

- ▶ Operating Temperature -40° to 80° C
- ▶ 2x16 or 4x20 Backlit LCD Display
- ▶ 9 Programmable Push Buttons
- ▶ 4 Programmable LED Indicators
- ▶ HMI Only or HMI / PLC Combined
- ▶ 2 High Speed Counters (250KHz)
- ▶ Digital and Analog I/O
- ▶ PWM Output Capability
- ▶ PWM Output Current Sensing / Feedback
- ▶ SAE J1939 and OptiCAN Connectivity
- ▶ Sealed Environment
- ▶ Programs using EZ LADDER Toolkit Software
- ▶ Visual Status Indicator (Power and Watchdog)



HEC-HMI-C2100-E-R Programmable Logic Controller

HEC-HMI Series HMI/Controllers allow for programmable HMI only or combined HMI and control intelligence under less than ideal conditions. Features include a sealed, water-tight enclosure, high speed counting, Digital I/O, Analog I/O and CAN network communication with SAE J1939 and OptiCAN. Based on patented PLC on a Chip® technology, the HEC-HMI is easy to apply and program using the EZ LADDER® Toolkit PC based software. The HEC-HMIs are suitable for direct mounting on machines and are an ideal choice for mobile applications.

Typical Applications Include:

- ▶ Mobile Equipment
- ▶ Agricultural Equipment
- ▶ Off Road Equipment
- ▶ Batching Systems
- ▶ Remote Locations Monitoring & Control
- ▶ Engine Driven Pumps, Compressors and Generators
- ▶ Proportional Valves
- ▶ Material Handling / Movement

HEC-HMI Series HMI/Controller Specifications	
Processor / Memory / Programming	
Processor / Memory / EEPROM	M-Series PLC on a Chip, 12K RAM, 256K Flash, 2792 Bytes EEPROM
Programming	Ladder Diagram / Function Block
Digital & Analog I/O	
Digital Inputs, 8-32VDC ²	6 Total, 4 are Sinking
High Speed Counters ^{1,2}	Qty 2, 250KHz Max., Count Up, Selectable as Sinking or Sourcing ,1 Additional Up/Down/Quadrature Counter via Internal Expansion
Digital Outputs ² , 8-32VDC, PWM or On/Off	6 Total Outputs - Qty 4, Sourcing, 4 Amp Maximum (per output pair), 4 Selectable as PWM (8 or 16 bit), PWM Frequency 1.436Hz to 1KHz, PWM Range 5-95%, Over-current protected. Output Voltage = Input Voltage. Qty 2, Relay SPST, 2A, Dry Contact 2 or 4 Additional Outputs (PWM) via Internal Expansion
Output Current Sensing	PWM Channels provide internal analog current sensing variables for closed loop control
Pushbuttons	Total of Nine (9), 5 as Directional Compass Configuration, 4 In-Line Labeled as Function Keys
Indicator LEDs	4 Programmable, 1 Watchdog, 1 Power
Analog Inputs / Outputs ²	2 Analog Inputs - Model Dependent as 10-bit or 15-bit. Field Configurable for at 0-20mADC or 0-5VDC, 1 Analog Input via Internal Expansion, up to 2 Analog Outputs via Internal Expansion, up to 2 Thermocouple (type K) Inputs via Internal Expansion
Beeper ²	1 User Programmable
Display	Backlit: 2 Line x 16 Large Character / 4 Line x 20 Standard Character (Model Dependent)
Communications	
Serial Ports	Programming Port, 1 RS232 / RS485 / RS422 Configurable Serial Port
Networking	1 CAN Port, SAE J1939 (Read Only), OptiCAN
Other	
Input Power	8-32VDC
Style / Mounting / Size	Sealed Enclosure / Panel Mount / 4.7" x 8.2" x 2.4"
Connections	Internal Connections using Terminal Blocks, via Enclosure Wire Gland
Operating Temperature	-40°C to +80°C with Output Derating based on Temperature
RoHS	RoHS Compliant

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- Counter Inputs are included in the quantity of digital inputs. Counter inputs may be used as counter or standard digital input.
- I/O and Analog Shown are for HMI/Controller Combined Models.

Ordering Information: (see Specifications and User Manual for details)

Model #	Description	Display	Analog In
HEC-HMI-2-E-R	HEC-HMI with CAN and Serial Port	2x16 Backlit LCD	N/A
HEC-HMI-21-E-R	HEC-HMI with CAN, Serial Port and Expansion Option 1 (1 Analog Input (0-5V, 0-10V or 0-20mA), 4 Digital Outputs (PWM), Quadrature Input	2x16 Backlit LCD	10-bit
HEC-HMI-22-E-R	HEC-HMI with CAN, Serial Port and Expansion Option 2 (1 Analog Input (0-5V, 0-10V or 0-20mA), 2 Digital Outputs (PWM), Quadrature Input, 2 Type K Thermocouple Inputs, 2 Analog Outputs (0-20mA or 0-10V)	2x16 Backlit LCD	10-bit
HEC-HMI-C2100-E-R	HEC-HMI Controller with I/O and Analog.	2x16 Backlit LCD	10-bit
HEC-HMI-C2101-E-R	HEC-HMI Controller with I/O, Analog and Expansion Option 1 (1 Analog Input (0-5V, 0-10V or 0-20mA), 4 Digital Outputs (PWM), Quadrature Input	2x16 Backlit LCD	10-bit
HEC-HMI-C2102-E-R	HEC-HMI Controller with I/O, Analog and Expansion Option 2 (1 Analog Input (0-5V, 0-10V or 0-20mA), 2 Digital Outputs (PWM), Quadrature Input, 2 Type K Thermocouple Inputs, 2 Analog Outputs (0-20mA or 0-10V)	2x16 Backlit LCD	10-bit
HEC-HMI-C2150-E-R	HEC-HMI Controller with I/O and Analog.	2x16 Backlit LCD	15-bit
HEC-HMI-C2151-E-R	HEC-HMI Controller with I/O, Analog and Expansion Option 1 (1 Analog Input (0-5V, 0-10V or 0-20mA), 4 Digital Outputs (PWM), Quadrature Input	2x16 Backlit LCD	15-bit
HEC-HMI-C2152-E-R	HEC-HMI Controller with I/O, Analog and Expansion Option 2 (1 Analog Input (0-5V, 0-10V or 0-20mA), 2 Digital Outputs (PWM), Quadrature Input, 2 Type K Thermocouple Inputs, 2 Analog Outputs (0-20mA or 0-10V)	2x16 Backlit LCD	15-bit
HEC-HMI-4-E-R	HEC-HMI with CAN and Serial Port	4x20 Backlit LCD	N/A
HEC-HMI-41-E-R	HEC-HMI with CAN, Serial Port and Expansion Option 1 (1 Analog Input (0-5V, 0-10V or 0-20mA), 4 Digital Outputs (PWM), Quadrature Input	4x20 Backlit LCD	10-bit
HEC-HMI-42-E-R	HEC-HMI with CAN, Serial Port and Expansion Option 2 (1 Analog Input (0-5V, 0-10V or 0-20mA), 2 Digital Outputs (PWM), Quadrature Input, 2 Type K Thermocouple Inputs, 2 Analog Outputs (0-20mA or 0-10V)	4x20 Backlit LCD	10-bit
HEC-HMI-C4100-E-R	HEC-HMI Controller with I/O and Analog.	4x20 Backlit LCD	10-bit
HEC-HMI-C4101-E-R	HEC-HMI Controller with I/O, Analog and Expansion Option 1 (1 Analog Input (0-5V, 0-10V or 0-20mA), 4 Digital Outputs (PWM), Quadrature Input	4x20 Backlit LCD	10-bit
HEC-HMI-C4102-E-R	HEC-HMI Controller with I/O, Analog and Expansion Option 2 (1 Analog Input (0-5V, 0-10V or 0-20mA), 2 Digital Outputs (PWM), Quadrature Input, 2 Type K Thermocouple Inputs, 2 Analog Outputs (0-20mA or 0-10V)	4x20 Backlit LCD	10-bit
HEC-HMI-C4150-E-R	HEC-HMI Controller with I/O and Analog.	4x20 Backlit LCD	15-bit
HEC-HMI-C4151-E-R	HEC-HMI Controller with I/O, Analog and Expansion Option 1 (1 Analog Input (0-5V, 0-10V or 0-20mA), 4 Digital Outputs (PWM), Quadrature Input	4x20 Backlit LCD	15-bit
HEC-HMI-C4152-E-R	HEC-HMI Controller with I/O, Analog and Expansion Option 2 (1 Analog Input (0-5V, 0-10V or 0-20mA), 2 Digital Outputs (PWM), Quadrature Input, 2 Type K Thermocouple Inputs, 2 Analog Outputs (0-20mA or 0-10V)	4x20 Backlit LCD	15-bit

Programming the Controller

The Harsh Environment Controller HMIs program in Ladder Diagram using the Divebiss EZ LADDER® Toolkit, a Ladder Diagram Development Platform. EZ LADDER software parallels the IEC-61131 standard and provides an easy to use interface.

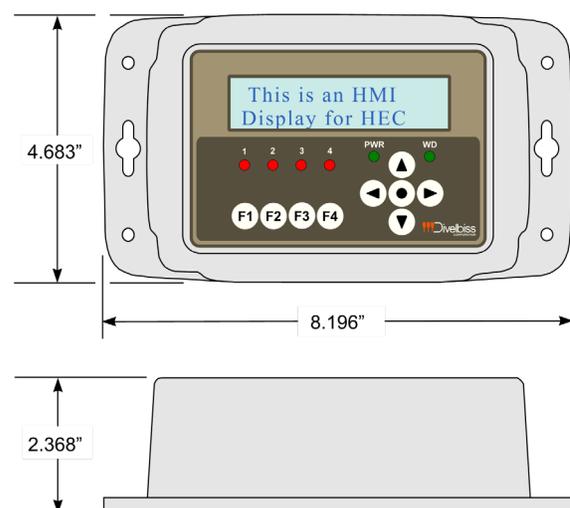
After a ladder diagram program is developed, it can be downloaded to the HEC-HMI controller via the programming port. The program is stored on non-volatile FLASH memory and is automatically executed on power up. Once the download is complete, the HEC is successfully programmed and begins executing the program.

Refer to the EZ LADDER Toolkit's User Manual for more detail on creating ladder diagram programs, connecting to targets and downloading the program to targets.

Optional Hardware Add-ons/Accessories:

Model #	Description
SI-PGM	Serial Programming Cable
EZLDCD-01	EZ LADDER Toolkit Development Software on USB Flash Drive (Free with Controller Purchase)

Dimensions



The HEC-HMI User Manual and EZ LADDER Toolkit can be downloaded from <http://www.divebiss.com>.

Specifications are subject to change without notice.