General Description

The Via 10 Ethernet Bridge allows control of RW-232 and RIP/485 based equipment (Rane SRM 66) over a standard Ethernet 10Base-T network. Additionally, the Via 10 includes eight 8-bit ADC inputs (0 - 5 volts DC) and eight open-collector outputs, all accessible over the Ethernet network.

The RS-232 and RS-485 ports have programmable baud rate and parity settings, allowing them to be connected to a wide variety of devices. The RS-232 port is connected using a standard (*insert joke here*) male DB-9 connector, providing the Ground, Tx and Rx lines. The RS-485 port also includes an 8 volt supply line for powering low-current peripherals. Both ports behave independently, allowing simultaneous usage utilizing separate baud and parity settings.

The VIP (Versatile Input Port) consists of eight 8-bit ADC (analog to digital converter) inputs on a 10-pin Euroblock connector along with a ground and reference (5 VDC) supply. The VIP can be used for reading potentiometers, switches, temperature sensors or any other low-voltage DC source.

The VOP (Versatile Output Port) has eight open-collector outputs along with a separate ground and 12 VDC supply line (100 mA max). The VOP is ideal for switching relays, driving LEDs, low-voltage incandescent lights or other control logic.

A standard RJ-45 jack allows easy connection into an Ethernet 10Base-T network.

The Via 10 communicates seamlessly with Rane's RW 232 family of products using RaneWare.

The Via 10's firmware is field re-programmable through the 10Base-T connection.

All communication is based on common IP (Internet Protocol) standards for interfacing with more sophisticated systems.

Software Description

A configuration utility is included for setting the Via 10. RaneWare is also included for use with RW-232 products (Windows 95 and 98SE). ActiveX components are also included for building your own user interfaces.
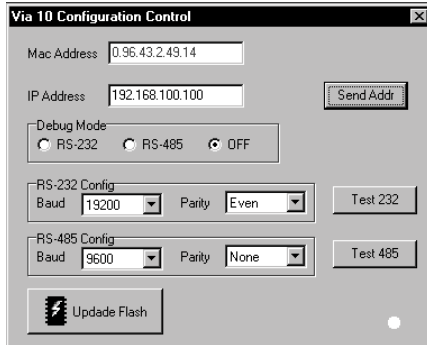
The ActiveX controls allow access to the Via 10's VIP, VOP, RS-232 and RS-485 ports, along with providing higher level access to many parameters found in Rane's SRM 66, SR 1L, RPE 228d, RPM 26v, ECB 62e and ECM 64e. Also included are on-screen general purpose LED-like indicators and meters for RW 232 or other status displays.

The ActiveX controls can be linked together inside Internet Explorer, Visual Basic, Delphi, C++, Labview or other software development tools which support ActiveX controls to create custom user interfaces. Microsoft's software program for creating HTML web pages, *Front Page*, also supports ActiveX controls and is a readily available software development tool with extensive third-party support.
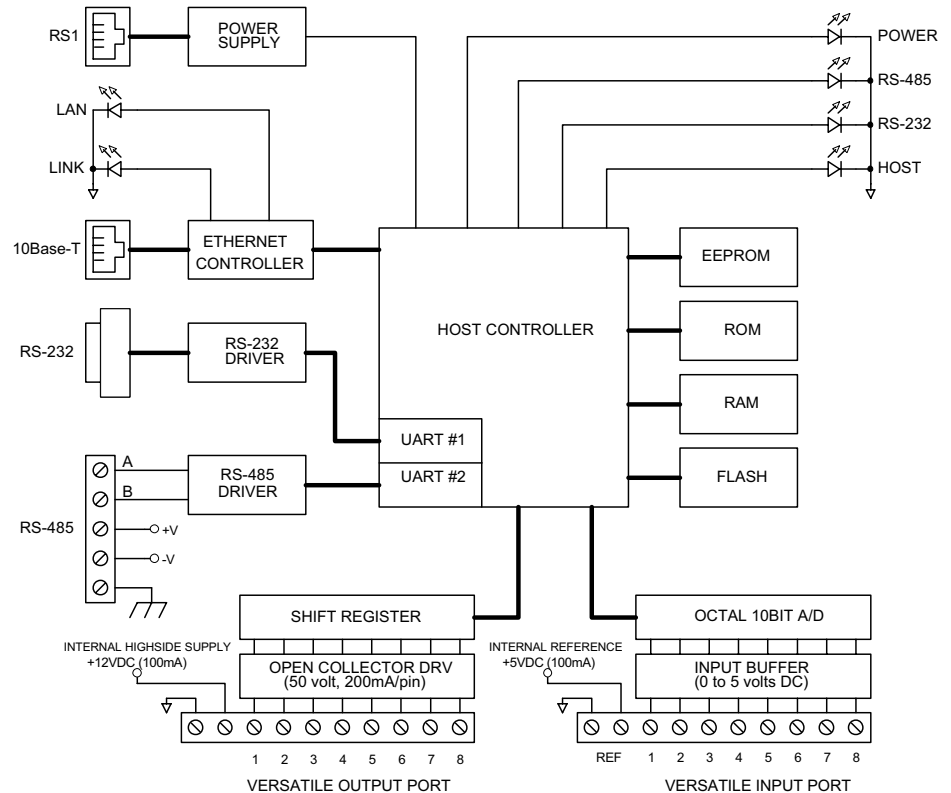
Features

- 10Base-T Ethernet Connection
- Independent RW-232 and RIP/485 Connections
- 8-channel, 8-Bit programmable Versatile Input Port (VIP) with ADCs and internal reference
- 8-channel, open-collector Versatile Output Port (VOP)
  - Internal 12 volts, 100 mA relay drive supplied
  - Up to 40 volts at 100 mA/pin supported with external supply
- Built-in compatibility with RaneWare™ (Windows 95 and 98SE) for distributing RW 232 equipment over a LAN
- Built-in compatibility with up to seven Rane SR 1L Smart Remote controls
- Re-programmable (over the LAN) Flash-based Firmware
- Simple IP (UDP) based control protocol
- Pre-built ActiveX Components for easy system integration with other 10Base-T equipment.

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RaneWare is a registered trademark of Rane Corporation

Parameter	Specification	Limit	Units	Conditions/Comments
VIP (Versatile Input Port)				
Connector	10-pin Euro Style			
Number of Inputs	8			
Type	8-bit A/D Converter	½ LSB		
Input Range	Vref + .3, GND - .3		volts	
..........Filter	15	5%	Hz	LP 2nd-order Butterworth
..........Passive Pull-up	100k	1%	ohms	To Vref
Vref	5	4%	VDC	100 mA maximum
Vref Load Regulation	0.04%			5 mA to 100 mA
VOP (Versatile Output Port)				
Connector	10-pin Euro Style			
Number of Outputs	8			
Type	Open-collector			
High-side Voltage	50	max.	VDC	
Current	100/200	max.	mA	Loaded channels 8/4
Vce sat.	1.1/1.3	typ.	volts	I out = 100 mA/200 mA
+12 Volts Internal Supply	12	10%	volts	No load
..........Source Resistance	27	typ.	ohms	
..........I LOAD	100	max.	mA	
..........Protection	PTCR			Auto-reset
RS-485				
Peripheral Device Power	8	4%	volts	300 mA max.
Source Resistance	150	1%	ohms	Terminate only longest distance Peripheral with 150 ohms
Drive Distance	1000	max.	feet	Using CAT 5 cable (328 meters)
Baud	300, 1200, 2400, 4800, 9600, 19.2k, 38.4k			Programmable
Parity	None, Even, Odd			Programmable
RS-232				
Type	TX, RX, GND			
Connector	Male DB-9			
Drive Distance	50	max.	feet	(15 meters)
Unit: Agency Listing				
..........120 VAC Model	Class 2 Equipment			National Electrical Code
	UL			Exempt Class 2 equipment
	CSA			Exempt Class 2 equipment
	FCC part 15J			Certified Class B Device
..........230 VAC Model	VDE, SELV			Safety Extra Low Voltage
	CE-EMC			EMC Directive 89/336/EEC
	CE-Safety Exempt			Article 1 of LV Directive 73/23/EEC
Power Supply: Agency Listing				Model RS 1
..........120 VAC Model	UL			File no. E88261
	CSA			File no. LR58948
..........230 VAC Model	CE-EMC			EMC Directive 89/336/EEC
	CE-Safety			LV Directive 73/23/EEC
..........100 VAC Model	Built to JIS			Japan only
Power Supply: Requirement	18 VAC w/ center tap	10%	Vrms	Model RS 1
..........Maximum Current	650		mA	RMS current from remote supply
Unit: Construction	All Steel			
..........Size	1.75" H x 19" W x 8.5" D (1U)			(4.4 cm x 48.3 cm x 21.6 cm)
..........Weight	6 lb (w/o power supply)			(2.7 kg)
Shipping: Size	4.5" x 20.3" x 13.75"			(11.5 cm x 52 cm x 35 cm)
..........Weight	11 lb			(5.0 kg)

Via 10 Configuration Control

Mac Address `0.96.43.2.49.14`

IP Address `192.168.100.100`   [Send Addr]

Debug Mode
○ RS-232   ○ RS-485   ● OFF

RS-232 Config
Baud `19200`   Parity `Even`   [Test 232]

RS-485 Config
Baud `9600`   Parity `None`   [Test 485]

[⚡ Update Flash]

Via 10 Configuration Control Screen

RS1 — POWER SUPPLY — POWER

LAN — RS-485

LINK — RS-232

10Base-T — ETHERNET CONTROLLER — HOST

HOST CONTROLLER — EEPROM — ROM — RAM — FLASH

RS-232 — RS-232 DRIVER — UART #1

RS-485 — A, B, +V, -V — RS-485 DRIVER — UART #2

SHIFT REGISTER — OCTAL 10BIT A/D

INTERNAL HIGHSIDE SUPPLY +12VDC (100mA) — OPEN COLLECTOR DRV (50 volt, 200mA/pin)

INTERNAL REFERENCE +5VDC (100mA) — INPUT BUFFER (0 to 5 volts DC)

1 2 3 4 5 6 7 8
VERSATILE OUTPUT PORT

REF 1 2 3 4 5 6 7 8
VERSATILE INPUT PORT

Applications

- Extending RW 232 communications range over a LAN
- Custom control interface over Ethernet LAN for:
  - RS-232
  - RS-485
  - Integrating Rane SR 1L remotes with other equipment
  - Versatile Input Port (VIP)
    - Pots, switches, sensors (DC sources)
  - Versatile Output Port (VOP)
    - Drive relays, LEDS, RW 232 MRP or other contact closure ports, (logic control)

There are two main classes of applications for the Via 10. It is useful for extending the communications range of Rane's RW 232-based equipment, allowing a rack or racks to be controlled anywhere on a LAN through RaneWare RW 232's control software. The second Via 10 application class is in custom control interfaces, providing both control of relays and indicators and feedback from pots, switches, sensors et cetera over the network. Rane's SR 1L Remotes are also useful for these applications as generic system control devices over a LAN. See the Via 10 Manual for more applications examples.

RW 232 Network Extension

RW 232 racks can easily be placed anywhere on a LAN, allowing control from any computer connected to the same network. Used as such, the Via 10 can effectively extend the distance of RW 232 communications without the need to resort to RS-422 or RS-485 converters. Ethernet LANs permit cable lengths up to 100 meters between devices using CAT 5 cable. Fiber optic-based LANs provide much greater distances.

Custom Control Interfaces

The Via 10's VIP and VOP ports, along with its RS-485 and RS-232 ports make it well suited for many control interfaces. Using the ActiveX software components, one can create an infinite variety of control interfaces and links between controls and serial and/or other network data.

Up to seven of Rane's SR 1L remotes can be wired directly to the Via 10's RS-485 port. Note that SR 1L remotes need not be utilized with just the SRM 66 (for which they are an accessory). They can be linked via their ActiveX controls to any system parameter you desire such as audio levels or the space shuttle's parameters like pitch, yaw & roll – one remote for each, of course.

Rear Panel and Control System Example
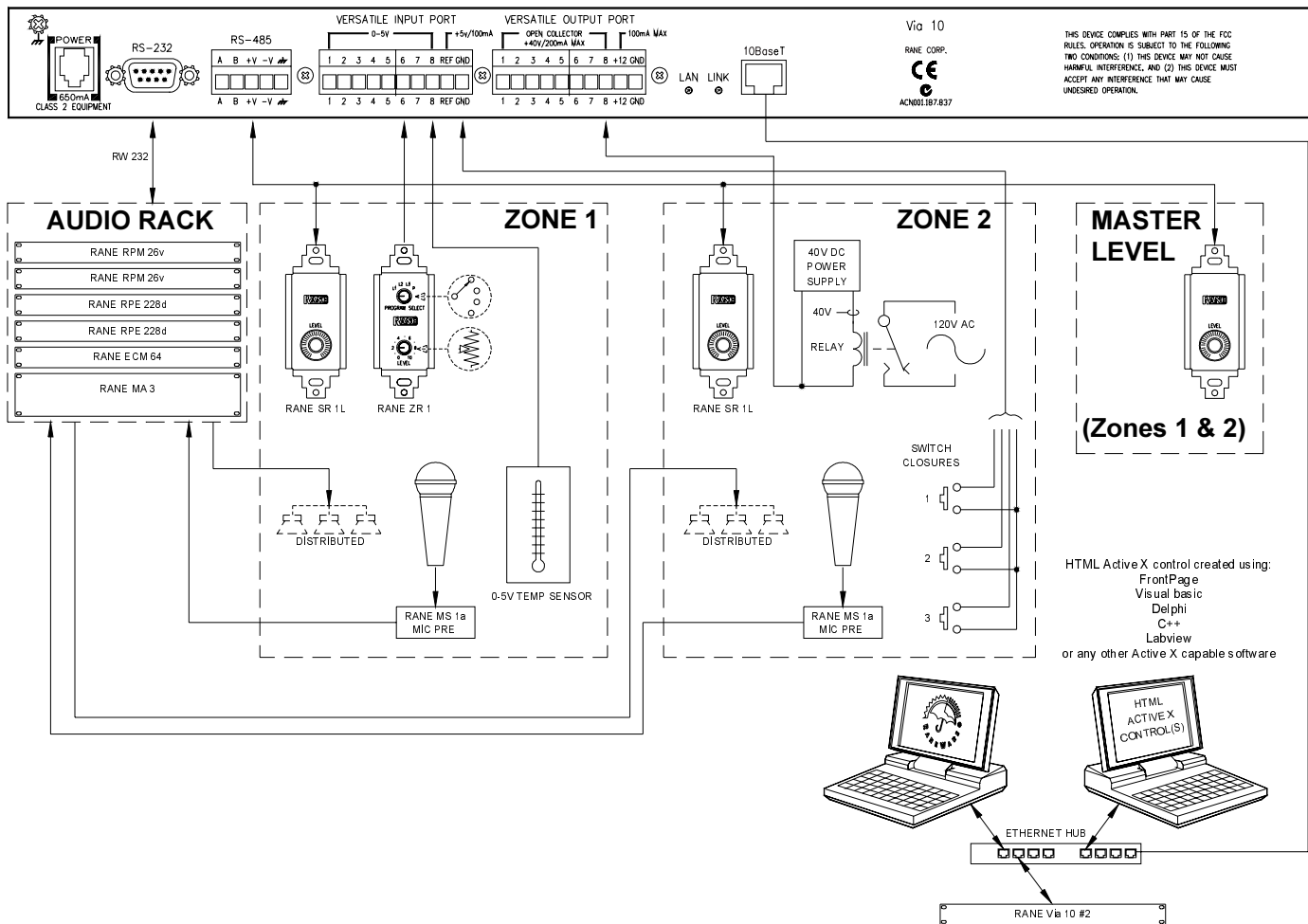
Architectural Specifications

The Ethernet Bridge shall provide data paths between standard 10Base-T Ethernet; serial RS-232 and RS-485; and programmable logic Input and Output ports. The Input port shall provide eight independent channels of programmable 0-5 VDC analog-to-digital conversion into 8-bit (256 step) words – thus supporting switch closures, potentiometers or any 0-5 VDC sensors. The Output port shall provide eight independent channels of programmable open collector outputs to drive relays, indicators or other control logic. The RS-232 and RS-485 ports shall provide independently programmable baud and parity rates thus supporting a wide variety of serial devices. The RS-232 port shall provide seamless communications between RaneWare RW 232 devices and RaneWare control software over a 10Base-T LAN. The RS-485 port shall provide seamless communications with up to seven Rane SR 1L RS-485-based remote controls and shall include a low current, 8 VDC supply line.

ActiveX controls for the Ethernet Bridge shall allow access to all of the above data ports. ActiveX controls shall also provide access to parameters found in Rane's SRM 66, SR 1L, RPE 228d, RPM 26v, ECB 62 and ECM 64 products.

The 10Base-T Ethernet network jack shall be of the RJ-45 type. The RS-232 jack shall be a DB-9 type. The RS-485, input and output port I/O shall be Euroblock (Phoenix style) connectors.

The unit shall be exempt from agency safety requirements and powered from a UL listed / cUL certified remote power supply (120 VAC), or meeting CE requirements (230 VAC). The unit chassis shall be constructed entirely from cold-rolled steel, and mount into a standard 1U EIA rack.

The unit shall be a Rane Corporation Via 10 Ethernet Bridge.

All features & specifications subject to change without notice. DOC 103320 PN 10761 8-99