## Introduction

Normally, one would find our Quick Start at this location. But to break with tradition and keep us all on our toes, we thought we'd be different. After all, the Via 10 is different in that it has no audio connections. Many Via 10 users employ the Via 10 to run Rane's RW 232 devices over a standard Ethernet LAN. Such users need only read the *Configuring the Via 10 & PC* (page Manual-4) and the *RW 232* section under *Hardware* (page Manual-6) to get rolling. Those who want the Quick Start need only think of these two sections as the Quick Start. See, it's not *that* different.

This document is organized in four parts. Part one is a short description of the front and rear panel controls found on the Via 10 (page Manual-2). Part two is *Configuring the Via 10 & PC* (page Manual-4) which explains what the *Via 10 Config Utility* does. It also reviews the computer setup that is required so the computer can talk through the Via 10's IP (Internet Protocol) "language." Part three goes over the *Hardware* details of the Via 10's I/O ports (page Manual-6). Four sections are found: RS-232; RS-485; Versatile Input Port (VIP); and the Versatile Output Port (VOP). OK, so VIP and VOP should have been forever retired as cheesy splash screens from the old Batman TV series. For those who watch Dilbert, it is true that naming things like this is always the hardest part of product development. Part four gets into Microsoft's ActiveX controls and how to use them to control RW 232 and other parameters (page Manual-9). Part four also contains the ActiveX Control details of the Via 10 and other Rane-specific ActiveX controls for our computer-controllable products.

WEAR PARTS: This product contains no wear parts.

FRONT PANEL DESCRIPTION
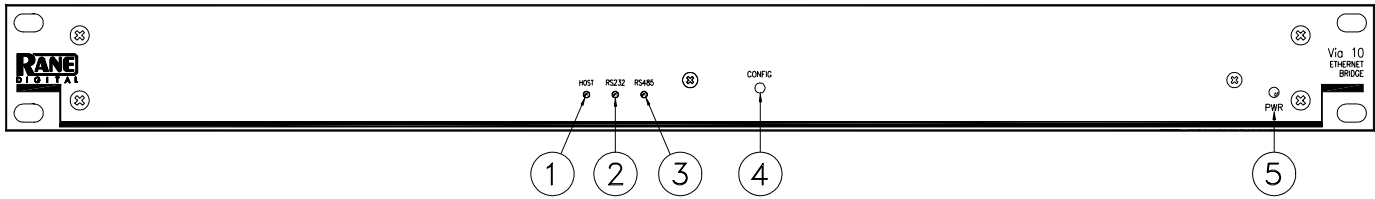
① **HOST** indicator lights only when the Via 10's internal host microprocessor "talks" (reads or writes) to the VIP or VOP.

② **RS232** indicator illuminates when there is activity on the Via 10's RS-232 port.

③ **RS485** indicator flashes when there is activity on the Via 10's RS-485 port.

④ **CONFIG** button is recessed, only used to set the Via 10's IP address during initial setup. See *Configuring the Via 10 & PC* on page Manual-4.

⑤ **PWR** indicator lights when the Via 10 is powered. It flashes when in Via 10 CONFIG mode.
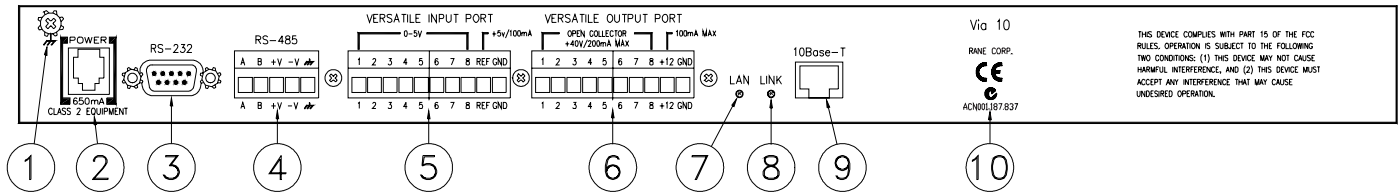
① **Chassis ground screw & star washer.** Since the Via 10 is powered from a remote AC power supply which does not carry chassis ground through to the grounding pin of the AC cord, this screw is provided in case your system does not have another earth grounding means. See the CHASSIS GROUNDING note below.

② **POWER input connector.** *Use only a Rane RS 1, or other Remote AC power supply approved by Rane.* This unit is supplied with a remote power supply suitable for connection to this input jack. Consult the factory for a replacement or a substitute. This unit's power input is designed for an AC supply, delivering 18 volts, from a center-tapped transformer capable of supplying at least the 650 mA of current demanded by this product. Using any other type of supply may damage the unit, void the warranty or catapult the moon out of its orbit. See RaneNote 121 "Remote AC Power—An Idea Long Overdue."

③ **RS-232 port** provides the communications data path between RS-232-based serial devices such as our RaneWare line of audio products. Be sure the Via 10 is configured properly for your serial application.

④ **RS-485 port** provides the communications data path between RS-485-based serial devices such as Rane's SR 1L Smart Remote control which is an accessory for the SRM 66 Splitter Router Mixer. Be sure the Via 10 is configured properly for your cereal application. *(OK, it's a bad joke.)*

⑤ **Versatile Input Port (VIP)** is an exquisitely programmable logic and/or A/D input port for use with external switches, potentiometers or any zero to five volt instrumentation device. Up to eight input devices in any variety are supported. See the *Hardware VIP* section on page Manual-7 for further details.

⑥ **Versatile Output Port (VOP)** is a splendidly programmable open-collector logic output port for use with external indicator lamps, LEDs, relays or any ground referenced external device. Up to eight output ports support any assortment of output devices. See the *Hardware VOP* section on Manual-8 for further details.

⑦ **LAN indicator** flashes when the Via 10 is connected to a 10Base-T network.

⑧ **LINK indicator** quickly glows when any packet is present on the network. *Yes, this means any packet, including packets that are or are not intended for the Via 10.*

⑨ **10Base-T Ethernet jack** connects the Via 10 with a standard RJ-45 connector to either a PC's Ethernet card or a standard HUB or concentrator in a network.

⑩ **The Australian C-Tick mark** does nothing when pressed, should not be licked and indicates that the Via 10 is safe (in the UL sense) to use down under.

CHASSIS GROUNDING

Units like the Via 10 with outboard power supplies do not earth ground the chassis through the line cord. This chassis connection is critical and in most installations, required by law. Many ground this point to an amplifier chassis ground, grounded rack rails or directly to the grounding screw on a grounded AC outlet cover by means of a wire secured on both ends with star washers to guarantee proper contact.

Please refer to RaneNote 110, "Sound System Interconnection" (available at *www.rane.com*) for further information on system grounding.

Configuring the Via 10 & PC

The disks that ship with the Via 10 contain several tools:
1) The VIACONFIG utility for initializing the Via 10.
2) Rane ActiveX controls for the four Via 10 hardware ports plus controls for Rane's RW 232, SRM 66 and SR 1L products. These ActiveX controls are registered (i.e., copied to your computer) during the installation process.
3) The VIPVOP utility for testing the VIP and VOP interfaces.

Example HTML (HyperText Markup Language) files to assist system programmers are available as links from Rane's Via 10 web page at *http://www.rane.com/via10.htm*.

Three steps are required to configure the computer and Via 10 for typical applications. Step one is to design the network and determine its needs; for example, the number of network devices (also called DTEs [*Data Terminal Equipment*]). In step two you must determine the IP addresses you want to use for each computer in the system. You'll also need to verify that the computer is configured properly to speak to the Via 10 and the rest of the network. Step three is running the *Via 10 Configuration Utility* (VIACONFIG) to set the IP address and RS-232 and RS-485 port baud rates and parities, among other things.

I. Network design. First design your Ethernet network. If you only have one computer and one Via 10, you'll need a CAT 5 (Category 5) *crossover cable,* not a standard ethernet cable…and you thought crossovers only split audio signals into highs and lows. A crossover cable is a CAT 5 cable wired so the transmit pair at one end is connected to the receive pair at the other. If you have more than two Ethernet devices – i.e., more than one computer or more than one Via 10 or other Ethernet device – you'll need a hub (also called a *concentrator* or *repeater*) to connect them. There are many sources for help on designing Ethernet-based networks, such as the Rane Via 10 web page. It includes links to some very helpful web sites with more information on Ethernet and network design than you'd ever need to know: *www.rane.com/via10.htm*. Also, see RaneNote 144, "Emerging Standards for Network Audio System Control" for background on how all this network talk fits into the audio industry in the first place.

II. Computer IP set up. The computer used with the Via 10 must be set for network operation to allow it to speak to the Via 10 using TCP/IP protocol. (TCP stands for Transmission Control Protocol.) If your computer is already set up for network operation you can skip to the next section.

Setting up a Windows 95/98 PC for network communications:

Note: As you go through the following procedure your computer tells you on more than one occasion that it needs to reboot before changes take effect. Just go along with it when this happens. Yeah, it's a big waste of time but this is an owner's manual, not an editorial page – so just do it, OK?

1. Insure you have a functional Ethernet adapter (NIC or Network Interface Card) installed in the PC. If installed, its operation may be checked by right clicking on 'My Computer' followed by a left-click on the selection 'Properties' and again a left-click on the 'Device Manager' tab of the 'System Properties' dialog box. Click on the plus (+) sign to the left of 'Network Adapters' to view the configured adapters. A malfunctioning adapter is indicated by either a yellow question mark or a red 'X'. There are several troubleshooting aids available in Windows Help to assist you in making the network adapter functional.

2. Once you have a correctly operating Ethernet adapter, TCP/IP is easy to configure. To begin, open 'My Computer' or 'Start > Settings,' then 'Control Panel > Network'. The 'Configuration' tab shows a list of configured devices, such as your network card and possibly dial-up networking. Below these is a list of network protocols previously configured for the system. If TCP/IP has been configured and bound to the Ethernet adapter, you will see an entry resembling 'TCP/IP -> NameOfAdapter Pnp LAN Adapter.' If this shows on the list, skip to step 4. If it's not there, go through step 3 first.

3. To add TCP/IP to the LAN Adapter, click the 'Add' button in the Network dialog. A list of network component types displays. Choose 'Protocol,' then 'Add'. A list of manufacturers displays. Click on 'Microsoft', then 'TCP/IP' in the right-hand window, then 'OK'.

4. To be a part of a TCP/IP network, your computer (and each network device including the Via 10) needs a unique IP address of its own. If not already open, open 'Settings > Control Panels > Network.' Highlight the 'TCP/IP -> NameOfAdapter PnP LAN Adapter' by clicking on it. Then choose 'Properties > IP Address.' Click on the 'Specify an IP address' option. If your computer *is* part of an existing network, you must now obtain a valid address from the network administrator—if you have one. If not, you may use an address out of the internationally accepted private network block of addresses, which is 192.168.nnn.nnn where nnn represents any number between 0 and 255. A good choice might be 192.168.100.100 just because it's easy to remember if you ever need to know it again. The 'Subnet Mask' should be set to 255.255.0.0 for most installations. These two settings allow a network with addresses in the range of 192.168.0.0 through 192.168.255.255. Click the 'OK' buttons as many times as they appear to extinguish all the network setup dialog boxes.

Note: Once you've set networking on a Win95/98 computer, you'll notice it wants a user name and optional password each time it boots. To eliminate this nuisance, go back in to Control Panel > Network and change the 'Primary Network Logon' selection from 'Client for Microsoft Networks' to 'Windows Logon' then click 'OK' again. Oh, and guess what? Your computer will want to be rebooted *again* for the change to take effect. Good news, though, it won't ask for a user name and password this time.

III. Via 10 Config Utility. The Via 10 Config Utility (VIACONFIG) ships on floppy disk with each Via 10 and can also be found at *www.rane.com/via10.htm*.

VIACONFIG has several purposes:
a) It allows setup of the Via 10's IP address and serial port baud rate and parity settings.
b) It verifies Via 10 operation with the computer.
c) It allows Via 10 firmware updates over the LAN.
d) It provides a debug mode to test the Via 10 serial ports using Windows' *HyperTerminal* or a similar terminal program. (A separate VIPVOP application tests the Via 10's VIP and VOP interfaces.) VIACONFIG is also the place to look if you need to find out the MAC (*Media Access Control*) address of a Via 10.

By default, VIACONFIG places its files in a folder called C:\Program Files\Rane Corporation\Via 10 Utilities. Also, shortcuts to VIACONFIG and VIPVOP are placed in C:\Windows\Start Menu\Programs\RaneWare. This provides access to Via 10 files through Window's Start Menu.

Via 10 MAC address. Every Ethernet device in the world, including each Via 10, contains a unique MAC address. The IEEE doles out MAC addresses to the universe and each Via 10 is loaded with a unique MAC address at Rane's factory before shipping. (Otherwise, we couldn't test them on a LAN before shipping…get it?) When you run VIACONFIG with a Via 10 (in *config* mode) connected, the MAC address for the connected device is displayed at the top. MAC addresses are in hexadecimal and are 6 bytes long—for example: 00:60:2B:02:3F:FF. For the curious, this is an address somewhere around 4.13×10^9. There are many more addresses available for the future. Rane offers substantial discounts for the first system ordered where this number of MAC addresses is insufficient.

Setting the Via 10 IP Address. Each Via 10 requires a unique IP address so the network knows what "phone number" to use to talk to each Via 10. See step #4 under Computer IP Setup (previous page) to determine valid IP addresses for the Via 10(s). Using the proper IP address is important because of potential (or future) conflicts with other network traffic. Also, depending on what IP Address and Subnet Mask you've used on the PC(s) involved, certain Via 10 IP addresses will be invalid and not work. If you've set the PC with IP address 192.168.0.0 and Subnet Mask 255.255.0.0, a good start for Via 10 IP Addresses might be 192.168.100.100. Add 1 to the final number for subsequent Via 10 IP addresses.
1. Install the Via 10 Config Utility by inserting the disk in the computer's floppy drive (or download it from our web site *www.rane.com*), then select Run from Windows' Start menu and Browse to the floppy drive (or file) and double-click SETUP to run the VIACONFIG install routine.
2. If you power up a new Via 10, it comes up in *config* mode which is indicated by a flashing POWER LED. If it's not already, place the Via 10 in *config* mode by unplugging the power, then, hold in the Via 10's front panel CONFIG button with a pen or small implement and plug in the power to the Via 10. The POWER LED flashes indicating *config* mode.

3. Run VIACONFIG, then type in the proper IP address for the connected Via 10 in the IP address field and click the Send Addr button. When you run VIACONFIG and have a powered Via 10 in *config* mode connected to the network, the indicator at the bottom right of the VIACONFIG screen turns *green* indicating communication with the Via 10. If this indicator is *yellow*, it means that the Via 10 is successfully receiving network packets, but the Via 10 IP address you've input is in conflict with the valid IP addresses set on the PC. If this indicator is grayed out, verify that the Via 10 is in CONFIG mode. To debug a non-communicating Via 10, check that the computer and any hubs in use are set and operating properly and be sure you have the proper cables. Most non-communicating Via 10's are caused by improper network settings on the various components.
   Note: Be sure you use a valid IP address obtained either from a network administrator (many won't have one of these nerds) or from using one of the IP numbers discussed above under Computer IP Setup, step #4. A good reason to always obey these "Standard Committee-driven" IP address rules includes future network upgrades and their disposition which (although unforeseen and maybe inconceivable now) might do rather strange things when installed a year or three from now.
   Once the Via 10 IP address is set properly, the other fields in the VIACONFIG screen are viewable and show the current Via 10 settings such as MAC address and RS-232 and RS-485 Baud and Parity values.
4. Unplug the Via 10 and plug it back in again to complete the Via 10 IP Address setup. The Power LED should not flash once power is restored. If it does, see steps 2 and 3 again.

RS-232 & RS-485 Baud and Parity settings for the Via 10 ports are shown on the VIACONFIG screen. The default RS-232 baud rate is 19200, default parity, Even. If your application requires different settings, select the new settings from the pull-down menus provided. *To send these settings to the Via 10, you must hit the* Test 232 *and* Test 485 *buttons*.
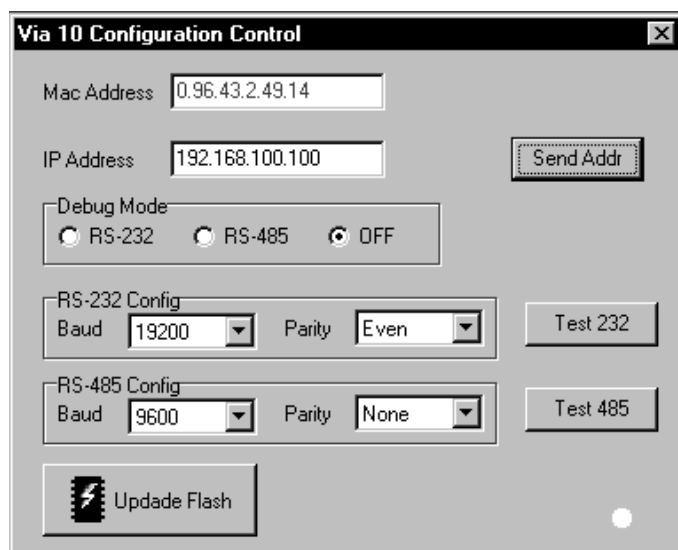

VIACONFIG screen

Test the Via 10's RS-232 port (optional) by running Windows' HyperTerminal program found under Start > Programs > Accessories > HyperTerminal. With HyperTerminal running and the Via 10's RS-232 port hooked up to the computer's RS-232 port using (unfortunately) a null modem cable, click the Test 232 button on the Via 10 Configuration screen. If working properly, the message: "232 Test" shows in the HyperTerminal screen. This verifies that the baud and parity settings are correct.

Note: A null modem cable is required for this test because the Via 10's RS-232 port must "look like" a terminal to the computer.
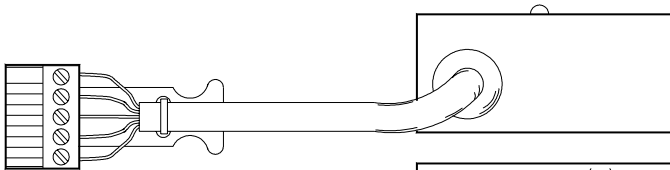
Testing the Via 10's RS-485 port (optional) takes one extra piece of hardware. The Rane DSC 1 accessory is an RS-485 to RS-232 converter that is useful for this test. Run Windows' HyperTerminal program found under 'Start > Programs > Accessories > HyperTerminal.' With HyperTerminal running and the Via 10's RS-485 port hooked up through an RS-485 (or RS-422) to RS-232 converter using a null modem cable hooked to the computer's RS-232 port, hit the Test 485 button on the Via 10 Configuration screen. If working properly, the message: '485 Test' shows in the HyperTerminal screen.

Note: A null modem cable is required for this test because the Via 10's RS-485 port must "look like" a terminal to the computer.

VIPVOP screen
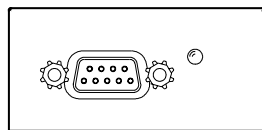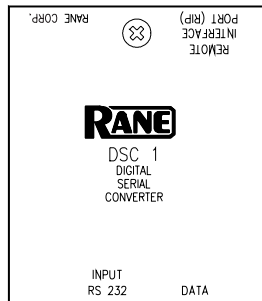
Test the VIP & VOP ports (optional) by looping them together so data sent out of the VOP appears on the VIP. Connect VOP 1 to VIP 1, VOP 2 to VIP 2, etc. Then run the VIPVOP utility. The default location after installation is: C:\Program Files\Rane Corporation\VIPVOP. In the box in the upper right corner of the VIPVOP screen, type in the proper IP address of the Via 10 you are testing. Then click the Connect button; the green LED on the VIPVOP screen lights when connection is successful.

VIPVOP displays 8 VOP check boxes down the left side; when checked, the corresponding Via 10 VOP pin is pulled low (0 volts/ground). When unchecked, the corresponding VOP pin is pulled high (+5 VDC). Since the VOP pins were previously connected directly to the corresponding VIP pins, any changes to the VOP check boxes should immediately show up on the VIP meters in the center of the VIPVOP screen. VIP pin 1 is the left-most meter, then pin 2, 3, et cetera, with VIP pin 8 on the far right. Connect a potentiometer to the VIP to vary the voltage and display the corresponding meter reading on the vipvop screen.

Hardware

This section discusses each of the Via 10 hardware ports. As the title suggests, here you'll find the hardware details for each. Software details as well as applications are found in – you guessed it – the Software and Applications section on page Manual-8.

Hardware 1: RS-232 & the RW 232

RS-232 with Rane RW 232. The RS-232 port on the Via 10 can be hooked directly to the RW 232 Input port on any Rane RW 232 device allowing extended communication distances up to 305 feet (100 meters) over a standard 10Base-T Ethernet LAN. ActiveX controls for commonly controlled parameters on the following Rane products are accessible using any ActiveX capable software development tool: RPE 228d, RPM 26v, ECB 62, ECM 64, RPD 1. (See *Applications Using ActiveX* on page Manual-10 for software and control details for these products.) In English what this means is that through a little bit of software know-how, one can, for example, draw a slider on a web page, then link the slider's operation to the Master Output Level control on the Rane RPM 26v. But, since this is the Hardware section of the Manual, we're a bit premature in even mentioning software here.

The default settings of the Via 10's RS-232 port support RW 232 communications. If RW 232 devices are being used with the Via 10 RS-232 port, the shipped baud and parity settings of the RS-232 port need not be changed. Just in case, the default settings are listed below. Only 8-bit wide words are supported—no 7-bit words.

Via 10 Default RS-232 Communications Settings
(required for RW 232 use)

Baud	Parity	Start bit	Stop bit	RS-232 cable length
19200	Even	1 (always)	1 (always)	50 feet max
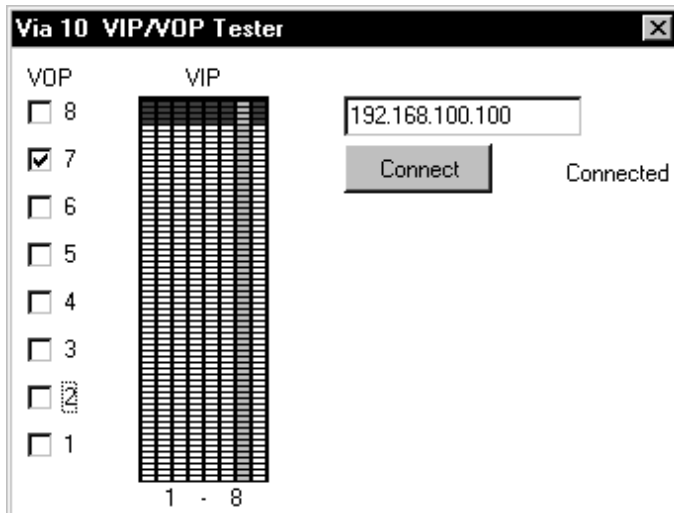
RaneWare RW 232 Ethernet operation. Run RaneWare (2.10 or higher) and from the System menu, select System Setup. In the Connection box, select the *Via 10 (Ethernet)* radio button so RW 232 commands will be sent out of the Ethernet port (rather than out the PC's RS-232 COM port nor out the computer's modem and phone line to a far end modem and Rane's RPD 1). *Make sure to type the proper Via 10 IP address for the RaneWare RW 232 device(s) you wish to control over the network.* Each Via 10 can accept up to 16 RW 232 devices in any variety connected to its RS-232 port. To address more RW 232 devices, use additional Via 10s.

Generic RS-232 use. RS-232 based serial devices can transport their data through the Via 10 as long as the Via 10's RS-232 port is configured properly. The default settings for the Via 10 RS-232 port are shown above. Supported ranges for RS-232 communications can be found in the VIACONFIG utility. The pull down fields display all supported settings. For detailed RS-232 port specifications, see the Data Sheet section of this Manual.

Standard RS-232/DB-9 wiring for Tx and Rx connections are provided. The maximum cable length supported by RS-232 is still 50 feet (15 meters); this assumes good quality, CAT 5 cable.

A variety of external means are available to lengthen the 50 feet limitation by using RS-232 to RS-422 or RS-485 converter devices. These can be sourced from a variety of manufacturers (but not Rane – we can't make everything, where would we put it? [*OK, this is a Steven Wright joke, but a good one*]). At this point, we're compelled to ask: doesn't it seem strange to have to mention such devices when your system already includes 100 meter-capable Ethernet for control?

Hardware 2: RS-485, the Rane SR 1L and SRM 66

SR 1L Use. This Rane accessory is a generic RS-485 device. Though an accessory for the Rane SRM 66 Splitter Router Mixer, SR 1L's can be used independently for a variety of applications. See Software and Applications on page Manual-8.

Up to seven SR 1L Smart Remotes can be wired directly to the Via 10 RS-485 port in any combination of daisy chain or star configuration. Use CAT 5 cable (two twisted pairs plus a shield) and double check the wiring since this is often the

cause of baldness (*i.e., pulling our collective hair out debugging problems*). Only the most distant SR 1L connected to the Via 10 should have its R_T switch *ON,* which connects a 150 ohm terminating resistor.

SRM 66 Use. The SRM 66 contains an RS-485 port (called RIP for Remote Interface Port) which may be wired to the Via 10's RS-485 port for SRM 66 control over a LAN; however, you cannot connect both an SRM 66 and SR 1L remote(s) to the same Via 10—one device per RS-485 port. *Do not connect the V+ terminals together—connect A to A, B to B, V– to V– and shield to shield.*

RS-485 remote power. The Via 10's RS-485 port includes a low current, 8 VDC supply which is required for SR 1L operation, but can be used for powering other low power peripheral devices. The data sheet (in this booklet) lists the specifications for this small power source, including its current capabilities.

Generic RS-485 Use. Use CAT 5 cable for connection to the RS-485 port. The balanced data connections can drive up to 100 meters of cable when properly terminated with 150 ohms to obey the standard and ensure trouble-free operation.

Hardware 3: Versatile Input Port (VIP)

The VIP provides the perfect place to connect memory recall switches, potentiometers, temperature sensors and other instrumentation and/or logic devices. Each of the eight inputs accepts 0 to 5 VDC and includes a true 8-bit A-to-D converter providing 256 steps; (*it's actually a 10-bit converter that is rounded to an 8-bit word length*). You can therefore use each of the eight VIPs as independently programmable comparators, ratiometric controls or instrumentation inputs. A current-limited (100 mA max) internal voltage reference of 5 volts (Vref) is supplied. Each port includes a 100k ohm pull-up resistor to Vref and a 2nd-order, 15 Hz Butterworth low pass averaging filter. Any range of potentiometer values and tapers can be used as long as the 100 mA current limitation is not exceeded. Either momentary or position-sensitive switches can be used; use whatever is appropriate or easiest for your application and its software setup requirements. Any instrumentation output with a 0 to 5 VDC range can be used with the VIP. The VIP update rate is dominated by the network transmission speed and is read each time the VIP data is requested using the Via10VIPX ActiveX control (see page Manual-9).
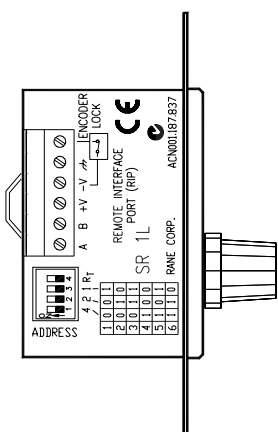
SR 1L Smart Digital Remote Control
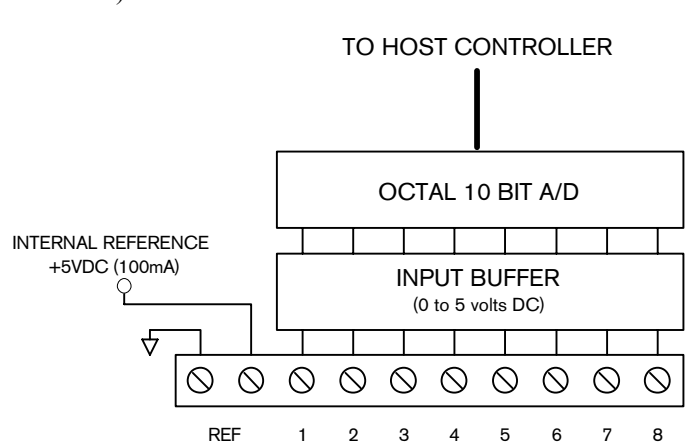
VIP (Versatile Input Port)

Hardware 4: Versatile Output Port (VOP)

The VOP provides an impeccable place to connect indicators (LEDs, small lamps), relays and/or other logic inputs. Each of the eight open collector outputs are independently programmable using the Via10VOPX ActiveX control. Use each of the eight VOPs to independently drive indicators or relays. Current on each of the eight open collector ports is limited to 100 mA maximum when all 8 ports are driven; 200 mA maximum when 4 ports are driven. The VOP's internal 12 VDC supply pin is limited to 100 mA maximum. Each open collector VOP output includes a clamping diode for switching inductive loads. Any combination of lamps, LEDs, relays and logic input ports can be used as long as the 100 mA (8 driven) current limitation is not exceeded. *So choose your parts wisely.* External power supplies may be necessary when using larger current capacity relays that require more than the 12 VDC/100 mA maximum allowed by the VOP. Up to a 40 volt external power supply can be used with the VOP as long as the external supply is ground referenced (i.e., connected) to the VOP GND pin. The VOP update rate is dominated by the network transmission speed and is updated each time the VOP data is renewed or changed using the Via10VOPX ActiveX control.

PORT 1 SHOWN, 2 THROUGH 8 THE SAME
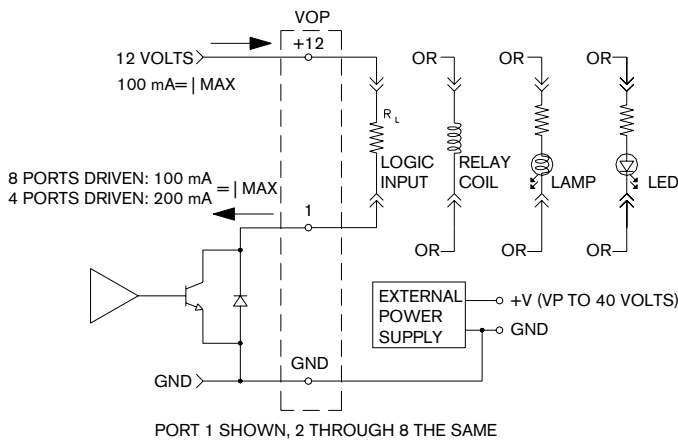
VOP (Versatile Output Port)

Software and Applications

ActiveX and Software issues

ActiveX controls (defined in the next section) are of concern to the pro audio community. This technology allows designers of computer-controlled sound systems to create common front-end software control panels that operate different manufacturers' units, without having to know anything about their internal code or algorithms. This is powerful. Once more manufacturers jump on the ActiveX bandwagon, systems designers will no longer be limited by the products offered by a single, platform-specific (i.e., closed architecture) manufacturer. Each ActiveX control is made up of Properties and Events. ActiveX control Properties are values associated with the control which might include such things as level settings, mute condition and meter readings. ActiveX control Events tell the computer something significant has happened, such as a switch closure or clip detection. ActiveX allows the manufacturer to create an object (a piece of software code) which fully describes a device, while hiding the implementation details such as protocol from the programmer. By hiding the communication details, there is no longer a need for different manufacturers' devices to agree on protocol. This lack of a protocol standard means that cooperation between manufacturers is not required. It allows each manufacturer to choose the best protocol for their devices.

For example, no longer would you need to know that the 17th byte of a 32-byte status message meant that the unit's second output channel was muted. With an ActiveX control, you might simply refer to the device's output 2 mute status as "Device1.Out2Mute".

What is ActiveX anyway? ActiveX is a Microsoft developed software technology released in 1996. ActiveX, formerly called OLE (Object Linking and Embedding), is loosely based on the Component Object Model (COM), but provides substantially different services to developers. *At this point, you might think: WHAT!?^* But keep reading!* An ActiveX control is a unit of executable code (such as an .EXE file) that follows the Active X specification for providing software objects. This technology allows programmers to assemble reusable software controls into applications and services. However, software development using ActiveX technology should not be confused with Object-Oriented Programming (OOP). OOP is concerned with creating objects, while ActiveX is concerned with making objects work together. Simply stated, ActiveX is a technology that lets a program (the ActiveX control) interact with other programs over a network (e.g., the Internet or Ethernet), regardless of the language in which they were written. ActiveX controls can do similar things as Java, but they are quite different. Java is a programming language, while ActiveX controls can be written in any language (e.g., Visual Basic, C, C++, even Java). Also, ActiveX runs in a variety of applications, while Java and Javascript usually run only in Web browsers.

ActiveX controls can be used in web pages and within visual programming languages such as Delphi, Power Builder, Visual Basic and even in tools such as Lab View.

In English, for our pro audio applications, objects are the

sliders, buttons, indicators and other graphical screen entities. The objects have properties such as slider position and slider range and *on* or *off* for buttons and indicators, etc. Once the screen objects are chosen and placed, ActiveX controls can then be used to link to the object's properties to other ActiveX controls. Thus, allowing linking a slider to the ActiveX control for a level control so moving the level control graphic subsequently varies the audio level.

Implementing ActiveX controls. An example might help clear this up. A few assumptions are that a computer is used to control an audio system over a 10Base-T Ethernet network and that something on the computer's screen controls some function of the system. The basic idea is to place controls on the computer screen and link them, using ActiveX, to a parameter in the system. What's important here is that only the controls required by the computer's end user need be displayed. Additionally, more detailed interfaces (hidden or password-protected web pages) can then be created to provide any level of system parameter access desirable—from complete system control, to a lone system power button or anything in-between. No longer are systems limited to the number of security levels provided by vendor's software, nor are you limited to controlling a single system parameter per screen control. For example, you can link multiple ActiveX controls to a single screen object, thus adjusting EQ level simultaneously with master level control and limiter threshold. You can also program actions when certain events occur, such as triggering audio playback or turning a system off at a certain time or adjusting delay time as the temperature changes.

Microsoft FrontPage 2000 ActiveX example. Many use Microsoft's FrontPage 2000 to create user interface web pages for computer-controlled systems. These web pages may or may not be accessible over the Internet. The examples found on Rane's web site will review the basic FrontPage 2000 procedures to link screen controls to ActiveX controls. A second example illustrates how to use Events, such as clipping, to program a hands-off script to turn a level down. Once you master these two concepts, using FrontPage with ActiveX provides literally an infinite number of programming possibilities. More information about the Via 10's I/O port ActiveX controls and the ActiveX controls for Rane's RW 232 devices is found in the sections below.

Via 10 ActiveX Example. The short version of this procedure is: insert a Via 10 ActiveX control in your web page, set the control's Properties as needed; assign a button (or scroll bar) to the ActiveX control and set its Properties; then use Microsoft's Script Wizard to link the button's Events to Via 10 ActiveX parameters or link other Events and Actions if needed for your application.

Important note: *Even though Via 10 ActiveX controls must be inserted in each web page where Via 10 controls are needed, the Via 10 controls that are displayed in FrontPage 2000's Normal window are not visible when viewed in Internet Explorer or in the Preview window in FrontPage 2000.*

The James A. Michener version of these examples is found on our web site. [This is the extra added advantage of receiving an early Via 10 – the Manual is 99.8 percent done. The 0.2% is on our web site.] Go to *www.rane.com/via10.htm* for other future downloadable updates such as sample HTML pages and additional ActiveX controls.

Applications using ActiveX

Via 10 ActiveX Controls. Each Via 10 hardware port has an associated ActiveX control to allow programmable access to the data entering or leaving a given port. This manual has previously suggested many applications for these ports. They are summarized below.

Via 10 RS-232 port Applications:
- Extend the communications distance of RaneWare RW 232 devices allowing RaneWare use over 10Base-T Ethernet networks. Keep in mind that many stacks of RW 232 equipment can be controlled from a single location. Up to sixteen RW 232 devices can be used with each Via 10. And multiple Via 10 devices can exist on the same Ethernet network.
- Use on-screen meters to indicate the real time (or at least close to real "network" time) levels of RW 232 devices. For example, place six multi-segment meters on the computer screen and link them to the six output meters found on the RPM 26v. Place an RPM 26v Master Level Control slider next to the meters as a system level slider. Link this same screen slider to multiple RPM 26v devices as well as the low shelf and high shelf EQ controls of all RPM 26v input PEQ blocks thus creating a customized loudness compensation control.
- Transport any RS-232 data over 10Base-T Ethernet. A variety of baud and parity settings are supported and ActiveX controls can actively and automatically change the RS-232 port settings allowing a wide variety of RS-232 data.

Via 10 RS-485 port Applications:
- The RS-485 port interfaces directly with the Rane SRM 66 and the SR 1L. Link input routing screen controls to the SRM 66 matrix mix cross-points (I/O routing), include level controls next to each output for on-screen level adjustments. In another Via 10 on the same network, use up to seven SR 1L remote devices and link them to seven different RPE 228d equalizer output level controls—one per zone.
- Any RS-485 data can be transported via Ethernet 10Base-T as long as the Via 10 ports are configured with the proper baud and parity settings.

VIP Applications
- Connect memory recall switches, potentiometers, temperature sensors & other instrumentation and/or logic outputs to the Versatile Input Port. Third-party software like FrontPage, C++, Delphi or Lab View allow programming each VIP pin independently, thus providing any combination of up to eight applications. Thus, with software scripts, there is an unlimited number of possibilities for the VIP.
- Use multiple hardware switches and/or logic output ports on other system devices to recall system configurations or specific system settings. Using scripts, when a switch is closed, any ActiveX Control parameter(s) can be altered. Use a logic output to change a screen indicator, turn on a relay driven from a Via 10 VOP pin and change every system parameter – all automatically and simultaneously!
- Use the position of a potentiometer to recall parameter values, adjust level settings, change an EQ curve, delay time and display the pot's position on a computer screen. Link a temperature sensor's value to adjust the delay times of a speaker stack. Get really picky and adjust delay time for humidity too. Use a wind sensor to actively rotate your speaker stack to compensate for sudden wind shear at your local hurricane music festival. *(Don't laugh, this works!)*

VOP Applications
- Connect indicators (LEDs, small lamps), relays and/or other logic inputs to the VOP to allow computer screen controls to correspond to the real world indicators and relays required in computer-controlled systems. Small lamps and/or LEDs can be used as indicators for a wide variety of applications: indicate current memory, signal present or clip indicators, system on indication, etc. Relays driven from the VOP can perform a variety of jobs – power other devices, turn on or off other components in the system, open doors, unlock bank safes, turn on lights, lower projector screens, close the curtains, etc. Turn on your water sprinkler system from your Internet home page or better yet, connect a moisture sensor to the VIP port and automatically water your lawn according to the precipitation in your ground. Link your cell phone messaging system to heat up your hot tub before you get home from a restaurant. Drive the logic input ports of non-networked system devices to alter system parameters thus allowing non-Ethernet ready devices to be integrated into networked systems.

Find detailed applications and example HTML files on our web site. Also on our web site will be newly published ActiveX controls for Rane products as they become available.

Put a bookmark at *www.rane.com/via10.htm.*

Via 10 Active X Controls

VIP ActiveX control

Control Name: Via10VIPX

Description: Interface to Via 10's VIP Port to read switches, pots, temperature sensors, other logic outputs…

Design Time Parameters:

Addr	Via 10's IP Address
AutoUpdate	0 = Manual VIP update only, -1 = Get VIP values automatically
UpdateFreq	Number of milliseconds between auto updates

Runtime Parameters:

VIP1	0 – 255 = Value of VIP 1
VIP2	0 – 255 = Value of VIP 2
VIP3	0 – 255 = Value of VIP 3
VIP4	0 – 255 = Value of VIP 4
VIP5	0 – 255 = Value of VIP 5
VIP6	0 – 255 = Value of VIP 6
VIP7	0 – 255 = Value of VIP 7
VIP8	0 – 255 = Value of VIP 8

Key Methods:

DoConnect	Initialize a connection to the Via 10
DoDisconnect	Break connection to Via 10
RequestVIP	Manually request VIP update

Events:

OnVIP1Change	Value on VIP 1 input changed
OnVIP2Change	Value on VIP 2 input changed
OnVIP3Change	Value on VIP 3 input changed
OnVIP4Change	Value on VIP 4 input changed
OnVIP5Change	Value on VIP 5 input changed
OnVIP6Change	Value on VIP 6 input changed
OnVIP7Change	Value on VIP 7 input changed
OnVIP8Change	Value on VIP 8 input changed
OnConnect	Connection to Via 10 started
OnDisconnect	Connection to Via 10 stopped

Initialization:

DoConnect	*must be called to initialize a connection to the Via 10*

VOP ActiveX control

Control Name: Via10VOPX

Description: Interface to Via 10's VOP Port to drive relays, lamps or LEDs, other logic input ports…

Design Time Parameters:

Addr	Via 10's IP Address
AutoSend	0 = Manually send VOP Changes, -1 = Automatically send VOP Changes

Runtime Parameters:

VOP1	0 = VOP OFF, -1 = VOP ON
VOP2	0 = VOP OFF, -1 = VOP ON
VOP3	0 = VOP OFF, -1 = VOP ON
VOP4	0 = VOP OFF, -1 = VOP ON
VOP5	0 = VOP OFF, -1 = VOP ON
VOP6	0 = VOP OFF, -1 = VOP ON
VOP7	0 = VOP OFF, -1 = VOP ON
VOP8	0 = VOP OFF, -1 = VOP ON

Key Methods:

DoConnect	Initialize a connection to the Via 10
DoDisconnect	Break connection to Via 10
RequestVOP	Request current VOP values
SendVOPValues	Manually update VOP values

Events:

OnConnect	Connection to Via 10 started
OnDisconnect	Connection to Via 10 stopped
OnReceived	New VOP values received

Initialization:

DoConnect	*must be called to initialize a connection to the Via 10*

RS-232 ActiveX control

For RaneWare RW 232 or generic RS-232 device communications on to and off of Ethernet 10Base-T.

RS-485 ActiveX control

For SR 1L or generic RS-485 device communications on to and off of Ethernet 10Base-T.

Control Name: Via10SerialX

Description: General interface to Via 10's Serial Ports (RS-232 & RS-485)

Design Time Parameters:

Addr	Via 10's IP Address
Port	0 = RS-232, 1 = RS-485
Baud	0 = 300, 1 = 1200, 2 = 2400, 3 = 4800, 4 = 9600, 5 = 19200, 6 = 38400
Parity	0 = Odd, 1 = Even, 2 = None

Runtime Parameters:

BytesIn	Number of bytes in the input buffer

Key Methods:

DoConnect	Initialize a connection to the Via 10
DoDisconnect	Break connection to Via 10
PeakChar	Read one character from the input buffer without removing it
PeakString	Read a string from the input buffer without removing it
ReadChar	Read one character from the input buffer and remove it
ReadString	Read a string from the input buffer and remove it

Events:

DataAvailable	Data exists in the input buffer
OnError	An error occurred talking to the Via 10

Initialization:

DoConnect	*must be called to initialize a connection to the Via 10*

Control Name: Via10Sr1X

Description: Automatic control of SR 1L Remotes

Design Time Parameters:

Addr	Via 10's IP Address
Port	0 = RS-485, 1 = RS-232
Remote_0_Enabled	0 = Disabled, -1 = Enabled
Remote_1_Enabled	0 = Disabled, -1 = Enabled
Remote_2_Enabled	0 = Disabled, -1 = Enabled
Remote_3_Enabled	0 = Disabled, -1 = Enabled
Remote_4_Enabled	0 = Disabled, -1 = Enabled
Remote_5_Enabled	0 = Disabled, -1 = Enabled
Remote_6_Enabled	0 = Disabled, -1 = Enabled
Remote_7_Enabled	0 = Disabled, -1 = Enabled

Runtime Parameters:

ErrorCount	0
Remote_0	Value of SR 1L Address 0 (0 – 31)
Remote_1	Value of SR 1L Address 1 (0 – 31)
Remote_2	Value of SR 1L Address 2 (0 – 31)
Remote_3	Value of SR 1L Address 3 (0 – 31)
Remote_4	Value of SR 1L Address 4 (0 – 31)
Remote_5	Value of SR 1L Address 5 (0 – 31)
Remote_6	Value of SR 1L Address 6 (0 – 31)
Remote_7	Value of SR 1L Address 7 (0 – 31)

Key Methods:

DoConnect	Initialize a connection to the Via 10; Automatically sets the proper baud and parity for SR 1L use.
SendMem	Sends a memory change to a *Slaved* SRM 66

Events:

OnError	Called when an error occurs talking to the Via 10
OnRemote0Change	Remote 0's value changed
OnRemote1Change	Remote 1's value changed
OnRemote2Change	Remote 2's value changed
OnRemote3Change	Remote 3's value changed
OnRemote4Change	Remote 4's value changed
OnRemote5Change	Remote 5's values changed
OnRemote6Change	Remote 6's values changed
OnRemote7Change	Remote 7's values changed

Initialization:

DoConnect	*must be called to initialize a connection to the Via 10*

Control Name: Via10SRM66X

Description: Allows control of an SRM 66 in DSC mode. *See RaneNote 138 for more details on parameters.*

Design Time Parameters:

Addr	Via 10's IP Address
Port	0 = RS-485, 1 = RS-232
AutoUpdate	0 = Manual update only, -1 = Update values of SRM 66 only

Runtime Parameters:

ErrorCount	Count of communication errors to the SRM 66
Out1_In1	In 1 to Out 1's Level (0 – 32)
Out1_In2	In 2 to Out 1's Level (0 – 32)
Out1_In3	In 3 to Out 1's Level (0 – 32)
Out1_In4	In 4 to Out 1's Level (0 – 32)
Out1_In5	In 5 to Out 1's Level (0 – 32)
Out1_In6	In 6 to Out 1's Level (0 – 32)
Out1_Master	Out 1's Master Level (25 – 85)
Out1_Limiter	Out 1's Limiter Threshold (0 – 28)
Out2_In1	In 1 to Out 2's Level (0 – 32)
Out2_In2	In 2 to Out 2's Level (0 – 32)
Out2_In3	In 3 to Out 2's Level (0 – 32)
Out2_In4	In 4 to Out 2's Level (0 – 32)
Out2_In5	In 5 to Out 2's Level (0 – 32)
Out2_In6	In 6 to Out 2's Level (0 – 32)
Out2_Master	Out 2's Master Level (25 – 85)
Out2_Limiter	Out 2's Limiter Threshold (0 – 28)
Out3_In1	In 1 to Out 3's Level (0 – 32)
Out3_In2	In 2 to Out 3's Level (0 – 32)
Out3_In3	In 3 to Out 3's Level (0 – 32)
Out3_In4	In 4 to Out 3's Level (0 – 32)
Out3_In5	In 5 to Out 3's Level (0 – 32)
Out3_In6	In 6 to Out 3's Level (0 – 32)
Out3_Master	Out 3's Master Level (25 – 85)
Out3_Limiter	Out 3's Limiter Threshold (0 – 28)
Out4_In1	In 1 to Out 4's Level (0 – 32)
Out4_In2	In 2 to Out 4's Level (0 – 32)
Out4_In3	In 3 to Out 4's Level (0 – 32)
Out4_In4	In 4 to Out 4's Level (0 – 32)
Out4_In5	In 5 to Out 4's Level (0 – 32)
Out4_In6	In 6 to Out 4's Level (0 – 32)
Out4_Master	Out 4's Master Level (25 – 85)
Out4_Limiter	Out 4's Limiter Threshold (0 – 28)
Out5_In1	In 1 to Out 5's Level (0 – 32)
Out5_In2	In 2 to Out 5's Level (0 – 32)
Out5_In3	In 3 to Out 5's Level (0 – 32)
Out5_In4	In 4 to Out 5's Level (0 – 32)
Out5_In5	In 5 to Out 5's Level (0 – 32)
Out5_In6	In 6 to Out 5's Level (0 – 32)
Out5_Master	Out 5's Master Level (25 – 85)
Out5_Limiter	Out 5's Limiter Threshold (0 – 28)

Out6_In1	In 1 to Out 6's Level (0 – 32)
Out6_In2	In 2 to Out 6's Level (0 – 32)
Out6_In3	In 3 to Out 6's Level (0 – 32)
Out6_In4	In 4 to Out 6's Level (0 – 32)
Out6_In5	In 5 to Out 6's Level (0 – 32)
Out6_In6	In 6 to Out 6's Level (0 – 32)
Out6_Master	Out 6's Master Level (25 – 85)
Out6_Limiter	Out 6's Limiter Threshold (0 – 28)
Out1_Group	Out 1's Group (0 – 6)
Out2_Group	Out 2's Group (0 – 6)
Out3_Group	Out 3's Group (0 – 6)
Out4_Group	Out 4's Group (0 – 6)
Out5_Group	Out 5's Group (0 – 6)
Out6_Group	Out 6's Group (0 – 6)
Rmt1_Group	Remote Address 1's Group (0 – 7)
Rmt2_Group	Remote Address 2's Group (0 – 7)
Rmt3_Group	Remote Address 3's Group (0 – 7)
Rmt4_Group	Remote Address 4's Group (0 – 7)
Rmt5_Group	Remote Address 5's Group (0 – 7)
Rmt6_Group	Remote Address 6's Group (0 – 7)
Rmt7_Group	Remote Address 7's Group (0 – 7)
Master_Group	Groups to include in the Master Group (0-63)
Group1	Group 1 Level (0 – 31)
Group2	Group 2 Level (0 – 31)
Group3	Group 3 Level (0 – 31)
Group4	Group 4 Level (0 – 31)
Group5	Group 5 Level (0 – 31)
Group6	Group 6 Level (0 – 31)
Master	Master Group Level (0 – 31)

Key Methods:

DoConnect	Initialize a connection to the Via 10. This automatically sets the proper baud and parity rates for SRM 66 use.
SetMem	Sends a memory change
RequestAllData	Gets all parameters from the SRM 66
RequestAllGroups	Gets all Group values from the SRM 66

Events:

OnError	An error occurred talking to the SRM 66
OnGotGroups	Group levels updated
OnGotParams	Unit Parameters updated

Initialization:

DoConnect	*must be called to initialize a connection to the Via 10*

SRM 66 Slave ActiveX control

Control Name: Via10SRMSlaveX

Description: Automatic control of an SRM 66 in SLAVE mode. *See RaneNote 138 for more details on parameters.*

Design Time Parameters:

Addr	Via 10's IP Address
Port	0 = RS-485, 1 = RS-232
Remote_1_Enabled	0 = Disabled, -1 = Enabled
Remote_2_Enabled	0 = Disabled, -1 = Enabled
Remote_3_Enabled	0 = Disabled, -1 = Enabled
Remote_4_Enabled	0 = Disabled, -1 = Enabled
Remote_5_Enabled	0 = Disabled, -1 = Enabled
Remote_6_Enabled	0 = Disabled, -1 = Enabled
Remote_7_Enabled	0 = Disabled, -1 = Enabled

Runtime Parameters:

ErrorCount	0
Remote_1	Value of SR 1L Address 1 (0 – 31)
Remote_2	Value of SR 1L Address 2 (0 – 31)
Remote_3	Value of SR 1L Address 3 (0 – 31)
Remote_4	Value of SR 1L Address 4 (0 – 31)
Remote_5	Value of SR 1L Address 5 (0 – 31)
Remote_6	Value of SR 1L Address 6 (0 – 31)
Remote_7	Value of SR 1L Address 7 (0 – 31)

Key Methods:

DoConnect	Initialize a connection with the Via 10. This automatically sets the proper baud and parity rates for SRM 66 use.
SetMem	Memory change for all slaved SRM 66s

Events: OnError — An error occurred talking to the Via 10

Initialization: DoConnect — *must be called to initialize a connection to the Via 10*

RW 232 ActiveX control. *Required for all RW 232 communications.*

Control Name: Via10RW232X

Description: Communication manager required for all RW 232 based controls

Design Time Parameters:

Addr	Via 10's IP Address
Port	0 = RS-232, 1 = RS-485

Runtime Parameters:

Timeouts	A count of Timeouts talking to units
Retrys	Via 10 packets lost

Key Methods:

DoConnect	Initialize a connection with the Via 10. This automatically sets the proper baud and parity rates for RW 232 use.

Events: OnError — An error occurred talking to the Via 10

Initialization: DoConnect — *Must be called to initialize a connection to the Via 10*

Control Name: **Via10ECB6X**

Description: Allows control of an ECB 6 connected to a Via 10.
See RaneNote 139 and ECB 6 user's manual for parameter value details.

Design Time Parameters:

Addr	RW 232 Address (1-250)
OpstatFreq	Milliseconds between Opstat updates

Runtime Parameters:

Memory	Current memory (Set to change memory)
OPSTAT	Current Opstat
VUDisplay	VU Source
VUMeter	VU Level
MasterPort	Master Port
MasterMic	Master Mic
PortSigFlag	Port Signal Present
MicSigFlag	Mic Signal Present
ProgSigFlag	Program Signal Present
NearSigOffset	Near Signal Offset
ProgSigThresh	Program Signal Threshold
Mixer1Status	Mixer 1 Status
Mixer2Status	Mixer 2 Status
Mixer3Status	Mixer 3 Status
Mixer4Status	Mixer 4 Status
Mixer5Status	Mixer 5 Status
Mixer6Status	Mixer 6 Status

Key Methods:

Set_Controller(Via10RW232X)	Sets the current Via 10 RW 232 Communication Manager
SetMemPartial(Memory,Section)	Recalls all or part of a memory
GetVUMeterSelect	Returns VU Meter Select
GetMasterPortDelay	Returns Master Port Delay
GetMasterMicDelay	Returns Master Mic Delay
GetPortSigRelease	Returns Port Signal Release
GetMicSigRelease	Returns Mic Signal Release
GetNearSigOffset	Returns Near Signal Offset
GetProgSigRelease	Returns Program Signal Release
GetProgSigOffset	Returns Program Signal Offset
GetProgSigThreshold	Returns Program Signal Threshold
GetSystemOffset	Returns System Offset
GetNoiseSource	Returns Noise Source
GetNoiseSourcePowerUp	Returns Noise Source Power Up
GetSuppression	Returns Suppression
GetSuppressionLevel	Returns Suppression Level
GetNoiseGate	Returns Noise Gate
GetNoiseGateDepth	Returns Noise Gate Depth
GetP3ProgContribute	Returns Port 3 Program Contribute
GetLinkProgSig	Returns Link Program Signal
SetVUMeterSelect(Value)	Sets VU Meter Select
SetMasterPortDelay(Value)	Sets Master Port Delay
SetMasterMicDelay(Value)	Sets Master Mic Delay
SetPortSigRelease(Value)	Sets Port Signal Release
SetMicSigRelease(Value)	Sets Mic Signal Release
SetNearSigOffset(Value)	Sets Near Signal Offset
SetProgSigRelease(Value)	Sets Program Signal Release

SetProgSigOffset(Value)	Sets Program Signal Offset
SetProgSigThreshold(Value)	Sets Program Signal Threshold
SetSystemOffset(Value)	Sets System Offset
SetNoiseSource(Value)	Sets Noise Source
SetNoiseSourcePowerUp(Value)	Sets Noise Source Power Up
SetSuppression(Value)	Sets Suppression
SetSuppressionLevel(Value)	Sets Suppression Level
SetNoiseGate(Value)	Sets Noise Gate
SetNoiseGateDepth(Value)	Sets Noise Gate Depth
SetP3ProgContribute(Value)	Sets Port 3 Program Contribution
SetLinkProgSig(Value)	Sets Link Program Signal
GetPortInputOn(Port)	Returns a Port's Input On
GetPortInputSelectByte(Port)	Returns a Port's Input Select Byte
GetPortInputSelectBit(Port,Input)	Returns a Port's Input Select Indexed
GetPortInputAttenuation(Port)	Returns a Port's Input Attenuation
GetPortAutoLevel(Port)	Returns a Port's Auto Level
GetPortSigMode(Port)	Returns a Port's Signal Mode
GetPortThreshold(Port)	Returns a Port's Threshold
GetPortOutputOn(Port)	Returns a Port's Output Setting
GetPortOutputAttenuation(Port)	Returns a Port's Output Attenuation
SetPortInputOn(Port,Value)	Sets a Port's Input On Setting
SetPortInputSelectByte(Port,Value)	Sets a Port's Input Select Byte
SetPortInputSelectBit(Port,Input,Value)	Sets a Port's Input Select Bitwise
SetPortInputAttenuation(Port,Value)	Sets a Port's Input Attenuation
SetPortAutoLevel(Port,Value)	Sets a Port's Auto Level
SetPortSigMode(Port,Value)	Sets a Port's Signal Mode
SetPortThreshold(Port,Value)	Sets a Port's Threshold
SetPortOutputOn(Port,Value)	Sets a Port's Output Setting
SetPortOutputAttenuation(Port,Value)	Sets a Port's Output Attenuation
GetMixerEchoCancellerBypass(Mixer)	Returns a Mixer's Echo Canceller Bypass
GetMixerEchoCanceller3Kz(Mixer)	Returns a Mixer's Echo Canceller 3KHz Setting
GetMixerEchoCancellerEnhanced(Mixer)	Returns a Mixer's Echo Canceller Enhanced Setting
GetMixerGate(Mixer)	Returns a Mixer's Gate Setting
GetMixerGateDepth(Mixer)	Returns a Mixer's Gate Depth
GetMixerNOMM(Mixer)	Returns a Mixer's NOMM Setting
GetMixerON(Mixer)	Returns a Mixer's ON Setting
GetMixerMaxMicsOn(Mixer)	Returns a Mixer's Max Mics On Setting
GetMixerSuppression(Mixer)	Returns a Mixer's Suppression Setting
SetMixerEchoCancellerBypass(Mixer,Value)	Sets a Mixer's Echo Canceller Bypass
SetMixerEchoCanceller3Kz(Mixer,Value)	Sets a Mixer's Echo Canceller 3KHz
SetMixerEchoCancellerEnhanced(Mixer,Value)	Sets a Mixer's Echo Canceller Enhanced Setting
SetMixerGate(Mixer,Value)	Sets a Mixer's Gate Setting
SetMixerGateDepth(Mixer,Value)	Sets a Mixer's Gate Depth
SetMixerNOMM(Mixer,Value)	Sets a Mixer's NOMM Setting
SetMixerON(Mixer,Value)	Sets a Mixer's ON Setting
SetMixerMaxMicsOn(Mixer,Value)	Sets a Mixer's Max Mics On Setting
SetMixerSuppression(Mixer,Value)	Sets a Mixer's Suppression Setting
GetMicActive(Mic)	Returns a Mic's Active Setting
GetMicSigMode(Mic)	Returns a Mic's Signal Mode Setting
GetMicGateMode(Mic)	Returns a Mic's Gate Mode Setting
GetMicGateDepth(Mic)	Returns a Mic's Gate Depth
GetMicAutoThreshold(Mic)	Returns a Mic's Auto Threshold Setting
GetMicThresholdLevel(Mic)	Returns a Mic's Threshold Level
GetMicGateRelease(Mic)	Returns a Mic's Gate Release Setting

SetMicActive(Mic, Value)	Sets a Mic's Active Setting
SetMicSigMode(Mic, Value)	Sets a Mic's Signal Mode Setting
SetMicGateMode(Mic, Value)	Sets a Mic's Gate Mode Setting
SetMicGateDepth(Mic, Value)	Sets a Mic's Gate Depth
SetMicAutoThreshold(Mic, Value)	Sets a Mic's Auto Threshold Setting
SetMicThresholdLevel(Mic, Value)	Sets a Mic's Threshold Level
SetMicGateRelease(Mic,Value)	Sets a Mic's Gate Release Setting

Events:

OnOpstats	Opstats updated from ECB 6
OnParams	Parameters updated from ECB 6

Initialization:

Set_Controller   (Via10RW232X)

Must be called for each Via10 RW 232 ActiveX control as the argument to begin communication. This must be called for each RW 232 device in the system – where Via10RW232X *is replaced with the name of each RW 232 ActiveX control inserted into FrontPage.* See example 1 above.

RPE 228d ActiveX control

Control Name: Via10RPE228X

Description: Allows control of any RPE 228 or RPE 228d connected to a Via 10. *See "RW 232 Device Control Language", available in PDF form in the Library at www.rane.com for parameter value details.*

Design Time Parameters:

Addr	RW 232 Address (1-250)
OpstatFreq	Milliseconds between Opstat updates

Runtime Parameters:

Memory	Reflects the current memory selected in the RPE 228
Ch1InGain	Channel 2's Input Gain
Ch1OutGain	Channel 2's Output Gain
Ch1Mute	Channel 2's Mute
Ch1LowCut	Channel 2's Low Cut Setting
Ch1HighCut0	Channel 2's High Cut Setting
Ch1ByPass	Channel 2's Bypass
Ch2InGain	Channel 2's Input Gain
Ch2OutGain	Channel 2's Output Gain
Ch2Mute	Channel 2's Mute
Ch2LowCut	Channel 2's Low Cut Setting
Ch2HighCut0	Channel 2's High Cut Setting
Ch2ByPass	Channel 2's Bypass

Events:

OnOpstats	Opstats updated from RPE 228
OnParams	Parameters updated from RPE 228

Initialization:

Set_Controller   (Via10RW232X)

Must be called for each Via10 RW 232 ActiveX control as the argument to begin communication. This must be called for each RW 232 device in the system – where Via10RW232X *is replaced with the name of each RW 232 ActiveX control inserted into FrontPage.* See example 1 above.

Control Name: Via10RPM26vX

Description: Allows control of an RPM 26v connected to a Via 10

Design Time Parameters:

Addr	RW 232 Address (1-250)
OpstatFreq	Milliseconds between Opstat updates

Runtime Parameters:

Memory	Reflects the current memory selected in the RPM 26v
DSPProgram	Currently Active DSP Program
MeterInA	Last meter reading for Input A
MeterInB	Last meter reading for Input B
MeterOut1	Last meter reading for Output 1
MeterOut2	Last meter reading for Output 2
MeterOut3	Last meter reading for Output 3
MeterOut4	Last meter reading for Output 4
MeterOut5	Last meter reading for Output 5
MeterOut6	Last meter reading for Output 6
Limiters	Current Limiter Flags
CompressorA	Compression Level for Input A
CompressorB	Compression Level for Input B
MasterLevel	Master Level
InATrim	Input A's Trim
InAMute	Input A's Mute
InBTrim	Input B's Trim
InBMute	Input B's Mute
Out1Src	Output 1's Input Signal Source
Out2Src	Output 2's Input Signal Source
Out3Src	Output 3's Input Signal Source
Out4Src	Output 4's Input Signal Source
Out5Src	Output 5's Input Signal Source
Out6Src	Output 6's Input Signal Source
Out1Trim	Output 1's Trim
Out2Trim	Output 2's Trim
Out3Trim	Output 3's Trim
Out4Trim	Output 4's Trim
Out5Trim	Output 5's Trim
Out6Trim	Output 6's Trim
Out1Mute	Output 1's Mute
Out2Mute	Output 2's Mute
Out3Mute	Output 3's Mute
Out4Mute	Output 4's Mute
Out5Mute	Output 5's Mute
Out6Mute	Output 6's Mute

Events:

OnOpstats	Opstats updated from RPM 26v
OnParams	Parameters updated from RPM 26v

Initialization:

Set_Controller	(Via10RW232X)
	Must be called for each Via10 RW 232 ActiveX control as the argument to begin communication. This must be called for each RW 232 device in the system – where Via10RW232X *is replaced with the name of each RW 232 ActiveX control inserted into FrontPage.* See example 1 above.