

# C220/C420 Series



**Compact general purpose small capacity  
frequency inverter**

0.4kW ~ 1.5kW / 1 phase 220V  
0.75kW ~ 2.2kW / 3 phase 380V  
IP20



## Compact frequency inverters

Compact and low cost frequency inverters, designed for general purposes with small capacity induction motors. They have high efficiency and wide range of functions.  
Easy to use.

## Improved Control Performance

- Starting torque: 180%/0,5Hz
- Two control modes: V/F, sensorless vector control
- Precise speed control accuracy: open loop magnetic flux vector control  $\leq \pm 0,5\%$  (rated sync-speed)
- More stable speed control stability: open loop magnetic flux vector control  $\leq \pm 0,3$  (rated sync-speed)
- Faster torque response performance:  $\leq 40\text{ms}$  (open loop magnetic flux vector control)
- Overload capacity: 1.5 x rated current, 60 s; 1.8 x rated current, 3 s
- Operating on sequence diagram.Sequence diagram control function: 16 timing cycles setting.

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

Basic configuration includes RS-485 interface with Modbus RTU protocol.

## Built-in brake unit

Basic configuration for all model range of C220/C420 frequency inverters includes built-in brake unit.

## Built-in PID controller

PID controller makes comparison of setting signal (setting, desired value) with the feedback signal from sensors. By this means it detects mismatch - difference between setting status and actual status. Frequency inverters with PID controller allows to adjust temperature, pressure or flow rate without using additional controllers or other external units.

## Built-in PLC

Built-in PLC (programmable logic controller) allows to customize frequency inverter for wide range of automation tasks without using additional external equipment.

## Built-in protection function

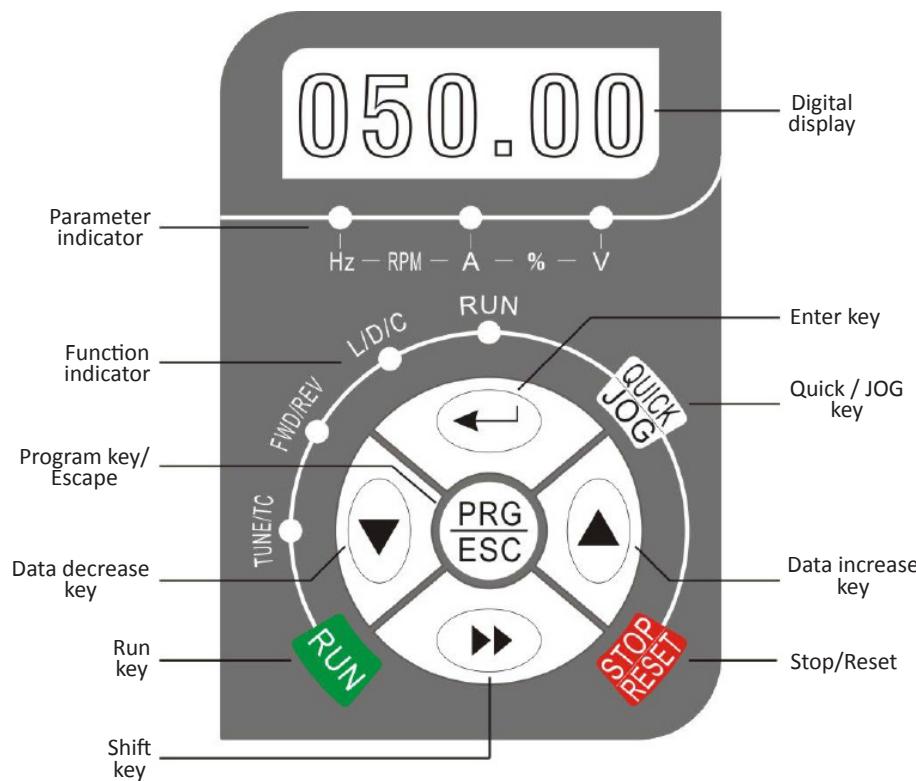
- Power-on motor short-circuit detection
- Input/output phase loss protection
- Over current/ over voltage protection
- Under voltage protection
- Overheating protection
- Overload protection, etc.



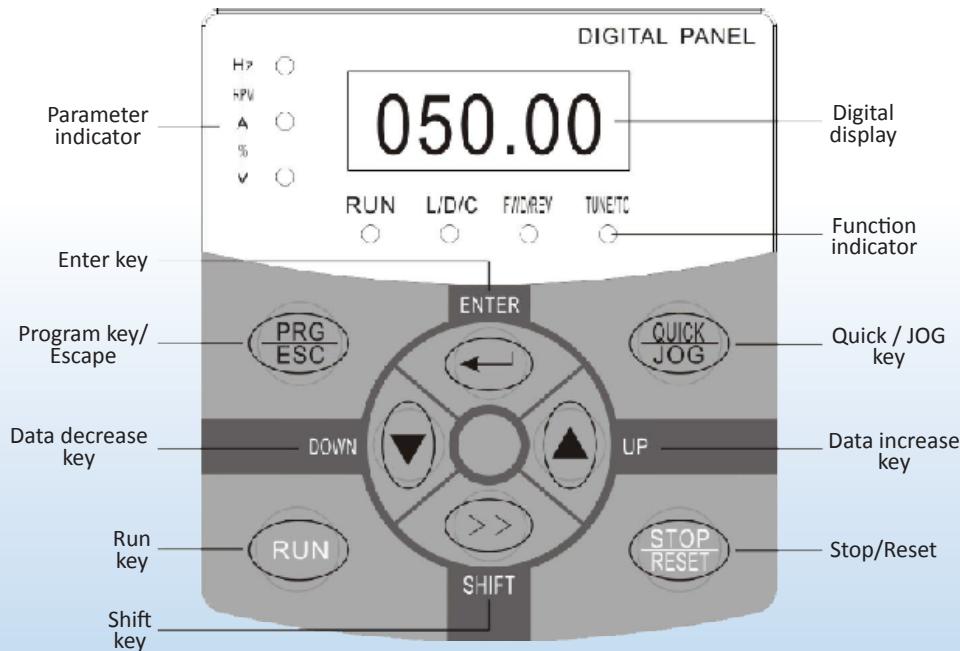
## LED Display

Frequency inverters have operational panel with LED display for adjusting and indication of inverter parameters and its condition monitoring.

- ADV 0.40 C220-M - ADV 1.50 C220-M



- ADV 0.75 C420-M - ADV 2.20 C420-M



## 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: max. frequency x0.1%
	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 s
	DC brake	DC brake frequency: 0.00~400.00 Hz, Brake time: 0.0~36.0 s, 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 s
	PID control	Built-in
Inputs	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
	Analog	2
	Digital	4
Outputs	Analog	1
	Digital	1
	Relay	1
Protection/Warning function	Overload	150%, 60 s
	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	< 5.9m/s <sup>2</sup> (0.6 G)
Structure	Protective	IP20

## Model range

Model	Input voltage (V)	Rated output power (kW)	Output current (A)	Input current (A)	Overload capacity (60s) (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

## Designation rules

**ADV 1.50 C 4 20 - M**

Manufacturer: Machtric

Series Code:  
(\*) 1~0 or A~Z

Voltage / Phase:  
2: 220V (1 phase) 4: 380V (3 phase)

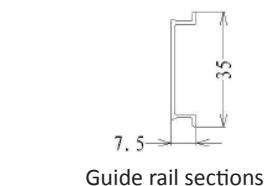
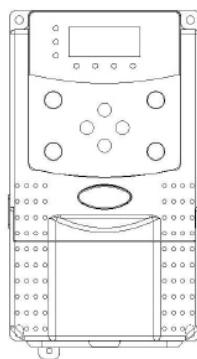
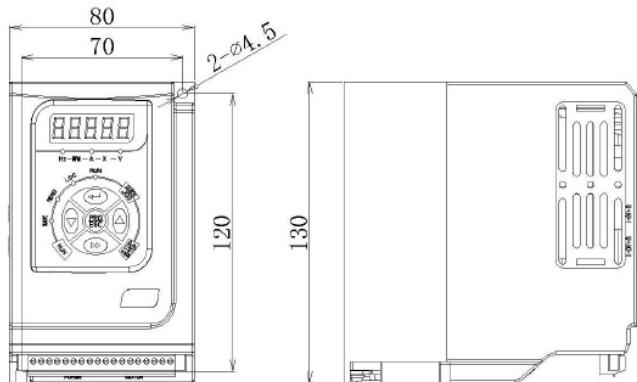
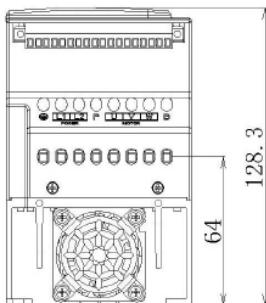
Application and Class:  
B: General Purpose Basic  
C: General Purpose Compact  
E: General Purpose Enhanced  
M: General Purpose Advanced  
P: Pumps and Fans  
S: Special Purpose

Capacity (kW):  
0.00: Capacity < 10kW  
00.0: Capacity > 10kW, < 100kW  
000: Capacity > 100kW

Brand Name: Advanced Control

## Dimensions

- ADV 0.40 C220-M ~ ADV 1.50 C220-M
  - ADV 0.75 C420-M ~ ADV 2.20 C420-M

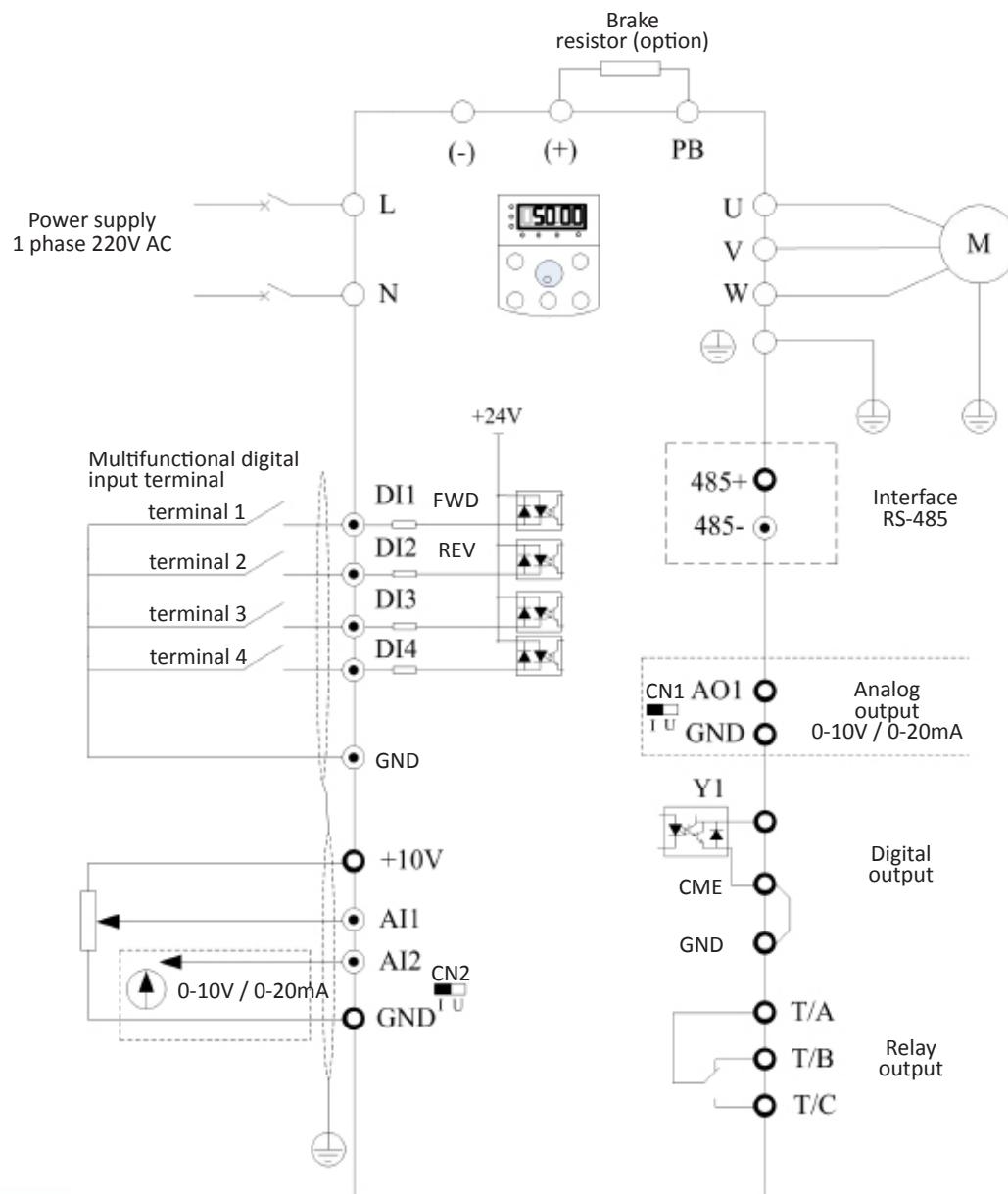


## Guide rail sections

Unit: mm

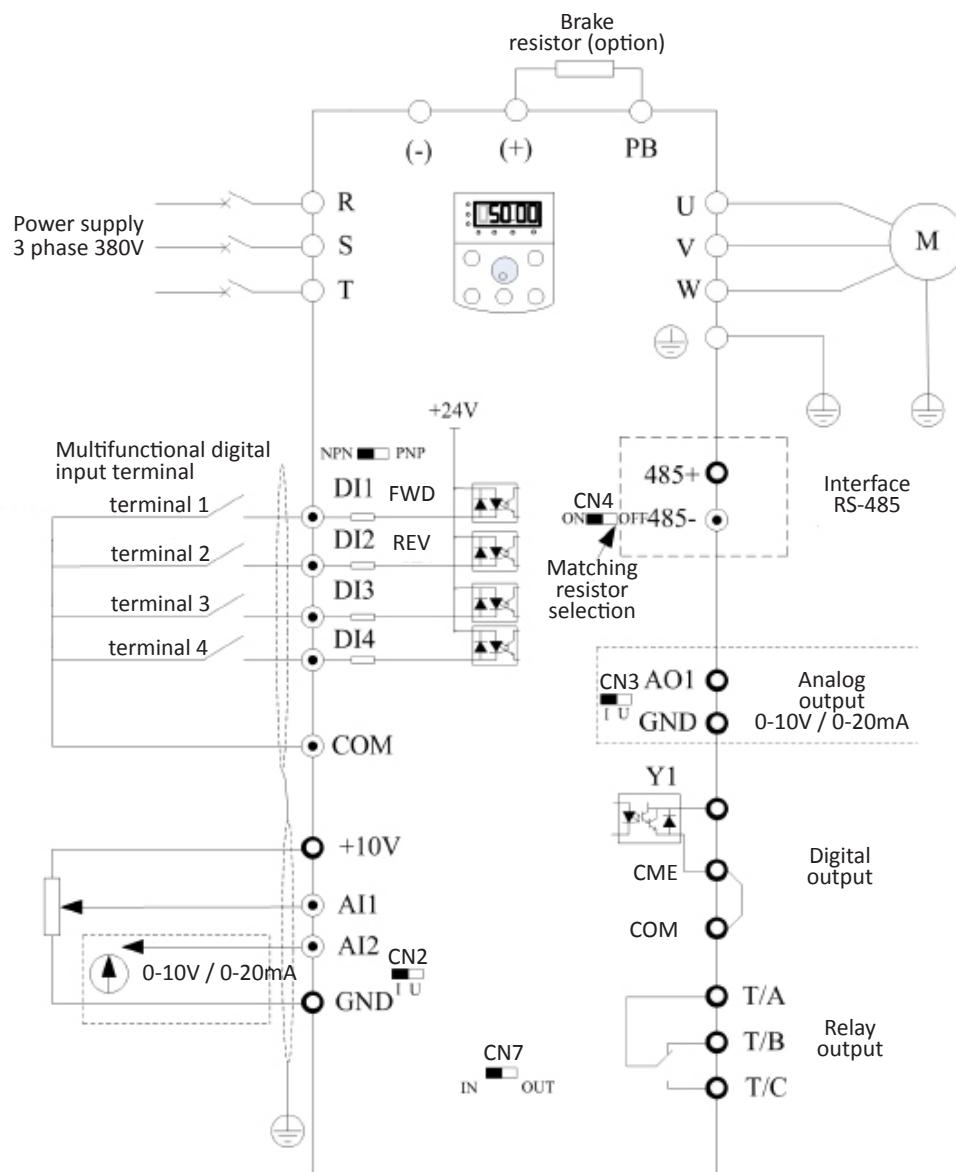
## Wiring diagram

- ADV 0.40 C220-M ~ ADV 1.50 C220-M



## Wiring diagram

- ADV 0.75 C420-M ~ ADV 2.20 C420-M





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