

FR-A846

Frequency Inverters

Excellent Drive Performance

Precise, powerful, versatile



Higher production quality by three times faster response mode



Advanced energy saving functions reduce production costs



3 year warranty



Compliance to Harmonic Regulation IEC61000-3-12

IP55 protection rating for rough environments



Perfect for crane applications due to built-in 100 % ED Break chopper up to 55 k



The A846 can be mounted as decentral drive to conveying systems

Excellent control performance and response level

Designed for unparalleled drive precision, speed control, simple startup, and versatility, Mitsubishi Electric has developed a new generation of drive technology: the remarkable FR-A846.

This new drive series is the successor of the highly successful FR-A700 series. It is equipped with the new state-of-the-art high-speed processor by Mitsubishi Electric. With better than ever control performance and response level, safe and accurate operation is assured in a diverse range of applications.

Some of the outstanding features are the integrated USB port for programming and parameter copying, an easy-to-read control panel, optimum power usage and energy saving functions, improved system safety, three expansion slots for a range of option and supported network cards

With its impressive versatility to meet equipment system needs ranging from machining and molding to winding, the FR-A846 is an extremely economical and highly-versatile solution for a wide range of applications.

The FR-A846 is a new design concept from Mitsubishi to offer outstanding performance in decentralised or harsh environments. Parameters can be easily copied by FR Configurator2. In order to match the former machine response time, the input/output signals of the FR-A846 can be delayed.

Powerful features and intelligent functions

■ Real Sensorless Vector Control

The Real Sensorless Vector control provides high-precision, fast-response speed control in open loop. Combined with offline auto tuning, a maximum of 200 % torque can be generated from 0.2 Hz to 400 Hz.

■ Perfect autotuning of PM and IM motors

Based on the new autotuning method, even Permanent Magnet motors can be used with ease.

■ Absolute positioning & built-in PLC function

By using the built-in absolute positioning function and the built-in high level PLC function, a complete machine can be managed by a stand alone drive. Sensorless positioning is possible with IPM Motors.



Positioning is one out of many scopes.

■ Optimum excitation control

Optimum control of the excitation current maximizes motor efficiency for additional energy savings. As an example, an approximately 15 % increase in efficiency is obtained at a motor load torque of 10 % compared to conventional V/F control.

■ High flexibility by built-in PLC

The FR-A846 is easy to program with Mitsubishi Electric standard PLC software, which is available in FR Configurator2. It is also possible to combine the PLC program with the Real time clock of the LU-08 operation panel.

■ Energy saving by 24 V control power supply

By connecting an external 24 V DC control power supply, the system can be operated even when the main power supply is turned off. Furthermore parameters can be set and network communication can be maintained with this power supply which facilitates safe maintenance. More energy saving can be achieved by using the automatic "stand by" function which switches off the drive main power supply. Capacitors and other devices are offline, so heat loss is reduced.

■ Improved system safety

The FR-A800 series has a two channel emergency stop for safe shutdown. This ensures safe operation in compliance with the European Machinery Directive without installation of another contactor. The FR-A846 thus conforms to the EN ISO13849-1/PLd cat. 3, EN 61508 and EN 61800-5-2 SIL2 standards.

■ Easy operation

The operation panel with the one touch Digital Dial allows direct access to all important parameters. Select the operation panel ideal for your needs. Choose either a LU operation panel with an LCD screen offering enhanced display functionality and a clock function, or a more economical DU operation panel with a 5-digit, 12-segment display.

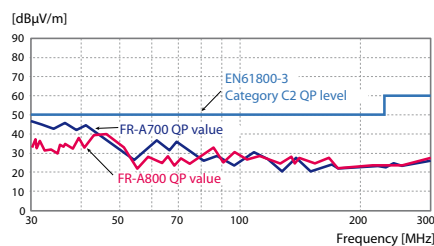


FR-LU08 as full text display with up to fifteen language and real time clock.

The FR-A846 series also allows the connection of a Mitsubishi Electric graphical operation terminal (GOT). Communication parameters for the HMI connection are automatically set as a batch. The GOT provides operators with an easy-to-follow and intuitively high resolution display and facilitates easy operation via a touch panel.

■ Comprehensive noise countermeasures

The drive's built-in EMC filter and DC link choke ensures full compliance with European EMC Directive standards (EN61800-3 1st Environment category C2) as well as harmonic regulations (IEC61000-3-12), so separate certification is not required for the drive. The newly developed drive technology and power supply technology significantly reduce electromagnetic noise.



Comprehensive noise countermeasures

■ Energy saving functions

Take advantage of the energy saving function, that suits your application. You can for example reduce power consumption in the standby mode by using the cooling fan ON/OFF control. During operation optimum excitation control or returning regenerative motor energy to other drives helps to save energy. The impressive energy savings can be displayed on the energy monitor.

■ More energy savings with PM motors

The FR-A846 series enables factory energy savings, which can be achieved by replacing current induction motors with permanent magnet motors (PM motors). A PM motor is very efficient because the current does not flow to the rotor, so there is no secondary copper loss. There is also magnetic flux generated by permanent magnets, so less current is required to drive a motor.

■ Various network compatibility

The drive can be controlled and monitored by a controller via network. For the major network protocols such as CC-Link IE Field, CC-Link, Profibus DP/DPV1, Profinet/EtherNet IP/EtherCat (to be released soon) and SSCNETIII/H as well as DeviceNet™ and LONWORKS communication options are available. RS485 communication (Mitsubishi Electric drive protocol, Modbus-RTU protocol) is supported as standard.

■ Easy & safe maintenance

For maintenance of the drive system, it is possible to order the FR-A846 with built-in main switch to power off including lock capability.



■ Easy set-up

Users can comfortably setup the drives with the Setup-Software FR Configurator2. The easy plug-and-play connection to USB terminal is equipped as standard. Parameters can be simply copied to commercial USB memory devices.

■ Long life components

The cooling fans and the built-in capacitors have an estimated lifespan of 10 years. By using the ON/OFF control function, the service life of the fans can be even further extended.

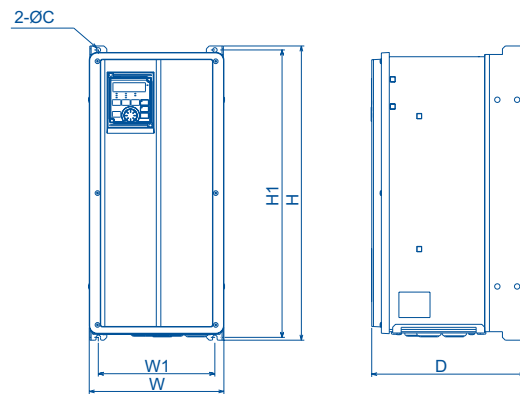
Specifications

Type	Rated current [A]		Rated motor capacity [kW]	
	LD ^①	ND ^①	LD ^①	ND ^①
FR-A846-00023	2.1	1.5	0.75	0.4
FR-A846-00038	3.5	2.5	1.5	0.75
FR-A846-00052	4.8	4	2.2	1.5
FR-A846-00083	7.6	6	3.7	2.2
FR-A846-00126	11.5	9	5.5	3.7
FR-A846-00170	16	12	7.5	5.5
FR-A846-00250	23	17	11	7.5
FR-A846-00310	29	23	15	11
FR-A846-00380	35	31	18.5	15
FR-A846-00470	43	38	22	18.5
FR-A846-00620	57	44	30	22
FR-A846-00770	70	57	37	30
FR-A846-00930	85	71	45	37
FR-A846-01160	106	86	55	45
FR-A846-01800	144	110	75	55
FR-A846-02160	180	144	90	75
FR-A846-02600	216	180	110	90
FR-A846-03250	260	216	132	110
FR-A846-03610	325	260	160	132

① LD= Light duty (120 % at 60 s, 150 % at 3 s); ND= Normal duty (150 % at 60 s, 200 % at 3 s)

Operating conditions	Specifications
Power supply	3-phase, 380–500 V AC (-15 %, +10 %) at 50/60 Hz
Ambient temperature	-10 °C to +40 °C (non-freezing)
Ambient humidity	Compliance to IEC 60721-3-3 class 3C2, maximum 95 % RH (non-condensing)
Altitude	Maximum 1000 m above sea level
Protection rating	IP55
Vibration resistance	Max. 0.6 G
Break chopper	Built-in up to 55 k

Dimensions



Inverter type	W	W1	H	H1	D	C
FR-A846-00023 (0.4K) to 00170 (5.5K)	238	201	520	508	271	8
FR-A846-00250(7.5K) to 00470(18.5K)			650	632.5		
FR-A846-00620(22K) to 01160(45K) ^①	345	300	790	770	357	12
FR-A846-01800(55K) to 02600(90K) ^①	420	350	1360	1334	456.6	15
FR-A846-03250(110K) to 03610(132K) ^①			290	1510		

① From 00620 and above dimension may change

All dimensions in mm

European Offices

Mitsubishi Electric Europe B.V. Gothaer Straße 8 D-40880 Ratingen Phone: +49 (0)2102 / 486-0	Germany	Mitsubishi Electric Europe B.V. 52, bld. 1 Kosmodamianskaya emb. RU-115054 Moscow Phone: +7 495 / 721 2070	Russia
Mitsubishi Electric Europe B.V. Radlická 751/13e Avenir Business Park CZ-158 00 Praha 5 Phone: +420 251 551 470	Czech Rep.	Mitsubishi Electric Europe B.V. Carretera de Rubí 76-80 Apdo. 420 E-08190 Sant Cugat del Valles (Barcelona) Phone: +34 (0) 93 / 5653131	Spain
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. (Scandinavia) Sweden Fjellvägen 8 SE-22736 Lund Phone: +46 (0) 8 625 10 00	Sweden
Mitsubishi Electric Europe B.V. Viale Collei 7 Palazzo Sirio I-20864 Agrate Brianza (MB) Phone: +39 039 / 60 53 1	Italy	Mitsubishi Electric Turkey Elektrik Ürünleri A.Ş. Turkey Şerifali Mahallesi Nutuk Sokak No:5 TR-34775 Ümraniye-İSTANBUL Phone: +90 (0)216 / 526 39 90	Turkey
Mitsubishi Electric Europe B.V. Westgate Business Park, Ballymount IRL-Dublin 24 Phone: +353 (0)1 4198800	Ireland	Mitsubishi Electric Europe B.V. Travellers Lane UK-Hatfield, Herts. AL10 8XB Phone: +44 (0)1707 / 28 87 80	UK
Mitsubishi Electric Europe B.V. Nijverheidsweg 23a NL-3641RP Mijdrecht Phone: +31 (0) 297250350	Netherlands	Mitsubishi Electric Europe B.V. Dubai Silicon Oasis United Arab Emirates - Dubai Phone: +971 4 3724716	UAE
Mitsubishi Electric Europe B.V. ul. Krakowska 50 PL-32-083 Balice Phone: +48 (0) 12 347 65 00	Poland		

Representatives

GEVA Wiener Straße 89 A-2500 Baden Phone: +43 (0)2252 / 85 55 20	Austria	Beijer Electronics A/S Lyksegårdsvej 17 DK-4000 Roskilde Phone: +45 (0)46 / 75 76 66	Denmark	Beijer Electronics SIA Rītasmaš iela 23 LV-1058 Rīga Phone: +371 (0)6 / 784 2280	Latvia	Fonseca S.A. R. João Francisco do Casal 87/89 PT-3801-997 Aveiro, Esigueira Phone: +351 (0)234 / 303 900	Portugal	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	HANS FOLSGAARD A/S Thelgaardsgårdsvej 1 DK-4600 Køge Phone: +45 4320 8600	Denmark	Beijer Electronics UAB Goštautu g. 3 LT-48324 Kaunas Phone: +370 37 262707	Lithuania	Sirius Trading & Services Aleea Lacul Morii Nr. 3 RO-060841 Bucuresti, Sector 6 Phone: +40 (0)21 / 430 40 06	Romania	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 Eesti OÜ Pärnu mnt.160i 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	INEA SR d.o.o. Ul. Karadiordjeva 12/217 SER-11300 Smederevo Phone: +386 (0)26 / 461 54 01	Serbia	CEG LIBAN Cebaco Center/Block A Autostrade DORA Lebanon-Beirut Phone: +961 (0)1 / 240 445	Lebanon
KONING & HARTMAN B.V. Van Wouwelaan 31 BE-1800 Wilvoorde Phone: +32 (0)2 / 257 02 40	Belgium	Beijer Electronics OY Vanha Nurmijärventie 62 FIN-01670 Vantaa Phone: +358 (0)207 / 463 500	Finland	INTEHISIS SRL bld. Traian 23/1 MD-2060 Kishinev Phone: +373 (0)22 / 66 4242	Moldova	SIMPAP SK Jána Denku 1671 SK-911 01 Trenčín Phone: +421 (0)42 743 04 72	Slovakia	ADROIT TECHNOLOGIES 20 Waterford Office Park 189 Witkoppen Road ZA-Fourways Phone: +27 (0)11 / 658 8100	South Africa
INEA RBT d.o.o. Bosnia and Herzegovina Stegne 11 SI-1000 Ljubljana Phone: +386 (0)1 / 513 8116	Bosnia and Herzegovina	PROVENDOR OY Teljänkatu 8 A3 FIN-28130 Pori Phone: +358 (0) 2 / 522 3300	Finland	HIFLEX AUTOM. B.V. Wolvenveerstaat 22 NL-2984 CD Ridderkerk Phone: +31 (0)180 / 46 60 04	Netherlands	INEA RBT d.o.o. Stegne 11 SI-1000 Ljubljana Phone: +386 (0)4 / 513 8116	Slovenia		
AKHNATON 4, Andrei Lipachev Blvd., P.O. Box 21 BG-1756 Sofia Phone: +359 (0)2 / 817 6000	Bulgaria	UTECCO A.B.E.E. 5, Mavrogenous Str. GR-18542 Piraeus Phone: +359 (0)211 / 1206-900	Greece	INTECH Marine Netherlands B.V. Sluisdijk 155 NL-3087 AG Rotterdam Phone: +31 10 / 487 18 24	Netherlands	Beijer Electronics Automation AB Box 426 SE-20124 Malmö Phone: +46 (0)40 / 35 86 00	Sweden		
INEA CR Losinjka 4 a HR-10000 Zagreb Phone: +385 (0)1 / 36 940 - 017 - 027 - 03	Croatia	MELTRADE Kft. Fertő utca 14, HU-1107 Budapest Phone: +36 (0)1 / 431-9726	Hungary	KONING & HARTMAN B.V. NL-2627 AP Delft Phone: +31 (0)15 260 99 06	Netherlands	OMNI RAY AG Im Schörlis CH-8000 Bubendorf Phone: +41 (0)44 / 802 28 80	Switzerland		
AutoCont C.S. S.R.O. Kačkova 1853/3 CZ-702 00 Ostrava 2 Phone: +420 595 691 150	Czech Republic	TOO Kazpromavtomatika Ul. Zhambyla 28 KAZ-100017 Karaganda Phone: +7 7212 / 50 10 00	Kazakhstan	Beijer Electronics AS Postboks 487 NO-3002 Drammen Phone: +47 (0)32 / 24 30 00	Norway	OOO "CSC-AUTOMATION" 4-8, M. Raskovnyy St. UA-02660 Kiev Phone: +380 (0)44 / 494 33 44	Ukraine		



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 / https://eu3a.mitsubishielectric.com

Art. no. 280310-A / 10.2014 / Specifications subject to change / All trademarks and copyrights acknowledged.

