



# Instruction manual

HDBaseT™ Box

HDBTBOX-RX / HDBTBOX-TX



Industrial IT

**Read these instructions carefully before using and store for future reference.**

**These instructions contain important information about the product, in particular about its intended use, safety, installation, utilisation, maintenance and disposal.**

**Hand over the instructions to the user following installation of the product, and pass the manual on to the new user if the product is resold.**

These instructions can be downloaded from: [www.ads-tec.com](http://www.ads-tec.com) in the download area.

**Publisher**

ads-tec Industrial IT GmbH

Heinrich-Hertz-Straße 1

72622 Nürtingen

Phone: +49 7022 2522-0

Internet: [www.ads-tec.com](http://www.ads-tec.com)

E-mail: [mailbox@ads-tec.de](mailto:mailbox@ads-tec.de)

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# 1 General information about documentation

## 1.1 General information

This instruction manual is intended to ensure safe and efficient handling of the **HDBaseT™ Box kit** consisting of a transmitter and a receiver (HDBTBOX-RX / HDBTBOX-TX). These are referred to in the following as "devices".

All of the safety instructions and handling instructions given in the manual must be obeyed in order to ensure that work is carried out safely.

All users must read this instruction manual and have access to it at all times.

The original version of this instruction manual was written in German. All non-German versions of this instruction manual are translations of the German instruction manual.

## 1.2 Explanation of safety instructions

### 1.2.1 Structure of safety instructions

The signal word classifies the hazard.

Reference to the type/consequences and source of the hazard is made underneath the signal word.

Information on how to avoid the hazard is indicated by an arrow (➔).

### **DANGER**



**Type and source of the hazard!**

Possible consequences if the hazard is disregarded

➔ Measures for avoiding the hazard

## 1.2.2 Explanation of signal words

### DANGER



Indicates an imminent danger. If not avoided, death or severe injury will result.

### WARNING



Indicates a possible danger. If not avoided, death or severe injury could result.

### CAUTION



Indicates a possible danger. If not avoided, light or minor injuries could result.

### ATTENTION

Indicates a possibly damaging situation. If not avoided, the system or something in its surroundings could be damaged.



#### **Recommendation for use:**



Indicates terms and/or conditions that strictly need to be observed to ensure optimised and/or zero-defect operation. Tips and suggestions for the efficient use of the device and software optimisation are also provided.

## 1.3 Relevant device documentation

The following documents are decisive to device setup and operation:

- This instruction manual:  
contains information for installation, commissioning and operation of the device along with technical data.
- Website:  
You can download the instruction manual as well as drivers, software, user manuals, leaflets and flyers from the Download area of our website [www.ads-tec.com](http://www.ads-tec.com)

## 1.4 Symbols

Symbol	Meaning
	Label on batteries. The batteries may not be disposed of with household waste, but must rather be disposed of separately. Used batteries must be returned to the point of sale or a disposal system.
	Label on electrical and electronic devices. Electrical and electronic devices must not be disposed of with household waste, but must rather be taken to a collection point for waste electrical equipment.

## 1.5 Data, figures and modifications

All data, text and figures were prepared to the best of our knowledge. They do not represent any assurance for the properties themselves. Despite taking utmost care, no liability can be assumed for accuracy, completeness and actuality of the information. Subject to changes.

## 1.6 Trademarks

It is noted that any software and/or hardware trademarks and any company brand names mentioned in this documentation are all subject to the general trademark protection rights.

Big-LinX® and X-Remote® are registered trademarks of ADS-TEC.

All other third-party trademarks used are hereby acknowledged.

In the case of infringement of trademark rights, ADS-TEC reserves the right to exercise all rights.

## 1.7 Copyright

This instruction manual is protected by copyright. For the authorised user, simple usage rights are granted within the scope of the intent of the contract. Any modified use or exploitation of the provided content, particularly duplication, modification or publishing in whatever form is permitted only with the prior consent of ADS-TEC. In the case of copyright infringement, ADS-TEC reserves the right to exercise all rights.

## 2 General device information

### 2.1 Manufacturer and contact details

The manufacturer of the device is ads-tec Industrial IT GmbH. The company is referred to in the following as ADS-TEC.

ads-tec Industrial IT GmbH  
Heinrich-Hertz-Str.1  
72622 Nürtingen  
Germany

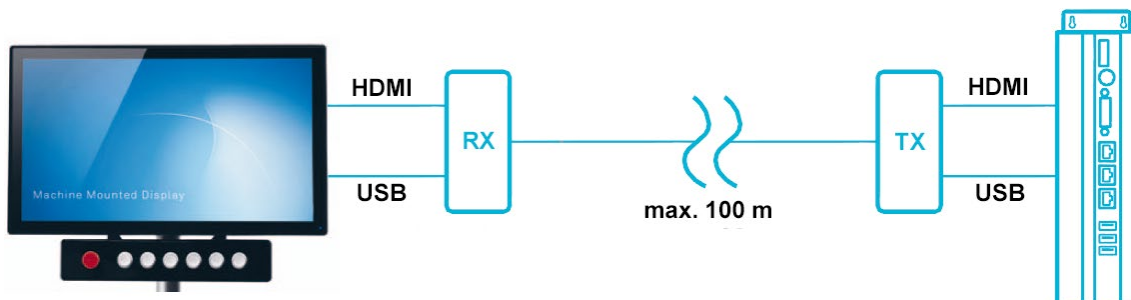
Phone: +49 7022 2522-0

Email: [mailbox@ads-tec.de](mailto:mailbox@ads-tec.de)

Web: [www.ads-tec.com](http://www.ads-tec.com)

### 2.2 Intended use

The **HDBaseT™ Box kit** allows data transmission between a computer and a display over distances of up to 100 m.



The device is intended for industrial use and in this case primarily for use in machine and plant construction. In accordance with its IP protection class, it may be installed in cabinets or mounted on machines/plants indoors. Install the product in a service area away from general public access.

The operator alone shall be responsible for ensuring that all **operator obligations** are observed and for complying with any technical or statutory amendments that may arise.

Installation, commissioning and operation may only be performed by **qualified and trained personnel**.

Intervention by the user is required only for performing the actions described in this document. Should any further modifications be required, it is necessary to consult either with the manufacturer directly or with service personnel authorised by the manufacturer.

The device must be **de-energised** during service work. Appropriate measures must be taken to prevent **electrostatic discharges** on components.

The device is **only** to be assembled, installed and operated **within the permissible specifications**. Use in non-specified environments is prohibited.



## 2.3 Improper use

Operation other than or beyond that described for the device shall be deemed improper use.

If the device is used in a manner not specified by the manufacturer, the protection provided by the device may be impaired.

The device is not allowed to be used to control vehicles or for applications for which further approvals beyond the manufacturer's declaration are necessary, e.g. applications with explosion hazard, medical technology and shipping industry.

The product does not support any safety functions of functional safety. Do not use the product to evaluate safety-relevant data in order to bring a system to a safe state.

The device must not be put into operation in the case of transport damage or nonconformity with the specifications and must be taken out of operation in the case of changing conditions.

In the case of improper use, ADS-TEC shall not accept responsibility or liability for injury or damage that is directly or indirectly attributable to the handling of the device.

If the device is opened up by an unauthorised person, the user may be subject to hazards and the warranty is invalidated.

Should the device have evident signs of damages caused, e.g., by improper operation or storage conditions or due to improper use or handling, it must be shut down immediately. Ensure that it is secured against being started up accidentally.

The device can be damaged as a result of unauthorised mechanical modifications. Make sure that the device is not drilled, chiselled or perforated and its exterior shape and design is not modified in any way!

## 2.4 Environmental conditions

### ATTENTION

#### Damage caused by heat!

If the device is exposed to sunlight or any other light or heat source, it can overheat and suffer damage.

- ➔ Do not expose the device to direct radiation by sunlight or any other light or heat source!

### ATTENTION

#### Damage caused by heat!

If the device is installed in a panel, casing or similar, heat accumulation can occur.

- ➔ Make sure that heat can be dissipated from the device.

### ATTENTION

#### Damage caused by condensation!

If the temperature of the device is different to that of the environment in which it is located, condensation can form.

- ➔ Switch on the device only after it has acclimated to the ambient temperature.

The device must be operated under the environmental conditions specified in the **technical data**. Failure to observe any one of these conditions will invalidate the warranty of the device. ADS-TEC cannot be held liable for any damages arising from improper use and handling.

## 2.5 Conformity

The manufacturer hereby declares that the product described in this instruction manual complies with all relevant stipulations of the following European directives:

- 2011/65/EU RoHS Directive
- 2014/30/EU EMC Directive
- 2014/35/EU Low Voltage Directive



The device is a class A device (Industry). Class A may cause interference when used in residential environments.

The EU conformity declaration is available for download at

<https://www.ads-tec-iit.com/en/support/industrial-it/ec-declaration.html>



### Recommendation for use:

For full compliance with the EMC legislation, all components and cables used for device connection must also be compliant with these requirements. It is therefore necessary to employ BUS and LAN cables with shielded connectors and these must be installed as per the instructions contained in the respective instruction manuals.

## 2.6 Warranty / repairs

During the device warranty period, any repairs must only be performed by the manufacturer or by service personnel that has been authorised by the manufacturer.

## 2.7 Limitation of liability

ADS-TEC shall not be liable for personal injury, property damage or damage caused to the device as well as consequential damage that is/was the result of non-compliance with this instruction manual, improper use of the device, repairs and other actions on the device by unqualified electricians and electricians not certified by ADS-TEC, or that is/was the result of using unapproved replacement parts. Failure to observe the maintenance intervals shall also result in exclusion from liability. Furthermore, it is strictly forbidden to make any unauthorised alterations or technical modifications to the device.

### 3 Scope of delivery

Check that the contents of the package are intact: If there are signs of damage, please contact the manufacturer immediately. The device must not be put into operation.

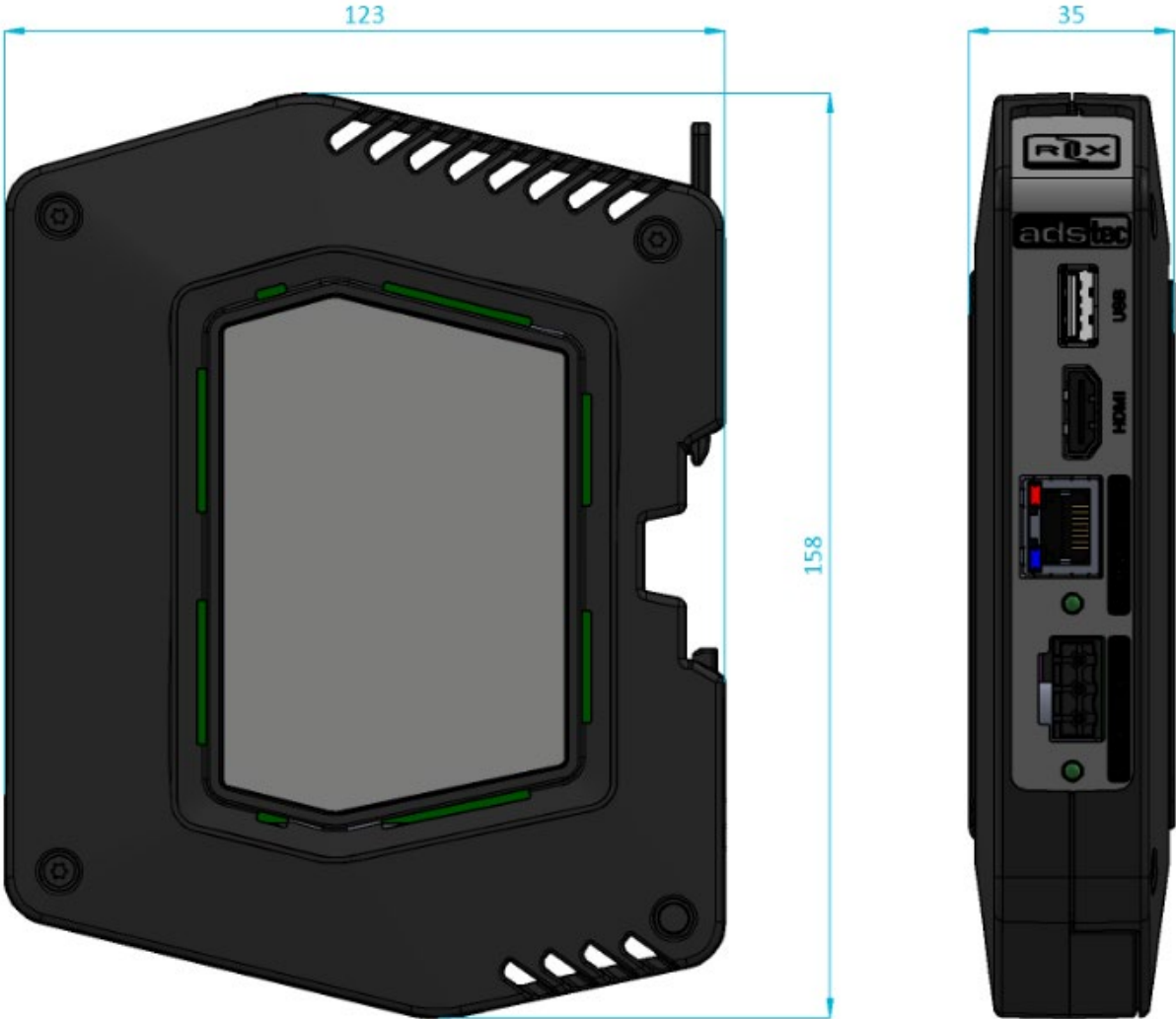
Check that the contents of the package are complete and match your order:

- Device
- 3-pin connector for power supply
- Optional accessories according to order/delivery note, e.g. a power supply unit

# 4 Mechanical installation

## 4.1 External device dimensions

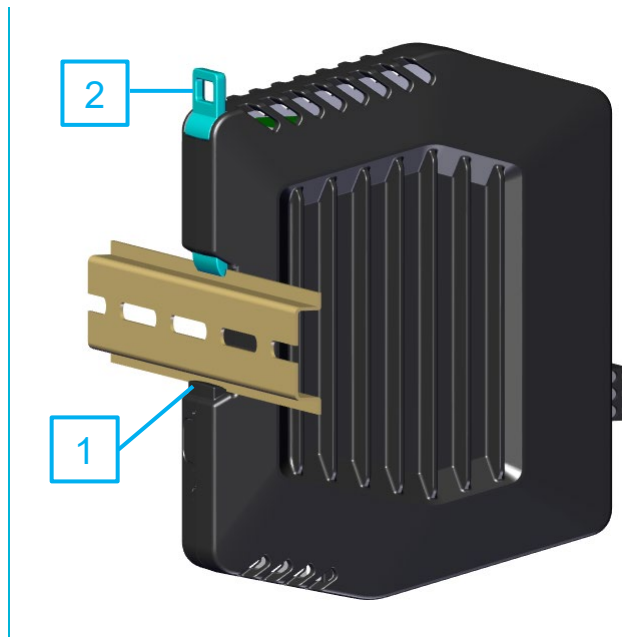
RX and TX have the same outer dimensions:



## 4.2 Top-hat rail mounting

The devices are intended for mounting on a top-hat rail (TS35) in vertical orientation as shown in the picture below.

1. Position the IRF on the top-hat rail from below at an angle (1).
2. Pull the top-hat rail locking mechanism (2) upwards using a screwdriver, push the device from above onto the top-hat rail and remove the screwdriver.
3. The top-hat rail locking mechanism springs back to its original position.
4. Check that the IRF is seated securely on the top-hat rail.



To release the device from the top-hat rail, proceed in the reverse order.

## 5 Electrical connections

### 5.1 Requirements

#### ATTENTION

**Damage due to electrostatic discharge!**

Damage to the device can be caused by electrostatic discharge.

- Always adhere to the safety measures applicable when handling components at risk of being damaged by electrostatic discharge.

#### ATTENTION

**Damage to the electronics!**

The electronics can be damaged if connectors are connected or disconnected while power is still being applied.

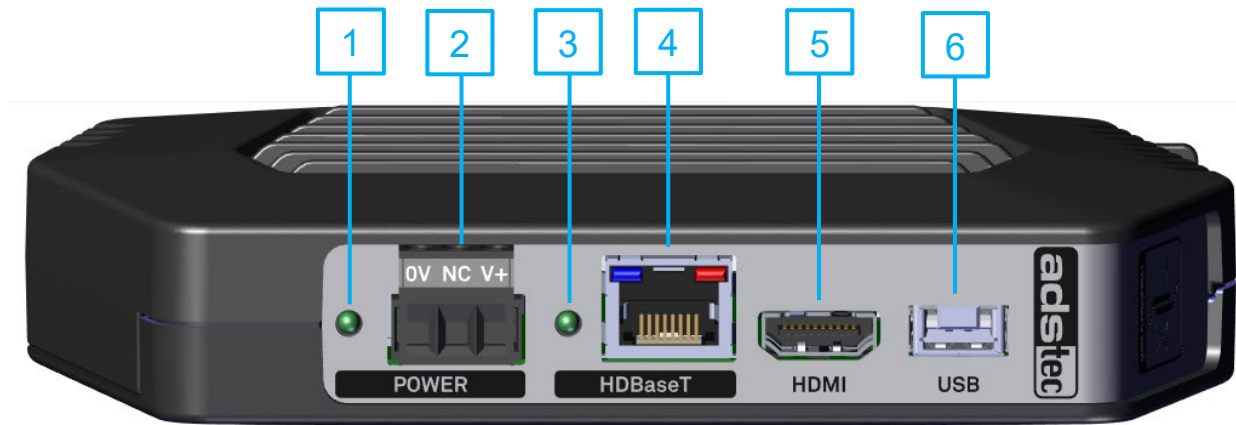
- Make sure that no power is being applied when connecting and disconnecting connectors.



## 5.2 Interfaces

### 5.2.1 Overview


Apart from the direction of transmission, Transmitter (Tx) and Receiver (Rx) have got the same interfaces:



No.	Description
1	Power LED: indicates whether the device is on or not
2	Power supply → see sec. 5.2.2
3	Firmware LED
4	HDBaseT™ connection: RJ45, 100 Mbit/s with LEDs for HDBaseT and HDCP → see sec. 6
5	HDMI connection: transmission of the videos
6	USB 2.0 connection: transmission of the signals of the touch screen <ul style="list-style-type: none"> <li>– Rx: type A</li> <li>– Tx: type B</li> </ul>

## 5.2.2 Power supply

The electronics are galvanically isolated from the power supply via a DC-DC converter.

0V	Reference potential	
NC	Not connected	
V+	+12... 24 VDC $\pm$ 20 %	

**Conductor cross sections:** AWG 18 ( $\approx$  0.75 mm<sup>2</sup>)



### Recommendation

Use flexible cables and appropriate cable end sleeves.

To minimise mechanical strain between the individual wires and the plug, the distance between jacket and plug should be at least 30 mm.



### Requirements on the power supply circuit

- Conformity:
  - Class PS2 acc. to IEC 62368-1 or
  - Limited Power Source (LPS) acc. to IEC 60950-1
  - For devices with UL certification: NEC Class 2
  - Overvoltage category I acc. to IEC 60664-1:2020

### Informations on using the device acc. to UL certification (Underwriter Laboratories, USA):

- The external circuits intended to be connected to this device shall be separated from the mains supply or hazardous live voltage by reinforced or double insulation and meet the requirements of SELV/PELV-Limited Energy (IEC 61010-1, clause 9.4) or Class PS2 acc. to IEC 62368-1 or LPS acc. to IEC 60950 or Class 2 acc. to NEC.
- In order to connect the power supply: Only use copper conductors with UL certified wire ferrules.

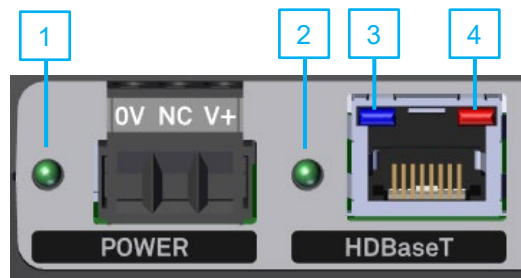
## 5.2.3 HDBaseT™ connection: maximum cable lengths



### Recommendation

- **CAT6a** for distances of up to 80 m with at least 24 AWG
- **CAT7** for distances of up to 100 m with at least 24 AWG

## 6 Status LEDs



1	<b>POWER</b>	■	Device is ON/OFF.
2	<b>Firmware</b>	□	No Firmware action
		■	Firmware is up and running
3	<b>HDBT</b>	■	HDBaseT link active
		□	No link
4	<b>HDCP<sup>*)</sup></b>	■	Transmission of content without HDCP protection
		■	Transmission of content with HDCP protection (in case of copyright protected contents)
*) HDCP = High-bandwidth Digital Content Protection. HDCP versions 1.x and 2.2 are supported.			

Legend:

□	OFF
■	ON
■	Flashing

## 7 Cleaning

Clean the device using a damp cloth with water without pressure for 30 seconds.

## 8 Technical data

<b>Housing</b>	Fanless die-casting aluminium housing	
<b>Interfaces</b>	HDBaseT™ : RJ45 (100 Mbit/s) HDMI USB 2.0 (Rx: type A / Tx: type B): max. 0.5 A	
<b>Power supply</b>	Voltage: 12...24 VDC $\pm$ 20% Power: RX: max. 10 W / TX: max. 4.5 W For more detailed information: see chapter 5.2.2.	
	<b>Data of the optional power supply unit (DZ-PCKO-06166-0/A):</b>	
	<ul style="list-style-type: none"> <li>– Input: 100...240 VAC, 50...60 Hz, max. 0.32 A, inrush current: max. 120 A</li> <li>– Output: 24 VDC <math>\pm</math> 5 %, max. 0.5 A, max. 12 W</li> <li>– Dimensions: 80 x 46 x 41 mm <math>\pm</math> 1 mm</li> <li>– Temperatures: <b>Operating 0...+60 °C</b>, Storage -20...+80 °C</li> <li>– Humidity: Operating 20...80 %, Storage 10...90 %, non condensing</li> <li>– MTBF: 300,000 h @25 °C</li> </ul>	
<b>Permiss. ambient temperatures</b>	Operation	-26...+60 °C
	Storage	-30...+80 °C
<b>Protection</b>	Ingress Protection code	IP 30
	Humidity	10...85 %, non-condensing
<b>Pollution degree</b>	1 as per IEC 61010-1	
<b>Altitude during operation</b>	2000 m or less	
<b>Vibration/shock resistance</b>	DIN EN 60068-2-6 DIN EN 60068-2-27	
<b>EMC</b>	Class A (industrial sector) as per EN 61000-6-2/4	
<b>Dimensions</b>	158 x 35 x 123mm → see section 4.1	
<b>Weight</b>	Approx. 500 g	

## 9 Service & support

ADS-TEC and its partner companies offer you comprehensive maintenance and support services, ensuring quick and competent support should you have any questions or concerns with regard to ADS-TEC products and equipment.

Because ADS-TEC products are also used by partner companies, these devices may have customised configurations. Should any questions arise with regard to these specific configurations and software installations, please contact them as ads-tec will not be able to answer such questions.

ADS-TEC does not provide support services for any device that was not purchased directly from ADS-TEC. In this case, maintenance and support is provided by the partner company.

### 9.1 ADS-TEC support

The ADS-TEC support team is available for inquiries from direct customers between 8:30am and 5:00pm, Monday to Friday.

The support team can be reached via phone or e-mail:

Phone: +49 7022 2522-202

Email: [support.iit@ads-tec.de](mailto:support.iit@ads-tec.de)

Alternatively, you can contact us by completing a support form on our website [www.ads-tec.com](http://www.ads-tec.com)

Our Support team will then get in touch with you as soon as possible.

### 9.2 Company address

ads-tec Industrial IT GmbH

Heinrich-Hertz-Str.1

72622 Nürtingen

Germany

Phone: +49 7022 2522-0

Email: [mailbox@ads-tec.de](mailto:mailbox@ads-tec.de)

Web: [www.ads-tec.com](http://www.ads-tec.com)