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Toshiba 'Micro-EMS' for Smart Grid

Smart Grids - with the introduction of renewable generation and the subsequent problems caused by intermittency on the demand-supply balance Toshiba have introduced a 'Micro-EMS' which will reduce the impact of power fluctuations on power system frequency and voltage.

Sudden changes in the weather have an immediate impact on the output of renewable generation such as wind and photovoltaic. Distribution

networks and micro-grids must deal with these new operational problems, each local grid becoming responsible for its power balance as a Smart Grid. Toshiba's 'Micro-EMS' helps achieve this by supporting battery storage systems to respond quickly to meet the power imbalance within the target grid.

'Micro-EMS' also provides other EMS functions such as Generation Scheduling, Economic Load Dispatch and Load Frequency Control.

6 Next Generation of Substation Automation

The new SEL-3530 Real-Time Automation Controller (RTAC) is a complete substation automation platform that incorporates state-of-the-art communications, security, and custom logic into exceedingly simple configuration software. The RTAC is the industry's first automation gateway to include the IEEE C37.118 client protocol for receiving synchronized phasor messages. With the time-aligned information provided by synchrophasors, customers can simplify substation control and transmit information with highly accurate time stamps to SCADA for enhanced power system state calculations. Each RTAC includes:

- Complete IEC 61131 logic engine
- User security and logging
- Advanced data concentration
- Local and remote I/O
- Protocol conversion capabilities between multiple built-in client/server protocols.



7 RuggedCom Introduces IEEE 1588 v2 devices



RuggedCom has introduced the RuggedSwitch™ RSG2288 and RS416 Serial Server with IEEE 1588 v2 allowing more accurate, converged data and timing networks to streamline substation operations.

The new RuggedSwitch™ RSG2288 supports IEEE 1588 v2 Master / Grand Master with:

- GPS input
- Transparent Clock and
- Slave Clock modes with 1us or better time accuracy

The RuggedServer™ RS416 synchronizes non-1588 devices with IEEE 1588 networks with an IEEE 1588 input and IRIG-B output allowing older IRIG-B devices to be in sync with the same IEEE 1588 v2 master clock.

8 SR 3 Series of protection relays - functional innovative & intuitive series

GE's Multilin SR 3 Series of protection relays is a highly functional innovative & intuitive series of relays for feeders (SR 350), motors (SR 339) and transformers (SR 345). By providing an economical system for protection, control, monitoring and metering, and both local and remote user interfaces in one assembly, the SR 3 Series relays effectively eliminate the need for expensive discrete components.



350
Feeder Protection



339
Motor Protection



345
Transformer Protection



The SR 3 Series provides detailed diagnostic information allowing users to troubleshoot and minimize downtime. The SR 3 Series

streamlines workflow processes and simplifies engineering tasks such as configuration, wiring, testing, commissioning, and maintenance. These relays also offer

enhanced features such as diagnostics, preventative maintenance, device health reports and advance security features.

9 Support for IEEE C37.118 Synchrophasor Protocol in Wireshark

Since version 1.2.0 (released June 2009), the popular free protocol analyzer SW Wireshark (www.wireshark.org) supports the protocol according to the synchrophasor standard IEEE C37.118-2005.

The phasor values are displayed in the common notation (magnitudes and phases) used in electrical engineering.

For decoding the actual data, related configuration frames are used.

The protocol dissector was provided by Jens Steinhauser, who started the work on this topic out of private interest. During a temporary employment at OMICRON electronics, he was encouraged to complete the work and to submit it to the maintainers of Wireshark for review, who finally accepted the code.

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[+] Internet Protocol, Src: 192.168.0.60 (192.168.0.60), Dst: 192.168.0.10 (192.168.0.10)
[+] User Datagram Protocol, Src Port: 4713 (4713), Dst Port: 4712 (4712)
[+] IEEE C37.118 Synchrophasor Protocol, Data Frame
  [+] Synchronization word: 0xaa01
    Framesize: 48
    PMU/DC ID number: 60
    SOC time stamp (UTC): 2008-08-01 16:18:11
  [+] Time quality flags
    Fraction of second (raw): 580000
  [+] Measurement data, using frame number 3 as configuration frame
    [+] Station: "PMU1"
      [+] Flags
        0... .. = Data valid: Data is valid
        .0... .. = PMU error: No error
        .0... .. = Time synchronized: Clock is synchronized
        ...0... .. = Data sorting: By timestamp
        ... 0... .. = Trigger detected: No trigger
        ... .0... .. = Configuration changed: No
        ... .. .00... .. = Unlocked time: Time locked, best quality (0x0000)
        ... .. 0000 = Trigger reason: Manual (0x0000)
      [+] Phasors (3)
        Phasor #1: "VA"      ",      100.08V/_ -89.80°
        Phasor #2: "VB"      ",      99.95V/_ 150.11°
        Phasor #3: "VC"      ",      100.01V/_ 30.16°
        Frequency deviation from nominal: 0MHz (actual frequency: 50.000Hz)
        Rate of change of frequency: 0.000Hz/s
      [+] Digital status words (1)
        Checksum: 0x1a9c [correct]
  
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