

Model

# CQM1H-MAB42

AD/DA Board

## INSTRUCTION SHEET

Thank you for purchasing an OMRON product. Read this thoroughly and familiarize yourself with the functions and characteristics of the product before using it. Keep this instruction sheet for future reference

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1618286-3A

### # Specifications AD/DA board

Input	number of channels	4	
	Ranges	-10 to 10V 0 to 10V 0 to 5V 0 to 20mA	
	Resolution	-10 to 10V	12 bit
		0 to 10V	12 bit
		0 to 5V	12 bit
		0 to 20mA	12 bit
	Input type	Differential	
	Input impedance	Voltage input	1 MΩ
		Current Input	250 Ω
	Input can be independent enabled		
Range programmable per input			
Output	Number of channels	2	
	Ranges	-10 to 10V	Load > 2 k Ω
		0 to 20mA	Load < 350Ω
	Resolution	-10 to 10V	12 bit
		0 to 20mA	11 bit
Total out current	42 mA		
General	Accuracy	0,5%	25 °C
		1,0%	0-55 °C
	Insulation	Analog Input-Output	None
		Analog I/O - CPU	DC 500V
	Conversion time	Input	1,7ms / channel
		Output	1,7ms / 2 channels
	Power supply	Internal DC/DC convertor	
	Front connector	2 times 15p D-sub connector, male	
Power consumption	Total CQM1H-MAB42	400mA, DC 5V	

### # Terminals for external wiring

Input connector CN1

PIN nr	Name	Description
1	V4+	Voltage pin, input 4
2	V4-	Common pin, input 4
3	V3+	Voltage pin, input 3
4	V3-	Common pin, input 3
5	V2+	Voltage pin, input 2
6	V2-	Common pin, input 2
7	V1+	Voltage pin, input 1
8	V1-	Common pin, input 1
9	I4+	Current pin, input 4
10		
11	I3+	Current pin, input 3
12		
13	I2+	Current pin, input 2
14		
15	I1+	Current pin, input 1

Output connector CN2

PIN nr	Name	Description
1		
2		
3	I2-	Common pin, output 2
4	V2-	Common pin, output 2
5	Res	Reserved, do not use
6	Res	Reserved, do not use
7	I1-	Common pin, output 1
8	V1-	Common pin, output 1
9		
10	I2+	Current pin, output 2
11	V2+	Voltage pin, output 2
12		
13		
14	I1+	Current pin, output 1
15	V1+	Voltage pin, output 1

- Voltage output and current output of the same channel can be used simultaneously.
- Data written to the output channel is valid for current and voltage output.
- Data read from the input channels is valid for current and voltage input

### # Indicators AD/DA board

RDY	ON	AD/DA board running
ERR	ON	ERROR, AD/DA board not running
	BLINKING	DM setup fault, check DM area. Unit will start in default.

Default value will be:

All inputs enabled in -10 to +10V range.

## # Input set-up and board status

DM6611, Bit 0 to 7 Input range selection:

7	6	5	4	3	2	1	0
Input 4		Input 3		Input 2		Input 1	
00: -10 to 10V				01: 0 to 10V			
10: 0 to 5V				11: Reserved, do not use			

DM6611, Bit 8 to 15 Input enable:

15	14	13	12	11	10	9	8
Not used, leave 0				Input 4	Input 3	Input 2	Input 1
0: enabled 1: disabled							

Leave bits 12 to 15 '0' otherwise a PC setup error will occur

AR04, AD/DA board status area:

Word	Bits	Function
AR04	08 to 15	00: Normal operation 01, 02: Hardware error 03: PLC setup error (AR24) 04: Hardware error, ADDA board

## # Channel allocation

Input / Output	Channel	Function
Input channels	IR232	Analog input 1
	IR233	Analog input 2
	IR234	Analog input 3
	IR235	Analog input 4
Output channels	IR236	Analog output 1
	IR237	Analog output 2

## # IR bit allocation for output channels

Output range: -10 to +10V

Data presentation in 2's complement

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Sign					d10	d9	d8	d7	d6	d5	d4	d3	d2	d1	d0

Output range: 0 to 20mA

Data presentation in straight binary

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
0	0	0	0	0	d10	d9	d8	d7	d6	d5	d4	d3	d2	d1	d0

## # IR bit allocation for input channels

Input range: -10 to +10V

Data presentation in 2's complement

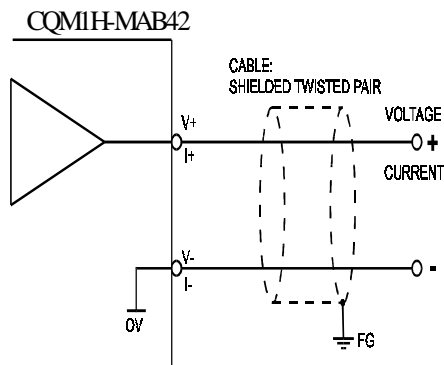
15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Sign					d10	d9	d8	d7	d6	d5	d4	d3	d2	d1	d0

Input range: 0 to 10V, 0 to 5V, 0 to 20mA

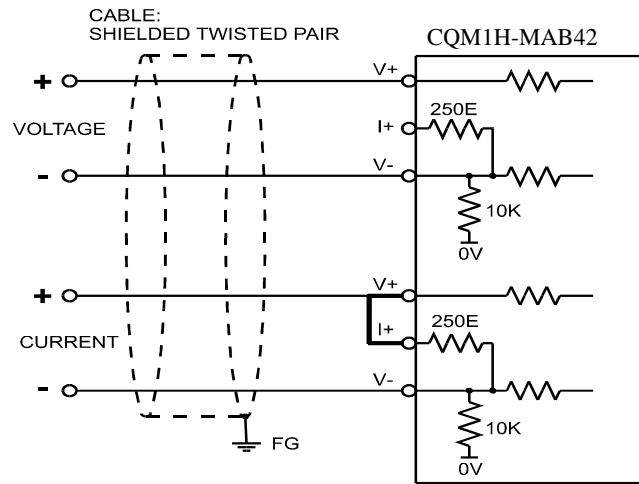
Data presentation in straight binary

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
0	0	0	0	d11	d10	d9	d8	d7	d6	d5	d4	d3	d2	d1	d0

## # Output wiring

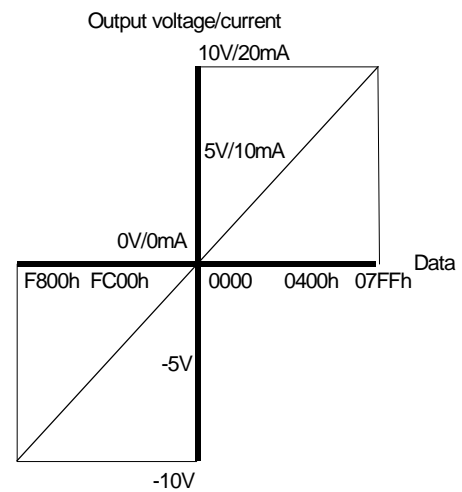


## # Input wiring



## # Data presentation

### Output



### Input

Converted data

