PCM3.3

4921240654A

Processor and communication module

Data sheet

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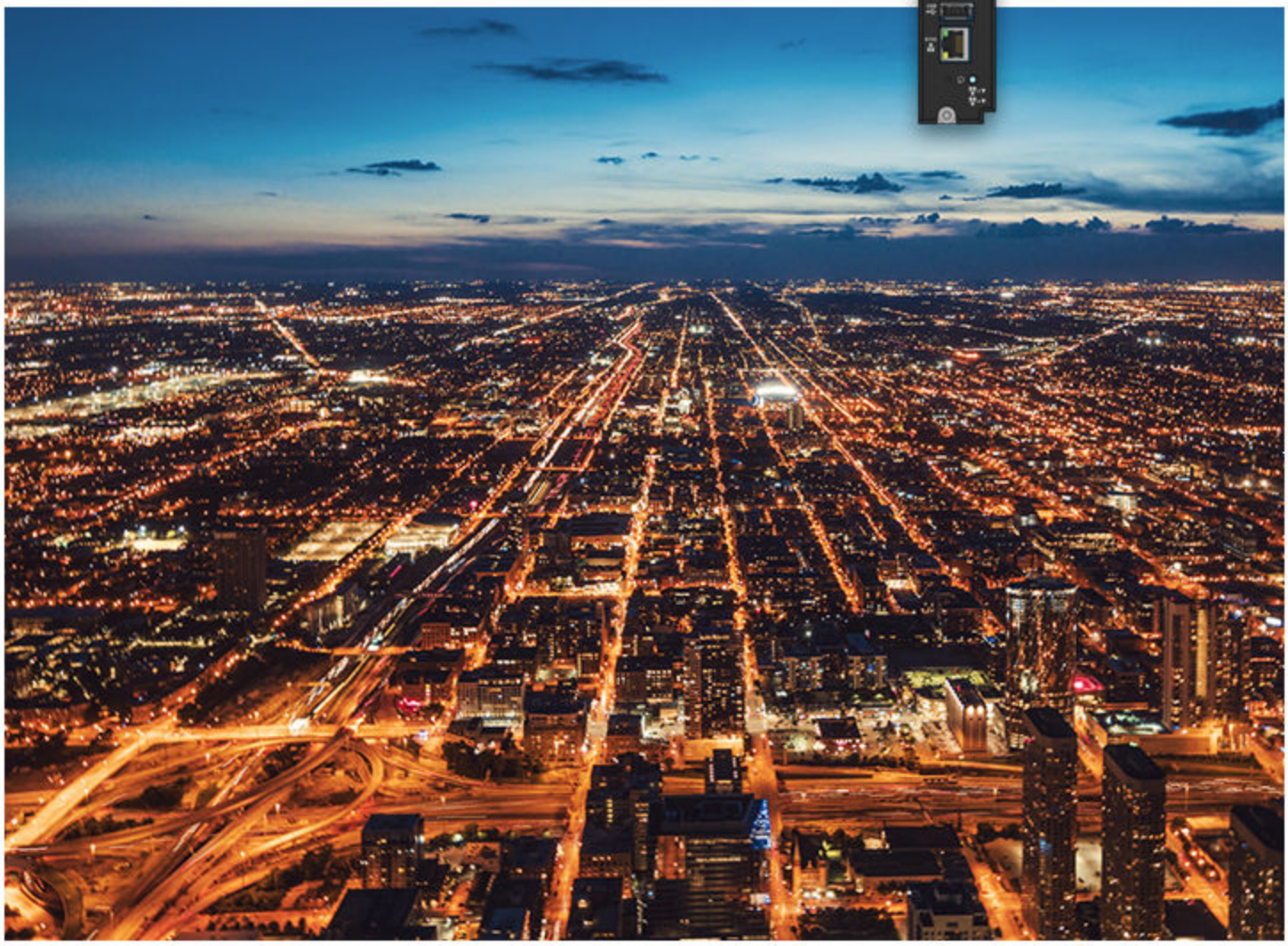
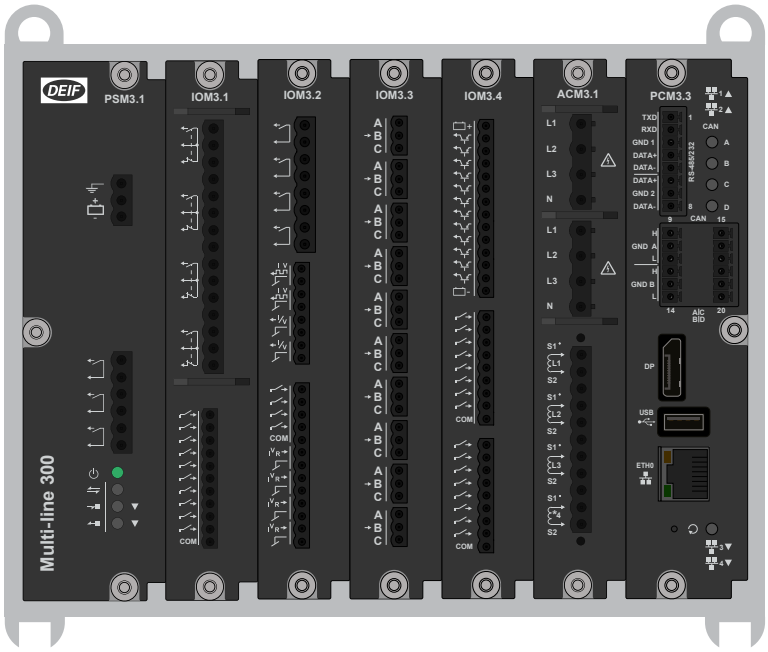


1. Multi-line 300

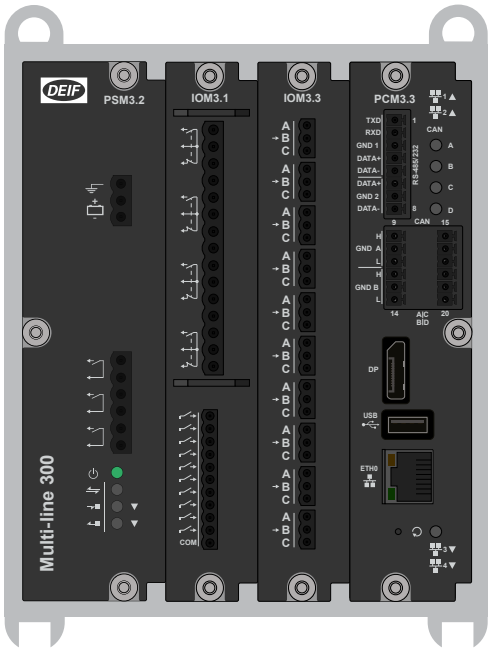
1.1 About the hardware modules

The hardware modules are printed circuit boards that slot in to either a rack R7.1 or rack R4.1. Depending on the type of module, they can provide AC or other measurements, inputs, outputs and give communication indication.

Example rack R7.1



Example rack R4.1



The hardware modules feature:

- Placement flexibility in the rack.
- Add, replace, or remove on-site.

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

2. Technical specifications

2.1 Processor and communication module PCM3.3

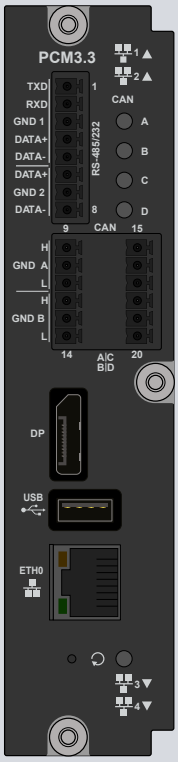
The PCM3.3 module offers a powerful quad core 1.6 GHz 64 bit CPU, well suited for high-end C/C++ * and CODESYS applications, data logging for power management or power control applications. The module provides a 100 Mbps Ethernet network interface (prepared for TSN) for real-time power plant management network and 4 managed switched 10/100 Mbps network interfaces for local network. CAN/CANopen connectivity are provided as on-module interfaces. The DisplayPort connector allows connection of standard LED/LCD monitors for graphical visualization (up to 1080p).

PCM3.3 has 4 x CAN ports and 1 x RS-232/485 port and 1 x RS-485 port for serial bus connectivity. It has a *Self-check OK* LED.

By default the module is provided with screw terminals.

NOTE * Contact DEIF for availability.

PCM3.3 terminals

Module	Count	Symbol	LED	Type	Name
	5	ETH0 1 to 4	**Off** : No communication **Green** : Communication connected **Green flash** : Active communication	Ethernet (RJ45)	Two connections at the top of the hardware module, one on the front, and two at the bottom.
	1		**Off** : Self-check not OK **Green** : Self-check OK		
	1	USB		USB host (Type-A)	
	1	DP		DisplayPort (DP full size)	
	4	H, GND A to D, L	**Off** : No communication **Green** : CAN connected	CAN port	CAN bus
	1	COM 1		RS-232/485 port	
	1	COM 2		RS-485 port	

PCM3.3 technical specifications

Power supply and backplane	
Power supply	From backplane via PSM3.x module.
Backplane interfaces	1x EtherCAT OUT (Port 1) - LVDS. 1x EtherCAT OUT (Port 2) - LVDS.

Interfaces	
Ethernet	1 x Ethernet (ETH 0) (prepared for TSN support) : 100/100BASE-T, 8P8C (RJ45), shielded Cat5e, >0.76 µm gold plating.

Interfaces	
	4 x Ethernet, Managed Switch (ETH 1 to 4): 10/100BASE-T, 8P8C (RJ45), shielded Cat5e, >0.76 µm gold plating.
CAN	4 x CAN (CAN 1 to 4): ISO 11898, shielded twisted copper cable, 50 to 1,000 kbit/s, selectable termination resistors.
UART	**COM 1 and COM 2:** 2(1) x RS-485 (COM 1, COM 2): TIA/EIA-485 shielded twisted copper cable 4.8 to 921.6 kbit/s (half duplex) **COM 1 only:** 1 x RS-232 (COM 1): TIA/EIA-232E shielded copper cable 4.8 to 115.2 kbit/s (full duplex)
DisplayPort	1 x DisplayPort(DP) 1.3 1080p (Full-size connector). External third-party non-DEIF displays should be configured to Input mode instead of Automatic detection.
USB Host	1x USB 3.0 (Type-A connector), Mass Storage Class. Power delivery up to 4.5 W.
LED	See terminals.
Pin-hole switch	Factory Reset Provisioning of module (Software configurable). **

CPU	
Processor	1.6 GHz Quad-core industrial grade ARMv8 64 bit CPU with ECC protected cache.
Memory	2 GB LPDDR4.
Internal storage	32 GB 3D TLC NAND flash running in pseudo SLC mode. 7 GB available for user application data.
Persistent storage	128 kB user available from CODESYS (256 kB FRAM installed).
Real-Time Clock (RTC) battery	Real time clock with replaceable coin-cell battery. 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.
Other features	CPU junction temperature measurement. Software reset on high CPU temperature.

Other	
Dimensions	L×H×D: 36.8 × 162 × 142 mm (1.44 × 6.37 × 5.59 in)
Weight	~ 226 g (0.49 lb)
Power consumption	~ 16 W, hereof 5.6 W reserved for USB3.0 host
Torques and terminals	Module faceplate screws: 0.5 N·m (4.4 lb-in). Connection of wiring to terminals: 0.5 N·m (4.4 lb-in). UL/ULC Listed: Wiring must be minimum 90 °C (194 °F) copper conductors only.
Ingress protection	**Unmounted:** No protection rating **Mounted in rack:** IP20 according to IEC/EN 60529

Software	
Operating system	DEIF In-house maintained operating system (BSPv5). Real-time patched Linux®. GNU/Linux customized with PREEMPT realtime patch and system drivers.

Software	
	C/C++ * and CODESYS applications are running in userspace mode. Fail-safe system software start up with two OS images (active and fault-back) Power fail-safe, self-monitoring and error correcting file system. Secure boot (Chain-of-trust).
Cybersecurity	Conforming to IACS UR E27 Connections to untrusted networks may require additional equipment or security counter-measures not included in the product.
System configuration	On-device web-based configuration. System information. Simplified update procedures (no special tools, same for OS and firmware). User access management (Multiuser access), rights and credentials. Network configuration of the build-in 4 port managed switch (VLAN). IPv4 and IPv6 support (static/dynamic). Network Time protocol support as Client. Discover the device via hostname (mDNS services). Device configuration backup and restore.
System network protocols	Network Time Protocol (NTP), server and client. Dynamic Host Configuration Protocol (DHCP), client. IGH Master (Native for C/C++ applications * / System network scan). **

Programming (iE 350 PLC)	
PLC run-time	CODESYS V3 runtime: CODESYS V3.5 SP 18. iE 350 LAND / MARINE (CODESYS Single Core support), iE 350 PLC (CODESYS Multi Core support).
Programming languages	**IEC61131-3:** LD, SFC, FBD, ST (CODESYS V3.5 SP18+ IDE). **ANSI C/C++:** * ANSI C/C++ via Linux SDK. *
Visualisation	CODESYS webvisualisation (Option). WEB-Visu rendering for DisplayPort.
Application protocols	Ethernet: OPC UA Server, OPC UA Client via Single License (CODESYS Store) Modbus TCP Server (CODESYS) Modbus TCP Client (CODESYS) PROFINET V2.3 Class A RT CONTROLLER (CODESYS) PROFINET V2.3 Class A RT DEVICE (CODESYS) HTTPS/WSS/JSON (CVI DEIF component) *** OPC UA Server (Open62541 - DEIF component) Modbus TCP Server (libModbus - DEIF Component) Modbus TCP Client (libModbus - DEIF component) Fieldbuses: EtherCAT master(CODESYS) CANOpen Client (CODESYS) CANOpen Server (CODESYS) CAN Layer II (via CODESYS library) J1939 (CODESYS) Modbus RTU Client (CODESYS) Modbus RTU Server (CODESYS) Modbus RTU Client (libModbus - DEIF component) **

NOTE * Contact DEIF for availability.
** For future use.

*** Deprecated support.

3. Legal information

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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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