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JAV-232 Manual Version 3.7, November 2002

JAV-232
Computer Interface

The JAV-232 Interface was originally designed for use with the AOR AR8000 and had several features specifically for use with this receiver. With the arrival of the AR8200 the JAV-232 was redesigned slightly to take advantage of the features found on this receiver. This latest version of JAV-232 remains compatible with many other receivers and equipment requiring TTL conversion.

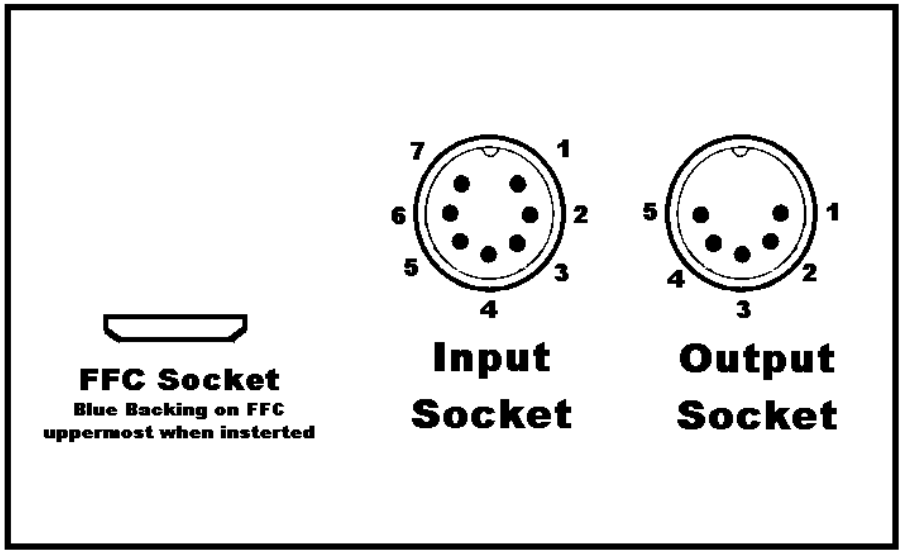
The JAV-232 is powered through your Computers RS-232 port and does not require any external power source although when used with the AR8000 or AR8200 will take power from the receiver if required. The JAV-232 is housed in a compact case with screened multicore cable terminated in a DB-9 connector. A Flat Flexible Cable (FFC) is provided for use with the AOR AR8000 and other receivers, an optional connecting cable (OS-8200/DIN) is required for use with the AR8200 and any other receiver. These can easily be made or purchased from ourselves.

The JAV-232 is a very versatile unit and can be used with almost anything requiring a RS232/TTL converter. This includes the following popular equipment:

Manufacturer	Model
Alinco	DJ-X2
	DJ-X3
	DJ-X10
	DJ-X2000
AOR	AR2700
	AR8000
	AR8200 (All models)
Camnis	HSC-150
	HSC-190
	HSC-200
Commtel	COM600
	COM610
Icom	IC-R2
	IC-R3
	IC-R5
	IC-R10
	IC-R7000
Optoelectronics	Scout
Trident	TR-2000
	TR-2200
	TR-4000
	TRX-100XLT
	TRX-200
Yaesu	VR-120
	VR-500

Specific details on using the JAV-232 with the above receivers follow.

JAV-232 LAYOUT



Top Sockets

Input 7-Din Plug Connections

1 = RX in to PC from receiver
2 = TX out of PC to receiver
3 = Ground
4 = Constant Audio Input (AR8200 Only)
5 = Squelch Detect (AR8200 Only)
6 = Discriminator (AR8200 Only)
7 = +5v (AR8200 Only)

Output 5-Din Plug

1 = Remote
2 = Remote
3 = Ground
4 = Audio Out
5 = Discriminator Output (AR8200/AR8200-II Only)

Output from the right hand socket is only available when the AR8000 is connected via the FFC or the AR8200 via the Input Socket. Output from Pin 5 is only available when used with the AR8200.

FFC Socket

For use with AOR AR2700, AR8000 & some other equipment

Side Mono Socket (Not on all JAV-232 versions)

Tip = Discriminator Output (AR8200/AR8200-IIonly)
Shield = Ground

Sales Counter !

Computer Control Software

TITLE	PRICE
JAV-Scan 8000	*£ 19.99*
DJX10R (Registered Version)	*£ 9.99*
AOR PC Manager for Windows	*£ 49.00*
ScanCat Gold For Windows	*N/A*
ScanCat Gold for DOS	*N/A*
ScanStar, now Includes Digital Audio Logger (Windows)	*N/A*
CS-R10, Icom Cloning Software for the IC-R10	*£ 15.00*
CS-R2, Icom Cloning Software for the IC-R2	*£ 15.00*

AOR Accessories

Slotted AR8000 Battery Cover that allows the FFC to be used without removing the battery cover. ..... £ 4.99

FFC Cable - Replacement or Spare FFC cables ..... £ 1.99

OS-8200/DIN – Lead to connect the JAV-232 to the AR8200 .... £19.50

OS-8200 – Options lead for the AR8200 ..... £14.99
(Available "open ended" or with sockets of you choice - please call for information)

Manufactured Cables

Cable 1: *For Squelch activated Cassette Tape Recording when using the AR8200 or AR8000 (must use a Cassette Tape Recorder with Remote feature). 5-DIN Plug with 2 lead output. 3.5mm Mono plug for audio output and 2.5mm Mono plug for Remote switching.*
Price: **£9.99**

Cable 2: *For Icom CI-V Operation (Please state radio: IC-R2, IC-R10 etc).*
DIN Plug for JAV-232 terminated in a suitable Socket for the Icom equipment
Price: **£7.99**

Cable 3: *No longer available/required*

Cable 4: *For Optoelectronics Scout ™ downloading*
DIN Plug for JAV-232 terminated in a 2.5mm Mono Socket for the Scout ™
Price: **£7.99**

Cable 5: *No longer available/required*

Cable 6: *For Alinco DJ-X10 Operation.*
DIN Plug for JAV-232 terminated in a 2.5mm Stereo Socket
Price: **£7.99**

Cable 7: *No longer available/required*

All the above prices include VAT & Delivery. Correct as of November 2002. Credit Card (VISA or Mastercard) Orders by telephone are accepted together with Mail Order payments by Cheque or Postal Order.

NOTES

Software

We do not specifically recommend one software package over another and whilst we do distribute several commercial packages including our own *JAV-Scan 8000* suggest owners try the various software available that supports their particular receiver and choose for themselves which is most suitable to their needs.

The AOR ARR8000 and AR8200 are now two the most supported pieces of equipment currently available with several commercial packages together with Shareware & Freeware to choose from.

Software for Icom receivers is also available on several fronts with Butels "ARC" packages well respected. Th choice for Alinco users is a little more limited but they do have several free downloads on their US web site. For DJ-X10 owners we are also pleased to say that the Registered Version of Bruce Pop's package is available direct from ourselves.

Commercial Packages available through Javiation:

JAV-Scan 8000
http://www.javiation.co.uk
AR8000 – a low cost package for the AR8000. Supports the optional DX-8000 Narrow AM Board and DS-8000 Speech Inversion Board.

AOR PC-Manager For Windows
http://www.aoruk.com
AR2700, COM600/COM610, HSC-190/HSC-200/TR-2000/TR-2200* & AR8000*
**The HSC-200 & TR-2200 has Modes and Step sizes not supported by PC Manager for Windows*

ScanStar Delux (Windows) by Signal Intelligence
http://www.scanstar.com
AR8200, AR8000, Icom & other equipment

ScanCat for Windows by Computer Aided Technologies
http://www.scancat.com
AR8200 ,AR8000, Icom, Scout™ & other equipment

DJX10R
http://www.alinco.com/DJX10SOFTWARE/DJX10.shtml

Registered version of Bruce Popes DJ-X10 software

There are an ever growing number of programs that support the various models now available - some Commercial, Shareware or Freeware. Additional information on these being available via the Internet on the authors/producers own Web Pages:

Alinco
Software for the DJ-X2, DJ-X3 and DJ-X2000
http;//www.alinco.com

AOR AR8200 Workshop
http://www.aoruk.com/

ARC for Windows
AR8000, AR8200, AR5000, Icom IC-R2, IC-R3, Uniden 780XLT
http://www.butel.nl

Radio Manager for Windows by Ben Saladino
http://www.interplaza.com/bensware/rm.htm
AR8200, AR8000, Icom, Scout™ & other equipment

8K – A simple AR8000 utility
http://www.waynesplace.com/8k/

AR8000 Channel Commander
AR8000
http://www.odcombe.demon.co.uk/8kcc_readme.htm

ScannerWear by Radio Control Systems Inc
Various AOR, Icom and Optoelectronics equipment
http://www.radioscan.com

RT Systems
Alinco DK-X10 and Yaesu VR-500 software
http://www.rtsars.com

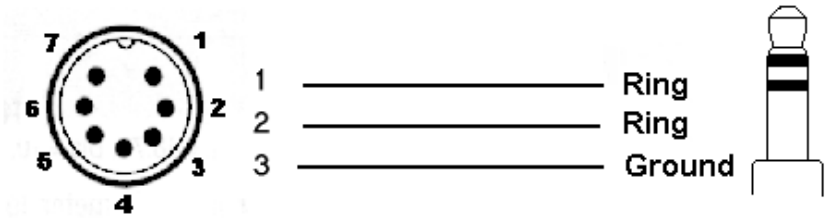
Bob Parnass
Open source Software for Icom IC-R2/R3, Yaesu VR-120/VR-500 and others
http://www.parnass.org/
RadioMax (Future Scanning Systems)
http://www.futurescanning.com/rmax.htm
Icom, Optoelectronics, AOR, Radio Shack, Uniden and others

MacScan8000 by Howard Bornstein at Design EQ (Macintosh)
AR8000
http://www.designeq.com

Connections required for Yaesu VR-120 & VR-500

All that is required is a simple lead between the receiver and the JAV-232 using the 7-DIN plug on the top of the JAV-232 with a 3.5m Stereo Jack on the end.

The VR-500 uses the 3.5mm Stereo external speaker socket for DATA communication (using the Ring as Data and Tip as Audio). Using this socket will disable the internal speaker so you may wish to fabricate an additional lead from the Stereo Jack (Tip) to an external speaker.



7-DIN Plug connections on JAV-232

3.5mm Stereo Jack VR-500

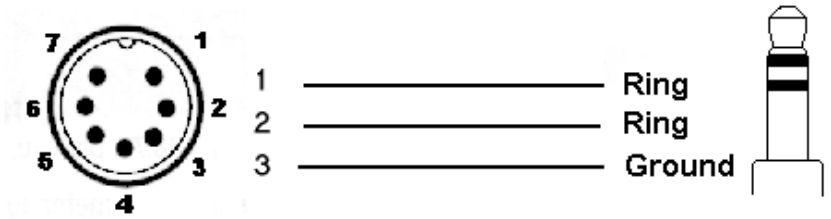
DIN PLUG

Pin 1:	*Data into the Computer from the VR-500 receiver*
Pin 2:	*Data out from the Computer to the VR-500 receiver*
Pin 3:	*Ground*
Pin 4	*No Connection*
Pin 5:	*No Connection*
Pin 6:	*No Connection*
Pin 7:	*No Connection*

Connections required for Trident TRX-100XLT / TRX-200

All that is required is a simple lead between the receiver and the JAV-232 using the 7-DIN plug on the top of the JAV-232 with a 3.5m Stereo Jack on the end.

Both the TRX-100XLT and TRX-200 use the 3.5mm Stereo external speaker socket for DATA communication (using the Ring as Data and Tip as Audio). Using this socket will disable the internal speaker so you may wish to fabricate an additional lead from the Stereo Jack (Tip) to an external speaker.



7-DIN Plug connections on JAV-232

3.5mm Stereo Jack TRX-100XLT / TRX-200

DIN PLUG

Pin 1:	*Data into the Computer from the TRX-100XLT receiver*
Pin 2:	*Data out from the Computer to the TRX-100XLT receiver*
Pin 3:	*Ground*
Pin 4	*No Connection*
Pin 5:	*No Connection*
Pin 6:	*No Connection*
Pin 7:	*No Connection*

There is a free software package that supports the TRX-1000XLT that is available for download at our web site:

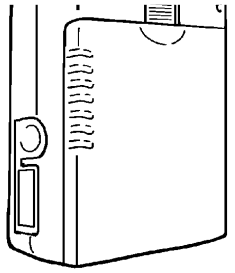
http://www.javiation.co.uk/trx-100xlt.html

Connections required for the AR8200

When used with the AR8200 the JAV-232 offers computer control, squelch activated tape recording and audio together with the FM Discriminator output all with just one connection to the AR8200. To connect the AR8200 to the JAV-232 you will need the optional OS-8200/DIN cable.

To connect the JAV-232 to your PC simply plug the DB-9 into your Computers RS-232 Serial Port. If you do not have a free 9-pin Serial Port you can use an DB-9 to DB-25 adapter. You will need to configure the software you are using with the correct COM Port (i.e. COM1, COM2, COM3 etc.) to correspond with the one you have used.

The OS-8200/DIN cable has a 7-Pin DIN plug on one end. This just plugs into the DIN socket to the top right of the JAV-232. The OS-8200/DIN will only fit into the top DIN socket.



Connect the OS-8200/DIN to the AR8200 via the black moulded plug at the end. The option socket is mounted on the right hand side of the cabinet underneath the 12V dc. input socket and protected from dust by a grey rubberised case stopper which is hinged toward the front of the cabinet. Gently lift the stopper from the rear edge to reveal the D-shaped metallic socket. The plug will only fit one way and do not use excessive force to push the plug into the socket. The arrow symbol on the moulded plug goes to the back of the AR8200.

You should now have two way communication between the AR8200 and your computer. Using any terminal program you can quickly check all is OK.

Settings should be as follows:

COM Port:	Select whichever the JAV-232 is connected to
Baud rate:	19200, 9600, 4800 (selectable)
Data:	8 bit, 2 stop bits
Parity:	None

Typing VA (in capitals) will force the AR8200 into VFO mode and receive the frequency set in VFO-A.

Command Codes/Instructions

A full list of AR8200 commands is quite extensive and it has not been practicable to include them in this manual. They are available in printed format from ourselves (large SAE) or can be downloaded from the AOR (UK) Ltd. web site at http://www.aoruk.com in a PDF format file (cc8200.pdf)

Squelch Detect

When using software to control the AR8200 it is necessary for the software to know when the AR8200 has stopped on an active channel. This is generally referred to as *Squelch Detect* and some software uses software detect whilst others require/can be selected for hardware detect. The latter usually allows for faster scanning. The JAV-232 can be used with hardware detection (DCD) and some packages will allow you to choose which type of Squelch Detect method you wish to use or the Interface used.

Discriminator Output

For those interested in Data decoding Pin 5 from the Output 5-pIn Din plug or the mono socket on the right hand side provides the FM Discriminator output from the AR8200 when connected to the remote socket. This has no effect on any aspect of the JAV-232's performance.

5-DIN PLUG OUTPUT

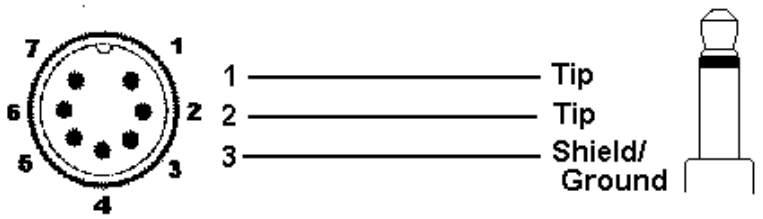
When using the AR-8200 with the JAV-232 and connected via the OS-8200/DIN the lower 5-Din DIN socket provides outputs as follows:-

Pin 1 & 2:	*These provide an Open & Close circuit when the Squelch Opens/Closes for remote tape record operations. In other words if you have a tape recorder with a remote facility it will turn this on/off each time the squelch opens.*
Pin 3:	*Ground*
Pin 4:	*Provides constant Audio for use with a Tape Recorder*
Pin 5:	*FM Discriminator Output*

Connections required for the Optoelectronics Scout™

Using suitable software the JAV-232 can be used as a interface for downloading the memory contents of the Optoelectronics Scout. The Scout™ uses the Icom CI-V protocol and a simple lead is required between the Scout and the JAV-232.

All that is required is a simple lead between the receiver and the JAV-232 using the DIN plug on the top of the JAV-232 with the connections exactly the same as for Icom CI-V earlier other than the plug required on the Scout is 2.5mm.



7-DIN Plug connections on JAV-232

2.5mm Mono Jack For Icom CI-V connection with the Scout™

DIN PLUG

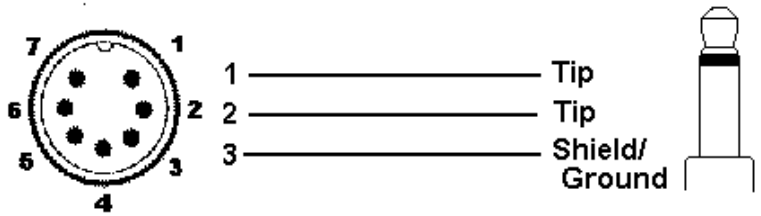
Pin 1:	*Data into the Computer from the Scout*
Pin 2:	*Data out from the Computer to Scout*
Pin 3:	*Ground*
Pin 4	*No Connection*
Pin 5:	*No Connection*
Pin 6:	*No Connection*
Pin 7:	*No Connection*

Connections required for Icom IC-R10

The JAV-232 can be used as a suitable interface for all Icom equipment that uses their CI-V protocol.

All that is required is a simple lead between the receiver and the JAV-232 using the 7-DIN plug on the top of the JAV-232 with a suitable jack on the end of the cable. This can vary from model to model.

The IC-R10 has two sockets for connection to a PC. One is the Stereo Earpiece socket on the top (using the Ring as Data and Tip as Audio) the other being the CI-V socket down the side above the 12v DC socket. The Icom OPC-478 lead is terminated in a 3.5mm Stereo Jack and this can be used or alternatively you can use a 3.5mm Mono Jack into the side socket.



7-DIN Plug connections on JAV-232

3.5mm Mono Jack IC-R10 CI-V Socket

DIN PLUG

Pin 1:	*Data into the Computer from the Icom receiver*
Pin 2:	*Data out from the Computer to the Icom receiver*
Pin 3:	*Ground*
Pin 4	*No Connection*
Pin 5:	*No Connection*
Pin 6:	*No Connection*
Pin 7:	*No Connection*

Connections required for the AR8000

As mentioned earlier the JAV-232 was originally designed for use with the AOR AR8000 combining computer control with Tape Switching & Audio Out facilities into one unit.

To connect the JAV-232 to your PC simply plug the DB-9 into your Computers RS-232 Serial Port. You will need to configure the software you are using with the correct COM Port (i.e. COM1, COM2, COM3 etc.) to correspond with the one you have used.

Remove the battery cover from your AR8000 to gain access to the AR8000 Computer Connection socket which is centrally located at the bottom of the case below the batteries. Plug one end of the white FFC with the blue backing face uppermost into the socket. You should *feel* this locate properly into the socket. We do sell a battery cover with a slot in the bottom (£4.99) so you do not have to remove this cover each time you wish to use the interface.

Place the other end of the FFC cable into the socket at the top of the JAV-232, again with the blue backing uppermost.

You should now have two way communication between the AR8000 and your computer. Using any terminal program (a Microsoft Windows™ *ar8000.trm* file is supplied on the PC Manager for Windows disk) you can quickly check all is OK.

Using the *ar8000.trm* settings the only item you may need to change is the COM port the JAV-232 is connected to on your computer. Make sure your AR8000 is turned on and type MS (in capitals). Your AR8000 should start scanning !

Typing VA (in capitals) will stop the AR8000 scanning and return the current frequency set in VFO A. The return data on the screen will be something along the lines of:

VA0131050000 ST025000 AU1 MD2 AT0

This can be broken down as follows:

VA	VFO A
0131050000	Set Frequency 131.05MHz
ST025000	Step Size set to 25.0kHz
AU1	Auto Mode is set to On (AU0 would be Auto Mode is Off)
MD2	Mode set is AM
AT0	Attenuator is turned Off (AT1 would be Attenuator is On)

Command Codes/Instructions

A full list of AR8000 commands follow should you wish to communicate with the AR8000 in this method or start to write your own control software. More detailed information is available in the AOR CU-8232 manual which is available from Javiation or AOR (UK) direct. This can also be downloaded from the AOR (UK) Ltd web site at http://wwwaoruk.com in PDF file format (cu8232.pdf).

Squelch Detect

When using software to control the AR8000 it is necessary for the software to know when the AR8000 has stopped on an active channel. This is generally referred to as *Squelch Detect* and some software uses software detect whilst others require/can be selected for hardware detect. The latter usually allows for faster scanning. The JAV-232 can be used with hardware detection (DCD) and some packages will allow you to choose which type of Squelch Detect method you wish to use or the Interface used.

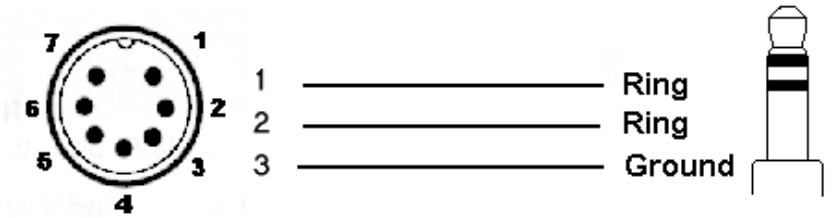
5-DIN PLUG OUTPUT

When using the AR-8000 with the JAV-232 and connected via the FFC the lower 4 pin DIN socket provides outputs as follows:-

Pin 1 & 2:	*These provide an Open & Close circuit when the Squelch Opens/Closes for remote tape record operations. In other words if you have a tape recorder with a remote facility it will turn this on/off each time the squelch opens.*
Pin 3:	*Ground*
Pin 4:	*Provides constant Audio for use with a Tape Recorder*
Pin 5	*No Connection*

Connections required for Alinco DJ-X3, Icom IC-R2, IC-R3 & IC-R5

All that is required is a simple lead between the receiver and the JAV-232 using the 7-DIN plug on the top of the JAV-232 with a 3.5mm Stereo Jack on the end.



7-DIN Plug connections on JAV-232

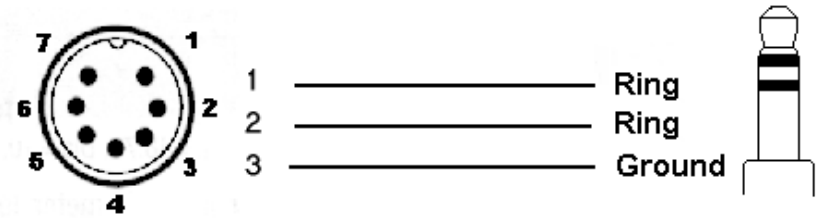
3.5mm Stereo Jack For DJ-X3, IC-R2 / IC-R3 & IC-R5

DIN PLUG

Pin 1:	*Data into the Computer from the receiver*
Pin 2:	*Data out from the Computer to the receiver*
Pin 3:	*Ground*
Pin 4	*No Connection*
Pin 5:	*No Connection*
Pin 6:	*No Connection*
Pin 7:	*No Connection*

Connections required for the Alinco DJ-X2, DJ-X10 & DJ-X2000

To connect the DJ-X10 to the JAV-232 all that is required is a simple lead between the receiver and the JAV-232 using the 7-DIN plug on the top of the interface..



7-DIN Plug connections on JAV-232

2.5mm Stereo Jack for DJ-X2, DJ-X10 & DJ-X2000

DIN PLUG

Pin 1:	*Data into the Computer from the receiver*
Pin 2:	*Data out from the Computer to the receiver*
Pin 3:	*Ground*
Pin 4	*No Connection*
Pin 5:	*No Connection*
Pin 6:	*No Connection*
Pin 7	*No Connection*

Command Codes accepted by the AR8000.

For more detailed information please refer to the AOR CU-8232 manual available from Javiation or AOR (UK) Ltd Direct. This can also be downloaded from the AOR (UK) Ltd web site at http://wwwaoruk.com in PDF file format

AT	Register the attenuator position ON/OFF.
AU	Register the auto mode ON/OFF.
BM	Register the scan bank link ON/OFF.
BN	Change the search/scan bank.
BQ	Register the search bank link function ON/OFF.
BS	Register the search bank link ON/OFF.
DD	Recall the VFO mode.
EX	End the Remote mode (RS232C).
GA	Register the select scan channel from Memory channel.
GD	Delete the select scan channel from Memory channel.
GR	Recall the select scan channel.
LC	Respond with the received freq and S-level when SQ opens.
LM	Respond with the S-level reading and SQ open/close.
MA	Respond with the contents of the present bank or specified bank.
MC	Select the monitor switch position.
MD	Select the receive mode. *MD0 = WFM* *MD1 = NFM* *MD2 = AM* *MD3 = USB* *MD4 = LSB* *MD5 = CW*
MG	Start the scan mode. Respond with receive freq and S-level reading when SQ is open (as LC).
ML	Register the scan bank link function ON/OFF.
MP	Register the present memory channel as Pass channel.
MQ	Delete the present bank or memory channel.
MR	Switch to the memory read (M.RE) mode.
MS	Switch to the scan (SCAN) mode.
MX	Write data into memory channel.
PA	Register the delay time of Power Save mode.
PD	Delete the Search Pass Freq
PI	Register the interval time of Power Save mode.
PR	Recall the Search Pass Freq
PS	Register the Search Pass Freq
PW	Register the presently receiving freq as Pass Freq
RF	Key in the Freq in VFO
RX	Respond with the presently receiving data

SA Register the Audio Search ON/OFF.
SB Register the Level Search ON/OFF. Set the S-level.
SC Change the operating code of the option unit
SD Change-over HOLD/DELAY in Search mode. Register the delay time.
SE Register the Search data.
SG Start the Search mode. Respond with frequency and S-level reading when SQ is open.
SI Turns Option unit On/Off (When Fitted)
SL Write the start frequency of Search.
SM Start the Select Scan.
SN Write the Pass Word. Recall the Pass Word.
SO Recall the Search operating mode.
SP Register the Free Search ON/OFF and delay time.
SQ Check the SQ setting.
SR Recall the Search data.
SS Start the Search.
ST Register the step size in search mode.
SU Register the end freq of search mode.

TI Register the interval time of Priority channel.
TM Write the text for memory channel
TT Write the text for search bank

VA Initiate the A VFO mode.
VB Initiate the B VFO mode.
VF Initiate the 2 VFO mode.

XA Register the Audio Scan ON/OFF.
XB Register the Level Scan ON/OFF.
XD Register the delay time in Scan mode.
XM Register the Mode Scan ON/OFF.

XO Recall the Free Scan operating mode.
XP Register the Free Scan ON/OFF and timing.
XQ Recall the SQ operating mode.
[UP] [DOWN] similar to the receivers keyboard.

Typical format of commands:

AT Attenuator ON/OFF.
AT0 = Attenuator Off
AT1 = Attenuator On

SRA will return the Search Mode Data in Search Bank A as follows:
SRA SL0118000000 SU0136000000 ST025000 AU1 MD2 AT0 TTCIV AIR

This can be broken down as:

SRA	*= Search Bank A*
SL0118000000	*= Lower Search Limit (118.0MHz)*
SU0136000000	*= Upper Search Limit (136.00MHz)*
ST025000	*= Step size is 25kHz*
AU1	*= Automode if On*
MD2	*= Mode is AM*
AT0	*= Attenuator is Off*
TTCIV AIR	*= Text description is "CIV AIR"*

Connections required for the CAMNIS HSC-150 & Trident TR-4000

This is not a model that has been distributed (to my knowledge) in the U.K.

The HSC-150/TR-4000 has a 8 pin Mini-DIN plug on the top for connection to a PC:

8 Pin Mini-Din
Pin 1 - RTS
Pin 2 - CTS
Pin 3 - TX Out of receiver to PC
Pin 4 - Signal Ground
Pin 5 - RX In to receiver from PC
Pin 6 - +5V
Pin 7 - No connection
Pin 8 - No connection

Using the JAV-232 only pins 3, 4 & 5 need to be used.

RF Key in the Freq in VFO
RR Control the receiver record / play back
RX Respond with the presently receiving data

SC Change the operating code of the option unit
SE Register the Search data.
SG Start the Search mode. Respond with freq and S-level reading when SQ is open.
SI Switch the option unit ON/OFF (when fitted)
SL Write the start freq of Search.
SR Recall the Search data.
SS Start the Search.
ST Register the step size in search mode.
SU Register the end freq of search mode.

TI Register the interval time of Priority channel.
TD Register the delay time
TP Register the pause time
[UP] [DOWN] similar to the receivers keyboard.

Typical format of commands:

AT Attenuator ON/OFF.
AT0 = Attenuator Off
AT1 = Attenuator On

SR1 will return the Search Mode Data in Search Bank 1 as follows:

SR1 SL0076000000 SU0107750000 AU0 MD0 ST050000 AT0

This can be broken down as:

SR1	*= Search Bank 1*
SL0076000000	*= Lower Search Limit (76.0MHz)*
SU0107750000	*= Upper Search Limit (107.75MHz)*
AU0	*= Automode if Off*
MD0	*= Mode is WFM*
ST050000	*= Step size is 500kHz*
AT0	*= Attenuator is Off*

Multiple commands in conjunction with other commands are possible with a space in between:
AT, AU, MD, RF, ST,

Connections required for the AR2700, COM600/COM610, HSC-190/HSC-200 & TR-2000/TR-2200

Connecting any of the above, all of which are the same receiver (the COM610/HSC-200/TR-2200 has slightly wider coverage with additional modes & step sizes) to a PC with the JAV-232 requires the Flat Flexible Cable (FFC).

Plug the DB-9 into your Computers RS-232 Serial Port. You will need to configure the software you are using with the correct COM Port (i.e. COM1, COM2, COM3 etc.) to correspond with the one you have used.

Remove the battery cover from your receiver to gain access to the Computer Connection socket which is rather awkwardly located in the battery compartment. Plug one end of the white FFC with the blue backing face uppermost into the socket. You should *feel* this locate properly into the socket. If your unit does not have a FFC type connector you need a suitable adapter (only early AR2700's do not have the FFC connector).

Place the other end of the FFC cable into the socket at the bottom of the front face on the JAV-232, again with the blue backing uppermost.

You should now have two way communication between the receiver and your computer. Using any terminal program (a Microsoft Windows™ *ar8000.trm* file is supplied on the PC Manager for Windows disk) you can quickly check all is OK.

Using the *ar8000.trm* settings the only item you may need to change is the COM port the JAV-232 is connected to on your computer. Make sure your receiver is turned on.

Typing RF (in capitals) will return the current frequency stored in the VFO. The return data will be something along the lines of:

RF0131050000 AU1 MD2 ST025000 AT0

This can be broken down as follows:

RF	Manual VFO
0131050000	Set Frequency 131.05MHz
AU1	Auto Mode is set to On (AU0 would be Auto Mode is Off)
MD2	Mode set is AM (0=WFM, 1=NFM, 2=AM)
ST025000	Step Size set to 25.0kHz
AT0	Attenuator is turned Off (AT1 would be Attenuator is On)

Command Codes/Instructions

A full list of commands follow should you wish to communicate with any of these receivers in this method or start to write your own control software.

Additional, detailed information is available in the AR2700 supplement for the AOR CU-8232 which is available from Javiation or AOR (UK) direct.

Squelch Detect

The AR2700/HSC-190/HSC-200/TR-2000/TR-2200 does not support Squelch Detect in the same way as the AR8000 and is done via software commands from the receiver. You may find some software does not recognise such commands and therefore does not stop scanning or searching when a signal is received. AOR's *PC Manager for Windows* does work correctly with this receiver.

Command Codes accepted by the AR2700, COM600/COM610, HSC-190/HSC-200/TR-2000/TR-2200.

For more detailed information please refer to the AR2700 supplement for the AOR CU-8232 available from Javiation or AOR (UK) Ltd Direct.

Note that whilst their is a large degree of commonalty with the AR8000 command structure there are some differences (Note the Modes !)

AT Register the attenuator position ON/OFF.
AU Register the auto mode ON/OFF.

BM Register the scan bank link ON/OFF.
BN Change the search/scan bank.
BQ Register the search bank link function ON/OFF.
BS Register the search bank link ON/OFF.

EX End the Remote mode (RS232C).

LC Respond with the received freq and S-level when SQ opens.
LM Respond with the S-level reading and SQ open/close.

MA Respond with the contents of the present bank or specified bank.
MC Select the monitor switch position.
MD Select the receive mode.
On the AR2700/HSC-190/TR-2000: MD0, MD1 & MD2 supported
On the COM610, HSC-200/TR-2200: MD0, MD1, MD2, MD3 & MD4 supported
MD0 = WFM
MD1 = NFM
MD2 = AM
MD3 = LSB
MD4 = USB
MG Start the scan mode. Respond with receive freq and S-level reading when SQ is open (as LC).
ML Register the scan bank link function ON/OFF.
MP Register the present memory channel as Pass channel.
MQ Delete the present bank or memory channel.
MR Switch to the memory read (M.RE) mode.
MS Switch to the scan (SCAN) mode.
MX Write data into memory channel.

PD Delete the Search Pass Freq
PR Recall the Search Pass Freq
PS Register the Search Pass Freq
PU Register the pause (free search / scan) On / Off
PW Register the presently receiving freq as Pass Freq

QP Turn the power switch Off