

Compact, General-purpose Horizontal Switches.

Models for Microloads Added to Series

- Approved by EN, UL, CSA, and CCC (Chinese standard). (Ask your OMRON representative for information on approved models.)
- Incorporates a switch with a durable coil spring in a tough, highprecision case.
- Compact and uses a single basic switch for applications where strength is required.
- Models for microloads and models with operation indicators added to series.
- Terminal protective cover can be switched to wire cable from either the left or right.
- Sealing characteristics that meet IEC IP67 degree of protection.

Be sure to read Safety Precautions on page 7 and Safety Precautions for All Limit Switches.

Ordering Information

Switches

Ту	pe St	andard	Micro load
Actuator	I	Model	Model
Plunger <u>A</u>	SHL	-D55	SHL-D55-01
Panel mount	SHL	-Q55	SHL-Q55-01
Panel mount roller Dunger	SHL	-Q2255	SHL-Q2255-01
Panel mount crossroller plunger	SHL	-Q2155	SHL-Q2155-01
Short hinge lever	SHL	-W55	SHL-W55-01
Hinge lever	SHL	-W155	SHL-W155-01

Switches (Molded Terminal Models)

Without Operation Indicator, Lead Wired on Right

Standard		Micro	load
Model	Model	Model	Model
SHL-D55-MR	SHL-W155-MR	SHL-D55-01MR	SHL-W255-01MR
SHL-Q55-MR	SHL-W255-MR	SHL-Q55-01MR	SHL-W2155-01MR
SHL-Q2155-MR	SHL-W2155-MR	SHL-Q2155-01MR	
SHL-Q2255-MR	SHL-W355-MR	SHL-Q2255-01MR	
SHL-W55-MR		SHL-W55-01MR	

Without Operation Indicator, Lead Wired on Left

Standard		Micro load
Model	Model	Model
SHL-D55-ML SHL-Q2155-ML SHL-Q2255-ML SHL-W55-ML SHL-W155-ML	SHL-W255-ML SHL-W2155-ML	SHL-Q2255-01ML SHL-W2155-01ML



CSM_SHL_DS_E_4_1



For the most recent information on models that have been certified for safety standards, refer to your OMRON website.

Туре	Standard	Micro load
Actuator	Model	Model
Short hinge roller lever	SHL-W255	SHL-W255-01
Hinge roller lever	SHL-W2155	SHL-W2155-01
One-way action short hinge roller	SHL-W355	SHL-W355-01
One-way action → @ hinge roller lever	SHL-W3155	SHL-W3155-01

Note: Models are also available with molded terminals and with molded terminals and operation indicators. Refer to page 6.

Without Operation Indicator, Lead Wired from Bottom

Standard		Micro load
Model	Model	Model
SHL-D55-MD	SHL-W155-MD	SHL-Q2255-01MD
SHL-Q55-MD	SHL-W255-MD	
SHL-Q2155-MD	SHL-W2155-MD	
SHL-Q2255-MD	SHL-W355-MD	
SHL-W55-MD		

Operation Indicator, Lead Wired on Right

5	Standard	
Model	Model	Model
SHL-D55-LMR	SHL-Q2255-L3MR	SHL-Q2255-01LMR
SHL-Q55-LMR	SHL-W155-L3MR	SHL-W255-01LMR
SHL-Q2155-LMR	SHL-W255-L3MR	SHL-D55-01L3MR
SHL-Q2255-LMR	SHL-W2155-L3MR	SHL-Q2155-01L3MR
SHL-W155-LMR	SHL-D55-L4MR	SHL-Q2255-01L3MR
SHL-W255-LMR	SHL-Q55-L4MR	SHL-Q2155-01L4MR
SHL-W2155-LMR	SHL-Q2155-L4MR	SHL-Q2255-01L4MR
SHL-D55-L2MR	SHL-Q2255-L4MR	SHL-W255-01L4MR
SHL-Q2255-L2MR	SHL-W255-L4MR	SHL-W2155-01L4MR
SHL-D55-L3MR	SHL-W2155-L4MR	
SHL-Q55-L3MR	SHL-W355-L4MR	
SHL-Q2155-L3MR		

Operation Indicator, Lead Wired on Left

Standard		Micro load
Model	Model	Model
SHL-Q55-LML SHL-Q2255-LML SHL-W155-LML SHL-W255-LML SHL-W2155-LML	SHL-W55-L3ML SHL-W155-L3ML SHL-W255-L3ML SHL-Q2255-L4ML SHL-W155-L4ML	SHL-W255-01LML SHL-W2155-01LML SHL-Q2255-01L3ML SHL-W255-01L4ML
SHL-W2133-LML SHL-Q55-L2ML SHL-Q2255-L3ML	GHL-WIGG-L4ML	

Operation Indicator, Lead Wired from Bottom

Stan	Micro load	
Model	Model	Model
SHL-Q2255-LMD	SHL-Q2255-L4MD	SHL-Q55-01LMD
SHL-W255-LMD	SHL-W255-L4MD	SHL-Q2255-01L4MD
SHL-Q55-L3MD	SHL-W2155-L4MD	

Specifications

Approved Standards

Agency	Standard	File No.	Approved models
UL	UL508	E76675	General-purpose models listed on
CSA	CSA C22.2 No. 14	LR45746	page 1.
TÜV Rheinland	EN60947-5-1	J50062486	All SHL models listed in this datasheet.
CCC (CQC)	GB14048.5	2003010305072162	Ask your OMRON representative for information on approved models.

Ratings

	Non-inductive load (A)			I	nductive	e load (A	.)	
Rated voltage		stive ad	Lamp	load		ctive ad	Motor	r load
	NC	NO	NC	NO	NC	NO	NC	NO
125 VAC	1	0	1	.5	:	3	2.	.5
250 VAC	1	0	1	.5		2	1.	.5
480 VAC	:	2	-	-		-	-	-
8 VDC	1	0	2	2	ţ	5	2	2
14 VDC	1	0	2	2		5	2	2
30 VDC		5	1	.5	1	.5	1.	.5
125 VDC	C).4	0	.4	0.	05	0.0	05
250 VDC	C).2	0	.2	0.	03	0.0	03

Inrush 15 A max. NC current NO 15 A max.

Note: 1. The above figures are for steady-state currents.

Inductive loads have a power factor of 0.4 min. (AC) and a time constant of 7 ms max. (DC).
Lamp load has an inrush current of 10 times the steady-state current.
Motor load has an inrush current of 6 times the steady-state current.

Micro load models

Deted	Non-inductive load (A) Resistive load	
Rated voltage		
vonage	NC	NO
125 VAC	0.	.1
8 VDC	0.1	
14 VDC	0.1	
30 VDC	0.	.1

Characteristics (For SHL-W155)

onaracteristic	S (FOR SHL-W155)		
Degree of protection	ıs	IP67 (EN60947-5-1)	
Durability	Mechanical	10,000,000 operations min.	
Durability	Electrical	500,000 operations min.	
Operating speed		0.1 mm/s to 0.5 m/s (hinge lever models)	
Operating Mechanical		120 operations/min	
frequency	Electrical	30 operations/min	
Rated frequency	•	50/60 Hz	
Insulation resistance	e	100 MΩ min. (at 500 VDC)	
Contact resistance		15 m Ω max. (initial value for the built-in switch when tested alone)	
Dielectric strength	Between terminals of the same polarity	1,000 VAC, 50/60 Hz for 1 min	
	Between each terminal and non-current-carrying metal part	2,000 VAC, 50/60 Hz for 1 min/Uimp at 2.5 kV (EN60947-5-1)	
Rated insulation vol	tage (Ui)	150 V (EN60947-5-1)	
Pollution degree (oper	rating environment)	3 (EN60947-5-1)	
Short-circuit protect	tive device (SCPD)	10 A fuse type gI or gG (IEC60269)	
Conditional short-ci	rcuit current	100 A (EN60947-5-1)	
Conventional enclosed	thermal current (Ithe)	5 A (EN60947-5-1)	
Protection against e	lectric shock	Class II (grounding not required with double insulation)	
OFF reverse voltage	•	1,000 VAC max., 300 VDC max. (EN60947-5-1)	
Vibration resistance Malfunction		10 to 55 Hz, 1.5-mm double amplitude	
Shock	Destruction	1,000 m/s ² max.	
resistance	Malfunction	300 m/s ² max.	
Ambient operating t	emperature	-10°C to +80°C (with no icing)	
Ambient operating h	numidity	35% to 95%RH	
Weight		Approx. 62 to 72 g	

Approved Standard Ratings TÜV (EN60947-5-1), CCC (GB14048.5)

Model	Category and rating	I the		
SHL-□55	AC-15 2 A/125 V DC-12 2 A/48 V	5 A 5 A		
SHL-055-01	AC-14 0.1 A/125 V DC-12 0.1 A/48 V	0.5 A 0.5 A		
SHL-D55-L	AC-15 2 A/125 V	5 A		
SHL-055-01L	AC-14 0.1 A/125 V	0.5 A		
SHL-055-01L2	DC-12 0.1 A/12 V	0.5 A		
SHL-055-L3	DC-12 2 A/24 V	5 A		
SHL-055-01L3	DC-12 0.1 A/24 V	0.5 A		
SHL-055-L4	DC-12 2 A/24 V	5 A		
SHL-055-01L4	DC-12 0.1 A/24 V	0.5 A		
SHL-D55-L5	DC-12 2 A/48 V	5 A		
SHL-055-01L5	DC-12 0.1 A/48 V	0.5 A		

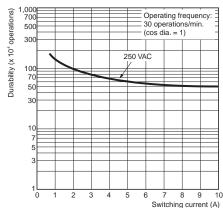
Note: "AC-15 2 A/125 V" indicates the following. Application category: AC-16 Rated operating current (Ie): 2 A Rated operating voltage (Ue): 125 V

UL/CSA Α

4300					
Rated	Carry	Curre	nt (A)	Volt-amp	oeres (V)
voltage	current	Make	Break	Make	Break
120 VAC	10 A	60	6	7.200	720
240 VAC	10 A	30	3	7,200	720

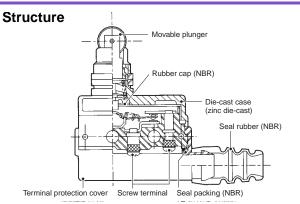
Engineering Data Electrical Durability

(Ambient temperature: +5°C to +35°C, Ambient humidity: 40% to 50%RH)

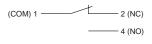


- Note: 1. The figures at the left are initial values. 2. The ratings at the left may vary depending on the model. Contact your OMRON representative for further details.
- *1. The head section of the plunger type SHL-D(Q) a is excluded.
- *2. Durability values are calculated at an operating temperature of +5°C to +35°C, and an operating humidity of 40% to 70%RH.
- *3. The values are for the plunger-type models.

Structure and Nomenclature

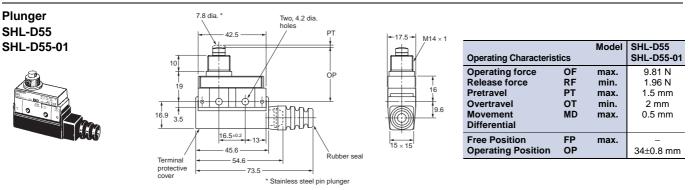


Contact Form



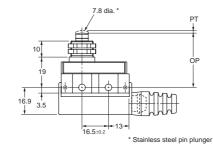
Dimensions and Operating Characteristics

Switches (Note: Omitted dimensions are the same as those of the plunger models.)



Panel Mount Plunger SHL-Q55 SHL-Q55-01



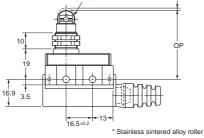


M14 × 1
Two hexagon /nut (thickness: 2.5, width: 17)
16 9.6

Operating	Model Characteristics	SHL-Q55 SHL-Q55-01
OF	max.	9.81 N
RF	min.	1.96 N
PT	max.	1.5 mm
от	min.	2 mm
MD	max.	0.5 mm
FP	max.	-
OP		34±0.8 mm

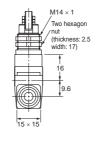
Panel Mount Roller Plunger SHL-Q2255 SHL-Q2255-01





11 dia. × 4.7 *

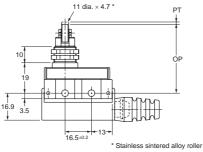
PT

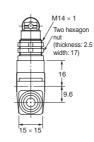


Model Operating Characteristics		SHL-Q2255 SHL-Q2255-01
OF	max.	9.81 N
RF	min.	1.96 N
PT	max.	1.5 mm
от	min.	2 mm
MD	max.	0.5 mm
FP	max.	-
OP		43±0.8 mm

Panel Mount Crossroller Plunger SHL-Q2155







Model Operating Characteristics		SHL-Q2155 SHL-Q2155-01
OF	max.	9.81 N
RF	min.	1.96 N
PT	max.	1.5 mm
от	min.	2 mm
MD	max.	0.5 mm
FP	max.	-
OP		43±0.8 mm

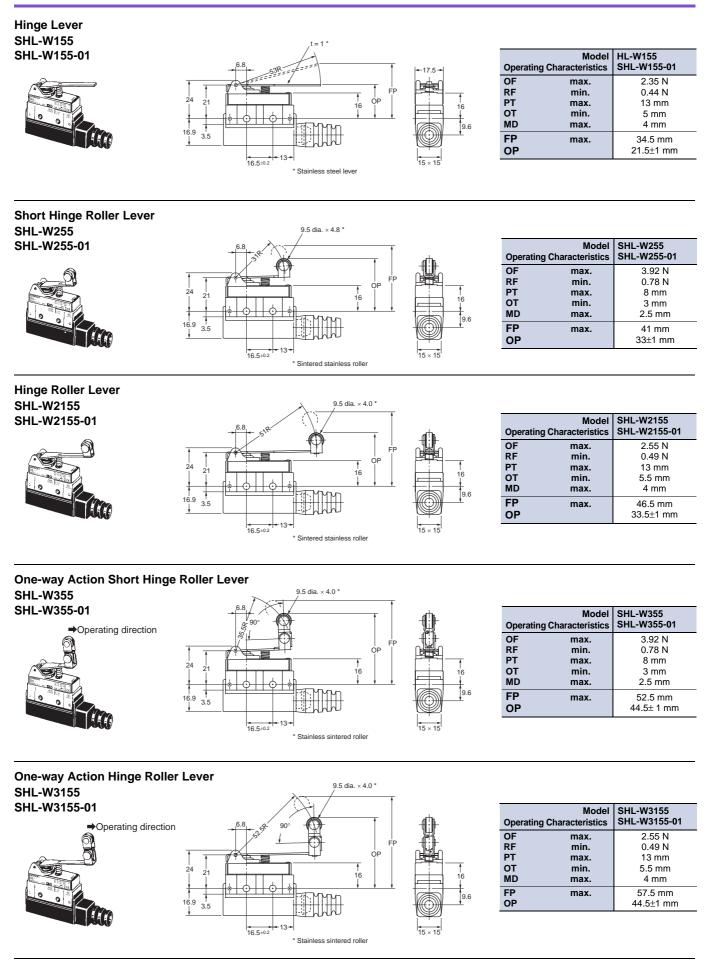
Short Hinge Lever SHL-W55 SHL-W55-01



24 21 16.9 3.5	6.8 42.5 35R 6.8 16.5 13 6 0 0 0 0 0		+ 17.5 +
	16.5±0.2	* Stainless steel lever	'15 × 15'

Operating C		SHL-W55 SHL-W55-01
OF	max.	3.14 N
RF	min.	0.78 N
PT	max.	8 mm
от	min.	3 mm
MD	max.	2.5 mm
FP	max.	29.5 mm
OP		21.5±1 mm

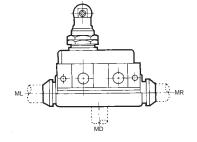
Note: Unless otherwise specified, a tolerance of $\pm 0.4~\text{mm}$ applies to all dimensions.



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

Molded Terminal Models

Use of the molded terminal model is recommended in locations subject to excessive dust, oil drips, or moisture. All types of SHL Switches can be fabricated into a molded terminal version. In this case, the molded terminal model will have the same dimensions and operating characteristics as the basic model from which the molded terminal model is fabricated.



Suffix by Location of Lead Outlet

,		
Location of	Model (suffix)	
lead outlet (Refer to left figure)	Terminal COM, NC, NO	
Right-hand	-MR	
Left-hand	-ML	
Underside	-MD	

Note: The above suffixes can be added to the model numbers given on page 1 to specify molded terminals.

Lead Supplies

Lead Supplies	
Specifications Leads	VCTF (Vinyl cabtire cable)
Nominal cross-sectional area (mm ²)	0.75
No. of conductors/cond. dia.	30/0.18
External diameter (mm)	3-conductor 7 dia.
Terminal connections	Black: COM White: NO Red: NC
Length (m)	3 (standard)

How to order

Example:

Basic type: SHL-Q2255 Location of lead outlet: Right side Length of lead: 3 m (V.C.T.F. lead) When placing your order for the above Switch specify the model number as SHL-Q2255-MR VCTF 3M.

Operation Indicator-equipped Models

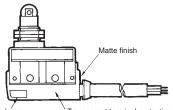
The molded terminal model may be equipped with an operation indicator (neon lamp or LED) upon request to facilitate maintenance and inspection.

The operation indicator is designed to illuminate when the Switch is not operating. (Because of the molded terminal model, any change to the Switch wiring cannot be made.)

Note: Refer to the previous table for model numbers for Switch with molded terminals and operation indicators.

For AC

 The applicable voltage is 90 to 250 VAC (microload models: 90 to 125 VAC).



Neon lamp Transparent terminal protection cover

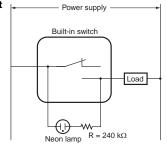
- Operating characteristics are the same as the basic model from which the operation indicator equipped model is fabricated.
- Dimension are the same as the standard model.

Example:

Basic type: SHL-Q2255-MR

When placing your order for the molded terminal model with an neon lamp operation indicator, specify the model number as SHL-Q2255-LMR.

Contact Circuit



For DC

- LED indicator is provided.
- As a rectifier stack is incorporated, into the unit and no directionality exists for connection of + and -, this type can also be operated on AC.
- The voltage specifications are given below.
- Voltage ratings of LED indicators are as shown in the table below.

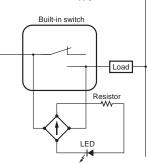
Model	Voltage rating (V)	Leakage current (mA)	Internal resistance (kΩ)
L2	12	Approx. 2.4	4.3
L3	24	Approx. 2	10
L4	24	Approx. 1.2	18

Example:

Basic type: SHL-Q2255-MR

When placing your order for the molded terminal with an LED indicator rated at 12 V, specify the model number as SHL-Q2255-L2MR.

Contact Circuit Power supply



Refer to Safety Precautions for All Limit Switches.

Precautions for Correct Use

Operating Environment

- Seal material may deteriorate if a Switch is used outdoor or where subject to special cutting oils, solvents, or chemicals. Always appraise performance under actual application conditions and set suitable maintenance and replacement periods.
- Install Switches where they will not be directly subject to cutting chips, dust, or dirt. The Actuator and Switch must also be protected from the accumulation of cutting chips or sludge.



- Constantly subjecting a Switch to vibration or shock can result in wear, which can lead to contact interference with contacts, operation failure, reduced durability, and other problems.
 Excessive vibration or shock can lead to false contact operation or damage. Install Switches in locations not subject to shock and vibration and in orientations that will not produce resonance.
- The Switches have physical contacts. Using them in environments containing silicon gas will result in the formation of silicon oxide (SiO₂) due to arc energy. If silicon oxide accumulates on the contacts, contact interference can occur. If silicon oil, silicon filling agents, silicon cables, or other silicon products are present near the Switch, suppress arcing with contact protective circuits (surge killers) or remove the source of silicon gas.

Connections

Be sure to connect a fuse with a breaking current 1.5 to 2 times the rated current to the Limit Switch in series in order to protect the Limit Switch from damage due to short-circuiting.

When using the Limit Switch under the EN ratings, use a gl or gG 10-A fuse that conforms to IEC60269.

Mounting

- Secure the Switch with two M4 screws and washers. The tightening torque applied to each terminal must be 1.18 to 1.37 N·m. Tighten the screws to the specified torque. An excessive tightening torque may damage the Switch and cause a malfunction.
- When mounting the panel mount-type Switch with screws on a side surface, remove the hexagonal nuts from the actuator.

Mounting Holes



• When mounting the panel mount type (SHL-Q55, SHL-Q2255, or SHL-Q2155) on a panel, tighten the hexagonal nuts of the actuator to a torque less than 4.90 to 7.84 N·m.

Mounting Holes

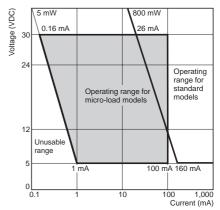


Micro Load Models

When using a Limit Switch for opening or closing micro-load circuit (zones 1 through 3), contact failure may occur if a Limit Switch with ordinary contact specifications is used. Therefore, when using Limit Switches in the micro-load range, use ones with contact

specifications that are suited to each zone. Use the SHL- \Box -01 micro load models within the zones (1 through 3) shown in the following diagram.

Micro Load Applicable Ranges



The above diagram is for standard conditions (+5°C to +35°C, 40% to 70%RH). Since the values vary depending on the operating environment conditions, contact your OMRON representative for further details.

Tightening Torque

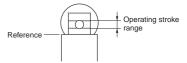
• A loose screw may result in a malfunction. Be sure to tighten each screw to the proper tightening torque as shown below.

No.	Туре	Appropriate tightening torque
1	Terminal screw (M3 screw)	0.24 to 0.44 N·m
2	Mounting screw (M4 screw)	1.18 to 1.37 N·m

 When wiring, use M3 round solderless terminals and apply insulation shielding to the connections. Tighten the terminals screws to 0.24 to 0.44 N·m.

Operating Stroke

Ensure that the operating stroke for roller plunger models is within the set position display.



Others

The standard seal rubber for the lead wire outlet is one that allows 6to 8-dia. cables. The appropriate nominal cross-section of the lead wire is 0.75 mm². (When the sealing capability is required over a long period of time, use mold specifications.) Read and understand this catalog.

Please read and understand this catalog before purchasing the products. Please consult your OMRON representative if you have any questions or comments.

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Change in Specifications.

Product specifications and accessories may be changed at any time based on improvements and other reasons. It is our practice to change part numbers when published ratings or features are changed, or when significant construction changes are made. However, some specifications of the Product may be changed without any notice. When in doubt, special part numbers may be assigned to fix or establish key specifications for your application. Please consult with your Omron's representative at any time to confirm actual specifications of purchased Product.

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2013.11

In the interest of product improvement, specifications are subject to change without notice.

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 SHL-Q2155
 SHL-Q2155
 SHL-Q2155-L4MR

 VCTF 3M
 SHL-Q2155-MD VCTF 1M
 SHL-Q2155-MD VCTF 3M
 SHL-Q2155-MR
 SHL-Q2255
 SHL-Q2255-01L4MR

 VCTF 3M
 SHL-Q2255-01MR
 SHL-Q2255-L4MR
 SHL-Q2255-MR
 SHL-Q2255
 SHL-Q2255-01L4MR

 VCTF 3M
 SHL-Q2255-01MR
 SHL-Q2255-L4MR
 SHL-Q2255-MR
 SHL-Q55
 SHL-Q255-MR VCTF 1M
 SHL-W155

 SHL-W155-L4MR S-FLEX 3M
 SHL-W155-ML VCTF 3M
 SHL-W2155
 SHL-W2155-01
 SHL-W2155-L3MR
 SHL

 W2155-ML
 SHL-W2155-MR
 SHL-W2455-TCMRK1
 SHL-W255
 SHL-W255-L4MR SFLEX 3M
 SHL

 W2155-L6MD11
 SHL-W2455-TCMRK1
 SHL-W255
 SHL-W255-L6MD9
 SHL-W255-MR
 SHL

 W255-L6MD11
 SHL-W255-L6MD7 3.0M
 SHL-W255-L6MD9
 SHL-W255-MR
 SHL-W255-MR

 VCTF 1M
 SHL-W255-MR VCTF 2M
 SHL-W3155
 SHL-W3155
 SHL-W355
 SHL-W355-01

 SHL-Q55-01
 SHL-W255-01
 SHL-Q2255-01
 SHL-W255-01
 SHL-W55
 SHL-W55-01

 SHL-Q255-01
 SHL-Q2255-01
 SHL-Q2255-01
 SHL-Q2155-01L