HEC-P5000 SERIES

Harsh Environment Controllers

- J1939 / NMEA 2000 / OptiCAN Networking
- Operating Temperature -40° to 80° C
- 12 Bit Analog Inputs
- High Current Outputs with PWM Capability
- High Speed and Quadrature Counting
- Ethernet, Serial & CAN Communications
- Cellular[1,2], Wi-Fi[2] and GPS Options
- Quick Disconnect Field Connections
- Output Load Current Monitoring
- Micro SD Card Support
- Sealed and Ruggedized

NOW VersaCloud M2M Enabled

HEC-P5010 Programmable Logic Controller

Overview:

HEC-P5000 Harsh Environment Series Controllers allow for programmable intelligence under less than ideal conditions. Features include a sealed, water-tight enclosure, analog and digital I/O, high speed counting, TCP/IP, CAN network and serial communications including Modbus, J1939 and NMEA 2000. Based on second generation PLC on a Chip™ technology, the controller is easy to apply and program using EZ Ladder Toolkit PC based software that supports ladder diagram, function block and structured text. The HEC-P5000 Series Controllers are suitable for direct mounting on machines and is an ideal choice for mobile, marine, agriculture, mining, oil, and gas in addition to most electro-hydraulic applications.

Ordering Information: (see Specifications for complete list of features per model)

Model	Description
HEC-P5000	P5000 Base Model Controller with 16 Inputs, 16 Outputs, Counter Inputs, Analog Inputs, Serial Ports, CAN Ports, Real Time Clock and Ethernet
HEC-P5010	Base Model P5000 with Cellular Module and GPS Module Interface Port (GPS Sold Separately)
HEC-P5100	P5100 Base Model Controller Model with 16 Inputs, 16 Outputs, Counter Inputs, Analog Inputs and CAN Ports (No Ethernet, Real Time Clock or Serial).
HEC-P5110	Base Model P5100 with Cellular Module
HEC-P5200	P5200 Base Model Controller with Wi-Fi and GPS Module Interface Port (GPS Sold Separately) (No Ethernet)
HEC-P5210	Base Model P5200 with Celllular Module, Wi-Fi and GPS Module Interface Port (GPS Sold Separately) (No Ethernet)
HEC-P5-GPS	HEC-P5010 / P5200 / P5210 Series External GPS Module

HEC-P5000 Series Controllers

The HEC-P5000 Series Controller's on-board features include 16 digital inputs, 16 digital outputs (12 are PWM capable), 2 analog inputs that are field configurable for 0-5VDC, 0-10VDC or 0-20mA, output load current monitoring, communication ports (RS232, RS485, CAN, Ethernet, Wi-Fi[2] and Cellular[1,2]), Real Time Clock, 3 high speed counting inputs (100KHz), quadrature inputs (A, B, Reset), micro-SD card socket and programmable LED indicators all in a sealed, robust package.

HEC-P5000 Series Controller Programming

The HEC-P5000 Series Controllers program using Divelbiss EZ Ladder Toolkit, a Ladder Diagram Development Platform that allows for programming in ladder diagram (LD), function block (FB) and structured text (ST). EZ Ladder software parallels the IEC-61131 standard and provides an easy to use interface.

After a ladder diagram program is developed, it can be downloaded to the controller via the programming port or Ethernet Port. The program is stored on non-volatile FLASH memory and is automatically executed on power up.

J1939 / NMEA 2000 / OPTICAN Connectivity

The HEC-P5000 Series Controllers provide two Controller Area Network (CAN) ports that may be configured to communicate to other devices using J1939, NMEA 2000 and OptiCAN. The HEC-P5000 Series controllers now allow for user-defined J1939 and NMEA 2000 messages.

When implemented in a J1939 system, PGNs and SPNs may be utilized from the built-in database. In addition, custom messaging allows the definition of custom PGNs and SPNs, whether broadcast or request. Address claim functionality is now fully supported with a user defined Name field, as is a user selectable bit-rate. When needed, BAM and CM messaging may also be utilized. With these tools, it is now possible to send or request any PGN/SPN or send/receive diagnostic messages DM1, DM2, or DM3.

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Divelbiss CORPORATION

HEC-P5000 SERIES

Harsh Environment Controllers

HEC-P5000 Series Controller Specifications / Features			
Processor / Memory / Programming	**HEC-P5000 / HEC-P5010**	**HEC-P5100 / HEC-P5110**	**HEC-P5200 / HEC-P5210**
Processor / Memory / EEPROM	P-Series PLC on a Chip™ 32K RAM, 512K Flash / 3500 Bytes EEPROM	P-Series PLC on a Chip™ 32K RAM, 512K Flash / 3500 Bytes EEPROM	P-Series PLC on a Chip™ 32K RAM, 512K Flash / 3500 Bytes EEPROM
Retentive Memory (FRAM)	480 Bytes	480 Bytes	480 Bytes
Micro SD Card	Yes, Update Programs / Kernels Data-logging w/ EZ LADDER Version 1.2.1.0 or newer	Yes, Update Programs / Kernels Data-logging w/ EZ LADDER Version 1.2.1.0 or newer	Yes, Update Programs / Kernels Data-logging w/ EZ LADDER Version 1.2.1.0 or newer
Programming	Ladder Diagram / Structured Text / Function Block	Ladder Diagram / Structured Text / Function Block	Ladder Diagram / Structured Text / Function Block
Digital I/O			
Digital Inputs, 8-32VDC	Qty 16, Sink/Source in 2 Groups of 5	Qty 16, Sink/Source in 2 Groups of 5	Qty 16, Sink/Source in 2 Groups of 5
High Speed Counter / Timer Inputs, 8-32VDC[3]	Qty 3, NPN/PNP, 100KHz Max.	Qty 3, NPN/PNP, 100KHz Max.	Qty 3, NPN/PNP, 100KHz Max.
Quadrature Inputs[3]	Qty 3, Quadrature Inputs, A/B/Reset	Qty 3, Quadrature Inputs, A/B/Reset	Qty 3, Quadrature Inputs, A/B/Reset
Digital Outputs, 8-32VDC, On/Off only	Qty 4, Sourcing, 2 Amp with Derating Curve	Qty 4, Sourcing, 2 Amp with Derating Curve	Qty 4, Sourcing, 2 Amp with Derating Curve
Digital Outputs, 8-32VDC, PWM or On/Off	Qty 12, Sourcing, 2 Groups of 6, 2 Amp with Derating Curve	Qty 12, Sourcing, 2 Groups of 6, 2 Amp with Derating Curve	Qty 12, Sourcing, 2 Groups of 6, 2 Amp with Derating Curve
Digital Output / PWM Frequency	1.0 Hz to 1.0 KHz	1.0 Hz to 1.0 KHz	1.0 Hz to 1.0 KHz
Digital Output Current Monitoring (PWM channels)	6 Channels Current Feedback total	6 Channels Current Feedback total	6 Channels Current Feedback total
Indicator LEDs	2 Programmable, 1 Power, 1 Status	2 Programmable, 1 Power, 1 Status	2 Programmable, 1 Power, 1 Status
Analog I/O			
Analog Inputs (12 bit)	Qty 2, 0-5VDC / 0-10VDC / 0-20mADC	Qty 2, 0-5VDC / 0-10VDC / 0-20mADC	Qty 2, 0-5VDC / 0-10VDC / 0-20mADC
Communications			
Serial Ports	2 RS232/RS485 via M12 5 Pin (HEC-P5000) 2 RS232/RS485 via M12 8 Pin (HEC-P5010) 1 Programming via Deutsch 'A' Connector	1 Programming via Deutsch 'A' Connector	2 RS232/RS485 via M12 8 Pin 1 Programming via Deutsch 'A' Connector
CAN Ports	Qty 2 via Deutsch 'A' Connector	Qty 2 via Deutsch 'A' Connector	Qty 2 via Deutsch 'A' Connector
CAN Networks Supported	J1939, NMEA 2000, OptiCAN	J1939, NMEA 2000, OptiCAN	J1939, NMEA 2000, OptiCAN
Ethernet Port	Yes, via M12, 4 pin D-Coded	No	No
Modbus Networking	Serial - Modbus Master / Slave Ethernet Modbus TCP (Client/Server)	No	Serial - Modbus Master / Slave Modbus TCP (Client/Server)
Supports VersaCloud Wi-Fi Module[2]	No	No	Yes
Supports VersaCloud via Ethernet[2]	Yes	No	No
Supports VersaCloud Cellular[1,2]	No (HEC-P5000) Yes (HEC-P5010)	No (HEC-P5100) Yes (HEC-P5110)	No (HEC-P5200) Yes (HEC-P5210)
Supports External GPS Module	No (HEC-P5000) Yes (HEC-P5010)	No	Yes
Other			
Input Power	8-32VDC 85mA@12VDC with no communications enabled	8-32VDC 85mA@12VDC with no communications enabled	8-32VDC 85mA@12VDC with no communications enabled
Real Time Clock	M/M/DD/YY, Day of Week, HR/MM/SS	No	M/M/DD/YY, Day of Week, HR/MM/SS
Style / Mounting	Sealed Enclosure / Panel Mount	Sealed Enclosure / Panel Mount	Sealed Enclosure / Panel Mount
Dimensions	6.3" x 7.92" x 2.15"	6.3" x 7.92" x 2.15"	6.3" x 7.92" x 2.15"
Operating Temperature	-40°C to +80°C	-40°C to +80°C	-40°C to +80°C

VersaCloud:

The HEC-P5000 Series now supports VersaCloud M2M solutions for remote reporting and control via multiple communications avenues including Ethernet, Wi-Fi[2], GPS and Cellular[1,2] data (model dependent). VersaCloud provides flexible communications and monitoring of on-factory-floor or remote equipment via Cloud portals. Features include monitoring, control, software updates and more.

1: Cellular data provided by VersaCloud by Divelbiss
2: VersaCloud features require VersaCloud M2M Package with Cloud Portal. Additional charges apply to connected devices.
3. Counter Inputs