
24V DRIVEN, RECEIPT PRINTER MINI UNIT

2" HIGH SPEED THERMAL PRINTER UNIT

FTP-627USL431/631

■ OVERVIEW

The FTP-627 USL Series are 24V driven high-speed printers with a ultra low profile auto cutter and long life. The FTP-627 USL Series can be used for a variety of applications, such as POS terminals, mini Kiosks, banking terminals, and measurement and medical equipment.

■ FEATURES

- **Ultra low profile**
Height 145 mm, width 105 mm, depth 120 mm
- **Windows®2000/XP, Linux, and OPOS drivers**
- **High speed printing**
It can print at 100 mm/s (or 150 mm/s) maximum by using Fujitsu's unique head drive control.
- **Auto Cutter**
Long life and high reliable guillotine with dedicated motor.
- **Easy paper loading**
Our lever platen release mechanism allows a wide paper route, so 83mm diameter paper can be easily inserted.
- **Multifunctional die-cast frame**
Wide operating temperature range, long continuous printing, high ESD absorption and discharge of static electricity vibration and shock resistant.
- **Barcodes**
Prints standard, extended and 2-D types
- **RoHS compliant**



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■ PART NUMBERS

| | | Part Number | Power | Paper roll |
|-------------------------------------|------------------|--------------------------------------|----------|------------|
| Printer mechanism /cutter and board | | FTP-627USL431/631 (USB Interface) | 5V / 24V | with spool |
| | | FTP-627USL432/632 (USB Interface) | 5V / 24V | drop-in |
| | | FTP-627USL435/635 (Serial Interface) | 5V / 24V | with spool |
| | | FTP-627USL436/636 (Serial Interface) | 5V / 24V | drop-in |
| | | FTP-627USL440/640 (USB /Serial) | 24V only | drop-in |
| | | | Length | |
| Operation panel cable | | FTP-627Y203 | 300mm | |
| Interface cables | Serial (RS-232C) | FTP-628Y302 | 500mm | |
| | USB (V1.1) | FTP-629Y301 | 1,000mm | |
| Power cables | Logic | FTP-629Y401 | 300mm | |
| | Head, Motor | FTP-629Y601 | 300mm | |

* Interface board is the FTP-627DSL601R (Serial /USB), FTP-627DSL603/613-R (USB), FTP-627DSL605/615-R (Serial)

■ SPECIFICATIONS

| Item | | Specifications | |
|--|----------|---|--|
| Part number | | FTP-627USL431/432/435/436 | FTP-627USL631/632/635/636 |
| Printing method | | Thermal-line dot method | |
| Dot structure | | 432 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 | | 54 mm | |
| Number of columns | | ANK 36 columns/line (maximum 12 x 24 dot font) | |
| Paper width | | 58 mm | |
| Paper diameter | | 83 mm | |
| Paper thickness | | 60 to 100 μ m (some paper in this range may not be used because of paper characteristics) | |
| Printing Speed | USL4xx | Maximum 100mm/sec. (800 dot line/sec.) at 24V, 25°C | |
| | USL6xx | Maximum 150mm/sec. (1200 dot line/sec.) at 24V, 25°C | |
| Character types | | Alphanumeric, kana: International characters: JIS Kanji (Kanji CG loaded board): | 159 types 195 types about 6800 types |
| Character, dimensions (W×H), number of columns | | 12 × 24 dots, (1.5 × 3.0 mm), 36 columns: ANK 24 × 24 dots, (3.0 × 3.0 mm), 18 columns: ANK 8 × 16 dots, (1.0 × 2.0 mm), 54 columns: ANK 16 × 16 dots, (2.0 × 2.0 mm), 27 columns: ANK | |
| Barcodes | Standard | UPC-A, UPC-E, JAN (EAN) 13, JAN (EAN) 8, Code 39, 1TF CODABAR | |
| | Extended | CODE128 | |
| | 2-D | QR, Maxi , PDF417 | |
| Printing mode | | Page mode, line model | |

■ SPECIFICATIONS

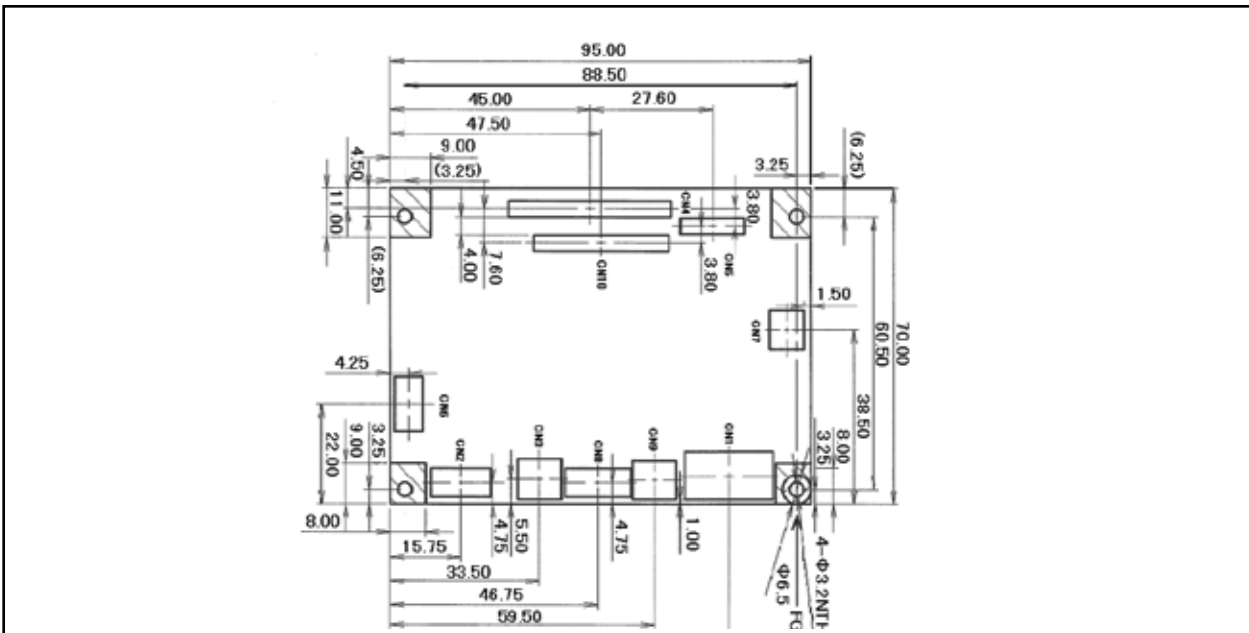
| Item | | Specification | |
|-------------------------------------|----------------------------|---|------------------------------------|
| Part Number | | FTP-627USL431/432/435/436 | FTP-627USL631/632/635/636 |
| Interface | | Conforms to USB / Serial | |
| Power supply | For print head | 24 VDC average current, 0.5A (0.9A peak) (print ratio: 12.5%, print speed: 100mm/sec.) | |
| | For motor | 24 VDC ±5%, 0.8 A maximum | |
| | For cutter | 24 VDC ±5%, 1.1 A maximum | |
| | For logic | 5 VDC ±5%, 0.2 A maximum | |
| Dimensions | Mechnism and board | 101 x 114 x 139mm (WxDxH) | |
| Weight | Mechnism and board | Approximately 600g | |
| Life | Head | Pulse resistance: 100 million pulses/dot (under out standard conditions); Abrasion resistance: paper traveling distance | |
| | | 50km (print ratio: 12.5% or less) | 100km (print ratio: 12.5% or less) |
| | Cutter | 500,000 cuts (20 cuts/minute) | |
| | Platen | 5,000 (open/close) | |
| MTBF | Mechanism | 3,000 hours | |
| | Circuit board | 500, 000 hours | |
| Operating environment | Operating temperature* | 0°C to 50°C | |
| | Operating humidity | 20 to 85% RH (no condensation) | |
| | Storage temperature* | -20°C TO +60°C (paper not included) | |
| | Storage humidity | 5 to 90% RH (no condensation) | |
| Detection function | Head temperature detection | Detected by thermistor | |
| | Paper out /mark detection | Detected by photo-interuptor | |
| | Platen release | Detected by sliding switch | |
| Recommended thermal sensitive paper | High Sensitive Paper | TF50KS-E4 (Nippon paper) | |
| | Standard Paper | TF60KS (Nippon paper), FTP-020PU001 (58mm), PD105R (Oji paper), FTP-020P0701 (58mm) | |
| | Medium Life Paper | TF60KS-F1, FTP-020P0102 (58mm), PD170R (Oji paper), P220VBB-1 (Mitsubishi paper) | |
| | Long Life Paper | PD160R-N (Oji paper), AFB-235 (Mitsubishi paper), TP50KJ- R (Nippon paper), HA220AA (Nippon paper) | |

*+5°C to +40°C printing density assurance rance.

■ FUNCTION OF INTERFACE BOARD

| | |
|---|---|
| Item | Item |
| 1. Test print function | 8. Cutter trouble detect |
| 2. Paper out detection | 9. Motor power saving function |
| 3. Paper near end detection | 10. Mark detection function |
| 4. Platen open detection | 11. MCU operation abnormality detection |
| 5. Thermal head temperature abnormality detection | 12. Power ON/OFF sequence protection |
| 6. Blow-out fuse detection | 13. Motor over-current protection |
| 7. Head voltage abnormality detection | 14. Hardware timer |

■ INTERFACE, COMMAND, OPTIONS



Connectors on Control Board

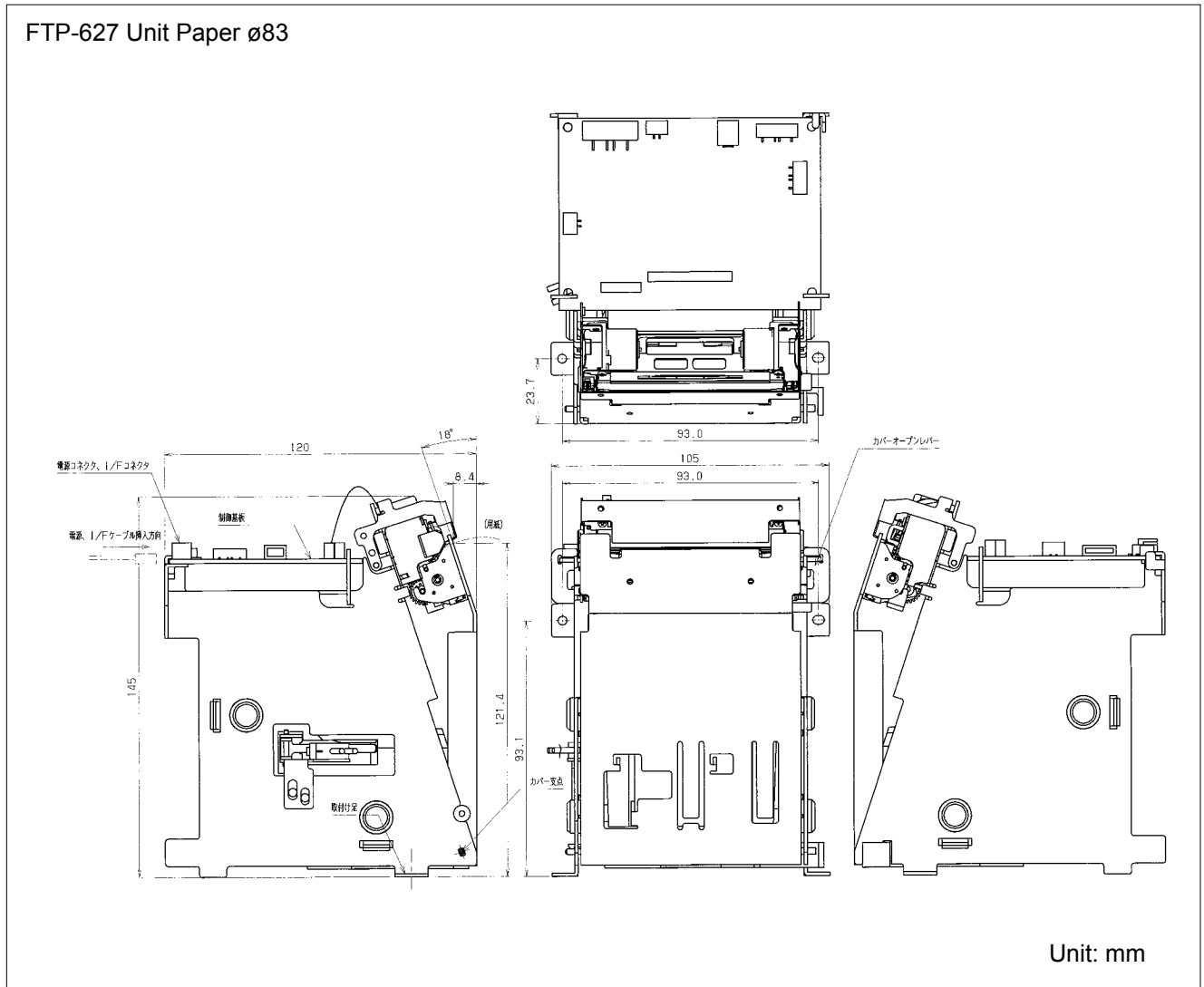
| | Name | Functions | Remarks | Note |
|------|-----------------------------|--|----------------|------|
| CN1 | +24V power supply connector | Connection for +24V power supply | | |
| CN2 | RS-232C connector | Connection for serial interface | | *2 |
| CN3 | USB I/F connector | Connection for USB interface | | *2 |
| CN4 | - | - | | |
| CN5 | Cutter connector | Connection for paper cutter | | |
| CN6 | Operation panel connector | Connection for operation panel | | *1 |
| CN7 | Near end sensor connector | Connection for near end switch | | |
| CN8 | - | - | | |
| CN9 | Logic power connector | Connection for +5V power Supply | | *1 |
| CN10 | Head/motor connector | Connection for thermal head & paper feed motor | 2-inch, 24 pin | |

Note: *1: Option
*2: Depends on P/N

■ DIMENSIONS

1. FTP-627USL431/435/631/635

FTP-627 Unit Paper ø83



- Note: 1. The cable size and FPC are not included in this drawing.
 2. Do not mount anything in the shaded area except the printer.
 3. Connect to the body with 2 screws at 2 hooks.

■ COMMANDS

| Command | Contents |
|--------------------------|---|
| HT | Moves print position to the next tab. |
| LF | Line feed. |
| FF | Feeds forms (new page). |
| ESC FF | Data printing in page printing mode. |
| ECS RS | Sets reverse printing. |
| ESC US | Resets reverse printing. |
| ESC SP+n | Character spacing setting. |
| ESC ! + n | Sets print mode. |
| ESC \$+n1+n2 | Absolute position spacing. |
| 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 E+n | Highlighted printing specification/cancellation. |
| ESC J+n | Feeds paper in forward direction and prints. |
| ESC K+n | Print and reverse direction paper feed. |
| ESC L | Page printing mode selection. |
| ESC Q+n+!+j | Frame overlay function. |
| ESC R+n | Selects international character. |
| ESC S | Line printing mode. |
| ESC T+n | Print direction setting (only page mode). |
| ESC V+n | Right Rotation 90° specification / cancellation. |

Commands continued

| Command | Contents |
|----------------------------------|--|
| ESC W+X1+X2+1+Y2+dX1+dX2+dX1+dY2 | Page printing mode printing area setting. |
| ESC X+m+n | Setting the turning time of the motor excitation. |
| ESC Y+01h+ESC+x+a+m+d~ | Program download. |
| ESC Y+n1+n2 | Relative position setting. |
| ESC a+n | Positional alignment. |
| 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 | n lines reverse feed. |
| ESC i | Full cut |
| ESC m | Partial cut |
| ECS s+n | Sets printing speed. |
| ECS t+n | Character code table selection. |
| ESC {+n | Sets/resets upside down printing. |
| ESC DEL+n | Flash memory delete |
| 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* ¹ | Parameter transmission. |
| FS-r+n | Setting return parameter |
| GS!+n | Setting character size |

Commands continued

| Command | Contents |
|--|--|
| GS \$ + n1 + n2 | Vertical absolute position specification in page printing mode. |
| GS & +m + x + y1 + y2 + d1 to dn | Registered bit image definition. |
| GS' + m + n | Registered bit image printing. |
| GS *+x+y1+y2 +d1+dn | Registered bit image definition. |
| GS/ +m | Registered bit image printing. |
| GS < | Line feeds to the next mark. |
| GS A+m+n | Sets the line feed length after mark detection. |
| GS B+m | Angle setting of bar code. |
| GS E+n | Sets print quality. |
| GS H+n | HRI character printing position selection. |
| GS L+n1+n2 | Left margin position setting. |
| GS M+n | Printer ID demand. |
| GS W + n1 + n2 | Printing area width setting. |
| GS Y +n1 + n2 | Vertical relative position specification in page printing mode (vertical direction of characters). |
| G a+n | Automatic notification setting status. |
| GS e+n+m | Sets bar code width. |
| GS f + n | HRI character font selection. |
| GS h+n | Sets bar code height. |
| y) GS k+m +d1 to dk + NUL x) GS k+m+n+ d1 to dn | Bar code printing. |
| GS k+m+k1+k2+k3+k4+{[p1][d(1,1)] ~ [d(1,i)] ~ {[pi][d(i,1)]~[d(i,j)]} [00]16 | Print of 2Dcode (QR). |
| GS k+m+k1+k2+k3+k4+k5+d1~dn | Print of 2 Dcode (maxi). |
| GS k+m+k1+k2+k3+k4+k5+k6+d1~dn | Print of 2 Dcode (PDF417). |
| GS v | Notification of firmware version. |
| GS w+n | Sets bar code length. |
| GS (+c+m1, n2, m+fn+6 +d1~dn | Customize printer |

*1: These commands are valid with FTP-627DSL600 series.

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