“Eric’s” DB-9 RS-422 cable

24 October 2006

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[1] `$Header: d:/GeneralInformation/rs232/RCS/Rs422Db9.tex,v 1.12 2004-11-04 12:47:44-08 Hamilton Exp Hamilton $`

1 Connecting a PV-130 to Breakout

The Pelco model PV-130 level changing unit requires that pin DB-9-8 be high before it will allow any data to go out of the unit on the DB-9 connector. Fortunately the PV-130 will use that pin to provide power. As a convinent way of providing this power, and eliminating the need for a seperate power supply, make a short cable wired as follows. The DB-25 connector is not normally needed. In my configuration I have DB-9's comming from the Breakout CPU so that I can swap things around easily. On my little sets of lights: RED = +, GREEN = −.

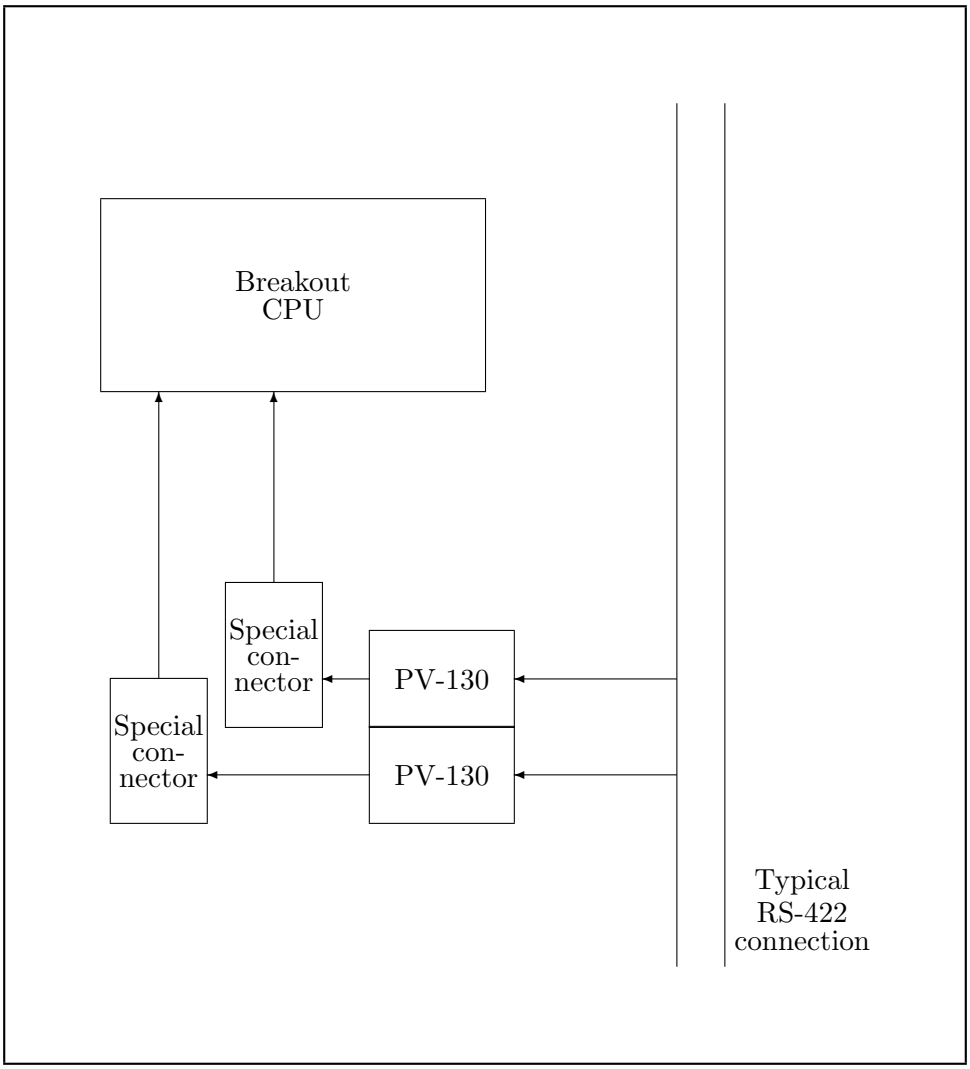
DB-25 Breakout CPU	DB-9-F Breakout CPU	DP-9-M PV-130 End	Use
3	2	2	RD
2	3	3	TD
7	5	5	Ground
4, 5	7, 8	8	RTS jumpered to CTS and connected to CTS
6, 20	4, 6	—	DSR jumpered to DTR

Table 1. Enabling a PV-130 with Breakout

To make the control line go active type the following into the breakout CPU after each rebooting of the whole computer. (It seems to remember that someone had been writing on the port and leaves it active afterword.):

```
copy con con1
abc
ctl-z
```

(Each line is terminated with a CR. "`ctl-z`" means control-Z. Repeat for `con2` if it is to be used. If an error occurs, either connect the "magic" connector and it will go away, or abort the transfer. Either way the control line is activated.



$RCSfile: Rs422Db9.tex,v $

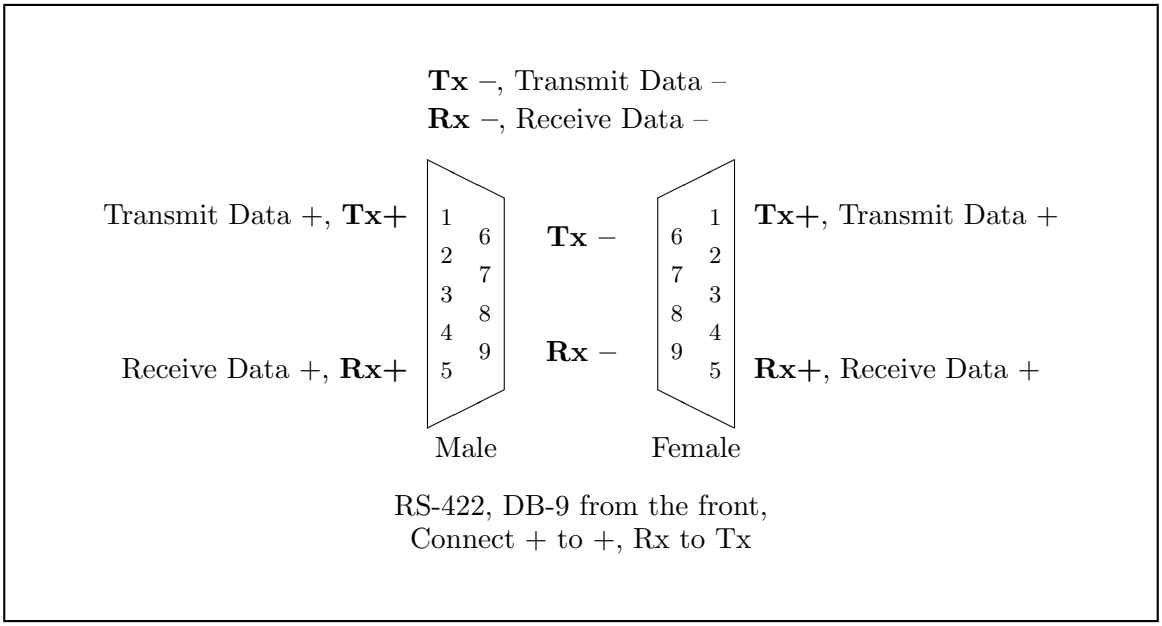
Figure 1. Monitoring RS-422 communications with Breakout

RS422			
DB-9-M Camera		DB-9-F Matrix	
Use	Pin	Pin	Use
R+	5	1	T+
R-	9	6	T-
T+	1	5	R+
T-	6	9	R-

Table 2. Special four pin RS-422 cable DB-9 pinouts

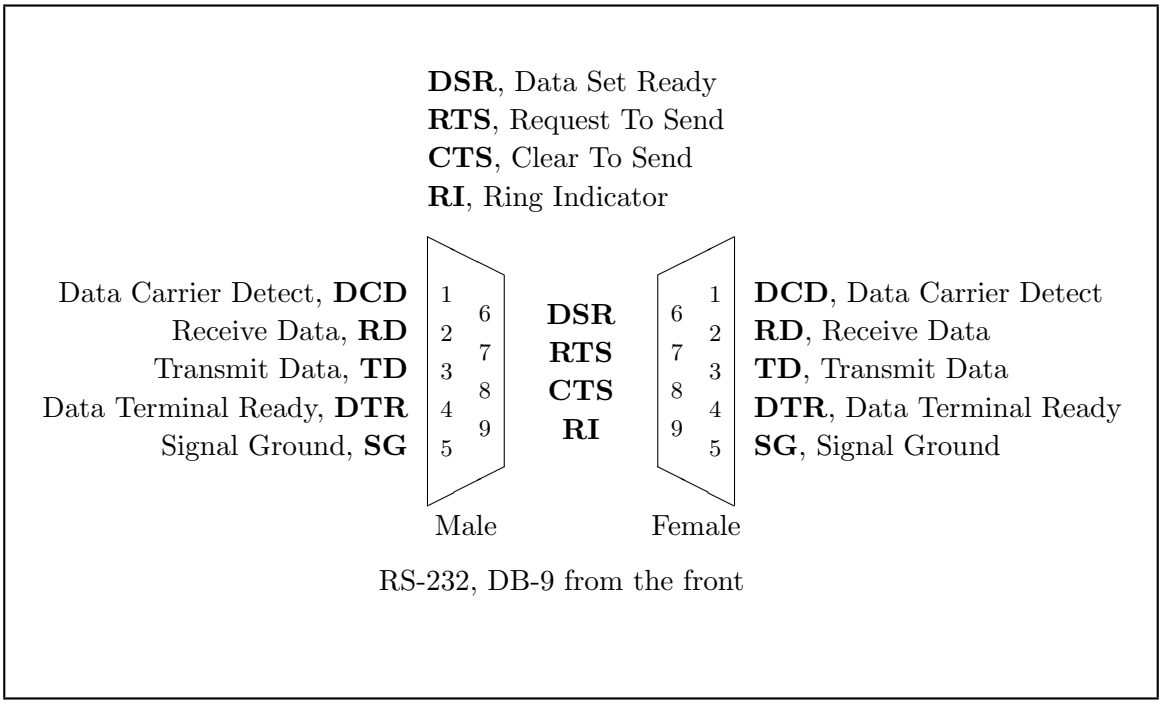
[2] $Header: d:/GeneralInformation/rs232/RCS/RS4Piname.inc,v 1.1 2004-10-25 14:18:13-07 Hamilton Exp Hamilton $

[3] $Header: d:/GeneralInformation/rs232/RCS/RS2Piname.inc,v 1.1 2004-10-25 14:18:10-07 Hamilton Exp Hamilton $



$RCSfile: RS4Piname.inc,v $

Figure 2. RS-422 pin outs, with names

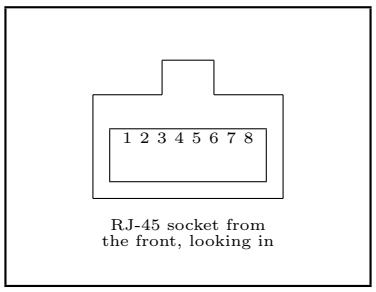


$RCSfile: RS2Piname.inc,v $

Figure 3. RS-232 pins outs with names

PC				Spectra	
DB-25-F		**DB-9-F**		**RJ-45-F**	
Tx	2	Tx	3	2	Rx-
Rx	3	Rx	2	7	Tx-
Gnd	7	Gnd	5	8	Tx+
	7		5	1	Rx+

Table 3. Sales' idea of a non-PV-130 method of getting from RS-232 to/from RS-422



$RCSfile: RjPins.inc,v $

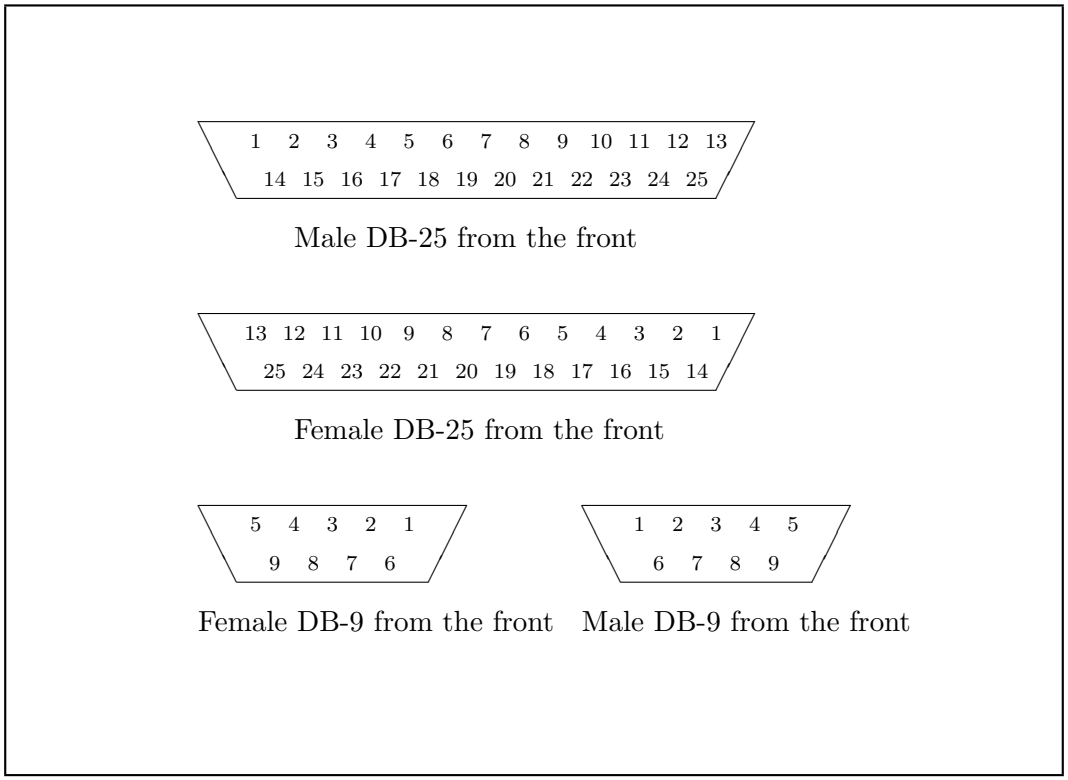
Figure 4. RJ-45 pin assignments

[4] $Header: d:/GeneralInformation/rs232/RCS/RjPins.inc,v 1.1 2004-10-25 12:54:53-07 Hamilton Exp Hamilton $

[5] $Header: d:/GeneralInformation/rs232/RCS/RSpins.inc,v 1.1 2004-10-25 12:55:01-07 Hamilton Exp Hamilton $

PV-130	
Old	New
TD(A)	TX-
TD(B)	TX+
RD(A)	RX-
RD(B)	RX+
GND	GND
+12V	12V

Table 4. PV-130 pin equivalences



$RCSfile: RSpins.inc,v $

Figure 5. DB Connector pin outs

Color/-Marking	Pinning	Use
BL	5, 9 flipped	From keyboard/computer/matrix
RE	1, 6 flipped	From Spectra
WH Rx	1, 6 flipped	From Spectra
RE, BL	5, 9 and 1, 6 flipped	Flip both receive and transmit
WH Full	5, 9 and 1, 6 flipped	Flip both receive and transmit
OR	1, 5 and 6, 9 swapped	Swap transmit and receive pairs
LB	1—6, 5—9	Loop back connector
LEDs	1, 6 and 5, 9	LED. “Long” on 6, 9. “Short” on 1, 5.

Table 5. Misc RS-422 connector wirings

J2 Spectra/Esprit connection	
Pin	Use
1	+5 VDC, From an Esprit, open with a Spectra
2	+12 VDC, From a Spectra, open with an Esprit
3	Ground
4	Open on a Spectra, unknown on an Esprit
5	RXD+, To Spectra
6	RX+, From host
7	RXD-, To Spectra
8	RX-, From host
9	TXD+, From Spectra
10	TX-, To host
11	TXD-, From Spectra
12	TX-, To host
13	Video in
14	Video out
15	Ground
16	Open on a Spectra, unknown on an Esprit
The shorting plug that is normally installed in J2 connects the following pins together: 3-4, 5-6, 7-8, 9-10, 11-12, 13-14. And leaves the following pins open: 1, 2, 15, 16.	

Table 6. TXB Connector pin assignments on Spectra and Esprit units

DB-25	DB-9	Use
2, 3	3, 2	TD jumpered to RD
4, 5	7, 8	RTS jumpered to CTS
6, 8, 20	6, 1, 4	DSR, DCD and DTR jumpered together

Table 7. DB-9 and DB-25 loop back connectors.

DB-9	DB-25	Use
1	8	DCD, Data Carrier Detect
2	3	RD, Recieved Data
3	2	TD, Transmitted Data
4	20	DTR, Data Terminal Ready
5	7	SG, Signal Ground
6	6	DSR, Data Set Ready
7	4	RTS, Request To Send
8	5	CTS, Clear To Send
9	22	RI, Ring Indicator

Table 8. DB-9 to DB-25 adapter.

DB-25	DB-9	Use
2	3	TD, Transmitted Data
3	2	RD, Recieved Data
4	7	RTS, Request To Send
5	8	CTS, Clear To Send
6	6	DSR, Data Set Ready
7	5	SG, Signal Ground
8	1	DCD, Data Carrier Detect
20	4	DTR, Data Terminal Ready
22	9	RI, Ring Indicator

Table 9. DB-25 to DB-9 adapter.

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