

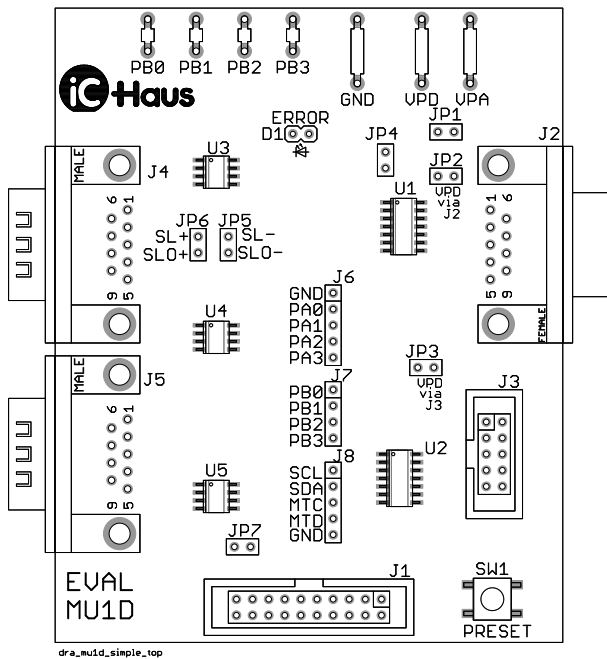
iC-MU EVAL MU1D

EVALUATION BOARD DESCRIPTION

ORDERING INFORMATION

Type	Order Designation	Description Options
Evaluation Board	iC-MU EVAL MU1D	Evaluation board suitable to eval kit MU1M the board is needed to connect MU1M to a PC via MB3U-I2C adapter

BOARD MU1D



TERMINAL DESCRIPTION

J1	Signal input connector (pin configuration suitable to connector J1 of board MU1M)
J2	BiSS interface input (to BiSS-master)
J3	SPI interface
J4	BiSS interface output (daisy chain)
J5	Multiturn Interface

Figure 1: Component side (80 mm x 100 mm)

iC-MU EVAL MU1D

EVALUATION BOARD DESCRIPTION

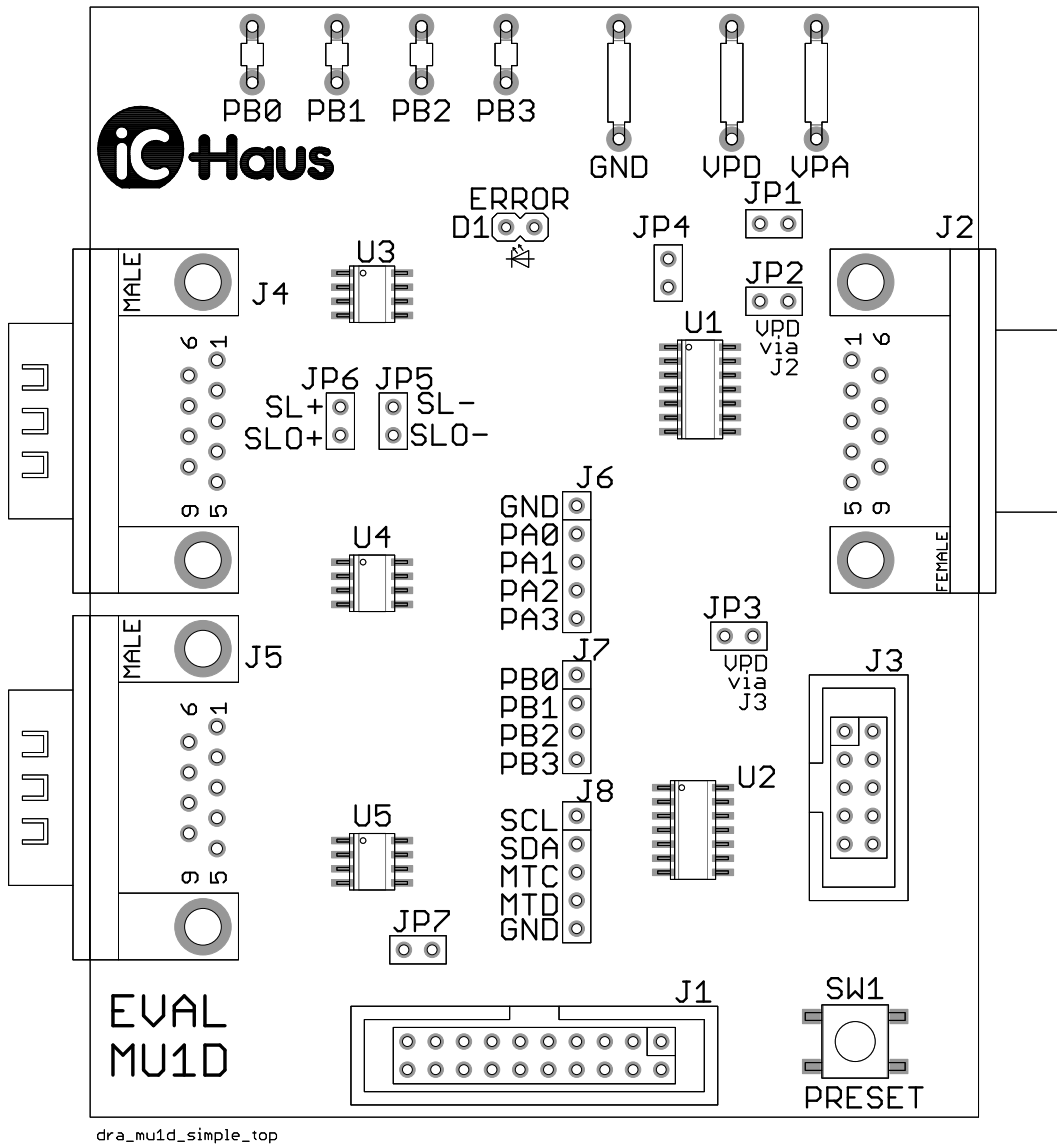


Figure 2: Component side (size 80 mm x 100 mm)

TERMINAL	DESCRIPTION	TERMINAL	DESCRIPTION
VPA	Analog supply voltage	PB0	iC-MU DFN16-5x5 pin 5
VPD	Digital supply voltage	PB1	iC-MU DFN16-5x5 pin 6
GND	Ground	PB2	iC-MU DFN16-5x5 pin 7
JP1	Bridge VPA and VPD	PB3	iC-MU DFN16-5x5 pin 8
JP2	Supply voltage VPD via J2	SW1	Preset switch (depending of iC-MU config)
JP3	Supply voltage VPD via J3	J6	iC-MU port A signals
JP4	Disable IO-buffer port A (bridged)	J7	iC-MU port B signals
JP5	Select board config for BiSS (open)	J8	iC-MU I ² C and multiturn interface signals
JP6	Bridges SLO- / SL- (BiSS bus termination)		
JP7	Bridges SLO+ / SL+ (BiSS bus termination)		
JP7	Disconnect MTD pin from line driver U5		

CONNECTOR AND TERMINAL PINOUT

J1: Signal input (suitable to MU1M)

PIN	Name	Function
1	SCL	EEPROM interface, clock line
2	SDA	EEPROM interface, data line
3	VPA	Analog supply voltage
4	GND	Ground
5	PB0	Port B, Pin 0: Digital I/O, analog output configurable
6	PB1	Port B, Pin 1: Digital I/O, analog output configurable
7	PB2	Port B, Pin 2: Digital I/O, analog output configurable
8	PB3	Port B, Pin 3: Digital I/O, analog output configurable
9	PA3	Port A, Pin 3: Digital I/O, configurable
10	PA2	Port A, Pin 2: Digital I/O, configurable
11	PA1	Port A, Pin 1: Digital I/O, configurable
12	PA0	Port A, Pin 0: Digital I/O, configurable
13	GND	Ground
14	VPD	Digital supply voltage
15	MTD	Multiturn interface, data line
16	MTC	Multiturn interface, clock line
17	n.c.	
18	n.c.	
19	n.c.	
20	n.c.	

J2: BiSS interface input

9-pin Sub D Connector - female

PIN	Name	Function
1	VB	+12 V supply voltage
2	MA +	Clock input
3	MA -	Clock input (inverted)
4	VDD	+5 V supply voltage
5	SLI -	Data input (inverted)
6	GND	0 V ground
7	SL +	Data line
8	SL -	Data line (inverted)
9	SLI +	Data input

J3: SPI interface

10-pin Connector - male

PIN	Name	Function
1	SCLK	SPI clock input
2	GND	Ground
3	NSEL_BISS	Not select BiSS
4	VDD_SPI	SPI +5 V supply voltage
5	NRESETI2C	Switch I ² C data line to GND
6	NSEL_SPI	Not select SPI
7	MOSI	SPI data input
8	NCS	SPI not chip select
9	MISO	SPI data output
10	GND	Ground

J4: BiSS interface output

9-pin Sub D Connector - male

PIN	Name	Function
1	VB	+12 V supply voltage
2	MAO +	Clock output
3	MAO -	Clock output (inverted)
4	VDD	+5 V supply voltage
5	SLO -	Data output (inverted)
6	GND	0 V ground
7	SL +	Data line
8	SL -	Data line (inverted)
9	SLO +	Data output

J5: Multiturn interface

9-pin Sub D Connector - male

PIN	Name	Function
1	VB	+12 V supply voltage
2	MTC +	Clock output
3	MTC -	Clock output (inverted)
4	VPD	+5 V supply voltage
5	n. c.	
6	GND	0 V ground
7	MTD +	Data input
8	MTD -	Data input (inverted)
9	n. c.	

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CIRCUIT DESCRIPTION

The evaluation board MU1D interfaces the eval kit MU1M to the PC.

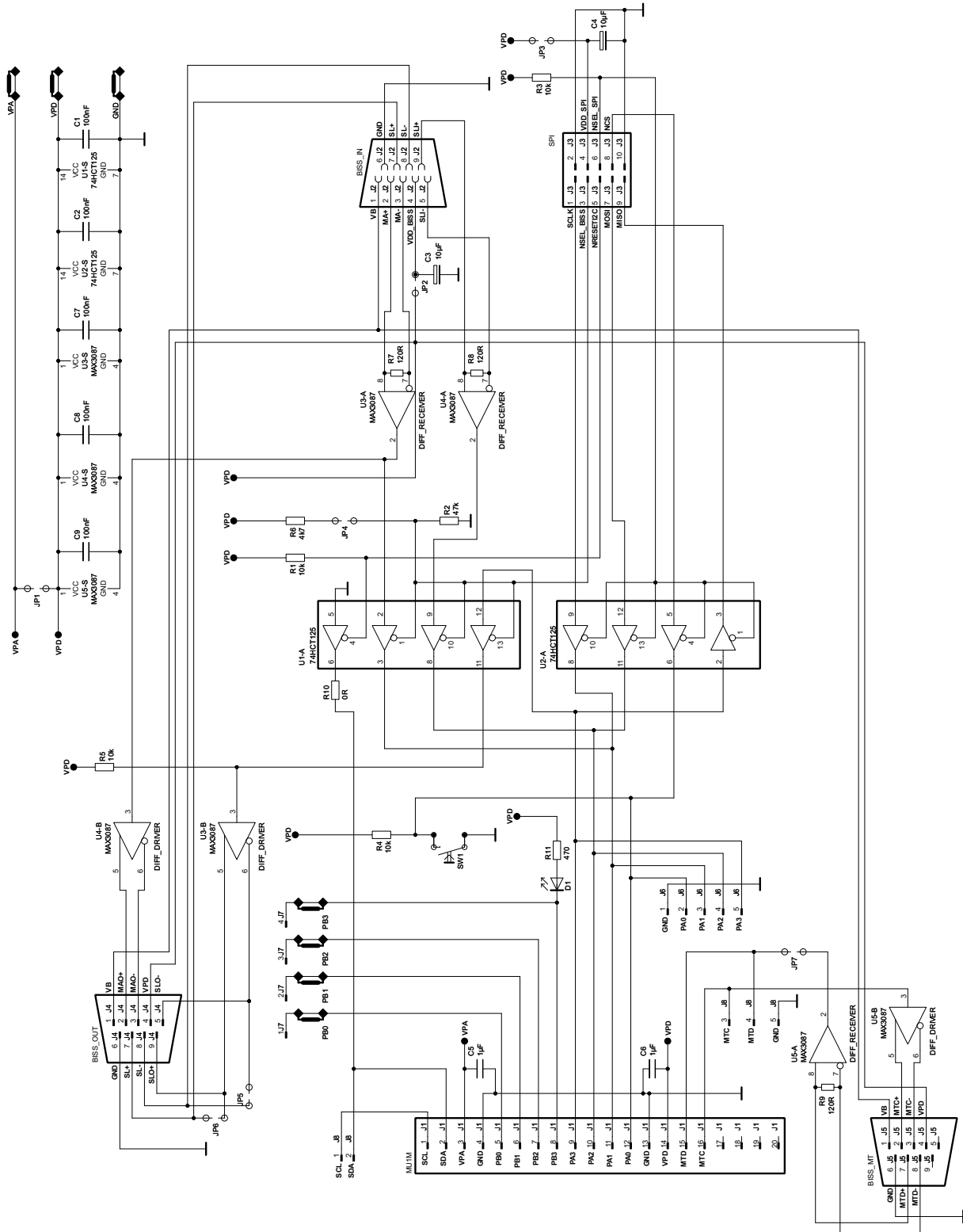


Figure 3: Circuit diagram MU1D

iC-MU EVAL MU1D

EVALUATION BOARD DESCRIPTION

ASSEMBLY PART LISTS

Device	Value (typical)	Comment
C1, C2, C7	100 nF	Capacitors
C3, C4	10 μ F	Capacitors
C5, C6	1 μ F	Capacitors
D1	LED (red)	Error LED (not assembled)
J1	WSL20 (male)	Connector
J2	Sub-D 9 pol. (female)	Sub-D connector
J3	WSL10 (male)	Connector
J4, J5	Sub-D 9 pol. (male)	Sub-D connector
J6, J8	W5x1	
J7	W4x1	
JP1...JP7	W2x1	Jumper
PB0...PB3	Test clamp	
R1, R3, R4, R5	10 k Ω	Resistor 0603
R2	47 k Ω	Resistor 0603
R6	4.7 k Ω	Resistor 0603
R7, R8, R9	120 Ω	Resistor 0603
R10	0 k Ω	Bridge resistor 0603
R11	470 Ω	Resistor 0603
SW1	OMR B3S 1000	Switch
U1, U2	74HCT125 (SO14)	Quad bus buffers (3-state)
U3, U4, U5	MAX3087 (SO8)	RS422 driver

Table 1: Board MU1D

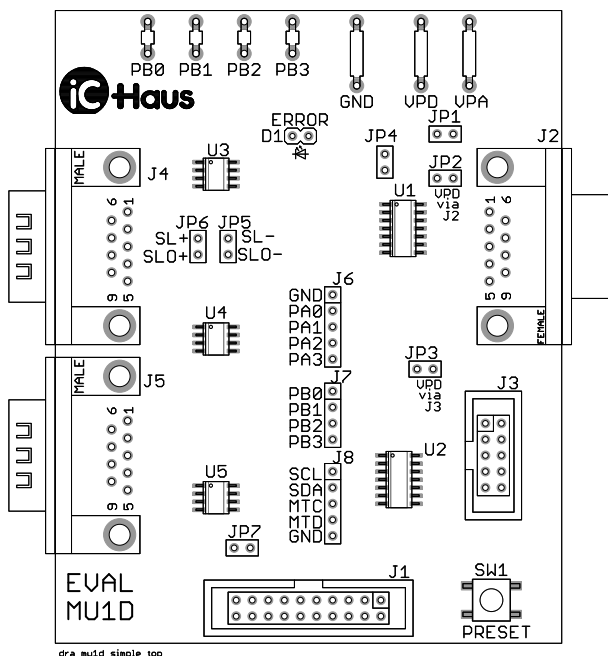


Figure 4: Board MU1D - top side

iC-MU EVAL MU1D

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APPLICATION EXAMPLE

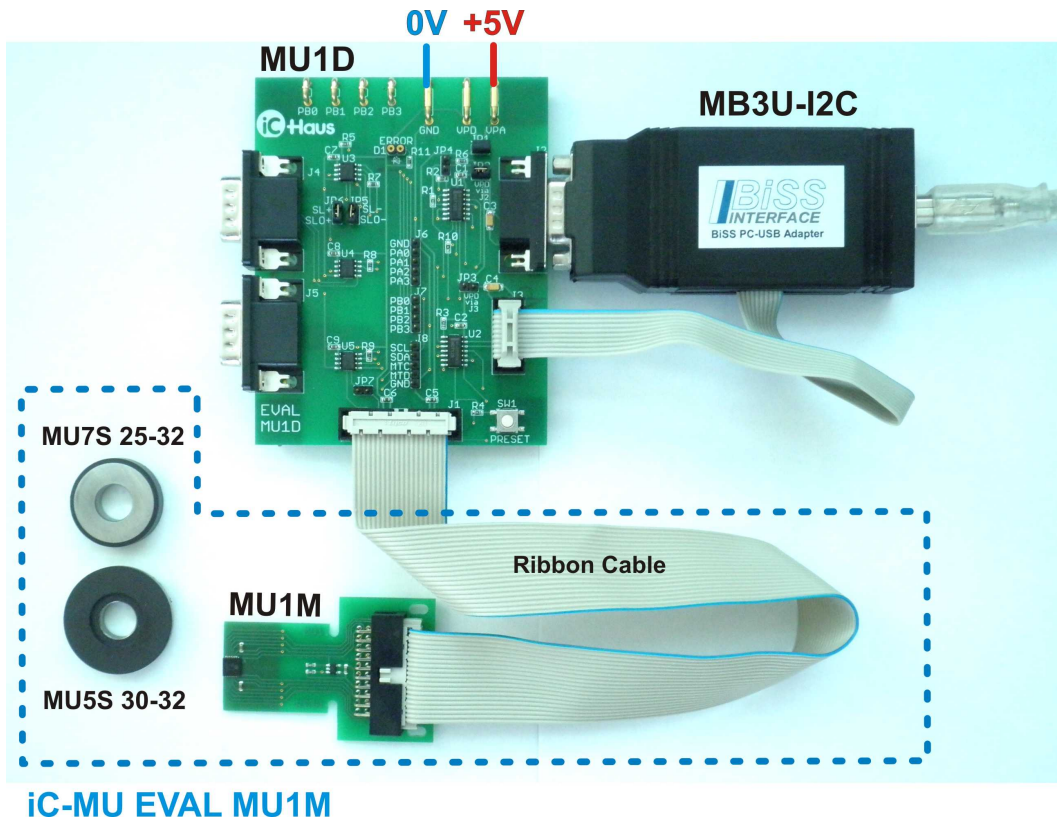


Figure 5: iC-MU eval kit parts

Required eval kit parts:

1. iC-MU EVAL MU1M
2. iC-MU EVAL MU1D
3. iC-MB3 iCSY MB3U-I2C

iC-MU EVAL MU1D

EVALUATION BOARD DESCRIPTION



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RELATED PRODUCTS AND DOCUMENTATION

Item	Description	Documentation and Information
iC-MU DFN16-5x5	Magnetic off-axis absolute position encoder	http://www.ichaus.de/product/iC-MU
MU5S 30-32N	Magnetic code disc suitable for iC-MU	
MU7S 25-32N	Magnetic code disc suitable for iC-MU	
iC-MU EVAL MU1M	Evaluation kit suitable for MU1D	
iC-MB3 iCSY MB3U-I2C	BiSS/SSI and I ² C-to-PC adapter (USB)	http://www.ichaus.de/product/MB3U-I2C

REVISION HISTORY

Rev	Notes	Pages affected
A1	Initial version	

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