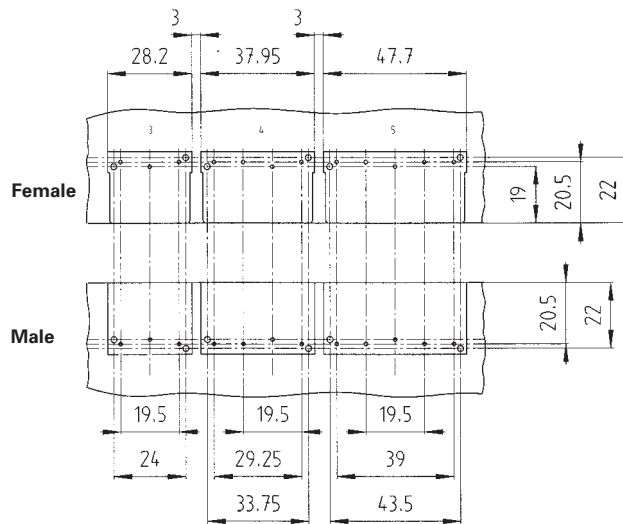


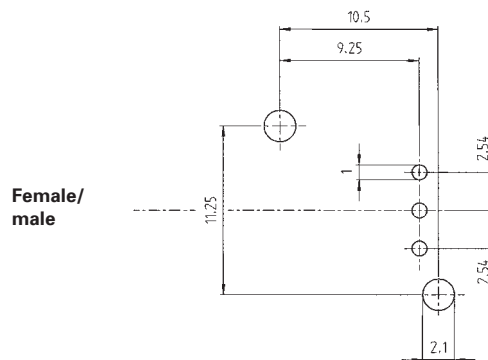
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Hole templates for soldered connectors

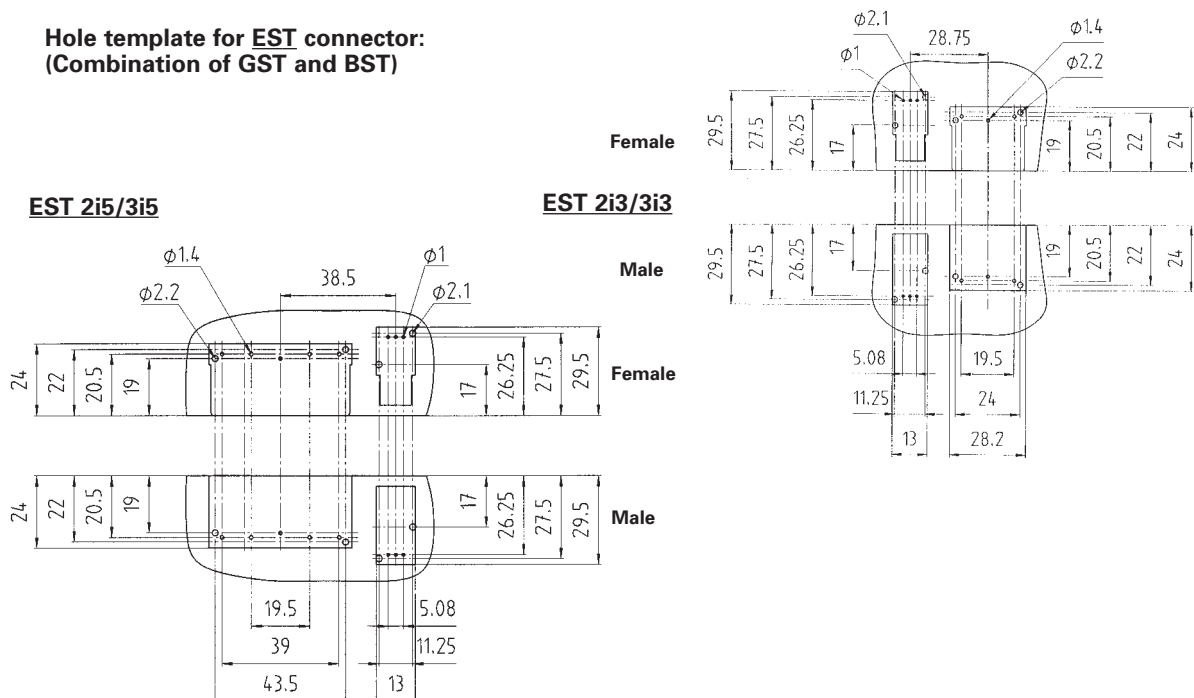
Hole template for **GST 18** soldered connector:



Hole template for **BST 14** soldered connector:



Hole template for **EST** connector:
(Combination of GST and BST)



Technical data

Rated voltage:	250 V~, 250/400 V~	Rated impulse voltage:	4 kV for 250 V and 250/400 V (with pollution degree 2)
Rated current:	16 A 20 A on request	Materials:	Insulating – thermo plastic material components: (Polyamide), halogen free Contact parts – brass with nickel plating Screws – galvanised chrome steel Cable: 70 °C
Number of poles:	3 pole (L, N, E) to 5 pole (L1, L2, L3, N, E)	Continuous temperature:	Insulating components: 100 °C
Regulations:	DIN VDE 0628 for all types DIN VDE 0606 T1535 (EN/IEC 61535) in preparation DIN VDE 0625, EN 60320; IEC 60320 3 pole latch components, prefabricated 1.5 mm ² cables	Environmental conditions:	Pollution degree 2 according to DIN VDE 0110 section 1 Definition: There are only non-electroconductive dirt particles present. They may become occasionally become electroconductive for short periods due to moisture condensation. Example: Rooms in houses, shops and other commercial properties.
Approval:	DIN VDE 0628; statement of conformity according to EN 60320, IEC 60320; without prefabricated cables and flat system: UL, LR, DNV.	Fire load:	Interconnecting cable: 5 x 2.5 mm ² = 0.40 kWh + 0.8 kWh/m 3 x 2.5 mm ² = 0.15 kWh + 0.5 kWh/m 3 x 1.5 mm ² = 0.16 kWh + 0.4 kWh/m Supply connection cables to loads: 5 x 2.5 mm ² = 0.20 kWh + 0.8 kWh/m 3 x 2.5 mm ² = 0.07 kWh + 0.5 kWh/m 3 x 1.5 mm ² = 0.08 kWh + 0.4 kWh/m Distribution board GST 18i3 V3 P1 = 0.13 kWh Distribution board GST 18i3 V5 P1 = 0.20 kWh Distribution board GST 18i5 V3 P1 = 0.30 kWh Initial connection, outgoing supply plug: 3 pole = 0.11 kWh 4 pole = 0.16 kWh 5 pole = 0.20 kWh 3 pole latch component = 0.06 kWh
Type of protection:	IP 20, DIN VDE 0470 section 1/11.92	Coding:	Mechanical coding, identified by colour. Black and white have the same coding. All components are available in these colours.
Cable:	Pre-cut cable with connectors (Crimp version) PVC sheathed cable with finely stranded conductors according to DIN VDE 0250 and VDE 0281 section 402	General:	Protection against shock generally guaranteed, even when disconnected. Protective conductor is the leading contact in three phase current: PE before N before L. Connection to the live cable must be made with a female connector according to the regulations. It is therefore not possible to have a ring circuit arrangement. Not interchangeable with other connector systems; can only be connected in the current phase sequence; 1 pole cannot be connected. Locking device in accordance with DIN VDE 0628.
Type of cable:	H05VV-F	Note:	Insertion and withdrawal is possible under load in accordance with DIN VDE 0625. Contacts safeguarded against tensile load on the cable. All components are interlockable. A locking device must be provided to comply with certification according to DIN VDE 0628
Cable cross section:	1.5 mm ² and 2.5 mm ²	VDE regulations:	VDE 0606: Section 1535 in preparation (EN/IEC 61535 currently draft 23/256/CDV) based on VDE 0628
Cable diameter:	3 x 1.5 mm ² = 8.3 mm 3 x 2.5 mm ² = 10.2 mm 5 x 2.5 mm ² = 12.3 mm	Title:	Installation connectors (EN 60320, IEC 60320)
Cable with free end:	Sheath strip length: 35 mm Insulation strip length: 7 mm, extendable on request 3 pole conductors with ultrasonically welded conductor ends (equivalent to a solid conductor) Diameter: 1.5 mm ² Δ 1.6 mm conductor ends of 5 pole cables have ferrules Dimensions approx. 2.3 x 2.8 mm Diameter: 2.5 mm ² Δ 2.1 mm Screw version 0.5 – 2.5 mm ² single core and finely stranded e.g. NYM Terminal screws M3 connecting torque: 0.5 – 0.7 Nm Crimp version: 1.5 – 2.5 mm ² (finely stranded) Prefabricated cables only Spring loaded single core: 0.5 – 2.5 mm ² finely stranded: 0.5 – 1.5 mm ² with ferrules	Title:	Appliance couplers for domestic and similar use
Wire range:	0.5 – 0.7 Nm Crimp version: 1.5 – 2.5 mm ² (finely stranded) Prefabricated cables only Spring loaded single core: 0.5 – 2.5 mm ² finely stranded: 0.5 – 1.5 mm ² with ferrules	VDE 0628:	National regulation Installation connectors up to 400 V / 250 V / 16 A for connection in installation systems
Connection cycles:	Insertion and withdrawal under full load according to VDE 0625 approx. 50 – 100 connections with 16 A (resistive load) for every 200 connection cycles – insertion force: approx. 30 – 40 N – withdrawal force: approx. 20 – 30 N Integrated into housing	Title:	
Insertion/withdrawal force:	– insertion force: approx. 30 – 40 N – withdrawal force: approx. 20 – 30 N Integrated into housing		
Strain relief:	Integrated into housing		
Volume resistance:	0.8 m Ω (approximate value per male and female connection) corresponds to 0.15 mm ² approx. 10 cm		

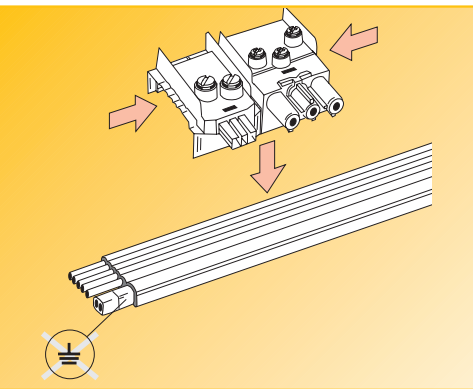
BST 14i2**EST 2i3****EST 2i5**

Technical data

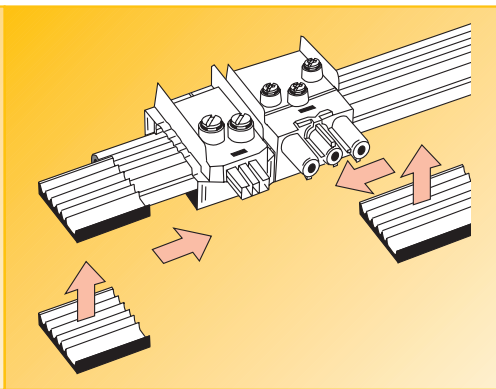
	Mains	EIB Bus
Rated voltage:	250 V/400 V	50 V
Rated current:	16 A	3 A
Number of poles:	3 pole (L, N, PE) 5 pole (L1, L2, L3, N, PE)	2 pole (+, -) 3 pole (on request)
Regulations:	VDE 0628 Preliminary draft IEC 61535	Based draft IEC 61535 EIB manual (in preparation)
Approval:	in accordance with EIB manual (in preparation)	
Type of protection:	IP 20, DIN VDE 0470 section 1/11.92	
Cable:	Combination cable for mains and bus, type LiYY ... Mains similar to H05VV, bus 1 x 2 x 0.8 PIMF, similar to I (Y) STY	Similar to I (Y) STY 2 x 2 x 0.8 according to EIB guidelines
Cable cross section:	1.5/2.5 mm ²	0.5 mm ²
Cable diameter:	Combination cable 3 x 1.5 mm ² = 8.3 5 x 2.5 mm ² = 12.3	2 x 2 x 0.8 = 6 mm 6 mm; total width: 14.8 6 mm; total width: 18.8
Cable with free end:	Ferrules: 8 mm 1.5 mm ² = Ø 1.6 mm 2.5 mm ² = 2.3 x 2.8 mm	Insulation strip length: 8 mm
Wire range:	Screw version: 0.5 - 2.5mm ² single-core/finely stranded	Spring-loaded: 0.25 – 0.75 mm ² single-core/finely stranded
Strain relief:	Integrated into housing, available in black or white	
Volume resistance:	approx. 0.8 mΩ	approx. 5 mΩ (approximate value per male and female connection)
Rated impulse voltage:	Pollution degree 2 4 kV for 250 V and 250/400 V	Pollution degree 2 4 kV for mains, 0.8 kV for bus
Materials:	Insulating components - thermoplastic material, halogen free Contact parts: - brass with nickel plating - bronze with nickel plating	
Continuous temperature:	Cable: 70 °C, Insulating components: 100 °C	
Fire load:	Extension cable Twin cable 5 x 2.5 mm ² + 1 x 2 x 0.8 = 0.50 kWh +1.52 kWh/m Twin cable 3 x 1.5 mm ² + 1 x 2 x 0.8 = 0.34 kWh +0.83 kWh/m EIB Bus cable 2 x 2 x 0.8 = 0.24 kWh +0.15 kWh/m Connection cable Twin cable 5 x 2.5 mm ² + 1 x 2 x 0.8 = 0.25 kWh +1.52 kWh/m Twin cable 3 x 1.5 mm ² + 1 x 2 x 0.8 = 0.17 kWh +0.83 kWh/m EIB Bus cable 2 x 2 x 0.8 = 0.24 kWh +0.15 kWh/m Connector EST 2 i3 = 0.17 kWh EST 2 i5 = 0.25 kWh BST 14 i2 = 0.12 kWh	
Coding:	Mechanical coding Mains connectors: GST 18 i ..., coding colour: black or white Bus connector: Coding according to EIB regulations (Colour: green) Coding dimming: (Colour: pastel blue)	
General:	The live component must be a female connector according to regulations. It is not possible to install cable in a ring circuit. In principle, not interchangeable with other connector systems available on the market. Mechanical coding only possible using the correct phase sequence. Protection against electric shock is guaranteed even when disconnected. EIB coding can be visually identified by green colouring. All the components can be locked together.	

Technical data

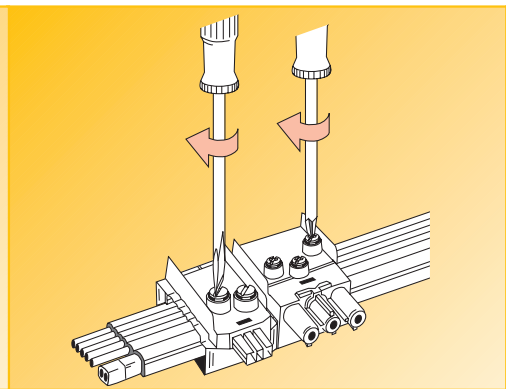
	Mains	Control signal
Rated voltage:	250 V/400 V	50 V
Rated current:	16 A	3 A
Number of poles:	3 pole (L, N, PE) 5 pole (L1, L2, L3, N, PE)	3 pole
Regulations:	VDE 0628	Based on draft IEC 61535 Preliminary draft IEC 61535
Approval:	in preparation	
Type of protection:	IP 20, DIN VDE 0470 part 1/11.92	
Cable:	Combination cable for mains and bus, type LiYY ... Mains: similar H05VV, bus 1 x 2 x 0.8, PIMF, similar I(Y)STY control cable; I(Y)STY 2 x 2 x 0.8	
Cable cross section:	1.5/2.5 mm ² Combination cable twin cord	0.5 mm ²
Cable diameter:	3 x 1.5 mm ² = 8.3 mm 5 x 2.5 mm ² = 12.3 mm	2 x 2 x 0.8 = 6 mm 6 mm; total width: 14.8 6 mm; total width: 18.8
Cable with free end:	ferrules: 8 mm 1.5 mm ² = Ø 1.6 mm 2.5 mm ² = Ø 2.3 x 2.8 mm	8 mm, solid conductor
Wire range:	screw version 0.5–2.5 mm ² single core/finely stranded	spring loaded 0.25–0.75 mm ² single core/finely stranded
Strain relief:	Integrated into housing, available in black or white	
Volume resistance:	approx. 0.8 mΩ	approx. 5 mΩ (approximate value per male and female connection)
Rated impulse voltage:	Pollution degree 2 4 kV for 250 V and 250/400V	Pollution degree 2 4 kV for mains, 0.8 kV Bus
Materials:	Insulating components: Thermoplastic material, halogen-free Contact parts: Brass Bronze	
Continuous temperature:	Cable: 70 °C, Insulating components: 100 °C	
Fire load:	Extension cable Twin cord 5x2.5 mm ² + 1x2x0.8 = 0.5 kWh + 1.52 kWh/m Twin cord 3x1.5 mm ² + 1x2x0.8 = 0.34 kWh + 0.83 kWh/m EIB bus cable 2x2x0.8 = 0.24 kWh + 0.15 kWh/m Connection cable Twin cord 5x2.5 mm ² + 1x2x0.8 = 0.25 kWh + 1.52 kWh/m Twin cord 3x1.5 mm ² + 1x2x0.8 = 0.17 kWh + 0.83 kWh/m EIB Bus cable 2x2x0.8 = 0.15 kWh/m Connector EST 3 i3 = 0.17 kWh EST 3 i5 = 0.25 kWh BST 14 i3 = 0.12 kWh	
Coding:	Mechanical coding Signal connector: Wieland coding GST 18i ..., Colour black or white	
General:	The live component must be a female connector according to regulations. It is not possible to install cable in a ring circuit. In principle, not interchangeable with other connector systems available on the market. Mechanical coding only possible using the correct phase sequence. Protection against electric shock is guaranteed even when disconnected. Control signal coding can be visually identified by black colouring. All the components can be locked together.	



1.



2.



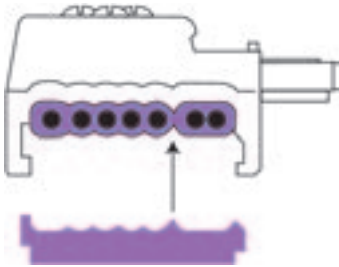
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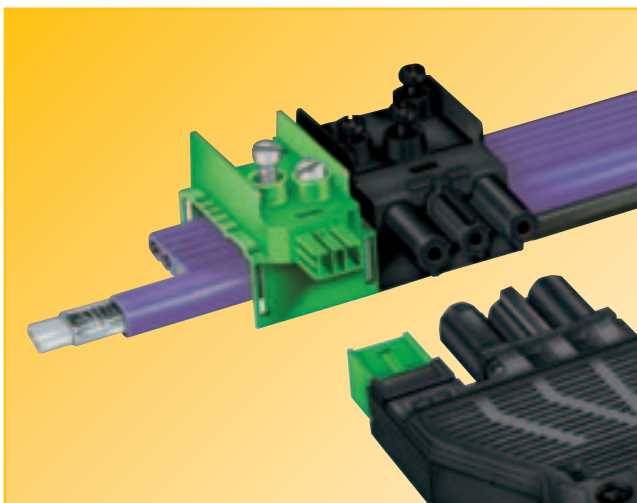
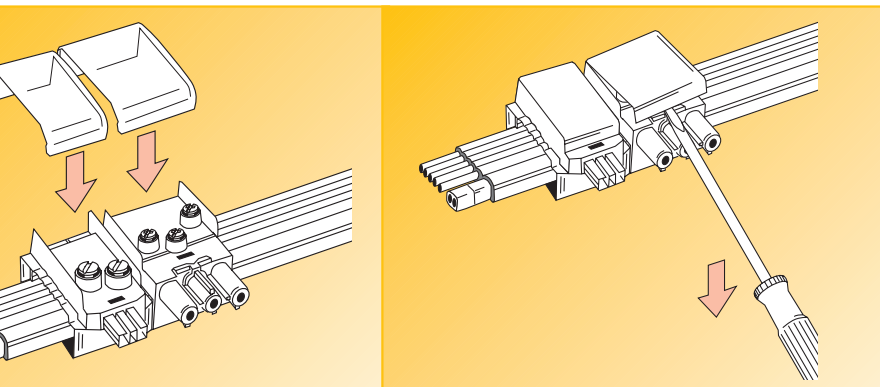
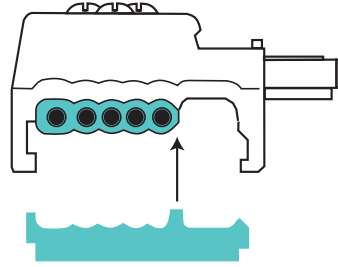
4.

Installation instructions

7 pole Flat cable system



5 pole Flat cable system



1. When connecting flat cable adapters for mains and EIB bus/control signal, note the latching side (3 pole on the left, 5 pole on the right). Latch the components together. Place the terminal block on the flat cable, observing the coding on the cable.
2. Slide on the base plate – note the coding of the terminal block and cable (see diagram on the left). The grooves on the terminal block as well as on the base plate indicate the correct position of the adapter on the cable. If it is not positioned correctly, it is only possible to slide on the base plate using a great deal of force. The unit must then be rotated by 180°.
3. Turn the slotted screws in the flat cable until they reach the stop
Mains: torque = 0.7 Nm
Bus: torque = 1.0 Nm
4. Place the cover on top.

Additional notes:

- When fixing on the connectors, a locking device must be provided.
- To remove the cover, insert the screwdriver in the slot provided and lift gently.
- The ends of the flat cable must be terminated with the cable end cap. This guarantees the necessary insulation between bus conductors and power cables.
- Once the adapter has been removed, the sections of cable that have been bonded with piercing screws must be sealed with insulating tape.
- Caution: Do not connect the screen to earth.
- The function can only be guaranteed if original flat cable is used.

Technical data

Components:

	Mains
Connection technology	Insulation-piercing contacts with plug-in outgoing circuit in accordance with Wieland GST coding
Terminal screws:	Tightening torque: 0.8 Nm
Rated voltage:	250 V/400 V
Rated current:	16 A
Number of poles:	3, 5 pole
Regulations:	VDE 0628, preliminary draft IEC 61535 IEC 998-2-3 (insulation-piercing clamping device)
Approval:	VDE, SEV
Type of protection:	IP 20, DIN VDE 0470 Section1/11.92
Connection cable for incoming supply:	Ø 5 – 13 mm
Materials:	Insulating components: thermoplastic material, halogen free Cover: polycarbonate, transparent Contact parts: brass with nickel plating bronze with nickel plating
Continuous temperature:	70 °C, Insulating components 100 °C
Fire load:	Flat cable adapter GST 18i5 0.27 kWh Flat cable adapter GST 18i3 0.18 kWh
Coding:	Mechanical coding GST 18i, code 1, black
General:	The voltage supply (incoming supply) in the flat cable is carried out using a screw-type flat cable adapter. The outgoing boxes can be adapted using insulation-piercing connection technology. The outgoing units themselves can be connected using gesis connector systems. The connectors must be locked with a locking device. The appropriate GST accessories should be used. Please note the installation instructions on page 213.
Note:	The functional reliability can only be guaranteed if original cable is used.

Technical data

Flat cable

	PVC	Halogen free
Outer sheath	PVC according to CENELEC HD 21.1 S2, TM2	Thermoplastic PE compound, halogen free and no corrosive gases according to DIN VDE 0472 Section 813
Colour of sheath	Light green RAL 6027	Light green RAL 6027
Dimension (W x H)	24 x 6 mm	24 x 6 mm
Fire load	0.778 kWh/m	0.671 kWh/m
Fire behaviour	Self extinguishing according to IEC 60332.1	Self extinguishing according to IEC 60332.1 Low level of smoke development IEC 61034-1/2
Number x conductor cross section	5 x 2.5 mm ²	5 x 2.5 mm ²
Structure		
Copper conductor	bare, finely stranded according to CENELEC HD 383 S2 Class 6	bare, finely stranded according to CENELEC HD 383 S2 Class 6
Core insulation	PVC according to CENELEC HD 21.1 S2, TI2	Cross-linked, halogen free and flame resistant Earth
Colour of cores	black, brown, black, blue, yellow/green	black, brown, black, blue, yellow/green
Technical data		
Conductor cross-section	2.5 mm ²	2.5 mm ²
Test voltage	4 kV	4 kV
Rated voltage	450/750 V	450/750 V
Test current	according to IEC 60364-5-523	according to IEC 60364-5-523
DC resistance	7.98 Ω/km	7.98 Ω/km

Technical data

	Bus
Connection technology	Insulation-piercing contacts with plug-in outgoing circuit in accordance with Wieland GST, BST, EST coding
Terminal screws:	Tightening torque: 1.0 Nm
Rated voltage:	50 V
Rated current:	3 A
Number of poles:	2 pole (+,-)
Regulations:	EIB manual
Approval:	According to EIB manual
Connection cable for Incoming supply:	Ø 3 – 8 mm
Materials:	Insulating components: thermoplastic material, halogen free Cover: polycarbonate, transparent Contact parts: brass with nickel plating bronze with nickel plating
Continuous temperature:	70 °C, Insulating components 100 °C
Fire load:	Flat cable adapter BST 14i0,12 kWh
Coding:	Mechanical coding BST 14i Other coding: black
General:	The voltage supply (incoming supply) in the flat cable is carried out using a screw-type flat cable adapter. The outgoing boxes can be adapted using insulation-piercing connection technology. The outgoing units themselves can be connected using gesis connector systems. Please note the installation instructions on page 213.
Note:	The functional reliability can only be guaranteed if original cable is used.

Technical data

Flat cable

	PVC	Halogen free
Outer sheath	PVC	Thermoplastic PE Compound, halogen free
Colour of sheath	Dark grey	Dark grey
Weight	90 g/m	86 g/m
Dimension (W x H)	11 x 6 mm	11 x 6 mm
Fire load	0.48 kWh/m	0.44 kWh/m
Fire behaviour	Self extinguishing according to IEC 60332.1	Self extinguishing according to IEC 60332.1 Low level of smoke development IEC 61034-1/2
Number x conductor cross section	2 x 1.5 mm ²	2 x 1.5 mm ²
Structure		
Copper conductor	Tin-plated according to CENELEC HD 383 S2 Class 5	Tin-plated according to CENELEC HD 383 S2 Class 5
Core insulation	PE according to DIN VDE 0207 Section 2, 2YI2	PE according to DIN VDE 0207 Section 2, 2YI2
Core colours	natural	natural
Shield	Twin screen from aluminium tape, electrically isolated	Twin screen from aluminium tape, electrically isolated
Technical data		
Conductor cross-section	1.5 mm ²	1.5 mm ²
Rated voltage	300/300 V	300/300 V
Rated current	3 A	3A
DC resistance	13.7 Ω/km	13.7 Ω/km
Capacitance	70 pF/m	70 pF/m
Attenuation at 1 MHz	nom. 1.2 dB/100 m	nom. 1.2 dB/100 m
Surge impedance 1 MHz	nom. 75 Ω	nom. 75 Ω

Technical data

Components:

	Mains	Bus
Connection technology:	Insulation-piercing contact with plug-in outgoing circuit in accordance with Wieland GST, BST, EST coding	
Terminal screws:	Tightening torque: 0.8 Nm	Tightening torque: 1.0 Nm
Rated voltage:	250 V/400 V	50 V
Rated current:	16 A	3 A
Number of poles:	3/ 5 pole	2 pole (+,-)
Regulations:	VDE 0628, Preliminary draft IEC 61535 IEC 998-2-3 (insulation-piercing clamping device)	EIB manual
Approval:	VDE, SEV	According to EIB manual
Type of protection:	IP 20, DIN VDE 0470 Section1/11.92	
Connection cable for incoming supply:	Ø 5 – 13 mm	Ø 3 – 8 mm
Materials:	Insulating components: thermoplastic material, halogen free Cover: polycarbonate, transparent Contact parts: brass with nickel plating bronze with nickel plating	
Continuous temperature:	70 °C, Insulating components 100 °C	
Fire load:	Flat cable adapter GST 18i5 Flat cable adapter GST 18i3 Flat cable adapter BST 14i	0.27 kWh 0.18 kWh 0.12 kWh
Coding:	Mechanical coding GST 18i Combination connector for mains and signal, type EST 3 pole tap-off, all phases with standard GST 18i coding GST 18i3/5 colour: black EIB coding: green Other coding: black	
General:	The voltage supply (incoming supply) in the flat cable is carried out using a screw-type flat cable adapter. The outgoing boxes can be adapted using insulation-piercing connection technology. The outgoing units themselves can be connected using gesis connector systems. The connectors must be locked with the adapter. The appropriate GST accessories should be used. Please note the installation instructions on page 213.	
Note:	The functional reliability can only be guaranteed if original cable is used.	

Technical data

Flat cable

	PVC	Halogen free
Outer sheath	PVC according to CENELEC HD 21.1 S2, TM2	Thermoplastic PE Compound, halogen free and no corrosive gases according to DIN VDE 0472 section 813
Colour of sheath	Purple RAL 4005	Purple RAL 4005
Weight	353 g/m	340 g/m
Dimension (W x H)	32 x 6 mm	32 x 6 mm
Fire load	1.18 kWh/m	0.99 kWh/m
Fire behaviour	Self extinguishing according to IEC 60332.1	Self extinguishing according to IEC 60332.1 Low risk of fire spreading according to IEC 60332-3C Low level of smoke development IEC 61034-1/2
Number x conductor cross section	5 x 2.5 mm ² + 2 x 1.5 mm ²	5 x 2.5 mm ² + 2 x 1.5 mm ²

Mains component

Structure		
Copper conductor	bare, finely stranded according to CENELEC HD 383 S2 Class 6	bare, finely stranded according to CENELEC HD 383 S2 Class 6
Core insulation	PVC according to CENELEC HD 21.1 S2, TI2	Cross-linked, halogen free and flame resistant
Core colours	black, brown, black, blue, yellow/green	black, brown, black, blue, yellow/green
Technical data		
Conductor cross-section	2.5 mm ²	2.5 mm ²
Test voltage	4 kV	4 kV
Rated voltage	450/750 V	450/750 V
Test current	according to IEC 60364-5-523	according to IEC 60364-5-523
DC resistance	7.98 Ω/km	7.98 Ω/km

Bus component

Structure		
Copper conductor	tin plated according to CENELEC HD 383 S2 Class 5	tin plated according to CENELEC HD 383 S2 Class 5
Core insulation	PE according to DIN VDE 0207 Section 2, 2YI2	PE according to DIN VDE 0207 Section 2, 2YI2
Colour of cores	natural	natural
Shield	Twin screen from aluminium tape, electrically isolated	Twin screen from aluminium tape, electrically isolated
Technical data		
Conductor cross-section	1.5 mm ²	1.5 mm ²
Rated voltage	300/330 V	300/300 V
Rated current	3 A	3 A
DC resistance	13.7 Ω/km	13.7 Ω/km
Capacity	70 pF/m	70 pF/m
Attenuation at 1 MHz	nom. 1.2 dB/100 m	nom. 1.2 dB/100 m
Surge impedance 1 MHz	nom. 75 Ω	nom. 75 Ω

Technical data

Pole:	2
Rated voltage:	48 V
Rated current:	25 A (only applies to male and female connectors) Prefabricated cables with fuse carrier max. 15 A
Rated cross-section:	2.5 mm ² finely stranded
Type of connection:	Screw, crimp connection
Wire range:	Screw component: min. 0.5 mm ² ; max. 2.5 mm ² single core and finely stranded without ferrule
Insulation strip length:	7 mm
Approvals:	VDE 0711 Section 1 (DIN EN 60598-1) in connection with VDE 0609 Section 1 (DIN EN 60999), VDE 0470 Section 1 (DIN EN 60529), DIN IEC 352 Section 2 Flat cable fuses in accordance with DIN 72581 Section 3 Transformer: MM, ENEC, VDE, CE
Type of protection:	IP 20 in accordance with DIN VDE 0470 Section 1/11.92
Materials:	
Insulating components:	PA 6.6 UL 94 V-0, continuous thermal stability in accordance with DIN VDE 0304, 20.000 h/5.000 h, 100/115 °C Glow wire test in accordance with DIN VDE 0471 Section 21 (IEC 695), 960 °C
Colour:	white
Metal components:	Brass with silver plating
Screw:	Galvanised chrome steel
Cable:	50 x 0.25 stranded conductors with tin plated, 2 layers, halogen-free, low flammability
Colour:	white
Diameter:	3.9 < d < 4.2 mm Continuous temperature 120 °C
Fire load:	0.064 kWh/m
Installation instructions:	Low voltage lighting installations may only be installed by experts under consideration of DIN VDE 0100 section 559 or section 559/A2 See next page for electronic transformer


Technical data

Pole:	2
Rated voltage:	48 V
Rated current:	16 A
Rated cross-section:	1.5/2.5/6 mm ²
Type of connection:	Screw or crimp connection
Wire range:	min. 0.5 mm ² max. 2.5 mm ²
Insulation strip length:	7 mm, with ferrules
Approval:	Transformer: MM, ENEC, VDE, CE
Type of protection:	IP 20 according to DIN VDE 0470 Section 1/11.92
Materials:	
Insulating components:	thermoplastic material, continuous temperature 110 °C
Colour:	white
Metal components:	Brass with nickel plating
Screw:	Galvanised chrome steel
Cable:	H05VV-F2 x 1.5 FLKK 2 x 2.5
Colour:	white
Installation instructions:	Low voltage lighting installations may only be installed by experts under consideration of DIN VDE 0100 Section 559 or Section 559/A2

Electronic transformer ST 16/ST 17

Primary version:	with pre-fabricated cable GST 18i 3 or with a pair of screw terminals with strain relief
Secondary version:	with prefabricated cable ST 16 / ST 17
Primary nominal voltage:	230 V AC, 50/60 Hz
Power range:	35-105 W
Nominal output voltage:	11.7 V
Power current in nominal mode:	0.45 A
Power factor:	0.96 c
Degree of effectiveness:	95%
Ambient temperature t_a :	max. 50 °C for maximum load
Housing temperature t_a :	max. 90 °C for maximum load
Short circuit protection:	electronic, automatic restart
Overload/temperature protection:	Automatic regulation of power up to 70% followed by disconnection
No-load operation:	Locked
Fire protection:	Disconnection in event of error
Protection class	II
Dimmable:	with TRONIC dimmer and universal dimmer
Dimensions:	175 x 42 x 18 mm

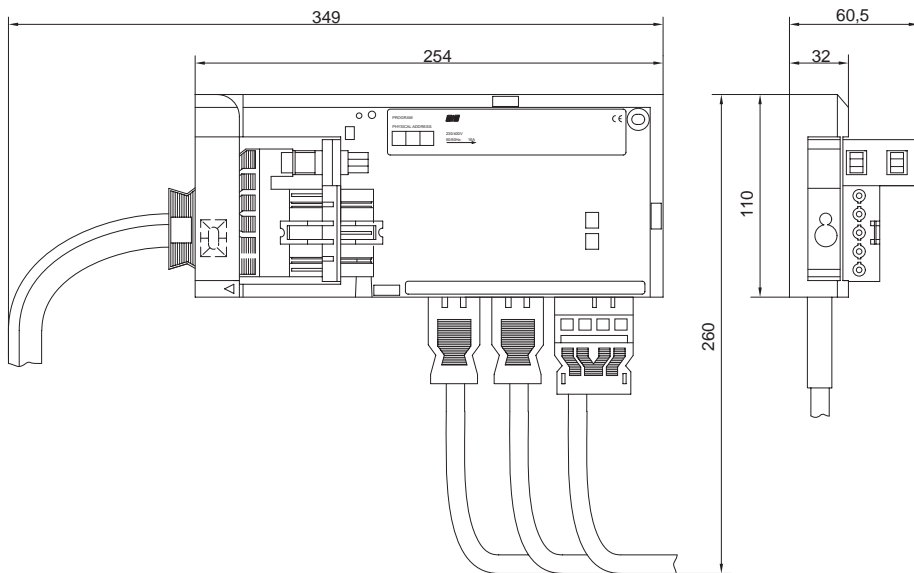
Accessories *gesis*[®] EIB V

ETS 2 Product database 	00.000.0066.1	1	You can receive the Wieland product database on diskette or as a download from the gesis CD-Rom which is supplied with planning manual or download from the internet
	00.000.0068.0	1	
	www.gesis.com		
	Part No.	Box Qty	

Mounting dimensions *gesis*[®] EIB V

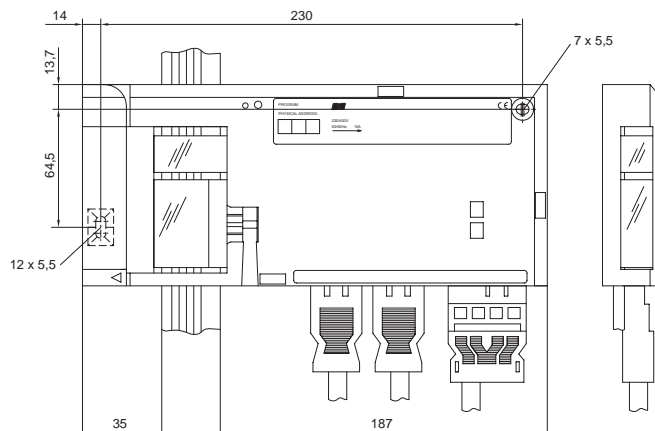
when using the round cable for supply

Dimensions in mm



when using the flat cable for supply

Dimensions in mm



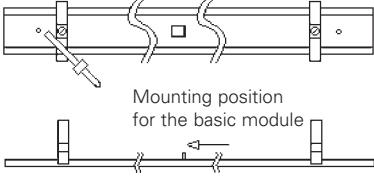

Functionality of **gesis**[®] EIB V

	Type	Part number	Functions
Device range gesis EIB V	gesis EIB V-0/2+1W	83.020.0212.0	
	Switch outputs		2; 3; 25; 26; 27
	Shutter outputs		13; 14; 24
	gesis EIB V-0/2+1W 1PH	83.020.0212.2	
	Switch outputs		2; 3; 25; 26; 27
	Shutter outputs		13; 14; 24
	gesis EIB V-0/2SD	83.020.0213.0	2; 16; 17; 18; 19; 20; 21; 23
	gesis EIB V-0/2SD 1PH	83.020.0213.2	2; 16; 17; 18; 19; 20; 21; 23
	gesis EIB V-0/4	83.020.0215.0	2; 3; 21
	gesis EIB V-0/4 1PH	83.020.0215.2	2; 3; 21
	gesis EIB V-0/2W	83.020.0216.0	13; 22
	gesis EIB V-0/2W 1PH	83.020.0216.2	13; 22

Functions **gesis**[®] EIB V

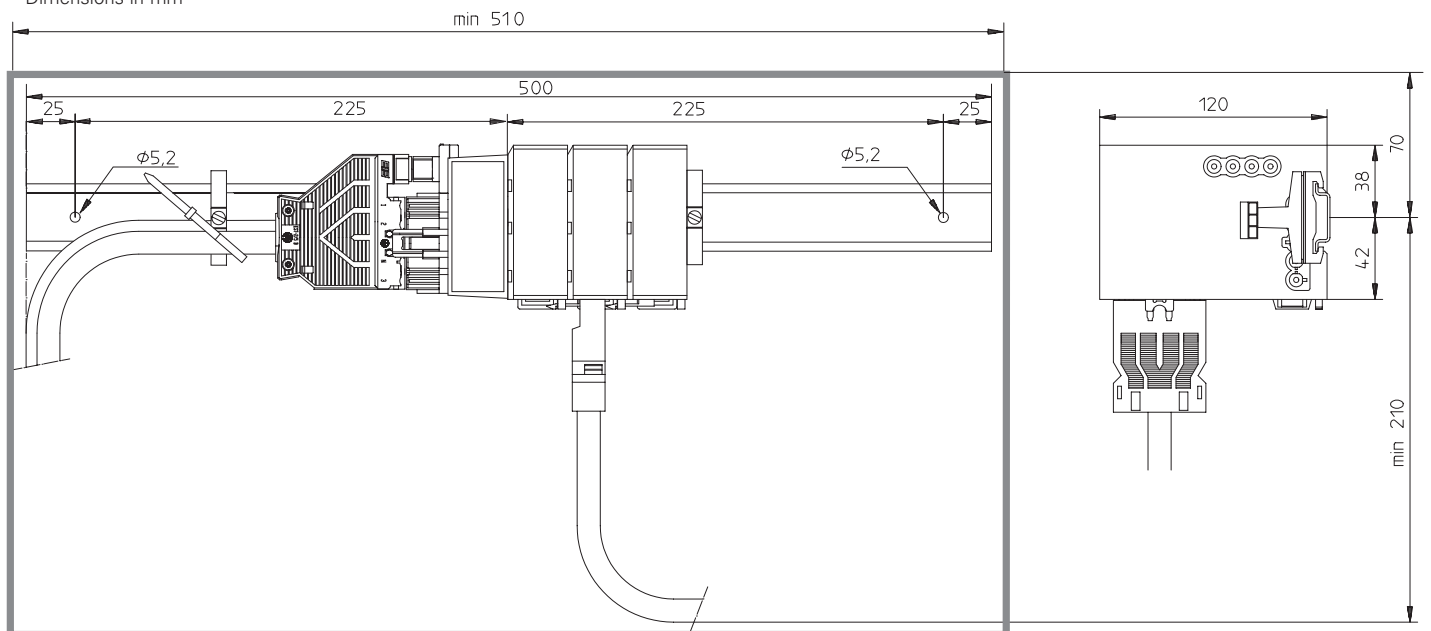
- | | |
|---|--|
| <ul style="list-style-type: none"> 2. Behaviour on bus voltage failure/recovery 3. ON/OFF delay and time-delay switch (staircase lighting function) 13. Setting the travel time
Setting the time for louvre adjustment and pause on reverse
Safety position
Inversion of direction of rotation 14. Fanning out after a "Down" command 16. Setting the offset voltage of electronic ballast devices 17. Dimming time can be set 18. Enable switching on/off via dimming 19. Behaviour on receipt of a value telegram | <ul style="list-style-type: none"> 20. Initial brightness value to be triggered 21. Status response of the switch or dimming state 22. Use as a shutter or motor actuator (no disconnection of relays after a certain period) 23. Scene control 24. Shutter position can be selected 25. Automatic sending of status values possible 26. Selection between normally closed and normally open contact 27. Logic operations possible |
|---|--|

Accessories *gesis*[®] EIB M and *gesis*[®] EIB M2

<p>Mounting set</p> <p>DIN rail with integrated fixing clip, two fixing terminals and cable connector</p> <p>Length: 500 mm</p>	<p>99.002.9999.9 5</p>	 <p>Mounting position for the basic module</p>
<p>ETS 2 Product database</p> 	<p>00.000.0066.1 1</p> <p>00.000.0068.0 1</p> <p>www.gesis.com</p>	<p>You can receive the Wieland product database on diskette</p> <p>or as a download from the gesis CD-ROM which is supplied with the manual planning manual</p> <p>or by downloading it from the internet.</p>
<p>Part No. Box Qty</p>		

Mounting dimensions *gesis*[®] EIB M and *gesis*[®] EIB M2

Dimensions in mm



Functionality of **gesis**[®] EIB M

	Type	Part number	Functions
Modular device range gesis EIB M	gesis EIB M-BAS	83.020.1000.0	
	Primary functions		1
	Outputs		2; 3; 4
	gesis EIB M-2x2/0	83.020.1001.0	
	Fkt. "Evaluation of pulse edge" *		4; 5; 6
	Fkt. "Evaluation of push button action" *		4; 5; 7; 15
	Fkt. "Shutter sensor" *		4; 5; 7
	Fkt. "Dimming sensor" *		4; 5; 7; 8; 9
	gesis EIB M-2x2/0 (24 V)	83.020.1002.0	
	Fkt. "Evaluation of pulse edge" *		4; 6; 10
	Fkt. "Evaluation of push button action" *		4; 7; 10; 15
	Fkt. "Shutter sensor" *		4; 7; 10
	Fkt. "Dimming sensor" *		4; 7; 8; 9; 10
	gesis EIB M-0/2	83.020.1003.0	
	gesis EIB M-0/1Wx2	83.020.1004.0	
gesis EIB M-0/2 B **	83.020.1005.0		

* The function (Fct.) is set using a parameter

** Reduced switching capacity compare to the switch outputs

Functions **gesis**[®] EIB M

1. Assignment of the basic function (shutter, load switch, switch/dimming actuator, 24 V DC or 230 V input) of the modules to the module addresses. The monitoring time for alarm evaluation and the limit for the telegram rate are set as general parameters and apply to all the modules.
2. Behaviour on bus voltage failure/recovery
3. ON/OFF delay and time-delay switch (staircase lighting function)
4. Disable evaluation in the module. The object is available once for the whole module block but can be evaluated separately in the extension modules
5. Debouncing (on/off)
6. Sending of initial value on voltage recovery (bus and mains voltage)
Evaluation of rising or falling pulse edge is sent cyclically in combination with the switching commands on/off/toggle
7. Evaluation of short/long push button action
8. Inversion of input assignment
9. Type of dimming function (with stop telegram or cyclical sending)
Cyclic interval for telegrams and dimming step width
10. Debouncing with selected debounce time
11. Behaviour on bus voltage failure (mains available)
12. Behaviour on voltage recovery (mains and bus voltage)
13. Setting the travel time
Setting the time for louvre adjustment and pause on reverse
Safety position
Inversion of direction of rotation
15. Reaction (on, off or toggle) to short/long push button action

Functionality of *gesis*[®] EIB M2

	Type	Part number	Functions
Modular device range <i>gesis</i> EIB M2	gesis EIB M2-BAS	83.020.1020.0	
	Primary functions		1
	gesis EIB M2-4/0	83.020.1021.0	
	Fkt. "Evaluation of pulse edge" *		4; 5; 6
	Fkt. "Evaluation of push button action" *		4; 5; 7; 15
	Fkt. "Shutter sensor" *		4; 5; 7
	Fkt. "Dimming sensor" *		4; 5; 7; 8; 9
	gesis EIB M2-4/0 (24)	83.020.1022.0	
	Fkt. "Evaluation of pulse edge" *		4; 6; 10
	Fkt. "Evaluation of push button action" *		4; 7; 10; 15
	Fkt. "Shutter sensor" *		4; 7; 10
	Fkt. "Dimming sensor" *		4; 7; 8; 9; 10
	gesis EIB M2-0/2	83.020.1023.0	
	gesis EIB M2-0/1Wx2	83.020.1024.0	
	gesis EIB M2-0/2 B**	83.020.1025.0	
gesis EIB M2-0/1SD**	83.020.1026.0		

* The function (Fct.) is set using a parameter
 ** Reduced switching capacity compare to the switch outputs0/2

Functions of *gesis*[®] EIB M2

1. Assignment of the basic function (shutter, load switch, switch/dimming actuator, 24 V DC or 230 V input) of the modules to the module addresses. The monitoring time for alarm evaluation and the limit for the telegram rate are set as general parameters and apply to all the modules.
2. Behaviour on bus voltage failure/recovery
3. ON/OFF delay and time-delay switch (staircase lighting function)
4. Disable evaluation in the module. The object is available once for the whole module block but can be evaluated separately in the extension modules
5. Debouncing (on/off)
6. Sending of initial value on voltage recovery (bus and mains voltage)
Evaluation of rising or falling pulse edge is sent cyclically in combination with the switching commands on/off/toggle
7. Evaluation of short/long push button action
8. Inversion of input assignment
9. Type of dimming function (with stop telegram or cyclical sending)
Cyclic interval for telegrams and dimming step width
10. Debouncing with selected debounce time
11. Behaviour on bus voltage failure (mains available)
12. Behaviour on voltage recovery (mains and bus voltage)
13. Setting the travel time
Setting the time for louvre adjustment and pause on reverse
Safety position
Inversion of direction of rotation
14. Fanning out after a "Down" command
15. Reaction (on, off or toggle) to short/long push button action
16. Setting the offset voltage for electronic ballast devices
17. Dimming time can be set
18. Enable switching on/off via dimming
19. Behaviour on receipt of a value telegram
20. Initial brightness value to be triggered
21. Status response of the switch or dimming state

Module addresses of **gesis**[®] EIB M and **gesis**[®] EIB M2

The basic module has priority over all the extension modules and manages the communication to the EIB as well as the application of all the modules. All the modules are assigned parameters and supplied via the basic module. So that the individual modules can be correctly addressed, they are provided with a module address. These module addresses can be set at the modules using a rotary switch and must match the addresses that are parameterised in the application.

Module blocks of **gesis**[®] EIB M and **gesis**[®] EIB M2

Maximum number of modules on a module block:

Once the system configuration has been defined, the basic module is fitted together with the required extension modules to form a module block. It should be ensured that the number of manageable module addresses in the basic module is not exceeded.

The following table indicate the number of module addresses that each type of basic module can manage and the number of module addresses required by an extension module.

Assignment of module addresses to the basic/extension modules

Module range	gesis EIB M						gesis EIB M2						
Module type	gesis EIB M-BAS 83.020.1000.0	gesis EIB M-2x2/0 83.020.1001.0	gesis EIB M-2x2/0 (24) 83.020.1002.0	gesis EIB M-0/2 83.020.1003.0	gesis EIB M-0/1Wx2 83.020.1004.0	gesis EIB M-0/2 B 83.020.1005.0	gesis EIB M2-BAS 83.020.1020.0	gesis EIB M2-4/0 83.020.1021.0	gesis EIB M2-4/0 (24) 83.020.1022.0	gesis EIB M2-0/2 83.020.1023.0	gesis EIB M2-0/1Wx2 83.020.1024.0	gesis EIB M2-0/2 B 83.020.1025.0	gesis EIB M2-0/1SD 83.020.1026.0
Manageable module addresses	5	-	-	-	-	-	6	-	-	-	-	-	-
Module addresses required	1	2	2	1	1	1	-	1	1	1	1	1	1

Application example **gesis**[®] EIB M and **gesis**[®] EIB M2

Example 1:

Two offices in which 4 groups of luminaires (LB1-LB4) and 2x2 shutters (M1-M4; each pair of shutters operating in parallel) need to be controlled.

The push buttons are directly connected to the EIB.

Solution 1.1 with **gesis** EIB M

	gesis EIB M									
Module	Basic module		Shutter module		Output module		Shutter module		Spare	
Module addresses	1		2		3		4		5	
Room assignment	Room 1				Room 2					
Output designation	A	B	A	B	A	B	A	B		
Function	LB1	LB2	M1	M2	LB3	LB4	M3	M4		

One module address is reserved for later extensions to the functions

Solution 1.2 with **gesis** EIB M2

	gesis EIB M2											
Module	Basic module	Output mod.		Shutter mod.		Output mod.		Shutter mod.		Spare	Spare	
Module address		1		2		3		4		5	6	
Room assignment	Room 1 and 2		Room 1				Room 2					
Output designation		A	B	A	B	A	B	A	B			
Function		LB1	LB2	M1	M2	LB3	M4	LB3	LB4			

Two module addresses are reserved for later extensions to the functions

Example 2:

Two offices in which 4 groups of luminaires (LB1-LB4) and 2x2 shutters (M1-M4; each pair of shutters operating in parallel) need to be controlled.

In each room, a conventional two-circuit switch with rockers T1 and T2 for the lighting and a shutter switch with rockers for "UP" and "DOWN" should be integrated via inputs into the EIB.

Solution 2.1 with **gesis** EIB M

gesis EIB M										
Module	Basis module 1		Shutter module		Input module				Reserve	
Module address	1		2		3		4		5	
Room assignment	Room 1									
Input/output	A	B	A	B	S1A	S1B	S2A	S2B		
Function	LB1	LB2	M1	M2	T1	T2	Up	Down		
Module	Basis module 2		Shutter module		Input module				Reserve	
Module address	1		2		3		4		5	
Room assignment	Room 2									
Input/output	A	B	A	B	S1A	S1B	S2A	S2B		
Function	LB3	LB4	M3	M4	T1	T2	Up	Down		

As the maximum number of module addresses that are assigned to a basic module is not sufficient, two basic modules must be used. It should also be noted that two physical addresses should be provided in the EIB system for this solution. In addition, the costs for the connections on the mains/EIB input of the basic module are doubled in comparison to solution to 2.2 using EIB M2 modules.

Solution 2.2 with **gesis** EIB M2

gesis EIB M2													
Module	Basic mod.	Output mod.		Shutter mod.		Input mod.		Output mod.		Shutter mod.		Input mod.	
Module address		1		2		3		4		5		6	
Room assignment	Room 1 and 2		Room 1				Room 2						
Output designation		A	B	A	B	A,B	C,D	A	B	A	B	A,B	C,D
Function		LB1	LB2	M1	M2	LB	M	LB3	LB4	M3	M4	LB	M

Example 3:

Two offices in which 4 dimmable groups of luminaires (LB1-LB4) and 2x2 shutters (M1-M4; each pair of shutters operating in parallel) need to be controlled.

The push buttons are directly connected to the EIB.

Solution 3.1 with **gesis** EIB M

There is no possibility of a solution using **gesis** EIB M since the basic module gesis EIB M-BAS is not able to manage switch/dimming actuators.

Solution 3.2 with **gesis** EIB M2

gesis EIB M2											
Module	Basic mod.	swt/dimm	swt/dimm	Shutter mod.		swt/dimm	swt/dimm	Shutter mod.			
Module address		1	2	3		4	5	6			
Room assignment	Room 1 and 2		Room 1				Room 2				
Output designation		load/control	load/control	A	B	load/control	load/control	A	B		
Function		LB1	LB2	M1	M2	LB3	LB4	M3	M4		

In addition, where the shutter outputs **gesis** EIB M2-0/1Wx2 are used, the louvers can be fanned out after a "Down" command e.g. from a wind sensor.

The following are some general case studies showing when **gesis** EIB M or **gesis** EIB M2 can be used:

- A simple function is required for shutter control.
- A simple function is required for a combined shutter/lighting control system without a status response.
- A status response is required for a visualisation system in a building.
- Several offices are operated using one module block. The conventional switches are integrated into the EIB. A status response should not occur.
- You wish to control a lighting system that is fitted with dynamic devices with electronic ballast.

gesis EIB M or M2

gesis EIB M or M2

gesis EIB M2

gesis EIB M2 or M

gesis EIB M2

Compatibility of basic modules and extension modules

Compatibility between the extension modules and the basic modules

If you need to mix old and new modules in an existing installation, the following combinations are possible.

	Part number	Basic module		Page
		gesis EIB M-BAS 83.020.1000.0 Page 132f	gesis EIB M2-BAS 83.020.1020.0 Page 142f	
1st generation gesis EIB M-2x2/0 4 fold input 230 V	83.020.1001.0	X	X	134
1st generation gesis EIB M-2x2/0 B (24) 4 fold input 24 V DC	83.020.1002.0	X	X	135
1st generation gesis EIB M-0/2 2 fold load switch	83.020.1003.0	X	X	136
1st generation gesis EIB M-0/1Wx2 1 x 2 fold shutter output ¹⁾	83.020.1004.0	X	X	137
1st generation gesis EIB M-0/2 B 2 fold switch output ²⁾	83.020.1005.0	X	X	138
2nd generation gesis EIB M2-4/0 4 fold input 230 V	83.020.1021.0	–	X	144
2nd generation gesis EIB M2-4/0 (24) 4 fold input 24 V DC	83.020.1022.0	–	X	145
2nd generation gesis EIB M2-0/2 2 fold load switch	83.020.1023.0	O ³⁾	X	146
2nd generation gesis EIB M2-0/1Wx2 1 x 2 fold shutter output ¹⁾	83.020.1024.0	O ⁴⁾	X	147
2nd generation gesis EIB M2-0/2 B 2 fold switch output ²⁾	83.020.1025.0	O ³⁾	X	148
2nd generation gesis EIB M2-0/1SD Switch/Dimming output 1-10 V	83.020.1026.0	–	X	149

Possible assignments of the extension modules listed in the left-hand column to the basic modules.

X Full functional scope

O Limited functional scope

– No connection possible

¹⁾ With two isolated outputs for the connection of two 230 V drives operating in parallel

²⁾ Switch output has a reduced switching capacity compared to the ...0/2

³⁾ Without status response

⁴⁾ Without the function “Fanning out after a Down command”

Can I wire a functional building completely with *gesis*?

Yes. All the functions of the electrical installation can be implemented from the sub-distribution boards onwards e.g. device connection, distribution box, switch connection, connection of socket-outlets, three-phase a.c. wiring, wiring of installation bus.

Are there distribution units available with a *gesis* connection?

Yes. We stock both the sub-distribution boards *gesis* RAN which are manufactured to your specifications and the Wieland distribution boards WIV which have been designed specifically for stand building.

What are the prerequisites for installing *gesis*?

gesis can be installed wherever there is sufficient space for connectors and cables e.g. in suspended ceilings, dado trunking, raised floors or wall racks - in short in any cavity.

I would like to install a second circuit e.g. to supply the computer. Is this possible with *gesis* connectors?

Yes. A continuous and clear separation of the supply systems can be achieved using the mechanically coded *gesis* connectors.

Can a bus installation be made connectable with *gesis*?

Yes, by using our *gesis* EIB components!

Can *gesis* also be used for heavy current up to 20 A?

Yes, the *gesis* connectors are available in a modified form on request for countries with 20 A applications such as Australia and Japan.

What are the coding switches on the *gesis* EIB M and M2 modules used for?

The module address is set using the coding switches. The module address can also be found in the application program for *gesis* EIB M and M2 for the ETS2 software. You select the module in use and thus define the module addresses. These module addresses must match the addresses that have been set at the coding switch. The module type must also be identical.

Do the *gesis* EIB M and *gesis* EIB M2 devices fit in the sub-distribution board?

The device has been designed for installation on site. A TS 35 mounting rail is used for installation. All the connections are carried out as plug-in connections and the cables are equipped with a strain relief. The overall height of 120 mm does not permit the devices to be installed in the sub-distribution board!

How many extension modules can I operate on a basic module?

The following applies for the *gesis* EIB M range:

5 module addresses can be managed. One is allocated to the outputs of the basic module, one each for the output or shutter module and two for the input module.

The following applies for the *gesis* EIB M2 range:

6 module addresses can be managed. As all the *gesis* EIB M2 extension modules only require one module address, these are also six M2 extension modules.

Do I require additional software programs to set the parameters?

All the functions and possible combinations can be parameterised within an application program using the EIB Tool Software ETS2.

Does the connection of permanently wired conductors (NYM) using connectors comply with VDE regulations (initial connection with NYM)?

This application is not excluded in any of the relevant VDE regulations. Several points must however be taken into account:

- The connecting points of cables that are not permanently wired must be relieved of tension and transverse force (strain relief and locking device).
- The supply cable (NYM) must be protected against excessive bending stress by fixing the cable or plug appropriately during the installation.
- It must be ensured that the plugs are only used in installations with a maximum load of 16 A.

It has never been in doubt that a Wieland Electric connector meets higher standards as regards safety requirements than the conventional connection with a standard European terminal (lamp-wire connector). The installation of **gesis** in all previous buildings has been carried out without any problems from the governing bodies (TÜV and LGA).

What must be taken into account when the cables are bundled?

When the cables are bundled, the permitted current carrying capacity must be reduced (compared to DIN VDE 0298 section 4). This can be the case for example in cable trunking, cable trays or racks as well as in walls with heat insulation. An increase in the cable cross-section (e.g. from 1.5 mm² to 2.5 mm²) raises the permitted current carrying capacity.

Which technical conditions apply for three-phase and a.c. distribution boards?

Three-phase and a.c. distribution boards may be fused with a maximum of 16 A per external conductor. A three-phase protective device should be used so that all 3 fuses can be protected against short circuits if one phase fails. Alternatively, each phase can be individually fused and a separate master switch should be installed for all three phases so that the complete circuit can be disconnected to carry out repairs.

Which VDE approval refers to the use of connectors in installation technology?

VDE 0628

This norm with VDE approval applies to two pole and multipole connectors with an earthing contact, a nominal voltage of AC 250 V and AC 400/230 V as well as a nominal current of 16 A. These devices should be connected in installation systems e.g. in prefabricated houses, furniture, cavities such as false floors, suspended ceilings etc. A prerequisite is that the ambient temperature should normally not exceed 25 °C but can occasionally reach 35 °C.

Which VDE approval refers to the use of flexible conductors?

VDE 0100 section 520 (chapter 5.3 "Application of flexible cables")

The following must be connected with flexible cables:

- portable equipment
 - stationary equipment whose location must be changed temporarily
- These cables must be connected via male and female connectors (e.g. GST 18) or terminals in fixed housing.

VDE 0298 section 3 "Use of cables and insulated cables"

The use of flexible conductors in commercial buildings is permitted, in a similar way to workshops. Applications in false floors, false ceilings, dado trunking etc. within a building can be compared with the external conditions of a workshop.

VDE statement: The use of flexible conductors is permitted in all types of cavities.

What should be noted when connecting permanently wired conductors (NYM) using connectors (initial connection with NYM)?

Statement from TÜV, South West

“The intended application has not been excluded in any of the relevant VDE regulations which incorporate the setup of power installations or the requirements for cable, plug-in connections, male and female connectors or socket-outlets. Several points must however be taken into account:

- The connecting points of cables that are not permanently wired must be relieved of tension and transverse force (strain relief and locking device).
- The supply cable (NYM) must be protected against excessive bending stress by fixing the cable or male connector appropriately during the installation.
- It must be ensured that the male connector are only used in installations with a maximum load of 16 A.”

VDE 0628

Area of application: Connectors for installation technology

“Connectors with detachable connections are tested with the following cables. H05VV-F, NYM (cross-section 1.5 mm² and 2.5 mm²)”

It can be concluded that cable types that are used for this test are also suitable for the practical application.

Latest technology

Connection of a luminaire with flexible conductors to an NYM cable which is suspended from the ceiling. The connection is normally established with a European standard terminal (lamp-wire connector). It has never been in doubt that a Wieland Electric connector meets higher standards as regards safety requirements (strain relief, locking device, reliability of concealment,....).

Previously all buildings have been installed without any problems from the TÜV, LGA etc.

Are there specific technical conditions for the installation?

Three-phase and a.c. distribution boards

- Max. 16 A fuse per external conductor
- A three-phase protective device should be used so that all 3 fuses can be disconnected if one phase fails or
- Each phase can be individually fused and a separate master switch should be installed for all three phases so that the complete circuit can be disconnected to carry out repairs.

Bundling of cables

When the cables are bundled, the permitted current carrying capacity must be reduced (compared to DIN VDE 0298 section 4).

- Example:
- cable trunking
 - cable trays, racks
 - walls with heat insulation

An increase in the cable cross-section (e.g. from 1.5 mm² to 2.5 mm²) raises the permitted current carrying capacity.

