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This manual describes the function and configuration of the IP gateway IG/S. Subject to changes without prior notice and errors excepted. Microsoft and Windows are registered trademarks of the Microsoft Corporation.

Exclusion of liability:
Although the contents of this document have been checked to ensure that they are consistent with the hardware and software, deviations cannot be completely excluded. We therefore cannot accept liability. Any necessary corrections will be incorporated in new versions of the manual. Please inform us of any suggested improvements.
As at: December 2003
This manual will support you during the commissioning and operation of the IP gateway IG/S.

This manual is directed at the commissioning engineer of the IP gateway. It explains all the necessary steps for the initial commissioning and describes the available functions.

This manual is divided into the following sections:
- Description of the device technology (Chapter 3)
- Assembly (Chapter 4)
- Operation (Chapter 5)
- Commissioning (Chapter 6)
- Planning and application (Chapter 7)
- Appendix (Chapter 8)
The ABB IP gateway IG/S is the interface between EIB/KNX networks and IP networks. The IP gateway can also be used as a line or area coupler and is able to use the LAN for the rapid exchange of telegrams between the lines/areas. Together with the iETS, the IG/S can program EIB devices via the LAN.

Device characteristics:
- can be implemented as a line coupler or area coupler and is thereby able to use the local network (LAN) as a fast backbone line
- can operate as a time master in the EIB/KNX network, if there is a time master in the LAN (NTP server)
- IP address can be fixed, assigned by a DHCP server or set automatically via AutoIP
- filter tables for telegram traffic
- buffer for telegrams from/to the EIB/KNX network
- programming of EIB/KNX devices via the LAN with the iETS (supplied as a demo version with ETS2 V1.3 onwards)
- 230 V AC and/or 12 V DC power supply
- simple assembly on a 35 mm DIN rail in the electrical distribution board
2 Scope of supply

The IG/S is supplied with the following accessories. Please check the delivery in accordance with the following list:
– IG/S 1.1 device with bus connection terminal
– hinged ferrite for clipping onto the network cable
### Device technology

The device technology of the IG/S 1.1 is explained in this section.

#### 3.1 Technical data

<table>
<thead>
<tr>
<th><strong>Operating voltage</strong></th>
<th>230 V AC (+ 10 %/– 15 %) and/or 12 V DC (10...30 V DC)</th>
</tr>
</thead>
</table>
| **Power consumption** | At 12 V DC: approx. 130 mA  
At 230 V AC: approx. 22 mA |
| **Mechanical data**   | Dimensions (H x W x D): 90 x 108 x 64 (6 modules wide)  
Protection class: IP 20  
Weight: 0.4 kg  
Mounting: DIN rail in accordance with EN 60715 |
| **Connections**       | EIB connection Via bus connection terminal  
LAN connection Via RJ 45 socket for 10 MBit networks, 10 Base-T, IEEE 802.3 |
| **Functions**         | DHCP client, AutoIP, NTP client, iETS server |
3.2 Dimension drawing

3.3 Device connection

1 230 V AC connection
2 12 V DC connection
3 Ethernet connection (LAN)
4 EIB connection
5 Programming LED with programming button
6 Label
7 Operational LED (ON)
8 Display LINK/ACT
3.4 Description of the inputs and outputs

Supply voltage input 230 V AC (terminals 1, 2, 3)

The 230 V AC supply voltage is connected to terminals 1, 2 and 3. After connecting the supply voltage to the system, a start routine is executed in the device. As soon as it is ready for operation and there is a link to a network (max. 140 s after connecting the supply voltage), the ‘ON’ LED on the top of the housing lights up.

Supply voltage input 12 V DC (terminals 4, 5)

As an alternative to terminals 1 and 2, a 12 V DC supply voltage can be connected to terminals 4 and 5. Only a direct voltage of 12 V (10...30 V DC) is permitted. After connecting the supply voltage to the system, a start routine is executed in the device. As soon as it is ready for operation and there is a link to a network (max. 140 s after connecting the supply voltage), the ‘ON’ LED on the top of the housing lights up. Supply via 12 V DC is advisable primarily if a battery-backed 12 V power supply is available.

⚠ The supply voltage at the 12 V connection must be 12 V DC (10...30 V DC). Otherwise, the device may be damaged!

The IG/S can be operated with 230 V AC and 12 V DC simultaneously.

EIB connection

The supplied bus connection terminal is used for the connection of the EIB.

⚠ ETS2 V1.2a (or higher) is required for programming.

LAN connection

The network connection is carried out via an RJ45 Ethernet interface for LAN networks. The network interface can be operated at a transmission speed of 10 MBit/s. The network activity is indicated by the LED LINK/ACT on top of the housing.
Assembly and installation

Assembling the IG/S

First mount the IP gateway on a suitable DIN rail.

Connecting the power supply

Now wire the power supply. Note the information given in chapter 3.4, ‘Description of the inputs/outputs’.

Creating communication links

Then establish the communication links of the device i.e. the connection to the EIB with the bus connection terminal and the connection to the local network (LAN). To ensure that requirements for electromagnetic compatibility (EMC) are complied with, please clip the supplied hinged ferrite onto the network cable in the vicinity of the LAN socket of the IG/S.

If all the links have been carried out correctly, you can connect the supply voltage of the device to the system.
There are no operating elements on the IP gateway. The programming button is used to assign the physical address.

3 LEDs are visible on the IG/S. These mean the following:

- **LINK/ACT**: Lights up if the device detects a link to a network and flashes if the device detects activity on the network (e.g. during data exchange).
- **ON**: Flashes when the device starts up (connection of the supply voltage). When the device starts up, there must be a link to a network. If there is an existing network connection, the start-up phase lasts max. 140 s. The LED then stays permanently lit. After starting up, the LED remains lit if the network connection is interrupted.
- **RED LED**: Lights up in addition to programming button if the device is in programming mode.

The programming LED is supplied by the power supply unit of the IG/S and lights up (after pressing the programming button), even without being connected to the EIB. The LED can therefore not be used to check the bus connection.
To put the IG/S into operation, you require a PC with the Engineering Tool Software ETS (from ETS2 V1.2a onwards) and an interface to the EIB (e.g. via an ABB RS 232 interface EA/S 232.5). If you wish to also program the IG/S or EIB devices with the iETS program (supplied as a demo version with ETS2 V1.3 onwards), you require a PC with a network (LAN) connection.

The IG/S is supplied with the physical address 15.15.0. The setting of the IP address is set to automatic assignment (DHCP).

The assignment of the physical address is carried out in ETS as usual. Please note that the physical address of the RS 232 interface which should program the IG/S must be used correctly in the topology (e.g. RS232: 1.1.255, IG/S as a line coupler: 1.1.0).

The programming LED is supplied by the power supply unit of the IG/S and lights up (after pressing the programming button), even without being connected to the EIB. The LED can therefore not be used to check the bus connection.

During the initial assignment of the physical address of the IP gateway or in the event of a change, the following programming sequence should be observed:

1. Match the physical address of the RS 232 interface to the topology of the line of the IG/S (e.g. RS232: 1.1.255, IG/S as a line coupler: 1.1.0)
2. Assign the physical address of IG/S no. 1 in the line of the RS 232 interface (e.g. in this case 1.1.0)
3. Program the physical address of the remote IG/S (linked with IG/S no. 1 via the LAN)
4. Program the parameters (or application) of the remote IG/S
5. Program the EIB devices in the line of the remote IG/S
6. Finally program the parameters (or application) of IG/S no.1

When modifying the parameters of the IG/S, it is possible to start with step 4.

To be able to program several remote IP gateways from one EIB line using an RS 232 interface, all the IP gateways must be given the same project ID, including the local device. If the devices should have a different project ID, a communication link is not established during programming and an error message is generated by ETS.

If there is no communication link to the target device due to a difference in the project IDs of the local and remote device when programming with an RS 232 interface from an EIB line, there are two options for programming the target device successfully.
1. The project ID of the local IP gateway (the gateway that is connected to the same EIB line as the RS 232 interface) must be set temporarily to the project ID of the target device. The project ID of the target device is determined with the Discovery Tool (see Chapter 8). The project ID of the target device is entered on the local gateway under the parameter tab 'IP Address' and the application is reprogrammed. The target device can now be programmed as usual. After completing the programming, the correct project ID is parameterised on the local gateway again.

2. Place an RS 232 interface temporarily in the line of the target device and program the device 'locally' from here using steps 1, 2 and 6.

6.1.4 Assignment of the IP address

The IP (Internet Protocol) address is the unique address of the IG/S within the local network (LAN).

In the supplied state, the setting of the IP address is set to automatic assignment (DHCP).

The IP address can be set in the parameter window in ETS. The address can also be assigned manually and fixed (e.g. at 192.168.0.222). The setting of the IP address in the ETS program is described under Chapter 6.2.2.

If the IG/S is set to receive an IP address automatically, the device waits for 30 seconds to be assigned an IP address. If there is no allocation during this period, the IG/S assigns itself an IP address in the range 169.254.xxx.yyy via AutoIP.

6.2 Parameterisation in ETS

The parameterisation of the IG/S is carried out with the Engineering Tool Software ETS (from ETS2 version 1.2a onwards). Please note the recommended programming sequence (see 6.1.3).

When the parameter window is retrieved, the ‘General’ tab appears first of all.

6.2.1 ‘General’ tab

In the ‘General’ tab of the parameter window, the processing of the telegrams by the IG/S can be defined.
Physically addressed telegrams

Options: route (default setting)  
block

In the setting ‘route’, all those telegrams from the EIB to the LAN and from the LAN to the EIB which are intended for devices in the line of the IG/S or should exit the line of the IG/S to the LAN are transmitted.

If physically addressed telegrams should not be processed by the IG/S, the option ‘block’ can be selected. In this setting, it is not possible to send physically addressed telegrams (e.g. during programming) from the line below the IG/S to another line. In the same way, it is possible via the IG/S to prevent any devices being programmed in the line of the IG/S from the LAN (IETS). The IG/S itself can still be programmed in this setting.

Gruppentelegramme vom LAN zum EIB

Options: filter  
route (default setting)  
block

The parameter Group telegrams from LAN to EIB defines whether telegrams with group addresses should be filtered, routed or blocked.

If the setting ‘filter’ is selected, the telegrams with group addresses from the LAN to the EIB are filtered in accordance with the filter table.

Note:
The filter table must be generated by clicking on the button in the ETS ‘Project Design’ module prior to programming the IG/S.

In the setting ‘route’, all group telegrams are routed without taking the filter table into account. This setting is only advisable for commissioning and diagnostics purposes. The option ‘route’ should not be used during normal operation.

If no group telegrams should be sent from the LAN to the EIB, the option ‘block’ must be selected. All the group telegrams from the LAN to the EIB are then blocked without taking the filter table into account.

Group telegrams from EIB to LAN

Options: filter  
route (default setting)  
block

The parameter Group telegrams from EIB to LAN defines whether telegrams with group addresses should be filtered, routed or blocked.

If the setting ‘filter’ is selected, the telegrams with group addresses from the EIB to the LAN are filtered in accordance with the filter table.
Note:
The filter table must be generated by clicking on the button in the ETS ‘Project Design’ module prior to programming the IG/S.

In the setting ‘route’, all group telegrams are routed without taking the filter table into account. This setting is only advisable for commissioning and diagnostics purposes. The option ‘route’ should not be used during normal operation.

If no group telegrams should be sent from the EIB to the LAN, the option ‘block’ must be selected. All the group telegrams from the EIB to the LAN are then blocked without taking the filter table into account.

**Route telegrams according to**

Options: priority (default setting)
          order of receipt

If a large number of telegrams is transmitted from the EIB to the LAN or from the LAN to the EIB, telegrams may have to be stored temporarily in the IG/S due to a high bus load. If telegrams are written to the temporary storage (max. 100), it can be defined with this parameter whether the telegrams should be routed in the order they arrived (‘order of receipt’) or whether telegrams with a higher priority should be sent (‘priority’).

Programming telegrams have a higher priority on the EIB than group address telegrams. It is therefore advisable to retain the default setting ‘priority’ during the commissioning phase.

### 6.2.2 ‘IP Adresse’ tab

![Image of 'IP Adresse' tab](image)

*IP Address* parameter window in the default setting

The ‘IP Address’ tab is used to set the IP page of the IG/S.
Assign IP Address

Options: automatically (default setting) manually

In the default setting (‘automatically’), the IG/S expects to be assigned an IP address by a DHCP (dynamic host configuration protocol) server. This server assigns a free IP address to the device on request. If there is no DHCP server available in the network or if the IP address should always be identical, it can also be assigned manually.

⚠️ If the IG/S is set to receive an IP address automatically, the device waits for 30 seconds to be assigned an IP address. If there is no allocation during this period, the IG/S assigns itself an IP address in the range 169.254.xxx.yyy via AutoIP.

IP Address, Subnet Mask, Default Gateway

If the option ‘manually’ is selected for the parameter Assign IP Address, the IP Address, Subnet Mask and Default Gateway parameters are activated and can be permanently assigned. We recommend that you use IP addresses from the private range 192.168.0.x (0<x<255).

Example

If e.g. two IG/S should be linked via a crossover network cable or the IG/S should be connected to a small network without a DHCP server, the settings could be carried out as follows:

![Setting the first IG/S](image)
Setting the second IG/S

The Subnet Mask defines the class of the network. The Subnet Mask must be set according to the number and structure of the subnetworks. In the simplest case of a small LAN, the Subnet Mask must be set to 255.255.255.0.

The parameter Default Gateway indicates the connection point (e.g. the IP address of a router) between networks through which the IP telegrams should be transferred. These gateways are only available in larger networks. The setting 0.0.0.0 can be retained for small networks.

Projekt ID

Input: 0...255 (default value = 0)

The project ID is used to combine several IG/S devices into a group. In addition to the filter table for the telegrams, the IG/S devices evaluate this parameter in telegrams to decide whether the telegrams are intended for them or not. Several different EIB installations can thus be operated on one network without any interaction. If only one EIB installation is operated on the network, the default setting 0 can be retained.

The IP gateways send IP multicast telegrams to the IP network to communicate with each other. The multicast IP address is fixed and identical for all devices: 239.192.39.238

The port number is also part of this multicast IP address. This is dependent on the project ID. The port number is defined as follows: Port number = 51000 + project ID.

An IG/S with project ID of 51 therefore has the port number 51051 for example.
6.2.3 ‘Status’ tab

The settings for the status signals of the IG/S are located in this parameter window.

![Edit Parameters window](image)

‘Status’ parameter window in the default setting

**Send telegram on EIB fault**

Options: no (default setting)  
yes

If this parameter is set to 'yes', the communication object \textit{Fault EIB} also appears in the object window of the ETS program. If a group address has been assigned to this communication object, the IG/S sends an ON telegram as soon as the connection to the EIB is disrupted.

Telegram value = 0 - No fault  
Telegram value = 1 - Fault

**Send telegram on LAN fault**

Options: no (default setting)  
yes

If this parameter is set to 'yes', the communication object \textit{Fault LAN} also appears in the object window of the ETS program. If a group address has been assigned to this communication object, the IG/S sends an ON telegram as soon as the connection to the LAN is disrupted.

Telegram value = 0 - No fault  
Telegram value = 1 - Fault
Send telegram on 230 V AC fault

Options: no (default setting)  yes

If this parameter is set to ‘yes’, the communication object Fault 230 V AC also appears in the object window of the ETS program. If a group address has been assigned to this communication object, the IG/S sends an ON telegram as soon as the 230 V AC power supply is disrupted.

Telegram value = 0 - No fault
Telegram value = 1 - Fault

Send telegram on 12 V DC fault

Options: no (default setting)  yes

If this parameter is set to ‘yes’, the communication object Fault 12 V DC also appears in the object window of the ETS program. If a group address has been assigned to this communication object, the IG/S sends an ON telegram as soon as the 12 V DC power supply is disrupted.

Telegram value = 0 - No fault
Telegram value = 1 - Fault

Acknowledge faults

Options: no (default setting)  yes

If this parameter is set to ‘yes’, the communication object Fault Acknowledgement also appears in the object window of the ETS program. All fault messages that occur (see above) only remain active until the IG/S receives an ON telegram at the ‘Fault Acknowledgement’ object. The fault messages that are no longer active are then reset.

Send status byte on error

Options: no (default setting)  yes

If this parameter is set to ‘yes’, the IG/S sends the status byte via the communication object Status IP-Gateway as soon as an error occurs. This error can be one of the following or a combination of several errors:
Example:

Status byte = 0 -> no faults
Status byte = 17(decimal) -> 230 V fault and DHCP set but no IP address received from the server.
If the parameter is set to ‘no’, the status byte is not sent and can only be queried.

Send "Status IP Gateway" telegram cyclically

Options: no (default setting) yes

In the default setting (no), the status of the IP gateway is not sent cyclically. If the option ‘yes’ is selected, an additional communication object Status IP gateway appears in the object view of ETS. The additional parameter Send interval is also visible in the parameter window (see below).

Telegram value: “0”: = Status OK, no fault
“1”: = one (or several) fault(s)

If cyclical sending has been selected, a ‘0’ is sent cyclically when the status is OK. If a fault occurs, a ‘1’ (= fault) is sent once and the cyclical sending is interrupted. A ‘0’ is only sent cyclically again once the fault has been rectified.

If the following faults occur, the status is set to ‘1’:
LAN fault
EIB fault

Sendeintervall

Options: 5 s, 10 s, 30 s, 1 min, 5 min, 10 min, 30 min, 1 h, 6 h 12 h, 24 h

The parameter Send interval is only visible if the parameter Send “Status IP Gateway” telegram cyclically is set to ‘yes’. The most suitable option for the application can be selected from the list of possible intervals.
Parameters for setting the time response of the IG/S on the EIB are located in the ‘Time’ tab.

*Time* parameter window in the default setting

**IP Gateway is Time Master**

Options: no (default setting)
yes

If the option ‘yes’ is selected, the IG/S is a time master on the EIB and sends time and date telegrams itself. Further parameters are activated in this setting. If ‘yes’ is selected, the IP address of the LAN time master must be entered.

**IP Address LAN Time Master**

Input: IP address in the format aaa.bbb.ccc.ddd

If the IP gateway has been parameterised as a time master on the EIB, the IP address of a time master from which the IP gateway can obtain the time must be entered in the LAN. This time master must support the NTP (network time protocol) and send the time accordingly. The IG/S then reads the time from the LAN time master and routes it as a telegram on the EIB. After entering the IP address of the LAN time master, the communication objects Time and Date are also displayed in the object window of ETS.
Send time telegram every

Options: 1 min, 10 min, 30 min, 1h, 8 h, 12 h, 24 h

This parameter indicates at which interval the IG/S should send the time telegram on the EIB if it is operating as a time master. The entry field is only activated if the parameter IP Gateway is Time Master is set to 'yes'.

Send date telegram every

Options: 8 h, 12 h, 24 h

This parameter indicates at which interval the IG/S should send the date telegram on the EIB if it is operating as a time master. The entry field is only activated if the parameter IP Gateway is Time Master is set to 'yes'.

Time zone

Options: – 12 IDLW International Date Line West ...
+ 12 NZST New Zealand Standard Time

The time zone can be selected here according to the location of the IP gateway. The default setting “+01:MEWT Middle European Wintertime” is suitable for European states.

Daylight saving time

Options: automatically (default setting)
manually
none

With this parameter, you can select whether the daylight saving time should be converted automatically (recommended) or entered manually. If you select ‘manually’, the following parameters are available.

Begin (day, month, time) (of daylight saving time)

Select the day, month and time for converting to summertime.

End (day, month, time) (of daylight saving time)

Select the day, month and time for reverting back to wintertime.

Delta (hours) (of daylight saving time)

Select here the time difference in hours between wintertime and summertime.
6.2.5 Overview of the communication objects

<table>
<thead>
<tr>
<th>No.</th>
<th>Type</th>
<th>Object name</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1 bit, EIS 1</td>
<td>Fault EIB</td>
<td>Send telegram</td>
</tr>
<tr>
<td>1</td>
<td>1 bit, EIS 1</td>
<td>Fault LAN</td>
<td>Send telegram</td>
</tr>
<tr>
<td>2</td>
<td>1 bit, EIS 1</td>
<td>Fault 230 VAC</td>
<td>Send telegram</td>
</tr>
<tr>
<td>3</td>
<td>1 bit, EIS 1</td>
<td>Fault 12 VDC</td>
<td>Send telegram</td>
</tr>
<tr>
<td>4</td>
<td>1 bit, EIS 1</td>
<td>Fault Acknowledgement</td>
<td>Receive telegram</td>
</tr>
<tr>
<td>5</td>
<td>1 bit, EIS 1</td>
<td>Status IP-Gateway</td>
<td>Send telegram</td>
</tr>
<tr>
<td>6</td>
<td>1 byte, EIS 6</td>
<td>Status-Byte IP-Gateway</td>
<td>Send telegram</td>
</tr>
<tr>
<td>7</td>
<td>3 byte, EIS 3</td>
<td>Time</td>
<td>Send telegram</td>
</tr>
<tr>
<td>8</td>
<td>3 byte, EIS 4</td>
<td>Date</td>
<td>Send telegram</td>
</tr>
</tbody>
</table>

6.3 Programming with the iETS

In addition to the standard version of the Engineering Tool Software ETS, there is the so-called Internet ETS (iETS). The iETS enables the programming of EIB devices from a PC which is only connected to the LAN network. This PC then operates as a client of a server. To be able to program an EIB device, the iETS must be used on the client. The server makes the interface connection to the EIB available.

The IG/S can function as an iETS server. The data between the EIB and the LAN is exchanged as before. In addition, the programming services are made available for an iETS client which is running on a PC on the network. The devices must then be linked as follows.

The iETS client software is included in the standard ETS program from ETS2 Version 1.3 onwards. A demo licence is also provided with a set time limit. The licence for the iETS client must be purchased from the EIBA/Konnex association once the demo version has expired (see www.eiba.com).
6.3.1 Configuration of the iETS client

So that the ETS program and the IG/S can exchange data, the iETS client must be configured accordingly in ETS. This configuration can also be carried out in demo mode.

To configure the iETS client, click on the iETS client button in the main menu of ETS (here ETS 2 V 1.3).

Close the ‘Info’ window that appears by clicking on ‘OK’.

You then see the window iETS Client Configuration

![iETS Client Configuration Window]

Example for the configuration of the iETS client

Enter the name (e.g. IGS1) or the IP address (e.g. 192.168.0.222) of the IG/S which you wish to use as an iETS server under Server name.

So that the configuration PC can establish connection with the iETS and the IP gateways via a network, the devices must be located in a network with the same network number or be linked via corresponding devices (routers, etc.). In the case of a local network, the IP addresses can be assigned for example as follows:

Example:

IP address of PC: 192.168.0.1
IP address of IG/S no. 1: 192.168.0.222
IP address of IG/S no. 2: 192.168.0.223

You can find explanations about setting the IP address of the PC in the appendix (8.2).

The default settings for Port, Read Port and Write Port can be retained.

Remote must be selected for the IP Configuration Status. UDP must be set as the Protocol.

You can find further information in the ‘Help’ file of ETS.
To be able to program devices on the EIB via the LAN with the ETS and an IG/S, the components must first be linked, as described under 6.3. The iETS client must further be configured as described under 6.3.1.

The ‘Commissioning/Test’ module of ETS (here ETS2V1.3) can then be started.

The option ‘COM1’ must be selected as the COM port under Options/Settings/Interface as the setting for the bus communication. The ‘Commissioning/Test’ module currently cannot display a LAN connection (ETS2V1.3).

If these settings have been carried out, it is possible to program bus devices (physical address, application,..).
Note: If you wish to program devices locally again i.e. using ETS and an RS 232 interface to the EIB (e.g. EA/S 232.5), you must reactivate the local option in the iETS client so that the commissioning process with ETS again functions via the COM interface (e.g. COM1).
The IP gateway can be used in EIB installations as an interface between the EIB and IP networks. At the same time, the IG/S can also be used as a line coupler or area coupler.

When using the IG/S as an area coupler, the following topology must be used:

Lines and main lines are structured in the usual way. The LK/S 3.1 (or LK/S 2.1) is used as a line coupler. The IG/S is now used instead of an area coupler and the Ethernet (IP network) is used as an area line. In the ETS, it should be ensured that the upper limit of the areas (15 areas) are complied with.
7.1.2 IG/S as a line coupler

If the IG/S should be used as a line coupler, the following topology must be implemented:

![Diagram showing IG/S as a line coupler](image)

In this case, the IG/S is already used as a line coupler to link a line to the Ethernet. In this topology, no area couplers can be used and they are also no longer necessary. In the ETS, it should be ensured that the upper limit of the lines (225 lines) must be complied with.

7.1.3 IG/S as a area coupler and as a line coupler

If required, IG/S devices can be used as a area coupler and a line coupler together in one installation.

![Diagram showing IG/S as a area coupler and line coupler](image)

Important: IG/S devices which are connected directly to the Ethernet as a line coupler, must use physical addresses from an area which has not yet been used by an IG/S as a area coupler. For example, in the diagram above, it would not be permitted to assign the address 1.4.0 to an IG/S with the physical address 2.1.0.
IP gateways can be connected as conventional network devices. To link several IG/S devices, a switch can be used with a corresponding number of ports. If only 2 IG/S or 1 IG/S and 1 PC are linked, a crossover network cable can be used.

The IP gateways send IP multicast telegrams on the IP network to communicate with each other. The multicast IP address is fixed and identical for all the devices: 239.192.39.238

The OPC server is a software program for representing EIB devices as OPC objects. With this software, the data which is sent by IP gateways on the Ethernet is read and represented as OPC objects.

Commands (e.g. from visualisation programs) can likewise be issued via the IG/S to devices on the EIB. A more detailed description and the software licence are available from several manufacturers.
The OPC server can either be installed on the same PC, on which the visualisation software (or building management software, see diagram above) is installed or on a separate PC (see following diagram).
8 Appendix

8.1 Using the Discovery tool

The Discovery tool is a small independent program (exe file) which is used to search for the IG/S in the network (available as a download under www.abb.de/eib).

Start the program by double clicking on ‘Discovery.exe’.

The following window appears:

To find the IG/S in the network, click on the ‘suchen’ button. All the IG/S devices that are found are displayed in the large window below the button. The entries can be viewed one after the other with the scrollbar.

The diagram above shows the results of a search in which an IG/S has been found. The current firmware version (here: v1.1), status, IP address, subnet mask and default gateway, serial number, MAC address as well as the physical address of each device are given. The version of the ETS application which has been loaded into the device via the ETS (here: v0.5) is indicated.
8.2 Explanations for configuration of the commissioning PC

The Discovery tool sends broadcast telegrams to ask for IG/S on the network. Depending on the topology of the network and the configuration of active devices (routers, gateways, etc.) maybe not all devices can be reached.

The following section outlines the steps for the configuration of the IP address of the commissioning PC. The settings differ depending on the operating system (WIN 98, WIN2000, WIN XP,..). The explanations have been created with the WINDOWS 98 operating system.

The IP (internet protocol) address is the unique identifier for a device in a network (comparable to a house number).

You can set this address in the control panel of the operating system (START/Settings/Control panel). Then click on the ‘Network’ icon (double click):

The following window appears:
Select the TCP/IP components from the list of network components and then click on ‘Properties’.

The next window now indicates the IP address of the PC:

Select ‘Specify an IP address' and enter the IP address and the subnet mask as shown in the diagram.

Some operating systems require a system restart. If this is the case, please carry out a restart.
8.3 Ordering information

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