


Safety Limit Switch D4B-□N

Snap-action contact with approved direct opening operation certification .
Maintenance, seal, and resistance to shock increased and direct opening mechanism added.
Three-conduit switches and 2NC switches are also available.

- Direct opening mechanism (NC contacts only) added to enable opening contacts when faults occur, such as fused contacts.
- Wide standard operating temperature range: -40°C to 80°C (standard type).
- Safety of lever settings ensured using a mechanism that engages a gear between the operating position indicator plate and the lever.
- Equipped with a mechanism that indicates the applicable operating zone, as well as push-button switching to control left and right motion.
- Approved standards: UL, CSA, EN (TÜV), SUVA, BIA, and CCC.
- Head seal structure strengthened to improve seal properties (TÜV: IEC IP67, UL: NEMA 3, 4, 4X, 6P, and 13).
- Models with gold-plated contacts added to the series to enable handling microloads.



Note: Contact your sales representative for details on models with safety standard certification.

Safety Limit
Switches
D4B-□N

Model Number Structure

■ Model Number Legend

D4B-□□□□N
1 2 3

1. Conduit

- 1: PG13.5 (1-conduit)
- 2: G1/2 (PF1/2) (1-conduit)
- 3: 1/2-14NPT (1-conduit)
- 5: PG13.5 (3-conduit)
- 6: G1/2 (PF1/2) (3-conduit)
- 7: 1/2-14NPT (3-conduit)

2. Built-in Switch

- 1: 1NC/1NO (snap-action)
- 3: 1NC/1NO (slow-action) gold-plated contacts
- 5: 1NC/1NO (slow-action) (see note)
- 6: 1NC/1NO (slow-action) gold-plated contacts (see note)
- A: 2NC (slow-action)
- B: 2NC (slow-action) gold-plated contacts

Note: Excluding D4B-□□81N and D4B-□□87N models.

3. Actuator





- 00: Switch box (without head)
- 11: Roller lever (resin roller)
- 15: Roller lever (stainless steel roller)
- 1R: Roller lever (conventional D4B-compatible)
- 16: Adjustable roller lever
- 17: Adjustable rod lever
- 70: Top plunger
- 71: Top roller plunger
- 81: Coil spring
- 87: Plastic rod

Ordering Information





■ Set Model Numbers

Safety Limit Switches

Safety Limit Switches
D4B-□N

Actuator	Conduit openings	Model		
		1NC/1NO (Snap-action)	1NC/1NO (Slow-action)	2NC (Slow-action)
Roller lever (resin roller) 	Pg13.5	D4B-1111N	D4B-1511N	D4B-1A11N
	G1/2 (PF1/2)	D4B-2111N	D4B-2511N	D4B-2A11N
	1/2-14NPT	D4B-3111N	D4B-3511N	D4B-3A11N
	Pg13.5 (3-conduit)	D4B-5111N	D4B-5511N	D4B-5A11N
	G1/2 (3-conduit)	D4B-6111N	D4B-6511N	D4B-6A11N
	1/2-14NPT (3-conduit)	D4B-7111N	D4B-7511N	D4B-7A11N
Roller lever (stainless steel roller) 	Pg13.5	D4B-1115N	D4B-1515N	D4B-1A15N
	G1/2 (PF1/2)	D4B-2115N	D4B-2515N	D4B-2A15N
	1/2-14NPT	D4B-3115N	D4B-3515N	D4B-3A15N
	Pg13.5 (3-conduit)	D4B-5115N	D4B-5515N	D4B-5A15N
Top plunger 	Pg13.5	D4B-1170N	D4B-1570N	D4B-1A70N
	G1/2 (PF1/2)	D4B-2170N	D4B-2570N	D4B-2A70N
	1/2-14NPT	D4B-3170N	D4B-3570N	D4B-3A70N
	Pg13.5 (3-conduit)	D4B-5170N	D4B-5570N	D4B-5A70N
	G1/2 (3-conduit)	D4B-6170N	D4B-6570N	D4B-6A70N
	1/2-14NPT (3-conduit)	D4B-7170N	D4B-7570N	D4B-7A70N
Top roller plunger 	Pg13.5	D4B-1171N	D4B-1571N	D4B-1A71N
	G1/2 (PF1/2)	D4B-2171N	D4B-2571N	D4B-2A71N
	1/2-14NPT	D4B-3171N	D4B-3571N	D4B-3A71N
	Pg13.5 (3-conduit)	D4B-5171N	D4B-5571N	D4B-5A71N
	G1/2 (3-conduit)	D4B-6171N	D4B-6571N	D4B-6A71N
	1/2-14NPT (3-conduit)	D4B-7171N	D4B-7571N	D4B-7A71N

General-purpose Limit Switches

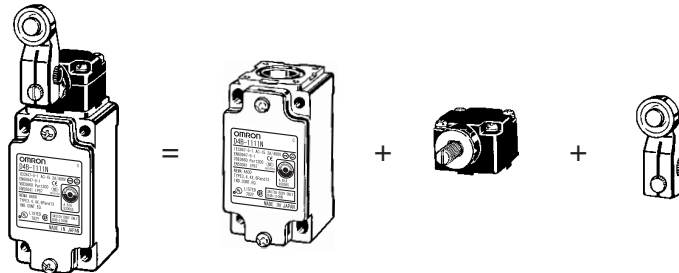
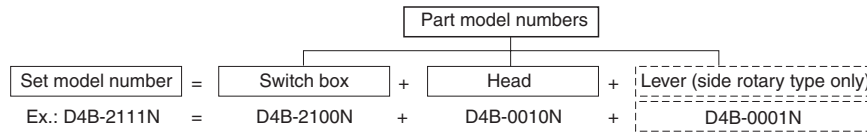
Actuator	Conduit openings	Model		
		1NC/1NO (Snap-action)	1NC/1NO (Slow-action)	2NC (Slow-action)
Adjustable roller lever 	Pg13.5	D4B-1116N	D4B-1516N	D4B-1A16N
	G1/2 (PF1/2)	D4B-2116N	D4B-2516N	D4B-2A16N
	1/2-14NPT	D4B-3116N	D4B-3516N	D4B-3A16N
	Pg13.5 (3-conduit)	D4B-5116N	D4B-5516N	D4B-5A16N
	G1/2 (3-conduit)	D4B-6116N	D4B-6516N	D4B-6A16N
	1/2-14NPT (3-conduit)	D4B-7116N	D4B-7516N	D4B-7A16N
Adjustable rod lever 	Pg13.5	D4B-1117N	D4B-1517N	D4B-1A17N
	G1/2 (PF1/2)	D4B-2117N	D4B-2517N	D4B-2A17N
	1/2-14NPT	D4B-3117N	D4B-3517N	D4B-3A17N
	Pg13.5 (3-conduit)	D4B-5117N	D4B-5517N	D4B-5A17N
	G1/2 (3-conduit)	D4B-6117N	D4B-6517N	D4B-6A17N
	1/2-14NPT (3-conduit)	D4B-7117N	D4B-7517N	D4B-7A17N
Coil spring (non-directional) 	Pg13.5	D4B-1181N	---	D4B-1A81N
	G1/2 (PF1/2)	D4B-2181N	---	D4B-2A81N
	1/2-14NPT	D4B-3181N	---	D4B-3A81N
	Pg13.5 (3-conduit)	D4B-5181N	---	D4B-5A81N
	G1/2 (3-conduit)	D4B-6181N	---	D4B-6A81N
	1/2-14NPT (3-conduit)	D4B-7181N	---	D4B-7A81N
Plastic rod (non-directional) 	Pg13.5	D4B-1187N	---	D4B-1A87N
	G1/2 (PF1/2)	D4B-2187N	---	D4B-2A87N
	1/2-14NPT	D4B-3187N	---	D4B-3A87N
	Pg13.5 (3-conduit)	D4B-5187N	---	D4B-5A87N
	G1/2 (3-conduit)	D4B-6187N	---	D4B-6A87N
	1/2-14NPT (3-conduit)	D4B-7187N	---	D4B-7A87N

Note: In addition to the above models, models compatible with the previous D4B Switches (with standard rotary levers) are available.
 Model number examples: D4B-1□1RN(Pg13.5) or D4B-2□1RN(PF1/2)

Ordering Switches

Because the D4B-□N employs a block mounting construction, parts may be ordered as a complete assembled set or individually as replacement parts. Switches ordered as sets are assembled before shipping.

Note: Do not order combinations of only a Side Rotary Lever and Head or a Side Rotary Lever and Switch Box.



Replacement Parts

Switch Boxes

	1-conduit type			3-conduit type		
	PG13.5	G1/2	1/2-14NPT	PG13.5	G1/2	1/2-14NPT
1NC/1NO (Snap-action) →	D4B-1100N	D4B-2100N	D4B-3100N	D4B-5100N	D4B-6100N	D4B-7100N
1NC/1NO (Slow-action) →	D4B-1500N	D4B-2500N	D4B-3500N	D4B-5500N	D4B-6500N	D4B-7500N
2NC (Slow-action) →	D4B-1A00N	D4B-2A00N	D4B-3A00N	D4B-5A00N	D4B-6A00N	D4B-7A00N

Operating Heads

Actuator	Type	Model
Side rotary	Standard	D4B-0010N
Top plunger	Plain	D4B-0070N
	Roller	D4B-0071N
Wobble lever	Coil spring	D4B-0081N
	Plastic rod	D4B-0087N

Levers (for Side Rotary Switches)

Actuator	Length (mm)	Diameter of roller	Model
Standard	31.5	17.5 dia.	D4B-0001N
Stainless steel roller lever	31.5	17.5 dia.	D4B-0005N
Adjustable roller lever	25 to 89	19 dia.	D4B-0006N
Adjustable rod lever	145 max.	---	D4B-0007N
Interchangeable with D4B-0001	33.7	19 dia.	D4B-000RN

Note: Other types of lever are also available.

Safety Limit Switches
D4B-□N


Specifications

Standards and EC Directives

- Conforms to the following EC Directives:
 - Machinery Directive
 - Low Voltage Directive
 - EN1088
 - EN50041


Approved Standards

Snap-action Models

Agency	Standard	File No.
TÜV Rheinland	EN60947-5-1 (approved direct opening mechanism)	J9851083 
	EN60947-5-1 (unapproved direct opening mechanism)	J50005477 (See note 1.)
UL	UL508	E76675
CSA	C22.2 No. 14	LR45746
BIA (See note 2.)	GS-ET-15	1-conduit: 9202158 3-conduit: 9309655
CQC (CCC)	GB14048.5	2003010305077612

- Note:**
- Adjustable roller lever, adjustable rod lever, coil spring, and plastic rod models only.
 - Not including adjustable roller lever, adjustable rod lever, coil spring, and plastic rod models.

Slow-action Models

Agency	Standard	File No.
TÜV Rheinland	EN60947-5-1 (approved direct opening mechanism)	J9851083 
	EN60947-5-1 (unapproved direct opening mechanism)	J50005477 (See note 1.)
UL	UL508	E76675
CSA	C22.2 No. 14	LR45746
BIA (See note.)	GS-ET-15	1-conduit: 9202158 3-conduit: 9309655
SUVA (See note.)	SUVA	1-conduit: E6188/1.d 3-conduit: E6189/1.d
CQC (CCC)	GB14048.5	2003010305077612

- Note:**
- Adjustable roller lever, adjustable rod lever, coil spring, and plastic rod models only.
 - Not including adjustable roller lever, adjustable rod lever, coil spring, and plastic rod models.

Approved Standard Ratings

TÜV (EN60947-5-1), CCC (GB14048.5)

Utilization category	AC-15
Rated operating current (I _e)	2 A
Rated operating voltage (U _e)	400 V

Note: As protection against short-circuiting, use either a gI-type or gG-type 10-A fuse that conforms to IEC60269.

UL/CSA: (UL508, CSA C22.2 No. 14)

A600

Rated voltage	Carry current	Current		Volt-amperes	
		Make	Break	Make	Break
120 VAC	10 A	60 A	6 A	7,200 VA	720 VA
240 VAC		30 A	3 A		
480 VAC		15 A	1.5 A		
600 VAC		12 A	1.2 A		

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■ Ratings

Rated voltage (V)	Non-inductive load (A)				Inductive load (A)			
	Resistive load		Lamp load		Inductive load		Motor load	
	NC	NO	NC	NO	NC	NO	NC	NO
125 VAC	10		3	1.5	10		5	2.5
250	10		2	1	10		3	1.5
400	10		1.5	0.8	3		1.5	0.8
8 VDC	10		6	3	10		6	
14	10		6	3	10		6	
30	6		4	3	6		4	
125	0.8		0.2	0.2	0.8		0.2	
250	0.4		0.1	0.1	0.4		0.1	

- Note:**
- The above values are continuous currents.
 - Inductive loads have a power factor of 0.4 or higher (AC) or a time constant of 7 ms or lower (DC).
 - Lamp loads have a inrush current of 10 times the normal current.
 - Motor loads have a inrush current of 6 times the normal current.

Inrush current	30 A max.
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■ Characteristics

Item	Snap-action	Slow-action
Degree of protection	IP67 (EN60947-5-1)	
Durability (see note 4)	Mechanical	30,000,000 operations min.
	Electrical	10,000,000 operations min.
Operating speed	500,000 operations min. (at a 250 VAC, 10-A resistive load)	
Operating frequency	1 mm/s to 0.5 m/s	
Operating frequency	Mechanical: 120 operations/min Electrical: 30 operations/min	
Rated frequency	50/60 Hz	
Insulation resistance	100 MΩ min. (at 500 VDC) between terminals of the same polarity and between each terminal and non-current-carrying part	
Contact resistance	25 mΩ max. (initial value)	
Dielectric strength (U _{imp})		
Between terminals of same polarity	U _{imp} 2.5 kV	U _{imp} 4 kV
Between terminals of different polarity	---	U _{imp} 4 kV
Between current-carrying metal parts and ground	U _{imp} 4 kV	U _{imp} 4 kV
Between each terminal and non-current-carrying parts	U _{imp} 4 kV	U _{imp} 4 kV
Rated insulation voltage (U _i)	600 VAC (EN60947-5-1)	
Counter electromotive voltage at switching	1,500 VAC max. (EN60947-5-1)	
Operating environmental pollution level	3 (EN60947-5-1)	
Conditional short-circuit current	100 A (EN60947-5-1)	
Conventional enclosed thermal current (I _{the})	20 A (EN60947-5-1)	
Electric shock protection class	Class I (with ground terminal)	
Vibration resistance	Malfunction: 10 to 55 Hz, 0.75 mm single amplitude	
Shock resistance	Destruction: 1,000 m/s ² min. Malfunction: 300 m/s ² min.	
Ambient temperature	Operating: -40°C to 80°C (with no icing) (see note 5)	
Ambient humidity	Operating: 95% max.	
Weight	Approx. 250 g	

- Note:**
- The above values are initial values.
 - The above values may vary depending on the model. Consult your OMRON sales representative for details.
 - The degree of protection is tested using the method specified by the standard (EN60947-5-1). Confirm that sealing properties are sufficient for the operating conditions and environment beforehand.
 - The durability is for an ambient temperature of 5°C to 35°C and ambient humidity of 40% to 70%. For further conditions, consult your OMRON sales representative.
 - 25°C to 80°C for the flexible-rod type.

Connections

■ Contact Form (EN50013)

Safety Limit Switches
D4B-□N

Model	Contact	Diagrams	Explanation
D4B-□1□N	1NC/1NO (Snap-action)	 	<p>Only NC contact 11-12 has an approved direct opening mechanism. (→)</p> <p>Terminal numbers 11-12 and 13-14 cannot be used as unlike poles.</p>
D4B-□5□N	1NC/1NO (Slow-action)	 	<p>Only NC contact 11-12 has an approved direct opening mechanism. (→)</p> <p>Terminal numbers 11-12 or 23-24 can be used as unlike poles.</p>
D4B-□A□N	2NC (Slow-action)	 	<p>Both NC contacts 11-12 and 21-22 have an approved direct opening mechanism. (→)</p> <p>Terminal numbers 11-12 and 21-22 can be used as unlike poles.</p>

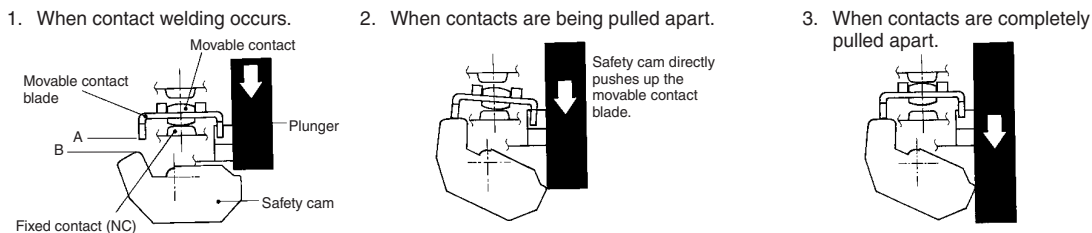
Note: Terminal numbers are according to EN50013; contact symbols are according to IEC60947-5-1.

Operation

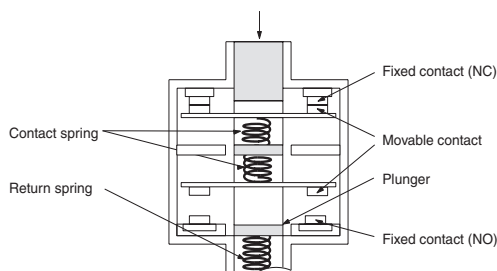
■ Direct Opening Mechanism

1NO/1NC Contact (Snap-action)

Conforms to EN60947-5-1 Direct Opening (→) (Only NC contact has a direct opening mechanism.)

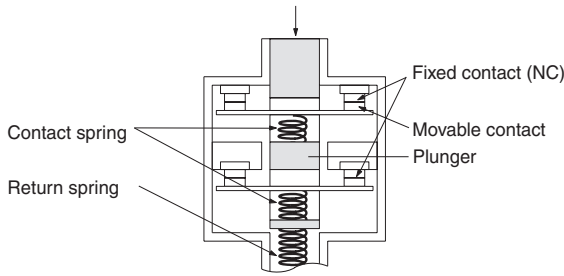


1NC/1NO Contact (Slow-action)



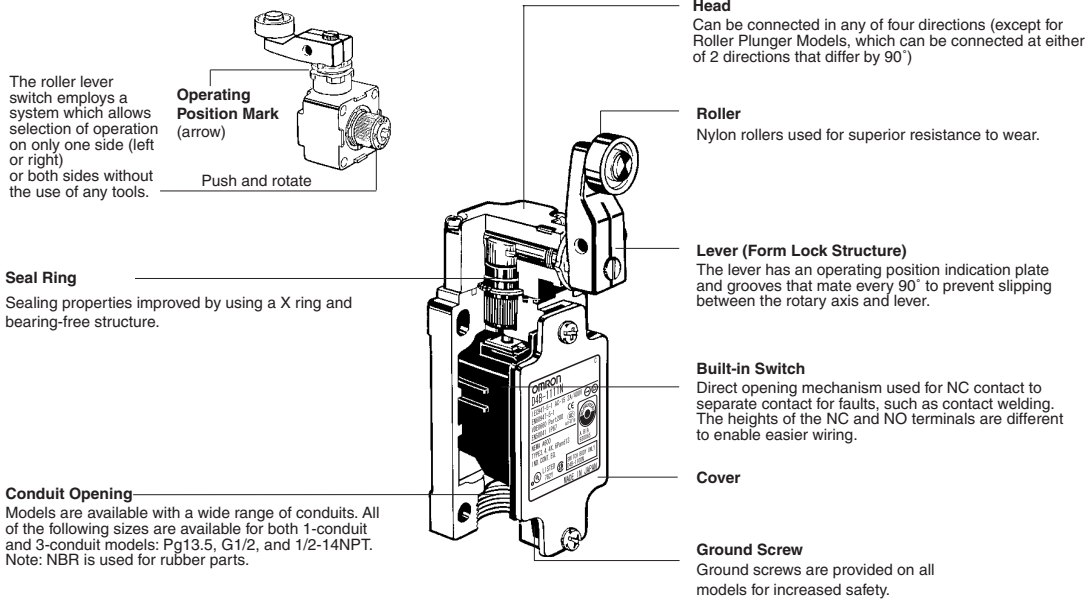
Conforms to EN60947-5-1 Direct Opening (→) (Only NC contact has a direct opening mechanism.)
When contact welding occurs, the contacts are separated from each other by the plunger being pushed in.

2NC Contact (Slow-action)



Conforms to EN60947-5-1 Direct Opening \oplus
(Only NC contact has a direct opening mechanism.)

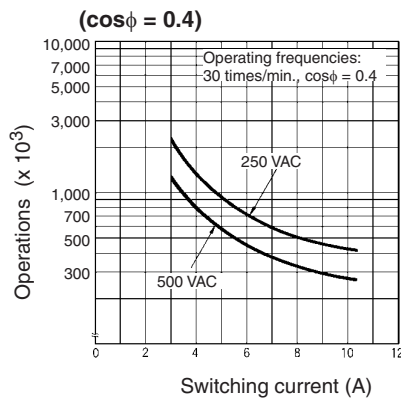
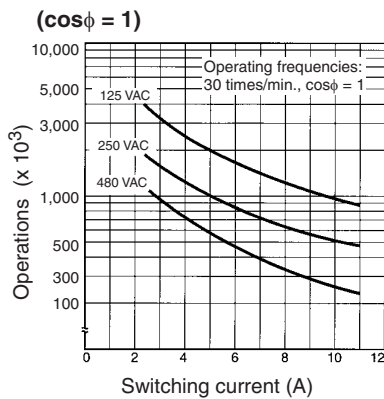
Nomenclature



Safety Limit Switches
D4B-□N

Engineering Data

Electrical Durability (Snap-action)



Dimensions

- Note:** 1. All units are in millimeters unless otherwise indicated.
 2. Unless otherwise specified, a tolerance of ± 0.4 mm applies to all dimensions.
 3. When placing your order, specify the conduit type by adding a code from the list below to the blank box of the following model numbers as shown below.
 Standard Switches 3-conduit Switches
 1: PG 13.5 5: PG 13.5
 2: G 1/2 6: G 1/2
 3: 1/2-14NPT 7: 1/2-14NPT
 4. Omitted dimensions are the same as those for the Rotary Level Type Models
 D4B-1□□□N and D4B-5□□□N have a PG13.5 conduit opening. D4B-2□□□N and D4B-6□□□N have a G1/2 conduit opening. D4B-3□□□N and D4B-7□□□N have a 1/2-14NPT conduit opening.

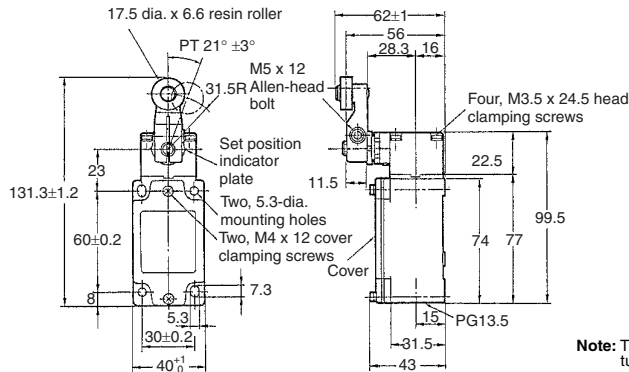
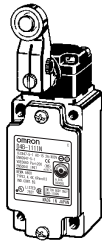
Switches

Safety Limit Switches

D4B-□N

Roller Lever

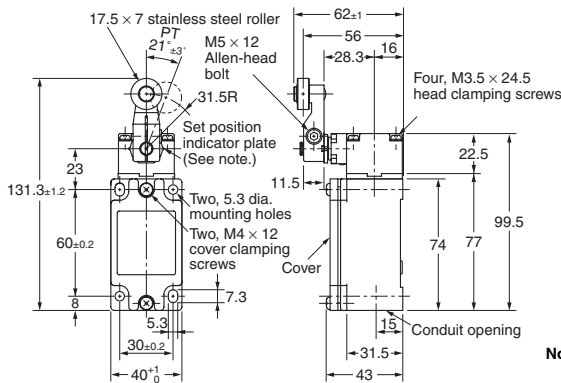
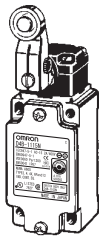
D4B-□□11N



Note: The lever can be set to any desired position by turning the operating position indicator.

Roller Lever

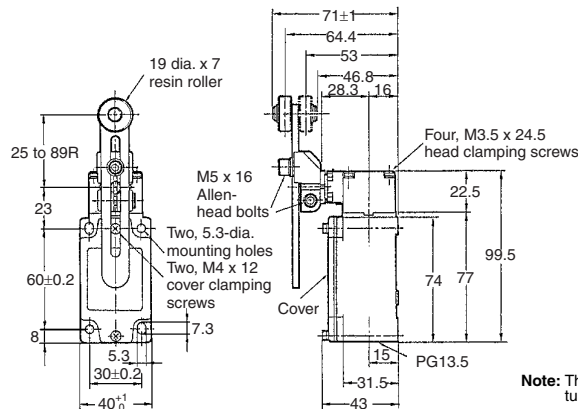
D4B-□□15N



Note: The lever can be set to any desired position by turning the operating position indicator.

Adjustable Roller Lever

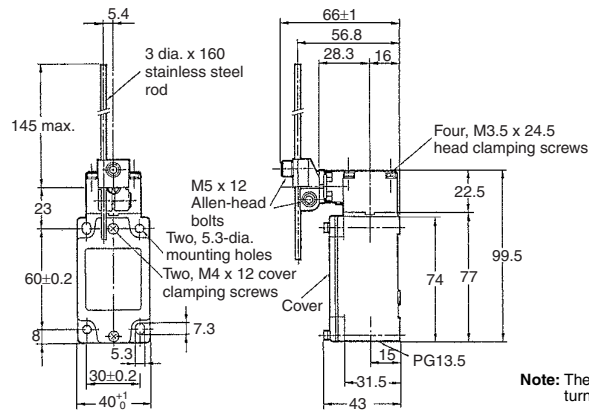
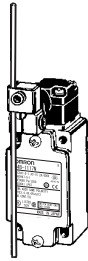
D4B-□□16N



Note: The lever can be set to any desired position by turning the operating position indicator.

Adjustable Rod Lever

D4B-□□17N



Note: The lever can be set to any desired position by turning the operating position indicator.

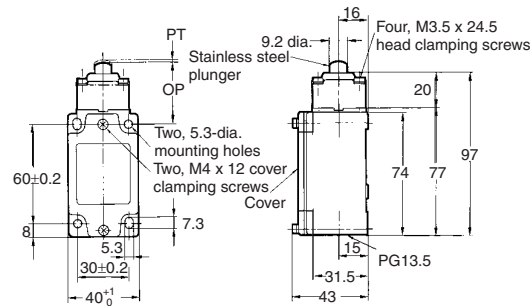
Note: Unless otherwise specified, a tolerance of ±0.4 mm applies to all dimensions.

Operating characteristic		D4B-□□11N	D4B-□□15N	D4B-□□16N (See note 2.)	D4B-□□17N (See note 3.)
Operating force	OF max.	9.41N	9.41N	9.41N	2.12N
Release force	RF min.	1.47N	1.47N	1.47N	0.29N
Positive travel	PT	21°±3°	21°±3°	21°±3°	21°±3°
	PT (2nd) (See notes 4, 6.)	(45°)	(45°)	(45°)	(45°)
Overtravel	OT min.	50°	50°	50°	50°
Movement deviation	MD max. (See note 5.)	12°	12°	12°	12°
Direct opening travel	DOT min. (See notes 4, 7.)	35°	35°	35°	35°
	(See notes 5, 7.)	55°	55°	55°	55°
Direct opening force	DOF min. (See note 7.)	19.61N	19.61N	19.61N	19.61N
Total travel	TT (See note 6.)	(75°)	(75°)	(75°)	(75°)

- Note:**
- Variation occurs in the simultaneity of contact opening/closing operations of 2NC contacts. Check contact operation.
 - The operating characteristics of these Switches were measured with the roller level set at 31.5 mm.
 - The operating characteristics of these Switches were measured with the rod level set at 140 mm.
 - Only for slow-action models.
 - Only for snap-action models.
 - Reference values.
 - Must be provided to ensure safe operation.

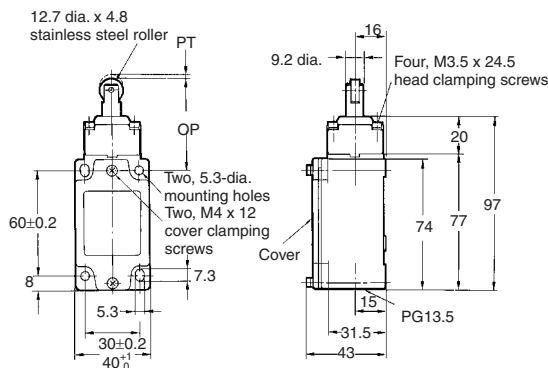
Top Plunger

D4B-□□70N



Top Roller Plunger

D4B-□□71N



Safety Limit Switches
D4B-□N

Note: Unless otherwise specified, a tolerance of ±0.4 mm applies to all dimensions.

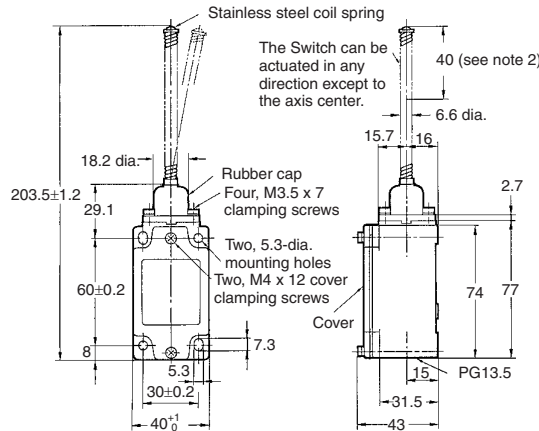
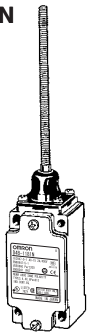
Operating characteristic		D4B-□□70N	D4B-□□71N
Operating force	OF max.	18.63 N	18.63 N
Release force	RF min.	1.96 N	1.96 N
Positive travel	PT	2 mm	2 mm
	PT (2nd) (See notes 2, 4.)	(3 mm)	(3 mm)
Overtravel	OT min.	5 mm	5 mm
Movement deviation	MD max. (See note 3.)	1 mm	1 mm
Direct opening travel	DOT min. (See notes 5.)	3.2 mm	3.2 mm
Direct opening force	DOF min. (See note 5.)	49.03 N	49.03N
Total travel	TT (See note 4.)	(7 mm)	(7 mm)
Free position	FP max.	38 mm	51 mm
Operating position	OP	35±1 mm	48±1 mm

- Note: 1. Variation occurs in the simultaneity of contact opening/closing operations of 2NC contacts. Check contact operation.
2. Only for slow-action models.
3. Only for snap-action models.
4. Reference values.
5. Must be provided to ensure safe operation.

Safety Limit Switches

D4B-□N

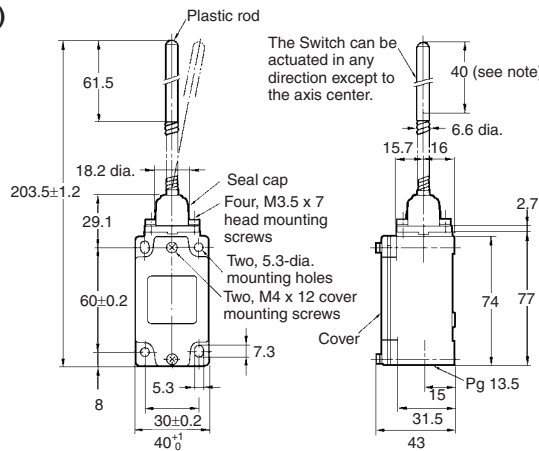
Coil Spring (Non-directional)
D4B-□□81N



Mechanically speaking, these models are general limit switches and not safety limit switches.

Note: Be sure to adjust the dog to within 40 mm from the top end of the coil spring.

Plastic Rod (Non-directional)
D4B-□□87N



Mechanically speaking, these models are general limit switches and not safety limit switches.

Note: Be sure to adjust the dog to within 40 mm from the top end of the plastic rod.

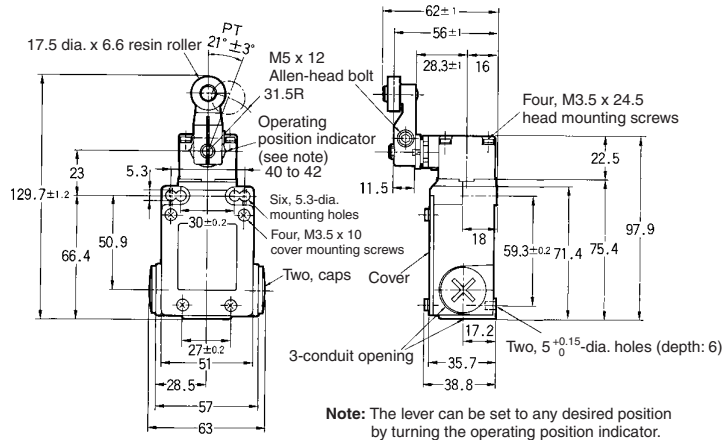
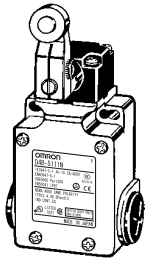
Note: Unless otherwise specified, a tolerance of ±0.4 mm applies to all dimensions.

Operating characteristic		D4B-□□81N	D4B-□□87N
Operating force	OF max.	1.47 N	1.47 N
Positive travel	PT max.	15°	15°

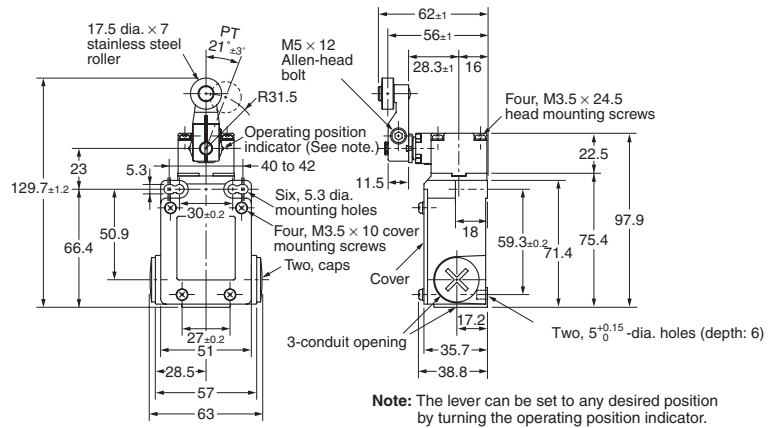
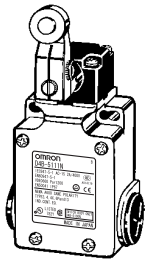
Note: Variation occurs in the simultaneity of contact opening/closing operations of 2NC contacts. Check contact operation.

3-conduit Switches

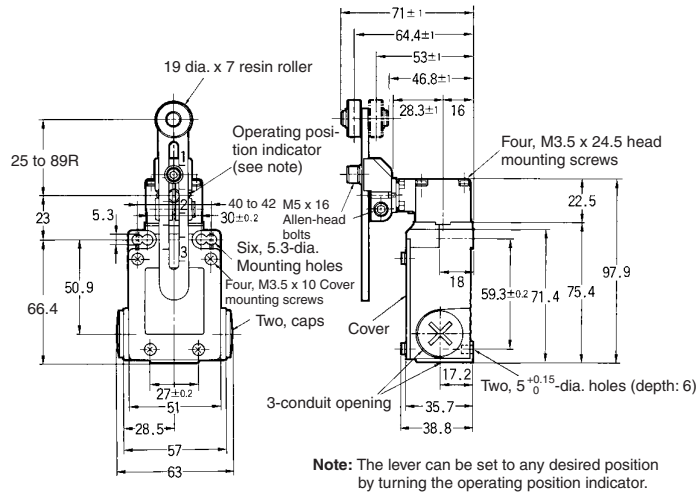
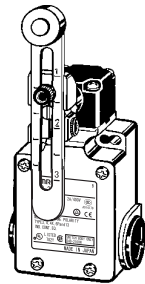
Roller Lever
D4B-□□11N



Roller Lever
D4B-□□15N



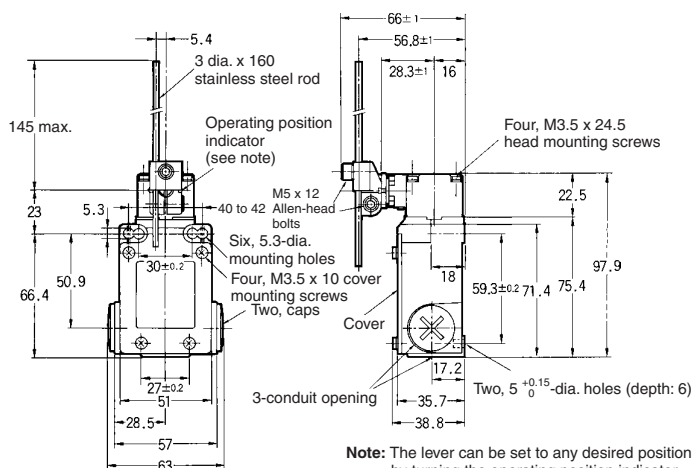
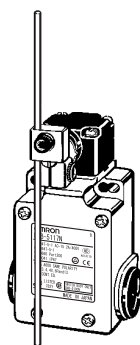
Adjustable Roller Lever
D4B-□□16N



Safety Limit Switches

D4B-□□N

Adjustable Rod Lever
D4B-□□17N



Note: The lever can be set to any desired position by turning the operating position indicator.

Note: Unless otherwise specified, a tolerance of ±0.4 mm applies to all dimensions.

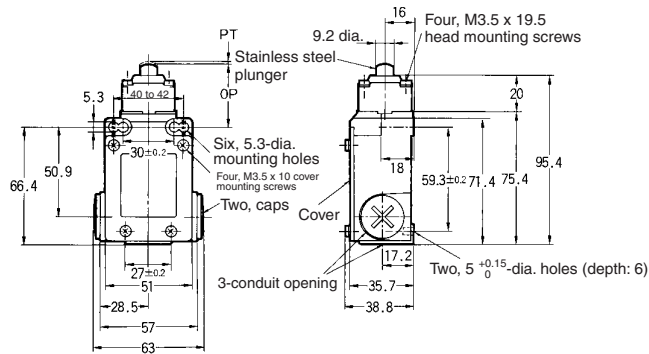
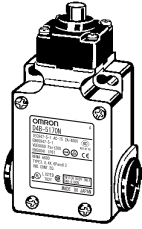
Operating characteristic		D4B-□□11N	D4B-□□15N	D4B-□□16N (See note 2.)	D4B-□□17N (See note 3.)
Operating force	OF max.	9.41 N	9.41 N	9.41 N	2.12 N
Release force	RF min.	1.47 N	1.47 N	1.47 N	0.29 N
Positive travel	PT	21°±3°	21°±3°	21°±3°	21°±3°
	PT (2nd) (See notes 4, 6.)	(45°)	(45°)	(45°)	(45°)
Overtravel	OT min.	50°	50°	50°	50°
Movement deviation	MD max. (See note 5.)	12°	12°	12°	12°
Direct opening travel	DOT min. (See notes 4, 7.)	35°	35°	35°	35°
	(See notes 5, 7.)	55°	55°	55°	55°
Direct opening force	DOF min. (See note 7.)	19.61 N	19.61 N	19.61 N	19.61 N
Total travel	TT (See note 6.)	(75°)	(75°)	(75°)	(75°)

- Note:**
1. Variation occurs in the simultaneity of contact opening/closing operations of 2NC contacts. Check contact operation.
 2. The operating characteristics of these Switches were measured with the roller level set at 31.5 mm.
 3. The operating characteristics of these Switches were measured with the rod level set at 140 mm.
 4. Only for slow-action models.
 5. Only for snap-action models.
 6. Reference values.
 7. Must be provided to ensure safe operation.

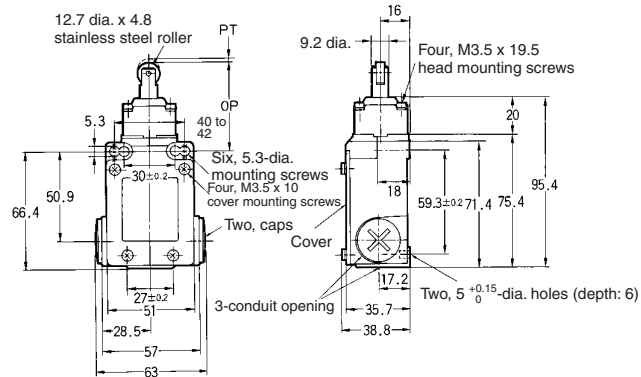
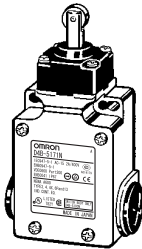
Safety Limit Switches

D4B-□N

Top Plunger
D4B-□□70N



Top Roller Plunger
D4B-□□71N



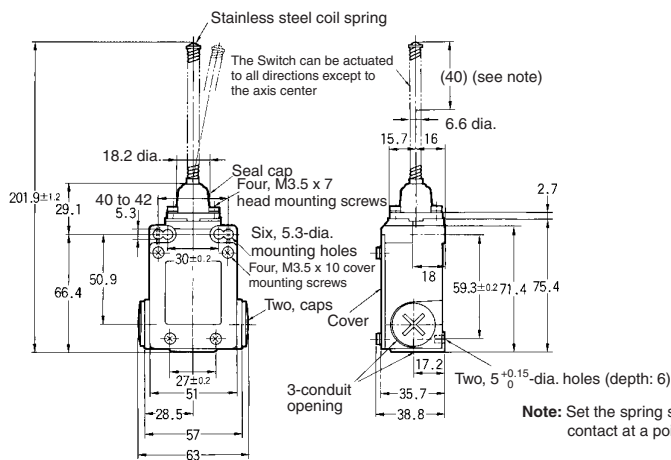
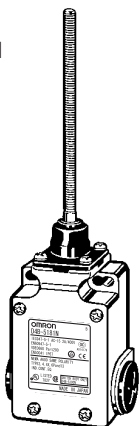
Note: Unless otherwise specified, a tolerance of ±0.4 mm applies to all dimensions.

Operating characteristic		D4B-□□70N	D4B-□□71N
Operating force	OF max.	18.63 N	18.63 N
Release force	RF min.	1.96 N	1.96 N
Positive travel	PT	2 mm	2 mm
	PT (2nd) (See notes 2, 4.)	(3 mm)	(3 mm)
Overtravel	OT min.	5 mm	5 mm
Movement deviation	MD max. (See note 3.)	1 mm	1 mm
Direct opening travel	DOT min. (See notes 5.)	3.2 mm	3.2 mm
Direct opening force	DOF min. (See note 5.)	49.03 N	49.03N
Total travel	TT (See note 4.)	(7 mm)	(7 mm)
Free position	FP max.	38 mm	51 mm
Operating position	OP	35±1 mm	48±1 mm

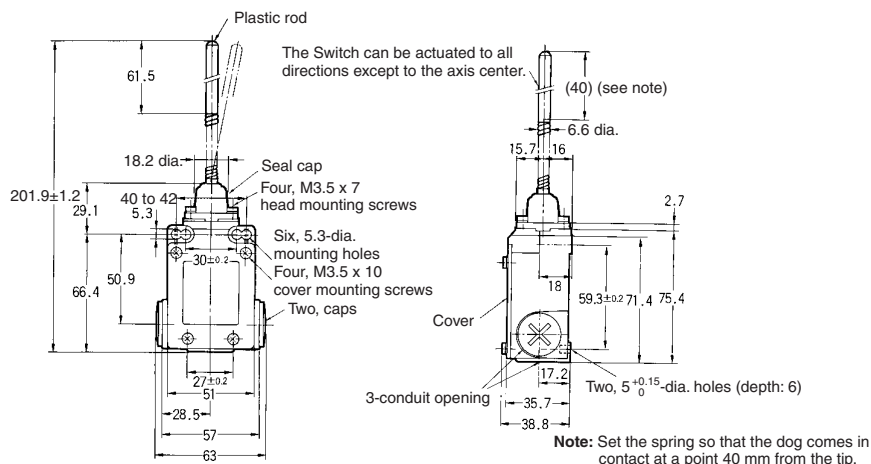
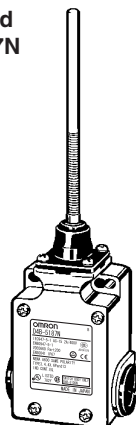
- Note:**
1. Variation occurs in the simultaneity of contact opening/closing operations of 2NC contacts. Check contact operation.
 2. Only for slow-action models.
 3. Only for snap-action models.
 4. Reference values.
 5. Must be provided to ensure safe operation.

Safety Limit Switches
D4B-□N

Coil Spring
D4B-□□81N



Plastic Rod
D4B-□□87N



Note: Unless otherwise specified, a tolerance of ±0.4 mm applies to all dimensions.

Operating characteristic		D4B-□□81N	D4B-□□87N
Operating force	OF max.	1.47 N	1.47 N
Positive travel	PT max.	15°	15°

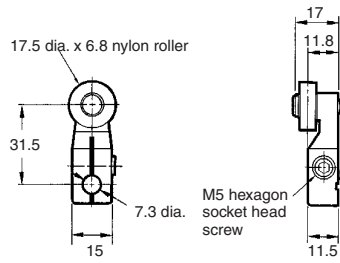
Note: Variation occurs in the simultaneity of contact opening/closing operations of 2NC contacts. Check contact operation.

Safety Limit Switches

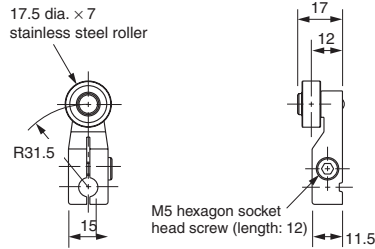
D4B-□N

Levers

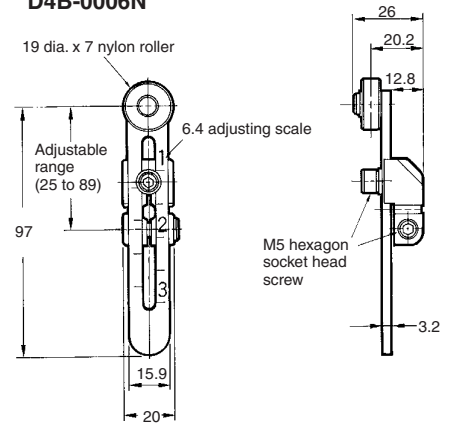
**Roller Lever
D4B-0001N**



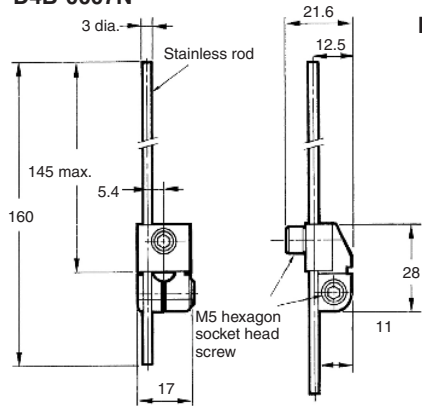
**Roller Lever (Stainless Steel Roller)
D4B-0005N**



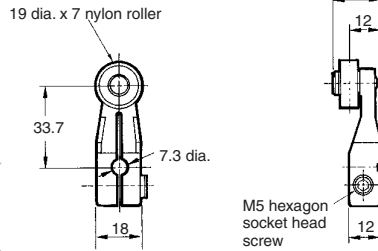
**Adjustable Roller Lever
D4B-0006N**



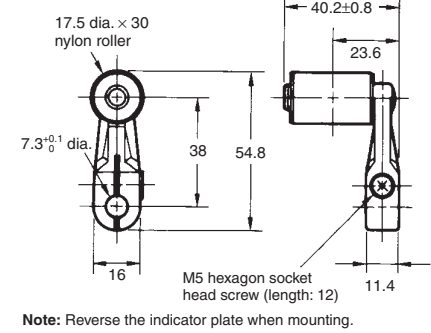
**Adjustable Rod Lever
D4B-0007N**



**Roller Lever (Compatible with Previous D4B Model)
D4B-000RN**

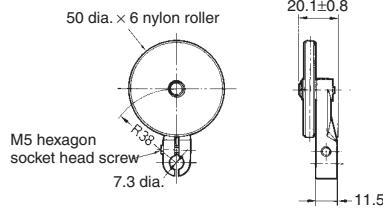


**Roller Lever
WL-1A118**



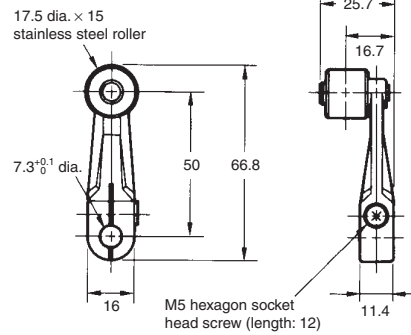
Note: Reverse the indicator plate when mounting.

**Roller Lever
WL-1A106**



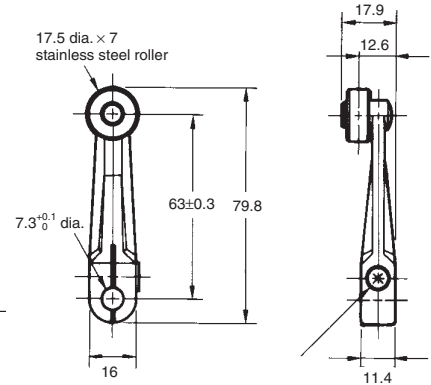
Note: Reverse the indicator plate when mounting.

**Roller Lever
WL-1A206**



Note: Reverse the indicator plate when mounting.

**Roller Lever
WL-1A300**

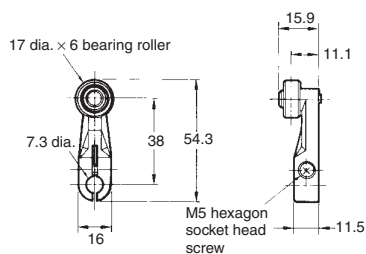


Note: Reverse the indicator plate when mounting.

Safety Limit
Switches

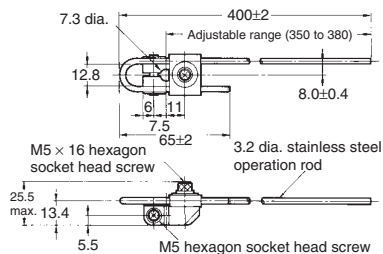
D4B-□N

**Roller Lever
WL-1A400**



Note: Reverse the indicator plate when mounting.

**Adjustable Rod Lever
WL-3A100**

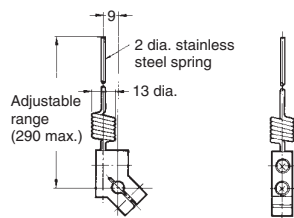


Note: Reverse the indicator plate when mounting.

Safety Limit
Switches

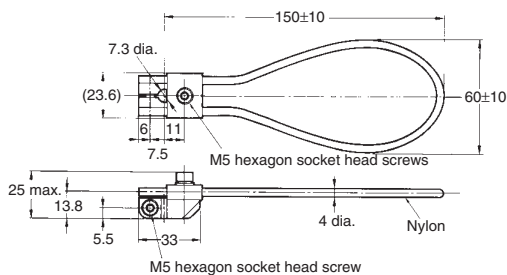
D4B-□N

**Spring Rod Lever
WL-4A201**



Note: Reverse the indicator plate when mounting.

**Resin Loop Lever
D4A-F00**



Note: Reverse the indicator plate when mounting.

Note: 1. Unless otherwise specified, a tolerance of ±0.4 mm applies to all dimensions.

2. Safety Limit Switch specifications are satisfied with D4B-□□□□AN Levers only (example: D4B-0001N).

Safety Precautions

Refer to the "Precautions for All Switches" on page I-2 and "Precautions for All Safety Limit Switches" on page B-2.

■ Precautions for Safe Use

If the D4B-□N is applied to a safety category circuit for prevention of injury, use the D4B-□N model that has an NC contact equipped with a direct opening mechanism, and make sure that the D4B-□N operates in the direct opening mode. Furthermore, secure the D4B-□N with screws or equivalent parts that are tightened in a single direction so that the D4B-□N cannot be easily removed. Then provide a protection cover for the D4B-□N and post a warning label near the D4B-□N.

In order to protect the D4B-□N from damage due to short-circuiting, connect a fuse breaking a current 1.5 to 2 times higher than the rated current in parallel with the D4B-□N.

If an application satisfying EN standards is to employ the D4BL, apply the 10-A gI or gG fuse approved by IEC269.

Do not apply the D4B-□N to the door without applying a stopper to the door.

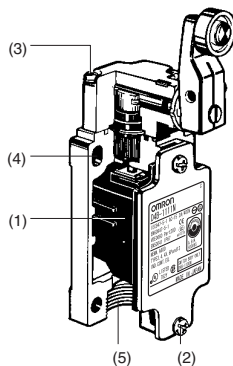
If the D4B-□N is used with the actuator normally pressed, the D4B-□N may malfunction or may soon have reset failures. Be sure to check and replace the D4B-□N regularly.

- Do not use the Switch submerged in oil or water, or in locations continuously subject to splashes of oil or water. Doing so may result in oil or water entering the Switch interior. (The IP67 degree of protection specification for the Switch refers to water penetration while the Switch is submersed in water for a specified period of time.)
- Protect the head from foreign material. Subjecting the head to foreign material may result in premature wear or damage to the Switch. Although the switch body is protected from penetration by dust or water, the head is not protected from penetration by minute particles or water.
- Install the cover after wiring. Not doing so may result in electric shock.
- Do not use a Switch as a stopper.

■ Precautions for Correct Use

Tightening Torque

Be sure to tighten each screw of the D4B-□N properly, otherwise the D4B-□N may malfunction.



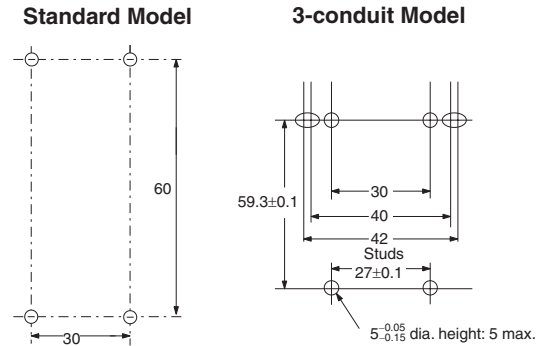
	Type	Torque
1	M3.5 terminal screw	0.59 to 0.78 N·m
2	Cover-mounting screw (see note)	1.18 to 1.37 N·m
3	Head mounting screw	0.78 to 0.88 N·m
4	M5 body mounting screw	4.90 to 5.88 N·m
5	Connector	1.77 to 2.16 N·m
6	Cap screw (for three-conduit models)	1.27 to 1.67 N·m

Note: Apply a tightening torque of 0.78 to 0.88 N·m to three-conduit models.

Mounting

Use four M5 screws with washers to mount the standard model. Be sure to apply the proper torque to tighten each screw. The 3-conduit models can be mounted more securely by using the four screws plus two 5^{-0.05}/_{-0.15}-mm diameter studs, each of which has a maximum height of 4.8 mm as shown below.

Mounting Dimensions (M5)



Changes in Actuator Mounting Position

To change the angle of the lever, loosen the Allen-head bolts on the side of the lever.

The operating position indicator plate has protruding parts which engage with the lever, thus allowing changes to the lever position by 90°.

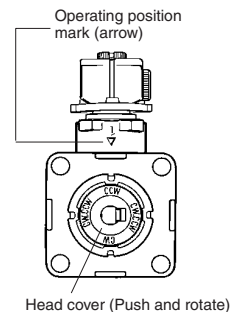
The back of the operating position indicator plate has no protruding parts. If this plate is turned over and attached, any angle within a 360° range can be set. Do not turn over the plate, however, when using the D4B-□N for an SUVA- or BIA-approved application. For an SUVA- or BIA-approved application, make sure that the lever engages with the operating position indicator plate securely so that the lever will not slip.

Changes in Head Mounting Position

By removing the screws on the four corners of the head, the head can be reset in any of four directions. Make sure that no foreign materials will penetrate through the head.

Changes in the Operating Direction for Rotary Lever Switches

The head of Rotary Lever Switches can be converted in seconds to CW, CCW, or two-way operation without using any tools. The conversion procedure follows.



Safety Limit Switches
D4B-□N

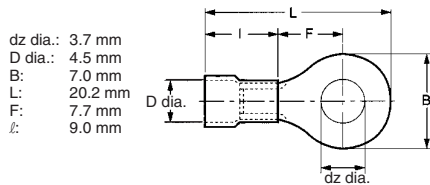
Procedure

1. Dismount the head by loosening the four screws that secure it.
2. Turn over the head to set the desired operation (CW, CCW, or both). The desired operation can be selected by setting the mode selector knob shown in the figure. This knob is factory set to the "CW + CCW" (two-way operation) position.
3. Set the CW hole on the head at the operation position mark (arrow) for clockwise operation or set the CCW hole right at the arrow for counterclockwise operation. In either case, be sure to set the hole position exactly at the arrow point.

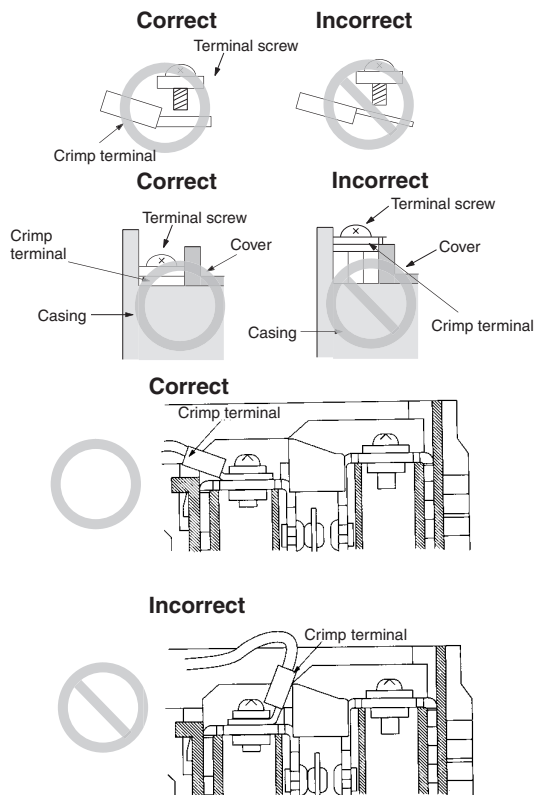
Wiring

Do not connect the bare lead wires directly to the terminals but be sure to connect each of them by using an insulation tube and M3.5 round crimp terminals and tighten each terminal screw within the specified torque range.

The proper lead wire is 20 to 14 AWG (0.5 to 2.5 mm²) in size.



Make sure that all crimp terminals come into contact with the casing or cover as shown below, otherwise the cover may not be mounted properly or the D4B-□N may malfunction.



ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.
 To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

Conduit Opening

Make sure that each connector is tightened within the specified torque range. The casing may be damaged if the connector is tightened excessively.

If the 1/2-14NPT is used, cover the cable and conduit end with sealing tape in order to ensure IP67.

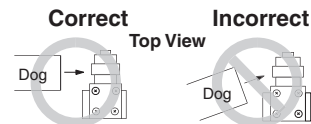
The Pg13.5 connector must be Nippon Flex's ABS-08Pg13.5 or ABS-12 Pg13.5.

Use an OMRON SC-series Connector (sold separately) that is suited to the cable in diameter.

Properly attach the provided conduit cap to the unused conduit opening and securely tighten the cap screw within the specified torque when wiring the D4B-□N.

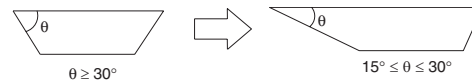
Others

The load for the actuator (roller) of the Switch must be imposed on the actuator in the horizontal direction, otherwise the actuator or the rotating axis may be deformed or damaged.



When using a long lever model like the D4B-□□16N or D4B-□□17N, the Switch may telegraph. To avoid telegraphing, take the following precautions.

1. Set the lever to operate in one direction. For details, see "Changes in the Operating Direction for Rotary Lever Switches" on page B-53.
2. Modify the rear end of the dog to an angle of 15° to 30° as shown below or to a secondary-degree curve.



3. Modify the circuit so as not to detect the wrong operating signals.

Terms and Conditions of Sale

1. **Offer; Acceptance.** These terms and conditions (these "Terms") are deemed part of all quotes, agreements, purchase orders, acknowledgments, price lists, catalogs, manuals, brochures and other documents, whether electronic or in writing, relating to the sale of products or services (collectively, the "Products") by Omron Electronics LLC and its subsidiary companies ("Omron"). Omron objects to any terms or conditions proposed in Buyer's purchase order or other documents which are inconsistent with, or in addition to, these Terms.
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4. **Interest.** Omron, at its option, may charge Buyer 1-1/2% interest per month or the maximum legal rate, whichever is less, on any balance not paid within the stated terms.
5. **Orders.** Omron will accept no order less than \$200 net billing.
6. **Governmental Approvals.** Buyer shall be responsible for, and shall bear all costs involved in, obtaining any government approvals required for the importation or sale of the Products.
7. **Taxes.** All taxes, duties and other governmental charges (other than general real property and income taxes), including any interest or penalties thereon, imposed directly or indirectly on Omron or required to be collected directly or indirectly by Omron for the manufacture, production, sale, delivery, importation, consumption or use of the Products sold hereunder (including customs duties and sales, excise, use, turnover and license taxes) shall be charged to and remitted by Buyer to Omron.
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10. **Force Majeure.** Omron shall not be liable for any delay or failure in delivery resulting from causes beyond its control, including earthquakes, fires, floods, strikes or other labor disputes, shortage of labor or materials, accidents to machinery, acts of sabotage, riots, delay in or lack of transportation or the requirements of any government authority.
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 - a. Shipments shall be by a carrier selected by Omron; Omron will not drop ship except in "break down" situations.
 - b. Such carrier shall act as the agent of Buyer and delivery to such carrier shall constitute delivery to Buyer;
 - c. All sales and shipments of Products shall be FOB shipping point (unless otherwise stated in writing by Omron), at which point title and risk of loss shall pass from Omron to Buyer; provided that Omron shall retain a security interest in the Products until the full purchase price is paid;
 - d. Delivery and shipping dates are estimates only; and
 - e. Omron will package Products as it deems proper for protection against normal handling and extra charges apply to special conditions.
12. **Claims.** Any claim by Buyer against Omron for shortage or damage to the Products occurring before delivery to the carrier must be presented in writing to Omron within 30 days of receipt of shipment and include the original transportation bill signed by the carrier noting that the carrier received the Products from Omron in the condition claimed.
13. **Warranties.** (a) **Exclusive Warranty.** Omron's exclusive warranty is that the Products will be free from defects in materials and workmanship for a period of twelve months from the date of sale by Omron (or such other period expressed in writing by Omron). Omron disclaims all other warranties, express or implied. (b) **Limitations.** OMRON MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, ABOUT NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OF THE PRODUCTS. BUYER ACKNOWLEDGES THAT IT ALONE HAS DETERMINED THAT THE PRODUCTS WILL SUITABLY MEET THE REQUIREMENTS OF THEIR INTENDED USE. Omron further disclaims all warranties and responsibility of any type for claims or expenses based on infringement by the Products or otherwise of any intellectual property right. (c) **Buyer Remedy.** Omron's sole obligation hereunder shall be, at Omron's election, to (i) replace (in the form originally shipped with Buyer responsible for labor charges for removal or replacement thereof) the non-complying Product, (ii) repair the non-complying Product, or (iii) repay or credit Buyer an amount equal to the purchase price of the non-complying Product; provided that in no event shall Omron be responsible for warranty, repair, indemnity or any other claims or expenses regarding the Products unless Omron's analysis confirms that the Products were properly handled, stored, installed and maintained and not subject to contamination, abuse, misuse or inappropriate modification. Return of any Products by Buyer must be approved in writing by Omron before shipment. Omron Companies shall not be liable for the suitability or unsuitability or the results from the use of Products in combination with any electrical or electronic components, circuits, system assemblies or any other materials or substances or environments. Any advice, recommendations or information given orally or in writing, are not to be construed as an amendment or addition to the above warranty. See <http://oeweb.omron.com> or contact your Omron representative for published information.
14. **Limitation on Liability; Etc.** OMRON COMPANIES SHALL NOT BE LIABLE FOR SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR PRODUCTION OR COMMERCIAL LOSS IN ANY WAY CONNECTED WITH THE PRODUCTS, WHETHER SUCH CLAIM IS BASED IN CONTRACT, WARRANTY, NEGLIGENCE OR STRICT LIABILITY. Further, in no event shall liability of Omron Companies exceed the individual price of the Product on which liability is asserted.
15. **Indemnities.** Buyer shall indemnify and hold harmless Omron Companies and their employees from and against all liabilities, losses, claims, costs and expenses (including attorney's fees and expenses) related to any claim, investigation, litigation or proceeding (whether or not Omron is a party) which arises or is alleged to arise from Buyer's acts or omissions under these Terms or in any way with respect to the Products. Without limiting the foregoing, Buyer (at its own expense) shall indemnify and hold harmless Omron and defend or settle any action brought against such Companies to the extent based on a claim that any Product made to Buyer specifications infringed intellectual property rights of another party.
16. **Property; Confidentiality.** Any intellectual property in the Products is the exclusive property of Omron Companies and Buyer shall not attempt to duplicate it in any way without the written permission of Omron. Notwithstanding any charges to Buyer for engineering or tooling, all engineering and tooling shall remain the exclusive property of Omron. All information and materials supplied by Omron to Buyer relating to the Products are confidential and proprietary, and Buyer shall limit distribution thereof to its trusted employees and strictly prevent disclosure to any third party.
17. **Export Controls.** Buyer shall comply with all applicable laws, regulations and licenses regarding (i) export of products or information; (ii) sale of products to "forbidden" or other proscribed persons; and (iii) disclosure to non-citizens of regulated technology or information.
18. **Miscellaneous.** (a) **Waiver.** No failure or delay by Omron in exercising any right and no course of dealing between Buyer and Omron shall operate as a waiver of rights by Omron. (b) **Assignment.** Buyer may not assign its rights hereunder without Omron's written consent. (c) **Law.** These Terms are governed by the law of the jurisdiction of the home office of the Omron company from which Buyer is purchasing the Products (without regard to conflict of law principles). (d) **Amendment.** These Terms constitute the entire agreement between Buyer and Omron relating to the Products, and no provision may be changed or waived unless in writing signed by the parties. (e) **Severability.** If any provision hereof is rendered ineffective or invalid, such provision shall not invalidate any other provision. (f) **Setoff.** Buyer shall have no right to set off any amounts against the amount owing in respect of this invoice. (g) **Definitions.** As used herein, "including" means "including without limitation"; and "Omron Companies" (or similar words) mean Omron Corporation and any direct or indirect subsidiary or affiliate thereof.

Certain Precautions on Specifications and Use

1. **Suitability of Use.** Omron Companies shall not be responsible for conformity with any standards, codes or regulations which apply to the combination of the Product in the Buyer's application or use of the Product. At Buyer's request, Omron will provide applicable third party certification documents identifying ratings and limitations of use which apply to the Product. This information by itself is not sufficient for a complete determination of the suitability of the Product in combination with the end product, machine, system, or other application or use. Buyer shall be solely responsible for determining appropriateness of the particular Product with respect to Buyer's application, product or system. Buyer shall take application responsibility in all cases but the following is a non-exhaustive list of applications for which particular attention must be given:
 - (i) Outdoor use, uses involving potential chemical contamination or electrical interference, or conditions or uses not described in this document.
 - (ii) Use in consumer products or any use in significant quantities.
 - (iii) Energy control systems, combustion systems, railroad systems, aviation systems, medical equipment, amusement machines, vehicles, safety equipment, and installations subject to separate industry or government regulations.
 - (iv) Systems, machines and equipment that could present a risk to life or property. Please know and observe all prohibitions of use applicable to this Product.

NEVER USE THE PRODUCT FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY OR IN LARGE QUANTITIES WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON'S PRODUCT IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.
2. **Programmable Products.** Omron Companies shall not be responsible for the user's programming of a programmable Product, or any consequence thereof.
3. **Performance Data.** Data presented in Omron Company websites, catalogs and other materials is provided as a guide for the user in determining suitability and does not constitute a warranty. It may represent the result of Omron's test conditions, and the user must correlate it to actual application requirements. Actual performance is subject to the Omron's Warranty and Limitations of Liability.
4. **Change in Specifications.** Product specifications and accessories may be changed at any time based on improvements and other reasons. It is our practice to change part numbers when published ratings or features are changed, or when significant construction changes are made. However, some specifications of the Product may be changed without any notice. When in doubt, special part numbers may be assigned to fix or establish key specifications for your application. Please consult with your Omron's representative at any time to confirm actual specifications of purchased Product.
5. **Errors and Omissions.** Information presented by Omron Companies has been checked and is believed to be accurate; however, no responsibility is assumed for clerical, typographical or proofreading errors or omissions.

Complete "Terms and Conditions of Sale" for product purchase and use are on Omron's website at www.omron.com/oei – under the "About Us" tab, in the Legal Matters section.

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.

To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

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