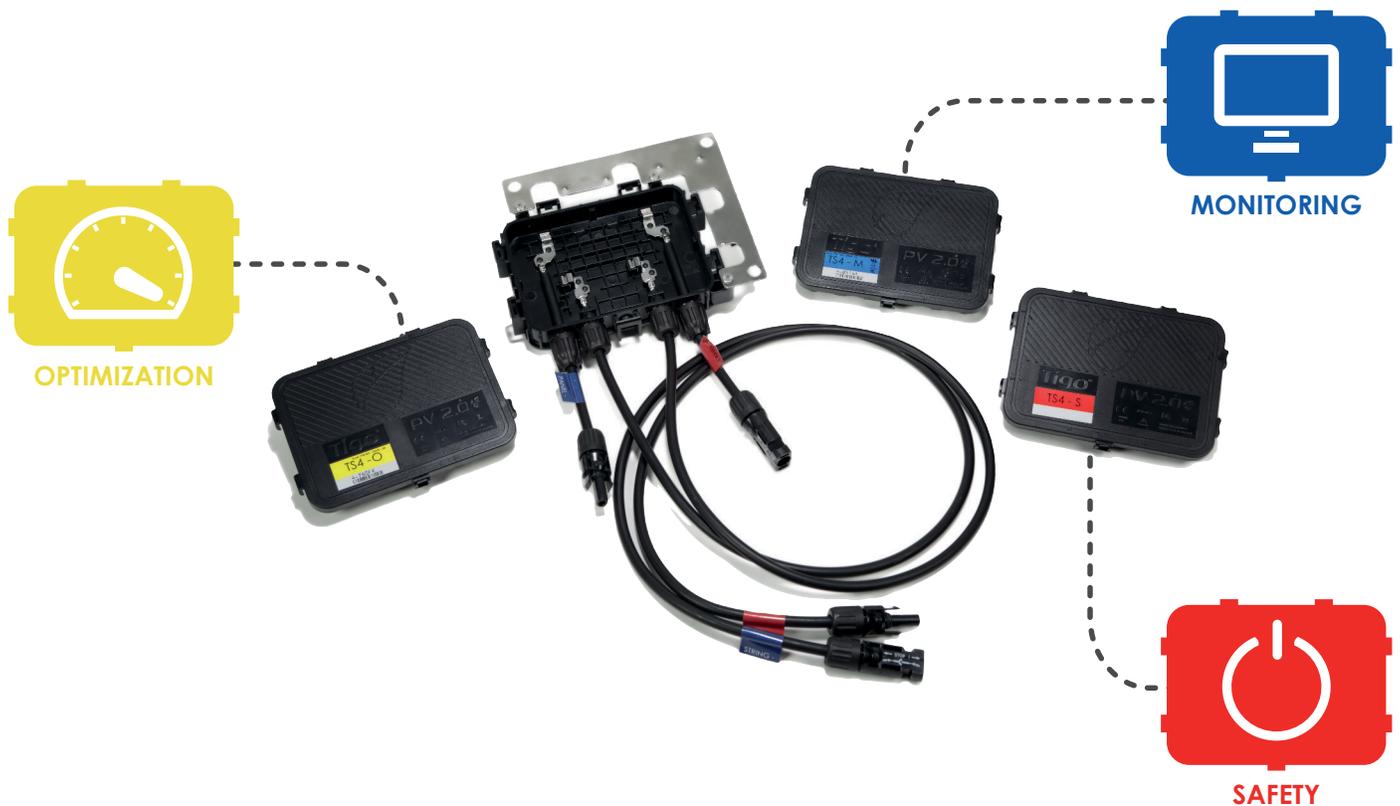


SMART MODULE RETROFIT PLATFORM

The TS4-R is a retrofit solution that brings smart module functionality to standard PV modules, for upgrading underperforming PV systems or adding smart features to new installations. The TS4-R retrofit base can be matched with one of several electronic covers to address a range of functions and budgets. Together they form a new generation of module-level power electronics: flexible, replaceable, upgradeable, and accompanied by a powerful PV 2.0 communication backend.

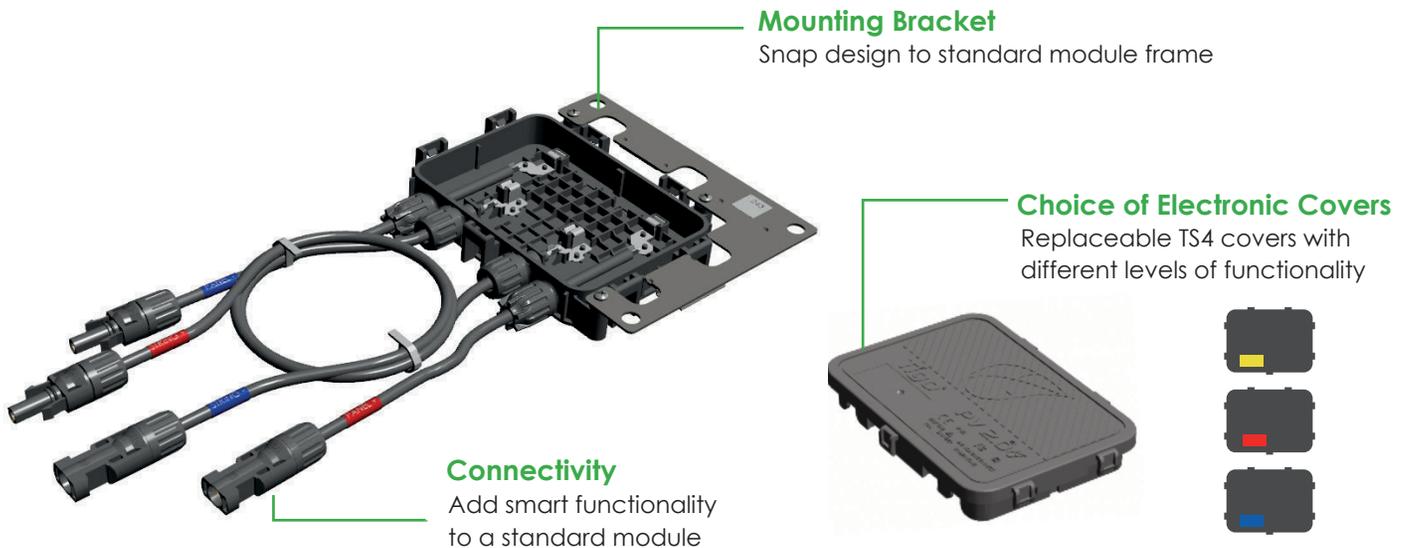


RETROFIT MODULAR PLATFORM

TS4-R

Type: TS4-R (base up to 1500V)

RETROFIT ADD-ON BASE



MECHANICAL SPECIFICATIONS

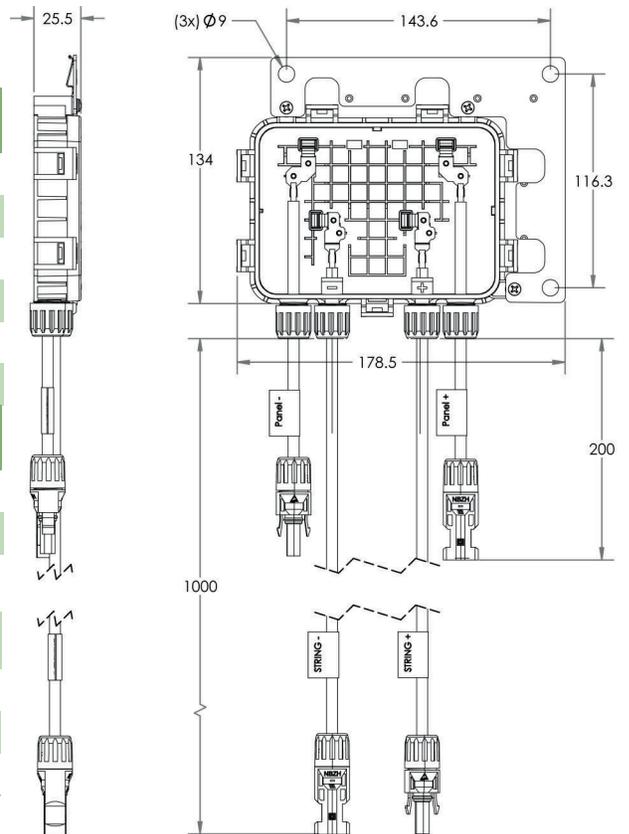
Mechanical

Operating Temperature Range	-40°C to +75°C (-40°F to +167°F)
Storage Temperature Range	-40°C to +75°C (-40°F to +167°F)
Cooling Method	Natural Convection
Dimensions (with cover)	152.5mm x 108mm x 25.3mm
Weight (base and cover)	670g (M or S cover), 720g (O or L cover)
Outdoor Rating	IP67, NEMA 3R

Cabling

Type	PV1-F, PV wire
Output Length	Standard 1.0m, other lengths on request
Cable Options	1000V rated 1500V rated
Cable Cross-Section	7.15 ± 0.25 mm (1000V) 6.4 ± 0.2mm, 7.05 ± 0.2mm (1500V)
Connectors	MC4, MC4 compatible, Amphenol, EVO2
UV Resistance	500hr with UV light between 300-400nm @65C
Maximum String Voltage	1500V UL/IEC ¹

¹ All TS4 covers are 1500V compatible. Specify max system voltage when ordering TS4-R bases for appropriate cables & connectors.



UPGRADE YOUR FLEET WITH TS4-R

Tigo has expanded its smart module retrofit platform to provide three levels of customization. With a universal base and a range of covers containing the Flex MLPE, TS4 increases your freedom of choice when selecting features for a particular project and budget. TS4 retrofit cover options include monitoring, safety, and optimized performance features.

OPTIMIZATION

TS4-O



Monitoring Safety Optimization

- Shade and age tolerance
 - Enhanced energy yield
 - Greater design flexibility
 - Maximized roof usage
 - Plus all the benefits of Safety and Monitoring
-

SAFETY

TS4-S



Monitoring Safety

- NEC 2014 690.12 rapid shutdown compliant
 - Module-level deactivation
 - Automatic or manual shutdown
 - Plus all the benefits of Monitoring
-

MONITORING

TS4-M



Monitoring

- Reduced O&M costs
 - PV-2.0 data synchronization
 - Module bar code tracking
 - CRM integration
 - Warranty tracking
 - Fleet management
-

TS4 COVERS



MONITORING
TS4-M



SAFETY
TS4-S



OPTIMIZATION
TS4-O

ELECTRICAL RATINGS

INPUT			
Rated DC Input Power	375W	375W	475W
Maximum Input Voltage @ Lowest Temperature ¹	66V	66V	90V
Maximum Short Circuit Current (I _{sc})	12A	12A	12A
Maximum V _{oc} @ STC	52V	52V	75V
Minimum V _{MP}	16V	16V	16V
OUTPUT			
Output Power Range	0 - 375W	0 - 375W	0 - 475W
Output Voltage Range	0 - V _{oc}	0 - V _{oc}	0 - V _{oc}
Communication Type	802.15.4 2.4GHz	802.15.4 2.4GHz	802.15.4 2.4GHz
Rapid Shutdown Capability ² (NEC 2014 690.12)	No	Yes	Yes
Impedance Matching Capability	No	No	Yes
Output Voltage Limit	No	No	No
Maximum System Voltage	1000V / 1500V	1000V / 1500V	1000V / 1500V

¹ Refer to PV module datasheet and local temperature data.

² Cloud Connect and Gateway required for rapid shutdown compliance.

ORDERING INFORMATION

Add-on / Retrofit Unit	
TS4-R	1000V TÜV / UL, MC4 compatible, 1m cable
Options	
<input type="checkbox"/>	Connectors (1000V TÜV / UL): MC4, Amphenol, EVO2
<input type="checkbox"/>	1500V TÜV / UL, EVO2 or MC compatible
Pre-Assembled	Features
TS4-R-M	Monitoring
TS4-R-S	Safety
TS4-R-O	Optimization

All TS4 covers are 1500V compatible. Specify max system voltage when ordering TS4-R bases for appropriate cables & connectors.

² Cloud Connect and Gateway required for rapid shutdown compliance.

For sales info:

sales@tigoenergy.com or 1.408.402.0802

For product info:

Visit www.tigoenergy.com/products

For TS4-R retrofit units:

Contact your local distributor or sales@tigoenergy.com

For technical info:

<http://support.tigoenergy.com>

For additional info and product selection assistance, use Tigo's online design tool at www.tigoenergy.com/design

