# Dual speed 8-port UTP switch (HWPC0121)

## Hardware Installation Manual

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# Table of contents

# Figures

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# References

Hirschmann website:
http://www.hirschmann.de

Hirschmann operating instructions:
http://www.l-com.com/multimedia/manuals/M_RS2-TX.PDF

Hirschmann mounting instructions 19” DIN rail adapter (943 766-001):
http://www.neteon.net/Download/659/MontHinw_DINRailAdapter.pdf

# Introduction

The hardware installation manual provides instructions for the installation and mounting of the Dual speed 8-port UTP switch as used within FT NavVision®. The chapters and sections are organized in chronological order in which the specific components must be installed and connected (where applicable).

# About the installation manual

The hardware installation manual contains the following chapters:

- Chapter “Safety instructions” presents warning, caution and note information, which the user should pay attention to.
- Chapter “Receiving, unpacking and checking” contains instructions on how to receive, unpack or check the switch.
- Chapter “Installation and mounting” contains instructions on how to install, mount and/or wire the switch.
- Chapter “Setting and adjustment” contains instructions on how to set, adjust and configure the switch.
- Chapter “Technical specifications” contains an overview of the main features and technical data.

# Abbreviations list

| | |
|---|---|
| AC | Alternating Current |
| COM | Communication |
| DA/STAT | Data/Status |
| DC | Direct Current |
| DIN | Deutsches Institut für Normung |
| EMC | Electromagnetic Compatibility |
| EN | Europese Norm |
| ESD | Electrostatic Discharge |
| FT | Free Technics |
| GND | Ground |
| IEC | International Electrotechnical Commission |
| IEEE | Institute of Electrical and Electronics Engineers |
| ISO | International Organization of Standardization |
| LED | Light Emitting Diode |
| Mbps | Megabits per second |
| RD | Receive Data |
| SELV | Safety Extra Low Voltages |
| SRAM | Static Random Access Memory |
| TCP | Transmission Control Protocol |
| TP | Transport Protocol |
| TX | Transmit |
| VDE | Verband Deutscher Elektrotechniker (Association of German Electrical Engineers) |

# Revision history

Revisions issued since publication.

| Issue | Date | Revision | Reason |
|---|---|---|---|
| 1.0 | August 24, 2010 | | First release |

# Safety instructions

*NOTE:*
*This section provides only a summary of the most important safety requirements and notes, which will be mentioned in the individual sections. To protect your health and prevent damage to the devices, it is essential to read and carefully follow the safety instructions.*

The indications NOTE, CAUTION and WARNING have the following significance:

*NOTE:*
*An operating procedure, practice or condition etc., which it is essential to emphasize.*

**CAUTION**

**An operating procedure, practise or condition etc., which, if not strictly observed, may damage or destroy equipment.**

**WARNING**

**An operating procedure, practise or condition etc., which, if not carefully observed may result in personal injury or loss of life.**

# 1. Receiving, unpacking and checking

## 1.1 Procedure

*NOTE:*
*Notify your sales representative if any of the items mentioned below are missing or damaged.*

1. Remove the transport casing

2. Visually inspect the respective parts

3. Check that all items are included in accordance with the delivery documents.

4. Check for transport damages.
   In case of transport damage appropriate action must be taken against the latest carrier and the nearest certified dealer or representative should be informed.

5. Store the part in the original transport package in a dry and dust free place, if the unit is not to be installed immediately. Observe the environmental requirements stated in the specifications

# 2. Installation and mounting

## 2.1 Overview

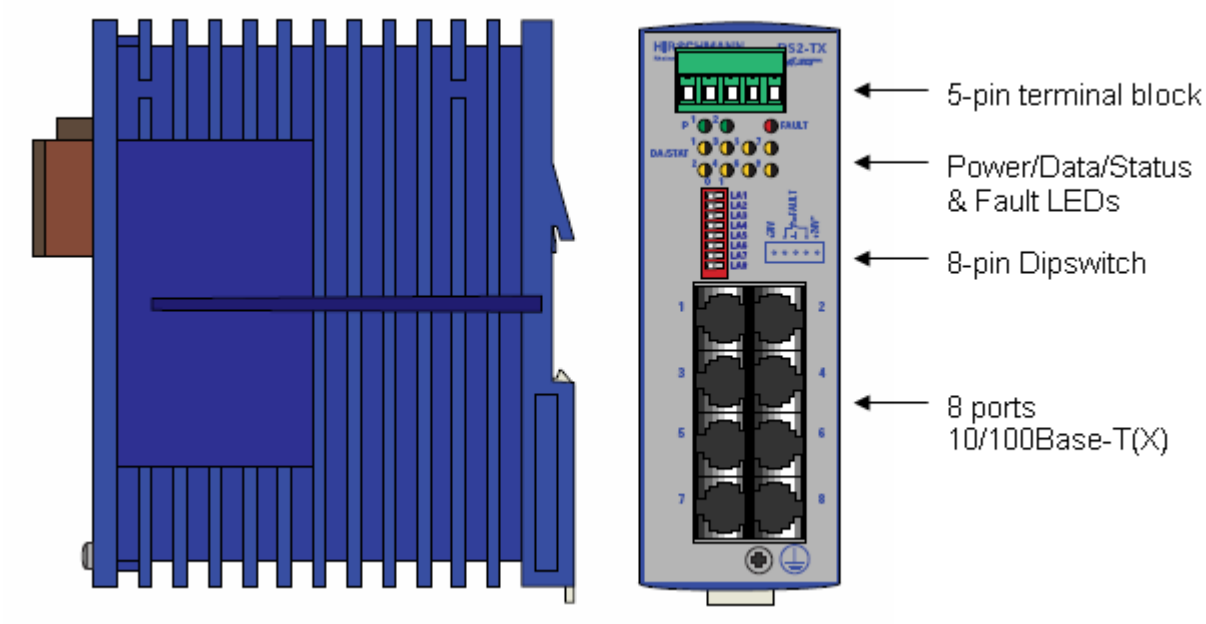



**Figure 2-1: Dual speed 8-port UTP switch**

## 2.2 Installation precautions

### 2.2.1 General

**WARNING**

- **If warning notes are ignored, it is therefore possible for severe injuries and/or material damage to occur**
- **Only appropriately qualified staff should work on or near this equipment. Such staff must be thoroughly acquainted with all the warnings and maintenance measures contained in these operating instructions**
- **The proper and safe operation of this equipment assumes proper transport, appropriate storage and assembly and careful operation and maintenance**
- **The switches are designed for operation with safety extra-low voltage. Accordingly, only safety extra low voltages (SELV) to IEC950/EN60950/VDE0805 may be connected to the supply voltage connections.**

### 2.2.2 Staff qualification requirements

Qualified staff, within the meaning of these operating instructions or warning notes, are persons familiar with setting-up, assembling, starting up and operating this product and who have appropriate qualifications to cover their activities, such as:

- Training or instruction/entitlement to switch circuits and equipment/systems on and off, earth them and identify them in accordance with current safety standards
- Training or instruction in accordance with current safety standards in looking after and using appropriate safety equipment
- First aid training.

### 2.2.3 ESD protection

- The modules contain components highly sensitive to electrostatic fields.
  These components can be easily destroyed or have their lives shortened by an electrical field or by a discharge caused by touching the card.
- For these reasons, the modules are delivered in a conducting ESD protective bag. This packing can be reused.
- Be sure to observe the following precautions for electrostatic sensitive devices when handling the components:
  - Establish electrical potential equality between yourself and your surroundings, e.g. with the aid of a wrist bracelet
  - Only then remove the modules from the conducting bag
  - Store the modules in its conducting bag whenever it is not in the chassis.

## 2.3 Installation procedure

The equipment is delivered in a ready-to operate condition. The following procedure is appropriate for assembly:

- Check whether the switch pre-setting suits your requirements (see chapter 3).
- Pull the terminal block off the RS2-TX and wire up the supply voltage and indicator lines
- Fit the switch on a 35 mm standard bar to DIN EN 50 022
- Attach the upper snap-on slide bar of the switch to the standard bar and press it down until it locks in position

*NOTE:*
*Make sure that you use high quality Cat5E cables.*

- Fit the signal cables

### 2.3.1 5-pin terminal block

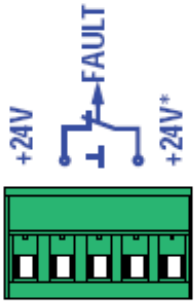
The supply voltage and the indicator contact are connected via a 5-pin terminal block.

### 2.3.2 Voltage supply

Redundant voltage supplies are supported. Both inputs are decoupled. There is no load distribution.
With redundant supply, the power pack supplies the switch only with the higher outlet voltage.
The supply voltage is electrically isolated from the housing.

### 2.3.3 Indicator contact

*NOTE:*
*In the case of the voltage supply being routed without redundancy, the switch indicates the failure of a supply voltage. You can prevent this message by feeding in the supply voltage through both inputs.*




The indicator contact is used to supervise the functions of the switch and thus facilitates remote diagnosis without management software.
Contact interrupt indicates the following by means of a potential-free indicator contact (relay contact, closed circuit):

- The failure of at least one of the two supply voltages
- A permanent fault in the switch (internal 3,3 VDC voltage, supply voltage 1 or 2 < 9.6 V,...)
- The faulty link status of at least one port. The indication of the link state on the switch can be masked on a port-by-port basis using the dipswitches LA1 to LA8. State of delivery: there is no link test.

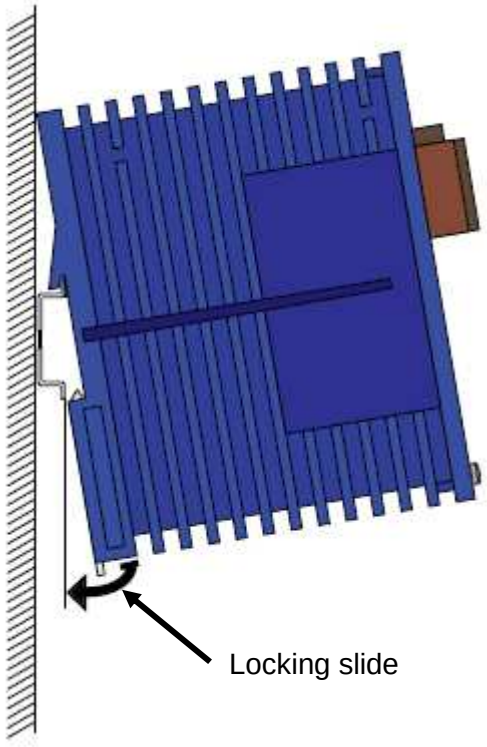
## 2.4 Mounting procedure

### 2.4.1 Mount the switch

*NOTE:*

- *The front panel of the switch is grounded via a separate ground connection*
- *Do not open the housing*
- *The shielding ground of the twisted pair lines which can connect is electrically connected to the front panel.*

**Figure 2-2: Mounting the switch**




- Attach the upper snap-on slide bar of the switch to the standard bar and press it down until it locks in position (see Figure 2-2)
- Fit the signal cables.

### 2.4.2 Dismount the switch

To dismount the switch from the ISO/DIN rail, insert a screwdriver horizontally under the housing into the locking slide (Figure 2-2), pull it (without tipping the screwdriver) downwards and lift the switch upwards.

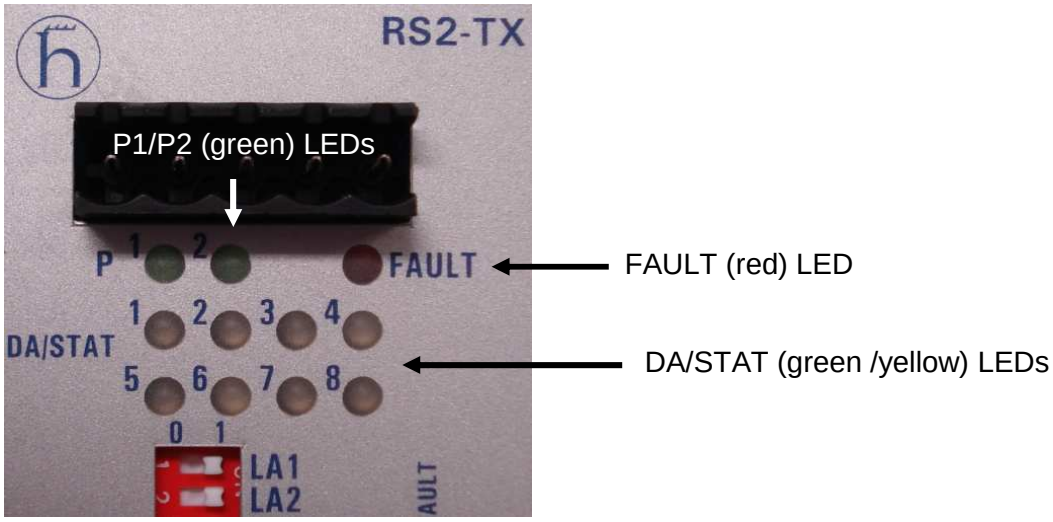
For more detailed information concerning the DIN rail adapter, please refer to the 19” DIN rail adapter “Mounting Instructions” (see heading “References”).

## 2.5 LED behavior

### 2.5.1 Equipment status

These LEDs provide information about statuses (see Table 2-1), which affect the function of the entire switch.

**Figure 2-3: LED status**




| LED | Description | Lit | No lit | Flashes |
|---|---|---|---|---|
| **P1** | **Power 1** (green LED) | Supply voltage 1 present | Supply voltage 1 less than 9.6 V. | N/A |
| **P2** | **Power 2** (green LED) | Supply voltage 2 present | Supply voltage 2 less than 9.6 V. | N/A |
| **FAULT** | **Failure** (red LED) | The indicator contact is open, i.e. it indicates an error. | The indicator contact is closed, i.e. it does not indicate an error. | N/A |
| **DA/STAT 1 to 8** | **Data, Link status** (green/yellow LED) | Valid link (green) | No valid link | Receiving data (yellow) |

**Table 2-1: LED description**

### 2.5.2 Port status

These LEDs (DA/STAT) display port-related information.

# 3. Setting and adjustment

## 3.1 Dipswitch

Using the 8-pin dipswitch on the unit front panel – the message about the link statuses can be suppressed by the indicator contact on a port-by-port basis.
Using switches LA1 to LA8, the message about the link status of ports 1 to 8 is suppressed.
State on delivery: switch position 1 (on), i.e. message not suppressed.

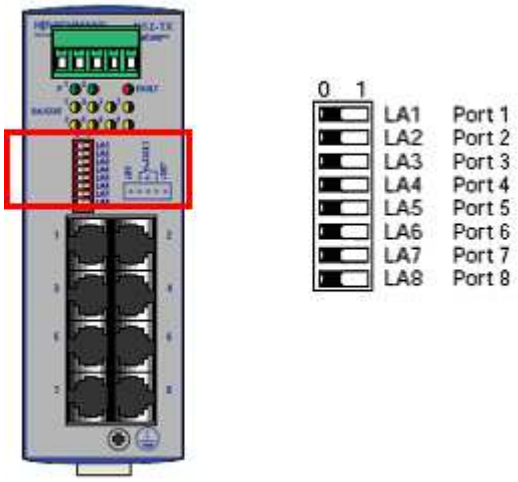



**Figure 3-1: Dipswitch (8-pin)**

## 3.2 Interfaces

### 3.2.1 10/100 Mbps connection

Eight 10/100 Mb ports (ports 1 to port 8, 8-pin RJ45 sockets) on switch allow terminal equipment or eight independent network segments complying with the standards IEEE 802.3 100Base-TX / 10Base-T to be connected. These ports support auto negotiation and the auto polarity function.
The socket casings are electrically connected to the front panel of the switch. The pin configuration complies with MDI-X.

Pin configuration of the RJ45 socket:

- TD+: pin 3, TD-: pin 6
- RD+: pin 1, RD-: pin 2
- Remaining pins: not used.

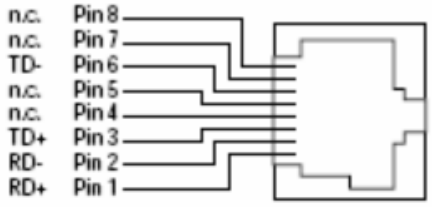



**Figure 3-2: Pin configuration**

# 4. Technical specifications

| Dual speed 8-port UTP switch (Hirschmann) | |
|---|---|
| **General data** | |
| Operating voltage | 9.6 – 57.6 VDC safety extra-low voltage (SELV)<br>(redundant inputs decoupled) |
| Current consumption | 125 mA typical, at 24 VDC, no link<br>280 mA maximum, at 24 VDC, 8 ports full load |
| Overload current protection at input | Non-changeable thermal fuse |
| Dimensions W x H x D | 47 x 135 x 111 mm |
| Weight | 230 g |
| Ambient temperature | 0℃ to +60℃ |
| Storage temperature | -20℃ to +80℃ |
| Humidity | Up to 90% (non condensing) |
| Protection class | IP20 |
| Radio interference level | EN 55022 Class A<br>This is a class A equipment. This equipment may cause radio interference if used in a residential area. In this case it is the operator's responsibility to take appropriate measures. |
| Interference immunity | EN 50082-2 |
| **Network size** | |
| TP/TX port 10 Base-T/100Base-TX | |
| Length of a twisted pair segment | 100 m maximum |
| **Interfaces** | |
| 8 TP/TX ports | RJ45 sockets, 10/100 Mbps |
| Indicator contact | 1A maximum, 24 V |
| **Displays** | |
| Equipment status<br><br><br><br><br><br>Port status | **Green LED**:<br>P1 – Power 1, supply voltage 1 present<br>**Green LED**:<br>P2 – Power 2, supply voltage 2 present<br>**Red LED**:<br>FAULT – Indicator contact is open and indicates error<br>**Green/yellow LED (8x):**<br>DA/STAT 1 to 8 – Data, link status |
| **Controls** | |
| 8-pole Dipswitch | LA1 to LA8 – suppress message about the link status |

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