



TS4-A-O

PV Module Advanced Add-On/Retrofit

The TS4-A-O (Optimization) is the advanced add-on/retrofit optimization solution that brings smart module functionality to standard PV modules for higher reliability. Improve energy efficiency by upgrading underperforming PV systems or adding smart features to new installations.

The TS4-A-O with UHD-Core technology and expanded specifications supports PV modules up to 500W.

Included Features



Optimization

Module-level **optimization** for increased energy yield and greater design flexibility



Safety

Enhanced **safety** for NEC 690.12 rapid shutdown compliance



Monitoring

Module-level **monitoring** for energy production tracking and system management

Easy Installation

Snap to standard module frame or remove brackets for rack mounting

Smart Commissioning

Configure and commission with your Android or iOS mobile device



TS4-A-O SPECIFICATIONS

Environmental

Operating Temperature Range -40°C to +85°C (-40°F to +158°F)

Outdoor Rating IP68, NEMA 3R

Mechanical

Dimensions 138.4mm x 139.7mm x 22.9mm

Weight 490g

Electrical

Voltage Range 16 - 90V

Maximum Continuous Input Current (I_{MAX}) 12A

Maximum Power 500W

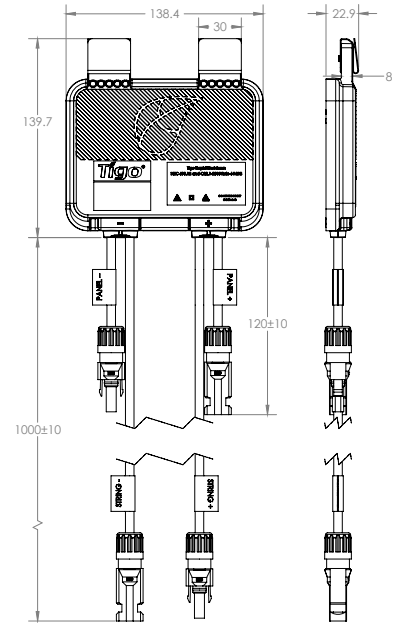
Output Cable Length 1m (standard)

Connectors MC4 compatible (standard)

Communication Type Wireless

Rapid Shutdown UL Listed (NEC 2014 & 2017 690.12) Yes

Cloud Connect Advanced (CCA) and TAP (Gateway) required for rapid shutdown with TS4-A-O.



ORDERING INFORMATION

Standard

451-00257-00 1000V UL / TÜV, 1m cable, MC4 compatible

Options

451-00252-12 1000V UL / TÜV, 1m cable, MC4

451-00257-12 1000V UL / TÜV, 1.2m cable, MC4 compatible

451-00252-32 1000V UL / TÜV, 1.2m cable, MC4

451-00261-12 1500V UL / TÜV, 1m cable, EVO2

451-00261-32 1500V UL / TÜV, 1.2m cable, EVO2

For sales info:

sales@tigoenergy.com or 1.408.402.0802

For product info:

Visit tigoenergy.com/products

For technical info:

Visit support.tigoenergy.com

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





CLOUD CONNECT ADVANCED

ADVANCED COMMUNICATIONS AND COMPACT SIZE

- Cloud Connect Advanced (CCA) is one of the smallest communication data loggers on the market.
- Connects smart modules to the Cloud and the Tigo Smart Monitoring software.
- Enables module level disconnect, on-site and remote configuration through Tigo's mobile app.
- Comes with RS-485 port software and hardware for robust third party compatibility: read and report data from Modbus equipped inverters, charge controllers, weather stations, smart combiner boxes, and revenue grade meters. See list of supported devices: <https://support.tigoenergy.com/hc/en-us>
- Equipped with Tigo Smart OS, able to support custom applications through extensive APIs.

INTERNET CONNECTION

Internet connection via Ethernet, Wi-Fi, or optional cellular* connectivity built in.

MOBILE APP SET UP AND ACCESS

Configure the CCA with the Tigo SMART App. The Wi-Fi capabilities of the CCA provide direct access and straightforward commissioning.

COST EFFECTIVE

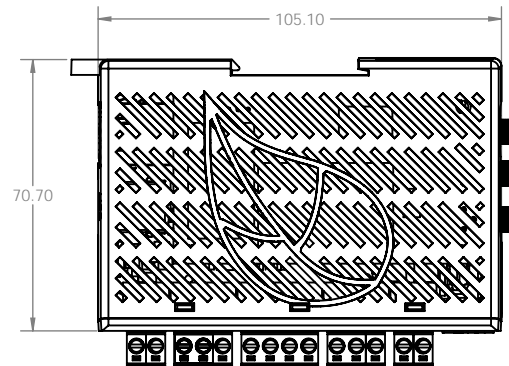
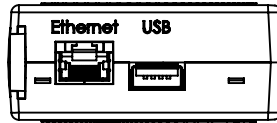
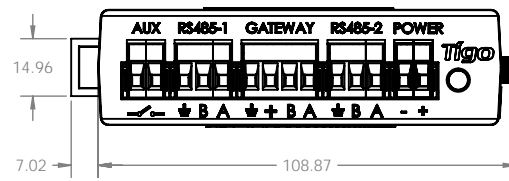
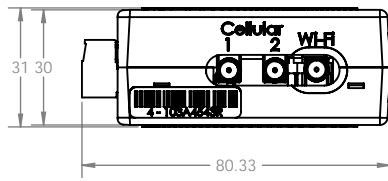
Advanced technologies make the CCA cost-effective for large scale deployment.

APPLICATION PLATFORM

Tigo® Smart OS allows third parties to develop and deploy apps to the Cloud Connect through the Tigo® app store.



*Available only for the US market



Electrical

CCA Consumption

Input Voltage: 6VDC - 25VDC (12VDC minimum when using Gateways. 24VDC for 2+ Gateways)

Input Current: 1.8 A Maximum (internally protected and self resetting)

Power Consumption: Typical (with 1 GW): Less than 3W. Max. 16W

0.5W for each added Gateway

5W Max for cellular option

Available ports

RS485-1 AND RS485-2 for Inverter/AC Meter/MODBUS/etc...

Aux. Switch - Digital I/O

USB 2.0, output 5W, 1A

Power supply

Input voltage: 100-240VAC, 50-60 Hz

Form factor options: DIN Rail (part number:344-00000-00) OR Socket (Part number:344-00000-10)

Capacity

Each Cloud Connect Supports up to 360 PV Modules. For more options visit: <https://support.tigoenergy.com/hc/en-us/articles/20199876>

Internet Connectivity Options

Ethernet Interface: 10/100-BaseT with Straight-Through or Crossover cable detection.

Wireless Interface: Wi-Fi, IEEE 802.11 b/g/n 2.4 GHz

One Wi-Fi Antenna: 2.4-2.5 GHz, 50Ω (RP-SMA plug, Male)

Cellular Modem: Verizon LTE (USA ONLY. Optional, sold separately)

Two LTE Antennas: 2.4-2.5 GHz, 50Ω (SMA plug, Male)

Mechanicals

DIN Rail, mountable enclosure

Dimensions (with housing, no antennas, WxHxD): 31mm X 115.51mm x 71.54mm (1.22" X 4.55" X 2.82")

Weight (CCA + Housing): 126g / 0.278 lb.

Weight (CCA + Housing + Modem): 0.158 kg / 0.348 lb.

Operating Temperature Range -20°C to +70°C (-4° to 158°F)

Cooling: Natural Convection - No Fans

User Interface

Mobile App: iOS and Android (connected via Wi-Fi directly to CCA) <https://support.tigoenergy.com/hc/en-us/articles/204899957>

Multi-function LED indicator: (Red/Green/Orange). View Guide here: <https://support.tigoenergy.com/hc/en-us/articles/204899957>

For supported protocols and devices, see: <https://support.tigoenergy.com/hc/en-us/sections/200408647>



For ordering information

Contact: sales@tigoenergy.com

Or call: 1.408.402.0802

For more information about Tigo products:

Go to www.tigoenergy.com/products

