

FREQUENCY INVERTERS

■
Product Range
and
Technical Specification



COMPACT GENERAL PURPOSE FREQUENCY INVERTER WITH VECTOR CONTROL

Product Range

| Model | Input voltage (V) | Rated output power (kW) | Output current (A) | Input current (A) | Overload capacity (60 sec) (A) | Applicable motor (kW) |
|-----------------|----------------------------------|-------------------------|--------------------|-------------------|--------------------------------|-----------------------|
| ADV 0.40 C220-M | 1 phase 220V (-15...+20 %) | 0.4 | 2.3 | 5.4 | 3.45 | 0.4 |
| ADV 0.75 C220-M | | 0.75 | 4.0 | 8.2 | 6 | 0.75 |
| ADV 1.50 C220-M | | 1.5 | 7.0 | 14.0 | 10.5 | 1.5 |
| ADV 0.75 C420-M | 3 phase 380V (-15...+20 %) | 0.75 | 2.1 | 3.4 | 3.15 | 0.75 |
| ADV 1.50 C420-M | | 1.5 | 3.8 | 5.0 | 5.7 | 1.5 |
| ADV 2.20 C420-M | | 2.2 | 5.1 | 6.2 | 7.65 | 2.2 |

Compact size frequency inverters

Designed for general purpose applications these compact sized frequency inverters with wide range of functions offer the most economically balanced solution for control of small capacity induction motors. C220/C420 series vector control frequency inverters are simultaneously sophisticated and easy to use products.

Enhanced Control and Performance

- Starting torque: 180% at 0.5Hz
- Two control modes: V/F and sensor less vector control
- Precise speed control stability: open loop magnetic flux vector control $\leq \pm 0.5\%$ (rated sync-speed)
- Improved speed control stability: open loop magnetic flux vector control $\leq \pm 0.3\%$ (rated sync-speed)
- Faster torque response time: ≤ 40 ms (with open loop magnetic flux vector control)
- Overload capacity: 150% of rated current during 60 sec; 180% of rated current during 3 sec
- Operating using sequence diagram. Sequence diagram control function: 16 independent timing cycles set by user



Built-in RS-485 interface (with Modbus protocol)

C220/C420 series frequency inverters have RS-485 interface with Modbus RTU protocol as a standard option.

Built-in brake unit

All frequency inverters of C220/C420 series are equipped with built-in brake unit that allows connecting an external braking resistor. This option allows using inverters in electric drive systems and machinery that require fast braking capability.

PID Control Option

Permits motor operation while controlling temperature, pressure and flow rate without the use of a temperature controller or other external device. PID control makes comparison of set signal (setting, desired value) with the feedback signal from sensors. By this means it detects mismatch or difference between set value and actual value.

Built-in Programmable Logic Controller

When manufacturing or operation process is organized as a sequence of actions or moves, it is worthy to use such an important build in option as simple Programmable Logic Controller for wide range of tasks. PLC option allows using or customizes frequency inverter in to a simple stand-alone automation system without using additional external equipment.

Protection options and functions

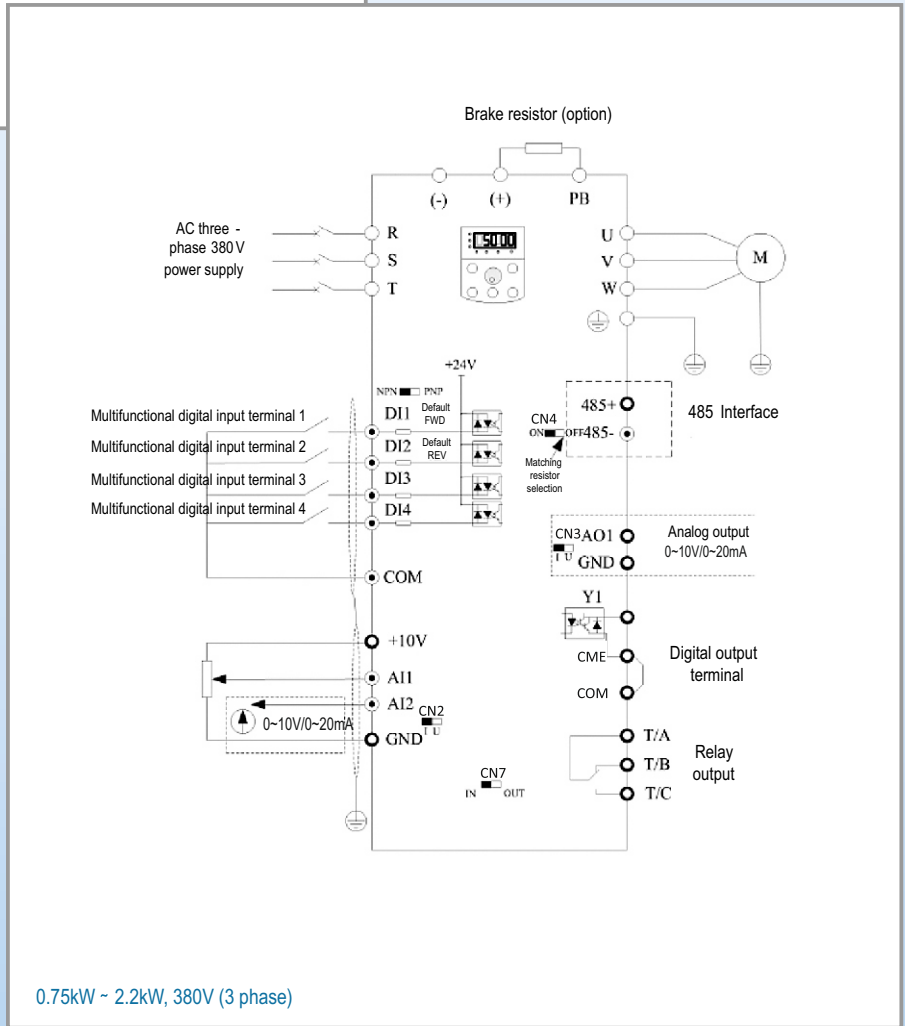
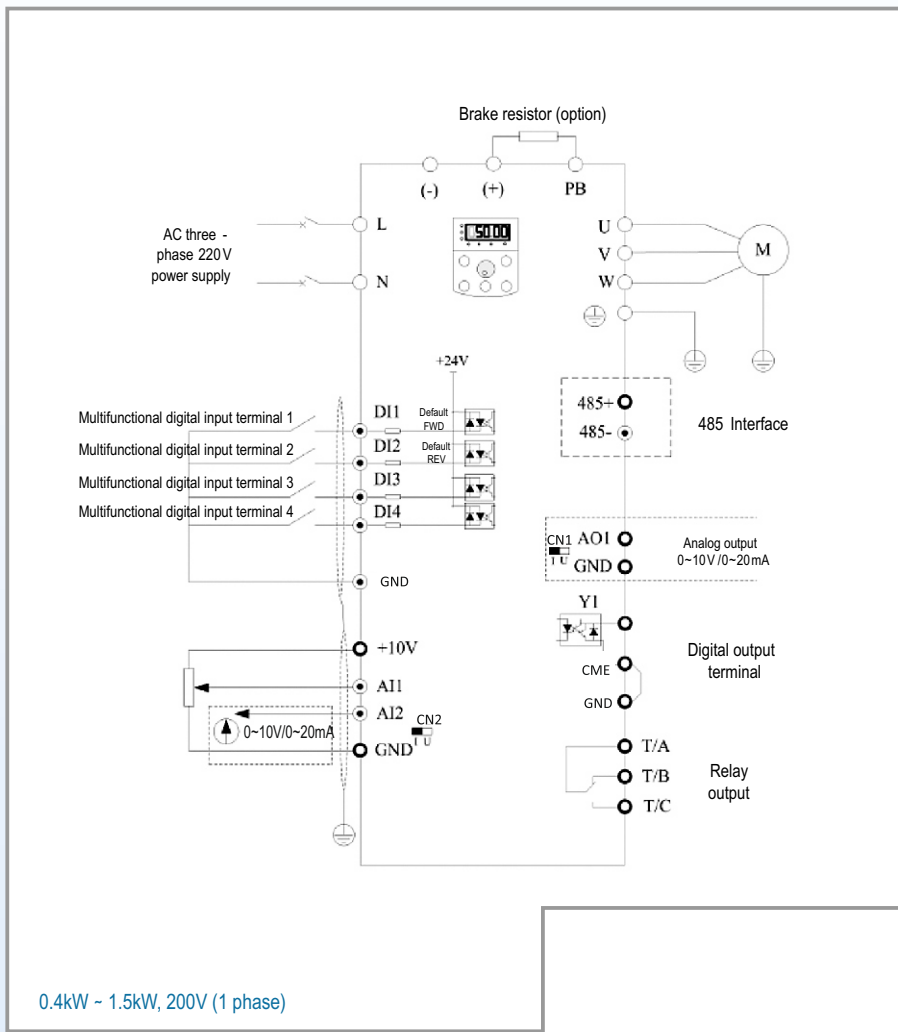
- Power-on motor short-circuit detection
- Input or output phase loss protection
- Over current or over voltage protection
- Under voltage protection
- Overheating protection
- Overload protection, etc.

Specification

| | | |
|---------------------------------|--|---|
| | Items | C220/C420 Series |
| | Power range | 0.4 kW ~ 2.2 kW |
| Power supply | Rated voltage | C220: 220 V (1 phase) 50/60 Hz C420: 380 V (3 phase) 50/60 Hz |
| | Voltage range | -15% ...+20% of rated voltage |
| Control mode | | V/f control, Vector flux control 1, Vector flux control 2 |
| Basic functions | Maximum frequency | 400.00 Hz |
| | Input frequency resolution | Digital setting: 0.01 Hz, Analog setting: 0.1% of max output frequency |
| | Carrier frequency | 1-15 kHz; the carrier frequency will be automatically adjusted according to the load characteristics |
| | Starting torque | 0.5 Hz/180% (open loop vector flux control) |
| | Torque hoist | Automatic torque hoist, Manual torque hoist 0.1~30.0% |
| | Speed adjustment range | 1:200 (open loop vector flux control) |
| | Torque response | ≤40ms (open loop vector flux control) |
| | Multi speed | 16 segments speed (running via the simple PLC or control terminal) |
| | V/f curve | Linear V/f, Square V/f, Multi-point V/f |
| | Speed-up and Speed-down curve | Straight line or S curve speed-up and speed-down mode; two kinds of speed-up and speed-down time |
| | Acceleration/deceleration time | 0.0~3000 sec |
| | DC brake | DC brake frequency: 0.00~400.00 Hz, Brake time: 0.0~36.0 sec, Brake current value: 0.0~100.0% |
| | Jog control | Jog frequency range: 0.00~50.00 Hz, Jog speed-up/speed-down time: 0.0~3000.0 sec |
| | PID control | Built-in |
| | Interface RS-485 | Standard RS-485 communication function (MODBUS) |
| Auto voltage regulation (AVR) | It can keep constant output voltage automatically in case of change of mains voltage | |
| Inputs | Analog | 2 |
| | Digital | 4 |
| Outputs | Analog | 1 |
| | Digital | 1 |
| | Relay | 1 |
| Protection/ Warning function | Overload | 150%, 60 sec |
| | Over voltage | Yes |
| | Under voltage | Yes |
| | Other protections | Overload, Overheat, Short circuit, Over current, Phase loss protection (input/output), etc. |
| Environment | Ambient temperature | -10 °C ... +40 °C (derated when used in ambient temperature of +40 °C...+50 °C) |
| | Ambient humidity | Max. 95 % (non-condensing) |
| | Altitude | Lower than 1000 m |
| | Vibration | < 5.9 m/c ² (0.6 G) |
| Structure | Protective | IP20 |

Basic Wiring Diagram

ADV 0.4 C220-M - ADV 1.5 C220-M

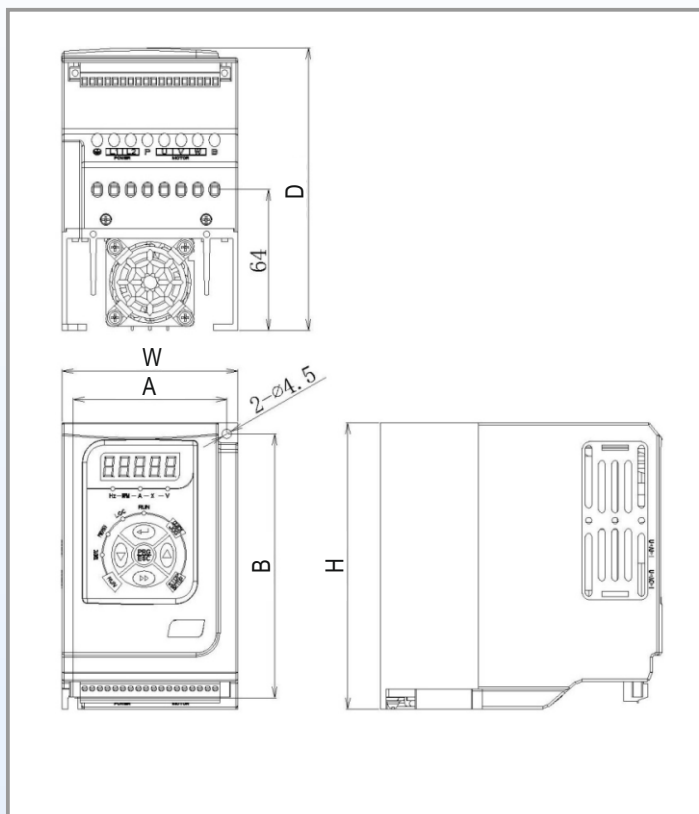


ADV 0.75 C420-M - ADV 2.2 C420-M

C220/C420 series frequency inverter dimensions and mounting hole dimensions

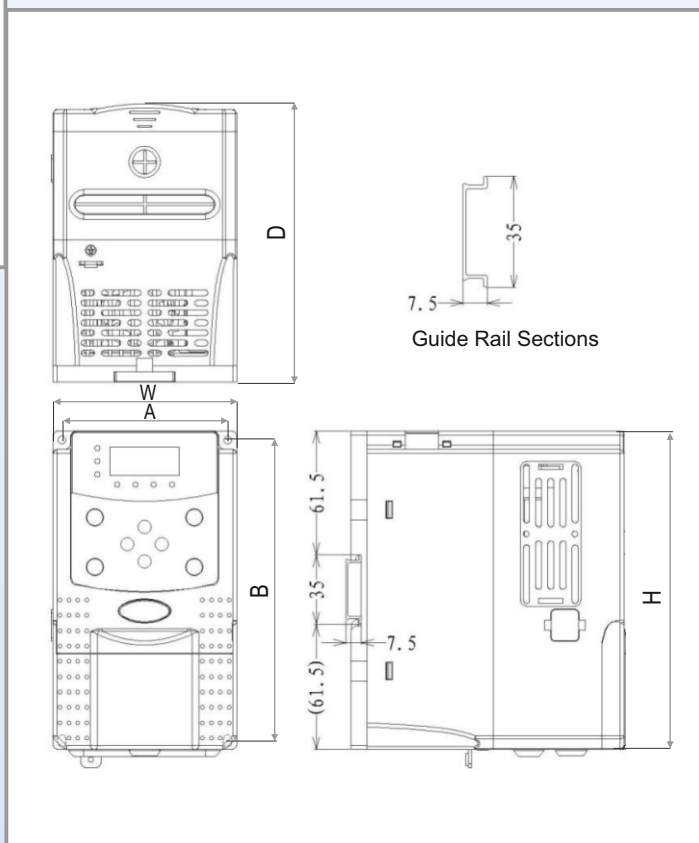
◀ C220

Frequency inverter dimensions and mounting hole dimensions



Frequency inverter dimensions and mounting hole dimensions

C420 ▶



C220/C420 series frequency inverter dimensions and mounting hole dimensions (mm)

| Model | Mounting hole | | Frequency inverter dimensions | | | Diameter of mounting hole (mm) |
|-----------------|---------------|--------|-------------------------------|--------|-------|--------------------------------|
| | A (mm) | B (mm) | H (mm) | W (mm) | D(mm) | |
| ADV 0.40 C220-M | 70 | 120 | 130 | 80 | 128.3 | ø4.5 |
| ADV 0.75 C220-M | | | | | | |
| ADV 1.50 C220-M | | | | | | |
| ADV 0.75 C420-M | 82 | 149 | 158 | 91 | 138 | ø4.5 |
| ADV 1.50 C420-M | | | | | | |
| ADV 2.20 C420-M | | | | | | |



Advanced Control[®], Advanced Systems Baltic OÜ

Punane 73, 13619 Tallinn, Estonia
Phone: +372 622 82 20, Fax: +372 622 82 21
Web: www.advcontrol.eu, e-mail: info@advcontrol.eu

Your regional representative

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