

BATTERY DRIVEN, FTP-608 Series 2" HIGH SPEED THERMAL PRINTER

FTP-628MCL401/451

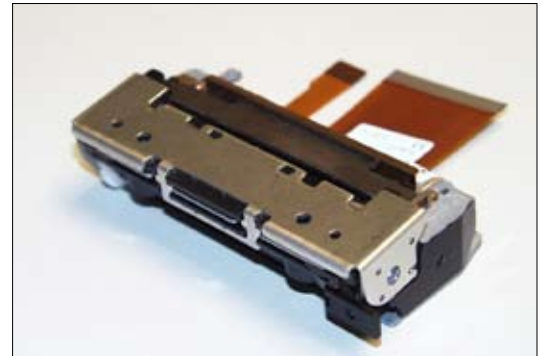
■ OVERVIEW

The FTP-628 MCL Series are battery driven high-speed printers with a 2-inch paper width equivalent.

The FTP-628 MCL Series can be used for a variety of applications, such as portable terminals, POS, banking terminals, and measurement and medical equipment.

■ HIGHLIGHTS

- **Ultra low profile**
Height 21.8 mm, width 81.2 mm, depth 42.2 mm
- **High speed printing**
It can print at 60 mm/s (480 dotlines/s) maximum by using Fujitsu's unique head drive control.
- **Auto Cutter**
Full cut type and partial cut type printers are available by user selection.
- **Easy paper setting**
Our unique platen release mechanism allows a wide paper route even if the printer is ultra-compact, so paper can be easily inserted. Conventional auto loading is also available.
- **Multifunctional die-cast form**
Wide operating temperature range, long continuous printing, high ESD absorption and discharge of static electricity vibration and shock resistant.
- **RoHS compliant**



FTP-628MCL401



FTP-628DSL491R

■ PART NUMBERS

| | | |
|--------------------------------------|-----------------------|--|
| Name | | Part Number |
| Printer mechanism with cutter | | FTP-628MCL401 (Easy Load Model) |
| Printer mechanism without cutter | | FTP-628MCL451 (Easy Load Model with platen bracket + lock lever) |
| LSI for driving | | FTP-629CU451R |
| Interface board for Mechanism/Cutter | Cutter supported | FTP-628DSL491R Parallel (Centronics) / Serial (RS-232C) |
| Interface cable | Parallel (Centronics) | FTP-628Y202 |
| | Serial (RS-232C) | FTP-628Y302 |
| Power cables | Head, motor, logic | FTP-628Y402 |

■ SPECIFICATIONS

| Item | Specifications |
|--|---|
| Part number | FTP-628MCL401 |
| Printing method | Thermal-line dot method |
| Dot structure | 384 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 | 48 mm |
| Number of columns | ANK 32 columns/line (maximum 12 x 24 dot font) |
| Paper width | 58 mm |
| Paper thickness | 60 to 100 μ m (some paper in this range may not be used because of paper characteristics) |
| Printing Speed | Maximum 60mm/sec. (480 dot line/sec.) at 8.5V |
| 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), 32 columns: ANK 24 × 24 dots, (3.0 × 3.0 mm), 16 columns: ANK 8 × 16 dots, (1.0 × 2.0 mm), 48 columns: ANK 16 × 16 dots, (2.0 × 2.0 mm), 24 columns: ANK |

■ SPECIFICATIONS

| Item | | Specification |
|-------------------------------------|----------------------------|---|
| Interface | | Conforms to RS232C / Centronics |
| Power supply | For print head | 4.2 - 8.5 VDC average current, 1.8 (2.4)A at 7.2V (print ratio: 12.5%, print speed: 60mm/sec.) |
| | For motor | 4.2 - 8.5 VDC, 1A maximum |
| | For cutter motor | 4.75 - 8.5 VDC, 1A maximum |
| | For logic | 5 VDC \pm 5%, 0.1 A maximum |
| Dimensions | Mechanism with cutter | 81.2 x 42.2 x 21.8 mm (WxDxH) |
| | Interface board | 70 x 60 x12 mm |
| Weight | Mechanism with cutter | Approximately 97g |
| | Interface board | Approximately 25g |
| Life | Head | Pulse resistance: 100 million pulses/dot (under our standard conditions); Abrasion resistance: paper traveling distance 50km (print ratio: 12.5% or less) |
| | Cutter | 500,000 cuts |
| | Platen | 5,000 times (open/close) |
| 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-interrupter |
| | Platen release | Detected by sliding switch |
| | Movable blade | Detected by photo-interrupter |
| 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, FTP-020P0102 (58mm), PD170R (Oji Paper), P220VBB-1 Mitsubishi Paper) |
| | | Long Life Paper PD160R-N (Oji Paper), AFP-235 (Mitsubishi Paper), TP50KJ-R (Nippon Paper), HA220AA (Nippon Paper) |

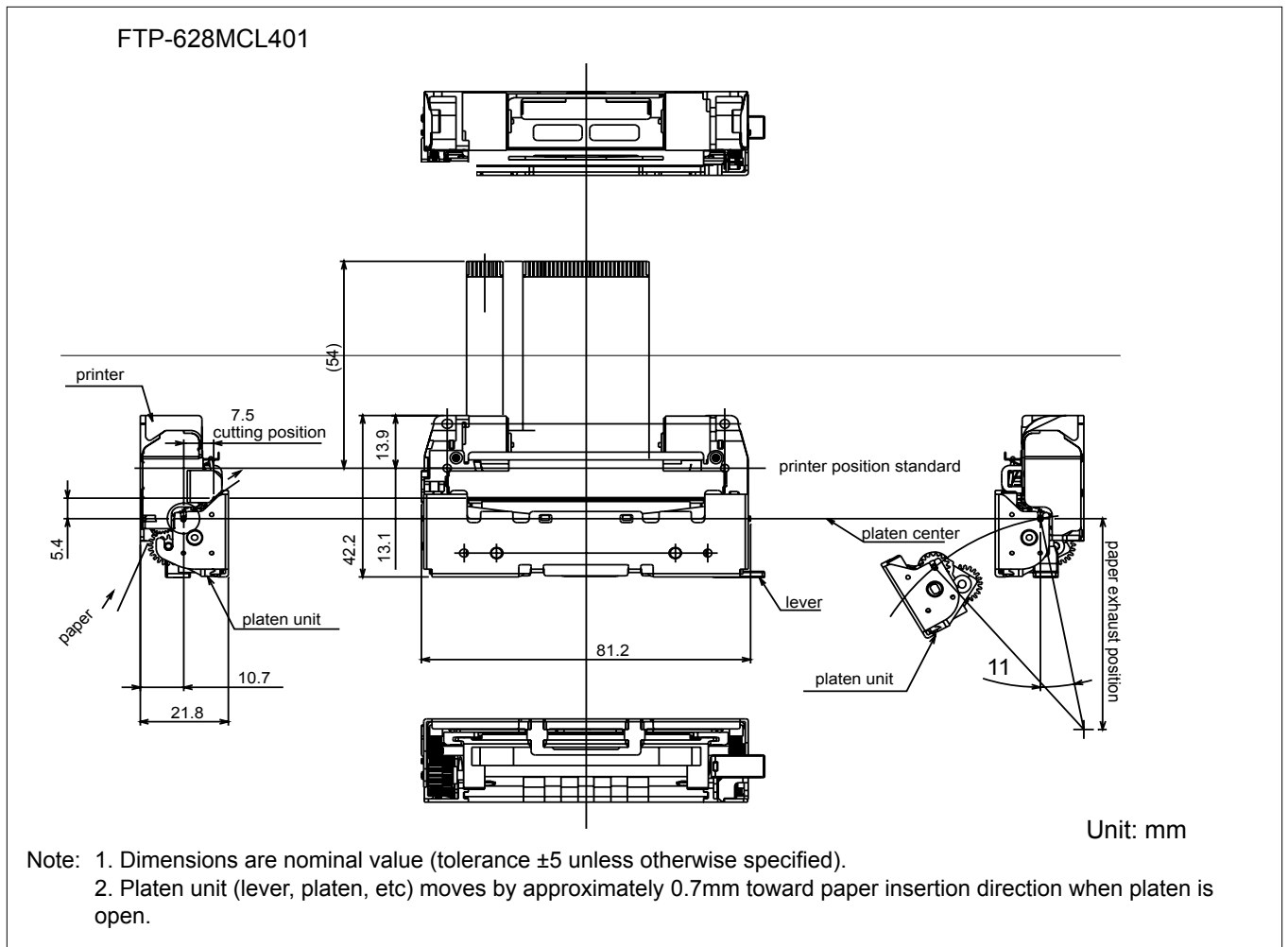
*+5°C to +40°C printing density assurance range (-25 to 70°C capability)

■ 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 |

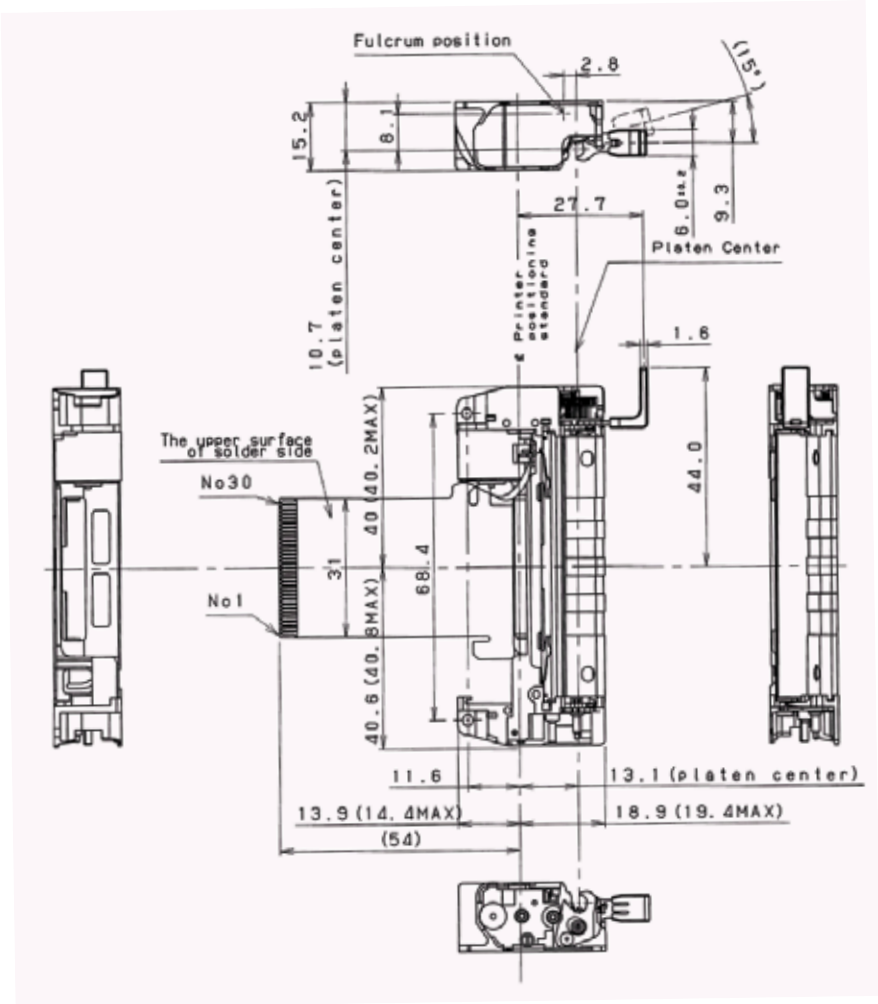
■ DIMENSIONS

1. Printer mechanism

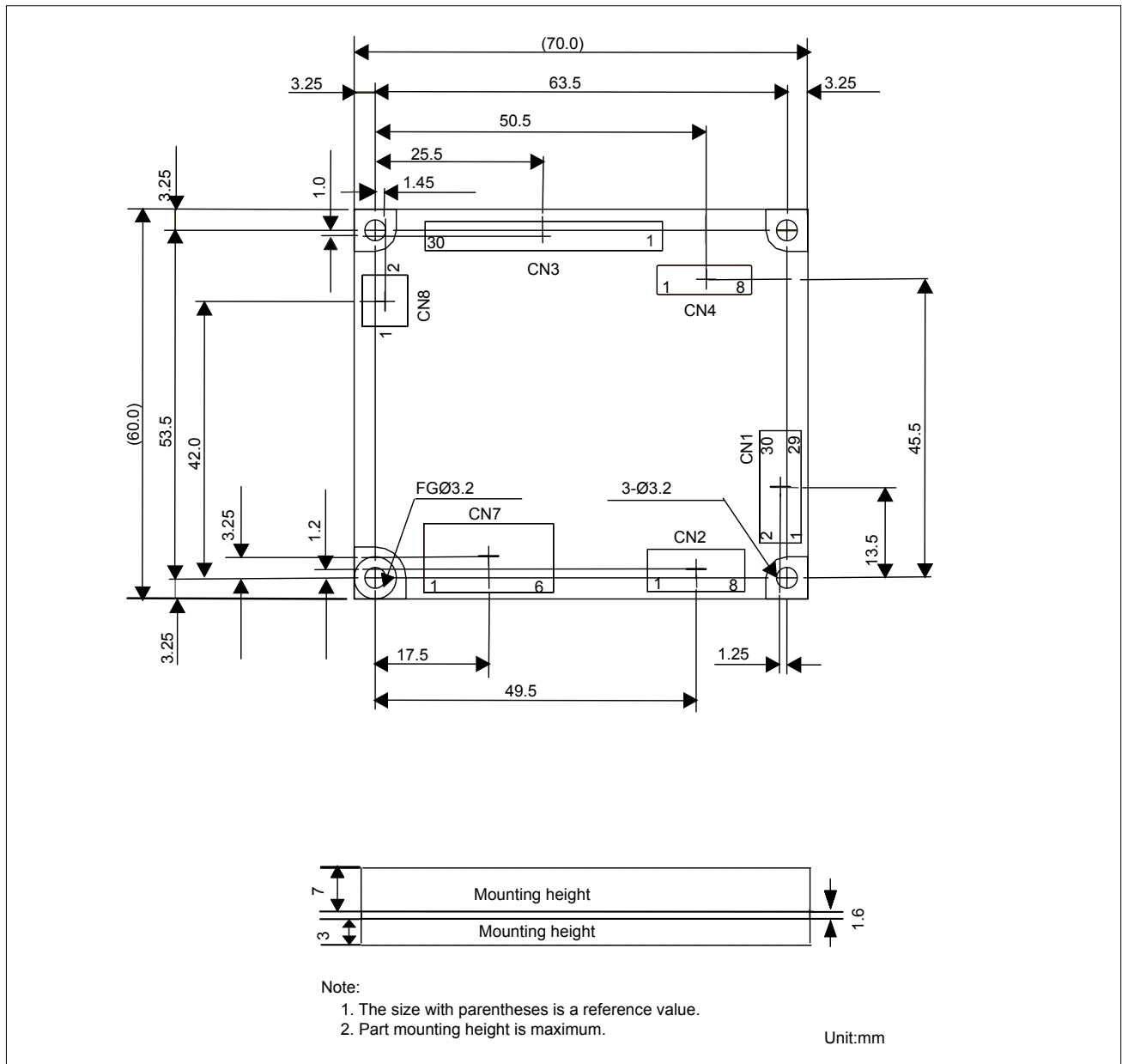


1. Printer mechanism

FTP-628MCL451



2. Interface board



FTP-628MCL401 mechanism/cutter FPC PIN Assignment

(1) For thermal head, motor and sensor

Connector on control circuit: 52610-3090 (Molex or equivalent)

| No | Signal | Content s |
|----|---------------------------------|---|
| 1 | PHK | Cathode for photo interruptor |
| 2 | VSEN | paper sensor power |
| 3 | PHE | Emitter for photo interruptor |
| 4 | VH | Head drive power |
| 5 | VH | |
| 6 | DI | Data in |
| 7 | CLK | Clock |
| 8 | GND | Head ground |
| 9 | GND | |
| 10 | STB6 | Strobe 6 |
| 11 | STB5 | Strobe 5 |
| 12 | STB4 | Strobe 4 |
| 13 | Vdd | Logic power |
| 14 | TM | Thermistor |
| 15 | TM | |
| 16 | STB 3 | Strobe 3 |
| 17 | STB 2 | Strobe 2 |
| 18 | STB 1 | Strobe 1 |
| 19 | GND | Head ground |
| 20 | GND | |
| 21 | $\overline{\text{LAT}}$ | Data latch |
| 22 | DO | Data out |
| 23 | VH | Head drive power |
| 24 | VH | |
| 25 | SW | Platen release switch |
| 36 | SW | |
| 27 | MT/A | Excitation signal A |
| 28 | $\text{MT}/\overline{\text{A}}$ | Excitation signal $\overline{\text{A}}$ |
| 29 | MT/B | Excitation signal B |
| 30 | $\text{MT}/\overline{\text{B}}$ | Excitation signal $\overline{\text{B}}$ |

FTP-628MCL451 mechanism/platen bracket FPC PIN Assignment

(1) For thermal head, motor and sensor

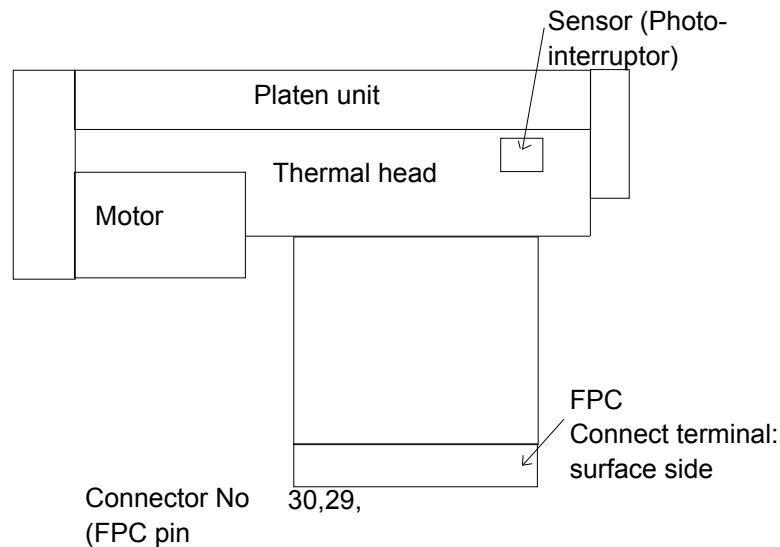
Connector on control circuit: 52610-3090 (Molex or equivalent)

| No | Signal | Contents |
|----|---------------------------------|---|
| 1 | PHK | Cathode for photo interruptor |
| 2 | VSEN | paper sensor power |
| 3 | PHE | Emitter for photo interruptor |
| 4 | VH | Head drive power |
| 5 | VH | |
| 6 | DI | Data in |
| 7 | CLK | Clock |
| 8 | GND | Head ground |
| 9 | GND | |
| 10 | STB6 | Strobe 6 |
| 11 | STB5 | Strobe 5 |
| 12 | STB4 | Strobe 4 |
| 13 | Vdd | Logic power |
| 14 | TM | Thermistor |
| 15 | TM | |
| 16 | STB 3 | Strobe 3 |
| 17 | STB 2 | Strobe 2 |
| 18 | STB 1 | Strobe 1 |
| 19 | GND | Head ground |
| 20 | GND | |
| 21 | $\overline{\text{LAT}}$ | Data latch |
| 22 | DO | Data out |
| 23 | VH | Head drive power |
| 24 | VH | |
| 25 | SW | Platen release switch |
| 36 | SW | |
| 27 | MT/A | Excitation signal A |
| 28 | $\text{MT}/\overline{\text{A}}$ | Excitation signal $\overline{\text{A}}$ |
| 29 | MT/B | Excitation signal B |
| 30 | $\text{MT}/\overline{\text{B}}$ | Excitation signal $\overline{\text{B}}$ |

(2) For cutter

Connector on control circuit: 52610-0890 (Molex or equivalent)

| No | Signal | Contents |
|----|---------------|-------------------------------|
| 1 | VSEN | Home position sensor power |
| 2 | PHE | Emitter for photo interruptor |
| 3 | PHK | Cathode for photo interruptor |
| 4 | MT/A | Excitation signal A |
| 5 | MT/ \bar{A} | Excitation signal \bar{A} |
| 6 | MT/B | Excitation signal B |
| 7 | MT/ \bar{B} | Excitation signal \bar{B} |
| 8 | NC | Not connected |



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