

### SMART MODULE - RETROFIT PLATFORM

The TS4-R is a Retrofit or Add-on universal base. The TS4-R addresses the need for a retrofit solution that can be mounted on any existing installed PV system, connected into the existing PV module JBox, improving energy harvesting, greater flexibility, and increased control over project to the existing PV system. The offering for the retrofit is a two-piece solution: the TS4-R base, which is added on the solar module, and its covers, plug-and-play Flex MLPE which can be swapped in and out. It supports any of the wide offering of the existing TS4 Platform functional covers. It can also be designed into a new system.

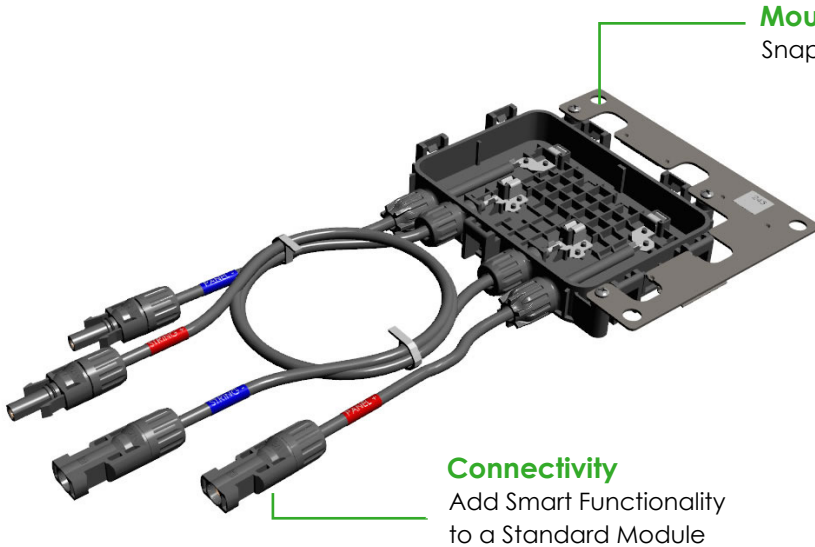


# RETROFITTED MODULAR PLATFORM

## TS4-R

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

### RETROFIT ADD-ON BASE



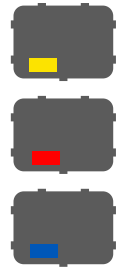
#### Mounting Bracket

Snap design to standard module frame



#### Choice of Electronic Covers

Removable TS4 Covers with Different Levels of Functionality



#### Connectivity

Add Smart Functionality to a Standard Module

## 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) 178.5mm x 134mm x 25.5mm

Weight (without cover) 470g

Environmental Rating IP67, NEMA 3R

### Cabling

Type PV1-F, PV wire

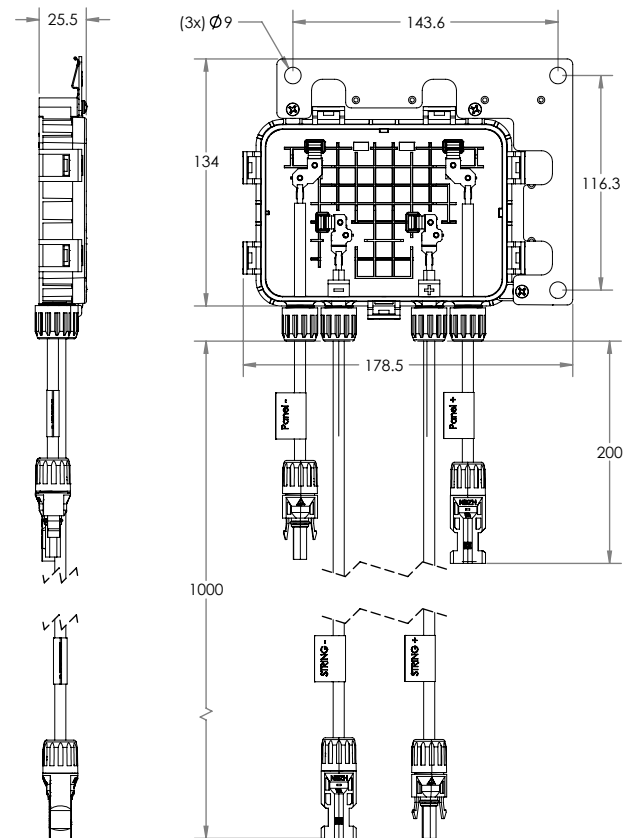
Output Length Standard 1.0m, other lengths on request

Cable Cross-Section 4.0mm<sup>2</sup> (12AWG)

Cable selection 600V/1000V rated  
1500V rated

Connectors MC4, MC4 compatible, Amphenol

Maximum String Voltage 600V UL/1000V IEC,  
1000V UL/IEC or 1500V UL/IEC



\*All dimensions are in mm

# UPGRADE YOUR FLEET WITH TS4-R

Tigo has expanded its smart module 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 cover options are monitoring, safety and optimized performance features.

## OPTIMIZATION

TS4-O



Diodes



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



Diodes



Monitoring



Safety

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

## MONITORING

TS4-M



Diodes



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 @ STC

Rated DC Input Power	375W	375W	375W
Maximum PV Module Open Circuit Voltage(Voc)	52V	52V	52V
Maximum Current	12A	12A	10A
PV Module Vmp range	16-48V	16-48V	16-48V

### OUTPUT

Output Power Range	0-375W	0-375W	0-375W
Output Voltage Range		0-Voc	
Rapid Shutdown Verified (NEC 2014 690.12)	No	Yes	Yes
Impedance Matching Capability	No	No	Yes
Maximum System Voltage		600/1000/1500V	
Series Fuse Rating		15A	

## ORDERING INFORMATION

	Base type	Covers	Pre-Assembled
<b>RETROFIT/ ADD-ON</b>	TS4-R (600V and 1000V)		
Monitoring		TS4-M	TS4-R-M
Safety		TS4-S	TS4-R-S
Optimization		TS4-O	TS4-R-O

	Base type	Covers	Pre-Assembled
<b>RETROFIT/ ADD-ON</b>	TS4-R1500 (1500V)		
Monitoring		TS4-M	TS4-R1500-M
Safety		TS4-S	TS4-R1500-S
Optimization		TS4-O	TS4-R1500-O

Retrofit (TS4-R) is available pre-assembled with TS4-M, TS4-S, or TS4-O covers. Covers are available separately. Specify TS4-M, TS4-S, or TS4-O.

**For sales info:**

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**For product info:**

**Visit [www.voltaconsolar.com](http://www.voltaconsolar.com)**

