- **Decentralised intelligence thanks to flat cables**

- **Easily optimisable systems**

- **Ideal conditions ensure comfort and well being**

Building automation

The connected home   5.3

woertz
works well

Applications

Solutions for modern buildings

Index

The Woertz Company

Description of the system

Systematic networking.

Symbol	Label
—	**Light**
☐	**Touchpanel**
○	**Presence detector**
☐	**Blind switch**
⬡	**Fancoil**
—	**ecobus combi**
—	**ecobus data**
▭	**Blind**
■	**Actuator**
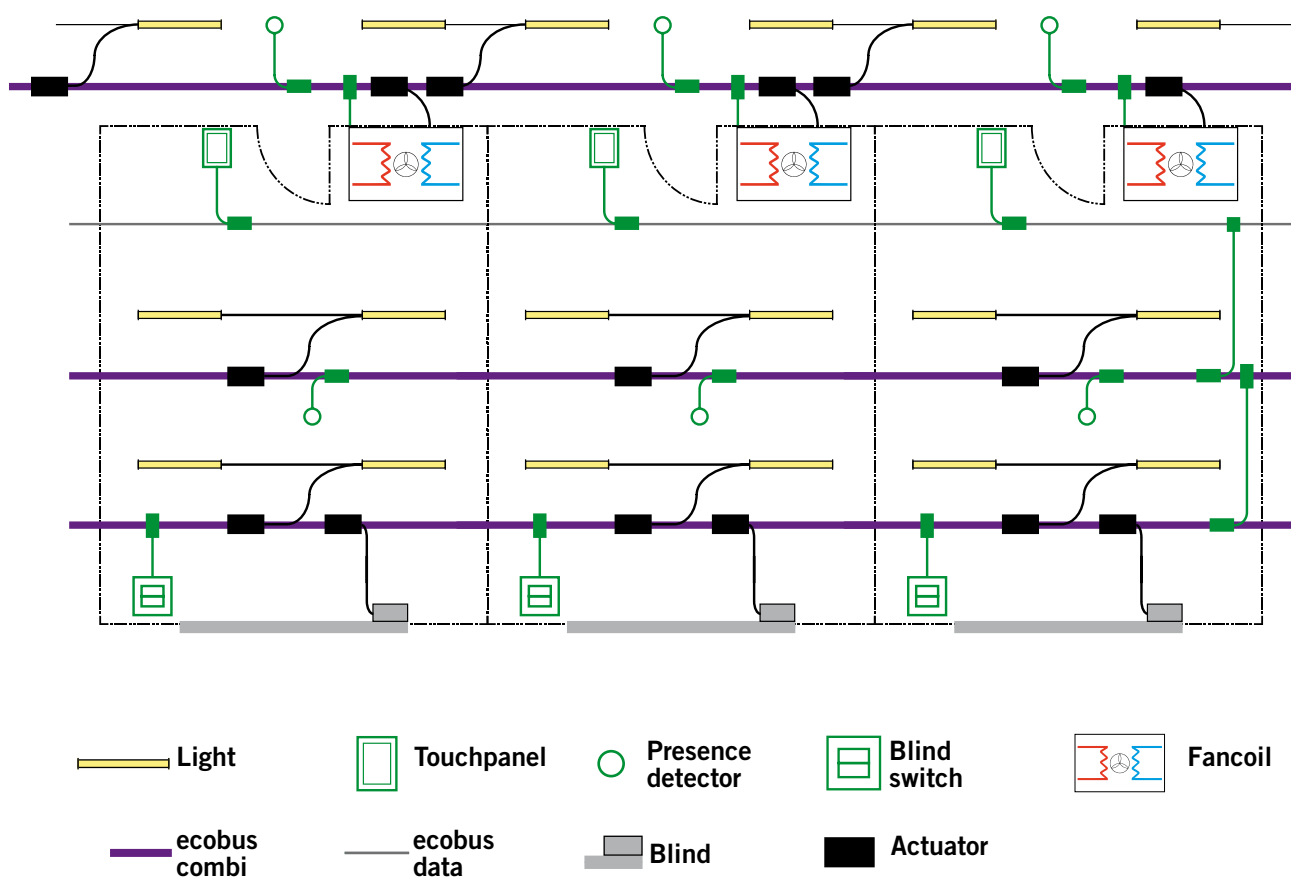
Security
- Easy calculable costs
- Low fire load
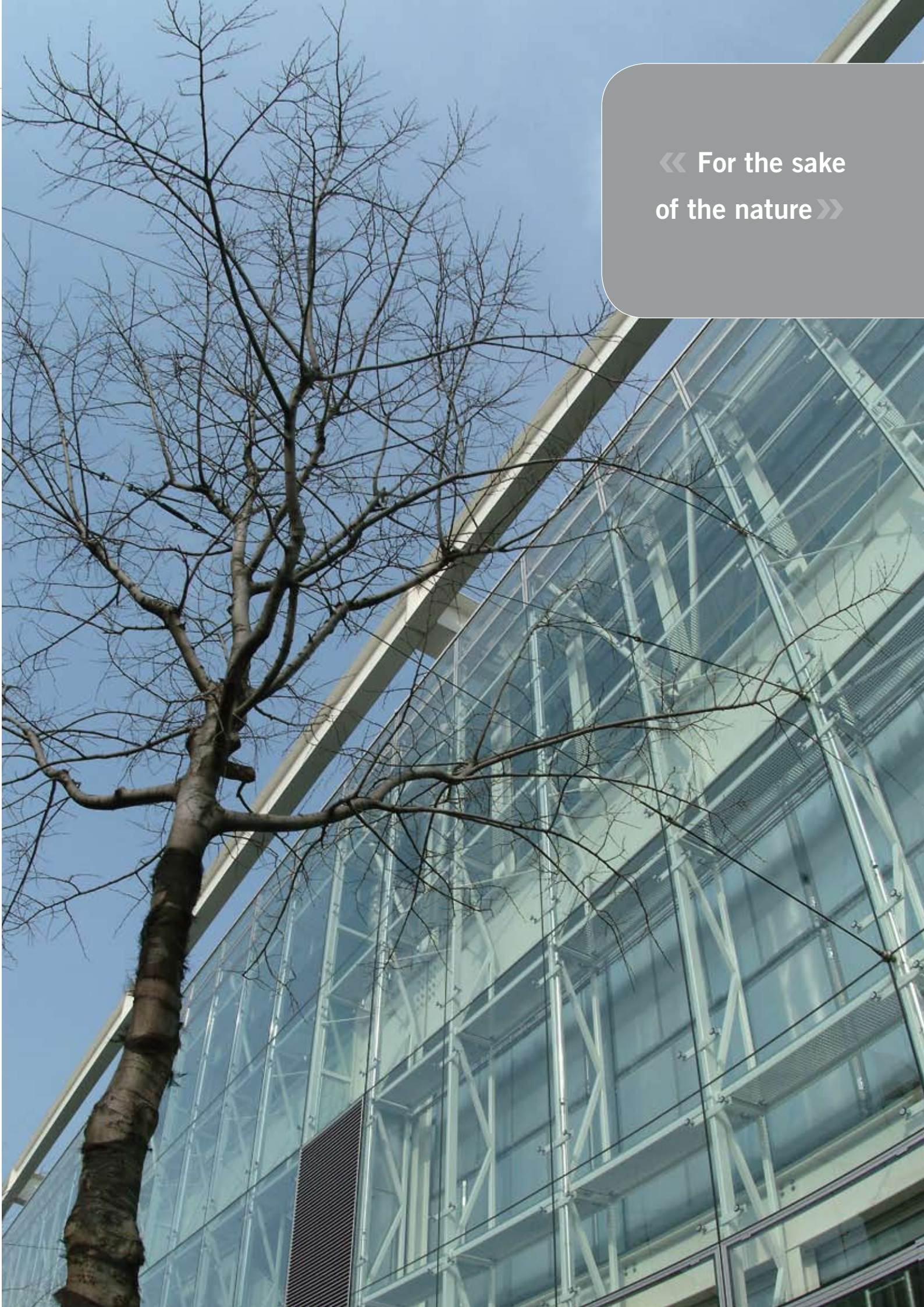- Reverse polarity protection
- Low error rate

Time saving
- Piercing Technology: insulation has not to be stripped
- Possibility of pre-wiring
- Possibility of pre-configurating
- Saves connection time

Flexibility
- KNX actuators and sensors may be connected at any point of the cable
- Connecting boxes may be placed as wanted
- Easy restructuring of the installation
- Highly adaptable to existing space
- Always improvable to increase the productivity

Product range

	Bus systems					Applications				
	KNX	DALI	LON	MP Bus	other	Lighting	Blinds	Air conditioning	switched phases	

Cabling

	KNX	DALI	LON	MP Bus	other	Lighting	Blinds	Air conditioning	switched phases	
ecobus data 2x1.5mm² — p. 5.3.10	✓	✓	✓		✓	✓	✓	✓	✓	
ecobus combi 5G2.5mm²+2x1.5mm² — p. 5.3.16	✓	✓	✓		✓	✓	✓	✓	✓	
multibus 4x1.5mm² — p. 5.3.62				✓	✓			✓		

Bus components

	KNX	DALI	LON	MP Bus	other	Lighting	Blinds	Air conditioning	switched phases	
RAPTOR series of actuators — p. 5.3.36	✓					✓	✓		✓	
Fancoil controller — p. 5.3.46	✓			✓				✓		
Gateway multibus — p. 5.3.58		✓						✓		

Operation and visual control

	KNX	DALI	LON	MP Bus	other	Lighting	Blinds	Air conditioning	switched phases	
Touchscreen — p. 5.3.53	✓					✓	✓	✓	✓	
RF Push-button — p. 5.3.56	✓					✓	✓		✓	
Room control unit — p. 5.3.55	✓							✓		
Card reader — p. 5.3.55	✓					✓	✓	✓	✓	
Card holder — p. 5.3.55	✓					✓	✓	✓	✓	

System components	Accessories

Introduction

Build a glass palace! Not in terms of architecture but in terms of transparency concerning use and energy optimization.

Conventional solutions can no more cope with the current needs. To fulfil also future, not yet known requirements, a flexible, expandable building automation is necessary.
In the field of building automation, Woertz offers intelligent facilities for connecting loads via flat cable. The latter may be used in combination with DALI, KNX, LON and further bus types.

Energy efficiency
Only transparent buildings allow power consumption to be determined in detail and to be reduced. Thanks to the Woertz building automation system it is possible to install further detectors, sensors, actuators and controllers any time.

Safety
For extensions no breaks are required in the flat cable at any point. Less cable overall and decentralised installed sensors and actuators mean fewer potential risks.

Advantages for clients/investors
Flexible installations may easily be optimised in terms of use, power consumption, comfort and safety. A decentralised flat cable installation allows not only installation costs but also life cycle costs to be reduced.

Advantages for planners
Even if the type of bus system which will be used has not yet been determined, the Woertz flat cable system provides flexibility until the last moment. We are of course ready to give you advice to use optimally the possibilities of a decentralised installation.

Advantages for the electrical contractor
With the Raptor series of actuators you dispose of the quickest type of installation. KNX actuators or sensors are connected in one click. Reducing installation procedures provides a decisive competitive advantage.

Advantages for the system integrator
Few potential risks, clear and easy installations and the possibility to preconfigure the bus components allow the commissioning of the system to be done within a short time. For special questions about the parameterization please contact us. We would be pleased to support you with advice.

Comparison of installations

To your advantage!
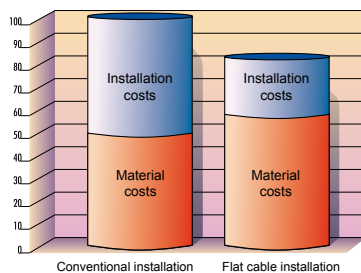
On the diagrams below the cabling of a central installation has been compared to an ecobus flat cable installation. The decentral layout of sensors and actuators as well as the use of plug-type connectors enable the length of cable to be considerably reduced; installation and setting into operation will be realized in a very short space of time which necessarily means cost-saving.
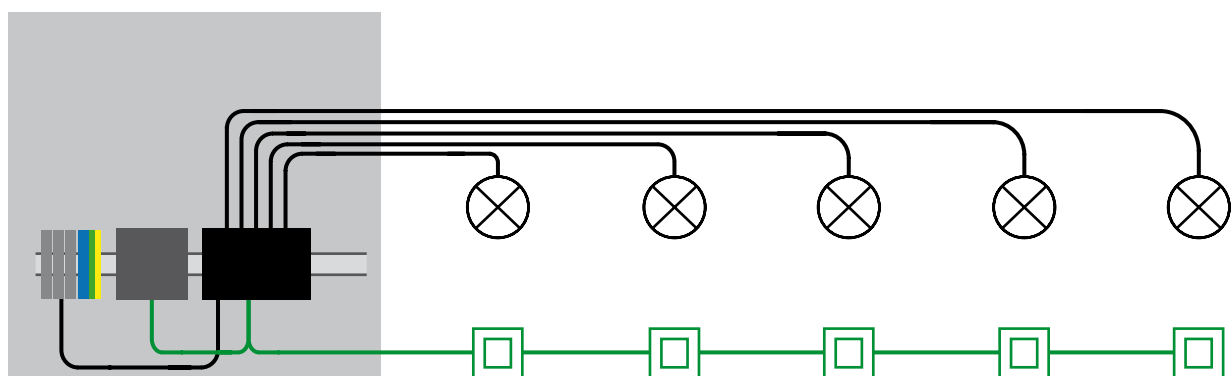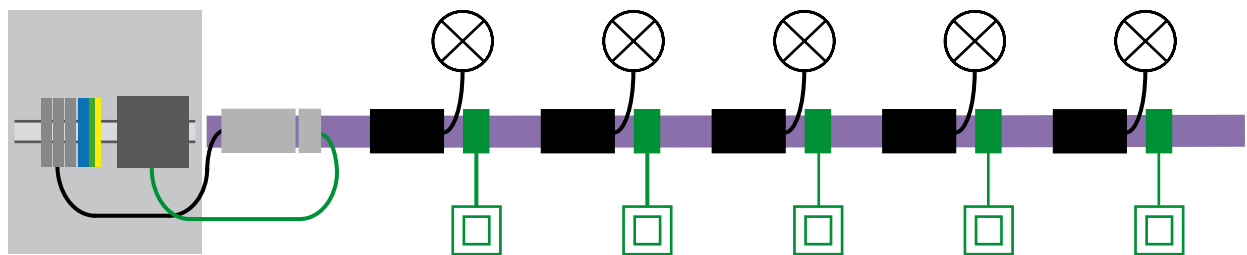
◻ **Push-button**   ■ **Actuator**   ⊗ **Light**

ecobus data 2x1.5mm²

An exceptional bus flat cable which allows to perform various functions in the field of building automation.

Connecting box with micro-terminal, No. 49722.
- Direct connection of loads at any point of the cable.
- Flat cable connected by means of pointed screws, without the cable insulation having to be stripped.
- Connection of one round cable up to 2x0.5mm², by means of micro-terminals.
- For supply or branching of flat cable.

Branching box with socket, No. 49720.
- Direct connection of loads at any point of the cable.
- Flat cable connected by means of pointed screws, without the cable insulation having to be stripped.
- Connection of one round cable up to 2x0.5mm², by means of connectors.
- For branching flat cable.

Where are these flat cables used?
- In the field of building automation, to connect intelligent devices such as actuators or sensors via bus.
- Specific use with KNX, DALI, LON etc.

Flat cable enables installations to be completed easily with further connections.

Mounting procedure of branching box No. 49720

1 — Place the connecting box on the bus cable.

2 — Push on the baseplate.

3 — Turn in the pointed screws as far as they will go.

4 — Clip the hood.

5 — To release the hood, insert a screwdriver in the slit provided for the purpose and lift slightly.

Possibility of pre-wiring: the installation becomes more rational!

On request, the connectors may be provided in advance with round cables.
The branching boxes which are dedicated to be placed at regular intervals in office buildings may also be mounted in advance (fig. 1-4 above) in the workshop. On the building site branching will be easy to perform with only one click and without any tool! Important time savings will be performed - to your advantage!

ecobus data 2x1.5mm^2

Flat cable bus 2x1.5mm^2

-suitable for different bus
 systems
-with 2 parallel leads
-shield of aluminium
-asymmetric flat cable to avoid
 reverse polarity

	Flat cable bus of PVC		Flat cable bus halogen-free	
No.				
	49949	113 397 309	**49948**	113 397 307
with black strips	**49949/SM**	113 397 300		

Technical data

Sheath	PVC	Polyethylene Compound
Colour of the sheath	dark grey[1]	dark grey[2]
Dimensions	11x6mm	11x6mm
Weight	90g/m	86g/m
Fire load	0.48kWh/m	0.44kWh/m
No. of leads x cross-section	2x1.5mm^2	2x1.5mm^2
Copper conductors	tinned	tinned
Insulation of the leads	Polyethylene	Polyethylene
Colour of the leads	neutral	neutral
Shield	double shield of aluminium	double shield of aluminium
Test voltage	4kV, 50Hz	4kV, 50Hz
Rated voltage	50V	50V
Max. rated current	3A	3A
DC-resistance	13.7Ω/km	13.7Ω/km
Capacitance	70pF/m	70pF/m
Attenuation at 1Hz	nom. 1.2dB/100m	nom. 1.2dB/100m
Charact. impedance at 1MHz	nom. 75Ω	nom. 75Ω
Packing unit	500m/1000m	500m/1000m

Accessories

		see page		see page
Branching box	49720, 49721, 49727	5.3.13	49720, 49721, 49727	5.3.13
Box with micro-terminal	49722	5.3.14	49722	5.3.14
Cable end piece	49732	5.3.15	49732	5.3.15
Clamp	49693	5.3.15	49693	5.3.15
Shears	49930	5.3.15	49930	5.3.15
Insulating tape	49960	5.3.15	49960	5.3.15

[1] other colours on request (e.g. red, white, black)

[2] other colours on request (e.g. red, white, black)

ecobus data 2x1.5mm^2

Branching boxes with socket 2- or 3-pole to flat cables No. 49949 and 49948

- pluggable branching
- coded sockets corresponding to different bus systems
- reverse polarity protection
- longitudinal connection
- the third pole may not be contacted

	Branching box with socket 2-pole, for KNX		Branching box with socket 3-pole, for bus		Branching box with socket 3-pole, for bus	
No.						
	49720	150 706 137	**49721**	150 706 237	**49727**	150 706 437
Technical data						
Weight	12g		12g		12g	
Dimensions LxWxH	47x18x23.5mm		47x18x23.5mm		47x18x23.5mm	
Fire load	0.08kWh		0.08kWh		0.08kWh	
Socket	type BST14i2, code KNX		type BST14i3, code 3		code Woertz	
Plastic parts	black / green / transparent, halogen-free		black / transparent, halogen-free		black / grey / transparent, halogen-free	
Metal parts	corrosion-resistant		corrosion-resistant		corrosion-resistant	
Pointed screws	tightening torque 1.0Nm, screwdriver No. 3		tightening torque 1.0Nm, screwdriver No. 3		tightening torque 1.0Nm, screwdriver No. 3	
Rated voltage	50V		50V		50V	
Rated current	3A		3A		3A	
Packing unit	50 pce.		50 pce.		50 pce.	
Degree of protection	IP20		IP20		IP20	
Accessories		see page		see page		see page
Connector	49740M	5.3.32	49741M	5.3.32	49747M	5.3.33 or brochure 5.2
Socket	49740F	5.3.32	49741F	5.3.32	49747F	5.3.33
Snap-in	49420M 49420F	5.3.32	-	-	49421M 49421F	5.3.33
Pre-wired connectors	49740/...M	5.3.32	49741/...M	5.3.33	49747/...M	5.3.33

ecobus data 2x1.5mm^2

Connecting box with micro-terminal to flat cables No. 49949 and 49948

- especially designed for connecting control units
- suitable for different bus systems
- reverse polarity protection
- longitudinal connection

Connecting box 2x0.5mm^2 with micro-terminal
for supply and branching

No.

	49722	150 706 337

Technical data

Weight	14g
Dimensions LxWxH	37x18x23.5
Fire load	0.08kWh
Plastic parts	black / transparent, halogen-free
Metal parts	corrosion-resistant
Pointed screws	tightening torque 1.0Nm, screwdriver No. 3
Rated voltage	50V
Rated current	3A
Packing unit	50 pce.
Degree of protection	IP20

Accessories

Cable end piece

49732
150 901 117

Of polycarbonate, halogen-free, transparent
Dimensions: 20x14x9 mm
Weight: 1.5g
Fire load: 0.02kWh
Packing unit: 10 pce.

Clamp for screw fixing

49693
120 008 607

Of polyamide 66, halogen-free, grey
Dimensions: 31x10x8.5mm
Weight: 1.2g
Fire load: 0.01kWh
Packing unit: 100 pce.

Shears

49930
983 045 007

For cutting neatly and easily every type of flat cables (max. width 32mm).
With sliding anvil. Teflon coated blades.
Packing unit: 1 pce.

Insulating tape

49960
171 013 004

To reinsulate correctly the holes due to pointed screws or cutting teeth when removing or displacing connections.
Insulating tape trademark "Scotch 2210", synthetic caoutchouc-based product, PVC coated black.
Weatherproof, self-fusing.
Dimensions: 102x100x2.3mm
Dielectric strength: max. 23kV/mm
Temperature: max. +70°C
Packing unit: 10 pce.

ecobus combi
5G2.5+2x1.5mm²

Power current and data lines combined in one cable.
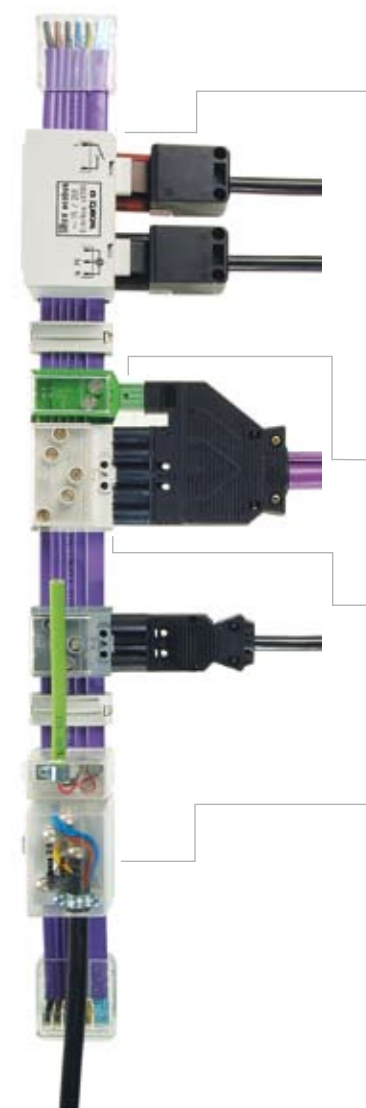
Connecting box SBox, No. 49705P/L..
- Direct connection of loads at any point of the cable.
- Flat cable connected by means of pointed screws, without the cable insulation having to be stripped.
- Connection of round cables up to 3x2.5mm² per connector.
- For branching flat cable.
- For rational installations it is recommended to use an electric screwdriver (Please observe the tightening torques!)

Connecting box 5x2.5mm²+2x1.5mm², No. 49725.
- Direct connection of loads at any point of the cable.
- Flat cable connected by means of pointed screws, without the cable insulation having to be stripped.
- For rational installations it is recommended to use an electric screwdriver (Please observe the tightening torques!)

Bus part
- Shield not grounded.
- Connection of round cables up to 2x0.5mm² per connector.
- For branching flat cable.

Power current part
- Connection of round cables up to 5x2.5mm² per connector.
- For branching flat cable.
- For rational installations it is recommended to use an electric screwdriver (Please observe the tightening torques!)

Connecting box 5x2.5mm²+2x1.5mm², No. 49700.
- Direct connection of loads at any point of the cable.
- Flat cable connected by means of pointed screws, without the cable insulation having to be stripped.
- Connection of one round cable up to 5x2.5mm² and 2x1.5mm² by means of screws.
- For supply and branching of flat cable.
- For rational installations it is recommended to use an electric screwdriver (Please observe the tightening torques!)

- **Where are these flat cables used?**
- in office buildings
- in hospitals, clinics and residential facilities
- in industrial buildings
- in hotels

Flat cable enables installations to be completed easily with further connections.
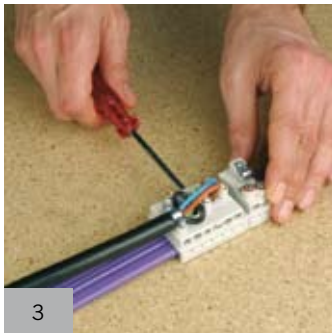
Mounting procedure of connecting box No. 49700 / 49701

**1** Place the connecting box on the flat cable - the different lugs prevent the box from incorrect mounting.

2 Push on the baseplate (violet). In case of incorrect mounting the bottom part of the box cannot be fitted with normal force.

3 **Power current and bus parts**

Introduce the round cable into the flat cable box. Tighten the strain relief clamp to maintain the round cable.
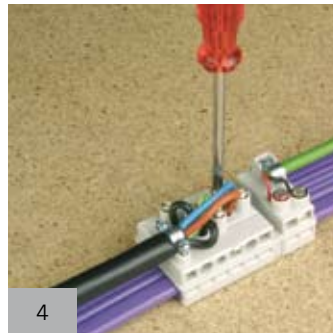
4 Turn in the pointed screws as far as they will go.

5 Clip the hood.

The mounting procedure may also occur in a changed order: 3, 1, 2, 4, 5.
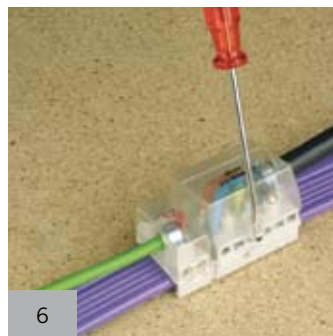
6 To release the hood, insert a screwdriver in the slit provided for the purpose and lift slightly.

⚠ The overcurrent protection devices will be chosen in relation to the length of installed cables so that their response time conform to specifications in case of malfunction.

Please consider the maximal load for phases and bus.

Possibility of pre-wiring: the installation becomes more rational!

On request, the connectors may be provided in advance with round outgoing cables.
The connecting boxes which are dedicated to be placed at regular intervals in office buildings may be mounted in advance (fig. 1-3 above) in our workshops. It is also possible to prewire all the sockets which are mounted in under-window ducts or floor ducts. On the building site, the connection to the flat cable will be done in a matter of seconds! Important time savings will be performed - to your advantage!

ecobus combi 5G2.5mm^2+2x1.5mm^2

Flat cable 5G2.5mm^2+2x1.5mm^2

-2 cables within one sheath
-3 different phases (L1, L2 and L3) and one bus in the same cable
-quick installation
-various and flexible installations
-asymmetric flat cable to avoid reverse polarity

	Flat cable of PVC 3L+N+PE+2Bus		Flat cable halogen-free 3L+N+PE+2Bus	
No.				
	49945	113 388 083	**49946**	113 388 007
with black strips	**49945/SM**	113 388 084	**49946/SM**	113 388 004

Technical data

Sheath	PVC	Polyethylene Compound
Colour of the sheath	violet[1]	violet[2]
Dimensions	32x6mm	32x6mm
Weight	350g/m	340g/m
Fire load	1.18kWh/m	0.99kWh/m
No. of leads x cross-section	5x2.5mm^2+2x1.5mm^2	5x2.5mm^2+2x1.5mm^2
Power current		
Copper conductors	tinned, highly flexible	tinned, highly flexible
Insulation of the leads	PVC	Flame retardant, vulcanized and halogen-free Polyethylene Compound
Colour of the leads	grey, black, brown, blue, green/yellow	grey, black, brown, blue, green/yellow
Cross-section	2.5mm^2	2.5mm^2
Test voltage	4kV, 50Hz	4kV, 50Hz
Rated voltage	0.6/1kV	0.6/1kV
DC-resistance	7.98Ω/km	7.98Ω/km
Bus part		
Copper conductors	tinned	tinned
Insulation of the leads	Polyethylene	Polyethylene
Colour of the leads	neutral	neutral
Shield	double shield of aluminium	double shield of aluminium
Cross-section	1.5mm^2	1.5mm^2
Rated voltage	50V	50V
Max. rated current	3A	3A
DC-resistance	13.7Ω/km	13.7Ω/km
Capacitance	70pF/m	70pF/m
Attenuation at 1Hz	nom. 1.2dB/100m	nom. 1.2dB/100m
Charact. impedance at 1MHz	nom. 75Ω	nom. 75Ω
Packing unit	500m/1000m	500m/1000m

[1] other colours on request (e.g. red, white, black)   [2] other colours on request (e.g. red, white, black)

ecobus combi 5G2.5mm^2+2x1.5mm^2

Accessories	Flat cable of PVC 3L+N+PE+2Bus	see page	Flat cable halogen-free 3L+N+PE+2Bus	see page
Connecting box for power current and bus	49700	5.3.20	49700	5.3.20
Connecting box for power current	49701	5.3.21	49701	5.3.21
Connecting box for bus	49702	5.3.21	49702	5.3.21
Connecting box for power current 3-pole	49713/L1, 49713/L2, 49713/L3, 49413	5.3.22	49713/L1, 49713/L2, 49713/L3, 49413	5.3.22
Connecting box for power current 5-pole	49715	5.3.22	49715	5.3.22
Branching box for bus, code KNX	49710	5.3.23	49710	5.3.23
Branching box for bus, code 3	49711	5.3.23	49711	5.3.23
Branching box for bus, code KNX	49720/C	5.3.24	49720/C	5.3.24
Branching box for bus, code 3	49721/C	5.3.24	49721/C	5.3.24
Branching box for bus, code Woertz	49727/C	5.3.24	49727/C	5.3.24
Branching box for power current and bus, code KNX	49723/L1, 49723/L2, 49723/L3	5.3.25	49723/L1, 49723/L2, 49723/L3	5.3.25
Branching box for power current and bus, code 1	49724/L1, 49724/L2, 49724/L3	5.3.25	49724/L1, 49724/L2, 49724/L3	5.3.25
Branching box, code 1	49725	5.3.26	49725	5.3.26
Branching box, code 1	49726	5.3.26	49726	5.3.26
Connecting box, flat execution	49703	5.3.27	49703	5.3.27
Branching box SBox I/O switch	49705/L1, 49705/L2, 49705/L3	5.3.28	49705/L1, 49705/L2, 49705/L3	5.3.28
Branching box SBox with impulse switch	49706/L1, 49706/L2, 49706/L3	5.3.28	49706/L1, 49706/L2, 49706/L3	5.3.28
Branching box SBox with changeover contact	49707/L1, 49707/L2, 49707/L3	5.3.29	49707/L1, 49707/L2, 49707/L3	5.3.29
Branching box SBox with series connection	49708/L1, 49708/L2, 49708/L3	5.3.29	49708/L1, 49708/L2, 49708/L3	5.3.29
Cable end piece	49730	5.3.30	49730	5.3.30
Fastening clamp for screw fixing	49731	5.3.30	49731	5.3.30
Cable stripping tool	49736	5.3.30	49736	5.3.30
Shears	49930	5.3.30	49930	5.3.30
Insulating tape	49960	5.3.30	49960	5.3.30
Fastening clamp for screwing on	49733	5.3.30	49733	5.3.30
Fastening clamp for sticking on	49733A	5.3.30	49733A	5.3.30

ecobus combi 5G2.5mm^2+2x1.5mm^2

Connecting box with screw-type connection for power current and bus to flat cables No. 49945 and 49946

-numerous various applications
-reverse polarity protection
-longitudinal connection

Connecting box 5x2.5mm^2 for supply or branching, for power current

No.

	49700	150 775 137

Technical data

Weight	86g
Dimensions LxWxH	76x41x39mm
Fire load	0.47kWh
Plastic parts	light grey / transparent, halogen-free
Metal parts	corrosion-resistant
No. of leads x cross-section	5x2.5mm^2+2x1.5mm^2
Connecting capacity	Ø 3.75mm + Ø 3.2mm
Packing unit	50 pce.
Degree of protection	IP20
Power current part	
Pointed screws	tightening torque 0.7Nm, Phillips-head screwdriver No. 1
Clamping screws	tightening torque 0.7Nm, Phillips-head screwdriver No. 1
Cross-section	2.5mm^2
Rated voltage	690V
Rated current	16A
Bus part	
Pointed screws	tightening torque 1.0Nm, screwdriver No. 3
Clamping screws	tightening torque 0.7Nm, screwdriver No. 3
Cross-section	1.5mm^2
Rated voltage	50V
Rated current	3A

ecobus combi 5G2.5mm^2+2x1.5mm^2

Connecting box with screw-type connection for power current or bus to flat cables No. 49945 and 49946

Connecting box 5x2.5mm^2 for supply and branching, for power current

Connecting box 2x1.5mm^2 for supply and branching, for bus

No.

	49701	150 775 037	49702	150 732 037

Technical data

Weight	55g	23g
Dimensions LxWxH	58x41x39mm	21x41x39mm
Fire load	0.33kWh	0.14kWh
Plastic parts	light grey / transparent, halogen-free	light grey / transparent, halogen-free
Metal parts	corrosion-resistant	corrosion-resistant
No. of leads x cross-section	5x2.5mm^2	2x1.5mm^2
Connecting capacity	Ø 3.75mm	Ø 3.2mm
Packing unit	50 pce.	50 pce.
Degree of protection	IP20	IP20
Power current part		
Pointed screws	tightening torque 0.7Nm, Phillips-head screwdriver No. 1	
Clamping screws	tightening torque 0.7Nm, Phillips-head screwdriver No. 1	
Cross-section	2.5mm^2	
Rated voltage	690V	
Rated current	16A	
Bus part		
Pointed screws		tightening torque 1.0Nm, screwdriver No. 3
Clamping screws		tightening torque 0.7Nm, screwdriver No. 3
Cross-section		1.5mm^2
Rated voltage		50V
Rated current		3A

ecobus combi 5G2.5mm^2+2x1.5mm^2

Branching boxes with socket 3- or 5-pole to flat cables 49945 and 49946

- pluggable power branching
- reverse polarity protection
- lateral or longitudinal connection according to the type of the box

Branching box with socket 3-pole
Lateral connection

Branching box with socket 3-pole
With phase selection and locking
Longitudinal connection

Branching box with socket 5-pole
Lateral connection

No.

			49413/C		**49715**	150 700 337
Connection L1	**49713/L1**	150 700 137				
Connection L2	**49713/L2**	150 700 237				
Connection L3	**49713/L3**	150 700 117				

Technical data

Weight	40g	55g	65g
Dimensions LxWxH	34.5x57.5x25.7mm	48x40x34mm	54x57.5x25.7mm
Fire load	0.18kWh	0.32kWh	0.27kWh
Socket	type GST18i3, code 1	type GST18i3, code 1	type GST18i5, code 1
Colour of box, connection L1	light grey		
Colour of box, connection L2	dark grey		
Colour of box, connection L3	black		
Plastic parts	coloured / transparent, halogen-free	black / yellow / transparent, halogen-free	light grey / transparent, halogen-free
Metal parts	corrosion-resistant	corrosion-resistant	corrosion-resistant
Pointed screws	tightening torque 0.7Nm, Phillips-head screwdriver No. 1	tightening torque 0.7Nm, Phillips-head screwdriver No. 1	tightening torque 0.7Nm, Phillips-head screwdriver No. 1
Rated voltage	250V	250V	250V/400V
Rated current	16A	16A	16A
Packing unit	50 pce.	25 pce.	50 pce.
Degree of protection	IP20	IP20	IP20

Accessories
see brochure   see brochure   see brochure

Connector	49743M	5.2	49743M	5.2	49745M	5.2
Socket	49743F	5.2	49743F	5.2	49745F	5.2
Pre-wired connectors	49743/...M, ... M25	5.2	49743/...M, ... M25	5.2	49745/...M, ... M25	5.2
Extensions	49743/...MF, ..MF25	5.2	49743/...MF, ..MF25	5.2	49745/...MF, ..MF25	5.2
Locking	49750	5.2	-		49750	5.2

ecobus combi 5G2.5mm^2+2x1.5mm^2

Branching box with socket 2-pole to flat cables No. 49945 and 49946, lateral connection

- pluggable bus branching
- coded sockets corresponding to different bus systems
- reverse polarity protection
- lateral connection
- third pole cannot be connected

Branching box with socket 2-pole
for KNX
Lateral connection

Branching box with socket 3-pole
for bus
Lateral connection

No.

	49710	150 701 187	49711	150 702 237

Technical data

Weight	18g		18g	
Dimensions LxWxH	27x57.5x25.7mm		27x57.5x25.7mm	
Fire load	0.12kWh		0.12kWh	
Socket	type BST14i2, code KNX		type BST14i3, code 3	
Plastic parts	green / transparent, halogen-free		black / transparent, halogen-free	
Metal parts	corrosion-resistant		corrosion-resistant	
Pointed screws	tightening torque 1.0Nm, screwdriver No. 3		tightening torque 1.0Nm, screwdriver No. 3	
Rated voltage	50V		50V	
Rated current	3A		3A	
Packing unit	50 pce.		50 pce.	
Degree of protection	IP20		IP20	

Accessories

		see page		see page
Connector	49740M	5.3.32	49741M	5.3.32
Socket	49740F	5.3.32	49741F	5.3.32
Snap-in	49420M 49420F	5.3.32	49421M 49421F	5.3.33
Pre-wired connectors	49740/...M	5.3.32	49741/...M	5.3.33

ecobus combi 5G2.5mm^2+2x1.5mm^2

Branching box with socket 2-pole to flat cables No. 49945 and 49946

- pluggable bus branching
- coded sockets corresponding to different bus systems
- reverse polarity protection
- longitudinal connection
- third pole cannot be connected

	Branching box with socket 2-pole, for KNX Longitudinal connection	Branching box with socket 3-pole, for bus Longitudinal connection	Branching box with socket 3-pole, for bus Longitudinal connection
No.			
	49720/C 150 707 137	**49721/C** 150 707 237	**49727/C** 150 707 337
Technical data			
Weight	19g	19g	19g
Dimensions LxWxH	44x39.5x28mm	44x39.5x28mm	44x39.5x28mm
Fire load	0.12kWh	0.12kWh	0.12kWh
Socket	type BST14i2, code KNX	type BST14i3, code 3	code Woertz
Plastic parts	black / green / transparent, halogen-free	black / transparent, halogen-free	black / grey / transparent, halogen-free
Metal parts	corrosion-resistant	corrosion-resistant	corrosion-resistant
Pointed screws	tightening torque 1.0Nm, screwdriver No. 3	tightening torque 1.0Nm, screwdriver No. 3	tightening torque 1.0Nm, screwdriver No. 3
Rated voltage	50V	50V	50V
Rated current	3A	3A	3A
Packing unit	50 pce.	50 pce.	50 pce.
Degree of protection	IP20	IP20	IP20
Accessories	see page	see page	see page
Connector	49740M 5.3.32	49741M 5.3.32	49747M 5.3.33 or brochure 5.2
Socket	49740F 5.3.32	49741F 5.3.32	49747F 5.3.33
Snap-in	49420M 49420F 5.3.32	- -	49421M 49421F 5.3.33
Pre-wired connectors	49740/...M 5.3.32	49741/...M 5.3.33	49747/...M 5.3.33

ecobus combi 5G2.5mm^2+2x1.5mm^2

Branching box with socket 2- and 3-pole to flat cables No. 49945 and 49946

-pluggable branching for power
 current and bus
-coded sockets corresponding to
 different bus systems
-reverse polarity protection
-lateral connection
-third bus pole cannot be
 connected

Branching box with sockets 2- and 3-pole

Branching box with sockets 2- and 3-pole

No.

Connection L1	**49723/L1**	150 701 137	**49724/L1**	150 703 037
Connection L2	**49723/L2**	150 701 237	**49724/L2**	150 703 137
Connection L3	**49723/L3**	150 701 117	**49724/L3**	150 703 017

Technical data

Weight	57.5g	57.5g
Dimensions LxWxH	59.5x57.5x25.7mm	59.5x57.5x25.7mm
Fire load	0.29kWh	0.29kWh
Socket	type EST2i3, code KNX	type EST3i3, code 1
Plastic parts	coloured / transparent, halogen-free	coloured / transparent, halogen-free
Metal parts	corrosion-resistant	corrosion-resistant
Packing unit	50 pce.	50 pce.
Degree of protection	IP20	IP20
Power current part		
Colour of box, connection L1	light grey	light grey
Colour of box, connection L2	dark grey	dark grey
Colour of box, connection L3	black	black
Pointed screws	tightening torque 0.7Nm, Phillips-head screwdriver No.1	tightening torque 0.7Nm, Phillips-head screwdriver No.1
Rated voltage	250V	250V
Rated current	16A	16A
Bus part		
Pointed screws	tightening torque 1.0Nm, screwdriver No. 3	tightening torque 1.0Nm, screwdriver No. 3
Rated voltage	50V	50V
Rated current	3A	3A

Accessories

		see page		see page
Connector	49753M	5.3.34	49754M	5.3.34
Snap-in	49420M 49420F	5.3.32	49421M 49421F	5.3.33
Pre-wired connectors	49753/...M	5.3.34	49754/...M	5.3.34
Locking	49750	5.3.34	49750	5.3.34

ecobus combi 5G2.5mm^2+2x1.5mm^2

Branching box with sockets 2/3-pole and 5-pole to flat cables No. 49945 and 49946

- pluggable branching for power current and bus
- coded sockets corresponding to different bus systems
- reverse polarity protection
- lateral connection
- third bus pole cannot be connected

Branching box with socket 2 and 5-pole

Branching box with socket 3 and 5-pole

No.

	49725	150 705 137	49726	150 705 237

Technical data

Weight	82g		82g
Dimensions LxWxH	79x57.5x25.7mm		79x57.5x25.7mm
Fire load	0.40kWh		0.40kWh
Socket	type EST2i5, code 1		type EST3i5, code 1
Plastic parts	light grey / transparent, halogen-free		light grey / transparent, halogen-free
Metal parts	corrosion-resistant		corrosion-resistant
Packing unit	50 pce.		50 pce.
Degree of protection	IP20		IP20
Power current part			
Pointed screws	tightening torque 0.7Nm, Phillips-head screwdriver No. 1		tightening torque 0.7Nm, Phillips-head screwdriver No. 1
Rated voltage	250V/400V		250V/400V
Rated current	16A		16A
Bus part			
Pointed screws	tightening torque 1.0Nm, screwdriver No. 3		tightening torque 1.0Nm, screwdriver No. 3
Rated voltage	50V		50V
Rated current	3A		3A

Accessories

		see page		see page
Connector	49755M	5.3.35	49756M	5.3.35
Snap-in	49420M 49420F	5.3.32	49421M 49421F	5.3.33
Pre-wired connectors	49755/...M	5.3.35	49756/..M	5.3.35
Locking	49750	5.3.35	49750	5.3.35

ecobus combi 5G2.5mm^2+2x1.5mm^2

Connecting box, flat execution to flat cables No. 49945 and 49946

-low profile
-reverse polarity protection
-longitudinal connection

Connecting box, flat execution
3P+N+PE

No.

49703	150 701 007

Technical data

Weight	72g
Dimensions LxWxH	96x60x23mm
Fire load	0.38kWh
Plastic parts	light grey / transparent, halogen-free
Metal parts	corrosion-resistant
Connecting capacity	Ø 6-13mm
No. of leads x cross-section	for flexible round cable of PVC up to 5x1.5mm^2 with end sleeves for strands or rigid round cables up to 5x2.5mm^2
Pointed screws	tightening torque 0.7Nm, Phillips-head screwdriver No.1
Spring clamp terminals	2 connections per pole
Rated voltage	690V
Rated current	16A
Packing unit	50 pce.
Degree of protection	IP20

ecobus combi 5G2.5mm^2+2x1.5mm^2

Connecting box SBox for lighting installations with I/O switch or impulse switch

-short mounting procedures
-pluggable branching
-wiring diagram on the product
 data sheet

Branching box with I/O switch

Branching box with impulse switch

No.

Connection L1	**49705/L1**	150 711 307	**49706/L1**	150 712 307
Connection L2	**49705/L2**	150 711 327	**49706/L2**	150 712 327
Connection L3	**49705/L3**	150 711 347	**49706/L3**	150 712 347

Technical data

Weight	94g	110g
Dimensions LxWxH	74x67x37mm	74x67x37mm
Fire load	0.20kWh	0.20kWh
Colour of box, connection L1	light grey	light grey
Colour of box, connection L2	dark grey	dark grey
Colour of box, connection L3	black	black
Socket to switches	type GST 18i3, code 4 (brown)	type GST 18i3, code 4 (brown)
Socket to lamps	type GST 18i3, code 1	type GST 18i3, code 1
Plastic parts	halogen-free	halogen-free
Metal parts	corrosion-resistant	corrosion-resistant
Pointed screws	tightening torque 0.7Nm, Phillips-head screwdriver No. 1	tightening torque 0.7Nm, Phillips-head screwdriver No. 1
Rated voltage	250V	250V
Rated current	16A	16A
Packing unit	50 pce.	50 pce.
Degree of protection	IP20	IP20

Accessories

		see brochure		see brochure
Connector to lamps	49743M	5.2	49743M	5.2
Pre-wired connectors to lamps	49743/..M 49743/..M25	5.2	49743/..M 49743/..M25	5.2
Extensions to lamps	49743/..MF	5.2	49743/..MF	5.2
Connector to switches	49742M	5.2	49742M	5.2
Pre-wired connectors to switches	49742/..M	5.2	49742/..M	5.2
Baseplate with fixing brackets	49738	5.2	49738	5.2

ecobus combi 5G2.5mm^2+2x1.5mm^2

Connecting box SBox for lighting installations with changeover contact or series connection

	Branching box with changeover contact		Branching box with series connection	
No.				
Connection L1	**49707/L1**	150 713 307	**49708/L1**	150 714 307
Connection L2	**49707/L2**	150 713 327	**49708/L2**	150 714 327
Connection L3	**49707/L3**	150 713 347	**49708/L3**	150 714 347
Technical data				
Weight	120g		120g	
Dimensions LxWxH	74x88x37mm		74x88x37mm	
Fire load	0.20kWh		0.20kWh	
Colour of box, connection L1	light grey		light grey	
Colour of box, connection L2	dark grey		dark grey	
Colour of box, connection L3	black		black	
Socket to switch	type GST 18i3, code 4 (brown)		type GST 18i3, code 4 (brown)	
Socket to lamps	type GST 18i3, code 1		type GST 18i3, code 1 black	
Plastic parts	halogen-free		halogen-free	
Metal parts	corrosion-resistant		corrosion-resistant	
Pointed screws	tightening torque 0.7Nm, Phillips-head screwdriver No. 1		tightening torque 0.7Nm, Phillips-head screwdriver No. 1	
Rated voltage	250V		250V	
Rated current	16A		16A	
Packing unit	50 pce.		50 pce.	
Degree of protection	IP20		IP20	
Accessories		see brochure		see brochure
Connector to lamps	49743M	5.2	49743M	5.2
Pre-wired connectors to lamps	49743/..M 49743/..M25	5.2	49743/..M 49743/..M25	5.2
Extensions to lamps	49743/..MF	5.2	49743/..MF	5.2
Connector to switches	49742M	5.2	49742M	5.2
Pre-wired connectors to switches	49742/..M	5.2	49742/..M	5.2
Baseplate with fixing brackets	49738	5.2	49738	5.2

Accessories

Cable end piece

49730
120 900 117

Of polycarbonate, halogen-free, transparent
Dimensions: 41x40x9 mm
Weight: 10g
Fire load: 0.08kWh
Packing unit: 10 pce.

Note:
Before mounting the cable, first strip it at both ends for a distance of 19mm so that the specified creepage distance will be observed.

Clamp for screw fixing

49731
120 008 107

Of polyamide 66, halogen-free, grey
Dimensions: 52x10x10 mm
Weight: 2g
Fire load: 0.02kWh
Packing unit: 100 pce.

Cable stripping tool

49736
983 050 427

This tool offers the advantage of stripping neatly and easily the cable without damaging the insulation of the conductors.
Packing unit: 1 pce.

Note:
The cable has to be stripped at both ends for a distance of 19mm so that the conductors can be inserted properly in the end pieces.

Shears

49930
983 045 007

For cutting neatly and easily every type of flat cables (max. width 32mm).
With sliding anvil. Teflon coated blades.
Packing unit: 1 pce.

Insulating tape

49960
171 013 004

To reinsulate correctly the holes due to pointed screws or cutting teeth when removing or displacing connections.
Insulating tape trademark "Scotch 2210", synthetic caoutchouc-based product, PVC coated black.
Weatherproof, self-fusing.
Dimensions: 102x100x2.3mm
Dielectric strength: max. 23kV/mm
Temperature: max. +70°C
Packing unit: 10 pce.

Cable fastening clamp

49733
150 900 117

49733A
150 900 107

No. 49733 for screwing on
No. 49733A for sticking on
Of polyamide 66, halogen-free, grey
Dimensions: 40x15x15mm
Weight: 3.7g
Fire load: 0.03kWh
Packing unit: 100 pce.

Connectors

2-pole KNX connector

	49740M 157 800 288	2-pole, with spring connection, black/green, with code KNX type BST 14i2 F S1 Z to single-wire and highly flexible leads 0.25-0.75mm² with strain relief and locking to leads ø 5-7mm Height: 14.4mm Fire load: 0.04kWh Packing unit: 10 pce.

2-pole KNX socket

	49740F 157 800 388	2-pole, with spring connection, black/green, with code KNX type BST 14i2 F B1 Z to single-wire and highly flexible leads 0.25-0.75mm² with strain relief and locking to leads ø 5-7mm Height: 14.4mm Fire load: 0.04kWh Packing unit: 10 pce.

2-pole KNX Snap-in

	49420M **49420F**	2-pole, with spring connection, black/green, with code KNX type BST 14i2 to single-wire and highly flexible leads 0.25-0.75mm² with locking Dimensions LxWxH: 23.5x19.5x29.5mm Mounting opening: 17.8x17.8mm Sheet thickness: 0.5-2.5mm Fire load: 0.04kWh Packing unit: 25 pce

Pre-wired connectors

	49740/1M 157 881 288 **49740/2M** 157 882 288 **49740/3M** 157 883 288	Connector with one free cable end, 2-pole type BST 14i2 KF-S, code KNX with round, flexible cable 2x0.5mm², green Height: 14.4mm Length: 1, 2 or 3 m further lengths on request stripping length of sheath 20mm, stripping length of insulation 8mm Packing unit: 1 pce.

3-pole bus connector

	49741M 157 804 218	3-pole, with spring connection, black. with code 3 (incompatible with code KNX) type BST 14i3 F S1 Z to single-wire and highly flexible leads 0.25-0.75mm² with strain relief and locking to leads ø 5-7mm Height: 14.4mm Fire load: 0.04kWh Packing unit: 10 pce.

3-pole bus socket

	49741F 157 880 008	3-pole, with spring connection, black. with code 3 (incompatible with code KNX) type BST 14i3 F B1 Z to single-wire and highly flexible leads 0.25-0.75mm² with strain relief and locking to leads ø 5-7mm Height: 14.4mm Fire load: 0.04kWh Packing unit: 10 pce.

Connectors

Pre-wired connectors

49741/1M
157 881 238
49741/2M
157 882 238
49741/3M
157 883 238

Connector with one free cable end, 3-pole (shield not connected)
type BST 14i3 F S1 Z, code 3
with flexible round cable 2x0.5mm^2, grey
Height: 14.4mm
Length: 1, 2 or 3 meters
further lengths on request
stripping length of sheath 20mm, stripping length of insulation 8mm
Packing unit: 1 pce.

Connector bus 3-pole

49747M

3-pole, with spring connection, black/grey.
with code Woertz (incompatible with code KNX)
to single-wire and highly flexible leads 0.25-0.75mm^2
with strain relief and locking to leads ø 5-7mm
Height: 14.4mm
Fire load: 0.04kWh
Packing unit: 10 pce.

Socket bus 3-pole

49747F

3-pole, with spring connection, black/grey.
with code Woertz (incompatible with code KNX)
to single-wire and highly flexible leads 0.25-0.75mm^2
with strain relief and locking to leads ø 5-7mm
Height: 14.4mm
Fire load: 0.04kWh
Packing unit: 10 pce.

Snap-in bus 3-pole

49421M
49421F

3-pole, with spring connection, black/grey.
with code Woertz (incompatible with code KNX)
to single-wire and highly flexible leads 0.25-0.75mm^2
with locking
Dimensions LxWxH: 23.5x19.5x29.5mm
Mounting opening: 17.8x17.8mm
Sheet thickness: 0.5-2.5mm
Fire load: 0.04kWh
Packing unit: 25 pce

Pre-wired connectors

49747/1M
49747/2M
49747/3M

Connector with one free cable end, 3-pole (shield not connected)
code Woertz
with flexible round cable 2x0.5mm^2, grey
Height: 14.4mm
Length: 1, 2 or 3 meters
further lengths on request
stripping length of sheath 20mm, stripping length of insulation 8mm
Packing unit: 1 pce.

Connectors

Connector KNX 2-pole, power 3-pole

49753M 157 801 318	Power: 3-pole, with screw connection, black Bus: 2-pole, with spring connection, black/green type EST 2i3FS S1 Z, code 1 for one double cable 3G1.5mm^2+2x0.5mm^2 Height: 15.5mm Fire load: 0.18kWh Packing unit: 10 pce.

Pre-wired connectors

49753/1M 157 881 218 **49753/2M** 157 882 218 **49753/3M** 157 883 218	Connector with one free cable end, 3 + 2-pole, code 1 type EST 2i3, locking possibility with flexible double round cable, of PVC, black 3G1.5mm^2+2x0.5mm^2 Length: 1, 2, or 3 meters further lengths on request Packing unit: 1 pce.

Locking

49750 150 900 118	Mechanical link between box and connector Length: 37.5mm Packing unit: 10 pce.

Connector bus 3-pole, power 3-pole

49754M 157 802 318	Power: 3-pole, with screw connection, black Bus: 2-pole, with spring connection, black type EST 2i3FS S1 Z, code 1 for one double cable 3G1.5mm^2+2x0.5mm^2 Height: 15.5mm Fire load: 0.18kWh Packing unit: 10 pce.

Pre-wired connectors

49754/1M 157 881 618 **49754/2M** 157 882 618 **49754/3M** 157 883 618	Connector with one free cable end, 3 + 3-pole, code 1 (shield not connected) type EST 3i3, locking possibility with flexible double round cable, of PVC, black 3G1.5mm^2+2x0.5mm^2 Length: 1, 2 or 3 meters further lengths on request Packing unit: 1 pce.

Locking

49750 150 900 118	Mechanical link between box and connector Length: 37.5mm Packing unit: 10 pce.

Connectors

Connector KNX 2-pole, power 5-pole

49755M 157 800 528	Power: 5-pole, with screw connection, black Bus: 2-pole, with spring connection, black/green type EST 2i5FS S1 Z, code 1 for one double cable 5G2.5mm^2+2x0.5mm^2 Height: 17mm Fire load: 0.24kWh Packing unit: 10 pce.

Pre-wired connectors

49755/1M 157 881 718 **49755/2M** 157 882 718 **49755/3M** 157 883 718	Connector with free cable end, 5 + 2-pole, code 1 type EST 2i5, locking possibility with flexible double round cable of PVC, black 5G2.5mm^2+2x0.5mm^2 Length: 1, 2, or 3 meters further lengths on request Packing unit: 1 pce.

Locking

49750 150 900 118	Mechanical link between box and connector Length: 37.5mm Packing unit: 10 pce.

Connector bus 3-pole, power 5-pole

49756M 157 801 528	Power: 5-pole, with screw connection, black Bus: 3-pole, with spring connection, black type EST 2i5FS S1 Z, code 1 for one double cable 5G2.5mm^2+2x0.5mm^2 Height: 17mm Fire load: 0.24kWh Packing unit: 10 pce.

Pre-wired connectors

49756/1M 157 881 818 **49756/2M** 157 882 818 **49756/3M** 157 883 818	Connector with free cable end, 5 + 3-pole, code 1 (shield not connected) type EST 3i5, locking possibility with flexible double round cable of PVC, violet 5G2.5mm^2+2x0.5mm^2 Length: 1, 2 or 3 meters further lengths on request Packing unit: 1 pce.

Locking

49750 150 900 118	Mechanical link between box and connector Length: 37.5mm Packing unit: 10 pce.

RAPTOR
Flat cable actuators

To perform intelligent connections just in one click.

Raptor actuators with versatile functions.

Thanks to the raptor series of actuators, KNX actuator and sensor components may easily and quickly be installed on the ecobus combi flat cable - decentralised, without any tool, without any error:
• direct connection of loads at any point of the cable.
• flat cable connected by means of sheath piercing cutting teeth, without the cable insulation having to be stripped.
• decentral distributed KNX components close to the loads.
• connection of a round cable thanks to a connector.
• quick mounting procedure thanks to integrated lever, without any tool.

Where are these actuators used?
• in office buildings
• in hospitals, clinics and residential facilities
• in industrial buildings
• in hotels

Flat cable enables installations to be completed easily with further connections.

Mounting procedure of **RAPTOR** actuators

Place the flat cable in the baseplate (installation temperature min. +10°C) - the different lugs prevent from incorrect mounting. Open completely the lever, incline the Raptor housing as shown on the picture and engage it in the baseplate till it reaches the pivotal point.

Press slightly the Raptor housing so that the lever touches the stop. Fold back the lever.

It must be checked whether the lever is properly engaged. Connect the receiver. Write the physical address on the housing.

Actuators can't be mounted when live!

The overcurrent protection devices will be chosen in relation to the length of installed cables so that their response time conform to specifications in case of malfunction.

Please consider the maximal load for phases and bus.

Possibility of pre-wiring: the installation becomes more rational!
On request the connectors may be provided in advance with round outgoing cables.

And the raptor actuators may be mounted in advance on the flat cable in the workshop. Important time saving will be performed - to your advantage!

ecobus combi 5G2.5mm^2+2x1.5mm^2

RAPTOR switch actuator, double, to flat cable No. 49945 and 49946

-switching of two independent
 groups of loads
-bistable relays
-parametrable switch functions
-integrated KNX bus coupler
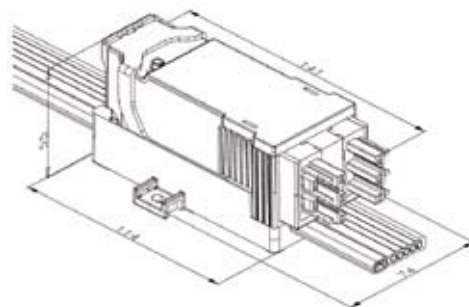
Switch actuator, double
with output *gesis*

No.

Phase L1	**49590G/L1**	405 441 107
Phase L2	**49590G/L2**	405 441 207
Phase L3	**49590G/L3**	405 441 307

Technical data

Dimensions LxWxH	141x74x55mm (width including fasteners)
Weight	250g
With contacts	phase+N+PE+2xbus (KNX)
Pluggable outputs	gesis (female), 2x3 poles
Output voltage	230VAC (as mains voltage)
Rated current per output	16A (at 230VAC, ohmic load)
Peak current at make	80A (20ms)
Degree of protection	IP20
Service temperature	from -5°C to +45°C
Installation temperature	> +10°C
Packing unit	1 pce.

Accessories

see brochure

Connector	**49743M**	5.2
Socket	**49743F**	5.2
Pre-wired connectors	**49743/...M, ...M25**	5.2
Extensions	**49743/...MF, ...MF25**	5.2

RAPTOR shutter actuator, single, to flat cable No. 49945 and 49946

-shutter drive (230VAC) can
 directly be connected
-gradually raising and lowering
 of blinds
-parametrable security functions
-integrated KNX bus coupler
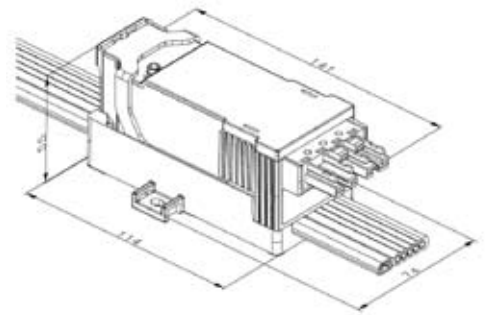
Shutter actuator, single
With output *gesis*

No.

Phase L1	**49591G/L1**	405 431 107
Phase L2	**49591G/L2**	405 431 207
Phase L3	**49591G/L3**	405 431 307

Technical data

Dimensions LxWxH	141x74x55mm (Width including fasteners)
Weight	250g
With contacts	phase+N+PE+2xbus (KNX)
Pluggable outputs	gesis (female), 4 poles
Output voltage	230VAC (as mains voltage)
Rated current/Output current	8A (ohmic load)
Degree of protection	IP20
Service temperature	from -5°C to +45°C
Installation temperature	> +10°C
Packing unit	1 pce.

Accessories

see page

Connector to shutter actuator	**49744M**	5.3.45

ecobus combi 5G2.5mm^2+2x1.5mm^2

RAPTOR dimmer actuator, double, to flat cable No. 49945 and 49946

- switching of two independent groups of loads
- parametrable switch functions
- integrated KNX bus coupler
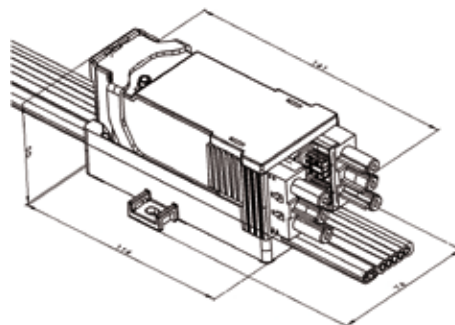
Dimmer actuator, double
with output *gesis*

No.

Phase L1	**49593G/L1**	405 441 117
Phase L2	**49593G/L2**	405 441 217
Phase L3	**49593G/L3**	405 441 317

Technical data

Dimensions LxWxH	141x74x55mm (Width including fasteners)
Weight	250g
With contacts	phase+N+PE+2xbus (KNX)
Pluggable outputs	gesis (female), 2x3 poles
Rated current per output	16A
Output voltage	230VAC (as mains voltage)
Degree of protection	IP20
Service temperature	from -5°C to +45°C
Installation temperature	> +10°C
Output control voltage dimmer	2x1-10VDC (2 poles)
Packing unit	1 pce.

Accessories
see brochure

Connector	**49743M**	5.2
Socket	**49743F**	5.2
Pre-wired connectors	**49743/...M, ...M25**	5.2
Extensions	**49743/...MF, ...MF25**	5.2
Connector	**49747M**	5.3.33
Socket	**49747F**	5.3.33
Pre-wired connectors	**49747/...M**	5.3.33

ecobus combi 5G2.5mm^2+2x1.5mm^2

RAPTOR binary input, quadruple to flat cable No. 49945 and 49946

-for four independent switch or
 operating signals
-wide input voltage range
-for operating and control func-
 tions
-integrated KNX bus coupler
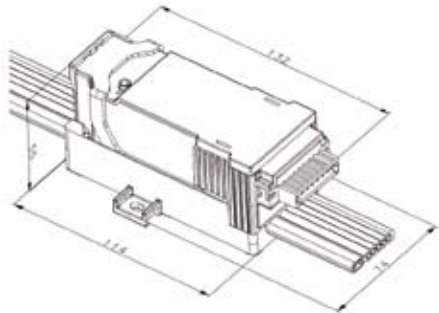
Binary input, quadruple

No.

49592	405 991 107

Technical data

Dimensions LxWxH	133x74x55mm (Width including fasteners)
Weight	250g
With contacts	2xbus (KNX)
Pluggable outputs	WAGO (male), 8 poles
Input voltage range	4x24VAC - 230VAC (24VDC)
Degree of protection	IP20
Service temperature	from -5°C to +45°C
Installation temperature	> +10°C
Packing unit	1 pce.

Accessories

see page

Connector to binary input	49782	5.3.45

ecobus combi 5G2.5mm^2+2x1.5mm^2

RAPTOR power supply 640mA to flat cable No. 49945 and 49946

-for the supply/control of a 30VDC KNX system voltage, for max. 64 participants on the bus line
-control and display element for the monitoring and interruption of the bus voltage supply
-phase selection via junction box
-integrated KNX bus coupler

Power supply 640mA

No.

Phase L1	**49594**

Technical data

Dimensions LxWxH	135x74x55mm (Width including fasteners)
Weight	350g
With contacts	2xbus (KNX)
Output voltage at KNX bus	30VDC ± 2V (limited) output current max. 640mA, short-circuit proof
Degree of protection	IP20
Service temperature	-5°C to +45°C
Installation temperature	> +10°C
Packing unit	1 pce.

Accessories

see page

Junction box 3 poles	**49713/L1**	5.3.22
	49713/L2	5.3.22
	49713/L3	5.3.22
Junction box with phase selection	**49413**	5.3.22

ecobus combi 5G2.5mm^2+2x1.5mm^2

RAPTOR USB interface to flat cable No. 49945 and 49946

-to provide a bidirectional link
  between a PC and the KNX Bus
-interface compatible with ETS
  from ETS3
-KNX bus coupler integrated

USB interface

No.

49595

Technical data

Dimensions LxWxH	114x74x55mm (Width including fasteners)
Weight	190g
With contacts	2xBus (KNX)
Degree of protection	IP20
Service temperature	-5°C to +45°C
Installation temperature	> +10°C
Packing unit	1 pce.

ecobus combi 5G2.5mm^2+2x1.5mm^2

RF concentrator KNX / Media coupler to flat cable No. 49945 and 49946

-to provide an unidirectional RF
 link between a remote switch
 and the KNX Bus
-KNX bus coupler integrated

RF concentrator/Media coupler

No.

	49596

Technical data

Dimensions LxWxH	114x74x55mm (Width including fasteners)
Weight	190g
Number of channels	32
With contacts	2xBus (KNX)
Voltage supply	30 VDC via KNX-Bus
Radio frequency	868.3 MHz
Degree of protection	IP20
Service temperature	-5°C to +45°C
Installation temperature	> +10°C
Packing unit	1 pce.

Accessories
see page

RF push-button, solar	49020SWE2	5.3.45
RF push-button, with battery	on request	5.3.45

Accessories

RF push-button, solar-cell powered

49020SWE2
205 120 006

RF push-button KNX, solar-cell powered
Surface mounting, cable-less installation
Packing unit: 1 pce.

RF push-button, battery-powered

on request

RF push-button KNX, battery-powered
Lifetime of the battery about 5 years
Surface mounting, cable-less installation
Various designs available
Packing unit: 1 pce.

Connector to shutter actuator

49744M

4-pole, with screw connection, black, with code 1
type GST 18i4S S1 ZR1
for 1 cable up to 4x2.5mm^2
Height: 15 mm
Packing unit: 10 pce.
also available on request as pre-wired connector in different lengths

Connector to binary input

49782

8-pole, with spring connection, orange
Cross-section of connected cable 0.08-1.5mm^2
Connected load max. 250V/10A
Packing unit: 1 pce.

Fancoil controller

For a convenient room climate with maximal power efficiency.

All advantages for your building through automation, operation and central monitoring:
• to provide for power efficiency, convenience and generally better building use
• offers direct connection for a room temperature sensor: the registered values are sent
  to the controller as actual values
• window contact sensor to avoid energy loss if windows are open
• the Fancoil controller works on three-level engine or thermal valve drives and regulates
  the flow of warm or cold energy
• the Fancoil controller may be integrated in the building automation technique thanks to
  a KNX interface or be used "stand alone"

Where are these Fancoil controllers used?
• in offices
• in conference rooms
• in hotels
• in hospitals/clinics
• in laboratories
• in apartments

Building automation

Fancoil controller and accessories

Window

outwall

Fancoil

CO_2 sensor

Fancoil
controller
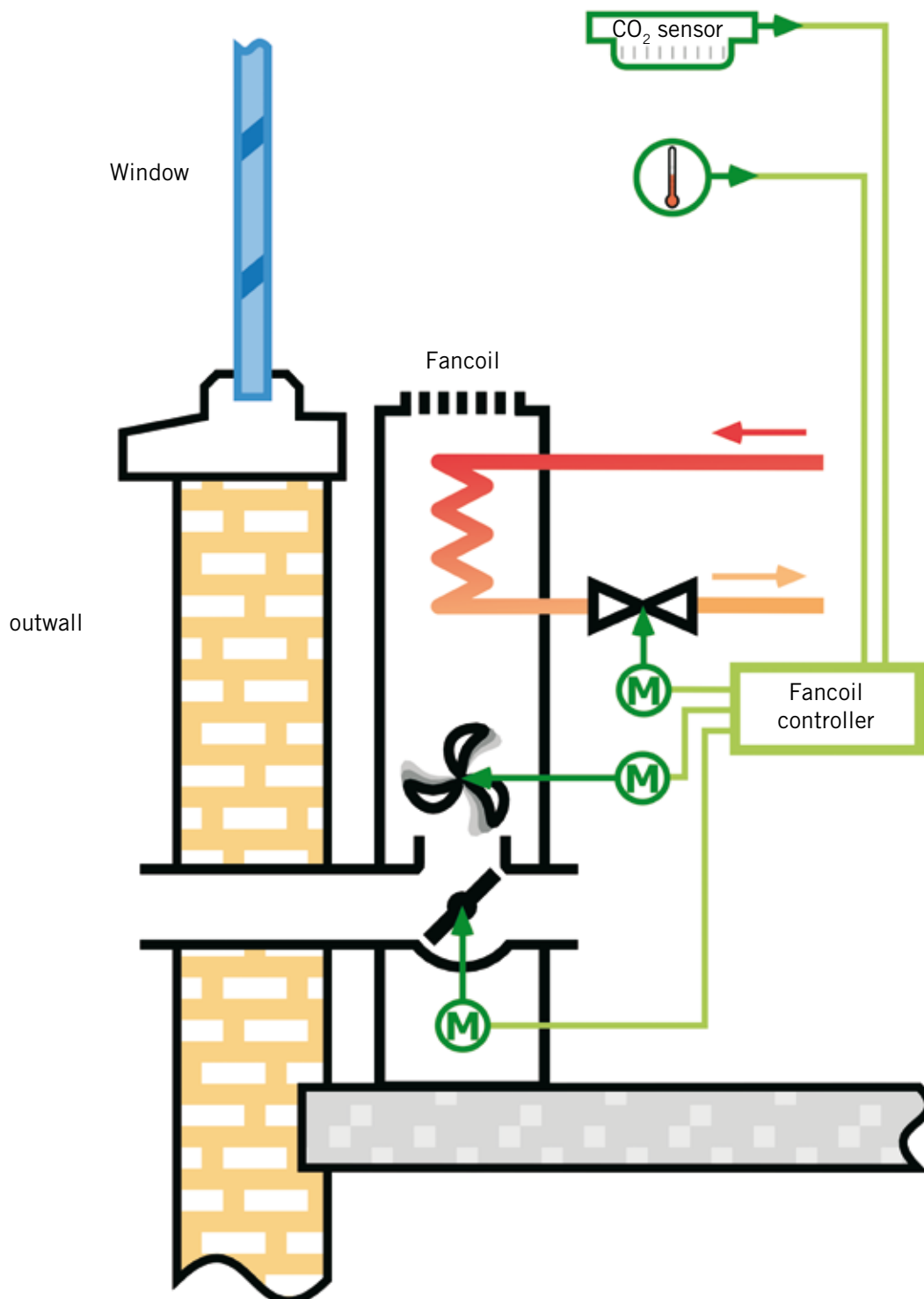
Fancoil controller (room temperature controller)

The fancoil controller can directly be connected to a temperature sensor. The recorded values are supplied to the controllers as actual values. It is possible to implement further external sensors via the integrated KNX interface in order to set the individual comfort zone.

The modification of the temperature setpoint values and the use of the push-button for presence sensing helps for example to save energy, when you leave the room.

It is also possible to control the fan speeds. Window contact sensors influence the performance of the fancoils when the windows are opened. In the standard design, the outputs of the fancoil controllers act on 3-step motor valve drives and alter the flow of energy for heating and cooling.

Fancoil controller KNX

for heating and cooling with integrated power supply and digital outputs

- control of single- or two-step convector fans/air conditioning units for heating and/or cooling mode
- measurement of the actual temperature via local or KNX temperature sensors
- can also be used as "stand alone" controller

Fancoil controller KNX

No.

	49550	405 410 107

Technical data

Weight	400g	
Dimensions	105x107x58mm	
Connections	pluggable	
Rated cross-section	2.5mm^2	
Mounting	on DIN rails 35mm	
Supply voltage	230VAC, 50/60Hz	
Power consumption	max. 9VA	
Measuring range with temperature sensor	-40°C to 70°C	
Switched outputs for fans	3	
Switched outputs for valves	2x2	
Type of valve drive	3-step actuator or thermal valve drive for 24VAC	
Inputs		
Room temperature sensor	semiconductor sensor with PWM output (Pulse width modulation) *	
Setpoint temperature adjustment	potentiometer, 4,7kOhm, linear or via KNX	
Binary input	2x potential free 10-30VAC/DC	
Outputs		
Heating/cooling valve outputs	output voltage 24VAC (max. 5VA)	
Fan output	relay output, potential free, voltage 250VAC (max. 6A)	
Auxiliary voltage output	24VAC (max. 5mA)	
Max. cable lengths for valve outputs	30m	
Display and operating elements		
LED	display of various operating modes	
Push-button	KNX Prgm and test	
Packing unit	1 pce.	
Caution!	**only the temperature controller specified by Woertz may be used**	

To be used with flat cable ecobus combi 5G2.5mm^2+2x1.5mm^2

With the flat cable system, it is not necessary to cut the installed cables. Junctions can be created e.g. for the fancoil controller using special outlet boxes in the exact position required - even at a later date - if necessary! The power supply and data bus interface of the device are implemented on the same flat cable.
Prefabrication is highly recommended to achieve even greater operating efficiency: the connected appliances may be completely wired beforehand and fitted with the flat cable boxes. On the building site the connection boxes are then simply placed on the flat cable and the pointed screws tightened in order to establish the electrical contact.

Accessories

see page

Temperature sensor 4-pole	**49570**	5.3.51

Fancoil controller KNX

for heating and cooling, without power supply, with digital outputs

- control of single- to three-step convector fans/air conditioning units for heating and/or cooling mode
- 2- or 4-conductor mode
- measurement of the actual temperature via local or KNX temperature sensors

Fancoil controller compact KNX

No.

49551	405 410 207

Technical data

Weight	200g
Dimensions	70x107x58mm
Connections	pluggable
Rated cross-section	2.5mm^2
Mounting	on DIN rail 35mm
Supply voltage	24VAC, 50/60Hz
Power consumption	max. 6-18VA
Measuring range with temperature sensor	-40°C to 70°C
Switched outputs for fans	3
Switched outputs for valves	2x2
Type of valve drive	3-step actuator or thermal valve drive for 24VAC
Inputs	
Room temperature sensor	semiconductor sensor with PWM output (Pulse width modulation) *
Setpoint temperature adjustment	via KNX
Binary input	1x 24VAC
Outputs	
Heating/cooling valve outputs	output voltage 24VAC (max. 0.75A)
Fan output	relay output, potential free, voltage 230VAC (max. 6A)
Max. cable lengths for valve outputs	30m
Display and operating elements	
LED	display of various operating modes
Push-button	KNX Prgm and test
Packing unit	1 pce.
Caution!	**only the temperature controller specified by Woertz may be used**

Accessories

see page

Temperature sensor 3-pole	49570/1	5.3.51

Fancoil controller KNX

for cooling, without power supply, with digital outputs

-control of single- to three-step convector fans/air conditioning units
-regulation of the room temperature in cooling mode
-measurement of the actual temperature via local or KNX temperature sensors

Fancoil controller compact KNX cooling

No.

	49552	405 410 307

Technical data

Weight	200g
Dimensions	70x107x58mm
Connections	pluggable
Rated cross-section	2.5mm^2
Mounting	on DIN rail 35mm
Supply voltage	24VAC, 50/60Hz
Power consumption	max. 2VA
Measuring range with temperature sensor	-40°C to 70°C
Switched outputs for fans	3
Switched outputs for valves	2
Type of valve drive	3-step actuator or thermal valve drive for 24VAC 24-230VAC
Inputs	
Room temperature sensor	semiconductor sensor with PWM output (Pulse width modulation) *
Setpoint temperature adjustment	via KNX
Binary input	1x 24VAC
Outputs	
Cooling valve output	potential free, rated voltage 24VAC-230VAC (max. 0.75A)
Fan output	relay output, potential free, voltage 230VAC (max. 6A)
Max. cable lengths for valve outputs	30m
Display and operating elements	
LED	display of various operating modes
Push-button	KNX Prgm and test
Packing unit	1 pce.
*Caution!	**only the temperature controller specified by Woertz may be used**

Accessories

see page

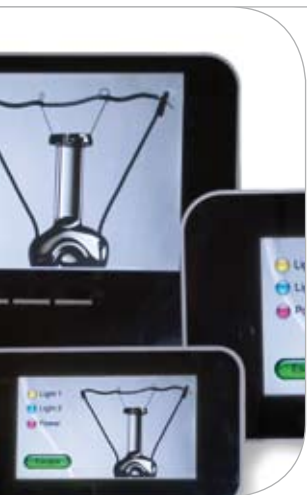|	49570/1	5.3.51
Temperature sensor 3-pole		

Accessories

Temperature sensor, connector 4-pole

49570
405 990 107

4-pole, meant for the interior, with integrated EMC-filter
Accuracy of measurement: +/-1°C
Cable length: pre-wired with 2m, other lengths on request
Weight: 65g
Packing unit: 1 pce.

Temperature sensor with connecting cable and connector for room temperature controller, to be used with room control units RCM without temperature sensor. Temperature value transmitted as PWM signal.

Temperature sensor, connector 3-pole

49570/1

3-pole, meant for the interior, with integrated EMC-filter
Accuracy of measurement: +/-1°C
Cable length: pre-wired with 2m, other lengths on request
Weight: 65g
Packing unit: 1 pce.

Temperature sensor with connecting cable and connector for room temperature controller, to be used with room control units RCM without temperature sensor. Temperature value transmitted as PWM signal.

Room control unit

49589WE
49589GR
49589SW

KNX device for the operating of Fancoil controllers
colours available: white, silver, anthracite
With frontal LCD display and 4 push buttons (operating control)

Operation and visual control

Whether for offices, at home or in hotels, the control is a matter of style.

Universal design- or function-oriented control for every type of place or specific control elements for hotels, Woertz offers a complete range of products. The house builder requires a functional clear but compact multiple control panel? The competitive monochrome Touchpanel or the coloured Touchpanel both arouse enthusiasm.

Thanks to a complete Hotel Management System both energy and time are saved. Fancoil, light and also presence management, Woertz provides everything from one hand. If required, we can also provide the control software for the differents rooms. Thanks to Woertz, transparency is achieved and costs are reduced.

Where are these control and visualisation elements used?
- in hotels
- in restaurants
- in clinics/residential facilities
- in administrative buildings
- in office building conference rooms
- in laboratories
- in residential buildings

We would be pleased to bring you support for the evaluation of customized solutions.

Touchscreen KNX

to monitor easily different receivers and Multimedia applications

-smart design
-low current consumption
-may also be used as digital
 picture frame

| | 4.3 inches | 7 inches | 10.2 inches |

No.

	49081	49082	49083

Technical data

Screen	4.3 inches	7 inches	10.2 inches
Dimensions	148x88mm	246x148mm	300x220mm
Resolution	480x272 Pixels	800x480 Pixels	800x480 Pixels
Picture dimensions (wxh)	16/9	16/9	16/9
Colour resolution	16bit	16bit	16bit
Image brightness	500cd/m^2	280cd/m^2	400cd/m^2
Touchscreen	4-conductor-resistance technology	4-conductor-resistance technology	4-conductor-resistance technology
Flash-memory	32MB	32MB	32MB
Memory	128MB sdram	128MB sdram	128MB sdram
Auxiliary equipment	BCU KNX, USB	BCU KNX, USB, SD-Card, 3 Video in, Audio in/out, Uart	BCU KNX, USB, SD-Card, 3 Video in, Audio in/out, Uart, DMX, LAN 100Mb
Inlet box	Standard 504	128x226mm	180x204mm
KNX supply	29V DC	29V DC	29V DC
Auxiliary supply	12V	12V	12V
Rated power	3W	6W	10W

Touch Display KNX

Control of lighting, shutter and heating

- consultation and adaptation of scenes
- with IR-receiver i.e. all functions can be monitored by means of IR-remote control
- with 4 binary inputs for push-buttons, to integrate the most common functions

Touch Display

Universal Touch Remote Control

No.

Colour of the device, white	**49080WE**	
Colour of the device, silver	**49080GR**	
Colour of the device, anthracite	**49080SW**	
Remote control		**49080/IR**

Technical data

Weight	250g	25g
Dimensions (wxh)	90x110mm	
Height of the flange (surface mounting)	13mm	
KNX supply	29V DC	
Display	tactile, LCD-display with backlight, monochrome, 3.8"	
Degree of protection	IP20	
Housing	PC-ABS, flammability class D	
Number of functions per page	6	
Number of pages	4	
Integrated temperature sensor	yes	
Temperature display	yes	
Service temperature	0°C to +45°C	
Storage temperature	-20°C to +60°C	
Inlet box	min. Ø 60 (Gr. I)	

Control units KNX

to facilitate the Hotel Management

	Room control unit	Card reader	Card holder

- smart design
- clear display
- user friendly

No.

Colour of the device, white	**49589WE**	**49010WE**	**49011WE**
Colour of the device, silver	**49589GR**	**49010GR**	**49011GR**
Colour of the device, anthracite	**49589SW**	**49010SW**	**49011SW**

Technical data

Weight	150g	155g	150g
Dimensions (wxh)	110x78mm	110x78mm	110x78mm
Height of the flange (surface mounting)	15mm	17mm	27mm
KNX supply	29V DC	29V DC	29V DC
Auxiliary supply		12 (24) V AC/DC	12 (24) V AC/DC
Max. rated current	<10mA	150mA	150mA
Inputs	1 contact input	2 contact inputs	2 potential-free inputs
Max. length connecting cable	10m	-	-
Outputs	1	-	-
Rated voltage output	60V	-	-
Frequency		125kHz	125kHz
Operating temperature	0°C to +45°C	0°C to +45°C	0°C to +45°C
Display	1 LED prog. KNX 1 LCD 43.5x43.5mm	1 LED prog. KNX 4 LED room status	1 LED prog. KNX 1 LED control
Inlet box	min. Ø 60 (Gr. I)	min. Ø 60 (Gr. I)	min. Ø 60 (Gr. I)

RF Push-buttons

KNX

No cables thanks to RF-technology

5.3.56

-solar or battery-powered push-
 buttons which can be placed
 everywhere
-clean mounting without slitting
 or grinding
-ideal for glass walls, temporary
 installations and historical pre-
 servation protected installations

RF push-button solar, double, 4 ways

RF push-button with battery, single, 2 ways

No.

	49020SWE2 205 120 006	**on request**

Technical data

Weight	55g	
Power supply	solar with battery buffering	Lithium battery 3V, CR2430 (included), life about 5 years
Display	1 LED for transmission indication	1 LED for transmission indication
Channels	4	2
Frequency	868.3 MHz (KNX)	868.3 MHz (KNX)
Operating distance	max. 30m in buildings, 100m outdoor	max. 30m in buildings, 100m outdoor
Functions	start/stop dimming up/down override scenarios	start/stop dimming up/down override scenarios

Gateway multibus

Interface for the direct connection of two different worlds.

The device consists of a plastic housing with 6 modules, fitted with a plug-type connection (output). It has been conceived for DIN35 rail mounting.

The whole range of Belimo MFT/MFT2 actuators, operated by MP-Bus, can be individually connected to this interface coupler and be integrated to the KNX network. The KNX interface is able to support up to 8 MP actuators - e.g. flap drives, valve drives, regulation ball valve drives or flow rate controllers - intended for building automation. During commissioning the KNX Gateway is configured with ETS. The requested drive channel is selected and parametrised for the needed drive type. Status indicators and push-buttons for programming the address- and test-functions are located on the front side of the device. There is also a plug intended for the Belimo hand-held parameter assignment device.

Actual and setpoint values, status of the drive and also the values of passive or active sensors connected to the drive are transmitted via KNX.

Building automation

Gateway to flat cable ecobus combi 5G2.5mm²+2x1.5mm² and multibus 4x1.5mm²

Example of application: Appliances with volumetric flow controllers
(Master/Slave- or parallel operation)
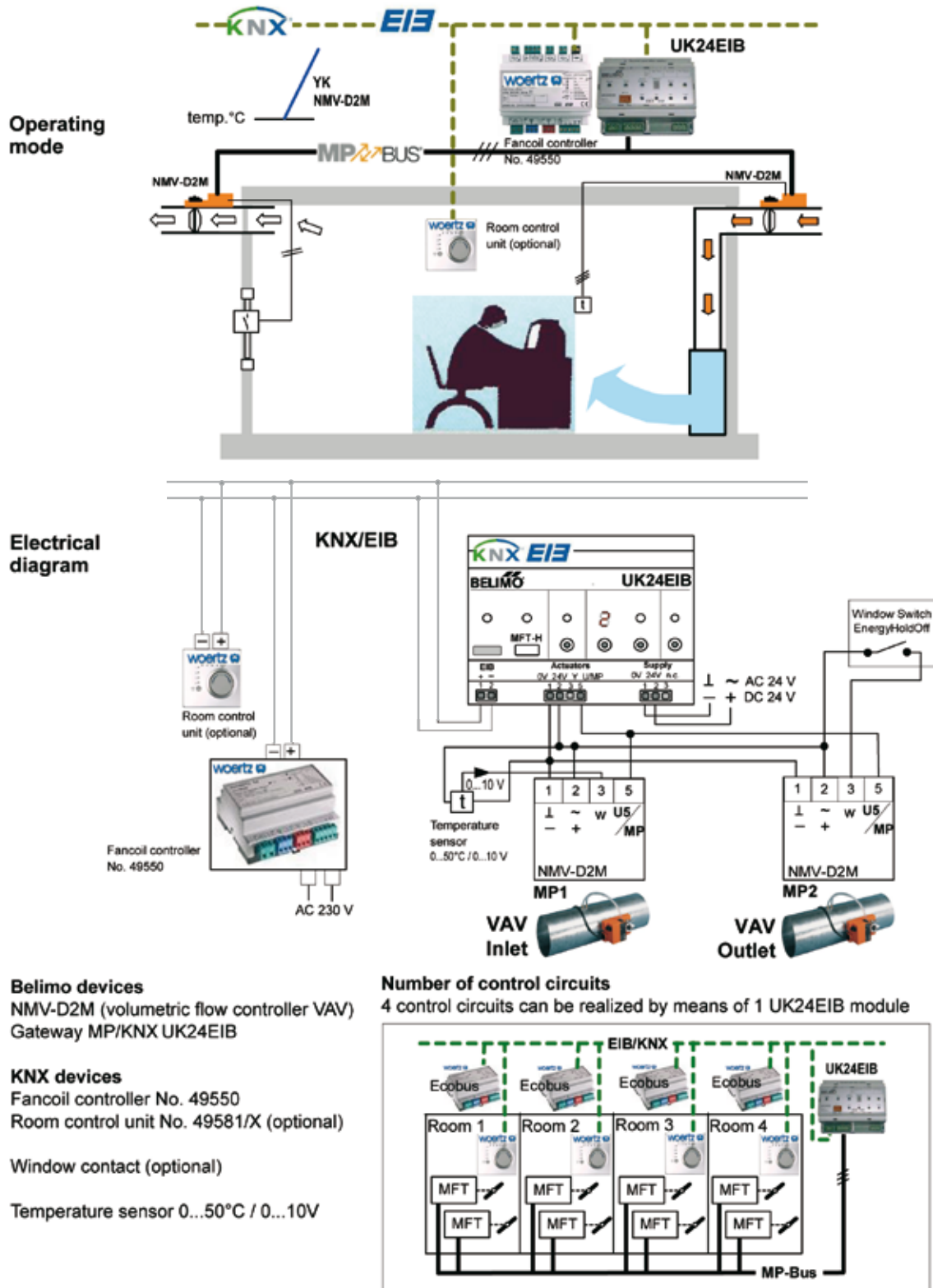
Appliances with volumetric flow controllers with active room temperature sensor (0°C ... 50°C / 0 ...10VDC). Window contact and KNX room control unit optional.

Belimo devices
NMV-D2M (volumetric flow controller VAV)
Gateway MP/KNX UK24EIB

KNX devices
Fancoil controller No. 49550
Room control unit No. 49581/X (optional)

Window contact (optional)

Temperature sensor 0...50°C / 0...10V

Number of control circuits
4 control circuits can be realized by means of 1 UK24EIB module

Source: Belimo

Gateway multibus KNX

Type UK24EIB

-wiring performed by means of push-/screw terminals
-actuators can be controlled digitally through the UK24EIB over an MP-Bus system and provide a feedback signal of their actual operating position

Gateway multibus KNX
Type UK24EIB

No.

	49667	405 990 207

Technical data

Weight	0.3kg
Dimensions	105x90x58mm
Protection class	III (safety low voltage)
Rated voltage	24VAC, 50/60Hz / 24VDC
Rated voltage range	19.2 ... 28.8VAC, 21.6 ... 28.8VDC
Power input	2VA (without MFT2 actuators connected)
Power consumption	1W
Mounting	on DIN rail 35mm
Connections	KNX: push-screw terminals, 2-pole
	Supply: push-screw terminals, 3-pole
	MFT2 actuators: push-screw terminals, 4-pole (all terminals for 2xconductor 1.5mm^2)
	MFT-H: plug socket, 3-pole (connection MFT-H or PC via ZIP-RS232)
Configuration software	adjustable with ETS2 or higher: - actuator type - determination of the sensors connected to the MFT2 actuators
Actuators supported	all Belimo-MFT / MFT2 actuators, NMV-D2M, FLS, Halomo actuators
Number of actuators	Max. 8 pce.
Communication with actuators	Belimo-MP-Bus, Master-Slave system, 1200 Baud
Max. MP conductor length	depends on the number of MFT2 actuators connected, type of actuator, type of power supply and cross-section of conductors
KNX conductor lengths and transmission media	according to KNX guidelines
Packing unit	1 pce.

multibus
4x1.5mm²

Without the cable insulation having to be stripped!

Connecting box 4x0.75mm², No. 49670.
- Direct connection of loads at any point of the cable.
- Flat cable connected by means of piercing points, without the cable insulation having to be stripped.
- Connection of round cables up to 4x0.75mm², by means of piercing points.
- For supply or branching of flat cable.
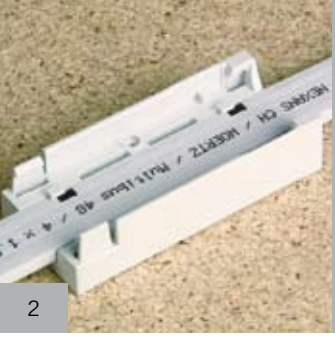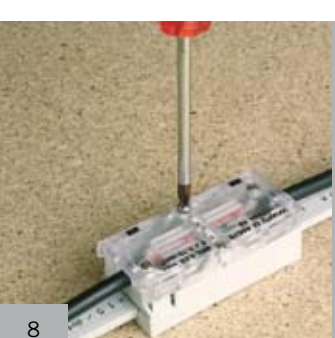- For rational installations it is recommended to use an electric screwdriver (Please observe the tightening torques!)
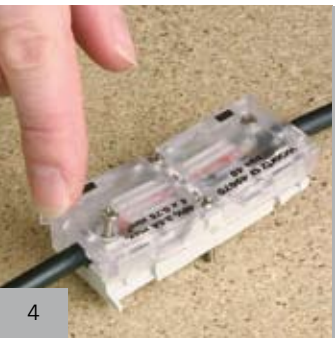
Where are these flat cables used?
- for low voltage installations (rugged version for high mechanical strains).
- as a complement to the flat cable system ecobus combi.
- for heating, ventilating and air-conditioning processes (HVAC).
- for basic controls in buildings.
- specially adapted to MP bus products of the company Belimo.

Flat cable enables installations to be completed easily with further connections.

Mounting procedure of connecting box No. 49670 / 49671

Position the base part of the box and screw it on to its support if required.

1

Position the asymmetric multi-bus flat cable in the right position.

2

Cut the outgoing round cable to the desired length and dismantle it. Introduce the leads in the provided partitions (the conductors don't have to be stripped of insulation).

3

Fold back the cover - Lock.

4

Tighten up the screws of the cover.

5

Snap together the upper part and the base.

6

Fold down the upper part.

7

Tighten up the fastening screws.

Note:
if necessary, the connecting boxes may be marked by means of self-adhesive labels.

The mounting procedure may also occur in a changed order: 1, 2, 6, 7, 8, 3, 4, 5.

8

Possibility of pre-wiring: the installation becomes more rational!

On request the boxes may be provided in advance with round outgoing cables.

Boxes for pumps, valves or mixing valves for HVAC installations for instance may be prewired with outgoing round cables in our workshops (fig. 3-5). On the building site the prewired boxes have only to be positioned on the flat cable. The electrical contact will be established within a few seconds by means of an electric screw-driver.

multibus 4x1.5mm²

Flat cable 4x1.5mm²

-resistant flat cable with 4 leads
-for bus and control systems
-asymmetric flat cable to avoid
 reverse polarity

Flat cable halogen-free, 4x1.5mm²
for low voltage appliances

No.

49651	113 277 509

Technical data

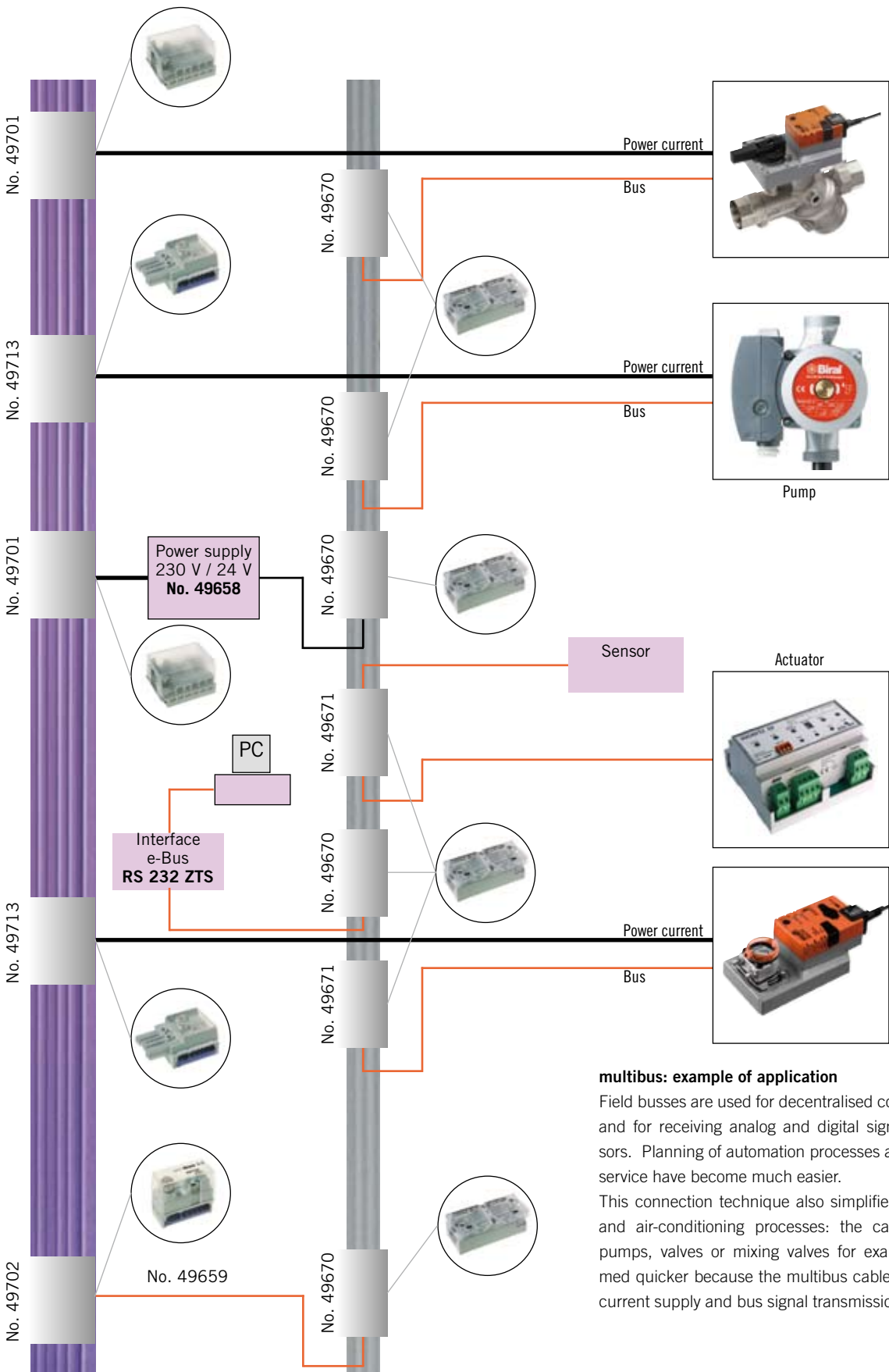|	
Sheath	Polyethylen Compound, halogen-free
Colour of the sheath	light grey[1]
Dimensions	16x4.6mm
Weight	125g/m
Fire load	7.137kWh/m
No. of leads x cross-section	4x1.5mm²
Copper conductors	tinned, highly flexible
Insulation of the leads	Polyethylen Compound, halogen-free
Colour of the leads	black, red, white, brown
Test voltage	4kV, 50Hz
Rated voltage	300V
DC-resistance	13.3Ω/km according to CEI 228 class 5
Packing unit	500m/1000m

Accessories

		see page
Connecting boxes	49670, 49671	5.3.66
Connecting box	9052	5.3.67
Power supply	49658	5.3.67
Bus coupler	49659	5.3.67
Cable end piece	9039	5.3.67
Fixing clamps	49661	5.3.67
Fixing clamps	49664	5.3.68
Shears	49930	5.3.68
Insulating tape	49632	5.3.68

[1] other colours on request (e.g. red, white, black)

multibus 4x1.5mm²

Examples of application: Belimo - Multitherm

No. 49701

No. 49713

No. 49701

No. 49713

No. 49702

No. 49670

No. 49670

No. 49670

No. 49671

No. 49670

No. 49671

No. 49670

Power current

Bus

Power current

Bus

Pump

Power supply
230 V / 24 V
No. 49658

Sensor

Actuator

Interface
e-Bus
RS 232 ZTS

PC

Power current

Bus

No. 49659

multibus: example of application

Field busses are used for decentralised controlling of actuators and for receiving analog and digital signals emitted by sensors. Planning of automation processes and putting them into service have become much easier.

This connection technique also simplifies heating, ventilating and air-conditioning processes: the cabling procedures of pumps, valves or mixing valves for example can be performed quicker because the multibus cable ensures both power current supply and bus signal transmission.

Flat cable ecobus combi
No. 49945
5G2.5 mm² + Bus
(KNX, LON, bus MP)

Flat cable multibus
No. 49651
4x1.5 mm² (Bus MP,...)

multibus 4x1.5mm²

Connecting boxes with 3 or 4 contacts to flat cable No. 49651

- connection round cable/flat cable without the conductors having to be stripped of insulation
- for bus and control systems
- wiring diagram on the product data sheets

Connecting box for 2 round cables 4x0.75mm² flex with 1 connector and 3 contacts for supply and branching, specially adapted to MP bus devices from the company Belimo

Connecting box for 2 round cables 4x0.75mm² flex with 4 contacts for supply and branching

No.

	49670	150 701 317	49671	150 701 347

Technical data

Weight	55.5g		55.5g
Dimensions LxWxH	76x32x27mm		76x32x27mm
Fire load	0.4kWh		0.4kWh
Plastic parts	transparent, halogen-free		transparent, halogen-free
Metal parts	corrosion-resistant		corrosion-resistant
Screwed sealing plugs	tightening torque 0.7Nm, Phillips-head screwdriver No. 1		tightening torque 0.7Nm, Phillips-head screwdriver No. 1
Number of contacts with flat cable	3		4
Connector round cable/round cable	1		-
Rated voltage	48V		48V
Rated current	3.5A		3.5A
Colour	light grey		light grey
Packing unit	25 pce.		25 pce.
Degree of protection	IP20		IP20

Accessories

		see page		see page
Round cable	49665	5.3.65	49665	5.3.65
Stopper	49675	5.3.65	49675	5.3.65

Accessories

Cable end piece

9039 120 900 097	Of polycarbonate, halogen-free, transparent Dimensions: 35x28x18.5mm Weight: 7g Fire load: 0.06kWh Packing unit: 10 pce. Note: Before mounting the cable, first strip it at both ends for a distance of 19mm so that the specified creepage distance will be observed.

Connecting box

9052 150 706 037	for the supply with rigid strands or strands with a cross section different from 0.75mm^2

Power supply and coupler

49658 960 905 107	Power supply 230V/24VDC consisting of 1 power supply, 1 box No. 49670, 1 box No. 49671
49659 150 700 017	Bus coupler between multibus and ecobus combi flat cables consisting of 1 box No. 49670, 1 box No. 49702, 1 cable No. 49665, ready to be connected

Flexible round cable

49665 113 271 047	Of PVC, black, 4x0.75mm^2, highly flexible leads (flex) Diameter 6.8mm For connecting devices. Strip the cable for a distance of 28mm. Colour of the leads: black/red/white/white. Temperature range: -30°C up to +90°C Fire behaviour: flame retardant according to CEI 60332.1, low smoke development according to CEI 61034-1/2 Packing unit: 500 m

Stopper

49675 120 660 007	To obturate unused cable outlets. 1 stopper delivered with connecting boxes No. 49670 and 49671. Packing unit: 25 pce.

Clamp for screw fixing, single

49661 120 008 407	to flat cable multibus, of polyamide 66, halogen-free Dimensions: 31x10x7mm Weight: 1g Fire load: 0.01kWh Packing unit: 100 pce.

Accessories

Clamp for screw fixing, double

49664
120 008 507

to flat cables multibus/ecobus combi, of polyamide 66, halogen-free
Dimensions: 70x10x10mm
Weight: 2g
Fire load: 0.02kWh
Packing unit: 50 pce.

Shears

49930
983 045 007

For cutting neatly and easily every type of flat cables (max. width 32mm).
With sliding anvil. Teflon coated blades.
Packing unit: 1 pce.

Insulating tape

49632
150 901 147

To reinsulate correctly the holes due to pointed screws or cutting teeth when removing or displacing connections.
Insulating tape trademark "Scotch 2210", synthetic caoutchouc-based product, PVC coated black.
Weatherproof, self-fusing.
Dimensions: 50mmx1m
Dielectric strength: max. 18kV/mm
Temperature: max. +70°C
Packing unit: 1 meter

Innovation as tradition

Woertz works well – we guarantee it

Woertz combines tradition, innovation and quality – whether in dwellings or commercial buildings, in the office, in multipurpose buildings or at home. Our products and solutions are flexible, efficient and always one step ahead – and with a systematic approach.

Woertz knows what it takes to make projects succeed. From family homes to ultramodern commercial properties, we offer complete systems and intelligent solutions for wiring, junctions, connections and building automation. In the company's 80-year history, Woertz has earned a reputation as a reliable partner. With around 230 employees based at Muttenz and Hölstein in Switzerland, we have the forces to discern and shape trends in building technology. At the same time, we are small enough to offer our customers an individual service with flexible products and systems.
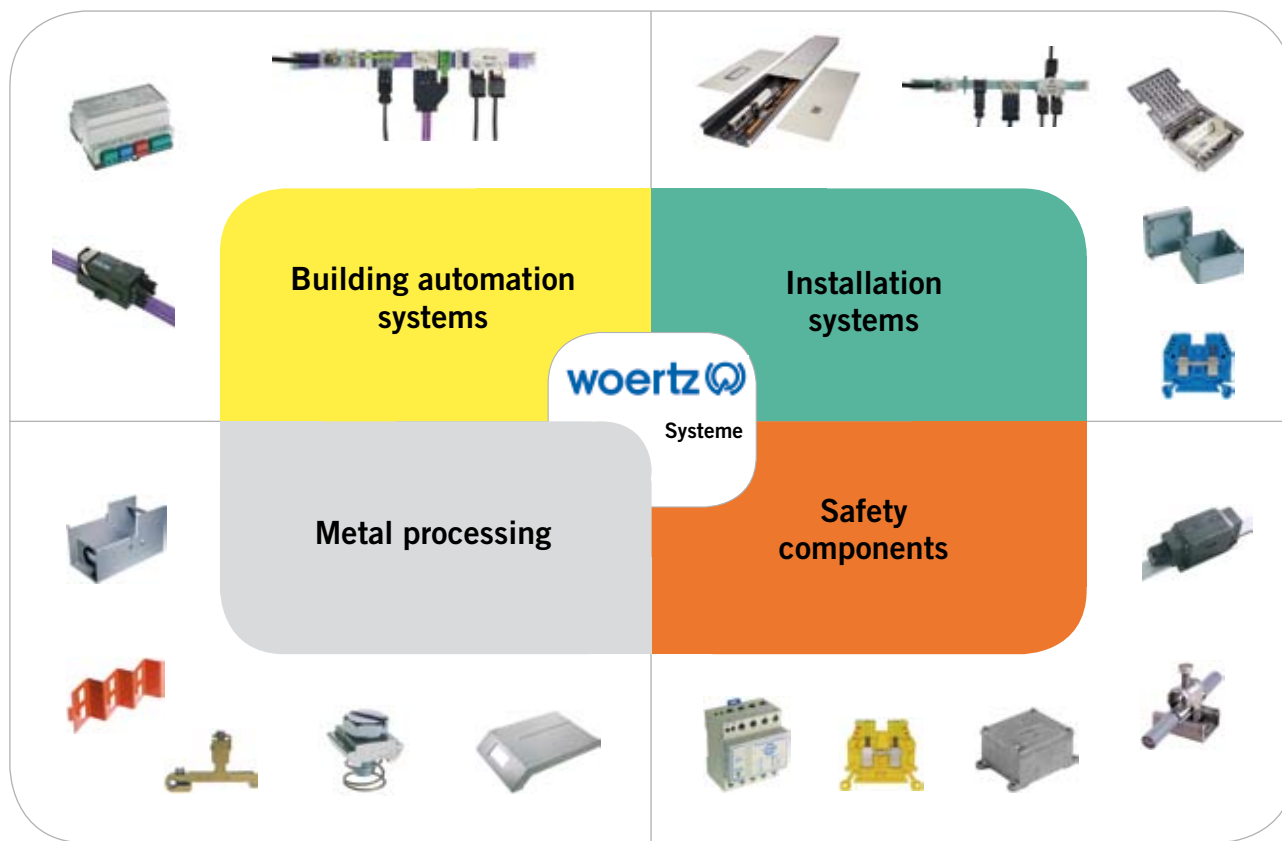
Woertz offers more than just products. At the beginning of every project is the meeting. Ultimately not only the technology has to fulfill complex requirements. It is equally important that all participants in the project are able to optimise their performance as a team.
For planners, architects, building contractors and clients, we consider ourselves not only a reliable supplier but also a competent consultant. Together with the customers, we conduct a thorough analysis of the status quo, define the requirements and develop tailor-made proposed solutions.

Our track record of success puts us under a certain obligation. We are proud to be based in Switzerland, and as an independent medium-sized company we feel a sense of responsibility to both our employees and to the environment. We are striving for commercial success and continued growth. Research and development are thus of central importance. In addition, we promote export business and rely on international partnerships.

What applied in 1928 as our company was established, still applies today: With innovative systems, we enable our customers to maximize efficiency and minimize outlays.

The four Woertz fields of activity:

Building automation systems

Installation systems

woertz Systeme

Metal processing

Safety components

The five Woertz principles:

Swiss quality
Woertz stands for electrical installation technology that is developed and manufactured in Switzerland – for the entire world.

Experience
Woertz has been a competent partner in electrical installation technology for 80 years. Our experience, gathered over many decades, is our guarantee for the best possible results – for all participants.

Knowledge
Day in and day out, Woertz technical specialists do everything to make your work easier. We develop systems with the highest cost efficiency and safety – tap into our fund of expertise.

Innovation
Woertz contributes to the continuing development of electrical installation technology by continual innovation. All our innovations are produced with the goal of being efficient, cost cutting, safe and simple.

Consulting
Woertz supports you with advice and practical help. At the beginning of every project is the meeting: A situational analysis and identification of requirements generates proposals for solutions – systematic, competent and personal.

Woertz participates in the following networks and associations:

www.g-n-i.ch   www.intelligenteswohnen.ch   www.knx.ch

5.3.72

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