

# INTERFACE BOARDS FOR 5V FTP-608 SERIES FTP-628DSL600 SERIES

## ■ HIGHLIGHTS

- 5V FTP-608 series I/F board for 2-, 3- and 4-inch mechanisms
- Supports USB (V 2.0) and high speed serial (460kbps) I/F
- Supports bar code and graphics
- Windows® CE 6.0/2000/XP/Vista, Linux drivers
- UL File No. E171434
- RoHS compliant



## ■ PART NUMBERS

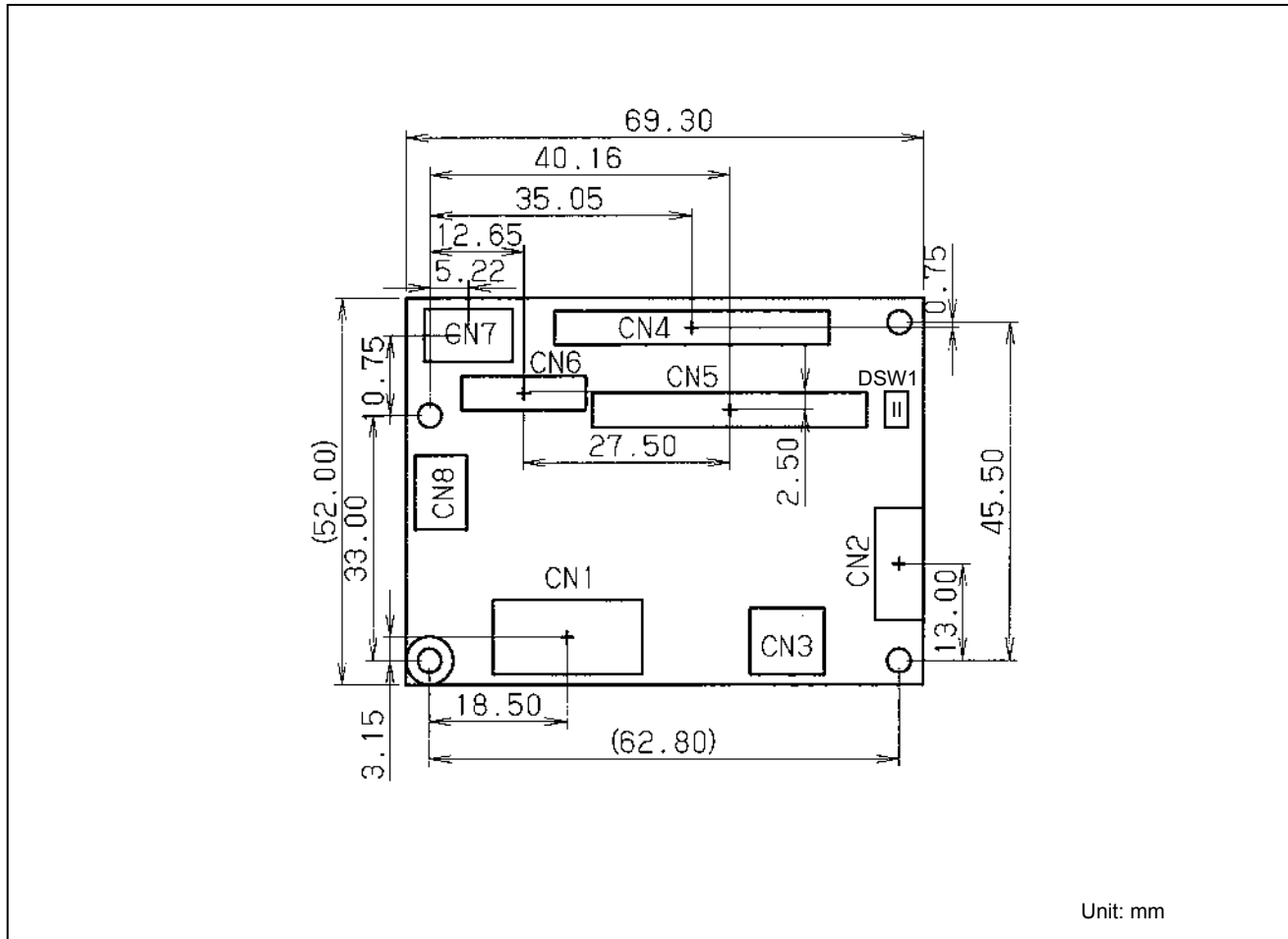
Details of the mechanism as follows:

Part Number	Installing circuit and function					Platen bracket	DIP switch	
	Interface	Flash memory	Near end	DIP switch <sup>1</sup>	Applicable printer mechanism			
FTP-628DSL601	USB/RS232C	○	○	○	FTP-628MCL053	X	Off	
FTP-628DSL602	USB	X	X	X	FTP-628MCL054	X		
FTP-628DSL603	RS-232C	X	X	X	FTP-628MCL103	X		
					FTP-628MCL113	○		
					FTP-628MCL123	○		
FTP-638MCL103	X							
FTP-648DSL621	USB/RS232C	○	○	○	FTP-648MCL103 FTP-648MCL104	○		
FTP-648DSL622	USB	X	X	X		○		
FTP-648DSL623	RS232C	X	X	X		X		
FTP-628DSL642	USB	X	X	X	FTP-628MCL751		On	
FTP-628DSL643	RS-232C	X	X	X				
FTP-628DSL649	RS-232C	○	○	X				

Item	Specifications	
RS-232C	Data send receive speed:	460.8, 230.4, 115.2, 38.4, 19.2, 9.6 Kbps
	Synchronous method:	Full duplex
	Handshake:	DTR/DSR, XON/XOFF control
	Parity:	Non, even, odd
USB V2.0	Transmission route:	Full speed 12Mbps
	Interface class:	Printer device

## EXTERNAL DIMENSION SPECIFICATIONS

### 1. External Dimension Chart of the Control Board



### 2. Connector Types of Control Board

No.	Name	Function	Remarks
CN1	Power connector	To connect +5V power supply	-
CN2	Connector for RS-232C interface control signal connection	To connect RS-232C interface and control signal	depends on models
CN3	Connector for USB	To connect USB interface	-
CN4	Connector for head/motor	To connect the head/motor (2-inch, 3-inch)	
CN5	Head connector	To connect head (4-inch)	depends on models
CN6	Motor connector	To connect motor (4-inch)	
CN7	Not present	To connect the paper cutter	
CN8	Near end detection connector	To connect the near end switch	depends on models
DSW1	DIP switch	Mechanism setting	depends on models

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## ■ CONNECTOR PIN ASSIGNMENT

### 1. Connector for power supply (CN1)

Part number : SB6-XH-SM4-TB (J.S.T) or equivalent (board side)

No.	Signal	I/O	Contents No.	No.	Signal	I/O	Contents No.
1	+V5	I	Power supply for logic	2	GND	-	Ground for power supply
3	GND	-	Ground for head / motor	4	GND	-	Ground for head / motor
5	VH	I	Power supply for head motor	6	VH	I	Power supply for head motor

### 2. RS-232C

#### (1) Connector (CN2)

Connector part number : S8B-ZR-SM4B-TF (J.S.T.) or equivalent

Mating connector part number : ZHR-8 (J.S.T.) or equivalent

#### (2) Connector pin assignment

No.	Signal	I/O	Contents No.	No.	Signal	I/O	Contents No.
1	RD	I	Receive data	2	TD	O	Transmission data
3	DTR	O	Data terminal ready	4	GND	-	Signal ground
5	DSR	I	Data set ready	6	SLCTIN	I	Printer select
7	INPRM	I	Reset	8	ATF	I	Paper feed request

### 3. USB standard

#### (1) Connector (CN3)

Connector part number : UX60-MB-5ST (Hirose) or equivalent

Mating connector part number : UX40-MB-5P (Hirose) or equivalent

No	Signal	Contents	
1	Vbus	Bus power supply	I
2	D-	Differential data I/O D- terminal	I/O
3	D+	Differential data I/O D+ terminal	I/O
4	N.C.	No connector	-
5	GND	Signal ground terminal	-

### 4. Connector for Paper Near-End Sensor (CN8)

B3B-PH-SM4-TB (J.S.T) or equivalent (P.C.B. side)

No	Signal	I/O	Contents	No	Signal	I/O	Contents
1	+5V	O	Power for logic	2	NES	I	Paper near-end signal
3	N.C.	-	Not connected				

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## 5. Connector for printer mechanism connection (CN4) FTP-628MCL053/054/ 103/113/123 FTP-638MCL103

Part number : 52610-3071 (made by Molex)

No.	Name of Signal	Direction	Note	No.	Name of Signal	Direction	Note
	628 638				628 638		
1	PSEK	I	Paper sensor power supply	16	TM1	-	Thermally sensitive resistor input terminal 1
2	SVCC	O	Paper sensor power supply grand	17	TM2	Input	Thermally sensitive resistor input terminal 2
					(STB2)	(Output)	(Thermal head stobe2)
3	PES	Input	Signal of paper sensor	18	STB3 (STB1)	Output t	Thermal head stobe3) Thermal head stobe1)
4	HUP	Input	Signal of head up sensor	19	STB2 (AE02)	Output t	Thermal head stobe2) Thermal head enable
5	GND	-	Head up sensor power 5 supply	20	STB1 (AE01)	Output t	Thermal head stobe1) Thermal head enable
6	VH	O	Thermal head power supply	21	GND	-	Thermal head power supply grand
7	VH	O		22	GND	-	
8	HD	O	Input signal of print data	23	LAT	Output	Thermal head data latch signal
9	HCLK	Output	Synchronous clock for communication	24	HDO	Output	Print data signal
10	GND	-	Thermal head power supply grand	25	VH	-	Thermal head power supply
11	GND	-		26	VH	-	
12	STB6 (STB5)	Output t	Thermal head energizing control signal	27	MT $\bar{A}$	-	Stepping motor drive signal
13	STB5 (STB4)	Output t		28	MT A	-	
14	STB4 (STB3)	Output t		29	MT $\bar{B}$	-	
15	HVCC	O	Power supply for thermal head control	30	MT B	-	

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## FTP-648 MCL103/104

### 1. Thermal head, control circuit side connector: (CN5)

Board side : 52610-3071 (Molex)

No	Signal	I/O	Contents	No	Signal	I/O	Contents
1	HUP		Platen open detection	2	GND	-	Power supply ground
3	VH	O	Head drive power	4	VH	O	Head drive power
5	VH	O	Head drive power	6	DI	O	Data in
7	STB 7	O	Strobe 7	8	STB 6	O	Strobe 6
9	STB 5	O	Strobe 5	10	STB 4	O	Strobe 4
11	AE02	O	Thermal head enable	12	AE01	O	Thermal head enable
13	GND	-	Logic ground	14	GND	-	Logic ground
15	GND	-	Logic ground	16	GND	-	Logic ground
17	GND	-	Logic ground	18	GND	-	Logic ground
19	GND	-	Logic ground	20	TM		Head thermistor
21	STB 3	O	Strobe 3	22	STB 2	O	Strobe 2
23	STB 1	O	Strobe 1	24	HVCC	O	Logic power
25	CLK	O	Clock	26	LAT	O	Data latch
27	DO		Data out	28	VH	O	Head drive power
29	VH	O	Head drive power	30	VH	O	Head drive power

### 2. Thermal head control circuit connector : (CN6)

Board side : 52610-1071 (Molex)

1	PSEK		Cathode	2	SVCC	O	Paper sensor power
3	PES		Emittor	4	MT A		Excitation signal A
5	MT A		Excitation signal A	6	MT B		Excitation signal B
7	MT B		Excitation signal B	8	TM		Motor thermistor
9	GND	-	Logic ground	10	N.C.	-	Not connected

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## COMMANDS

Command	Contents
HT	Moves print position to the next tab.
LF	Line feed.
FF	Feeds forms (new page).
DC2	Stop mode
ESC EM+n	Setting the amount of the feeding at automatic paper feed.
ECS RS	Sets reverse printing.
ESC US	Resets reverse printing.
ESC SP+n	Print mode specification.
ESC ! + n	Sets print mode.
ESC % + n	External registration character specification/cancellation.
ESC & +y+c1+c2+x+d1to dn	External registration character definition.
ESC *+m+n1+n2+d1+dN	Sets bit image mode.
ESC -+n	Underline setting.
ESC 2	Sets 1/6 inch line feed length.
ESC 3+n	Sets the line feed length.
ESC ? + n	External registration character deletion.
ESC @	Printer initialization.
ESC A+n	Sets the space between the line.
ESC C+n	Sets the page length by character line.
ESC D+d1+dN +NUL	Sets the tab position.
ESC J+n	Feeds paper in forward direction and prints.
ESC K+n	Reverse paper feed.
ESC R+n	Selects international character.
ESC V+n	Right Rotation 90° specification / cancellation.
ESC X+n+m	Setting the turning time of the motor excitation.
ESC c+1+n	Sets internal processing.
ESC c+5+n	Panel switch enable/disable setting.
ESC d+n	Printing and n-line feeding.
ESC e+n	Prints and reverse feeds n-lines.

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## Commands continued

Command	Contents
ECS s+n	Sets printing speed.
ECS t+n	Character code table selection.
ESC {+n	Sets/resets upside down printing.
ESC DEL + n	Flash memory erase.
FS !+n	Kanji printing mode collective specification.*1
FS &	Kanji printing mode specification.*1
FS*+m+n1+n2+d1 to dn	High speed collective image printing specified.
FS -+n	Kanji underline specification/cancellation.*1
FS .	Kanji printing mode cancellation.*1
FS 2+c1+c2+d1 to dn	External character definition.
FS 9+n	Sets the detection functions.
FS C+n	Kanji code system selection.*1
FS E+n	Correction of impressed energy.
FS S + n1 + n2	Kanji spacing setting.*1
FS W+n	Kanji double height and width printing specification/cancellation.*1
FS r+n*1	Parameter transmission.
GS ! +n	Character size specification.
GS &+m+x+y1+y2+d1 to dn	Registered bit image defined.
GS '+m+n	Registered bit image printing.
GS (+E+L1+L2+fn+d1 to dn (fn=67)	RS-232 communication setting.*2
GS <	Line feeds to the next mark.
GS A+m+n	Sets the line feed length after mark detection.
GS E+n	Sets print quality.
GS L+ n1 + n2	Left margin positions setting.
GS W + n1 + n2	Print area width setting.
GS a+n	Setting and cancellation of auto status transmission.
GS e+m+n	Bar code width magnification setting.
GS h+n	Sets bar code height.
GS k+m +N+nd1+dN	Selects bar code type and prints
GS w+n	Bar code horizontal magnification setting.

\*1: These commands are valid with flash memory.

\*2: These commands are valid with serial (RS-232C) interface

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## ■ OPTIONS

### 1. Cables

Name		Part Number	Cable length
Interface cable (board to mechanism)	USB	FTP-629Y301	500mm (19.7 inch)
	RS-232C	FTP-628Y302	500mm (19.7 inch)
Power supply cable	logic, head, motor	FTP-628Y402	300mm (11. 8inch)

### 2. Driver LSI of Control Board

Name	Part Number	Quantity / Tray	Remarks
MCU	FTP-628CU601	90	On-board Flash and SRAM

### 3. Paper holder

Name	Part number
Paper Flange	FTP-040HF
Paper Stand	FTP-040HS

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