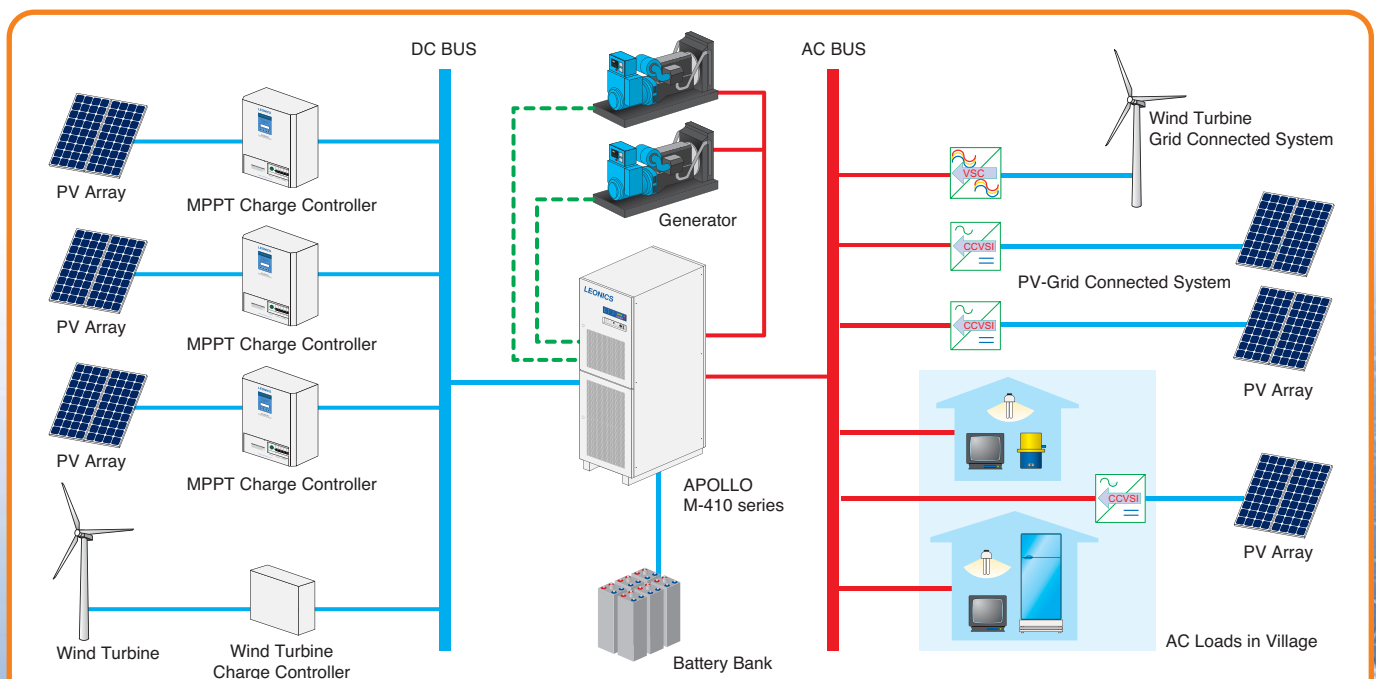


## APOLLO M-410

### Single Phase Bidirectional Dual Mode Hybrid Inverter for Mini-grid System



- Single phase bidirectional inverter with built-in output transformer
- Low harmonic distortion (less than 3%)
- High efficiency > 95%
- High reliability design for remote area
- Separate DC Bus for multiple source charging
- Capable to use with multiple renewable energy sources in both DC coupling and AC coupling such as solar (PV) panel, wind turbine generator and micro hydro generator
- Monitor energy available from the renewable energy (DC) sources and minimize the charging current from the diesel generator
- Automatic / Manual generator control
- Frequency shift energy management control (option)
- Automatic battery equalization (option)
- Battery temperature compensation (Temperature sensor is not included)
- Preset time schedule by System Command Unit (SCU) for automatic controlling the auxiliary power sources such as generators in mini-grid system (option)
- IP65 protection outdoor enclosure (option)
- Parallel operation (option)
- ISO 9001 and ISO 14001 certified factory



APOLLO M-410 series is a single phase bidirectional dual mode hybrid inverter capable of functioning as a main supply power source as well as providing automatic control and management of a generator and battery bank. The inverter features very high efficiency in both charger and inverter modes with maximum efficiency of 95%. It is suitable for hybrid power system with supplement diesel generator in off-grid areas.

## APOLLO M-410 series Single Phase Bidirectional Dual Mode Hybrid Inverter for Mini-Grid System

MODEL		M-412E	M-413E	M-414F	M-415F	M-416F
RATED POWER		5 kW	7.5 kW	10 kW	15 kW	20 kW
BATTERY	Nominal voltage	120 Vdc		240 Vdc		
	Maximum charging current	28 A	42 A	28 A	42 A	56 A
	Maximum battery current	50 A	75 A	50 A	75 A	100 A
EXTERNAL DC CHARGER	Nominal voltage	120 Vdc		240 Vdc		
	Maximum current	40 A	60 A	40 A	60 A	60 A
AC INPUT FROM GENERATOR	Recommended generator power	> 10 kW	> 15 kW	> 20 kW	> 30 kW	> 40 kW
	Voltage	220 / 230 / 240 Vrms ± 10%				
	Phase	Single phase				
	Frequency	50 / 60 Hz ± 3 Hz				
	Maximum AC current	48 A	72 A	96 A	144 A	191 A
Automatic start / stop		Relay dry contact 10 A (2 sets of ACC contact for 2 generators)				
AC OUTPUT	Voltage	220 / 230 / 240 Vrms				
	Voltage regulation	± 1% (steady load), < 4% at 100% step load within 0.1 sec.				
	Phase	Single phase				
	Frequency	50 / 60 Hz ± 0.1% (auto sensing)				
	Wave form	Pure sine wave				
	Total harmonic distortion	total < 3%				
	Maximum surge current	200%				
	Maximum AC current	22.7 A	34 A	45.4 A	68.2 A	90.9 A
ISOLATION	Galvanic isolation	yes				
EFFICIENCY	Inverter peak efficiency	92%		95%		
PROTECTION		Over current, Over load, Short circuit, Over temperature, Over voltage, Under voltage				
INDICATOR	LED	External Charging, Bypass, Generator Running, Generator Failure, Stand by/Run, Inverter, Charging, Load on Inverter, Overload, Low Battery, High temperature, Fault				
	LCD display	Inverter (voltage, current, frequency, power, reactive power), Generator (voltage, current, frequency, power, reactive power), Battery (voltage, current, state of charge(%), charging current), Heat sink temperature, Battery temperature (option), Equalization date, Today DC Inverter Energy (Input, output), Today AC Inverter Energy (input, output), Accumulated DC energy (input, output), Accumulated AC Energy (input, output), System status, Time, Date, Data Log				
AUDIABLE ALARM		Low battery, Inverter fault, High temperature				
COOLING		Automatic cooling fan				
ENVIRONMENT	Temperature	0 - 45°C				
	Relative humidity	0 - 95 % (Non - condensing)				
DESIGN REGULATION	Standard	AS/NZ 3100:2002, IEC 61683 (for efficiency test)				
	Enclosure	IP65 (option)				
DIMENSION	W x H x D (cm)	60 x 105 x 65			60 x 148 x 105	
WEIGHT	Approximate in kg.	235	240	260	342	370

Continuous product development is our commitment. In that manner, the above specifications may be changed without prior notice.

Authorized Distributor

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