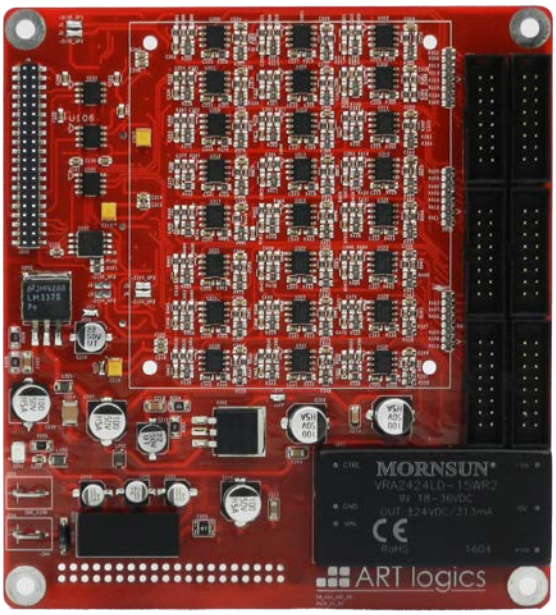
Last version: v1.00 - 2016/09/18

EM – V10: Voltage Output

SN: 1711022



- *48 channels (divided 3 times in 16 outputs)*
- *Connection to the FPGA by SPI bus*
- *EEPROM to store the calibration*
- *Isolated power and SPI*

Overview:

The EM-V10 board provides massive extra resources to expand the Voltage output ability of TCU100. These Voltage Output includes 48 analogue output from -40V to +40V.

List of Accessories:

- 6 Connectors 16 Ways DIP Type
- 2 Fastons
- 4 Plastic protections for faston connector
- 2 flat connectors 40 ways
- 2 CONN-FC, 2X20 pins, FEMALE, 2.54MM

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Tel: 8621 5308 1580
802,B Zone No.668 Eastern Beijing Rd., Shanghai China 200001

Detailed Specifications:

Analog Voltage Output	Value	Unit
Digital to Analog Converter (DAC)	AD5390BSTZ	
Resolution	16 bits	
Output Range （Normal / Max）	-40V / +40V	V
Accuracy	5	mV
Output Resistance	100	Ω
Sampling Speed	Up to 5K （Depends on how many channel need to be sampled at the sample tim）	Sps (Samples/Second)

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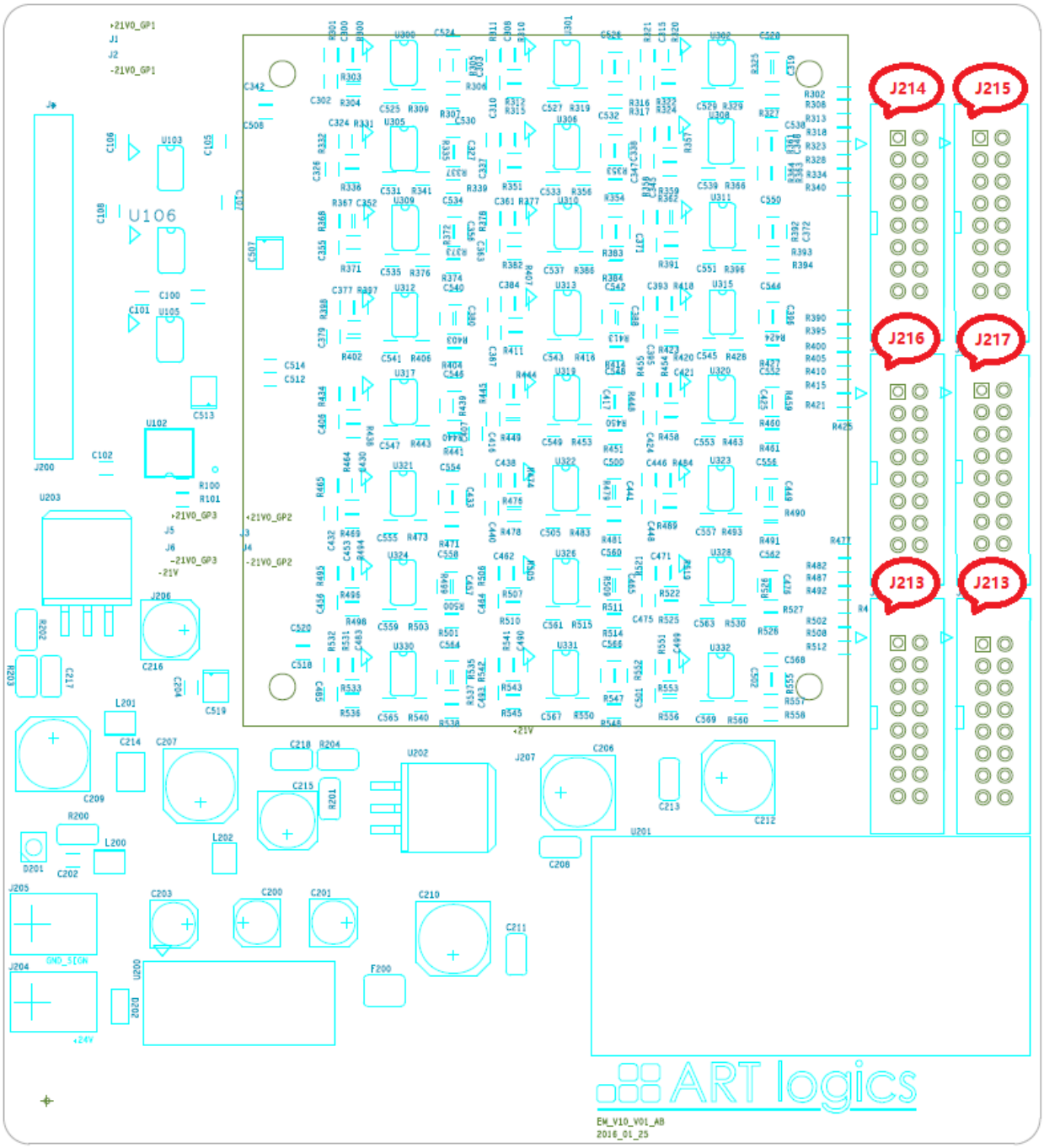
Connection:



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The EM-V10 consists of 3 DAC, each DAC control 16* voltage output.

J 200	Connection to FPGA Board
J204, J205	J101: +24VDC, J102: +24VDC_GND
J114, J115	DAC 1, Vout from 1-16
J116, J117	DAC 2, Vout from 17-32
J112, J113	DAC 3, Vout from 33-48

Connection Table

Table1 – DAC 1 Connection List

Pin Number	Pin Name	Pin Number	Pin Name	Pin Number	Pin Name	Pin Number	Pin Name
J114.1	DAC1_Vout_1	J114.2	GND	J115.1	DAC1_Vout_2	J115.2	GND
J114.3	DAC1_Vout_3	J114.4	GND	J115.3	DAC1_Vout_4	J115.4	GND
J114.5	DAC1_Vout_5	J114.6	GND	J115.5	DAC1_Vout_6	J115.6	GND
J114.7	DAC1_Vout_7	J114.8	GND	J115.7	DAC1_Vout_8	J115.8	GND
J114.9	DAC1_Vout_9	J114.10	GND	J115.9	DAC1_Vout_10	J115.10	GND
J114.11	DAC1_Vout_11	J114.12	GND	J115.11	DAC1_Vout_12	J115.12	GND
J114.13	DAC1_Vout_13	J114.14	GND	J115.13	DAC1_Vout_14	J115.14	GND
J114.15	DAC1_Vout_15	J114.16	GND	J115.15	DAC1_Vout_16	J115.16	GND

Table2 – DAC 2 Connection List

Pin Number	Pin Name	Pin Number	Pin Name	Pin Number	Pin Name	Pin Number	Pin Name
J116.1	DAC2_Vout_17	J116.2	GND	J117.1	DAC2_Vout_18	J117.2	GND
J116.3	DAC2_Vout_19	J116.4	GND	J117.3	DAC2_Vout_20	J117.4	GND
J116.5	DAC2_Vout_21	J116.6	GND	J117.5	DAC2_Vout_22	J117.6	GND
J116.7	DAC2_Vout_23	J116.8	GND	J117.7	DAC2_Vout_24	J117.8	GND
J116.9	DAC2_Vout_25	J116.10	GND	J117.9	DAC2_Vout_26	J117.10	GND
J116.11	DAC2_Vout_27	J116.12	GND	J117.11	DAC2_Vout_28	J117.12	GND
J116.13	DAC2_Vout_29	J116.14	GND	J117.13	DAC2_Vout_30	J117.14	GND
J116.15	DAC2_Vout_31	J116.16	GND	J117.15	DAC2_Vout_32	J117.16	GND

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Table3 – DAC 3 Connection List

Pin Number	Pin Name	Pin Number	Pin Name	Pin Number	Pin Name	Pin Number	Pin Name
J112.1	DAC3_Vout_33	J112.2	GND	J113.1	DAC3_Vout_34	J113.2	GND
J112.3	DAC3_Vout_35	J112.4	GND	J113.3	DAC3_Vout_36	J113.4	GND
J112.5	DAC3_Vout_37	J112.6	GND	J113.5	DAC3_Vout_38	J113.6	GND
J112.7	DAC3_Vout_39	J112.8	GND	J113.7	DAC3_Vout_40	J113.8	GND
J112.9	DAC3_Vout_41	J112.10	GND	J113.9	DAC3_Vout_42	J113.10	GND
J112.11	DAC3_Vout_43	J112.12	GND	J113.11	DAC3_Vout_44	J113.12	GND
J112.13	DAC3_Vout_45	J112.14	GND	J113.13	DAC3_Vout_46	J113.14	GND
J112.15	DAC3_Vout_47	J112.16	GND	J113.15	DAC3_Vout_48	J113.16	GND

Table5 - Miscellaneous Connection

Pin Number	Pin Name	Pin Number	Pin Name	Pin Number	Pin Name
J204	+24_GND	J205	+24V	J200	FPGA Connector

Power Requirement

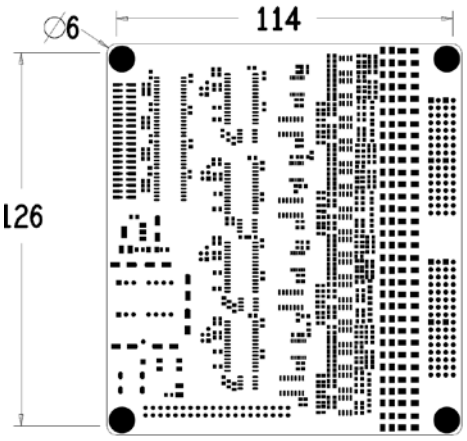
DC power supply:

24VDC, 330 mA

Physical:

Dimension:

L*W = 126mm*114mm



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Usage examples:

(1) For any application need a lot of Analog output
E.g. In EPS, VCU system, when you need to generate server high accuracy and fast changing torque control voltage.

Environmental

The EM – M10: 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 ~ 65
Storage temperature	-40 ~ +85
Ingress protection (IP code)	none
Operating humidity	10-90% RH non condensing
Storage humidity	5-95% RH non condensing

Support and Services

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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