

# ETHSW50K

## Industrial Unmanaged Fast Ethernet Switch Operating and Installation Instructions



**24.05.2019**



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## 1. Foreword

### Dear customer!

We thank you for your decision to use one of our products and congratulate you on this decision. The Unmanaged Fast Ethernet Switch ETHSW50K from Wachendorff Prozesstechnik GmbH & Co. KG can be used for numerous different applications. In order to make optimum use of the functional variety of this device for you, please note the following: **Every person entrusted with the commissioning or operation of this device must have read and understood the operating instructions and in particular the safety instructions!**

## 2. Safety instructions

### 2.1 General information

To ensure safe operation, the device may only be operated in accordance with the information in the operating and installation instructions. When used, the legal and safety regulations required for the respective application must also be observed. This also applies analogously to the use of accessories.

### 2.2 Intended Use

The ETHSW50K from Wachendorff is used to expand Ethernet networks and connect Ethernet-capable terminal devices. Any use beyond this is considered improper use.



The ETHSW50K must not be used as the sole means of averting dangerous conditions on machines and systems. Machines and systems must be designed in such a way that faulty states cannot lead to a situation that is dangerous for the operating personnel (e.g. by independent limit switches, mechanical interlocks, etc.).

### 2.3 Qualified personnel

The ETHSW50K may only be used by qualified personnel, exclusively in accordance with the technical data. Qualified personnel are persons who are familiar with the installation, assembly, commissioning and operation of this device and who have a qualification corresponding to their activity.

### 2.4 Residual hazards

The ETHSW50K corresponds to the state of the art and is safe to operate. The unit may present residual hazards if used and operated improperly by untrained personnel. This manual refers to residual hazards with the following symbol:



**This symbol indicates that non-observance of the safety instructions may result in danger to persons, serious physical injury or death and/or the possibility of damage to property.**


### 2.5 Liability

Liability is excluded for material and legal defects in this documentation, in particular for its correctness, freedom from errors, freedom from third-party industrial property rights and copyrights, completeness and/or usability - except in the case of intent or fraudulent intent.

### 2.5 CE conformity

The declaration of conformity is available from us. You are welcome to order them. Just call us.

### 3. Device description

ETHSW50K	
<ul style="list-style-type: none"> <li>• 5 x 10/100BaseT(X)</li> <li>• Unmanaged / Plug and Play</li> <li>• IEEE 802.3, IEEE 802.3u, IEEE 802.3x</li> <li>• IEEE 802.3az: EEE (Energy Efficient Ethernet)</li> <li>• Broadcast- und Multicast-Flooding Storm Control</li> <li>• Redundant voltage input / fault signal relay Output</li> <li>• Operating temperature -20 °C to +60 °C</li> <li>• Protection class IP30</li> </ul>	

### 3.1 Specifications

Technologies	
Operating mode	Store and Forward
Switching engine	Wire-speed / non-blocking
Standards	IEEE 802.3 (10BaseT)
	IEEE 802.3u (100BaseTX)
	IEEE 802.3az (EEE)
	IEEE 802.3x (Full Duplex) and Back-Pressure (Half Duplex)

Interfaces	
RJ45 - Ports (copper)	5x 10/100BaseT(X)
RJ45 - Speed	Auto Negotiation (10/100 Mbps)
RJ45 - Duplex	Half- or Full-Duplex
RJ45 - Connection	MDI/MDIX Auto Crossover
Fault alarm contact	Fault alarm relay for detection of power supply (normally open, normally open, max. 1A / 24 VDC)
2 x DIP switches	1 x On/Off Power Alarm (fault signal contact) (DIP 1)
	1 x On/Off Flooding Storm Control (DIP 2)

Features	
MAC table size	1K

Display	
1 x Alarm	ALM: Power supply failure
2 x Power Status	P1, P2: Power supply status
5 x Ethernet port status	Link & Speed

Power supply	
Execution	Redundant input terminal strip plug, reverse power protection (reverse polarity protected)
Voltage range	12 VDC to 58 VDC
Current consumption	30 mA at 48V, 25 °C, full load



<b>Environmental conditions</b>	
Operating temperature	-20 °C to +60 °C
Storage temperature	-40 °C to +85 °C
Air humidity	5 % to 95 % RH (non-condensing)

<b>Norms and Standards</b>	
FCC/EMI	FCC Part 15 CISPR 22 (EN55022), Class A
Vibration	IEC60068-2-6
Shock	IEC60068-2-27
Free Fall	IEC60068-2-32
CE (EMS)	IEC61000-4-2
	IEC61000-4-3
	IEC61000-4-4
	IEC61000-4-5
	IEC61000-4-6
	(Level 3)
RoHS and WEEE	RoHS (lead-free) and WEEE compliant

<b>Housing</b>	
Degree of protection	IP30
Execution	Robust polycarbonate housing (plastic)
Dimensions (W x H x D)	25 mm x 113 mm x 97.38 mm (with DIN rail holder)
Weight	135 g
Assembly	DIN rail

#### 4. Contents of the packaging

- Wachendorff ETHSW50K Industrial Fast Ethernet Switch unmanaged (1x)
- Terminal plug for external power supply (1x)
- Wachendorff Operating and Installation Instructions (1x)
- Device warranty card (1x)

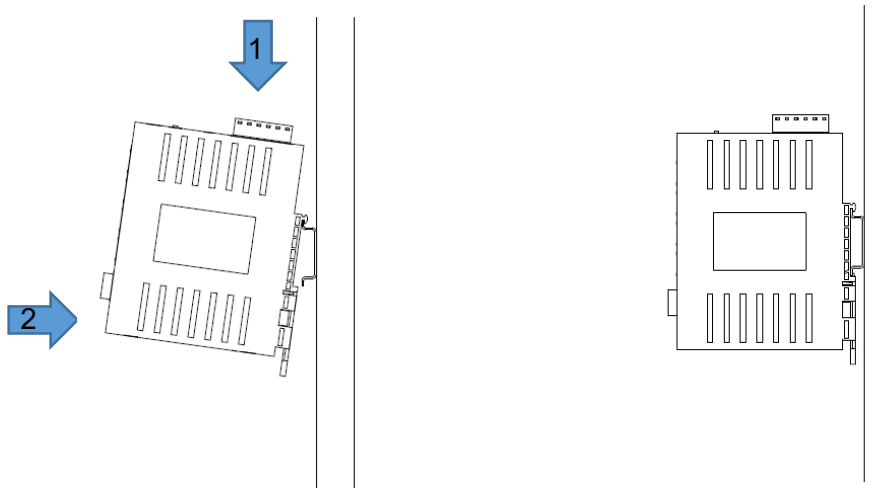
## 5. Installation

### 5.1 Mechanical Installation

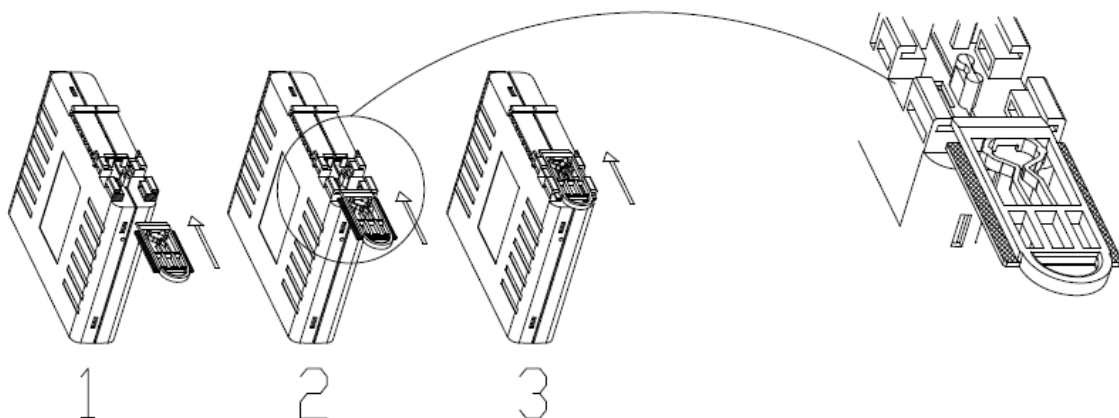
#### 5.1.1 Mounting on the DIN rail

The ETHSW50K is equipped with a DIN rail holder on the rear side. Please follow the steps below for proper mounting on the DIN rail:

1. Tilt the module backwards with the top and press it onto the DIN rail. Align the module straight.
2. Press the module down on the DIN rail until it is properly fixed on the rail. Then close the lock on the underside by moving it upwards. The lock is correctly performed when you hear and perceive a click.



**Note:** If the fixing clip has come loose from the holder, it must be reassembled as follows.



## 5.2 Electrical Installation

### 5.2.1 Connecting the power supply

The ETHSW50K has a redundant voltage input. This ensures trouble-free operation in the event of a power supply failure or a voltage supply failure. Please follow the steps below for proper connection:

- Provide a suitable 12 to 58 VDC power source and connect it by tightening the screws to the 6-pole terminal plug at the terminals provided for this purpose:
  - P1: Primary power supply (+ / -)
  - P2: Secondary power supply (+ / -)
  
- Check the two power LEDs P1 and P2 on the device. The LEDs light up when a connected power supply is active. The switch is ready for operation.



**Warning:** Before connecting the switch to the DC voltage, make sure that it complies with the specifications.

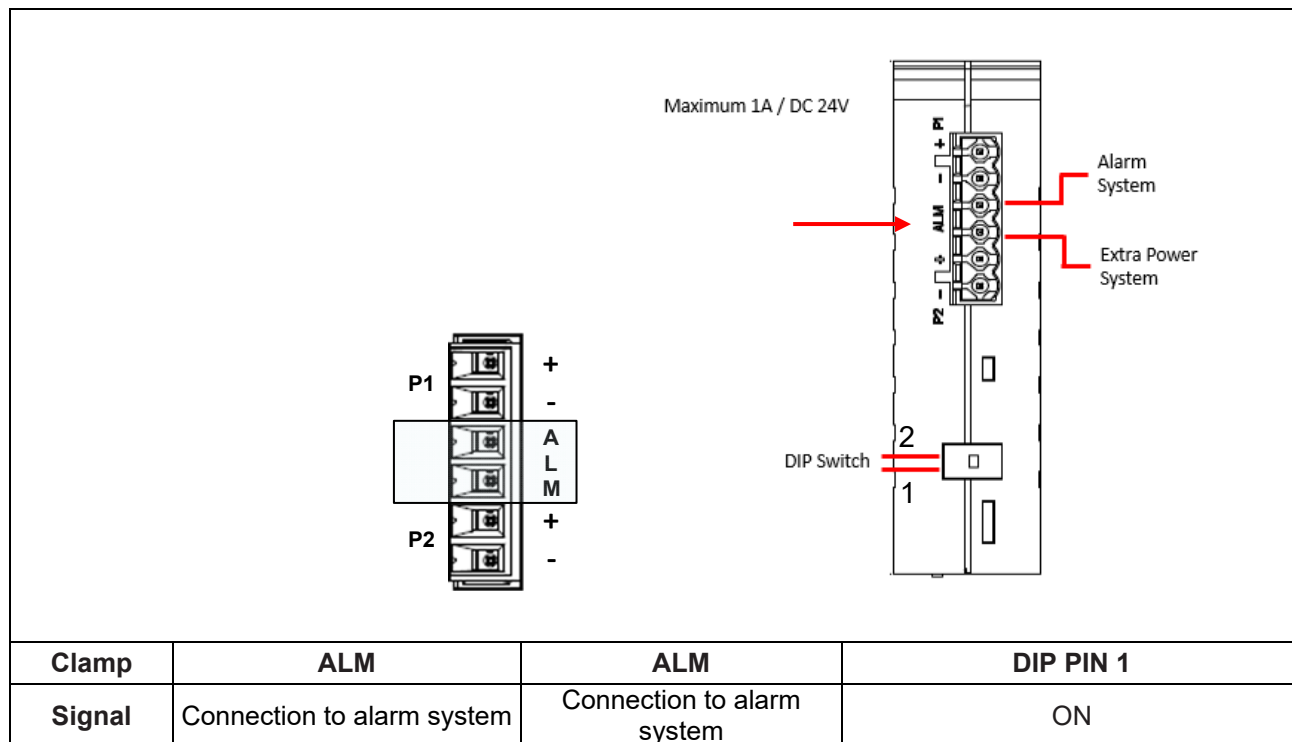
<b>Clamp</b>	<b>P1 +</b>	<b>P1 -</b>	<b>P2 +</b>	<b>P2 -</b>
<b>Signal</b>	12 to 58 VDC	0 V	12 to 58 VDC	0 V

### 5.2.2 Connection of the fail safe relay

In addition to the redundant voltage input, the ETHSW50K has a fault signal relay for signalling a fault. This ensures trouble-free operation and direct fault detection in the event of a power supply failure or voltage supply failure. The fault signal relay is designed as a normally open contact.

For proper connection, please follow these steps:

- Connect the corresponding signalling system to the connection terminals marked ALM (in the middle of the 6-pole terminal plug, max. 1 A / 24 VDC).
- Activate the fault message contact Power Alarm at PIN 1 of the DIP switch (ON).



### 5.2.3 Connecting the network devices

The ETHSW50K has 5 x 10/100 Mbit/s ports with RJ45 connectors. At each port there are 2 LEDs for signalling the operating mode (see chapter "6. LED status indicators"). Proceed as follows to ensure proper functioning:

- Connect your Ethernet network devices to your Fast Ethernet Switch using a straight-through (standard patch cable) or cross-over (UTP Unshielded Twisted pair /STP Shielded Twisted Pair) cable with RJ-45 connectors.
- An LED associated with the port lights up after a successful link up depending on the negotiated data rate.
- The LED associated with the port flashes when data transmission is in progress.



## 6. LED status indicators

There are three LED status indicators on the front panel of the ETHSW50K. In addition, each RJ-45 port has 2 LED status indicators.

LED	Indicator/Colour	Description
P1	On / green	Primary power supply is active
	Off	Primary power supply not available
P2	On / green	Secondary power supply is active
	Off	Secondary power supply is not available
Alarm	On / red	Power supply failure (if power alarm is activated)
	Off	No power supply failure (if power alarm is activated)
RJ-45 Ports Port 1 to 5 Link/Activity	On / green	Ethernet link established (link up) / no data transmission
	Flashing green	Ethernet link established (link up) / data transmission
	Off	Ethernet link not established (link down)
RJ-45 Ports Port 1 to 5 Speed	On / yellow	Ethernet link with 100 Mbit/s established
	Off	Ethernet link with 10 Mbit/s established or Ethernet link not established (link down)

## 7. Configuration and settings

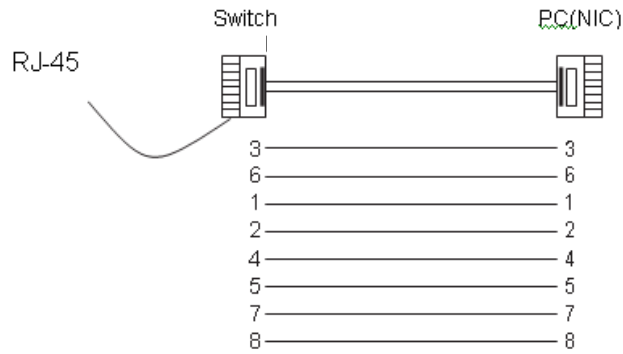
The ETHSW50K is an unmanaged and plug-and-play switch. The switchable Flooding Storm Control function protects against unwanted allocation of the available transmission rate by Broad or Multicast data frames. In addition, the ETHSW50K has a redundant voltage input and a fault relay for signalling the fault of a power supply unit or a power supply.

### 7.1 Setting the DIP switches

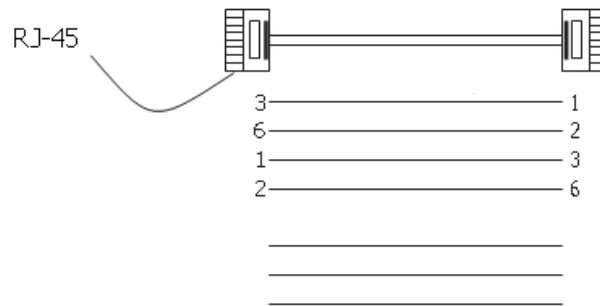
Display		
PIN 1	On	Fault alarm contact Power Activate alarm
	off	Fault alarm contact Power Deactivate alarm
PIN 2	On	Activate Flooding Storm Control
	off	Deactivate Flooding Storm Control

### 8. PIN assignment of the network connection

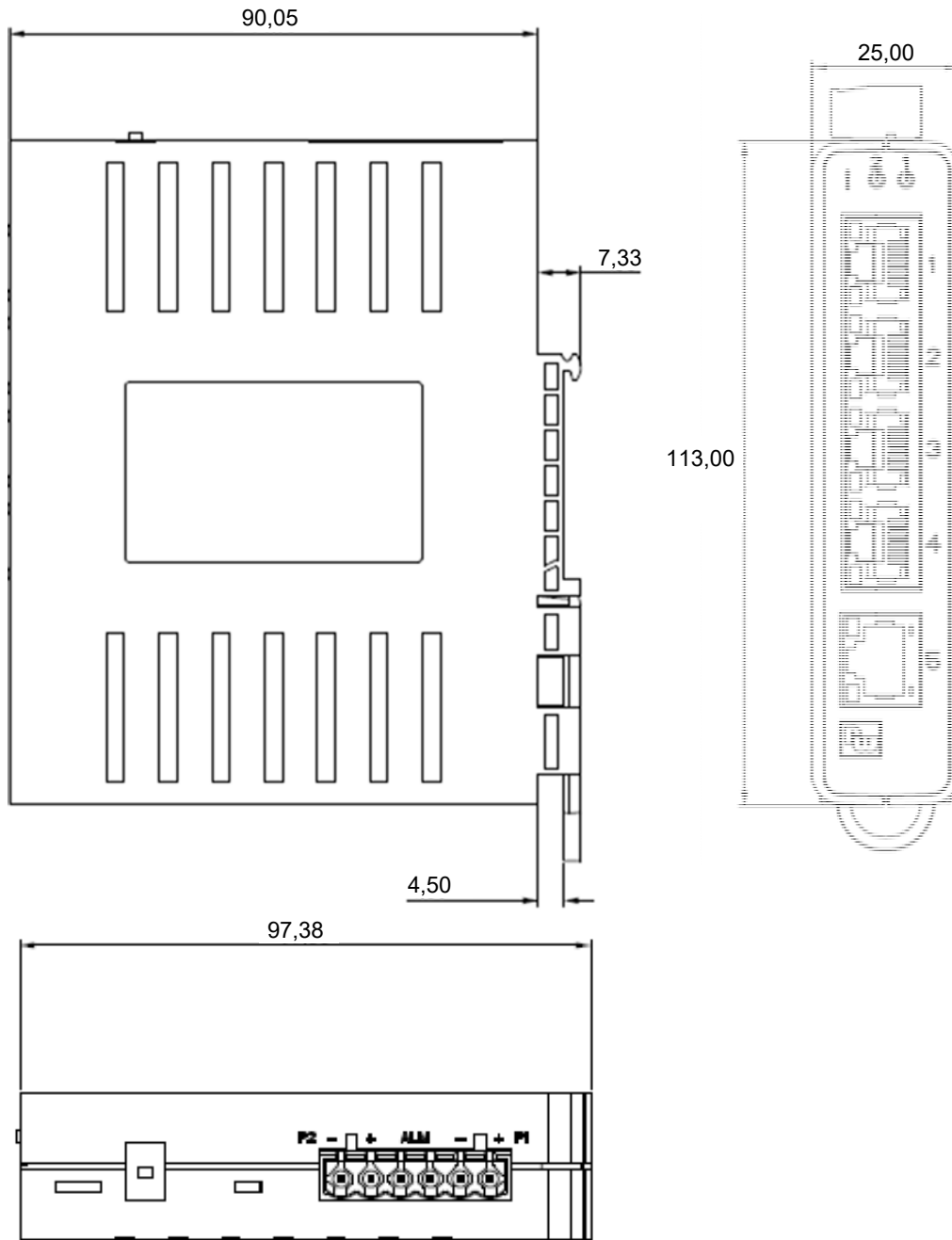
RJ-45 to RJ-45, straight-through cable								
PIN	1	2	3	4	5	6	7	8
Signal	Tx +	Tx	Rx+			Rx		



RJ-45, cross-over cable								
PIN	1	2	3	4	5	6	7	8
Signal	Rx+	Rx	Tx +			Tx		



**9. Dimensions of the ETHSW50K series (in mm)**



### 10. Copyright

This document is the property of Wachendorff Prozesstechnik GmbH & Co.KG. Copying and duplication are prohibited without prior permission. The contents of this documentation refer to the device described therein.

### 11. Exclusion of liability

All technical content within this document is subject to change without notice. The content of the document is the content of a recurring revision.

In the event of loss due to fire, earthquake, intervention by third parties or other accidents, or intentional or accidental misuse or abuse, or use under abnormal conditions, repairs will be charged to the user. Wachendorff Prozesstechnik is not liable for any accidental loss resulting from the use or non-use of this product, such as loss of business profits.

Wachendorff Prozesstechnik is not liable for the consequences of improper use.

### 12. Other provisions and standards

#### FCC Conditions



This equipment has been tested and found to comply with Part 15, Class B of the FCC Rules. Operation is subject to the following two conditions:

(1) This equipment may not cause harmful interference, which can cause harmful interference to radio or television reception.

(2) This device must accept any interference received, including interference caused by undesired operation.

#### WEEE Information



Disposal of old electrical and electronic equipment (valid in the European Union and other European countries with separate collection system). This symbol on the product or on the packaging means that this product must not be treated as household waste. Instead, this product should be taken to the appropriate disposal point for recycling electrical and electronic equipment. If the product is disposed of correctly, you help to prevent negative environmental influences and damage to health that could be caused by improper disposal. The recycling of materials will preserve our natural resources. For more information about recycling this product, please contact your local Citizen Office, your household waste collection service or the store where you purchased this product.

### 13. Customer service and technical support

For technical questions you can reach us under:



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