HEC-P6000 SERIES

Harsh Environment Controllers

- J1939 / NMEA 2000 / OptiCAN Networking
- Operating Temperature -40° to 80° C
- 12 Bit Analog Inputs & Outputs
- 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

VersaCloud M2M Enabled

HEC-P6010 Programmable Logic Controller

Overview:

HEC-P6000 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-P6000 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-P6000	P6000 Base Model Controller with 14 Inputs, 14 Outputs, Counter Inputs, 4 Analog Inputs, 2 Analog Outputs, Serial Ports, 2 CAN Ports, Real Time Clock and Ethernet
HEC-P6010	Base Model P6000 with Cellular Module and GPS Module Interface Port (GPS Sold Separately)
HEC-P6100	P6100 Base Model Controller Model with 14 Inputs, 14 Outputs, Counter Inputs, 4 Analog Inputs, 2 Analog Outputs and 2 CAN Ports (No Ethernet, Real Time Clock or Serial Ports).
HEC-P6110	Base Model P6100 with Cellular Module
HEC-P6200	P6200 Base Model Controller with 14 Inputs, 14 Outputs, Counter Inputs, 4 Analog Inputs, 2 Analog Outputs, Serial Ports, 2 CAN Ports, Real Time Clock, Wi-Fi and GPS Module Interface Port (GPS Sold Separately) (No Ethernet)
HEC-P6210	Base Model P6200 with Celllular Module, Wi-Fi and GPS Module Interface Port (GPS Sold Separately) (No Ethernet)
HEC-P5-GPS	HEC-P6010 / P6200 / P6210 Series External GPS Module

HEC-P6000 Series Controllers

The HEC-P6000 Series Controller's on-board features include 14 digital inputs, 14 digital outputs (12 are PWM capable), 4 analog inputs that are field configurable for 0-5VDC, 0-10VDC or 0-20mA, two 0-10VDC analog outputs, digital 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-P6000 Series Controller Programming

The HEC-P6000 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, Ethernet Port or Wi-Fi (model depenent). The program is stored on non-volatile FLASH memory and is automatically executed on power up.

J1939 / NMEA 2000 / OPTICAN Connectivity

The HEC-P6000 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-P6000 Series controllers 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-P6000 SERIES

Harsh Environment Controllers

HEC-P6000 Series Controller Specifications / Features			
Processor / Memory / Programming	**HEC-P6000 / HEC-P6010**	**HEC-P6100 / HEC-P6110**	**HEC-P6200 / HEC-P6210**
Processor / Memory / EEPROM	P-Series PLC on a Chip™ 32K RAM, 512K Flash / 3500 Bytes EEPROM 4MBbit Battery Backed SRAM (HEC=P6010)	P-Series PLC on a Chip™ 32K RAM, 512K Flash / 3500 Bytes EEPROM 4MBbit Battery Backed SRAM (HEC=P6110)	P-Series PLC on a Chip™ 32K RAM, 512K Flash / 3500 Bytes EEPROM 4MBbit Battery Backed SRAM
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 14, Sink/Source (group of 5 / group of 3)	Qty 14, Sink/Source (group of 5 / group of 3)	Qty 14, Sink/Source (group of 5 / group of 3)
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 2, Sourcing, 2 Amp with Derating Curve	Qty 2, Sourcing, 2 Amp with Derating Curve	Qty 2, 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)	4 Channels Current Feedback total	4 Channels Current Feedback total	4 Channels Current Feedback total
Indicator LEDs	2 Programmable, 1 Power, 1 Status	2 Programmable, 1 Power, 1 Status	2 Programmable, 1 Power, 1 Status
Programmable Switches	2, Dip, Internal	2, Dip, Internal	2, Dip, Internal
Analog I/O			
Analog Inputs (12 bit)	Qty 4, 0-5VDC / 0-10VDC / 0-20mADC	Qty 4, 0-5VDC / 0-10VDC / 0-20mADC	Qty 4, 0-5VDC / 0-10VDC / 0-20mADC
Analog Outputs (12 bit)	Qty 2, 0-10VDC	Qty 2, 0-10VDC	Qty 2, 0-10VDC
Communications			
Serial Ports	2 RS232/RS485 via M12 8 Pin 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-P6000) Yes (HEC-P6010)	No (HEC-P6100) Yes (HEC-P6110)	No (HEC-P6200) Yes (HEC-P6210)
Supports External GPS Module	No (HEC-P6000) Yes (HEC-P6010)	No	Yes
Other			
Input Power	8-32VDC 60mA@24VDC with no communications enabled	8-32VDC 60mA@24VDC with no communications enabled	8-32VDC 60mA@24VDC with no communications enabled
Real Time Clock	MM/DD/YY, Day of Week, HR/MM/SS	No	MM/DD/YY, Day of Week, HR/MM/SS
Style / Mounting	Sealed Enclosure / Panel Mount	Sealed Enclosure / Panel Mount	Sealed Enclosure / Panel Mount
Connections	4 Deutsch DT Series (coded A,B,C,D) M12 Cable (8 pin)	4 Deutsch DT Series (coded A,B,C,D)	4 Deutsch DT Series (coded A,B,C,D) M12 Cable (8 pin)
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-P6000 Series 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 VersaCloudM2M 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 & Quadrature Inputs are included in the quantity of digital inputs. Counter inputs may be used as counter or standard digital input. Quadrature inputs may be used as quadrature counter or standard digital input.