

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**

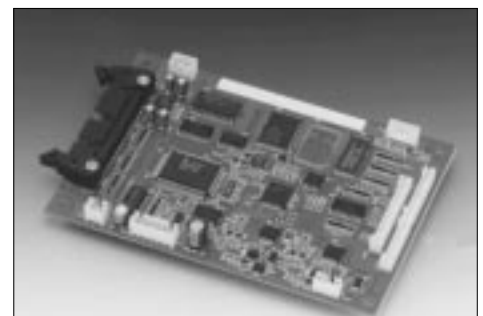
Thermal paper can be loaded without head-up lever operation.

- **UL recognized**

File No. E171434



FTP-624CU102



FTP-624DCL/DSL002

FTP-644MCL001/002/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 \times 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 \times 8 dot font, room temperature, 8.5 VDC drive
Character types	JIS ANK : 128 International : 195 ASCII : 31
Character composition, dimensions (H \times W), Number of characters	24 \times 12 dots, (3.0 \times 1.5 mm), 69 columns 16 \times 8 dots, (2.0 \times 1.0 mm), 104 columns 16 \times 16 dots, (4.0 \times 2.0 mm), 52 columns 24 \times 24 dots, (6.0 \times 3.0 mm), 34 columns
Interface	Centronics / RS-232C

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FTP-644MCL001/002/FTP-624DCL/DSL002

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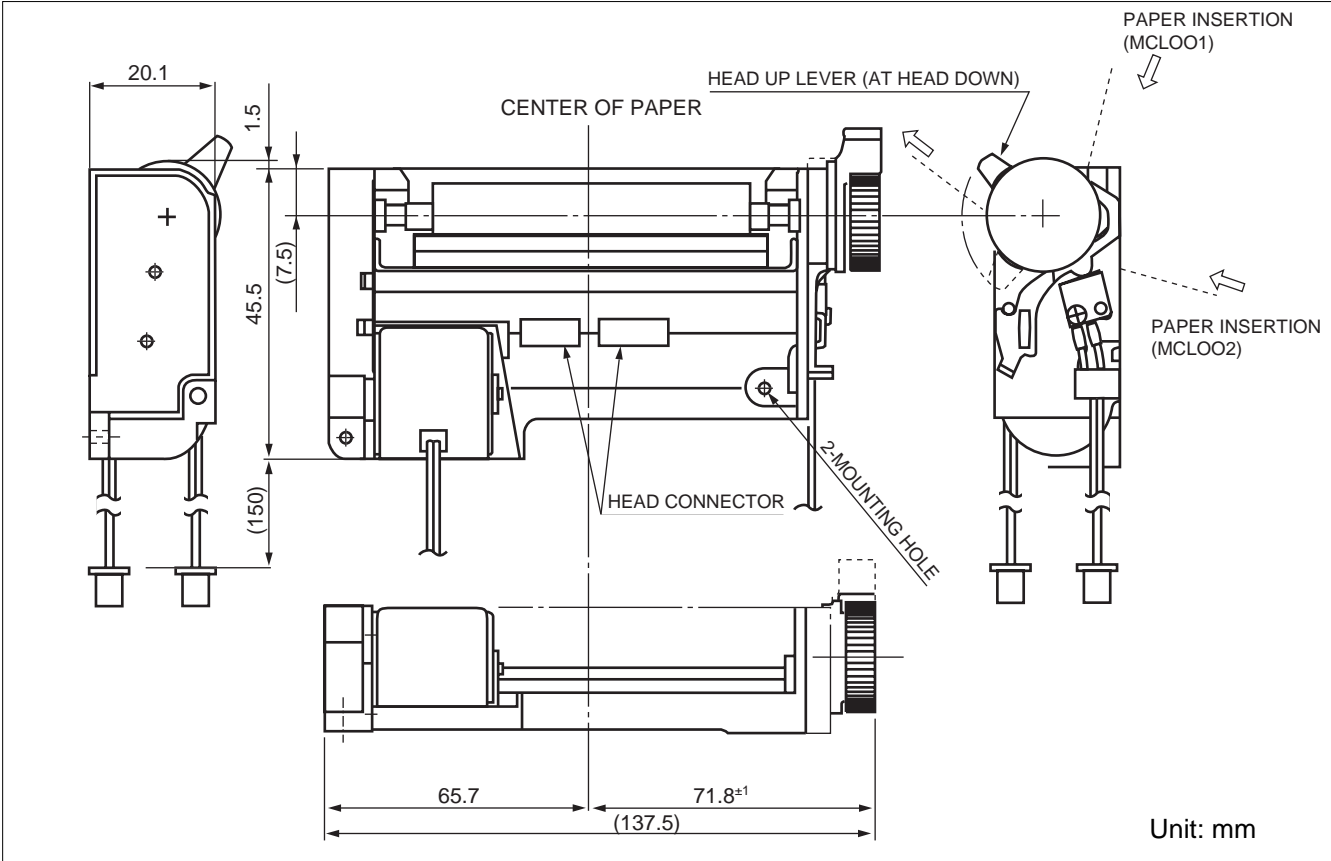
Item		Specifications
Power supply	For head	Voltage: 4.2 to 8.5 VDC (equivalent to 2 Lithium Ion batteries) Peak current: approx. 3.5 A (conditions: room temp., 7.2VDC, 128 dots on)
	For motor	Voltage: 4.2 to 8.5 VDC (equivalent to 2 Lithium Ion batteries) Peak current: approx. 0.8 A (conditions: room temp., 7.2 VDC)
	For logic	Voltage: 5 VDC \pm 5% Current: 0.2 A maximum
Dimensions	Mechanism	138 (W) \times 46 (D) \times 20 (H) mm (excluding lever and knob diameter)
	Interface board	131 (W) \times 89(D) \times 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.

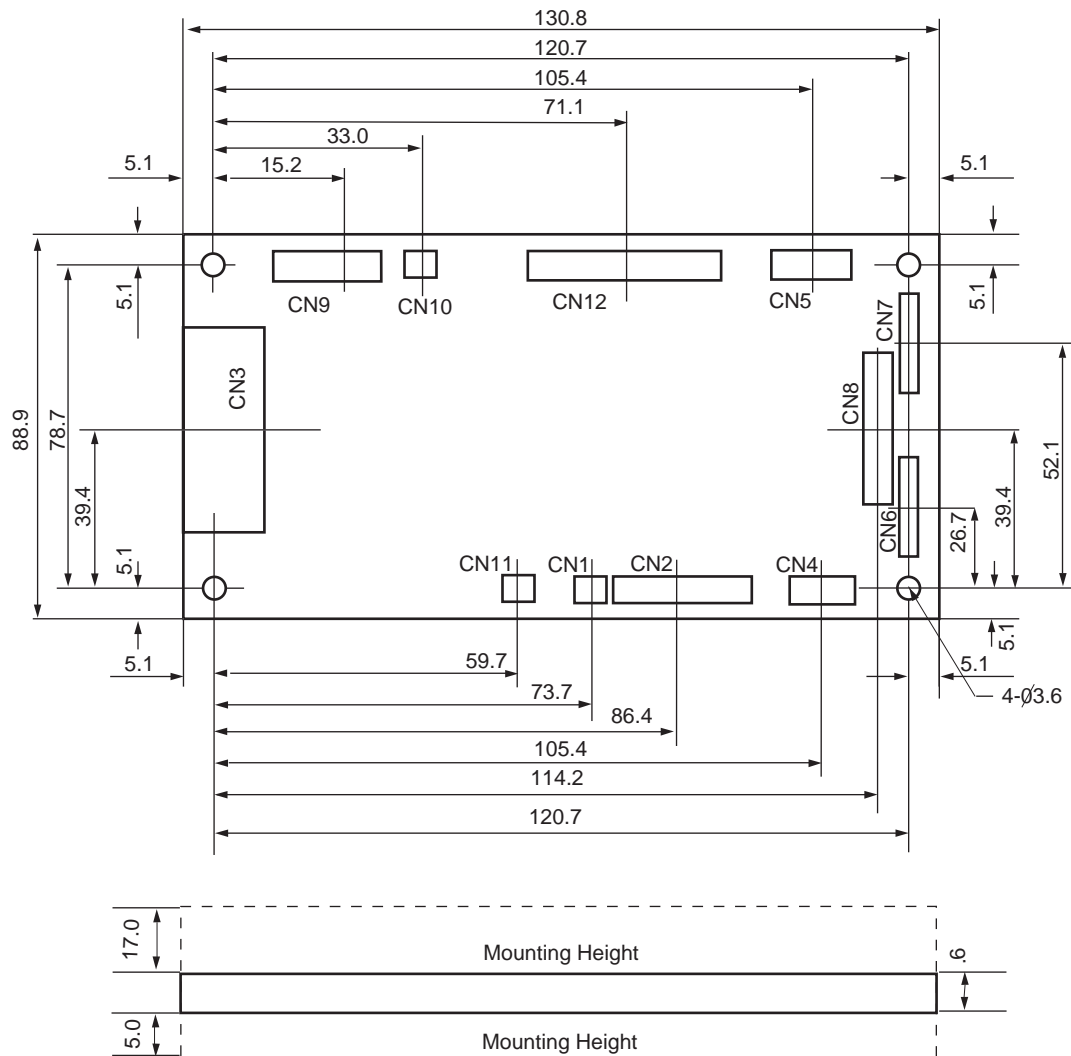
■ DIMENSIONS

Printer mechanism



FTP-644MCL001/002/FTP-624DCL/DSL002

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

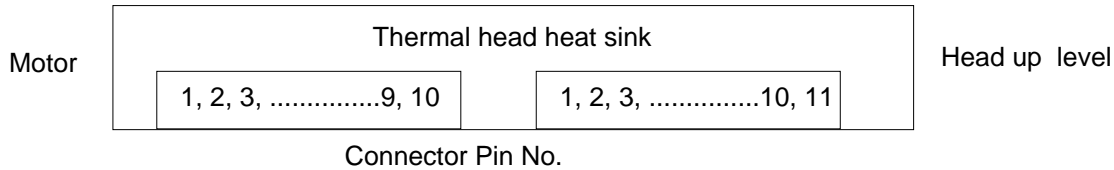
Connector Thermal Head 1

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 emitter
3	PHK	Photo interrupter cathode
4	SW1	Head up detect switch 1
5	SW2	Head up detect switch 2

Fujitsu Components International Headquarter Offices

Japan

Fujitsu Component Limited
Gotanda-Chuo Building
3-5, Higashigotanda 2-chome, Shinagawa-ku
Tokyo 141, Japan
Tel: (81-3) 5449-7010
Fax: (81-3) 5449-2626
Email: promothq@ft.ed.fujitsu.com
Web: www.fcl.fujitsu.com

North and South America

Fujitsu Components America, Inc.
250 E. Caribbean Drive
Sunnyvale, CA 94089 U.S.A.
Tel: (1-408) 745-4900
Fax: (1-408) 745-4970
Email: marcom@fcai.fujitsu.com
Web: www.fcai.fujitsu.com

Europe

Fujitsu Components Europe B.V.
Diamantlaan 25
2132 WV Hoofddorp
Netherlands
Tel: (31-23) 5560910
Fax: (31-23) 5560950
Email: info@fceu.fujitsu.com
Web: www.fceu.fujitsu.com

Asia Pacific

Fujitsu Components Asia Ltd.
102E Pasir Panjang Road
#04-01 Citilink Warehouse Complex
Singapore 118529
Tel: (65) 6375-8560
Fax: (65) 6273-3021
Email: fcal@fcal.fujitsu.com
www.fcal.fujitsu.com

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