

# Module Level Rapid Shutdown

Made Easy by Yaskawa Solectria Solar & Tigo

# YASKAWA

Yaskawa Solectria Solar provides the simplest, most economical and robust solution for NEC 2017 Module-Level Rapid Shutdown compliance through our partnership with Tigo Energy. Our PV Rapid Shutdown System combines the state-of-the-art Solectria PVI 25/50/60TL inverters with Tigo's TS4 Fire Safety shutdown modules and is fully UL1741 certified.

## System Concept

### How the System Works

- Upon loss of AC voltage, the inverter stops sending the PLC signal
- PV modules go into safe shutdown

### Solectria "Shutdown Ready" Inverter

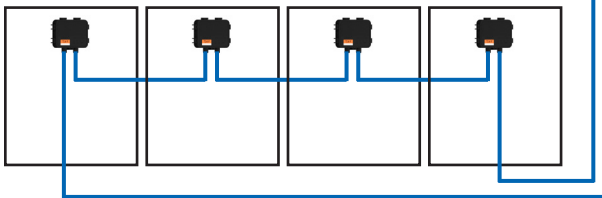
- PVI 25TL-480
- PVI 50TL-480 and PVI-60TL-480 with PVI-50-60TL-WIREBOX-R

### Wire PV Array in the Normal Manner

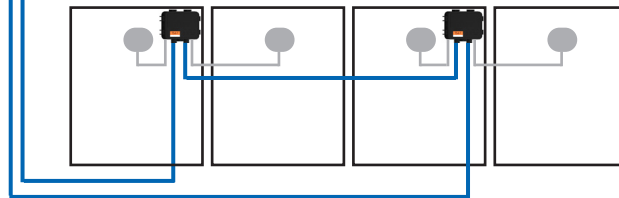
- Connect PV modules in series to form PV source circuits
- Wire the PV source circuits into the Inverter Wiring Box: no extra steps



### Tigo TS4-F or TS4-A-F (1 per PV Module)



### Tigo TS4-A-2F (1 per 2 PV Modules)



### Easiest Installation

- Smart PV modules with factory-integrated Tigo TS4-F junction box are available from numerous PV module manufacturers.
- For the complete list of Smart PV Modules visit: [www.tigoenergy.com/where-to-buy](http://www.tigoenergy.com/where-to-buy).

### Easy Installation

- Quickly and easily retrofit other PV modules with a Tigo TS4-A-F in the field.
- Secure the TS4-A-F to the PV module frame using integrated clips, no fasteners required.

### Most Economical

- Solectria PVI 25TL, PVI 50TL/60TL inverter combined with Tigo TS4-A-2F provides the most economical solution meeting the NEC 2017 requirements for module-level rapid shutdown.
- Two PV modules connect to each TS4-A-2F resulting in the two PV modules connected in series during normal operation.
- In safe shutdown mode, the voltage of all PV array wiring drops below the NEC 2017 limits.



### ROBUST AND FLEXIBLE SOLUTIONS

- Choose either the TS4-F or TS4-A-F, one per PV module, or the new TS4-A-2F that accepts input from two PV modules
- SunSpec specification compliant signaling, using proven powerline communications
- Solectria PVI 25TL, PVI 50TL and PVI 60TL inverters with factory-integrated powerline transmitter inside wiring box, ready for the Tigo TS4-F, TS4-A-F and TS4-A-2F

- Nothing to add in the field

### SAFETY CERTIFIED

- UL1741 certified PV Rapid Shutdown System (PVRSS)

## SOLECTRIA SOLAR

# Rapid Shutdown-Ready Solectria Inverters



## Specifications

Solectria Inverter Specifications	PVI 25TL	PVI 50TL	PVI 60TL
Model (Module-Level Rapid Shutdown Ready)	PVI-25TL-480	PVI-50TL and PVI-50-60TL-WIREBOX-R	PVI-60TL and PVI-50-60TL-WIREBOX-R
Absolute Maximum Input Voltage	1000 V	1000 V	1000 V
Maximum Power Voltage Range (MPPT)	560 - 850 V	480 - 850 V	540 - 850 V
Operating Voltage Range	200 - 950 V	200 - 950 V	200 - 950 V
Number of MPP Trackers	2	3	3
Fused Inputs	6 (3 / MPPT)	15 (5 / MPPT)	15 (5 / MMPT)
Maximum Rated PV Current ( $I_{sc} \times 1.25$ )	90 A (45 A / MPPT)	204 A (68 A / MPPT)	204 A (68 A / MPPT)
Maximum Rated PV Power	39 kW (19.5 kW / MPPT)	75 kW (30 kW / MPPT)	90 kW (33 kW / MPPT)
Nominal Output Voltage	480 VAC, 3-Phase/PE/N	480 VAC, 3-Phase/PE/N	480 VAC, 3-Phase/PE/N
Real/Apparent Power/Output Current	25 kW / 25kVA / 30.5 A	50 kW / 50 kVA / 60.2 A*	60 kW / 60 kVA / 72.3 A*
Certifications	Rule 21, UL1741SA	Rule 21, UL1741SA	Rule 21, UL1741SA
Warranty	10 Years	10 Years	10 Years

### Where to Buy:

For complete inverter specifications and information on where to buy, please visit [www.solectria.com](http://www.solectria.com)

\* Standard selectable option for kVA overhead available. See PVI 50TL and PVI 60TL data sheets for more information.

# Tigo<sup>®</sup>



Tigo Specifications	TS4-A-F	TS4-A-2F
<b>ENVIRONMENTAL</b>		
Operating Temperature Range	-40°C to +85°C	-40°C to +70°C
Outdoor Rating	IP68, NEMA 3R	IP68, NEMA 3R
<b>MECHANICAL</b>		
Dimensions	138.4 mm x 139.7 mm x 22.9 mm	138.4 mm x 139.7 mm x 22.9 mm
Weight	490 g	590 g
<b>ELECTRICAL</b>		
Voltage Range	16 – 90 V	16 – 90 V
Maximum Current	15 A	15 A
Maximum Power	500 W	1,000 W
Communications Type	PLC	PLC

### Where to Buy:

For complete Tigo TS4-A-F and TS4-A-2F specifications and where to buy, please visit [www.tigoenergy.com](http://www.tigoenergy.com)

## SOLECTRIA SOLAR

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