FUJITSU THE POSSIBILITIES ARE INFINITE

BATTERY DRIVEN, FTP-608 Series

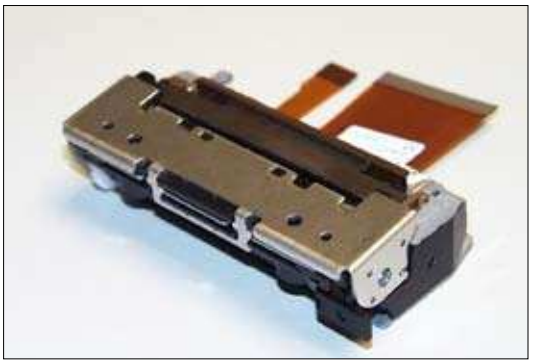
2” HIGH SPEED THERMAL PRINTER

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.



FTP-628MCL401

FTP-628DSL491R

■ 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 absorbtion and discharge of static electricity vibration and shock resistant.
- **RoHS compliant**

■ 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 ± 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 rance (-25 to 70˚C capability)

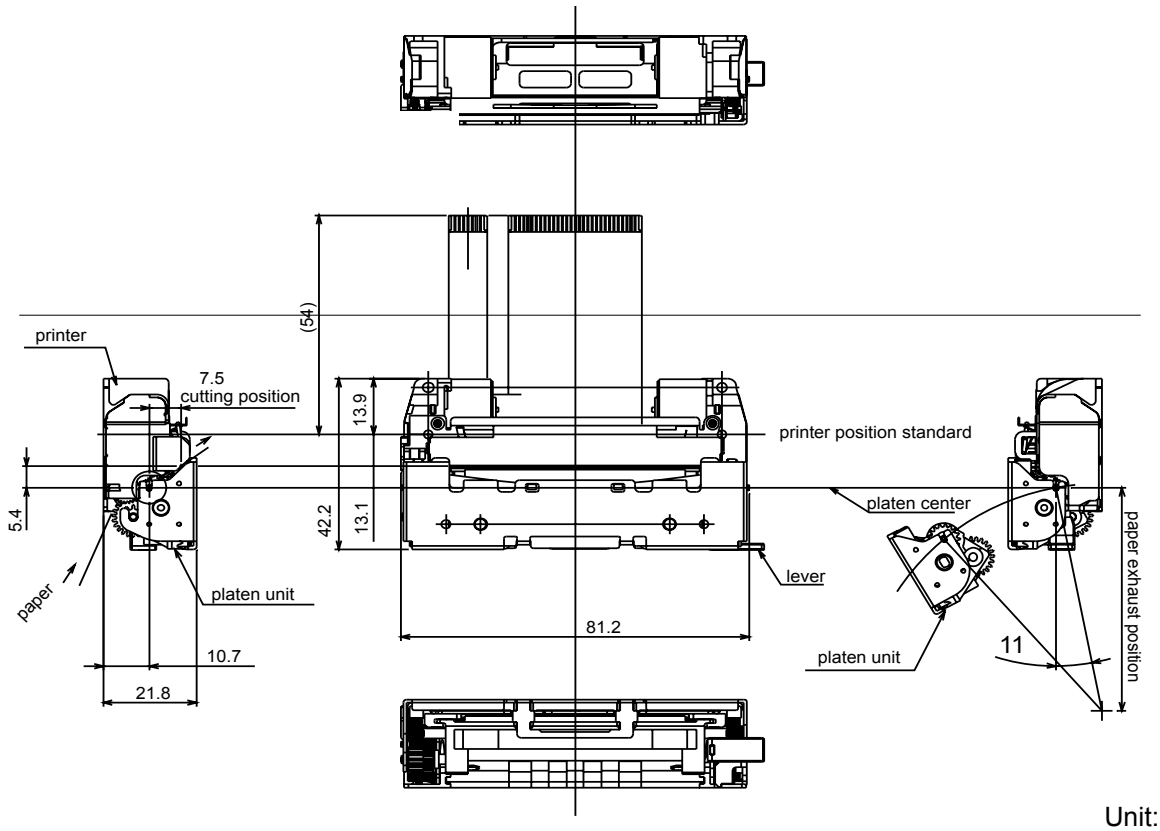
■ FUNCTION OF INTERFACE BOARD

	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

FTP-628MCL401

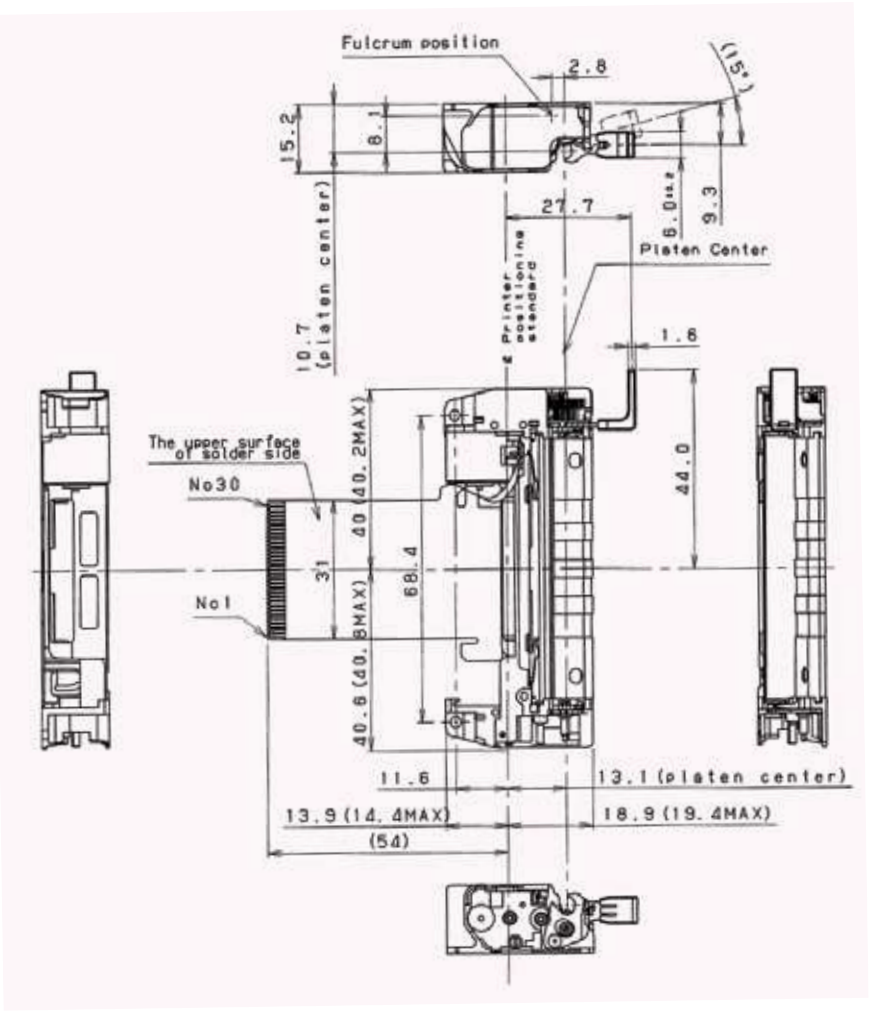


Unit: mm

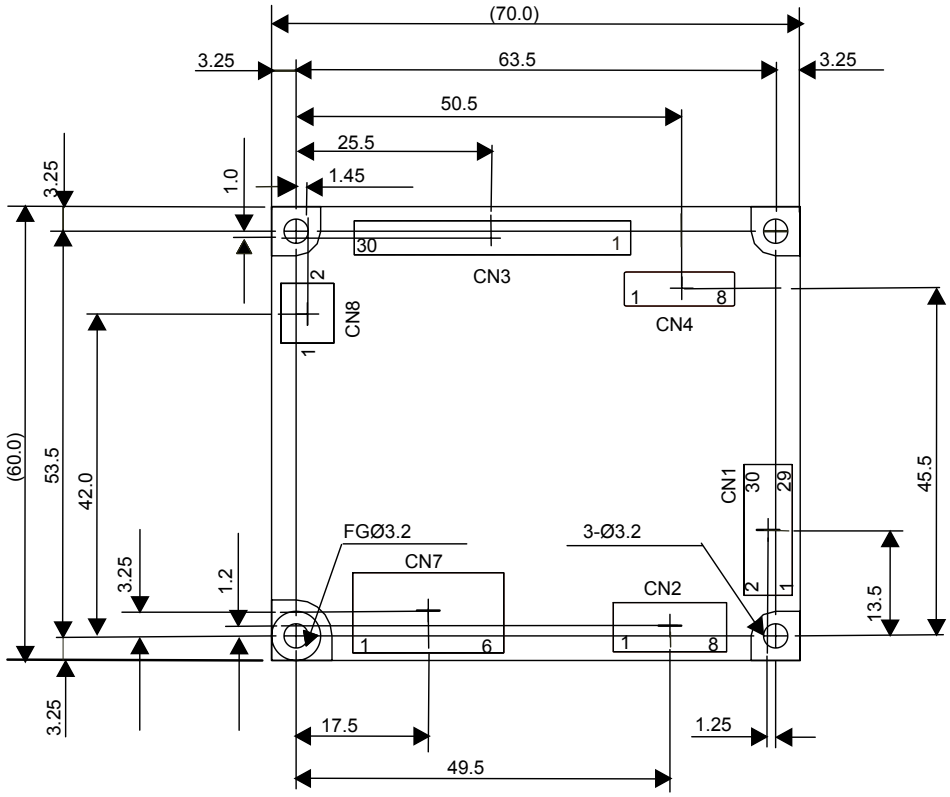
Note: 1. Dimensions are nominal value (tolerance ±5 unless otherwise specified).
2. Platen unit (lever, platen, etc) moves by approximately 0.7mm toward paper insertion direction when platen is open.

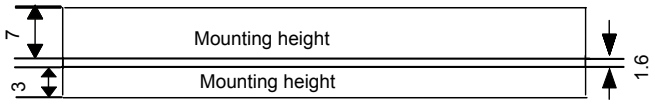
1. Printer mechanism

FTP-628MCL451



2. Interface board





Note:

1. The size with parentheses is a reference value.
2. Part mounting height is maximum.

Unit:mm

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	Contents
1	PHK	Cathode for photo interruptor
2	VSEN	paper sensor power
3	PHE	Emittor 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	MT/$\overline{\text{A}}$	Excitation signal $\overline{\text{A}}$
29	MT/B	Excitation signal B
30	MT/$\overline{\text{B}}$	Excitation signal $\overline{\text{B}}$

FTP-628MCL451 mechanism/platen bracket FPC PIN Assignment

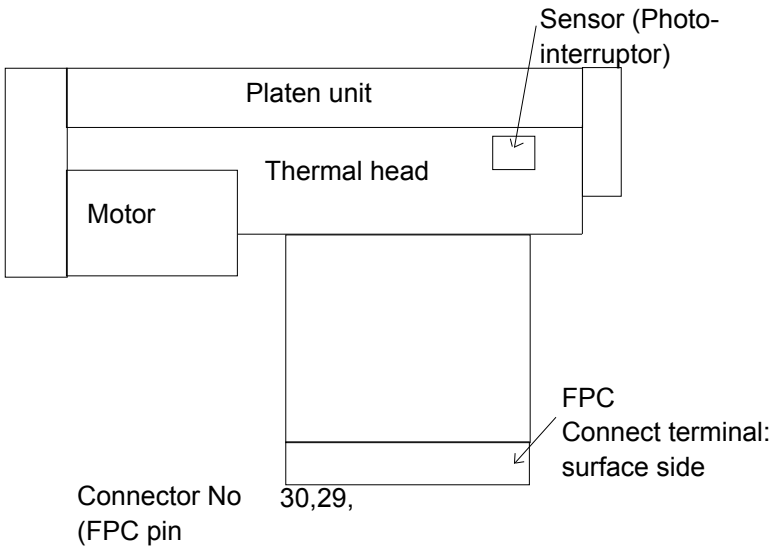
(1) For thermal head, motor and sensor
Connector on control circuit: 52610-3090 (Molex or equivalent)

No	Signal	Contents
1	PHK	Cathode for photo interruptor
2	VSEN	paper sensor power
3	PHE	Emittor 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	$\overline{LAT}$	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	MT/$\overline{A}$	Excitation signal $\overline{A}$
29	MT/B	Excitation signal B
30	MT/$\overline{B}$	Excitation signal $\overline{B}$

(2) For cutter

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

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



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