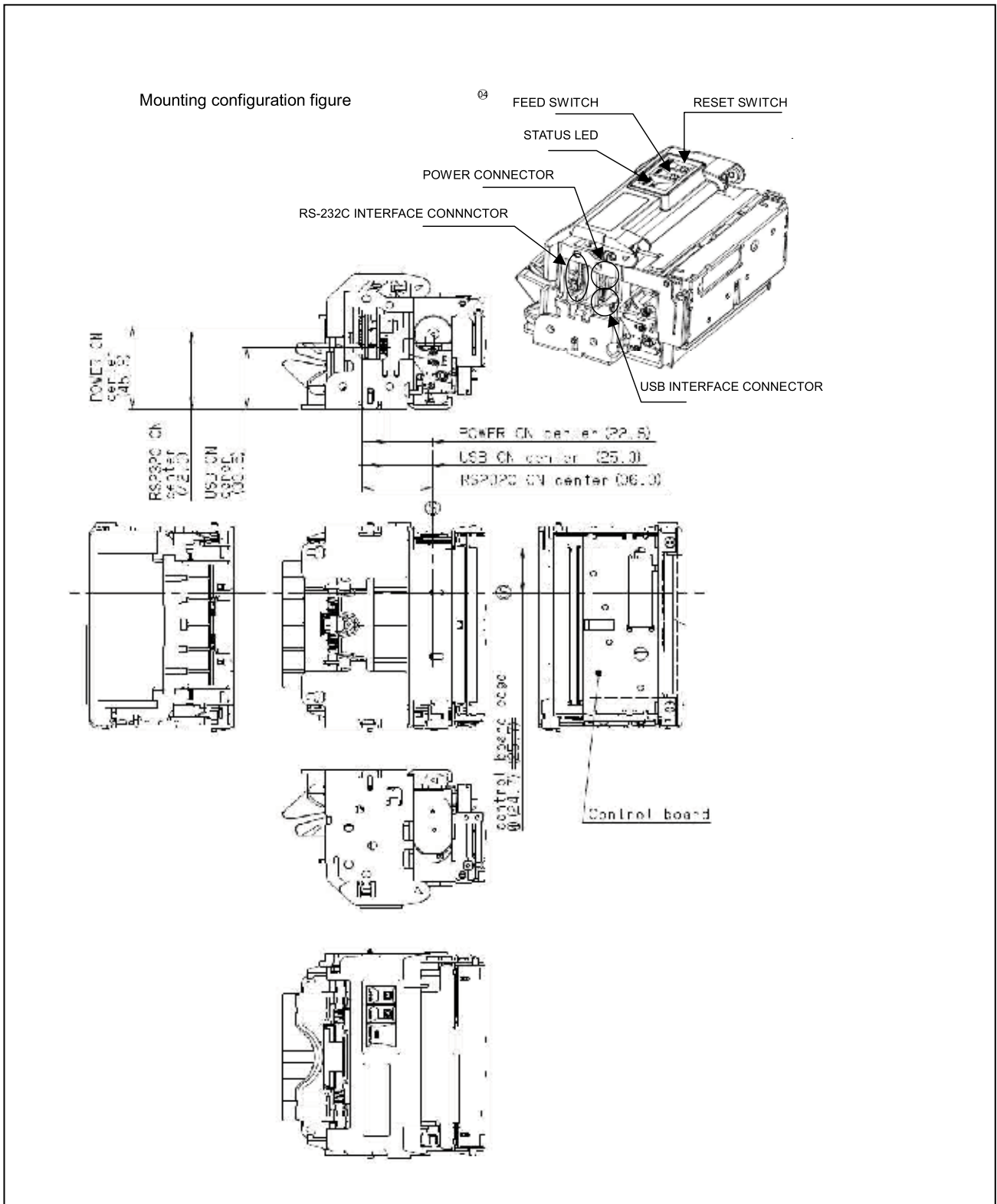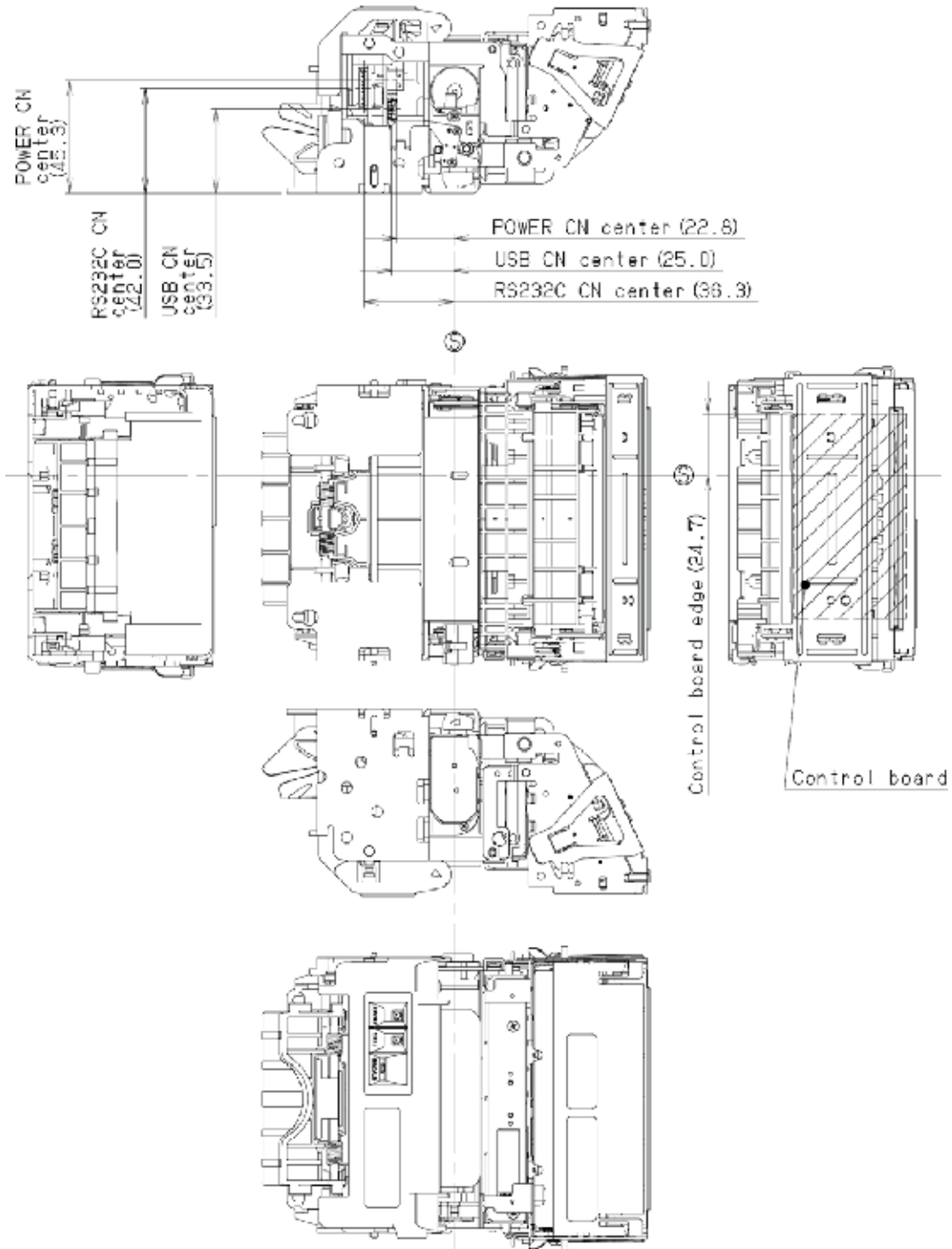155.21 / Total height

Printer unit height / 80

100 / Printer unit length

250.67 / Total length

120 / Total width

Lower installation



100 / Printer unit length

Printer unit heidth / 80

155.06 / Depth in installation respect

Ø150

187.53 / Total length

120 / Total width

## ■ DIMENSIONS
### Printer without presenter

Mounting configuration figure

FEED SWITCH

RESET SWITCH

STATUS LED

POWER CONNECTOR

RS-232C INTERFACE CONNNCTOR

USB INTERFACE CONNECTOR

## ■ DIMENSIONS

### Modular printer with presenter

POWER CN center (45.3)

RS232C CN center (22.0)

USB CN center (33.5)

POWER CN center (22.6)

USB CN center (25.0)

RS232C CN center (36.3)
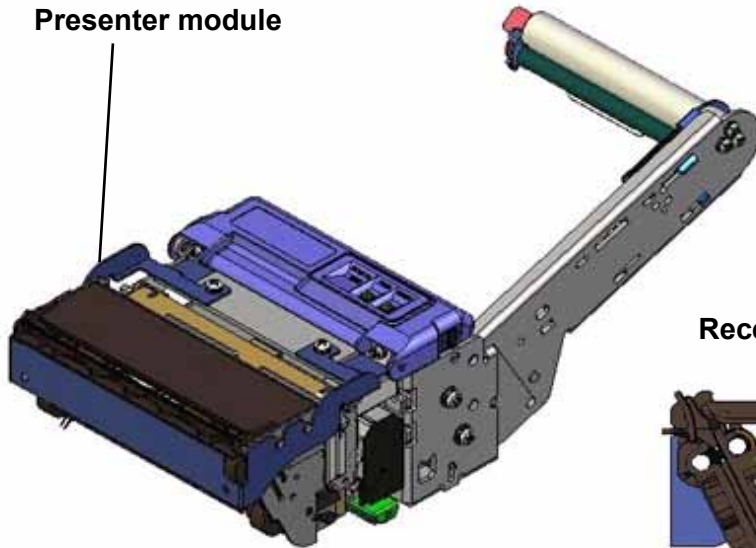
Control board edge (24.7)

Control board

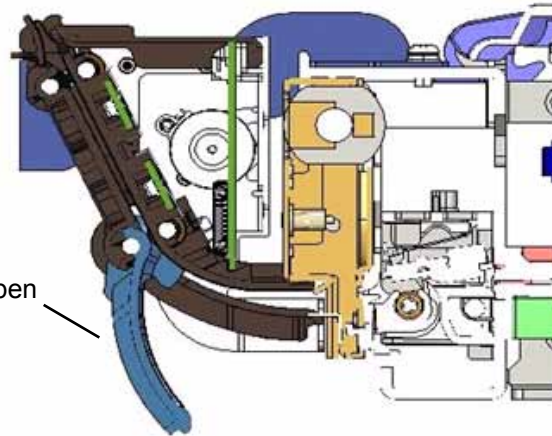*Ⓢ is the standard mounting

■ **STRUCTURE OF PRESENTER MODULE**

**Features:**
- Presenter module is removable
- Compact and easy maintenance (cover open)

**Presenter module**
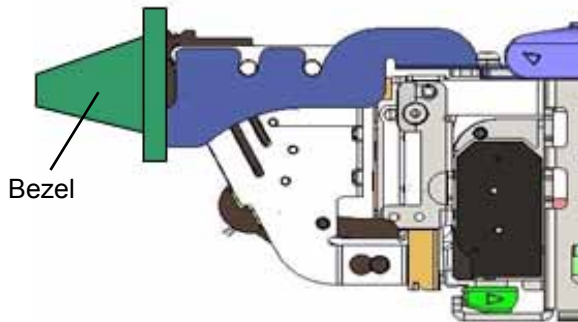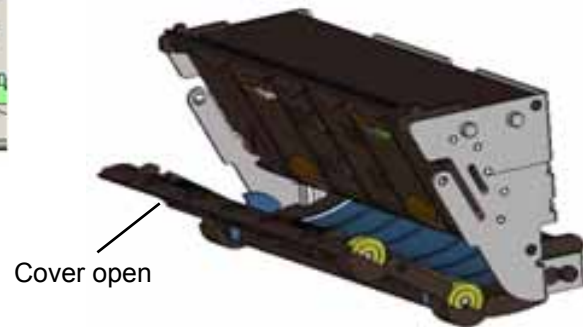
**Receipt length is 10 inches max.**

Flap open

**A bezel is attachable (optional)**

Bezel

**Easy maintenance**

Cover open

■ **COMMANDS**

| Command | Contents |
|---|---|
| HT | Moves print position to the next tab. |
| LF | Line feed. |
| FF | Feeds forms (new page). |
| ESC EM+n | Setting the amount of the feeding at automatic paper feed. |
| ECS RS | Sets reverse printing. |
| ESC US | Resets reverse printing. |
| ESC SP+n | Character spacing setting. |
| ESC ! + n | Sets print mode. |
| ESC % + n | External registration character specification/cancellation. |
| ESC & +y+c1+c2+x+d1to dn | External registration character definition. |
| ESC *+m+n1+n2+d1+dN | Sets bit image mode. |
| ESC - +n | Undeline setting. |
| ESC 2 | Sets 1/6 inch line feed length. |
| ESC 3+n | Sets the line feed length. |
| ESC ? + n | External registration character deletion. |
| ESC @ | Printer initialization. |
| ESC A+n | Sets the space between the line. |
| ESC C+n | Sets the page length by character line. |
| ESC D+d1+dN +NUL | Sets the tab position. |
| ESC J+n | Feeds paper in forward direction and prints. |
| ESC K+n | Reverse paper feed. |
| ESC R+n | Selects international character. |
| ESC V+n | Right Rotation 90° specification / cancellation |
| ESC X+m+n | Setting the turning time of the motor excitation. |
| ESC c+1+n | Sets internal processing. |
| ESC c+5+n | Panel switch enable/disable setting. |
| ESC d+n | Printing and n-line feeding. |
| ESC e+n | Prints and reverse feeds n-lines. |
| ECS s+n | Sets printing speed. |
| ECS t+n | Character code table selection. |
| ESC {+n | Sets/resets upside down printing. |

Commands continued

| Command | Contents |
| --- | --- |
| ESC DEL+n | |
| FS !+n | Kanji printing mode collective specification. |
| FS & | Kanji printing mode specification. |
| FS - + n | Kanji underline specification/cancellation. |
| FS *+ m+n1+n2+d1 to dn | High speed collective image printing specified. |
| FS . | Kanji printing mode cancellation. |
| FS 2+c1+c2+d1 to dn | External character definition. |
| FS 9+n | Sets the detection functions. |
| FS C+n | Kanji code system selection. |
| FS E+n | Correction of impressed energy. |
| FS S+n+n1+n2 | Kanji spacing setting. |
| FS W+n | Kanji double height adn width printing specification/cancellation. |
| FS r+n[1] | Parameter transmission. |
| GS ! + n | Character size specification. |
| GS & +m + x + y1 + y2 + d1 to dn | Registered bit image definition. |
| GS' + m + n | Registered bit image printing.. |
| GS (+E+L1+L2+n+d,~dq | RS-232C communication setting[1] |
| GS < | Line feeds to the next mark. |
| GS A+m+n | Sets the line feed length after mark detection. |
| GS E+n | Sets print quality. |
| GS L+n1+n2 | Left margin position setting. |
| GS V+m+n | |
| GS W + n1 + n2 | Printing area width setting. |
| GS a+n | Automatic status transmission setting[1] |
| GS e+n+m | Sets bar code width. |
| GS h+n | Sets bar code height. |
| GS k+m+n+ d1 to dn | Bar code printing. |
| GS k+m+m+k1+k2+k3+k4+p+d+dn~NUL | Print 2-barcode (QR). |

[1]: These commands are valid with FTP-629DSL350 series serial interface.

Commands continued

| Command | Contents |
|---|---|
| GS k+m+m+k1+k2+k3+k4+n+nn+d1~dn | Print 2-D barcode (PDF417) |
| GS s | Paper check. |
| GS t+n | Paper exit. |
| GS w+n | Sets bar code length. |
| GS x+n | Paper retract. |

## ◼ OPTIONS

### 1. Cables

| Name | | Part Number | Cable length |
|---|---|---|---|
| Interface cable (board to mechanism) | USB | FTP-629Y301 | 500mm (19.7 inch) |
| | RS-232C | FTP-629Y302 | 500mm (19.7 inch) |
| Power supply cable | Logic, head, motor | FTP-629Y603 | 300mm (11. 8inch) |

### 2. Driver LSI of Control Board

| Name | Part Number | Quantity / Tray | Remarks |
|---|---|---|---|
| MCU | FTP-629CU350 | 84 | On-board Flash and SRAM |

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