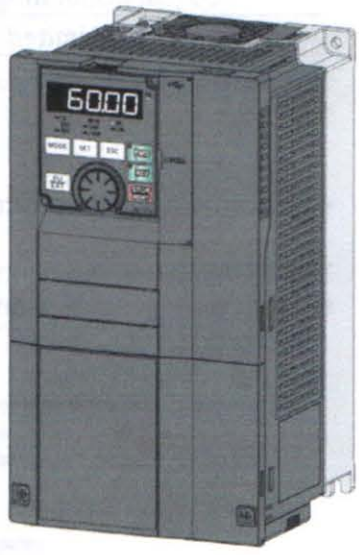
Product information

March 2014

Contact: Oliver Endres
+49(0)2102/486-9710

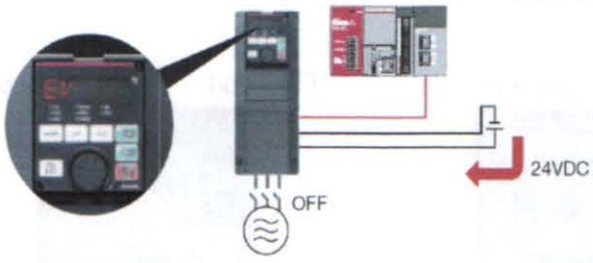
FR-A800



Herewith we would like to inform you about the arrival of our new high end Inverter FR-A800 Series. The FR-A800 will be available on stock in April 2014 from 0.4 up to 280kW (ND)
A700 series will face decreased stock availability after summer 2014.

• Compatibility

The FR-A800 Series is backwards compatible with FR-A700 Series. Due to safety function Terminal Block is different, so you can use FR-A8TAT as Option. By replacing a FR-A700 by an FR-A800 you can easily copy the parameters of the FR-A700 to the FR-A800 with the FR-Configurator II.



• Standard 24 VDC power supply for the control circuit

With the existing control power supply to R1 and S1, 24 VDC input is equipped as standard.

Parameters can be set and communication maintained with a 24 VDC power supply even with the high-voltage main power supply turned OFF to facilitate safe maintenance.

• More network types

always supported types			new types
Modbus-RTU	DeviceNet	SSCNET III/H	PROFINET
CC-Link	PROFIBUS-DP	FL-net	EtherNet/IP
CC-Link IE Field	LONWORKS		EtherCAT*

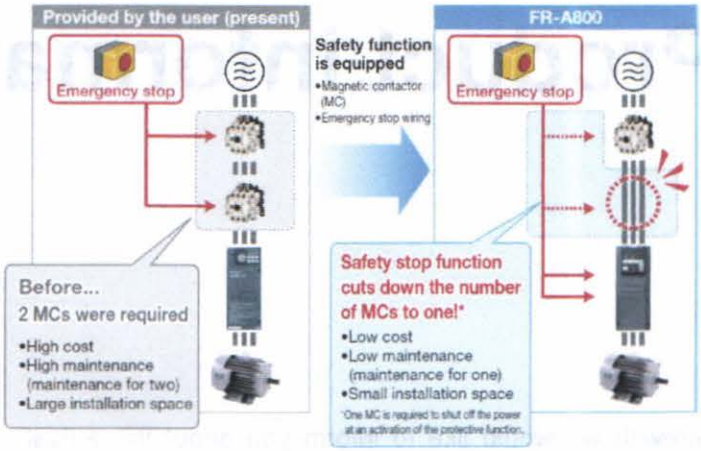
* to be supported July 2014

• Improved system safety

The FR-A800 Series supports now safety stop functions like STO as standard.

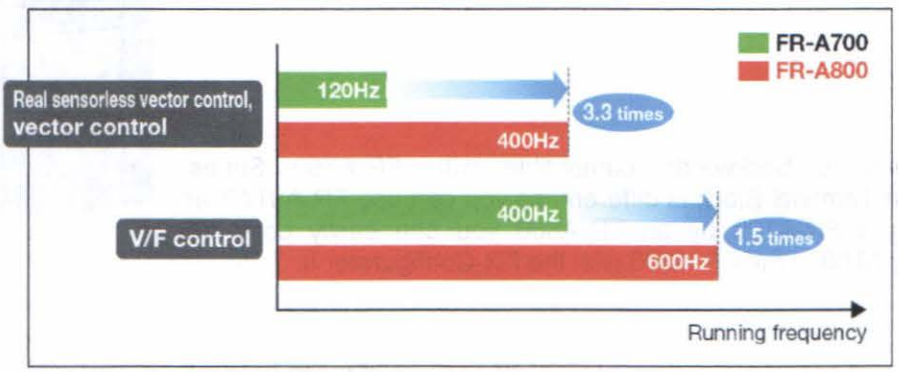
Functions for IEC/EN 61800-5-2:2007
STO (Safe Torque off)
SS1 (Safe Stop 1)
SS2 (Safe Stop 2)
SOS (Safe Operating Stop)
SLS (Safely-Limited Speed)

SS1, SS2, SLS, SOS, etc. will be also supported soon in addition to STO.



• Perform ultra-fine processing

The FR-A800 Series extends the supported operating frequency to 600Hz at V/F control and to 400Hz at real sensorless vector control and vector control.



• Easy to read operational panel

A 5-digit 12-segment display is employed for the operation panel (FR-DU08) to provide an easy-to-follow views to the users.

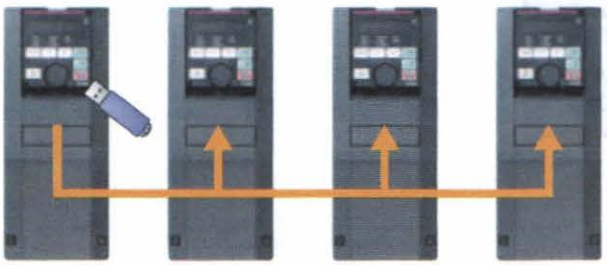
The operation panel equipped with an LCD panel (FR-LU08 (to be released soon)) is also available for an enhanced display.

FR-DU08 (12-segment type)



FR-LU08 (LCD type) (option)





USB 2.0 supported (full speed)

• Parameter copying with USB memory

A USB host connecter (A type), which allows external device connections, has been added.

Parameters can be copied to commercial USB memory devices.

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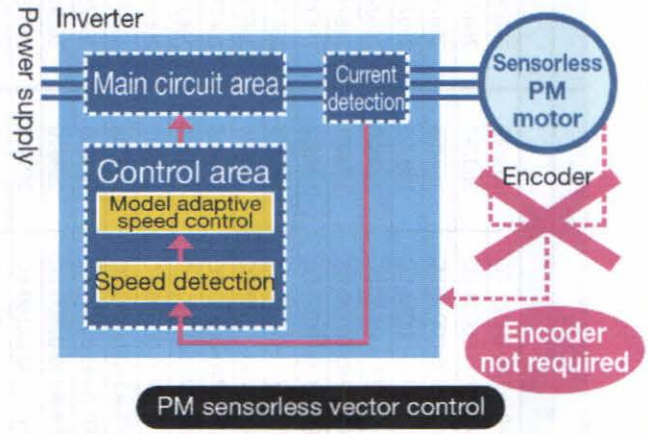
Permanent magnet motor support

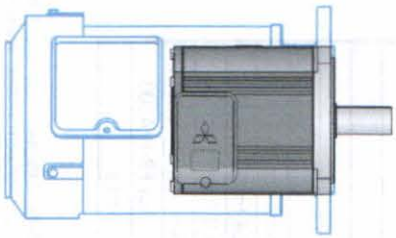
• What is a permanent magnet (PM) motor?

A PM motor is a synchronous motor with strong permanent magnets embedded in its rotor. The two major PM motor types are: the interior permanent magnet (IPM) motor with its magnets embedded inside the rotor, and the surface permanent magnet (SPM) motor with its permanent magnets attached on the rotor surface.

What is PM sensorless vector control? The speed and magnetic pole positions, the two essential bits of information to control a PM motor, are detected without a sensor (encoder). The speed detection internally-performed in an inverter enables highly accurate control of a PM motor, almost as accurate as an AC servo system, without the need of a sensor (encoder).

A synchronous motor can perform intricate tasks, such as "simple positioning (200 pulses/rotation)", "speed synchronization", "torque generation at zero speed", which are not possible with an induction motor without an encoder.





• Easy maintenance for sensor (encoder)-less motor

No additional cables means less wiring space required.

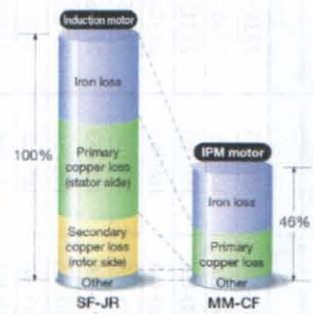
Improved reliability is obtained in unfavourable operating environments. (e.g. high vibration)

PM motors are usually smaller and lighter than induction motors.

• Why is a PM motor so efficient?

The current does not flow to the rotor (secondary side), so there is no secondary copper loss.

Magnetic flux is generated by permanent magnets, so less current is required to drive a motor.



[Comparison of motor losses]
(Example of 1.5kW motors)

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Ordering Codes

	FR-A720		FR-A820	
Power [kW]	Type	Order No.	Order No.	Type
0,4	FR-A720-00030-NA	169758	273156	FR-A820-00046-2-60
0,75	FR-A720-00050-NA	169759	273157	FR-A820-00077-2-60
1,5	FR-A720-00080-NA	169760	273158	FR-A820-00105-2-60
2,2	FR-A720-00110-NA	169761	273159	FR-A820-00167-2-60
3,7	FR-A720-00175-NA	169762	273160	FR-A820-00250-2-60
5,5	FR-A720-00240-NA	169763	273161	FR-A820-00340-2-60
7,5	FR-A720-00330-NA	169764	273162	FR-A820-00490-2-60
11	FR-A720-00460-NA	169765	273163	FR-A820-00630-2-60
15	FR-A720-00610-NA	169766	273164	FR-A820-00770-2-60
18,5	FR-A720-00760-NA	169767	273165	FR-A820-00930-2-60
22	FR-A720-00900-NA	169768	273166	FR-A820-01250-2-60
30	FR-A720-01150-NA	169769	273167	FR-A820-01540-2-60
37	FR-A720-01450-NA	169770	273168	FR-A820-01870-2-60
45	FR-A720-01750-NA	169771	273169	FR-A820-02330-2-60
55	FR-A720-02150-NA	169772	273170	FR-A820-03160-2-60
75	FR-A720-02880-NA	169773	273171	FR-A820-03800-2-60
90	FR-A720-03460-NA	169774	273172	FR-A820-04750-2-60

Optioncards		
Order Nr.	Product	Description
262948	FR-A8NDPV1	Profibus DPV1 with Dsub Interface for FR-A/F800
262949	FR-A8NPRT_2P	Profinet RT 2port Interface for FR-A/F800 with Drive Profile
262950	FR-A8NEIP_2P	EtherNet/IP 2port Interface for FR-A/F800
269431	FR-A8NC	CC-Link Interface for FR-A/F800
168347	A6CON-L5P	Plug cover for CC-Link Interface
269432	FR-A8ND	DeviceNet Interface for FR-A/F800
273102	FR-A8NCE	CC-Link IE Field Interface for FR-A/F800
274514	FR-A8NP	ProfibusDP Interface for FR-A/F800
274526	FR-A8TAT	Control terminal box adapter of A700
269426	FR-A8AX	16-Bit-Digital-Input; BCD/Binary-Code; 24V DC; 5mA for FR-F/A800
269427	FR-A8AY	Digital-/Analog Output; Output load: 24V DC; 0,1A for FR-F/A800
269428	FR-A8AR	Relay output; 3 additional output relays for FR-A/F800
269429	FR-A8AP	16-Bit-Digital-Input; BCD/Binary-Code; 24V DC; 5mA for FR-F/A800
269430	FR-A8AL	Digital-/Analog Output; Output load: 24V DC; 0,1A for FR-F/A800
274525	FR-LU08	Clear text LCD Parameter unit for all units of 800 Series

	FR-A740		FR-A840	
Power [kW]	Type	Order No.	Order No.	Type
0,4	FR-A740-00023-EC	169826	266741	FR-A840-00023-2-60
0,75	FR-A740-00038-EC	169797	266742	FR-A840-00038-2-60
1,5	FR-A740-00052-EC	169798	266743	FR-A840-00052-2-60
2,2	FR-A740-00083-EC	169799	266744	FR-A840-00083-2-60
3,7	FR-A740-00126-EC	169800	266745	FR-A840-00126-2-60
5,5	FR-A740-00170-EC	169801	266746	FR-A840-00170-2-60
7,5	FR-A740-00250-EC	169802	266747	FR-A840-00250-2-60
11	FR-A740-00310-EC	169803	266748	FR-A840-00310-2-60
15	FR-A740-00380-EC	169804	266749	FR-A840-00380-2-60
19	FR-A740-00470-EC	169805	266750	FR-A840-00470-2-60
22	FR-A740-00620-EC	169806	266751	FR-A840-00620-2-60
30	FR-A740-00770-EC	169807	266752	FR-A840-00770-2-60
37	FR-A740-00930-EC	169808	266753	FR-A840-00930-2-60
45	FR-A740-01160-EC	169809	266754	FR-A840-01160-2-60
55	FR-A740-01800-EC	169810	266755	FR-A840-01800-2-60
75	FR-A740-02160-EC	169811	266756	FR-A840-02160-2-60
90	FR-A740-02600-EC	169812	266757	FR-A840-02600-2-60
110	FR-A740-03250-EC	169813	266758	FR-A840-03250-2-60
132	FR-A740-03610-EC	169814	266759	FR-A840-03610-2-60
160	FR-A740-04320-EC	169815	266760	FR-A840-04320-2-60
185	FR-A740-04810-EC	169816	266761	FR-A840-04810-2-60
220	FR-A740-05470-EC	169817	266762	FR-A840-05470-2-60
250	FR-A740-06100-EC	169818	266763	FR-A840-06100-2-60
280	FR-A740-06830-EC	169819	266764	FR-A840-06830-2-60
315	FR-A740-07700-EC	169820	266765	FR-A842-07700-2-60
			274507	*FR-CC2-H315K-60**
355	FR-A740-08660-EC	169821	266766	FR-A842-08660-2-60
			274508	*FR-CC2-H355K-60**
400	FR-A740-09620-EC	169822	266767	FR-A842-09620-2-60
			274509	*FR-CC2-H400K-60**
450	FR-A740-10940-EC	169823	266768	FR-A842-10940-2-60
			274510	*FR-CC2-H450K-60**
500	FR-A740-12120-EC	169824	266769	FR-A842-12120-2-60
			274511	*FR-CC2-H500K-60**

*above 280k the FR-A800 is splitted into a Invertermodule (FR-A842) and a Convertermodule (FR-CC2) connected by the DC-Bus

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DC Choke		
Order Nr.	Product	Motor Capacity [kW]
273304	FR-HEL-H75K	75
273305	FR-HEL-H90K	90
273306	FR-HEL-H110K	110
273307	FR-HEL-H132K	132
273308	FR-HEL-H160K	160
273309	FR-HEL-H185K	185
273310	FR-HEL-H220K	220
273311	FR-HEL-H250K	250
273312	FR-HEL-H280K	280
273313	FR-HEL-H315K	315
273314	FR-HEL-H355K	355

The use of an DC-Choke is mandatory at motor capacitys above 55kW. Please choose your DC-Choke by the used motor capacity regardless from the overload scenario

New functions

Function classification	Classification	Function Name
Regenerative function	Over excitation brake	Over excitation brake
Automatic restart	Automatic acceleration/deceleration	2nd brake sequence mode
Input terminal	Digital input terminal	Input terminal filter
Output terminal	Function assignment	Remote output (analog)
	Digital output terminal	Output terminal filter
Parameter	Parameter number system assignment	Parameter number system according to function
Communication	Option	SSCNET III/H
		EtherCAT
		PROFINET
USB	Host	USB memory stick
PID	Standard PID	PID output suspension (with deceleration)
		2nd PID (multi loop) function
	PID for HVAC, water	Pre-charge function
		PID unit changing
	Dancer control	Simple dancer control
Power failure stop	Power failure stop	Power failure stop 2 (Automatically adjusts the deceleration time)
PU/DU	FR-LU08	Real time clock
Fault	Falt initiation	Falt initiation
PLG	Encoder type	Absolute encoder I/F (ENDAT2.2)
Vector control	Response time	Fast response mode
	Position control	Model adaptive position control
Power supply	24V input	24VDC power supply for the control circuit
Safety	Standard	STO (Pld, SIL2)
	Option	SS1, SS2, SLS, SOS (Ple, SIL3)

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