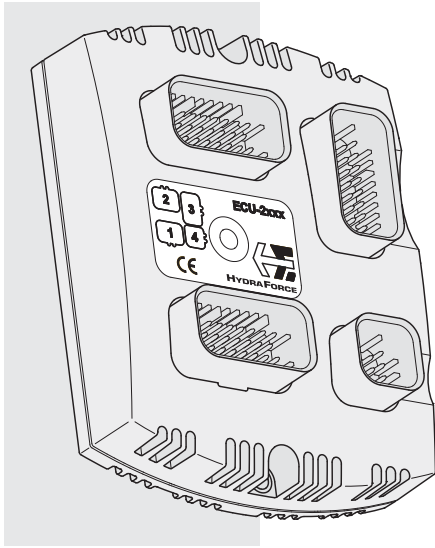


ECU-2820 Machine Controller



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-2820 Machine Control is a general-purpose programmable controller designed to withstand the real-world environmental demands of the off-highway mobile market. The ECU-2820 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 28 outputs consisting of up to 24 PWM or digital high-side drivers and up to 4 digital low-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-2820 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

INTERNALLY REGULATED POWER SUPPLY:

(1) **5 VDC:** 250 mA maximum across both pins

(1) **12 VDC:** 200 mA maximum across both pins

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)
4		X						
4					X			
24		X				X	X	
8		X		X				
4		X						X
8		X	X					
52	0	48	8	8	4	24	24	4

Note: The ECU-2820 has inputs and outputs that can be configured in multiple ways.
For more information, consult the ECU-2820 Technical Reference Manual.

ECU-2820 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	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	Current Measuring Feedback	FB
6	Current Measuring Feedback	FB
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	Ground	—
10	Ground	—
11	Ground	—
12	Analog Input, 2.2KΩ to +5VDC or 220Ω to 22.7mA	Input
13	Auxiliary VSUPPLY (3A max) for External Devices	—
14	Digital I/P/ PWM O/P/ Digital O/P (no open detect.)	I/O
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	Digital I/P/ PWM O/P/ Digital O/P (no open detect.)	I/O
18	Digital Input/ Digital Output (open detect.)	I/O
19	Digital Input, 10KΩ to Ground	Input
20	Digital Input, 10KΩ to Ground	Input
21	Digital Input/ Digital Output (open detect.)	I/O
22	Digital I/P/ PWM O/P/ Digital O/P (no open detect.)	I/O
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 (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	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/ PWM O/P/ Digital O/P (no open detect.)	I/O
10	Digital I/P/ PWM O/P/ Digital O/P (no open detect.)	I/O
11	Back-up VSUPPLY (+9 to 30 VDC) for CPU	—
12	Analog Input, 2.2KΩ to +5VDC or 220Ω to 22.7mA	Input
13	Ground	—
14	Ground	—
15	Ground	—
16	Digital I/P/ PWM O/P/ Digital O/P (no open detect.)	I/O
17	Digital I/P/ PWM O/P/ Digital O/P (no open detect.)	I/O
18	Digital Input/ Digital Output (open detect.)	I/O
19	Digital Input, 10KΩ to Ground	Input
20	Digital Input, 10KΩ to Ground	Input
21	Digital Input/ Digital Output (open detect.)	I/O
22	Digital I/P/ PWM O/P/ Digital O/P (no open detect.)	I/O
23	Digital I/P/ PWM O/P/ Digital O/P (no open detect.)	I/O

PIN ASSIGNMENTS

Pin	Connector 3 Pin Function	Type
1	+12 VDC Regulated Power Supply (max 200mA)	—
2	+5 VDC Regulated Power Supply (max 250mA)	—
3	Ground	—
4	Ground	—
5	Digital I/P/ Analog I/P, 82KΩ to GND/V, 220Ω to GND/A	Input
6	Digital I/P/ Analog I/P, 82KΩ to GND/V, 220Ω to GND/A	Input
7	Digital I/P/ Analog I/P, 82KΩ to GND/V, 220Ω to GND/A	Input
8	Digital I/P/ Analog I/P, 82KΩ to GND/V, 220Ω to GND/A	Input
9	+12 VDC Regulated Power Supply (max 200mA)	—
10	+12 VDC Regulated Power Supply (max 200mA)	—
11	Ground	—
12	Ground	—
13	Digital I/P/ Analog I/P, 82KΩ to GND/V, 220Ω to GND/A	Input
14	Digital I/P/ Analog I/P, 82KΩ to GND/V, 220Ω to GND/A	Input
15	Must be left open	—
16	Digital Input/ Pulse Input, 10KΩ or 5kHz to Ground	Input
17	Digital Input/ Pulse Input, 10KΩ or 5kHz to Ground	Input
18	Digital Input/ Pulse Input, 10KΩ or 5kHz to Ground	Input
19	Digital Input/ Pulse Input, 10KΩ or 5kHz to Ground	Input
20	Digital Input/ Pulse Input, 10KΩ or 5kHz to Ground	Input
21	Digital Input/ Pulse Input, 10KΩ or 5kHz to Ground	Input
22	Digital Input/ Pulse Input, 10KΩ or 5kHz to Ground	Input
23	Digital Input/ Pulse Input, 10KΩ or 5kHz to Ground	Input

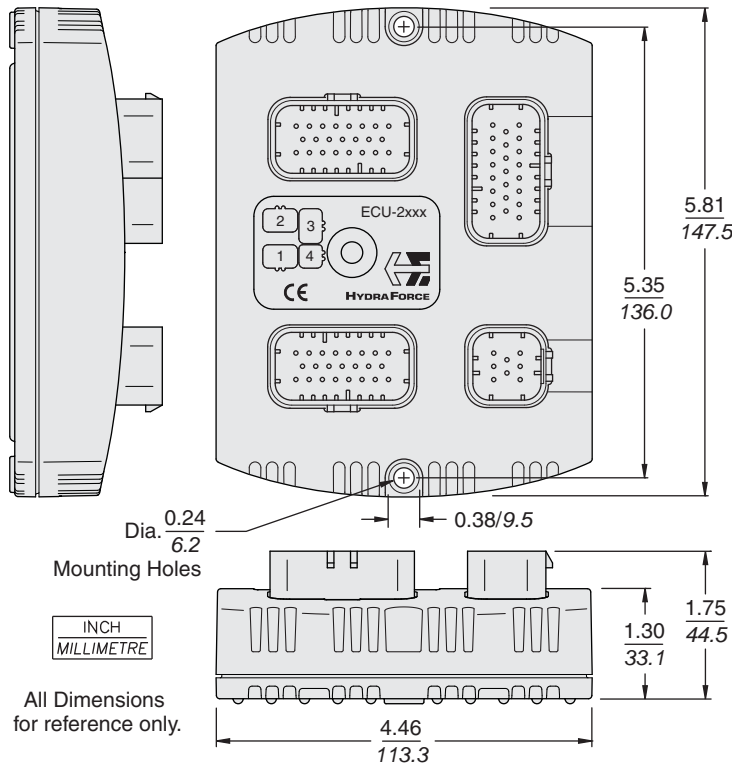
Pin	Connector 4 Pin Function	Type
1	Power Ground	—
2	CAN 1 HIGH	I/O
3	Power Ground	—
4	VSUPPLY (+9 to 30 VDC)	—
5	VSUPPLY (+9 to 30 VDC)	—
6	CAN 1 LOW	I/O
7	CAN 2 HIGH	I/O
8	CAN 2 LOW	I/O

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ELECTRONIC CONTROLS

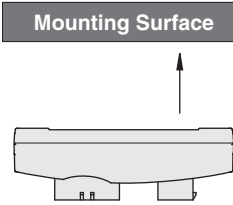
ECU-2820 Machine Controller

DIMENSIONS and MOUNTING

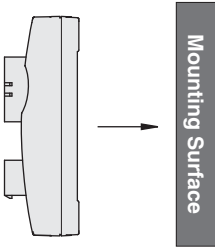


Weight: 1.55 lbs./0.7 kg

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-2820 Technical Ref. Manual.

TO ORDER

Controller: Model **ECU-2820** Part No. **4000356**

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