



## MAC00-EC41

EtherCAT module M12 6IO 2AI RS422

MAC00 modules are control- and -interface modules for the MAC motor® series of integrated (all-in-one) servo motors with shaft power from 46 W to 4500 W.

Choose between a wide range of control modules

- Ethernet modules support all protocols: Profinet, EtherNet/IP, EtherCAT, SERCOS, Powerlink and ModbusTCP/UDP
- Ethernet modules have built-in Switch for easy daisy-chaining of cables from motor-to-motor
- Wireless modules: WLAN or BlueTooth
- CANopen, Devicenet or Profibus or ePLC modules
- Serial communication modules, RS232 and/or RS485

Unique Ethernet functionality: use MacTalk® (PC software) to change freely between all the different Ethernet protocols, you don t need several different types on stock ONE is enough.



### General information

<b>Description</b>	EtherCAT module M12 6IO 2AI RS422, EtherCAT module M12 6IO 2AI RS422		
<b>Manufacture</b>	JVL	<b>For motor type</b>	MAC
<b>Color</b>	Black	<b>Protection house</b>	IP67
<b>Software</b>	MacTalk	<b>Interface</b>	RS232
<b>Connectivity - Busses</b>	EtherCAT		
<b>Control voltage (CVI/O+) [V]</b>	12-28	<b>Main supply [V]</b>	12-48
<b>Expansion connector</b>	Generation 2		
<b>Integrated PLC</b>	No	<b>PLC no. of DI</b>	4
<b>PLC no. of AIN</b>	1	<b>PLC no. of DO</b>	2
<b>Multifunction IOs</b>	1	<b>PLC no. of DIO</b>	n/a



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### Mechanical information

Customer Sealing

Datasheet - pdf

ld0102gb.pdf



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### Connector information

Expansion connector Generation 2

### Picture connectors



<b>Connector 1 label</b>	PWR	<b>Connector 1</b>	M12 5-pin male A-coded
<b>Connector 2 label</b>	IO	<b>Connector 2</b>	M12 17-pin female A-coded
<b>Connector 3 label</b>	LA OUT	<b>Connector 3</b>	M12 4-pin female D-coded Ethernet
<b>Connector 4 label</b>	LA IN	<b>Connector 4</b>	M12 4-pin female D-coded Ethernet
<b>Connector 2 RS232</b>	Yes	<b>Connector 2 RS485</b>	n/a
<b>Connector 3 RS232</b>	n/a	<b>Connector 3 RS485</b>	n/a
<b>Connector 4 RS232</b>	n/a	<b>Connector 4 RS485</b>	n/a

### Picture CN1

"PWR" - Power input. M12 - 5pin male connector

Signal name	Description	Pin no.	JVL Cable W11000-M12F5T05N	Isolation group
P+	Main supply - Connect with pin 2 * When installed in MAC050 to 141 = 12-48VDC When installed in MAC400-4500 = 18-30VDC	1	Brown	1
P+	Main supply - Connect with pin 1 *	2	White	1
P-	Main supply ground. Connect with pin 5 *	3	Blue	1
CVI	Control supply nominal +12-48VDC. <b>DO NOT connect &gt;50V to this terminal !</b> A small leakage current may exist on this pin if not used. Connect this terminal to ground if not used.	4	Black	1
P-	Main supply ground. Connect with pin 3 *	5	Grey	1

\* Note: P+ and P- are each available at 2 terminals. Make sure that both terminals are connected in order to split the supply current in 2 terminals and thereby avoid an overload of the connector.

### Picture CN2

"IO" - IO's and interface. M12 - 17pin female connector.

Signal name	Description	Pin no.	JVL Cable W11000M12 M17T06	Isolation group (see note)
IN1	Input channel 1. Can be used as digital input	1	Brown	2
GND	Ground intended to be used together with the other signals related to isolation group 1 in this connector	2	Blue	1
IN2	Input channel 2. Can be used as digital input	3	White	2
IN3	Input channel 3. Can be used as digital input	4	Green	2
B2+*	RS422/RS485 Multifunction I/O terminal B2+	5	Pink	1
IN4	Input channel 4. Can be used as digital input	6	Yellow	2
A2+*	RS422/RS485 Multifunction I/O terminal A2+	7	Black	1
B2+**	RS422/RS485 Multifunction I/O terminal B2+	8	Grey	1
OUT+	Output 1 and 2 supply input. <b>DO NOT connect &gt;50V to this terminal!</b>	9	Red	2
A2+**	RS422/RS485 Multifunction I/O terminal A2+	10	Violet	1
O1	Output 1. Can be used as digital output	11	Green/pink	2
O2	Output 2. Can be used as digital output	12	Red/blue	2
AIN1	Analog input 1. Can be used as analog input ±10V.	13	White/Green	1
AIN2	Analog input 2. Can be used as analog input ±10V.	14	Brown/Green	1
RS232_RX	RS232 interface. Receive terminal Leave open if unused.	15	White/Yellow	1
RS-	Common for RX- and TX- and G1 and G2. Please notice that this terminal is normally isolated from the main ground and belongs to isolation group 2.	16	Yellow/brown	2
RS232_TX	RS232 interface. Transmit terminal Leave open if unused.	17	White/gray	1



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**Connector information**

**Picture CN3**

"L/A OUT" - Ethernet port connector. M12 - 4 pin female connector "D" coded				
Signal name	Description	Pin no.	JVL Cable WI1046-M12M4S05R	Isolation group (see note)
Tx1_P	Ethernet Transmit channel 1 - positive terminal	1	Brown/White	4
Rx1_P	Ethernet Receive channel 1 - positive terminal	2	Blue/White	4
Tx1_N	Ethernet Transmit channel 1 - negative terminal	3	Brown	4
Rx1_N	Ethernet Receive channel 1 - negative terminal	4	Blue	4
Shield	Outside shield connected to connector housing	Housing	Shield	1

**Picture CN4**

"L/A IN" - Ethernet port connector - M12 - 4pin female connector "D" coded				
Signal name	Description	Pin no.	JVL Cable WI1046-M12M4S05R	Isolation group (See note)
Tx0_P	Ethernet Transmit channel 0 - positive terminal	1	Brown/White	3
Rx0_P	Ethernet Receive channel 0 - positive terminal	2	Blue/White	3
Tx0_N	Ethernet Transmit channel 0 - negative terminal	3	Brown	3
Rx0_N	Ethernet Receive channel 0 - negative terminal	4	Blue	3
Shield	Outside shield connected to connector housing	Housing	Shield	1



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**Electrical information**

<b>Control voltage (CVI/O+) [V]</b>	12-28	<b>Control Voltage (CVI) Min-Max [V]</b>	
<b>Max current CVI [A]</b>			
<b>Main supply [V]</b>	12-48	<b>Main supply Min-Max [V]</b>	10-50
<b>Max current (P+) [A]</b>		<b>P- isolated from Earth</b>	
		<b>PLC no. of DI</b>	4
<b>Dig. Input impedans</b>	10kohm	<b>PLC no. of DO</b>	2
<b>PLC DO max current [mA]</b>	15mA - PNP	<b>PLC no. of DIO</b>	n/a
		<b>PLC no. of AIN</b>	1
<b>PLC AIN voltage [VDC]</b>	-10 to +10	<b>PLC AIN Min-Max [VDC]</b>	-10 to +32
<b>PLC AIN Max Tol. [%]</b>	5.0	<b>Multifunction IOs</b>	1
<b>PLC MF low level [VDC]</b>	2.0	<b>PLC MF high level [VDC]</b>	3.0
<b>PLC MF Max level [VDC]</b>	5.5	<b>MTBF 30% [Year]</b>	
<b>MTBF 100% [Year]</b>			