

24V DRIVE, FTP-609 SERIES

ULTRA HIGH SPEED (200mm/s)

3" TYPE MECHANISM (Cutter option)

FTP-639MCL103/383-R

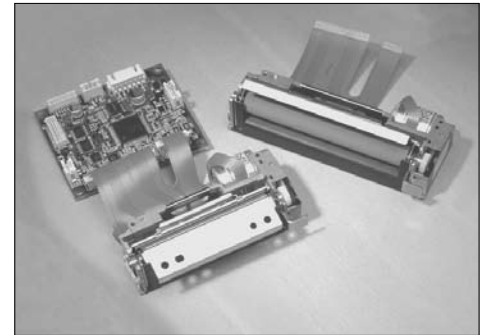
■ OVERVIEW

The FTP-609MCL Series thermal printer (driven by 24VDC) provides ultra-high speed printing (200mm/s) for 2-inch and 3-inch wide paper.

This series is suitable for a variety of applications, such as POS/ ECR, kiosk terminals, ticket machines, label printers, banking machines, measuring devices, medical equipment, etc.

■ HIGHLIGHTS

- **Ultra high speed printing**
It can print at 200 mm/s (1600 dotlines/s) maximum by using Fujitsu Components' unique head drive control.
- **High resolution**
8 dots/mm head provides clear print out.
- **ELM (Easy Loading Mechanism) with lock type**
Fujitsu Components' unique platen release mechanism allows easy paper setting and easy head maintenance.
- **Auto Cutter**
Printer with auto cutter (full cut/ partial cut) is available. It can be mounted on top of the mechanism.
- **Multi-featuring diecast frame**
By application of multi-featuring diecast frame, continuous print by function of heat-sink, high ESD stand by function of earth frame and shock/vibration stand by function of solid frame are valid.
- **Compact size**
Depth: 40.5mm, width: 82.2mm, height: 20.5mm for the 2-inch model. The 3-inch model has a width of 104.2mm
- **RoHS compliant**



FTP-6x9MCL103R with FTP-629DCL014R

FTP-639MCL103/383-R

■ PART NUMBERS

Name		Part Number		
Printer mechanism	Detachable platen	FTP-639MCL103R	FTP-639MCL105R	FTP-639MCL103R
Mechanism with cutter	Detachable platen	FTP-639MCL383#01/#02R*	TBA	FTP-639MCL383#01/#02-R
LSI		FTP-629CU101R	FTP-629SR201	FTP-629CU301R
Interface board	Parallel	FTP-629DCL014R	FTP-629DSL181R*	
	Serial (RS232C)	FTP-629DSL034R	FTP-629DSL181R*	FTP-629DSL301R
	USB	---	FTP-629DSL112R	FTP-629DSL301R
Thermal head cable extension		---	FTP-629Y001	---
Interface cable (board to mechanism)	Parallel	FTP-628Y202		---
	Serial	FTP-628Y302	FTP-629Y302	
	USB	---	FTP-629Y301	
Power supply cable	Logic	FTP-629Y401	---	---
	Head, motor	FTP-629Y601		FTP-629Y602

*1: #01 is for full cut, #02 is for partial cut

*2: Interface is selectable by DIP switch

■ GENERAL SPECIFICATIONS

Item		Specifications	
Part number		FTP-639MCL103/105-R	FTP-639MCL383#01/#02-R
Printing method		Thermal sensitive line dot method	
Dot structure		576 dots/line	
Dot pitch (horizontal)		0.125mm (8dots/mm) - Dot density	
Dot pitch (vertical)		0.125mm (8dots/mm) - Line feed pitch	
Effective printing area		72 mm	
Number of columns		ANK 48 columns/line (12 x 24 dot font)	
Paper width		80mm +0/-1	
Paper thickness		60 to 150μm (there may be exceptions)	
Cutting type		---	ELM full or partial
Printing speed	FTP-629DCL/DSL series	80mm/sec. (640 dot lines/sec.) line mode 200mm/sec. (1600 dot lines/sec.) image mode	
	FTP-629DSL100 series FTP-629DSL300 series	125mm/sec. (1000 dot lines/sec.) line mode 200mm/sec. (1600 dot lines/sec.) page mode	
Character types	Alphanumeric, Kana:	159 types	159 types
	International:	195 types	195 types
	JIS Kanji (Kanji CG loaded board):	about 6,800 types	about 6,800 types
	OCRI		103 types
	OCRIII		23 types
	OCRIV		103 types
Extended numeric		11 types	
Character, dimensions (WxH), number of columns	24x12 dots, (3.0x1.5mm)	48 columns	24 columns, OCRI
	16x16 dots, (2.0x2.0mm)	24 columns	24 columns, OCRIII
	24x24 dots, (3.0x3.0mm)	72 columns	16 columns, OCRIV
	8x16 dots, (1.0x4.0mm)	36 columns	24 columns, extended numeric
Interface standard		Centronics / RS232C /USB	Serial/USB

FTP-639MCL103/383-R

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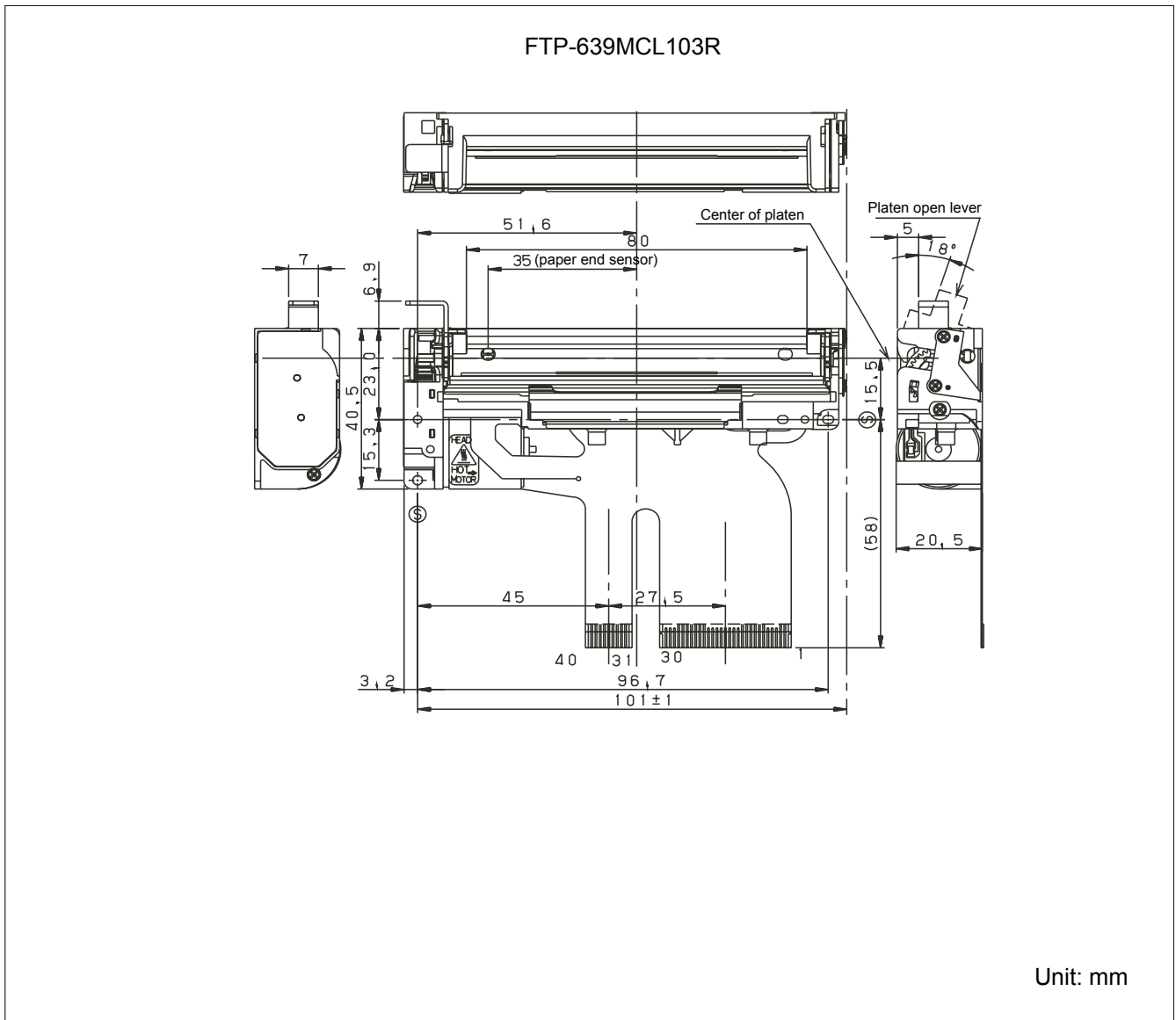
Item		Specifications	
Part number		FTP-639MCL103/105-R	FTP-639MCL383#01/#02-R
Power supply	For head	24 VDC ±5%, 1.9A (4A) (24V, 25% printing ratio)	
	For printer motor	24 VDC ±5% 1A maximum	
	For cutter motor	---	24 VDC ±5% 1A maximum
	For logic	5 VDC ±5% 0.2A maximum	
Dimension W x D x H	Printer mechanism	104.2 x 40.2 x 20.5mm	---
	Printer mechanism with cutter	---	112.5 x 70.3 x 37.4mm
	Interface board (std speed)	70 x 60 x 24mm	
	Interface board (medium speed)	95.1 x 73.6 x 18.6mm	
	Interface board (high speed)	77 x 50 x 21.5mm	
Weight	Printer mechanism	Approximately 125g	---
	Printer mechanism with cutter	---	Approximately 350g
	Interface board (std)	Approximately 30g	
	Interface board (medium speed)	Approximately 45 g	
	Interface board (high speed)	Approximately 22g	
Life	Head	Pulse durability: 1×10^8 pulse/dot (using Fujitsu's standard driving method) Wear resistance: 100km (at 12.5% print ratio)	
	Cutter	---	500,000 cuts minimum
	Platen	5,000 times (open/close)	
Environmental conditions	Operating temperature	-25°C to +70°C (guarantee)	0°C to +50°C (guarantee)
	Operating humidity	20 to 85% RH (no condensation)	
	Storage temperature	-40°C to +85°C	-20°C to +60°C
	Storage humidity	5 to 95% RH (no condensation)	
Detection	Head temperature	By thermistor	
	Paper out/Mark detect	By photointerruptor	
	Head release	By slide switch	
Recommended thermal sensitive paper	High sensitive paper	TF50KS-E4 (Nippon paper)	
	Standard paper	TF60KS-E2 (Nippon paper), FTP-030P0104 (80mm) PD150R (Oji paper), FTP-030P0701 (80mm)	
	Medium life storage paper	TF60KS-F1 (Nippon paper), FTP-030P0102 (80mm) PD170R (Oji paper) P220VBB-1 (Mitsubishi paper) PD160R-N (Oji paper)	
	Long life storage paper	AFP-235 (Mitsubishi paper) TP50KJ-R (Nippon paper) HA220AA (Nippon paper)	

■ FUNCTION

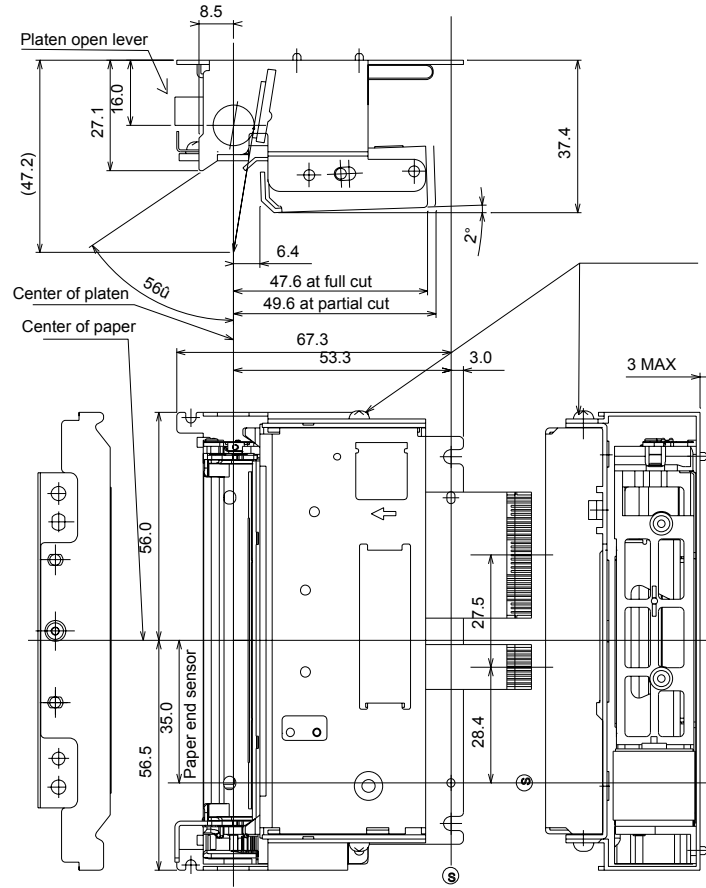
ITEM		ITEM	
1.	Test printing	8.	Cutter trouble detection
2.	Paper-out detection	9.	Motor power save
3.	Paper near end detection	10.	Mark detection
4.	Head-up detection	11.	MCU trouble detection
5.	Abnormal temp. of thermal head detection	12.	Power on/off sequence protection
6.	Blown fuse detection	13.	Motor protection
7.	Abnormal voltage detection of head	14.	Hardware timer

■ DIMENSIONS

1. Printer mechanism



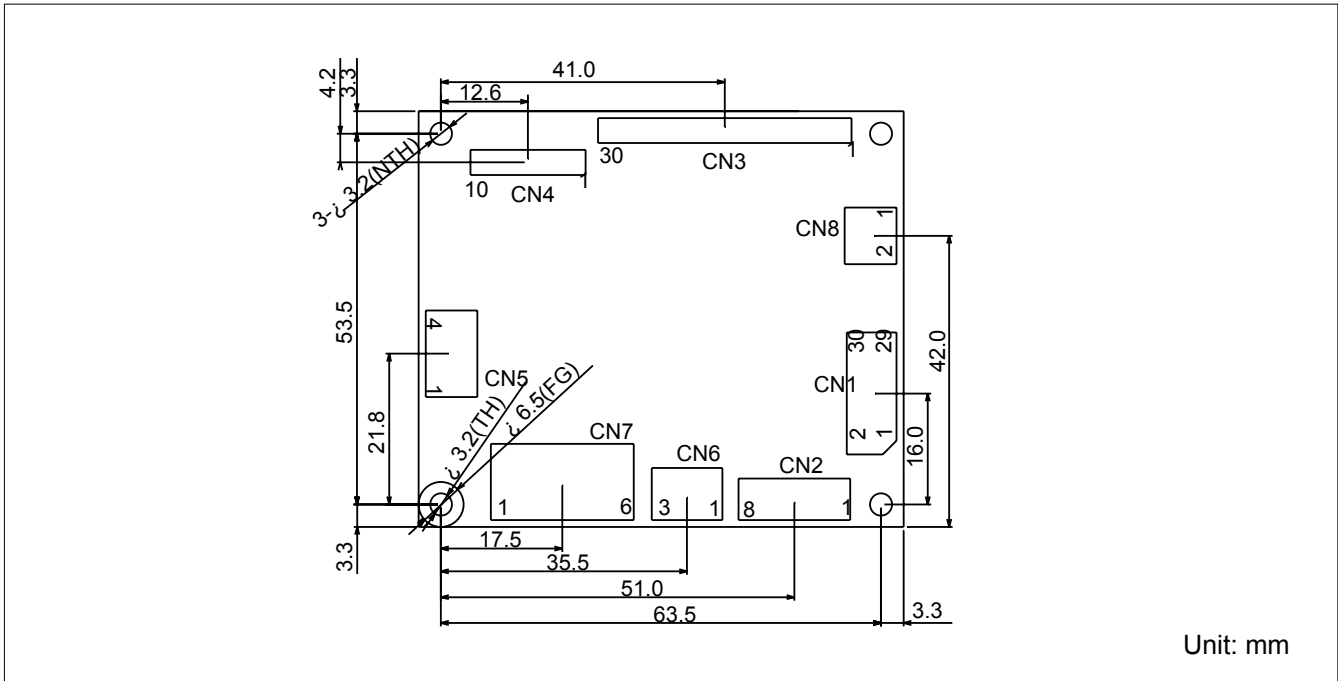
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Unit: mm

Unit: mm

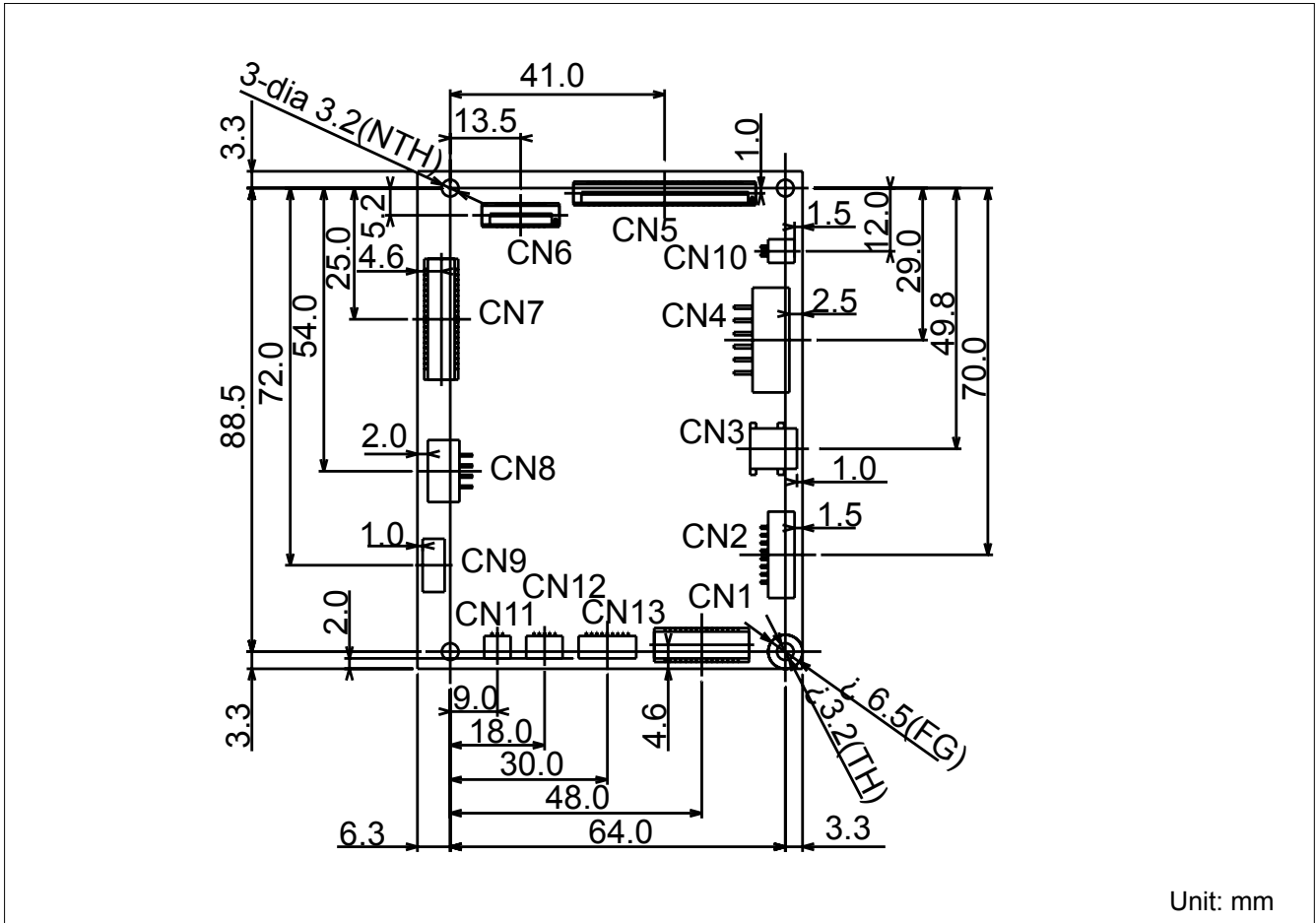
Interface board - FTP-629DCL/DSL0XX-R



Connectors on Control Board - FTP-629DCL/DSL0XX-R

No.	Name	Function
CN1	Centro I/F Connector	Connection for Centronics Interface
CN2	RS-232C I/F Connector	Connection for RS-232C Interface
CN3	Thermal Head Connector	Connection for Thermal Head (FPC)
CN4	Printer Motor Connector	Connection for Printer Motor (FPC)
CN5	Cutter Connector	Connection for Paper Cutter
CN6	Logic Power Connector	Connection for +5V Power Supply
CN7	Head Motor Power Connector	Connection for +24V Power Supply
CN8	Near End Sensor Connector	Connection for Near End Sensor

3. Control Board - FTP-629DCL/DSL100-R Series



Connectors on Control Board - FTP-629DSL100-R Series

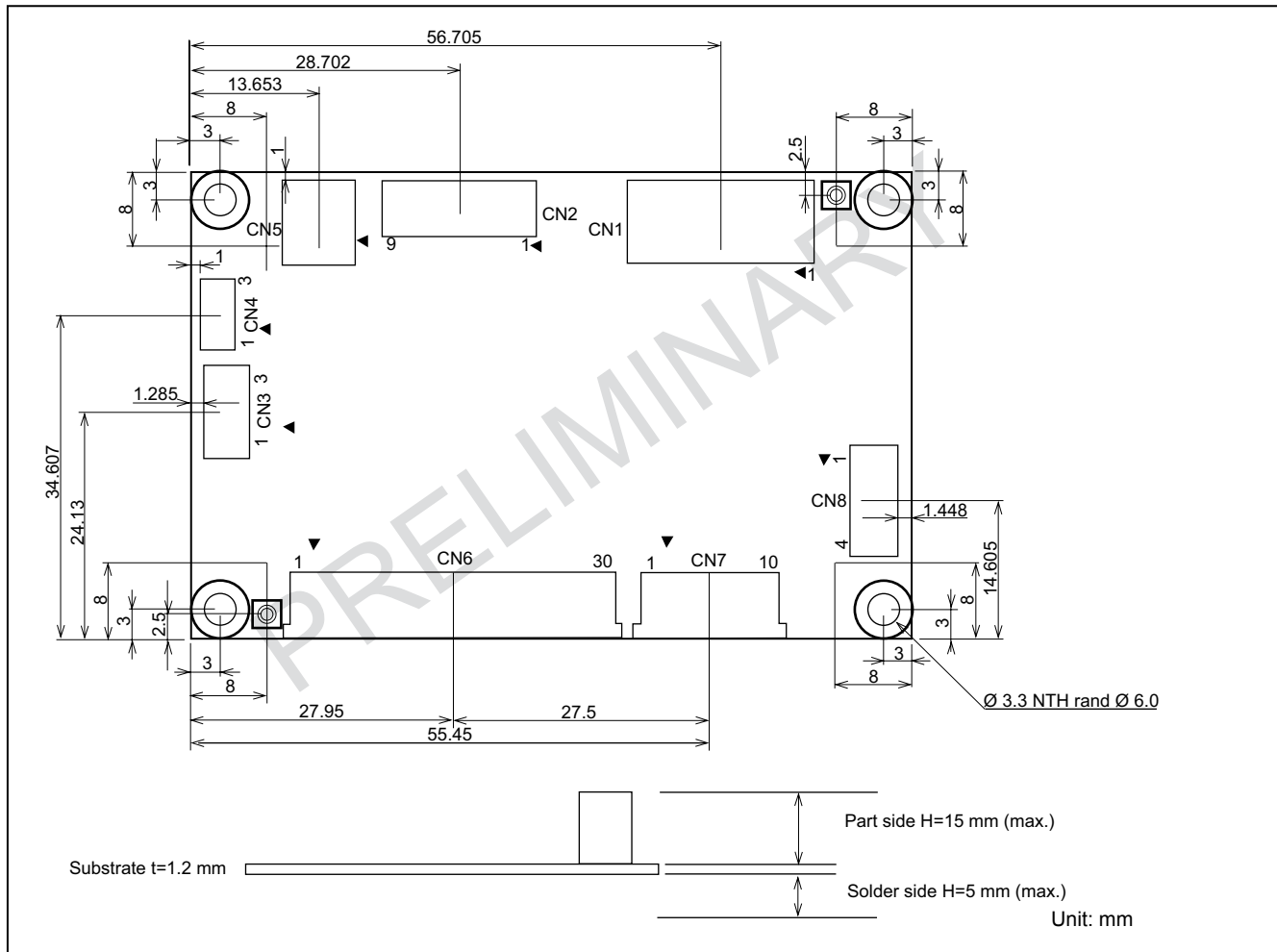
No.	Name	Function	Remark
CN1	Centro I/F Connector	Connection for Centronics Interface	
CN2	RS-232C I/F Connector	Connection for RS-232C Interface	
CN3	USB I/F Connector	Connection for USB Interface	
CN4	Power Connector	Connection for +24V Power Supply	
CN5	Thermal Head Connector	Connection for Thermal Head (FPC)	* 1
CN6	Printer Motor Connector	Connection for Printer Motor (FPC)	* 1
CN7	Head/Motor Connector	Connection for Thermal Head/Printer Motor	* 1
CN8	Cutter Connector	Connection for Paper Cutter	
CN9	Conveyance Motor Connector	Connection for Conveyance Motor	
CN10	Near End Sensor Connector	Connection for Near End Sensor	
CN12	Mecha-Tilte/Mark Sensor Connector	Connection for Mecha-Tilte/Mark Sensor	
CN13	Conveyance Motor Connector	Connection for Conveyance Motor	

*1: When CN5 and CN6 are mounted, CN7 is not mounted. When CN7 is mounted, CN5 and CN6 are not mounted.

Interface boards for FTP-629DSL300-R Series

EXTERNAL DIMENSION SPECIFICATIONS

1. External Dimension Chart of the Control Board



2. Connector Types on Control Board

No.	Name	Function	Remarks
CN1	Power connector	To connect +24V and +5V power supply	-
CN2	Connector for RS-232C interface control signal connection	To connect RS-232C interface and control signal	depends on models
CN3	Near end switch connector	To connect Near End detection switch	-
CN4	Reserved connector	-	
CN5	USB interface connector	To connect USB interfaces	depends on models
CN6	Head connector	To connect the head	
CN7	Transport motor connector	To connect the transport	
CN8	Cutter connector	To connect the cutter	depends on models

■ CONNECTOR PIN ASSIGNMENT OF PRINTER MECHANISM (FPC)

1. Thermal head control circuit side

Part number : 52610-3090 (Molex) or equivalent

No	Signal	I/O	Contents	No	Signal	I/O	Contents
1	SW	O	Platen open switch	2	SW	-	Platen open switch
3	VH	-	Power for thermal head	4	VH	-	Power for thermal head
5	VH	-	Power for thermal head	6	VH	-	Power for thermal head
7	DI	I	Data in	8	$\overline{\text{STB3}}$	I	Print enable 3
9	$\overline{\text{STB4}}$	I	Print enable 4	10	VDD	-	Power for logic
11	TM	-	Head Thermistor	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	TH	O	Thermistor	22	$\overline{\text{STB1}}$	I	Print enable 1
23	$\overline{\text{STB2}}$	I	Print enable 2	24	$\overline{\text{LAT}}$	I	Print data latch
25	CLK	I	Clock	26	DO	O	Data out
27	VH	-	Power for thermal head	28	VH	-	Power for thermal head
29	VH	-	Power for thermal head	30	VH	-	Power for thermal head

2. Motor, Sensor (CN4)

Connector on circuit side : 52610-1090 (Molex) or equivalent

No.	Signal	I/O	Contents	No.	Signal	I/O	Contents
1	NC	-	Not connected	2	TM	O	Motor temperature sensor
3	TM	-	Motor temperature sensor	4	MT/A	I/O	Motor coil excitation /A
5	MTA	I/O	Motor coil excitation A	6	MT/B	I/O	Motor coil excitation /B
7	MTB	I/O	Motor coil excitation B	8	PHK	-	Paper out sensor cathode
9	VSEN	-	Power for paper sensor	10	$\overline{\text{PHE}}$	O	Paper out sensor emitter

3. Cutter (CN5)

Connector type: B4B-PH (J.S.T.) or equivalent

No.	Signal	I/O	Contents	No.	Signal	I/O	Contents
1	SW1	O	Cutter home position switch	2	SW2	O	Cutter home position switch
3	M+	I/O	Cutter motor drive	4	M-	I/O	Cutter motor drive

■ INTERFACE COMMAND OPTIONS

Please refer to the FTP-629DCL/DSL or FTP-629DCL/DSL 100 series datasheet.

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