Safety Limit Switch
D4B-□N

CSM_D4B-_N_DS_E_5_1

Snap-action contact with certified 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.
- 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.
- Head seal structure strengthened to improve seal properties (TÜV: IEC IP67, UL: NEMA 3, 4, 4X, 6P, and 13).
- Wide standard operating temperature range: –40 to 80°C (standard type).
- Models with gold-plated contacts added to the series to enable handling microloads.
- Certified standards: UL, CSA, EN (TÜV), and CCC.

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

⚠ Be sure to read the *"Safety Precautions"* on page 14 and the *"Precautions for All Safety Limit Switches"* .

Model Number Structure

Model Number Legend

D4B-□□□□N
1 2 3

1. Conduit size
1: PG13.5 (1-conduit)
2: G1/2 (PF1/2) (1-conduit)
3: 1/2-14NPT (1-conduit)
4: M20 (1 conduit)
5: PG13.5 (3-conduit)
6: G1/2 (PF1/2) (3-conduit)
7: 1/2-14NPT (3-conduit)
8: M20 (3-conduit)

2. Built-in Switch
1: 1NC/1NO (snap-action)
3: 1NC/1NO (snap-action) gold-plated contacts
5: 1NC/1NO (slow-action) ✻
6: 1NC/1NO (slow-action) gold-plated contacts ✻
A: 2NC (slow-action)
B: 2NC (slow-action) gold-plated contacts
✻ 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

Consult with your OMRON representative when ordering any models that are not listed in this table.

Safety Limit Switches (with Direct Opening Mechanism)

Actuator	Conduit openings	1NC/1NO (Snap-action)		1NC/1NO (Slow-action)		2NC (Slow-action)	
		Model	Direct opening	Model	Direct opening	Model	Direct opening
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	
	M20	D4B-4111N		D4B-4511N		D4B-4A11N	
	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	
	M20 (3-conduit)	D4B-8111N		D4B-8511N		D4B-8A11N	
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	
	M20	D4B-4115N		D4B-4515N		D4B-4A15N	
	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	
	M20	D4B-4170N		D4B-4570N		D4B-4A70N	
	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	
	M20 (3-conduit)	D4B-8170N		D4B-8570N		D4B-8A70N	
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	
	M20	D4B-4171N		D4B-4571N		D4B-4A71N	
	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	
	M20 (3-conduit)	D4B-8171N		D4B-8571N		D4B-8A71N	

General-purpose Limit Switches

Actuator	Conduit openings	1NC/1NO (Snap-action)		1NC/1NO (Slow-action)		2NC (Slow-action)	
		Model	Direct opening	Model	Direct opening	Model	Direct opening
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: 1. 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)

2. Consult your OMRON representative for products.

Replacement Parts

Switch Boxes

Built-in switch \ Conduit	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
	Top roller plunger	D4B-0071N
Flexible-rod	Coil spring	D4B-0081N
	Plastic rod	D4B-0087N

✻ The Lever is not included with the Side Rotary Operating Head.

Levers

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.

Specifications

Standards and EC Directives

Conforms to the following EC Directives:

- Machinery Directive
- Low Voltage Directive
- EN1088
- EN50041

Certified Standards

Snap-action Models

Certification body	Standard	File No.
TÜV Rheinland	EN60947-5-1 (certified direct opening mechanism) GS-ET-15	J9851083
	EN60947-5-1 (uncertified direct opening mechanism)	J50005477 ✻
UL	UL508	E76675
CSA	C22.2 No. 14	LR45746
CQC (CCC)	GB14048.5	2003010305077612

✻ Adjustable roller lever, adjustable rod lever, coil spring, and plastic rod models only.

Slow-action Models

Certification body	Standard	File No.
TÜV Rheinland	EN60947-5-1 (certified direct opening mechanism) GS-ET-15	J9851083
	EN60947-5-1 (uncertified direct opening mechanism)	J50005477 ✻
UL	UL508	E76675
CSA	C22.2 No. 14	LR45746
CQC (CCC)	GB14048.5	2003010305077612

✻ Adjustable roller lever, adjustable rod lever, coil spring, and plastic rod models only.

Certified Standard Ratings

TÜV (EN60947-5-1), CCC (GB14048.5)

Item	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 (A)		Volt-amperes (VA)	
		Make	Break	Make	Break
120 VAC 240 VAC 480 VAC 600 VAC	10 A	60 30 15 12	6 3 1.5 1.2	7,200	720

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

Inrush current	30 A max.

Characteristics

Degree of protection ✻1		IP67 (EN60947-5-1)
Durability ✻2	**Mechanical**	30,000,000 operations min. (snap-action) 10,000,000 operations min. (slow-action)
	Electrical	500,000 operations min. (10 A resistive load at 250 VAC)
Operating speed		1 mm/s to 0.5 m/s
Operating frequency	**Mechanical**	120 operations/minute
	Electrical	30 operations/minute
Contact resistance		25 mΩ max.
Minimum applicable load ✻4		General load 180 mA resistive load at 5 VAC Gold-clad contact 20 mA resistive load at 5 VAC (N-level reference value)
Rated insulation voltage (U_i)		600 V (EN60947-5-1)
Rated frequency		50/60 Hz
Protection against electric shock		Class I (with ground terminal)
Pollution degree (operating environment)		3 (EN60947-5-1)
Impulse withstand voltage (EN60947-5-1)	**Between terminals of same polarity**	2.5 kV (snap-action)/4 kV (slow-action)
	Between terminals of different polarity	4 kV (slow-action)
	Between each terminal and ground	4 kV
Insulation resistance		100 MΩ min. (at 500 VDC) between terminals of the same polarity and between each terminal and non-current-carrying part
Contact gap		2 × 2 mm min. (slow-action) 2 × 0.5 mm min. (snap-action)
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.
Conditional short-circuit current		100 A (EN60947-5-1)
Conventional enclosed thermal current (I_{the})		20 A (EN60947-5-1)
Ambient operating temperature		–40 to 80°C (with no icing) ✻3
Ambient operating humidity		95% max.
Weight		Approx. 250 g

Note: 1. The above values are initial values.
2. The above values may vary depending on the model. Consult your OMRON sales representative for details.

✻**1.** 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.

✻**2.** The durability is for an ambient temperature of 5 to 35°C and ambient humidity of 40% to 70%. For further conditions, consult your OMRON sales representative.

✻**3.** –20 to 80°C for the flexible-rod type.

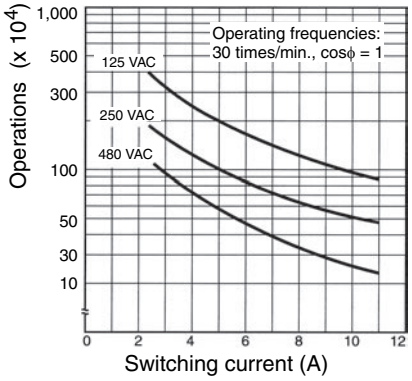
✻**4.** The above values may vary depending on switching frequency, environmental condition, and relativity level, consult your OMRON sales representative.

Engineering Data

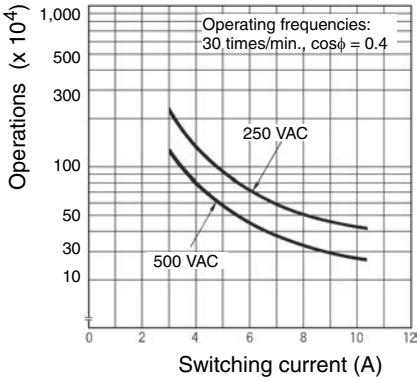
Electrical Durability (Snap-action)

(Ambient temperature: 5 to 30°C, ambient humidity: 40 to 70%)

(cosϕ = 1)



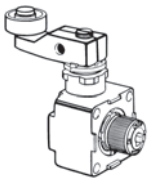
(cosϕ = 0.4)

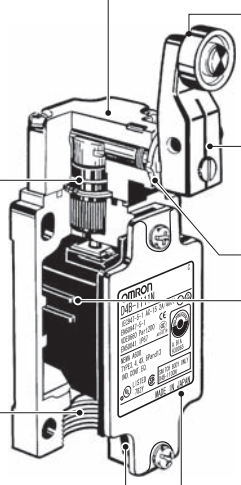


Structure and Nomenclature

Structure

The roller lever switch employs a system which allows selection of operation on only one side (left or right) or both sides without the use of any tools.





Head
Can be connected in any of four directions (except for Roller Plunger Models, which can be connected at either of 2 directions that differ by 90°)

Roller
Nylon rollers used for superior resistance to wear.

Lever (Form Lock Structure)
The lever has an operating position indication plate and grooves that mate every 90° to prevent slipping between the rotary axis and lever.

The operating position indicator plate

Seal Ring
Sealing properties improved by using a X ring and bearing-free structure.

Built-in Switch
Direct opening mechanism used for NC contact to separate contact for faults, such as contact welding. The heights of the NC and NO terminals are different to enable easier wiring.

Conduit Opening
Models are available with a wide range of conduits.

Size / Box	1-conduit model	2-conduit model
Pg13.5	Yes	Yes
G1/2	Yes	Yes
1/2-14NPT	Yes	Yes

Note: NBR is used for rubber parts.

Cover

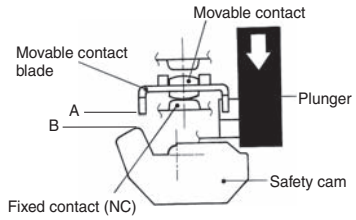
Ground Screw
Ground screws are provided on all models for increased safety.

Direct Opening Mechanism

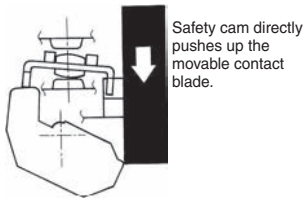
1NO/1NC Contact (Snap-action)

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

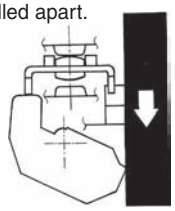
1. When contact welding occurs.



2. When contacts are being pulled apart.

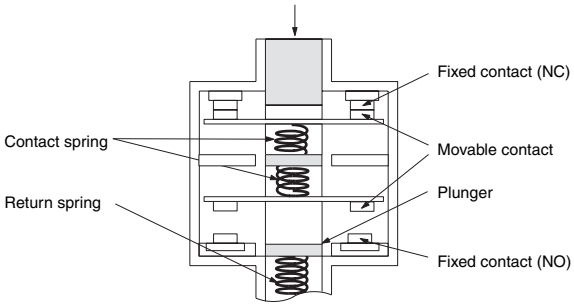


3. When contacts are completely pulled apart.



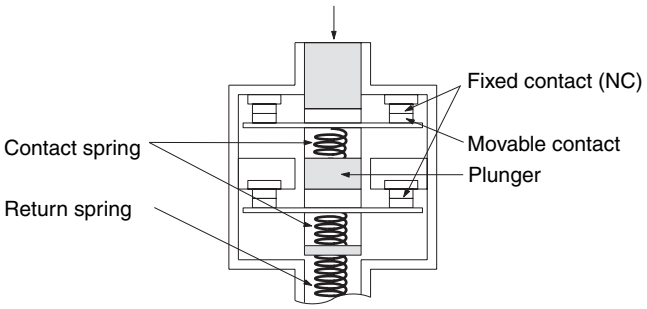
1NC/1NO Contact (Slow-action)

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.

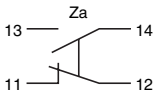
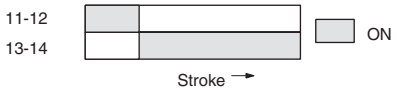
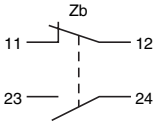
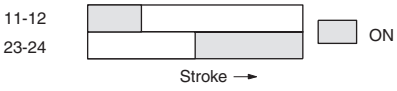
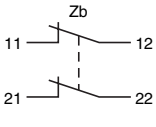
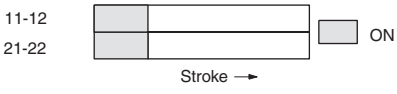


2NC Contact (Slow-action)

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



Contact Form

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

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

Dimensions and Operating Characteristics

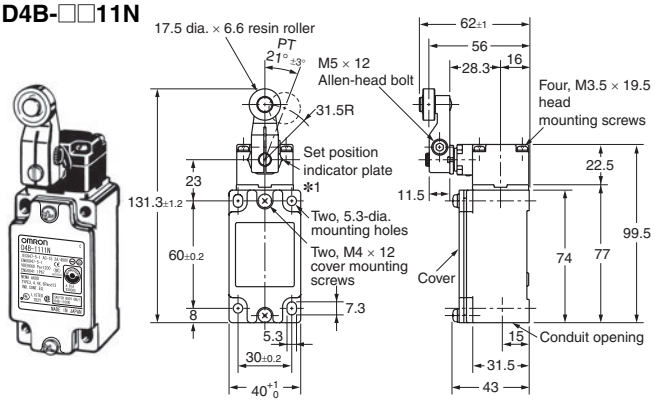
(Unit: mm)

Note: Omitted dimensions are the same as those for the Roller Lever 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.

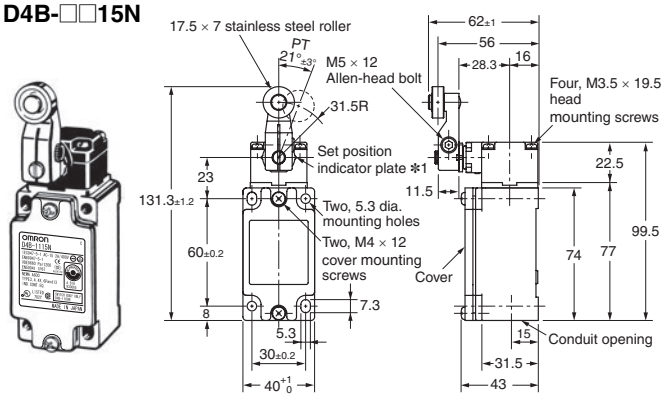
Switches

1-conduit Models

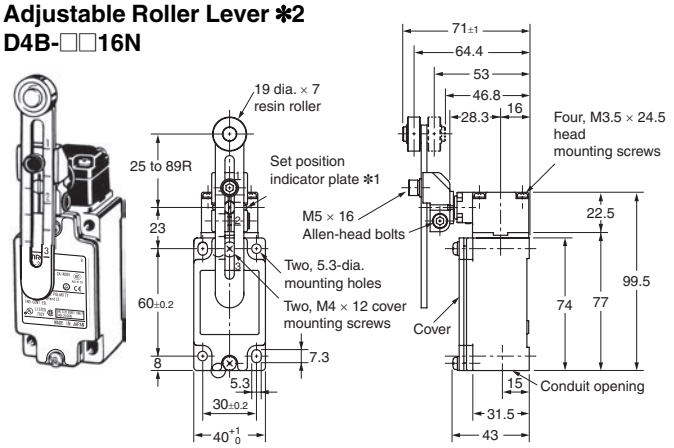
Roller Lever
D4B-□□11N



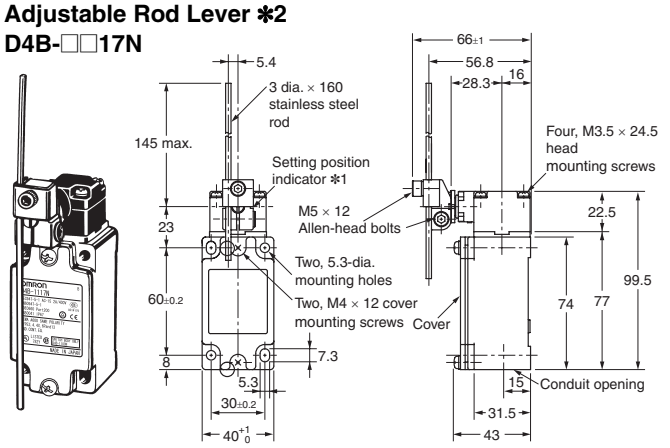
Roller Lever (Stainless Steel Roller)
D4B-□□15N



Adjustable Roller Lever ✻2
D4B-□□16N



Adjustable Rod Lever ✻2
D4B-□□17N

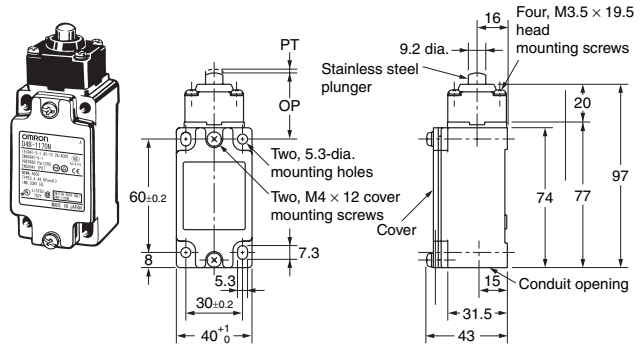


Note: Unless otherwise specified, a tolerance of ±0.4 mm applies to all dimensions.
✻1. The lever can be set to any desired position by turning the operating position indicator.
✻2. In terms of construction, the Switch is a General-purpose Limit Switch rather than a Safety Limit Switch.

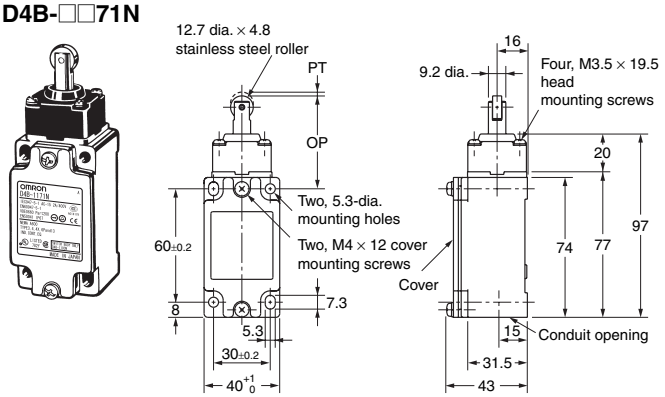
Operating characteristics	Model	D4B-□□11N	D4B-□□15N	D4B-□□16N ✻1	D4B-□□17N ✻2
Operating force	OF max.	9.41N	9.41N	9.41N	2.12N
Release force	RF min.	1.47N	1.47N	1.47N	0.29N
Pretravel	PT	21°±3°	21°±3°	21°±3°	21°±3°
	PT (2nd) ✻3 ✻5	(45°)	(45°)	(45°)	(45°)
Overtravel	OT min.	50°	50°	50°	50°
Movement differential	MD max. ✻4	12°	12°	12°	12°
Direct opening travel	DOT min. ✻3 ✻6	35°	35°	35°	35°
	✻4 ✻6	55°	55°	55°	55°
Direct opening force	DOF min. ✻6	19.61N	19.61N	19.61N	19.61N
Total travel	TT ✻5	(75°)	(75°)	(75°)	(75°)

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

Top Plunger
D4B-□□70N



Top Roller Plunger
D4B-□□71N

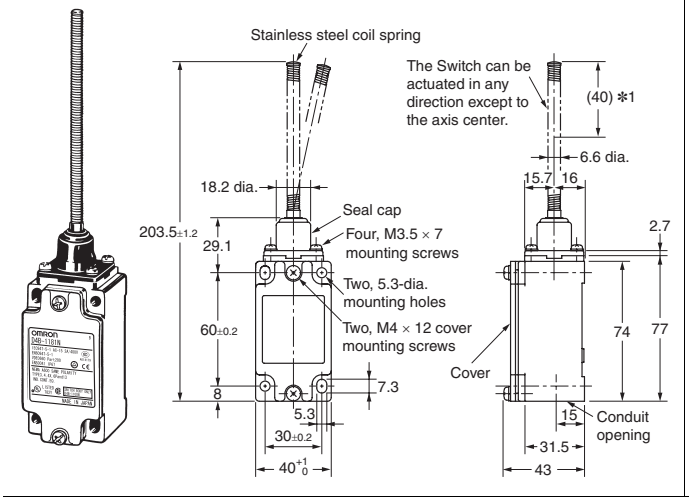


Note: Unless otherwise specified, a tolerance of ±0.4 mm applies to all dimensions.

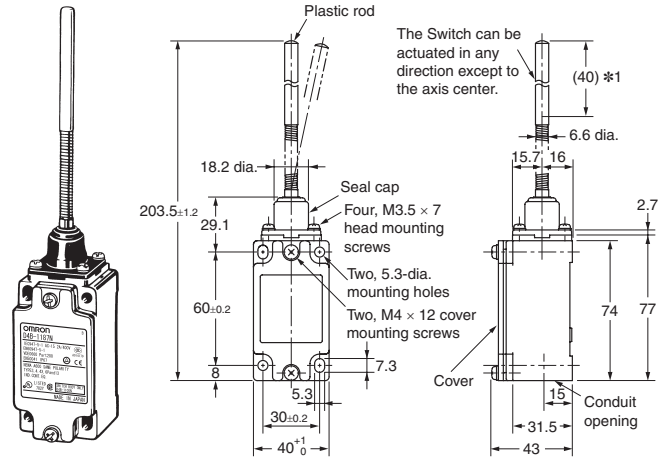
Operating characteristics	Model	D4B-□□70N	D4B-□□71N
Operating force	**OF max.**	18.63 N	18.63 N
Release force	**RF min.**	1.96 N	1.96 N
Pretravel	**PT max.**	2 mm	2 mm
	PT (2nd) ✻1 ✻3	(3 mm)	(3 mm)
Overtravel	**OT min.**	5 mm	5 mm
Movement differential	**MD max. ✻2**	1 mm	1 mm
Direct opening travel	**DOT min. ✻4**	3.2 mm	3.2 mm
Direct opening force	**DOF min. ✻4**	49.03 N	49.03N
Total travel	**TT ✻3**	(7 mm)	(7 mm)
Free position	**FP max.**	38 mm	51 mm
Operating position	**OP**	35±1 mm	48±1 mm

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

Coil Spring (Non-directional) ✻2
D4B-□□81N



Plastic Rod (Non-directional) ✻2
D4B-□□87N



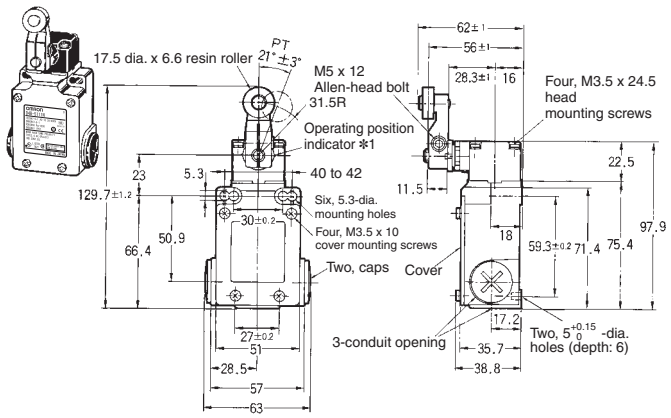
Note: Unless otherwise specified, a tolerance of ±0.4 mm applies to all dimensions.
✻1. Be sure to adjust the dog to within 40 mm from the top end of the coil spring.
✻2. In terms of construction, the Switch is a General-purpose Limit Switch rather than a Safety Limit Switch.

Operating characteristics	Model	D4B-□□81N	D4B-□□87N
Operating force	**OF max.**	1.47 N	1.47 N
Pretravel	**PT max.**	15°	15°

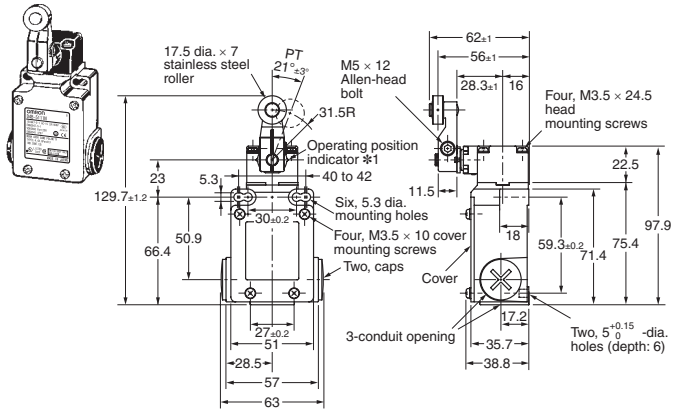
Note: Variation occurs in the simultaneity of contact opening/closing operations of 2NC contacts. Check contact operation.

3-conduit Switches

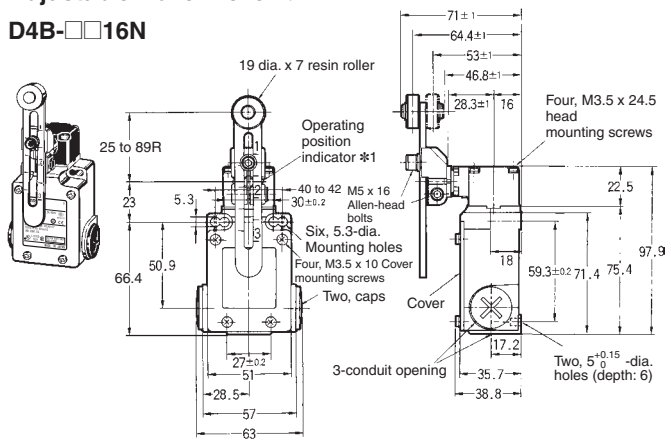
Roller Lever
D4B-□□11N



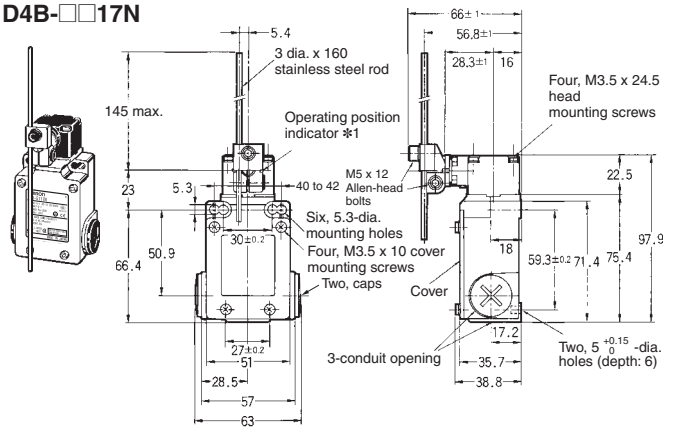
Roller Lever
D4B-□□15N



Adjustable Roller Lever ✻2
D4B-□□16N



Adjustable Rod Lever ✻2
D4B-□□17N

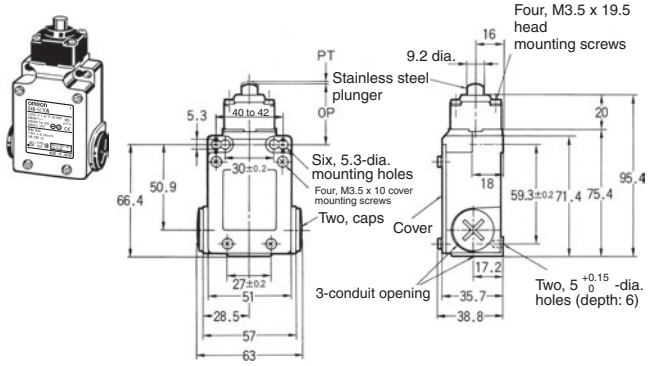


Note: Unless otherwise specified, a tolerance of ±0.4 mm applies to all dimensions.
✻1. The lever can be set to any desired position by turning the operating position indicator.
✻2. In terms of construction, the Switch is a General-purpose Limit Switch rather than a Safety Limit Switch.

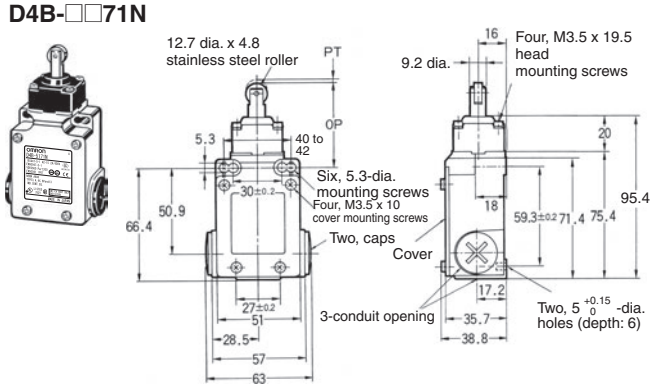
Operating characteristics	Model	D4B-□□11N	D4B-□□15N	D4B-□□16N ✻1	D4B-□□17N ✻2
Operating force	OF max.	9.41 N	9.41 N	9.41 N	2.12 N
Release force	RF min.	1.47 N	1.47 N	1.47 N	0.29 N
Pretravel	PT	21°±3°	21°±3°	21°±3°	21°±3°
	PT (2nd) ✻3 ✻5	(45°)	(45°)	(45°)	(45°)
Overtravel	OT min.	50°	50°	50°	50°
Movement differential	MD max. ✻4	12°	12°	12°	12°
Direct opening travel	DOT min. ✻3 ✻6	35°	35°	35°	35°
	✻4 ✻6	55°	55°	55°	55°
Direct opening force	DOF min. ✻6	19.61 N	19.61 N	19.61 N	19.61 N
Total travel	TT ✻5	(75°)	(75°)	(75°)	(75°)

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

Top Plunger
D4B-□□70N



Top Roller Plunger
D4B-□□71N

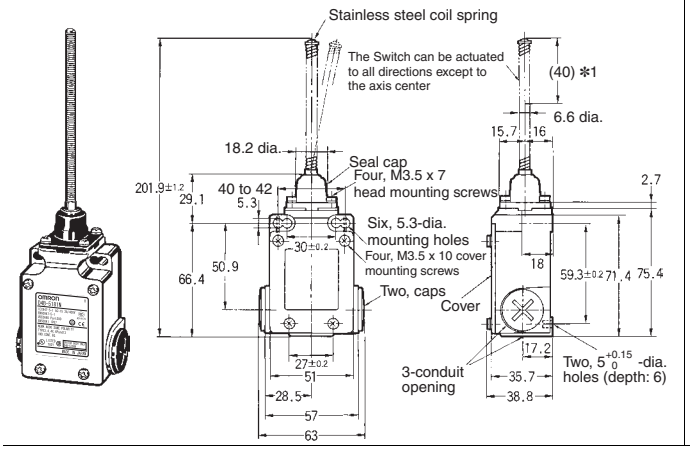


Note: Unless otherwise specified, a tolerance of ±0.4 mm applies to all dimensions.

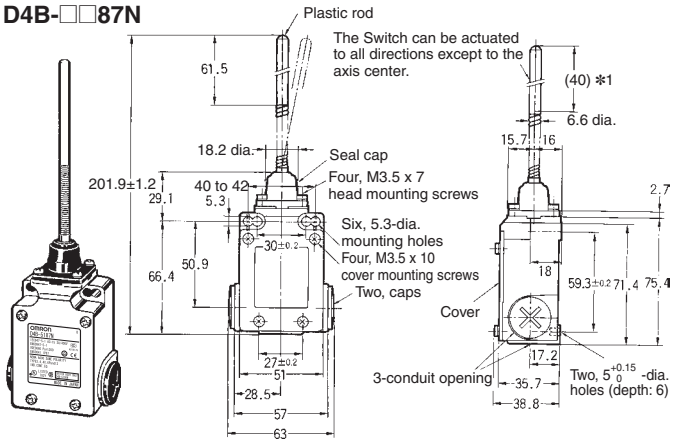
Operating characteristics	Model	D4B-□□70N	D4B-□□71N
Operating force	**OF max.**	18.63 N	18.63 N
Release force	**RF min.**	1.96 N	1.96 N
Pretravel	**PT max.**	2 mm	2 mm
	PT (2nd) ✻1 ✻3	(3 mm)	(3 mm)
Overtravel	**OT min.**	5 mm	5 mm
Movement differential	**MD max. ✻2**	1 mm	1 mm
Direct opening travel	**DOT min. ✻4**	3.2 mm	3.2 mm
Direct opening force	**DOF min. ✻4**	49.03 N	49.03N
Total travel	**TT ✻3**	(7 mm)	(7 mm)
Free position	**FP max.**	38 mm	51 mm
Operating position	**OP**	35±1 mm	48±1 mm

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

Coil Spring ✻2
D4B-□□81N



Plastic Rod ✻2
D4B-□□87N



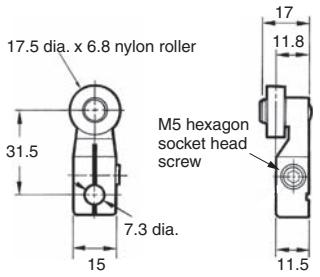
Note: Unless otherwise specified, a tolerance of ±0.4 mm applies to all dimensions.
✻1. Be sure to adjust the dog to within 40 mm from the top end of the coil spring.
✻2. In terms of construction, the Switch is a General-purpose Limit Switch rather than a Safety Limit Switch.

Operating characteristics	Model	D4B-□□81N	D4B-□□87N
Operating force	**OF max.**	1.47 N	1.47 N
Pretravel	**PT max.**	15°	15°

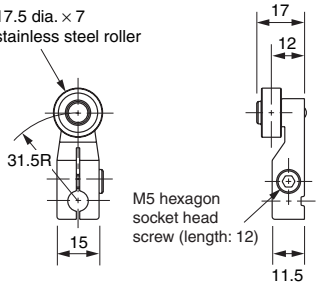
Note: Variation occurs in the simultaneity of contact opening/closing operations of 2NC contacts. Check contact operation.

Levers (Applicable for Roller Lever Models only)

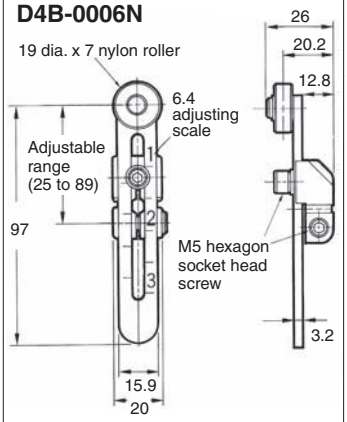
Roller Lever
D4B-0001N



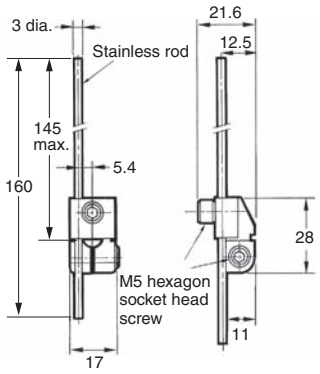
Roller Lever (Stainless Steel Roller)
D4B-0005N



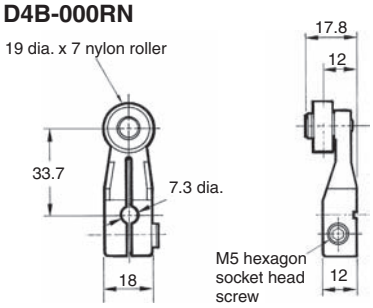
Adjustable Roller Lever
D4B-0006N



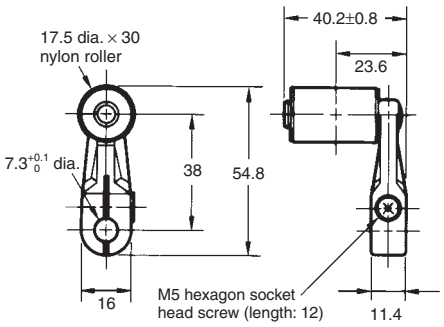
Adjustable Rod Lever
D4B-0007N



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

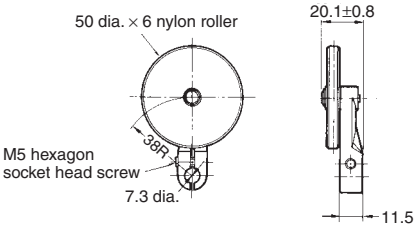


Roller Lever
WL-1A118



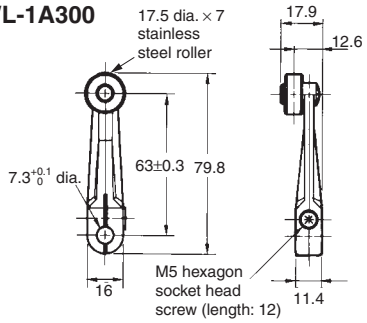
Note: Reverse the indicator plate when mounting.

Roller Lever
WL-1A106



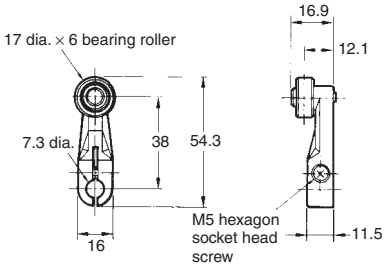
Note: Reverse the indicator plate when mounting.

Roller Lever
WL-1A300



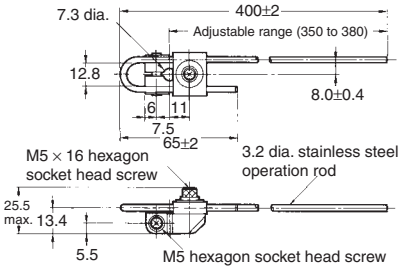
Note: Reverse the indicator plate when mounting.

Roller Lever
WL-1A400



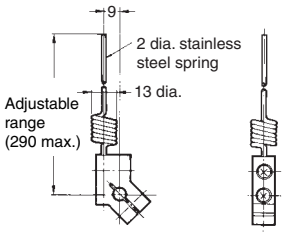
Note: Reverse the indicator plate when mounting.

Adjustable Rod Lever
WL-3A100



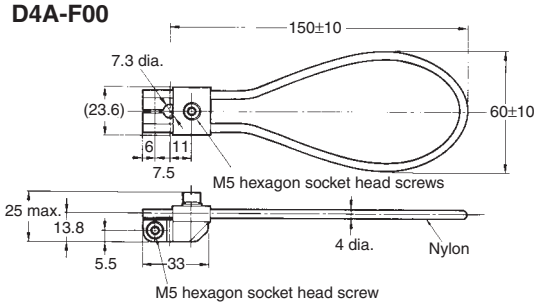
Note: Reverse the indicator plate when mounting.

Spring Rod Lever
WL-4A201



Note: Reverse the indicator plate when mounting.

Resin Loop Lever
D4A-F00



Note: Reverse the indicator plate when mounting.

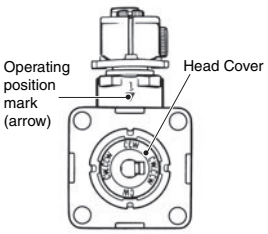
Note: 1. Unless otherwise specified, a tolerance of ±0.4 mm applies to all dimensions.
2. Safety Limit Switch specifications are satisfied with D4B-□□□□N Levers only (example: D4B-0001N).
The D4B-0006N Adjustable Roller Lever and D4B-0007N Adjustable Rod Lever, however, cannot be used. Do not order them for a Side Rotary Operating Head.

Application Precaution

Changing the Operating Direction

Switches with Roller Levers

The operating direction of the lever can be easily changed without using any tools. It can be set to clockwise operation (CW) or counterclockwise (CCW) operation.
Use the procedure given at the right to change the operating direction.

Operating section (on back of Head)	Operating procedure
	**1.** Remove the four Head set screws and remove the Head from the Switch Box.
	2. Turn the bottom of the Head toward you, press in the Head Cover shown in the diagram at the left, and turn the Cover clockwise or counterclockwise. **Note:** The factory setting is for "CW.CCW."
	3. The "CW" setting is for clockwise operation and the "CCW" setting is for counterclockwise operation. Set the Cover to the desired position.

Safety Precautions

Refer to the *"Precautions for All Switches"* and *"Precautions for All Safety Limit Switches".*

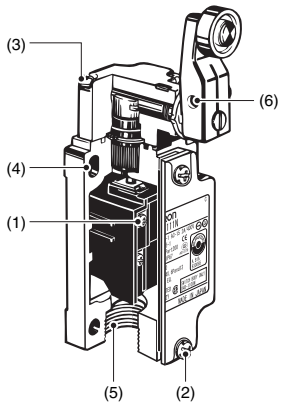
Precautions for Safe Use

- 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.)
- Always attach the cover after completing wiring and before using the Switch. Also, do not turn ON the Switch with the cover open. Doing so may result in electric shock.

Precautions for Correct Use

Appropriate Tightening Torque

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



	Type	Appropriate tightening torque
1	M3.5 terminal screw	0.59 to 0.78 N·m
2	Cover mounting screw ✻	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	Lever Mounting Screws (Roller Levers)	4.90 to 5.88 N·m
---	Cap screw (for three-conduit models)	1.27 to 1.67 N·m

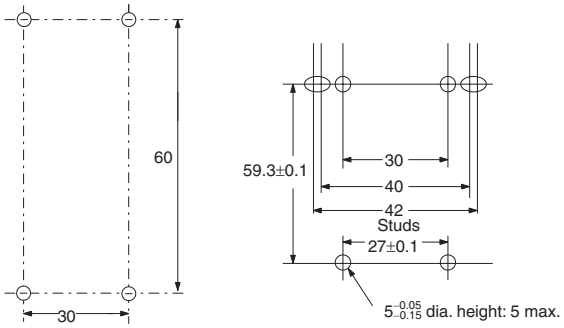
✻ Apply a tightening torque of 0.78 to 0.88 N·m to three-conduit models.

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)

Standard Model **3-conduit Model**



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 as a switch with a certified direct opening mechanism. For an SUVA- or BIA-certified application, make sure that the lever engages with the operating position indicator plate securely so that the lever will not slip.

✻ The operating position indicator plate: Refer to page 7.

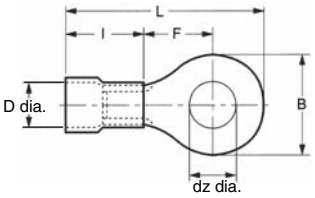
Changes in Head Mounting Position

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.

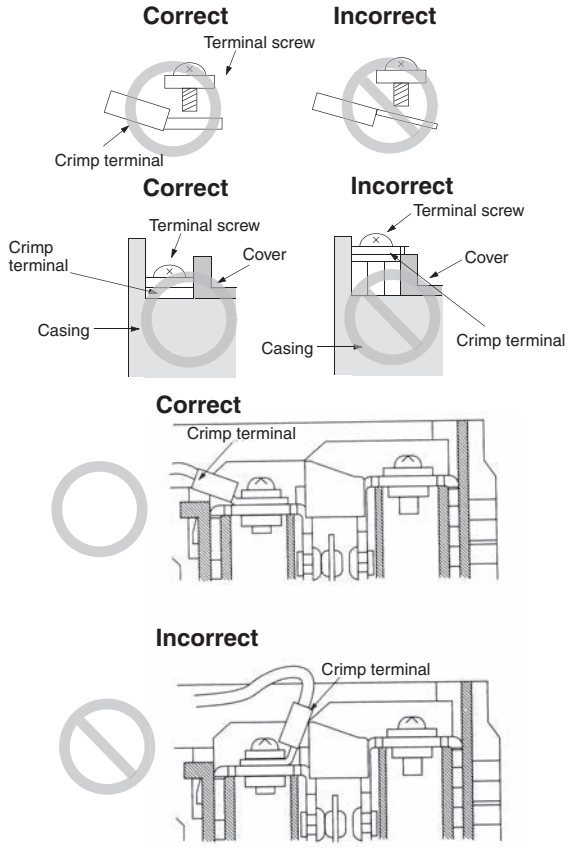
Wiring

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 mm^2) in size.

dz dia.: 3.7 mm
D dia.: 4.5 mm
B: 7.0 mm
L: 20.2 mm
F: 7.7 mm
I: 9.0 mm



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.

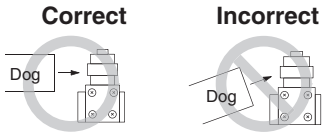


Conduit Opening

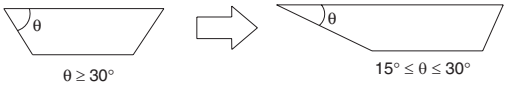
- Make sure that each connector is tightened within the specified torque range.
  The casing may be damaged if the connector is tightened excessively.
- If the 1/2-14NPT is used, cover the cable and conduit end with sealing tape in order to ensure IP67.
- The Pg13.5 connector must be Nippon Flex's ABS-08 Pg13.5 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.
  2. Modify the rear end of the dog to an angle of 15° to 30° as shown below or to a secondary-degree curve.



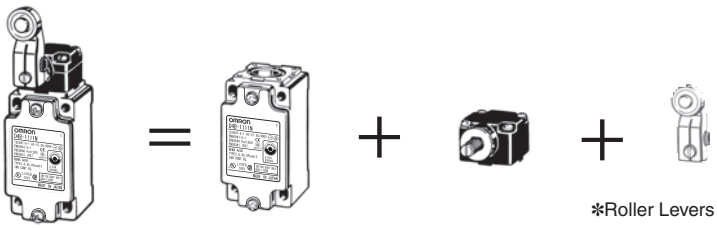
  3. Modify the circuit so as not to detect the wrong operating signals.

Ordering Method

The D4B-□N uses a block mounting method. Switches can be ordered either as sets or as individual parts. If a set is ordered, the Switch will be shipped with all parts assembled.

Note: For Switches with Roller Levers, do not order just the Head and Lever, or just the Switch Box and Lever.

			Individual model numbers			
Set model number	=	Switch Box	+	Head	+	Lever ✻
Example: D4B-2111N	=	D4B-2100N	+	D4B-0010N	+	D4B-0001N



✻Roller Levers only.

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2011.3

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LifeElectronics
Живое партнерство

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ИНН 7805602321 КПП 780501001 Р/С 40702810122510004610 ФАКБ "АБСОЛЮТ БАНК" (ЗАО) в г.Санкт-Петербурге К/С 30101810900000000703 БИК 044030703

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