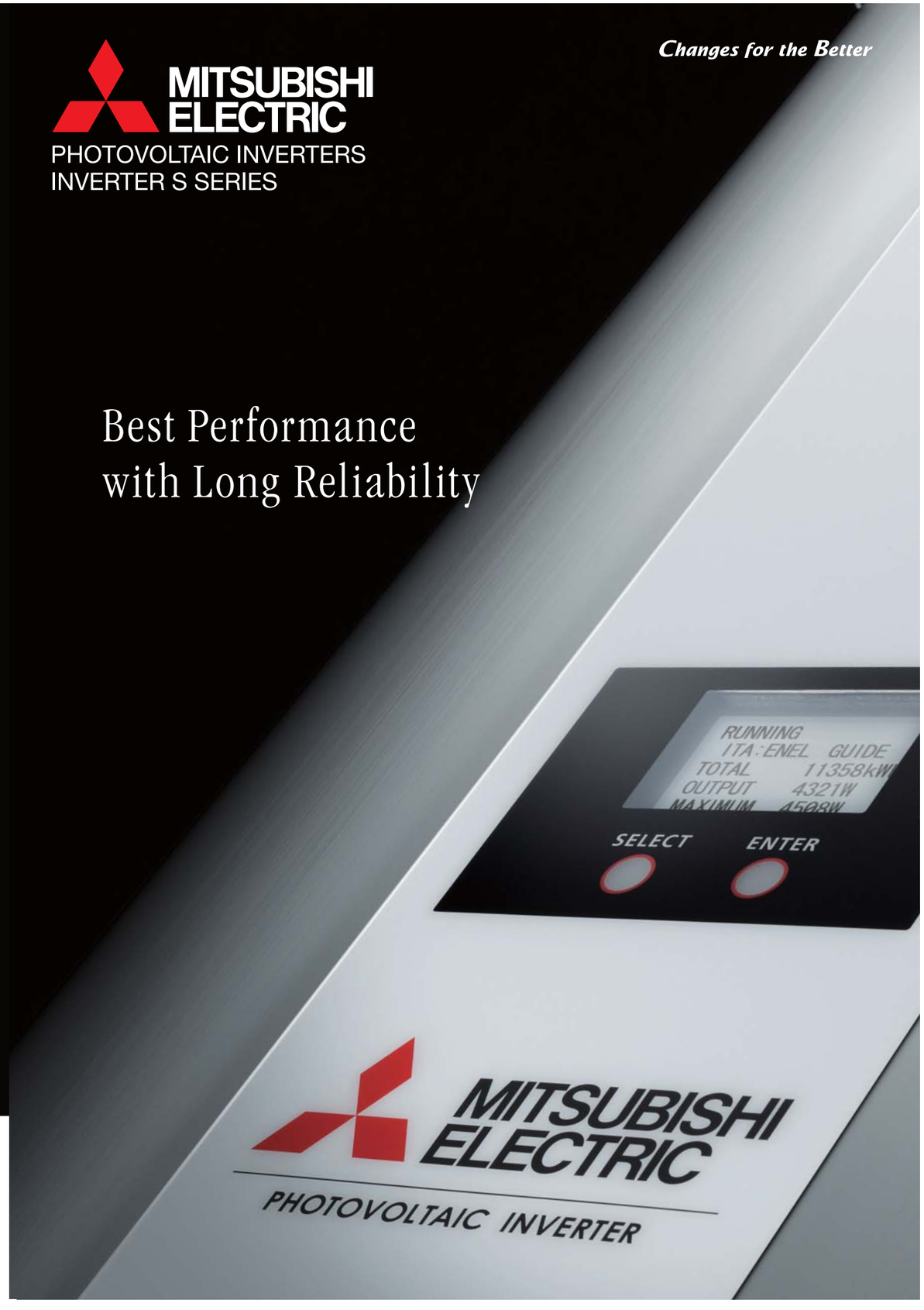
Changes for the Better

MITSUBISHI ELECTRIC

PHOTOVOLTAIC INVERTERS
INVERTER S SERIES

Best Performance with Long Reliability



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MITSUBISHI ELECTRIC PHOTOVOLTAIC INVERTERS
Inverter S Series

Mitsubishi Electric has developed another high-performance photovoltaic inverter based upon decades of experience and world-class electronics expertise.

In combination with the highest levels of safety and reliability that Mitsubishi Electric products are known for, the choice is simple.

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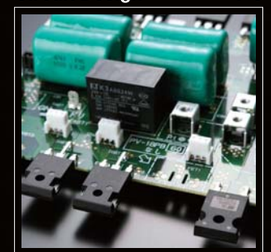
Highly Efficient Circuit Design P.3



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Optional Data Logger P.9

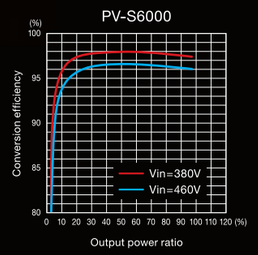
Sample model shown: PV-S4600

Top Performance

High Conversion Efficiency (97.8% for PV-S6000)

Highly Efficient Circuit Design

We have refined our inverter design and have developed new highly efficient circuitry. Electrical losses that had naturally occured are now able to be recovered, enabling higher inverter operation efficiency.

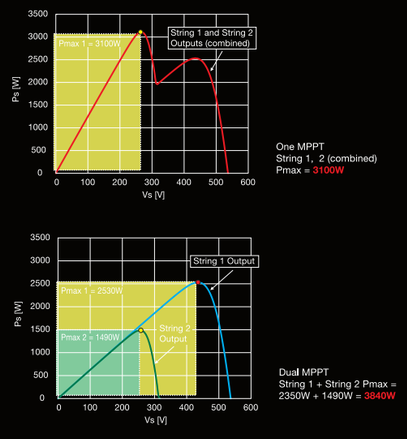


Dual MPPT

The new inverters* feature dual high-efficiency maximum power point trackers. As important as the inverter conversion efficiency itself, high MPPT efficiency is crucial in making sure that generated DC electricity is not lost in the AC conversion process.

Two maximum power point trackers are installed in each inverter, enabling tracking at the individual string level. Even if one string is not performing at the same level as the other, (i.e. shading), each string's maximum power point is individually tracked, minimizing losses.

*PV-S4200, PV-S4600 models



An example of a two-string system. When both strings do not have the same output, (i.e. shading occurs on one string) the maximum power point can not be tracked accurately with only one MPPT.
However, with a dual MPPT inverter, each string's individual maximum power point is tracked accurately to minimize system loss.

*This is only an example; actual results will vary.

Advanced System Control

The power conversion process, safety functions, and overall system operations of the inverter are controlled by an advanced processing system. High speed digital signal processors (DSP) regulate individual system components to ensure that the total operation is running at an optimal state.

Reliability

Aluminum Housing

Double Protective Coating from Module Technology

The aluminum housing has a double layer of protective coating for high corrosion-resistance. This is the same technology used in our highly reliable module frames.

Double Water Protection Structure

In addition to the weatherproof sealing incorporated into the housing, the shape of the cover edges have been designed to stop the permeation of water for double protection.

(Cross section of the cover)

Optical Switch

The control switches are optical, meaning that there are no mechanically moving parts to break over time.

Cooling System

Indirect Cooling Structure

The internal temperature of the inverter is indirectly cooled, meaning that outside air does not come in contact with the internal circuits. This method eliminates the danger of dust build-up on live circuitry.

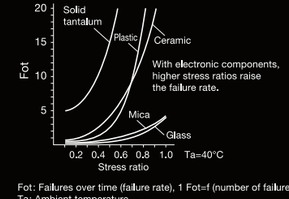
Variable-speed Cooling Fan

The cooling fan speed varies according to the inverter temperature, saving energy when possible.

Derating Design Concept

The individual lifetimes of the inverter's component materials have been analyzed and designed to maximize the reliability and life of the product.

Capacitor failure rates viewed by stress ratio



Fot: Failures over time (failure rate), 1 Fot=f (number of failures)/10^9 Hr
Ta: Ambient temperature

Easy Installation

Indoor/Outdoor Installable

IP54 Level of Protection

The new PV-S series inverters are certified with a protection level of IP54 as defined in IEC 60529. This level of protection from outside elements allows the inverters to be installed outdoors as well as indoors for a more flexible system design.

All-in-one Design

DC Disconnectors Included

DC disconnectors are built directly into the inverter itself, eliminating the need for external components and extra labor.
They are conveniently located underneath the housing for easy access and operation.

*Example model shown is PV-S4600

Data Logger PV-LOG30 (optional)

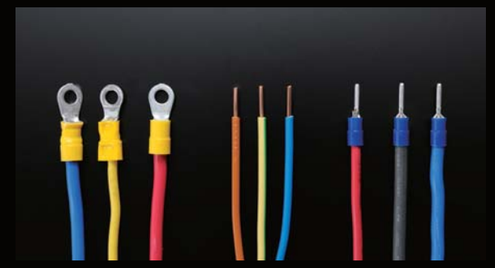
A datalogger option is available, which can be installed inside of the PV-S series inverter. It does not take up extra space and no external power supply is necessary.

*The data logger includes a phase balancer function that is compliant with the VDEW medium voltage directive.

AC Connector Compatibility

When connecting the inverter to the power grid, the output terminal of the inverter has been designed to accept three different types of connectors.

*Ring, pin, and single wire terminals.



DC input MC4 Connectors

The DC input of the inverter has been made to be compatible with the popular MC4-type connection for easy and hassle-free installation.
The terminals from the module array quickly and securely snap in place without the need for extra tools.

Parallel Installation

PV-S series inverters are designed so that they can be installed in a close parallel formation to make the best use of a limited area.

Configuration Software

Mitsubishi Electric's original configuration software aids in determining the right combinations of inverters and modules for simpler system design.

Safety

Sealed Aluminum Housing

DC Connectors Enclosed Within the Housing

DC connectors are enclosed deep within the protective housing for added safety. Protective seals ensure that water and other harmful elements do not interfere with the electrical connections.

The protective aluminum case has been sealed so that in the unlikely event of a fire occuring within the inverter, flames will be contained inside and prevented from spreading to other areas.

UL94V-0-compliant Resin Material

Resin components compliant with the UL94V-0 standard for nonflammability are used inside of the inverter for high fire safety.

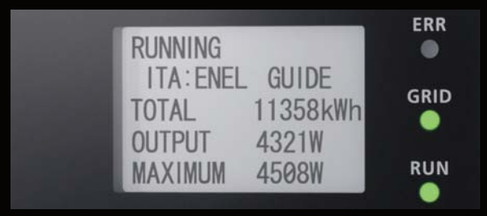
Safety Control Programming

The inverter is programmed with intelligent safety control software. Depending on the internal temperature, safety measures automatically engage to prevent overheating.

User-friendly

Large LCD

The large 255 x 160 pixel resolution LCD panel with white backlight is easy to read and can display five lines of information. Generation data, alerts, and other information are available to the user.



Low-Maintenance

Maintenance is easy and hassle-free.
The only maintenance required is the periodic cleaning of the filter area from the outside. The inverter does not need to be opened or any parts moved.
The inverter even includes a reminder function that lets the user know when the recommended cleaning period has come.

Simple Controls

The controls of the inverter unit have been simplified to be user-friendly and intuitive. The number of buttons has been kept to a minimum to help reduce user error.

6 Selectable Languages

The displayed information is available in 6 different languages, selectable depending on the user. (English, German, Italian, French, Spanish, and Dutch.)

The displays shown are rendered images for your reference only.

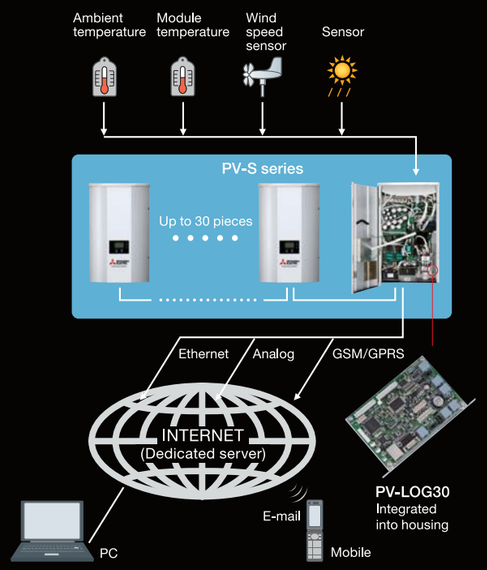
Remote Monitoring

The PV-LOG30 data logger is installed directly inside of the PV-S series inverter for a simplified installation. No external power supply or separate housing is required. One data logger unit can collect realtime data from up to 30 inverters in a single photovoltaic system.

An optional environmental sensor can also be installed to keep track of external elements such as irradiation, wind speed, air temperature, and module temperature.

The data can be accessed via the Mitsubishi Electric dedicated server from any internet-enabled PC by registering and logging in at the following URL:

https://wwwl5.mitsubishielectric.co.jp/



Monitoring your photovoltaic system is easy with Mitsubishi Electric's web-based monitoring system. Designed with not only user-friendliness in mind, the monitoring system also offers users the power to conduct tasks such as simple daily checks or viewing detailed photovoltaic system performance data. Realtime, daily, monthly, and yearly operating information are displayed in an attractive, easy-to-read layout with the option of downloading the data directly to your PC for archiving.

System alerts can also be configured to be automatically reported to the user via e-mail to enable quick response and reduce system down time.

The current status of your photovoltaic systems can be easily recognized with one glance. The user is also alerted to any errors that have occurred to help quickly find problems and minimize production losses.

In depth, yet easy-to-read graphs display the performance statistics of your photovoltaic system and environmental data. The data can also be downloaded to your PC for permanent archiving.

Ecological

ISO 14001 Certified Factory

Our factory is managed using comprehensive water conservation and recycling measures in order to minimize impact on the environment.

Factory facilities are equipped with our photovoltaic systems.

Waste paper and other materials are collected and separated for recycling.

Dozens of apple trees line the factory grounds, providing delicious apples in the fall.

Made in Japan

Mitsubishi Electric photovoltaic cells, modules, and inverters are proudly produced under strict quality standards at our own factories located in Japan.

Kyoto Factory

Iida Factory

Nakatsugawa Works