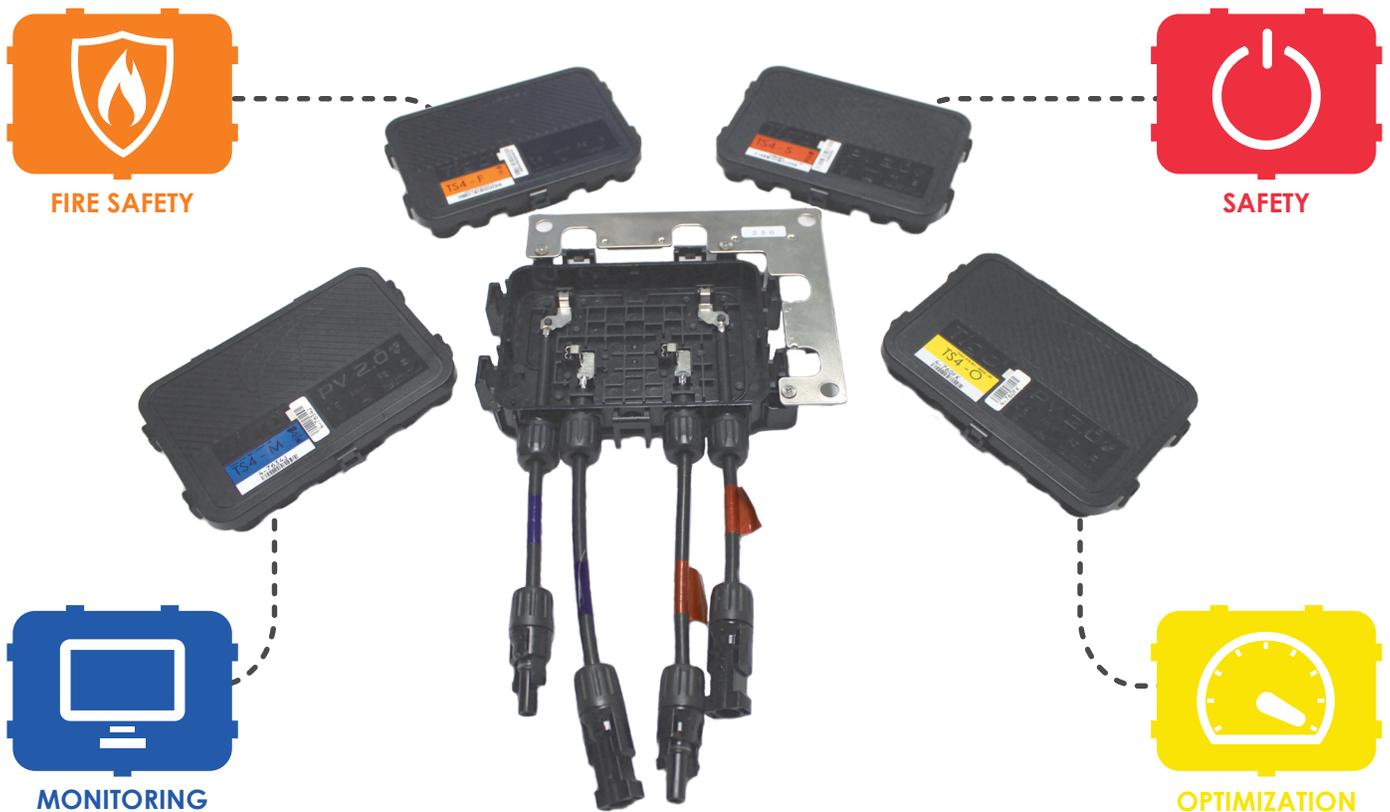


SMART MODULE RETROFIT PLATFORM

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.

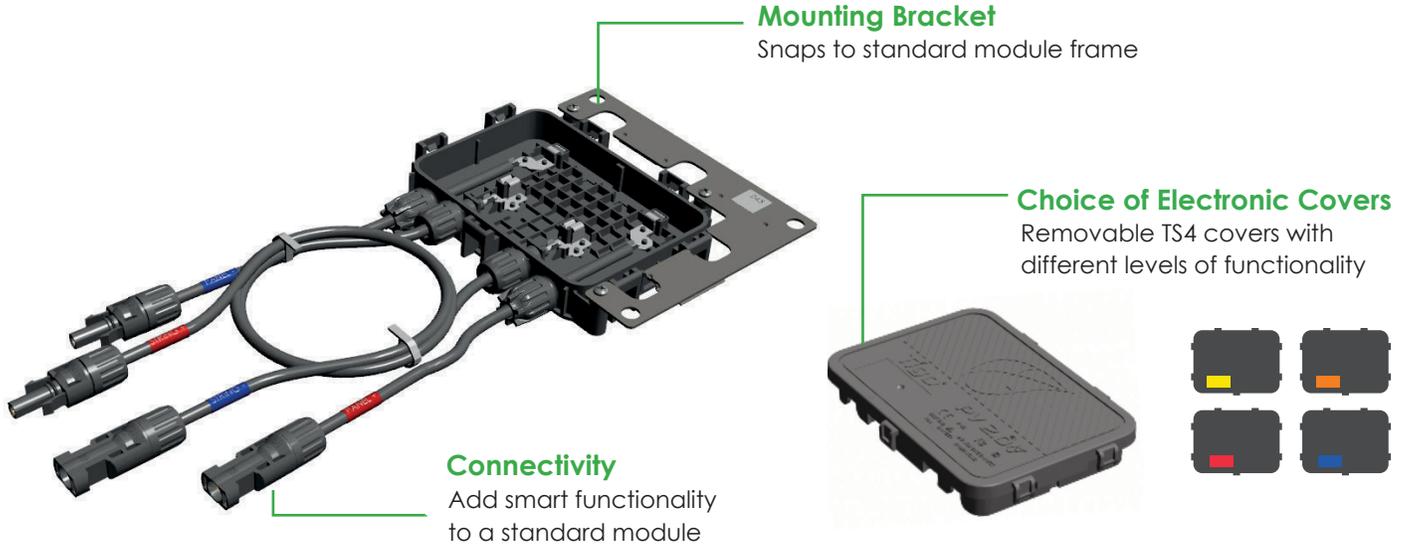


RETROFIT MODULAR PLATFORM

TS4-R

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

RETROFIT ADD-ON BASE



MECHANICAL SPECIFICATIONS

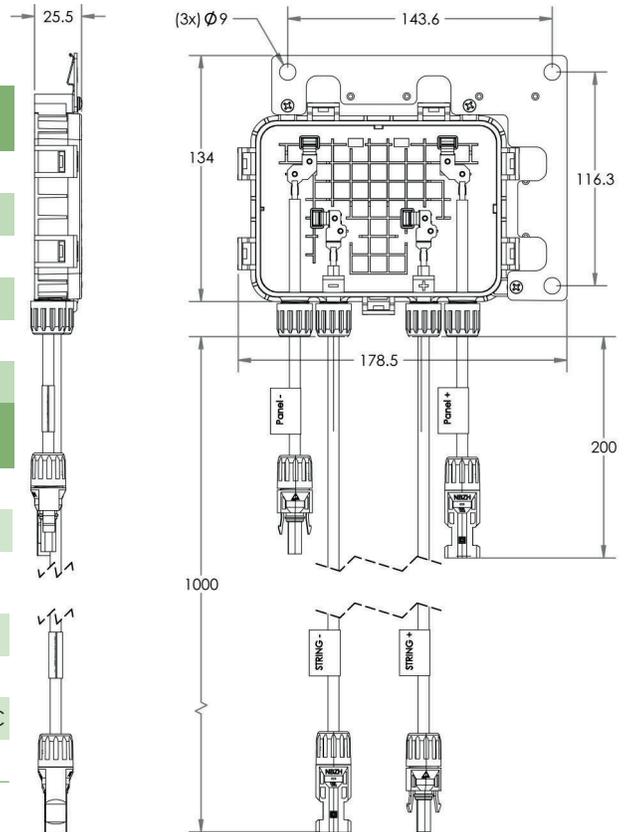
Mechanical

Operating Temperature Range	-40°C to +70°C (-40°F to +158°F), RH < 85%
Storage Temperature Range	-40°C to +70°C (-40°F to +158°F), RH < 60%
Cooling Method	Natural Convection
Dimensions (with cover)	178.5mm x 134mm x 25.5mm
Weight (base and cover)	610g (M or S cover), 670g (O cover)
Outdoor Rating	IP68, NEMA 3R

Cabling

Type	H1Z2Z2-K
Output Cable Length	Standard 1.0m, other lengths on request
Rating Options	1000V rated 1500V rated
Cable Cross-Section	6.3 ± 0.3mm
Connectors	MC4, MC4 compatible, EVO2
UV Resistance	500hr with UV light between 300-400nm @65°C
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 multiple 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-R-O



Monitoring Safety Optimization

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

SAFETY

TS4-R-S



Monitoring Safety

- NEC 2014 & 2017 690.12 rapid shutdown compliant
- Module-level deactivation
- Automatic or manual shutdown
- Plus all the benefits of Monitoring

FIRE SAFETY

TS4-R-F



Fire Safety

- NEC 2014 & 2017 690.12 rapid shutdown compliant
- Module-level deactivation
- Automatic or manual shutdown
- SunSpec signaling

MONITORING

TS4-R-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-R-M



FIRE SAFETY
TS4-R-F



SAFETY
TS4-R-S



OPTIMIZATION
TS4-R-O

ELECTRICAL RATINGS

INPUT	TS4-R-M	TS4-R-F	TS4-R-S	TS4-R-O
Rated DC Input Power	475W	475W	475W	475W
Max Input Voltage @ Lowest Temperature	90V	90V	90V	90V
Maximum Continuous Input Current (I _{MAX})	12A	12.5A	12A	12A
Maximum V _{OC} @ STC	75V	75V	75V	75V
Minimum V _{MP}	16V	16V	16V	16V

OUTPUT

Output Power Range	0 - 475W	0 - 475W	0 - 475W	0 - 475W
Output Voltage Range	0 - V _{OC}			
Communication Type	802.15.4 2.4GHz	SunSpec	802.15.4 2.4GHz	802.15.4 2.4GHz
Rapid Shutdown UL Listed ¹ (NEC 2014 & 2017 690.12)	No	Yes	Yes	Yes
Impedance Matching Capability	No	No	No	Yes
Output Voltage Limit	No	No	No	No
Maximum System Voltage	1500V	1500V	1500V	1500V
Recommended Fuse Rating	15A	15A	15A	15A

¹ Cloud Connect Advanced (CCA) and TAP/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, EVO2
<input type="checkbox"/>	1500V TÜV / UL, EVO2, or MC compatible
Pre-Assembled	Features
TS4-R-M	Monitoring
TS4-R-F	Fire Safety
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.

For sales info:

sales@tigoenergy.com or 1.408.402.0802

For product info:

Visit www.tigoenergy.com/products

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

