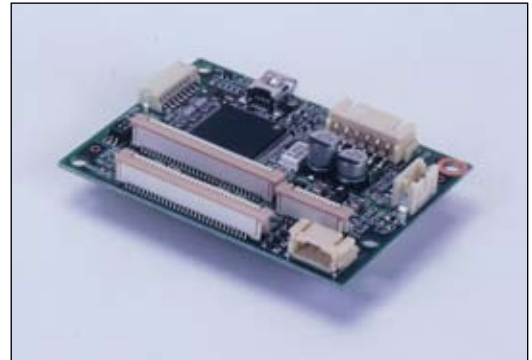


INTERFACE BOARDS FOR 5V FTP-608 SERIES FTP-628DSL600 SERIES

■ 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:

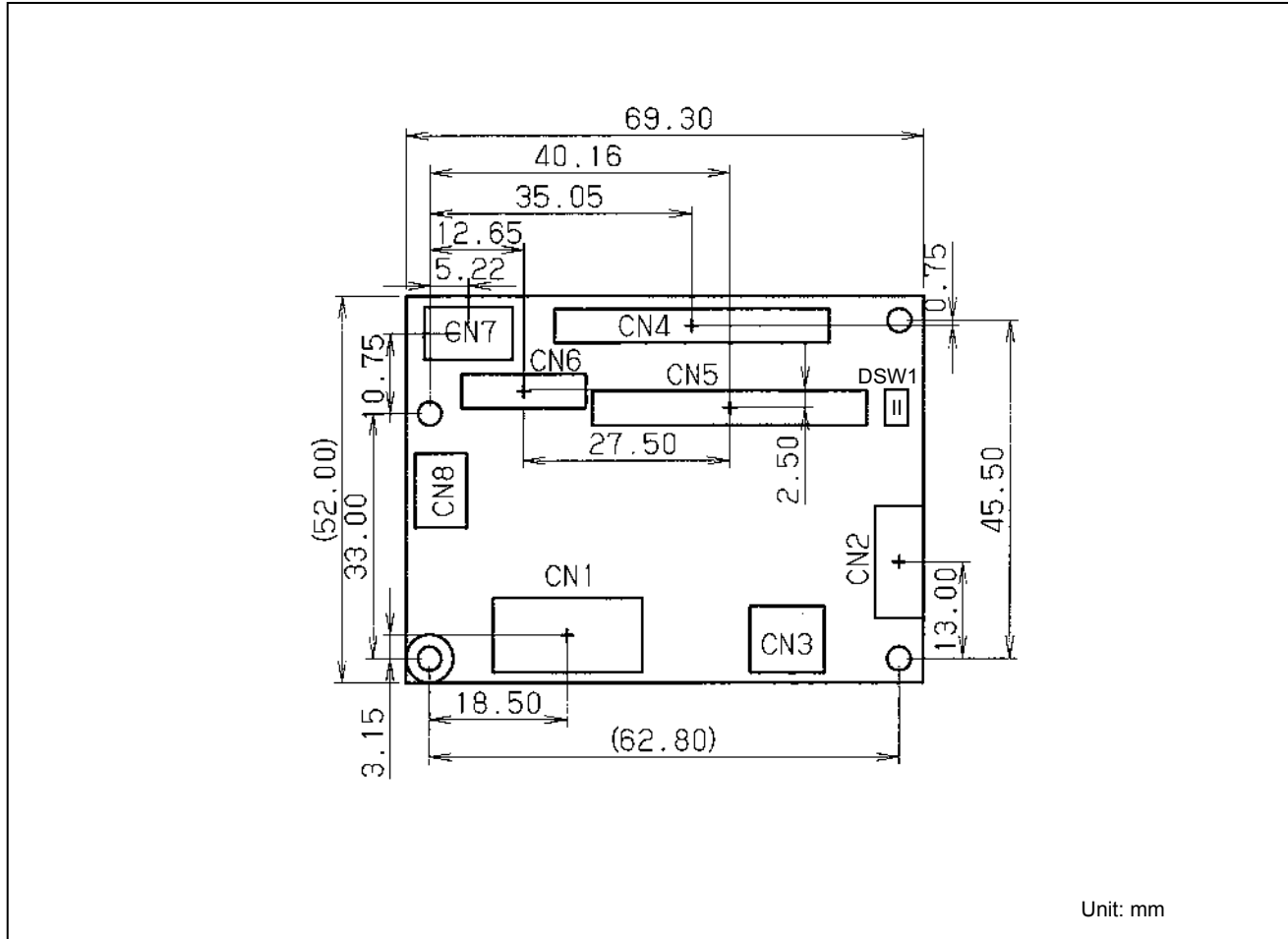
Part Number	Installing circuit and function					Platen bracket	DIP switch
	Interface	Flash memory	Near end	DIP switch	Applicable printer mechanism		
FTP-628DSL601	USB/RS232C	○	○	○	FTP-628MCL053	X	Off
FTP-628DSL602	USB	X	X	X	FTP-628MCL054	X	
FTP-628DSL603	RS-232C	X	X	X	FTP-628MCL103	X	
					FTP-628MCL113	○	
					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

FTP-628DSL600 Series

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

FTP-628DSL600 Series

■ 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				

FTP-628DSL600 Series

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	-	

FTP-628DSL600 Series

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		Emitter	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

FTP-628DSL600 Series

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.

FTP-628DSL600 Series

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

FTP-628DSL600 Series

■ 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 (11.8 inch)

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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