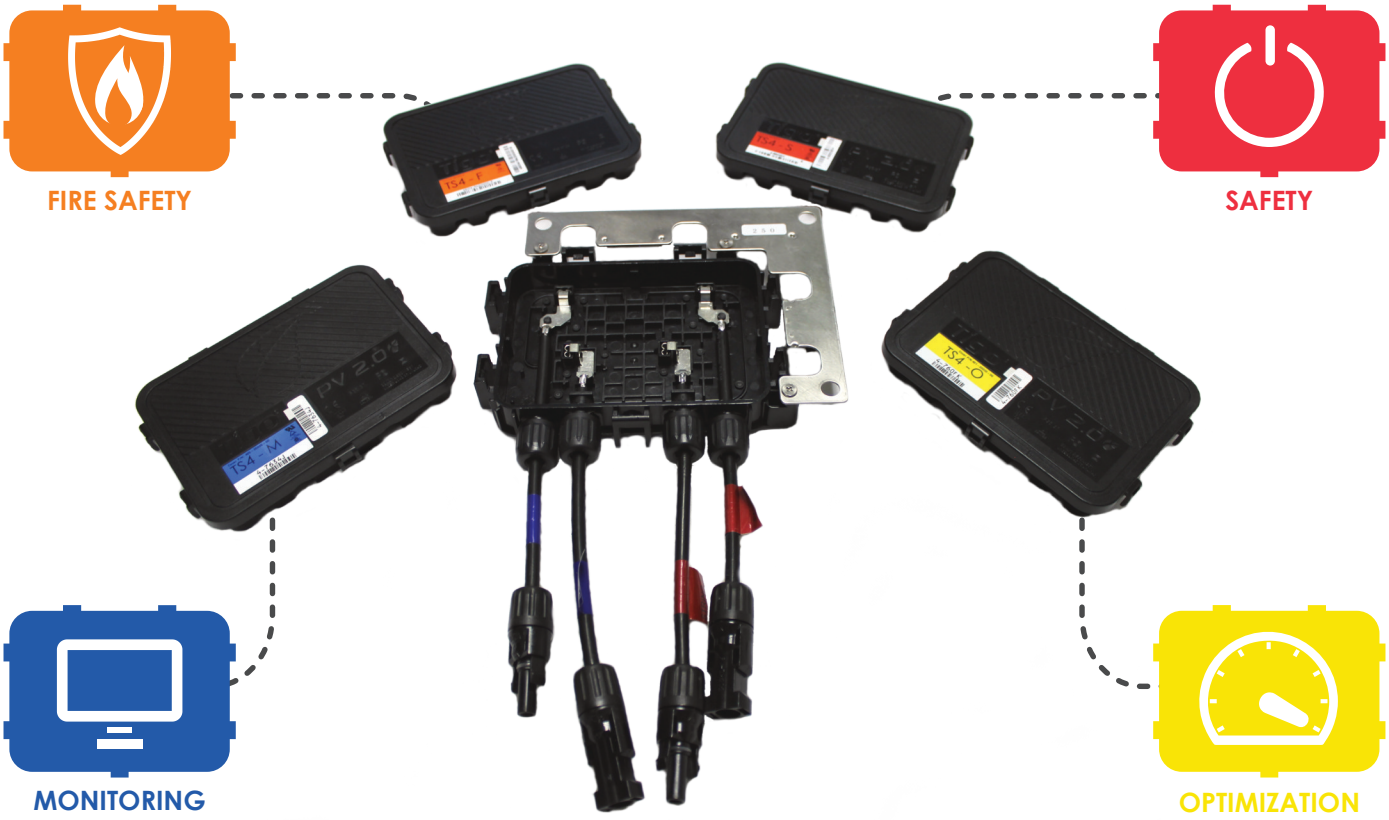
Tigo® Flex MLPE

TS4-R
PV Module Retrofit or Add-On

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.



PV 2.0

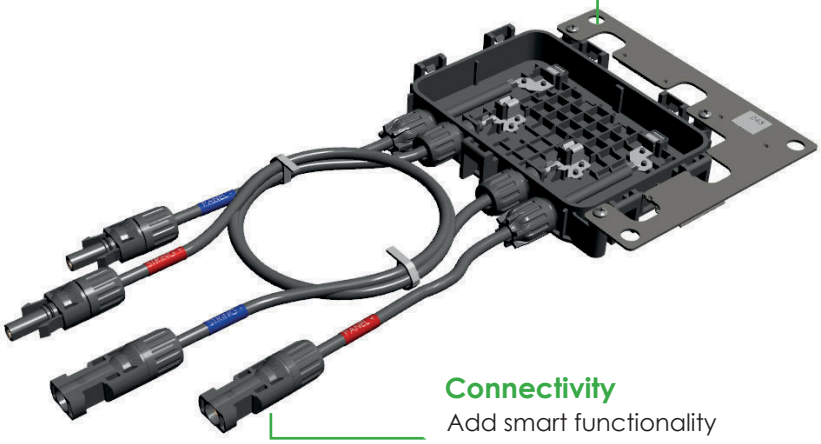
RETROFIT MODULAR PLATFORM

TS4-R

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

RETROFIT ADD-ON BASE

Mounting Bracket
Snaps to standard module frame



Choice of Electronic Covers
Removable TS4 covers with different levels of functionality

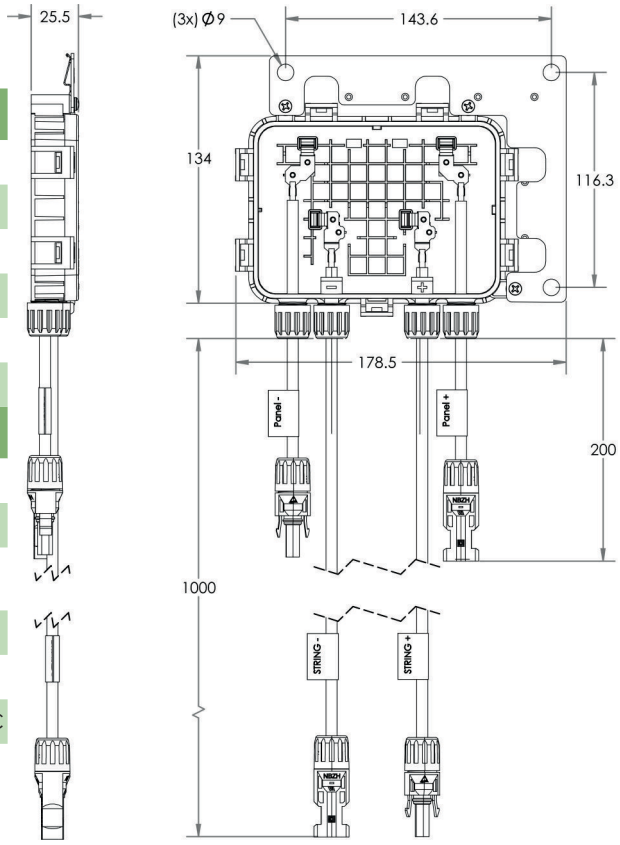


Connectivity
Add smart functionality to a standard module

MECHANICAL SPECIFICATIONS

Mechanical	
Operating Temperature Range	-40°C to +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 comparable, 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.



*All dimensions are in mm

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





- 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





- 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





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

MONITORING

TS4-R-M





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

TS4 COVERS

ELECTRICAL RATINGS	MONITORING TS4-R-M	FIRE SAFETY TS4-R-F	SAFETY TS4-R-S	OPTIMIZATION TS4-R-O
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

[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:
support.tigoenergy.com

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

CE FC IC VCI TÜVRheinland CERTIFIED c UL us LISTED E469960 Photovoltaic Rapid Shutdown System Equipment, QIJW

Tigo®

PV 2.0

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