

RTUs for Substation Automation



Overview

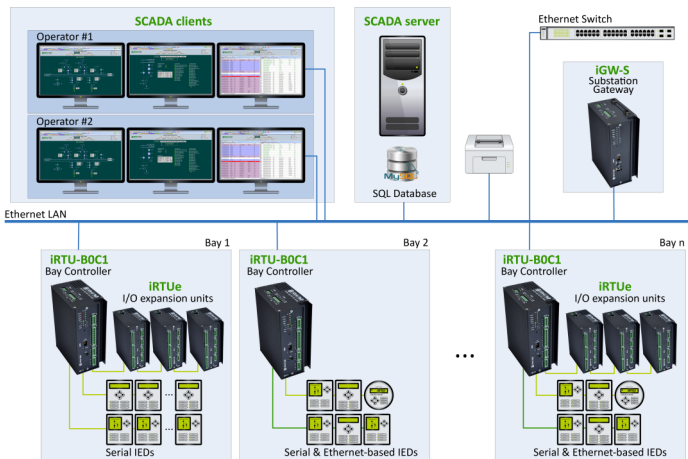
A distributed control architecture based on iRTU telecontrol units complies with the basis of scalability and modularity, providing a complete solution open to any technology and communication media. iRTU Series products may perform different functions within a facility based on their configuration: they are able to operate as Remote Terminal Units (RTU), as concentrators of data from other devices (gateways) or as a 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 GPRS or PSTN modems.
- iRTU family may perform different functions within a facility based on their configuration. They can be used as remote telecontrol units, substation gateways, I/O IEDs, bay controllers, protocol converters, etc.

Features

- Multiple simultaneous control centers, with one or more communication protocols.
- IEC61850-3 EMC compliant.
- Communication ports: 10/100BaseTx Ethernet port (RJ45 connector) and RS232/485/422 serial ports.
- IEC61131-3 PLC automation programming.
- Real time processing with 1ms accuracy.
- Real time clock with 1.5ppm time drift.
- iRTU-BOC1 models come with a full range of protocols 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 and Procome, in order to ensure the communication with new and legacy IEDs and SCADA master stations.
- Digital inputs:
 - 8 isolated (2.5kVrms) digital inputs.
 - Rated input voltage options: 24, 48, 110, 125 or 220Vdc.
 - ON (activation) voltage: $V_i > 85\%V_n$.
 - OFF (deactivation) voltage: $V_i < 60\%V_n$.
 - 1 ms accuracy.
- Relay outputs:
 - 4 relay outputs.
 - Dry contact electromechanical relay.
 - Max. rating: 8A @ 220Vac; 8/0.3/0.12A @ 30/110/220Vdc.
 - Isolation between solenoid and contacts: 6 kV.
- Analog inputs:
 - 2 isolated (2.5kVrms) analog inputs of ± 20 mA range.
 - Precision better than 0.15%.



Specification Sheet

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|------------------------------|---|---|-----------------------------|-----------------------------|--|------------------------|-----------------------------|-----------------------|-----------------------|-------------|--------------------|----------------|--------------------|--------------------|----------------------------|-------------------------------------|
| General | Configuration & Maintenance | Easy configuration with our free iConf tool. 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. | | | | | | | | | | | | | | |
| | Web Browser Viewer | Internal web server, allowing the real time monitoring of the system and all internal parameters. | | | | | | | | | | | | | | |
| | CPU features | ARM9 @ 400Mhz, with 256Mbytes Flash and 128Mbytes RAM. | | | | | | | | | | | | | | |
| | Communication ports | - (1) Ethernet 10/100BaseTX port (RJ45). - (4) Serial ports (2.5 kVrms isolation) with TX/RX LED indicators: <ul style="list-style-type: none"> • (1) Full RS232/RS422/RS485 software configurable. • (2) Basic RS232/RS422/RS485 software configurable. • (1) RS422/RS485 (EXP422 port) software configurable, for connection to iRTUe I/O modules. | | | | | | | | | | | | | | |
| | I/O | - (8) isolated (2.5kVrms) digital inputs with 1 ms accuracy. Rated input voltage: 24 Vdc, 48 Vdc, 110Vdc, 125 Vdc or 220Vdc. ON (activation) voltage: $V_i > 85\%V_n$; OFF (deactivation) voltage: $V_i < 60\%V_n$. Connector: MVSTBR 2,5 9 pins. - (4) relay outputs, dry contact electromechanical relay type. Isolation between solenoid and contacts of 6 kV. Breaking capacity: 8A @ 220Vac; 8/0.3/0.12A @ 30/110/220Vdc. - (2) DC current analog inputs @ 20 mA. 2.5kVrms isolation and precision better than 0.15%. | | | | | | | | | | | | | | |
| iGComms Software application | Time synchronization | SNTP (client and server), 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 include redundant power supply. | | | | | | | | | | | | | | |
| | iGComms communication stack | <table border="0"> <tr> <td>Master/Slave IEC60870-5-101</td> <td>Master/Slave IEC60870-5-104</td> </tr> <tr> <td>Master/Slave DNP3.0 (serial, UDP, TCP)</td> <td>Master/Slave ModbusRTU</td> </tr> <tr> <td>Master/Slave Modbus TCP/UDP</td> <td>Master IEC60870-5-103</td> </tr> <tr> <td>Master IEC60870-5-102</td> <td>Master DLMS</td> </tr> <tr> <td>Master Profibus DP</td> <td>Master Procome</td> </tr> <tr> <td>Master IEC62056-21</td> <td>SNMP Agent/Manager</td> </tr> <tr> <td>IEC61850 MMS Client/Server</td> <td>IEC61850 GOOSE Publisher/Subscriber</td> </tr> </table> | Master/Slave IEC60870-5-101 | Master/Slave IEC60870-5-104 | Master/Slave DNP3.0 (serial, UDP, TCP) | Master/Slave ModbusRTU | Master/Slave Modbus TCP/UDP | Master IEC60870-5-103 | Master IEC60870-5-102 | Master DLMS | Master Profibus DP | Master Procome | Master IEC62056-21 | SNMP Agent/Manager | IEC61850 MMS Client/Server | IEC61850 GOOSE Publisher/Subscriber |
| | Master/Slave IEC60870-5-101 | Master/Slave IEC60870-5-104 | | | | | | | | | | | | | | |
| | Master/Slave DNP3.0 (serial, UDP, TCP) | Master/Slave ModbusRTU | | | | | | | | | | | | | | |
| | Master/Slave Modbus TCP/UDP | Master IEC60870-5-103 | | | | | | | | | | | | | | |
| | Master IEC60870-5-102 | Master DLMS | | | | | | | | | | | | | | |
| Master Profibus DP | Master Procome | | | | | | | | | | | | | | | |
| Master IEC62056-21 | SNMP Agent/Manager | | | | | | | | | | | | | | | |
| IEC61850 MMS Client/Server | IEC61850 GOOSE Publisher/Subscriber | | | | | | | | | | | | | | | |
| Security | IEC 62351-3 and IEC 62351-5 support, including TLS/SSL and VPN connections. | | | | | | | | | | | | | | | |
| IEC61131-3 Automation | Logic and PLC programming is available in iRTU applications. | | | | | | | | | | | | | | | |
| Calculations and formulas | Using iConf and LUA language, simple and complex formulas can be setup. | | | | | | | | | | | | | | | |
| Device features | Power consumption | Less than 3W. | | | | | | | | | | | | | | |
| | 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) | | | | | | | | | | | | | | |
| | | Rail mounting. | | | | | | | | | | | | | | |
| Ordering information | iRTU-BOC1-Z.V | <p>Z: Power supply options: 24: 19.5 - 60 Vdc W: 32 - 250 Vdc / 80 - 250 Vac</p> <p>V: Digital inputs nominal voltage options: 24, 48, 110, 125 or 220Vdc</p> <p>Examples: iRTU-BOC1-W.48, iRTU-BOC1-24.24, iRTU-BOC1-W.220</p> | | | | | | | | | | | | | | |