

FR-D700 SC

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 FR-D700 SC series.



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

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 FR-D700 SC frequency inverter. A drive was created that set 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 SC leading in the ultra compact class.

The FR-D700 SC is especially advantageous for standard applications by virtue of its userfriendliness. 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 SC can be mounted directly side by side. A line within the FR-D700 SC series allows effective, space-saving heat dissipation through an approx. 1 cm thick cooling plate ("flat plate", up to 3.7 kW).

■ Freely programmable digital outputs

Using the freely programmable transistor outputs, two of a total of 27 digital output signals, such as "Safety output monitor" or "Inverter operation ready", can be output.

■ Simple network connection

The standard configuration of the FR-D700 SC 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.



Removable comb-like cable bushing

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 SC has innovative functions that enable it to respond with great sensitivity to a variety of external factors.

■ Controlled deceleration during brief power failures

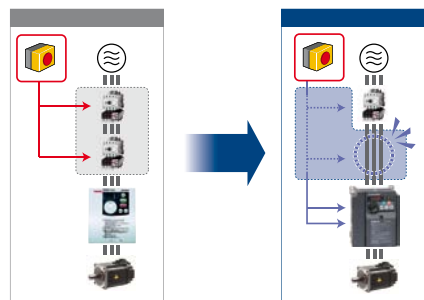
The frequency inverter can respond to power failures using regenerative energy to perform controlled deceleration of the motor. This prevents uncontrolled run-down and damage, for example, to textile machines.

■ 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 SC 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 SC thus conforms to the ISO13849-1 (EN954-1) cat. 3 and IEC60204-1 cat. 0 standards.



Only one protection mechanism is needed.

More standard functions

■ Sensorless vector control

The sensorless vector control of the FR-D700 SC 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 SC supports direct connection of an external braking resistor to improve stopping power.

Additional energy savings

The FR-D700 SC'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.

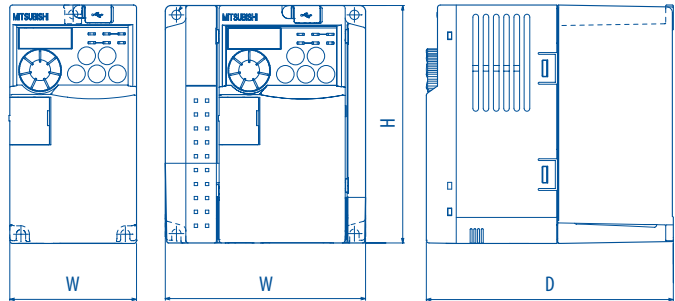
Long service life

The FR-D700 SC 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-008SC-EC	0.8	68 x 128 x 80.5
	FR-D720S-014SC-EC	1.4	68 x 128 x 80.5
	FR-D720S-025SC-EC	2.5	68 x 128 x 142.5
	FR-D720S-042SC-EC	4.2	68 x 128 x 162.5
	FR-D720S-070SC-EC	7.0	108 x 128 x 155.5
	FR-D720S-0100SC-EC	10.0	140 x 150 x 155.5
400 V Type	FR-D740-012SC-EC	1.2	108 x 128 x 129.5
	FR-D740-022SC-EC	2.2	108 x 128 x 129.5
	FR-D740-036SC-EC	3.6	108 x 128 x 135.5
	FR-D740-050SC-EC	5.0	108 x 128 x 155.5
	FR-D740-080SC-EC	8.0	108 x 128 x 165.5
	FR-D740-120SC-EC	12	220 x 150 x 155
	FR-D740-160SC-EC	16	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. Gothaer Straße 8 D-40880 Ratingen Phone: +49 (0)2102 / 486-0	Germany
Mitsubishi Electric Europe B.V.-org.s.l. Radlická 751/113e Avenir Business Park CZ-158 00 Praha 5 Phone: +420 (0) 251 / 511 470	Czech Rep.
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. Viale Colleoni 7 Palazzo Sirio I-20864 Agrate Brianza (MB) Phone: +39 039 / 60 53 11	Italy
Mitsubishi Electric Europe B.V. ul. Krakowska 50 PL-32-083 Balice Phone: +48 (0) 12 630 47 00	Poland
Mitsubishi Electric Europe B.V. 52, bld. 3 Kosmodramnenskaya nab 8 floor RU-115054 Moscow Phone: +7 495 / 721 2070	Russia
Mitsubishi Electric Europe B.V. Carettera de Rubi 76-80 Ado. 420 E-08190 Sant Cugat del Valles (Barcelona) Phone: +34 (0) 93 / 5653131	Spain
Mitsubishi Electric Europe B.V. Travellers Lane UK-Hatfield, Herts. AL10 8XB Phone: +44 (0)1707 / 28 87 80	UK

Representatives

GEVA Wiener Straße 89 A-2500 Baden Phone: +43 (0)2252 / 85 55 20	Austria	Beijer Electronics A/S Lykkegårdsvej 17 DK-4000 Roskilde Phone: +45 (0)46 / 75 76 66	Denmark	Beijer Electronics UAB Goštautu g. 3 LT-48324 Kaunas Phone: +370 37 262707	Lithuania	Beijer Electronics AS Postboks 487 NO-3002 Drammen Phone: +47 (0)32 / 24 30 00	Norway	INEA RBT d.o.o. Steine 11 SI-1000 Ljubljana Phone: +386 (0)1 / 513 8116	Slovenia	I.C. SYSTEMS Ltd. 23 Al-Saad-Al-Alee St. EG-Sarayut, Maadi, Cairo Phone: +20 (0) 2 / 235 98 548	Egypt
OOO "TECHNIKON" Prospect Nezavisimosti 177-9 BY-220125 Minsk Phone: +375 (0)17 / 393 1177	Belarus	Beijer Electronics Eesti OÜ Pärnu mnt.1601 EE-11317 Tallinn Phone: +372 (0)6 / 51 81 40	Estonia	ALFATRADE Ltd. 99, Paola Hill Malta-Paola PLA 1702 Phone: +356 (0)21 / 697 816	Malta	Fonseca S.A. R. João Francisco do Casal 87/89 PT-3801-997 Aveiro, Esigueira Phone: +351 (0)234 / 303 900	Portugal	Beijer Electronics Automation AB Box 426 SE-20124 Malmö Phone: +46 (0)40 / 35 86 00	Sweden	SHERF MOTION TECHN. Ltd. Rehov Hamerkava 19 IL-58851 Holon Phone: +972 (0)3 / 559 54 62	Israel
ESCO DRIVES Culliganlaan 3 BE-1831 Diegem Phone: +32 (0)2 / 717 64 60	Belgium	Beijer Electronics OY Vanha Nurmijärventie 62 FIN-01670 Vantaa Phone: +358 (0)207 / 463 500	Finland	INTERHIS SRL bld. Traian 23/1 MD-2060 Kishinev Phone: +373 (0)22 / 66 4242	Moldova	Sirius Trading & Services Aleea Lacul Morii Nr. 3 RO-060841 Bucuresti, Sector 6 Phone: +40 (0)21 / 430 40 06	Romania	OMNI RAY AG Im Schörl 5 CH-8600 Dübendorf Phone: +41 (0)44 / 802 28 80	Switzerland	CEG LIBAN Cebaco Center/Block A Autostrade DORA Lebanon-Beirut Phone: +961 (0)1 / 240 445	Lebanon
KONING & HARTMAN B.V. Woluwelaan 31 BE-1800 Vilvoorde Phone: +32 (0)2 / 257 02 40	Belgium	PROVENDOR OY Teljänkatu 8 A3 FIN-28130 Pori Phone: +358 (0)2 / 522 3300	Finland	HIFLEX AUTOM. B.V. Wolveverstraat 22 NL-2984 CD Ridderkerk Phone: +31 (0)180 / 46 60 04	Netherlands	INEA SR Izletnicka 10 SER-113000 Smederevo Phone: +381 (0)26 / 615 401	Serbia	Fabrika Otomasyonu Merkezi İm Schörl 5 TR-34775 Ümraniye-İSTANBUL Phone: +90 (0)216 / 526 39 90	Turkey	ADROIT TECHNOLOGIES 20 Waterford Office Park 189 Witkoppen Road ZA-Fourways Phone: +27 (0)11 / 658 8100	South Africa
INEA RBT d.o.o. Stegne 11 SI-1000 Ljubljana Phone: +386 (0)1 / 513 8116	Bosnia and Herzeg.	UTEKO A.B.E.E. 5, Mavrogenous Str. GR-18542 Piraeus Phone: +30 (0)211-1206-900	Greece	IMTECH Marine & Offshore B.V. Sluisdijk 155 NL-3087 AG Rotterdam Phone: +31 (0)10 / 487 19 11	Netherlands	SIMAP s.r.o. Jána Derku 1671 SK-911 01 Trenčín Phone: +421 (0)32 743 0472	Slovakia	OOO "CSC-AUTOMATION" 4-B, M. Raskovoyi St. UA-02660 Kiev Phone: +380 (0)44 / 494 33 44	Ukraine		
AKHNATON 4, Andrei Lipachev Blvd., PO Box 21 BG-1756 Sofia Phone: +359 (0)2 / 817 6000	Bulgaria	MELTRADE Ltd. Fertő utca 14. HU-1107 Budapest Phone: +36 1 / 431-9726	Hungary	KONING & HARTMAN B.V. Haarlerbergweg 21-23 NL-1101 CH Amsterdam Phone: +31 (0)20 / 587 76 00	Netherlands						
INEA CR Loinjsnjka 4 a HR-100017 Zagreb Phone: +385 (0)1 / 36 940 - 01 / -02 / -03	Croatia	TOO Kazpromavtomatika Ul. Zhambilya 8 KAZ-100017 Karaganda Phone: +7 7212 / 50 10 00	Kazakhstan								
AutoCont C.S. S.R.O. Kačkova 1853/3 CZ-702 00 Ostrava 2 Phone: +420 595 691 150	Czech Republic	Beijer Electronics SIA Ritaušmas iela 23 LV-1058 Riga Phone: +371 (0)6 / 784 2280	Latvia								



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

Art.-no. 213988-B / 08.2013 / Specifications subject to change / All trademarks and copyrights acknowledged.

