

iC-MQ, iC-PI EVAL MQ1D

EVALUATION BOARD DESCRIPTION



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ORDERING INFORMATION

Type	Order Designation	Description
Evaluation Board	iC-MQ EVAL MQ1D iC-PI EVAL MQ1D	iC-MQ Evaluation Board iC-PI Evaluation Board Ready-to-operate, accessible by GUI using PC adapter (not included)
Software	iC-MQ GUI iC-PI GUI	GUI software for Windows PC Device setup file generation, board configuration via adapter For download link check www.ichaus.com/mq For download link check www.ichaus.com/pi
PC Adapter	iC-MB3 ICSY MB3U-I2C	PC-USB Adapter with I2C/SPI extension cable Download documentation at www.ichaus.com/tools

BOARD MQ1D

(size approx. 80 mm x 100 mm)

TERMINAL DESCRIPTION

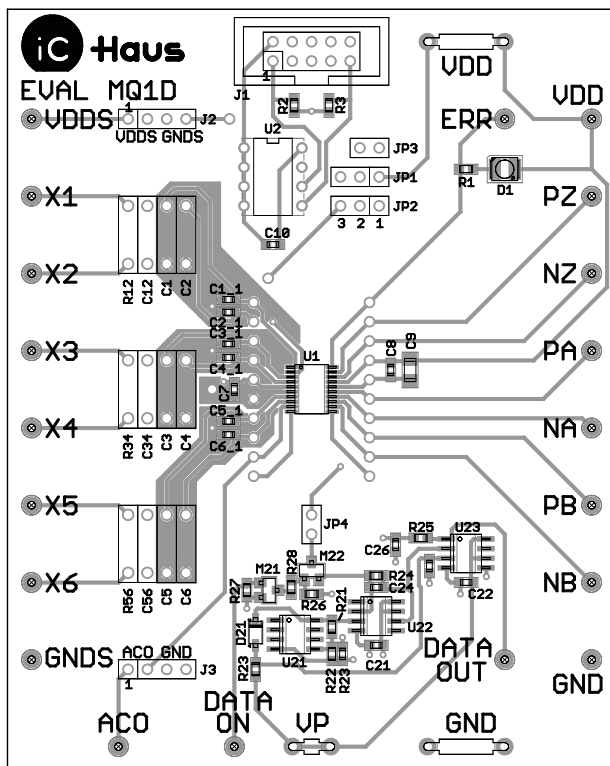


Figure 1: Component side

VDD	+5 V Supply Voltage Input When supplying by the PC adapter, jumper JP3 must be closed and JP1 and JP2 settings changed to position 1-2.
GND	0 V Ground
X1...X6	Signal Input 1...6
PZ	Signal Output Z+
NZ	Signal Output Z-
PA	Signal Output A+
NA	Signal Output A-
PB	Signal Output B+
NB	Signal Output B-
ERR	Error Signal (Input/Output) Test Mode Trigger Input
ACO	Signal Level Controller Output High-side current source output
VDDS	Switched Supply Output (20 mA max.)
GNDS	Switched Ground Link (20 mA max.)
D1	Error LED (red) Connected to the IC's error output (pin ERR).
J1	10-pin Male Connector to I2C Adapter

RELATED DOCUMENTS

- IC Documentation
 - <http://www.ichaus.de/MQ>,
 - <http://www.ichaus.de/PI>
- PC-USB Adapter Description
 - http://www.ichaus.de/MB3U_MB3U-I2C_datasheet_en
- GUI software for Windows PC: check here for download links
 - <http://www.ichaus.de/MQ>,
 - <http://www.ichaus.de/PI>

CONNECTOR AND TERMINAL PINOUT

10-pin Connector J1 (to I2C Master)

PIN	Name	Function
1	SCL	Serial Clock Line
2	GND	Ground
3	-	-
4	+5V	Supply Voltage
5	-	-
6	-	-
7	SDA	Serial Data Line
8	-	-
9	SDA	Serial Data Line
10	GND	Ground

4-pin Terminal J2

PIN	Name	Function
1	VDDS	Switched Supply Output
2	VDDS	Switched Supply Output
3	GNDS	Switched Ground Link
4	GNDS	Switched Ground Link

4-pin Terminal J3

PIN	Name	Function
1	ACO	Signal Level Controller Output
2	ACO	Signal Level Controller Output
3	GND	Ground
4	GND	Ground

JUMPER DESCRIPTION

Jumper JP1	Function
Pos. 1-2	EEPROM supplied by VDD
Pos. 2-3	EEPROM supplied by VDDS (shipping setup)

Jumper JP3	Function
Closed	VDD sourced from PC adapter
Open	External VDD supply Connect +5V to supply VDD. (shipping setup)

Jumper JP2	Function
Pos. 1-2	EEPROM connected to GND
Pos. 2-3	EEPROM connected to GNDS (shipping setup)

Jumper JP4	Function
Closed	Pin ERR connected to decoding circuit (optional, components not populated.)
Open	Pin ERR disconnected from decoding circuit.

CIRCUIT SCHEMATIC

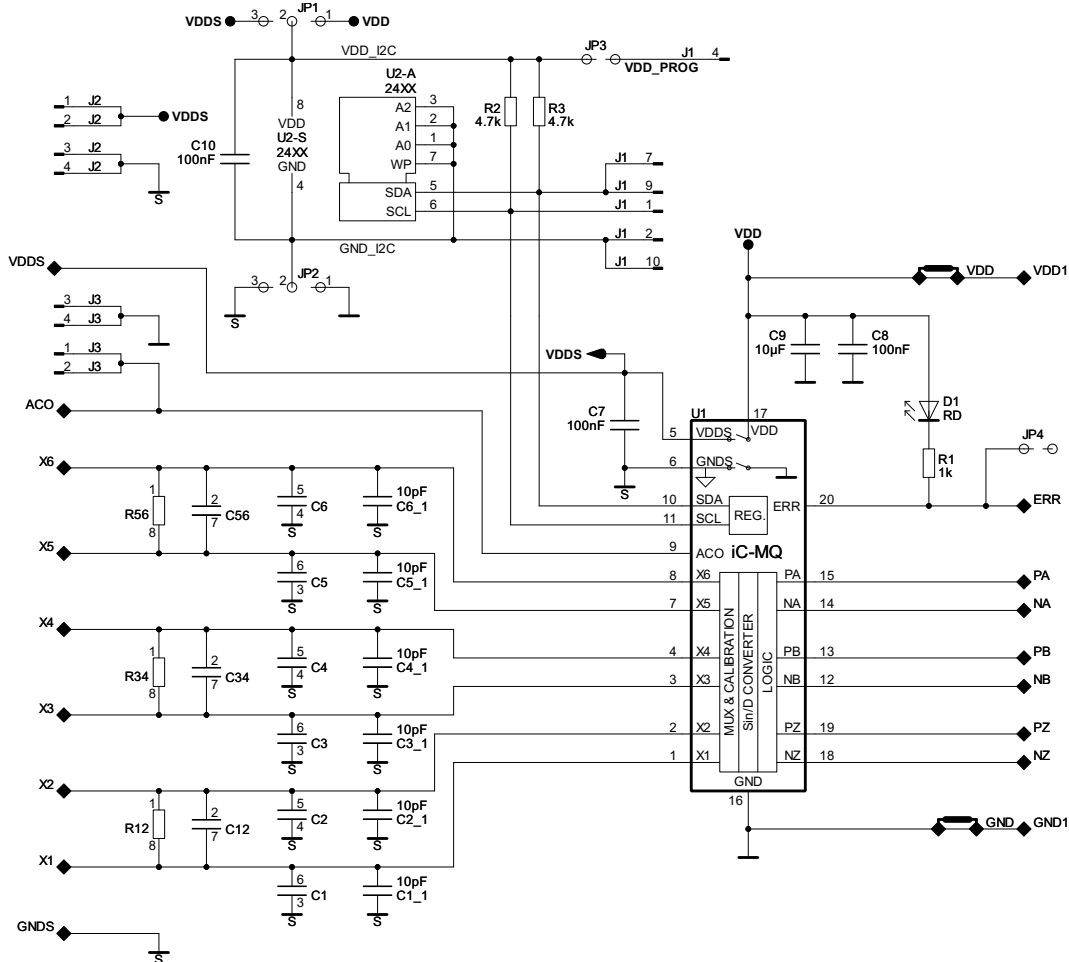


Figure 2: Circuit diagram including optional filter components

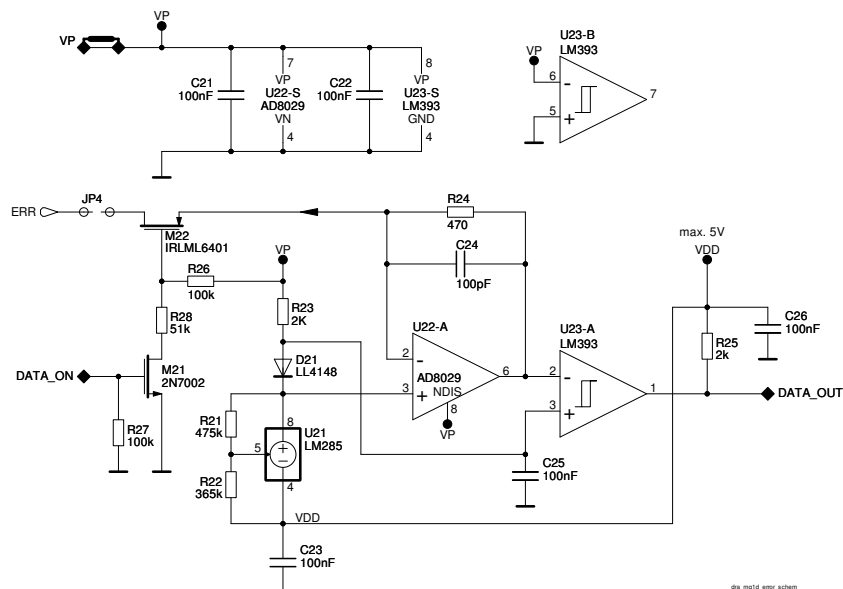


Figure 3: Error interface decoding circuit (optional components for iC-MQ only.)

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ASSEMBLY PART LIST

Related to circuit diagram Figure 2

Device	Value (typical)	Assembled	Comment
U1	iC-MQ / iC-PI	assembled	Sine/cosine interpolation IC
U2	24C01	assembled	Serial EEPROM (AT24C01B, ST24C02WP recommended)
R1	1 k Ω	assembled	LED series resistor
R2, R3	4.7 k Ω	assembled	I2C pull-up resistor
D1	LS-T670-HK	assembled	Indicator LED for alarm message
C1, C2, C3, C4, C5, C6	10 pF	assembled	Capacitors for input filter
C7, C8	100 nF	assembled	Supply backup capacitors
C9	10 μ F	assembled	Supply backup capacitor
C10	100 nF	assembled	EEPROM backup capacitor
JP1, JP2	SL LP1 097 3 G	assembled	Jumper
JP3	SL LP1 097 2 G	assembled	Jumper
JP1, JP2, JP3		assembled	Jumper cap
J1	WSL10G	assembled	Connector for I2C-TO-PC adapter
J2, J3	MK 01 4 G	assembled	4-pin socket
J4, J5, J6, U2		assembled	8-pin DIL socket
R12, R34, R56		optional	Input filter
C12, C34, C56		optional	Input filter

Related to error interface decoding circuit, Figure 3

Device	Value (typical)	Assembled	Comment
C21, C22, C23, C24, C25, C26	100 nF	optional	
R21	474 k Ω	optional	
R22	2 k Ω	optional	
R24	470 Ω	optional	
R25	2 k Ω	optional	
R26, R27	100 k Ω	optional	
R28	51 k Ω	optional	
D21	LL4148	optional	
M21	2N7002	optional	
M22	IRLML6401	optional	
U21	LM285	optional	
U22	AD8029	optional	
U23	LM393	optional	

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REVISION HISTORY

Rel.	Rel. Date*	Chapter	Modification	Page
A1	2007-07-25		Initial release	all

Rel.	Rel. Date*	Chapter	Modification	Page
D1	2018-12-14		Global update to include iC-PI	all

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* Release Date format: YYYY-MM-DD