Remote Terminal Unit
(RTU - A200)

AMI with more than six years of expertise in Power System Protection has developed state of the art of the Automation Solutions. The whole family of AMI's Remote Terminal Unit (RTU) and Feeder Remote Terminal Unit (FRTU) covers a broad spectrum of use with products of different sizes of various applications. The A200 is specifically architected for use with medium to large numbers of data points, and is well-suited across a range.

A200 Remote Terminal Unit (RTU), the building block of AMI Substation Automation System is designed to meet the present day utility and industry demands. The RTU is built on internationally well proven hardware and software platform gives the necessary ruggedness and the RTOS (Real-Time operating System) provides the multi-tasking and Real-Time data handling capability.

APPLICATION
- Gateway for communication between IEDs and Master Station
- Data concentrator for storing data from IEDs and transferring it to Master Station
- Automation unit for building soft logic
- Station level RTU for hardwired inputs

HARDWARE

Major Hardware Components :
- Central Processing Unit (CPU)
- Digital Input Module (DI)
- Digital Output Module (DO)
- Analog Input Module (AI)
- Power Supply Module (PSM)
- Supports IEC 61131 PLC Programming Language Standards
- Digital Inputs: Multiples of 16 channels optimally isolated from field (5 KV), 24 V / 48 V / 110 V / 220 V signal inputs, 4U size hot pluggable EURO card for easy expansion
- Analog Inputs: Multiples of 8 channel single ended inputs, 0-20 mA / 4-20 mA / -20 to 20 mA current signals, 0-5V / -5V to +5V
- Digital Output: Multiples of 16 channel relay drive card, inbuilt 24V / 48VDC contactors
- Hot redundant (optional) power supply, AC input 230 V +/−10 %, DC input 48V +/−10 % with input EMI/RFI suppression by line filter and input surge protection
- RTU is configurable using web-based configuration and maintenance tool
- User friendly Configuration Tool for ease of Configuration and Management

FEATURES
- 32-bit High Performance Industrial Grade CPU Core operating at 400 MHz Frequency
- Memory: Onboard 64 MB SDRAM and 256 MB Flash
- Communication media support: GSM/GPRS, PLCC, Fiber optic / VSAT and Ethernet
- Add on serial I/Os (RS232 / RS-485 software configurable) Add on parallel I/Os (DI, DO, AI, counters etc.)
- Equipped with Microprocessor based Real-Time Operating System
- Built-in Real-Time clock and SOE buffer with battery backup
- Flexible soft logic programming
- Redundancy options for CPU, Power Supply and Communication Port
- 1 m sec digital data scanning resolution and time stamping
- 10,000 SOE storage record is supported in chronological order
- Protocol support: IEC 60870-5-101/103/104, IEC 61850, MODBUS RTU and DNP 3.0

APPLICATION

HARDWARE

FEATURES
Central Processing Unit
The design incorporates dedicated processors to manage the time critical intensive Real-Time process in computer control and monitoring environment. The 32-bit High performance ARM 9 based CPU core operating at 400 MHz Frequency running from onboard internal flash memory. The dedicated communication processor provides Real-Time exchange between IEDs and to SCADA systems using multiple protocols, CPU healthiness and Communication Indications etc. are provided for easy diagnosis.
- Full duplex transfer mode 10 / 100 Mbps Ethernet
- 4 serial (2 x RS232, 2 x RS 232 / RS 485) (expandable)
- Memory: Onboard 64 MB SRAM and 256 MB Flash

Digital Output Module
- 16 Single pole relays with one common ground
- 4U size hot pluggable Euro cards for easy expansion / maintenance
- Relay coil and contact are protected by means of free wheel diodes
- LED indications on fascia plate for power and digital output status
- The digital outputs can be configured for single / double / set point outputs on the same module
- Rated Current 2A and Breaking Capacity of 2000 VA

Digital Input Module
- 16 channel Opto-Isolated Channels (up to 5 kV) supporting direct field input voltages of 24 / 48 / 110 / 200 VDC
- 4U size hot pluggable Euro cards for easy expansion / maintenance
- External Surge Suppressor and scaling card to arrest surges at input itself
- LED indications on fascia plate for power and digital input status
- Operating Temperature: -5 °C to 55 °C

Power Supply Unit
- AC input 230 V + - 10 %
- DC input 24 V+10%», 48 V + 10%», 110 V + 10% or 220 V+10%
- Input EMI/RFI suppression by line filter
- Output overload and Short circuit protection with fold back feature
- 150 W / 2.5 KV isolation
- Overload capacity up to 120 % for 1 minute
- Adequate protection against reversed polarity, over current and under voltage conditions
- Input Surge Protection by means of GD tube, MOV and fast blow fuse

AI Card Supports
- 8 Isolated Analog Channels for Measuring Current and Voltages
- Both Unipolar and Bipolar Configuration supported for a single card type
- Current Range Supported: 0-20 mA, 4-20 mA, -20 to +20 mA
- Voltage Range Supported: 0-5 V, 0-10 V, -10 to +10V

Communication Media
- Ethernet interface
- GSM/GPRS modem
- Fiber optic interface

PLC Programmable Languages
- IEC 61131-3

Communication Protocols
- Standard IED Protocols
  - IEC 60870-5-103 Master (Serial)
  - Modbus Master (RTU Serial)
  - IEC 61850 (Optional)
- Standard SCADA Protocols
  - IEC 60870-5-101 Master/Slave
  - IEC 60870-5-104 Master/Slave
- Simultaneous communication with multiple servers
- GPS Clock synchronization
- Simple Network Time Protocol (SNTP)
- Simple Network Management Protocol (SNMP)

Environmental Compliance
- Operating Temperature: -10 °C to 70 °C
- Relative Humidity: From 5 % to 95 % noncondensing

Type Test Compliance
- Surge Immunity IEC 61000-4-5
- Electrical Fast Transient Burst Test IEC 61000-4-4
- Damped Oscillatory Wave IEC 61000-4-18
- Electrostatic Discharge Test IEC 61000-4-2
- Radiated Electromagnetic Field IEC 61000-4-3
- Power Frequency Magnetic Field IEC 61000-4-8
- Power Frequency Voltage Withstand IEC 60870-2-1
- 1.2 / 50 µs Impulse Voltage Test IEC 60870-2-1
- Insulation Resistance
- Cold Test IEC 60068-2-1
- Dry Heat Test IEC 60068-2-2
- Damp Heat Test IEC 60068-2-3
- High Voltage Test MFG SPEC

Specifications are subject to change without prior notice

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