2.6.2 LONWORKS® The building automation system field bus

The standard for building services

LONWORKS® technology is a standardised communication proto-col which is well-established in building and industrial automa-tion systems. Properties such as the decentralised intelligence, modular design, requirement-based interfaces and the ability to adjust to existing infrastructures makes LONWORKS® an interesting option for the transfer of data in the field level and for backbone systems. The individual network participants, the "node" can exchange event-controlled data. LONWORKS® forms the platform for manufacturer-independent communication in multi-service building automation systems.

PCD systems

LONWORKS® is available as a communications option for practically all PCD systems. PCD classic controllers are connected to the Saia PCD® COSinus operating system via IP 852 (Ethernet). LON® FTT10 is also possible using a communication module, whereby each module supports max. 254 network variables**. The PG5 contains a suitable Lon resource configurator for configuring the Lon node and an FBox library for commissioning, testing, transmitting and receiving network variables.
Configuration also takes place in the PG5, whereby configura-tions of up to 800 network variables are permitted. A com-prehensive Saia PG5® FBox library enables users to establish a connection to the application program for almost every type of standard network variable.
A LON optional module is always required for using the LON over IP (IP 852). A PCD7.R58x is used for memory slots M1 or M2 for PCD3.M5/M6, PCD2.M5, PCD1.M2 and PCD1.M0 controllers. The PCD3.R58x module is available for I/O slots 0…3 for PCD3.M3 controllers with no M1/2 slots.
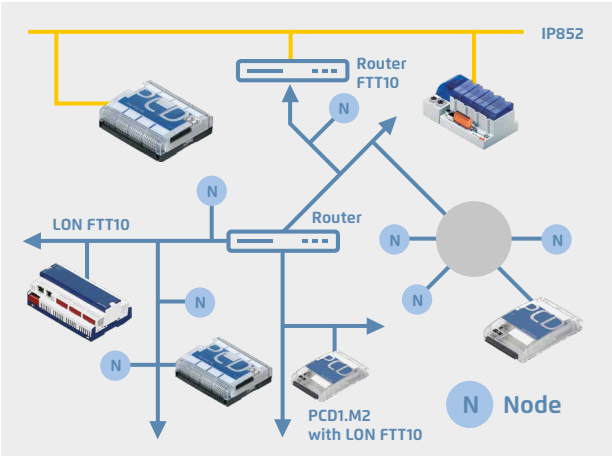
Typical applications of a LONWORKS® infrastructure

▶ Heating, climate and ventilation control
▶ Light control
▶ Shade control
▶ Security
▶ Energy management, etc.

A "Lon communication module" is also required to connect the Lon FTT10. This module provides PCD controllers with a LONWORKS® interface but without a router function. PCD1.M2 controllers require the PCD2.F2400 module and PCD3 control-lers the PCD3.F240 module.
External LON FTT10 / IP gateways are also required to connect FTT10 devices directly to the management system or other LON IP 852 devices, for example. In place of a router, the applica-tion program can also copy network variables on IP 852 via PCD resources from any system.

Recommendations/system limits

Type	Starting with HW version	Option	Interface	PG5 configuration, system limits
PCD3.M5560/M6xx0	all	1× PCD7.R58x* 4× PCD3.F240	IP 852 FTT10	Recommended for configurations of up to 2000 network variables Suitable for BACnet® and LONWORKS® in parallel operation
PCD3.M5540	H	1× PCD7.R58x*	IP 852	Recommended for configurations of up to 1500 network variables
PCD3.M5340/M5360	H/all			
PCD3.M3330/M3360	H/all	1× PCD3.R58x*	IP 852	Recommended for configurations of up to 1000 network variables
PCD3.M3120/M3160	H/all			
PCD2.M4160	all	1× PCD7.R58x* 2× PCD2.F2400	IP 852 FTT10	Recommended for configurations of up to 1500 network variables
PCD2.M4560	all	1× PCD7.R58x* 4× PCD2.F2400	IP 852 FTT10	Recommended for configurations of up to 1500 network variables
PCD2.M5540	D			
PCD1.M2xx0	F	1× PCD7.R58x* 2× PCD2.F2400	IP 852 FTT10	Recommended for configurations of up to 1000 network variables
PCD1.M2220-C15	all			
PCD1.M0160	all	1× PCD7.R58x*	IP 852	Recommended for configurations of up to 1000 network variables

! Standard Ports: #1628 and #1629
  * LON over IP can only be used on PCD controllers with Ethernet interfaces. An external IP 852 config server is also required for commissioning and binding.
  ** PCD2.F2400, PCD3.F240: 247 network variables are available to the user. 7 NVs are permanently reserved by the standard node object.

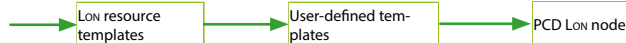## LONWORKS®
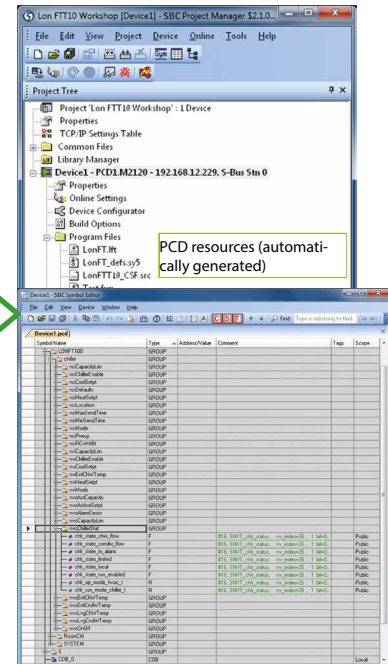
LON IP and FFT10, efficient engineering with templates
LON configurator
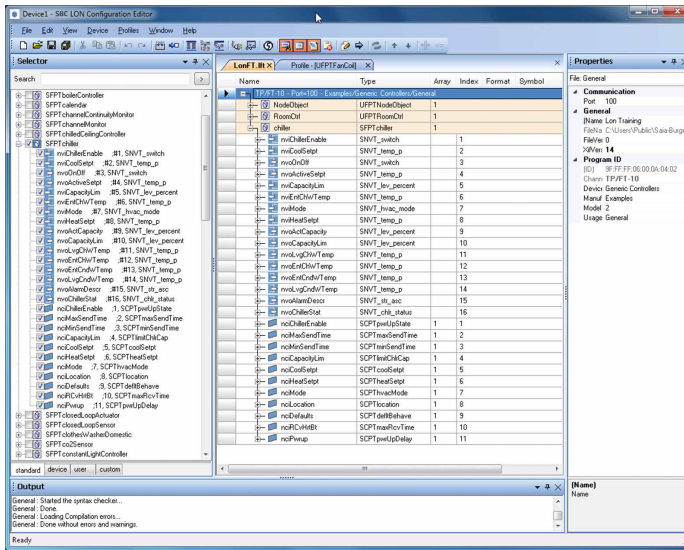
PG5 resources

LON resource files (V13 XML)

LON standard FPS SNVT SCPT

LON devices manufacturer FPS UNVT UCPT

LON resource templates → User-defined templates → PCD LON node

PCD resources (automatically generated)

Configurations

Configuring a PCD host node can be extensive depending on the size of the project. With very little input, the system integrator is able to use the proven template concept to derive many hundreds of identical nodes from a single definition and automatically create PCD resources.

Templates created by the device manufacturer and self-generated XML templates can be used. LONWORKS® standard templates can be supplemented in the LON IP configurator with additional information such as resources used, scaling, etc., and saved as separate templates. Templates created this way can be com-

bined in any configuration and reprocessed to create the Lon node.
This increased level of reusability of the templates makes engineering a decisive competitive advantage.

Standard network variables SNVT

Being implemented as an IP stack for the Saia PCD® COSinus operating system allows a single PCD substation to define up to 2000 SNVTs (standard network variable types) and link to other PCDs or third party systems. Almost all of the SNVTs currently specified in LONMARK® are supported by the PCD systems.

Order details

Type	Description
**LON over IP for PCD3.M5xxx	PCD3.M6xxx	PCD2.M5xxx	PCD1.M2xxx and PCD1.M0xxx**	
PCD7.R582	Flash memory module with LON over IP firmware for PCD1.M2xxx, PCD1.M0xx, PCD2.M5xxx and PCD3.M5xxx/..M6xxx, incl. 128 MByte for user program backup and file system, to plug in to slot M1 or M2
**LON FTT10 for PCD1.M2xxx	PCD3.M5x6x	PCD3.M6xxx**	
PCD2.F2400	LONWORKS® interface module for up to 254 network variables with slot for PCD7.F110S, F121S, F150S, F180S
PCD3.F240	LONWORKS® interface module for up to 254 network variables with slot for PCD7.F110S, F121S, F150S, F180S