

DT9853 & DT9854

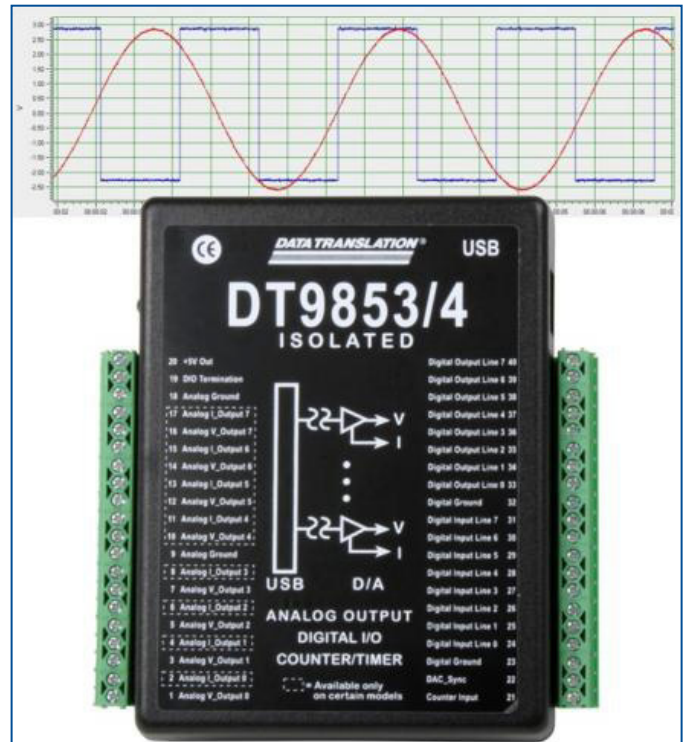
Low Cost, Isolated, Streaming
USB Analog Output Modules with
Continuous Output Up to 8 kS/s

Overview

The DT9853 and DT9854 modules are low-cost, isolated analog output and digital I/O modules for the USB bus. They provide 4 or 8 glitchless analog outputs at 16-bit resolution in a compact enclosure. These low-cost modules are ideal for applications requiring stable and accurate output signals. Both modules provide an output range of ± 10 V or 0 V to 10 V.

Key Features

- 4 or 8 glitchless analog output channels with 16-bit resolution – ideal for process control, control loop, and test applications
- Waveform streaming – 1 channel at 8 kS/s, 8 channels at 1 kS/s/ch
- 8 dedicated digital input lines and 8 dedicated digital output lines
- Interrupt on change support on up to 7 digital input to monitor and control critical signals
- Output ranges of 0 V-10 V and ± 10 V for maximum flexibility
- Scalable design – easily connect multiple modules together for high channel count apps
- ± 300 V galvanic isolation to protect your computer and maintain signal integrity
- Compact, rugged enclosure; runs off USB power



The DT9853/54 provides waveform streaming at up to 8 kS/s on one channel, ideal for process control, control loop, and test applications.

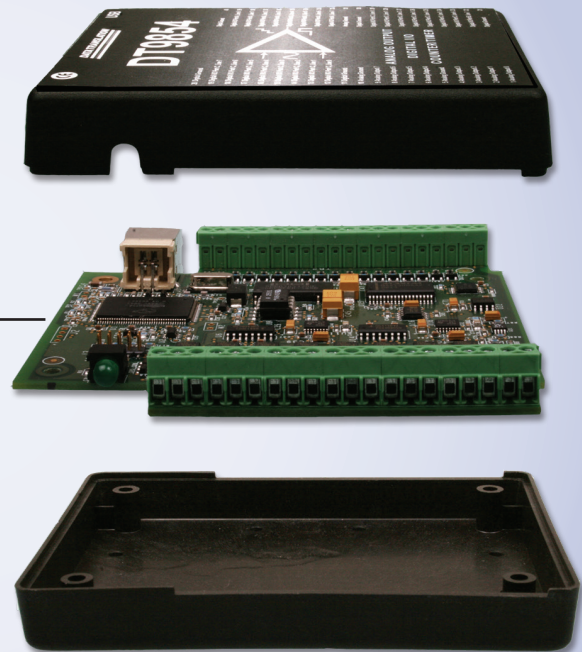
Supported Operating Systems

- Windows® 10/8/7/Vista® 32/64-bit

Exploded View

Stainless Steel Fiber,
Electrically Conductive,
EMI/RFI/ESD Protected,
CE-Compliant Enclosure
Maintains signal integrity

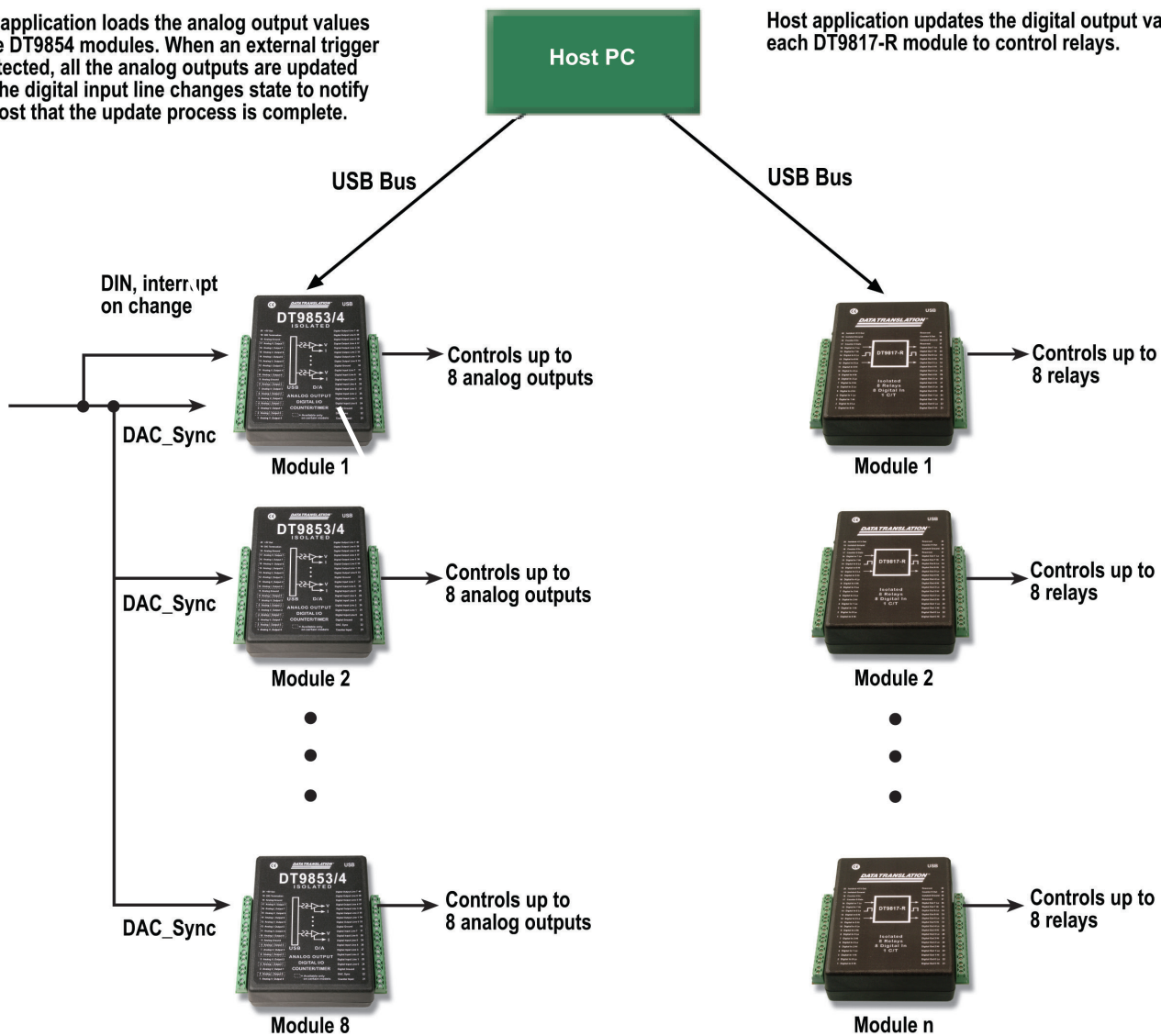
DT9853/DT9854 Series Module



The DT9853/54 modules are encased in a rugged enclosure to ensure CE-compliance and maintain signal integrity.

Host application loads the analog output values of the DT9854 modules. When an external trigger is detected, all the analog outputs are updated and the digital input line changes state to notify the host that the update process is complete.

Host application updates the digital output values of each DT9817-R module to control relays.



For high-channel count, industrial control applications, use multiple DT9853/54 modules to control analog output signals and multiple DT9817-R modules to control relays.

Streaming Analog Outputs

Both the DT9853 and DT9854 produce waveform streaming outputs. Depending on the number of channels used, the throughput varies according to the following table:

# of Enabled Channels	Maximum Sample Rate
1	8.0 kS/s/ch
2	4.0 kS/s/ch
3	2.667 kS/s/ch
4	2.0 kS/s/ch
5	1.6 kS/s/ch
6	1.333 kS/s/ch
7	1.143 kS/s/ch
8	1.0 kS/s/ch

A unique feature of this series provides double-buffering of the digital data on each analog output channel to prevent spurious outputs.

Analog Output Operation Modes

DT9853 and DT9854 modules provide multiple operation modes to match different application needs.

The user can perform the following analog output operations with any of the modules:

- Continuous output on one or multiple channels
- Single-value on one analog output channel
- Simultaneous single-value operations on multiple analog output channels of a single module
- Simultaneous single-value operations on multiple modules

Updating All Analog Output Channels of One Module Simultaneously

All the analog output channels of one module can be updated simultaneously with a single value by performing a single value operation and using either a software or external trigger. The user specifies the value to write to the analog output channels. When software or external trigger occurs, the module simultaneously updates all the analog output channels with the specified values.

Updating All Analog Output Channels of Multiple Modules Simultaneously

The user can simultaneously update all the analog output channels of multiple modules by connecting them together through their DAC_Sync pins, performing a single values operation, and configuring their trigger sources appropriately.

Trigger Sources

The DT9853 and DT9854 provide a bidirectional DAC_Sync signal that allows simultaneous update of single values on the analog output channels.

Digital I/O Lines

The DT9853 and DT9854 modules support 16 digital I/O lines. These lines are divided into two ports of eight. The user can specify the digital I/O line to read or write. Two operating modes are supported for the digital I/O lines:

- Single-value digital I/O operation
- Continuous digital input operation

Interrupts

The DT9853 and DT9854 modules can generate an interrupt when a digital input line changes state. This feature is useful for monitoring critical signals or when the user wants to signal the host computer to transfer data to or from the module.

Counter/Timer Features

The DT9853 and DT9854 modules provide one 32-bit counter/timer that accepts a counter input signal with a frequency of 1 MHz. The module counts the number of rising edges that occur on the counter input signal. A maximum of 4,294,967,296 events can be counted before the counter rolls over to 0 and starts counting again.

Cross-Series Compatibility

Virtually all Data Translation's modules are compatible with the DT-Open Layers® Class Library. This means that if your application was developed with one of Data Translation's software products, you can easily upgrade to a new Data Translation module. Little or no programming is needed.

Software Options

The following software is available for use with the DT9853/54 modules and is provided with Data Acquisition Omni software:

- **DT9853/54 Device Driver** – The device driver allows you to use the DT9853/54 modules with any of the supported software packages or utilities.
- **DT9853/54 Calibration Utility** – This utility allows you to calibrate features of the DT9853/54 modules.
- **DT-Open Layers® for .NET Class Library** – Use this class library if you want to use Visual C#® or Visual Basic® for .NET to develop application software using Visual Studio® 2003-2012; the class library complies with the DT-Open Layers standard.
- **Quick DataAcq application** – The Quick DataAcq application provides a quick way to get up and running. Using this application, verify key features of the module, display data on the screen, and save data to disk.
- **DataAcq SDK** – Use the DataAcq SDK to use Visual Studio 6.0 and Microsoft® C or C++ to develop application software using Windows 10/8/7/Vista/XP 32/64-bit; the DataAcq SDK complies with the DT-Open Layers standard.
- **DAQ Adaptor for MATLAB** – Data Translation's DAQ Adaptor provides an interface between the MATLAB® Data Acquisition (DAQ) toolbox from The MathWorks™ and Data Translation's DT-Open Layers architecture.
- **LV-Link** – Data Translation's LV-Link is a library of VIs that enable LabVIEW™ programmers to access the data acquisition features of DT-Open Layers-compliant USB and PCI devices.

Ordering Summary

HARDWARE

- **DT9853** – 4-channel USB analog output module
- **DT9854** – 8-channel USB analog output module

FREE SOFTWARE

- **Quick DataAcq**
- **DAQ Adaptor for MATLAB** – Access the analysis and visualization tools of MATLAB®.
- **LV-Link** – Access the power of Data Translation boards through LabVIEW™.

OPTIONAL SOFTWARE

- **DASyLab**