RTU500 series
Release 12.0, news
Agenda
RTU500 series Release 12.0

New Web Server Interface
Pre-configured RTU520
New modules
Cyber security enhancements
New test functions
Summary
New Web server interface
Look and feel

- User Centric Design
- Future proof → HTML5
New Web server interface
Role switching

- Easy role switching without logout
- Role based access control (RBAC) according to international standard IEC 62351
New Web server interface
Backup and Restore

- Restore functionality with one click
- Drag and drop functionality
New Web server interface

Multilanguage

- Multiple language
Pre-configured RTU520
Application specific engineering

Challenge in distribution applications
Big engineering efforts due to large number of similar RTUs with little variations
How will you be able to handle this easily and save costs in engineering?

Totally new approach
Clear split between
- engineering (pre engineered solution) and
- final configuration (change of local parameters)
Pre-configured RTU520
Fast and easy configuration of large number of RTUs
Pre-configured RTU520
Pre engineered solution

- Pre engineered solution: creation of standard solution (trained user)
  - Selecting of changeable parameters
  - Store configuration including PLC directly on SD card
- Local parameter change by simple handling guide (untrained user)
- No separate RTU basic training required

Benefit:
- Simple adaptation of typical solution to local conditions without special know-how
- Also possible from remote
- Saves time during project execution
Pre-configured RTU520
Few steps to configure local parameters

- Login
- Verify
- Change parameters
- Finalize

Hardware verification
Pre-configured RTU520 Engineering

Highlights

- Store configuration including PLC directly on SD card
- Easy handling for installation staff
- Documentation of site specific parameter changes included
- Minimize of sources of trouble
- Reducing of engineering time
- Tailored project specific solutions

See also in YouTube:
Pre-configured RTU520 - Fast and easy configuration
RTU500 series modules
New design, more power and less consumption

Highlights

- New RTU560 processors enabling
  - Improved IEC61850 performance - 3 to 4 times more processing capacity (ARM Processor)
  - Less power consumption – about 50% reduction
  - More capacity
- All new devices with integrated USB interface and SD cards
  - 560CMR01: Communication unit (CMU) for RTU560, 2 serial ports (RS232/RS485), 2 Ethernet ports
  - 560CMR02: Communication unit (CMU) for RTU560, 6 serial ports, 2 Ethernet ports
RTU500 series modules
New design, more power and less consumption

New and redesigned DIN-Rail modules

- New processor enabling improved IEC61850 performance
- Reduced power consumption – reducing battery capacity
- Easy access for parameter settings – DIP switches now external
- Further flexibility with 24-125 VDC power input
- Additional USB interface and now with SD license card
- 540CID01: DIN rail base module with 2 Ethernet ports, 4 serial, integrated I/O
- 540CMD01: DIN rail base module with 2 Ethernet ports, 4 serial, gateway
RTU500 series modules
Keep it small and simple

Highlights

- Simplifying the RTU560 Rack solutions
  - Direct 110/125VDC in Binary Input board
  - Reduce cubicle space - external interposing relays
  - 560BIR01: 16 Binary Inputs for 16 channels @ 110/125VDC

- Enhancing DIN-Rail solutions (RTU520/RTU540)
  - Now extending command output monitoring for 1 out of n check – even more security
  - Allowing 1,5 pole connections - and increasing 4 digital outputs per board
  - Space savings in cubicle design
  - 520CSD01: command output monitoring (1 out of n check) and 4 binary outputs
RTU500 series modules
New Starter Kit

RTU520 starter Kit

- Learn how to configure your RTU520 in few simple steps
- Ready-to-Use Set includes PC cable and USB driver
- Watch the video [here](#)
- Your RTU520 is ready to Go!!
Cyber security enhancements
More than 15 years experience

Rel. 2.0, Jan. 2000
Rel. 10.0, June 2010
Rel. 10.2, Aug. 2011
Rel. 11.0, Jan. 2014
Rel. 12.0, 2016
Cyber security enhancements
Covering all Security Areas

- Product Hardening
  - Patch Management
  - Virus Protection
  - Backup, Recovery
  - Logging
  - Auditing
  - User Access
  - Secure Communication
  - Firewall
Cyber security enhancements
Highlights

- Modern User interface based on newest technology
  no more Java
- Update to the newest encryption algorithm and key length based on „Enisa“ recommendation (https://www.enisa.europa.eu)
- BDEW White paper conformance (annotation paper available)
- Secure communication based on IEC 62351-3 ready for test (IEC870-5-104)
- Secure network authentication based on 802.1x standard
- New harmonized security events  (Firmware transferred to the device successfully, instead of using upload/download)
- Extra Info added, e.g. firmware version number
Cyber security enhancements
Secure Communication

Known errors for https connections?
- Message “Certificate error”

Solution
- RTU500 series provide secure remote access:
  - Web server of RTU500 series is always accessible via secure HTTPS protocol
  - Customer specific HTTPS certificates could be distributed to each individual RTU
  - Customer specific HTTPS certificates could be easy created with SDM600

SDM600
Cyber security enhancements

Firewall

- Self configuring Firewall
  - Define via configuration that a protocol e.g. IEC60870-5-104 could be communicate only via one Ethernet interface (E1)
  - Define via configuration that web server is only accessible via dedicated Ethernet interface (E2)

- Firewall rules are automatically applied referring to RTU configuration

→ For more information see the RTU cyber security webinar record and slides
New Test function
New approach

Old

- Complex
- Time consuming
- High operational costs

New

- Safe
- Fast & Easy
- Cost efficient
New Test function
Test function concept

- Supports testing of all common signal types and qualifiers: SPI, DPI, SCO, DCO, AMI, MFI, ITI… etc.
- Unique feature: test System Events (SEV) and Security Events!

See how-to videos
- Monitoring and control simulation
- System event simulation
- Security event simulation
New Test function
Activation and traceability

1. Simulation mode active icon
2. Simulation summary
3. Simulation options/stop simulation

- Secure activation (simulation mode has to be actively enabled)
- Overview at a glance – summary of currently simulated signals
- Traceability - simulation activation/deactivation visible in security log
- Failsafe - simulation mode automatically ends once web server session is closed
## New Test function Highlights

<table>
<thead>
<tr>
<th>Key feature</th>
<th>User benefit</th>
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<tbody>
<tr>
<td>Testing RTU functions in office environment</td>
<td>✅ Easy &amp; Safe testing environment</td>
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<tr>
<td>Remote access via Web Interface</td>
<td>✅ Additional hardware no longer required</td>
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<td>Log files of the test cases</td>
<td>✅ Automatically generated Test reports</td>
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<tr>
<td>Applicable in <strong>all RTU500</strong> series</td>
<td>✅ Significant time reduction during engineering, testing, commissioning, FAT, SAT processes</td>
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- Simulation of system & cyber security events
- Simulation of qualifiers
- Test reports
RTU500 series
Portfolio and positioning

RTU500 series modules

RTU500 series functions and software

RTU560 product line

RTU540 product line

RTU520 product line

Feeder automation
Secondary distribution substations
Primary distribution substations
Transmission / sub transmission
Summary
new features

- Test function
  - System and Cyber security events
- Cyber security
  - Self configuring Fire Wall
- Hardware design
  - Wide range power supply for RTU540
- Distribution engineering
  - Check if hardware matches configuration
- Web server
  - User Centric Design
  - Restore and backup Configuration functionality