

# INTERFACE BOARDS FOR 24V FTP-609 Series

## FTP-629DCL/ DSL 100 SERIES

### ■ INTERFACE

#### 1. Centronics standard

##### (1) Connector (CN1)

Connector part number : SM30B-SRDS-G-TFC (J.S.T.) or equivalent

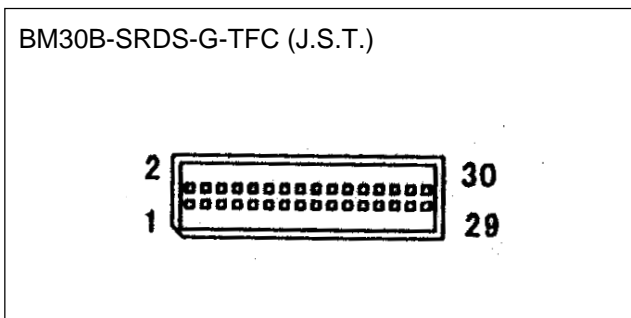
Mating connector part number : SHDR-30V-S-B (J.S.T.) or equivalent

##### (2) Connector pin assignment

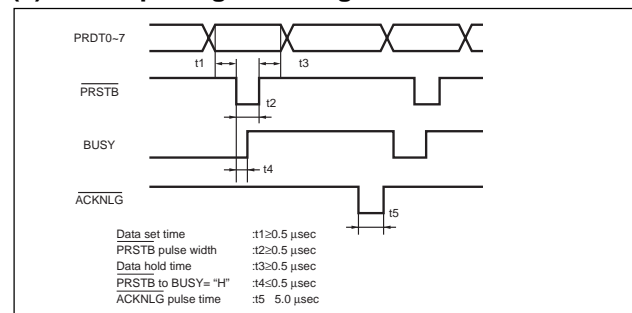
No.	Signal	I/O	Contents	No.	Signal	I/O	Contents
1	PRSTB	I	Data strobe	2	PRSTB-RET	—	Connected to logic GND
3	PRDT0	I	Data 0	4	PRDT0-RET	—	Connected to logic GND
5	PRDT1	I	Data 1	6	PRDT1-RET	—	Connected to logic GND
7	PRDT2	I	Data 2	8	PRDT2-RET	—	Connected to logic GND
9	PRDT3	I	Data 3	10	PRDT3-RET	—	Connected to logic GND
11	PRDT4	I	Data 4	12	PRDT4-RET	—	Connected to logic GND
13	PRDT5	I	Data 5	14	PRDT5-RET	—	Connected to logic GND
15	PRDT6	I	Data 6	16	PRDT6-RET	—	Connected to logic GND
17	PRDT7	I	Data 7	18	PRDT7-RET	—	Connected to logic GND
19	ACKNLG	O	Data input acknowledge	20	ACKNLG-RET	—	Connected to logic GND
21	BUSY	O	Busy	22	BUSY-RET	—	Connected to logic GND
23	RINF2	O	Printer status	24	INPRM-RET	—	Connected to logic GND
25	SLCTIN	I	Printer select	26	INPRM	I	Reset
27	RINF1	O	Printer status	28	RINF3	O	Printer status
29	ATF	I	Paper feed request	30	GND	—	Logic GND

- Notes:
- Symbol “—” means a negative logic signal.
  - “-RET” signal is a return signal of the twisted pair cable.
  - “I” or “O” means a signal direction from the interface board side.

##### (3) Connector pin number



##### (4) Data input signal timing



## (5) Printer Status Signal

	Error	RINF1	RINF2	RINF3
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

## 2. RS-232C standard

### (1) Connector (CN2)

Connector part number : S9B-ZR-SM3A-TF (J.S.T.) or equivalent

Mating connector part number : ZHR-9 (J.S.T.) or equivalent

### (2) Connector pin assignment

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

## 3. USB standard

### (1) Connector (CN3)

Connector part number : UX60-MB-55T (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	6	DSR	I	Data set ready

#### 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 control circuit side (CN5)

Part number : 52610-3090 (Molex) or equivalent

No	Signal	I/O	Contents	No	Signal	I/O	Contents
1	HUP	I	Platen open signal	2	+5 V	-	Power for logic
3	+24V	-	Power for thermal head	4	+24 V	-	Power for thermal head
5	+24V	-	Power for thermal head	6	+24 V	-	Power for thermal head
7	HDO	O	Data out	8	$\overline{\text{STB2/STB3}}$	O	Print enable 2/3
9	$\overline{\text{STB3/STB4}}$	O	Print enable 3/4	10	+5 VDD	-	Power for thermal head
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	GND	-	Head GND	18	GND	-	Head GND
19	GND	-	Head GND	20	GND	-	Head GND
21	TMP	I	Thermistor input	22	$\overline{\text{STB1}}$	O	Print enable 1
23	NC / $\overline{\text{STB2}}$	O	Not connected / Head control signal 2*	24	$\overline{\text{LAT}}$	O	Print data latch
25	HCLK	O	Clock signal	26	HDI	I	Data input
27	+24V	-	Power for thermal head	28	+24V	-	Power for thermal head
29	+24V	-	Power for thermal head	30	+24V	-	Power for thermal head

\*: FTP629MCL: NC FTP-639MCL: STB4

### 2. Motor, Sensor (CN6)

Connector on circuit side : 52610-1090 (Molex) or equivalent

No.	Signal	I/O	Contents	No.	Signal	I/O	Contents
1	NC	-	Not connected	2	MTMP	I	Motor temperature signal
3	GND +5V	-	Logic ground	4	$\overline{\text{MT/A}}$	I/O	Motor coil excitation A
5	MT/A	I/O	Motor coil excitation A	6	$\overline{\text{MT/B}}$	I/O	Motor coil excitation B
7	MT/B	I/O	Motor coil excitation B	8	PESK	-	Logic
9	+5V	-	Power for logic	10	$\overline{\text{PES}}$	I	Paper out signal

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## 3. Thermal head / printer motor connector

### (1) Connector (CN7)

Connector part number : SM40B-SRDS-G-TF (J.S.T.)

### (2) Connector pin assignment

No.	Signal Name		Data Direction	Explanation
	629MCL	639MCL		
1	HUP		Input	Platen open detection signal
2	+5V		---	Logic power supply
3	+24V		---	Power supply for thermal head driving
4	+24V			
5	+24V			
6	+24V			
7	HDO		Output	Printing data output signal
8	*STB2	*STB3	Output	Head energizing control signal
9	*STB3	*STB4		
10	+5VH		---	Power supply for thermal head control
11	GND (+24V)		---	Ground of power supply for thermal head driving
12	GND (+24V)			
13	GND (+24V)			
14	GND (+24V)			
15	GND (+24V)			
16	GND (+24V)			
17	GND (+24V)			
18	GND (+24V)			
19	GND (+24V)			
20	GND (+24V)			

No.	Signal Name		Data Direction	Explanation
	629MCL	639MCL		
21	TMP		Input	Thermistor input
22	*STB1	*STB1	Output	Head energizing control signal
23	N.C.	*STB2		
24	*LAT		Output	Printing data latch signal
25	HCLK		Output	Data communication synchronizing clock signal
26	HDI		Input	Printing data input signal
27	+24V		---	Power supply for thermal head driving
28	+24V			
29	+24V			
30	+24V			
31	N.C.		---	No connection
32	MTMP		Input	Motor temperature detection signal
33	GND (+5V)		---	Ground pin of logic power supply
34	MT/A*		Sink/Source	Stepping motor driving signal
35	MT/A			
36	MT/B*			
37	MT/B			
38	PESK		---	Cathode side of paper run out sensor
39	+5V		---	Logic power supply pin
40	*PES		Input	Paper out detection signal

## ■ CONNECTOR PIN ASSIGNMENT OF INTERFACE BOARD

### 3. Connector for Head, Motor Power Supply (CN4)

\*S6B-XH-SM3-TB (J.S.T) or equivalent (P.C.B. side)

No	Signal	I/O	Contents	No	Signal	I/O	Contents
1	+24V	I	Power for head	2	+24V	I	Power for head
3	+24V	I	Ground for head	4	GND	-	Ground
5	GND	-	Ground	6	GND	-	Ground

### 4. Connector for Cutter (CN8)

S4B-PH-SM3-TP (J.S.T) or equivalent (P.C.B. side)

No	Signal	I/O	Contents	No	Signal	I/O	Contents
1	CHP	-	Cutter home position signal	2	GND	I	Ground
3	MT+	O	Cutter motor driving signal	4	MT-	O	Cutter motor driving signal

### 5. Connector for Motor (CN9)

53261-0490 (Molex)

No	Signal	I/O	Contents	No	Signal	I/O	Contents
1	EX-MTA		Motor Phase A	2	EX-MT/A		Motor Phase /A
3	EX-MTB		Motor Phase B	4	EX-MT/B		Motor Phase /B

### 6. Connector for Paper Near-End Sensor (CN10)

\*S2B-ZR-SM3A-TF (J.S.T) or equivalent (P.C.B. side)

No	Signal	I/O	Contents	No	Signal	I/O	Contents
1	+V3	-	Power for logic	2	NES	I	Paper near-end signal

### 7. Connector for Mark Sensor (CN12)

SM05B-SRSS-TB (J.S.T.)

No	Signal	I/O	Contents	No	Signal	I/O	Contents
1	+3V	O	Logic for Power	2	/MRKS	I	Paper Near End Signal
3	/MRKK	I	Paper Near End Signal	4	/COVERS	I	Paper Near End Signal
5	GND	-	Paper Near End Signal				

### 7. Connector for Paper Jam (CN13)

SM09B-SRSS-TB (J.S.T.)

No	Signal	I/O	Contents	No	Signal	I/O	Contents
1	+3V	O	Logic Power Supply	2	/PDSIS	I	
3	/MRKK	I		4	/COVERS	I	
5	GND	-		6	/MRKS	I	
7	/MRKK	I		8	/COVERS	I	
9	GND						

## ■ COMMANDS

Command	Contents
HT	Moves print position to the next tab.
LF	Line feed.
FF	Feeds forms (new page).
ESC EM+n	Setting the amount of the feeding at automatic paper feed.
ESC FF	Data printing in page printing mode
ECS 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 G+n	Double printing specification/cancellation.
ESC J+n	Feeds paper in forward direction and prints.
ESC K+n	Reverse paper feed.
ESC L+n	Page printing mode selection.
ESC Q+n+!+j	Frame overlay function (page mode).
ESC R+n	Selects international character.
ESC S+n	Line printing mode.
ESC T+n	Print direction setting (only the page mode).
ESC V+n	Right Rotation 90° specification / cancellation.

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## 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 Y+01h+ESC+x+a+m+d~	Printer test.
ESC \+n1+n2	Relative position setting.
ESC a+n	Positional alignment.
ESC c+1+n	Sets internal processing.
ESC c+4+n	Paper-out detector selection.
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
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.
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*1	Parameter transmission.
GS ! + n	Character size specification.
GS \$ + n1 + n2	Vertical absolute position specification in page printing mode.

# FTP-629DCL / DSL100 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*y*8	Registered bit image definition.
GS / +m	Registered bit image printing.
GS :	Macro definition start/end.
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 I+n+m	Printer ID registration.
GS L+n1+n2	Left margin position setting.
GS R+n	Printer ID demand.
GS W + n1 + n2	Printing area width setting.
GS \ +n1 + n2	Vertical relative position specification in page printing mode (vertical direction of characters).
GS ^+ r + t + m	Mark detection execution.
GS a+n*1	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 s	Check on Presenter.
GS t+n	Eject paper.
GS u+n	Model selection for presenter.
GS v	Notification of firmware version



# FTP-629DCL / DSL100 Series

Commands continued

Command	Contents
GS w+n	Sets bar code length.
GS x+n	Collect paper.
GS y	Eject preparation.
GS z	Retract paper.

\*1: These commands are valid with FTP-629DSL100 series.

## ■ OPTIONS

### 1. Cables

	Name	Part Number	Length (mm)
Thermal head cable	Extension (CN7)	FTP-629Y001	270 (10.6 inches)
Interface Cable (between board and equipment)	For Centronics (CN1)	FTP-628Y202	500 (19.7 inches)
	For RS232C (CN2)	FTP-629Y302	500 (19.7 inches)
Power supply cable	USB (CN3)	FTP-629Y301	1000 (34.4 inches)
	Logic / head / motor (CN7)	FTP-629Y601	300 (11.8 inches)

### 2. Paper holder

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

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