

Switch Mode Power Supplies

S8VK-WA

Innovative power supplies for three-phase production lines

Three-phase 200 V Power Supplies

DIN Rail mounting



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Three-phase imbalance in equipment creat

What's three-phase balance?

It is the ratio of currents flowing in each phase of a three phase input facility.

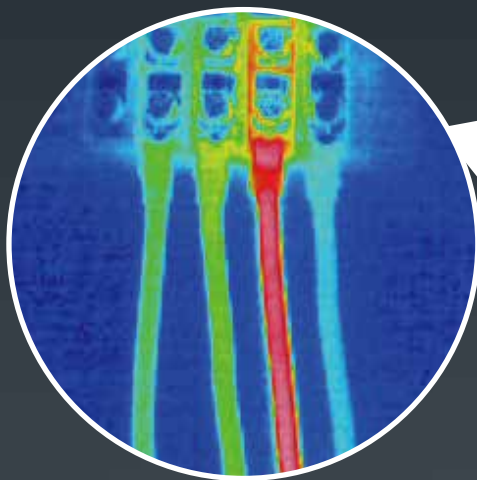
Three-phase imbalance can cause issues from cable/equipment failure to increasing electricity costs.

Risk 1



Cable overheating

If the current is high in one phase, it may experience higher temperatures and fail prematurely.



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

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es potential risks to equipment and facilities

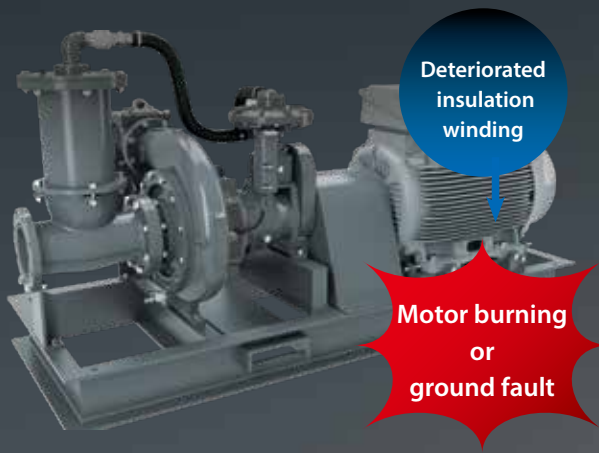
Risk 2



Three-phase motor failure

A phase imbalance in a three-phase motor can cause reduced efficiency, increased operating temperature, increased vibration and noise, as well as an instability of output torque. Over a long period of time being exposed to phase imbalance, the motor can burn out or ground faults can occur as a result of insulation degradation.

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



Risk 3



Increase in cost/size of power supply

Power equipment needs to be prepared based on the phase that carries the highest 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 cost 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 energy costs.



Electricity Cost Reduction Example
Savings = Contracted Power x Rate x Degree of power factor improvement



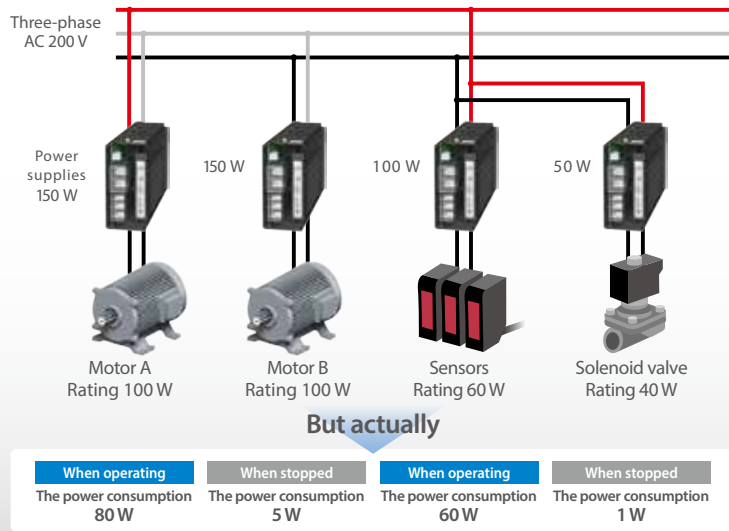
es these risks.

Three-phase 200 V Power Supplies reduce the risk of phase imbalance

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

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.

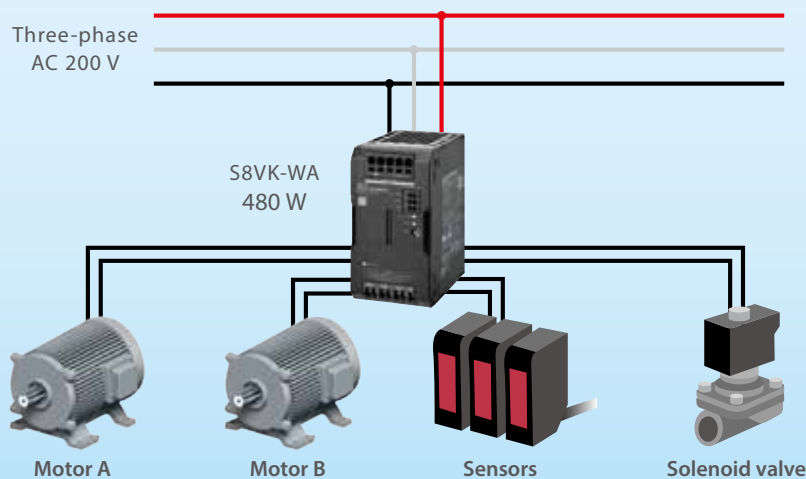
- You had to design load distribution for multiple power supplies, and manage them when you make any changes

Three-phase imbalance may occur due to operating conditions

- Loads can change during operation, and it is difficult to eliminate phase imbalance

When you use S8VK-WA power supply

S8VK-WA eliminated the design concerns and ensures phase balance.



Three-phase balance is kept without load management.

- Load operating conditions and changes are accommodated
- Current evenly flows in all phases, so phase balance is maintained regardless of operating conditions

Reduced design work

Compact body allows easy replacement

High Efficiency, Full Functionality

World's smallest class of three-phase power supply *1

This high capacity and compact power supply requires less than half the space of existing models. Side by side mounting is possible.



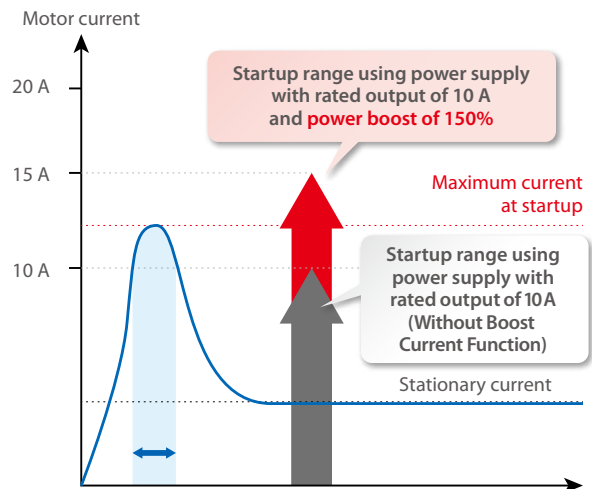
*1. According to OMRON investigation in November 2018.
 *2. Comparison to previous OMRON Power Supply S8VK-T48024

Power boost function handles momentary surges of up to 150% of rated current.

When the instantaneous current exceeds the rated current of the power supply without Power Boost functionality, overload protection is activated to limit the output current. To avoid this situation, you must choose a power supply with an output current rating higher than the instantaneous 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 Power Boost Functionality that allows a current of 150% the rated output current for 10 seconds. This ensures a stable startup and eliminates the need for a larger capacity power supply.



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.

Support for efficient maintenance and less downtime

S8VK-WA helps maintenance reduce downtime.

Have you had maintenance issues with power supplies?

The equipment stopped with no output from the power supply.

Problems

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

Disconnecting cables and inspection with a tester is required to identify the cause, increasing downtime.



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	Too much DC load	Reduce load/Increase power supply capacity
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

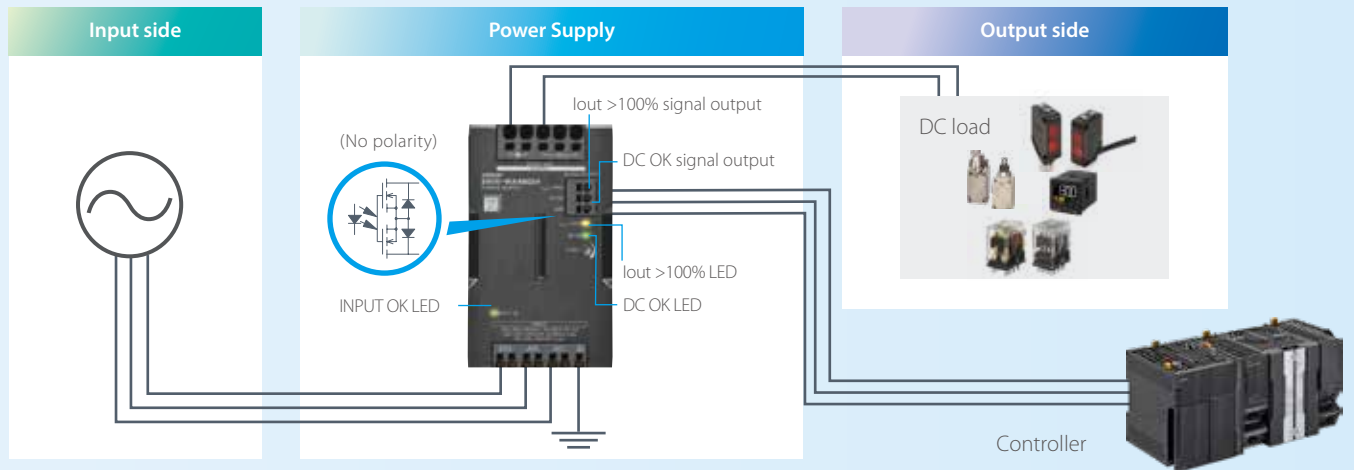
Built-in maintenance point indicator indicates where to start

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 using the signal that is output matching the LED. This feature clarifies the error status and maintenance location, minimizing downtime.



Frequent causes of malfunction

Input side

Low input voltage

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

Power Supply

Service life of power supply/External noise Issue

When the power supply is used beyond its end of life, or external noise causes the output to stop due to protection circuit malfunction.

Output side

Overload/short circuit at connected loads

If overloads or short circuits occur, overload/overvoltage protection will activate, limiting current output or removing voltage output.



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

Three-phase/
single phase input
S8VK-WA



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 are not necessary when using mounting brackets.
- Side by side mounting is possible with mounting brackets
- Rigid stainless steel construction

For more information, refer to S8VK-WA Data Sheet (Catalog No. T219I-E3-01).

Single-phase input

S8VK-X
Cat. No.
T65I-E-02



S8VK-S
Cat. No.
T64I-E-01



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