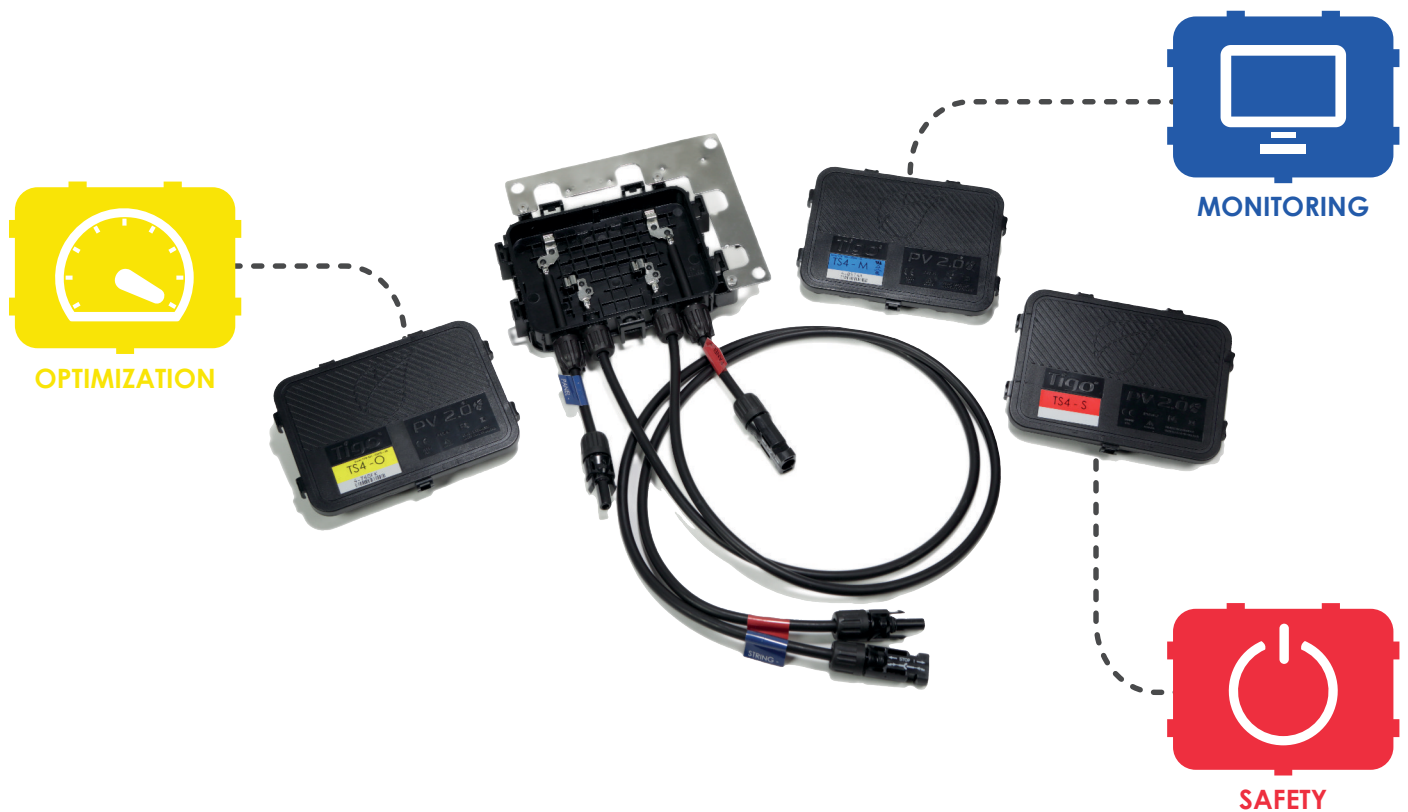


## SMART MODULE RETROFIT PLATFORM

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.

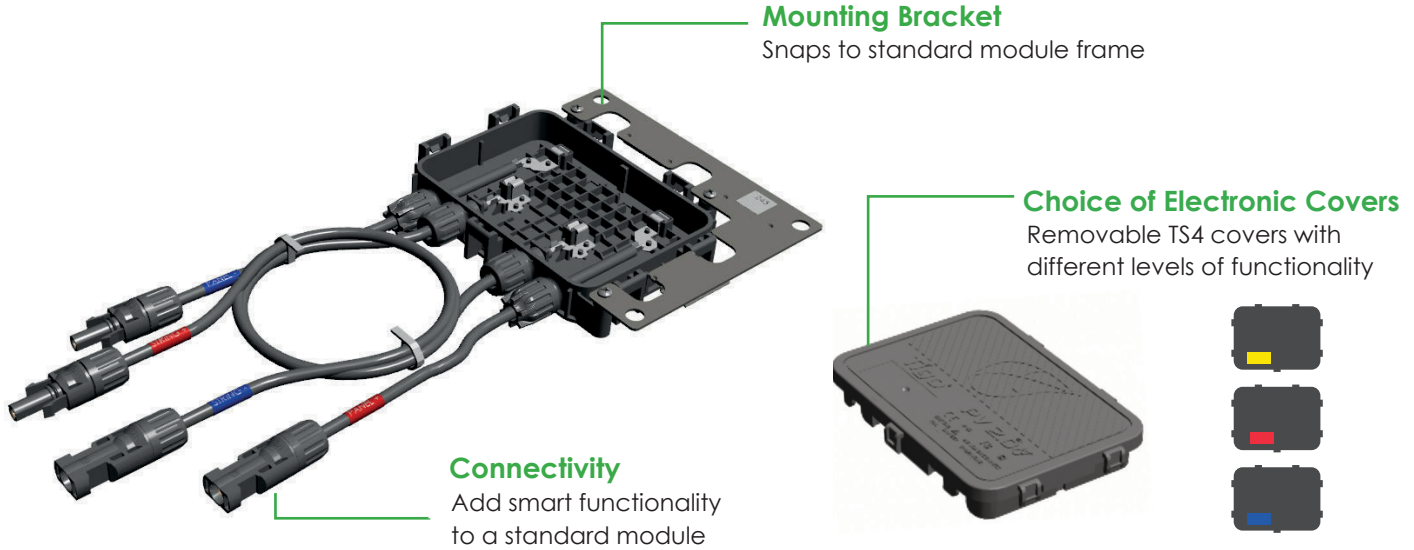


# RETROFIT MODULAR PLATFORM

## 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)

Storage Temperature Range -40°C to +70°C (-40°F to +158°F)

Cooling Method Natural Convection

Dimensions (with cover) 152.5mm x 108mm x 25.3mm

Weight (base and cover) 610g (M or S cover), 670g (O cover)

Outdoor Rating IP67, NEMA 3R

### Cabling

Type H1Z2Z2-K

Output Length Standard 1.0m, other lengths on request

Cable Options 1000V rated  
1500V rated

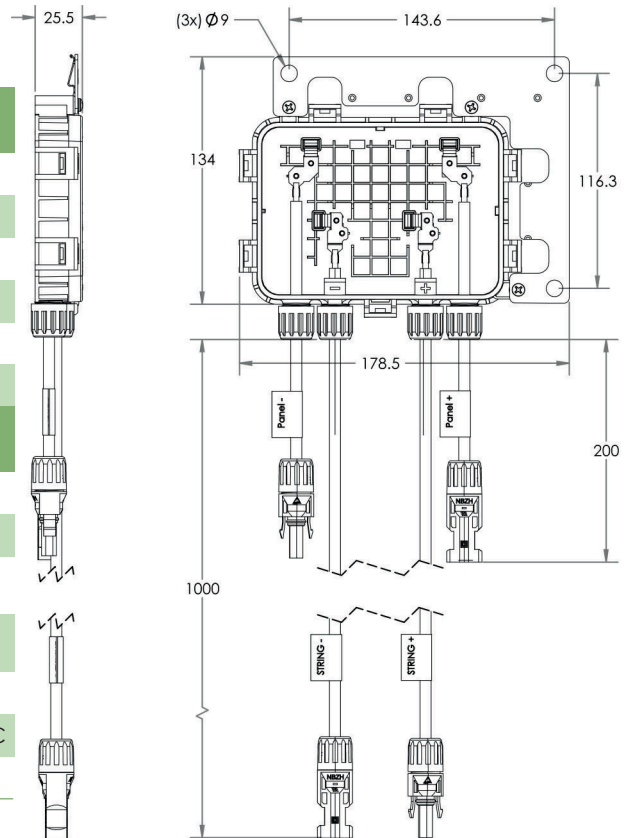
Cable Cross-Section 7.15 ± 0.25 mm (1000V)  
6.4 ± 0.2mm, 7.05 ± 0.2mm (1500V)

Connectors MC4, MC4 compatible, Amphenol, EVO2

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

Maximum String Voltage 1500V UL/IEC<sup>1</sup>

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



\*All dimensions are in mm

# 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.

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## OPTIMIZATION

TS4-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-S



Monitoring Safety

- NEC 2014 & 2017 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	475W	475W	475W
Maximum Input Voltage	90V	90V	90V
Maximum Continuous Input Current (I <sub>MAX</sub> )	12A	12A	12A
Maximum V <sub>OC</sub> @ STC	75V	75V	75V
Minimum V <sub>MP</sub>	16V	16V	16V
OUTPUT			
Output Power Range	0 - 475W	0 - 475W	0 - 475W
Output Voltage Range	0 - V <sub>OC</sub>	0 - V <sub>OC</sub>	0 - V <sub>OC</sub>
Communication Type	802.15.4 2.4GHz	802.15.4 2.4GHz	802.15.4 2.4GHz
Rapid Shutdown UL Listed <sup>1</sup> (NEC 2014 & 2017 690.12)	No	Yes	Yes
Impedance Matching Capability	No	No	Yes
Output Voltage Limit	No	No	No
Maximum System Voltage	1500V	1500V	1500V
Recommended Fuse Rating	15A	15A	15A

<sup>1</sup> 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.

### For sales info:

sales@tigoenergy.com or 1.408.402.0802

### For product info:

Visit [www.tigoenergy.com/products](http://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](http://www.tigoenergy.com/design)

