



Radio Bus Systems Ratio[®]

Product Catalogue 2007



System Description

Ratio® Radio Bus System for the cable-free connection of locally fitted radio senders and radio receivers for the operation, control and regulation of lightning, shading, heating, air-conditioning, security, etc. in apartments, houses, commercial and functional buildings, both at alteration and new buildings.

The Ratio® Radio Bus System consists of locally fitted battery-free and wireless radio sensors and radio receivers.

The radio sensors receive information and send them as telegram to the radio receivers by wireless transmission. Radio sensors are for example sensing devices, temperature feelers or switch interfaces for connecting conventional switches.

Radio receivers (also called radio actors) decode the telegrams and convert them to switching and dimming signals. The switch actuator single or the blind actuator for example belong to the radio receiver category.

Sensors generate their own energy: either by pressure on a switch (piezotechnology) or by solar technology that converts room light into energy by means of a solar cell.

The sensors therefore are **not battery-operated** and do not require **connecting cables**.

The radio are connected to the electric net and switch the consuming devices as lamps, sockets, garage doors etc. It is simple to teach in up to 30 actors, sensors, window sensors or movement sensors and parametrise additional options. The actors analyse the received radio telegrams and fulfill the the corresponding switching operation.

Compatibility

The Ratio® Radio Bus System is an open field bus system based on the EnOcean Technology. This allows the integration of Ratio®Radio Bus systems into foreign systems without any problems as EIB, LON and Ethernet (by means of standard protocols).

Operation field

As single systems in apartments, houses, commercial and functional buildings, as well as partial systems coupled via system coupler into foreign systems such as EIB, LON

Advantages

- ✓ Simple planning
- ✓ Planning in modules, Planung in Modulen, pre-assembly at works possible
- ✓ Quick and RATIO® installation
- ✓ High flexibility (modifications even possible during construction phase)
- ✓ Automation functions
- ✓ Optimisation of costs
- ✓ Less electromagnetic pollution than conventional installation
- ✓ And much more...

Sensors

Data Sheet
RATIO®-Radio bus-system
Wall-transmitter 2-channel WS-CH-101



Example: Wall transmitter WS-CH-101-rw including masking frame Edizio Due by Feller AG. Delivery without frame.

The Ratio® wall transmitter WS-CH-101 is a wireless and battery-free universal transmitter inset with one rocker centrally positioned and suitable for various switch programs of various leading manufacturers. Due to its extremely flat design, the Ratio® radio transmitter is suitable for mounting on walls or even on glass.

With the special mounting plate, the transmitter can also be combined with conventional devices, such as e.g. power sockets.

Suitable switch programs are:

- Feller AG
- ABB
- Hager

Edizio, Edizio Due
 Levy Sidus
 Kalisto

Technical Data	Radio-transmitter 2-channel WS-CH-101	Remarks
Operating data	Energy generation by means of electro-dynamic energy generator (induction principle), wireless and battery-free.	
Radio technology	Minutes EnOcean, Modulation EIRP / ASK	transmitting capacity max. 10mW Telegramtyp RPS type 2
Channels	2, with two positions each	
Radio end module	PTM200	
Actuating force/operation stroke	1,8mm / ca. 7N by 25°C	
Switching cycles	50'000 manipulation according to EN60669/VDE 0632	
Range	Interior 30 to 100m, exterior up to 300m	
Dimensions	Rocker 50mm x 50mm, Base plate 71mm x 71mm	Inset fram 57mm x 57mm
Mechanical data	Casing: plastic ABS,	Weight: 40g
Mounting / Assembly	Finery on a flat underground	Adhesion or screws
Environmental conditions	Room temperature when in operation - Storage temperature Rel. humidity (non-condensing)	25°C ... +65°C -40°C ... +85°C 0 ... 95%
Approbation	TUV, R&TTE guidelines 1999/5/EC and conforming to EU regulations. ROHS conforming according to 2002/95/EC.	

Telegram							
Byte	Symbol	Significance	Value	Byte	Symbol	Meaning	Worth
0	SYNC1	Synchronization	5Ah	1	SYNC2	Synchronization	A5h
2	HEADER		xxh	3	ORG	Type of transmitter	05h
4	DATA3	Pair of keys A Key Off Pair of keys A Key On Pair of keys B Key Off Pair of keys B Key On Pair of keys A&B Key Off Pair of keys A&B Key On	30h 10h 70h 50h 37h 15h	5	DATA2	always 0	00h
6	DATA1	always 0	00h	7	DATA0	always 0	00h
8	ID3	ID-Number part 1	xxh	9	ID2	ID-Number part 2	xxh
10	ID1	ID-Number part 3	xxh	11	ID0	ID-Number part 4	xxh
12	STATUS	Status byte	xxh	13	CHK	Check sum	xxh

Designation	Designation additive	Typ	Article number
Wall-transmitter 2 channel with one rocker	Color clean-white	WS-CH-101-rw	1151153
	Color anthracite	WS-CH-101-a	1151150
	Color aluminum varnished	WS-CH-101-sb	1151200
	Color clean-white light	WS-CH-101-L-rw	1156153
	Color anthracite light	WS-CH-101-L-a	1156150
	Color aluminium varnished light	WS-CH-101-L-sb	1156200
	Color clean-white shade	WS-CH-101-J-rw	1157153
	Color anthracite shade	WS-CH-101-J-a	1157150
	Color aluminium varnished shade	WS-CH-101-J-sb	1157200

Data sheet
RATIO®-radio bus system
Wall transmitter 4-channel WS-CH-102



Example: Wall transmitter light WS-CH-102-L-rw including masking frame Edizio Due by Feller AG. Delivery without frame.

The Ratio® wall transmitter WS-CH-102 is a wireless and battery-free universal transmitter inset with two rockers centrally positioned and suitable for various switch programs of various leading manufacturers. Due to its extremely flat design, the Ratio® radio transmitter is suitable for mounting on walls or even on glass.

With the special mounting plate, the transmitter can also be combined with conventional devices, such as e.g. power sockets.

Suitable switch programs are:

- Feller AG
- ABB
- Hager

Edizio, Edizio Due
 Levy Sidus
 Kalisto

Technical Data	Radio-transmitter 4-channel WS-CH-102	Remarks
Operating data	Energy generation by means of electro-dynamic energy generator (induction principle), wireless and battery-free.	
Radio technology	Minutes EnOcean, Modulation EIRP / ASK	transmitting capacity max. 10mW Telegramtyp RPS type 2
Channels	4, with two positions each	
Radio end module	PTM200	
Actuating force/operation stroke	1,8mm / ca. 7N by 25°C	
Switching cycles	50'000 manipulation according to EN60669/VDE 0632	
Range	Interior 30 to 100m, exterior up to 300m	
Dimensions	Rocker 50mm x 50mm, Base plate 71mm x 71mm	Inset fram 57mm x 57mm
Mechanical data	Casing: plastic ABS,	Weight: 40g
Mounting / Assembly	Finery on a flat underground	Adhesion or screws
Environmental conditions	Room temperature when in operation - Storage temperature Rel. humidity (non-condensing)	25°C ... +65°C -40°C ... +85°C 0 ... 95%
Approbation	TUV, R&TTE guidelines 1999/5/EC and conforming to EU regulations. ROHS conforming according to 2002/95/EC.	

Telegram							
Byte	Symbol	Significance	Value	Byte	Symbol	Meaning	Value
0	SYNC1	Synchronization	5Ah	1	SYNC2	Synchronization	A5h
2	HEADER		xxh	3	ORG	Type of transmitter	05h
4	DATA3	Pair of keys A Key Off Pair of keys A Key On Pair of keys B Key Off Pair of keys B Key On Pair of keys A&B Key Off Pair of keys A&B Key On	30h 10h 70h 50h 37h 15h	5	DATA2	always 0	00h
6	DATA1	always 0	00h	7	DATA0	always 0	00h
8	ID3	ID-Number part 1	xxh	9	ID2	ID-Number part 2	xxh
10	ID1	ID-Number part 3	xxh	11	ID0	ID-Number part 4	xxh
12	STATUS	Status byte	xxh	13	CHK	Check sum	xxh

Designation	Designation additive	Typ	Article number
Radio-transmitter 4-channel with two rockers	Color clean-white	WS-CH-102-rw	1251153
	Color anthracite	WS-CH-102-a	1251150
	Color aluminum varnished	WS-CH-102-sb	1251200
	Color clean-white light	WS-CH-102-L-rw	1255153
	Color anthracite light	WS-CH-102-L-a	1255150
	Color aluminium varnished light	WS-CH-102-L-sb	1255200
	Color clean-white shade	WS-CH-102-J-rw	1256153
	Color anthracite shade	WS-CH-102-J-a	1256150
	Color aluminium varnished shade	WS-CH-102-J-sb	1256200

Data sheet
RATIO®-radio bus system
Wall transmitter 2-channel WS-D-101



Example: Wall transmitter
 shaver WS-D-101-J-rw
 including masking frame
 from Gira. Delivery without
 frame.

The Ratio® wall transmitter WS-D-101 is a wireless and battery-free universal transmitter inset with one rocker centrally positioned and suitable for various switch programs of various leading manufacturers. Due to its extremely flat design, the Ratio® radio transmitter is suitable for mounting on walls or even on glass.

With the special mounting plate, the transmitter can also be combined with conventional devices, such as e.g. power sockets.

Suitable switch programs are:

- Berker
 - Jung
 - Gira
 - Merten
- S1, B1, B3, B7 Glas
 A500, Aplus
 Standard55, E2, Event, Esprit
 M-Smart, M-Arc, M-Plan

Technical Data	Radio-transmitter 2-channel WS-D-101	Remarks
Operating data	Energy generation by means of electro-dynamic energy generator (induction principle), wireless and battery-free.	
Radio technology	Minutes EnOcean, Modulation EIRP / ASK	transmitting capacity max. 10mW Telegramtyp RPS type 2
Channels	2, with two positions each	
Radio end module	PTM200	
Actuating force/operation stroke	1,8mm / ca. 7N by 25°C	
Switching cycles	50'000 manipulation according to EN60669/VDE 0632	
Range	Interior 30 to 100m, exterior up to 300m	
Dimensions	Rocker 50mm x 50mm, Base plate 71mm x 71mm	Inset fram 57mm x 57mm
Mechanical data	Casing: plastic ABS,	Weight: 40g
Mounting / Assembly	Finery on a flat underground	Adhesion or screws
Environmental conditions	Room temperature when in operation - Storage temperature Rel. humidity (non-condensing)	25°C ... +65°C -40°C ... +85°C 0 ... 95%
Approbation	TUV, R&TTE guidelines 1999/5/EC and conforming to EU regulations. ROHS conforming according to 2002/95/EC.	

Telegram							
Byte	Symbol	Significance	Value	Byte	Symbol	Meaning	Value
0	SYNC1	Synchronization	5Ah	1	SYNC2	Synchronization	A5h
2	HEADER		xxh	3	ORG	Type of transmitter	05h
4	DATA3	Pair of keys A Key Off Pair of keys A Key On Pair of keys B Key Off Pair of keys B Key On Pair of keys A&B Key Off Pair of keys A&B Key On	30h 10h 70h 50h 37h 15h	5	DATA2	always 0	00h
6	DATA1	always 0	00h	7	DATA0	always 0	00h
8	ID3	ID-Number part 1	xxh	9	ID2	ID-Number part 2	xxh
10	ID1	ID-Number part 3	xxh	11	ID0	ID-Number part 4	xxh
12	STATUS	Status byte	xxh	13	CHK	Check sum	xxh

Designation	Designation additive	Typ	Article number
Wall transmitter 2-channel with one rocker	Color clean-white	WS-D-101-rw	1171153
	Color anthracite	WS-D-101-a	1171150
	Color aluminium varnished	WS-D-101-sb	1171200
	Color clean-white light	WS-D-101-L-rw	1174153
	Color anthracite light	WS-D-101-L-a	1174150
	Color aluminium varnished light	WS-D-101-L-sb	1174200
	Color clean-white shade	WS-D-101-J-rw	1175153
	Color anthracite shade	WS-D-101-J-a	1175150
	Color aluminium varnished shade	WS-D-101-J-sb	1175200

Data sheet
RATIO®-radio bus system
Wall transmitter 4-channel WS-D-102



Example: Wall transmitter light WS-D-102-L-rw including masking frame by Gira. Delivery without frame.

The Ratio® wall transmitter 4-channel WS-D-102 is a wireless and battery-free universal transmitter inset with two rockers centrally positioned and suitable for various switch programs of various leading manufacturers. Due to its extremely flat design, the Ratio® radio transmitter is suitable for mounting on walls or even on glass.

With the special mounting plate, the transmitter can also be combined with conventional devices, such as e.g. power sockets.

Suitable switch programs are::

- Berker
 - Jung
 - Gira
 - Merten
- S1, B1, B3, B7 Glas
A500, Aplus
Standard55, E2, Event, Esprit
M-Smart, M-Arc, M-Plan

Technical Data	Radio-transmitter 4-channel WS-D-102	Remarks
Operating data	Energy generation by means of electro-dynamic energy generator (induction principle), wireless and battery-free.	
Radio technology	Minutes EnOcean, Modulation EIRP / ASK	transmitting capacity max. 10mW Telegramtyp RPS type 2
Channels	4, with two positions each	
Radio end module	PTM200	
Actuating force/operation stroke	1,8mm / ca. 7N by 25°C	
Switching cycles	50'000 manipulation according to EN60669/VDE 0632	
Range	Interior 30 to 100m, exterior up to 300m	
Dimensions	Rocker 50mm x 50mm, Base plate 71mm x 71mm	Inset fram 57mm x 57mm
Mechanical data	Casing: plastic ABS,	Weight: 40g
Mounting / Assembly	Finery on a flat underground	Adhesion or screws
Environmental conditions	Room temperature when in operation - Storage temperature Rel. humidity (non-condensing)	25°C ... +65°C -40°C ... +85°C 0 ... 95%
Approbation	TUV, R&TTE guidelines 1999/5/EC and conforming to EU regulations. ROHS conforming according to 2002/95/EC.	

Telegram							
Byte	Symbol	Significance	Value	Byte	Symbol	Meaning	Value
0	SYNC1	Synchronization	5Ah	1	SYNC2	Synchronization	A5h
2	HEADER		xxh	3	ORG	Type of transmitter	05h
4	DATA3	Pair of keys A Key Off Pair of keys A Key On Pair of keys B Key Off Pair of keys B Key On Pair of keys A&B Key Off Pair of keys A&B Key On	30h 10h 70h 50h 37h 15h	5	DATA2	always 0	00h
6	DATA1	always 0	00h	7	DATA0	always 0	00h
8	ID3	ID-Number part 1	xxh	9	ID2	ID-Number part 2	xxh
10	ID1	ID-Number part 3	xxh	11	ID0	ID-Number part 4	xxh
12	STATUS	Status byte	xxh	13	CHK	Check sum	xxh

Designation	Designation additive	Typ	Article number
Wall transmitter 4-channel with two rockers	Color clean-white	WS-D-102-rw	1271153
	Color anthracite	WS-D-102-a	1271150
	Color aluminium varnished	WS-D-102-sb	1271200
	Color clean-white light	WS-D-102-L-rw	1273153
	Color anthracite light	WS-D-102-L-a	1273150
	Color aluminium varnished light	WS-D-102-L-sb	1273200
	Color clean-white shade	WS-D-102-J-rw	1274153
	Color anthracite shade	WS-D-102-J-a	1274150
	Color aluminium varnished shade	WS-D-102-J-sb	1274200

Data sheet
RATIO®-radio bus-system
Hand-transmitter 4-channel R101



The Ratio®-hand-transmitter 4-channel R101 is a wireless, battery-free and maintenance-free radio switch with four independent single keys. Due to its extremely ergonomic design it lies perfectly in the hand and can also be installed at the wall.

Technical Data	Hand-transmitter 4-channel R101	Remarks
Operating data	Energy generation by means of electro-dynamic energy generator (induction principle), wireless and battery-free.	
Radio technology	Minutes EnOcean, Modulation EIRP / ASK	transmitting capacity max. 10mW Telegramtyp RPS type 2
Channels	4, with two positions each	
Radio end module	PTM200	
Actuating force/operation stroke	1,8mm / ca. 7N by 25°C	
Switching cycles	50'000 manipulation according to EN60669/VDE 0632	
Range	Interior 30 to 100m, exterior up to 300m	
Dimensions	Casing: BxHxT 48mmx81mmx19mm	
Mechanical data	Casing: plastic ABS,	Weight: 40g
Mounting / Assembly	As hand remote-control	Adhesion on a flat underground
Environmental conditions	Room temperature when in operation -25°C ... +65°C Storage temperature -40°C ... +85°C Rel. humidity (non-condensing) 0 ... 95%	
Approbation	TUV, R&TTE guidelines 1999/5/EC and conforming to EU regulations. ROHS conforming according to 2002/95/EC.	

Telegram							
Byte	Symbol	Significance	Value	Byte	Symbol	Meaning	Value
0	SYNC1	Synchronization	5Ah	1	SYNC2	Synchronization	A5h
2	HEADER		xxh	3	ORG	Type of transmitter	05h
4	DATA3	Pair of keys A Key Off Pair of keys A Key On Pair of keys B Key Off Pair of keys B Key On Pair of keys A&B Key Off Pair of keys A&B Key On	30h 10h 70h 50h 37h 15h	5	DATA2	always 0	00h
6	DATA1	always 0	00h	7	DATA0	always 0	00h
8	ID3	ID-Number part 1	xxh	9	ID2	ID-Number part 2	xxh
10	ID1	ID-Number part 3	xxh	11	ID0	ID-Number part 4	xxh
12	STATUS	Status byte	xxh	13	CHK	Check sum	xxh

Designation	Designation additive	Typ	Article number
Hand transmitter 4 channel with 4 single keys	Color clean-white	R101-rw	1281153
	Color black	R101-sw	1281150
	Color Aluminium varnished	R101-sb	1281200
	Other Colors		On request

Data sheet
RATIO®-radio bus system
Window Contact 1-channel FK101



The Ratio®-window contact 1-channel FK101 is a battery- and maintenance-free radio sender. The power generation is effected by transformation of roomlight into electrical energy by a solar generator. It conduces to the equipment condition monitoring by means of a reedcontact with magnet of windows and doors and the radiotransmission to actors/receivers/gateways.

It is suited for assembling at windows- and doorframes made of wood, glass, aluminium.

Technical Data	Window contact FK101	Remarks
Operating data	Energy generation by means of electro-dynamic energy generator (induction principle), wireless and battery-free.	
Radio technology	Minutes EnOcean, Modulation EIRP / ASK	transmitting capacity max. 10mW
Channels	1 condition, 1 control	
Radio end module	STM100	
Measurement value logging	Every 10 seconds	
Transmission interval every 1000 seconds...	or during change in state	
Range	Interior 30 to 100m, exterior up to 300m	
Dimensions	Casing: L x B x T 110mm x 19mm x 15mm	
Mechanical Data	Casing: plastic ABS,	Weight: 40g
Mounting / Assembly	Finery on a flat underground	Adhesion or screws
Environmental conditions	Room temperature when in operation Storage temperature Rel. humidity (non-condensing)	-25°C ... +65°C -40°C ... +85°C 0 ... 70%
Approbation	TUV, R&TTE guidelines 1999/5/EC and conforming to EU regulations. ROHS conforming according to 2002/95/EC.	

Telegram							
Byte	Symbol	Significance	Value	Byte	Symbol	Meaning	Value
0	SYNC1	Synchronization	5Ah	1	SYNC2	Synchronization	A5h
2	HEADER			3	ORG	Type of transmitter	06h
4	DATA3	Bit 0: Condition 0 = contact open Bit 3: Learning branch pressed=1	30h 10h	5	DATA2	always 0	00h
6	DATA1		always 0	7	DATA0	always 0	00h
8	ID3	ID-Number part 1	xxh	9	ID2	ID-Number part 2	xxh
10	ID1	ID-Number part 3	xxh	11	ID0	ID-Number part 4	xxh
12	STATUS	Status byte	xxh	13	CHK	Check sum	xxh

Designation	Designation additive	Typ	Article number
Window contact 1-channel	Color clean-white	FK101-rw	2101153
	Color anthracite	FK101-a	2101201
	Color aluminum varnished	FK101-sb	2101200
	Other Colors		On request

Data sheet
RATIO®-radio bus system
Outside temperature sensor ATF101



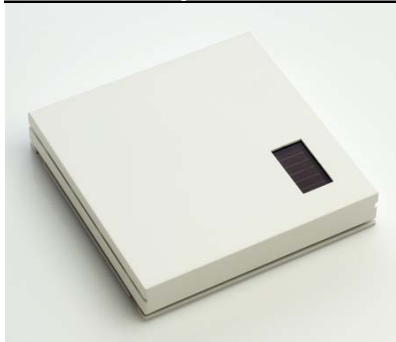
The Ratio®-outside temperature sensor ATF101 is a battery- and maintenance-free radio sender. The power generation is effected by transformation of light into electrical energy by a solar generator. It conduces to the measuring of outside temperature and the radio transmission to actoators receivers/gateways.

Technical Data	Outside temperature sensor ATF101	Remarks
Operating data	Energy generation by means of electro-dynamic energy generator (induction principle),.wireless and battery-free.	
Radio technology	Minutes EnOcean, Modulation ASK	transmitting capacity max. 10mW
Channels	1 temperature, 1 control (Data0)	
Radio end module	STM100	
Temperature collection	Range: -20°C..60°C	Accuracy +/- 0,8K
Measurement value logging	Every 10 seconds	
Transmission interval	every 100 seconds during change of measured value > 0,8K every ca. 16 Minutes status telegram	
Range	Interior 30 to 100m, exterior up to300m	
Dimensions	Casing: LxBxT 85mm x 85mm x 25mm	
Mechanical Data	Casing: plastic PA6,	Weight: 80g
Mounting / Assembliy	Finery on a flat underground	Adhesion or screws
Environmental conditions	Room temperature when in operation- 25°C ... +65°C Storage temperature -40°C ... +85°C Rel. humidity (non-condensing) 0 ... 70%	
Approbation	TUV, R&TTE guidelines 1999/5/EC and conforming to EU regulations. ROHS conforming according to 2002/95/EC.	

Telegram							
Byte	Symbol	Significance	Value	Byte	Symbol	Meaning	Value
0	SYNC1	Synchronization	5Ah	1	SYNC2	Synchronization	A5h
2	HEADER			3	ORG	Type of transmitter	07h
4	DATA3	always 0	00h	5	DATA2	always 0	00h
6	DATA1	Actual value linear, -20°C = 255 Bit, 60°C = 0 Bit	xxh	7	DATA0	Bit 0..2 = no meaning, Bit 3 = Learning branch, pressed=0, Bit 4 .. 7 = no meaning	xxh
8	ID3	ID-Number part 1	xxh	9	ID2	ID-Number part 2	xxh
10	ID1	ID-Number part 3	xxh	11	ID0	ID-Number part 4	xxh
12	STATUS	Status byte	xxh	13	CHK	Check sum	xxh

Designation	Designation additive	Typ	Article number
Outside temperature sensor		ATF101	2102153

Data sheet
RATIO®-radio bus system
Room Temperature Sensor RTF101



The Ratio®-room temperature sensor RTF101 is a battery- and maintenance-free radio sender. The power generation is effected by transmission of roomlight into electrical energy by a solar generator. It conduces to the measuring of the room temperature and the transmission by radio to the radio senders and actuators/gateways. By its very flat construction it can be installed on walls and even on glass.

By short roomlight for the power generation the temperature sensor can also be runned with a battery.

Technical Data	Room temperatur sensor RFT101	Remarks
Operating data	Energy generation by means of electro-dynamic energy generator (induction principle), wireless and battery-free.	
Radio technology	Minutes EnOcean, Modulation EIRP / ASK	transmitting capacity max. 10mW Telegramtyp RPS type 2
Channels	1 temperature, 1 control (Data0)	
Radio end module	STM100	
Funksendemodul	STM100	
Temperature collection	Range 0°C..40°C Accuracy +/- 0,4K	Dissolution 0,15K
Measurement value logging	Every 10 seconds	
Transmission interval every 100 seconds...	By change of measured value 0,8K	
Range	Interior 30 to 100m, exterior up to 300m	
Dimensions	Casing: LxBxT 81mm x 81mm x 16mm	
Mechanical Data	Casing: plastic ABS,	Weight: 80g
Mounting / Assembly	Finery on a flat underground	Adhesion or screws
Environmental conditions	Room temperature when in operation Storage temperature Rel. humidity (non-condensing)	-25°C ... +65°C -40°C ... +85°C 0 ... 70%
Approbation	TUV, R&TTE guidelines 1999/5/EC and conforming to EU regulations. ROHS conforming according to 2002/95/EC.	

Telegram							
Byte	Symbol	Significance	Value	Byte	Symbol	Meaning	Value
0	SYNC1	Synchronization	5Ah	1	SYNC2	Synchronization	A5h
2	HEADER			3	ORG	Type of transmitter	07h
4	DATA3	always 0	00h	5	DATA2	always 0	00h
6	DATA1	Actual value linear, 0°C = 255 Bit, 40°C = 0 Bit	xxh	7	DATA0	Bit 0 = no meaning, Bit 1 = Coding = 1, Bit 2 = Coding = 1, Bit 3 = Learning branch, pressed=0, Bit 4 .. 7 = no meaning	xxh
8	ID3	ID-Number part 1	xxh	9	ID2	ID-Number part 2	xxh
10	ID1	ID-Number part 3	xxh	11	ID0	ID-Number part 4	xxh
12	STATUS	Status byte	xxh	13	CHK	Check sum	xxh

Designation	Designation additive	Typ	Article number
Room temperature sensor	Color clean-white	RTF101-rw	2103153
	Color anthracite	RTF101-a	2103201
	Color aluminum varnished	RTF101-sb	2103200
	Battery kit		On request

Data sheet
RATIO®-radio bus system
Room Temperature Sensor RTF102



The Ratio®-room temperature sensor RTF102 is a battery- and maintenancefree radio sender. The power generation is effected by transmission of roomlight into electrical energy by a solargenerator. It conduces to the measuring of the room temperature and the transmission by radio to the radio senders and atuators/gateways.. By its very flat construction it can be installed on walls and even on glass.

By short roomlight for the power generation the temperature sensor can also be runned with a battery.

Technical Data	Room Temperatur Sensor RFT 102	Remarks
Operating data	Energy generation by means of electro-dynamic energy generator (induction principle),.wireless and battery-free.	
Radio technology	Minutes EnOcean, Modulation EIRP / ASK	transmitting capacity max. 10mW Telegramtyp RPS type 2
Channels	1 temperature, 1 control (Data0)	
Radio end module	STM100	
Temperature collection	Range 0°C..40°C Accuracy +/- 0,4K	Dissolution 0,15K
Desired value collection (angle of rotation)	0° left = 0 Bits, 180° right = 255 Bits	Dissolution 0,8°
Measurement value logging	Every 10 seconds	
Transmission interval every 100 seconds...	By change of measured value >0,8K	by change angle of rotation >3°
Range	Interior 30 to 100m, exterior up to300m	
Dimensions	Casing: LxBxT 81mm x 81mm x 16mm	
Mechanical Data	Casing: plastic ABS,	Weight: 80g
Mounting / Assembly	Finery on a flat underground	Adhesion or screws
Environmental conditions	Room temperature when in operation - Storage temperature Rel. humidity (non-condensing)	25°C ... +65°C -40°C ... +85°C 0 ... 70%
Approbation	TUV, R&TTE guidelines 1999/5/EC and conforming to EU regulations. ROHS conforming according to 2002/95/EC.	

Telegram							
Byte	Symbol	Significance	Value	Byte	Symbol	Meaning	Value
0	SYNC1	Synchronization	5Ah	1	SYNC2	Synchronization	A5h
2	HEADER			3	ORG	Type of transmitter	07h
4	DATA3	always 0	00h	5	DATA2	Desired value angle of rotation linear (0° left = 0 Bit, 180° right = 255 Bit)	xxh
6	DATA1	Actual value linear, 0°C = 255 Bit, 40°C = 0 Bit	xxh	7	DATA0	Bit 0 = no meaning, Bit 1 = Coding = 1, Bit 2 = Coding = 1, Bit 3 = Learning branch, pressed=0, Bit 4 .. 7 = no meaning	xxh
8	ID3	ID-Number part 1	xxh	9	ID2	ID-Number part 2	xxh
10	ID1	ID-Number part 3	xxh	11	ID0	ID-Number part 4	xxh
12	STATUS	Status byte	xxh	13	CHK	Check sum	xxh

Designation	Designation additive	Typ	Article number
Room temperatur sensor with set point setter	Color clean-white	RTF102-rw	2104153
	Color anthracite	RTF102-a	2104201
	Color aluminum varnished	RTF102-sb	2104200
	Battery kit		On request

Data sheet
RATIO®-radio bus system
Room Temperatur Sensor RTF103



The Ratio®-room temperature sensor RTF103 is a battery- and maintenancefree radio sender. The power generation is effected by transmission of roomlight into electrical energy by a solargenerator. It conduces to the measuring of the room temperature and the transmission by radio to the radio senders and actuators/gateways. By its very flat construction it can be installed on walls and even on glass.

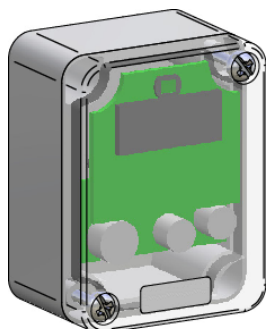
By short roomlight for the power generation the temperature sensor can also be runned with a battery.

Technical Data	Room Temperatur Sensor RFT 103	Remarks
Operating data	Energy generation by means of electro-dynamic energy generator (induction principle), wireless and battery-free.	
Radio technology	Minutes EnOcean, Modulation EIRP / ASK	transmitting capacity max. 10mW Telegramtyp RPS type 2
Channels	1 temperature, 1 set point, 1control (Data0)	
Radio end module	STM100	
Temperature collection	Range 0°C..40°C Accuracy +/- 0,4K	Dissolution 0,15K
Desired value collection (angle of rotation)	0° left = 0 Bits, 180° right = 255 Bits	Dissolution 0,8°
Operating or stage selector switch	Range 0 bis 255 Bits in stages (brings data closer in addition in the manual)	
Measurement value logging	Every 10 seconds	
Transmission interval every 100 seconds...	By change of measured value 0,8K	by change angle of rotation >3°
Range	Interior 30 to 100m, exterior up to 300m	
Dimensions	Casing: LxBxT 81mm x 81mm x 16mm	
Mechanical Data	Casing: plastic ABS,	Weight: 80g
Mounting / Assembly	Finery on a flat underground	Adhesion or screws
Environmental conditions	Room temperature when in operation - Storage temperature Rel. humidity (non-condensing)	25°C ... +65°C -40°C ... +85°C 0 ... 95%
Approbation	TUV, R&TTE guidelines 1999/5/EC and conforming to EU regulations. ROHS conforming according to 2002/95/EC.	

Telegram							
Byte	Symbol	Significance	Value	Byte	Symbol	Meaning	Value
0	SYNC1	Synchronization	5Ah	1	SYNC2	Synchronization	A5h
2	HEADER			3	ORG	Sendertyp	07h
4	DATA3	Values operating or stage selector switches	00h	5	DATA2	Desired value angle of rotation linear (0° left = 0 Bit, 180° right = 255 Bit)	xxh
6	DATA1	Actual value linear, 0°C = 255 Bit, 40°C = 0 Bit	xxh	7	DATA0	Bit 0 = no meaning, Bit 1 = Coding = 1, Bit 2 = Coding = 1, Bit 3 = Learning branch, pressed=0, Bit 4 .. 7 = no meaning	xxh
8	ID3	ID-Number part 1	xxh	9	ID2	ID-Number part 2	xxh
10	ID1	ID-Number part 3	xxh	11	ID0	ID-Number part 4	xxh
12	STATUS	Status byte	xxh	13	CHK	Check sum	xxh

Designation	Designation additive	Typ	Article number
Room Temperatur Sensor with set point setter and mode switch.	Color clean-white	RTF103-rw	2105153
	Color anthracite	RTF103-a	2105201
	Color aluminum varnished	RTF103-sb	2105200
	Battery kit		Auf Anfrage

Data sheet
RATIO®-radio bus system
Outside Light Sensor LS101



The Ratio®outside light sensor LS101 is a battery- and maintenancefree radio sender. The power generation is effected by transmission of sunlight into electrical energy by a solargenerator.

It conduces to the measuring of light intensity and transmission by radio to radio actuators and senders/gateways.

Due to its construction it is suitable to the installation on a wall.

Technical Data	Outside Light Sensor LS101	Remarks
Operating data	Energy generation by means of electro-dynamic energy generator (induction principle), wireless and battery-free.	
Radio technology	Minutes EnOcean, Modulation ASK	transmitting capacity max. 10mW Telegramtyp RPS type 2
Channels	1 Lightvalue, 1 Control	
Radio end module	STM100	
Light value registration	Two ranges switchable 300... 30000 lux or 600... 60000 lux accuracy/- 147 lux	
Measurement value logging	Every 10 seconds	
Transmission interval	every 17 minutes... or during change of measured value 468Lux within 10 seconds	
Range	Interior 30 to 100m, exterior up to 300m	
Dimensions	Casing: LxBxT 80mm x 60mm x 50mm	
Mechanical Data	Casing: plastic ABS,	Weight: 70g
Mounting / Assembly	Finery on a flat underground	Adhesion or screws
Environmental conditions	Room temperature when in operation - Storage temperature Rel. humidity (non-condensing)	20°C ... +55°C -40°C ... +85°C 0 ... 95%
Protection category	IP54	
Approbation	TUV, R&TTE guidelines 1999/5/EC and conforming to EU regulations. ROHS conforming according to 2002/95/EC.	

Telegram							
Byte	Symbol	Significance	Value	Byte	Symbol	Meaning	Value
0	SYNC1	Synchronization	5Ah	1	SYNC2	Synchronization	A5h
2	HEADER			3	ORG	Type of transmitter	06h
4	DATA3	always 0	14h	5	DATA2	300..30000 Lux (0..255)	00h
6	DATA1	600..60000 Lux (0..255)	xxh	7	DATA0	Bit 0..2 = no meaning, Bit 3 = Learning branch, pressed=0, Bit 4 .. 7 = no meaning	xxh
8	ID3	ID-Number part 1	xxh	9	ID2	ID-Number part 2	xxh
10	ID1	ID-Number part 3	xxh	11	ID0	ID-Number part 4	xxh
12	STATUS	Status byte	xxh	13	CHK	Check sum	xxh

Designation	Designation additive	Typ	Article number
Outside Light Sensor		LS101	2120000



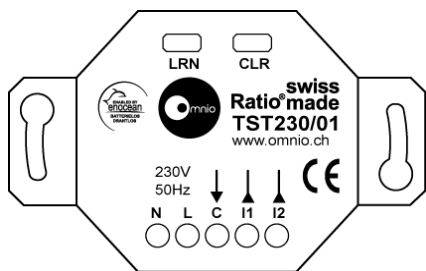
The Ratio®-motion detector AP230/01 is a radio motion detector which sends, depending on light and movement, a radio telegram to radio actuators and receivers/gateways to switch on/off the light e.g. The Ratio®-motion detector is suitable to ceiling suspension and has to be provided by supply voltage.

Technical Data	Motion Detector AP230/01	Remarks
Operating data	Rated voltage 230V 50/60Hz, Open circuit current drain . ca. 20mA, Power input ca. 4VA	Rated current 0,5A Operating current drain ca. 25mA Power dissipation ca. 0,9W
Radio technology	Minutes EnOcean, Modulation ASK	Transmittance capacity max. 10mW Telegramtyp RPS type 2
Channels	1 movement value	
Radio end module	STM100	
Movement collection	PIR sensor in subject to the light value 10... 1000 lux	
Measurement value logging	Every 10 seconds	
Transmission interval	every 17 minutes... or immediately during collection of a movement	
Range	Interior 30 to 100m, exterior up to 300m	
Dimensions	Casing: LxBxT 80mm x 60mm x 50mm	
Mechanical Data	Casing: plastic ABS,	Weight: 70g
Mounting / Assembly	Finery on a flat underground	Adhesion or screws
Environmental conditions	Room temperature when in operation - Storage temperature Rel. humidity (non-condensing)	20°C ... +55°C -40°C ... +85°C 0 ... 95%
Protection category	IP20	
Approbation	TUV, R&TTE guidelines 1999/5/EC and conforming to EU regulations. ROHS conforming according to 2002/95/EC.	

Telegram							
Byte	Symbol	Significance	Value	Byte	Symbol	Meaning	Value
0	SYNC1	Synchronization	5Ah	1	SYNC2	Synchronization	A5h
2	HEADER			3	ORG	Type of transmitter	06h
4	DATA3	always 0	00h	5	DATA2	300..30000 Lux (0..255)	00h
6	DATA1	PIR Off = 0..127 Bit PIR On = 128..255 Bit	xxh	7	DATA0	Bit 0..2 = no meaning, Bit 3 = Learning branch, pressed = 0, Bit 4 .. 7 = no meaning	xxh
8	ID3	ID-Number part 1	xxh	9	ID2	ID-Number part 2	xxh
10	ID1	ID-Number part 3	xxh	11	ID0	ID-Number part 4	xxh
12	STATUS	Status byte	xxh	13	CHK	Check sum	xxh

Designation	Designation additive	Typ	Article number
Motion Detector		AP230/01	2901000

Data sheet
RATIO® radio bus system
Push-button interface 2 channel
TST230/01



The Ratio® push button interface 2 channel TST230/01 is a binary input device with an integrated 1-level-repeater. It has two inputs for two potential-free closing contacts. When pressed, the push-button interface sends a radio telegram (PTM200-Telegramm) which is analyzed by the Ratio® actuators / receivers.

In addition, it has an integrated repeater function. The push-button interface therefore also functions as repeater in the 1-level mode. The correctly received radio telegrams are amplified and re-sent.

Technical data	Push-button interface TST102 with repeater		Remarks
Operating data	Voltage 110V - 230V 50/60Hz		
Radio technology	Protocol EnOcean, Modulation EIRP / ASK		Transmittance capacity max. 10mW Telegram type RPS Type 2
Channels	2 with two positions each		
Radio end module	TCM120		
Range	Interior 30 to 100m, exterior up to 300m		
Functions	Two potential-free closing contacts. Receive and amplified resending of valid radio telegrams.		
Operating data	Rated voltage Idle current consumption Power Input	230V 50/60Hz, approx. 20mA, approx. 4VA	Rated current Power input Power loss 0,5A approx. 25mA approx. 0,9W
Security	By means of external protective switch 13A Type C		
Operating and indicator modules	1 button „LRN“, 1 button „CLR“, 1 button LED „LRN“, 1 button LED “CLR”		
Connection	Screw clamp 4mm2	You can easily clamp two 1,5mm2 wires	
Mechanical data	Casing: synthetic Lexan Weight: 80g	Measurements Ø=51mm Height=25mm	
Mounting / Assembly	Flush or surface mounting	e.g. behind a socket or in a synthetic casing	
Environmental conditions	Environmental temperature in operation Storage temperature Relative humidity (non-condensing)	-20°C ... +40°C -40°C ... +85°C 5 ... 90%	
Protection category	IP20 according to EN 60529		
Norm conforming assembly	Device conforms to EN 090-2-2 and EN 60669-2-1		
Approbation	TUV, R&TTE guidelines 1999/5/EC and conforming to EU regulations. ROHS conforming according to 2002/95/EC.		
Labeling	According to EMV guidelines (residential and functional buildings), low voltage guideline.		

Telegram							
Byte	Symbol	Significance	Wert	Byte	Symbol	Significance	Wert
0	SYNC1	Synchronization	5Ah	1	SYNC2	Synchronization	A5h
2	HEADER		xxh	3	ORG	Type of transmitter	05h
4	DATA3	Key pair A Key Off Key pair A Key On Key pair B Key Off Key pair B Key On Key pair A&B Key Off Key pair A&B Key On	30h 10h 70h 50h 37h 15h	5	DATA2	Always 0	00h
6	DATA1	Always 0	00h	7	DATA0	Always 0	00h
8	ID3	ID number part 1	xxh	9	ID2	ID number part 2	xxh
10	ID1	ID number part 3	xxh	11	ID0	ID number part 4	xxh
12	STATUS	Status byte	xxh	13	CHK	Check sum	Xxh

Diagram of connections	Designation	Type	Article number
	Push button interface 2 channel with repeater, Voltage 230VAC	TST230/01	1501000

Actuators

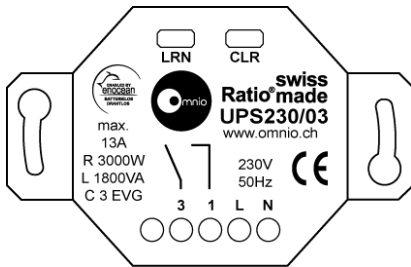


The Ratio®-flush mounted switch actuator 1-channel UPS230/01 is a device for in- or on-wall mounting. A group of electric users can be switched via its outlet by means of Ratio® radio senders.

According to parameterization, the outlet is assigned different functions such as e.g. key sequences or switch-off delays of 10 minutes, which means that the Ratio® switch actuator consists of the device itself (hardware) and the application program (software).

Technical Data	Flush mounted switch actuator 1-channel UPS230/01	Remarks	
Functions	switching On / Off impulse switch step switch Stairway light 0.5..20Min.	Parameters by means of learned-in radio transmitters. See in addition the manual.	
Operating data	Rated voltage 230V 50/60Hz, Idle current consumption. ca. 20mA, Power input ca. 4VA	Rated current 0,5A Power input ca. 25mA Power loss ca. 0,9W	
Security	By external automatic cotout 13A Typ C		
Load exit	Change-over contact potential-free,	Rated current 13A / 230VAC	
Connection power by 35°C ambient temperature	Incandescent lamp(ohmic load): 2300W inductive load 600VA	High volt halogen:lamps 1250W EVG 0 Stk.	
Switching attitude	parametrisable		
Serving and display elements	1 button „LRN“, 1 button „CLR“, 1 button LED „LRN“, 1 button LED “CLR”		
Connection	screw clamp 4mm ²	You can easily clamp two 1,5mm ² wires	
Mechanical Data	Casing: plastic Lexan, Weight: 80g	Dimensions: D=51mm H=25mm	
Mounting / Assembly / Installation	Flush or surface mounting	e.g. behind a socket or in a synthetic casing	
Environmental conditions	Room temperature when in operation - Storage temperature Rel. humidity (non-condensing)	20°C ... +40°C -40°C ... +85°C 5 ... 90%	
Protection category	IP20 after EN 60529		
Norm conforming assembly	Device conforms to EN 090-2-2 and EN 60669-2-1		
Approbation	TUV, R&TTE guidelines 1999/5/EC and conforming to EU regulations. ROHS conforming according to 2002/95/EC.		
Labeling	According to EMV guidelines (residential and functional buildings), low voltage guideline. ROHS conformal after 2002/95/EC.		
Safety references			
The installation of this equipment may take place only via proven technical personnel. Before working on the equipment the current supply must be switched off. The valid safety and rules for the prevention of accidents are to be considered compellingly.			
Area of application			
The equipment may only <ul style="list-style-type: none"> To be used for the regulation-moderate employment To be installed firmly in a dry an clean environment To be installed in such a way that an access is possible only with a tool 			
Diagram of connections	Designation	Typ	Article number
	Flush mounted switch actuator 1-channel with a change-over contact potential-free, supply voltage 230VAC	UPS230/01	3101000

Data sheet
RATIO®-radio bus system
Flush mounted load switch actuator 1-channel
13A UPS230/03



The Ratio®-switch actuator UPS230/03 is a device for in- or on wall-mounting. A group of electric users can be switched via its potential-free outlet by means of Ratio® radio senders. Due to high starting current, the UPS230/03 is suitable for electric series –mounted devices such as e.g. EVG

According to parameterization, the outlet is assigned different functions such as e.g. key sequences or switch-off delays of 10 minutes, which means that the Ratio® switch actuator consists of the device itself (hardware) and the application program (software).

Technical Data	Flush mounted load switch actuator	Remarks
Functions	switching On / Off impulse switch step switch Stairway light 0.5..20Min.	Parameters by means of learned-in radio transmitters. See in addition the manual.
Operating data	Rated voltage 230V 50/60Hz, Idle current consumption ca. 20mA, Power Input ca. 4VA	Rated current 0,5A Power input ca. 25mA Power loss ca. 0,9W
Security	By external automatic cotout 13A Typ C	
Load exit	Closing contact potential,	Rated current 13A / 230VAC Rated impuled current 180A / 20ms
Connection power by 35°C ambient temperature	Incandescent lamp(ohmic load): 2300W inductive load 600VA	High volt halogen:lamps 1250W EVG 3 Stk.
Switching attitude	parametrisable	
Serving and display elements	1 button „LRN“, 1 button „CLR“, 1 button LED „LRN“, 1 button LED “CLR”	
Connection	screw clamp 4mm2	You can easily clamp two 1,5mm2 wires
Mechanical Data	Casing: plastic Lexan, Weight: 80g	Dimensions: D=51mm H=25mm
Mounting / Assembly/ Installation	Flush or surface mounting	e.g. behind a socket or in a synthetic casing
Environmental conditions	Room temperature when in operation - Storage temperature Rel. humidity (non-condensing)	20°C ... +40°C -40°C ... +85°C 5 ... 90%
Protection category	IP20 after EN 60529	
Norm conforming assembly	Device conforms to EN 090-2-2 and EN 60669-2-1	
Approbation	TUV, R&TTE guidelines 1999/5/EC and conforming to EU regulations. ROHS conforming according to 2002/95/EC.	
Labeling	According to EMV guidelines (residential and functional buildings), low voltage guideline. ROHS conformal after 2002/95/EC.	

Safety references

The installation of this equipment may take place only via proven technical personnel.
 Before working on the equipment the current supply must be switched off.
 The valid safety and rules for the prevention of accidents are to be considered compellingly.

Area of application

- The equipment may only
- To be used for the regulation-moderate employment
 - To be installed firmly in a dry an clean environment
 - To be installed in such a way that an access is possible only with a tool

Diagram of connections	Designation	Typ	Article number
	Flush mounted load switch actuator 1-channel with a closing contact potential-free, supply voltage 230VAC	UPS230/03	3105000



The Ratio®-flush mounted switch actuator 2-channel UPS230/02 is a device for in- or on-wall mounting. Two groups of electric users can be switched via the outlets by means of Ratio® radio senders.

According to parameterization, the outlets are assigned different functions such as e.g. key sequences or switch-off delays of 10 minutes, which means that the Ratio® switch actuator consists of the device itself (hardware) and the application program (software).

Technical Data	Flush mounted switch actuator 2-channel UPS230/02	Remarks	
Functions	Switching On / Off impulse switch step switch Stairway light 0.5..20Min.	Parameters by means of learned-in radio transmitters. See in addition the manual.	
Operating data	Rated voltage 230V 50/60Hz, Idle current consumption ca. 20mA, Power input ca. 4VA	Rated current 0,5A Power input ca. 25mA Power loss ca. 0,9W	
Security	By external automatic cotout 13A Typ C		
Load exit	2 pce. closing contacts potential-free,	Rated current 6A / 230VAC	
Connection power by 35°C ambient temperature	Incandescent lamp(ohmic load): 1200W inductive load 200VA	High volt halogen:lamps 600W EVG 0 Stk.	
Switching attitude	parametrisable		
Serving and display elements	1 button „LRN“, 1 button „CLR“, 1 button LED „LRN“, 1 button LED “CLR”		
Connection	screw clamp 4mm ²	You can easily clamp two 1,5mm ² wires	
Mechanical Data	Casing: plastic Lexan, Weight: 80g	Dimensions: D=51mm H=25mm	
Mounting / Assembly/ Installation	Flush or surface mounting	e.g. behind a socket or in a synthetic casing	
Environmental conditions	Room temperature when in operation - Storage temperature Rel. humidity (non-condensing)	20°C ... +40°C -40°C ... +85°C 0 ... 90%	
Protection category	IP20 after EN 60529		
Norm conforming assembly	Device conforms to EN 090-2-2 and EN 60669-2-1		
Approbation	TUV, R&TTE guidelines 1999/5/EC and conforming to EU regulations. ROHS conforming according to 2002/95/EC.		
Labeling	According to EMV guidelines (residential and functional buildings), low voltage guideline. ROHS conformal after 2002/95/EC.		
Safety references			
<p>The installation of this equipment may take place only via proven technical personnel. Before working on the equipment the current supply must be switched off. The valid safety and rules for the prevention of accidents are to be considered compellingly.</p>			
Area of application			
<p>The equipment may only</p> <ul style="list-style-type: none"> To be used for the regulation-moderate employment To be installed firmly in a dry an clean environment To be installed in such a way that an access is possible only with a tool 			
Diagram of connections	Designation	Typ	Article number
	Flush mounted switch actuator 2-channel with two closing contacts, supply voltage 230VAC	UPS230/02	3103000



The Ratio®-Flush mounted dimming actuator UPD230/01 is a device for in- or on-wall mounting. A group of electric users – ohmic and inductiv – can be switched and dimmed via its outlet by means of Ratio® radio senders.

According to parameterization, the outlet is assigned different functions such as e.g. key sequences or switch-off delays of 10 minutes, which means that the Ratio® dimming actuator consists of the device itself (hardware) and the application program (software).

Technical Data	Flush mounted dimming actuator UPD230/01		Remarks
Functions	Switching On / Off Dimming brighter / darker Stairway light 0.5..20Min.		Parameters by means of learned-in radio transmitters. See in addition the manual
Operating data	Rated voltage Idle current consumption Power input	230V 50/60Hz, ca. 20mA, ca. 4VA	Rated current 0,5A Power input ca. 25mA Power loss ca. 0,9W
Security	By external automatic cotout 13A Typ C		
Load exit	Triac, not potential-free,		Rated current 1A / 230VAC
Connection power by 35°C ambient temperature	Incandescent lamp(ohmic load): inductive load	250W 100VA	High volt halogen:lamps 100W EVG 0 Stk.
Switching attitude	parametrisable		
Serving and display elements	1 button „LRN“, 1 button „CLR“, 1 button LED „LRN“, 1 button LED “CLR”		
Connection	screw clamp 4mm2		You can easily clamp two 1,5mm2 wires
Mechanical Data	Casing: plastic Lexan, Weight: 80g		Dimensions: D=51mm H=25mm
Mounting / Assembly/ Installation	Flush or surface mounting		e.g. behind a socket or in a synthetic casing
Environmental conditions	Room temperature when in operation - Storage temperature Rel. humidity (non-condensing)		20°C ... +40°C -40°C ... +85°C 0 ... 90%
Protection category	IP20 after EN 60529		
Norm conforming assembly	Device conforms to EN 090-2-2 and EN 60669-2-1		
Approbation	TUV, R&TTE guidelines 1999/5/EC and conforming to EU regulations. ROHS conforming according to 2002/95/EC.		
Labeling	According to EMV guidelines (residential and functional buildings), low voltage guideline. ROHS conformal after 2002/95/EC.		

Safety references

The installation of this equipment may take place only via proven technical personnel.
 Before working on the equipment the current supply must be switched off.
 The valid safety and rules for the prevention of accidents are to be considered compellingly.

Area of application

- The equipment may only
- To be used for the regulation-moderate employment
 - To be installed firmly in a dry an clean environment
 - To be installed in such a way that an access is possible only with a tool

Diagram of connections	Designation	Typ	Article number
	Flush mounted dimming actuator 1-channel 250W, supply voltage 230VAC	UPD230/01	3201000

Data sheet
RATIO®-radio bus system
Flush mounted blinds actuator 1-channel
UPJ230/01



The Ratio® flush mounted blinds actuator 1-channel UPJ230/01 is a device for in- or on-wall-mounting . By means of Ratio® radio senders and via the potential-free output, blinds and doors are lifted and lowered and blinds are adjusted.

According to parameterization, the outlet is assigned different functions such as e.g. key sequences or motion time of 10 minutes, which means that the Ratio® blinds actuator consists of the device itself (hardware) and the application program (software).

Technical Data	Flush mounted blinds actuator 1-channel UPS 230/01	Remarks	
Functions	Switching On / Off (short key depressing) Adjustment of slats (long key depressing) Stairway light 0.5..20Min.	Parameters by means of learned-in radio transmitters. See in addition the manual	
Operating data	Rated voltage 230V 50/60Hz, Idle current consumption . ca. 20mA, Power input ca. 4VA	Rated current 0,5A Power input ca. 25mA Power loss ca. 0,9W	
Security	By external automatic cotout 13A Typ C		
Load exit	2 pce. closing contacts locks, potential-free, Rated current 6A / 230VAC		
Connection power by 35°C ambient temperature	Ohmic load: 800W Inductive load 200VA	EVG 0 Stk.	
Switching attitude	parametrisable		
Serving and display elements	1 button „LRN“, 1 button „CLR“, 1 button LED „LRN“, 1 button LED „CLR“		
Connection	screw clamp 4mm2	You can easily clamp two 1,5mm2 wires	
Mechanical Data	Casing: plastic Lexan, Weight: 80g	Dimensions: D=51mm H=25mm	
Mounting / Assembly/ Installation	Flush or surface mounting	e.g. behind a socket or in a synthetic casing	
Environmental conditions	Room temperature when in operation - Storage temperature Rel. humidity (non-condensing)	20°C ... +40°C -40°C ... +85°C 5 ... 90%	
Protection category	IP20 after EN 60529		
Norm conforming assembly	Device conforms to EN 090-2-2 and EN 60669-2-1		
Approbation	TUV, R&TTE guidelines 1999/5/EC and conforming to EU regulations. ROHS conforming according to 2002/95/EC.		
Labeling	According to EMV guidelines (residential and functional buildings), low voltage guideline. ROHS conformal after 2002/95/EC.		
Safety references			
The installation of this equipment may take place only via proven technical personnel. Before working on the equipment the current supply must be switched off. The valid safety and rules for the prevention of accidents are to be considered compellingly.			
Area of application			
The equipment may only <ul style="list-style-type: none"> To be used for the regulation-moderate employment To be installed firmly in a dry an clean environment To be installed in such a way that an access is possible only with a tool 			
Diagram of connections	Designation	Typ	Article number
	Flush mounted blinds actuator 1-channel 6A with two locked closing contacts, supply voltage 230VAC	UPJ230/01	3301000



Der Ratio® thermostat switch actuator 1-channel UPT230/01 is a device for in- or on-wall mounting. By means of the Ratio® room temperature sensors (RTF101,102,103) a group of electrical users (e.g. adjustments valves, electrical heatings) can be controlled by ist potential-free output.

According to parametrization, the outlet is assigned different parameters, which means that the Ratio® thermostat actuator UPT230/01 consists of the device itself (hardware) and the application program (software).

Technical Data	Thermostat switch actuator UPT230/01	Remarks
Functions	Switching On / Off (PWM t=20 minutes) with freeze protection circuit by 8 °C as well as transmission suppression with obligation position	Parameters by means of learned-in radio transmitters. See in addition the manual
Operating data	Rated voltage 230V 50/60Hz, Idle current consumption ca. 20mA, Power input ca. 4VA	Rated current 0,5A Power input ca. 25mA Power loss ca. 0,9W
Security	By external automatic cotout 13A Typ C	
Load exit	Change-over contact potential-free,	Rated current 13A / 230VAC
Connection power by 35°C ambient temperature	Incandescent lamp(ohmic load): 2300W inductive load 600VA	High volt halogen:lamps 1250W EVG 0 Stk.
Switching attitude	parametrisable	
Serving and display elements	1 button „LRN“, 1 button „CLR“, 1 button LED „LRN“, 1 button LED “CLR”	
Connection	screw clamp 4mm2	You can easily clamp two 1,5mm2 wires
Mechanical Data	Casing: plastic Lexan, Weight: 80g	Dimensions: D=51mm H=25mm
Mounting / Assembly/ Installation	Flush or surface mounting	e.g. behind a socket or in a synthetic casing
Environmental conditions	Room temperature when in operation - Storage temperature Rel. humidity (non-condensing)	20 °C ... +40 °C -40 °C ... +85 °C 0 ... 90%
Protection category	IP20 after EN 60529	
Norm conforming assembly	Device conforms to EN 090-2-2 and EN 60669-2-1	
Approbation	TUV, R&TTE guidelines 1999/5/EC and conforming to EU regulations. ROHS conforming according to 2002/95/EC.	
Labeling	According to EMV guidelines (residential and functional buildings), low voltage guideline. ROHS conformal after 2002/95/EC.	

Safety references

The installation of this equipment may take place only via proven technical personnel.
 Before working on the equipment the current supply must be switched off.
 The valid safety and rules for the prevention of accidents are to be considered compellingly.

Area of application

- The equipment may only
- To be used for the regulation-moderate employment
 - To be installed firmly in a dry an clean environment
 - To be installed in such a way that an access is possible only with a tool

Diagram of connections	Designation	Typ	Article number
	Thermostat actuator 1-channel 13A with a change-over contact, supply voltage 230VAC	UPT230/01	3121000

Data sheet
RATIO®-radio bus system
Switch actuator 4-fold REGS24/01



The Ratio®-switch actuator 4-fold REGS24/01 is a device for distributor mounting. By means of Ratio® radio transmitters (Piezo- and solar radio transmitters), four different and independent electric users can be switched. Up to 30 different senders (wall mounted sender, windows contact, temperature sensor, motion detector, industrial transmitter) can be programmed.

The Ratio®-switch actuator REGS24/01 can be linked by a cable 1x2x0.75mm², the ASB-Bus, with up to 7 other REG switch actuators. According to parameterization, the outlet is assigned different functions such as e.g. key sequences or switch-off delays, which means that the Ratio®-switch actuator REGS24/01 consists of the device itself (hardware) and the application program (software). By means of a separate software program the optional functions can be parameterized.

Technical Data	Switch actuator 4-fold REGS24/01	Remarks
Functions	Switch On / Off, Impuls switch step switch, stairway light 0,5...20Min	Parameters by ASB-Softwaretool
Operating data	Rated voltage 24VDC, Idle current consumption ca. 20mA, Power input ca. 4VA	Rated current 0,5A Power input ca. 80mA Power loss ca. 0,9W
Security	By external automatic cotout 13A Typ C	
Load exit	Change-over contact potential-free,	Rated current 13A / 230VAC
Connection power by 35°C ambient temperature	Incandescent lamp(ohmic load): 2300W inductive load 600VA	High volt halogen:lamps 1250W EVG 0 Stk.
Switching attitude	parametrisable	
Serving and display elements	1 button „LRN“, 1 button „CLR“, 1 button LED „LRN“, 1 button LED “CLR” 4 pce. LED ever for channel 1-4	
Connection	Screw clamp 4mm2	You can easily clamp two 1,5mm ² wires
Connection communication ASB bus	Screw clamp 0,75mm ²	for cross-linking over RF bus.
receiving frequency / antenna	868,3MHz/antenna internally, for assembly e.g. in a metal cabinet the external receipt unit UPASB/01 is to be used as antenna.	
Mechanical Data	Row installation housing according to DIN 43880, Dimensions: BxHxT 70mm x 90mm x 55mm Material: Noryl UL 94-V0H=25mm	Weight: 160g
Mounting / Assembly / Installation	Distributor installation on top hat rail	
Environmental conditions	Room temperature when in operation Storage temperature Rel. humidity (non-condensing)	-20°C ... +40°C -40°C ... +85°C 5 ... 90%
Protection category	IP20 after EN 60529	
Norm conforming assembly	Device conforms to EN 090-2-2 and EN 60669-2-1	
Approbation	TUV, R&TTE guidelines 1999/5/EC and conforming to EU regulations. ROHS conforming according to 2002/95/EC.	
Labeling	According to EMV guidelines (residential and functional buildings), low voltage guideline. ROHS conformal after 2002/95/EC.	

Safety references

The installation of this equipment may take place only via proven technical personnel.
 Before working on the equipment the current supply must be switched off.
 The valid safety and rules for the prevention of accidents are to be considered compellingly.

Area of application

- The equipment may only
- To be used for the regulation-moderate employment
 - To be installed firmly in a dry an clean environment
 - To be installed in such a way that an access is possible only with a tool

Diagram of connections	Designation	Typ	Article number
	Switch actuator 4-fold 13A with 4 pce.. change-over contacts potential-free, supply voltage 24VDC	REGS24/01	4102000



The Ratio®-switch actuator 8-fold REGS24/02 is a device for distributor mounting. By means of Ratio® radio transmitters (Piezo- and solar radio transmitters), eight different and independent electric users can be switched. Up to 30 different senders (wall mounted sender, windows contact, temperature sensor, motion detector, industrial transmitter) can be programmed.

The Ratio®-switch actuator REGS24/02 can be linked by a cable 1x2x0.75mm², the ASB-Bus, with up to 7 other REG switch actuators. According to parameterization, the outlet is assigned different functions such as e.g. key sequences or switch-off delays, which means that the Ratio®-switch actuator REGS24/021 consists of the device itself (hardware) and the application program (software). By means of a separate software program the optional functions can be parameterized.

Technical Data	Switch actuator 8-fold REGS24/02	Remarks
Functions	Switch On / Off, Impuls switch step switch, stairway light 0,5..20Min	Parameters by ASB-Softwaretool
Operating data	Rated voltage 24VDC, Idle current consumption ca. 20mA, Power input ca. 4VA	Rated current 0,5A Power input ca. 80mA Power loss ca. 0,9W
Security	By external automatic cutout 13A Typ C	
Load exit	Closing contacts potential-free to 4x2,	Rated current 6A / 230VAC
Connection power by 35°C ambient temperature	Incandescent lamp(ohmic load): 1200W inductive load 200VA	High volt halogen:lamps 6000W EVG 0 Stk.
Switching attitude	parametrisable	
Serving and display elements	1 button „LRN“, 1 button „CLR“, 1 button LED „LRN“, 1 button LED “CLR” 4 pce. LED ever for channel 1-8	
Connection	Screw clamp 4mm2	You can easily clamp two 1,5mm ² wires
Connection communication ASB bus	Screw clamp 0,75mm2	for cross-linking over RF bus.
receiving frequency / antenna	868,3MHz/antenna internally, for assembly e.g. in a metal cabinet the external receipt unit UPASB/01 is to be used as antenna.	
Mechanical Data	Row installation housing according to DIN 43880, Dimensions: BxHxT 70mm x 90mm x 55mm Material: Noryl UL 94-V0H=25mm	Weight: 160g
Mounting / Assembly / Installation	Distributor installation on top hat rail	
Environmental conditions	Room temperature when in operation - Storage temperature -40°C ... +85°C Rel. humidity (non-condensing) 5 ... 90%	-20°C ... +40°C
Protection category	IP20 after EN 60529	
Norm conforming assembly	Device conforms to EN 090-2-2 and EN 60669-2-1	
Approbation	TUV, R&TTE guidelines 1999/5/EC and conforming to EU regulations. ROHS conforming according to 2002/95/EC.	
Labeling	According to EMV guidelines (residential and functional buildings), low voltage guideline. ROHS conformal after 2002/95/EC.	

Safety references

The installation of this equipment may take place only via proven technical personnel.
 Before working on the equipment the current supply must be switched off.
 The valid safety and rules for the prevention of accidents are to be considered compellingly.

Area of application

- The equipment may only
- To be used for the regulation-moderate employment
 - To be installed firmly in a dry an clean environment
 - To be installed in such a way that an access is possible only with a tool

Diagram of connections	Designation	Typ	Article number
	Schaltaktor 8-Kanal REGS24/02 Switch actuator 8-fold, 6A with 8 pce. closing contacts potential-free, supply voltage 24VDC	REGS24/02	4104000



The Ratio®-blinds actuator 4-fold REGS24/01 is a device for distributor mounting. By means of Ratio® radio transmitters (Piezo- and solar radio transmitters), four different and independent electric actuations can be switched. Up to 30 different senders (wall mounted sender, windows contact, temperature sensor, motion detector, industrial transmitter) can be programmed.

The Ratio®-switch actuator REGJ24/01 can be linked by a cable 1x2x0.75mm², the ASB-Bus, with up to 7 other REG switch actuators. According to parameterization, the outlet is assigned different functions such as e.g. key sequences or switch-off delays, which means that the Ratio®-switch actuator REGJ24/01 consists of the device itself (hardware) and the application program (software). By means of a separate software program the optional functions can be parameterized.

Technical Data	Blinds actuator 4-fold REGJ24/01	Remarks
Functions	switch up / down, adjustment of slats Impuls switch, step switch	Parameters by ASB-Softwaretool
Operating data	Rated voltage 24VDC, Idle current consumption ca. 20mA, Power input ca. 4VA	Rated current 0,5A Power input ca. 80mA Power loss ca. 0,9W
Security	By external automatic cutout 13A Typ C	
Load exit	Closing contacts potential-free to 4x2,	Rated current 6A / 230VAC
Connection power by 35°C ambient temperature	ohmic load: 800W inductive load 200VA	EVG 0 Stk
Switching attitude	parametrisable	
Serving and display elements	1 button „LRN“, 1 button „CLR“, 1 button LED „LRN“, 1 button LED „CLR“ 4 pce. LED ever for channel 1-4	
Connection	Screw clamp 4mm2	You can easily clamp two 1,5mm ² wires
Connection communication ASB bus	Screw clamp 0,75mm2	for cross-linking over RF bus.
receiving frequency / antenna	868,3MHz/antenna internally, for assembly e.g. in a metal cabinet the external receipt unit UPASB/01 is to be used as antenna.	
Mechanical Data	Row installation housing according to DIN 43880, Dimensions: BxHxT 70mm x 90mm x 55mm Material: Noryl UL 94-V0H=25mm Weight: 160g	
Mounting / Assembly / Installation	Distributor installation on top hat rail	
Environmental conditions	Room temperature when in operation - 20°C ... +40°C Storage temperature -40°C ... +85°C Rel. humidity (non-condensing) 5 ... 90%	
Protection category	IP20 after EN 60529	
Norm conforming assembly	Device conforms to EN 090-2-2 and EN 60669-2-1	
Approbation	TUV, R&TTE guidelines 1999/5/EC and conforming to EU regulations. ROHS conforming according to 2002/95/EC.	
Labeling	According to EMV guidelines (residential and functional buildings), low voltage guideline. ROHS conformal after 2002/95/EC.	

Safety references

The installation of this equipment may take place only via proven technical personnel.
 Before working on the equipment the current supply must be switched off.
 The valid safety and rules for the prevention of accidents are to be considered compellingly.

Area of application

- The equipment may only
- To be used for the regulation-moderate employment
 - To be installed firmly in a dry and clean environment
 - To be installed in such a way that an access is possible only with a tool

Diagram of connections	Designation	Typ	Article number
	Blinds actuator 4-fold, 6A with 4x2 pce. closing contacts potential-free, supply voltage 24VDC	REGJ24/01	4302000



The Ratio®-Pol rotate actuator 2-channel REGJ24/02 is a device for distributor mounting. By means of Ratio® radio transmitters (Piezo- and solar radio transmitters), two different and independent electric actuations can be switched. Up to 30 different senders (wall mounted sender, windows contact, temperature sensor, motion detector, industrial transmitter) can be programmed.

Der Ratio®- Pol rotate actuator REGJ24/02 can be linked by a cable 1x2x0.75mm², the ASB-Bus, with up to 7 other REG switch actuators. According to parameterization, the outlet is assigned different functions such as e.g. key sequences or switch-off delays, which means that the Ratio®-Pole rotate actuator REGJ24/01 consists of the device itself (hardware) and the application program (software). By means of a separate software program the optional functions can be parameterized.

Technical Data	Pol rotate actuator REGJ24/02		Remarks	
Functions	switch up / down, adjustment of slats Impuls switch, step switch		Parameters by ASB-Softwaretool	
Operating data	Rated voltage	24VDC,	Rated current	0,5A
	Idle current consumption.	ca. 20mA,	Power input	ca. 80mA
	Power input	ca. 4VA	Power loss	ca. 0,9W
Security	By external automatic cotout 13A Typ C			
Load exit	Change-over contact potential-free to 2x2,		Rated current 13A / 230VAC	
Connection power by 35°C ambient temperature	ohmic load:	2000W	EVG	0 Stk
	inductive load	600VA		
Switching attitude	parametrisable			
Serving and display elements	1 button „LRN“, 1 button „CLR“, 1 button LED „LRN“, 1 button LED „CLR“ 4 pce. LED ever for channel 1-4			
Connection	Screw clamp 4mm ²		You can easily clamp two 1,5mm ² wires	
Connection communication ASB bus	Screw clamp 0,75mm ²		for cross-linking over RF bus.	
receiving frequency / antenna	868,3MHz/antenna internally, for assembly e.g. in a metal cabinet the external receipt unit UPASB/01 is to be used as antenna.			
Mechanical Data	Row installation housing according to DIN 43880, Dimensions: BxHxT 70mm x 90mm x 55mm Material: Noryl UL 94-V0H=25mm		Weight: 160g	
Mounting / Assembly / Installation	Distributor installation on top hat rail			
Environmental conditions	Room temperature when in operation		-20°C ... +40°C	
	Storage temperature		-40°C ... +85°C	
	Rel. humidity (non-condensing)		5 ... 90%	
Protection category	IP20 after EN 60529			
Norm conforming assembly	Device conforms to EN 090-2-2 and EN 60669-2-1			
Approbation	TUV, R&TTE guidelines 1999/5/EC and conforming to EU regulations. ROHS conforming according to 2002/95/EC.			
Labeling	According to EMV guidelines (residential and functional buildings), low voltage guideline. ROHS conformal after 2002/95/EC.			

Safety references

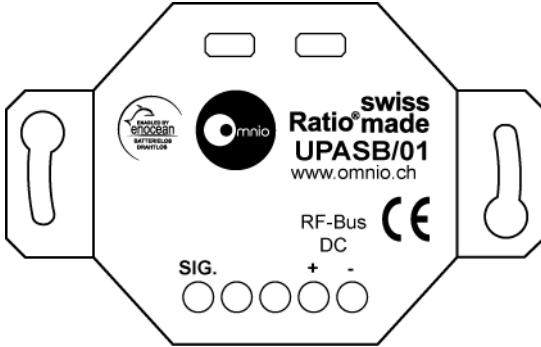
The installation of this equipment may take place only via proven technical personnel.
 Before working on the equipment the current supply must be switched off.
 The valid safety and rules for the prevention of accidents are to be considered compellingly.

Area of application

- The equipment may only
- To be used for the regulation-moderate employment
 - To be installed firmly in a dry an clean environment
 - To be installed in such a way that an access is possible only with a tool

Diagram of connections	Designation	Typ	Article number
	Pol rotate actuator 2-channel 13A with 2x2 pce. change-over contacts potential- free, supply voltage 24VDC	REGJ24/02	4304000

Data sheet
RATIO® radio bus system
Receiver unit UPASB/01



The Ratio® receiver unit UPASB/01 is a device for flush or surface mounting. The receiver unit serves as an active antennae, it receives radio telegrams of Ratio® radio sender and transmits them via the two wire bus RF-bus to the serial mounted radio receiver.

This allows to connect the serial mounted radio receivers (REGS24/01, REGS24/02 und REGJ24/01) and to fit it in places where a radio reception is not possible e.g. in electronic distributors made of steel.

Technical Data	Receiving unit UPASB/01		Remarks	
Function	Receiving and transferring RATIO® radio telegrams			
Operating data, Feeding by means of bus line	Rated voltage	5VDC,	Rate current	0,1A
	Idle current consumption	approx. 20mA,	Power input	approx. 25mA
	Power	approx. 4VA	Power loss	approx. 0,9W
Communication bus ASB bus	ASB Protocol			
Maximum cable length ASB bus	15m			
Receiving frequency / antennae	868,3MHz / internal			
Operation and indicator modules	1 item LED „SIG“			
Connection	Screw clamps 4mm ²		You can easily clamp two 1,5mm ² wires	
Mechanical data	Casing: synthetic Lexan Weight: 80g		Measurements Ø=51mm Height=25mm	
Mounting / Assembly	Flush or surface mounting		e.g. behind a socket or in a synthetic casing	
Environmental conditions	Environmental temperature in operation		-20°C ... +40°C	
	Storage temperature		-40°C ... +85°C	
	Relative humidity (non-condensing)		5 ... 90%	
Protection	IP20 according to EN 60529			
Norm conforming assembly	Device conforms to EN 090-2-2 and EN 60669-2-1			
Approbation	R&TTE guidelines 1999/5/EC and conforming to EU guidelines.			
Labeling	According to EMV guidelines (residential and functional buildings), low voltage guideline. ROHS conforming according to 2002/95/EC.			

Safety references

The installation of this device may only be done by certified professionals.
 Before working with the device, turn off the electricity supply.
 The prevailing safety and accident prevention regulations must be observed.

Area of applications

The device may only be

- applied in the intended area of use
- installed fixedly in a dry and clean environment,
- installed in a way that it can only be accessed by using appropriate working tools.

Diagram of connections	Designation	Type	Article number
	Ready to receive for serial mounted devices	UPASB/01	4900000

System Devices

The Ratio® repeater 1-Level UPR230/01 serves for the amplification of the radio telegram between Ratio® radio senders and Ratio®-receivers. It is used in case of range difficulties between Ratio®-radio senders and Ratio® receivers.

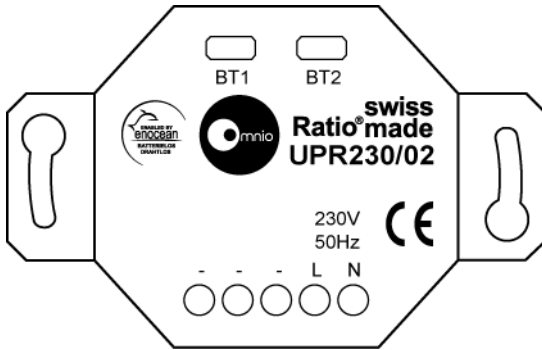


The Ratio®-UP-Repeater has to be connected to power supply. There is no need to learn in devices. All received telegrams will be transmitted.

Technical Data	Repeater 1-Level UPR230/01	Remarks
Functions	Receiving and strengthened sent of valid radiograms	
Operating data	Rated voltage 230V 50/60 Hz, Idle current consumption ca. 20mA, Power input ca. 4VA	Rated current 0,5A Power input ca. 25mA Power loss ca. 0,9W
Security	By external automatic cotout 13A Typ C	
Serving and display elements	1 button „LRN“, 1 button „CLR“, 1 button LED „LRN“, 1 button LED “CLR”	
Connection	Screw clamp 4mm2	You can easily clamp two 1,5mm2 wires
Mechanical Data	Casing: plastic Lexan, Weight: 80g	Dimensions: D=51mm H=25mm
Mounting / Assembly/ Installation	Flush or surface mounting	e.g. behind a socket or in a synthetic casing
Environmental conditions	Room temperature when in operation - Storage temperature Rel. humidity (non-condensing)	-20°C ... +40°C -40°C ... +85°C 5 ... 90%
Protection category	IP20 after EN 60529	
Norm conforming assembly	Device conforms to EN 090-2-2 and EN 60669-2-1	
Approbation	R&TTE guidelines 1999/5/EC and conforming to EU guidelines.	
Labeling	According to EMV guidelines (residential and functional buildings), low voltage guideline. ROHS conforming according to 2002/95/EC.	

Safety references
The installation of this equipment may take place only via proven technical personnel. Before working on the equipment the current supply must be switched off. The valid safety and rules for the prevention of accidents are to be considered compellingly.
Area of application
The equipment may only <ul style="list-style-type: none"> To be used for the regulation-moderate employment To be installed firmly in a dry an clean environment To be installed in such a way that an access is possible only with a tool

Diagram of connections	Designation	Typ	Article number
<p>The diagram shows a box labeled 'UPR230/01' and '1-Level'. Two lines, labeled 'L' and 'N', enter the box from the top right and are connected to terminals on the side of the box.</p>	Repeater 1-Level, Supply voltage 230VAC	UPR230/01	9001000



The Ratio® repeater 2-Level UPR230/02 serves for the amplification of the radio telegram between Ratio® radio senders and Ratio®-receivers. It is used in case of range difficulties between Ratio®-radio senders and Ratio® receivers.

The Ratio®-UP-Repeater has to be connected to power supply. There is no need to learn in devices. All received telegrams will be transmitted.

The Ratio®-Repeater 2-level has two modes, the 1- and the 2-Level-mode, which can be chosen by means of the two LED-push-buttons. At the 1-Level-mode, telegrams are only once amplified, that means only the original telegram. At the 2-level-mode also telegrams of the Ratio®-Repeater at 1-level-mode are being amplified..

Technical Data	Repeater 2-Level UPR230/02		Remarks	
Functions	Receiving and strengthened sent of valid radiograms			
Operating data	Rated voltage	230V 50/60 Hz,	Rated current	0,5A
	Idle current consumption	ca. 20mA,	Power input	ca. 25mA
	Power input	ca. 4VA	Power loss	ca. 0,9W
Security	By external automatic cotout 13A Typ C			
Serving and display elements	1 button „LRN“, 1 button „CLR“, 1 button LED „LRN“, 1 button LED „CLR“			
Connection	Screw clamp 4mm2		Two wires 1.5 mm can be problem-free under –wedge.	
Mechanical Data	Casing: plastic Lexan, Weight: 80g		Dimensions: D=51mm H=25mm	
Mounting / Assembly/ Installation	Flush or surface mounting		e.g. behind a socket or in a synthetic casing	
Environmental conditions	Room temperature when in operation	-20°C ... +40°C		
	Storage temperature	-40°C ... +85°C		
	Rel. humidity (non-condensing)	5 ... 90%		
Protection category	IP20 after EN 60529			
Norm conforming assembly	Device conforms to EN 090-2-2 and EN 60669-2-1			
Approbation	R&TTE guidelines 1999/5/EC and conforming to EU guidelines.			
Labeling	According to EMV guidelines (residential and functional buildings), low voltage guideline. ROHS conforming according to 2002/95/EC.			

Safety references

The installation of this equipment may take place only via proven technical personnel.
 Before working on the equipment the current supply must be switched off.
 The valid safety and rules for the prevention of accidents are to be considered compellingly.

Area of application

- The equipment may only
- To be used for the regulation-moderate employment
 - To be installed firmly in a dry an clean environment
 - To be installed in such a way that an access is possible only with a tool

Diagram of connections	Designation	Typ	Article number
	Repeater 2-Level, Supply voltage 230VAC	UPR230/02	9003000

Data sheet
RATIO® radio bus system
radio gateway EIB 8 chanel REGG01



The Ratio® radio gateway with 8 channels REGG01 is a device to be flush or surface mounted in a casing. It serves as gateway between Ratio® radio senders and the EIB/KNX bus.

4 Ratio® radio senders can be learnt into one of the 8 channels and programmed with one of the following connections:

Ratio® wall and hand sender:

- Switching (On/Off/Switch)
- Switching/Dimming with stop telegram
- Blinds (Up/Down/Step/Stop)

Ratio® room temperature sensor RTF102 and RTF102:

- Measuring and recording current and nominal values

Ratio® windows contact FK101:

- Switching (On/Off)

Technical data	Radio gateway EIB 8 channel REGG01	Remarks
Functions	Switching On / Off Dimming with stop telegram Blinds with stop telegram	Parameterizable by means of ETS software.
Operating data	Rated voltage Idle current consumption approx. 20mA,	EIB voltage 29VDC SELV, Power input approx. 25mA
Protection	Not necessary	
Outlets	8 EIB channels, parameterizable by means of ETS software	
Switching behavior	Parameterizable by means of ETS software	
Operation and indicator modules	1 button „LRN“, 1 button „CLR“, 8 LED (1 LED per channel)	
Connection	EIB plug clamp	
Mechanical data	Casing: synthetic ABS, Measurements Width=36mm Height=90mm Depth=65mm Weight: 80g	
Mounting / Assembly	Flush or surface mounted casing	Top hat rail mounting
Environmental conditions	Environmental temperature in operation Storage temperature Relative humidity (non-condensing)	-20°C ... +40°C -40°C ... +85°C 5 ... 90%
Protections	IP20 according to EN 60529	
Norm conforming assembly	Device conforms to EN 090-2-2 and EN 60669-2-1	
Approbation	TUV, R R&TTE guidelines 1999/5/EC and conforming to EU guidelines. ROHS conforming according to 2002/95/EC.	
Labeling	According to EMV guidelines (residential and functional buildings), low voltage guideline. ROHS conforming according to 2002/95/EC.	

Safety references
The installation of this device may only be done by certified professionals. Before working with the device, turn off the electricity supply. The prevailing safety and accident prevention regulations must be observed.
Area of application
The device may only be <ul style="list-style-type: none"> • applied in the intended area of use • installed fixed in a dry and clean environment, • installed in a way that it can only be accessed by using the appropriate working tools.

Diagram of connections	Designation	Type	Article number
<p>The diagram shows the internal wiring of the Funk-Gateway REGG01. It features an EIB-Bus with positive (+) and negative (-) terminals. Below the bus are eight numbered terminals (1-8) for individual channels. At the bottom, there are two buttons labeled LRN and CLR.</p>	Radio gateway EIB 8-Kanal	REGG01	6001000



The Ratio® radio gateway 32 channel APG01-EIB is a device for surface mounting. It serves as gateway between the Ratio® radio senders and the EIB/KNX bus.

Per channel, one Ratio® radio sender can be learnt and programmed with one of the following functions:

Ratio® wall and hand sender:

- Switching (On/Off/Switch/value indicator)
- Switching/Dimming with stop telegram
- Blind (Up/Down/Step/Stop)

Ratio® room temperature sensor RTFxxx:

- Measuring and recording current and index value
- Measuring the present push-button, operating modes or the switch

Ratio® windows contact FK101:

- Switching (On/Off)

Ratio® motion detector AP230/01:

- Switching (On/Off)

Ratio® light sensor LS101:

- Measuring the exterior light value

Technical data	Radio gateway EIB 32 channel APG01-EIB	Remarks
Functions	Switching On / Off / Switch / value indicator Switching / Dimming with stop telegram Blind with stop telegram Measured value recording	Parameterizable by means of ETS software
Operating data	Rated voltage Idle current consumption approx. 20mA,	EIB voltage 29VDC SELV, Power input approx. 25mA
Outlets	32 EIB channels, parameterizable by means of ETS software	
Switching behavior	Parameterizable by means of ETS software	
Operation and indicator modules	1 button „LRN“, 1 button „CLR“, 8 LED (1 LED per channel)	
Connection	EIB plug clamp	
Mechanical data	Casing: synthetic ABS, measurement width=80mm height=80mm depth=25mm, weight: 80g	
Mounting / Assembly	Surface mounting	
Environmental conditions	Environmental temperature in operation -20°C ... +40°C Relative humidity (non-condensing) 5 ... 90%	
Protection	IP20 according to EN 60529	
Norm conforming assembly	Device conforms to EN 090-2-2 and EN 60669-2-1	
Approbation	R R&TTE guidelines 1999/5/EC and conforming to EU guidelines.	
Labeling	According to EMV guidelines (residential and functional buildings), low voltage guideline. ROHS conforming according to 2002/95/EC.	

Safety references

The installation of this device may only be done by certified professionals.
 Before working with the device, turn off the electricity supply.
 The prevailing safety and accident prevention regulations must be observed.

Area of applications

- The device may only be
- Applied in the intended area of use
 - Installed fixed in a dry and clean environment,
 - Installed in a way that it can only be accessed by using the appropriate working tools.

Diagram of connections	Designation	Type	Article number
	Radio gateway EIB 32-Kanal	APG01-EIB	6005000

General sales and delivery terms

Omnio AG

Version: 01.06.2006

1. General

1.1 These general sales and delivery terms are binding if they are declared applicable in the offer or the order confirmation. Other specifications by the purchaser are only valid if they have been explicitly accepted by the supplier in written form.

1.2 All agreements and legal declarations of the contract partners must be in written form to become effective.

2. Offers and contract conclusion

2.1 The contract is concluded if the supplier confirms the receipt and acceptance of an order in written form.

2.2 Offers not indicating an acceptance period are not binding.

3. Volume of the delivery

3.1 For volume and execution of the delivery and service, the order confirmation is authoritative. Material or services not contained in it are billed additionally.

3.2 The supplier may change the order confirmation if the changes improve the order.

4. Regulations in the land of destination

The purchaser must notify the supplier latest with the order about legal, authoritative and other regulations and norms regarding the fulfillment of the delivery and the services, operation and sickness and accident precautions.

5. Prices

5.1 The prices of the supplier – if not agreed otherwise – are net from works, in Swiss Francs, not including packaging, transport, insurance, possible sales taxes, mounting, installation and taking into operation.

5.2 If the cost on which the calculation is based increase in the period between contract conclusion and acceptance, the supplier has the right to correct the prices in the order confirmation before the final conclusion of the order.

6. Payment terms

6.1 The general payment period is 30 days net from the delivery date for purchasers in Switzerland, Germany and Austria. Omnio AG reserves the right to deliver only against prepayment or an irrevocable accreditation confirmed by a prestigious bank.

6.2 Delivery occurs by observing paragraph 6.1, if no other agreements exist in written form, against prepayment or an irrevocable accreditation confirmed by a prestigious bank.

6.3 Payments must be made by the purchaser at the domicile of the supplier not deducting discounts, taxes and fees of any kind. Other payment conditions must be agreed upon specifically.

6.4 In case of delayed payment, the supplier reserves the right to instantly stop the planned delivery and has the right to invoice an interest for late payment of 6 % per annum.

7. Reservation of property rights

7.1 The supplier reserves the property right on the delivery until it is fully paid. The purchaser is obliged to take the appropriate measures to protect the supplier's property.

7.2 With the agreement of the purchaser, the supplier has the right to record the reservation of proprietary rights in the appropriate registry.

8. Period of delivery

8.1 The delivery period starts with the acceptance of the order by the supplier and after the technical matters have been sufficiently validated.

8.2 The delivery period is appropriately prolonged if:

- The supplier does not receive the correct specifications required for completing the purchase order or if they are not changed subsequently by the purchaser;
- The payment periods are not observed, accreditation is opened too late or required import licenses are not delivered to the supplier in time;
- Impediments occur that the supplier is not able to avoid despite having applied the necessary caution, no matter if they occur with the supplier, the purchaser or a third party. Such impediments include force majeure, e.g. epidemics, mobilization, war, riots, substantial operation breakdowns, accidents, work conflicts, later or deficient external supply of the required raw materials, half or finished products, defective goods of important work pieces, measures by authorities, neglect or natural catastrophes.

9. Delivery delays

9.1 The purchaser has the right to request compensation for late deliveries, if the delay is verifiably the suppliers responsibility and the purchaser can prove a damage as a result of the delay. If the purchaser is guaranteed a replacement delivery, any such demands of compensation are obsolete.

9.2 The compensation fee for each full week of the delay must not exceed ½ %, not more than 5 % in total calculated on the order price of the delayed part. In the first two weeks of the delay, the purchaser has no claim on compensation.

9.3 No claims result from the delayed delivery of products or service to the purchaser, except those explicitly mentioned in paragraph 9.1 and 9.2.

10. Delivery, transport and insurance

10.1 The products are carefully packed by the supplier. The packaging is billed to the purchaser at a net price.

- 10.2 Special wishes regarding shipment and insurance must be communicated to the supplier in time. Transport is at the purchaser's expenses and risk. Complaints regarding the transport must be made by the purchaser to the last transport carrier immediately upon receipt of the delivery or the freight documents.
- 10.3 Insurance against damages of any kind are the purchaser's responsibility and is billed to the purchaser even if it is organized by the supplier.
- 11. Checking and acceptance of the delivery**
The purchaser must check and verify the delivery within a reasonable period after its receipt and must immediately notify the supplier in written form about any kind of deficiencies. If purchaser fails to do so, the deliveries and services are considered as accepted.
- 12. Guarantee and liability**
- 12.1 The supplier guarantees that the delivered products are free of fabrication and material deficiencies.
- 12.2 Guaranteed characteristics are only those explicitly mentioned in the order confirmation, respectively in the manual. The guarantee is valid longest until the end of the guarantee term.
- 12.3 Should the products be deficient, the purchaser has the right to request a compensation delivery until the end of the guarantee term of two years from delivery, respectively notification of the shipment readiness, or may demand that the deficiency be eliminated by the supplier.
- 12.4 If a deficiency as noted under paragraph 12.3 is not eliminated within a reasonable time by means of a compensation delivery or elimination of the deficiency by the supplier, the purchaser has the right to request a lower purchasing price or cancellation of the contract.
- 12.5 The guarantee expires early if the purchaser or a third party carries out improper changes or repairs or if the purchaser does not immediately take all the appropriate measures to limit the damage in case of a deficiency, reports it to the supplier and allows the supplier to repair the deficiency.
- 12.6 Damages that are not a verifiable result of bad material, deficient construction, faulty execution or other reasons for which the supplier is not responsible are excluded from the guarantee and liability of the supplier.
- 12.7 The purchaser has no right on claims due to faulty material, construction or execution as well as the lack of guaranteed characteristics except for the ones explicitly mentioned in paragraph 12.3 and 12.4.
- 12.8 All cases of contract violation and any legal consequences arising from it as well as claims by the purchaser no matter on what legal reason they are based, are not regulated conclusively in this contract. Claims of damage compensation, reduction, cancellation or withdrawal from this contract not explicitly mentioned are excluded from this contract. Liabilities for consequential damages are excluded if they do not contradict mandatory product liability regulations by the law.
- 13. Applicable law**
The present contract is subject to Swiss Law.
- 14. Jurisdiction**
Place of jurisdiction is Bülach, Switzerland.