

24V DRIVE, RECEIPT PRINTER MICRO UNIT 2" HIGH SPEED THERMAL PRINTER

FTP-627USL401/402

■ OVERVIEW

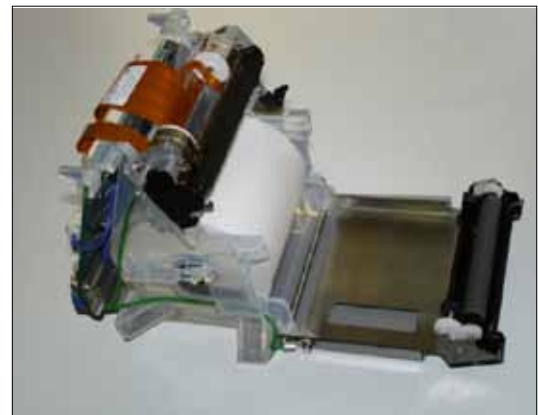
The FTP-627 USL Series are 24V driven high-speed printers with a ultra low profile auto cutter and long life. The FTP-627 USL Series can be used for a variety of applications, such as POS terminals, ticket vending machines, label printers, banking terminals, and measurement and medical equipment.

■ HIGHLIGHTS

- **Ultra low profile**
Height 108 mm, width 100 mm, depth 94 mm
- **High speed printing**
It can print at 100 mm/s (800 dotlines/s) maximum by using Fujitsu's unique head drive control.
- Windows® 2000/XP, Linux and OPOS drivers
- **Auto Cutter**
Long life and high reliable guilotine with dedicated motor.
- **Easy paper loading**
Our lever platen release mechanism allows a wide paper route, so 60 mm 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**



FTP-627USL401 platen/cutter closed



FTP-627USL401 platen/cutter open

■ PART NUMBERS

| | | Part Number | Power |
|---|-----------------|----------------------------------|----------|
| Printer mechanism with cutter and board | | FTP-627USL401 (USB interface) | 5V / 24V |
| | | FTP-627USL402 (Serial interface) | 5V / 24V |
| | | FTP-627USL410 (USB/Serial) | 24V only |
| | | | Length |
| Interface cables | Serial (RS-232) | FTP-628Y302 | 500mm |
| | USB (V.1.1) | FTP-629Y301 | 600mm |
| Power cables | Logic | FTP-629Y401 | 300mm |
| | Head, motor | FTP-629Y601 | 300mm |

* Interface board is the : FTP-627DSL601 (Serial/ USB), FTP-627DSL603 (USB), FTP-627DSL605 (Serial)

■ SPECIFICATIONS

| Item | Specifications | |
|--|---|---|
| Part number | FTP-627USL401/402 | |
| 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 | 60 mm | |
| Paper thickness | 60 to 90 μ m (some paper in this range may not be used because of paper characteristics) | |
| Printing Speed | Maximum 100mm/sec. (800 dot line/sec.) at 24V, 25°C | |
| Character types | Alphanumeric, kana: 159 types International characters: 195 types JIS Kanji (Kanji CG loaded board): 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 mode | |

■ SPECIFICATIONS

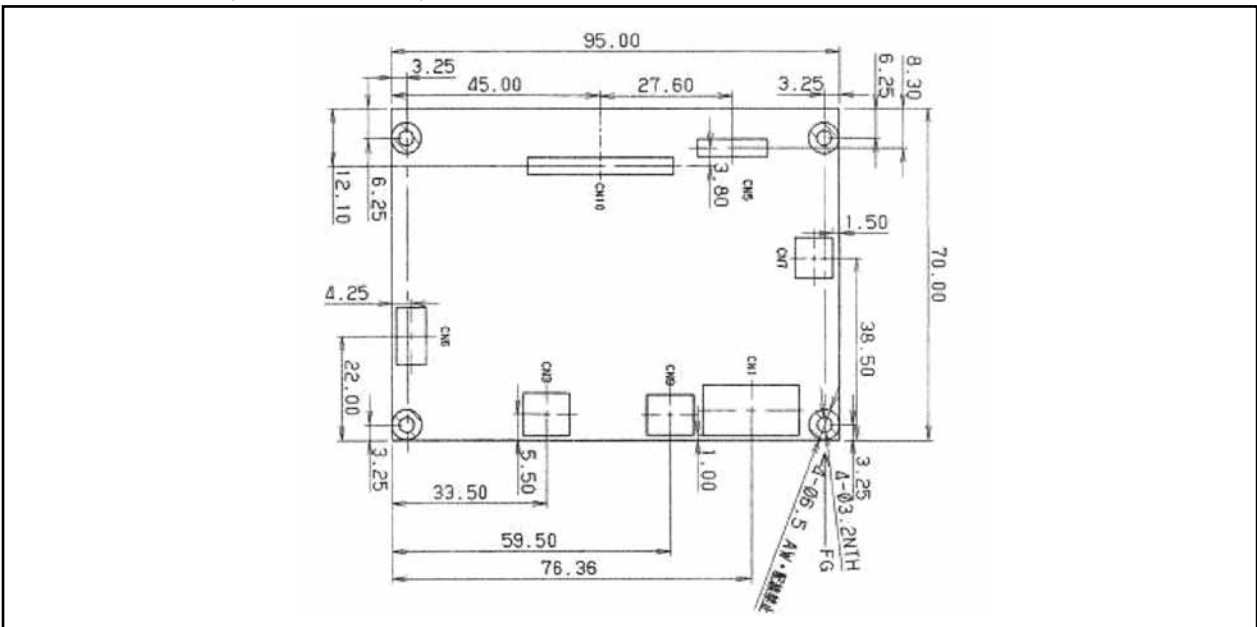
| Item | | Specification | |
|-------------------------------------|----------------------------|---|---|
| Interface | | Conforms to USB/Serial | |
| Power supply | For print head | 24 VDC average current, 0.5A (0.9A peak) (print ratio: 12.5%, print speed 100mm/sec.) | |
| | For motor | 24 VDC \pm 5%, 0.9 A maximum | |
| | For cutter | 24 VDC \pm 5%, 1.1 A maximum | |
| | For logic | 4.75 to 5.25VDC, 0.2 A maximum | |
| Dimensions | Mechanism and board | 100 x 94 x 108 mm (WxDxH) | |
| Weight | Mechanism and board | Approximately 310g | |
| Life | Head | Pulse durability: 50 million pulses/dot (under our standard conditions); Abrasion resistance: paper traveling distance 50km (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 95% RH (no condensation) | |
| Detection function | Head temperature detection | Detected by thermistor | |
| | Paper out/mark detection | Detected by photo-interruptor | |
| | Platen release | Detected by sliding switch | |
| Recommended thermal sensitive paper | | High sensitive paper | TF50KS-E4 (Nippon paper) |
| | | Standard paper | TF60KS-E (Nippon paper), FTP-020PU001 (58mm) PD105R (Oji paper) FTP-020P0701 (58mm) |
| | | Medium life paper | TF60KS-F1 (Nippon paper) FTP-020P0102 (58mm) PD170R (Oji paper) P220VBB-1 (Mitsubishi paper) |
| | | Long life paper | PD160R (Oji paper) AFP-235 (Mitsubishi paper) TP50KJ-R (Nippon paper) HA220AA (Nippon paper) |

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

■ 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



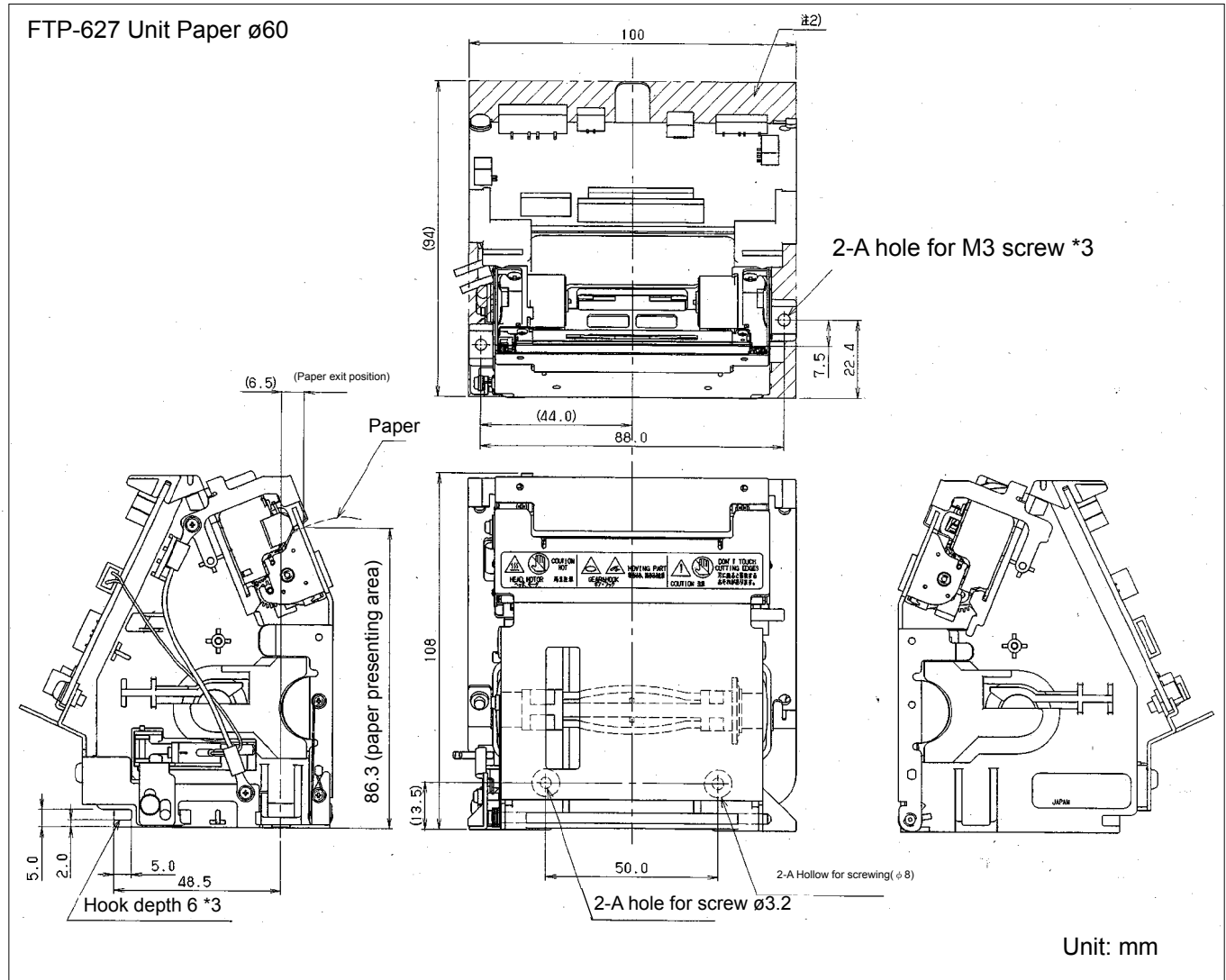
Connectors on Control Board

| | Name | Functions | Remarks | Note |
|------|-----------------------------|--|----------------|------|
| CN1 | +24V power supply connector | Connection for +24V power supply | | |
| CN2 | RS-232C | 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. Printer mechanism



- 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 | Reverse 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. |
| ESCY+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 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. |
| GS ! + n | Character size specification. |

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). |
| 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 +d1to 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 w+n | Sets bar code length. |
| GS C+C+n1+n2+m+fn+b+d1~dn | Customize printer. |

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

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