

DT9835

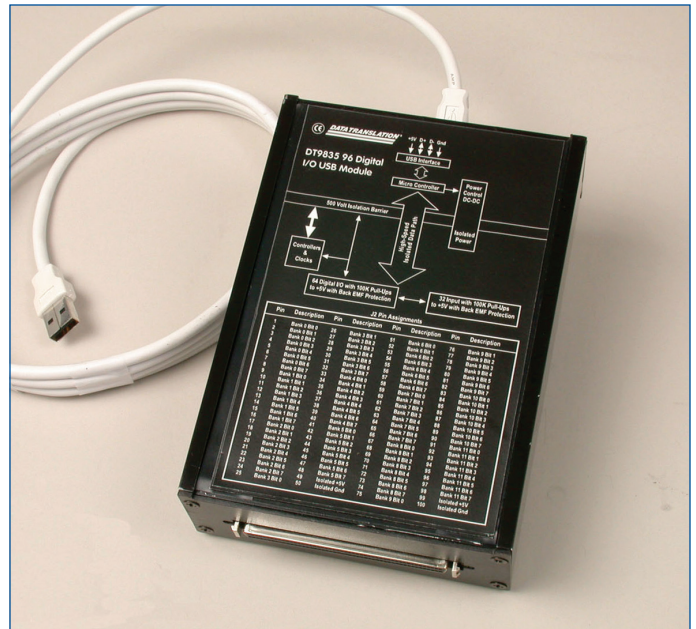
Low Cost USB Digital I/O Module

DT9835

Low Cost Digital I/O

Key Features

- 96 digital lines for non-clocked monitoring or control of high channel-count applications 64 I/O and 32 input.
- Software programmable in bi-directional banks of 8.
- Digital outputs capable of driving relays
- Interrupt on bit change detection for monitoring critical signals.
- 500V isolation prevents ground loops and protects your computer
- True plug-and-play:
 - One cable supplies both power and all connections to the USB module.
 - All connections are external so you do not need to open the PC chassis for installation.
- Hot-swapping capability lets you plug and unplug while your PC is on; no rebooting is required.
- Fully compatible with USB 2.0 and 1.1.
- Supported by Measure Foundry®, test and measurement application builder software that lets you easily create complex measurement applications.
- Ships with WDM drivers, ready-to-run applications, Measure Foundry evaluation, and much more.



The DT9835 features 96 digital lines, software programmable in banks of 8, and is fully isolated to 500V.

Overview

Ideal for applications requiring control capabilities, the DT9835 offers 96 digital lines, 64 I/O and 32 input, grouped into twelve 8-bit ports. Eight ports are either input or output with four ports dedicated as inputs. Digital outputs are capable of driving external solid-state relays (sink 12 mA) .

The DT9835 board can generate an interrupt when any of the 8 digital I/O lines corresponding to banks 10 and 11 changes state. This feature is useful when you want to monitor critical signals or when you want to signal the host computer to transfer data to or from the board. You can enable the interrupts on a bit-by-bit basis on these banks.

Easy User Connections

All signals are brought out to a dedicated, standard 100-pin connector on the backplate of the DT9835 module. The STP100 screw terminal panel is available to simplify connections.

Features Summary

Banks	Lines Per Bank	Type	Interrupt on Bit Change Detection	SSR Drive
0-7	8 bidirectional	Level-sensitive	—	Yes
8-11	8 input	—	Banks 10 & 11	—

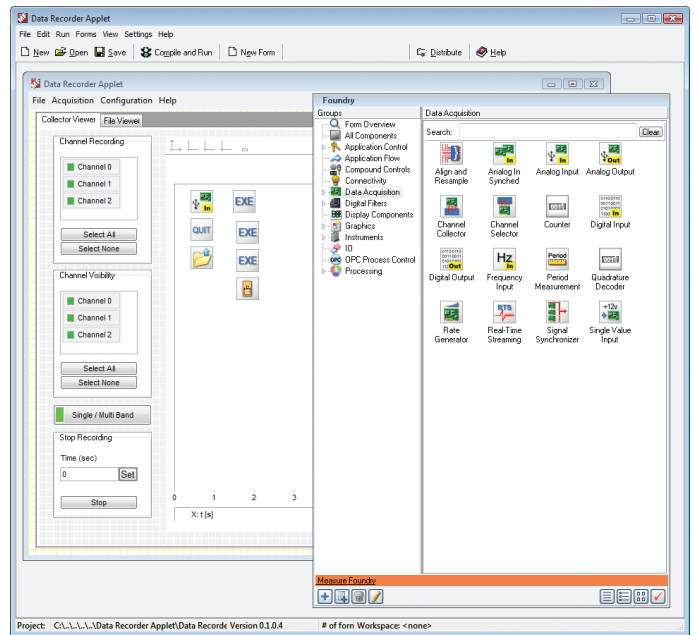
All diodes back EMF protected for inductive loads.

Software Options

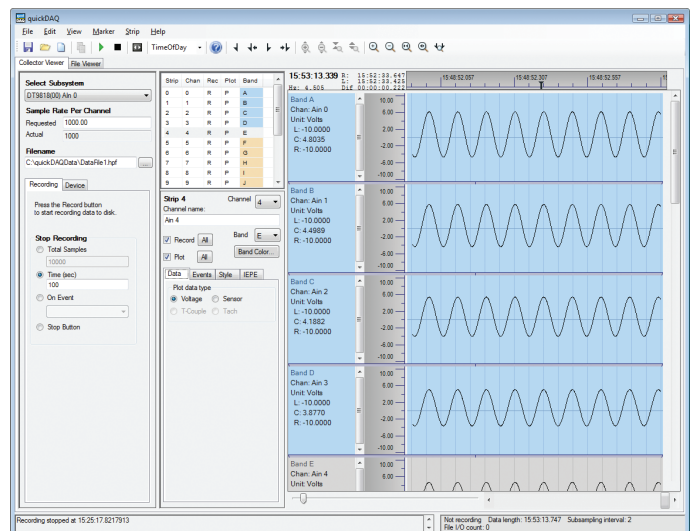
Many software choices are available for application development, from ready-to-measure applications to programming environments.

The following software is available for use with all USB 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. *Note: quickDAQ supports analog input functions only. DT9817 and DT9835 modules are DIO only and are not supported.*
- Quick DataAcq application** – The Quick DataAcq application provides a quick way to get up and running using your USB 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 your USB 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 your USB 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 your USB 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 your USB module.



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



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.

USB 2.0 Compatibility

The DT9835 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.

Cross-Series Compatibility

Virtually all Data Translation data acquisition modules, including the DT9835, are compatible with the DT-Open Layers® software standard. 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 DT9835 Series module includes a user's manual that provides getting started and reference information about using the DT9835 Series. The manual is provided in electronic (PDF) format on the Data Acquisition Omni CD provided with the module.

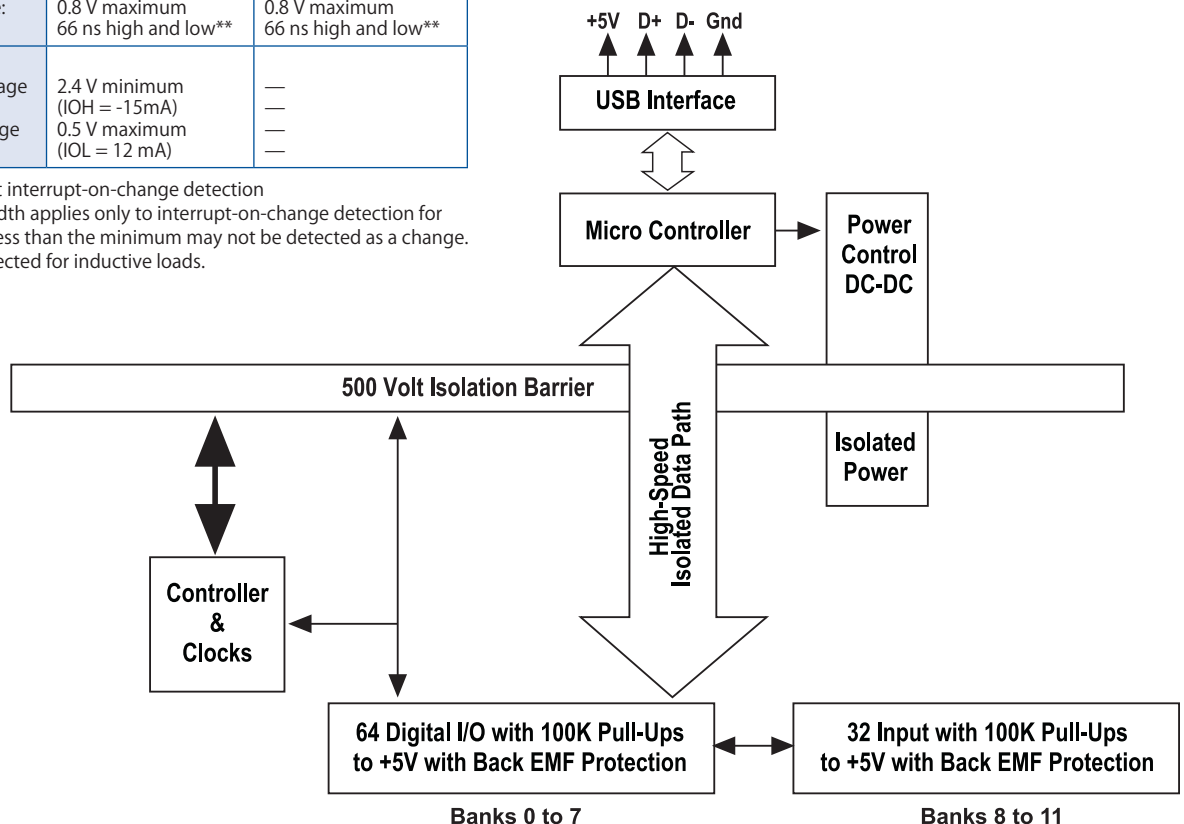
Technical Support

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.

Digital I/O		
	Banks 0-7	Banks 8-11
Number of lines	8 bidirectional per bank	8 input per bank*
Inputs Input Type High-level input voltage: Low-level input voltage: Minimum pulse width:	Level-sensitive 2.0 V minimum 0.8 V maximum 66 ns high and low**	Level-sensitive 2.0 V minimum 0.8 V maximum 66 ns high and low**
Outputs Output driver high voltage Output driver low voltage	2.4 V minimum (IOH = -15mA) 0.5 V maximum (IOL = 12 mA)	— — — —

*Banks 10 and 11 support interrupt-on-change detection

**The minimum pulse width applies only to interrupt-on-change detection for banks 10 and 11. Pulses less than the minimum may not be detected as a change. All diodes back EMF protected for inductive loads.



DT9835 Block Diagram

Power, Physical, and Environmental Specifications



Power +5V standby: +5V enumeration: +5V power on:	0.5 mA maximum 100 mA maximum 500 mA maximum
Physical Dimensions: Weight: I/O Connector:	150 mm X 100 mm 9 Oz. USB
Certification and compliance	FCC Part 15 Class A verified; will not compromise FCC compliance of host computer; CE
Environmental Operating temperature range: Storage temperature range: Relative humidity:	0°C to 50°C -25°C to 85°C To 95%, noncondensing

User Connections

Pin	Description	Pin	Description	Pin	Description	Pin	Description
1	Bank 0 Bit 0	26	Bank 3 Bit 0	51	Bank 6 Bit 0	76	Bank 9 Bit 0
2	Bank 0 Bit 1	27	Bank 3 Bit 1	52	Bank 6 Bit 1	77	Bank 9 Bit 1
3	Bank 0 Bit 2	28	Bank 3 Bit 2	53	Bank 6 Bit 2	78	Bank 9 Bit 2
4	Bank 0 Bit 3	29	Bank 3 Bit 3	54	Bank 6 Bit 3	79	Bank 9 Bit 3
5	Bank 0 Bit 4	30	Bank 3 Bit 4	55	Bank 6 Bit 4	80	Bank 9 Bit 4
6	Bank 0 Bit 5	31	Bank 3 Bit 5	56	Bank 6 Bit 5	81	Bank 9 Bit 5
7	Bank 0 Bit 6	32	Bank 3 Bit 6	57	Bank 6 Bit 6	82	Bank 9 Bit 6
8	Bank 0 Bit 7	33	Bank 3 Bit 7	58	Bank 6 Bit 7	83	Bank 9 Bit 7
9	Bank 1 Bit 0	34	Bank 4 Bit 0	59	Bank 7 Bit 0	84	Bank 10 Bit 0
10	Bank 1 Bit 1	35	Bank 4 Bit 1	60	Bank 7 Bit 1	85	Bank 10 Bit 1
11	Bank 1 Bit 2	36	Bank 4 Bit 2	61	Bank 7 Bit 2	86	Bank 10 Bit 2
12	Bank 1 Bit 3	37	Bank 4 Bit 3	62	Bank 7 Bit 3	87	Bank 10 Bit 3
13	Bank 1 Bit 4	38	Bank 4 Bit 4	63	Bank 7 Bit 4	88	Bank 10 Bit 4
14	Bank 1 Bit 5	39	Bank 4 Bit 5	64	Bank 7 Bit 5	89	Bank 10 Bit 5
15	Bank 1 Bit 6	40	Bank 4 Bit 6	65	Bank 7 Bit 6	90	Bank 10 Bit 6
16	Bank 1 Bit 7	41	Bank 4 Bit 7	66	Bank 7 Bit 7	91	Bank 10 Bit 7
17	Bank 2 Bit 0	42	Bank 5 Bit 0	67	Bank 8 Bit 0	92	Bank 11 Bit 0
18	Bank 2 Bit 1	43	Bank 5 Bit 1	68	Bank 8 Bit 1	93	Bank 11 Bit 1
19	Bank 2 Bit 2	44	Bank 5 Bit 2	69	Bank 8 Bit 2	94	Bank 11 Bit 2
20	Bank 2 Bit 3	45	Bank 5 Bit 3	70	Bank 8 Bit 3	95	Bank 11 Bit 3
21	Bank 2 Bit 4	46	Bank 5 Bit 4	71	Bank 8 Bit 4	96	Bank 11 Bit 4
22	Bank 2 Bit 5	47	Bank 5 Bit 5	72	Bank 8 Bit 5	97	Bank 11 Bit 5
23	Bank 2 Bit 6	48	Bank 5 Bit 6	73	Bank 8 Bit 6	98	Bank 11 Bit 6
24	Bank 2 Bit 7	49	Bank 5 Bit 7	74	Bank 8 Bit 7	99	Bank 11 Bit 7
25	Isolated Gnd	50	Isolated Gnd	75	Isolated Gnd	100	Isolated +5V

For more information about the DT9835, please visit:

<http://www.datatranslation.com/info/DT9835/>

Ordering Information

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

Digital I/O Board

- **DT9835** — Each DT9835 board is shipped with the Data Acquisition Omni CD, which includes device drivers for Windows XP, Windows Vista, and Windows 7, ready-to-run software, and a comprehensive user's manual in PDF format. Manuals are available in hard-copy form for an additional charge.

Accessories

- **DIN Rail Kit** — Kit for mounting modules to walls, cabinets, or machinery.
- **EP331** — 100-pin cable
- **STP100** — Screw terminal panel

Software

The following software is available for purchase separately:

- **Measure Foundry** – Test and measurement application builder for Windows® XP, Windows Vista, and Windows 7. SP1300-CD.
- **LV-Link** – Access the power of Data Translation boards through LabVIEW®.

Free Software Downloads

The following software is available for free download from our website:

- **DAQ Adaptor for MATLAB** – Access the analysis and visualization tools of MATLAB using Data Translation boards.