

P/N. 920-010210-00
Edition 0
April 02

EZ-2/4 Manual



FCC COMPLIANCE STATEMENT**FOR AMERICAN USERS**

This equipment has been tested and found to comply with the limits for a CLASS A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

EMS AND EMI COMPLIANCE STATEMENT**FOR EUROPEAN USERS**

This equipment has been tested and passed with the requirements relating to electromagnetic compatibility based on the standards EN50081-1 (EN55022 CLASS B) and EN50082-1 (IEC Teil 2,3,4). The equipment also tested and passed in accordance with the European Standard EN55022 for the both Radiated and Conducted emissions limits.

Specifications are subject to change without notice.

User's Manual

Bezeichnung (Type Designation)	: NW66-1355000UA , AD-1354000AV , NW66-1354000UA
Nennspannung (Rated Voltage)	: AC 230V, 50Hz
Nennausgangsspannung (Rated Output Voltage)	: AC 13.5V
Nennausgangsstrom (Rated Output Current)	: 4A
Nennausgangsleistung (Rated Output Power)	: 54VA
Schutzklasse (Protection Class)	: II
Kennzeichnung (Characteristics)	: Fail-Safe

1. Bitte lesen Sie diese Hinweise sorgfältig durch.
2. Dieses Gerät ist vor Feuchtigkeit zu schützen.
3. Die Belüftungsöffnungen dienen zur Luftzirkulation, die das Gerät vor Überhitzung schützen. Sorgen sie dafür, daß diese Öffnungen nicht adgedeckt werden.
4. Durch die Belüftungsöffnungen dürfen niemals Gegenstände oder Flüssigkeiten in das Gerät Gelangen.
5. Dieses Gerät kann bis zu einer Umgebungstemperatur von maximal 25 °C betrieben werden.
6. Die Ausgangswerte dürfen nicht die auf dem Typenschild angegebenen Werte überschreiten.
7. Die Steckdose muß sich nahe dem Gerät befinden und leicht zugänglich sein.
8. Nur zur Verwendung in trockenen Räumen.
9. Eine beschädigte Anschlußleitung kann nicht erstzt werden.
Der Transformator darf nicht mehr betrieben werden.
10. Der Ausgangsstromkreis muß nach den gültigen Installationsvorschriften installiert und geschützt sein.

GETTING TO KNOW THE PRINTER.....	4
1. ABOUT THE PRINTER	4
1-1. Introduction.....	4
1-2. General Specifications	4
1-3. About the QLABEL-II labeling Software	4
1-4. About the EZ-2/4 Windows drivers	4
1-5. Contents of Package.....	5
1-6. Printer Parts.....	5
1-7. Communication Ports Specification	6
2. SETTING UP THE PRINTER	7
2-1. Connecting the EZ-2/4 Printer to a Power Outlet.....	7
2-2. Connecting the EZ-2/4 Printer to a PC.....	7
2-3. Loading the EZ-2/4 Printer with Labels.....	7
2-4. Testing the EZ-2/4 Printer.....	8
3. MAINTENANCE AND ADJUSTMENTS	8
3-1. Replacing the Label Roll.....	8
3-2. How to clean the EZ-2/4 printer head	9
3-3. How to clear a label jam in the EZ-2/4 Printer.....	9
3-4. Label gap sensor adjustment	9
4. SOFTWARE COMMAND.....	11
4.1 Introduction.....	11
4.2 Command description.....	13
4-3. Examples	19
APPENDIX	21
A. PRINTER FONT.....	21
B. TROUBLESHOOTING.....	22
C. TECHNICAL SPECIFICATION	23
D. COMMUNICATION PORTS SPECIFICATION	23

Getting to Know the Printer

1. About the Printer

1-1. Introduction

The label printer is available in two models EZ-2 and EZ-4 the only difference between the two models is the print width. This compact printer will enable you to automate a lot of tasks currently handwritten saving time and giving a more professional image.

The EZ2/4 is the easiest way to produce high quality labels for a wide variety of applications, the printer works with direct thermal labels eliminating the need for costly ink, toner and ribbons.

With the power full QLABEL-II software provided with every printer you can easily produce the following:

Address Labels Barcode Labels Diskette Labels
File Labels Shelf Labels Shipping Labels
..... and many more.

1-2. General Specifications

	EZ-2	EZ-4
Print method	Direct thermal	
Max. paper width	2.36" (60 mm)	4.64" (118 mm)
Max. printing width	2.20" (56 mm)	4.09" (104 mm)
Max. print speed	2" per second (50.8 mm/Sec)	
Dot density	203 dots per inch (8 dots per mm)	
Power requirement	AC 13.5V ~ 16.0V; 3A ~ 5A. DC 18.0V ~ 24.0V; 3A ~ 5A	AC 13.5V ~ 16.0V; 4A ~ 5A. DC 18.0V ~ 24.0V; 4A ~ 5A
Sensor type	Label gap-sizing detector.	
Print head life	50K meters printing distance when apply on Thermal Labels	
Dimension	144 W x 215 H x 127 D mm ---With internal label roll 144 W x 215 H x 320 D mm ---With external label roll	198 W x 215 H x 127 D mm ---With internal label roll 198 W x 215 H x 320 D mm ---With external label roll
Working Environment	Operating Temperature: 40°F to 104°F (5°C to 40°C) Storage Temperature: -40°F to 140°F (-40°C to 60°C) Humidity: 10% to 90% non condensing, free air	

Specifications are subject to change without notice.

1-3. About the QLABEL-II labeling Software

Every EZ-2/4 label printer is supplied with fully featured labeling software for windows 95, 98 and NT. Features include the following:

- Ø Windows software
- Ø Easy to use no programming experience required
- Ø True WYSIWYG (What you see is what you get)
- Ø Sequential Numbering
- Ø Bar codes supported: EAN 8 (add on 2 of 5), EAN13 (add on 2 of 5), Code 39, Code93, Codabar, Code 128, EAN 128, UPC A, UPC E Interleaved 2 of 5.
- Ø 2 Dimensional Bar Codes supported: PDF 417, Maxicode.
- Ø Postnet code & Royal Mail code supported.
- Ø Variable data, Prompt at print time
- Ø Import information from a Database using ODBC link
- Ø Adjust print speed and darkness from the software

1-4. About the EZ-2/4 Windows drivers

A complete set of windows drivers for windows 3.1,95,98 and NT 4.01
 The EZ-2/4 drives will help you to print from your existing Windows applications.

1-5. Contents of Package

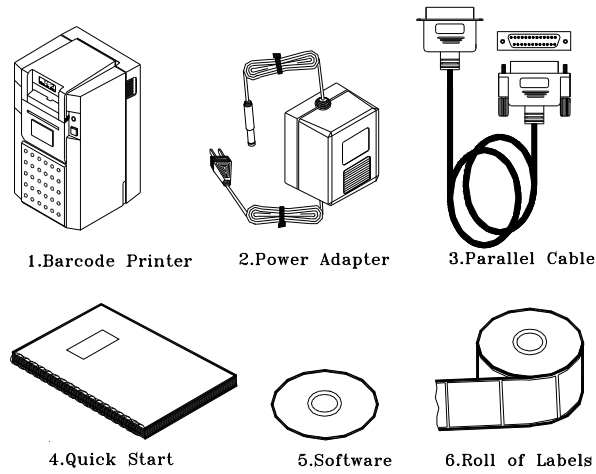


Fig. 1.5.1

Please check the contents of the packet as attached.

1-6. Printer Parts

Using the following diagram to familiarize yourself with the features and components of the EZ-2/4printer (see figure 1.6.1).

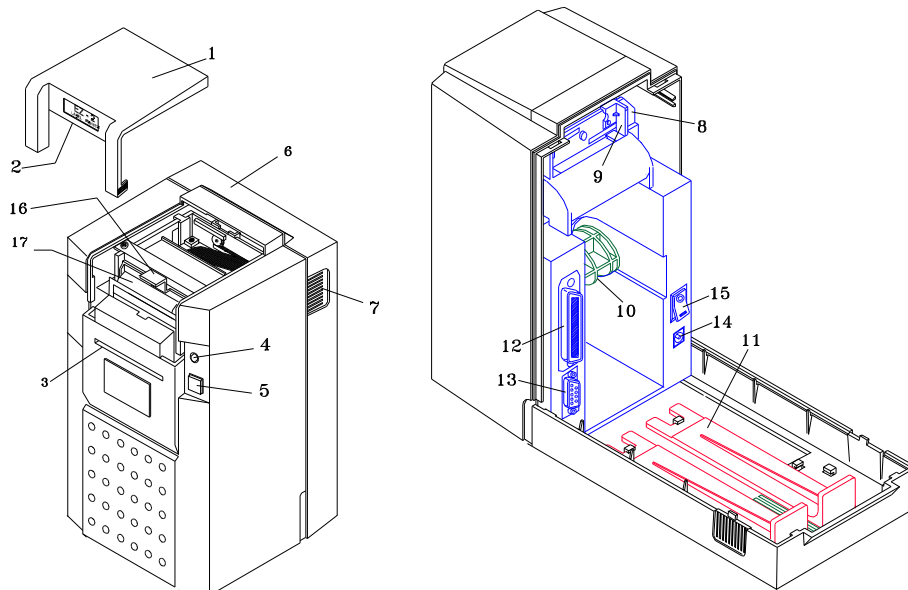


Fig. 1.6.1

Item	Parts	Description
1.	Top cover	Used to protect the printer head.
2.	Label tear line	Used to tear off printed labels.
3.	Liner paper output	Used to strip out the label from the liner paper. Liner paper will be stripped out through this window.
4.	Power light	Used to indicate power condition. When power on, the light is green or red.
5.	Feed button	Used for manually feeding out labels or adjusting label position.
6.	Rear cover	Used to protect the roller and labels.
7.	Lock switch	Used to lock the rear cover.
8.	Printer mechanism	The engine of the printer.
9.	Label guide	Label guide
10.	Label spindle hole	Used to locate the label roller in position
11.	Stands for big roll of label	The big label roll holder stands
12.	Parallel printer connector	The printer port connector
13.	Serial interface connector	Connect with host serial port
14.	Power jack	Connect the power cord to the unit

Item	Parts	Description
15	Power switch	Turn printer power on/off
16	Print head release level	To release label or adjust the label position.
17	Platen Roller	Used to feed out paper

1-7. Communication Ports Specification

Parallel Port

Handshake : DSTB to printer and BUSY to host.

Interface cable : DB25 Male (IBM-PC) 36 position parallel printer cable.

Pin out	PIN NO.	FUNCTION	TRANSMITTER
	1	Strobe	host
	2-9	Data 0-7	host
	10	N/C	printer
	11	Busy	printer
	12	Paper empty	printer
	13	Select	printer
	14-16	N/C	
	17	Chassis Ground	
	18	N/C	
	19-30	Signal Ground	
	31	N/C	host
	32	Fault	printer
	33	Signal	ground
	34-36	N/C	

Serial Port

Serial port is set at the factory with 9600 baud-rate, no parity, 8 data bits, and 1 stop bit and uses XON/XOFF protocol as well as RTS/CTS.

The connector is RS-232 DB9 female. The pin assignments are listed below.

PIN NO.	1	2	3	4	5	6	7	8	9
NAME	+5 V	TXD	RXD	DSR	GND	DTR	N/C	DTR	N/C

2. Setting up the Printer

2-1. Connecting the EZ-2/4 Printer to a Power Outlet.

1. Plug the power cord into a power outlet.
2. Plug the AC adapter cable into the power jack at the rear of the printer
3. Turn the printer on by pressing the power switch.
4. The LED on the printer will turn red.
5. Proceed to 2-2 Loading your printer with Labels.

2-2. Connecting the EZ-2/4 Printer to a PC

1. Be sure the printer is powered off.
2. Plug the power adapter into the printer power jack.
3. Connect the printer to the parallel interface on the PC (with the cable provided)
4. Power on. The LED light will be red (no label) or green.

2-3. Loading the EZ-2/4 Printer with Labels

Loading small-size label roll

1. Power on.
2. Press the two lock switches (part 6) and lift **up** a little to open the rear cover (see figure 2.3.1).

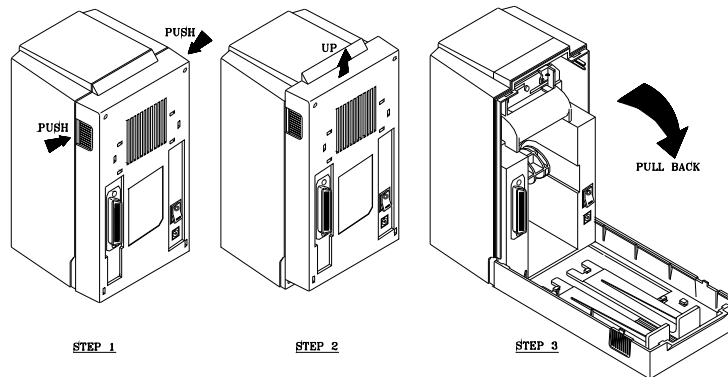


Fig. 2.3.1

3. Insert a small-size label roll onto the core shaft (see figure 2.3.2).
4. Place the roll into the groove.
5. Insert the edge of labels into the label guide, until the edge is blocked by the printhead.
6. Press feed button to drive the label (under the printhead) into the printer.

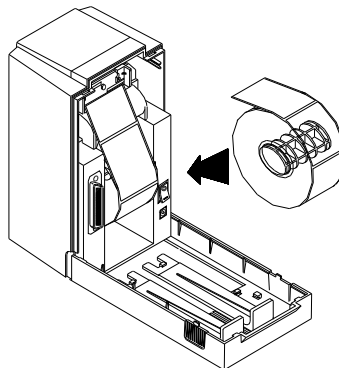


Fig. 2.3.2

Loading large-size label roll

1. Power on.
2. Press the two lock switches (part 6) and lift **up** a little to open the rear cover. (See figure 2.3.1)
3. Remove the label roll stands. Vertically place the two stands along the left and right sides Of the rear cover.
4. Place the large-size label roll on the stands (see figure 2.3.3).
5. Insert the edge of labels into the label guide, until the edge is blocked by the printhead.

6. Press feed button to drive the label (under the printhead) into the printer.

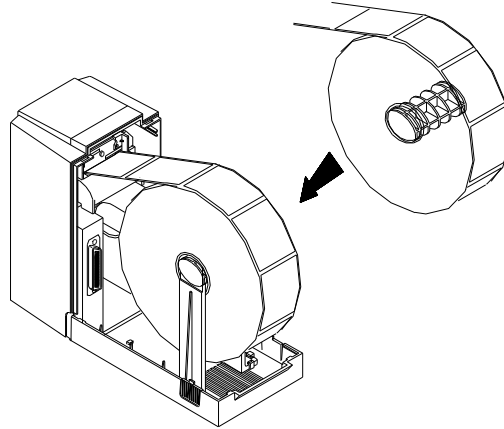


Fig. 2.3.3

2-4. Testing the EZ-2/4 Printer

The self-test function helps you check if the printer works normally.

To start the self-test function; please follow these steps.

1. Load the label.(As described in 2-3)
2. Power the Printer OFF (Wait 2 seconds)
3. Hold down the feed key and Power the Printer ON.
4. Release the feed button. Wait a few seconds, the printer will print the self-test.

Note: To Disable the Self-test, please power off the printer at least 2 seconds, than power on again.

3. Maintenance and Adjustments

3-1. Replacing the Label Roll

A. EZ-2

11. Face the front side of the printer. Place your thumbs on the top cover and the other fingers on the left and right sides of the printer.
12. Gently press down the top cover with your thumbs, and pull it toward you to remove the top cover. (See figure 3.1.1)

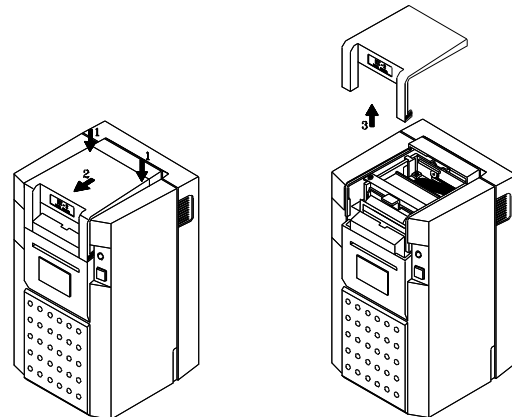


fig. 3.1.1

B. EZ-4

13. Press and lift up the two lock switches (part 7) to open the rear cover .
14. Lift the print head release level, and then you can draw out or adjust the label roll (see figure 3.1.2).

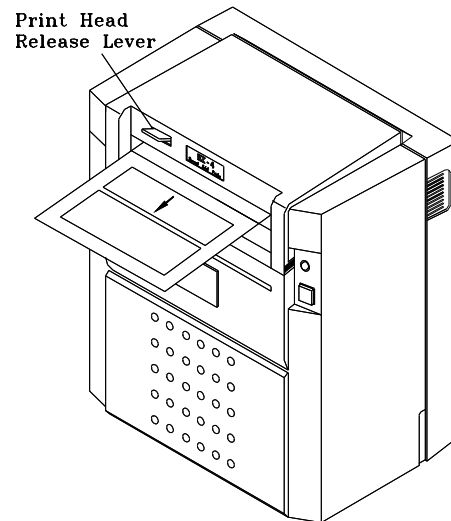


fig. 3.1.2

3-2. How to clean the EZ-2/4 printer head

1. Remove the top cover.
2. Press your pointing finger on "A", move out the two plastic fasteners from the retainer, and you can take out the retainer and the print head unit. (see figure 3.2.1)
3. Use soft cloth soaked in isopropyl alcohol, to rub off caught labels and cleans the surface. Reinstall the fasteners and retainer.

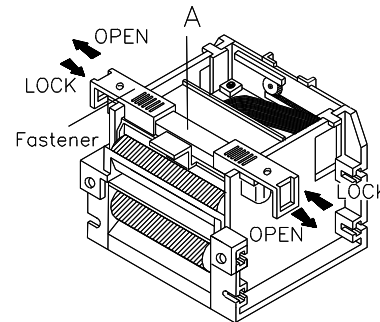


fig. 3.2.1

3-3. How to clear a label jam in the EZ-2/4 Printer

1. Power off the printer.
2. Remove the top cover and back cover.
3. Remove label roll.
4. Close the two label guides the way as figure 3.3.1(1).
5. Make apart the two retaining clips from the assembly, by gently pressing the clips the direction as figure 3.3.1(2), and afterward by lifting them a little.
6. Lift the guide board the direction as figure 3.3.1(3).
7. Clean, with alcoholic cloth, the label jam on the bottom of the assembly.
8. Reassemble the printer

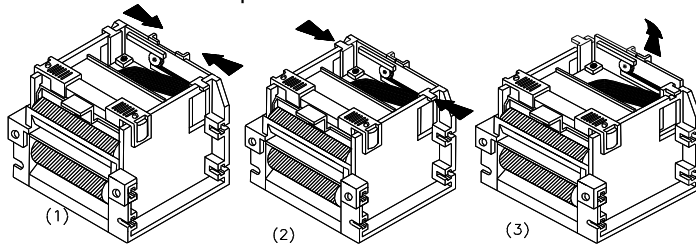


Fig. 3.3.1

3-4. Label gap sensor adjustment

Due to different quality labels available it may be necessary to make an adjustment to the label gap sensor for detecting the label gap. Any adjustment must be made in well light room.

1. Remove top cover.
2. The top view shows the circuit board as indicated on figure 3.4.1. The Variable Resistor (VR) can be adjusted the ways either counter-clockwise for lower transmit power (less sensitivity) or clockwise for higher transmit power (higher sensitivity). Each slight adjustment of the VR has to be verified by pressing the feed button at least 7 times.

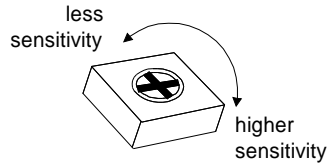
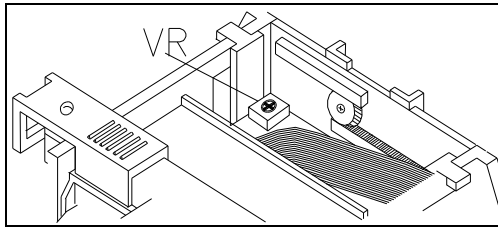


Fig. 3.4.1

Thermal Plain paper

1. Load the paper under the sensor. Watch the feed LED (power on LED) and it may turn red or green. If green, go straight to step 3.
2. Adjust the VR slowly and press the paper feed button successfully (at least 7 times), until the LED light turns green.
3. Remove the paper from the sensor, and press the feed button. If LED turns red, the adjustment is done. Otherwise, reverse the adjusting direction slowly until the LED light turns red, then repeat step 1.

Thermal Labels

1. Remove the sticker from the liner. Load the liner paper under the sensor.
2. Slowly adjust the Variable resistor and press the paper feed switch successively (at least 7 times), until the LED light turns red.
3. Put the label paper (with labels on the liner) under the sensor, then press feed button a few times. If the LED light turns green, you have finished the adjustment. If the LED light is red, repeat step 2 and 3 until the LED light turns green.

4. Software Command

4.1 Introduction

There are four basic types of software commands.

- I One-byte only control codes, see table 3.1
- I Set up commands, see table 3.2
- I Label formatting commands, see table 3.3
- I Buffer mode commands, see table 3.4

The commands are expanded from Esc code (decimal 27).

The commands operate in two modes.

- I In the line mode, the printer acts on the command received immediately. After power on, the printer is in the line mode.
- I In the buffer mode, the printer stores the lines of commands for a label into the printer buffer, then prints multiple copies of the label without pause. Only the label formatting commands can be stored into the printer buffer.

Sign	Function	Description
♀	FF (decimal 12)	Form feed
↵	CR (decimal 13)	Carriage Return. This code moves the label to the next line and turn reverse printing off.
	LF (decimal 10)	Line feed

Table 3.1 one-byte control codes

Function	Description	Page
Esc Dn	Set print darkness level.	13
Esc In	Select one of 9 country code character sets.	13
Esc ?n	Select one of 9 barcode types	13
Esc Mnn	Set left margin.	13
Esc Nnn	Set the form feed length (01 to 25 mm) for plain thermal paper printing.	13
Esc On	Adjust the stop position of the label when in strip operation.	13
Esc ON	Disable peeler mode.	13
Esc Qnnn	Set stop position count (for Label and Black mark paper)	14
Esc qnnn	Set stop position count (for Label paper only)	15
Esc an	Set start position. This command is applied for micro-position adjustment.	15
Esc fnn	Forward the paper.	15
Esc Rnn	Back up the paper.	15
Esc Sn	Set print speed.	15
Esc Xn	Set the bar code X dimension	17
Esc xnw	Adjust the narrow bar to wide bar ratio.	17
Esc Fn	Select see through sensor or reflect sensor.	17
Esc C	Cutting paper.	17

Table 3.2 Setup commands

Function	Description	Page
Esc Ahv	Set size of ASCII character or bar code.	17
Esc A0n	Set size of ASCII text.	17
Esc V	Turn on reverse printing.	17
Esc v	Turn off reverse printing .CR also turns off reverse printing.	17
Esc {xxx..}	Treat xx between {xxx..} as bar code and prints human readable characters.	17
Esc xxx..}	Treat xx between xxx..} as bar code and suppresses human readable characters.	17
Esc Gnnxx..	Graphics command.	17
Esc Lxxx	Graphics command (only EZ/4).	17

Table 3.3 Format commands

Function	Description	Page
Esc B	Begin to store data in buffer (buffer size is 30K).	18
Esc E	Flag end of data to be stored in the buffer.	18
Esc Pnn	Set the quantity of labels to print, up to a maximum of 99.	18
Esc pnnn	Set the quantity of labels to print from at least 100 to 999.	18
Esc P00	Allows repeat printing of the same label by pressing the feed button.	18

Table 3.4 Buffer Mode Commands

4.2 Command description

Set up commands

The setup commands must be sent before the buffer mode commands or label formatting commands.

1. Esc Dn

Function : Set the print darkness level.
 Parameter : n = 0 ~ 7 (5 is default value)

2. Esc In

Function : Select country code character Sets.

n	Country Code Character Set
0	US ASCII (8 bits) 256 characters
1	British (7 bits) 128 characters
2	German (7 bits) 128 characters
3	French (7 bits) 128 characters
4	Italian (7 bits) 128 characters
5	Danish (7 bits) 128 characters
6	Spanish (7 bits) 128 characters
7	Swedish (7 bits) 128 characters
8	Swiss (7 bits) 128 characters

3. Esc ?n

Function : Select Bar code type.

n	Format
1	Code 128B/C
2	Interleaved 2 of 5
3	Code 39 (default)
9	Code 93
K	Codabar
U	UPC A/E, UPC A/E + add on 2/5 (for EZ-4)
E	EAN 8/13, EAN 8/13 + add on 2/5 (for EZ-4)

4. Esc Mnn

Function : Left Margin.
 Parameter : nn = 01~99 millimeters (default value is 03 mm)

5. Esc Nnn

Function : Setting form feed length for plain paper.
 Parameter : nn = 01~25 millimeters

6. Esc On

Function : Extra Feed. (Set printer EZ-2S/EZ-4S on peeler mode)

If gap = 2 mm		If gap = 3 mm	
n = 1	8 mm	n = 1	7 mm
n = 2	7 mm	n = 2	6 mm
n = 3	6 mm	n = 3	5 mm
n = 4	5 mm	n = 4	4 mm
n = 5	4 mm	n = 5	3 mm
n = 6	3 mm	n = 6	2 mm
n = 7	2 mm	n = 7	1 mm

This command must follow Esc Qnnn or Esc qnnn.

7. Esc ON

Function : Disable peeler mode. (EZ-2S/ EZ-4S)

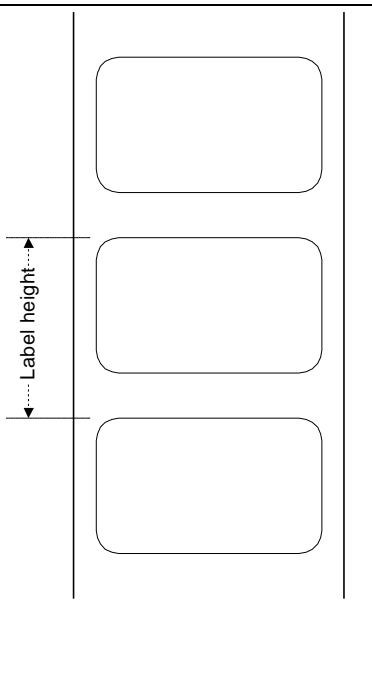
8. Esc Qnnn

Function : Set Top-of-form length for label paper or black-mark paper

Parameter : nnn = Q value

LABEL PAPER:

Label Height	Q Value	Label Height	Q Value
6 mm	Q=004	28 mm	Q=160
7 mm	Q=048	29 mm	Q=152
8 mm	Q=004	30 mm	Q=144
9 mm	Q=024	31 mm	Q=136
10 mm	Q=064	32 mm	Q=128
11 mm	Q=032	33 mm	Q=120
12 mm	Q=004	34 mm	Q=112
13 mm	Q=072	35 mm	Q=104
14 mm	Q=048	36 mm	Q=096
15 mm	Q=024	37 mm	Q=088
16 mm	Q=004	38 mm	Q=080
17 mm	Q=112	39 mm	Q=072
18 mm	Q=096	40 mm	Q=064
19 mm	Q=080	41 mm	Q=056
20 mm	Q=064	42 mm	Q=048
21 mm	Q=048	43 mm	Q=040
22 mm	Q=032	44 mm	Q=032
23 mm	Q=016	45 mm	Q=024
24 mm	Q=004	46 mm	Q=016
25 mm	Q=184	47 mm	Q=008
26 mm	Q=176	48 mm	Q=004
27 mm	Q=168	>=49 mm	Q=384



BLACK-MARK PAPER:

The width of black strip of the black mark paper must be greater than 4 mm.

The description of the symbols on the drawings--

Z = distance between tear line and the edge of black strip against paper feed direction (in mm).

X = distance between tear line and the edge of black strip from paper feed direction (in mm)

Y = width of black strip (in mm)

RL= distance between two tear lines (your label size length in mm)

Formula A : $Q=(46-X-(INT((46-X)/RL)*RL))*8$

Use for $X < 46$ mm and tear line is outside of black strip

INT : integer ; if $Q \leq 0$, set $Q=004$

Example:

RL= 26 mm and X= 6 mm

$Q=(46-6-(INT((46-6)/26)*26))*8$

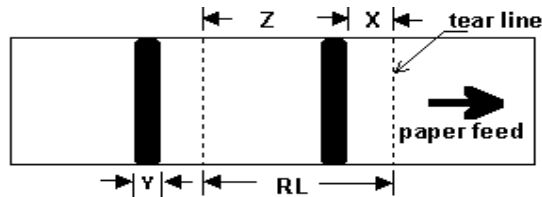
$Q=(46-6-(INT((40/26)*26))*8$

$Q=(46-6-(1*26))*8$

$Q=(46-6-26)*8$

$Q=14*8$

$Q=112$



Formula B : $Q = (46 + Z - (\text{INT}((46 - Y + Z) / \text{RL}) * \text{RL})) * 8$

Use for tear line is inside of black strip or $X > 46$ mm

Example (1) tear line is inside of black strip

RL=26 mm , Z= 4 mm and Y= 6 mm

$$Q = (46 + 4 - (\text{INT}((46 - 6 + 4) / 26) * 26)) * 8$$

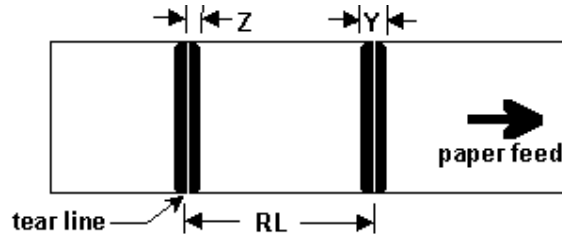
$$Q = (46 + 4 - (\text{INT}(44 / 26) * 26)) * 8$$

$$Q = (46 + 4 - (1 * 26)) * 8$$

$$Q = (46 + 4 - 26) * 8$$

$$Q = 24 * 8$$

$$Q = 192$$



Example (2) $X > 46$ mm

RL=60 mm, Z= 7 mm and Y= 4 mm ($X=53\text{mm} > 46\text{mm}$)

$$Q = (46 + 7 - (\text{INT}((46 - 4 + 7) / 60) * 60)) * 8$$

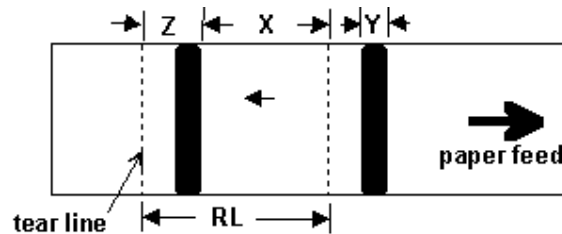
$$Q = (46 + 7 - (\text{INT}(49 / 60) * 60)) * 8$$

$$Q = (46 + 7 - (0 * 60)) * 8$$

$$Q = (46 + 7 - 0) * 8$$

$$Q = 53 * 8$$

$$Q = 424$$



9. Esc qnnn

Function : Set Top-of-form length in millimeters. (Included label gap)

Parameter : nnn = label height

Example : $\leftarrow q027$ (Label length is 25 mm, label gap is 2 mm, so control code is 027.)

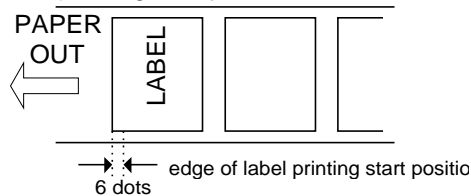
10. Esc an

Function : Micro position adjustment.

Parameter : n = 0~7

n	Value (dot)	n	Value (dot)
0	0	4	8
1	2	5	10
2	4	6	12
3	6	7	14

Example : $\leftarrow a3$ (Printing start position will be 6 dots from edge of label)



11. Esc fnn

Function : Forward label.

Parameter : nn = 01~29 millimeters (The distance from print head line to label tear bar is 24 mm.)

12. Esc Rnn

Function : Back up label.

Parameter : nn = 01~29 millimeters

13. Esc Sn

Function : Set print speed.
Parameter : n=0;1 inch per second
n=1 ;2 inches per second

14. Esc Xn

Function : Bar code X dimension (width). Use for Code 128 B/C, UPC A/E and EAN 8/13.

Parameter : n = 2 ~ 4 (2 is default value)

n = 2	2 dot X dimension(default)
n = 3	3 dot X dimension
n = 4	4 dot X dimension

15. Esc xnw

Function : Narrow bar to wide bar ratio. Use for Code 39, Code 93, Codabar and I 2 of 5.

Parameter : n (narrow) = 2 ~ 4

w (wide) = 4 ~ 12

16. Esc Fn

Function : Select see through sensor or reflect sensor

Parameter : n=0 select see through sensor (default)

n=1 select reflect sensor

17. Esc C

Function : Cutting paper

Parameter : none

Label formatting Command

1. Esc Ahv

Function : Set size of ASCII character or bar code; default size : A11(16x26 dot)

Parameter : h (horizontal expansion) = 1 ~ 4 (1 is default)

v (vertical expansion) = 1 ~ 8 (1 is default)

2. Esc A0n

Function : Set size of ASCII text.

Parameter : n = 0 ~ 4

n	Size
0	1 x Vertical expansion (8x10 dot)
1	1 x Vertical expansion bolded
2	2 x Vertical expansion bolded
3	3 x Vertical expansion bolded
4	2 x Vertical 2x horizontal expansion

3. Esc V

Function : Turn on text highlight printing.

Parameter : none

Normal	Highlight
TEXT	TEXT

4. Esc v

Function : Turn off text highlight printing

Parameter : none

5. Esc {XXX...}

Function : Bar code with human readable.

Parameter : xxx... = barcode data

6. Esc |XXX...}

Function : Bar code without human readable.

Parameter : xxx... = barcode data

7. Esc Gnnxxx

Function : Graphics command.

Parameter : nn = number of graphic bytes. The maximum of EZ-2 is 55, the maximum of EZ-4 is 98.

Use with the Esc Mnn command (Esc Maa+Esc Gbbxxx....)

EZ-2: aa+bb<=56, EZ-4: aa+bb<=99

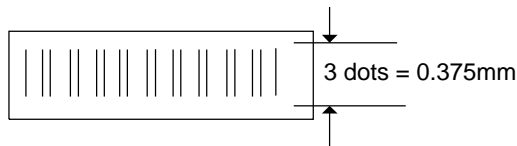
xx..= the data represent one line of graphic pattern, each x is 8 bits binary data (1= black, 0= white)

Example : <-G10AAAAAAAAA ("A" ASCII code is 0X41 binary 01000001)

<-G10AAAAAAAAA

<-G10AAAAAAAAA

Print result :



8. Esc Lxxx

Function : Graphics command (only EZ/4).
 Parameter : xx.= the data represent one line of graphic pattern, each x is 8 bits binary data (1= black, 0= white); always 104 bytes.
 Example : |←104 BYTES→|
 ← LAAAAA.....AAA
 ← LAAAAA.....AAA
 ← LAAAAA.....AAA
 ← LAAAAA.....AAA
 :
 :
 :

Buffer mode Command

The buffer mode starts when the printer receives the buffer mode begin command Esc B. In the buffer mode the printer stores the lines of commands for a label into the printer buffer, then prints multiple copies of the label without pause. Only the label formatting commands can be stored into the printer buffer.

1. Esc B

Function : Begin to Store data in buffer.

2. Esc E

Function : Ending of buffer mode.

3. Esc Pnn

Function : Set the quantity of labels to print. **Do not send** a CR/LF at the end of the command.

Parameter : nn = 01~99

4. Esc pnnn

Function : Set the quantity of labels to print. **Be sure to send** a CR/LF at the end of the command.

Parameter : nn = 100~999

5. Esc P00

Function : Allow repeat printing of the same label by pressing the feed button. If you use strip function, this command can re-print the same label by removing the loose label detected by the sensor.

Example : ←B←S2←D5←Q128←?3←M18←A12—TEST,␣
 ←{1234},␣
 ←M28\$100.00,␣
 ←E←P00

4-3. Examples

1. Using label paper

DOS command: COPY TEST1.DAT PRN

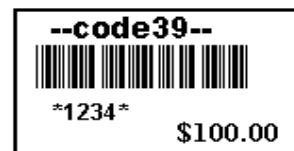
Esc label page size speed darkness barcode (code 39) text or barcode size
←Q176 ←S2←D5←?3←A12←M18--code39-- ↓
←{1234} ↓ Carriage Return data
←M28\$100.00 ↓ left margin
♀ form feed



2. Using buffer mode

DOS command: COPY TEST2.DAT PRN

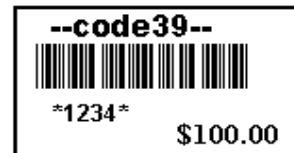
←B←D5←S2←Q176←?3 ←M18←A12-- code39 -- ↓
←{1234} ↓
←M28\$100.00 ↓
←E←P10



3. Using cutter with plain paper

DOS command: COPY TEST3.DAT PRN

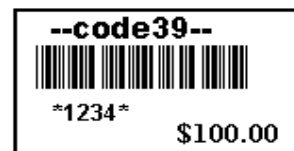
←N10←?3←M18←A12—code39 -- ↓
←{1234} ↓
←M28\$100.00 ↓
♀
←C



4. Using peeler

DOS command: COPY TEST4.DAT PRN

←B←S2←D5←Q176←O3←?3←M18←A12-- code39 -- ↓
←{1234} ↓
←M28\$100.00 ↓
←E←P10



5. Text highlight with plain paper

←N15←S2←D5←?3←M18←{1234} ↓
←V←M18TEXT←v ↓
♀



6. Using black-mark paper

DOS command: COPY TEST5.DAT PRN

←F1←Q992 /* remark F1 and Q992 command is gobble command */

←S2←D7 /* remark S2 and D7 command is gobble command */

♀

←M07←A11PAYMENT TIME ↓

←M07←A22 10:20 AM ↓

←M07←A11FEE PAID ↓

←M07←A22 \$ 12.50 ↓

←M07←A11DEPARTURE TIME ↓

←M07←A22 02:20 PM ↓

♀

PAYMENT TIME
10:20 AM
FEE PAID
\$ 12.50
DEPARTURE TIME
02:20 PM

7. C sample program to test the printer with Black line sensor.

```
#include <stdio.h>
#define FORMFEED 12
main()
{
    printf("\n\n PM-202 test \n\n");
    printf("Initial Step: set the Q value\n");
    printf("Press a key to start\n");
    getchar();

    fprintf(stdprn,"%c%s",27,"F1");
    fprintf(stdprn,"%c%s",27,"Q992");
    fprintf(stdprn,"%c",FORMFEED);
    fprintf(stdprn,"%c%s",27,"S2");
    fprintf(stdprn,"%c%s",27,"D7");
    do{
        printf("Print label...\n");
        printf("Press a key to start\n");
        printf("Press ctrl-break to quit\n");
        getchar();
        fprintf(stdprn,"%c%s",27,"M07");
        fprintf(stdprn,"%c%s",27,"A11");
        fprintf(stdprn,"%s%c","PAYMENT TIME",'\n');
        fprintf(stdprn,"\n");
        fprintf(stdprn,"%c%s",27,"A22");
        fprintf(stdprn,"%s%c","10:20 AM",'\n');
        fprintf(stdprn,"%c",FORMFEED);
    }while(1);
}
```

Appendix

A. Printer Font

U.S. ASCII 8 bit (IBM compatible)

0	☐	☺	☹	♥	♦	♣	♠	●	◻	○	⊗	♂	♀	♪	♫	☀
16	▶	◀	↕	!!	¶	§	■	↕	↑	↓	→	←	↵	↔	▼	▲
32		!	²	#	\$	%	&	'	()	*	+	,	-	.	/
48	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
64	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
80	P	Q	R	S	T	U	V	W	X	Y	Z	[\]	^	_
96	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
112	p	q	r	s	t	u	v	w	x	y	z	{		}	~	␣
128	Ç	Ü	é	â	ä	à	á	ç	ê	ë	è	ï	î	ì	Ä	Å
144	É	æ	Æ	ô	ö	ò	û	ù	ÿ	Ö	Ü	¢	£	¥	₪	ƒ
160	á	í	ó	ú	ñ	Ñ	⊖	⊕	¿	¬	½	¼	¡	«	»	
176	⦿	⦿	⦿		†	‡	¶	¶	¶	¶	¶	¶	¶	¶	¶	¶
192	⦿	⦿	⦿	⦿	⦿	⦿	⦿	⦿	⦿	⦿	⦿	⦿	⦿	⦿	⦿	⦿
208	⦿	⦿	⦿	⦿	⦿	⦿	⦿	⦿	⦿	⦿	⦿	⦿	⦿	⦿	⦿	⦿
224	α	β	Γ	π	Σ	σ	μ	γ	Φ	θ	Ω	δ	∞	∅	ε	∩
240	≡	±	≥	≤	∫	∫	÷	≈	○	●	●	√	n	²	▪	⚡

B. Troubleshooting

Problems	Recommended Solution
Power switch already turned on but the LED does not light.	<ul style="list-style-type: none"> Check Power connector.
Printing stops and LED goes red.	<ul style="list-style-type: none"> Probably software setting or programming problem. Check to use the correct paper Probably label jam, remove the stuck label
Printer is working but nothing is printed on label.	<ul style="list-style-type: none"> Check the label is facing up and the paper you use is thermal paper. Check to choose the correct printer driver. Make sure to choose the correct model of printer on platen.
Label is stuck	<ul style="list-style-type: none"> Remove the stuck label and use soft cloth soaked with alcohol to clean the adhesive glue.
Only part of the label got printed	<ul style="list-style-type: none"> Label is stuck on print head. Probably software problem Margins are not set properly Printer head is not fixed in proper position, re-positioning printer head screws or clipper
Difficult to load label roll	<ul style="list-style-type: none"> Check if the label stuck on printer. Remove the stuck label. Make sure the width and thickness of label is within the specification.
When printing out, some dots missing	<ul style="list-style-type: none"> Clean printer head with alcohol. (If the label glue is attached to printer head, please apply alcohol to printer head; wipe with soft cloth softly.) Replace printer head for possible damage.
Printing is not in the correct position	<ul style="list-style-type: none"> Check the Label Transmit Sensor, it may be covered with dust. Check with your label supplier; make sure they have used the recommended backing material. Adjust the label transmit sensor if you are an experienced printer user. Check the label guide, it may not be in the proper position.
Label printing jumps to next label	<ul style="list-style-type: none"> Check if the label height setting is the same as actual label height. Check the Label Transmit sensor, it may be covered with dust.
Printing is not very clear	<ul style="list-style-type: none"> Check the printer darkness setting.

Please call your agent for help if the above information can not help you.

C. Technical Specification

	EZ-2	EZ-4
Print method	Direct thermal	
Max. paper width	2.36" (60 mm)	4.64" (118 mm)
Max. printing width	2.20" (56 mm)	4.09" (104 mm)
Max. print speed	2" per second (50.8 mm/Sec)	
Dot density	203 dots per inch (8 dots per mm)	
Power requirement	AC 13.5V ~ 16.0V; 3A ~ 5A. DC 18.0V ~ 24.0V; 3A ~ 5A	AC 13.5V ~ 16.0V; 4A ~ 5A. DC 18.0V ~ 24.0V; 4A ~ 5A
Sensor type	Label gap-sizing detector.	
Print head life	50K meters printing distance when apply on Thermal Labels	
Dimension	144 W x 215 H x 127 D mm ---With internal label roll 144 W x 215 H x 320 D mm ---With external label roll	198 W x 215 H x 127 D mm ---With internal label roll 198 W x 215 H x 320 D mm ---With external label roll
Working Environment	Operating Temperature: 40°F to 104°F (5°C to 40°C) Storage Temperature: -40°F to 140°F (-40°C to 60°C) Humidity: 10% to 90% non condensing, free air	

Specifications are subject to change without notice.

D. Communication Ports Specification

Parallel Port

Handshake : DSTB to printer and BUSY to host.

Interface cable : DB25 Male (IBM-PC) 36 position parallel printer cable.

Pin out :

PIN NO.	FUNCTION	TRANSMITTER
1	Strobe	host
2-9	Data 0-7	host
10	N/C	printer
11	Busy	printer
12	Paper empty	printer
13	Select	printer
14-16	N/C	
17	Chassis Ground	
18	N/C	
19-30	Signal Ground	
31	N/C	host
32	Fault	printer
33	Signal	ground
34-36	N/C	

Serial Port

Serial port is set at the factory with 9600 baud-rate, no parity, 8 data bits, and 1 stop bit and uses XON/XOFF protocol as well as RTS/CTS.

The connector is RS-232 DB9 female. The pin assignments are listed below.

PIN NO.	1	2	3	4	5	6	7	8	9
NAME	+5 V	TXD	RXD	DSR	GND	DTR	N/C	DTR	N/C