

# OPTIDRIVE VTC

## Variable Torque Control

AC Variable Speed Drive  
1.5kW - 160kW (2.0 - 250HP)  
200-600V

### Dedicated to the control of fans and pumps

Optidrive VTC provides ease of use plus simple installation and commissioning, making it the lowest cost solution for virtually all variable torque applications.

Innovative and compact the Optidrive VTC range combines good looks with robustness, reliability and effortless performance.

Energy saving is maximised using the sleep mode and the automatic energy optimiser function, which reduces the motor voltage to match the load.

Coherent operation using a unified control interface across the entire range and with only 14 standard parameters to adjust, Optidrive's legendary ease of use could not be easier or quicker to get started with. For the more advanced user the extended parameter set gives access to powerful additional functionality.

Optidrive VTC's optical interface allows communication with the unique Optiwand PDA for fast and accurate product configuration.

### Key Benefits >>

- Retains footprint, terminal layout and core parameter set of Optidrive Plus 3<sup>GV</sup> for fast installation and set up, a true evolution of the range
- Designed for centrifugal fan and pump applications with dedicated variable torque control
- Up to 50°C Ambient Temperature, rugged design for harsh environments
- Internal RFI Filter for compliance with the latest EMC standards
- Energy optimizing function provides best possible efficiency and energy savings in real time
- Bi-directional Spin Start function allows rapid start and control of fans, even when already turning
- Built in PID controller for easy control of flow / pressure
- Programmable 'Sleep & Wake Up' modes stops the drive operating when not required, with fully automatic restart
- Built in Modbus RTU for easy connection to high level networks
- Intelligent fire mode
- Built in Master – Slave control function with fast set up and selectable scaling
- Built in Infra Red programming port requires no cables



### Industry Sectors

- Food Processing
- Bottling
- Pumping
- Chemical
- Waste Water
- HVAC



| Specification                    |                            | OPTIDRIVE VTC   |            |
|----------------------------------|----------------------------|---|------------|
| <b>Output ratings</b>            | Overload Capacity          | 110% for 60 secs<br>125% for 2 secs   |            |
|                                  | Frequency                  | 0...120Hz   |            |
| <b>Input Ratings</b>             | Frequency                  | 48 - 62Hz   |            |
|                                  | Voltage                    | 200 - 240 + / - 10% 1 Phase (1.5 - 22kW / 2 - 30HP)<br>200 - 240 + / - 10% 3 Phase (1.5 - 45kW / 2 - 60HP)<br>380 - 480 + / - 10% 1 Phase (0.75 - 90kW / 1 - 105HP)<br>380 - 480 + / - 10% 3 Phase (1.5 - 160kW / 2 - 250HP)<br>480 - 525 + / - 10% 3 Phase (55 - 200kW)<br>500 - 600 + / - 10% 3 Phase (1.5 - 45kW / 2 - 60HP) |            |
| <b>Ambient Conditions</b>        | Temperature                | Operating : -10 to 50°C Max; Storage : -40 to +60°C   |            |
|                                  | Altitude                   | 0 - 2000m, derate 5% per 100m above 1000m   |            |
|                                  | Ingress Protection         | IP20  |            |
| <b>Programming</b>               | Keypad                     | Yes   |            |
|                                  | PC                         | Yes   |            |
|                                  | PDA                        | Yes   |            |
| <b>Control Specification</b>     | Control Method             | V / F   |            |
|                                  | PWM Frequency              | 4...32kHz (effective)   |            |
|                                  | V/Hz ratio                 | Parabolic   |            |
|                                  | Boost                      | Automatic after autotune  |            |
|                                  | Stop Mode                  | Coast / Ramp / DC Brake   |            |
|                                  | Internal Brake transistor  | Yes, External Resistor required   |            |
|                                  | Capacity                   | 100% Drive Rated Power continuously   |            |
|                                  | Skip Frequency             | One point, adjustable frequency band  |            |
|                                  | Frequency setpoint control |   | 0...10 VDC |
|                                  |                            |   | +/- 10 VDC |
|                                  |                            |   | 0...24 VDC |
|                                  |                            |   | 4...20mA   |
|                                  |                            |   | 0..20mA    |
|                                  |                            | Digital - Keypad  |            |
|                                  |                            | RS485 (Master Slave)  |            |
|                                  |                            | ModBus RTU  |            |
|                                  | Pre-set speeds             |   | 8          |
| PID Control                      |                            | Yes   |            |
| Spin Start                       |                            | Yes   |            |
| Acceleration                     |                            | 0..3000 sec   |            |
| Deceleration                     |                            | (2 ramps) 0..3000 sec   |            |
| PC Setup Software                |                            | Optistore Plus  |            |
| <b>Programmable I/O</b>          | Input 1                    | Programmable Digital Input  |            |
|                                  | Input 2 / Output 2         | User Selectable Digital Input / Output  |            |
|                                  | Input 3                    | User Selectable Unipolar Analog / Digital Input   |            |
|                                  | Input 4                    | User Selectable Bipolar Analog / Digital Input  |            |
|                                  | Output 1                   | Programmable Analog / Digital Output  |            |
|                                  | Relay 1                    | Relay Output (30 VDC 5A, 250 VAC, 6A)   |            |
| <b>Keypad Display</b>            | Operating Display          | Output Frequency, Current, Rpm, Power and User Scalable values  |            |
|                                  | Remote mount               | Optional Optiport Plus remote mounting keypad   |            |
| <b>Protective Functions</b>      | Inverter Trip              | Over voltage  |            |
|                                  |                            | Over current  |            |
|                                  |                            | Under voltage   |            |
| External trip                    |                            |   |            |
| Motor overload                   |                            |   |            |
| Over temperature                 |                            |   |            |
| Short circuited                  |                            |   |            |
| Earth Fault                      |                            |   |            |
| Under Voltage                    |                            |   |            |
| Memory                           |                            | Last 4 Trips stored   |            |
| <b>Bus communication</b>         | Modbus RTU                 | Yes   |            |
|                                  | Profibus DP                | via Gateway   |            |
|                                  | DeviceNet                  | via Gateway   |            |
|                                  | RS485 (Optibus)            | Standard  |            |
|                                  |                            |   |            |
| <b>Compliance with Standards</b> | EN 61800-3:2004            | Adjustable speed electrical power drive systems. EMC requirements   |            |
| <b>Additional Features</b>       |                            | Built in Master - Slave Operation Mode<br>PID 'Sleep & Wake Up' Modes<br>Energy Optimising Function   |            |



**OPTIDRIVE VTC Electrical Data in kW**

| 200 - 240V<br>1 Phase | Motor Power<br>(kW) | Output Current<br>(A) | Frame Size |
|-----------------------|---------------------|-----------------------|------------|
| ODV-22150-IN          | 1.5                 | 7                     | 2          |
| ODV-22220-IN          | 2.2                 | 10.5                  | 2          |

| 200 - 240V<br>3 Phase | Motor Power<br>(kW) | Output Current<br>(A) | Frame Size |
|-----------------------|---------------------|-----------------------|------------|
| ODV3-22150-IN         | 1.5                 | 7                     | 2          |
| ODV3-22220-IN         | 2.2                 | 10.5                  | 2          |
| ODV-32030-IN          | 3                   | 14                    | 3          |
| ODV-32040-IN          | 4                   | 18                    | 3          |
| ODV-32055-IN          | 5.5                 | 25                    | 3          |
| ODV-42075-IN          | 7.5                 | 39                    | 4          |
| ODV-42110-IN          | 11                  | 46                    | 4          |
| ODV-42150-IN          | 15                  | 61                    | 4          |
| ODV-42185-IN          | 18.5                | 72                    | 4          |
| ODV-42220-IN          | 22                  | 90                    | 4          |
| ODV-52300-IN          | 30                  | 110                   | 5          |
| ODV-52370-IN          | 37                  | 150                   | 5          |
| ODV-52450-IN          | 45                  | 180                   | 5          |

Note : Suitable for use on single phase supply with 50% derating

| 380 - 480V<br>3 Phase | Motor Power<br>(kW) | Output Current<br>(A) | Frame Size |
|-----------------------|---------------------|-----------------------|------------|
| ODV-24150-IN          | 1.5                 | 4.1                   | 2          |
| ODV-24220-IN          | 2.2                 | 5.8                   | 2          |
| ODV-24400-IN          | 4                   | 9.5                   | 2          |
| ODV-34055-IN          | 5.5                 | 14                    | 3          |
| ODV-34075-IN          | 7.5                 | 18                    | 3          |
| ODV-34110-IN          | 11                  | 25                    | 3          |
| ODV-34150-IN          | 15                  | 30                    | 3          |
| ODV-44185-IN          | 18.5                | 39                    | 4          |
| ODV-44220-IN          | 22                  | 46                    | 4          |
| ODV-44300-IN          | 30                  | 61                    | 4          |
| ODV-44370-IN          | 37                  | 72                    | 4          |
| ODV-44450-IN          | 45                  | 90                    | 4          |
| ODV-54550-IN          | 55                  | 110                   | 5          |
| ODV-54750-IN          | 75                  | 150                   | 5          |
| ODV-54900-IN          | 90                  | 180                   | 5          |
| ODV-64110-IN          | 110                 | 202                   | 6          |
| ODV-64132-IN          | 132                 | 240                   | 6          |
| ODV-64160-IN          | 160                 | 300                   | 6          |

Note : Suitable for use on single phase supply with 50% derating

| 480 - 525V<br>3 Phase | Motor Power<br>(kW) | Output Current<br>(A) | Frame Size |
|-----------------------|---------------------|-----------------------|------------|
| ODV-55550-IN          | 55                  | 110                   | 5          |
| ODV-55750-IN          | 75                  | 150                   | 5          |
| ODV-55900-IN          | 90                  | 180                   | 5          |
| ODV-65132-IN          | 132                 | 202                   | 6          |
| ODV-65160-IN          | 160                 | 240                   | 6          |
| ODV-65200-IN          | 200                 | 270                   | 6          |

Note : Not UL Approved

| 500 - 600V<br>3 Phase | Motor Power<br>(kW) | Output Current<br>(A) | Frame Size |
|-----------------------|---------------------|-----------------------|------------|
| ODV-25150-IN*         | 1.5                 | 3.1                   | 2          |
| ODV-25220-IN*         | 2.2                 | 4.1                   | 2          |
| ODV-25370-IN*         | 3.7                 | 6.1                   | 2          |
| ODV-25550-IN*         | 5.5                 | 9                     | 2          |
| ODV-35075-IN          | 7.5                 | 14                    | 3          |
| ODV-35110-IN          | 11                  | 18                    | 3          |
| ODV-35150-IN          | 15                  | 24                    | 3          |
| ODV-45220-IN          | 22                  | 39                    | 4          |
| ODV-45300-IN          | 30                  | 46                    | 4          |
| ODV-45450-IN          | 45                  | 62                    | 4          |

\* : Requires External Input Choke

**OPTIDRIVE VTC Electrical Data in HP**

| 200 - 240V<br>1 Phase | Motor Power<br>(HP) | Output Current<br>(A) | Frame Size |
|-----------------------|---------------------|-----------------------|------------|
| ODV-22020-USA         | 2                   | 7                     | 2          |
| ODV-22030-USA         | 3                   | 10.5                  | 2          |

| 200 - 240V<br>3 Phase | Motor Power<br>(HP) | Output Current<br>(A) | Frame Size |
|-----------------------|---------------------|-----------------------|------------|
| ODV3-22020-USA        | 2                   | 7                     | 2          |
| ODV3-22030-USA        | 3                   | 10.5                  | 2          |
| ODV-32040-USA         | 4                   | 14                    | 3          |
| ODV-32050-USA         | 5                   | 18                    | 3          |
| ODV-32075-USA         | 7.5                 | 25                    | 3          |
| ODV-42100-USA         | 10                  | 39                    | 4          |
| ODV-42150-USA         | 15                  | 46                    | 4          |
| ODV-42200-USA         | 20                  | 61                    | 4          |
| ODV-42250-USA         | 25                  | 72                    | 4          |
| ODV-42300-USA         | 30                  | 90                    | 4          |
| ODV-52400-USA         | 40                  | 110                   | 5          |
| ODV-52500-USA         | 50                  | 150                   | 5          |
| ODV-52600-USA         | 60                  | 180                   | 5          |

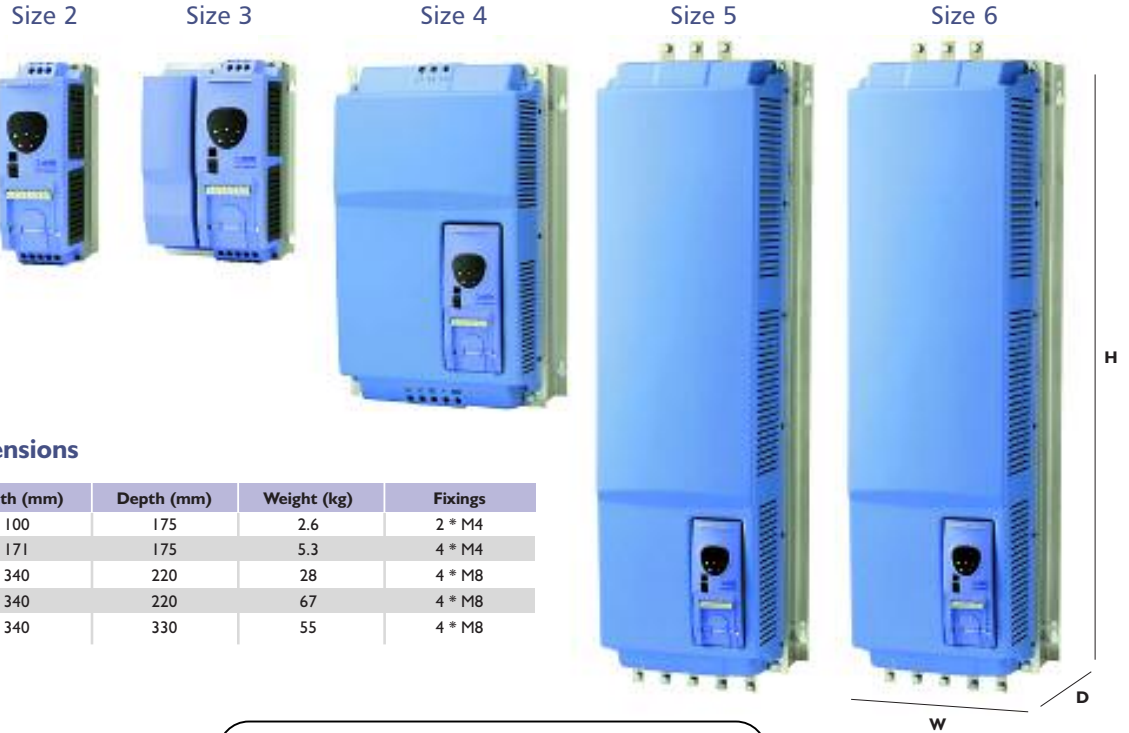
Note : Suitable for use on single phase supply with 50% derating

| 380 - 480V<br>3 Phase | Motor Power<br>(HP) | Output Current<br>(A) | Frame Size |
|-----------------------|---------------------|-----------------------|------------|
| ODV-24020-USA         | 2                   | 4.1                   | 2          |
| ODV-24030-USA         | 3                   | 5.8                   | 2          |
| ODV-24050-USA         | 5                   | 9.5                   | 2          |
| ODV-34075-USA         | 7.5                 | 14                    | 3          |
| ODV-34100-USA         | 10                  | 18                    | 3          |
| ODV-34150-USA         | 15                  | 25                    | 3          |
| ODV-34200-USA         | 20                  | 30                    | 3          |
| ODV-44250-USA         | 25                  | 39                    | 4          |
| ODV-44300-USA         | 30                  | 46                    | 4          |
| ODV-44400-USA         | 40                  | 61                    | 4          |
| ODV-44500-USA         | 50                  | 72                    | 4          |
| ODV-44600-USA         | 60                  | 90                    | 4          |
| ODV-54750-USA         | 75                  | 110                   | 5          |
| ODV-54100-USA         | 100                 | 150                   | 5          |
| ODV-54120-USA         | 150                 | 180                   | 5          |
| ODV-64150-USA         | 160                 | 202                   | 6          |
| ODV-64175-USA         | 200                 | 240                   | 6          |
| ODV-64210-USA         | 250                 | 300                   | 6          |

Note : Suitable for use on single phase supply with 50% derating

| 500 - 600V<br>3 Phase | Motor Power<br>(HP) | Output Current<br>(A) | Frame Size |
|-----------------------|---------------------|-----------------------|------------|
| ODV-25020-USA*        | 2                   | 3.1                   | 2          |
| ODV-25030-USA*        | 3                   | 4.1                   | 2          |
| ODV-25050-USA*        | 5                   | 6.1                   | 2          |
| ODV-25075-USA*        | 7.5                 | 9                     | 2          |
| ODV-35100-USA         | 10                  | 14                    | 3          |
| ODV-35150-USA         | 15                  | 18                    | 3          |
| ODV-35200-USA         | 20                  | 24                    | 3          |
| ODV-45300-USA         | 30                  | 39                    | 4          |
| ODV-45400-USA         | 40                  | 46                    | 4          |
| ODV-45600-USA         | 60                  | 62                    | 4          |

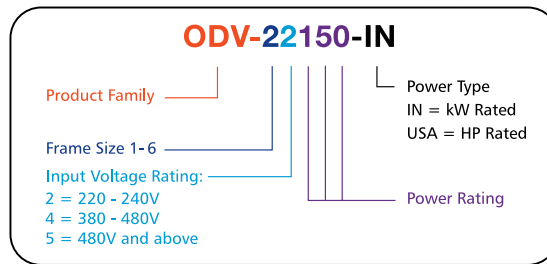
\* : Requires External Input Choke



**OPTIDRIVE VTC Dimensions**

| Size | Height (mm) | Width (mm) | Depth (mm) | Weight (kg) | Fixings |
|------|-------------|------------|------------|-------------|---------|
| 2    | 260         | 100        | 175        | 2.6         | 2 * M4  |
| 3    | 260         | 171        | 175        | 5.3         | 4 * M4  |
| 4    | 520         | 340        | 220        | 28          | 4 * M8  |
| 5    | 1045        | 340        | 220        | 67          | 4 * M8  |
| 6 ♦  | 1100        | 340        | 330        | 55          | 4 * M8  |

♦ : Supplied with External Input Choke



**Options**

| Product                  | Description  | Category |
|--------------------------|--|----------|
| <b>OptiFilter</b>        | RFI Line Filter  | Page 18  |
| <b>Optibrake</b>         | Dynamic Braking Resistor                                   | Page 19  |
| <b>Input Chokes</b>      | Mains Supply Input Chokes                                  | Page 20  |
| <b>Output Filters</b>    | Motor Output Filter, recommended for long motor cable runs | Page 21  |
| <b>3ROUT</b>             | 3 Relay Output Option                                      | Page 22  |
| <b>2ROUT</b>             | 2 Relay Output Option                                      | Page 22  |
| <b>HVACO</b>             | 2 Relay Output for HVAC operation                          | Page 22  |
| <b>LOGIP</b>             | High Voltage Logic Input Option                            | Page 22  |
| <b>Optiport Plus</b>     | Optiport Plus remote mounting keypad                       | Page 24  |
| <b>Network Cables</b>    | RJ11 Cables and Splitters                                  | Page 25  |
| <b>PC Connection Kit</b> | Isolated RS485 USB Adaptor                                 | Page 25  |
| <b>Optiwand PDA / SP</b> | Commissioning and backup software for Pocket PC / PDA      | Page 26  |
| <b>Optistore Plus</b>    | Commissioning and Storage Software for PC                  | Page 27  |
| <b>Fieldbus Gateway</b>  | DeviceNet, Profibus and Ethernet gateways                  | Page 28  |