

FCL COMPONENTS

LOW VOLTAGE FTP-608 Series

3" HIGH SPEED THERMAL PRINTER

FTP-638MCL101 *To be Discontinued*

FTP-638MCL103 *Active*

Easy Loading Method

■ OVERVIEW

The FTP-638MCL series is an ultra compact, high speed, low voltage printer mechanism that supports 3" paper width (80mm). 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-638MCL101: 15.5 x 92.2 x 33.0 mm (Hx W x D)
FTP-638MCL103: 15.5 x 92.4 x 33.0 mm (Hx W x D)
- **High speed printing**
It can print at 60 mm/sec. (480 dotlines/sec.) maximum 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-638MCL101 (3" wide paper: 80mm) without platen detect switch FTP-638MCL103 (3" wide paper: 80mm) with platen detect switch
LSI for driving		FTP-628CU311-R
Interface board	USB/RS232C	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-638MCL101/103
Printing method	Thermal-line dot method
Dot structure	576 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	72 mm
Number of columns	ANK 32 columns/line (maximum 12x 24 dot font)
Paper width	80 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 60mm/sec. (480 dotlines/sec.) at 8.5 V
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 x 24 dots, 48 columns: ANK 24 x 24 dots, 28 columns: ANK, Kanji 8 x 16 dots, 72 columns: ANK 16 x 16 dots, 36 columns: ANK, Kanji

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

■ SPECIFICATIONS

Item		Specification
		FTP-638MCL101/103
Interface		Conforms to RS232C / USB
Operating Voltage	For print head	4.2 VDC to 8.5 V, 2.4A, at 25°C Rav=176Ω, 7.2V, concurrent applied dots: 64 dots
	For motor	4.2 VDC to 8.5 V, 1 A maximum
	For logic	3.3VDC±10% or 5.5V±10%, 0.1A maximum
Dimensions	Printer mechanism	FTP-638MCL101: 92.2 x 33.0 x 15.5 (W x D x H) FTP-638MCL103: 92.4 x 33.0 x 15.5 (W x D x H)
	Interface board	67.2 x 32.0 x 11.2 mm (W x D x H)
Weight	Printer mechanism	Approximately 52g
	Interface board	Approximately 15g
Head life		Pulse resistance: 100 million pulses/dot (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) PD150R (Oji Paper)
		Medium life storage paper: TK60KS-F1 (Nippon Paper) PD170R (Oji Paper) P220VBB-1 (Mitsubishi)
		Long life storage paper: PD160R-N (Oji Paper) AFP-235 (Mitsubishi Paper) TP50KJ-R (Nippon Paper) HA220AA (Nippon Paper)

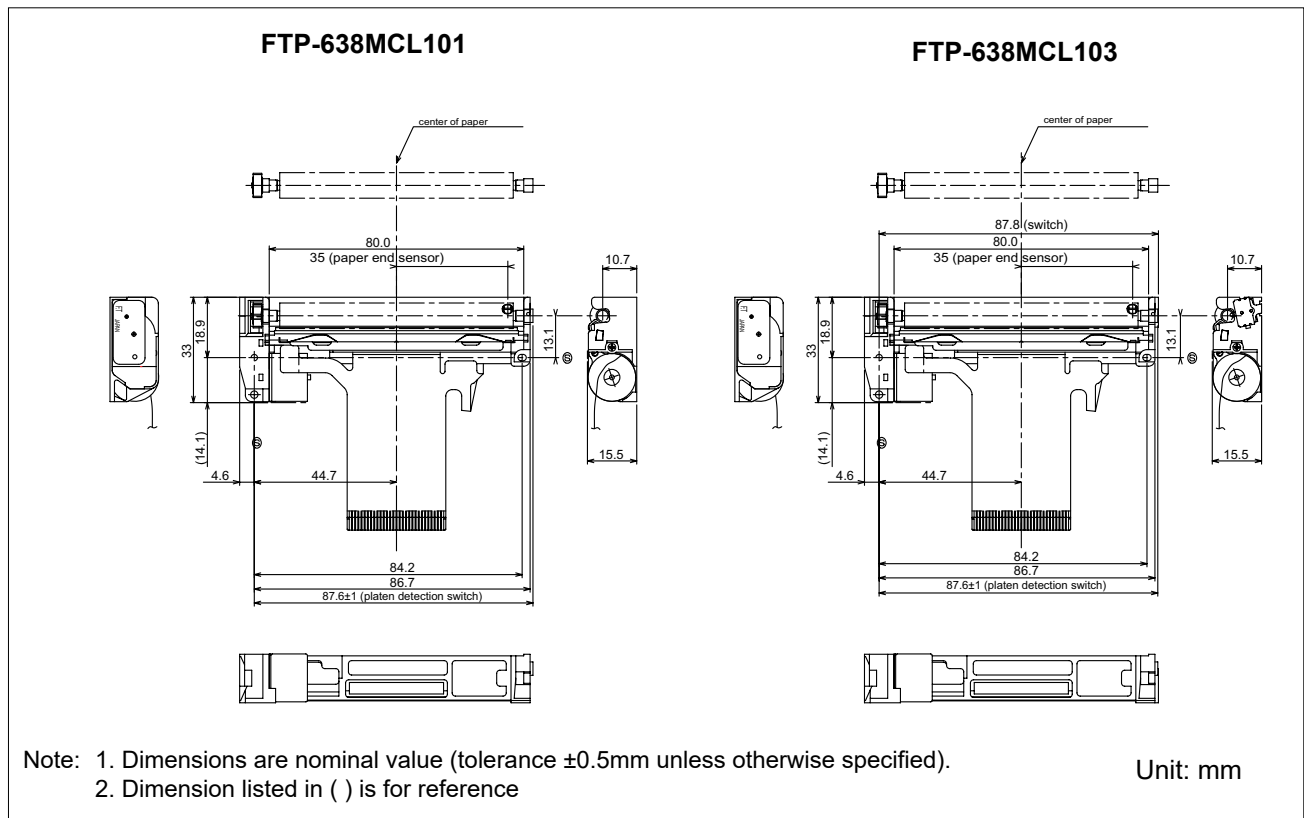
*+5°C to +40°C printing density assurance range (-25°C to 70°C capability)

■ INTERFACE BOARD FUNCTION

Item	Item
1. Test print function	6. Head voltage abnormality detection
2. Paper out detection	7. Motor power saving function
3. Paper near end detection	8. Mark detection function
4. Platen open detect	9. MCU operation abnormality detection
5. Thermal head temperature abnormality detection	

■ DIMENSIONS

1. Printer mechanism: 3 inch



FTP-638 MCL101/103

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	N.C. (101)/ SW1 (103)	-/O	Platen release switc
5	N.C. (101)/ SW2 (103)	-/O	Platen release switch
6	VH	—	Head drive power
7	VH	—	
8	DI	I	Data in
9	CLK	I	Synchronous clock for communication
10	GND	—	Ground power supply for thermal head
11	GND	—	
12	STB5	I	Thermal head energizing control signal
13	STB4	I	
14	STB3	I	
15	VDD	I	Logic power
16	TM	O	Thermally sensitive resistor input termnial 1
17	STB2	I	Thermal head energizing control signal
18	STB1	I	
19	AEO2	I	---
20	AEO1	I	
21	GND	—	Ground power supply for thermal head
22	GND	—	
23	LAT	I	Data latch
24	DO	O	Data out
25	VH	I	Power supply for thermal head
26	VH	I	
27	MT A	I	Stepping motor excitation signal
28	MT A	I	
29	MT B	I	
30	MT B	I	

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