

Module Valve Amplifier for Press Brakes

CybMVA



CybMVA Amplifier Module

As part of its complete solutions, we offer a range CybMVA amplifier modules covering all press brake configurations. CybMVAs are implemented with the CybTouch 15 PS, VisiPac, VisiTouch 19 and 19 MX controls through a CANopen link.

The CybMVA modules are multichannel valve amplifiers developed to operate simultaneously Y1, Y2 valves (any kind of hydraulic systems), one pressure valve and one crowning valve.

Depending on the model, CybMVA can drive:

- Proportional valves with feedback
- Open-loop proportional valves without feedback
- Proportional valves with integrated amplifier
- Servo valves
- Hybrid press brakes

CybMVA, placed inside the cabinet, also serves as interface to I/O and analog axes.

Main useful features

USB interface and its dedicated PC program offer simple parameters setup and diagnostic.

LEDs signals for easy function check.

Depending on the type of valves, configuration directly from VisiPac or VisiTouch through CANopen link.

Customer Benefits

- All in one design
- Manage directional, pressure and crowing valves
- Attractive solution from the same supplier

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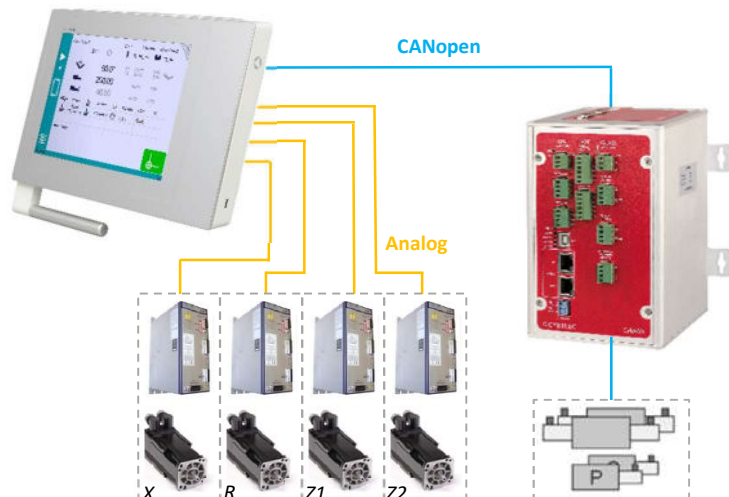
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OVERVIEW

CybTouch 15 PS – 6 axes (Y1, Y2, X, R, Z1, Z2)



Available configurations

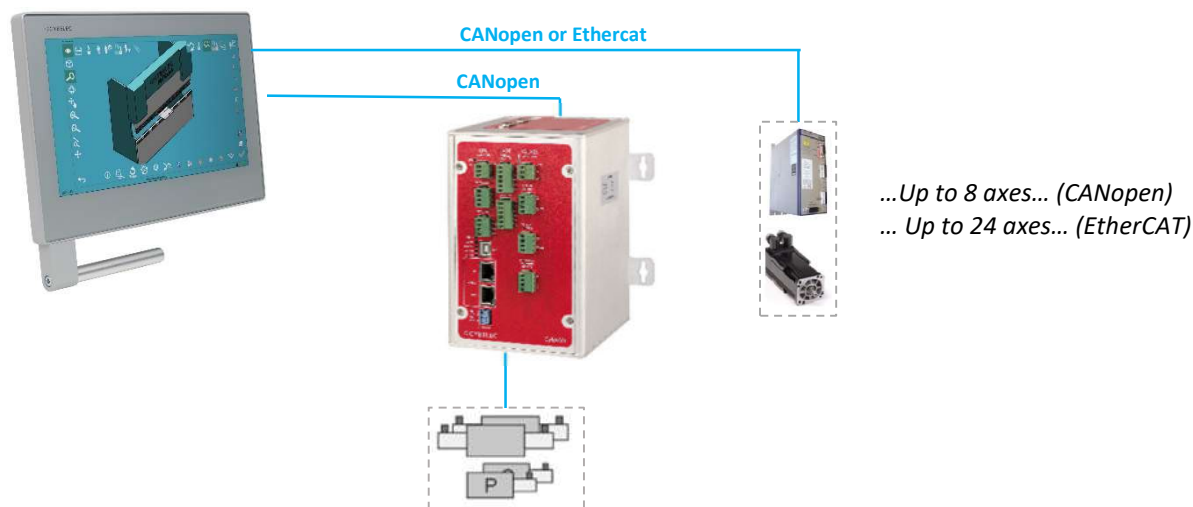
	Proportional valves			Servo Valves	Hybrid
	With Feedback (Hoerbiger valves)	Without feedback	With integrated amplifier (+/-10V analog command)	Required MSV402/A module (50-300 mA)	
Pressure & crowning amplifier					
Y1 + Y2 + 2 axis	CybVA6 or MVA-FA2		2 x MVP 100/A	MSV 402/A + 2 x MVP 100/A	
Y1 + Y2 + 4 axis *	MVA-FA2		MVA-AA2	MVA-AA2 + MSV 402/A	MVA-AA2

* Y1 + Y2 wired on MVA. Electrical analog axis wired on CybTouch 15PS

MSV 402/A: amplifier for Servo-valve

MVP 100/A: amplifier for pressure and crowning (Only for solution without MVA or CybVA6)

VisiPac - Up to 24 axes in digital mode (Y1, Y2, + axes)



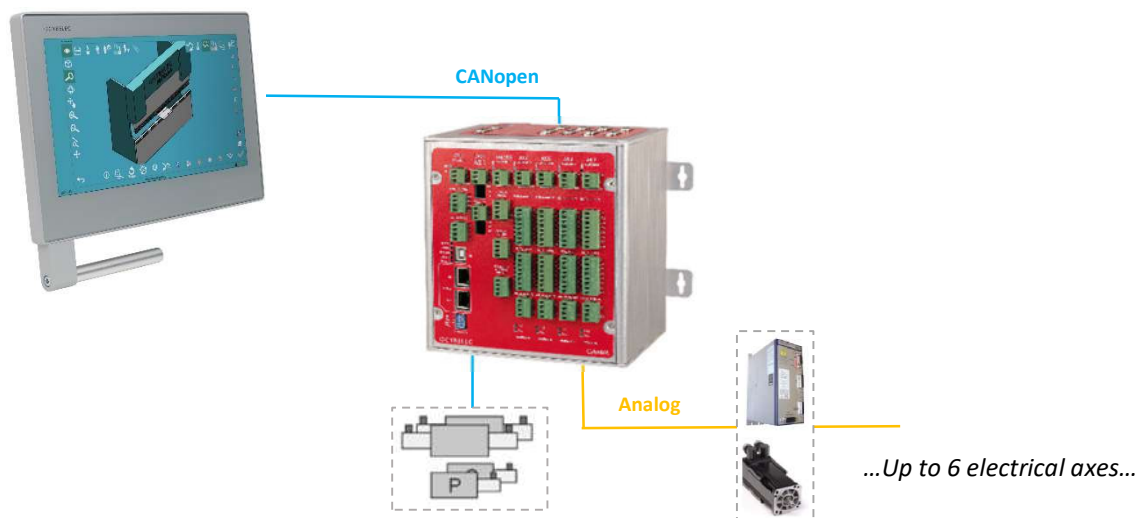
Available configurations

Configurations with digital electrical axes

	Proportional valves			Servo Valves	Hybrid
	With Feedback (Hoerbiger valves)	Without feedback	With integrated amplifier ($\pm 10V$ analog command)	Required MSV402/A module (50-300 mA)	
Pressure & crowning amplifier					
Y1 + Y2 + digital axis	MVA-FD2		MVA-AD2	MVA-AD2 + MSV 402/A	MVA-AD2

MSV 402/A: amplifier for Servo-valve

VisiPac - Up to 8 axes in analog mode (Y1, Y2, + 6 axes)



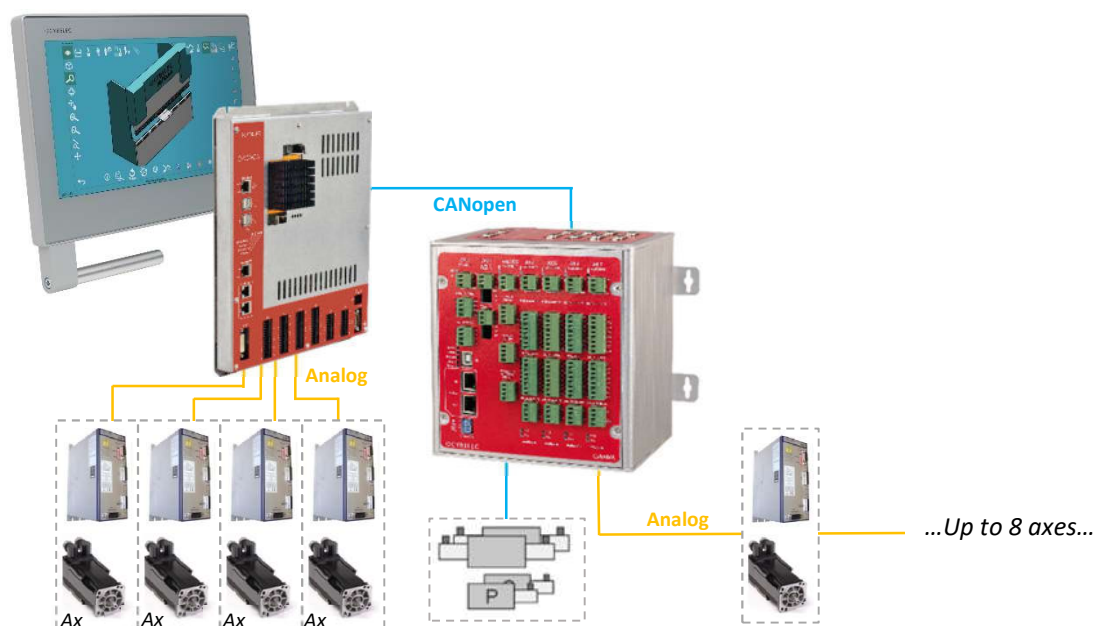
Available configurations

Configurations with analog electrical axes

	Proportional valves			Servo Valves	Hybrid
	With Feedback (Hoerbiger valves)	Without feedback	With integrated amplifier ($\pm 10V$ analog command)	Required MSV402/A module (50-300 mA)	
Pressure & crowning amplifier					
Y1 + Y2 + 2 axis	MVA-FA4		MVA-AA4	MVA-AA4 + MSV 402/A	MVA-AA4
6 axis	MVA-FA6		MVA-AA6	MVA-AA6 + MSV 402/A	MVA-AA6
8 axis	MVA-FA8		MVA-AA8	MVA-AA8 + MSV 402/A	MVA-AA8

MSV 402/A: amplifier for Servo-valve

VisiTouch 19/VisiTouch 19MX – Up to 14 axes in analog mode (Y1, Y2, +12 axes)



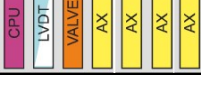
Available configurations

Configurations with analog electrical axes

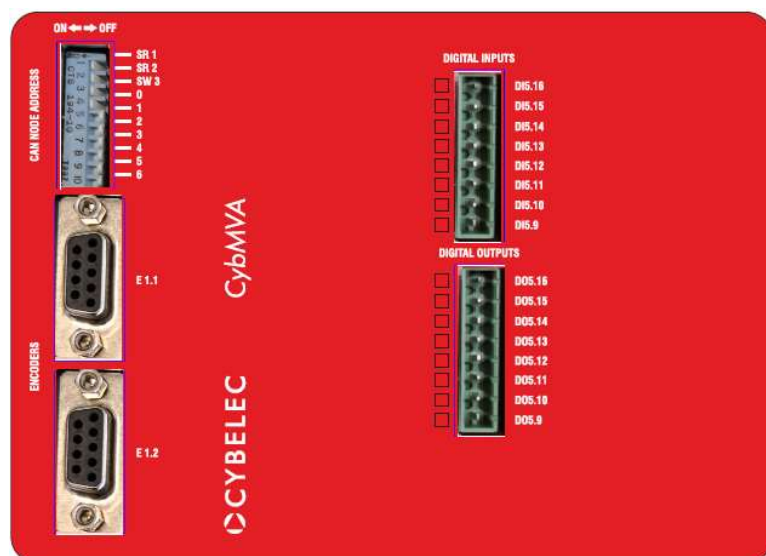
	Proportional valves			Servo Valves	Hybrid
	With Feedback (Hoerbiger valves)	Without feedback	With integrated amplifier (+/-10V analog command)	Required MSV402/A module (50-300 mA)	
Pressure & crowning amplifier					
Y1 + Y2	CybVA6 or MVA-FA2		2 x MVP 100/A or MVA-AA2 *	MVA-AA2 + MSV 402/A	MVA-AA2
Y1 + Y2 + 2 axis	MVA-FA4		MVA-AA4	MVA-AA4 + MSV 402/A	MVA-AA4
Y1 + Y2 + 4 axis	MVA-FA6		MVA-AA6	MVA-AA6 + MSV 402/A	MVA-AA6
Y1 + Y2 + 6 axis	MVA-FA8		MVA-AA8	MVA-AA8 + MSV 402/A	MVA-AA8
Y1 + Y2 + 8 axis	MVA-FA10		MVA-AA10	MVA-AA10 + MSV 402/A	MVA-AA10

MSV 402/A: additional amplifier for Servo-valve

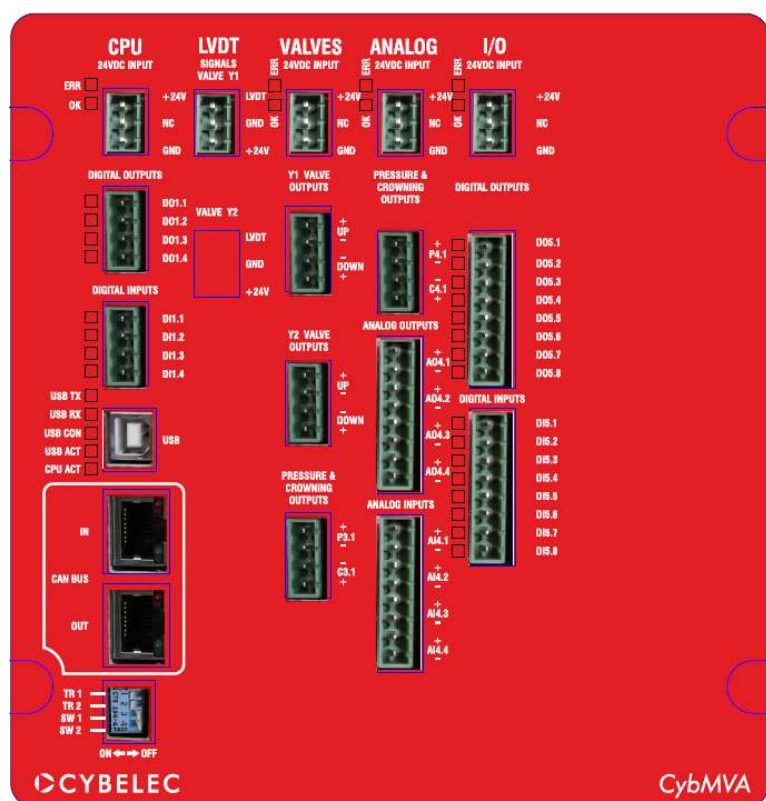
OVERVIEW TABLE WITH ALL AVAILABLE CONFIGURATION/ORDERING INFO

MVA Model		Axes	DI	DO	AI	AO	Y1/Y2	P + C	Version
<i>For machines with digital electrical axes</i>									
MVA-FD2		Y1 + Y2 Without analog axis	19	19	4	4	4 AO: 3A Y1/Y2 2AI: for LVDT	2AO: 3A	Multi
MVA-AD2		Y1 + Y2 Without analog axis	19	19	4	4	Via AO (+/-10V) on analog board	2AO: 3A	Compact
<i>Amplifier for proportional valves and analog axes</i>									
MVA-FA2		Y1 + Y2 Without analog axis	3	3	-	-	4 AO: 3A Y1/Y2 2AI: for LVDT	2AO: 3A	Compact
MVA-FA4		Y1 + Y2 2 analog axes	11	11	4	6	4 AO: 3A Y1/Y2 2AI: for LVDT	2AO: 3A	Multi
MVA-FA6		Y1 + Y2 4 analog axes	19	19	4	8	4 AO: 3A Y1/Y2 2AI: for LVDT	2AO: 3A	Multi
MVA-FA8		Y1 + Y2 6 analog axes	27	27	4	10	4 AO: 3A Y1/Y2 2AI: for LVDT	2AO: 3A	Multi
MVA-FA10		Y1 + Y2 8 analog axes	35	35	-	8	4 AO: 3A Y1/Y2 2AI: for LVDT	2AO: 3A	Multi
<i>For servo-valves, integrated amplifier, hybrid and analog axes</i>									
MVA-AA2		Y1 + Y2 2 analog axes	3	3	4	4	Via AO (+/-10V) on analog board	2AO: 3A	Compact
MVA-AA4		Y1 + Y2 2 analog axes	11	11	4	6	Via AO (+/-10V) on analog board	2AO: 3A	Compact
MVA-AA6		Y1 + Y2 4 analog axes	19	19	4	8	Via AO (+/-10V) on analog board	2AO: 3A	Multi
MVA-AA8		Y1 + Y2 6 analog axes	27	27	4	10	Via AO (+/-10V) on analog board	2AO: 3A	Multi
MVA-AA10		Y1 + Y2 8 analog axes	35	35	4	12	Via AO (+/-10V) on analog board	2AO: 3A	Multi

STRUCTURE OVERVIEW

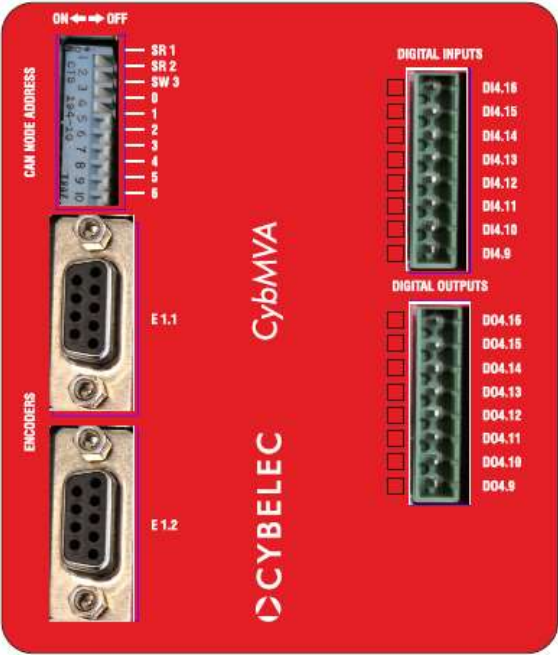
MVA-FD2

Top view

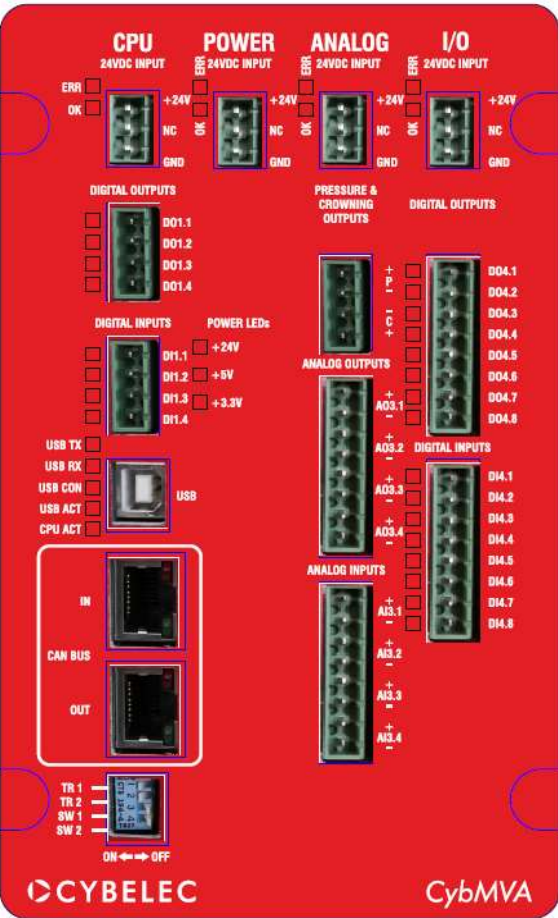


Front view

MVA-AD2

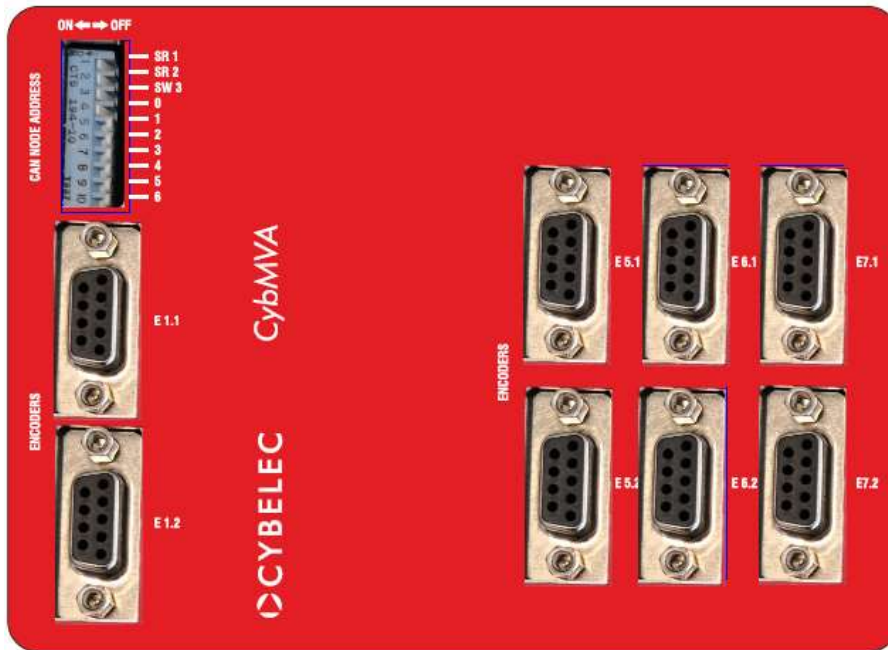


Top view

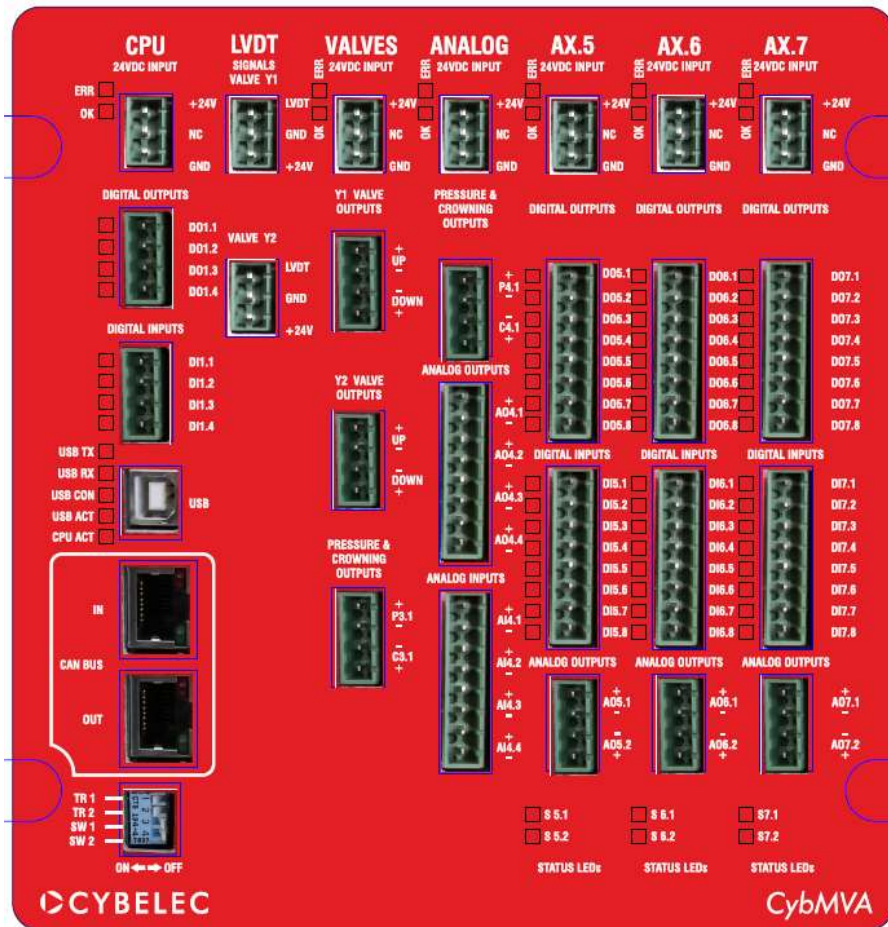
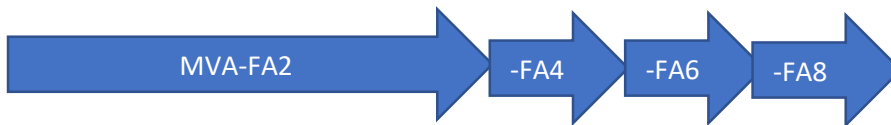


Front view

MVA-FA2 -> FA8

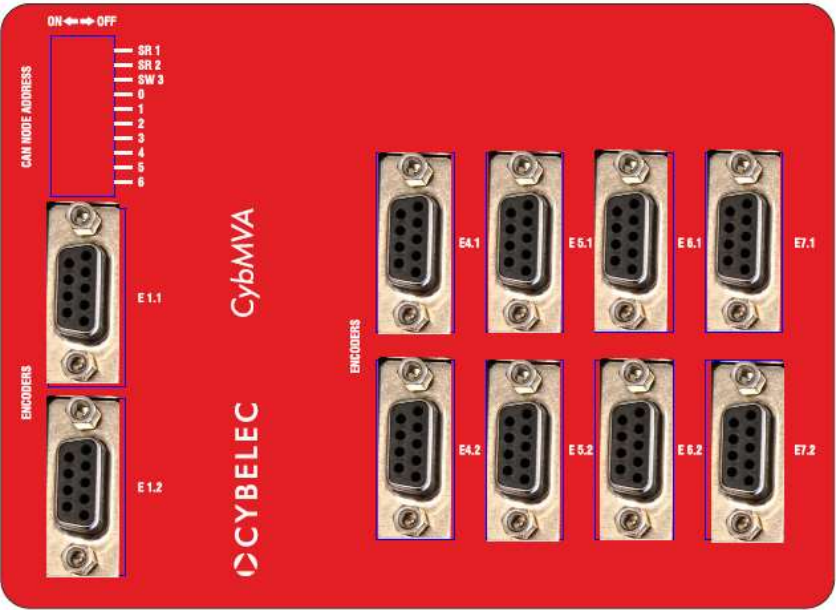


Top view

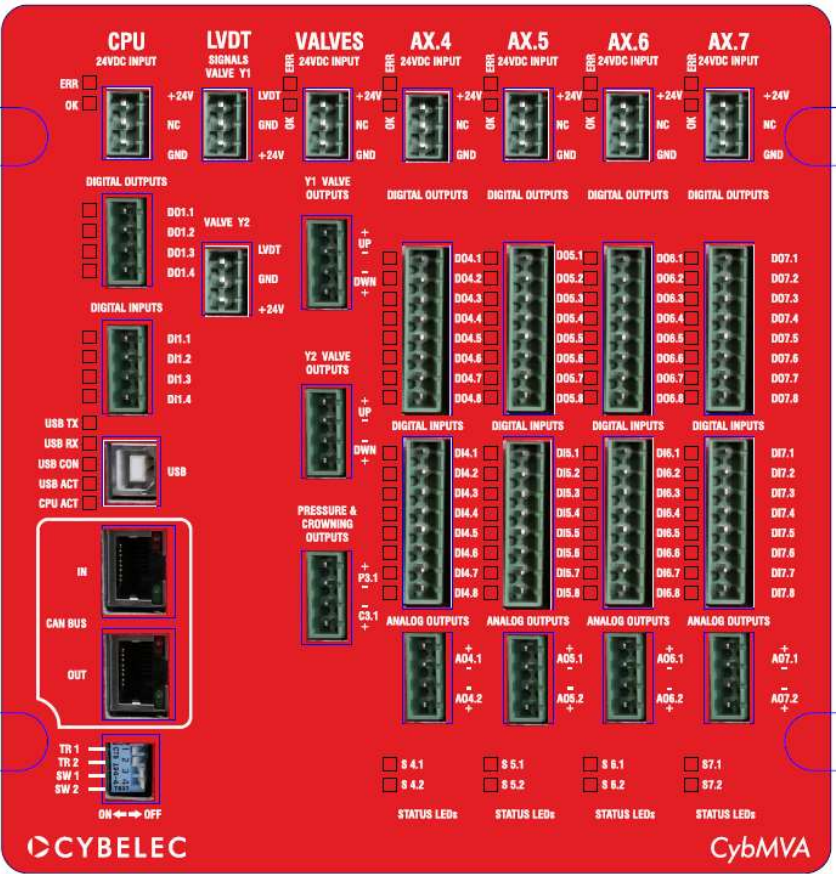


Front view

MVA-FA10

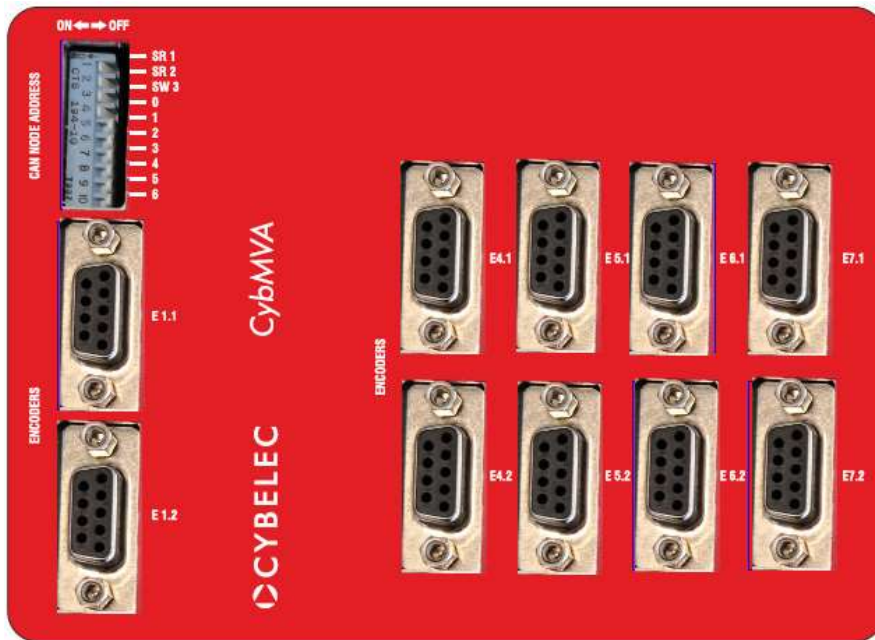


Top view

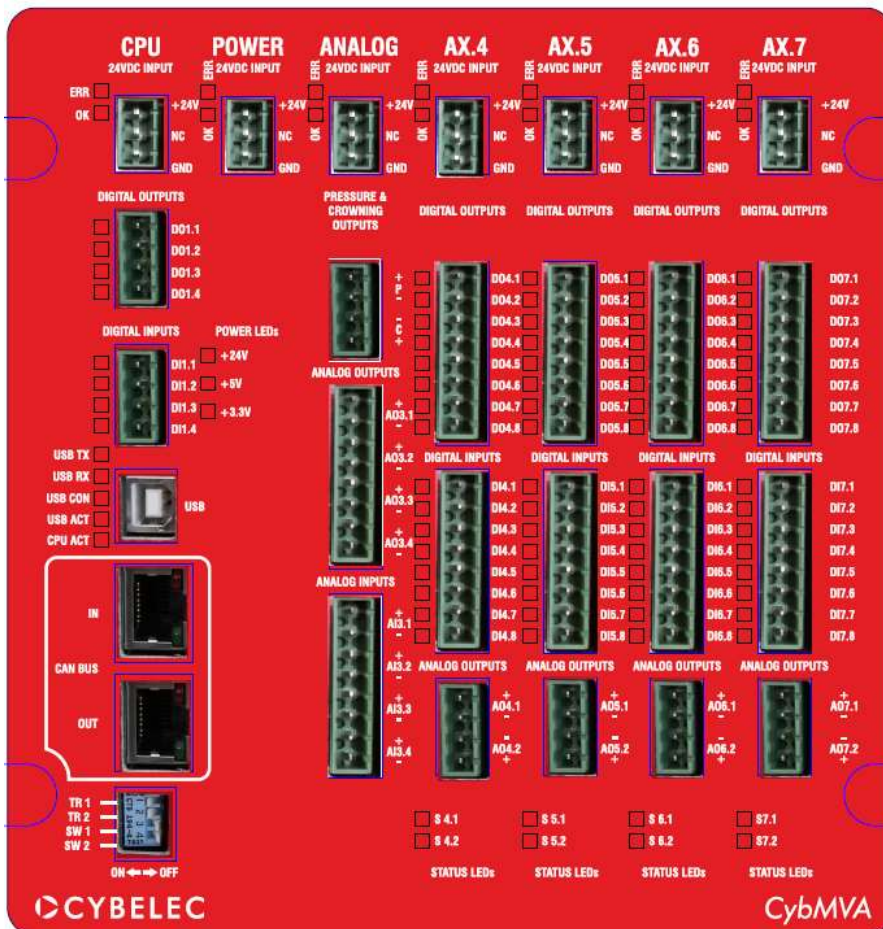


Front view

MVA-AA2 -> AA10



Top view



Front view

TECHNICAL CHARACTERISTICS

Main Power Supply for CPU Valves	1 x Isolated power supply for valves and CPU. Stabilized 24VDC 400W, input -/+ 20%,
Power consumption (logic sections)	▪ CPU Board: 300mW ▪ Power Board: 350mW ▪ Analog Board: 120mW ▪ Encoder Board: 600mW
Dimensions	▪ Compact module w/d/h : 99.5 x 132.5 x 181.0mm ▪ Extended module w/d/h : 177.0 x 132.5 x 181.0mm
Operating conditions	Min. -10° Celsius, max. 45° Celsius. Relative humidity 10 to 85% non-condensing.
Cabinet mounting	With 4 screws
EC Directives	IEC61131-2
Power Supply for digital I/O	1 x Isolated power supply for Digital I/Os Stabilized 24VDC 200W, input -/+ 20%

CPU BOARD

Encoder 1 & 2 (top panel)	▪ Support 2 encoder axes ▪ D-sub Female 9 pin (1: GND, 2: A-, 3: B-, 4: Z-, 5: +5VDC, 6: A+, 7: B+, 8: Z+, 9: GND) ▪ Input Type: Open Collector NPN, Open Collector PNP, Push-Pull, RS422 Line Driver (TTL) ▪ Complementary signals are not necessary, but recommended. +5VDC is internally supplied, max 150mA for each encoder. +12VDC or +24VDC must be externally supplied. ▪ +5VDC is protected for short circuit with PTC. ▪ 10 SPST Switches (SWUP) ○ 256 Different Physical CAN Address Selection with 8 switches ○ 4 CAN Bus Speed Selection (1Mbps, 800Kbps, 500Kbps, 250Kbps)
Power	▪ Stabilized and isolated +24VDC Power supply, $\pm 20\%$ for Digital Inputs and Outputs ▪ Reverse polarity protection for Power Supply ▪ Power Supply Connection OK and Error LED
Output	▪ 4 DO: Isolated Digital Outputs (3 available, 1DO used for “error” diagnosis) ▪ +24VDC source mode with LEDs at each output ▪ Optocoupler Isolation ▪ Short Circuit Protection ▪ All outputs are reverse polarity protection
Input	▪ 4 DI: Isolated Digital inputs (3 available, 1DI used for “enable” signal) ▪ +24VDC Digital Input ▪ Optocoupler Isolation ▪ All inputs have LEDs
USB	▪ Full Speed USB 2.0 Slave Device Port ▪ Data transfer rates up to 3 Mbaud ▪ LED indicators for TX, RX, Cable Connection OK, USB Active (not suspended) ▪ LED indicator for Board Active Signal
CAN	▪ 1 CAN Bus Port with CANOpen Protocol Support ▪ 2 RJ45 Connectors for easy connection (BUS IN and BUS OUT) ▪ CAN RUN OK LED ▪ CAN ERROR LED
SW	4 SPST Switches (SW) ▪ CAN Bus Terminal Resistor Activation with 2 switches ▪ Open/Closed Control Selection and CAN Bus/Analog Selection with 2 switches

VALVE BOARD

USB	- Full Speed USB 2.0 Slave Device Port (<i>not available on the Standard Version</i>) - Data transfer rates up to 3 Mbaud - LED Indicators for TX, RX, Cable Connection OK, USB Active (not suspended) - LED Indicator for Board Active Signal
Power	- Stabilized +24VDC Power supply minimum 400W, $\pm 20\%$ for the System (Valves and Logic) - Reverse polarity protection for Power Supply - Power Supply Connection OK and Error LED
Valve Y1 and Y2	4 AO: available for 4 solenoids. Max 3A/solenoid - Current Feedback Control - PID Parameters are changeable via PC software - Open Loop or Closed Loop Control are selectable
Pressure & Crowning	2 AO: available for 2 solenoids. Max 3A. / solenoid - Current Feedback Control

LVDT BOARD

LVDT Y1 & Y2	- LVDT Feedback for Y1 and Y2 axis 3VDC to 12VDC (Hoerbiger PIL, PIH and other valves) ± 10VDC (not available yet) 12-bit Resolution
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ANALOG BOARD

Power	- Stabilized and isolated +24VDC Power supply, $\pm 20\%$ for Digital Inputs and Outputs - Reverse polarity protection for Power Supply - Power Supply Connection OK and Error LED
Pressure & Crowning Outputs	2 AO: Maximum 3A - Current Feedback Control
Analog Input	2AI: 2 channels Analog Inputs ± 10VDC voltage range 2AI: 2 channels Analog Inputs 0 - 10VDC voltage range 12-bit resolution for each channel
Analog Output	4 AO : 4 Channels Analog Outputs ± 10VDC Voltage Range (approx. 5mV resolution) 12-bit Resolution - Impedance $< 100 \Omega$ - Short Circuit Protected - Load $\geq 2 \text{ k}\Omega$ (max. 15mA) - Common Activation Signal for Analog Outputs

AXIS BOARD (One board available to manage 2 analog axes)

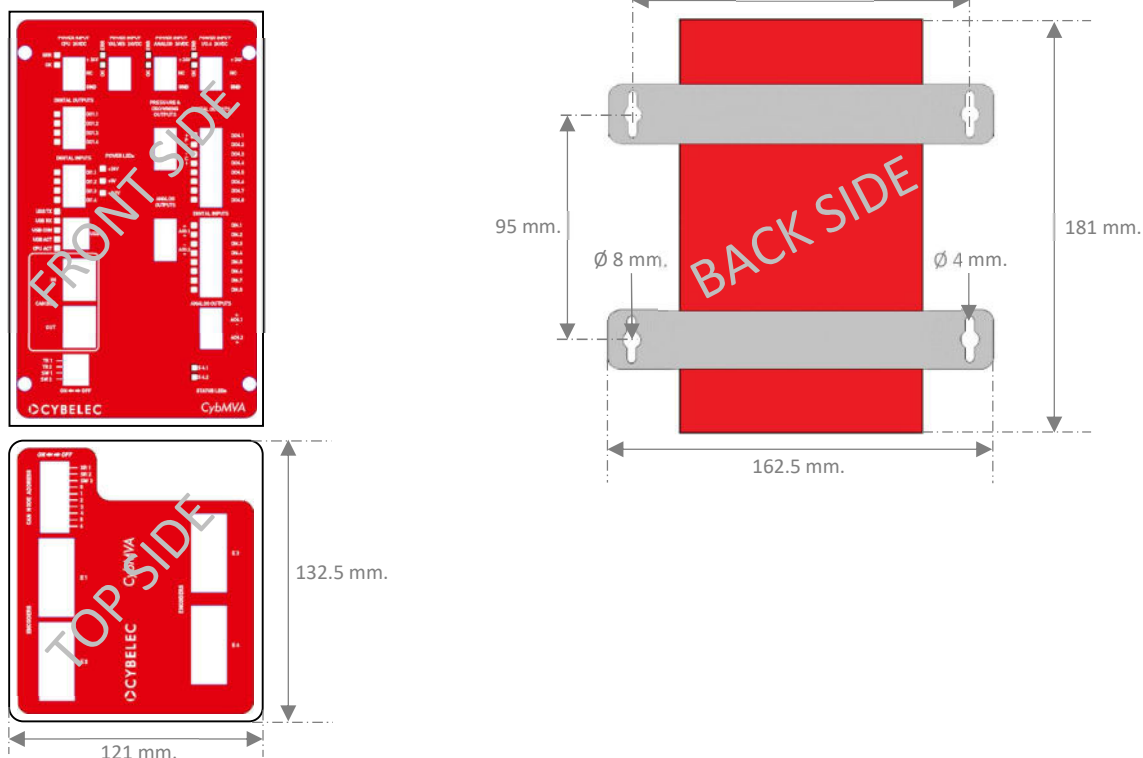
Encoder 1 & 2 (top panel)	- Support 2 encoder axes - D-sub Female 9 pin (1: GND, 2: A-, 3: B-, 4: Z-, 5: +5VDC, 6: A+, 7: B+, 8: Z+, 9: GND) - Input Type: Open Collector NPN, Open Collector PNP, Push-Pull, RS422 Line Driver (TTL) - Complementary signals are not necessary, but recommended. +5VDC is internally supplied, max 150mA for each encoder. +12VDC or +24VDC must be externally supplied. +5VDC is protected for short circuit with PTC.
Power	- Stabilized and isolated +24VDC Power supply, $\pm 20\%$ for Digital Inputs and Outputs - Reverse polarity protection for Power Supply - Power Supply Connection OK and Error LED
Digital Output	8 DO: Isolated Digital Outputs +24VDC source mode with LEDs at each output - Optocoupler Isolation - Short Circuit Protection - All outputs are reverse polarity protection
Digital Input	8 DI: Isolated Digital inputs +24VDC Digital Input - Optocoupler Isolation - All inputs have LEDs
Analog Output	2 AO: Channel Analog Outputs $\pm 10\text{VDC}$ Voltage Range (approx. 5mV resolution) 12-bit Resolution - Impedance $< 100 \Omega$ - Short Circuit Protected - Load $> 2 \text{ k} \Omega$ (max. 15mA) - Common Activation Signal for Analog Outputs
LEDs	2 Status LEDs

I/O BOARD

Power	- Stabilized and isolated +24VDC Power supply, $\pm 20\%$ for Digital Inputs and Outputs - Reverse polarity protection for Power Supply - Power Supply Connection OK and Error LED
Digital Outputs	16 DI: Isolated Digital Outputs +24VDC source mode with LEDs at each output - Optocoupler Isolation - Short Circuit Protection - All outputs are reverse polarity protection
Digital Inputs	16 DI: Isolated Digital inputs +24VDC Digital Input - Optocoupler Isolation - All inputs have LEDs

DIMENSIONS

Compact (Up to 4 axes (Y1, Y2 and 2 electrical axes)):



Multi (from 6 axes (Y1, Y2 and 4 electrical axes)):

