Cable Pinouts

RJ-45

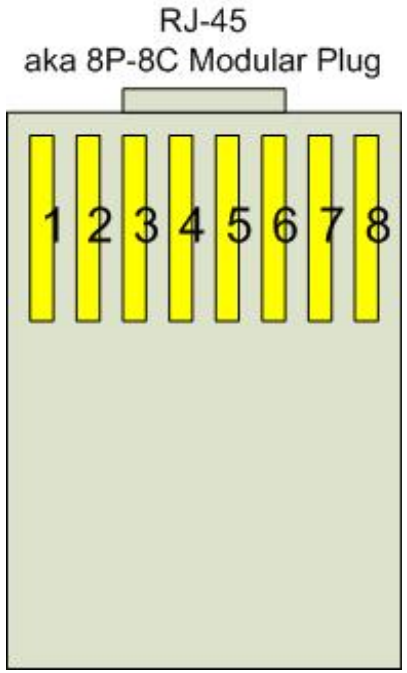
The RJ-45 (Registered Jack 45) is one of the common physical connectors in the communications industry today eventhough it is not an official standard. An RJ-45 connector is used to refer to a 8 pin - 8 connector (8P-8C) modular connector. The name is also "RJ-45" is incorrectly used to describe a common ethernet cable (TIA/EIA-568-B).

The image below shows the pinout of a 8P-8C connector...the "tab" to hold the connector in the socket is facing down (or towards this page).

Why and How to add Lync Enterprise Voice

- **Sangoma SS7 Gateway Advantage**

Excellent ROI, wide range of protocol variants, ultimate transcoding support, simple licensing, scalability, intuitive and



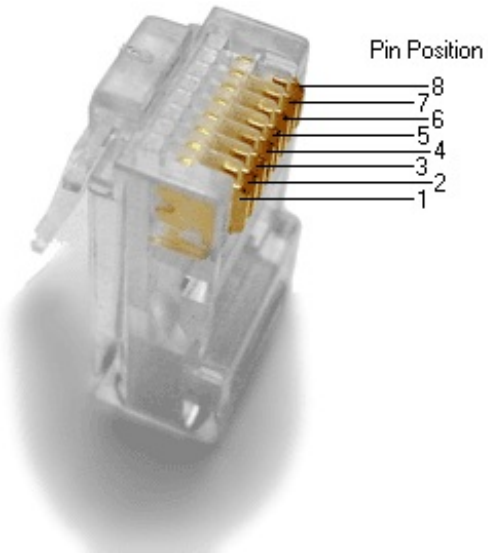


Image from : http://en.wikipedia.org/wiki/File:Rj45plug-8p8c.png

RJ-48C aka T1/E1 RJ-45

licensing, scalability, intuitive and easy

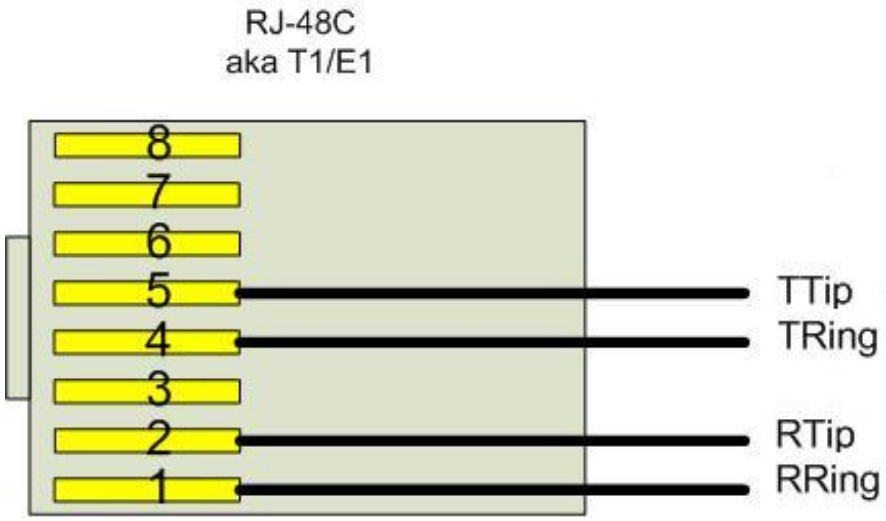
- **28 Ways Sangoma Makes Asterisk Better**

Lear how Sangoma makes Asterisk more scalable, more reliable and more functional. Sangoma delivers where others fall short.

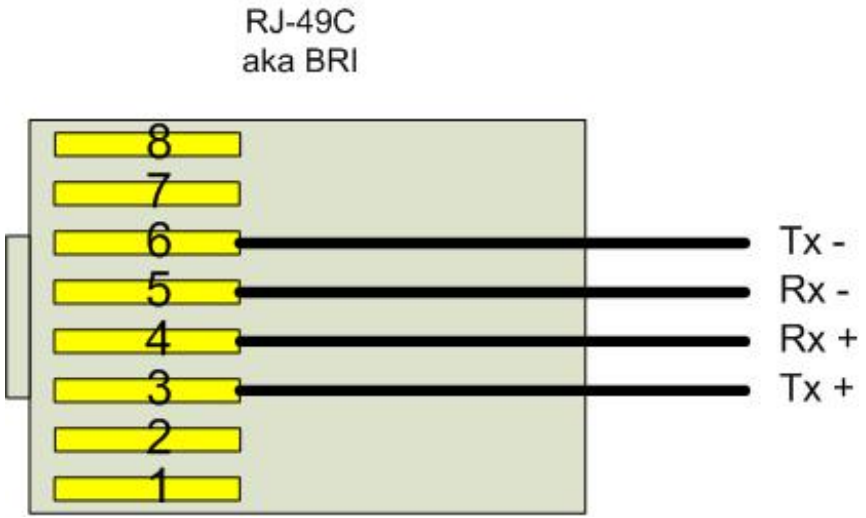
- **SBC - The Critical Component**

SBC addresses key VoIP and UC issues around security, remote workers, firewalls, transcoding and SIP interoperability.

- **How to Respond to MVAS**

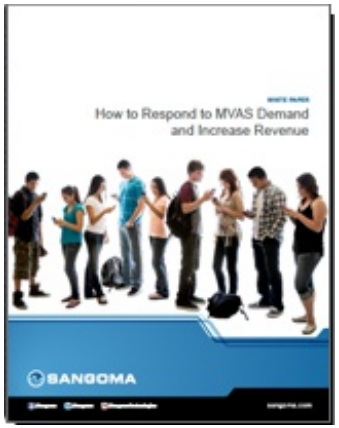


RJ-49C aka BRI RJ-45



RJ-48S aka 56K DDS RJ-45

Demand and Increase Revenue

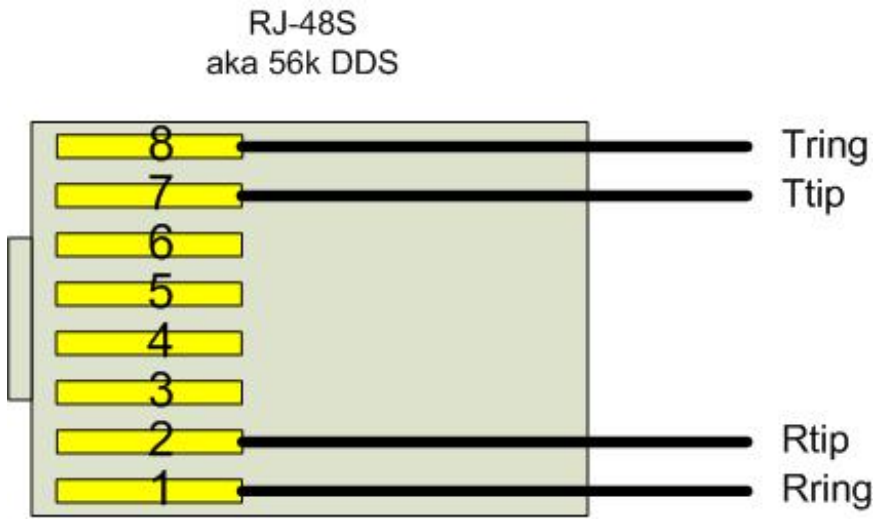


The Indian market has embraced Value Added Services igniting innovation and new business opportunities.

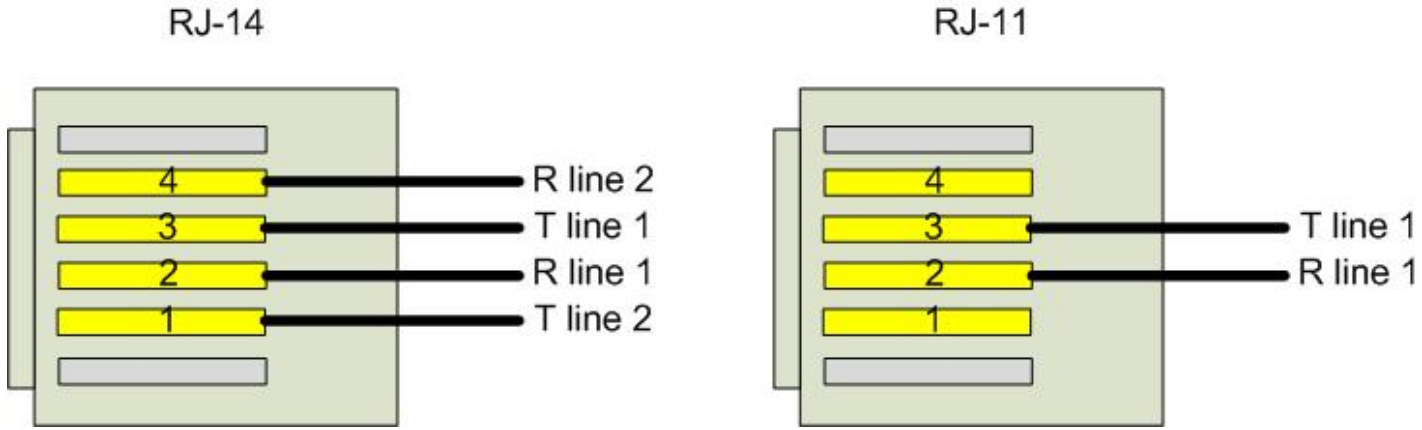
- **Bridging Open Source and Proprietary Telephony Environments**

Today's Communications needs may not be well addressed by Open Source resources.

- **Enterprise Applications of Sangoma Vega Media Gateways**



RJ-11/RJ-14 aka Standard Analog Connector (6P-4C)



RJ-9/RJ-10/RJ-22 aka RJ-11 Narrow (4P-4C)

Branch Offices
SIP Trunking
PSTN Trunking
Hospitality

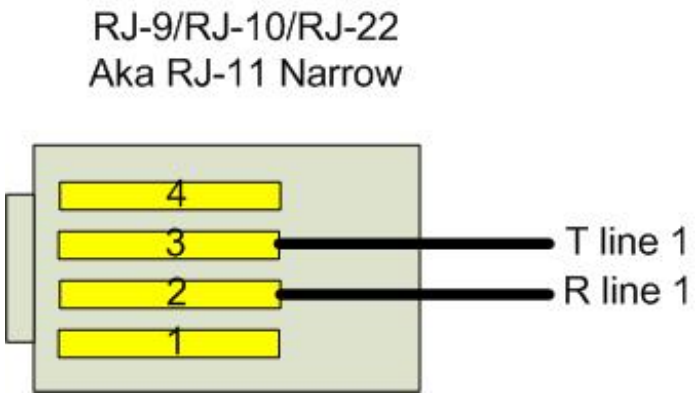
- **Specialized Hardware Answers Booming VoIP Transcoding Demands**

Transcoding voice calls between various networks is increasingly necessary.

- **Mobile Value-Added Services with Sangoma**

RJ-9/RJ-10/RJ-22 aka RJ-11 Narrow (4P-4C)

NOTE: RJ-9, RJ-10, RJ-22, and RJ-11 Narrow are not official standards. This connector is official called "**Modular Connector 4P-4C**"

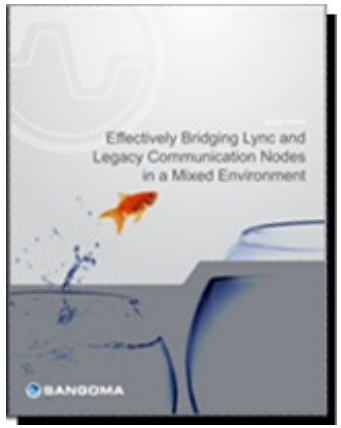


RJ-21 aka 50-pin Telco connector, CHAMP, or Amphenol Connector

Image from: http://en.wikipedia.org/wiki/File:RJ21-female-connector.jpg

Open source telephony platforms can deliver low-cost solutions for the lucrative Mobile Value Added Services market.

- **Effectively Bridging Lync and Legacy Communication Nodes in a Mixed Environment**

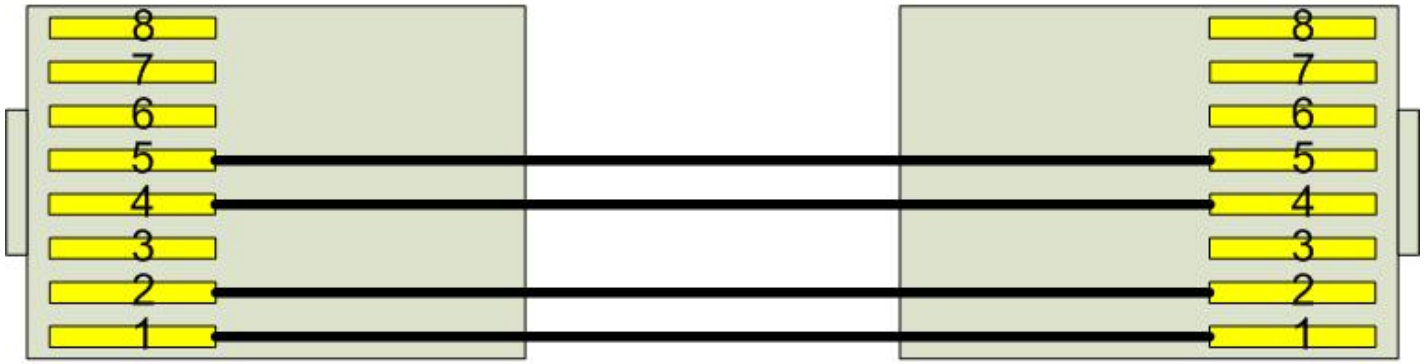


Facilitate the migration from legacy through hybrid, to a fully Lync-optimized environment.

- **Contact Center Doubles Capacity and Expands Services**

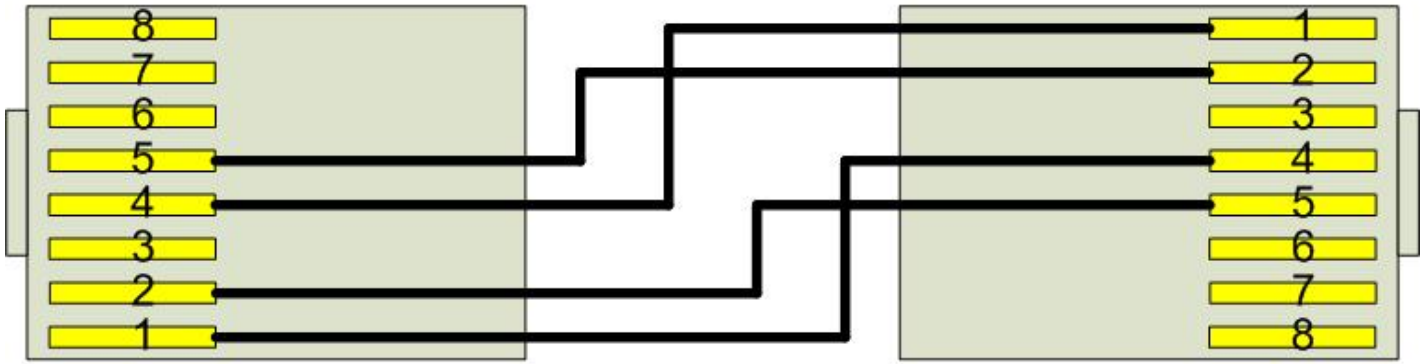
A101/A102/A104

A101/2/4 Straight Thru Cable



1 <-> 1
2 <-> 2
4 <-> 4
5 <-> 5

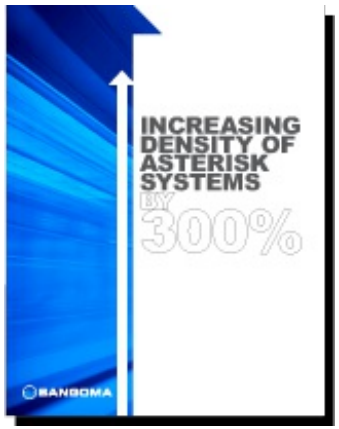
A101/2/4 Cross Over Cable



1 <-> 4
2 <-> 5

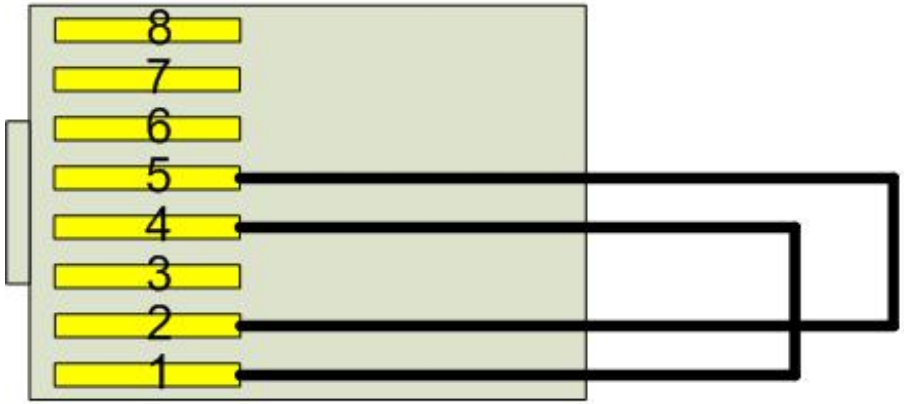
Increased Efficiency with VICIdial Call Center Platform and Sangoma Call Analyzer.

- **Increasing the Density of Asterisk systems by 300%**



4 <-> 1
5 <-> 2

A101/2/4 Loop Back Plug

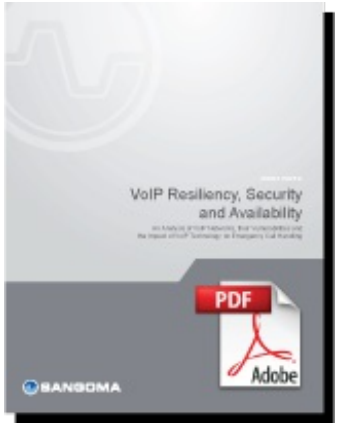


1 <-> 4
2 <-> 5

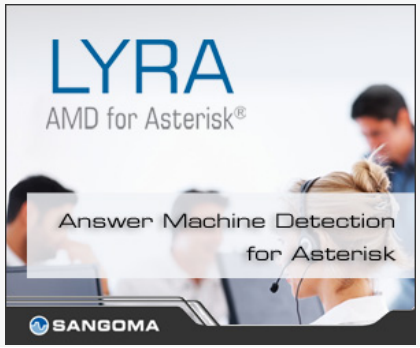
A108

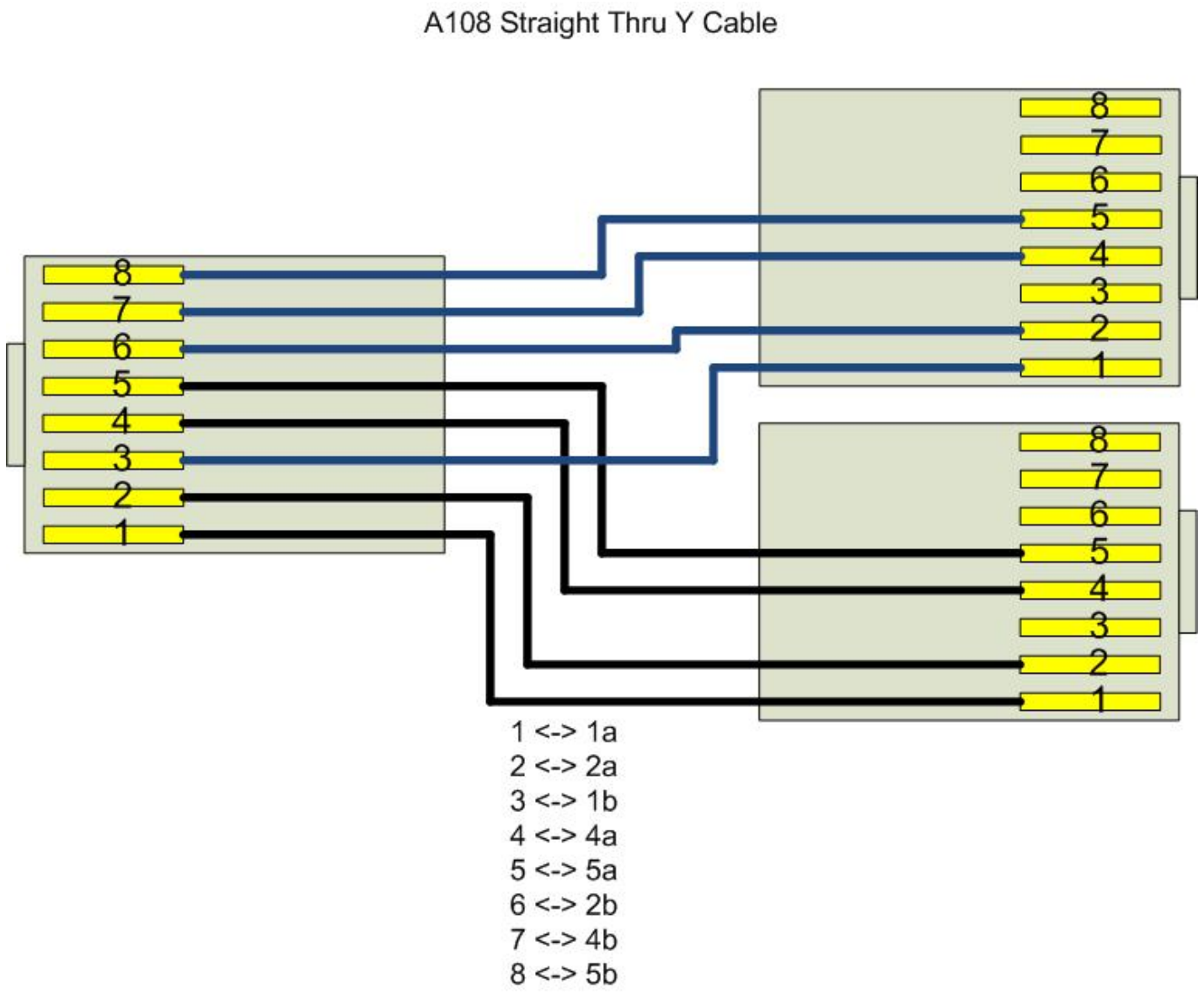
Asterisk can run up to forty-eight spans of Digital Telephony (1,440 simultaneous calls) without overloading the CPU.

- **VoIP Resiliency, Security and Availability**

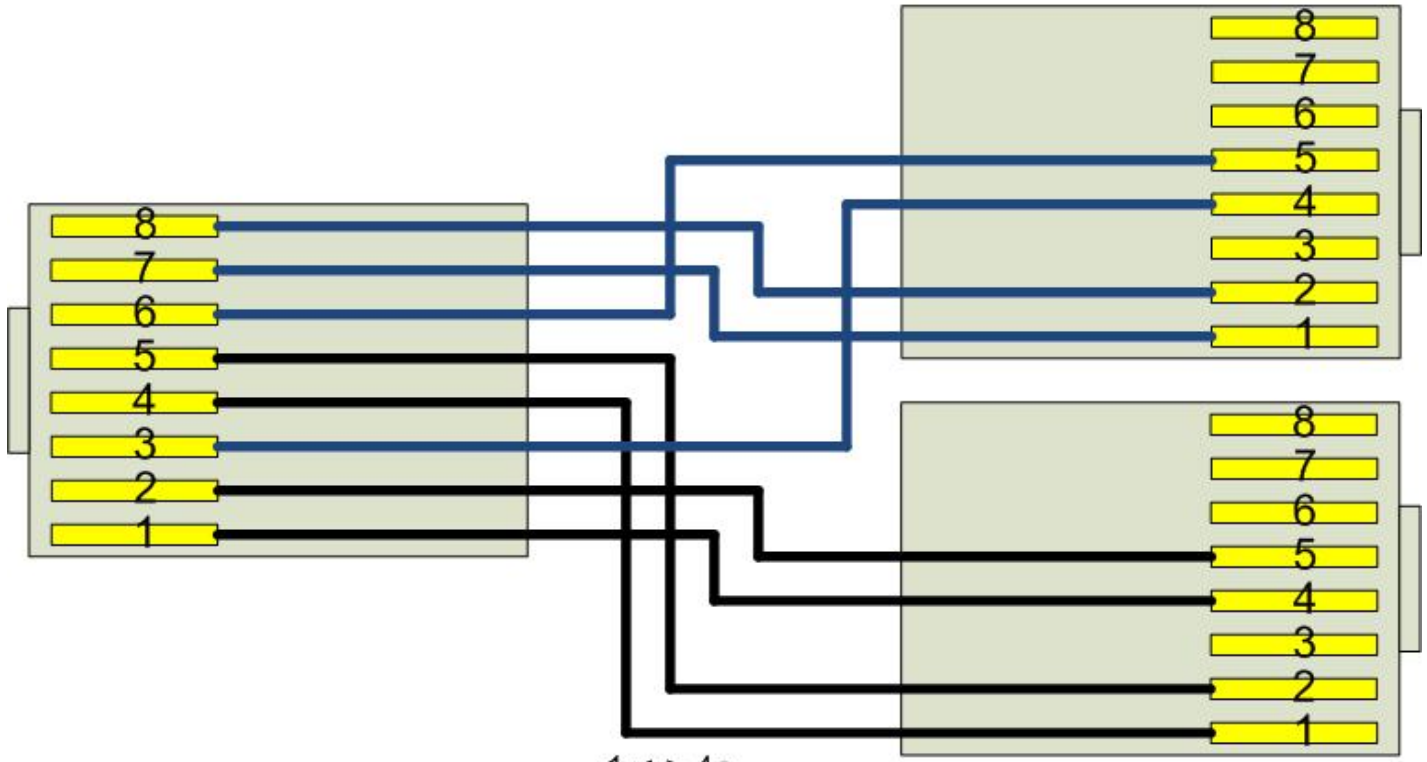


An Analysis of VoIP Networks, their Vulnerabilities and the Impact of VoIP Technology on Emergency Call Handling.



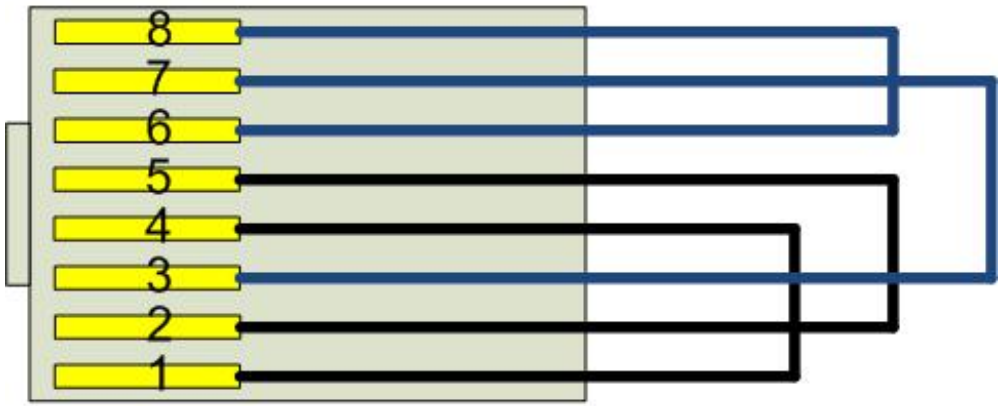


A108 Cross-Over Y Cable



1 <-> 4a
2 <-> 5a
3 <-> 4b
4 <-> 1a
5 <-> 2a
6 <-> 5b
7 <-> 1b
8 <-> 2b

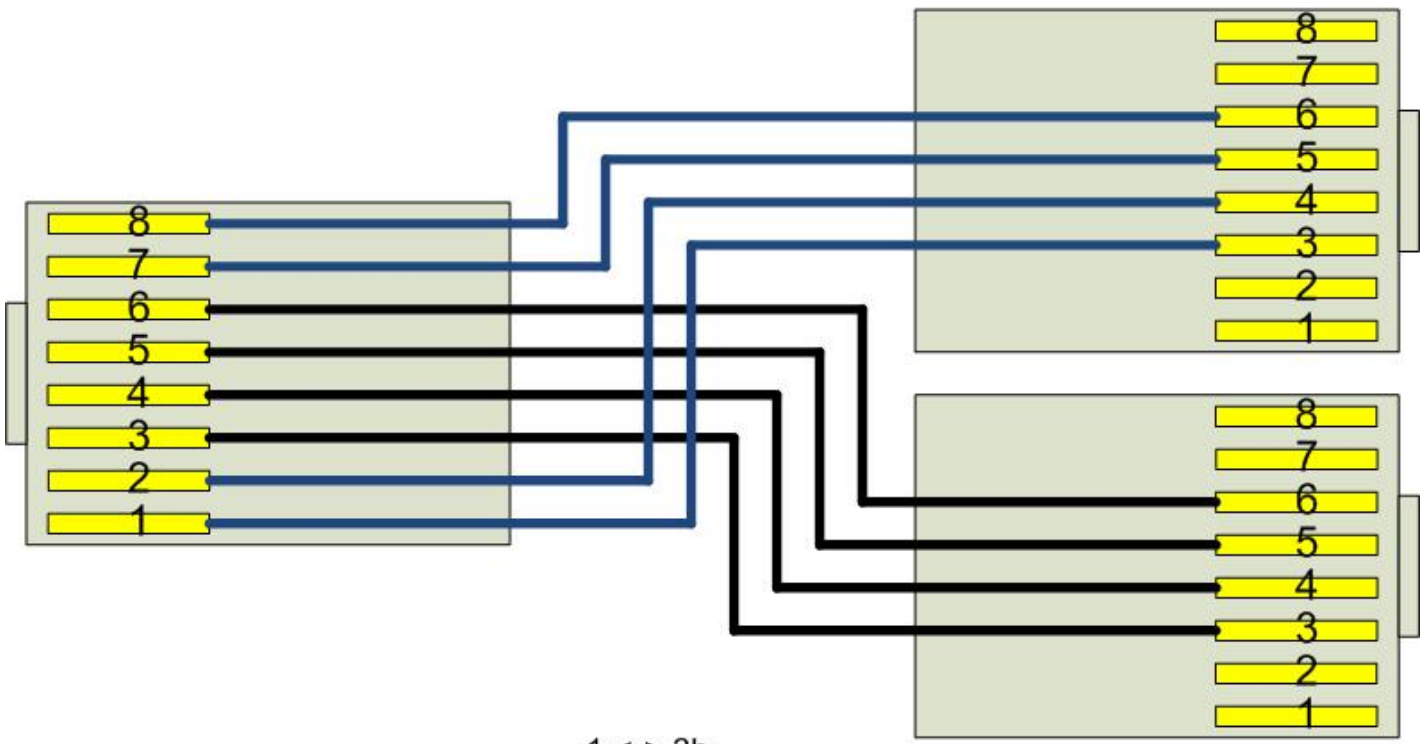
A108 Loop Back Plug



1 <-> 4
2 <-> 5
3 <-> 7
6 <-> 8

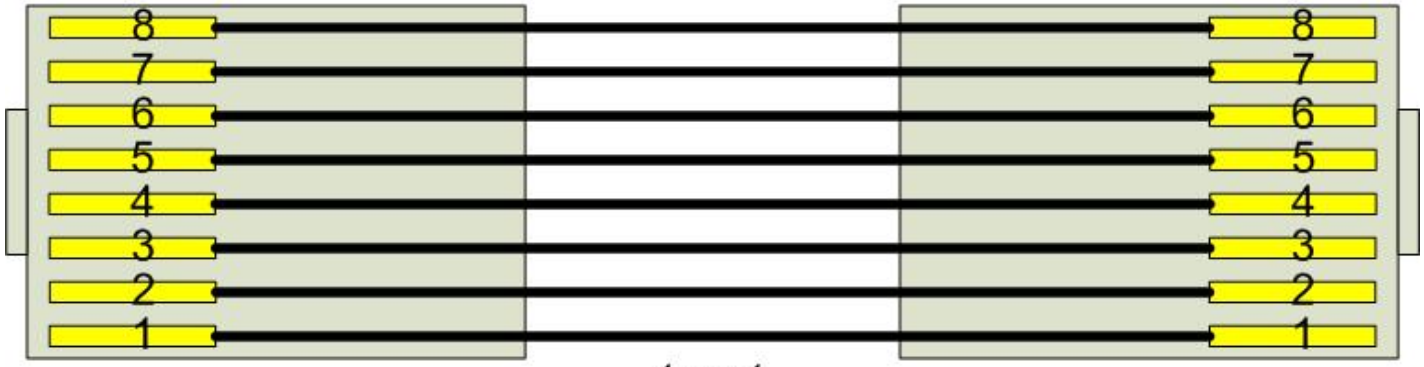
A500

BRI Y Straight Thru Cable



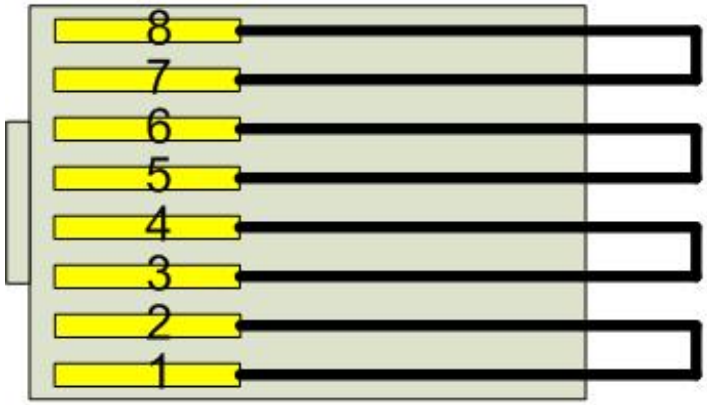
1 <-> 3b
2 <-> 4b
3 <-> 3a
4 <-> 4a
5 <-> 5a
6 <-> 6a
7 <-> 5b
8 <-> 6b

BRI Straight Thru Cable
aka Loop Back Cable



1 <-> 1
2 <-> 2
3 <-> 3
4 <-> 4
5 <-> 5
6 <-> 6
7 <-> 7
8 <-> 8

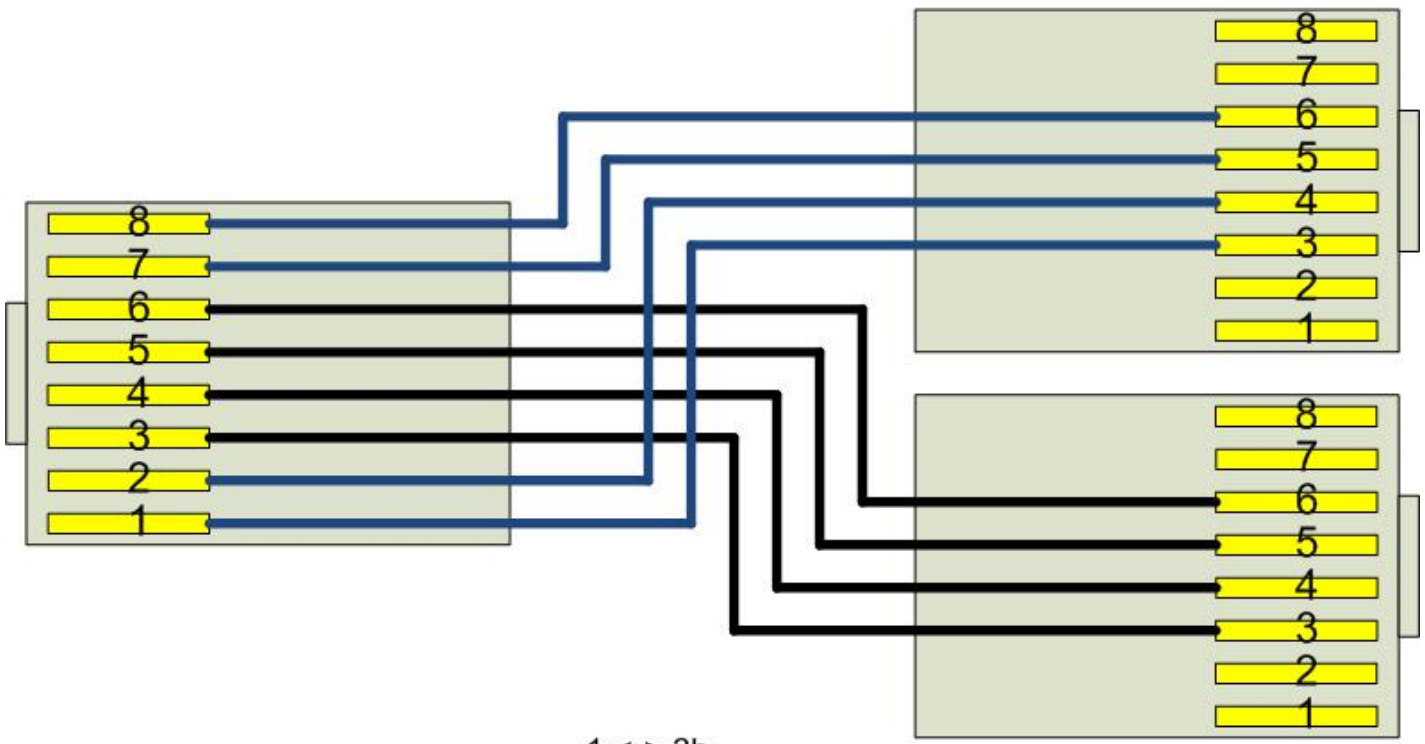
BRI Loop Back for
Sangoma Aft-Prod



1 <-> 2
3 <-> 4
5 <-> 6
7 <-> 8

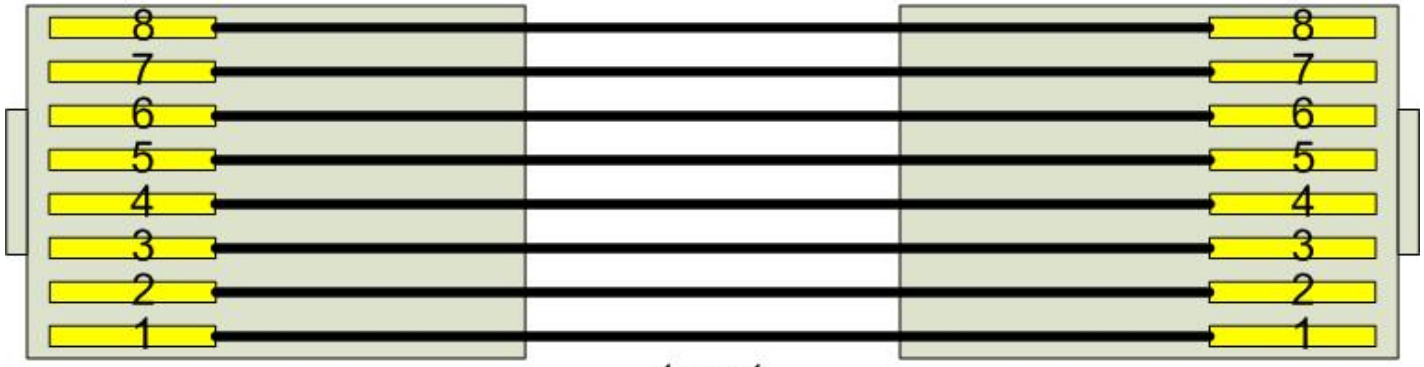
B700

BRI Y Straight Thru Cable



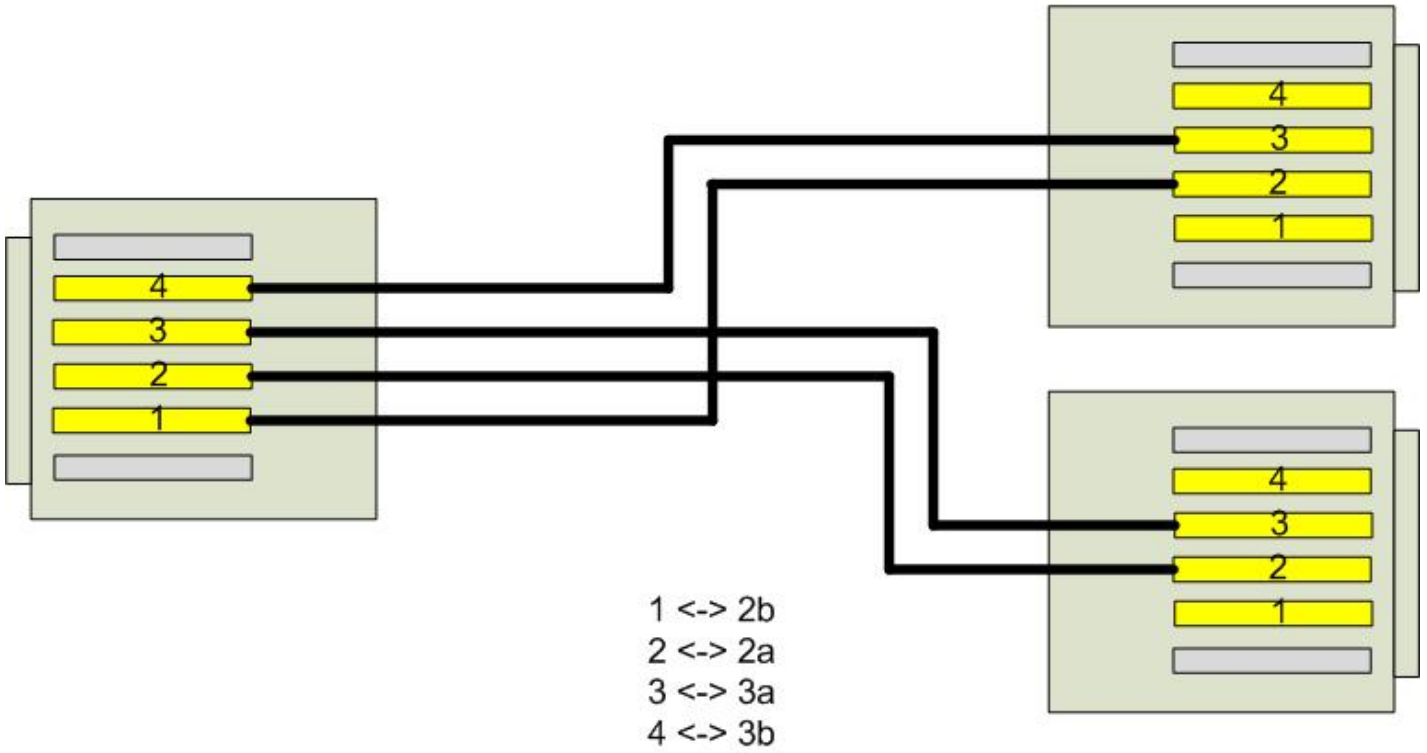
1 <-> 3b
2 <-> 4b
3 <-> 3a
4 <-> 4a
5 <-> 5a
6 <-> 6a
7 <-> 5b
8 <-> 6b

BRI Straight Thru Cable
aka Loop Back Cable



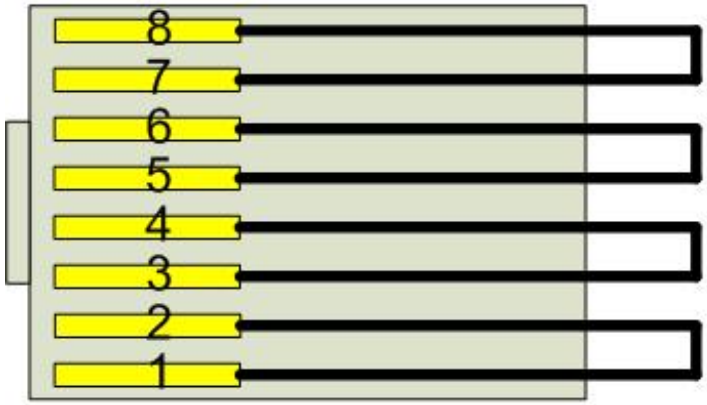
1 <-> 1
2 <-> 2
3 <-> 3
4 <-> 4
5 <-> 5
6 <-> 6
7 <-> 7
8 <-> 8

Analog Y Cable



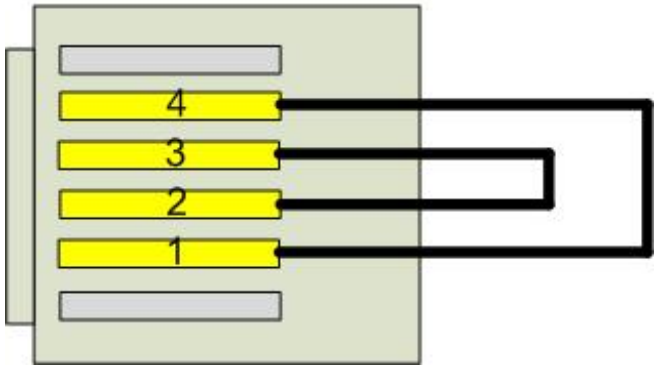
1 <-> 2b
2 <-> 2a
3 <-> 3a
4 <-> 3b

BRI Loop Back for
Sangoma Aft-Prod



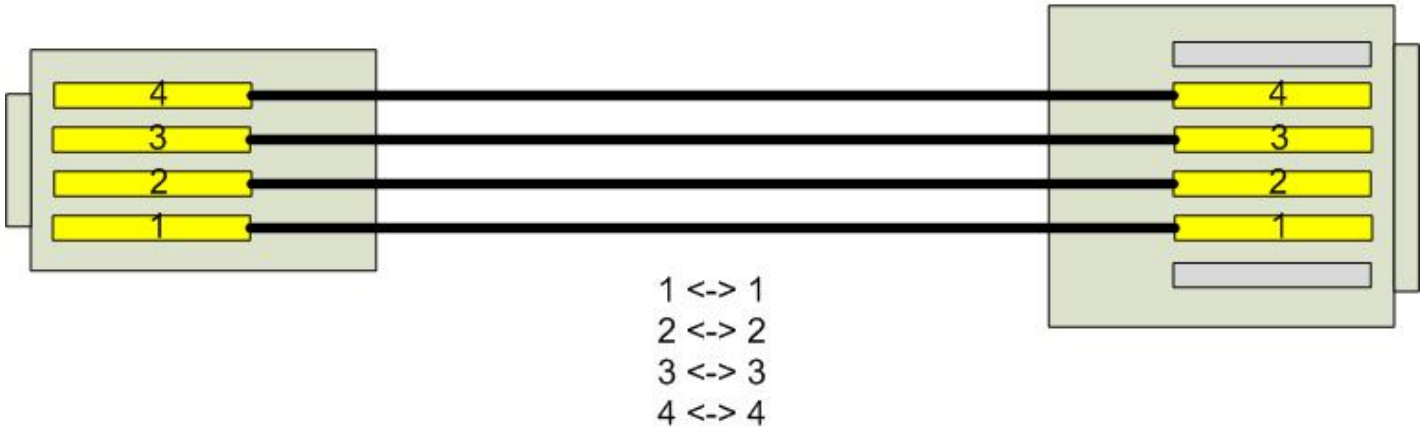
1 <-> 2
3 <-> 4
5 <-> 6
7 <-> 8

RJ-11/RJ-14
Loop Back



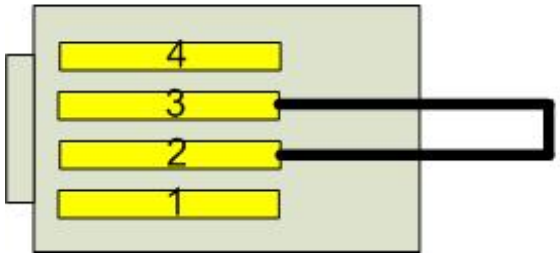
A200

A200 Cable
aka R11-Narrow to RJ-14



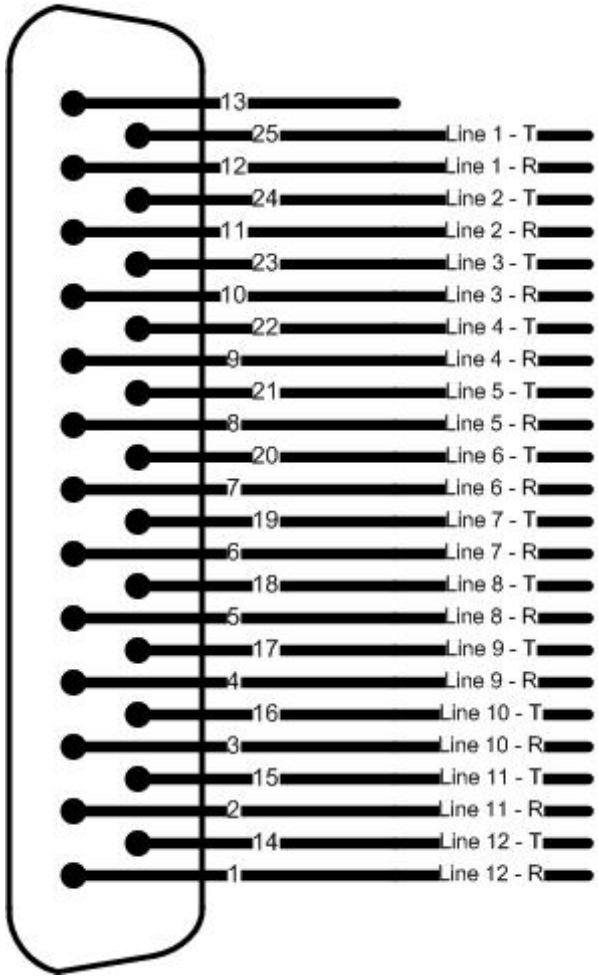
1 <-> 1
2 <-> 2
3 <-> 3
4 <-> 4

RJ-9/RJ-10/RJ-22/RJ-11 Narrow
Loop Back



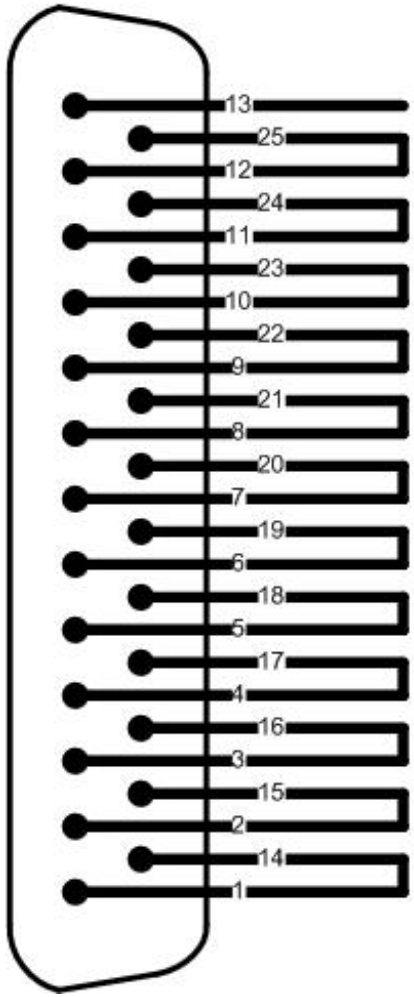
A400

DB-25 Cable



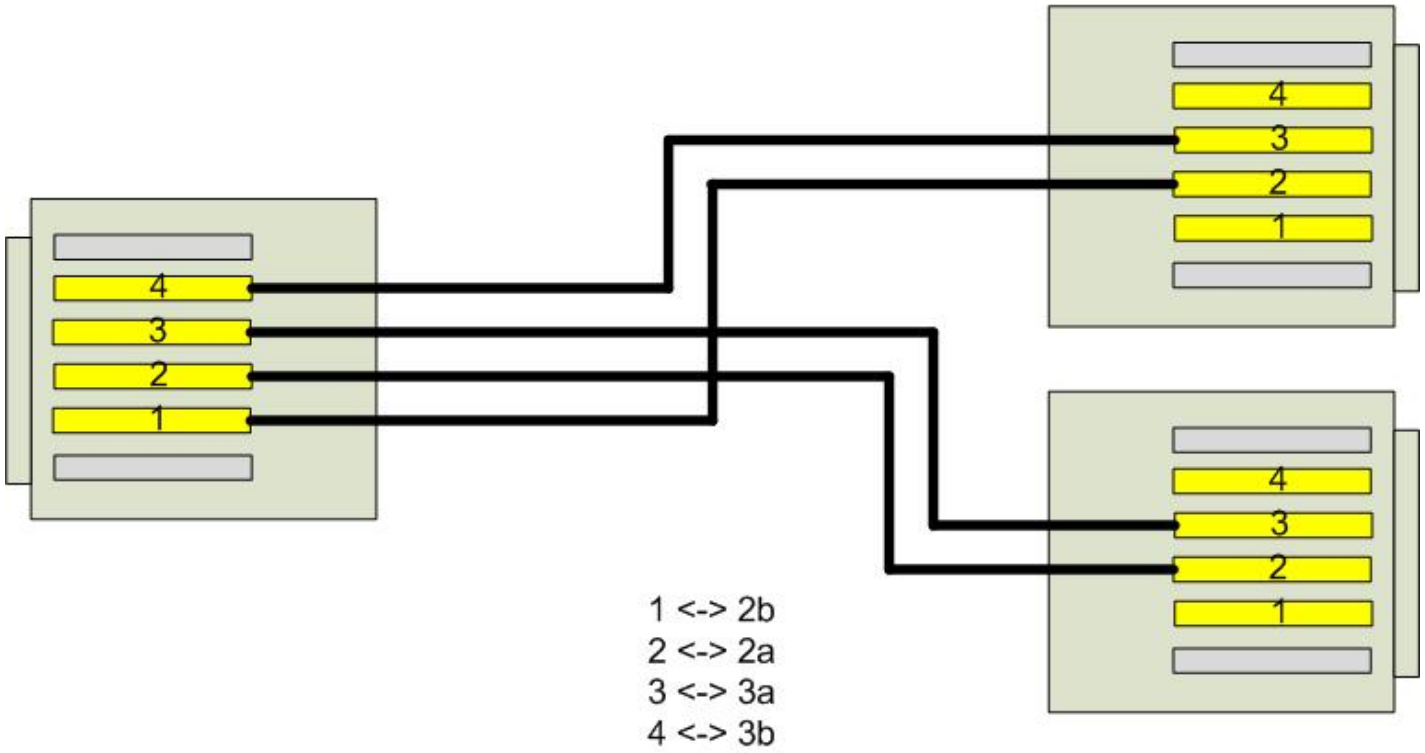
Line #	Wire Color (Ring/Tip)
Line 1	Blue-White/White-Blue
Line 2	Orange-White/White-Orange
Line 3	Green-White/White-Green
Line 4	Brown-White/White-Brown
Line 5	Slate-White/White-Slate
Line 6	Blue-Red/Red-Blue
Line 7	Orange-Red/Red-Orange
Line 8	Red-Green/Green-Red
Line 9	Brown-Red/Red-Brown
Line 10	Slate-Red/Red-Slate
Line 11	Blue-Black/Black-Blue
Line 12	Orange-Black/Black-Orange

A400 Loop Back



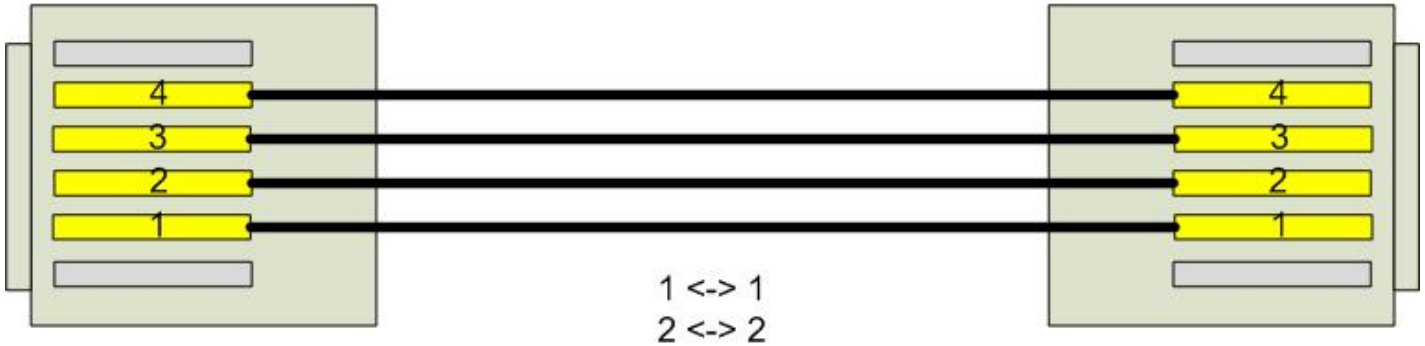
B600

Analog Y Cable

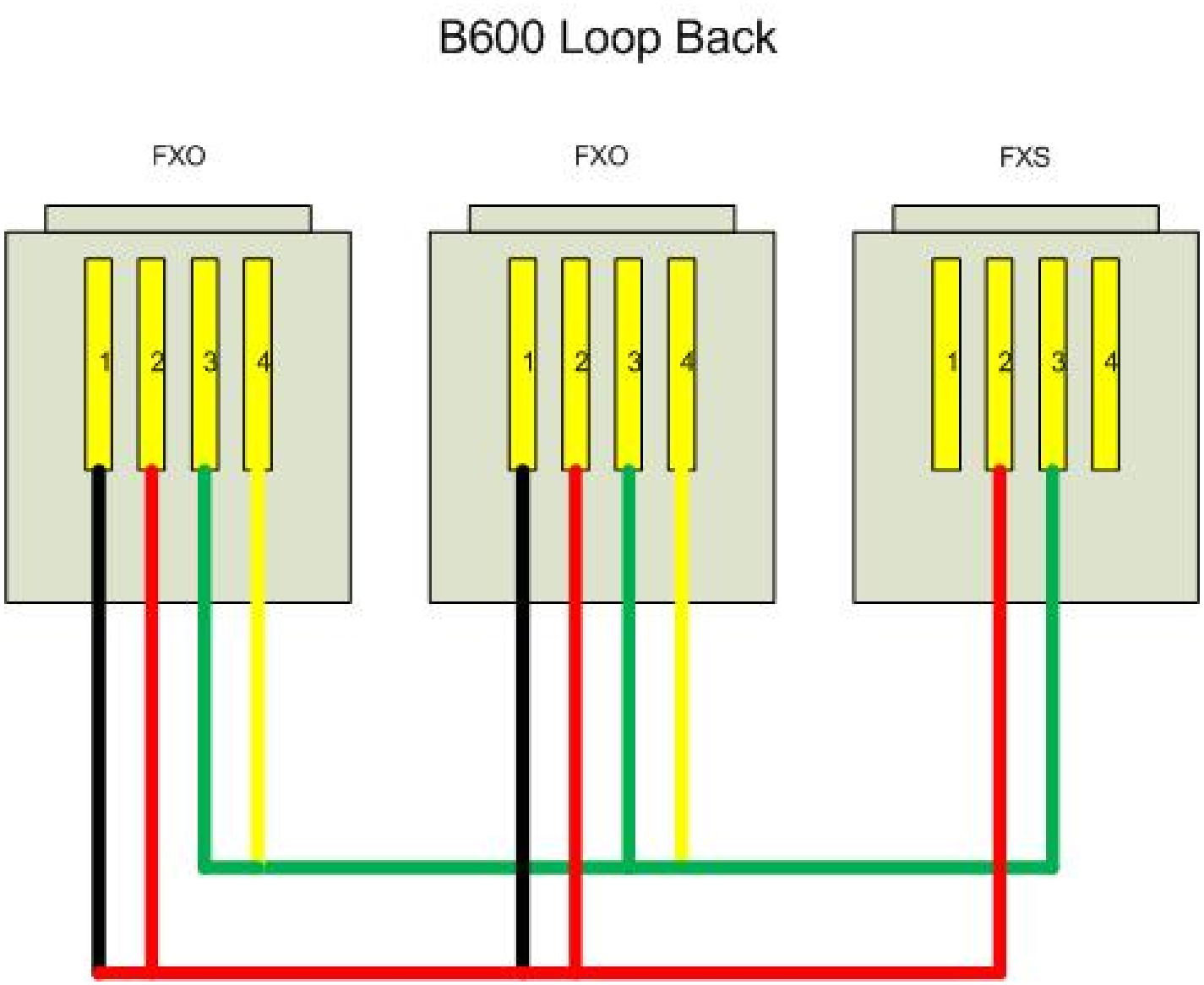


1 <-> 2b
2 <-> 2a
3 <-> 3a
4 <-> 3b

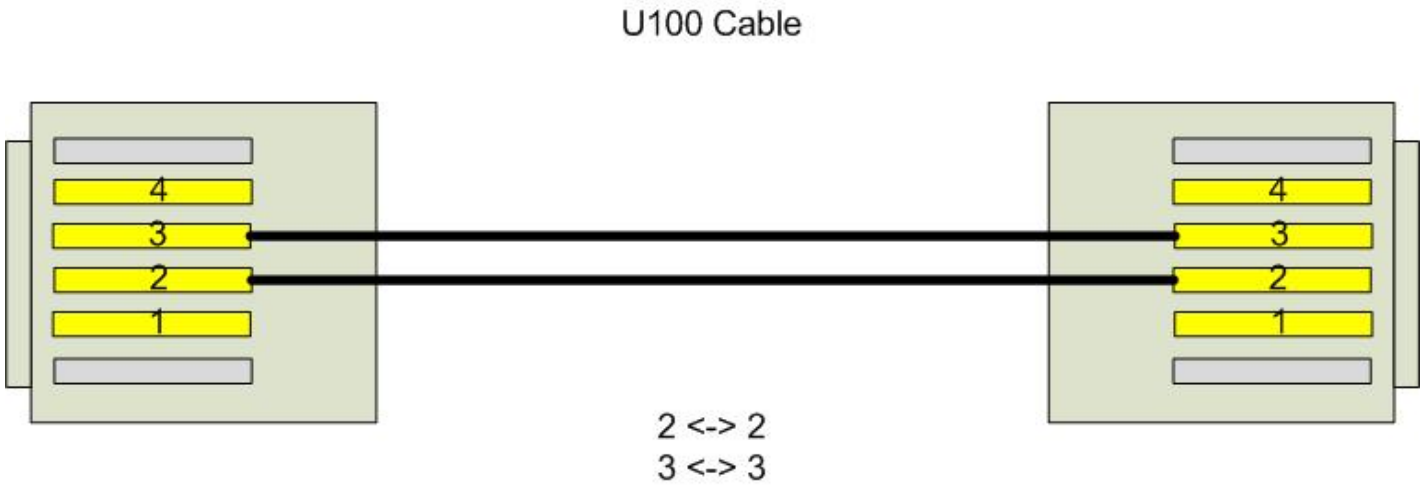
B600 FXS Cable



1 <-> 1
2 <-> 2
3 <-> 3
4 <-> 4



U100



A301

A56K

A14X

- CABL-601 S502/S503 back-to-back cable
- CABL-602 RS232 back-to-back cable for S508 and S503
- CABL-607 RS232 to DCE cable for Sangoma cards
- CABL-608 V.35 to DCE cable for Sangoma cards
- CABL-609 Sangoma card to V.35 host null modem cable
- CABL-610 V.10/V.11 back to back cable
- CABL-611 EIA530 DCE Cable for Sangoma cards

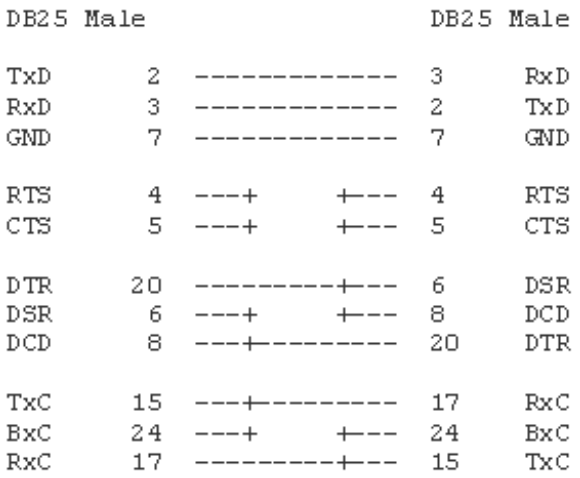
- CABL-612 Wrap Plug for Testing Sangoma Cards
- CABL-613 X.21 cable for Sangoma Communication Boards
- CABL-615 RS232 cable for second DB9 port for the S508
- CABL-617 V.35 cable for S514 main port
- CABL-618 X.21 cable for S514 main port
- CABL-620 Dual DB25 breakout adapter for S514
- CABL-636 Standard cable for A142R
- CABL-637 Standard cable for A142V
- CABL-638 Standard cable for A144R
- CABL-639 Standard cable for A144V
- CABL-643 B600 FXO Cable
- CABL-644 B600 FXS Cable

Back to back connection of T1 devices: see "Testing of Sangoma Cards Back to Back"

Please Note: The + sign means there is a connection between two wires.

S502/S503 back-to-back cable

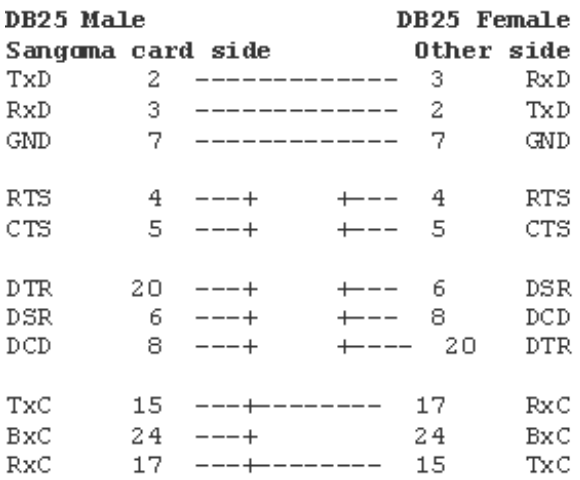
- Used for back-to-back connections between two Sangoma card in the **RS232** mode.
- Set both cards for **Internal Clocking** and set the line speeds for **56 kbps** max on all cards. Note that the S508 ***will not run correctly*** on this cable.



card to DTE host cable (RS232)

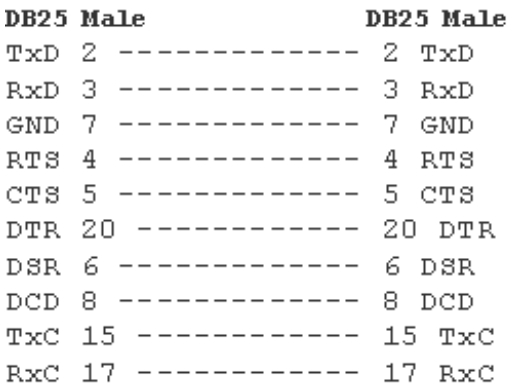
- Used for connecting to a third party RS232 DTE host.

- Provides clocking from Sangoma Card for both the card itself and the host DTE.
- Set Sangoma card for **Internal Clocking** and set the line speeds for **56 kbps** max on the S502 and S503 cards, **180 kbps** max on the S508 cards.
- You can use this cable for Sangoma to Sangoma Back-to-back connections by connecting the **Female DB25** to the **Internally** clocked Sangoma card and the **Male DB25** (through a gender mender) to the **Externally** clocked Sangoma card.



RS232 to DCE cable for Sangoma cards

- Use for connecting S508, S503 and S502E cards to a DSU/CSU or other DTE in the RS232 mode.
- Only the pins needed for an RS232 connection are provided.
- Clocking is from the **DCE**, set the Sangoma card to **External clocking.**



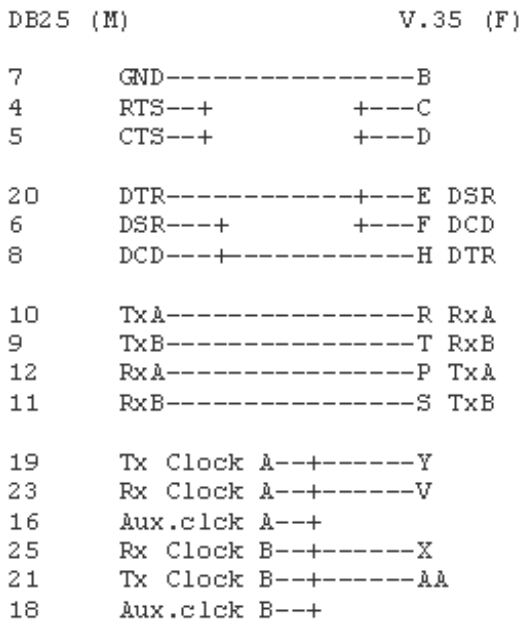
DB25 to V.35 DCE cable for Sangoma cards

- Use for connecting S508, S503 and S502E cards to a DSU/CSU or other DTE in the **V.35** mode.
- The V.35 male plug has a standard interface to all V.35 DCE devices.
- Clocking is from the **DCE**, set the Sangoma card to **External clocking.**

DB25 (M)		V.35 (M)
4	RTS	C
5	CTS	D
6	DSR	E
7	GND	B
8	DCD	F
9	TxB	S
10	TxA	P
11	RxB	T
12	RxA	R
19	Tx Clock A	Y
20	DTR	H
21	Tx Clock B	AA
22	RI	J
23	Rx Clock A	V
25	Rx Clock B	X

Sangoma card DB25 to V.35 host null modem cable

- Used for connecting to a third party **V.35** DTE host.
- Provides clocking from Sangoma Card for both the card itself and the host DTE.
- Set Sangoma card for **Internal Clocking** and set the line speeds for **56 kbps** max on the S502E and S503 cards, **2.6 Mbps** max on the S508 cards.
- Female V.35 plug interfaces to Male DCE plug from the host device.



V.10/V.11 DB25 to DB25 back to back cable

- For connecting two Sangoma cards in V.35/EIA530/X.21 mode **back-to-back**.
- At the "**Clocked Side**" set the card for **Internal Clocking**.
- At the other side, set the card for **External Clocking**.
- Set the line speed on the Clocked side to **56 kbps** max on the S502E and S503 cards, **2.6 Mbps** max on the S508 cards.

```
DB25 (M)"CLOCKED SIDE"     DB25(M)

7       GND----------------7 GND
4       RTS--+          +---4 RTS
5       CTS--+          +---5 CTS

20      DTR------------+---6 DSR
6       DSR---+        +---8 DCD
8       DCD---+-----------20 DTR

10      TxA----------------12 RxA
9       TxB----------------11 RxB
12      RxA----------------10 TxA
11      RxB----------------9 TxB

19      Tx Clock A--+-----19 Tx Clock A
23      Rx Clock A--+-----23 Rx Clock A
16      Aux.clck A--+

25      Rx Clock B--+-----25 Rx Clock B
21      Tx Clock B--+-----21 Tx Clock B
18      Aux.Clck B--+
```

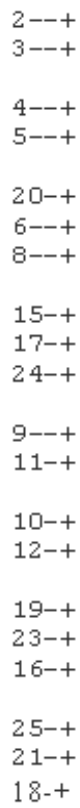
DB25 to EIA530 DCE Cable for Sangoma cards

- For connecting Sangoma cards to EIA530 DCEs.

```
DB25 (M)         DB25(M) Labeled: RS530 side

7       GND----------------7 GND
4       RTS--+
5       CTS--+

20      DTR---+
8       DCD---+

10      TxA---------------- 2 TxA
9       TxB----------------14 TxB
12      RxA---------------- 3 RxA
11      RxB----------------16 RxB

19      Tx Clock A---------15 Tx Clock A
21      Tx Clock B---------12 Tx Clock B
23      Rx Clock A---------17 Rx Clock A
25      Rx Clock B--------- 9 Rx Clock B
13      DTR A----------+---20 DTR A
                       +--- 4 RTS A

14      DTR B---------+----23 DTR B
                      +----19 RTS B
```

DB25 Wrap Plug for Testing Sangoma Cards

- Single Male DB25 plug with internal wrapping.
- For use with **SNOOPER** in Card Test mode.
- Run **CARDTEST.BAT**.



DB25 to X.21 cable for Sangoma Communication Boards

- DB25 male plug at one end, DB15 (ISO 4903) male plug at other end, 4ft cable.
- For connecting to X.21 DSU/CSUs.

```
DB25M                                   DB15M

4       RTS--+
5       CTS--+
6       DSR
7       GND
8       DCD--+
20      DTR--+
13      DTRB (V11 signal)------------3
14      DTRA (V11 signal)------------10
10      TxA--------------------------2
9       TxB--------------------------9
12      RxA--------------------------4
11      RxB--------------------------11
19      Tx Clock A---+---------------6
23      Rx Clock A---+

21      Tx Clock B---+---------------13
25      Rx Clock B---+
```

RS232 cable for second DB9 port for the S508

DB25 male plug at one end, DB9 male plug at other end, 4ft cable.

Pinouts as follows:

```
DB9 Male            DB25 Male

TxD 3 -------------- 2 TxD
RxD 2 -------------- 3 RxD
GND 5 -------------- 7 GND
DCD 1 -------------- 8 DCD
RTS 7 -------------- 24 AuxC
CTS 8 -------------- 5 CTS
TxC 6 -------------- 15 TxC
RxC 9 -------------- 17 RxC

DTR 4 ----------+-- 20 DTR
                +-- 4 RTS
```

V.35 cable for S514 main port

DB37 male plug at one end, 4ft cable, V.35 male plug (AMP 213300-1 9135 or equivalent).

Pinouts as follows:

DB37 (M)	V.35 (M)
1 RTS	C
2 CTS	D
3 GND	B
4 DCD	F
5 DTR	H
18 TxB	S
19 TxA	P
20 RxB	T
21 RxA	R
22 Tx Clock A	Y
23 Tx Clock B	AA
24 Rx Clock A	V
25 Rx Clock B	X

X.21 cable for S514 main port

DB37 male plug at one end, DB15 (ISO 4903) male plug at other end, 4ft cable.

Pinouts as follows:

DB37M Pin#		DB15M Pin #
1	RTS--+	
2	CTS--+	
4	DCD--+	
5	DTR--+	
26	DTRA (V11 signal)----------	10
27	DTRB (V11 signal)----------	3
19	TxA----------	2
18	TxB----------	9
21	RxA----------	4
20	RxB----------	11
22	Tx Clock A---+----------	6
24	Rx Clock A---+	
23	Tx Clock B---+----------	13
25	Rx Clock B---+	

Dual DB25 breakout adapter for S514

DB37 Male connected to two DB25 Female plugs.

Cables lengths are not important, make as short as practicable.

Label Primary port "**P**" and Secondary port "**S**"

DB37	DB25: PRIMARY PORT	DB25: SECONDARY PORT

1	4	
2	5	
3	7	7
4	8	
5	20	
6	2	
7	3	
8	15	
9	17	
10		4
11		5
12		8
13		20
14		2
15		3
16		15
17		17
18	9	
19	10	

20	11	
21	12	
22	19	
23	21	
24	23	
25	25	
26	14	
27	13	
28		9
29		10
30		11
31		12
32		19
33		21
34		23
35		25
36		14
37		13

Standard cable for A142R

311A10129X(50 pin	**PORT1(DB25**	**PORT2(DB25**

SCSI 2)	FEMALE)	FEMALE)
	1	
32	2 TxD	
3	3 RxD	
28	4 RTS	
10	5 CTS	
	6	
25(GND)	7 GND	
43	8 DCD	
	9	
	10	
	11	
	12	
	13	
	14	
19	15 TxCLK	
	16	
46	17 RxCLK	
	18	
	19	

13	20 DTR	
	21	
	22	
	23	
	24	
	25	
		1
7		2 TxD
17		3 RxD
21		4 RTS
22		5 CTS
		6
26(GND)		7 GND
39		8 DCD
		9
		10
		11
		12
		13

		14
20		15 TxCLK
		16
8		17 RxCLK
		18
		19
27		20 DTR
		21
		22
		23
		24
		25

Standard cable for A142V

311A10129X (50 pin SCSI 2)	PORT 1 (DB25 FEMALE)	PORT 2 (DB25 FEMALE)
	1	
	2	
	3	
28	4 RTS	
10	5 CTS	

	6	
25(GND)	7 GND	
43	8 DCD	
15	9 TxA	
2	10 TxB	
46	11 RxA	
45	12 RxB	
16	13 (x21 DTRB)	
3	14 (x21 DTRA)	
	15	
	16	
	17	
	18	
32	19 Tx CLK A	
13	20 DTR	
19	21 Tx CLK B	
	22	
	23	
	24	
	25	

		1
		2
		3
21		4 RTS
22		5 CTS
		6
26(GND)		7 GND
39		8 DCD
1		9 TxA
14		10 TxB
8		11 RxA
9		12 RxB
4		13 (x21 DTRB)
17		14 (x21 DTRA)
		15
		16
		17
		18
7		19 Tx CLK A

27		20 DTR
20		21 Tx CLK B
		22
		23
		24
		25

Standard cable for A144R

311A10129X (50 pin SCSI 2)	PORT 1 (DB25 FEMALE)	PORT 2 (DB25 FEMALE)	PORT 3 (DB25 FEMALE)	PORT 4 (DB25 FEMALE)
	1			
32	2 TxD			
3	3 RxD			
28	4 RTS			
10	5 CTS			
	6			
25(GND)	7 GND			
43	8 DCD			
	9			
	10			
	11			

	12			
	13			
	14			
19	15 TxCLK			
	16			
46	17 RxCLK			
	18			
	19			
13	20 DTR			
	21			
	22			
	23			
	24			
	25			
		1		
7		2 TxD		
17		3 RxD		
21		4 RTS		
22		5 CTS		

		6		
26(GND)		7 GND		
39		8 DCD		
		9		
		10		
		11		
		12		
		13		
		14		
20		15 TxCLK		
		16		
8		17 RxCLK		
		18		
		19		
27		20 DTR		
		21		
		22		
		23		
		24		
		25		

			1	
31			2 TxD	
11			3 RxD	
29			4 RTS	
44			5 CTS	
			6	
25			7 GND	
41			8 DCD	
			9	
			10	
			11	
			12	
			13	
			14	
5			15 TxCLK	
			16	
18			17 RxCLK	
			18	
			19	

42			20 DTR	
			21	
			22	
			23	
			24	
			25	
				1
6				2 TxD
50				3 RxD
47				4 RTS
48				5 CTS
				6
26				7 GND
49				8 DCD
				9
				10
				11
				12

				13
				14
33				15 TxCLK
				16
34				17 RxCLK
				18
				19
40				20 DTR
				21
				22
				23
				24
				25

Standard cable for A144V

311A10129X (50 pin SCSI 2)	PORT1 (DB25 FEMALE)	PORT2 (DB25 FEMALE)	PORT3 (DB25 FEMALE)	PORT4 (DB25 FEMALE)
	1			
	2			
	3			
28	4 RTS			

10	5 CTS			
	6			
25(GND)	7 GND			
43	8 DCD			
15	9 TxA			
2	10 TxB			
46	11 RxA			
45	12 RxB			
16	13 (x21 DTRB)			
3	14 (x21DTRA)			
	15			
	16			
	17			
	18			
32	19 Tx/Rx CLK A			
13	20 DTR			
19	21 Tx/Rx CLK B			
	22			
	23			

	24			
	25			
		1		
		2		
		3		
21		4 RTS		
22		5 CTS		
		6		
26(GND)		7 GND		
39		8 DCD		
1		9 TxA		
14		10 TxB		
8		11 RxA		
9		12 RxB		
4		13 (x21 DTRB)		
17		14 (x21 DTRA)		
		15		
		16		
		17		

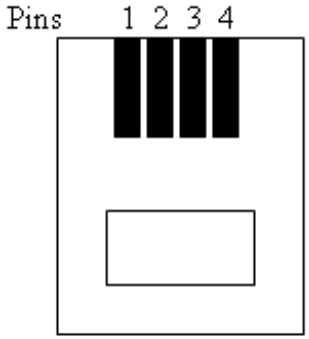
		18		
7		19 Tx CLK A		
27		20 DTR		
20		21 Tx CLK B		
		22		
		23		
		24		
		25		
			1	
			2	
			3	
29			4 RTS	
44			5 CTS	
			6	
25			7 GND	
41			8 DCD	
38			9 TxA	
12			10 TxB	
18			11 RxA	

30			12 RxB	
24			13 (x21 DTRB)	
11			14 (x21 DTRA)	
			15	
			16	
			17	
			18	
31			19 Tx CLK A	
42			20 DTR	
5			21 Tx CLK B	
			22	
			23	
			24	
			25	
				1
				2
				3
47				4 RTS
48				5 CTS

				6
26				7 GND
49				8 DCD
37				9 TxA
23				10 TxB
34				11 RxA
35				12 RxB
36				13 (x21 DTRB)
50				14 (x21 DTRA)
				15
				16
				17
				18
6				19 Tx CLK A
40				20 DTR
33				21 Tx CLK B
				22
				23
				24
				25

B600 FXO Cable

RJ11 connector:



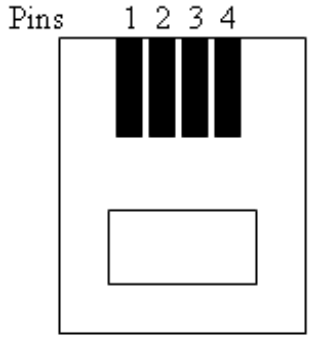
FXO cable:

The FXO cable is a 6 feet, 2 ports split cable.
On Port N and Port N+1 side, pins 1 and 4 are not connected

FXO	PORT N	PORT N+1
1		2
2	2	
3	3	
4		3

B600 FXS Cable

RJ11 connector:



FXS cable:
The FXS cable is a 6 feet straight cable with only pins 2 and 3 connected.

END 1	END 2
1 = not connected	1 = not connected
2	2
3	3
4 = not connected	4 = not connected

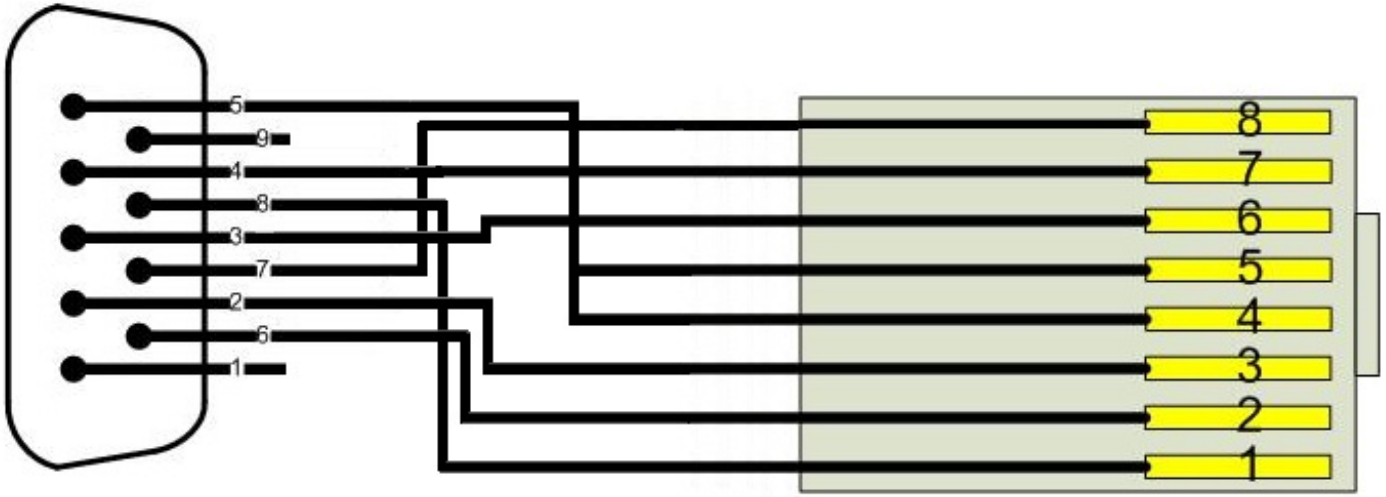
S514

S5141 < --- > (DB35 Male end) 619 Cable (DB 25 Male End) < --- > (DB25-Female end) 602 cable (DB 25 Male end) < --- > (need converter to with two Female DB 25 end) < --- >(DB 25 Male end) 619 cable (DB 37 Male End) < --- >S5141 card.

Vega Gateway Serial Port Pin-outs

The Vega serial cable consists of a lead with an RJ45 connector on the Vega gateway end and a female 9 way D-Type connector to plug into the PC serial port.

Serial Cable



RJ45 <-> 9 way D-Type

1 <-> 8
2 <-> 6
3 <-> 2
4 <-> 5
5 <-> 5
6 <-> 3
7 <-> 4
8 <-> 7

/p/p