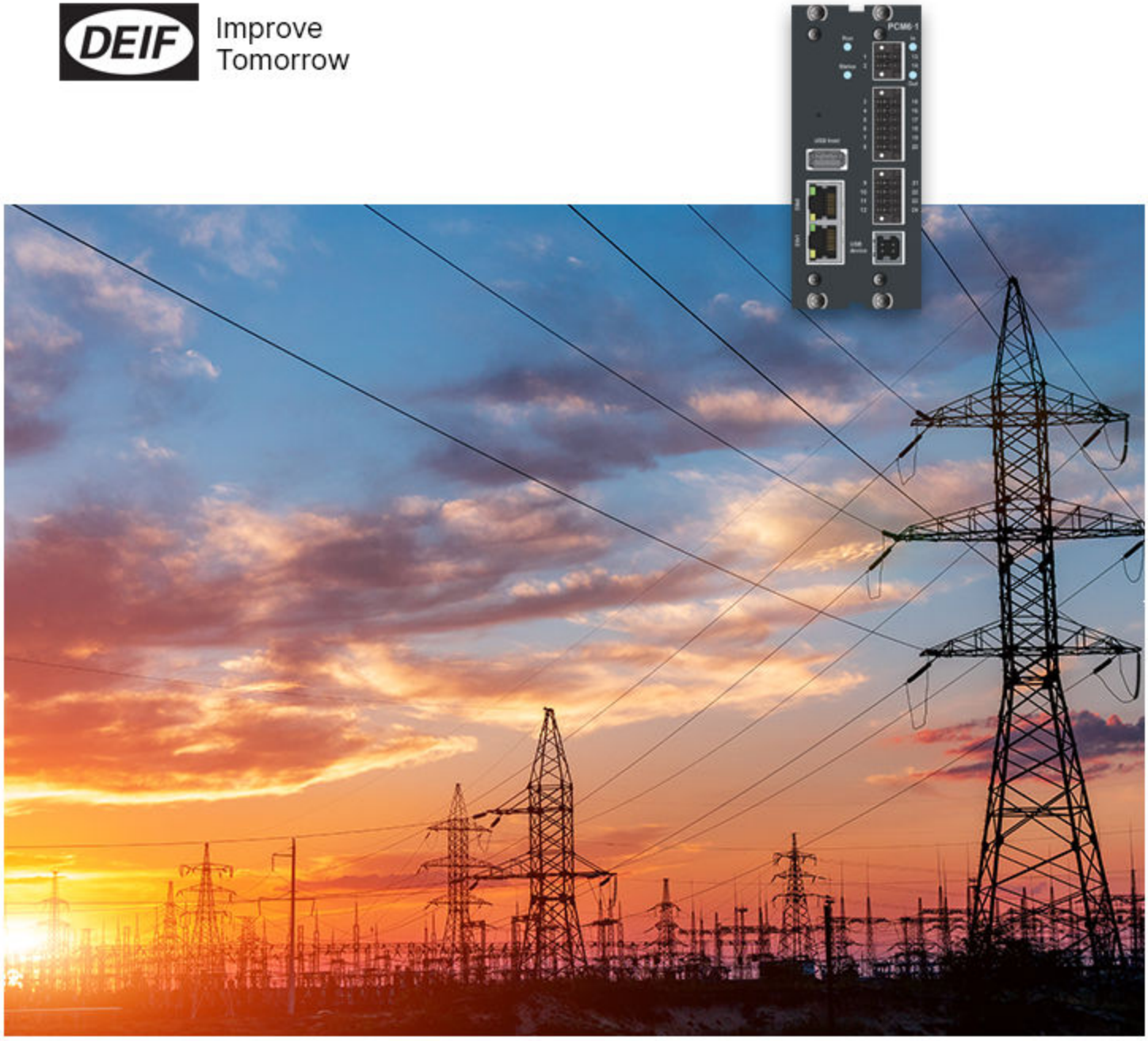
PCM6·1

4921240700A

Computer module

Data sheet

DEIF Improve Tomorrow



1. About the 600 series

1.1 About the hardware modules

The 600 series is a PLC-based programmable automation controller (PAC) suitable for land, marine, and wind power control applications. It is class approved, designed to marine specifications and can withstand very harsh operating conditions.

The controller is a highly flexible, modular PLC and I/O system that is designed for usage across a wide range of industrial applications. It is reliable, robust and flexible.

EtherCAT is used as native communication protocol both as the backplane communication and as interconnection between multiple 600 series racks via electrical or fibre optical connections. Other DEIF EtherCAT I/O modules or third party EtherCAT I/O modules can also be connected.

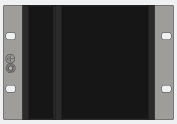
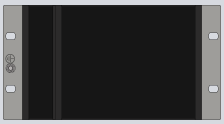
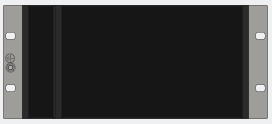
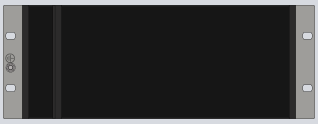
The hardware modules feature:

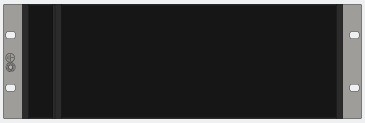
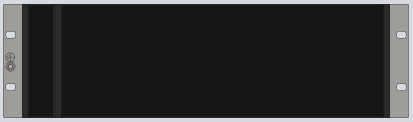
- Placement flexibility in the rack.
- Remove, replace, or add on-site.
- Automatically recognised.
- Configurable input and output functions (digital and analogue):
  - Digital input functions: Commands from operators or 3rd party equipment, changing configuration, operating information.
  - Digital output functions: Alarm status, commands to 3rd party equipment, operating information.
  - Analogue input functions: External set points, operating information, supervised binary inputs.
  - Analogue output functions: Operating information.

NOTE All slots must be covered during operation and blind modules can be used to cover unused slots.

Rack sizes

The controller rack is available in six different sizes:

Rack	Slots	Ground plate dimensions HxDxW (mm)	Weight (g)	Rack
Rack6·4	4	122.0 x 113.9 x 182.4	715	
Rack6·6	6	122.0 x 113.9 x 233.2	870	
Rack6·8	8	122.0 x 113.9 x 284.4	1020	
Rack6·10	10	122.0 x 113.9 x 334.8	1175	

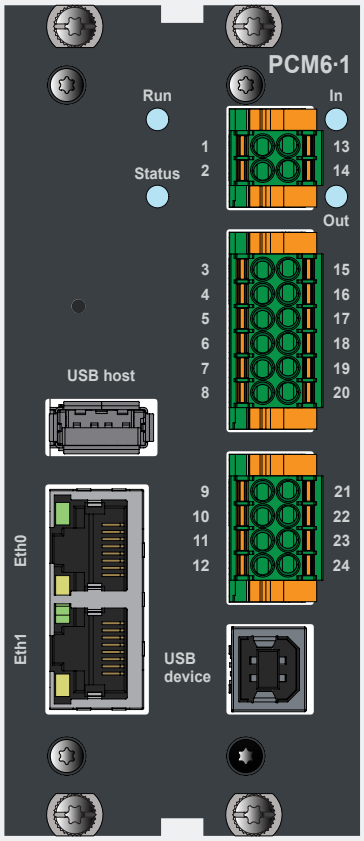
Rack	Slots	Ground plate dimensions HxDxW (mm)	Weight (g)	Rack
Rack6·12	12	122.0 x 113.9 x 385.6	1335	
Rack6·14	14	122.0 x 113.9 x 436.4	1500	

2. Technical specifications

2.1 PCM6·1 computer module specifications

The PCM6·1 module offers a powerful dual core 1.2 GHz CPU, well suited for demanding C/C++ and CODESYS applications.

Computer module



Power supply	From backplane
Backplane interfaces	1 x EtherCAT OUT (Port 1) – LVDS 1 x EtherCAT OUT (Port 2) – LVDS
Digital input (In)	High: 13 to 30 V Low: -30 to +5 V with reference to common Load: Typically, 6 mA (Vin > 7 V) Isolation: Optically isolated from other potentials, 500 V DC
Digital output (Out)	Solid State Relay with external watchdog, 24 V, maximum 1 A resistive
Interface, Ethernet	2 x Ethernet (Eth1 and Eth2): 1000BASE-T, 8P8C (“RJ45”), shielded Cat 5e, >0.76 µm gold plating
Interface, CAN	2 x CAN (CAN 1, CAN 2): ISO 11898, shielded twisted copper cable, 50 to 1,000 kbit/s, software controllable 120 Ω termination resistor
Interface, UART	2 x RS-422/485 (COM1, COM2) : ANSI/TIA/EIA-422-B and TIA/EIA-485, shielded twisted copper cable 4.8 to 921.6 kbit/s (full duplex), software controllable 120 Ω termination resistor and 500 Ω bias resistor
Processor	1.2 GHz dual-core industrial grade ARM Cortex-A7 32 bit CPU (ARMv7) with ECC protected cache
Operating system	DEIF OS, based on real-time embedded Linux® Fail-safe remote SW update Power fail-safe, self-monitoring and error-correcting file system (EXT-4)
PLC run-time	CODESYS V3 runtime : CODESYS V3 SP15 or later
Programming	ANSI C/C++ via PCM6·1 SDK and IEC 61131-3 via CODESYS V3 UL/ULC : Make sure Functional testing is part of the end application.
Protocols	See section Supported software features
Memory	1 GB DDR3 RAM 64 bit ECC protected Industrial grade
Internal storage	Non-volatile data storage: 4 GB industrial grade flash (pseudo SLC mode)
Persistent storage	128 kB user available from CODESYS (requires PDM6·2 power supply for hold-up)
Real-Time Clock (RTC) battery	Real-time clock with replaceable coin-cell battery (replacement recommended every 5 years). CR2430 3V battery, rated for operation at -40 to 85 °C (-40 to 185 °F). This is not a standard CR2430 battery. The CR2430 battery is an available accessory. Contact DEIF for ordering.
USB host	USB 3.0, Mass Storage Class
USB device	USB 2.0, console on virtual COM port, 115.2 kbit/s (D:8,S:1,P:N,F:N)
Weight	292 g (incl. connectors)
Power consumption	Max 16.6 W, hereof 5.6 W reserved for USB3.0 host

Computer module	
Connector, grip (included by default)	2 x 2 terminals: 1790483 2 x 6 terminals: 1790522 2 x 4 terminals: 1790506
Connector, screw	2 x 2 terminals: 1790292 2 x 6 terminals: 1790331 2 x 4 terminals: 1790315

LED specifications

Run LED		Description
OFF		Initialisation.
Green blinking		Pre-operational.
Single green blink		Safe-operational.
Green		Operational.
Green flickering		Boot loader.

Status LED		Description
OFF		Off.
Red		Booting.
Red flickering		Push the reset button to reset PCM6·1. The module resets in rescue mode. Push and hold the reset button to perform a factory reset.
Orange flickering		Factory reset in progress.
Orange		Initialisation.
Orange blinking		Rescue mode.
Green flickering		Updating with an update file (.dupdate).
Single green blink		Application mode is not enabled.
Green blinking		Initialisation.
Green		In operation.

In LED		Description
OFF		The digital input is not activate.
Green		The digital input is activate.

Out LED		Description
OFF		The digital output is not activate.
Green		The digital output is activate.

Ethernet

The two independent Ethernet ports Eth0 and Eth1 are connected directly to the CPU module. They are configured via the System web page. The use case is, for example, as a gateway between upper plant-wide network segments and local network segments. Both Ethernet ports have broadcast storm filters enabled. These protect the real-time capabilities of the CPU.

More information
See **Communication protocols** in the Supported software features section for details about the supported Ethernet protocols, for example Modbus TCP, OPC UA, and PROFINET.

CAN

The two independent CAN ports provide CAN (layer II) support. CANopen Master/Slave communication is done using the CODESYS protocol stacks. The ports are configured using the CODESYS applications. The applications also provide the CAN layer II and CANopen Master/Slave protocol stacks. Enable the termination resistors using the software, mapped to the Linux device interface.

UART

The two UART serial ports can be configured as RS-422 or RS-485. Enable the termination and bias resistors using the software, mapped to the Linux device interface.

USB host

The host supports the connection of USB 3.0 mass storage devices. Use the Linux operating system to add support for other USB devices.

2.2 Supported software features

Software	AMC 600 Linux SDK	AMC 600 CODESYS (with Web visualization)
PLC runtime	-	CODESYS V3.5 SP18+
Programming		
IEC61131-3	-	LD, SFC, FBD, CFC, ST
	-	CODESYS V3.5 SP18+ IDE
C/C++	ANSI C/C++	Yes, as External Implemented libraries components and Components (.so files)
Network protocols		
	File Transfer Protocol (FTP), server and client (disabled by default)	
	Secure/SSH File Transfer Protocol (SFTP), server	
	Trivial File Transfer Protocol (TFTP), client	
	Secure Copy (SCP), server and client	
	Secure Shell (SSH), version 2, server and client	
	Network Time Protocol (NTP), client	
	Dynamic Host Configuration Protocol (DHCP), client	
	Access to cUrl from Linux OS	
Visualisation		
	HTML5/Javascript via build-in webservers	CODESYS Web visualisation
System Configuration		
	Webbased system configuration for IP address (static/dynamic), host name, change root, operator, admin, service user passwords, system information etc.	

Software	AMC 600 Linux SDK	AMC 600 CODESYS (with Web visualization)
Device handling	See separate Application Note https://docs.deif.com/secure/linux-sdk-examples/interface-local-io-pcm61-via-ethercat-vscode/index.html	CODESYS Device handling (EtherCAT Master, CANOpen Manager, Profibus Master etc.)
Configuration		
Visualisation designer		CODESYS V3.5 visualisation
Scope/trace		Scope/trace
HMI visualisation tool		CODESYS web visualisation
		Panel PC and remote HMI client (communication via HTTPS) Requires: Browser with HTML5/JavaScript support, such as Chrome, Firefox, Safari, Edge, and more
Controller redundancy	-	Yes - CODESYS Controller Redundancy (Option)

Communication protocols

Software	AMC 600 Linux SDK	AMC 600 CODESYS (with Web visualization)
OPC UA Server	-	Yes - CODESYS OPC UA Server
OPC UA Client	-	Yes - CODESYS OPC UA Client via Single License (purchase separately from CODESYS Store)
Modbus TCP Server	-	Yes - Modbus TCP Server (CODESYS) libModbus (DEIF)
Modbus TCP Client	-	Yes - Modbus TCP Server (CODESYS) libModbus (DEIF)
Modbus RTU Master	-	Yes - Modbus TCP Server (CODESYS) libModbus (DEIF)
Modbus RTU Slave	-	Yes - Modbus RTU Slave (CODESYS)
EtherCAT Master	Yes	Yes - EtherCAT Master (CODESYS)
CAN Layer II	-	Yes - via CODESYS library
CANopen Master	-	Yes - CANopen Master (CODESYS)
CANopen Slave	-	Yes - CANopen Slave (CODESYS)
PROFINET V2.3 Class A RT CONTROLLER	-	Yes - (CODESYS)
PROFINET V2.3 Class A RT DEVICE	-	Yes - (CODESYS)
Others		On request or via CODESYS Single License

3. Legal information

3.1 Disclaimer and copyright

Third party equipment

DEIF takes no responsibility for the installation or operation of any third party equipment, for example, a **genset**. Contact the **manufacturer** or third party equipment company if you have any doubt about how to install or operate the third party equipment.

Open source software

This product contains open source software licensed under, for example, the GNU General Public License (GNU GPL) and GNU Lesser General Public License (GNU LGPL). The source code for this software can be obtained by contacting DEIF at support@deif.com. DEIF reserves the right to charge for the cost of the service.

General warranty

The warranty period for the purchased product is defined in the contract and order acknowledgement. In general, DEIF's Terms and Conditions of Sale and Delivery apply.

The product continuously monitors the operating temperature and stores this information in a log file on the device. DEIF uses this information for service purpose and to validate if issues with the product are covered by the warranty.

The software packages supplied are believed to be of the highest quality. Due to the nature of the software development process, it is possible that there are hidden defects in the software which may affect its use, or the operation of any software or device developed with this software package.

DEIF does not undertake responsibility for determining whether this package is suitable for the application, nor for ensuring the correct operation of the application software and hardware.

The warranty does not cover product wear parts, such as:

- Internal flash disc
- If applicable, SD card (purchased separately)
- Replaceable coil-cell battery, used for the real-time clock (available as a spare part)

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