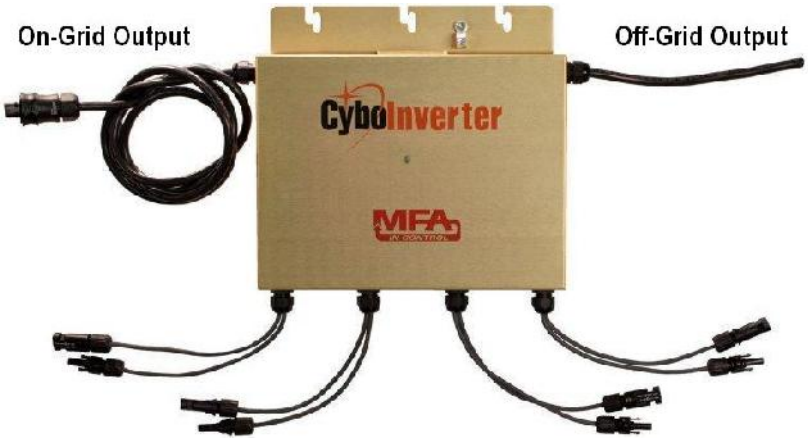
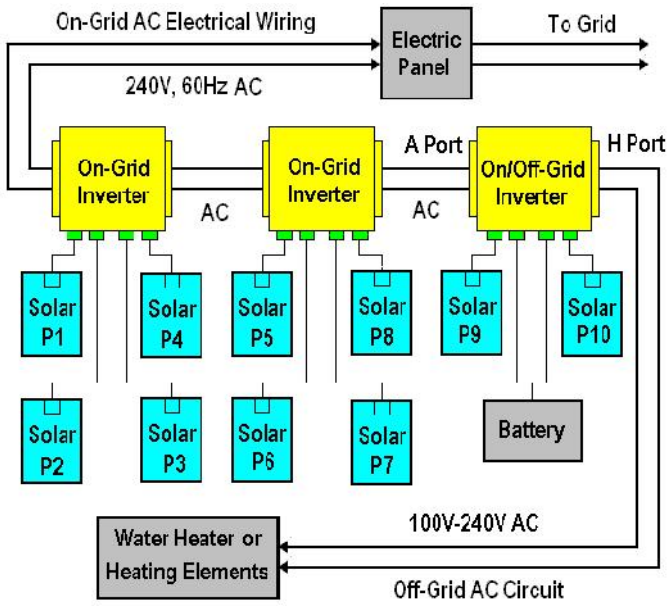

# On/Off-Grid Mini-Inverter for Grid AC or Solar PV Water Heating

CyboInverter




- On-Grid or Off-Grid Mode
- Specially Designed for Powering Electric Water Heaters in Off-Grid Mode
- Solar or Battery Input for each Channel
- MPPT for Each Solar Panel
- Outdoor or Indoor Mounting
- High Efficiency and Long Life
- Much Easier to Install than Thermal Solar Water Heaters

Each CyboInverter (CIM-1200A/H) can connect to 4 solar panels and produce 1150W, 240V, 60Hz to the grid in on-grid mode, or power an electric water heater through its H Output Port in off-grid mode.




When the grid is on, the inverter works like a regular on-grid inverter that meets UL1741 and IEEE1547 standards including: over and under voltage shutdown; over and under frequency shutdown; and anti-islanding.

When the grid is down, the inverter will shutdown immediately and then send a test signal from its off-grid output port to check the status of the connected off-grid AC circuit. If there is no AC present and an AC load is detected, it will generate AC to power the load.

In the off-grid mode, when the inverter detects the grid is back on, it will stop powering the load. After a 5-minute UL mandatory wait, the inverter will send AC power to the grid again.

The drawing shows 2 on-grid and 1 on/off-grid CyboInverters daisy-chained as a group.

**Product: 4 Channel 1.2KW On/Off-Grid CyboInverter for Grid or PV Heating.**
**Part No: CIM-1200A/H H Port runs electric water heater/heating elements only.**

# Technical Data of CIM-1200A/H (Rev 5.1 - June 2017)

| DC Input (per Channel) | 60/72 Cell Panel | Battery* |
|---|---|---|
| Recommended Input Power | 250W – 330W | 48V, 100AH |
| Operating Input DC Voltage Range | 15V – 58V | 47V – 58V |
| Peak Power Performance Range | 30V – 58V | 48V – 58V |
| Maximum Input DC Voltage / Current | 58V / 9A | 58V / 9A |
| Maximum Input Power | 300W | 300W |
| Minimum Starting Voltage | 20V | 47V |
| Compatible Solar Panels | Most 60-Cell and 72-Cell PV Solar Panels | |
| Compatible Batteries | 48V Lead-Acid Deep-Cycle AGM or Lithium-Ion Pack | |
| **AC Output** | On-Grid, A Port | Off-Grid, H Port |
| Rated Output Power / Peak Output Power | 960W / 1150W | 960W / 1150W |
| Nominal Output Current (RMS) | 4A | 4A – 8A |
| Nominal Output Voltage / Range | 240V (211V – 264V) | 100V – 240V / (10V – 264V) |
| Nominal Frequency / Range | 60Hz (59.3 – 60.5) Hz | 60Hz (59.5 – 60.5) Hz |
| Power Factor / Harmonic Distortion | >0.95 (THD < 4%, 2nd Harmonic < 1%) | |
| Compatible Water Heaters or Heating Elements | 1KW to 3KW, 240V Heating Elements | |
| **Efficiency** | Data | |
| Peak Efficiency / Solar MPPT Tracking | 96% / 99% | |
| **Mechanical Data** | SI | U.S. |
| Ambient Temperature Range | -40°C to +65°C | -40°F to +149°F |
| Internal Operating Temperature Range | -40°C to +88°C | -40°F to +190°F |
| Dimensions w/o mounting bracket (L x H x W) | 32cm x 24cm x 5.8cm | 12.5” x 9.5” x 2.3” |
| Weight | 6.5 kg | 14.25 lbs |
| Cooling / Enclosure | Natural Convection, No Fan / Potted | |
| DC Connectors / AC Connectors | MC-4 or Compatible / Wieland RST 3-Conductor | |
| **Compliance and Features** | Data | |
| Safety and EMC Compliance | UL1741 and IEEE1547 (E113426), CSA 107.1, FCC Part 15 Class A. NEC 690.12 Rapid Shutdown of PV Systems. | |
| DC Ground Fault Detector Interrupter (GFDI) | Built-In | |
| Standard Warranty | 3 Years (Extended Warranty Available) | |
| Enclosure Environmental Rating / Safety | Outdoor, NEMA 6 (IP67) / Transformer Isolated Circuits | |

**Made in U.S.A.**