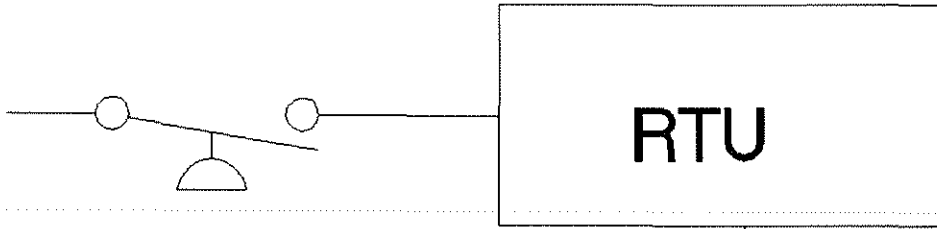


BIG PICTURE

FIELD LOCATION

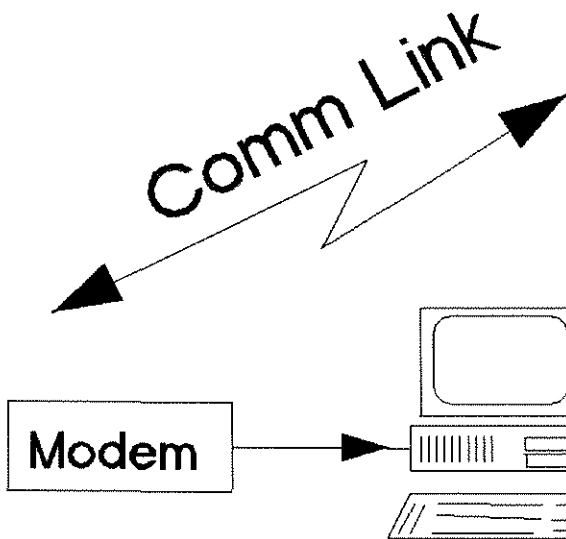


Switch

RTU

Modem

OFFICE



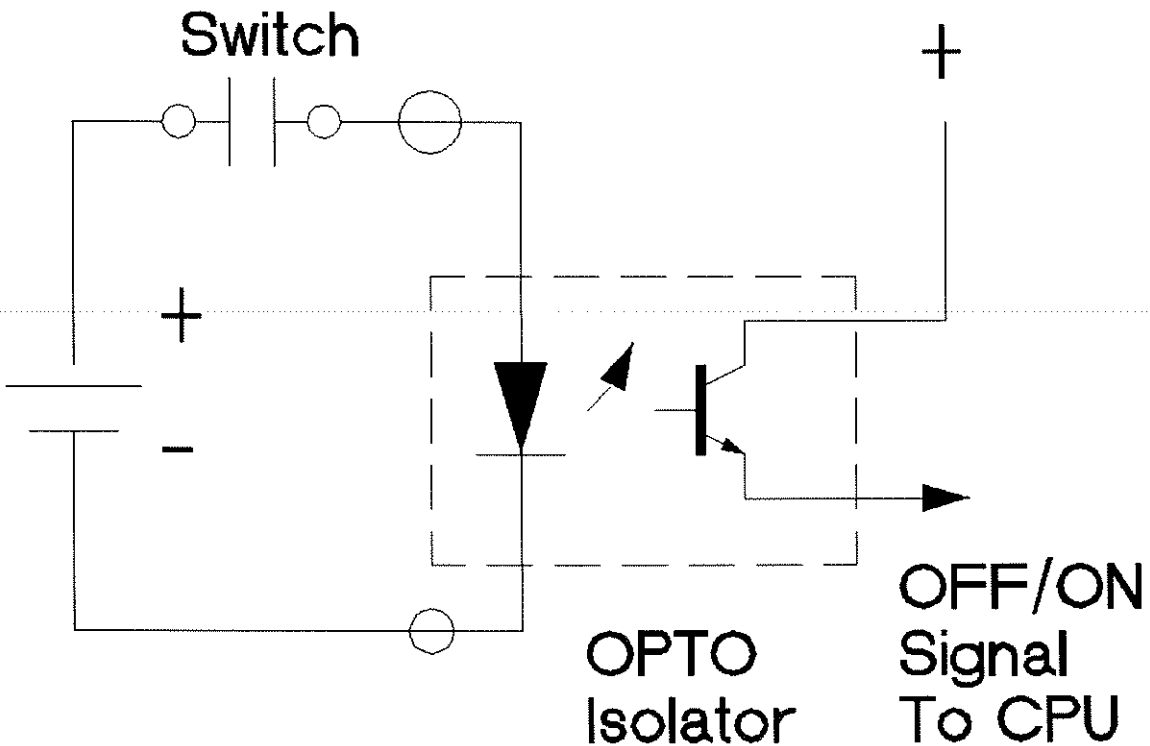
Modem

HOST

Contact Arthur Zatarain, PE
via www.artzat.com
For information on this document



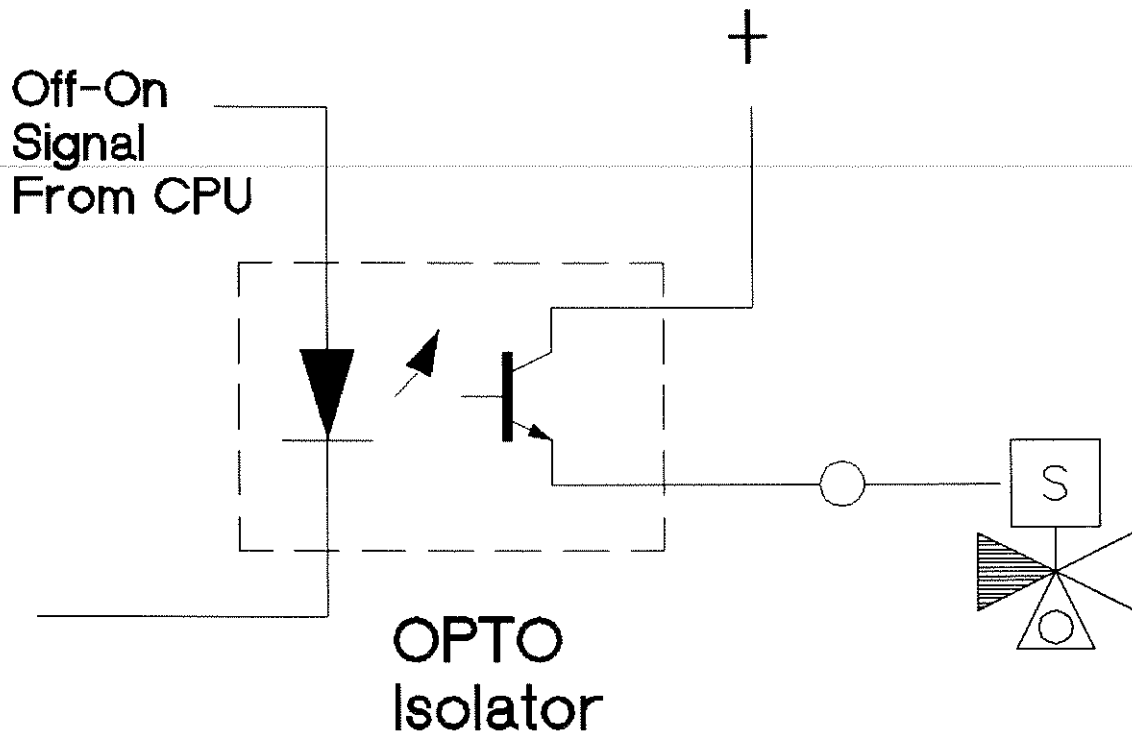
RTU STATUS INPUTS



Off-On Status Only
Opto Provides Isolation



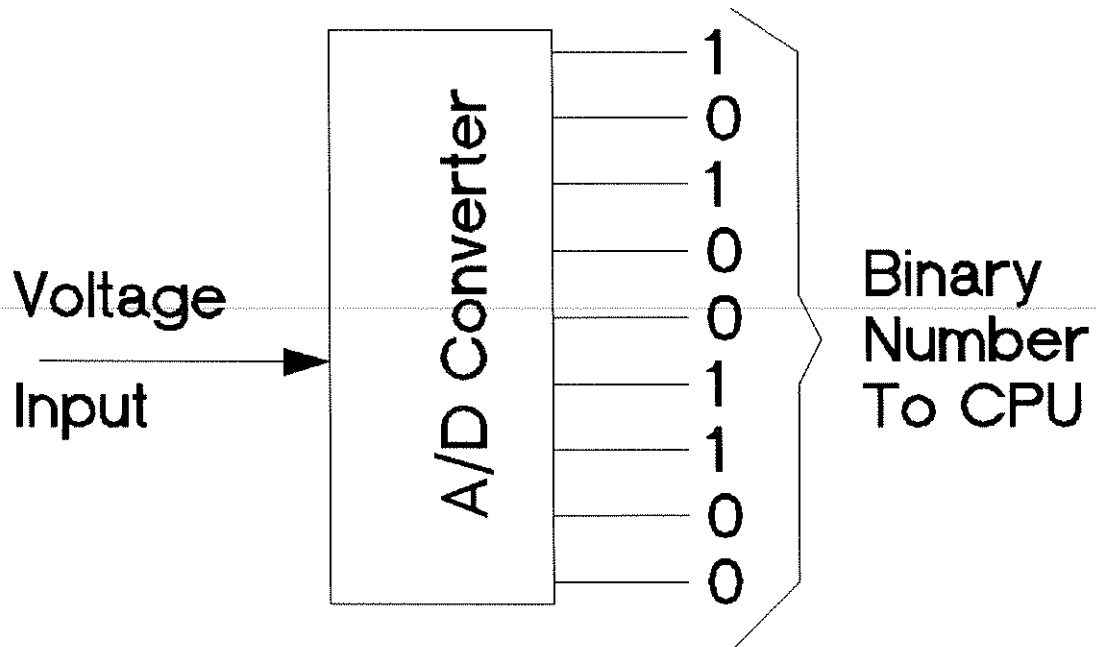
RTU STATUS OUTPUTS



Off-On Control Only
Opto Provides Isolation



RTU ANALOG INPUTS

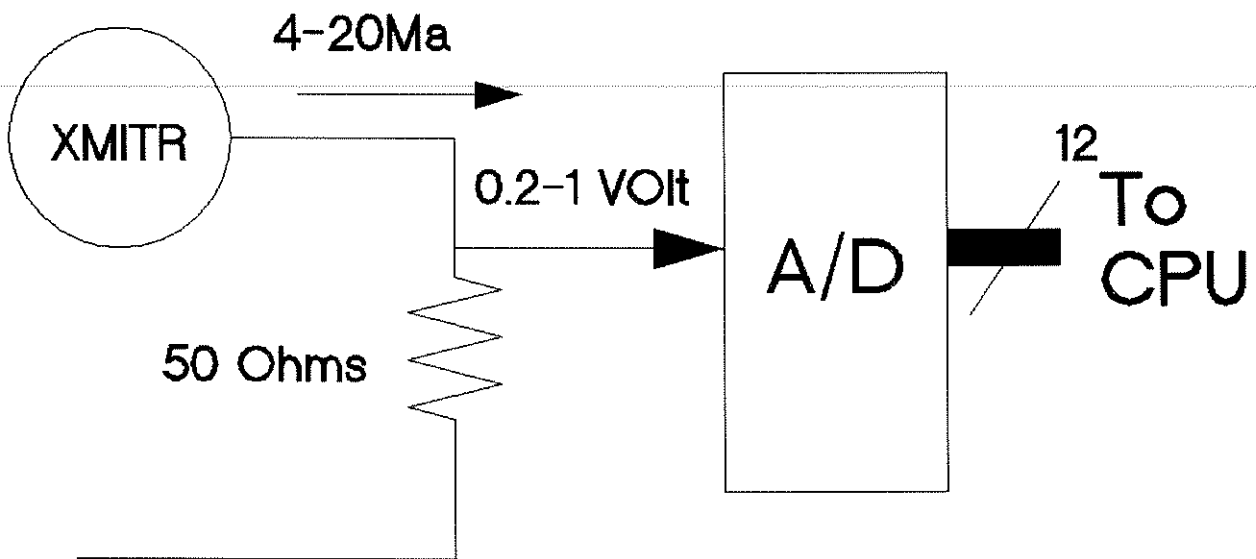


A/D Converter Makes
Voltage to CPU

Binary Number is 0-100%
of Full Voltage Scale

RTU Software Must Convert
Binary to Engr. Units

4-20MA TRANSMITTERS

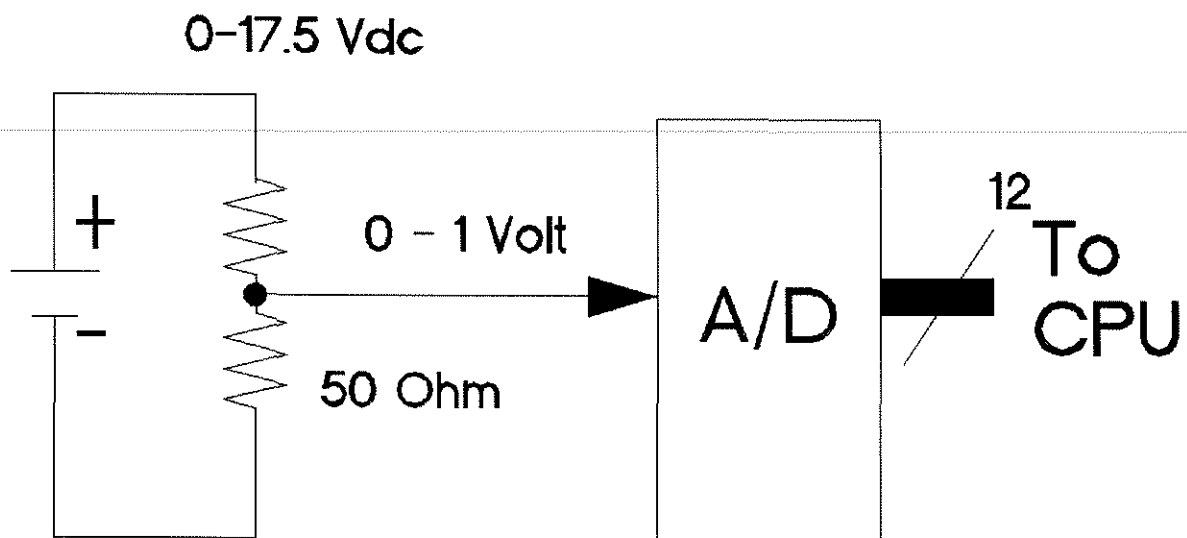


50 Ohm Resistor Gives
1 Volt at 20 Ma Full Scale

RTU Software Converts
A/D Result to Engr. Units



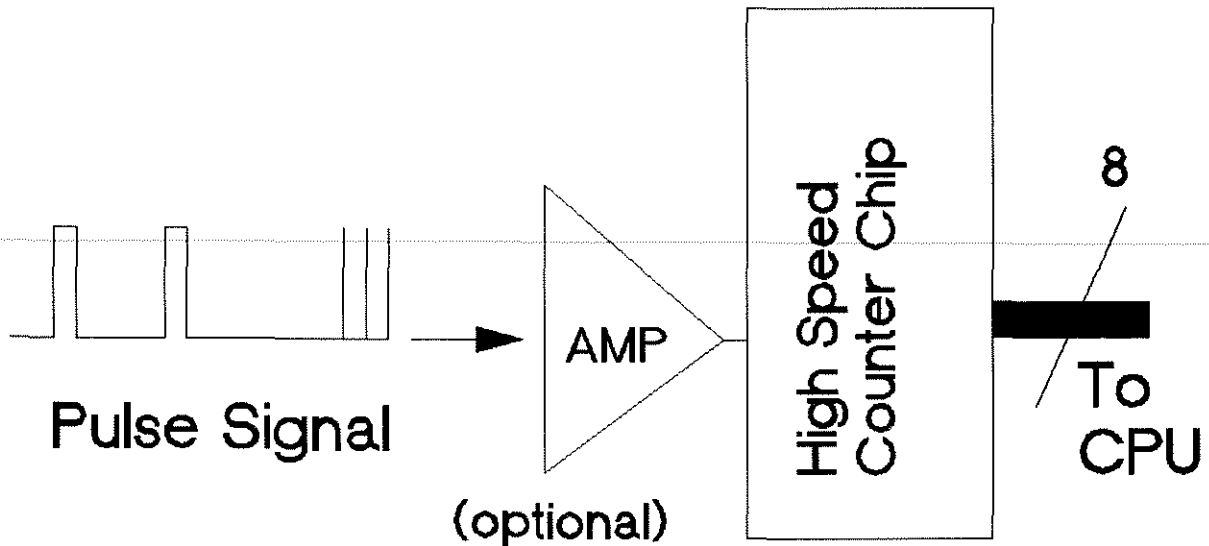
VOLTAGE MEASUREMENTS



Voltage Divider Gives 1 Volt
When Battery at 17.5 VDC

RTU Software Converts
A/D Result to Engr. Units

PULSE INPUTS



Pulses Represent Events
or Meter Flow

Counter Chip Catches Quick Pulses

RTU Software Calculates Total

RTU DISK DRIVES

Store RTU Programs, Setup Files, and Data Logs

At least One Required

DOS Compatible Formats

Any Floppy Disk Type

Any Hard Disk Type

Solid State (RAM) Disks have No Moving Parts

Can Mix Types to Meet Individual Requirements



RTU CPU MODULE

PC Compatible Hardware

Low Power Industrial Unit

Supports RAM Disks

No Keyboard or Display
Required for Operation

PC Expansion Bus



DISPLAYS AND KEYBOARDS

Any PC Display Supported

CRT Normally Provided

Portable Unit Available

Color or Mono up to 50 Lines

Separate ANSI Terminal

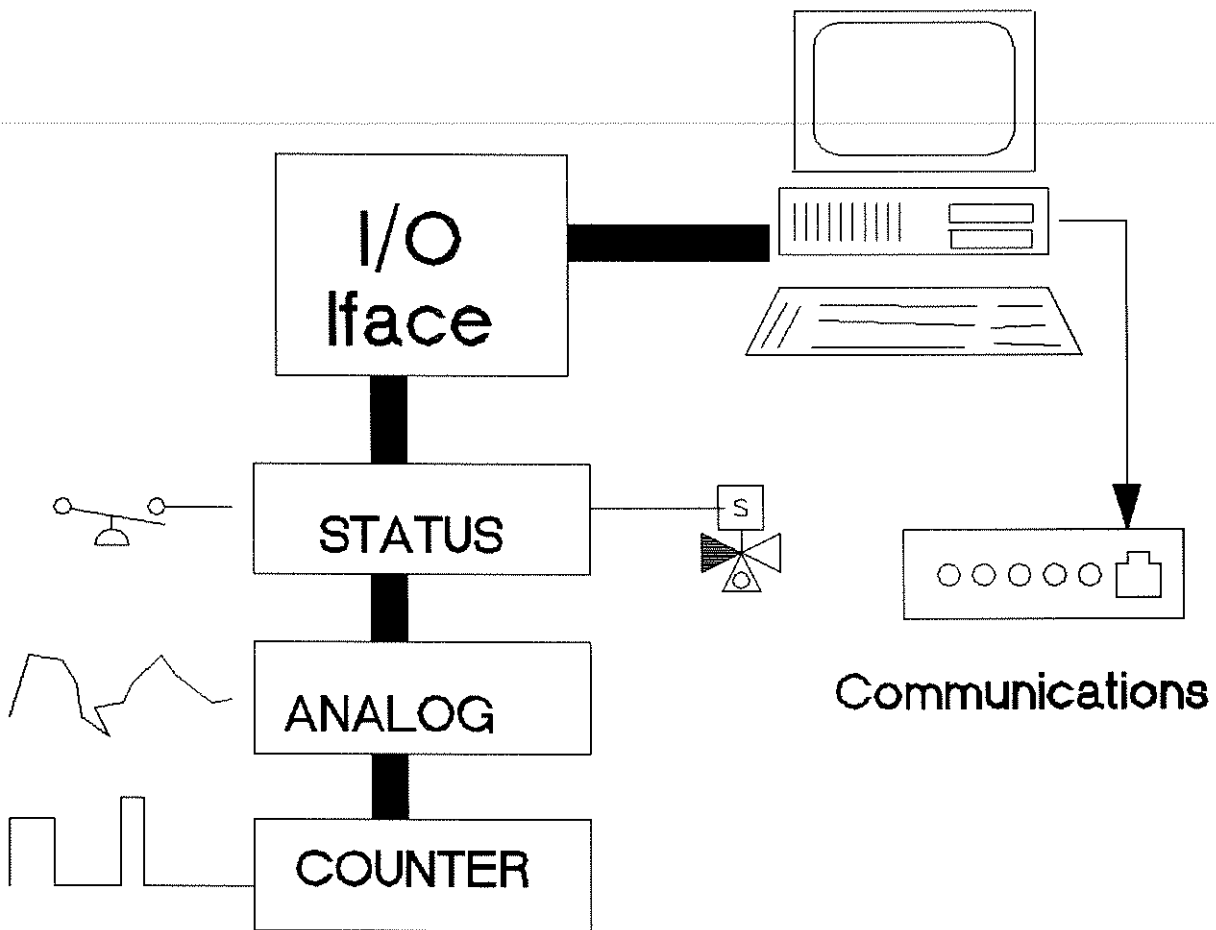
Standard PC Keyboard

Sealed Units Available

Keyboard NOT Required



TEST RTU DESIGN



RTU COMM PORTS

PC Compatible Devices

Normally RS-232 Standard

Up to 4 Ports per RTU

Used for Remote Comm,
Remote I/O, and Extra
CRT Displays

Connect to Modems and
Packet Radio Controllers



PACKET RADIO CONTROLLER

Acts as Very Smart Modem
for Radio Systems

Each has Unique "Callsign"

Sends Tones to Radio via
Microphone Input

Receives Tones from Radio
via Speaker Output

Keys Radio and waits for Xmit

Provides Routing, Error Checks,
FCC Timeouts, other tricks



COMMUNICATIONS

RTU to HOST Connections

Serial Data Transmission
of Digital Information

Hard Wire Electrical

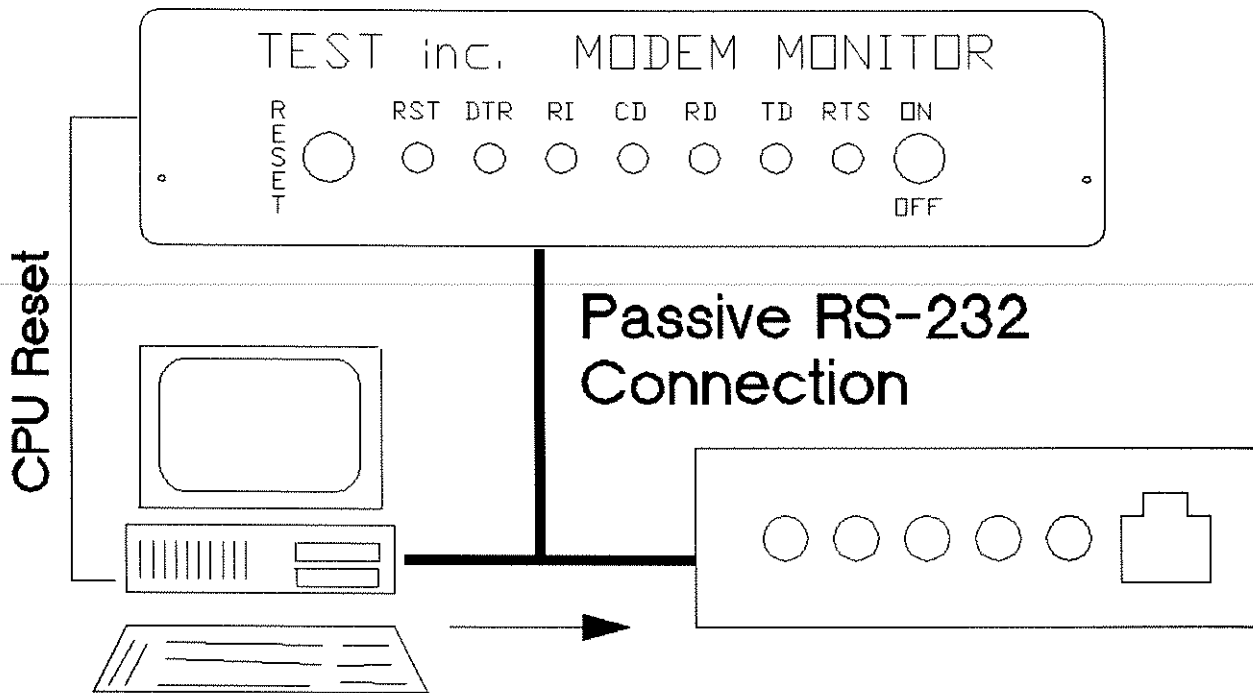
Audio Tone via Telephone
or Radio Links

On-Line or Dial-Up Link

Error Prone Technology



MODEM MONITOR



Detects Computer Failure
Counts Modem Rings
Allows Remote Reset
Phone, Radio, LB-100 Versions
Design/Built by TEST



DIAL-UP VS. DIRECT

Many Systems Require Direct Connection by Design

Direct is Easy and Fast

Dial-Up Presents Many Problems

Most Transfer Time is Spent Making the Connection

Dial-Up is Much Cheaper

Dial-Up uses Less Power



PHONE SYSTEMS

Various Technologies

Wireline, Cellular, Radio

Signal Can Vary From One
Call to Another

Phone Carries Audio Modem
Signals for 1 and 0

System Maintained by Others

