

## Sensorless Vector Variable Frequency Inverters - 0.4kW to 4.0kW

- High performance Torque Vector Control
- Over 200% torque at 1 Hz
- Footprint filters for EMC compliance
- User friendly auto tuning
- Ultra compact IP40 enclosure
- Fast torque response
- Low motor noise profile
- User programmable I/O
- Integral detachable keypad
- Single and three phase versions
- RS485 communications port (optional)
- Renowned IMO 5 year warranty



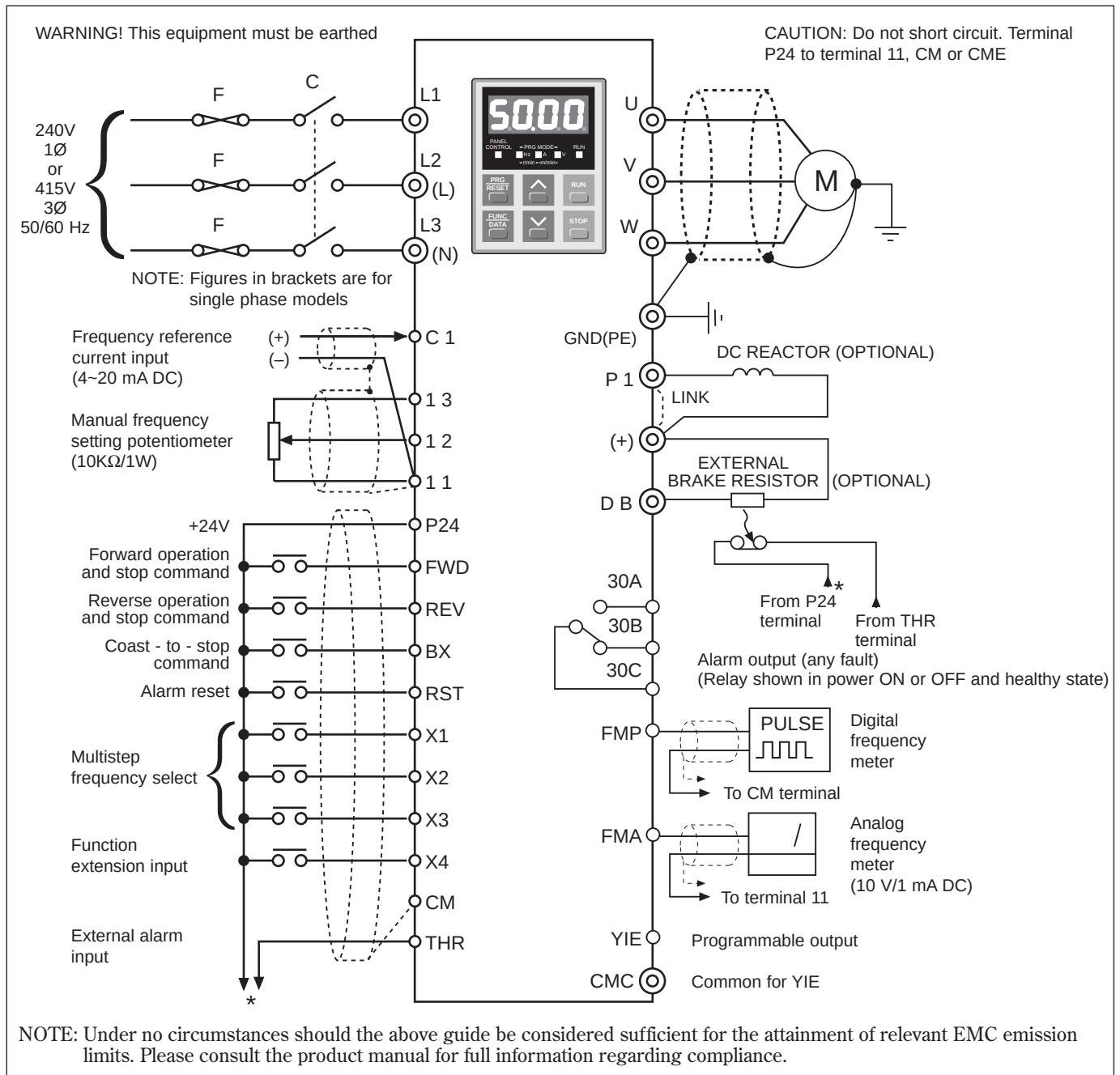
## Electrical specifications

|                                         | Single Phase Input             |              |         |          |          | Three Phase Input                  |         |          |          |          |
|-----------------------------------------|--------------------------------|--------------|---------|----------|----------|------------------------------------|---------|----------|----------|----------|
| Jaguar VXS order codes                  | VXS20-1                        | VXS40-1      | VXS75-1 | VXS150-1 | VXS220-1 | VXS40-3                            | VXS75-3 | VXS150-3 | VXS220-3 | VXS400-3 |
| Motor rating (kW)                       | 0.2                            | 0.37<br>0.55 | 0.75    | 1.5      | 2.2      | 0.37<br>0.55                       | 0.75    | 1.5      | 2.2      | 4.0      |
| Maximum rated O/P current (A)           | 1.5                            | 3.0          | 5.0     | 8.0      | 11.0     | 1.6                                | 2.5     | 3.7      | 5.5      | 9.0      |
| 100% Rated I/P current A <sub>RMS</sub> | 2.95                           | 4.1          | 7.2     | 14.0     | 20.0     | 1.3                                | 2.2     | 4.3      | 6.0      | 9.8      |
| Input voltage                           | 200 - 240 AC, ±10%, 1 phase    |              |         |          |          | 380 - 480 AC, +10 to -15%, 3 phase |         |          |          |          |
| Input frequency                         | 50 - 60 Hz, ±5%                |              |         |          |          |                                    |         |          |          |          |
| Output voltage                          | AC, 0 - V <sub>INPUT</sub> PWM |              |         |          |          |                                    |         |          |          |          |
| Output frequency                        | 0.2 - 400 Hz                   |              |         |          |          |                                    |         |          |          |          |

## General specifications

|                                            |                                     |     |     |              |     |                    |     |              |     |     |
|--------------------------------------------|-------------------------------------|-----|-----|--------------|-----|--------------------|-----|--------------|-----|-----|
| Heat loss at minimum carrier frequency (W) | 23                                  | 45  | 56  | 81           | 129 | 42                 | 51  | 67           | 97  | 120 |
| Weight (Kg)                                | 1.1                                 | 1.6 | 1.7 | 2.7          | 2.8 | 1.8                | 1.8 | 2.7          | 2.7 | 3.2 |
| Enclosure rating                           | IP40                                |     |     |              |     |                    |     |              |     |     |
| Cooling method                             | Natural Convection                  |     |     | Fan Assisted |     | Natural Convection |     | Fan Assisted |     |     |
| Ambient temperature                        | -10 to +50°C (remove covers >+40°C) |     |     |              |     |                    |     |              |     |     |
| Relative humidity                          | 20 to 95% non condensing            |     |     |              |     |                    |     |              |     |     |
| Vibration                                  | 5.9 m/s² (0.6G) max                 |     |     |              |     |                    |     |              |     |     |
| Altitude                                   | 1000 metres max                     |     |     |              |     |                    |     |              |     |     |

## Connection diagram



## Power Terminals

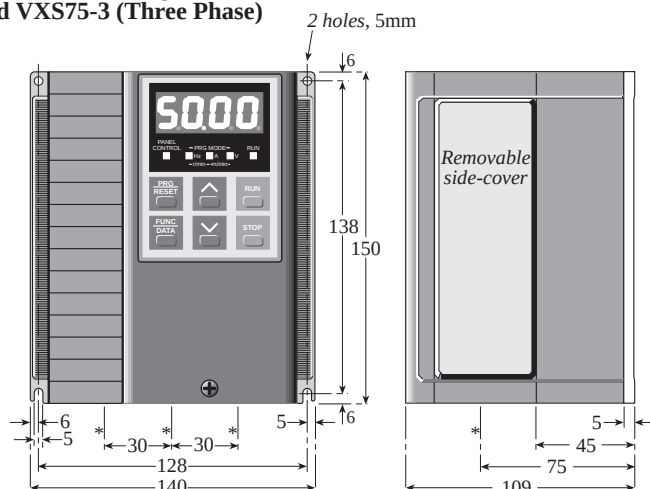
| Symbol     | Terminal Name                     | Description                                                                          |
|------------|-----------------------------------|--------------------------------------------------------------------------------------|
| L1, L2, L3 | Main input power terminals        | For connecting 3 phase power supply (VXS - 3 only)                                   |
| L, N       | Main input power terminals        | For connecting single phase power supply (VXS - 1 only)                              |
| U, V, W    | Power output terminals            | For 3 phase AC induction motor                                                       |
| P1, (+)    | DC reactor terminals              | Optional DC reactor terminals for improving power factor (fitted with shorting link) |
| (+), DB    | External brake resistor terminals | Connection for brake resistor to increase braking torque                             |
| GND (PE)   | Earth terminal                    | Safety electrical earth                                                              |

## Control circuit terminals

| Purpose                  | Terminal          | Terminal Name                                        | Description                                                                                                                                                                                                                                                                        |
|--------------------------|-------------------|------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Analog Frequency Setting | 11                | Speed reference<br>0V common                         | For use with terminals 12, 13, C1 and FMA                                                                                                                                                                                                                                          |
|                          | 12                | Reference input                                      | 0 - 10V DC input, impedance = 22 K $\Omega$                                                                                                                                                                                                                                        |
|                          | 13                | Potentiometer supply                                 | +10V DC power supply for 1 K $\Omega$ speed control potentiometer. Output 10mA max.                                                                                                                                                                                                |
|                          | C1                | Current loop input                                   | 4 - 20mA input, impedance = 250 $\Omega$                                                                                                                                                                                                                                           |
| Control Inputs           | FWD               | Forward and stop command                             | FWD - P24 Closed – Motor runs forward<br>Open – Motor stops                                                                                                                                                                                                                        |
|                          | REV               | Reverse and stop command                             | REV - P24 Closed – Motor runs in reverse<br>Open – Motor stops                                                                                                                                                                                                                     |
|                          | BX                | Coast - to - Stop command                            | BX - P24 Closed – Output inhibited instantaneously<br>Open – Normal                                                                                                                                                                                                                |
|                          | THR               | External trip<br>or<br>Enable/disable data edit mode | <ul style="list-style-type: none"> <li>• THR - P24 Closed – Normal<br/>Open – Trips output instantaneously</li> <li>or</li> <li>• THR - P24 Closed – Normal<br/>Open – Data protected</li> </ul>                                                                                   |
|                          | RST               | Trip/Alarm reset                                     | If RST - P24 is closed for $\geq 100\text{ms}$ following a trip condition, the inverter will reset                                                                                                                                                                                 |
|                          | X1, X2, X3        | Preset speeds                                        | Combinations of X1, X2, X3 - P24 will call for preset frequencies to be output                                                                                                                                                                                                     |
|                          | X4                | Function extension                                   | Depending upon the setting of function No. 43 terminal acts as – Acc 2 / Dec 2 pattern select <ul style="list-style-type: none"> <li>– Extension to 15 preset speeds</li> <li>– 2nd motor V/F profile</li> <li>– FWD/REV latch for 3-wire I/P</li> </ul>                           |
|                          | P24               | +24V DC supply                                       | Internal 24V DC supply for control inputs                                                                                                                                                                                                                                          |
|                          | CM                | Common terminal                                      | Common terminal for FMP and digital inputs                                                                                                                                                                                                                                         |
| Meter Outputs            | FMA               | Analogue output                                      | Output frequency, current, torque or load factor can be selected, 0 - 10V DC, 1mA maximum<br>Up to 2 metres of cable is recommended for connection to this terminal                                                                                                                |
|                          | FMP               | Digital output                                       | Output proportional to frequency of motor<br>6 kHz maximum, fully scalable                                                                                                                                                                                                         |
| Control Outputs          | YIE               | Programmable output                                  | Selectable for:- <ol style="list-style-type: none"> <li>1) Inverter running</li> <li>2) Frequency level detected</li> <li>3) Frequency hysteresis band reached</li> <li>4) Undervoltage trip</li> <li>5) Torque limiting</li> <li>6) Auto Restart</li> </ol> Maximum 27V DC, 50 mA |
|                          | CMC               | Common terminal                                      | Used for YIE output only                                                                                                                                                                                                                                                           |
|                          | 30A<br>30B<br>30C | Fault relay                                          | Normally 30B - 30C closed with power OFF or ON, with drive output healthy<br>30A - 30C closes on fault. Rated 250V, 0.3A                                                                                                                                                           |

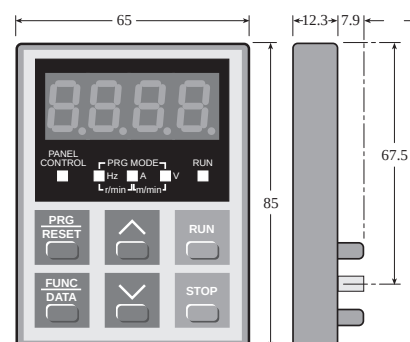
## Dimensions (mm)

**VXS40-1 and VXS75-1 (Single Phase)**  
**VXS40-3 and VXS75-3 (Three Phase)**

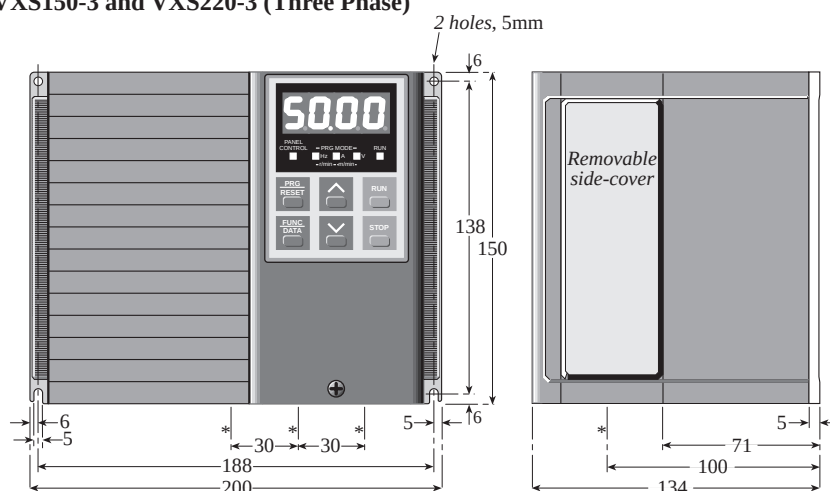


\*Centrelines of 3 cable entry holes, 22mm dia.

**Remote mountable keypad with optional cable**

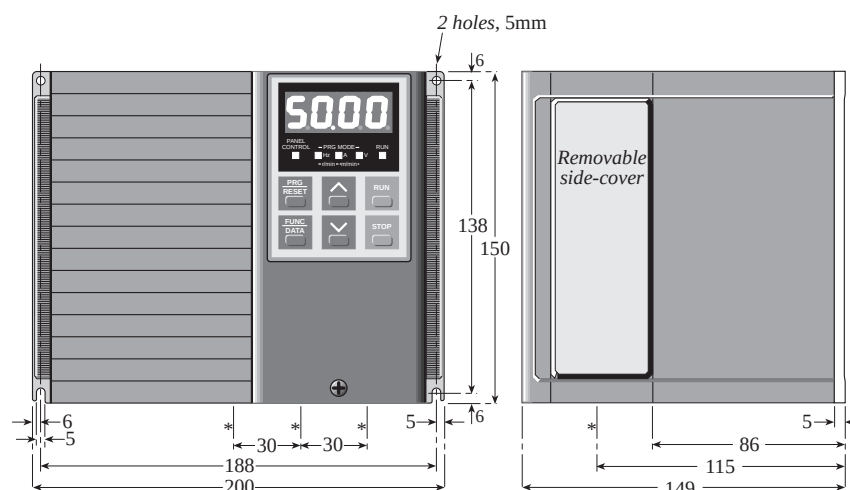


**VXS150-1 and VXS220-1 (Single Phase)**  
**VXS150-3 and VXS220-3 (Three Phase)**



\*Centrelines of 3 cable entry holes, 22mm dia.

**VXS400-3 (Three Phase)**



\*Centrelines of 3 cable entry holes, 22mm dia.