RUG9 ABBREVIATED SPECIFICATION

# LOGIC FAMILY

All low power CMOS

# MICROPROCESSOR

32-bit 68331, 16 Mhz, 16 bit data bus, 24 bit address bus

# MEMORY

RAM-256 Kbytes battery backed low power static RAM

FLASH-512 Kbytes

Battery Backup-Lithium coin cell backs up RAM & realtime clock/calendar min 2 years

# MEMORY CARTRIDGE

2 GB removable CompactFlash cartridge

# I/O EXPANSION

First card cage can have any I/O, modems, FlashDisk, sleep board, etc., up to 8 cards plus CPU. Up to 7 card cages attach with ribbon cables, can hold I/O up to 64 ch per cage.

# DISPLAY

20 line X 40 char (320 by 240 dot) backlit graphic LCD, 6 in diag. detachable from card cage.

Text-All std ASCII chars plus special graphic chars

Trends-Up to 10 traces per page; pages incorp into user defined text pages, as many as will fit in RAM. User defined scale grid.

Bargraphs-Up to 20 hor bars/display page to show analog values

# KEYBOARD

16 key sealed tactile membrane with interrupt scanning

# REALTIME CLOCK/CALENDAR

Battery backed clock/calendar 0.005% crystal accuracy

# SPEECH SYNTHESIZER

8 Khz sampling record & playback. Up to 256 messages in 12 minutes total storage.

# OPERATION SECURITY

Watchdog Timer-Hardware timer resets unit 0.5 sec. after interrupt fail. Cannot be disabled.

Telemetry Watchdog-Resets rcv buffer if no character received within 1 sec.

Brownout Detector-Halts process if logic voltage falls below 4.75 V, restarts when voltage rises to 5 V

# AUTOBOOTING

Auto startup on power application

# I/O SURGE PROTECTION

All I/O is optically isolated, meets IEEE surge protection rqmts.

# ANALOG INPUTS

8 ch per board, 12 bit res., successive approx, optically isolated, 4-20 ma or 0-5 v. Factory calibrated.

# ANALOG OUTPUTS

4 chan per board, 12 bit resolution, optically isolated.

# DIGITAL INPUTS

Status-8 chan/board, optically isolated, 120VAC or 24 VDC compatible.

Pulse Counting-all DI channels in first card cage count 128 PPS

Pulse Duration Detecting-all DI in first card cage can convert pulses to analog with 4ms resolution

# DIGITAL OUTPUTS

8 ch per board, 3 amp relays

Pulse Duration Outputs-Base relays can generate PWM or one shot signals with 4 ms res.

# SERIAL PORTS

Up to 8 RS232/modem ports or 8 dual RS232/RS485 ports in base card cage

# MODBUS Protocol

Std RTU master or slave protocol on any port except programming port

# MODEM

Bell 103/212 standard

## Radio Interface

4-wire audio, adj. gain, xformer isolated, isolated key line. Low tones mode for splinter chan

## Phone Interface

2 wire audio adjustable gain, transformer isolated

## Autodialing

On/off hook relay, touchtone generate

## Auto answering

On/off hook relay and ring detector

## Touchtone Detection

Standard tones on speech board

# COMMUNICATIONS

Background CRC gen/decode, variable length messages, user defined message lengths. Can combine status, int, float, and double precision int in any message.

## Eavesdrop Mode

Any RTU can accept data passing between any other stations

## Peer to Peer

Full RTU to RTU or RTU to master or master to RTU messaging

## Store and Forward

Initiating station sets path through up to 3 intermediary stations

## Address Range

1 to 255

# RS232/RS485 BOARD

2 RS232 OR RS485 ports, individually jumper selectable

# FLASH CARTRIDGE INTERFACE

Board accepts up to 2GB removable Compact Flash cartridge. Dumps logged data in ASCII

# POWER INTERFACE

12 VAC/15 VDC +/-20%, 130 ma. to 2.5 amps max, resettable fuse.

## Loop Supply

Isolated, regulated 24 VDC +/- 5%, fused, 160 ma.

## Battery Charger

160 ma., reverse protected, fused.

# I/O CONNECTIONS

All I/O uses removable rising cage screw headers in banks of up to 12 each, 14 ga wire

# SOFTWARE

Storage-operating system and all user config. and programming stored in nonvolatile flash memory. Flash loader stored in flash protected boot block.

Security-parameter voting and memory integrity test on boot up, CRC gen/detect on serial ports

Scanning-Built in software scans all I/O, ports, timers, realtime clock

# PROGRAMMING

Modules-applications use precompiled modules resident in flash memory where programmer interconnects modules and sets properties using supplied WIN 7/8/10/11 program. No programming rqd for most applications.

# LADDER LOGIC

Ladder logic is built in to the WIN 7/8/10/11 configuration program to handle misc controls

# VARIABLES

Supports 32 bit integer, floating point, boolean, strings, arrays

# ERROR MESSAGES

Configuration program handles all setup errors. Run time software is self protecting... no run time errors.

# ENCLOSURE

16 ga. Steel, blue powder coat 9 slot card cage with detachable display/keyboard module

Cage: 9.75 X 4.6 X 4.1 in.

DSP: 8.6 X 4.8 X 0.75 in

# TEMPERATURE RANGE

-40 to +85 deg. C logic

-20 to +60 C LCD display

# DOCUMENTATION

300 page online manual

# WARRANTY

1 year std limited warranty

# REPAIR

Nominal 24 hr turnaround