

Limit Switches

ATO - Features

High Control Circuit Reliability with Universal Contacts

With low control circuit voltage, an increased number of circuit failures can occur in electrical control systems. That is the reason why special universal contacts, with low contact resistance, are used in all Moeller Electric limit switches. It offers a high level of control circuit reliability with low circuit voltages and thus makes these limit switches most suitable for use with electronic systems. The galvanically separated contacts permit circuit voltages as high as 300V (A300 contact rating).

Contact Types

- normal action contacts
- overlapping contacts
- snap-action contacts

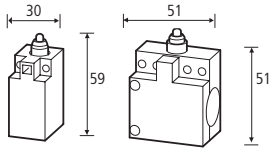
The normal and overlapping contacts are activated directly by the actuating plunger. This makes these limit switches suitable for safety circuits where the control circuit must safely stop a machine even if the switch is damaged. Snap-action contacts close and open rapidly and are independent of the actuation speed. These are used when the activation speed is very slow ($\leq 0.3m/s$), when there is excessive machine vibration, when switching DC voltages or when make and break contacts must be switched simultaneously. Only with snap-action contacts can the arc created in breaking a DC circuit be effectively extinguished. The uninterrupted (defined) change-over time of the limit switch make/break contacts makes the snap-action switch suitable for interfaces with electronic systems and assembly lines. The actuating rod or spring rod actuator operating head is only used with the snap-action switches.

Versatile Modular System

Flexibility in application - simplified stocking

The modular system consists of standard and non-standard basic switches, enclosures, actuating heads and levers. The system allows the assembly of the required switch, on the spot, from the modules in stock.

Therefore, if many different model switches are required, the costs in storing assembled switches can be reduced. There are available, however, any standard models completely assembled as required.



Enclosures

The enclosures are made of glass reinforced thermoplast. This enclosure design is totally insulated, corrosion-resistant, has high mechanical impact strength and is extremely water, dust and oil tight.

Actuating heads

All actuating heads can be turned in 90° stops, to the position required. Also, in order to meet more applications, besides the standard actuating heads, other heads such as the angled lever roller, actuating rod and spring actuating rod are available.

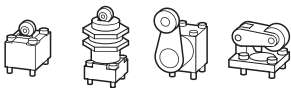
Plunger



The plunger head can be actuated in the direction of the plunger axis and with a drive it can be actuated in every direction perpendicular to the plunger axis.

Roller plunger, Roller lever

If the limit switch application has a high speed operating sequence or the drive cam has a long operating stroke, these actuating heads are ideal because of their long wear rollers.



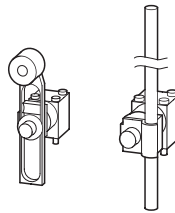
Angled roller lever

These actuating heads can be operated horizontally as well as vertically.



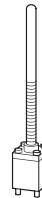
Actuating heads with adjustable lever length

If the mounting points of the limit switches are known during the planning of an application, but the kind of operation cam or its distance to the limit switch is not yet known, then the actuating heads with the adjustable lever or adjustable rod offer the flexibility for a final adjustment in the field.



Spring rod actuator

This model can be actuated from any direction perpendicular to the spring rod axis. The head can be used with objects with irregular shapes; the spring rod absorbs strong vibrations and, therefore, the snap-action switch is actuated only as required.


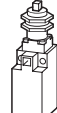

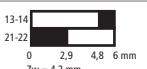





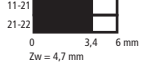

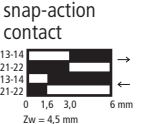
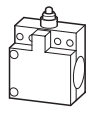
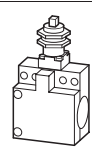

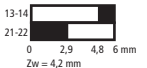

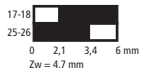



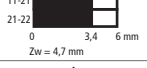

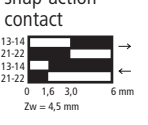


AT 0 Compact Oiltight Limit Switches

Complete Units

NEMA 4, 13 / IEC IP 65 / CE

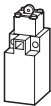

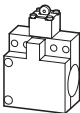
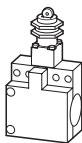
Limit Switches

Contact		Contact Sequence		Plunger		Plunger	
N.O. = normally open N.C. = normally closed ⊕ = safety function with positively opening contacts to IEC/EN 60 947-5-1		■ closed □ open Zw = positive opening clearance to IEC/EN 60 947-5-1		EN 50 047 Form B Basic unit Type		Single hole mounting	
N.O. N.C.				Article No.		Article No.	
				Price see price list		Price see price list	
Complete units							
totally insulated							
Narrow enclosures							
							
1	1 ⊕		 Zw = 4,2 mm	AT0-11-1-I 095406		AT0-11-1-I/ZS 036069	
1	1 ⊕		 Zw = 4,7 mm	AT0-11-2-I 097779		AT0-11-2-I/ZS 076410	
2	- -		 Zw = 4,7 mm	AT0-20-1-I 002860		AT0-20-1-I/ZS 062173	
-	2 ⊕		 Zw = 4,7 mm	AT0-02-1-I 005233		AT0-02-1-I/ZS 002849	
1	1 ⊕		snap-action contact  Zw = 4,5 mm	AT0-11-S-I 000487		AT0-11-S-I/ZS 019459	
Wide enclosures							
							
1	1 ⊕		 Zw = 4,2 mm	AT0-11-1-IA 007606		AT0-11-1-IA/ZS 055053	
1	1 ⊕		 Zw = 4,7 mm	AT0-11-2-IA 009979		AT0-11-2-IA/ZS 095394	
2	- -		 Zw = 4,7 mm	AT0-20-1-IA 014725		AT0-20-1-IA/ZS 081157	
-	2 ⊕		 Zw = 4,7 mm	AT0-02-1-IA 017098		AT0-02-1-IA/ZS 021833	
1	1 ⊕		snap-action contact  Zw = 4,5 mm	AT0-11-S-IA 012352		AT0-11-S-IA/ZS 040816	

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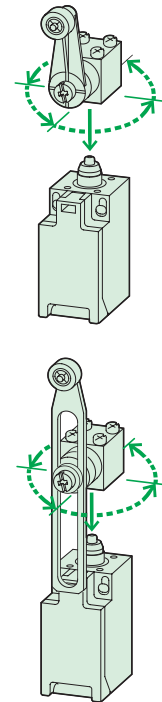
Roller plunger EN 50 047 Form C		Roller plunger Single hole mounting	
Type	Price	Type	Price
Article No.	see price list	Article No.	see price list
			
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AT0-11-2-I/RS 064545		AT0-11-2-I/ZRS 074037	
AT0-20-1-I/RS 050308		AT0-20-1-I/ZRS 059800	
AT0-02-1-I/RS 090649		AT0-02-1-I/ZRS 000476	
AT0-11-S-I/RS 007594		AT0-11-S-I/ZRS 017086	
			
AT0-11-1-IA/RS 045561		AT0-11-1-IA/ZRS 052680	
AT0-11-2-IA/RS 085902		AT0-11-2-IA/ZRS 093021	
AT0-20-1-IA/RS 071665		AT0-20-1-IA/ZRS 078784	
AT0-02-1-IA/RS 012341		AT0-02-1-IA/ZRS 019460	
AT0-11-S-IA/RS 031324		AT0-11-S-IA/ZRS 038443	

Notes

The operating head can be turned in 90° stages to match the specified direction of actuation.

For IP 65 protection, use cable gland M20 with a maximum connection thread length of 9.5mm (V-M20).

For external applications and temperatures down to - 40°C, use sealing membrane RBS-AT0.




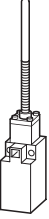
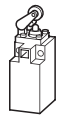

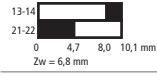

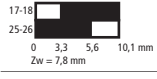



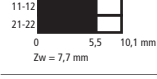

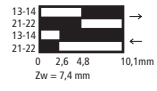
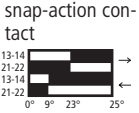
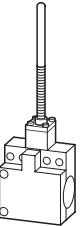
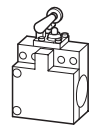

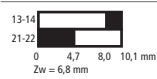

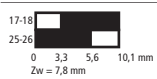

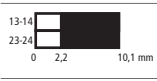

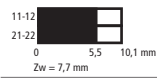

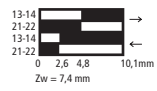
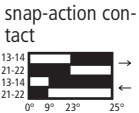
Accessories

Accessories	Page
Sealing membrane RBS-AT0	06/021
Cable glands	06/020

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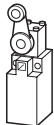
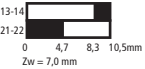
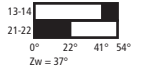
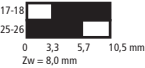
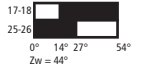



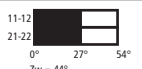
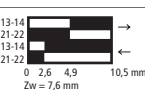
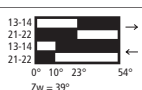
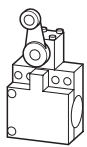
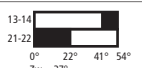
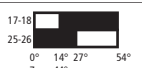
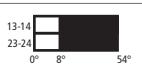
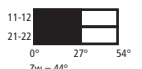
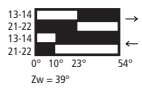
Contact		Contact Sequence		Spring rod actuator head ¹⁾		Roller lever EN 50 047 Form E	
N.O. = normally open N.C. = normally closed ⊕ = safety function with positively opening contacts to IEC/EN 60 947-5-1		■ closed □ open Zw = positive opening clearance to IEC/EN 60 947-5-1		Type	Price	Type	Price
N.O. N.C.				Article No.	see price list	Article No.	see price list
Complete units							
							
Narrow enclosures							
							
1	1	⊕		—		 0 4,7 8,0 10,1 mm Zw = 6,8 mm	AT0-11-1-I/AR 017085
1	1	⊕		—		 0 3,3 5,6 10,1 mm Zw = 7,8 mm	AT0-11-2-I/AR 057426
2	—	—		—		 0 2,2 10,1 mm	AT0-20-1-I/AR 043189
—	2	⊕		—		 0 5,5 10,1 mm Zw = 7,7 mm	AT0-02-1-I/AR 083530
1	1	⊕		AT0-11-S-I/F 000475		 0 2,6 4,8 10,1 mm Zw = 7,4 mm	AT0-11-S-I/AR 097767
							
Wide enclosures							
							
1	1	⊕		—		 0 4,7 8,0 10,1 mm Zw = 6,8 mm	AT0-11-1-IA/AR 038442
1	1	⊕		—		 0 3,3 5,6 10,1 mm Zw = 7,8 mm	AT0-11-2-IA/AR 078783
2	—	—		—		 0 2,2 10,1 mm	AT0-20-1-IA/AR 064546
—	2	⊕		—		 0 5,5 10,1 mm Zw = 7,7 mm	AT0-02-1-IA/AR 005222
1	1	⊕		AT0-11-S-IA/F 024205		 0 2,6 4,8 10,1 mm Zw = 7,4 mm	AT0-11-S-IA/AR 021832
							

Notes

¹⁾ Not to be used as a safety switch. Use only with snap-action contacts.

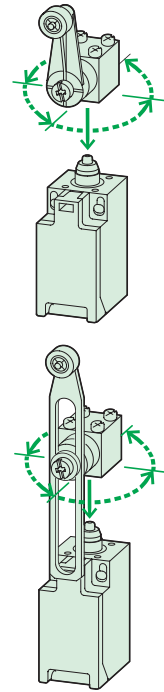
AT 0 Compact Oiltight Limit Switches
Complete Units

NEMA 4, 13 / IEC IP 65 / CE

Angle roller lever		Side roller lever EN 50 047 Form A	
Type Article No.	Price see price list	Type Article No.	Price see price list
			
 13-14 21-22 0 4,7 8,3 10,5mm Zw = 7,0 mm	AT0-11-1-I/WR 031323	 13-14 21-22 0° 22° 41° 54° Zw = 37°	AT0-11-1-I/R 021831
 17-18 25-26 0 3,3 5,7 10,5 mm Zw = 8,0 mm	AT0-11-2-I/WR 071664	 17-18 25-26 0° 14° 27° 54° Zw = 44°	AT0-11-2-I/R 062172
 13-14 23-24 0 2,1 10,5 mm	AT0-20-1-I/WR 057427	 13-14 23-24 0° 8° 54°	AT0-20-1-I/R 047935
 11-12 21-22 0 5,6 10,5 mm Zw = 7,9 mm	AT0-02-1-I/WR 097768	 11-12 21-22 0° 27° 54° Zw = 44°	AT0-02-1-I/R 088276
 13-14 21-22 13-14 21-22 0 2,6 4,9 10,5 mm Zw = 7,6 mm	AT0-11-S-I/WR 014713	 13-14 21-22 13-14 21-22 0° 10° 23° 54° Zw = 39°	AT0-11-S-I/R 005221
—			
—		 13-14 21-22 0° 22° 41° 54° Zw = 37°	AT0-11-1-IA/R 043188
—		 17-18 25-26 0° 14° 27° 54° Zw = 44°	AT0-11-2-IA/R 083529
—		 13-14 23-24 0° 8° 54°	AT0-20-1-IA/R 069292
—		 11-12 21-22 0° 27° 54° Zw = 44°	AT0-02-1-IA/R 009968
—		 13-14 21-22 13-14 21-22 0° 10° 23° 54° Zw = 39°	AT0-11-S-IA/R 028951

Notes

The operating head can be turned in 90° stages to match the specified direction of actuation.
For IP 65 protection, use cable gland M20 with a maximum connection thread length of 9.5mm (V-M20).
For external applications and temperatures down to - 40°C, use sealing membrane RBS-AT0.



Accessories

Page

Sealing membrane RBS-AT0	06/021
Cable glands	06/020

AT 0 Compact Oiltight Limit Switches
Complete Units

NEMA 4, 13 / IEC IP 65 / CE

Limit Switches

Contact
N.O. = normally open
N.C. = normally closed
⊕ = safety function with positively opening contacts to IEC/EN 60 947-5-1

N.O. N.C.

Contact Sequence
■ closed
□ open
Zw = positive opening clearance to IEC/EN 60 947-5-1

Adjustable roller lever

Type

Article No.

Price

see price list

Actuating rod ¹⁾

Type

Article No.

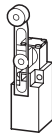
Price

see price list

Complete units

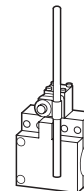
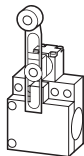
totally insulated

Narrow enclosures



1	1	⊕			AT0-11-1-I/V 028950		AT0-11-1-I/H 019458
1	1	⊕			AT0-11-2-I/V 069291		AT0-11-2-I/H 059799
2	-	-			AT0-20-1-I/V 055054		AT0-20-1-I/H 045562
-	2	⊕			AT0-02-1-I/V 095395		AT0-02-1-I/H 085903
1	1	⊕			AT0-11-S-I/V 012340		AT0-11-S-I/H 002848

Wide enclosures






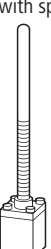





1	1	⊕			AT0-11-1-IA/V 050307		AT0-11-1-IA/H 040815
1	1	⊕			AT0-11-2-IA/V 090648		AT0-11-2-IA/H 081156
2	-	-			AT0-20-1-IA/V 076411		AT0-20-1-IA/H 066919
-	2	⊕			AT0-02-1-IA/V 017087		AT0-02-1-IA/H 007595
1	1	⊕			AT0-11-S-IA/V 036070		AT0-11-S-IA/H 026578

Notes:

¹⁾ Not to be used as a safety limit switch.

AT 0 Compact Oiltight Limit Switches Operating Heads

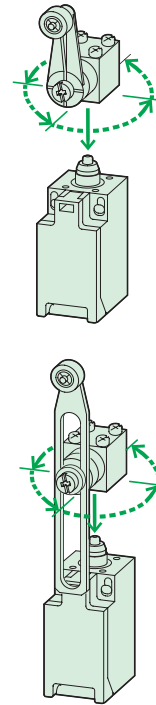
NEMA 4, 13 / IEC IP 65 / CE

	Style	Direction of actuation	Type Article No.	Price see price list
Operating heads				
	with roller plunger Form C to EN 50 047	lateral	RS-ATO 053145	
	with roller plunger single hole mounting	lateral	ZRS-ATO 031083	
	with roller plunger single hole mounting	axial, lateral	ZS-ATO 033456	
	with spring-rod actuator -	lateral	F-ATO 050772	
	with roller lever Form E to EN 50 047	lateral	AR-ATO 046026	
	with angled roller lever -	lateral	WR-ATO 048399	
	with side roller lever Form A to EN 50 047	lateral	R-ATO 038907	
	with adjustable roller lever -	lateral	V-ATO 041280	
	with actuating rod -	lateral	H-ATO 043653	

Notes

The operating heads can be turned in 90 ° stages to match the specified direction of operation.

For IP 65 degree of protection, use cable gland M20 with a maximum connection thread length of 9.5mm (V-M20).



Not to be used as a safety limit switch:

- F-ATO
- H-ATO

F-ATO can be used only in conjunction with snap-action contacts.

Accessories	Page
Cable glands	06/020