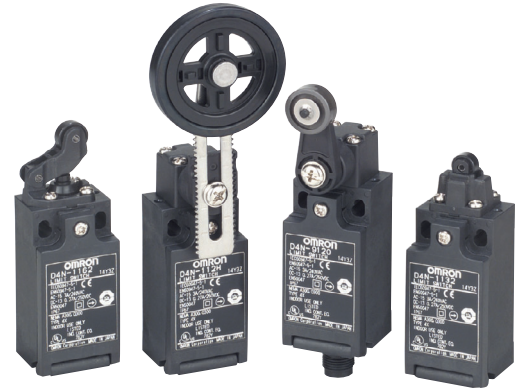



## Upgraded Safety Limit Switches Based on the Popular D4D, Providing a Full Lineup Conforming to International Standards

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



- 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.
- Conforms to EN115, EN81-1, and EN81-2 (slow-action models only).
- Lineup includes both slow-action and snap-action models with Zb contacts.
- Certified standards: UL, EN (TÜV), and CCC



 Be sure to read the "Safety Precautions" on page 18 and the "Precautions for All Safety Limit Switches".

## Model Number Structure

### Model Number Legend

D4N-□□□□  
1 2 3

#### 1. Conduit 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 (2-conduit)
- 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











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

### Switches with Two Contacts (with Direct Opening Mechanism)

Actuator	Conduit size		Built-in switch mechanism													
			1NC/1NO (Snap-action)		2NC (Snap-action)		1NC/1NO (Slow-action)		2NC (Slow-action)							
			Model	Direct opening	Model	Direct opening	Model	Direct opening	Model	Direct opening						
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										
2-conduit		Pg13.5	D4N-5125	⊕	D4N-5225	⊕	D4N-5A25	⊕	D4N-5B25	⊕						
		G1/2	D4N-6125		D4N-6225		D4N-6A25		D4N-6B25							
		M20	D4N-8125		D4N-8225		D4N-8A25		D4N-8B25							
		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										
2-conduit	Pg13.5		D4N-5126	⊕	D4N-5226	⊕	D4N-5A26	⊕	D4N-5B26	⊕						
	G1/2		D4N-6126		D4N-6226		D4N-6A26		D4N-6B26							
	M20		D4N-8126		D4N-8226		D4N-8A26		D4N-8B26							
	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										
2-conduit		Pg13.5	D4N-5131	⊕	D4N-5231	⊕	D4N-5A31	⊕	D4N-5B31	⊕						
		G1/2	D4N-6131		D4N-6231		D4N-6A31		D4N-6B31							
		M20	D4N-8131		D4N-8231		D4N-8A31		D4N-8B31							
		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							
	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 (with Direct Opening Mechanism)

Actuator	Conduit size		Built-in switch mechanism							
			2NC/1NO (Slow-action)		3NC (Slow-action)		1NC/1NO MBB (Slow-action)		2NC/1NO MBB (Slow-action)	
			Model	Direct opening	Model	Direct opening	Model	Direct opening	Model	Direct opening
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	
Roller lever (metal lever, resin roller) 	1-conduit	Pg13.5	D4N-1C22	⊕	D4N-1D22	⊖	D4N-1E22	⊖	D4N-1F22	⊕
		G1/2	D4N-2C22		D4N-2D22		D4N-2E22		D4N-2F22	
		1/2-14NPT	D4N-3C22		D4N-3D22		D4N-3E22		D4N-3F22	
		M20	D4N-4C22		D4N-4D22		D4N-4E22		D4N-4F22	
		M12 connector	---		---		D4N-9E22		---	
	2-conduit	Pg13.5	D4N-5C22	⊕	D4N-5D22	⊖	D4N-5E22	⊕	D4N-5F22	⊕
		G1/2	D4N-6C22		D4N-6D22		D4N-6E22		D4N-6F22	
		M20	D4N-8C22		D4N-8D22		D4N-8E22		D4N-8F22	
Roller lever (metal lever, metal roller) 	1-conduit	Pg13.5	D4N-1C25	⊕	D4N-1D25	⊖	D4N-1E25	⊖	D4N-1F25	⊕
		G1/2	D4N-2C25		D4N-2D25		D4N-2E25		D4N-2F25	
		1/2-14NPT	D4N-3C25		D4N-3D25		D4N-3E25		D4N-3F25	
		M20	D4N-4C25		D4N-4D25		D4N-4E25		D4N-4F25	
		M12 connector	---		---		D4N-9E25		---	
	2-conduit	Pg13.5	D4N-5C25	⊕	D4N-5D25	⊖	D4N-5E25	⊕	D4N-5F25	⊕
		G1/2	D4N-6C25		D4N-6D25		D4N-6E25		D4N-6F25	
		M20	D4N-8C25		D4N-8D25		D4N-8E25		D4N-8F25	
Roller lever (metal lever, bearing roller) 	1-conduit	Pg13.5	D4N-1C26	⊕	D4N-1D26	⊖	D4N-1E26	⊖	D4N-1F26	⊕
		G1/2	D4N-2C26		D4N-2D26		D4N-2E26		D4N-2F26	
		1/2-14NPT	D4N-3C26		D4N-3D26		D4N-3E26		D4N-3F26	
		M20	D4N-4C26		D4N-4D26		D4N-4E26		D4N-4F26	
		M12 connector	---		---		D4N-9E26		---	
	2-conduit	Pg13.5	D4N-5C26	⊕	D4N-5D26	⊖	D4N-5E26	⊕	D4N-5F26	⊕
		G1/2	D4N-6C26		D4N-6D26		D4N-6E26		D4N-6F26	
		M20	D4N-8C26		D4N-8D26		D4N-8E26		D4N-8F26	
Plunger 	1-conduit	Pg13.5	D4N-1C31	⊕	D4N-1D31	⊖	D4N-1E31	⊖	D4N-1F31	⊕
		G1/2	D4N-2C31		D4N-2D31		D4N-2E31		D4N-2F31	
		1/2-14NPT	D4N-3C31		D4N-3D31		D4N-3E31		D4N-3F31	
		M20	D4N-4C31		D4N-4D31		D4N-4E31		D4N-4F31	
		M12 connector	---		---		D4N-9E31		---	
	2-conduit	Pg13.5	D4N-5C31	⊕	D4N-5D31	⊖	D4N-5E31	⊕	D4N-5F31	⊕
		G1/2	D4N-6C31		D4N-6D31		D4N-6E31		D4N-6F31	
		M20	D4N-8C31		D4N-8D31		D4N-8E31		D4N-8F31	
Roller plunger 	1-conduit	Pg13.5	D4N-1C32	⊕	D4N-1D32	⊖	D4N-1E32	⊖	D4N-1F32	⊕
		G1/2	D4N-2C32		D4N-2D32		D4N-2E32		D4N-2F32	
		1/2-14NPT	D4N-3C32		D4N-3D32		D4N-3E32		D4N-3F32	
		M20	D4N-4C32		D4N-4D32		D4N-4E32		D4N-4F32	
		M12 connector	---		---		D4N-9E32		---	
	2-conduit	Pg13.5	D4N-5C32	⊕	D4N-5D32	⊖	D4N-5E32	⊕	D4N-5F32	⊕
		G1/2	D4N-6C32		D4N-6D32		D4N-6E32		D4N-6F32	
		M20	D4N-8C32		D4N-8D32		D4N-8E32		D4N-8F32	
One-way roller arm lever (horizontal) 	1-conduit	Pg13.5	D4N-1C62	⊕	D4N-1D62	⊖	D4N-1E62	⊖	D4N-1F62	⊕
		G1/2	D4N-2C62		D4N-2D62		D4N-2E62		D4N-2F62	
		1/2-14NPT	D4N-3C62		D4N-3D62		D4N-3E62		D4N-3F62	
		M20	D4N-4C62		D4N-4D62		D4N-4E62		D4N-4F62	
		M12 connector	---		---		D4N-9E62		---	
	2-conduit	Pg13.5	D4N-5C62	⊕	D4N-5D62	⊖	D4N-5E62	⊕	D4N-5F62	⊕
		G1/2	D4N-6C62		D4N-6D62		D4N-6E62		D4N-6F62	
		M20	D4N-8C62		D4N-8D62		D4N-8E62		D4N-8F62	
One-way roller arm lever (vertical) 	1-conduit	Pg13.5	D4N-1C72	⊕	D4N-1D72	⊖	D4N-1E72	⊖	D4N-1F72	⊕
		G1/2	D4N-2C72		D4N-2D72		D4N-2E72		D4N-2F72	
		1/2-14NPT	D4N-3C72		D4N-3D72		D4N-3E72		D4N-3F72	
		M20	D4N-4C72		D4N-4D72		D4N-4E72		D4N-4F72	
		M12 connector	---		---		D4N-9E72		---	
	2-conduit	Pg13.5	D4N-5C72	⊕	D4N-5D72	⊖	D4N-5E72	⊕	D4N-5F72	⊕
		G1/2	D4N-6C72		D4N-6D72		D4N-6E72		D4N-6F72	
		M20	D4N-8C72		D4N-8D72		D4N-8E72		D4N-8F72	
Adjustable roller lever, form lock (metal lever, resin roller) 	1-conduit	Pg13.5	D4N-1C2G	⊕	D4N-1D2G	⊖	D4N-1E2G	⊖	D4N-1F2G	⊕
		G1/2	D4N-2C2G		D4N-2D2G		D4N-2E2G		D4N-2F2G	
		1/2-14NPT	D4N-3C2G		D4N-3D2G		D4N-3E2G		D4N-3F2G	
		M20	D4N-4C2G		D4N-4D2G		D4N-4E2G		D4N-4F2G	
		M12 connector	---		---		D4N-9E2G		---	
	2-conduit	G1/2	D4N-6C2G	⊕	D4N-6D2G	⊖	D4N-6E2G	⊕	D4N-6F2G	⊕
		M20	D4N-8C2G		D4N-8D2G		D4N-8E2G		D4N-8F2G	
Adjustable roller lever, form lock (metal lever, rubber roller) 	1-conduit	Pg13.5	D4N-1C2H	⊕	D4N-1D2H	⊖	D4N-1E2H	⊖	D4N-1F2H	⊕
		G1/2	D4N-2C2H		D4N-2D2H		D4N-2E2H		D4N-2F2H	
		1/2-14NPT	D4N-3C2H		D4N-3D2H		D4N-3E2H		D4N-3F2H	
		M20	D4N-4C2H		D4N-4D2H		D4N-4E2H		D4N-4F2H	
		M12 connector	---		---		D4N-9E2H		---	
	2-conduit	G1/2	D4N-6C2H	⊕	D4N-6D2H	⊖	D4N-6E2H	⊕	D4N-6F2H	⊕
		M20	D4N-8C2H		D4N-8D2H		D4N-8E2H		D4N-8F2H	

**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.





## General-purpose Switches with Two Contacts

Actuator	Conduit size		Built-in switch mechanism									
			1NC/1NO (Snap-action)		2NC (Snap-action)		1NC/1NO (Slow-action)		2NC (Slow-action)			
			Model	Direct opening	Model	Direct opening	Model	Direct opening	Model	Direct opening		
Fork lever lock (right operation) 	1-conduit	G1/2	---	---	---	---	---	---	---	---		
		1/2-14NPT									D4N-2ARE	D4N-2BRE
		M20									D4N-3ARE	D4N-3BRE
	2-conduit	G1/2									D4N-4ARE	D4N-4BRE
		M20									D4N-6ARE	D4N-6BRE
											D4N-8ARE	D4N-8BRE
Fork lever lock (left operation) 	1-conduit	G1/2	---	---	---	---	---	---	---	---		
		1/2-14NPT									D4N-2ALE	D4N-2BLE
		M20									D4N-3ALE	D4N-3BLE
	2-conduit	G1/2									D4N-4ALE	D4N-4BLE
		M20									D4N-6ALE	D4N-6BLE
											D4N-8ALE	D4N-8BLE
Cat whisker 	1-conduit	G1/2	---	---	---	---	---	---	---	---		
		1/2-14NPT									D4N-2180	D4N-2280
		M20									D4N-3180	D4N-3280
	2-conduit	G1/2									D4N-4180	D4N-4280
		M20									D4N-6180	D4N-6280
											D4N-8180	D4N-8280
Plastic rod 	1-conduit	G1/2	---	---	---	---	---	---	---	---		
		1/2-14NPT									D4N-2187	D4N-2287
		M20									D4N-3187	D4N-3287
	2-conduit	G1/2									D4N-4187	D4N-4287
		M20									D4N-6187	D4N-6287
											D4N-8187	D4N-8287

**Note: 1.** 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.

**2.** Mechanically speaking, these models are general-purpose switches with no direct opening mechanism.

## General-purpose 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)					
			Model	Direct opening	Model	Direct opening	Model	Direct opening	Model	Direct opening				
Fork lever lock (right operation) 	1-conduit	G1/2	---	---	---	---	---	---	---	---				
		1/2-14NPT									D4N-2CRE	D4N-2DRE	D4N-2ERE	D4N-2FRE
		M20									D4N-3CRE	D4N-3DRE	D4N-3ERE	D4N-3FRE
	2-conduit	G1/2									D4N-4CRE	D4N-4DRE	D4N-4ERE	D4N-4FRE
		M20									D4N-6CRE	D4N-6DRE	D4N-6ERE	D4N-6FRE
											D4N-8CRE	D4N-8DRE	D4N-8ERE	D4N-8FRE
Fork lever lock (left operation) 	1-conduit	G1/2	---	---	---	---	---	---	---	---				
		1/2-14NPT									D4N-2CLE	D4N-2DLE	D4N-2ELE	D4N-2FLE
		M20									D4N-3CLE	D4N-3DLE	D4N-3ELE	D4N-3FLE
	2-conduit	G1/2									D4N-4CLE	D4N-4DLE	D4N-4ELE	D4N-4FLE
		M20									D4N-6CLE	D4N-6DLE	D4N-6ELE	D4N-6FLE
											D4N-8CLE	D4N-8DLE	D4N-8ELE	D4N-8FLE
Cat whisker 	1-conduit	G1/2	---	---	---	---	---	---	---	---				
		1/2-14NPT									D4N-2D80	D4N-2E80	D4N-2F80	
		M20									D4N-3D80	D4N-3E80	D4N-3F80	
	2-conduit	G1/2									D4N-4D80	D4N-4E80	D4N-4F80	
		M20									D4N-6D80	D4N-6E80	D4N-6F80	
											D4N-8D80	D4N-8E80	D4N-8F80	
Plastic rod 	1-conduit	G1/2	---	---	---	---	---	---	---	---				
		1/2-14NPT									D4N-2D87	D4N-2E87	D4N-2F87	
		M20									D4N-3D87	D4N-3E87	D4N-3F87	
	2-conduit	G1/2									D4N-4D87	D4N-4E87	D4N-4F87	
		M20									D4N-6D87	D4N-6E87	D4N-6F87	
											D4N-8D87	D4N-8E87	D4N-8F87	

**Note: 1.** 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.

**2.** Mechanically speaking, these models are general-purpose switches with no direct opening mechanism.

## Specifications

### Standards and EC Directives

Conforms to the following EC Directives:

- Machinery Directive
- Low Voltage Directive
- EN50047
- EN60204-1
- EN1088
- GS-ET-15

### Certified Standards

Certification body	Standard	File No.
TÜV SÜD	EN60947-5-1 (certified direct opening)	*1
UL *2	UL508, CSA C22.2 No.14	E76675
CQC (CCC) *3	GB14048.5	2004010305105973

\*1. Consult your OMRON representative for details.

\*2. Certification for CSA C22.2 No. 14 is authorized by the UL mark.

\*3. Ask your OMRON representative for information on certified models.

### Certified Standard Ratings

TÜV (EN60947-5-1), CCC (GB14048.5)

Item	Utilization category	AC-15	DC-13
Rated operating current ( $I_e$ )		3 A	0.27 A
Rated operating voltage ( $U_e$ )		240 V	250 V

**Note:** Use a 10 A fuse type gI or gG that conforms to IEC60269 as a short-circuit protection device. This fuse is not built into the Switch.

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

#### A300

Rated voltage	Carry current	Current (A)		Volt-amperes (VA)	
		Make	Break	Make	Break
120 VAC	10 A	60	6	7,200	720
240 VAC		30	3		

#### Q300

Rated voltage	Carry current	Current (A)		Volt-amperes (VA)	
		Make	Break	Make	Break
125 VDC	2.5 A	0.55	0.55	69	69
250 VDC		0.27	0.27		

## Characteristics

<b>Degree of protection *1</b>		IP67 (EN60947-5-1)
<b>Durability *2</b>	<b>Mechanical</b>	15,000,000 operations min. *5
	<b>Electrical</b>	500,000 operations min. (3 A resistive load at 250 VAC) *3 300,000 operations min. (10 A resistive load at 250 VAC)
<b>Operating speed</b>		1 to 500 mm/s (D4N-1120)
<b>Operating frequency</b>		30 operations/minute max.
<b>Contact resistance</b>		25 mΩ max.
<b>Minimum applicable load *4</b>		1 mA resistive load at 5 VDC (N-level reference value)
<b>Rated insulation voltage (U<sub>i</sub>)</b>		300 V
<b>Rated frequency</b>		50/60 Hz
<b>Protection against electric shock</b>		Class II (double insulation)
<b>Pollution degree (operating environment)</b>		3 (EN60947-5-1)
<b>Impulse withstand voltage (EN60947-5-1)</b>	<b>Between terminals of same polarity</b>	2.5 kV
	<b>Between terminals of different polarity</b>	4 kV
	<b>Between each terminal and non-current carrying metallic parts</b>	6 kV
<b>Insulation resistance</b>		100 MΩ min.
<b>Contact gap</b>		Snap-action: 2 × 0.5 mm min. Slow-action: 2 × 2 mm min.
<b>Vibration resistance</b>	<b>Malfunction</b>	10 to 55 Hz, 0.75 mm single amplitude
<b>Shock resistance</b>	<b>Destruction</b>	1,000 m/s <sup>2</sup> min.
	<b>Malfunction</b>	300 m/s <sup>2</sup> min.
<b>Conditional short-circuit current</b>		100 A (EN60947-5-1)
<b>Conventional free air thermal current (I<sub>th</sub>)</b>		10 A (EN60947-5-1)
<b>Ambient operating temperature</b>		-30 to 70°C (with no icing)
<b>Ambient operating humidity</b>		95% max.
<b>Weight</b>		Approx. 82 g (D4N-1120) Approx. 99 g (D4N-5120)

**Note: 1.** The above values are initial values.

**2.** 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.

**\*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. 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, accelerated wear, switch damage or malfunctioning may occur.

**\*2.** The durability is for an ambient temperature of 5 to 35°C and an ambient humidity of 40% to 70%. For more details, consult your OMRON representative.

**\*3.** Do not pass the 3 A, 250 VAC load through more than 2 circuits.

**\*4.** This value will vary with the switching frequency, environment, and reliability level. Confirm that correct operation is possible with the actual load beforehand.

**\*5.** The mechanical durability of fork lever lock models is 10,000,000 operations min.

# Structure and Nomenclature

## Structure

**Safety-oriented Lever Setting (Form-lock construction)**  
Grooves which engage the lever are cut in the lever and rotary shaft to prevent the lever from slipping against the rotary shaft.  
There are resin-lever and metal-lever types.

**Head**  
The direction of the switch head can be varied to any of the four directions. (Roller plunger models can be mounted in either of two directions at a 90° angle.)

**Built-in Switch**  
The built-in switch has a direct opening mechanism that forcibly separates the NC contact even when there is contact deposit.

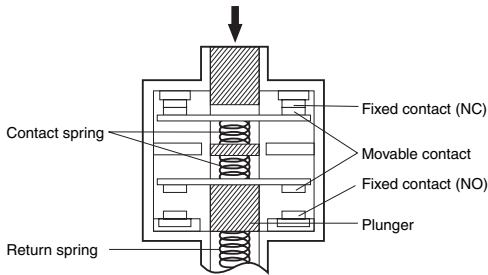
**Cover**  
The cover, with a hinge on its lower part, can be opened by removing the screw of the cover, which ensures ease of maintenance and wiring.

**Conduit Opening**  
A wide variety of conduits is available.

Size	Box	1-conduit	2-conduit
Pg13.5		Yes	Yes
G1/2		Yes	Yes
1/2-14NPT		Yes	Yes
M20		Yes	Yes
M12 connector		Yes	---

**Note:** M12 connector types are not available for Switches with three contacts.

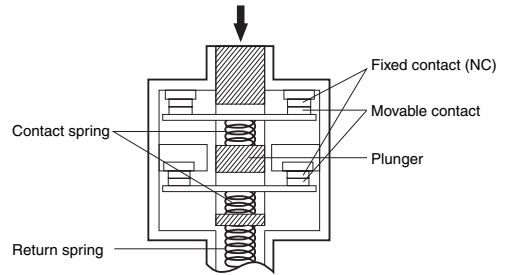
### Direct Opening Mechanism 1NC/1NO Contact (Slow-action)



Conforms to EN60947-5-1 Direct Opening Operation ⊖

(Only the NC contact side 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)

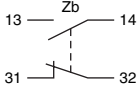
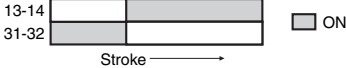
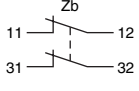
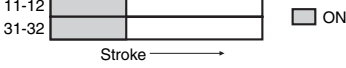
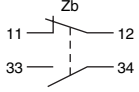
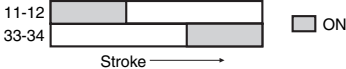
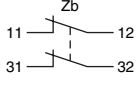
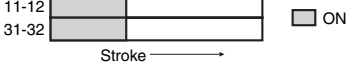
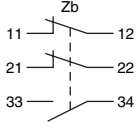
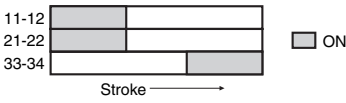
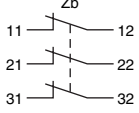
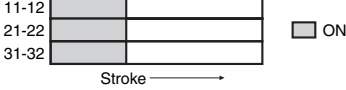
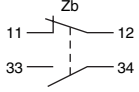
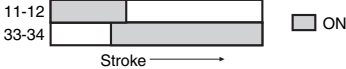
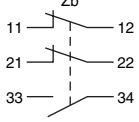



Conforms to EN60947-5-1 Direct Opening Operation ⊖

(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	Operating pattern	Remarks
D4N-□1□	1NC/1NO (Snap-action)			Only NC contacts 31-32 have a certified direct opening mechanism. (→)  The terminals 13-14 and 31-32 can be used as unlike poles.
D4N-□2□	2NC (Snap-action)			Only NC contacts 11-12 and 31-32 have a certified direct opening mechanism. (→)  The terminals 11-12 and 31-32 can be used as unlike poles.
D4N-□A□	1NC/1NO (Slow-action)			Only NC contacts 11-12 have a certified direct opening mechanism. (→)  The terminals 11-12 and 33-34 can be used as unlike poles.
D4N-□B□	2NC (Slow-action)			Only NC contacts 11-12 and 31-32 have a certified direct opening mechanism. (→)  The terminals 11-12 and 31-32 can be used as unlike poles.
D4N-□C□	2NC/1NO (Slow-action)			Only NC contacts 11-12 and 21-22 have a certified direct opening mechanism. (→)  The terminals 11-12, 21-22, and 33-34 can be used as unlike poles.
D4N-□D□	3NC (Slow-action)			Only NC contacts 11-12, 21-22, and 31-32 have a certified direct opening mechanism. (→)  The terminals 11-12, 21-22, and 31-32 can be used as unlike poles.
D4N-□E□	1NC/1NO MBB * (Slow-action)			Only NC contacts 11-12 have a certified direct opening mechanism. (→)  The terminals 11-12 and 33-34 can be used as unlike poles.
D4N-□F□	2NC/1NO MBB * (Slow-action)			Only NC contacts 11-12 and 21-22 have a certified direct opening mechanism. (→)  The terminals 11-12, 21-22 and 33-34 can be used as unlike poles.

**Note:** Terminals are numbered according to EN50013 and the contact forms are according to IEC947-5-1.

\* MBB (Make Before Break) contacts have an overlapping structure, so that before the normally closed contact (NC) opens, the normally open contact (NO) closes.



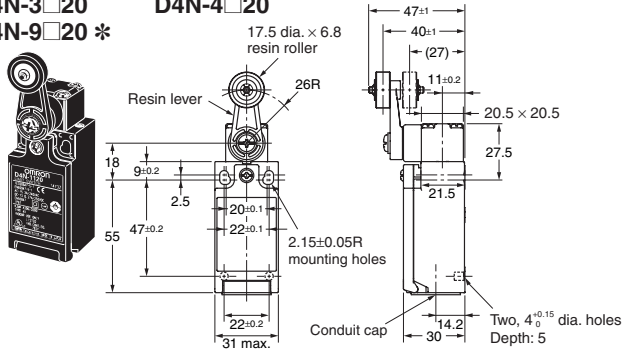
# Dimensions and Operating Characteristics

## Switches

### 1-conduit Models

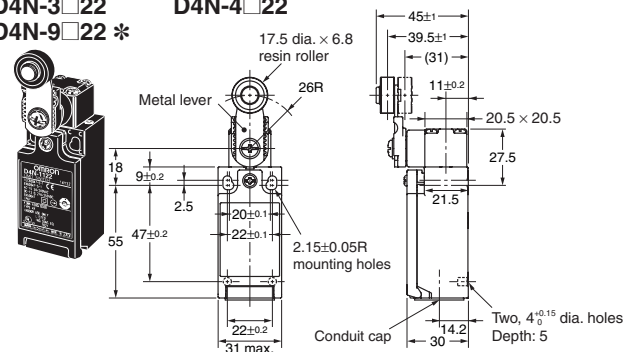
#### Roller Lever (Resin Lever, Resin Roller)

D4N-1□20 D4N-2□20  
D4N-3□20 D4N-4□20  
D4N-9□20 \*



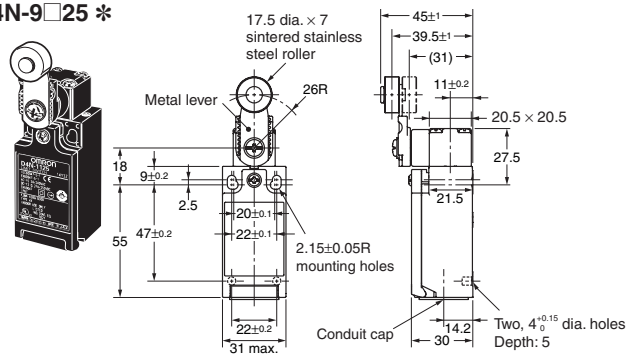
#### Roller Lever (Metal Lever, Resin Roller)

D4N-1□22 D4N-2□22  
D4N-3□22 D4N-4□22  
D4N-9□22 \*



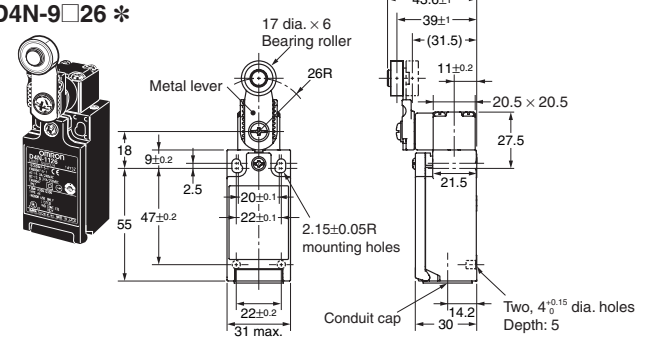
#### Roller Lever (Metal Lever, Metal Roller)

D4N-1□25 D4N-2□25  
D4N-3□25 D4N-4□25  
D4N-9□25 \*



#### Roller Lever (Metal Lever, Bearing Roller)

D4N-1□26 D4N-2□26  
D4N-3□26 D4N-4□26  
D4N-9□26 \*



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

\* Refer to page 12 for details on M12 connectors.

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

Model	D4N-□120	D4N-□122	D4N-□125	D4N-□126
	D4N-□220	D4N-□222	D4N-□225	D4N-□226
	D4N-□B20	D4N-□B22	D4N-□B25	D4N-□B26
	D4N-□D20	D4N-□D22	D4N-□D25	D4N-□D26
<b>Operating characteristics</b>				
<b>Operating force</b>	OF max.	5.0 N		
<b>Release force</b>	RF min.	0.5 N		
<b>Pretravel</b>	PT	18° to 27°		
<b>Overtravel</b>	OT min.	40°		
<b>Movement differential</b>	MD max.	14°		
<b>Operating position</b>	OP	---		
<b>Total travel</b>	TT *2	(80°)		
<b>Direct opening travel</b>	DOT min.	50°		
<b>Direct opening force</b>	DOF min.	20 N		

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

\*1. Only for snap-action models.

\*2. Reference value.

\*3. For safe use, always make sure that the minimum values or greater are provided.

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

Model	D4N-□A20	D4N-□A22	D4N-□A25	D4N-□A26
	D4N-□C20	D4N-□C22	D4N-□C25	D4N-□C26
	D4N-□E20	D4N-□E22	D4N-□E25	D4N-□E26
	D4N-□F20	D4N-□F22	D4N-□F25	D4N-□F26
<b>Operating characteristics</b>				
<b>Operating force</b>	OF max.	5.0 N		
<b>Release force</b>	RF min.	0.5 N		
	PT *1	18° to 27°		
	PT (2nd) *2	(44°)		
	PT *3	27.5° to 36.5°		
	PT (2nd) *4	(18°)		
<b>Overtravel</b>	OT min.	40°		
<b>Operating position</b>	OP	---		
<b>Total travel</b>	TT *5	(80°)		
<b>Direct opening travel</b>	DOT min.	50°		
<b>Direct opening force</b>	DOF min.	20 N		

\*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.

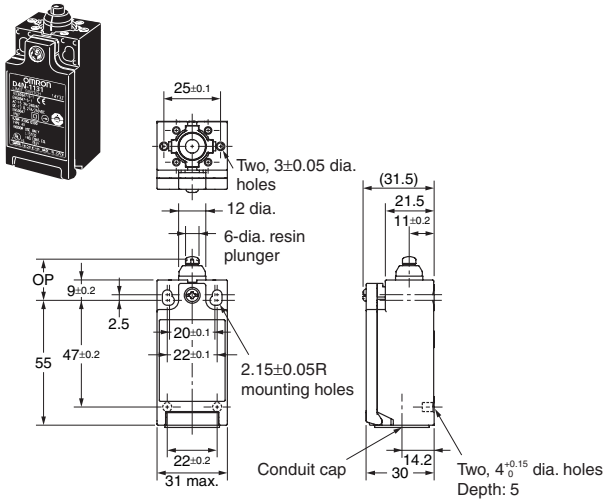
\*5. Reference values.

\*6. For safe use, always make sure that the minimum values or greater are provided.

1-conduit Models

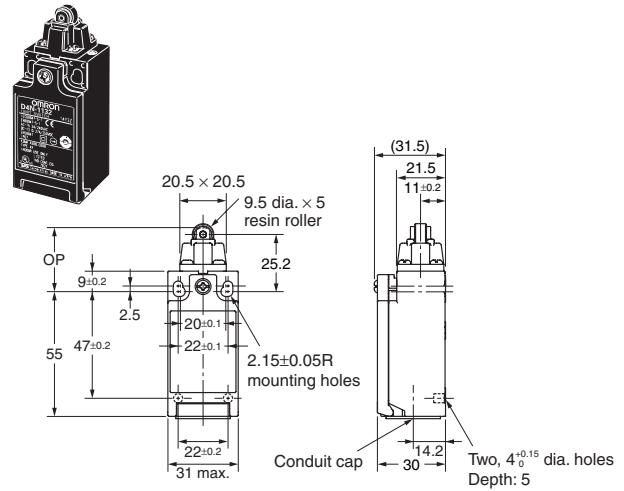
Plunger

- D4N-1□31      D4N-2□31
- D4N-3□31      D4N-4□31
- D4N-9□31 \*



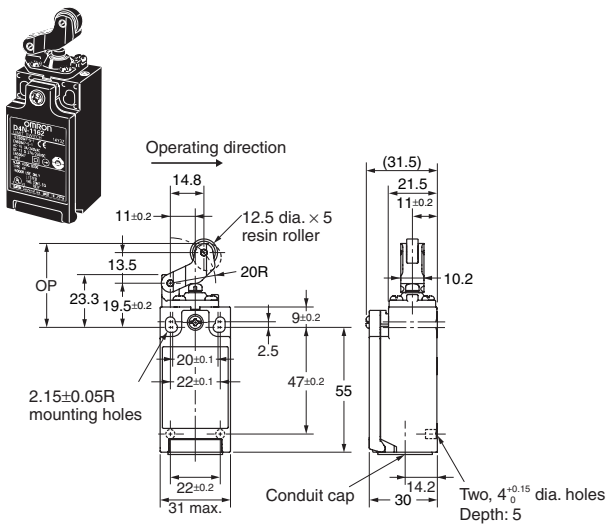
Roller Plunger

- D4N-1□32      D4N-2□32
- D4N-3□32      D4N-4□32
- D4N-9□32 \*



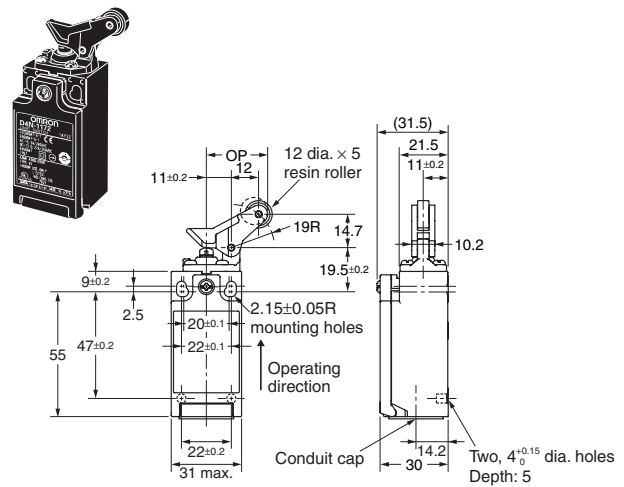
One-way Roller Arm Lever (Horizontal)

- D4N-1□62      D4N-2□62
- D4N-3□62      D4N-4□62
- D4N-9□62 \*



One-way Roller Arm Lever (Vertical)

- D4N-1□72      D4N-2□72
- D4N-3□72      D4N-4□72
- D4N-9□72 \*



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

\* Refer to page 12 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
<b>Operating characteristics</b>					
Operating force	OF max.	6.5 N	6.5 N	5.0 N	5.0 N
Release force	RF min.	1.5 N	1.5 N	0.8 N	0.8 N
Pretravel	PT max.	2 mm	2 mm	4 mm	4 mm
Overtravel	OT min.	4 mm	4 mm	5 mm	5 mm
Movement differential	MD max. *1	1 mm	1 mm	1.5 mm	1.5 mm
Operating position	OP	18.2 ±0.5 mm	28.6 ±0.8 mm	37 ±0.8 mm	27 ±0.8 mm
Total travel	TT *2	(6 mm)	(6 mm)	(9 mm)	(9 mm)
Direct opening travel	DOT min. *3	3.2 mm	3.2 mm	5.8 mm	4.8 mm
Direct opening force	DOF min. *3	20 N	20 N	20 N	20 N

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

\*1. Only for snap-action models.

\*2. Reference value.

\*3. 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
<b>Operating characteristics</b>					
Operating force	OF max.	6.5 N	6.5 N	5.0 N	5.0 N
Release force	RF min.	1.5 N	1.5 N	0.8 N	0.8 N
Pretravel	PT max. *1	2 mm	2 mm	4 mm	4 mm
	PT (2nd) *2	(2.9 mm)	(2.9 mm)	(5.2 mm)	(4.3 mm)
	PT max. *3	2.8 mm	2.8 mm	4 mm	4 mm
	PT (2nd) *4	(1 mm)	(1 mm)	(1.5 mm)	(1.5 mm)
Overtravel	OT min.	4 mm	4 mm	5 mm	5 mm
	Operating position	OP	18.2 ±0.5 mm	28.6 ±0.8 mm	37 ±0.8 mm
	OP *5	17.4 ±0.5 mm	28 ±0.8 mm	36 ±0.8 mm	26.1 ±0.8 mm
Total travel	TT *6	(6 mm)	(6 mm)	(9 mm)	(9 mm)
Direct opening travel	DOT min. *7	3.2 mm	3.2 mm	5.8 mm	4.8 mm
Direct opening force	DOF min. *7	20 N	20 N	20 N	20 N

\*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.

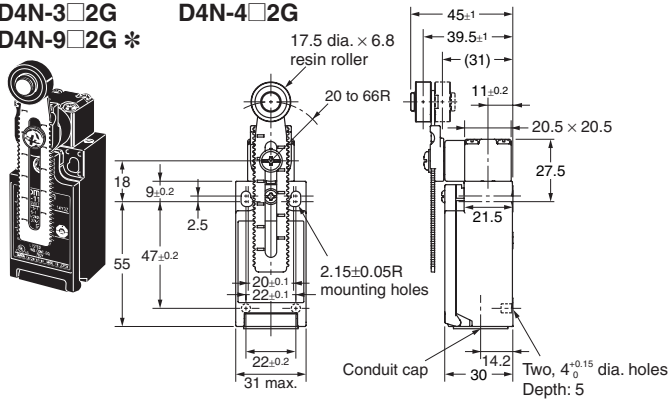
\*6. Reference value.

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

1-conduit Models

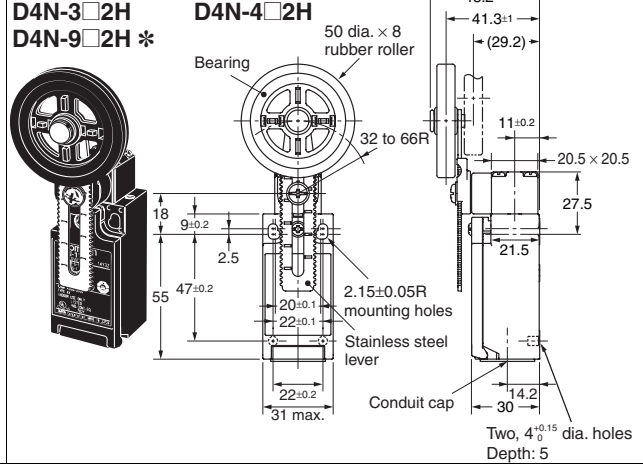
Adjustable Roller Lever, Form Lock  
(with Metal Lever, Resin Roller)

D4N-1□2G D4N-2□2G  
D4N-3□2G D4N-4□2G  
D4N-9□2G \*



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 \*



Note: Unless otherwise specified, a tolerance of ±0.4 mm applies to all dimensions.  
\* 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 *1
<b>Operating characteristics</b>			
Operating force	OF max.	4.5 N	
Release force	RF min.	0.4 N	
Pretravel	PT	18° to 27°	
Overtravel	OT min.	40°	
Movement differential	MD max. *2	14°	
Operating position	OP	---	
Total travel	TT *3	(80°)	
Direct opening travel	DOT min. *4	50°	
Direct opening force	DOF min. *4	20 N	

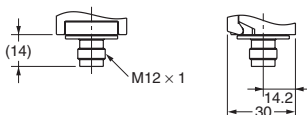
Note: Variation occurs in the simultaneity of contact opening/closing operations of 2NC, 2NC/1NO, and 3NC contacts. Check contact operation.  
\*1. The operating characteristics of these Switches were measured with the roller lever set at 32 mm.  
\*2. Only for snap-action models.  
\*3. Reference value.  
\*4. 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 *1
<b>Operating characteristics</b>			
Operating force	OF max.	4.5 N	
Release force	RF min.	0.4 N	
Pretravel	PT *2	18° to 27°	
	PT (2nd) *3	(44°)	
	PT *4	27.5° to 36.5°	
	PT (2nd) *5	(18°)	
Overtravel	OT min.	40°	
Operating position	OP	---	
Total travel	TT *6	(80°)	
Direct opening travel	DOT min.	50°	
Direct opening force	DOF min. *7	20 N	

\*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.

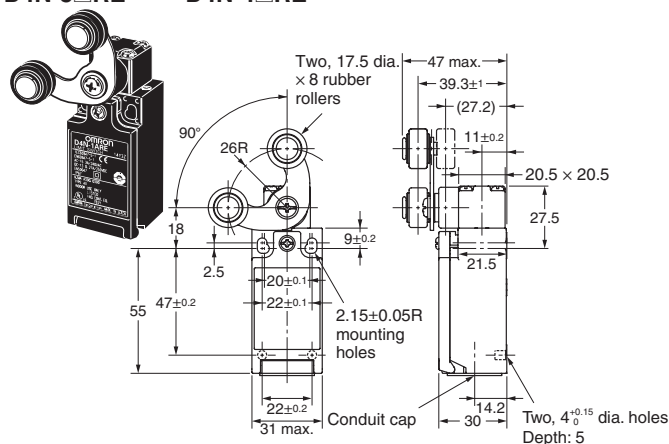
1-conduit M12 Connector  
D4N-9□□□



1-conduit Models

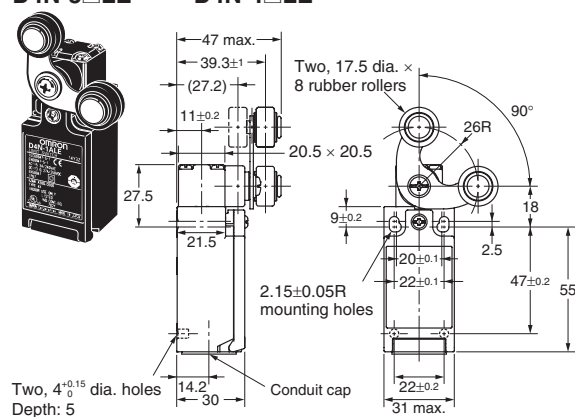
Fork Lever Lock  
(Right Operation) \*2

D4N-1□RE D4N-2□RE  
D4N-3□RE D4N-4□RE



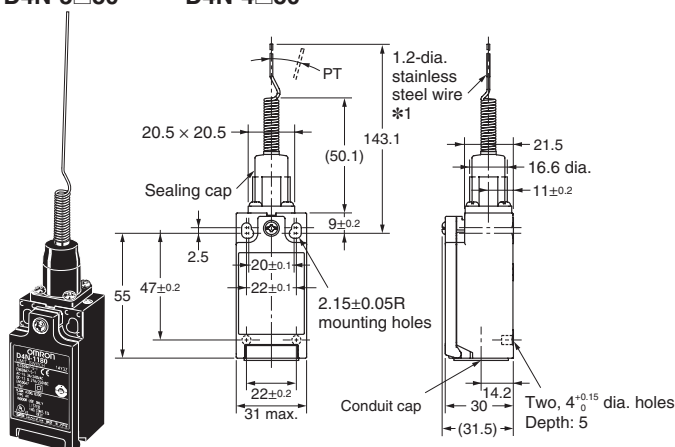
Fork Lever Lock  
(Left Operation) \*2

D4N-1□LE D4N-2□LE  
D4N-3□LE D4N-4□LE



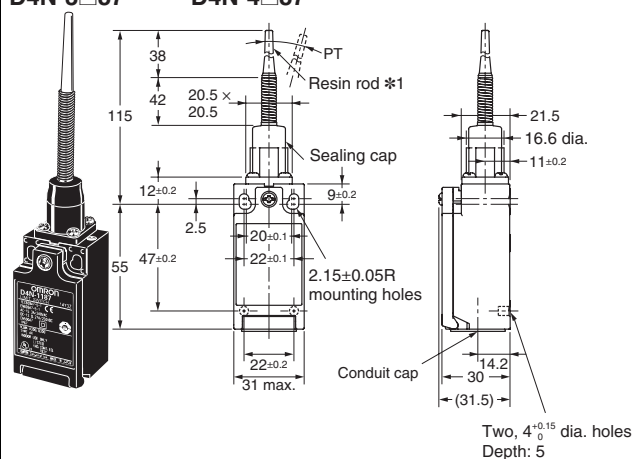
Cat Whisker \*2

D4N-1□80 D4N-2□80  
D4N-3□80 D4N-4□80



Plastic Rod \*2

D4N-1□87 D4N-2□87  
D4N-3□87 D4N-4□87



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

\*1. The usable range for stainless steel wires and resin rods is 35 mm max. from the end with a total travel of 70 mm max.

\*2. In terms of construction, the Switch is a General-purpose Limit Switch rather than a Safety Limit Switch.

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

Model	D4N-□□RE	D4N-□□LE
Operating characteristics		
Force necessary to reverse the direction of the lever: max.	6.4 N	6.4 N
Movement until the lever reverses	55 ±10°	55 ±10°
Movement until switch operation (NC)	(6.5°) (MBB: 10°)	(6.5°) (MBB: 10°)
Movement until switch operation (NO)	(18.5°) (MBB: 5°)	(18.5°) (MBB: 5°)

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

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

Model	D4N-□□80	D4N-□□87
Operating characteristics		
Operating force OF max.	1.5 N	1.5 N
Pretravel PT max.	15°	15°

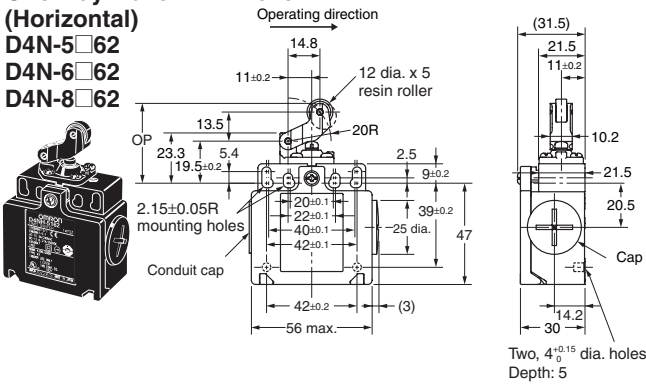




2-conduit Models

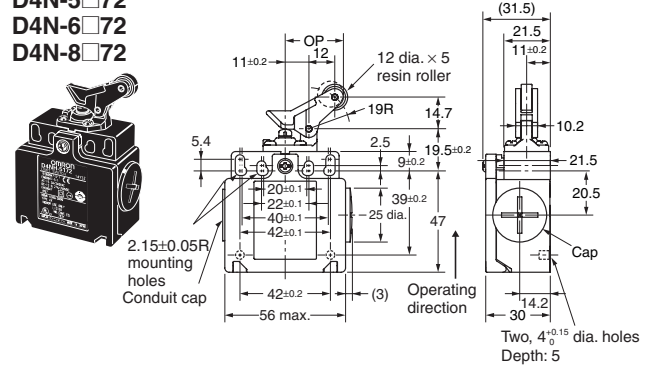
One-way Roller Arm Lever (Horizontal)

D4N-5□62  
D4N-6□62  
D4N-8□62



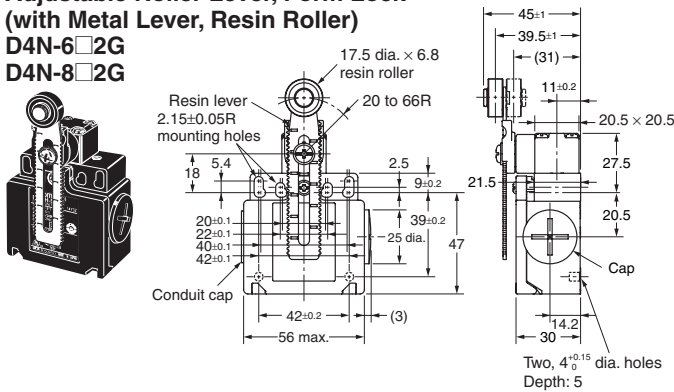
One-way Roller Arm Lever (Vertical)

D4N-5□72  
D4N-6□72  
D4N-8□72



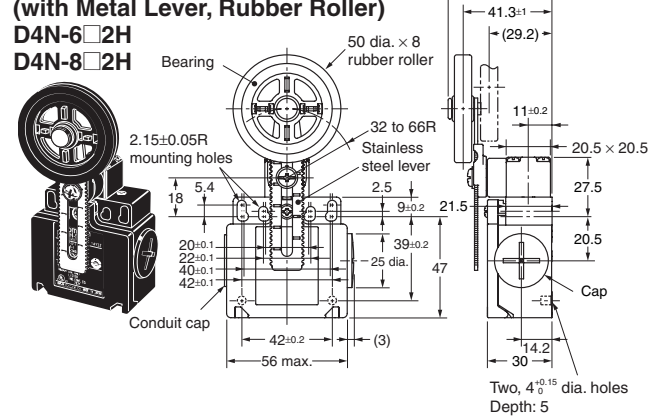
Adjustable Roller Lever, Form Lock (with Metal Lever, Resin Roller)

D4N-6□2G  
D4N-8□2G



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

D4N-6□2H  
D4N-8□2H



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

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

Model	D4N-□162	D4N-□172	D4N-□12G	D4N-□12H
Operating characteristics	D4N-□262 D4N-□B62 D4N-□D62	D4N-□272 D4N-□B72 D4N-□D72	D4N-□22G D4N-□B2G D4N-□D2G	D4N-□22H D4N-□B2H D4N-□D2H
Operating force OF max.	5.0 N	5.0 N	4.5 N	4.5 N
Release force RF min.	0.8 N	0.8 N	0.4 N	0.4 N
Pretravel PT max.*3	4 mm	4 mm	18° to 27°	18° to 27°
Overtravel OT min.	5 mm	5 mm	40°	40°
Movement differential MD max.*3	1.5 mm	1.5 mm	14°	14°
Operating position OP	37 ±0.8 mm	27 ±0.8 mm	---	---
Total travel TT *4	(9 mm)	(9 mm)	(70°)	(70°)
Direct opening travel DOT min.*5	5.8 mm	4.8 mm	50°	50°
Direct opening force DOF min.*5	20 N	20 N	20 N	20 N

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

- \*1. The operating characteristics of these Switches were measured with the roller lever set at 30 mm.
- \*2. The operating characteristics of these Switches were measured with the roller lever set at 31 mm.
- \*3. Only for snap-action models.
- \*4. Reference value.
- \*5. For safe use, always make sure that the minimum values or greater are provided.

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

Model	D4N-□A62	D4N-□A72	D4N-□A2G	D4N-□A2H
Operating characteristics	D4N-□C62 D4N-□E62 D4N-□F62	D4N-□C72 D4N-□E72 D4N-□F72	D4N-□C2G D4N-□E2G D4N-□F2G	D4N-□C2H D4N-□E2H D4N-□F2H
Operating force OF max.	5.0 N	5.0 N	4.5 N	4.5 N
Release force RF min.	0.8 N	0.8 N	0.4 N	0.4 N
Pretravel PT max.*3	4 mm	4 mm	18° to 27°	18° to 27°
PT (2nd) *4	(5.2 mm)	(4.3 mm)	(44°)	(44°)
PT max.*5	4 mm	4 mm	27.5° to 36.5°	27.5° to 36.5°
PT (2nd) *6	(1.5 mm)	(1.5 mm)	(18°)	(18°)
Overtravel OT min.	5 mm	5 mm	40°	40°
Operating position OP	37 ±0.8 mm	27 ±0.8 mm	---	---
OP *7	36 ±0.8 mm	26.1 ±0.8 mm	---	---
Total travel TT *8	(9 mm)	(9 mm)	(70°)	(70°)
Direct opening travel DOT min.*9	5.8 mm	4.8 mm	50°	50°
Direct opening force DOF min.*9	20 N	20 N	20 N	20 N

\*1. The operating characteristics of these Switches were measured with the roller lever set at 30 mm.

\*2. The operating characteristics of these Switches were measured with the roller lever set at 31 mm.

\*3. This PT value is possible when the NC contacts are open (OFF).

\*4. This PT value is possible when the NO contacts are closed (ON).

\*5. Only for MBB models.

\*6. Reference value for MBB models only.

\*7. Only for MBB models.

\*8. Reference value.

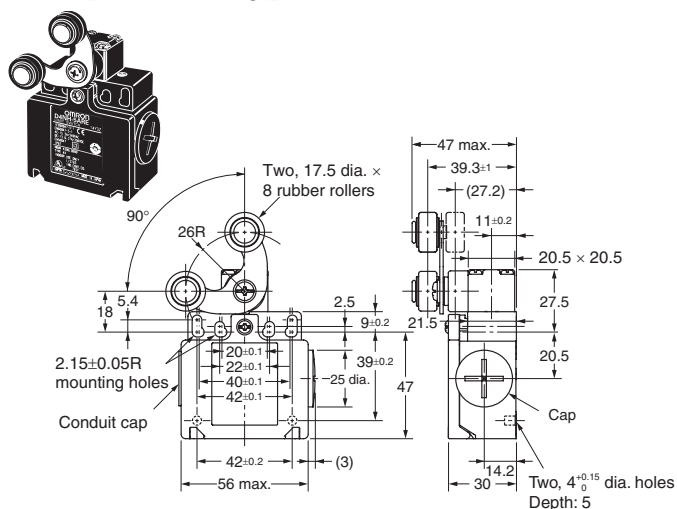
\*9. For safe use, always make sure that the minimum values or greater are provided.



2-conduit Models

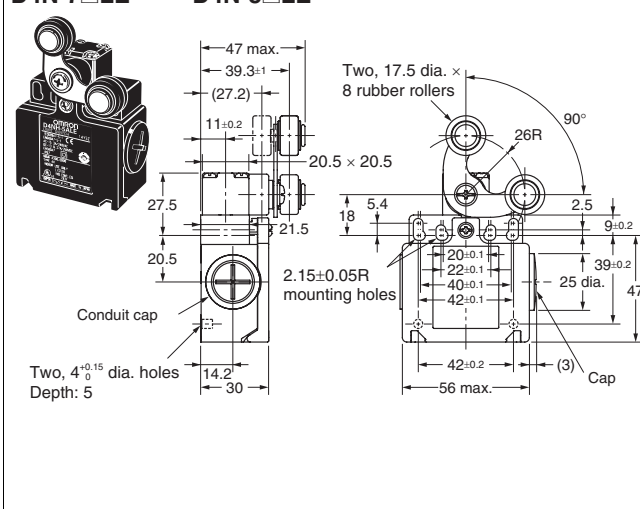
Fork Lever Lock  
(Right Operation) \*2

D4N-5□RE D4N-6□RE  
D4N-7□RE D4N-8□RE



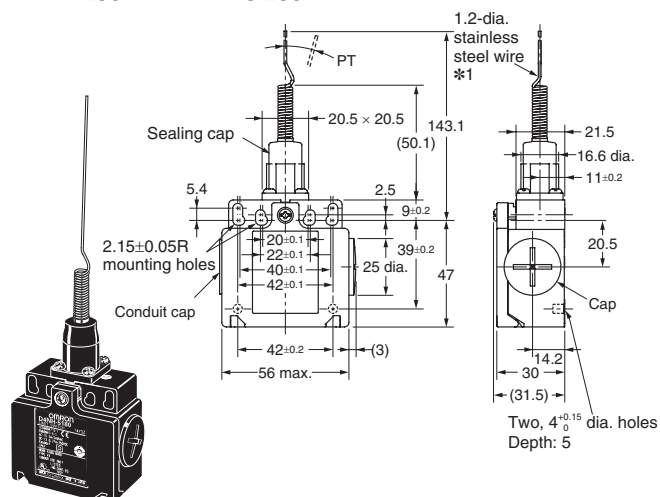
Fork Lever Lock \*2  
(Left Operation)

D4N-5□LE D4N-6□LE  
D4N-7□LE D4N-8□LE



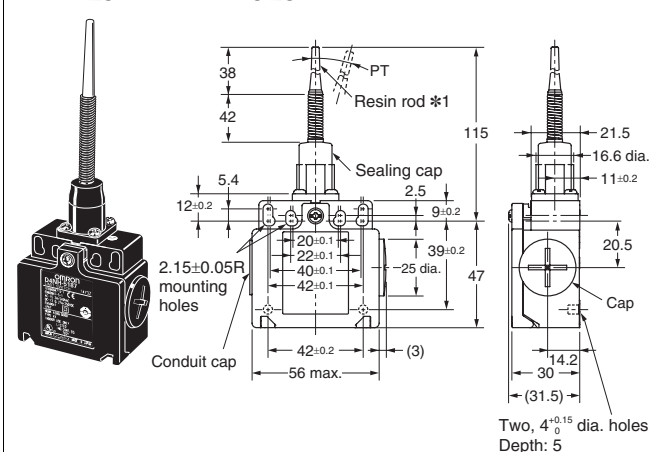
Cat Whisker \*2

D4N-5□80 D4N-6□80  
D4N-7□80 D4N-8□80



Plastic Rod \*2

D4N-5□87 D4N-6□87  
D4N-7□87 D4N-8□87



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

\*1. The usable range for stainless steel wires and resin rods is 35 mm max. from the end with a total travel of 70 mm max.

\*2. In terms of construction, the Switch is a General-purpose Limit Switch rather than a Safety Limit Switch.

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

Operating characteristics	Model	D4N-□□RE	D4N-□□LE
Force necessary to reverse the direction of the lever: max.		6.4 N	6.4 N
Movement until the lever reverses		55 ±10°	55 ±10°
Movement until switch operation (NC)		(6.5°)	(6.5°) (MBB: 10°)
Movement until switch operation (NO)		(18.5°)	(18.5°) (MBB: 5°)

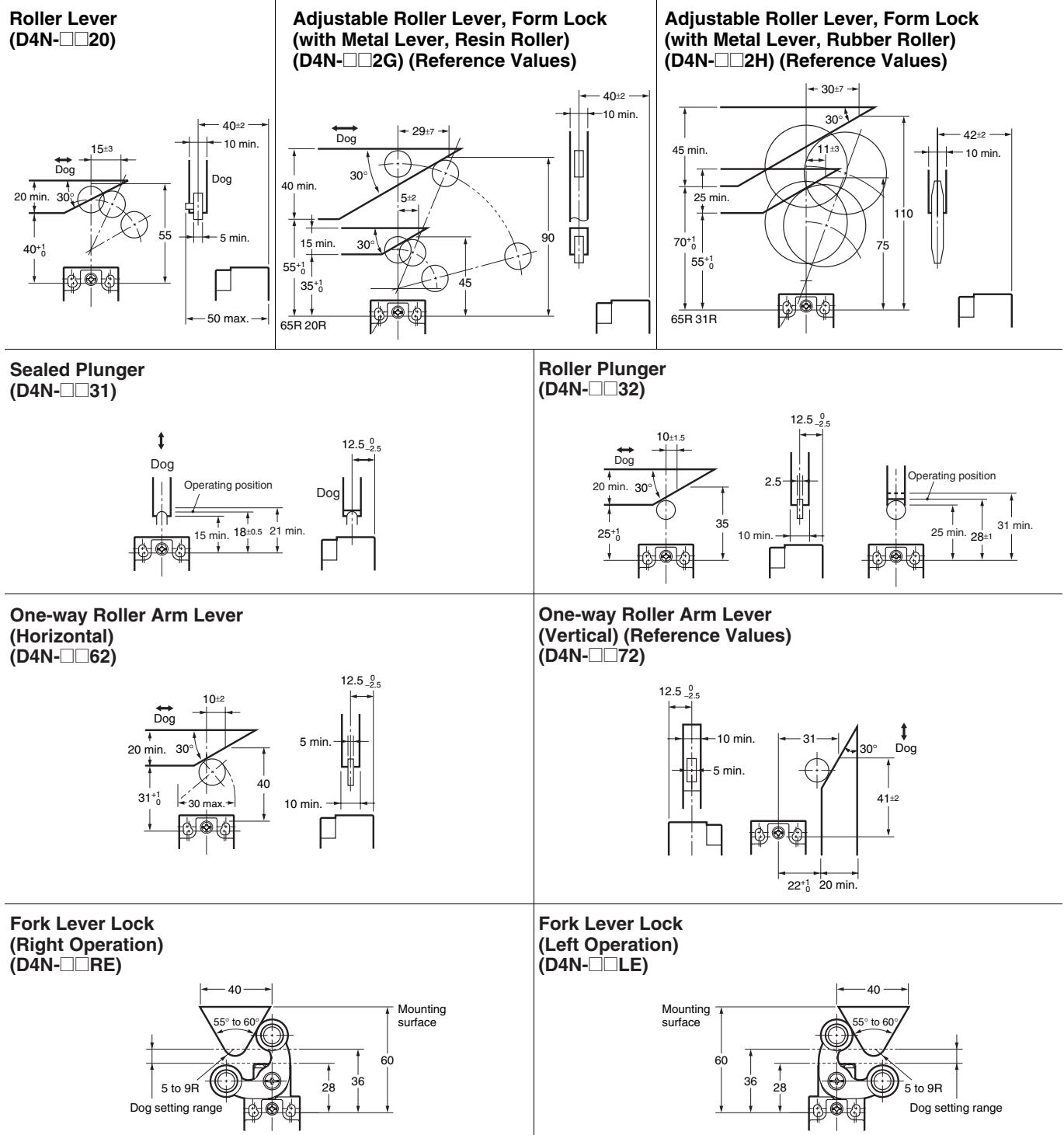
Note: Variation occurs in the simultaneity of contact opening/closing operations of 2NC, 2NC/1NO, and 3NC contacts. Check contact operation.

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

Operating characteristics	Model	D4N-□□80	D4N-□□87
Operating force	OF max.	1.5 N	1.5 N
Pretravel	PT max.	15°	15°

**Levers**

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



**Note:** Unless otherwise specified, a tolerance of  $\pm 0.4$  mm applies to all dimensions.

## Safety Precautions

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

### ⚠ CAUTION

Electric shock may occasionally occur.  
Do not use metal connectors or metal conduits.



### 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.
- Do not switch circuits for two or more standard loads (250 VAC, 3 A). Doing so may adversely affect insulation performance.

### Precautions for Correct Use

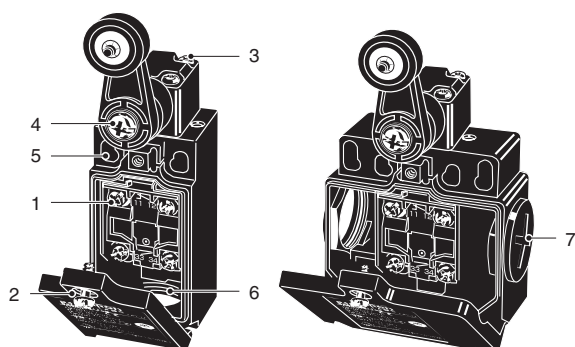
The Switch contacts can be used with either standard loads or microloads. Once the contacts have been used to switch a load, however, they cannot be used to switch smaller loads. The contact surfaces will become rough once they have been used and contact reliability for smaller loads may be reduced.

## Mounting Method

### Appropriate Tightening Torque

Tighten each of the screws to the specified torque. Loose screws may result in malfunction of the Switch within a short time.

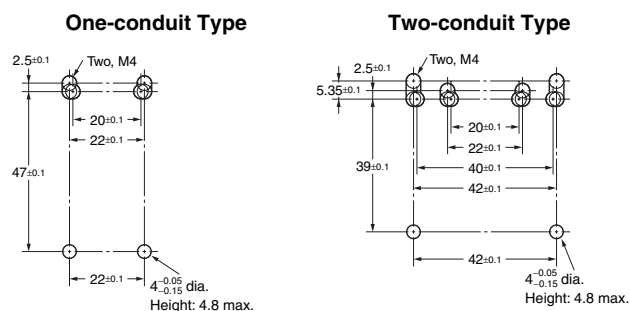
1	Terminal screw	0.6 to 0.8 N·m
2	Cover mounting screw	0.5 to 0.7 N·m
3	Head mounting screw	0.5 to 0.6 N·m
4	Lever mounting screw	1.6 to 1.8 N·m
5	Body mounting screw	0.5 to 0.7 N·m
6	Connector, M12 adaptor	1.8 to 2.2 N·m (except 1/2-14NPT) 1.4 to 1.8 N·m (for 1/2-14NPT)
7	Cap screw	1.3 to 1.7 N·m



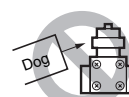
### Switch Mounting

- Mount the Switch using M4 screws and spring washers and tighten the screws to the specified torque.
- For safety, use screws that cannot be easily removed, or use an equivalent measure to ensure that the Switch is secure.
- As shown below, two studs with a maximum height of 4.8 mm and a diameter of  $4_{-0.05}^{+0.15}$  mm can be provided, the studs inserted into the holes on the bottom of the Switch, and the Switch secured at four locations to increase the mounting strength.

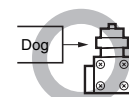
### Switch Mounting Holes



- Make sure that the dog contacts the actuator at a right angle. Applying a load to the switch actuator (roller) on a slant may result in deformation or damage of the actuator or rotary shaft.



Incorrect



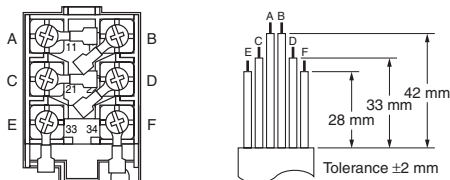
Correct

## Wiring

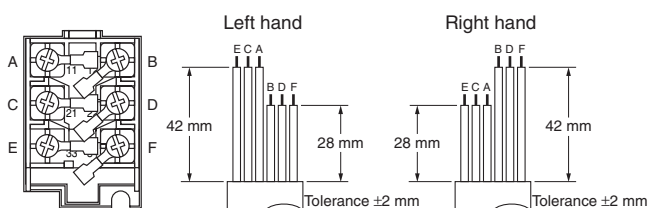
### Wiring

- When connecting to the terminals via insulating tube and M3.5 crimp terminals, arrange the crimp terminals as shown below so that they do not rise up onto the case or the cover. Applicable lead wire size: AWG20 to AWG18 (0.5 to 0.75 mm<sup>2</sup>). Use lead wires of an appropriate length, as shown below. Not doing so may result in excess length causing the cover to rise and not fit properly.

### One-conduit Type (3 Poles)



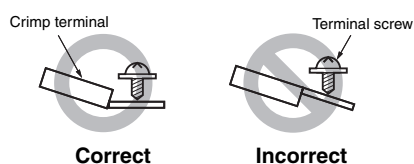
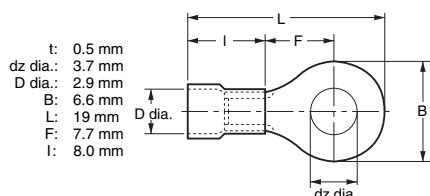
### Two-conduit Type (3 Poles)



- Do not push crimp terminals into gaps in the case interior. Doing so may cause damage or deformation of the case.
- Use crimp terminals not more than 0.5 mm in thickness. Otherwise, they will interfere with other components inside the case.

[Reference] The crimp terminals shown below are not more than 0.5 mm thick.

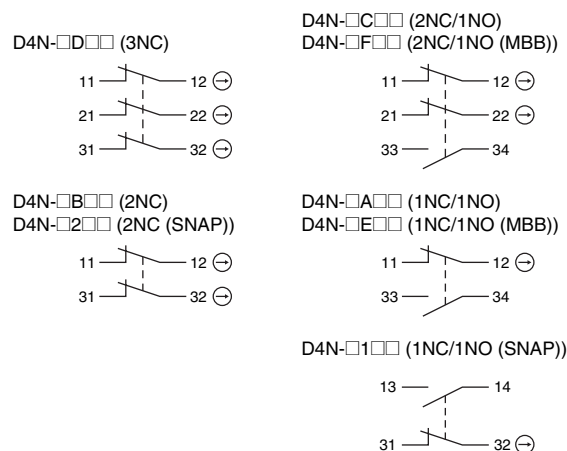
Manufacturer	Type
J.S.T. Mfg. Co.	FN0.5-3.7 (F Type)
	N0.5-3.7 (Straight Type)



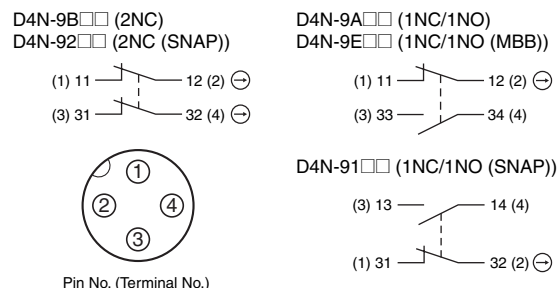
### Contact Arrangement

- The contact arrangements are shown below.

### Screw Terminal Type



### Connector Type



- Applicable socket: XS2F-D421 series (OMRON).
- Refer to the *Connector Catalog* for details on socket pin numbers and lead wire colors.

### Socket Tightening (Connector Type)

- Turn the socket connector screws by hand and tighten until no space remains between the socket and the plug.
- Make sure that the socket connector is tightened securely. Otherwise, the rated degree of protection (IP67) may not be maintained and vibration may loosen the socket connector.

### Conduit Opening

- Connect a recommended connector to the opening of the conduit and tighten the connector to the specified torque. The case may be damaged if an excessive tightening torque is applied.
- When using 1/2-14NPT, wind sealing tape around the joint between the connector and conduit opening so that the enclosure will conform to IP67.
- Use a cable with a suitable diameter for the connector.
- Attach and tighten a conduit cap to the unused conduit opening when wiring. Tighten the conduit cap to the specified torque. The conduit cap is provided with the Switch (2-conduit types).

### Changing the Lever

The lever mounting screws can be used to set the lever position to any position in a 360° angle at 7.5° increments. Grooves are incised on the lever and rotary shaft that engage to prevent the lever from slipping against the rotary shaft. The screws on adjustable roller lever models can also be loosened to change the length of the lever. Remove the screws from the front of the lever before mounting the lever in reverse (front/back), and set the level so that operation will be completed before exceeding a range of 180° on the horizontal.

## Recommended Connectors

Use connectors with screws not exceeding 9 mm, otherwise the screws will protrude into the case interior, interfering with other components in the case.

The connectors listed in the following table have connectors with thread sections not exceeding 9 mm.

Use the recommended connectors to ensure conformance to IP67.

Size	Manufacturer	Model	Applicable cable diameter
G1/2	LAPP	ST-PF1/2 5380-1002	6.0 to 12.0 mm
Pg13.5	LAPP	ST-13.5 5301-5030	6.0 to 12.0 mm
M20	LAPP	ST-M20 × 1.5 5311-1020	7.0 to 13.0 mm
1/2-14NPT	LAPP	ST-NPT1/2 5301-6030	6.0 to 12.0 mm

Use LAPP connectors together with seal packing (JPK-16, GP-13.5, or GPM20), and tighten to the specified tightening torque. Seal packing is sold separately.

- LAPP is a German manufacturer.
- Before using a 2-conduit 1/2-14NPT type, attach the provided changing adaptor to the Switch and then connect the recommended connector.

## Others

- When attaching a cover, be sure that the seal rubber is in place and that there is no foreign material present. If the cover is attached with the seal rubber out of place or if foreign material is stuck to the rubber, a proper seal will not be obtained.
- Do not use any screws to connect the cover other than the specified ones. The seal characteristics may be reduced.
- Make sure that foreign particles do not enter the head when removing the screws from the four corners to change the head position in any of the four directions.
- Use the following recommended countermeasures to prevent telegraphing when using adjustable or long levers.
  1. Make the rear edge of the dog smooth with an angle of 15° to 30° or make it in the shape of a quadratic curve.
  2. Design the circuit so that no error signal will be generated.

# Production Discontinuation

Following the release of the D4N, production of the D4D-N was discontinued.

## Date of Production Discontinuation

Production of the D4D-N Series was discontinued as of the end of March 2006.

## Recommended Substitute Product

Sales of the D4N series commenced in January 2004.

## Product Substitution

### 1. Dimensions

The D4D-N and D4N use the same mounting method, and mounting hole. The multi-contact structure and the extra 4 mm in length, however, are different.

### 2. Terminal Numbers

For the 2-contact slow-action model, the terminals 21, 22, 23, and 24 on the D4D-N are 31, 32, 33, and 34 on the D4N.

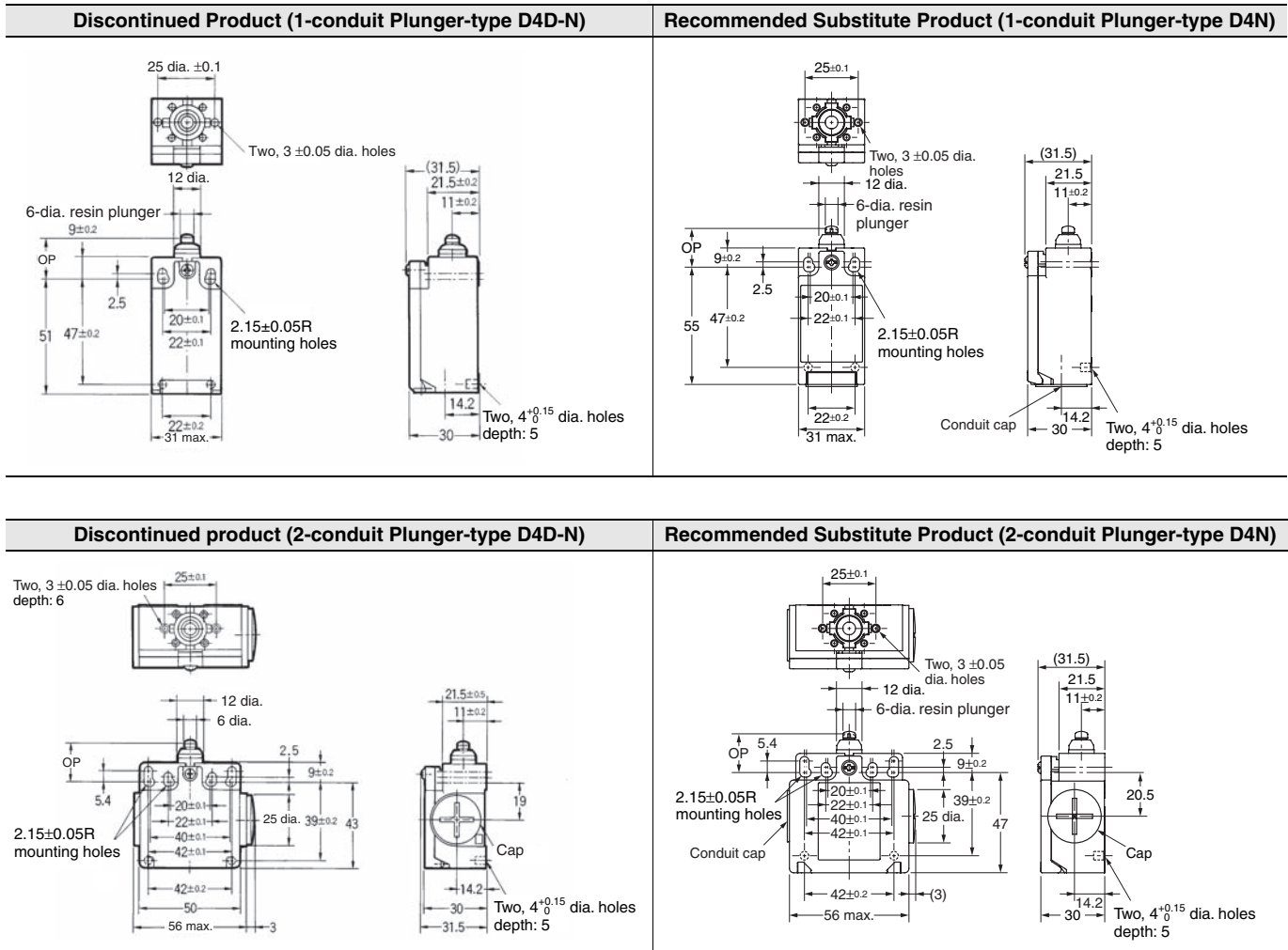
### 3. Recommended Terminals

If the recommended terminals are not used, the Switch may not be compatible. Make sure that the Switch is compatible with the terminals.

## Comparison with Discontinued Products

Item	Model	D4N
Switch color		Very similar
Dimensions		Very similar
Wiring/connection		Significantly different
Mounting method		Completely compatible
Ratings/performance		Very similar
Operating characteristics		Very similar
Operating method		Completely compatible

## Dimensions (Unit: mm)



## List of Recommended Substitute Products

■ : The actuator on the D4D-N is a non-safety type. The D4N is recommended for safety applications (form lock type). Be sure to mount it correctly.

■ : M screws are recommended to comply with European standards. Therefore, the M20 type is recommended as a substitute when the Pg13.5 conduit-type is not available in a D4N model.

### Safety Limit Switches

Discontinued product	Recommended substitute product	Discontinued product	Recommended substitute product	Discontinued product	Recommended substitute product
D4D-1120N	D4N-1120	D4D-1520N	D4N-1A20	D4D-1A20N	D4N-1B20
D4D-2120N	D4N-2120	D4D-2520N	D4N-2A20	D4D-2A20N	D4N-2B20
D4D-3120N	D4N-3120	D4D-3520N	D4N-3A20	D4D-3A20N	D4N-3B20
D4D-5120N	D4N-5120	D4D-5520N	D4N-5A20	D4D-5A20N	D4N-5B20
D4D-6120N	D4N-6120	D4D-6520N	D4N-6A20	D4D-6A20N	D4N-6B20
D4D-1122N	D4N-1122	D4D-1522N	D4N-1A22	D4D-1A22N	D4N-1B22
D4D-2122N	D4N-2122	D4D-2522N	D4N-2A22	D4D-2A22N	D4N-2B22
D4D-3122N	D4N-3122	D4D-3522N	D4N-3A22	D4D-3A22N	D4N-3B22
D4D-5122N	D4N-5122	D4D-5522N	D4N-5A22	D4D-5A22N	D4N-5B22
D4D-6122N	D4N-6122	D4D-6522N	D4N-6A22	D4D-6A22N	D4N-6B22
D4D-1125N	D4N-1125	D4D-1525N	D4N-1A25	D4D-1A25N	D4N-1B25
D4D-2125N	D4N-2125	D4D-2525N	D4N-2A25	D4D-2A25N	D4N-2B25
D4D-3125N	D4N-3125	D4D-3525N	D4N-3A25	D4D-3A25N	D4N-3B25
D4D-1131N	D4N-1131	D4D-1531N	D4N-1A31	D4D-1A31N	D4N-1B31
D4D-2131N	D4N-2131	D4D-2531N	D4N-2A31	D4D-2A31N	D4N-2B31
D4D-3131N	D4N-3131	D4D-3531N	D4N-3A31	D4D-3A31N	D4N-3B31
D4D-5131N	D4N-5131	D4D-5531N	D4N-5A31	D4D-5A31N	D4N-5B31
D4D-6131N	D4N-6131	D4D-6531N	D4N-6A31	D4D-6A31N	D4N-6B31
D4D-1132N	D4N-1132	D4D-1532N	D4N-1A32	D4D-1A32N	D4N-1B32
D4D-2132N	D4N-2132	D4D-2532N	D4N-2A32	D4D-2A32N	D4N-2B32
D4D-3132N	D4N-3132	D4D-3532N	D4N-3A32	D4D-3A32N	D4N-3B32
D4D-5132N	D4N-5132	D4D-5532N	D4N-5A32	D4D-5A32N	D4N-5B32
D4D-6132N	D4N-6132	D4D-6532N	D4N-6A32	D4D-6A32N	D4N-6B32
D4D-1162N	D4N-1162	D4D-1562N	D4N-1A62	D4D-1A62N	D4N-1B62
D4D-2162N	D4N-2162	D4D-2562N	D4N-2A62	D4D-2A62N	D4N-2B62
D4D-3162N	D4N-3162	D4D-3562N	D4N-3A62	D4D-3A62N	D4N-3B62
D4D-5162N	D4N-5162	D4D-5562N	D4N-5A62	D4D-5A62N	D4N-5B62
D4D-6162N	D4N-6162	D4D-6562N	D4N-6A62	D4D-6A62N	D4N-6B62
D4D-1172N	D4N-1172	D4D-1572N	D4N-1A72	D4D-1A72N	D4N-1B72
D4D-2172N	D4N-2172	D4D-2572N	D4N-2A72	D4D-2A72N	D4N-2B72
D4D-3172N	D4N-3172	D4D-3572N	D4N-3A72	D4D-3A72N	D4N-3B72
D4D-5172N	D4N-5172	D4D-5572N	D4N-5A72	D4D-5A72N	D4N-5B72
D4D-6172N	D4N-6172	D4D-6572N	D4N-6A72	D4D-6A72N	D4N-6B72
D4D-112HN	D4N-112H	D4D-152HN	D4N-1A2H	D4D-1A2HN	D4N-1B2H
D4D-212HN	D4N-212H	D4D-252HN	D4N-2A2H	D4D-2A2HN	D4N-2B2H
D4D-312HN	D4N-312H	D4D-352HN	D4N-3A2H	D4D-3A2HN	D4N-3B2H



## General-purpose Limit Switches

Discontinued product	Recommended substitute product
D4D-1121N	D4N-112G
D4D-2121N	D4N-212G
D4D-3121N	D4N-312G
D4D-5121N	D4N-512G
D4D-6121N	D4N-612G
D4D-1127N	D4N-112H
D4D-2127N	D4N-212H
D4D-3127N	D4N-312H
D4D-5127N	D4N-512H
D4D-6127N	D4N-612H
D4D-1180N	D4N-4180
D4D-2180N	D4N-2180
D4D-3180N	D4N-3180
D4D-5180N	D4N-8180
D4D-6180N	D4N-6180
D4D-1187N	D4N-4187
D4D-2187N	D4N-2187
D4D-3187N	D4N-3187
D4D-5187N	D4N-8187
D4D-6187N	D4N-6187

Discontinued product	Recommended substitute product
D4D-15REN	D4N-1ARE
D4D-25REN	D4N-2ARE
D4D-35REN	D4N-3ARE
D4D-55REN	D4N-5ARE
D4D-65REN	D4N-6ARE
D4D-15LEN	D4N-1ALE
D4D-25LEN	D4N-2ALE
D4D-35LEN	D4N-3ALE
D4D-55LEN	D4N-5ALE
D4D-65LEN	D4N-6ALE
D4D-1521N	D4N-1A2G
D4D-2521N	D4N-2A2G
D4D-3521N	D4N-3A2G
D4D-5521N	D4N-5A2G
D4D-6521N	D4N-6A2G
D4D-1527N	D4N-1A2H
D4D-2527N	D4N-2A2H
D4D-3527N	D4N-3A2H
D4D-5527N	D4N-5A2H
D4D-6527N	D4N-6A2H

Discontinued product	Recommended substitute product
D4D-1AREN	D4N-1BRE
D4D-2AREN	D4N-2BRE
D4D-3AREN	D4N-3BRE
D4D-5AREN	D4N-5BRE
D4D-6AREN	D4N-6BRE
D4D-1ALEN	D4N-1BLE
D4D-2ALEN	D4N-2BLE
D4D-3ALEN	D4N-3BLE
D4D-5ALEN	D4N-5BLE
D4D-6ALEN	D4N-6BLE
D4D-1A21N	D4N-1B2G
D4D-2A21N	D4N-2B2G
D4D-3A21N	D4N-3B2G
D4D-5A21N	D4N-5B2G
D4D-6A21N	D4N-6B2G
D4D-1A27N	D4N-1B2H
D4D-2A27N	D4N-2B2H
D4D-3A27N	D4N-3B2H
D4D-5A27N	D4N-5B2H
D4D-6A27N	D4N-6B2H
D4D-1A80N	D4N-4B80
D4D-2A80N	D4N-2B80
D4D-3A80N	D4N-3B80
D4D-5A80N	D4N-8B80
D4D-6A80N	D4N-6B80
D4D-1A87N	D4N-4B87
D4D-2A87N	D4N-2B87
D4D-3A87N	D4N-3B87
D4D-5A87N	D4N-8B87
D4D-6A87N	D4N-6B87

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2009.3

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