PMC-1316

Communications Gateway

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PMC-1316 Communications Gateway

Overview

PMC-1316 Communications Gateway provides comprehensive connectivity for infrastructure systems. It supports both Transparent Gateway and Protocol Gateway modes supporting connections of a large number of nodes connected at the same time. It offers flexible options to support various communication needs. It provides 2 x independent AC/DC power supply for redundancy and optional 10xDigital Input for Status Monitoring as well as 4xDigital Output for Control and Alarm applications. With support for multiple Industrial Server/Client protocols, such as Modbus RTU/TCP, IEC 61850, DNP 3.0, IEC 60870-5-101/103/104 and so on, the PMC-1316 is ideal for making network integration easy, compatible and convenient in Building Management System, Industrial Automation System, Substation and other applications.

Basic Features

- 2U form factor and 19'' rack-mount chassis, designed for substation and industrial applications
- Dot-matrix backlit LCD for Data Display and Configuration pur-poses
- ARM Cortex A8 microprocessor with 1.0 GHz architecture for high performance computing, with the option of a second PMC-1316 for Active-Standby Redundancy
- Dual independent load-sharing, hot-swappable power supply modules to minimize the risk of power supply failure, and ensure the system reliability with Loss-of-Power (LOP) alarm
- 1GB RAM and 16GB eMMC for mass data storage
- No-fans design with compact and durable metal housing
- Mean Time Between Failure (MTBF) of at least 100,000 hours
- Built-in Web Server for access to real-time data and historical trends of measurements from connected IEDs as well as Gateway Setup, maintenance and other operations
- Transparent Gateway Mode allows the seamless transfer of serial packets between network-based Master applications and downstream serial devices via a direct TCP/IP connection
- Access Control and Firewall to protect incoming/outgoing Ethernet communications
- Options to enable/disable FTP/Telnet/HTTP service
- Supported by CET's PMC-EasyCom for configuration and commissioning

Data Concentration and Management

- Data collection via Ethernet, RS-485/RS-422 or RS-232
  - Maximum 64 downstream devices per serial port
  - Maximum 128 total downstream devices for all Ethernet port (maximum 64 devices per Ethernet port)
  - Modbus RTU/TCP, IEC 60870-5-101/103/104, IEC 61850, DNP 3.0
- Data push to external via Ethernet, RS-485/RS-422 or RS-232
  - Multicast Transmission, up to 8 data cache channels
  - 4096xAI, 4096xDI, 2048xEnergy, 4096xSOE, 1024xAO, 1024xDO
  - Extensive protocols support: Modbus RTU/TCP, IEC 60870-5-101/104, IEC 61850 (maximum 256 logic devices), OPC UA and etc.
  - DNS domain name resolution and Static Routing
  - Resumable Transfer for historical data
  - Support Data Recording and Trend Curve of AI parameters per data cache channel
    - Max. Recording Depth @ 21600
    - Configurable interval from 1 to 60min
    - 15 days @ 1min, 900 days @ 60min
  - IPsec VPN tunnel to protect individual Ethernet session with MD5 authentication and 128-bit AES, DES and 3DES for encryption
- Support virtual devices, as well as performing Logical Operations on virtual data
  - Maximum 128 virtual devices
  - 1024xAI, 1024xDI, 512xEnergy, 64xCustom SOE

Digital Input/Output

- Optional 10xDigital Input, 220VAC/DC External Excitation
- Optional 3xForm A and 1xForm B Mechanical Relays for general purpose control or alarming

Communications

- Serial Port Options:
  - 12xRS-485 + 4xRS-485/422
  - 4xRS-232 + 8xRS-485 + 4xRS-485/422
- Ethernet Port Options:
  - 4x10/100/1000Base-T Gigabit Ethernet ports
  - 8x10/100/1000Base-T Gigabit Ethernet ports
  - 2x10/100/1000Base-T Gigabit Ethernet ports + 2xFiber Optic ports with LC Connectors compatible with external single-mode or multi-mode SFP modules
- An additional 10Base-T/100Base-TX Console Ethernet port on Front Panel for maintenance and commissioning

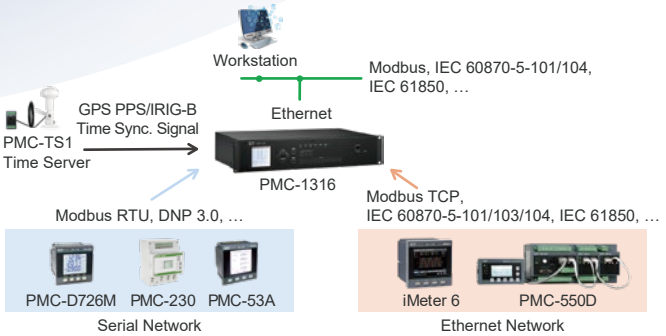
Time Synchronization

- Battery-backed Real-time Clock @ 6ppm (≤0.5s/day)
- Time Sync. with GPS 1PPS/IRIG-B Input or SNTP/Modbus

PMC-EasyCom

- Basic Configuration for Communication, Clock, Data Logging and etc.
- Providing real-time and historical data, communication status, SOE for commissioning
- Driver Installation for downstream devices with supported protocol

Typical Application Diagram



Technical Specifications

Dual Hot-Swappable Power Supply (L/+, N/-)	
Standard	95-250VAC/DC ±10%, 47-440Hz
Burden	<16W
Communications	
RS-485 (P1 to P12)	
Type	3-pin terminal block (D+, D-, SH)
Baud Rate	0.3/0.6/1.2/2.4/4.8/9.6/19.2/38.4 kbps
ESD Protection	IEC 61000-4-2 Class IV (8kV contact discharge, 15kV air discharge)
RS-422/RS-485 (P13 to P16)	
Type	5-pin terminal block (Rx+, Rx-, Tx+/D+, Tx-/D-, SH)
Baud Rate	0.3/0.6/1.2/2.4/4.8/9.6/19.2/38.4 kbps
ESD Protection	IEC 61000-4-2 Class IV (8kV contact discharge, 15kV air discharge)
Optional RS-232 (P1 to P4)	
Type	3-pin terminal block (RxD, TxD, GND)
Baud Rate	0.3/0.6/1.2/2.4/4.8/9.6/19.2/38.4/57.6/115.2 kbps
ESD Protection	IEC 61000-4-2 Class IV (8kV contact discharge, 15kV air discharge)
Ethernet (P17 to P20/P24, Console)	
Connector	RJ45
Speed	10/100/1000Base-T for rear ports 10Base-T/100Base-TX for front Console port
Optional Fiber-optic port (P17 to P18)	
Connector	LC (for use with SFP module)
Speed	100/1000BaseX
Mode	Sing-mode or Multi-mode
Wavelength	1310nm
Max. Distance	2km (Multi-mode) or 20km (Single-mode)
Optional Digital Input (DIC, DI1 to DI9, CSW)	
Standard	220VAC/DC externally excitation
Sampling	1000Hz
Hysteresis	1ms minimum
Optional Digital Output (DO11, DO12, DO21, DO22, DO31, DO32)	
Type	Form A Mechanical Relay
Loading	5A @ 250VAC/30VDC
Optional Alarm Output (Alarm)	
Type	Form B Mechanical Relay
Loading	5A @ 250VAC/30VDC
Loss-of-Power (LOP) Alarm Output (FAIL)	
Type	Form B Mechanical Relay
Loading	5A @ 250VAC / 30VDC
GPS Input (CLK+, CLK-, SH)	
Type	GPS 1PPS, IRIG-B
Accuracy	≤1ms
Galvanic Isolation	
Ethernet/Fiber	1.5kV barriers (Magnetic Isolator)
RS-485/RS-422	3kV barriers (Opto-Isolator)
RS-232	3kV (Capacitive Coupling)
Environmental Conditions	
Operating Temperature	-25°C to +70°C
Storage Temperature	-40°C to +85°C
Humidity	5% to 95% non-condensing
Atmospheric Pressure	70kPa to 106kPa
Mechanical Characteristics	
Unit Dimensions	482(W)x88.9(H)x236.5(D)
Mounting	19'' rack mounting

Standard of Compliance

Safety Requirements	
Safety requirements	IEC 61010-2-201

EMC Compatibility

CE EMC Directive 2014/30/EU (EN IEC 61326: 2021)

Electrostatic Discharge	EN 61000-4-2: 2009
Radiated Fields	EN 61000-4-3: 2006 +A1: 2008 +A2: 2010
Fast Transients	EN 61000-4-4: 2012
Surges	EN 61000-4-5: 2014 +A1: 2017
Conducted Disturbances	EN 61000-4-6: 2014
Magnetic Fields	EN 61000-4-8: 2010
Ring Waves	EN 61000-4-12: 2017
Mechanical Tests	
Free Fall	IEC 60068-2-31: 2008
Vibration	IEC 60068-2-6: 2007
Shock	IEC 60068-2-27: 2008

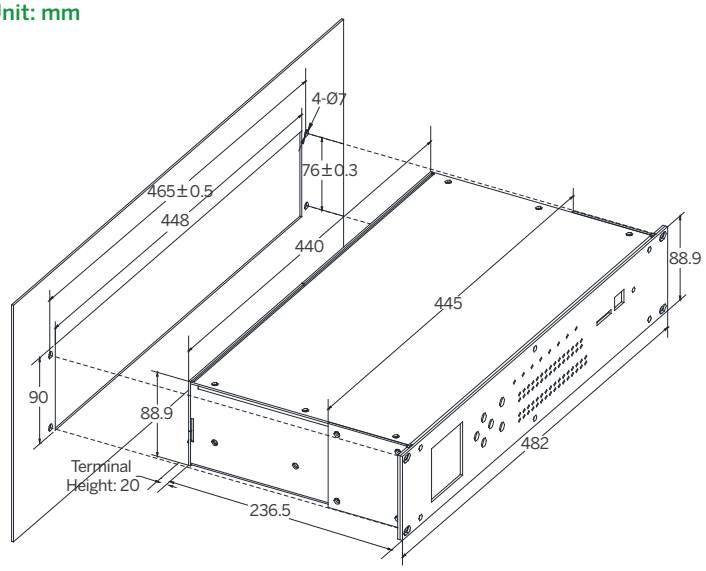
Ordering Information

Product Code									Description
PMC-1316 Communications Gateway									
Basic Function		RR							Transparent Gateway and Protocol Gateway
Serial Port			0016						12xRS-485, 4xRS-485/422
			0412*						4xRS-232, 8xRS-485, 4xRS-485/422
Ethernet Port				F0T4					4x10/100/1000Base-T port
				F0T8*					8x10/100/1000Base-T port
				F2T2*~					2x10/100/1000Base-T port + 2x100BaseX Fiber-optic port with LC Connector (for connection with external Single-mode or Multi-mode SFP module)
4G					N				None
DI/DO						N			None
						1*			4xDO (3xForm A + 1xForm B) and 10xDI (Externally excited by 220VAC/DC)
Power Supply							2*		95-250VAC/DC ±10%, 47-440Hz, Dual Power Supply
Time Sync.								G	1xGPS/IRIG-B input
Language								E	English
PMC-1316	-	RR-0016-F0T4-N			N	2	G	E	PMC-1316-RR-0016-F0T4-NN2G-E (Standard Model)

* Additional charges apply.
~ Please order the optional SFP module for connecting with LC Fiber-optic connectors from the "SFP Module" table.

Dimensions and Installations

Unit: mm



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Your Local Representative

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