



DATA SHEET



DEPRECATED - PCM5-1



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Document no.: N/A

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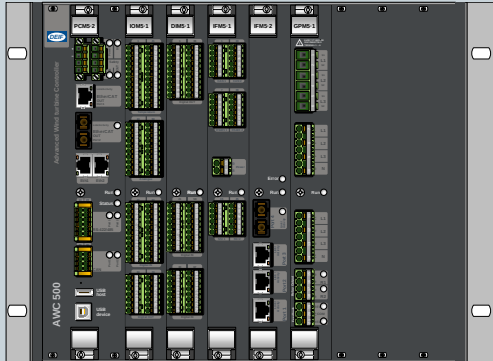
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1. AWC 500 system

1.1 System specifications

The AWC 500 is designed as a highly flexible, modular process controller covering the special demands of wind power plants in terms of reliability, robustness and flexibility.

Technical specifications



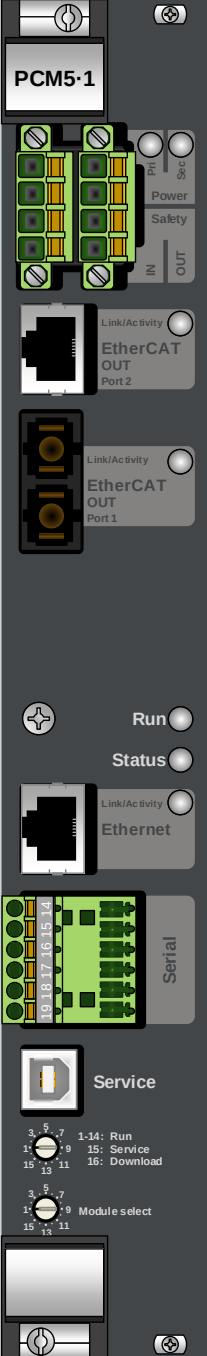
Default rack sizes	Rack5·0, Rack5·1, Rack5·2, Rack5·3, Rack5·5 and Rack5·8 All racks have one slot reserved for a PCM5·x or PDM5·1 and a variable number of I/O modules. The maximum number of I/O modules is indicated in the name of the rack. For example; the rack named Rack5·2 has two available slots for I/O modules.	
Temperature	Operating: -40 to 70 °C Storage: -40 to 85 °C Reference: 15 to 30 °C	IEC 60068-2-1 IEC 60068-2-2
Climate	All modules are conformal coated, hence protected against moisture, mold, dust, corrosion and other environmental stresses. 55 °C 97 % relative humidity, condensing	IEC 60068-2-30, test Db
Altitude	Up-to 4,000 m without de-rating For deployment above 4,000 m contact Product Management	
Vibration	3 to 13.2 Hz: 6 mm _{peak-peak} 13.2 to 50 Hz: 2.1 g 3 to 13.2 Hz: 2.85 mm _{peak-peak} 13.2 to 100 Hz: 1.0 g	IEC 60068-2-6, DNV C IEC 60068-2-6, DNV A IACS E10
Shock	50 g, 11 ms, half sine Tested with 3 impacts in each direction in all 3 axes. A total of 18 impacts per test.	IEC 60068-2-27, test Ea
Bump	25 g, 6 ms, half sine 1,000 bumps in each direction. 2 directions in each axis. A total of 6,000 bumps.	IEC 60068-2-27, test Ea

Technical specifications		
EMC/CE	Electromagnetic compatibility (EMC)	EN 61000-6-1/2/3/4
	Electrostatic discharge (ESD): Contact: 7.2 kV Air: 9.6 kV	EN 61000-4-2
	Radiated E-field emission: 30 to 230 MHz: 40 dB (µV/m) 230 to 1,000 MHz: 47 dB (µV/m) 1 to 3 GHz: 70 dB (µV/m) peak 1 to 3 GHz: 50 dB (µV/m) average 3 to 6 GHz: 74 dB (µV/m) peak 3 to 6 GHz: 54 dB (µV/m) average	IEC 61000-6-3 (not PCM5-2), IEC 61000-6-4, IEC 60255-26
	Conducted emission:	IEC 60255-26
	Fast transients (burst): Power: 2.4 kV _p Signal: 1.2 kV _p	IEC 60255-22-4, GL, LR, DNV, EN 61000-4-4
	Slow transients (surge): AC power: DM 2 kV _p , CM 4 kV _p DC power: DM 1 kV _p , CM 2 kV _p Signal and I/O: DM 1 kV _p , CM 2 kV _p Frequency input: DM 1 kV _p , CM 1.2 kV _p	IACS E10, IEC60533, EN 60945, IEC 60255-26, EN 61000-4-5
	RF E-field (electric) immunity: 80 to 2,000 MHz: 12 V/m 2 to 3 GHz: 10 V/m	IEC 60255-26, EN60945, GL, LR, BV, DNV, EN 61000-4-3
	RF conducted immunity 0.15 to 80 MHz: 12 V _{RMS} Power frequency H-field (magnetic) immunity: Field: 400 A/m	IEC 60255-26, EN 60945, GL, LR, BV, DNV, EN 61000-4-6 IEC 60051, EN 61000-4-8
Safety	Installation (over-voltage) category III, 600 V, pollution degree 2.	EN 61010-1
Protection class	IP30	IEC/EN 60529
Material	Aluminium case and cover plates. All plastic parts are self-extinguishing.	UL94 (V1)
UL/cUL Listing	UL applications: Maximum surrounding temperature 60 °C. Use min. 75/90 °C copper conductors only. Terminal tightening torque 5-7 lb-in or equivalent. Use AWG 30-12 or equivalent wire size. To be installed in accordance with the NEC (United States) or the CEC (Canada).	UL/cUL Listed to UL508 & CSA C22.2 No. 142-M1987

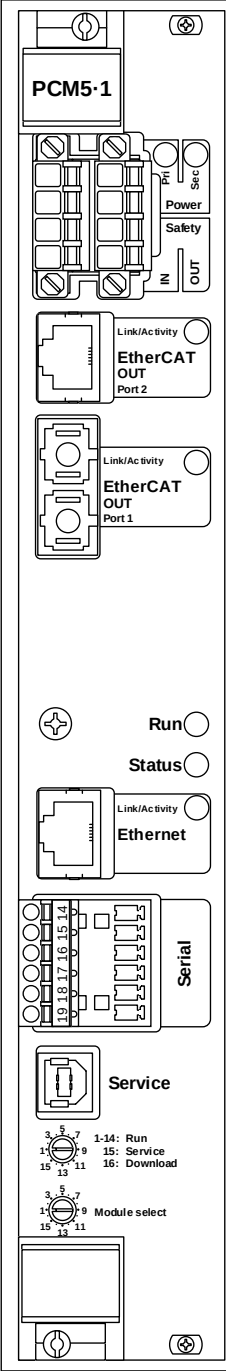
2. Power and Control Modules

2.1 PCM5-1 module specifications

DEPRECATED, use PCM5-2. The PCM5-1 module offers a powerful CPU for C/C++ and CODESYS applications.

Power and control module		
 The image shows the front panel of the PCM5-1 module. It includes a power switch at the top left, a power indicator LED, and a power terminal block. Below these are two Ethernet ports labeled 'EtherCAT OUT Port 2' and 'EtherCAT OUT Port 1'. There are also two RS-485 ports labeled 'Link/Activity' and 'EtherCAT OUT'. A USB port is located below the Ethernet ports. At the bottom, there is a 'Service' section with a 'Module select' switch and a 'Run' button. The module is labeled 'PCM5-1' at the top.	Power	50 W internal power supply with redundant inputs and 50 ms full rack power fail protection and internal safe-shutdown UPS Supporting direct battery and/or UPS supply Input level: 24 V, +50 %, -25 % (18 to 36 V)
	Safety	Input (IN): High: 9 to 36 V or -9 to -36 V with reference to common Low: 5 to -5 V with reference to common Impedance: Approximately 4 kΩ Isolation: Optically isolated from other potentials, 550 V 50 Hz Output (OUT): Digital relay output, 24 V, maximum 1 A resistive
	Interfaces	1 x EtherCAT® OUT (Port 2), electrical: 100Base-TX, 8P8C ("RJ45"), shielded Cat 5, >0.76 µm gold plating 1 x EtherCAT® OUT (Port 1), optical: 100Base-FX, SC connectors, multimode fibre 62.5 µm, OM1 1 x Ethernet port (Ethernet): 100Base-TX, 8P8C ("RJ45"), shielded Cat 5, >0.76 µm gold plating 1 x RS-422 port: ANSI/TIA/EIA-422-B: 4.8 to 460.8 kbit/s (full duplex)
	Service	USB 2.0, console on virtual COM port, 115.2 kbit/s (8/N/1), no flow control
	Processor	333 MHz industrial grade 32 bit PowerQUICC II Pro CPU supporting 1 ms control loop
	Operating system	Embedded real-time DEIF OS based on Linux. Fail-safe remote OS and I/O firmware update. Power fail-safe, self-monitoring and error-correcting file system. Start-up time: <10 s (from power on to customer application start-up).
	PLC run-time	CODESYS version 3 (optional)
	Memory	Industrial grade DDR2 RAM: 128 MB
	Storage	Application and data storage, non-volatile: Industrial grade NAND: 128 MB Industrial grade FRAM: 128 kB (power loss protected)
	Storage (removable)	Industrial grade SD card: 512 MB, 2, 4, 8, 16 GB (optional)
	Programming	ANSI C/C++ IEC 61131-3 (IL, SFC, FBD, ST, LD) (optional)
	Size	8 TE (40.64 mm)
	Power consumption	Maximum 7 W

2.1.1 PCM5-1 wiring

	
Power input	Primary input 6+ Supply 7- Supply Secondary input 10+ Supply 11- Supply
Safety	Digital input 8PNP/NPN 9+/- -/+ Relay output 12+ Supply 13- Supply
EtherCAT	EtherCAT OUT 8P8C ("RJ45") connector, shielded Cat5, >0.76 μm gold plating EtherCAT OUT SC duplex connector, multimode fibre 62.5 μm, OM1
Ethernet	8P8C ("RJ45") connector, shielded Cat5, >0.76 μm gold plating
Serial	RS-422* 14Rx D - A 15RS-422 GND (optional) 16Rx D - B 17Tx D - A 18RS-422 GND 19Tx D - B * Bias and end resistor configurable in software
Service interface	USB Standard-B plug

2.1.2 PCM5-1 terminal specifications

	Terminal	Description
1	ECAT OUT P1	EtherCAT OUT Port 1
2	ECAT OUT P2	EtherCAT OUT Port 2
3	-	-
4	Ethernet	Ethernet
5	Service	USB Service interface
6	Power supply + (Pri)	Primary power supply input, 24 V
7	Power supply - (Pri)	Primary power supply input, GND
8	Safety IN	Safety chain digital input
9	Safety IN	Safety chain digital input
10	Power supply + (Sec)	Secondary power supply input, 24 V
11	Power supply - (Sec)	Secondary power supply input, GND
12	Safety OUT	Safety chain relay output
13	Safety OUT	Safety chain relay output
14	Rx-A	RS-422 positive receive signal
15	Rx GND	RS-422 receive shield
16	Rx-B	RS-422 negative receive signal
17	Tx-A	RS-422 positive transmit signal
18	Tx GND	RS-422 transmit shield
19	Tx-B	RS-422 negative transmit signal