WINCOR NIXDORF

TH230+
Thermal Printer

User Manual

Edition June 2015

Contents

Introduction

The TH230+ POS printer is ideal for printing receipts, coupons, vouchers and transaction documents at the POS. Its particularly high printing speed means that it also provides optimum support for receipt shooting for promotion engines in POS applications and ensures that there are no delays in the checkout procedure.

User benefits are:
- Printing speed up to 300 mm/s (draft mode)
- Low-noise receipt printing
- Graphics capability supports logos and barcodes incl. GS1 DataBar
- Optional two-colour printing
- Low power consumption (Power Savings)
- Particularly easy changing of receipt rolls
- Low-power mode and power ID
- Especially high reliability

About This Manual

This documentation is intended to help you to work with the thermal printer and to serve as a reference work. The detailed table of contents help you find the desired information quickly and easily.

⚠ **Warnings in the manual are marked by this symbol.**

The type and scope of application programs depend on the customer's own selection, therefore, software will not be discussed further in this manual.
You will find a description for the programming of this POS printer in a separate manual ("TH230+ Programmers Guide"). PDF download:

http://www.wincor-nixdorf.com/internet/site_EN/EN/Support/Downloads/POSLotterySystems/Manuals/THxxx/THxxx_node.html

Here you can find important notes on integration, please pay attention.

Certificates

Communautés Européennes (CE)

The device is in conformity with the provisions of the European directive 2004/108/EC (EMC Directive) and 2011/65/EU (RoHS Directive).

Tested Safety

The TH230+ has been provided with the symbol for "Tested Safety" (**G**eprüfte **S**icherheit).

Underwriters Laboratories

In addition, the TH230+ has received the UL symbol and cUL symbol.

Federal Communications Commission

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 instruction manual, 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. Modifications not authorized by the manufacturer may void users authority to operate this device.

This class A digital apparatus complies with Canadian ICES-003.
Cet appareil numerique de la classe A est conforme à la norme NMB-003 du Canada.

Warranty

Wincor Nixdorf generally guarantees a limited 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.

All parts of the product which are subject to wear and tear are not included in the warranty engagement.

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 tempera- during printing or just after operation, therefore please do not touch it and its peripherals for safety reasons.**

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

Cautions

- 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 conden-sation, do not turn on the power until it has completely gone away.
- Connect the DC adapter to an appropriate grounding outlet.
- 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 by means of the ON/OFF button.
- Do not allow the printer to start printing when there is no recording pa-per installed, otherwise the print head and platen roller will be damaged.
- To ensure print quality and normal lifetime, use recommended or good quality paper.
- Shut down the printer when connecting or disconnecting interface connectors to avoid damages 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 repaired by a technician, who is certified by Wincor Nixdorf.
- Operate the printer only with power supplies and cables approved by Wincor Nixdorf.
- Keep this manual safe and at hand for your ready reference.

Overview

Printer cover

Paper output

Operator panel

On/Off button
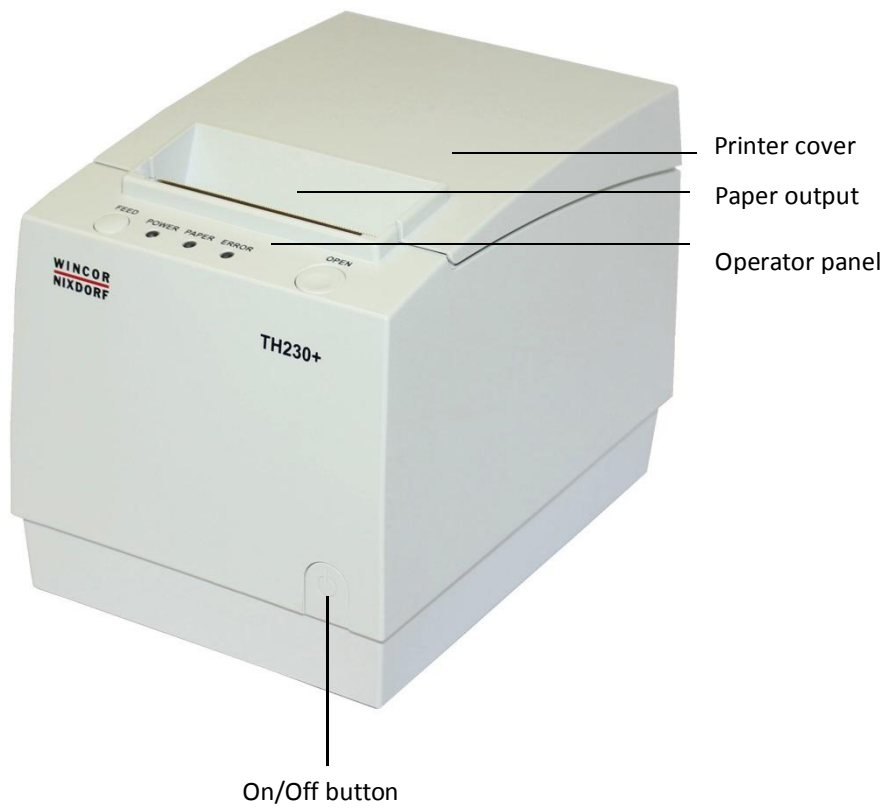
Operator Panel

FEED Button

> If you push this button once and release it, the printer feeds paper for one line (1/6 inch).
> If you push this button and hold it down, the printer feeds the paper as long as the button is not released.
> The button can be locked by the application software and then will be without function.

POWER Indicator

All LED off:	Power is not stable
Green POWER LED on:	Power is stable
Green POWER LED blinking:	Printing speed may be low (*****) if necessary contact your technical support
Green POWER LED flashes:	Printer in Sleep mode

> (*****) The printer will run with the lowest power value (48W) if not an up-to-date power supply unit from Wincor Nixdorf or an external power supply unit without automatic power identification is used.
> Using a high capacity power supply unit the maximal power value can be defined with the configuration menu from 48 Watt up to 110 Watt.

PAPER Indicator

Yellow PAPER LED off:	Paper is properly inserted.
Yellow PAPER LED on:	Paper roll near end.
Yellow PAPER and red ERROR on:	Paper end is reached.

ERROR Indicator

Red ERROR LED off:	Normal condition
Red ERROR LED on:	Not ready for operating. Printer cover is not closed or in combination with Yellow PAPER LED on, paper end is reached
Red ERROR LED blinking:	An error occurs. Switch the printer off and on again. In case of no success contact your technical support.

LED overview

	POWER green	PAPER yellow	ERROR red	Meaning
	off	**off**	**off**	No power
Operation	**on**			Power on
	blinking			If necessary call for technical support
	flashing			SLEEP mode (power savings)
		off		Paper properly inserted
Paper		**on**		Paper near end
		on	**on**	Paper end
Error			**blinking**	If necessary call for technical support
			on	Cover not closed

OPEN Button

Press this button to unlock and open the cover. Thereby, the switch sheet flaps into an upright cover position

Switch sheet
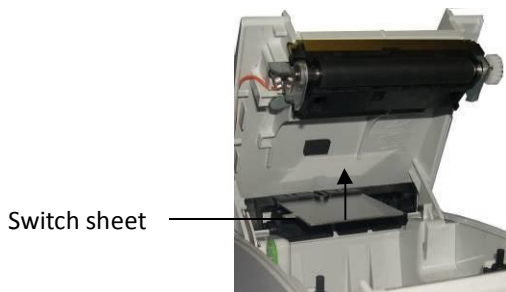
⚠ **If an error occurs do not open the cover by force**

Open the printer cover only if the cutter is in its home position. Otherwise the cutter or the cover may be damaged. Refer to the chapter "Home Position of the Printer".

On/Off Button

Pressing this button will switch the printer on or off.
To switch off the printer press the button for at least one second.

The button can be locked by the application software and then will be without function.

Maintenance of the TH230+

Print Head/Rubber Roller Cleaning

Clean the print head and the rubber roller at least every three months. In case of an intensive use of the printer clean both items more often to guarantee a stable print quality.

Rubber roller
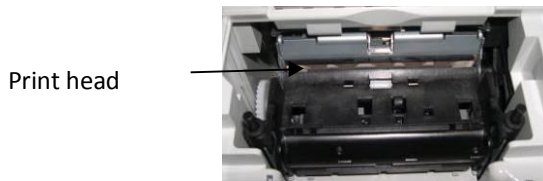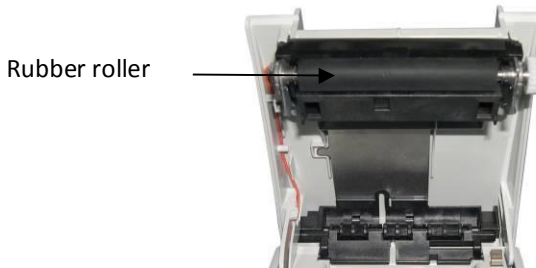
Print head

- Open the printer cover and remove the paper-roll; the rubber roller and the print head mechanism are then visible.

⚠ **Let the print head cool down before cleaning it.**

- Clean print head and rubber roller with a soft lint-free cloth moistened with pure Isopropyl alcohol (e.g. ISOPADS which can be ordered at Wincor Nixdorf).

- Visually inspect the print head. If you can still see dirt, the cleaning procedure must be repeated. You can identify the relevant and important thermal element zone by the thin line crossed by wires.
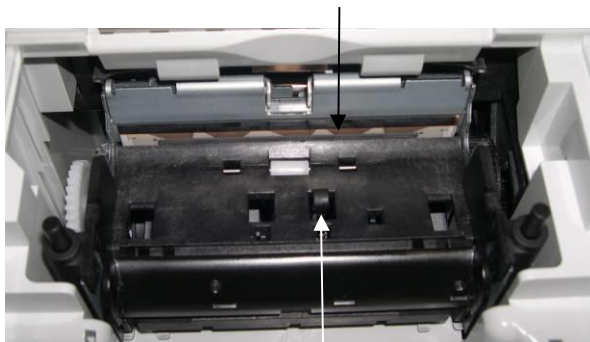
Paper end sensor

Pay attention not to damage the paper end sensor when cleaning the print head.

⚠ **Do not touch the rubber roll with your fingers.**

While cleaning turn the rubber roller by hand with the lateral gear wheel Make sure that the entire roller will be cleaned.

⚠ **Cleaning the print head not properly, may cause an early failure**.

⚠ **Wait until the isopropyl alcohol is evaporated**.

- Insert the (new) paper-roll and close the cover. Print out a test ticket (see application handbook) and verify the printing quality (density, alignment and consistency).

Paper Roll Exchange

For a paper roll exchange follow the steps below:
- Open the printer cover
- Remove the (nearly) empty paper roll and any residual paper.
- If necessary clean the print head and the rubber roller.
- Unwind the outer layer (winding) of the paper roll.
- Insert the paper roll.
- Lay the unwinded paper over the front edge of the printer.
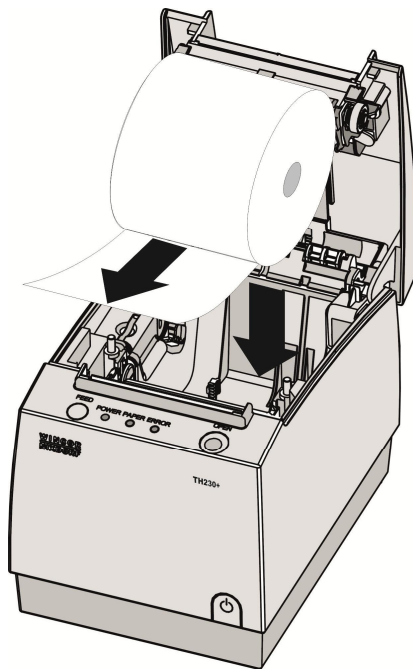
- Hold down the paper and close the printer cover.
- Press on the middle of the cover until it audibly and distinctly locks into place.
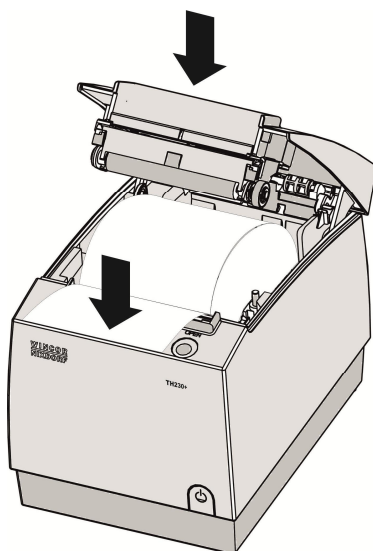
- Tear off residual paper at the tear-off edge.

'Paper near end' Sensor Adjustment

The paper end premonition is a control function. It allows adjusting a pre-defined amount of remaining paper on the roll.
The paper end premonition depends on the core diameter and the paper thickness of the paper roll in use.
You can adjust the remaining amount of paper yourself following the steps below:
- Open the printer cover.
- Remove the paper roll.
- Loosen the locking screw at the inner wall of the printer for instance with the aid of a coin (do not remove the screw).
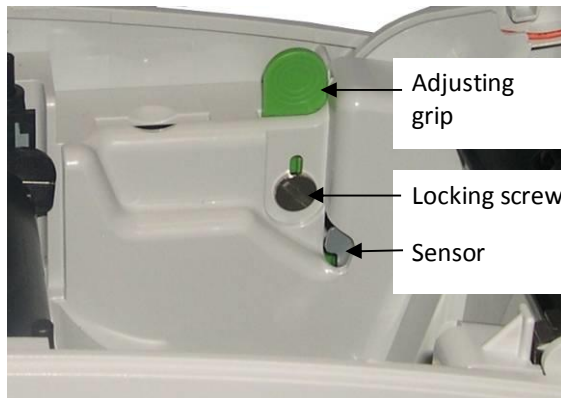
Move the adjusting grip to determine the remaining paper amount.

⚠ A lower distance mark (adjustment grip downwards) will cause a lower amount of remaining paper and vice versa:
The scale reaches from 0.5mm to 12.5mm.

After determining the distance mark:
- Tighten the locking screw
- Insert the paper roll
- Close the printer cover and lock it.

Home Position of the Cutter

To put the cutter into the home position lift the printer and turn the green hand wheel at the bottom of the printer towards the printer front side as far as it will go.
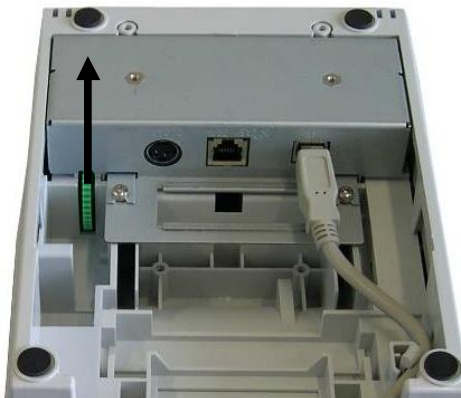
Connecting the TH230+

The connectors are located at the bottom side of the printer.
The picture shows the USB/CASH DRAW/DC24V variant.
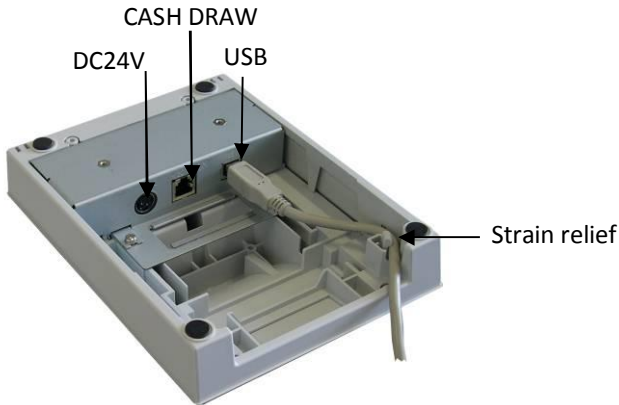
- Connect the hosiden plug of the low voltage cable to the low voltage socket of the printer (DC24V).
  at the low voltage cable.

- Connect the plug from the USB data cable to the USB socket at the printer and guide the cable through the strain relief.

- Connect the cable from the cash drawer to the CASH DRAW socket of the printer. Inserting the plug will automatically lock it.

⚠ **The current drain of the cash drawer from the printer must not exceed 1A@24V.**

Connector Variants

USB/CASH DRAW/DC24V
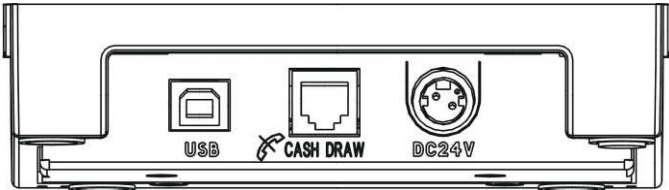
CASH DRAW/Powered USB
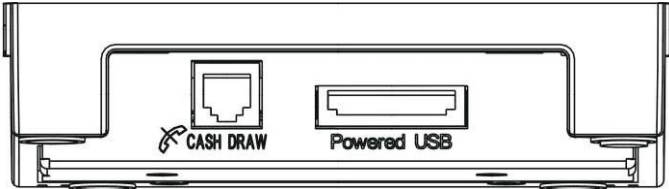
RS 232C/DISPLAY/CASH DRAW DC24V
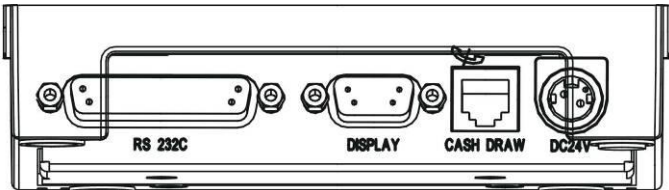
RS 232C/USB/LAN
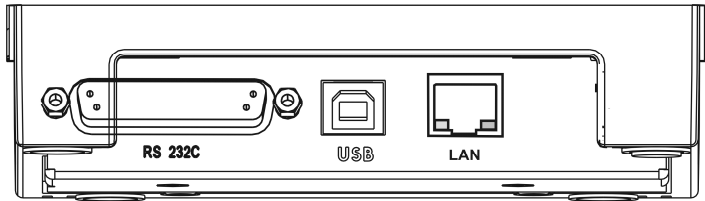
ETHERNET/ DISPLAY/ CASH DRAW/ DC24V

TH230+ Thermal printer
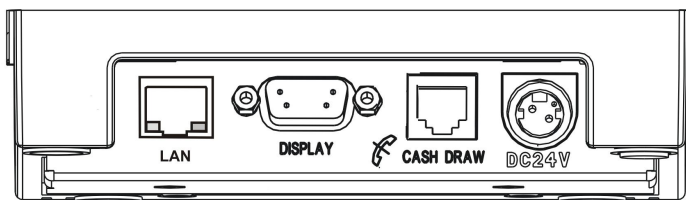
Cash Drawer Connector

RJ12 connector pin usage

PIN	Description
1	Frame Ground
2	Opening pulse for cash drawer 1
3	Status cash drawer 1 and 2
4	+24V DC
5	Opening pulse for cash drawer 2
6	Signal Ground
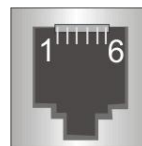
Wincor Nixdorf cash drawers can be connected by cash drawer cables:

KA21 and KA12-1 (CRKB-0981/82/84 = cable lengths: 1.5m/ 3m/ 5m)
KA17 (CRKB-0961/62 = cable lengths: 1.5m/ 5m).

⚠ **Connect cash drawers only.**

Self-Test Printout

- Turn off the printer. Press the On/Off button for at least one second.

- Push the FEED button while turning on the printer.

The service menu will be printed.

- Press the FEED button two times short to select the self-test. Press same button for more than one second to start the printout.

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                    TH230+                    Measured Values:
                   Extended                   Supply Voltage   : 24.6 V
                  Self Test                   Printhead Temp   : 31.2 °C

Hardware Information:                          Installed Code Pages:
Manufacturer      : WINCOR-NIXDORF                0              : PC437
Serial Number     : 0000000001                    1              : PC850
Manufactured Board: D                             2              : PC852
Production Date   : 24-OCT-2011                    3              : PC860
Interface ID      : 90                             4              : PC863
Interface Board   : USB (Full-Speed)               5              : PC865
                    RS232                          6              : PC858
                    Cash Drawer                    7              : PC866
                                                   8              : WPC1252
RS232 Settings:                                    9              : PC862
Parameter         : 19200 - 8N1                   10              : PC737
Handshake         : DTR/DSR                       11              : PC874
Receive Buffer    : large (4 kB)                  12              : PC857
Receive Error     : ignore                        16              : WPC1254
                                                  17              : WPC1250
Software Modules:                                 18              : WPC28591
Firmware          : 01.05                         19              : WPC28592
Booter            : 01.00                         20              : WPC28599
Loader            : 01.02                         21              : WPC28605
  Status          : Verified                      22              : PC864
Power Up Test     : 01.00                         23              : PC720
  Checksum        : OK                            24              : WPC1256
Character Font    : StdCodePages                  25              : WPC28596
  Font Version    : 01.03                         26              : KATAKANA
                                                  27              : PC775
Printer Settings:                                 28              : WPC1257
Black Mark Sensor : disabled                      29              : WPC28594
Endurance Test    : disabled
Automatic LF      : enabled                   Statistic Report:
Power Button      : enabled                   Dots Total        :        216e03
Power-ON Notice   : disabled                  Dots Actual       :        216e03
Paper-NE Notice   : enabled                   Printhead Changes :             0
Receipt Shooting  : disabled                  Linefeeds Total   :           206
Shoot Flush Time  : endless                   Linefeeds Actual  :           206
Sleep Mode        : disabled                  Mechanic Changes  :             0
Max. Power        : 110 W                     Cuts Total        :             2
Max. Speed        : 220 mm/sec                Cuts Actual       :             2
Endurance Tickets : 500                       Cutter Changes    :             0
Paper Width       : 80 mm                     Cutter Errors     :             0
Print Density     : 100 %                     Max. Head Temp.   :        32 °C
Paper Type        : single color              Black Mark Error  :             0
Code-128 ChkDigit : enabled                   Thermistor Error  :             0
ITF Leading Zero  : enabled                   Low Volt. Error   :             0
Brc String Term   : enabled                   High Volt. Error  :             0
Leg. Printer Supp.: disabled                  Cover Open        :             0
Listen to RT-Cmds : always                    FW Starts         :             3
Default Code Page : 0                         Power On (Hours)  :             0
Autorecovery      : off                       EEPROM Updates    :             5
Orig.-Controller  : yes                       EEPROM Status     :            OK

Sensor Information:                            Pixel Test:
Sensor Plug Detection
Black Mark Sensor : available                  9876543210123456789

                                               *** completed ***
```
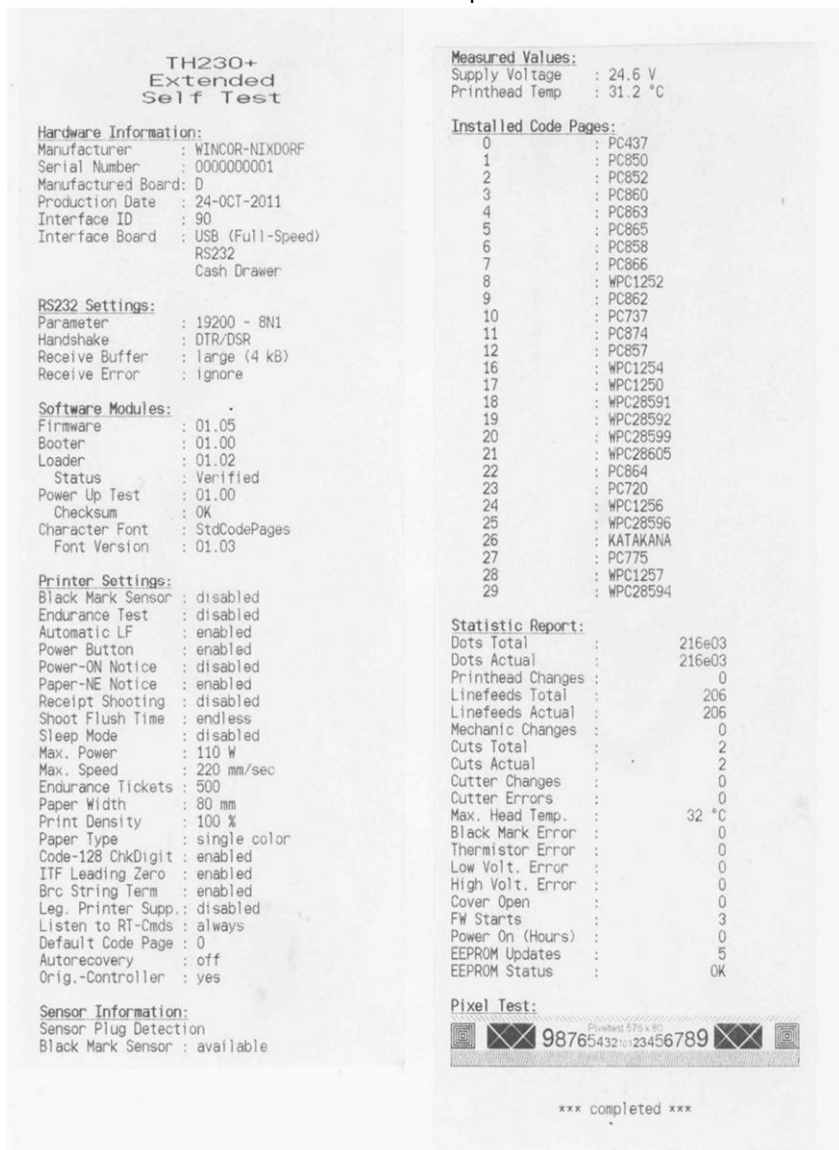
- Press the FEED button one time short and one time for more than one second to end the self-test.

Energy-saving Mode

If the TH230+ is switched on but without a print job it stays in "standby mode", which means, that all functions of the printer are powered with low voltage to be ready for operation.

In order to save more energy the printer changes into "Sleep mode" after an adjustable waiting time. Under Sleep condition the least amount of energy will be consumed. The mode will be indicated by flashing of the POWER LED.

If the printer receives print data it will change into full powered printing mode. Having done the print job the TH230+ will turn to "standby mode" and then to "Sleep mode" again.

In the delivery status of the printer the function "Sleep mode" will be deactivated. The function and the according waiting time must be enabled in the configuration menu or via software (see also "TH230+ Programmers Guide").

http://www.wincor-nixdorf.com/internet/site_EN/EN/Support/Downloads/POSLotterySystems/Manuals/THxxx/THxxx_node.html

Recycling the TH230+

This product is designed according to our internal norm "Environmental conscious product design and development".
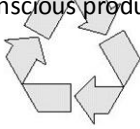
The TH230+ thermal printer is manufactured without the use of CFCs und CCHS and is produced mainly from reusable components and materials.

Please do not stick labels onto the plastic case parts. This would help us to re-use components and material.

Wincor Nixdorf disposes of old units in an environmentally friendly manner in a recycling centre which, like the entire company, is certified according to ISO 9001 and ISO 14001.
Your local representative is available to answer any questions you may have regarding return, recycling or disposal of our products.

Technical Data

Technology	High-speed thermal print
Resolution	8 dots/mm (203 dpi), 576 dots/line
Printing speed	one colour: 220 mm/s, two colour: 110 mm/s
Cutter	Material: tempered steel Speed full cut: < 300ms
Paper transport	Forward; to use paper to full capacity after cutting: up to 12 mm backwards (approx. 3.5 lines at 7.52 lpi)
Control functions	Print head temperature control with adjustment of print speed Paper near end control and paper end control Paper cutter error message Printer cover open/closed Self-test with printout
Option	Paper width 57.5 mm print width = 51 mm = 408 dots
Housing colour	light grey or black
Power supply	DC voltage: 24 V Automatic and manual capacity control: 48 - 110 Watt
Dimensions	148 x 145 x 195 mm (H x W x D)
Weight	approx. 2 kg (w/o paper roll)
Features	Simple Paper roll exchange Optional two colour print with special paper (print speed with 110 mm/sec) Paper near end message adjustable by user

Statistical data	Total number of dots
	Total line feeds
	Total number of cuts
	Max. head temperature
	Paper jam counter
	Cutter error counter
	Thermistor error counter
	High voltage/low voltage error counter
	Number of firmware updates
	Power on time in hours
	Power on counter
Environmental conditions	5 °C - +45 °C
Humidity	5 % - 95 % *(not condensed)*
Noise	≤ 55 dB (A) operation
Reliability	3 Mio cuts with 55 g/m²
	150 km at 12.5 % print density
Graphic feature	TH230+ is fully graphic-compliant

Paper Specification

Paper width	80 mm (option 57.5 mm)
Paper weight	55 g/m² ± 5 g/m²
Paper thickness	0.055 mm – 0.08 mm
Paper roll outer diameter	90 mm max.
Paper roll width	80.3 max.
Paper length	ca. 100 m
Core size	Core diameter: 10 mm +2 mm
	Wall thickness of the core: max. 2 mm ± 0.3 mm
	Paper end not glued to core
	Length of paper fold over at core: 35 mm
Print width	72 mm = 576 dots (80 mm paper width)
	51 mm = 408 dots (57.5 mm paper width)

Print Area
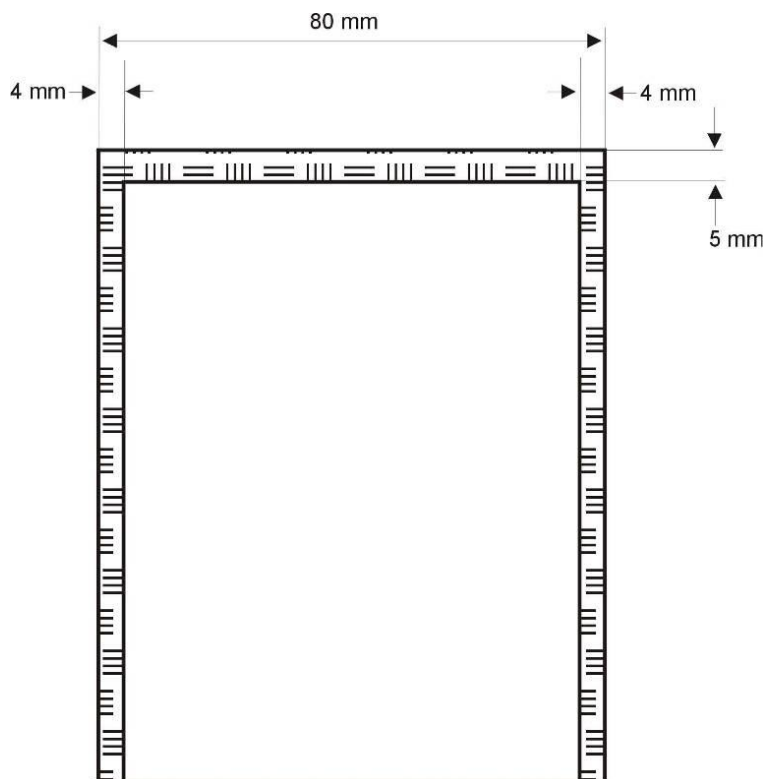
For optional paper width 57,5mm: print width = 51mm = 408 dots

Wincor Nixdorf International GmbH
D-33094 Paderborn

Order No.: **01750196338C**