Switch Mode Power Supplies

S8VK-WA

New standard of power supplies for three-phase input production line.

Three-phase 200 V Power Supplies

DIN Rail mounting

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equipm

Three-phase imbalance in three-phase equipmen

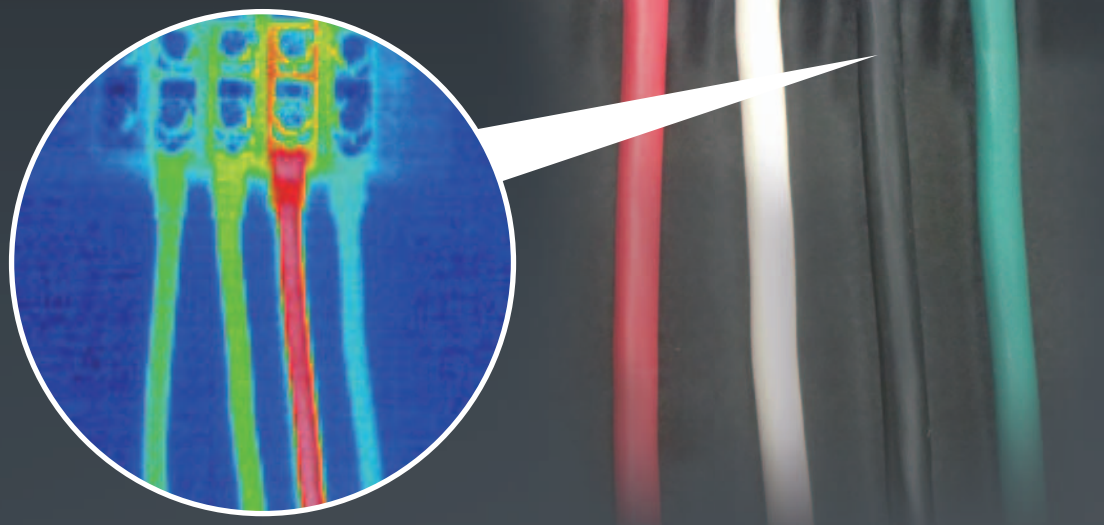
What's three-phase balance?

It's the ratio between the currents flowing in phases of a three-phase input facility.
Three-phase imbalance Can Cause Various Problems Including a Cable or Equipment Failure or Extra Cost for Electricity.

Risk 1

Cable smoking or burning

If the current is extremely high in one phase, the temperature of the cable may rise, resulting in smoking or burning.



S8VK-WA, our new three-phase 200 V Power Supplies for three -p

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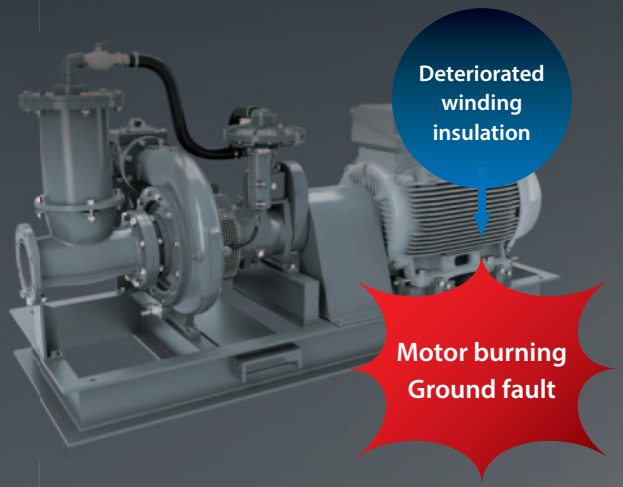
t involves various risks to equipment and facilities.

Risk 2

three-phase motor malfunction or failure

A three-phase imbalance in a three-phase motor in operation may cause various problems such as reduced efficiency, temperature rise, increases in vibrations and noise, or drops or instability of output torque. If the phase imbalance exists for a long period of time, the motor may burn out or ground faults may occur due to winding insulation deterioration.

Effect on the efficiency, heat, vibration, noise, etc.



Risk 3

Increase in cost/size of power equipment

Power equipment needs to be prepared based on the phase that carries the largest current. This means that three-phase imbalance can drive up the cost and size of power equipment.

May also affect power factor improvement of phase advancing capacitors

Depending on the terms of the contract, electricity fees may be determined by the power factor. Phase advancing capacitors are used to improve the power factor. Three-phase imbalance, however, may diminish their effect, leading to higher electricity fees.

Example where electricity fees can be reduced by power factor
Saved cost =Contracted power × rate × degree of power factor improvement

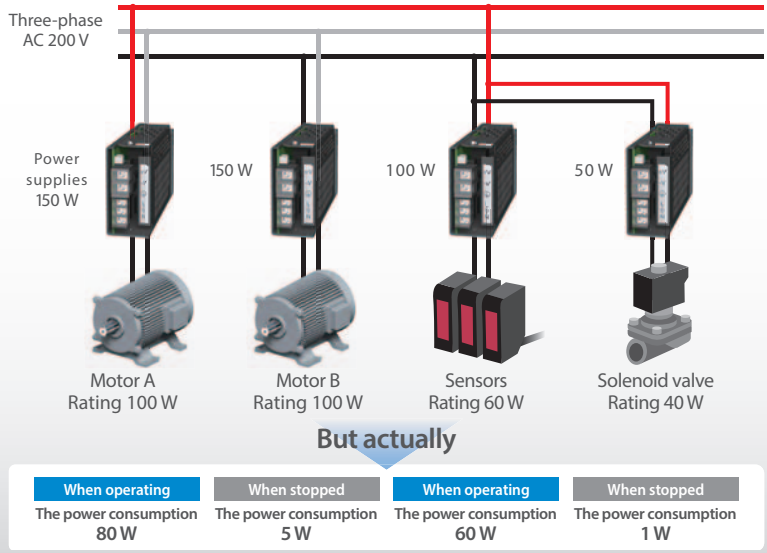
hase equipment eliminate these risks.

Complex designing with single-phase power supplies is no longer necessary

Three-phase 200 V Power Supplies diminish the risk of three-phase imbalance.

When you use conventional single-phase power supplies

You had to design and manage the loads to ensure balance between three-phases balance.



Distributing DC loads is time-consuming.

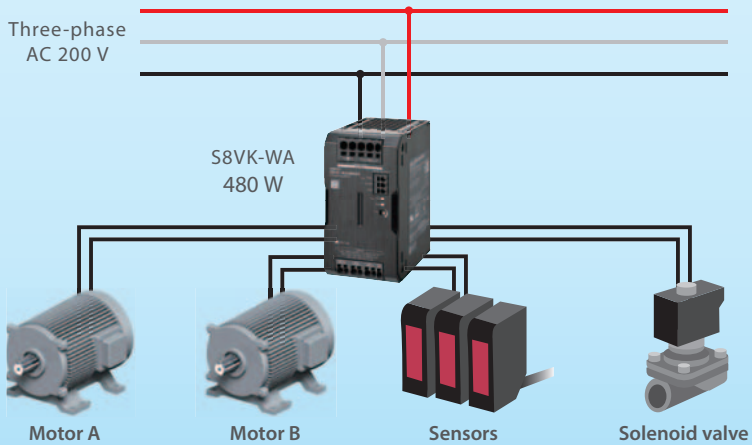
- You had to design load distribution for multiple power supplies, and manage them when you make any changes

Three-phase unbalance may happen due to load operating condition

- Load can change during operation, and it is difficult to ensure the phase balance, resulting in phase imbalance.

After you change to Three-phase 200 V Power Supplies S8VK-WA

No need for design/management of the load with S8VK-WA, Three-phase 200 V Power Supplies without phase imbalance risk.



Three-phase balance is kept without load management.

- You don't need to distribute power supplies for each load, or manage the load when you change it
- The current evenly flows in all phases, so the three-phase balance is always maintained regardless of operating conditions.

Less work for design

Full of functions for higher design efficiency

Compact body allows easy replacement.

World's smallest class of compact body *1

This high-capacity yet compact Power Supply requires only less than half the space of the existing models. Side-by-side mounting possible.

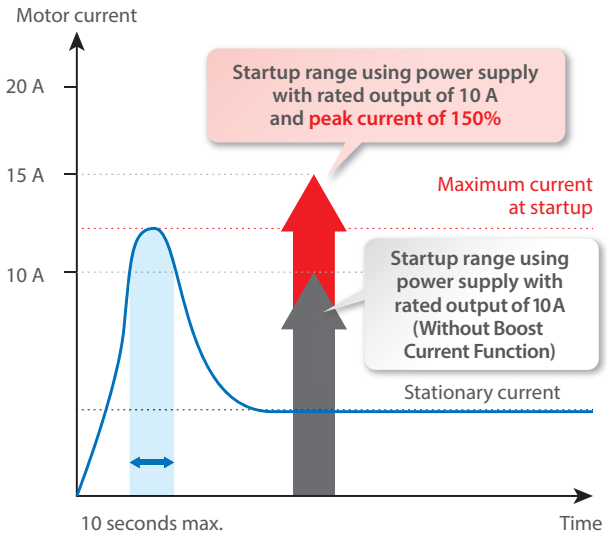
Approx. 50 % less volume*2

Approx. 35 % less weight*2

*1. According to OMRON investigation in November 2018.
*2. Comparison to previous OMRON Power Supply S8VK-T48024

The peak current (150% to the rated current) solves the issue of momentary surge of current to motor load.

Motor-driven devices such as electric cylinders carry maximal instantaneous current when they start.
When the maximum current exceeds the rated current of a power supply without Boost Current Function, overload protection is activated to limit the output current. To avoid this, you must select a power supply with a rated output larger than the maximum current.
For example, if the maximum current exceeds 10 A, as in the figure on the right, you need a power supply with a rated output of 20 A.
S8VK-WA is equipped with a Boost Current Function that allows a peak current (150% of rated output) to flow for 10 seconds, which ensures a stable startup by a power supply with a rated output current of 10 A as described in the figure on the right.



Our shared Value Design for Panel concept for the specifications of products used in control panels will create new value to our customer's control panels. Combining multiple products that share the Value Design concept will further increase the value provided to control panels.

S8VK-WA solves maintenance issues

Support for efficient maintenance and quick recovery fro

Have you ever had these issues in maintaining power supplies?

The equipment stopped and no output from the power supply.

Problems

- The cause is not clear.
- The failure cannot be reproduced.
- The problem recurs even after the power supply is replaced.

Disconnecting cables and inspection with a tester is required to identify the cause, taking time and work.

LED/signal output patterns and required maintenance

Function of LED/signal

INPUT OK LED · · · · · · · · · Lights up when the input voltage exceeds the lower limit value of the permissible range.
DC OK LED/signal · · · · · · Lights up/Signal Output , when the output voltage is more than 90% of the rated output voltage.
Iout >100% LED/signal · · Lights up/Signal Output , when the output current exceeds the rated output current.

INPUT OK LED	DC OK LED/signal	Iout >100% LED/signal	Failure mode	Required maintenance
ON	ON	OFF	No error.	-
ON	ON	ON	Rated load is exceeded.	Reduce the load./Increase the capacity of the power supply.
ON	OFF	ON	Output short circuit	Check the connection/wiring.
ON	OFF	OFF	Power supply failure/Overvoltage protection	Check and address the cause of the failure./Replace the power supply.
OFF	OFF	OFF	No input	Check the input voltage.

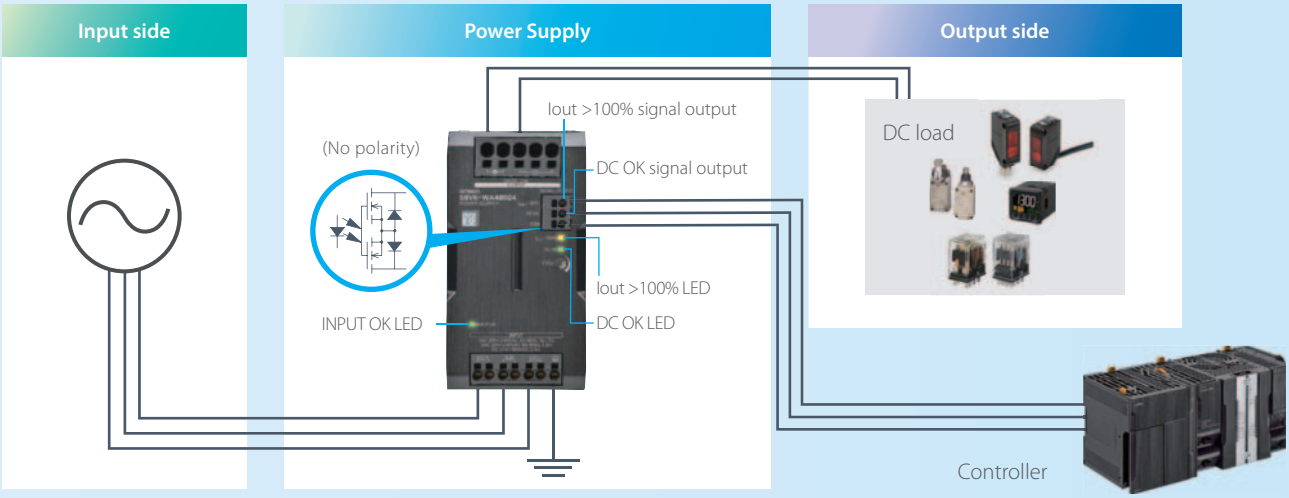
m errors.

Built-in maintenance point indicator indicates where to start

S8VK-WA shows you the source of the problem (e.g. input/output side of the Power Supply, or the main body), without disconnecting cables or using a tester.

LED and signal output indicates the status of the Power Supply.

When the door of the control panel is closed, you can still check the status of the Power Supply via your controller, etc., using the signal that is output in synchronization with the LED
This feature clarifies the error status and necessary maintenance, minimizing the downtime.



Frequent causes of output fall

Input side

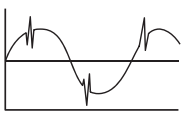
Low input voltage

The input voltage may be lower than the rated input voltage.

Power Supply

Service life of the power supply or a malfunction due to external noise

When the power supply is used beyond the end of its life, the rated output will not come out. Also, the protection circuit may malfunction due to external noise and stop outputs.



Output side

Overload/short circuit at connected loads

Power supplies have a protection function to limit output current. There is a possibility that the protection function was activated due to overloads or short circuits.

Switch Mode Power Supplies That Create New Value in Control Panels Products lineup

Three-phase/ single phase input

S8VK-WA

240 W

480 W

NEW

960 W

Power rating	Rated input voltage	Rated output voltage	Rated output current	Maximum boost current	Maintenance point indicator	Size (W×H×D) (mm)	Model
240 W	Three-phase / single-phase 200 to 240 VAC (Allowable range: Three-phase / single-phase 170 to 264 VAC, 240 to 350 VDC)	24 V	10 A	15 A	Yes	55×124×117	S8VK-WA24024
480 W			20 A	30 A		65×124×117	S8VK-WA48024
960 W			40 A	60 A		118×124×117	S8VK-WA96024

Front-mounting bracket (Order Separately)

- DIN Rails is not necessary when mounting brackets are used.
- Side-by-side mounting is possible even mounting brackets are used.
- Made of rigid stainless steel.

For more information, refer to S8VK-WA Data Sheet (Catalog No. T219-E1).

Single-phase input

S8VK-X

Cat. No. T211-E1

S8VK-S

Cat. No. T206-E1

Related equipment

Noise Filter S8V-NFS20□

Cat. No. T214-E1

OMRON Corporation **Industrial Automation Company**
Kyoto, JAPAN
Contact: www.ia.omron.com

Regional Headquarters
OMRON EUROPE B.V.
Wegalaan 67-69, 2132 JD Hoofddorp
The Netherlands
Tel: (31)2356-81-300/Fax: (31)2356-81-388

OMRON ELECTRONICS LLC
2895 Greenspoint Parkway, Suite 200
Hoffman Estates, IL 60169 U.S.A.
Tel: (1) 847-843-7900/Fax: (1) 847-843-7787

OMRON ASIA PACIFIC PTE. LTD.
No. 438A Alexandra Road # 05-05/08 (Lobby 2),
Alexandra Technopark,
Singapore 119967
Tel: (65) 6835-3011/Fax: (65) 6835-2711

OMRON (CHINA) CO., LTD.
Room 2211, Bank of China Tower,
200 Yin Cheng Zhong Road,
PuDong New Area, Shanghai, 200120, China
Tel: (86) 21-5037-2222/Fax: (86) 21-5037-2200

Authorized Distributor:

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