

# **AXON EXCHANGE** Gateway de Comunicaciones

This is a solution whose main function is to serve as a gateway or substation concentrator, allowing conversion between multiple remote control protocols and facilitating the integration and automation of electrical substations. It concentrates and processes data in real time from connections through serial and ethernet channels, to later report them to SCADA systems or control centers. It is a highly interoperable system with IEDs of different types and brands, it also enables configurations in redundant mode and has a module to support PRP (Parallel Redundancy Protocol).

In addition, it has access management mechanisms and implements various cybersecurity themes. It has support for a logic module that allows the user to perform special data type conversions and behavior management through functions and scripts. It has a tool for remote visualization of the signal states that allows the user to manage the connections and their states. Its flexible and modular architecture enables a scalable evolution of the solutions.

# **Benefits**

- Quick and intuitive setup.
- Unlimited support.
- Extended warranty.
- Open and interoperable system based on standards.
- Cybersecurity.
- Scalability and flexibility.
- Adaptability.
- Complementary module PRP.
- Hardware Independence.
- Support logic and functions for data processing.
- Remote status display tool.
- Template management for quick configuration.

### Generalities

- Remote data management and visualization.
- Configuration in redundant mode.
- Creation of security profiles.
- User Authentication.
- SOE fault log.
- Scripts in C#, own logics and logics based on the IEC 61131-3 standard through the integration by OPC UA and DA with Codesys.
- Synchronization of projects in redundant configuration.
- Event and command logs.
- Management of signal templates.
- Tools for customization.

### Architecture

Based on a client/server architecture that supports deployment in environments ranging from single station to multi-user distributed systems.

## **Communication protocols**

- IEC 61850
- ICCP/TASE.2
- DNP3 LAN / WAN
- DNP3 Serial
- IEC 60870-5-104
- IEC 60870-5-104 (Perfil Endesa)
- IEC 60870-5-101 Serial / Over TCP
- OPC DA
- Modbus
- Fast Message (SEL)
- DLMS

## **SOE Fault Log**

Offers the functionality of managing reports, providing detailed reports to users through plain text files on a regular basis. Allowing to keep a detailed record of system variables over time.

## Creation of user configuration

Axon Exchange provides tools for user management and administration, assigning security levels and permissions according to security policies.

### Redundancy

Axon Exchange supports HOTSTAND BY redundancy. Allowing two instances to run simultaneously, but only the primary instance reporting information, while the secondary instance is ready to take over in case of connection loss.

Also, it supports HOT - HOT redundancy keeping both the main and secondary instance active, receiving information from the connected devices. In this way, in the event of a failure in the primary instance, the secondary can take its place without service interruption.

# **Characteristics**

# **O1.** Axon Exchange Config

Allows the configuration of projects by assigning names, descriptions and addresses of the input signals and commands of the automation project to be transmitted to the different master and slave devices. Through this module it is possible to configure: Connection parameters, input/output signals with their respective addresses and logic.

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## **02.** Axon Exchange Viewer

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Project-1 Masters			Show: 100 v signals									
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			m104-00	ommunicationFa	2147483647	False	GOOD	2021-02-24 15:06:06:455	M.SP.TB.T			
🛄 🧱 m104-02			m104-00	DI1	1	True	GOOD	2021-02-18 15:00:05.220	M_SP_TB_1			
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			m104-00	D(13	13	False	IV.	2021-02-24 15:05:58:040	M_SP_T8_1			
			m104-00	DI14	14	False	IV	2021-02-24 15:05:58.040	M_SP_TB_1			
			m104-00	DI2	2	True	6000	2021-02-18 15:00:05.220	M_SP_TB_1			
			m104-00	DI3	3	False	GOOD	2021-02-18 15:00:05.220	M_SP_TB_1			
roperties			m104-00	D14	4	False	IV.	2021-02-24 15:05:58:040	M_SP_TB_1			
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Configuration												
Protocol Type	M_SP_TB_1	Show	ing 15 of 15 s	ignais								
Description		Com	mand Log Log									
Comment		1.00	2									
General												
Address	14											
Data Type	SinglePoint											
Name	D114											
reame	0114											

Axon Exchange Viewer allows the user to manage, in real time, the status of the connections of the running project, thus helping to better diagnose it, facilitate the analysis of the information acquired, provide immediate access in real time to all system variables through of a view by tables that present the information in detail.

- Information on value, quality and time stamp.
- Observation and forcing of the values for each variable.
- Filters to search for signals.



# **03.** Logics

Contains typical predefined functions for signal manipulation allowing the user to quickly and easily create new data from conversions or expressions such as:

- Double to simple
- Simple to double
- Analog comparators
- Best signal (for inputs and outputs)
- Commands
- MultiCast
- Logical functions
- Scripts

<b>04.</b> sc	L Explore	è
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It allows analysis of the SCL information without uploading it to the Axon Exchange, with the possibility of exporting the information in CSV, XLS and TXT formats, as well as selecting required signals to take them to a specific category of a created IED.

Signals Reports				
Name	Data Type	MMS		
AXONBAYApplication/LLN0.LEDRs.ctlModel	Enum	AXONBAYApplication/LLN0\$CF		
AXONBAYApplication/LLN0.LEDRs.Oper.Chec	k Check	AXONBAYApplication/LLN0\$CO		
AXONBAYApplication/LLN0.LEDRs.Oper.ctlN	um INT8U	AXONBAYApplication/LLN0\$C		
AXONBAYApplication/LLN0.LEDRs.Oper.ctlVa	I BOOLEAN	AXONBAYApplication/LLN0\$CO		
AXONBAYApplication/LLN0.LEDRs.Oper.origi	n.orCat Enum	AXONBAYApplication/LLN0\$CC		
AXONBAYApplication/LLN0.LEDRs.Oper.origi	n.orldent Octet64	AXONBAYApplication/LLN0\$CO		
AXONBAYApplication/LLN0.LEDRs.Oper.T	Timestamp	AXONBAYApplication/LLN0\$CO		
AXONBAYApplication/LLN0.LEDRs.Oper.Test	BOOLEAN	AXONBAYApplication/LLN0\$CO		
AXONBAYApplication/LLN0.LEDRs.stVal	BOOLEAN	AXONBAYApplication/LLN0\$5		
AXONBAYApplication/LLN0.LEDRs.q	Quality	AXONBAYApplication/LLN0\$ST		
AXONBAYApplication/LLN0.LEDRs.t	Timestamp	AXONBAYApplication/LLN0		
AXONBAYApplication/LLN0.Beh.stVal	Enum	AXONBAYApplication/LLN05		
AXONBAYApplication/LLN0.Beh.q	Quality	AXONBAYApplication/LLN0\$ST		
AXONBAYApplication/LLN0.Beh.t	Timestamp	AXONBAYApplication/LLN0\$ST		
AXONBAYApplication/LLN0.Health.stVal	Enum	AXONBAYApplication/LLN0\$ST		
AXONBAYApplication/LEN0.Health.q	Quality	AXONBAYApplication/LLN0\$ST		
AXONBAYApplication/LLN0.Health.t	Timestamp	AXONBAYApplication/LLN0\$ST		

Open Save								
Signals	Reports							
Rptid		DataSet	Data Change	Integrity	Integrity Period	GI	Quality	Data Update
AXONEAYAp	plication/LLN0.urcb#	AXON8AYApplic	<b>v</b>	Image: A state of the state	50000	<b>I</b>		
AXON8AYAp	plication/LLN0.URep		<b>v</b>		0	2		
AXONEAYAp	plication/LLN0.URep		1		0	1		
AXONEAYAp	plication/LLN0.rcbCo	AXON8AYApplic	1		0	1		
AXON#A//Ap	plication/LLN0.rcbPr	AXON8AYApplic	1		0	<b>v</b>		
<b>AXONEAYAp</b>	plication/LLN0.rcbPr	AXON8AYApplic	4		0	1		
<b>AXONEAVAp</b>	plication/LLN0.8Rep		1		0	<b>a</b>		
<b>AXONEAVAD</b>	plication/LLN0.8Rep		1		0	<b>V</b>		



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	Name	Enabled	Data Type	Comment	
01	COMANDO_1		Single		
02	COMANDO_2		Single		
03	COMANDO_3		Single		
04	COMANDO_ACK		Ht16	•	
05	COMANDO_ACK_2		H32		
06	COMANDO_ACK_3		Float 32	•	
07	LOGICA_ACK_1		Single		
08	LOGICA_ACK_2		Single	•	
09	LOGICA_ACK_3				
10				•	
11					
12	OPTICAL_3		Single	•	
_				_	
	03 04 05 06 07 08 09 10	03 COMANDO_3 04 COMANDO_ACK 05 COMANDO_ACK 06 COMANDO_ACK 07 LOGICA_ACK_3 07 LOGICA_ACK_2 08 LOGICA_ACK_2 09 LOGICA_ACK_3 10 OPTICAL_3 11 OPTICAL_2	03     СОМИЛОД, АК     0       04     СОМИЛОД, АК     0       05     СОМИЛОД, АК     0       06     СОМИЛОД, АК     0       07     ГОЛСКД, АК     0       08     ГОЛСКД, АК     0       09     ГОЛСКД, АК     0       10     ОРТСКД, 1     0       11     ОРТСКД, 2     0	01     00044800_3     Stage       61     0044480_3     H15       65     0044480_3     H15       66     0044480_3     H15       67     004480_3     H16       68     004480_3     H16       69     0052_3     H16       60     0052_3     Stage       61     0052_3     Stage       62     0052_3     Stage       63     0052_3     Stage       64     0052_3     Stage       70     01752_3     Stage       71     01752_3     Stage	D     Control_3     Sepie       4     CONMOD_ACK     FH H       55     COMMOD_ACK_3     FH H       66     COMMOD_ACK_3     FH H       70     COMMOD_ACK_3     FH H       71     COMMOD_ACK_3     FH H       71     LOCL_ACK_3     Sepie       70     LOCL_ACK_3     Sepie       70     LOCL_ACK_3     Sepie       71     OTCL_1     Sepie

# **TECHNICAL SPECIFICATIONS**

Sotfware Axon Exchange

# > Licensing

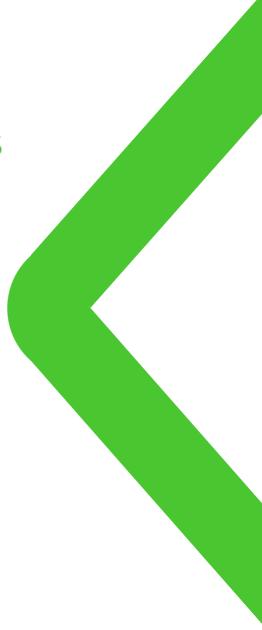
The Axon Exchange license allows full access to all design features of the Axon Exchange.

The user's licensing process can be through hardware or software and depends on:

• Number of tags: From 500 to 100.000 tags.

#### • Protocols

IEC 61850 (Client - Server) IEC 60870-5-104 (Master - Slave) DNP3 (Master - Slave) ICCP / TASE.2 (Server) Modbus (Master - Slave) IEC 60870-5-101 (Master - Slave) IEC 60870-5-104 Perfil Endesa (Slave) OPC DA (Client - Server) SNMP (Client) DLMS (Client)



# > Installation requirements

- Operating System: Windows 10 and Windows Server 2012 and later
- Hard Disk: 30 GB of free storage
- Processor: Intel AMD
- RAM: Minimum 1 GB free. Recommended 3 GB or more free
- Framework: Microsoft .NET 4.8
- Visual C++ 2013, Visual C++ 2019

# Bonus Advantage Axon Group





## **Contact us**

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