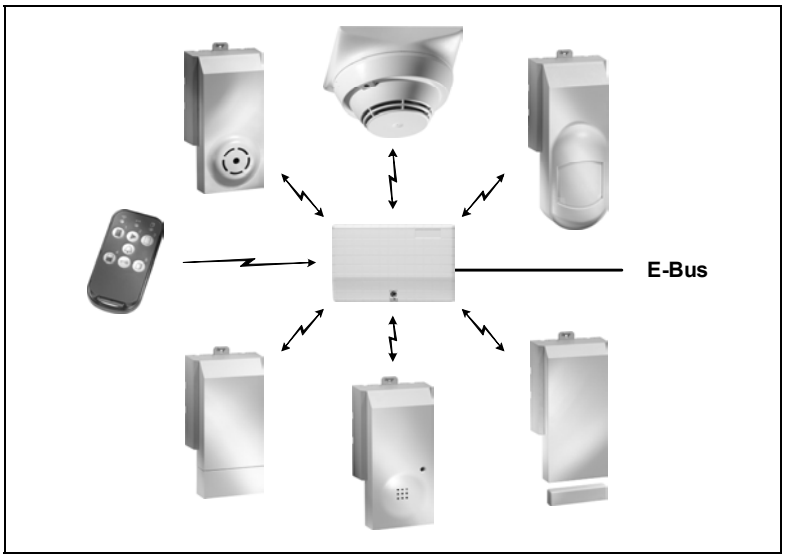
User Manual /
Technical Description

SIEMENS



SiRoute™

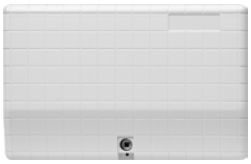
Wireless Infrastructure for Alarm Systems

With innovative radio technology

- **No range limitation**
- **Self-configuring wireless network**
- **Redundant communication links**
- **Battery lifetime up to 4 years**
- **Very good reliability**
- **“White collar” installation**
- **Higher security**
- **One remote control for alarm system, emergency and home automation control**
- **Reduced inventory costs**
- **Family look blends with all environments**
- **Simple addressing**

Fire & Security Products

Siemens Building Technologies



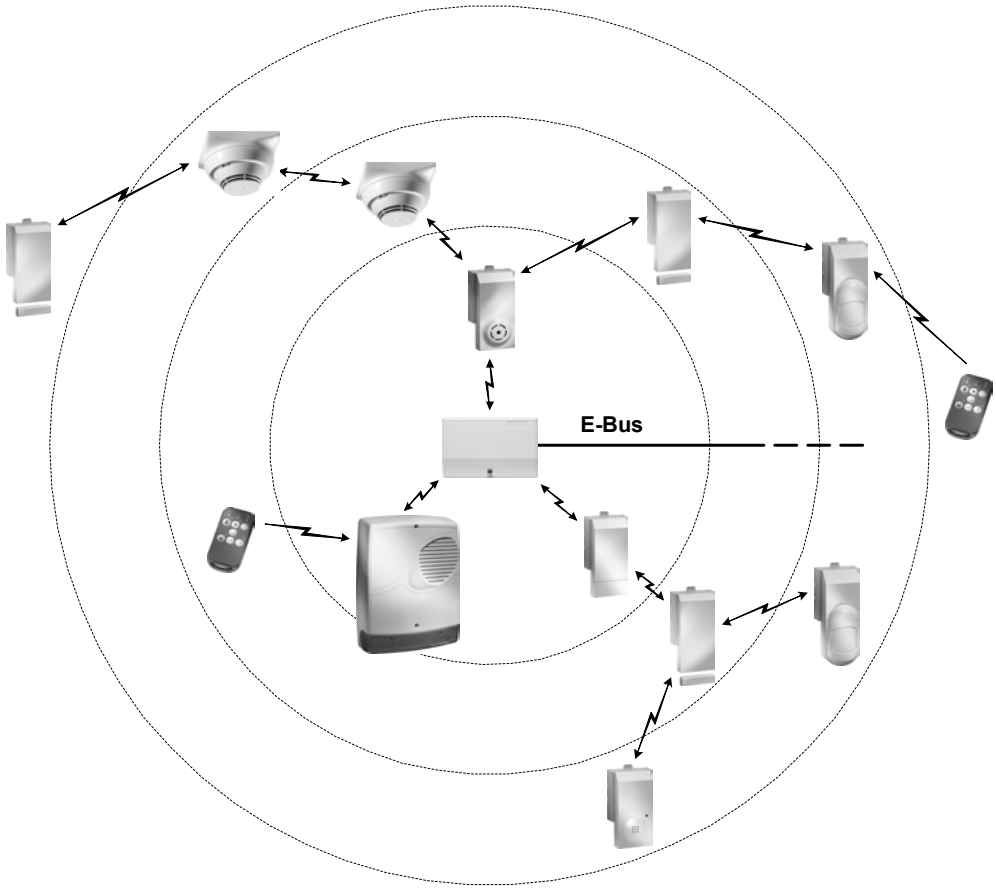
E-Gateway
(E-Bus radio gateway for SI series control panels)

The new wireless infrastructure SiRoute™ brings a complete range of devices with an innovative and reliable radio technology, which offers an unlimited transmission range and a higher security. The SiRoute™ technology is unique, based on an 914MHz bidirectional radio transmission. It features a patented routing mechanism named EasyRouting. The SiRoute™ peripheral devices can be used with Siemens hardwired systems series SI100/200/300/400 thanks to a new radio gateway.

- **No range limitation, self-configuring wireless network and redundant communication links**

The patented telegram routing algorithm EasyRouting passes on the information from the wireless participants to the radio controller in the gateway and vice versa. The communication works by passing telegrams from one participant to the radio controller via other participants if a direct radio communication is not possible. In case of radio disturbances EasyRouting automatically searches for an alternative route between the participant and the radio controller.

Radio module
standard



Radio module for
round detectors
(e.g. smoke detectors)

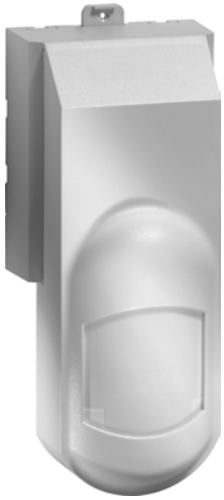
Universal
mounting base

- **Battery lifetime up to 4 years**

The SiRoute™ devices have such a low power consumption that the batteries can lead up to 4 years. The batteries are included in the supplied packages.

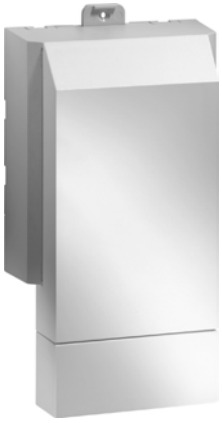
- **Very good reliability**

The redundancy of the routing mechanism and the high performance of the bidirectional radio technique make the SiRoute™ wireless infrastructure a very reliable product.

W7OP303 (shown with W7BT21)	W7IR90 (shown with W7BT20)	W7GB650 (shown with W7BT20)	W7MK100 (shown with W7BT20)
			
Smoke detector	**PIR motion detector**	**Acoustic glass-break detector**	**Door contact**
The SiRoute™ wireless optical smoke detector is based on light scattering by smoke particles. Designed for low power consumption it is powered by the batteries of the radio module. The smoke sensitivity is 2.5%/m. An LED indicates the alarm state in test mode.	The standard 12m wide-angle Fresnel lens can be quickly replaced by an optional 18m long-range lens. Corner mounting is possible using the optional bracket W7UM20 (5pcs set). The PIR (passive-infrared) detector has an LED, which indicates the alarm state in walk test mode.	In contrast to magnet contacts and vibration detectors, which must be mounted on all windows, the SiRoute™ acoustic glassbreak detector can monitor the windows of a whole room with a detection range up to 8m. It works with all glass types. An LED indicates the alarm state in test mode.	The SiRoute™ wireless door contact has 3 reed contacts. This allows different positions of the housing for a great flexibility when installing the contact. The contact is designed for use on doors. One magnet is supplied with the contact. Spare contacts W7MK105 are available (5pcs set).

Technical data

Operating voltage (battery supply)	from W7BT21	from W7BT20	from W7BT20	from W7BT20
Battery lifetime	up to 4 years	up to 4 years	up to 4 years	up to 4 years
Specific data	Smoke sensitivity: 2.5%/m	Detection range: 12m volumetric (standard), 18m long range (optional)	Detection range: 8m radius	Detection type: magnetic contact (max. 10mm between contact and magnet)
Settings	-	Sensitivity: high / low / remote selectable by jumper	Sensitivity: high (up to 8m) / low (up to 4m) / remote selectable by jumper	-
Ambient conditions				
– Operating temperature	-10 … +55°C	-10 … +55°C	-10 … +55°C	-10 … +55°C
– Storage temperature	-20 … +60°C	-20 … +60°C	-20 … +60°C	-20 … +60°C
– Air humidity (EN60721)	<95% r.h., non-cond.	<95% r.h., non-cond.	<95% r.h., non-cond.	<95% r.h., non-cond.
– Housing protection (EN60529)	IP 44	IP 42	IP 31	IP 31
Housing Material	ABS	ABS	ABS	ABS
Radio module	W7BT21	W7BT20	W7BT20	W7BT20
– Frequency	913.85MHz	913.85MHz	913.85MHz	913.85MHz
– Transmission type	bidirectional	bidirectional	bidirectional	bidirectional
– Transmission range	unlimited (EasyRouting)	unlimited (EasyRouting)	unlimited (EasyRouting)	unlimited (EasyRouting)
Approvals				
–				
–				

W7IO22 (shown with W7BT20)	W7SR10 (shown with W7BT20)	W7SR25	W7RC20	W7BT20 W7BT21
				 
Input/output module 2/2	**Indoor siren**	**Outdoor siren**	**Remote control**	**Radio modules**
The SiRoute™ wireless input/output module 2/2 provides 2 inputs, which can be set with a jumper for either NO or NC operation. The device provides also 2 potential free outputs controlled by the radio module. The housing provides cable entries and strain relieves.	The SiRoute™ indoor siren has a small size but offers a high sound level of 80dB at 3m distances. It is powered by the radio module battery.	The SiRoute™ outdoor siren is self-powered and integrates the radio module. The siren provides also a strobe. Several settings are possible with jumpers: the strobe can be activated separately (Out1 of the radio module), can follow the siren activation (Out2 of the radio module) or can be disabled. The siren can be activated with no time limit, during max 3min or can be disabled. The housing is weather-proof.	The multifunctional remote control SiRoute™ is smaller than a credit card and only few mm thick, with indications by 3 LEDs. It has 7 keys for standard controls as well as emergency (panic alarm). This handheld can be secured by programming a PIN code.	The SiRoute™ radio modules W7BT20 and W7BT21 use the same bidirectional transceiver board. W7BT21 has only a different socket for round detectors (e.g. smoke detectors). W7BT20 and W7BT21 use the universal mounting base, which is part of the radio module package.
from W7BT20	from W7BT20	4 x 1.5V type D	1 x 3V Li CR2032	3 x 1.5V type AA
up to 4 years	up to 4 years	up to 4 years	up to 5 years	-
2 inputs, NO/NC selectable by jumpers (default NO) 2 outputs, potential free contacts, max. 40VDC / 1A / 30W	Sound level: 80dB@3m	Sound level: 100dB@3m	7 operation keys 3 indication LEDs	-
-	-	Siren: on-Out2 / on-Out2 3min / off Strobe: on-Out2 / on-Out1 / off selectable by jumpers	-	-
-10 … +55°C -20 … +60°C <95% r.h., non-cond. IP 42	-10 … +55°C -20 … +60°C <95% r.h., non-cond. IP 31	-10 … +55°C -20 … +60°C <95% r.h., non-cond. IP 34	-10 … +55°C -20 … +60°C <95% r.h., non-cond. IP 55	-10 … +55°C -20 … +60°C <95% r.h., non-cond. -
ABS	ABS	PE / PC	ABS / PC	ABS
W7BT20 913.85MHz bidirectional unlimited (EasyRouting)	W7BT20 913.85MHz bidirectional unlimited (EasyRouting)	integrated 913.85MHz bidirectional unlimited (EasyRouting)	integrated 913.85MHz unidirectional unlimited (EasyRouting)	- 913.85MHz bidirectional unlimited (EasyRouting)

- **“White collar” installation**

The SiRoute™ wireless devices can be installed without the use of screws and pegs. A universal mounting base is fixed to the wall or ceiling with either a staple gun or double side adhesive tape. This allows a very quick and clean installation. Screws can also be used if really wanted. Once all mounting bases are fixed no tools are needed anymore. The devices simply can be plugged on the mounting bases by hand.

- **Higher security**

The security of the SiRoute™ wireless infrastructure is very high thanks to the reliable radio transmission. The transmission is bidirectional and the frequency used is 913.85 MHz.

- **One remote control for alarm system, emergency and home automation control**

Beside the standard controls of a burglar alarm system like full set, part set, unset, the SiRoute™ remote control has a panic key and an on/off button for home automation control. Advanced controls allow putting the control panel in the walk test mode. The remote control can be used to either operate the entire system or a selected partition. The remote control can be secured by a 4 digits PIN code, which is easily programmed, changed or disabled.

- **Reduced inventory cost**

All available participants use only 2 different radio modules. One radio module is dedicated to round detectors (e.g. smoke detectors). The number of radio modules and the number of elements can be managed independently as they are supplied in separated packages.

- **Family looks blends with all environments**

The family design of the SiRoute™ peripherals supports its modular structure.
The SiRoute™ devices blend in private homes as well as in commercial premises.

- **Simple addressing**

A SiRoute™ wireless device is automatically enrolled in the control panel in two steps. Step 1: insert the batteries in the radio module. Step 2: plug the peripheral of your choice onto the radio module. Addressing the remote control is even easier: just press the Panic button.

Details for ordering

Type	Part no	Designation	Dimensions (mm)	Weight [2]
W7OP303	A5Q00001898	SiRoute™ smoke detector [1]	H 100 x L 100 x P 42 [1]	0.062kg [1]
W7IR90	A5Q00001849	SiRoute™ PIR motion detector [1]	H 155 x L 58 x P 44 [1]	0.062kg [1]
W7GB650	A5Q00001900	SiRoute™ acoustic glassbreak detector [1]	H 126 x L 58 x P 23 [1]	0.042kg [1]
W7MK100	A5Q00001901	SiRoute™ door contact [1]	H 126 x L 58 x P 20 [1]	0.040kg [1]
W7IO22	A5Q00001903	SiRoute™ input/output module 2/2 [1]	H 126 x L 58 x P 24 [1]	0.055kg [1]
W7SR10	A5Q00001904	SiRoute™ indoor siren [1]	H 126 x L 58 x P 30 [1]	0.045kg [1]
W7SR25	A5Q0000????	SiRoute™ outdoor siren	H 323 x L 240 x P 97	2.600kg
W7RC20	A5Q00004860	SiRoute™ remote control	H 83 x L 40 x P 7	0.020kg
W7BT20	A5Q00004856	SiRoute™ radio module standard	H 92 x L 68 x P 32	0.130kg
W7BT21	A5Q00004857	SiRoute™ radio module for round detectors	H 103 x L 103 x P 40	0.150kg
W7EG20	A5Q00004858	SiRoute™ E-Gateway Radio gateway for E-Bus	H 86 x L 135 x P 27	0.122kg
W7MK105	A5Q00002782	SiRoute™ magnet for W7MK100 (5 pcs.) Spare/replacement part for W7MK100	H 15-23 x L 54 x P 13 [3]	0.160kg [4]
W7UM10	A5Q00003601	SiRoute™ universal mounting base (10 pcs.) Spare/replacement part for W7BT20/21	H 92 x L 63 x P 22 [3]	0.125kg [4]
W7UM20	A5Q00003624	SiRoute™ corner mounting bracket (5 pcs.) Option for W7BT20 typically used together with PIR motion detector W7IR90	H 61 x L 51 x P 51 [3]	0.075kg [4]
-	502922	Long range Fresnel lens (3 pcs.) Option for PIR motion detector W7IR90	H 65 x L 52 x P 2 [3]	0.005kg [4]

[1] excl. radio module
[2] approx. net weight (excl. package)
[3] dimensions for one piece
[4] weight for one set of pieces

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Edition 01.2004

Technical Data Novum Bi-directional Version USA

Radio Hardware

Frequency	913,850 MHz
Tx bandwidth:	300 kHz
Bit rate:	16.3 kBd
Modulation:	frequency modulation
Receiver type:	superhet, class 2 (EN 300 220)
Sensitivity:	approx. -95 dBm
Transmitter output power:	< -1dBm
Attenuation budget:	90 dB (attenuation reserve included)
Module to module distance:	min 1 m
Temperature range:	-10 to +55 °C

Data Exchange

Data transmission:	bi-directional (half duplex)
Data check:	checksum
Telegram security:	telegram acknowledgment and repeating in case of failure
System integrity test:	approx. every two hours (configurable between 9 min and 18 h)

Networking

Type of network:	radio controller (master) oriented peer to peer
Routing mechanism:	easy routing
Max number of hops:	15 (limited to 3)
Number of participants:	49 bi-directional (including radio controller) 10 unidirectional (additional)
Range of network:	radio range x number of hops
Transmission time:	600 ms per hop
Network participants:	bi-directional radio participant (detector) bi-directional radio controller (gateway) unidirectional control device (Remote Control)

Power Supply Participant

Battery Type:	3 batteries of 1,5 V type AA (alkali manganese)
Average current:	approx. 90 µA (without debug)
Peak current:	40 mA
Battery lifetime:	approx. 3 years (without detector)

Power Supply Radio Controller

Input voltage range:	3.25V to 10V
Average current:	approx. 150 µA
Peak current:	40 mA

Module Numbers

(PCB)

bi-directional radio participant:	S24218-A71-A402
bi-directional radio controller:	S24218-A71-A422

SIEMENS

W7EG20
SiRoute™ E-Bus Gateway

Installation instructions

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Edition 12.2003
Supersedes e6709c
A5Q00004409

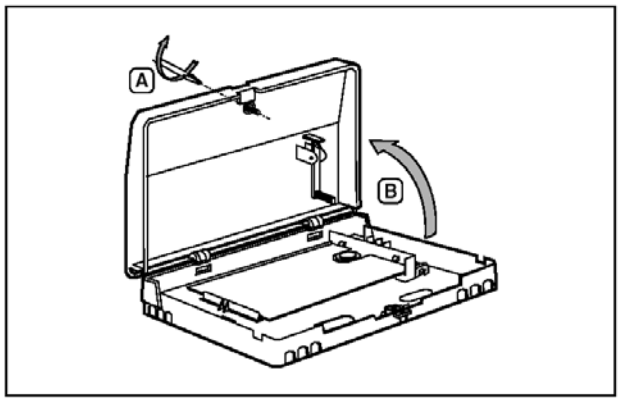

Fig. 1 : Opening housing

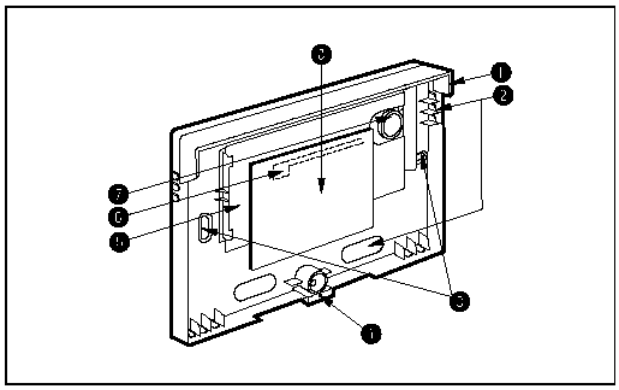

Fig. 2 : Product overview

1. Product description

The SiRoute™ E-Bus gateway W7EG20 can be connected to any Siemens control panel of the family Sintony. Up to 7 radio remote controls and up to 12 radio detectors/actuators can be linked to each W7EG20. Each radio detector/actuator replaces a transponder input. One W7EG20 can therefore replace (emulate) up to 3 transponders. The maximum number of radio peripherals depends on the model of the control panel.
The W7EG20 is connected to the E-Bus from the control panel. The addressing of the W7EG20 and its radio peripherals is done using the keypad of the control panel. The parameters for the SiRoute™ devices can be programmed using the keypad of the control panel or the configuration program Sylcom.

1.1 Radio peripherals

The W7EG20 supports all SiRoute™ compatible radio peripherals:
Radio devices (detectors/actuators):
- W7OP303 : SiRoute™ optical smoke detector
- W7IR90 : SiRoute™ PIR motion detector
- W7GB650 : SiRoute™ acoustic glassbreak detector
- W7MK100 : SiRoute™ door contact
- W7SR10 : SiRoute™ indoor siren
- W7SR15 : SiRoute™ outdoor siren
- W7IO22 : SiRoute™ input/output module 2/2

Radio remote controls:
- W7RC10 : SiRoute™ remote control

1.2 Supply package

The W7EG20 package contains the following:
- one W7EG20
- installation instructions

2. Mounting instructions

The W7EG20 and its peripherals are designed for mounting in dry indoor rooms. They should not be exposed to dripping or splashing water.

2.1 Opening housing (fig. 1)

1. Loosen the retaining screw (A).
2. Open and remove the cover (B).

2.2 Product overview (fig. 2)

- 1 Housing
- 2 Knockouts to receive the wiring
- 3 Mounting holes
- 4 Eye-hole for sealing
- 5 SMG51 circuit board
- 6 on-board integrated antenna
- 7 Back tamper knockout
- 8 Radio controller circuit board

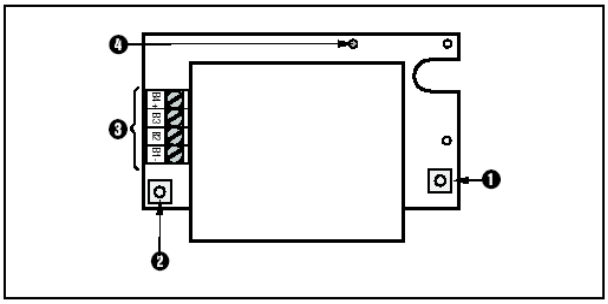

Fig. 3 : SMG51 circuit board

2.3 SMG51 circuit board (fig. 3)

- 1 Tamper contact of housing
- 2 Addressing button
- 3 E-Bus connection
- 4 LED for E-Bus display

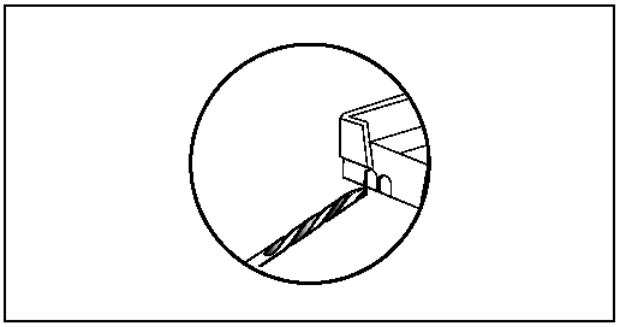
Fig. 4 : Fit W7EG20 housing

2.4 Fit W7EG20 housing (fig. 4)

1. Where applicable, pierce the precut sections to allow the wiring to pass through.
2. Insert the cable.
3. Secure the base using two screws.

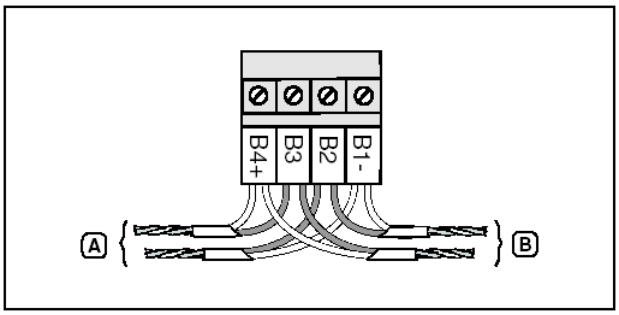

Fig. 5 : Wiring E-Bus

2.5 Wiring E-Bus (fig. 5)

The E-Bus (B4+,B3,B2,B1-) must be connected to the control panel (A) and also to other accessories (B).
For additional information refer to the control panel installation instructions.

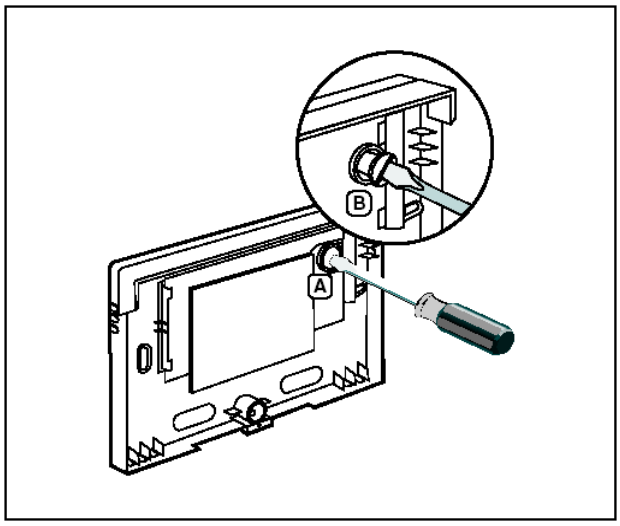

Fig. 6 : Back tamper protection

2.6 Back tamper protection (fig. 6)

1. Break out the knockout (A) with the help of a screwdriver.
2. Insert the back tamper screw. The head of the screw should take the place of the removed knockout (B).

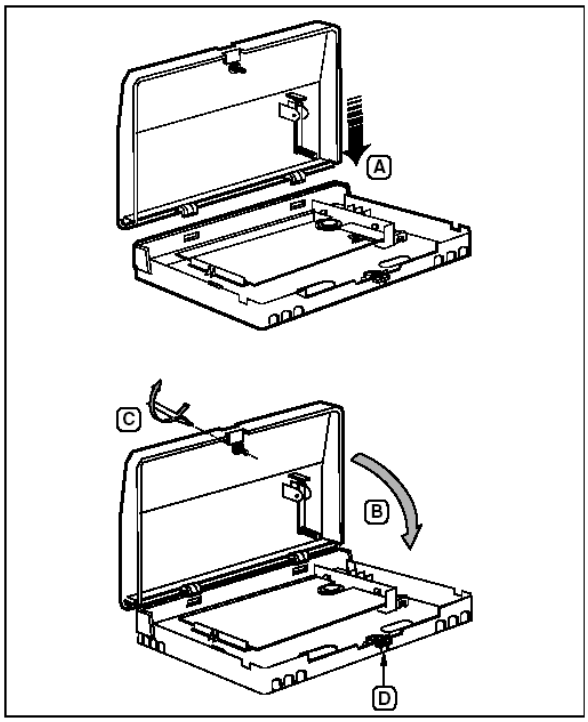

Fig. 7 : Close and seal the housing

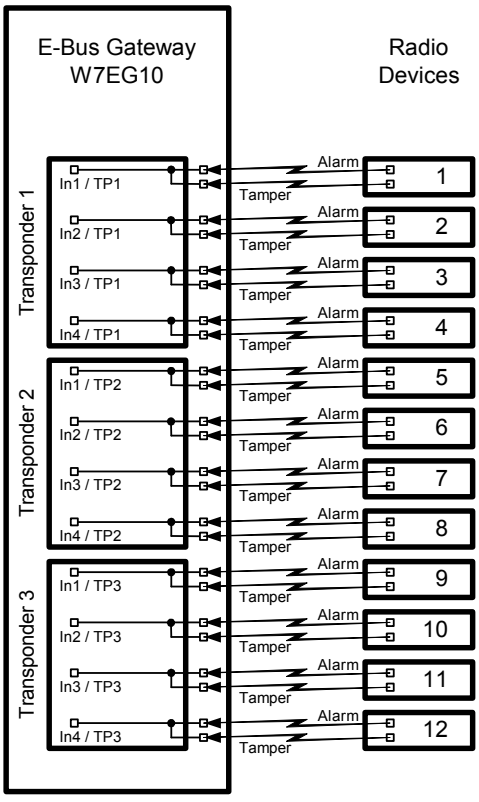

Figure 8: W7EG20 input mapping

2.7 Addressing the W7EG20

Before closing its housing the W7EG20 must be addressed using the addressing button on the SMG51 circuit board (see fig. 3). For the detailed planning and addressing procedure refer to the further sections in this document, especially section 5.2.

2.8 Close and seal the housing (fig. 7)

1. Engage the cover in the retainer at the top (A).
2. Close and screw down the cover (B).
3. Use the eye-hole (C) for 0.8 mm diameter sealing wire.

3. Input mapping (fig. 8)

3.1 Overview

One E-Bus gateway W7EG20 can replace up to 3 transponders. Each transponder has 4 inputs. As a result one W7EG20 has up to 12 radio inputs.
Each radio device (radio detector/actuator) has 2 logical inputs (alarm and tamper). Up to 12 radio devices can be linked to one W7EG20.
As a result one W7EG20 must be able to handle up to 24 logical radio inputs.
As a summary, one W7EG20 has 12 radio inputs (up to 3 transponders with each 4 inputs) but must be able to handle 24 logical radio inputs. Therefore a mapping is done between the inputs of the replaced transponders (max. 12 inputs total) and the inputs of the linked radio devices (max. 24 logical inputs total).
Each radio device transmits always the alarm status on its logical input 1 (In1) and the tamper status on its logical input 2 (In2).

3.2 Input/output module W7IO22

The input/output module 2/2 W7IO22 has 2 inputs. Due to compatibility reasons input 1 (In1) of the W7IO22 always activates the alarm condition of the mapped transponder input while input 2 (In2) of the W7IO22 always activates the tamper alarm of the same mapped input. As a result one physical input can be mapped in the Sintony using the W7IO22.

3.3 Inhibition time (sleep time)

The two first (1 and 2) radio devices (radio detectors/actuators) of a W7EG20 have no inhibition time on their logical input 1 (In1, the alarm input), i.e. the alarm is transmitted at any time, e.g. for door contacts. All other radio devices (3 to 12) have an inhibition time of 2min on their logical input 1 (In1), e.g for PIR motion detectors. This inhibition time is independant of the device type and independant of the system state (full set, part set, unset). The inhibition time is started every time after the radio device transmits an alarm. Until the timer of 2min expires only a single activation of logical input 1 (In1) will be transmitted to the control panel. All subsequent transitions are ignored.
Once the timer of 2min has expires the actual level at the input is queried, possibly leading to a further radio transmission to the control panel. Whenever a radio transmission occurs the current state of both logical inputs (In1 and In2) of the radio device is transmitted to the control panel.
All radio devices linked to the W7EG20 have no inhibition time on their logical input 2 (In2, the tamper alarm).

4. Output mapping (fig. 9)

4.1 Overview

One E-Bus gateway W7EG20 can replace up to 3 transponders. Each transponder has 2 outputs. As a result one W7EG20 has up to 6 radio outputs.
Each radio device (radio detector/actuator) has 2 logical outputs. Up to 12 radio devices can be linked to one W7EG20.

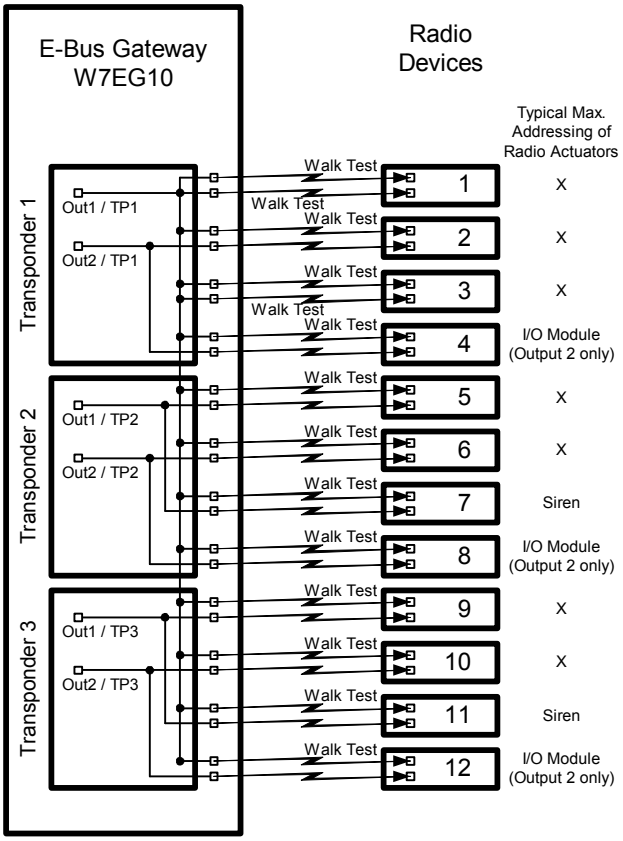

Figure 9: W7EG20 output mapping

As a summary, one W7EG20 has 6 radio outputs (up to 3 transponders with each 2 outputs) but must be able to handle 24 logical radio outputs. Therefore a mapping is done between the outputs of the replaced transponders (max. 6 outputs total) and the outputs of the linked radio devices (max. 24 outputs total).
The output 1 of the first replaced transponder is dedicated to the walk test function. In order to be able to use the walk test function this output must be programmed to “walk test” in the control panel. Due to compatibility reasons the W7EG20 activates the output 1 of all linked radio devices during the walk test (when used) even if some devices do not have a special walk test function. Because of the output mapping of the W7EG20 the output 2 of the radio devices number 1 and 3 are also activated during the walk test (when used).
The output 2 of the other radio devices can be activated by the outputs of the replaced transponders according to the output mapping (see fig. 9).

4.2 Output mapping and walk test

Output 1 of the first replaced transponder is dedicated to the walk test function. The SiRoute™ radio devices (radio detectors/actuators) supporting the walk test function (e.g. for LED enable) use their logical output 1 for this purpose. In order to be able to use the walk test function with each radio device linked to a W7EG20 output 1 of the first replaced transponder must be programmed to “walk test” in the control panel. For the same purpose output 1 of the first replaced transponder is mapped in the W7EG20to logical output 1 of each radio device (see fig. 9). Because of the output mapping of the W7EG20 output 1 of the first replaced transponder is also mapped to logical output 2 of the radio devices number 1 and 3.

***Important**: When using the walk test function make sure that all radio devices (radio detectors/actuators) connected to one W7EG20 belong to the same partition.*

4.3 Output mapping and radio actuators

The SiRoute™ radio devices (radio detectors/actuators) use their logical output 2 for an output function. The logical output 2 of the SiRoute™ radio devices can be activated by the outputs of the replaced transponders according to the output mapping (see fig. 9).
Typical radio actuators are sirens and input/output modules.

The W7EG20 supports the following SiRoute™ radio actuators:
- W7SR10 : SiRoute™ indoor siren
- W7SR15 : SiRoute™ outdoor siren
- W7IO22 : SiRoute™ input/output module 2/2

4.4 Planning restrictions for radio actuators

Because of the output mapping (see fig. 9) some restrictions have to be considered when enrolling (addressing) radio actuators:
- Output 1 of all input/output modules W7IO22 linked to a W7EG20 cannot be used if output 1 of the first transponder is used for the walk test purpose, because output 1 of each radio device (radio detector/actuator) is mapped to output 1 of the first replaced transponder.
- The SiRoute™ radio devices number 1 and 3 of each W7EG20 cannot be radio actuators because their logical output 2 is also mapped to output 1 of the first replaced transponder and therefore activated when the walk test runs (when used).
- Each output of a replaced transponder activates in parallel the logical output 2 of two radio devices (address 2 and 4, 5 and 7, 6 and 8, 9 and 11, 10 and 12). Therefore only one of these two addresses can be a radio actuator (siren or input/output module). Otherwise both radio actuators would be activated together.

Because of these restrictions only 5 radio actuators can be used per W7EG20. Figure 9 shows a typical addressing of radio actuators with 3 input/output modules and 2 sirens. The radio devices marked with X cannot be radio actuators. Note that this is only an example out of many possible combinations.
Additionally to these restrictions it is recommended to program radio outputs linked to a W7EG20 only to toggle triggering mode, not to pulse mode (below 10 seconds).

4.5 Remote sensitivity setting

Some radio detectors support remote sensitivity setting using their logical output 2 if a jumper in the detector element is set accordingly. Refer to the installation manual of the radio detectors for details. This function is not supported in the Sintony control panels.

5. Installing SiRoute™ on Sintony control panels the safe & easy way

SiRoute™ is the first wireless security system, which automatically configures itself to form a wireless network.
The EasyRouting technology allows every SiRoute™ radio device, which cannot communicate directly with the E-Bus gateway W7EG20 to send and receive messages through other SiRoute™ radio devices acting as routers. The communication routes are established during the installation process. If an established communication link between a radio device and the W7EG20 breaks down, the system automatically rebuilds the communication link, sending messages via another radio device and building a new route.
These instructions describe the procedures specific to SiRoute™. They do not cover security aspects of the installation or specific aspects of the Sintony control panels.
In this section the procedure for the initial installation is described and explained.

5.1 Step 1: System planning / installation of the mounting bases

A. Determine the number of radio devices (radio detectors/actuators) required to secure the premises and their location. As a W7EG20 handles up to 12 radio devices determine also the number of W7EG20 required.

B. Define the distribution of the radio devices between the E-Bus gateways W7EG20 and their location in each W7EG20. Take into account the input and output mapping in the W7EG20 and the corresponding restrictions e.g. concerning the inhibition time or the radio actuators (refer to sections 3 and 4). When this is defined mark each W7EG20 and each radio device accordingly with a number (e.g. system input number).

C. Make sure that each SiRoute™ radio device (radio detector/actuator) is within range of at least another one.

Note: *As a rule of thumb, you can always pass through 2 'normal' walls or one steel reinforced floor or wall.*
Most of the time you will have much better range but applying this rule guarantees best possible performance.
The more SiRoute™ radio devices are within range of each other, the more routing options are available for each SiRoute™ radio device.

D. Apply a mounting base at each chosen location. Use the corner mounting bracket (W7UM20) when needed (typ. For PIR motion detector W7IR90).

Note: *When applying the mounting base to an uneven surface be careful not to bend the mounting base e.g. by tightening the screws too much. When the mounting base is distorted or bend you cannot apply the SiRoute™ radio device to its base.*

5.2 Step 2: Positioning and addressing the W7EG20

A. Because of its small size and the E-Bus connection, the E-Bus gateway W7EG20 can be installed in almost any location within the premises.

Note: *The best SiRoute™ network performance can be expected when the W7EG20 talks directly with as many SiRoute™ radio devices as possible. Also, in order to make the enrollment as easy as possible, a Sintony keypad should be within range of the W7EG20.*

B. When the W7EG20 is installed and wired and the Sintony control panel is powered up, the W7EG20 addressing follows the standard Sintony procedure:

1. Choose "addressing radio gateway" in the engineering menu of the Sintony.

2. Select the desired address.

3. Enter the number of replaced transponders and the number of the first replaced transponder.
The W7EG20 handles up to 12 SiRoute™ *radio devices (radio detectors/actuators)* and maps up to 3 transponders.

Note: *When using a W7EG20 with Sintony control panels SI210/220/320/420 make sure the transponder mapping respects the transponder group boundaries.*

E.g. starting mapping with transponder 6 and 3 transponders is o.k. Transponders 6, 7 & 8 will be mapped.
Starting mapping with transponder 7 and 3 transponders is not o.k. Transponders 7, 8 & 9 will be mapped. As 8 transponders form a group, 9 will exceed the limit of transponder group 1.

The transponders are distributed on groups of 8 transponders:

Group no.	Transponder no.
1	1 to 8
2	9 to 16
3	17 to 24
4	25 to 32

The replaced transponders must belong to the same group of transponders.

Therefore the following combinations are ***not permitted****:*

Number of replaced transponders	First replaced transponder
3	7
2 or 3	8
3	15
2 or 3	16
3	23
2 or 3	24
3	31
2 or 3	32

4. When the Sintony control panel is waiting for the W7EG20 press the addressing button on the SMG51 circuit board (see fig.3) and keep it pressed few seconds until the LED for the E-Bus on the SMG51 board flashes again.

5.3 Step 3: Enrolling SiRoute™ radio devices

The procedure below describes the fastest way to enroll (address) SiRoute™ radio devices (radio detectors/actuators) in Sintony control panels. Enrollment is carried out before installing the devices on the bases. It will be most convenient to have all the radio modules and their peripherals on a table close to a Sintony keypad.

Important: *At any time during this procedure there should be only one W7EG20 and one SiRoute™ radio device powered up at the same time.*

A. The enrollment process is monitored & controlled via a Sintony keypad. Therefore have all SiRoute™ radio modules and peripherals within range of the Sintony keypad you use for enrolling.

B. Enter the Sintony programming mode and choose “addressing all” radio devices.

C. Take a SiRoute™ radio module (W7BT10 / W7BT11) and power it up by removing the paper from the battery.

D. Plug the peripheral you need for SiRoute™ radio device 1 into the radio module. For the outdoor siren press the housing tamper switch. This will start the enrollment.

Notes: *The radio module has an address, which consist of a 6 digits number that represents the gateway ID and a radio device number, which is between 1 and 12. By default, the SiRoute™ radio device address is 000000 00.*
As soon as the peripheral is plugged in, the radio module will start to transmit this address. The W7EG20 sends its 6 digit number and the radio device number to be programmed e.g. 123456 01 back to the radio module as soon as it receives a 000000 00 address.
The SiRoute™ radio device stores the address it received from the W7EG20 in the non-volatile memory of its radio module. When this is done, an acknowledge signal is sent to the W7EG20. Sintony control panel then will advance to the next radio device’s address.

E. Wait (typ. 20s) until the LCD display indicates that the enrollment is finished and Sintony control panel is ready for the next radio device, remove one battery from the SiRoute™ radio device you just finished enrolling and put the device aside.

F. Take the next SiRoute™ radio module and repeat as above until all radio devices are enrolled.

5.4 Step 4: Installing radio devices on the mounting bases

This is the last step of the installation/enrollment process. All SiRoute™ radio devices (radio detectors/actuators) are now brought one after the other to their mounting bases, powered up and attached to the mounting base.
The radio devices located “closest to the W7EG20” must be powered up and attached to its mounting base first. Next, the second “closest to the W7EG20” radio device is powered up and attached to the mounting base, then the third closest radio device and so on.

Notes: *This order of powering on and mounting of SiRoute™ radio devices allows the network to build itself in the shortest possible time.*
During the enrollment process, all radio devices had a direct route to the W7EG20. As only one W7EG20 and one radio device were powered up at the same time, no network was built up and all radio devices now assume that they have a direct link to the W7EG20. Starting with the radio device closest to the W7EG20 will guarantee that there is always a routing option available for any subsequent radio devices which are further away and may be unable to communicate directly with the W7EG20 once they are attached to their mounting bases.
If the radio devices, which cannot reach the W7EG20 directly, were installed first they would spend a lot of time trying to reach the W7EG20 without reaching it, as there are no routing opportunities.

6. Enrolling SiRoute™ remote controls

Enrolling SiRoute™ remote controls is very simple. The remote controls only need to be enrolled in Sintony control panel following the standard Sintony addressing procedure. The rights can be set as usual.
As for the other radio peripherals there should be only one E-Bus gateway W7EG20 powered up at the same time during the enrollment process.

A. The enrollment process is monitored & controlled via a Sintony keypad.

B. Enter the Sintony programming mode and choose “addressing all” radio remote controls.

C. Press the “**PANIC**” button (bell symbol) on the first remote control. This will start the enrollment.

D. Wait (typ. 20s.) until the LCD display indicates that the enrollment is finished and Sintony control panel is ready for the next remote control.

E. Take the next SiRoute™ radio remote control and repeat as above until all remote controls are enrolled.

7. Two or more W7EG20

This section describes the special aspects of planning and installing a Sintony system with two or more E-Bus gateways W7EG20.

Important: *The EasyRouting mechanism works only among radio devices with the same gateway ID. Therefore radio devices belonging to W7EG20 No. 1 do not route radio devices enrolled with W7EG20 No. 2. Messages from other SiRoute™ networks e.g. the one built around W7EG20 No. 2 are ignored.*

7.1 Step 1: Planning with two or more W7EG20

Take the SiRoute™ radio devices (radio detectors/actuators) of all W7EG20 into account when planning the security system. Choose the location for the gateways as previously described (see 5.1).

Note: *Any keypad can be used for the enrollment of SiRoute™ radio devices into a W7EG20. Just choose the keypad closest to the W7EG20 you want to enroll radio devices and re-enter the engineering mode.*

If you plan to keep all W7EG20 in one area, make sure they are at least **5 meters (16 feet)** apart from each other. Pay special attention to the allocation of W7EG20 addresses to radio devices in the scenario described below.

Note: *The following example explains the allocation rules. In a 3-floor building, all gateways are located on the first (ground) floor. On each of the three floors, we want to install 11 SiRoute™ smoke detectors and a SiRoute™ indoor siren. Allocating all radio devices on a particular floor to a single gateway (e.g. all radio devices on the ground floor to gateway 1, all on the second floor to gateway 2, all on the third floor to gateway 3) may create problems for devices on the third floor, which are furthest away from the gateways. Some or all of them might not be able to reach their gateway 3, as the radio devices on the second floor will not route for radio devices of gateway 3. Therefore you should make sure that there are radio devices of all gateways on each floor in order to provide routing options for all gateways throughout the building.*

7.2 Step 2: Addressing two or more W7EG20

Install all W7EG20 at their desired locations and assign their addresses within the Sintony system in the normal way. When all W7EG20 have their address and all transponders are allocated, power down all W7EG20 except the one you want to enroll radio devices first.

7.3 Step 3: Enrolling SiRoute™ radio devices with two or more W7EG20

Follow the procedure as previously described (see 5.3).

Note: *Remember: at this step there is only one W7EG20 and one radio device active at the same time.*

When finished with the first W7EG20 and its radio devices, power down the W7EG20. Power up the second W7EG20 and enroll its radio devices. Repeat this procedure for all W7EG20.

7.4 Step 4: Installing radio devices on the mounting bases with two or more W7EG20

Power up the first W7EG20 and follow the procedure as previously described (see 5.4). Repeat the above procedure with all W7EG20.

8. Modifying a SiRoute™ network

This section discusses the procedures used when expanding a system, changing radio devices (radio detectors/actuators) and reusing radio devices in other E-Bus gateways W7EG20.

8.1 Adding SiRoute™ radio devices

As in the basic installation, choose the location for the radio devices (radio detectors/actuators) and install the mounting base.

Note: *Make sure that at least one radio device of the W7EG20 you want to enroll is within range of the new radio device when choosing the location.*

Choose “addressing radio devices” on the Sintony keypad. Select the desired address and proceed until Sintony control panel is waiting for the radio device. Go with the radio module and the required peripheral to the mounting location, apply power to the radio module, ‘plug in’ the peripheral and slide on the mounting base. The keypad will indicate when the radio device is enrolled in the system.
Repeat the process for all radio devices you want to add to the system.

8.2 Removing SiRoute™ radio devices

Removing a SiRoute™ radio device (radio detector/actuator) is done in 2 steps:

A. Power down the radio device you want to remove.

B. Use the Sintony keypad to remove the SiRoute™ radio device the same way as other devices are removed from the Sintony system.

Note: *As soon as a SiRoute™ radio device is deleted in a Sintony system, the W7EG20 will not communicate with it anymore. If it is not powered down, the radio device will nevertheless continue its attempts to reach the controller by routing through other radio devices thus keeping the network busy with unnecessary traffic.*

8.3 Removing a W7EG20

When you remove a W7EG20 from the Sintony system also power down all SiRoute™ radio devices (radio detectors/actuators) programmed to be part of this network.

8.4 Replacing a W7EG20

The W7EG20 contains all information about the network and has its unique gateway ID. If you replace the W7EG20, you must reset all SiRoute™ radio devices (radio detectors/actuators) and re-enroll all of them into the new W7EG20.

8.5 Resetting SiRoute™ radio devices

If a SiRoute™ radio device (radio detector/actuator) is to be reused with another W7EG20 or in another system, you must reset the radio module according to the reset instructions in the manual. It is good practice to reset a radio module as soon as its peripheral is removed.

Note: *During the reset process, the existing gateway ID and the radio device number are overwritten with 0’s. Only then is it possible to enroll the radio device in a new system.*

9. Compatibility list

The E-Bus gateway W7EG20 is compatible with all Siemens Sintony control panels. However depending on the control panel type and its software version the behaviour of the W7EG20 is slightly different.

Note: *Below you will find a complete list of all known compatibility issues between Sintony and the SiRoute™ system. Not all Sintony control panel types and versions are available in each country.*

9.1 Control panels Sintony SI 110/150/210

1. All SI 110/150/210 versions
The radio configuration contained in an addressed W7EG20 is not restored when pressing the “CONF” button (> 2 seconds) on the main board of the Sintony control panel. The addressing of the W7EG20 and all radio peripherals (detectors/actuators and remote controls) has to be done again if the control panel is replaced or the addressing lost for some reasons.

2. SI 110/150/210 versions <E8
The radio configuration (detectors/actuators and remote controls) contained in a W7EG20 is not always deleted properly during the addressing procedure of the W7EG20.

9.2 Control panels Sintony SI 120/220/320

1. SI 120/220/320 versions <A2-08
Transponders 9 and 10 cannot be emulated with a W7EG20.

2. SI 120/220/320 versions <A3-00
The radio configuration contained in an addressed W7EG20 is not restored when pressing the “CONF” button (> 2 seconds) on the main board of the Sintony control panel. The addressing of the W7EG20 and all radio peripherals (detectors/actuators and remote controls) has to be done again if the control panel is replaced or the addressing lost for some reasons.

3. SI 120/220/320 versions <A3-00
The radio configuration (detectors/actuators and remote controls) contained in a W7EG20 is not always deleted properly during the addressing procedure of the W7EG20.

4. SI 120/220/320 versions <A3-09
When the radio supervision is used the supervision alarms for radio detectors/actuators 9 to 12 creates an entry in the logbook each seconds during the supervision alarm time instead of a single entry at the beginning of the supervision alarm.

5. SI 120/220/320 versions <A3-09
The radio configuration (detectors/actuators and remote controls) contained in an addressed W7EG20 is not restored when pressing the “CONF” button (> 2 seconds) on the main board of the Sintony control panel if the W7EG20 emulates the transponder address 1 (1, 1+2, 1+2+3).

6. SI 120/220/320 versions <A3-11

The radio peripherals (detectors/actuators and remote controls) are not recognised by the Sintony control panel after a download with the configuration program Sylcom. This can be avoided by doing an upload first.

7. SI 120/220/320 versions <A3-12
The remote controls are not executed when at least one radio detector/actuator is in low battery condition. This can be avoided by addressing the W7EG20 in such a way that it emulates the transponders 9 or 10.

9.3 Control panels series SI 410/420

1. SI 410/420 versions <E1-14
The radio configuration (detectors/actuators and remote controls) contained in a W7EG20 is not always deleted properly during the addressing procedure of the W7EG20.

2. SI 410/420 versions <F0-04
The radio configuration contained in an addressed W7EG20 is not restored when pressing the “CONF” button (> 2 seconds) on the main board of the Sintony control panel. The addressing of all W7EG20 and all radio peripherals (detectors/actuators and remote controls) has to be done again if the control panel is replaced or the addressing lost for some reasons.

3. SI 410/420 versions <F4-02
The sequential addressing (auto-increment) procedure is not recommended for these versions. The end of the addressing mode is not sent to the W7EG20 when the addressing procedure of the radio peripherals (detectors/actuators or remote controls) is aborted. The last radio peripheral can only be addressed individually.

10. Technical data

Radio frequency	913,875 MHz
Supply	from the E-Bus
Consumption	10 mA
Operating temperature	- 10 °C to + 55 °C
Housing	ABS
Dimensions (mm)	H 86 x L 135 x D 27
Safety class	IP 30
Weight	260 g