

# Need more intelligent VFDs, with streamlined integration?

## 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
- > Industrial IoT-ready with secure OPC UA
- > High-torque machine performance
- > Superior motor control



iC7-Automation Enclosed Drives deliver high torque performance in an ultra compact format. They open up new application opportunities with flexible system integration in a wide range of industries. Optimized for compact footprint, ease of use and fast serviceability, you can apply these drives to enhance motor control.

## Versatile

iC7-Automation Enclosed Drives are available in standard cabinet sizes, configured in the right variant to suit your application:

- 6-pulse, low-harmonic, and regenerative variants
- Wide range of options

Feature	Benefit
Robust by design, high uptime and quality	– Reliable in heavy-duty service
Segregated main cooling channel, (IP21 or IP54) and dedicated PCB area	– Extremely reliable in heavy-duty service
Wide range of pre-designed options	– Flexible to meet any application need
Heat management using heat pipe technology and segregated main cooling channel	– High power density, reduced footprint
Integrated options such as functional extensions, output filters, fuses, disconnectors and breakers mean no extra external devices are required	– Save cost and time in installation
Installer-friendly design includes pluggable control terminals, easy-access power terminals, and easily replaceable fans	– Save cost and time in installation and service
Modular and scalable solutions for high powers Simplified spare unit handling	– Fast integration and serviceability
Pull-out of power unit without removing motor or mains cables	– Fast and easy serviceability
Safe door-in-door access to the control compartment while drive powered on	– Safe and fast serviceability

## Key specifications

<b>Input</b>		<b>Functional Safety I/O</b>
Voltage rating	380-500 V AC, +10%/-15%	STO Dual-channel, with galvanic isolation
Current range	6-pulse: 206-588 A	STO feedback Single channel, with galvanic isolation
	Low-harmonic & regenerative: 385-2510 A	
Supply frequency	50/60 Hz	
Switching on input <sup>1)</sup>	6-pulse: 1-2 times per minute Low-harmonic and regenerative: Switch on twice at 60 s interval, followed by 10 minutes cooling-down period	
Grid type	TN, TT, IT, Delta	
<b>Output</b>		<b>External supply</b>
Output frequency	0-599 Hz	Rating 24 V/2 A
Switching on output	Unlimited	
Overload capacity	110/150% for 1 minute every 5 minutes <sup>2)</sup>	
<b>Environmental conditions</b>		<b>Basic I/O</b>
Protection rating	IP21/UL Type 1, IP54	Digital inputs <sup>3)</sup> 6, single-ended
Rated temperature	-15 to 40 °C (5 to 104 °F)	Relay outputs 3 • 2 x NO, NC • 1 x NO • 250 V AC 3 A max. (50/60 Hz) • 24 V DC 2
Maximum temperature with derating	50 °C (122 °F)	
Rated altitude	1000 m (3300 feet) or up to 3000 m (9800 ft) with derating	Analog inputs 2 • -20/0 to +20 mA or -10/0 to +10 V
Relative humidity	5-95% non condensing	Analog output 1 • 0-20 mA or 0-10 V resistive load
<b>Harmonic mitigation and THDi</b>		Thermistor input 1, isolated
iC7-Automation, low harmonic and regenerative enclosed drives	Total harmonic distortion (nominal situation and undistorted network): THDi <5%	
<b>Compliance</b>		<b>Compliance</b>
		Compliance IEC 61800-5-1

<sup>1)</sup> Refer to Design Guide for more information.

<sup>2)</sup> 1 minute every 10 minutes, for frames FE9 and FE10

1 minute every 5 minutes, for all other frames

<sup>3)</sup> 2 of the inputs can be reconfigured to outputs

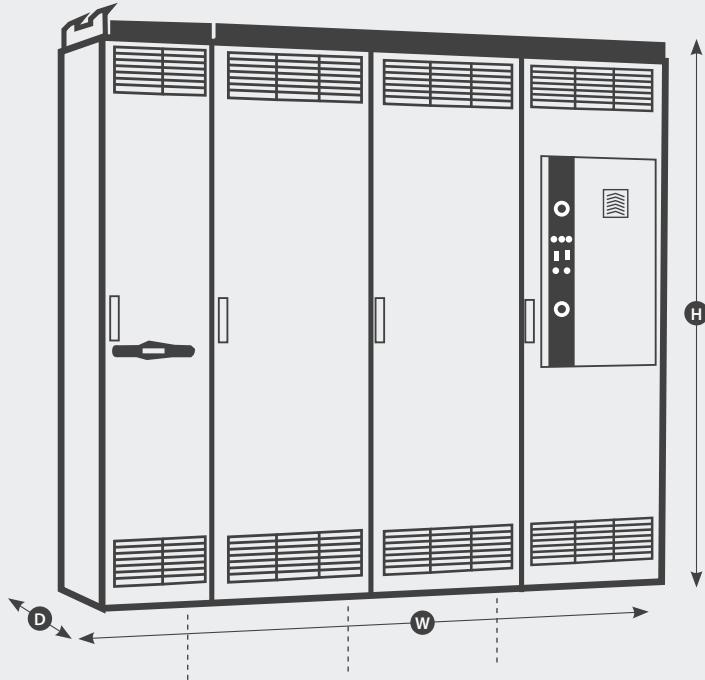
## Key specifications for 6-pulse, low-harmonic or regenerative enclosed drives

<b>Environmental</b>	<b>6-pulse</b>	<b>Low-harmonic &amp; regenerative</b>
Voltage rating	3 x 380-500 V AC, -15%/+10%	3 x 380-500 V AC, -15%/+10%
Current range	206-588 A	385-2510 A
Overload capacity	110/150% for 1 minute every 5 minutes <sup>1)</sup>	110/150% for 1 minute every 5 minutes <sup>1)</sup>
Protection rating	IP21/UL Type 1, IP54	IP21/UL Type 1, IP54

<sup>1)</sup> 1 minute every 10 minutes, for frames FE9 and FE10  
1 minute every 5 minutes, for all other frames

## Control options

<b>Functional extensions</b>	<b>Description</b>
General Purpose I/O OC7C0	General purpose I/O extension board (3xDI, 2xDO, 2xAI, 1xAO)
Relay Option OC7R0	Relay I/O extension board, with 3 relays
Encoder/Resolver Option OC7M0	Encoder/Resolver extension board (TTL, HTL, SinCos, SSI, HIPERFACE, EnDat, BiSS, resolver)
Temperature Measurement OC7T0	Temperature measurement extension board with 5 channels
I/O and Relay Option OC7C1	I/O extension



## Dimensions

Frame	6-pulse enclosed drives		Low-harmonic & regenerative enclosed drives				
	FE09	FE10	AE10 + IE10	AE11 + IE11	2 x AE10 + 2 x IE10	2 x AE11 + 2 x IE11	3 x AE11 + 3 x IE11
Width	400	600	800	1200	2200	2400	3200
[mm] Height	2300 <sup>1)</sup>	2300 <sup>1)</sup>	2300 <sup>1,2)</sup>	2300 <sup>1,2)</sup>	2300 <sup>1,2)</sup>	2300 <sup>1,2)</sup>	2300 <sup>1,2)</sup>
Depth	600	600	600	600	600	600	600
Width	15.7	23.6	31.5	47.2	86.6	94.5	126
[in] Height	90.6 <sup>1)</sup>	90.6 <sup>1)</sup>	90.6 <sup>1,2)</sup>	90.6 <sup>1,2)</sup>	90.6 <sup>1,2)</sup>	90.6 <sup>1,2)</sup>	90.6 <sup>1,2)</sup>
Depth	23.6	23.6	23.6	23.6	23.6	23.6	23.6

<sup>1)</sup> With 200 mm/7.8 in plinth and lifting rails, without lifting rails -101 mm/4.0 in

<sup>2)</sup> If IP21 cabinet total height is 2400 mm/94.5 in



## Cabinet options

Mains input device	+GAXX	None
	+GACO	Mains contactor and switch
	+GAMS	Mains switch
	+GACB	Air circuit breaker fixed
Grounding device provision	+GCXX	None
	+GCEP	Provision for grounding device
	+GCES	Grounding switch
Motor heater control	+IAXX	None
	+IAMH	Yes
Cabinet heater	+IBXX	None
	+IBCH	Yes
Motor fan control	+ICXX	None
	+ICFC	Motor fan control
	+ICF1	Motor fan ctrl/supply 2.5-4 A
	+ICF2	Motor fan ctrl/supply 4-6.3 A
	+ICF3	Motor fan ctrl/supply 6.3-10 A
	+ICF4	Motor fan ctrl/supply 10-16 A
Motor brake control	+IDXX	None
	+IDBC	Motor brake control
Control power supply	+IFXX	None
	+IFCS	24 VDC
Service socket	+IGXX	None
	+IGS0	230 VAC socket CEE 7/3
	+IGS1	115 VAC socket, US
	+IGS2	230 VAC socket, UK
Auxillary voltage supply	+IHXX	None
	+IHAT	AC voltage transformer
	+IHAS	AC supply terminals
Door signal lights	+IIXX	None
	+IICD	Run, ready, fault
Emergency stop button	+ILXX	None
	+ILSS	STO/SS1 push button on door
Mains cabling direction	+KCIB	Bottom-entry
	+KCIT	Top-entry
	+KDOB	Bottom-entry
	+KDOT	Top-entry
Cable entry plate	+KFXX	With standard glands
	+KFCP	Blank plate without holes (UL)
Output filter	+MAXX	None
	+MAC2	Common-mode Filter
	+MAU1	dU/dt Filter
	+MAU2	dU/dt + CM Filter
Air-cooling options	+OAXX	Standard
	+OAOF	Cooling air outlet flange
	+OABC	Back-channel cooling
Maintenance options	+QAXX	None
	+QALS	Lifting support for power unit