

ENOVATION
CONTROLS®

uCONTROL® CONTROLLER SERIES OVERVIEW

Revised 11/2021

WHY **uCONTROL®**?



Configure Quickly with ACE or Program With CODESYS



Outputs with Closed Loop Control & Feedback



Proven Performance in High Heat/Vibration & Harsh Environments



Expandable Equipment Control With High-Current Output Model



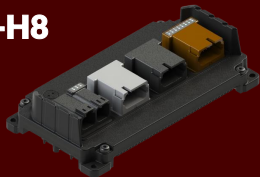
Easy to Scale Up or Down Within the Hardware Family



Software Selectable I/O with Flexible Configuration

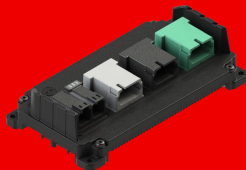
THE FULL uCONTROL® CONTROLLER **SERIES**

MC4-21-14-H8



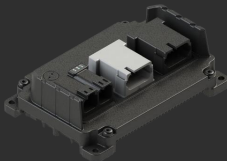
21 Total Inputs
14 Standard Outputs
8 High Current Outputs

MC4-26-20



26 Total Inputs
20 Standard Outputs

MC3-21-10



21 Total Inputs
10 Standard Outputs

MC2-18-6



18 Total Inputs
6 Standard Outputs



I/O with flexible configuration



Industry leading durability and environmental protection



Rated for use in high heat and high vibration areas



Accelerate development with flexible programming options



**IP
69K**

E-Mark ISO-13766

REACH - RoHS

uCONTROL SERIES FEATURES

Software Selectable
Inputs & Outputs

Dual-Range
Feedback For
Greater Control

High / Low Side &
Push / Pull Mode

Advanced Load
Management

Automatic Fault
Detection &
Protection

Closed Loop
Current Control

H-Bridge Mode For
Motor Control

Parallel Mode For
Higher Current
Operation

Up to 2 Current
Sensor Supplies

Operating
Temperature
-40°C To +105°C
(May be limited to +85°C
at full rated current)

Storage
Temperature
-40°C To +125°C

2 Software
Configurable LEDs

High Frequency
Input Mode with
Selectable
Thresholds

6-32 VDC
Operating Electrical
Range

Active Load Output
Mode

IP69K Sealed
Aluminum
Enclosure

Low Power
Consumption Sleep
Mode

Sensor Supplies
Rated to 500mA,
Adjustable, 5V or
10V

DESIGNED FOR **RUGGED** APPLICATIONS

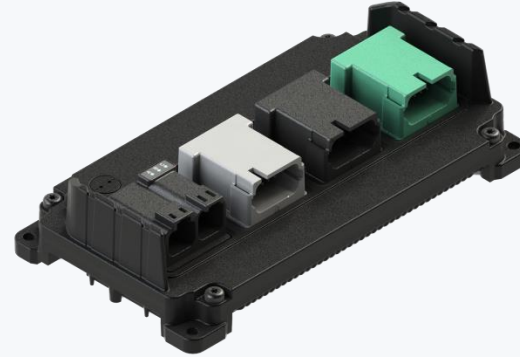


MC4-26-20

The uControl MC4-26-20 is a powerful, all-purpose controller designed to work in the harshest environments on most any engine-driven application.

- Built to Perform in High Heat and High Vibration Areas
- Easy to Scale Up or Down Within the Hardware Family
- Features Universal Inputs and Flexible Proportional Outputs
- Open/Short Circuit Protection and Overcurrent Protection
- Integrate Quickly with ACE or Program with CODESYS
- High-Current Model Available

[Click Here for Complete Specifications](#)



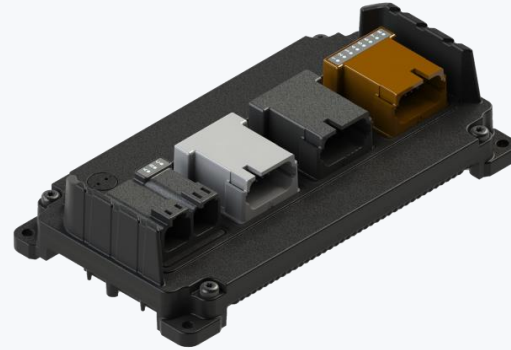
INPUTS	
UNIVERSAL ANALOG/HIGH FREQUENCY	10
UNIVERSAL ANALOG	16
TOTAL INPUTS	26
OUTPUTS (SOFTWARE SELECTABLE)	
4A PWM (FEEDBACK)	10
DUAL-RANGE PWM 4A / 0.5 A (FEEDBACK)	10
15A PWM (FEEDBACK)	-
TOTAL OUTPUTS	20

MC4-21-14-H8

The uControl MC4-21-14-H8 is a powerful, all-purpose controller designed to work in the harshest environments on most any engine-driven application.

- 8 High Current Outputs with Individual LED Indicator Lights
- Built to Perform in High Heat and High Vibration Areas
- Features Universal Inputs and Flexible Proportional Outputs
- Open/Short Circuit Protection and Overcurrent Protection
- Integrate Quickly with ACE or Program with CODESYS

[Click Here for Complete Specifications](#)

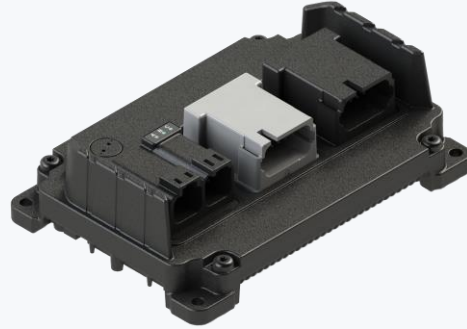


INPUTS	
UNIVERSAL ANALOG/HIGH FREQUENCY	8
UNIVERSAL ANALOG	13
TOTAL INPUTS	21
OUTPUTS (SOFTWARE SELECTABLE)	
4A PWM (FEEDBACK)	6
DUAL-RANGE PWM 4A / 0.5 A (FEEDBACK)	8
15A PWM (FEEDBACK)	8
TOTAL OUTPUTS	22

MC3-21-10

The uControl MC3-21-10 is a powerful, all-purpose controller designed to work in the harshest environments on most any engine-driven application.

- Built to Perform in High Heat and High Vibration Areas
- Features Universal Inputs and Flexible Proportional Outputs
- Open/Short Circuit Protection and Overcurrent Protection
- Integrate Quickly with ACE or Program with CODESYS



INPUTS	
UNIVERSAL ANALOG/HIGH FREQUENCY	8
UNIVERSAL ANALOG	13
TOTAL INPUTS	21
OUTPUTS (SOFTWARE SELECTABLE)	
4A PWM (FEEDBACK)	6
DUAL-RANGE PWM 4A / 0.5 A (FEEDBACK)	4
15A PWM (FEEDBACK)	-
TOTAL OUTPUTS	10

[Click Here for Complete Specifications](#)

MC2-18-6

The uControl MC2-18-6 is a powerful, all-purpose controller designed to work in the harshest environments on most any engine-driven application.

- Built to Perform in High Heat and High Vibration Areas
- Features Universal Inputs and Flexible Proportional Outputs
- Open/Short Circuit Protection and Overcurrent Protection
- Integrate Quickly with ACE or Program with CODESYS



INPUTS	
UNIVERSAL ANALOG/HIGH FREQUENCY	4
UNIVERSAL ANALOG	14
TOTAL INPUTS	18
OUTPUTS (SOFTWARE SELECTABLE)	
4A PWM (FEEDBACK)	2
DUAL-RANGE PWM 4A / 0.5 A (FEEDBACK)	4
15A PWM (FEEDBACK)	-
TOTAL OUTPUTS	6

[Click Here for Complete Specifications](#)

MOBILE HYDRAULIC CONTROLLERS

uControl™ MOBILE CONTROLLERS

Get the most out of any application with rugged, powerful, flexible and precise controllers.



MODEL	MC2-18-6	MC3-21-10	MC4-26-20	MC4-21-14-H8
TOTAL INPUTS	18	21	26	21
TOTAL OUTPUTS	6 (4A)	10 (4A)	20 (4A)	14 (4A) + 8 (15A)
CAN (2.0B, J1939)	2 Channels	3 Channels	3 Channels	3 Channels
SENSOR SUPPLY	1 Supply	1 Supply	2 Supplies	2 Supplies



**Easily Scale Up or Down
Between Controllers**



**Universal Inputs &
Flexible Proportional
Outputs**



**Expand Equipment
Control With Available
High-Current Option**



HEADQUARTERS (Americas & Oceania Sales)

📍 Tulsa, Oklahoma, USA
✉ sales@enovationcontrols.com
☎ +1 (918) 317 - 4100

EMEA Sales

📍 Salisbury, United Kingdom
✉ emeasales@enovationcontrols.com
☎ +44 1722 410055

India Sales

📍 Pune, India
✉ indiasales@enovationcontrols.com
☎ +91 91581 37633

China Sales

📍 Shanghai, China
✉ apacsales@enovationcontrols.com
☎ +86 21 6237 5885

THANK YOU

APPENDIX I: INPUT OPTIONS (ALL CONTROLLERS)

ANALOG FUNCTION					DIGITAL MODE	
ADC RESOLUTION	12 bits				TYPE	Low/High Side (Software Configurable)
ACCURACY	0-5 VDC Mode; Typical +/- 0.2% FS All Other Modes: Typical +/-1% FS				INPUT IMPEDANCE	Nominally 10 kΩ (Configuration Dependent)
MEASURING RANGES	Voltage Mode		Current Mode	Resistive Mode	SAMPLING FREQUENCY	250 Hz
	0 to 5V (Absolute / Ratio-metric)	0 to 36V	0 to 22 mA	100Ω to 100kΩ	SWITCH-ON LEVEL	Software Configurable From 0 to 36V
INPUT RESISTANCE	10kΩ +/- 20%		200Ω	20kΩ	SWITCH-OFF LEVEL	
SAMPLING FREQUENCY	1kHz					
HIGH FREQUENCY MODE						
TYPE	Single ended, digital low/high side (Software Configurable)					
INPUT IMPEDANCE	Nominally 10 kΩ (Configuration Dependent)					
INPUT FREQUENCY	1Hz...50kHz					
THRESHOLD 1	Standard switch on at 2.5 V / Standard switch off at 1.25 V					
THRESHOLD 2	Standard switch on at 7.5 V / Standard switch off at 3.75 V					

APPENDIX II: OUTPUT OPTIONS (BY TYPE)

	4A BINARY (FEEDBACK)	4A PWM (FEEDBACK)	DUAL-RANGE PWM 4A / 0.5A (FEEDBACK)	15A [SINGLE] / 25A [PARALLEL] PWM (FEEDBACK)
TYPE	Low/High Side, H-Bridge (Software Configurable as push/pull or float)			
PWM FREQUENCY	N/A	50 – 5 kHz		50 – 2 kHz
DITHER FREQUENCY		Configurable		
DITHER AMPLITUDE		Configurable		
CONTROL RANGE		0.05 – 4A	Low Current Mode: 0.005 – 0.5A High Current Mode: 0.05 – 4A (Software Configurable)	0.1A – 15A 0.1A – 25A (if in parallel with high side channel)
CONTROL RESOLUTION		1 mA	Low Current Mode: 1 mA High Current Mode: 1mA (Software Configurable)	20mA
FLY BACK PROTECTION		Integrated		
DUTY CYCLE RESOLUTION		.01% @ 250Hz		
MAX AMPERAGE	4A			15A (Parallel with mated high side driver for 25A)
OUTPUT INDICATION	N/A			LED with output state & fault state Single Red LED per output
DIAGNOSTICS	Open/Short Circuit Protection			
FAULT MODES	Short circuit, overcurrent and open circuit protection Overtemperature			