

FCL Components Thermal Printer FTP-628DSL311/312 series Interface Boards

FCL Components interface boards for FTP-628MCL05x, FTP-628MCL1xx, FTP-638MCLxxx series

Features

- USB (full speed) and RS-232C serial interface
- Various detection features: Paper out, mark, platen open, thermal head temperature, power supply voltage, near end
- Various alarm and protective functions: Thermal head temperature, power supply voltage, MCU operation, motor over current protection
- Print quality stabilization by the thermal head temperature and power supply voltage monitoring
- Thermal head energization can select fix division or automatic division
- Character set: ANK (Alphabet, number, Kana)
- Supports barcode printing
- Wide range of power supply voltages



FTP-628DSL311

Part numbers

Part number	Supply voltage	Interface type	Mechanism part number
FTP-628DSL311-R	4.2 to 9.5V	USB/RS-232C	FTP-628MCL05x
FTP-628DSL312-R	21.6 to 26.4V*		FTP-628MCL1xx FTP-638MCL1xx

*: The FTP-628DSL312 will convert the input voltage, 21.6V - 26.4V, to 9.5V to drive the FTP-6x8MCL mechanisms

Interface specification at host side

Item	Specifications												
RS-232C	Data speed: 9.6k, 19.2k, 38.4k, 115.2k, 230.4k bps** Synchronous method: Asynchronous Handshake: RTS (DTR) / CTS (DSR) control, XON/XOFF control Parity: Non, even, odd** Input/output level: RS-232C level												
USB V2.0	Data speed: USB ver 2.0 full speed (12Mbps max.) USB interface class: <table style="margin-left: 20px;"> <tr> <td>Device class:</td> <td>Printer device</td> </tr> <tr> <td>Interface class:</td> <td>Printer</td> </tr> <tr> <td>Sub class:</td> <td>Printer</td> </tr> <tr> <td>Protocol:</td> <td>Unidirectional interface</td> </tr> </table> Endpoint: <table style="margin-left: 20px;"> <tr> <td>EPO:</td> <td>Control</td> </tr> <tr> <td>EP1:</td> <td>Bulk OUT</td> </tr> </table>	Device class:	Printer device	Interface class:	Printer	Sub class:	Printer	Protocol:	Unidirectional interface	EPO:	Control	EP1:	Bulk OUT
Device class:	Printer device												
Interface class:	Printer												
Sub class:	Printer												
Protocol:	Unidirectional interface												
EPO:	Control												
EP1:	Bulk OUT												

** : Selectable by RS-232C communication conditions setting command GS (+E(fn=67))

■ Specifications

1.1 Base specifications

Item	Specifications
Dimensions	67.2 x 32.0mm (WxD)
Weight	Approx. 15g

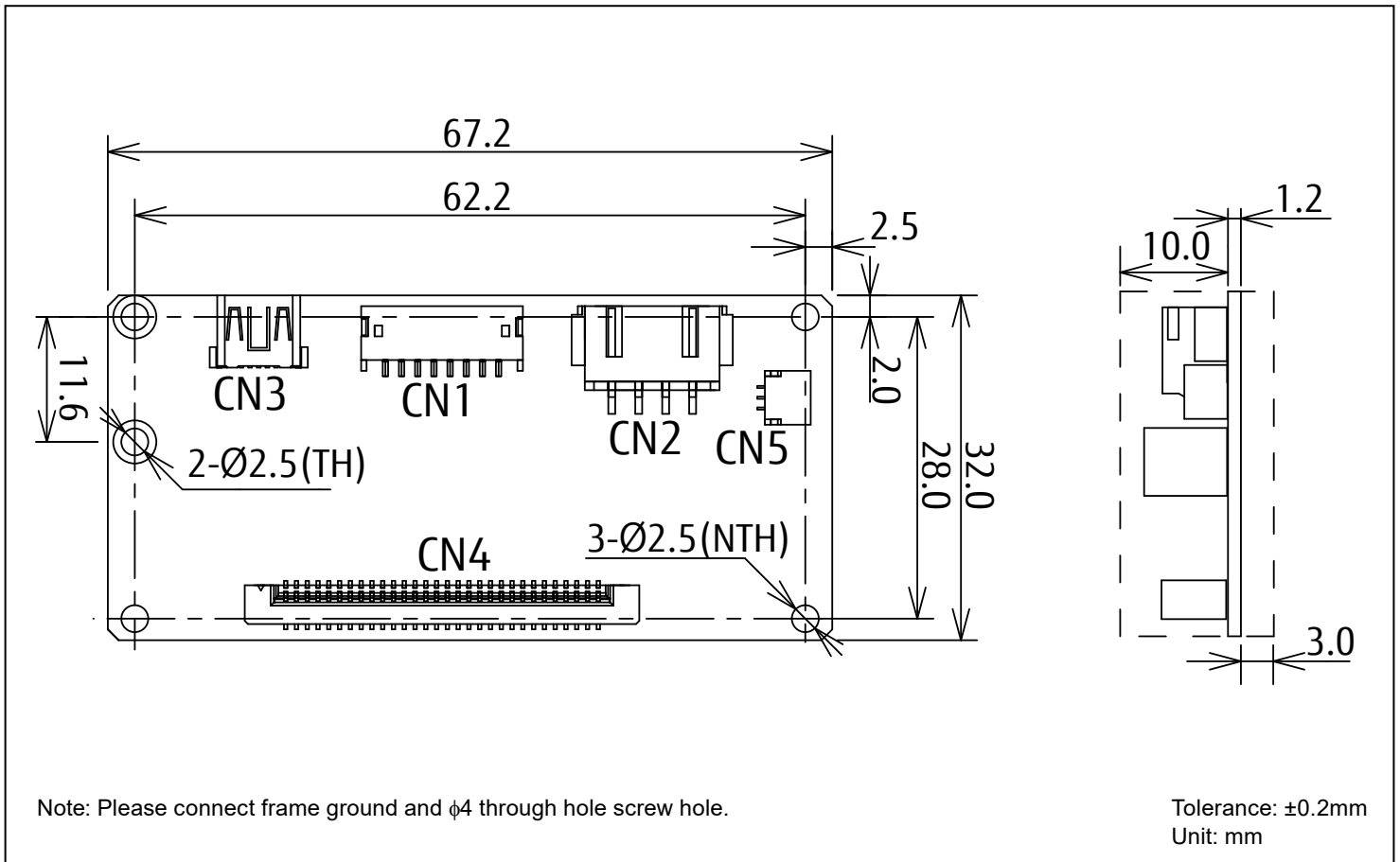
1.2 Print/paper feed specifications

Item	Specifications
Part number	FTP-628MCL (2-inch) FTP-638MCL (3-inch)
Dot pitch	0.125mm (H) x 0.125mm (W)
Number of dots	384 dots/line 576 dots/line
Max. printing width	48mm 72mm
Line space	Approx. 1/8 inch (26 dots line)
Print speed*1	100mm/s 60mm/s
Paper feed speed (/ATF)	Approx. 30mm/s

*1: Conditions:

Paper:	PD150R or equivalent
Voltage:	9.5V
Print ratio:	Up to 12.5%
Operating temperature/humidity:	25°C, 60+/-15% (no condensation)

■ Dimensions



■ Control circuit board and connector types

Symbol	Name	Function	Note
CN1	Serial interface connector	Serial connection	-
CN2	Power connector	Power connection	-
CN3	USB connector	USB connection	-
CN4	Printer mechanism connector	Printer connection	-
CN5	Near end connector	Near end switch connection	-

■ Connector Pin Assignment of interface board

Note: Symbol “-” means a negative logic signal.

“I” or “O” means a signal direction from the interface board side.

• Serial interface connector (CN1)

Mating connector part number: ZHR-8 (J.S.T.) or equivalent

Recommended cable: AWG#26 to 32, cable length max. 500mm

No.	Signal	I/O	Content	No.	Signal	I/O	Content
1	RXD	I	Receive data signal	2	TXD	O	Transmission data signal
3	RTS (DTR)	O	Request to send signal	4	GND	-	Signal ground
5	CTS (DSR)	I	Clear to send signal	6	/SLCTIN	I	Dection function disabled signal
7	/INPRM	I	Initialization signal	8	/ATF	I	Paper feed

• Power connector (CN2)

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

Recommended cable: AWG#22 to 30, cable length max. 300mm

No.	Signal	I/O	Content	No.	Signal	I/O	Content
1	Vp	I	Power input	2	Vp	I	Power input
3	GND	-	Ground	4	GND	-	Ground

• USB Connector (CN3)

Mating connector part number: USB mini-B type

Recommended cable: Cable conforming to USB standards (V2.0 full speed)

No.	Signal	I/O	Content	No.	Signal	I/O	Content
1	Vbus	I	Vbus signal	2	D-	I/O	D- signal
3	D+	I/O	D+ signal	4	N.C.	-	Not connected
5	GND	-	Signal ground	6	FG	-	Frame ground

• Printer mechanism connector(CN4)

Please refer to the printer mechanism datasheet

• Near end Connector (CN5)

Mating connector part number: SHR-03V-S (J.S.T.) or equivalent

Recommended cable: AWG#28to 32, cable length max. 300mm

No.	Name	I/O	Description	No.	Name	I/O	Description
1	NVcc	O	Near end sensor power	2	/NES	I	Near end signal
3	GND	-	Signal ground				

■ Connector pin assignments of printer mechanism (2-inch)

Command	Content
HT	Moves print position to the next tab
LF	Line feed
FF	Feeds forms (new page)
DC2	Power down
ESC RS	Black/white reverse printing specification
ESC SP+n	Character space setting
ESC US	Black/white reverse printing cancellation
ESC !+n	Sets print mode
ESC *+m+nL+nH+d1 to dk	Bit image print
ESC -n	Undeline setting
ESC 2	Sets default line spacing
ESC 3+n	Line pitch setting
ESC @	Printer reset
ESC A+n	Line spacing setting
ESC C+n	Sets the page length line mode
ESC D+n1 to nk+NUL	Sets horizontal tab position
ESC J+n	Feeds paper in forward direction and prints
ESC R+n	Selects international character
ESC V+n	Right rotation 90° specification/cancellation
ESC X+m+n	Setting the turning time of the motor excitation
ESC a+n	Positional alignment
ESC c+1+n	Sets internal processing
ESC c+5+n	External input signal valid/invalid setting
ESC d+n	Printing and n-line feeding
ESC s+n	Sets printing speed
ESC t+n	Character code table selection
ESC {+n	Sets/resets upside down printing
FS 9+n	Sets the detection functions
FS E+n	Standard energy setting
FS r+n	Reply parameter setting
GS !+n	Character size setting
GS (+E+pL+pH+fn+d1 to d9 (fn=67)	RS-232C communication setting *1
GS (K+pL+pH+fn	Print control setting
GS(K+pL+pH+fn+n (fn=49)	Print density setting
GS(K+pL+pH+fn+n (fn=50)	Print speed setting
GS(K+pL+pH+fn+n (fn=97)	Number of head division setting
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+nL+nH	Left margin setting
GS W+nL+nH	Sets print area width
Command	Content

GS a+n	Set auto status transmission
GS e+m+n	Sets bar code width
GS h+n	Barcode height setting
GS k+m+n+d1 to dn	Bar code print
GS w+n	Bar code width magnification setting

*1: Makes write/erase to the nonvolatile memory.

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