

# Achieve™ IEC Limit Switches

## AHP Series Plastic 37mm IEC Limit Switch With Remote Reset - 24VDC

- 90-degree adjustable head, levers are adjustable to any angle on the operating shaft
- 2 N.C. snap-action contacts per unit
- IP65
- Wide variety of head actuators

IEC Limit Switch With Remote Reset - 24VDC Selection Chart										
Part Number	Price	Actuator Type	Max. Actuation Speed	Min. Actuation Force	Min. Positive Opening Force	Travel to Operate Contacts	Total Travel	Travel Diagram	Connection Type	Drawing Link *
<b>Plastic Enclosure with 1m Cable</b>										
<a href="#">AHP2R002J02-024</a>	\$46.00	Plastic plunger	1ms	15N	30N	2.4 mm [0.09 in]	4.5 mm [0.17 in]	1	(2) PG11 and (1) 1/2in NPT cable entries	<a href="#">PDF</a>
<a href="#">AHP2T11J02-024</a>	\$42.00	Metal plunger	0.5 ms	15N	30N	2.4 mm [0.09 in]	4.5 mm [0.17 in]			<a href="#">PDF</a>
<a href="#">AHP2T12J02-024</a>	\$43.00	Metal plunger with metal roller	0.3 ms	12N	30N	4.5 mm [0.17 in]	7.8 mm [0.30 in]	2		<a href="#">PDF</a>
<a href="#">AHP2T30J02-024</a>	\$43.00	One-way horizontal lever with 12.5mm plastic roller	1ms	7N	24N	8.6 mm [0.33 in]	17.5 mm [0.68 in]	3		<a href="#">PDF</a>
<a href="#">AHP2T32J02-024</a>	\$43.00	One-way vertical lever with 12.5mm plastic roller								<a href="#">PDF</a>
<a href="#">AHP2T41J02-024</a>	\$44.00	Side rotary lever with 18mm nylon roller	1.5 ms	0.1 N•m	0.32 N•m	30°	62°	4		<a href="#">PDF</a>
<a href="#">AHP2T5100J02-024</a>	\$45.00	Side rotary 2mm step adjustable lever with 18mm nylon roller								<a href="#">PDF</a>
<a href="#">AHP2T5200J02-024</a>	\$46.00	Side rotary 2mm step adjustable lever with 50mm nylon roller							<a href="#">PDF</a>	

\* Weights are included on the drawing.

### Travel Diagrams

Diagram 1

J02

TAG	mm
A	0
B	2.4
C	4
D	4.5

Diagram 2

J02

TAG	mm
A	0
B	4.5
C	7.4
D	7.8

Diagram 3

J02

TAG	mm
A	0
B	8.6
C	13.1
D	17.5

Diagram 4

J02

TAG	degree
A	0
B	30
C	46
D	62

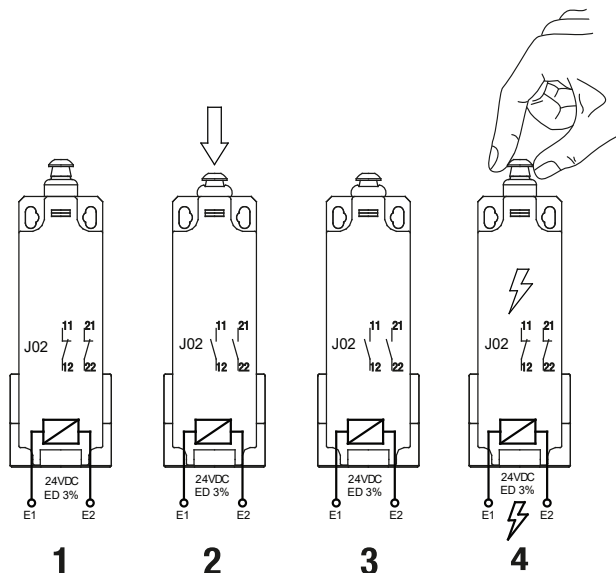


# IEC Limit Switches With Remote Reset 24VDC

## Wiring Diagrams



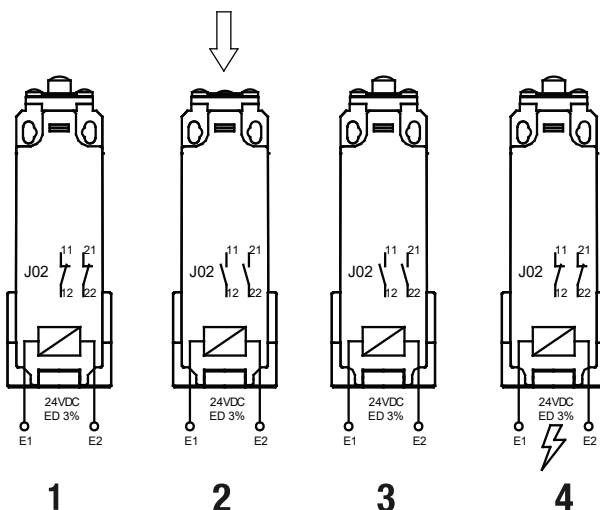
**AHP2R002J02-024**



- 1. Limit switch not actuated
- 2. Activation
- 3. Limit switch actuated
- 4. Reset by solenoid or manual



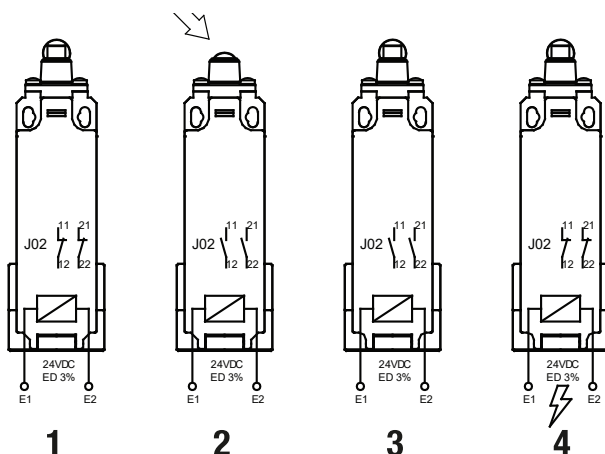
**AHP2T11J02-024**



- 1. Limit switch not actuated
- 2. Activation
- 3. Limit switch actuated
- 4. Reset by solenoid



**AHP2T12J02-024**



- 1. Limit switch not actuated
- 2. Activation
- 3. Limit switch actuated
- 4. Reset by solenoid

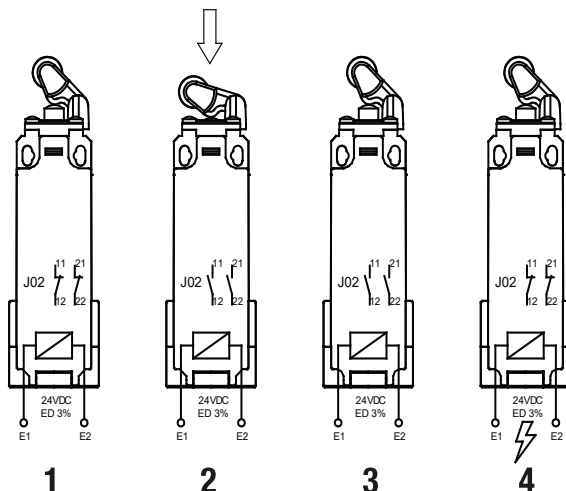


# IEC Limit Switches With Remote Reset 24VDC

## Wiring Diagrams



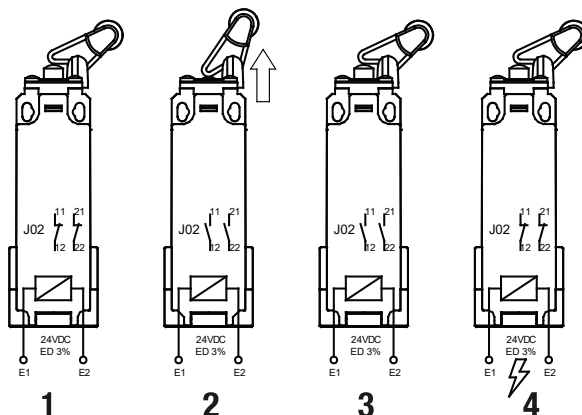
**AHP2T30J02-024**



- 1. Limit switch not actuated
- 2. Activation
- 3. Limit switch actuated
- 4. Reset by solenoid



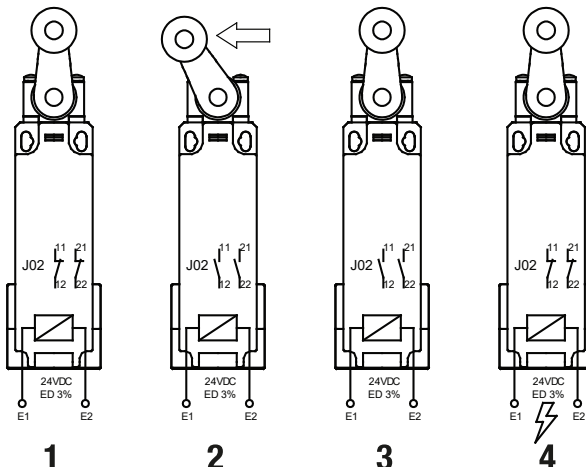
**AHP2T32J02-024**



- 1. Limit switch not actuated
- 2. Activation
- 3. Limit switch actuated
- 4. Reset by solenoid



**AHP2T41J02-024**



- 1. Limit switch not actuated
- 2. Activation
- 3. Limit switch actuated
- 4. Reset by solenoid

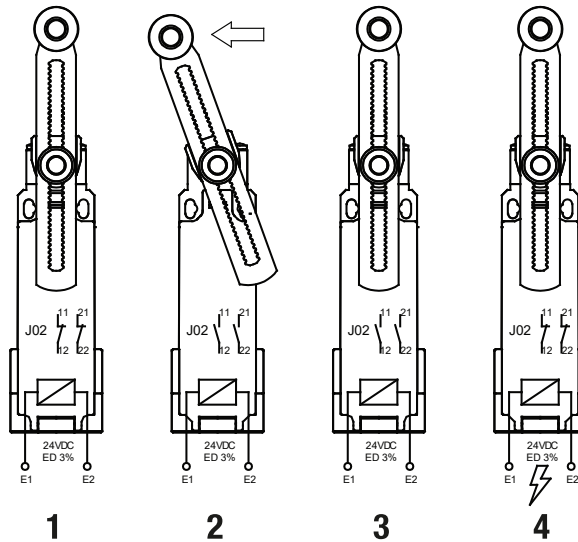


# IEC Limit Switches With Remote Reset 24V

## Wiring Diagrams



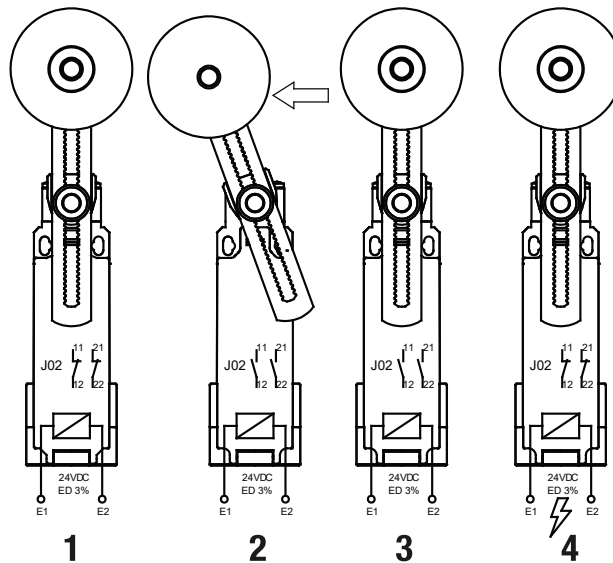
**AHP2T5100J02-024**



- 1. Limit switch not actuated
- 2. Activation
- 3. Limit switch actuated
- 4. Reset by solenoid



**AHP2T5200J02-024**



- 1. Limit switch not actuated
- 2. Activation
- 3. Limit switch actuated
- 4. Reset by solenoid



# IEC Limit Switches With Remote Reset 24V Specifications

IEC Limit Switch With Remote Reset 24V Specifications		
<b>Environmental</b>		
Degree of Protection	IP65	
Temperature Range	Storage: -30 to 80°C [-22 to 176°F] Operating: -25 to 70°C [-13 to 158°F]	
Rated Impulse Withstand Voltage	6kV (degree of pollution 3)	
<b>Mechanical Ratings</b>		
Working Positions	90-degree adjustable head	
Mechanical Life	50,000 Operations	
Enclosure Material	Reinforced thermoplastic	
<b>Contact Blocks Rating</b>		
Positive Opening	Yes	
Electrical Ratings (according to IEC 60947-1)	AC-15	4A @ 400VAC
	DC-13	3A @ 24VDC
Switching Frequency	Max. 119 operations/hour	
Repeat Accuracy	119ops/h	
Short-Circuit Protection	4A @ 500VAC, 3A @ 24VDC. gG (gl) type fuses	
Contact Resistance	25mΩ	
Rated Insulation Voltage	according to IEC 60947-1 and EN 60947-1	400V
	according to UL508 and CSA C22-2n° 14	A300 - Q300
Terminal Markings	According to IEC 60947-5-1	
Wiring Connections	18-14 AWG [0.75 to 2.5 mm <sup>2</sup> ]	
Connection Type	(2) PG11 and (1) 1/2in NPT cable entries	
Torque Requirements	Head	0.5 to 0.8 N•m [4.42 to 7.08 in-lb]
	Switch and Solenoid	0.8 to 0.9 N•m [7.08 to 7.96 in-lb]
Solenoid Supply Voltage	24 VAC/VDC +/- 10%	
Solenoid Current Consumption	4.25 A	
Solenoid ON time	0.2 to 0.5 sec	
Solenoid OFF Time*	Min. 30 sec	
<b>Safety Data</b>		
Electrical Protection (according to IEC 61140)	Class II	
Agency Approvals**	UL, CE	

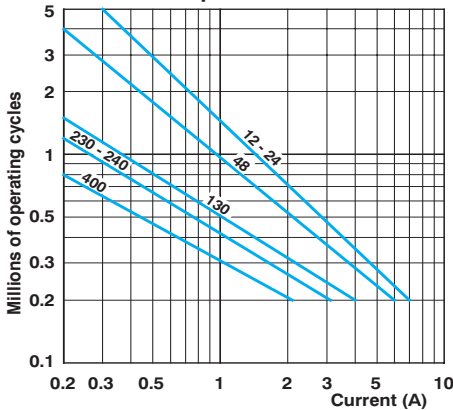
\*30 seconds between actuations at a max of 119 operations per hour.

\*\*To obtain the most current agency approval information, see the Agency Compliance & Certifications Checklist section on the specific part number's web page.

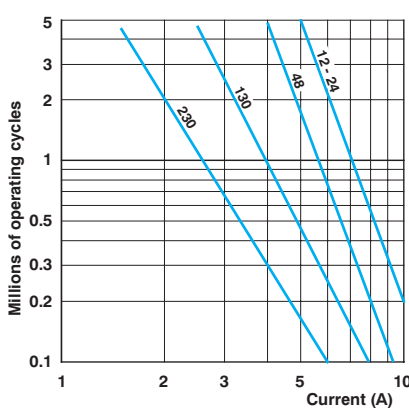
# Limit Switches Supplemental

## Electrical Durability (according to IEC 947-5-1)

### AC-15 Snap Action



### AC-15 Slow Action



#### Limit switch types

**Snap-action contact:** A contact element in which the contact motion is independent of the speed of the actuator. This feature ensures reliable electrical performance even in applications involving very slow moving actuators.

**Slow-make/slow-break contacts:** A contact element in which the contact motion is dependent on the actuator speed.

#### Terminal identification (IEC)

Each terminal is marked with two digits. The first digit indicates the pole (circuit). The second digit indicates the type of contact.

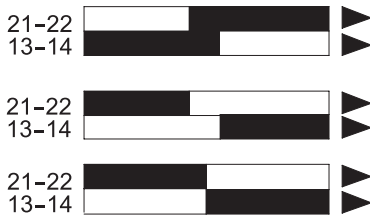
\_1-\_2 is N.C., \_3-\_4 is N.O.  
so 11-12, 21-22 are N.C., while 13-14, 23-24 are N.O.

DC-13	Snap Action	Slow Action
	Power breaking for a durability of 5 million cycles	
24V	9.5 W	12W
48V	6.8 W	9W
110V	3.6 W	6W

Terminal Markings	
European	
Terminal No.	Type
11-12	N.C. contact of pole no. 1 <sup>1</sup>
13-14	N.O. contact of pole no. 2 <sup>1</sup>
21-22	N.C. contact of pole no. 2 <sup>2</sup>
23-24	N.O. contact of pole no. 1 <sup>2</sup>

<sup>1</sup> With non-isolated contacts    <sup>2</sup> With isolated contacts

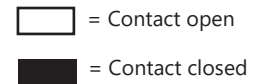
Note: Green/yellow wire is physical earth ground.



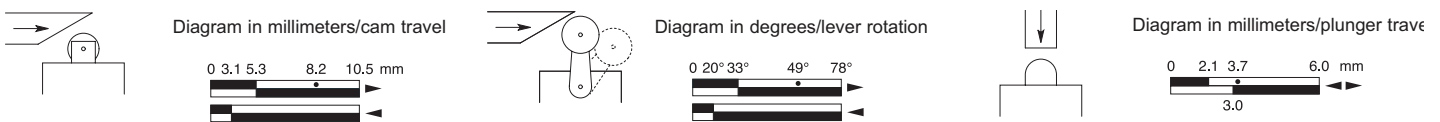
**Make-before-break (overlapping) SPDT:** the N.O. contact closes before the N.C. contact opens. (See ex: Y11)

**Break-before-make (offset) SPDT:** the N.C. contact opens before the N.O. contact closes. (See ex: X11)

**Simultaneous make and break SPDT:** the N.C. contact opens at the same time as the N.O. contact closes. (See ex: Z11)



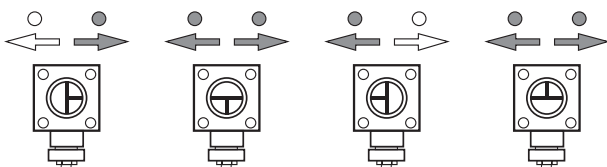
#### Bar Chart Examples (cam angle is 30 degrees)



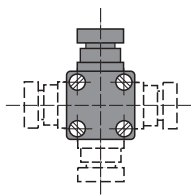
## Changeable working heads (E42, E52, E71)

View of cam insert when looking at bottom of head once removed from switch body.

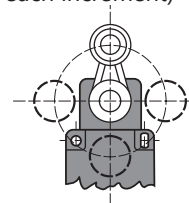
To change position, push in and twist until it locks into place



Positioning - 90° each way



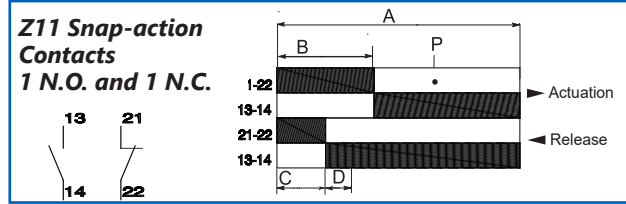
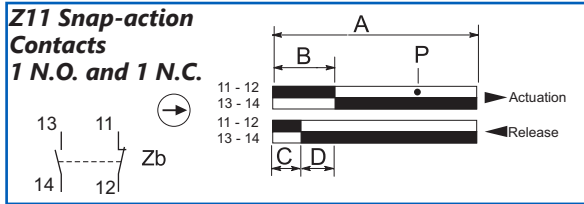
Adjustable lever from 0-360° (6° each increment)



# Achieve™ IEC Limit Switches Bar Charts

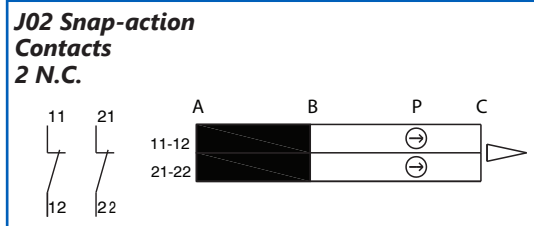
## Contacts Configuration and Bar Charts

- A = Max. travel of the operator in mm or degrees
- B = Tripping travel of both contacts on actuation
- C = Tripping travel of both contacts on release
- D = Differential travel (between actuation and release)
- P = Point from which positive opening is assured during actuation



Contact Displacement Values				
Part Series	Displacement Values (mm [in] or degrees)			
	A	B	C	P
ABMxE11Z11	6.0 [0.24]	3.0 [0.12]	1.8 [0.07]	4.6 [0.18]
ABMxE13Z11	10.5 [0.41]	5.3 [0.21]	3.1 [0.12]	8.2 [0.32]
ABMxE32Z11	15.5 [0.61]	6.3 [0.25]	3.1 [0.12]	10.8 [0.43]
ABMxE42Z11	78°	33°	20°	49°
ABMxE52Z11	78°	33°	20°	49°
ABMxE71Z11	78°	33°	20°	49°
ABMxE92Z11	—	21°	9°	—
ABMxE93Z11	—	21°	21°	—
ABPxH14Z11	5.9 [0.23]	2.2 [0.09]	1.0 [0.04]	3.8 [0.15]
ABPxH19Z11	10.5 [0.41]	4.6 [0.18]	2.4 [0.09]	7.5 [0.30]
ABPxH35Z11	17 [0.67]	6.8 [0.27]	3.8 [0.15]	11.3 [0.44]
ABPxH41Z11	90°	31°	19°	47°
ABPxH51Z11	90°	31°	19°	47°
ABPxH71Z11	90°	31°	19°	47°
ABPxH92Z11	—	27°	15°	—
ABPxH93Z11	—	27°	15°	—

Contact Displacement Values				
Part Number	Displacement Values (mm [in] or degrees)			
	A	B	C	P
ADP2T13Z11	9.6 [0.37]	4.7 [0.19]	2.5 [0.10]	7.6 [0.29]
ADP2T14Z11	5.6 [0.22]	2.5 [0.10]	1.3 [0.05]	4.1 [0.16]
ADP2T35Z11	21 [0.82]	9.0 [0.35]	4.9 [0.19]	14.5 [0.57]
ADP2T41Z11	74°	31°	17°	47°
ADP2T45Z11	74°	31°	17°	47°
ADP2T51Z11	74°	31°	17°	47°
ADP2T5100Z11	74°	31°	17°	47°
ADP2T71Z11	74°	31°	17°	47°
ADM2F11Z11	5.6 [0.22]	2.5 [0.10]	1.3 [0.05]	4.1 [0.16]
ADM2F12Z11	9.6 [0.37]	4.7 [0.19]	2.5 [0.10]	7.6 [0.29]
ADM2T35Z11	21 [0.82]	9.0 [0.35]	4.9 [0.19]	14.5 [0.57]
ADM2F43Z11	74°	31°	17°	47°
ADM2F46Z11	74°	31°	17°	47°
ADM2F53Z11	74°	31°	17°	47°
ADM2F71Z11	74°	31°	17°	47°
ADM2T93Z11	23°	23°	12°	—
ADM2T9805Z11A	5.6 [0.22]	2.0 [0.07]	0.9 [0.03]	—



Contact Displacement Values				
Part Number	Displacement Values (mm [in] or degrees)			
	A	B	C	P
AHP2R002J02-024	—	2.4 [0.09]	—	4 [0.15]
AHP2T11J02-024	—	2.4 [0.09]	—	4 [0.15]
AHP2T12J02-024	—	4.5 [0.17]	—	7.4 [0.29]
AHP2T30J02-024	—	8.6 [0.33]	—	13.1 [0.51]
AHP2T32J02-024	—	8.6 [0.33]	—	13.1 [0.51]
AHP2T41J02-024	—	30°	—	46°
AHP2T5100J02-024	—	30°	—	46°
AHP2T5200J02-024	—	30°	—	46°