PRODUCT INFORMATION

Rotatory actuators for low forces

→ Electrical locking/ unlocking, space-saving, with or without micro switch
→ Compact, space-saving design
→ Electromotive reset or automatic (non-electric) reset
→ Easy to mount thanks to snap-fit mounting
→ Splash-proof
→ With or without micro switch
→ Explosion report for tank modules

PRODUCT FEATURES

Application
The extremely space-saving design of this actuator makes it especially suitable for locking and unlocking applications in dry and wet areas (also via remote control, for example) where there is only limited space available.

Examples include:
→ Tank modules
→ Service flaps
→ Glove compartments
→ Locking of charging plugs (e-mobility)

PRODUCT FEATURES

Design and function

When a voltage is applied, the motor integrated in the electromotive actuator moves the locking lever attached to the motor shaft.

There are two product variants available in the product range. The first variant of the actuator with electrical locking and unlocking function is particularly suitable for traditional applications, where the locking lever locks a hinged arm attached to the locking system by applying a voltage and then unlocks it by reversing the voltage polarity. The stability of the open/closed locking positions is achieved by the motor being short-circuited following successful triggering. The position of the locking element can also be defined via an integrated micro switch.

The second actuator variant has a return spring and a micro switch integrated. The micro switch is actuated by a slight movement of the locking lever, e.g. by pressing a service flap. Current is then applied to the actuator via a control unit. This makes the actuator locking lever retract completely, leaving the closing system open and triggering the spring-loaded opening of the service flap. The actuator is then switched off and the integrated return spring causes the locking lever to return to the locking position without the use of any current. In order to lock the service flap, this flap is pushed closed when the hinged arm of the service flap snaps into the actuator's locking lever.

TECHNICAL DETAILS

Technical data

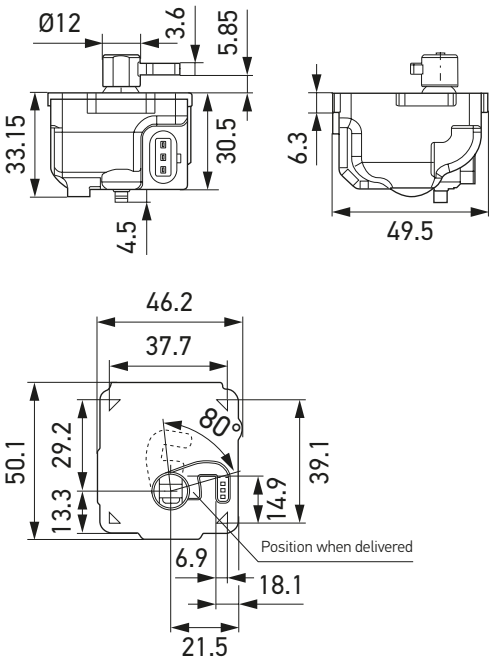
Article number	011122011/017
Function	Electrical locking/unlocking, space-saving, electrical open and return rotation
Weight	60 g
Rated voltage	12 V
Voltage range	9 – 15.5 V
Maximum current consumption (stall current)	≤ 3.2 A
No-load / idling current	≤ 2.0 A
Locking lever pulling force	> 75 N (after lifetime > 50 N)
Locking lever breaking force	≥ 300 N
Functional angle	≤ 78°
Actuating time for 78° via functional angle[1)]	40 ms < t < 200 ms
Triggering time	0.2 s < t < 10 s
Minimum switch on-time	$t_{on, min}$ = 200 ms
Maximum switch on-time	$t_{on, max}$ = 10 s
Breaking time	8 x t_{on}
Thermal overload protection	Not available
Operating temperature	-40 °C to +85 °C
Storage temperature	-40 °C to +90 °C
Lifetime[2)]	100,000 cycles
Conducted electromagnetic interference	DIN ISO 7637, SAE J1113-42
Interference suppression CISPR 25, SAE J-1113-41	Intensity level 1 + 10 dB µV
End position stability with motor short circuit	≤ 6°
Protection class	IP 5K4
Salt spray test in accordance with DIN 50 021 SS	96 h
Vibration resistance in accordance with IEC 68-2-64	2.7 g
Housing material	PP-GF30
Sealing ring	NBR 70 Shore A
Locking lever material	PAA GF60
Resistant to	Petrol, diesel, biodiesel, ozone
Pin coating	Galvanically tin-plated
Connector	Hirschmann, 3-pin
Mating connector[3)]	3-pin MLK coupling ELA 872-858-541

[1)] Over the operating voltage and temperature range.

[2)] One switching cycle equals one open and return rotation.
0,7 s on; 14 s off (reverse voltage);
0,7 s on; 14 s off (reverse voltage)

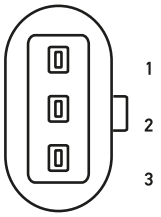
[3)] These accessories are not included in the scope of delivery.
Available from Hirschmann Automotive.

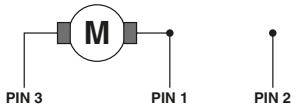
Technical drawing



Pin assignment / electrical connection

Hirschmann connector, 3-pin MLK





	PIN 3	PIN 1
Unlocking central locking system	+	-
Locking central locking system	-	+

TECHNICAL DETAILS

Technical data			
Article number	**011122021 / 027**	**011122031 / 037**	**011122051 / -057**
Function	Electrical locking / unlocking, space-saving with micro switch, electrical open and return rotation	Electrical locking / unlocking, space-saving, electrical open and return rotation with micro switch, without operating and locking elements	Electrical locking / unlocking, space-saving, electrical open and return rotation with micro switch, without locking element, with operating element
Weight	60 g		
Rated voltage	12 V		
Voltage range	9 – 15.5 V		
Maximum current consumption (stall current)	≤ 2.4 A		
No-load / idling current	≤ 1.0 A		
Locking lever pulling force	≥ 75 N		
Locking lever breaking force	≥ 300 N		
Functional angle	≤ 78°		
Actuating time for 78° via functional angle[1)]	40 ms < t < 200 ms		
Triggering time	0.2 s < t < 10 s		
Minimum switch on-time	$t_{on, min}$ = 200 ms		
Maximum switch on-time	$t_{on, max}$ = 10 s		
Breaking time	8 x t_{on}		
Thermal overload protection	Not available		
Operating temperature	- 40 °C to + 85 °C		
Storage temperature	- 40 °C to + 90 °C		
Lifetime[2)]	60,000 cycles		
Conducted electromagnetic interference	Intensity level 2		
Interference suppression CISPR 25, SAE J-1113-41	≤ 18 mm Intensity level 1 + 10 dB µV		
Micro switch switching angle	8° to 18°		
End position stability with motor short circuit	≤ 6°		
Protection class	IP 5K4		
Salt spray test in accordance with DIN 50 021 SS	96 h		
Vibration resistance in accordance with IEC 68-2-64	2.7 g		
Housing material	PP-GF30		
Sealing ring	NBR 70 Shore A black		
Locking lever material	PAA GF60		
Resistant to	Petrol, diesel, biodiesel, ozone		
Pin coating	Galvanically tin-plated		
Connector	Hirschmann, 3-pin		
Mating connector[3)]	3-pin MLK coupling ELA 872-858-...KA		

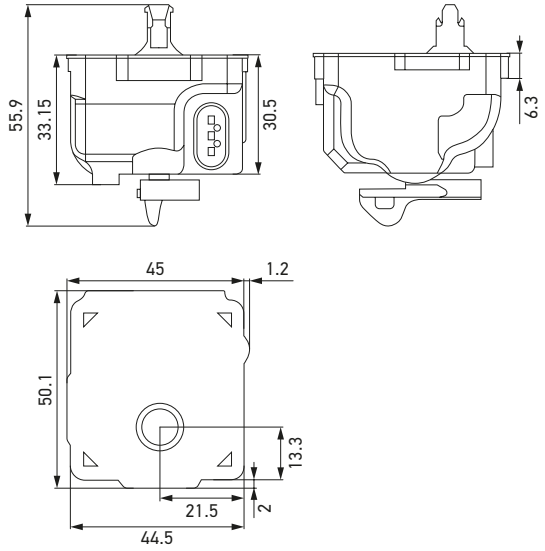
[1)] Over the operating voltage and temperature range.

[2)] One switching cycle equals one open and return rotation.
0,7 s on; 14 s off (reverse voltage);
0,7 s on; 14 s off (reverse voltage)

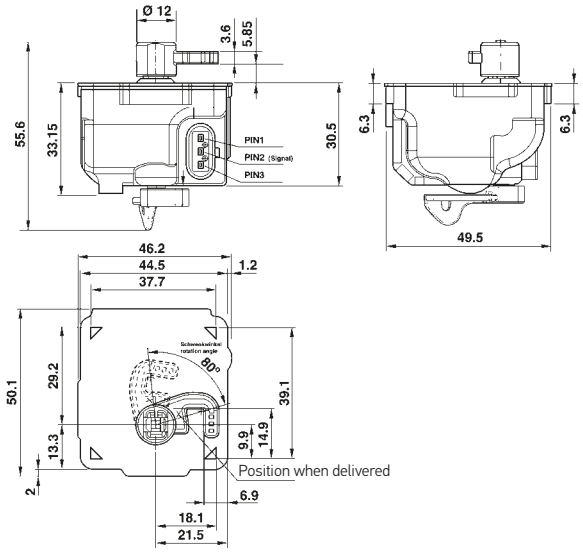
[3)] These accessories are not included in the scope of delivery. Available from Hirschmann Automotive.

Technical drawing

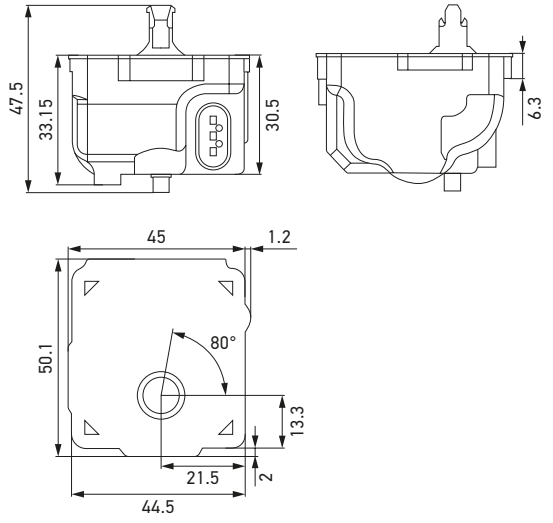
011122051



011122027

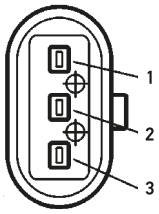


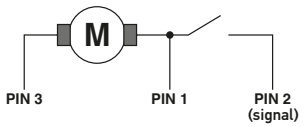
011122031



Pin assignment / electrical connection

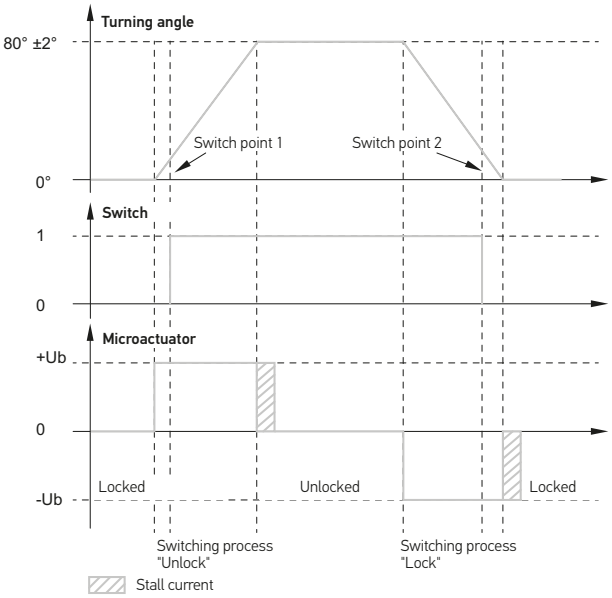
Hirschmann connector, 3-pin MLK





Unlocking	+	-
Locking	-	+

Micro switch tripping



TECHNICAL DETAILS

Technical data

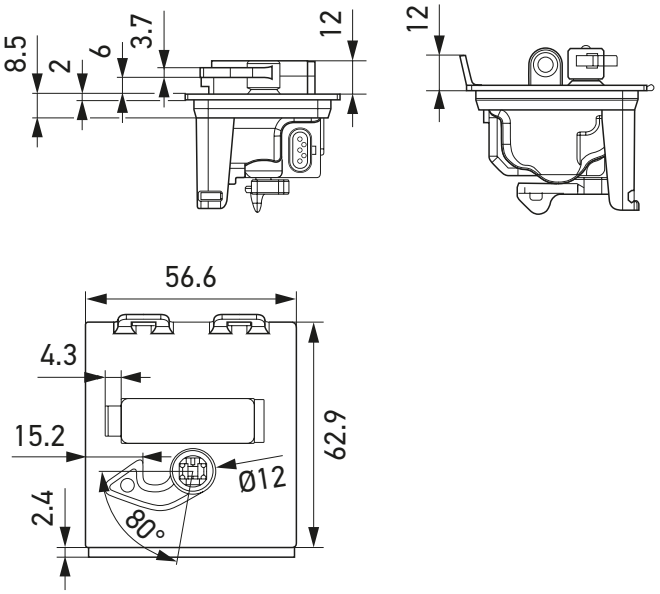
Article number	011122041 / 047
Function	Electrical locking/unlocking, space-saving with micro switch, electrical open rotation, return rotation via return spring, with soft-touch button
Weight	60 g
Rated voltage	12 V
Voltage range	9 – 15.5 V
Maximum current consumption (stall current)	≤ 4.0 A
No-load / idling current	≤ 2.0 A
Locking lever pulling force	75 N
Locking lever breaking force	300 N
Micro switch triggering force	≤ 24 N
Functional angle	≤ 78°
Actuating time for 78° via functional angle[1)]	45 ms < t < 220 ms
Triggering time	0.3 s <t <4 s
Minimum switch on-time	$t_{on, min}$ = 300 ms
Maximum switch on-time	$t_{on, max}$ = 4 s
Breaking time	20 x t_{on}
Thermal overload protection	Not available
Operating temperature	- 40 °C to + 85 °C
Storage temperature	- 40 °C to + 90 °C
Lifetime[2)]	10,000 cycles
Conducted electromagnetic interference	DIN ISO 7637, SAE J1113-42
Interference suppression CISPR 25, SAE J-1113-41	Intensity level 1 + 10 dB µV
Micro switch switching angle	8° – 18°
End position stability with motor short circuit	≤ 6°
Protection class	IP 5K4
Salt spray test in accordance with DIN 50 021 SS	96 h
Vibration resistance in accordance with IEC 68-2-64	2.7 g
Housing material	PP-GF30
Sealing ring	NBR 70 Shore A
Locking lever material	PAA GF60
Resistant to	Petrol, diesel, biodiesel, ozone
Pin coating	CuSn6, bronze plate, galvanically tin-plated
Connector	Hirschmann, 3-pin
Mating connector[3)]	3-pin MLK coupling ELA 872-858-541

[1)] Over the operating voltage and temperature range.

[2)] One switching cycle equals one open and return rotation.
0,7 s on; 14 s off (reverse voltage);
0,7 s on; 14 s off (reverse voltage)

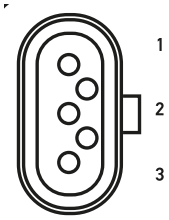
[3)] These accessories are not included in the scope of delivery.
Available from Hirschmann Automotive.

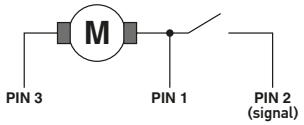
Technical drawing



Pin assignment / electrical connection

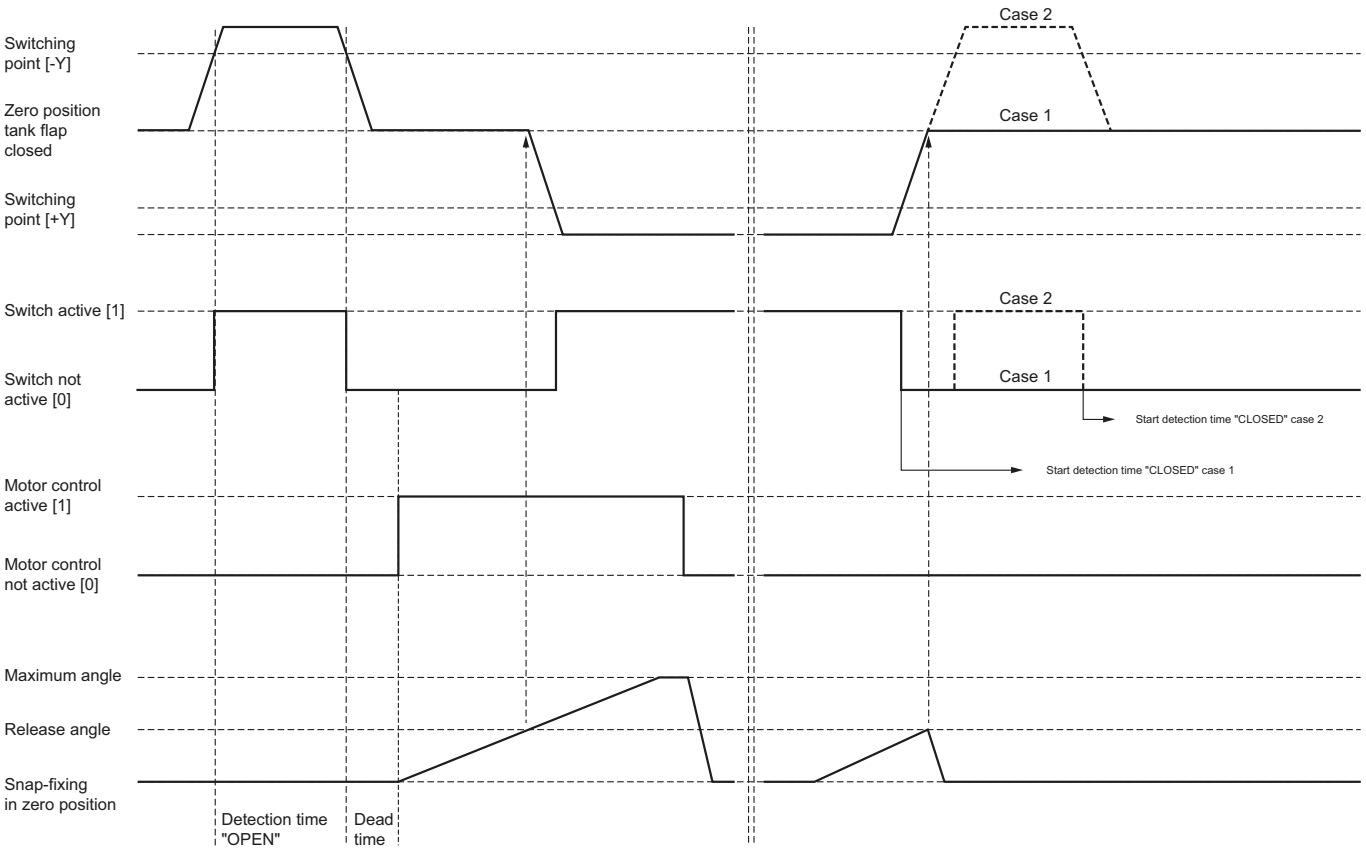
Hirschmann connector, 3-pin MLK





Softtouch unlocking	+	-
Softtouch locking	0	0

Switching process function sequence



Detection time "OPEN"

Description:
Minimum period of time that the operator has to hold the operating element depressed for opening to take place.

Explanation:
In order that short pulses do not lead to unintentional opening, the "Open" detection time starts when the status changes from [0], operating element not depressed, to [1], operating element depressed. If the state [1] "Switch active" is detected for longer than the preset value, opening is initiated when the state changes from [1] to [0].

Dead time

Description:
Time between switch change to [0] and activation of the motor control [1] when an opening process is initiated.

Explanation:
On the electronic side, there occurs a system reaction time comprising switch debouncing and the system runtime. This can result in a delay of up to 70 ms, which then extends the non-parameterisable (actual) dead time of the opening process.

Detection time "CLOSED"

Description:
Minimum time that the application has to be closed before a new opening process can be initiated by the operator.

Explanation:
When the application is open, the switch signal is active [1]. As soon as the operator closes the application, the switch signal changes to inactive [0]. The "CLOSED" detection time starts to run when the switch is set to inactive [0]. Two instances are possible when closing (see case studies).

Case studies

Case 1:
The operator does not press down to the end stop when closing the application. The signal changes from "Switch active" [1] to "Switch not active" [0] and the detection time "CLOSED" starts. As soon as the preset time has expired, the application can be reopened.

Case 2:
When closing the application, the operator presses down to the end stop. This means that the signal first changes from "Switch active" [1] to "Switch not active" [0] and the "CLOSED" detection time starts. When the operator presses down again to the end stop, the signal changes back to "Switch active" [1] and the detection time "CLOSED" which has not yet expired is reset. As soon as the operator releases the application, the signal changes to "Switch not active" [0] and the "CLOSED" detection time starts again.

PROGRAM OVERVIEW

Product picture	Function	Manual adjustment	Article number	Packaging unit
	Electrical open and return rotation	No	**011122011** **011122017**	1 132
	Electrical open and return rotation, with micro switch	No	**011122021** **011122027**	1 126
	Electrical open and return rotation, with micro switch, without operating element, without locking element	No	**011122031** **011122037**	1 132
	Electrical open and return rotation, with micro switch, with operating element, without locking element	No	**011122051** **011122057**	1 126
	Electrical open rotation and return rotation via return spring with soft touch button	Yes	**011122041** **011122047**	1 60