1. Overview

The NS5-24 switch is an industrial unmanaged network switch (hereinafter referred to as “switch” or “device”), has five Ethernet ports with a braud rate of 10/100 Mbps, supports Layer 2 functions, requires no configuration and operates as a Plug and Play device.

The switch automatically detects MAC addresses of connected devices, a braud rate and type of the cable connected (straight-through or crossover).

An example of creating a network using the switch and other akYtec devices is shown in the figure below:

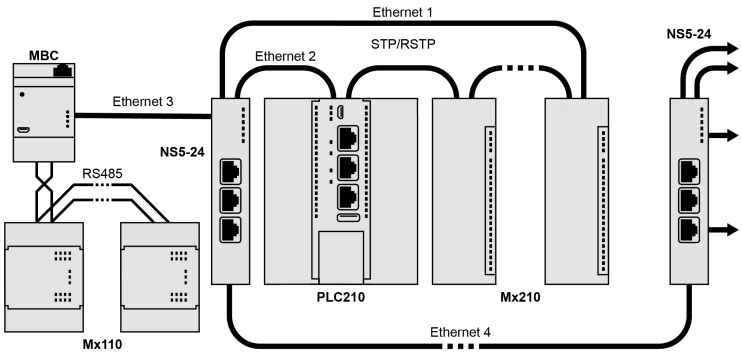


Fig. 1 – Wiring diagram

2. Specifications

Table 1 Specifications

Parameter	Value
Power supply	
Power supply	24 (10…48) VDC
Power consumption, max.	4 W
Appliance class	II
Ethernet	
Ports	5
Type	10/100BASE-T/TX
Connector	8P8C (RJ45)
Standard	IEEE 802.3/802.3u/802.3x
Galvanic isolation, at least	1000 V
Cable length, max.	100 m
Mechanical	
Mounting	DIN rail, vertical surface
Dimensions (without drawn out fastener)	28.0 × 124.0 × 83.5 mm
IP code	IP20
Weight	approx. 0.15 kg
Average service life	8 years
Mean time between failures (MTBF)	60 000 hours

3. Environmental conditions

The device is designed for natural convection cooling which should be taken into account when choosing the installation site.

The following environmental conditions must be observed:

- clean, dry and controlled environment, low dust level;
- closed non-hazardous areas, free of corrosive or flammable gases.

Table 2 Environmental conditions

Condition	Permissible range
Ambient temperature	-40…+55 °C
Transportation and storage	-40 … +70 °C
Relative humidity	10…95 % (non-condensing)
Altitude	up to 2000 m ASL
Vibration / shock resistance	conforms to IEC 61131-2
EMC emission / immunity	

4. Safety

WARNING
Dangerous voltage!
Electric shock could kill or seriously injure.
All work on the device must be performed by a fully qualified electrician.
Ensure that the mains voltage matches the voltage marked on the device.
Ensure that the device is provided with its power supply line and electric fuse.
The device may not be used in aggressive environments, in atmospheres in which there are chemically active substances.
The output port and internal electrical elements of the device must be protected from the humidity.

NOTICE
De-energize the device before working on it. Switch on the power supply only after completing all work on the device.

5. Mounting

The safety measures specified in *section 4* must be observed during the device mounting. The device is to be mounted in enclosures, cabinets, e. t. c. with protection of the device from dust, moisture and foreign objects.

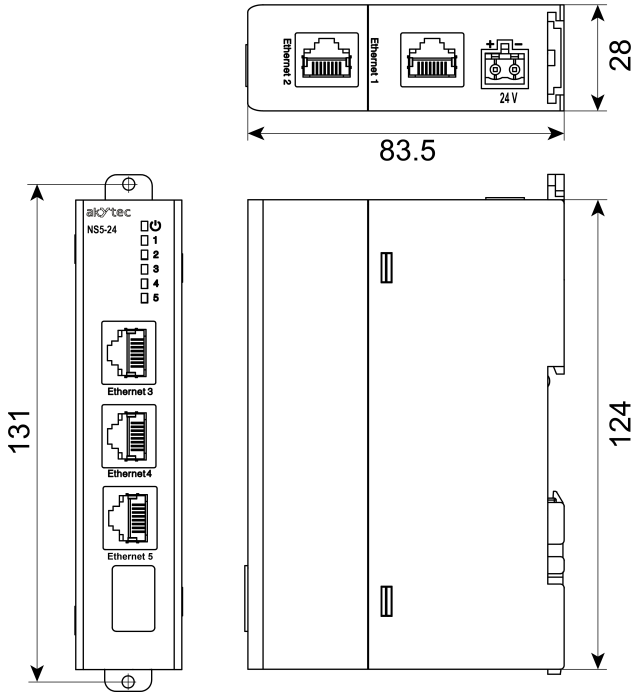


Fig. 2 – Dimensions

To mount the device:

1. Ensure the sufficient space for mounting the device and the cables (see *fig. 2*).
2. Mount the device on the DIN rail or on a vertical surface using screws..

To mount on a vertical surface using screws:

1. Draw out the fasteners on the backside of the device to the maximum position (till click). The fastener will be locked.
2. Make mounting holes on a vertical surface in accordance with dimensions (see *fig. 2*).
3. Fasten the device on the vertical surface using M3 screws.

NOTE
The scope of delivery doesn’t include mounting screws.

NOTE
Close off unused ports using the plugs from the scope of delivery.

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6. Wiring

6.1 Power

To power the device, use only a class I or II DC power supply in accordance with IEC 61140. The power cable length should not exceed 30 m.

The power supply should be installed in the same electrical cabinet in which the device is installed.

Table 3 Pin assignment of power connector

	**Signal**
1	0 V
2	+24 V

6.2 Ethernet

Ethernet ports are placed on the top and bottom of the device.

A twisted pair cable of category 5 or higher (according to TIA/EIA-568 standard) is used for connection. The cable should have the 8P8C (RJ45) connector. The switch automatically detects the cable type (straight-through or crossover).

Table 4 Straight-through Ethernet cable pinout

Color	T568A 1	T568A 2	Color
White-green	1	1	White-green
Green	2	2	Green
White-orange	3	3	White-orange
Blue	4	4	Blue
White-blue	5	5	White-blue
Orange	6	6	Orange
White-brown	7	7	White-brown
Brown	8	8	Brown

NOTE
Straight-through connection according to the T568B standard is similar to *table 4*.

Table 5 Crossover Ethernet cable pinout

Color	T568A	T568B	Color
White-green	1	3	White-green
Green	2	6	Green
White-orange	3	1	White-orange
Blue	4	4	Blue
White-blue	5	5	White-blue
Orange	6	2	Orange
White-brown	7	7	White-brown
Brown	8	8	Brown

Table 6 8P8C (RJ45) pin assignment

	**Signal**
1	TX+
2	TX–
3	RX+
4	–
5	–
6	RX–
7	–
8	–

7. Indication and control

To restart the device, press and hold the reset button on the bottom of the device for two seconds.



Fig. 3 – Reset button

Table 7 Indicators

Indicator	Color (State)	Description
⏻	Green (ON)	Operation mode
1–5	Green (ON)	Connection over the specified port is established
	Green (flashing)	Data transfer

8. Maintenance

The safety requirements must be observed when the maintenance is carried out.

WARNING
Cut off all power before maintenance.

The maintenance includes:

- cleaning of the housing and terminal blocks from dust, dirt and debris
- checking the device fastening
- checking the wiring (connecting wires, terminal connections, absence of mechanical damages).

NOTICE
The device should be cleaned with a dry or slightly damp cloth only. No abrasives or solvent-containing cleaners may be used.

9. Transportation and storage

Pack the device in such a way as to protect it reliably against impact for storage and transportation. The original packaging provides optimum protection.

If the device is not taken immediately after delivery into operation, it must be carefully stored at a protected location. The device should not be stored in an atmosphere with chemically active substances.

The environmental conditions must be taken into account during transportation and storage.

NOTICE
The device may have been damaged during transportation. Check the device for transport damage and completeness! Report the transport damage immediately to the shipper and akYtec GmbH!

10. Scope of delivery

NS5–24 network switch	1 pc.
User guide	1 pc.
Set of port plugs	1 pc.
Power terminal block	1 pc.

NOTE
The manufacturer reserves the right to make additions to the scope of delivery.

11. Warranty

The manufacturer guarantees compliance of the device with the requirements of technical specifications if the conditions of operation, transportation, storage and installation are observed.

The warranty period is **24 months** from the date of sale.

In case of device failure during the warranty period under the conditions of operation, transportation, storage and installation, the manufacturer undertakes to repair or replace the device free of charge.

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