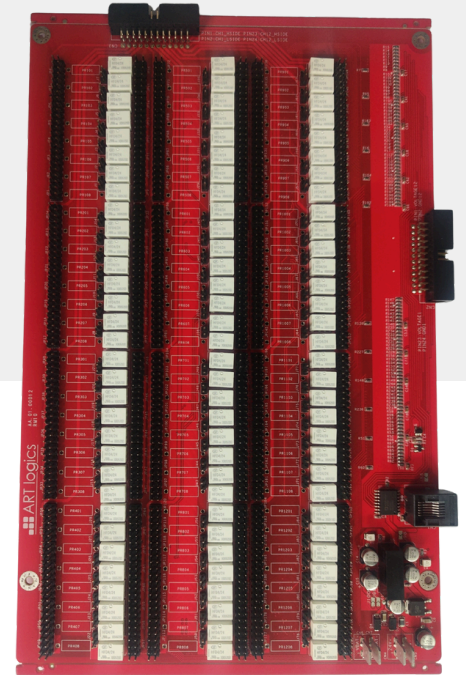


EM – RM10: Multifunction Unit

OVERVIEW

The Multifunction board Resistor Matrix 12Ch is a plug&play board of the TCU100 extension system. This board is used to simulate different possibilities of fault such as shot to VBAT or Ground using a combination of 8 resistors for each channel. Each channel as a Current Measurement ability with a range between -/100mA.



KEY FEATURES

- 12 Channels of 8 relay
- □ Isolation power and SPI
- □ 1A maximum, peak of 2A during 5ms
- □ Current Sensor range -100/+100mA
- □ Low resistor Fuse Protection for each Channel.

DIMENSION

L*W = 175mm x 240mm

OPERATING TEMPERATURE

-0 °C ~ +65 °C

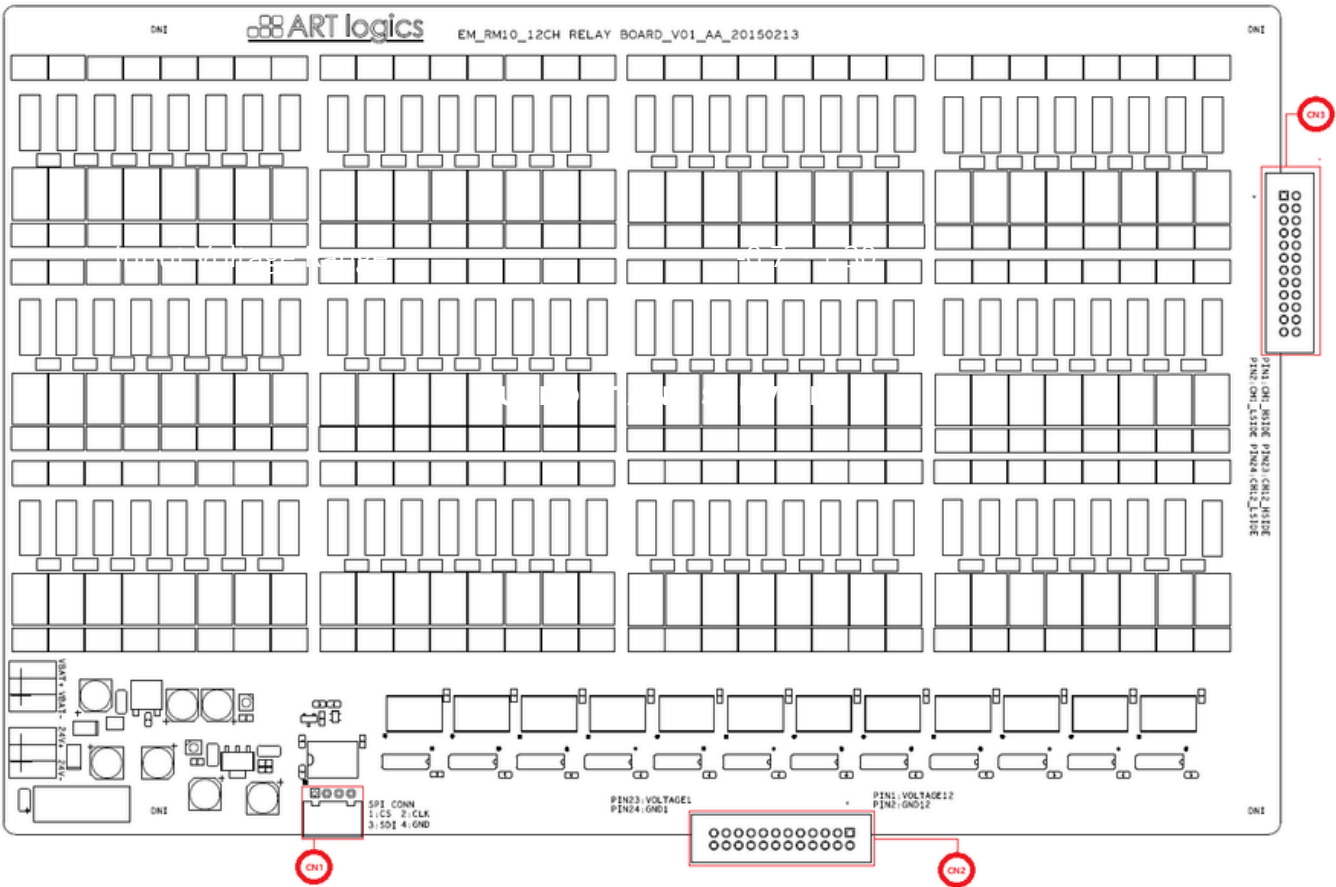
POWER REQUIREMENT

DC Power Supply:
24 VDC, 90m A

DETAILED SPECIFICATIONS:

Analog Voltage Output	Value	Unit
12 Voltage Output	±10	V
Current Output Range (Normal / Max)	±100	mA
12 Channels	0-Vbat	V
Accuracy	±1 (@ 10V)	%
12 Channels Output Resistance	0-2M	Ω
Resistor Accuracy	0.1	%

CONNECTION:



CONNECTOR DEFINITION:

Connector	Name
CN1	SPI_CONNECTOR
CN2	CURRENT MEASUREMENT (recommend to use EM-A20)
CN3	Input/Output DUT Connector

CONNECTION TABLE

Table1 – CN1 –SPI Connector

Pin Number	Pin Name	Description
CN1.1	SPI_CS	Chips Select of SPI from FPGA Board
CN1.2	SPI_CLK	Clock from FPGA Board
CN1.3	SPI_MOSI	Data of SPI Channel from FPGA Board
CN1.4	GND	Ground from FPGA Board

Table2 – CN2 – CURRENT MEASUREMENT

Pin Number	Pin Name	Description
CN2.1	Voltage 1	Voltage output 1
CN2.2	Gnd 1	Ground 1
CN2.3	Voltage 2	Voltage output 2
CN2.4	Gnd 2	Ground 2
CN2.5	Voltage 3	Voltage output 3
CN2.6	Gnd 3	Ground 3
CN2.7	Voltage 4	Voltage output 4
CN2.8	Gnd 4	Ground 4
CN2.9	Voltage 5	Voltage output 5
CN2.10	Gnd 5	Ground 5
CN2.11	Voltage 6	Voltage output 6
CN2.12	Gnd 6	Ground 6
CN2.13	Voltage 7	Voltage output 7
CN2.14	Gnd 7	Ground 7
CN2.15	Voltage 8	Voltage output 8
CN2.16	Gnd 8	Ground 8
CN2.17	Voltage 9	Voltage output 9
CN2.18	Gnd 9	Ground 9
CN2.19	Voltage 10	Voltage output 10
CN2.20	Gnd 10	Ground 10

CN2.21	Voltage 11	Voltage output 11
CN2.22	Gnd 11	Ground 11
CN2.23	Voltage 12	Voltage output 12
CN2.24	Gnd 12	Ground 12

Table 3 – CN3 – I/O DUT Connector

Pin Number	Pin Name	Description
CN3.1	Low Ch1	Connection to the low side of channel 1
CN3.2	High Ch1	Connection to the high side of channel 1
CN3.3	Low Ch2	Connection to the low side of channel 2
CN3.4	High Ch2	Connection to the high side of channel 2
CN3.5	Low Ch3	Connection to the low side of channel 3
CN3.6	High Ch3	Connection to the high side of channel 3
CN3.7	Low Ch4	Connection to the low side of channel 4
CN3.8	High Ch4	Connection to the high side of channel 4
CN3.9	Low Ch5	Connection to the low side of channel 5
CN3.10	High Ch5	Connection to the high side of channel 5
CN3.11	Low Ch6	Connection to the low side of channel 6
CN3.12	High Ch6	Connection to the high side of channel 6
CN3.13	Low Ch7	Connection to the low side of channel 7
CN3.14	High Ch7	Connection to the high side of channel 7

CN3.15	Low Ch8	Connection to the low side of channel 8
CN3.16	High Ch8	Connection to the high side of channel 8
CN3.17	Low Ch9	Connection to the low side of channel 9
CN3.18	High Ch9	Connection to the high side of channel 9
CN3.19	Low Ch10	Connection to the low side of channel 10
CN3.20	High Ch10	Connection to the high side of channel 10
CN3.21	Low Ch11	Connection to the low side of channel 11
CN3.22	High Ch11	Connection to the high side of channel 11
CN3.23	Low Ch12	Connection to the low side of channel 12
CN3.24	High Ch12	Connection to the high side of channel 12

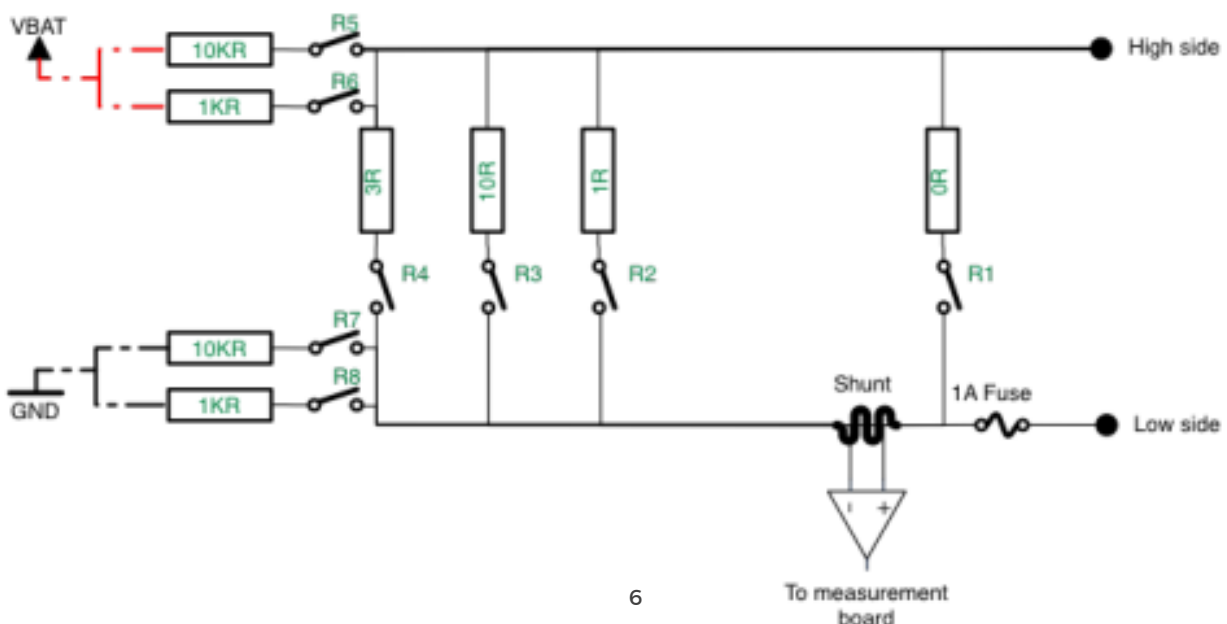
USAGE EXAMPLES

For any application need to test some sequence fault such as short to VBAT or Ground.
E.g. In ABS system,when you need to generate test fault case, and measuring Current.

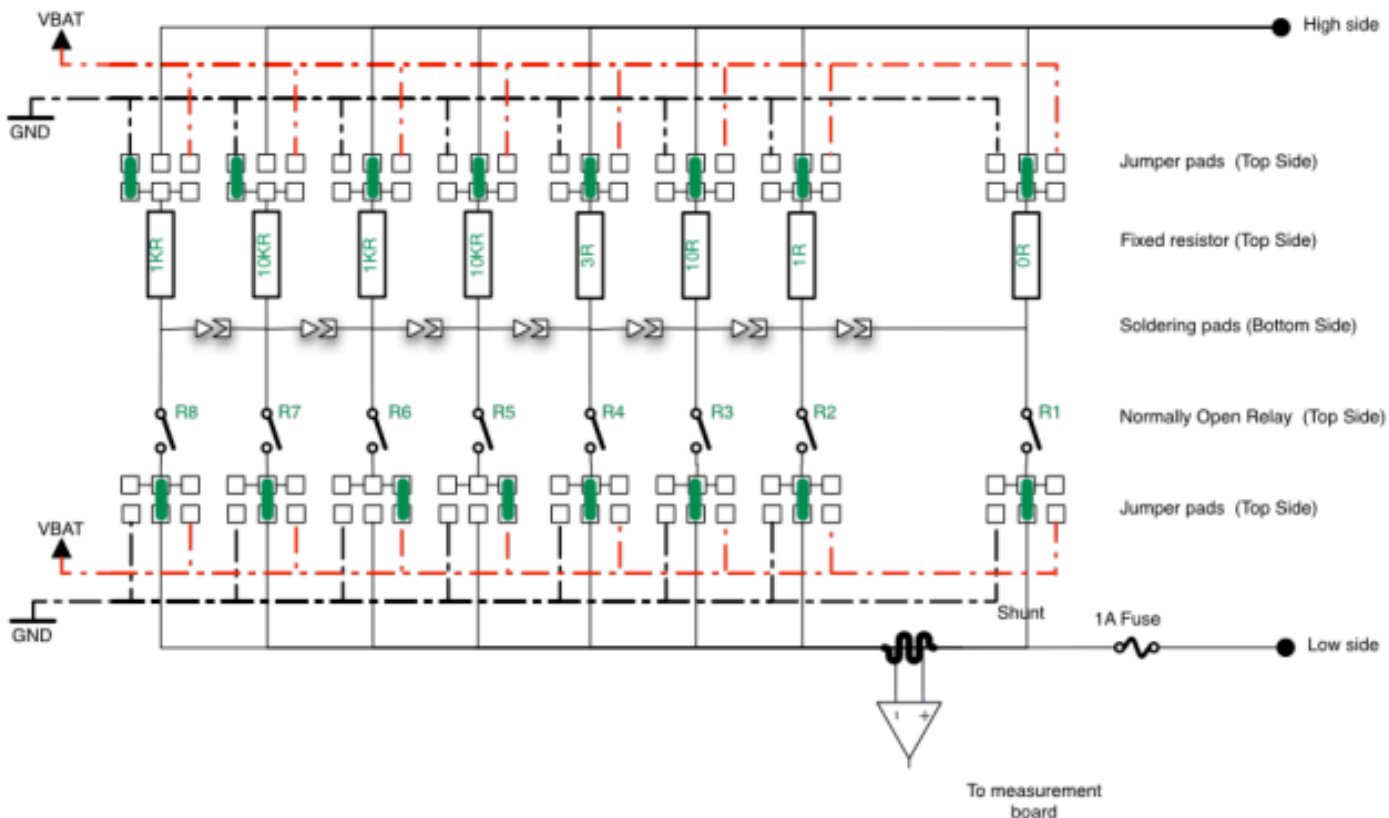
Application:

This can be an example where to use the EM-RM10

Expectation for test:



Configuration of the EM-R10 to make this test:



ENVIROMENTAL

The EM - RM10: Multifunction Unit is intended for indoor use only but may be used outdoors if installed in a suitable enclosure. Refer to the manual for more information about meeting these specifications.

Operating temperature

0 °C --+65 °C

Storage temperature

-40 °C --+85 °C

Ingress protection (IP code)

None

Operating humidity

10-90% RH non condensing

Storage humidity

5-95% RH non condensing

LIST OF ACCESSORIES

- 1 Connectors 4 Ways DIP Type
- 2 Connectors 24 Ways DIP type
- 4 Plastic protections for faston connectorW
- 2 flat cables 24 ways
- 4 fastons

SUPPORT AND SERVICE

Calibration

ART logics measurement hardware is calibrated to ensure measurement accuracy and verify that the device meets its published specifications. To ensure the ongoing accuracy of the measurement hardware, ART logics offers basic or detailed recalibration service.



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