

24V DRIVEN RECEIPT, TICKET PRINTER

3" KIOSK PRINTER UNIT

FTP-639USL010/011

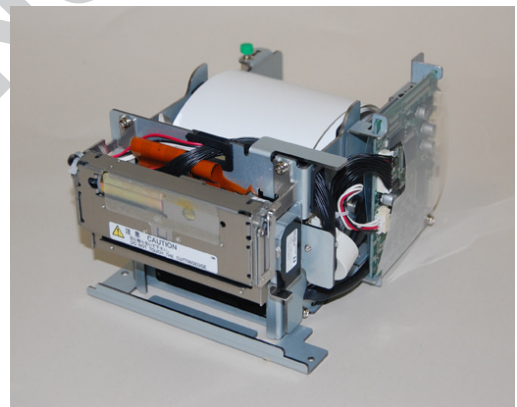
■ OVERVIEW

The FTP-639USL Series is 24V driven receipt printer unit with cutter for 3 inch wide paper. The unit has our high-speed FTP-639MCL mechanism, cutter and control board, with an integrated paper feed and built-in paper guide section.

The receipt printer unit is most suitable for applications such as Kiosk, ATM, receipt, label, and ticket issuing printers for various other equipment.

■ FEATURES

- Medium duty unit (mounting is easy)
- Ultra high speed printer (150/200mm / sec.)
- Auto cutter included
- Paper near end-detection function
- Up to 3.25 inch paper diameter
- Drop-in paper loading
- Low power consumption
- Printer double tilt function
- Prints 2-D barcodes



■ DESIGNATION

	Item	Part Number
Printer module interface	USB (Ver. 1.1)	FTP-639USL010*
	Serial (RS-232C)	FTP-639USL011*
Cables	USB Interface	FTP-629Y301
	Serial Interface	FTP-629Y302
	Power for logic, head, motor	FTP-629Y601

*: Interface board is FTP-629DSL100 series

■ SPECIFICATIONS

Item		Specifications
Part number		FTP-639USL010/011
Printing method		Thermal-sensitive line dot method
Dot structure		576 dots/line
Dot pitch (Horizontal)		0.125 mm (8 dots/mm)—Dot density
Dot pitch (Vertical)		0.125 mm (8 dots/mm)—Line feed pitch
Effective printing area		72 mm
Paper width		80 ⁺⁰ ₋₁ mm
Paper thickness		60 to 100 μm
Paper print length		50 to 250mm
Cutting type		Full or partial
Number of columns		48 columns/line (12×24 dot font)
Maximum printing speed		1600 dotlines/s (200 mm/s)
Page mode	Ultra high speed mode	150mm/sec with automatic division
	Middle speed mode	80mm/sec. without automatic division
	High speed mode	125 mm/sec.without automatic division
	Ultra high speed mode	200 mm/sec.without automatic division
Character types		Alphanumeric KANA: 159 International characters: 195 JIS KANJI (FTP-622DSL107, DSL112): approximately 6800
Character composition, dimensions (H×W), Number of characters		24 × 12 dots, (3.0 × 1.5 mm), 48 columns 24 × 24 dots, (3.0 × 3.0 mm), 24 columns 16 × 8 dots, (2.0 × 1.0 mm), 72 columns 16 × 16 dots, (2.0 × 2.0 mm), 36 columns OCR I: 24 × 40, 24, 24 columns OCR III: 24 × 48, 24 columns OCR IV: 36×60, 16 columns Expanded: 24×48, 24 columns
Interface		Serial RS232C, USB
Power supply	For head	24VDC ± 5%, Voltage Current : average*1 (): Peak 12.5% printing ratio TBA (2.09) A (at 200 mm/s printing speed) TBA (1.05) A (at 125 mm/s printing speed) TBA (1.05) A (at 80 mm/s printing speed) TBA (0.53) A (at 150mm/s printing speed, automatic division)
	For print motor	24VDC ± 5%, 1.1 A maximum
	For cutter	24VDC ± 5%, 1.2 A maximum
	For logic	5VDC ± 5%, 0.2 A maximum (converted from 24V)

(Continued)

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Item		Specifications
Dimensions		141.1(W) × 185.5(D) × 104(H) mm
Weight (mechanism, cutter, board, frame)		Approximately 850g
Expected life	Mechanism	Pulse durability : 100 million pulse/dot (using Fujitsu's standard driving method) Wear resistance: 100 km (at 12.5% printing ratio)
	Cutter	500,000 cuts
Environmental conditions	Operating temperature	0°C to +50°C
	Operating humidity	20 to 80% RH (no condensation)
	Storage temperature	-20°C to +60°C (excluding paper)
	Storage humidity	5 to 90% RH (no condensation)
Detection	Head temperature	By thermistor (applied energy control, abnormal temperature detection)
	Paper out/Mark detect	By photointerrupter
	Platen open	By microswitch
	Near end paper	By mechanical switch
Recommended thermal sensitive paper		For front insertion use (80 mm width) : FTP-030P0701/P0102 Recommended papers · Oji Paper : PD150R,PD160R-N,PD170R · NIPPON Paper : TF50KS-E,TF60KS-E,TF50KS-E4 · MITSUBISHI Paper Mills : P220VBB-1,AFP-233
Paper diameter	Standard	83mm

*1: 24VDC, minimum head resistance.

■ FUNCTIONS

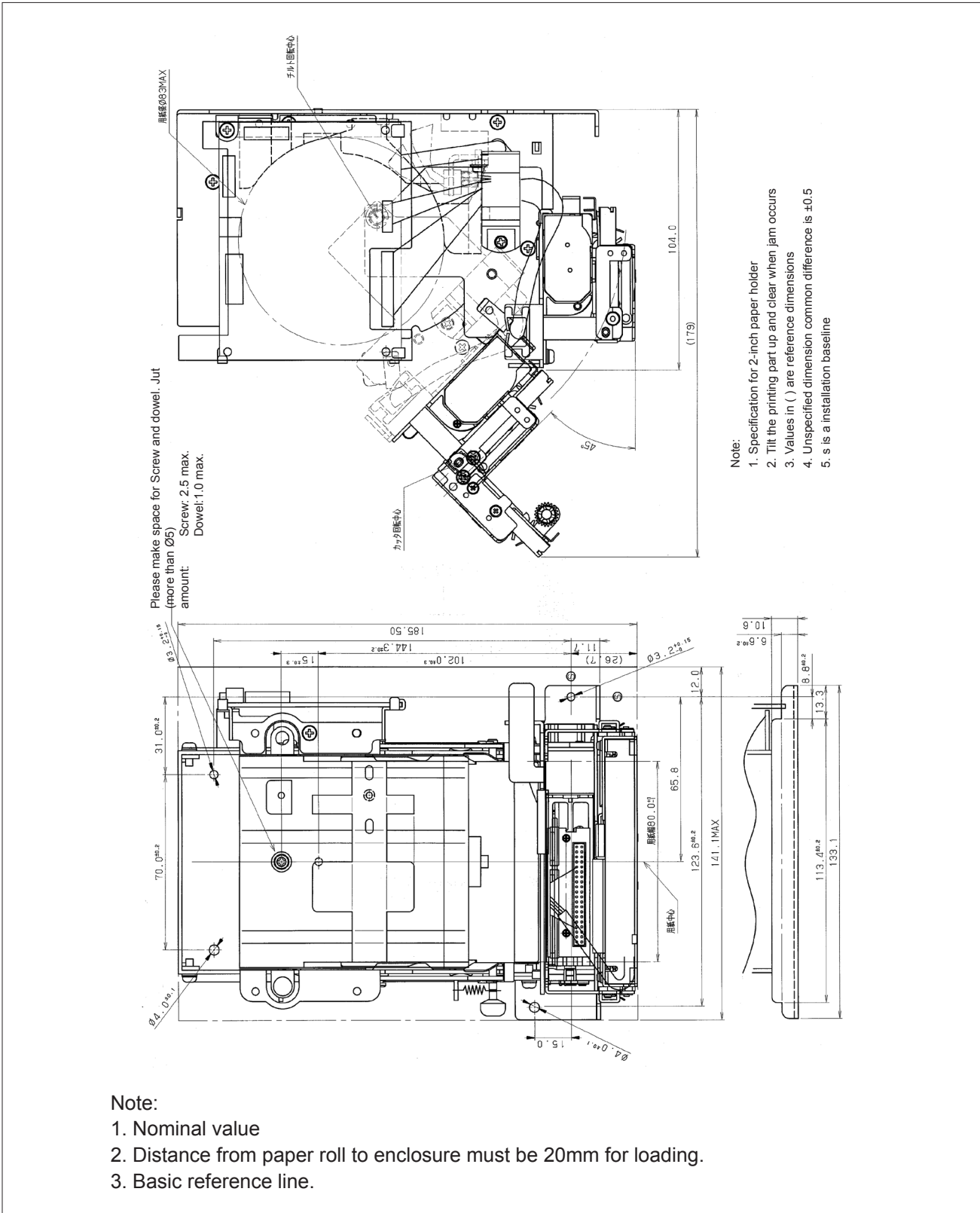
Item	Item
1. Test print function	9. Internal RAM abnormality detection
2. Paper feed	10. Cutter abnormality detection
3. Paper out detection	11. Mark detection
4. Paper near end detection	12. MCU operation abnormality detection
5. Platen open detection	13. Motor power saving
6. Thermal head temperature abnormality detection	14. Power supply disconnection protection
7. Motor temperature detection	15. Motor protection
8. Voltage abnormality detection	16. Thermal head protection

■ INTERFACE , COMMAND, OPTIONS

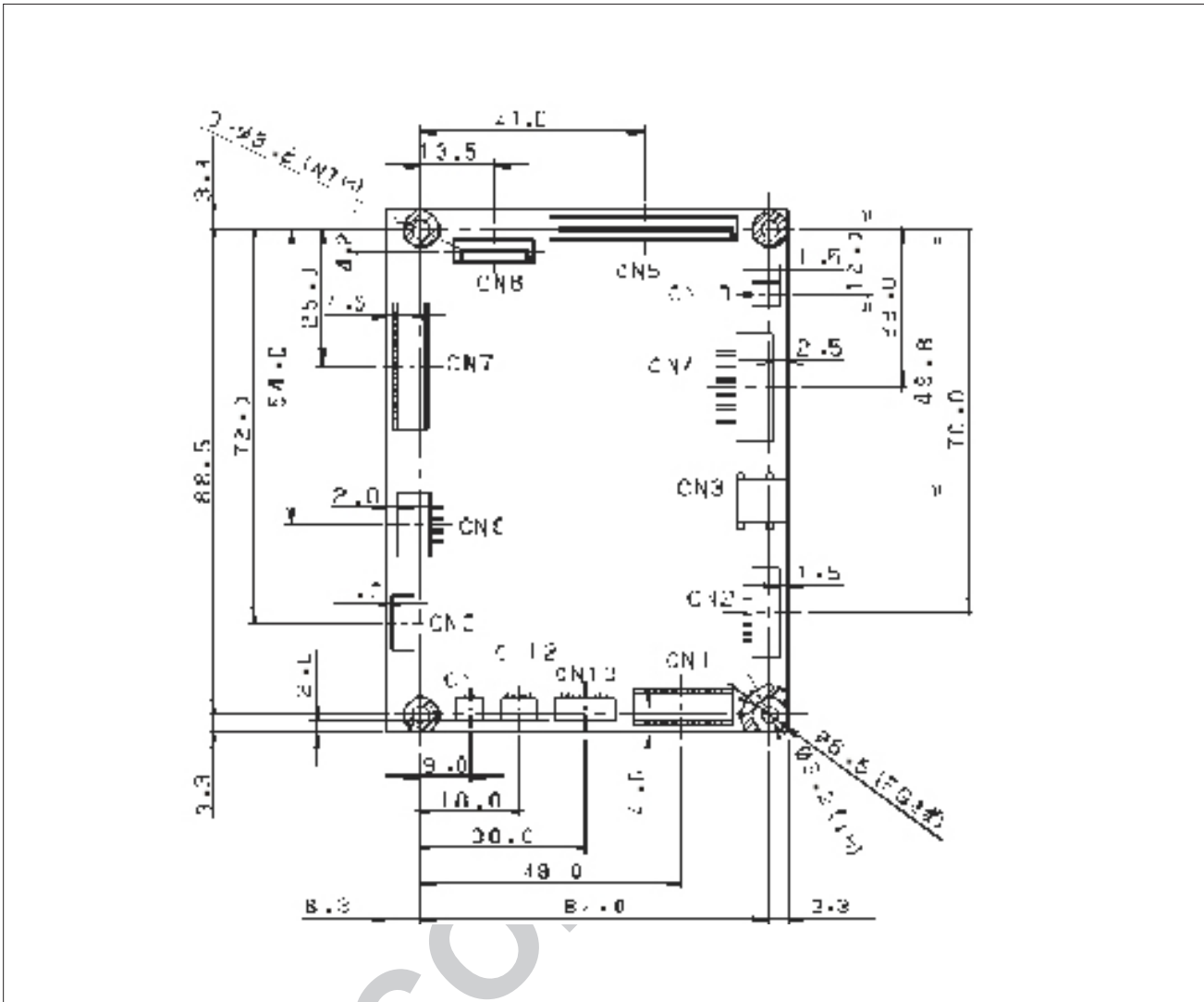
Please refer to the FTP-629DSL100 series. Interface command options, please see FTP-609 datasheet.

■ DIMENSIONS

Integrated unit



1.2 Control Board



1.3 Types of Connectors on Control Board

No.	Name	Funtion	Remark
CN2	Control signal connector	Connection for control signal interface	for internal
CN3	USB I/F connector	Connection for USB interface	
CN4	+24V power connector	Connection for +24V power supply	
CN7	Head/Paper conveyance motor connector	Connection for thermal head / paper conveyance motor	for internal
CN8	Paper cutter connector	Connection for paper cutter	for internal
CN10	Near end sensor connector	Connection for near end sensor	for internal

Note: CN1, 5, 6, 9, 11, 12, 13 are not mounted

1.4 Connector Construction

Types and pin configurations of several connectors. Data direction is a look from the interface board.

(1) CN3 USB Interface

1.3 Pin Configuration of Input/Output Signals

(1) CN2 Connector type: UX60-MB-5ST (Hirose Electric)

(2) Connector Pin Configuration

No.	Signal Name	Direction	Function
1	VBUS	Input	Bus power supply
2	D-	Input/Output	Deferential data input/output D-
3	D+	Input/Output	Deferential data input/output D+
4	N.C.	-	No Connection
5	GND	-	Signal ground

Notes: 1) Input/Output direction indicate directions from printer.

2) For the connector of the other side, use an UX40-MB-5P (Hirose Electric) or equivalent

(2) Pin layout CN4 (+24V power connector)

Connector type

Board side: S6B-XH-SM4-TB(LF)(SN) (made by J.S.T.)

Other side: XHP-6 (made by J.S.T.)

No.	Signal Name	Explanation	Data Direction
1	+24V	+24V power supply	Input
2	+24V	+24V power supply	Input
3	+24V	+24V power supply	Input
4	GND	Ground of power supply	-
5	GND	Ground of power supply	-
6	GND	Ground of power supply	-

■ COMMANDS

Command	Contents
HT	Moves print position to the next tab.
LF	Line feed.
FF	Feeds forms (new page).
ESC FF	Data printing in page printing mode.
ESC EM+n	Setting the amount of the feeding at automatic paper feed.
ESC 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.
ESC R+n	Selects international character.
ESC S+n	Line printing mode.
ESC T+n	Print direction setting (only page mode).
ESC V+n	Right Rotation 90° specification / cancellation.

Commands continued

Command	Contents
ESC W+X1+X2+1+Y2+dX1+dX2+dX1+dY2	Page printing mode printing area setting.
ESC X+m+n	Setting the turning time of the motor excitation.
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 {+n	Sets/resets upside down printing.
FS !+n	Kanji printing mode collective specification.
FS &	Kanji printing mode specification.
FS_+n	Kanji underline specification/cancellation.
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+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.

Commands continued

Command	Contents
GS \$ + n1 + n2	Vertical absolute position specification in page printing mode.
GS & +m + x + y1 + y2 + d1 to dn	Registered bit image definition.
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+m	Angle setting of bar code.
GS E+n	Sets print quality.
GS H+n	HRI character printing position selection.
GS l+n+m	Printer ID registration
GS L+n1+n2	Left margin position setting.
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 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)] ~ [d(1,i)] ~ {[pi][d(i,1)]~[d(i,j)]} [00]16	Print of 2Dcode (QR).
GS k+m+k1+k2+k3+k4+k5+d1~dn	Print of 2 Dcode (maxi).
GS k+m+k1+k2+k3+k4+k5+k6+d1~dn	Print of 2 Dcode (PDF417).
GS w+n	Sets bar code length.

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

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