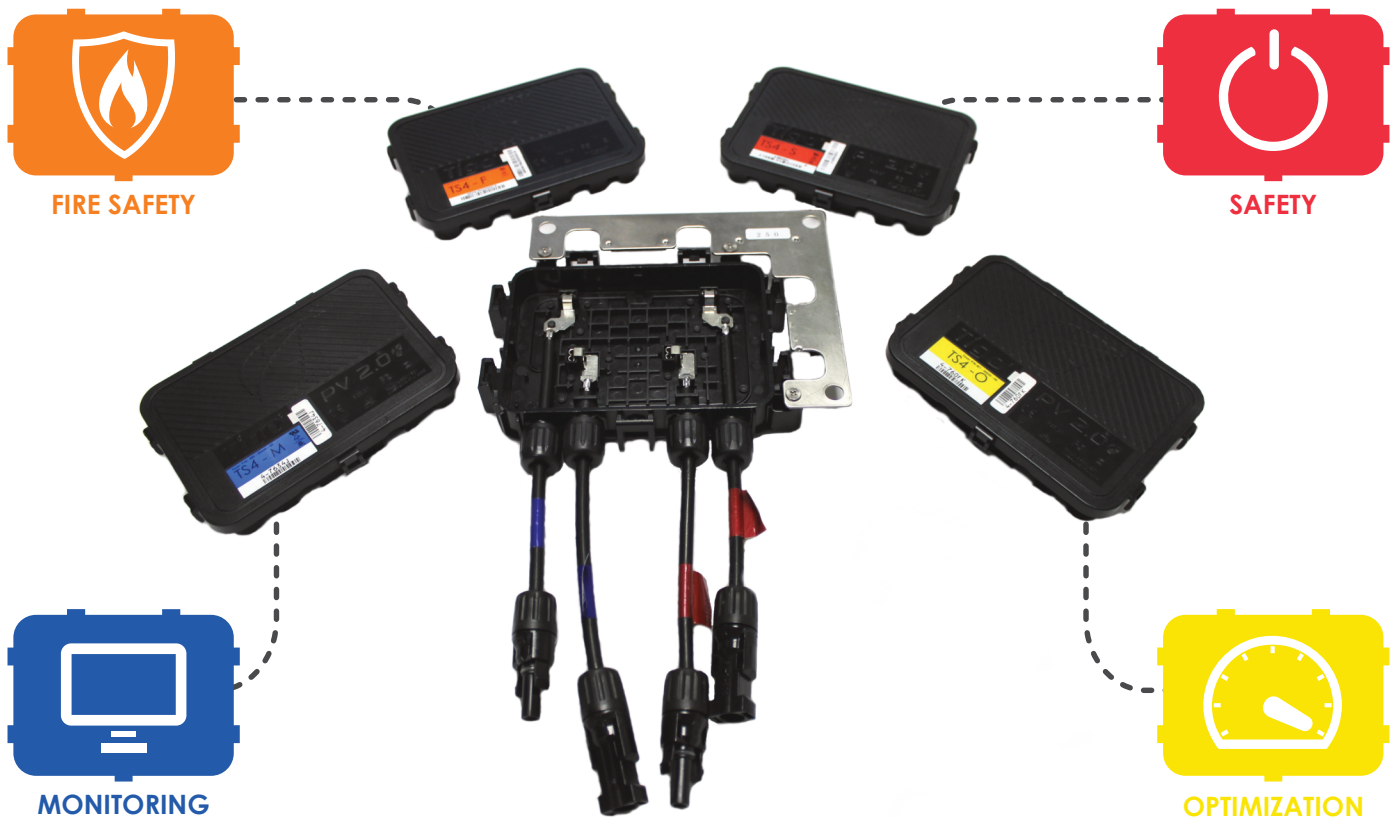


SMART MODULE RETROFIT PLATFORM

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.

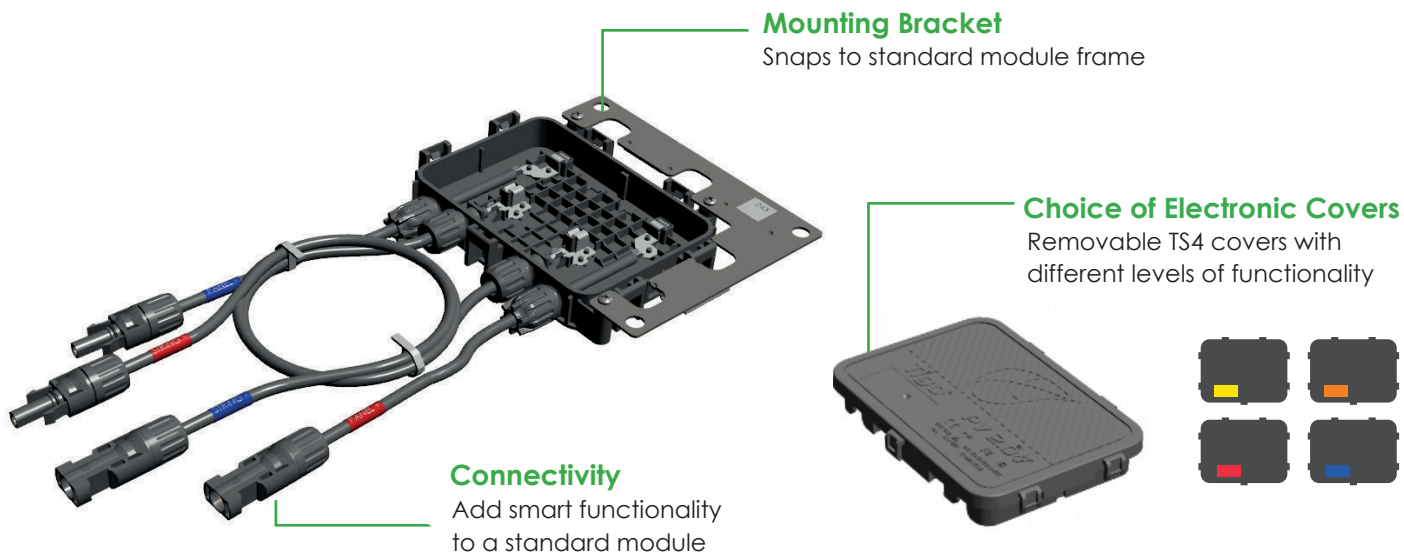


RETROFIT MODULAR PLATFORM

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

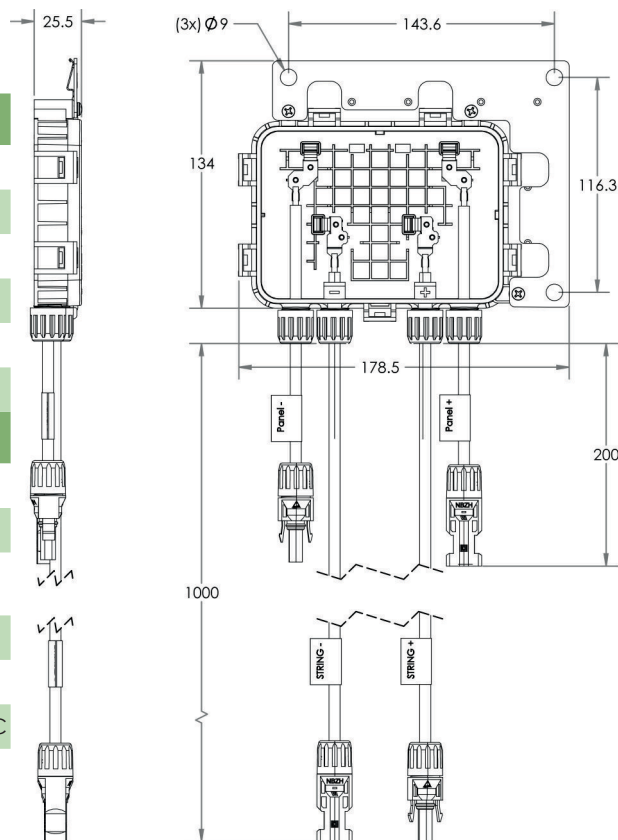
Cable Cross-Section $6.3 \pm 0.3\text{mm}$

Connectors MC4, MC4 compatible, EVO2

UV Resistance 500hr with UV light between 300-400nm @65°C

Maximum String Voltage 1500V UL/IEC¹

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
 - PLC 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				
Rated DC Input Power	475W	475W	475W	475W
Maximum Input Voltage	90V	90V	90V	90V
Maximum Continuous Input Current (I_{MAX})	12A	12.5A	12A	12A
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}	0 - V_{OC}	0 - V_{OC}	0 - V_{OC}
Communication Type	Wireless	PLC	Wireless	Wireless
Rapid Shutdown UL Listed ² (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 Approximate V_{OC} of 75V at STC.

² TS4-R-S and TS4-R-O require Cloud Connect Advanced (CCA) and TAP/Gateway for rapid shutdown compliance. TS4-R-F requires RSS Transmitter.

ORDERING INFORMATION

Add-on / Retrofit Unit	
TS4-R	1000V TÜV / UL, MC4 comparable, 1m cable
Connector Options	
1000V TÜV / UL	MC4, EVO2
1500V TÜV / UL	EVO2, MC comparable
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

