

TH210-3 for MF

Thermal Printer

User Guide

We would like to know your
opinion on this publication.

Please send us a copy of this page
if you have any constructive
criticism.

We would like to thank you in
advance for your comments.

With kind regards,

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Your opinion:

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Edition March 2010

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Manufacturer Certification



This device fulfills the requirements of EU Regulations 2004/108/EC "Electromagnetic Compatibility" and 2006/95/EC "Low Voltage Directive".

The device carries the CE logo on its rear side or the logo is located on the packaging.

Warranty

Wincor Nixdorf (WN) guarantees generally a warranty engagement for 12 months beginning with the date of delivery. This warranty engagement covers all those damages which occur despite a normal use of the product.

Damages because of

- improper or insufficient maintenance,
- improper use of the product or unauthorized modifications of the product,
- inadequate location or surroundings

will not be covered by the warranty.

For further information of the stipulation look at your contract. All parts of the product which are subject to wear and tear are not included in the warranty engagement.

Please order spare parts at the Wincor Nixdorf customer service.

General Safety Information

Before installing and using the printer, please read the following items carefully.

Safety instructions



Do not touch the cutter and tear bar of the printer.



The print head is a thermal element and it is at high temperature during printing or just after operation, therefore please do not touch it and its peripherals for safety reasons.



ESD

The thermal head is an ESD-sensitive device. To prevent damage, do not touch either its printing part or connecting parts.

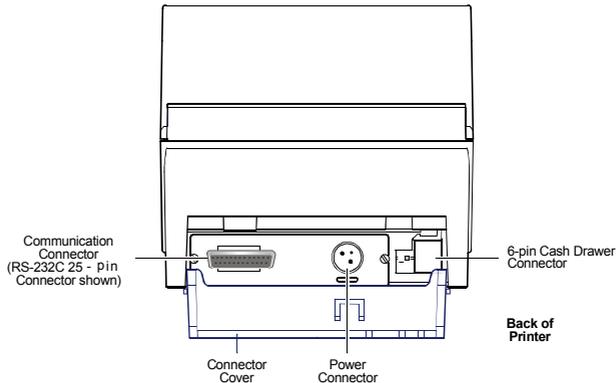
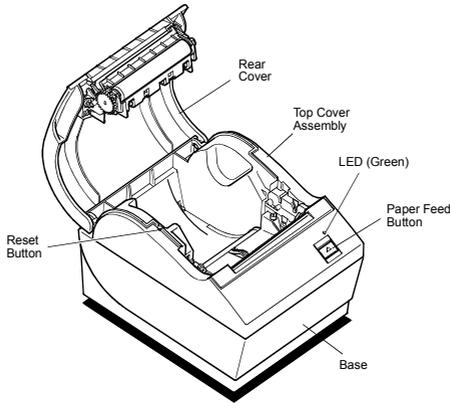
Caution:

- Install the printer on a flat and stable place.
- Reserve adequate space around the printer so that convenient operation and maintenance can be performed.
- Keep the printer away from water source.
- Do not use or store the printer in a place exposed to heat of fire, moisture, serious pollution and direct sunlight.
- Do not place the printer on a place exposed to vibration or impact.
- No dew condensation is allowed to the printer. In case of such condensation, do not turn on the power until it has completely gone away.
- Connect the DC adapter to an appropriate grounding outlet. Avoid sharing a single electrical with large power motors and other devices that may cause the fluctuation in voltage.
- Disconnect the DC adapter when the printer is not used for a long time.
- Don't spill water or other materials on the printer. If this happens, turn off the power immediately.

- Do not allow the printer to start printing when there is no recording paper installed, otherwise the print head and platen roller will be damaged.
- To ensure quality print and normal lifetime, use recommended or good quality paper.
- Shut down the printer when connecting or disconnecting interfaces connectors to avoid damage to the control board.
- Set the print darkness to a lower grade as long as the print quality is acceptable. This will help to keep the print head durable.
- The printer should only be disassembled or repaired by a technician, who is certified by Wincor Nixdorf. At any work on the device and plugging/unplugging cables disconnect the device from the power supply completely. Switch off the device and pull the mains plug.
- Operate the printer only with power supplies and cables approved by Wincor Nixdorf
- Keep this manual safe and at hand for ready reference.

Description of Printer

The TH210 thermal receipt printer is extremely fast, quiet, and very reliable. With thermal printing technology, there is no ribbon cassette to change, and paper loading is extremely simple. The printer is small enough to fit almost anywhere and is easy to use with the receipt exiting from the top. There is no journal as it is kept electronically by the host system.



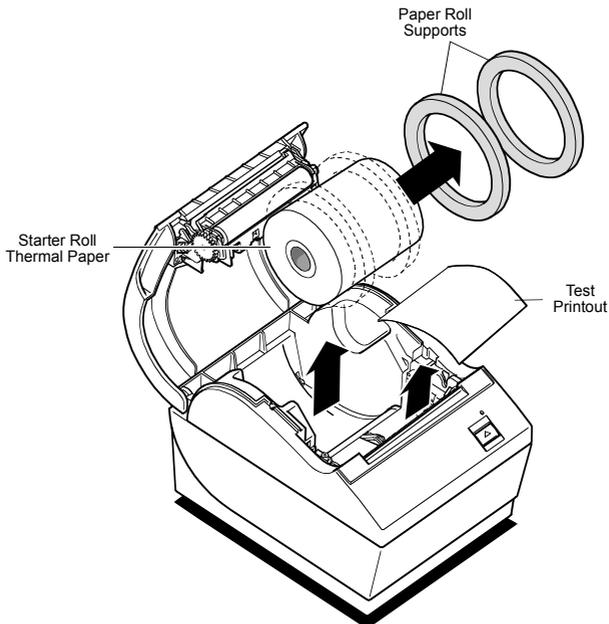
Features

Interfaces	RS-232, 25pin Serial, only for fiscal countries Russia, Greece, Turkey and Hungary
Memory/Firmware	512K Flash Memory, History EEROM, 4K Buffer
Resident Character Sets	PC Code Page 437 (US), PC Code Page 850 (Multilingual), PC Code Page 852; Code Pages 737, 865, 858, 860, 863, 866, 874 and 1252.
Integrated Bar Codes	Code 39, UPC-A, UPC-E, JAN8 (EAN), JAN13 (EAN), Interleaved 2 of 5, Codabar, Code 128, EAN 128, PDF-417 (two-dimensional).
Print Columns	Host-selectable 44 or 56 columns of print on 80 mm wide thermal paper.
Print Resolution	8 dots/mm
Speed	Up to 150 mm/second throughput.
Human Interface	Speaker for software-generated tone. Drop-in paper loading. Configuration Menu for easy configuration.
Cash Drawer Driver	Connector for one or two cash drawers (use a "Y" cord for two drawers.)
Cutter	Partial and full cut

Unpack the Printer

Save all packing materials for use if printer needs to be repacked.
Check that all items listed were shipped
Printer enclosed in a plastic bag with packing material
Thermal starter paper roll (inside receipt bucket of printer)
Test printout protecting the printhead (inside receipt bucket of printer)
TH210 Thermal Receipt Printer: Setup Guide
To report any missing items, or to report a printer that was damaged during shipping, call your supplier or call a WN representative.

Remove the Starter Paper Roll Supports



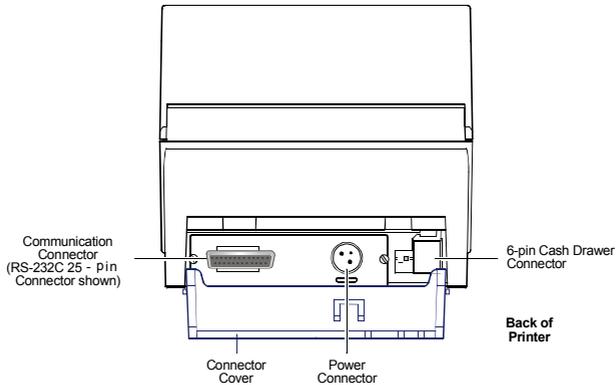
- 1) Open the Rear Cover by pushing up on each side of the cover until it unsnaps. Remove the Test Printout.
- 2) Lift the Starter Paper Roll out of the paper bucket and slide the two Paper Roll Supports off.
- 3) Remove all tape on the leading edge of the roll.
- 4) Place the Starter Paper Roll back into the bucket so that it unrolls from the bottom.
- 5) Close the Rear Cover.

Choose a location

Position your printer in a location that allows access to the cables, room to open the cover and away from traffic areas to limit the chance of being knocked or damaged. Observe the safety instructions on pages 2 and 3.

Connect the Cables

Caution: Connect the cables to the printer *before* plugging in the power supply. If power is received from the host computer, turn it off before connecting any cables.



Note: Depending on your printer configuration, the connector panel may vary from the above illustration.

Communication Cable

The communication cable connects the printer to the host computer. To install the communication cable:

- 1) Turn off the host computer.
- 2) Open the Connector Cover at the rear of the printer.
- 3) Attach the Communication Cable to the connector shown on the back of the printer above. Tighten the screws to secure the cable.
- 4) Connect the cable to the host computer.

Cash Drawer Cables

The Cash Drawer Cable connects the printer to one or two cash drawers.

- 1) Open Connector Cover at rear of printer if not previously open.
- 2) Plug the cable into the Cash Drawer Connector (standard phone jack) located at the rear of the printer (see illustration on previous page.)

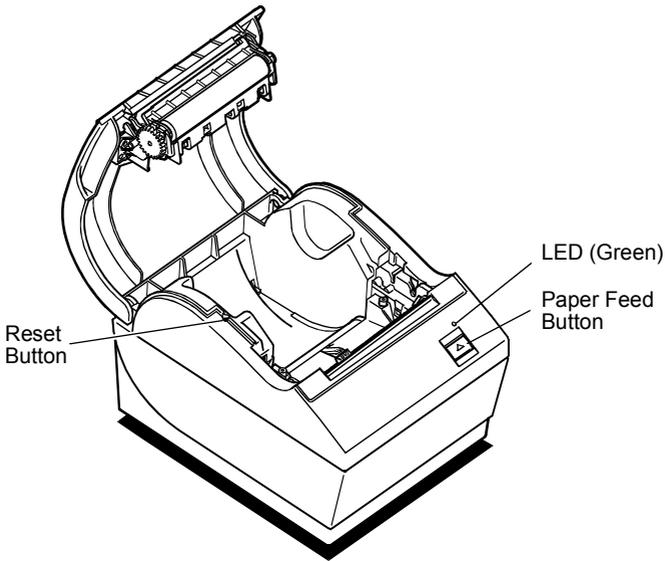
Note: Leave some slack in the cord to route through the Strain Relief at a later time.

Power Supply Cable

Connect the Power Supply Cable last.

- 1) Plug the Power Cord into the 3pin HOSIDEN socket located at the rear of printer
- 2) Snap the Connector Cover closed, ensuring that the Communication, Cash Drawer and Power Supply Cables are aligned with the slots provided for each in the Connector Cover. Verify that the strain relief on the Connector Cover aligns with Power Supply Cable.
- 3) Plug the Power Supply Cable into the 3pin HOSIDEN socket of the POS system. The Green LED on the top cover will light up.

Printer Controls



Reset Button

Should a paper jam or fault condition occur, press the Reset Button to reset the printer. The printer performs a startup routine, as if having been turned off, then on again.

Paper Feed Button

Press the Paper Feed Button to advance the paper.

Used in conjunction with the Reset Button to print the Diagnostic Mode or allow access to the Configuration Menu.

LED

The green LED shows the printer status by shining or flashing. A continuous green (non-flashing) LED represents an “ON”, no-fault condition.

Status	LED
Paper Is Low	Flashes Slowly
Paper Is Out	Flashes Quickly
Knife Jam	Flashes Quickly then Slowly

Tone

A single beep indicates the printer has successfully completed its startup routine (after having been reset or the power supply turned on). If the printer beeps twice, a problem may be indicated.

For more information about	See these “sections”
Paper Feed Button	“Testing the Printer” “Configuring the Printer”
Reset Button	“Troubleshooting the Printer” “Testing the Printer” “Configuring the Printer”
LED	“Troubleshooting the Printer”
Tone	“Troubleshooting the Printer”

Loading Receipt Paper

Change the paper when any of the following conditions occurs:

Colored stripe appears on the receipt paper indicating the paper is low.

Change the paper as soon as possible to avoid running out of paper part way through a transaction.

Green LED flashes (quick flash) indicating the paper is out.

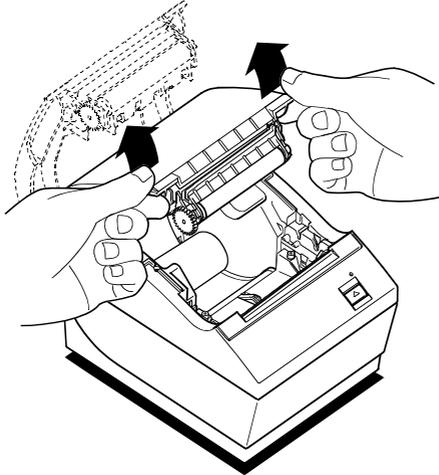
Change the paper immediately or data may be lost.

Caution:

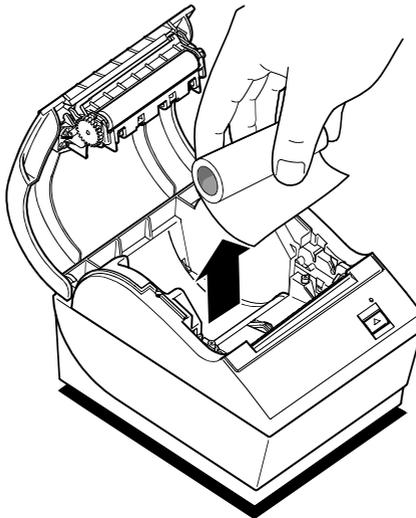
Do not operate the printer or host computer if the printer runs out of paper.

The printer will not operate without paper, but it may continue to accept data from the host computer. Because the printer cannot print that additional data, it may be lost.

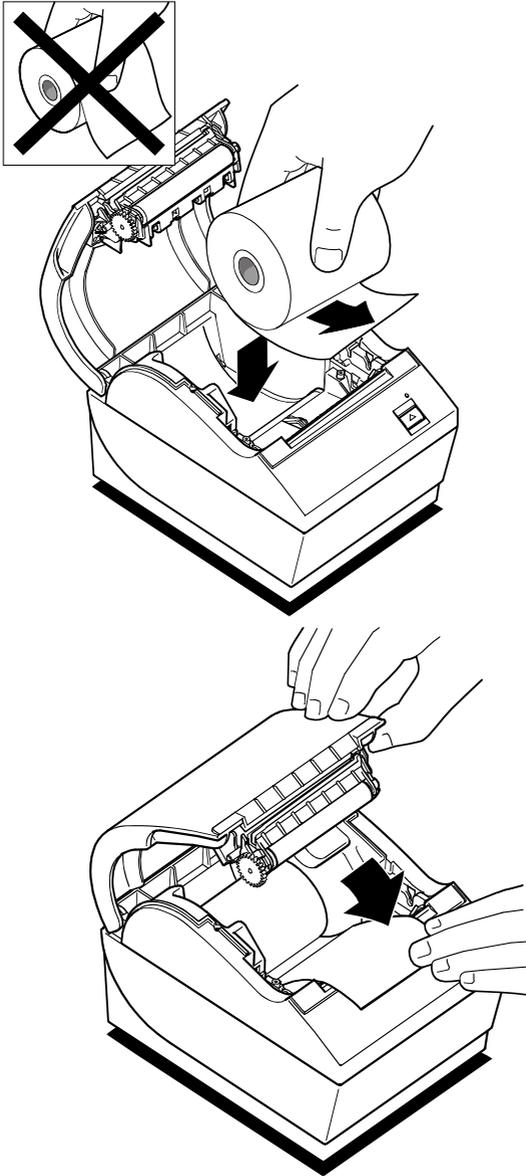
To Load the Paper:



Open the Rear Cover by lifting up on each side of the cover until it unsnaps.



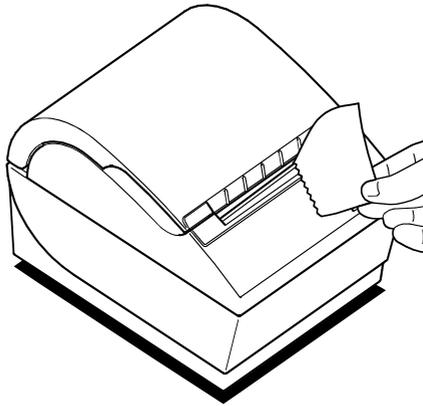
Remove the used paper roll.
Tear off the end of the new roll so that the edge is loose.



Place the new roll into the paper bucket with a few inches of paper extending over the cabinet front (or top, if printer is mounted vertically).

Caution

The Paper must unroll from the bottom to ensure the printer will print and to prevent paper jamming.



Close the cover. Pull the excess paper across the tear-off blade and remove.

Advance the paper if necessary by pressing the Paper Feed Button.

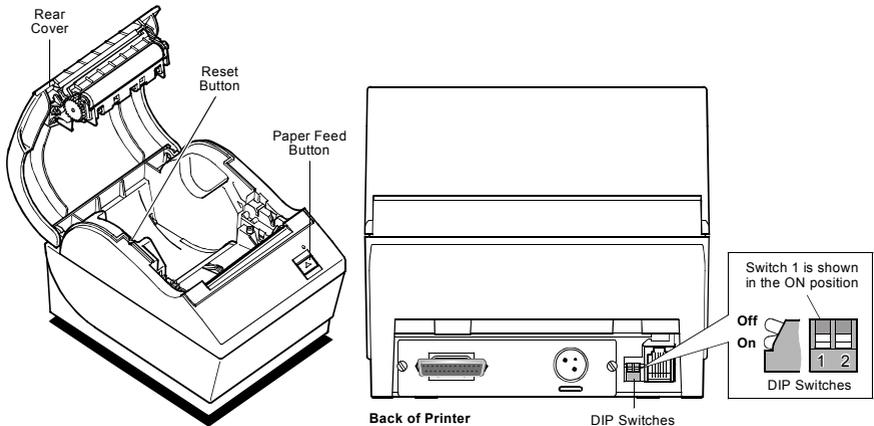
Note:

In the event of a paper jam, remove the roll and tear a new clean edge. Place the roll into the paper bucket, so that it unrolls from the bottom of the roll.

Configuring the Printer

The Configuration Menu allows the user to set general printer parameters. The test prints the settings for several functions, and partially cuts the paper between each variation.

The printouts may vary for each model. The test ends with a partial cut of the paper, then begins again. A test printout may use several feet of paper to complete.



To start the test:

1. Set DIP Switch 1 to ON position (down.) DIP Switch 2 must **always** be set to ON position (down.)
2. Place paper into the bucket as described in the previous section, "Changing Paper."
3. Press the Reset Button.
4. Press and hold the Paper Feed Button while closing the cover.

- The printer prints the Diagnostics Form and the Configuration Main Menu.
 - Printer pauses and waits for Main Menu selection to be made (see sample printout on the next page.)
5. Continue through your menu selections until you are asked to: "Save New Parameters?". Select Yes or No.
 - a) If answer Yes is selected, return DIP Switch 1 to OFF position (up.)
 - b) Repeat Steps 3 and 4 above.
 - Diagnostic printout verifies new settings. (See sample printout)
 6. If answer NO is selected, printer returns to the menu to set parameters again.

*** TH210-3 - Diagnostic Form ***

```

Model number       : TH210-720S-WN00
Serial number      : K082700784

Boot Firmware
Revision           : V1.02
CRC                : DEB0
P/N                : 189-7940188A

Flash Firmware
Revision           : V1.07
CRC                : B36B
P/N                : 189-7940200A

H/W parameters
Flash Memory Size  : 2 Mbytes
Flash Logos/Fonts  : 1152 kbytes
Flash User Storage : 64 kbytes
Flash Perm nt Fonts: 0 kbytes
Flash Journal Size : 64 kbytes
SRAM Size          : 128 kbytes
Head setting       : C
Pre-Heating        : Disabled
Print Density      : 100 %
Max Speed          : 150 mm/sec
Paper Width        : 80 mm
Max Power          : 55 W
Knife              : Enabled
Partial Cut        : 130 steps
Paper Low Sensor   : Enabled
Paper Low Extension: 10 ft

Comm. Interface
RX Buffer Size     : 4096
Interface type     : RS232/USB
Parameters
Baud Rate         : 19200
Data Bits         : 8
Stop Bit          : 1
Parity            : NONE
Flow Control      : DTR/DSR
Reception Errors  : Ignore
USB Driver Type   : Printer Class
USB Packet w/Error: Reject
  
```

```

Resident Code Pages : 437, 850, 852, 858
                    : 860, 863, 865, 866
                    : 1252, 862, 737, 874
                    : 857

Logo(s) defined     : NO
User Char(s) defined: NO
Journal Unused      : 64 kbytes

Diagnostics         : OFF
Default Font        : Standard
Printer Mode        : Native Mode
Printer ID Mode     : Native
Default LPI         : 7.52
Carriage Return     : Used as Print Cmd.
Resident Font Size  : Standard

User Tallies
Receipt Lines       : 1960
Knife Cuts          : 83
Hours ON            : 0
Flash cycles        : 2
Knife Jams          : 0
Cover Openings     : 15
Max Temp Reached    : 33

To enter Printer Config Menu :
1) Flip DIP switch #1 down
2) Reset the printer, while holding
   the Paper Feed button down
  
```

Troubleshooting the Printer

The printer is simple and generally trouble-free, but from time to time minor problems may occur. Follow these procedures to determine the cause and resolution of any problems the printer may be having. If the procedures in this section do not correct the problem, contact a service representative.

Printer Tone and Green LED

Problem	Possible Causes	What to Do
Green LED, quick continuous flashing	Paper out. Cover off. Knife unable to home.	Put in a new paper roll. Put the cover on. Contact your authorized service representative.
Printer beeps (two-tone—low frequency, high frequency)	Printer has been turned on and is ready to operate.	No action is required.
Printer beeps and flashes green LED in various combinations.	These all indicate serious problems.	Contact your authorized service representative.

Printing Problems

Problem	Possible Causes	What to Do
Colored stripe on the receipt	Paper is low.	Change the paper.
Receipt does not come out all the way	Paper is jammed.	Open the receipt cover, inspect the knife, and clear any jammed paper.
Printer starts to print, but stops while the receipt is being printed	Paper is jammed.	Open the receipt cover, inspect the knife, and clear any jammed paper.
Receipt is not cut	Paper is jammed.	Open the receipt cover, inspect the knife, and clear any jammed paper.
	The printer is not configured for a knife.	Contact your authorized service representative.

Print is light or spotty	Paper roll loaded incorrectly. Thermal printhead is dirty. Variations in paper.	Check that the paper is loaded properly. Use recommended thermal receipt paper. Increase print density in "Set Hardware Options" of printer Configuration Menu to 110% or 120% as needed.
Vertical column of print is missing	This indicates a serious problem with the printer electronics.	Contact your authorized service representative.
One side of receipt is missing	This indicates a serious problem with the printer electronics.	Contact your authorized service representative.

Printer Does Not Function

Problem	Possible Causes	What to Do
Printer does not function when turned on	Printer not plugged in.	Check that printer cables are properly connected on both ends.
	Receipt cover not fully closed.	Check that the host or power supply is getting power. Close and latch the receipt cover.

Characters

Print Modes

Available print modes:

Standard
Compressed
Double High
Double Wide
Upside Down
Rotated
Underlined
Bold
Reverse
Italic
Scaled

Size

Characters sizes for the Standard and Compressed mode:

Standard

Characters per Inch: 15.6
Characters per Line: 44
Cell Size: 13 x 24 Dots

Compressed

Characters per Inch: 20.3
Characters per Line: 56
Cell Size: 10 x 24 Dots

For more information about Programming the printer to print the various print modes.	See "Programming Guide"
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Paper Specifications

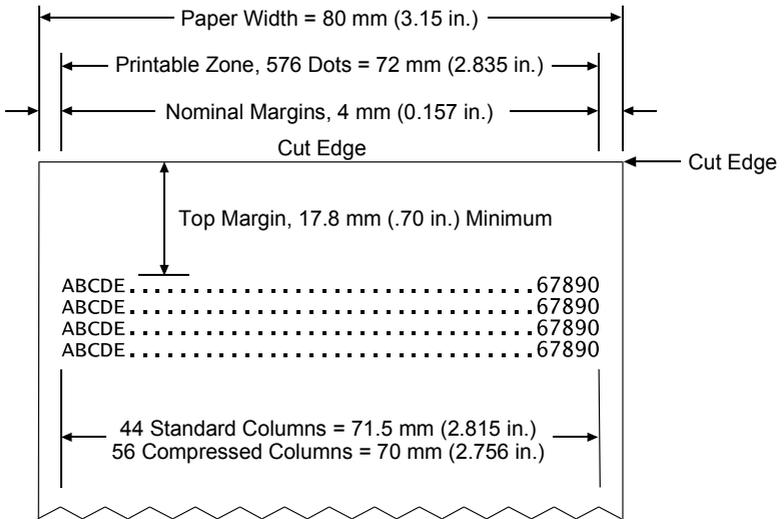
The printer requires qualified thermal paper with the following dimensions:

Width	Diameter	Length
80 mm \pm .2 mm (3.15 in. \pm .02 in.)	90 mm max. (3.54 in.)	322 ft. nominal.
The paper must not be attached at the core. Use paper with a colored stripe at the end to indicate that the paper is running low.		
The above figures are based on a core diameter of 22 \pm .5 mm (.87 in.) outside, 11.5 \pm .5 mm (.45 in.) inside.		

Print Zones

Print Zones for 80 mm Paper

Specifications of print zone for 80 mm paper:
576 dots (addressable) @ 8 dots/mm, centered on 80 mm
Standard Mode: minimum margins: 2.5 mm (.098 inches)
Top margin to manual tear-off: 17.8 mm (0.70 inches)
Top margin to knife cut: 19.0 mm (0.75 inches)



List of Commands

Commands control all operations and functions of the printer. This includes selecting the size and placement of characters and graphics on the receipt to feeding and cutting the paper. Details can be found in the Programmers Guide:

Code (Hexadecimal)	Command
09	Horizontal Tab
0A	Print and Feed One Line
0C	Print and Return to Standard Mode
0D	Print and Carriage Return
10	Clear Printer
10 04 <i>n</i>	Real Time Status Transmission (DLE Sequence)
10 05 <i>n</i>	Real Time Request to Printer (DLE Sequence)
11 <i>n1...n72</i>	Print Raster Graphics
12	Select Double-Wide Characters
13	Select Single-Wide Characters
14 <i>n</i>	Feed <i>n</i> Print Lines
15 <i>n</i>	Feed <i>n</i> Dot Rows
16 <i>n</i>	Add <i>n</i> Extra Dot Rows
17	Print
18	Cancel Print Data in Page Mode
19	Perform Full Knife Cut
1A	Perform Partial Knife Cut
1B (+*.bmp)	Download BMP Logo

Code (Hexadecimal)	Command
1B 07	Generate Tone
1B 0C	Print Data in Page Mode
1B 12	Select 90 Degree Counter-Clockwise Rotated Print
1B 14 <i>n</i>	Set Column
1B 16 <i>n</i>	Select Pitch (Column Width)
1B 20 <i>n</i>	Set Right-Side Character Spacing
1B 21 <i>n</i>	Select Print Mode
1B 24 <i>nL nH</i>	Set Absolute Starting Position
1B 25 <i>n</i>	Select or Cancel User-Defined Character Set
1B 26 <i>s c1 c2 n1 d1...nn dn</i>	Define User-Defined Character Set
1B 27 <i>m a0 a1 a2 d1 ... dn</i>	Write to User Data Storage
1B 2A <i>m n1 n2 d1...dn</i>	Select Bit Image Mode
1B 2D <i>n</i>	Select or Cancel Underline Mode
1B 2E <i>m n rL rH d1 ... dn</i>	Advanced Raster Graphics
1B 32	Set Line Spacing to 1/6 Inch
1B 33 <i>n</i>	Set Line Spacing
1B 34 <i>m a0 a1 a2</i>	Read from User Data Storage
1B 3A 30 30 30	Copy Character Set from ROM to RAM
1B 3D <i>n</i>	Select Peripheral Device (for Multi-Drop)
1B 3F <i>n</i>	Cancel User-Defined Character
1B 40	Initialize Printer
1B 44 [<i>n</i>]... <i>k</i> NUL	Set Horizontal Tab Positions
1B 45 <i>n</i>	Select or Cancel Emphasized Mode
1B 47 <i>n</i>	Select or Cancel Double Strike
1B 49 <i>n</i>	Select or Cancel Italic Print

Code (Hexadecimal)	Command
1B 4A <i>n</i>	Print and Feed Paper
1B 4B <i>n1 n2 d1...dn</i>	Select Single-Density Graphics
1B 4C	Select Page Mode
1B 52 <i>n</i>	Select International Character Set
1B 53	Select Standard Mode
1B 54 <i>n</i>	Select Print Direction in Page Mode
1B 56 <i>n</i>	Select or Cancel 90 Degree Clockwise Rotated Print
1B 57 <i>n1, n2...n8</i>	Set Print Area in Page Mode
1B 59 <i>n1 n2 d1...dn</i>	Select Double-Density Graphics
1B 5C <i>n1 n2</i>	Set Relative Print Position
1B 61 <i>n</i>	Select Justification
1B 63 33 <i>n</i>	Select Paper Sensors to Output Paper End Signals
1B 63 34 <i>n</i>	Select Sensors to Stop Printing
1B 63 35 <i>n</i>	Enable or Disable Panel Button
1B 64 <i>n</i>	Print and Feed <i>n</i> Lines
1B 69	Perform Full Knife Cut
1B 6A <i>k</i>	Read from Non-Volatile Memory
1B 6D	Perform Partial Knife Cut
1B 70 <i>n p1 p2</i>	Generate Pulse to Open Cash Drawer
1B 73 <i>n1 n2 k</i>	Write to Non-Volatile Memory (NVRAM)
1B 74 <i>n</i>	Select Character Code Table
1B 75 <i>n</i>	Request Alternate Status
1B 75 0	Transmit Peripheral Device Status
1B 76	Transmit Paper Sensor Status
1B 7B <i>n</i>	Select or Cancel Upside Down Print Mode
1D 00	Return Boot Sector Firmware Part Number

Code (Hexadecimal)	Command
1D 03 <i>n</i>	Real Time Request to Printer (GS Sequence)
1D 04 <i>n</i>	Real Time Status Transmission (GS Sequence)
1D 05	Real Time Printer Status Transmission
1D 06	Get Firmware CRC
1D 07	Return Micro Processor CRC
1D 21 <i>n</i>	Select Character Size
1D 22 <i>n</i>	Select Memory Type (SRAM/Flash) Where to Save Logos or User-Defined Fonts
1D 22 55 <i>n1 n2</i>	Flash Memory User Sectors Allocation
1D 23 <i>n</i>	Select the Current Logo
1D 24 <i>nL nH</i>	Set Absolute Vertical Print Position in Page Mode
1D 2A <i>n1 n2 d1...dn</i>	Define Downloaded Bit Image
1D 2F <i>m</i>	Print Downloaded Bit Image
1D 3A	Select or Cancel Macro Definition
1D 40 <i>n</i>	Erase User Flash Sector
1D 42 <i>n</i>	Select or Cancel White/Black Reverse Print Mode
1D 48 <i>n</i>	Select Printing Position of HRI Characters
1D 49 <i>n</i>	Transmit Printer ID
1D 4C <i>nL nH</i>	Set Left Margin
1D 50 <i>x y</i>	Set Horizontal and Vertical Minimum Motion Units
1D 56 <i>m</i>	Select Cut Mode and Cut Paper
1D 56 <i>m n</i>	Select Cut Mode and Cut Paper
1D 57 <i>nL nH</i>	Set Printing Area Width
1D 5C <i>nL nH</i>	Set Relative Vertical Print Position in Page Mode
1D 5E <i>r t m</i>	Execute Macro
1D 61 <i>n</i>	Select or Cancel Unsolicited Status Mode (USM)

Code (Hexadecimal)	Command
1D 62 <i>n</i>	Select or Cancel Smoothing Mode
1D 66 <i>n</i>	Select Pitch of HRI Characters
1D 68 <i>n</i>	Select Bar Code Height
1D 6B <i>m d1...dk 00</i>	Print Bar Code
1D 6B <i>m n d1...dn</i>	Print Bar Code
1D 72 <i>n</i>	Transmit Status
1D 77 <i>n</i>	Select Bar Code Width
1D FF	Reset Firmware
1F 04 <i>n</i>	Convert 6 Dots/mm Bitmap to 8 Dots/mm Bitmap
1F 05 <i>n</i>	Select Superscript or Subscript Modes
1F 56	Send Printer Software Version
1F 74	Print Test Form