

Series

# 09

*In-Cabin Keypads and Rotary Cursor Controller.*

[www.eao.com/09](http://www.eao.com/09)



Company IATF 16949 certified



# Series 09 In-Cabin Keypads and RCC

## *Modular and reliable, for vehicle interiors.*

These configurable HMIs are developed in accordance with IATF 16949 and can be combined within a modular design – for reliable and safe E1 applications in the interiors of heavy-duty and special vehicles.

Technological advances and high-tech vehicle design are of growing importance for both heavy-duty and special vehicles. This trend is reflected by the Series 09 In-Cabin Keypads and Rotary Cursor Controller with their high-quality modular automotive design, which provides up to IP5K4 front protection. These durable HMIs are developed in accordance with the internationally recognised automotive standard IATF 16949 and feature impressive application-specific configuration options for the illumination and the communication interfaces as well as the possibility to make a customised selection and arrangement of the symbols.

Modern drivers' workstations in heavy-duty and special vehicles, as well as the applications in their interior areas, pose increasingly demanding requirements in terms of the safety, functionality, reliability and the design of their operating systems. This is as true for vehicles and machines used for construction and agriculture as it is for fire engines, refuse collection and cleaning vehicles, and trucks or buses. As a leading manufacturer and developer of application-specific and ergonomic HMI components and systems in the automotive industry we have a deep understanding of design considerations in respect of ergonomic and application-specific HMI control units.

This is hugely beneficial for our customers, enabling them to access individual solutions for applications in the field of heavy-duty and special vehicles.

Classic applications inside a vehicle, such as light and headlight control, vehicle adjustment and attachments, are just as much a part of this as specific applications in the respective vehicle type.

#### **Typical applications**

- Vehicle headlights, position lights and sidelights
- Windscreen washing system and air conditioning system
- Hazard warning lights
- Navigation in display menus or user interfaces
- All-round lighting and warning signals
- Controlling side supports, cleaning brushes or a mower
- Controlling pumps or hydraulics
- Adjustment of parameters and settings

#### **Modular design and easy installation**

The low installation depth and quick snap-in or screw mounting enable flexible and straightforward installation with either vertical or horizontal alignment. At the same time, the In-Cabin Keypads and rotary control can be combined with one another on a modular basis. Other product variants such as a keypad with two pushbuttons provide additional flexibility.

#### **Individual halo-ring and symbol illumination**

The HMIs offer freely configurable RGB or single LED halo-ring illumination. The white LED symbol illumination can also be controlled separately. Constant illumination, slow or fast flashing, or pulsing illumination can be programmed as illumination functions. This creates an almost-limitless variety of illumination options, and therefore a huge range of potential applications – for rapid identification of the HMI, functional illumination, and intuitive, visual HMI feedback.

#### **Interchangeable ISO 7000 or customer-specific symbols**

The symbol inserts for the pushbuttons can be selected precisely in accordance with customer requirements, and specific to the relevant application. They can be inserted at 90-degree increments and feature innovative illumination – whether for ISO 7000 or customer-specific symbols. The brightness of the keypad's backlighting can be adjusted to ensure the HMIs are visible in all lighting conditions.

#### **Safety in the operating concept**

Safety takes centre stage when operating special vehicles. The HMI modules from EAO offer numerous safety features and thus provide the best possible support in the respective safety concepts of the vehicle. Whether diagnostics-capable switching contacts or various hardware and software features, such as active temperature management or the detection of jammed buttons.

The rotary control of the in-cabin modules also has mechanical protection against unintentional touching and actuation.

# Advantages.

- Programmable RGB halo ring and symbol illumination (can be controlled separately)
- High-quality ergonomic automotive design with IP5K4 front protection
- Reliable HMI developed according to recognised automotive standard IATF 16949
- Available with CAN bus connection or as hard-wired variants
- Versatile application options thanks to a wide range of functions and flexible symbols

## Manufacturing competence and IATF 16949

The Series 09 modules are produced in our automotive competence centre located in Germany. This allows us to apply years of comprehensive experience as an original equipment manufacturer (OEM) in the automotive industry to the heavy-duty and special vehicle markets. At the same time, this offers EAO customers high-quality, durable, and intuitive products and services. The development and production process is aligned and executed according to automotive standards (IATF 16949, 100 % product traceability, 100 % EOL testing, etc.).

## More than an expert – A partner of the automotive industry

As a global partner to major automotive manufacturers and suppliers, we provide our customers with high-quality products and services. Through many decades of commitment and consultation with the automotive industry, EAO is an established global supplier of operator control panels, sub-assemblies, switches, buttons and indicators.

## Mechanical characteristics

- Actuating force: approx. 6N
- Overload force: 250N
- Mechanical lifetime: up to 1 million cycles of operation
- Impact resistance: IEC 62262 IK07

## Electrical characteristics

- Operating voltage range: 8–32VDC

## Illumination

- The halo-ring and symbol illumination can be configured independently of one another
- Halo-ring effects: flashing, pulsing, colour change (depending on product version)
- LED symbol illumination
  - Colour: white LED
  - Luminance: approx. 20 cd/m<sup>2</sup> (dimnable)

- LED halo-ring illumination
  - RGB or single-colour LED (depending on product version)
  - Luminance: approx. 500 cd/m<sup>2</sup> (dimnable)

## Rotary pushbutton

- Rotation function: 360°, 20 detents, infinitely variable
- Tilt function: X/Y, digital with micro switch

The digital joystick function is implemented with a 3-dimensional tilting movement, which enables safe operation even under difficult operating conditions. This actuation method ensures reliable and accurate operation and guards against switching errors.

## Symbols

- Symbols in accordance with ISO 7000
- Customer-specific symbols on request

## Ambient conditions

- Operating temperature: –40 °C ... +85 °C
- Storage temperature: –40 °C ... +85 °C

## Protection degree

- IP5K4 in accordance with ISO 20653 (front side in installed state)
- IP20 in accordance with ISO 20653 (rear side)

## Approvals and conformities

- Developed and produced according to IATF 16949
- CE

Further information is available under [www.eao.com/09](http://www.eao.com/09)



## Customer-specific product diversity.

Series 09 In-Cabin Keypads with 6 pushbuttons are available in SUPER, PLUS and BASIC variants. These differ in terms of illumination options and the communication interface. The hard-wired BASIC product variant is available, as an additional option, in a 2-pushbutton version.





With this wide range of variants, customers can choose between a CAN bus connection or hard-wired version depending on their application, and they can further customise their keypad thanks to a variety of illumination options and interchangeable custom or ISO 7000 symbols – for optimal integration of the HMI in the vehicle interior.

Product	Variant	Symbol illumination	Halo-ring illumination	Communication protocol	Switching element	IP protection class	Plug	Switching function
Keypad 6PB 	SUPER	White LED	RGB, freely configurable	CANopen, J1939	Electrical mechanical switching element	IP5K4	TYCO 1745000-3/ 1745000-4	Pushbutton
Keypad 6PB 	PLUS	White LED	Red LED (other colours on request)	CANopen, J1939	Electrical mechanical switching element	IP5K4	TYCO 1745000-3/ 1745000-4	Pushbutton
Keypad 6PB 	BASIC	White LED	Red LED	N.A. (hard-wired)	Electrical mechanical switching element	IP5K4	TYCO 1745000-3/ 1745000-4	Pushbutton
Keypad 2PB 	BASIC	White LED	Red LED	N.A. (hard-wired)	Electrical mechanical switching element	IP5K4	TYCO 1745000-3/ 1745000-4	Pushbutton

### Rotary Cursor Controller and Rotary Push Button

Depending on the intended use, the Series 09 Rotary Push-buttons are divided into two product lines. While the RPB (Rotary pushbutton) product offers the functions of rotary selection and pushbutton selection, the RCC (Rotary Cursor Controller) is also equipped with a tilting function in the X/Y direction.

This enables full control over the cursor, which is ideal for use as a display controller or for navigation in user menus. Both the RPB and RCC are available in the SUPER version with RGB illumination and the PLUS version with Red illumination.

Product	Variant	Symbol illumination	Halo-ring illumination	Communication protocol	Switching element	IP protection class	Plug	Switching function
RCC 2PB 	SUPER	White LED	RGB	CANopen, J1939	Electrical mechanical switching element	IP5K4	TYCO 1745000-3/1745000-4	Pushbutton: Push RCC: Rotate/ Push/Tilt
RCC 2PB 	PLUS	White LED	Red LED (other colours on request)	CANopen, J1939	Electrical mechanical switching element	IP5K4	TYCO 1745000-3/1745000-4	Pushbutton: Push RCC: Rotate/ Push/Tilt
RPB 2PB 	SUPER	White LED	RGB	CANopen, J1939	Electrical mechanical switching element	IP5K4	TYCO 1745000-3/1745000-4	Pushbutton: Push RPB: Rotate/ Push
RPB 2PB 	PLUS	White LED	Red LED (other colours on request)	CANopen, J1939	Electrical mechanical switching element	IP5K4	TYCO 1745000-3/1745000-4	Pushbutton: Push RPB: Rotate/ Push

# 6-pushbutton Keypad SUPER.



## Mechanical characteristics

- Actuating force: approx. 6.5 N
- Overload force: 250 N
- Mechanical lifetime: up to 1 million cycles of operation (B10)
- Impact resistance: IEC 62262 IK07

## Electrical characteristics

- Operating voltage range 8-32 VDC LoadDump A or B

## Illumination

- Halo-ring and symbol illumination can be configured independently of one another
- Halo-ring effects: flashing, pulsing, colour change
- LED symbol illumination
  - Colour: white
  - Luminance: approx. 20 cd/m<sup>2</sup> (dimnable)
- LED halo-ring illumination
  - Colour: multi-colour RGB
  - Luminance: approx. 500 cd/m<sup>2</sup> (dimnable\*)

\*depending on the respective colour

## Symbols

- Symbols in accordance with ISO 7000
- Customer-specific symbols on request

## Connections/interfaces

- CAN interface (ISO 11898)
- CAN protocols: CANOpen (CiA 401), CAN J1939
- Baud rate 125, 250, 500, 1000 kBit/s (configurable through software)
- Integrated plug recess, compatible with TE 8P-1745000-3

## Protection degree

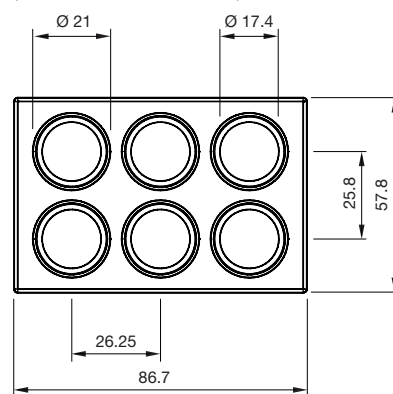
- IP5K4 in accordance with ISO 20653 (front side in installed state)
- IP20 in accordance with ISO 20653 (rear side)

## Ambient conditions

- Operating temperature -40°C ... +85°C
- Storage temperature -40°C ... +85°C

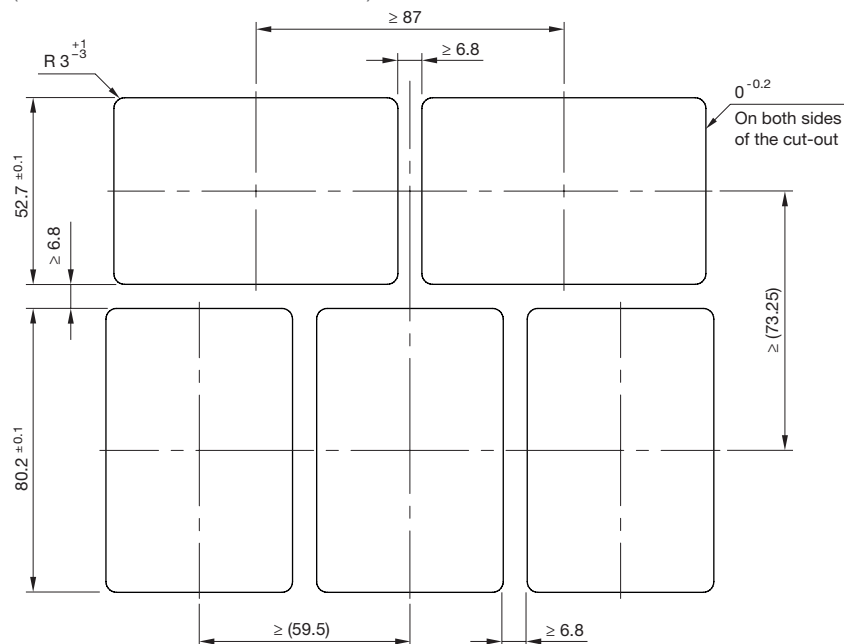
## Dimensions

(All dimensions in mm)



## Mounting cut-out

(Panel thickness 1.0 mm ... 4.0 mm)

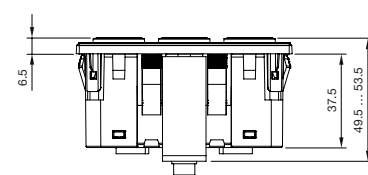


## Mounting

### Clip-in mounting



### Screw-in mounting



The keypad can be mounted into front plate thicknesses between 1 and 4 mm. A front plate of at least 2 mm thickness is recommended. Non-compliance with these specifications may lead to damage to the locking tongue.

# 6-pushbutton Keypad PLUS.



## Mechanical characteristics

- Actuating force: approx. 6.5 N
- Overload force: 250 N
- Mechanical lifetime: up to 1 million cycles of operation (B10)
- Impact resistance: IEC 62262 IK07

## Electrical characteristics

- Operating voltage range 8-32 VDC LoadDump A or B

## Illumination

- Halo-ring and symbol illumination can be configured independently of one another  
Halo-ring effects: flashing, pulsing, colour change
- LED symbol illumination
  - Colour: white
  - Luminance: approx. 20 cd/m<sup>2</sup> (dimnable)
- LED halo-ring illumination
  - Colour: red (other colours on request)
  - Luminance: approx. 500 cd/m<sup>2</sup> (dimnable)

## Symbols

- Symbols in accordance with ISO 7000
- Customer-specific symbols on request

## Connections/interfaces

- CAN interface (ISO 11898)
- CAN protocols: CANOpen (CiA 401), CAN J1939
- Baud rate 125, 250, 500, 1000 kBit/s (configurable through software)
- Integrated plug recess, compatible with TE 8P-1745000-3

## Protection degree

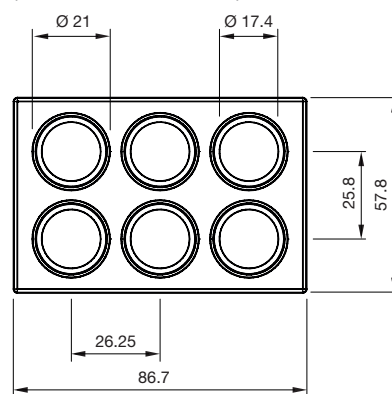
- IP5K4 in accordance with ISO 20653 (front side in installed state)
- IP20 in accordance with ISO 20653 (rear side)

## Ambient conditions

- Operating temperature -40°C ... +85°C
- Storage temperature -40°C ... +85°C

## Dimensions

(All dimensions in mm)

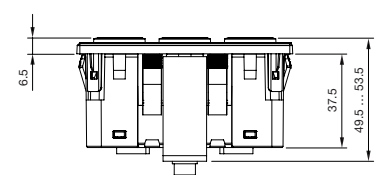


## Mounting

Clip-in mounting



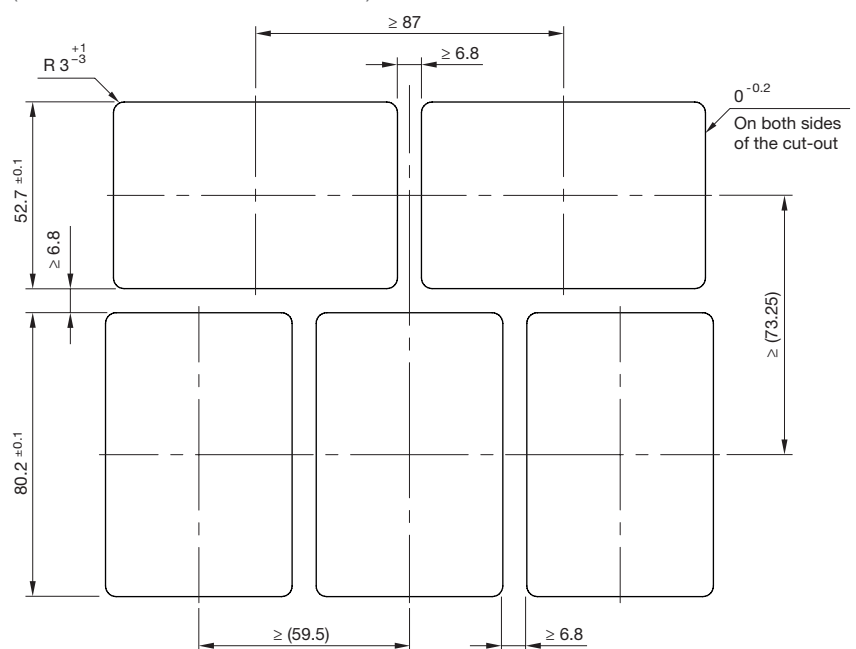
Screw-in mounting



The keypad can be mounted into front plate thicknesses between 1 and 4 mm. A front plate of at least 2 mm thickness is recommended. Non-compliance with these specifications may lead to damage to the locking tongue.

## Mounting cut-out

(Panel thickness 1.0 mm ... 4.0 mm)



## 6-pushbutton Keypad BASIC.



### Mechanical characteristics

- Actuating force: approx. 6.5 N
- Overload force: 250 N
- Mechanical lifetime: up to 1 million cycles of operation (B10)
- Impact resistance: IEC 62262 IK07

### Electrical characteristics

- Operating voltage range:  
8 – 18 VDC or 18 – 32 VDC  
Operating voltage of illumination for use in 12 V or 24 V applications.  
Available with the option of diagnostic switching contacts
- Max. power:  
1 W (without NAMUR)  
0.25 W (with NAMUR)
- Max. current:  
30 mA
- Min. current:  
2 mA
- Max. voltage:  
32 V
- Contact resistance (unactuated):  
> 2 M $\Omega$  (without NAMUR)  
1 k $\Omega$   $\pm$  4 % (with NAMUR)
- Contact resistance (actuated):  
< 10  $\Omega$  (without NAMUR)  
110  $\Omega$   $\pm$  10  $\Omega$  (with NAMUR)

### Illumination

- Halo-ring and symbol illumination can be configured independently of one another

#### LED symbol illumination

- Colour: white
- Luminance: approx. 20 cd/m<sup>2</sup>
- LED halo-ring illumination
- Colour: red (other colours on request)
- Luminance: approx. 500 cd/m<sup>2</sup>

### Symbols

- Symbols in accordance with ISO 7000
- Customer-specific symbols on request

### Connections/interfaces

- Integrated plug recess, compatible with TE 8P-1745000-3/8P-1745000-4, 8-pin

### Protection degree

- IP5K4 in accordance with ISO 20653 (front side in installed state)
- IP20 in accordance with ISO 20653 (rear side)

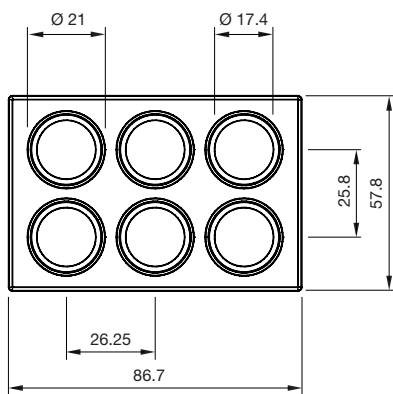
### Ambient conditions

- Operating temperature  
–40 °C ... +85 °C
- Storage temperature  
–40 °C ... +85 °C

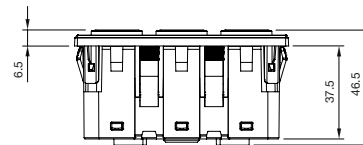




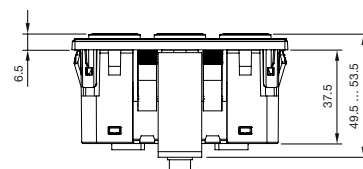
**Dimensions**  
(All dimensions in mm)



**Mounting**  
Clip-in mounting

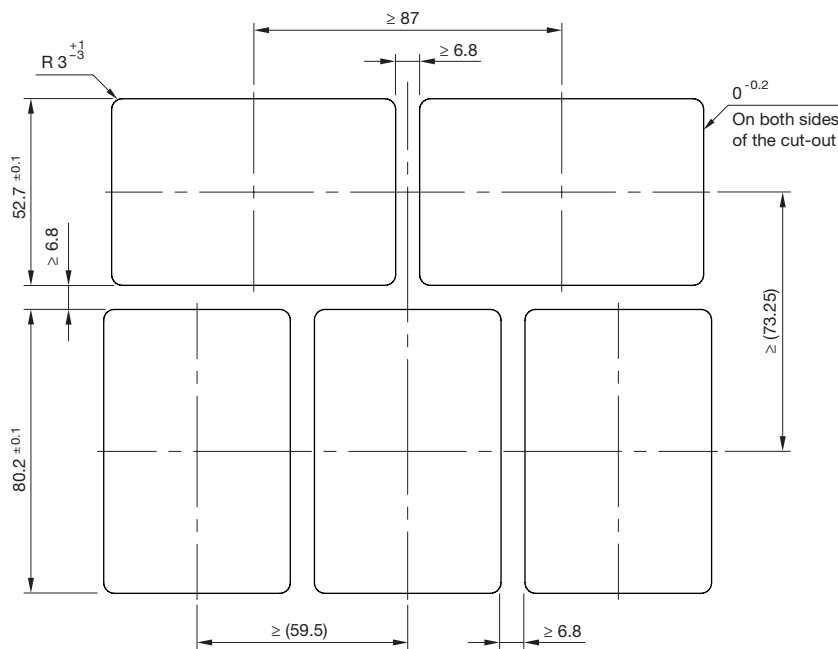


Screw-in mounting



The keypad can be mounted into front plate thicknesses between 1 and 4 mm. A front plate of at least 2 mm thickness is recommended. Non-compliance with these specifications may lead to damage to the locking tongue.

**Mounting cut-out**  
(Panel thickness 1.0 mm ... 4.0 mm)



# 2-pushbutton Keypad BASIC.



### Mechanical characteristics

- Actuating force: approx. 6.5 N
- Overload force: 250 N
- Mechanical lifetime: up to 1 million cycles of operation (B10)
- Impact resistance: IEC 62262 IK07

### Electrical characteristics

- Operating voltage range 8 – 32 VDC  
Available with the option of diagnostic switching contacts (NAMUR)
- Max. power:  
1 W (without NAMUR)  
0.25 W (with NAMUR)
- Max. current:  
30 mA
- Min. current:  
2 mA
- Max. voltage:  
32 V
- Contact resistance (unactuated):  
> 2 MΩ (without NAMUR)  
1 kΩ ± 4 % (with NAMUR)
- Contact resistance (actuated):  
< 10 Ω (without NAMUR)  
110 Ω ± 10 Ω (with NAMUR)

### Illumination

- Halo-ring and symbol illumination can be configured independently of one another
- LED symbol illumination
  - Colour: white
  - Luminance: approx. 20 cd/m<sup>2</sup> (dimnable)
- LED halo-ring illumination
  - Colour: red (other colours on request)
  - Luminance: approx. 500 cd/m<sup>2</sup> (dimnable)

### Symbols

- Symbols in accordance with ISO 7000
- Customer-specific symbols on request

### Connections/interfaces

- Integrated plug recess, compatible with TE 8P-1745000-3/8P-1745000-4, 8-pin

### Protection degree

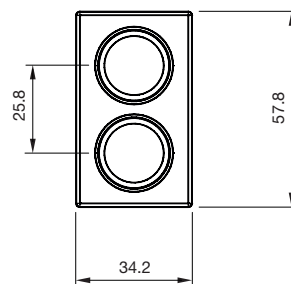
- IP5K4 in accordance with ISO 20653 (front side in installed state)
- IP20 in accordance with ISO 20653 (rear side)

### Ambient conditions

- Operating temperature  
–40 °C ... +85 °C
- Storage temperature  
–40 °C ... +85 °C

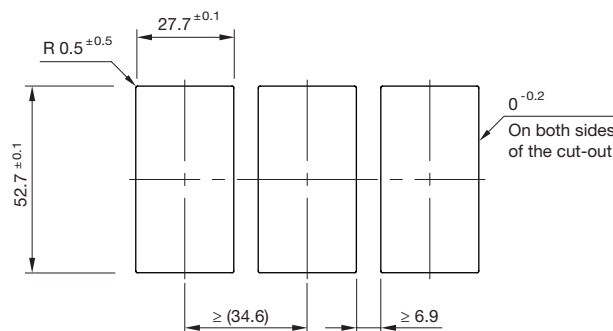
### Dimensions

(All dimensions in mm)



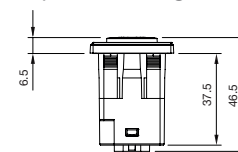
### Mounting cut-out

(Panel thickness 1.0 mm ... 4.0 mm)

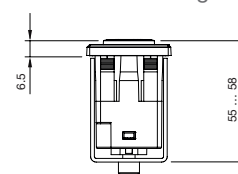


### Mounting

#### Clip-in mounting



#### Screw-in mounting



The keypad can be mounted into front plate thicknesses between 1 and 4 mm. A front plate of at least 2 mm thickness is recommended. Non-compliance with these specifications may lead to damage to the locking tongue.

## Rotary Cursor Controller and Rotary Pushbutton.

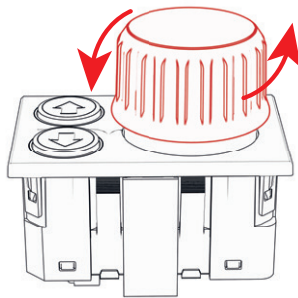
The Series 09 Rotary Cursor Controller and Rotary Pushbutton Modules are designed for use in special vehicles, trucks and buses. They cover the functions of a rotary control, a pushbutton and, in the case of the Rotary Cursor Controller, also a digital joystick. The modules are ideal for control and selection within a vehicle display or navigation in a user menu.

The two additional pushbuttons supplement the functionalities of the RCC and RPB and can be configured with individual HALO ring and symbol illumination and symbols depending on the product variant.

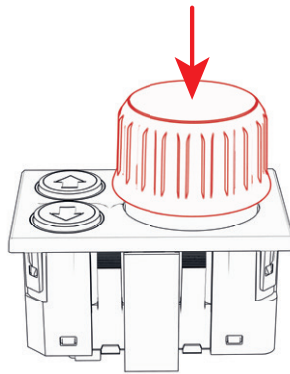
The joystick function of the Rotary Cursor Controller is implemented with a three-dimensional tilt function. The tilt function in the X/Y direction has been designed with integrated protection against unintentional contact and actuation, so that safe operation is possible even under difficult conditions, for example under strong movement.

With this high level of safety, our Series 09 in-cabin modules stand not only for intuitive, but also for reliable operation in the vehicle interior.

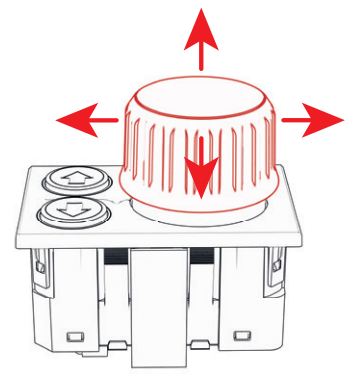
### Functions



"Rotate" function.

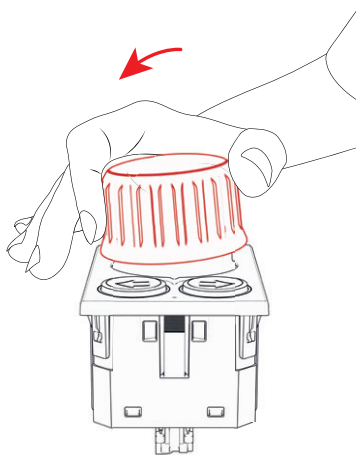


"Push" function.

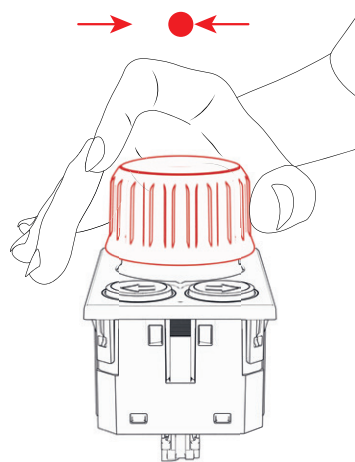


"Joystick" function.

### Operation



Intuitive operation with two or three fingers.



Protection against unintentional actuation through lateral contact.

# In-Cabin Rotary Cursor Controller SUPER.



## Mechanical characteristics

- Actuating force:
  - Buttons approx. 6.5 N
  - Rotary Switch approx. 12 N
- Overload force: 250 N
- Mechanical lifetime:
  - Buttons 1 million cycles of operation (B10)
  - Rotary Switch 500 000 cycles
- Impact resistance: IEC 62262 IK07

## Rotary pushbutton

- Rotation function: 360°, 20 detents, incremental
- Tilt angle: X/Y, 4°

## Electrical characteristics

- Operating voltage 8-32 VDC
- LoadDump A or B

## Illumination (Buttons)

- Halo-ring and symbol illumination can be configured independently of one another
- Halo-ring effects: flashing, pulsing, colour change

- LED symbol illumination
    - Colour: white
    - Luminance: approx. 20 cd/m<sup>2</sup> (dimnable)
  - LED halo-ring illumination
    - Colour: multi-colour RGB
    - Luminance: approx. 500 cd/m<sup>2</sup> (dimnable\*)
- \*depending on the respective colour
- Baud rate 125, 250, 500, 1000 kBit/s (configurable through software)
  - Integrated plug recess, compatible with TE 8P-1745000-3

## Protection degree

- IP5K4 in accordance with ISO 20653 (front side in installed state)
- IP20 in accordance with ISO 20653 (rear side)

## Ambient conditions

- Operating temperature -40°C ... +85°C
- Storage temperature -40°C ... +85°C

## Standards and certifications

- Developed and produced according to IATF 16949
- CE

## Symbols

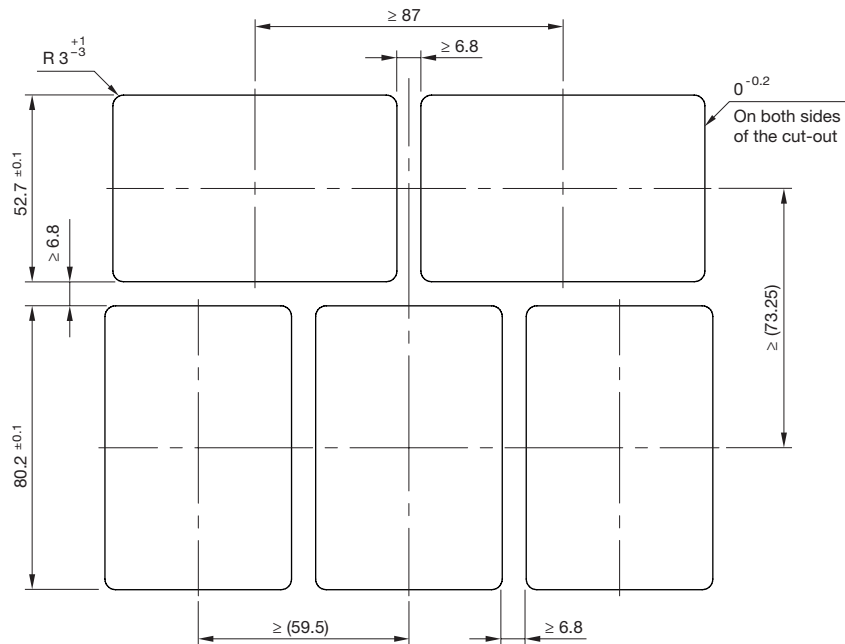
- Symbols in accordance with ISO 7000
- Customer-specific symbols on request

## Connections/interfaces

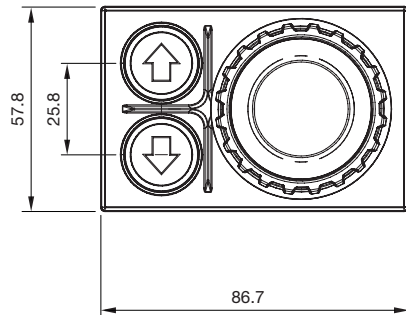
- CAN interface (ISO 11898)
- CAN protocols: CANOpen (CiA 401), CAN J1939

## Mounting cut-out

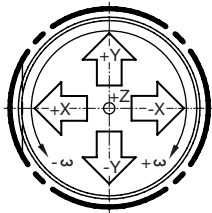
(Panel thickness 1.0 mm ... 4.0 mm)



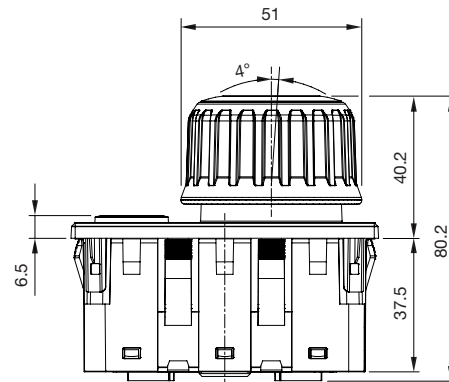
**Dimensions**  
(All dimensions in mm)



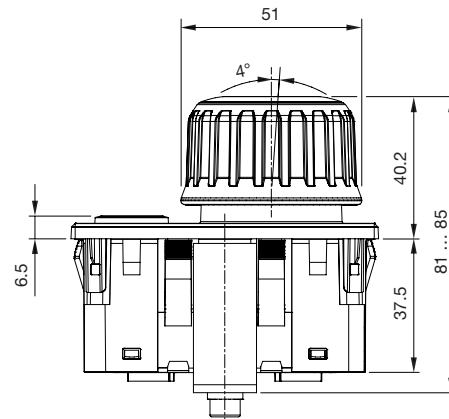
**Orientation**



**Mounting**  
Clip-in mounting



**Screw-in mounting**



The keypad can be mounted into front plate thicknesses between 1 and 4 mm. A front plate of at least 2 mm thickness is recommended. Non-compliance with these specifications may lead to damage to the locking tongue.

# In-Cabin Rotary Cursor Controller PLUS.



## Mechanical characteristics

- Actuating force:
  - Buttons approx. 6.5 N
  - Rotary Switch approx. 12 N
- Overload force: 250 N
- Mechanical lifetime:
  - Buttons 1 million cycles of operation (B10)
  - Rotary Switch 500 000 cycles
- Impact resistance: IEC 62262 IK07

## Rotary push-button

- Rotation function: 360°, 20 detents, incremental
- Tilt angle: X/Y, 4°

## Electrical characteristics

- Operating voltage 8-32 VDC
- LoadDump A or B

## Illumination (Buttons)

- Halo-ring and symbol illumination can be configured independently of one another
- Halo-ring effects: flashing, pulsing, colour change

- LED symbol illumination
    - Colour: white
    - Luminance: approx. 20 cd/m<sup>2</sup> (dimnable)
  - LED halo-ring illumination
    - Colour: red (other colours on request)
    - Luminance: approx. 500 cd/m<sup>2</sup> (dimnable\*)
- \*depending on the respective colour
- Baud rate 125, 250, 500, 1000 kBit/s (configurable through software)
  - Integrated plug recess, compatible with TE 8P-1745000-3

## Protection degree

- IP5K4 in accordance with ISO 20653 (front side in installed state)
- IP20 in accordance with ISO 20653 (rear side)

## Symbols

- Symbols in accordance with ISO 7000
- Customer-specific symbols on request

## Ambient conditions

- Operating temperature -40°C ... +85°C
- Storage temperature -40°C ... +85°C

## Connections/interfaces

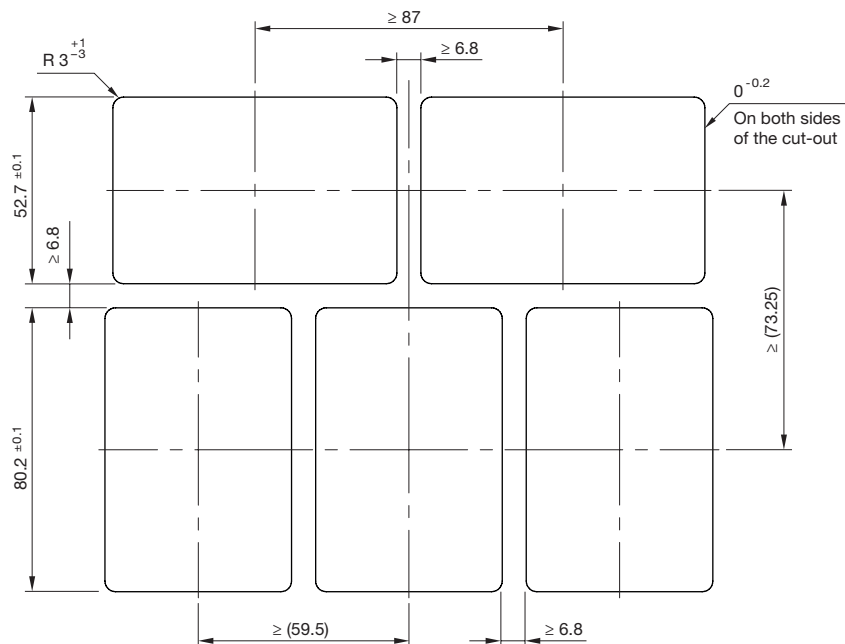
- CAN interface (ISO 11898)
- CAN protocols: CANOpen (CiA 401), CAN J1939

## Standards and certifications

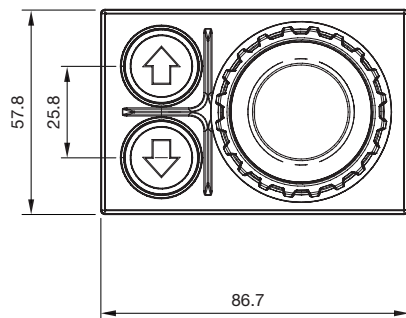
- Developed and produced according to IATF 16949
- CE

## Mounting cut-out

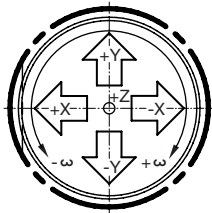
(Panel thickness 1.0 mm ... 4.0 mm)



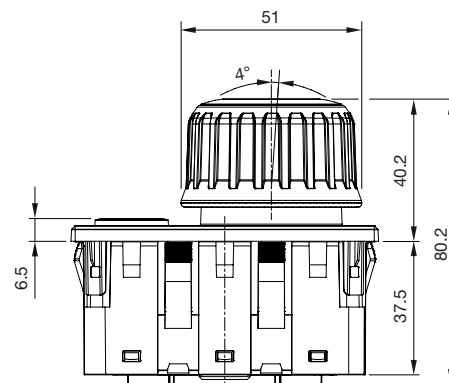
**Dimensions**  
(All dimensions in mm)



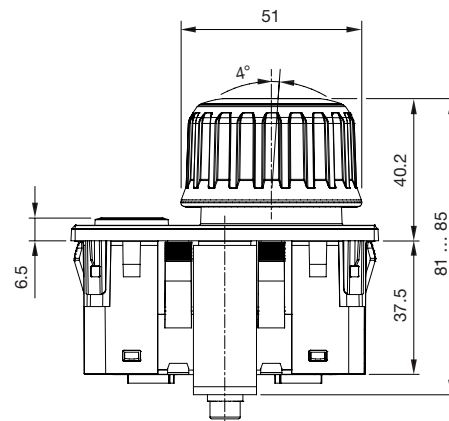
**Orientation**



**Mounting**  
Clip-in mounting



**Screw-in mounting**



The keypad can be mounted into front plate thicknesses between 1 and 4 mm. A front plate of at least 2 mm thickness is recommended. Non-compliance with these specifications may lead to damage to the locking tongue.

# In-Cabin Rotary Push Button SUPER.



## Mechanical characteristics

- Actuating force:
  - Buttons approx. 6.5 N
  - Rotary Switch approx. 12 N
- Overload force: 250 N
- Mechanical lifetime:
  - Buttons 1 million cycles of operation (B10)
  - Rotary Switch 500 000 cycles
- Impact resistance: IEC 62262 IK07

## Rotary pushbutton

- Rotation function: 360°, 20 detents, incremental

## Electrical characteristics

- Operating voltage 8-32 VDC  
LoadDump A or B

## Illumination (Buttons)

- Halo-ring and symbol illumination can be configured independently of one another  
Halo-ring effects: flashing, pulsing, colour change

- LED symbol illumination
    - Colour: white
    - Luminance: approx. 20 cd/m<sup>2</sup> (dimnable)
  - LED halo-ring illumination
    - Colour: multi-colour RGB
    - Luminance: approx. 500 cd/m<sup>2</sup> (dimnable\*)
- \*depending on the respective colour
- Baud rate 125, 250, 500, 1000 kBit/s (configurable through software)
  - Integrated plug recess, compatible with TE 8P-1745000-3

## Protection degree

- IP5K4 in accordance with ISO 20653 (front side in installed state)
- IP20 in accordance with ISO 20653 (rear side)

## Ambient conditions

- Operating temperature  
-40°C ... +85°C
- Storage temperature  
-40°C ... +85°C

## Standards and certifications

- Developed and produced according to IATF 16949
- CE

## Symbols

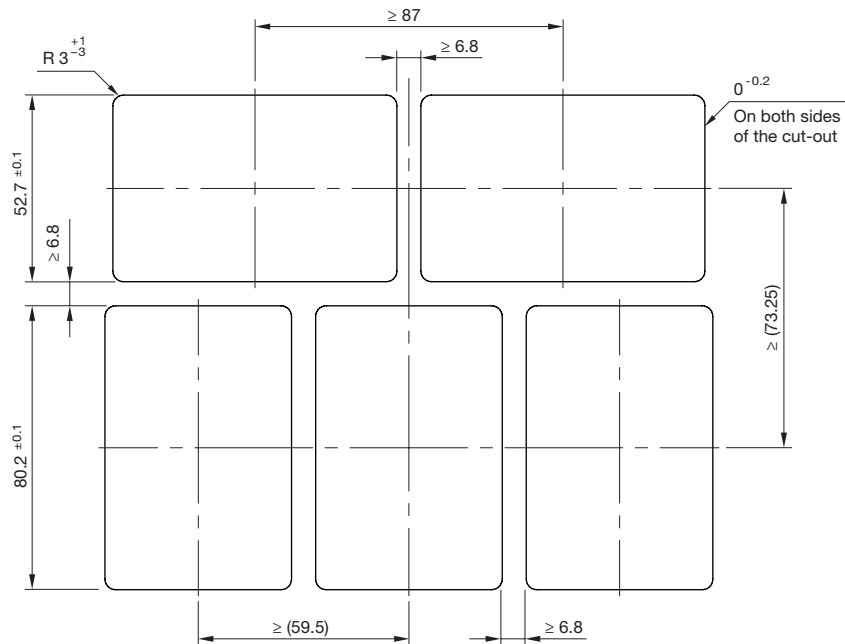
- Symbols in accordance with ISO 7000
- Customer-specific symbols on request

## Connections/interfaces

- CAN interface (ISO 11898)
- CAN protocols: CANOpen (CiA 401), CAN J1939

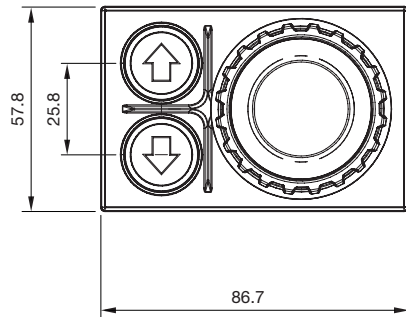
## Mounting cut-out

(Panel thickness 1.0 mm ... 4.0 mm)

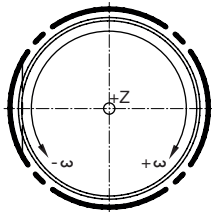




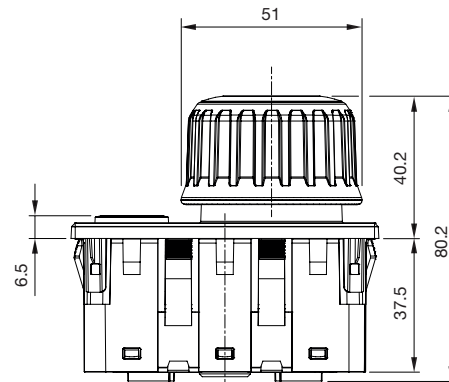
**Dimensions**  
(All dimensions in mm)



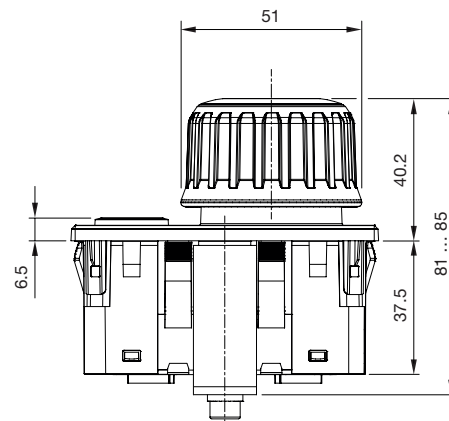
**Orientation**



**Mounting**  
Clip-in mounting



**Screw-in mounting**



The keypad can be mounted into front plate thicknesses between 1 and 4 mm. A front plate of at least 2 mm thickness is recommended. Non-compliance with these specifications may lead to damage to the locking tongue.

# In-Cabin Rotary Push Button PLUS.



## Mechanical characteristics

- Actuating force:
  - Buttons approx. 6.5 N
  - Rotary Switch approx. 12 N
- Overload force: 250 N
- Mechanical lifetime:
  - Buttons 1 million cycles of operation (B10)
  - Rotary Switch 500 000 cycles
- Impact resistance: IEC 62262 IK07

## Rotary pushbutton

- Rotation function: 360°, 20 detents, incremental

## Electrical characteristics

- Operating voltage 8-32 VDC  
LoadDump A or B

## Illumination (Buttons)

- Halo-ring and symbol illumination can be configured independently of one another  
Halo-ring effects: flashing, pulsing, colour change

- LED symbol illumination
    - Colour: white
    - Luminance: approx. 20 cd/m<sup>2</sup> (dimnable)
  - LED halo-ring illumination
    - Colour: red (other colours on request)
    - Luminance: approx. 500 cd/m<sup>2</sup> (dimnable\*)
- \*depending on the respective colour
- Baud rate 125, 250, 500, 1000 kBit/s (configurable through software)
  - Integrated plug recess, compatible with TE 8P-1745000-3

## Protection degree

- IP5K4 in accordance with ISO 20653 (front side in installed state)
- IP20 in accordance with ISO 20653 (rear side)

## Symbols

- Symbols in accordance with ISO 7000
- Customer-specific symbols on request

## Ambient conditions

- Operating temperature  
-40°C ... +85°C
- Storage temperature  
-40°C ... +85°C

## Connections/interfaces

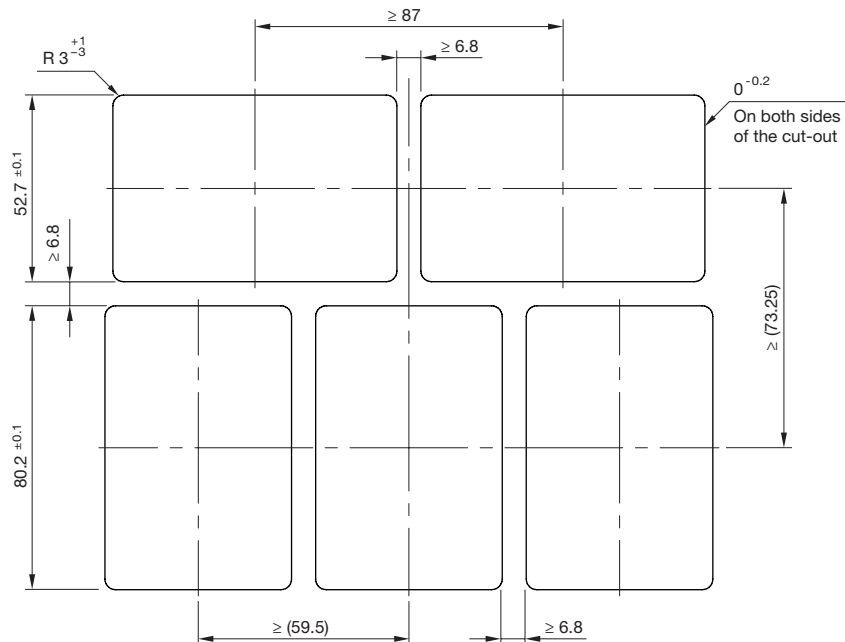
- CAN interface (ISO 11898)
- CAN protocols: CANOpen (CiA 401), CAN J1939

## Standards and certifications

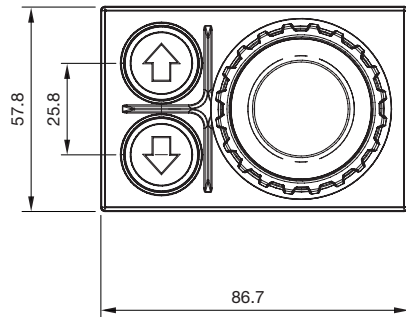
- Developed and produced according to IATF 16949
- CE

## Mounting cut-out

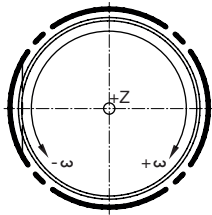
(Panel thickness 1.0 mm ... 4.0 mm)



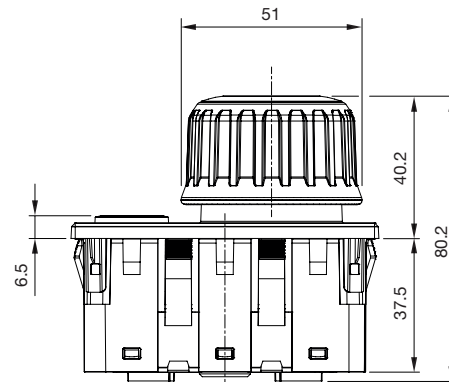
**Dimensions**  
(All dimensions in mm)



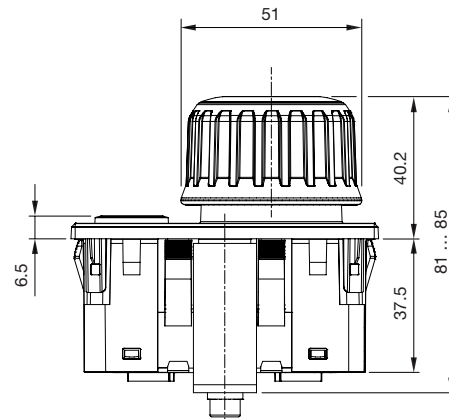
**Orientation**



**Mounting**  
Clip-in mounting



**Screw-in mounting**



The keypad can be mounted into front plate thicknesses between 1 and 4 mm. A front plate of at least 2 mm thickness is recommended. Non-compliance with these specifications may lead to damage to the locking tongue.

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