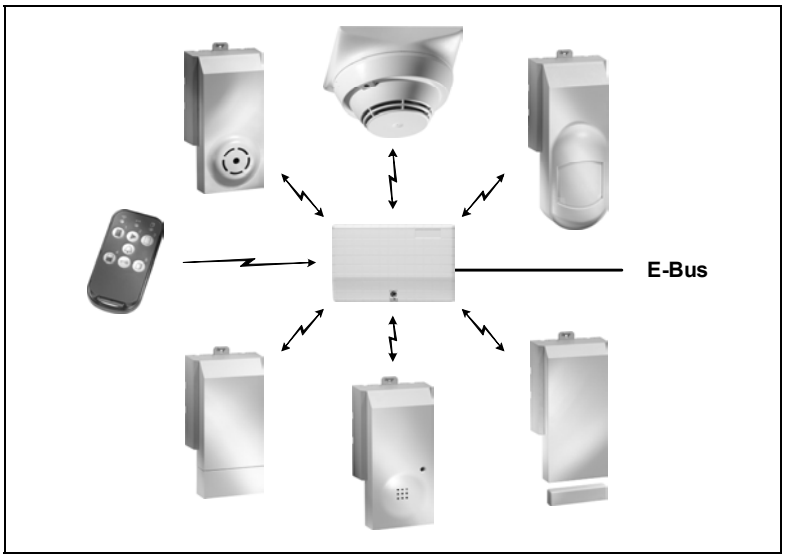
Technical Description

SIEMENS



SiRoute™

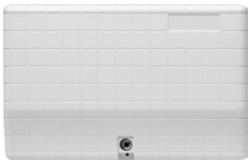
Wireless Infrastructure for Alarm Systems

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



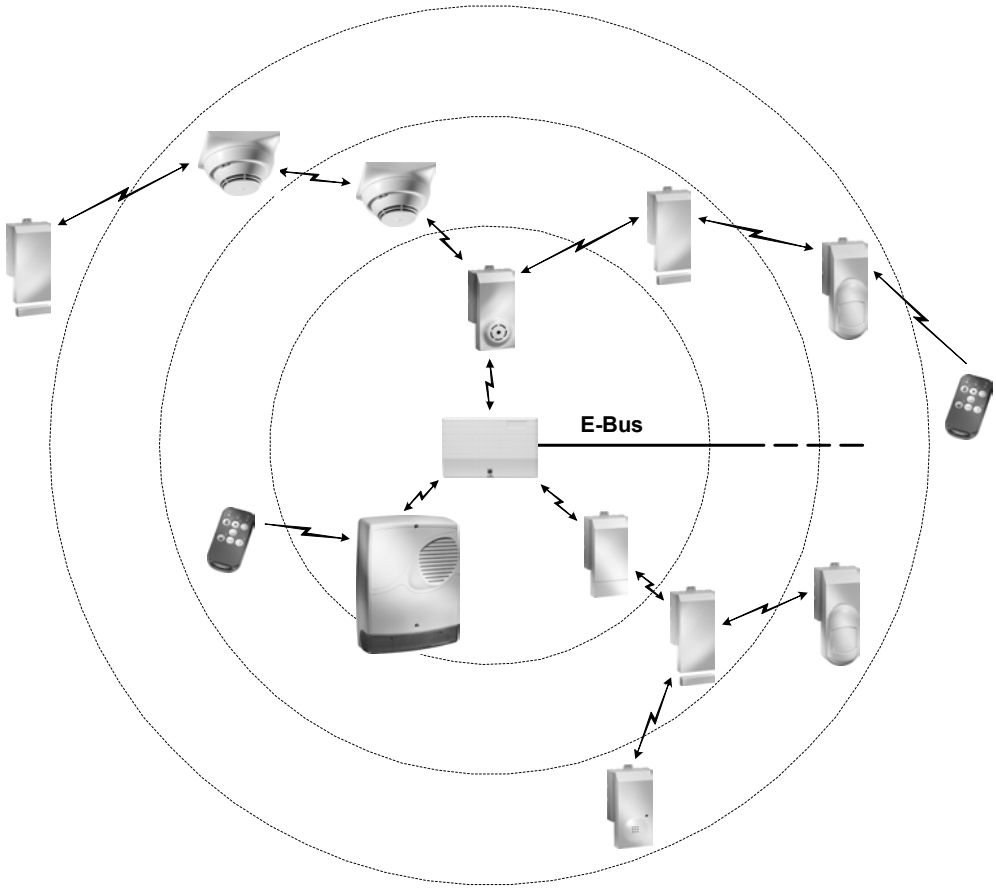
E-Gateway
(E-Bus radio gateway for SI series control panels)

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)

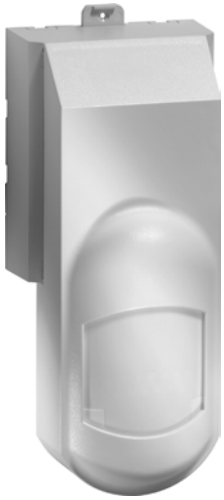
Universal
mounting base

- **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.

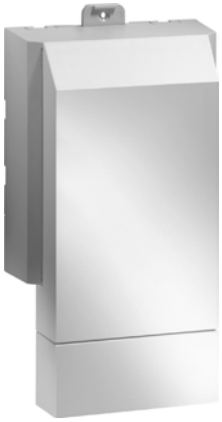
- **Very good reliability**

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

Siemens Building Technologies AG
Alte Landstr. 411
CH-8708 Männedorf
Tel. +41 1 - 922 6111
Fax +41 1 - 922 6450
www.sibt.com

Document no. **prelim.**
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