

## Locking Safety-Door Switch

### Protective Doors Are Locked Until Machines Completely Stop Operating

- The switch contact is opened by a positive opening mechanism (NC contacts only). Positive opening mechanism that is EN-approved is indicated by on the switch
- Auxiliary release key ensures easy maintenance and unlocks the door in the case of a power failure
- Tough aluminum die-cast Unit incorporating a switch box with IP67 degree of protection (EN60529, IEC529)
- Standards and EC Directives:  
Conforms to the following EC Directives:  
Machinery Directive  
Low Voltage Directive  
EN1088
- Approved Standards



Agency	Standard	File No.
TÜV Rheinland	EN60947-5-1	R9451050 (Positive opening: approved)
UL	UL508	E76675
CSA	CSA C22.2, No.14	LR45746
BIA	GS-ET-19	Mechanical lock: 9402293 Solenoid lock: 1998 20462-01
SUVA	SUVA	E6186/1.d

# Ordering Information

## MODEL NUMBER LEGEND

### Switch

D4BL -     -   
1      2      3      4                      5

#### 1. Conduit

- 1: PG13.5 (European type)
- 2: G1/2 (Japanese type)
- 3: 1/2-14NPT (North American type)

#### 2. Built-in Switch

- C: 1NC/1NO (Slow-action) + 1NC (Slow-action)
- D: 2NC (Slow-action) + 1NC (Slow-action)

#### 3. Head Mounting Direction

- R: Mounting possible in 4 directions (mounted in the right direction at time of delivery)

#### 4. Door Lock/Release Methods

**(Auxiliary Release Key is Incorporated by All Models)**

- A: Mechanical lock/24-VDC solenoid release
- B: Mechanical lock/110-VAC solenoid release
- G: 24-VDC Solenoid lock/Mechanical release

#### 5. Indicator

- Blank: Without indicator
- A: 1 mA at 10 to 115 VAC or VDC driving (with red and green LED indicator unit)

### Operation Key (Order Separately)

D4BL - K   
1

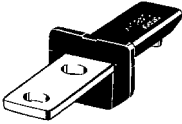
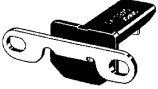
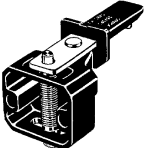
#### 1. Operation Key Type

- 1: Horizontal mounting
- 2: Vertical mounting
- 3: Adjustable mounting (Horizontal)

## SWITCHES

Description			Part number			
Lock method	Conduit size/type	Voltage for solenoid	Without indicator 1NC/1NO+ 1NC (Slow-action)	With LED indicator 1NC/1NO+ 1NC (Slow-action)	Without indicator 2NC+ 1NC (Slow-action)	With LED indicator 2NC+ 1NC (Slow-action)
Mechanical lock	PG13.5 (European)	24 VDC	D4BL-1CRA	D4BL-1CRA-A	D4BL-1DRA	D4BL-1DRA-A
		110 VAC	D4BL-1CRB	D4BL-1CRB-A	D4BL-1DRB	D4BL-1DRB-A
	G1/2 (Japanese)	24 VDC	D4BL-2CRA	D4BL-2CRA-A	D4BL-2DRA	D4BL-2DRA-A
		110 VAC	D4BL-2CRB	D4BL-2CRB-A	D4BL-2DRB	D4BL-2DRB-A
	1/2-14NPT (North American)	24 VDC	D4BL-3CRA	D4BL-3CRA-A	D4BL-3DRA	D4BL-3DRA-A
		110 VAC	D4BL-3CRB	D4BL-3CRB-A	D4BL-3DRB	D4BL-3DRB-A
Solenoid lock	Pg 13.5 (European)	24 VDC	D4BL-1CRG	D4BL-1CRG-A	D4BL-1DRG	D4BL-1DRG-A
	G1/2 (Japanese)	24 VDC	D4BL-2CRG	D4BL-2CRG-A	D4BL-2DRG	D4BL-2DRG-A
	2 1/2-14NPT (North American)	24 VDC	D4BL-3CRG	D4BL-3CRG-A	D4BL-3DRG	D4BL-3DRG-A

■ OPERATION KEY (ORDER SEPARATELY)

Mounting type	Part number
Horizontal mounting 	D4BL-K1
Vertical mounting 	D4BL-K2
Adjustable mounting (Horizontal) 	D4BL-K3

## Specifications

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■ APPROVED STANDARD RATINGS

TÜV (EN60947-5-1)

Item	Standard model	Indicator model
Utilization category	AC-15	AC-15
Rated operating current (Ie)	3 A	6 A
Rated operating voltage (Ue)	250 V	115 V

As protection against short-circuiting, use either a gI-type or gG-type 10-A fuse (IEC269-approved).

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

**A300**

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

Note: The UL/CSA approved rating for products with indicators (-A) is 6 A/115 VAC.

## ■ CHARACTERISTICS

Degree of protection	IP67 (See note 2.)
Life expectancy (See note 3.)	Mechanical: 1,000,000 operations min. Electrical: 500,000 operations min.
Operating speed	0.05 to 0.5 m/s
Operating frequency	30 operations/min max.
Rated frequency	50/60 Hz
Operating characteristics	Positive opening force: 19.61 N min. (EN60947-5-1) Positive opening stroke: 20 mm min. (EN60947-5-1) All stroke: 23 mm min.
Locked resistive pulling force	700 N min. (GS-ET-19)
Insulation resistance	100 M $\Omega$ min. (at 500 VDC)
Rated insulation voltage (U <sub>i</sub> )	300 VAC (EN60947-5-1)
Conventional enclosed thermal current (I <sub>the</sub> ) (rated continuous current)	10 A (EN60947-5-1)
Dielectric strength (U <sub>imp</sub> )	Impulse dielectric strength (U <sub>imp</sub> ) 4 kV (EN60947-5-1) between terminals of different polarity, between each terminal and ground, and between each terminal and non-current-carrying metal part; 2.5 kV between solenoid and ground
Conditional short-circuit current	100 A (EN60947-5-1)
Operating environmental pollution level	Pollution degree 3 (EN60947-5-1)
Electric shock protection class	Class I (with grounded terminal)
Counter electromotive voltage at switching	1,500 V max. (EN60947-5-1)
Contact resistance	50 m $\Omega$ max. (initial value)
Vibration resistance	Malfunction: 10 to 55 Hz, 0.35-mm single amplitude with an imposed acceleration of 50 m/s <sup>2</sup> max. (IEC68-2-6)
Shock resistance	Destruction: 1,000 m/s <sup>2</sup> min. (IEC68-2-27) Malfunction: 300 m/s <sup>2</sup> min. (IEC68-2-27)
Ambient temperature	Operating: -10°C to 55°C (with no icing)
Ambient humidity	Operating: 95% max.
Weight	Approx. 800 g

Note: 1. The values provided in the above table are the initial values.

- Although the switch box does not allow the penetration of dust, oil or water, avoid as much as possible the penetration of dust, oil, or water into the head's Operation Key insertion slot.
- The life expectancy is for an ambient temperature of 5°C to 35°C and ambient humidity of 40% to 70%. For further conditions, consult your OMRON sales representative.

### Solenoid Coil Characteristics

Item	24-VDC Mechanical lock models	110-VAC Mechanical lock models	24-VAC Solenoid lock models
Rated operating voltage	24 VDC <sup>+10%</sup> / <sub>-15%</sub> (100% ED)	110 VAC $\pm$ 10% (50/60 Hz)	24 VDC <sup>+10%</sup> / <sub>-15%</sub> (100% ED)
Current consumption	Approx. 300 mA	Approx. 98 mA	Approx. 300 mA
Insulation class	Class F (130°C or less)		

### Indicator Characteristics

Item	LED
Rated voltage	10 to 115 VAC/VDC
Current consumption	Approx. 1 mA
Indicator color (LED)	Orange, green