

Industrial Automation Guide 2016



Industrial Products & Systems

Targeted Technologies

Creating maximum output with minimum input

By identifying the many ways of innovation in specific industries we developed the 'targeted technologies' concept. It's a way of thinking about technology in a prioritized format. Prioritized according to our customers' most pressing needs. The result? A set of solutions that make immediate impact on the core of our customers' businesses. A set of solutions that hit the target every time. Take a look at the examples on our website.

industrial.omron.eu/technologies



Welcome to our world

Our best-in-class devices for your automation system

Welcome to Omron's world of advanced industrial automation. The INDUSTRIAL AUTOMATION GUIDE is your essential tool to select best-in-class devices for your automation system. It highlights our core competences in sensing, control, visualisation, motion and panel components.

Of course, Omron offers a much larger range of products than you can find on the attached DVD. For more information on services and company competence visit our website.

Here you will find:

- Latest product news
- Technical product specifications
- 2D / 3D CAD Library
- Customer references
- Technology concepts
- Supporting product documentation
- Knowledge Base - "myOmron"
- Events Calendar
- Contact information

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“To the machine the work of the machine,
to man the thrill of further creation.”

Kazuma Tateisi, founder of Omron

Omron at a glance

200.000 products ranging
input, logic and output

Sensing, Control Systems, Visualization, Drives, Robots, Safety,
Quality Control & Inspection, Control and Switching Components

7%

Investment in Research & Development

Innovation track
record of 80 years

Top 150 global patent assignee

1.200 employees dedicated to R&D

11.000 + issued and pending patents

37.000

Employees worldwide

210

Locations worldwide

22

Countries in EMEA

Working for the
benefit of society



Close to your needs

Technical training & seminars, technical support, Automation Technology Centers, online community (MyOmron), online catalogues and technical documentation, customer service & sales support, inter-operability labs (Tsunagi), safety services, repairs.

Your needs, our focus

Solutions perfectly matching your needs

We asked ourselves: 'What do you need in sensors and components?' Well, first you need reliability. Then a variety and choice of performance levels. You may also want advanced functionality, with special features defined by you – or you may want standardized solutions, with highly competitive prices.

Whatever it is, it can all add up to a wish list that is difficult to fulfil. Until now. That's because our new 361° Approach not only provides a complete all-round offer without gaps, it also puts you at the very centre of the product selection process. It's an approach that leads to a Perfect Match – one with the extra degree of confidence that comes from choosing Omron.

361° in one view



Quality



Line-up



Application



Customization



Global availability



Specs

	Quality	Line-up	Application	Customization	Global availability	Specs
PRO^{plus}	Premium	Tailored	Special	Yes	Yes	Application oriented
PRO	Premium	Complete	Advanced	Yes	Yes	Above Standard
LITE	Premium	Standard	Basic	No	No	Basic
	'Quality' refers to the standard of manufacturing and the materials used – this translates into reliability	'Line-up' refers to the number of model types	'Application' indicates the complexity of the automation	'Customization' is the possibility to modify the product		'Specs' refers to the choice of performance levels

The extra degree of advantage

Three distinct lines of sensors and components

Three distinct lines

361° Approach offers three distinct lines within each sensor or component product category. LITE products are cost-effective without any compromise in quality. PRO products represent the “install & forget” option, offering longer lifetime, higher protection, and more features. While PROplus products are designed for specific applications or customer demands.

Optimized reliability

All three lines are backed by the Omron commitment to quality, so even when you need a price-competitive advantage, you can be confident that they will never let you down.

Solutions that perfectly match your needs

The 361° Approach ensures that you can quickly and easily identify the perfect match solution to your needs – nothing more, nothing less.

Optimized costs

Your sensor and component costs are also minimized – because it eliminates over-specification.

Why an extra 1°?

The extra degree is what you get when you do business with Omron, and that means different things to different customers – all depending on their needs. For example, if you need specification advice, the extra degree is ‘service’. But ultimately, to everyone it means “an extra degree of confidence in the perfect match”.



Sysmac: A fully integrated platform

Integration and Functionality

Sysmac is an integrated automation platform dedicated to providing complete control and management of your automation plant. At the core of this platform, the Machine Controller series offers synchronous control of all machine devices and advanced functionality such as motion, robotics and database connectivity. This multidisciplinary concept allows you to simplify solution architecture, reduce programming and optimize productivity.

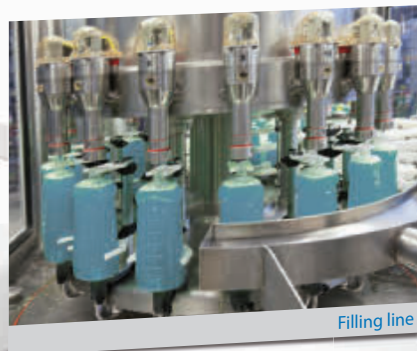


Machine Automation Controller

FACTORY
AUTOMATION

MACHINE
CONTROL

Motion



Filling line

- Motion Control: Integrated within the IDE, and operating in real-time
- Standard PLCopen Function Blocks plus Omron generated motion FB's
- Direct Synchronous control for Position, Speed and Torque

Safety



Assembly

- All safety related data is synchronized with the whole network
- Safety functions such as muting, guard locking, EDM and valve monitoring are simple to manage

- ✓ **One Integrated Development Environment software** for Configuration, Programming, Simulation and Monitoring



Information



- Sysmac communicates in real-time with Databases such as SQL
- Secure Data: In the event of a server going down or losing communications, data is automatically stored in internal memory
- Sysmac operates with Databases at high speed [1000 table element/ 100 ms] ensuring realistic Big Data Processing to improve productivity and aid predictive maintenance etc.

✓ Integrated Automation Control:

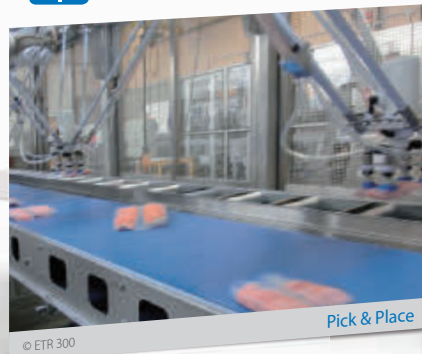
The Sysmac platform is scalable and provides the performance and functionality for a wide range of solutions from simple machines through to manufacturing cells

Vision



- Higher resolution images available without increasing the vision processing time
- Shape search technology: Provides more stable and accurate object detection for Pick & Place projects

Robotics



- Up to 8 Delta robots with one controller
- Time-based Robotic Function Blocks make programming easier

Sensing



- Full control of the process parameter setting and predictive maintenance functions
- High precision detection and positioning data synchronized on the network

Product selection table

Automation systems	 <p>12 Machine automation controller</p>	 <p>26 Programmable logic controllers (PLC)</p>	 <p>54 Remote I/O</p>	 <p>68 Human machine interfaces (HMI)</p>
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Quality control & Inspection	 <p>370 Inspection & Ident systems</p>	 <p>426 Measurement sensors</p>		
Safety	 <p>462 Emergency stop and control devices</p>	 <p>472 Safety limit switches</p>	 <p>480 Safety door switches</p>	 <p>506 Safety sensors</p>
Control components	 <p>574 Temperature controllers</p>	 <p>596 Power supplies</p>	 <p>614 Uninterruptible power supplies (UPS)</p>	 <p>622 Timers</p>
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Sensing

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Quick Link

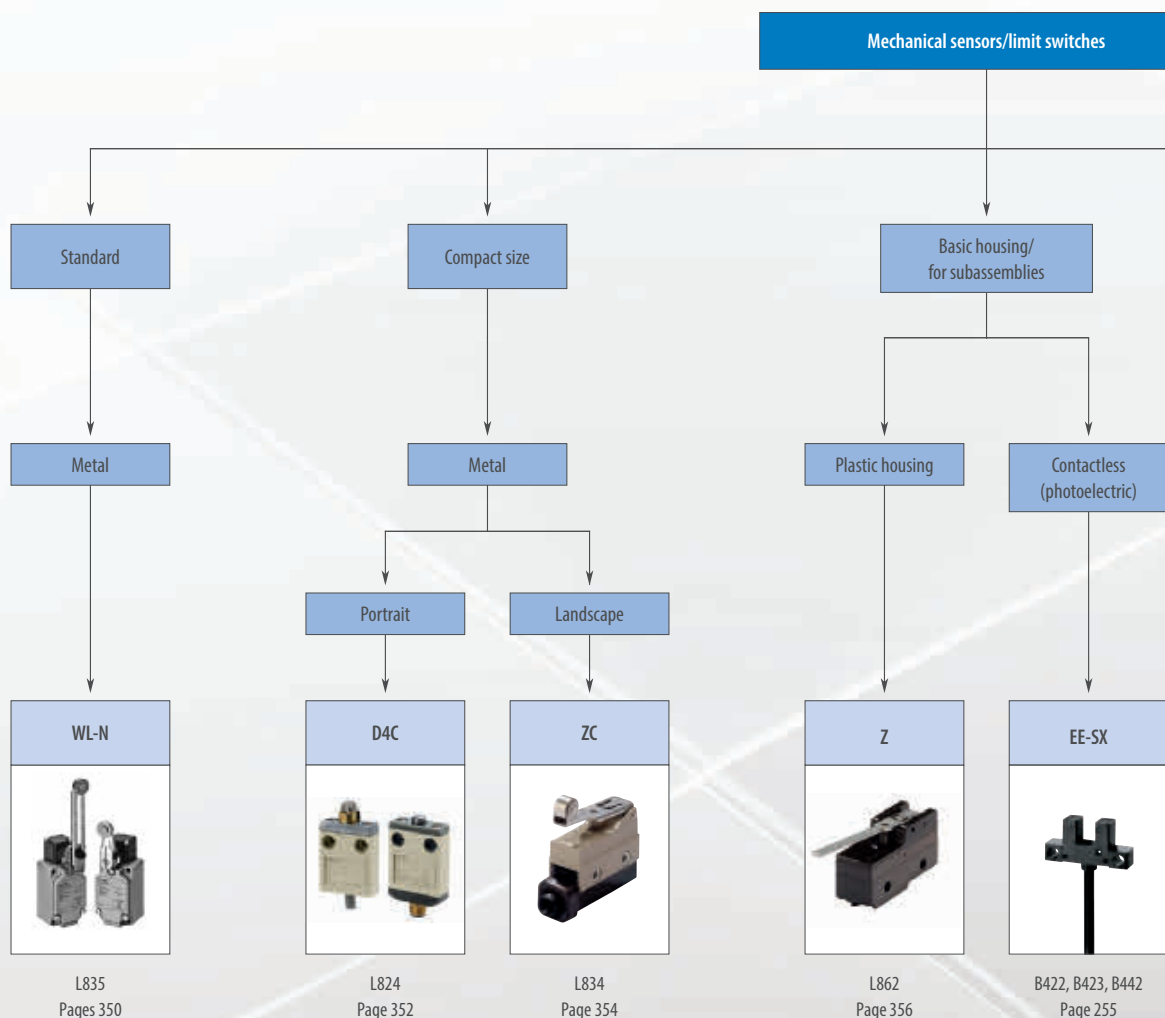
Sensing

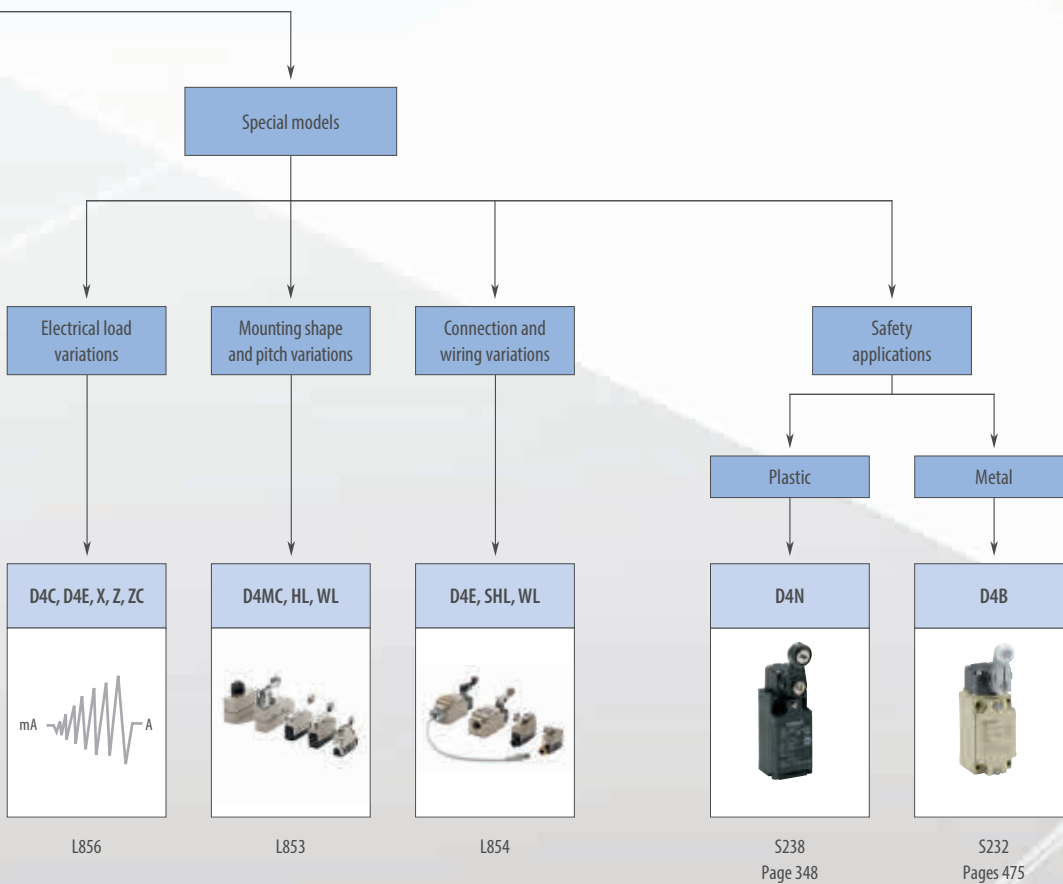
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THE RELIABLE AND FLEXIBLE WAY ...

... to stop your machines



For the detection of machine part movement especially for the detection of end positions, the mechanical and optical limit switches provide accurate and reliable operation with a large variety of actuation possibilities optimized for a widest range of application and usage requirements. The easy positioning and intuitive installation, the high immunity to changing environmental influences (electromagnetic fields, sunlight, temperatures, etc.) as well as the possibility to directly switch loads with up to 15 A make these sensors ideal for a wide range of conveying and handling applications.


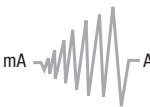







Type		Standard			Compact	Basic housing
						
Model		D4N	D4B	WL-N	D4C	Z
Material		Plastic	Metal	Metal	Metal	Plastic
Screw terminal	No conduit	–	–	–	–	■
	Cable dia. 8.5 to 10.5	–	–	–	–	–
	M20	■	■	■	–	–
	PG13.5	□	–	■	–	–
	G1/2	□	□	■	–	–
	1/2-14NPT	□	□	■	–	–
Cable connector	M12	■	–	■	■	–
	Prewired	–	–	–	■	–
Degree of protection		IP67				
Page/Quick Link		348/S238	475/S232	350/L835	352/L824	356/L862

Special models

Type	High precision multi direction	Compact
		
Model	D5B	ZC
Material	Metal	Metal
Key Features	<ul style="list-style-type: none"> – X, Y, Z action – several μm switching accuracy – M5, M8, M10 sizes 	<ul style="list-style-type: none"> – Small housing size – Screw terminals – IP67
Page/Quick Link	L833	354/L834

Type	Highest precision tactile measurement	Electrical load variations	Mounting shape and pitch variations	Connection and wiring variations	Safety limit switches
					
Model	ZX-T	D4C, D4E, X, Z, ZC	D4MC, HL, WL	D4E, SHL, WL	D4 Safety
Material	Plastic	Plastic and Metal	Metal	Metal	Plastic and Metal
Key Features	Measurement resolution up to 0.1 μ m	<ul style="list-style-type: none"> – Microloads (1 mA to 100 mA) – High current at high voltage switching (10 A at 125 VDC) – Double circuit switching 	<ul style="list-style-type: none"> – Mounting shapes and pitches popular in different countries in the world – Mounting pitch variations (base mounting, diagonal pitches, ...) – Alternative actuator positions 	<ul style="list-style-type: none"> – Screw conduit variations (PG13.5, G1/2, 1/2"14NPT) – Cable exit variations (pigtailed, rubber snap on covers, screw on covers, with or without cable breakage protection for different cable diameters) 	<ul style="list-style-type: none"> – Mechanical form lock – Manual reset – Door hinge switches
Page/Quick Link	451/C428	Contact your OMRON representative/L856, L853, L854			472










Limit switch with plastic housing

The D4N series of limit switches in plastic housing is the ideal switch for all standard mechanical position detection applications both for safety and non-safety applications.




- Direct opening mechanism and approval by notified body
- Rugged plastic housing with double insulation
- Wide range of actuators
- M12 connectors or terminal block with M20 conduit

Ordering information

Actuator type		Connection method	Order code*1			
			1NC/1NO (snap-action)	1NC/1NO (slow-action)	2NC (slow-action)	2NC/1NO (slow-action)
			Order code	Order code	Order code	Order code
	Roller lever (resin lever, resin roller)	M20	D4N-4120	D4N-4A20	D4N-4B20	D4N-4C20
		M12 connector	D4N-9120	D4N-9A20	D4N-9B20	—
	Plunger	M20	D4N-4131	D4N-4A31	D4N-4B31	—
		M12 connector	D4N-9131	D4N-9A31	D4N-9B31	—
	Roller plunger	M20	D4N-4132	D4N-4A32	D4N-4B32	D4N-4C32
		M12 connector	D4N-9132	D4N-9A32	D4N-9B32	—
	One-way roller arm lever (horizontal)	M20	D4N-4162	D4N-4A62	D4N-4B62	D4N-4C62
		M12 connector	D4N-9162	D4N-9A62	D4N-9B62	—
	One-way roller arm lever (vertical)	M20	D4N-4172	D4N-4A72	D4N-4B72	—
	Adjustable roller lever, form lock (metal lever, resin roller)	M20	D4N-412G	D4N-4A2G	D4N-4B2G	—
		M12 connector	D4N-912G	D4N-9A2G	D4N-9B2G	—
	Adjustable roller lever, form lock (metal lever, rubber roller)	M20	D4N-412H	D4N-4A2H	D4N-4B2H	—
		M12 connector	D4N-912H	D4N-9A2H	D4N-9B2H	—

Switches with MBB contacts

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

Actuator type		Connection method	Order code*1	
			1NC/1NO (slow-action)	2NC/1NO (slow-action)
	Roller lever (resin lever, resin roller)	M20	D4N-4E20	D4N-4F20
		M12 connector	D4N-9E20	—
	Roller plunger	M20	D4N-4E32	D4N-4F32
		M12 connector	D4N-9E32	—
	One-way roller arm lever (horizontal)	M20	D4N-4E62	D4N-4F62
		M12 connector	D4N-9E62	—

*1 The NC contacts provide the approved direct opening mechanism. 

Specifications

Durability*1	Mechanical	15,000,000 operations min.*2
	Electrical	500,000 operations min. for a resistive load of 3 A at 250 VAC 300,000 operations min. for a resistive load of 10 A at 250 VAC
Operating speed	Roller lever	1 mm/s to 0.5 m/s
Operating frequency		30 operations/minute max.
Minimum applicable load		Resistive load of 1 mA at 5 VDC (N-level reference value)
Protection against electric shock		Class II (double insulation)
Pollution degree (operating environment)		3 (EN60947-5-1)
Contact gap		Snap-action: 2x0.5 mm min Slow-action: 2x2 mm 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 to 70°C with no icing
Degree of protection		IP67 (EN60947-5-1)

*1 The durability is acquired for an ambient temperature of 5 to 35°C and an ambient humidity of 40% to 70%.

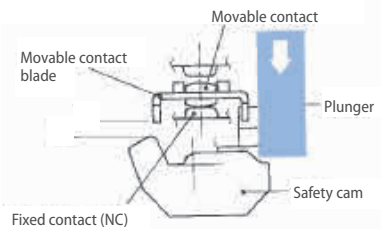
*2 10,000,000 operations min. for fork lever actuator.

1NO/1NC Contact (Snap-action)

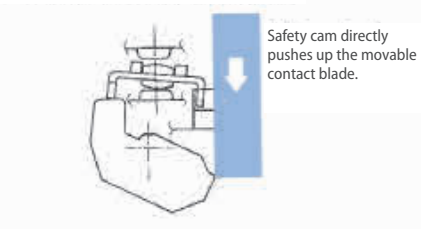
If metal deposition between mating contacts occurs on the NC contact side, they can be pulled apart by the shearing force and tensile force generated when part B of the

safety cam or plunger engages part A of the movable contact blade. When the safety cam or plunger is moved in the direction of the arrow, the Limit Switch releases.

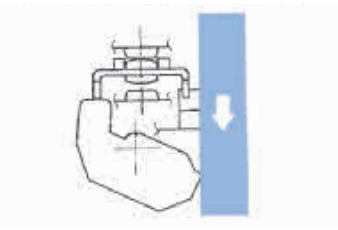
1. When metal deposition occurs.



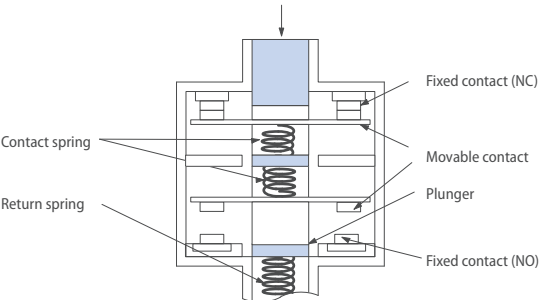
2. When contacts are being pulled apart.



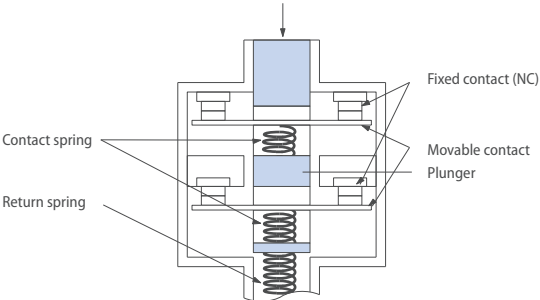
3. When contacts are completely pulled apart.



1NC/1NO Contact (Slow-action)



2NC Contact (Slow-action)



NC contacts conform to EN60947-5-1 Direct Opening

When metal deposition occurs, the contacts are separated from each other by the plunger being pushed in.









→ is marked on the product to indicate approval of direct opening.

WL-N Series limit switches simplify installation

- Models focus on the most popular features to make stocking easier.
- Improved durability and performance
 - Applicable to either standard loads or microloads
 - LED with 3D light-dispersing structure
 - Reduced part numbers
 - Easy wiring
 - Direct and pre-wiring
 - Ground terminal models are approved by EN and IEC and bear the CE marking UL,CSA



Ordering Information

Actuator type	Contact Form and features	Connection method	CE Mark	Order code
 Roller lever R38	DPDB ^{*1}	Screw terminal (Pg13,5 conduit with ground terminal) ^{*2}	Yes	WLCA2-2NG-N
 Adjustable roller lever: R25 to 89 mm, pretravel 15°±5°	DPDB, Heat-resistant: 5 to 120°C			WLCA12-THG-N
 Adjustable roller lever: R25 to 89 mm, pretravel 15°±5°	DPDB, LED			WLCA12-GLD-N
 Roller lever R50, pretravel 15°±5°	DPDB			WLCA2-7G-N
 Roller lever R63, pre-travel 15°±5°	DPDB			WLCA2-8G-N
 Adjustable rod lever: 25 to 140 mm, pretravel 15°±5°	DPDB, Heat-resistant: 5 to 120°C	Pre-wired Connector M12 (Smart Click), with ground terminal		WLCL-THG-N
 Adjustable rod lever: 25 to 140 mm, pretravel 15°±5°	DPDB, LED,			WLCL-2NLD-DGJ-N
 Roller lever R38, High sensitive pre-travel 10°+2/-1°	DPDB, LED			WLG2-LDFS-DGJS-N

^{*1} DPDB – The double-pole, double-break structure ensures circuit braking.



^{*2} Models with screw terminals with M20 conduit instead of PG13.5 are available. Contact your OMRON representative.

Specifications

Characteristics

Degree of protection		IP67
Durability ^{*1}	Mechanical	15,000,000 operations min. ^{*2}
	Electrical	750,000 operations min. ^{*3}
Operating speed		1 mm/s to 1 m/s (in case of WLCA2-N)
Operating frequency	Mechanical	120 operations/minute min.
	Electrical	30 operations/minute min.
Rated frequency		50/60 Hz
Insulation resistance		100 MΩ min. (at 500 VDC)
Contact resistance		25 mΩ max. (initial value for the built-in switch when tested alone)
Dielectric strength	Between terminals of the same polarity	1,000 VAC (600 VAC), 50/60 Hz for 1 min
	Between currentcarrying metal part and ground	2,200 VAC (1,500 VAC), 50/60 Hz for 1 min
	Between each terminal and non-currentcarrying metal part	2,200 VAC (1,500 VAC), 50/60 Hz for 1 min
Vibration resistance	Malfunction	10 to 55 Hz, 1.5-mm double amplitude
Shock resistance	Destruction	1,000 m/s ² max.
	Malfunction	300 m/s ²
Ambient operating temperature		–10 to 80°C (with no icing) ^{*4}
Ambient operating humidity		35% to 95% RH
Weight		Approx. 255 g (in case of WLCA2-N)

^{*1} The values are calculated at an operating temperature of 5 to 35°C and an operating humidity of 40% to 70% RH. Contact your OMRON sales representative for more detailed information on other operating environments.

^{*2} Durability is 1,000,000 operations min. for high-sensitivity models. 500,000 operations min. for weather-proof models.

^{*3} Durability is 500,000 operations min. for high-sensitivity models. 500,000 operations min. for weather-proof models.

^{*4} For low-temperature models this is –40 to 40°C (with no icing). For heatresistant models the range is 5 to 120°C.

Note: 1. The above figures are initial values.

2. The figures in parentheses for dielectric strength are those for the highsensitivity overtravel models.

Ratings

Item	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
Basic switches	AC	125	10		3	1.5	10		5	2.5
		250	10		2	1	10		3	1.5
		500	10		1.5	0.8	3		1.5	0.8
	DC	8	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	
High-sensitivity switches	AC	125	5		–		–		–	
		250	5		–		–		–	
	DC	125	0.4		–		–		–	
		250	0.2		–		–		–	



Compact limit switch in metal housing

The 16 mm flat and compact size make the D4C range of limit switches very popular for all standard applications but especially where mounting space is limited or protruding housings may interfere with machine operation. The triple sealed construction, the rugged metal housing and the precisely manufactured movable parts ensure long operational life in standard or oily environments (special models).

- 16 mm flat compact size
- Rugged metal housing
- Models with M12 connector or oil resistant VCTF cable

Ordering Information

Actuator type	Load range (VDC) ^{*1} 0.8 W to 60 W max	Operation LED indicator		Connection method				Order code
		No	Yes					
Plunger	n	■	—		■		*2	D4CC-3001
		—	■		■	3 m		D4C-1201
						3 m		D4CC-4001
						3 m		D4C-3201
Sealed plunger		■	—		■			D4CC-3031
		—	■		■	3 m		D4C-1231
						3 m		D4CC-4031
						3 m		D4C-3231
Plunger with M14 mounting		■	—		■			D4CC-3041
		—	■		■	3 m		D4C-1241
						3 m		D4CC-4041
						3 m		D4C-3241
Roller plunger		■	—		■			D4CC-3002
		—	■		■	3 m		D4C-1202
						3 m		D4CC-4002
						3 m		D4C-3202
Sealed roller plunger		■	—		■			D4CC-3032
		—	■		■	3 m		D4C-1232
						3 m		D4CC-4032
						3 m		D4C-3232
Roller plunger with M14 mounting		■	—		■			D4CC-3042
		—	■		■	3 m		D4C-1242
						3 m		D4CC-4042
						3 m		D4C-3242
Crossroller plunger		■	—		■			D4CC-3003
		—	■		■	3 m		D4C-1203
						3 m		D4CC-4003
						3 m		D4C-3203
Sealed crossroller plunger		■	—		■			D4CC-3033
		—	■		■	3 m		D4C-1233
						3 m		D4CC-4033
						3 m		D4C-3233
Crossroller plunger with M14 mounting		■	—		■			D4CC-3043
		—	■		■	3 m		D4C-1243
						3 m		D4CC-4043
						3 m		D4C-3243
Roller lever		■	—		■			D4CC-3024
		—	■		■	3 m		D4C-1220
						3 m		D4CC-4024
						3 m		D4C-3220
Coil spring		■	—		■			D4CC-3050
		—	■		■	3 m		D4C-1250
						3 m		D4CC-4050
						3 m		D4C-3250

^{*1} See specifications for details on max. current per rated voltage and load type. Micro load models with 5mW to 0.8W are available. For ordering refer to complete datasheet.

^{*2} Pre-wired models with 30 cm PVC cable and M12 plug (pigtail) are available. Contact your OMRON representative.

Specifications

Voltage and current rating

Model	Rated voltage	Rated current ^{*1}	Non-inductive load				Inductive load				Inrush current		Applicable load range (5 to 30 VDC)
			Resistive load		Lamp load		Inductive load		Motor load				
			NC	NO	NC	NO	NC	NO	NC	NO	NC	NO	
D4C-1□□□	125 VAC		5 A	5 A	1.5 A	0.7 A	3 A	3 A	2.5 A	1.3 A	20 A max.	10 A max.	–
	250 VAC	2 A	5 A	5 A	1 A	0.5 A	2 A	2 A	1.5 A	0.8 A			0.8 W to 60 W
	8 VDC		5 A	5 A	2 A	2 A	5 A	4 A	3 A	3 A			
	14 VDC		5 A	5 A	2 A	2 A	4 A	4 A	3 A	3 A			
	30 VDC	2 A	4 A	4 A	2 A	2 A	3 A	3 A	3 A	3 A			
	125 VDC		0.4 A	0.4 A	0.05 A	0.05 A	0.4 A	0.4 A	0.05 A	0.05 A			
	250 VDC		0.2 A	0.2 A	0.03 A	0.03 A	0.2 A	0.2 A	0.03 A	0.03 A			0.8 W to 60 W
D4C-3□□□	30 VDC	2 A	4 A	4 A	2 A	2 A	3 A	3 A	3 A	3 A			
D4CC-3□□□	30 VDC	1 A	1 A	1 A	1 A	1 A	1 A	1 A	1 A	1 A	5 A max.	2.5 A max	0.8 W to 30 W
D4CC-4□□□													
D4C-6□□□	30 VDC	0.1 A	0.1 A	0.1 A	–		–				20 A max.	10 A max.	5 mW to 0.8 W

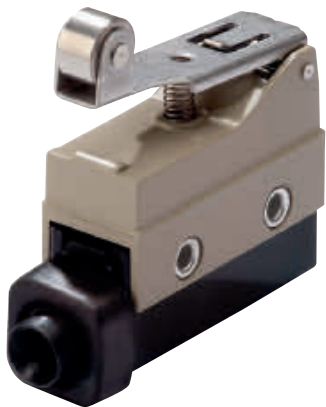
^{*1} For D4C- cable types these ratings are certified by TÜV Rheinland according to EN60947-5-1 (file no R9451333).

General specifications

Item		D4C- (cable types)	D4CC- (connector types)
Durability ^{*1}	Mechanical	10,000,000 operations min	
	Electrical	200,000 operations min	
Operating frequency	Mechanical	120 operations/min	
	Electrical	30 operations/min	
LED indicator		D4C-3_, D4C-6_, D4CC-4_: Operation indicator (red) Operation indicator turns OFF when the switch operates. ^{*2}	
Ambient temperature	Operating	–10 to 70°C (with no icing)	
Degree of protection		IEC 60529: IP67	

^{*1} Values are acquired at 5 to 35°C operating temperature, 40% to 70% operating humidity.

^{*2} Models where operation indicator turns ON when the switch operates are available by adding “-B” to the order code. Contact your OMRON representative for availability.

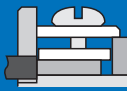
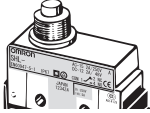
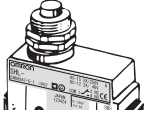



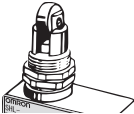
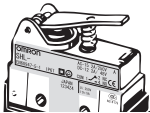
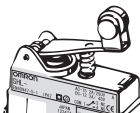


Limit switch in compact metal housing with terminal block

The compact housing size and the terminal block with side facing cable exit allow the mounting where space is crucial and self-wiring connection is preferred. The rugged and tight housing construction provides high protection while the low-force actuators make the ZC limit switch ideal for switching smaller or lighter objects.

- Terminal block for self-wiring with side facing cable exit
- Low-force actuators for switching smaller or lighter objects
- Rugged metal housing with IP67 protection

Ordering Information

Actuator type		Connection method	Order code
			
	Plunger	Terminal block with side facing cable exit (left/right changeable) for cables dia 8.5 to 10.5 mm*1	ZC-D55
	Plunger with M14 mounting		ZC-Q55
	Sealed roller plunger		ZC-N2255
	Roller plunger with M14 mounting		ZC-Q2255
	Sealed cross roller plunger		ZC-N2155
	Cross roller plunger with M14 mounting		ZC-Q2155
	Hinge lever – 50R		ZC-W55
	Hinge lever – 70R		ZC-W155
	Hinge roller lever – 50R		ZC-W255
	Hinge roller lever – 70R		ZC-W2155

*1 Models with M20 conduit or other connection variations are available. Refer to OPTIONAL FEATURES in complete datasheet for details.

Specifications

Voltage and current rating

Model	Rated voltage	Non-inductive load			Inductive load				Inrush current	
		Resistive load	Lamp load		Inductive load		Motor load			
		NC and NO	NC	NO	NC	NO	NC	NO	NC	NO
Standard type	125 VAC	10	3	1.5	10		5	2.5	30 A	15 A
	250 VAC		2.5	1.25			3	1.5		
	8 VDC		3	1.5	6	5	2.5			
	14 VDC									
	30 VDC	6		5						
	125 VDC	0.5	0.4	0.4	0.05					
	250 VDC	0.25	0.2	0.2	0.03					
High current at high VDC switching type*1	8 VDC	10	3	1.5	10		5	2.5		
	14 VDC									
	30 VDC									
	125 VDC				7.5	6				
	250 VDC	3	1.5	0.75	2	1.5	2	1.5		

^{*1} Refer to OPTIONAL FEATURES in complete datasheet for details.

General specifications

Durability	Mechanical	10,000,000 operations min
	Electrical	500,000 operations min
Operating speed	Plunger	0.05 mm/s to 0.5 m/s
Operating frequency	Mechanical	120 operations/min
	Electrical	20 operations/min
Insulation resistance		100 MΩ min (at 500VDC)
Contact resistance (initial)		15 mΩ max
Dielectric strength		1,000 VAC, 50/60 Hz for 1 min between non-continuous terminals 2,000 VAC, 50/60 Hz for 1 min between each terminal and non-current-carrying metal part
Vibration resistance	Malfunction	10 to 55 Hz, 1.5 mm double amplitude
Shock resistance	Destruction	1,000 m/s ² min
	Malfunction	300 m/s ² min
Ambient temperature	Operating	-10 to 80°C (with no icing)
Ambient humidity	Operating	35% to 95% RH
Degree of protection		IEC 60529: IP67

Additional specifications after EN60947-5-1 (TÜV Rheinland File No J50041904)

Category	AC-12 10A/250 VAC
Rated insulation voltage	1,000 VAC
Short circuit protective device	10A fuse type gG (IEC60269)
Protection against electrical shock	Class II

Operating characteristics

Values for OF and RF are in N and values for PT, OT, MD and OP are in mm unless otherwise specified.

	ZC-D□	ZC-Q2□	ZC-Q5□	ZC-N2□	ZC-W1□	ZC-W21□	ZC-W25□	ZC-W5□
Operating force (OF)	11.8			6.86	2.75		3.92	
Release force (RF)	4.9			1.67	0.59		0.78	
Pre-travel (PT)	1.5				—			
Overtravel (OT)	2.4	3		2.5	8.4		6	
Movement differential (MD)	0.2				1.4		1	
Operating Position (OP)	32.4±0.8	47.4±0.8	38.2±0.8	47.4±0.8	28.5±1.2	43.0±1.2		28.5±1.2











Limit switch with basic plastic housing

The Z series of basic switches in plastic housing provide the same electrical and mechanical switching capability and lifetime as standard limit switches. But with the basic plastic housing the basic switches are an ideal solution with best value for money for uncritical environments or when separately encased in subassemblies.

- Cost efficient basic plastic housing for subassemblies
- Same electrical and mechanical switching ratings as standard limit switches

Ordering information

Actuator type ^{*1}		Order code ^{*2}	
		Solder terminal	Screw terminal
	Pin plunger	Z-15G	Z-15G-B
	Short spring plunger	Z-15GD	Z-15GD-B
	Leaf spring	Z-15GL	Z-15GL-B
	Reverse hinge lever	Z-15GM	Z-15GM-B
	Reverse hinge roller lever	Z-15GM2	Z-15GM2-B
	Plunger with M12 mounting	Z-15GQ	Z-15GQ-B
	Hinge lever	Z-15GW	Z-15GW-B
	Hinge roller lever	Z-15GW2	Z-15GW2-B

^{*1} Other actuator types are available. For the full range refer to the complete datasheet.

^{*2} Contacts are directly accessible. Additional protective measures are required e.g. order covers from accessories.

Specifications

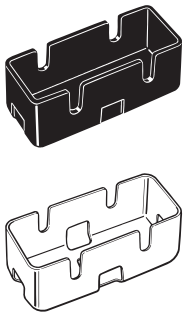
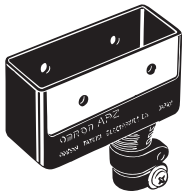
Rated voltage	Non-inductive load				Inductive load			
	Resistive load		Lamp load		Inductive load		Motor load	
	NC	NO	NC	NO	NC	NO	NC	NO
125 VAC	15 A		3 A	1.5 A	15 A		5 A	2.5 A
250 VAC	15 A		2.5 A	1.25 A	15 A		3 A	1.5 A
8 VDC	15 A		3 A	1.5 A	15 A		5 A	2.5 A
14 VDC	15 A		3 A	1.5 A	10 A		5 A	2.5 A
30 VDC	6 A		3 A	1.5 A	5 A		5 A	2.5 A
125 VDC	0.5 A ^{*1}		0.5 A	0.5 A	0.05 A		0.05 A	0.05 A

^{*1} For switching high currents at high voltages (e.g. 10A at 125VDC) contact your OMRON representative.

Durability	Mechanical	10,000,000 operations min.
	Electrical	500,000 operations min.
Operating speed	Plunger	0.01 mm to 1 m/s
Operating frequency	Mechanical	240 operations/min
	Electrical	20 operations/min
Ambient temperature	Operating	-25 to 80°C (with no icing)
Degree of protection		IP00

Accessories

Terminal covers (protection of electrical contacts against accidental contact of e. g. fingers)

Type		Material	Order code	
			for soldering terminal models	for screw terminal models
		plastic	AP-A	AP-B
		metal	AP1-A	AP1-B
	Cover with bottom cable exit		AP-Z	