

CONTINENTAL

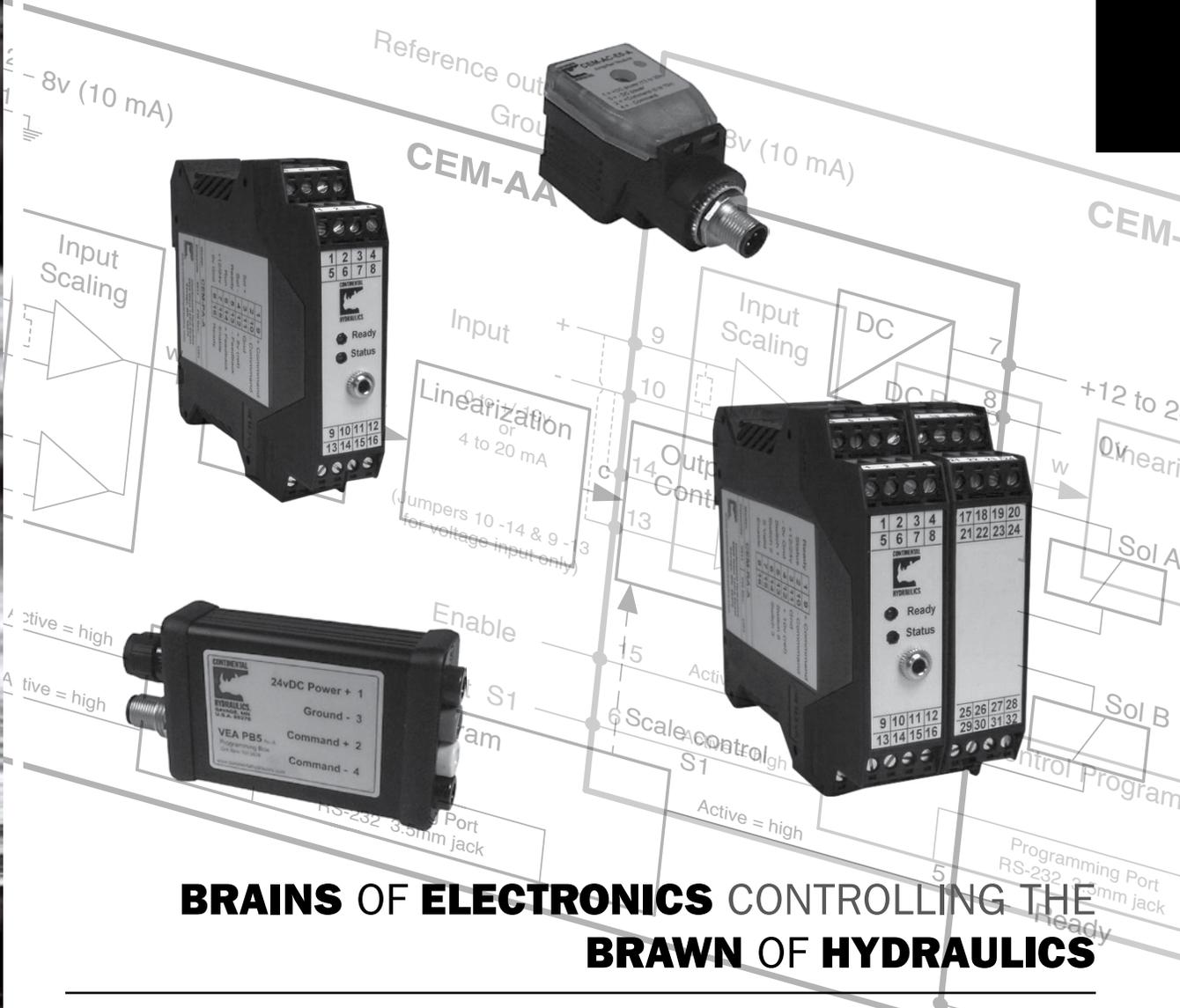


CONTINENTAL HYDRAULICS

# MOTION CONTROL SOLUTIONS

CEM Modules | Software | Tools | Accessories

MOTION CONTROL SOLUTIONS



## BRAINS OF ELECTRONICS CONTROLLING THE BRAWN OF HYDRAULICS

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CONTINENTAL HYDRAULICS

# MOTION CONTROL SOLUTIONS

MOTION CONTROL SOLUTIONS

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# CONTROL PRECISION PERFORMANCE CONTROL

## CONTINENTAL HYDRAULICS SINGLE CHANNEL POWER AMPLIFIER CEM-AC



SINGLE CHANNEL POWER AMPLIFIER - CEM-AC



### DIN Coil Mount

#### DESCRIPTION:

This power amplifier mounts directly to a single solenoid proportional valve coil with a DIN style connector, and will drive up to 2.5A. It is suitable to control current to either a proportional flow or pressure valve coil.

A wide range of analog signals are accepted. There are two product choices for input; one accepts voltage commands, the other accepts current commands. These inputs are easily scaled to match system requirements. Two independent ramps are available for acceleration and deceleration control.

Min and Max output current are adjustable. Output characteristics can be independently customized. The module is disabled if the coil outputs are shorted or open. If command current is outside of the proper range, the module is also disabled. PWM and Dither are user adjustable.

This module is easily adapted to a variety of system requirements. All variables are user adjusted with easy to use software on your Microsoft Windows® laptop. Control variables are stored in non-volatile memory internal to the module. All variables can be read by the laptop, and reproduced exactly on other modules.

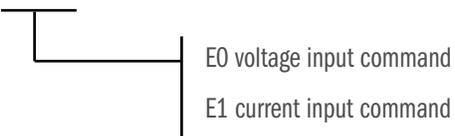
### TECHNICAL DATA

Power Supply	Consumption	vDC	12 to 30 (including ripple)
	External Fuse	mA	<100mA + solenoid
		A	3 (medium action)
Analog Input	Voltage	vDC	0 to +10 (voltage version)
	Impedance	ohm	90k
	Current	mA	4 to 20 (current version)
	Impedance	ohm	390
	Resolution	%	<0.1
	Sample Time	mS	1.0
Solenoid Output		A	1.2
		A	2.5
	PWM Frequency	Hz	60 to 2650
	Dither Frequency	Hz	60 to 400
	Dither Amplitude	%	0 to 30
	Sample Time	mS	0.17

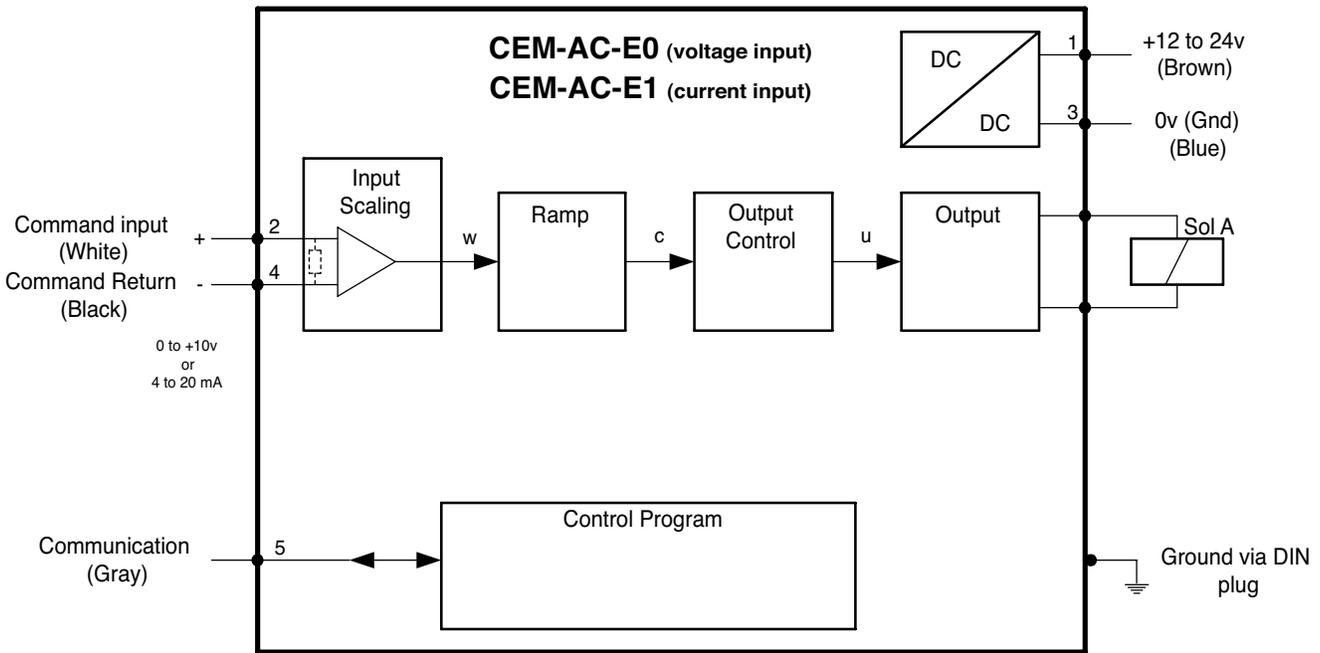
Electrical Connection	Power and Signal		M12 5 pin male key style A
	Communication		LIN bus
	Ground		via DIN coil pin
Housing	Housing Material		Attaches to DIN 43650 coil Polyamide PA
	Combustability Class	UL94	V1
	Protection Class	IP	65 (with gasket)
	Working Temperature	C	-20 to +60
	Storage Temperature	C	-20 to +70
	Humidity	%	95 (non condensing)
Electro Magnetic Compatibility	Emission		EN 61000-6-2
	Immunity		EN 61000-6-3
	Vibration Resistance		EIC 60068-2-6

IDENTIFICATION CODE

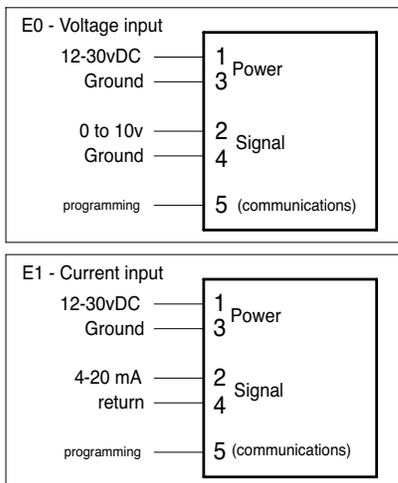
# CEM-AC-E0-A



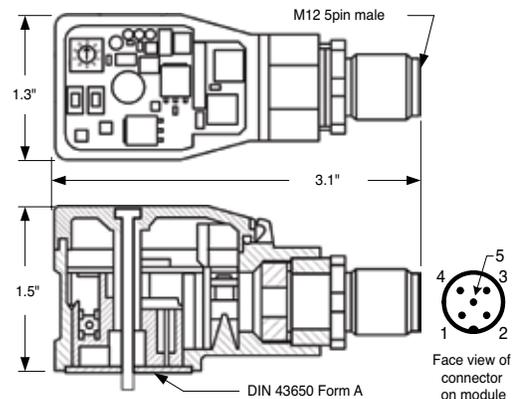
FUNCTIONAL DIAGRAM



WIRING EXAMPLE



DIMENSIONS





CONTINENTAL HYDRAULICS

# DUAL CHANNEL POWER AMPLIFIER CEM-AA

DUAL CHANNEL POWER AMPLIFIER - CEM-AA



## Wide Range of Analog Input Signals

### DESCRIPTION:

This power amplifier drives either single or dual solenoid proportional valve coils up to 2.6A. It is suitable to control current to proportional directional, flow or pressure valve coils.

A wide range of analog signals are accepted. User may select either voltage or current input mode. These inputs are easily scaled to match system requirements. Four ramps are available for independently setting acceleration and deceleration in each direction.

Min and Max output current are adjustable. Output characteristics can be independently customized. The module is disabled if the coil outputs are shorted or open. If command current signal is outside of the proper range, the module is disabled. PWM and Dither are user adjustable.

This module is easily adapted to a variety of system requirements. All variables are user adjusted with easy to use software on your Microsoft Windows® laptop. Control variables are stored in non-volatile memory internal to the module. All variables can be read by the laptop, and reproduced exactly on other modules.

## TECHNICAL DATA

<b>Power Supply</b>	vDC	12 to 30 (including ripple)
Consumption	mA	<100mA + solenoid
External Fuse	A	3 (medium action)
<b>Analog Inputs</b>	vDC	0 to +/- 10
Voltage	ohm	90k
Impedance	mA	0 to +/- 20 (typ 4 to 20)
Current	ohm	390
Impedance	%	<0.1
Resolution	mS	1.0
Sample Time	V	8 (10mA max)
Reference Voltage		
<b>Digital Inputs</b>	V	Logical 0 = < 2
	V	Logical 1 = > 10
Impedance	ohm	25k
<b>Digital Outputs</b>	V	Logical 0 = < 2 (50mA max)
	V	Logical 1 = ~ Power Supply
<b>Electrical Connection</b>		
Programming Port		RS-232 3.5mm Stero Jack
Power and Signal Ground		4 strips with 4 screw terminals each via DIN Rail

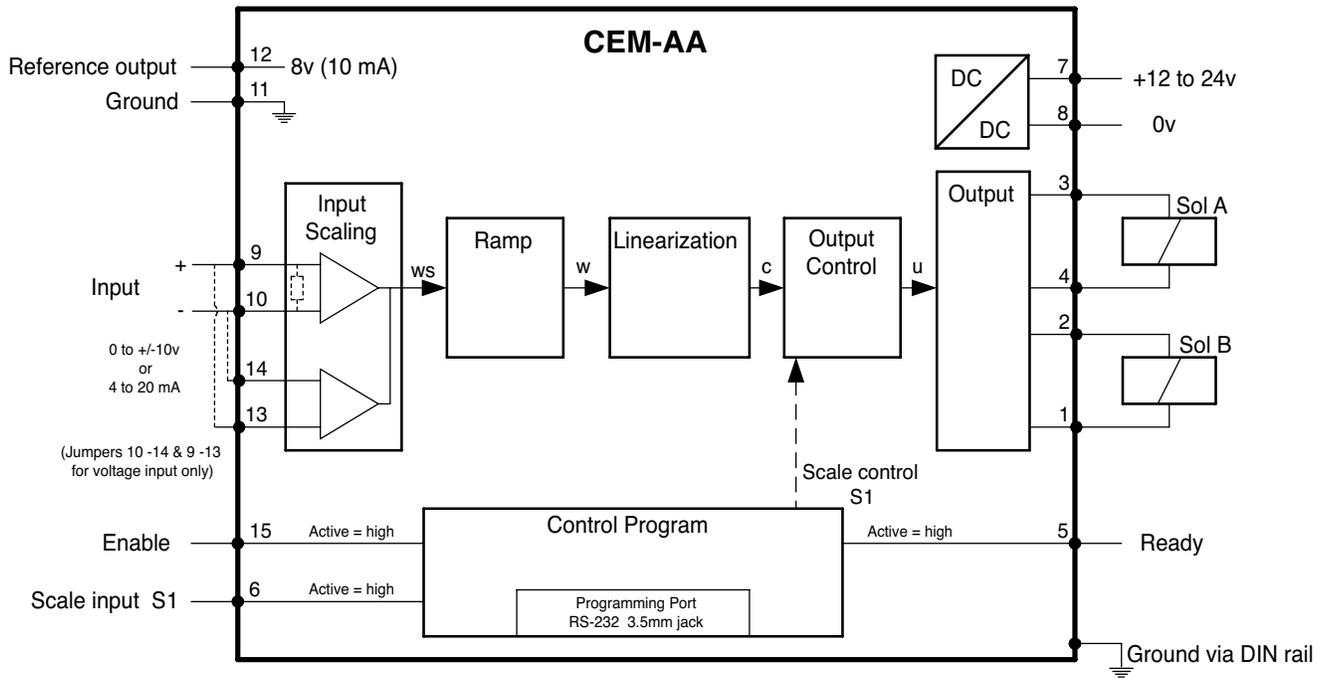
<b>Solenoid Outputs</b>	A	1.0	Software Selectable
	A	1.6	
	A	2.6	
	A	2.6	
PWM Frequency	Hz	100 to 2650	
Dither Frequency	Hz	60 to 400	
Dither Amplitude	%	0 to 30	
Sample Time	mS	0.17	
<b>Housing</b>	Module	Snaps to 35mm DIN Rail EN 50022	
	Material	Polyamide PA 6.6	
Combustability Class	UL94	V0	
Protection Class	IP	20	
Working Temperature	C	-20 to +60	
Storage Temperature	C	-20 to +70	
	Humidity	% 95 (non condensing)	
<b>Electro Magnetic Compatibility</b>			
	Emission	EN 61000-6-2	
	Immunity	EN 61000-6-3	
Vibration Resistance		EIC 60068-2-6	

IDENTIFICATION CODE

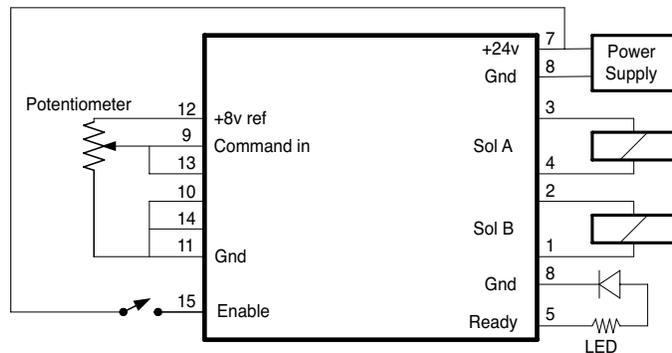
# CEM-AA-A

Dual Channel Power Amplifier

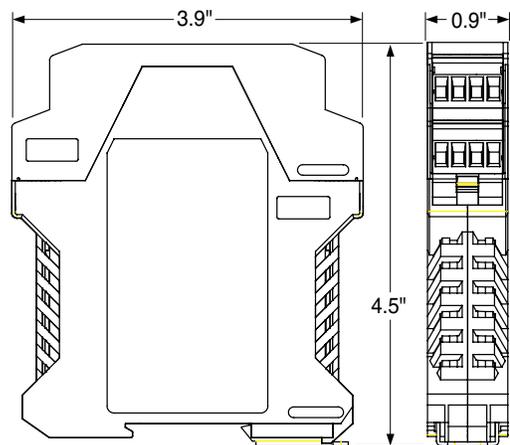
FUNCTIONAL DIAGRAM



WIRING EXAMPLE



DIMENSIONS





CONTINENTAL HYDRAULICS

# DUAL CHANNEL RAMP AMPLIFIER CEM-RA

DUAL CHANNEL RAMP AMPLIFIER - CEM-RA



## Switch Inputs for Ramped Motion Profile

### DESCRIPTION:

This ramp amplifier drives either single or dual solenoid proportional valve coils up to 2.6A. It is suitable to control current to either proportional directional, flow, or pressure valve coils. This module accepts 4 independent switch inputs, each of which has independently adjustable speed and ramp controls. Inputs are additive for up to 15 unique preset speed and ramp profiles.

In addition to the switch inputs, an analog input is also available. A wide range of analog signals are accepted. This input is easily scaled to match system requirements. Analog command can be used in addition to, or independent from, switch input speeds.

Min and Max outputs are adjustable. Output characteristics can be independently customized. The module is disabled if the coil outputs are shorted or open. PWM and Dither are user adjustable.

This module is easily adapted to a variety of system requirements. All variables are user-adjusted with easy to use software on your Microsoft Windows® laptop. Control variables are stored in non-volatile memory internal to the module. All variables can be read by the laptop, and reproduced exactly on other modules.

### TECHNICAL DATA

Power Supply	Consumption	vDC	12 to 30 (including ripple)
	External Fuse	mA	<100mA + solenoid
		A	3 (medium action)
Analog Inputs	Voltage	vDC	0 to +/- 10
	Impedance	ohm	90k
	Resolution	%	0.024
	Sample Time	mS	1.0
	Reference Voltage	V	10 (10mA max)
Digital Inputs		V	Logical 0 = < 2
	Impedance	ohm	25k
Digital Outputs		V	Logical 0 = < 2 (50mA max)
		V	Logical 1 = ~ Power Supply
Electrical Connection	Programming Port		RS-232 3.5mm Stereo Jack
	Power and Signal Ground		8 strips with 4 screw terminals each via DIN Rail

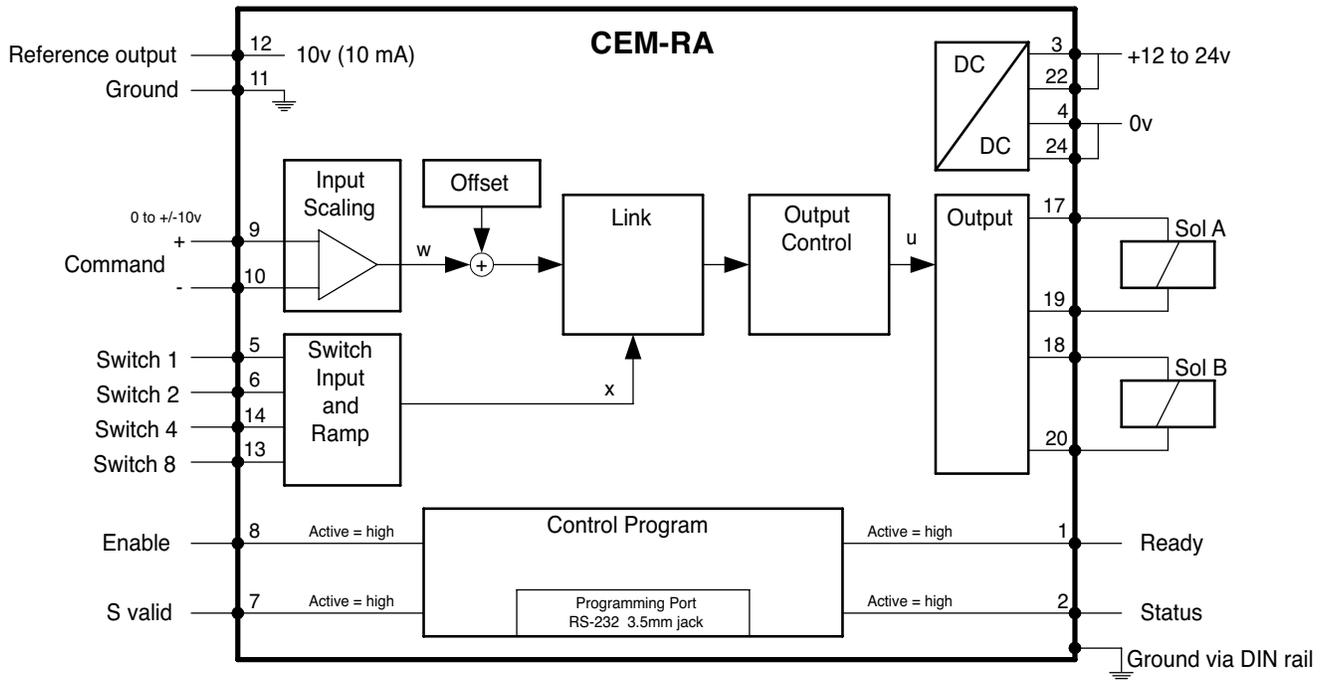
Solenoid Outputs		A	1.0	Software Selectable	
		A	1.6		
		A	2.6		
	PWM Frequency	Hz	100 to 2650		
	Dither Frequency	Hz	60 to 400		
	Dither Amplitude	%	0 to 30		
	Sample Time	mS	0.17		
Housing	Module		Snaps to 35mm DIN Rail EN 50022		
	Material		Polyamide PA 6.6		
	Combustability Class	UL94	V0		
	Protection Class	IP	20		
	Working Temperature	C	-20 to +60		
	Storage Temperature	C	-20 to +70		
		Humidity	%	95 (non condensing)	
	Electro Magnetic Compatibility	Emission		EN 61000-6-2	
		Immunity		EN 61000-6-3	
				EIC 60068-2-6	
Vibration Resistance					

IDENTIFICATION CODE

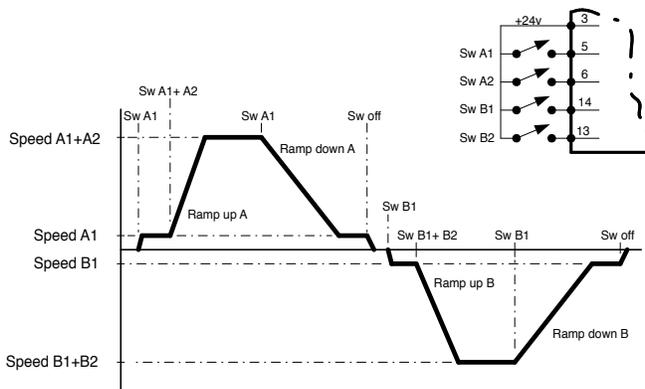
# CEM-RA-A

Dual Channel Ramp Amplifier

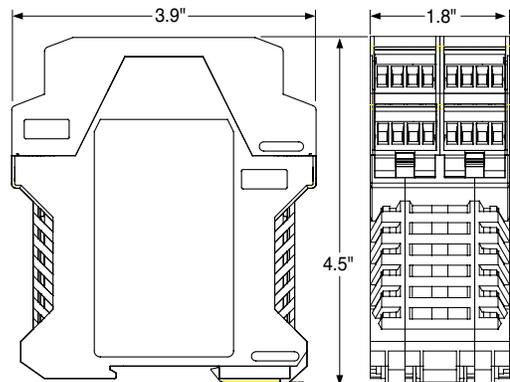
FUNCTIONAL DIAGRAM



WIRING EXAMPLE



DIMENSIONS





CONTINENTAL HYDRAULICS

# CLOSED LOOP PRESSURE AMPLIFIER CEM-PA

CLOSED LOOP PRESSURE AMPLIFIER - CEM-PA



## CLOSED LOOP CONTROL OF PRESSURE, FORCE OR SPEED. Single Channel with PID Signal Conditioning.

### DESCRIPTION:

This closed loop PID amplifier drives a single solenoid proportional pressure or flow control valve coil up to 2.6A. It is suitable to provide precise closed loop control in pressure, force, or velocity systems. This module uses traditional PID error correction to provide stable control in dynamic systems.

A wide range of analog signals are accepted. User may select either voltage or current input mode. These inputs are easily scaled to match system requirements. Input command can be ramped. PID variables are adjustable over a wide range. The amplifier is easily switched from open loop to closed loop control.

Min and Max output current are adjustable. Output characteristics can be independently customized. The module is disabled if the coil outputs are shorted or open. If command current signal is outside of the proper range, the module is disabled. PWM and Dither are user adjustable.

This module is easily adapted to a variety of system requirements. All variables are user adjusted with easy to use software on your Microsoft Windows® laptop. Control variables are stored in non-volatile memory internal to the module. All variables can be read by the laptop, and reproduced exactly on other modules.

### TECHNICAL DATA

Power Supply	Consumption	vDC	12 to 30 (including ripple)
	External Fuse	mA	<100mA + solenoid 3 (medium action)
Analog Inputs	Voltage	vDC	0 to +10
	Impedance	ohm	90k
	Current	mA	4 to 20
	Impedance	ohm	390
	Resolution	%	<0.1
	Sample Time	mS	1.0
Digital Inputs	Reference Voltage	V	8 (10mA max)
		V	Logical 0 = < 2 Logical 1 = > 10
Digital Outputs	Impedance	ohm	25k
		V	Logical 0 = < 2 (50mA max) Logical 1 = ~ Power Supply
Electrical Connection	Programming Port		RS-232 3.5mm Stero Jack
	Power and Signal Ground		4 strips with 4 screw terminals each via DIN Rail

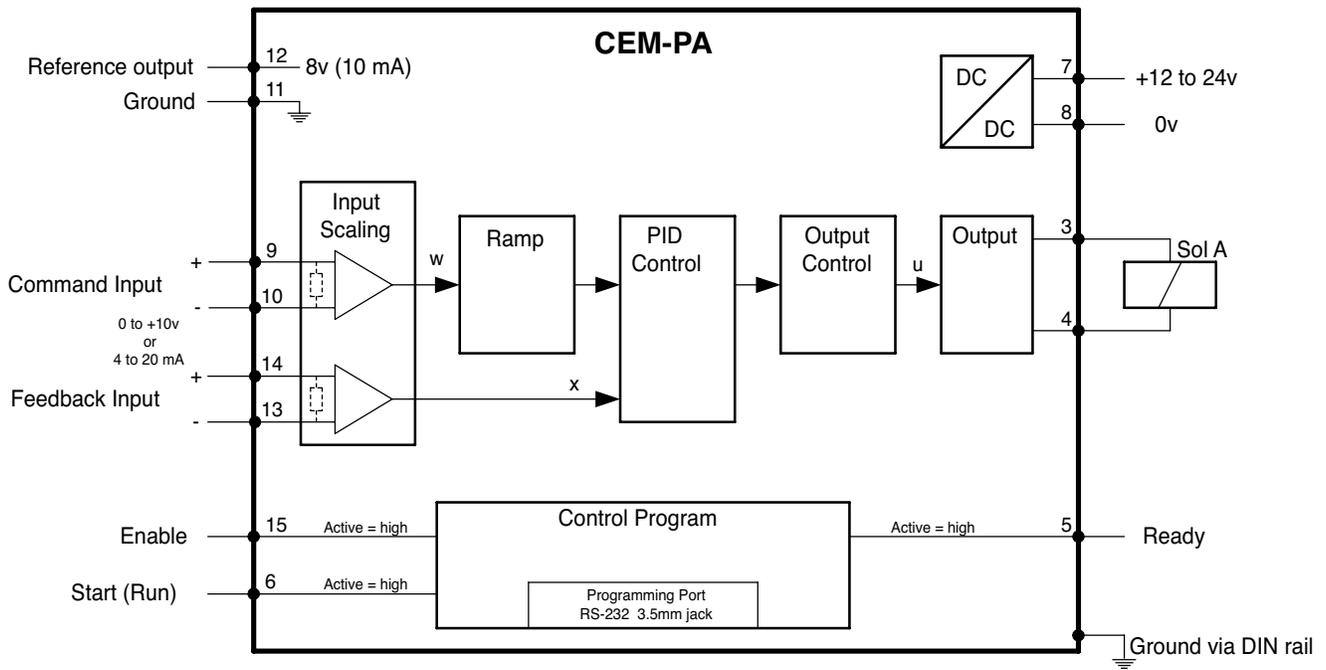
Solenoid Outputs	A	1.0	Software Selectable
	A	1.6	
	A	2.6	
	PWM Frequency	Hz	100 to 2650
	Dither Frequency	Hz	60 to 400
Housing	Dither Amplitude	%	0 to 30
	Sample Time	mS	0.17
Housing	Module	Snaps to 35mm DIN Rail EN 50022	
	Material	Polyamide PA 6.6	
	Combustability Class	UL94	V0
	Protection Class	IP	20
	Working Temperature	C	-20 to +60
	Storage Temperature	C	-20 to +70
Electro Magnetic Compatibility	Humidity	%	95 (non condensing)
	Emission	EN 61000-6-2	
	Immunity	EN 61000-6-3	
	Vibration Resistance	EIC 60068-2-6	

IDENTIFICATION CODE

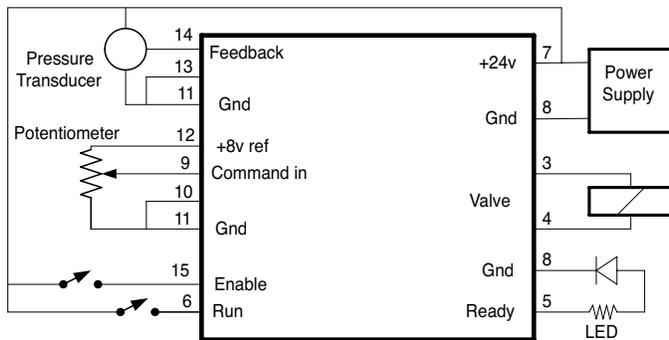
# CEM-PA-A

Closed Loop Pressure Amplifier

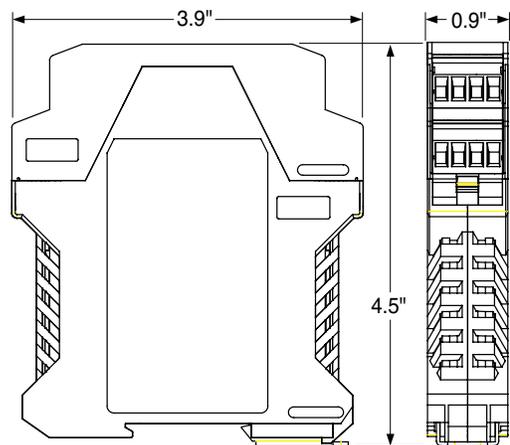
FUNCTIONAL DIAGRAM



WIRING EXAMPLE



DIMENSIONS



# CONTROL PRECISION PERFORMANCE CONTROL

## CONTINENTAL HYDRAULICS CLOSED LOOP POSITION MODULE CEM-SA



CLOSED LOOP POSITION MODULE - CEM-SA



### Analog Command and Feedback

#### DESCRIPTION:

This closed loop position module is designed to quickly and accurately move hydraulic cylinder loads. Position and velocity commands are from analog sources. Cylinder position feedback is from an analog source.

Stroke dependent deceleration is used to provide quick and repeatable positioning. Internal ramp and velocity adjustments allow for easy system tuning.

A wide range of analog signals are accepted. User may select either voltage or current input mode. These inputs are easily scaled to match system requirements.

Forward and Reverse "jog" inputs allow for manual load control. A user definable window for "in position" triggers an output for communication to the next machine function.

Output is an analog voltage, 0 to +10vdc, suitable for directly driving a proportional directional valve with on board electronics.

This module is easily adapted to a variety of system requirements. All variables are user adjusted with easy to use software on your Microsoft Windows laptop. Control variables are stored in non-volatile memory internal to the module. All variables can be read by the laptop, and reproduced exactly on other modules.

#### TECHNICAL DATA

Power Supply	vDC	12 to 30 (including ripple)
Consumption	mA	<100mA
External Fuse	A	3 (medium action)
Analog Inputs	vDC	0 to + 10
Voltage	ohm	33k
Impedance	mA	0 to 20 (typ 4 to 20)
Current	ohm	250
Impedance	%	0.01
Resolution	mS	1.0
Sample Time	vDC	0 to +10
(Speed Input) Voltage	ohm	90k
(Speed Input) Impedance	V	Logical 0 = < 2 (50mA max)
Digital Outputs	V	Logical 1 = ~ Power Supply
Electrical Connection		RS-232 3.5mm Stereo Jack
Programming Port		4 strips with 4 screw terminals each
Power and Signal		via DIN Rail
Ground		

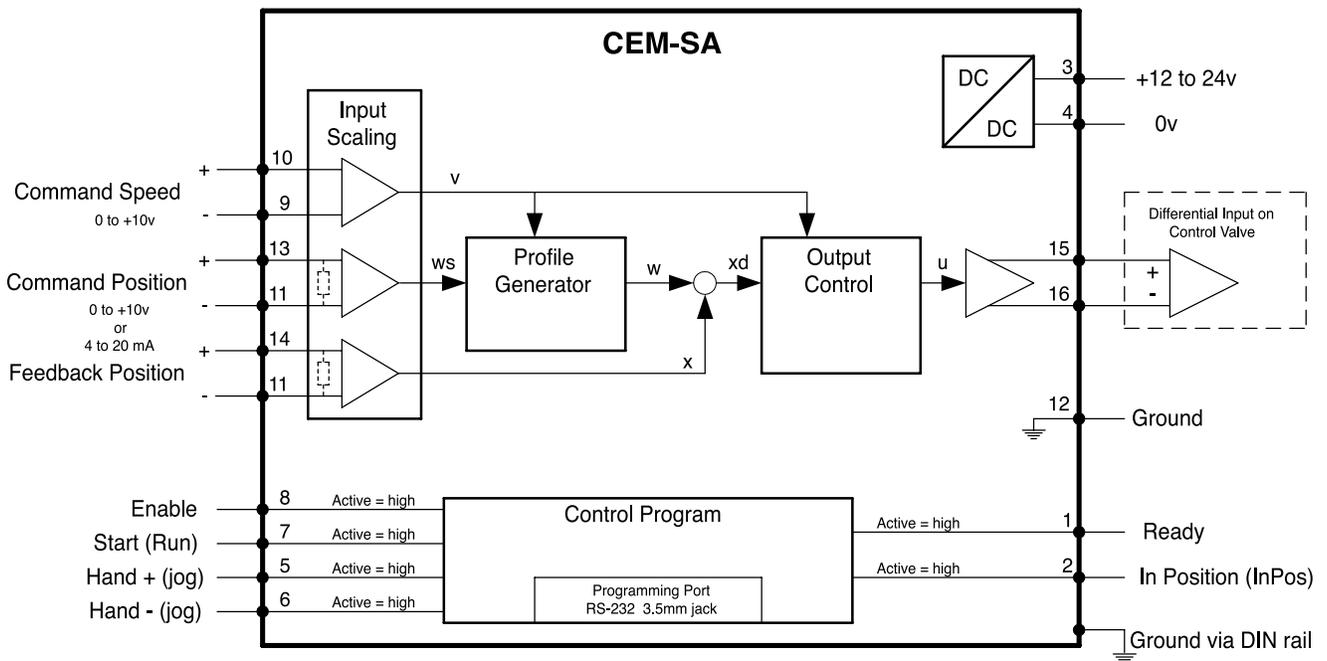
Digital Inputs	V	Logical 0 = < 2
	V	Logical 1 = > 10
	ohm	25k
Analog Output	vDC	0 to +/- 10
Voltage	mA	5 (max)
Current	%	0.024
Resolution		
Housing	Module	Snaps to 35mm DIN Rail EN 50022
	Material	Polyamide PA 6.6
Combustability Class	UL94	V0
Protection Class	IP	20
Working Temperature	C	-20 to +60
Storage Temperature	C	-20 to +70
Humidity	%	95 (non condensing)
Electro Magnetic Compatibility		
Emission		EN 61000-6-2
Immunity		EN 61000-6-3
Vibration Resistance		EIC 60068-2-6

IDENTIFICATION CODE

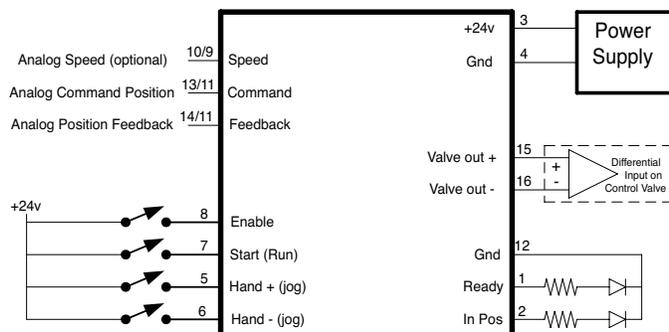
# CEM-SA-A

Closed Loop Position Module

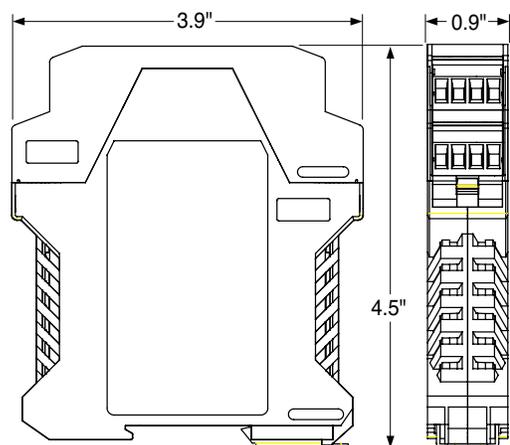
FUNCTIONAL DIAGRAM



WIRING EXAMPLE



DIMENSIONS





CONTINENTAL HYDRAULICS

# CLOSED LOOP POSITION MODULE

## CEM-SD

CLOSED LOOP POSITION MODULE - CEM-SD



### Analog Command and SSI Digital Feedback

#### DESCRIPTION:

This closed loop position module is designed to quickly and accurately move hydraulic cylinder loads. Position and velocity commands are from analog sources. Cylinder position feedback is from a digital (SSI) source.

Stroke dependent deceleration is used to provide quick and repeatable positioning. Internal ramp and velocity adjustments allow for easy system tuning.

A wide range of analog signals are accepted. User may select either voltage or current input mode. These inputs are easily scaled to match system requirements.

Forward and Reverse "jog" inputs allow for manual load control. A user definable window for "in position" triggers an output for communication to the next machine function.

Output is an analog voltage, 0 to +10vdc, suitable for directly driving a proportional directional valve with on board electronics.

This module is easily adapted to a variety of system requirements. All variables are user adjusted with easy to use software on your Microsoft Windows® laptop. Control variables are stored in non-volatile memory internal to the module. All variables can be read by the laptop, and reproduced exactly on other modules.

#### TECHNICAL DATA

Power Supply	Consumption	vDC	12 to 30 (including ripple)
	External Fuse	mA	<100mA
		A	3 (medium action)
Analog Inputs	Voltage	vDC	0 to + 10
	Impedance	ohm	33k
	Current	mA	0 to 20 (typ 4 to 20)
	Impedance	ohm	250
	Resolution	%	0.01
	Sample Time	mS	1.0
(Speed Input) Voltage		vDC	0 to +10
	(Speed Input) Impedance	ohm	90k
SSI Feedback			RS-422 150k baud
	Monitor	vDC	0 to 10
		mA	5 (max)
Electrical Connection	Programming Port		RS-232 3.5mm Stero Jack
	Power and Signal		8 strips with 4 screw terminals each
	Ground		via DIN Rail

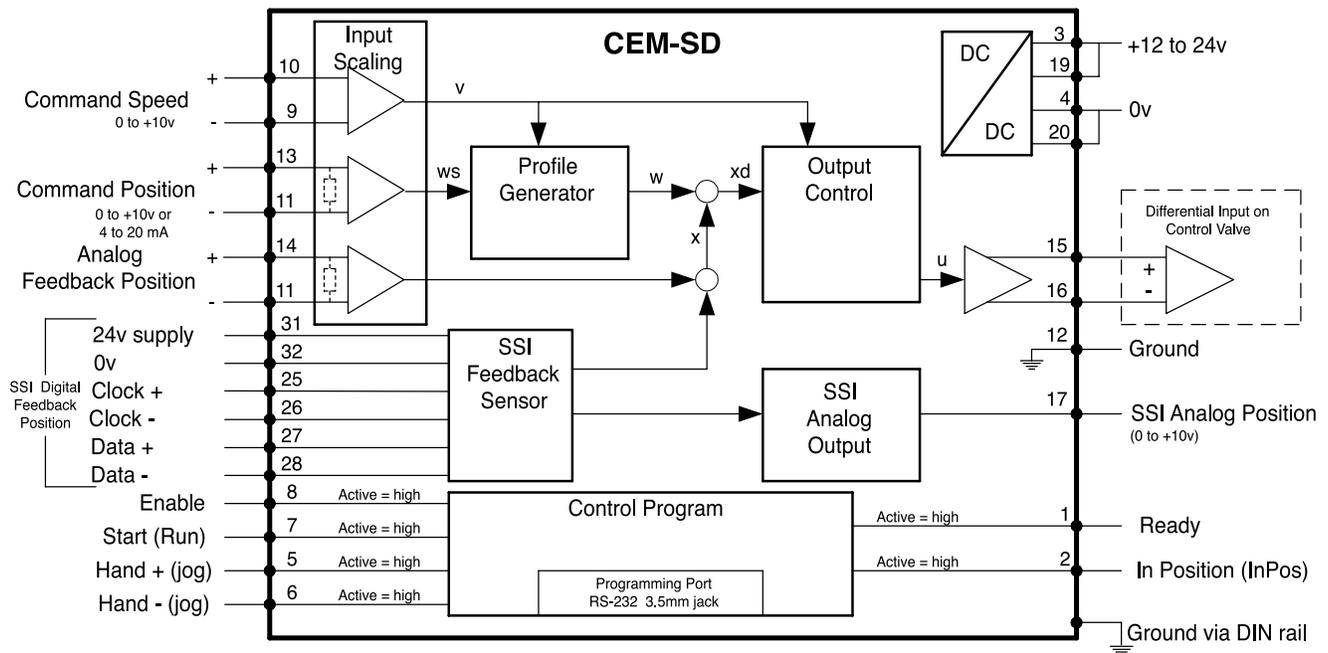
Digital Inputs		V	Logical 0 = < 2
	Impedance	ohm	Logical 1 = > 10 25k
Digital Outputs		V	Logical 0 = < 2 (50mA max)
		V	Logical 1 = ~ Power Supply
Analog Output	Voltage	vDC	0 to +/- 10
	Current	mA	5 (max)
	Resolution	%	0.024
Housing	Module		Snaps to 35mm DIN Rail EN 50022
	Material		Polyamide PA 6.6
	Combustability Class	UL94	V0
	Protection Class	IP	20
	Working Temperature	C	-20 to +60
	Storage Temperature	C	-20 to +70
Electro Magnetic Compatibility	Humidity	%	95 (non condensing)
	Emission		EN 61000-6-2
	Immunity		EN 61000-6-3
	Vibration Resistance		EIC 60068-2-6

**IDENTIFICATION CODE**

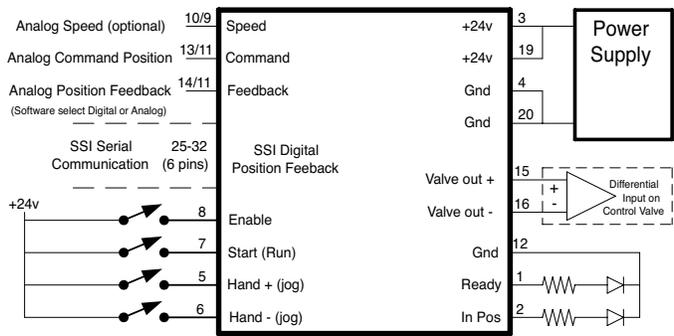
# CEM-SD-A

Closed Loop Position Module

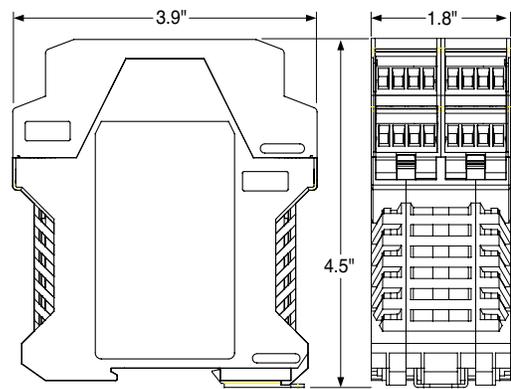
**FUNCTIONAL DIAGRAM**



**WIRING EXAMPLE**



**DIMENSIONS**



# CONTROL PRECISION CONTINENTAL CLOSED LOOP SYNCHRONIZATION MODULE CEM-MS



CLOSED LOOP SYNCHRONIZATION MODULE - CEM-MS



## Two Axis Control

### DESCRIPTION:

This closed loop position module is to be applied in pairs, each module driving a hydraulic cylinder for a system of synchronized motion. This pair of cylinders can quickly and accurately move hydraulic cylinder loads in unison. Position and velocity commands are from analog sources. Cylinder feedback is from an analog source.

Stroke dependent deceleration is used to provide quick and repeatable positioning. Internal ramp and velocity adjustments allow for easy system tuning.

A wide range of analog signals are accepted. User may select either voltage or current input mode. These inputs are easily scaled to match system requirements.

Output is an analog voltage, 0 to +10vdc, suitable for directly driving a proportional directional valve with on board electronics.

This module is easily adapted to a variety of system requirements. All variables are user adjusted with easy to use software on your Microsoft Windows® laptop. Control variables are stored in non-volatile memory internal to the module. All variables can be read by the laptop, and reproduced exactly on other modules.

## TECHNICAL DATA

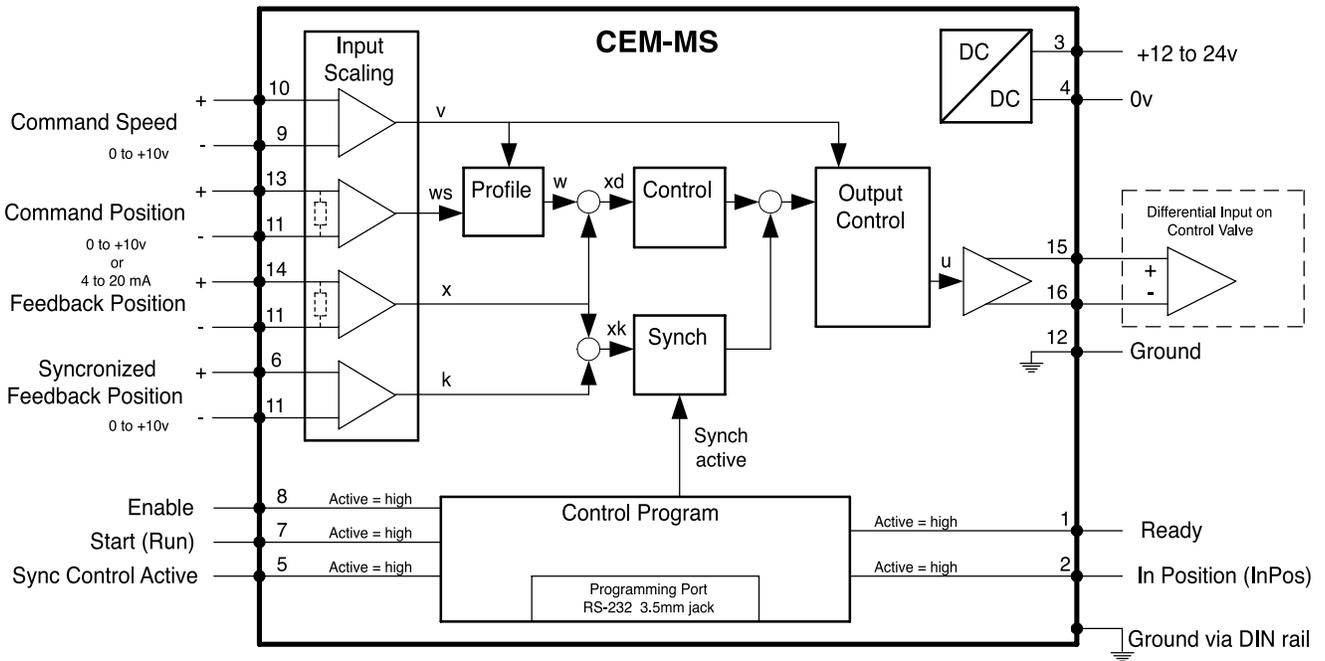
Power Supply	Consumption	vDC	12 to 30 (including ripple)	Digital Inputs	V	Logical 0 = < 2	
	External Fuse	mA	<100mA		V	Logical 1 = > 10	
Analog Inputs	Voltage	vDC	0 to +10	Impedance	ohm	25k	
	Impedance	ohm	33k	Analog Output	Voltage	vDC	0 to +/- 10
	Current	mA	0 to 20 (typ 4 to 20)		Current	mA	5 (max)
	Impedance	ohm	250		Resolution	%	0.024
	Resolution	%	0.01	Housing	Module		Snaps to 35mm DIN Rail EN 50022
	Sample Time	mS	1.0		Material		Polyamide PA 6.6
(Speed Input) Voltage	vDC	0 to +10	Combustability Class		UL94	V0	
(Speed Input) Impedance	ohm	90k	Protection Class		IP	20	
Digital Outputs	V		Logical 0 = < 2 (50mA max)	Working Temperature	C	-20 to +60	
	V		Logical 1 = ~ Power Supply	Storage Temperature	C	-20 to +70	
Electrical Connection	Programming Port Power and Signal Ground		RS-232 3.5mm Stereo Jack	Humidity	%	95 (non condensing)	
			4 strips with 4 screw terminals each via DIN Rail	Electro Magnetic Compatibility			
				Emission		EN 61000-6-2	
				Immunity		EN 61000-6-3	
				Vibration Resistance		EIC 60068-2-6	

IDENTIFICATION CODE

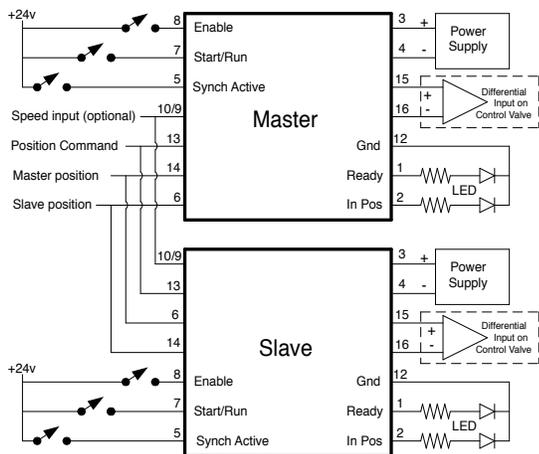
# CEM-MS-A

Closed Loop Synchronization Module

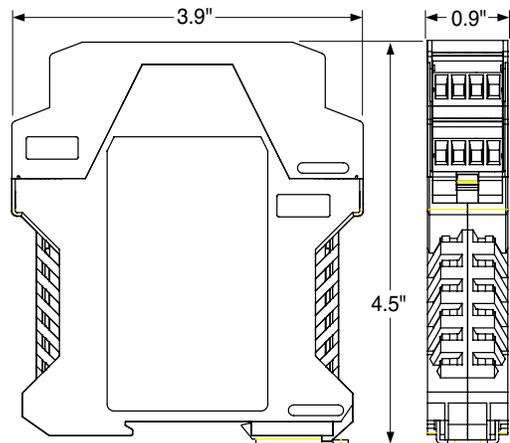
FUNCTIONAL DIAGRAM



WIRING EXAMPLE



DIMENSIONS



# CONTROL PRECISION PERFORMANCE CONTROL

## CONTINENTAL HYDRAULICS CLOSED LOOP PID MODULE CEM-PID



CLOSED LOOP PID MODULE - CEM-PID



### Universal PID Signal Conditioner

#### DESCRIPTION:

This closed loop PID module compares command and feedback signals, and applies traditional PID gain settings to the error signal. This modified signal is provided as an analog voltage (0 to +/-10v) output. It may be used to drive proportional pressure or flow control valves with on board electronics, or as a command to another amplifier module. It is suitable to provide dynamic closed loop control in pressure, force, or velocity systems.

A wide range of analog signals are accepted. User may select either voltage or current input mode. These inputs are easily scaled to match system requirements. Input command can be ramped. PID variables are adjustable over a wide range. Easily switched from open loop to closed loop control.

Output can be scaled to match the proportional valve being driven. If command current signal is outside of the proper range, the module is disabled. Digital outputs inform the user of system errors.

This module is easily adapted to a variety of system requirements. All variables are user adjusted with easy to use software on your Microsoft Windows® laptop. Control variables are stored in non-volatile memory internal to the module. All variables can be read by the laptop, and reproduced exactly on other modules.

#### TECHNICAL DATA

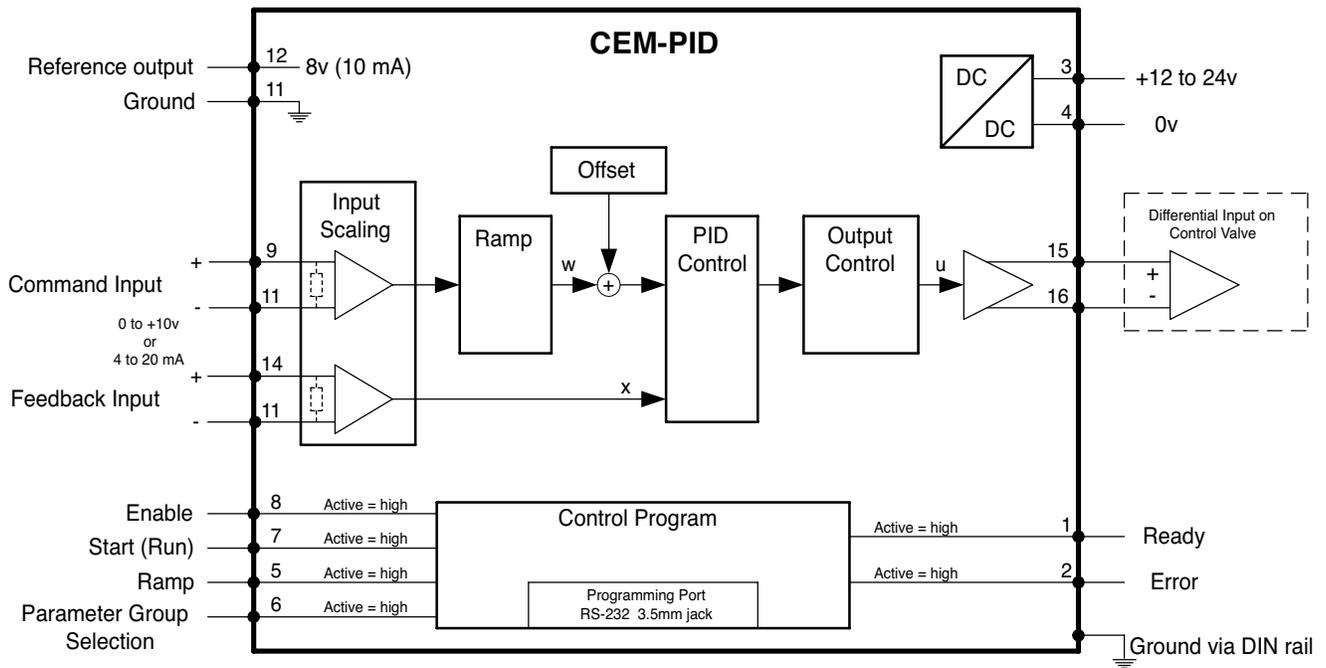
<b>Power Supply</b>	Consumption External Fuse	vDC mA A	12 to 30 (including ripple) <100mA 3 (medium action)	<b>Digital Inputs</b>	V V Impedance	Logical 0 = < 2 Logical 1 = > 10 25k	
<b>Analog Inputs</b>	Voltage Impedance Current Impedance Resolution Sample Time Reference Voltage	vDC ohm mA ohm % mS V	0 to +10 33k 4 to 20 250 0.012 1.0 8 (10mA max)	<b>Analog Output</b>	Voltage Current Resolution	vDC mA %	0 to +/- 10 5 (max) 0.024
<b>Digital Outputs</b>		V V	Logical 0 = < 2 (50mA max) Logical 1 = ~ Power Supply	<b>Housing</b>	Module Material Combustability Class Protection Class Working Temperature Storage Temperature Humidity	Snaps to 35mm DIN Rail EN 50022 Polyamide PA 6.6 UL94 V0 IP 20 C -20 to +60 C -20 to +70 % 95 (non condensing)	
<b>Electrical Connection</b>	Programming Port Power and Signal Ground		RS-232 3.5mm Stereo Jack 4 strips with 4 screw terminals each via DIN Rail	<b>Electro Magnetic Compatibility</b>	Emission Immunity Vibration Resistance	EN 61000-6-2 EN 61000-6-3 EIC 60068-2-6	

IDENTIFICATION CODE

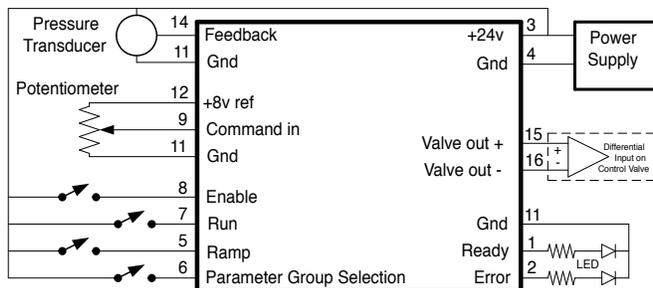
# CEM-PID-A

Closed Loop PID Module

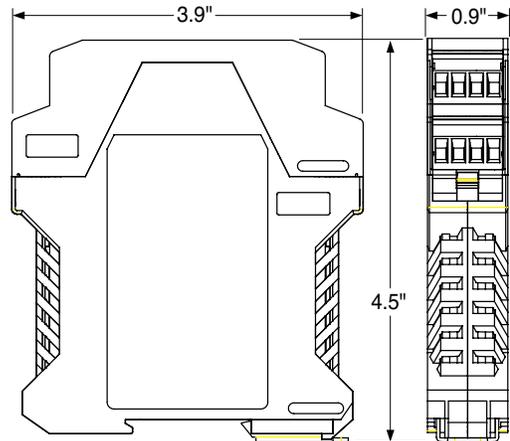
FUNCTIONAL DIAGRAM



WIRING EXAMPLE



DIMENSIONS



CONTINENTAL HYDRAULICS

# VALVE ELECTRICAL ACCESSORIES FOR ELECTRO HYDRAULIC PRODUCTS

VALVE ELECTRICAL ACCESSORIES



**DESCRIPTION:**

These products are used to connect, configure and troubleshoot your electro hydraulic proportional products.

CHI electro hydraulic products are unique in the industry, as you need only "One cable, and One software" to configure our full line of all digital valves and control modules.

This easy to use software allows you precise and repeatable control of the electronic variables necessary to tune the motion profile of your control system.

All variables can be adjusted, saved and reproduced into other modules. Variable names and ranges are consistent from one module to another, making your machine tuning job easier.

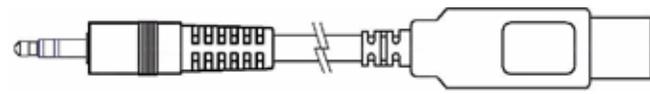
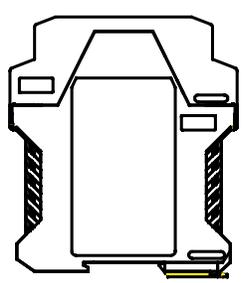
Product offerings include:

- Programming Cable
- Adapters
- Software

- Programming Boxes
- Connectors and Cordsets

**PROGRAMMING CABLE**

**VEA-USB** is a cable necessary to configure all digital valves and CEM control modules. One end has a USB connector to plug into your Microsoft Windows® laptop. The other end has a 3.5mm plug that connects to the control module or valve electronics jack. This tool allows you to communicate with, configure and troubleshoot electronic controllers.

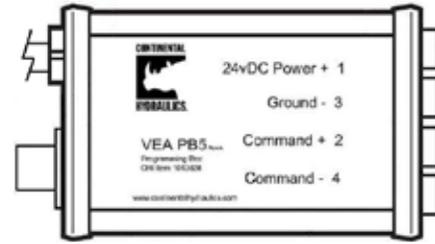


**PROGRAMMING BOX:**

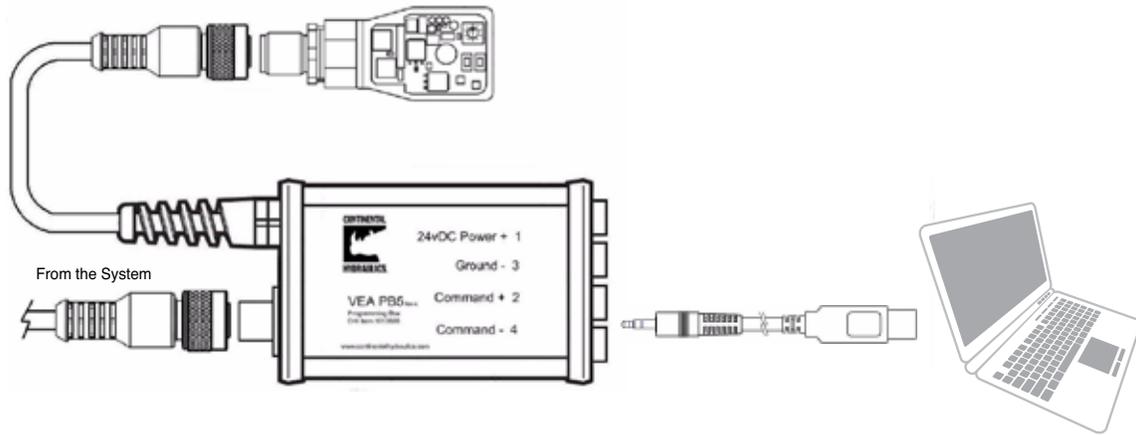
**VEA-PB5** is a tool that eases the task of making adjustments to digital electronic controllers. This programming box can be used during the commissioning of a new product, or when troubleshooting an existing application.

To troubleshoot an existing application, simply disconnect the existing 5 pin connector, and insert this tool in series. You may now monitor the on board amplifier as being commanded by the machine controller. The VEA-PB5 allows you to connect your Microsoft Windows® laptop via the VEA-USB programming cable. You may then tune the variables to optimize you motion profile, and save those changes. Banana Jacks for power and signal are included, and allow for bench top programming.

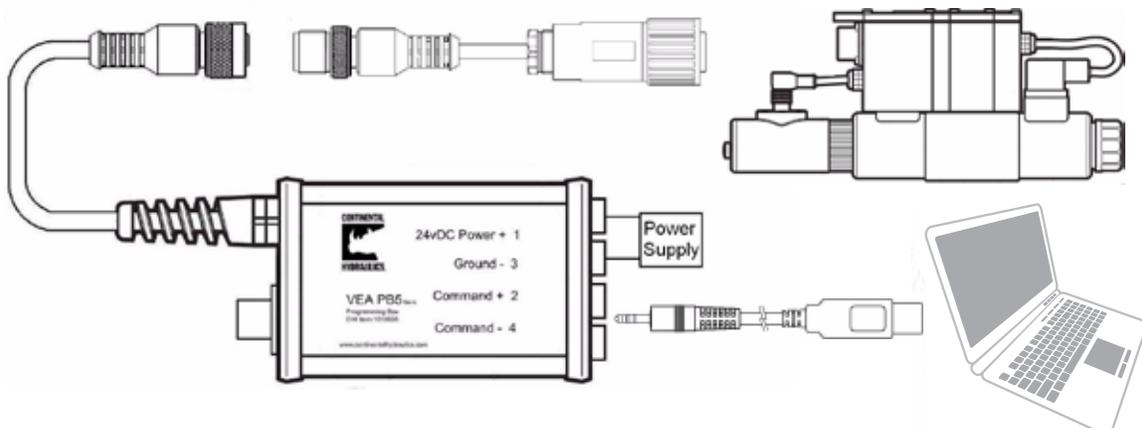
VEA-PB5 will connect directly to CEM-AC coil mounted amplifiers. VEA-527 is required to connect to "J" and "G" pressure and flow valves with 7 pin connector on board electronics.



**CONFIGURING A CEM-AC**



**CONFIGURING A VALVE WITH ON BOARD ELECTRONICS ON THE BENCH**



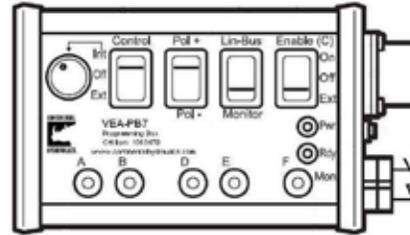
**PROGRAMMING BOX:**

**VEA-PB7** is a tool that eases the task of making digital adjustments to your on board electronics equipped proportional valves. This programming box can be used during the commissioning of a new product, or troubleshooting an existing application.

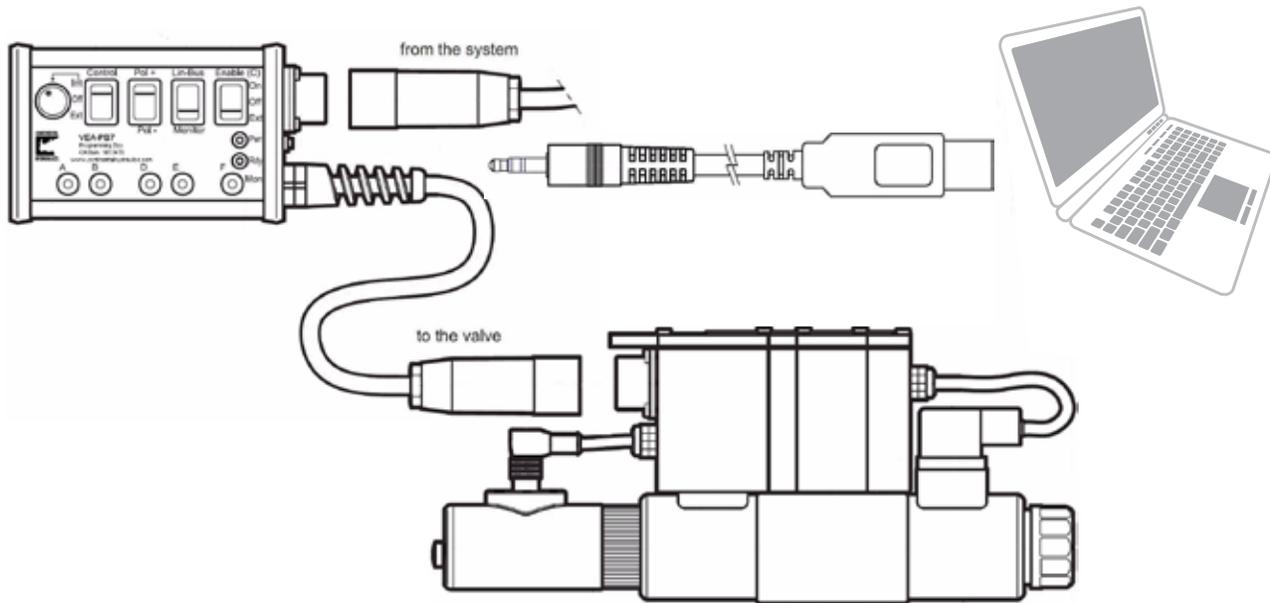
To troubleshoot an existing application, simply disconnect the existing 7 pin connector, and insert this tool in series. You may now monitor the on board amplifier as being commanded by the machine controller. The VEA-PB7 allows you to connect your Microsoft Windows® laptop via VEA-USB, and change variables as required. Banana Jacks for power and signal are included, and allow for benchtop programming.

VEA-PB7 also includes controls and switches that allow for independent total control of the valve during troubleshooting.

VEA-PB7 will connect directly to any “J” and “G” valves with 7 pin connector on board electronics.

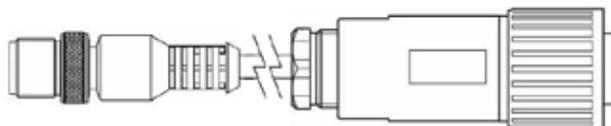


**CONFIGURING A VALVE WITH ON BOARD ELECTRONICS**



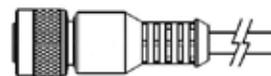
## PROGRAMMING BOX CABLE ADAPTER

**VEA-527** is an adapter that allows the VEA-PB5 to connect to proportional valves with on board electronics. It has a male M12 5 pin jack, and a female 7 pin plug to connect to the valve. Internally, Pin A is connected to Pin C to turn on "Enable". Power, signal and communication pins are wired straight through.

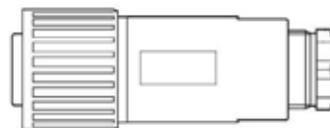


## VALVE CONNECTORS AND CORDSETS

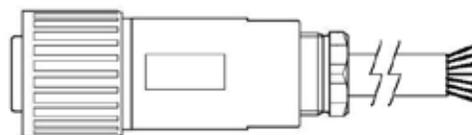
**VEA-3P5C** is a molded shielded cordset that brings power and signal to the CEM AC amplifier. It is a M12 female connector attached 5 conductors of 24ga finely stranded copper, all wrapped in a foil shield. The shield drain is to be connected to frame ground at the control box. The cable is 5 meters long, and can be easily cut to length during installation.



Electrical connectors and shielded cable assemblies connects the machine controller to the 7 pin on board electronics valve controller. Plastic **VEA-3P7P** and metal **VEA-3P7M** versions are offered.

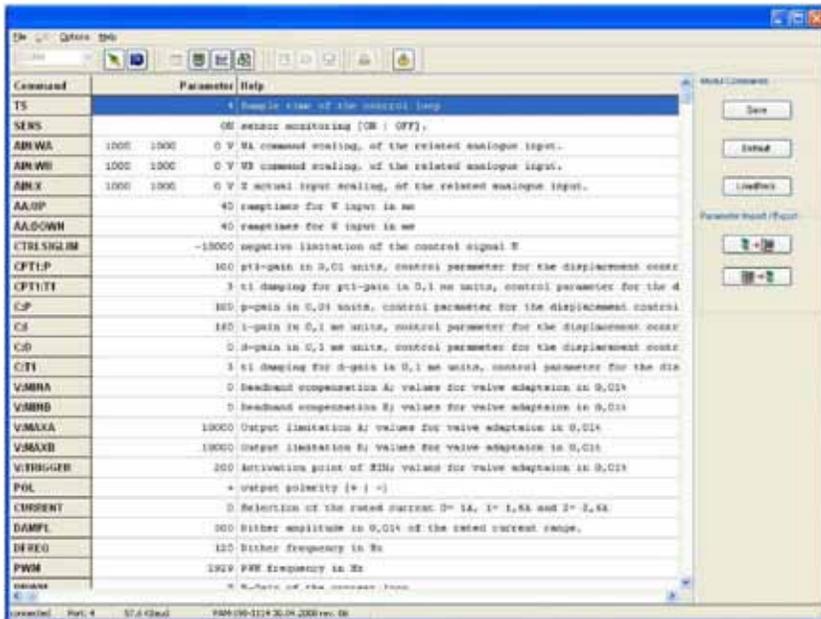
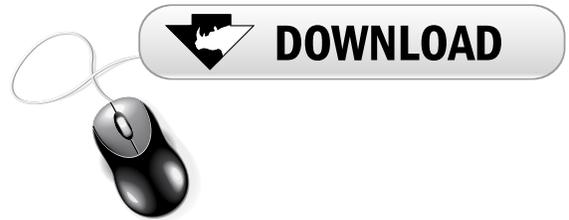


**VEA-3P7C** cordset attaches a plastic connector body to a 3 meter long cable made of 7 individual 18 gauge copper conductors, all wrapped in a foil shield. The outer jacket is an oil resistant gray PVC. The controller end of the cable is stripped and tagged with pin names.



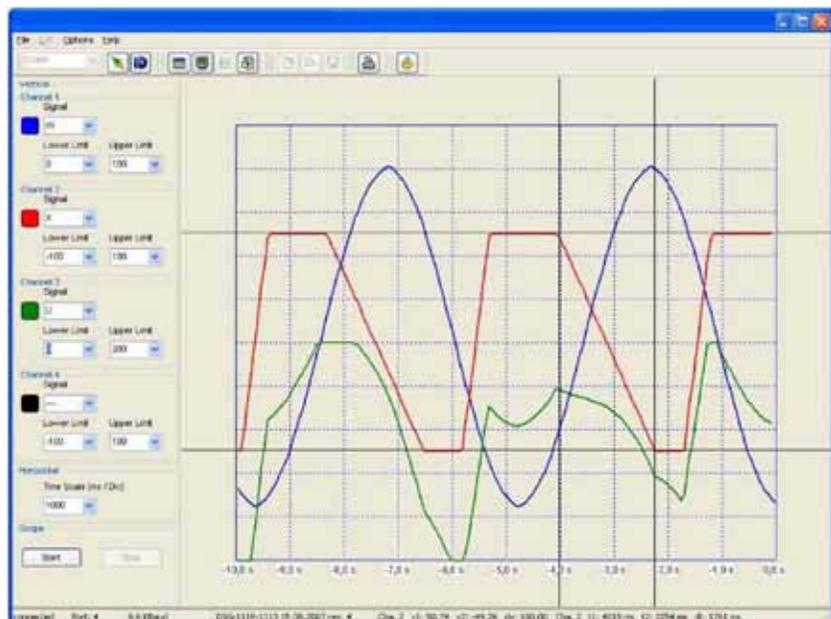
## SOFTWARE

**CHI PC** is a “free to download” application for your Microsoft Windows® laptop. This tool allows you configure and troubleshoot all of your CHI digital electronics products. This easy to understand software can be used in all three process steps: configure and tune the machine, storing these variables to permanent memory, and monitoring the machine during operation.



The configuration page allows the user to scale inputs, adjust ramp times, set closed loop control variables, and adjust outputs to match the valve. Only those parameters that apply to the connected module appear on this screen.

The oscilloscope feature allows the user to monitor inputs and outputs in real time. Cursor control allows for precise measurement of variables.



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PRECISE

## ABOUT CONTINENTAL HYDRAULICS

Rugged, durable, high-performance, efficient—the reason Continental Hydraulics' products are used in some of the most challenging applications across the globe. With a commitment to quality customer support and innovative engineering, Continental's pumps, valves, power units, mobile and custom products deliver what the markets demand. Continental has been serving the food production, brick and block, wood products, automotive and machine tool industries since 1962. Learn how our products survive some of the most harsh environments.

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