



ENGINEERING
TOMORROW

HIGHLIGHTS

- Unrivalled power density
- Robust in harsh environments
- Modular, scalable and serviceable
- Designed for easy integration
- Superior control performance
- Digital twin simulation models reduce risk and get you to market faster
- Cybersecure by design

Competitive
clean energy enabler



Fact sheet | iC7-Hybrid

Intelligent **power conversion** to drive the **energy transition**

The iC7-Hybrid power converter allows for the integration of energy sources or storage into a variety of systems. This range of intelligent power converters is designed to enable you to meet carbon goals while remaining profitable. iC7-Hybrid is available as liquid-cooled system modules, and its unique filter integration concept comes equipped with built-in wiring

and coolant distribution for added convenience. Powerful support for hybrid and electric applications in

- Marine and Offshore
- Shore power supply
- Power-to-X

Feature	Benefit
Purpose-built product dedicated to power conversion	Fit-for-purpose in your industry increases competitiveness and reduces engineering effort
Quality in focus – world most reliable power converter	High uptime and low operating expenses
Supported by DrivePro Lifecycle services for global service capability	High uptime and long term planning capability
Engineering support from expert staff and a range of engineering tools	Go to market faster
Future-proof iC7 platform includes power conversion and AC drives applications	Shorter time to market. Lower lifecycle costs when both power converters and AC drives run in the same system

iC7-Hybrid Liquid-cooled System Modules – the **ultimate** in **power density**

iC7-Hybrid is available in 2 variants

- System modules: Ideal for installations with low height clearance
- System modules with integration unit: integrated filters in a compact housing. Optimized power density for easy cabinet installation and serviceability

For specifications and dimensions please refer to the related fact sheet:

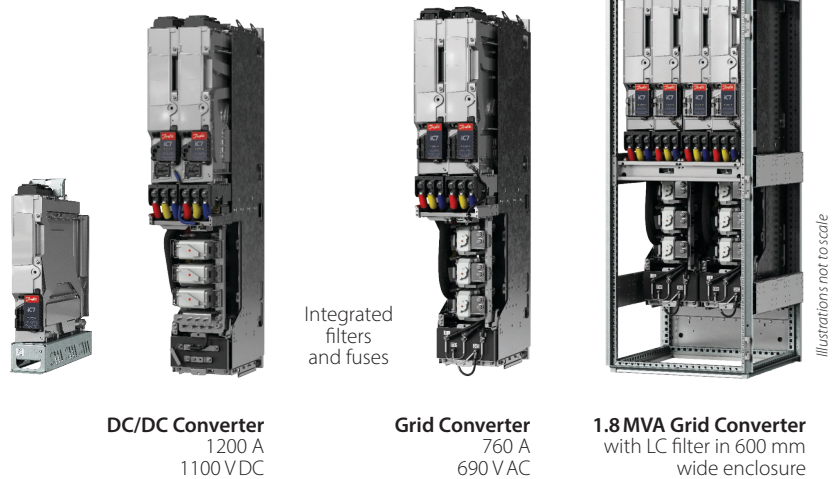
- 🔗 **Liquid-cooled System Modules**
- ▶ **Intelligent power conversion**

Voltage range	3 x 525-690 VAC 640-1100 VDC 3 x 380-500 VAC (B5) 465-800 VDC (B5)
Current range	Grid Converter 236-5750 A DC/DC converter 300-3600 A

Type approvals ¹⁾

Based on decades of experience across a wide range of Marine and Offshore applications, iC7-Hybrid power converters fulfill type approvals of major classification societies, such as ABS, BV, CCS, DNV, and RINA.

¹⁾ Additional type approvals will be available during 2024.



Illustrations not to scale

Key specifications

Environmental conditions	
Protection rating drive modules	– IP00/UL Open Type
Ambient operating temperature	– -15 °C (no frost) to +60 °C (at I _N)
Temperature of cooling agent	– -10 to +38 or +45 °C at (I _N)(nominal), up to 60 °C with derating
Vibration (IEC60068-2-6)	– Displacement amplitude 1 mm (peak) at 2-13.2 Hz – Maximum acceleration amplitude 0.7 G at 13.2-100 Hz with maximum amplification of 5
Shock (IEC60068-2-27)	– Max 15G, 11 ms (<i>in package</i>)
Environmental operating conditions (IEC 60721-3-3)	– Climatic conditions: Class 3K22 – Chemically active substances: IEC 60721-3-3 Edition 3.0/ISO 3223 Second Edition, class C4 – Biological conditions: Class 3B1 – Mechanically active substances: Class 3S6
Compliance	– IEC-62477-1
EMC	
EMC Immunity	– IEC/EN 61000-6-2
EMC emissions	– CISPR 11 (EN 55011) Class A (Grid Converter)

🔗 For ratings and dimensions, refer to the iC7 Selection Guide

Grid Converter application software key features

Control references		Fit for purpose application features
Grid following	<ul style="list-style-type: none"> - DC voltage control (AFE) - DC power and DC current - Active and reactive AC power - Limit controllers 	<ul style="list-style-type: none"> - Online transition between control modes during run state - Independent converter paralleling in same common AC and DC bus - Short circuit current injection with high overloadability - Support for 2 x 3-phase or DC voltage measurement option - Fall back to open loop in case feedback is lost - Blackout prevention (fall back to grid forming when limit is hit) - Black-start capability - Transformer interactive control & voltage drop compensation - Synchronization to external grid - Filter & transformer pre-magnetization - Main circuit breaker and pre-charge control - I/O, fieldbus, PC and control panel control place changeover during run state - Dedicated fieldbus control and status words & fieldbus customizer - Fast recovery of operation when required, using partial redundancy capability
Grid forming	<ul style="list-style-type: none"> - Island mode (grid forming) - Droop control (microgrid) - Droop control with base load - Active and reactive power (PQ) - Limit controllers 	
Fieldbus protocols	<ul style="list-style-type: none"> - Modbus TCP - PROFINET RT 	

DC/DC Converter application software key features

Control references		Fit for purpose application features
	<ul style="list-style-type: none"> - DC bus voltage and current control - DC source voltage, power and current control - DC bus voltage as well as source voltage and current limit controllers - Buck or boost operation 	<ul style="list-style-type: none"> - Smooth transition between control modes during run state - Droop controllers for voltage references and limit controllers - I/O, fieldbus, PC and control panel control place changeover during run state - Dedicated fieldbus control and status words - Fieldbus customizer - Black start from 350VDC and higher - Fast recovery of operation when required, using partial redundancy capability
Fieldbus protocols	<ul style="list-style-type: none"> - Modbus TCP - PROFINET RT 	

iC7-Hybrid supports these functional extensions:

- I/O and relay option
- Temperature measurement option
- Voltage measurement option

MyDrive® Virtual simulation models reduce time to market

Remove constraints of the physical environment.

FMU models of Grid Converter and DC/DC Converter are available for system simulation.

 MyDrive® Virtual

 **fmi** Functional Mock-Up Interface



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Imagine versatile and highly secure power conversion and motor control. Intensely powerful and compact converters and drives built to optimize a vast range of systems while giving you the flexibility to distribute intelligence the way you want. Paving the way for a new dimension, where open, connected and intelligent systems are the new reality.



 **Open up a new dimension with iC7 series**
iC7-Automation | iC7-Marine | iC7-Hybrid

Contact us 

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