

CATALOGUE 2023

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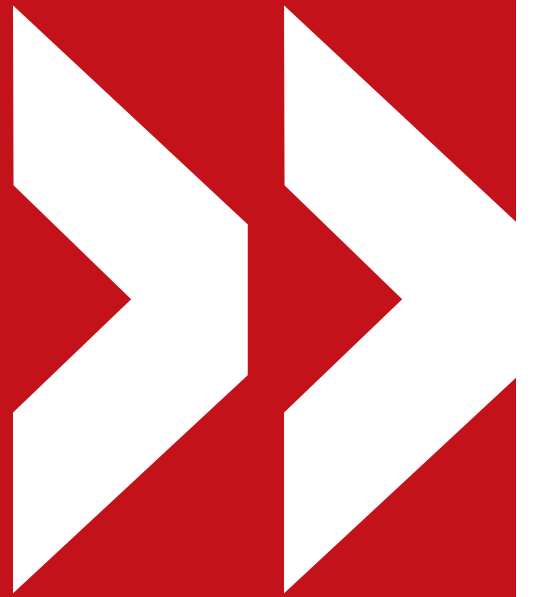


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**NEW
PRODUCTS**

NEW PRODUCTS

>> OVERVIEW NEW PRODUCTS


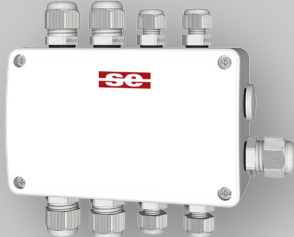


Type	Short description	Product type	
F-FM-BSK-3S G 15 10 93	<ul style="list-style-type: none"> • Fire damper and smoke detector monitoring module for F-bus • For 2× fire dampers (connection via AC 230 V or 24 V possible) • Max. 12 VA external load • Messages received • Connection for smoke detector • Wall mounting 	05 05 I O MODULES FOR F-BUS	
F-SKTH PE G 14 80 60	<ul style="list-style-type: none"> • Duct temperature and humidity sensor for F-bus • With integrated enthalpy, dewpoint, humidity ball and absolute humidity calculations • Combined temperature and humidity sensor • Measuring range -35 ...+70 °C, 0 ...100 % r.h. • IP65 	06 SENSORICS, ACTUATORS FOR F-BUS	
F-SKTHVOC PE G 14 80 61	<ul style="list-style-type: none"> • Duct temperature and humidity sensor and VOC sensor for F-bus • With integrated enthalpy, dewpoint, humidity ball and absolute humidity calculations • Combined temperature and humidity sensor • Measuring range -10 ...+50 °C, 0 ...100 % r.h. • IP65 	06 SENSORICS, ACTUATORS FOR F-BUS	
F-SKT-MW 3M G 14 80 81-01	<ul style="list-style-type: none"> • Duct temperature sensor with sensor Pt1000 • For calculation the average value in a channel • Measuring range -30 ...+80 °C • Length of measuring element 3.0 m 	06 SENSORICS, ACTUATORS FOR F-BUS	

Date 2023-04-01

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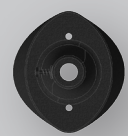
NEW PRODUCTS

>> OVERVIEW NEW PRODUCTS

Type	Short description	Product type	
F-FM-AM G 15 10 40	<ul style="list-style-type: none"> • Universal-IO module for actuators and sensors • F-bus communication with power supply 24 V AC/DC • Modbus communication • 2× universal input for sensors, analog and digital input • 1× analog input (0 ...10 V) • 1× analog output (0 ...10 V) • 1× DO (relay contact NO) 	06 SENSORICS, ACTUATORS FOR F-BUS	
F-UNI-IO V20 G 15 10 97	<ul style="list-style-type: none"> • Universal-IO module for actuators and sensors • F-bus communication with power supply AC/DC 24 V • Modbus communication • 2× universal input for sensors, analog and digital input • 1× analog input (0 ...10 V) • 1× analog output (0 ...10 V) • 1× DO (relay contact NO) 	06 SENSORICS, ACTUATORS FOR F-BUS	
BC-FM-BSK24 DC G 05 30 11	<ul style="list-style-type: none"> • Fire damper and smoke detector monitoring module for wall mounting for two fire dampers • Messages received • For DC 24 V fire dampers • RS485 connection, BACnet 	08 INTERFACE, MODEM, GATEWAYS	
SD-card 8GB G 00 01 42	<ul style="list-style-type: none"> • micro SD card with 8 GB flash memory for E-DDC • Including adapter • Industrial quality (high number of possible write operations) 	10 ACCESSORIES	

NEW PRODUCTS

>> OVERVIEW NEW PRODUCTS

Type	Short description	Product type	
STHPWM G 04 12 10	<ul style="list-style-type: none"> • Temperature and humidity sensor including screw connection M16×1.5 and sealing ring • Connection via plug connector DC 3.3 V, analog • Measuring range temperature: -20 ...+70 °C • Measuring range humidity: 0 ...95 % r.h. • IP65 	10 ACCESSORIES	
STH HD-PE G 04 12 12	<ul style="list-style-type: none"> • Application humidity and temperature sensor with sinter filter cap (HD-Polyethylen) • Operating temperature: -25 °C ...+80 °C • Mesh size 140 µm • Green sealing rubber 	10 ACCESSORIES	
STHVOC HD-PE G 04 12 14	<ul style="list-style-type: none"> • Application humidity, temperature and VOC sensor with sintered filter cap (HD-Polyethylen) • Operating temperature: -10 °C ...+50 °C • Mesh size 140 µm • Black sealing rubber 	10 ACCESSORIES	
MF-STH HD-PE G 04 14 43	<ul style="list-style-type: none"> • Mounting flange for sensor tube with Ø12.0 mm 	10 ACCESSORIES	

Date 2023-06-13

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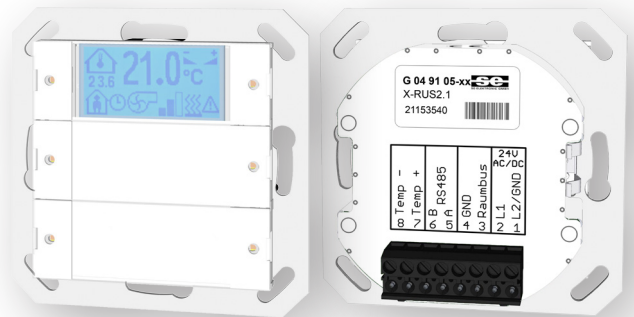


Room automation

Single room controller for flush mounting

Type:
X-RUS2.1

Order No.:
G 04 91 05



>> Description

Freely programmable single room controller with display, LEDs and functional push-buttons for complex control tasks. Communication between the controllers and to the BCS via BACnet MS/TP. Control of the field devices via room-bus.

- 1x RS485 connection (BACnet MS/TP) for communication with BCS, DDC or further X-RUS2.x units
- Direct online programming via mini-USB interface on the front
- Graphical programming interface with more than 40 software modules, macro functions for compact control tasks
- microSD-card (4 GB) for saving the program, the firmware, the CAD data...
- Force control via BCS for fan coil units, light and blind
- Own room-bus communication using simple two-wire technology for up to 16 I/O modules (master) per X-RUS
- Optional connection to the MP-Bus with the modules X-FCU TRIAC or X-IO MP
- 4 push-buttons are assigned to fixed functions, 2 push-buttons and 5 LEDs are freely configurable
- 1 temperature sensor input (Pt1000 1/3 DIN B) for measuring the room temperature (can be mounted at a distance of 2 m). An according temperature sensor is available, see G 04 12 06 SRT-UP 55-PT1000
- The scope of operation with X-ERW1 or X-ERW3 modules can be extended to up to 12 push-buttons with a red LED each
- Wide range of application options for individual room regulation and control:
 - Heating, cooling or in combination with 2 or 4 pipe systems for heating and cooling
 - Fan-coil units with comprehensive configuration options
 - VAV volume flow control via MP-Bus, light, blinds, electro-thermal valve drives
 - Example applications are available for individual adjustment
- Display brightness can be adjusted, either fixedly or via a data point. Display options for temperature (actual and nominal value), building status (comfort mode, room or building utilisation, building protection), fan-coil status, 9-step switch, window contact, alarm message etc.

Simple installation by plug-in connection terminals on the rear side. Button white. Can be combined with many switch covers (standard dimension 55) by a wide range of different manufacturers. Installation and attachment in a flush box Ø 60 mm × 40 mm (installation depth).

>> Technical data

Voltage supply	AC 24 V ± 10 %, 50 ...60 Hz DC 24 V ± 20 %
Max. power consumption	AC 1.9 VA DC 1.0 W
Dimensions	70.8 × 70.8 × 36.0 (length × width × height (installation depth) in mm)
Operation temperature	0 ...+50 °C
Weight	105 g
Protection	IP30

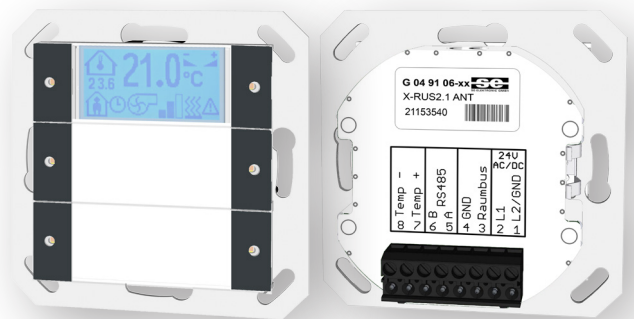
See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

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Single room controller for flush mounting

Type:
X-RUS2.1 ANT

Order No.:
G 04 91 06



>> Description

Freely programmable single room controller with display, LEDs and functional push-buttons for complex control tasks. Communication between the controllers and to the BCS via BACnet MS/TP. Control of the field devices via room-bus.

- 1x RS485 connection (BACnet MS/TP) for communication with BCS, DDC or further X-RUS2.x units
- Direct online programming via mini-USB interface on the front
- Graphical programming interface with more than 40 software modules, macro functions for compact control tasks
- microSD-card (4 GB) for saving the program, the firmware, the CAD data...
- Force control via BCS for fan coil units, light and blind
- Own room-bus communication using simple two-wire technology for up to 16 I/O modules (master) per X-RUS
- Optional connection to the MP-Bus with the modules X-FCU TRIAC or X-IO MP
- 4 push-buttons are assigned to fixed functions, 2 push-buttons and 5 LEDs are freely configurable
- 1 temperature sensor input (Pt1000 1/3 DIN B) for measuring the room temperature (can be mounted at a distance of 2 m). An according temperature sensor is available, see G 04 12 06 SRT-UP 55-PT1000
- The scope of operation with X-ERW1 or X-ERW3 modules can be extended to up to 12 push-buttons with a red LED each
- Wide range of application options for individual room regulation and control:
 - Heating, cooling or in combination with 2 or 4 pipe systems for heating and cooling
 - Fan-coil units with comprehensive configuration options
 - VAV volume flow control via MP-Bus, light, blinds, electro-thermal valve drives
 - Example applications are available for individual adjustment
- Display brightness can be adjusted, either fixedly or via a data point. Display options for temperature (actual and nominal value), building status (comfort mode, room or building utilisation, building protection), fan-coil status, 9-step switch, window contact, alarm message etc.

Simple installation by plug-in connection terminals on the rear side. Button anthracite. Can be combined with many switch covers (standard dimension 55) by a wide range of different manufacturers. Installation and attachment in a flush box Ø 60 mm × 40 mm (installation depth).

>> Technical data

Voltage supply	AC 24 V ± 10 %, 50 ...60 Hz DC 24 V ± 20 %
Max. power consumption	AC 1.9 VA DC 1.0 W
Dimensions	70.8 × 70.8 × 36.0 (length × width × height (installation depth) in mm)
Operation temperature	0 ...+50 °C
Weight	105 g
Protection	IP30

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

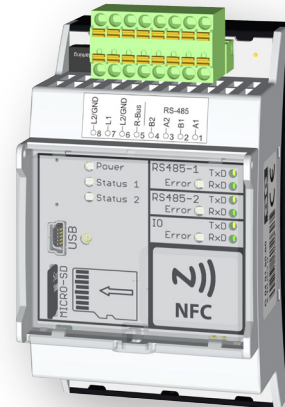
Single room controller for top hat rail mounting

Type:

X-RUS3.0

Order No.:

G 04 91 80



>> Description

Native BACnet Building Controller (device profile B-BC) according to the BACnet standard ISO 16484-5:2012, Rev. 12, and additionally from firmware version 03.08.08 also BACnet standard ISO 16484-5:2017, Rev. 15.
Freely programmable modular X-RUS unit for regulation, control, monitoring and optimization of building automation systems. Realization of simple HVAC solutions up to complex requirements. A high degree of planning reliability and interoperability is provided by the standardized and widely used communication protocols, such as BACnet or Modbus.
Significant increase in performance and the number of active participants due to the new room bus technology.

- 2× RS485 interface (2-wire) for communication via BACnet MS/TP (with router function), Modbus RTU (Master/Slave)
- 1× USB service interface (type B) for diagnostics, parameterization and maintenance, webserver functionality
- SD flash card for trend data, application, CAD data, languages, firmware ...
- NVRAM for non-volatile data
- 1× real time clock (RTC) with automatic summer and winter time changeover
- Own room bus communication with simple 2-wire technology for up to 16 I/O modules (master) per X-RUS
- Optional connection to the MP-bus via the X-FCU TRIAC or X-IO MP modules

Software webconfiguration

- Comfortable password-protected web interface with user-dependent access
- Configuration: Device, network, bus, modem, routing, BACnet settings ...
- System: Diagnostic options for BACnet objects, communication, backup & restore, firmware update ...
- Project Viewer: Display (and modification) of configured BACnet objects as operating data, alarms and trend recordings ...

Further software functions

- Access control via a user administration (roles and rights)
- Compatible to the BACnet standard ISO 16484-5:2012, Rev. 12, and additionally from firmware version 03.08.08 also BACnet standard ISO 16484-5:2017, Rev. 15. Details see PICS list
- Processing of up to 400 BACnet objects
- Sending BACnet notifications (alarms or messages) by e-mail or SMS
- Direct online programming via PC with graphic programming interface, module library and macro functions for compact controls, 16.384 program lines, sample applications are available for individual adaptation
- 8.192 analog and digital data points each (internal), as well as further data points (external) for communication with the RS485 bus, the IO modules and the field bus
- Geographical sun position calculation of the relevant sun angles, as well as the times of sunrise and sunset
- Software package: webserver G 01 03 30 included

Options, software packages (activation code with registered access via SE homepage)

- BACnet G 01 03 10
- Modbus G 01 03 20 (Modbus Master)

Certificates

- BACnet standard ISO 16484-5:2017, Rev. 15

Plastic housing for top hat rail mounting.

>> Technical data

Voltage supply	AC 24 V \pm 10 %, 50 ...60 Hz DC 24 V \pm 20 %
Max. power consumption	AC 2.5 VA (at max. load) DC 1.2 W
Dimensions	90.0 \times 54.0 \times 61.0 (length \times width \times height (installation depth) in mm)
Operation temperature	0 ...+50 °C
Weight	120 g
Protection	IP20
Housing	polycarbonate, light gray

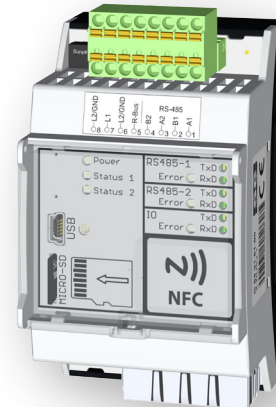
See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

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Single room controller for top hat rail mounting

Type:
X-RUS3.1

Order No.:
G 04 91 81



>> Description

Native BACnet Building Controller (device profile B-BC) according to the BACnet standard ISO 16484-5:2012, Rev. 12, and additionally from firmware version 03.08.08 also BACnet standard ISO 16484-5:2017, Rev. 15.
Freely programmable modular X-RUS unit for regulation, control, monitoring and optimization of building automation systems. Realization of simple HVAC solutions up to complex requirements. A high degree of planning reliability and interoperability is provided by the standardized and widely used communication protocols, such as BACnet or Modbus.
Significant increase in performance and the number of active participants due to the new room bus technology.

- 1× Ethernet interface for network connection and IP communication for BACnet, web services, Modbus TCP (master/slave), webconfiguration, programming, service, FTP ...
- 2× RS485 interface (2-wire) for communication via BACnet MS/TP (with router function), Modbus RTU (Master/Slave)
- 1× USB service interface (type B) for diagnostics, parameterization and maintenance, webserver functionality
- SD flash card for trend data, application, CAD data, languages, firmware ...
- NVRAM for non-volatile data
- 1× real time clock (RTC) with automatic summer and winter time changeover
- Own room bus communication with simple 2-wire technology for up to 16 I/O modules (master) per X-RUS
- Optional connection to the MP-bus via the X-FCU TRIAC or X-IO MP modules

Software webconfiguration

- Comfortable password-protected web interface with user-dependent access
- Configuration: Device, network, bus, modem, routing, BACnet settings ...
- System: Diagnostic options for BACnet objects, communication, backup & restore, firmware update ...
- Project Viewer: Display (and modification) of configured BACnet objects as operating data, alarms and trend recordings ...

Further software functions

- Routing of IP and BACnet networks
- Access control via a user administration (roles and rights)
- Compatible to the BACnet standard ISO 16484-5:2012, Rev. 12, and additionally from firmware version 03.08.08 also BACnet standard ISO 16484-5:2017, Rev. 15. Details see PICS list and AMEV test certificate
- Processing of up to 400 BACnet objects
- Sending BACnet notifications (alarms or messages) by e-mail or SMS
- Direct online programming via PC with graphic programming interface, module library and macro functions for compact controls, 16.384 program lines, sample applications are available for individual adaptation
- 8.192 analog and digital data points each (internal), as well as further data points (external) for communication with the RS485 bus, the IO modules and the field bus
- Geographical sun position calculation of the relevant sun angles, as well as the times of sunrise and sunset
- Software package: webserver G 01 03 30 included

Options, software packages (activation code with registered access via SE homepage)

- BACnet G 01 03 10
- Modbus G 01 03 20 (Modbus Master)

Certificates

- BACnet standard ISO 16484-5:2017, Rev. 15
- AMEV test certificate according to DIN EN ISO 16484-5 with AMEV profile AS-B AMEV BACnet 2017 (automation station with extended equipment)

Plastic housing for top hat rail mounting.

>> Technical data

Voltage supply	AC 24 V \pm 10 %, 50 ...60 Hz DC 24 V \pm 20 %
Max. power consumption	AC 5 VA (at max. load) DC 2.4 W
Dimensions	90.0 \times 54.0 \times 61.0 (length \times width \times height (installation depth) in mm)
Operation temperature	0 ...+50 °C
Weight	120 g
Protection	IP20
Housing	polycarbonate, light gray

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

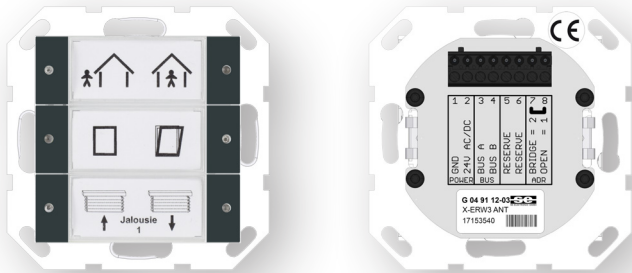
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**Pushbutton expansion for X-RUS
and X-RBD1.0**

→ valid from index -03

Type:
X-ERW3 ANT

Order No.:
G 04 91 12



>> Description

Communication to the controller via room bus with simple two-wire technology. No software configuration necessary, as addressing directly on the module.
Maximum two X-ERW3 modules or a combination with an X-ERW1 module are possible per control unit (room-bus).
If the same control and display function of an X-ERW module is required at further locations in the room, additional X-ERW modules with the same address can be connected in parallel to the room-bus. Example: Switching the light on or off from several locations in the room.

- 6× pushbuttons
- 6× LEDs red
- Pushbutton functions and LED display can be freely configured, e.g. light and blind control with status display

Plug-in type terminals on the rear side, thereby easy to fit. Can be combined with many switch covers (standard dimension 55) by a wide range of different manufacturers. Buttons anthracite. Installation and attachment in a flush box Ø 60 mm.

>> Technical data

Voltage supply	AC 24 V ± 10 %, 50 ...60 Hz DC 24 V ± 20 %
Max. power consumption	AC 0.9 VA DC 0.7 W
Dimensions	70.8 × 70.8 × 24.0 (length × height × width (installation depth) in mm)
Operation temperature	0 ...+50 °C
Weight	95 g
Protection	IP30

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

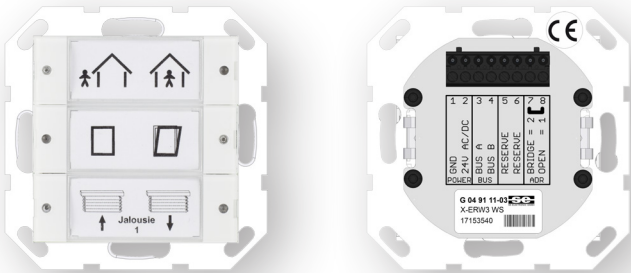
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**Pushbutton expansion for X-RUS
and X-RBD1.0**

→ valid from index -03

Type:
X-ERW3 WS

Order No.:
G 04 91 11



>> Description

Communication to the controller via room bus with simple two-wire technology. No software configuration necessary, as addressing directly on the module.
Maximum two X-ERW3 modules or a combination with an X-ERW1 module are possible per control unit (room-bus).
If the same control and display function of an X-ERW module is required at further locations in the room, additional X-ERW modules with the same address can be connected in parallel to the room-bus. Example: Switching the light on or off from several locations in the room.

- 6× pushbuttons
- 6× LEDs red
- Pushbutton functions and LED display can be freely configured, e.g. light and blind control with status display

Plug-in type terminals on the rear side, thereby easy to fit. Can be combined with many switch covers (standard dimension 55) by a wide range of different manufacturers. Buttons white. Installation and attachment in a flush box Ø 60 mm.

>> Technical data

Voltage supply	AC 24 V ± 10 %, 50 ...60 Hz DC 24 V ± 20 %
Max. power consumption	AC 0.9 VA DC 0.7 W
Dimensions	70.8 × 70.8 × 24.0 (length × height × width (installation depth) in mm)
Operation temperature	0 ...+50 °C
Weight	95 g
Protection	IP30

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

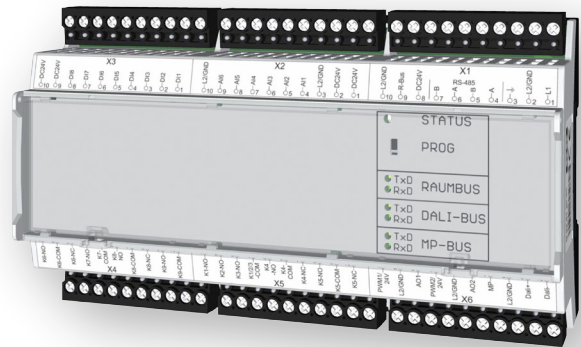
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G 04 91 11_X-ERW3_WS_Produkblatt_2023-04-01

Multi-I/O module for room-bus

Type:
X-MIO1.0

Order No.:
G 04 91 30



>> Description

Pluggable multi-I/O module for the connection of sensorics and actuators for individual room regulation. Communication to the controller via room-bus with simple 2-wire technology. Addressing via automatic module detection. Freely configurable analog or digital inputs and outputs for a wide range of applications for individual room regulation, e.g. control of 3-level fan (fan-coils), heating/cooling valves, optional with change over-functionality, inputs for several types of temperature sensors, frost protection monitor, malfunction and operating messages etc. However, the connection of the lighting technology or shading can also be realized very simple. According contacts are available directly on the module. All electrical connections on the module are realised with service-friendly connectors for an easy connection of the external field devices.

- 3× digital outputs (relay contact NO with common COM) for a 3-level fan coil control system
- 4× digital outputs (relay contact CO), freely configurable
- 2× digital outputs (relay contact NO), freely configurable
- 2× analog outputs 0 ...10 V, max. 10 mA, freely configurable
- 2× PWM outputs, parameter settings for 50 or 60 Hz
- 6× analog inputs multifunctional (0 ...10 V, Pt1000, div. NTC, KTY), can be used optionally as digital inputs (with potential)
- 8× digital inputs (with potential), freely configurable
- 1× 24 V AC voltage supply
- 1× room-bus for connection with controller/control unit
- 1× supporting terminal for RS485 bus-wiring
- 1× MP-Bus
- 1× Dali-Bus

Plastic housing for top hat rail mounting.

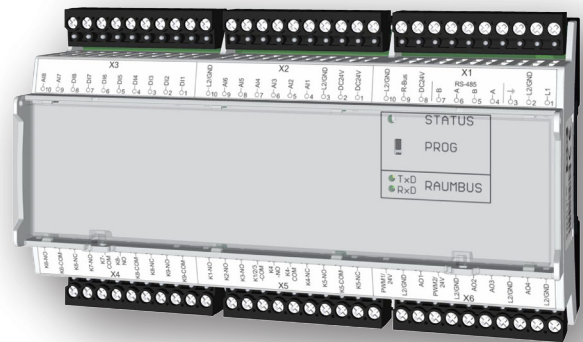
>> Technical data

Voltage supply	AC 24 V ± 10 %, 50 ...60 Hz
Max. power consumption	3.6 VA (without external consumers)
Dimensions	161.6 × 92.3 × 60.7 (length × width × height (installation depth) in mm)
Operation temperature	0 ...+50 °C
Weight	380 g
Protection	IP30

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

Multi-I/O module for room-bus



Type:
X-MIO1.1

Order No.:
G 04 91 31

>> Description

Pluggable multi-I/O module for the connection of sensorics and actuators for individual room regulation. Communication to the controller via room-bus with simple 2-wire technology. Addressing via automatic module detection. Freely configurable analog or digital inputs and outputs for a wide range of applications for individual room regulation, e.g. control of 3-level fan (fan-coils), heating/cooling valves, optional with change over-functionality, inputs for several types of temperature sensors, frost protection monitor, malfunction and operating messages etc. However, the connection of the lighting technology or shading can also be realized very simple. According contacts are available directly on the module. All electrical connections on the module are realised with service-friendly connectors for an easy connection of the external field devices.

- 3× digital outputs (relay contact NO with common COM) for a 3-level fan coil control system
- 4× digital outputs (relay contact CO), freely configurable
- 2× digital outputs (relay contact NO), freely configurable
- 4× analog outputs 0-10 V, max. 10 mA, freely configurable
- 2× PWM outputs, parameter settings for 50 or 60 Hz
- 6× analog inputs multifunctional (0-10 V, PT1000, div. NTC, KTY), can be used optionally as digital inputs (with potential)
- 2× analog inputs 0 ...10 V (potential free), can be used optionally as digital outputs, freely configurable
- 8× digital inputs (with potential), freely configurable
- 1× 24 V AC voltage supply
- 1× room-bus for connection with controller/control unit
- 1× supporting terminal for RS485 bus-wiring

Plastic housing for top hat rail mounting.

>> Technical data

Voltage supply	AC 24 V ± 10 %, 50 ...60 Hz
Max. power consumption	3.6 VA (without external consumers)
Dimensions	161.6 × 92.3 × 60.7 (length × width × height (installation depth) in mm)
Operation temperature	0 ...+50 °C
Weight	380 g
Protection	IP30

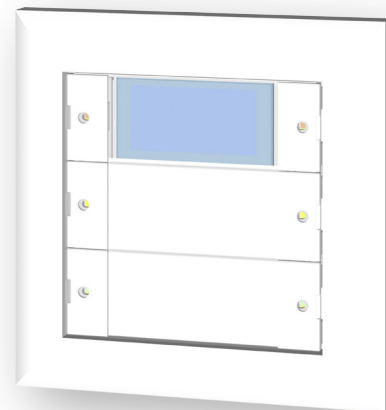
See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

Room control device with display, push buttons and LEDs for flush mounting

Type:
X-RBD1.0 WS

Order No.:
G 04 91 70



Frame is not included in the scope of delivery

>> Description

Room control unit with display, operating elements and LED display for flush mounting.
Button module compatible with standardized 55 frames from various manufacturers. Button colors in white.
Communication to the controller via room bus.

- Graphical display with display of the current setpoint as well as the different system states via individual symbols
- 6× push buttons and 6x LEDs (2× green, 2× red, 2× yellow), freely programmable
- Change of operating states via predefined push buttons
- Simple setpoint adjustment via +/- push buttons
- Indication of failure messages in the display and via LED
- Connection via 2-wire room bus and 24 V
Power supply directly via X-MIO
- Parallel operation of several operating devices on one X-MIO possible

Suitable for flush mounting in a standard flush-mounted box (Ø 60 mm).

>> Technical data

Voltage supply	AC 24 V ± 10 %, 50 ...60 Hz DC 24 V ± 20 %
Max. power consumption	AC 1.9 VA DC 1.0 W
Dimensions	70.8 × 70.8 × 24.0 (length × width × height (installation depth) in mm)
Operation temperature	0 ...+50 °C
Weight	75 g
Protection	IP30
Housing	plastic

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

Room control device with display, push buttons and LEDs for flush mounting

Type:
X-RBD1.0 ANT

Order No.:
G 04 91 71



Frame is not included in the scope of delivery

>> Description

Room control unit with display, operating elements and LED display for flush mounting. Button module compatible with standardized 55 frames from various manufacturers. Button colors in anthracite. Communication to the controller via room bus.

- Graphical display with display of the current setpoint as well as the different system states via individual symbols
- 6× push buttons and 6x LEDs (2× green, 2× red, 2× yellow), freely programmable
- Change of operating states via predefined push buttons
- Simple setpoint adjustment via +/- push buttons
- Indication of failure messages in the display and via LED
- Connection via 2-wire room bus and 24 V Power supply directly via X-MIO
- Parallel operation of several operating devices on one X-MIO possible

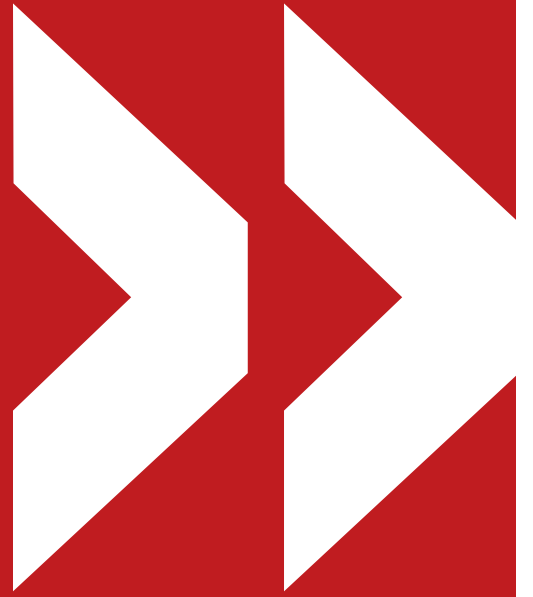
Suitable for flush mounting in a standard flush-mounted box (Ø 60 mm).

>> Technical data

Voltage supply	AC 24 V ± 10 %, 50 ...60 Hz DC 24 V ± 20 %
Max. power consumption	AC 1.9 VA DC 1.0 W
Dimensions	70.8 × 70.8 × 24.0 (length × width × height (installation depth) in mm)
Operation temperature	0 ...+50 °C
Weight	75 g
Protection	IP30
Housing	plastic

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de



03

Automation stations, DDC

Software package BACnet, for one automation station



Type:
SW BACNET

Order No.:
G 01 03 10

>> Description

Software package for automation stations from SE-Elektronik GmbH. Activation of the software package directly upon delivery. Subsequent activation via online entry of an activation number and retrofitting possible without hardware exchange.

BACnet software

- BACnet is the standard protocol for building automation (DIN EN ISO 16484-5)
- Network protocol TCP/IP or BACnet/IP
- As of E-DDC3.1 additional MS/TP (Master-Slave/Token-Passing) or PTP (Point To Point) possible
- Trade-independent integration of
 - HVAC
 - Lighting control
 - Security and fire alarm technology
 - Elevator monitoring
 - Access control
 - Power supply
 - Internet services
- Routing via all interfaces
- Integration of all data points of an automation station possible
- Multilingual user interface changeable during runtime
- TCP/IP communication parallel to BACnet via RS485
- Data point objects: analog in/out/value, binary in/out/value, multi-level in/out/value, objects for numeric values/pulses ...
- Alarm handling objects: Notification class (distribution of the alarm messages) and event enrolment (determining the alarm conditions) ...
- Various objects: device information (Device Object), timer catalogue/exception catalogue, trend data objects, controller object (loop), program/file objects ...
- Details see PICS list of the respective automation station

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

**Software package BACnet,
for max. 250 objects**



Type:
SW BACNET 250

Order No.:
G 01 03 11

>> Description

Software package for max. 250 objects for the automation station X-RUS3.x from SE-Elektronik GmbH. Activation of the software package directly upon delivery. Subsequent activation via online entry of an activation number and retrofitting possible without hardware exchange.

BACnet software

- BACnet is the standard protocol for building automation (DIN EN ISO 16484-5)
- Network protocol TCP/IP or BACnet/IP
- Trade-independent integration of
 - HVAC
 - Lighting control
 - Security and fire alarm technology
 - Elevator monitoring
 - Access control
 - Power supply
 - Internet services
- Routing via all interfaces
- Integration of all data points of an automation station possible
- Multilingual user interface changeable during runtime
- TCP/IP communication parallel to BACnet via RS485
- Data point objects: analog in/out/value, binary in/out/value, multi-level in/out/value, objects for numeric values/pulses ...
- Alarm handling objects: Notification class (distribution of the alarm messages) and event enrolment (determining the alarm conditions) ...
- Various objects: device information (Device Object), timer catalogue/exception catalogue, trend data objects, controller object (loop), program/file objects ...
- Details see PICS list of the respective automation station

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

////////////////////
**Software package Modbus,
for one automation station**

Type:
SW MODBUS

Order No.:
G 01 03 20

Modbus Master

////////////////////
>> Description

Software package for automation stations from SE-Elektronik GmbH. Activation of the software package directly upon delivery. Subsequent activation via online entry of an activation number and retrofitting possible without hardware exchange.

Modbus software

- Utilisation as an interface for building management
- Open protocol, permits cross-manufacturer integration in projects
- Modbus RTU configuration as master or slave possible
- Communication with up to 115.000 baud possible
- Modbus TCP/IP communication as slave possible
- Control of up to 127 X-RUS2.1 single room controllers
- Integration of all data point types of the E-DDC possible (internal data points max. 8.192)
- Configuration of analog and digital data points optionally with READ, WRITE or R/W function
- Modbus configuration in an easy table format, individual or blockwise
- Modbus configuration can be edited with export/import function in CSV format

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

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Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

////////////////////////////////////

**Software package Modbus,
for max. 32 masterjobs**

Type:
SW MODBUS 32

Order No.:
G 01 03 21

**Modbus
Master**

////////////////////////////////////

>> Description

Software package for max. 32 masterjobs for the automation station X-RUS3.0 and X-RUS3.1 from SE-Elektronik GmbH. Activation of the software package directly upon delivery. Subsequent activation via online entry of an activation number and retrofitting possible without hardware exchange.

Modbus software

- Utilisation as an interface for building management
- Open protocol, permits cross-manufacturer integration in projects
- Modbus RTU configuration as master or slave possible
- Communication with up to 115.000 baud possible
- Integration of all data point types of the E-DDC possible
- Configuration of analog and digital data points optionally with READ, WRITE or R/W function
- Modbus configuration in an easy table format, individual or blockwise
- Modbus configuration can be edited with export/import function in CSV format

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

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Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

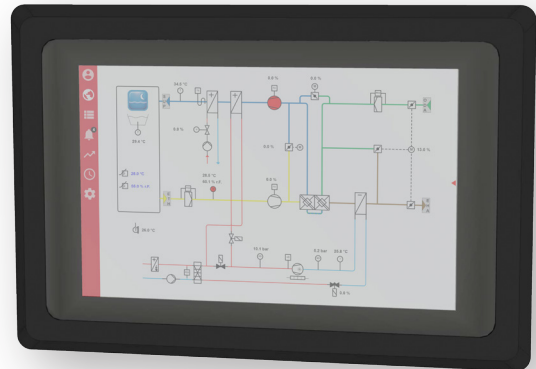
Automation station with touch display

Type:

E-DDC6.3

Order No.:

G 02 93 40



>> Description

Native BACnet Building Controller (device profile B-BC) according to the BACnet standard ISO 16484-5:2012, Rev. 12, and additionally from firmware version 03.08.08 also BACnet standard ISO 16484-5:2017, Rev. 15.

Freely programmable modular DDC unit with 12" touch panel and integrated web server functionality for regulation, control, monitoring and optimization of building automation systems.

Realization of simple HVAC solutions up to complex requirements and cross-trade communication with router functionality. A high degree of planning reliability and interoperability is provided by the standardized and widely used communication protocols, such as BACnet or Modbus.

Significant increase in performance and the number of active participants due to the new F-bus technology.

- Resolution 1280 x 800 pixel
- Visualization and operation via touch
- Pages can be individually shown/hidden
- Freely definable graphics, fault and operating message texts as well as recipe texts (instructions for fault rectification) for each individual fault message
- Individual and collective acknowledgement option of faults, event recording with date and time
- 1× Ethernet interface for network connection and IP communication for BACnet, webservices, Modbus TCP (master/slave), webconfiguration, programming, service, FTP ...
- 2× RS485 interface (2-wire) for communication via BACnet MS/TP (with router funktion), Modbus RTU (Master/Slave) and SE-Standard A-, B-, E-bus
- 1× USB service interface (type B) for diagnostics, parameterization and maintenance, webserver functionality
- 2× C-/F-Bus interface, optionally for 22 C-bus or 32 F-bus participants per line
- SD flash card for trend data, application, CAD data, languages, firmware ...
- NVRAM for non-volatile data (data retention via battery CR 1632)
- 1× real time clock (RTC) with automatic summer and winter time changeover

Software webconfiguration

- Comfortable password-protected web interface with user-dependent access
- Configuration: Device, network, bus, modem, routing, BACnet settings ...
- System: Diagnostic options for BACnet objects, communication, backup & restore, firmware update ...
- Project Viewer: Display (and modification) of configured BACnet objects as operating data, alarms and trend recordings ...

Further software functions

- Routing of IP and BACnet networks
- Access control via a user administration (roles and rights)
- Compatible to the BACnet standard ISO 16484-5:2012, Rev. 12, and additionally from firmware version 03.08.08 also BACnet standard ISO 16484-5:2017, Rev. 15. Details see PICS list and AMEV test certificate
- Processing of up to 2.000 BACnet objects
- Direct online programming via PC with graphic programming interface, module library and macro
- functions for compact controls, 65.536 program lines, sample applications are available for individual adaptation
- 32.767 analog and digital data points each (internal), as well as further data points (external) for communication with the RS485 bus, the IO modules and the field bus
- Geographical sun position calculation of the relevant sun angles, as well as the times of sunrise and sunset
- Software package: BACnet G 01 03 10 included

Options, software packages (activation code with registered access via SE homepage)

- Modbus G 01 03 20 (Modbus Master)

Certificates

- BACnet standard ISO 16484-5:2017, Rev. 15
- AMEV test certificate according to DIN EN ISO 16484-5 with AMEV profile AS-B AMEV BACnet 2017 (automation station with extended equipment)

Robust metal housing, front color: black
Front mounting for control cabinet door

>> Technical data

Voltage supply	AC 24 V \pm 10 %, 50 ...60 Hz DC 24 V \pm 20 %
Max. power consumption	AC 39 VA DC 25 W
Fuse	3,15AT Melting fuse
Dimensions device	330.0 \times 227.0 \times 76.2 (length \times width \times height (installation depth) in mm)
Dimensions cutout	315.0 \times 213.0 (length \times width in mm)
Touchscreen	12.1 inch
Operation temperature	0 ...+40 °C
Weight	735 g
Protection	IP20

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronic.de

Automation station E-DDC, E-device

Type:

E-DDC2.3

Order No.:

G 02 93 80



>> Description

Certified native BACnet Building Controller (device profile B-BC) according to the BACnet standard ISO 16484-5:2017, Rev. 15. Freely programmable modular DDC unit for regulation, control, monitoring and optimization of building automation systems. Realization of simple HVAC solutions up to complex requirements and cross-trade communication with router functionality. A high degree of planning reliability and interoperability is provided by the standardized and widely used communication protocols, such as BACnet or Modbus. Significant increase in performance and the number of active participants due to the new F-bus technology.

- 2× Ethernet interface for network connection and IP communication for BACnet, webservices, Modbus TCP (master/slave), webconfiguration, programming, service, FTP ...
- 2× RS485 interface (2-wire) for communication via BACnet MS/TP (with router funktion), Modbus RTU (Master/Slave) and SE-Standard A-, B-, E-bus
- 1× USB service interface (type B) for diagnostics, parameterization and maintenance, webserver functionality
- 2× C-/F-Bus interface, optionally for 22 C-bus or 32 F-bus participants per line
- 2× digital outputs - relay contact (changeover contact): each max. AC 24 V, 0.6 A / DC 30 V, 2 A
- SD flash card for trend data, application, CAD data, languages, firmware ...
- NVRAM for non-volatile data (data retention via buffer battery)
- 1× real time clock (RTC) with automatic summer and winter time changeover

Software webconfiguration

- Comfortable password-protected web interface with user-dependent access
- Configuration: Device, network, bus, modem, routing, BACnet settings ...
- System: Diagnostic options for BACnet objects, communication, backup & restore, firmware update ...
- Project Viewer: Display (and modification) of configured BACnet objects as operating data, alarms and trend recordings ...

Further software functions

- Routing of IP and BACnet networks
- Access control via a user administration (roles and rights)
- Compatible to the BACnet standard ISO 16484-5:2017, Rev. 15. Details see PICS list and AMEV test certificate
- Processing of up to 2.000 BACnet objects
- Sending BACnet notifications (alarms or messages) by e-mail or SMS
- Direct online programming via PC with graphic programming interface, module library and macro
- functions for compact controls, 65.520 program lines, sample applications are available for individual adaptation
- 32.767 analog and digital data points each (internal), as well as further data points (external) for communication with the RS485 bus, the IO modules and the field bus
- Geographical sun position calculation of the relevant sun angles, as well as the times of sunrise and sunset
- Software package: BACnet G 01 03 10 included

Options, software packages (activation code with registered access via SE homepage)

- Modbus G 01 03 20 (Modbus Master)

Certificates

- BACnet standard ISO 16484-5:2017, Rev. 15
- AMEV test certificate according to DIN EN ISO 16484-5 with AMEV profile AS-B AMEV BACnet 2017 (automation station with extended equipment)

Robust metal housing, industrial design for top hat rail mounting.

>> Technical data

Voltage supply	AC 24 V \pm 10 %, 50 ...60 Hz DC 24 V \pm 20 %	
Max. power consumption	AC 44 VA DC 26 W	
Self-consumption	AC 6.9 VA DC 2.6 W	without load
Dimensions (without top hat rail)	84.5 \times 108.5 \times 67.5 (length \times width \times height (installation depth) in mm)	
Dimensions (with top hat rail)	84.5 \times 108.5 \times 77.0 (length \times width \times height (installation depth) in mm)	
Operation temperature	0 ...+50 °C	
Weight	400 g	
Protection	IP20	
Housing	aluminum, deep black RAL 9005	

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronic.de

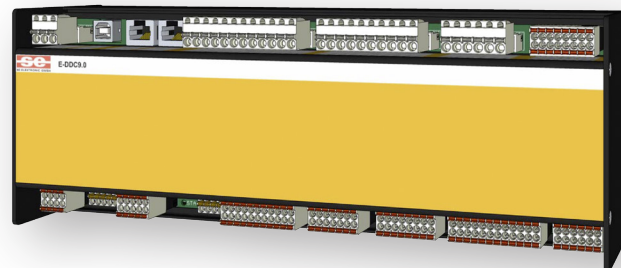
Automation station E-DDC, E-device

Type:

E-DDC9.0

Order No.:

G 02 93 90



>> Description

Freely programmable modular DDC unit for regulation, control, monitoring and optimization of building automation systems. Realization of simple HVAC solutions up to complex requirements and cross-trade communication. A high degree of planning reliability and interoperability is provided by the standardized and widely used communication protocol Modbus. Significant increase in performance and the number of active participants due to the new F-bus technology.

- 2× Ethernet interface for webservices, Modbus TCP (Master/Slave), webconfiguration, programming, service, FTP ... and connection to touch panel (e.g. HMI-WEB7)
- 2× RS485 interface (2-wire) for communication via Modbus RTU (Master/Slave) and SE-Standard A-, B-, E-bus
- 1× USB service interface (type B) for diagnostics, parameterization and maintenance, webserver functionality
- 2× F-bus interface for up to 32 participants per line
- 18× universal inputs, use is parameterizable
- 16× digital inputs, 8× digital inputs also as DO function (DO function is available from index -03, see type plate)
- 8× analog outputs
- 8× digital outputs - relay contact normally open (NO): each max. AC 250 V, 6 A
- 4× digital outputs - relay contact (changeover contact): each max. AC 250 V, 6 A
- Internal power supply for external components with up to 40 VA
- SD flash card for trend data, application, CAD data, languages, firmware ...
- NVRAM for non-volatile data (data retention via buffer battery)
- 1× real time clock (RTC) with automatic summer and winter time changeover

Software webconfiguration

- Comfortable password-protected web interface with user-dependent access
- Configuration: Device, network, bus, modem, routing, BACnet settings ...
- System: Diagnostic options for BACnet objects, communication, backup & restore, firmware update ...
- Project Viewer: Display (and modification) of configured BACnet objects as operating data, alarms and trend recordings ...

Further software functions

- Routing of IP and BACnet networks
- Access control via a user administration (roles and rights)
- Compatible to the BACnet standard ISO 16484-5:2017, Rev. 15. Details see PICS list and AMEV test certificate
- Processing of up to 2.000 BACnet objects
- Sending BACnet notifications (alarms or messages) by e-mail or SMS
- Direct online programming via PC with graphic programming interface, module library and macro

functions for compact controls, 65.520 program lines, sample applications are available for individual adaptation

- 32.767 analog and digital data points each (internal), as well as further data points (external) for communication with the RS485 bus, the IO modules and the field bus
- Geographical sun position calculation of the relevant sun angles, as well as the times of sunrise and sunset
- Software package: BACnet G 01 03 10 included

Options, software packages (activation code with registered access via SE homepage)

- Modbus G 01 03 20 (Modbus Master)

Robust metal housing, industrial design for top hat rail mounting.

>> Technical data

Voltage supply	AC 230 V, 50 ...60 Hz
Max. power consumption	67 VA
Dimensions (without top hat rail)	300.0 × 108.5 × 67.5 (length × width × height (installation depth) in mm)
Dimensions (with top hat rail)	300.0 × 108.5 × 77.0 (length × width × height (installation depth) in mm)
Operation temperature	0 ...+50 °C
Weight	1350 g
Protection	IP20
Housing	aluminum, deep black RAL 9005

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

Automation station E-DDC, E-device

Type:
E-DDC-B5.0

Order No.:
G 02 96 10



>> Description

Certified native BACnet Building Controller (device profile B-BC) according to the BACnet standard ISO 16484-5:2012, Rev. 12, and additionally from firmware version 03.08.08 also BACnet-Norm ISO 16484-5:2017, Rev. 15.

Freely programmable modular DDC unit for regulation, control, monitoring and optimization of building automation systems.

Realization of simple HVAC solutions up to complex requirements and cross-trade communication with router functionality.

A high degree of planning reliability and interoperability is provided by the standardized and widely used communication protocols, such as BACnet or Modbus.

Significant increase in performance and the number of active participants due to the new F-bus technology.

- 1× RS485 interface (2-wire) for communication via BACnet MS/TP (with router funktion), Modbus RTU (Master/Slave) and SE-Standard A-, B-, E-bus
- 1× USB service interface (type B) for diagnostics, parameterization and maintenance, webserver functionality
- 1× E-HMI interface for displaying operating data, fault and operating messages with acknowledgement function and user-dependent setting options
- 1× C-/F-Bus interface, optionally for 22 C-bus or 32 F-bus participants per line, loadable up to 400 mA
- SD flash card for trend data, application, CAD data, languages, firmware ...
- NVRAM for non-volatile data (data retention via buffer battery)
- 1× real time clock (RTC) with automatic summer and winter time changeover
- 16× digital inputs AC 8 ...28 V, DC 12 ...36 V, with potential
- 8× digital outputs, relay contacts AC 250 V, NO max. 5 A, NC max. 3 A, AC1

Software webconfiguration

- Comfortable password-protected web interface with user-dependent access
- Configuration: Device, network, bus, modem, routing, BACnet settings ...
- System: Diagnostic options for BACnet objects, communication, backup & restore, firmware update ...
- Project Viewer: Display (and modification) of configured BACnet objects as operating data, alarms and trend recordings ...

Further software functions

- Routing of IP and BACnet networks
- Access control via a user administration (roles and rights)
- Compatible to the BACnet standard ISO 16484-5:2012, Rev. 12, and additionally from firmware version 03.08.08 also BACnet-Norm ISO 16484-5:2017, Rev. 15. Details see PICS list
- Processing of up to 1.000 BACnet objects
- Sending BACnet notifications (alarms or messages) by e-mail or SMS
- Direct online programming via PC with graphic programming interface, module library and macro functions for compact controls, 32.768 program lines, sample applications are available for individual adaptation
- 4.096 analog and digital data points each (internal) as well as further data points (external) for communication with the RS485 bus and the field bus (C-/F-bus)
- Geographical sun position calculation of the relevant sun angles, as well as the times of sunrise and sunset

Options, software packages (activation code with registered access via SE homepage)

- Modbus G 01 03 20 (Modbus Master)

Certificates

- BACnet standard ISO 16484-5:2017, Rev. 15

Robust metal housing, industrial design for top hat rail mounting.

>> Technical data

Voltage supply	AC 24 V \pm 10 %, 50 ...60 Hz DC 24 V \pm 20 %
Max. power consumption	AC 32 VA (at max. load, e.g. C-/F-Bus with 400 mA) DC 18 W
Dimensions	165.0 \times 108.5 \times 77.0 (length \times width \times height (installation depth) in mm)
Operation temperature	0 ...+50 °C
Weight	810 g
Protection	IP20
Housing	aluminum, deep black RAL 9005

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

Automation station E-DDC, E-device



Type:
E-DDC-B6.0

Order No.:
G 02 96 20

>> Description

Certified native BACnet Building Controller (device profile B-BC) according to the BACnet standard ISO 16484-5:2012, Rev. 12, and additionally from firmware version 03.08.08 also BACnet-Norm ISO 16484-5:2017, Rev. 15.

Freely programmable modular DDC unit for regulation, control, monitoring and optimization of building automation systems.

Realization of simple HVAC solutions up to complex requirements and cross-trade communication with router functionality.

A high degree of planning reliability and interoperability is provided by the standardized and widely used communication protocols, such as BACnet or Modbus.

Significant increase in performance and the number of active participants due to the new F-bus technology.

- 1× RS485 interface (2-wire) for communication via BACnet MS/TP (with router funktion), Modbus RTU (Master/Slave) and SE-Standard A-, B-, E-bus
- 1× USB service interface (type B) for diagnostics, parameterization and maintenance, webserver functionality
- 1× E-HMI interface for displaying operating data, fault and operating messages with acknowledgement function and user-dependent setting options
- 1× C-/F-Bus interface, optionally for 22 C-bus or 32 F-bus participants per line, loadable up to 400 mA
- SD flash card for trend data, application, CAD data, languages, firmware ...
- NVRAM for non-volatile data (data retention via buffer battery)
- 1× real time clock (RTC) with automatic summer and winter time changeover
- 24× digital inputs AC 8 ...28 V, DC 12 ...36 V, with potential
- 4× analog outputs DC 0 ...30 V, max. 10 mA

Software webconfiguration

- Comfortable password-protected web interface with user-dependent access
- Configuration: Device, network, bus, modem, routing, BACnet settings ...
- System: Diagnostic options for BACnet objects, communication, backup & restore, firmware update ...
- Project Viewer: Display (and modification) of configured BACnet objects as operating data, alarms and trend recordings ...

Further software functions

- Routing of IP and BACnet networks
- Access control via a user administration (roles and rights)
- Compatible to the BACnet standard ISO 16484-5:2012, Rev. 12, and additionally from firmware version 03.08.08 also BACnet-Norm ISO 16484-5:2017, Rev. 15. Details see PICS list
- Processing of up to 1.000 BACnet objects
- Sending BACnet notifications (alarms or messages) by e-mail or SMS
- Direct online programming via PC with graphic programming interface, module library and macro functions for compact controls, 32.768 program lines, sample applications are available for individual adaptation
- 4.096 analog and digital data points each (internal) as well as further data points (external) for communication with the RS485 bus and the field bus (C-/F-bus)
- Geographical sun position calculation of the relevant sun angles, as well as the times of sunrise and sunset

Options, software packages (activation code with registered access via SE homepage)

- Modbus G 01 03 20 (Modbus Master)

Certificates

- BACnet standard ISO 16484-5:2017, Rev. 15

Robust metal housing, industrial design for top hat rail mounting.

>> Technical data

Voltage supply	AC 24 V \pm 10 %, 50 ...60 Hz DC 24 V \pm 20 %
Max. power consumption	AC 32 VA (at max. load, e.g. C-/F-Bus with 400 mA) DC 18 W
Dimensions	165.0 \times 108.5 \times 77.0 (length \times width \times height (installation depth) in mm)
Operation temperature	0 ...+50 °C
Weight	760 g
Protection	IP20
Housing	aluminum, deep black RAL 9005

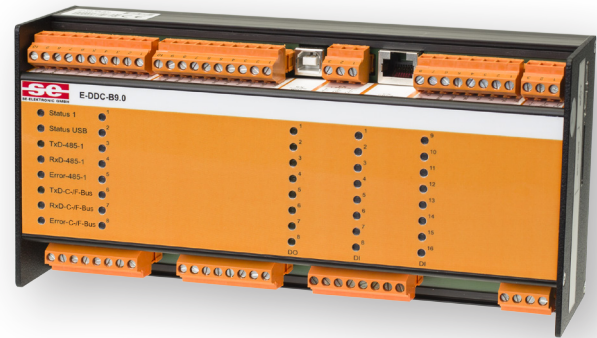
See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronic.de

Automation station E-DDC, E-device

Type:
E-DDC-B9.0

Order No.:
G 02 96 30



>> Description

Certified native BACnet Building Controller (device profile B-BC) according to the BACnet standard ISO 16484-5:2012, Rev. 12, and additionally from firmware version 03.08.08 also BACnet-Norm ISO 16484-5:2017, Rev. 15.

Freely programmable modular DDC unit for regulation, control, monitoring and optimization of building automation systems. Realization of simple HVAC solutions up to complex requirements and cross-trade communication with router functionality. A high degree of planning reliability and interoperability is provided by the standardized and widely used communication protocols, such as BACnet or Modbus.

Significant increase in performance and the number of active participants due to the new F-bus technology.

- 1× RS485 interface (2-wire) for communication via BACnet MS/TP (with router funktion), Modbus RTU (Master/Slave) and SE-Standard A-, B-, E-bus
- 1× USB service interface (type B) for diagnostics, parameterization and maintenance, webserver functionality
- 1× E-HMI interface for displaying operating data, fault and operating messages with acknowledgement function and user-dependent setting options
- 1× C-/F-Bus interface, optionally for 22 C-bus or 32 F-bus participants per line, loadable up to 400 mA
- SD flash card for trend data, application, CAD data, languages, firmware ...
- NVRAM for non-volatile data (data retention via buffer battery)
- 1× real time clock (RTC) with automatic summer and winter time changeover
- 4× analog inputs DC 0 ...10 V
- 16× digital inputs AC 8 ...28 V, DC 12 ...36 V, with potential
- 4× analog outputs DC 0 ...10 V, max. 10 mA
- 8× digital outputs, relay contact AC 250 V, max. 5 A, AC1

Software webconfiguration

- Comfortable password-protected web interface with user-dependent access
- Configuration: Device, network, bus, modem, routing, BACnet settings ...
- System: Diagnostic options for BACnet objects, communication, backup & restore, firmware update ...
- Project Viewer: Display (and modification) of configured BACnet objects as operating data, alarms and trend recordings ...

Further software functions

- Routing of IP and BACnet networks
- Access control via a user administration (roles and rights)
- Compatible to the BACnet standard ISO 16484-5:2012, Rev. 12, and additionally from firmware version 03.08.08 also BACnet-Norm ISO 16484-5:2017, Rev. 15. Details see PICS list
- Processing of up to 1.000 BACnet objects
- Sending BACnet notifications (alarms or messages) by e-mail or SMS
- Direct online programming via PC with graphic programming interface, module library and macro functions for compact controls, 32.768 program lines, sample applications are available for individual adaptation
- 4.096 analog and digital data points each (internal) as well as further data points (external) for communication with the RS485 bus and the field bus (C-/F-bus)
- Geographical sun position calculation of the relevant sun angles, as well as the times of sunrise and sunset

Options, software packages (activation code with registered access via SE homepage)

- Modbus G 01 03 20 (Modbus Master)

Certificates

- BACnet standard ISO 16484-5:2017, Rev. 15

Robust metal housing, industrial design for top hat rail mounting.

>> Technical data

Voltage supply	AC 24 V \pm 10 %, 50 ...60 Hz DC 24 V \pm 20 %
Max. power consumption	AC 32 VA (at max. load, e.g. C-/F-Bus with 400 mA) DC 18 W
Dimensions	225.0 \times 108.5 \times 77.0 (length \times width \times height (installation depth) in mm)
Operation temperature	0 ...+50 °C
Weight	1050 g
Protection	IP20
Housing	aluminum, deep black RAL 9005

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronic.de

Automation station E-DDC, E-device

Type:
E-DDC-A4.3

Order No.:
G 02 97 30



>> Description

Automation station with integrated operator panel, successor unit for IPC-A4.x.

- Central unit with display, pushbuttons, LEDs
- Interfaces: 1× Ethernet, 1× USB, 2× RS485 (1× A-bus, 1× B-bus), 1× C-bus
- Emulation of the program functionality of an IPC-A4.2
- Additional E-DDC functionality
- Compatible for A- and B-bus (channel 1 fixed on A-bus, channel 2 fixed on B-bus)
- Front frame made of plastic (ABS) in aluminum gray included in delivery
- Multi-line display for operator navigation and system-specific data such as setpoints, current values, status messages and clock routines
- Control keyboard for menu navigation
- 12 freely programmable control elements, each consisting of a labelable push button and a 3-color addressable LED
- Any assignment of LEDs and keys for system functions, e.g. LEDs for operating, fault and other status messages, buttons for switching control functions on and off
- Freely definable fault and operating message texts as well as recipe texts (instructions for fault rectification) for each individual fault message
- Individual and collective acknowledgement option of faults, event recording with date and time
- 1× Ethernet interface for network connection and IP communication for BACnet, webservices, Modbus TCP (master/slave), webconfiguration, programming, service, FTP ...
- 1× USB service interface (type B) for diagnostics, parameterization and maintenance, webserver functionality
- 1× C-bus interface for 22 C-bus participants per line
- SD flash card for trend data, application, CAD data, languages, firmware ...
- NVRAM for non-volatile data (data retention via battery CR 1632)
- 1× real time clock (RTC) with automatic summer and winter time changeover

Software webconfiguration

- Comfortable password-protected web interface with user-dependent access
- Configuration: Device, network, bus, modem, routing, BACnet settings ...
- System: Diagnostic options for BACnet objects, communication, backup & restore, firmware update ...
- Project Viewer: Display (and modification) of configured BACnet objects as operating data, alarms and trend recordings ...

Further software functions

- Routing of IP and BACnet networks
- Access control via a user administration (roles and rights)
- Compatible to the BACnet standard ISO 16484-5:2012, Rev. 12, and additionally from firmware version 03.08.08 also BACnet standard ISO 16484-5:2017, Rev. 15. Details see PICS list and AMEV test certificate
- Processing of up to 2.000 BACnet objects
- Sending BACnet notifications (alarms or messages) by e-mail or SMS
- Direct online programming via PC with graphic programming interface, module library and macro functions for compact controls, 65.536 program lines, sample applications are available for individual adaptation
- 32.767 analog and digital data points each (internal), as well as further data points (external) for communication with the RS485 bus, the IO modules and the field bus
- Geographical sun position calculation of the relevant sun angles, as well as the times of sunrise and sunset

Options, software packages (activation code with registered access via SE homepage)

- BACnet G 01 03 10
- Modbus G 01 03 20 (Modbus Master)

Certificates

- BACnet standard ISO 16484-5:2017, Rev. 15
- AMEV test certificate according to DIN EN ISO 16484-5 with AMEV profile AS-B AMEV BACnet 2017 (automation station with extended equipment)

Robust metal housing with plastic frame for front installation, front color: silver

>> Technical data

Voltage supply	AC 24 V \pm 10 %, 50 ...60 Hz DC 24 V \pm 20 %
Max. power consumption	AC 23 VA (at max. load, e.g. C-bus with 400 mA) DC 13 W
Dimensions with front frame	196.0 \times 150.0 \times 26.2 (length \times width \times height (installation depth) in mm)
Cutout	184.0 \times 135.5 (length \times width in mm)
Operation temperature	0 ...+50 °C
Weight	600 g
Protection	IP20

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronic.de



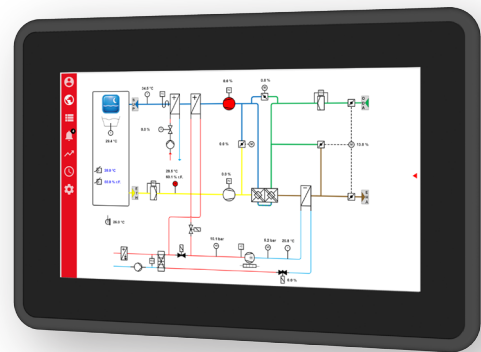
04

Control units

Touch display 7“

Type:
HMI-WEB7

Order-No.:
G 06 50 70



>> Description

7“ capacitive touch display with pre-installed SE-Kiosk app for control and visualization of process data of the automation stations (e.g. E-DDC2.3).

- Resolution 1024 x 600 pixel
- Visualization and operation via touch
- 1× Ethernet with 24 V power supply option for network connection and IP communication for webserver connection, time sync, webconfiguration, programming, service, FTP ...
- 2× USB service interface (type A):
 - 1x for external USB-stick, keyboard, mouse ...
 - 1x internal used for integrated WLAN und bluetooth adapter
- Internally installed µSD card holder for firmware update of the device and for memory expansion
- With UV protection
- Password protected system configuration
- Start page individually designable
- Brightness freely adjustable, continuous ON function, automatic switch-off function
- Integrated PDF viewer
- Copying of trend data from the E-DDC to USB stick
- Optional connection setup from smartphone to E-DDC via bluetooth or WLAN interface
- Backup of the E-DDC to USB stick
- Import of backups from USB stick to E-DDC

Control and visualization of the web configuration of a connected E-DDC

- Comfortable password-protected web interface with user-dependent access
- Configuration: Device, network, bus, modem, routing, BACnet settings ...
- System: Diagnostic options for BACnet objects, communication, backup & restore, firmware update ...
- Project Viewer: Display (and modification) of configured BACnet objects as operating data, alarms and trend recordings ...

Plastic housing with glass insert, frame color black. Suitable for front mounting in or surface mounting on control cabinets.

>> Technical data

Voltage supply	AC 24 V ± 10 %, 50 ...60 Hz DC 24 V ± 20 %	via 3-pole clamp or passive PoE via RJ45-Ethernet
Max. power consumption	AC 6 VA DC 6 W	without USB load
Dimensions device	202.0 × 135.0 (141.0) × 24.6 (31.0)	length × width × height in mm (with brackets metal)
Dimensions cutout	190.0 × 123.0 (with 6 mm radius)	length × width in mm
Material/Color	ABS + glass	black + transparent
Operation temperature	-20 ...+50 °C	
Mounting type	Front mounting for control cabinet door / on control cabinet door with magnets	
Weight	395 g 430 g (with mounting)	
Protection class	III	safety extra-low voltage
Protection	IP20: Rear of device in control cabinet door IP65: Front of device in control cabinet door IP20: Device on control cabinet door with magnets	Only with the supply terminal plugged in and tightened screws

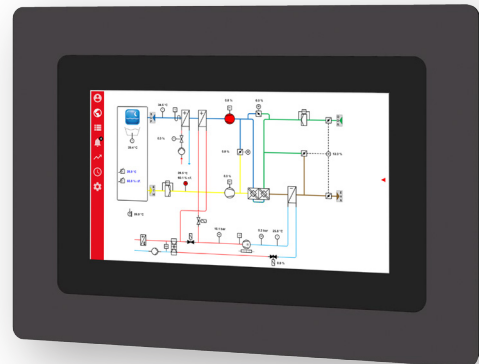
See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

Touch display 7“

Type:
HMI-WEB7 WM

Order-No.:
G 06 50 72



>> Description

7“ capacitive touch display with pre-installed SE-Kiosk app for control and visualization of process data of the automation stations (e.g. E-DDC2.3).

- Resolution 1024 x 600 pixel
- Visualization and operation via touch
- 1× Ethernet with 24 V power supply option for network connection and IP communication for webserver connection, time sync, webconfiguration, programming, service, FTP ...
- 2× USB service interface (type A):
 - 1x for external USB-stick, keyboard, mouse ...
 - 1x internal used for integrated WLAN und bluetooth adapter
- Internally installed µSD card holder for firmware update of the device and for memory expansion
- With UV protection
- Password protected system configuration
- Start page individually designable
- Brightness freely adjustable, continuous ON function, automatic switch-off function
- Integrated PDF viewer
- Copying of trend data from the E-DDC to USB stick
- Optional connection setup from smartphone to E-DDC via bluetooth or WLAN interface
- Backup of the E-DDC to USB stick
- Import of backups from USB stick to E-DDC
- With CAT 5E patch cable 0.5 m

Control and visualization of the web configuration of a connected E-DDC

- Comfortable password-protected web interface with user-dependent access
- Configuration: Device, network, bus, modem, routing, BACnet settings ...
- System: Diagnostic options for BACnet objects, communication, backup & restore, firmware update ...
- Project Viewer: Display (and modification) of configured BACnet objects as operating data, alarms and trend recordings ...

Plastic housing with glass insert and aluminum frame. Suitable for wall mounting, surface mounting or mounting with magnetic holder.

Flush-mounted housing available as accessory item from SE-Elektronik GmbH, see chapter „10 >> Accessories“.

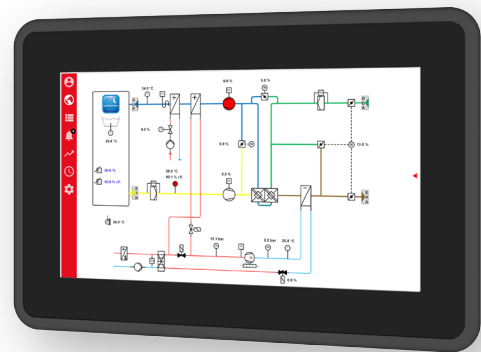
>> Technical data

Voltage supply	AC 24 V ± 10 %, 50 ...60 Hz DC 24 V ± 20 %	via 3-pole clamp or passive PoE via RJ45-Ethernet
Max. power consumption	AC 6 VA DC 6 W	without USB load
Dimensions	239.0 × 172.0 × 24.0 (32.0)	length × width × height in mm (with brackets metal)
Material/Color	ABS + glass + AL Wall mount stainless steel magnetic	black + transparent
Operation temperature	-20 ...+50 °C	
Mounting type	Wall mounting, surface mounting or with magnetic holder	
Weight	780 g 1,060 g (with metal bracket for wall)	
Protection class	III	safety extra-low voltage
Protection	IP20	

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

Touch display 7"



Type:
HMI-WEB7 IP23

Order-No.:
G 06 50 73

>> Description

7" capacitive touch display with pre-installed SE-Kiosk app for control and visualization of process data of the automation stations (e.g. E-DDC2.3). Depending on the mounting type of the device, a protection of IP 23 or IP 65 can be reached.

- Resolution 1024 x 600 pixel
- Visualization and operation via touch
- 1x RJ45-Ethernet with feed passive PoE for power supply, network connection and IP communication for webserver connection, time sync, webconfiguration, programming, service, FTP ...
- 2x USB service interface (type A):
 - 1x for external USB-stick, keyboard, mouse ...
 - 1x internal used for integrated WLAN und bluetooth adapter
- Internally installed µSD card holder for firmware update of the device and for memory expansion
- With UV protection
- Password protected system configuration
- Start page individually designable
- Brightness freely adjustable, continuous ON function, automatic switch-off function
- Integrated PDF viewer
- Copying of trend data from the E-DDC to USB stick
- Optional connection setup from smartphone to E-DDC via bluetooth or WLAN interface
- Backup of the E-DDC to USB stick
- Import of backups from USB stick to E-DDC

Control and visualization of the web configuration of a connected E-DDC

- Comfortable password-protected web interface with user-dependent access
- Configuration: Device, network, bus, modem, routing, BACnet settings ...
- System: Diagnostic options for BACnet objects, communication, backup & restore, firmware update ...
- Project Viewer: Display (and modification) of configured BACnet objects as operating data, alarms and trend recordings ...

Plastic housing with glass insert, frame color black. Suitable for front mounting in or surface mounting on control cabinets.

>> Technical data

Voltage supply	AC 24 V ± 10 %, 50 ...60 Hz DC 24 V ± 20 %	passive PoE via RJ45-Ethernet
Max. power consumption	AC 6 VA DC 6 W	without USB load
Dimensions device	202.0 × 135.0 (141.0) × 24.6 (31.0)	length × width × height in mm (with brackets metal)
Dimensions cutout	190.0 × 123.0 (with 6.0 mm radius)	length × width in mm
Material/Color	ABS + glass	black + transparent
Operation temperature	-20 ...+50 °C	
Mounting type	front mounting for control cabinet door / on control cabinet door with magnets	
Weight	395 g 430 g (with mounting)	
Protection class	III	safety extra-low voltage
Protection	IP23: Rear of device in control cabinet door IP65: Front of device in control cabinet door IP23: Device on control cabinet door with magnets	only with tightened screws

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

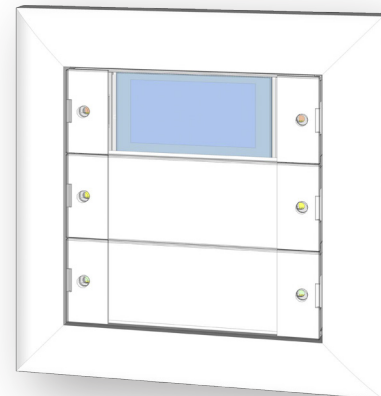
Room control device with display, push buttons and LEDs, F-device

Type:

F-RBD1.0

Order-No.:

G 12 82 50



Frame is not included in the scope of delivery

>> Description

Room control unit with display, operating elements and LED display for flush mounting.

Button module compatible with standardized 55 frames from various manufacturers. Button colors in white, optional in anthracite. Connection via pluggable terminals.

- Graphical display with indication of the current setpoint as well as the different system states via individual symbols
- 6x buttons and 6x LEDs (2× green, 2× red, 2× yellow), the lower row of function keys is freely programmable
- Change of operating states via predefined keys
- Simple setpoint adjustment via buttons
- Indication of error messages in the display and via LED
- Connection via 2-wire F-bus and 24 V power supply

Suitable for flush mounting in a standard flush-mounted box (Ø 60 mm).

>> Technical data

Voltage supply	AC 24 V ± 10 %, 50 ...60 Hz DC 24 V ± 20 %
Max. power consumption	AC 1.0 VA DC 0.5 W
Bus load	6 mA (F-bus)
Dimensions	70.8 × 70.8 × 20.0 (length × width × height (installation depth) in mm)
Operation temperature	0 ...+50 °C
Weight	75 g
Protection	IP30
Housing	plastic, white

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de



I/O modules for F-bus

8-fold digital input module, F-device

Type:

F-DI8

Order No.:

G 12 83 35



>> Description

8-fold digital input module for F-bus.

- 8× digital inputs AC 12 ...24 V, DC 15 ...36 V, potential free, detection of short pulses (> 100 milliseconds)
- 1× LED display per input
- 2× outputs DC 24 V (only for the digital inputs), total max. 150 mA unstabilized (unloaded up to approx. 36 V possible)
- Pluggable connection terminals
- Controlling, programming and feedback is effected via the F-bus (2-wire)
- Automatic parameter transfer after address assignment
- Extended diagnostic options, error statistics, reporting
- Firmware update possible during operation via F-bus
- Up to 32 participants per line
- Own data point bar (analog/digital) for each participant
- Fast data update through event-oriented communication

Robust metal housing, industrial design for top hat rail mounting.

>> Technical data

Voltage supply	AC 24 V ± 10 %, 50 ...60 Hz DC 24 V ± 20 %	
Max. power consumption	AC 3.8 VA DC 1.5 W	
Self-consumption	AC 1.0 VA DC 0.4 W	without load
Bus load	6 mA (F-bus)	
Dimensions	84.5 × 108.5 × 77.0 (length × width × height (installation depth) in mm)	
Operation temperature	0 ...+50 °C	
Weight	350 g	
Protection	IP20	
Housing	aluminum, deep black RAL 9005	

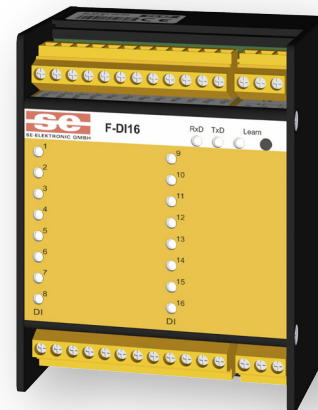
See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

16-fold digital input module, F-device

Type:
F-DI16

Order No.:
G 12 83 36



>> Description

16-fold digital input module for F-bus.

- 16× digital inputs AC 12 ...24 V, DC 15 ...36 V, potential free, detection of short pulses (> 100 milliseconds)
- 1× LED display per input
- 2× outputs DC 24 V (only for the digital inputs), total max. 150 mA unstabilized (unloaded up to approx. 36 V possible)
- Pluggable connection terminals
- Controlling, programming and feedback is effected via the F-bus (2-wire)
- Automatic parameter transfer after address assignment
- Extended diagnostic options, error statistics, reporting
- Firmware update possible during operation via F-bus
- Up to 32 participants per line
- Own data point bar (analog/digital) for each participant
- Fast data update through event-oriented communication

Robust metal housing, industrial design for top hat rail mounting.

>> Technical data

Voltage supply	AC 24 V ± 10 %, 50 ...60 Hz DC 24 V ± 20 %	
Max. power consumption	AC 5.0 VA DC 2.0 W	
Self-consumption	AC 1.5 VA DC 0.7 W	without load
Bus load	6 mA (F-bus)	
Dimensions	84.5 × 108.5 × 77.0 (length × width × height (installation depth) in mm)	
Operation temperature	0 ...+50 °C	
Weight	350 g	
Protection	IP20	
Housing	aluminum, deep black RAL 9005	

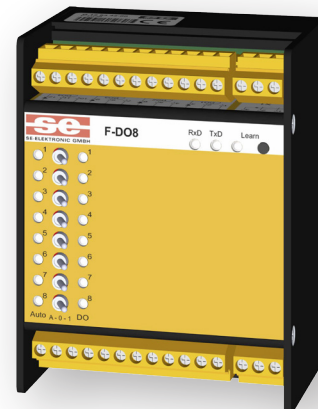
See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

8-fold digital output module, F-device

Type:
F-DO8

Order No.:
G 12 83 42



>> Description

8-fold digital output module for F-bus.

- 8× digital outputs - relays AC 250 V, max. 16 A, with LED status display
- 1× LED display per output
- Manual switch with switch position Auto-OFF-On
- Pluggable connection terminals
- Controlling, programming and feedback is effected via the F-bus (2-wire)
- Automatic parameter transfer after address assignment
- Extended diagnostic options, error statistics, reporting
- Firmware update possible during operation via F-bus
- Up to 32 participants per line
- Own data point bar (analog/digital) for each participant
- Fast data update through event-oriented communication

Robust metal housing, industrial design for top hat rail mounting.

>> Technical data

Voltage supply	AC 24 V ± 10 %, 50 ...60 Hz DC 24 V + 20 %	
Max. power consumption	AC 5.8 VA DC 3.0 W	
Self-consumption	AC 1.5 VA DC 0.6 W	without load
Bus load	6 mA (F-bus)	
Dimensions	84.5 × 108.5 × 77.0 (length × width × height (installation depth) in mm)	
Operation temperature	0 ...+50 °C	
Weight	350 g	
Protection	IP20	
Housing	aluminum, deep black RAL 9005	

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

6-fold analog input module, F-device

Type:

F-AI6

Order No.:

G 12 83 47



>> Description

6-fold analog input module with 6× AI as universal inputs for voltage, current*, NTC, PTC.
The characteristic curves of the individual sensors are stored in the software and can be freely selected for each input.

- 6× analog inputs DC 0 ...10 V, resolution 16 bit
- 1× voltage output DC 24 V unstabilized, max. 150 mA for active sensors (unloaded up to approx. 36 V possible)
- 1× voltage output DC 10 V, max. 15 mA, reference voltage for potentiometer
- Pluggable connection terminals
- Selectable temperature units, e.g. Celsius, Fahrenheit, Kelvin ...
- Controlling, programming and feedback is effected via the F-bus (2-wire)
- Automatic parameter transfer after address assignment
- Extended diagnostic options, error statistics, reporting
- Firmware update possible during operation via F-bus
- Up to 32 participants per line
- Own data point bar (analog/digital) for each participant
- Fast data update through event-oriented communication

Robust metal housing, industrial design for top hat rail mounting.

* Current measurement only with external load with 500 Ohm

>> Technical data

Voltage supply	AC 24 V ± 10 %, 50 ...60 Hz DC 24 V ± 20 %	
Max. power consumption	AC 9.2 VA DC 3.8 W	
Self-consumption	AC 1.7 VA DC 0.5 W	without load
Bus load	6 mA (F-bus)	
Dimensions	84.5 × 108.5 × 77.0 (length × width × height (installation depth) in mm)	
Operation temperature	0 ...+50 °C	
Weight	350 g	
Protection	IP20	
Housing	aluminum, deep black RAL 9005	

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

12-fold analog input module, F-device

Type:
F-AI12

Order No.:
G 12 83 48



>> Description

12-fold analog input module with 12× AI as universal inputs for voltage, current*, NTC, PTC.
The characteristic curves of the individual sensors are stored in the software and can be freely selected for each input.

- 12× analog inputs DC 0 ...10 V, resolution 16 bit
- 2× voltage output DC 24 V unstabilized, max. 150 mA for active sensors (unloaded up to approx. 36 V possible)
- 2× voltage output DC 10 V, max. 15 mA, reference voltage for potentiometer
- Pluggable connection terminals
- Selectable temperature units, e.g. Celsius, Fahrenheit, Kelvin ...
- Controlling, programming and feedback is effected via the F-bus (2-wire)
- Automatic parameter transfer after address assignment
- Extended diagnostic options, error statistics, reporting
- Firmware update possible during operation via F-bus
- Up to 32 participants per line
- Own data point bar (analog/digital) for each participant
- Fast data update through event-oriented communication

Robust metal housing, industrial design for top hat rail mounting.

* Current measurement only with external load with 500 Ohm

>> Technical data

Voltage supply	AC 24 V ± 10 %, 50 ...60 Hz DC 24 V ± 20 %	
Max. power consumption	AC 12.0 VA DC 5.0 W	
Self-consumption	AC 2.1 VA DC 0.6 W	without load
Bus load	6 mA (F-bus)	
Dimensions	84.5 × 108.5 × 77.0 (length × width × height (installation depth) in mm)	
Operation temperature	0 ...+50 °C	
Weight	350 g	
Protection	IP20	
Housing	aluminum, deep black RAL 9005	

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

6-fold module with pulse width modulation, F-device

Type:

F-PWM6

Order No.:

G 12 83 52



>> Description

PWM output module for F-bus

- 6× PWM outputs configurable 50 or 60 Hz
- 1× LED display per output
- Manual switch with switch position Auto-OFF-On
- Pluggable connection terminals
- Controlling, programming and feedback is effected via the F-bus (2-wire)
- Automatic parameter transfer after address assignment
- Extended diagnostic options, error statistics, reporting
- Firmware update possible during operation via F-bus
- Up to 32 participants per line
- Own data point bar (analog/digital) for each participant
- Fast data update through event-oriented communication

Robust metal housing, industrial design for top hat rail mounting.

>> Technical data

Voltage supply	AC 24 V ± 10 %, 50 ...60 Hz	
Max. power consumption	AC 100.0 VA	
Self-consumption	AC 0.9 VA	without load
Bus load	6 mA (F-bus)	
Dimensions	84.5 × 108.5 × 77.0 (length × width × height (installation depth) in mm)	
Operation temperature	0 ...+50 °C	
Weight	350 g	
Protection	IP20	
Housing	aluminum, deep black RAL 9005	

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

Digital and analog input and output module, F-device

Type:

F-AIO

Order No.:

G 12 83 54



>> Description

Digital and analog input and output module for F-bus with 6× AI as universal inputs for voltage, current*, NTC, PTC.

- 4× analog outputs DC 0 ...10 V, max. 10 mA, freely configurable
- 4 x AO with integrated return
- 6× analog inputs DC 0 ...10 V, resolution 16 bit
- 1× voltage output DC 24 V unstabilized, max. 150 mA for active sensors (unloaded up to approx. 36 V possible)
- 1× voltage output DC 10 V, max. 15 mA, reference voltage for potentiometer
- Manual switch with switch position Auto-OFF-On
- Pluggable connection terminals
- Controlling, programming and feedback is effected via the F-bus (2-wire)
- Automatic parameter transfer after address assignment
- Extended diagnostic options, error statistics, reporting
- Firmware update possible during operation via F-bus
- Up to 32 participants per line
- Own data point bar (analog/digital) for each participant
- Fast data update through event-oriented communication

Robust metal housing, industrial design for top hat rail mounting.

>> Technical data

Voltage supply	AC 24 V ± 10 %, 50 ...60 Hz DC 24 V ± 20 %	
Max. power consumption	AC 9.5 VA DC 5.8 W	
Self-consumption	AC 2.2 VA DC 0.7 W	without load
Bus load	6 mA (F-bus)	
Dimensions	84.5 × 108.5 × 77.0 (length × width × height (installation depth) in mm)	
Operation temperature	0 ...+50 °C	
Weight	350 g	
Protection	IP20	
Housing	aluminum, deep black RAL 9005	

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

Digital and analog input and output module, F-device

Type:

F-YIO

Order No.:

G 12 83 55



>> Description

Digital and analog input and output module for F-bus.

- 2× analog outputs DC 0 ...10 V
- 6× digital outputs - relays, normally open potential free 250 V, max. 5 A, AC1
- 8× digital inputs AC 12 ...24 V, DC 15 ...36 V, potential free or potential loaded
- 2× voltage output DC 24 V unstabilized (unloaded up to approx. 36 V possible)
- Manual switch with switch position Auto-OFF-On
- Pluggable connection terminals
- Controlling, programming and feedback is effected via the F-bus (2-wire)
- Automatic parameter transfer after address assignment
- Extended diagnostic options, error statistics, reporting
- Firmware update possible during operation via F-bus
- Up to 32 participants per line
- Own data point bar (analog/digital) for each participant
- Fast data update through event-oriented communication

Robust metal housing, industrial design for top hat rail mounting.

>> Technical data

Voltage supply	AC 24 V ± 10 %, 50 ...60 Hz DC 24 V + 20 %	
Max. power consumption	AC 10.0 VA DC 3.5 W	
Self-consumption	AC 2.6 VA DC 0.8 W	without load
Bus load	6 mA (F-bus)	
Dimensions	84.5 × 108.5 × 77.0 (length × width × height (installation depth) in mm)	
Operation temperature	0 ...+50 °C	
Weight	350 g	
Protection	IP20	
Housing	aluminum, deep black RAL 9005	

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

Analog output module, F-device

Type:
F-AO4

Order No.:
G 12 83 57



>> Description

4-fold analog output module for F-bus.

- 4× analog outputs 0 ...10 V, max. 10 mA, freely configurable
- Manual switch with switch position Auto-OFF-On
- Pluggable connection terminals
- Controlling, programming and feedback is effected via the F-bus (2-wire)
- Automatic parameter transfer after address assignment
- Extended diagnostic options, error statistics, reporting
- Firmware update possible during operation via F-bus
- Up to 32 participants per line
- Own data point bar (analog/digital) for each participant
- Fast data update through event-oriented communication

Robust metal housing, industrial design for top hat rail mounting.

>> Technical data

Voltage supply	AC 24 V ± 10 %, 50 ...60 Hz DC 24 V ± 20 %	
Max. power consumption	AC 4.0 VA DC 2.0 W	
Self-consumption	AC 1.7 VA DC 0.5 W	without load
Bus load	6 mA (F-bus)	
Dimensions	84.5 × 108.5 × 77.0 (length × width × height (installation depth) in mm)	
Operation temperature	0 ...+50 °C	
Weight	350 g	
Protection	IP20	
Housing	aluminum, deep black RAL 9005	

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

Analog output module, F-device

Type:

F-AO8

Order No.:

G 12 83 58



>> Description

8-fold analog output module for F-bus.

- 8× analog outputs 0 ...10 V, max. 10 mA, freely configurable
- Manual switch with switch position Auto-OFF-On
- Pluggable connection terminals
- Controlling, programming and feedback is effected via the F-bus (2-wire)
- Automatic parameter transfer after address assignment
- Extended diagnostic options, error statistics, reporting
- Firmware update possible during operation via F-bus
- Up to 32 participants per line
- Own data point bar (analog/digital) for each participant
- Fast data update through event-oriented communication

Robust metal housing, industrial design for top hat rail mounting.

>> Technical data

Voltage supply	AC 24 V ± 10 %, 50 ...60 Hz DC 24 V ± 20 %	
Max. power consumption	AC 6.0 VA DC 3.0 W	
Self-consumption	AC 2.0 VA DC 0.7 W	without load
Bus load	6 mA (F-bus)	
Dimensions	84.5 × 108.5 × 77.0 (length × width × height (installation depth) in mm)	
Operation temperature	0 ...+50 °C	
Weight	350 g	
Protection	IP20	
Housing	aluminum, deep black RAL 9005	

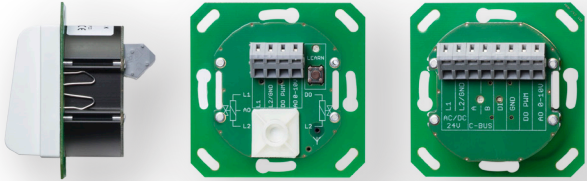
See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

**Room module for flush mounting,
F-device**

Type:
F-RM1.0

Order No.:
G 14 93 10



>> Description

Room module for controlling an electromotor (continuous) or electrothermal (2-point) valve actuator. A digital input is available for connecting a motion sensor or a window contact.

- 1× analog output DC 0 ...10 V, max. 10 mA
- 1× digital or PWM output AC/DC 24 V, max. 1,2 A
- 1× digital input, with potential (e.g. window contact)
- Inclusive cover white for 55 mm frame
- Controlling, programming and feedback is effected via the F-bus (2-wire)

Can be combined with many switch covers (standard dimension 55) by a wide range of different manufacturers. Installation and attachment in a flush box Ø 60 mm × 60 mm (installation depth).

>> Technical data

Voltage supply	AC 24 V ± 10 %, 50 ...60 Hz DC 24 V ± 10 %
Max. power consumption	AC 3.0 VA (without drives) DC 2.5 W (without drives)
Bus load	6 mA
Dimensions	70.8 × 70.8 × 40.0 (length × width × height (installation depth) in mm)
Operation temperature	0 ...+50 °C
Weight	60 g
Protection	IP20
Housing	plastic, white RAL 9010

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronic.de

G 14 93 10_F-RM1_0_Produktblatt_2023-04-01

Control unit for fans, F-device

Type:
F-VS5

Order No.:
G 15 10 90



>> Description

Combined sensor and actuator device for the control of fans.

- 2× differential pressure measurement -50 ...50 hPa
- 5× universal inputs for voltage, current, NTC, PTC
- 1× RS485 connection for Modbus extension via F-bus
- 2× relay (normally open)
- 2× analog outputs 0 ...10 V (10 bit)
- 1× connection for device lighting
- 1× connection for external temperature and humidity sensor
- Modbus control for fans
- Controlling, programming and feedback is effected via the F-bus (2-wire)

Plastic housing for wall and ceiling mounting.

>> Technical data

Voltage supply	AC 24 V ± 10 %, 50 ...60 Hz	
Max. power consumption	AC 3.5 VA DC 2.0 W	each without device lighting
Bus load	6 mA (F-bus)	
Measuring range	-50 ...50 hPa	
Zero point drift	< 0.5 % FSO/a	
Measurement accuracy	< 1 % FSO over the entire permissible temperature and pressure range	
Bursting pressure	> 299 hPa	
Media compatibility	Clean, dry gases that are not aggressive to Epoxy, Nylon, Silicone, Silicon, Gold, Aluminium and Polyamide. Base or acidic liquids can destroy the sensor.	
Dimensions (without screw connections)	128.8 × 81.8 × 53.5 (length × width × height (installation depth) in mm)	
Dimensions (with screw connections)	128.8 × 148.0 × 53.5 (length × width × height (installation depth) in mm)	
Operation temperature	-20 ...+50 °C	
Weight	300 g	
Protection	IP54	
Housing	plastic ASA, light grey RAL 7035	

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

Fire damper and smoke detector monitoring module

Type:
F-FM-BSK-3S

Order No.:
G 15 10 93



>> Description

F-bus monitoring module for two fire dampers (BSK).

- Integrated power supply unit, connection for AC 230 V or 24 V BSK versions
- Inputs for BSK feedback OPEN and CLOSED
- Smoke detector inputs for ALARM (lightly soiled, heavily soiled)
- Inputs OPEN, CLOSE and ALARM invertible via configuration software
- Monitoring of running times for direction OPEN/CLOSE
- Limit value specification of the maximum CLOSE running time for both BSKs
- Failure message for both BSK in case of runtime exceedance
- Display of the last CLOSE running time for both BSKs
- Additional activation of runtime monitoring for OPEN function
- Failure evaluation bit-coded via analog data point
- Alarm and bus monitoring with function selection: None, Alarm and Bus, Alarm and BSK On
- Optical status display of operating voltage, F-bus communication and inputs and outputs
- 2× relay (normally open) max. 250 V, 6 A, AC1
- Wiring via PCB terminals with tension clamp connection
- Fast response time by COV (change of value) method
- Replaceable memory chip for the configuration settings
- Firmware update possible during operation via F-bus

Plastic housing for wall and ceiling mounting.

>> Technical data

Voltage supply	AC 230 V ± 10 %, 50 ...60 Hz	
Max. power consumption	30.0 VA	with max. 12.0 VA external load on AC 24 V
Typ. power consumption	18.0 VA	without external load (at 230 V BSK, depending on BSK)
Bus load	approx. 6 mA	
Dimensions	200.0 × 150.0 × 75.0 (length × width × height (installation depth) in mm)	
Operation temperature	0 ...+50 °C	
Weight	1010 g	
Protection	IP65	

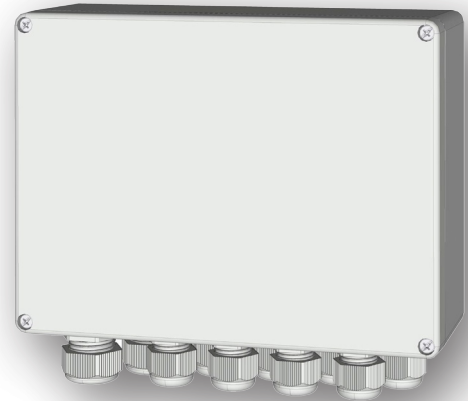
See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

Fire damper and smoke detector monitoring module

Type:
F-FM-BSK-3

Order No.:
G 15 10 94



>> Description

F-bus monitoring module for two fire dampers (BSK).

- Integrated power supply unit, connection for AC 230 V or 24 V BSK versions
- Inputs for BSK feedback OPEN and CLOSED
- Smoke detector inputs for ALARM (lightly soiled, heavily soiled)
- Inputs OPEN, CLOSE and ALARM invertible via configuration software
- Monitoring of running times for direction OPEN/CLOSE
- Limit value specification of the maximum CLOSE running time for both BSKs
- Failure message for both BSK in case of runtime exceedance
- Display of the last CLOSE running time for both BSKs
- Additional activation of runtime monitoring for OPEN function
- Failure evaluation bit-coded via analog data point
- Alarm and bus monitoring with function selection: None, Alarm and Bus, Alarm and BSK On
- Optical status display of operating voltage, F-bus communication and inputs and outputs
- 2× relay (normally open) max. 250 V, 6 A, AC1
- Wiring via PCB terminals with tension clamp connection
- Fast response time by COV (change of value) method
- Replaceable memory chip for the configuration settings
- Firmware update possible during operation via F-bus

Plastic housing for wall and ceiling mounting.

>> Technical data

Voltage supply	AC 230 V ± 10 %, 50 ...60 Hz	
Max. power consumption	35.0 VA	with max. 18 VA external load on AC 24 V
Typ. power consumption	20.0 VA	without external load (at 230 V BSK, depending on BSK)
Bus load	approx. 6 mA	
Dimensions	200.0 × 150.0 × 75.0 (length × width × height (installation depth) in mm)	
Operation temperature	0 ...+50 °C	
Weight	1010 g	
Protection	IP65	

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de



06

Sensorics, Actuators for F-bus

External temperature sensor, F-device

Type:

F-SWT

Order No.:

G 14 80 10



>> Description

Active outdoor temperature sensor for F-bus, self-calibrating.

- Temperature sensor Pt1000 1/3 DIN B
- 1× screw connection M16
- Output of sensor values and parameters to data points for further processing
- Monitoring of the sensor (error messages) and the communication (online status)
- Adjustable parameters: Offset, damping, resolution ...
- Power supply via F-bus (2-wire), no extra power supply required
- Flexible wiring of the fieldbus: star, series or parallel
- Controlling, programming and feedback is effected via the F-bus (2-wire)
- Automatic parameter transfer after address assignment
- Extended diagnostic options, error statistics, reporting and display of device data
- Firmware update possible during operation via F-bus
- Up to 32 participants per line
- Own data point bar (analog/digital) for each participant
- Fast data update through event-oriented communication

Plastic housing for wall mounting.

>> Technical data

Measuring range temperature	-35 °C ...+70 °C
Tolerance	± 0.5 K at 25 °C
Voltage supply	via F-bus
Bus load	16 mA (F-bus)
Dimensions without screw connections	67.0 × 67.0 × 43.5 (length × width × height (installation depth) in mm)
Dimensions with screw connections	67.0 × 110.0 × 43.5 (length × width × height (installation depth) in mm)
Operation temperature	-35 C ...+70 °C
Weight	95 g
Protection	IP65
Housing	plastic ASA, light grey RAL 7035

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

Room temperature sensor, F-device

Type:

F-SRT

Order No.:

G 14 80 18



>> Description

Active room temperature sensor for F-bus, self-calibrating.

- Temperature sensor Pt1000 1/3 DIN B
- Output of sensor values and parameters to data points for further processing
- Monitoring of the sensor (error messages) and the communication (online status)
- Adjustable parameters: Offset, damping, resolution ...
- Power supply via F-bus (2-wire), no extra power supply required
- Flexible wiring of the fieldbus: star, series or parallel
- Controlling, programming and feedback is effected via the F-bus (2-wire)
- Automatic parameter transfer after address assignment
- Extended diagnostic options, error statistics, reporting and display of device data
- Firmware update possible during operation via F-bus
- Up to 32 participants per line
- Own data point bar (analog/digital) for each participant
- Fast data update through event-oriented communication

Plastic housing for wall mounting.

>> Technical data

Measuring range temperature	0 ...+50 °C
Tolerance	±0.5 K at 25 °C
Voltage supply	via F-bus
Bus load	16 mA (F-bus)
Dimensions	84.5 × 84.5 × 25.0 (length × width × height (installation depth) in mm)
Operation temperature	0 ...+50 °C
Weight	65 g
Protection	IP30
Housing	plastic (PC), pure white RAL 9010

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

Room/external temperature and humidity sensor, F-device

Type:

F-SFRTH

Order No.:

G 14 80 19



>> Description

Room/outdoor temperature and humidity sensor with combined temperature/humidity sensor for F-bus.

- Combined temperature/humidity sensor
- Output of sensor values and parameters to data points for further processing
- Output to data points:
 - Humidity, air density, saturation vapour pressure, water vapour partial pressure, absolute humidity, dew point, wet bulb temperature, enthalpy, air pressure
- Adjustable parameters: Offset, damping, resolution ...
- Monitoring of the sensor (error messages) and the communication (online status)
- Flexible wiring of the fieldbus: star, series or parallel
- Power supply via F-bus (2-wire), no extra power supply required
- Controlling, programming and feedback is effected via the F-bus (2-wire)
- Automatic parameter transfer after address assignment
- Extended diagnostic options, error statistics, reporting and display of device data
- Firmware update possible during operation via F-bus
- Up to 32 participants per line
- Own data point bar (analog/digital) for each participant
- Fast data update through event-oriented communication

Plastic housing for wall mounting.

>> Technical data

Measuring range temperature	-35 ...+70 °C
Tolerance	±0.5 K at 25 °C
Measuring range humidity	0 ...100 % r.H.
Tolerance	±3 % r.H. at 25 °C
Voltage supply	via F-bus
Bus load	19 mA (F-bus)
Dimensions without screw connections	58.0 × 78.0 × 46.0 (length × width × height (installation depth) in mm)
Dimensions with screw connections	58.0 × 131.0 × 46.0 (length × width × height (installation depth) in mm)
Operation temperature	-35 ...+70 °C
Weight	110 g
Protection	IP54
Housing	plastic (PA), pure white RAL 9010

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

Immersion temperature sensor, F-device

Type:

F-STT-100-6

Order No.:

G 14 80 21



>> Description

Active immersion temperature sensor for F-bus.

- Sensor Pt1000 1/3 DIN B in protection tube made of stainless steel 1.4571
- 1× screw connection M16
- 1× blind plug M16
- Special lengths on request
- Monitoring of the sensor (error messages) and the communication (online status)
- Adjustable parameters: Offset, damping, resolution ...
- Power supply via F-bus (2-wire), no extra power supply required
- Flexible wiring of the fieldbus: star, series or parallel
- Controlling, programming and feedback is effected via the F-bus (2-wire)
- Automatic parameter transfer after address assignment
- Extended diagnostic options, error statistics, reporting and display of device data
- Firmware update possible during operation via F-bus
- Up to 32 participants per line
- Own data point bar (analog/digital) for each participant
- Fast data update through event-oriented communication

Accessories see chapter „10 >> Accessories“

>> Technical data

Measuring range temperature	-35 ...+100 °C
Tolerance	±0.5 K at 25 °C
Dimensions sensor sleeve	Ø6.0 × 115.0 (diameter × length in mm)
Immersion depth	approx. 100.0 mm
Voltage supply	via F-bus
Bus load	16 mA (F-bus)
Dimensions without screw connections and measuring element	67.0 × 67.0 × 43.5 (length × width × height (installation depth) in mm)
Dimensions with screw connections and measuring element	67.0 × 92.0 × 158.5 (length × width × height (installation depth) in mm)
Operation temperature	-35 ...+70 °C
Weight	105 g
Protection	IP65
Housing	plastic (ASA), light grey RAL 7035

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

Immersion temperature sensor, F-device

Type:

F-STT-150-6

Order No.:

G 14 80 23



>> Description

Active immersion temperature sensor for F-bus.

- Sensor Pt1000 1/3 DIN B in protection tube made of stainless steel 1.4571
- 1× screw connection M16
- 1× blind plug M16
- Special lengths on request
- Monitoring of the sensor (error messages) and the communication (online status)
- Adjustable parameters: Offset, damping, resolution ...
- Power supply via F-bus (2-wire), no extra power supply required
- Flexible wiring of the fieldbus: star, series or parallel
- Controlling, programming and feedback is effected via the F-bus (2-wire)
- Automatic parameter transfer after address assignment
- Extended diagnostic options, error statistics, reporting and display of device data
- Firmware update possible during operation via F-bus
- Up to 32 participants per line
- Own data point bar (analog/digital) for each participant
- Fast data update through event-oriented communication

Accessories see chapter „10 >> Accessories“

>> Technical data

Measuring range temperature	-35 ...+100 °C
Tolerance	±0.5 K at 25 °C
Dimensions sensor sleeve	Ø6.0 × 165.0 (diameter × length in mm)
Immersion depth	approx. 150.0 mm
Voltage supply	via F-bus
Bus load	16 mA (F-bus)
Dimensions without screw connections and measuring element	67.0 × 67.0 × 43.5 (length × width × height (installation depth) in mm)
Dimensions with screw connections and measuring element	67.0 × 92.0 × 208.5 (length × width × height (installation depth) in mm)
Operation temperature	-35 ...+70 °C
Weight	110 g
Protection	IP65
Housing	plastic (ASA), light grey RAL 7035

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

Immersion temperature sensor, F-device

Type:

F-STT-200-6

Order No.:

G 14 80 26



>> Description

Active immersion temperature sensor for F-bus.

- Sensor Pt1000 1/3 DIN B in protection tube made of stainless steel 1.4571
- 1× screw connection M16
- 1× blind plug M16
- Special lengths on request
- Monitoring of the sensor (error messages) and the communication (online status)
- Adjustable parameters: Offset, damping, resolution ...
- Power supply via F-bus (2-wire), no extra power supply required
- Flexible wiring of the fieldbus: star, series or parallel
- Controlling, programming and feedback is effected via the F-bus (2-wire)
- Automatic parameter transfer after address assignment
- Extended diagnostic options, error statistics, reporting and display of device data
- Firmware update possible during operation via F-bus
- Up to 32 participants per line
- Own data point bar (analog/digital) for each participant
- Fast data update through event-oriented communication

Accessories see chapter „10 >> Accessories“

>> Technical data

Measuring range temperature	-35 ...+100 °C
Tolerance	±0.5 K at 25 °C
Dimensions sensor sleeve	Ø6.0 × 215.0 (diameter × length in mm)
Immersion depth	approx. 200.0 mm
Voltage supply	via F-bus
Bus load	16 mA (F-bus)
Dimensions without screw connections and measuring element	67.0 × 67.0 × 43.5 (length × width × height (installation depth) in mm)
Dimensions with screw connections and measuring element	67.0 × 92.0 × 258.5 (length × width × height (installation depth) in mm)
Operation temperature	-35 ...+70 °C
Weight	115 g
Protection	IP65
Housing	plastic (ASA), light grey RAL 7035

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

Immersion temperature sensor, F-device

Type:
F-STT-300-6

Order No.:
G 14 80 33



>> Description

Active immersion temperature sensor for F-bus.

- Sensor Pt1000 1/3 DIN B in protection tube made of stainless steel 1.4571
- 1× screw connection M16
- 1× blind plug M16
- Special lengths on request
- Monitoring of the sensor (error messages) and the communication (online status)
- Adjustable parameters: Offset, damping, resolution ...
- Power supply via F-bus (2-wire), no extra power supply required
- Flexible wiring of the fieldbus: star, series or parallel
- Controlling, programming and feedback is effected via the F-bus (2-wire)
- Automatic parameter transfer after address assignment
- Extended diagnostic options, error statistics, reporting and display of device data
- Firmware update possible during operation via F-bus
- Up to 32 participants per line
- Own data point bar (analog/digital) for each participant
- Fast data update through event-oriented communication

Accessories see chapter „10 >> Accessories“

>> Technical data

Measuring range temperature	-35 ...+100 °C
Tolerance	±0.5 K at 25 °C
Dimensions sensor sleeve	Ø6.0 × 315.0 (diameter × length in mm)
Immersion depth	approx. 300 mm
Voltage supply	via F-bus
Bus load	16 mA (F-bus)
Dimensions without screw connections and measuring element	67.0 × 67.0 × 43.5 (length × width × height (installation depth) in mm)
Dimensions with screw connections and measuring element	67.0 × 92.0 × 358.5 (length × width × height (installation depth) in mm)
Operation temperature	-35 ...+70 °C
Weight	125 g
Protection	IP65
Housing	plastic (ASA), light grey RAL 7035

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

Duct temperature sensor, F-device

Type:
F-SKT-200-4

Order No.:
G 14 80 30



>> Description

Active duct temperature sensor for F-bus.

- Sensor Pt1000 1/3 DIN B in protection tube made of stainless steel 1.4571
- 1× screw connection M16
- 1× blind plug M16
- Special lengths on request
- Monitoring of the sensor (error messages) and the communication (online status)
- Adjustable parameters: Offset, damping, resolution ...
- Power supply via F-bus (2-wire), no extra power supply required
- Flexible wiring of the fieldbus: star, series or parallel
- Controlling, programming and feedback is effected via the F-bus (2-wire)
- Automatic parameter transfer after address assignment
- Extended diagnostic options, error statistics, reporting and display of device data
- Firmware update possible during operation via F-bus
- Up to 32 participants per line
- Own data point bar (analog/digital) for each participant
- Fast data update through event-oriented communication

Accessories see chapter „10 >> Accessories“

>> Technical data

Measuring range temperature	-35 ...+100 °C
Tolerance	±0.5 K at 25 °C
Dimensions sensor sleeve	Ø4.0 × 215.0 (diameter × length in mm)
Immersion depth	approx. 200.0 mm
Voltage supply	via F-bus
Bus load	16 mA (F-bus)
Dimensions without screw connections and measuring element	67.0 × 67.0 × 43.5 (length × width × height (installation depth) in mm)
Dimensions with screw connections and measuring element	67.0 × 92.0 × 258.5 (length × width × height (installation depth) in mm)
Operation temperature	-35 ...+70 °C
Weight	115 g
Protection	IP65
Housing	plastic (ASA), light grey RAL 7035

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

Duct temperature sensor, F-device

Type:
F-SKT-300-4

Order No.:
G 14 80 32



>> Description

Active duct temperature sensor for F-bus.

- Sensor Pt1000 1/3 DIN B in protection tube made of stainless steel 1.4571
- 1× screw connection M16
- 1× blind plug M16
- Special lengths on request
- Monitoring of the sensor (error messages) and the communication (online status)
- Adjustable parameters: Offset, damping, resolution ...
- Power supply via F-bus (2-wire), no extra power supply required
- Flexible wiring of the fieldbus: star, series or parallel
- Controlling, programming and feedback is effected via the F-bus (2-wire)
- Automatic parameter transfer after address assignment
- Extended diagnostic options, error statistics, reporting and display of device data
- Firmware update possible during operation via F-bus
- Up to 32 participants per line
- Own data point bar (analog/digital) for each participant
- Fast data update through event-oriented communication

Accessories see chapter „10 >> Accessories“

>> Technical data

Measuring range temperature	-35 ...+100 °C
Tolerance	±0.5 K at 25 °C
Dimensions sensor sleeve	Ø4.0 × 315.0 (diameter × length in mm)
Immersion depth	approx. 300.0 mm
Voltage supply	via F-bus
Bus load	16 mA (F-bus)
Dimensions without screw connections and measuring element	67.0 × 67.0 × 43.5 (length × width × height (installation depth) in mm)
Dimensions with screw connections and measuring element	67.0 × 92.0 × 358.5 (length × width × height (installation depth) in mm)
Operation temperature	-35 ...+70 °C
Weight	125 g
Protection	IP65
Housing	plastic (ASA), light grey RAL 7035

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

Room control unit with LEDs, push button, potentiometer and temperature sensor, F-device

Type:

F-SRT-TLP

Order No.:

G 14 80 36



>> Description

Active temperature sensor for F-bus with freely programmable LEDs, push button and potentiometer, self-calibrating.

- Sensor temperature Pt1000 1/3 DIN B
- 1× push button, 3× LED (1× green, 1× yellow, 1× red) and 1× potentiometer freely programmable
- Output of sensor values and parameters to data points for further processing
- Monitoring of the sensor (error messages) and the communication (online status)
- Adjustable parameters: Offset, damping, resolution ...
- Power supply via F-bus (2-wire), no extra power supply required
- Flexible wiring of the fieldbus: star, series or parallel
- Controlling, programming and feedback is effected via the F-bus (2-wire)
- Automatic parameter transfer after address assignment
- Extended diagnostic options, error statistics, reporting and display of device data
- Firmware update possible during operation via F-bus
- Extended diagnostic options, error statistics, reporting and display of device data
- Firmware update possible during operation via F-bus

Plastic housing for wall mounting.

>> Technical data

Measuring range temperature	0 ...+50 °C
Tolerance	±0.5 K at 25 °C
Voltage supply	via F-bus
Bus load	16 mA (F-bus)
Dimensions	84.5 × 84.5 × 31.0 (length × width × height (installation depth) in mm)
Operation temperature	0 ...+50 °C
Weight	80 g
Protection	IP30
Housing	plastic (PC), pure white RAL 9010

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

Combination duct-cable-temperature sensor, F-device

Type:

F-ST-2K/V

Order No.:

G 14 80 40



>> Description

Combination duct-cable-temperature sensor with one immersion pipe and one cable sensor.

- 1× immersion pipe sensor Pt1000 1/3 DIN B: Ø4 × 177/197 (diameter × immersion depth/length in mm), stainless steel 1.4571
- 1× cable sensor Pt1000 1/3 DIN B: Ø6 × 50/ 2,000 (diameter × sensor/cable length in mm)
- Measuring range temperature: -35 ...+100 °C
- Power supply via F-bus (2-wire), no extra power supply required
- Flexible wiring of the fieldbus: star, series or parallel
- Controlling, programming and feedback is effected via the F-bus (2-wire)
- Automatic parameter transfer after address assignment
- Extended diagnostic options, error statistics, reporting and display of device data
- Firmware update possible during operation via F-bus
- Up to 32 participants per line
- Own data point bar (analog/digital) for each participant
- Fast data update through event-oriented communication

Accessories see chapter „10 >> Accessories“

>> Technical data

Measuring range temperature	-35 °C ...+100 °C
Tolerance	± 0.5 K at 25 °C
Voltage supply	via F-bus
Bus load	16 mA (F-bus)
Dimensions without screw connections	67.0 × 67.0 × 43.5 (length × width × height (installation depth) in mm)
Dimensions with screw connections	67.0 × 116.0 × 43.5 (length × width × height (installation depth) in mm)
Operation temperature	-35 C ...+70 °C
Weight	170 g
Protection	IP65
Housing	plastic ASA, light grey RAL 7035

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

Combination cable-cable- temperature sensor, F-device

Type:
F-ST-2V/V

Order No.:
G 14 80 45



>> Description

Combination cable-cable-temperature sensor with two Pt1000 1/3 DIN B sensors.

- 2× sensor Pt1000 1/3 DIN B: Ø6 × 50/2,000 (diameter × sensor/cable length in mm)
- Measuring range temperature: -35 ...+100 °C
- Power supply via F-bus (2-wire), no extra power supply required
- Flexible wiring of the fieldbus: star, series or parallel
- Controlling, programming and feedback is effected via the F-bus (2-wire)
- Automatic parameter transfer after address assignment
- Extended diagnostic options, error statistics, reporting and display of device data
- Firmware update possible during operation via F-bus
- Up to 32 participants per line
- Own data point bar (analog/digital) for each participant
- Fast data update through event-oriented communication

Accessories see chapter „10 >> Accessories“

>> Technical data

Measuring range temperature	-35 °C ...+100 °C
Tolerance	± 0.5 K at 25 °C
Voltage supply	via F-bus
Bus load	16 mA (F-bus)
Dimensions without screw connections	67.0 × 67.0 × 43.5 (length × width × height (installation depth) in mm)
Dimensions with screw connections	67.0 × 116.0 × 43.5 (length × width × height (installation depth) in mm)
Operation temperature	-35 C ...+70 °C
Weight	220 g
Protection	IP65
Housing	plastic ASA, light grey RAL 7035

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

Combination cable-cable- temperature sensor, F-device

Type:

F-ST-2V/V L50CM

Order No.:

G 14 80 46



Figure similar

>> Description

Combination cable-cable-temperature sensor with two Pt1000 1/3 DIN B sensors.

- 2× sensor Pt1000 1/3 DIN B: Ø6 × 50/500 (diameter × sensor/cable length in mm)
- Measuring range temperature: -35 ...+100 °C
- Power supply via F-bus (2-wire), no extra power supply required
- Flexible wiring of the fieldbus: star, series or parallel
- Controlling, programming and feedback is effected via the F-bus (2-wire)
- Automatic parameter transfer after address assignment
- Extended diagnostic options, error statistics, reporting and display of device data
- Firmware update possible during operation via F-bus
- Up to 32 participants per line
- Own data point bar (analog/digital) for each participant
- Fast data update through event-oriented communication

Accessories see chapter „10 >> Accessories“

>> Technical data

Measuring range temperature	-35 °C ...+100 °C
Tolerance	± 0.5 K at 25 °C
Voltage supply	via F-bus
Bus load	16 mA (F-bus)
Dimensions without screw connections	67.0 × 67.0 × 43.5 (length × width × height (installation depth) in mm)
Dimensions with screw connections	67.0 × 116.0 × 43.5 (length × width × height (installation depth) in mm)
Operation temperature	-35 C ...+70 °C
Weight	130 g
Protection	IP65
Housing	plastic ASA, light grey RAL 7035

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

Combination cable-cable- temperature sensor, F-device

Type:

F-ST-2V/V 6M

Order No.:

G 14 80 47



Figure similar

>> Description

Combination cable-cable-temperature sensor with two Pt1000 1/3 DIN B sensors.

- 2× sensor Pt1000 1/3 DIN B: Ø6 × 50/6,000 (diameter × sensor/cable length in mm)
- Measuring range temperature: -35 ...+100 °C
- Power supply via F-bus (2-wire), no extra power supply required
- Flexible wiring of the fieldbus: star, series or parallel
- Controlling, programming and feedback is effected via the F-bus (2-wire)
- Automatic parameter transfer after address assignment
- Extended diagnostic options, error statistics, reporting and display of device data
- Firmware update possible during operation via F-bus
- Up to 32 participants per line
- Own data point bar (analog/digital) for each participant
- Fast data update through event-oriented communication

Accessories see chapter „10 >> Accessories“

>> Technical data

Measuring range temperature	-35 °C ...+100 °C
Tolerance	± 0.5 K at 25 °C
Voltage supply	via F-bus
Bus load	16 mA (F-bus)
Dimensions without screw connections	67.0 × 67.0 × 43.5 (length × width × height (installation depth) in mm)
Dimensions with screw connections	67.0 × 116.0 × 43.5 (length × width × height (installation depth) in mm)
Operation temperature	-35 C ...+70 °C
Weight	350 g
Protection	IP65
Housing	plastic ASA, light grey RAL 7035

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

Combination cable-cable- temperature sensor, F-device

Type:

F-ST-2V/V 4M

Order No.:

G 14 80 48



Figure similar

>> Description

Combination cable-cable-temperature sensor with two Pt1000 1/3 DIN B sensors.

- 2× sensor Pt1000 1/3 DIN B: Ø6 × 50/4,000 (diameter × sensor/cable length in mm)
- Measuring range temperature: -35 ...+100 °C
- Power supply via F-bus (2-wire), no extra power supply required
- Flexible wiring of the fieldbus: star, series or parallel
- Controlling, programming and feedback is effected via the F-bus (2-wire)
- Automatic parameter transfer after address assignment
- Extended diagnostic options, error statistics, reporting and display of device data
- Firmware update possible during operation via F-bus
- Up to 32 participants per line
- Own data point bar (analog/digital) for each participant
- Fast data update through event-oriented communication

Accessories see chapter „10 >> Accessories“

>> Technical data

Measuring range temperature	-35 °C ...+100 °C
Tolerance	± 0.5 K at 25 °C
Voltage supply	via F-bus
Bus load	16 mA (F-bus)
Dimensions without screw connections	67.0 × 67.0 × 43.5 (length × width × height (installation depth) in mm)
Dimensions with screw connections	67.0 × 116.0 × 43.5 (length × width × height (installation depth) in mm)
Operation temperature	-35 C ...+70 °C
Weight	340 g
Protection	IP65
Housing	plastic ASA, light grey RAL 7035

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

Room temperature and humidity sensor, F-device

Type:

F-SRTH

Order No.:

G 14 80 53



>> Description

Room temperature and humidity sensor with combined temperature/humidity sensor for F-bus.

- Combined temperature/humidity sensor
- Output of sensor values and parameters to data points for further processing
- Output to data points:
 - Humidity, air density, saturation vapour pressure, water vapour partial pressure, absolute humidity, dew point, wet bulb temperature, enthalpy, air pressure
- Adjustable parameters: Offset, damping, resolution ...
- Monitoring of the sensor (error messages) and the communication (online status)
- Flexible wiring of the fieldbus: star, series or parallel
- Power supply via F-bus (2-wire), no extra power supply required
- Controlling, programming and feedback is effected via the F-bus (2-wire)
- Automatic parameter transfer after address assignment
- Extended diagnostic options, error statistics, reporting and display of device data
- Firmware update possible during operation via F-bus
- Up to 32 participants per line
- Own data point bar (analog/digital) for each participant
- Fast data update through event-oriented communication

Plastic housing for wall mounting.

>> Technical data

Measuring range temperature	0 ...+50 °C
Tolerance	±0.4 K at 25 °C
Measuring range humidity	0 ...100 % r.H. without dewing
Tolerance	±3 % r. H. at 25 °C
Voltage supply	via F-bus
Bus load	19 mA (F-bus)
Dimensions	84.5 × 84.5 × 25.0 (length × width × height (installation depth) in mm)
Operation temperature	0 ...+50 °C
Weight	65 g
Protection	IP30
Housing	plastic (PC), pure white RAL 9010

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

Room sensor with temperature/ humidity and CO₂ measuring element



Type:

F-SRCO2

Order No.:

G 14 80 55

>> Description

Room sensor with CO₂ measuring element for monitoring air quality by continuous CO₂ measurement using the measuring principle of PASens® technology (based on photoacoustic sensor principle).

With integrated temperature and humidity sensor for measuring temperature and humidity as well as the possibility of visual and acoustic indication when the CO₂ value is exceeded, self-calibrating.

By using additional temperature sensors, measuring errors can be avoided. Possible causes: own heating of the electronics used in a group unit, draught air, direct sun radiation, cold outside walls...

- Measuring range CO₂ measuring element 400 ...2000 ppm CO₂
- Measuring range temperature -10 ...+60 °C
- Measuring range humidity 0 ...100 % r.h.
- Self- or manual calibration for CO₂
- Input of limit values for visual and acoustic indication when the measured CO₂ value is exceeded
- Controlling, programming and feedback is effected via the F-bus (2-wire)
- Automatic parameter transfer after address assignment
- Extended diagnostic options, error statistics, reporting and display of device data
- Firmware update possible during operation via F-bus
- Up to 32 participants per line
- Own data point bar (analog/digital) for each participant
- Fast data update through event-oriented communication

Plastic housing for wall mounting.

>> Technical data

Measuring range CO ₂	400 ...2000 ppm CO ₂
Measuring principle	PASens® technology (based on photoacoustic sensor principle)
Accuracy	± 50 ppm + 5 % of reading value
Response time	60 s
Self-calibration	once a week when the function is activated
Voltage supply	AC 24 V ±10 %, 50 ...60 Hz DC 24 V ±20 %
Max. power consumption	AC 0.7 VA DC 0.4 W
Bus load	6 mA (F-bus)
Dimensions	84.5 × 84.5 × 31.0 (length × width × height (installation depth) in mm)
Operation temperature	0 ...+50 °C
Weight	80 g
Protection class	III safety extra-low voltage
Protection	IP30
Housing	plastic (ASA), pure white RAL 9010

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

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Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronic.de

Room sensor with temperature/ humidity and VOC measuring element



Type:

F-SRVOC

Order No.:

G 14 80 58

>> Description

Room sensor with VOC measuring element for measuring indoor air quality. VOC (Volatile Organic Compounds) are the air pollutants of volatile organic substances in the air.

With integrated temperature and humidity sensor for measuring temperature and humidity as well as the possibility of visual and acoustic indication of exceeded, predefined value of the air quality.

By using additional temperature sensors, measuring errors can be avoided. Possible causes: own heating of the electronics used in a group unit, draught air, direct sun radiation, cold outside walls...

- Measuring range VOC measuring element index 0 ...500
- Measuring range temperature -40 ...+125 °C
- Measuring range humidity 0 ...100 % r.h.
- Input of limit values for visual and acoustic indication when the predefined value of the air quality is exceeded
- Controlling, programming and feedback is effected via the F-bus (2-wire)
- Automatic parameter transfer after address assignment
- Extended diagnostic options, error statistics, reporting and display of device data
- Firmware update possible during operation via F-bus
- Up to 32 participants per line
- Own data point bar (analog/digital) for each participant
- Fast data update through event-oriented communication

Plastic housing for wall mounting.

>> Technical data

Measuring range VOC	index 0 ...500
Measuring range temperature	-40 ...+125 °C
Measuring range humidity	0 ...100 % r.h.
Voltage supply	AC 24 V ±10 %, 50 ...60 Hz DC 24 V ±20 %
Max. power consumption	AC 0.7 VA DC 0.4 W
Bus load	6 mA (F-bus)
Dimensions	84.5 × 84.5 × 31.0 (length × width × height (installation depth) in mm)
Operation temperature	0 ...+50 °C
Weight	80 g
Protection class	III safety extra-low voltage
Protection	IP30
Housing	plastic (ASA), pure white RAL 9010

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

Duct temperature and humidity sensor, F-device

Type:

F-SKTH PE

Order No.:

G 14 80 60



>> Description

Duct temperature and humidity sensor with a measuring element, consisting of a combined temperature/humidity sensor and the filter element sinter filter.

By using additional temperature sensors, measuring errors can be avoided. Possible causes: own heating of the electronics used in a group unit, draught air, direct sun radiation, cold outside walls...

- Measuring range temperature -35 ...+70 °C
- Measuring range humidity 0 ...100 % r.h.
- Output of sensor values and parameters to data points for further processing
- Output to data points:
 - Humidity, air density, saturation vapour pressure, water vapour partial pressure, absolute humidity, dew point, wet bulb temperature, enthalpy, air pressure
- Adjustable parameters: Offset, damping, resolution ...
- Monitoring of the sensor (error messages) and the communication (online status)
- Flexible wiring of the fieldbus: star, series or parallel
- Power supply via F-bus (2-wire), no extra power supply required
- Controlling, programming and feedback is effected via the F-bus (2-wire)
- Automatic parameter transfer after address assignment
- Extended diagnostic options, error statistics, reporting and display of device data
- Firmware update possible during operation via F-bus
- Up to 32 participants per line
- Own data point bar (analog/digital) for each participant
- Fast data update through event-oriented communication

Plastic housing for wall mounting.

Measuring element, consisting of a combined temperature/humidity sensor and the filter element sinter filter, available as spare part under Art. No. G 04 12 12 (STH HD-PE).

>> Technical data

Measuring range temperature	-35 ...+70 °C
Tolerance	±0.1 °C at +10 ...+55 °C
Measuring range humidity	0 ...100 % r.H.
Tolerance	±1.5 % r.h.
Dimensions sensor tube	12.0 × 200.0 (diameter × length in mm)
Material sensor tube	V4A steel
Immersion depth	220.0 mm (sensor tube with filter element sinter filter)
Voltage supply	via F-bus
Bus load	14 mA (F-bus)
Dimensions without screw connections and measuring element	67.0 × 67.0 × 43.5 (length × width × height (installation depth) in mm)
Dimensions with screw connections and measuring element	67.0 × 92.0 × 263.5 (length × width × height (installation depth) in mm)
Operation temperature	-25 ...+80 °C
Weight	140 g
Protection	IP65
Housing	plastic (ASA), light grey RAL 7035

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

Duct temperature and humidity sensor with VOC measuring element, F-device

Type:

F-SKTHVOC PE

Order No.:

G 14 80 61



>> Description

Duct temperature and humidity sensor with a measuring element, consisting of a combined temperature/humidity sensor, the filter element sinter filter and a VOC measuring element for measuring indoor air quality. VOC (Volatile Organic Compounds) are the air pollutants of volatile organic substances in the air. By using additional temperature sensors, measuring errors can be avoided. Possible causes: own heating of the electronics used in a group unit, draught air, direct sun radiation, cold outside walls...

- Measuring range VOC measuring element index 0 ...500
- Measuring range temperature -35 ...+70 °C
- Measuring range humidity 0 ...100 % r.h.
- Output of sensor values and parameters to data points for further processing
- Output to data points:
 - Humidity, air density, saturation vapour pressure, water vapour partial pressure, absolute humidity, dew point, wet bulb temperature, enthalpy, air pressure
- Adjustable parameters: Offset, damping, resolution ...
- Monitoring of the sensor (error messages) and the communication (online status)
- Flexible wiring of the fieldbus: star, series or parallel
- Power supply via F-bus (2-wire), no extra power supply required
- Controlling, programming and feedback is effected via the F-bus (2-wire)
- Automatic parameter transfer after address assignment
- Extended diagnostic options, error statistics, reporting and display of device data
- Firmware update possible during operation via F-bus
- Up to 32 participants per line
- Own data point bar (analog/digital) for each participant
- Fast data update through event-oriented communication

Plastic housing for wall mounting.

Measuring element, consisting of a combined temperature/humidity sensor, filter element sinter filter and VOC measuring element, available as spare part under Art. No. G 04 12 14 (STHVOC HD-PE).

>> Technical data

Measuring range VOC	index 0 ...500
Measuring range temperature	-10 ...+50 °C
Tolerance	±0.1 °C at +10 ...+55 °C
Measuring range humidity	0 ...100 % r.H.
Tolerance	±1.5 % r.h.
Dimensions sensor tube	12.0 × 200.0 (diameter × length in mm)
Material sensor tube	V4A steel
Immersion depth	220.0 mm (sensor tube with filter element sinter filter)
Voltage supply	via F-bus
Bus load	14 mA (F-bus)
Dimensions without screw connections and measuring element	67.0 × 67.0 × 43.5 (length × width × height (installation depth) in mm)
Dimensions with screw connections and measuring element	67.0 × 92.0 × 263.5 (length × width × height (installation depth) in mm)
Operation temperature	-25 ...+80 °C
Weight	140 g
Protection	IP65
Housing	plastic (ASA), light grey RAL 7035

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

Cable temperature sensor with sensor Pt1000, F-device

Type:

F-SVT-2M

Order No.:

G 14 80 70



>> Description

Active temperature sensor for F-bus with 2 m cable length.

- Sensor temperature Pt1000 1/3 DIN B
- 1× screw connection M16
- 1× blind plug M16
- Adjustable parameters: Offset, damping, resolution ...
- Monitoring of the sensor (error messages) and the communication (online status)
- Flexible wiring of the fieldbus: star, series or parallel
- Power supply via F-bus (2-wire), no extra power supply required
- Controlling, programming and feedback is effected via the F-bus (2-wire)
- Automatic parameter transfer after address assignment
- Extended diagnostic options, error statistics, reporting and display of device data
- Firmware update possible during operation via F-bus
- Up to 32 participants per line
- Own data point bar (analog/digital) for each participant
- Fast data update through event-oriented communication

Solid plastic housing.

>> Technical data

Measuring range temperature	-35 ...+100 °C
Tolerance	±0.5 K at 25 °C
Dimensions measuring element	Ø6.0 × 50.0/2000.0 (diameter × sensor-/cable length in mm)
Voltage supply	via F-bus
Bus load	16 mA (F-bus)
Dimensions without screw connections and measuring element	67.0 × 67.0 × 43.5 (length × width × height (installation depth) in mm)
Dimensions with screw connections and measuring element	67.0 × 116.0 × 43.5 (length × width × height (installation depth) in mm)
Operation temperature	-35 ...+70 °C
Weight	165 g
Protection	IP65
Housing	plastic (ASA), light grey RAL 7035

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

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Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronic.de

Cable temperature sensor with sensor Pt1000, F-device

Type:

F-SVT-6M

Order No.:

G 14 80 71



>> Description

Active temperature sensor for F-bus with 6 m cable length.

- Sensor temperature Pt1000 1/3 DIN B
- 1× screw connection M16
- 1× blind plug M16
- Adjustable parameters: Offset, damping, resolution ...
- Monitoring of the sensor (error messages) and the communication (online status)
- Flexible wiring of the fieldbus: star, series or parallel
- Power supply via F-bus (2-wire), no extra power supply required
- Controlling, programming and feedback is effected via the F-bus (2-wire)
- Automatic parameter transfer after address assignment
- Extended diagnostic options, error statistics, reporting and display of device data
- Firmware update possible during operation via F-bus
- Up to 32 participants per line
- Own data point bar (analog/digital) for each participant
- Fast data update through event-oriented communication

Solid plastic housing.

>> Technical data

Measuring range temperature	-35 ...+100 °C
Tolerance	±0.5 K at 25 °C
Dimensions measuring element	Ø6.0 × 50.0/6000.0 (diameter × sensor-/cable length in mm)
Voltage supply	via F-bus
Bus load	16 mA (F-bus)
Dimensions without screw connections and measuring element	67.0 × 67.0 × 43.5 (length × width × height (installation depth) in mm)
Dimensions with screw connections and measuring element	67.0 × 116.0 × 43.5 (length × width × height (installation depth) in mm)
Operation temperature	-35 ...+70 °C
Weight	290 g
Protection	IP65
Housing	plastic (ASA), light grey RAL 7035

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

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Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronic.de

Contact temperature sensor with sensor Pt1000, F-device

Type:

F-SAF

Order No.:

G 14 80 75-01



>> Description

Active temperature sensor with a temperature sensor Pt1000/B. Suitable for mounting with high temperature cable tie.

- Sensor temperature Pt1000/B
- Incl. 2 high temperature cable ties (380 mm)
- 1× screw connection M16
- Adjustable parameters: Offset, damping, resolution ...
- Monitoring of the sensor (error messages) and the communication (online status)
- Flexible wiring of the fieldbus: star, series or parallel
- Power supply via F-bus (2-wire), no extra power supply required
- Controlling, programming and feedback is effected via the F-bus (2-wire)
- Automatic parameter transfer after address assignment
- Extended diagnostic options, error statistics, reporting and display of device data
- Firmware update possible during operation via F-bus
- Up to 32 participants per line
- Own data point bar (analog/digital) for each participant
- Fast data update through event-oriented communication

Recommended outer diameter of the pipe for the contact sensor: 2.5 ...9.0 cm (DN 20 ...DN 80 / 3/4" ...3").

>> Technical data

Measuring range temperature	-35 ...+100 °C
Voltage supply	via F-bus
Bus load	16 mA (F-bus)
Dimensions without screw connections	67.0 × 67.0 × 58.6 (length × width × height (installation depth) in mm)
Dimensions with screw connections	67.0 × 92.0 × 58.6 (length × width × height (installation depth) in mm)
Operation temperature	-35 ...+85 °C
Weight	110 g
Protection	IP65
Housing	plastic (ASA), light grey RAL 7035

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

Flue gas cable temperature sensor, F-device



Type:

F-SVTRG

Order No.:

G 14 80 80

>> Description

Active flue gas sensor for F-bus.

- Sensor Pt1000 1/3 DIN B in stainless steel sleeve with PTFE connection cable 2 m
- 1× screw connection M16
- 1× blind plug M16
- Adjustable parameters: Offset, damping, resolution ...
- Monitoring of the sensor (error messages) and the communication (online status)
- Flexible wiring of the fieldbus: star, series or parallel
- Power supply via F-bus (2-wire), no extra power supply required
- Controlling, programming and feedback is effected via the F-bus (2-wire)
- Automatic parameter transfer after address assignment
- Extended diagnostic options, error statistics, reporting and display of device data
- Firmware update possible during operation via F-bus
- Up to 32 participants per line
- Own data point bar (analog/digital) for each participant
- Fast data update through event-oriented communication

Solid plastic housing.

>> Technical data

Measuring range temperature	-35 ...+200 °C
Tolerance	±0.5 K at 25 °C
Dimensions measuring element	Ø4.0 × 200.0/2000.0 (diameter × sensor-/cable length in mm)
Voltage supply	via F-bus
Bus load	16 mA (F-bus)
Dimensions without screw connections and measuring element	67.0 × 67.0 × 43.5 (length × width × height (installation depth) in mm)
Dimensions with screw connections and measuring element	67.0 × 116.0 × 43.5 (length × width × height (installation depth) in mm)
Operation temperature	-35 ...+70 °C
Weight	125 g
Protection	IP65
Housing	plastic (ASA), light grey RAL 7035

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

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Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronic.de

Duct temperature sensor for average value calculation, F-device



Type:
F-SKT-MW 3M

Order No.:
G 14 80 81-01

>> Description

Duct sensor with temperature sensor for calculation the average value in a channel.

- Measuring range temperature sensor Pt1000/B -30 ...+80 °C
- Sensor Pt1000/B in protection tube made of stainless steel
- Measuring element length 3.0 m; material copper flexible, blank
- Special lengths on request (6.0 m/10.0 m)
- Adjustable parameters: offset, attenuation, resolution ...
- 1× screw connection M16
- 1× blind plug M16
- Fast data update through event-oriented communication
- Power supply via F-bus (2-wire), no extra power supply required
- Control, programming and feedback is effected via the F-bus (2-wire)

Solid plastic housing for mounting in ventilation ducts of room-technical systems.

>> Technical data

Measuring range temperature	-30 ...+80 °C
Dimensions measuring rod	4.0 × 3.0 (diameter in mm × length in m)
Dimensions neck tube	Ø6.0 × 60.0 (diameter × length in mm)
Voltage supply	via F-bus
Bus load	14 mA (F-bus)
Dimensions (without screw connections and measuring element)	67.0 × 67.0 × 43.5 (length × width × height (installation depth) in mm)
Dimensions (with screw connections and measuring element)	67.0 × 92.0 × 102.5 (length × width × height (installation depth) in mm), addition sensor rolled up
Operation temperature	-30 ...+80 °C
Weight	260 g
Protection	IP65
Housing	plastic (ASA), light grey RAL 7035

See product documentation for further technical details. Modifications and mistakes reserved.
 Delivery time and availability see price list.

////////////////////////////////////

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronic.de

Duct sensor with CO₂ measuring element

Type:

F-SKCO2

Order No.:

G 14 80 91



>> Description

Duct sensor with CO₂-measuring element for monitoring air quality by continuous CO₂ measurement according to the infrared principle (NDIR).

With connection for an external temperature/humidity sensor for measuring temperature and humidity.

By using additional temperature sensors, measuring errors can be avoided. Possible causes: own heating of the electronics used in a group unit, draught air, direct sun radiation, cold outside walls...

- Measuring range CO₂-measuring element 0 ...5000 ppm CO₂
- 1× connection for external temperature/humidity sensor via plug connector (4-pin)
- Self- or point calibration for CO₂
- Selection whether the CO₂ value or the analog output data point value is generated as voltage signal (at analog max. up to 2000 ppm)
- 1× screw connection M16
- 1× blind plug M16
- Fast data update through event-oriented communication
- Control, programming and feedback is effected via the F-bus (2-wire)

Solid plastic housing for mounting in ventilation ducts of room-technical systems.

>> Technical data

Measuring range CO ₂	0 ...5000 ppm CO ₂
Measuring principle	NDIR (non-dispersive infrared technology)
Accuracy	± 100 ppm + 6 % reading value
Warm-up time	3 min after power-on
Measuring interval	approx. 1 s
Calibration	every 24 h
Voltage supply	AC 24 V ±10 %, 50 ...60 Hz DC 24 V ±20 %
Max. power consumption	AC 1.7 VA DC 0.9 W
Bus load	6 mA (F-bus)
Operation temperature	-10 ...+50 °C
Dimensions (without screw connections and measuring element)	67.0 × 67.0 × 43.5 (length × width × height (installation depth) in mm)
Dimensions (with screw connections and measuring element)	67.0 × 92.0 × 123.5 (length × width × height (installation depth) in mm)
Measuring element	15.5 mm / 80.0 (diameter / length in mm)
Weight	108 g
Housing	Plastic (ASA), light grey RAL 7035
Protection class	III safety extra-low voltage
Protection	IP30

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

Differential pressure sensor -50 ...50 hPa, F-device

Type:

F-SDP-50-1

Order No.:

G 14 81 02



>> Description

Active differential pressure sensor with silicon pressure measuring cell, e.g. for recording differential pressures and calculating the volume flow. Limit values for messages can be set in the device or provided via an F-bus data point.

- Measuring range differential pressure sensor
-50 ...50 hPa
- 1× connection for external temperature/humidity sensor
via plug connector (4-pin)
- Pluggable connection terminals
- 1× screw connection M16
- 1× blind plug M12
- Fast response time by COV (change of value) method
- Controlling, programming and feedback is effected via
the F-bus (2-wire)

Plastic housing for wall and ceiling mounting.

>> Technical data

Voltage supply	AC 24 V ± 10 %, 50 ...60 Hz DC 24 V ± 20 %
Max. power consumption	AC 3.2 VA DC 1.0 W
Bus load	6 mA (F-bus)
Measuring range	-50 ...50 hPa
Zero point drift	< 0,5 % FSO/a
Measurement accuracy	< 1 % FSO over the entire permissible temperature and pressure range
Bursting pressure	> 299 hPa
Media compatibility	Clean, dry gases that are not aggressive to Epoxy, Nylon, Silicone, Silicon, Gold, Aluminium and Polyamide. Base or acidic liquids can destroy the sensor.
Dimensions (without screw connections)	67.0 × 67.0 × 43.5 (length × width × height (installation depth) in mm)
Dimensions (with screw connections)	73.0 × 92.0 × 43.5 (length × width × height (installation depth) in mm)
Operation temperature	-20 ...+50 °C
Weight	90 g
Protection	IP54
Housing	plastic ASA, light grey RAL 7035

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

Damper actuator with 16 Nm torque, F-device

Type:

F-KSM-16

Order No.:

G 15 10 10



Figure similar

>> Description

Electric F-bus actuator for the adjustment of dampers.

- Torque: 16 Nm
- Working range and direction of rotation programmable
- End position detection via current sensors
- Feedback of motor position
- Input optionally for connection of an external temperature sensor e.g. Pt1000, NTC, KTY, NI1000
- or for frost protection
- Low energy consumption
- Fast response time by COV (change of value) method
- Controlling, programming and feedback is effected via the F-bus (2-wire)

Plastic housing in compact design.

>> Technical data

Voltage supply	AC 24 V ±10 %, 50 ...60 Hz DC 24 V ±20 %
Max. power consumption	AC 3.6 VA DC 2.4 W
Bus load	6 mA (F-bus)
Torque	16 Nm
Angle of rotation	90°
Running time	80 ...110 s
Dimensions	180.0 × 100.0 × 69.0 (length × width × height (installation depth) in mm)
Operation temperature	-20 ...+50 °C
Weight	1200 g
Protection	IP54 (cable downwards)
Housing	plastic, light grey RAL 7035

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

Damper actuator with 24 Nm torque, F-device

Type:

F-KSM-24

Order No.:

G 15 10 11



Figure similar

>> Description

Electric F-bus actuator for the adjustment of dampers.

- Torque: 24 Nm
- Working range and direction of rotation programmable
- End position detection via current sensors
- Feedback of motor position
- Input optionally for connection of an external temperature sensor e.g. Pt1000, NTC, KTY, NI1000
- or for frost protection
- Low energy consumption
- Fast response time by COV (change of value) method
- Controlling, programming and feedback is effected via the F-bus (2-wire)

Plastic housing in compact design.

>> Technische Daten

Voltage supply	AC 24 V ±10 %, 50 ...60 Hz DC 24 V ±20 %
Max. power consumption	AC 3.6 VA DC 2.4 W
Bus load	6 mA (F-bus)
Torque	24 Nm
Angle of rotation	90°
Running time	80 ...110 s
Dimensions	180.0 × 100.0 × 69.0 (length × width × height (installation depth) in mm)
Operation temperature	-20 ...+50 °C
Weight	1200 g
Protection	IP54 (cable downwards)
Housing	plastic, light grey RAL 7035

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

Universal module with Modbus, F-device

Type:
F-FM-AM

Order No.:
G 15 10 40



>> Description

Universal I/O module for connecting sensors and actuators. Communication via F-bus and Modbus.

- 2× universal inputs for voltage, current, NTC
- 1× analog input 0 ...10 V (12 bit)
- 1× RS485 for communication via Modbus RTU (slave)
- 1× relay (normally open), max. AC/DC 30 V
- 1× analog output 0 ...10 V (12 bit)
- Controlling, programming and feedback is effected via the F-bus (2-wire)

Plastic housing for wall and ceiling mounting.

>> Technical data

Voltage supply	AC 24 V ± 10 %, 50 ...60 Hz DC 24 V ± 20 %
Max. power consumption	AC 3.0 VA DC 1.5 W
Bus load	6 mA (F-bus)
Dimensions (without screw connections)	67.0 × 67.0 × 43.5 (length × width × height (installation depth) in mm)
Dimensions (with screw connections)	67.0 × 117.0 × 43.5 (length × width × height (installation depth) in mm)
Operation temperature	-20 ...+50 °C
Weight	120 g
Protection	IP65
Housing	plastic ASA, light grey RAL 7035

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

Universal module with Modbus, F-device

Type:

F-UNI-IO V20

Order No.:

G 15 10 97



>> Description

Universal I/O module for connecting sensors and actuators. Communication via F-bus and Modbus.

- 6× universal inputs for voltage, current, NTC
- 2× analog inputs 0 ...10 V (10 bit)
- 1× RS485 for communication via Modbus RTU (slave)
- 2× relay (normally open), 24 V/230 V
- 2× analog outputs 0 ...10 V (10 bit)
- Controlling, programming and feedback is effected via the F-bus (2-wire)

Plastic housing for wall and ceiling mounting.

>> Technical data

Voltage supply	AC 24 V ± 10 %, 50 ...60 Hz DC 24 V ± 20 %
Max. power consumption	AC 3.0 VA DC 1.5 W
Bus load	6 mA (F-bus)
Dimensions (without screw connections)	128.8 × 81.8 × 53.5 (length × width × height (installation depth) in mm)
Dimensions (with screw connections)	159.8 × 131.8 × 53.5 (length × width × height (installation depth) in mm)
Operation temperature	-20 ...+50 °C
Weight	300 g
Protection	IP65
Housing	plastic ASA, light grey RAL 7035

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

Valve actuator 600 N, F-device



Type:
F-VSM-1

Order No.:
G 15 20 10

Figure similar

>> Description

Electric F-bus valve actuator with a positioning force of 600 N and quick coupling for 2- or 3-way control valves.

- Quick coupling
- End position detection
- Adaptive operating range
- Position indicator
- Manual-Automatic switch
- 2× connection for temperature sensor Pt1000 1/3 DIN B
- Input for frost protection or overtemperature
- Low energy consumption
- Fast response time by COV (change of value) method
- Controlling, programming and feedback is effected via the F-bus (2-wire)

Compact design

>> Technical data

Positioning force	600 N
Positioning travel	10 ...30 mm
Positioning speed	8 mm/min
Voltage supply	AC 24 V ±10 %, 50 ...60 Hz
Max. power consumption	AC 3.5 VA
Bus load	6 mA (F-bus)
Dimensions	Ø110.0 × 215.0 (width × height in mm)
Operation temperature	0 ...+50 °C
Weight	920 g
Protection	IP43

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

Valve actuator 1000 N, F-device



Type:
F-VSM-2

Order No.:
G 15 20 11

Figure similar

>> Description

Electric F-bus valve actuator with a positioning force of 1000 N and quick coupling for 2- or 3-way control valves.

- Quick coupling
- End position detection
- Adaptive operating range
- Position indicator
- Manual-Automatic switch
- 2× connection for temperature sensor Pt1000 1/3 DIN B
- Input for frost protection or overtemperature
- Low energy consumption
- Fast response time by COV (change of value) method
- Controlling, programming and feedback is effected via the F-bus (2-wire)

Compact design

>> Technical data

Positioning force	1000 N
Positioning travel	10 ...30 mm
Positioning speed	8 mm/min
Voltage supply	AC 24 V ±10 %, 50 ...60 Hz
Max. power consumption	AC 3.5 VA
Bus load	6 mA (F-bus)
Dimensions	Ø110.0 × 215.0 (width × height in mm)
Operation temperature	0 ...+50 °C
Weight	920 g
Protection	IP43

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

Valve actuator 600 N, F-device



Type:
F-VSM-1 HO/BL

Order No.:
G 15 21 10

Figure similar

>> Description

Electric F-bus valve actuator with a positioning force of 600 N and quick coupling for Hora valves.

- Coupling for Hora valves
- End position detection
- Adaptive operating range
- Position indicator
- Manual-Automatic switch
- 2× connection for temperature sensor Pt1000 1/3 DIN B
- Input for frost protection or overtemperature
- Low energy consumption
- Fast response time by COV (change of value) method
- Controlling, programming and feedback is effected via the F-bus (2-wire)

Compact design

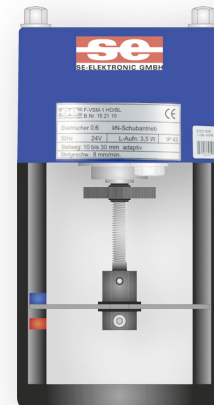
>> Technical data

Positioning force	600 N
Positioning travel	10 ...30 mm
Positioning speed	8 mm/min
Voltage supply	AC 24 V ±10 %, 50 ...60 Hz
Max. power consumption	AC 3.5 VA
Bus load	6 mA (F-bus)
Dimensions	Ø110.0 × 215.0 (width × height in mm)
Operation temperature	0 ...+50 °C
Weight	920 g
Protection	IP43

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

Valve actuator 1000 N, F-device



Type:
F-VSM-2 HO/BL

Order No.:
G 15 21 11

Figure similar

>> Description

Electric F-bus valve actuator with a positioning force of 600 N and quick coupling for Hora valves.

- Coupling for Hora valves
- End position detection
- Adaptive operating range
- Position indicator
- Manual-Automatic switch
- 2× connection for temperature sensor Pt1000 1/3 DIN B
- Input for frost protection or overtemperature
- Low energy consumption
- Fast response time by COV (change of value) method
- Controlling, programming and feedback is effected via the F-bus (2-wire)

Compact design

>> Technical data

Positioning force	1000 N
Positioning travel	10 ...30 mm
Positioning speed	8 mm/min
Voltage supply	AC 24 V ±10 %, 50 ...60 Hz
Max. power consumption	AC 3.5 VA
Bus load	6 mA (F-bus)
Dimensions	Ø110.0 × 215.0 (width × height in mm)
Operation temperature	0 ...+50 °C
Weight	920 g
Protection	IP43

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

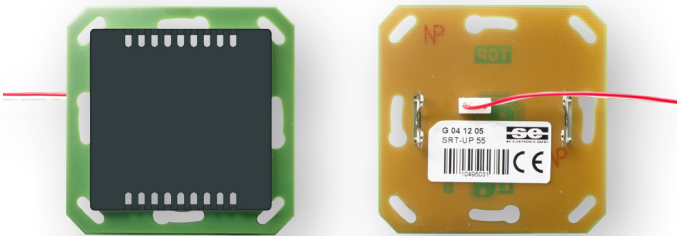


Sensorics, Actuators conventional

**Temperature sensor for flush
mounting with measuring element
Pt1000**

Type:
SRT-UP 55-PT ANT

Order No.:
G 04 12 05



>> Description

Temperature sensor for flush mounting.
By using additional temperature sensors, measuring errors can be avoided.
Possible causes: own heating of the electronics used in a group unit, draught air, direct sun radiation, cold outside walls...

- Passive measuring element Pt1000 1/3 DIN B

Can be combined with many switch covers (standard dimension 55) by a wide range of different manufacturers.
Installation and attachment in a flush box Ø 60 mm × 40 mm (installation depth).

>> Technical data

Measuring range	-35 ...+70 °C
Tolerance	±0.5 K
Dimensions	70.8 × 70.8 × 12.0 (length × width × height (installation depth) in mm)
Operation temperature	0 ...+50 °C
Weight	18 g
Protection	IP20
Housing	plastic material, anthracite RAL 9010

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

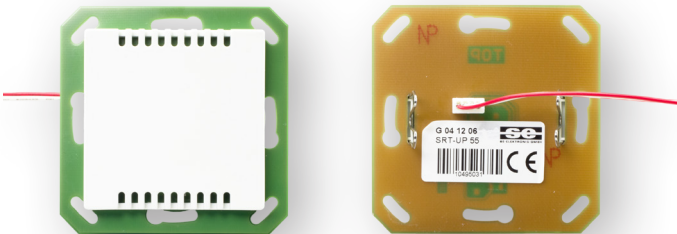
Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronic.de

G 04 12 05_SRT-UP_55-PT_ANT_Produktblatt_2023-04-01

**Temperature sensor for flush
mounting with measuring element
Pt1000**

Type:
SRT-UP 55-PT1000

Order No.:
G 04 12 06



>> Description

Temperature sensor for flush mounting.
By using additional temperature sensors, measuring errors can be avoided.
Possible causes: own heating of the electronics used in a group unit, draught air, direct sun radiation, cold outside walls...

- Passive measuring element Pt1000 1/3 DIN B

Can be combined with many switch covers (standard dimension 55) by a wide range of different manufacturers.
Installation and attachment in a flush box Ø 60 mm × 40 mm (installation depth).

>> Technical data

Measuring range	-35 ...+70 °C
Tolerance	±0.5 K
Dimensions	70.8 × 70.8 × 12.0 (length × width × height (installation depth) in mm)
Operation temperature	0 ...+50 °C
Weight	18 g
Protection class	IP20
Housing	plastic material, white RAL 9010

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronic.de

G 04 12 06_SRT-UP 55-PT1000_Produktblatt_2023-04-01

**Immersion temperature sensor with
measuring element Pt1000**

Type:
STT-100-6-PT1000

Order No.:
G 04 13 10



>> Description

Immersion temperature sensor with measuring element in protection tube.

- Passive measuring element Pt1000 1/3 DIN B in protection tube made of stainless steel 1.4571
- 1× screw connection M16
- Special lengths on request

Mounting flange available as accessory.
Accessories see chapter „10 >> Accessories“

>> Technical data

Measuring range temperature	-35 ...+100 °C
Tolerance	±0.1 K
Dimensions sensor sleeve	Ø6.0 × 115.0 (diameter × length in mm)
Immersion depth	approx. 100.0 mm
Dimensions without screw connections and measuring element	67.0 × 67.0 × 43.5 (length × width × height (installation depth) in mm)
Dimensions with screw connections and measuring element	67.0 × 92.0 × 158.5 (length × width × height (installation depth) in mm)
Operation temperature	-35 ...+70 °C
Weight	105 g
Protection class	IP65
Housing	plastic ASA, light grey RAL 7035

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronic.de

**Immersion temperature sensor with
measuring element Pt1000**



Type:
STT-150-6-PT1000

Order No.:
G 04 13 11

>> Description

Immersion temperature sensor with measuring element in protection tube.

- Passive measuring element Pt1000 1/3 DIN B in protection tube made of stainless steel 1.4571
- 1× screw connection M16
- Special lengths on request

Mounting flange available as accessory.
Accessories see chapter „10 >> Accessories“

>> Technical data

Measuring range temperature	-35 ...+100 °C
Tolerance	±0.1 K
Dimensions sensor sleeve	Ø6.0 × 165.0 (diameter × length in mm)
Immersion depth	approx. 150.0 mm
Dimensions without screw connections and measuring element	67.0 × 67.0 × 43.5 (length × width × height (installation depth) in mm)
Dimensions with screw connections and measuring element	67.0 × 92.0 × 208.5 (length × width × height (installation depth) in mm)
Operation temperature	-35 ...+70 °C
Weight	110 g
Protection class	IP65
Housing	plastic ASA, light grey RAL 7035

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronic.de

**Immersion temperature sensor with
measuring element Pt1000**



Type:
STT-200-6-PT1000

Order No.:
G 04 13 12

>> Description

Immersion temperature sensor with measuring element in protection tube.

- Passive measuring element Pt1000 1/3 DIN B in protection tube made of stainless steel 1.4571
- 1× screw connection M16
- Special lengths on request

Mounting flange available as accessory.
Accessories see chapter „10 >> Accessories“

>> Technical data

Measuring range temperature	-35 ...+100 °C
Tolerance	±0.1 K
Dimensions sensor sleeve	Ø6.0 × 215.0 (diameter × length in mm)
Immersion depth	approx. 200.0 mm
Dimensions without screw connections and measuring element	67.0 × 67.0 × 43.5 (length × width × height (installation depth) in mm)
Dimensions with screw connections and measuring element	67.0 × 92.0 × 258.5 (length × width × height (installation depth) in mm)
Operation temperature	-35 ...+70 °C
Weight	115 g
Protection class	IP65
Housing	plastic ASA, light grey RAL 7035

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronic.de

**Immersion temperature sensor with
measuring element Pt1000**

Type:
STT-300-6-PT1000

Order No.:
G 04 13 13



>> Description

Immersion temperature sensor with measuring element in protection tube.

- Passive measuring element Pt1000 1/3 DIN B in protection tube made of stainless steel 1.4571
- 1× screw connection M16
- Special lengths on request

Mounting flange available as accessory.
Accessories see chapter „10 >> Accessories“

>> Technical data

Measuring range temperature	-35 ...+100 °C
Tolerance	±0.1 K
Dimensions sensor sleeve	Ø6.0 × 315.0 (diameter × length in mm)
Immersion depth	approx. 300.0 mm
Dimensions without screw connections and measuring element	67.0 × 67.0 × 43.5 (length × width × height (installation depth) in mm)
Dimensions with screw connections and measuring element	67.0 × 92.0 × 358.5 (length × width × height (installation depth) in mm)
Operation temperature	-35 ...+70 °C
Weight	125 g
Protection class	IP65
Housing	plastic ASA, light grey RAL 7035

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronic.de

**Duct temperature sensor with
measuring element Pt1000**

Type:
SKT-200-4-PT1000

Order No.:
G 04 13 20



>> Description

Duct temperature sensor with measuring element in protection tube.

- Passive measuring element Pt1000 1/3 DIN B in protection tube made of stainless steel 1.4571
- 1× screw connection M16
- Special lengths on request

Mounting flange available as accessory.
Accessories see chapter „10 >> Accessories“

>> Technical data

Measuring range temperature	-35 ...+100 °C
Tolerance	±0.1 K
Dimensions sensor sleeve	Ø4.0 × 215.0 (diameter × length in mm)
Immersion depth	approx. 200.0 mm
Dimensions without screw connections and measuring element	67.0 × 67.0 × 43.5 (length × width × height (installation depth) in mm)
Dimensions with screw connections and measuring element	67.0 × 92.0 × 258.5 (length × width × height (installation depth) in mm)
Operation temperature	-35 ...+70 °C
Weight	115 g
Protection class	IP65
Housing	plastic ASA, light grey RAL 7035

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronic.de

**Duct temperature sensor with
measuring element Pt1000**

Type:
SKT-300-4-PT1000

Order No.:
G 04 13 21



>> Description

Duct temperature sensor with measuring element in protection tube.

- Passive measuring element Pt1000 1/3 DIN B in protection tube made of stainless steel 1.4571
- 1× screw connection M16
- Special lengths on request

Mounting flange available as accessory.
Accessories see chapter „10 >> Accessories“

>> Technical data

Measuring range temperature	-35 ...+100 °C
Tolerance	±0.1 K
Dimensions sensor sleeve	Ø4.0 × 315.0 (diameter × length in mm)
Immersion depth	approx. 300.0 mm
Dimensions without screw connections and measuring element	67.0 × 67.0 × 43.5 (length × width × height (installation depth) in mm)
Dimensions with screw connections and measuring element	67.0 × 92.0 × 358.5 (length × width × height (installation depth) in mm)
Operation temperature	-35 ...+70 °C
Weight	115 g
Protection class	IP65
Housing	plastic ASA, light grey RAL 7035

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronic.de

**Cable temperature sensor with
measuring element Pt1000**

Type:
SVT-2M-PT1000

Order No.:
G 04 13 30



>> Description

Cable temperature sensor with element for measuring temperatures of liquid or gaseous media.

- Passive sensor Pt1000 1/3 DIN B in stainless steel sleeve with PVC connection cable 2 m
- 1× screw connection M16
- 1× blind plug M16

In a robust plastic housing.

>> Technical data

Measuring range temperature	-35 ...+100 °C
Tolerance	±0.5 K
Dimensions sensor sleeve	Ø6.0 × 50.0/2000.0 (diameter × sensor/cable length in mm)
Dimensions without screw connections and measuring element	67.0 × 67.0 × 43.5 (length × width × height (installation depth) in mm)
Dimensions with screw connections and measuring element	67.0 × 127.0 × 43.5 (length × width × height (installation depth) in mm)
Operation temperature	-35 ...+70 °C
Weight	165 g
Protection class	IP65
Housing	plastic ASA, light grey RAL 7035

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronic.de

**Cable temperature sensor with
measuring element Pt1000**

Type:
SVT-6M-PT1000

Order No.:
G 04 13 31



>> Description

Cable temperature sensor with element for measuring temperatures of liquid or gaseous media.

- Passive sensor Pt1000 1/3 DIN B in stainless steel sleeve with PVC connection cable 2 m
- 1× screw connection M16
- 1× blind plug M16

In a robust plastic housing.

>> Technical data

Measuring range temperature	-35 ...+100 °C
Tolerance	±0,5 K
Dimensions sensor sleeve	Ø6.0 × 50.0/6000.0 (diameter × sensor/cable length in mm)
Dimensions without screw connections and measuring element	67.0 × 67.0 × 43.5 (length × width × height (installation depth) in mm)
Dimensions with screw connections and measuring element	67.0 × 127.0 × 43.5 (length × width × height (installation depth) in mm)
Operation temperature	-35 ...+70 °C
Weight	290 g
Protection class	IP65
Housing	plastic ASA, light grey RAL 7035

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

**Flue gas cable temperature sensor
with measuring element Pt1000**



Type:
SVTRG-PT1000

Order No.:
G 04 13 32

>> Description

Flue gas cable temperature sensor with element for measuring temperatures in hot gaseous media.

- Passive sensor Pt1000 1/3 DIN B in stainless steel sleeve with PTFE connection cable 2 m
- 1× screw connection M16
- 1× blind plug M16

In a robust plastic housing.

>> Technical data

Measuring range temperature	-50 ...+200 °C
Tolerance	±0.5 K
Dimensions sensor sleeve	Ø4.0 × 200.0/2000.0 (diameter × sensor/cable length in mm)
Dimensions without screw connections and measuring element	67.0 × 67.0 × 43.5 (length × width × height (installation depth) in mm)
Dimensions with screw connections and measuring element	67.0 × 127.0 × 43.5 (length × width × height (installation depth) in mm)
Operation temperature	-35 ...+70 °C
Weight	120 g
Protection class	IP65
Housing	plastic ASA, light grey RAL 7035

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

**Contact temperature sensor
with measuring element Pt1000**

Type:
SAF-PT1000

Order No.:
G 04 13 40



>> Description

Contact temperature sensor for measuring surface temperatures of pipes. The contact temperature sensor is attached directly to the pipe with the supplied clamping belt.

- Passive sensor Pt1000 1/3 DIN B
- Incl. 2" clamping belt
- 1× screw connection M16

Plastic housing for tube mounting.

>> Technical data

Measuring range temperature	-35 ...+120 °C
Tolerance	±0,1 K
Dimensions without screw connections	58.0 × 78.0 × 46.0 (length × width × height (installation depth) in mm)
Dimensions with screw connections	58.0 × 103.0 × 58.0 (length × width × height (installation depth) in mm)
Operation temperature	-35 ...+90 °C
Weight	65 g
Protection	IP65
Housing	plastic (PA), pure white RAL 9010

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronic.de

**External temperature sensor with
measuring element Pt1000**

Type:
SWT-PT1000

Order No.:
G 04 13 41



>> Description

Outdoor temperature sensor for mounting directly on the wall, avoiding direct sunlight at the mounting location.

- Passive sensor Pt1000 1/3 DIN B
- 1× screw connection M16

>> Technical data

Measuring range temperature	-50 ...+105 °C
Tolerance	±0.5 K
Dimensions without screw connections	67.0 × 67.0 × 43.5 (length × width × height (installation depth) in mm)
Dimensions with screw connections	67.0 × 100.0 × 43.5 (length × width × height (installation depth) in mm)
Operation temperature	-35 ...+70 °C
Weight	90 g
Protection	IP65
Housing	plastic ASA, light grey RAL 7035

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronic.de

**Room temperature sensor with
measuring element Pt1000**



Type:
SRT-PT1000

Order No.:
G 04 13 47

>> Description

Room temperature sensor for mounting on a flush-mounted box or directly on the wall.
By using additional temperature sensors, measuring errors can be avoided.
Possible causes: own heating of the electronics used in a group unit, draught air, direct sun radiation, cold outside walls...

- Passive measuring element Pt1000 1/3 DIN B

Plastic housing for wall mounting.

>> Technical data

Measuring range	-35 ...+70 °C
Tolerance	±0.5 K
Dimensions	84.5 × 84.5 × 25.0 (length × width × height (installation depth) in mm)
Operation temperature	-35 ...+70 °C
Weight	65 g
Protection class	IP20
Housing	plastic (PC), pure white RAL 9010

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

G 04 13 47_SRT-PT1000_Produktblatt_2023-04-01



08

Interface, Modem, Gateways

BACnet-Router with LTE-Modem, outdoor temperature sensor and external antenna

Type:

ROUTER-LTE-E

Order No.:

G 02 93 12

currently not available



>> Description

The ROUTER-LTE-e has the task of establishing a remote access to the BACnet network via the integrated LTE modem. The device enables the forwarding of BACnet messages and alarms via BACnet services as text message or email.

- Alarm forwarding for all users in the BACnet network via BACnet services as text message or email, this can be configured in terms of time and notification groups
- Remote plant monitoring for service and maintenance work
- Connecting different installations at different locations with the same or another mode of transmission
- Complete parameterisation and configuration via web browser, access via Ethernet or USB port
- Connection to service portal
- Display of the different operating states via LEDs (with lid open)
- SIM card reader for mini SIM cards
- Plastic housing for wall mounting

The device has an integrated cellular modem for industrial use. As a quad-band unit it can be used in all countries with 850/900/1800/1900/2100/2600 MHz networks. Connection over GSM (1G), GPRS, EDGE (2G) und UMTS, HSPA (3G) and LTE (4G) possible.

- External mobile communications antenna for the modem
- 2 MB NVRAM for non-volatile data
- 1× SD flash card with up to 4 GB for trend data, program, CAD data, languages, firmware etc.
- 1× real time clock (RTC) with automatic summer and winter time switchover
- 16.384 internal analogue and 16.384 digital datapoints for program processing
- 1× USB service port for diagnosis, parameterisation and maintenance, webserver functionality
- 1× Ethernet interface (10/100 MBit/s, PoE) as communication interface
- 1× communication interface RS485 (galvanically isolated) to further automation stations or control and communication technology, Modbus RTU (master/slave), BACnet MS/TP, compatible to existing A-, B- and E-Bus technology
- 1× external temperature sensor Pt1000 1/3 DIN B
- Voltage supply via PoE (Power over Ethernet) or AC/DC 24 V
- 2.000 BACnet objects
- Compatible to the BACnet standard ISO 16484-5:2012, Rev. 12, and additionally from firmware version 03.08.08 also BACnet standard ISO 16484-5:2017, Rev. 15 For details see PICS list and AMEV certification
- Software package: BACnet G 01 03 10, webserver G 01 03 30
- Geographical sun level calculation for shading and lighting

Used as BBMD (BACnet Broadcast Management Device) for the transmission of BACnet broadcast as well as foreign device support. Profile of a B-BC (BACnet Building Controller), as well as support of a great number of additional BIBBs (BACnet Interoperability Building Block). Dynamic generation or deletion of objects (e.g. trend log, calendar, schedule) via BACnet.

Further software functions

- Direct online programming via PC with graphical programming interface, module library and macro functions for compact control, 65.536 program lines,

example applications are available for individual adjustment

Options, software packages (unlock code with registered access via SE homepage)

- Modbus G 01 03 20 (Modbus Master)

>> Technical data

Voltage supply	AC 24 V ± 10 %, 50 ...60 Hz DC 24 V ± 10 %	
PoE	DC 48 V ± 20 %	
Power consumption	AC 4.8 VA DC 2.9 W	
PoE	DC 2.9 W	
Measuring range temperature	-50 ...+105 °C	
Dimensions (without screw connections)	128.8 × 81.8 × 53.5 (length × width × height (installation depth) in mm)	
Dimensions (with screw connections)	128.8 × 134.0 × 53.5 (length × width × height (installation depth) in mm)	
Operating temperature	-20 ...+50 °C	
Weight	280 g	
Protection class	IP54	
Housing	plastic ASA, light grey RAL 7035	
GSM (1G)	CSD max. 14.4 kbps	supported frequency ranges: Quad band: 850 / 900 / 1800 / 1900 MHz
GPRS/EDGE (2G)	GPRS (G): max. 55 kbps EDGE (E): max. 256 kbps	
UMTS/HSPA (3G)	UMTS (3G): max. 384 kbps HSPA (H): max. 7.2 Mbps	supported frequency ranges: 800 (B6, B19) / 850 (B5) / 900 (B8) / 1900 (B2) / 2100 (B1) MHz
LTE (4G)	LTE (4G): max. 150 Mbit/s	supported frequency ranges: 800 (B20) / 900 (B8) / 1800 (B3) / 2100 (B1) / 2600 (B7) MHz

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery times and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

Fire damper monitoring module

Type:

BC-FM-BSK24

Order No.:

G 05 30 10



>> Description

Module for controlling and monitoring up to two fire dampers via BACnet MS/TP.

Mechanical and electrical fire dampers (BSK) with AC 24 V spring return actuator as well as smoke detectors can be used.

- Module supply external via AC 230 V
- Loop-through of power supply possible due to double terminal points
- Integrated power supply unit for connection of 2 BSK with AC 24 V supply
- 2× relay (normally open) max. 35 V, 6A for BSK
- Related inputs for status indication BSK (OPEN/CLOSED)
- Smoke detector inputs for
 - Pollution
 - Air flow monitoring
 - Alarm message
- Visualization of inputs via LED
- Inputs OPEN, CLOSE and ALARM invertible via BACnet
- Test function via integrated push buttons in the module
- Integrated runtime monitoring of the BSK
- Limit value specification of the max. running times for both BSKs
- Fault message for both BSK when runtime is exceeded
- Optical status display of the operating voltage
- PCB terminals with tension spring connection
- 1× USB service interface (type B) for diagnostics, parameterization and maintenance
- Communication BACnet MS/TP via RS485
- BACnet objects for all relevant messages
- Parameterization possible at runtime
- System information can be requested via communication interface (device information, versions, states, errors)
- BACnet profile B-AAC (Advanced Application Controller) according to BACnet standard ISO 16484-5:2012, Rev. 12

Plastic housing for wall and ceiling mounting.

>> Technical data

Voltage supply	AC 230 V ± 10 %, 50 ...60 Hz
Max. power consumption	30 VA
Dimensions	200.0 × 150.0 × 75.0 (length × width × height (installation depth) in mm)
Operation temperature	-10 ...+50 °C
Weight	1010 g
Protection	IP65
Housing	plastic (ASA), light gray RAL 7035

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

Fire damper monitoring module

Type:

BC-FM-BSK24 DC

Order No.:

G 05 30 11



>> Description

Module for controlling and monitoring up to two fire dampers via BACnet MS/TP.
Mechanical and electrical fire dampers (BSK) with DC 24 V spring return actuator as well as smoke detectors can be used.

- Module supply external via AC 230 V
- Loop-through of power supply possible due to double terminal points
- Integrated power supply unit for connection of 2 BSK with DC 24 V supply
- 2× relay (normally open) max. 35 V, 6A for BSK
- Related inputs for status indication BSK (OPEN/CLOSED)
- Smoke detector inputs for
 - Pollution
 - Air flow monitoring
 - Alarm message
- Visualization of inputs via LED
- Inputs OPEN, CLOSE and ALARM invertible via BACnet
- Test function via integrated push buttons in the module
- Integrated runtime monitoring of the BSK
- Limit value specification of the max. running times for both BSKs
- Fault message for both BSK when runtime is exceeded
- Optical status display of the operating voltage
- PCB terminals with tension spring connection
- 1× USB service interface (type B) for diagnostics, parameterization and maintenance
- Communication BACnet MS/TP via RS485
- BACnet objects for all relevant messages
- Parameterization possible at runtime
- System information can be requested via communication interface (device information, versions, states, errors)
- BACnet profile B-AAC (Advanced Application Controller) according to BACnet standard ISO 16484-5:2012, Rev. 12

Plastic housing for wall and ceiling mounting.

>> Technical data

Voltage supply	AC 230 V ± 10 %, 50 ...60 Hz
Max. power consumption	30 VA
Dimensions	200.0 × 150.0 × 75.0 (length × width × height (installation depth) in mm)
Operation temperature	-10 ...+50 °C
Weight	1010 g
Protection	IP65
Housing	plastic (ASA), light gray RAL 7035

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

Fire damper monitoring module

Type:

BC-FM-BSK230

Order No.:

G 05 30 20



>> Description

Module for controlling and monitoring up to two fire dampers via BACnet MS/TP.

Mechanical and electrical fire dampers (BSK) with AC 230 V spring return actuator as well as smoke detectors can be used.

- Module supply external via AC 230 V
- Loop-through of power supply possible due to double terminal points
- Integrated power supply unit for connection of 2 BSK with AC 230 V supply
- 2× relay (normally open) max. 250 V, 6A, AC1 for BSK
- Related inputs for status indication BSK (OPEN/ CLOSED)
- Smoke detector inputs for
 - Pollution
 - Air flow monitoring
 - Alarm message
- Visualization of inputs via LED
- Inputs OPEN, CLOSE and ALARM invertible via BACnet
- Test function via integrated push buttons in the module
- Integrated runtime monitoring of the BSK
- Limit value specification of the max. running times for both BSKs
- Fault message for both BSK when runtime is exceeded
- Optical status display of the operating voltage
- PCB terminals with tension spring connection
- 1× USB service interface (type B) for diagnostics, parameterization and maintenance
- Communication BACnet MS/TP via RS485
- BACnet objects for all relevant messages
- Parameterization possible at runtime
- System information can be requested via communication interface (device information, versions, states, errors)
- BACnet profile B-AAC (Advanced Application Controller) according to BACnet standard ISO 16484-5:2012, Rev. 12

Plastic housing for wall and ceiling mounting.

>> Technical data

Voltage supply	AC 230 V ± 10 %, 50 ...60 Hz
Power consumption	< 22 VA
Dimensions	200.0 × 150.0 × 75.0 (length × width × height (installation depth) in mm)
Operation temperature	-10 ...+50 °C
Weight	1010 g
Protection	IP65
Housing	plastic (ASA), light gray RAL 7035

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de



09

Software

Data acquisition and data management system

Type:
VLTECH



>> Description

Virtual control technology is a data acquisition and data management system for controlling and monitoring building and system states.

The data is not stored locally, but is available to manufacturers, service companies and operators as a web-based portal solution worldwide and without time limits.

- Functional and performance description:
 - Overview of all operating data in real time, central consumption recording and easier energy management
 - Accurate data logging and automatic dispatch of reports as proof in accordance with legal requirements
 - Automatic fault detection and alarm forwarding via SMS or e-mail
 - Analysis tool for graphical and tabular evaluation of the data
 - Central management of access authorizations, multi-client capability and user roles
 - Reliable logging and traceability of changes
- Security:
 - SSL encryption of all data for the web application
 - Providing the web application in the server system via upstream web proxy
 - Protection of server systems via firewalls (IP filtering), Virtual Private Network (VPN) connection via GPRS network
 - Central point for system administration, user authentication via login and password
 - User permissions regulate the access rights of users to all applications and data sets
 - Remote maintenance of existing systems

>> System requirements

- BACnet project planning
- Creation of device graphics and system diagrams
- Internet access via DSL, GSM or telephone landline
- Internet capable computer with standard browser (PC, Notebook, PDA, iPad, ...)
- New installations (SE-Elektronic):
 - From E-DDC3.2 with firmware version >3.03.08
- Existing installations (SE-Elektronic):
 - Connection of A-, B- and E-DDCs with the Gateway GW-BC-SE
 - From E-DDC3.2 with firmware version >3.03.08
- Third-party systems:
 - Connection of external systems via a gateway from SE-Elektronic
- Supported bus protocols:
 - BACnet MS/TP or IP: ROUTER-BC, ROUTER-GSM
 - Modbus RTU (Master or Slave): GW-BC-SE, ROUTER-GSM

Easy installation, cost-effective operation.

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

Setting up a client installation for VLTech

Type:

VLT MANDANTENANLAGE

Order No.:

G 01 30 00



>> Description VLTech

Virtual control technology is a data acquisition and data management system for controlling and monitoring building and system states.

The data is not stored locally, but is available to manufacturers, service companies and operators as a web-based portal solution worldwide and without time limits.

- Setup of a multi-client system for secure access to the system via VLTech
- Full access to all information and control options by using a browser-enabled terminal with Internet connection
- Exact billing according to the amount of data, i.e. according to the number of DDC devices and BACnet objects

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

License fee for the management of
1-5 client systems
(Connected properties)

Type:
VLT LIZENZGEBÜHR 1-5

Order No.:
G 01 30 11



>> Description VLTech

Virtual control technology is a data acquisition and data management system for controlling and monitoring building and system states.
The data is not stored locally, but is available to manufacturers, service companies and operators as a web-based portal solution worldwide and without time limits.

- Up to 500 BACnet objects are available in the client systems 1-5

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

License fee for the management of
6-20 client systems
(Connected properties)

Type:
VLT LIZENZGEBÜHR 6-20

Order No.:
G 01 30 12



>> Description VLTech

Virtual control technology is a data acquisition and data management system for controlling and monitoring building and system states.
The data is not stored locally, but is available to manufacturers, service companies and operators as a web-based portal solution worldwide and without time limits.

- Up to 500 BACnet objects are available in client systems 6-20

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

Extension of existing systems with 500 BACnet objects

Type:

VLT GEB.DATENPUNKT >500

Order No.:

G 01 30 20



>> Description VLTech

Virtual control technology is a data acquisition and data management system for controlling and monitoring building and system states.

The data is not stored locally, but is available to manufacturers, service companies and operators as a web-based portal solution worldwide and without time limits.

- Additional package for the extension of an existing system with 500 BACnet objects
- Charging of a monthly license fee for the management of the BACnet objects (>500)

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de

Messages to users via SMS

Type:
VLT SMS

Order No.:
G 01 30 24



>> Description VLTech

Virtual control technology is a data acquisition and data management system for controlling and monitoring building and system states.
The data is not stored locally, but is available to manufacturers, service companies and operators as a web-based portal solution worldwide and without time limits.

- Automatic messages via SMS to the user stored in the system
- Guaranteed delivery of SMS
- Faster reaction to faults
- Fee for sending per SMS

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronik.de



10

Accessories

microSD card in adapter

Type:
SD-KARTE 8GB

Order No.:
G 00 01 42



>> Description

microSD card with 8 GB storage capacity and adapter for industrial use in an E-DDC.

- File format: FAT32
- Write protection can be switched on/off

>> Technical data

Dimensions adapter	32.0 × 24.0 × 2.1 (length × width × height in mm)
Dimensions microSD card	15.0 × 11.0 × 1.0 (length × width × height in mm)
Operation temperature	-25 ...+85 °C
Weight	1.5 g

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronic.de

Self-adhesive paper label



Type:
ETK-P A4

Order No.:
G 00 01 50

>> Description

Self-adhesive paper label for labeling front foils on devices.

- Applicable on most standard surfaces
- For indoor use only
- Before applying the label, the surface must be clean, dry and free of grease

>> Technical data

Dimensions	210.0 × 297.0 (length × width in mm)
Colour	White
Storage	2 years stored at 20°C / 55 % relative humidity

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronic.de

Connection box for hollow walls
or in masonry

Type:
UPD-HWMW

Order No.:
G 00 01 60



>> Description

Connection box with DIN top hat rail.

- Mounting for hollow walls with brackets or in masonry with dowels
- Mounting of the devices with DIN top hat rail
- With cover (white)
- Suitable for HMI-WEB7 wm
- Further information: see manufacturer GEWISS, under item no. „GW48006PM“

>> Technical data

Outer dimensions	210.0 × 205.0 × 75.0 (width × height × depth in mm)
Colour	green

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronic.de

Connection box for masonry



Type:
UPD-MW

Order No.:
G 00 01 61

>> Description

Connection box with DIN top hat rail.

- Mounting in masonry with plaster
- Mounting of the devices with DIN top hat rail
- With cover (white)
- Suitable for HMI-WEB7 wm
- Further information: see manufacturer GEWISS, under item no. „GW48006“

>> Technical data

Outer dimensions	210.0 × 164.0 × 75.0 (width × height × depth in mm)
Colour	orange

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronic.de

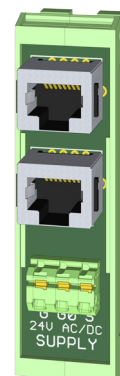
PoE Injector for top hat rail mounting

Type:

POE INJEKTOR 24V

Order No.:

G 03 91 11



>> Description

The PoE Injector adds a 24 V voltage to the existing Ethernet cable so that only one cable is required for connection to PoE-capable HMI-WEB7 devices.

- 2× Ethernet
 - INPUT: Ethernet
 - HMI: connection to touch panel (integrated power supply for e.g. HMI-WEB7 wm via passive PoE 24 V)
- Compact size

Plastic housing for top hat rail mounting.

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronic.de

**LTE magnetic mount antenna with
FME connection and 3.0 m cable**

Type:
LTE-MAGNETFUSSANTENNE FME

Order No.:
G 03 91 60-01



>> Description

LTE/GSM magnetic mount antenna with FME connection angled (female) and 3.0 m cable.

- Connection cable with FME connection angled (female)
- 3.0 m of cable RG174/U
- Dimensions Ø29.0 × 88.0 mm

Can be used in all countries with 850/900/1800/1900/2100/2600 MHz networks. Connection over GPRS, EDGE (2G), UMTS, HSPA (3G) and LTE (4G) possible.

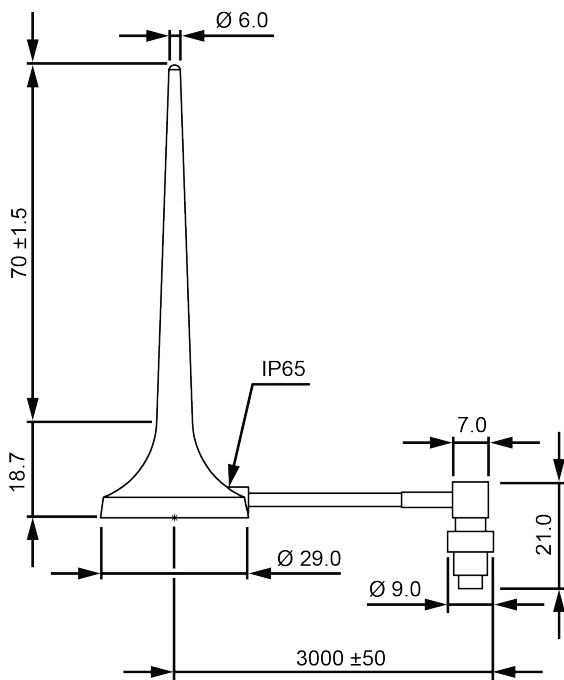
>> Technical data

Standards	2G	3G	4G
Band (MHz)	700/850/900	1700/1800/1900/2100	2600
Frequency (MHz)	690 ...960	1710 ...2170	2600 ...2170
VSWR	~2,0:1		
Average gain (dB)	0 ~3		
Impedance (Ohm)	50		
Connector type	FME connection angled (female)		
Cable length	3.0 m		
Cable type	RG174/U		
Mounting type	magnetic mount		
Dimensions (mm)	Ø29.0 × 88.0 mm		
Radome color	black		
Substance compliance	RoHS		

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery times and availability see price list.

G 03 91 60-01_LTE-Magnetfussantenne_Produktblatt_2023-04-01

>> Dimensions



All dimensions in mm

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronic.de

Temperature and humidity sensor
for retrofitting



Type:
STHPWM

Order No.:
G 04 12 10

>> Description

External temperature and humidity sensor for retrofitting.

- Temperature and humidity sensor including screw connection M16×1.5 and sealing ring
- Connection via plug connector DC 3.3 V, analog

Available as accessory e.g. for F-VS5 (G 15 10 90).

>> Technical data

Dimensions	cable length 1.8 m
Voltage supply	DC 3.3 V
Operation conditions temperature	-20 ...+70 °C
Operation conditions humidity	0 ...100 % r.h.
Measuring range temperature	-20 ...+70 °C
Measuring range humidity	0 ...95 % r.h.
Protection	IP54

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery times and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronic.de

Application humidity/temperature
with sinter filter cap



Type:
STH HD-PE

Order No.:
G 04 12 12

>> Description

Application humidity/temperature with sintered filter cap.

- Thread: M11×0.75 mm
- Mesh size 140 µm
- Green sealing rubber

Available as a spare part for replacement, e.g. at F-SKTH PE (G 14 80 60).

>> Technical data

Dimensions	thread M11×0.75 outer diameter tube approx. 12.0 mm installation length incl. thread 32.1 mm
Operating temperature	-25 °C ...+80 °C
Weight	4.0 g
Material sinter filter	HD polyethylene
Material thread	V4A steel

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery times and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronic.de

Application humidity/temperature
and VOC with sinter filter cap



Type:
STHVOC HD-PE

Order No.:
G 04 12 14

>> Description

Application humidity/temperature and VOC with sintered filter cap.
VOC (Volatile Organic Compounds) are the air pollutants of volatile organic substances in the air.

- Thread: M11×0.75 mm
- Mesh size 140 µm
- Black sealing rubber

Available as a spare part for replacement, e.g. at F-SKTHVOC PE (G 14 80 61).

>> Technical data

Dimensions	thread M11×0.75 outer diameter tube approx. 12.0 mm installation length incl. thread 32.1 mm
Operating temperature	-10 °C ...+50 °C
Weight	4.0 g
Material sinter filter	HD polyethylene
Material thread	V4A steel

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery times and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronic.de

**Immersion sleeve,
installation length 100 mm**



Type:
THMS-100

Order No.:
G 04 14 20

>> Description

Immersion sleeve made of nickel-plated brass with screw-in thread G 1/2".

- For immersion and duct temperature sensors with Ø6.0 mm
- Special lengths on request

>> Technical data

Screw-in thread	G 1/2"
Key-width	SW 27
Dimensions	Outer diameter tube approx. 8.0 mm Installation length incl. thread 100.0 mm
Clamping SKT	Locking screw
Pressure range	max. 16 bar
Operating temperature	-40 ...+400 °C
Weight	102 g

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery times and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronic.de

**Immersion sleeve,
installation length 200 mm**



Type:
THMS-200

Order No.:
G 04 14 21

>> Description

Immersion sleeve made of nickel-plated brass with screw-in thread G 1/2".

- For immersion and duct temperature sensors with Ø6.0 mm
- Special lengths on request

>> Technical data

Screw-in thread	G 1/2"
Key-width	SW 27
Dimensions	Outer diameter tube approx. 8.0 mm Installation length incl. thread 200.0 mm
Clamping SKT	Locking screw
Pressure range	max. 16 bar
Operating temperature	-40 ...+400 °C
Weight	112 g

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery times and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronic.de

**Immersion sleeve,
installation length 300 mm**



Type:
THMS-300

Order No.:
G 04 14 22

>> Description

Immersion sleeve made of nickel-plated brass with screw-in thread G 1/2".

- For immersion and duct temperature sensors with Ø6.0 mm
- Special lengths on request

>> Technical data

Screw-in thread	G 1/2"
Key-width	SW 27
Dimensions	Outer diameter tube approx. 8.0 mm Installation length incl. thread 300.0 mm
Clamping SKT	Locking screw
Pressure range	max. 16 bar
Operating temperature	-40 ...+400 °C
Weight	124 g

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery times and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronic.de

**Immersion sleeve,
installation length 150 mm**



Type:
THMS-150

Order No.:
G 04 14 23

>> Description

Immersion sleeve made of nickel-plated brass with screw-in thread G 1/2".

- For immersion and duct temperature sensors with Ø6.0 mm
- Special lengths on request

>> Technical data

Screw-in thread	G 1/2"
Key-width	SW 27
Dimensions	Outer diameter tube approx. 8.0 mm Installation length incl. thread 150.0 mm
Clamping SKT	Locking screw
Pressure range	max. 16 bar
Operating temperature	-40 ...+400 °C
Weight	107 g

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery times and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronic.de

**Immersion sleeve,
installation length 100 mm**



Type:
THES-100

Order No.:
G 04 14 30

>> Description

Immersion sleeve made of stainless steel with screw-in thread G 1/2".

- For immersion and duct temperature sensors with Ø6.0 mm
- Special lengths on request

>> Technical data

Screw-in thread	G 1/2"
Key-width	SW 27
Dimensions	Outer diameter tube approx. 8.0 mm Installation length incl. thread 100.0 mm
Clamping SKT	Locking screw
Pressure range	max. 40 bar
Operating temperature	-150 ...+750 °C
Weight	102 g

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery times and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronic.de

**Immersion sleeve,
installation length 200 mm**



Type:
THES-200

Order No.:
G 04 14 31

>> Description

Immersion sleeve made of stainless steel with screw-in thread G 1/2".

- For immersion and duct temperature sensors with Ø6.0 mm
- Special lengths on request

>> Technical data

Screw-in thread	G 1/2"
Key-width	SW 27
Dimensions	Outer diameter tube approx. 8.0 mm Installation length incl. thread 200.0 mm
Clamping SKT	Locking screw
Pressure range	max. 40 bar
Operating temperature	-150 ...+750 °C
Weight	118 g

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery times and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronic.de

**Immersion sleeve,
installation length 300 mm**



Type:
THES-300

Order No.:
G 04 14 32

>> Description

Immersion sleeve made of stainless steel with screw-in thread G 1/2".

- For immersion and duct temperature sensors with Ø6.0 mm
- Special lengths on request

>> Technical data

Screw-in thread	G 1/2"
Key-width	SW 27
Dimensions	Outer diameter tube approx. 8.0 mm Installation length incl. thread 300.0 mm
Clamping SKT	Locking screw
Pressure range	max. 40 bar
Operating temperature	-150 ...+750 °C
Weight	134 g

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery times and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronic.de

**Immersion sleeve,
installation length 150 mm**



Type:
THES-150

Order No.:
G 04 14 33

>> Description

Immersion sleeve made of stainless steel with screw-in thread G 1/2".

- For immersion and duct temperature sensors with Ø6.0 mm
- Special lengths on request

>> Technical data

Screw-in thread	G 1/2"
Key-width	SW 27
Dimensions	Outer diameter tube approx. 8.0 mm Installation length incl. thread 150.0 mm
Clamping SKT	Locking screw
Pressure range	max. 40 bar
Operating temperature	-150 ...+750 °C
Weight	107 g

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery times and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronic.de

**Mounting flange for sensor tube
with Ø4 mm**



Type:
MF-SKT-4

Order No.:
G 04 14 40

>> Description

Plastic mounting flange for sensors with a Ø4.0 mm sensor tube.

- Mounting option of the flange via 3 holes Ø4.0 mm

>> Technical data

Dimensions	Ø55.0 × 20.0 (diameter × height in mm)
Operating temperature	-35 ...+70 °C
Weight	15 g
Mounting type	surface mounting
Material	plastic, light grey RAL 7035

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery times and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronic.de

**Mounting flange for sensor tube
with Ø12 mm**



Type:
MF-CSTHK

Order No.:
G 04 14 41

>> Description

Plastic mounting flange for sensors with a Ø12.0 mm sensor tube.

- Mounting option of the flange via 4 holes Ø4.0 mm

>> Technical data

Dimensions	Ø57.0 × 23.8 (diameter × height in mm)
Operating temperature	-35 ...+60 °C
Weight	15 g
Mounting type	surface mounting
Material	plastic, light grey RAL 7035

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery times and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronic.de

**Mounting flange for sensor tube
with Ø6 mm**



Type:
MF-SKT-6

Order No.:
G 04 14 42

>> Description

Plastic mounting flange for sensors with a Ø6.0 mm sensor tube.

- Mounting option of the flange via 3 holes Ø4.0 mm

>> Technical data

Dimensions	Ø55.0 × 20.0 (diameter × height in mm)
Operating temperature	-35 ...+70 °C
Weight	15 g
Mounting type	surface mounting
Material	plastic, light grey RAL 7035

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery times and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronic.de

**Mounting flange for sensor tube
with Ø12 mm**



Type:
MF-STH HD-PE

Order No.:
G 04 14 43

>> Description

Plastic mounting flange for sensors with a Ø12.0 mm sensor tube.

- Mounting option of the flange via 2 holes M4

As accessory for mounting with flange, e.g. for F-SKTH PE (G 14 80 60) or F-SKTHVOC PE (G 14 80 61).

>> Technical data

Dimensions	86.6 × 76.0 × 31.7 (diameter wide side × diameter tight side × total height in mm) 12,1 (diameter for sensor tube)
Operating temperature	-50 ...+70 °C
Weight	11.5 g
Mounting type	surface mounting 2× M4
Material	plastic (LLDPE), black

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery times and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronic.de

Empty housing for
surface mounting

Type:
APG F-ZV1.0

Order No.:
G 14 93 22



>> Description

Empty housing for surface mounting with top-hat rail, transparent cover and flange plate for cable bushings.

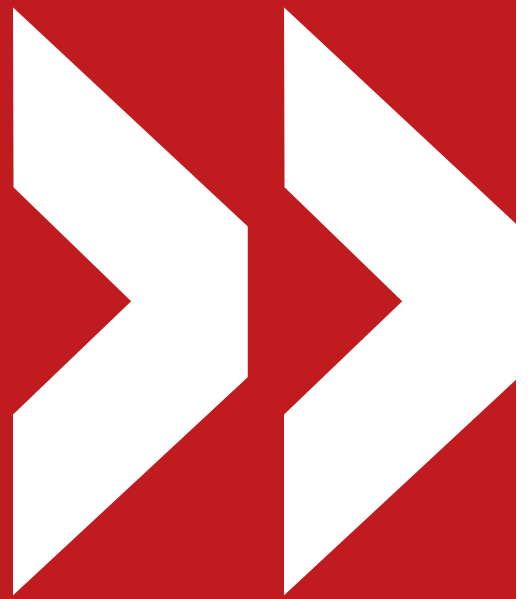
- Cable bushings flange plate:
 - 33.0× max. Ø5,3 mm
 - 9.0× max. Ø6,4 mm
 - 8.0× max. Ø8,3 mm

>> Technical data

Dimensions (without screw connections)	250.0 × 175.0 × 100.0 (length × width × height (installation depth) in mm)
Operation temperature	-40 ...+60 °C
Weight	810 g
Protection	IP 54
Mounting type	Surface mounting
Housing	bottom part: ABS plastic, RAL 7035 light grey cover: polycarbonate, transparent

See product documentation for further technical details. Modifications and mistakes reserved.
Delivery time and availability see price list.

Questions? Your hotline to our company: +49 7161 9584-0, www.se-elektronic.de



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Date 2023-04-01

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SE-ELEKTRONIC GMBH GENERAL TERMS AND CONDITIONS OF SALE AND DELIVERY



I. Conclusion of contract, text form

1. For the sales and other deliveries made by SE-Elektronik GmbH (hereinafter: SE) the following terms and conditions shall apply exclusively.
2. The contract between SE and the customer and any amendments, subsidiary agreements or other clarifications must be in text form unless otherwise agreed in these terms and conditions.
3. Any conflicting general terms and conditions of the customer shall not apply to the contractual relationship and are hereby expressly rejected by SE.

II. Prices and payment terms

1. The prices are quoted ex works, not packed, plus the respectively applicable value added tax.
2. Payments are due strictly net within 30 days of receipt of invoice. Contract fulfilment shall occur upon the credit entry being made in the account of SE. The invoice shall be deemed received within 3 days of dispatch, unless the customer provides evidence of a different date of receipt.
3. Payments must be made free of transaction charges to SE's designated account.
4. The customer may only set off against claims that are undisputed or legally certified.

III. Retention of title

1. The deliverables (conditional commodity) shall remain the property of SE until all its claims have been met that are due to the same against the customer from the business relationship. Inasmuch as the value of all security interests that are due to SE exceeds the amount of all secured claims by more than 10 %, SE will surrender a corresponding part of the security interests at the request of the customer.
2. If the conditional commodity, through connection, becomes part of a new object, which does not belong to the customer, it is agreed that the customer shall transfer joint ownership of the new object to SE and store it for SE free of charge. The ownership share of SE is determined by the ratio of the value of the conditional commodity to the value of the new object.
3. Whilst the retention of title exists, the customer is prohibited from any pledging or assignment as security, and any resale is permitted only in the course of their ordinary course of business. He shall now already assign to SE all claims against its purchasers arising from the resale of the conditional commodity. SE shall accept the assignment. If the conditional commodity is sold together with other commodities that do not belong to SE, the customer shall transfer to SE the share of the claim arising from the resale that corresponds to the invoice amount of the conditional commodity. If conditional commodities which are only partially owned by SE are resold, the share of the claim arising from the resale assigned to SE shall be determined in accordance with the ownership share of SE.
4. In the event of distraints, seizures or other dispositions or interventions by any third parties the customer shall notify SE without delay and immediately inform the pledging third party about the retention of title.

IV. Delivery periods, delay, partial deliveries

1. In order to comply with delivery periods, all documents to be supplied by the customer and all necessary approvals and releases, in particular those relating to plans, shall have to be received on time, and the customer must comply with all agreed terms of payment and other obligations. If these preconditions are not met on time, the relevant periods shall be extended commensurately; this shall not apply if SE is responsible for the delay.

2. In the event of force majeure, strikes or other disruptions to SE's own business or its suppliers' businesses, SE shall be entitled to extend the delivery period by the duration of the interference.
3. If SE is in default, the customer may demand for each full week of any such delay – if he substantiates that he suffered any loss or damage as a result – damages of 0.5 % respectively but in total no more than a maximum of 5 % of the price for that part of the deliveries which due to the delay cannot be used on time or as specified in the contract.
4. If, at the request of the customer, shipping or delivery will be delayed by more than a month after readiness for shipping has been displayed, the customer may be charged a storage fee of 0.5 % of the price of the deliverables for each month that has commenced, but in total a maximum of 5 % only. The proof of higher or lower storage remains the right of the contract parties.
5. Partial deliveries are permissible inasmuch as they are reasonable for the customer.

V. Industrial property rights and rights of use, defects of title

1. The customer shall acquire rights of use to the software (business software, firmware, software tools, configuration software, hereinafter referred to jointly as "Software"), the corresponding documentation and other documents in accordance with the Software Licensing Agreement. He may use the software for the contractually agreed purposes on the agreed devices. All other software rights remain with SE. The customer undertakes to accept a new program update, which shall be provided free of charge, provided the contractually agreed range of functions remains unchanged and any adaptation or transition does not involve an unacceptable amount of work. Otherwise SE shall be freed from providing any warranty, unless the services can also be provided for the old version at no additional expense.
2. The software, the documentation and all other documents and data carrier material are protected by copyright. The customer must not make accessible or transfer to third parties, in whole or in part, the software (including updates) or the associated documentation and other documents that it receives as part of the contract without the prior written consent of SE. The customer may create the required number of backup copies for secure operation in a machine-readable format. The SE copyright note must be added to these copies and they must be labelled as backup copies.
3. The customer is not permitted to:
 - a. Modify, analyse or combine the software, in whole or in part, integrate it into other software or reverse engineer the various production stages of the software; this shall apply in particular to retranslation of the program code into other code forms (decompiling) and disassembly. If the customer requires interface information to facilitate interoperability with other software, he shall be entitled to take action in accordance with the above clause to enable its own personal use, if SE is not prepared or not able to provide the required information, despite written request. If the customer takes action in accordance with the above clause, he and/or his employees may use the information obtained exclusively for internal purposes. Any other use, in particular commercial use or transfer to third parties, is inadmissible.
 - b. Reproduce the written material.

SE-ELEKTRONIC GMBH GENERAL TERMS AND CONDITIONS OF SALE AND DELIVERY



- ////////////////////////////////////
- c. Copy or otherwise reproduce the software, in whole or in part, in its original or a modified format or when mixed with other software or included in other software (this excludes the creation of copies of the data processing program for the intended use and for data backup).
 - d. Change or remove labels and copyright marks on the software and the data carriers.
4. Use of the software is only permitted in conjunction with the purchased hardware. The software shall only be transferred to third parties permanently if the software and all of the documentation is transferred in full to the third party (i.e. documented transfer of all copies and permanent deletion of all affected files by the customer) and if the third party confirms its agreement with these General Terms and Conditions to SE. The customer undertakes to inform SE without delay of any transfer of the software and state the name and address of the third party in writing. On termination of the transfer agreement the original data carriers provided to the customer and all backup copies he holds must be returned and saved software files must be deleted. This excludes system backups from which the software cannot be started directly and from which the separate deletion of the transferred program files would be impossible or disproportionately difficult.
5. The customer itself must make appropriate provisions for an isolated incident where the software or the system, in whole or in part, does not work properly e.g. with daily data backups and regular inspection of the work results.
6. Inasmuch as nothing has been agreed to the contrary, SE has a duty to perform the delivery only in the country of the delivery location free from the industrial and intellectual copyrights of any third parties and other absolute rights (hereinafter designated as: Property rights). Inasmuch as a third party raises justified claims against the customer due to property rights being injured by deliveries performed by SE and utilised by the customer in compliance with the contract, SE shall be liable to the customer as follows:
- a. At its own discretion and at its own cost SE shall either obtain a right of use for the performances affected, modify the same such that the property right will not be injured, or replace the same. If this is not possible for SE in accordance with acceptable terms, the customer shall be entitled to the statutory rights of rescission or abatement.
 - b. The obligation of the supplier to pay damages is governed by Clause VI.
 - c. The above-mentioned obligations by SE only exist provided that the customer informs SE immediately and in writing about any such claims asserted by the third party, does not recognise any such injury and SE retains the right to all defence measures and settlement negotiations. If the customer ceases utilising the deliverable for reasons of damage reduction or other important reasons, he is obliged to inform the third party that any such cessation of use does not signify any acceptance that there has been an injury of property rights.
7. Any claims by the customer are excluded to the extent that he is responsible for the injury of property rights.
8. Any claims by the customer are also excluded inasmuch as the injury of property rights is caused by special customer requirements, by an application that could not be foreseen by SE or by the circumstance that the delivery is modified by the customer or is used together with products not supplied by SE.
9. In the event of any injuries of property rights the customer claims governed by Clause VI shall apply accordingly. If there are any other defects in title, the provisions of Clause VI shall apply accordingly.

10. With regard to cost estimates, drawings and other documents (hereinafter designated as: Documents) SE reserves all its rights of exploitation in terms of property and copyright - without any restrictions. These documents may only be made accessible to third parties following express prior approval by SE, and must be returned immediately whenever requested, if the order is not granted to SE. Sentences 1 and 2 apply correspondingly with regard to customer documents; but these may be made accessible to third parties that SE has permissibly transferred deliveries to.

VI. Rights arising from product defects, limitation of liability

- 1. The statutory rights of the customer in accordance with Section 437 No. 1 of the BGB [German Civil Code] shall apply in accordance with the following provision: Insofar as deliverables are fully or partially unusable, SE shall, by its own choice, made at its reasonable discretion, remedy the defects free of charge or supply non-defective deliverables free of charge. SE shall not be liable for damage due to natural wear and tear that is commensurate with the duration of use.
- 2. SE must be notified of any defects without delay once they have been identified. This does not affect the duties of the customer in accordance with Sections 377 and 378 of the HGB [German Commercial Code]. The rejected deliverables must be kept and made available to SE.
- 3. For any software repair the customer shall provide, on request if necessary, the information required for fault diagnosis and elimination (in as much detail as possible and in a reproducible format for identified defects), and in the event of repair by long-distance data transmission or telephone, he shall provide SE with a trained, competent employee who will collaborate on the repair. In the event of rectification on site, we must be given unobstructed access to the defective goods and, if necessary, other work with the software must be stopped.
- 4. All other statutory rights of the customer shall apply in accordance with the following provisions:
 - a. Claims for damages, regardless of the legal basis, are excluded unless SE is accused of malicious intent or gross negligence or SE is liable for malicious intent or gross negligence of its legal representatives or vicarious agents.
 - b. The above limitation of liability shall not apply if the claim for damages results from the breach of significant contractual obligations. If SE negligently breaches a essential contractual obligation, the obligation to pay compensation shall be limited to the compensation of damage that is typical for the type of contract and foreseeable at the time of the conclusion of contract. Essential contractual obligations are those obligations which must be fulfilled in order for proper execution of the contract to take place, and the observance of which the contractual partner can regularly rely on.
 - c. Liability in the event of damage resulting from death, physical injury or damage to health, liability in the event of warranties and liability in accordance with the statutory product liability regulations remain unaffected.
 - d. The customer undertakes to notify SE without delay in writing of damage and loss for which SE must pay, or to have such damage and loss recorded by SE.
- 5. Unless otherwise specified in these General Terms and Conditions, SE does not assume any liability.
- 6. The costs of return will only be reimbursed by SE if this takes place at the request of SE.

SE-ELEKTRONIC GMBH GENERAL TERMS AND CONDITIONS OF SALE AND DELIVERY



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7. The customer is responsible for providing evidence that the conditions of the claims asserted by him have arisen due to a breach of obligation. If it becomes apparent that a claim for subsequent fulfilment does not exist (e.g. user error, improper handling of the goods, lack of a defect), the customer shall reimburse all costs incurred in relation to the inspection of the goods and the subsequent fulfilment, unless it is not responsible for the claim against SE.
 8. Claims for defects shall expire 12 months after supply of the deliverable, unless Clauses VI. 4 a or b apply. In these cases the statutory limitation period shall apply.

VII. Final Provisions

1. If the customer is a businessman or equivalent, the sole place of jurisdiction is Göppingen for all disputes arising directly or indirectly from the contract relationship. However, SE shall also be entitled to take legal action at the domicile of the customer.
2. German substantive law shall apply to the legal relationships in connection with this contract subject to the exclusion of the United Nations Convention on Contracts for the International Sale of Goods (CISG).
3. If a provision is or becomes ineffective, this shall not affect the validity of the remaining provisions. In such a case the customer and SE undertake to replace the ineffective provision with an effective provision that comes as close as possible to the commercial purpose of the ineffective provision.