

Micro Application Example



applications & TOOLS

Autarkic switching in GAMMA *instabus* EIB-network in building service applications
(with LOGO! and *EIB* module)

SIEMENS

Micro Automation Set 8

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Foreword

Micro Automation Sets are fully functional and tested automation configurations based on A&D standard products for easy, fast and inexpensive implementation of automation tasks in small-scale automation. Each of these Micro Automatic Sets covers a frequently used subtask of a typical customer problem in the low-end range.

The sets help the customer to obtain answers with regard to required products and the question how they function when combined.

However, depending on the system requirements, a variety of other components (e.g. other CPUs, power supplies, etc.) can be used to implement the functionality on which this set is based. Please refer to the respective SIEMENS A&D catalogs for these components.

The Micro Automation Sets are also available by clicking the following link:

<http://www.siemens.de/microset>

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Fields of application

In conventional electric installation a separate line is necessary for each function and a separate network for each controlling system. The *instabus EIB* on the other hand, allows for controlling, monitoring, and reporting all operational functions and processes via a joint line.

The EIB expansion module makes LOGO! a complete node within *instabus EIB*. This enables connecting conventional components (more cost efficiently) with the *instabus EIB* via LOGO!.

Application areas in detail:

- Interior installations
- Building services automation

Benefit

- LOGO! can be networked with LOGO! EIB/KNX module
- With LOGO!, classic switches can be used at the *instabus EIB* which saves costs
- The LOGO! functionality can be expanded with *instabus EIB* function components:
 - Many building service tasks can be solved with LOGO!
 - Expansion of sensor options
- LOGO! also functions at *instabus EIB* failure
- Modifying the LOGO! parameterization/configuration also possible without PC
- Time/data synchronization, LOGO! as master or slave in the *instabus EIB*

1 Structure

The configuration of Micro Automation Set 8 is shown in the figure below.

Figure 1-1

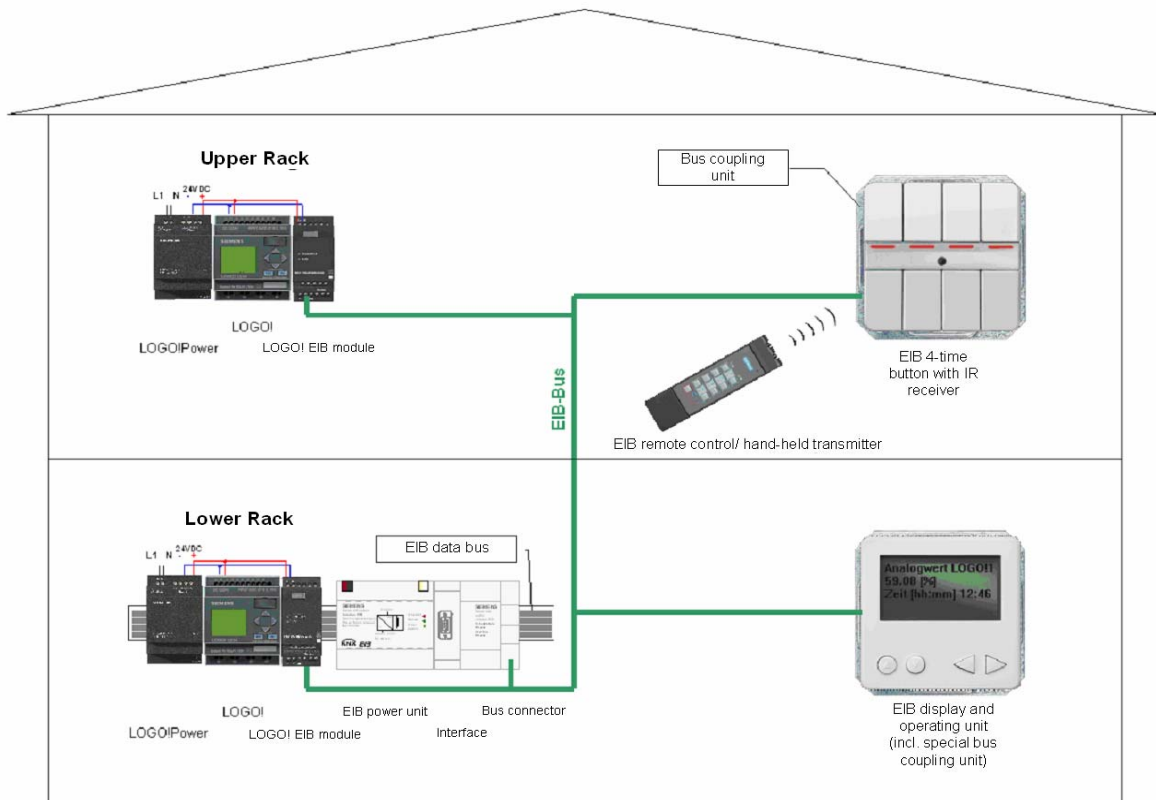
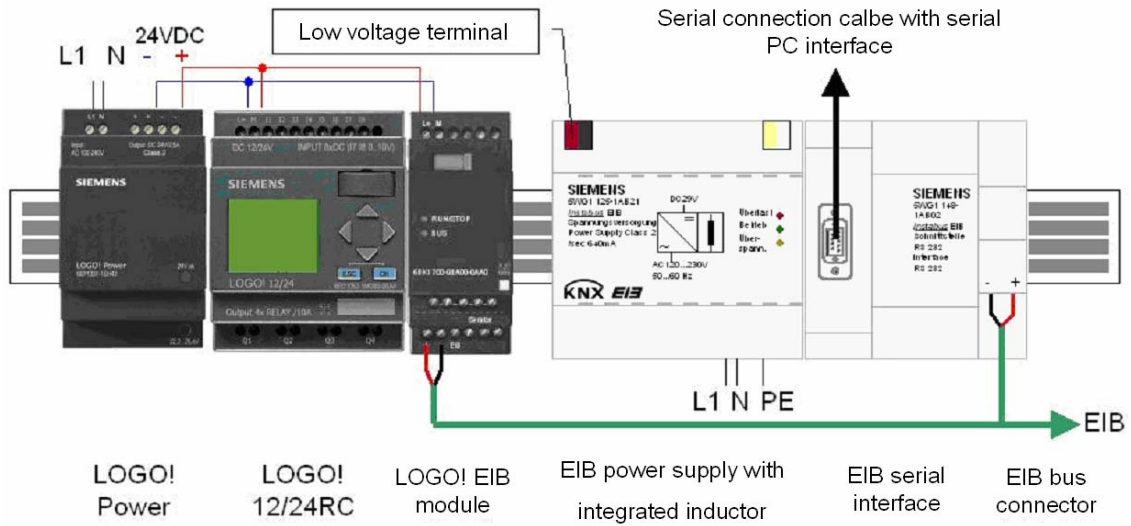


Figure 1-2



2 Hardware and Software Components

Products

Component	Type	MLFB / Order information	No.	Manufacturer
Power supply	LOGO!Power 24 V/1.3 A	6EP1331-1SH02 ¹	2	SIEMENS A&D
Logic module	LOGO! 12/24 RC	6ED1052-1MD00-0BA5 ¹	2	
Communication module	LOGO! CM EIB/KNX	6BK1700-0BA00-0AA1	2	
Power supply for EIB	GAMMA <i>instabus EIB</i> -power supply	5WG1 125-1AB21	1	
Button with IR receiver	UP 235+IR, 4-fach	5WG1 235-2AB11 ¹	1	
	Bus coupling unit for buttons	5WG1 114-2AB02		
Remote control	For IR button	5WG1 425-7AB21	1	
Display and operating unit (incl. special bus coupling unit)	UP 585	5WG1 585-2AB11 ¹	1	
Interface	GAMMA <i>instabus EIB</i> interface RS232	5WG1148-1AB02	1	
Data bus with separate connectors	GAMMA <i>instabus EIB</i> data bus 190/01 ² , 214mm	5WG1190-8AB01	1	
	<i>instabus EIB</i> connector REG 191/11 2X2fold	5WG1191-5AB11	1	

Accessories

Component	Type	MLFB / Order information	No.	Manufacturer
Low voltage terminal	GAMMA <i>instabus EIB</i> bus terminal	5WG1193-8AB01	1	SIEMENS A&D
Connection cable	Serial connection cable, assignment 1:1	SPECIALIST DEALER	1	e.g. Reichelt Elektronik
Batteries for remote control	Mignon (LR03/AAA 1.5V)		4	
Hat rail for LOGO!- and EIB components	TH35-7,5 ² according to DIN EN50022		2	
EIB bus line	YCY 2x2x0,8 green R/100			

Configuration software/tools

Component	Type	MLFB / Order information	No.	Manufacturer
LOGO! Soft Comfort	V5.0	6ED1058-0BA01-0YA0	1	SIEMENS A&D
Connection cable LOGO! PC/PG	LOGO cable	6ED1057-1AA00-0BA0	1	
EIB ETS Professional 3	V3.0d	Everything about ETS under http://www.konnex.org/knx-tools/ets/intro/ . The software itself is free of charge. You need a chargeable licence, however.		
Product data of the Siemens EIB components used		For the complete Siemens ETS 3 product database click here . (http://www.automation.siemens.com/et/gamma/html_00/support/ets3.htm)		

¹ available in different services/versions

² When using a deep top hat rail (TH35-15) the *instabus EIB* data rail 190/03, 214mm, MLFB 5WG1190-8AB03 has to be used.

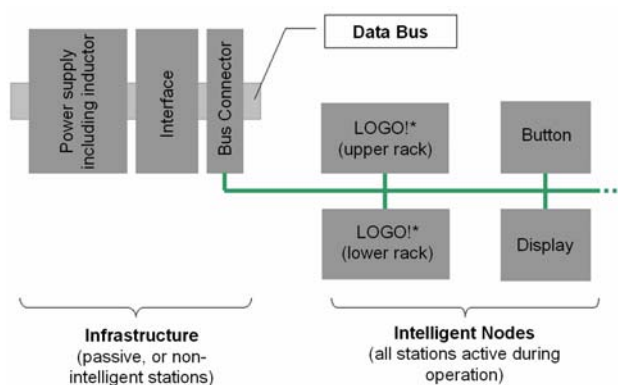
Note

1. A PG (e.g. field PG) or a PC with free serial interface is required for running configuration software and tools!
2. The data of the **EIB** products used in this Micro Automation Set are already contained in the **EIB** project file (see 4.2 Download of the startup code). You must not load and import them one by one via the above link.

3 Function Principle

The devices in the **EIB** configuration can be roughly divided into two groups, see graphic below:

- **passive, or non-intelligent nodes**
- **intelligent nodes**



- Power supply with integrated inductor
(Power supply of the bus with 29V, inductor for preventing reflections at the cable ends)
- Interface
(Communication interface between EIB devices and PC)
- Bus connector
(Connection between EIB data bus and interior installation)
- Data bus
(Back pane bus for power supply, interface and bus connector)
- Push button with IR receiver and IR remote control
- Display and operating unit
- LOGO! (upper rack)*
- LOGO! (untere Etage)*

The bus connection between the individual devices enables their inter-communication, and control commands (e.g. On/Off), process values (e.g. temperature) and date/time can be exchanged with other EIB devices, for example:

- Using the GAMMA *instabus EIB* display and operating units as a separate display for visualization (and operating) for LOGO!
- Communication of distributed LOGO!s with each other via GAMMA *instabus EIB*
- Switching of LOGO! Outputs via *instabus EIB* message frames

* LOGO! Here means a LOGO! Configuration with LOGO! Power, LOGO! Logic module and LOGO! EIB communication processor.

4 Configuring the Startup Software

4.1 Preliminary Remark

For the startup we provide software examples with test code and test parameters as download. The software examples support you during the first steps and tests with your Micro Automation Sets. They enable quick testing of the hardware and software interfaces between the products described in the Micro Automation Sets.

The software examples are always assigned to the components used in the set and show their basic interaction. However, they are not a real application in the sense of a technological problem solution with definable properties.

4.2 Download of the startup code

The software examples are available on the HTML page from which you downloaded this document.

Table 4-1

No.	File name	Contents
1	Set8_LOGO!_V1d0_en.lsc	Program for LOGO! Logic module
2	Set8_EIBproject_en.pr4	GAMMA <i>instabus</i> EIB configuration for ETS 3

4.3 Configuring Components


HW configuration and networking

Table 2:

No.	Function	Comment
1.	<ul style="list-style-type: none"> Connect the products as shown in the configuration plan to the power supply and the GAMMA <i>instabus</i> EIB bus line. 	Bus line: Red wire: Bus + Black wire: Bus + White wire: Reserve Yellow wire: Reserve The screening foil and drain wire of two bus lines will not be connected with each other. Screening foil and drain wire must not touch the earth potential or any live parts.


Configuring LOGO! with LOGO!Soft Comfort

Tabelle 3

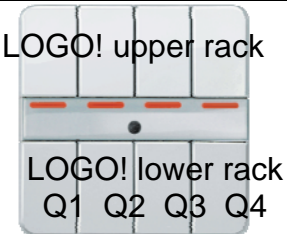
No.	Function	Comment
1.	<ul style="list-style-type: none"> Connect the PC and the LOGO! Logic module with a LOGO!/PC cable via the serial interface COM1. When using a different COM interface, this has to be considered accordingly in LOGO! Soft Comfort. 	
2.	<ul style="list-style-type: none"> Open the LOGO! Program and transfer it to the controller. 	Program download via the menu <i>Tools>Transfer>PC->LOGO!</i> Or the  icon.
3.	<ul style="list-style-type: none"> Activate the LOGO! – EIB/KNX synchronisation of the LOGO! in the upper rack (Slave). 	Change the Sync setting on the LOGO! module under the menu item „Clock“ to „On“.





GAMMA *instabus* EIB configuration for ETS 3

Table 4:

No.	Function	Comment
1	<ul style="list-style-type: none"> Connect the PC and the GAMMA <i>instabus</i> EIB interface with a serial RS232 cable via the serial interface COM1. Bei Verwendung einer anderen COM-Schnittstelle, ist dies in ETS 3 entsprechend zu berücksichtigen. 	
2	<ul style="list-style-type: none"> Transfer the addresses to the intelligent EIB stations and then load the configuration. 	Address transfer and program download via the menu <i>Commissioning > Program...</i> , the  icon, or via <i>Program...</i> from the context menu of a selected EIB station.

4.4 Operation

Device	Configured function	Screenshot
4x button with IR (address: 6.2.3)	Buttons switch the outputs of the LOGO! The LEDs show the switching status for the outputs Q1-Q4 of the upper LOGO!.	 <p>LOGO! upper rack</p> <p>LOGO! lower rack Q1 Q2 Q3 Q4</p>

Device	Configured function	Screenshot
Remote control	Buttons switch the outputs of the LOGO!s	<p>LOGO! Upper rack Q4 Q3 Q2 Q1</p>  <p>Q4 Q3 Q2 Q1 LOGO! Lower rack</p>
Display and operating unit (address: 6.2.1)	<p>Displayed:</p> <ul style="list-style-type: none"> - Date (LOGO!, lower rack) - Time (LOGO!, lower rack) - Analog value AI1* (LOGO!, upper rack) - Analog value AI1* (LOGO!, lower rack) 	
LOGO! Upper rack (Address: 6.2.4)	<p>Displayed:</p> <ul style="list-style-type: none"> - Date (LOGO!, lower rack) - Time (LOGO!, lower rack) - Analog value AI2 (individual) - Analog value AI2 (LOGO!, lower rack) <p>Switching of:</p> <ul style="list-style-type: none"> - I1-I4 (positive edge) switch outputs Q1-Q4 	
LOGO! lower rack (Address: 6.2.2)	<p>Displayed:</p> <ul style="list-style-type: none"> - date (individual) - time (individual) - Analog value AI2 (individual) - Analog value AI2 (LOGO!, upper rack) <p>Switching of:</p> <ul style="list-style-type: none"> - I1-I4 (positive edge) switch outputs Q1-Q4 - I5 switches the background lighting of display and operating units 	

* Display and operating unit generate an acoustic alarm if the respective analog value exceeds 99% of its final value.

Note

The LOGO! Of the lower rack (master) sends the time signal to the **EIB**-Bus on the following events:

- Network on
- hourly
- Set Clock
- Summer/wintertime changeover

Micro Automation Set 8

Entry-ID 21688364

5 Technical Data

Power supply LOGO! Power 24 V, 1.3 A

Parameter	Number/Size/Range	Comments
Supply voltage	AC 100-240V	
Output voltage	DC 24V	Adjustable via potentiometer
Output current	1.3A	
Dimensions (W x H x D) in mm	54 (3 TE) x 90 x 55	

Logic module LOGO! 12/24 RC

Parameter	Number/Size/Range	Comments
Supply voltage	DC 12/24 V	
Inputs	8 (of which 2 analog 0-10V)	
Outputs	4 relays	Max. 10A
Dimensions (W x H x D) in mm	72 (4 TE) x 90 x 55	

Expansion module LOGO! CM EIB/KNX

Parameter	Number/Size/Range	Comments
Supply voltage	24V (DC/AC)	-15% to 20% permissible range
Current consumption	Max. 40mA	
Digital inputs max.	24	
Digital outputs max.	16	
Analog inputs max.	8	
Dimensions	36mm x 90mm x 55mm	Weight approx. 50g

EIB Power supply

Parameter	Number/Size/Range	Comments
Supply voltage	AC 120 ... 230 V, 50/60 Hz	
Output voltage	29V DC	
Output current	640 mA	
Dimensions	Width 4 MW (1 MW = 18 mm)	Modular device with normal dimensions

Button with IR receiver

Parameter	Number/Size/Range	Comments
Rocker button pairs	4	=8 buttons
number of switching cycles	>20.000	
Display elements	4	

Remote control/ hand-held transmitter

Parameter	Number/Size/Range	Comments
Adjustable channels	8 of 64	
Transmission range	Approx. 20 m	
Dimensions [mm]	155 x 39 x 23	

Display and operating unit

Parameter	Number/Size/Range	Comments
Number of messages	16	freely configurable

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Parameter	Number/Size/Range	Comments
Number of characters per message	30 characters per line, max. 3 lines	Characters per line depending on font
Alarm functions	<ul style="list-style-type: none">• Preferred display of alarm message• Optical display (blinking)• Acoustic message (signal tone)• Accoustic feedback when pressing the button	