

# LOW VOLTAGE FTP-608 Series

## 2" HIGH SPEED THERMAL PRINTER

### FTP-628MCL101#72/103#72

### Easy Loading Method

#### ■ OVERVIEW

The FTP-628MCL series is an ultra compact, high speed, low voltage printer mechanism that supports 2" paper width (58mm). The removable platen design simplifies both paper loading and maintenance.

This series can be used for a variety of applications such as portable terminals, POS systems, kiosks, ATM's as well as test and measurement equipment.

#### ■ HIGHLIGHTS

- **Easy loading type**  
Platen removal design simplifies paper loading and maintenance.
- **Ultra compact**  
FTP-628MCL101#72: 15.5 x 70.2 x 33.0 mm (Hx W x D)  
FTP-628MCL103#72: 15.5 x 70.4 x 33.0 mm (Hx W x D)
- **High speed printing**  
Using Fujitsu's unique head drive control, a print speed of 100mm/sec. (800 dotlines/sec.) maximum can be achieved at a 9.5V.
- **High resolution printing**  
8 dots/mm of resolution printing is possible.
- **RoHS compliant**



# FTP-628MCL101#72 / 103#72

## ■ PART NUMBERS

| Item              |                    | Part number                                                                                                                             |
|-------------------|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| Printer mechanism |                    | FTP-628MCL101#72 (2" wide paper: 58mm) without platen detect switch<br>FTP-628MCL103#72 (2" wide paper: 58mm) with platen detect switch |
| LSI for driving   |                    | FTP-628CU311-R                                                                                                                          |
| Interface board   | USB/RS232C         | FTP-628DSL311-R, FTP-628MCL312-R*                                                                                                       |
| Interface cables  | Serial             | FTP-628Y302                                                                                                                             |
|                   | USB                | FTP-629Y301#01-R                                                                                                                        |
| Power cable       | Head, motor, logic | FTP-628Y403                                                                                                                             |

\*: This interface board accepts a 21.6V - 26.4V input

## ■ SPECIFICATIONS

| Item                                           | Specifications                                                                                                                                                                                              |
|------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Part number                                    | FTP-628MCL101#72 / 103#72                                                                                                                                                                                   |
| 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 12x 24 dot font)                                                                                                                                                               |
| Paper width                                    | 58 mm +0/-1                                                                                                                                                                                                 |
| Paper thickness                                | 60 to 100 $\mu$ m (some paper in this range may not be used because of paper characteristics)                                                                                                               |
| Printing speed*                                | Maximum 100mm/sec. (800 dot lines/sec.) at 9.5V<br>Maximum 80mm/sec. (640 dot lines/sec.) at 8.5V                                                                                                           |
| Character types                                | Alphanumeric, katakana: 159 types<br>International and special characters: 195 types<br>JIS Kanji level 1, level 2, non-Kanji<br>(supported only when Kanji CG is mounted): about 6800 types                |
| Character, dimensions (H×W), number of columns | 12 × 24 dots, (1.5 × 3.0mm), 32 columns: ANK<br>24 × 24 dots, (3.0 × 3.0mm), 16 columns: ANK, Kanji<br>8 × 16 dots, (1.0 × 2.0 mm), 48 columns: ANK<br>16 × 16 dots, (2.0 × 2.0 mm), 24 columns: ANK, Kanji |

\*: Concurrent applied dots: 64 dots or less at 25°C, batch image print, using standard paper

# FTP-628MCL101#72 / 103#72

## ■ SPECIFICATIONS

| Item                                |                            | Specification                                                                                                                                       |
|-------------------------------------|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
|                                     |                            | FTP-628MCL101#72 / 103#72                                                                                                                           |
| Interface                           |                            | Conforms to RS232C / USB                                                                                                                            |
| Operating Voltage                   | For print head             | 4.2 VDC to 9.5 V, average current 2.4A, at 25°C, Rav=176Ω<br>concurrent applied dots: 64 dots                                                       |
|                                     | or motor                   | 4.2 VDC to 9.5 V, 0.75A maximum (average 0.56A)                                                                                                     |
|                                     | For logic                  | 3.3VDC±10% or 5.5V±10%, 0.1A maximum                                                                                                                |
| Dimensions                          | Printer mechanism          | FTP-628MCL101#72: 70.2 x 33.0 x 15.5 mm (W x D x H)<br>FTP-628MCL103#72: 70.4 x 33.0 x 15.5 mm (W x D x H)                                          |
|                                     | Interface board            | 67.2 x 32 x 11.2mm (W x D x H)                                                                                                                      |
| Weight                              | Printer mechanism          | Approximately 40g                                                                                                                                   |
|                                     | Interface board            | Approximately 15g                                                                                                                                   |
| Head life                           |                            | Pulse resistance: 100 million pulses (under our standard conditions). Abrasion resistance: paper traveling distance 50km (print ratio: 25% or less) |
| 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                                                                                                                       |
| Recommended thermal sensitive paper |                            | High sensitive paper: TF50KS-E4 (Nippon Paper)                                                                                                      |
|                                     |                            | Standard paper: TK60KS-E (Nippon Paper)<br>PD150R (Oji Paper)                                                                                       |
|                                     |                            | Medium life storage paper: TK60KS-F1 (Nippon Paper)<br>PD170R (Oji Paper)<br>P220VBB-1 (Mitsubishi Paper)                                           |
|                                     |                            | Long life storage paper: PD160R-N (Oji Paper)<br>AFP-235 (Mitsubishi Paper)<br>TP50KJ-R (Nippon Paper)<br>HA220AA (Nippon Paper)                    |

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

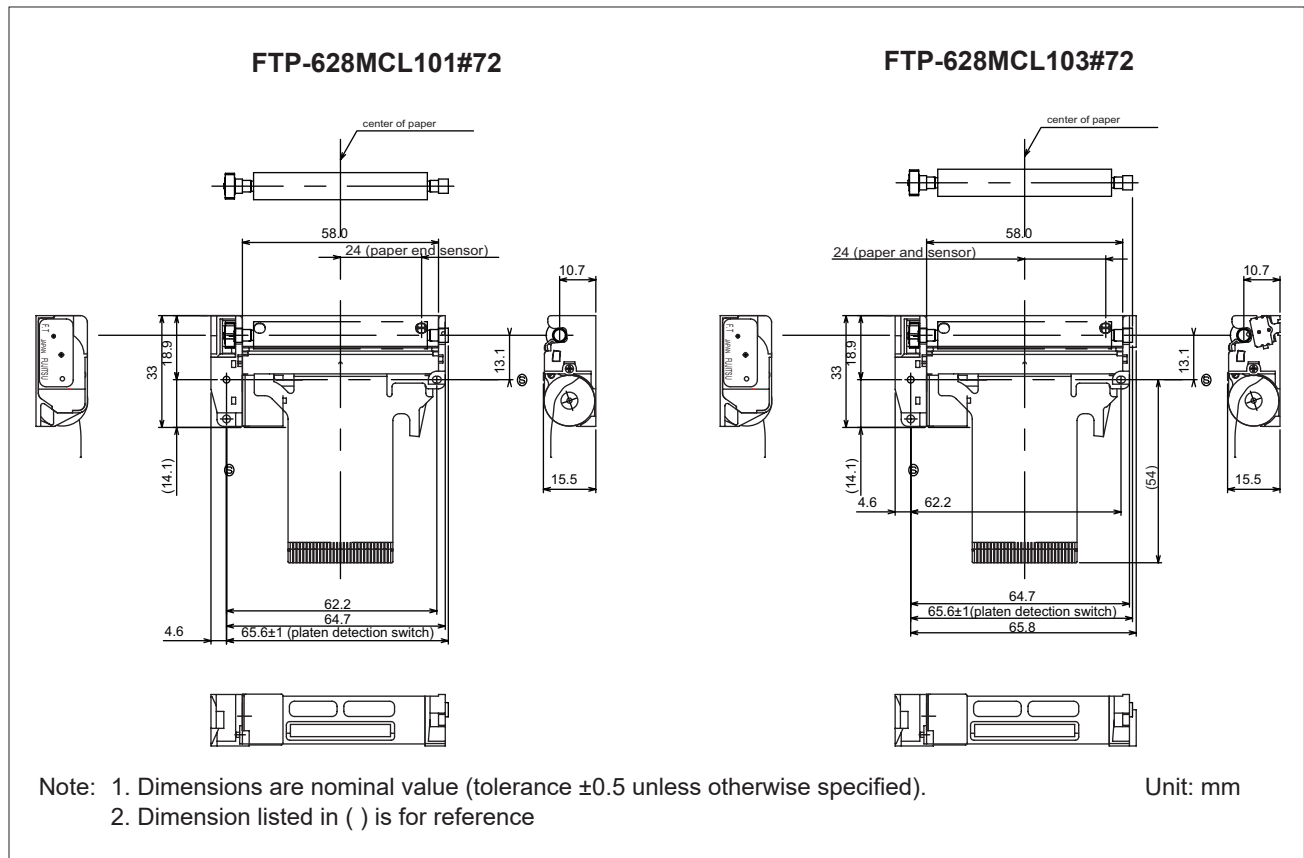
# FTP-628MCL101#72 / 103#72

## ■ INTERFACE BOARD FUNCTION

| Item                                              | Item                                                  |
|---------------------------------------------------|-------------------------------------------------------|
| 1. Test print function                            | 6. Motor power saving function                        |
| 2. Paper out detection                            | 7. Mark detection function                            |
| 3. Paper near end detection                       | 8. MCU operation abnormality detection                |
| 4. Thermal head temperature abnormality detection | 9. Platen open detect<br>(valid for FTP-628MCL103#72) |
| 5. Head voltage abnormality detection             |                                                       |

## ■ DIMENSIONS

### 1. Printer mechanism: 2- inch



# FTP-628MCL101#72 / 103#72

## ■ PRINTER CONNECTOR (FLEXIBLE PT BOARD) PIN ARRAYS

### FTP-628 MCL101#72 / 103#72

Thermal head, control circuit side connector: 52610-3071Molex or equivalent product

| No | Signal                | I/O | Contents                                      |
|----|-----------------------|-----|-----------------------------------------------|
| 1  | PHK                   | O   | Cathode for photo interruptor                 |
| 2  | VSEN                  | I   | paper sensor power                            |
| 3  | PHE                   | O   | Emittor for photo interruptor                 |
| 4  | N.C. (101)/ SW1 (103) | -/O | Platen release switc                          |
| 5  | N.C. (101)/ SW2 (103) | -/O | Platen release switch                         |
| 6  | COM                   |     | Head drive power                              |
| 7  | COM                   |     |                                               |
| 8  | SI                    |     | Data in                                       |
| 9  | CLK                   | I   | Synchronous clock for communication           |
| 10 | GND                   | —   | Ground power supply for thermal head          |
| 11 | GND                   | —   |                                               |
| 12 | STB6                  | I   | Thermal head energizing control signal        |
| 13 | STB5                  | I   |                                               |
| 14 | STB4                  | I   |                                               |
| 15 | VDD                   | I   | Logic power                                   |
| 16 | TM                    | O   | Thermally sensitive resistor input termnial 1 |
| 17 | TM                    | O   | Thermally sensitive resistor input termnial 2 |
| 18 | STB3                  | I   | Thermal head energizing control signal        |
| 19 | STB2                  | I   |                                               |
| 20 | STB1                  | I   |                                               |
| 21 | GND                   | —   | Ground power supply for thermal head          |
| 22 | GND                   | —   |                                               |
| 23 | LAT                   | I   | Data latch                                    |
| 24 | SO                    | O   | Data out                                      |
| 25 | COM                   |     | Power supply for thermal head                 |
| 26 | COM                   |     |                                               |
| 27 | MT A                  | I   | Stepping motor excitation signal              |
| 28 | MT $\bar{A}$          | I   |                                               |
| 29 | MT B                  | I   |                                               |
| 30 | MT $\bar{B}$          | I   |                                               |

Do not plug or unplug the FPC when power is on.

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