

AMX Control of Rane Devices

These System Call are NetLinx compatible.

Rane's RW 232 protocol is an addressable type of RS-232. Each RW 232 product has an unique address, and to communicate to the product an Address Header must first be sent. An Address Header consist of (\$FB, Unit Address, \$FB, Unit Address). After a unit receives its Address Header it replies with two values (Device Type, Manufacture ID). To speed up communications to the device the AMX software does not wait for the reply before sending the rest of the data. If the replied Device Type is not the same as what was sent, the AMX software will reply with a communication error by setting *SystemReady* to 0. A message will be placed in the String variable *RaneInfo* for debugging.

For more information see:

ECB 62e

<http://www.rane.com/pdf/ecsr2man.pdf>

<http://www.rane.com/pdf/note139.pdf>

ECM 64e

<http://www.rane.com/pdf/ecm64man.pdf>

SRM 66

<http://www.rane.com/pdf/note138.pdf>

Device Types:

RPE 228d \$00

RPM 26v \$15

RPD 1 \$27

ECB 62 \$30

ECM 64e \$32

SR_3 \$30

Manufacture ID For Rane Corporation \$08

Included Files:

File Name		File Type
Rane Netlinx Demo,Rev 1.axs	Full RaneWare Demo	NetLinx Program
Netlinx SR3 Demo.axs	SR 3 Demo	
Netlinx SR3-SRM66 Demo.axs	SR 3 Control of the SRM 66 Demo	
RwDemo1.axs	Full RaneWare Demo	Axcess Program
RwDemo2.axs	Basic AMX calls for the ECB 62e	
RwDemo3.axs	ECM 64e Demo	
SrmDsc.axs	SRM 66 DSC Demo	
SrmSlave.axs	SRM 66 Slave Demo	
Axcess SR3 Demo.axs	SR 3 Demo	
Axcess SR3-SRM66 Demo.axs	SR 3 Control of the SRM 66 Demo	
Rane,Netlinx Demo1.tpd	Full RaneWare Demo	Touch Panel File
SR3 Demo,SO#,REV0,Mike Slattery.tpd		
RwDemo1.pgc	Full RaneWare Demo	
RwDemo2.pgz	Simple ECB 62e Demo	
RwDemo3.tpd	ECM 64 Demo	
SrmDsc.pgz	SRM 66 DSC Demo	
SrmSlave.pgz	SRM 66 Slave Demo	
RaneCon.axi, RaneVar.axi		Include Files
SR1_Q.lib, SR1ini.lib, RW232_Q.lib		Library Files
DoRW232.lib, DoRW485.lib, DoSR1.lib, DoSRM.lib,		
DoSR3.lib, Rw232Vols.lib, Rw485Vols.lib, SrmVols.lib,		
SR1Vols.lib, SR1SetLevel.lib, GroupSR1.lib, Ranelni.lib		

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AMXD1.ecs
AMXD1.c64
AMXD1.rpm
AMXD1.228
AMXD1.rpd

RaneWare Files

SR3 SRM66 Demo1.srx

SR3 file

Program Files

These programs use Include files and system calls. Since several commands may need to be sent to a unit from one button push, a queues are used to improve the transmitting of the RW 232, SRM 66 and SR 1L commands.

Rane Netlinx Demo,Rev 1.axs

This program demonstrates NetLinx control of the ECB 62e + ECM 82e, ECM 64e, RPM 26v and the RPE 228d. Also, this program demonstrates the ability of the ECB 62e with an ECM 82e to perform Video-Follows-Audio camera tracking using the Master Mic and Mic Signal status signals from the Opstat message. Use the Rane,Netlinx Demo1.tpd touch panel file to operate the program.

Rane VIA10 Netlinx Demo,Rev 1.axs

This program demonstrates NetLinx control of the ECB 62e + ECM 82e, ECM 64e, RPM 26v and the RPE 228d using the Via10 Ethernet bridge. This requires Netlinx firmware that supports UDP protocol 3. Also, this program demonstrates the ability of the ECB 62e with an ECM 82e to perform Video-Follows-Audio camera tracking using the Master Mic and Mic Signal status signals from the Opstat message. Use the Rane,Netlinx Demo1.tpd touch panel file to operate the program.

RwDemo1.axs

This program demonstrates Axxess control of the ECB 62e + ECM 82e, ECM 64e, RPM 26v, RPE 228d and the RPD 1. Two SR 1Ls are used to remotely control the Program output levels of the ECB 62, RPM 26v and the RPE 228d. Opstat messages are retrieved from the ECB 62e and ECM 64e to demonstrate Video-Follows-Audio camera switching and determining the status of Off Hook and Ring from the ECM 64e. Remote diagnostics to the AMX and Rane equipment are supported via the RPD 1. The included RaneWare files are to be loaded in their respected products for proper control. Use the RwDemo1.pgcz touch panel file to operate the program. See RaneNote 139 for more information.

RwDemo2.axs

This program demonstrates simple Axxess control of the ECB 62e. Items that are controlled are Memory recall, Chairman override and Program volume control. Memory recall allows for the recall of all memory, Port settings only and Mic settings only. Use the RwDemo2.pgcz touch panel file to operate the program.

RwDemo3.axs

This program demonstrates Axxess control of the ECM 64e. Items that are controlled are Memory recall, Input and Output level control, and Hybrid control including DTMF dialing. Memory recall allows for the recall of all memory, Input settings only and Output settings only. Use the RwDemo3.tpd touch panel file to operate the program.

SrmDsc.axs

This program demonstrates full control of the SRM 66 using Axxess. The SRM 66 RIP port must be set to DSC mode for this program to operate. DSC mode allows for full operation of the SRM 66 including Input Mix levels, Output levels, Group levels and Memory recall. The SR 1Ls cannot be connected to the same RS-485 bus and if required must be supported by another RS-485 port. Use the SrmDsc.pgcz touch panel file to operate the program. See RaneNote 138 for more information.

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SrmSlave.axs

This program demonstrates partial control of the SRM 66 using Axxess. The SRM 66 RIP port must be set to SLAVE mode for this program to operate. Slave mode allows for only Group level control and Memory recall. The SR 1Ls can be connected to the same RS-485 bus and if connected the program will automatically detect the SR 1Ls and modify the commands it sends to the SRM 66 accordingly. Use the SrmSlave.pgz touch panel file to operate the program. See RaneNote 138 for more information.

Axxess SR3 Demo.axs

Netlinx SR3 Demo.axs

This program demonstrates the operation of the SR 3 interface. Although up to 8 SR 3 can be selected, only two can reliably operate on an Axxess system. The SR 3 communicates using RS-485 and can connect directly to the Euro connector on Axxess. A DSC 1 can also be used between the Axxess and the SR 3.

Axxess SR3 Demo.axs

Netlinx SR3 Demo.axs

This program demonstrates the SR 3 controlling an SRM 66 in DSC mode. Load the file SR3 SRM66 Demo1.srx into the SR 3. The SRM 66 routes three stereo sources and a mute to three stereo locations. There are four pages on the SR 3: OFF, BAR, LOBBY and POOL. When a page is selected, the level and SRM 66 route is displayed. To select a different route press and release the knob. This is an Enter command. The route becomes highlighted and the encoder LED goes off. Turning the knob left or right displays a different. Once the correct route is selected, press for Enter or wait 4 seconds and the new source is routed by the SRM 66. The SR 3 level controls a selected Group level on the SRM 66.

Output Groups: Out 1 & 2 to Group 1, Out 3 & 4 to Group 2, Out 5 & 6 to Group 3.

Displayed Sources: CD, DVD, DJ, MUTE

CD = Inputs 1 & 2 on the SRM 66

DVD = Inputs 3 & 4 on the SRM 66

DJ = Inputs 5 & 6 on the SRM 66

Programming

DEFINE_DEVICE

These device names, if used, can be changed in DEFINE_DEVICE.

RW232 = 1 (* AXC-SER RANE RW232 *)

SRM = 2 (* AXC-SER RANE SRM66 *)

SR1 = 3 (* AXC-SER RANE SR1 *)

SR3 = 4 (* AXC-SER RANE SR3 *)

Constant Include Files *Must be placed after the Include definitions.*

RaneCon.axi This file contains all of the RW232 Constants and Command Names.

You should print out this file for its Command Names.

DEFINE_CONSTANT

(* Opstats are used for video-follows-audio apps *)

(* Do not include if not used – Delete the line if not used *)

INCLUDE_RW232 = 1 (* This Program uses RW232 *)

INCLUDE_RW485 = 1 (* This Program uses RW485 *)

INCLUDE_ECB62 = 1 (* This Program uses the ECB 62 *)

INCLUDE_ECM64 = 1 (* This Program uses the ECM 64 *)

INCLUDE_RPD1 = 1 (* This Program uses an RPD 1 *)

INCLUDE_RPM26 = 1 (* This Program uses an RPM 26V *)

INCLUDE_RPE228 = 1 (* This Program uses an RPE 228d *)

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```
INCLUDE_SR1           = 1 (* This Program uses SR 1s *)
INCLUDE_SRM66         = 1 (* This Program uses an SRM 66 *)
INCLUDE_SR3           = 1 (* This Program uses SR 1s *)
INCLUDE_OPSTATS       = 1 (* This Program uses Opstats *)
INCLUDE_ECB62_OPSTAT  = 1 (* This Program uses ECB 62OPSTATS *)
INCLUDE_ECM64_OPSTAT  = 1 (* This Program uses ECM 64 OPSTATS *)
INCLUDE_RPD1_OPSTAT   = 1 (* This Program uses RPD 1 OPSTATS *)
```

(* Must be after the Includes *)

```
INCLUDE 'RaneCon.axi' (* RW232 Constants - Contains all the SPLs *)
```

(* RW 232 Device Addresses *)

```
RPD1_ADDRESS = 1
```

```
RPE228_ADDRESS = 2
```

```
RPM26_ADDRESS = 3
```

```
ECB62_ADDRESS = 4
```

```
ECM64_ADDRESS = 5
```

Variable Include Files

RaneVar.axi This file contains all of the RW232 variable names.

Program example:

```
DEFINE_VARIABLE
```

```
INCLUDE 'RaneVar.axi' (* Rane Variables *)
```

The following files are used for the AMX system calls in the Rane Programs:

Ranelni.lib

This file is used to perform all of the start-up initialization of the Rane variables.

```
SYSTEM_CALL 'Ranelni'
```

RW232_Q.lib

This file is used to create the queue for sending the RW 232 commands.

Parameters include:

Device Type, Device Address, Command, Channel, Memory, Starting SPL, "Data"

The String Data can contain up to 40 Bytes.

```
PUSH [TP,PORT1_IN_BTN] (* PORT 1 INPUT *)
{
    IF (!([TP,PORT1_IN_BTN]))
    {
        RW232data = 1
        ON [TP,PORT1_IN_BTN]
        Input1 = 1
    }
    ELSE
    {
        RW232data = 0
        OFF[TP,PORT1_IN_BTN]
        Input1 = 0
    }
    ButtonPushed = PORT1_IN_BTN
    (* Device Type, Device Address, Command, Channel, Memory, Starting SPL, "Data" *)
    SYSTEM_CALL 'RW232_Q' (ECB_62, ECB62_ADDRESS, RW232_SEND_DATA, 0, 0,
        ECB62_P1IN_ON_OFF, "RW232data")
}
```

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```
PUSH[TP, MEM1_BTN]
{
  ON[TP, MEM1_BTN]
  ButtonPushed = MEM1_BTN
  (* Recall Memory 1 on all units *)
  (* Device Type, Device Address, Command, Channel, Memory, Starting SPL, "Data" *)
  SYSTEM_CALL 'RW232_Q' (RW232_ALL_DEVICES, RW232_ALL_DEVICES,
                        RW232_RECALL_MEMORY, ALL_MEMORY, MEMORY1, 0, "")
}
```

SR1_Q.lib

This file is used to create the queue for sending the SR1 commands. Valid SR1 addresses are 1 - 7.

Example:

```
          (* Device Address, Command, Level *)
SYSTEM_CALL 'SR1_Q' (1, SR1_CMD_FORCE, RMTlevel[1])
```

DoRW232.lib

This file is used to perform all of the RW 232 transmit, receive and Opstat functions. When the queue has data, this system call reformats the data and sends it to the RaneWare device. Opstats are special status messages used by each device. ECB 62 Opstats are used for video-follows-audio applications. RPD 1 and ECM 64 Opstats are used for On Hook/Off Hook and Ring detection.

```
DEFINE_PROGRAM
(* Place at End of Program *)
IF (SystemOn)
  SYSTEM_CALL 'DoRW232' (Port Name)
```

DoSRM.lib

This file is used to perform all of the SRM 66 and SR 1 transmit and receive functions. Only include this file if SRM 66 is used in DSC mode. This program does not work with the DSC 1 connected. Do not include the DoSR1 System Call. This program polls for the SR 1Ls during startup to determine if they are connected. Connected SR 1Ls are then polled every ½ second.

```
DEFINE_PROGRAM
(* Place at End of Program *)
IF (SystemOn)
  SYSTEM_CALL 'DoSRM' (SRM Port Name, SR1 Port Name)
```

DoSR1.lib

This file is used to perform all of the SR 1L transmit and receive functions. Only include this file if SR 1Ls are used or the SRM 66 is in Slave mode. This program polls for the SR 1Ls during startup to determine if they are connected. Connected SR 1Ls are then polled every ½ second.

```
(* Place at End of Program *)
IF (SystemOn)
  SYSTEM_CALL 'DoSR1' (Port Name)
```

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RW485_Q.lib

This file is used to create the queue for sending the RW485 commands.

Example:

Send the string Hello and place it at the center on the third row from bottom.

```
RW485_Q (Device Address, Device Type, Command, Message)
```

```
(* String Center Must have " " around string *)
```

```
SYSTEM_CALL 'RW485_Q' (1,SR_3,'SC','2',"Hello")
```

DoSR3.lib

This file is used to poll the connected SR 3s every 300 millisecond. On Netlinx it is possible to operate eight SR 3s. Axxess can support two SR 3s.

```
IF (SystemOn)
```

```
SYSTEM_CALL 'DoSR3' (Port Name)
```

DoRW485.lib

This file is used to perform all of the RW 485 transmit and receive functions. When the queue has data, this system call reformats the data and sends it to the Rane RW485 device.

```
DEFINE_PROGRAM
```

```
(* Place at End of Program *)
```

```
IF (SystemOn)
```

```
SYSTEM_CALL 'DoRW485' (Port Name)
```

Rw232Vols.lib, SrmVols.lib, SR1Vols.lib, Rw485Vols.lib

These files simplify the program by handling all of the button and math functions to control levels.

Rw232Vols Format

```
(TP, Up Btn, Dwn Btn, Mute Btn, UnMute Btn, Device Type, Device Address, SPL Index, Volume, OldVolume, OldCalVolume, Volume# )
```

By setting the UnMute button to 0 the Mute button becomes a Toggle

Set NewVolume to a volume number. Each volume that is used must have a unique number. NewVolume will be set to 0 or set to 1 by the System Call. 1 = level change

ECB 62 Out 1's Volume Control Example:

```
NewVolume = 1 (* Use NewVolume for both the volume # and if level has changed *)
```

```
(* NewVolume is set to 0 by Rw232Vols if level has not changed *)
```

```
SYSTEM_CALL 'Rw232Vols'(TP, PGM_UP_BTN, PGM_DWN_BTN, 0, 0, ECB_62, ECB62_ADDRESS, ECB62_P1OUT_VOL, PGMVolume, OldPGMVolume, OldCPGMVol, NewVolume)
```

```
IF (NewVolume)
```

```
SEND_LEVEL TP,PGM_VOL_BAR,PGMvolume
```

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Rw485Vols Format

(TP, Up Btn, Dwn Btn, Mute Btn, UnMute Btn, Device Type, Device Address, AMX Level, AMX OldLevel, SR3level, OldSR3Level, NewVolume, Force Update)

Set UnMute to 0 to use Mute as Toggle

Force Update does a quick update of the volume control, but stops all other updates from the SR3s by setting StopSR3 during level change.

SR3 address 1 uses both the Mute and UnMute buttons.

Each volume control used must have a different NewVolume #.

NewVolume = 2

SYSTEM_CALL 'RW485Vols'(TP, SR3_1_UP_BTN, SR3_1_DWN_BTN, SR3_1_MUTE_BTN, SR3_1_UNMUTE_BTN, SR_3, SR3_ADDR_1, Volume1, OldVolume1, SR3level[2], OldSR3level[2], NewVolume, 1)

IF (NewVolume)

SEND_LEVEL TP,SR3_1_VOL_BAR,Volume1

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AmxRane.doc