

24V DRIVEN, FTP-607 Series

3" HIGH SPEED THERMAL PRINTER

FTP-637MCL401/601

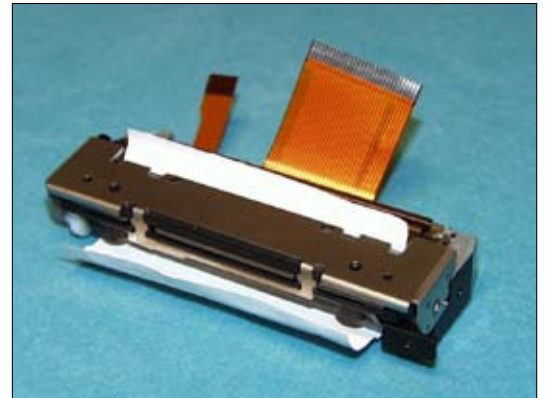
■ OVERVIEW

The FTP-637 MCL Series are 24V driven high-speed printers with a ultra low profile auto cutter and long life.

The FTP-637 MCL Series can be used for a variety of applications, such as POS terminals, ticket vending machines, label printers, banking terminals, and measurement and medical equipment.

■ HIGHLIGHTS

- **Ultra low profile**
Height 21.8 mm, width 103.2/104.5 mm, depth 42.2 mm
- **High speed printing**
It can print at 100/150 mm/s maximum by using Fujitsu's unique head drive control.
- **Auto Cutter**
Long life and high reliable guilotine with dedicated motor.
- **Easy paper setting**
Our lever platen release mechanism allows a wide paper route, so paper can be easily inserted.
Conventional auto loading is also available.
- **Multifunctional die-cast frame**
Wide operating temperature range, long continuous printing, high ESD absorption and discharge of static electricity vibration and shock resistant.
- **RoHS compliant**



FTP-637MCL401/601



FTP-637DSL291

■ PART NUMBERS

			Part Number
Easy Load Model with low profile cutter			FTP-637MCL401 FTP-637MCL601
LSI for driving			FTP-627CU301R
Interface board for Mech/Cutter	Cutter	MCL401	FTP-637DSL291R Parallel (Centronics) /Serial (RS-232C)
		MCL601	FTP-637DSL603R (USB) FTP-637DSL605R Serial (RS-232C)
Interface cables	Parallel (Centronics)		FTP-628Y202
	Serial (RS232C)		FTP-628Y302
	USB		FTP-629Y301
Power cables	Logic		FTP-629Y401
	Head, motor		FTP-629Y601

■ SPECIFICATIONS

Item		Specifications
Part number		FTP-637MCL401/601
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 48 columns/line (maximum 12 x 24 dot font)
Paper width		80 mm
Paper thickness		60 to 100 μ m (some paper in this range may not be used because of paper characteristics)
Printing Speed	MCL401	Maximum 100mm/sec. (800 dot line/sec.)
	MCL601	Maximum 150mm/sec. (1,200 dot line/sec.)
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), 48 columns: ANK 24 × 24 dots, (3.0 × 3.0 mm), 24 columns: ANK 8 × 16 dots, (1.0 × 2.0 mm), 72 columns: ANK 16 × 16 dots, (2.0 × 2.0 mm), 36 columns: ANK

■ SPECIFICATIONS

Item		Specification	
Interface		Conforms to RS232C/Centronics	
Power supply	For print head	24 VDC average current, 0.51A (1.17A peak) (print ratio: 12.5%, print speed 100mm/sec.)	
	For motor	24 VDC \pm 5%, 1.1 A maximum	
	For cutter	24 VDC \pm 5%, 1.4 A maximum	
	For logic	5 VDC, 0.2 A maximum	
Dimensions	Mechanism with cutter	104.5 x 42.2 x 21.8 mm (WxDxH)	
	Interface board	DSL291	70 x 60 x 12 mm (WxDxH)
		DSL60x	95 x 70 x 12 mm (WxDxH)
Weight	Mechanism with cutter	Approximately 116g/124g	
	Interface board	Approximately 25g / 34g	
Life	Head		Pulse durability: 100 million pulses/dot (print ratio: 12.5% or less).
		MCL401	Abrasion resistance: paper traveling distance 50km
		MCL601	Abrasion resistance: paper feed length 100km.
	Cutter	MCL401	500,000 cuts
		MCL601	1,000,000 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-interruptor	
	Platen release	Detected by sliding switch	
Recommended thermal sensitive paper	High sensitive paper	TF50KS-E4 (Nippon paper)	
	Standard paper	TF60KS-E (Nippon paper), FTP-020PU001 (58mm) PD150R (Oji paper) FTP-020PU701 (58mm)	
		Medium life paper	TF60KS-F1 (Nippon paper) FTP-020P0102 (58mm) PD170R (Oji paper) P220VBB-1 (Mitsubishi paper)
		Long life paper	PD160R (Oji paper) AFP-235 (Mitsubishi paper) TP50KJ-R (Nippon paper) HA220AA (Nippon paper)

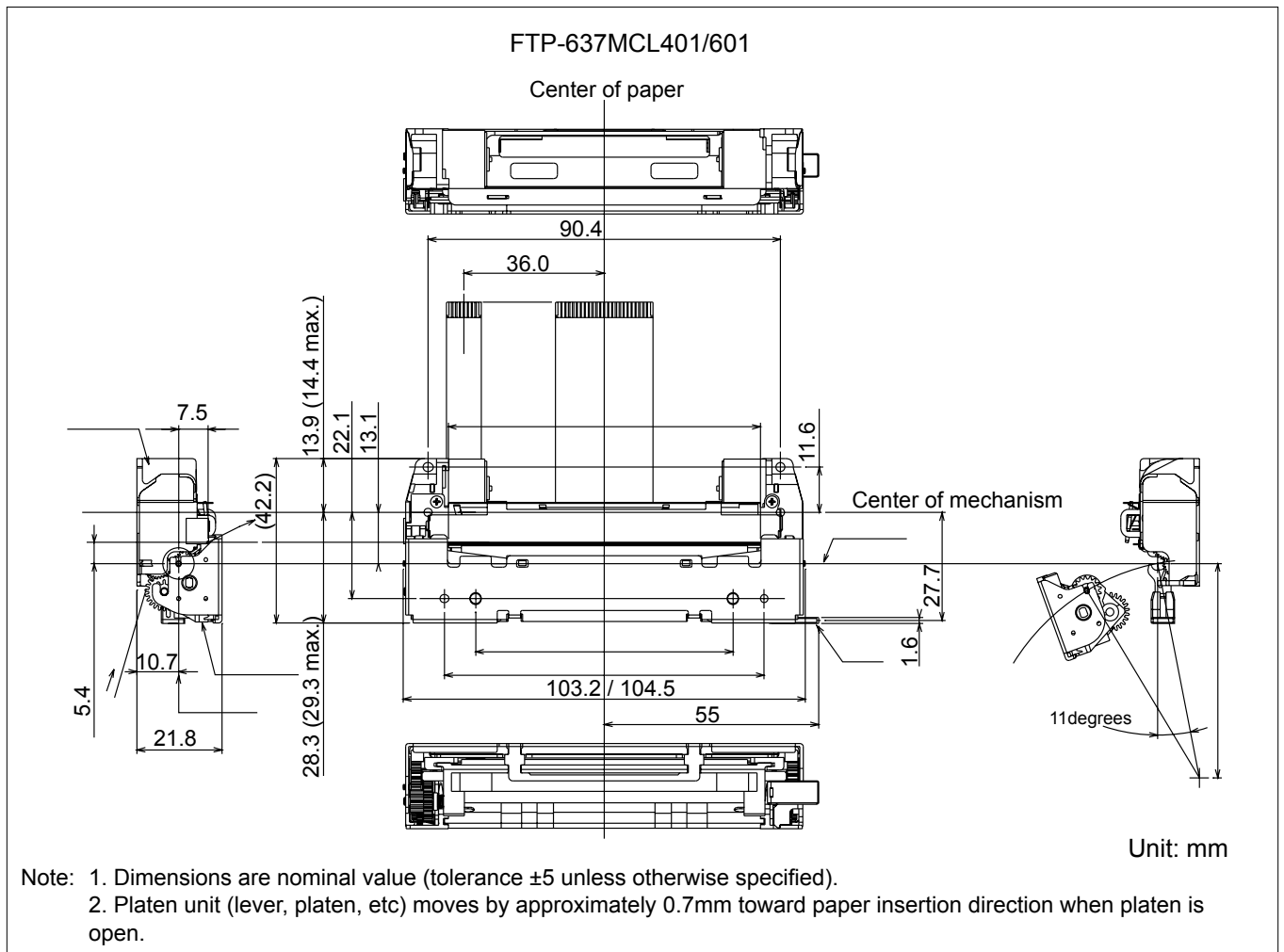
*+5°C to +40°C printing density assurance range.

FUNCTION OF INTERFACE BOARD

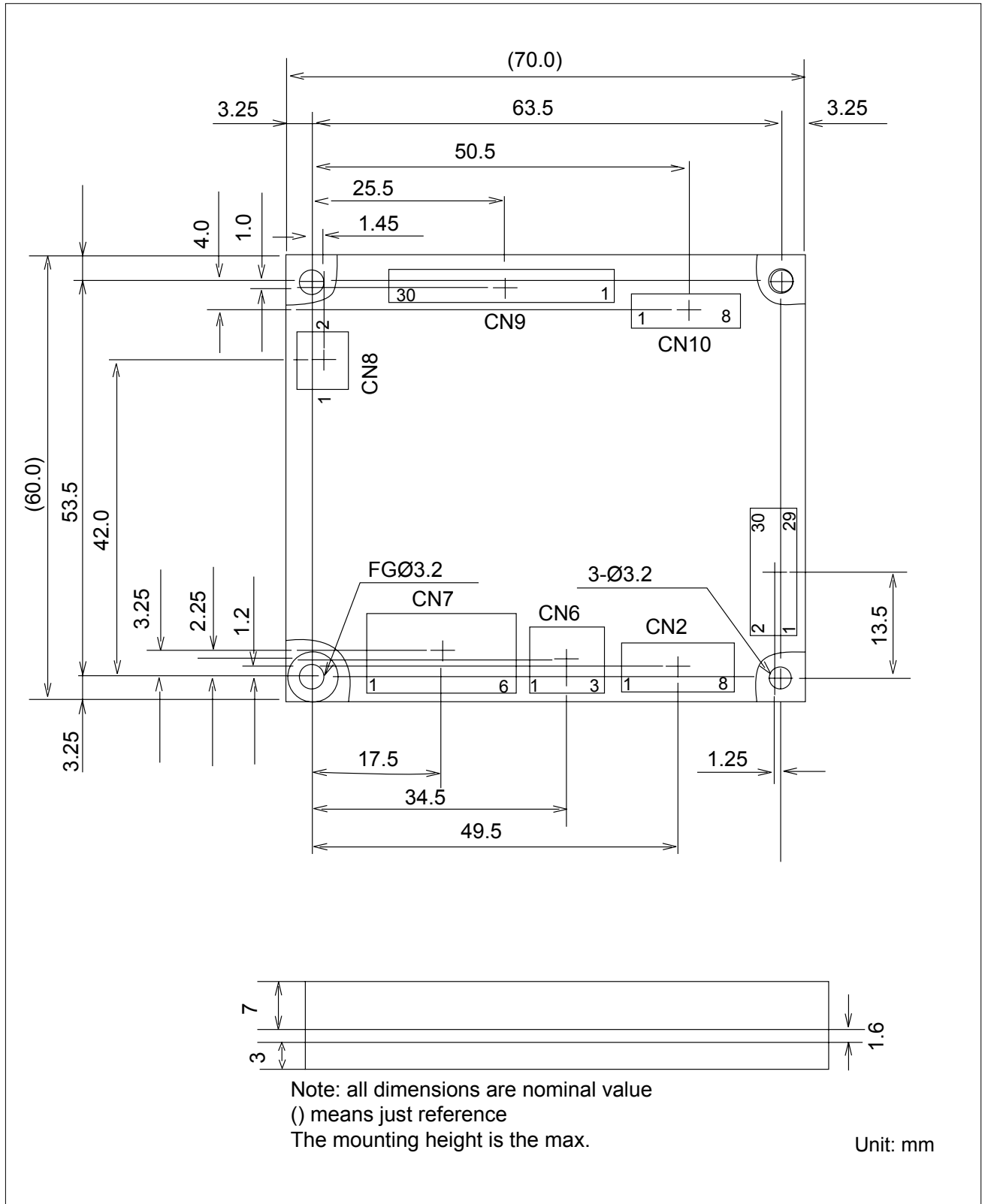
Item	Item	Item	Item
1. Test print function	8. Cutter trouble detect		
2. Paper out detection	9. Motor power saving function		
3. Paper near end detection	10. Mark detection function		
4. Platen open detection	11. MCU operation abnormality detection		
5. Thermal head temperature abnormality detection	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

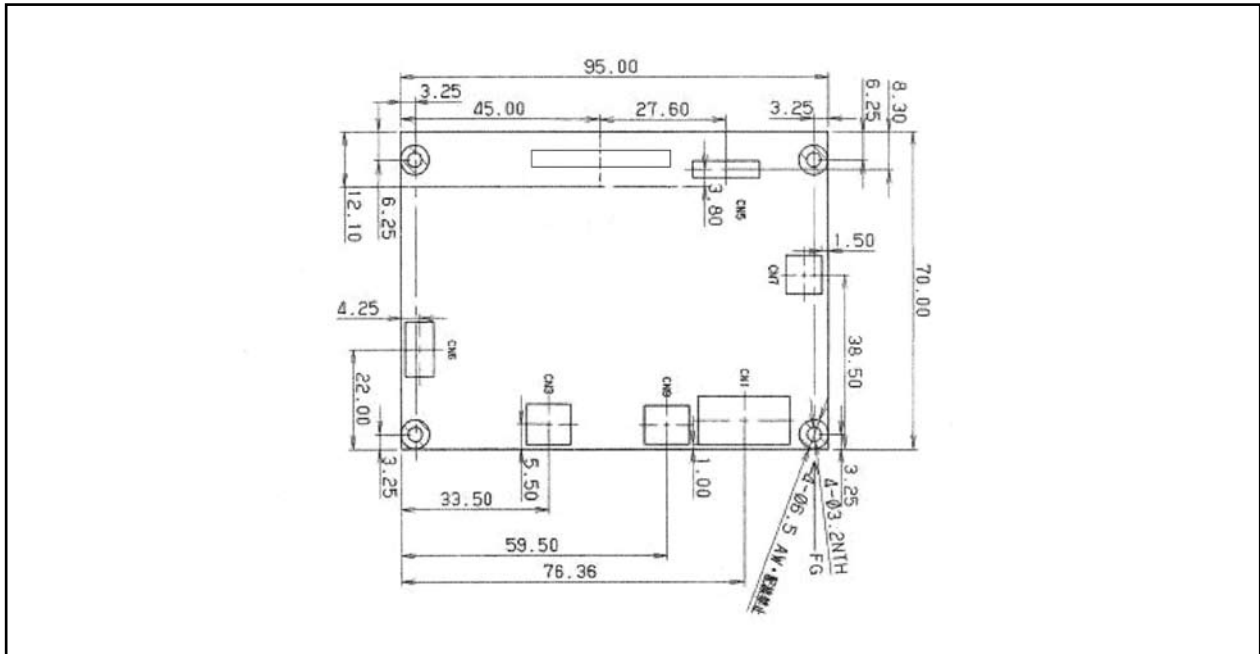
1. Printer mechanism



2. Interface board FTP-637DSL291R



■ INTERFACE BOARD FTP-637DSL601 Series



Connectors on Control Board

	Name	Functions	Remarks	Note
CN1	+24V power supply connector	Connection for +24V power supply		
CN2	-	-		
CN3	USB I/F connector	Connection for USB interface		
CN4	RS-232C	Connection for serial interface		
CN5	Cutter connector	Connection for paper cutter		
CN6	Operation panel connector	Connection for operation panel		*1
CN7	Near end sensor connector	Connection for near end switch		*2
CN8	-	-		
CN9	Logic power connector	Connection for +5V power Supply		
CN10	Head/motor connector	Connection for thermal head & paper feed motor	2-inch, 24 pin	

Note: *1: Option
 *2: Depends on specification

1. Connector (FPC) specification (CN4)

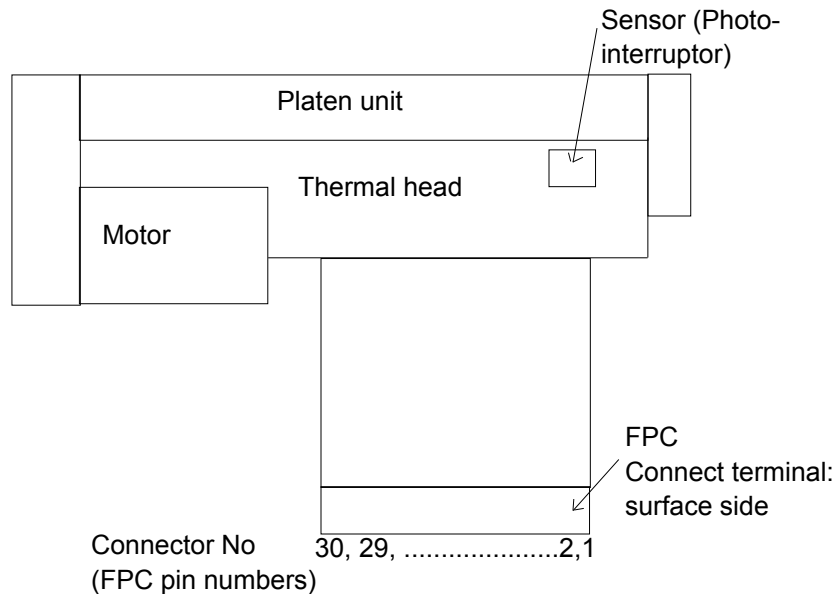
(1) Connector

Mechanical unit side: FPC connector

Remote side (housing site): 52610-3071 (made by Molex)

(2) Pin assignment on the mechanical side

No	Signal	I/O	Contents
1	PHK	—	Photointerrupter (Cathode)
2	VSEN	I	Ground power supply for paper sensor
3	PHE	O	Photointerrupter (Emitter)
4	VH	I	Head drive power
5	VH	I	Head drive power
6	VH	I	Head drive power
7	DI	I	Data input
8	$\overline{\text{STB3}}$	I	Strobe 3
9	$\overline{\text{STB4}}$	I	Strobe 4
10	VDD	I	Logic Power
11	GND	—	Head ground
12	GND	—	Head ground
13	GND	—	Head ground
14	GND	—	Head drive power
15	GND	—	Head drive power
16	GND	—	Head drive power
17	TM	O	Thermistor
18	$\overline{\text{STB1}}$	I	Strobe 1
19	$\overline{\text{STB2}}$	I	Strobe 2
20	$\overline{\text{LAT}}$	I	Data Latch
21	CLK	I	Clock
22	VH	I	Head drive power
23	VH	I	Head drive power
24	VH	I	Head drive power
25	SW	—	Platen open switch
26	SW	—	Platen open switch
27	MT/A	I	Motor excite signal A
28	$\overline{\text{MT/A}}$	I	Motor excite signal $\overline{\text{A}}$
29	MT/B	I	Motor excite signal B
30	$\overline{\text{MT/B}}$	I	Motor excite signal $\overline{\text{B}}$



2. Cutter (CN5)

Connector on control circuit side: 52610-0871 Molex or equivalent

No.	Signal	I/O	Contents	No.	Signal	I/O	Contents
1	VSEN	I	Paper sensor power	2	PHE	O	Photo interruptor (emittor)
3	PHK	O	Photo interruptor (cathode)	4	MT/A	I	Motor excite signal A
5	MT/ \bar{A}	I	Motor excite signal A	6	MT/B	I	Motor excite signal B
7	MT/ \bar{B}	I	Motor excite signal B	8	NC	—	Not connected

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