Robust Digital I/O Modules for USB

DT9817-R:
- 8 isolated digital input lines with an input voltage range of ±3V to ±32V and 8 isolated digital output lines capable of switching up to ±30V at 400mA. Includes one 32-bit counter/timer.

DT9817-H:
- 28 programmable digital I/O lines with high drive capability to drive solid state relays and one 32-bit counter/timer.

DT9817:
- 28 programmable digital I/O lines with one 32-bit counter/timer.

Figure 1. The ECONseries of low-cost digital I/O modules provide a variety of options for the user in a shielded, rugged enclosure.

Simultaneous USB Series

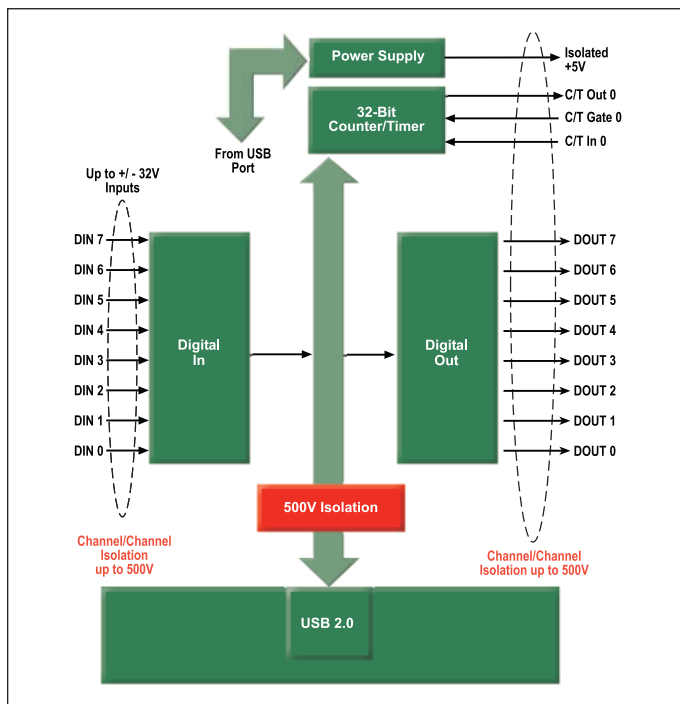| Model	Applications	Digital I/O Lines	Counter/Timer	Isolation	Source	Sink	Output	Power Fully Loaded
DT9817	Logic	28 programmable	1, 32-bit	–	4.5mA	10mA	–	<150mA
DT9817-H	Solid State Relay	28 programmable	1, 32-bit	–	15mA	64mA	–	<150mA
DT9817-R	Mechanical Relay	16 (8 in/8 out)	1, 32-bit	up to 500V	–	–	±30V @ 400 mA	<100mA

Figure 2. The DT9817-R offers 8 digital input lines, 8 digital output lines, and one counter/timer channel. The 8 outputs are capable of switching up to ±30V @ 400mA.
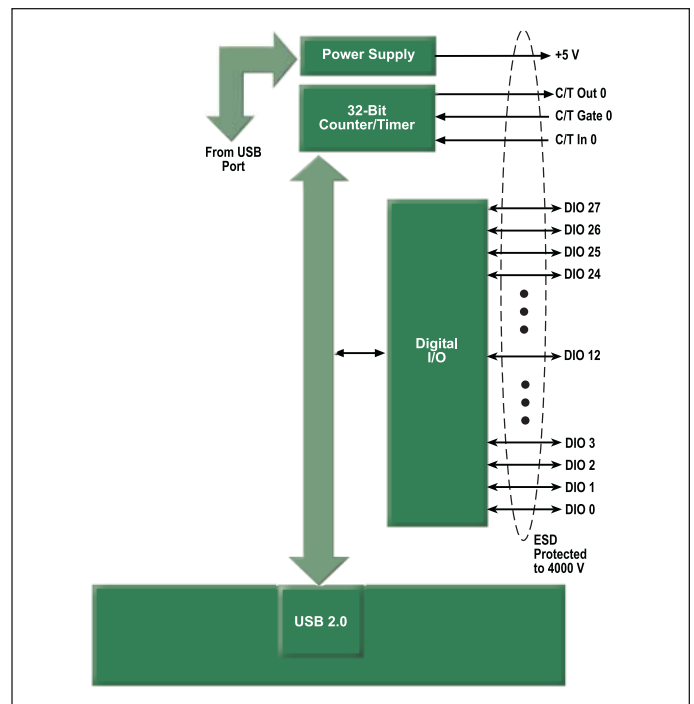

Figure 3. The DT9817 and DT9817-H offer 28 programmable digital I/O lines and one counter/timer channel. The DT9817-H is perfect for driving solid state relays.

DATA TRANSLATION®

Overview

The DT9817-R, DT9817-H, and DT9817 are part of the ECONseries of mini-instruments that offer digital inputs, digital outputs, and 32-bit counter/timer functions.

DT9817-R

The DT9817-R is a low-cost, isolated digital I/O module with 8 inputs and 8 outputs and channel to channel isolation up to 500V. The 8 digital inputs have an input voltage range of +/- 3V to +/- 32V and the 8 digital outputs are capable of switching up to +/-30V at 400mA. It has one 32-bit counter/timer.

DT9817-H

The DT9817-H is a low-cost, non-isolated digital I/O module with 28 programmable lines. These 28 lines are organized as three 8-bit ports and one 4-bit port. These ports can be configured as input, output, or any combination required. This module offers high-drive capability that sinks 64mA and sources 15mA for driving sold-state relays. It has one, 32-bit counter/timer.

DT9817

The DT9817 is a low-cost, non-isolated digital I/O module with 28 programmable lines. These 28 lines are organized as three 8-bit ports and one 4-bit port. These ports can be configured as input, output, or any combination required. This module also offers one, 32-bit counter/timer.

Counter/Timer Subsystem

The counter/timer subsystem on these modules can be run by an internal or external clock source.

- Internal clock – Through software the user can specify the frequency at which to pace the counter/timer operation. This frequency can range from 4 Hz to 12 MHz?(4 Hz to 2.5 kHz for the DT9817-R).
- External clock – The user connects an external clock source with a maximum frequency of 6 MHz and then uses a clock divider to specify the actual frequency to pace the counter/timer operation. This is useful when the user wants to pace counter/timer operations at rates not available with the internal clock or if uneven intervals are required.

The subsystem supports four separate operating modes:

- Event counting – This mode is used to count the number of falling edges that occur. The user can count up to 4,294,967,296 events before the counter rolls over to 0 and starts counting again.
- Frequency measurement – This mode allows the user to determine the frequency of the clock input.
- Edge-to-edge measurement – This mode allows the user to measure the time interval between a specified start edge and a specified stop edge. The user can measure the pulse width, the period, and the frequency of the signal.
- Rate generation – This mode allows users to generate square waves with an output frequency from 4 Hz to 12 MHz. (4 Hz to 2.5 kHz for the DT9817-R).
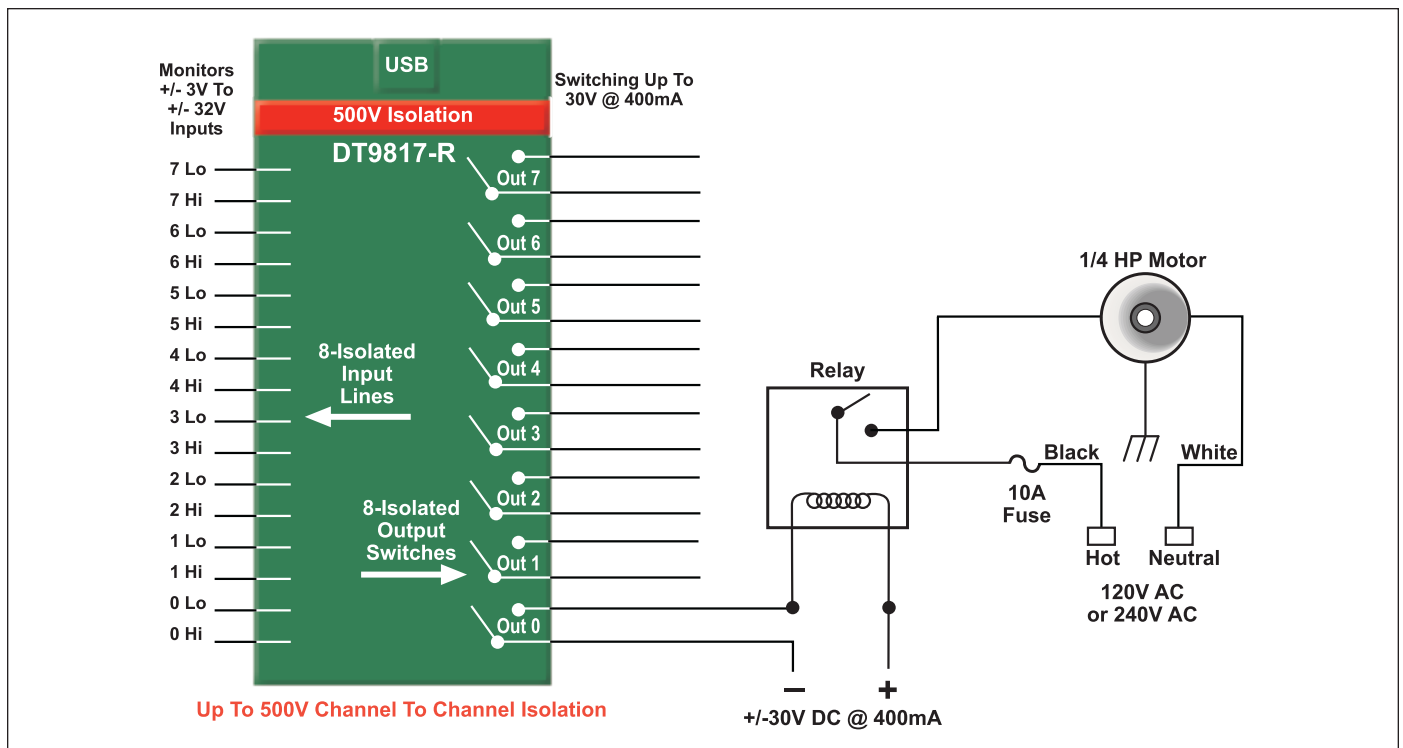

Figure 4. These modules are ideal for control and monitoring applications. Both the DT9817-H and the DT9817-R can be used to control solid-state relays and the DT9817-R can be used to control mechanical relays or high-current electric motors.

Software Options

There are many software choices available for application development, from ready-to-measure applications to programming environments.

The following software is available for use with the DT9817 Series modules and is provided on the Data Acquisition Omni CD:

- **Measure Foundry®** – An evaluation version of this software is included on the Data Acquisition Omni CD. Measure Foundry® is a drag-and-drop test and measurement application builder designed to give top performance with ease-of-use development.
- **Measurement Applets** – Included in the Measure Foundry evaluation version. These small applications, developed with Measure Foundry, can be modified or combined to provide a specific solution. Order the full development version of Measure Foundry to develop applications using real hardware.
- **quickDAQ application** – An evaluation version of this .NET application is included on the Data Acquisition Omni CD. quickDAQ acquires analog data from all devices supported by DT-Open Layers for .NET software at high speed, plots it during acquisition, analyzes it, and/or saves it to disk for later analysis.
- **Quick DataAcq application** – The Quick DataAcq application provides a quick way to get up and running using a DT9817 Series module. Using this application, verify key features of the module, display data on the screen, and save data to disk.
- **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 for a DT9817 Series module using Visual Studio® 2003/2005/2008; the class library complies with the DT-Open Layers standard.
- **DataAcq SDK** – Use the Data Acq SDK to use Visual Studio 6.0 and Microsoft® C or C++ to develop application software for a DT9817 Series module using Windows®; the DataAcq SDK complies with the DT-Open Layers standard.
- **DTx-EZ** – DTx-EZ provides ActiveX® controls, which allows access to the capabilities of the DT9817 Series module using Microsoft Visual Basic or Visual C++®; DTx-EZ 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** – An evaluation version of this software is included on the Data Acquisition Omni CD. Use LV-Link to use the LabVIEW™ graphical programming language to access the capabilities of the DT9817 Series module.
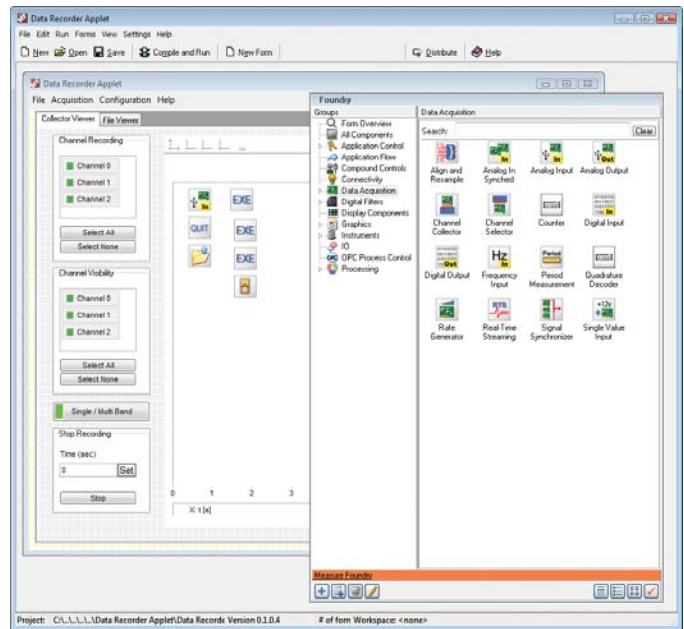

Figure 5. The data recorder applet is developed with Measure Foundry and allows you to acquire data, plot it, and save it to disk.
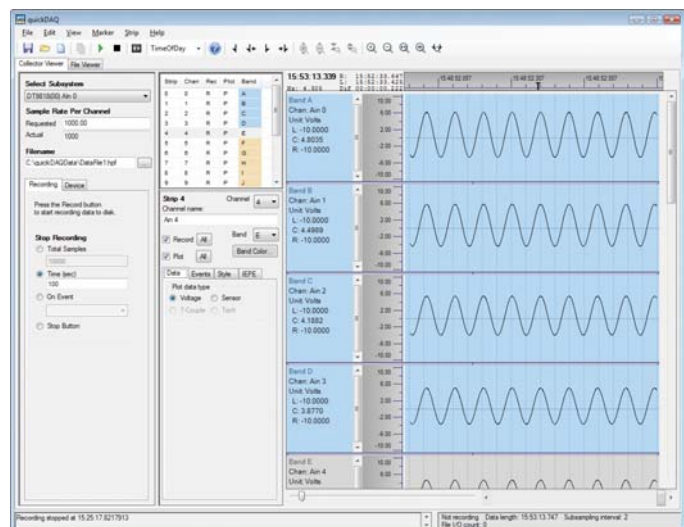

Figure 6. quickDAQ acquires analog data from all devices supported by DT-Open Layers for .NET software at high speed, plots it during acquisition, analyzes it, and/or saves it to disk for later analysis.

Easy User Connections

All signals are brought out to on-board screw terminals for easy connections. High quality industrial Phoenix connectors are used to maintain signal integrity in harsh industrial environments.

USB 2.0 Compatibility

The Digital I/O series is fully compatible with USB 2.0 and USB 1.1. USB 2.0 is both forward and backward compatible with USB 1.1, resulting in a seamless transition process for the user. In fact, USB 2.0 uses the same cables and connectors as USB 1.1. No separate power supply is required, as the module derives its power directly from the USB bus connection.

Cross-Series Compatibility

Virtually all Data Translation data acquisition boards, including the ECONseries of digital I/O modules, are compatible with the DT Open-Layers for .NET 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 board, now or in the future. Little or no reprogramming is needed.

DIN-RAIL Mounting Kit for USB

This kit provides a simple, standard method for mounting equipment to walls, cabinets, or machinery. The kit contains everything you need to fit it directly on the back of the USB function module housing.

User Manual

Each DT9817 Series module includes a user's manual that provides getting started and reference information about using the DT9817 Series. The manual is provided in electronic (PDF) format on the Data Acquisition Omni CD provided with the module.

Technical Support

Application engineers are available by phone and email during normal business hours to discuss your application requirements. Extensive product information, including drivers, example code, pinouts, a searchable Knowledge Base, and much more, is available 24 hours a day on our web site at www.datatranslation.com.

Ordering Summary

Hardware:
- DT9817 – 28 DIO lines, 1 C/T, non-isolated
- DT9817-H – 28 DIO lines, 1 C/T, high-drive capability, non-isolated
- DT9817-R – 16 DIO lines, 1 C/T, 500V isolation, drive relays

Software:
- All software and documentation is provided on the Omni CD that ships with the module, and can also be downloaded from our website.

All Data Translation hardware products are covered by a 1-year warranty. For pricing information, see the current price list, visit our website, or contact your local reseller.