SCADA SOLUTIONS - RELIABLE COMMUNICATIONS OVER LARGE AREAS

ACE1000 REMOTE TERMINAL UNIT

Whether there is a leaking pipe or a damaged power grid breaker miles away from your control center, you need to know about it as soon as possible. The sooner you get the information, the faster you can fix the problem and avoid negative consequences.

You need technology that works seamlessly with its software and connects to your equipment to ensure reliable, well-timed communications over a large area. You can't be in multiple places at once, but with a reliable SCADA solution you can monitor your system as if you were.

The versatile and powerful ACE1000 will deliver the timely communications you need, without having to completely replace your current system. In a new, compact package, the ACE1000 is the Remote Terminal Unit (RTU) that will facilitate higher reliability and interoperability at a lower cost.

USER BENEFITS

- Easy to Install and Manage
- Interoperability with current systems
- Better processing power
- Large FLASH & RAM Memory
- ATEX Regulatory Compliance
- Power-saving features

COMMUNICATE EFFORTLESSLY

Complex communication links from your central to remote sites are what make up a reliable and secure SCADA system. The ACE1000's unique connection capabilities allow your system to communicate using a variety of outputs (slow dial-up, medium speed RF, and high speed wireless), at no extra cost.

Designed for a wireless environment, the ACE1000 assures reliable communications over RF, LAN/WAN networks, so you can be sure your data is being transferred securely. The ACE1000 allows RTU-central and RTU-RTU communications, along with advanced networking abilities, which can be used to pass messages between RTUs in the system so you don't have to purchase additional repeaters or expensive antennas. Its communication flexibility gives you the freedom to customize your system that's easy on your budget.

INTELLIGENT PERFORMANCE

Complicated control processes can be time consuming and difficult to keep track of. The ACE1000 allows you to automate processes such as multiple high speed control loops, event capture, and data storage, so you don't need to spend time doing it yourself. The ACE1000 even offers a low power and sleep mode option for when you're operating on solar power. Process automation improves efficiency and plant safety and you can be sure the important tasks are being completed at the right time. This will free up your employees to do other tasks and as a result, streamline your facility's routine.

SEAMLESS CONFIGURATION

The ACE1000 is easy to install and has the processing power to function in demanding environments and complicated networks. Its user-friendly configuration tools allow you to set up your whole system, rather than each unit individually, so you can maintain it yourself. Easy-to-use applications such as the new menu-driven GUI and the "Easy Programming Tool" reduce the amount of time and money needed for training, so your employees can get to work sooner. Your site can be supported remotely, reducing the amount of site visits you have to make.

The ACE1000's programming tools allow for easy configuration, so your system can be adapted to demanding applications or stand alone. Your current platform can be leveraged to provide the benefits of both standardization and interoperability without starting from scratch. Whether you need to collect and transmit information from existing sensors or IEDs, the ACE1000 is perfect for the job.

RUGGED AND READY FOR THE FIELD

Not only will your transferred data be safe and secure, but your equipment will too. The ACE1000 RTU is designed to withstand harsh conditions, unlike the average PLC, which is built for the factory floor. Temperature, altitude, and humidity are no match for the ACE1000, which meets rugged specifications. Whether it's installed at an offshore drilling platform or an Arctic power station, the environment won't affect the performance of your system.

KEY FEATURES

- Motorola Radio Support (Digital Trunked ASTRO, Digital MOTOTRBO, TETRA)
- Easy-Programming Tool (via WEB Browser)
- RTC Back-up Battery
- 256 MB of FLASH Memory
- IECEx/ ATEX - EXnA IIC T4 (Cat 3/Zone 2)*
- 256 MB of RAM Memory
- 9-30 VDC Input Voltage Range
- Sleep/Low-power Mode
- 3rd Party Modem Support

*w/o radio, in ATEX approved enclosure

OPTIONAL FEATURES

- Din Wall| Mounting Bar

ACE1000 Remote Terminal Unit without cover

ACE1000 Remote Terminal Unit with covers

GENERAL SPECIFICATIONS

Operating Temperature	-40 ° C to + 70 ° C (excluding radios)
Storage Temperature	-55 °C to + 85 °C (excluding radios)
Operating Humidity	5% to 95% RH @ 50 °C
Operating Altitude	-400 meters to +4000 meters
Dimensions	2.95 in. (w) x 6.3 in. (h) x 4.4 in. (d)
Weight	450 grams (without expansions)
Wall Mount Option	Yes (using DIN rail)
Construction	Modular
Power Consumption:	
Typical Runtime	~170mA at 12v
Power Saving Mode	65mA at 12v
Sleep Mode	~5.5mA at 12v
RTC Back-up Battery:	
Type	Coin Rechargeable Battery (30 days)
Temperature	- 40 °C to + 70 °C
AUX Power Connector:	
1 AUX Power Output Port	5v, 7.5v, 9.5v, 12v, V-IN (on plug-in) V-AUX <> V-IN
SDIO Card	Up to 32 GB
UART	Yes
USB HOST	Yes
USB OTG	Yes
USB Device	Shared with USB OTG
LAN Port (10/100Mbps)	Yes

INPUTS/OUTPUTS (I/OS)

I/Os:	
CPU I/Os	3DI + 1DO
Two I/O Expansion Types	12DI + 8AI (isolated) 8DO + 2AO (isolated)
Performances:	
DI Fast Counter	2Khz For All Inputs
DI Time Tagging	No
DI Event Capture	~ 100 msec
DO Control	~ 100 msec (w/out relay delay)

CPU

Processor	Sitara CPU (Cortex-A8)
Clock	300 MHz
OS	Linux
Memory:	
Flash	256 MB, 32 MB for User
RAM	256 MB, 16 MB for User
RTC	YES
Ports:	
RS232/RS485	Up to 1 port on CPU board (shared with RS485) (<115.2Kbps) Non-Isolated
RS232 Only	2 ports on plug-in board (<115.2Kbps) Isolated
Ethernet	1 port on CPU board 10/100MB

POWER MANAGEMENT

Modes	Disabled Run Mode Idle Sleep Mode Low Power Sleep Mode (CPU is off)
Wake-Up Triggers	3 Assigned DIs (CPU Board) Manual Push-Button Real-Time Clock C App
Voltage Management	Power up occurs if the voltage is in range, or else a safe power down is performed automatically when voltage is too low. The unit returns to its previous mode (run or idle sleep) when input power returns to predefined value.
Power Voltage Reduced/ Disabled[1]	Radio/Auxilary Power Supply External I/Os Piggyback (All Components, or each serial port) Serial Main Board Ports USB HOST USB OTG Wire LAN Wireless LAN

[1] This is statically configured (not via C App) and cannot be changed without a reboot to the LTR

PRODUCT SPEC SHEET
SCADA SOLUTIONS - ACE1000

SOFTWARE

SW Tool:	
Mixed System	Configuration - STS Tools
	SW Download - Web Interface
	Diag/ErrorLogger/Partial Field View
	HW test - Yes
LTR Only System	Configuration/Monitoring - Web Interface
	HW Test- Yes
MDLC Networking:	
Networking	Only in Mixed Systems
Direct Link	Yes
Central to RTU	Yes- Built in Application
RTU Burst Reporting	Yes- Built in Application
RTU - RTU Communication	Mixed System - Yes
	LTR Only System- Via C Application
MDLC Store and Forward	Mixed System - Yes
	LTR Only System - No
Broadcast Sending (RTU-RTU)	Mixed System - Yes
	LTR Only System - Via C Application
Failsafe Mechanism	Yes
Error Logger	Yes
HW Test	Local (via CLI), not remote
HW Diag and Calibration	1) Digital Input Test Loop 2) CPU Battery Level 3) Enhanced Power Management Test
User Programming	1) Rule-based easy programming 2) C + Linux Functionality 3) IEC61131-3 with External Communication Interface
Security	MDLC password, Authentication Login, Firewall, HTTPS, SFTP, SSH
Protocols	MDLC, MODBUS over RS232/RS485/IP
Time Synchronization	MDLC Time Sync (20 mS resolution with password)
Set Date/Time	Yes (with Time Zone and Daylight-Savings)
Table Monitoring Utility	Mixed System - No LTR Only System - Yes
Network Configuration Utility	No
Services	DNS - Yes DHCP - Yes - Slave

LED INDICATIONS

LEDS:	
Main CPU	4 General Function LEDs
Input/Output	4 General Function LEDs + 24 I/O LEDs
CPU	Power (physical indication) ERR (physical indication, detailed error can be seen in error logger) LOAD (UI Indication) CONF (UI Indication) APPL (UI Indication) MON (UI Indication) RST Process (Indication on the PWR Lead)
Ports	Tx/Rx on main RS232 (dedicated physical LED) Tx/Rx on Piggyback RS232 (UI Indication)
Main I/Os	Main DIs (represent on one of the 4 main board LEDS) Main DO (represent on one of the 4 main board LEDS)
Expansion I/Os Modules	DI DO Input Card: 12 DI/8AI Output Card: 8 DO/2AO AI: Range/Out of Range, Current/Voltage (UI Indication, Automatic) Calibrated (UI Indication) AO: On/Off (physical Indication), Current/Voltage (UI, Manual Calibration)
LEDs Tests	Yes
CPU Fail	Indication there is a fault on the fault LED

INFRASTRUCTURES

MDLC [2] via Ethernet	Yes
MDLC via Terminal Server (SLIP)	Yes
MDLC over ASTRO 7.XX (IV&D)	Yes
MDLC over Null Modem	Yes
MDLC over GPRS	Yes
MDLC over Standard (line) Modem	Yes
MDLC over Digital MOTOTRBO	Yes
MDLC over IP Site Paging	Yes
MDLC over IP	Yes

[2] Motorola Data Link Communication (MDLC)

MOTOROLA