MODEL : LK-D10

Mini Dot Impact Printer

Disposal of Old Electrical&Electronic Equipment(Applicable in the European Union and other European countries with separate collection systems)

This symbol on the product or on its packaging indicates that this product shall not be treated as household waste. Instead it shall be handed over to the applicable collection point for the recycling of electrical and electronics equipment. For more detailed information about recycling of this product, please contact your local city office, your household waste disposal service or the shop where you purchased the product.

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1. Features

♣Power Supply Requirements

Either input 120VAC/Output 24VDC 2.5A for North America or Input 230VAC/Output 24VDC 2.5A for Europe with a 3pin mini-din connector power supply is provided.

♣Dip Switch Configuration

Emulation mode, CPL Select mode, Flow Control mode, Data Width/Parity, and Baud Rate are all configured through dip switch settings.

♣Data Buffer

The printer has a built-in 48 Kilobyte I/O buffer allowing the host computer to free itself after sending the print data.

♣Reliable communications

Centronics parallel or RS-232C compatible communications is built-in. The printer supports multiple baud rates, emulations, and handshaking on its parallel & serial interfaces.

♣User controls

A power switch, a paper forward FEED button, a paper BACKward feed button and ON LINE button provide ease of use.

♣Self Test Mode

A comprehensive self-test mode is available which describes the printer configuration and dip switch setting information along with the version number of firmware installed.

♣Print orientation

The printer is capable of printing normal and upside down. The print orientation is selected by software commands.

♣Selectable international characters

The printer supports international characters selectable by software control.

♣Multiple Fonts/Sizes

Two different resident fonts are available for printing diversity. Each of these fonts can be printed in normal, double wide, double height, and quadruple sizes. Both fonts and sizes are selected by software.

♣Error detection

The printer can detect paper-out and paper-jam as well as controller malfunction.

♣Peripheral Drive

Two cash drawer drivers are provided.

♣Certification

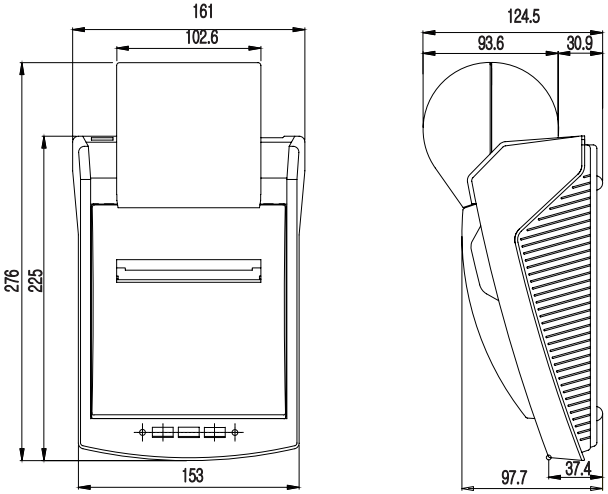
(1) This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
 1) this device may not cause harmful interference , and
 2) this device must accept any interference received , including interference that may cause undesired operation.
(2) UL/cUL (UL 60950-1)
(3) MIC
(4) CE-EMCD (CE-EMCD Class B should use Parallel shield Cable complied with IEEE-1284 standards)
(5) RoHS (TUV)
(6) CCC

2. Specification

Printer Specifications

MODEL		LK-D10	
PRINT METHOD		9-pin serial impact dot matrix	
PRINT DIRECTION		Bi-directional (with logical seeking)	
NO. OF COLUMNS		Epson Mode : 42/35, 40/33, Star Sp-200 : 42/35	
		Other Modes : 40/32	
NO. OF DOTS/LINE		320 dots	400 dots
FONT SIZE		5 x 9, 7 x 9 dots	7 x 9, 9 x 9 dots
LINE SPACING		n/144 inch	
PRINTING WIDTH		63.5mm (2.5")	57.2mm (2.25")
PRINT SPEED		3.5 lines/sec	
INK RIBBON		EPSON, ERC-23 compatible	
		Black or Purple	
PAPER	Media	Roll Paper	Sprocket Fanfold
	Width	76.2mm (3.0")	88.9mm (3.5")
	Diameter	72mm (2.8") max	
	Copies	3-ply max. (0.2mm or 0.008" thick)	
DATA BUFFER		48K bytes	
CASH DRAWER DRIVER		2 circuits (24V, 1A max)	
INTERFACE		RS-232C Serial (25Pin) Parallel (25Pin) Centronics Parallel (36Pin) or RS-232C Serial (9Pin)+MSR	
EMULATION		Epson TM-U200, TM-U300, Citizen iDP-3540	
		Star SP200 Command compatible	
POWER SUPPLY	Type	External Adaptor	
	Input	120VAC(North America) or 230VAC(Europe),	
		110/220V Selectable	
	Output	24VDC 2.5A (North America) or 24VDC 2.5A (Europe)	
OPERATING CONDITION		5°C to 40°C, 10% to 80% RH	
STORAGE CONDITION		-20°C to 60°C, 5% to 95% RH	
RELIABILITY	MCBF	18 million lines	
	Printhead	120 million characters	
DIMENSIONS	Roll Type	161(W) x 282(D) x 126(H)mm	
	Sprocket Type	161(W) x 282(D) x 144(H)mm	
WEIGHT		2.87 lbs (1.3 kg)	

Overall dimension



3. Self Test

1) While pressing the paper FEED switch after the printer in turned on the self test mode is initiated. The printer self test includes a listing of the current default settings and Dip Switch information.

2) While pressing the paper BACK switch after the printer in turned on the self test mode is initiated. The printer self test includes a listing of internal memory test, print head pin firing test, vertical line alignment test, and multiple character fonts/sizes.

3) While pressing the paper ON LINE switch after the printer in turned on the self test mode is initiated. The printer self test includes a listing of multiple international fonts and code pages.
The printer then enters into the On Line mode.

4. Configuration Setup

When the paper FEED switch is pressed and released instantly as the power is applied to the printer, the printer will print the current printer configuration settings along with the DIP switch information. If the printer setup needs to be changed, turn the Power Off before changing the setting.

The printer will be setup at the factory as follows;

```
==========================
Firmware         : Ver X.XX
Loopback         : Not Detected(DSR)
==========================
Interface        :  Serial
Emulation        :  Epson TM-U200
CR Character :  CR = CR only
Flow Control    :  DTR/DSR
Data Bits         :  8 Bits
Parity             :  None
Baud Rate      :  9600
CPL                :  40/33 CHAR/LINE
Two Color       :  Not Installed
Auto Cutter     :  Not Installed
Paper             :  Roll Type
```

```
Dip SW information
==========================
Emulation                SW1
Epson TM-U200        OFF
Citizen iDP3540        ON
 ----------------------------------------
CR Character             SW2
CR = CR Only             OFF
CR = CR + LF             ON
----------------------------------------
CPL                      SW3
40 Char/Line             OFF
30 Char/Line             ON
----------------------------------------
Flow Control             SW4
DTR/DSR                  OFF
Xon/Xoff                 ON
----------------------------------------
Baud Rate                SW5 SW6
9600          OFF OFF
4800                     ON OFF
2400                     OFF  ON
1200                     ON  ON
----------------------------------------
Data Bits/Parity         SW7 SW8
8Bits None                  -  OFF
7Bits Odd                OFF  ON
7Bits Even               ON  ON
==========================
SETUP PRINT END
****************************
PRINTER READY.....
```

5. User Switches

5.1. Panel Switches

FEED button

Advance media in line feed increments if the FEED switch is pressed momentarily.
If the FEED switch is pressed for more than 1 seconds, the media will advance continuously until the switch is released.

BACK button

Feed the media back in each line increment until 20 lines back if the BACK switch is pressed momentarily.
If the BACK switch is pressed for more than 1 second, the media will be fed back continuously up to 20 lines until the switch is released.

ON LINE button

If the switch is pressed, the printer turns to be in OFF LINE mode, and if pressed again, the printer is in ON LINE mode and ready to print.

5.2. Power Switch

A Power switch located on the lower back side of the printer is used to turn the printer ON and OFF.

5.3. Indicators

This section explains the different patterns signaled by the two LED indicators located on the top cover of the Printer.

STATUS	LED1	LED2	REMARKS
	RED	GREEN	
Power Off	OFF	OFF	Normal power is not supplied to the printer
Power On	Flash	ON	Normal power is supplied to the printer
On line	OFF	ON	Normal error-free mode
Paper empty	Flash	ON	Insert new paper roll
Paper jam	ON	OFF	Remove the paper in the printer
Test mode	ON	ON	Printer in self-test mode

6. Command List

6.1. EMULATION EPSON TM-U200

Command	Hex Code	Description
HT	<09>H	Horizontal tab
LF	<0A>H	Print and line feed
CR	<0D>H	Carriage Return
DLE EOT	<10>H<04>H<n>	Real-time status transmission
DLE ENQ	<10>H<05>H<n>	Real-time request to printer
ESC SP	<1B>H<20>H<n>	Set right-side character spacing
ESC !	<1B>H<21>H<n>	Set print mode
ESC %	<1B>H<25>H<n>S	Select/cancel user-defined character set
ESC &	<1B>H<26>H	Define user-defined characters
ESC *	<1B>H<2A>H	Select bit-image mode
ESC -	<1B>H<2D><n>	Turn on/off underline mode
ESC 2	<1B>H<32>H	Select 1/6 inch line spacing
ESC 3	<1B>H<33>H<n>	Set line spacing
ESC <	<1B>H<3C>H	Return home
ESC =	<1B>H<3D>H<n>	Select peripheral device
ESC ?	<1B>H<3F>H<n>	Cancel user-defined characters
ESC @	<1B>H<40>H	Initialize printer
ESC D	<1B>H<44>H<n>	Set horizontal tab positions
ESC E	<1B>H<45>H<n>	Turn on/off emphasized mode
ESC G	<1B>H<47>H<n>	Turn on/off double-strike mode
ESC J	<1B>H<4A>H<n>	Print and feed paper
ESC R	<1B>H<52>H<n>	Select an international character set
ESC U	<1B>H<55>H<n>	Turns on/off unidirectional printing mode
ESC a	<1B>H<61>H<n>	Select justification
ESC c 4	<1B>H<63>H<34>H<n>	Select paper sensor to stop printing
ESC c 5	<1B>H<63>H<35>H<n>	Enable/disable panel button
ESC d	<1B>H<64>H<n>	Print and feed n lines
ESC p	<1B>H<70>H	Generate pulse
ESC t	<1B>H<74>H<n>	Select character code table
ESC {	<1B>H<7B>H<n>	Turn on/off upside-down printing mode
GS I	<1D>H<49>H<n>	Transmit printer ID
GS a	<1D>H<61>H<n>	Enable/disable Automatic Status Back
GS r	<1D>H<72>H<n>	Transmit status

6.2. EMULATION CITIZEN iDP-3540

Command	Hex Code	Description
BEL	<07>H	Drive pulse setting command for 1st drawer
CAN	<08>H	Clear data in buffer
LF	<0A>H	Paper feed
FF	<0C>H<n>	Paper feed n lines
CR	<0D>H	Print command
SO	<0E>H	Select expanded character mode
SI	<0F>H	Select normal character mode
DC1	<11>H	Initial set command
DC2	<12>H	Inverted print mode
DC3	<13>H	Red color print command
ESC BEL	<1B>H<07>H<n>	1st drawer driver command
SUB	<1A>H	2nd drawer driver command
ESC -	<1B>H<2D>H<n>	Select underline mode
ESC *	<1B>H<2A>H<n>	Graphic command
ESC 1	<1B>H<31>H	Set 1/9 inch line feed
ESC 2	<1B>H<32>H<n>	Set 2/9 inch line feed
ESC C	<1B>H<43>H<n>	Set page length
ESC N	<1B>H<4E>H<n>	n line skip perforation command
ESC O	<1B>H<4F>H	Cancel skip perforation command
ESC P	<1B>H<50>H<n>	Select full-cut / partial-cut
ESC f	<1B>H<66>H	Form feed
FS	<1C>H	1st drawer drive command

6.3. EMULATION VERIFONE 900

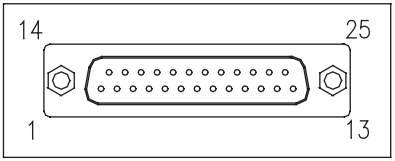
Command	Hex Code	Description
NUL	<00>H	Pad character
CAN	<18>H	Empty print buffer and cancel character attributes
LF	<0A>H	Print and feed one line
FF	<0C>H	Print data in buffer and eject paper to 1.2
CR	<0D>H	Line feed
DC2	<12>H	Change ribbon color
RS	<1E>H	Set double width mode or
SO	<0E>H	Select high page mode
US	<1F>H	Set normal width mode or
SI	<0F>H	Select ASCII character set
ESC a	<1B>H<61>H<n>	Set line height to n dots
ESC b	<1B>H<62>H<n>	Eject paper n lines
ESC c	<1B>H<63>H	Reset printer to power-up state
ESC d	<1B>H<64>H	Request printer status
ESC e	<1B>H<65>H<n>	Set right margin
ESC f	<1B>H<66>H<n>	Select line attributes
ESC g	<1B>H<67>H	Activate graphic mode
ESC h	<1B>H<68>H	Select character set
ESC I	<1B>H<69>H	Printer identification
ESC x	<1B>H<78>H	Enter P900R emulation mode
FS	<1C>H	Enter P250 emulation mode
GS	<1D>H	Enter P200 emulation mode

6.4. EMULATION STAR SP200

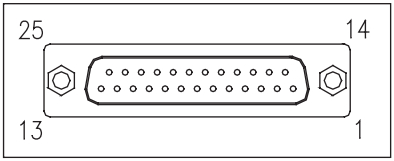
Command	Hex Code	Description
BEL	<07>H	Differed drive command "A" for peripheral unit (Default setting)
CAN	<18>H	Cancel print data in buffer
LF	<0A>H	Line feed
CR	<0D>H	Line feed (same as LF)
SO	<0E>H	Select expanded character mode
SI	<0F>H	Cancel expanded character mode
FS	<1C>H	Immediate drive command "B" for peripheral unit 1
DC4	<14>H	Cancel expanded character mode
ESC BEL n1 n2	<1B>H<07>H<n1> <n2>	Adjust drive pulse width for peripheral unit (Default setting)
ESC @	<1B>H<40>H	Initialize printer
ESC M	<1B>H<4D>H	Select 7 x 7 (Half dots) character size (Default setting)
ESC R n	<1B>H<52>H<n>	Select international character set
ESC P	<1B>H<50>H	Select 9 x 7 (Half dots) character size
ESC W 1	<1B>H<57>H<31> H<1B>H<57>H<1>	Select expanded character mode
ESC W 0	<1B>H<57>H<37> H<1B>H<57>H<0>	Cancel expanded character mode
ESC a n	<1B>H<61>H<n>	Feed paper n lines

7. Interface

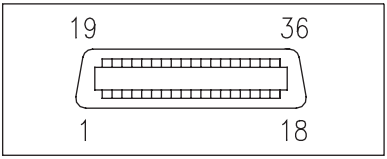
The tables below describe the type of socket and the function of each pin.



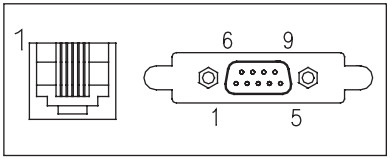
<D-SUB 25 Female Serial Port>



<D-SUB 25 Male Parallel Port>



<D-SUB Centronics Parallel Port>



<D-SUB 9 Female Serial + MSR Port>

7.1. Serial interface

7.1.1. D-SUB 25Pin Serial Port

PIN	SIGNAL	I/O	DESCRIPTION
2	TXD	Output	Printer transmit data line RS-232C level
3	RXD	Input	Printer receive data line RS-232C level
4, 20	DTR	Output	Printer handshake to host line RS-232C level
6	DSR	Input	Data Send Ready
1, 7	GND	-	System Ground

7.1.2. D-SUB 9Pin Serial Port

D-SUB 9Pin (Serial)

PIN	SIGNAL	I/O	DESCRIPTION
2	RXD	Input	Printer receive data line RS-232C level
3	TXD	Output	Printer transmit data line RS-232C level
4, 7	DTR	Output	Printer handshake to host line RS-232C level
5	GND	-	System Ground
6	DSR	Input	Data Send Ready
1,8,9	NC	-	

RJ-11 Connector (MSR)

PIN	SIGNAL	I/O	DESCRIPTION
1	GND	-	System Ground
2	RDD	Input	Read Data
3	VCC		
4	RCP	Input	Read Clock Pulse
5	CPD	Input	Card Present Detect
6	GND	-	System Ground

7.2.Parallel interface

7.2.1. D-SUB 25Pin Parallel Port

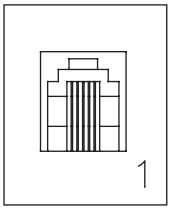
PIN	SIGNAL	I/O	DESCRIPTION
1	STROBE-	Input	Synchronize signal Data received
2-9	DATA0-7	Input	Data bit Transmitted 0 – 7
10	ACK-	Output	Data receiving competed
11	BUSY	Output	Impossible to printer data receiving
12	PE	Output	Paper empty
13	SELECT	Output	Printer's status for ON/OFF line
14	AUTO FD-	Input	No connection
15	ERROR-	Output	Printer error
16	INIT-	Input	Initialize
17	SELECT IN-	Input	No connection
18-25	GROUND	-	System Ground

7.2.2. Centronics Parallel Port

PIN	SIGNAL	I/O	DESCRIPTION
1	STROBE-	Input	Synchronize signal Data received
2-9	DATA0-7	Input	Data bit Transmitted 0 – 7
10	ACK-	Output	Data receiving competed
11	BUSY	Output	Impossible to printer data receiving
12	PE	Output	Paper empty
13	SELECT	Output	Printer's status for ON/OFF line
14	AUTO FEED-	Input	ND
15	GROUND	-	System Ground
16	GROUND	-	System Ground
17	NC	-	
18	LOGIC-H	-	+5V
19-30	GROUND	-	System Ground
31	INIT-	Input	Initialize
32	ERROR-	Output	Printer Error
33	GROUND	-	System Ground
34	NC	-	
35	+5V	-	+5V
36	SELLECT IN-	Input	ND

8. Cash Drawer Connector

The printer can operate two cash drawers with a 6 pin RJ-11 modular connector.
The driver is capable of supplying a maximum current of 1.0Amp at 24VDC for 510 ms or less, when not printing.

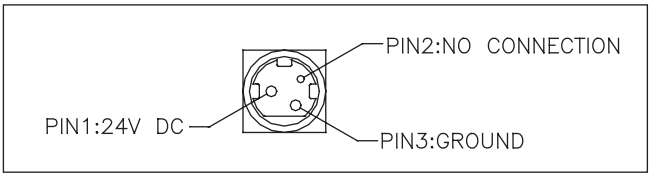


<Cash Drawer Connector>

PIN	SIGNAL	DESCRIPTION
1	Signal GND	-
2	Drawer kick-out drive signal 1	Output
3	Drawer open/close signal	Input
4	+24V	-
5	Drawer kick-out drive signal 2	Output
6	Signal GND	-

9. Power Supply

The printer requires an external power supply with the power rating of 24VDC/2.5A with Input 120VAC for North America or 24VDC/2.5A with Input 230VAC for Europe.
A power supply is included in the box.



<Power Supply Connector>

10. Dip Switch Settings

This table gives the definition for the DIP switch settings.

10.1. External Dip Switch

	Function	Setting	SW1	SW2	SW3	SW4	SW5	SW6	SW7	SW8	Factory setting
SERIAL	Emulation (*1)	Epson TM-U200 Citizen iDP3540 (TM-300) (Star SP200)	OFF ON (OFF) (ON)								Epson TM-U200
	CR	CR Only CR + LF		OFF ON							CR only
	CPL	40/33 Char/Line 42/35 Char/Line			OFF ON						40/33 Char/Line
	Flow Control	DTR/DSR Xon/Xoff				OFF ON					DTR/DSR
	Baud Rate	9600 4800 2400 1200					OFF ON OFF ON	OFF OFF ON ON			9600
	Data Bits /Parity	8 Bits None 7Bits Odd 7Bits Even							- OFF ON	OFF ON ON	8 Bits None
PARALLEL	Emulation (*1)	Epson TM-200 Citizen iDP3540 (TM-300) (Star SP200)	OFF ON (OFF) (ON)								Epson TM-U200
	CR	CR Only CR + LF		OFF ON							CR only
	CPL	40/33 Char/Line 42/35 Char/Line			OFF ON						40/33 Char/Line

(*1) The emulation set of Epson/Citizen or TM-300/Star can be selected by SW #4 of an internal 6-pole DIP Switch on the controller.
-Epson/Citizen : OFF
-Verifone/Star : ON

10.2. Internal Dip Switch

Function	Setting	SW1	SW2	SW3	SW4
Paper Type	Roll Type	OFF			
	Sprocket Type	ON			
Two Color	Not Install		OFF		
	Install		ON		
Hangul	Wansung			OFF	
	Johap			ON	
Emulation	Epson TM-U200/Citizen iDP-3540				OFF
	Epson TM-300/STAR SP-200				ON

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