EP8210

EXOlon PIFA

Communication PIFA for LonWorks, intended for mounting in an EXOflex house. Advanced and extensive functionality for LON network.

- **Direct connection of SNVTs to other LON-based units and systems**

- **Max 1024 SNVTs/PIFA**
- **Can function as "slave" in a LON network**

The LonWorks technology from Echelon enables exchange of information between automation products of many different fabricates, provided that they fulfill the LonMark requirements. The EXOlon PIFA EP8210 enables the connection of a number of different types of LonMark products to an EXOflex unit.

EXOflex

EXOflex is a general system for control, regulation, supervision and communication in general automation installations. The system offers great possibilities when constructing many different types of control and regulation systems: outstations in distributed systems, controllers in building automation systems, service gateways in LANs and on the Internet, etc.

The system is of a modular design and provides unique opportunities for adapting the number and type of inputs and outputs required, as well as the type of communication needed.

EXOflex consists of a housing and a selection of PIFA units. One Power PIFA must always be present in each house.

Installation

EP8210 can generally be mounted in any of the compartments in an EXOflex house. It is of a standard design and size and can quickly and simply be slotted into place.

All electrical connections to external equipment are easily attainable on plug-in screw connectors.

For more information on how to install PIFA:s, see the

instruction for EH11-S...41-S / EH10-S...40-S / ECX2.

EP8210 handles difficult electrical environments

The process connections are, as a group, galvanically insulated from each other and from the internal control logic circuits by a protective barrier, which is bridged by optocouplers. If necessary, the isolation from other circuits can be retained by using a separate power supply. Each process connection has active transient protection, which is led to a special EMI ground (disturbance protection ground) or to protective ground. This provides for optimal handling of difficult electrical environments.

Internal electronics
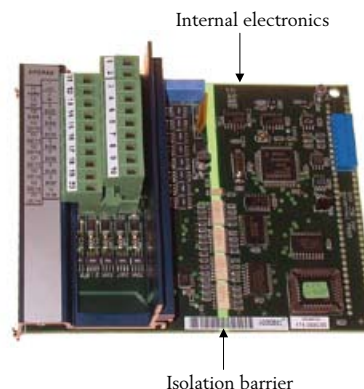
Isolation barrier

The principles of the isolation barrier

Prepared for redundant power supply

The parts of the PIFA closest to the process get their power from an external source, which is normally the same as the source supplying the whole EXOflex unit with power. To handle power outage situations, it could also be power supplied from an alternative source, e. g. 9035 with external battery. *See the product sheets for EP1011 and 9035.*

≋REGIN

THE CHALLENGER IN BUILDING AUTOMATION

The LonWorks technology

The LonWorks® platform from Echelon Corporation allows the design of open, decentralised control networks for use in building/industrial automation and similar systems for control, supervision, security and general automation. All devices in a LonWorks network use a common protocol licensed to LonWorks device manufacturers by Echelon. This means that any LonWorks device can coexist with any other LonWorks device in the same network.

LonWorks achieves interoperability through the common LonTalk protocol, Network Variables, and LonMark Functional Profiles. An interoperable device exposes its own set of network variables to the bus in a way that is carefully specified in the LonWorks standard.

Network variables are either inputs or outputs with reference to the bus. The standard specifies a large number of different network variable types (SNVTs) to allow for an appropriate presentation of the values.

For more information about the LonWorks technology, visit the Echelon, www.echelon.com, and LonMark, www.lonmark.org, websites.

LonWorks and EP8210

EP8210 is an adapter that supplies a LonWorks node in any EXOflex controller.

The EXOlon PIFA may quickly and easily be configured to contain the number and types of SNVTs required in the node. This is done with EXOlon PIFA Tool.

EP8210 has, at present, support for most of the SNVT-types. Support for more types will be introduced as the need arises and new types are released by the LonMark Association.

The PIFA exposes the SNVTs which have been configured to the Lon bus where they may be bound with a standard LON binding tool. At the same time, it exposes the corresponding EXOL variables to the Main CPU of the controller where they may be used in application programs and for communication via other PIFAs. See the figure below.
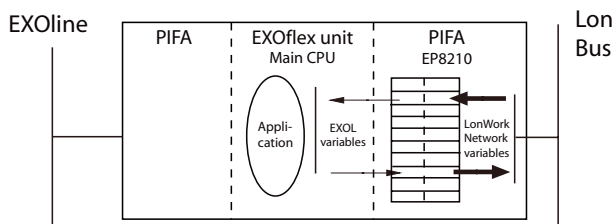
LonMaker and LNS

The EXOlon PIFA is compatible with LonMaker and LNS, both by Echelon. However, online use of the LNS is not required.

Exomatic Explicit Binder Plug-in

EP8210 handles a very large number of LonMark-network variables in a Lon net. Up to about 1000 normal complex network variables, SNVTs, can be handled.

The number of SNVTs that can be bound in a regular way with the LonMaker is often much less, due to the limited space in the node address tables. The number possible depends on the divisions of input and output SNVTs and optimizations done by the LNS.

Exomatic Explicit Binder Plug-in is a plug-in for the LonMaker, or similar LonWorks configuration tool, which allows explicit bindings to be configured in the PIFA node. The Plug-in software is available on the EXOdesigner CD.

For more information about the Exomatic Explicit Binder Plug-in, see the manual LON in EXO Systems.

Using Lon as I/O Components under a Controller

Manufacturers of products such as zone controllers, ventilators, variable speed drives, coolers, valves, sensors, pumps, analyzers, sun-blinds, presence sensors etc. may include embedded micro-controllers which provide the internal control functions, and a serial port for communication with adjacent apparatus and supervisory equipment. The LonWorks technology from Echelon Inc is a common choice for such manufacturers.

The EXOlon PIFA provides an interface between this type of equipment and a controller, as shown in the figure below.
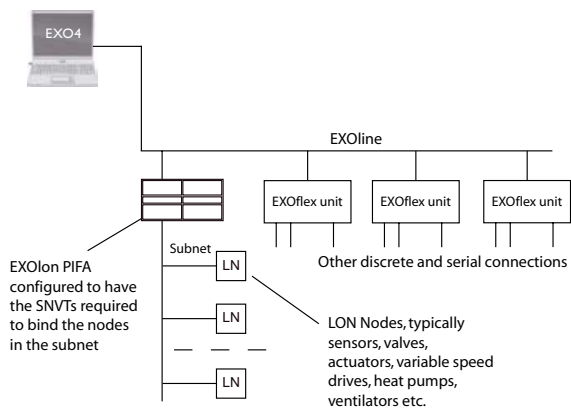

The controller may operate stand-alone with supervisory co-ordination of several pieces of apparatus, or be included in a larger control network.

Additional discrete I/O or devices for other serial interfaces may be included in the same controller and in the same control network. Their variables may be combined in expressions and control algorithms inside the controller regardless of their physical connections.

**Using the Controller as a Lon Node**
The figure below shows how controllers may be used as Lon nodes in a Lon network. This use offers a large number of different discrete I/Os in a small space.

It is also possible to use the extensive function libraries or standard application softwares, as well as the programming capabilities of EXO controllers to create powerful and flexible nodes for control and automation functions in a Lon Network. The required set of SNVTs may then quickly be configured and the XIF configuration file for the LonWork binding tool will automatically be generated by EXOdesigner.
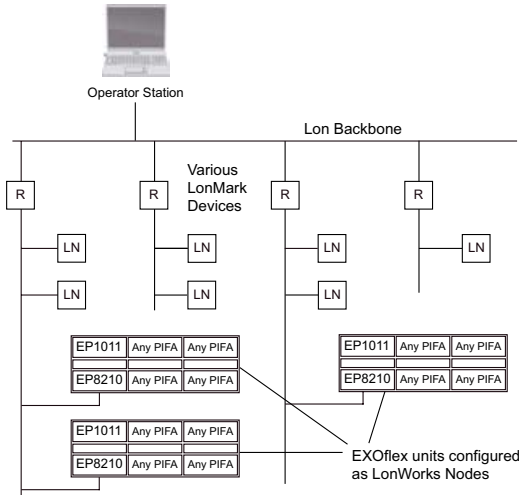
Using the Controller as a Gateway to an EXO Sub-system
A number of controllers providing a complete sub-system may be included into a LonWorks supervisory system by using a controller with the EXOlon PIFA as a gateway, as shown in the figure below.
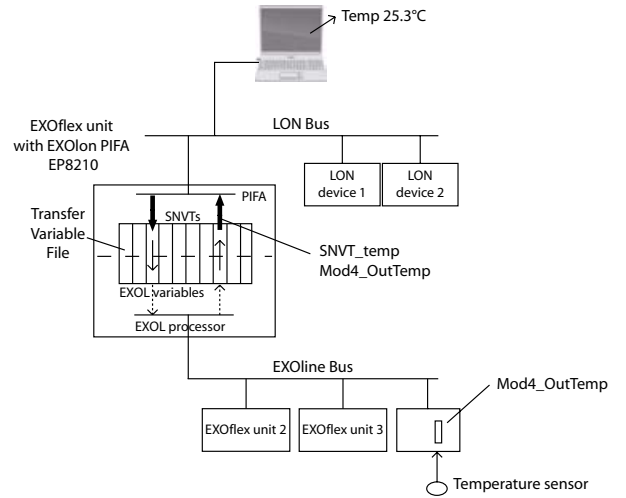
Configuration and Programming
For information about configuration and programming, see the manual *LON in EXO Systems*.

Technical data

Power supply	Internal only
Internal power consumption	5 V, 0.95 VA (connected to the network)
External Communication Port	78 kbps FTT10A
max cable length	Depending on bus topology and cable type, see www.echelon.com
connection	Phönix terminal block
lightning protection	Standardized discharge gap on PCB

CE

This product conforms with the requirements of European EMC standards CENELEC EN 61000-6-1 and EN 61000-6-3 and carries the CE-mark.

Wiring

EP8210 is fitted with a so-called transceiver, FTT10A, standardized by Echelon. EP8210 has an FTT10A output for two-wire or screened cable. The PIFA has 10Base-T/100Base auto-negotiation (RJ45).

For more information about communication speed, bus topologies, bus terminations, recommended cable types, communication distance etc., visit Echelon's website, http://www.echelon.com/products/technical/manuals.asp.

Pin no	Signal	Function
1	NET B	
2	NET A	
3	EMI ground	This terminal is connected internally to the PIFA's frame and to internal protective circuits. It should be connected to the ground rail with a separate, heavy wire.

Product documentation

Document	Type
EH11-S...41-S / EH10-S...40-S / ECX2	Instruction for EXOflex houses and the EXOflex processor ECX2
EXO System Manual	Manual covering the EXO System
LON in EXO Systems	Manual