

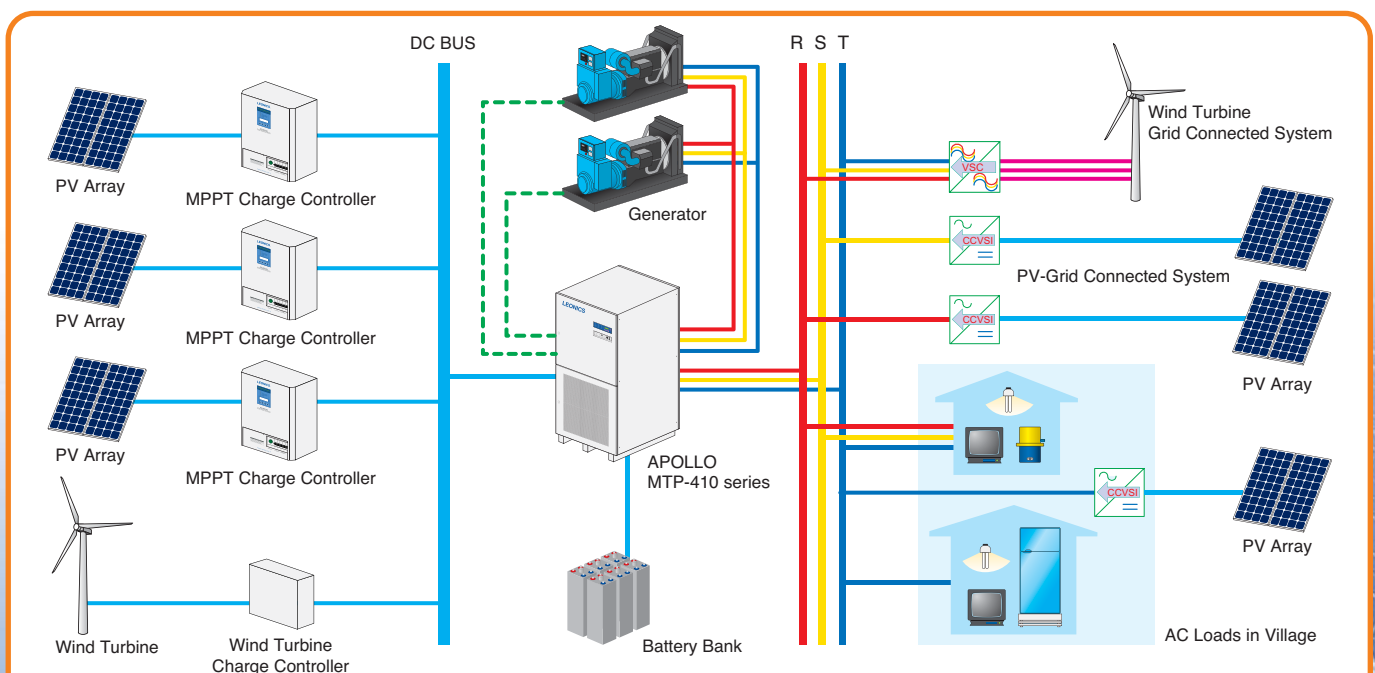
APOLLO MTP-410

Three Phase Bidirectional Dual Mode Hybrid Inverter for Mini-grid System



Outdoor Enclosure (option)

- Three 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
- 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 MTP-410 series is a Three 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 MTP-410 series Three Phase Bidirectional Dual Mode Hybrid Inverter for Mini-Grid System

| MODEL | MTP-411E | MTP-412E | MTP-413E | MTP-411F | MTP-412F | MTP-413F | MTP-414F | MTP-415F | MTP-416F | MTP-417F | MTP-418F | MTP-419F | MTP-4110F | MTP-4111H | MTP-4113H | MTP-4115H | MTP-4117H | | |
|--------------------------|---|---|----------|----------|----------|----------|----------|----------------|----------|----------|-----------------|----------|-----------|-----------|-------------|-----------|-----------|-----------------|-------|
| RATED POWER | 10 kW | 15 kW | 25 kW | 10 kW | 15 kW | 25 kW | 30 kW | 45 kW | 60 kW | 75 kW | 90 kW | 100 kW | 120 kW | 150 kW | 200 kW | 250 kW | 300 kW | | |
| BATTERY | Nominal Voltage | 120 Vdc | | | 240 Vdc | | | | | | | | | 480 Vdc | | | | | |
| | Max. charging current | 56 A | 84 A | 130 A | 28 A | 42 A | 72 A | 84 A | 125 A | 168 A | 200 A | 250 A | 280 A | 335 A | 200 A | 280 A | 350 A | 418 A | |
| | Max. battery current | 114 A | 170 A | 284 A | 57 A | 85 A | 142 A | 170 A | 255 A | 340 A | 425 A | 510 A | 570 A | 680 A | 425 A | 570 A | 710 A | 850 A | |
| EXTERNAL DC CHARGER | Nominal voltage | 120 Vdc | | | 240 Vdc | | | | | | | | | 480 Vdc | | | | | |
| | Maximum current | 100 A | 100 A | 200 A | 57 A | 60 A | 100 A | 100 A | 200 A | 300 A | 300 A | 400 A | 400 A | 400 A | 300 A | 400 A | 400 A | 500 A | |
| AC INPUT FROM GENERATOR | Recommended generator power | > 20 kW | > 30 kW | > 50 kW | > 20 kW | > 30 kW | > 50 kW | > 60 kW | > 90 kW | > 120 kW | > 150 kW | > 180 kW | > 200 kW | > 240 kW | > 300 kW | > 400 kW | > 500 kW | > 600 kW | |
| | Voltage | 380 / 400 / 415 Vac (L-L), 220 / 230 / 240 Vac (L-N) ± 10% | | | | | | | | | | | | | | | | | |
| | Phase | Three phase | | | | | | | | | | | | | | | | | |
| | Frequency | 50 / 60 Hz ± 3 Hz | | | | | | | | | | | | | | | | | |
| | Max. AC current | 32 A | 48 A | 80 A | 32 A | 48 A | 80 A | 96 A | 144 A | 191 A | 240 A | 287 A | 319 A | 382 A | 478 A | 637 A | 796 A | 955 A | |
| Automatic start / stop | Relay dry contact 10 A (2 sets of ACC contact for 2 generators) | | | | | | | | | | | | | | | | | | |
| AC OUTPUT | Voltage | 380 / 400 / 415 Vac (L-L), 220 / 230 / 240 Vac (L-N) | | | | | | | | | | | | | | | | | |
| | Voltage regulation | ± 3% (steady load), < 7% at 100% step load within 0.1 sec. | | | | | | | | | | | | | | | | | |
| | Phase | Three phase | | | | | | | | | | | | | | | | | |
| | Frequency | 50 / 60 Hz ± 0.1% (auto sensing) | | | | | | | | | | | | | | | | | |
| | Wave form | Pure sine wave | | | | | | | | | | | | | | | | | |
| | THD | total < 3% | | | | | | | | | | | | | | | | | |
| | Max. surge current | 200% | | | | | | | | | | | | | | | | | |
| Max. AC current | 15.2 A | 22.7 A | 37.8 A | 15.2 A | 22.7 A | 37.8 A | 45.4 A | 68.2 A | 90.9 A | 113.6 A | 136.3 A | 151.5 A | 181.8 A | 227.3 A | 303 A | 378.8 A | 454.5 A | | |
| ISOLATION | Galvanic isolation | yes | | | | | | | | | | | | | | | | | |
| EFFICIENCY | Inverter peak efficiency | > 94% | | | | | | > 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) | | | | | | | | | | | | | | | | | |
| DIMENSION W x H x D (cm) | Control Unit | 60 x 188 x 105 | | | | | | 90 x 188 x 105 | | | 120 x 205 x 105 | | | | 80x205x105 | D1* | D2** | 110 x 205 x 105 | |
| | Transformer Unit | - | | | | | | - | | | - | | | | 120x205x105 | | | 110 x 205 x 105 | |
| WEIGHT (approx. in kg) | Control Unit | 430 | 440 | 450 | 430 | 440 | 450 | 460 | 630 | 805 | 850 | 990 | 1,020 | 1,040 | 550 | 550 | 775 | 775 | 775 |
| | Transformer Unit | - | - | - | - | - | - | - | - | - | - | - | - | - | 1,200 | 1,320 | 1,220 | 1,300 | 1,500 |

D1* = 80 x 205 x 105 cm for control unit and 120 x 205 x 105 for transformer unit, D2** = 110 x 205 x 105 cm for control unit and transformer unit. Continuous product development is our commitment. In that manner, the above specifications may be changed without prior notice.

Authorized Distributor

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