

CoreDAQ 2020 DATA ACQUISITION CARD

Version. 1.1



Core Technologies

Suite No.8A, 3rd Floor

184 Lenin Sarani, Kolkata 700013

Phone: 22126865

Email: sdas.core@gmail.com

Website: www.core-technologies.com

CoreDAQ 2020 Data Acquisition Card

Features

CoreDAQ 2020 is an intelligent Data Acquisition Card capable of handling universal inputs independently on 8 analog channels and has 16 configurable Digital Inputs/Outputs at TTL level.

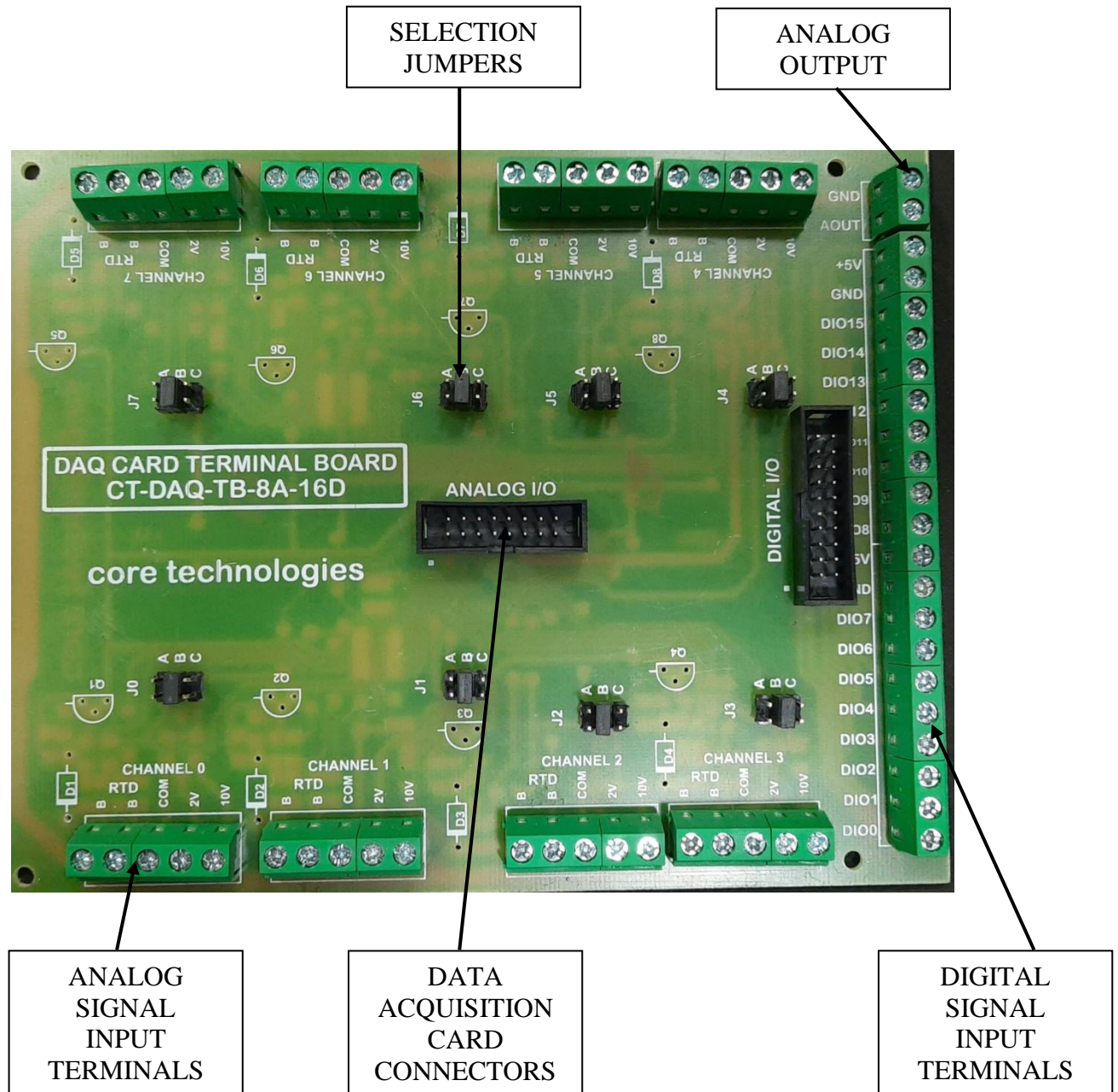
The Card is USB powered and consists of 2 units – the Main Card and a Terminal Box. The terminal box signal conditioning circuitry and some selection jumpers for selecting the type of input.

The software is very flexible and customizable for saving and plotting acquired data. The card may be calibrated channel-wise for each type of input.

Specifications

- Analog Input : 8 Channels Universal Input
- Analog Output : 1 No. 0 ~ 5V
- Digital Input/Output : 16 Configurable
- Input Types :
 - $\pm 0 \sim 10V$
 - 0 ~ 20 mA
 - 4 ~ 20 mA
 - $\pm 0 \sim 200mV$
 - RTD Pt-100 (-200 to 850°C)
 - T/C J Type (0 to 1100°C)
 - T/C K Type (-200 to 1370°C)
 - T/C R Type (0 to 1770°C)
 - T/C S Type (0 to 1770°C)
 - T/C T Type (-190 to 400°C)
 - T/C B Type (0 to 1800°C)
- RTD : Individual Current Source, 3/2 wire
- CJC for T/C Compensation : Digital Temperature Sensor for Cold Junction
- PWM outputs : 2 Nos. on digital channels

Terminals



Connections

0 ~ 10V

VIN + => 10V
VIN- => COM

0 ~ 20mA & 4 ~ 20mA

CIN + => 2V
CIN- => COM

Connect 10 Ω Resistance across the input terminals

RTD (Pt-100) 3 – wire

B => RTD – B
B => RTD – B
A => COM

RTD (Pt-100) 2 – wire

B => RTD – B
A => RTD – COM

Short B & B Terminals

Thermocouple (J, K, R, S, T, B)

T/C + => 2V
T/C- => COM

Jumper Settings

1. A – RTD
2. B – T/C and 200mV max
3. C – 10V max

Packing List

1. Data Acquisition Card
2. Terminal Box
3. 16pin FRC Cable
4. 20 pin FRC Cable
5. USB Cable

Installation

1. Insert CD into CD drive
2. In the USB Driver folder run the installation file.
3. Connect the FRC16 cable between the cards in the connector marked ANALOG I/O.
4. Connect the FRC20 cable between the cards in the connector marked DIGITAL I/O.
5. Connect the USB cable between the card and PC/Laptop.
6. Once the driver is accepted, note the COM port number from Control Panel – System – Device Manager – COM & LPT Ports.
7. Install the Application by executing setup.exe from the Application folder on the CD.
8. Run the program CoreDAQ2020.

Software Execution & Options

Card Status Window –

This window indicates if the card is properly connected, the COM port number, any tasks running, etc.

Card Communication –

For the card to communicate with the software the correct port must be selected. From the menu select Options – Card Communication.

Select the port number noted from the Control Panel after installation and select it from the menu.

Card Configuration –

At the beginning the card must be configured for the analog input per channel. From the menu select Options – Card Configuration.

You may select the type of input for each analog channel and the range if the input type is anything other than RTD or T/C.

Similarly for Digital channels the input type must be configured.

The configuration may be saved for later use.

Task Manager –

Once the card has been setup, the task manager has to be set up. From the menu select Task – Task Manager.

There is an option to Save & Plot on every channel. Select appropriately and press OK.

The task may be started from the menu Task – Start.

The task may be stopped from the menu Task – Stop at any time.

View Data –

Data may be viewed from menu View – Analog Data and View – Digital Data options in the menu. The Real Time Trends may be viewed for the channels that are configured for plot.

Trends –

The Real-Time Trends may be viewed In the Trends window from the View – Trends menu. You may change the color for each channel and give the Range of view. The number of points on the trend graph may be selected between 10, 50, 100, 200 and 500 points.

Saving –

Data is saved on storage media the File – Save menu. A Save options window will open. You may select the various parameters of saving like interval and file format.

First select the file name. It is recommended you save it in .csv format, so that it may be opened in Microsoft Excel.

Next select the Channel Headers you require to be placed in the file. Check the “Use Channel Details as column Headers” option to ensure that the headers are used.

Next from the “Saving Options” select the delimiter to be used between the data values. It is recommended to use “Comma separated values” to be used in .csv file for Microsoft Excel import.

Next select the saving interval. First select the Second, Minutes or Hours interval and then the number of seconds, minutes or hours.

Next select the data index type. You may select Date & Time, Only Time, Serial Number or None option. This shall appear on the left-most column of the data file.

Note – at least one channel must be selected from Task Manager for saving and only the data of those channels that are selected shall appear in the data file.

Calibration –

Calibration is essential for accuracy of readings. These settings shall differ from card to card due to tolerances of components. There are three ranges that need to be calibrated for each channel – 1. RTD range, 2. 200mV range and 3. RTD range.

RTD Range Calibration:

Connect a standard 100 Ω resistance (1% or lower tolerance) across terminals B and COM and short B & B terminals. Put the jumper in the A option. Select the channel which is required to be calibrated. Multiple channels may be selected. Press the “Calibrate RTD” button. On successful completion “Calibration value stored” message shall appear on the screen.

200 mV Range Calibration:

Connect a standard 200mV source across 2V and COM terminals. Put the jumper in the B option. Select the channel which is required to be calibrated. Multiple channels may be selected. Press the “Calibrate 200mV” button. On successful completion “Calibration value stored” message shall appear on the screen. If the voltage read by the card is not adequate, “Analog Value too low” message shall be displayed. Check the voltage is properly 200mV or not and attempt again.

Short the 2V and COM terminals. Put the jumper in the B option. Select the channel which is required to be calibrated. Multiple channels may be selected. Press the “Calibrate 0mV” button. On successful completion “Calibration value stored” message shall appear on the screen. If the voltage read by the card is not proper, “Analog Value too high” message shall be displayed. Check the short properly and attempt again.

10V Range Calibration:

Connect a standard 10V source across 10V and COM terminals. Put the jumper in the C option. Select the channel which is required to be calibrated. Multiple channels may be selected. Press the “Calibrate 10V” button. On successful completion “Calibration value stored” message shall appear on the screen. If the voltage read by the card is not adequate, “Analog Value too low” message shall be displayed. Check the voltage is properly 10V or not and attempt again.

Short the 10V and COM terminals. Put the jumper in the C option. Select the channel which is required to be calibrated. Multiple channels may be selected. Press the “Calibrate 0V” button. On successful completion “Calibration value stored” message

shall appear on the screen. If the voltage read by the card is not proper, “Analog Value too high” message shall be displayed. Check the short properly and attempt again.

An “Import” and “Export” option is provided to save the calibration data onto disk for future use. You may use the saved file using the import button on a different PC. There is no need to recalibrate the card.