

APPLICATION NOTE

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Title : Black & White Mk I Touch Screen Adapter Cable

Category : C-Bus Application

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Key Words : Black & White Mk I Touch Screen, Programming Cable, Piced

Purpose

This application note describe a way of manufacturing a RS-232 to RJ45 adapter cable to allow for interfacing between the Black & White Mark I Touch Screen and Piced. It is recommended Method 1 be used in preference as it requires the least amount of time and labour to construct and does not involve damaging a fully functional DB9 Male to DB9 Female Extension Cable

Terms and Abbreviations

PC – Personal Computer

RJ45 – Registered Jack 45

DB9 – Nine Pin D Sub Connector

Context/Design Description/Special Implementation

1. Method 1 - DB9 to RJ45 adapter

Step 1 – Obtain parts for construction

Step 2 – Assemble the DB9 to RJ45 adapter

Step 3 – Connect the Black & White Mark I Touch Screen to the PC

Step 4 – Transfer project to or from a Black & White Mark I Touch Screen

2. Method 2 - DB9 Male to DB9 Female Extension Cable Modification

Step 1 - Obtain parts for construction

Step 2 – Modify DB9 Male to DB9 Female Extension

Step 3 – Connect the Black & White Mark I Touch Screen to the PC

Step 4 – Transfer project to or from a Black & White Mark I Touch Screen

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Method 1 - DB9 to RJ45 adapter

Step 1— Obtain parts for construction

The following items are required for constructing the adapter;

- DB9F to 8P8C Adapter
- Cat 5E Patch Lead – Blue
- DB9 Male to DB9 Female Extension Cable



Figure 1 – Adapter Kit



Figure 2 – Cat 5E Patch Lead



Figure 3 – DB9 Male to DB9 Female Extension Cable

The following equipment is required for constructing the adapter

- Long-Nose Pliers

Step 2— Assemble the DB9 to RJ45 adapter

Insert the DB9 pins into the DB9 plug in the configuration as listed within the table below. Twist the cables slightly before clipping the plug back into the housing.

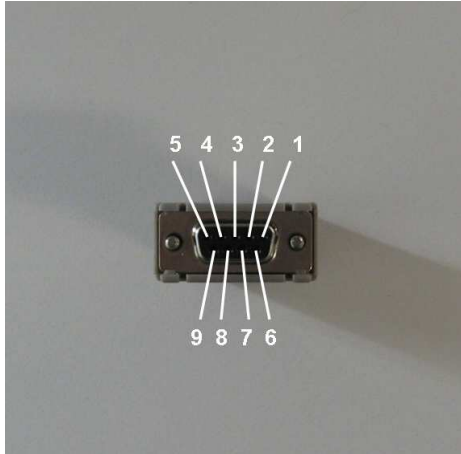


Figure 4 – DB9 Female Plug Pin Layout

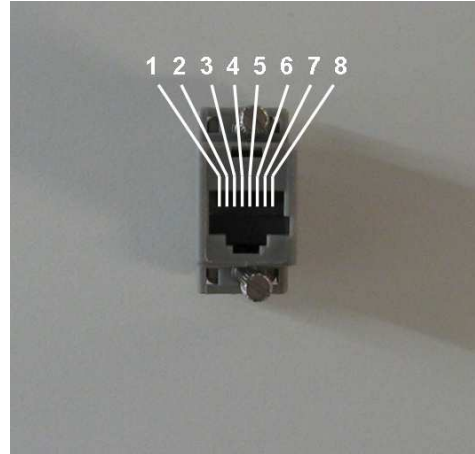


Figure 6 –RJ45 Socket Pin Layout

Wiring Configuration		
DB9	RJ45	Description
1 (blue) *1	1	Data Carrier Detect (DCD) NR
2 (yellow) *1	6	Transmit Data (TX)
3 (green) *1	5	Receive Data (RX)
4 (orange) *1	2	Data Set Ready (DSR) NR
5 (red) *1	4	Common
6 (black) *1	3	Data Terminal Ready (DTR) NR
7 (brown) *1	7	Clear To Send (CTS) NR
8 (white) *1	8	Request To Send (RTS) NR
No Connection	9	Ring Indicator (RI)

NOTE: *1 Item colour coding for adapter only


Table 1 – Wiring Configuration requirements for PC, RJ45 and DB9

Step 3— Connect the Black & White Mark I Touch Screen to the PC

Connect both the Cat 5E Patch Lead and the DB9 Male to DB9 Female Extension Cable to the DB9F to 8P8C Adaptor. Using the newly created cable assembly plug the PC into the Black & White Mark 1 Touch Screen.

IMPORTANT:

Do not connect the Adapter into any C-Bus Network Socket as this will result in damage to your PC or associated LAN devices.

 **NOTE** A DB9 Male to DB9 Female Extension Cable in this example is used as the DB9F to 8P8C Adaptors to may not seat securely within the PC's serial port.

Step 4— Transfer project to or from a Black & White Mark I Touch Screen

Open Toolkit and change the network Connection Details to suit the new address.

Open Piced and change the network Connection Details to suit the new address.

(Options | Program Options ... Connection Tab)

Open Piced and transfer project either to or from Touch Screen.

Method 2 – DB9 Male to DB9 Female Extension Cable Modification**Step 1— Obtain parts for construction**

The following items are required for constructing the adapter;

- RJ45 Modular Plug
- DB9 Male to DB9 Female Extension Cable
- 6mm (Diameter) 20mm (Length) Heat Shrink Tubing



Figure 6 – RJ45 Plug



Figure 5 – RS-232 Cable

The following equipment is required for constructing the adapter;

- 8 Pin Modular Crimping Tool
- Heat Gun

Step 2— Modify DB9 Male to DB9 Female Extension

Remove the DB9 Male Plug from the cable.

Insert the 20mm (Length) Heat Shrink Tubing over the wires and cable.


Remove approximately 15mm of outer cable sheath.

Move the 20mm (Length) Heat Shrink Tubing so that only 12mm of wire can be seen.

Using a Heat Gun carefully apply heat to the 20mm (Length) Heat Shrink Tubing. Ensure the cable and the wires do not become damaged through excessive heat.

Separate and straighten (if required) the wires.

Insert the wires into the RJ45 modular plug.

 **NOTE** Some cables may have conductor size greater than that of a standard Cat5e cable. We recommend Method 1 for this reason.

Refer to Table 1 regarding wiring configurations.

Move the 20mm (Length) Heat Shrink Tubing into the RJ45 Modular Plug

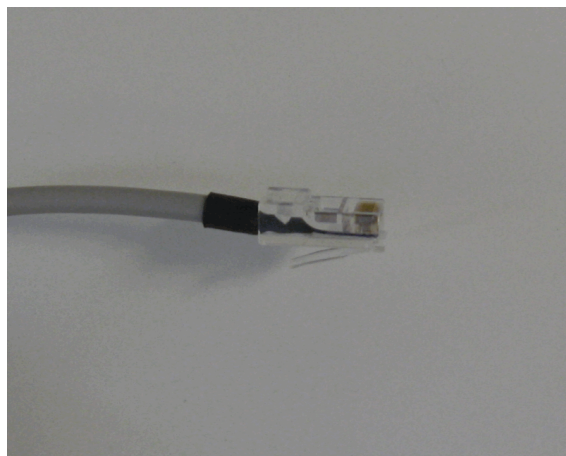


Figure 6 – Final Product

Crimp the RJ45 Modular Plug using the 8 Pin Modular Crimping Tool

Step 3— Connect the Black & White Mark I Touch Screen to the PC

Connect the PC into the Black & White Mark I Touch Screen using the newly created adapter.

IMPORTANT:

Do not connect the Adapter into any C-Bus Network Socket as this will result in damage to your PC or associated LAN devices.

Step 4— Transfer project to or from a Black & White Mark I Touch Screen

Open Toolkit and change the network Connection Details to suit the new address.

Open Piced and change the network Connection Details to suit the new address.

(Options | Program Options ... Connection Tab)

Open Piced and transfer project either to or from Touch Screen.

Conclusion

The preferred construction method is the first listed. It requires the least amount of time and labour to construct and does not involve damaging a fully functional DB9 Male to DB9 Female Extension Cable. If you experience any difficulties regarding the configuration of the RJ45 or DB9 wiring, please feel free to call the Technical Support Line for assistance.

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Technical Support and Troubleshooting

For technical assistance call: 1300 722 247 (Australia)

CIS technical support email: cis.support@clipsal.com.au

CIS web site: <http://support.clipsal.com>

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