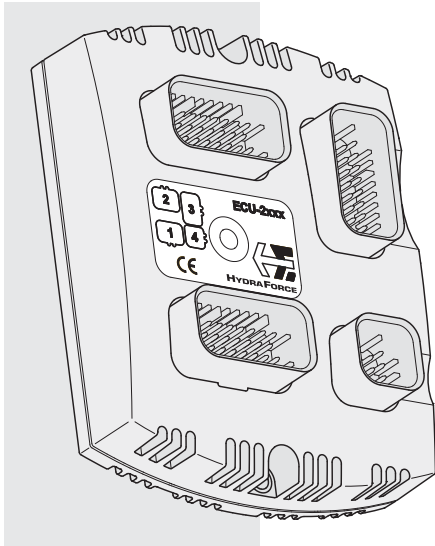


## ECU-2415 Machine Controller



### FEATURES

- Advanced electronic design for reliability and accuracy.
- Reliable operation in real-world temperature conditions from -40° to +70°C.
- Fully-sealed, compact cast-aluminum housing.
- Inputs and Outputs are protected against shorts.
- Outputs have diagnostic capability.
- No external cooling or heat dissipation required.
- Software developed with CoDeSys. 2.3 Programming Tool.

### DESCRIPTION

The ECU-2415 Machine Control is a general-purpose programmable controller designed to withstand the real-world environmental demands of the off-highway mobile market. The ECU-2415 can be used as a stand-alone controller, or for integrating into a CAN network with other devices.

Input configuration can be set for up to 39 inputs consisting of Digital, Pulse, Current Measuring Feedback and Analog inputs. Output configuration can be set for a total of 24 outputs consisting of up to 24 PWM or digital high-side drivers. All outputs are capable of driving up to 3.0 Amps.

**Note:** Refer to Input/Output table below for pin configuration capability.  
Refer to ECU-2415 Technical Reference Manual for specific data and ratings of individual inputs and outputs.

### RATINGS

#### POWER REQUIREMENTS:

**Operating Voltage:** 9 to 30 VDC

**Idle Power Consumption:** approximately 1 Watt

**Operating Current:** 10 Amp Max. continuous current, with full external load.

**Over-Voltage:** 34 VDC maximum

#### REFERENCE VOLTAGES:

(1) 5 VDC Potentiometer Reference: 5 mA DC

#### COMMUNICATION:

(2) ISO CAN 2.0B Interfaces: CANopen, J1939, or user-programmable.

#### PROCESSING and MEMORY:

**Microprocessor:** 16-bit at 40 MHz; **Flash ROM:** 254 Kbyte

**SRAM:** 256 Kbyte; **EEPROM:** 6200 bytes

#### ENVIRONMENTAL RATINGS:

**Operating Temperature:** -40°C to +70°C; **Storage Temperature:** -50°C to +85°C

**Water Resistance:** meets IP67 standards (per IEC 660529)

**Humidity Tolerance:** Rel. Humidity > 90% from +25°C to +55°C  
(per IEC 60068-2-30 Test Db)

**Radiated Immunity:** 20 to 2000 MHz at 30 V/m (per 2005/83/EC Annex IX)

**Vibration:** 3.5Grms random from 10 to 500 Hz (per IEC 60068-2-64 Test Fh)

**Shock:** 50g peak (per IEC 60068-2-27 and -29 Tests Ea and Eb)

**Corrosion:** 50 g/l, NaCl for 24 hours at +35°C (per ISO 9227)

### INPUTS / OUTPUTS — 49 Total

Max. I/O Count	Digital In (SWG)	Digital In (SWB)	Pulse Input	Analog Input	Current Feedback	PWM (Source)	Digital Out (Source)	Digital Out (Sink)
1	X							
10					X			
6		X		X				
8	X		X					
8		X				X	X	
16	X					X	X	
49	25	14	8	6	10	24	24	0

**Note:** The ECU-2415 has inputs and outputs that can be configured in multiple ways.  
For more information, consult the ECU-2415 Technical Reference Manual.

# ECU-2415 Machine Controller

## PIN ASSIGNMENTS

Pin	Connector 1 Pin Function	Type
1	Digital I/P/ PWM O/P/ Digital O/P (no open detect.)	I/O
2	Digital I/P/ PWM O/P/ Digital O/P (no open detect.)	I/O
3	Current Measuring Feedback	FB
4	Current Measuring Feedback	FB
5	Current Measuring Feedback	FB
6	Current Measuring Feedback	FB
7	Digital I/P/ PWM O/P/ Digital O/P (open detect.)	I/O
8	Digital I/P/ PWM O/P/ Digital O/P (open detect.)	I/O
9	Digital I/P/ PWM O/P/ Digital O/P (no open detect.)	I/O
10	Current Measuring Feedback	FB
11	Digital I/P/ PWM O/P/ Digital O/P (open detect.)	I/O
12	Ground	—
13	Digital I/P/ PWM O/P/ Digital O/P (open detect.)	I/O
14	Current Measuring Feedback	FB
15	Digital I/P/ PWM O/P/ Digital O/P (no open detect.)	I/O
16	Digital I/P/ PWM O/P/ Digital O/P (no open detect.)	I/O
17	Current Measuring Feedback	FB
18	Digital I/P/ PWM O/P/ Digital O/P (no open detect.)	I/O
19	Digital I/P/ PWM O/P/ Digital O/P (no open detect.)	I/O
20	Current Measuring Feedback	FB
21	Current Measuring Feedback	FB
22	Current Measuring Feedback	FB
23	Digital I/P/ PWM O/P/ Digital O/P (no open detect.)	I/O

Pin	Connector 2 Pin Function	Type
1	Digital I/P/ PWM O/P/ Digital O/P (open detect.)	I/O
2	Digital I/P/ PWM O/P/ Digital O/P (open detect.)	I/O
3	Current Measuring Feedback	FB
4	Current Measuring Feedback	FB
5	Current Measuring Feedback	FB
6	Current Measuring Feedback	FB
7	Digital I/P/ PWM O/P/ Digital O/P (open detect.)	I/O
8	Digital I/P/ PWM O/P/ Digital O/P (open detect.)	I/O
9	Digital I/P/ PWM O/P/ Digital O/P (open detect.)	I/O
10	Current Measuring Feedback	FB
11	Digital I/P/ PWM O/P/ Digital O/P (open detect.)	I/O
12	Ground	—
13	Digital I/P/ PWM O/P/ Digital O/P (open detect.)	I/O
14	Current Measuring Feedback	FB
15	Digital I/P/ PWM O/P/ Digital O/P (open detect.)	I/O
16	Digital I/P/ PWM O/P/ Digital O/P (open detect.)	I/O
17	Current Measuring Feedback	FB
18	Digital I/P/ PWM O/P/ Digital O/P (open detect.)	I/O
19	Digital I/P/ PWM O/P/ Digital O/P (open detect.)	I/O
20	Current Measuring Feedback	FB
21	Current Measuring Feedback	FB
22	Current Measuring Feedback	FB
23	Digital I/P/ PWM O/P/ Digital O/P (open detect.)	I/O

## PIN ASSIGNMENTS

Pin	Connector 3 Pin Function	Type
1	+24 VDC Reference (Ref 300 mA)	—
2	+5 VDC Reference (Ref 47 $\Omega$ )	—
3	Digital Input/ Analog Input, 2.2K $\Omega$ to +5VDC	Input
4	Digital I/P/ Analog I/P, 82k $\Omega$ to GND/ V, 220 $\Omega$ GND/A	Input
5	Digital I/P/ Analog I/P, 82k $\Omega$ to GND/ V, 220 $\Omega$ GND/A	Input
6	Digital I/P/ Analog I/P, 82k $\Omega$ to GND/ V, 220 $\Omega$ GND/A	Input
7	Digital I/P/ Analog I/P, 82k $\Omega$ to GND/ V, 220 $\Omega$ GND/A	Input
8	Digital Input/ Analog Input, 19.5k $\Omega$ to GND and +5VDC	Input
9	+24 VDC Reference (Ref 300 mA)	—
10	Ground	—
11	Ground	—
12	Ground	—
13	Ground	—
14	Digital Input, 2.2K $\Omega$ to +5VDC	Input
15	Must be left open	N/A
16	Digital Input/ Pulse Input, 2.2K $\Omega$ to +5VDC	Input
17	Digital Input/ Pulse Input, 2.2K $\Omega$ to +5VDC	Input
18	Digital Input/ Pulse Input, 2.2K $\Omega$ to +5VDC	Input
19	Digital Input/ Pulse Input, 2.2K $\Omega$ to +5VDC	Input
20	Digital Input/ Pulse Input, 2.2K $\Omega$ to +5VDC	Input
21	Digital Input/ Pulse Input, 2.2K $\Omega$ to +5VDC	Input
22	Digital Input/ Pulse Input, 2.2K $\Omega$ to +5VDC	Input
23	Digital Input/ Pulse Input, 2.2K $\Omega$ to +5VDC	Input

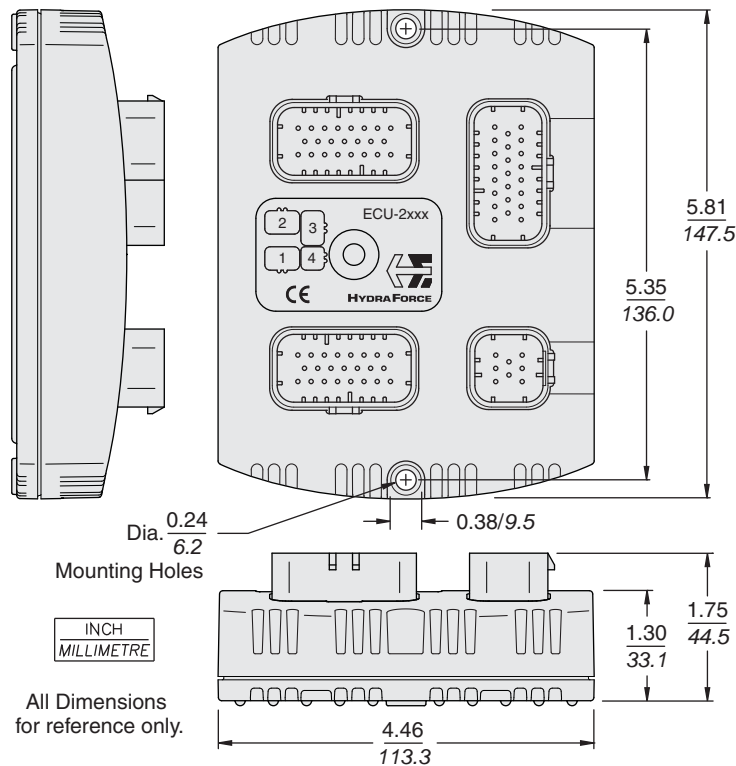
Pin	Connector 4 Pin Function	Type
1	Power Ground	—
2	CAN 1 HIGH	I/O
3	Power Ground	—
4	VSUPPLY (+9 to 30 VDC)	—
5	VSUPPLY (+9 to 30 VDC)	—
6	CAN 1 LOW	I/O
7	CAN 2 HIGH	I/O
8	CAN 2 LOW	I/O

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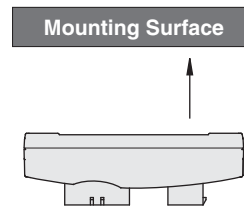
# ELECTRONIC CONTROLS

## ECU-2415 Machine Controller

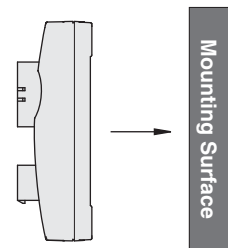
### DIMENSIONS and MOUNTING



#### Mounting on Horizontal Surface:



#### Mounting on Vertical Surface:



The mounting positions shown here will allow water or other potential contaminants to fall away from connectors.

Allow 5 in./125 mm clearance from mounting surface for connector installation.

For additional mounting information, consult the ECU-2415 Technical Ref. Manual.

### TO ORDER

**Controller:** Model **ECU-2415** Part No. **4000352**

**AmpSeal Connectors:** 23-Pin Grey Part No. 4000361; 23-Pin Blue Part No. 4000362  
23-Pin Black Part No. 4000360; 8-Pin Black Part No. 4000363

**AmpSeal Socket/Plug:** Sockets Gold (100 pc.) Part No. 4000369; Sealing Plugs (100 pc.) Part No. 4000370

**Shock Cover Kit (optional):** Part No. 4206820

**CoDeSys Programming Software:** available from **3S Software GmbH**

**USB-CAN Adaptor:** Part No. 4000371, also available from [www.kvaser.com/prod/hardware/leaf\\_light.htm](http://www.kvaser.com/prod/hardware/leaf_light.htm)

**Diagnostic Kit:** Part No. 4000372