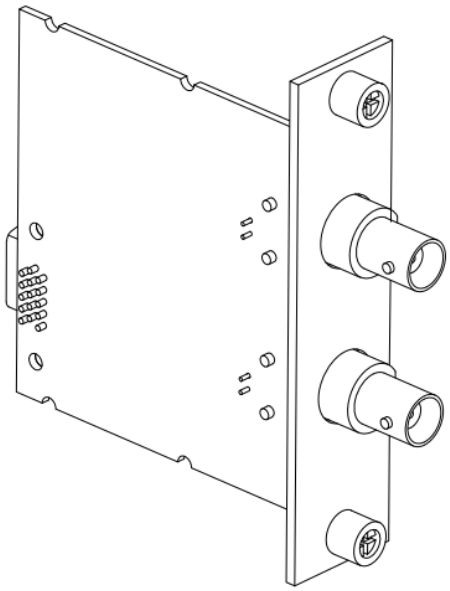
DATASHEET

MT E735

2 AO, ±5 V, 24 Bit, 192 kS/s/ch Simultaneous



- BNC connectivity
- -40 °C to 70 °C operating, 5 g vibration, 50 g shock
- 24-bit resolution
- 192 kS/s/ch data rate maximum

The MT E735 is a two-channel analog output module for any MT RobustRIO and FlexDAQ system with a 192 kS/s update rate,24-bit resolution,and ±5V output range.The MT E735 is an instrument-grade dynamic signal generator for testing audio components, testing capabilities of consumer electronic devices, and providing excitation in structural test applications.Unlike sound-card-based solutions,the MT E735 can be deployed quickly and recalibrated to guarantee long-term measurement repeatability and decreased test time.

MT E Series Overview

MT provides more than 20 E Series modules for measurement, control, and communication applications. E Series modules can connect to any sensor or bus and allow for high-accuracy measurements that meet the demands of advanced data acquisition and control applications.

- Measurement-specific signal conditioning that connects to an array of sensors and signals
- Isolation options such as bank-to-bank, channel-to-channel, and channel-to-earth ground
- -40 °C to 70 °C temperature range to meet a variety of application and environmental needs
- Hot-swappable

The majority of E Series modules are supported in both RobustRIO and FlexDAQ platforms and you can move modules from one platform to the other with no modification.

RobustRIO

RobustRIO combines an open-embedded architecture with small size, extreme ruggedness, and E Series modules in a platform powered by the Redefinable I/O (RIO) architecture. Each system contains an FPGA for custom timing, triggering, and processing with a wide array of available modular I/O to meet any embedded application requirement.

FlexDAQ

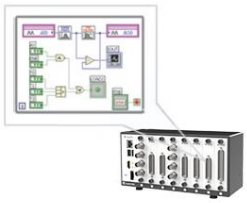
FlexDAQ is a portable, rugged data acquisition platform that integrates connectivity, data acquisition, and signal conditioning into modular I/O for directly interfacing to any sensor or signal. Using FlexDAQ with LabVIEW, you can easily customize how you acquire, analyze, visualize, and manage your measurement data.

Software

LabVIEW Professional Development System for Windows

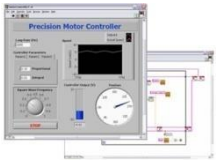
- Use advanced software tools for large project development
- Use advanced measurement analysis and digital signal processing
- Take advantage of open connectivity with DLLs, ActiveX, and .NET objects
- Build DLLs, executables, and MSI installers

LabVIEW FPGA Module



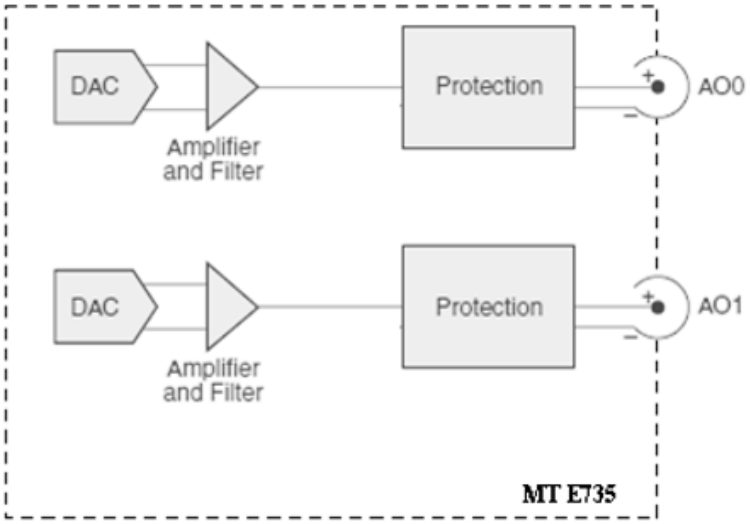
- Design FPGA applications for MT RIO hardware
- Program with the same graphical environment used for desktop and real-time applications
- Execute control algorithms with loop rates up to 300 MHz
- Implement custom timing and triggering logic, digital protocols, and DSP algorithms
- Incorporate existing HDL code and third-party IP including Xilinx IP generator functions

LabVIEW Real-Time Module



- Design deterministic real-time applications with LabVIEW graphical programming
- Take advantage of built-in PID control, signal processing, and analysis functions
- Automatically take advantage of multicore CPUs or set processor affinity manually
- Take advantage of real-time OS, development and debugging support, and board support

MT E735 Circuitry



The Delta-Sigma DAC has a resolution of 24 bits and can update at a maximum rate of 192kS/s.The output stage of the MT E735 with BNC is single-ended,the AO- is terminated to GND.The outputs of the DAC are buffered, conditioned, and filtered before reaching the module conncetors.

MT E735 Specifications

The following specifications are typical for the range -40 °C to 70 °C unless otherwise noted.

⚠ **Caution** Do not operate the MT E735 in a manner not specified in this document. Product misuse can result in a hazard. You can compromise the safety protection built into the product if the product is damaged in any way. If the product is damaged, return it to MT for repair.

⚠ **Caution** The input terminals of this device are not protected from electromagnetic interference. As a result, this device may experience reduced measurement accuracy or other temporary performance degradation when connected cables are routed in an environment with radiated or conducted radio frequency electromagnetic interference. To limit radiated emissions and to ensure that this device functions within specifications in its operational electromagnetic environment, take precautions when designing, selecting, and installing measurement probes and cables.

Output Characteristics

Number of channels	2 analog output channels
DAC resolution	24 bits
Type of DAC	Delta-Sigma
Output voltage range	±5V
Output coupling	DC

Data rate range(*fs*)	192kS/s、96kS/s、48kS/s
Overvoltage protection	±30 V
Short-circuit protection	Yes
Output impedance	60 Ω

Table 1. Accuracy

Measurement Conditions		Percent of Reading (Gain Error)	Percent of Range (Offset Error)
Calibrated	Maximum (-40 °C to 70 °C)	0.033%	0.015%
	Typical (25 °C, ±5 °C)	0.008%	0.006%

Passband	0.49* *fs*
Stopband	0.546* *fs*
Crosstalk	-110dB
THD	-115dB
THD+N	-110dB
Dynamic Range	120dB
Signal-to-noise ratio(SNR)	118dB

Power Requirements

Power consumption from chassis	870mW maximum
Thermal dissipation (at 70 °C)	920mW maximum

Safety Voltages

Channel-to-earth ground	±30 V maximum
Isolation Voltages	
Channel-to-channel	None
Channel-to-earth ground	None

CE Compliance CE

This product meets the essential requirements of applicable European Directives, as follows:

- 2014/35/EU; Low-Voltage Directive (safety)

- 2014/30/EU; Electromagnetic Compatibility Directive (EMC)
- 2014/34/EU; Potentially Explosive Atmospheres (ATEX)

Shock and Vibration

To meet these specifications, you must panel mount the system.

Operating vibration	
Random (IEC 60068-2-64)	5 g_{rms}, 10 Hz to 500 Hz
Sinusoidal (IEC 60068-2-6)	5 g, 10 Hz to 500 Hz
Operating shock (IEC 60068-2-27)	30 g, 11 ms half sine; 50 g, 3 ms half sine; 18 shocks at 6 orientations

Environmental

Refer to the manual for the chassis you are using for more information about meeting these specifications.

Operating temperature (IEC 60068-2-1, IEC 60068-2-2)	-40 °C to 70 °C
Storage temperature (IEC 60068-2-1, IEC 60068-2-2)	-40 °C to 85 °C
Ingress protection	IP40
Operating humidity (IEC 60068-2-78)	10% RH to 90% RH, noncondensing Storage
humidity (IEC 60068-2-78)	5% RH to 95% RH, noncondensing Pollution
Degree	2
Maximum altitude	5000m

Indoor use only.