

Selection tables: position switches and limit switches

Contact combinations

Enclosures - models						Default contacts		Image	Page
						Ordering suffix			
						Contact NO			
						Contact NC			
						M 660/6600	1	1-34	
						M 6610/6620	2	1-38	
						EM 14	3	1-42	
						ES 14	3	1-42	
						ES13	4	1-52	
						E 12	5	1-63	
						ES 51	6	1-74	
						ES/EM 41/411	7	1-86	
						M 330	8	1-100	
						ES/EM 61	9	1-107	
						T/M 015	10	1-114	
						T 016	11	1-114	
						T/M 017	12	1-114	
						U 431	13	1-120	
						U 432	14	1-121	
						U 433	15	1-121	
						U 434	16	1-121	
						T 422	17	1-124	
						T/M 441	18	1-124	
						T 452	19	1-124	
						T/M 461	20	1-125	
						T 470	21	1-125	
						T/M 035	22	1-130	
						T/M 250	23	1-131	
						TS 064	24	1-132	
						MS 064	24	1-133	
						T. 064	25	1-135	
						M. 064 L	25	1-137	
						M. 064 R	25	1-136	
						T. 067	26	1-138	
						M. 471 R	27	1-141	
						T 130	28	1-142	
						T 136	29	1-144	
						T 240	30	1-143	

Light limit switches

Medium heavy limit switches

Heavy limit switches

Contact configuration right/left	Image	Page	2 contacts		3 contacts			
			10/10	01/01	10/11	11/01	10/02	20/01
Ordering suffix								
Contact NO			2		2	1	1	2
Contact C N				2	1	2	2	1
T 250	23	1-131	T	T	T	T	T	T
T. 064	24	1-135						
T. 067	26	1-138	T	T				
T. 471	27	1-139						
M. 471	27	1-140						
T 246	30	1-145						

M = snap action

T = slow action

¹⁾ = by default 1-pole change-over contact

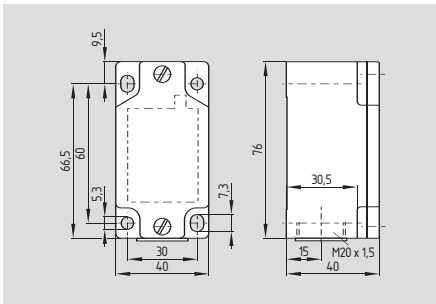
* = all contact combinations possible (apart from only NC contact or only NO contact)

1 contact		2 contacts			3 contacts				4 contacts					6 – 10 contacts		
10	01	11	20	02	21	12	30	03	22	31	13	40	04	33	55	
1		1	2		2	1	3		2	3	1	4		3	5	
	1	1		2	1	2		3	2	1	3		4	3	5	
		M														
		M														
		M ¹⁾														
		T														
		T														
		M ¹⁾														
		T														
		T/M		T												
		M														
		T/M														
		T/M	T	T												
					T	T	T	T								
									T/M	T	T					
T	T															
		T	T	T												
					T	T	T	T								
									T	T	T	T	T			
T	T															
		T/M														
			T	T	T	T										
							T	T	T/M	T	T					
															T*	
		T/M	T	T												
		T/M	T	T	T	T	T	T	T/M	T	T					
					T	T	T	T	T	T	T	T	T			
					M	M	M	M	M	M	M	M	M			
					T	T	T	T								
					M	M	M		M	M		M				
					M	M		M	M		M		M			
		T	T	T												
					M	M			M							
															T*	
							T	T								
															T*	

				4 contacts								6 contacts				
10/20	10/20	02/01	01/02	11/11	11/20	11/02	11/11	21/10	30/10	01/03	20/20	02/02	21/21	12/12	30/30	03/03
3	3			2	3	1	2	3	4		4		4	2	6	
		3	3	2	1	3	2	1		4		4	2	4		6
				T	T	T	T	T	T	T						
T	T	T	T													
											T	T	T	T	T	T
											M	M	M	M		M
															T	T

Position and limit switches

M 330



- Metal enclosure
- Snap action, self-cleaning contacts, change-over contact, double break, silver contacts
- Galvanically separated contact bridges
- Mountings and switching points to EN 50041
- Particularly long life
- Suitable for low actuating speeds
- Free of silicon
- Proved in power station applications
- 1 cable entry M20 x 1.5
- Protection class IP 65
- Min. actuating speed 1 mm/min with reference to the plunger
- Available with plug-in connection

Technical data

Standards:	IEC/EN 60947-5-1 DIN EN 50041
Enclosure:	light-alloy diecast, paint finish
Protection class:	IP 65 to EN 60529
Contact material:	silver
Switching system:	snap action
Contact type:	change-over contact, double break, same potential
Termination:	screw terminals
Cable section:	max. 2.5 mm ² (incl. conductor ferrules)
U _{imp} :	4 kV
U _i :	250 V
I _{the} :	6 A
I _e /U _e :	2.5 A / 230 VAC
Utilisation category:	AC-15
Max. fuse rating:	6 A gG D-fuse
Contact opening:	2 x 0,5 mm
Switchover time:	≤ 0 ms (with actuating speed 10 mm/min on plunger)
Bounce duration:	≤ 0,5 ms
Ambient temperature:	- 30 °C ... + 90 °C
Mechanical life:	> 30 million operations
Switching frequency:	5000/h
Repeat accuracy of switching points:	± 0.02 mm on plunger
Impact resistance/ resistance to shock:	50 g / 6 ms

Contact variants

1 NO / 1 NC



Approvals

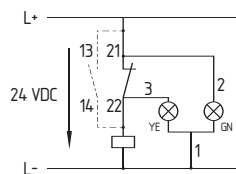


Ordering details

M① 330-11y-②-③

No. Replace	Description
①	For the appropriate actuator: see page 1-101 and following
②	Without LED
	With LED
③	Gold-nickle alloy contacts
	Splined shaft and lever with 10° tothing
1164	
1366	Version for high tem- perature up to + 160 °C

Note

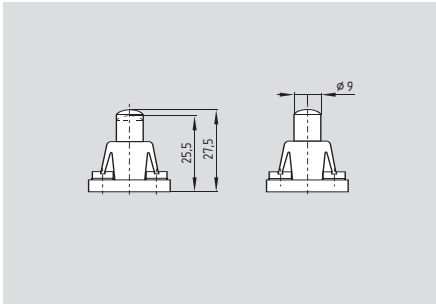


LED version

- Ordering suffix G24, protected against incorrect polarity and voltage spikes.
- Supply voltage indication: Green (GN)
 - Switching position indication: Yellow (YE)

Position and limit switches

Plunger S



- Required actuating force 17.5 N
- To DIN EN 50041
- Version for high temperature up to + 160 °C, ordering suffix -1366

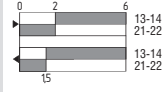
Actuation from the side of the plunger should be avoided, since this reduces the mechanical life of the position switch.

Contact variants

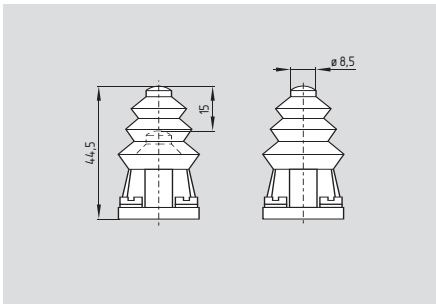
Contacts/
Switch travel | Snap action

1 NO / 1 NC

MS 330-11y



Telescopic plunger 2S



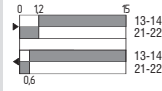
- Required actuating force 45 N
- Collar to protect against the entry of foreign bodies

Contact variants

Contacts/
Switch travel | Snap action

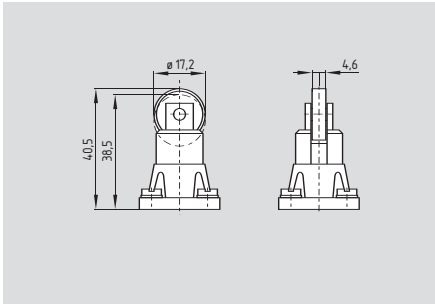
1 NO / 1 NC

M2S 330-11y



Position and limit switches

Roller plunger R



- Required actuating force 17.5 N
- Plastic roller
- Actuator head can be transposed by 90°
- To DIN EN 50041
- Metal roller available on request
- Version for high temperature up to + 160 °C, ordering suffix -1366

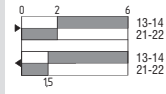
Contact variants

Contacts/
Switch travel

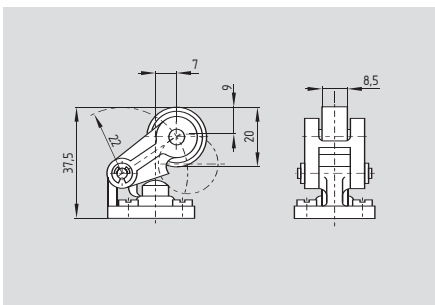
Snap action

1 NO / 1 NC

MR 330-11y



Offset roller lever K



- Required actuating force 19 N
- Plastic roller
- Actuator head can be repositioned in steps 4 x 90°
- Metal roller available on request

Actuation from the right should be avoided, since this reduces the mechanical life of the position switch.

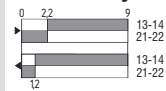
Contact variants

Contacts/
Switch travel

Snap action

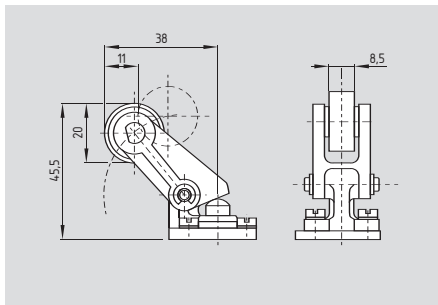
1 NO / 1 NC

MK 330-11y



Position and limit switches

Angle roller lever 3K



- Required actuating force 16 N
- Actuation parallel to axis of switch from below
- Plastic roller
- Actuator head can be repositioned in steps 4 x 90°
- Metal roller available on request

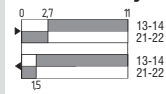
Contact variants

Contacts/
Switch travel

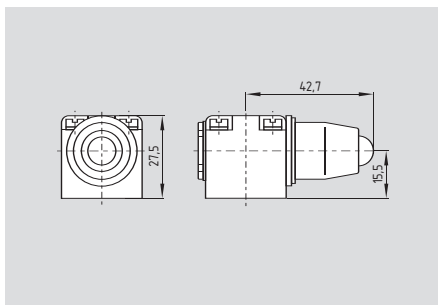
Snap action

1 NO / 1 NC

M3K 330-11y



Side plunger 3S



- Required actuating force 17 N
- Collar to protect against the entry of foreign bodies
- Actuator head can be repositioned in steps 4 x 90°

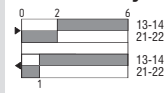
Contact variants

Contacts/
Switch travel

Snap action

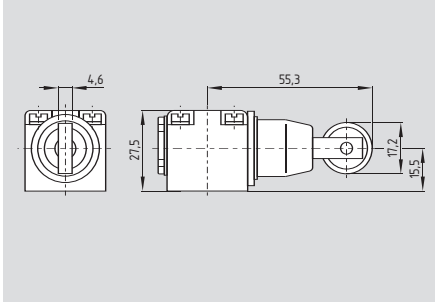
1 NO / 1 NC

M3S 330-11y



Position and limit switches

Side roller plunger 3R



- Required actuating force 17 N
- Collar to protect against the entry of foreign bodies
- Plastic roller
- Actuator head can be repositioned in steps 4 x 90°
- Metal roller available on request

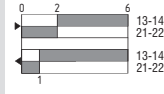
Contact variants

Contacts/
Switch travel

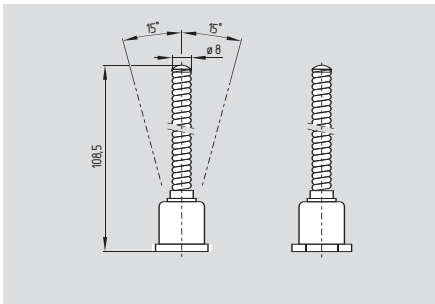
Snap action

1 NO / 1 NC

M3R 330-11y



Spring rod lever AF



- Required actuating force 9.0 N
- Can be actuated from any direction
- Elasticity of the spring allows for deflection above the max. switching angle of 15°

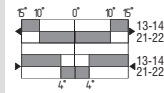
Contact variants

Contacts/
Switch travel

Snap action

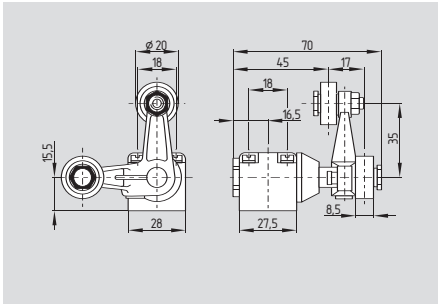
1 NO / 1 NC

MAF 330-11y



Position and limit switches

Forked roller lever 4D



- With latching end position
- Actuator head with 90° end position latching
- Required actuating torque 50.5 Ncm
- Plastic rollers
- Continuous adjustment of lever position 360°
- Lever can be transposed by 180°
- Actuator head can be repositioned in steps 4 x 90°
- Metal roller available on request

Legend

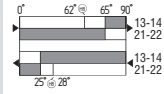
⊕ : Snap action point

Contact variants

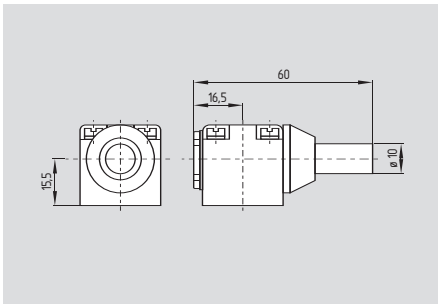
Contacts/
Switch travel | Snap action

1 NO / 1 NC

M3V4D 330-11y



Actuator head for lever V.



- Required actuating torque 50.5 Ncm
- Actuator head can be repositioned in steps 4 x 90°
- Patented low-wear actuator head
- Version for high temperature up to + 160 °C, ordering suffix -1366
- Splined shaft and lever available with 10° toothing, ordering suffix -1164

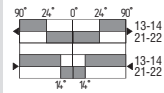
The range of turning levers is presented on the next page.

Contact variants

Contacts/
Switch travel | Snap action

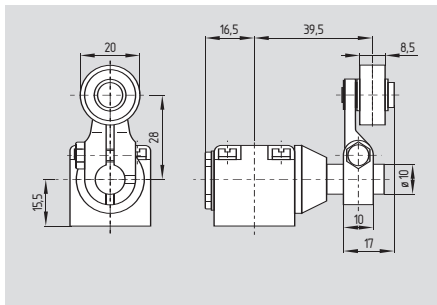
1 NO / 1 NC

MV. 330-11y



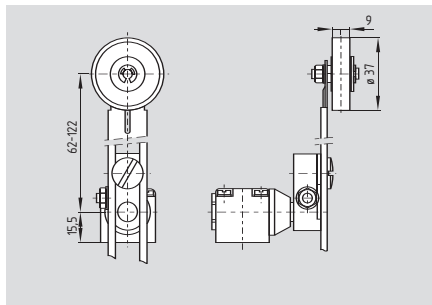
Position and limit switches

Roller lever 8H



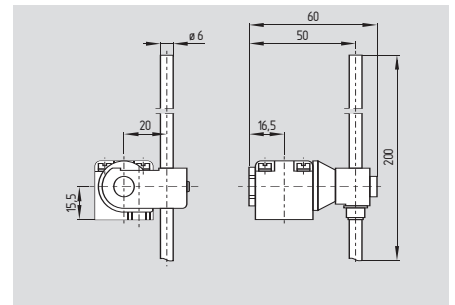
- Required actuating torque 24 Ncm, ordering suffix -A
50.5 Ncm, without ordering suffix -A
- Plastic roller
- Continuous adjustment of lever position 360°
- Lever can be transposed by 180°
- Actuator head can be repositioned in steps 4 x 90°
- Metal roller available on request
- Lever with 10° tothing, ordering suffix -1164

Roller lever 7H



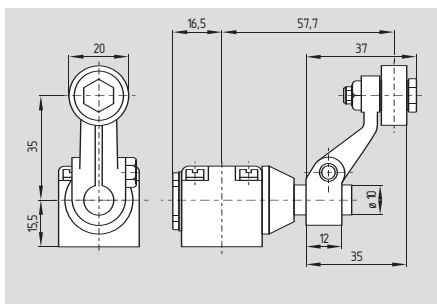
- Required actuating torque 50.5 Ncm
- Plastic roller
- Continuous adjustment of lever position 360°
- Lever can be transposed by 180°
- Actuator head can be repositioned in steps 4 x 90°
- Metal roller available on request

Rod lever 10H



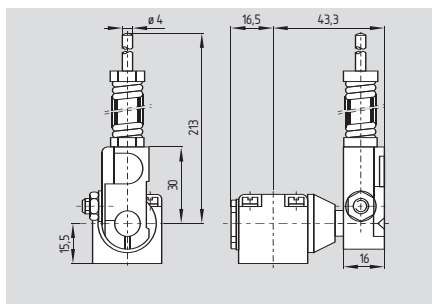
- Required actuating torque 50.5 Ncm
- Plastic rod
- Continuous adjustment of lever position 360°
- Lever can be transposed by 180°
- Actuator head can be repositioned in steps 4 x 90°
- Aluminium or stainless steel rod also available

Roller lever H



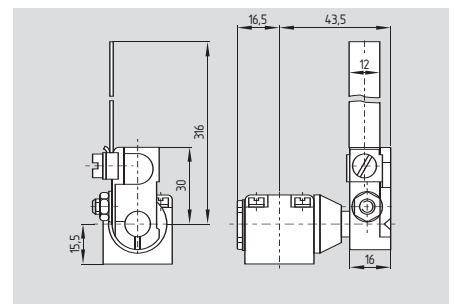
- Required actuating torque 50.5 Ncm
- Plastic roller
- Continuous adjustment of lever position 360°
- Lever can be transposed by 180°
- Actuator head can be repositioned in steps 4 x 90°
- Metal roller available on request
- Lever with 10° tothing, ordering suffix -1164

Spring rod lever on shaft 4H



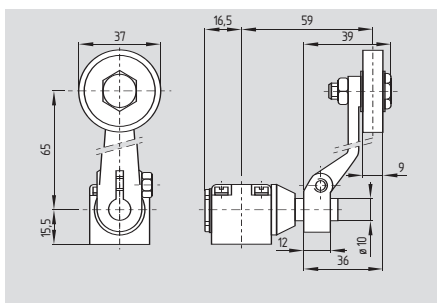
- Required actuating torque 50.5 Ncm
- Spring with projecting rod
- Continuous adjustment of lever position 360°
- Lever can be transposed by 180°
- Actuator head can be repositioned in steps 4 x 90°

Leaf-spring lever 2H



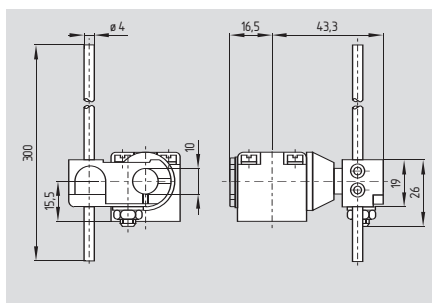
- Required actuating torque 50.5 Ncm
- Leaf spring 2.5 mm thick
- Epoxy-resin leaf spring
- Continuous adjustment of lever position 360°
- Lever can be transposed by 180°
- Actuator head can be repositioned in steps 4 x 90°

Roller lever 3H



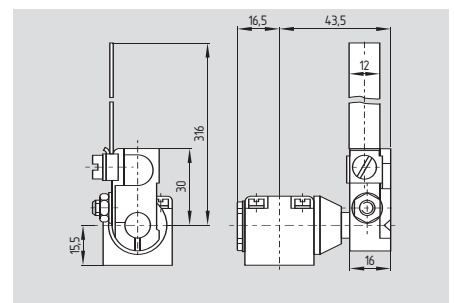
- Required actuating torque 50.5 Ncm
- Plastic roller
- Continuous adjustment of lever position 360°
- Lever can be transposed by 180°
- Actuator head can be repositioned in steps 4 x 90°
- Metal roller available on request
- Lever with 10° tothing, ordering suffix -1164

Rod lever 9H



- Required actuating torque 50.5 Ncm
- Stainless steel rod
- Continuous adjustment of lever position 360°
- Lever can be transposed by 180°
- Actuator head can be repositioned in steps 4 x 90°

Leaf-spring lever 6H



- Required actuating torque 50.5 Ncm
- Leaf spring 0.8 mm thick
- Spring-steel leaf spring
- Continuous adjustment of lever position 360°
- Lever can be transposed by 180°
- Actuator head can be repositioned in steps 4 x 90°