BATTERY DRIVE, FTP-604 Series

3" TYPE MECHANISM AND INTERFACE BOARD

FTP-634MCL001/002/FTP-624DCL/DSL002

■ OVERVIEW

FTP-634MCL/FTP-624DCL/DSL Series is a high speed line thermal printer driven by battery, printing on 3-inch wide paper (80 mm/ 85 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.
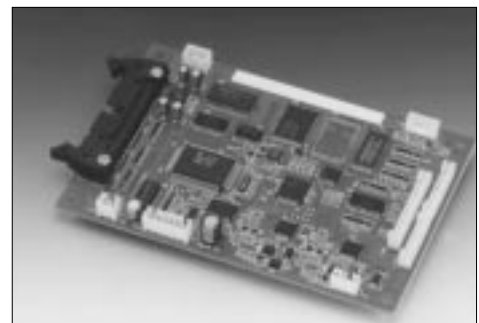
■ HIGHLIGHTS

- **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**
  This printer has a low profile of only 20 mm, and a light weight of approximately 95g.

- **Low power consumption**
  The peak current for head drive is only 3.5 A (8.5 VDC, 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-634MCL001

FTP-624CU102

FTP-624DCL/DSL002

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■ DESIGNATION

Item		Part number
Printer mechanism		FTP-634MCL001/002*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 cables (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 supports ANK and Kanji.

*3: 002 supports ANK, 103 supports ANK and Kanji.

■ GENERAL SPECIFICATIONS

Item	Specifications
Part number	FTP-634MCL001/002
Printing method	Thermal-sensitive 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
Paper width (MCL001)	80 mm
Paper width (MCL002)	85 mm
Paper thickness	60 to 100 μ m*1
Number of columns	72 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×W), Number of characters	24 $\times$ 12 dots, (3.0 $\times$ 1.5 mm), 48 columns 16 $\times$ 8 dots, (2.0 $\times$ 1.0 mm), 72 columns 16 $\times$ 16 dots, (4.0 $\times$ 2.0 mm), 36 columns 24 $\times$ 24 dots, (6.0 $\times$ 3.0 mm), 24 columns
Interface	Centronics / RS-232C

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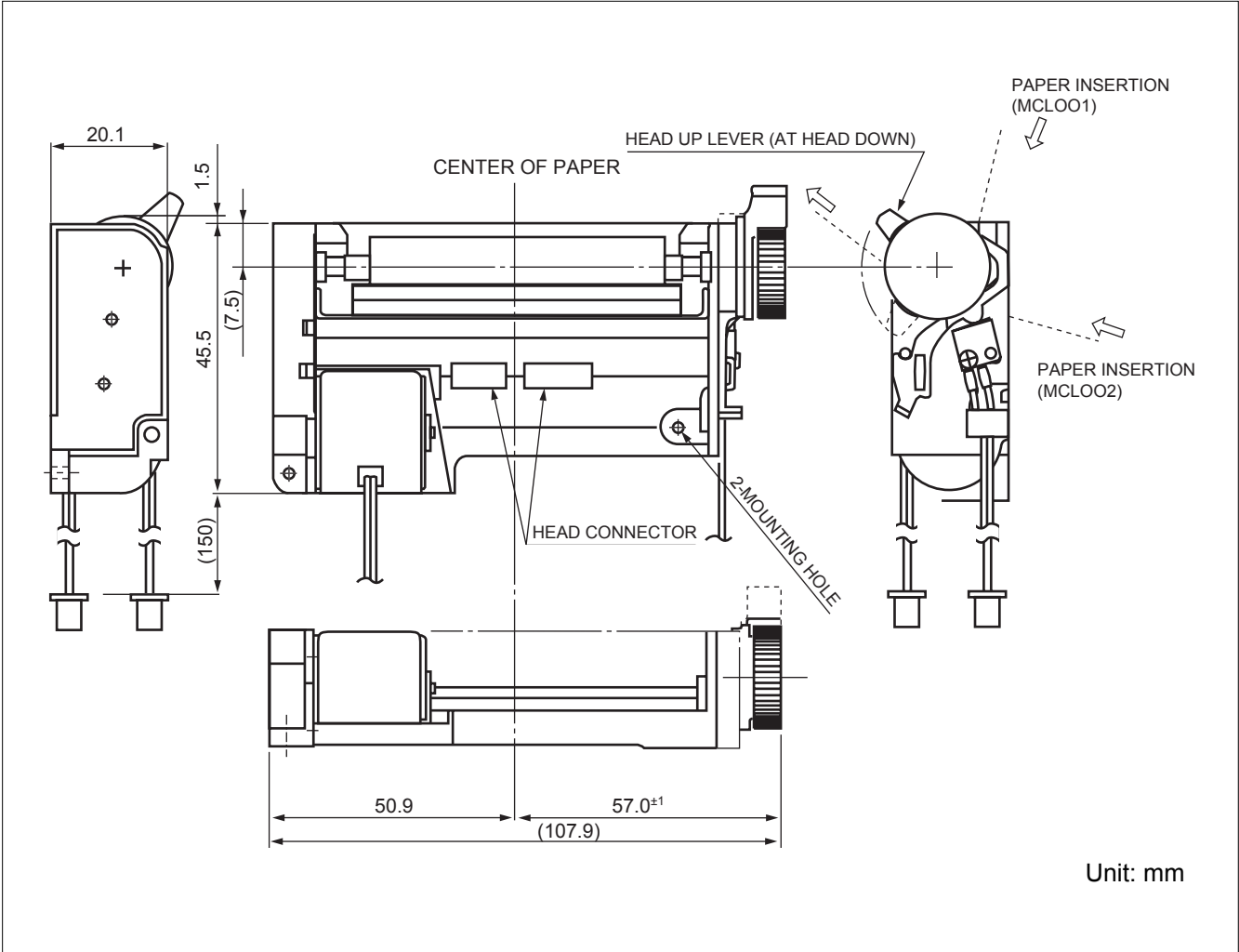| Item		Specifications
Power supply	For head	Voltage: 4.2 to 8.5 VDC (equivalent to 2 Lithium lon batteries) Peak current: approx. 3.5 A (conditions: room temp., 7.2VDC, 128 dots on)
	For motor	Voltage: 4.2 to 8.5 VDC (equivalent to 2 Lithium lon batteries) Peak current: approximately 0.8 A (conditions: room temperature, 7.2VDC)
	For logic	Voltage: 5 V DC± 5% Current: 0.2 A maximum
Dimensions	Mechanism	108 (W) × 46 (D) × 20 (H) mm (excluding lever and knob diameter)
	Interface board	131 (W) × 89(D) × 24 (H) mm
Weight (Mechanism)		approximately 95 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 (80 mm width) : FTP-030PU001 For rear insertion use (85 mm width) : FTP-030P0020, FTP-030PG106 In Europe (80 mm width) : FTP031P0060-45 · 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

PAPER INSERTION (MCLOO1)

HEAD UP LEVER (AT HEAD DOWN)

CENTER OF PAPER

PAPER INSERTION (MCLOO2)

20.1

1.5

(7.5)

45.5

(150)

HEAD CONNECTOR

2-MOUNTING HOLE

50.9

57.0$^{\pm 1}$

(107.9)

Unit: mm

Interface board
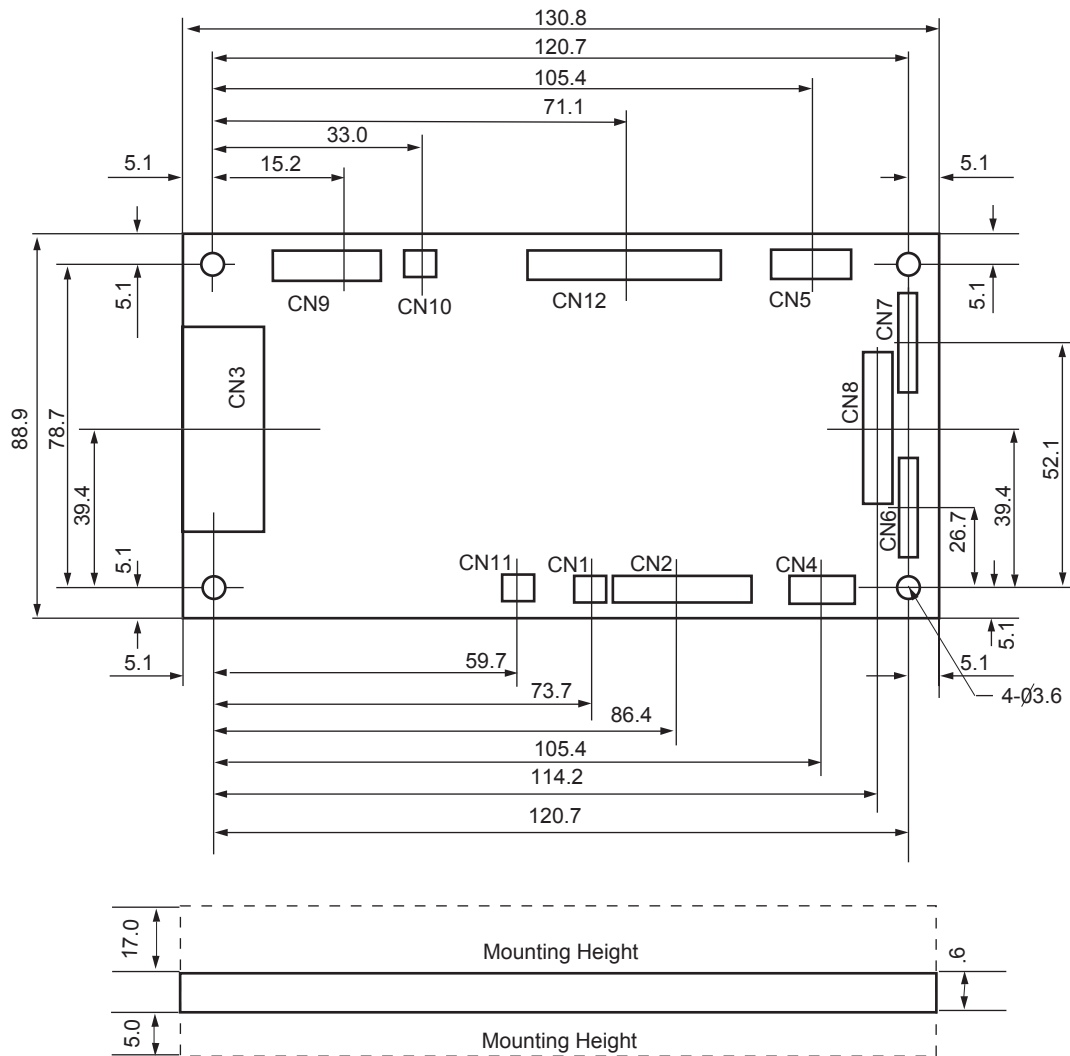
* CN9 on FTP-624DSL only
** CN8, CN11, CN12 not used

Unit: mm

■ 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
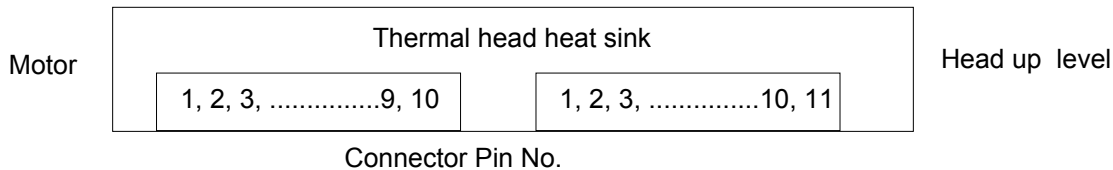   2: PHR-12 (J.S.T.) or equivalent

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

Motor | Thermal head heat sink | Head up level

       | 1, 2, 3, ...9, 10 | | 1, 2, 3, ...10, 11 |

Connector Pin No.

3. Sensor connectors

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

■ FUNCTION

	Item		Item
1.	Test print function	8.	Motor power saving function
2.	Paper out detection	9.	Mark detection function
3.	Paper near end detection	10.	MCU operation abnormality detection
4.	Head up detection	11.	Power ON/OFF sequence protection
5.	Thermal head temperature abnormality detection	12.	Motor over-current protection
6.	Blow-out fuse detection	13.	Hardware timer
7.	Head voltage abnormality detection		

■ INTERFACE, COMMAND, OPTIONS

Please refer to the FTP-624DCL/DSL DATA SHEET.

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