

DIY Zoning: Reference Library

by Vadim Tkachenko

1. HVAC

- [HVAC-Talk](#) - a bulletin board for both HVAC professionals and home owners. Be careful to get familiar with the local code of conduct and pet peeves before posting - for example, pricing questions are forbidden, and engineers are routinely flamed, with or without merit;
- [HVAC-Calc](#) Heat - loss and gain calculation tool. Extremely useful. Make sure you RTFM before you call for support, most of the possible questions are covered in the manual;
- [HVAC Control Tutorial](#) by HomeTech Solutions;
- [How It Works: Heat Recovery Ventilator](#).

2. Home Automation

- [MisterHouse](#) - Perl based home automation project;

3. Hardware

3.1. Vendors

- Dallas Semiconductor - source for 1-Wire® devices. Make sure you plan for a lengthy lead time - they are known for delaying the orders. Your luck depends on what you order.

Note:

Update: Dallas Semiconductor is no more, bought by [Maxim](#). Apparently, this didn't help to shorten the lead times.

- [iButton](#) - basically, the same DalSemi products under a different disguise. If you order parts from here, make sure you understand the difference between DalSemi iButton stuff and regular DalSemi parts - they are identical, except for packaging. iButtons performing the same functions as regular parts are much more expensive, and the lead time is higher.
- [iButtonLink](#) - not related to DalSemi or iButton, but provides alternative implementations for 1-Wire® standard.
- [Point Six](#) - wireless devices implementing, in particular, 1-Wire® protocols.

- [Embedded Data Systems](#), apparently, Point Six spinoff.
- [Technologia Aplicada](#), a.k.a. AAG Electronica - quite a few unique 1-Wire® devices, in particular, pressure and humidity sensors. Mexico based vendor.
- [Medhost.at](#) - I don't know where is it, the language seems to be German.
- [Swiftbase International Ltd.](#) - UK based vendor.
- [Peter H. Anderson](#) - miscellaneous 1-Wire kits.

3.2. Data sheets and specifications

- [Tech Brief 1](#): 1-Wire Net Design Guide (also in [PDF](#))
- [Application notes for 1-Wire® devices](#) - index
- [App Note 108](#): MicroLAN - In The Long Run (local copy, was it obsoleted?)
- [App Note 132](#): Quick Guide to 1-Wire net Using PCs and Microcontrollers
- [Digi-Key](#) - electronic parts. Beware, if some parts are backordered, you will have to pay shipping again - this is not advertised on the web site.

Note:

Quite recently it has become possible to order DalSemi parts from Digi-Key, however, there is no information about the lead time yet.

- [ServoCity](#) - expedient and friendly. Free shipping.
- [Phidgets](#) - physical widgets (Canada). The one of particular interest to this project is PhidgetServo.
- [Phidgets USA](#) - same thing, only USA based.
- [Hints and Tips](#) for prototyping with Surface Mount Devices (SMD)

3.3. Projects and Tools

- [Smart-Watt](#) - Plug and play watt-hour metering, 1-Wire® compatible;
- [Opto isolated 1-Wire bus](#);
- [1-Wire Optocoupler Circuit](#).

4. Software

These resources are required reading for anybody contributing source code to the project.

- [Ant](#) Java build - tool
- [GNU autoconf](#) - UNIX build portability wrapper
- [GNU automake](#) - project integrity support tool
- [Jakarta reference library](#) - standard Open Source guidelines.
- [iButton](#) Software Development Tools. Have to be used with caution - the code they provide is not quite thread safe.
- [App Note 104](#): Minimalist Temperature Control Demo

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- [App Note 117](#): DS2490 Universal Serial Bus Descriptors
- [App Note 159](#): Ultra-Reliable 1-Wire Communications
- [App Note 187](#): 1-Wire Search Algorithm
- [App Note 198](#): Networked Temperature Monitoring
- [DigiTemp](#) software - and hardware allowing to implement the data acquisition and logging using 1-Wire® temperature sensors
- [ServoMaster](#) - unified servo controller driver
- [javax.usb](#) - Java USB driver library
- [JRobin](#) - Java native RRD driver
- [Jukebox](#) - distributed framework that this project is based upon
- [TINI Links](#)

5. Process Control

- [PID Tutorial](#) and more
- [Process Control Links](#)

6. Protocols

- [BACNet](#) (a.k.a. [ISO 16484-5](#)) - data communication protocol for Building Automation and Control NETworks. In particular, supposed to help solving data sharing, alarm and event management, trending, scheduling, remote device and network management issues. Security issues are not apparently addressed, though - all the nodes are considered "trusted";
- [Modbus](#) - a protocol used to establish master-slave/client-server communication between intelligent devices;
- [LonTalk](#) - protocol for applications involving sense, monitor, control and identification functions;
- [xAP](#) - an open protocol intended to support the interconnectivity and integration of telemetry and control devices;
- [xPL](#) - a xAP fork, supposed to be more lightweight, with slightly different design goals.

7. Existing Zoning Systems

Reading the publicly available documents describing the existing systems is both educational and sad. Nevertheless, it has to be done in order to completely understand the status of the industry as it is now. Following are the references to most widespread zoning solutions:

- [Arzel Zoning](#);
- Bryant Zoning Products - seems to have been replaced by Carrier systems;
- [Zonex](#), formerly known as California Economizer;
- [Carrier Infinity Control](#);
- [Comfort System™ Zone Control](#) by Jackson Systems;

- [Integrated Zone System](#) by Trane;
- [Robertshaw](#);
- Trol-A-Temp by Trolex, later acquired by Honeywell - no longer supported, seems to be "embrace and extinguish" case;
- [Ultra-Zone](#).

8. Miscellaneous

Following are the links that don't necessarily fit in any particular category, but do provide some insights:

- [The Rise of "Worse is Better" By Richard Gabriel](#). Explains why mediocrity has better survival characteristics than perfection, using Unix's triumph over the Lisp Machines as an illustration;
- [Building A Home Network From Scratch](#) at Tom's Hardware;
- [The Luxury of Ignorance: An Open-Source Horror Story](#) - this was a nice reality check...
- [Climate Data Visualization](#);
- [DIY Heating & Cooling Forum](#);
- [PicoContainer](#) - possibly a base for [DZ v.2](#), [Patterns](#) and [Antipatterns](#) are of particular interest.

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