

Understanding Open Protocol Standards

How to leverage LonWorks technology to your advantage

What is an open standard? Simply stated, it is a systemized body of information and rules that are easily obtainable, commonly accepted and widely understood. Common examples of open standards are the “rules of the road”, currency and the Internet or worldwide web. Another example, the common light bulb is an open standard where the base and thread has a commonly accepted specification. While light bulbs are available in different wattages, dimensions and tints, any manufacturer can build a bulb that works based on the specifications.

Open standards can also be used by control devices and sent over an electronic network. The information is transmitted to appropriate address where it is understood and acted upon. Open standards are not new to the Heating, Ventilating and Air Conditioning, HVAC, industry. The pneumatic controls standard became 3 to 15 psi allowing multiple manufacturers to make replacement parts using a standard specification. Likewise, the electronic controls standards are 4-20 mA and 0-10 Vdc and are commonly used and accepted in the industry.

Today, the age of digital open systems has arrived allowing different types of devices to interact from different manufacturers. Initially, an interface such as a gateway allowed the sharing of selected information between components and or systems. Interoperability allowed the free exchange of information between components from different manufacturers without the need for customized hardware or software. The three major benefits of a digital open system are: reduced component cost due to increased competition, increased reliability

due to wide implementation, and increased product selection due to multiple suppliers.

Over the past decade, the LonWorks® protocol has become a popular open standard for HVAC Systems, gaining increased acceptance in the marketplace. The LonWorks protocol allows HVAC manufacturers to use LonWorks technology as an “automation tool kit” to support device level communication and provides many off-the-shelf products with a high rate of interoperability. Functional profiles created by the LonMark® organization provides an additional level of interoperability by defining communication of specific pieces of information between like devices through the functional profiles. There are currently 10 functional profiles for HVAC applications and multiple profiles for end devices.

Let’s review the basic LonWorks terminology:

LonWorks is a marketing term that encompasses LonTalk® protocol and Neuron® Transceiver. LonWorks is often used interchangeably with LonTalk to describe the protocol.

LonTalk is an open standard communications protocol, which defines sharing of data on network and sharing of information between devices. LonTalk requires the use of Echelon® developed Neuron chip and a transceiver in each device in order to communicate.

The question is: **“How does the LonWorks protocol work best as an end device solution?”**

The answer is simple. The open protocol offered by LonWorks technology offers an excellent solution for highly specialized applications or specific retrofit scenarios.

white paper

In a specialized scenario, LonWorks technology provides greater networking flexibility and saves both the material and labor expense of wiring. In a retrofit scenario, LonWorks technology and devices can offer a cost-effective method to efficiently upgrade or interface systems.

Since the LonWorks Neuron chip resides in the LonWorks controller, any manufacturer's end device can be used. This lowers the cost for the end device and engineering, and allows the flexibility to use any manufacturer's end device. If the end device fails, it can be easily replaced.

From a cost perspective, it is important to remember that once you put an established protocol on a system, you may increase the time and cost of engineering the job as well as start-up and commissioning. For example, adding the LonWorks protocol system-wide changes the scenario from a device-specific solution to an overall job solution and cost. Keeping the protocol as a device-ready solution with the signal and algorithm in the device can be a lower cost solution overall.

HVAC Products

Siemens Building Technologies, Inc.

1000 Deerfield Parkway
Buffalo Grove, Illinois 60089-4513
USA
(847) 215-1000

Siemens Building Technologies, Ltd.

2 Kenview Boulevard
Brampton, Ontario L6T 5E4
Canada
(905) 799-9937

www.sbt.siemens.com/hvp/components

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