

## INVERTER

**New Product RELEASE** No.20-3E

# Addition of New Models for the FR-A870 (690 V Class) Inverters

Three new models have been added to the FR-A800 series 690 V class inverters.

### Features

#### Wire and Space Saving

- **Built-in brake transistor**

Connecting a brake resistor\* to the built-in brake transistor model can shorten the deceleration time. Therefore, a brake unit or a regeneration converter is no longer required. Wire and space saving helps reduce costs.

\* The brake resistor must have a sufficient capacity to consume the regenerative power.

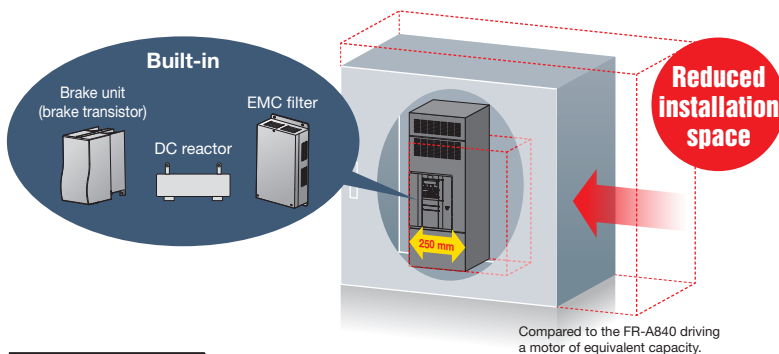
- **Built-in DC reactor and EMC filter**

The inverter has a built-in DC reactor and EMC filter (EN61800-3 C3), requiring less wiring of peripheral devices.

### Benefit

#### Enclosure cost reduction

The 250-mm-wide slim design saves enclosure space. Reduced enclosure size helps keep the cost down.



### Lineup

**FR-A870-00550-E1-60**

Symbol	Voltage class	Symbol	Description	Symbol	Type	Communication type	Symbol	Circuit board coating	Plated conductor	Symbol	Built-in brake transistor
7	690 V class*	00550	Inverter SLD rated current (A)	E1	FM	Ethernet	60	With	Without	None	Without
		00660		E2	CA		06	With	With	B	With
		00890									

\* The insulation distance conforms to IEC 61800.

Model Name FR-A870-[ ]	00550	00660	00890	02300	02860	
690 V class	●	●	●	●	●	● : Available model □ : Released model

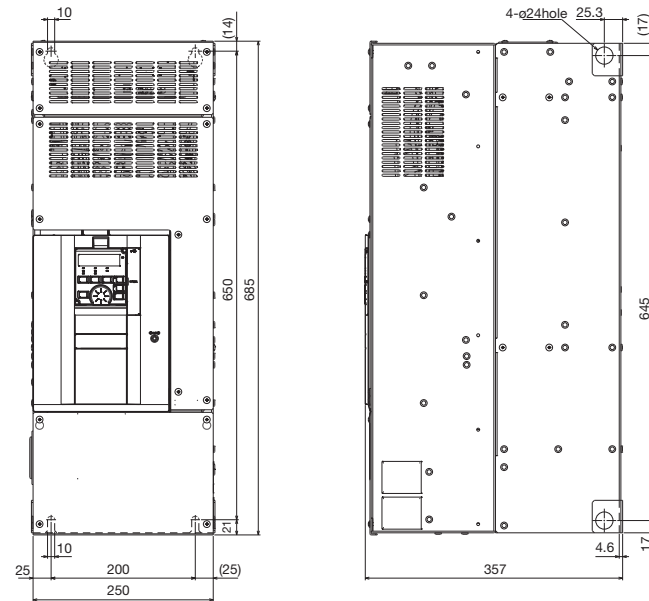
### Release schedule

June 2020

## Outline dimensions

(Unit: mm)

### • FR-A870-00550 to FR-A870-00890



## Specifications

### • 690 VAC power input

### • 575 VAC power input

Model FR-A870-[ ]		00550	00660	00890	00550	00660	00890	
Applicable motor capacity (kW) <sup>*1</sup>	SLD	45	55	75	37	45	55	
	ND (initial setting)	37	45	55	30	37	45	
Output	Rated capacity (kVA) <sup>*2</sup>	SLD	66	79	106	55	66	89
	Rated current (A) <sup>*3</sup>	SLD	55	66	89	46	55	66
	Rated current (A) <sup>*3</sup>	ND (initial setting)	46	55	66	46	55	66
	Overload current rating <sup>*4</sup>	SLD	110% 60 s, 120% 3 s (inverse-time characteristics) at surrounding air temperature 40°C			110% 60 s, 120% 3 s (inverse-time characteristics) at surrounding air temperature 40°C		
Overload current rating <sup>*4</sup>	ND (initial setting)	150% 60 s, 200% 3 s (inverse-time characteristics) at surrounding air temperature 40°C			150% 60 s, 200% 3 s (inverse-time characteristics) at surrounding air temperature 40°C			
Rated voltage <sup>*5</sup>		Three-phase 600 to 690 V			Three-phase 525 to 600 V			
Regenerative braking <sup>*5</sup>	Brake transistor	Built-in			Built-in			
Rated input AC voltage/frequency		Three-phase 600 to 690 V 50 Hz/60 Hz			Three-phase 525 to 600 V 50 Hz/60 Hz			
Permissible AC voltage fluctuation		540 to 759 V 50 Hz/60 Hz			472 to 660 V 50 Hz/60 Hz			
Permissible frequency fluctuation		±5%			±5%			
Rated input current (A) <sup>*7</sup>	SLD	55	66	89	55	66	89	
	ND (initial setting)	46	55	66	46	55	66	
Power supply capacity (kVA) <sup>*8</sup>	SLD	66	79	106	55	66	89	
	ND (initial setting)	55	66	79	46	55	66	
Protective structure (IEC 60529) <sup>*9</sup>		Enclose type (IP20)			Enclose type (IP20)			
Cooling system		Forced air cooling			Forced air cooling			
Noise level (dB) <sup>*10</sup>		65	65	65	65	65	65	
Approx. mass (kg)		54	56	59	54	56	59	

<sup>\*1</sup> Values in the "690 VAC power input" table indicate the maximum applicable motor capacity at a power input of 690 V. Values in the "575 VAC power input" table indicate the one at a power input of 575 V.

<sup>\*2</sup> Values in the "690 VAC power input" table indicate the maximum capacity at an inverter output of 690 V. Values in the "575 VAC power input" table indicate the one at an inverter output of 575 V.

<sup>\*3</sup> Possible output currents during continuous operation under Real sensorless vector control or Vector control are shown in the table below.

PWM carrier frequency	00550		00660		00890	
	SLD	ND	SLD	ND	SLD	ND
2 kHz	45 A	39 A	54 A	47 A	73 A	56 A
4 kHz	27 A	26 A	33 A	31 A	44 A	38 A

The PWM carrier frequency is automatically decreased to 2 kHz for heavy duty applications when operating the motor under Real sensorless vector control or Vector control with a PWM carrier frequency of more than 6 kHz (Pr.72 ≥ 6). The carrier frequency stays at 4 kHz in fast-response operation.

<sup>\*4</sup> The % value of the overload current rating indicated is the ratio of the overload current to the inverter's rated output current. For repeated duty, allow time for the inverter and motor to return to or below the temperatures under 100% load.

<sup>\*5</sup> The maximum output voltage does not exceed the power supply voltage. The maximum output voltage can be changed within the setting range.

However, the maximum point of the voltage waveform at the inverter output side is the power supply voltage multiplied by about  $\sqrt{2}$ .

<sup>\*6</sup> The built-in brake transistor model only.

Use a brake resistor of 13 Ω or more. Power consumption at 13 Ω measures 89.7 kW with an input of 690 VAC, and 67.8 kW with an input of 575 VAC.

<sup>\*7</sup> The rated input current indicates a value at a rated output voltage. The impedance at the power supply side (including those of the input reactor and cables) affects the rated input current.

<sup>\*8</sup> The power supply capacity is the value when at the rated output current. It varies by the impedance at the power supply side (including those of the input reactor and cables).

<sup>\*9</sup> FR-DU08: IP40 (except for the PU connector section)

<sup>\*10</sup> Values measured 1 m in front of the inverter and 1.6 m from the floor.

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