

Application Brief

TRC[®]

SMARTPHASE[™]

Introducing SmartPhase[™] 1.2 Kilowatt Grid Tied Micro Parallel Inverter

Technology Research Corporation, a subsidiary of Coleman Cable, Inc., has designed and developed a new class of inverter, the Smart Phase[™] Micro Parallel Inverter. These inverters are designed around the concept of easing the ergonomic burden of installation, diagnostics and maintenance. The inverters mount to either the solar panels or framework.



A micro parallel inverter has the safety and data of an AC micro inverter with the installation convenience and placement flexibility of a DC string inverter. Inverter performance, health, and status are relayed via power line communication (PLC) to an Energy and Monitoring Controller (EMC) which updates a self-launching website for remote viewing and data extraction.

The physical mapping of the panel locations to the software map is performed automatically by the EMC. This replaces the manual installation mapping process used by others. Maintainers no longer need to hunt for panels or inverters that were erroneously mapped in the software during installation. The data resolution is sufficient to trace performance and faults to individual panels, inverters, and modules. The patent pending (utility patents filed) architecture has four independent channels per inverter. The inverter remains operational, generating power and relaying performance, health, diagnostics data and alerts to the maintainer with as few as one solar panel and one inverter channel functional. The software architecture allows the inverter's firmware and the EMC software to be remotely upgraded buttressing installed units against obsolescence.

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Inverter Characteristics

- ▶ 1.2kW instantaneous and 1.1kW continuous output power.
- ▶ Robust performance and graceful degradation up to 4 panels per inverter. Continues to operate with as few as 1 panel and 1 channel.
- ▶ Automatic panel map generation for software interface.
- ▶ Self-diagnostics.
- ▶ AC inverters eliminate the need for DC combiner boxes.
- ▶ Easy single handed blind mount installation.
- ▶ Smart grid data collection; web-based reporting, control and alerts.
- ▶ Secure remote power output throttling and on/off control.
- ▶ 120/240V 1 Phase AC.
- ▶ 120/208/240V 3 Phase AC. Y or Δ configuration.

To learn more about Smart Phase[™] 1.2 Kilowatt Grid Tied Micro Parallel Inverter please call: 1-800-780-4324

SMARTPHASE™

INPUT DATA	
Recommended input power	210-300 W
Maximum input DC voltage	50 V
Peak power tracking voltage	25-50 V
Operating range	25-50 V
Start voltage (min./max.)	25-50 V
Maximum DC short current	15 A
Maximum input current	13 A
OUTPUT DATA	
Peak output power	1.2 kW
Rated continuous power	1.1 kW
Nominal current (A) rms @ Nominal duration	4.58 @ 240V, 5.29 @ 208V, 9.16 @ 120V
Nominal voltage/range (V)	240/211-264, 208/190-222, 120/95-135
Nominal frequency/range Hz	60/59-61
Extended frequency/range Hz	57-62.5
Power factor	>0.95
Maximum units per 30A branch circuit	24 panels, 6 inverters @ 240V
Maximum output fault current (A)	80mA rms for 6 cycles
Maximum units per 20A branch circuit	16 panels, 4 inverters @ 240V
THDi (at rated power)	<5%
EFFICIENCY %	
CEC weighted efficiency	96
Peak inverter efficiency	96
Static MPPT efficiency weighted ref EN50530	99.4
Night time power consumption (mW max)	<0.005 W
SIZE, WEIGHT & TEMPERATURE	
Dimensions	39"W x 6.5"H x 0.75"D
Weight	8 kg
Ingress protection (IP)	IP 66
Ambient temperature range	-40°C to 65°C
KEY FEATURES	
Password secure remote via Internet	Power generation on/off throttle
Wizard-based installation	Start up and automatic panel map creation
PV module cell compatibility	60/72
Communication	PLC
Monitoring	Self-launching web
SAFETY & EMC	STANDARDS COMPLIANCE
Safety and EMC	CAN/CSA-22.2 no. 107.1-01

