ENGINEERING
TOMORROW

Fact sheet | iC7-Automation Air-cooled System Modules

Need an **intelligent drive** for **fast integration?**

iC7-Automation air-cooled system modules deliver high torque performance in an ultra compact format. These modules give you a unique advantage in optimizing installation footprint, speeding up integration, and reducing costs more than you dreamed possible.

Current and supply voltage

- Inverter
  385-4870 A_{IL} – 380-500 V AC
- Active Front-end
  317-4900 A_{IL} – 380-500 V AC

Feature	Benefit
Efficient heat management: heat pipe technology and segregated main cooling channel (back-channel cooling)	– Compact size enables you to pack more power into the space available
Paralleling of 3-phase modules with no output filter required	– Modular and scalable solutions for high powers – Simplified spare unit handling
Lightweight	– Fast integration and serviceability – High vibration robustness
Optional integration unit for output filter integration, enabling back-channel cooling	– Compact size enables you to pack more power into the 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 uptime
Segregated IP54 cooling channel and dedicated PCB area	– Extremely reliable in heavy-duty service, for increased uptime

Learn more about iC7-Automation

HIGHLIGHTS

- Ultra compact
- Modular and configurable drive
- 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
- Easy cabinet integration using integration unit
- High-torque machine performance
- Superior motor control

Reduce your engineering effort to deliver fast and deliver

first

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Key specifications

Mains connection AFE	
Mains voltage U_{in}	– 3 x 380-500 V AC (-15%…+10%);
Mains frequency	– 45-66 Hz
Supply network	– TN-S, TN-C, IT and TT
Total harmonics distortion THDi	– < 5%
Power factor	– cosφ = 1: (fundamental)
Overload capacity	– 110/150% for 1/5 minutes duration
Short circuit current	– Maximum short circuit current must be < 100 kA
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
Overload capacity	– 110/150% for 1/5 minutes duration
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 permanent 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 drive – 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 +55 °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

Product safety compliance	
Compliance	– IEC/EN 61800-5-1 + A1; IEC/EN 64477-1 + A1; CSA C22.2 No. 274; UL listed: UL 61800-5-1

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

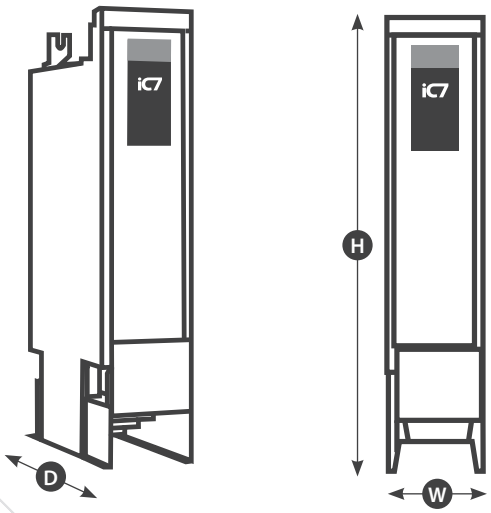
Module type		Inverter		AFE		LCL filters
Frame		IM10	IM11	AM10	AM11	LCL10/LCL11
[mm]	Width	170	210	170	210	260
	Height	990	990	990	990	1530
	Depth	502	502	502	502	553
[kg]	Weight	65	75	65	75	251/349
[in]	Width	6.7	8.3	6,7	8.3	10.2
	Height	39	39	39	39	60.2
	Depth	19.8	19.8	19.8	19.8	21.8
[lb]	Weight	143	165	143	165	554/769

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

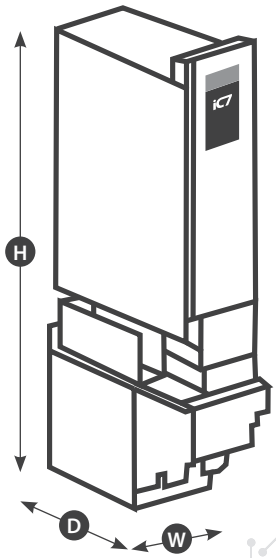
Dimensions and weight [2]: INU and AFE modules with short integration unit

Module type		Inverter with integration unit		AFE with integration unit	
Frame		IR10	IR11	AR10	AR11
[mm]	Width	235	235	235	235
	Height	1302	1302	921	921
	Depth	553	553	553	553
[kg]	Weight	90	100	72	82
[in]	Width	9.3	9.3	9.3	9.3
	Height	51.3	51.3	36.3	36.3
	Depth	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 and AFE modules with standard integration unit

Module type		Inverter with integration unit		AFE with integration unit	
Frame		IR10	IR11	AR10	AR11
[mm]	Width	235	235	235	235
	Height	1530	1530	1530	1530
	Depth	553	553	553	553
[kg]	Weight	92	102	78	88
[in]	Width	9.3	9.3	9.3	9.3
	Height	60.2	60.2	60.2	60.2
	Depth	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 .
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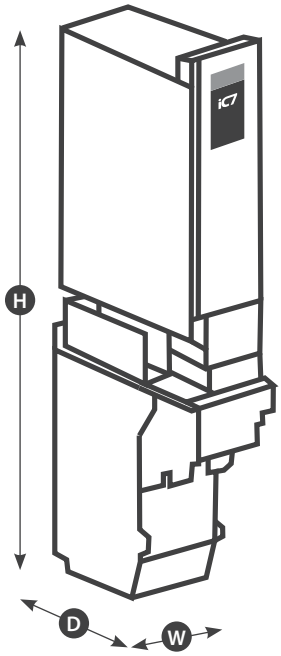

Module with standard integration unit