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Floor and fine adjustment switches / Introduction



Floor and fine adjustment switches can be used to achieve an accurate positioning of the car in the lift shaft. Considering the use of new technologies (e.g. USP, position and magnetic switches) for lift positioning, the floor and fine adjustment switches today are almost exclusively utilised as spare part.

The floor and fine adjustment switches meet the requirements of the standards for the operation of lifts.

All switches have extraordinary robust metal enclosures and levers, which are suitable for

any form of operational demand, even under rough conditions. The two-component levers can be accurately adjusted towards the setting cams on two levels. The levers are parallel adjustable to the mounting level; the rubber roller is adjustable perpendicular to it.

In their basic version, all switches are encapsulated with an IP 40 protection class. They are also available with an IP 54 protection class.

The standard version of the covers are in transparent thermoplastic. The contact system is in accordance with the regulations of

VDE 0660. It is designed for a mechanical life of 10 million operations.

As floor and fine adjustment switches have to cover an extensive range of applications, there are two types of floor switches and one fine adjustment switch. The floor switches are fitted to the shaft wall and the corresponding setting cam is fixed to the lift car. For the upwards and downwards actuation, individual setting cams are required. Every cam switches the opposite contact; the NC contacts are wired in series. The AFH 122 fine adjustment switch is fitted to the lift car; the setting cam to the shaft wall.

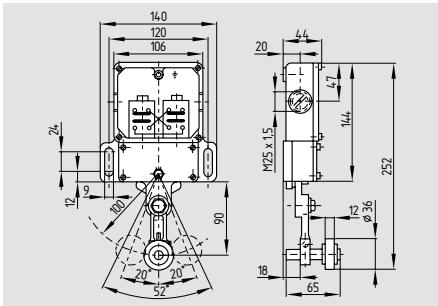
	Switch	Floor	Floor	Fine adjustment
		①	②	③
		AS 121	ASH 122	AFH 122
Switching behaviour	remains in the switching position	●	●	—
	returns to the initial position	—	●	●
Contacts	2 NO, 2 NC	●	●	●
	2 NO, 4 NC	—	●	—
	4 NO, 2 NC	—	●	●
Mounting holes	integrated in the enclosure	●	—	—
	external fasteners	—	●	●
Mounting position of the switch	to the lift car	—	—	●
	in the lift shaft	●	●	—
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This table gives a general overview of the product range. The next pages include a detailed description of the individual components, as well as information about special versions.

Note: In accordance with EN 81, safety switches must be actuated 2 mm beyond the switching point.

Floor switches

ASH 122



- 2 NO and 4 NC contacts
- 2 NO and 4 NC contacts
- 4 NO and 2 NC contacts
- External mounting holes
- Switch is mounted to the shaft wall
- Two-component lever

Technical data

Switching system: Slow action,
 ⊖ IEC 60947-5-1

Protection class: IP 40 or IP 54 to
 IEC/EN 60529

Standards: DIN VDE 0470-1
 IEC/EN 60947-5-1
 DIN VDE 0660-200

Enclosure: Light-metal die-cast

Contact material: silver

Switching elements: double break Zb,
 galvanically separated
 contact bridges,
 positive break
 NC contacts

Termination: screw terminals, cable section
 max. 2,5 mm²
 (incl. conductor ferrules)

U_{imp}: 6 kV

U_i: 500 V

I_{the}: 10 A

Utilisation category: AC-15

I_e/U_e: 4 A/400 VAC

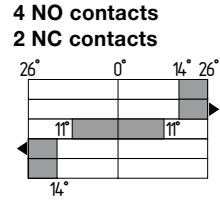
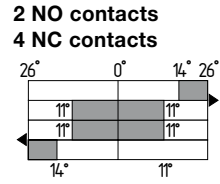
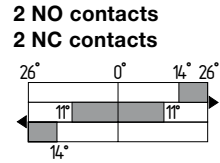
Short-circuit protection: 20 A (slow blow),
 25 A (quick blow)

Ambient temperature: -30 °C... +90 °C

Mechanical life: 10 million operations

Actuation angle: max. 45°

Contact variants



Ordering data

ASH122①-②③

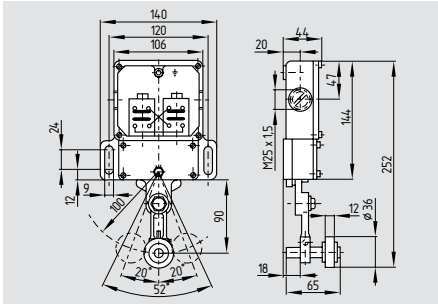
N°	Add	Description
①	11/11 12/12 21/21	2 NO / 2 NC contacts 2 NO / 4 NC contacts 4 NO / 2 NC contacts
②	r	without latching function with latching function
③	x	Protection class IP 40 Protection class IP 54

Note

- The switch lever of the standard version is retained in its switching positions by a brake disc.
- The switch lever of the version with latching function is retained in its switching positions by a latch mechanism.

Fine adjustment switches

AFH 122



- Non-latching switching behaviour; returns to the initial position
- 2 NO and 2 NC contacts
- 4 NO and 2 NC contacts
- External mounting holes
- Switch is mounted to the lift car
- Two-component lever

Technical data

Switching system: Slow action,
 ⊖ IEC 60947-5-1
 positive break NC contacts

Protection class: IP 40 or IP 54 to
 IEC/EN 60529
 DIN VDE 0470-1

Standards: IEC/EN 60947-5-1
 DIN VDE 0660-200

Enclosure: Light-metal die-cast

Contact material: silver

Switching elements: double break Zb,
 galvanically separated
 contact bridges

Termination: screw terminals, cable section
 max. 2,5 mm²
 (incl. conductor ferrules)

U_{imp}: 6 kV
 U_i: 500 V
 I_{the}: 10 A
 Utilisation category: AC-15
 I_e/U_e: 4 A/400 VAC

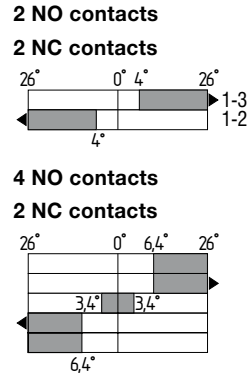
Short-circuit protection: 20 A (slow blow),
 25 A (quick blow)

Ambient temperature: -30 °C... +90 °C

Mechanical life: 10 million operations

Actuation angle: max. 45°

Contact variants



Ordering data

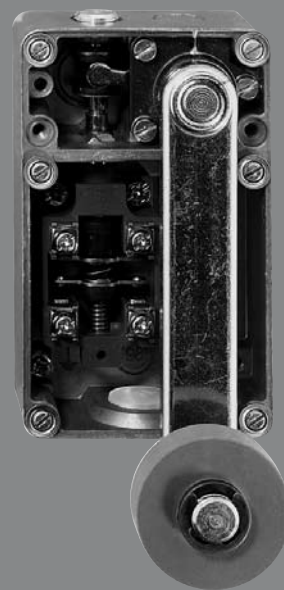
AFH122①-②

N°	Add	Description
①	11/11 21/21	2 NO / 2 NC contacts 4 NO / 2 NC contacts
②	x	Protection class 40 Protection class 54

Floor and fine adjustment switches

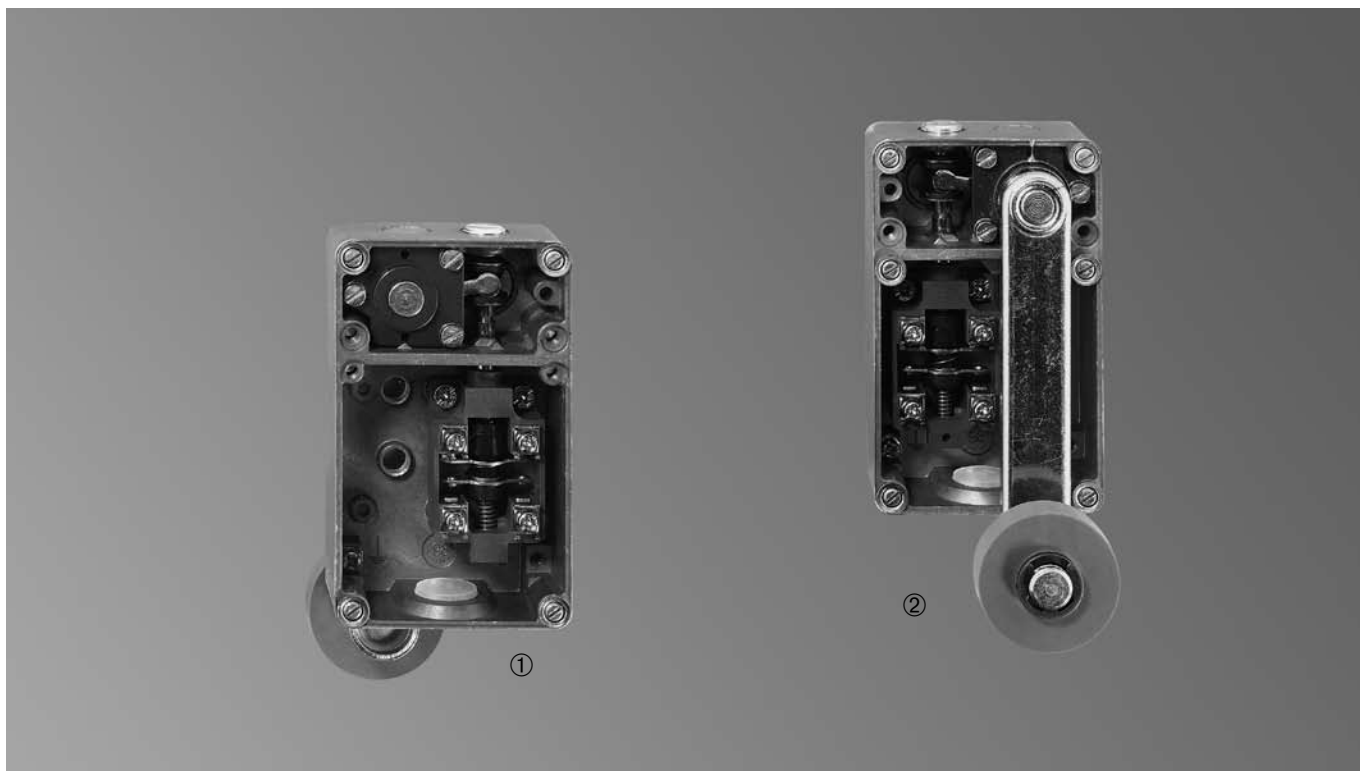
	AS 121	ASH 122	AFH 122
Standards	IEC/EN 60947-5-1/ DIN VDE 0660-200	EC/EN 60947-5-1/ DIN VDE 0660-200	EC/EN 60947-5-1/ DIN VDE 0660-200
Enclosure	Iron cast, enamel finish	Light-metal die-cast	Light-metal die-cast
Switching system	Slow action ⊖ IEC 60947-5-1 positive break NC contacts	Slow action ⊖ IEC 60947-5-1 positive break NC contacts	Slow action ⊖ IEC 60947-5-1 positive break NC contacts
Protection class	IP 40 or IP 54	IP 40 or IP 54	IP 40 or IP 54
Contact material	Silver	Silver	Silver
Switching elements	double break Zb, galvanically separated contact bridges	double break Zb, galvanically separated contact bridges	double break Zb, galvanically separated contact bridges
Termination	Screw terminals, cable section max. 2,5 mm ² (incl. conductor ferrules)	Screw terminals, cable section max. 2,5 mm ² (incl. conductor ferrules)	Screw terminals, cable section max. 2,5 mm ² (incl. conductor ferrules)
U_{imp}	6 kV	6 kV	6 kV
U_i	500 V	500 V	500 V
I_{th}	10 A	10 A	10 A
Utilisation category	AC-15	AC-15	AC-15
I_e/U_e	4 A/400 VAC	4 A/400 VAC	4 A/400 VAC
Short-circuit protection	20 A (slow blow), 25 A (quick blow)	20 A (slow blow), 25 A (quick blow)	20 A (slow blow), 25 A (quick blow)
Ambient temperature	- 30 °C... + 90 °C	- 30 °C... + 90 °C	- 30 °C... + 90 °C
Mechanical life	10 million operations	10 million operations	10 million operations
Actuation angle	max. 45°	max. 45°	max. 45°

Universal switches



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ASH 015U	6-9
ASH 415D	6-11
ASH 415U	6-12
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Universal switches / Introduction



The range of application of the universal switch is all-purpose. The switch can be used, amongst other things, as emergency limit switch, control limit switch, landing switch, floor levelling switch, fine control switch as well as oil-leakage switch. Considering the use of new technologies (e.g. USP, position and magnetic switches) for lift positioning, the universal switches today are almost exclusively utilised as spare part.

These universal switches have been developed in order to replace the different limit switch versions required in elevator technology with one single device. The switching mechanism and the switch are located in a light-alloy die-cast enclosure. A transparent cover protects

all parts and fixtures against soiling (protection class IP 40) and enables a good monitoring of the switching function. In the version with protection class IP 54, the transparent cover is replaced by a metal cover with sealing. Both sides of the rotating shaft are mounted in self-lubricating sinter bearing bushes, i.e. no subsequent lubrication is required. The rotary movement is transferred through a lever, which is permanently fixed to the shaft, over a wear-resistant plastic coupling to the switch's plunger. The rubber rollers have different degrees of hardness. For the switch, elements equipped with max. 2 contacts shall be chosen. All control contacts are of the positive break type, i.e. these are switches with positive-break NO and NC contacts. As versions with top- or bot-

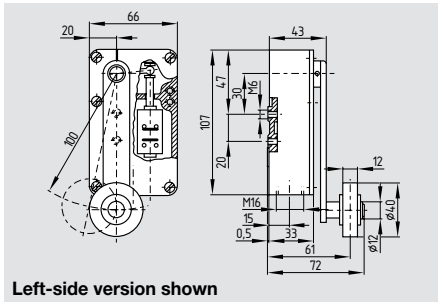
tom-side actuators, with snap or slow action and right-hand side or left-hand side versions are available, all applications can be covered with this universal switch.

The actuating lever is fixed to the shaft, as a result of which the actuation is positively driven in both directions, starting from the roller up to the contact. Multiple switches can be fitted side by side. Individual switches can be smoothly exchanged.

	①	②
	Bottom-side actuating lever (U)	Cover-side actuating lever (D)
Slow action	ASH 015 U	ASH 015 D
Snap action	ASH 415 U	ASH 415 D

Universal switches

ASH 015 D



- Actuating lever on bottom-side with slow action
- Metal enclosure
- Transparent plastic over, for protection class IP 54 with metal cover
- Positive break control contacts
- 1 NO and 1 NC contact, 2 NC or 2 NO contacts
- Available in right-side or left-side version
- Positive actuation from the roller to the contact in both directions
- Shore hardness of the rubber roller of the actuating lever 35° or 50°
- Especially suited for side-by-side mounting
- Set to neutral position upon delivery

Technical data

Switching system: Slow action,
 \ominus IEC 60947-5-1
 positive break NC contacts

Protection class: IP 40 or IP 54
 to IEC/EN 60529/
 DIN VDE 0470-1

Standards: IEC/EN 60947-5-1/
 DIN VDE 0660-200

Enclosure: light-metal die-cast

Contact material: silver

Switching elements: double break Zb,
 galvanically separated
 contact bridges

Termination: Screw terminals, cable section
 max. 2,5 mm²
 (incl. conductor ferrules)

U_{imp} : 6 kV

U_i : at -11: 500 V
 at -02, -20: 400 V

I_{the} : 10 A

Utilisation category: AC-15

I_e/U_e : 4 A/400 VAC

Short-circuit protection: 20 A (slow blow),
 25 A (quick blow)

Ambient temperature: -30 °C...+ 90 °C

Mechanical life: 10 million operations

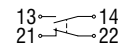
Contact opening at full travel: 2 x 4 mm

Weight: 440g

Contact variants

1 NO contacts

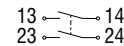
1 NC contacts



2 NC contacts

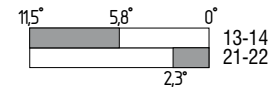


2 NO contacts

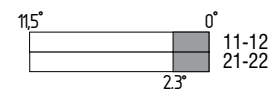


1 NO contacts

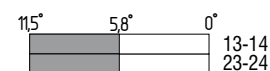
1 NC contacts



2 NC contacts



2 NO contacts



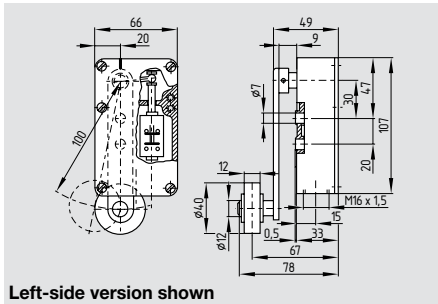
Ordering data

ASH015①-②D③④⑤

N°	Add	Description
①	L	Left-side version
	R	Right-side version
②	11	1 NO / 1 NC contacts
	02	2 NC contacts
	20	2 NO contacts
③		no staggered contacts, no overlapping contacts
	h	staggered contacts
	ü	overlapping contacts
④	35	hardness 35°
	50	hardness 50°
⑤		Protection class 40
	x	Protection class 54

Universal switches

ASH 015 U



Left-side version shown

- Bottom-side actuating lever with slow action
- Metal enclosure
- Transparent plastic cover, for protection class IP 54 with metal cover
- Positive break NC contacts A
- 1 NO and 1 NC contact, 2 NC contacts or 2 NO contacts
- Left-side or right-side version available
- Positive actuation from the roller to the contact in both directions
- Shore hardness of the rubber roller of the actuating lever 35° or 50°
- Especially suited for side-by-side mounting
- Set to neutral position upon delivery

Technical data

Switching system: Slow action,
 ⊖ IEC 60947-5-1
 positive break NC contacts

Standards: IEC/EN 60947-5-1/
 DIN VDE 0660-200

Enclosure: light-metal die-cast

Protection class: IP 40 or IP 54
 to IEC/EN 60529/
 DIN VDE 0470-1

Contact material: silver

Switching elements: double break Zb,
 galvanically separated
 contact bridges

Termination: Screw terminals,
 cable section max. 2,5 mm²
 (incl. conductor ferrules)

U_{imp}: 6 kV
 U_i: at -11: 500 V
 at -02, -20: 400 V

I_{the}: 10 A

Utilisation category: AC-15

I_e/U_e: 4 A/400 VAC

Short-circuit protection: 20 A (slow blow),
 25 A (quick blow)

Ambient temperature: -30 °C...+90 °C

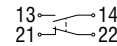
Mechanical life: 10 million operations

Contact opening at full travel: 2 x 4 mm

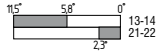
Weight: 440g

Contact variants

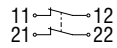
1 NO contacts
1 NC contacts



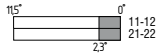
1 NO contacts
1 NC contacts



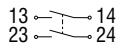
2 NC contacts



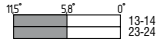
2 NC contacts



2 NO contacts



2 NO contacts



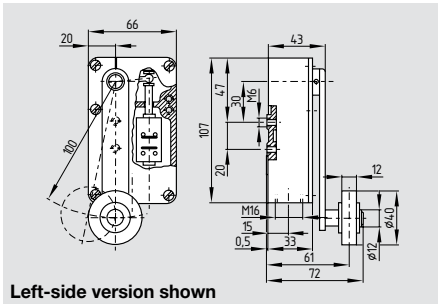
Ordering data

ASH015①-②U③④⑤

N°	Add	Description
①	L	Left-side version
	R	Right-side version
②	11	1 NO / 1 NC contacts
	02	2 NC contacts
	20	2 NO contacts
③		no staggered contacts, no overlapping contacts
	h	staggered contacts
	ü	overlapping contacts
④	35	hardness 35°
	50	hardness 50°
⑤		Protection class IP 40
	x	Protection class IP 54

Universal switches

ASH 415 D



- Cover-side actuating lever with snap action
- Metal enclosure
- Transparent plastic cover, for protection class IP 54 with metal cover
- Positive break NC contacts A
- 1 NO and 1 NC contact
- Right-side or left-side version available
- Positive actuation from the roller to the contact in both directions
- Shore hardness of the rubber roller of the actuating lever 35° or 50°
- Especially suited for side-by-side mounting
- Set to neutral position upon delivery

Technical data

Switching system: Snap action
 ⊖ IEC 60947-5-1
 positive break NC contacts

Protection class: IP 40 or IP 54
 to IEC/EN 60529/
 DIN VDE 0470-1

Standards: IEC/EN 60947-5-1/
 DIN VDE 0660-200

Enclosure: light-metal die-cast

Contact material: silver

Switching elements: double break Zb,
 galvanically separated
 contact bridges

Termination: Screw terminals,
 cable section max. 2,5 mm²
 (incl. conductor ferrules)

U_{imp}: 4 kV
 U_i: 250 V
 I_{the}: 6 A
 Utilisation category: AC-15
 I_e/U_e: 2,5 A/230 VAC

Short-circuit protection: 20 A (slow blow),
 25 A (quick blow)

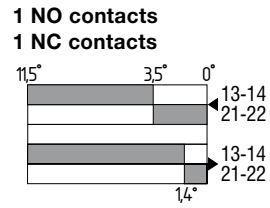
Ambient temperature: -30 °C...+85 °C

Mechanical life: 1 million operations

Weight: 440g

Contact variants

1 NO contacts
1 NC contacts



Ordering data

ASH415^①-D^{②③}

N°	Add	Description
①	L	Left-side version
	R	Right-side version
②	35	Hardness 35°
	50	Hardness 50°
③		Protection class IP 40
	x	Protection class IP 54

Universal switches

	ASH 015	ASH 415
Standards	IEC/EN 60947-5-1/ DIN VDE 0660-200	IEC/EN 60947-5-1/ DIN VDE 0660-200
Enclosure	light-metal die-cast	light-metal die-cast
Switching system	Slow action ⊖ IEC 60947-5-1 positive break NC contacts	Snap action ⊖ IEC 60947-5-1 positive break NC contacts
Actuation	Cover-side, bottom-side	Cover-side, bottom-side
Protection class	IP 40 or IP 54	IP 40 or IP 54
Contact material	Silver	Silver
Switching elements	Double break Zb, galvanically separated contact bridges	Double break Zb, galvanically separated contact bridges
Termination	Screw terminals, cable section max. 2,5 mm ² (incl. conductor ferrules)	Screw terminals, cable section max. 2,5 mm ² (incl. conductor ferrules)
U_{imp}	6 kV	4 kV
U_i	at -11: 500 V at -02, -20: 400 V	250 V
I_{the}	10 A	6 A
Utilisation category	AC-15	AC-15
I_e/U_e	4 A/400 VAC	2,5 A/230 VAC
Short-circuit protection	20 A (slow blow), 25 A (quick blow)	20 A (slow blow), 25 A (quick blow)
Ambient temperature	- 30 °C...+ 90 °C	- 30 °C...+ 85 °C
Mechanical life	10 million operations	10 million operations
Contact opening at full travel	2 x 4 mm	2 x 2 mm
Actuation angle	max. 45°	max. 45°

