

Safety Limit Switch D4N

Upgraded Safety Limit Switches Based on the Popular D4D, Providing a Full Lineup Conforming to International Standards

- Lineup includes three contact models with 2NC/1NO and 3NC contact forms in addition to the previous contact forms 1NC/1NO, and 2NC. Models with MBB contacts are also available.
- M12-connector models are available, saving on labor and simplifying replacement.
- Standardized gold-clad contacts provide high contact reliability. Can be used with both standard loads and microloads.
- Free of lead, cadmium, and hexavalent chrome, reducing the burden on the environment.
- Conforms to EN115 and EN81-1.
- Lineup includes both slow-action and snap-action models with Zb contacts.
- Approved standards: UL, EN (TÜV), and CCC



NEW

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

Safety Interlock
Switches
D4N

Model Number Structure

Model Number Legend

D4N-□□□□
1 2 3

1. Conduit/Connector size

- 1: Pg13.5 (1-conduit)
- 2: G1/2 (1-conduit)
- 3: 1/2-14NPT (1-conduit)
- 4: M20 (1-conduit)
- 5: Pg13.5 (2-conduit)
- 6: G1/2 (2-conduit)
- 7: 1/2-14NPT Compatible (2-conduit model with M20 conduit size, includes an M20 to 1/2"-14NPT conversion adapter)
- 8: M20 (2-conduit)
- 9: M12 connector (1-conduit)

2. Built-in Switch

- 1: 1NC/1NO (snap-action)
- 2: 2NC (snap-action)
- A: 1NC/1NO (slow-action)
- B: 2NC (slow-action)
- C: 2NC/1NO (slow-action)
- D: 3NC (slow-action)
- E: 1NC/1NO (MBB contact) (slow-action)
- F: 2NC/1NO (MBB contact) (slow-action)

3. Head and Actuator

- 20: Roller lever (resin lever, resin roller)
- 22: Roller lever (metal lever, resin roller)
- 25: Roller lever (metal lever, metal roller)
- 26: Roller lever (metal lever, bearing roller)
- 2G: Adjustable roller lever, form lock (metal lever, resin roller)
- 2H: Adjustable roller lever, form lock (metal lever, rubber roller)
- 31: Top plunger
- 32: Top roller plunger
- 62: One-way roller arm lever (horizontal)
- 72: One-way roller arm lever (vertical)
- 80: Cat whisker
- 87: Plastic rod
- RE: Fork lever lock (right operation)
- LE: Fork lever lock (left operation)

Ordering Information

List of Models

Switches with Two Contacts

Safety Interlock
Switches
D4N

Actuator	Conduit size		Built-in switch mechanism							
			1NC/1NO (Snap-action)		2NC (Snap-action)		1NC/1NO (Slow-action)		2NC (Slow-action)	
			Direct opening	Model	Direct opening	Model	Direct opening	Model	Direct opening	Model
Roller lever (resin lever, resin roller) 	1-conduit	Pg13.5		D4N-1120		D4N-1220		D4N-1A20		D4N-1B20
		G1/2		D4N-2120		D4N-2220		D4N-2A20		D4N-2B20
		1/2-14NPT		D4N-3120		D4N-3220		D4N-3A20		D4N-3B20
		M20		D4N-4120		D4N-4220		D4N-4A20		D4N-4B20
		M12 connector		D4N-9120		D4N-9220		D4N-9A20		D4N-9B20
	2-conduit	Pg13.5		D4N-5120		D4N-5220		D4N-5A20		D4N-5B20
		G1/2		D4N-6120		D4N-6220		D4N-6A20		D4N-6B20
		M20		D4N-8120		D4N-8220		D4N-8A20		D4N-8B20
Roller lever (metal lever, resin roller) 	1-conduit	Pg13.5		D4N-1122		D4N-1222		D4N-1A22		D4N-1B22
		G1/2		D4N-2122		D4N-2222		D4N-2A22		D4N-2B22
		1/2-14NPT		D4N-3122		D4N-3222		D4N-3A22		D4N-3B22
		M20		D4N-4122		D4N-4222		D4N-4A22		D4N-4B22
		M12 connector		D4N-9122		D4N-9222		D4N-9A22		D4N-9B22
	2-conduit	Pg13.5		D4N-5122		D4N-5222		D4N-5A22		D4N-5B22
		G1/2		D4N-6122		D4N-6222		D4N-6A22		D4N-6B22
		M20		D4N-8122		D4N-8222		D4N-8A22		D4N-8B22
Roller lever (metal lever, metal roller) 	1-conduit	Pg13.5		D4N-1125		D4N-1225		D4N-1A25		D4N-1B25
		G1/2		D4N-2125		D4N-2225		D4N-2A25		D4N-2B25
		1/2-14NPT		D4N-3125		D4N-3225		D4N-3A25		D4N-3B25
		M20		D4N-4125		D4N-4225		D4N-4A25		D4N-4B25
		M12 connector		D4N-9125		D4N-9225		D4N-9A25		D4N-9B25
Roller lever (metal lever, bearing roller) 	1-conduit	Pg13.5		D4N-1126		D4N-1226		D4N-1A26		D4N-1B26
		G1/2		D4N-2126		D4N-2226		D4N-2A26		D4N-2B26
		1/2-14NPT		D4N-3126		D4N-3226		D4N-3A26		D4N-3B26
		M20		D4N-4126		D4N-4226		D4N-4A26		D4N-4B26
		M12 connector		D4N-9126		D4N-9226		D4N-9A26		D4N-9B26
Plunger 	1-conduit	Pg13.5		D4N-1131		D4N-1231		D4N-1A31		D4N-1B31
		G1/2		D4N-2131		D4N-2231		D4N-2A31		D4N-2B31
		1/2-14NPT		D4N-3131		D4N-3231		D4N-3A31		D4N-3B31
		M20		D4N-4131		D4N-4231		D4N-4A31		D4N-4B31
		M12 connector		D4N-9131		D4N-9231		D4N-9A31		D4N-9B31
Roller plunger 	1-conduit	Pg13.5		D4N-1132		D4N-1232		D4N-1A32		D4N-1B32
		G1/2		D4N-2132		D4N-2232		D4N-2A32		D4N-2B32
		1/2-14NPT		D4N-3132		D4N-3232		D4N-3A32		D4N-3B32
		M20		D4N-4132		D4N-4232		D4N-4A32		D4N-4B32
		M12 connector		D4N-9132		D4N-9232		D4N-9A32		D4N-9B32
	2-conduit	Pg13.5		D4N-5132		D4N-5232		D4N-5A32		D4N-5B32
		G1/2		D4N-6132		D4N-6232		D4N-6A32		D4N-6B32
		M20		D4N-8132		D4N-8232		D4N-8A32		D4N-8B32

Actuator	Conduit size		Built-in switch mechanism							
			1NC/1NO (Snap-action)		2NC (Snap-action)		1NC/1NO (Slow-action)		2NC (Slow-action)	
			Direct opening	Model	Direct opening	Model	Direct opening	Model	Direct opening	Model
One-way roller arm lever (horizontal) 	1-conduit	Pg13.5		D4N-1162		D4N-1262		D4N-1A62		D4N-1B62
		G1/2		D4N-2162		D4N-2262		D4N-2A62		D4N-2B62
		1/2-14NPT		D4N-3162		D4N-3262		D4N-3A62		D4N-3B62
		M20		D4N-4162		D4N-4262		D4N-4A62		D4N-4B62
		M12 connector		D4N-9162		D4N-9262		D4N-9A62		D4N-9B62
	2-conduit	Pg13.5		D4N-5162		D4N-5262		D4N-5A62		D4N-5B62
		G1/2		D4N-6162		D4N-6262		D4N-6A62		D4N-6B62
		M20		D4N-8162		D4N-8262		D4N-8A62		D4N-8B62
One-way roller arm lever (vertical) 	1-conduit	Pg13.5		D4N-1172		D4N-1272		D4N-1A72		D4N-1B72
		G1/2		D4N-2172		D4N-2272		D4N-2A72		D4N-2B72
		1/2-14NPT		D4N-3172		D4N-3272		D4N-3A72		D4N-3B72
		M20		D4N-4172		D4N-4272		D4N-4A72		D4N-4B72
		M12 connector		D4N-9172		D4N-9272		D4N-9A72		D4N-9B72
	2-conduit	Pg13.5		D4N-5172		D4N-5272		D4N-5A72		D4N-5B72
		G1/2		D4N-6172		D4N-6272		D4N-6A72		D4N-6B72
		M20		D4N-8172		D4N-8272		D4N-8A72		D4N-8B72
Adjustable roller lever, form lock (metal lever, resin roller) 	1-conduit	Pg13.5		D4N-112G		D4N-122G		D4N-1A2G		D4N-1B2G
		G1/2		D4N-212G		D4N-222G		D4N-2A2G		D4N-2B2G
		1/2-14NPT		D4N-312G		D4N-322G		D4N-3A2G		D4N-3B2G
		M20		D4N-412G		D4N-422G		D4N-4A2G		D4N-4B2G
		M12 connector		D4N-912G		D4N-922G		D4N-9A2G		D4N-9B2G
	2-conduit	G1/2		D4N-612G		D4N-622G		D4N-6A2G		D4N-6B2G
		M20		D4N-812G		D4N-822G		D4N-8A2G		D4N-8B2G
Adjustable roller lever, form lock (metal lever, rubber roller) 	1-conduit	Pg13.5		D4N-112H		D4N-122H		D4N-1A2H		D4N-1B2H
		G1/2		D4N-212H		D4N-222H		D4N-2A2H		D4N-2B2H
		1/2-14NPT		D4N-312H		D4N-322H		D4N-3A2H		D4N-3B2H
		M20		D4N-412H		D4N-422H		D4N-4A2H		D4N-4B2H
		M12 connector		D4N-912H		D4N-922H		D4N-9A2H		D4N-9B2H
	2-conduit	G1/2		D4N-612H		D4N-622H		D4N-6A2H		D4N-6B2H
		M20		D4N-812H		D4N-822H		D4N-8A2H		D4N-8B2H

Note: It is recommended that M20 be used for Switches to be exported to Europe and 1/2-14NPT be used for Switches to be exported to North American countries.

Switches with Three Contacts and MBB Contacts

Actuator	Conduit size		Built-in switch mechanism							
			2NC/1NO (Slow-action)		3NC (Slow-action)		1NC/1NO MBB (Slow-action)		2NC/1NO MBB (Slow-action)	
			Direct opening	Model	Direct opening	Model	Direct opening	Model	Direct opening	Model
Roller lever (resin lever, resin roller) 	1-conduit	Pg13.5		D4N-1C20		D4N-1D20		D4N-1E20		D4N-1F20
		G1/2		D4N-2C20		D4N-2D20		D4N-2E20		D4N-2F20
		1/2-14NPT		D4N-3C20		D4N-3D20		D4N-3E20		D4N-3F20
		M20		D4N-4C20		D4N-4D20		D4N-4E20		D4N-4F20
		M12 connector		---		---		D4N-9E20		---
	2-conduit	Pg13.5		D4N-5C20		D4N-5D20		D4N-5E20		D4N-5F20
		G1/2		D4N-6C20		D4N-6D20		D4N-6E20		D4N-6F20
		M20		D4N-8C20		D4N-8D20		D4N-8E20		D4N-8F20

■ Characteristics

Degree of protection (See note 3.)		IP67 (EN60947-5-1)
Durability (See note 4.)	Mechanical	15,000,000 operations min. (See note 7.)
	Electrical	500,000 operations min. for a resistive load of 3 A at 250 VAC (See note 5.) 300,000 operations min. for a resistive load of 10 A at 250 VAC
Operating speed		1 to 500 mm/s (D4N-1120)
Operating frequency		30 operations/minute max.
Contact resistance		25 mΩ max.
Minimum applicable load (See note 6.)		Resistive load of 1 mA at 5 VDC (N-level reference value)
Rated insulation voltage (U _i)		300 V
Protection against electric shock		Class II (double insulation)
Pollution degree (operating environment)		Level 3 (EN60947-5-1)
Impulse withstand voltage (EN60947-5-1)		Between terminals of the same polarity: 2.5 kV
		Between terminals of different polarities: 4 kV
		Between other terminals and uncharged metallic parts: 6 kV
Insulation resistance		100 MΩ min.
Contact gap		Snap-action: 2 x 0.5 mm min Slow-action: 2 x 2 mm min
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)
Rated open thermal current (I _{th})		10 A (EN60947-5-1)
Ambient temperature		Operating: -30°C to 70°C with no icing
Ambient humidity		Operating: 95% max.
Weight		Approx. 82 g (D4N-1120) Approx. 99 g (D4N-5120)

Note: 1. The above values are initial values.

- Once a contact has been used to switch a standard load, it cannot be used for a load of a smaller capacity. Doing so may result in roughening of the contact surface and contact reliability may be lost.
- 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. Although the switch box is protected from dust or water penetration, do not use the D4N in places where foreign material such as dust, dirt, oil, water, or chemicals may penetrate through the head. Otherwise, premature wear, Switch damage or malfunctioning may occur.
- The durability is for an ambient temperature of 5°C to 35°C and an ambient humidity of 40% to 70%. For more details, consult your OMRON representative.
- If the ambient temperature is greater than 35°C, do not pass the 3-A, 250-VAC load through more than 2 circuits.
- This value will vary with the switching frequency, environment, and reliability level. Confirm that correct operation is possible with the actual load beforehand.
- The mechanical durability of fork lever lock models is 10,000,000 operations min.

Dimensions

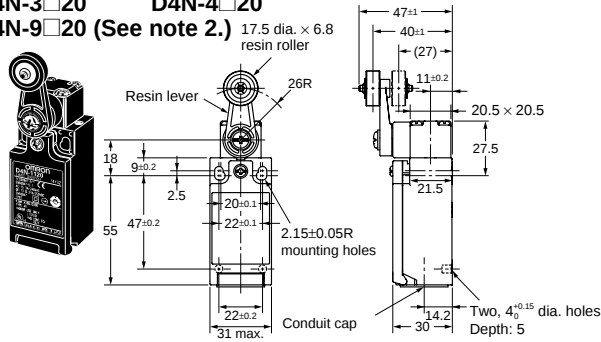
Switches

Note: All units are in millimeters unless otherwise indicated.

1-conduit Models

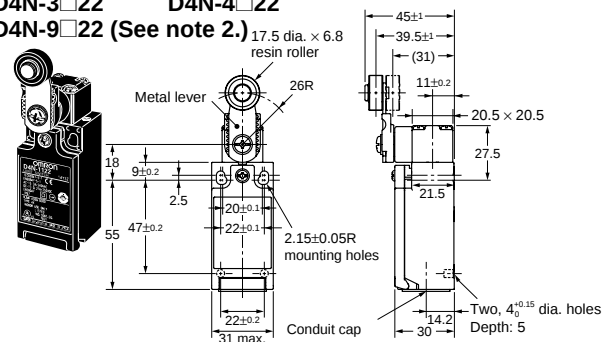
Roller Lever (Resin Lever, Resin Roller)

D4N-1□20 D4N-2□20
D4N-3□20 D4N-4□20
D4N-9□20 (See note 2.)



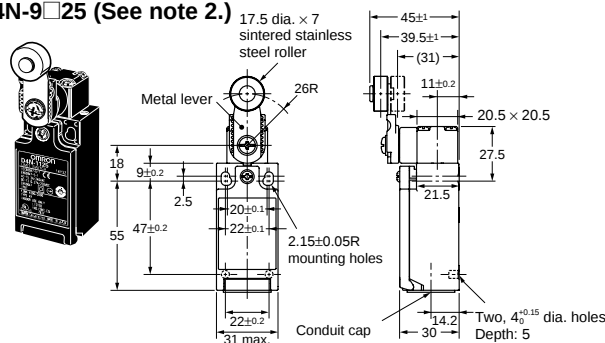
Roller Lever (Metal Lever, Resin Roller)

D4N-1□22 D4N-2□22
D4N-3□22 D4N-4□22
D4N-9□22 (See note 2.)



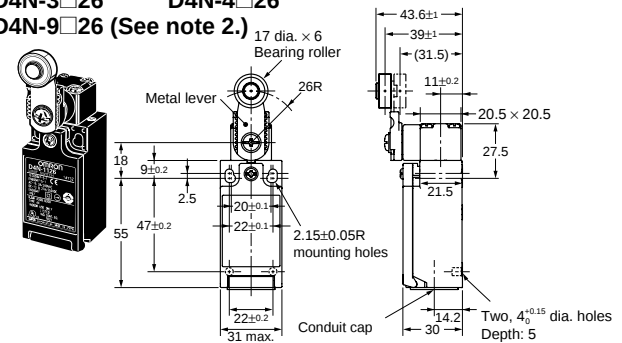
Roller Lever (Metal Lever, Metal Roller)

D4N-1□25 D4N-2□25
D4N-3□25 D4N-4□25
D4N-9□25 (See note 2.)



Roller Lever (Metal Lever, Bearing Roller)

D4N-1□26 D4N-2□26
D4N-3□26 D4N-4□26
D4N-9□26 (See note 2.)



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

2. Refer to page B-17 for details on M12 connectors.

Snap-action (1NC/1NO) (2NC), Slow-action (2NC) (3NC)

Model	D4N-□120 D4N-□220 D4N-□B20 D4N-□D20	D4N-□122 D4N-□222 D4N-□B22 D4N-□D22	D4N-□125 D4N-□225 D4N-□B25 D4N-□D25	D4N-□126 D4N-□226 D4N-□B26 D4N-□D26
OF max.	5.0 N			
RF min.	0.5 N			
PT	18° to 27°			
OT min.	40°			
MD max. (See note 2.)	14°			
OP	---			
TT (See note 3.)	(80°)			
DOT min. (See note 4.)	50°			
DOF min. (See note 4.)	20 N			

Note: 1. Variation occurs in the simultaneity of contact opening/closing operations of 2NC, 2NC/1NO, and 3NC contacts. Check contact operation.
2. Only for snap-action models.
3. Reference value.
4. Only for slow-action models. For safe use, always make sure that the minimum values or greater are provided.

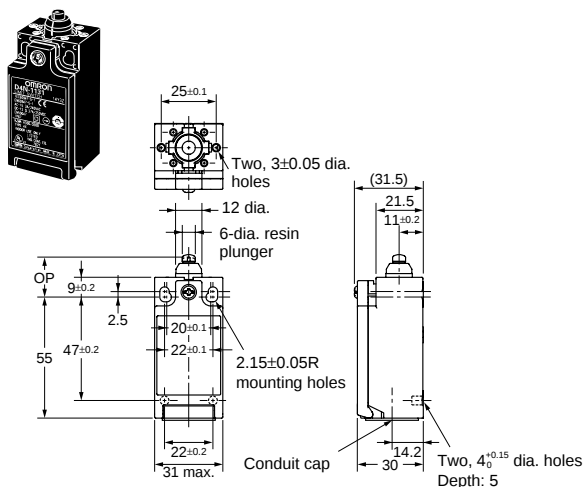
Slow-action (1NC/1NO) (2NC/1NO)

Model	D4N-□A20 D4N-□C20 D4N-□E20 D4N-□F20	D4N-□A22 D4N-□C22 D4N-□E22 D4N-□F22	D4N-□A25 D4N-□C25 D4N-□E25 D4N-□F25	D4N-□A26 D4N-□C26 D4N-□E26 D4N-□F26
OF max.	5.0 N			
RF min.	0.5 N			
PT (See note 1.)	18° to 27°			
PT (2nd) (See note 2.)	(44°)			
PT (See note 3.)	27.5° to 36.5°			
PT (2nd) (See note 4.)	(18°)			
OT min.	40°			
OP	---			
TT (See note 5.)	(80°)			
DOT min. (See note 6.)	50°			
DOF min. (See note 6.)	20 N			

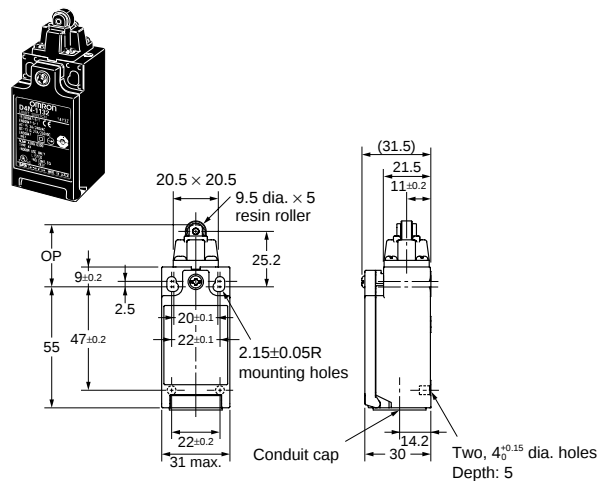
Note: 1. These PT values are possible when the NC contacts are open (OFF).
2. These PT values are possible when the NO contacts are closed (ON).
3. Only for MBB models.
4. Reference values for MBB models only.
5. Reference values.
6. For safe use, always make sure that the minimum values or greater are provided.

1-conduit Models**Plunger**

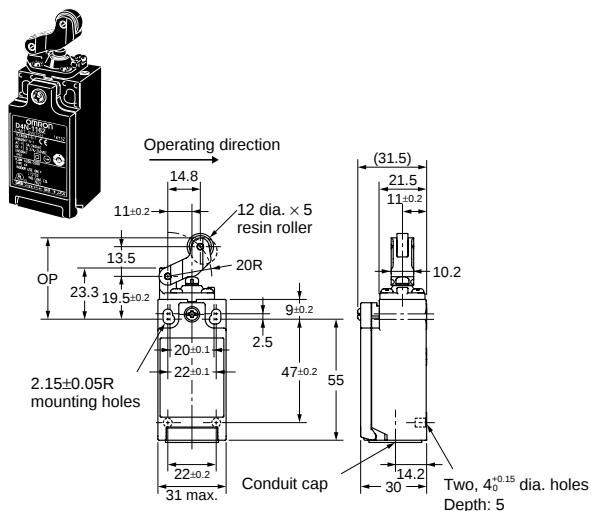
D4N-1□31 D4N-2□31
 D4N-3□31 D4N-4□31
 D4N-9□31 (See note 2.)

**Roller Plunger**

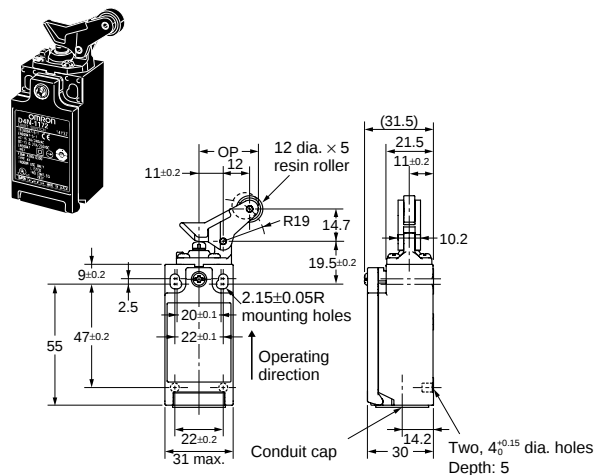
D4N-1□32 D4N-2□32
 D4N-3□32 D4N-4□32
 D4N-9□32 (See note 2.)

**One-way Roller Arm Lever (Horizontal)**

D4N-1□62 D4N-2□62
 D4N-3□62 D4N-4□62
 D4N-9□62 (See note 2.)

**One-way Roller Arm Lever (Vertical)**

D4N-1□72 D4N-2□72
 D4N-3□72 D4N-4□72
 D4N-9□72 (See note 2.)



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

2. Refer to page B-17 for details on M12 connectors.

Snap-action (1NC/1NO) (2NC), Slow-action (2NC) (3NC)

Model	D4N-□131 D4N-□231 D4N-□B31 D4N-□D31	D4N-□132 D4N-□232 D4N-□B32 D4N-□D32	D4N-□162 D4N-□262 D4N-□B62 D4N-□D62	D4N-□172 D4N-□272 D4N-□B72 D4N-□D72
OF max.	6.5 N	6.5 N	5.0 N	5.0 N
RF min.	1.5 N	1.5 N	0.8 N	0.8 N
PT max.	2 mm	2 mm	4 mm	4 mm
OT min.	4 mm	4 mm	5 mm	5 mm
MD max. (See note 2.)	1 mm	1 mm	1.5 mm	1.5 mm
OP	18.2 ±0.5 mm	28.6 ±0.8 mm	37 ±0.8 mm	27 ±0.8 mm
TT (See note 3.)	(6 mm)	(6 mm)	(9 mm)	(9 mm)
DOT min. (See note 4.)	3.2 mm	3.2 mm	5.8 mm	4.8 mm
DOF min. (See note 4.)	20 N	20 N	20 N	20 N

Note: 1. Variation occurs in the simultaneity of contact opening/closing operations of 2NC, 2NC/1NO, and 3NC contacts. Check contact operation.

2. Only for snap-action models.

3. Reference value.

4. Only for slow-action models. For safe use, always make sure that the minimum values or greater are provided.

Slow-action (1NC/1NO) (2NC/1NO)

Model	D4N-□A31 D4N-□C31 D4N-□E31 D4N-□F31	D4N-□A32 D4N-□C32 D4N-□E32 D4N-□F32	D4N-□A62 D4N-□C62 D4N-□E62 D4N-□F62	D4N-□A72 D4N-□C72 D4N-□E72 D4N-□F72
OF max.	6.5 N	6.5 N	5.0 N	5.0 N
RF min.	1.5 N	1.5 N	0.8 N	0.8 N
PT max. (See note 1.)	2 mm	2 mm	4 mm	4 mm
PT (2nd) (See note 2.)	(2.9 mm)	(2.9 mm)	(5.2 mm)	(4.3 mm)
PT max. (See note 3.)	2.8 mm	2.8 mm	4 mm	4 mm
PT (2nd) (See note 4.)	(1 mm)	(1 mm)	(1.5 mm)	(1.5 mm)
OT min.	4 mm	4 mm	5 mm	5 mm
OP	18.2 ±0.5 mm	28.6 ±0.8 mm	37 ±0.8 mm	27 ±0.8 mm
OP (See note 5.)	17.4 ±0.5 mm	28 ±0.8 mm	36 ±0.8 mm	26.1 ±0.8 mm
TT (See note 6.)	(6 mm)	(6 mm)	(9 mm)	(9 mm)
DOT min. (See note 7.)	3.2 mm	3.2 mm	5.8 mm	4.8 mm
DOF min. (See note 7.)	20 N	20 N	20 N	20 N

Note: 1. These PT values are possible when the NC contacts are open (OFF).

2. These PT values are possible when the NO contacts are closed (ON).

3. Only for MBB models.

4. Reference values for MBB models.

5. Only for MBB models.

6. Reference value.

7. For safe use, always make sure that the minimum values or greater are provided.

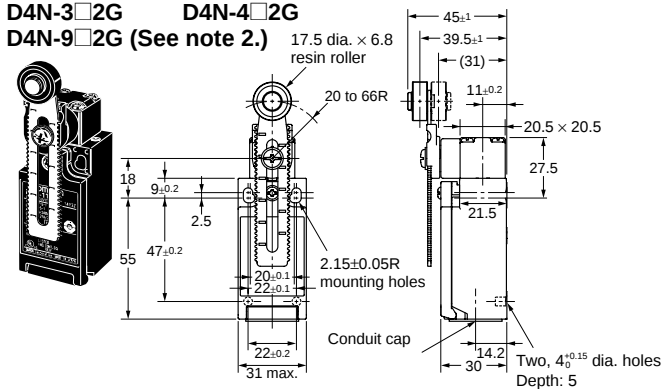
1-conduit Models

Adjustable Roller Lever, Form Lock (with Metal Lever, Resin Roller)

D4N-1□2G D4N-2□2G

D4N-3□2G D4N-4□2G

D4N-9□2G (See note 2.)

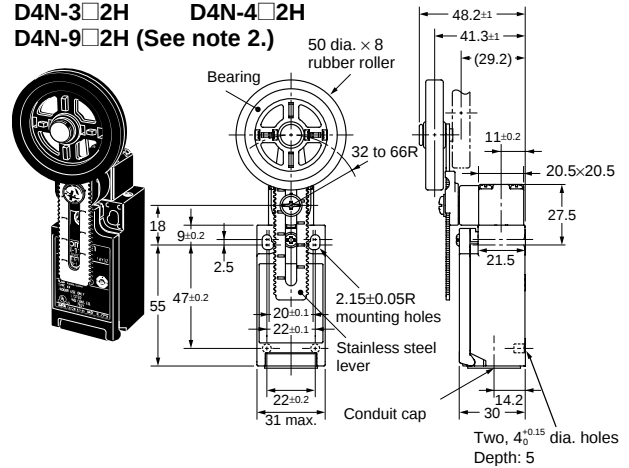


Adjustable Roller Lever, Form Lock (with Metal Lever, Rubber Roller)

D4N-1□2H D4N-2□2H

D4N-3□2H D4N-4□2H

D4N-9□2H (See note 2.)



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

2. Refer to following diagrams for details on M12 connectors.

Snap-action (1NC/1NO) (2NC), Slow-action (2NC) (3NC)

Model	D4N-□12H D4N-□22H D4N-□B2H D4N-□D2H	D4N-□12G D4N-□22G D4N-□B2G D4N-□D2G (See note 2.)
OF max.	4.5 N	
RF min.	0.4 N	
PT	18° to 27°	
OT min.	40°	
MD max. (See note 3.)	14°	
OP	---	
TT (See note 4.)	(80°)	
DOT min. (See note 5.)	50°	
DOF min. (See note 5.)	20 N	

Note: 1. Variation occurs in the simultaneity of contact opening/closing operations of 2NC, 2NC/1NO, and 3NC contacts. Check contact operation.

2. The operating characteristics of these Switches were measured with the roller lever set at 32 mm.

3. Only for snap-action models.

4. Reference value.

5. Only for slow-action models. For safe use, always make sure that the minimum values or greater are provided.

Slow-action (1NC/1NO) (2NC/1NO)

Model	D4N-□A2H D4N-□C2H D4N-□E2H D4N-□F2H	D4N-□A2G D4N-□C2G D4N-□E2G D4N-□F2G (See note 1.)
OF max.	4.5 N	
RF min.	0.4 N	
PT (See note 2.)	18° to 27°	
PT (2nd) (See note 3.)	(44°)	
PT (See note 4.)	27.5° to 36.5°	
PT (2nd) (See note 5.)	(18°)	
OT min.	40°	
OP	---	
TT (See note 6.)	(80°)	
DOT min.	50°	
DOF min. (See note 7.)	20 N	

Note: 1. The operating characteristics of these Switches were measured with the roller lever set at 32 mm.

2. This PT value is possible when the NC contacts are open (OFF).

3. This PT value is possible when the NO contacts are closed (ON).

4. Only for MBB models.

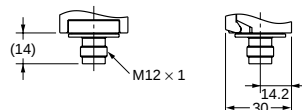
5. Reference value for MBB models only.

6. Reference value.

7. For safe use, always make sure that the minimum values or greater are provided.

1-conduit M12 Connector

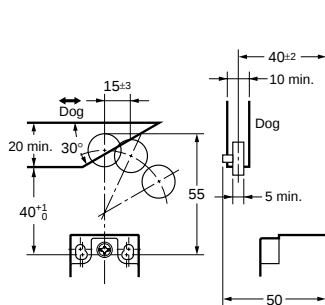
D4N-9□□□



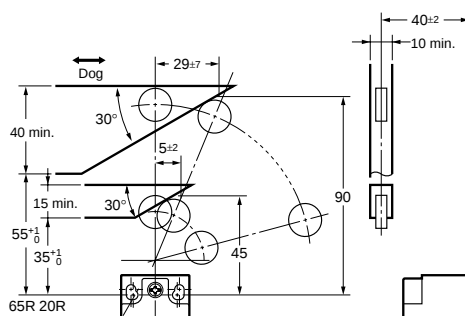
Levers

Refer to the following for the angles and positions of the watchdogs (source: EN50047.)

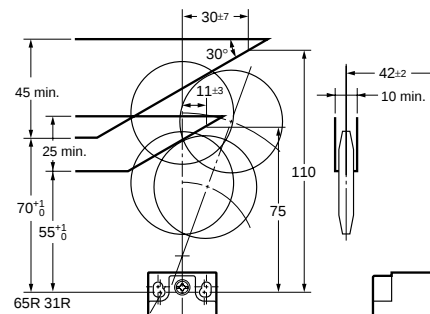
Roller Lever
(D4N-□□20)



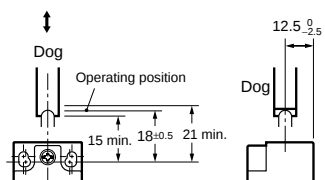
Adjustable Roller Lever, Form Lock
(with Metal Lever, Resin Roller)
(D4N-□□2G) (Reference Values)



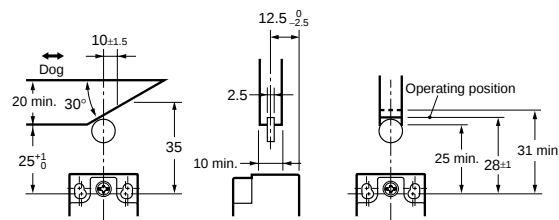
Adjustable Roller Lever, Form Lock
(with Metal Lever, Rubber Roller)
(D4N-□□2H) (Reference Values)



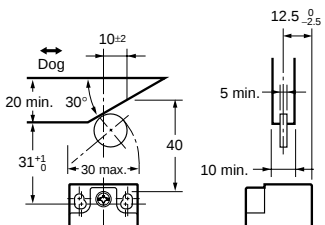
Sealed Plunger
(D4N-□□31)



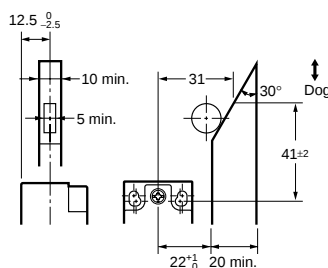
Roller Plunger
(D4N-□□32)



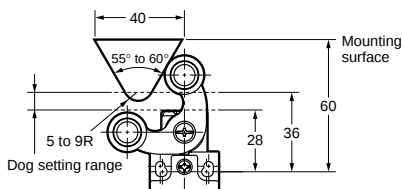
One-way Roller Arm Lever
(Horizontal)
(D4N-□□62)



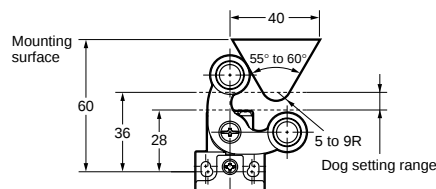
One-way Roller Arm Lever
(Vertical) (Reference Values)
(D4N-□□72)



Fork Lever Lock
(Right Operation)
(D4N-□□RE)



Fork Lever Lock
(Left Operation)
(D4N-□□LE)



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