

Interface AP 146 for Ethernet-UDP/IP	5WG1 146-3AB01
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Product and Applications Description



The interface for Ethernet-UDP/IP AP 146 is a surface mounted device. This interface connects a *instabus EIB* to a PC or other Internet Protocol (IP) enabled device via the Intranet. Using the Internet Protocol the interface offers remote configuration and operation of devices over a LAN or Intranet connection. The interface also connects to a time server on the Intranet to provide accurate date and time to EIB devices.

The remote configuration function of the Ethernet-UDP/IP interface is available in conjunction with the iETS, i.e. ETS2 version 1.2 plus iETS Client Option-pack.

The remote operation function is available

- with the iETS (remote control via group address, and remote reading of group address values), or
- with a software using the EIB Falcon (version 1.2) driver for Internet, or
- with a software using the Object-Server interface.

The IP address of the interface is assigned to the device via ETS, or automatically is assigned by a BootP server on the IP network. Assigning the IP address from a BootP server allows for changes to the IP address without changing the EIB setup of the device itself. The fixed MAC address required to configure the BootP server is printed on the device.

Please consult your network administrator regarding configuration of the parameters device IP address, subnet mask, port addresses, time server IP address and BootP.

With the ETS (EIB Tool Software) the application program is selected, its parameters and addresses are assigned appropriately, and downloaded to the Ethernet-UDP/IP interface AP 146.

Application Programs

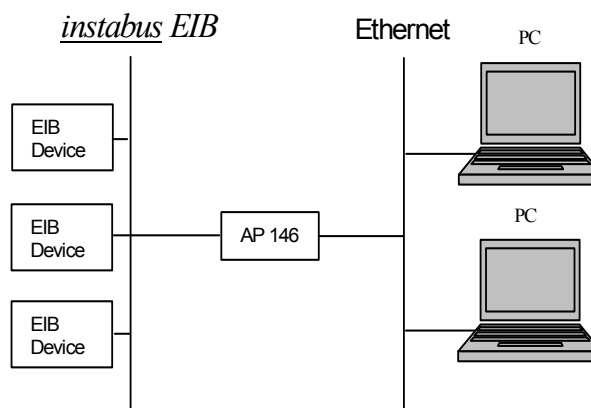
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Available functions:

- Remote configuration of devices using iETS
- Remote control of group addresses using iETS
- Remote reading of group address values using iETS
- Remote operation using EIB Falcon driver *
- Remote operation using Object Server *
- Date and time from an IP time server
- Automatic assignment of the interface's IP address by a BootP server

* see supported PC software list below!

Example of Operation



Installation Instructions

- The device may be used for permanent interior installations in dry locations, within distribution boards, or small casings.



WARNING

- The device may be placed into distribution boards (230/400 V) together with appropriate VDE-devices and must be mounted and commissioned by an authorised electrician.
- Free DIN rail areas with sticked-in data rail must be covered with covers, order no. 5WG1 192-8AA01.
- The prevailing safety rules must be heeded.
- The device must not be opened. A device suspected faulty should be returned to the local Siemens office.

Technical Specifications

Power supply

via bus line and separate 6V= power supply

Outputs

- none

Control elements

- 1 learning button:
for switching between normal operating mode and addressing mode

Display elements

- 1 red LED:
for monitoring bus voltage and displaying mode, selected with the learning button
- 4 red LEDs indicating the communication status
 - M – Device can access Ethernet communication
 - LK – Ethernet connection is alive
 - Rx – receiving Ethernet-IP data
 - Tx – transmitting Ethernet-IP data

Connections

- Power supply
 - Socket for power supply
primary 100 - 240V~, secondary 6V= / 2.1A
(provided in package with adapter power plugs for Euro, UK and USA power sockets)
- Ethernet IP communication
 - RJ45 socket
- bus line
 - Wieland EIB-Socket BST 14i 2 pole
(matching Wieland EIB-Plug BST 14i 2 pole provided as separate item in package)

Communication

- Ethernet
 - 10Mb/s
 - MAC address printed on device
- Internet Protocol
 - UDP/IP
 - BootP

Physical specifications

- housing: plastic
- Surface mounted device
length x width x depth:
146 x 80 x 55.5 (mm x mm x mm)
- weight: approx. 225 g
- fire load: approx. 5.200 kJ ± 10 %

Electrical safety

- fouling class (according to IEC 664-1): 2
- protection (according to EN 60529): IP 20
- overvoltage class (according to IEC 664-1): III
- bus: safety extra low voltage SELV DC 24 V
- device complies with:
EN 50090-2-2 and EN 60950

Electromagnetic compatibility

complies with
EN 50081-1, EN 50082-2 and EN 50090-2-2

Environmental specifications

- climatic conditions: EN 50090-2-2
- ambient temperature operating: - 5 ... + 45 °C
- ambient temperature non-op.: - 20 ... + 70 °C
- relative humidity (non-condensing): 5 % to 93 %

Certification

EIB certificate

CE norm

complies with the EMC regulations (residential and functional buildings), and low voltage regulations.

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Operator Elements

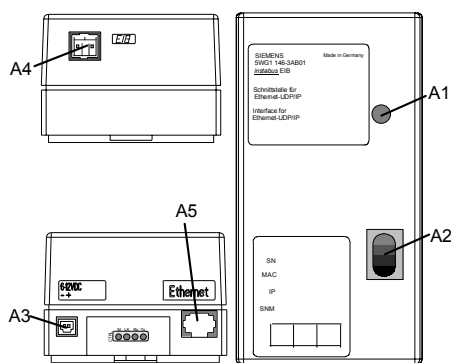
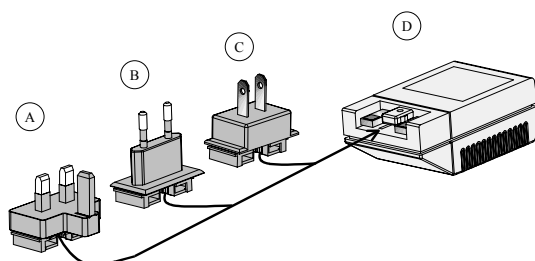


Figure 1: Location of the display and operator elements

- A1 LED for indicating normal operating mode (LED off) and addressing mode (LED on); upon receiving the physical address the device automatically returns to normal operating mode
- A2 Learning button for switching between normal operating mode and addressing mode
- A3 DC 6V power supply socket
- A4 Wieland-type bus connection socket
- A5 RJ45 Ethernet connection socket

Mounting and Wiring



Inserting power plug into power supply unit

- The power supply unit (D) is delivered with three power plug types for UK (A), Euro (B) and USA (C) type power sockets.
- Insert one of the three plugs (A, B, oder C) into the power supply unit (D). The power supply may then be used with power socket of the same standard.

Mounting the Ethernet-UDP/IP interface AP 146

The device can be placed in a distribution board, surface or flush mounted in a dry location.

After peeling off the blue protective foils adhesive tapes which are enclosed in the package can be affixed on the device's backside and allow a simple attachment to a smooth and dry surface. To securely attach the device to a wall or other surface use the mounting bracket which is delivered with the device.

- Slide the mounting bracket off the back of the device.
- Screw the mounting bracket horizontally or vertically to a surface. If you mount the bracket vertically the flat end has to be on the upper end.
- Slide the device onto the mounting bracket.
- Connect the bus plug, power supply plug and RJ45 plug the device after mounting it in place.

Dismounting the device from the mounting bracket.

- Slide the device off the mounting bracket.

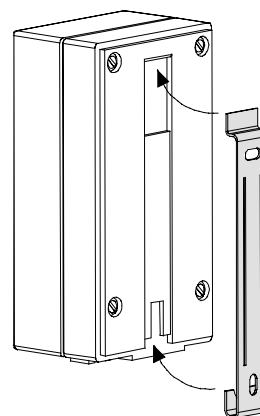


Figure 2: Mounting and dismounting the device on the DIN-rail.

Connecting bus cables

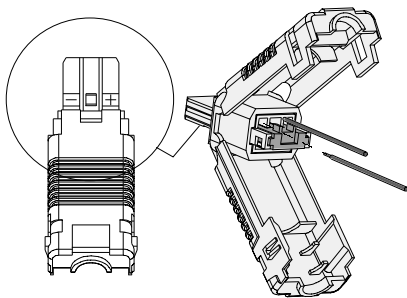
The connection to the bus line is established by a Wieland-type bus connector for the twisted pair bus wire.

The positive (red) wire is inserted into the plug base contact marked +, the negative (black) wire is inserted into the plug base contact marked -.

- The Wieland bus connection block requires single core Cu conductors $\varnothing 0,6 \dots 0,8 \text{ mm}$

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- Remove approx. 5mm of insulation from the conductor and plug it into the Wieland bus connection block terminals (red = +, black = -).



Connecting the Ethernet cable

- Plug the RJ45 connector of the Ethernet cable into the socket labeled Ethernet.

Connecting the power supply

- Plug the power supply connector into the socket labeled 6V=.

Communication

General description

The device serves an interface between a *instabus* EIB and a 10Mb Ethernet using the UDP/IP protocol. Use the ETS to set up the device on the *instabus* EIB. The interface requires a fixed IP address and subnet mask in order for it to participate on the Intranet it is connected to. It uses port addresses 50000, 50001, and 50002 for communication with iETS.

Assigning IP address and subnet mask via ETS

The device IP address and subnet mask can be preset using the ETS. This value is taken as a default whenever automatic address assignment via the BootP process described below should fail.

Assigning IP address and subnet mask via BootP

Network managers want to be in control of the IP addresses used in a network. Changes to the network are frequent resulting in changes regarding the range of IP addresses used in a particular network. For this reason automatic assignment of IP address and subnet mask is desired. The Ethernet-UDP/IP interface supports this by using BootP as a standard means of assigning a fixed IP address and subnet mask to a network device.

The network administrator can set up the BootP server with the MAC address printed on the device. The MAC address has the format xx-xx-xx-xx-xx-xx. Further the network administrator needs to set up the BootP server to provide the IP address of a time server on the network.

Date and time

The Ethernet-UDP/IP interface can be configured to provide date and time to other devices on the *instabus* EIB.

The interface will regularly request the current date and time from a time server on the IP network. The IP address of the time server can be entered as a parameter using the ETS or can be announced to the device via the BootP initialisation.

Every minute the interface will send time and date to the *instabus* EIB. On a regular basis it updates its internal time and date information by interrogating the time server. Correction for time zone and daylight savings time are done automatically based on ETS configuration settings.

iETS Server / EIB Falcon

EIB Falcon is a PC software from EIBA, providing a uniform communication interface between EIB and a PC. This software uses the same communication protocol as the iETS.

Object Server

The Object Server offers a clean interface between EIB and PC software. The installer uses the familiar ETS for configuration. A PC software uses a Object Server DLL as interface to EIB.

Using the ETS, standard group addresses can be assigned to up to ten (10) communication objects (binary – EIS1). A descriptive text, e.g. „Living rm, Light on/off“ can be assigned to each of these objects. Additionally, a condition can be defined for when the value of the object shall be sent to the PC. The descriptive text along with the current value of the communication object can be read and displayed using a PC software listed below. Also a value can be written to the object and the associated group address.

When using the Object Server individual EIB group addresses don't have to be known to the PC software communicating with the EIB.

The descriptive texts can be read by a visualization software at start-up time.

The event driven communication of the Object Server works reliably even under strongly delayed network communication conditions like satellite links.

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Supported PC Software

When the parameters iETS-Server and/or EIB-Object-Server are set the IP Interface supports the selected software listed below.

iETS-Server

- iETS (ETS2, Version 1.2, in conjunction with the iETS Client Optionpack)
→ EIBA [\[http://www.eiba.com\]](http://www.eiba.com)
- Falcon Driver, Version 1.2
→ EIBA [\[http://www.eiba.com\]](http://www.eiba.com)

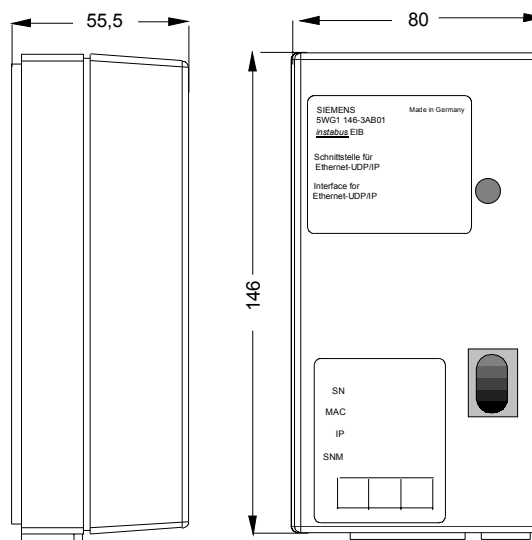
NOTE: A third party software package, solutions provider and/or systems integrator is required for complete user-specific solutions using the Falcon Driver.

EIB-Object-Server

- EIB-Object-Server DLL
→ IPAS GmbH [\[http://www.ipas-gmbh.de\]](http://www.ipas-gmbh.de)

Dimension Diagram

Dimensions in mm



B = 80 mm
H = 55.5 mm
L = 146 mm

Notes