

SIC-A

Redundancy Protocols Gateway (PRP/HSR)



- SIC-A provides any-to-any protocol conversion that permit the integration of equipment with proprietary and legacy protocols in a modern infrastructure with the most recent protocols and redundant topologies.
- SIC-A can work as a multi-protocol converter, as an unmanaged Redbox or as a redundant protocol gateway.
- SIC-A can manage up to 3000 data points of the most common protocols (Modbus, IEC 60870, DLMS, DNP3, ...) or up to 800 data points of advanced protocols as IEC 61850.
- The device provides with HSR (High-availability Seamless Redundancy) is one of the chosen redundancy protocols for the substation automation as per the IEC 61850 standard. This redundancy is the evolution of the existing Parallel Redundancy Protocol (PRP).
- It is especially suited for applications that demand high availability and very short switch over time because it provides zero recovery time in case of the failure of any component. A good example of application may be the protection of automatized electrical substations or the control of synchronized drives, for instance.



Main applications SIC-A

• Redbox

SIC-A Working as a Redbox allows the connection of HSR networks with traditional ones.

In case of PRP redundancy, SIC-A is not denominated Redbox, it would be a device that allows the integration into 2 independent networks through a 3rd Ethernet port.

• Protocol Gateway

SIC-A device is able of communicating through serial communication RS-232 or RS-485 with multiple equipment with a Master serial protocol (Modbus, IEC69870-5-101, IEC60870-5-103, DLMS...) and dispose the information into an Ethernet protocol as IEC 61850 or IEC 60870-5-104. This way, devices with conventional protocols can be integrated in Ethernet networks with advanced protocols.

• Redundant Protocol Gateway

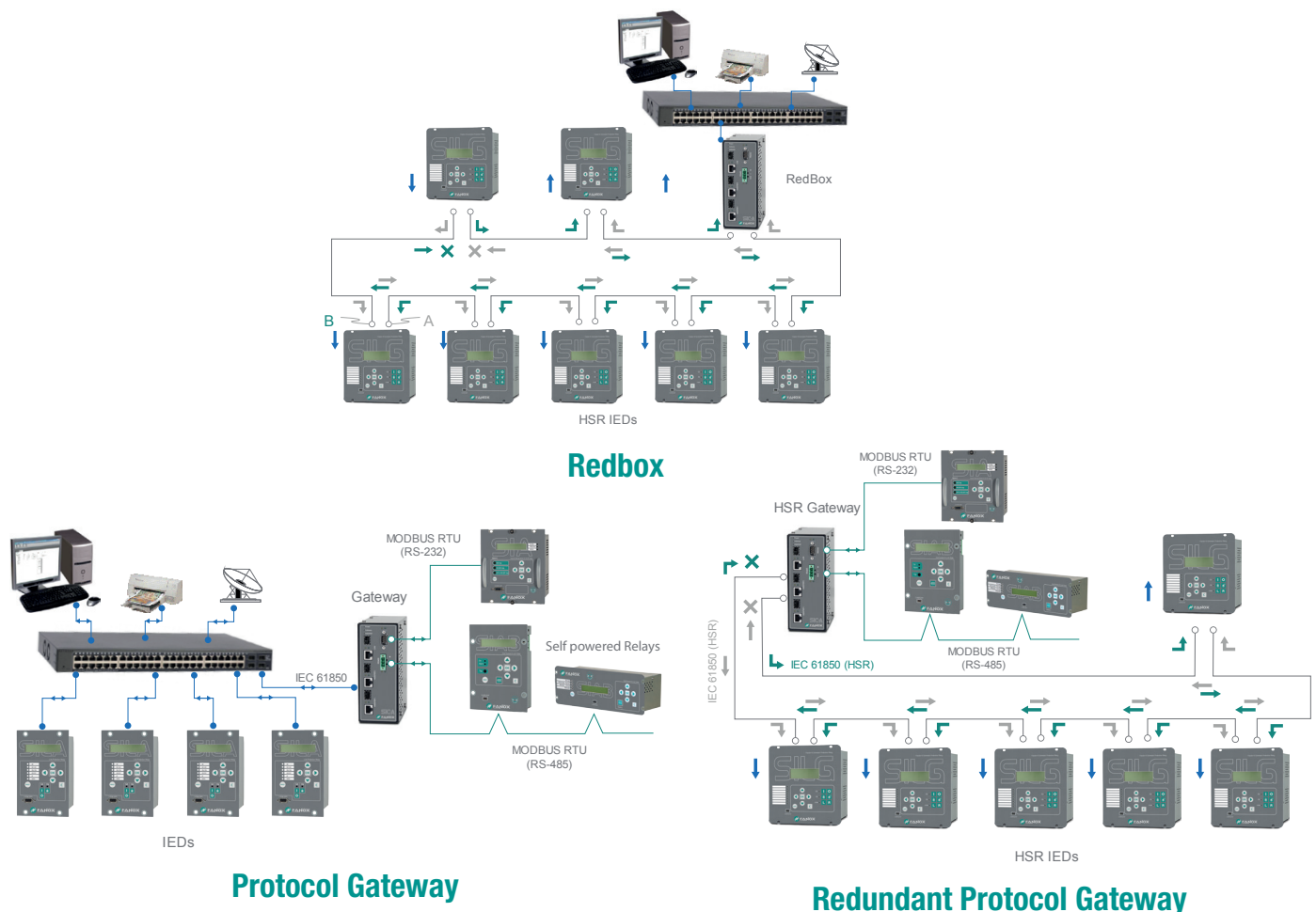
It is the result of the combination of the functionality of a Gateway and the HSR redundancy. With this configuration, SIC-A allows the integration of equipment with serial communications in a HSR redundant network with an advanced protocol as IEC 61850 or IEC 60870-5-104.

• Most complete topology

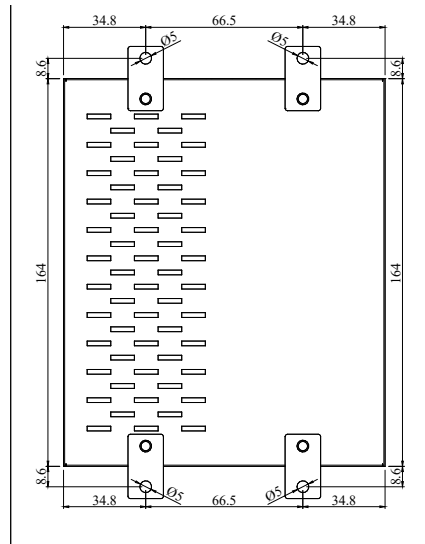
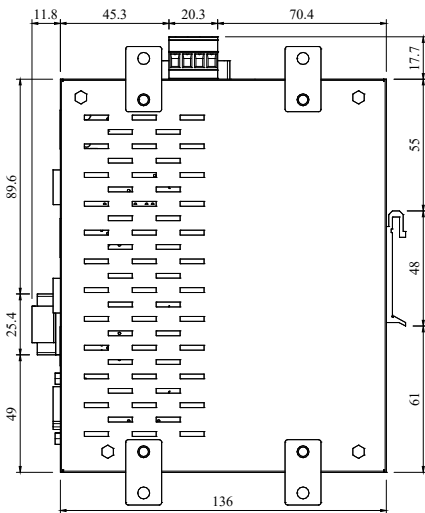
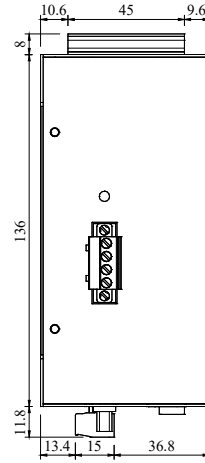
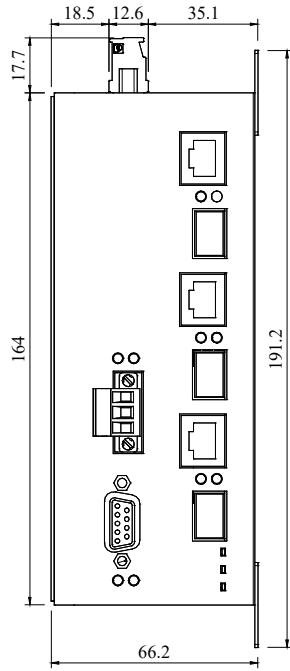
2 SIC-A in their topology of Redbox allow connecting a HSR redundant network with another PRP network.

This is a useful application that permits to coexist new networks with existing ones.

In the same way, SIC-A in its topology of PRP Gateway, would allow to integrate serial equipment with conventional protocols in a PRP network with an advanced Ethernet protocol as IEC61850, IEC 60870-5-104, etc.



Dimensions SIC-A



Technical parameters SIC-A

Purpose of device (*)	Redbox
	Protocol Gateway
	Protocol Redundant Gateway
Management	Easy Connect Configuration utility
System Protocols	TCP/IP, UDP/IP, SMTP, POP, HTTP, FTP, SNMP, ICMP, DHCP, BOOTP, Telnet, DNS, ARP, PPPoE, DDNS
Device Security	NERC/CIP Compliant, SSHv2
Communication Security	SSL based VPN tunnel using Blowfish/AES/3DES
Logic Programming	AND/OR/NOT/Bit SHIFT/Split/Index support for digital and analog data, Delay operations
Network Management	SNMP Agent
Protocol Support (*)	IEC 60870-5-101/103/104, DNP3 serial/TCP, Modbus RTU/ASCII/TCP, IEC 62056-DLMS, IEC 61850, IEC 61400
Supported Data Point	IEC 61850: 800
	DNP3, IEC 60870, Modbus and other proprietary protocols: 3000
Devices Supported	20 (10 over serial RS-485 recommended)
Serial interfaces (*)	1 RS-485 - Terminals and 1 RS-232- DB9
Ethernet interfaces (*)	1 RJ45 (10/100 Base-TX) or 1 SFP Cage (100Base-FX) 1300nm *
HSR/PRP interfaces (*)	2 RJ45 (10/100 Base-TX) or 2 SFP Cage (100Base-FX) 1300nm *
Redundancy (*)	Unmanaged. Compliant implementation of both PRP (IEC 62439-3-4) and HSR (IEC 62439-3-5).
Time Synchronization	NTC/SNTP/MEA, Protocol Specific (IEC 104,/DNP3, etc.)
	RTC on-board
Consumption	6 W maximum
Power supply (*)	24*-110 / 48-230 ±20%
Environmental conditions	Operating temperature: -40 to 85°C
	Storage temperature: -40 to 85°C
	Relative humidity: 95%
Mechanical characteristics	Metallic box
	Standard 35 mm DIN bar or Wall mounting
	Dimensions (HxWxD): 66.2x191.2x136
	Weight: 1 kg
	IP-20

(*) Optional depending on model

* SIC-A with functionality of Redundant protocol Gateway and Gateway using FO will require a minimum voltage supply of 48 Vdc for its correct working

Selection & Ordering data SIC-A

SIC-A

Redundancy Protocols Gateway (PRP/HSR)

1										FUNCTION Redbox Gateway Redundant Protocol Gateway
2										POWER SUPPLY 24*-230 Vac/dc
3	C									ETHERNET PORT N/A (For Redbox and Redundant protocol gateway application) RJ45 SFP** Cage
		A 0 1								REDUNDANT PORT N/A ("For Gateway application") RJ45 + SFP** Cage ("For Redbox and Redundant gateway application")
			0 1							SERIAL PORTS N/A (For Redbox application) RS232 (DB9) + RS485 (Terminal)
				A B						REDUNDANCY TYPE N/A HSR PRP
					0 1 2					MASTER / CLIENT PROTOCOL None Modbus IEC 60870-5-103 DNP3.0 IEC 60870-5-101 DLMS/COSEM IEC 61850 IEC 60870-5-104 Several Protocols
						A B C D E F G H 2				SLAVE / SERVER PROTOCOL None IEC 61850 DNP3.0 IEC 60870-5-104 Modbus DLMS/COSEM IEC 60870-5-101 Several Protocols
									A	ADAPTATION -

Example of ordering code:

2	C	0	0	B	0	B	C	A	SIC A 2 C 0 0 B 0 B C A
SIC-A									

NOTES:

(*) SIC-A with functionality of Redundant protocol Gateway and Gateway using FO will require a minimum voltage supply of 48 Vdc for its correct working.

(**) The SFPs for the models with optical fiber should be included by the user.

