

N5000 Inverter

H-Bridge Multi-Level Inverter
 for Medium Voltage & High Power AC Motor Drives



What is N5000 Inverter?

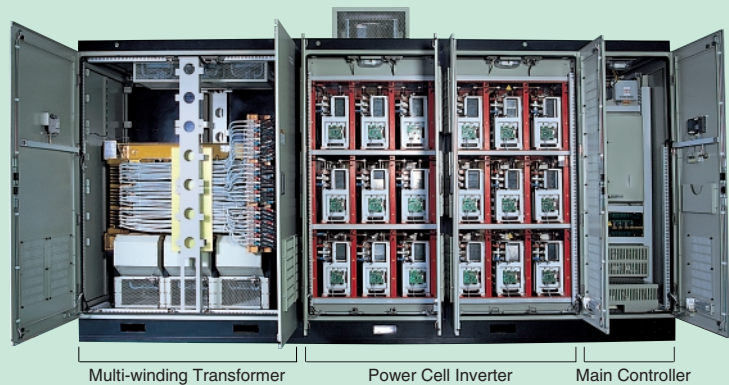
H-bridge multi-level inverter has been implemented successfully for high power motor drives by Hyundai Heavy Industries. This presents a cascaded H-bridge multi-level inverter for high-power motor drives. The main features of this inverter are as follows.

- ▶ The reduction of harmonic injection into the utility by means of specially designed multi-winding transformers
- ▶ The generation of near-sinusoidal voltages with only low frequency switching
- ▶ Almost no common-mode voltage
- ▶ Low dv/dt at output voltage
- ▶ Nothing of significant over-voltage on motor terminal even if the distance between inverter and motor is long

Many N5000 inverters are successfully working at local and foreign sites such as power plant, incineration plant, sewage water treatment plant and oil pumping station, etc.

Main Features

- Motor Friendly
- Power Source Friendly
- Directly Drive Medium Voltage AC Motor
- High Performance
- High Reliability
- High Efficiency / High Power Factor
- User Friendly Maintenance
- Powerful & Easy-to-use Operation
- Full Range Line-up



Input Transformer & Power Cell

- Multi-winding transformer with 36 pulse rectification
- Modularization of power cell

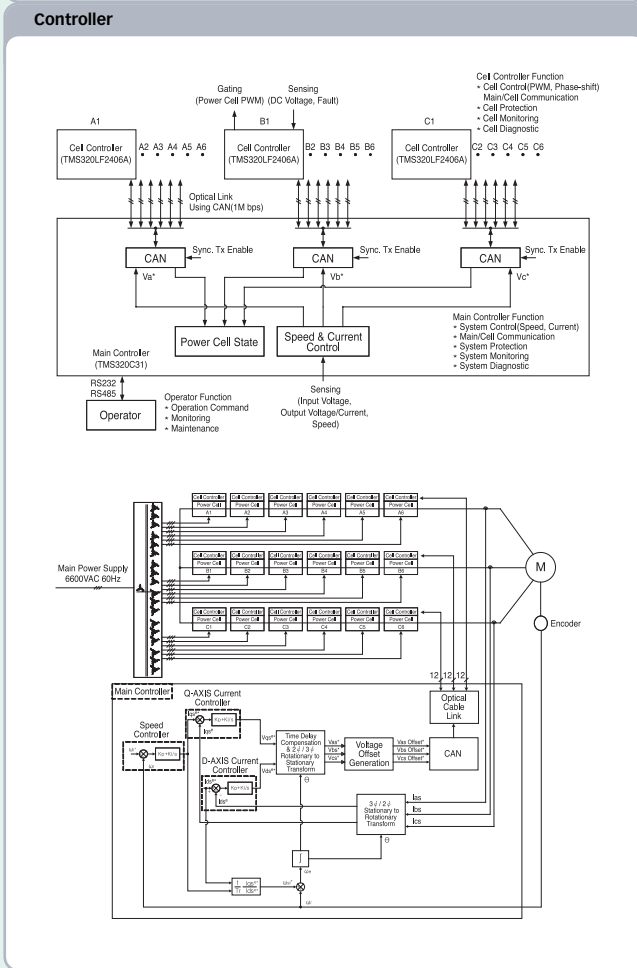
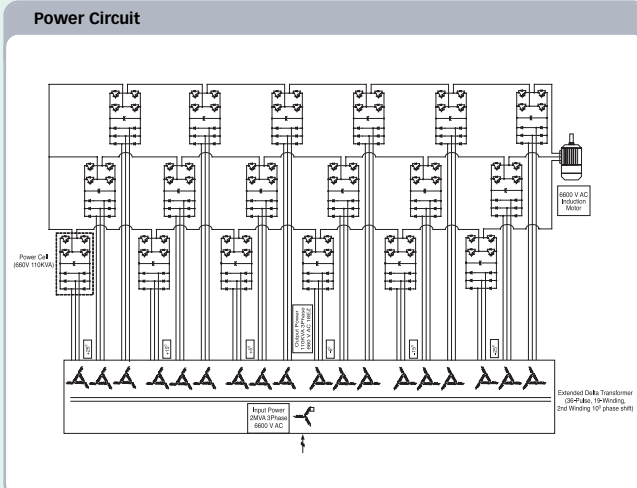
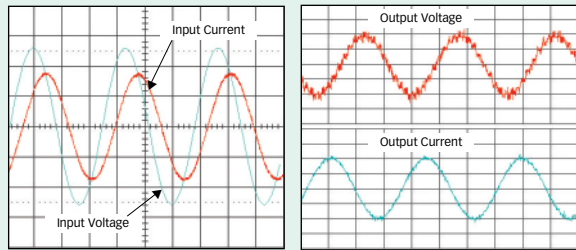
Cell Controller ↔ Serial Communication Using Optical Cable ↔ Master Controller

Configuration of Power Circuit & Controller

- Series connection of single-phase IGBT inverters
- Communication based on a standard serial communication protocol: CAN
- Reliable fiber-optic coupling for communication between the master & cell controller
- Distribution control
- Vector control composed of main controller, cell controller and CAN communication

Power Source & Motor Friendly

- Greatly reduced harmonic injection into the utility by means of specially designed multi-winding transformers
- Output waveform is close to the perfect sine wave.



Specifications

| Voltage [V] | Model Number | | | Dimension | | |
|-------------|--------------|----------------|-------------|------------|--------------|------------|
| | Type N5000 | Capacity [kVA] | Current [A] | Width [mm] | Height* [mm] | Depth [mm] |
| 3300 | 155L | 200 | 35 | 2200 | 2350 | 1100 |
| | 245L | 300 | 53 | | | |
| | 325L | 400 | 70 | | | |
| | 410L | 500 | 88 | 2500 | 2350 | 1100 |
| | 490L | 600 | 105 | | | |
| | 620L | 750 | 132 | | | |
| | 835L | 1000 | 175 | 3500 | 2350 | 1100 |
| | 1040L | 1250 | 219 | | | |
| | 1270L | 1500 | 263 | | | |
| | 1500L | 1750 | 307 | 3700 | 2350 | 1200 |
| | 1710L | 2000 | 350 | | | |
| | 1940L | 2250 | 394 | | | |
| 4160 | 205M | 250 | 35 | 3200 | 2350 | 1100 |
| | 310M | 380 | 53 | | | |
| | 410M | 500 | 70 | 3800 | 2350 | 1100 |
| | 530M | 640 | 89 | | | |
| | 630M | 750 | 105 | | | |
| | 790M | 950 | 132 | 4000 | 2350 | 1100 |
| | 1040M | 1250 | 174 | | | |
| | 1310M | 1550 | 216 | | | |
| | 1630M | 1900 | 264 | 4200 | 2350 | 1100 |
| | 1900M | 2200 | 306 | | | |
| | 2160M | 2500 | 347 | | | |
| | 2460M | 2850 | 396 | 4400 | 2350 | 1100 |
| 330H | 400 | 35 | | | | |
| 495H | 600 | 53 | | | | |
| 675H | 800 | 70 | 4100 | 2350 | 1100 | |
| 835H | 1000 | 88 | | | | |
| 1000H | 1200 | 105 | | | | |
| 1270H | 1500 | 132 | 5000 | 2350 | 1200 | |
| 1700H | 2000 | 175 | | | | |
| 2130H | 2500 | 219 | | | | |
| 3590H | 3000 | 263 | 5400 | 2350 | 1200 | |
| 3020H | 3500 | 307 | | | | |
| 3450H | 4000 | 350 | | | | |
| 3930H | 4500 | 394 | 6600 | 2350 | 1400 | |

* Fan height excluded.

| | | | |
|----------------------|--|--------------------------------|--|
| Power Factor | P.F ≥ 0.95 (Load 20 - 100 %) | Protective Function | Over current, over voltage, under voltage, output short-circuit, ground fault, input phase unbalance, speed command loss, communication fault, over temp.(transformer/ power cell) |
| Efficiency | 96 % (under rating speed & load) | | |
| Input Current THD | IEEE 519-1992 guideline meet | Signal I/O | Digital Input/Output: Input : 16 Ch./Output : 8 Ch. (dry contact) |
| Overload Capacity | 120 % 60 second, 150 % 60 second(option) | | Analog Input/Output: Input : 16 Ch./Output : 4 Ch. |
| Modulation Method | PWM (pulse width modulation) | Communication | RS232, RS485, Mod-bus |
| Control Method | V/F control, vector control, speed sensor-less control | Cooling | Forced air cooling with fans |
| Frequency Range | 120 Hz | Ambient Temperature | 0 - 40 °C |
| Frequency Accuracy | 0.1 % | Panel Protection Grade | IP20 |
| Accel. / Decel. Time | 0.1 - 3600 second | Power Line Connection Standard | Bottom side(standard), top side(option) IEC |