# SIEMENS

GB CE

## Interface 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 Optionpack.

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

See Siemens product database from version H onward or: http://www.siemens.de/installationstechnik

### Example of Operation
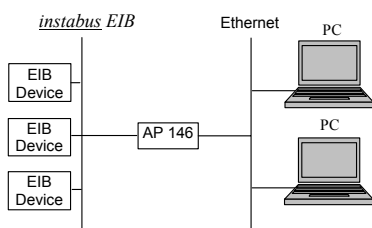


### Technical Specifications

**Power supply**
via bus line and separate DC 6-12V 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 DC 6-12V
    (transformer with primary 100-240V~, secondary DC 6V, 2.1A is provided together with three power plug types for UK, Euro, and USA type power sockets in package)
- Ethernet IP communication
  - RJ45 socket
- bus line
  - _instabus_ SMS EIB-Socket 2-pole
    (matching _instabus_ EIB plug 5VE4110 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 60664-1): 2
- protection (according to EN 60529): IP 20
- overvoltage class (according to IEC 60664-1): 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.
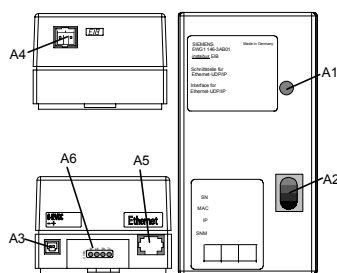
### Operator Elements



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     _instabus_ SMS EIB connection socket
A5     RJ45 Ethernet connection socket
A6     Communication status LEDs

### 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 and installation rules must be heeded.
- The device must not be opened. A device suspected faulty should be returned to the local Siemens office.

### Mounting and Wiring
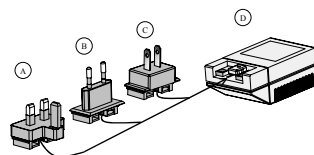


Inserting power plug into power supply unit
- The power supply unit (D) is delivered with three power plug types for UK (A), Euro (B) and USA (C) type power sockets.
- Insert one of the three plugs (A, B, oder C) into the power supply unit (D). The power supply may then be used with power socket of the 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 (see figure 2).
- 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 to the device after mounting it in place.

Dismounting the device from the mounting bracket.
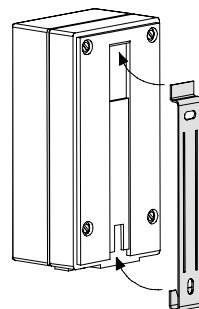- Slide the device off the mounting bracket.



Figure 2: _Mounting and dismounting the device on the DIN-rail_

Connecting bus cables
The connection to the bus line is established by a _instabus_ SMS bus connector (Siemens order number: 5VE4 110) 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 _instabus_ SMS bus connection block requires a bus cable with single core Cu conductors Ø 0,6 ... 0,8 mm. The bus cable type YCYM 2x2x0.8 is recommended.
- Remove approx. 15mm of the cable jacket and 5mm of insulation from the conductor and plug it into the _instabus_ SMS bus connection block terminals (red = +, black = -).
- Plug bus plug into bus socket A4 (figure 1).
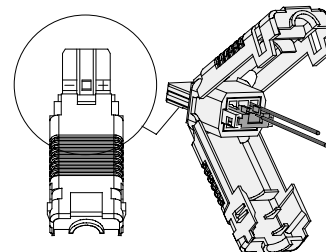


Connecting the Ethernet cable
- Plug the RJ45 connector of the Ethernet cable into the socket labeled Ethernet (A5, figure 1).

Connecting the power supply
- Plug the power supply connector into the socket labeled 6-12VDC (A3, figure 1).

### Communication

General description
The device serves an interface between a _instabus_ EIB and  a 10Mb Ethernet  using the UDP/IP protocol.
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 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.