

RTUs for Substation Automation



Overview

A distributed control architecture based on **iRTU** telecontrol units complies with the basis of scalability and modularity, providing a complete solution open to any technology and communication media.

iRTU Series products may perform different functions within a facility based on their configuration. They can be used as Remote Terminal Units (RTU), concentrators of data from other devices (gateways) or BCU (bay control unit), complying at all times with the required power transmission and distribution industry standards, on any voltage level.

Highlights

- Smart and modular remote telecontrol units suitable for HV Substation Automation and Telecontrol of MV grids.
- High scalability and optimal adaptation to any particular need.
- Availability of multiple communication options including embedded Ethernet switches, built-in 4G/3G/GPRS modem.
- High I/O density. **iRTU** devices provide I/O capabilities for direct data acquisition which can be expanded by using **iRTUe** devices.

Features

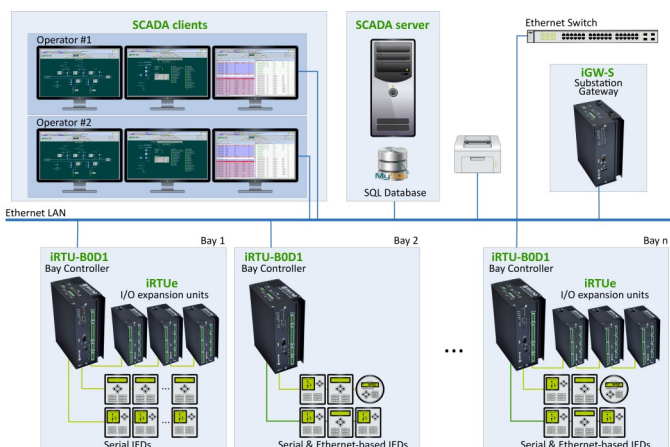
- IEC 62351 Cyber security compliance (TLS/SSL, VPN, SSH, HTTPS, RBAC, ACL).
- IEC61850-3 EMC compliant.
- IEC61131-3 PLC automation programming.
- IEEE1588 and NTP time synchronization.
- Microseconds timestamp resolution and high accuracy RTC with 1.5ppm time drift.

- Two separate Ethernet interfaces with independent MAC address and multiple IP address configuration.
- Internal switch with HSR/PRP/RSTP redundancy.
- Multiple communication media support (serial, 10/100TX Ethernet, FX100 Ethernet, GPRS, 3G and 4G modems).
- Support for VLAN and VPN connections.
- Transparent TCP bridging.
- Full range of communication protocol stack, including IEC60870-5-101, IEC60870-5-102, IEC60870-5-103, IEC60870-5-104, IEC61850 MMS client/server, IEC61850 GOOSE publisher/subscriber, Modbus RTU/TCP, DNP3.0 (serial and TCP), DLMS, IEC62056, Profibus, JBUS and Procome, in order to ensure the communication with new and legacy IEDs and SCADA master stations.

- Flexible I/O configuration with **iRTUe** modules.
- Hot-standby redundancy schema.

Internal I/O boards

- **Digital inputs - D1:** 24 digital inputs.
- **Combined I/O - C1:** 8 digital inputs, 4 relay outputs and 2 DC current analog inputs.



Specification Sheet

General	Configuration & Maintenance	Easy configuration with iConf tool. Internal web server, allowing the real time monitoring of the system and all internal parameters. Command console with complete information of packet exchange, on all available protocols. Local or remote maintenance connection using USB or Ethernet ports.	
	RTC	High accuracy real time clock with 1.5ppm drift and microseconds resolution timestamp.	
	CPU features	ARM Cortex-A7 @ 528MHz, with 4GBytes Flash and 256MBytes RAM.	
	Communication ports options	Serial ports: up to 4 ports with RS232/RS485/RS422 selected by software. Wireless connection: internal 4G(LTE), 3G and GPRS modem. Ethernet: (2) 10/100BaseTX ports with independent MAC addresses. Internal Ethernet Switch: 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 configurations.	
iGComms Software application	Time synchronization	Server: NTP, IEC60870-5-101, IEC60870-5-104, DNP3.0, NTP. Client: IEEE1588(PTP), SNTP, IEC60870-5-101, IEC60870-5-102, IEC60870-5-103, IEC60870-5-104, DNP3.0, DLMS, Procome and Profibus DP.	
	Redundancy	iRTU can be deployed on a hot-standby configuration, and including an optional redundant power supply.	
	iGComms communication stack	Master/Slave IEC60870-5-101 Master/Slave DNP3.0 (serial, UDP, TCP) Master/Slave Modbus TCP/UDP and JBUS (master) Master IEC60870-5-102 Master Profibus DP Master IEC62056-21 IEC61850 MMS Client/Server	Master/Slave IEC60870-5-104 Master/Slave ModbusRTU Master IEC60870-5-103 Master DLMS Master Procome SNMP Agent/Manager IEC61850 GOOSE Publisher/Subscriber
	Security	IEC 62351-3 and IEC 62351-5 support, including TLS/SSL, SSH and VPN connections.	
	IEC61131-3 Automation	Logic and PLC programming, with LD, FBD, ST and SFC editor.	
	Logical and mathematical expressions	LUA language for creating simple and complex logic and mathematical expressions.	
Device features	Power consumption	Depending on the model.	
	Power supply	W : wide range, 32 - 250Vdc / 80 - 250Vac (2.5kVrms isolation) 24 : 19.5-60Vdc (2.5kVrms isolation)	
	EMC type test	IEC 60950-1, IEC 60255-5:2000, EC 60255-22:2000, EN 55022, IEC 61000-6-4, IEC 61000-6-5, 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	
	Environmental	Operating temperature : -25°C to +70°C IEC 60068-2-1, IEC 60068-2-2, IEC 60068-2-3, IEC 60068-2-14, IEC 60068-2-30, IEC 60068-2-38	
	Vibration & Shock test	IEC 60068-2-6, IEC 60068-2-7	
	Physical	External dimensions: 173 x 137 x 78.4 (mm) DIN Rail mounting	

Ordering information	iRTU-b#bbiivvwwfs		
	Main board + communications B#01 : (2) 10/100BaseTX RJ45 Ethernet + (4) serial RS232/RS485/RS422 ports S#01 : PRP/HSR switch with (4) 10/100BaseTX and (2) FX100 Ethernet + (4) serial RS232/RS485/RS422 ports S#31 : RSTP switch with (3) 10/100BaseTX and (2) FX100 Ethernet + (4) serial RS232/RS485/RS422 ports M#01 : 2G modem + (2) 10/100BaseTX Ethernet + (3) serial RS232/RS485/RS422 ports M#11 : 3G modem + (2) 10/100BaseTX Ethernet + (3) serial RS232/RS485/RS422 ports M#21 : 4G modem + (2) 10/100BaseTX Ethernet + (3) serial RS232/RS485/RS422 ports	SD card S : Internal 8 GB microSD card 0 : No SD card	
	I/O board D1 : 24 digital inputs C1 : 8 digital inputs + 4 relays + 2 4-20mA DC analog inputs	Fiber optic interfaces (S models) T : ST connectors C : SC connectors F : SFP interface 0 : No fiber optics available	
	Power supply 24 : 19.2-60 Vdc WV : 32-250Vdc // 80-250Vac	Digital inputs voltage 024 : 24Vdc digital inputs 048 : 48Vdc digital inputs 125 : 125Vdc digital inputs 220 : 220Vdc digital inputs	