



## LonPoint Family of Products

The LonPoint family of products are products designed to integrate new and legacy sensors and actuators, as well as LONMARK® devices, into cost-effective, interoperable, control systems for building and industrial applications. In contrast to traditional control networks, which use closed islands of control linked with proprietary gateways, the LonPoint products offer an open distributed system architecture in which every device performs some control processing and can be accessed from any location in the network. Distributing the processing throughout the network and providing open access to every device lowers the overall installation and life cycle costs, increases reliability by minimizing single points of failure, and provides the flexibility to adapt the system to a wide variety of applications.

The gateways used by traditional control systems are difficult to install and maintain, and lock the customer into a closed, non-interoperable architecture. Ultimately, the high costs of this design approach limits the market for control systems.

Overcoming the limits of traditional, closed systems is best accomplished with an open, fully distributed control architecture. Such a system must: (a) interface with a broad range of sensors and actuators, (b) incorporate application programs that blur the distinction between legacy sensors/actuators and intelligent, networked devices, (c) include a design and installation tool that can seamlessly interconnect everything in the control network, (d) incorporate software that simplifies hardware configuration and reduces commissioning time, and (e) include an open I/O driver that can be used with a variety of third party human-machine interface (HMI) tools. Satisfying these diverse requirements requires a systems approach to the architecture, hardware, and software; it cannot be accomplished easily with a piecemeal collection of devices and components.

## The LonPoint™ Family of Products

- ▼ Seamlessly integrates sensors, actuators, and LONMARK devices into a low cost, distributed, interoperable control system
- ▼ LNS-based LonMaker™ Integration Tool provides a graphical design, commissioning, and maintenance environment
- ▼ LonPoint Interface, Router, Data Logger, and Scheduler Modules interface with sensors and actuators, manage and log system operation, and handle network traffic
- ▼ SLTA-10 Adapter provides remote access and reporting; PCC-10 PC Card, PCLTA-10 ISA Card and PCLTA-20 PCI Card simplify installation
- ▼ U.L. Listed, cU.L. Listed, CE Mark, FCC, LONMARK

The LonPoint family of products are the result of just such a systems approach, providing at once the low cost of an open system architecture, the multi-user capabilities of the LNS™ Network Operating System, the distributed processing capabilities of the Neuron® Chip and LONWORKS® platform, and the wiring flexibility of free topology communications. The system consists of the LNS-based LonMaker Integration Tool, the LonPoint Software Plug-In, LonPoint Application Programs, and LonPoint Interface, Router, Data Logger, and Scheduler Modules.

The LonMaker tool is an LNS network design and installation tool with a Visio® user interface and support for both LonPoint modules and other LONMARK and LONWORKS devices. The Visio user-interface provides a familiar, CAD-like design environment from which a control system can be designed. Network design and installation consists of interconnecting functional blocks (LONMARK objects) within LonPoint modules and other LONMARK devices, using their application resources to create a distributed control system. The LonMaker tool can be used to design, configure, and commission a distributed control network, yet is economical enough to be left behind as a maintenance tool. The LonPoint Plug-In is provided with the tool to simplify the configuration of LonPoint devices.

Multiple users may run LonMaker tools and LonPoint plug-ins at the same time. Every LonMaker tool and plug-in on a network accesses a shared LNS Server to maintain synchronization and ensure a common view of the network. Each tool and plug-in may access the server from any point on the LONWORKS network. If the LNS Server is also connected to an IP network such as a local area network (LAN) or the Internet, remote LonMaker tools and plug-ins can access the LNS

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Server from anywhere on the LAN, or anywhere in the world with access to the Internet. This enables LonMaker users to remotely monitor the health of devices on a network, remotely diagnose problems on the network, and to remotely implement maintenance actions such as changing connections to bypass failed devices or overriding objects on the network due to failures.

The LNS DDE Server is an I/O driver for Windows that allows any DDE-compatible application to monitor and control LONWORKS control networks – without programming. Typical applications include HMI applications, data logging and trending applications, and graphical process displays. The LNS DDE Server is compatible with a variety of HMI application generators including Wonderware InTouch®, Intellution FixDynamics®, USDATA FactoryLink®, and National Instruments LabView® and BridgeView®.

Resident within each LonPoint module is a powerful, configurable application program. The program includes a variety of functional blocks that are configured by the LonPoint plug-in tool.

The functional blocks include I/O blocks that provide signal conditioning and processing for the inputs and outputs of the interface modules. Each of the interface modules also include general purpose controller functional blocks that can be used to calculate analog functions, to encode digital values, and to convert network variable types. These functional blocks allow the LonPoint modules to make local processing decisions, often eliminating the need for centralized controllers. For example, the AO-10 module includes a PID controller functional block that can be used to do closed loop control of the analog output, while the SCH-10 and DL-10 modules include special-purpose functional blocks for doing time-of-day control, sequencing, and data logging – providing the remaining functions typically performed by a centralized controller.

Linking together the software functional blocks of the LonPoint modules with the resources of other LONMARK and LONWORKS devices creates a distributed control system that offers greater functionality, higher reliability, and lower cost than a traditional gateway-based system. The LonPoint Modules may be operated as a self-contained control system, integrated with other LONMARK or LONWORKS devices, or combined with remote systems and a remote supervisory station to form a wide area control system.

The LonPoint Interface, Scheduler, Data Logger, and Router Modules provide I/O processing, application resources, time-of-day scheduling, sequencing, data logging, and routing for the LonPoint Modules. The interface modules seamlessly integrate sensors, actuators, and controllers into open distributed networks. There are five different interface modules: DI-10 Digital Input Module (4 digital inputs with a status LED per input), DO-10 Digital Output Module (4 digital outputs each

with a separate hand/off/auto switch and status LED), DIO-10 Digital Input Output Module (2 digital inputs and 2 relay outputs with status LED's and a separate hand/off/auto switch for each output), AI-10 Analog Input Module (2 independent 16-bit analog inputs), and AO-10 Analog Output Module (2 independent 12-bit analog outputs with PID).

The SCH-10 Scheduler Module provides time-of-day control to other modules on the network. The SCH-10 module includes a flexible state machine for implementing a sequence of operations within a system or subsystem.

The SCH-10 Module may be converted into a DL-10 Data Logger by downloading the DL-10 application. The DL-10 Data Logger filters, time stamps, and logs data from other devices. The data logs can be retrieved at any time by trending or database applications for display and data analysis.

The LPR Router Modules can be used to manage network traffic, increase the total number of LONWORKS devices, extend the size of the network, as well as create bridges to other channels containing third-party devices. LPR Routers are available in any combination of TP/FT-10, TP/XF-78, and TP/XF-1250 channels.

Many innovative labor saving features have been built into the LonPoint modules to minimize installation time:

- Two-piece design allows pre-wiring and cable testing by an electrician prior to installing the electronics. Technician time can be reserved for tasks such as node configuration.
  - Polarity-insensitive power and network connections minimize the chance of miswiring on Type 1 and Type 2 Base Plates.
  - The Type 1 Base Plate is used with LonPoint Interface, Scheduler, and Data Logger Modules that are to be mounted in 4" X 4" square electrical boxes.
  - The Type 2 Base Plate is used with LonPoint Router Modules that are to be mounted in 4" X 4" square electrical boxes.
  - The Type 1D DIN Base Plate is used with LonPoint Interface, Data Logger, and Scheduler Modules that are to be mounted on a wall or 35mm DIN-rail.
  - The Type 2D DIN Base Plate is used with LonPoint Router Modules that are to be mounted on a wall or 35mm DIN-rail.
  - Modules operate from 16-30VAC or VDC, allowing them to be powered from the same sources as the sensors and actuators.
  - Power and network wiring are looped through each base plate, providing continuity in case of module replacement without network disruption.
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- Modules can be hot-plugged, minimizing service time.
  - Front panel jack that accesses the twisted pair network without any disassembly, saving time when the network must be accessed for configuration or maintenance.
  - Front panel bar code with the model, revision, and two removable Neuron ID stickers. When placed on the building or system design plans, these stickers save installation time, especially for inaccessible nodes.

When used in the context of a complete LonPoint Modules system, the modules provide tremendous flexibility and lower overall equipment, installation, and life-cycle costs. The modules simplify programming by using a CAD-like design environment, minimize cabling requirements by using free topology transceivers, and reduce the need for on-site calls by offering over-the-network downloading. The LonPoint products support an open distributed architecture that is at once LONMARK interoperable, lower cost to install and maintain, and flexible enough for future adds, moves, and changes.

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