



TEMO 600 TILLERHEAD

The TEMO 600 features a modular design and can thus be used in a wide range of electric-vehicle applications, for example in pedestrian industrial truck, transport trolleys, cleaning machinery, special applications, etc. Up to six control elements can be built into the upper housing of the TEMO 600: Pushbuttons and switches from the T switch range, the POLLANA thumbwheel or an INDICATO battery-status display. Combined with a UNIVERSAL or UNIVERSAL PRO traction switch with integrated body protection switch function compatible with the traction controller, the TEMO 600 can be optimally adapted to suit the customer's application. Various covers are available for the underside of the tiller head: For example with an integrated key switch.

- The modular design allows for a wide range of possible applications
- The number of buttons/switches and their functions are freely configurable
- Strong tubular handles
- Ergonomic control
- Optional multifunction cover
- Awarded with the following prizes: IF Design Award, Reddot Design Award and Materialica Design Award

Tiller heads

Installation/removal

The upper part can be lifted off the lower part by unscrewing four socket screws (4 mm) on the underside of the tiller head.

The tiller head is screwed to a connection plate with three x M8 screws.

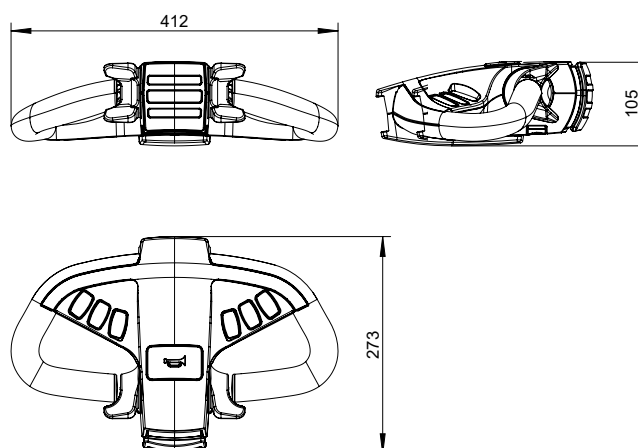
Tiller tube connection

The tube and the connection plate are not included in the delivery.



Technical data	
Operation elements	
Button/rocker switch/switch	See T switches datasheet
POLLANA thumbwheel	See traction switch datasheet
Horn	Microswitch NO Connector 2-pin
Optimum range of application	10 mA/5 V – 1.5 A/24 V
Creep speed (option)	Microswitch NO Connector 2-pin
Optimum range of application	5 mA/3 V – 50 mA/24 V
Traction switch	See traction switch datasheet
Tiller tube	Max. 40 x 70 mm
Standard colours	
Operation elements (button)	RAL 2011 deep orange
Lower part with handle	RAL 9005 jet black
Top and bottom cover	RAL 7015 slate grey
Personal protection switch	RAL 3000 flame red
Connector system	Molex Mini-Fit, Jr.™
Operating conditions	
Operating temperature range	-40°C to +85°C
Vibration test:	Based on IEC 68-2-6
Degree of protection according to DIN 40050	Tiller head IP 40 Operation elements and traction switch at least IP 54

Dimensions [mm]



Information required for enquiries

- Number of buttons/rocker switches/switches/thumbwheels
- Controller designation for selecting the right accelerator pedal
- With or without multifunctional cover
- With or without mounting plate
- With or without creep speed
- With or without key-operated switch
- With or without special colours

Special versions

- The operation elements and traction switch lever can also be sprayed in different colours with an appropriate purchase
- Laser marking of the operation elements
- Multifunctional cover on the underside is suitable for integration of key-operated switches, buttons, switches, display, keypads, display elements
- Protective shield for round tiller tubes

Order data

Part No.	Designation
3101-00060-XXX	TEMO 600 tiller head is configured in a
3101-00061-XXX	customer-specific manner



TEMO 200 TILLERHEAD

The TEMO 200 combines ergonomics and robustness. The modular design allows it to be used in many electric-vehicle applications. Features such as the traction switch, the body protection switch and the horn as well as an optional crawl speed switch on the underside are integrated in the housing. The upper housing cover can be fitted with up to two control elements from the T switch range, the POLLANA thumbwheel or the INDICATO battery-status display.

- Exceedingly robust plastic housing
- Ergonomically shaped handles
- Fatigue-free operation, as the controls are easy to reach and can be operated with a minimum of force
- Modular design allows flexible configuration
- Awarded with the Baden-Württemberg International Design Award, Focus Safety

Tiller heads



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Installation/removal

The upper part can be lifted off the lower part by unscrewing four socket screws (4 mm) on the underside of the tiller head. The tiller head can be screwed to a connection plate with three x M8 screws.

Tiller tube connection

The tube and the connection plate are not included in the delivery.



Technical data

Operation elements

Button/rocker switch/switches	Max. switching power 48 VDC /1 A Min. switching power 24 VDC/10 mA
POLLANA thumbwheel	Max. switching power 48 VDC/4 mA transverse current
Horn	Wiper current < 0.1 mA Micro switch NO Connector 2-pin
Optimum range of application	10 mA/5 V – 1.5 A/24 V
Creep speed (option)	Micro switch NO Connector 2-pin
Optimum range of application	5 mA/3 V – 50 mA/24 V
Traction switch	Various traction switches available (for different con- troller manufacturers)
Tiller tube	Max. 40 x 70 mm

Standard colours

Operation elements (button)	RAL 2011 deep orange
Lower part with handle	RAL 9005 jet black
Top cover	RAL 7015 slate grey
Personal protection switch	RAL 3000 flame red
Connector system	Molex Mini-Fit, Jr.™

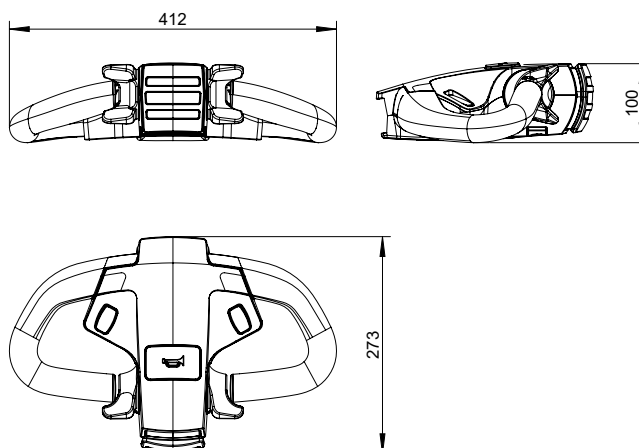
Operating conditions

Operating temperature range	-40°C to +85°C
Degree of protection according to DIN 40050	Tiller head IP 40 Operation elements and traction switch at least IP 578

Special versions

- The operation elements and traction switch lever can also be sprayed in different colours with an appropriate purchase
- Laser marking of the operation elements
- Protective shield for round tiller tubes

Dimensions [mm]



Information required for enquiries

- Number of buttons/rocker switches/switches/ analogue switches
- Controller designation for selecting the right accelerator pedal
- Creep speed function desired/blocked
- Colour selection

Order data

Part No.	Designation
3101-00020-XXX	TEMO 200 tiller head is configured in a
3101-00021-XXX	customer-specific manner



TEMO 200 TILLERHEAD

The TEMO 200 combines ergonomics and robustness. The modular design allows it to be used in many electric-vehicle applications. Features such as the traction switch, the body protection switch and the horn as well as an optional crawl speed switch on the underside are integrated in the housing. The upper housing cover can be fitted with up to two control elements from the T switch range, the POLLANA thumbwheel or the INDICATO battery-status display.

- Exceedingly robust plastic housing
- Ergonomically shaped handles
- Fatigue-free operation, as the controls are easy to reach and can be operated with a minimum of force
- Modular design allows flexible configuration
- Awarded with the Baden-Württemberg International Design Award, Focus Safety

Tiller heads



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Installation/removal

The upper part can be lifted off the lower part by unscrewing four socket screws (4 mm) on the underside of the tiller head. The tiller head can be screwed to a connection plate with three x M8 screws.

Tiller tube connection

The tube and the connection plate are not included in the delivery.



Technical data

Operation elements

Button/rocker switch/switches	Max. switching power 48 VDC /1 A Min. switching power 24 VDC/10 mA
POLLANA thumbwheel	Max. switching power 48 VDC/4 mA transverse current
Horn	Wiper current < 0.1 mA Micro switch NO Connector 2-pin
Optimum range of application	10 mA/5 V – 1.5 A/24 V
Creep speed (option)	Micro switch NO Connector 2-pin
Optimum range of application	5 mA/3 V – 50 mA/24 V
Traction switch	Various traction switches available (for different con- troller manufacturers)
Tiller tube	Max. 40 x 70 mm

Standard colours

Operation elements (button)	RAL 2011 deep orange
Lower part with handle	RAL 9005 jet black
Top cover	RAL 7015 slate grey
Personal protection switch	RAL 3000 flame red
Connector system	Molex Mini-Fit, Jr.™

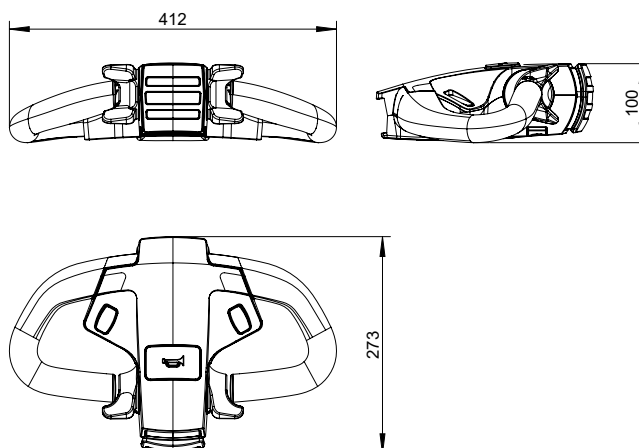
Operating conditions

Operating temperature range	-40°C to +85°C
Degree of protection according to DIN 40050	Tiller head IP 40 Operation elements and traction switch at least IP 578

Special versions

- The operation elements and traction switch lever can also be sprayed in different colours with an appropriate purchase
- Laser marking of the operation elements
- Protective shield for round tiller tubes

Dimensions [mm]



Information required for enquiries

- Number of buttons/rocker switches/switches/ analogue switches
- Controller designation for selecting the right accelerator pedal
- Creep speed function desired/blocked
- Colour selection

Order data

Part No.	Designation
3101-00020-XXX	TEMO 200 tiller head is configured in a
3101-00021-XXX	customer-specific manner



TEMO RIDER TILLER HEAD

The TEMO RIDER is designed for pedestrian trucks with an operator platform. The twist grips ensure comfortable control from different operating positions. The innovative butterfly knobs allow an auxiliary function to be operated with thumb and index finger without having to let go. The TEMO RIDER uses the DITEGO combi traction switch with non-contacting Hall-effect sensors and a CANopen interface.

- Exceedingly robust metal housing with strong plastic covers
- Twist grips for the travel function
- Ergonomic operation of the butterfly knobs for auxiliary functions
- Additional function key for pedestrian mode
- Non-contacting Hall-effect technology
- CANopen interface

Tiller heads



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Installation/removal

The upper part can be lifted off the lower part by unscrewing 8 x M5 screws on the underside of the tiller head. The tiller head can be screwed to a connection plate with 4 x M8 screws.

Tiller tube connection

The tube and the connection plate are not included in the delivery.

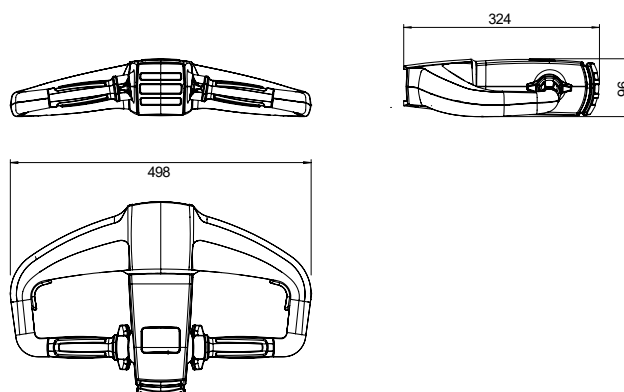


Technical data	
Operation elements	
Traction switch - rotary handles	Contactless via Hall sensors
Raise/lower - wing handles	Contactless via Hall sensors
Creep speed (option)	Contactless via Hall sensors
Horn	Contactless via Hall sensors
Personal protection switch	Contactless via Hall sensors
Electric interface	
Voltage supply	+9 to +40 VDC
Rated voltage	+24 VDC / 50 mA
Interface/protocol	CAN/CANopen
Connector system	AMP Superseal 1.5 series
Mechanical interface	
Tiller tube	Max. 50 x 90 mm
Operating conditions	
Operating temperature range	-30°C to +65°C
Protection class according to EN 60529	Housing: IP 35D Traction switch: IP 68
Standard colours	
Operation elements	RAL 2011 deep orange
Personal protection switch	RAL 3000 flame red
Housing	RAL 9005 jet black RAL 7015 slate grey
Rotary handles	RAL 7015 slate grey

Special versions

- The operation elements and traction switch lever can also be manufactured in different colours with an appropriate purchase
- Laser marking of the operation elements

Dimensions [mm]



Order data

Part No.	Designation
3101-00070-XX	The TEMO RIDER tiller head is configured in a customer-specific manner



CAN®



AURIGO-CAN MULTIFUNCTION STEERING WHEEL

Due its the high degree of modularity, the AURIGO-CAN multifunction steering wheel can be used in a wide variety of trucks. The housing provides room for six control elements. Due to the steering wheel's ergonomic design, the momentary toggle switches on the side of the steering wheel can be operated comfortably with the tips of the fingers. The steering wheel handles each have room for one traction switch. These are optionally available with a capacitive hand-detection sensor.

- Freely configurable system with regard to quantity, colour and type of controls
- Optionally available with a capacitive hand-detection sensor
- Optionally available with steering damping
- CANopen
- Exceedingly easy to attach to a truck due to its integrated mounting plate

Steeringwheels



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The AURIGO-CAN multifunction steering wheel can be equipped without any, with one or with two setpoint devices. It thereby provides a variety of options for performing proportional functions such as driving, lift/lower function or a cab raise or side shift function, for example. The different functions can be firmly defined or „set“ by switching to the relevant setpoint device.

In conjunction with the PREMO accelerator pedal, the AURIGO driving function is not needed and simply the steering and serving functions are used.

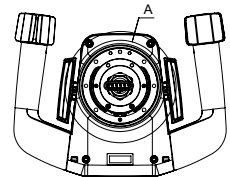
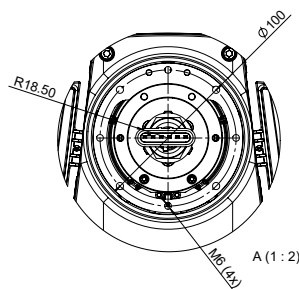
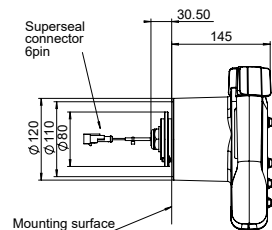
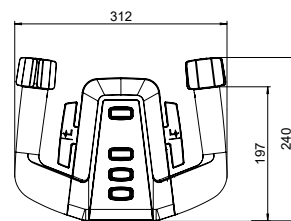


Technical data	
Transmission protocol	CANopen interface
Mechanical data	
Dimensions	See drawing
Mechanical angle of rotation	$\pm 120^\circ / \pm 85^\circ$
Cable and plug-in connector	Super seal connector, 6 pin, single row
Electrical data	
Nominal operating voltage	+ 24 V DC
Operating voltage range	7 V – 32 V DC
Power current	< 500 mA at 24 V
Operating conditions	
Operating temperature	-28°C to +65°C
Actuation force	
Rest position	Approx. 0.8 Nm
End stop	Approx. 1.8 Nm
Steering service life	
with brake	2 million cycles
without brake	2 million cycles
Vibration test/shock	DIN EN 60068-2-6:2008 / DIN EN 60068-2-27:2010
Protection class	IP 68 (Electronic)
Max. force	90 kg in each direction
Humidity	95% r.L.

Special versions

- The operation elements and traction switch lever can also be sprayed in different colours with an appropriate purchase
- Laser marking of the operation elements
- Custom-specific logo as colour print on the centre cover
- Special design possible on centre foil
- CANopen interface
- Hand-detection sensor

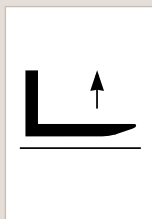
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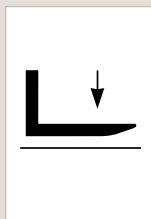
Order data

Part No.	Designation
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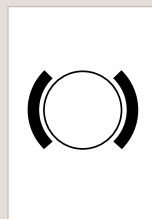
STANDARD-SYMBOLS



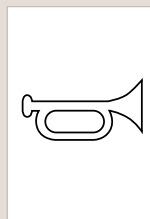
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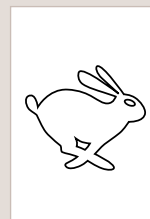
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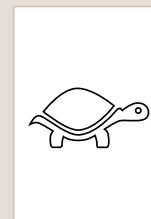
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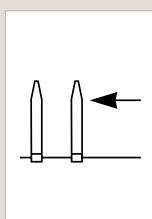
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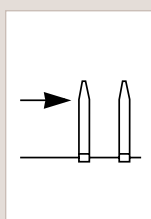
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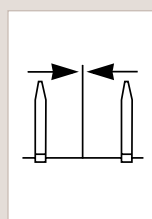
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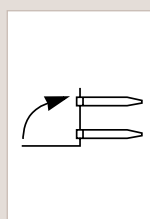
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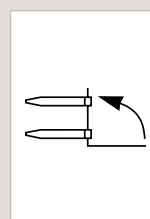
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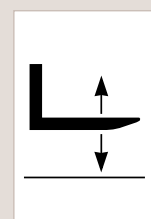
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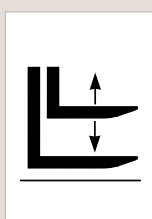
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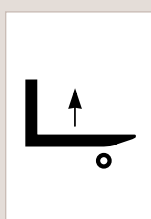
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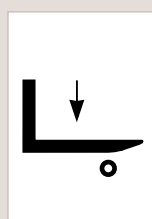
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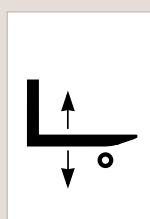
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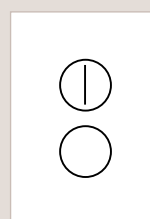
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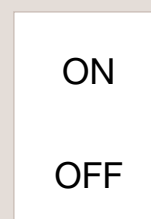
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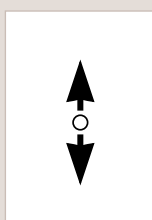
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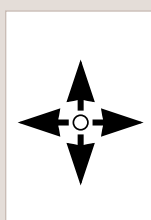
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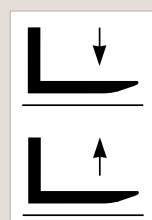
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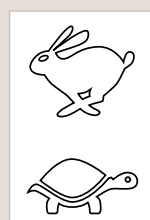
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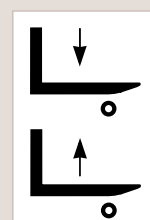
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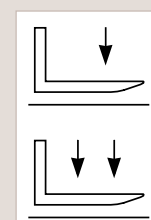
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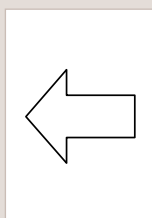
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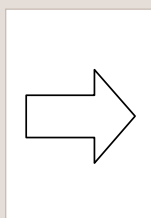
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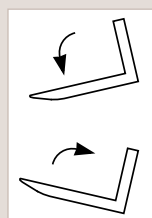
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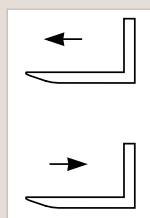
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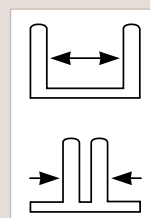
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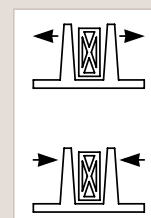
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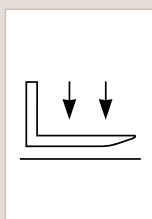
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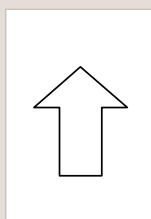
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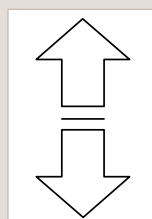
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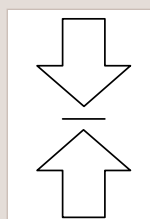
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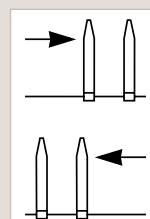
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Symbol AJ



Symbol AK

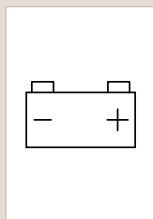


Symbol CP



Symbol AR

STANDARD-SYMBOLS



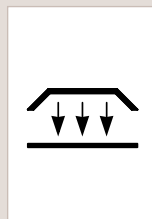
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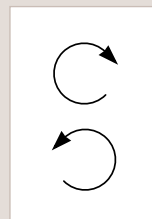
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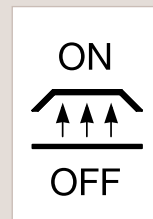
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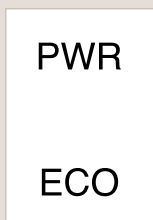
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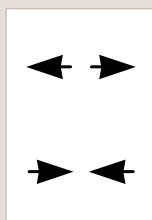
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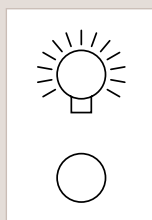
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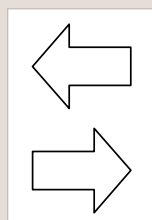
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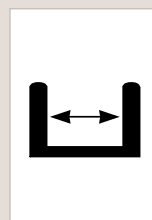
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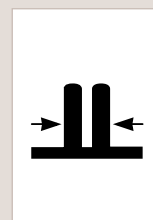
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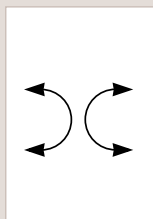
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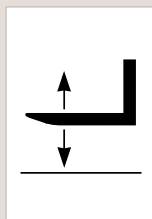
Symbol BL



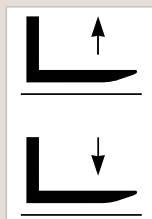
Symbol BM



Symbol BN



Symbol BP



Symbol BU



Pushbuttons, rocker switch and latched rocker switch



Thumbwheel with short lever



Thumbwheel with long lever



The symbols are also available in horizontal format



Creep speed



Horn

The symbols can be laser-etched on all pushbuttons, rocker switches, latched rocker switches and thumbwheels. The laser inscription is exceedingly resistant to environmental influences. We are, of course, also able to use your in-house symbols provided in .dxf format.



MINISTRO CONTROL HANDLE

The MINISTRO control handle sets new standards in the control of electric vehicles, transport trolleys and other mobile machinery. In particular, this control handle stands out due to its ergonomic and very rugged design. The MINISTRO provides the operator with a secure grip, especially on platform trucks.

- Ergonomically shaped and robust one-piece plastic housing
- Including threaded metal adapter for easy installation

Control handles



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MINISTRO Control handle

The MINISTRO control handle is also available with additional functions as an option. For further information, please see the separate datasheet of the MINISTRO DETEC, MINISTRO STIPO and MINISTRO STIPO DETEC.

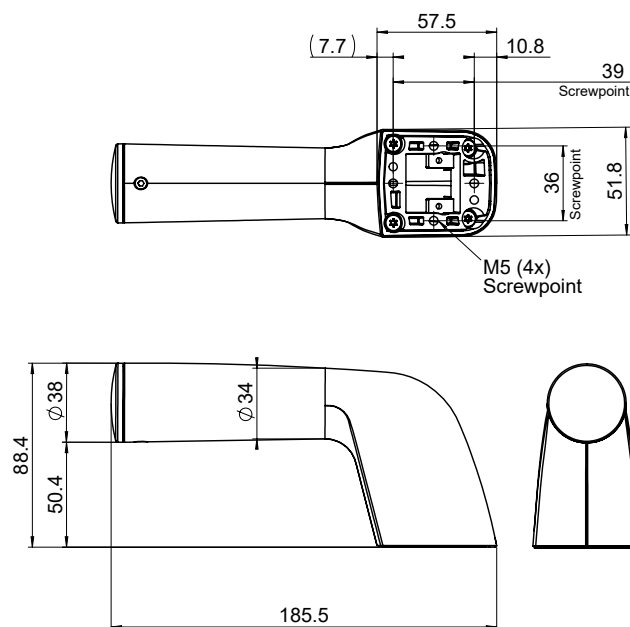


Technical data

Operating conditions

Load capacity	90 kg in each direction
Operating temperature	-40°C to +80°C
Humidity	95% r. L.

Dimensions [mm]





MINISTRO STIPO CONTROL HANDLE

The MINISTRO STIPO control handle sets new standards in the control of electric vehicles, transport trolleys and other mobile machinery. In particular, this control handle stands out due to its ergonomic and very rugged design. The MINISTRO STIPO provides the operator with a secure grip, especially on platform trucks. The integrated STIPO traction switch enables the butterfly knob to be controlled comfortably with the thumb. The integrated threaded metal adapter allows for easy installation.

- Ergonomically shaped plastic housing
- Threaded metal adapter for easy installation
- Freely selectable optional setpoint generator from the STIPO series
- Butterfly knob position adjustable in 22.5° steps
- Capacitive hand detection sensor

Control handles



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MINISTRO STIPO control handle

For more detailed information, please refer to the separate data sheet of the STIPO traction switch.



Technical Specifications

Operating Conditions

Maximum stress	90 kg each direction
Protection class	IP 54
Operating temperature	-40°C to +80°C
Air humidity	95% r.L.

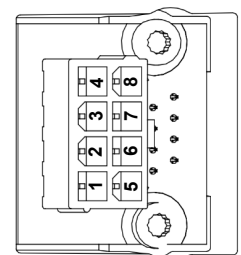
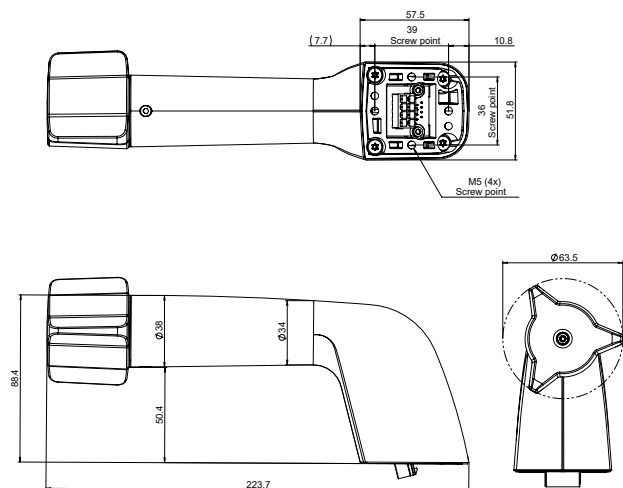
Required Details on Inquiries

- Characteristic curve, output voltage, digital signals
- Different version of the accelerator switch see separate datasheet „STIPO“
- Color of the grip (some standard colors available)

Special Design

- Custom specific color of the grip
- Customspecific output signal
- Integrated hand detecting sensor
- Customspecific shape of the grip

Dimensions [mm]



PIN assignment



MINISTRO DETEC CONTROL HANDLE

The MINISTRO control lever sets new standards in the control of electric vehicles, transport trolleys and other mobile machinery. In particular, this control handle stands out due to its ergonomic and very rugged design. The MINISTRO provides the operator with a secure grip, especially on platform trucks. Optionally, a capacitive sensor can be installed in the handle allowing a shutdown of the vehicle after releasing the hand from the handle.

- Ergonomically shaped plastic housing
- Threaded metal adapter for easy installation
- Capacitive hand detection sensor

Control handles



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MINISTRO DETEC Control handle

The hand detection is integrated on the top of the control handle as standard. Optionally, two sensors can be integrated on the top and bottom side.



Technical data	
Technology	Capacitive Sensor
Mechanical data	
Dimensions	See drawing
Cable and plug-in connector	Molex Mini-fit Jr 3-pin
Electrical data	
Nominal operating voltage	+5 V or +24 V DC
Power current	1 – 8 mA
Digital output	NPN or PNP, max. 200 mA
Operating conditions	
Operating temperature range	-40°C to +85°C
Protection class	IP 63 (except for the connector)

Connector pin assignment Molex Mini-Fit Jr.™

3 pin

PIN 1	+ UB
PIN 2	GND
PIN 3	Output

Special versions

- Different positions of hand detection available

Dimensions [mm]

