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FRANCE

Agor@Lon 2017

Passerelles, Historisation et SCADA

Automate Serveur L-INX Passerelle L-GATE

- 1) L-INX & L-GATE
- 2) Connexions Locales et Globales
- 3) Fonctions
- 4) Configuration
- 5) Interface Utilisateur Graphique
- 6) Limites des Ressources

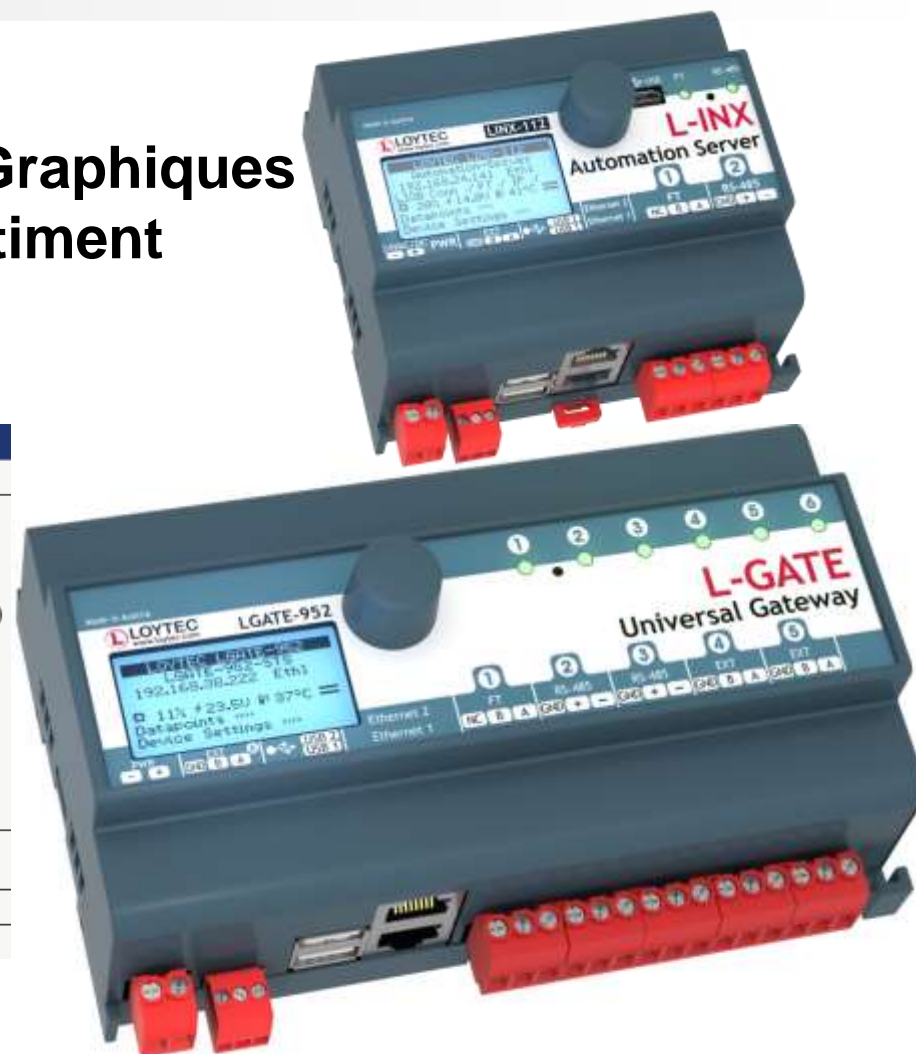
Automate Serveur L-INX Passerelle L-GATE



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Passerelles et Interfaces Utilisateurs Graphiques pour la Gestion Technique du Bâtiment

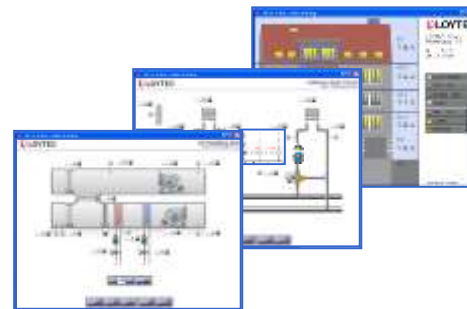
Spécifications	
Type	LGATE-952
Interfaces	<p>2 x Ethernet (100Base-T): OPC XML-DA, OPC UA, LonMark IP-852*, BACnet/IP**, KNXnet/IP, Modbus TCP (Maître ou esclave), HTTP, FTP, SSH, HTTPS, pare-feu, SNMP</p> <p>1 x TP/FT-10* (Système LonMark)</p> <p>2 x USB-A: WLAN (nécessite LWLAN-800), EnOcean (nécessite LENO-80x), SMI (nécessite LSMI-804)</p> <p>2 x RS-485 (ANSI TIA/EIA-485): BACnet MS/TP** ou Modbus RTU (Maître ou esclave)</p> <p>1 x EXT1: M-Bus, Maître EN 13757-3 (nécessite L-MBUS20/80)</p> <p>1 x EXT2: KNX TP1 (nécessite LKNX-300)</p> <p>1 x EXT3: SMI (nécessite LSMI-800)</p> <p>* Soit LonMark IP-852 ou TP/FT-10 (pas de routeur) ** Soit BACnet/IP ou BACnet MS/TP (pas de routeur)</p>
Outils	L-INX Configurator
Remote Network Interface	1 RNI avec 2 équipements MNI



- Différents modèles matériels



- Héberge des Interfaces Utilisateur Graphiques



- Les Automates Serveurs L-INX étendent leurs E/S grâce aux modules L-IOB¹



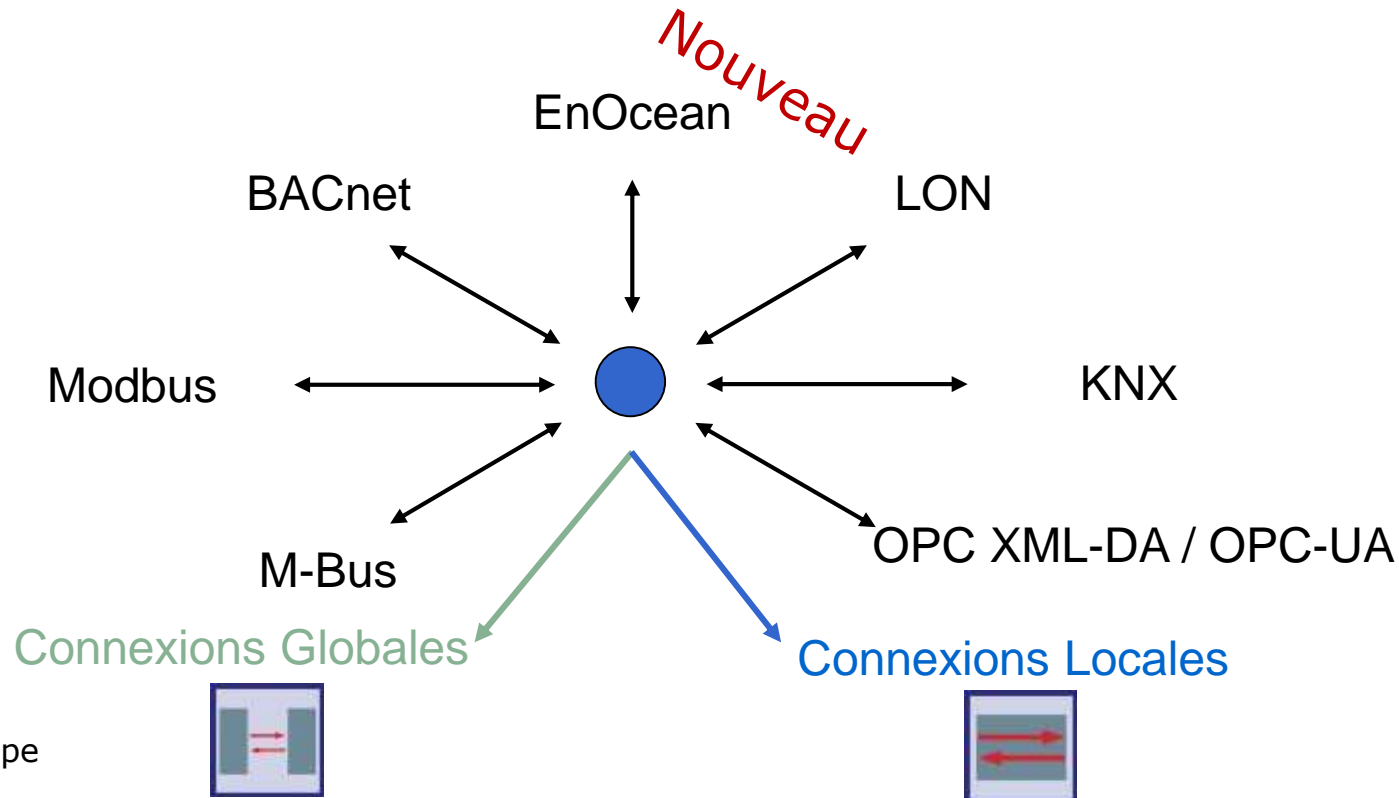
¹ pas L-GATE

La fonction de Passerelle Connexions Locales et Globales



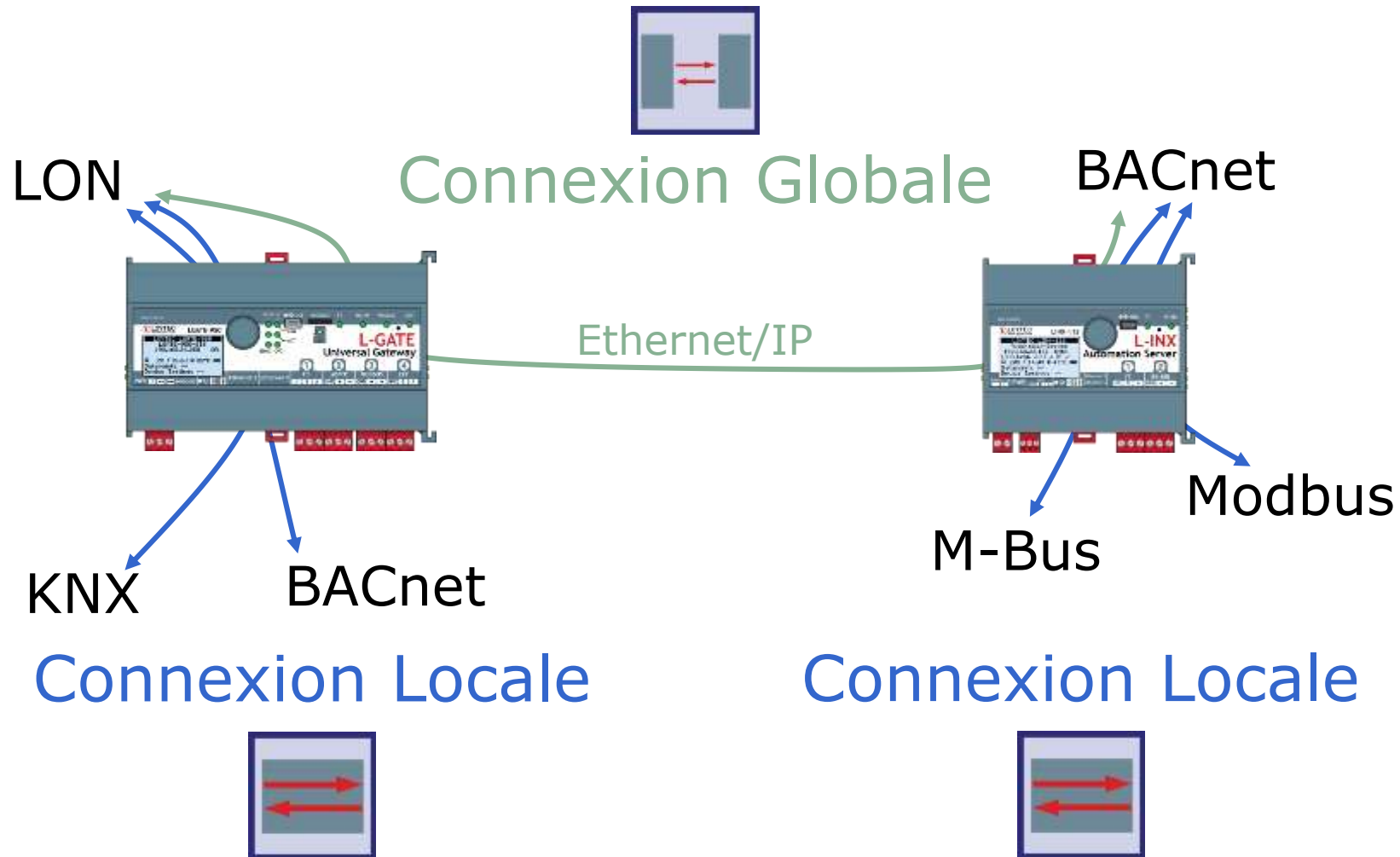
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- Intègre divers protocoles standards¹
- Passerelle avec connexions locales et globales
- Fonction de “Génération Automatique et connexion”

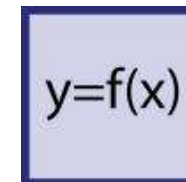
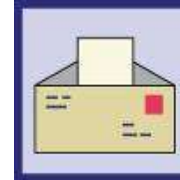
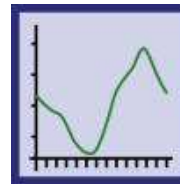


¹ dépend du type
de matériel

Caractéristiques de la Passerelle Connexions Locales et Globales



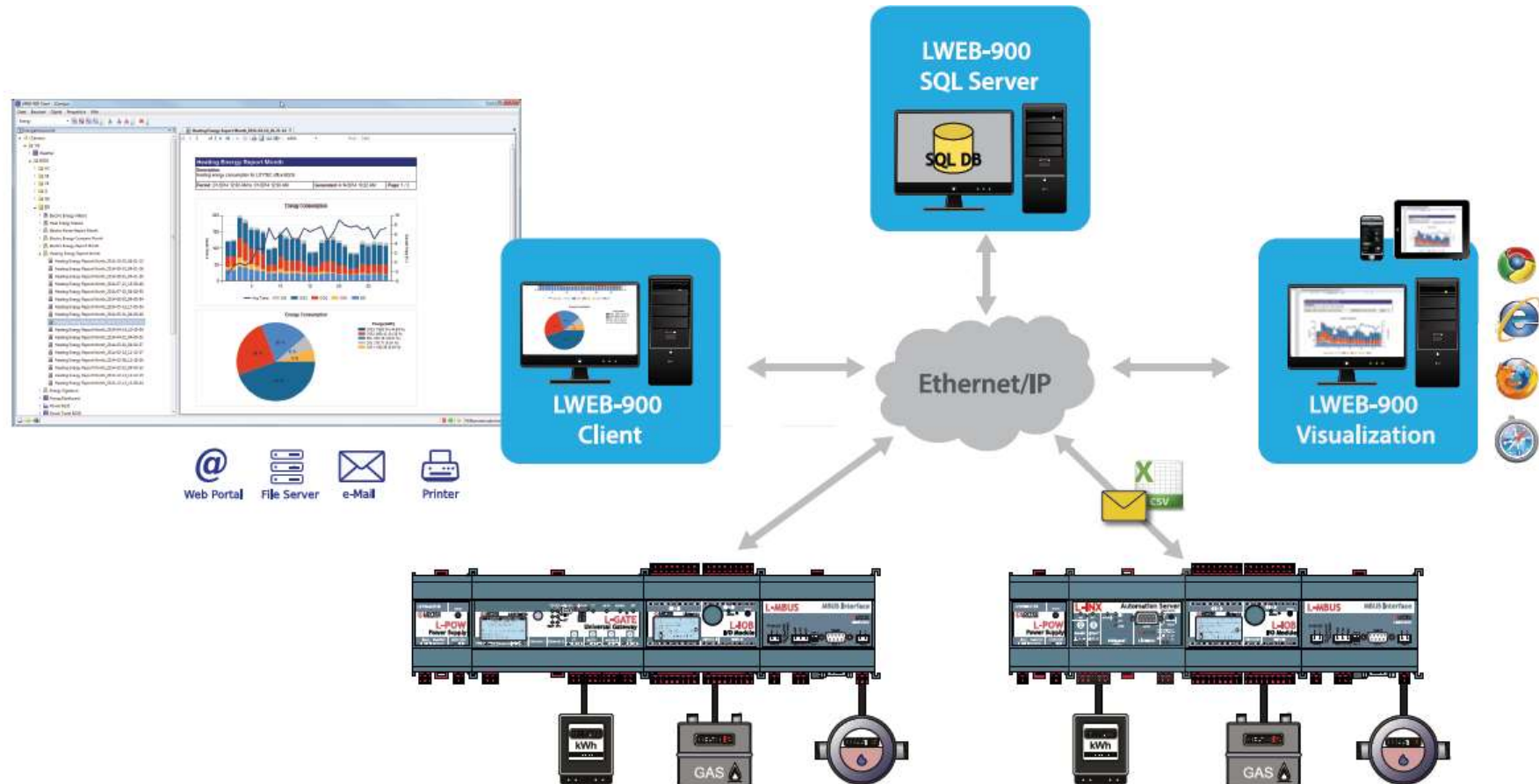
- Alarmes
- Programmes horaires
- Enregistrement des données
- Envoi d'E-mail
- Logique de base grâce à des blocs de fonctions mathématiques



- Serveur OPC embarqué (XML-DA / UA)
- Client OPC embarqué (XML-DA)
- Serveur Web embarqué
- Intégrée à la supervision L-WEB



■ Monitoring et Reporting





■ Sécurité IP¹

Port Configuration

Port 1 Port 2 Port 3 Port 4 USB IP Host Ethernet 1 (LAN) Ethernet 2 (WAN) Wireless 1 Wireless 2

☒ Port Mode
☒ TCP/IP
☐ VNC for LCD UI
☒ FTP
☒ Telnet
☒ SSH
☒ Global Connections (CEA-852)
☐ CEA-709 over IP (CEA-852)
☒ Web UI
☒ HTTP
☒ HTTPS
☐ Modbus TCP
☐ KNXnet/IP
☐ Remote packet capture
☒ BACnet/IP
☐ RNI 0 (CEA-709)
☐ SNMP
☒ OPC XML-DA
☐ OPC UA

HTTPS port: 443

Save Settings Get Settings

¹ dépend du
type de matériel

Certificate Management

Warning: Managing certificates over an insecure connection is not recommended!

Install Certificate Create Certificate OPC UA

Installed Server certificate (Self-signed)

RSA Key Size	1024
Validity Start Date	2013-09-17
Validity End Date	2023-09-15
Common Name	loytec.local
Organization Name	LOYTEC electronics GmbH
Organization Unit	Development
City	Vienna
State	Vienna
Country	AT
MD5 Fingerprint	49:B6:4D:79:DD:EF:77:4F:F2:35:BF:6D:47:B3:D8:54
SHA1 Fingerprint	D6:AE:4D:DF:AD:3A:16:2A:57:58:40:3E:8A:55:4F:63:C2:B1:AA:1F

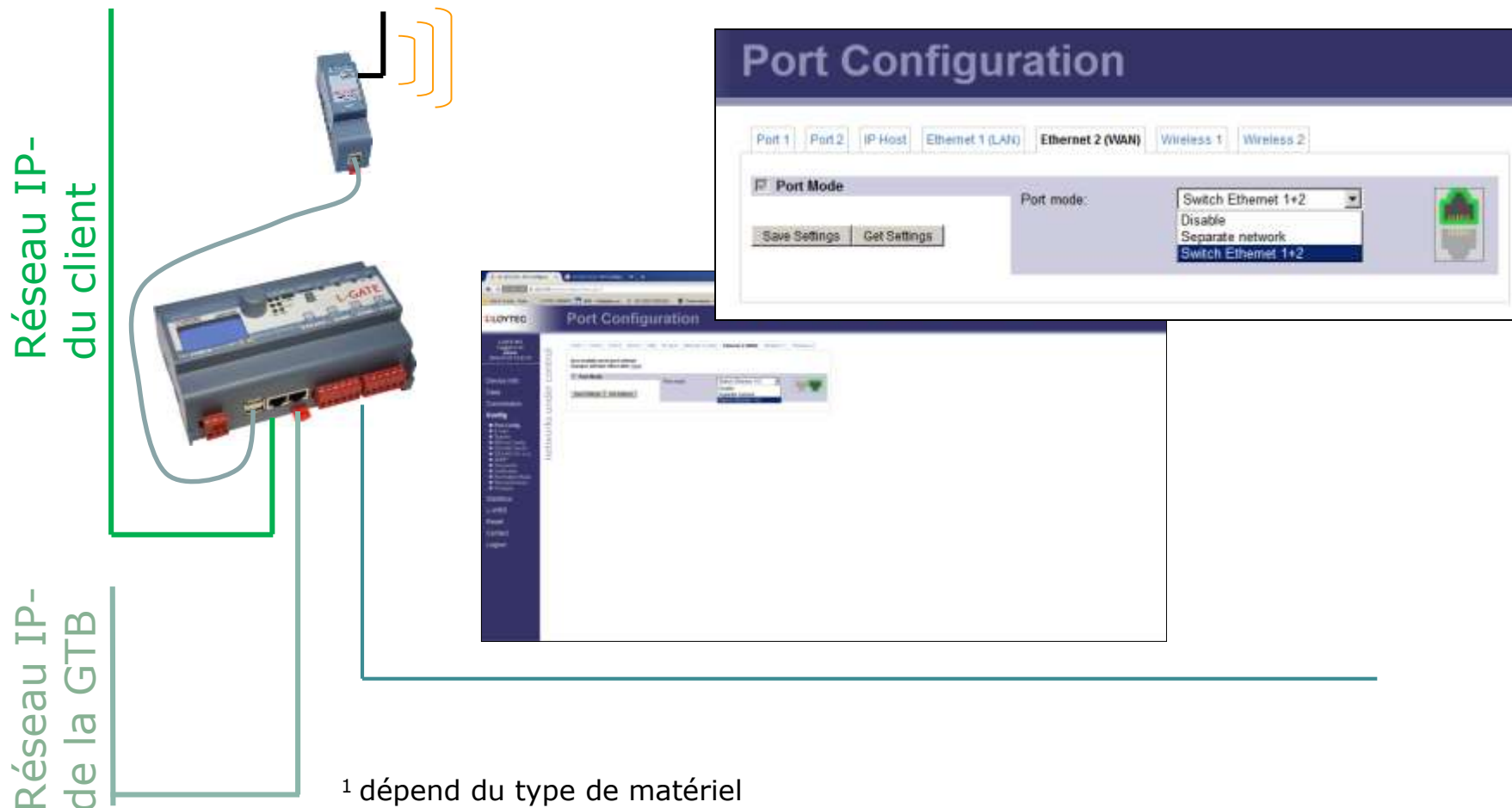
Install certificates (*.pem/*.der/*.cer):

Server private key: Keine Datei ausgewählt.

Server certificate: Keine Datei ausgewählt.

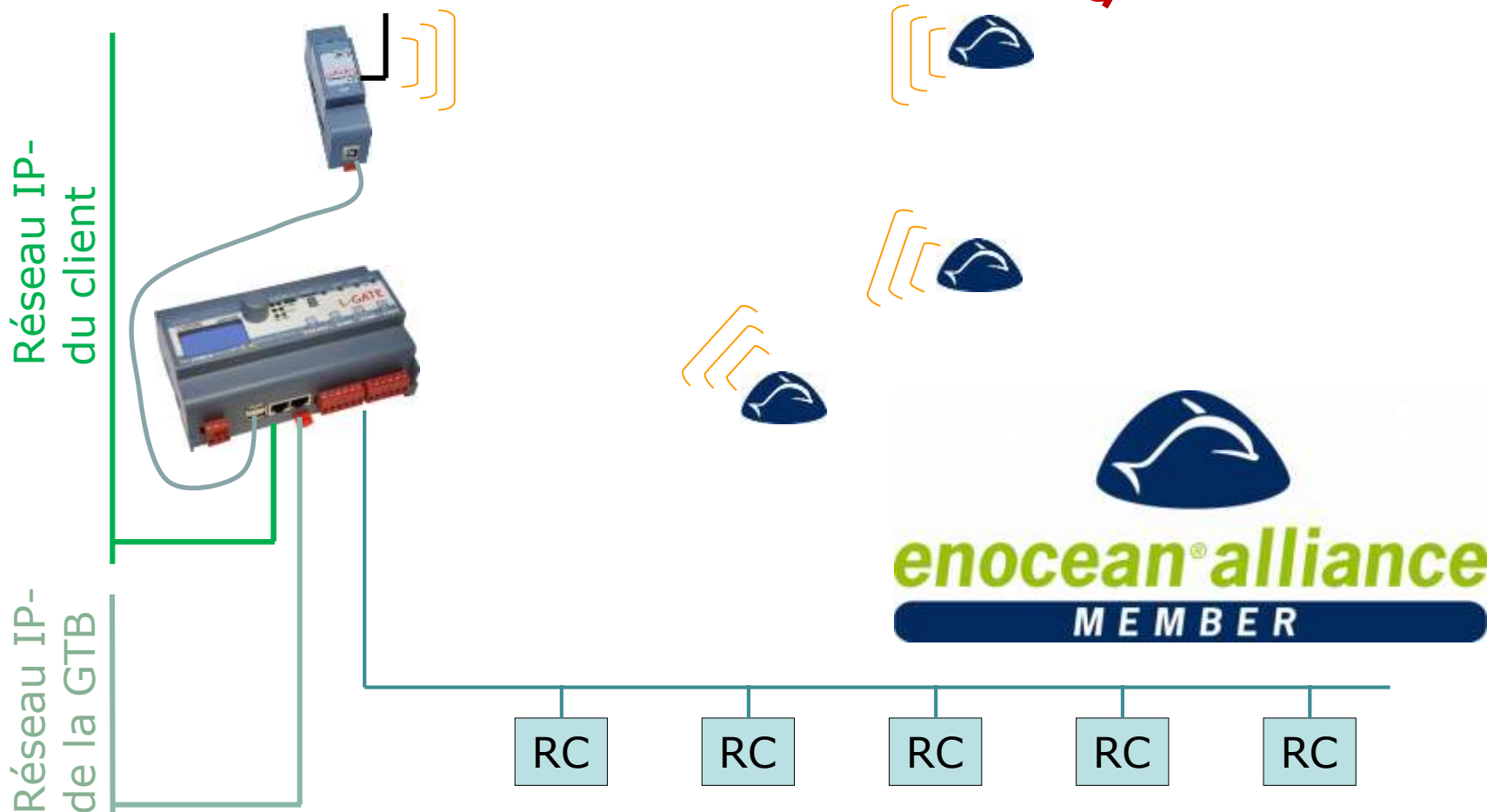
Intermediate CA certificate: Keine Datei ausgewählt.

Communication sur différents réseaux IP¹





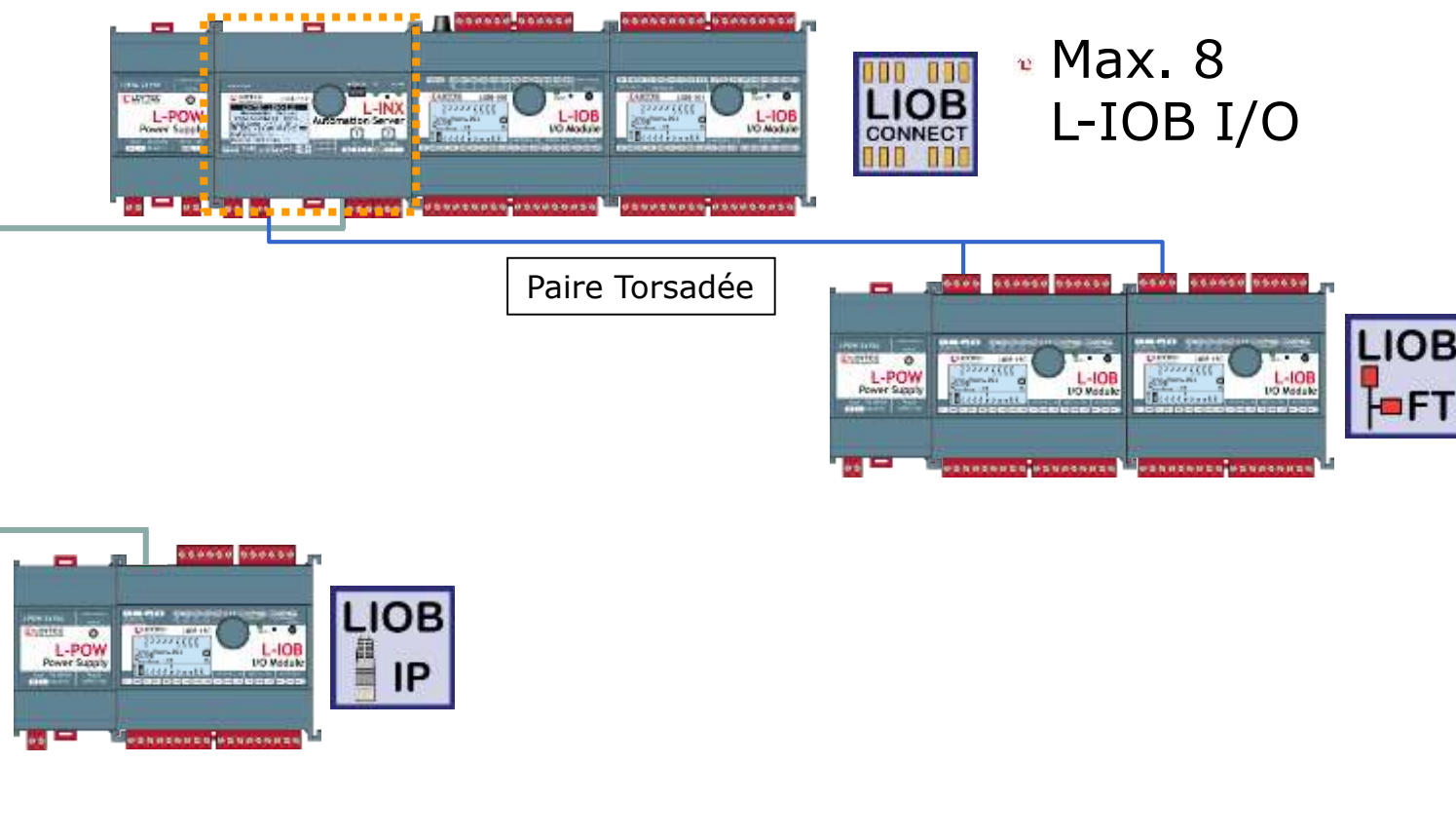
Supporte EnOcean¹



Automate Serveur L-INX connexion de Modules d'E/S L-IOB

LINX-11x
LINX-21x

Ethernet/IP





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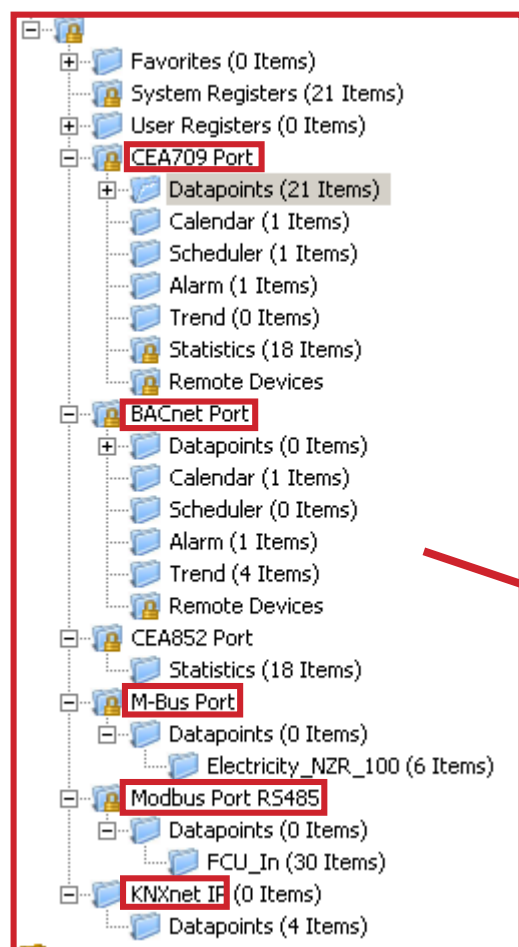


Configuration

Configuration L-INX/L-GATE Configurator



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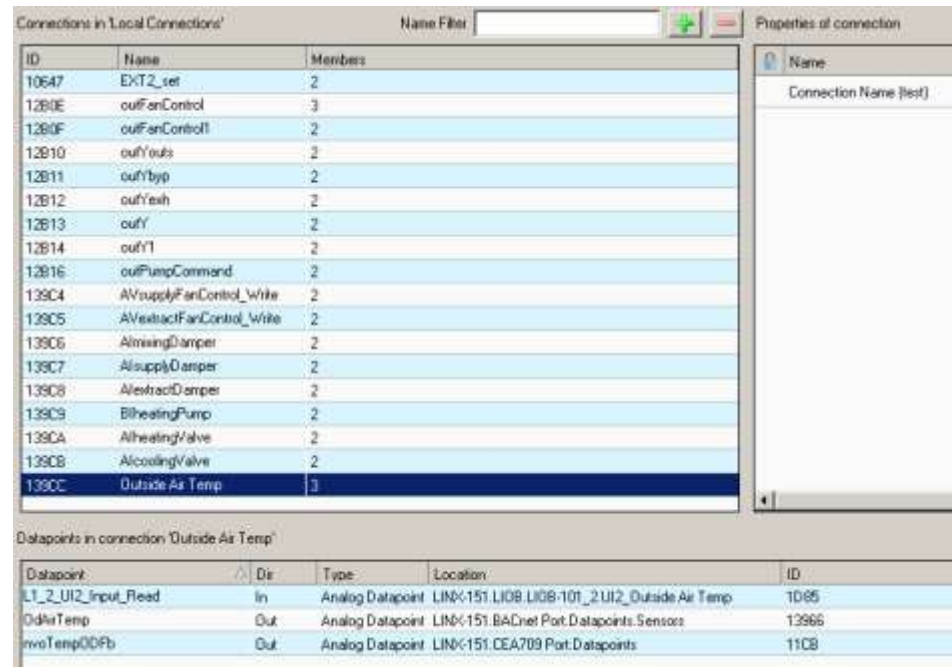


Datapoint Name	No.	OPC
+ nviOnOff	1	<input checked="" type="checkbox"/>
+ nvoOnOffFb	2	<input checked="" type="checkbox"/>
nvoTempODFb	3	<input checked="" type="checkbox"/>
nvoTempExhFb	4	<input checked="" type="checkbox"/>
nvoTempSupplFb	5	<input checked="" type="checkbox"/>

Name	Value	Description
Data Point Type	Enum (11 bit signed integer)	Class type of the data point
Datapoint Description		Description with user-readable language
Datapoint Name	nvoTempExhFb	Identifying name that is used in external communication
Default Value	1	Default value when starting up
Direction	Out	Communication direction (but refers to network)
Max. Speed [s]	1	Speed in network at least every time used here
Min. Speed [s]	1	Low network communication to save energy
OPC Tag	OP	Expose over OPC
Parameter	1	Make available as a parameter
Parameter	1	Make the value parameter over power-on-reset
PLC-EEPROM Variable	OP	Make available as a variable in the logic program
Memory Allocation	Static MV	Defines how the MV is allocated on the device
SVPT	SVPT_Enum_3 (1 bit)	SVPT
Local Functional Block	PLC_X3	Functional block for this data MV

Connexions Locales

- Les Connexions Locales spécifient quels data points échangent leurs valeurs ensemble au niveau de l'équipement
- Les Connexions sont réalisées en sélectionnant une source et une ou plusieurs cibles (data points)



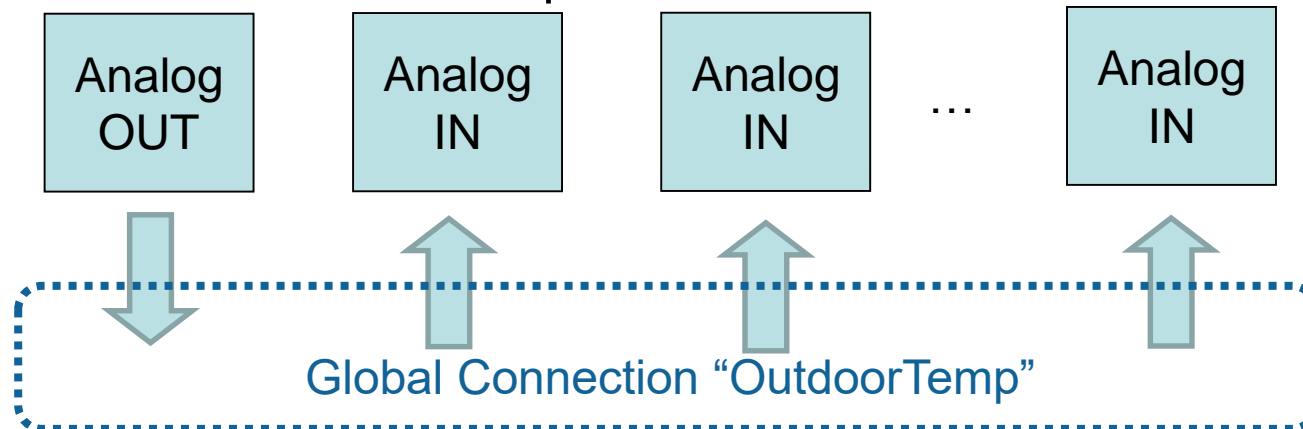
The screenshot displays the 'Connections in Local Connections' window. It features a table with columns for ID, Name, and Members. The 'Outside Air Temp' connection (ID 139CC) is selected. To the right, the 'Properties of connection' panel shows the connection name. Below the main table, the 'Datapoints in connection Outside Air Temp' section shows a list of data points with their direction, type, location, and ID.

ID	Name	Members
10647	EXT2_set	2
1280E	outFanControl	3
1280F	outFanControl1	2
12810	outYouts	2
12811	outYbyp	2
12812	outYexh	2
12813	outY	2
12814	outY1	2
12816	outPumpCommand	2
139C4	AVsupplyFanControl_Write	2
139C5	AVextractFanControl_Write	2
139C6	AlmixingDamper	2
139C7	AlsupplyDamper	2
139C8	AlextractDamper	2
139C9	BlheatingPump	2
139CA	AlheatingValve	2
139CB	AlcoolingValve	2
139CC	Outside Air Temp	3

Datapoint	Dir	Type	Location	ID
LT_2_UI2_input_Read	In	Analog Datapoint	LINK-151.LI08.LI08-101_2 UI2_Outside Air Temp	10685
OdAirTemp	Out	Analog Datapoint	LINK-151.BACnet Port.Datapoints.Sensors	13966
TwoTemp00Fb	Out	Analog Datapoint	LINK-151.CEA709 Port.Datapoints	1108



- Les connexions globales permettent de faire la même chose que des connexions locales mais elles délaissent le seul contexte local pour un contexte réseau IP
- Une connexion globale crée un cloud de données ayant un nom 'système'
- Les Data points ajoutés à une connexion globale peuvent envoyer leur donnée dans cette connexion ou bien recevoir une donnée à partir de cette connexion.



Configuration

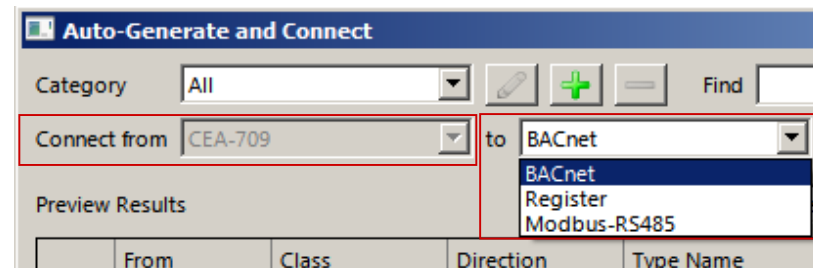
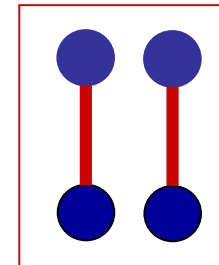
Connexion "Génération Automatique"



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- Création rapide avec la fonction "auto-generate" appliquée à plusieurs technologies de communication source
- Les technologies suivantes peuvent être la cible pour une génération automatique de type "auto-generation" :

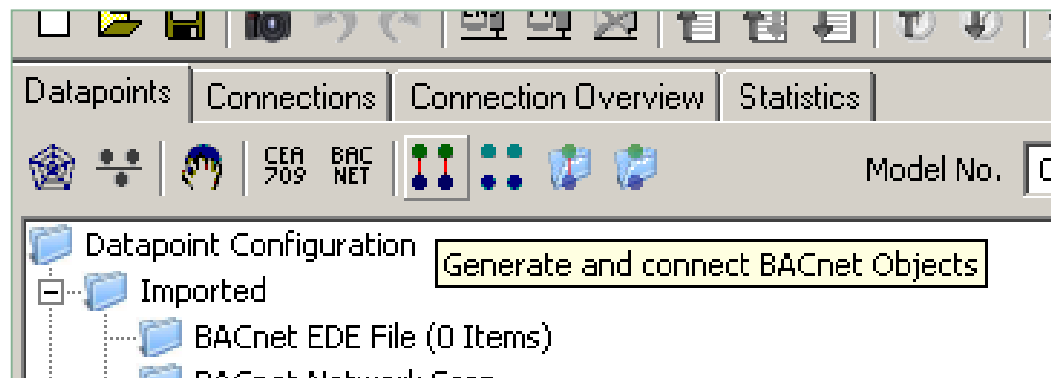
CEA-709 (static NVs),
BACnet (Server Objects),
Modbus (Slave Registers),
User Registers



Configuration

Cas d'école : LON > BACnet

- Création ultra rapide !
- Mise en relation automatique selon la norme CEN/TS 15231:2005
 - Génération automatique d'objets serveurs BACnet correspondant aux Variables Réseaux sélectionnées
 - Liens créés automatiquement entre les objets BACnet et les NVs



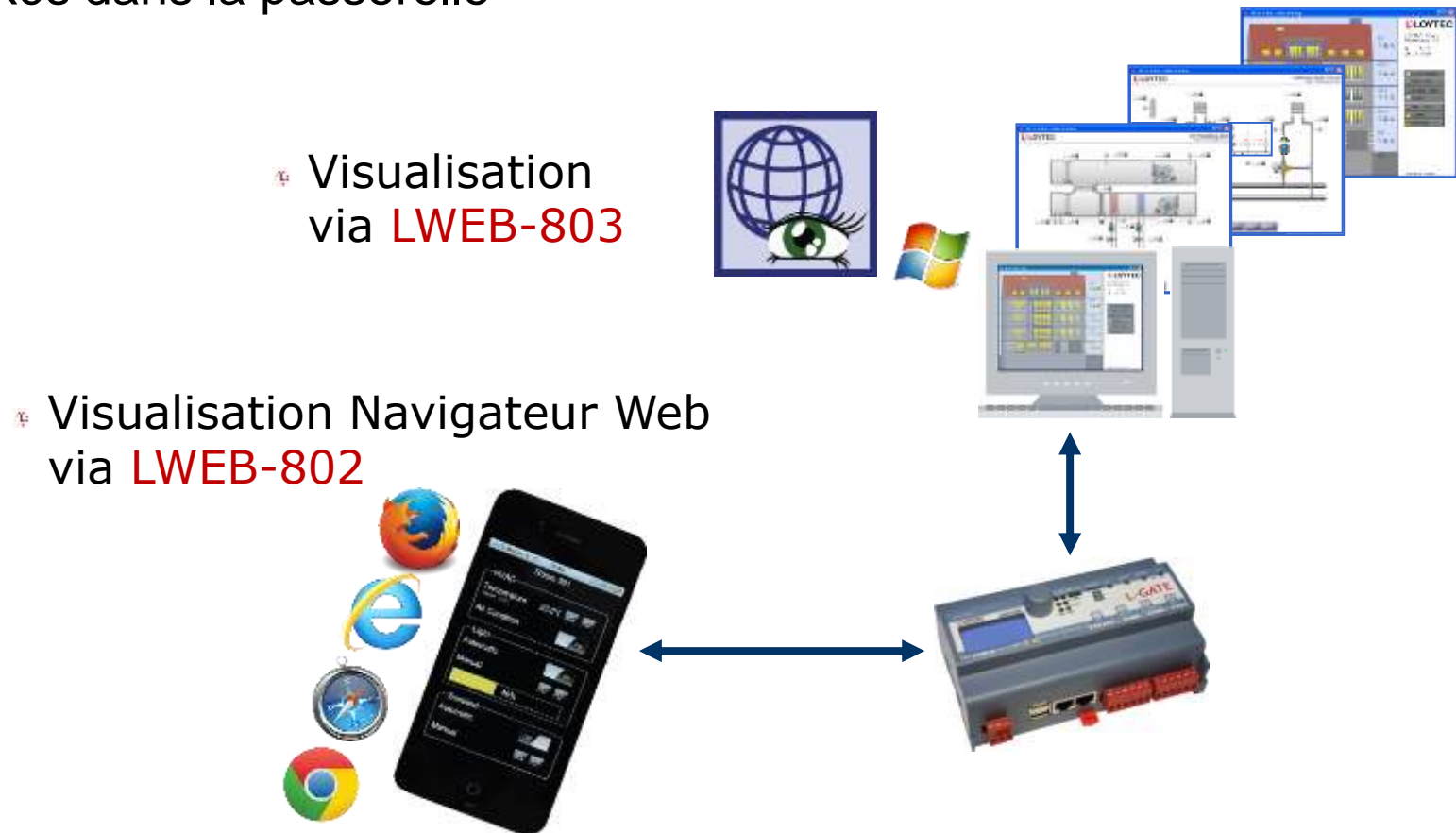


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Interface Utilisateur Graphique

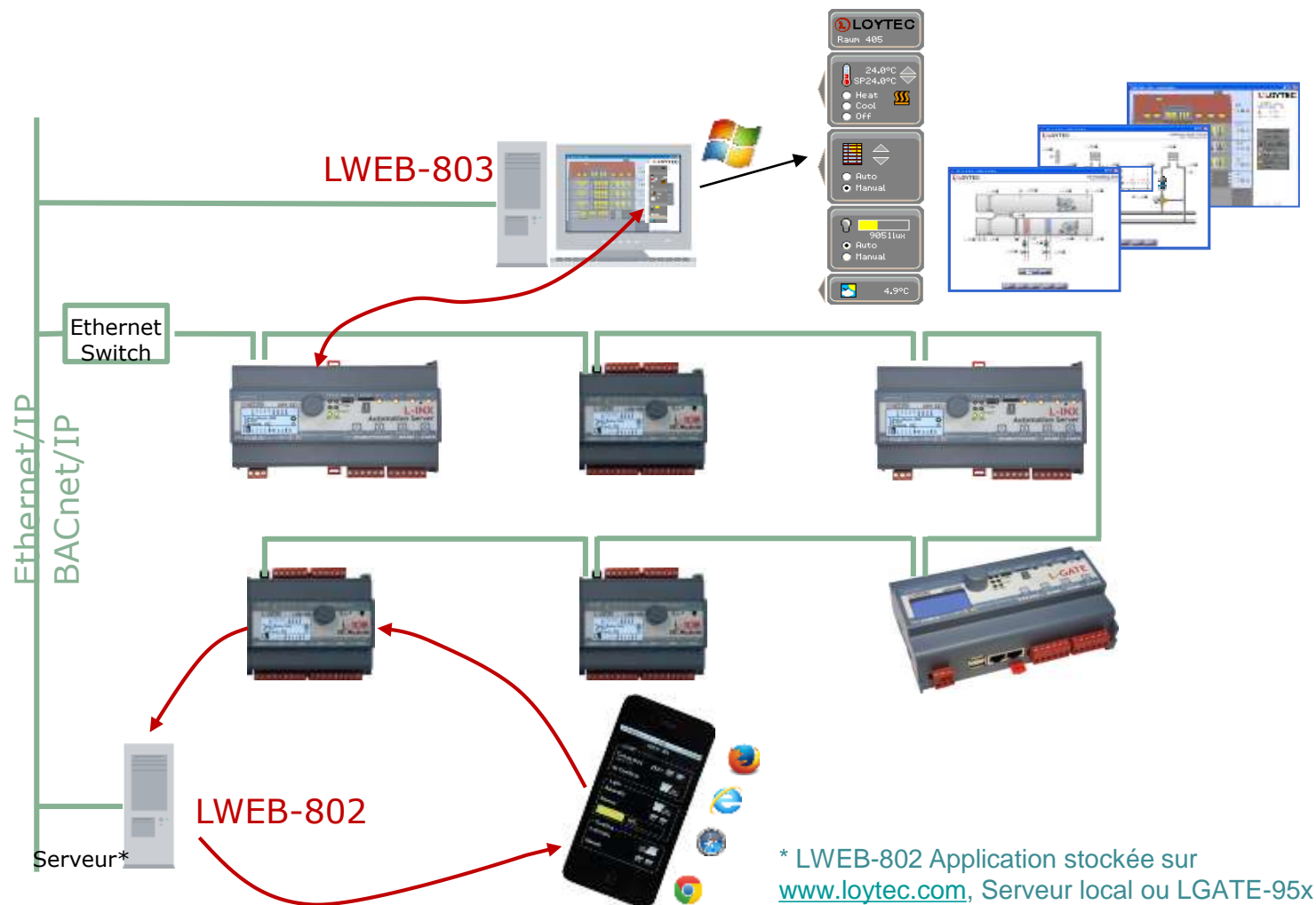
- Les graphiques customisés avec du contenu dynamique sont stockés dans la passerelle



Conduite et Supervision Interface Utilisateur Graphique



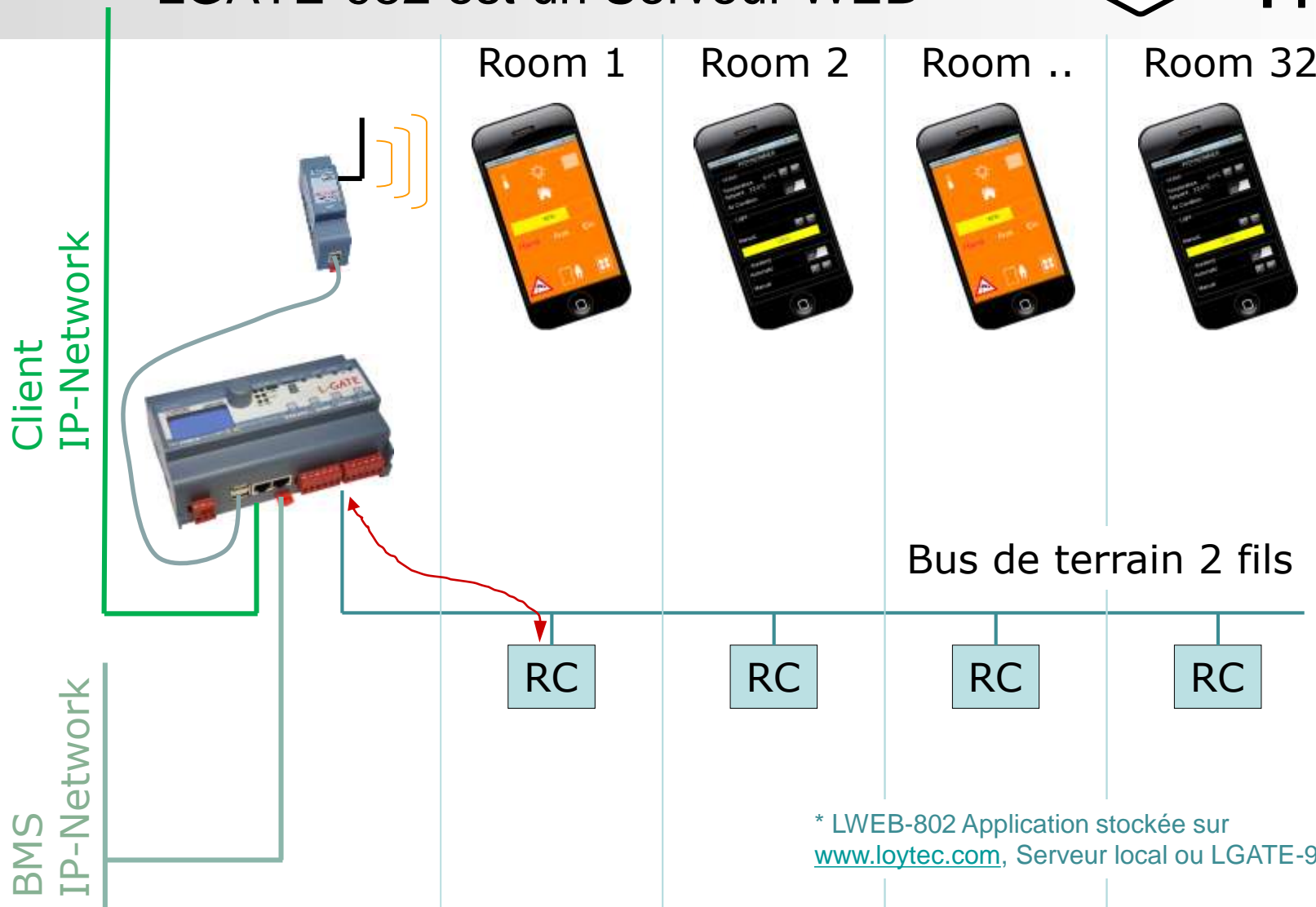
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Exemple LWEB-802*: LGATE-952 est un Serveur WEB

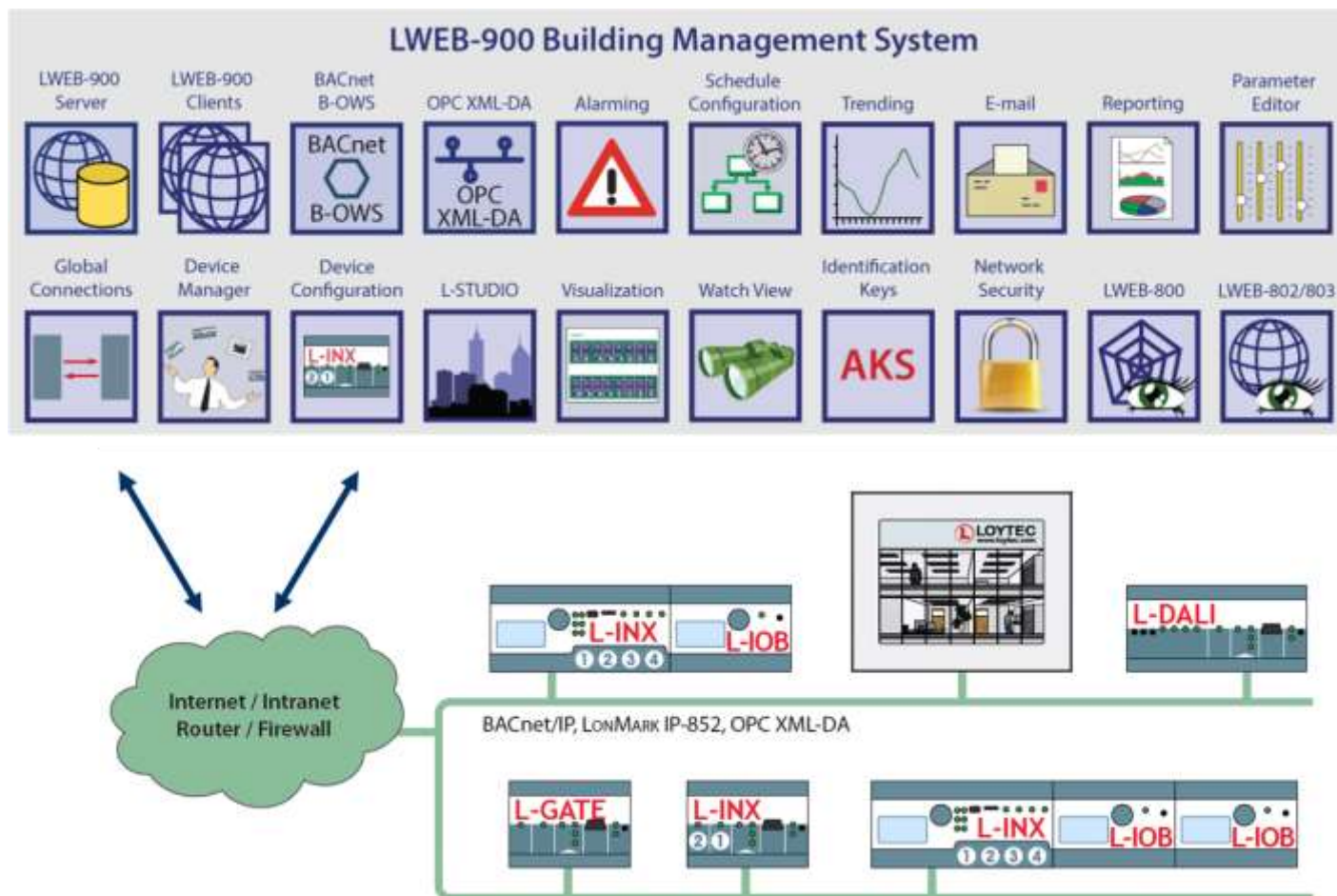


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* LWEB-802 Application stockée sur
www.loytec.com, Serveur local ou LGATE-95x

Le System L-WEB





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Limites des Ressources

Modèles L-INX et L-GATE



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Model	LINX-100	LINX-101	LINX-102	LINX-103	LINX-110	LINX-111	LINX-112	LINX-113	LINX-120	LINX-121	LINX-150	LINX-151
Features												
CEA-709 Router		✓		✓		✓		✓		✓		✓
CEA-709 RNI	✓		✓		✓		✓		✓		✓	
CEA-709 (FT)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CEA-852 (IP)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
BACnet Router												✓
BACnet MS/TP											✓	✓
BACnet IP											✓	✓
BBMD												✓
Modbus RTU	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Modbus IP	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
M-Bus	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
KNX TP1			✓	✓			✓	✓	✓	✓	✓	✓
KNX IP			✓	✓			✓	✓	✓	✓	✓	✓
EnOcean			✓	✓			✓	✓	✓	✓	✓	✓
OPC XML-DA	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
OPC UA			✓	✓			✓	✓	✓	✓	✓	✓
OPC Client			✓	✓			✓	✓	✓	✓	✓	✓
SNMP			✓	✓			✓	✓	✓	✓	✓	✓
PLC (IEC 61131)					✓	✓	✓	✓	✓	✓	✓	✓
LIOB Connect			✓	✓			✓	✓	✓	✓	✓	✓
LIOB FT + IP	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
LCD Display			✓	✓			✓	✓	✓	✓	✓	✓
Serial Console	✓	✓			✓	✓						
SD Card									✓	✓	✓	✓
USB			✓	✓			✓	✓	✓	✓	✓	✓
Ethernet Switch/Hub			✓	✓			✓	✓	✓	✓	✓	✓
WLAN			✓	✓			✓	✓	✓	✓	✓	✓
SSH, HTTPS, Firewall			✓	✓			✓	✓	✓	✓	✓	✓

Model	LINX-200	LINX-201	LINX-202	LINX-203	LINX-210	LINX-211	LINX-212	LINX-213	LINX-220	LINX-212	LGATE-900	LGATE-902	LGATE-950	LGATE-951
Features														
CEA-709 Router														
CEA-709 RNI												✓	✓	✓
CEA-709 (FT)											✓	✓	✓	✓
CEA-852 (IP)											✓	✓	✓	✓
BACnet Router		✓		✓		✓		✓		✓				
BACnet MS/TP	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
BACnet IP	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
BBMD		✓		✓		✓		✓		✓	✓	✓	✓	✓
Modbus RTU	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
Modbus IP	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
M-Bus	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
KNX TP1			✓	✓			✓	✓	✓	✓		✓	✓	✓
KNX IP			✓	✓			✓	✓	✓	✓		✓	✓	✓
EnOcean			✓	✓			✓	✓	✓	✓		✓	✓	✓
OPC XML-DA	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
OPC UA			✓	✓			✓	✓	✓	✓		✓	✓	✓
OPC Client			✓	✓			✓	✓	✓	✓		✓	✓	✓
SNMP			✓	✓			✓	✓	✓	✓		✓	✓	✓
PLC (IEC 61131)					✓	✓	✓	✓	✓	✓				
LIOB Connect			✓	✓			✓	✓	✓	✓				
LIOB FT + IP	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
LCD Display			✓	✓			✓	✓	✓	✓		✓	✓	✓
Serial Console	✓	✓			✓	✓					✓			
SD Card									✓	✓			✓	✓
USB			✓	✓			✓	✓	✓	✓		✓	✓	✓
Ethernet Switch/Hub			✓	✓			✓	✓	✓	✓		✓	✓	✓
WLAN			✓	✓			✓	✓	✓	✓		✓	✓	✓
SSH, HTTPS, Firewall			✓	✓			✓	✓	✓	✓		✓	✓	✓

Source:
L-INX User Manual

Limites des Ressources



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Model	100/101	102/103	110/111	112/113	120/121	150/151
Limits						
Total number of data points	10,000	10,000	10,000	10,000	30,000	30,000
OPC Tags	2,000	2,000	500	2,000	10,000	10,000
User Registers	1,000	1,000	1,000	1,000	2,000	2,000
NVs (static, dynamic)	1,000	1,000	1,000	1,000	2,000	2,000
External NVs	1,000	1,000	1,000	1,000	2,000	2,000
Alias NVs (ECS and legacy mode)	1,000	1,000	1,000	1,000	2,000	2,000
Address table entries/legacy	512/15	512/15	1,000/15	1,000/15	1,000/15	1,000/15
LONMARK Calendar objects	1 (25 calendar patterns)					
LONMARK Scheduler objects	100 (max. AST configuration size 384KB, 64 data points per scheduler)					
LONMARK Alarm Servers	1	1	1	1	1	1
BACnet objects (analog, binary, multi-state)	n/a	n/a	n/a	n/a	n/a	1,000
BACnet client mappings	n/a	n/a	n/a	n/a	n/a	5,000
BACnet scheduler objects	n/a	n/a	n/a	n/a	n/a	100
BACnet calendar objects	n/a	n/a	n/a	n/a	n/a	25
BACnet notification classes	n/a	n/a	n/a	n/a	n/a	32
BDT max recommended	n/a	n/a	n/a	n/a	n/a	100
KNX Communication Objects (per interface)	n/a	250	n/a	250	1,000	1,000
Trend Logs	256	256	256	256	512	512
Total trended data points	256	256	256	256	1,000	1,000
Total aggregated size	60MB	60MB	60MB	60MB	60MB	60MB
E-mail templates	100	100	100	100	100	100
Math objects	100	100	100	100	100	100
Alarm Logs	10	10	10	10	10	10
Modbus data points	2,000	2,000	2,000	2,000	2,000	2,000
M-Bus data points	1,000	1,000	1,000	1,000	1,000	1,000
EnOcean data points	n/a	250	n/a	250	1,000	1,000
Connections (local)	1,000	1,000	1,000	1,000	2,000	2,000
Connections (global)	250	250	250	250	250	250
L-WEB Clients (concurrent)	15	32	15	32	32	32
L-IOB Modules	8	8	8	8	24	24

Model	200/201	202/203	210/211	212/213	220/221
Limits					
Total number of data points	10,000	10,000	10,000	10,000	30,000
OPC Tags	2,000	2,000	500	2,000	10,000
User Registers	1,000	1,000	1,000	1,000	2,000
NVs (static, dynamic)	n/a	n/a	n/a	n/a	n/a
External NVs	n/a	n/a	n/a	n/a	n/a
Alias NVs (ECS and legacy mode)	n/a	n/a	n/a	n/a	n/a
Address table entries/legacy	n/a	n/a	n/a	n/a	n/a
LONMARK Calendar objects	n/a	n/a	n/a	n/a	n/a
LONMARK Scheduler objects	n/a	n/a	n/a	n/a	n/a
LONMARK Alarm Servers	n/a	n/a	n/a	n/a	n/a
BACnet objects (analog, binary, multi-state)	750	750	750	750	1,000
BACnet client mappings	750	750	750	750	5,000
BACnet scheduler objects	100	100	100	100	100
BACnet calendar objects	25	25	25	25	25
BACnet notification classes	32	32	32	32	32
BDT max recommended	100	100	100	100	100
KNX Communication Objects (per interface)	n/a	250	n/a	250	1,000
Trend Logs	256	256	256	256	512
Total trended data points	256	256	256	256	1,000
Total aggregated size	60MB	60MB	60MB	60MB	60MB
E-mail templates	100	100	100	100	100
Math objects	100	100	100	100	100
Alarm Logs	10	10	10	10	10
Modbus data points	2,000	2,000	2,000	2,000	2,000
M-Bus data points	1,000	1,000	1,000	1,000	1,000
EnOcean data points	n/a	250	n/a	250	1,000
Connections (local)	1,000	1,000	1,000	1,000	2,000
Connections (global)	250	250	250	250	250
L-WEB Clients (concurrent)	15	32	15	32	32
L-IOB Modules	8	8	8	8	24

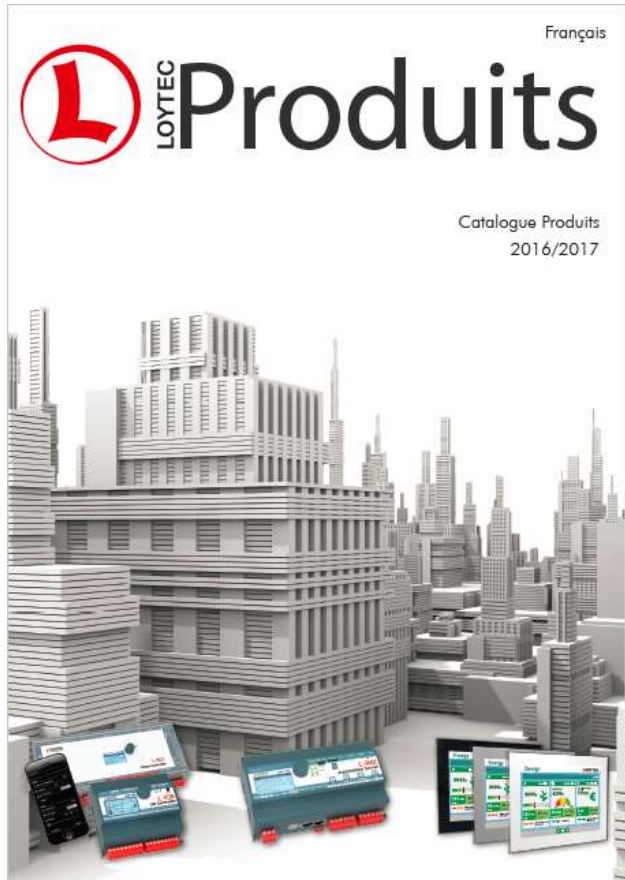
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L-IOC Room Automation	L-DALI Lighting Control	AHR 2015, Chicago/USA	L-IOB 1b, L-IOB 15a Preview	Headteacher Elementary S.	Product Search
L-INO Automation Servers	Razorm, INC	E World - energy & water	L-WEB 500 1.1.1	Candies Building, Porto, P.	Quick Request
L-IOB I/O Controllers	Interfaces	EEM, Frankfurt/Germany	L-WEB 800 Release 2.1 - 1b	Shopping Center Allegro, S.	
L-IOB I/O Modules	Accessories	Buildings under Control Sp.	L-WEB 800 Release 2.1 - 1b	Hospital Sanktor da Bonif.	
Gateways	Software Tools	Greenbuild 2014	L-DALI Firmware 3.2.4	Hotel Royal Orléans, Porto	

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