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FEATURES

- 2 channels of digital input, or digital output.
- Onboard supply and pull-up resistors.
- Direction connection to switches
- All data transfers are CRC16 error checked.
- Digital outputs, (A) sink 50-mA., (B) sink 8-mA.
- Digital inputs are latched until read.
- Built-in multidrop controller, (DS2406).
- Up to 1000 Feet, 100 devices.
- 1-Wire communication protocol.
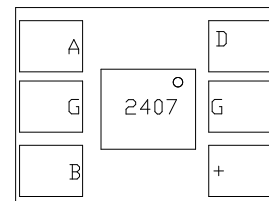- Available with Phoenix screw connector (D2PC) or without (D2P).
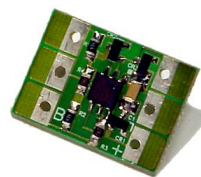
D2PC   D2P

Package Outline

Top

A		D
G	2407	G
B		+

PIN-OUT FOR D2

DESCRIPTION

The D2P/D2PC, 2 channel digital I/O expansion card, provides two I/O channels which can individually be configured as a digital input with latch or a high current sink digital output. Digital input and output functions can coexist. The D2P/D2PC has a built-in bias supply derived either from the 1-Wire network or the external power input. Pull-up resistors provide excitation for external switch closure sensing. When no external power is applied the D2P/D2PC will steal power from the network so that the user does not need to provide either power or an external load in order to sense switch closures.

The D2P/D2PC has a built-in multidrop controller (DS2406) which provides a unique 64 bit registration number (8-bit family code + 48 bit serial number + 8 bit CRC) assuring error-free selection and absolute identity; no two parts are alike. Unique addressing allows I/O function to be identified absolutely, no more dipswitch address confusion. Status input, latched-input-activity and output-latch functions allow input, output and fast event catch functionality to hundreds of I/O points on a 1-Wire bus. The DS2406 provides the digital I/O functions. The I/O connector is marked "A" I/O position one, "G" common ground returns, "B" I/O position two.

The D2P/D2PC is designed to allow a network of input and output modules to operate on a two or three wire bus, power("+"), common("G") and 1-Wire data("D"). The D2P can be powered locally or the power may be bussed with the 1-Wire signal in a three-wire system. The bussed power must be regulated 5V DC.

The D2P/D2PC is compatible with OneSix DDE server and our 1-Wire enabled devices, as well as any 1-Wire host with support for the Dallas Semiconductor DS2406 Dual Addressable Switch and EDS Analog.

The D2P is available with screw connectors (D2PC), and without onboard pull-up resistors (D2 and (D2C)).

PARAMETER	MIN	TYP	MAX	UNITS
Supply Voltage	4.5	5	5.5	Volts
Supply Current	.5	1	1.5	mA.
Input Pull-up		470		KOhm
Max. No. of Powered Devices.			100	devices
Max No. of Parasitic Devices.			100	devices
Output Sink Current (A)		50	see DS2406	mA.
Output Sink Current (B)		8	see DS2406	mA.

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Overview

Please read these guidelines when planning your 1-Wire Network or if you are having difficulties communicating to a 1-Wire device.

The following is a list of suggested guidelines to obtain optimum performance and network length for 1-Wire.

Guidelines

1. Use Cat-5 wiring. EDS recommends Belden 1588A OR 1590A (2 pair unshielded Datatwist® Cable; 24 AWG)

2. Place a 150-ohm resister in series with the signal wire for each branch off the main 1-Wire bus. If you have a star arrangement, place a 150-ohm resistor in series with the 1-Wire signal of each arm of the star. One, and only one, 150-ohm resistor should be in the signal path between the host adapter and each 1-Wire device. It is not necessary to place a resistor on each 1-Wire device.

3. Networks that run over 500 ft. in length should not have external power bussed in the same two-pair CAT-5 cable with the 1-Wire signal/Gnd pair. To bus power on long runs, use two CAT-5 Cables. Use one cable for Power and Ground and the other cable for Data and Ground; tie the grounds together at the sensor.

4. Any unused wires in the 1-Wire cable should not be terminated. The wires should be left floating.

5. Use a twisted pair for the 1-Wire signal and ground. Do not use one wire from one twist and another from another twist.

6. For Belden 1588A OR 1590A, each pair has a different number of twists. Use the blue – blue/white pair for the 1-Wire network since this pair has the most twists. If using a CAT5 cable from another manufacture, examine the twist count for each pair and use the pair that has the most twists per inch.

7. Some 1-Wire devices, when communicating, ring the 1-Wire bus and cause interference with communications to that device and others. See the Application Note called "Controlling Ringing when using DS1820's". All EDS 1-Wire devices contain a suppression diode to suppress this ring. If you place a 1-Wire component purchased from Dallas Semiconductor you may encounter this problem. All iButtons (in a can) and DS1820's create this ringing. You will need to use the suppression diodes with these products. Use 1N5817, 1N5818, 1N5819 or equivalent.

8. If you are having difficulties in finding devices, detach the network and connect one device alone one at time to the Host adapter and build the device list without the network. Reconnect the network and all devices and see if Host application can poll the devices.

9. Use the built-in performance monitor of OneSix DDE Server to examine the network. Use the Server Monitor application to view any errors.

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