USER'S MANUAL

Thermal Printer
NPT-100

NEW SUNRISE

Amendment Record

AMENDMENT No.	INCORP. BY	DATE	PARAGRAPH	VER	REASON FOR CHANGE
1	Q/A	2013/12/1	4 and 5	02	Add the description of port settings.

NOTICE TO USERS

- Thanks for your purchasing this product NPT-100 Thermal Printer.

- Please read this manual carefully to ensure proper use before installation and operation of the NPT-100.

- NSR will assume no responsibility for the damage caused by improper use or modification of the product or claims of loss of profit by a third party.

- Software version in your product may be some different from that described as in this manual. Such difference will not affect the performance of the product. NSR reserves the right on continuous improvement of products both in software and hardware without any prior notice.

- The copyright of this manual is owned by the manufacturer, NEW SUNRISE CO., LTD (NSR). Prior written permission is required for copying or reproducing the manual or part of the manual.

- Please keep the manual for your future reference.

SAFETY INSTRUCTIONS for the operator

⚠	**Warning** Keep away from heater source or direct sunshine.
🚫	**Prohibition** Don't open the equipment. Only qualified personnel should work inside the equipment. Don't disassemble or try to modifiy the equipment.
⚡	**Dangerous** Turn off the power immediately when smoke or fire is emitted.

SAFETY INSTRUCTIONS for the installer

⚠	**Warning** Connect the earthing cord to ship's body. Observe the compass safe distance to prevent deviation of an onboard magnetic compass.
🚫	**Prohibition** Don't open the equipment unless you have fully understood the structure and circuits of the equipment. Only qualified personnel should work inside the equipment. Don't disassemble or try to modifiy the equipment.
⚡	**Dangerous** Turn off the power at power distribution board before installation.

0. Brief Introduction

Thank you for purchasing the NPT-100 thermal printer.
This USER'S MANUAL explains how to handle NPT-100 thermal printer (hereinafter referred to as printer),
NPT-100 thermal printer adopts Seiko printer head with the features of high speed, high-quality,high reliability,low noise,compact size and easy operation .
NPT-100 can be used for a wide range of marine applications, e.g. Navtex receiver, Inmarsat C, and Anemometer.

Once you have opened the carton, make sure it contains the printer and all accessories.
- Printer
- Thermal paper
- CD-ROM (manual)
- AC/DC adaptor
- Short connection cable with RS232 connector

Printer

Thermal paper

CD-ROM (Manual)
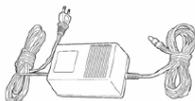
AC/DC adaptor

1. Features

1.1 General Specifications

Printing Method   Thermal dot line printing
Printing width: 80 mm , 640 dot / Dot per line
Resolution: 8 dots /mm
Paper width   111.5±0.5 mm
Printing speed: high or low speed
printing head life: 100 million pulse or more(at 25℃ and at rated power supply)

1.2 Printing paper :   Thermal paper

Paper loading: Easy lading of paper with a detachable platen unit.
Paper parameters: External diameter**:**Φ 40mm
                                  Internal diameter**:**Φ12mm
                                  Thickness   53～60g/111.5±0.5 mm
                                  high or low speed

1.3 Character matrix :

·ASCⅡ character: 16 dot wide×24 dot high, 2.00 (W)×3.00 (H) mm

1.4 Interface:

Parallel port or serial port selectable.
Serial port can be set at the baud rate of 2400/4800/9600/19200bps.

1.5 Printing control command:

- The printing control command has a good compatibility with the traditional printer
- Character printing command supports to print out ASCⅡ character in double width and double high
- Graphics printing command supports to print out different graphical dot array vertically and horizontally .
- Support the printing under the Windows 9x、 Windows2000、 Windows XP Operation System.

1.6 Power Supply:

.
- DC8V or AC100V/50-60Hz (with adaptor)
- Mean current: 3(A) at DC8V
- Peak current: 5(A) at DC8V

1.7 Environmental conditions:

- Operating temperature :   0～40℃
- Relative humidity: ≤80%RH
- Storage temperature :   -20～ 60℃
- Storage Relative humidity: 10～90%RH

2. External dimensions and part name

External dimensions (160×170×66mm)
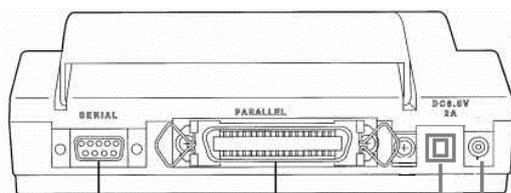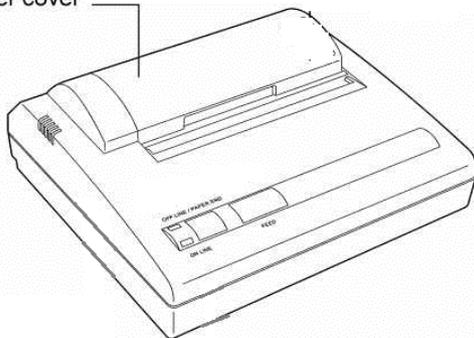
Paper cover

serial port   parallel port   switch   power input

ON/OFF LED

ON/OFF LINE

FEED
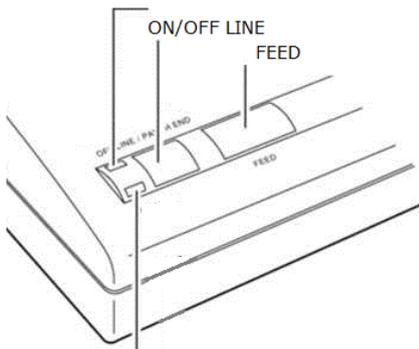
POWER LED

3. Operation

3.1 Loading paper
- When the printer detects the signal of no paper, the ON/OFF LED (green) will blink.
- Open the paper cover by pressing push–button on the right side.
- Put the paper roll into the paper holder as below photo.

- Close the paper cover.
- The ON/OFF LED stops blinking.
- If the paper deviates to one side, press the FEED button to correct the error.

Attention:
The thermal surface of printing paper must towards the inside.

3.2 State indicators
The printer has two indicators, the POWER LED (red) as a power indicator and the ON/OFF LED (green) as a state indicator.
ON/OFF LED states:
- light on, indicating the printer in on-line state.
- light off, indicating the printer in off-line state.
- blink, indicating the printer in unusual warning state or in setting state.

3.3 ON/OFF LINE button
In the on-line mode, the ON/OFF LED is on.
Press the ON/OFF LINE button, then the ON/OFF LED is off and the printer is off-line. In this state, the printer can not receive the data.
Press the ON/OFF LINE button again, and the printer is on–line again.

3.4 FEED button
In the on-line state, press the FEED button and the feed paper motor will be started. The printer feeds the paper.
Press the FEED button again to stop feeding paper.

3.5 Self-test

The self-test procedure can examine whether the printer works normal and what the current parameters are.

If a self-test list can be correctly printed out, the printer is in good state.

- Press **ON/OFF LINE** button to leave the printer into off-line state (the **ON/OFF LED** off).
- Press the **ON/OFF LINE** button again and the **ON/OFF LED** will blink once.
- Press the **ON/OFF LINE** button immediately to leave the printer into self-test procedure.
- The printer can print out the ASCII character table and current parameters of all setting items.

4. Function Setting

4.1 Items to be set

The below items can be set by different combination of buttons and LEDs on the panel.

NO	ITEM	PARAMETERS
1	Interface	parallel or serial
2	Printing speed	low speed or high speed
3	Data control of serial port	DTR or Xon/X-off
4	Baud rate of serial port	19200 bps ,9600 bps,4800 bps,2400 bps
5	Printing resolution	standard printing or fine printing
6	Printing mode	row printing: Character matrix (8X16 dots) or page printing: Character matrix (16X24 dots or 16X16 dots)
7	Character matrix	16X24 dots or 16X16 dots

4.2 Setting method

- Press the **ON/OFF LINE** button, then **ON/OFF LED** off and the printer is off-line.
- Press the **ON/OFF LINE** button again until **ON/OFF LED** blinks twice and then release the button. The printer is on–line and prints out the current parameter of the first item.
- Press the **ON/OFF LINE** button step by step to print the current parameter of the setting items in below order:

  Interface➙
  Printing speed➙
  Data control of serial port➙
  Baud rate of serial port➙
  Printing resolution➙
  Printing mode➙
  Character matrix

- When printing the parameter of one item among above, press the **FEED** button to change parameter of the item.
- Press the **ON/OFF LINE** button again to save the current parameter and enter next setting item.

4.3 Setting example

In the below table, the middle column shows the current parameters (as printed in self-test). The right column shows the target parameter you

expect to set into.

Item Name	Current Parameter	Target Parameter
Interface	Parallel	Serial
Printing speed	High speed	Low speed
Data control of serial port	X-ON/X-OFF	DTR
Baud rate of serial port	Baud rate 4800	Baud rate 19200
Printing resolution	Standard printing	Fine printing
Printing mode	Page printing	Page printing
Character matrix	Character 16X24 dots	Character 16X16 dots

Operation steps:

STEP 1:
Press the **ON/OFF-LINE** button to make the printer into off-line state (**ON/OFF LED** off).
Press the **ON/OFF LINE** button again until **ON/OFF LED** blinks twice and then release the button. The printer is on–line and prints out the current parameter of the first item "**Parallel**" following the title **Function Setting**.
Press the **FEED** button to change the parameter. "**Serial**" is printed out.

STEP 2:
Press the **ON/OFF LINE** button to enter next setting item. "**High Speed"** is printed out.
Press the **FEED** button to change the parameter. "**Low Speed**" is printed out.

STEP 3:
Press the **ON/OFF LINE** button to enter next setting item. "**X-ON/X-OFF"** is printed out.
Press the **FEED** button to change the parameter. "**DTR**" is printed out.

STEP 4:
Press the **ON/OFF LINE** button to enter next setting item. "**Baud rate 4800"** is printed out.
Press the **FEED** button to change the parameter. "**Baud rate 9600**" is printed out.
Press the **FEED** button to change the parameter. "**Baud rate 19200**" is printed out.

STEP 5:
Press the **ON/OFF LINE** button to enter next setting item. "**Standard**

printing" is printed out.

Press the FEED button to change the parameter. "**Fine printing**" is printed out.

STEP 6:

Press the ON/OFF LINE button to enter next setting item. "**Page printing"** is printed out.

STEP 7:

Press the ON/OFF LINE button to enter next setting item. "**Character 16X24 dots"** is printed out.

Press the FEED button to change the parameter. "**Character 16X16 dots**" is printed out.

STEP 8:

Press the ON/OFF LINE button to save all new parameters.

All new parameters can be printed out if self-test is carried out.

5. Port Connection

5.1 Port description of RS-232 connector

Pin No.	Description	Direction	Remarks
1	NC		NO USED
2	TXD	output	The printer sent out "X-on/X-off "code
3	RXD	input	The printer receives data
4	…	…	Connected to pin 6
5	GND	…	
6	…	…	Connected to pin 4
7	NC		NO USED
8	DTR		The printer can not receive data when the signal in "Mark"(Busy), the printer can receive data when it in "Space" state.
9	NC		

5.2 The connecting between the printer and PC

Pin No.	PC or Marine equipment	Printer
1		
2	RXD	TXD
3	TXD	RXD
4	DTR	Connected to pin 6
5	GND	GND
6	DSR	Connected to pin 4
7	RTS	NC
8	CTS	DTR
9		

Data format:

Parity: nothing, odd number, even number
Data control: :   x-on / x-off
Data bit length: 8 bit
Stop bit length: 1 bit (fixed)

5.3 Baud rate:

2400/4800/9600/19200bps
 (factory default 4800bps)

6. Control command

ASCⅡ		Function
	NUL	End symbol
	HT	Horizontal tab
	LF	Print and line feed
	VT	Vertical tab
	CR	Print and carriage return
	CAN	Cancel the character in current line
ESC	ESC	Set West word printing mode
ESC	FS	Set Chinese word printing mode
ESC	%	Permit /prohibit User-definable character
ESC	&	Set Use-definable character
ESC	+n	Set/Reset superscript line print
ESC	-n	Set/Reset subscript line paint
ESC	1A	Set n- dot line feed
ESC	@	Reset the Printer
ESC	B	Set Vertical tab value
ESC	D	Set horizontal tab value
ESC	J	Print and feed paper n- dot line
ESC	Q n	Set right margin
ESC… U n		Set character was printed in double-width
ESC	V n	Set character was pointed in double-high
ESC	W n	Set character was printed in double-high and double width
ESC	f m n	Print n-space/n-space line
ESC	I	Set/cancel inverted colour pint
ESC	1n	Set left man gin
ESC	m	Cutting paper command
Graphical printing command		
ESC *		Set dot graphic command
ESC k		Set dot graphic command
ESC(		Set dot graphic command
ESC		Set dot graphic command
ESC		Set dot graphic command
ESC,		Print curve command
ESC x		Set bit image graphic printing in the ROM
G/ n		Print the bit image graphic in the ROM

Appendix table of characters

HEX	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
2		!	"	#	$	%	&	,	{	}	*	+	,	-	。	/
3	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
4	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
5	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
6	`	a	b	c	d	e	f	G	h	i	j	k	l	m	n	o
7	p	q	r	s	t	u	v	W	x	y	z	{	l	}	~	
8																
9																