# Switch Mode Power Supply (15/30/50/100/150/300/600/1,500-W Models)

## Power Supply Featuring OMRON's Unique, New Undervoltage Alarm Function with Compact Body Contributing to Machine Downsizing

- New undervoltage alarm function assists in determining causes of errors (S8VM-024A/P0 only).
- Power failure alarm function provides notification of output voltage errors (300-, 600-, and 1,500-W models only).
- Broad range of possibilities with 8 capacities and 29 models to choose from.
- RoHS-compliant
- New, attentive design prevents screws from falling out of terminal block (except for output terminals of 300-, 600-, and 1,500-W models).
- Finger protection prevents electric shock.
- DIN Rail mounting.
- Safety standards: UL508/60950-1/1604, CSA C22.2 No. 14/No. 60950-1/No. 213, EN50178, EN60950-1 (The 300-, 600-, and 1,500-W models will not conform to safety standards if the customer replaces the fan.)
- Conforms to SEMI F47-0200 (when 200-V input is used).
- Harmonic current emissions: Conforms to EN61000-3-2 (except for 15- and 30-W models).



Note: Refer to Safety Precautions on page 32.

## **Model Number Structure**

#### Model Number Legend

Note: Not all combinations are possible. Refer to List of Models in Ordering Information on page 2.

S8VM-				
_	1	2	3	4
1. Power R	atings			

4 - 144

015:	15 W
030:	30 W
050:	50 W
100:	100 W
150:	150 W
300:	300 W
600:	600 W
152:	1,500 W

- 2. Output Voltage
  - 05: 5 V

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- 12: 12 V 15: 15 V
- 24: 24 V

- None: Open-frame typeStandard typeC:Covered typeStandard typeA:Covered typeUndervoltage
  - Covered type Undervoltage alarm type (Sinking) (See note 2.) Covered type Undervoltage alarm type (Sourcing)
- P: Covered type Undervoltage (See note 2.)
- 4. Configuration

3. Configuration/Functions

None: Bottom mounting type (See note 3.) D: DIN Rail mounting bracket type

D: DIN Rail mounting bracket type

- Note: 1. A forced-air cooling method with a fan is used with 300-, 600-, and 1,500-W models.
  - 2. The housing and terminal of the connector for the undervoltage alarm output are provided with the S8VM-05024A□/P□, S8VM-10024A□/P□ and S8VM-15024A□/P□.
  - 3. Bottom mounting models cannot be used for front mounting. For a front mounting configuration, use a DIN Rail Mounting Bracket model or Mounting Brackets (sold separately).

#### ■ List of Models

Note: For details on normal stock models, contact your nearest OMRON representative.

Configura-	Power	Input voltage	Output voltage	Output current	E	Bottom mounting		DIN Rail mounting bracket		
tion	ratings				Standard model		alarm model	Standard model Undervoltage alarm model		
						Sinking	Sourcing		Sinking	Sourcing
pen-frame	15 W	100 to 240 VAC	5 V	3 A	S8VM-01505			S8VM-01505D		
/pe		100 10 2 10 1/10	12 V	1.3 A	S8VM-01512			S8VM-01512D		
			15 V	1 A	S8VM-01515			S8VM-01515D		
			24 V	0.65 A	S8VM-01524			S8VM-01524D		
	30 W		5 V							
	30 W		5 V 12 V	6 A	S8VM-03005			S8VM-03005D		
				2.5 A	S8VM-03012			S8VM-03012D		
			15 V	2 A	S8VM-03015			S8VM-03015D		
	50.14/		24 V	1.3 A	S8VM-03024			S8VM-03024D		
	50 W		5 V	10 A	S8VM-05005			S8VM-05005D		
			12 V	4.3 A	S8VM-05012			S8VM-05012D		
			15 V	3.5 A	S8VM-05015			S8VM-05015D		
			24 V	2.2 A	S8VM-05024			S8VM-05024D		
	100 W		5 V	20 A	S8VM-10005			S8VM-10005D		
			12 V	8.5 A	S8VM-10012			S8VM-10012D		
			15 V	7 A	S8VM-10015			S8VM-10015D		
			24 V	4.5 A	S8VM-10024			S8VM-10024D		
	150 W		5 V	27 A	S8VM-15005 (See note 2.)			S8VM-15005D (See note 2.)		
			10.11	10.5.4	· · · ·			· /		
			12 V	12.5 A	S8VM-15012			S8VM-15012D		
			15 V	10 A	S8VM-15015			S8VM-15015D		
			24 V	6.5 A	S8VM-15024			S8VM-15024D		
Covered ype	15 W	100 to 240 VAC	5 V	3 A	S8VM-01505C			S8VM-01505CD		
ype			12 V	1.3 A	S8VM-01512C			S8VM-01512CD		
			15 V	1 A	S8VM-01515C			S8VM-01515CD		
			24 V	0.65 A	S8VM-01524C	S8VM-01524A (S	See note 1.)	S8VM-01524CD	S8VM-01524AD (	See note 1.)
	30 W		5 V	6 A	S8VM-03005C			S8VM-03005CD		
			12 V	2.5 A	S8VM-03012C			S8VM-03012CD		
			15 V	2 A	S8VM-03015C			S8VM-03015CD		
			24 V	1.3 A	S8VM-03024C	S8VM-03024A (\$	See note 1.)	S8VM-03024CD	S8VM-03024AD (	See note 1.)
	50 W		5 V	10 A	S8VM-05005C			S8VM-05005CD		
			12 V	4.3 A	S8VM-05012C			S8VM-05012CD		
			15 V	3.5 A	S8VM-05015C			S8VM-05015CD		
			24 V	2.2 A	S8VM-05024C	S8VM-05024A	S8VM-05024P	S8VM-05024CD	S8VM-05024AD	S8VM-05024P
	100 W		5 V	20 A	S8VM-10005C			S8VM-10005CD		
			12 V	8.5 A	S8VM-10012C			S8VM-10012CD		
			15 V	7 A	S8VM-10015C			S8VM-10015CD		
			24 V	4.5 A	S8VM-10024C	S8VM-10024A	S8VM-10024P	S8VM-10024CD	S8VM-10024AD	S8VM-10024P
	150 W		5 V	27 A	S8VM-15005C			S8VM-15005CD		
					(See note 2.)			(See note 2.)		
			12 V	12.5 A	S8VM-15012C			S8VM-15012CD		
			15 V	10 A	S8VM-15015C			S8VM-15015CD		
			24 V	6.5 A	S8VM-15024C	S8VM-15024A	S8VM-15024P	S8VM-15024CD	S8VM-15024AD	S8VM-15024P
	300 W		5 V	60 A	S8VM-30005C					
	(See note 4.)		12 V	27 A	S8VM-30012C					
			15 V	22 A	S8VM-30015C					
			24 V	14 A	S8VM-30024C					
c				Peak current: 16.5 A (200 VAC)						
	600 W		5 V	120 A	S0//M 6000EC					
	600 W (See note		5 V 12 V	120 A 53 A	S8VM-60005C					
	4.)				S8VM-60012C					
			15 V	43 A	S8VM-60015C					
			24 V	27 A Peak current: 31 A (200 VAC)	S8VM-60024C					
	1,500 W		24 V	65 A (100 VAC)	S8VM-15224C					
	(See note 4.)			70 A (200 VAC) Peak current:	(See note 3.)					
	··/	1	1	105 A (200 VAC)	1	1	1	1	1	1

Note: 1. No outputs are built into these models.

**2.** The output capacity of the S8VM-15005 $\square$  is 135 W.

3. M8 bolts and nuts for the output terminals are not included with the S8VM-15224C.

4. The 300-, 600-, and 1,500-W models use a forced cooling method with built-in fans.

5. To perform front mounting using the bottom mounting models, use the Mounting Brackets (S82Y-VM F, sold separately).

## **Specifications**

### Ratings/Characteristics

Item		Power rating	15 W	30 W	50 W	100 W	150 W	
Efficiency		5-V models	75% min.	75% min.	80% min.	81% min.	81% min.	
		12-V models	78% min.	79% min.	79% min.	81% min.	81% min.	
		15-V models	78% min.	79% min.	79% min.	81% min.	81% min.	
		24-V models	80% min.	81% min.	80% min.	82% min.	83% min.	
Input	Voltage (See note		100 to 240 VAC (85 to 264 VAC)					
	Frequency (See note 1.)		50/60 Hz (47 to 63 Hz)					
	Current 100-V input		0.5 A max.	-/ 0.9 A max.	0.8 A max.	1.4 A max.	2.0 A max.	
		200-V input	0.25 A max.	0.45 A max.	0.4 A max.	0.7 A max.	1.0 A max.	
	Power factor	100-V input	0.98 min.			on remain	no / max	
		200-V input	0.94 min.					
	Harmonic current		Conforms to EN 61000-3-2					
	Leakage current	100-V input	0.4 mA max. (at rated output)					
	Leakage current	200-V input	0.75 mA max. (at rated output)					
	Inrush current	100-V input						
	(See note 2.)	200-V input	17.5 A max. (for cold start at 25°C) 35 A max. (for cold start at 25°C)					
Output	Voltago odiuotmo	ent range (See note 3.)		ADJ) (S8VM-0024A				
Cutput		in range (See note 3.)		,,	,	1		
	Ripple		3.2% (p-p) max. (5 V) 1.5% (p-p) max. (12 V	'n.	3.2% (p-p) max. (5 V), 1.5% (p-p) max. (12 V),			
			1.2% (p-p) max. (15 V),		1.2% (p-p) max. (15 V),			
			1.0% (p-p) max. (24 V (at rated input/output)	/), voltage)	0.75% (p-p) max. (24 V), (at rated input/output voltage)			
	Input variation in	fluence	0.4% max. (at 85 to 264 VAC input, 100%)					
	Load variation influence (rated input voltage)		0.8% max. (with rated input, 0 to 100% load)					
	Temperature varia		0.02%/°C max.					
	Startup time (See		1,100 ms max. (at rated input/output voltage) 800 ms max. (at rated input/output voltage)					
	Hold time (See no	1	20 ms typ. (15 ms min.) (at rated input/output voltage)					
Additional	Overload protecti	,		d load current, voltage	105% to 160% of rate	ed load current		
functions			drop, intermittent, automatic reset voltage drop (12 V, 15 V, and 24 V), voltage drop, intermittent (5 V), automatic reset					
	Overvoltage protection (See note 2.)		Yes (See note 4.)					
	Undervoltage alarm indication		Yes (color: Yellow (DC LOW1), red (DC LOW2)) (S8VM-DD24AD/PD only)					
	Undervoltage alarm output		No Yes (S8VM24A_/P_ only) (Transistor output), 30 VDC max., 50 mA max. (See note 8.)					
	Series operation		Yes					
	Parallel operation	1	No					
	Remote sensing function		No Yes					
Other	Ambient operatin	g temperature	Refer to the derating curve in Engineering Data (15-W, 30-W, 50-W, 100-W, 150-W Models). (with no icing or con densation) (See note 2.)					
	Storage temperat	ture	-25 to 65°C					
	Ambient operatin	g humidity	30% to 85% (Storage humidity: 25% to 90%)					
	Dielectric strength		3.0 kVAC for 1 min. (between all inputs and outputs; detection current: 20 mA) 2.0 kVAC for 1 min. (between all inputs and PE/FG terminals; detection current: 20 mA) 500 VAC for 1 min. (between all outputs and PE/FG terminals; detection current: 100 mA) 500 VAC for 1 min. (between all outputs (except the detection output terminals) and detection output terminals; detection current: 20 mA) tection current: 20 mA) (S8VM-0024A0/P0 only)					
	Insulation resistance		100 M $\Omega$ min. (between all outputs and all inputs, PE/FG terminals) at 500 VDC					
	Vibration resistance		10 to 55 Hz, 0.375-mm single amplitude for 2 hours each in X, Y, and Z directions					
	Shock resistance		150 m/s <sup>2</sup> , 3 times each in $\pm X$ , $\pm Y$ , $\pm Z$ directions					
	Output indicator		Yes (color: Green)					
	EMI	Conducted Emission	. ,	rms to EN61204-3 EN55011 Class B and based on FCC Class B (See note 5.)				
		Radiated Emission	Conforms to EN61204-3 EN55011 Class B (See note 6.)					
	EMS		Conforms to EN61204-3 High severity levels					
	Approved standards	UL cUL cUR EN/TUV	UL508 (Listing), UL60950-1, UL1604 (Listing; Class I/Division 2, Group A, B, C, D Hazardous Locations) CSA C22.2 No.14, No. 213 (Class I/Division 2, Group A, B, D, D Hazadous Locations) CSA No. 60950-1 EN50178, EN60950-1 SELV (EN60950-1) According to VDE0160/P100				rdous Locations)	
		SEMI	SEMI F47-0200 (200	VAC input)				

Note: 1. Do not use an Inverter output for the Power Supply. Inverters with an output frequency of 50/60 Hz are available, but the rise in the internal temperature of the Power Supply may result in ignition or burning.
Refer to *Engineering Data (15-W, 30-W, 50-W, 100-W, 150-W Models)* on page 9 to 11 for details.

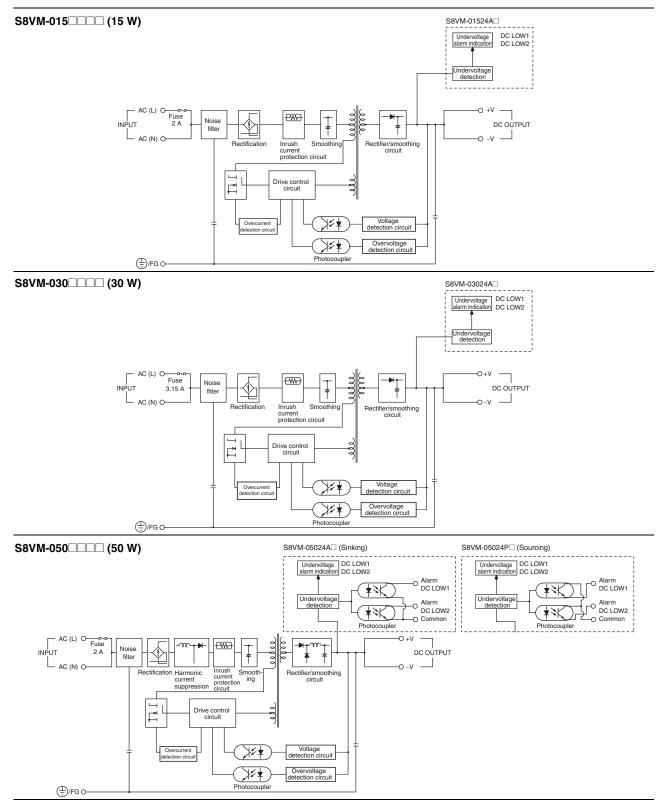
 Refer to Engineering Data (15-W, 30-W, 50-W, 100-W, 150-W Models) on page 9 to 11 for details.
If the output voltage adjuster (V. ADJ) is turned, the voltage will increase by more than +20% of the voltage adjustment range. If the adjuster is turned too far, it may activate the overvoltage protection function and interrupt the output. When adjusting the output voltage, confirm the actual output voltage from the Power Supply and be sure that the load is not damaged.
To reset the protection, turn OFF the input power for three minutes or longer and then turn it back ON.
Conducted emissions: The noise value is affected by factors such as the wiring method. The Power Supply conforms to Class B when the aluminum plate is laid under the Power Supply. For 15-W models, insert a clamp filter (ZCAT2436-1330 by TDK: 50 Ω min. [50 to 500 MHz], or the equivalent) in the output wire to reduce noise.
Radiated emissions: The noise value is affected by factors such as the wiring method. The Power Supply conforms to Class B when the aluminum plate is laid under the Power Supply. For 15-W models, insert a clamp filter (ZCAT2017-0930 by TDK: 50 Ω min. [50 to 500 MHz], or the equivalent) in the output wire to reduce noise.
The weight indicated is for hotom mounting. open-frame models The weight indicated is for bottom mounting, open-frame models. 7.

8.

A: Sinking type (NPN) P: Sourcing type (PNP)

## Connections

#### Block Diagrams



#### S8VM

