iGW

Smart and adaptable protocol conversion for highly efficient gateway solutions.

Simple IEC 61850 Integration

- **Adaptable and modular Remote Telecontrol Units** suitable for all environments.
- **Full range of protocols (DNP3.0, ICCP/TASE .2, IEC 61850, IEC 60870-5…)** to communicate with all devices and control centers.
- **Embedded Ethernet switch with 10/100 BaseTx, FX100 fiber optics** and **RSTP/ PRP/ HSR** redundancy.
- The **Hot-Standby** and **Hot-Hot** architectures of the **iGW** ensure high availability and operational continuity, enabling automatic or manual switchover between redundant units without data loss or service interruption.

The iGW is a gateway —a specialized communication unit for electrical systems— designed to enable seamless data conversion between multiple communication protocols. It offers robust protocol conversion capabilities, network redundancy, and advanced SCADA automation features, including support for IEC 61850. This makes it an ideal solution for setting up, automating, or retrofitting generation plants, substations, and other control networks that require interoperability between different protocols, such as Modbus to Ethernet or IEC 61850 to DNP3.

An architecture based on iGWs is open, efficient and scalable, as it allows to integrate coming generations of devices (IEDs, sensors, routers etc.) and adapt to any kind of network changes, saving you lots of time and money.

COMMUNICATION PROTOCOLS & IP NETWORKING

The iGW was designed to use a high number of protocols and communicate with several control centers at once.

It is equipped with transparent TCP bridging and configurable IP routing to tunnel any serial protocol (such as Modbus) over a TCP/IP connection and facilitate the control of complex IP networks.

The iGW IEC 61850 client capabilities have been A level certified by DNV-KEMA.

TIME MANAGEMENT

The iGW manages a broad range of time synchronization methods with fault tolerant priority schemes (NTP, IEE-E1588/ PTP, IEC60870-5-101, DNP 3.0) to ensure that your network is synchronized and you can retrace any network failures.

The time stamp accuracy of the iGW is superior to one 1ms and has a 1 microsecond resolution. In case the time server fails, the iRTU can rely on its high accuracy real time clock (1.5ppm) as a backup.

COMMUNICATION PORTS

The iGW comes with 2 independent 10/100 BaseTX Ethernet ports (two different MAC addresses). iGW-S series use one of these ports to extend the number of ports with an internal switch to provide RSTP/PRP/HSR redundancy, Redbox function and fiber optic ports.

Additionally, the iGW carries (4) software configurable serial ports to connect iRTUe models:

(1) full RS-232 (8 signals)/RS-485/RS-422 + (3) basic RS-232 (TX,RX,RTS,CTS)/RS-485/RS-422 and (1) RS-422/RS-485 port for iRTUe I/O modules expansion.

CYBER SECURITY – IEC 62443 & IEC 62351

iGrid enforces several layers of security measures guided by the propositions of the IEC 62443 and IEC 62531 standards to protect its devices from all kinds of threats.

The iGW is a hardened device featuring Role Based Access Control (RBAC) to avoid intrinsic risks such as security holes and unauthorized actions by authenticated users. Beyond encryptions via TSL/SSL, HTTPS, SSH and VPN support (e.g. OpenVPN), its communication can also be secured with network control methods such as firewalls, IP filters, ACL or TCP port blocks.

IEC 61131-3 PLC AUTOMATION

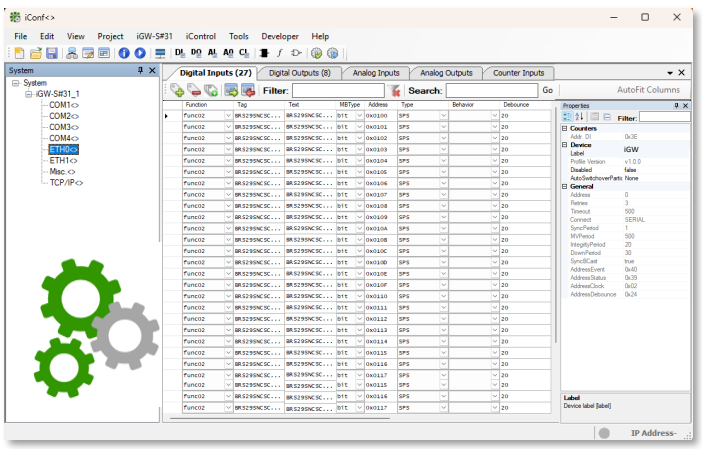
Thanks to its internal PLC based on IEC 61131-3, the iGW can provide powerful automation and control functionalities.For example, you can easily reuse programs on different projects, run multiple PLC instances simultaneously or use triggered variables for control commands and set points. It also allows to run hot program updates, stop PLC executions depending on the quality of selected PLC inputs and debug PLCs online, either cycle-by-cycle or step-by-step. The iGW has a high execution speed – a 2000 ST lines program takes less than 3ms.

iGW REDUNDANCY ARCHITECTURE

The iGW device supports both Hot-Standby and Hot-Hot redundancy architectures to ensure high system availability, fault tolerance, and uninterrupted operation.

Automatic switchover logic can be customized depending on the system needs.

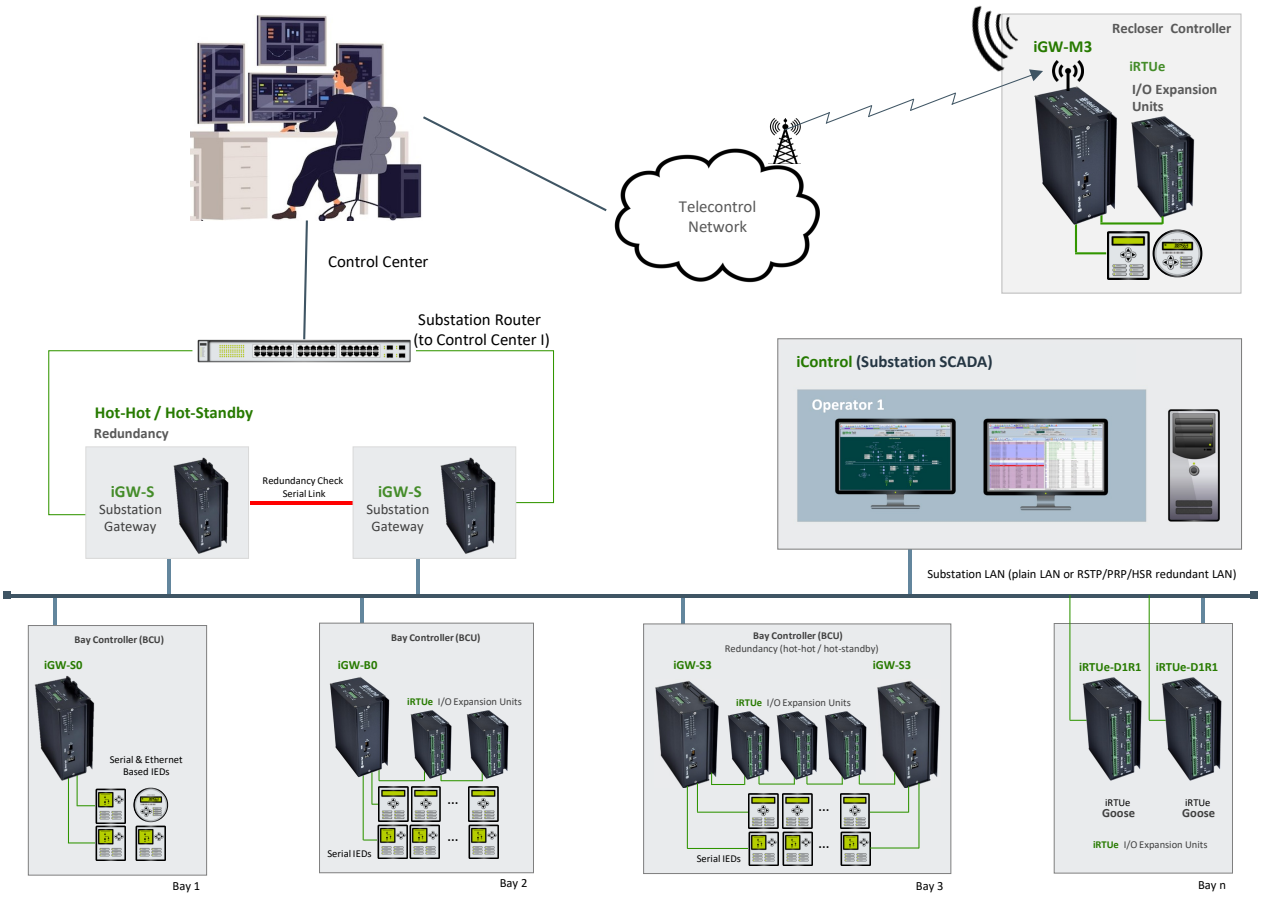
Hot-Hot mode enables parallel operation and ensures seamless failover with realtime syncronization, while Hot-Standby allows to implement redundancy in any kind of system.



CONFIGURATION WITH iCONF

The **iGW** features **iConf**, a powerful configuration tool tailored for electrical automation systems. It simplifies setup and maintenance, reducing engineering time, costs, and project risk. **iConf** supports uploading/ downloading configurations, importing or scanning SCL (IEC 61850) files, and creating reusable templates—enabling faster deployments while ensuring consistency and reliability across multiple installations or projects.

SUBSTATION SCHEMA WITH **iGW** FUNCTIONING AS BAY CONTROLLER UNIT



iGW (B, S, M) SERIES COMMON FEATURES

GENERAL

(4) Software configurable serial ports with LEDs:

- **(1)** Full RS-232/ RS-422/ RS-485 serial port
- **(2)** Basic RS-232/ RS-422/ RS-485 serial ports
- **(1)** RS-422/ RS-485 serial port (EXP-422 port*)

(1) USB port to connect peripheral devices

(1) MGMT port (MiniUSB connector) for local maintenance

(1) internal MicroSD slot for up to 16 Gb of data storage

*For iRTUe connection

CAPABILITIES

iGW B

(2) 10/100BaseTX Ethernet ports (RJ45 connector)

iGW S

The **S Series** carries the B0 ports, replacing one of the two independent Ethernet ports with an embedded Ethernet switch, which provides:

S01 – (3) 10/100BaseTX RJ connectors (2) FX100 ports with HSR/PRP redundancy and SC, ST or SFP connectors

S31 – (2) 10/100BaseTX RJ connectors and (2) FX100 ports with RSTP redundancy and SC, ST or SFP connectors

iGW M

The M series replaces one of the serial ports with an internal modem.

M31 — (LTE Cat 1 (4G) with 2G/3G fallback)

PROTOCOL STACK

Master DLMS	Master Spabus	Slave OPC UA Client
Master IEC 60870-5-102	Master/Slave IEC 60870-5-101	SNMP Agent/Manager
Master IEC 60870-5-103	Master/Slave IEC 60870-5-104	TASE2.0/ICCP
Master IEC 62056-21	Master/Slave ModbusRTU	IEC 61850 MMS Client/Server
Master Procome	Master/Slave OPC UA	Master/Slave MQTT*
Master/Slave DNP3.0 (serial, UDP, TCP)	IEC 61850 GOOSE Publisher/ Subscriber	Master/Slave Modbus TCP/ UDP and JBUS (master)

*Implementation of non standard packaged data payload under quotation

IGCOMMS SOFTWARE APPLICATION

Redundancy deployable on a Hot-Standby and Hot-Hot configuration.

Security IEC 62443-4-1, IEC 62443-4-2, IEC 62351-3, IEC 62351-8 and IEC 62351-5 support, including TLS/SSL, SSH and VPN connections.

IEC 61131-3 automation logic and PLC programming, with LD, IL, FBD, ST and SFC editor.

LUA language can be used to create simple and complex logic and mathematical expressions.

COMMUNICATION PORTS & CPU

Serial up to 4 software configurable ports with RS-232/RS-485/RS-422 .

Ethernet (B Series) (2) 10/100BaseTX ports with two independent MAC addresses.

Ethernet switch (S Series) up to (4) 10/100BaseTX ports with RJ45 connection and (2) FX100 with ST, SC connectors or SFP interface, and supporting RSTP, HSR and PRP redundancy.

Modem: LTE Cat 1 global worldwide connectivity with 2G/3G/4G .

CPU ARM Cortex-A7 @ 528MHz, with 128 MBytes Flash and 256MBytes RAM.

CONFIGURATION & MAINTENANCE

Easy configuration with **iConf** tool

Internal web server, allowing real time monitoring of the system and all its internal parameters

Command console with full information on packet exchanges, with all available protocols

Local or remote maintenance via USB or Ethernet port

GENERAL CHARACTERISTICS

Power supply 24 : 19.5-60 Vdc (2.5kVrms isolation)

Power supply W : wide range, 32 - 250 Vdc (2.5kVrms isolation)

MTBF 177,000h (one hundred seventy-seven thousand hours)

Physical External dimensions: 173 x 78.4 x 137 mm (H x W x D) IP30 enclosure with DIN Rail mounting

Operating temperature : -25ºC to +70ºC

EMC STANDARDS

- IEC 61000-4-2
- IEC 61000-4-3
- IEC 61000-4-4
- IEC 61000-4-5
- IEC 61000-4-6
- IEC 61000-4-8
- IEC 61000-4-9
- IEC 61000-4-10
- IEC 61000-4-12
- IEC 61000-4-16
- IEC 61000-4-17
- IEC 61000-4-18
- IEC 61000-4-29
- CISPR 32

ENVIRONMENTAL STANDARDS

- IEC 60068-2-1
- IEC 60068-2-2
- IEC 60068-2-14
- IEC 60068-2-30
- IEC 60068-2-38
- IEC 60068-2-78

VIBRATION & SHOCK TEST STANDARDS

- IEC 60068-2-6
- EN 60068-2-27
- EN 60068-2-64
- EN 60255-21-1
- EN 60255-21-2

SAFETY STANDARDS

- IEC 60255-27

RTC & TIME SYNCHRONIZATION

Real-time Clock (RTC) with 1.5 ppm drift and microsecond resolu-

Client IEEE 1588(PTP), SNTP, IEC 60870-5-101, IEC 60870-5-104,

Server IEEE 1588(PTP), NTP, IEC 60870-5-101, IEC 60870-5-102, IEC 60870-5-103, IEC 60870-5-104 DNP3.0, DLMS, Spabus and Procome

ORDERING INFORMATION

iGW - b # b b v v f s

MAIN BOARD & COMMUNICATIONS

B#01	(2) 10/100BaseTX RJ45 Ethernet + (4) serial RS232/RS485/RS422 ports
S#01	PRP/HSR switching, (4) 10/100BaseTX, (2) FX100 Ethernet, (4) serial RS232/ RS485/RS422 ports
S#31	RSTP switching, (3) 10/100BaseTX, (2) FX100 Ethernet, (4) serial RS232/S485/ RS422 ports
M#31	LTE Cat 1 (4G) global worldwide connectivity with 2G/3G fallback, (2) 10/100BaseTX RJ45 Ethernet, (3) serial RS232/RS485/RS422 ports

POWER SUPPLY

24	19.2-60 Vdc
WV	32-250 Vdc / 80-230 Vac

SD CARD

0	No SD memory
S	Internal industrial grade 16GB microSD card (32GB on demand)

FIBER OPTICS (S MODELS)

0	No fiber optic connectors
T	ST connectors
C	SC connectors
F	SFP interface