



Printer Function

V1.1

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Overview

This document describes the Printer Function of PI series HMI, and introduces it in two parts:

- The method of printing
- HMI communication settings

I The method of printing

1.1 printer object

The printer object is in [Display] -> [Print Object]

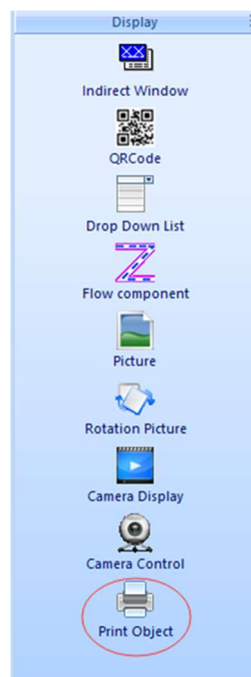


Figure 1-1

Double click object to pop-up the setting screen as Figure 1-2 shows.

- 1) **Direction:** four direction choices support in printing: 0, 90, 180, and 270. Printing direction is to rotate printing content accordingly.
- 2) **Zoom in:** Click "Zoom Printing" to zoom printing content in proportion with papersize.
- 3) **Trigger mode:**
 - **Print:** When trigger address turns ON, printer starts to respond and print.
 - **Save:** Screenshot the content in printing object area and then save it in the set "save path" when trigger address turns ON. Select "online simulation" and com port when carrying out simulation
- 4) **Save path:**
 - **Select storage:** SD/CF card, UDisk;
 - **Folder:** it is for folder name to save the screenshot picture;
 - HSW1083 is used for setting screenshot picture name, the detailed information as below
HSW1083=0: the name will contain year, month, day, hour, minute second millisecond,

screen number, object number, such as: 2019010414291052302.bmp;HSW1083=1: it named as yyyymmddhhmmss. Such as 20190104142910.bmp

- 5) **Position:** It is used for setting the position of the object, which is the coordinate of the upper-left corner
- 6) **Size:** It is used for setting the size of object

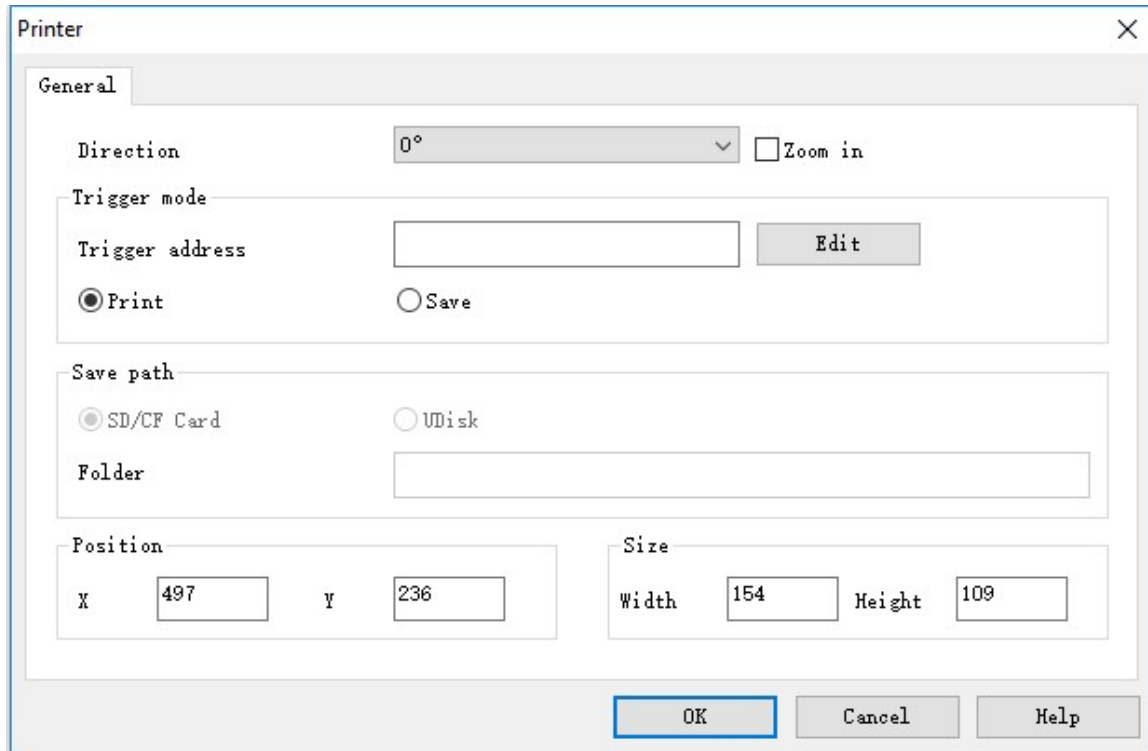


Figure 1-2

1.2 Macro Script

HMI also supports print text by scripts

function name:

PrintText(A)

Description:

Print the content of A or locates in A.

Parameters

A: source data. A could be a variable or a string (text information), not a register address.

Example:

A is text information

PrintText("HMI 8070")

Result: Printer will print out "HMI 8070"

A is variable

Dim a as string

a= "HMI 8070"

PrintText(a)

Result: Printer will print out "HMI 8070"

Note:

source data length range:1-128 characters.

II HMI communication settings

2.1 Epson printer

EPSON-TM-T82II/TM-XXX supports following models.

- 1) **WH series:**WH-E22,WH-A6,WH-A7,WH-A9,WH-E21,WH-AA,E222R90-0DE1182TGA
- 2) **SP series:**SP-RMD6A, SP-RMD6B, SP-RMD8A, SP-RMD8B, SP-RMD8C, SP-DVII, SP-RME4

It should support the printer uses ESC/POS instruction set in theory.

HMI Settings

Item	Settings
Protocol	EPSON-TM-T82II/TM-XXX
Connection	RS232
Baud rate	9600~115200
Data bit	8
Parity	None
Stop bit	1
PLC station No.	1

Parameter

Each printer protocol has default parameter. These parameters could be configured by addresses. Error parameters may cause print failure.

Instructions for using special registers

Address	Description	Value
HSW10603	Print direction (only valid for print function)	1
HSW10604	Dot Matrix Type	1
HSW10605	Print width (depending on printer and paper)	384
HSW10606	Printer instruction type	1
HSW10607	Paper cut	2
HSW10608	Alignment (only valid for print function)	1

The paper cut and alignment are available. The printing direction is temporarily unavailable. The default is to print in the forward direction. If you want to change the direction, we need to change in the print device. Dot matrix type, print width, and serial command types should be set correctly in case of print failure

2.2 TSPL Label Printer

TSPL label printer protocol supports DL-888D, SPRT TL21 series printers

- SPRT TL21: <https://www.sprinter.com.cn/show-60-62-1.html>
- DL-888D: <https://www.deliworld.com/product/detail/7624>

HMI Setting

1) Select the protocol

Create a new project, select the TSPL label printer protocol as shown below.

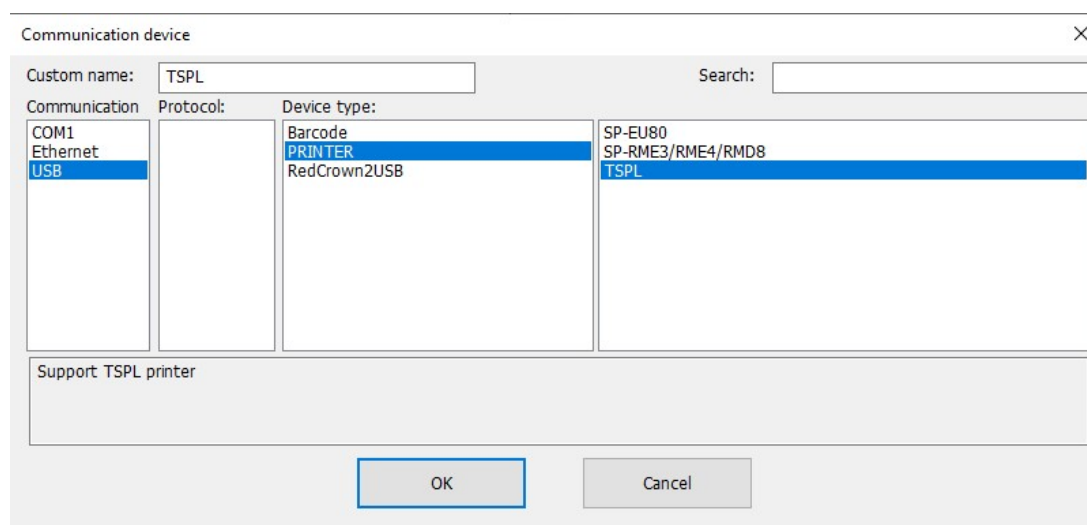


Figure 2-1

2) Set parameters

The connection between the TSPL label printer and the HMI is via the USB-A interface, no need to configure serial port parameters.

Printer register

Register	System	Range	Function
TSPL_SP	Decimal	0 - 1	Set the paper size
TSPL_PT	Decimal	0 - 1999	Print text
TSPL_PQ	Decimal	0 - 999	Print QR code
TSPL_PB	Decimal	0 - 999	Print barcode
TSPL_PR	Decimal	0 - 1	Print offset
TSPL_PN	Decimal	0 - 0	Trigger printing
TSPL_PS	Decimal	0 - 0	Print status

- Set paper size:
 - TSPL_SP0: width of paper, unit: mm.
 - TSPL_SP1: height of paper, unit: mm.
- Print text:
 - TSPL_PT can print up to 20 texts. TSPL_PT0-TSPL_PT99 is the first text; TSPL_PT100-TSPL_PT199 is the second text; ... TSPL_PT1000-TSPL_PT1999 is the 20th text.
 - Detailed parameter settings of each text is shown as below table. For example, first text, TSPL_PT0-TSPL_PT99.

Register	Function	Description
TSPL_PT0	X coordinate	Unit: dot
TSPL_PT1	Y coordinate	Unit: dot
TSPL_PT2	Rotation angle	0: 0 degrees 1: 90 degrees 2: 180 degrees 3: 270 degrees
TSPL_PT3	Size	Range: 0-3
TSPL_PT4- TSPL_PT99	QR code content(text content)	Use character input device to configure

By analogy, we can know the text information configuration of the 2nd to 20th QR codes

- Print QR code:
 - TSPL_PQ can print up to 10 QR codes. TSPL_PQ0-TSPL_PQ99 is the first QR code; TSPL_PQ100-TSPL_PQ199 is the second QR code; ..., TSPL_PQ900-TSPL_PQ999 is the tenth QR code.
 - Specific parameter description of each item: for example, the first QR code, TSPL_PQ0-TSPL_PQ99:

Register	Function	Description
TSPL_PB0	X coordinate	Unit: dot
TSPL_PB1	Y coordinate	Unit: dot
TSPL_PB2	Rotation angle	0: 0 degrees 1: 90 degrees 2: 180 degrees 3: 270 degrees
TSPL_PB3	Height	Unit: dot
TSPL_PB4	Width	Range: 0-2
TSPL_PB5 - TSPL_PB99	Bar code content	Use character input device to configure

By analogy, we can know the text information configuration of the 2nd to 20th bar codes.

Print offset:

- TSPL_PR0: X coordinate offset, unit: mm;
- TSPL_PR1: Y coordinate offset, unit: mm.

Trigger printing:

- TSPL_PN0 = 1: trigger the printer to start printing.

Printing status:

- TSPL_PS0 = 1: The printing is normal.
- TSPL_PS0 = 1: The printing is abnormal.

Print picture

- For the function of printing pictures, please refer to the configuration of [Printer object].

Conversion between dot and mm

- Dot is the meaning of pixels. For the conversion between dot and mm, please refer to the printer manual or consult the customer service of the corresponding printer manufacturer. For example, SPRT TL21: 8 dots / mm, that is, 1 mm = 8 dot.

2.3 User-Defined Protocol Printer

PI series HMI also supports communicate with printer by user-defined protocol. Like Argox OS-214plus

Setting Step

1) Select the protocol

Create a new project, select the TSPL label printer protocol as shown below.

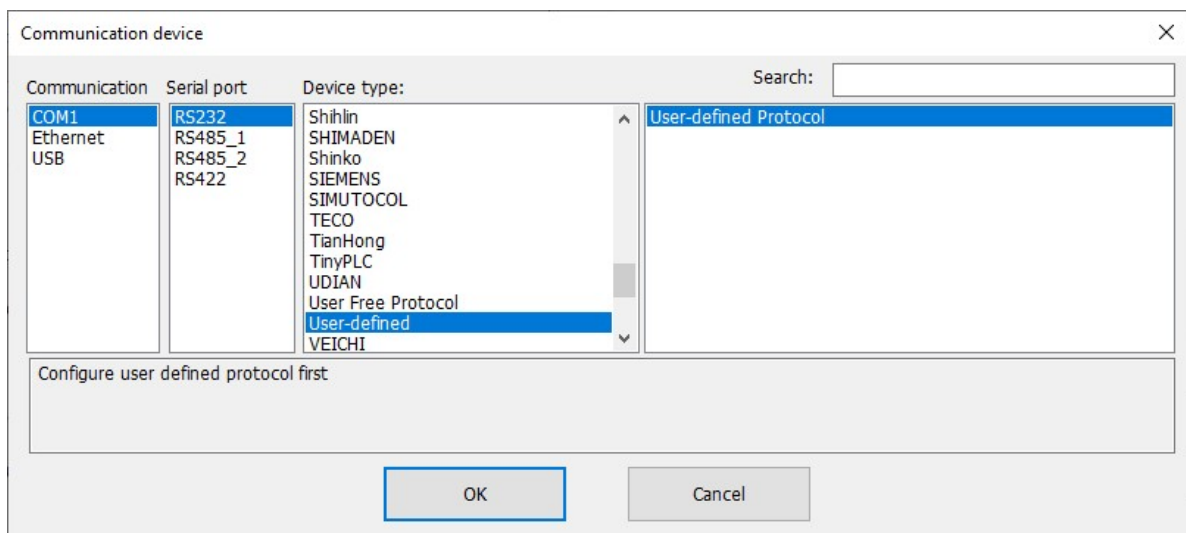
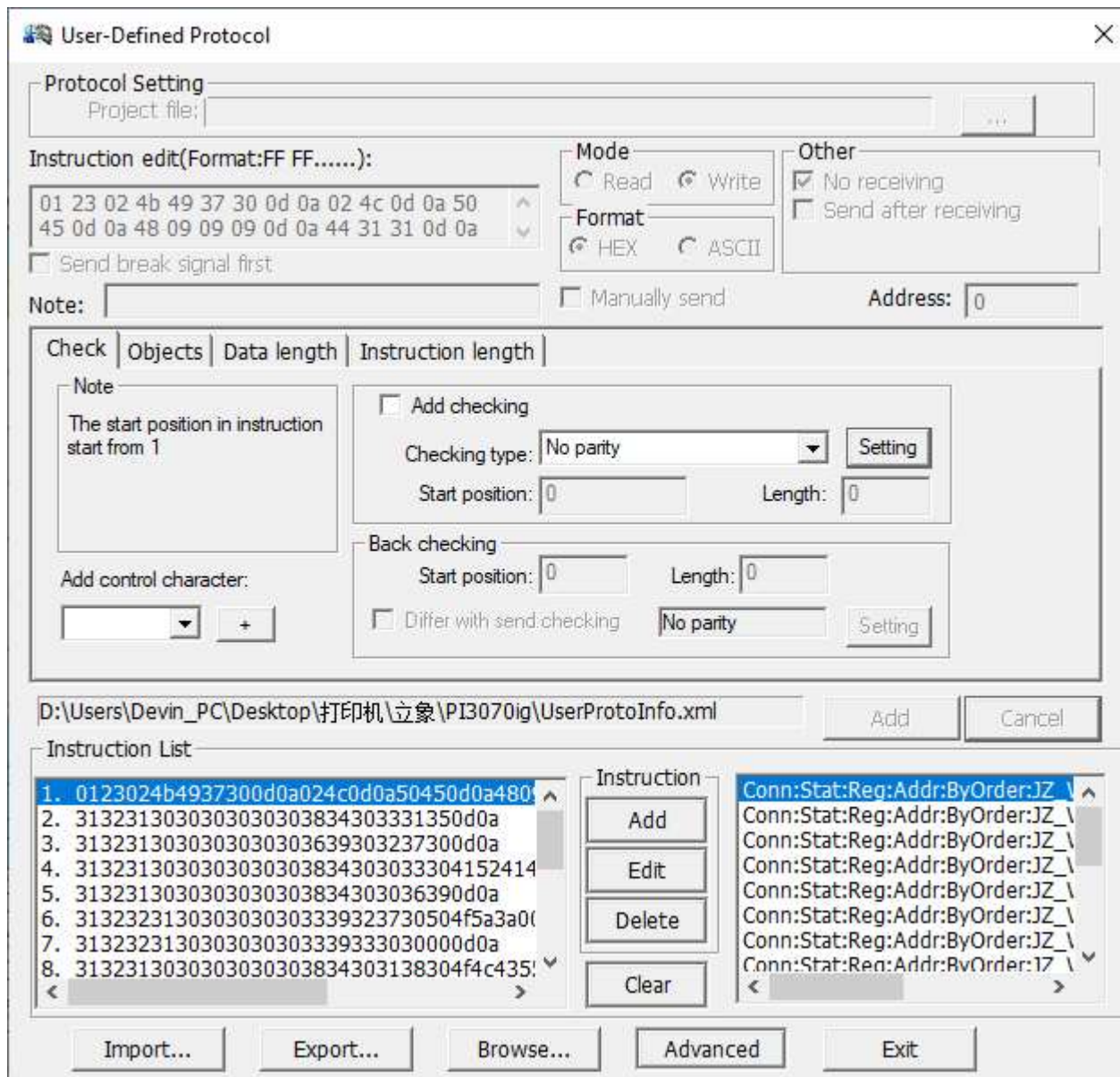


Figure 2-2

2) Set parameters

After configuring the protocol, there is a configuration button [User-defined Protocol] in the lower left corner, click it to enter the command configuration interface.



The screenshot shows the 'User-Defined Protocol' configuration window. It includes sections for 'Protocol Setting' (Project file), 'Instruction edit' (Format: FF FF.....), 'Mode' (Read, Write), 'Format' (HEX, ASCII), 'Other' (No receiving, Send after receiving), 'Note', 'Manually send', 'Address', 'Check' (Objects, Data length, Instruction length), 'Add control character', 'Add checking' (Checking type, Start position, Length), 'Back checking' (Start position, Length, Differ with send:checking), 'Instruction List' (Import, Export, Browse, Advanced, Exit), and 'Conn:Stat:Reg:Addr:ByOrder:JZ'.

Figure 2-3

- i) Click “Add” button to add a command.
- ii) Enter the instruction in this interface

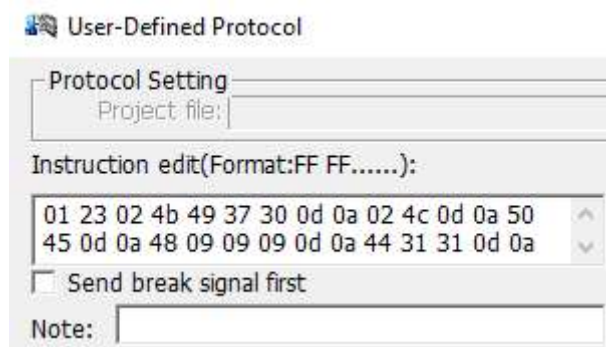


Figure 2-4

- iii) Choose the write mode and HEX format

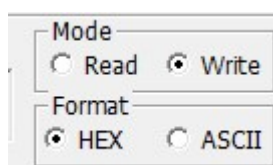


Figure 2-5

- iv) Configure the Check, Object, Data length depending on the requirements
Set the return length as 0 in instruction length

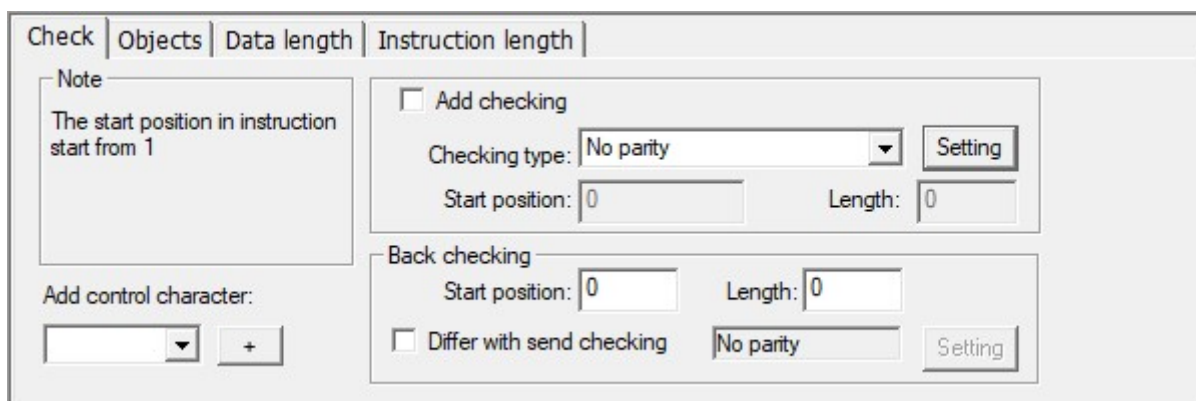


Figure 2-6