TS4-R-DUO MODULE TECHNOLOGY COMPATIBLE WITH ALL MAJOR INVERTER BRANDS.

System Optimization

- Increase yields in partial shading and different module configurations
- Module-level shutdown
- Module-level monitoring

Increased Efficiency

- Selective Deployment of DC optimizers as needed
- Compatible with all standard modules
- 50% less costs: only 1 optimizer needed for two modules

Fast Installation

- Easier installation thanks to fewer components
- Easy installation on the ground reduces roof time

Maximum Reliability

- Reduced operation and maintenance costs thanks to less components
- Long service life due to demand-specific bypass operation
- Comprehensive SMA service for the entire system

TS4-R-DUO MODULE TECHNOLOGY

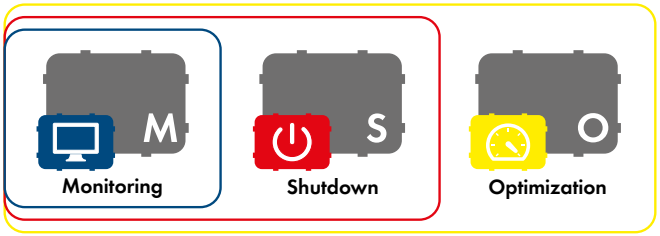
Optimization redefined

With the powerful Duo variant TS4-R-Duo, modular technology just got a whole lot more attractive thanks to an optimizer that enhances the performance of two modules simultaneously, reducing the expenditure of time and money by as much as 50%. This helps PV system operators achieve maximum energy yields even with partial shading or different module alignments. Even during shutdown and monitoring at the module level, TS4-R-Duo is the most efficient solution.

TS4-R Progressive Functionality

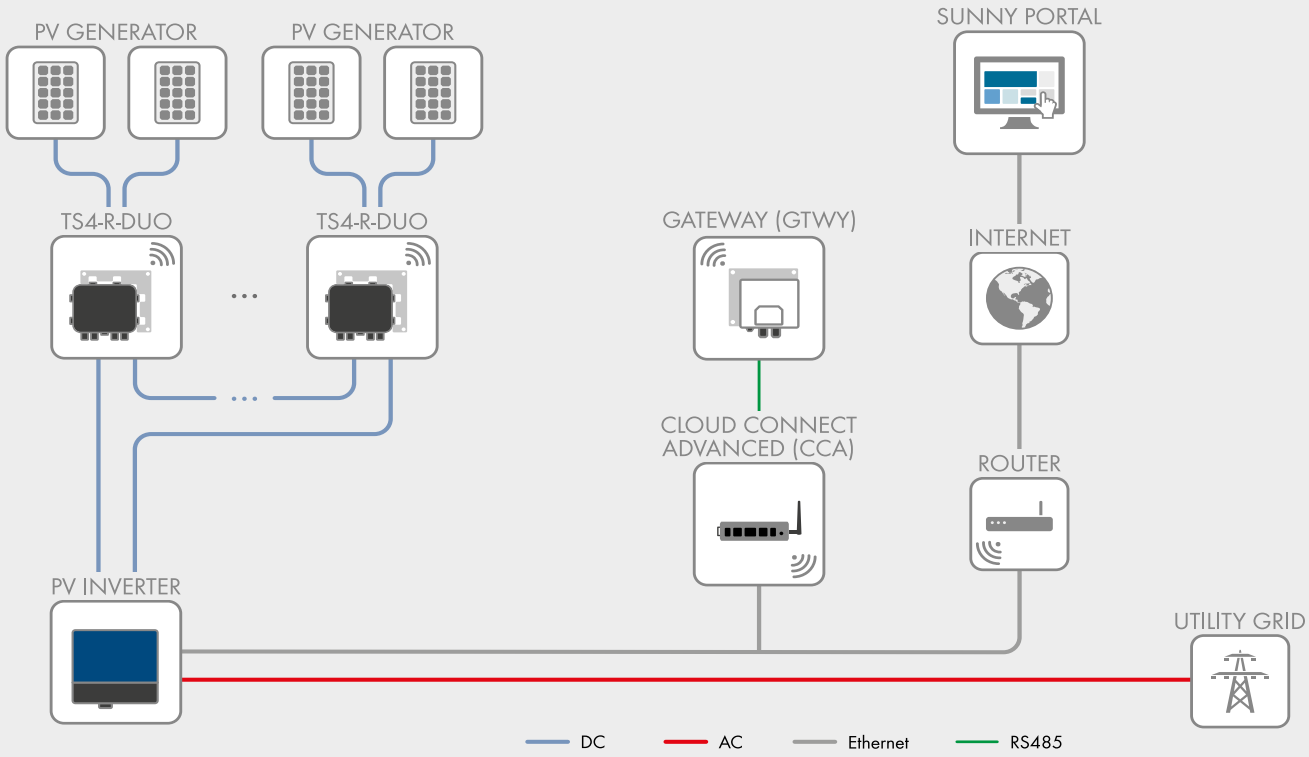
The TS4-R platform offers integrated power electronics with various functions. Functionality increases with each unit.

With the **Monitoring** function, the entire PV system can be monitored at the module level. Faults on individual modules, such as those caused by dirt, are displayed and can be rectified quickly. The **Shutdown** function enables the PV system to be switched off at the module level. With the **Optimization** function, the power of the PV system can be boosted even in partial shading or with different module configurations.

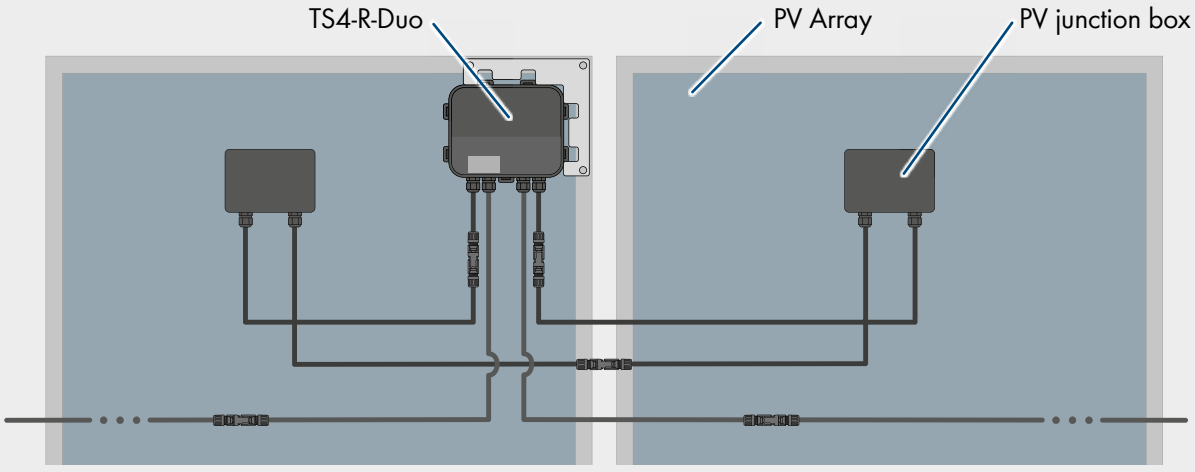


Technical Data	TS4-R-S-Duo	TS4-R-O-Duo
Electrical ratings		
Rated input power	700 W	700 W
Absolute max. input voltage V_{in}	90 V	90 V
Max. PV module open-circuit voltage (V_{OC}) at STC	75 V	75 V
Max. current	12 A	12 A
Min. V_{MPP}	16 V	16 V
Output		
Output power range	0 W to 700 W	0 W to 700 W
Output voltage range	0 V to V_{IN}	0 V to V_{IN}
Communication	802.15.4, 2.4 GHz	802.15.4, 2.4 GHz
Impedance matching capability	No	Yes
Output voltage limit	No	No
Max. system voltage	1000 V	1000 V
Max. series fuse rating	15 A	15 A
Mechanical		
Operating temperature range	−40°C to +70°C (−40°F to +158°F)	
Storage temperature range	−40°C to +70°C (−40°F to +158°F)	
Cooling concept	Natural convection	
Dimensions (with cover)	178.5 mm x 134 mm x 25.5 mm	
Weight (with cover)	710 g	770 g
Degree of protection	IP68, NEMA 3R	
Cabling		
Cabling type	H1Z2Z2-K	
Output cable length	1.8 m	
Connector	MC4	
UV resistance	500 h with UVB light between 300 and 400 nm at 65°C	
Max. string voltage	1000 V UL / 1000 V IEC	
Outer cable diameter	7.15 mm ± 0.25 mm	
Wire cross-section	4.0 mm² (12 AWG)	
Functions		
Monitoring[1)]	●	●
Shutdown[1)]	●	●
Optimization		●
Warranty	25 years	
[1)] Cloud Connect Advanced and Gateway required		
Type designation	TS4-R-S-Duo	TS4-R-O-Duo

SYSTEM DIAGRAM



INSTALLATION EXAMPLE



Communication set

The communication set enables all TS4 variants to be connected to the SMA inverter quickly and easily. The outdoor communications set is perfectly suited to installation outdoors, where the communications technology is installed in a separate enclosure.
Module-based data is transmitted wireless across the rooftop from the TS4 optimizers to the gateway, which is connected via RS485 to Cloud Connect Advanced (CCA). The relevant performance data can be viewed on Sunny Portal.
The communication set is necessary only if the Monitoring and/or Shutdown functions are used.

Communication set for installation indoors

Gateway

Cloud Connect Advanced

Set includes:
- Gateway
- Cloud Connect Advanced
- DIN rail power supply & mounting hardware

Outdoor communication set for installation outdoors

Gateway

Cloud Connect Advanced

Outdoor enclosure

Set includes:
- Gateway
- Cloud Connect Advanced
- Outdoor enclosure
- DIN rail power supply & mounting hardware

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