FUJITSU THE POSSIBILITIES ARE INFINITE

BATTERY DRIVE, FTP-604 Series

4” TYPE MECHANISM AND INTERFACE BOARD

FTP-644MCL001/002/FTP-624DCL/DSL

■ OVERVIEW

FTP-644MCL/FTP-624DCL/DSL Series is a high speed line thermal printer driven by battery, printing on 4-inch wide paper (112 mm/ 114 mm).

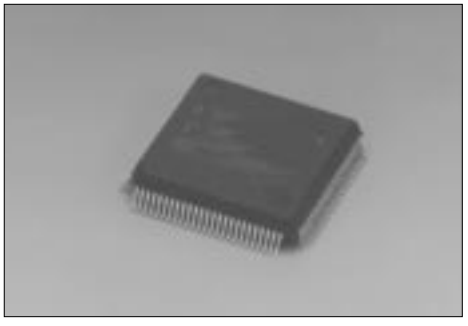
The printer is compact and lightweight, and the design allows easy head maintenance, head cleaning and head replacement.

This printer is suitable for a variety of applications, such as hand held terminals, POS terminals, ticket machines, coupon machines, label printers, etc.

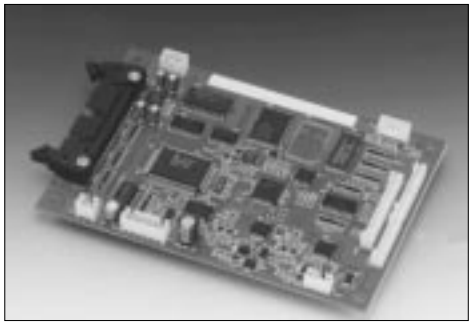
FTP-644MCL001

■ HIGHLIGHTS

- **High speed printing**
  It can print at 50 mm/s (400 dotlines/s) maximum by using Fujitsu Components' unique head drive control.
- **Compact and lightweight**
  The printer has a low profile of only 20 mm, and a light weight of approximately 125 g.
- **Low power consumption**
  The peak current for head drive is only 3.5 A (8.5VDC, 128 dots on).
- **Easy head access**
  It is designed for easy head cleaning and head replacement.
- **Paper auto loading function**
  Thermal paper can be loaded without head-up lever operation.
- **UL recognized**
  File No. E171434



FTP-624CU102



FTP-624DCL/DSL002

■ DESIGNATION

Item		Part number
Printer mechanism		FTP-644MCL001/002*1
Interface Board	Centronics	FTP-624DCL002*2
	RS-232C	FTP-624DSL002*3
LSI	Micro Controller Unit	FTP-624CU102
Cables	Thermal head cables	FTP-624Y002, FTP-624Y003
	Parallel interface cable	FTP-441Y201
	Serial interface cable	FTP-624Y301
	Power cable (logic, head and motor)	FTP-621Y401, FTP-621Y601

*1: 001 is for front paper insertion (curl path) and 002 is for rear paper insertion (straight path).
*2: 002 supports ANK, 102 support ANK and Kanji.
*3: 002 supports ANK, 103 support ANK and Kanji.

■ GENERAL SPECIFICATIONS

Item	Specifications
Part number	FTP-644MCL001/002
Printing method	Thermal-sensitive line dot method
Dot structure	832 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	104 mm
Paper width (MCL001)	112 mm
Paper width (MCL002)	114 mm
Paper thickness	60 to 100 μ m*1
Number of columns	104 columns/line (16 × 8 dot font)
Maximum printing speed	400 dotlines/s (50 mm/s) [Condition] 1 ply, printing on high sensitive thermal paper, 8 columns of “H” /line, double density 16 × 8 dot font, room temperature, 8.5 VDC drive
Character types	JIS ANK : 128 International : 195 ASCII : 31
Character composition, dimensions (H×W), Number of characters	24 × 12 dots, (3.0 × 1.5 mm), 69 columns 16 × 8 dots, (2.0 × 1.0 mm), 104 columns 16 × 16 dots, (4.0 × 2.0 mm), 52 columns 24 × 24 dots, (6.0 × 3.0 mm), 34 columns
Interface	Centronics / RS-232C

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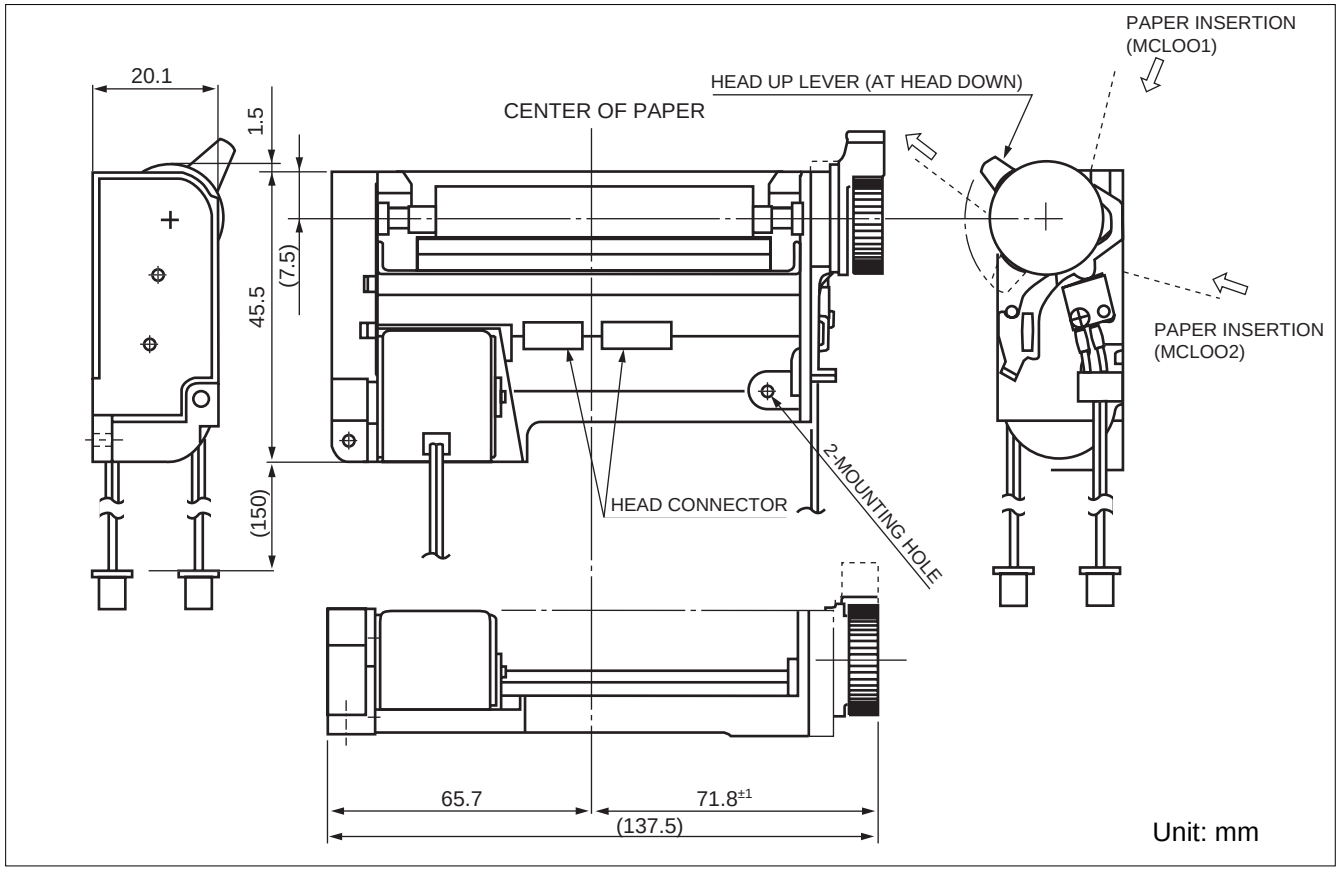
Item		Specifications
Power supply	For head	Voltage: 4.2 to 8.5 VDC (equivalent to 2 Lithium Ion batteries) Peak current: approx. 3.5 A (conditions: room temp., 7.2VDC, 128 dots on)
	For motor	Voltage: 4.2 to 8.5 VDC (equivalent to 2 Lithium Ion batteries) Peak current: approx. 0.8 A (conditions: room temp., 7.2 VDC)
	For logic	Voltage: 5 VDC ± 5% Current: 0.2 A maximum
Dimensions	Mechanism	138 (W) × 46 (D) × 20 (H) mm (excluding lever and knob diameter)
	Interface board	131 (W) × 89(D) × 24 (H) mm
Weight (Mechanism)		approximately 125 g
Expected life	Mechanism	Pulse durability: 1×10^8 pulse/dot (using Fujitsu Takamisawa's standard driving method) Wear resistance: 50 km (at 12.5% print ratio)
Environmental conditions	Operating temperature	0 to +50°C*2
	Operating humidity	20 to 85% RH (no condensation)
	Storage temperature	–20 to +60°C
	Storage humidity	5 to 95% RH (no condensation)
Detection	Head temperature	By thermistor (applied energy control, abnormal temperature detection)
	Paper out/Mark detect	By photointerrupter
	Head-up	By microswitch
Recommended thermal sensitive paper		For front insertion use (112 mm width) : FTP-040PU001, FTP-040PG021 For rear insertion use (114 mm width) : FTP-040P0020, FTP-040PG106 In Europe (112 mm width) :FTP-041P0060-45 · Oji Paper : PD160R, PD170R, PD150R · NIPPON Paper : TF50KS-E4, TF60KS-E,TF50KS-E · MITSUBISHI Paper Mills : P220VBB-1, AFP-235

*1: There may be exceptions.

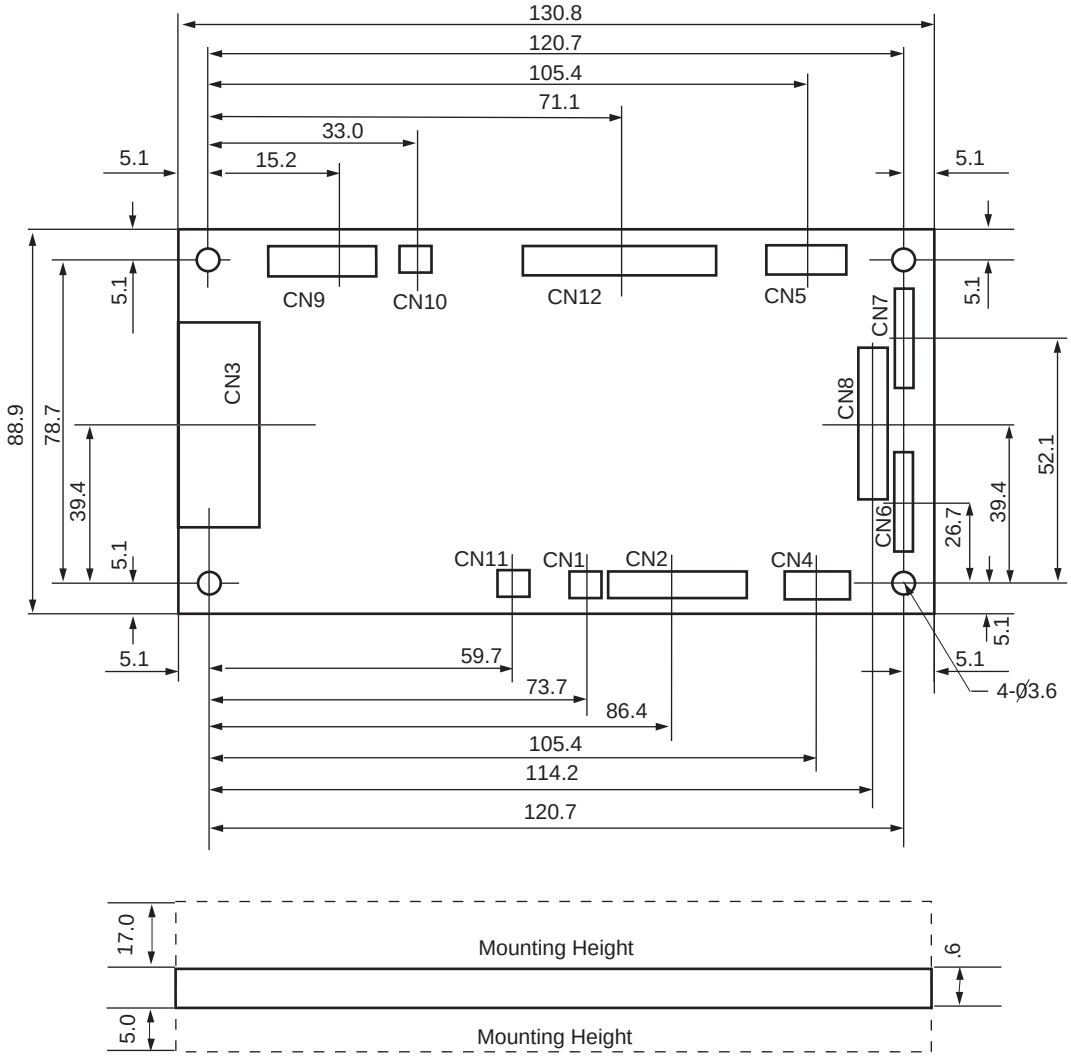
*2: Guarantee +5°C to +40°C.

■ DIMENSIONS

Printer mechanism



Interface board



* CN9 on FTP-624DSL only

** CN8, CN11, CN12 not used

Unit: mm

■ FUNCTION

	ITEM		ITEM
1.	Test printing	8.	Motor power save
2.	Paper-out detection	9.	Mark detection
3.	Paper near end detection	10.	MCU trouble detection
4.	Head-up detection	11.	Power on/off sequence protection
5.	Abnormal temp. of thermal head detection	12.	Motor protection
6.	Blown fuse detection	13.	Hardware timer
7.	Abnormal voltage detection of head		

■ CONNECTOR PIN ASSIGNMENT FOR PRINTER MECHANISM

1. Thermal Head

Head side 1 : B11B-PH-K-S-2.2 (J.S.T.) or equivalent
2: B10B-PH-K-S-2.2 (J.S.T.) or equivalent
Board side 1: PHR-11 (J.S.T.) or equivalent
2: PHR-12 (J.S.T.) or equivalent

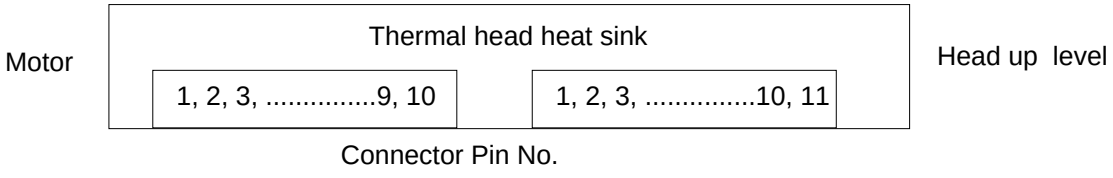
Connector Thermal Head 1

No.	Signal	Comment
1	STB5	Print enable signal 5
2	STB6	Print enable signal 6
3	STB7	Print enable signal 7
4	STB8	Print enable signal 8
5	CLK	Data transmission clock
6	LAT	Print data latching signal
7	DIN	Print data output signal
8	GND	Head ground
9	GND	Head ground
10	VH	Power for head
11	VH	Power for head

Connector Thermal Head 2

No.	Signal	Comment
1	VH	Power for head
2	VH	Power for head
3	GND	Head ground
4	GND	Head ground
5	TH*1	Temperature detection
6	STB1	Print enable signal 1
7	STB2	Print enable signal 2
8	STB3	Print enable signal 3
9	STB4	Print enable signal 4
10	VDD	Power for logic

*1: Symbol: "‾" means a negative logic signal



3. Sensor connectors

Sensor : PHR-5 (J.S.T.) or equivalent
Board side : B5B-PH-K-S (J.S.T.) or equivalent

No.	Signal	Comment
1	$\overline{B}$	Stepping motor coil excitation
2	B	Stepping motor coil excitation
3	$\overline{A}$	Stepping motor coil excitation
4	A	Stepping motor coil excitation

No.	Signal	Comment
1	VSEN	Power for paper sensor
2	PHE	Photo interrupter emittor
3	PHK	Photo interrupter cathode
4	SW1	Head up detect switch 1
5	SW2	Head up detect switch 2

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