

# INTERFACE BOARDS FOR 24V

## FTP-627DSL600 SERIES

### ■ HIGHLIGHTS

- 24V FTP-607 series I/F board for Kiosk printer unit
- Supports USB (V 1.1) and high speed serial (115kbps) I/F
- Supports 2-D barcodes and graphics
- Windows® CE5.0/2000/XP/Vista, Linux, OPOS drivers
- UL File No. E171434
- RoHS compliant



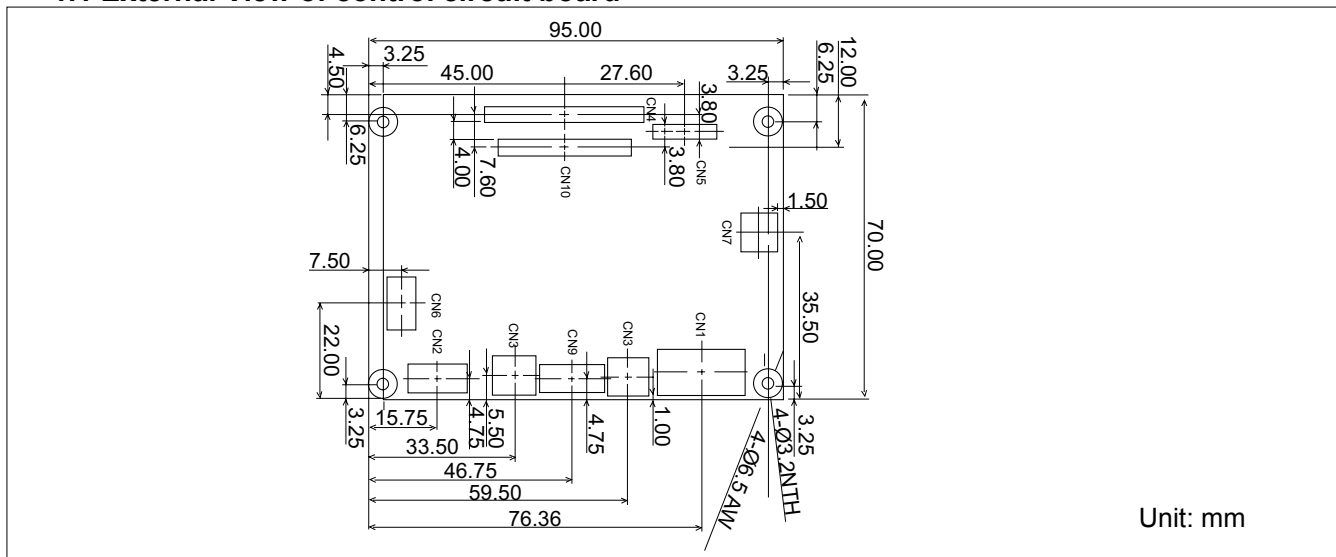
### ■ PART NUMBERS

Board Part Numbers	Voltage / Power	Interface	Drawer Kick	Mech Part Number	Near End
FTP-627DSL601	24V	USB/RS-232C (Windows®, Linux, OPOS)	Yes	FTP-627MCL401 FTP-627MCL601 FTP-637MCL401/421 FTP-637MCL601	Yes
FTP-627DSL602	5V, 24V	USB (OPOS)	Yes	FTP-627MCL401	No
FTP-627DSL603		USB (Windows®, Linux)	No		Yes
FTP-627DSL605		Serial (Windows®, Linux, OPOS)	Yes		
FTP-637DSL622		USB (OPOS)	Yes	FTP-637MCL401	No
FTP-637DSL623		USB (Windows®, Linux)	No		Yes
FTP-637DSL625		Serial (Windows®, Linux, OPOS)	Yes		
FTP-627DSL612		5V, 24V	USB (OPOS)	Yes	FTP-627MCL601
FTP-627DSL613	USB (Windows®, Linux)		No	Yes	
FTP-627DSL615	RS-232C (Windows®, Linux, OPOS)		Yes	Yes	
FTP-637DSL632	USB (OPOS)		Yes	FTP-637MCL601	No
FTP-637DSL633	USB (Windows®, Linux)		No		Yes
FTP-637DSL635	RS-232-C (Windows®, Linux, OPOS)		Yes		Yes

Item	Specifications
RS-232C	Data send receive speed: 19.2, 9.6, 4.8 Kbps Synchronous method: Full duplex Handshake: DTR/DSR, XON/XOFF control Parity: Non, even, odd
USB V1.1	Transmission route: Full speed 12Mbps Interface class: C-MOS

## EXTERNAL SPECIFICATIONS

### 1.1 External View of control circuit board



### 1.2 Control circuit board connector types

No	Name	Function
CN1	+24V power supply connector	Connection for +24V power supply
CN2	RS232C I/F, control signal connector	Connection for RS232C interface and control signals *2
CN3	USB I/F connector	Connection for USB interface
CN4	Head, motor connector	Connection for thermal head and paper feed motor (30 pin connector for 3 inch)*2
CN5	Cutter connector	Connection for paper cutter
CN6	Operation panel connector	Connection for operation panel*1
CN7	Near end detection connector	Connection for near end detection SW*2
CN8	Drawer kick connector	Connection for drawer kick*2
CN9	+5V power supply connector	Connection for +5V power supply*2
CN10	Head, motor connector	Connection for thermal head and paper feed motor (24 pin connector for 2 inch)*2

Notes: \*1: Option / \*2: Depends on specifications

#### 1. DSW 1 Factory settings: all OFF

Bit No.	Setting contents	OFF	ON	Remarks
1	Interface setting	USB	RS-232C	
2	Head setting	FTP-637MCL	FTP-627MCL	
3	Communications mode	USB com DTR/DSR	USB printer XON/XOFF	Based on setting in section 1
4	Not used	FTP-6x7MCL40x	FTP-6x7MCL601	Reserve

#### 2. DSW 2 FTP-627DSL has this DSW2. Others are zero ohm resistance.

Bit No.	Setting contents	OFF	ON	Remarks
1	Cutter set	Cut	No cut	Don't change
2	Not used	-	-	Reserve

## ■ INTERFACE

### 1. Head motor power supply

#### (1) Connector (CN1)

Connector part number : S6B-XH-SM3-TB (J.S.T.) or equivalent

Mating connector part number : XHP-6 (J.S.T.) or equivalent

#### (2) Connector pin assignment

No.	Signal	I/O	Contents	No.	Signal	I/O	Contents
1	+24V	I	24V power supply	2	+24V	I	24V power supply
3	+24V	I	24V power supply	4	GND	—	Ground
5	GND	-	Ground	6	GND	—	Ground

#### (5) Printer Status Signal

	Error	RINF 1	RINF 2	RINF 3
1	Paper out	Low	High	Low
2	Paper near-end	High	High	Low
3	Head-up	High	Low	Low
4	Abnormal head temperature	High	Low	High
5	Abnormal head voltage	Low	High	High
6	Hardware abnormality	High	High	High
7	Mark detection abnormality	Low	Low	Low
8	Normal	Low	Low	High

### 1. RS-232C standard

#### (1) Connector (CN2)

Connector part number : S8B-ZR-SM3A-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	Signal	I/O	Contents
1	RD	I	Receive data	2	TD	O	Transmission data
3	DTR	O	Data terminal ready	4	GND	-	Signal ground
4	DSR	I	Data signal ready	6	SLCTIN	I	Detection function setting signal
7	INPRM	I	Initialization signal	8	ATF	I	Paper feed signal

## 2. USB standard

### (1) Connector (CN3)

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

Matching connector p/n : UX40-MP-SP (Hirose)

### (2) Connector pin assignment

No	Signal	I/O	Contents	No	Signal	I/O	Contents
1	VBUS	I	Bus Power Supply	2	D-	I/O	Differential data-
3	D+	I/O	Differential data+	4	N.C.	-	No connection
5	GND	-	Signal ground				

Notes:

- Symbol “—” means a negative logic signal.
- “I” or “O” means a signal direction from the interface board side.

## ■ CONNECTOR PIN ASSIGNMENT OF INTERFACE BOARD

### 1. Thermal head/motor control circuit side (CN4) (for 3 inch mechanism)\*2

Part number : 52610-3071 (Molex) or equivalent

No	Signal	I/O	Contents	No	Signal	I/O	Contents
1	PHK		Paper sensor cathode	2	VSEN	O	Paper sensor power supply
3	PHE		Paper sensor output	4	+24V	O	Power for thermal head
5	+24V	O	Power for thermal head	6	+24V	O	Power for thermal head
7	DI	O	Data in	8	STB3	O	Print enable 3
9	STB4	O	Print enable 4	10	+5 VDD	O	Logic power
11	GND	-	Head GND	12	GND	-	Head GND
13	GND	-	Head GND	14	GND	-	Head GND
15	GND	-	Head GND	16	GND	-	Head GND
17	TM		Head temperature detection	18	STB1	O	Print enable1
19	STB2	O	Print enable 2	20	LAT	O	Print data latch
21	CLK	O	Clock signal	22	+24V	O	Power for thermal head
23	+24V	O	Power for thermal head	24	+24V	O	Power for thermal head
25	SW	O	Platen open/motor temp detect	26	SW		Platen open / motor temperature detect
27	MT-A	O	Motor /A phase excitation signal	28	MT-A	O	Motor A phase excitation signal
29	MT-B	O	Motor /B phase excitation signal	30	MT-B	O	Motor B phase excitation signal

\*2 depends on specifications

## ■ CONNECTOR PIN ASSIGNMENT OF INTERFACE BOARD

### 2. Connector for Cutter (CN5)

52610-0871 (Molex) or equivalent (P.C.B. side)

No	Signal	I/O	Contents	No	Signal	I/O	Contents
1	VSEN	O	Cutter home position sensor	2	PHE		Cutter home position sensor output
3	PHK		Cutter home position sensor cathode	4	MT- $\bar{A}$	O	Motor Phase A excitation
5	MTA	O	Motor Phase A	6	MTB	O	Motor Phase B excitation
7	MTB	O	Motor Phase B	8	N.C.	-	No connections

### 3. Connector for Operation Panel (CN6)\*1

Board side: \*S7B-ZR-SM4-TFT (J.S.T) or equivalent (P.C.B. side)

Remote side: ZHR-7 (J.S.T)

No	Signal	I/O	Contents	No	Signal	I/O	Contents
1	ATF		Paper ...switch detection	2	I N PRM		Reset switch detection
3	GND	-	Ground	4	LED1	O	LED1 output connection
5	LED2	O	LED-2 output connection	6	BZ ON	O	Buzzer control signal
7	+3V	O	+3V power supply				

### 4. Connector for Paper Near-End Sensor (CN7)\*2

Board side: \*S2B-PH-SM4A-TF (J.S.T) or equivalent (P.C.B. side)

Remote side: PHR-2 (J.S.T.)

No	Signal	I/O	Contents	No	Signal	I/O	Contents
1	+3V	O	Power for near end detection switch	2	NES		Paper near end signal

### 5. Connector for Drawer Kick (CN8)\*2

Board side: S6B-ZR-SM4A-TF (J.S.T.)

Remote side: ZHR-6 (J.S.T.)

No	Signal	I/O	Contents	No	Signal	I/O	Contents
1	Power supply +24V	O	Drawer kick	2	Drawer kick1 control		Drawer kick 1 control
3	Drawer kick2 control		Control Z terminal	4	Drawer kick1 sensor		Drawer kick 2 control
5	Drawer kick 2 sensor		Sensor 2	6	+3V GND	-	Ground terminal for sensor

### 6. Connector for Logic Power (CN9)\*2

Board side: S3B-PH-SM4A-TF (J.S.T.)

Remote side: PHR-3 (J.S.T.)

No	Signal	I/O	Contents	No	Signal	I/O	Contents
1	+5V		Logic Power supply	2	N.C.		No connections
3	GND	-	+5V ground				

\*1 Optional

\*2 Depends on specifications

## 7. Thermal head / printer motor connector (for 2-inch mechanism) \*2

### (1) Connector (CN10)

Connector part number : 52610 - 2471 (Molex)

### (2) Connector pin assignment

No.	Signal Name	Data Direction	Explanation
1	PHK		Paper sensor cathode
2	VSEN	O	Paper sensor power
3	PHE		Paper sensor output
4	VH	O	24V power supply
5	DI	O	Head data input
6	$\overline{\text{STB2}}$	O	Head energizing control signal
7	$\overline{\text{STB3}}$	O	
8	VDD	-	Logic power supply
9	GND	-	Power supply ground
10	GND	-	Power supply ground
11	GND	-	Power supply ground
12	TM		Head temperature detection
13	$\overline{\text{STB1}}$	O	Head energizing control signal
14	$\overline{\text{LAT}}$	O	Printing data latch signal
15	CLK	O	Data communication synchronizing clock signal
16	VH	O	24V power supply for thermal head driving
17	VH	O	
18	SW	O	Platen open / motor temperature detection
19	SW		
20	$\overline{\text{MT-A}}$	O	Stepping motor driving signal
21	MT-A	O	
22	$\overline{\text{MT-B}}$	O	
23	MT-B	O	
24	N.C.	-	No connection

\*2 Depends on specifications

# FTP-627DSL600 Series

## ■ COMMANDS

Command	Contents
HT	Moves print position to the next tab.
LF	Line feed.
FF	Feeds forms (new page).
ESC BEL	Buzzer ON/OFF.
ESC FF	Data printing in page printing mode
ESC RS	Sets reverse printing.
ESC US	Resets reverse printing.
ESC SP+n	Character spacing setting.
ESC ! + n	Sets print mode.
ESC \$+n1+n2	Absolute position spacing.
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	Undeline 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 E+n	Highlighted printing specification/cancellation.
ESC J+n	Feeds paper in forward direction and prints.
ESC K+n	Reverse paper feed.
ESC L	Page printing mode selection.
ESC Q+n+!+j	Frame overlay function (page mode).
ESC R+n	Selects international character.
ESC S	Line printing mode.
ESC T+n	Print direction setting (only the page mode).
ESC V+n	Right Rotation 90° specification / cancellation.

# FTP-627DSL600 Series

Commands continued

Command	Contents
ESC W+X1+X2+1+Y2+dX1+dX2+dX1+dY2	Page printing mode printing area setting.
ESC X+n+m	Setting of time to turn off motor.
ESC Y+01h+ESC+x+a+m+d~	Program download.
ESC \+n1+n2	Relative position setting.
ESC a+n	Positional alignment.
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.
ESC i	Full cut.
ESC m	Partial cut.
ESC p+m+t1+t2	Specified pulse generation.
ECS s+n	Sets printing speed.
ECS t+n	Character code table selection.
ESC u+n	Status of peripherals.
ESC v	The status of paper sensor is notified.
ESC {+n	Sets/resets upside down printing.
ESC DEL+n	Flash memory delete
FS !+n	Kanji printing mode collective specification.
FS &	Kanji printing mode specification.
FS*+m+n1+n2+d1 to dn	Bit image printing.
FS -+n	Kanji underline specification/cancellation.
FS .	Kanji printing mode cancellation.
FS 2+c1+c2+d1 to dn	External character definition.
FS 9+n	Sets the detection functions.
FS C+n	Kanji code system selection.
FS E+n	Correction of impressed energy.
FS S+n+n1+n2	Kanji spacing setting.
FS W+n	Kanji double height and width printing specification/cancellation.
FS r+n* <sup>1</sup>	Parameter transmission.
GS ! + n	Character size specification.
GS \$ + n1 + n2	Vertical absolute position specification in page printing mode.



# FTP-627DSL600 Series

Commands continued

Command	Contents
GS &+m+x+y1+y2+d1 to d2	Registered bit image defined.
GS '+m+n	Registered bit image printing.
GS *+x+y+d1 to dx*	Registered bit image definition.
GS / +m	Registered bit image printing.
GS <	Line feeds to the next mark.
GS A+m+n	Sets the line feed length after mark detection.
GS B+n	Angle setting of barcode
GS E+n	Sets print quality.
GS H+n	HRI character printing position selection.
GS L+n1+n2	Left margin position setting.
GS M+n	Mark detection correction.
GS W + n1 + n2	Printing area width setting.
GS \ +n1 + n2	Vertical relative position specification in page printing mode (vertical direction of characters).
GS a+n	Automatic notification setting of status.
GS e+n+m	Sets bar code width.
GS f + n	HRI character font selection.
GS h+n	Sets bar code height.
y) GS k+m +d1to dk + NUL x) GS k+m+n+ d1 to dn	Bar code printing,
GS k+m+k1+k2+k3+k4+{[p1][d(1,1)~ [i,j]]~{[p1][d(i,1)]~[d(i,j)]}[00]16	Print of 2D code (QR).
GS k+m+k1+k2+k3+k4+k5+d1~dn	Print of 2D code (Maxi).
GS k+m+k1+k2+k3+k4+k5+k6+d1~dn	Print of 2D code (PDF417).
GS v	Notification of firmware version
GS w+n	Bar code horizontal size setting
GS (+c+m1, n2, m+fn+b+d1~dn	Customize printer

# FTP-627DSL600 Series

## ■ OPTIONS

### 1. Cables

Name		Part Number	Length (mm)
Operation panel cable	(CN6)	FTP-627Y203	300 (11.8 inches)
Interface Cable (between board and equipment)	For RS232C (CN2)	FTP-628Y302	500 (19.7 inches)
	USB (CN3)	FTP-629Y301	1000 (34.4 inches)
Drawer kick cable	(CN8)	TBA	
Power supply cables	Logic (CN9)	FTP-629Y401	300 (11.8 inches)
	Head/motor (CN1)	FTP-629Y601	300 (11.8 inches)

### 2. Driver LSI of Control Board

Name	Part Number	Quantity / Tray	Remarks
ROM	FTP-627SR601	90	
MCU and SRAM	MB91101A	-	

### 3. Paper holder

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

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