

# 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

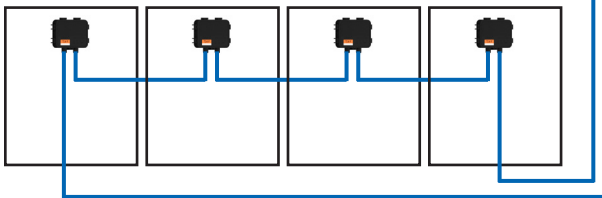
- PVI 25TL-480
- PVI 50TL-480 and PVI-60TL-480 with PVI-50-60TL-WIREBOX-R

### Wire PV Array in the Normal Manner

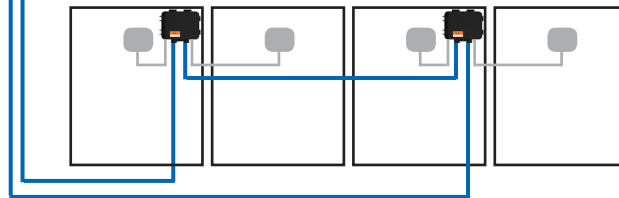
- Connect PV modules in series to form PV source circuits
- Wire the PV source circuits into the Inverter Wiring Box: no extra steps



### 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<br>PVI-50-60TL-WIREBOX-R | PVI-60TL and<br>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®



| 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 |
| Output Voltage Range        | 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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