Zebra® TTP 2000

Kiosk Receipt Printer

Operator Guide

ZEBRA TECHNOLOGIES

P1022870-002

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Introduction

About This Manual

Updating

This manual will be updated as, from time to time, printer functions and features may be added or amended. You will always find the most recent edition on our web site at www.zebra.com.

If you require functions not found in this manual edition, please contact Technical Support for your region or the Zebra partner the printer was purchased from.

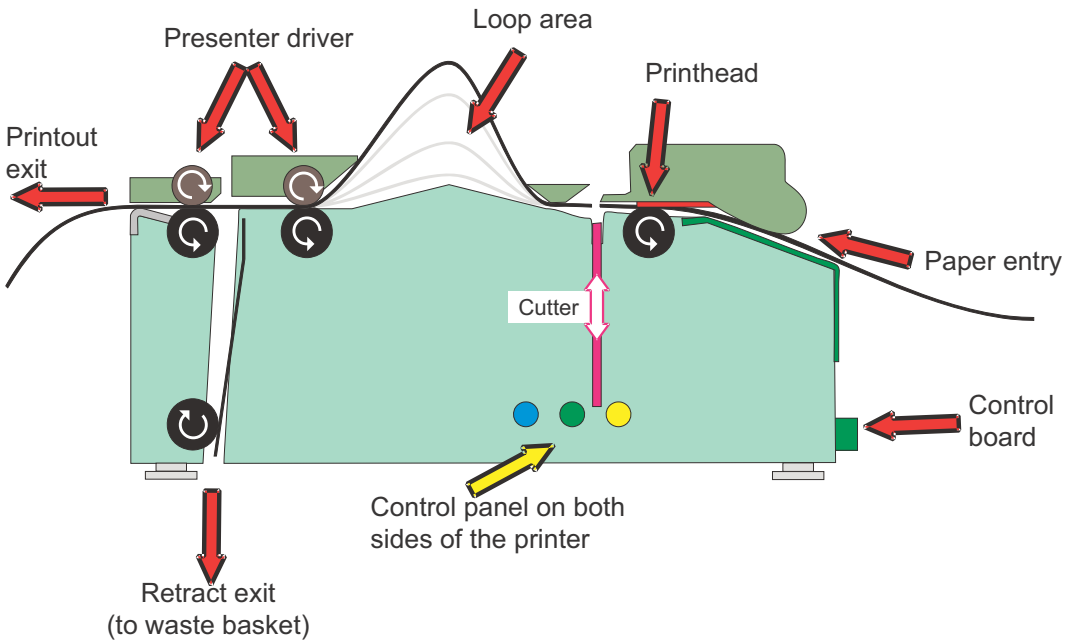
2

Product Presentation

The TTP 2000 series are kiosk printers for 58 to 82.5 mm paper using direct thermal printing. All models feature an integrated guillotine cutter, control board, and a looping presenter with a built-in retract-and-retain function. The print speed is up to 150 mm per second and the presenting speed up to 300 mm per second to ensure high throughput.

The printhead can easily be opened to give the operator access to the paper path and printhead for maintenance purposes.

Figure 1 • Principle of Operation



The communication interface of the control board differs between the versions of TTP 2000:

	TTP 2010	TTP 2020	TTP 2030
Interface	Serial	Parallel	USB

Printer drivers for different versions of Windows, OPOS, and Linux are available, and the USB and Parallel version of the printer is compatible with the Plug and Play standard.

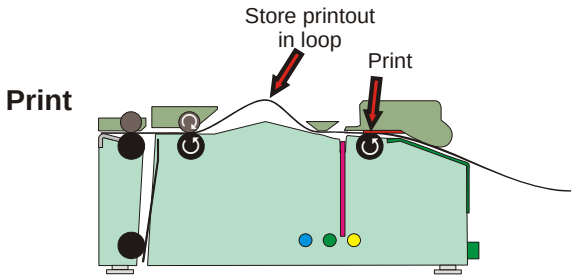
The printer's control command language makes it easier to print directly from the kiosk software without using a driver.

Looping Presenter

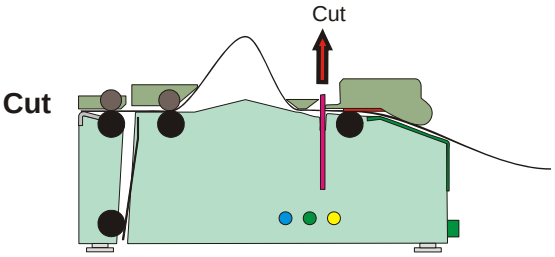
Figure 2 • Looping Presenter

The TTP 2000 series printers feature a looping presenter mechanism with a built-in retract-and-retain function. The following illustrations provide an overview of the functionality of the various stages of printer operation.

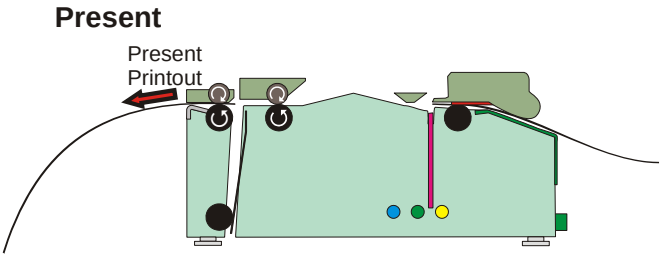
- It handles documents of various lengths by storing the printed paper in a loop.



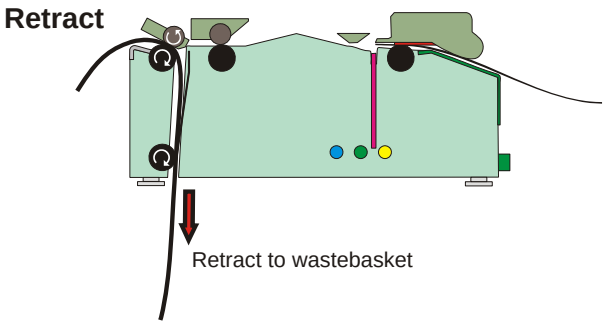
- It holds the printout until fully printed and cut before presenting the completed printout to the customer.



- A portion of the printout is presented. When the customer takes the receipt, the printer detects the motion of the paper and issues the rest of the receipt.

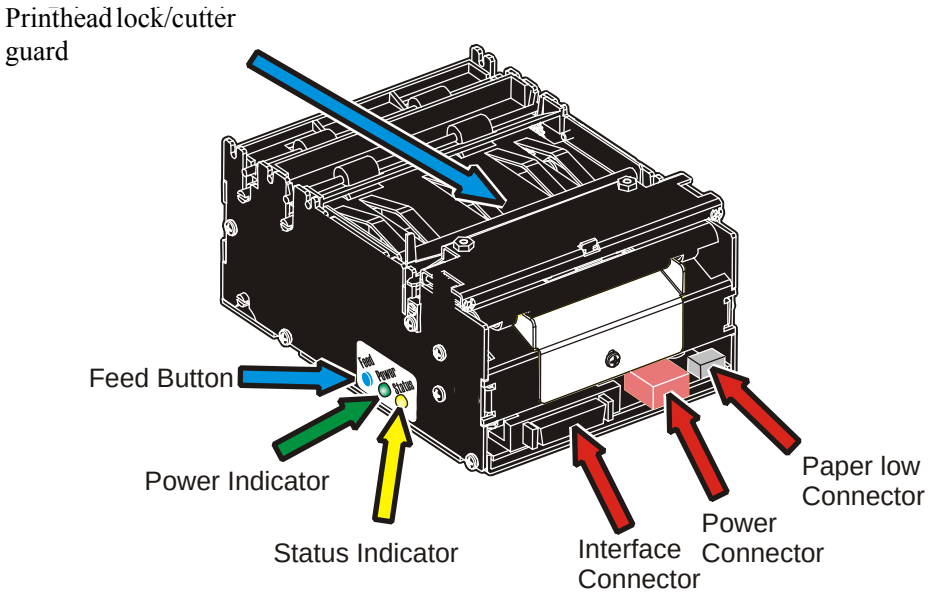


- The retract-and-retain function can retract uncollected printouts and drop them in a wastebasket inside the kiosk. Retracts are reported to the driver so any remaining data for that printout can be deleted.



Controls

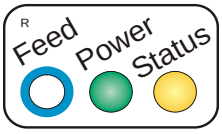
Figure 3 • Rear View



The Feed button and indicators are duplicated on both sides of the printer so that they are easily accessible regardless of how the printer is installed.

Feed Button

The ○ blue Feed button has several functions:



- Press and release will feed, cut, and present a complete page.
- Any data in the print buffer will be printed.
  If the buffer is empty the page will be blank.
  In black-mark mode, the page will be synchronized with the black-mark.
- Press and hold the Feed button until the paper starts moving and a self-test page showing the printer configuration will be printed, cut, and presented (see *Making a Self-Test Printout* on page 24).
- Press and hold Feed while closing the printhead and the printer will enter top of form sensor calibration mode.

Power Indicator

When the green power indicator is illuminated, a 24V supply is connected to the printer.

Status Indicator

The amber status indicator has several functions:

- **ON constantly** — the printer is operational
- **Flash, flash, pause, flash, flash**— is the *warning-code* for paper low.
  The warning-code is reset automatically when the condition causing it is removed. This behavior is off by default, but can be enabled by setting parameter 52 (Warning Level) to 1.
- **Flashes rapidly** — indicates error. Press and hold the Feed button and the number of flashes will reflect the *status-code*.

1	Presenter jam, paper cannot be ejected / retracted
2	Cutter cannot return to home position
3	Out of paper
4	Printhead lifted
5	Paper feed error (paper did not reach presenter)
6	Temp error, printhead is above 60°C
7	Paper jam during present
8	Paper jam during retract
10	Black mark not found (on media load)
11	Black mark calibration error
Fast flashes	Checksum error at firmware loading
Steady light	Wrong firmware type

Status codes are reset when the:

- conditions causing them are removed
- printer is power cycled (turned off/on)
- printhead is lifted and then lowered to clear a paper jam.

Notes •

3

Installation

Installing a Paper Guide

The TTP 2000 printers require a paper guide for proper operation. This paper guide allows the printer to be configured for use with 58, 60, 80, or 82.5 mm width media. The printer senses which paper guide is fitted and adjusts to it automatically. The TTP 2000 printers are delivered without paper guide fitted.

1. Select the paper guide you want to install.

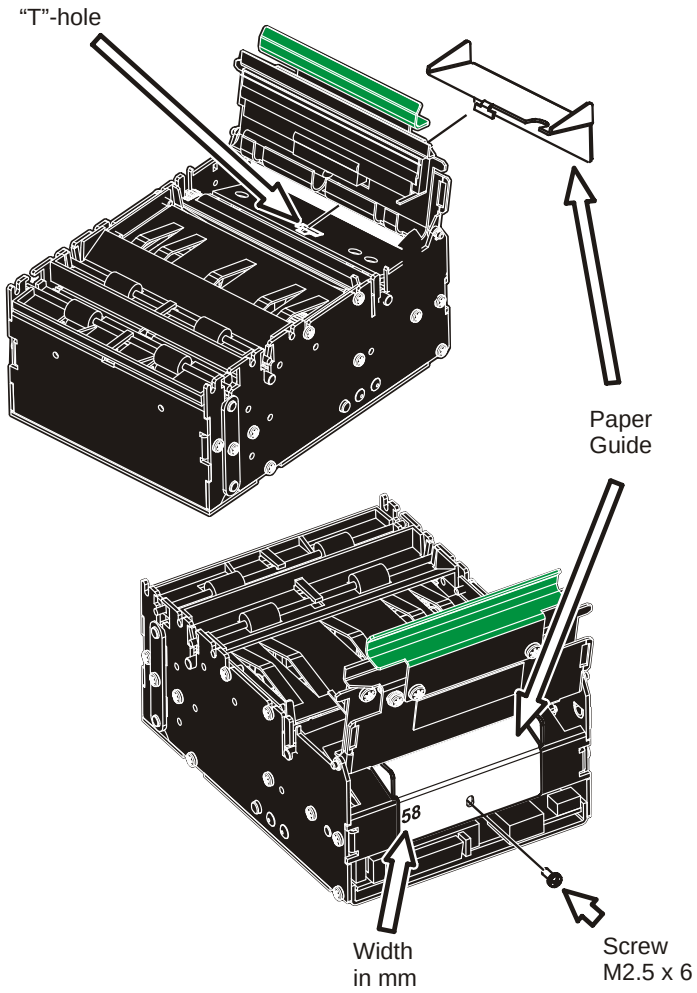
Note • Evaluation kits contain all sizes of paper guides that are available. For regular volume deliveries, the appropriate guide must be ordered separately. The printer will not operate properly without a guide.

2. Open the printhead by pushing the green printhead lock plate towards the rear of the printer and lifting up the printhead, see Figure 22, *Opening the Printhead, on page 30*.

3. Loosen the screw on the backplate of the printer. Insert the T-shaped tab of the printer guide into the T-hole and fasten the screw.

4. Close the printhead.

Figure 4 • Fitting a Paper Guide



Installation Considerations

The TTP 2000 printer is designed to be installed in an enclosure such as a self-service kiosk.

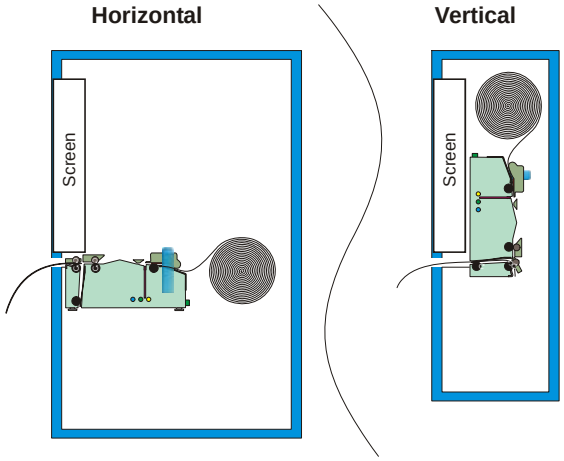
Caution • NEVER use screws that go into the printer more than 4 mm! Longer screws will damage the electronics inside.

Orientation

The TTP 2000 can be installed horizontally or vertically. Vertical installation is suitable for narrow kiosk designs. The printer can be programmed in horizontal or vertical mode to present the receipt from either of the two output paths, retract and standard. In vertical mode, the standard output becomes the retract, and the retract output feeds the printout to the customer.

Set parameter n57 to the appropriate setting and the printer adapts to its new orientation.

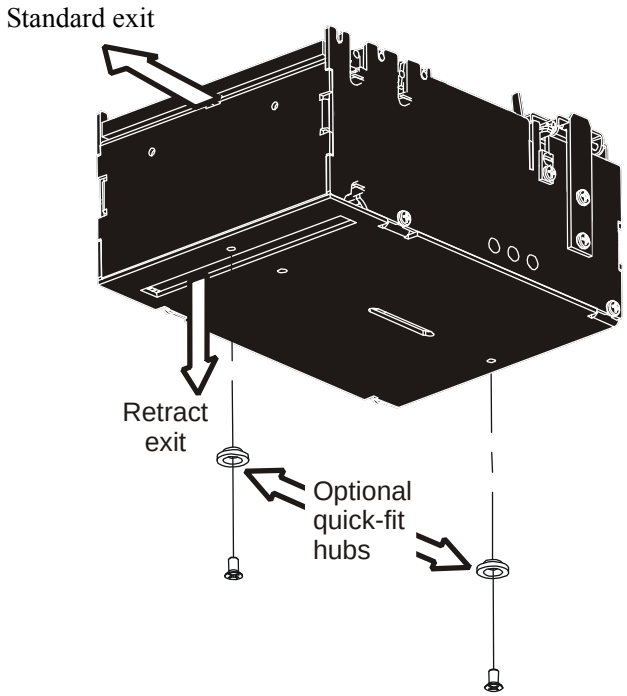
Figure 5 • Orientation Options for Installation



Note • In vertical mode the printer does not loop the paper but stores it hanging down, then cuts and ejects vertically when the printout is ready.

Quick-Fit Hubs

Figure 6 • Front, Bottom View



The printer attaches to the kiosk using two screws or slides into place using the optional quick-fit hubs.

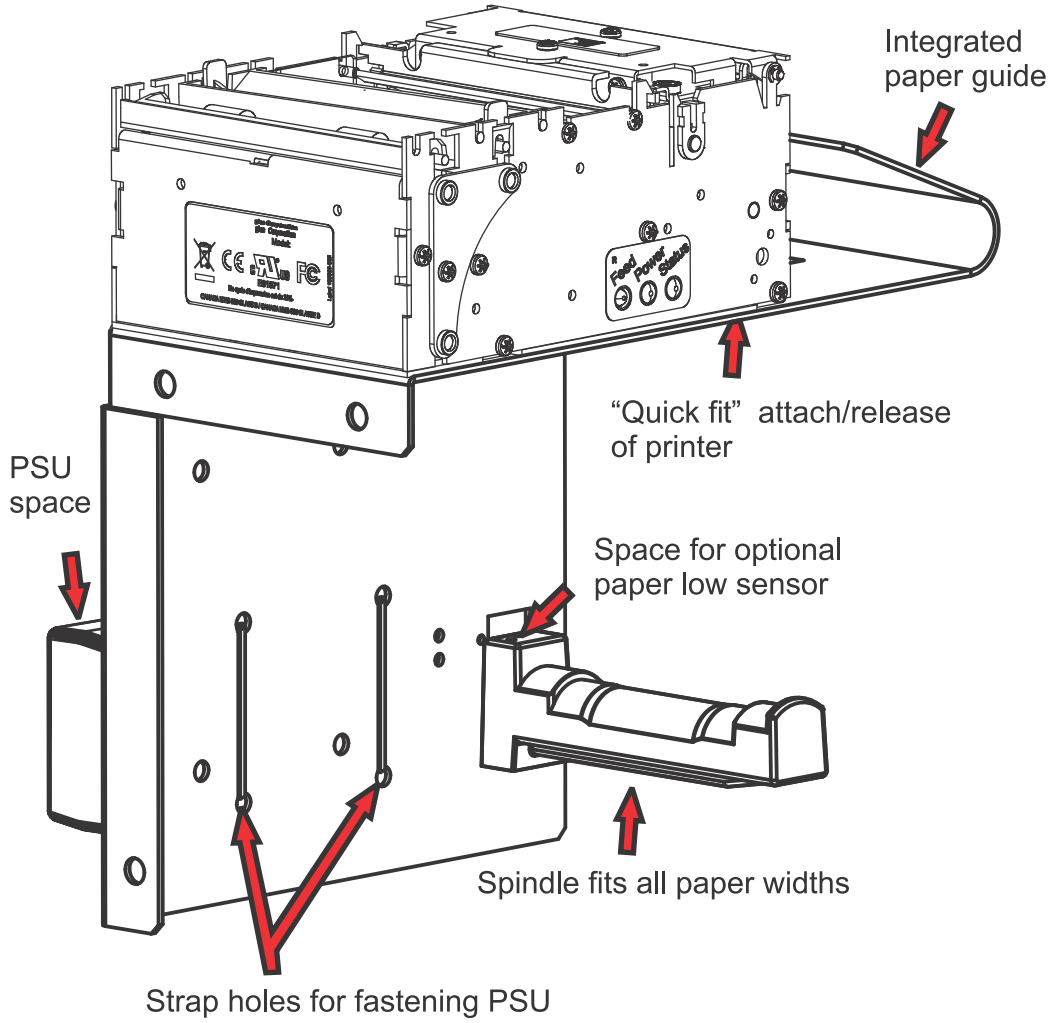
Caution • NEVER use screws that go into the printer more than 4 mm! This will damage the electronics inside.

Using a Zebra Roll Holder

Roll holders for the TTP 2000 series printers can accommodate 58, 60, 80, or 82.5 mm width media.

Zebra roll holders offer a number of paper roll positions including behind and below the printer, ensuring quick and easy installation in a wide range of self-service kiosks. One example is the Wall Mount roll holder shown below with the quick-fit hub kit which allows you to easily attach or remove the printer from the roll holder.

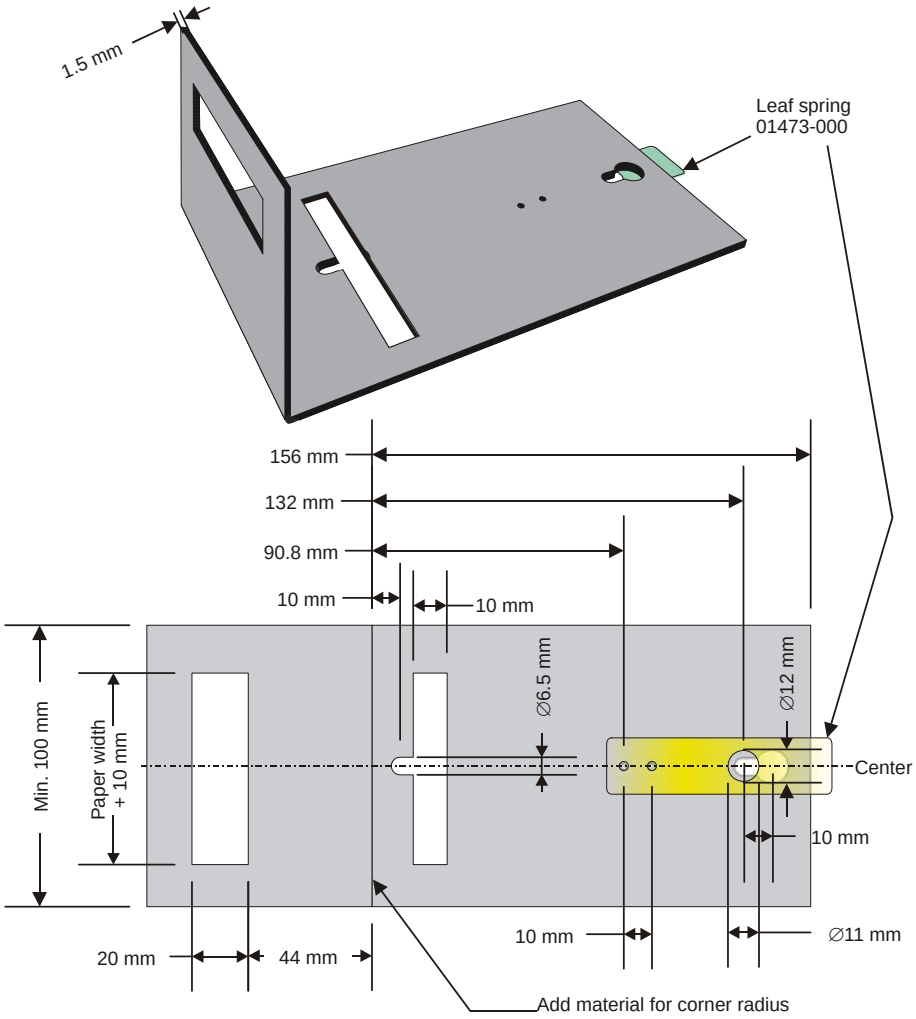
Figure 7 • Wall Mounted Roll Holder



Design Your Own Mounting

The illustration below gives an example of a printer-mounting shelf. For more information, see the 3D solid models and outline drawings for CAD that are available on http://www.zebra.com.

Figure 8 • Example of a Simple Shelf For Fastening a Standard Printer Using Quick-fit Hubs (Part Number 103939) and a Leaf Spring Retainer (Part Number 01473-000)



Additional space is required for paper loading and paper jam removal. Consider mounting the printer on a movable platform so that the printer can be maintained outside the printer enclosure.

Note • The paper entry angle must be set properly to avoid paper jams in the presenter.

Caution • NEVER use screws that go into the printer more than 4 mm! This will damage the electronics inside.

Electrostatic Discharges and Earth Currents

Preventing ESD and earth currents from affecting the printer operation *requires* proper connection of the printer chassis to protective earth through a mounting platform or through a separate earth conductor.

Ambient Light

There is an optical sensor 20 mm behind the paper exit at the front of the printer.

To ensure proper printer operation, design the printer enclosure so that it prevents direct sunlight or light from indoor lamps from reaching the sensor through the paper exit. If you have a problem sealing off light from the printer sensors, the Ambient light protection kit (Part Number P1055888) is available for order.

Installing a Paper-Low Sensor (Optional)

A paper-low sensor alerts the system when a certain length of paper remains on the roll. The purpose of this sensor is to get an early alert so that you can replace the paper roll in time in remotely located kiosks.

All paper roll holders supplied by Zebra can be equipped with paper-low sensors. Mount the paper-low sensor to the roll holder and connect the cable to the paper-low connector at the back of the printer.

Figure 9 • Paper-low Sensor Connection

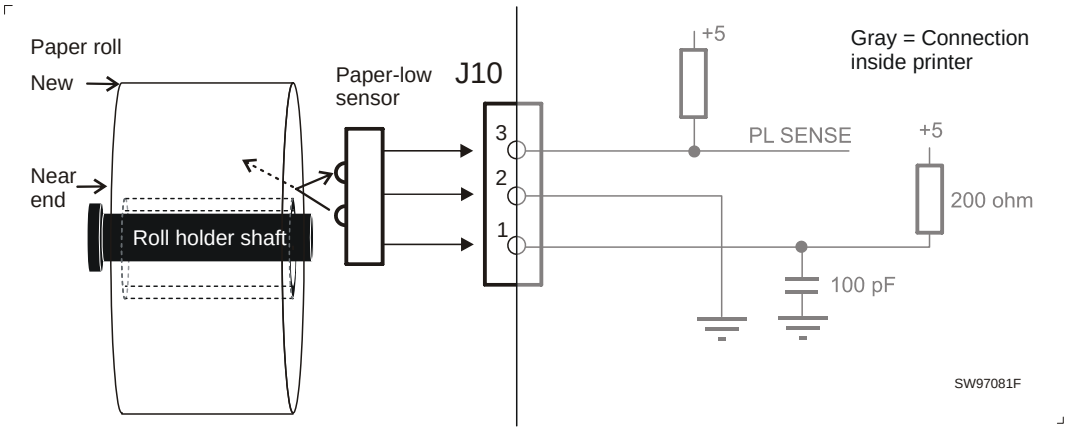
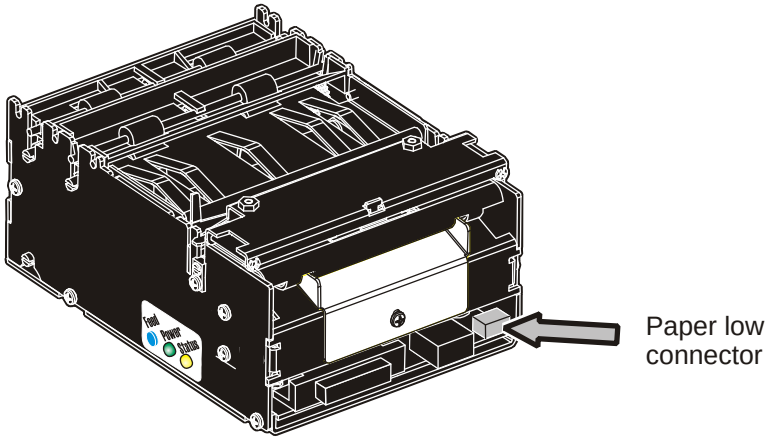
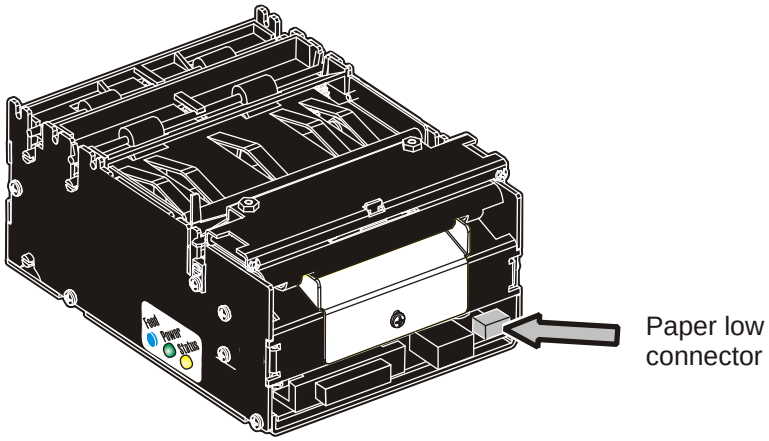


Figure 10 • Location of Paper-low Connector



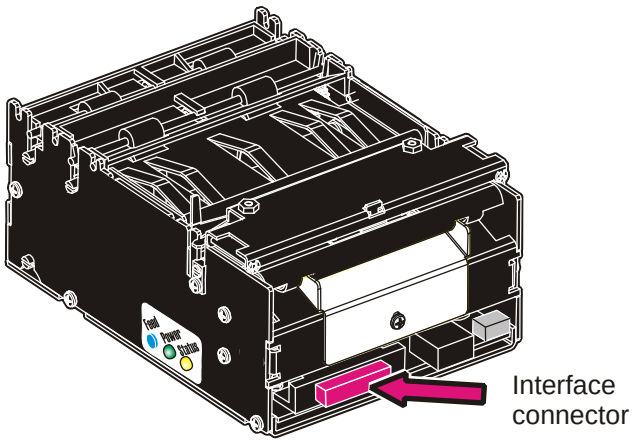
Note • When no sensor is connected, the printer by design signals paper low. Windows reports this signal as "Toner Low". You can disable this signal by inserting a shunt/jumper in the paper low connector between pins 2 and 3 (the center pin and the pin closest to the side of the printer).



Connecting to the Computer

Caution • Using a non-approved cable with the printer may void the FCC and other EMC approvals of the printer.

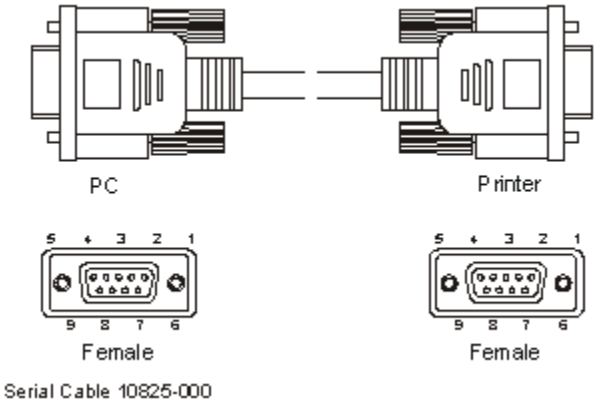
Figure 11 • Location of interface connector



Connecting the TTP 2010

Connect the printer to the serial port of the computer using Zebra serial cable, Part Number 10825-000. This cable is configured to work properly with our serial printers.

Figure 12 • Serial Interface Cable 10825-000

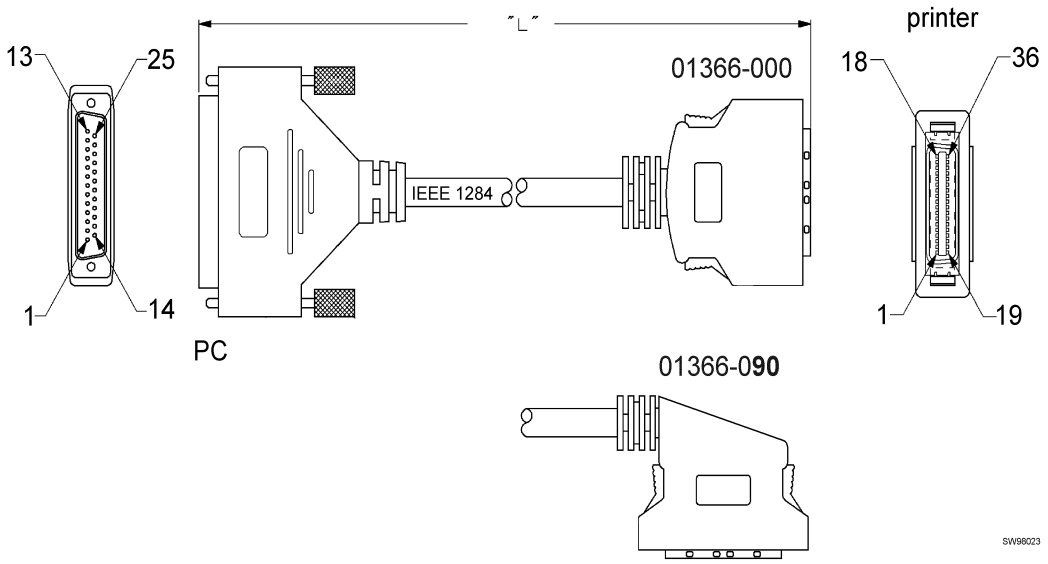


Connecting the TTP 2020

Connect the printer to the parallel port of the computer using Zebra parallel cables, Part Number 01366-000 or 01366-090. These cables are configured to work properly with our parallel printers.

Note • The printer end of the cable should have an IEEE-1284 type C, 36-pole mini Centronics, with clip latches.

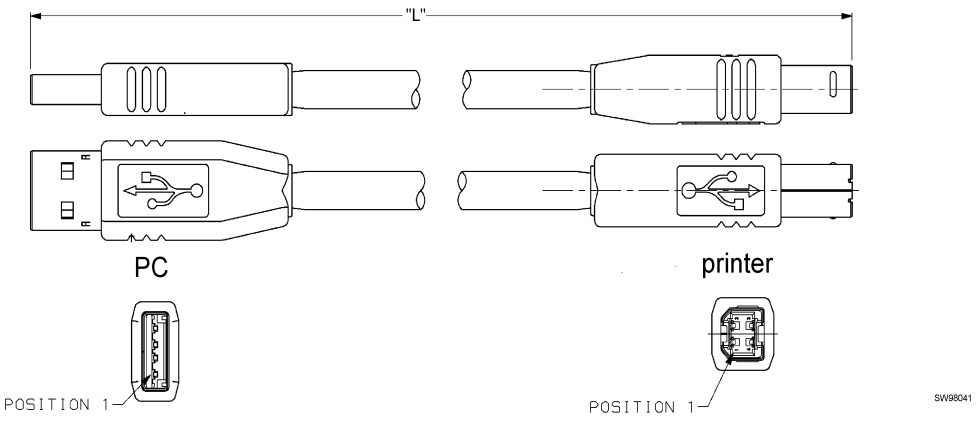
Figure 13 • IEEE-1284 Cable with Type A and Type C Connectors



Connecting the TTP 2030

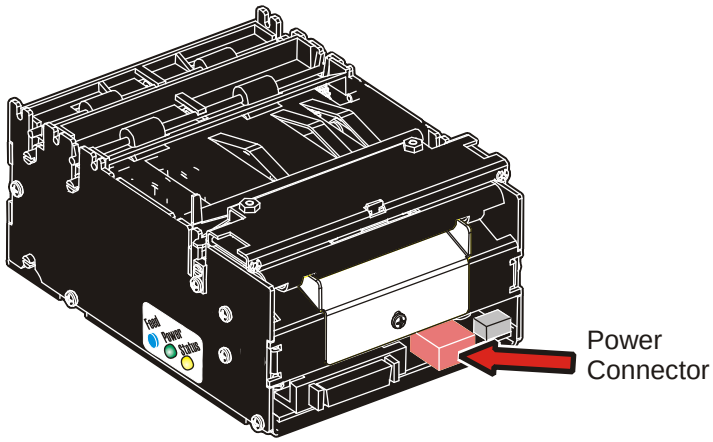
Connect the printer to the USB port of the computer. Suitable cables are available from Zebra: cable Part Number 105850-028, and the 90 degree fixed angle cable Part Number 01542-002.

Figure 14 • USB Cable with Type A and Type B Connectors



Connecting the Power

Figure 15 • Location of Power Connector



1. **Caution** • Connecting the printer to an incorrect voltage can result in electric shock and damage to the printer.

   Use the appropriate Zebra 70W (Part Number 808099-005) or 100W (Part Number 808101-005) power supply. On power supplies with a line voltage selector, make sure it is set to your local line voltage.

2. **Caution** • Never hot connect the 24V cable. This will cause damage to the printer electronics or the power supply.

   Connect the cable from the power supply to the power connector on the back of the printer.

3. Connect the power cable to the line outlet.

4. Turn **ON** the power.

Table 1 • Current Consumption

Mode	58-60 mm paper width	80 – 82.5 mm paper width
Idle	150 mA	150 mA
Standard text printing	2 A average	3 A average
All black printing	6 A	8.5 A

Making a Self-Test Printout

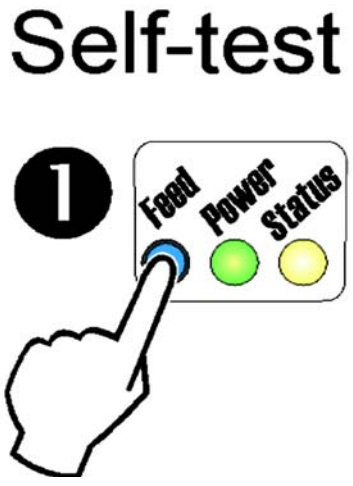
A Self-Test Printout provides a printout showing information specific to the printer, including:

- Firmware version
- Control board (PCA) revision
- Paper width
- Serial number
- Installed fonts and logotypes
- Parameter settings
- Barcode support

To make one Self-Test Printout or repeated Self-Test Printouts:

• Print one self-test printout	**a.** Press and hold the Feed button for 3 seconds.
• Enter self-test mode to make repeated self-test printouts	**a.** See Figure 16. Press and hold the Feed button (1) while turning on the power to the printer. **b.** Hold down the Feed button until printing starts. Each successive time the Feed button is pressed will produce an additional Self-Test printout until Self-Test Mode is exited. **c.** Exit Self-Test Mode by power cycling the printer (turning the power off then on again). If the power switch is not easily accessible, open and close the printhead.

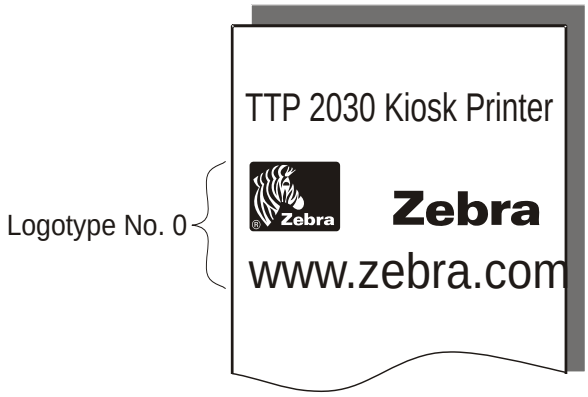
Figure 16 • Locate the Feed Button



Customizing the Self-Test Printout

The self-test printout starts with a text line and a Zebra logotype. This logotype is a printout of the logotype stored in position 0. To customize self-test printouts, delete all logotypes and store a custom logotype in position 0.

Figure 17 • Logotype No. 0 is printed on the self-test printout.



Installing a Printer Driver

Kiosk printer drivers are available on the Zebra website http://www.zebra.com. Please follow the installation instructions that accompany the drivers and refer to the appropriate Kiosk Driver User Guides, available on http://www.zebra.com for detailed driver information.

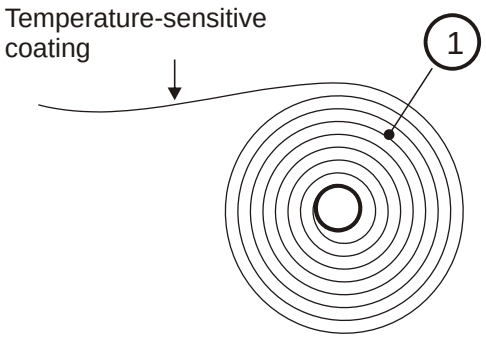
4

Operation

Installing a Paper Roll

1. Turn the new paper roll as shown in Figure 18. The paper should be inserted into the printer with the temperature-sensitive side up.

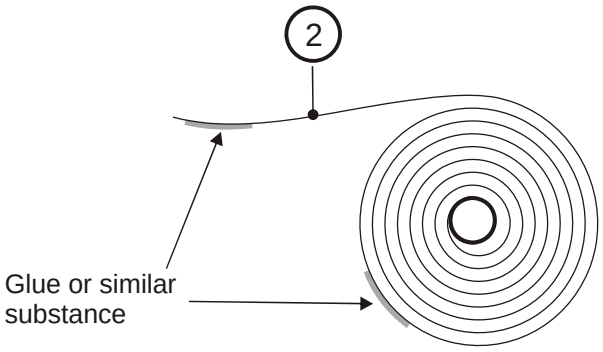
Figure 18 • Paper Roll Orientation



2. Tear off a full turn of the paper from the new paper roll.

Caution • This is important since the outer end of the paper is usually fixed to the roll with glue or other adhesive substance that might cause a paper jam or printhead damage.

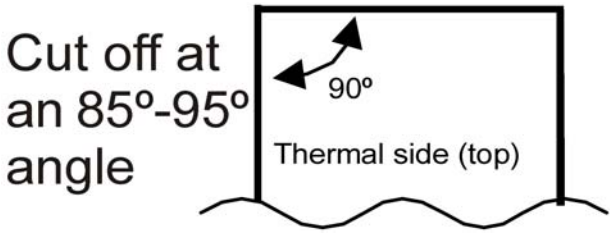
Figure 19 • Tear Off a Full Turn from the New Paper Roll



3. Make sure the printer is turned ON.

4. Cut the paper at a suitable angle. See Figure 20.

Figure 20 • Suitable Paper Edge for Auto Load

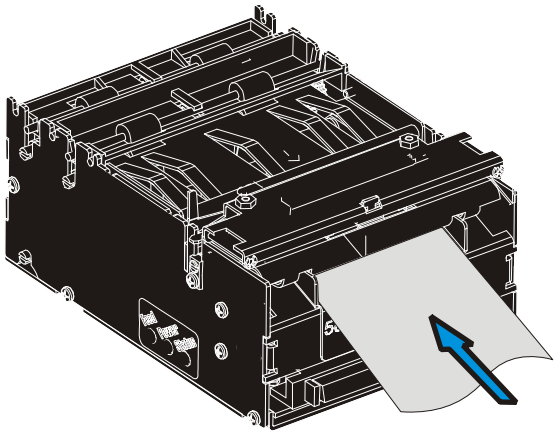


Important • The paper sensor for 58 mm and 60 mm paper is on the same side as the interface connector, while the sensor for 80 mm and 82.5 mm paper is on the power connector side. If the paper is cut in a direction opposite to that as shown in the figure above, the sensor will not detect the paper.

5. Insert the paper through the paper entry opening at the back of the printer.

   The printer will now feed, cut and eject a printout, and then automatically go on-line.

Figure 21 • Insert the New Paper

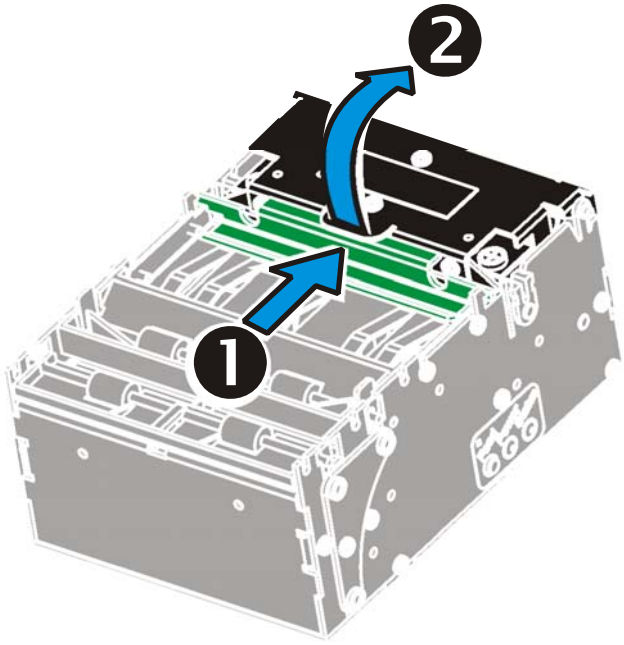


Clearing Paper Jams

Should a paper jam occur, follow the procedure below:

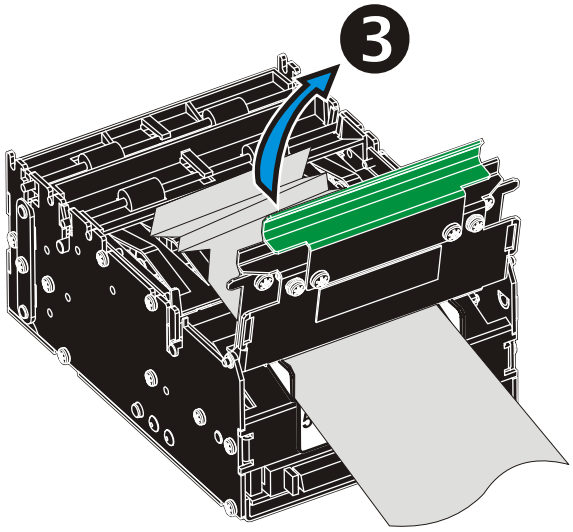
1. Open the printhead by pressing the green release lever toward the rear of the printer.
2. Lift the printhead.

Figure 22 • Opening the Printhead



3. Remove all jammed paper and make sure the paper path is clear before closing the printhead.

Figure 23 • Remove Jammed Paper



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P1022870-002