

# 24V DRIVEN RECEIPT, TICKET PRINTER

## 3" KIOSK PRINTER UNIT

### FTP-639USL100-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.

#### 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

#### DESIGNATION

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



FTP-639USL100 - horizontal



FTP-639USL100 - vertical

\*: Interface board is FTP-629DSL350 series

# FTP-639USL100-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 <sup>+0</sup> <sub>-1</sub> mm   |
| Paper thickness  |                       | 60 to 100 μm  |
| Paper print length   |                       | 50 to 250mm   |
| 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: 103<br>JIS KANJI (FTP-629DSL400): approximately 6800   |
| Character composition, dimensions (H×W),<br>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>1.0 (2.0) A (at 200 mm/s printing speed, 1 division)<br>0.7 (1.0) A (at 125 mm/s printing speed, 2 divisions)<br>0.6 (1.0) 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%, 1.1 A maximum, 0.9A average   |
|  | For cutter            | 24VDC ± 5%, 1.3 A maximum   |
|  | For logic             | 5VDC ± 5%, 0.2 A maximum (converted from 24V)   |

(Continued)

# FTP-639USL100-R Series

(Continued)

| Item                                     |                       | Specifications  |
|--|-----------------------|---|
| Dimensions                               |                       | 120.0(W) × 100.0(D) × 80.0(H) mm  |
| Weight (mechanism, cutter, board, frame) |                       | Approximately 760g without arm, 990g with arm   |
| 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

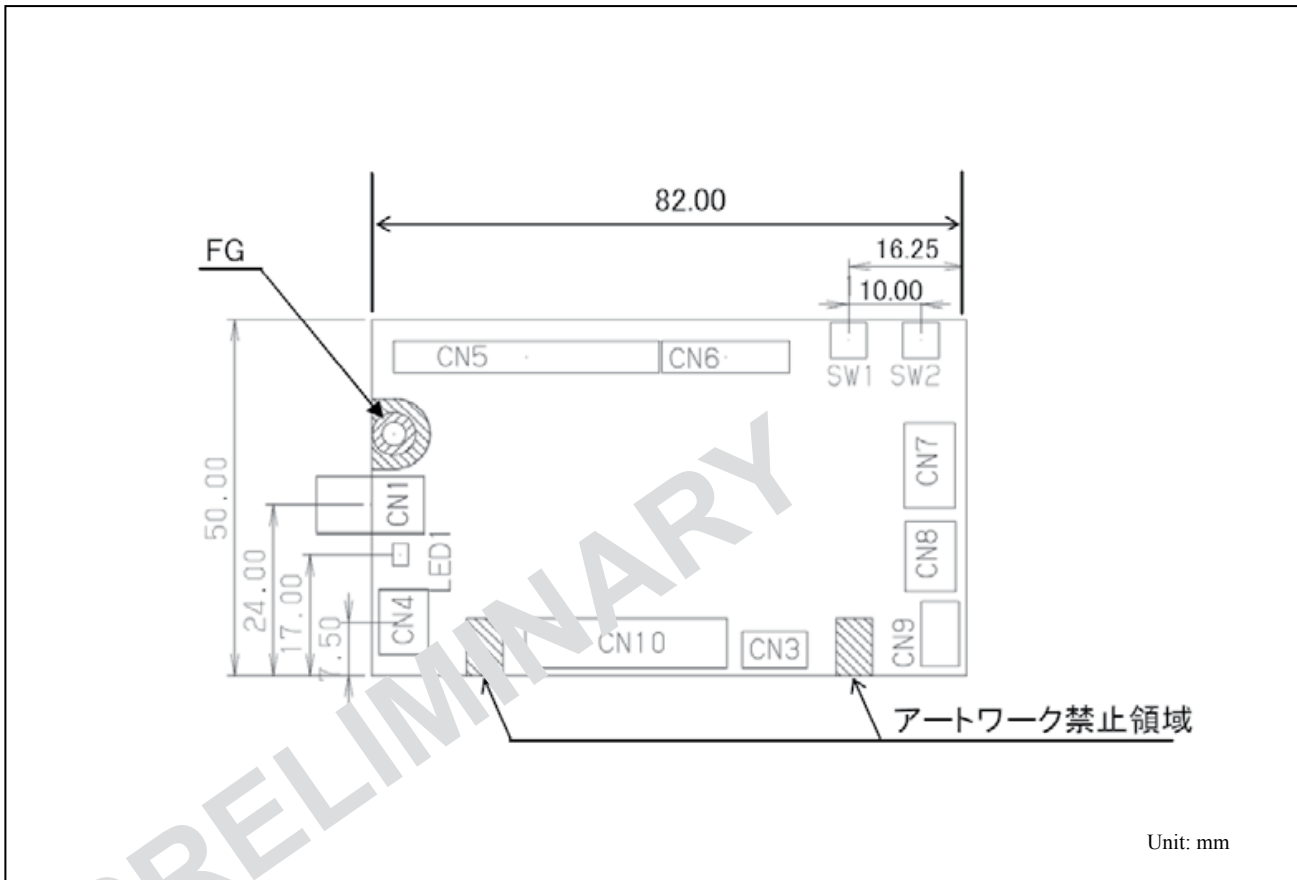
| Item  | Item                                      |
|---|---|
| 1. Test print function                            | 9. Internal RAM abnormality detection     |
| 2. Paper feed                                     | 10. Cutter abnormality detection          |
| 3. Paper out detection                            | 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



### 2. Connector Types of Control Board

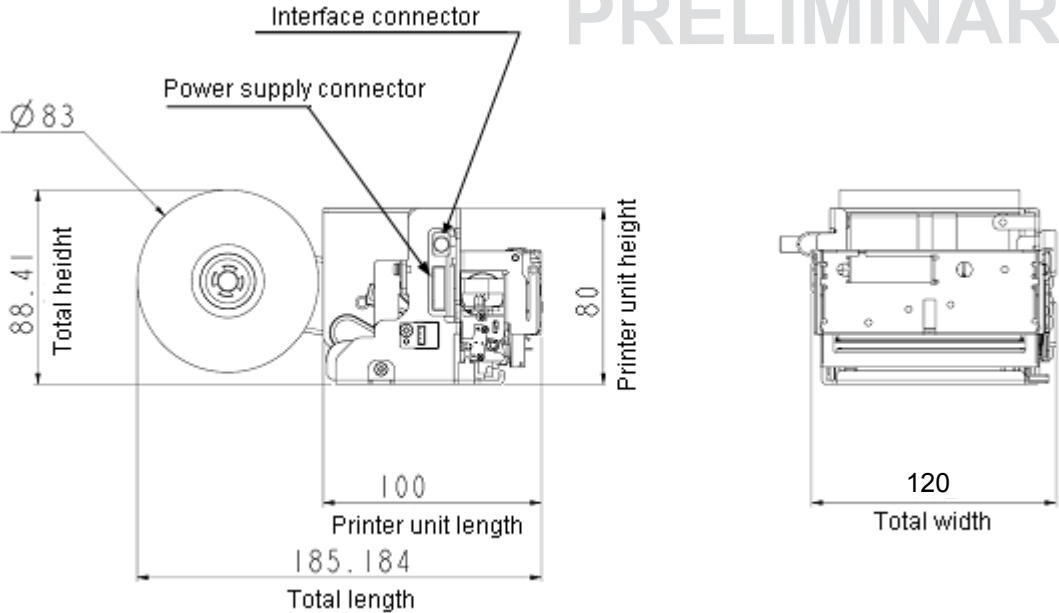
| No. | Name                      | Function                          | Remarks           |
|-----|---------------------------|-----------------------------------|-------------------|
| CN1 | Power connector           | Connect +24V power supply         | -                 |
| CN2 | RS-232 connector          | 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          |

## DIMENSIONS

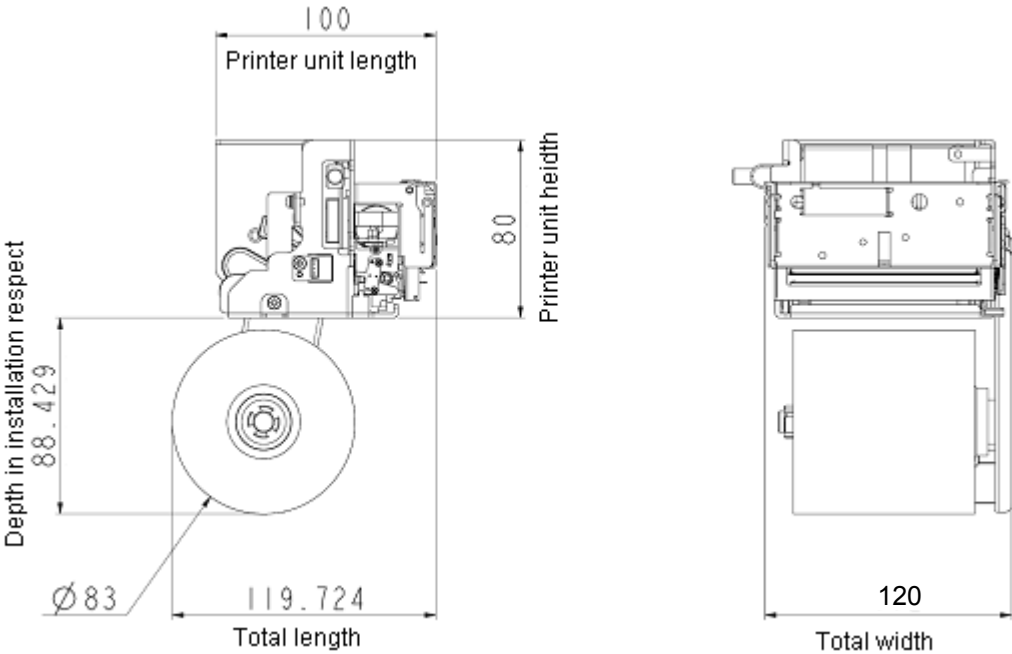
### Modular printer without presenter and standard paper roll

(1) Paper Diameter: 83mm

Horizontal installation



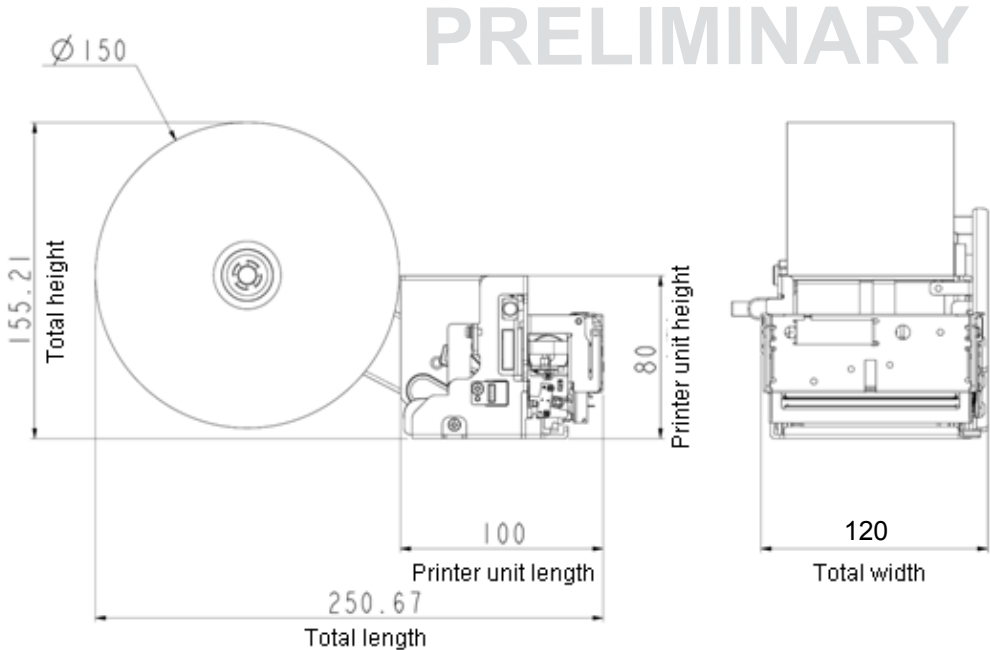
Lower installation



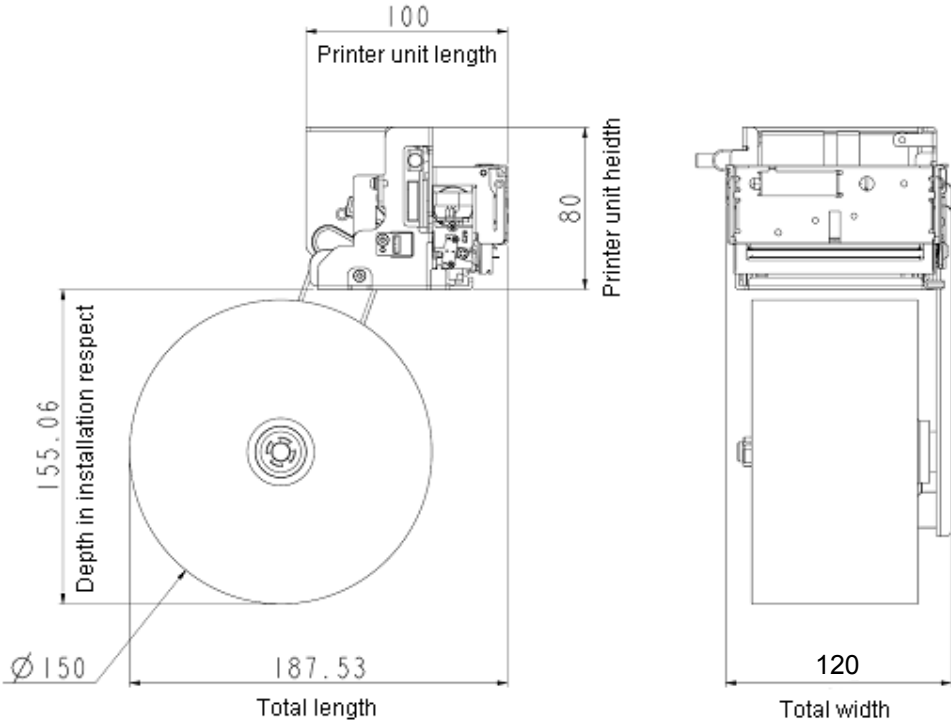
## ■ DIMENSIONS

### Modular printer without presenter and large paper roll

(1) Paper Diameter: 150mm  
Horizontal installation

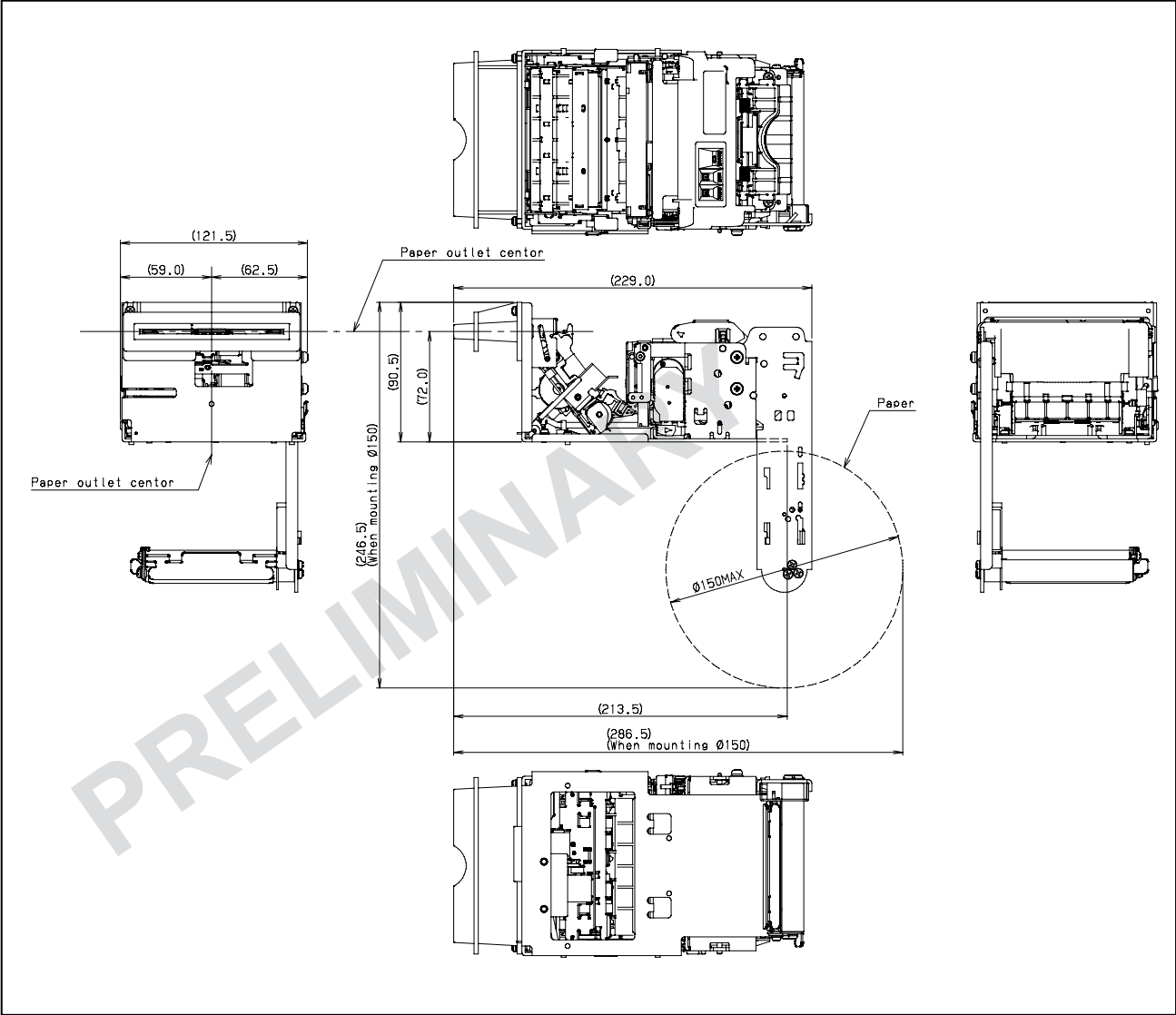


Lower installation



## ■ DIMENSIONS

Modular printer with presenter and large paper roll



# FTP-639USL100-R Series

## ■ 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.                           |



# FTP-639USL100-R Series

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 and width printing specification/cancellation. |
| FS r+n <sup>*1</sup>             | 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* <sup>1</sup>                        |
| 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* <sup>1</sup>                |
| 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 w+n                           | Sets bar code length.  |

\*<sup>1</sup>: These commands are valid with FTP-629DSL350 series serial interface.

# FTP-639USL100-R Series

## ■ 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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