Need flexible VFDs to create more competitive systems?

Highlights

- Modular and configurable variable frequency drive (VFD)
- STO and SS1-t SIL3 as standard
- Functional safety by fieldbus: PROFIsafe
- Scalable control platform
- Powerful hardware-based security including end-to-end encrypted data transfer
- Connectivity with multiple fieldbuses. Activate new fieldbus by license key
- Industrial IoT-ready with secure OPC UA
- High-torque machine performance
- Superior motor control
- Ultra compact

Feature	Benefit
Compact side-by-side mounting	Save space and reduce installation costs
Isolated cooling channel minimizes required installation space	Reduce space requirement and air-conditioning load
Integrated options such as functional extensions, common-mode filters, fuses and disconnects mean no extra external devices are required	Save cost and time in installation
Installer-friendly design includes pluggable control terminals, pluggable power terminals [1], and replaceable fans	Save cost and time in installation and service
Robust by design, high uptime and quality	Reliable in heavy-duty service
Modular concept	Maximum design flexibility
Synchronization and positioning integrated into the Motion application	Easy to enable using license key
OPC UA	Easy integration in your cloud or HMI
Easy to use logic blocks and states	Unprecedented flexibility beyond parametrization

The iC7 series of intelligent drives delivers high torque performance in a compact footprint. Frequency converters in the iC7 series are optimized for wall-mounted, cabinet-mounted, or free-standing installation.

Supply voltage and power range

3 x 380-500 V AC
0.37-710 kW

Key specifications: Frequency converters

Input	
Voltage rating	380-500 V AC, -15%/+10%
Supply frequency	50/60 Hz
Switching on input	1-2 times pr. minute
Grid type	TN, TT, IT, Delta
Output	
Output frequency	0-590 Hz [1]
Switching on output	Unlimited
Overload capacity	110% and 150/160%
Protection ratings	
Frames FAxx: IP20 – UL Open Type, FKxx: IP21 – UL Type 1, FBxx: IP54 – UL Type 12	

[1] *Higher output frequencies are possible. Contact Danfoss for advice.*

Learn more about iC7-Automation

Key specifications: Frequency converters *(continued)*

Environmental conditions	
Rated temperature	-30 to 50 °C (-22 to 122 °F) [1]
Nominal temperature 24 hours	-30 to 45 °C (-22 to 113 °F) [1]
Maximum temperature with derating	60 °C (140 °F)
Rated altitude	1000 m (3280 feet)
Maximum altitude	4400 m (14400 feet) with derating
Relative humidity	3K22, maximum 95% non-condensing
Particles (IEC 60721-3-3:2019)	Solid particles (nonconductive particles/dust) 3S6
Chemically active substances (IEC 60721-3-3:2019, ISO 9223:2012)	– C3 (P1) – Medium corrosivity – Non coated (3C2) 12 – C4 (P2) – High corrosivity (3C3) [2] – Coated in IP54/IP55/UL Type 12 enclosure or for IP20/Open Type and IP21/UL Type 1 following installation guidance.
Shock & vibration (IEC 60721-3-3:2019)	3M12
Functional Safety I/O	
STO and SS1-t	Dual-channel, with galvanic isolation
STO and SS1-t feedback	Single channel, with galvanic isolation
External supply	
Rating	24 V/2 A

Basic I/O	
Digital inputs	4+2 [3]
– Logic	NPN/PNP selectable – 0/24 V
– Pulse/Encoder input	0-110 kHz
Digital outputs	2 [3]
– Logic	NPN/PNP selectable – 0/24 V
– Pulse output	0-100 kHz
Analog inputs	2
– Voltage mode	0-10 V or ±10 V, scalable
– Current mode	0/4-20 mA
Analog output	0/4-20 mA
Relay output	2
– Function	NO/NC
– Rating	250 V AC 2 A, 24 V DC 2 A
Analog output	0/4-20 mA

[1] Frames Fx09-Fx12: For low overload conditions, the maximum permissible ambient air temperatures without derating are 40° C (104° F) average over 24 hours duration; and 45° C (113° F) for 1 hour duration, respectively.
[2] The environments used as reference for the design criteria are described in standard IEC 60721-3-3:2019, unless otherwise specified.
For references based on IEC/EN 61800-2, see the value in brackets or refer to the Design Guide, section 8.3.8.4
Example
"C3 (P1) – Medium corrosivity – Non coated" refers to IEC 60721-3-3:2019
"(3C2)" refers to the older IEC 60721-3-3:2019
[3] 2 of the inputs can be reconfigured to outputs

EMC category (model code)	**Frame**	**EN/IEC 61800-3 compliance class**					
		Conducted emission			**Radiated emission**		
		C1	**C2**	**C3**	**C1**	**C2**	**C3**
		Cable length [m]					
F1 – Combined C1 and C2 filter	**Fx02–Fx08**	50	150	150	No	Yes	Yes
F2 – C2 filter	**Fx02–Fx08**	–	150	150	No	Yes	Yes
	Fx09-Fx12	–	150	150	No	Yes	Yes
F3 – C3 filter	**Fx02–Fx05**	–	–	250	No	No	Yes
	Fx06–Fx08	–	–	300	No	No	Yes
	Fx09–Fx12	–	–	150	No	No	Yes

Dimensions and weight

Frame		**FA02a**	**FA03a**	**FA04a**	**FA05a**	**FA06**	**FK06**	**FA07**	**FK07**	**FA08**	**FK08**
[mm]	Width	90	114	130	165	200	210	230	240	255	270
	Height	270	270	399	399	555	670	600	770	746	980
	Depth	221	221	262	269	294	297	308	327	368	365
[kg]	Weight	4.7	5.7	11.6	14.1	26	28	35	38	55	60

Frames FA02b to FA05b: Add 26 mm (1 in) to depth. Outer dimensions include mounting flange, without EMC shield plates. Weight is maximum weight.

Frame		**FA09**	**FK09/ FB09a**	**FK09c/ FB09c**	**FA10**	**FK10a/ FB10a**	**FK10c/ FB10c**	**FA11**	**FK11/FB11**	**FA12**	**FK12/FB12**
[mm]	Width	250	325	325	350	420	420	508	602	604	698
	Height	909	1001	1421	1122	1232	1779	1578	2043	1578	2043
	Depth	370	378	381	370	378	381	482	513	482	513
[kg]	Weight	81	84	107	127	137	174	225	272	298	320

Weight is maximum weight.

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