Danfoss iC7 Series Air Cooled System Modules Installation Guide

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Optimize installation footprint, speed and reduce costs more than you dreamed possible, with the revolutionary iC7 series air-cooled system modules.

High power density combined with industry-leading heat-pipe thermal management means you achieve a smaller footprint and reduce space requirements in your electrical room. The slim profile enables you to fit more modules within a fixed-width cabinet.

Shrink your system, with smaller enclosures or fewer enclosure sections, and filters which integrate beneath the module.

Integration and scalability are extremely easy, because each unit is designed and tested in thermal independence. This reduces your engineering, assembly, and testing time.

Thermal excellence saves your operating costs with the unique segregated IP54 cooling channel, and reduced heat load in your installation. With the iC7 series aircooled system modules, you enjoy industry benchmark cooling efficiency, even including the thermal load of optionally integrated filters and chokes. Configure your choice of commonmode and dU/dt filter options in the integration unit located beneath themodule.

With the integration unit, access is so easy: simply pull out the power unit, with no need to remove the power cable. Power terminals are located at the front for easy access.

Contents

HIGHLIGHTS

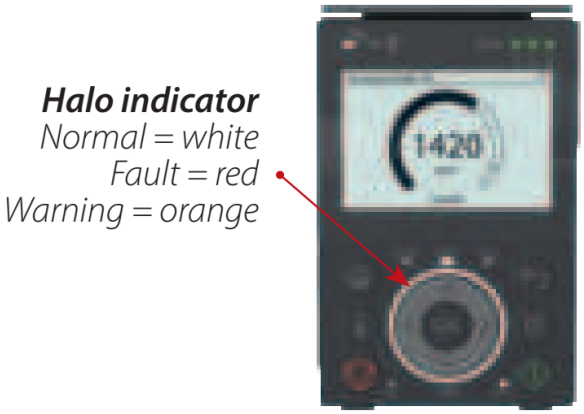
- Highly compact power unit design requires less space for installation
- Increase power by paralleling power units with no need for balancing filters
- Integration unit with built-in filters reduces integration cost
- Fast power unit replacement with no need for motor cable removal
- Front-mounted motor cable terminals
- Lightweight power units facilitate faster and easier servicing
- Modular and scalable control concept
- Efficient heat management with back-channel cooling

Secure-by-design
Your drive is equipped with marketleading hardware-based protection against unauthorized access with a built-in crypto chip on the control unit. Use a microSD card to copy settings, log data, download software and activate additional features – all protected by the crypto chip ensuring end-to-end encrypted data transfer.

Functional safety to match your needs

STO SIL3, PI e as standard makes certification easier. A flexible offering allows the addition of functional safety via fieldbus.

User interfaces
A new range of user interfaces integrate well-known features and functionality. Integration of features in MyDrive® tools is supported



More built-in sensors for enhanced control
The iC7 drive has an increased number of built-in sensors. This enables improved control performance, increased protection of application and drive, and capability to support Industrial IoT solutions.

Superior sensorless control
In open or closed loop, the iC7 drive delivers superior shaft performance even at low speed.

Motor Control

Motor Control video

Filters and accessories
For a complete installation, a range of integrated and separate filter options are available.

iC7 Filters

Engineering support
Danfoss provides an extensive selection of support material and tools to help in engineering, such as

- Dimensioning tools, such as MyDrive® Select, MyDrive® Harmonics and MyDrive® ecoSmart™
- EPLAN P8 macros
- Dimensional and electrical drawings

MyDrive® Simulation

MyDrive® Virtual

MyDrive® Hil

Simulation reduces time to market
Remove the constraints of the physical environment and open up new opportunities using iC7 simulation models which perfectly mirror the converter or drive.

You can predict performance, test scenarios, streamline commissioning, and collaborate across teams and locations in an open environment.

Reliably validate interoperability of systems, using high-fidelity hardwarein-the-loop (HIL) simulation support from Danfoss.

The iC7 platform is founded on model-based design, which ensures the simulation models are always valid: up to date and accurate.

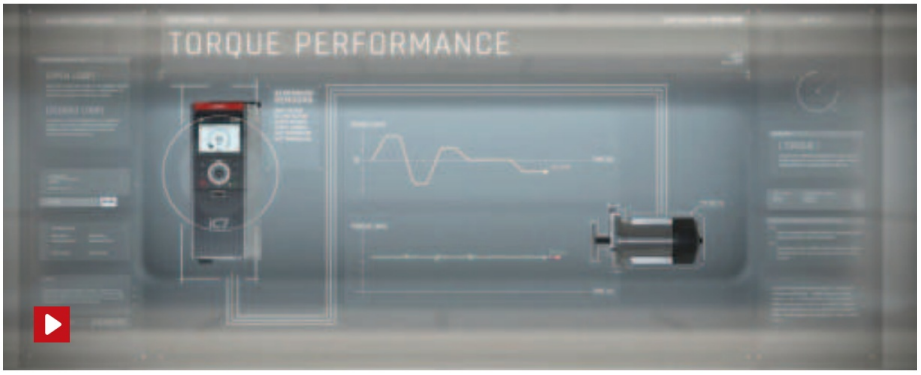
These models comply with the FMI standard and are easy to integrate in your simulation platform

fmi Functional Mock-Up Interface

Supported by MyDrive® tools

You can use MyDrive® tools on the device of your choice, supporting the entire lifecycle of the iC7 drive; from selection and dimensioning, through programming and commissioning, to maintenance and support during operation.

MyDrive® Insight



What if sensorless open loop performance could match closed loop?

Quality in focus

Reliable and predictable operation has been a key driver. With an ISO 9001- certified and IATF 16949-compliant quality system combined with use of 6-Sigma principles, quality and reliability are at absolute marketleading standards.

Reliability is assured by design with features such as minimized airflow through the control board section.

Automated assembly enables close control and monitoring of critical processes. The finished drives are 100% full-load tested ensuring reliability before leaving the factory

Scalable and flexible control
Enjoy a new level of performance thanks to rapid-response control.

The control capability is scalable and equipped with Ethernet-based fieldbus and STO inputs as standard. Add more I/Os as needed, to match your applications. Connect to a computer via an Ethernet port, enabling you to use MyDrive® commissioning or service tools.

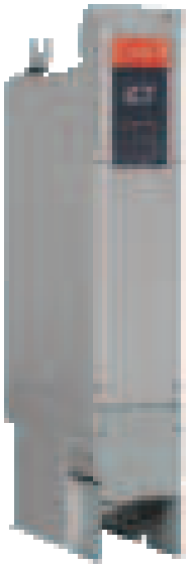
Conveniently extend functionality
Select the optional integration unit to neatly integrate common mode and/ or dU/dt filters beneath the inverter module. The integration units support both traditional and ducted cooling solutions, and connects/disconnects to the power unit without removing motor cables.

Features and benefits

Feature	Benefit
Efficient heat management: heat pipe technology and segregated main cooling channel (back-channel coolin g)	– Compact size enables you to pack more power into t he space available
Paralleling of 3-phase modules with no output filter re quired	– Modular and scalable solutions for high powers– Si mplified spare unit handling
Lightweight	– Fast integration and serviceability– High vibration ro bustness
Optional integration unit for output filter integration, en abling back-channel cooling	– Compact size enables you to pack more power into t he space available– Fast integration
Pull-out of power unit without removing motor or mains cables, included with integration unit	– Fast integration and serviceability
AuxBus internal network for temperature monitoring of filters	– Exceptional reliability and robustness for increased u ptime
Segregated IP54 cooling channel and dedicated PCB area	– Extremely reliable in heavy-duty service, for increased uptime

Air-cooled module

- **Inverter module**
  IM10



- **Inverter module**

  with short integration unit IR10

- **Inverter module**

  with standard integration unit IR10

- **Inverter module**

IM11

- **Inverter module**

  with short integration unit IR11

- **Inverter module**

  with standard integration unit IR11

- **AFE Module**

  with short integration unit

- **AFE module**

  with integration unit IR10/IR11

- **AFE & LCL filter**

  with standard integration unit IR10/IR11

- **LCL filter**

  LCL 10/11

Modular architecture: Setting the standard for modular control

A flexible, modular, control architecture means you can tailor the control functionality exactly to your needs. You can purchase exactly the control options you need, or replace other PLC components, I/O and external safety components.

This modularity gives you not only more flexibility, but more secure integration of drives in the control system and IT architecture. You achieve faster set-up, and smarter monitoring, data gathering and analytics thanks to support for multiple communication network types.

The purchase cost is lower since you only buy the necessary control options, saving excess unused functionality

The drive can reduce your costs further by substituting for a low-end PLC controller/system, thanks to its IEC 61131-based control architecture.

Program execution close to the process opens new possibilities in fast process control thanks to reduced delays. Built-in security protects your IPR and service business.

Features

- Expandable bus includes I/O, fieldbus, and expanded safety options
- Up to 10 control options
- Slot-independent options
- Integrated microSD card slot
- Integrated STO SIL3 safety
- Programmable (IEC 61131- based)
- Use the same options for iC7 series air-cooled system modules, liquid-cooled system modules and enclosed drives

Technical information

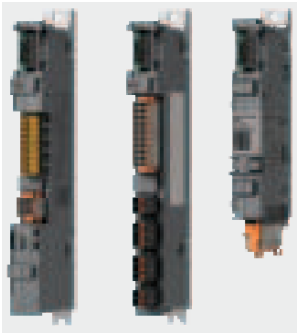
- Integrated Ethernet port
- Dual-channel STO SIL3 integrated as standard
- Modbus TCP as standard and other fieldbus protocols optional

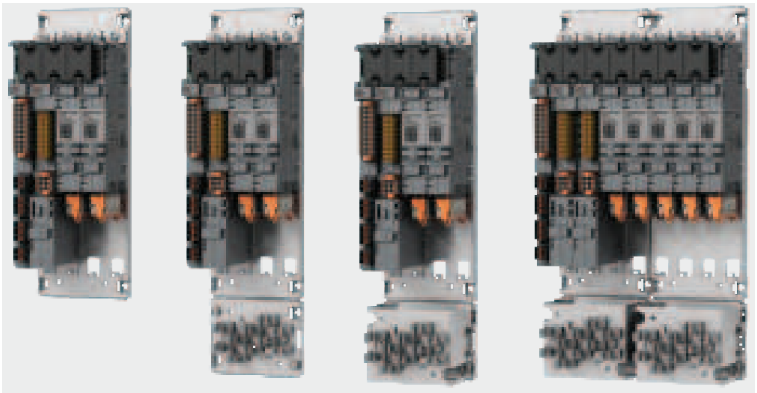
- Basic I/O: 6 x DI, 2 x DO, 2 x AI +/-10 V/0-20 mA, 1 x AO(0-10/4-20 mA), 2 x NO/NC RO, 1 x NO RO, 1 x Thermistor
- One optical fiber pair as communication link with power module or star coupler board
- For more options such as voltage measurement, temperature measurement, relay option, and encoder option, refer to the Functional extensions fact sheet.

Functional extensions

- Control mounting plate mechanics

- Control and option boards





Key specifications

Mains connection AFE	
Mains voltage U_{in}	– 3 x 380-500 V AC (-15%…+10%); 465-740 V DC
Mains frequency	– 45-66 Hz
Supply network	– TN-S, TN-C, IT and TT
Power factor	– cosφ = 1: (fundamental)
Short circuit current	– Maximum short circuit current must be < 100 kA
Total harmonics distortion THDi	– < 5%
Overvoltage category	– Class III according to IEC/EN 61800-5-1
Connections to mains	– Once every 120 s

Motor connection (INU)	
Output voltage	– 0-U_{in} 3-phase
Output frequency	– 0-599 Hz *(Limited performance with output filters above 70 Hz)*
Switching frequency	– 1.5-10 kHz. Default switching frequency 3 kHz DPWM
Motor control principles	– U/f control– Voltage Vector Control (VVC+)– Flux Vector Control (FVC+)
Motor and generator types supported	– Induction/asynchronous motor– Permanent magnet motor– Salient perm anent magnet motor– Synchronous reluctance assisted permanent magnet motor
Cable length	– Up to 150 m [492 feet] with symmetrical 3-phase screened motor cable

EMC (IEC61800-3)	
Immunity	– Fulfils IEC/EN61800-3 (2018), 2nd environment
Emissions	– IEC/EN61800-3 (2018), category C4, default for the IP00/UL Open Type d rive– IEC/EN61800-3 (2018), category C3, if the drive is installed according to the instructions of the manufacturer

Environmental conditions	
Protection rating drive modules	– IP00/UL Open Type
Ambient operating temperature	– -15 °C to 0 °C (5 °F to 32 °F) (no frost) The highest current rating of AM11 and IM11 must be derated 20% in freezing conditions.– 0 °C to 40 °C (32 °F to 104 °F) (at I_N) with derating up to +15 °C (131 °F)
Storage/transportation temperature	– -40 °C to +70 °C (32 °F to 158 °F)
Relative humidity	– 5 to 96% RH, no dripping water or condensation allowed
Pollution degree	– PD2
Altitude	– 0–4000 m (0–13100 ft) above sea level: in case network is not corner-grounded (Voltage class 5).– Above 1000 m (3300 ft): derating of maximum ambient operating temperature by 1 °C per each 100 m is required.
Vibration (IEC60068-2-6)	– Displacement amplitude 0.5 mm (peak) at 5–22 Hz)– Maximum acceleration amplitude 1 G at 22–150 Hz
Shock (IEC60068-2-27)	– Max 15G, 11 ms *(in package)*
Environmental operating conditions (IEC 60721-3-3	– Climatic conditions: Class 3K5– Chemically active substances: IEC 60721-3-3 Edition 3.0/ISO 3223 Second Edition, class C4– Biological conditions: Class 3B1– Mechanical conditons: Class 3M3– Mechanically active substances: Class 3S2– Special climatic conditions (heat radiation): Class 3Z1

Inverter module (INU)

Inverter module (INU)
The inverter module is a bidirectional DC-fed power inverter for the supply and control of AC motors and generators

The inverter (INU) module is intended for the regulation of motor speed in response to system feedback or to remote commands from external controllers. A drive system consists of the system modules, the motor, and equipment driven by the motor. The INU module is also intended for system and motor status surveillance.

Benefits of the Inverter module

- Designed for maximum machine performance and flexibility
- Versatility for drive applications requiring a wide range of drive features for different motor types for either closed loop or open loop control methods
- Optional system module with integration unit including high performance dU/dt filters and/or common-mode filters for space saving and easy cabinet integration

Ratings

- 385-4870 A IL , +10% overload 1 min/5 min
- 380-500 V AC Motor Voltage
- Output frequency: 0-599 Hz
- Switching frequency: 1,5-10 kHz. Nominal 3 kHz

Highlights

- Most compact INU module on the market thanks to integration of filters
- IP54/Type 12 segregated main cooling channel supporting backchannel cooling solutions
- Designed for enclosure integration and quick serviceability
- Integration of common-mode and dU/dt filters in the integration unit
- Slide-in philosophy for power unit installation means you can remove the power unit without disconnecting the motor cable

Motor control

- Highly dynamic performance: Highest possible machine accuracy due to superior shaft performance, also for sensorless operation
- Superior low-speed performance also in sensorless operation
- The motor always runs at maximum possible torque for the given current – ensuring highest possible motor efficiency: Maximum Torque Per Ampere (MTPA)
- Fast commissioning using Automatic Motor Adaption (AMA) at standstill maximizes energy efficiency with any motor
- More integrated sensors for better performance
- Flexible choice of control features optimized to your application, thanks to integrated application software

Inverter module 1]

400 V AC, 465-650 V DC

Model code	AC current				Typical motor power 400 V AC		DCcurrrent	Frame
	I_N	IL (1/5)	IH (1/5)	Imax (3 s)	P_L	P_H	IN-DC	IP00
	[A]	[A]	[A]	[A]	[kW]	[kW]	[A]	

iC7-60SAIN05-385AE00	394	385	320	544	200	160	410	**IM/IR10**
iC7-60SAIN05-480AE00	490	480	399	679	250	200	510	**IM/IR10**
iC7-60SAIN05-590AE00	603	590	490	833	315	250	641	**IM/IR10**
iC7-60SAIN05-658AE00	672	658	547	930	355	250	721	**IM/IR11**
iC7-60SAIN05-730AE00	746	730	606	1031	400	315	813	**IM/IR11**
iC7-60SAIN05-820AE00	838	820	681	1158	450	355	913	**IM/IR11**
iC7-60SAIN05-880AE00	899	880	731	1243	500	400	1015	**IM/IR11**
iC7-60SAIN05-1000E00	1021	1000	830	1411	560	450	1138	**2xIM/IR10**
iC7-60SAIN05-1100E00	1123	1100	913	1553	630	500	1280	**2xIM/IR10**
iC7-60SAIN05-1260E00	1287	1260	1050	1785	710	560	1441	**2xIM/IR11**
iC7-60SAIN05-1450E00	1481	1450	1210	2057	800	630	1625	**2xIM/IR11**
iC7-60SAIN05-1710E00	1746	1710	1420	2414	900	710	1826	**2xIM/IR11**
iC7-60SAIN05-1760E00	1797	1760	1470	2499	1000	800	2030	**3xIM/IR11**
iC7-60SAIN05-1960E00	2001	1960	1630	2771	1100	900	2234	**3xIM/IR11**
iC7-60SAIN05-2150E00	2195	2150	1790	3043	1200	1000	2436	**3xIM/IR11**
iC7-60SAIN05-2340E00	2389	2340	1950	3315	1300	1000	2639	**3xIM/IR11**
iC7-60SAIN05-2510E00	2563	2510	2090	3553	1400	1100	2841	**3xIM/IR11**
iC7-60SAIN05-2640E00	2695	2640	2200	3740	1500	1200	3045	**4xIM/IR11**
iC7-60SAIN05-2880E00	2940	2880	2400	4080	1600	1300	3247	**4xIM/IR11**
iC7-60SAIN05-3060E00	3124	3060	2540	4318	1700	1400	3450	**4xIM/IR11**
iC7-60SAIN05-3280E00	3349	3280	2730	4641	1800	1500	3652	**4xIM/IR11**

iC7-60SAIN05-3420E00	3492	3420	2840	4828	1900	1500	3856	**5xIM/IR11**
iC7-60SAIN05-3600E00	3675	3600	2990	5083	2000	1600	4058	**5xIM/IR11**
iC7-60SAIN05-4060E00	4145	4060	3370	5729	2200	1800	4465	**5xIM/IR11**
iC7-60SAIN05-4320E00	4410	4320	3590	6103	2400	1900	4871	**6xIM/IR11**
iC7-60SAIN05-4870E00	4972	4870	4050	6885	2700	2200	5478	**6xIM/IR11**

460 V AC, 650-740 V DC

Model code	**AC current**				**Typical motor power 460 V AC**		**DCcurrrent**	**Frame**
	I_N	**IL (1/5)**	**IH (1/5)**	**Imax (3 s)**	**P_L**	**P_H**	**IN-DC**	**IP00**
	[A]	**[A]**	**[A]**	**[A]**	**[Hp]**	**[Hp]**	**[A]**	
iC7-60SAIN05-385AE00	394	385	320	544	300	250	380	**IM/IR10**
iC7-60SAIN05-480AE00	490	480	399	679	350	300	443	**IM/IR10**
iC7-60SAIN05-590AE00	543	531	441	750	450	350	570	**IM/IR10**
iC7-60SAIN05-658AE00	603	590	490	833	500	350	632	**IM/IR11**
iC7-60SAIN05-730AE00	672	658	547	930	550	450	695	**IM/IR11**
iC7-60SAIN05-820AE00	746	730	606	1031	600	500	758	**IM/IR11**
iC7-60SAIN05-880AE00	838	820	681	1158	700	550	883	**IM/IR11**
iC7-60SAIN05-1000E00	940	920	764	1299	750	550	948	**2xIM/IR10**
iC7-60SAIN05-1100E00	1052	1030	855	1454	850	650	1073	**2xIM/IR10**
iC7-60SAIN05-1260E00	1174	1150	960	1632	950	750	1200	**2xIM/IR11**
iC7-60SAIN05-1450E00	1328	1300	1080	1836	1100	850	1389	**2xIM/IR11**
iC7-60SAIN05-1710E00	1603	1570	1310	2227	1300	1100	1641	**2xIM/IR11**

iC7-60SAIN05-1760E00	1807	1770	1470	2499	1500	1200	1892	**3xIM/IR 11**
iC7-60SAIN05-1960E00	1940	1900	1580	2686	1600	1300	2021	**3xIM/IR 11**
iC7-60SAIN05-2150E00	2083	2040	1700	2890	1700	1300	2146	**3xIM/IR 11**
iC7-60SAIN05-2340E00	2195	2150	1790	3043	1800	1500	2272	**3xIM/IR 11**
iC7-60SAIN05-2510E00	2389	2340	1950	3315	1900	1600	2397	**3xIM/IR 11**
iC7-60SAIN05-2640E00	2532	2480	2060	3502	2100	1700	2650	**4xIM/IR 11**
iC7-60SAIN05-2880E00	2685	2630	2190	3723	2200	1800	2775	**4xIM/IR 11**
iC7-60SAIN05-3060E00	2828	2770	2300	3910	2300	1800	2902	**4xIM/IR 11**
iC7-60SAIN05-3280E00	3114	3050	2540	4318	2500	2100	3155	**4xIM/IR 11**
iC7-60SAIN05-3420E00	3277	3210	2670	4539	2700	2200	3406	**5xIM/IR 11**
iC7-60SAIN05-3600E00	3573	3500	2910	4947	2900	2300	3658	**5xIM/IR 11**
iC7-60SAIN05-4060E00	3859	3780	3140	5338	3200	2500	4036	**5xIM/IR 11**
iC7-60SAIN05-4320E00	4176	4090	3400	5780	3400	2700	4289	**6xIM/IR 11**
iC7-60SAIN05-4870E00	4625	4530	3760	6392	3700	2900	4667	**6xIM/IR 11**

1] Preliminary values subject to validation
IL: Low overload – 110% overload – 1 min every 5 min
IH: High overload – 150% overload – 1 min every 5 min

500 V AC, 650-740 V DC

Model code	**AC current**				**Typical motor power 500 V AC**		**DCcurrrent**	**Frame**
	I_N	**IL (1/5)**	**IH (1/5)**	**Imax (3 s)**	**P_L**	**P_H**	**IN-DC**	**IP00**
	[A]	**[A]**	**[A]**	**[A]**	**[kW]**	**[kW]**	**[A]**	
iC7-60SAIN05-385AE00	394	385	320	544	250	200	408	**IM/IR10**

iC7-60SAIN05-480AE00	490	480	399	679	315	250	513	**IM/IR10**
iC7-60SAIN05-590AE00	543	531	441	750	355	250	577	**IM/IR10**
iC7-60SAIN05-658AE00	603	590	490	833	400	315	651	**IM/IR11**
iC7-60SAIN05-730AE00	672	658	547	930	450	355	731	**IM/IR11**
iC7-60SAIN05-820AE00	746	730	606	1031	500	400	812	**IM/IR11**
iC7-60SAIN05-880AE00	838	820	681	1158	560	450	910	**IM/IR11**
iC7-60SAIN05-1000E00	940	920	764	1299	630	500	1024	**2xIM/IR10**
iC7-60SAIN05-1100E00	1052	1030	855	1454	710	560	1153	**2xIM/IR10**
iC7-60SAIN05-1260E00	1174	1150	960	1632	800	630	1300	**2xIM/IR11**
iC7-60SAIN05-1450E00	1328	1300	1080	1836	900	710	1461	**2xIM/IR11**
iC7-60SAIN05-1710E00	1603	1570	1310	2227	1100	900	1787	**2xIM/IR11**
iC7-60SAIN05-1760E00	1807	1770	1470	2499	1200	1000	1949	**3xIM/IR11**
iC7-60SAIN05-1960E00	1940	1900	1580	2686	1300	1100	2112	**3xIM/IR11**
iC7-60SAIN05-2150E00	2083	2040	1700	2890	1400	1100	2273	**3xIM/IR11**
iC7-60SAIN05-2340E00	2195	2150	1790	3043	1500	1200	2436	**3xIM/IR11**
iC7-60SAIN05-2510E00	2389	2340	1950	3315	1600	1300	2598	**3xIM/IR11**
iC7-60SAIN05-2640E00	2532	2480	2060	3502	1700	1400	2760	**4xIM/IR11**
iC7-60SAIN05-2880E00	2685	2630	2190	3723	1800	1500	2922	**4xIM/IR11**
iC7-60SAIN05-3060E00	2828	2770	2300	3910	1900	1500	3085	**4xIM/IR11**
iC7-60SAIN05-3280E00	3114	3050	2540	4318	2000	1700	3246	**4xIM/IR11**
iC7-60SAIN05-3420E00	3277	3210	2670	4539	2200	1800	3572	**5xIM/IR11**

iC7-60SAIN05-3600E00	3573	3500	2910	4947	2400	1900	3897	**5xIM/IR 11**
iC7-60SAIN05-4060E00	3859	3780	3140	5338	2600	2100	4221	**5xIM/IR 11**
iC7-60SAIN05-4320E00	4176	4090	3400	5780	2800	2300	4546	**6xIM/IR 11**
iC7-60SAIN05-4870E00	4625	4530	3760	6392	3100	2600	5033	**6xIM/IR 11**

1] Preliminary values subject to validation
IL: Low overload – 110% overload – 1 min every 5 min
IH: High overload – 150% overload – 1 min every 5 min

AFE modules

AFE module
The AFE unit is a bi-directional low harmonic supply unit for motor drive applications. Active front end is typically used as a supply to a common DC bus drive line-ups or high powersingle drives when low harmonics or regeneration of power back to the grid is needed/valued.

The main functionality of the AFE is to maintain stable DC-link voltage reference. The AFE transfers power between the grid and the DC bus both ways depending on the load of the DC bus.

Benefits of the AFE

- Regenerative energy is fed back to the grid, improving the payback time of the investment. Regeneration at full power is available at any time.
- The AFE can boost the DC-link voltage within the voltage window of the converter hardware. Its advantage is that the DC-voltage available for motor inverters is not limited even under non-ideal grid conditions
- Power quality is excellent since the grid current is sinusoidal with very low harmonics (<5% THDi) and power factor is unity (cos φ = 1). This means that there is no need to oversize incoming supply transformers, as for traditional diode rectifiers, which reduces investment costs and space.

Ratings

- 317-4900 A IL , +10% overload 1 min/5 min
- 380-500 V AC / 465-740 V DC (05)
- 45-66 Hz Grid frequency
- THDi <5%
- Fundamental power factor cos φ = 1, adjustable reactive current set point

Highlights

- Most compact AFE on the market
- Meets the most stringent harmonics requirements thanks to high DC and AC power quality
- Robust and reliable in varying ambient conditions

- IP54/Type 12 segregated main cooling channel supporting backchannel cooling solutions
- Designed for enclosure integration and quick serviceability
- Direct connection between LCL filter and AFE input terminals
- Slide-in philosophy for easy power unit and LCL filter installation and removal

DC-bus and grid control

- Fast primary control ensures stable DC voltage even under non-ideal grid conditions for accurate motor control.
- AFE is able to boost DC voltage to guarantee full motor voltage even when the supply voltage is below nominal.
- Low harmonic operation meets even the stringest power quality requirements for drive systems.
- Reactive reference can be used to compensate other low power factor equipment in the network.
- Unrivalled paralleling options with no need for drive-to-drive communication
- Power can be shared between parallel units automatically with DC-link voltage droop control.

Active front-end modules (AFE)

AFE 400 V AC, 465-650 V DC

Model code	AC ratings				DC ratings			Frame
	S_N	IN (1/5)	IL (1/5)	IH (1/5)	IN-DC	P_L	P_H	
	[KVA]220	[A]324	[A]317	[A]263	[A]	[kW]216	[kW]	IP00 AM/AR10
iC7-60SA3A05-317AE00					371		179	
iC7-60SA3A05-400AE00	278	409	400	327	469	272	223	**AM/AR10**
iC7-60SA3A05-514AE00	357	525	514	426	602	349	290	**AM/AR10**
iC7-60SA3A05-580AE00	402	593	580	464	677	394	316	**AM/AR11**
iC7-60SA3A05-650AE00	451	664	650	525	760	442	357	**AM/AR11**
iC7-60SA3A05-730AE00	506	746	730	591	852	496	402	**AM/AR11**
iC7-60SA3A05-816AE00	566	833	816	678	953	555	461	**AM/AR11**
iC7-60SA3A05-920AE00	638	940	920	735	1075	625	500	**2xAM/AR10**
iC7-60SA3A05-1030E00	714	1052	1030	850	1203	700	578	**2xAM/AR10**

iC7-60SA3A05-1210E00	839	1236	1210	980	1413	822	666	**2xAM/AR11**
iC7-60SA3A05-1410E00	977	1440	1410	1140	1647	958	775	**2xAM/AR11**
iC7-60SA3A05-1630E00	1130	1664	1630	1360	1903	1107	924	**2xAM/AR11**
iC7-60SA3A05-1860E00	1289	1899	1860	1575	2172	1263	1070	**3xAM/AR11**
iC7-60SA3A05-2120E00	1469	2165	2120	1838	2475	1440	1248	**3xAM/AR11**
iC7-60SA3A05-2450E00	1698	2501	2450	2030	2861	1664	1379	**3xAM/AR11**
iC7-60SA3A05-2800E00	1940	2859	2800	2231	3268	1902	1515	**4xAM/AR11**
iC7-60SA3A05-3270E00	2266	3338	3270	2710	3817	2221	1840	**4xAM/AR11**
iC7-60SA3A05-3650E00	2529	3726	3650	2888	4260	2479	1961	**5xAM/AR11**
iC7-60SA3A05-4080E00	2827	4165	4080	3390	4761	2771	2302	**5xAM/AR11**
iC7-60SA3A05-4500E00	3118	4594	4500	3544	5251	3056	2407	**6xAM/AR11**
iC7-60SA3A05-4900E00	3395	5002	4900	4070	5719	3327	2764	**6xAM/AR11**

IL : Low overload – 110% overload – 1 min every 5 min
IH : High overload – 150% overload – 1 min every 5 min

AFE 480 V AC, 650-740 V DC

Model code	**AC ratings**				**DC ratings**			**Frame**
	S_N	**IL (1/5)**	**IL (1/5)**	**IH (1/5)**	**IN-DC**	**P_L**	**P_H**	**IP00**
	[KVA]	**[A]**	**[A]**	**[A]**	**[A]**	**[kW]**	**[kW]**	
iC7-60SA3A05-317AE00	257	316	309	256	361	252	209	**AM/AR10**
iC7-60SA3A05-400AE00	316	388	380	298	445	310	243	**AM/AR10**
iC7-60SA3A05-514AE00	385	473	463	385	542	378	314	**AM/AR10**
iC7-60SA3A05-580AE00	433	531	520	424	608	424	346	**AM/AR11**

iC7-60SA3A05-650AE00	487	598	585	470	684	477	383	**AM/AR11**
iC7-60SA3A05-730AE00	541	664	650	511	759	530	417	**AM/AR11**
iC7-60SA3A05-816AE00	608	747	731	607	853	596	495	**AM/AR11**
iC7-60SA3A05-920AE00	686	843	825	639	964	673	521	**2xAM/AR10**
iC7-60SA3A05-1030E00	774	950	930	770	1086	758	628	**2xAM/AR10**
iC7-60SA3A05-1150E00	898	1103	1080	880	1262	880	717	**2xAM/AR11**
iC7-60SA3A05-1280E00	1040	1276	1250	1030	1460	1019	840	**2xAM/AR11**
iC7-60SA3A05-1630E00	1214	1491	1460	1210	1705	1190	986	**2xAM/AR11**
iC7-60SA3A05-1860E00	1389	1705	1670	1363	1949	1361	1111	**3xAM/AR11**
iC7-60SA3A05-2120E00	1588	1950	1910	1533	2230	1557	1250	**3xAM/AR11**
iC7-60SA3A05-2450E00	1821	2236	2190	1820	2557	1785	1483	**3xAM/AR11**
iC7-60SA3A05-2800E00	2087	2563	2510	1874	2930	2046	1527	**4xAM/AR11**
iC7-60SA3A05-3270E00	2428	2981	2920	2430	3408	2380	1980	**4xAM/AR11**
iC7-60SA3A05-3650E00	2736	3359	3290	2726	3840	2681	2222	**5xAM/AR11**
iC7-60SA3A05-4080E00	3035	3726	3650	3030	4260	2974	2469	**5xAM/AR11**
iC7-60SA3A05-4500E00	3334	4094	4010	3152	4681	3268	2569	**6xAM/AR11**
iC7-60SA3A05-4900E00	3650	4482	4390	3640	5124	3577	2966	**6xAM/AR11**

1] Preliminary values subject to validation
IL: Low overload – 110% overload – 1 min every 5 min
IH: High overload – 150% overload – 1 min every 5 min

AFE, 500 V AC, 650-740 V DC

	AC ratings		**DC ratings**		**Frame**

Model code	S_N	IL (1/5)	IL (1/5)	IH (1/5)	IN-DC	P_L	P_H	
	[KVA]268	[A]316	[A]309	[A]256	[A]	[kW]263	[kW]	IP00 AM/AR10
iC7-60SA3A05-317AE00					361		218	
iC7-60SA3A05-400AE00	330	388	380	298	445	323	253	AM/AR10
iC7-60SA3A05-514AE00	401	473	463	385	542	393	327	AM/AR10
iC7-60SA3A05-580AE00	451	531	520	424	608	442	360	AM/AR11
iC7-60SA3A05-650AE00	507	598	585	470	683	497	399	AM/AR11
iC7-60SA3A05-730AE00	563	664	650	511	760	552	434	AM/AR11
iC7-60SA3A05-816AE00	634	747	731	607	854	621	516	AM/AR11
iC7-60SA3A05-920AE00	715	843	825	639	963	701	543	2xAM/AR10
iC7-60SA3A05-1030E00	806	950	930	770	1086	790	654	2xAM/AR10
iC7-60SA3A05-1150E00	936	1103	1080	880	1261	917	747	2xAM/AR11
iC7-60SA3A05-1280E00	1083	1276	1250	1030	1459	1061	875	2xAM/AR11
iC7-60SA3A05-1630E00	1265	1491	1460	1210	1704	1240	1027	2xAM/AR11
iC7-60SA3A05-1860E00	1447	1705	1670	1363	1949	1418	1157	3xAM/AR11
iC7-60SA3A05-2120E00	1655	1950	1910	1533	2229	1622	1302	3xAM/AR11
iC7-60SA3A05-2450E00	1897	2236	2190	1820	2557	1859	1545	3xAM/AR11
iC7-60SA3A05-2800E00	2174	2563	2510	1874	2930	2131	1591	4xAM/AR11
iC7-60SA3A05-3270E00	2529	2981	2920	2430	3408	2479	2063	4xAM/AR11
iC7-60SA3A05-3650E00	2850	3359	3290	2726	3840	2793	2314	5xAM/AR11
iC7-60SA3A05-4080E00	3161	3726	3650	3030	4260	3098	2572	5xAM/AR11

iC7-60SA3A05-4500E00	3473	4094	4010	3152	4681	3404	2676	**6xAM/AR11**
iC7-60SA3A05-4900E00	3802	4482	4390	3640	5124	3726	3090	**6xAM/AR11**

1] Preliminary values subject to validation
IL: Low overload – 110% overload – 1 min every 5 min
IH: High overload – 150% overload – 1 min every 5 min

Dimensions and weight 1]: INU and AFE modules, LCL filters

Module type		**Inverter**		**AFE**		**LCL filters**
Frame		**IM10**170	**IM11**	**AM10**170	**AM11**	**LCL10**/**LCL11**260
[mm]	**Width**		210		210	
	Height	990	990	990	990	1530
	Depth	502	502	502	502	553
[kg]	**Weight**	65	75	65	75	–
[in]	**Width**	6.7	8.3	6,7	8.3	10.2
	Height	39	39	39	39	60.2
	Depth	19.8	19.8	19.8	19.8	21.8
[lb]	**Weight**	143	165	143	165	–

1] Preliminary values subject to validation
For more information refer to the iC7-60 Air-cooled System Modules Operating Guide

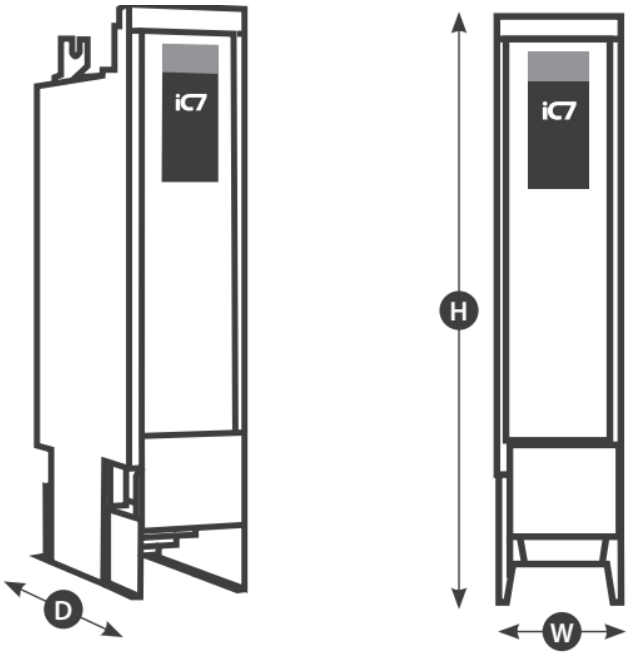
Dimensions and weight 2]: INU, AFE and NFE modules with short integration unit

Module type		**Inverter with integration unit**		**AFE with integration unit**		**NFE with integration unit**
Frame		**IR10**235	**IR11**	**AR10**235	**AR11**	**NR11**235
[mm]	**Width**		235		235	
	Height	1302	1302	921	921	921
	Depth	553	553	553	553	553
[kg]	**Weight**	90	100	72	82	–

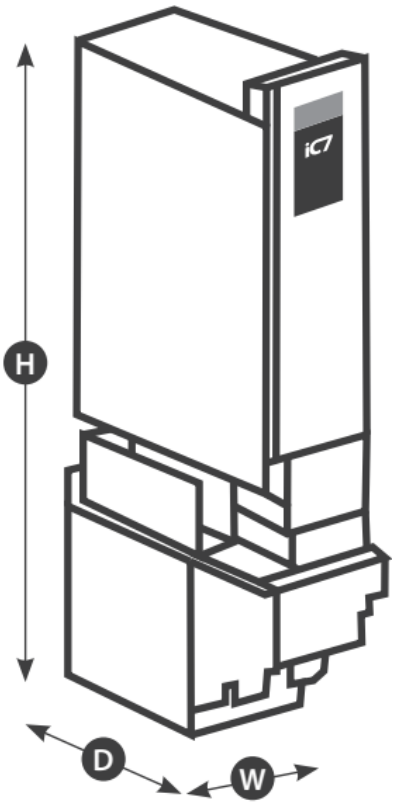
[in]	**Width**	9.3	9.3	9.3	9.3	9.3
	Height	51.3	51.3	36.3	36.3	36.3
	Depth	21.8	21.8	21.8	21.8	21.8
[lb]	**Weight**	198	221	159	181	–

2] Preliminary values subject to validation
Weight values are for module with empty integration unit, excluding filter weight . For more information refer to the iC7-60 Air-cooled System Modules Operating Guide

Module with no integration unit



Module with short integration unit



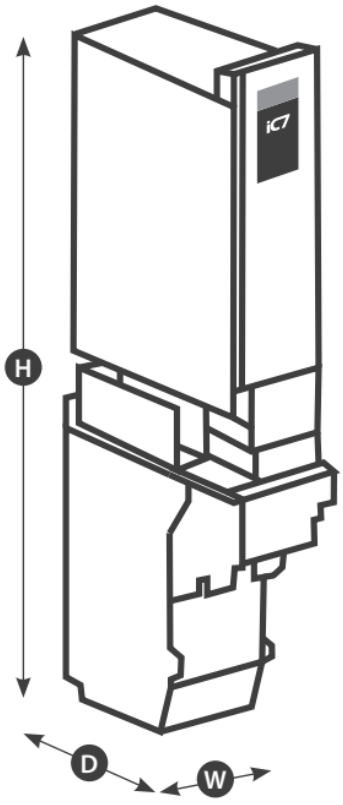
Dimensions and weight 2]:
INU, AFE and NFE modules with standard integration unit

Module type		Inverter with integration unit		AFE with integration unit		NFE with integration unit
Frame		IR10	IR11	AR10	AR11	NR11
[mm]	Width	235	235	235	235	235
	Height	1530	1530	1530	1530	1530
	Depth	553	553	553	553	553
[kg]	Weight	92	102	78	88	–

[in]	Width	9.3	9.3	9.3	9.3	9.3
	Height	60.2	60.2	60.2	60.2	60.2
	Depth	21.8	21.8	21.8	21.8	21.8
[lb]	Weight	202.8	224.9	172	194	–

2] Preliminary values subject to validation
Weight values are for module with empty integration unit, excluding filter weight . For more information refer to the iC7-60 Air-cooled System Modules Operating Guide

Module with standard integration unit



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Documents / Resources

	Danfoss iC7 Series Air Cooled System Modules [pdf] Installation Guide iC7 Series Air Cooled System Modules, iC7 Series, Air Cooled System Modules, Cooled System Modules, System Modules

References

- iC7 Series | Danfoss