FCL COMPONENTS

LOW VOLTAGE FTP-608 Series

2" HIGH SPEED THERMAL PRINTER

FTP-628MCL113#01

Easy Loading Method

■ OVERVIEW

The FTP-608MCL 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.

- **Easy mounting platen**
  Platen bracket allows for easy attachment to cover.
  Also includes a unique platen release lever.

- **Ultra compact**
  Height 15.5 mm, width 75 mm, depth 33.4 mm for the 2 inch model, excluding platen unit.

- **High speed printing**
  It can print at 100 mm/sec. (800 dotlines/sec.) maximum at 9.5V by using FCL Components' unique head drive control.

- **High resolution printing**
  8 dots/mm of resolution printing is possible.

- **RoHS compliant**

■ **PART NUMBERS**

Item		Part number
Printer mechanism		FTP-628MCL113#01 (with platen bracket and platen detect switch)
LSI for driving		FTP-628CU311-R
Interface board	USB/RS-232C	FTP-628DSL311-R, FTP-628DSL312-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-628MCL113#01
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 µ m (some paper in this range may not be used because of paper characteristics
Printing Speed*	Maximum 100mm/sec. (800 dotline/sec.) at 9.5V Maximum 80mm/sec. (640 dotline/sec.) at 8.5V
Character types	Alphanumeric, katakana: 159 types International and special characters: 195 types JIS Kanji level 1, level 2, non-Kanji (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 24×24 dots, (3.0×3.0mm), 16 columns:ANK, Kanji 8×16 dots, (1.0×2.0 mm), 48 columns: ANK 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

■ **SPECIFICATIONS**

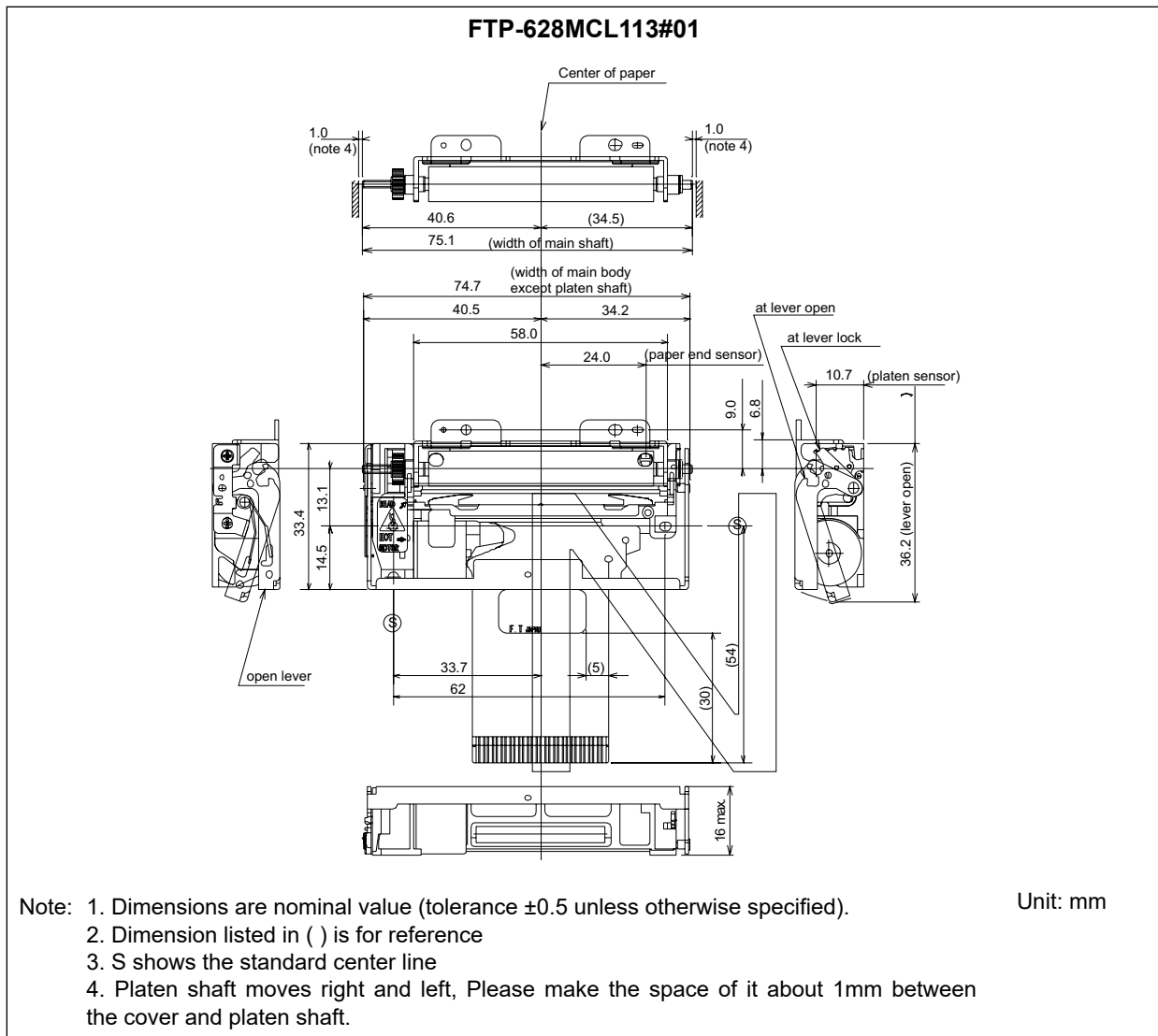| Item		Specification
		FTP-628MCL113#01
Interface		Conforms to RS232C / USB
Operating Voltage	For print head	4.2 VDC to 9.5 V, 2.4A, at 25ºC Rav=176Ω, concurrent applied dots: 64 dots
	For motor	4.2 VDC to 9.5 V, 0.75A maximum (average 0.56A)
	For logic	3.3V ±10% or 5.0V±10%, 0.1A maximum
Dimensions (WxDxH)	Printer mechanism	75.0 x 33.4 x 15.5 mm (W x D x H) (excluding FPC)
	Interface board	67.2 x 32 x 11.2mm (W x D x H)
Weight	Printer mechanism	Approximately 50.5g
	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 95% 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 open/close	Slide switch
Recommended thermal sensitive paper	High sensitive paper:	TF50KS-E4 (Nippon Paper)
	Standard paper:	TK60KS-E (Nippon Paper) PD150R (Oji Paper)
	Medium life storage paper:	TK60KS-F1 (Nippon Paper) PD170R (Oji Paper) P220VBB-1 (Mitsubishi Paper)
	Long life storage paper:	PD160R-N (Oji Paper) AFP-235 (Mitsubishi Paper) TP50KJ-R (Nippon Paper) HA220AA (Nippon Paper)

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

■ 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 detect open
5.	Head voltage abnormality detection		

■ DIMENSIONS
1. Printer mechanism

FTP-628MCL113#01

Note: 1. Dimensions are nominal value (tolerance ±0.5 unless otherwise specified).
2. Dimension listed in ( ) is for reference
3. S shows the standard center line
4. Platen shaft moves right and left, Please make the space of it about 1mm between the cover and platen shaft.

Unit: mm

■ **PRINTER CONNECTOR (FLEXIBLE PT BOARD) PIN ARRAYS**
FTP-628 MCL113#01

Thermal head, control circuit side connector: 52610-3071 Molex 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	SW1	-/|	Platen release switch
5	SW2	-/|	Platen release switc
6	COM	|	Head drive power
7	COM	|	
8	SI	|	Data in
9	CLK	|	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	TH	O	Thermally sensitive resistor input termnial 1
17	TH	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	$\overline{\text{LAT}}$	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 $\overline{\text{A}}$	I	
29	MT B	I	
30	MT $\overline{\text{B}}$	I	

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

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