

# 24V DRIVE INTERFACE BOARD

## FTP-621DCL002/012

## FOR FTP-621/631/641MCL101/102/301/302

### ■ INTERFACE

#### 1. Centronics standard

##### (1) Connector (CN10)

Connector part number : FCN-605Q030-G/M (Fujitsu Components) or equivalent

Mating connector part number : FCN-607B030-G/B (Fujitsu Components) or equivalent

##### (2) Connector pin assignment

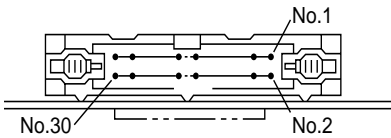
No.	Signal	I/O	Contents	No.	Signal	I/O	Contents
1	$\overline{\text{PRSTB}}$	I	Data strobe	2	$\overline{\text{PRSTB-RET}}$	—	Connected to logic GND
3	PRDT0	I	Data 0	4	PRDT0-RET	—	Connected to logic GND
5	PRDT1	I	Data 1	6	PRDT1-RET	—	Connected to logic GND
7	PRDT2	I	Data 2	8	PRDT2-RET	—	Connected to logic 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	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:

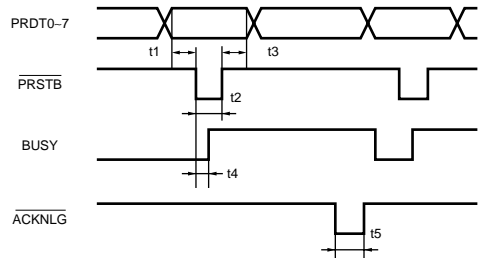
- Symbol “—” means a negative logic signal.
- “-RET” signal is a return signal of the twisted pair cable.
- “I” or “O” means a signal direction from the interface board side.

(3) Connector pin number

FCN-605Q030-G/M (Fujitsu Components) or equivalent



(4) Data input signal timing



Data set time :  $t1 \geq 0.5 \mu\text{sec}$   
PRSTB pulse :  $t2 \geq 0.5 \mu\text{sec}$   
Data hold time :  $t3 \geq 0.5 \mu\text{sec}$   
PRSTB to BUSY = "H" :  $t4 \leq 0.5 \mu\text{sec}$   
ACKNLG pulse :  $t5 \approx 5.0 \mu\text{sec}$

## 2. Bus interface

### (1) Connector

Connector part number : FCN-215Q040-G/0 (Fujitsu Components) or equivalent  
 Mating connector part number : FCN-217J040-G/0 (Fujitsu Components) or equivalent  
 : FCN-214J040-G/0 (Fujitsu Components) or equivalent  
 : FCN-215J040-G/0 (Fujitsu Components) or equivalent

### (2) Connector pin assignment

No.	Signal	I/O	Contents	No.	Signal	I/O	Contents
1	ALE	O	Address latch	2	$\overline{\text{BRD}}$	—	Data read
3	$\overline{\text{BWR}}$	—	Data write	4	READY	—	Data access ready
5	HACK	—	Hold acknowledge	6	HRQ	—	User hold request input
7	MCRC	—	Power-down (not used)	8	CLK	O	System clock
9	PCPAK1	O	Common RAM reading completion	10	$\overline{\text{ATF}}$	I	Automatic paper loading
11	PCPSD1	I	Common RAM reading request	12	PRON	O	Printer operating
13	$\overline{\text{RST}}$	I	Hard reset	14	GND	—	Ground
15	DB00	I/O	External address/Data bus 0	16	DB01	I/O	External address/Data bus 1
17	DB02	I/O	External address/Data bus 2	18	DB03	I/O	External address/Data bus 3
19	DB04	I/O	External address/Data bus 4	20	DB05	I/O	External address/Data bus 5
21	DB06	I/O	External address/Data bus 6	22	DB07	I/O	External address/Data bus 7
23	AB08	O	External address bus 08	24	AB09	O	External address bus 09
25	AB10	O	External address bus 10	26	AB11	O	External address bus 11
27	AB12	O	External address bus 12	28	AB13	O	External address bus 13
29	AB14	O	External address bus 14	30	AB15	O	External address bus 15
31	AB16	O	External address bus 16	32	AB17	O	External address bus 17
33	AB18	O	External address bus 18	34	AB19	O	External address bus 19
35	AB20	O	External address bus 20	36	AB21	O	External address bus 21
37	AB22	O	External address bus 22	38	AB23	O	External address bus 23
39	$\overline{\text{RAM2}}$	O	Common RAM access	40	$\overline{\text{INPRM}}$	I	Reset

#### Notes:

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

## ■ CONNECTOR PIN ASSIGNMENT

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

Part number : B4B-XH-A-WHITE (J.S.T) or equivalent → P.C.B side

Mating connector part number : XHP-4 (J.S.T) or equivalent → Cable side

No.	Signal	I/O	Contents	No.	Signal	I/O	Contents
1	V <sub>CC</sub>	—	Power supply for logic (+5V)	2	GND	—	Logic ground
3	GND	—	Logic ground	4	V <sub>DD</sub>	—	Power supply for head/motor (+24V)

### 2. Connector for thermal head and motor power supply (CN2)

Part number : B8B-XH-A-WHITE (J.S.T) or equivalent → P.C.B side

Mating connector part number : XHP-8 (J.S.T) or equivalent → Cable side

No.	Signal	I/O	Contents	No.	Signal	I/O	Contents
1	V <sub>DD</sub>	—	Power supply for head/motor (+24V)	2	V <sub>DD</sub>	—	Power supply for head/motor (+24V)
3	V <sub>DD</sub>	—	Power supply for head/motor (+24V)	4	V <sub>DD</sub>	—	Power supply for head/motor (+24V)
5	GND	—	Head/motor ground	6	GND	—	Head/motor ground
7	GND	—	Head/motor ground	8	GND	—	Head/motor ground

## 3. Connector for thermal head drive (CN9)

Part number : FCN-605Q026-G/M (Fujitsu Components) or equivalent → P.C.B side

Mating connector part number : FCN-747B026-AU/B (Fujitsu Components) or equivalent → Cable side

No.	Signal	I/O	Contents	No.	Signal	I/O	Contents
1	V <sub>DD</sub>	—	Power for head (+24V)	2	GND	—	Head ground
3	V <sub>DD</sub>	—	Power for head (+24V)	4	GND	—	Head ground
5	V <sub>DD</sub>	—	Power for head (+24V)	6	GND	—	Head ground
7	$\overline{\text{LAT}}$	O	Printing data latch	8	HD	O	Printing data output
9	$\overline{\text{ENB5}}$ *	O	Printing enable 5 (not used)	10	$\overline{\text{ENB4}}$ *	O	Printing enable 4 (not used)
11	$\overline{\text{ENB3}}$ *	O	Printing enable 3 (not used)	12	$\overline{\text{ENB2}}$	O	Printing enable 2
13	$\overline{\text{ENB1}}$	O	Printing enable 1	14	$\overline{\text{ENB0}}$	O	Printing enable 0
15	V <sub>REF</sub>	O	Power for thermistor	16	TMP	I	Temperature detection
17	B.E.O	—	Head current control	18	V <sub>CC</sub>	—	Power for logic (+5V)
19	HCLK	O	Data transmission clock	20	HSEN	I	Printer distinction
21	V <sub>DD</sub>	—	Power for head (+24V)	22	GND	—	Head ground
23	V <sub>DD</sub>	—	Power for head (+24V)	24	GND	—	Head ground
25	V <sub>DD</sub>	—	Power for head (+24V)	26	GND	—	Head ground

Notes:

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

\*: Not used at mechanism side.

## 4. Connector for Head-up/paper-out detection (CN4)

Part number : B5B-XH-A-WHITE (J.S.T) or equivalent → P.C.B side

Mating connector part number : XHP-5 (J.S.T) or equivalent → Cable side

No.	Signal	I/O	Contents	No.	Signal	I/O	Contents
1	V <sub>CC</sub>	—	Power supply for logic (+5V)	2	$\overline{\text{PES}}$	—	Paper-out detection
3	GND	—	Logic ground	4	V <sub>CC</sub>	—	Power supply for logic (+5V)
5	HUP	—	Head-up detection				

**5. Connector for paper near end detection (CN3)**

Part number : B2B-XH-A-WHITE (J.S.T) or equivalent → P.C.B side

Mating connector part number : XHP-2 (J.S.T) or equivalent → Cable side

No.	Signal	I/O	Contents	No.	Signal	I/O	Contents
1	Vcc	—	Power supply for logic (+5V)	2	$\overline{\text{NES}}$	I	Paper near end detection

Note: The paper near end sensor to be set at the host system side.

**6. Connector for stepping motor drive (CN5)**

Part number : B6B-XH-A-WHITE (J.S.T) or equivalent → P.C.B side

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

No.	Signal	I/O	Contents	No.	Signal	I/O	Contents
1	N.C.	—	Not connected	2	N.C.	—	Not connected
3	MT/A	O	Stepping motor coil excitation	4	$\text{MT}/\overline{\text{A}}$	O	Stepping motor coil excitation
5	MT/B	O	Stepping motor coil excitation	6	$\text{MT}/\overline{\text{B}}$	O	Stepping motor coil excitation

**7. Connector for abnormal head temperature detection (CN7)**

Part number : B3B-XH-A-WHITE (J.S.T) or equivalent → P.C.B side

Mating connector part number : XHP-3 (J.S.T) or equivalent → Cable side

No.	Signal	I/O	Contents	No.	Signal	I/O	Contents
1	TMPER	O	Abnormal head temperature detection	2	N.C.	—	Not connected
3	GND	—	Logic ground				

Note: This signal detects abnormal head temperature.

**8. Connector for cutter drive (CN6)\*1**

Part number: B4B-EH (J.S.T) or equivalent → P.C.B side

No.	Signal	I/O	Contents	No.	Signal	I/O	Contents
1	SW1	I	Cutter position detection	2	GND	—	Logic ground
3	M+	O	Motor drive (+)	4	M-	O	Motor drive (-)

\*1 Only for FTP-621DCL012

## ■ PRINTING COMMANDS (CENTRONICS STANDARD INTERFACE)

Name	Command	Contents
Line feed	LF	Prints buffer data and returns the line to left end of next line.
Form feed	FF	Prints buffer data and returns the line to left end of next form.
Carriage return	CR	Prints buffer data and returns the line to left end of next line.
Double width print set	SO	Sets the double width character.
Double width print reset	SI	Resets the double width character.
Black-white negative print set	RS	Sets the black-white negative printing.
Black-white negative print reset	US	Resets the black-white negative printing.
ESC sequence set	ESC	Indicates the start of an escape sequence formed by this code plus subsequent commands.
Double width print set	ESC SO	Sets the double width character.
Double width print reset	ESC SI	Resets the double width character.
Page length set in character line	ESC C + n	Sets the page length by character line.
Reverse print set	ESC R	Sets reverse printing.
Reverse print reset	ESC S	Resets reverse printing.
Bit image print set*	ESC V +n <sub>1</sub> +n <sub>2</sub> +d <sub>1</sub> ~d <sub>N</sub>	Sets bit image printing.
Double width print set and reset	ESC W + n	Sets and resets the double width character.
Printing speed set	ESC s + n	Sets the printing speed.
Line feed length set in n/203 in.	ESC 3 + n	Sets the line feed length in n/203 in.
Character set 2 select	ESC 6	Selects the character set 2.
Character set 1 select	ESC 7	Selects the character set 1.
Download character register	ESC &+s+n+m+a+d <sub>1</sub> ~d <sub>N</sub>	Registers the download characters.
Registered download character select	ESC %+n+m	Selects the registered download characters.
Character set copy	ESC :+0+n+m	Copies the character set.
Bit image print set in high speed	ESC +a+n <sub>1</sub> +n <sub>2</sub> +d <sub>1</sub> ~d <sub>N</sub>	Sets the bit image printing in high speed.
International character set	ESC ^+n	Selects the international characters.
Printer reset	ESC @	Initializes the printer.
Line feed length set after mark detection	ESC w+n	Sets the line feed length after mark detection.
Mark detection	ESC FF	Feeds the paper to the marking position.

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(Continued)

Name	Command	Contents
Paper feed set in normal direction	ESC J+n	Sets the paper feed in normal direction. (Feeding range: 1 to 255 dot lines)
Paper feed set in reverse direction	ESC j+n	Sets the paper feed in reverse direction. (Feeding range: 1 to 255 dot lines)
Left-end print position set	ESC l+n	Sets the left end of printing position.
Right-end print position set	ESC Q+n	Sets the left end of printing position.
FS sequence set	FS	Indicates the start of an FS sequence formed by this code plus subsequent commands.
4 times enlarged character set and reset	FS W + n	Sets and resets the 4 times enlarged characters.
Double height print set and reset	FS ! +n	Sets and resets the double height character.
Detecting function set	FS 9+n	Sets the detecting functions.
TOF mark detection	FS FF	Feeds the paper to the TOF mark position.
Printing quality set	FS x+n	Sets the printing quality conforming to the selected paper.
Cutting* <sup>1</sup>	ESC c+n	Executes paper cutting.
Cutting type select* <sup>1</sup>	ESC y+n	Selects the cutting type: full, partial, etc.

\*<sup>1</sup> Only for FTP-621DCL012



## ■ OPTIONS

### 1. Cable

Name		Part number	Cable length
Thermal head connection cable		FTP-441Y001	150 mm
Interface cable	For Centronics	FTP-441Y201	500 mm
	For Bus I/F	FTP-621Y203	500 mm
Power supply cable (A): for logic motor		FTP-441Y401	300 mm
Power supply cable (B): for thermal head		FTP-441Y601	300 mm
Head abnormal temperature detection cable		FTP-621Y204	300 mm
Paper near-end detection cable		FTP-621Y401	300 mm

### 2. Paper holder

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

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