PCM6·2

4921240701-B

Computer module

Data sheet

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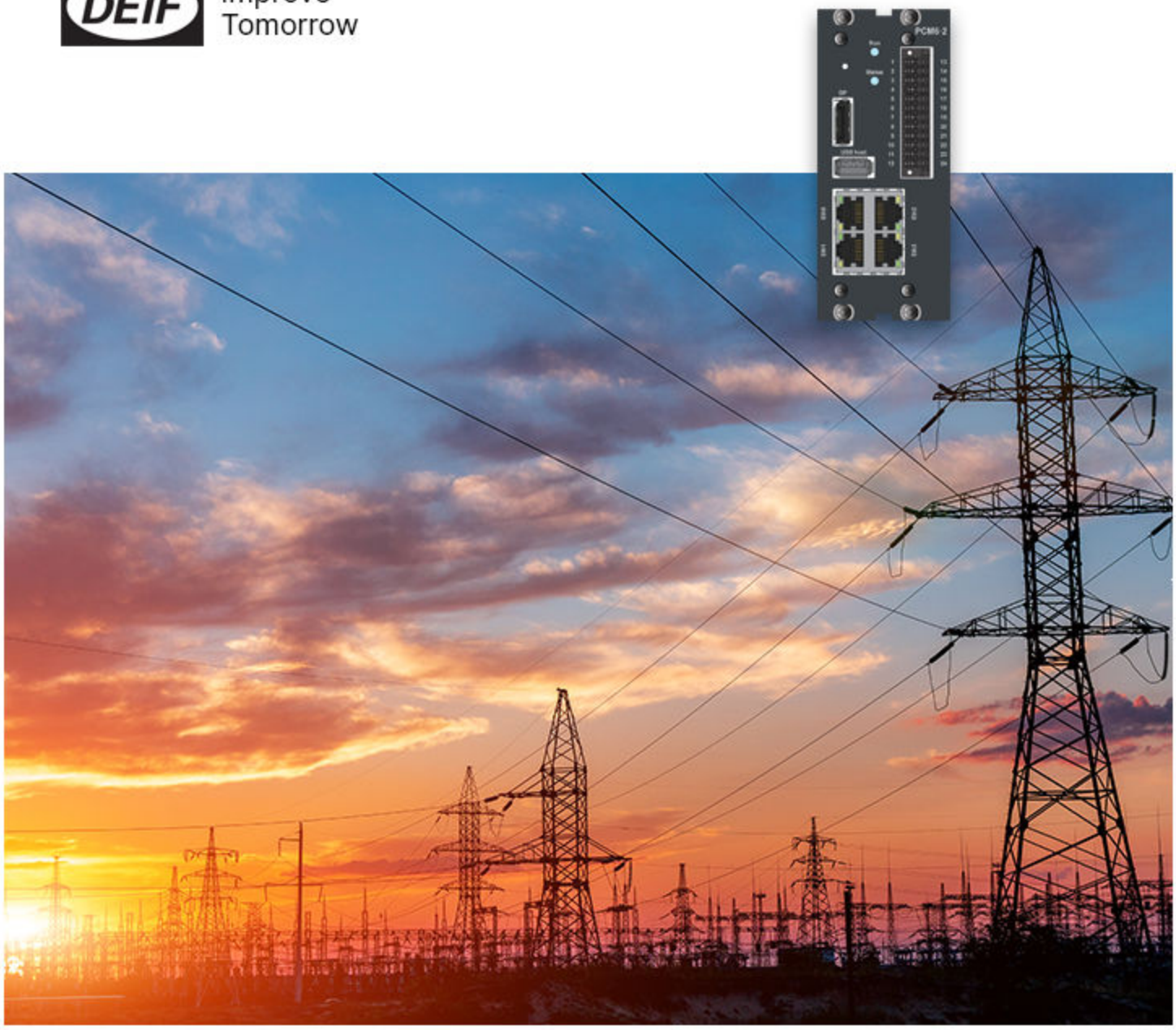


1. About the 600 series

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.

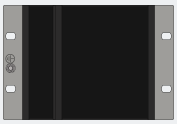
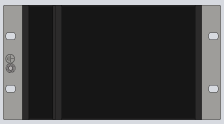
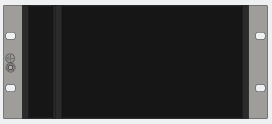
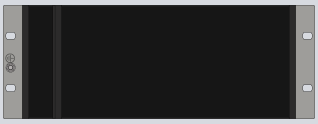
The hardware modules feature:

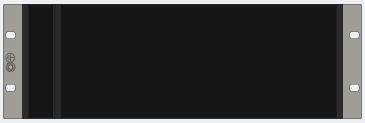
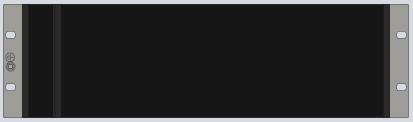
- Placement flexibility in the rack.
- Remove, replace, or add on-site.
- Automatically recognised.
- Configurable input and output functions (digital and analogue):
  - Digital input functions: Commands from operators or 3rd party equipment, changing configuration, operating information.
  - Digital 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 PCM6·2 computer module specifications

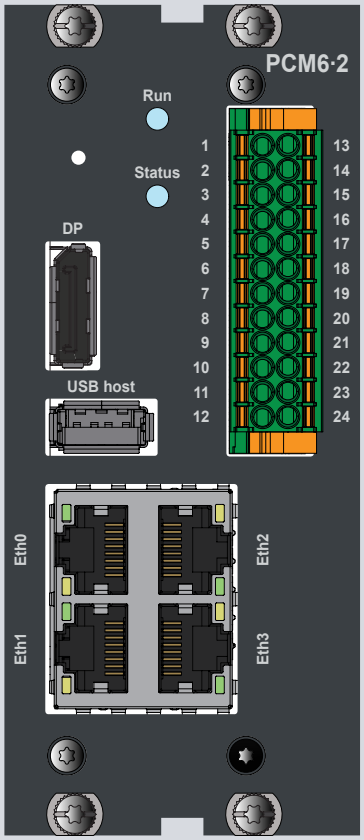
NOTE Order this module as an **iE 650 PLC**.

The PCM6·2 module comes with a powerful 1.6 GHz quad-core (64 bit) CPU, well suited for demanding C/C++ and CODESYS applications. Use the network functions for energy and power applications, for example, wind turbines, power parks, hybrid solutions, and battery storage.

The module has a 1 Gbps TSN network interface port for power management networks that are plant-wide and real-time. The module also features a managed 10/100 Mbps switch with 3 ports for local networks.

The DisplayPort connector allows you to connect standard LED/LCD monitors. CAN/CANopen and RS-422/485 connections are available as on-module interfaces using the common snap-locked (or screw-locked) connector.

Computer module



Power supply	From backplane using PDM6·1 module or PDM6·2 module
Backplane interfaces	1 x EtherCAT OUT (Port 1) – LVDS 1 x EtherCAT OUT (Port 2) – LVDS
Digital input (In)	1 x DI 24 V DC 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)	1 x DO 24 V DC Solid State Relay with external watchdog, 24 V, maximum 1 A resistive
Ethernet	1 x Ethernet with TSN support (Eth0): 100/1000BASE-T, 8P8C (“RJ45”), shielded Cat5e, gold plating 3 x Ethernet, managed switches (Eth1, Eth2, Eth3): 10/100BASE-T, 8P8C ("RJ45"), shielded Cat5e, gold plating
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
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
Display port	1 x DisplayPort (DP) v1.3 1080 p (full-size connector)
USB host	1 x USB 3.0 (Type-A connector), mass storage class power, delivery up to 4.5 W
LED	RUN: Green, EtherCAT in operation STATUS: Red/Blue/Green, software controllable
Pin-hole switch	Factory reset or provisioning of module (software configurable)
Processor	1.6 GHz quad-core industrial grade ARMv8 64 bit CPU with ECC protected cache
Memory	4 GB LPDDR4 with inline Error Code Correction (ECC)

Computer module	
Internal storage	32 GB 3D TLC NAND flash running in pseudo SLC mode. ~8 GB available for user application data
Persistent storage	128 kB user available from CODESYS (256 kB FRAM installed)
Expandable storage	MicroSD slot: High speed (max. 25 MB/s). The MicroSD slot is accessible when the PCM6·2 is not mounted in the rack.
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.
Cooling	Passive
Temperature	CPU junction temperature measurement Software reset when the CPU temperature is too high
Operating system	GNU/Linux customized with PREEMPT real-time patch and system drivers C/C++ and CODESYS applications operate in user space mode Fail-safe remote SW update Power fail-safe, self-monitoring and error correcting file system (EXT-4)
System configuration	On-device, web-based configuration System information Host name configuration: The serial number is the default User access management: Operator, service, or administrator. Rights and credentials. Switch configuration: IPv4 address (static/dynamic) Fail-safe software update method (active / fall-back OS image) Simplified update procedures: No special tools, and the procedure is the same for OS and firmware Secure certificate-based access using standard protocols
System network protocols	• Secure/SSH File Transfer Protocol (SFTP), server • Secure Shell (SSH) TLS1.2 and TLS1.3 server and client • Network Time Protocol (NTP), client • Dynamic Host Configuration Protocol (DHCP), client • EtherCAT master (native for C/C++ applications/system network scan)
PLC run-time	CODESYS V3 runtime : CODESYS V3 SP18 or later
Programming	IEC 61131-3: LD, SFC, FBD, CFC, ST (CODESYS V3.5 SP18+ IDE) ANSI C/C: + ANSI C/C using Linux SDK Python: As containerised software component
Visualisation	CODESYS web visualisation
Application protocols	See section Support software features
Size	50.80 mm (2 slots)
Weight	241 g (incl. connectors)
Power consumption	Max 17.5 W, hereof 5.6 W reserved for USB3.0 host
Connector, grip (included by default)	2 x 12 terminals: DFMC 1.5/12-ST-3.5-LR – 1790580
Connector, screw	2 x 12 terminals: DFMC 1.5/12-STF-3.5 – 1790399

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.
Green		Normal operation

Ethernet

The CPU module can be used as a gateway between the network segments for plant-wide power management and the local network segments. To do this, two independent network interfaces must be made. Eth0 is an Ethernet port connected directly to the CPU, and Ethernet ports Eth1, Eth2, and Eth3 are connected to the CPU using a managed switch. The Eth0 port supports TSN on hardware level.

The module also supports PROFINET controllers (master) and PROFINET devices (slave) with CODESYS stacks.

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.

DisplayPort

The DisplayPort connector standard for the graphical display port supports LED/LCD monitors. The standard is very robust in on-site operations in comparison to other commodity standards.

NOTICE

External third-party non-DEIF displays

External third-party non-DEIF displays should be configured to fixed DisplayPort input mode instead of Automatic detection.

USB host

The USB host is needed to export data, log files, and so on. 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	Linux SDK	CODESYS (with Web visualization)
PLC runtime	-	CODESYS V3.5 SP18+
Programming		
IEC61131-3	-	LD, SFC, FBD, CFC, ST
	-	CODESYS V3.5 SP18+ IDE
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	
Visualisation		
		CODESYS Web visualisation
System Configuration		
	Webbased system configuration for IP address (static/dynamic), operator, admin, system information etc.	
Device handling		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

Communication protocols

Software	Linux SDK	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)

Software	Linux SDK	CODESYS (with Web visualization)
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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