

INVERTER

New Product RELEASE

No.20-6E

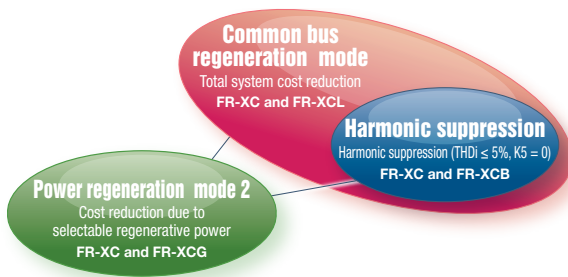
A New Lineup of FR-XC Series Multifunction Regeneration Converters

Addition of a new stand-alone option for our general-purpose inverters—400 V class 75K FR-XC series converters which have a harmonic suppression function and power regeneration capability.

Features

Multifunction power regeneration converter

Choose the suitable function for your needs by using the FR-XC converter with the FR-XCB, FR-XCL, or FR-XCG reactor.



Compact design offers solution to harmonic problems

When the FR-XC series converter is used with the dedicated box-type reactor FR-XCB, the total harmonic distortion of the input current (THDi) is 5% or less^{*1}, which facilitates compliance with the overseas standards related to harmonic suppression.

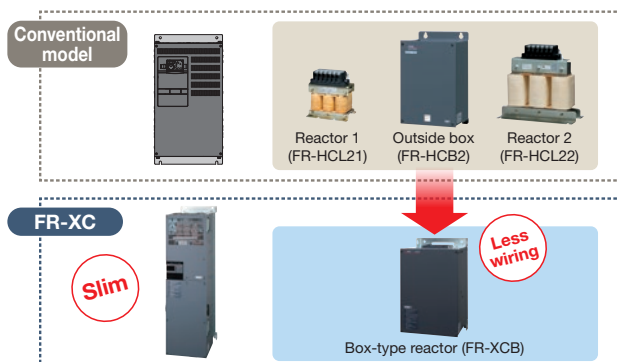
*1: When the input voltage is distorted, harmonic contents increase because power harmonics flow into the converter.

Merits

Wire and space saving

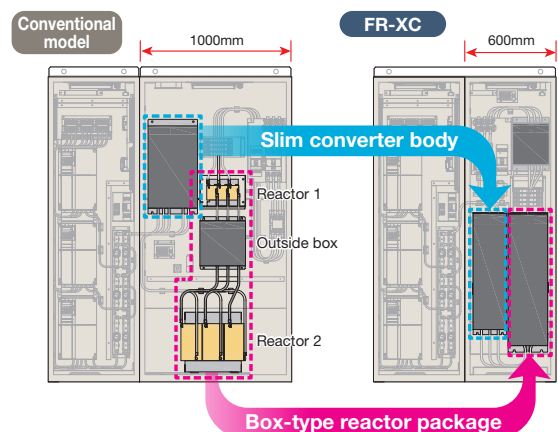
The slim converter requires less space, and the FR-XCB box-type reactor^{*2} enables wiring reduction as it contains peripheral devices such as reactors.

*2: Used for the FR-XC converter with its harmonics suppression function enabled.



Installation space reduced by 40%

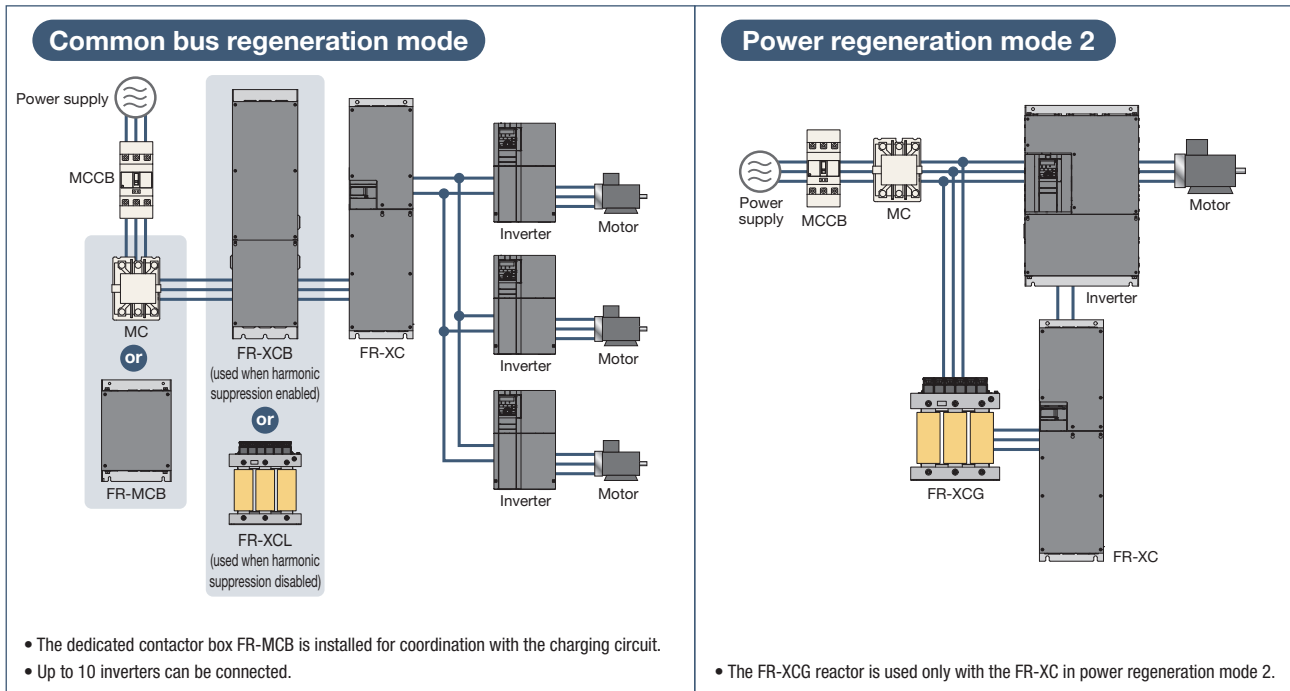
Width is reduced from 1000 mm to 600 mm.



Release schedule

October 2020

System configuration



Rated specifications

Model FR-XC-H[JK (-PWM)] ¹		Harmonic suppression		75	
Common bus regeneration	50°C rating	Applicable inverter capacity (kW)	Disabled	75	
			Enabled	75	
		Applicable motor current (A)	Disabled	144	
			Enabled	144	
		Rated input current (A)	Disabled	Power driving	158
	Regenerative driving			135	
		Enabled (HS)	Power/regenerative driving	139	
	Overload current rating				100% continuous / 150% 60 s
	Power supply capacity (kVA) ²		Disabled		133
			Enabled		118
40°C rating	Applicable inverter capacity (kW)	Disabled		90	
		Enabled		90	
	Applicable motor current (A)	Disabled		180	
		Enabled		180	
	Rated input current (A)	Disabled	Power driving	189	
			Regenerative driving	162	
		Enabled (HS)	Power/regenerative driving	168	
Overload current rating				100% continuous / 150% 60 s	
Power supply capacity (kVA) ²		Disabled		160	
		Enabled		142	
Power regeneration mode ³	50°C rating	Potential regenerative capacity (kW) ⁸		75	
		Rated current (A) (regenerative driving)		135	
	Overload current rating				100% continuous / 150% 60 s
	40°C rating	Potential regenerative capacity (kW) ⁸			90
		Rated current (A) (regenerative driving)			162
Overload current rating				100% continuous / 150% 60 s	
Power source	Rated input AC voltage/frequency	Disabled		Three-phase 380 to 500 V, 50/60 Hz	
		Enabled		Three-phase 380 to 480 V, 50/60 Hz ⁴	
	Permissible AC voltage fluctuation	Disabled		Three-phase 323 to 550 V, 50/60 Hz	
		Enabled		Three-phase 323 to 506 V, 50/60 Hz	
Permissible frequency fluctuation	Disabled		±5%		
	Enabled		±5%		
Input power factor		Enabled		0.99 or more (when load ratio is 100%)	
Protection rating of structure (IEC 60529)		IP20 ⁹ (also for FR-XCB and FR-MCB)			
Cooling system		Forced air			
Number of connectable inverters		10 ⁻⁵ ⁶			
Approx. mass (kg) ⁷		45			

¹: The factory defaults of harmonic suppression function differs by model (FR-XC-[JK]: Disabled, FR-XC-[JK-PWM]: Enabled).

²: Selection example for 440 V power supply voltage.

³: The converter with its harmonics suppression function disabled can be set in the power regeneration mode 2.

⁴: The DC bus voltage is approx. 594 VDC at an input voltage of 400 VAC, approx. 653 VDC at 440 VAC, and approx. 713 VDC at 480 VAC.

⁵: If you want to connect 11 or more inverters, contact your sales representative.

⁶: One inverter for operation in the power regeneration mode 2.

⁷: Mass of the FR-XC alone.

⁸: Maximum capacity of regenerative power generated from the Mitsubishi Electric 4-pole standard motor in each axis.

⁹: IP00 when the side wiring cover of the FR-XC is removed.

Lineup

Multifunction regeneration converter model

Multifunction regeneration converter with harmonic suppression and power regeneration functions.

- : Newly released model
- : Released
- : To be released
- : Not applicable

Specifications of the models to be released are subject to change without prior notice.

FR-XC-H 75 K - [] []

Symbol	Voltage
None	200 V class
H	400 V class

Converter capacity
Capacity (kW)

Symbol	Circuit board coating	Plated conductor
None	Without	Without
60	With	Without
06	With	With

Symbol	Functional specification ¹⁾
None	Harmonic suppression disabled
PWM	Harmonic suppression enabled

¹⁾ Pr.416 = "9999"

Voltage	Model	7.5	11	15	18.5	22	30	37	55	75	90	110	160	220	280
200V	FR-XC-[]K	●	●	●	—	●	●	●	●	—	—	—	—	—	—
	FR-XC-[]K-PWM	—	—	—	●	●	—	●	●	○	○	—	—	—	—
400V	FR-XC-H[]K	●	●	●	—	●	●	●	●	●	—	—	—	—	—
	FR-XC-H[]K-PWM	—	—	—	●	●	—	●	●	●	—	○	○	○	○

Dedicated stand-alone reactor (option) model

A stand-alone reactor for use with the FR-XC converter with its harmonic suppression function disabled.

FR-XCL-H 75 K

Symbol	FR-XC connection mode selection
L	Common bus regeneration mode, Power regeneration mode 1 (for 55K or lower)
G	Power regeneration mode 2

Symbol	Voltage	Reactor capacity
None	200 V class	Capacity (kW)
H	400 V class	

Voltage	Model	7.5	11	15	22	30	37	55	75	90
200V	FR-XCL-[]K	●	●	●	●	●	●	●	—	—
	FR-XCG-[]K	—	—	—	—	—	—	—	—	—
400V	FR-XCL-H[]K	●	●	●	●	●	●	●	●	●
	FR-XCG-H[]K	—	—	—	—	—	—	—	—	—

Dedicated box-type reactor (option) model

A stand-alone box-type reactor for use with the FR-XC converter with its harmonic suppression function enabled.

FR-XCB-H 75 K - []

Symbol	Voltage
None	200 V class
H	400 V class

Symbol	Circuit board coating
None	Without
60	With

Voltage	Model	18.5	22	37	55	75	90	110	160	220	280
200 V	FR-XCB-[]K	●	●	●	●	○	○	—	—	—	—
400 V	FR-XCB-H[]K	●	●	●	●	●	—	○	○	○	○

Reactor capacity
Capacity (kW)

Dedicated contactor box (option) model

A dedicated contactor box used for coordination with the charging circuit.

FR-MCB-H 150

Symbol	Voltage	Built-in magnetic contactor
H	400 V class	S-N[] 200 VAC

MITSUBISHI ELECTRIC CORPORATION

HEAD OFFICE: TOKYO BLDG., 2-7-3, MARUNOUCHI, CHIYODA-KU, TOKYO 100-8310, JAPAN