

# 7200GS

Sensorless Vector AC Inverter




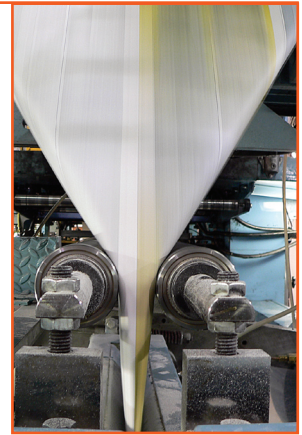
CE c UL US

**TECO**  **Westinghouse**



## 7200GS Features and Benefits

- **High Starting Torque** - The 7200GS, when used in the Sensorless Vector Mode, can handle high starting torque at low speed and high impact loads with ease.
- **4 Control Modes to Fit Any Application**
  - **Sensorless Vector** - Vector speed control accuracy eliminates the need for an encoder for many applications. The 7200GS makes set-up easy with its built-in autotuning software that senses the motor characteristics while it is running.
  - **PID Control** - Built-in process control system matches the measured process value (speed, pressure, flow rate, etc.) to the desired set-point value
  - **V/Hz Control Mode** - General purpose for broad range of applications
  - **V/Hz with PG Control** - +/- .03% speed control accuracy for precise speed applications
- **English Language Operator** - Large, easy to read, LCD display (2 rows x 20 characters) gives you the information you need to set-up, program, and monitor the inverter. The operator is also a copy unit for downloading parameters to another inverter.
- **Auto Energy Saving Software** - Automatically reduces the output power needed as the load decreases
- **RS-485 Communications** - Modbus, Profibus
- **Global Standards** - CE 



Plastics



Aggregate

## Custom Packages Available

The 7200GS, which is a true NEMA 1 drive out-of-the-box, can be supplied with a variety of options and your choice of NEMA enclosures. Quotations are available upon request.



NEMA 12 with Bypass



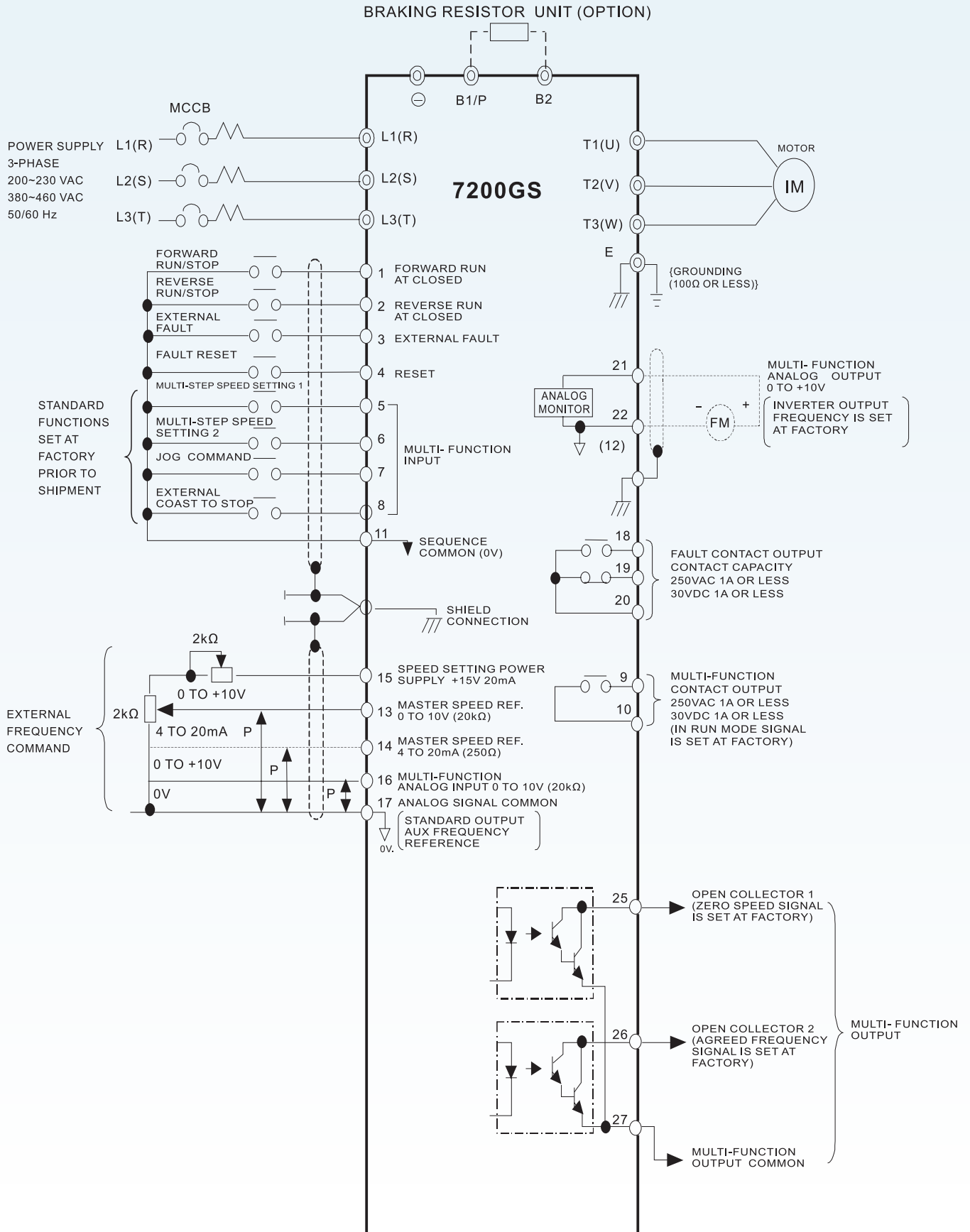
NEMA 3R



Custom NEMA 12

# Connection Diagram

(460V: 25 hp Example)

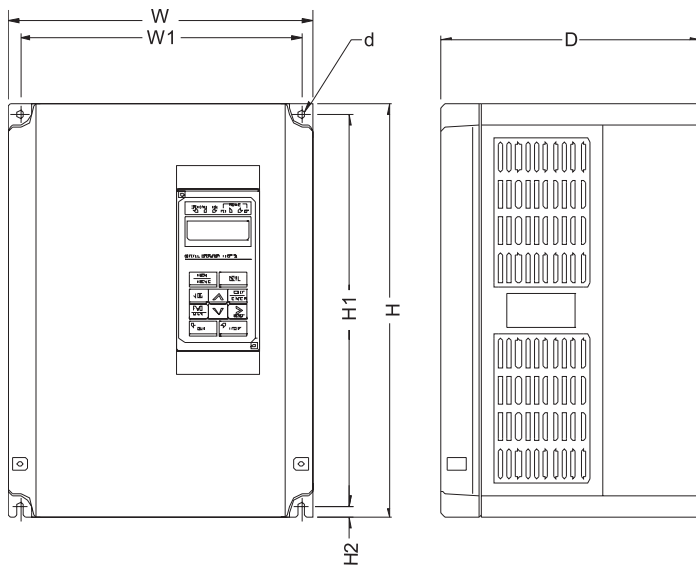


# Dimensions

| VOLTAGE (V) | INVERTER CAPACITY (HP) | OPEN CHASSIS TYPE (IP00) inches |       |       |       |       |     | WEIGHT (LB) | ENCLOSED TYPE (NEMA 1) inches |       |       |       |       |     | WEIGHT (LB) | ACL/DCL                 | REFERENCE FIGURE |
|-------------|------------------------|---------------------------------|-------|-------|-------|-------|-----|-------------|-------------------------------|-------|-------|-------|-------|-----|-------------|-------------------------|------------------|
|             |                        | W                               | H     | D     | W1    | H1    | d   |             | W                             | H     | D     | W1    | H1    | d   |             |                         |                  |
| 230V        | 25                     | 11.16                           | 20.67 | 12.09 | 8.66  | 19.88 | M8  | 66          | 11.48                         | 29.33 | 12.09 | 8.66  | 19.88 | M8  | 74          | DCL Built-in (Standard) | (b)              |
|             | 30                     |                                 |       |       |       |       |     | 66          |                               |       |       |       |       |     | 74          |                         |                  |
|             | 40                     |                                 |       |       |       |       |     | 165         |                               |       |       |       |       |     | 179         |                         |                  |
|             | 50                     | 18.07                           | 31.10 | 12.78 | 12.60 | 29.92 | M10 | 168         | 18.19                         | 43.50 | 12.78 | 12.60 | 29.92 | M10 | 181         |                         |                  |
|             | 60                     |                                 |       |       |       |       |     | 168         |                               |       |       |       |       |     | 188         |                         |                  |
|             | 75                     |                                 |       |       |       |       |     | 174         |                               |       |       |       |       |     | 195         |                         |                  |
|             | 100                    | 23.58                           | 39.37 | 15.02 | 18.11 | 37.80 | M12 | 265         | 23.70                         | 51.38 | 15.02 | 18.11 | 37.80 | M12 | 287         |                         |                  |
| 460V        | 25                     | 10.43                           | 14.17 | 8.86  | 9.65  | 13.39 | M6  | 26          | 10.43                         | 14.17 | 8.86  | 9.65  | 13.39 | M6  | 27          | External ACL (Optional) | (a)              |
|             | 30                     | 11.16                           | 20.67 | 12.09 | 8.66  | 19.88 | M8  | 79          | 11.48                         | 29.33 | 12.09 | 8.66  | 19.88 | M8  | 84          | DCL Built-in (Standard) | (b)              |
|             | 40                     |                                 |       |       |       |       |     | 79          |                               |       |       |       |       |     | 84          |                         |                  |
|             | 50                     |                                 |       |       |       |       |     | 104         |                               |       |       |       |       |     | 111         |                         |                  |
|             | 60                     | 13.54                           | 24.80 | 12.78 | 9.84  | 24.02 | M8  | 104         | 13.86                         | 37.20 | 12.78 | 9.84  | 24.02 | M8  | 111         |                         |                  |
|             | 75                     |                                 |       |       |       |       |     | 104         |                               |       |       |       |       |     | 111         |                         |                  |
|             | 100                    |                                 |       |       |       |       |     | 137         |                               |       |       |       |       |     | 144         |                         |                  |
|             | 125                    | 18.07                           | 31.10 | 12.78 | 12.60 | 29.92 | M10 | 176         | 18.19                         | 43.50 | 12.78 | 12.60 | 29.92 | M10 | 188         |                         |                  |
|             | 150                    |                                 |       |       |       |       |     | 179         |                               |       |       |       |       |     | 190         |                         |                  |
|             | 200                    |                                 |       |       |       |       |     | 291         |                               |       |       |       |       |     | 307         |                         |                  |
|             | 250                    | 23.58                           | 39.37 | 15.02 | 18.11 | 37.80 | M12 | 291         | 23.70                         | 51.38 | 15.02 | 18.11 | 37.80 | M12 | 307         |                         |                  |
|             | 300/350                | 28.74                           | 48.43 | 15.04 | 27.17 | 36.61 | M12 | 375         | 28.74                         | 52.36 | 15.04 | 27.17 | 36.61 | M12 | 388         | External ACL (optional) | (c)              |
|             | 400/450                |                                 |       |       |       |       |     | 419         |                               |       |       |       |       |     | 432         |                         |                  |

# Outline Dimensions

(a) 460V: 25 hp



(NEMA 1)



# Specifications

## 230V Class

| INVERTER (HP)                            |                                   | 25   | 30         | 40         | 50         | 60         | 75         | 100         |
|--|-----------------------------------|--|------------|------------|------------|------------|------------|-------------|
| MAXIMUM APPLICABLE MOTOR OUTPUT HP (KW)* |                                   | 25<br>(18.5)   | 30<br>(22) | 40<br>(30) | 50<br>(37) | 60<br>(45) | 75<br>(55) | 100<br>(75) |
| Output Characteristics                   | Inverter Capacity (KVA)           | 34   | 41         | 54         | 57         | 67         | 85         | 128         |
|  | Rated Output Current (A)          | 80   | 96         | 130        | 160        | 183        | 224        | 300         |
|  | Maximum Output Voltage            | 3-Phase, 200/208/220/230V<br>(Proportional to Input Voltage) |            |            |            |            |            |             |
|  | Rated Output Frequency            | Up to 400 Hz   |            |            |            |            |            |             |
| Power Supply                             | Rated Input Voltage and Frequency | 3-Phase, 200/208/220V, 50 Hz<br>200/208/220/230V, 60 Hz      |            |            |            |            |            |             |
|  | Allowable Voltage Fluctuation     | +10%~-15%  |            |            |            |            |            |             |
|  | Allowable Frequency Fluctuation   | ±5%  |            |            |            |            |            |             |

## 460V Class

| INVERTER (HP)                            |                                   | 25   | 30         | 40         | 50         | 60         | 75         | 100         | 125         | 150          | 200          | 250          | 300/350          | 400/450          |
|--|-----------------------------------|--|------------|------------|------------|------------|------------|-------------|-------------|--------------|--------------|--------------|------------------|------------------|
| MAXIMUM APPLICABLE MOTOR OUTPUT HP (KW)* |                                   | 25<br>(18.5)   | 30<br>(22) | 40<br>(30) | 50<br>(37) | 60<br>(45) | 75<br>(55) | 100<br>(75) | 125<br>(90) | 150<br>(110) | 200<br>(160) | 250<br>(185) | 300/350<br>(220) | 400/450<br>(300) |
| Output Characteristics                   | Inverter Capacity (KVA)           | 34   | 41         | 54         | 68         | 82         | 110        | 138         | 180         | 195          | 260          | 290          | 385              | 513              |
|  | Rated Output Current (A)          | 40   | 48         | 64         | 80         | 96         | 128        | 165         | 192         | 224          | 300          | 340          | 450              | 600              |
|  | Maximum Output Voltage            | 3-Phase, 380/400/415/440/460V<br>(Proportional to Input Voltage) |            |            |            |            |            |             |             |              |              |              |                  |                  |
|  | Rated Output Frequency            | Up to 400 Hz   |            |            |            |            |            |             |             |              |              |              |                  |                  |
| Power Supply                             | Rated Input Voltage and Frequency | 3-Phase, 380/400/415/440/460V, 50/60 Hz                          |            |            |            |            |            |             |             |              |              |              |                  |                  |
|  | Allowable Voltage Fluctuation     | +10%~-15%  |            |            |            |            |            |             |             |              |              |              |                  |                  |
|  | Allowable Frequency Fluctuation   | ±5%  |            |            |            |            |            |             |             |              |              |              |                  |                  |

\* Based on a 4 pole motor

# Characteristics

|                          |   |  |
|--------------------------|---|--|
| Control Characteristics  | Control Method  | Sine Wave PWM<br>Four Control Modes (switch by parameter)<br>– V/F Control<br>– V/F + PG Control<br>– PID & Auto Energy Saving Control<br>– Sensorless Vector Control (with auto-tuning) |
|                          | Starting Torque   | V/F Control: 150% at 3 Hz<br>Sensorless Vector Control: 150% at 1 Hz   |
|                          | Speed Control Range   | V/F Control 1:10<br>Sensorless Vector Control 1:60   |
|                          | Speed Response  | 5 Hz (Sensorless Vector)   |
|                          | Speed Control Accuracy  | V/F Control $\pm 1\%$ (with slip compensation)<br>V/F + PG Control: $\pm 0.03\%$<br>Sensorless Vector Control: $\pm 0.5\%$   |
|                          | Frequency Control Range   | 0.1 to 400 Hz  |
|                          | Frequency Setting Resolution  | Digital Command: 0.1 Hz (100 Hz below); Analog Reference: 0.06 Hz/60 Hz  |
|                          | Frequency Accuracy  | Digital Command: $\pm 0.01\%$ (-10 ~ 40°C); Analog Command: $\pm 0.1\%$ (25°C $\pm 10^\circ\text{C}$ )   |
|                          | Output Frequency Resolution   | 0.01 Hz (1/30,000)   |
|                          | Frequency Setting Signal  | 0 ~ 10VDC (20K $\Omega$ ), 4 ~ 20mA (250 $\Omega$ )  |
|                          | Overload Capacity   | 150% Rated output current for 1 minute   |
|                          | Acceleration/Deceleration Time  | 0.1 to 6,000 seconds (Independent Acceleration/ Deceleration time setting)   |
|                          | Efficiency at Rated Frequency   | 0.95 minimum   |
| Braking Torque           | Approximately 20% (Inverter rated at 460V 25 hp (18.5kW) has a built-in braking transistor) |  |
| Protective Functions     | Motor Overload Protection   | Electric Thermal Overload Relay  |
|                          | Instantaneous Overcurrent   | Motor coasts to stop at approximately 200% of rated output current   |
|                          | Overload  | 150% rated output current for 1 minute   |
|                          | Overvoltage   | Motor coasts to stop if the main circuit voltage exceeds 410VDC for 230V class (820VDC for 460V class)   |
|                          | Undervoltage  | Motor coasts to stop if the main voltage drops to 190VDC for 230V class (380VDC for 460V class)  |
|                          | Momentary Power Loss  | Immediately stops after power loss (at factory setting) of 15 ms or longer<br>Continuous operation during power loss less than 2 seconds (standard)                                      |
|                          | Fin Overheat  | Thermostat   |
|                          | Stall Prevention  | Stall prevention at Acceleration/ Deceleration and constant speed operation  |
|                          | Ground Fault  | Provided by electronic circuit   |
|                          | Power Change Indication   | Indication until main circuit voltage drops below 50V  |
| Environmental Conditions | Location  | Indoor (Protected from corrosive gases and dust)   |
|                          | Humidity  | 95% RH (non-condensing)  |
|                          | Storage Temperature   | -20 ~ +60°C (for short periods during shipping)  |
|                          | Ambient Temperature   | 14 to 104°F (-10 to +40°C) for NEMA 1 Type<br>14 to 113°F (-10 to +45°C) for Open Chassis Type   |
|                          | Altitude  | 1,000 m or below (derate at 1% / 300 m for altitudes above 1000 m)   |
| Communication Function   | MODBUS, PROFIBUS (option)   |  |
| EMC                      | Complies with requirements of EN61800-3 with optional filter                                |  |



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