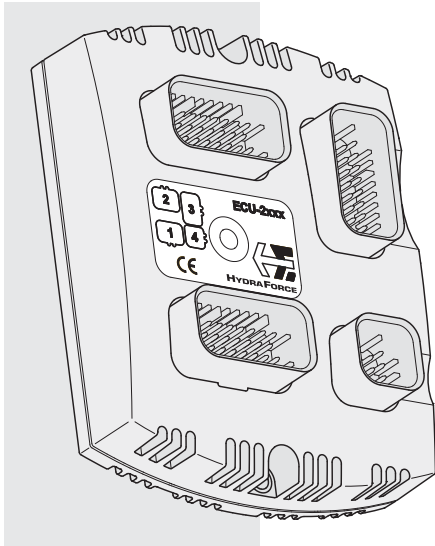


ECU-2032 Machine Controller



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-2032 Machine Control is a general-purpose programmable controller designed to withstand the real-world environmental demands of the off-highway mobile market. The ECU-2032 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 52 inputs consisting of Digital, Pulse, Current Measuring Feedback and Analog inputs. Output configuration can be set for a total of 20 outputs consisting of up to 8 PWM or 20 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-2032 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:

(3) 5 VDC Potentiometer Reference: 10 mA DC

(3) 12 VDC Potentiometer Reference: 200 mA DC

COMMUNICATION:

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

INTERNALLY REGULATED POWER SUPPLY:

(1) 5 VDC: 250 mA maximum

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 — 52 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			X				
15		X		X				
16		X	X					
8		X				X		
8		X					X	X
4		X						X
52	1	51	16	16	0	8	8	12

Note: The ECU-2032 has inputs and outputs that can be configured in multiple ways. For more information, consult the ECU-2032 Technical Reference Manual.

ECU-2032 Machine Controller

PIN ASSIGNMENTS

Pin	Connector 1 Pin Function	Type
1	Analog Input, 10KΩ to +5VDC	Input
2	Analog Input, 10KΩ to +5VDC	Input
3	Analog Input, 10KΩ to +5VDC	Input
4	Analog Input, 10KΩ to +5VDC	Input
5	Digital I/P/ PWM O/P/ Digital O/P (no open detect.)	I/O
6	Digital I/P/ PWM O/P/ Digital O/P (no open detect.)	I/O
7	Digital I/P/ PWM O/P/ Digital O/P (no open detect.)	I/O
8	Digital I/P/ PWM O/P/ Digital O/P (no open detect.)	I/O
9	Digital I/P/ Pulse I/P, 10KΩ or 5kHz to Ground	Input
10	Digital I/P/ Pulse I/P, 10KΩ or 5kHz to Ground	Input
11	Digital I/P/ Pulse I/P, 10KΩ or 5kHz to Ground	Input
12	Digital I/P/ Pulse I/P, 10KΩ or 5kHz to Ground	Input
13	Digital I/P/ Pulse I/P, 10KΩ or 5kHz to Ground	Input
14	Digital I/P/ Pulse I/P, 10KΩ or 5kHz to Ground	Input
15	Ground	—
16	+12VDC Reference (ref 200mA)	—
17	Ground	—
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	Digital I/P/ PWM O/P/ Digital O/P (open detect.)	I/O
21	Digital I/P/ PWM O/P/ Digital O/P (open detect.)	I/O
22	Digital I/P/ PWM O/P/ Digital O/P (open detect.)	I/O
23	Digital I/P/ PWM O/P/ Digital O/P (open detect.)	I/O

Pin	Connector 2 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	Digital I/P/ PWM O/P/ Digital O/P (no open detect.)	I/O
4	Digital I/P/ PWM O/P/ Digital O/P (no open detect.)	I/O
5	Digital I/P/ Pulse I/P, 10KΩ or 5kHz to Ground	Input
6	Digital I/P/ Pulse I/P, 10KΩ or 5kHz to Ground	Input
7	Digital I/P/ Pulse I/P, 10KΩ or 5kHz to Ground	Input
8	Digital I/P/ Pulse I/P, 10KΩ or 5kHz to Ground	Input
9	Ground	—
10	Digital I/P/ Pulse I/P, 10KΩ or 5kHz to Ground	Input
11	Digital I/P/ Pulse I/P, 10KΩ or 5kHz to Ground	Input
12	Digital I/P/ Pulse I/P, 10KΩ or 5kHz to Ground	Input
13	Digital I/P/ Pulse I/P, 10KΩ or 5kHz to Ground	Input
14	Digital I/P/ Pulse I/P, 10KΩ or 5kHz to Ground	Input
15	Digital I/P/ Pulse I/P, 10KΩ or 5kHz to Ground	Input
16	Digital I/P / Digital O/P (open detect.)	I/O
17	Digital I/P / Digital O/P (open detect.)	I/O
18	Digital I/P / Digital O/P (open detect.)	I/O
19	Digital I/P / Digital O/P (open detect.)	I/O
20	Digital I/P/ PWM O/P/ Digital O/P (open detect.)	I/O
21	Digital I/P/ PWM O/P/ Digital O/P (open detect.)	I/O
22	Ground	—
23	+12VDC Reference (ref 200mA)	—

PIN ASSIGNMENTS

Pin	Connector 3 Pin Function	Type
1	Analog I/P, 0-5VDC, 41kΩ to +2.5VDC	Input
2	+5 VDC Regulated Power Supply (Ref 250mA)	—
3	Digital I/P/ Analog I/P, 0-5VDC or 0-22.7mA to +2.5VDC	Input
4	+5 VDC Reference (Ref +47Ω)	—
5	Digital I/P/ Analog I/P, 0-5VDC or 0-22.7mA to +2.5VDC	Input
6	+5 VDC Reference (Ref +47Ω)	—
7	Digital I/P/ Analog I/P, 0-5VDC or 0-22.7mA to +2.5VDC	Input
8	+5 VDC Reference (Ref +47Ω)	—
9	Ground	—
10	Digital I/P/ Analog I/P, 0-5VDC or 0-22.7mA to +2.5VDC	Input
11	Analog I/P, 0-5VDC, 41kΩ to +2.5VDC	Input
12	Analog I/P, 0-5VDC or 0-22.7mA, to +5VDC	Input
13	Analog I/P, 0-5VDC or 0-22.7mA, to +5VDC	Input
14	Analog I/P, 0-5VDC or 0-22.7mA, to +5VDC	Input
15	Must be left open	—
16	+12VDC Reference (ref 200mA)	—
17	Ground (Ref -47Ω)	—
18	Analog Input, 2.2KΩ to +5VDC	Input
19	Ground (Ref -47Ω)	—
20	Analog Input, 92KΩ to +46VDC	Input
21	Ground (Ref -47Ω)	—
22	Analog Input, 2.2KΩ to +5VDC	Input
23	Ground (Ref -47Ω)	—

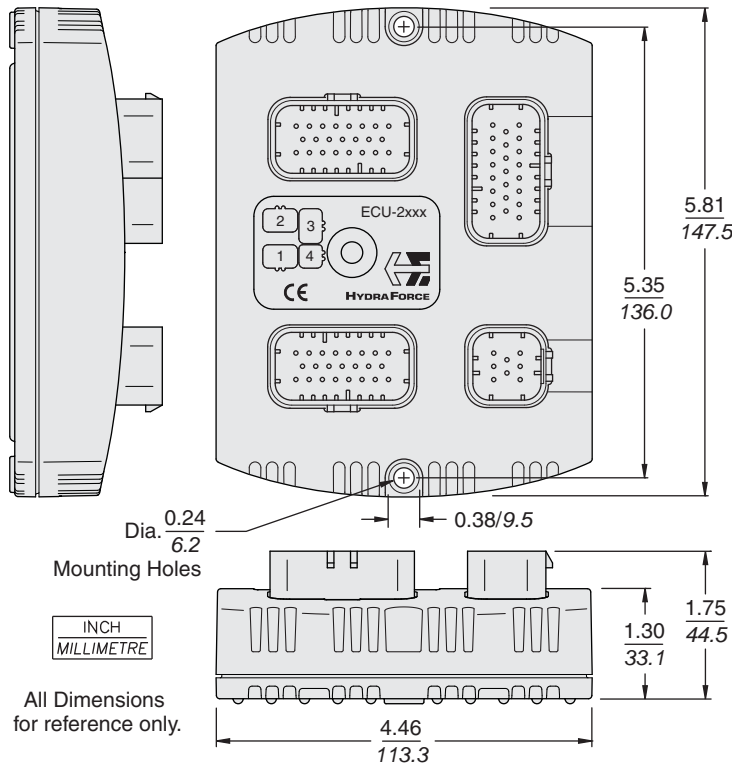
Pin	Connector 4 Pin Function	Type
1	Power Ground	—
2	CAN 1 HIGH	I/O
3	Power Ground	—
4	VSUPPLY (+9 to 30 VDC)	—
5	VSUPPLY (+9 to 30 VDC)	—
6	CAN 1 LOW	I/O
7	CAN 2 HIGH	I/O
8	CAN 2 LOW	I/O

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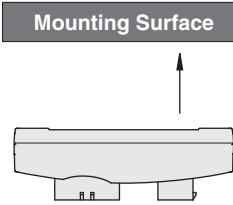
ELECTRONIC CONTROLS

ECU-2032 Machine Controller

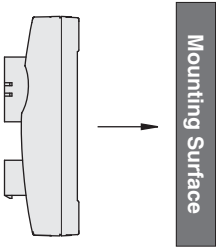
DIMENSIONS and MOUNTING



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-2032 Technical Ref. Manual.

TO ORDER

Controller: Model **ECU-2032** Part No. **4000355**

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

Diagnostic Kit: Part No. 4000372