



ALLIS ELECTRIC CO.,LTD.

**SOLAR
POWER**



Photovoltaic Inverter

Renewable Energy -
Environmentally Friendly and Low Cost Energy Solutions



Since 1968



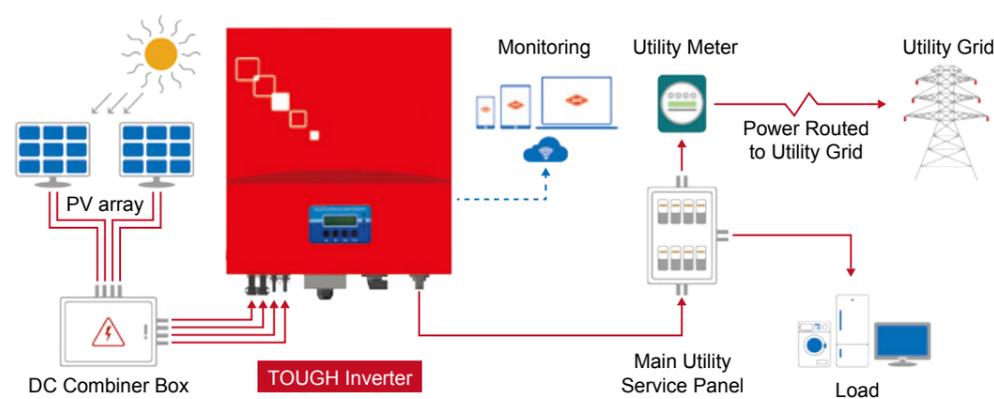
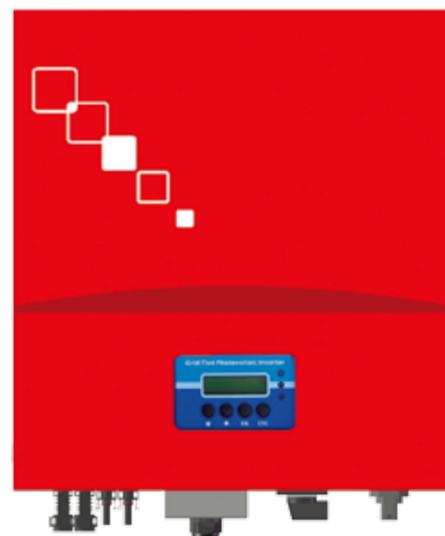
TOUGH SERIES

Single phase Grid-Tied

3.3 kW - 5kW

Features :

- Select Single/Dual MPPT (Maximum power point tracking) automatically, the range of MPPT: 150-500 Vdc
- Maximum DC voltage is up to 650V to design system on best MPPT easily
- Maintenance-free fan-less nature cooling design.
- Modbus RS485 supported for monitoring
- Conformity to the EMC, Low Voltage Directives and Standards, e.g. 2004 /108 / EC, 2006 / 95 / EC, IEC / EN 62109-1 / -2 and VDE-AR-N 4105.



Specification :

| Model | Tough-3300 | Tough-5000 |
|--|-------------------------------------|------------------|
| Output Data (AC) | | |
| Maximum AC Output | 3,300W | 5,000W* |
| Maximum AC Output Current | 16.5 a.c.A | 22 a.c.A |
| Nominal AC Voltage | 220 a.c.V-240 a.c.V | |
| Grid AC Frequency | 50/60Hz, auto-selection | |
| Power Factor | > 0.99 @ 20% load | |
| Reactive Power Factor | 1 or adjustable from -0.9 to +0.9** | |
| Total Harmonic Distortion | < 3% | |
| AC connection / Grid forms | Single-Phase / TN-C, TN-S, TN-C-S | |
| Input Data (DC) | | |
| Maximum DC Power | 3,600W | 5,300W |
| Maximum DC Input Current | 2 x 10 d.c.A | 2 x 15 d.c.A |
| Max. number of MPP Trackers | 2 | |
| Maximum DC Voltage | 650 d.c.V | |
| MPP Tracking Voltage Range | 150-500 d.c.V | |
| Peak Power Tracking Voltage Range | 200-460 d.c.V | |
| Efficiency | | |
| MPPT Efficiency | >99.9% | |
| Maximum Efficiency | 96.5% | 96.9% |
| Euro. Efficiency | 96.1% | 96.6% |
| Consumption: Standby / Night | <12.5W / <0.2W | |
| General Specification | | |
| Dimensions (W x H x D) in mm | 405 x 442 x 165 | |
| Weight | 25.8kg | |
| Cooling Concept | Natural Cooling | |
| Acoustic Noise Level | < 35dB | |
| Maximum Operating Temperature Range without derating | -25 °C to +60 °C | -20 °C to +55 °C |
| Ambient Temperature Range | -25 °C to +60 °C | |
| Relative Humidity | 0 to 95%, non-condensing | |
| Protection Degree | IP65 | |
| Topology | Transformerless | |
| Features | | |
| DC Connection | MC4 | |
| DC Disconnect | yes | |
| AC Connection | AC connectors | |
| Display | LCD screen | |
| Communication Interface | RS232 ,RS485 ; Bluetooth (Option) | |
| Safety | VDE-AR-N 4105 ; IEC 62109-1 / -2 | |
| Warranty | 5 years | |

* For VDE-AR-N4105, the inverter is rated 4,600VA
 ** Adjustable from 0.95 over-excited to 0.95 under-excited with VDE-AR-N 4105
 *** Specifications are subject to change without prior notice.

Success Applications

Oversea

- Project: 50kW Off-Grid System
- Model: Central Inverter Series
- Location: Indonesia
- Application: Micro grid for no utility island



- Project: 300kW Grid-tide System
- Model: Tough Series
- Location: Taichung
- Application Environment: Install on the roof of railway stations



- Project: 2MW Grid-tide System (FIT)
- Model: Trinergy Plus Series
- Location: Taoyuan



Taiwan

- Project: 6kw Self-Consumption System
- Location: Central Japan International Airport, Nagoya



- Project: 45 kW Self-Consumption System
- Model: Selfnergy Series
- Location: Ho Chi Minh, Vietnam
- Application: PV-Genset Fuel saving solution



- Project: 30kW Self-Consumption System
- Model: Trinergy plus Series
- Location: South Africa



- Project: 15kW Self-Consumption System
- Model: Tough Series
- Location: Philippines
- Application: Home power saving solution



- Project: 10kW net metering
- Model: Tough Series
- Location: Cebu, Philippines



- Project: 5kW Self-consumption system
- Model: Selfnergy Series
- Location: Cebu, Philippines



- Project: 5kW Self-Consumption System
- Model: Selfnergy Series
- Location: Philippines
- Application : Home power storage solution



- Project: 499kW Grid-tide System (FIT)
- Model: Trinergy Plus Series
- Location: Changhua Coastal Industrial Park
- Application: Roof top PV site at a Belt Factory



- Project: 100kW Grid-tide System (FIT)
- Model: Tough Series
- Location: Gangshan District, Kaohsiung
- Application Environment: Piggery



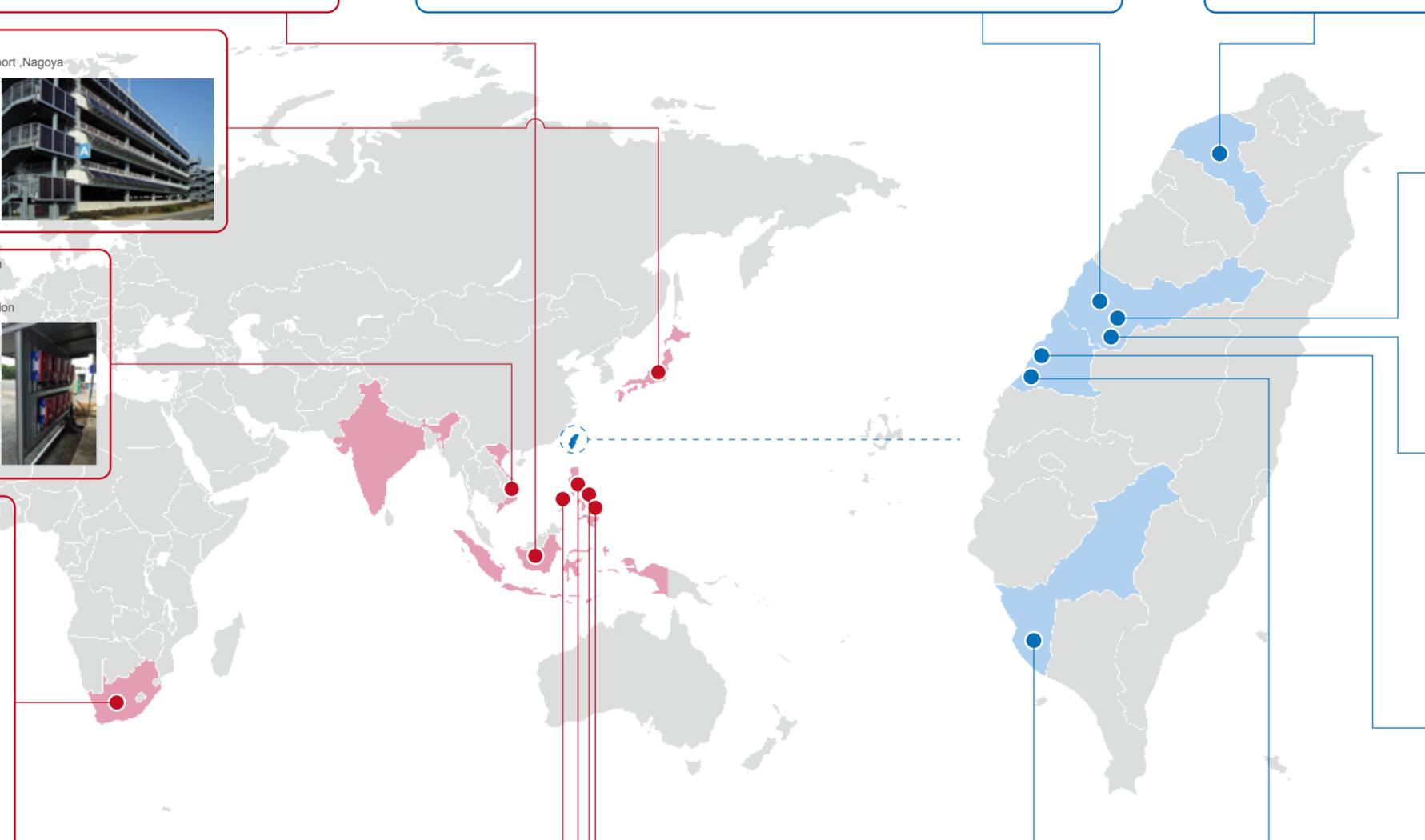
- Project: 70kW Grid-tide System (FIT)
- Model: Tough Series
- Location: Taichung
- Application: Roof top PV site of a Motor Factory



- Project: 850kW Grid-tide System (FIT)
- Model: Trinergy Plus Series
- Location: Wufeng Industrial Park, Taichung
- Application: Roof top PV site at a Steel Factory



- Project: 1MW Grid-tide System (FIT)
- Model: Trinergy Plus Series
- Location: Changhua Coastal Industrial Park
- Application: land mount PV site



Have installed more than 200MW PV sites since 2011...

Solar Power System Demonstration

Feed-in Tariff Application at Yangmei Factory

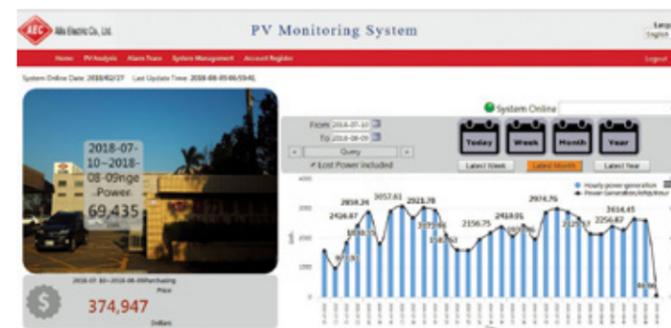
- System Capacity : 498 kW
- PV Modules : 295W × 1,961 pieces
- Inverter Model : Trinergy plus 30 kW × 14 units and 20 kW × 2 units
- Average power generation estimated by year: ≒ 492,104 kWh
(about 2.9 kWh/day/kW × 498 kW × 365days)



Rooftop Mounting PV System



Trinergy plus PV Inverter



Advanced Web Monitoring System

Why Solar Power...

- Electrical bill saving
- Safe, reliable and efficient power generator
- Reduce carbon footprint and emit no pollution
- Versatile and convenient
- Customized design

Why Allis' Inverter...

- Optimum productivity
- Wide range of MPPT voltage
- Full range product line from 3.3kW to 1,260kW, single to three phase
- 50 years stable operation company with professional experience in power electricity

Product Catalog

| Model | Max. DC Voltage (d.c.V) | Max. Input Current (d.c.A) | Max. DC Input Power (W) | MPPT | Battery |
|--------------------|-------------------------|----------------------------|-------------------------|------|---------|
| Tough-3300 | 650 | 10 × 2 | 3,600 | 2 | No |
| Tough-5000 | | 15 × 2 | 5,300 | 2 | |
| Trinergy Plus-10kW | 1,000 | 12.5 × 2 | 11,000 | 2 | |
| Trinergy Plus-20kW | | 25 × 2 | 20,800 | 2 | |
| Trinergy Plus-30kW | | 33 × 2 | 33,000 | 2 | |
| Trinergy Plus-40kW | | 74 × 1 | 55,000 | 1 | |
| Trinergy Plus-50kW | 1,100 | 90 × 1 | 66,000 | 1 | |
| Trinergy Plus-60kW | | 120 × 1 | 72,000 | 1 | |
| Trinergy Plus-70kW | | 120 × 1 | 77,000 | 1 | |
| Selfnergy-3300 | 650 | 18 × 1 | 3,600 | 1 | |
| Selfnergy-5000 | | 24.5 × 1 | 5,300 | 1 | |
| Selfnergy-L 3.6K | 550 | 11 × 2 | 4,000 | 2 | |
| Selfnergy- L 5K | | 11 × 2 | 5,500 | 2 | |
| AEC500K-B | 1,000 | 1,200 × 1 | 560,000 | 1 | No |
| AEC630K-B | | 1,350 × 1 | 710,000 | 1 | |
| AEC1000K-B | 1,000 | 2 × 1,200 × 2 | 1,120,000 | 2 | |
| AEC1260K-B | | 2 × 1,350 × 1 | 1,420,000 | 2 | |



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