# OMRON

Knob-Type Selector Switch

A165S/W

Mounting Aperture of 16 mm

- 2-piece construction requires no tools

- Oil-resistant IP65 models

- Short mounting depth, less than 28.5 mm below panel

- Wide range of switching capacity from general to microload

- Illuminated and non-illuminated models

- 2 and 3-position models

- Maintained and spring return reset

- UL and CSA approved, VDE pending

- Conforms to EN60947-5-1, IEC947-5-1

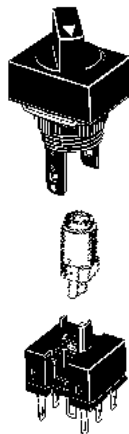$C \in$
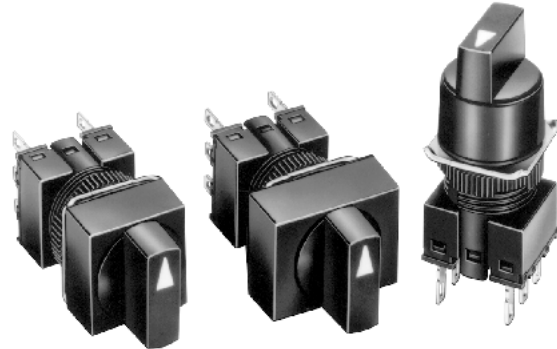
Ordering Information

■ CONSTRUCTION

Flange Shape

Protective Case and Terminal Type

- **Protective Structure**
  Oil-resistant IP65

- **Terminal Type**
  Solder terminals
  (tab terminals #110)

Lamp

- LED

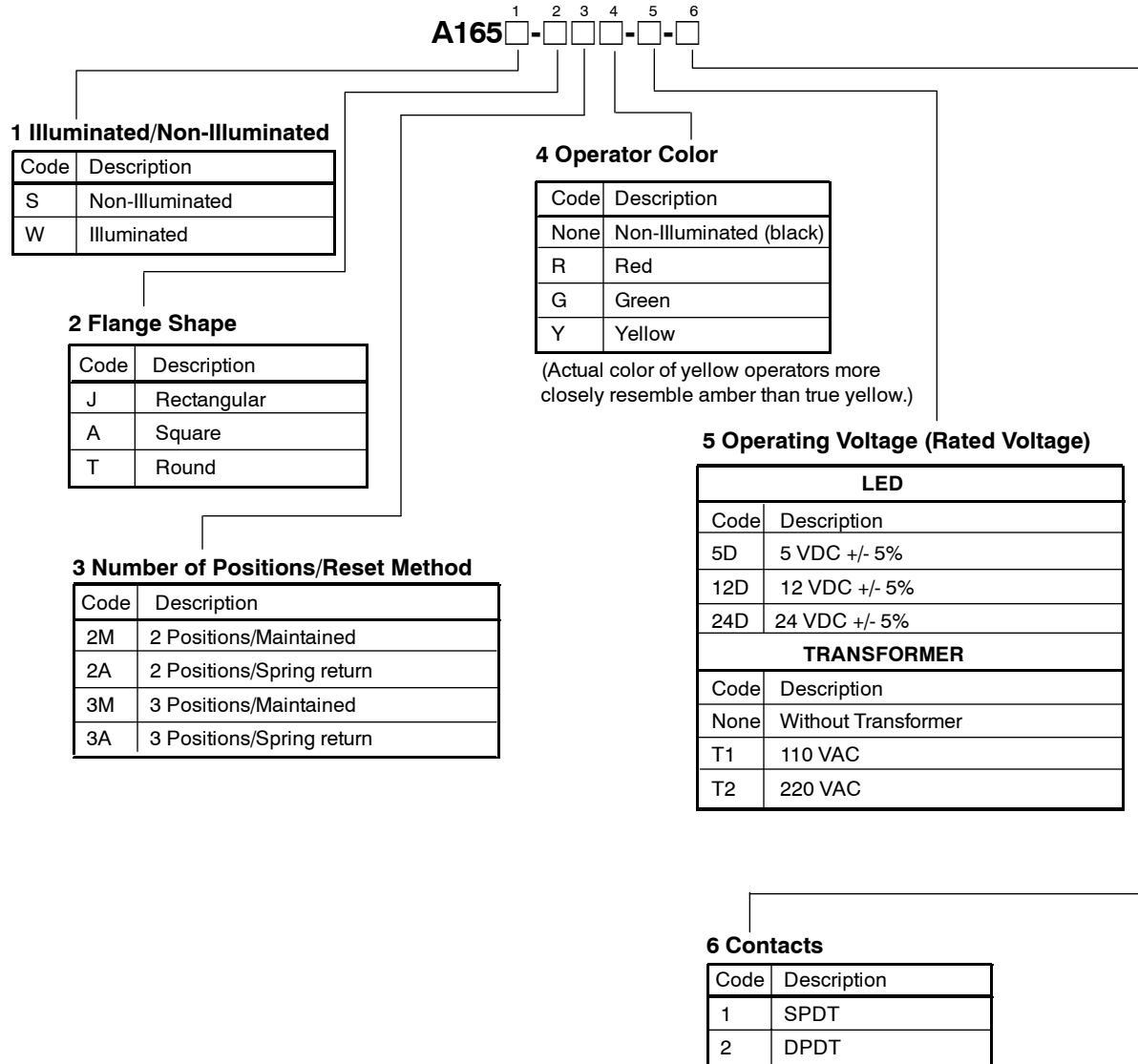### Available Colors

- For LED
  Red, green, yellow

Number of Positions and Reset Method

- **2 Positions**
  Maintained
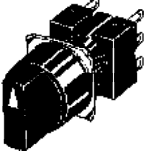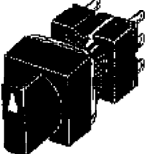 Spring return

- **3 Positions**
  Maintained
  Spring return

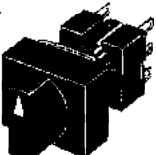### Switch Unit Specifications

- **General-purpose Loads**
  125 VAC: 5 A
  250 VAC: 3 A
  30 VDC   3 A
  Minimum applicable load: 1 mA at 5 VDC
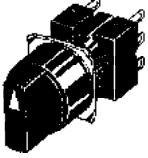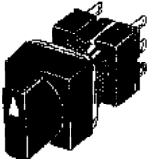
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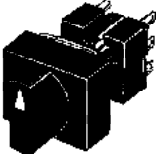
■ PART NUMBER LEGEND A165 SELECTOR SWITCH (COMPLETE ASSEMBLY)

$$A165\square\text{-}\square\square\square\text{-}\square\text{-}\square$$

1   2 3 4 5   6

1 Illuminated/Non-Illuminated

Code	Description
S	Non-Illuminated
W	Illuminated

2 Flange Shape

Code	Description
J	Rectangular
A	Square
T	Round

3 Number of Positions/Reset Method

Code	Description
2M	2 Positions/Maintained
2A	2 Positions/Spring return
3M	3 Positions/Maintained
3A	3 Positions/Spring return

4 Operator Color

Code	Description
None	Non-Illuminated (black)
R	Red
G	Green
Y	Yellow

(Actual color of yellow operators more closely resemble amber than true yellow.)

5 Operating Voltage (Rated Voltage)

LED	
Code	Description
5D	5 VDC +/- 5%
12D	12 VDC +/- 5%
24D	24 VDC +/- 5%
TRANSFORMER	
Code	Description
None	Without Transformer
T1	110 VAC
T2	220 VAC

6 Contacts

Code	Description
1	SPDT
2	DPDT

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■ PART NUMBERS: A165S ASSEMBLED NON-ILLUMINATED KNOB-TYPE SELECTOR SWITCH (COMPLETE ASSEMBLY)

Shape		Number of positions	Contact	Reset method	Part number
Round		2 positions	SPDT	Maintained	**A165S-T2M-1**
				Spring return (right)	**A165S-T2A-1**
			DPDT	Maintained	**A165S-T2M-2**
				Spring return (right)	**A165S-T2A-2**
		3 positions		Maintained	**A165S-T3M-2**
				Spring return (both)	**A165S-T3A-2**
Square		2 positions	SPDT	Maintained	**A165S-A2M-1**
				Spring return (right)	**A165S-A2A-1**
			DPDT	Maintained	**A165S-A2M-2**
				Spring return (right)	**A165S-A2A-2**
		3 positions		Maintained	**A165S-A3M-2**
				Spring return (both)	**A165S-A3A-2**
Rectangular		2 positions	SPDT	Maintained	**A165S-J2M-1**
				Spring return (right)	**A165S-J2A-1**
			DPDT	Maintained	**A165S-J2M-2**
				Spring return (right)	**A165S-J2A-2**
		3 positions		Maintained	**A165S-J3M-2**
				Spring return (both)	**A165S-J3A-2**

■ A165W ILLUMINATED (2 POSITION) KNOB-TYPE SELECTOR SWITCH (COMPLETE ASSEMBLY)

Description				Part number	
Appearance	Type	Rated voltage	Contacts	Maintained	Spring return from right
Round	Full voltage LED (DC)	5 VDC	SPDT	A165W-T2M□-5D-1	A165W-T2A□-5D-1
		12 VDC		A165W-T2M□-12D-1	A165W-T2A□-12D-1
		24 VDC		A165W-T2M□-24D-1	A165W-T2A□-24D-1
	Transformer 24 V Secondary	110 VAC		A165W-T2M□-T1-1	A165W-T2A□-T1-1
		220 VAC		A165W-T2M□-T2-1	A165W-T2A□-T2-1
	Full voltage LED (DC)	5 VDC	DPDT	A165W-T2M□-5D-2	A165W-T2A□-5D-2
		12 VDC		A165W-T2M□-12D-2	A165W-T2A□-12D-2
		24 VDC		A165W-T2M□-24D-2	A165W-T2A□-24D-2
	Transformer 24 V Secondary	110 VAC		A165W-T2M□-T1-2	A165W-T2A□-T1-2
		220 VAC		A165W-T2M□-T2-2	A165W-T2A□-T2-2
Square	Full voltage LED (DC)	5 VDC	SPDT	A165W-A2M□-5D-1	A165W-A2A□-5D-1
		12 VDC		A165W-A2M□-12D-1	A165W-A2A□-12D-1
		24 VDC		A165W-A2M□-24D-1	A165W-A2A□-24D-1
	Transformer 24 V Secondary	110 VAC		A165W-A2M□-T1-1	A165W-A2A□-T1-1
		220 VAC		A165W-A2M□-T2-1	A165W-A2A□-T2-1
	Full voltage LED (DC)	5 VDC	DPDT	A165W-A2M□-5D-2	A165W-A2A□-5D-2
		12 VDC		A165W-A2M□-12D-2	A165W-A2A□-12D-2
		24 VDC		A165W-A2M□-24D-2	A165W-A2A□-24D-2
	Transformer 24 V Secondary	110 VAC		A165W-A2M□-T1-2	A165W-A2A□-T1-2
		220 VAC		A165W-A2M□-T2-2	A165W-A2A□-T2-2
Rectangular	Full voltage LED (DC)	5 VDC	SPDT	A165W-J2M□-5D-1	A165W-J2A□-5D-1
		12 VDC		A165W-J2M□-12D-1	A165W-J2A□-12D-1
		24 VDC		A165W-J2M□-24D-1	A165W-J2A□-24D-1
	Transformer 24 V Secondary	110 VAC		A165W-J2M□-T1-1	A165W-J2A□-T1-1
		220 VAC		A165W-J2M□-T2-1	A165W-J2A□-T2-1
	Full voltage LED (DC)	5 VDC	DPDT	A165W-J2M□-5D-2	A165W-J2A□-5D-2
		12 VDC		A165W-J2M□-12D-2	A165W-J2A□-12D-2
		24 VDC		A165W-J2M□-24D-2	A165W-J2A□-24D-2
	Transformer 24 V Secondary	110 VAC		A165W-J2M□-T1-2	A165W-J2A□-T1-2
		220 VAC		A165W-J2M□-T2-2	A165W-J2A□-T2-2

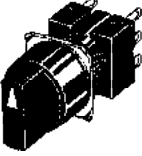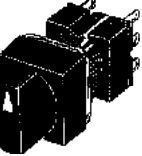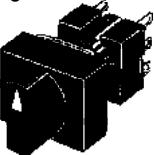Note: To complete the part number, replace the □ symbol with the appropriate color code from the *Operator Color Code* table below.

Operator Color Codes

(Actual color of yellow pushbuttons more closely resembles amber than true yellow).

Code	Color
R	Red
Y	Yellow
G	Green

■ A165W ILLUMINATED (3 POSITION) KNOB-TYPE SELECTOR SWITCH (COMPLETE ASSEMBLY)

Description				Part number	
Appearance	Type	Rated voltage	Contacts	Maintained	Spring return from both
Round	Full voltage LED (DC)	5 VDC	DPDT	A165W-T3M☐-5D-2	A165W-T3A☐-5D-2
		12 VDC		A165W-T3M☐-12D-2	A165W-T3A☐-12D-2
		24 VDC		A165W-T3M☐-24D-2	A165W-T3A☐-24D-2
	Transformer 24 V Secondary	110 VAC		A165W-T3M☐-T1-2	A165W-T3A☐-T1-2
		220 VAC		A165W-T3M☐-T2-2	A165W-T3A☐-T2-2
Square	Full voltage LED (DC)	5 VDC	DPDT	A165W-A3M☐-5D-2	A165W-A3A☐-5D-2
		12 VDC		A165W-A3M☐-12D-2	A165W-A3A☐-12D-2
		24 VDC		A165W-A3M☐-24D-2	A165W-A3A☐-24D-2
	Transformer 24 V Secondary	110 VAC		A165W-A3M☐-T1-2	A165W-A3A☐-T1-2
		220 VAC		A165W-A3M☐-T2-2	A165W-A3A☐-T2-2
Rectangular	Full voltage LED (DC)	5 VDC	DPDT	A165W-J3M☐-5D-2	A165W-J3A☐-5D-2
		12 VDC		A165W-J3M☐-12D-2	A165W-J3A☐-12D-2
		24 VDC		A165W-J3M☐-24D-2	A165W-J3A☐-24D-2
	Transformer 24 V Secondary	110 VAC		A165W-J3M☐-T1-2	A165W-J3A☐-T1-2
		220 VAC		A165W-J3M☐-T2-2	A165W-J3A☐-T2-2

Note: To complete the part number, replace the ☐ symbol with the appropriate color code from the Operator *Color Code* table below.

Operator Color Codes

(Actual color of yellow pushbuttons more closely resembles amber than true yellow).

Code	Color
R	Red
Y	Yellow
G	Green

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Accessories (Order Separately) ━━━━━━━━━━━

■ PANEL PLUGS

Shape	Classification		Remarks	Part number
	Rectangular		Used for covering the panel cutouts for future panel expansion.	A3BJ-3003
	Square			A3BA-3003
	Round			A3BT-3003

■ TOOLS

Name	Shape	Applicable types					Remarks	Part number
		Pushbutton Switch	Knob-type Selector Switch	Key-type Selector Switch	Emergency Stop Switch	Pilot Light		
Screw fitting		Yes	Yes	Yes	Yes	Yes	Convenient for ganged installation. Tighten to a torque of 0.39 N • m (5 kgf • cm) min.	A3B-3004
Extractor		Yes	Yes	Yes	Yes	Yes	Convenient for extracting the Switch Unit and Lamps.	A16Z-5080

Specifications ━━━━━━━━━━━

■ APPROVED STANDARDS

UL, cUL (File No. E41515)

5 A at 125 VAC, 3 A at 250 VAC (general use)
3 A at 30 VDC (resistive)

EN60947-5-1 (Low Voltage Directive)
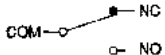
■ RATINGS

AC resistive load (AC15)	DC resistive load (DC13)
3 A, 250 VAC 5 A, 125 VAC	3 A, 30 VDC

Minimum applicable load: 1 mA at 5 VDC
Rated values are obtained from tests conducted under the following conditions according to JIS C4505 and C4520.

1. Load: Resistive load
2. Mounting conditions: No vibration and no shock
3. Temperature: 20°±2°C (68F°±3.6F°)
4. Operating frequency: 20 times/min

■ CONTACT

Name	Contact
SPDT	COM—o —■ NC o— NO

■ LED

Rated voltage	Rated current	Operating voltage	Internal limiting resistor
5 VDC	30 mA	5 VDC±5%	33 Ω
12 VDC	15 mA	12 VDC±5%	270 Ω
24 VDC	10 mA	24 VDC±5%	1600 Ω

■ CHARACTERISTICS

Item		Knob-type Selector Switch
Allowable operating frequency (See Note 1.)	Mechanical	20 operations/min max.
	Electrical	10 operations/min max.
Insulation resistance		100 MΩ min. (at 500 VDC)
Dielectric strength		1,000 VAC, 50/60 Hz for 1 min between terminals of same polarity 2,000 VAC, 50/60 Hz for 1 min between terminals of different polarity and also between each terminal and ground 1,000 VAC, 50/60 Hz for 1 min between lamp terminals (See note 2)
Vibration resistance	Malfunction	10 to 55 Hz, 1.5-mm double amplitude (malfunction within 1 ms)
Shock resistance	Mechanical	500 m/s^2 (50G)
	Malfunction	150 m/s^2 (15G) max. (malfunction within 1 ms)
Life expectancy	Mechanical	250,000 operations min.
	Electrical	100,000 operations min.
Ambient temperature		Operating: –10°C to 55°C (14°F to 131°F) with no icing or condensation Storage: –25°C to 65°C (-13°F to 149°F) with no icing or condensation
Ambient humidity		Operating: 35% to 85%
Electric shock protection class		Class II
Degree of contamination		3 (IEC947-5-1)
Weight		Approx. 13 g (0.46 oz) in the case of a Illuminated DPDT switch

Note: 1.   Set and reset constitute one operation.

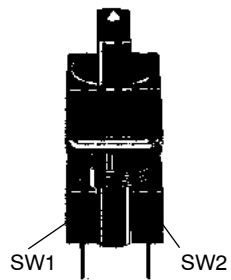2.   With LED and incandescent lamp not mounted.

■ OPERATING CHARACTERISTICS

Features	Knob-type Selector Switch	
	2 Positions	3 Positions
Operating force (OF) max.	0.1 N • m (1,000 gf • cm)	
Set position (SP)	90±5°	45±10°

■ OPERATION ANGLE
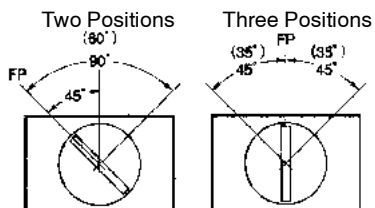
Note: The angle used for automatic reset is shown in parentheses.

■ **CONTACTS**

Position	Contact				
	SPDT		DPDT		
	Position	SW	Position	SW1	SW2
2 Positions					
3 Positions	—				

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