

FR-D700

Frequency Inverters

The micro-drive solution

Small, cost-effective, reliable



Simple, time-saving startup



Flexible and versatile in application



Space-saving installation thanks to compact design



Higher energy savings with the OEC function

The ultra compact standard inverter



Door and gate drives are only some of the multiple applications of the new FR-D700 series.



Conveyor belts and chain conveyors are an ideal application for the FR-D700.

Entry into the drive universe

Simple and safe operability, compact design as well as improved performance features were the focus during the development of the new FR-D700 frequency inverter. A drive was created that set new standards in the field of compact drives.

Improved functions and device properties such as simplified cabling thanks to spring clamps, the integrated Digital Dial with LED display, improved performance yield in the low-speed range as well as the integrated emergency stop function make the FR-D700 the new standard in the ultra compact class.

The FR-D700 is especially advantageous for standard applications by virtue of its user-friendliness. It is the correct choice in both simple and more sophisticated applications. Typical applications are feeder and conveyor drives, machining tools or gate and door drives.

Simple operation

■ Simple cabling

The integrated spring clamps to connect control and power lines quickly ensure reliable and simple cabling.

■ Easy parameterization

With the help of the parameterization software FR-Configurator a series of easy functions such as graphical machine analysis to optimize the drive system are available.

■ Integrated control unit

The integrated Digital Dial gives the user direct access to all important parameters much more quickly than would be possible with normal keys.

In addition to entering and displaying various parameters, the integrated four-digit LED display also monitors and displays current operating values and alarm messages.



The built-in multi-user panel with Digital Dial

Flexible concept

■ Compact installation

Due to the ultra-compact dimensions the FR-D700 can be mounted directly side by side. A line within the FR-D700 series allows effective, space-saving heat dissipation through an approx. 1 cm thick cooling plate ("flat plate", up to 3.7 kW).

■ Simple network connection

The standard configuration of the FR-D700 has a serial interface (RS485) which allows communication with a PC and a PLC. Modbus RTU also is supported.

Compliance to international standards such as CE, UL, cUL, GOST, RoHS guarantees worldwide use.

■ Short service times

The fans are designed as compact units that can be replaced in less than 10 seconds for cleaning or in the event of failure.



Cabling and fan replacement made easy

■ Failure safety with self-diagnostics

This inverter actively monitors its own functional safety. If, for example, the fan rpm decreases to 50 %, a pre-alarm is triggered. An internal measuring program monitors the ageing of the capacitors and an operating hours counter enables the operator to plan the best time for servicing. Protection and overload functions like the phase failure monitoring system for both the input and output circuits ensure trouble-free operation.

Upgraded functional scope

To protect both staff and valuable machinery, the FR-D700 has innovative functions that enable it to respond with great sensitivity to a variety of external factors.

■ Controlled deceleration during brief power failures

The frequency inverter can respond to power failures using regenerative energy to perform controlled deceleration of the motor. This prevents uncontrolled run-down and damage, for example, to textile machines.

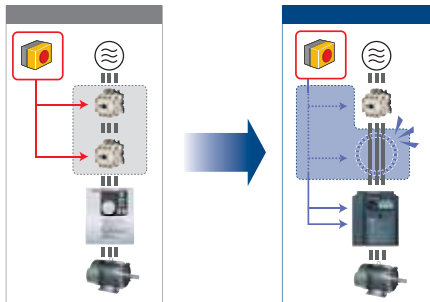
■ Automatic restart after power failures

In pump and fan applications you can configure the inverter to resume power after brief power failures. The system then catches the coasting motor and automatically accelerates it back to the preset speed.

■ Integrated emergency stop function*

The FR-D700 series has an emergency stop input for safe shutdown. This ensures safe operation in compliance with the European Machinery Directive without installation of a second protection mechanism. The FR-D700 thus conforms to the ISO13849-1 (EN954-1) cat. 3 and IEC60204-1 cat. 0 standards.

* available from summer 2008



Only one protection mechanism is needed.

More standard functions

■ Sensorless vector control

The sensorless vector control of the FR-D700 also makes it possible to achieve exceptional speed and torque performance even without a motor with sensor. This saves additional hardware costs.

■ Independent motor setting

The independent motor setting is based on the Autotuning function that can read out all the parameters needed for the motor model in less than a minute even when it is not running.

■ High overload capacity of 200 %

The maximum short-term overload capacity of 200 % for 0.5 s minimizes downtimes caused by overload alarms.

■ Integrated brake chopper

The built-in brake transistor of the FR-D700 supports direct connection of an external braking resistor to improve stopping power.

Additional energy savings

The FR-D700's OEC function helps to further optimize current and hence power consumption of the motor. The result is an additional decrease in energy requirement compared to a conventional inverter.

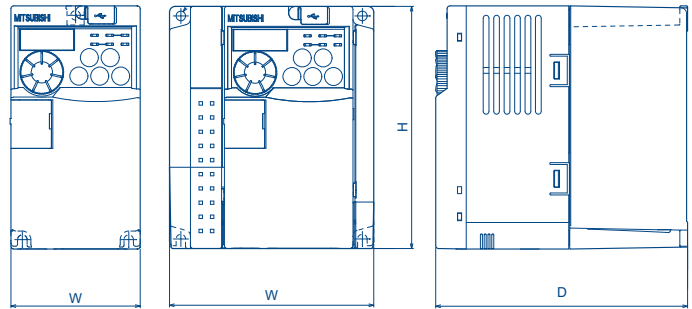
Long service life

The FR-D700 is designed for a service life of over 10 years. This is made possible, among other things, by high-performance heat-resistant capacitors, cooling fans with sealed bearings and special lubricating grease. The flow of cooling air comes into contact only with the heat sinks and not electronic components. This ensures that no dust or dirt can collect on the components. The circuit boards are protected against aggressive environments with single or double layer conformal coating – another feature that ensures longer service life.

Specifications ///

Overload capacity	ND (normal duty)
60 seconds overload	150 %
3 seconds overload	200 %
Ambient temperature	50 °C

Type		Rated current [A] *	Rated motor capacity [kW] *	W x H x D (mm)
200 V Type	FR-D720S-008-EC	0.8	0.1	68 x 128 x 80.5
	FR-D720S-014-EC	1.4	0.2	68 x 128 x 80.5
	FR-D720S-025-EC	2.5	0.4	68 x 128 x 142.5
	FR-D720S-042-EC	4.2	0.75	68 x 128 x 162.5
	FR-D720S-070-EC	7.0	1.5	108 x 128 x 155.5
	FR-D720S-0100-EC	10.0	2.2	140 x 150 x 155.5
400 V Type	FR-D740-012-EC	1.2	0.4	108 x 128 x 129.5
	FR-D740-022-EC	2.2	0.75	108 x 128 x 129.5
	FR-D740-036-EC	3.6	1.5	108 x 128 x 135.5
	FR-D740-050-EC	5.0	2.2	108 x 128 x 155.5
	FR-D740-080-EC	8.0	3.7	108 x 128 x 165.5
	FR-D740-120-EC	12	5.5	220 x 150 x 155
	FR-D740-160-EC	16	7.5	220 x 150 x 155



* Standard operation / initial value

Operating conditions	Specifications
Voltage	1-phase, 200 – 240 V (–15 %, +10 %) or 3-phase, 380 – 480 V (–15 %, +10 %)
Ambient temperature	–10 °C to +50 °C (non freezing)
Storage temperature	–20 °C to +65 °C
Ambient humidity	Max. 90 % relative humidity (non condensing)
Altitude	Max. 1000 m above sea level

Operating conditions	Specifications
Protection	IP20
Shock resistance	10 G
Vibration resistance	Max. 0.6 G
Certifications	CE/UL/cUL/GOST/RoHS

EUROPEAN BRANCHES

MITSUBISHI ELECTRIC EUROPE B.V. 25, Boulevard des Bouvets F-92741 Nanterre Cedex Phone +33 (0)1 / 55 68 55 68	FRANCE
MITSUBISHI ELECTRIC EUROPE B.V. Gothaer Straße 8 D-40880 Ratingen Phone +49 (0)21 02 / 4 86-0	GERMANY
MITSUBISHI ELECTRIC EUROPE B.V. Westgate Business Park, Ballymount IRL-Dublin 24 Phone +353 (0)1 / 419 88 00	IRELAND
MITSUBISHI ELECTRIC EUROPE B.V. Viale Colleoni 7 I-20041 Agrate Brianza (MI) Phone +39 039 / 60 53 1	ITALY
MITSUBISHI ELECTRIC EUROPE B.V. Carretera de Rubí, 76-80 E-08190 Sant Cugat del Vallés Phone +34 93 / 565 31 31	SPAIN
MITSUBISHI ELECTRIC EUROPE B.V. Travellers Lane UK-Hatfield Herts. AL10 8 XB Phone +44 (0)1707 / 27 61 00	UK

EUROPEAN REPRESENTATIVES

GEVA Wiener Straße 89 AT-2500 Baden Phone: +43 (0)2252 / 85 55 20	Austria	B:TECH, a.s. Na Ostrove 84 CZ-58001 Havlickov Brod Phone: +420 (0)569 / 408 841	CZECH REPUBLIC	SHERF MOTION TECHN. Ltd. Rehov Hamerkava 19 IL-58851 Holon Phone: +972 (0)3 / 559 54 62	ISRAEL	MPL Technology Sp. z o.o. Ul. Krakowska 50 PL-32-083 Balice Phone: +48 (0)12 / 630 47 00	POLAND	Craft Co. & Engineering d.o.o. Bulevar Svetog Cara Konstantina 80-86 SER-18106 Nis Phone: +381 (0)18 / 292-24-4/5, 523 962	SERBIA	CSC Automation Ltd. 15, M. Raskova St., Fl. 10, Office 1010 UA-02002 Kiev Phone: +380 (0)44 / 494 33 55	UKRAINE
TEHNIKON Otkryabskaya 16/5, Off. 703-711 BY-220030 Minsk Phone: +375 (0)17 / 210 46 26	BELARUS	B:TECH, a.s. Headoffice, U Borové 69 CZ-58001 Havlickov Brod Phone: +420 569 777 777	CZECH REPUBLIC	Kazpromautomatiks Ltd. 2, Scladskaya str. KAZ-470046 Karaganda Phone: +7 3212 / 50 11 50	KAZAHSTAN	Sirius Trading & Services Aleea Lacul Morii Nr. 3 RO-060841 Bucuresti, Sector 6 Phone: +40 (0)21 / 430 40 06	ROMANIA	INEA SR d.o.o. Karadjordjeva 12/260 SER-113000 Smederevo Phone: +381 (0)26 / 617 163	SERBIA		
KONING & HARTMAN B.V. Woluwelaan 31 BE-1800 Vilvoorde Phone: +32 (0)2 / 257 02 40	BELGIUM	Beijer Electronics A/S Lautrupvej 1-3 DK-2750 Ballerup Phone: +45 (0)70 / 26 46 46	DENMARK	Beijer Electronics SIA Vestienas iela 2 LV-1035 Riga Phone: +371 (0)784 / 2280	LETTONIA	CONSIS Promyshlennaya st. 42 RU-198099 St. Petersburg Phone: +7 812 / 325 36 53	RUSSIA	CS MTrade Slovensko Vajanskeho 58 SK-92101 Piestany Phone: +421 (0)33 / 7742 760	SLOVAKIA		
AKHMATON 4 Andrej Ljapchev Blvd. Pb 21 BG-1756 Sofia Phone: +359 (0)2 / 97 44 05 8	BULGARIA	Beijer Electronics Eesti OÜ Pärimu mnt. 160i EE-11317 Tallinn Phone: +372 (0)16 / 51 81 40	ESTONIA	Beijer Electronics UAB Savanoriu Pr. 187 LT-02300 Vilnius Phone: +370 (0)5 / 232.3101	LITHUANIA	ELECTROTECHNICAL SYSTEMS Derbenevskaya st. 11A, Office 69 RU-115114 Moscow Phone: +7 495 / 744 55 54	RUSSIA	INEA d.o.o. Stegne 11 SI-1000 Ljubljana Phone: +386 (0)1 / 513.8100	SLOVENIA		
INEA CR d.o.o. Lozinjska 4 a HR-10000 Zagreb Phone: +385 (0)1 / 36 940 -01/ -02/ -03	CROATIA	Beijer Electronics OY Jaskonkattu 2 FIN-01620 Vantaa Phone: +358 (0)10 / 463 500	FINLAND	INTEHSIS srl bld. Traian 23/1 MD-2060 Kishinev Phone: +373 (0)22 / 66 4242	MOLDOVA	ELEKTROSTILY Rubzovskaja nab. 4-3, No. 8 RU-105082 Moscow Phone: +7 495 / 545 3419	RUSSIA	Beijer Electronics AB Box 426 S-20124 Malmö Phone: +46 (0)40 / 35 86 00	SWEDEN		
AutoCont CS s.r.o. Jelinkova 59/3 CZ-721 00 Ostrava Svinov Phone: +420 (0)59 / 5691 150	CZECH REPUBLIC	UTEKO A.B.E.E. 5, Mavrogenou Str. GR-18542 Piraeus Phone: +30 211 / 1206 900	GREECE	Beijer Electronics A/S Postboks 487 NO-3002 Drammen Phone: +47 (0)32 / 24 30 00	NORWAY	RPS-AUTOMATIKA Budennovskiy 97, Office 311 RU-344007 Rostov on Don Phone: +7 8632 / 22 63 72	RUSSIA	Econotec AG Hinterdorfstr. 12 CH-83009 Nünensdorf Phone: +41 (0)44 / 838 48 11	SWITZERLAND		
AutoCont CS s.r.o. Technologická 374/6 CZ-708 00 Ostrava - Pustkovec Phone: +420 595 691 150	CZECH REPUBLIC	MELTRADE Ltd. Fertő utca 14. HU-1107 Budapest Phone: +36 (0)1 / 431-9726	HUNGARY	KONING & HARTMAN B.V. Haarlerbergweg 21-23 NL-1101 CH Amsterdam Phone: +31 (0)20 / 587 76 00	NETHERLANDS	STC DRIVE TECHNIQUE Poslannikov per. 9, str 1 RU-105005 Moscow Phone: +7 495 / 790 72 10	RUSSIA	GTS Danulaceze Cad. No. 43 KAT. 2 TR-34384 Okmeydanı-Istanbul Phone: +90 (0)212 / 320 1640	TURKEY	CBI Ltd. Private Bag 2016 ZA-1600 Isando Phone: +27 (0)11 / 928 2000	SOUTH AFRICA



Mitsubishi Electric Europe B.V. /// FA - European Business Group /// Gothaer Straße 8 /// D-40880 Ratingen /// Germany
Tel.: +49(0)2102-4860 /// Fax: +49(0)2102-4861120 /// info@mitsubishi-automation.com /// www.mitsubishi-automation.com

Specifications subject to change /// Art. no. 213988-A /// 04.2008

All trademarks and copyrights acknowledged.