CMP-30 Technical Manual

Device name: CMP-30
Revision: 1.00
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Citizen Systems Japan, Co., Ltd.

Revision updates summary

Revision	Date	Content	Notes
Rev. 1.00	3/14/2014	Published	

Contents

Introduction

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  Please do not copy this manual without permission.
- ・ When using the CMP-30 please follow the usage conditions and precautions printed in this manual.
  Citizen Systems Japan, Co., Ltd. is in no way liable for any damage caused by usage of the CMP-30 that deviates from the conditions and precautions printed in this manual.
- ・ The CMP-30 is primarily a device built for the purpose of printing for small PCs and information PDA devices.
  ① When using the CMP-30 for functions in which reliability is especially important, be sure to contact the Citizen Systems Japan Co., Ltd. sales counter in advance and take measures for device failsafe design and appropriate redundant design processing that are the customer's responsibility to maintain the system and CMP-30 device's reliability and safety.
  ② Please do not use for equipment demanding extremely high dependability for performance and accuracy.

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1. Product overview

1.1 Overview

The CMP-30 is a small-sized, feature-rich portable line thermal printer. It can be used for very diverse applications from door-to-door sales to small and medium-sized restaurants, car rental, parking lots, field service and in-car sales on land, sea and air transportation.

1.2 Features

- Small and sturdy
- High-speed, low-noise line thermal printing mechanism
- High reliability due to the simple construction and long-lasting print head
- Easy paper changing due to the paper drop-in construction
- Rechargeable lithium ion battery
- Battery charge level display with 3 LEDs
- Standard built-in USB and serial ports
- Built-in Bluetooth functionality (CMP-30BT)
- Automatic compatibility with both iOS Bluetooth and other OS Bluetooth (CMP-30BT) *1
- Built-in wireless LAN functionality (CMP-30WF)
- Magnetic stripe reader equipped (on equipped models)
- Supports two emulations ESC/POS and CPCL

*1 Limited to products manufactured after August 2013

Reference: ESC/POS and CPCL features
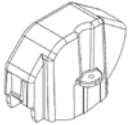
ESC/POS is an emulation that assumes printing in which, like a receipt, the length is not set.
Use of standard thermal paper is assumed and label paper cannot be used. (Black mark paper can be used.)
Binary code is used for commands but data such as from simple notepad can also be received and printed.
Because printing is performed in line units, the print position is set in the order the data is received.
Ruled lines and grid lines do not print well.

CPCL is an emulation that assumes printing in which the format is set, such as labels and black mark paper.
CPCL is the only available selection when using labels or black mark paper, but continuous paper can also be used.
The commands are constructed with text data but if the core of the command is not understood then the print data cannot be made.
Because printing occurs in page units, the print position is set via coordinates for each item printed.
Ruled lines and gridded lines are easily realized.

The CMP-30 default emulation is ESC/POS.
Utility is used to switch the emulation to CPCL.

1.3 Included and optional equipment

Included equipment

・ Printer ・ Battery ・ Battery charger

・ Dedicated serial cable ・ CD-ROM ・ Quick start guide

・ Sample paper ・ Belt clip ・ 58 mm partition
(1 fastening screw included)

Optional equipment

・ Charging cradle ・ Car charger ・ USB cable

・ Leather case ・ Strap

1.4 Equipment classification

Categorized by the following naming system. (Note: There are also combinations not prepared.)

CMP-30BT- **J M L** ——————————— Label/black mark function
None: Label/black mark functionality off
L: Label/black mark functionality on

Magnetic strip reader
None: Reader off
M: Reader on

Intended region (charger and character type)
J: Japan / U: USA / E: Europe

Equipment
CMP-30BT: Bluetooth equipment
CMP-30WF: Wireless LAN equipment
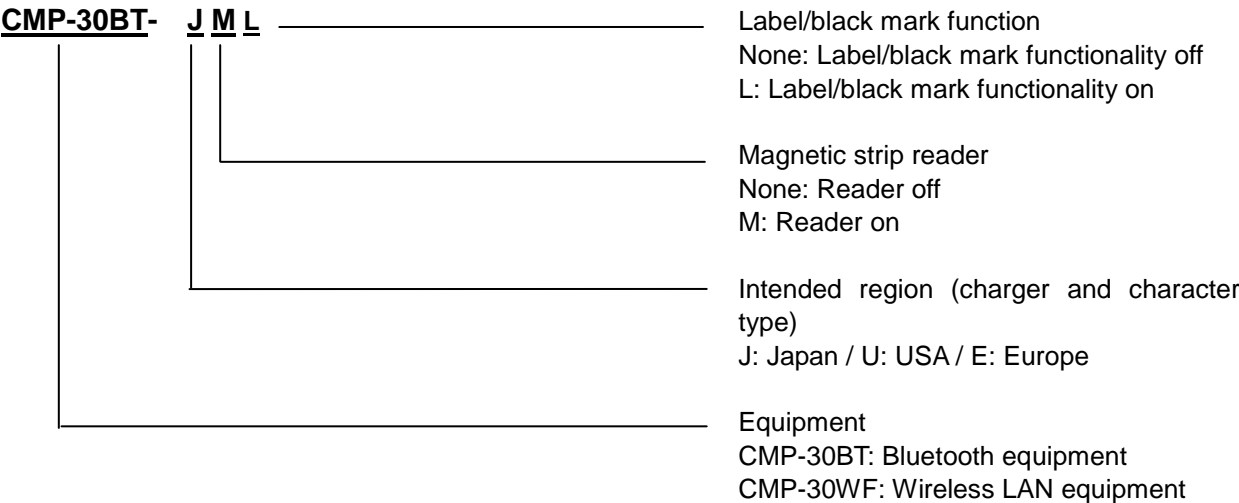
2. Basic specifications

2.1 Printing specifications

1) Printing method:	Line thermal print method (thermal)
2) Print head:	Line thermal print head
3) Dot structure:	576 dots/line
4) Dot resolution:	8 dots/mm (203 dpi)
5) Print width:	72 mm
6) Print speed:	Maximum 800 dot lines/second (100 mm/sec.)
7) Paper feeder:	Feed pitch 0.125 mm
8) Line height:	4.25 mm (1/6 inch) user setting enabled

・The print speed may be slower depending on the combined print condition settings and commands.

2.2 Character, bar-code specifications

A) ESC/POS emulation

1) Character structure: Font A 12H x 24V dots (1.5 x 3.0 mm)
Font B 9H x 17V dots (1.17 x 2.13 mm)
Kanji 24H x 24V dots (3.0 x 3.0 mm)

2) Print character count: Maximum 48 characters (font A)
Maximum 64 characters (font B)
Maximum 24 characters (kanji)

3) Space between characters: Adjustable via commands

4) Character type: ASCII
International characters 14 types
    U.S.A./France/Germany/UK/Denmark I/Sweden/Italy/Spain I/Japan
    Norway/Denmark II/Spain II/Latin America/Korean
Code pages 24 types
    PC437/Katakana/PC850/860/863/865/866/852/858/737/857/864/862
    WPC1252/1253/1250/1254/1251/ISO8859_9/8859_2/MOZOVIA/
    THAI-TIS-14/TIS-17/TIS-11
Kanji JIS level 1 and level 2 standard (JIS X 0208:1990 and NEC special
characters)

5) Barcode: 1-dimensional code 9 types
    UPC-A/UPC-E/JAN13/JAN8/CODE93/ITF/CODABAR/CODE39/CODE
    128
2-dimensional code 2 types (QR code, PDF417)

B) CPCL emulation

1) Character structure 1-byte characters/ASCII/international characters: displayed in the chart below

		Font size							
		0	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Font number	**0 Standard**	8x9	16x9	8x18	16x18	32x18	16x36	32x36	-
	1 Script	?x48	-	-	-	-	-	-	-
	2 OCR-A	20x12	20x24	-	-	-	-	-	-
	4 Unison	?x47	?x94	?x45	?x90	?x180	?x270	?x360	?x450
	5 Manhattan	?x24	?x48	?x46	?x92	-	-	-	-
	6 MICR	28x27	-	-	-	-	-	-	-
	7 Warwick	12x24	12x48	-	-	-	-	-	-

(Horizontal x Vertical unit: dots)

"?" shows that it differs depending on the character due to the proportional font .

"-" shows that the font number and font size combination does not exist. If a non-existent font size is selected, the size is considered to be 0.

If a non-existent font number is selected, font number 7 is substituted.

Regarding the font shapes, refer to the following page for font print sample results.

With font 4 sizes 2 to 7 the only usable characters are numbers and currency symbols. Alphabet characters will not print.

Kanji: 24 x 24 dots

Kanji are not affected by font size and font number settings.

If you mix Kanji with 1-byte characters in the same data, the 1-byte character size settings will not operate properly. When specifying the size you should, therefore, set the 1-byte character and Kanji specifications separately.

The width and height of all internal fonts can be enlarged up to 16 times via SETMAG commands.

2) Character type: ASCII

International characters: USA/Germany/France/Sweden/Spain/Norway/ Italy/CP850/UK

Kanji: JAPAN-ShiftJIS

3) Barcode: 1-dimensional code 14 types

UPC-A/UPC-E/JAN13/JAN8/CODE93/ITF/CODABAR/CODE39/CODE128

UCC EAN128/German Post Code /MSI(Plessy)/Postnet/FIM

2-dimensional code 3 types (QR code, PDF417, Maxicode)

Font0 Size0 AaBcCc $123
Font0 Size1 AaBcCc $123
Font0 Size2 AaBbCc $123
Font0 Size3 AaBbCc $123
Font0 Size4 AaBbCc $123
Font0 Size5 AaBbCc $123
Font0 Size6 AaBbCc $123
Font1 Size0 AaBbCc $123
Font2 Size0 ACD $123
Font2 Size1 ACD $123
Font5 Size0 AaBbCc $123
Font5 Size1 AaBbCc $123
Font5 Size2 AaBbCc $123
Font5 Size3 AaBbCc $123
Font6 Size0 ┇┇ 123456
Font7 Size0 AaBbCc $123
Font7 Size1 AaBbCc $123
Font4 Size0 AaBbCc $123
Font4 Size1 AaBbCc $123
Font4 Size2 $123
Font4 Size3 $123
Font4 Size4 $123
Font4 Size5 $123
Font4 Size6 $123
Font4 Size7 $123

2.3 Paper

1) Print area

80 ± 0.5 mm (paper width)

4mm   72 mm (print width)   4mm

0.125mm

Paper feed pitch
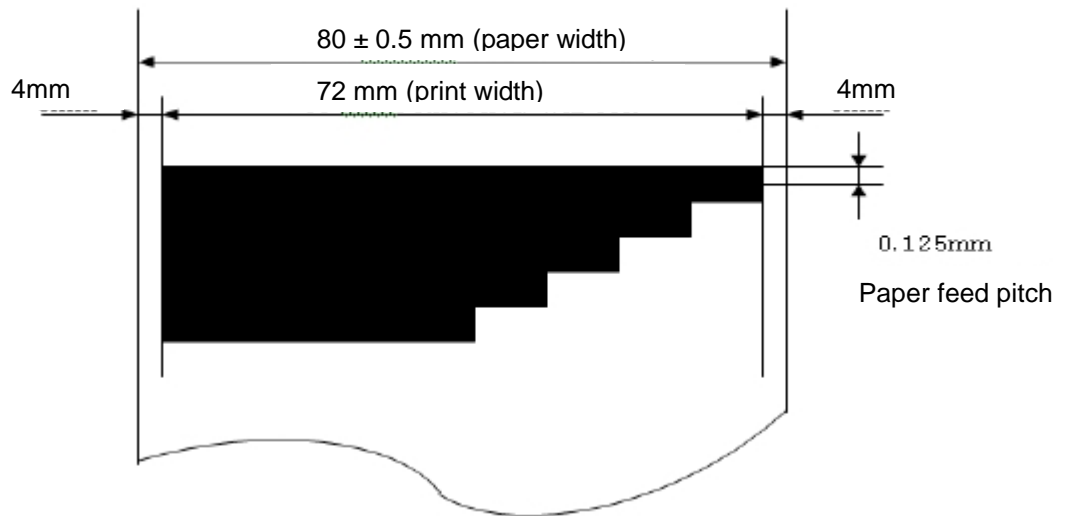
2) Roll paper specifications

Thermal paper

A. Shaft core	Outer diameter φ18.5 mm minimum
B. Outer diameter	φ56 mm maximum
C. Paper width	79.5 ± 0.5 mm maximum 25.4 ± 0.5 mm minimum
Paper thickness	60 μm-85 μm
Recommended paper	P220VBB1 (Mitsubishi Paper Mills Limited.)

Label paper

A. Shaft core	Outer diameter φ32.0 mm minimum
B. Outer diameter	φ56 mm maximum
C. Paper width	79.5 ± 0.5 mm maximum 25.4 ± 0.5 mm minimum
Paper thickness	85 μm-150 μm
Recommended paper	HD75 (Nippon Paper Industries Co., Ltd.)
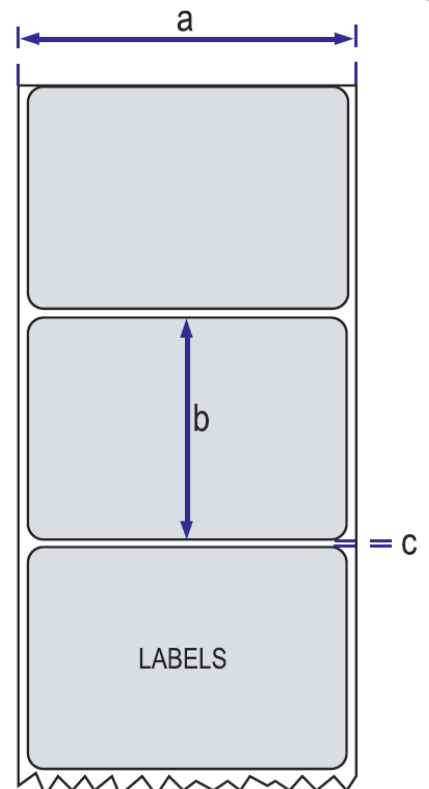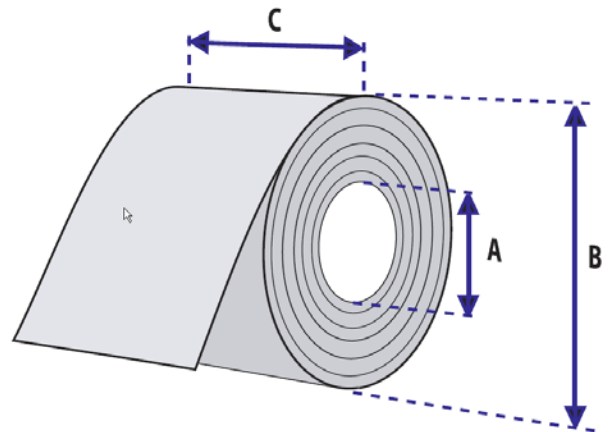
3) Label specifications

a. Mount width	80 mm maximum 25.4 mm minimum
b. Label length	10 mm minimum
c. Label space	10 mm maximum 3 mm minimum
Mount opacity	50-75%

10

4) Black mark specifications

Cutting position

72

Print area

Feed direciton

**Black mark
(Back or front of print face)**

80
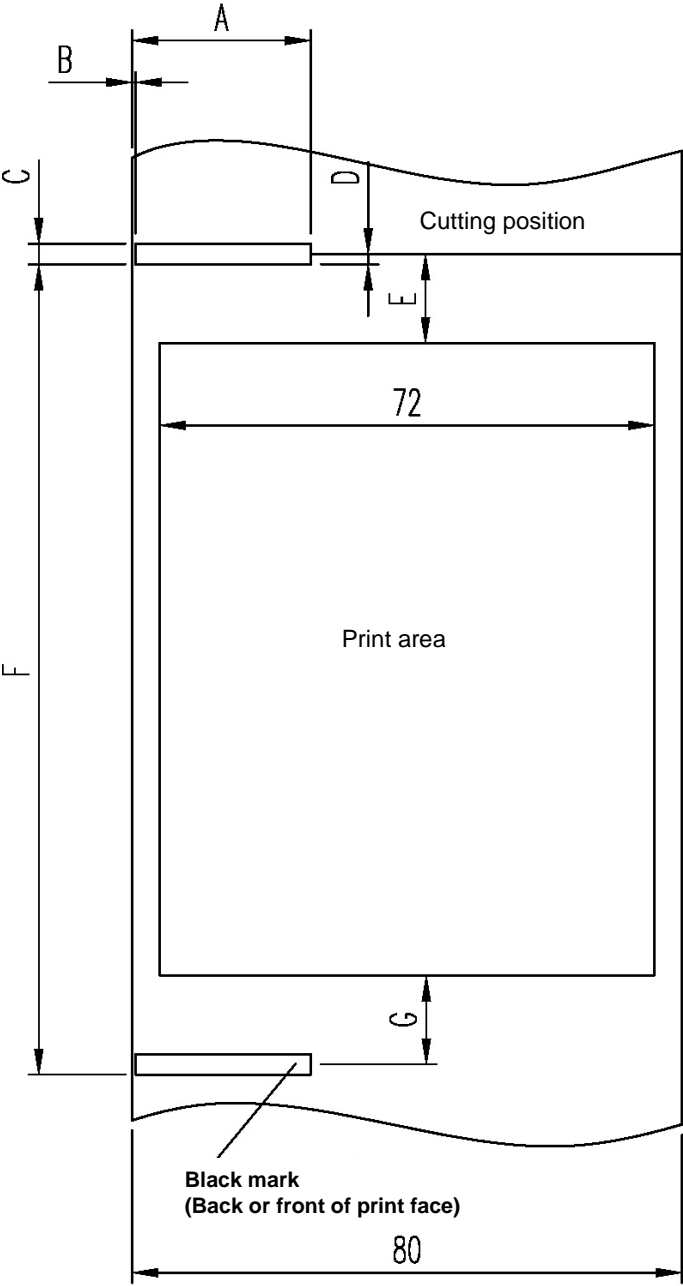
Mark	Items	Size (mm)
A	Black mark width	26 or more
B	Distance between paper end and black mark	0.5 or less
C	Black mark height	3
D	Cutting position in the black mark	1.5
E	Upper margin	13
F	Distance in between black marks	30 to 300
G	Bottom margin	13

5) Label and black mark sensor position relative to the paper

80,00
1,70
16,25
3,00
9,00

Back side of the paper
Sensor position from
the overhead

"A"

Print face

Label sensor

Black mark sensor

View from point "A"

80,00
1,70
16,25
3,00
8,10

Print face

Sensor position from
the bottom

"B"

Print face

Label sensor
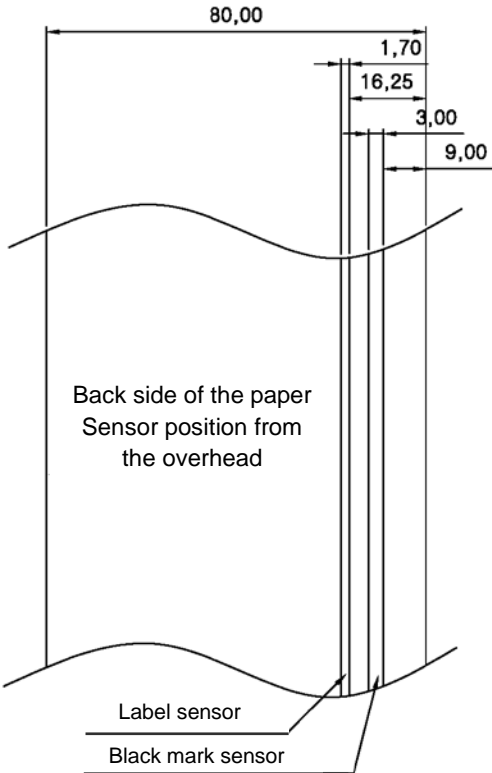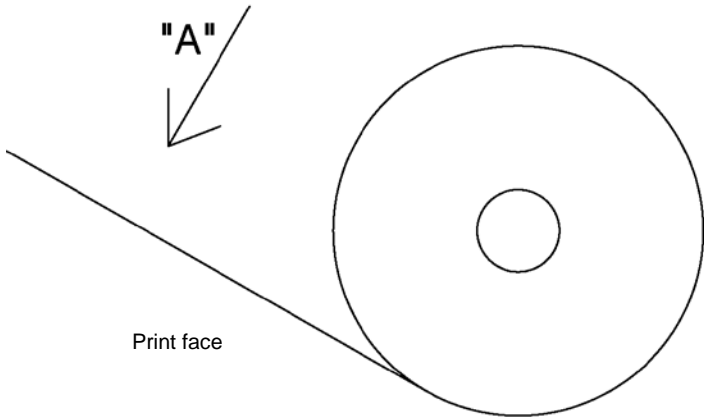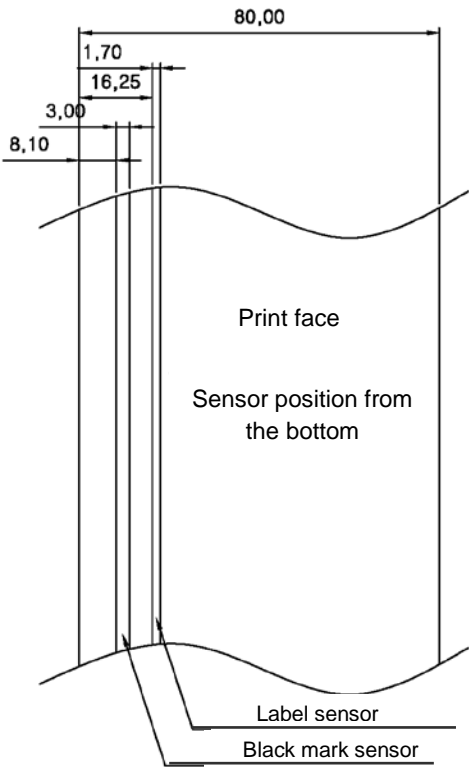
Black mark sensor

View from point "B"
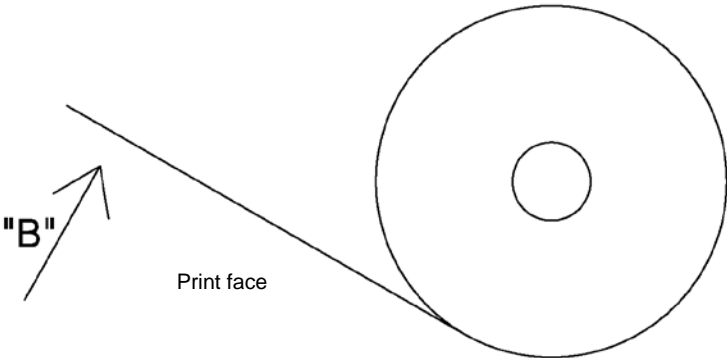
"A" **Cover side (upper) black mark sensor**
"B" Bottom side (lower) black mark sensor (default black mark setting)
Switch between the two sensors by sending commands or using utility.

2.4 Power supply specifications

1) Power consumption

While printing:	Approx. 2.5 A (ASCII printing)
Peak:	Approx. 9.0 A (100% printing ratio for under 10 seconds)
Standby:	Bluetooth approx. 110 mA (power ON, not printing, not feeding paper)
	Wireless LAN approx. 160 mA (power ON, not printing, not feeding paper)

Reference values

Continuous printing length from full charge:	186 m (approx. 76 mm/sec. printing speed)
Continuous printing time from full charge:	36 minutes (approx. 76 mm/sec. printing speed)
Period charge is held from full charge:	With power OFF recharge required after approximately 18 days

2) Charger

1)	Input voltage:	AC 100V-240V, 50/60 Hz
2)	Input current:	0.2 A maximum
3)	Rated input power:	11 W
4)	Output rating:	DC 8.4 V
5)	Output current:	0.8 A
6)	Rated output power:	6.72 W
7)	Efficiency:	74.2% or higher
8)	Short circuit protection:	Short circuit cancellation returns the unit to its normal state without breakage or damage to parts during an output short circuit.
9)	Safety standards:	UL, C-UL, KC, C-Tick, CE, SAA, PSE
10)	Size:	74 mm (L) x 46.6 mm (W) x 40 mm (H) not including the plug
11)	Cable:	1.5 m length/UL2464 20AWG
12)	Plug:	φ3.5 outer circumference x φ1.35 inner circumference x 8.0 mm length
13)	Terminal polarity:	Center positive (+), outer negative (-)
14)	Mass:	Approx. 100 g
15)	Operating temperature, humidity:	-10°C-35°C, 10%-90% humidity
16)	Storage temperature, humidity:	-20°C-80°C, 10%-90% humidity

The battery pack can be recharged by plugging the charger into the printer or the charging cradle.

Charging time: Approx. 220 minutes

The charge LED meanings are as follows:

Charge LED	State
Red continuously lit	Charging
Green continuously lit	Charge complete
Red flashing	Charging error detected

If an error occurs during charging, charging will stop and the charge LED will flash red.
Re-connecting the charger commences charging and the LED will remain continuously lit red.
If you charge the printer itself you cannot tell the charge condition from the printer.

2.5 Battery specifications

1)	Battery type:	Lithium-ion rechargeable battery pack (2S1P)
2)	Individual batteries:	ICR18650 (Samsung SDI)
3)	Battery pack model name:	LK-PB30
4)	Battery capacity:	2200 mAh
5)	Nominal voltage:	7.4 V
6)	Discharge cut-off voltage:	5.5 V
7)	Charged voltage:	8.4 V
8)	Internal resistance:	300 mΩ or less
9)	Cycle life capacity:	70% or greater (after 300 standard charges and discharges)
10)	Dimensions:	59.6 (L) x 72 (W) x 22.3 (H) mm not including the projection
11)	Weight:	200 g or less
12)	Operating temperature:	0°C-45°C (standard charge), -20°C-60°C (standard discharge) 0°C-40°C (maximum discharge)
13)	Storage temperature:	-20°C-20°C (up to 1 year), -20°C-40°C(up to 3 months) -20°C-60°C(up to 1 month)
14)	Storage humidity:	65% RH (without condensation)

2.6 Sensors

No-paper sensor, cover open sensor, head temperature detection, battery charge level detection
Label (GAP) sensor (label specifications), black mark (BAR) sensor x 2 (label specifications)
The black marker sensor cover (upper) side corresponds to the paper face, and the device (lower) side corresponds to the paper back.
Utility is used to switch between sensors.

2.7 Equipped memory capacity

1) Flash memory:	64 MB (previous circuit board 32 MB)
2) SRAM:	32 MB (previous circuit board 32 MB)

2.8 Magnetic stripe reader equipped (on equipped models)

Compatible cards:	ISO/IEC 7811/7812 (JIS I format)
Card thickness:	0.76 mm ± 0.08 mm

Supported tracks: Tracks 1 & 2

Track	ISO-1	ISO-2
Bit density	210BPI	75BPI
Storage capacity	79 characters (7-bit)	40 characters (5-bit)

Track reading width: 1.5 mm

◇ ISO-Track Position(Card Back side)

TRK-1 TRK-2 TRK-3

Magnetic Stripe on card
ISO Tracks

* Track Write Width = 3.0mm
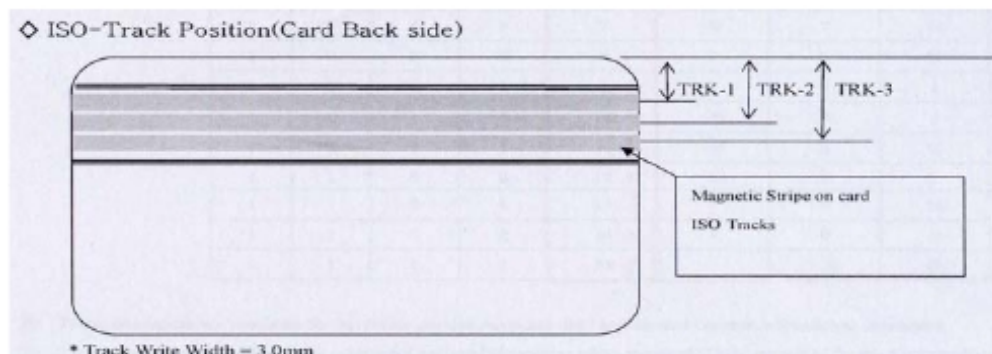
Card slide speed: 10 cm - 15 cm/sec

Magnetic head life: 300,000 or more passes

Power consumption: Standard 3 mA (Dual), operating 500-900 uA (Dual)

2.9 Durability specifications

Print head: 50 million passes or 50 Km (at average temperature, 12.5% printing ratio, rated value energy)
MCBF: 50 million lines (12.5% printing ratio, 65-75 um paper thickness)

Protection rating: IP42 (individual unit except for MSR model)
Individual unit drop: 1.2 m (individual unit)

2.10 Safety (conformity standards)

Acquired standard: PSE (charger)

> Note: Because the battery energy density is less than 400 Wh/L it is not PSE-compliant

VccI Class B
Telec (Bluetooth model and LAN model)

2.11 Environmental

2.11.1 Printer operation and print guarantee conditions

1) Operation temperature: -10°C-50°C
2) Operation humidity: 35%-95% (without dew)

Print guarantee conditions: 5°C-40°C / 35%-95%
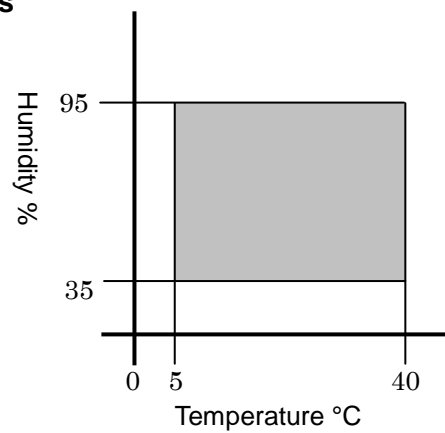
Important note: Operation guarantee is not print guarantee.
Print guarantee represents printing quality and does not guarantee the number of pages printed.

2.11.2 Storage conditions

1) Storage temperature: -20°C-60°C (not including paper)
2) Storage humidity: 10%-90% (without dew, not including paper)

15
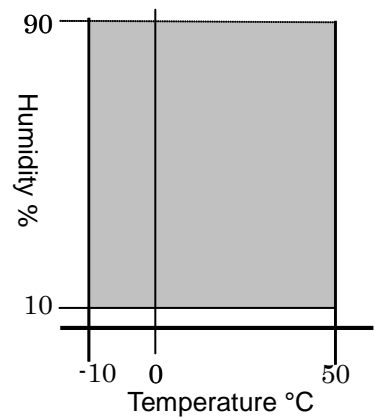
3. Exterior specifications

3.1 Top side
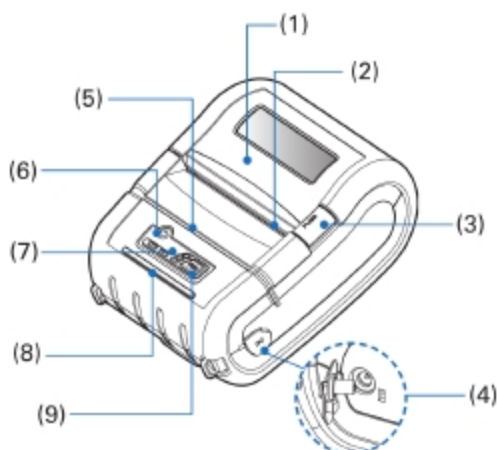
(1) Paper cover
Open and close when loading paper.

(2) Manual cutter
To separate the printed paper, angle the paper to have full contact with the manual cutter and slowly pull on the end of the paper.

(3) Cover open button (blue)
Press this button to open the paper cover.

(4) DC jack
Connect the charger to charge the batteries.

(5) MSR slot (optional)
Slide the magnetic stripe.

(6) Power button
Press the power button for approximately 3 seconds to turn on the printer.
Press the power button until it beeps to turn off the printer.

(7) Operation panel
Refer to operation panel mentioned later.

(8) IC card slot (optional)
This option is currently not available.

(9) Feed button
The paper feeds while this button is pressed.
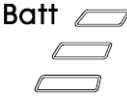
3.2 Rear side
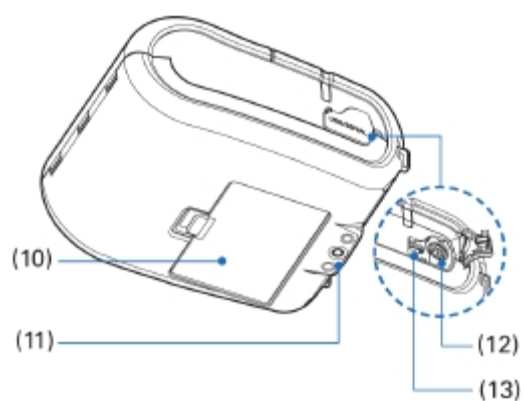
(10) Battery
   Removable battery pack

(11) Belt clip screw holes
   Holes for attaching the belt clip in order to hang the printer from a belt

(12) USB port (mini B connector)
   Connector for connecting to a host PC with a USB cable

(13) Serial port
   Connector for connecting to a host with a serial cable

3.3 Operation panel

	Name	Function
⏻	Power button Power LED (green)	This button turns the printer power ON/OFF. When the printer is OFF, press this button for approximately 3 seconds to turn it ON. When the printer is ON, press this button for approximately 3 seconds to turn it OFF. A beep occurs when turning ON/OFF. When the power is ON the power LED is illuminated.
FEED	Feed button	The paper feeds while this button is pressed. This button is also used to perform the self test.
Batt	Battery status LEDs (Blue x 3)	1. The number of illuminated LEDs changes corresponding to the battery charge level. If 3 LEDs are illuminated the battery is in full charge state. 2. If no LEDs are illuminated and a beep is heard, immediate charging is required. 3. If the battery charge level is extremely low power will cut off automatically. 4. The lights do not illuminate in power save mode.
Error	Error LED (red)	A red LED means that the paper is out or the cover is open.

3.4 Exterior dimensions and weight

Exterior dimensions: 120 (W) x 152 (D) x 70 (H) mm
Weight: Approx. 0.65 kg (including the battery, without the belt clip, without paper)
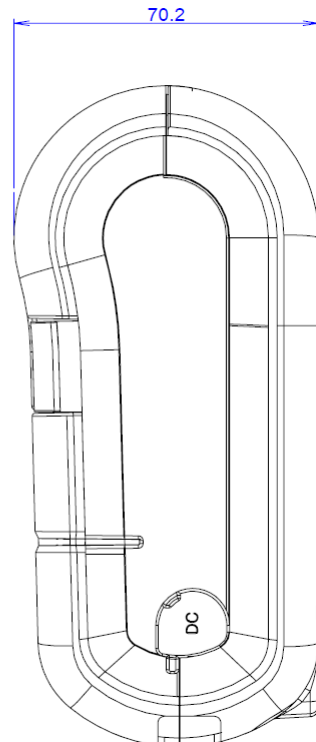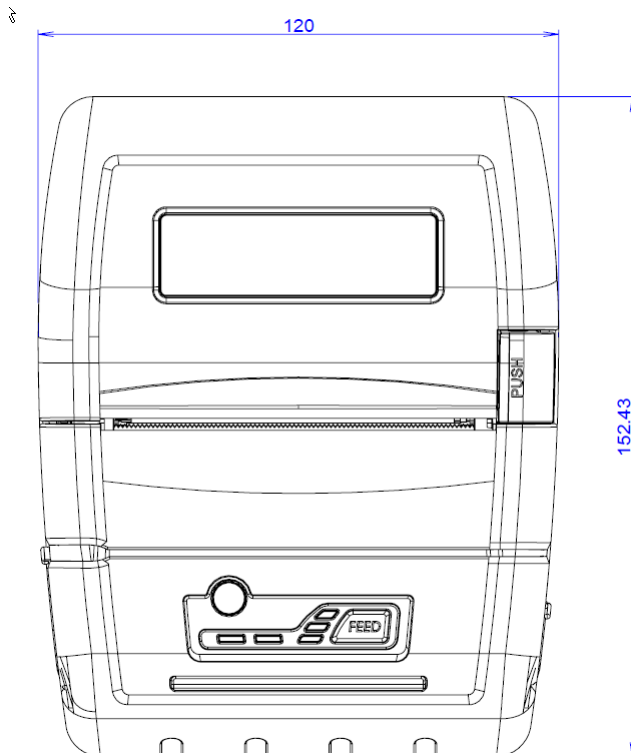
4. Interface specifications

4.1 Input buffer

Buffer size:	Serial interface	8K bytes
	USB interface	4K bytes
	Bluetooth	8K bytes
	Wireless LAN	8K bytes

4.2 Serial interface

(Bold letters signify the default setting)

Interface:	2-way serial communication
Signal level:	RS-232C
Baud rate:	1200, 2400, 4800, 9600, **19200**, 38400, 57600, 115200 bps (switch via command)
Data length:	7 or **8** bit
Start bit:	**1** bit
Stop bit:	Greater than **1** bit
Parity:	**None**, even number, odd number
Flow control:	**DTR/DSR**, Xon/Xoff
Connector:	Printer side mini-DIN 8-pin female connector
	PC side (dedicated cable) D-SUB 9-pin
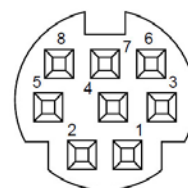
Connector pin arrangement

No.	Signal name	Signal direction	Explanation	Dedicated cable connector (PC side)
1	RXD	Input	Receives data	Number 3 pin (RXD)
2	TXD	Output	Sends data	Number 2 pin (TXD)
3	DTR	Output	Printer busy signal	Number 6 & 8 pins (DSR, CTS)
5	GND	─	Ground	Number 5 pin (GND)

[Terminal name explanations]

・TXD   (Transmit Data)
Line for sending serial data from the printer to the host
When there is data flow control via x-ON/x-OFF: If the buffer reaches 8000 bytes remaining while receiving data then DC3 (13H: Data receive disable signal) is output. If the buffer reaches 8192 bytes remaining while receiving data then DC1 (11H: Data receive enable signal) is output.

・RXD   (Receive Data)
Line for sending serial data from the host to the printer. Framing error, overrun When an error occurs the characters are distorted.

・DTR   (Data Terminal Ready)
This is enabled when DTR/DSR flow control is selected.
When this signal is ready, data and commands can be written to the input buffer. When this signal is busy, writing data causes an overrun error and the data is ignored. The input buffer can be written to while printing. Busy may occur during self printing when the power is turned on.

・GND   (Signal Ground)
Signal line GND

4.3 USB interface

Format: USB 2.0 Full Speed
Connector: USB mini B connector

Pin number	Signal	Details
1	+5V	+5V
2	DATA-	Receives data
3	DATA+	Receives data
4	GND	Ground
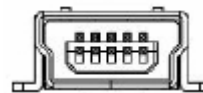
Vendor ID: 0x0525
Product ID: 0xA702
Serial Number: 0x00

4.4 Bluetooth interface (Bluetooth compatible models)

Interface:	Bluetooth standard 2.0 conformant
Frequency:	2402-2480 MHz
Channel spacing:	1 MHz
Number of channels:	79
Output class:	Class 2
Modulation method:	FH method (frequency hopping spectrum method)
Transmission distance:	Approx. 10 m
Max. transmission speed:	115200 bps (Bluetooth and printer unit transmission speed)
Transmission ability:	+4 dBm or less (Class 2)
Password:	None
Support profiles:	SPP and iAP (*1)
Passkey:	Default value 0000 (multi-pairing compatible)
Local name:	Default value "Mobile Printer"

With serial or USB connection, the passkey and discover blue mode can be changed via Utilities.

*1: The iAP profile requires firmware version 2.01A or later as well as hardware manufactured after August 2013. The local name can also be changed under these same conditions.
SPP and iAP are automatically selected based on the connection.
Compared with SPP, the iAP signal speed is significantly slower.

4.5 Wireless LAN interface (wireless LAN compatible model)

Standard: IEEE802.11b / 802.11g
Transmission speed: Max. 54 Mbps, average 50 kbps
Transmission distance: 100 m (inside with no obstructions) depending on environmental factors
Protocols: ARP, RARP, IP, ICMP, TCP, UDP
Printing method: 9100 port, LPR/LPD

With a serial or USB connection wireless LAN settings can be made via Utilities (Ver. 1.61).
(Settings can also be made using wireless LAN, but there are limitations.)
The following settings can be made.
SSID, Netmask, Gateway, DNS
IP address: Fixed, DHCP
Mode: Infastructure, Adhoc
Channel: 1-14
WEP protection: Open System, Shared Key (WEP Key ID:1-4)
Security: WEP 64/128, WPA-PSK-TKIP, WPA2-PSK-AES (WPA keys are 8-64 characters)

	Security protocol	Encryption protocol	Encryption algorithm
1	WEP 64/128 bits	-	RC4
2	WPA-PSK	TKIP (802.11i)	RC4
3	WPA2-PSK	CCMP (802.11i)	AES

When DHCP is enabled and the power is ON, an IP address is obtained from the DHCP server when the cover is closed and the received information is printed. If there is an error obtaining the IP address a beep is heard.

4.6 Interface switching
・ The first interface to transmit becomes enabled.
・ When transmission by that interface finishes, transmission from other interfaces becomes possible.

5. Functions

5.1 Energy saving mode

Standard: As long as the power is not shut off with the power button, the power remains ON.

Power OFF mode: If there is no operation for a set time period, power automatically turns OFF. To resume using, turn back ON as usual.

Power save mode: If there is no operation for a set time period, power save mode is automatically entered into and the battery LED turns off. If the power ON button is pressed or 2 bytes of data are received (except via USB connection) the device returns to print-ready status.

Even if there is no paper and the cover is open the device enters power OFF and power save modes.

Mode and time (1-99 min) settings can be made via Utilities.

Reference values: Standby enabled times in power save mode from full charge

Standby: 19 hours (Bluetooth)
               11 hours (Wireless LAN)

5.2 Battery level detection

・The printer's 3 LEDs display 4 steps of battery level.
・3 LEDs: Approx. 7.8 V or higher
・2 LEDs: Approx. 7.5 V or higher
・1 LED: Approx. 7.2 V or higher
・1 LED flashing (and beeping) low battery state:
                        Approx. 6.1 V or higher
・Power OFF: Less than approx. 6.1 V

5.3 Paper detection

・If there is no paper, the Error LED turns red and beeps intermittently.
・If paper running out is detected while printing, printing will stop. (Certain conditions excluded)
・If paper is replaced and the cover is closed, the Error LED turns off and stops beeping.

5.4 Cover open detection

・If the cover is opened, the Error LED turns red and beeps intermittently.
・If the cover is opened during printing, printing will stop.
・If the cover is closed, the Error LED turns off and stops beeping.

5.5 Head temperature detection

・If the head temperature reaches 65°C the head hot alarm stops printing and turns off the Power LED.
・If the head temperature falls below 60°C printing will automatically resume and the head hot alarm will be released.

5.6 Non-volatile memory for saving logos

1344 KB capacity (can be saved and erased via the dedicated utility)

5.7 Internal buzzer

The internal buzzer beeps in the following cases. Each type of beeping differs.
When power is turned ON
When power is turned OFF (including auto power OFF)
When the cover is open, there is no paper or an error is detected
When low battery is detected
When DHCP is enabled with wireless LAN and there is an error obtaining an IP address

5.8 Self test and HEX-DUMP mode

1) Press the power button for approximately 3 seconds to turn off the printer.
2) While pressing the feed button, press the power button and hold both until the beep sounds.
3) Printing will commence.
Print sample

```
CITIZEN, CMP-30
Version: V2.01ALB
Speed Mode: H
Emulation: ESC/POS
DENSITY: [ 0 ]
SENSOR Info.
GAP SENSOR LEVEL: [2]
BM SENSOR LEVEL: [2]
GAP(Adj): 100(32) Tof:[24]
BAR(Adj): 100(51) Baf:[280]
BlackMark Sensor: lower
Battery: 7.6V[10] OK(2.0)
Timeout(Sleep): 1200 sec
MS Track: 1/2


Serial Interface
 Baud: 19200
 Data bit: 8bit
 Parity Bit: none
 Stop bit: 1bit


USB Interface
 Version 2.0 Full speed
 compliant
 Product String: CMP-30


Bluetooth Interface
 Bluetooth mode : SPP + IAP
 Address: 00:13:7b:48:66:06
Infrastructure mode
```

```
     Barcode image
```

```
*******************************
 !"#$%&'()*+,-./0123456789:;<=>?
@ABCDEFGHIJKLMNOPQRSTUVWZYZ[¥]^_
`abcdefghijklmnopqrstuvwxyz{|}~
*******************************
 Press FEED Button to
 Enter HEX-DUMP mode.
*********************
```

Within 3 seconds after the printing completes, briefly press the FEED button once more to switch to HEX-DUMP print mode.
If the FEED button is not pressed within 3 seconds, it will switch to standard mode.
In HEX-DUMP print mode, data received will be printed in HEX format.
To exit HEX-DUMP print mode, turn off the power.

5.9 Label sensor level adjustment

When label printing, if the space between labels is not correctly recognized, use the following method to adjust the sensor detection level.

Within 3 seconds after the completion of self test printing, press the FEED button for at least 3 seconds and this will be printed:
****
  Entering Factory Test mode
****

This opens sensor adjustment mode.
In this state, insert the label paper you will use and press the FEED button.
The printer will feed and print the read levels of the label print area and space between labels as a graph. So that the space between labels may be accurately detected, the detection level threshold will be automatically adjusted according to the read values.

6. Emulation/command

1) Emulation ESC/POS command standard (partially proprietary specifications) or CPCL command standard
2) ESC/POS command

Command	Function	CMP-30
HT(0x09)	Horizontal tabulation	○
LF(0x0A)	Print new line	○
CR(0x0D)	Print return	○
FF	Page mode printing and standard mode carriage return	○
CAN(0x18)	Print data cancel in page mode	○
DLE(0x10) EOT	Real time status transmission	○
DLE ENQ	Real time status request	○
ESC FF(0x0C)	Page mode data print	○
ESC SP(0x20)	Character right space setting	○
ESC 2	Initial new line quantity setting	○
ESC 3	Minimum feed pitch unit new line quantity setting	○
ESC -	Enable & cancel underline	○
ESC !	Print mode batch specification	○
ESC $	Select absolute position	○
ESC %	Select & cancel downloaded characters	○
ESC &	Define downloaded characters	○
ESC *	Select bit image mode	○
ESC ?	Delete downloaded characters	○
ESC @	Initialize printer	○
ESC {	Select & cancel vertical printing	○
ESC ¥	Select relative position	○
ESC a	Justification	○
ESC D	Set horizontal tab position	○
ESC d	Print & *n* line feed	○
ESC E	Select & cancel bold printing	○
ESC J	Print % feed minimum pitch unit	○
ESC L	Select page mode	○
ESC M	Select character font	○
ESC R	Select international characters	○
ESC S	Select standard mode	○
ESC T	Select character print direction in page mode	○
ESC t	Select character code table	○
ESC V	Select & cancel 90-degree character rotation	○
ESC W	Select print area in page mode	○
GS !	Select character size	○
GS $	Specify character absolute longitudinal position in page mode	○
GS *	Download bit image definition	○
GS /	Download bit image print	○
GS :	Open & close macro definition	○
GS ^	Execute macro	○
GS ¥	Specify character relative longitudinal position in page mode	○
GS a	Enable & disable automatic status transmission	○
GS B	Select & cancel inverted black & white printing in page mode	○

GS f	Select visible code lettering	○
GS H	Set bar code height	○
GS h	Bar code printing	○
GS k	Bar code printing	○
GS L	Specify left margin	○
GS P	Set basic calculations pitch	×
GS r	Transmit status	○
GS S C	Change serial port settings	○
GS S P	Set power save mode	○
GS v 0	Raster bit image print	○
GS W	Set print area	○
GS w	Set bar code width	○
GS (F	Set automatic paper feed quantity following black mark detection	○
GS FF	Print while ejecting black mark paper	○
FS -	Select & cancel kanji underline	○
FS !	Kanji print mode batch specification	○
FS e	Erase logo image	○
FS M	Select magnetic card track	○
FS p	User NV bit image print	○
FS q	Define user NV bit image	○
FS S	Set kanji space rate	○
FS W	Select & cancel quadruple size kanji	○

Proprietary commands not included.

3) CPCL commands

(○ CPCL compatible / ● Proprietary command / × Not supported / * Appears in multiple places)

Comparison with original CPCL (PROMAN-CPCL Rev. V December 2009)

Category	Command (abbreviation in parentheses)	Function explanation	Compatibility
Printer	!	Commence print data	○
	PRINT	Stop print data	○
	FORM	Form feed	○
	JOURNAL	Do not form feed	○
	IN-INCHES IN-CENTIMETERS IN-MILLIMETER IN-DOTS	Unit setting	○
Text	TEXT (T) VTEXT (VT) TEXT90 (T90) TEXT180 (T180) TEXT270 (T270)	Specify text data	○
	FONT-GROUP (FG)	Group resident fonts	○
	CONCAT VCONCAT	Mix different style characters on the same text line	○
	MULTILINE (ML)	Specify multiple lines with same property character data	○
	COUNT *	Specify increments for multiple page printing	○
	SETMAG	Set resident font enlargement	○
Scalable text	SCALE-TEXT VSCALE-TEXT	Specify scalable text size with point	×
	SCALE-TO-FIT VSCALE-TO-FIT	Fit scalable text to the designated border size	×
	CONCAT * VCONCAT *	Mix different style characters on the same text line	○
	ROTATE	Rotate scalable text	×
Barcode	BARCODE (B) VBARCODE (VB)	Print the following barcode types	
		UPC-A	○
		UPC-E	○
		EAN/JAN-13	○
		EAN/JAN-8	○
		Code 39	○
		Code 93/Ext. 93	○
		Interleaved 2 of 5	○
		Interleaved 2 of 5 with checksum	○
		German Post Code	○
		Code 128 (Auto)	○
		UCC EAN 128	○
		Codabar	○
		MSI/Plessy	○
		Postnet	○
		FIM	○
		RSS	○
		PDF-417	○
		MAXICODE	○
		QR code	●
		AZTEC	×
	BARCODE-TEXT (BT)	Print characters to match the barcode	○
	COUNT *	Specify increments for multiple page printing	○
Graphics	BOX	Print a square using graphics	○
	LINE (L)	Print a straight line using graphics	○
	INVERSE-LINE (IL)	Print a straight line so that the set print characters become black & white inverted	○

	PATTERN	Specify straight lines and scalable font horizontal lines	○
	EXPANDED-GRAPHICS (EG) VEXPANDED-GRAPHICS (VEG) COMPRESSED-GRAPHICS (CG) VCOMPRESSED-GRAPHICS (VCG)	Perform bitmap graphic printing	○
	PCX *	Print PCX format graphics data	○
Detail commands	CONTRAST	Specify contrast in 4 levels	○
	TONE	Specify darkness in a range from -99 to 200	○
	CENTER LEFT RIGHT	Specify the horizontal print position	○
	PAGE-WDTH (PW) *	Specify the print width	○
	PACE	Prints 1 page each time FEED is pressed when batch printing	○
	AUTO-PACE	If there is a label eject sensor, automatically prints when the previous label is removed	×
	NO-PACE	Cancel PACE and AUTO-PACE commands	○
	WAIT	Insert a wait after printing	○
	REWIND	Operate the label rewind function	×
	TENSION	Adjust the label rewind function tension	×
	SPEED	Set the print speed in a range between 0 and 5	○
	SETSP	Set the spacing between characters	○
	ON-OUT-OF-PAPER	Set the behavior when the labels run out during printing	○
	ON-FEED	Set the FEED button operation to either feed, ignore or repeat last print	○
	PREFEED	Set the feed amount before printing	○
	POSTFEED	Set the feed amount after printing	○
	PRESENT-AT	Feed the label to the tear bar position	×
	COUNTRY *	Set the character code for the specified country	○
	DEFINE FORMAT (DF) *	Define the label format	○
	USE-FORMAT (UF)	Load the defined format	○
	BEEP *	Sound the beep for the specified length	×
	CUT	For printers with a cutter, fully cut the printed label	×
	PARTIAL-CUT	For printers with a cutter, partially cut the printed label	×
	CUT-AT	For printers with a cutter, backfeed a specified amount after cutting	×
	MCR *	Magnetic card reader commands	×
Line print mode	! UTILITIES (! U1)	Utilities commands Use line print mode ("LP" below) with the following sub commands.	○
	LP-ORIENT	Specify LP mode print direction as 0 or 270	×
	IN-INCHES IN-CENTIMETERS IN-MILLIMETER IN-DOTS	Specify the units in LP mode	○
	SETLP	Specify the font used in LP mode	○
	SETLF	Specify the new line quantity in LP mode	○
	X Y XY RX RY RXY	Specify the print start position in LP mode	○
	LMARGIN	Specify the left margin in LP mode	○
	SETBOLD	Specify bold characters in LP mode	○
	SETSP	Set the space between characters in LP mode	○
	PAGE-WDTH (PW) *	Specify the print area width in LP mode	○

	PAGE-HEIGHT (PH)	Specify the print area length in LP mode	○
	Unique code 0x0C	Perform form feed	○
	Unique code 0x08	Perform backspace	×
	SETFF	Align the top of the form to the print head	○
	SET-TOF	Set the distance between TOF and the next mark	○
	PRESENT-AT	Feed the paper so that the last printed section comes to the tear bar position	×
	CUT-AT	Feed the paper so that the last printed section comes to the cutter position, and cuts the paper	×
	CUT	Perform a full cut at that location	×
	PARTIAL-CUT	Perform a partial cut at that location	×
	BARCODE *	Print a barcode	○
	PCX *	Print PCX format graphics data	○
	SETLP-TIMEOUT	Automatically print when the time no print data is received reaches the specified time	○
Detailed Utilities commands	! UTILITIES (! U1)	Use to manage flash memory, obtain form and application information and perform printer settings. Use accompanying the following sub-commands.	
	VERSION	Report the firmware version	○
	CHECKSUM	Report to the application the check sum information	○
	DEL	Delete the specified file	○
	DIR	Send the directory information to the host	○
	DF *	Define the label format	○
	TYPE	Read a text file and transmits to host	○
	BAUD	Set the serial port baud rate	○
	COUNTRY *	Substitute a portion of the characters to suit the specified country	○
	CHAR-SET	Perform the same operation as COUNTRY	×
	ANNOUNCE	Play the programmed sound	×
	TIMEOUT	Set the time to automatically turn OFF	○
	BEEP *	Sound the beep for the specified length	×
	OLB *	Specify the printer behavior when the battery level is low	○
	LT	Specify the code that displays the line end	○
	SET-TIME	Set the real time clock time	×
	GET-TIME	Report the real time clock time	×
	SET-DATE	Specify the real time clock year, month and date	×
	GET-DATE	Report the real time clock year, month and date	×
	PAPER-JAM	Set paper jam report	×
	MCR	Use the magnetic card reader (MCR) function	×
	MCR-QUERY	Set the MCR function query mode	×
	MCR-CAN	Transmit to quit MCR function activity and cancel error messages	×
	S-CARD	Handle a Smartcard, not supported	×
	GAP-SENSE BAR-SENSE	Select the sensor used for form loading	●
DENSO-BHT commands	DENSO-BHT commands	Not supported	×
PRINTER ESCAPE commands	ESC } W 1	Set CCL code	○
	ESC } R 1	Read CCL code	○
	ESC h	Transmit printer status information	○
	ESC f	Transmit printer status information (proprietary)	●
	ESC N	Clear reset bit set when power turned ON	×
	ESC v	Transmit model name, firmware version and serial number information	○
	ESC S	Transmit model name, firmware version and serial number information (proprietary)	●
	ESC i	Transmit printer enlargement status information	×

	ESC JRU	Transmit the current label count information	×
	ESC LRUC	Transmit the current label count information (proprietary)	●
	ESC JWaccNVMU	Return the label count information to zero	×
	ESC SWMLC	Return the label count information to zero (proprietary)	●
	ESC p	Turn OFF the printer	○
	GS S C n1 n2 n3 n4 n5	Serial port settings	●
	GS S P n	Set power save mode	●
	FS E C	Receive current emulation settings information	●
	FS E S n	Emulation settings	●
Wireless LAN commands	Wireless LAN commands	Not supported	×
Display programming	Display programming	Not supported	×
Setting commands	! U1 setvar ! U1 getvar ! U1 do	Settings change, control command	○

7. Battery charge level warning

The printers power is supplied by the internal batteries. If the battery charge level is not high and power intensive printing is performed, such as graphics with large black sections, problems may occur due to the lithium ion battery's characteristics, such as voltage dropping and stopping printing.

When performing high load printing it is recommended that you take care to maintain a high charge level on the battery LEDs.