Thermal Printer
FTP-628DSL411-R
Interface Board

Interface boards for FTP-628MCL4xx and FTP-638MCL4xx series

Features

- USB (full speed) and RS-232C serial interface
- Various detection features: Paper out, mark, platen open, thermal head temperature, near end, etc.
- Various alarm and protective functions: Thermal head temperature, power supply voltage, MCU operation, etc.
- Character set: ANK (Alphabet, number, Kana)
- Supports barcode printing
- Wide range of power supply voltages
- Auto cutter function
- RoHS compliant

FTP628DSL411-R

Part numbers

Part number	Supply voltage	Interface type	Mechanism part number
FTP-628DSL411-R	4.2 to 9.5V	USB/RS-232C	FTP-628MCL4xx FTP-638MCL4xx

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
	Flow control	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	Device class: Printer device

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

■ Specifications

1.1 Base specifications

Item	Specifications
Dimensions	69.3 x 60.0mm (WxD)
Weight	Approx. 20g

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) *1 Changeable by command	
Print speed*1	80mm/s	
Paper feed speed (/ATF)	Approx. 30mm/s	

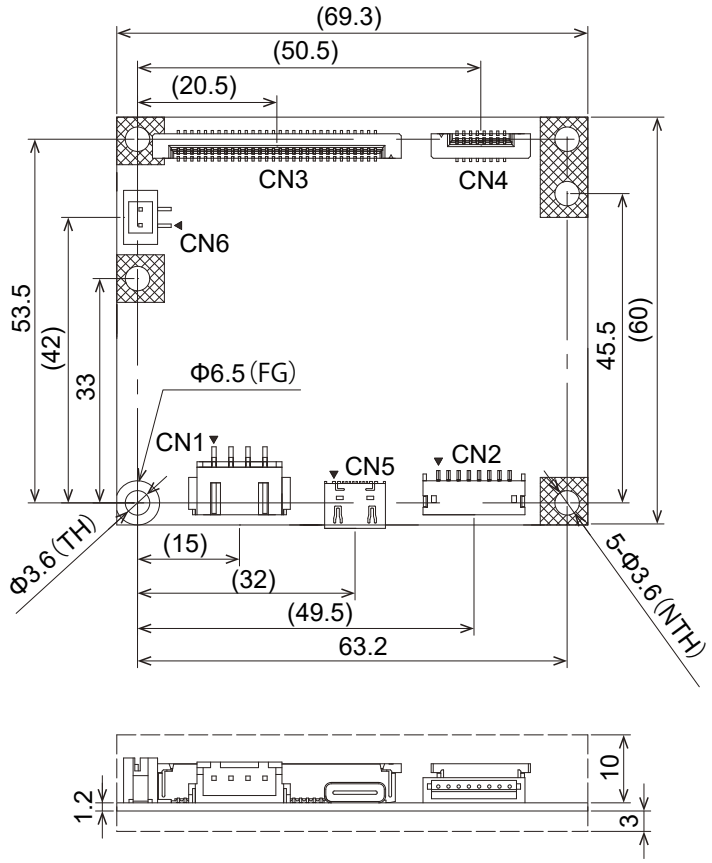
*1: Conditions:

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

1.3 Options

Item	Part number	Length
RS-232C interface cable	FTP-628Y302	0.5m
Power cable	FTP-628Y403	0.3m

■ Dimensions



Unit: mm

Note: Please connect frame ground and ϕ4 through hole screw hole.

■ Control circuit board and connector types

Symbol	Name	Function	Note
CN1	Power supply connector	Power supply	-
CN2	RS-232C connector	Serial connection	-
CN3	Printer mechanism connector	Printer connection	-
CN4	Cutter connector	Cutter connection	-
CN5	USB connector	USB connection	-
CN6	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.

- Power supply connector (CN1)
  Mating connector part number: XHP-4 (J.S.T.) or equivalent
  Recommended cable: AWG#22 to 30, cable length max. 300mm or less

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

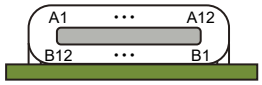
- RS-232C connector (CN2)
  Mating connector part number: ZHR-8 (J.S.T.) or equivalent
  Recommended cable: AWG#26 to 32, cable length max. 500mm or less

No.	Signal	I/O	Content	No	Signal	I/O	Content
1	RXD	I	Receive data signal	2	TXD	O	Transmission data signal
3	RTS	O	Request to send signal	4	GND	-	Ground
5	CTS	I	Clear to send signal	6	/SIN	I	Dection function setting signal
7	/RST	I	Initialization request signal	8	/ATF	I	Paper feed signal

- Printer mechanism connector (CN3)
  Please refer to the printer mechanism specifications

- Cutter connector (CN4)
  Please refer to the printer mechanism specifications

- USB Connector (CN5)
  Mating connector part number: USB type C connector
  Recommended cable: CUI CBL-A31-C31 or equivanlent



A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
GND	N.C.	N.C.	VBUS	CC1	D+	D-	N.C.	VBUS	N.C.	N.C.	GND
GND	N.C.	N.C.	VBUS	N.C.	D-	D+	CC2	VBUS	N.C.	N.C.	GND
B12	B11	B10	B9	B8	B7	B6	B5	B4	B3	B2	B1

Signal	I/O	Content	Signal	I/O	Content
Vbus	I	Vbus signal	D-	I/O	D- signal
D+	I/O	D+ signal	CC1/CC2	I	Detect plug orientation
N.C.	-	Not connected	GND	-	Ground

- Near end Connector (CN6)
  Mating connector part number: PHR-2 (J.S.T.) or equivalent
  Recommended cable: AWG#28to 32, cable length max. 300mm or less

No.	Name	I/O	Description	No.	Name	I/O	Description
1	NVCC	O	Near end sensor power	2	/NES	I	Near end signal input

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

Command	Content
HT	Horizontal tab
LF	Line feed
FF	Feeds forms (new page)
ESC FF	Data print in page mode
DC2	Paper down
ESC EM n	Auto loading amount setting
ESC RS	Black/white reverse printing specification
ESC US	Black/white reverse printing cancellation
ESC SP+n	Character space setting
ESC ! n	Sets print mode
ESC $ nL nH	Horizontal absolute position setting
ESC %n	Download character specification/cancellation
ESC & y c1 c3 x d1~dk	Download character definition *1, *3
ESC * m nL nH d1 ~ dk	Bit image print
ESC - n	Undeline setting
ESC 2	Sets default line spacing
ESC 3 n	Line pitch setting
ESC ? n	Download character deletion *1, *3
ESC @	Printer reset
ESC A n	Line spacing setting
ESC C n	Sets the page length line mode
ESC D n1 ~ nk NUL	Sets horizontal tab position
ESC E n	Emphasis printing specification/cancellation
ESC J n	Feeds paper in forward direction and prints
ESC K n	Print and backward paper feed
ESC L	Page mode selection
ESC R n	Selects internationl character
ESC S	Line mode selection
ESC T n	Print direction setting in page mode
ESC V n	Right rotation 90° specification/cancellation
ESC W xL xH yL yH dxL dxH dyL dyH	Print area setting in page mode
ESC X m n	Setting the turning time of the motor excitation
ESC ¥ nL nH	Horizontal relative position setting
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 e n	Print and back forward feed paper n lines
ESC s n	Sets printing speed
ESC t n	Character code table selection
ESC { n	Sets/resets updside down printing
ESC DEL n	Nonvolatile memory deletion *1, *3

Command	Content
FS ! n	Kanji printing mode collective specification *2
FS &	Kanji printing mode specification *2
FS * m nL nH d1~dk	High-speed batch image print
FS - n	Kanji underline specification/cancellation *2
FS .	Kanji printing mode cancellation *2
FS 2 c1 c2 d1~dn	User defined character definition *1,*2,*3
FS 9 n	Sets the detection functions
FS C n	Kanji code system selection *2
FS E n	Standard energy setting
FS S n1 n2	Kanji spacing setting *2
FS W n	Specify/cancel double-tall, double wide Kanji characters *2
FS r n	Reply parameter setting
GS ! n	Character size setting
GS $ nL nH	Vertical absolute position setting in page mode
GS & m x yL yH d1~dn	Download image definition *1, *3
GS ' m n	Download image print *3
GS (E pL pH fn a b8 ~ b1 (fn=3)	Memory switch setting *1
GS (E pL pH fn a (fn=4)	Memory switch transmission
GS (E pL PH fn d1 ~ d9 (fn=67)	RS-232C communication setting *1
GS (E pL pH fn d1 ~ d9 (fn=68)	USB communication setting *1
GS (E pL pH fn a (fn=73, a=5)	Mark width setting *1
GS (E pL pH fn a n(fn=72, a=1)	Language model setting *1
GS (E pL pH fn a (fn=72, a=1)	Language model transmission
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 (I pL pH fn a (fn=65, a=65)	Firmware information transmission
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 H n	HRI character printing position selection
GS L nL nH	Left margin setting
GS V m n	Cut paper
GS W nL nH	Sets print area width
GS ¥ nL nH	Vertical relative position setting in page mode
GS a n	Set auto status transmission
GS e m n	Sets bar code width
GS f n	HRI character font selection
GS h n	Barcode height setting
GS k m n d1~ dn	Bar code print

Command	Content
GS k m k1 k2 k3 k4 {p1 d(1,1) ~ d(1,j)} ~{pi d(i,1) ~ d(i,j)} NUL	QR code print
GS k m k1 k2 k3 k4 nL nH d1~ dn	PDF417 code print
GS k m n k pL pH d1~dp	Bar code (GS1 DataBar) print
GS k m n k1 k2 k3 k4	Bar code (GS1 DataBar) setting
GS w n	Bar code width magnification setting

*1: Makes write/erase to the nonvolative memory.
*2: Only the model equipped with the Kanji character corresponds.
*3: Only the model equipped with the extended nonvolatile memory.

Contact

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