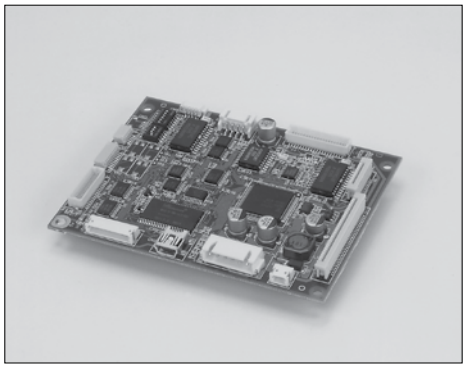
FUJITSU THE POSSIBILITIES ARE INFINITE

INTERFACE BOARDS
FOR 24V FTP-609 SERIES
FTP-629DSL100/200 SERIES

■ HIGHLIGHTS



- 24V FTP-609 series I/F board for 2-, 3- and 4-inch mechanisms
- Supports parallel, serial (RS-232C) or USB (V.1.1) I/F
- Supports 2-D bar codes and graphics
- Windows®2000/XP/Vista, Linux, OPOS drivers
- UL File No. E171434
- RoHS compliant

■ PART NUMBERS

Part Number	Interface Type	Connection	Dots/Line	Drivers	Mechanism Part Number
FTP-629DSL112R	USB	Head extension cable	432 576	Windows® 2K/XP/Vista, CE5.0 Linux	FTP-629MCL105 FTP-629MCL074/374 FTP-629MCL385#01, #02 FTP-639MCL105 FTP-639MCL074/374 FTP-639MCL385#01, #02
FTP-629DSL181R	Parallel & Serial (RS-232C)				
FTP-629DSL132R	USB	FPC			FTP-6x9MCL103 FTP-6x9MCL054 FTP-6x9MCL383#01, #02
FTP-629DSL183R	Parallel & Serial (RS-232C)				
FTP-629DSL212R	USB	Head extension cable	640		FTP-639MCL115 FTP-639MCL395#01, #02
FTP-629DSL281R	Parallel & Serial (RS-232C)				
FTP-629DSL232R	USB	FPC			FTP-639MCL064 FTP-639MCL113 FTP-639MCL364 FTP-639MCL393#01, #02
FTP-629DSL283R	Parallel & Serial (RS-232C)				
FTP-649DSL191R	Parallel & Serial	Head cable	864		FTP-649MCL073/074 FTP-649MCL103/104
FTP-649DSL192R	USB				

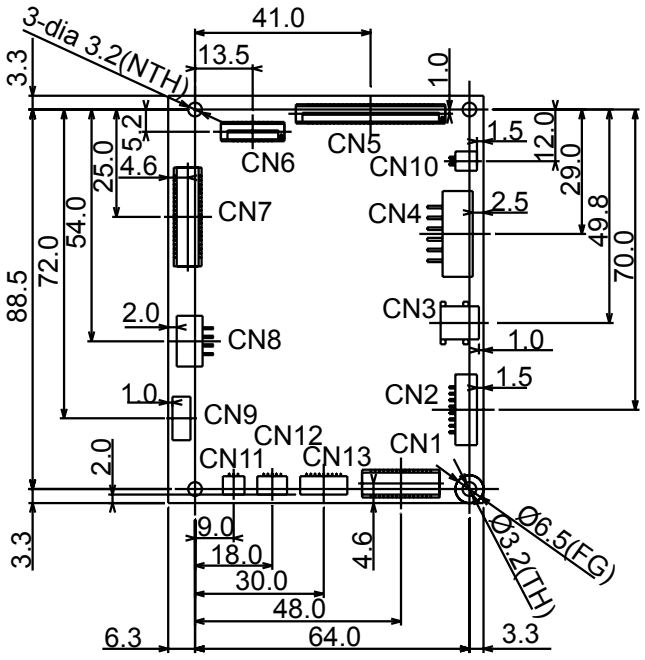
■ INTERFACE SPECIFICATION AT HOST SIDE

Item	Specifications	
Centronics	Data speed: Synchronous method: Handshake: Input/output level:	28,000 bytes/sec. Extended strobe pulse BUSY/ACKNLG signal CMOS
RS-232C	Data speed: Synchronous method: Handshake: Input/output level:	115, 200 / 19,200 / 9,600 / 4,800 bps Full duplex DTR/DSR, XON/XOFF control RS-232C
USB V1.1	Data speed: Data input/output method:	Full speed 12Mbps Referential data input/output

■ DIP SWITCH SETTING DSW1

Bit No.	Setting Function	Setting		Baud rate	Shipment setting
		Bit 1/ON	Bit 2/OFF		
1, 2	Baud rate	ON	ON	115,200 bps	OFF
		ON	OFF	9,600 bps	OFF
		OFF	ON	4,800 bps	OFF
		OFF	OFF	19,200 bps	OFF
3	Flow control	XON/XOFF	DTR/DSR		OFF
4	Receiving buffer size	45 byte	4k byte*		OFF
5	Even/Odd	Even	Odd		ON
6	Parity	Valid	Invalid		ON

■ DIMENSIONS



Unit: mm

1.2 Control circuit board connector types

Symbol	Name	Function	FTP-629 DSLX12	FTP-629 DSLX81	FTP-629 DSLX32	FTP-629 DSLX83	FTP-629 DSL191	FTP-629 DSL192
CN1	Parallel (Centronics)	Parallel (centronic)connection	X	O	X	O	O	X
CN2	Serial I/F (RS232-C)	Serial (RS-232C) connection	O	O	O	O	O	X
CN3	USB I/F	Head motor (V 1.1)connection	O	X	O	X	X	O
CN4	Power	Power connection	O	O	O	O	O	O
CN5	Head	Head FPC connection	X	X	O	O	X	X
CN6	Motor	Motor FPC connection	X	X	O	O	X	X
CN7	Head/Motor	Extension cable connection	O	O	X	X	O	O
CN8	Cutter	Cutter motor connection	O	O	O	O	X	X
CN10	Near End Sensor	Near end switch connection	O	O	O	O	O	O

Note: CN 9 is not mounted

INTERFACE

1. Centronics standard

(1) Connector (CN1)

Connector part number : BM30B-SRDS-G-TFC (J.S.T.) or equivalent
Mating connector part number : SHDR-30V-S-B (J.S.T.) or equivalent

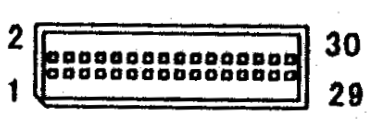
(2) Connector pin assignment

No.	Signal	I/O	Contents	No.	Signal	I/O	Contents
1	$\overline{\text{PRSTB}}$	I	Data strobe	2	$\overline{\text{PRSTB}}$-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	$\overline{\text{ACKNLG}}$	O	Data input acknowledge	20	$\overline{\text{ACKNLG}}$-RET	—	Connected to logic GND
21	BUSY	O	Busy	22	BUSY-RET	—	Connected to logic GND
23	RINF2	O	Printer status	24	$\overline{\text{INPRM}}$-RET	—	Connected to logic GND
25	$\overline{\text{SLCTIN}}$	I	Printer select	26	$\overline{\text{INPRM}}$	I	Reset
27	RINF1	O	Printer status	28	RINF3	O	Printer status
29	$\overline{\text{ATF}}$	I	Paper feed request	30	GND	—	Logic GND

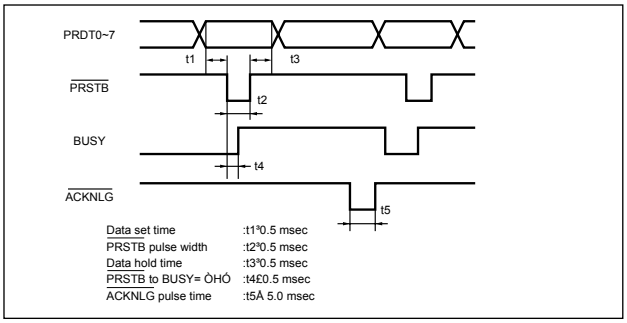
Notes:
- Symbol "——" means a negative logic signal.
- "–RET" signal is a return signal of the twisted pair cable.
- "I" or "O" means a signal direction from the interface board side.

(3) Connector pin number

BM30B-SRDS-G-TFC (J.S.T.)



(4) Data input signal timing



(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

2. RS-232C standard

(1) Connector (CN2)

Connector part number : S9B-ZR-SM4A-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	$\overline{\text{SLCTIN}}$	I	Printer select	8	$\overline{\text{INPRM}}$	I	Reset
9	$\overline{\text{AFT}}$	I	Paper feed request				

3. USB standard

(1) Connector (CN3)

Connector part number : UX60-MB-5ST (Hirose)
Mating connector part number : UX40-MB-5P-9 (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 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	MT $\overline{\text{A}}$	I/O	Motor coil excitation A
5	MT A	I/O	Motor coil excitation A	6	MT $\overline{\text{B}}$	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

3. Thermal head / printer motor connector

(1) Connector (CN7)

Connector part number : Boardside: SM40B-SRDS-G-TF (J.S.T.)
Other side: SHDR-40V-S-B (J.S.T.)

(2) Connector pin assignment

No.	Signal Name		Data Direction	Explanation
	629MCL	639MCL 649MCL		
1	HUP		I	Platen open detection signal
2	+5V	+5V +3V	O	Logic power supply
3	+24V		O	Power supply for thermal head driving
4	+24V			
5	+24V			
6	+24V			
7	HDO		O	Printing data output signal
8	$\overline{STB2}$	$\overline{STB3}$	O	Head energizing control signal
9	$\overline{STB3}$	$\overline{STB4}$		
10	5VH		O	Power supply for control
11	GND (+24V)		---	Ground of power supply
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 649MCL		
21	TMP		I	Thermistor input
22	$\overline{STB1}$	$\overline{STB1}$	O	Head energizing control signal
23	N.C.	$\overline{STB2}$		
24	$\overline{LAT}$		O	Printing data latch signal
25	HCLK		O	Data communication synchronizing clock signal
26	HDI		I	Printing data input signal
27	+24V		O	Power supply for thermal head driving ---
28	+24V			
29	+24V			
30	+24V			
31	N.C.		---	No connection
32	MTMP		I	Motor temperature detection signal
33	GND (+5V)		---	Ground pin of logic power supply
34	MT $\overline{A}$		Sink/So-urce	Stepping motor driving signal
35	MT A			
36	MT $\overline{B}$			
37	MT B			
38	PESK		---	Cathode side of paper run out sensor
39	+5V	+3V	O	Logic power supply pin
40	$\overline{PES}$		I	Paper out detection signal

■ CONNECTOR PIN ASSIGNMENT OF INTERFACE BOARD

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

Connector part number: *S6B-XH-SM4-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)

Connector part number: 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	-	Ground
3	MT+	O	Cutter motor driving signal	4	MT-	O	Cutter motor driving signal

5. Connector for Motor (CN9)

Connector part number: 53261-0490 (Molex) or equivalent

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)

Connector part number: *S2B-ZR-SM4A-TF (J.S.T) or equivalent (P.C.B. side)

No	Signal	I/O	Contents	No	Signal	I/O	Contents
1	+3V	O	Power for logic	2	$\overline{\text{NES}}$	I	Paper near-end signal

7. Connector for Mark Sensor (CN12)

Connector part number: SM05B-SRSS-TB (J.S.T.) or equivalent

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	-	Ground				

7. Connector for Paper Jam (CN13)

Connector part number: SM09B-SRSS-TB (J.S.T.) or equivalent

No	Signal	I/O	Contents	No	Signal	I/O	Contents
1	+3V	O	Logic Power Supply	2	/PDSIS	I	Photo transistor emitter
3	/PDS1K	I	Photo diode cathode	4	+3V	O	Logic power supply pin
5	/PDS2S	I	Photo transistor emitter	6	/PDS2K	I	Photo diode cathode
7	+3V	O	Logic power supply pin	8	/PDS3S	I	Photo transistor emitter
9	/PDS3K	I	Photo diode cathode				

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 print mode.
ECS RS	Sets reverse printing.
ESC US	Resets reverse printing.
ESC SP+n	Character spacing setting.
ESC $+n1+n2	Absolute position 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 settting.
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	Page printing mode selection.
ESC Q + n +! + j	Frame overlay function (page mode selection)
ESC R+n	Selects international character.
ESC S	Line printing mode.
ESC T + n	Page print mode print direction setting.
ESC V+n	Right Rotation 90° specification / cancellation.

Command	Contents
ESC X+n+m	Setting the turning time of the motor excitation.
ESC a+n	Position alignment.
ESC c+1+n	Sets internal processing.
ESC c+4+n	Paper out detector selector.
ESC c+5+n	Paper feed key valid/invalid setting.
ESC d+n	Printing and n-line feeding.
ESC e+n	Prints and reverse feeds n-lines.
ESC s+n	Sets printing speed.
ESC I	Full cut.
ESC t+n	Character code table selection.
ESC u+n	Status of peripherals.
ESC v	States of paper sensor notification.
ESC {+n	Sets/resets upside down printing.
GS !+n	Kanji printing mode collective specification.
FS &	Kanji printing mode specification.
FS*+m+n1+n2+d1 to dn	High speed collective image printing specified.
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+n1+n2	Kanji spacing setting.*1
FS W+n	Kanji double height and width printing specification/cancellation.
FS r+n*1	Parameter transmission (serial mode).
FS!+n	Character size specification.
GS &+m+x+y1+y2+d1 to dN	Registered bit image definition.
GS '+m+n	Registered bit image printing.
GS *+x+y+d to dx	Registered bit definition.
GS/+m	Registered bit image printing.
GS :	Macro definition start /end.
GS <	Line feeds to the next mark.

Command	Contents
GS A+m+n	Sets the line feed length after mark detection.
GS B+n	Angle setting of bar code.
GS E+n	Sets print quality.
GS R+n	Printer ID demand.
GS V+n+m	Paper cutting (this command is only available for chip).
GS a+n *1	Settting and cancellation of auto status transmission (serial mode).
GS f+n	HRI character font selection.
GS e+n+m	Sets bar code width.
GS h+n	Sets bar code height.
GS k+m +N+nd1+dN	Selects bar code type and prints
GS v	Notification of firmware version.
GS w+n	Sets bar code length.
GS !+n	Kanji printing mode collective specification.

*1: These commands are valid with FTP-629DSL 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)
	USB (CN3)	FTP-629Y301	1000 (34.4 inches)
Power supply cable	Logic / head / motor (CN4)	FTP-629Y601	300 (11.8 inches)

2. Driver LSI of Control Board

Name	Part Number	Quantity / Tray	Remarks
ROM	FTP-629SR201	96	
MCU and SRAM	MB91101A	-	

3. Paper holder

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

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