## AS-INV 3000 G Series

**AS-INV 3000 G Series On-Grid String Inverters**
20-30 kW (HF) Ongrid Inverters

## AS-INV 3000 C Series

**AS-INV 3000 C Series**
110-500 kW (HF) Ongrid Central Inverters

## AS-INV 3000 Series

**AS-INV 3000 Series**
2,4-20 kW (LF) Offgrid Inverters

## AS-INV 1000 Series

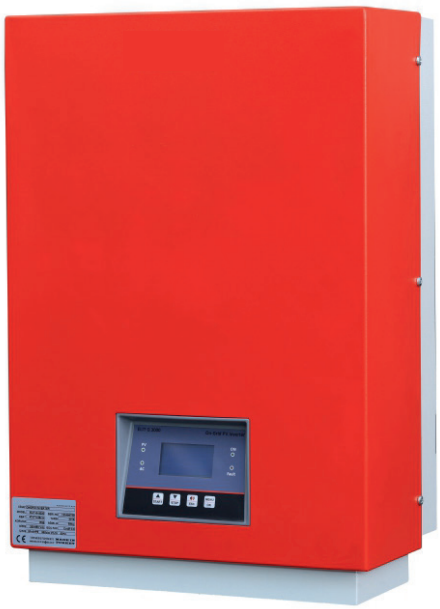
**AS-INV 1000 Series**
1-6 kW (LF) Offgrid Inverter with Charger

## POWER INVERTER

The inverter by its own cannot produce electricity, but just converts the existing DC voltage (direct current) voltage into AC (alternating current). Inverter converting the DC voltage into AC voltage is a device designed to satisfy the energy requirements of instruments where there is no mains. In other words, the inverter can be described as a device that converter 12, 24, 48 and 110 VDC battery voltage into 220 VAC, 50Hz voltage. 50Hz 220VAC output inverters are manufactured mainly in 3 types as Square wave inverters, sinusoidal analogy output inverters and Modified Sine wave inverters. Today, Grid Connected inverters have been developed having high DC voltage input range for renewable energy applications. There are two types Grid connected Inverter as Ongrid and Offgrid. Ongrid Inverters can feed the grid while Offgrid inverters work independent from grid and feed its own loads.

Inverters are usually used in various places for different applications as wind and solar energy applications, sea and land transport vehicles, the GSM network and other communication areas, in zones in where no mains, applications need to store energy (backed up energy) etc. Recently, solar charger, wind charger, solar and wind inverter&battery charging rectifier in solar and wind energy applications.

# AS-INV 3000 G Series



Bottom View

## AS-INV 3000 G Series On-Grid Inverter Technical Specifications
20-30 kW Three Phase String PV Inverter

| MODEL | INV G 3020 | INV G 3030 |
|---|---|---|
| **DC DATA** | | |
| Recommended PV Power (kW) | 24 | 32 |
| MPPT Voltage Range | 580-850 Vdc | |
| Max. DC Voltage | 1000 Vdc | |
| Max. DC Current | 42 | 63 |
| MPP Tracking | 1x Fast Precise MPP Tracking | |
| Number of DC Connections | 6 | |
| **AC DATA** | | |
| Max AC Power (kW) | 20 | 30 |
| AC Grid Connection | L1, L2, L3, N, PE | |
| AC Rated Voltage | 400 Vac +%10 - %20 | |
| Frequency Range | 50, 60 / 45 ... 65 Hz | |
| CosØ | 0,9i…0,9c | |
| Max. AC Current | 28,9 | 43,4 |
| THDi | < 3% | |
| Max. Efficiency | 98,10% | |
| EU Efficiency | 97,50% | |
| CEC Efficiency | 97,70% | |
| **PROTECTIONS** | | |
| Overvoltage Category (AC/DC) | Type II | |
| AC Short Circuit | Electronic Protection | |
| Grid High / Low Voltage | Yes | |
| **ENVIRONMENTAL** | | |
| Ambient Temperature | -10...+50 °C | |
| Altitude | <2000 m | |
| Acoustic Noise (1 m.) | <50 dBA | |
| Protection Type | IP65 | |
| **COMMUNICATION** | | |
| Interface | RS485 | |
| **PHYSICAL** | | |
| Dimensions (WxDxH) mm. | 480x325x705 | 700x325x705 |
| Weight (kg) | 45 | 50 |
| **STANDARDS** | | |
| EMC | EN 61000-6-2, EN 61000-6-4 | |
| LVD | DIN EN 62109-1 , DIN EN 62109-2 | |
| Grid Protection | VDE 0126-1-1 | |
| Environmental Classes | DIN IEC 721-3-3 | |
| Certificate | CE | |

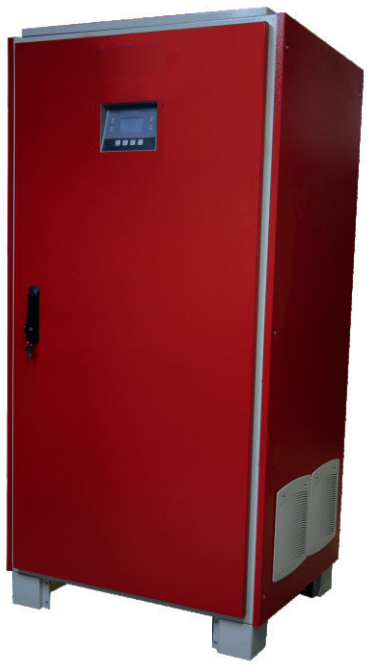
## GENERAL FEATURES

- 3 Phase Utility Connection
- Built-in MPPT
- IGBT Based PWM Technology
- High Efficiency
- DSP Controlled
- User Friendly LCD Panel
- Easy to Use
- CE Certificate

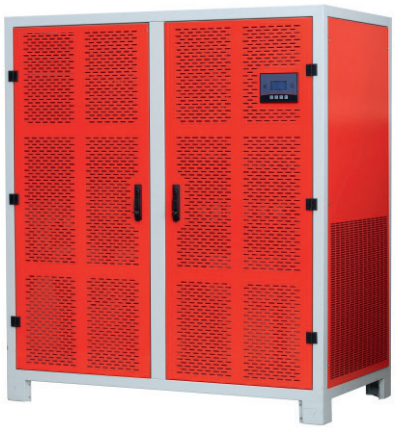
## ONGRID SOLAR INVERTER

AS-INV 3000 G solar inverter gets the energy from the PV panel and injects it to the grid. AS-INV 3000 G has three levels IGBT technology inside therefore its efficiency is very high with respect to conventional solar inverters. Not only is nominal power, even if low power, its efficiency is very high. Beside the three levels technology, it has DSP (digital signal processor) technology. Thanks to DSP all the controls of the inverter are made by software. On the other hand, inverter has graphic LCD at front panel to display all the necessary information to the user including current, voltage, etc. Because of MPPT feature of the inverters, the maximum powers of the PV panels are tracked in every condition.

## AS-INV 3000 C Series



INV C 3110



INV C 3500

## AS-INV 3000 C Series On-Grid Inverter Technical Specifications

110-500 kW 3 Phase Ongrid Central Inverter

| MODEL | INV C 3110 | INV C 3150 | INV C 3250 | INV C 3500 |
|---|---|---|---|---|
| **DC DATA** | | | | |
| Recommended PV Power (kW) | 110 | 160 | 260 | 520 |
| MPPT Voltage Range | 580-850 Vdc | | | |
| Max. DC Voltage | 1000 Vdc | | | |
| Max. DC Current | 198A | 270A | 450A | 900A |
| MPP Tracking | 1 | | 1 (on request 2) | |
| Number of DC Connections | 4-8 | 4-8 | 4-10 | 4-15 |
| DC Protection | Yes | | | |
| **AC DATA** | | | | |
| Max AC Power (kW) | 110 | 150 | 250 | 500 |
| AC Grid Connection | L1, L2, L3, N, PE | | | |
| AC Rated Voltage | 400 Vac +%10 - %20 | | | |
| Frequency Range | 50, 60 / 45 ... 65 Hz | | | |
| CosØ | 0,9i…0,9c | | | |
| Max. AC Current | 160A | 217A | 362A | 724A |
| THDi | < 3% | | | |
| Max. Efficiency | 98,80% | | | |
| EU Efficiency | 98,00% | | | |
| CEC Efficiency | 98,50% | | | |
| **PROTECTIONS** | | | | |
| Over Voltage Category (AC/DC) | Type II | | | |
| AC Short Circuit | Electronic Protection | | | |
| Grid High / Low Voltage | Yes | | | |
| **ENVIRONMENTAL** | | | | |
| Operation Temperature | -10...+50 °C | | | |
| Cooling | Fan | | | |
| Altitude | <2000 m | | | |
| Acoustic Noise (from 1m.) | <70 dBA | | | |
| Protection Class | IP20, IP43 | | | |
| **COMMUNICATION** | | | | |
| Interface | RS485 | | | |
| **PHYSICAL** | | | | |
| Dimensions (WxDxH) mm. | 840x680x1670 | | 1000x868x1800 | |
| Weight (kg) | 290 | 315 | 540 | 685 |
| **STANDARDS** | | | | |
| EMC | EN 61000-6-2, EN 61000-6-4 | | | |
| LVD | DIN EN 62109-1 , DIN EN 62109-2 | | | |
| Mains Protection | VDE 0126-1-1 | | | |
| Enviromental Class | DIN IEC 721-3-3 | | | |

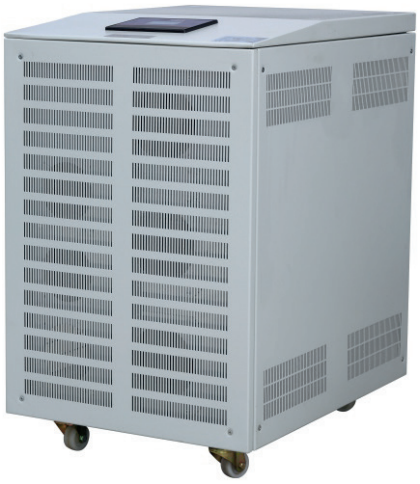
### ONGRID SOLAR INVERTER

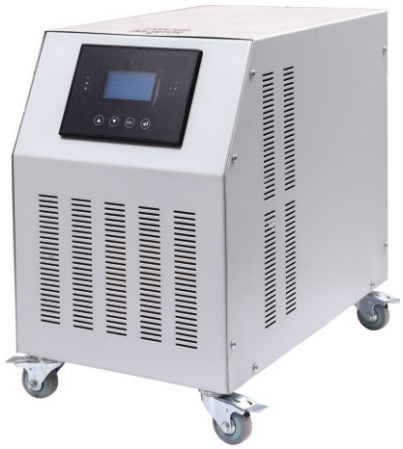
AS-INV 3000 C Ongrid Solar Inverter converts DC energy coming from PV Panels to AC Voltage and transfer it Interconnected Mains System. It uses built in MPPT algorithm and transfer maximum power to mains. User can track all electrical values of Inverter and produced power statistics by means of Advanced LCD Panel

### GENERAL FEATURES

- 3 Phase Utility Connection
- Built-in MPPT
- IGBT Based PWM Technology
- High Efficiency
- DSP Controlled
- User Friendly LCD Panel
- Easy to Use

## AS-INV 3000 Series





# AS-INV 3000 Series Offgrid Inverter Technical Specifications

3-20 kVA LF Offgrid Inverter

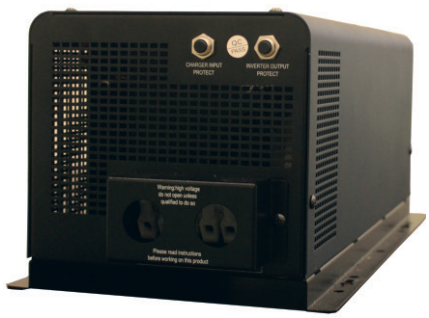
| MODEL | 3048 | 5048 | 7548 | 10048 | 3060 | 5060 | 7560 | 10060 | 3110 | 5110 | 8110 | 10110 | 12110 | 15110 | 20110 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Apparent Power (kVA)* | 3 | 5 | 7,5 | 10 | 3 | 5 | 7,5 | 10 | 3 | 5 | 8 | 10 | 12 | 15 | 20 |
| Active Power (kW)* | 2,4 | 4 | 6 | 8 | 2,4 | 4 | 6 | 8 | 2,4 | 4 | 6,4 | 8 | 9,6 | 12 | 16 |
| **INPUT** | | | | | | | | | | | | | | | |
| Voltage | 48 Vdc | | | | 60 Vdc | | | | 110 Vdc | | | | | | |
| Voltage Tolerance | ± 10% | | | | | | | | | | | | | | |
| Ripple | <3% | | | | | | | | | | | | | | |
| Low Input Level | 40 Vdc | | | | 54 Vdc | | | | 88 Vdc | | | | | | |
| High Input Level | 60 Vdc | | | | 72 Vdc | | | | 137 Vdc | | | | | | |
| Bypass Voltage | 220 VAC ±%20 | | | | | | | | | | | | | | |
| **OUTPUT** | | | | | | | | | | | | | | | |
| Voltage | 220 Vac (Optional 230/240 Vac) | | | | | | | | | | | | | | |
| Voltage Tolerance | ± %2 | | | | | | | | | | | | | | |
| Frequency | 50/60/83/400 Hz | | | | | | | | | | | | | | |
| Frequency Tolerance | <± 0.4% | | | | | | | | | | | | | | |
| Waveform | Pure Sine Wave | | | | | | | | | | | | | | |
| THDv | < % 6 | | | | | | | | | | | | | | |
| Crest Ratio | 3:1 | | | | | | | | | | | | | | |
| Overload | 60 sec for %150 load@50 Hz | | | | | | | | | | | | | | |
| **GENERAL** | | | | | | | | | | | | | | | |
| Display | Graphic LCD | | | | | | | | | | | | | | |
| Alarm Contacts | Available | | | | | | | | | | | | | | |
| Ouput GND Isolation | 2000 V | | | | | | | | | | | | | | |
| Input Output Isolation | 500 V | | | | | | | | | | | | | | |
| Protections | Soft Start,Over Temperature,High/Low Input Voltage,High/Low Output Voltage,Overload,Short Circuit | | | | | | | | | | | | | | |
| **ENVIRONMENTAL** | | | | | | | | | | | | | | | |
| Operating Temperature | 0-40 °C | | | | | | | | | | | | | | |
| Stroge Temperature | -40 ~ +70 °C | | | | | | | | | | | | | | |
| Relative Humidity | % 0-95 (Non-condensing) | | | | | | | | | | | | | | |
| Altitude | <2000 m | | | | | | | | | | | | | | |
| Cooling | Forced Air Cooling | | | | | | | | | | | | | | |
| Protection Level | IP20 | | | | | | | | | | | | | | |
| **PHYSICAL** | | | | | | | | | | | | | | | |
| Dimensions (HxWxD) mm. | Up to 5 kVA 315x535x435;5-10 kVA:460x600x550 15-20 kVA:439x623x1186 | | | | | | | | | | | | | | |
| **STANDARTLAR** | | | | | | | | | | | | | | | |
| Harmonized Standards | EN 620400-1 (LVD), EN 62040-2 (EMC) | | | | | | | | | | | | | | |

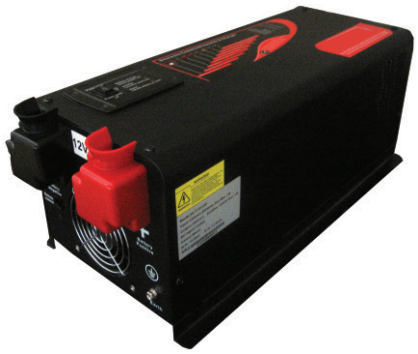
*Other powers can be manufactured per request

## OFFGRID SINE WAVE INVERTER

The AS-INV 3000 series inverters produced in AS facilities with the latest technology are power supplies providing the same voltage form as the utility. They have advanced technology of DSPs (Digital Signal Processors) to convert 48V, 60V and 110V DC voltages into 220 Vac, 50Hz. These inverters can be utilized for the supplying of all electrical equipment without any trouble because of the pure sine wave at the output. Since the energy source is a DC voltage when there is no utility source, they can provide long-life energy in land, marine vehicles, industrial institutions, railways, military applications, telecommunication switchboards, energy production centers. Thanks to the DSP technology, frequencies are available to be formed sensitively, with a little change in software; they can be reassigned as 60Hz, 83Hz and 400Hz. These inverters are available for all kinds of applications due to the wide input voltages, standard power options between 3000VA to 20.000 VA, silent performance, high efficiency, and pure sine wave.

## AS-INV 1000 Series





## AS-INV 1000 Series
1-6 kW (LF) Inverter with Charger

| MODEL | 1012M / 1024M | 2012M / 2024M | 3012M / 3024M | 4024M / 4048M | 5024M / 5048M | 6024M / 6048M |
|---|---|---|---|---|---|---|
| **INVERTER OUPUT** | | | | | | |
| Continuous Output Power | 1000W | 2000W | 3000W | 4000W | 5000W | 6000W |
| Surge Rating(20s) | 3000W | 6000W | 9000W | 12000W | 15000W | 18000W |
| Output Waveform | Pure Sine wave/Same as input(Bypass mode) | | | | | |
| Nominal Efficiency | >88%(Peak) | | | | | |
| Line Mode Efficiency | >95% | | | | | |
| Power Factor | 0.9-1.0 | | | | | |
| Nominal Output Voltage RMS | 230Vac | | | | | |
| Output Voltage Regulation | ±10% RMS | | | | | |
| Output Frequency | 50/60Hz ± 0.3Hz | | | | | |
| Short Circuit Protection | Yes, Current Limit Function (Fault after 10sec) | | | | | |
| Typical Transfer Time | 10ms | | | | | |
| THDi | < 3% | | | | | |
| **DC INPUT** | | | | | | |
| Nominal Input Voltage | 12.0Vdc ( *2 for 24Vdc, *4 for 48Vdc) | | | | | |
| Minimum Start Voltage | 10.0 Vdc | | | | | |
| Low Battery Alarm | 10.5/11.0 Vdc | | | | | |
| Low Battery Trip | 10.0/10.5 Vdc | | | | | |
| High Voltage Alarm & Fault | 16.0Vdc | | | | | |
| Idle Consumption-Search Mode | < 25 W when Power Saver On | | | | | |
| **CHARGER** | | | | | | |
| Input Voltage Range | Narrow : 194~243VAC; Wide : 164~243VAC | | | | | |
| Output Voltage | Depends on battery type | | | | | |
| Charger Breaker Rating | 10 | | 20 | | 30 | |
| Max Charge Rate (±5A) | 35A/70A | | | | | |
| Over Charge Protection Shutdown | 15.7V for 12Vdc ( *2 for 24Vdc, *4 for 48Vdc) | | | | | |
| **BYPASS & PROTECTION** | | | | | | |
| Input Voltage Waveform | Sine wave (Grid or Generator) | | | | | |
| Nominal Voltage | 230Vac | | | | | |
| Low Voltage Trip | 184V/154V±4% | | | | | |
| Low Voltage re Engage | 194V/164V±4% | | | | | |
| High Voltage Trip | 253V±4% | | | | | |
| High Voltage re Engage | 243V±4% | | | | | |
| Max Input AC Voltage | 270VAC | | | | | |
| Nominal Input Frequency | 50Hz or 60Hz (Auto detect) | | | | | |
| Low Freq Trip | 47±0.3Hz for 50Hz, 57±0.3Hz for 60Hz | | | | | |
| High Freq Trip | 55±0.3Hz for 50Hz, 65±0.3Hz for 60Hz | | | | | |
| Output Short Circuit Protection | Circuit Breaker | | | | | |
| Bypass Overload Current | 35 A (Alarm) | | | 45 A (Alarm) | | |
| Max Bypass Current | 30 A | | | 40 A | | |
| **MECHANICAL SPECIFICATIONS** | | | | | | |
| Mounting | Wall mount | | | | | |
| Dimensions (WxDxH) mm | 382x218x179 | 442x218x179 | | 598x218x179 | | |
| Weight (Net/Gross) kg. | 18/21 | 20/23 | 24/27 | 35/39 | 45/49 | 45/49 |
| Display | Status LEDs | | | | | |
| **STANDARDS** | | | | | | |
| Standards | EN 60950-1; EN61000-3-2; EN61000-3-3:2005, EN55024:2003 | | | | | |

### HIGH FREQUENCY INVERTER

AS-INV 1000 Series inverters are devices forming line voltage from 12 V, 24 V and 48 V battery voltages used in daily life and business life. Thanks to practical uses, output isolation transformer structures and charging facilities, these units are used safely in land and sea vehicles and open spaces. Because generates output voltage in the form of Sinusoidal, they offer trouble-free solution to all kinds of loads such as computer, TV, refrigerator, lighting, engine load and so on.