ND210

Modular POS-Printer

User Manual

Contents

Manufacturer's Certification

General Licence

The device complies with the requirements of the EEC directives 89/336/EEC with regard to "Electromagnetic compatibility" and 73/23/EEC "Low Voltage Directive"(in case the device has its own power connection). Therefore, you will find the CE mark on the device or packaging.

FCC-Class A Declaration

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.

Tested Safety

The ND210 has been provided with the symbol for "Tested Safety".

In addition, the ND210 has received the UL symbol and the cUL symbol.

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Important Notes

The accessory printer ND210 is for use with UL listed POS systems and/or UL listed computers. The printer complies with the relevant safety regulations for information technology equipment. Should you have any doubts about the permissibility of installation in a certain environment (e.g. *electricity systems, no use of PEN conductors!*), please contact the Wincor Nixdorf Customer Service.

■ If the printer is brought into the room of operation from a cold environment, dewfall (condensation) can occur. Before turning on the printer, it must be completely dry; it is therefore necessary to observe an acclimatization period of at least two hours.

■ When setting up the printer, ensure that there is easy access to the power socket on the printer and/or to the grounded-contact mains socket. Position the leads and cables so that no one steps on or trips over them.

■ To disconnect the printer from the supply voltage, switch off the printer and disconnect the power supply plug.

■ Make sure that no objects (for example, paper clips) or liquids get inside the printer. Electric shocks or short circuits can be caused in this way.

■ Never plug or unplug data communication lines during thunderstorms.

■ Protect the ND210 from vibrations, dust, moisture and heat. The printer should only be transported in its original packing. This protects the printer against damage from knocks and bumps.

■ Turn off and unplug the printer immediately if an emergency occurs (for example, if the printer housing is damaged or any foreign substance gets into the printer). Call your Wincor Nixdorf Customer Service.

■ Always dispose of used parts, such as printer ribbons, in an environmentally safe manner (see chapter "Recycling").

■ The ND210 is the result of modern technical innovation. So please see for according structural and technical surroundings to guarantee a faultless and efficient work of your printer. Therefore, you should connect the printer only to power supply systems with separately guided protective earth conductor (PE). This kind of electricity system is known as TN-S network. Do not use PEN conductors! Please also observe the

recommendations of the norm DIN VDE 0100, Part 540, Appendix C2 as well as EN50174-2, §5.4.3.
Thus you can help to avoid possible malfunctions.

- The external power supply of the device is equipped with a safety tested cable. The cable may be connected only to a prescribed grounded-contact power socket.

The printer may be repaired by authorized qualified personnel only. Repairs made by an unauthorized service provider could not only jeopardize the safety of the user, but could also lead to cancellation of all warranty and liability agreements.

Introduction

The modular ND210 Pin Printer is a high-performance and economical POS system printer which is easy to install (plug-in-system), easy to use and which requires a minimum of space.

The printer is equipped with connections for a customer display and a cash drawer, which means that the number of interfaces on the system unit of your POS can be increased. Because the industrial standards have been employed - system interface V.24 - the investment you have made for your POS system is protected.

With its performance, the ND210 is an essential supplement to your entire point of sale system!

About this manual

This manual provides you with all the information you require to ensure that your ND210 Printer operates without a single hitch. It tells you everything you need to do before switching on the printer, how to connect additional devices, and which adjustments might be necessary from time to time to ensure that your ND210 operates reliably.

We therefore ask you to read the appropriate sections of this manual before using your printer.

Care of the ND210

Clean your printer at regular intervals with a commercially available cleaner for sensitive surfaces. Never use acidic solvents.

Before cleaning make sure that the **power is switched off,** the power supply plug is disconnected and that no moisture gets into the printer.

To clean the inner housing use a soft brush or a small vacuum cleaner. Please make sure that there is no remaining paper in the carrier area. Carefully clean the cutter area to remove paper dust. Make sure the ribbon is free of paper dust.

Recycling the ND210 POS Printer
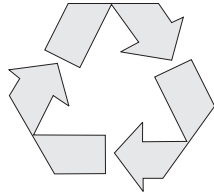
Environmental protection does not begin when it comes time to dispose of the ND210; it begins with the manufacturer. This product was designed according to our internal norm "Environmental conscious product design and development".

The ND210 is manufactured without the use of CFCs und CCHS and is produced mainly from reusable components and materials.

The processed plastics can, for the most part, be recycled. Even the precious metals can be recovered, thus saving energy and costly raw materials.

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

You can protect our environment by only switching on your equipment when it is actually needed. If possible, even avoid the stand-by-mode as this wastes energy, too. Also switch your equipment off when you take a longer break or finish your work.

At this time, there are still some parts that are not reusable. Wincor Nixdorf guarantees the environmentally safe disposal of these parts in the Recycling Center, which is certified pursuant to ISO 9001 and 14001.

So don't simply throw your ND210 on the scrap heap when it has served ist time, but take advantage of the environmentally smart, up-to-date recycling methods!

Please contact your competent branch or the Recycling Center Paderborn (for European countries) for information on how to return and re-use devices and disposable materials under the following address:

E-Mail: info@wincor-nixdorf.com

We look forward to your message.

Warranty

Wincor Nixdorf 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 consumables,
- 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.

In case your ND210 works faulty and you are going to send it to the Wincor Nixdorf Customer Service, make sure to *remove the printhead* before. Our Service then will replace your printer with a faultless ND210 in which you only have to insert your printhead again.

Thus you ensure a quick and low-cost repair of the printer.

Overview ND210

Housing cover

Feed roll

Paper compartment

Paper spring

Operator panel

Release button

WINCOR
NIXDORF

Ink ribbon   Print head

Flap

OVERVIEW ND210

DC24V   RS 232C   DISPLAY   CASH DRAW

Interfaces   Type label
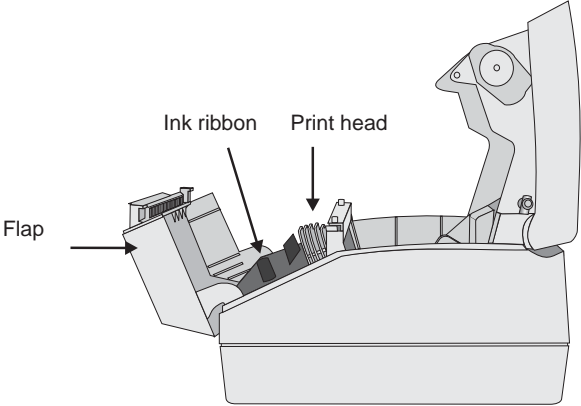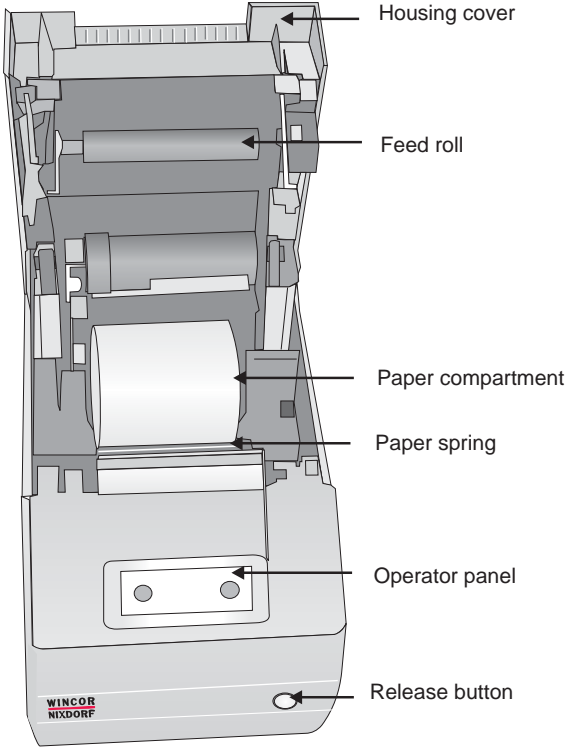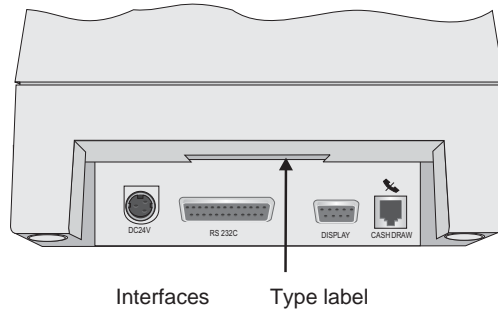
Installation

Before Switching On

Unpacking and Checking the Printer

Unpack the printer and see if the contents of the box matches the particulars on the packing list.

Should you notice any

- transport damages or
- discrepancies between package contents and delivery ticket or
- functional defects,

please inform your contracting parties or the branch office of Wincor Nixdorf immediately. Please indicate the number of your delivery ticket and delivery ticket position and serial number of the respective device. The serial number can be found on the label illustrated below which is located at the bottom of the housing; it may be necessary to remove the cable cover and storage battery.
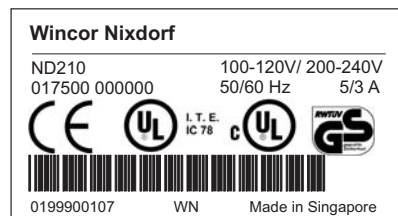
The serial number is located on the label below the bar code.

We recommend saving the original packaging for transport at a later time (protection from impact and shock).

Setting up the device

Set up the ND210 where it will not be exposed to extreme environmental conditions such as vibrations, dust, moisture, heat and strong magnetic fields. Put the printer on level area.

Cabling of the ND210

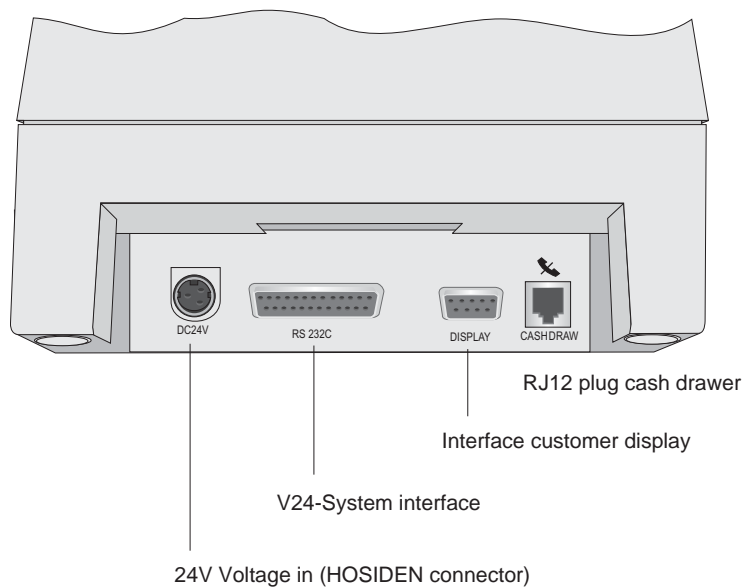The printer should be installed in the following order:

- Make sure that the pos system or the power supply is switched off.
- Plug in the data cables and fasten them.

Always make sure that the system is switched off when you do cabling works (except for USB connectors).

Interfaces

RJ12 plug cash drawer

Interface customer display

V24-System interface

24V Voltage in (HOSIDEN connector)

Securing the data communication cable
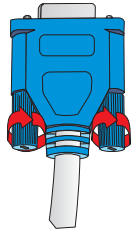
Secure interface connectors with knurled screws manually.
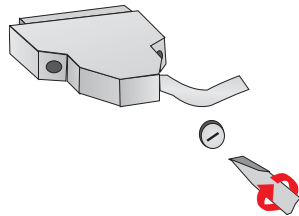
The interface connectors screws made of metal can be secured with a screwdriver. Screws made of plastic must be secured manually only.
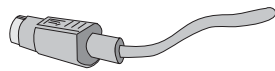
HOSIDEN plugs lock in when you insert them. Check the lock by slightly pulling the cable. Maybe you will have to lock the plug by slightly pushing the cable.

RJ12 plugs lock in when you insert them.

Connecting to the mains power supply

You will find a 3pin HOSIDEN socket for the power supply at the back of the ND210 housing .

Connect the ND210 with the POS system via the power supply cable.

When using an external power supply unit connect the cable for power supply with the ND210 and plug in the power cable of the unit into a grounded contact mains supply socket.

Connect only cable to the 24V connector which are marked with DP-1 or DP-2.

Do not connect the HOSIDEN plug when the system is turned on, this can lead to an automatical reboot of the system.

By using an external power supply of Wincor Nixdorf the settings in the configuration menu are not necessary.

Settings can be done in the configuration tool for external power supply units with more than 72 Watt but without Power ID signal.

Switch Power ON/OFF

This button switches the power on or off. The device switches off if you press the ON/OFF button for approx. 2 seconds.
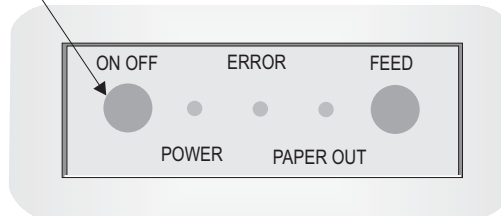
Disconnecting cables

Never unplug a cable by pulling at the cable itself; always take hold of the actual plug body.

Follow the procedure described below when disconnecting cables:

- Switch off all power and device switches.
- Unplug all power plugs from the grounded-contact mains power sockets.
- Unplug all data communication cables from the data networks.

- Unplug all cables from the devices.

With HOSIDEN plugs, the plug remains inserted until released.

Pull the plastic covering from the connecting socket with your thumb. The lock is released.
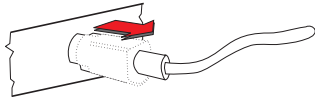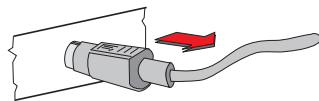
The metal of the plug is visible. With HOSIDEN plugs, the plug remains inserted until released.

Pull the plastic covering from the connecting socket with your thumb. The lock is released. The metal of the plug is visible.
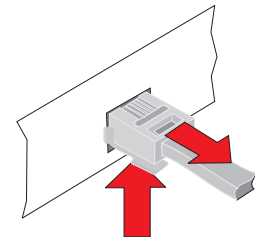
RJ12 plugs lock in when you insert them. To release them push the latch under the plug to the top.

Connecting peripherals

Cash drawer

The ND210 has a RJ12 jack for connecting a cash drawer. To prevent malfunctions, make sure that the connector is plugged firmly into the socket. Power is supplied to the cash drawer via this socket.

When connecting cash drawers, the construction level 1 (Release 4) for the KA16 or KA17 is absolutely necessary! The construction level is noted on a label on the bottom of the cash drawer.

Connect cash drawers only.

Customer display

The customer display is connected to the serial interface. The interface connection on the ND210 is a 9pin D-sub connector.

To prevent possible malfunctions, make sure that the connector for the customer display is plugged firmly into the socket. The power is supplied via this jack.
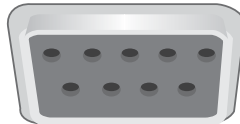
The operator control panel

The components which make up the operator control panel include the power switch, LEDs and the paper feed button. The operator control panel is located at the front housing cover of the printer.

ON OFF   ERROR   FEED

POWER   PAPER OUT
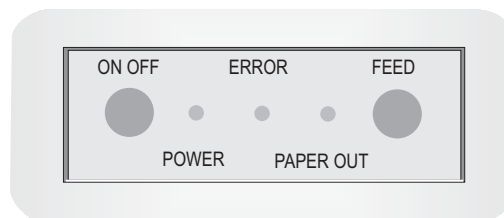
ON/OFF

This button switches the power on or off. Press the button short for switch on and not less than 2 seconds for switch off.

FEED

Press the receipt feed button once to advance receipt paper one line. The line spacing corresponds to the default value of 1.6". You can also hold down the button to feed receipt paper continuously.

LEDs

Green LED "POWER"   The power light is on when the printer power is on.

Red LED "ERROR"   This LED is on when the printer cover is open or paper is out.
The LED is blinking when an error occurs (see error messages via blink codes on page 30). In normal state the LED is off.

Red LED "PAPER OUT"   This LED is on when the detector recognized a paper near end or when a paper roll is not installed. The LED is off when paper is available.

Printer Features

The ND210 POS printer has 9dot matrix printing mechanism. Character resolution is 9 x 9 dot matrix or 7 x 9 dot matrix, depending on the character types you select from your application software.

The ND210 provides you with the possibility of controlling the line feed of the receipt paper via a button on the operator control panel.

For reasons of safety, the printing and cutting devices are shut down as soon as the printer cover is opened.

The ND210 is supplied with a Flash EPROM to load in firmware updates without changing the memory device.

An individual company logo can be created by means of a block print which is produced in graphic print quality. The logo is loaded into the printer memory through your application software.

An individual stamp (software) can be stored in the Flash EPROM of the ND210 permanently. Thus the software stamp will not get lost after the printer has been switched off.

Additional printer features are efficient printing and simple operation.

You can use paper with different roll width.

You can set up the ND210 to run in a quiet mode by using the configuration tool.

All consumables for the printer, such as receipt paper or ribbon cassettes can be ordered from Wincor Nixdorf branch office.

For the sake of the environment, always dispose of used materials properly (see chapter on recycling).

Operating the Printer

Changing the receipt roll

When a red stripe appears on the printed receipt, or the "PAPER OUT" LED lights up on the control panel, a new receipt roll should be inserted. Change the receipt roll as follows:

Press the release button at the right hand side of the front and lift up the rear housing cover.
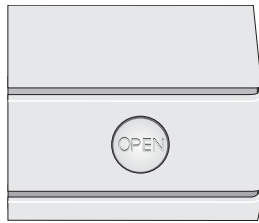
Take out the empty paper roll.

Insert the new paper roll into the receipt roll compartment, pull out approx. 6 inch (15cm) until it reaches slightly over the front housing cover.
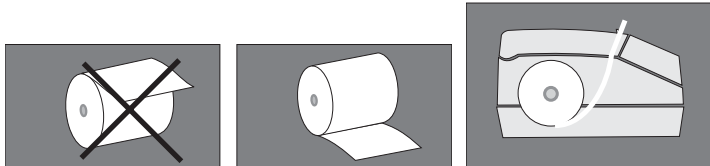
Hold the paper while closing the rear housing cover until it clicks in. Tear off the excess receipt paper.

Changing the ribbon cassette

Switch off the printer. Press the release button at the right hand side of the front and lift up the housing cover. Then lift up the flap. Now you will see the ribbon cassette and the print head.

Caution! The print head may be hot! Allow the print head to cool before touching it.

Remove the used ribbon cassette. Take hold of the handle bar and withdraw the cassette.

Be sure to dispose of the ribbon cassette properly (see also the chapter on recycling).

Before inserting the cassette into the printer housing, tighten the ribbon by turning the knob on the cassette clockwise.
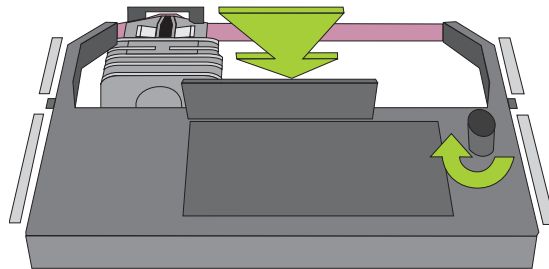
Grip the cassette on the handle bar and insert it in a way that the guiding pins beside the cassette will slide into the recesses of the ribbon housing. Make sure that the ribbon will be threaded between the guiding pins and the print head.

Tighten the ribbon again by turning the knob several times. Close the flap.

Pull the receipt paper to front and close the housing cover.

Replacing the print head

Turn off the power with the power button at the operator control panel. Press the button for at least 3 seconds until the power LED goes off. The print head can be replaced as follows:

Press the release button at the right hand side of the front and lift up the housing cover. Then lift up the flap and remove the ribbon casette.

Caution! The print head may be hot! Allow the print head to cool before touching it.

Remove the ribbon cassette. Take hold of the handle bar and withdraw the cassette.

To remove the print head from its bracket, open the holding clips.

Press the clips to the left and to the right. The print head is now loose and can be removed easily.
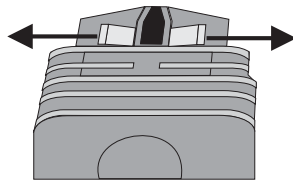
Lift the print head only as far as you can unplug the flexible cable from the print head socket.

To insert the new print head, follow the same procedure in reverse order.

Should you send a faulty ND210 to the Wincor Nixdorf Customer Service, **remove the printhead** before.

Adjusting the paper near end detector

The paper near end detector detects when the paper end is almost reached. Software programs can use the ESC c 4 command to enable or disable the paper end recognition.

The paper near end sensor is adjusted in the lowest position ex works. Using commercial available paper rolls thus it is insured that an optimal rest of paper will remain on the roll (approx. 1m).
The PAPER OUT LED is on when a paper near end is recognized.

If you want to change the amount of paper remaining, follow the steps below:

- Open the housing cover and remove the paper roll.
- Slighly loosen the adjusting screw with a coin or a screwdriver. Do not unscrew it!
- Move the screw to the desired position. A higher position of the screw will remain more paper on the receipt roll.
- Tighten the adjusting screw.

The detector is located on the left hand side of the paper compartment.

Adjusting screw

20
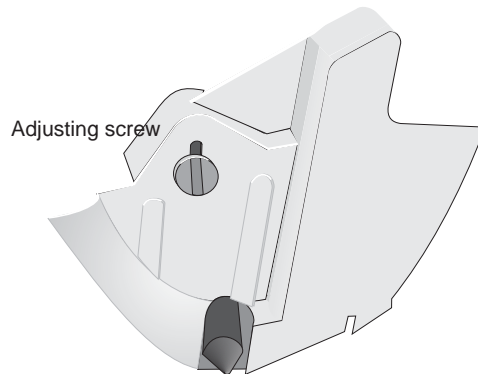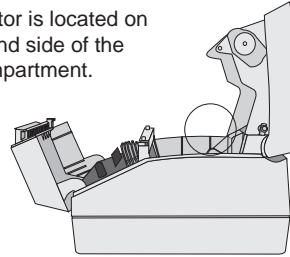
Adjusting the Paper roll width

The printer comes along with a paper roll width of 57.5 mm ex works. You will have to move the spacer in the paper compartment when using paper with a different roll width.

- Press the release button at the right hand side of the front and lift up the housing cover.
- Remove the present receipt roll.
- The spacer is situated on the right side of the paper compartment.
- Hold down the paper spring (1) and take hold of the grip (2) to remove the spacer upwards (see picture).
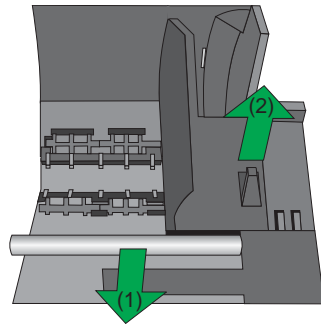
The spacer is attached firmly but can be rermoved by hand.
- Put the spacer in the rear guiding slot in the middle or right position depending on the roll width.

Paper roll width of 57.5 mm, 69.5 mm and 76.0 mm
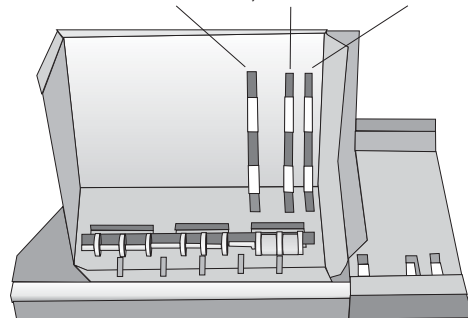
- Press down the spacer until it hearable clicks in.

▪ Update the settings for the paper roll width with the configuration tool. Please choose:
MAIN MENU ->CONFIGURATION ->PRINT SETTINGS ->Paper Roll Width. Change entry to the new width.

Printing with the ND210

The ND210 offers you different possibilities to print on receipts:

▪ text
▪ graphics: the software stamp printing, the logo printing, graphics printing

Software Stamp Printing

If you want to print text or graphics frequently on a receipt e.g. your company name or trademark as header, we recommend to use software stamp printing.

Example: You design your trademark by means of a standard graphics software program. In doing so please make sure to create those (bitmap) files as black and white files and to save them later accordingly.

The maximum size of a stamp you can print with your ND210 is an area of 25 856 dots. The maximum width (W) is 180 pixel (= 57.44 mm) with a paper roll width of 69.5 mm. The height (H) of the stamp is variable, however, please mind that W x H $\leq$ 25 856. If you use paper rolls with a width of 57.5 mm the maximum stamp width is 144 pixel (= 46.24 mm), . paper rolls with a width of 76.0 mm the maximum stamp width is 200 pixel (= 63.84 mm).

Having created your bitmap stamp file (black and white!) you then should preferably save it as a black and white file in the same directory in which you already stored the special load software (Flash-ROM Loader Utility) for the stamp file.

With this loader utility you can load your file into the Flash EPROM of the ND210. Thus your software stamp remains permanently stored and will not get lost after the printer has been switched off.

The stamp will be printed on the receipt by sending the control sequence ESC o.

You will find details on the "Flash-ROM Loader Utility" and on printing a software stamp in the "ND210 Programmers Guide".

Logo printing

The logo print is recommendable for graphics or texts which are often modified and which need not be stored in the printer for a longer period of time.

Example: You define a logo which is supposed to appear on the receipt. When designing the logo you will have to adhere to the same parameters as described before when creating a software stamp. Subsequently, the maximum size of your logo is an area of 25 856 dots.

The print data will be loaded into the RAM of your ND210 by sending the control sequence GS *. By sending the GS / sequence these data can finally be printed.

For further information on the logo printing, please read also the "ND210 Programmers Guide".

Graphics printing

In case that stamp and logo printing should not be sufficient, the single-line graphics printing offers another possibility to print frequently modifying data on the paper. In this case the graphics data will be transferred line by line and will not be stored in the printer. The graphics printing is activated by sending the control sequence ESC *.

For further information on graphics printing also refer to the "ND210 Programmers Manual".

Appendix

Technical Data

Footprint:

Height	150 mm
Width	160 mm
Depth	248 mm

Weight (w/o paper)	3,5 kg

Climatic Category	IEC 721Class 3K3
Operating Temperature	+5° to +40°C

Power supply	24V / 2.0 A

Power	approx. 50 watts

Print method	9-pin, serial impact dot matrix 9x9 / 7x9

Print columns	Receipt max. 40

Print speed: typ. receipt (10 char)	14 lines/sec

Logo print (max. size 25 856 dots)	via graphic printing quality

Ribbon	violet

System interface	1x RS232c (V24)
Baud rate	4800, 9600, 19200, 38400
Parity	none, even, odd
Handshake	DTR/DSR, XON/XOFF

Interfaces	1x cash drawers (RJ12) 1x Wincor Nixdorf customer display

Paper Specification

Receipt paper

Roll diameter (outside)	max. 83 mm
Roll diameter (inside)	12 mm +0, -2 mm
Roll width	69.5 ±0,5 mm 57.5 ±0,5mm 76.0 ±0,5 mm
Weight	60g/m² ±4%
Thickness of paper	max. 0.1 mm min. 0.06 mm
Useable length of paper	approx. 60 m. Red stripes before end of roll. Paper end not glued to core
Smooth (Bekk)	inside 14 - 56 sec. outside 14 - 40 sec.
Fibre-material class	z 100

Print Area (paper roll width of 57.5 mm, 69.5 mm and 76.0 mm)

Set the print area in the configuration tool:
MAIN MENU -> CONFIGURATION ->PRINT SETTING -> Paper Roll Width

57,5 mm (32 characters/line)

69,5 mm (40 characters/line)

76,0 mm (42 characters/line)

```
                76,0

          60,96
   6,6              8,44




          RECEIPT
```
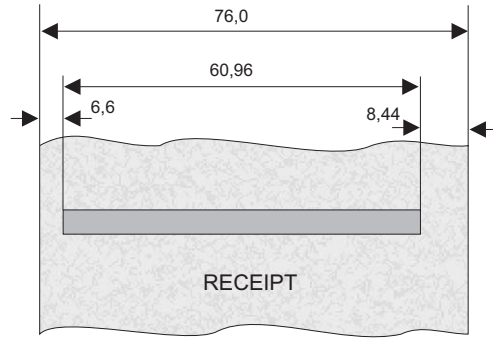
76,0 mm full (44 characters/line)

```
                76,0

          63,84
   6,6              5,56




          RECEIPT
```
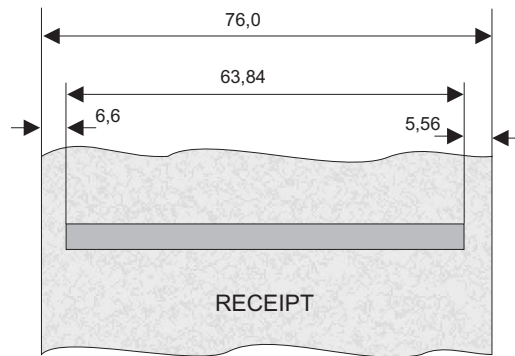
Interfaces

Cash drawer connector

RJ12 connector pin usage

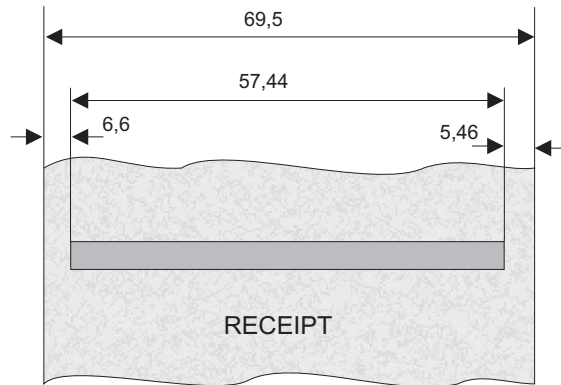| PIN	Description
1	Frame Ground
2	Opening pulse for cash drawer 1
3	Status cash drawer 1and 2
4	+24V DC
5	Opening pulse for cash drawer 2
6	Signal Ground
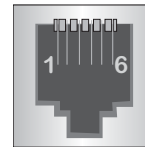
The Wincor Nixdorf cash drawers KA16, KA17 and KA18 can be connected by cash drawer cables (CR KB - 0930; CR KB - 0930; CR KB - 0941, cable lengths: 0.8m; 1.5m; 5.0m).

Connect cash drawers only.

Serial interface to customer display

Pin assignment for the 9pin D-Sub connector

PIN	Assignment
1	P12V
2	RXD
3	TXD
4	NC
5	GND
6	NC
7	RTS
8	CTS
9	NC

5   1

9   6
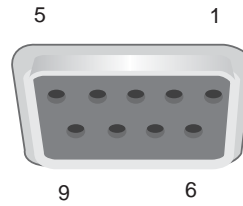
Serial system interface

A standard cable for connecting printers to the serial interface is used to connect the ND210 to a PC or a BEETLE system. This cable has a 25-pin D-sub connector for connecting the printer and a 9-pin D-sub connector for connecting the POS system. This connector can be male or female, depending on the systems interface.

At the end connecting to the system it has a 9-pin D-sub connector male or female depending on the systems interface.

If you want to connect a BEETLE with voltage-supplied COM interface, your local branch office can supply you with the appropriate cable.

Gender-changers must not be used.

The following illustration shows the connector pin allocation and connection of the cable.

13   1

25   14

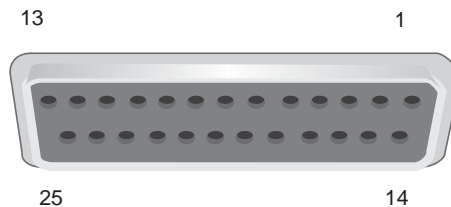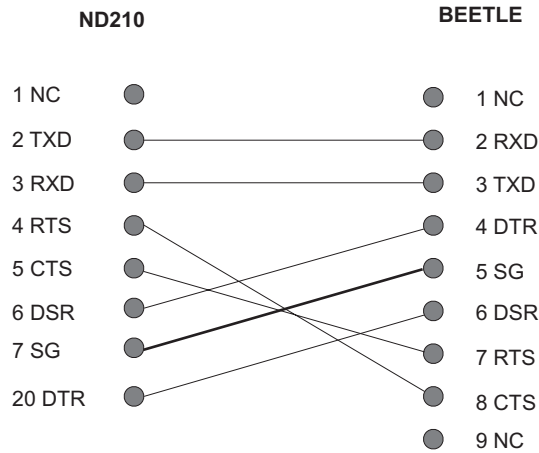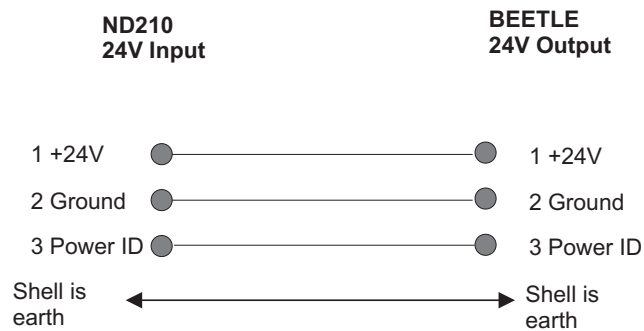**ND210**   **BEETLE**

1 NC   ●   ●   1 NC

2 TXD   ●————————————————————●   2 RXD

3 RXD   ●————————————————————●   3 TXD

4 RTS   ●   ●   4 DTR

5 CTS   ●   ●   5 SG

6 DSR   ●   ●   6 DSR

7 SG   ●   ●   7 RTS

20 DTR   ●   ●   8 CTS

                                     ●   9 NC

Cables must be shielded and connected to both connector housings. The data transmission lines are crossed as in a null modem cable.

Power supply cable

The illustration below shows the Pin assignment of the power supply cable between the ND210 and the BEETLE system.

ND210   **BEETLE**
24V Input   **24V Output**

1 +24V   ●————————————————————●   1 +24V

2 Ground   ●————————————————————●   2 Ground

3 Power ID   ●————————————————————●   3 Power ID

Shell is   ◄————————————————————►   Shell is
earth   earth

Via the power ID cable the printer will receive information about the value of the power supply unit.

Error messages via blink codes

LED "ERROR"

Blinking of the red LED "ERROR" indicates that an error has occured. The respective blink codes are shown graphically in the following section. The blinking cycle lasts about 2 sec.

The following error messages can be reset by DLE ENQ 1 or DLE ENQ 2 control command after recovering the error.

Automatic cutting error

approx. 2 sec.
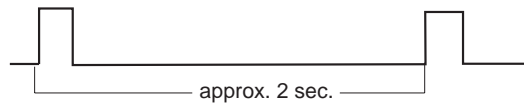
 Do not mistake this error for the thermistor error.

Home sensor error
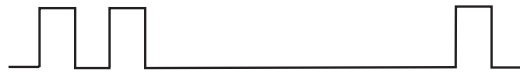
Carrier detection error

Should the errors mentioned above occur, check whether the ribbon is blocking or whether there is residual paper in the printer housing - if so, remove it.

Cover opened while printing

Close the cover.

Overheated print head

The print head is overheated. The print head have to cool down. If a overheating is happend often the print head must be changed.
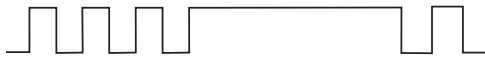
High voltage error

The power supply voltage is extremely high.

Low voltage error

The power supply voltage is extremely low.
In case of errors involving power supply voltage, the power supply unit must be changed.

Thermistor error

The thermistor is malfunctioning or not installed. The foil cable of the print head is malfunctioning or not connected. The cable has to be plugged or must be replaced.

Paper Out and Error LEDs are blinking

The following errors may occur when switching on the printer, all LEDs will be blinking in a cycle of approx. 4 sec:

Hardware error

approx. 4 sec.
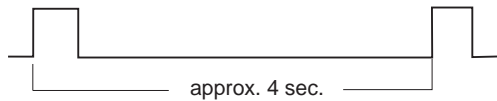
The printer has to be sent to the customer service center.

Loading error
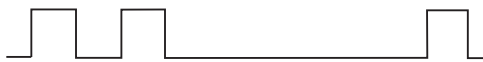
The printer has to be repaired by service personnel.

Firmware error

When a firmware error occurs (wrong checksum) the blink code will be repeated three times. Subsequently, the printer is in loading mode. It is necessary to load the firmware again.
Is it not possible to repair the printer you have to call the service personnel.

Checksum error
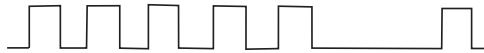
The printer has to be repaired by service personnel.

Receipt cutter-mechanism

In case of a paper jam or a cutter malfunction, switch off the printer (press approx. 2 sec. the button ON/OFF) and push the power plug. Press the release button at the right hand side of the front and lift up the housing cover.

The cutter maybe jamed up the flap, therefore the housing cover is not opened forcibly.

Remove the paper jam an switch on the printer.

Attention on your hands, they have to be outside the cutter area.

The cutter should move to its home position.

If the cutter is still visible outside the mechanism (see picture) switch off the printer and

Cutter

Knurled Wheel
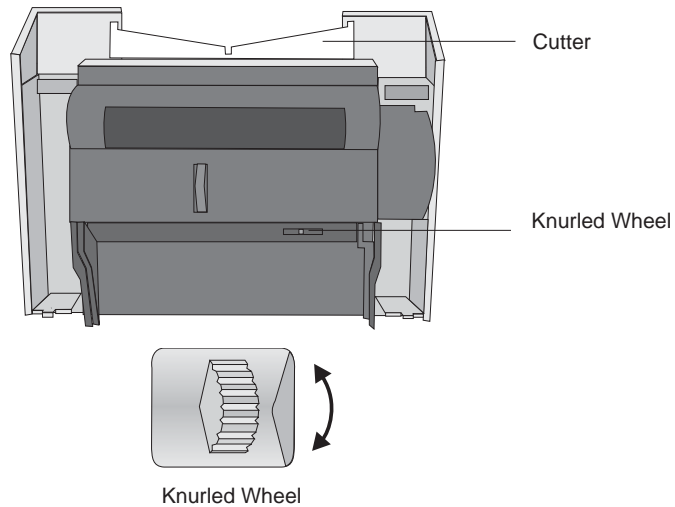
Knurled Wheel

turn the knurled wheel for the cutter position upwards or downwards.

until the cutter finds its home position inside the cutter-mechanism therefor switch on the printer.

- Close only the printer when the cutter is in home position.
- Check by visual inspection, if the cutter is twisted. Take off the housing cover and change the cutter.
- Make sure, that after trouble shooting the ribbon is clamped.

When the cutter does not work exactly, you can deactivate the cutter and manually pull off the paper. You begin with setting the cutter in home position. With the configuration tool you can disable the cutter function.

MAIN MENU ->CONFIGURATION ->HARDWARE ->Cutter

and set the function to "disable".

Configuration Tool

The configuration tool is available by pressing the feed button while switching on the printer.

The printer prints this main menu.

```
            MAIN MENU
            ---------------

    Select a submenu:
      Exit                  -> 1
      Print Self Test       -> 2
      Print Statistics      -> 3
      Cuttertest            -> 4
      Sensortest            -> 5
      Configuration         -> 6
      Reset Counter         -> 7

    Enter code,then hold button down
    at least 1 second to validate
```

To choose a submenu, the feed button must be pressed x-times according to the selection digit in the main menu. Every time the feed button is pressed the PAPER OUT LED goes on. To validate the choice the feed button must be pressed for at least one second.

Print Self Test

The printout shows
- the current settings of the printer.
- the character set and
- the stamp

Print Statistics

The printout lists the statistical data of the printer components and the specifications of the controller firmware.

Cutter Test

When the cutter test is choosen, the printer executes 4 halfcuts and then a fullcut. Between the cuts 6 linefeeds will be made.

Sensor Test

Putting the printer into sensor test mode service personnel may test the sensors manually.

Configuration

The printer configuration is divided in 3 categories: serial communication, mechanism and hardware as well as print settings. It is possible to switch to the default configuration of the printer.

Quiet mode: following the menu items MAIN MENU ->CONFIGURATION ->HARDWARE -> Quiet mode will set the printer in a low noise operating mode. In this mode the printing speed is slightly reduced.

Power Supply: following the menu items MAIN MENU ->CONFIGURATION ->HARDWARE -> Power Supply the value of the power supply unit can be set.

Reset Counter

For statistical data it is possible to reset the counter if defective parts on the printer have been changed. This function is used only by service personnel.

Control Sequences

The control sequences of the printer controller are based on the ESC/POS standard. The following list shows all the available sequences of the ND210.

Code	Function
HT	Horizontal Tab
LF	Print and line feed
FF	Print and eject document paper
CR	Carriage Return
DLE EOT	Transmit real time status
DLE ENQ	Real time request to printer
DLE DC4	Turn off the power
ESC SP	Set right side character spacing
ESC !	Select print modes (all stations)
ESC $	Set absolute print position
ESC %	Select / cancel user-defined character set
ESC &	Define user-defined characters
ESC *	Select bit image mode
ESC -	Turn on / off underline mode
ESC 2	Set 1/6" line spacing
ESC 3	Set line spacing
ESC <	Return home
ESC =	Select peripheral device
ESC ?	Cancel user defined characters
ESC @	Initialize printer
ESC D	Set horizontal tab position
ESC E	Turn on / off emphasized mode
ESC G	Turn on / off double strike mode
ESC J	Print and line feed
ESC K	Print and reverse line feed
ESC R	Select an international character set
ESC U	Turn on/off unidirectional printing mode
ESC \	Set relative print position
ESC a	Select justification
ESC c 4	Select paper sensor to stop printing
ESC c 5	Enable / disable all panel buttons
ESC d	Print and execute n line feeds

Code	Function
ESC e	Print and reverse feed *n* lines
ESC i	Execute full cut
ESC m	Execute partial cut
ESC o	Print software stamp
ESC p	Generate pulse (for cash drawer)
ESC t	Select character code table
ESC u	Transmit peripheral device status
ESC v	Transmit paper detector status
ESC {	Turn on / off upside-down printing mode
GS ENQ	Transmit real time printer status
GS (A	Execute test prints
GS (D	Enable/disable real-time commands
GS (E	Customize NV memory
GS *	Define downloaded bit image
GS /	Print downloaded bit image
GS E	Select print speed and head energizing time
GS I	Transmit printer ID
GS P	Set vertical motion unit
GS V	Select cut mode and cut paper
GS a	Enable / disable automatic status back
GS r	Transmit status

For programming your printer, please find a detailed description of the control sequences and the character pages in the **"ND210 Programmers Guide"**.