AR-B104C User Manual



# AR-B104C Board

AR-B104C-4P PCI104 with 4 COM / AR-B104C-8P PCI104 with 8 COM

# **User Manual**

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# Revision

Version	Date	Author	Description
1.0	2009/12/17	Ken	Release
1.01	2010/01/15	Ken	Added Jumpers Discriptions.



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Manual's first edition:

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### **1** Introduction

The Acrosser AR-B104C presents you the most reliable and cost effective UART solution, which provides RS-232/422/485 connection abilities to your system to control related industrial devices. Via PCI-104 interface, the AR-B104C can be connected more robust and transmit more effecient than PC-104. It also contain jumper for the customer to switch between RS-232/422/485 without any software setting.



#### **1.1 Specifications**

- PCI 104 Compliant.
- 4 UART channels(AR-B104C/4P), could option to 8 channel(AR-B104C/8P).
- Compatible with 16C550 performance UART channel.
- Supports all RS-232C transceiver mode. RS232/RS485/RS422 selectable by jumper. Reserve 2 GPIO from Oxford to identify the board is AR-B104C/4P, AR-B104C/8P, AR-B104B/4P, AR-B104B/8P Maximum baud rate to 15Mbps in asynchronous mode.
- Connector for 4P : one set of 2 x 22 2.0mm pin head 180 degree.
- Connector for 8P : two sets of 2 x 22 2.0mm pin head 180 degree.
- Operation Temperature : AR-B104C/4P: -20°C to 85°C ; AR-B104C/8P: -20°C to 70°C.
- RoHS Compliance.



#### 1.2 Package Contents

Check if the following items are included in the package.

- Quick Manual.
- AR-B104C-4P/AR-B104C-8P.
- 1 x Software Utility CD.







## 2 AR-B104C H/W Information

This chapter describes the installation of AR-B104C. At first, it shows the function diagram and the layout of AR-B104C. It then describes the unpacking information which you should read carefully, as well as the jumper/switch settings for the AR-B104C configuration.

#### 2.1 Locations (Top side)





4	JP6	<b>A</b>	JP4
	COM6 transfer type select	9	COM4 transfer type select
0	JP5	1	JP2
2	COM5 transfer type select		COM2 transfer type select
2	JP7	9	JP9
Þ	COM7 transfer type select	9	COM1 ~ COM4 termination enable
•	JP10	13	JP1
	COM5 ~ COM8 termination enable	9	COM1 transfer type select
6	JP8	14	COM 1~4
•	COM8 transfer type select	•	COM1 ~ COM4 output port
6	UART Controller 1	15	UART Controller 2
	COM8 transfer type select	9	OXuPCI954 for COM1 ~ COM4
9	COM 5~8	16	JP12
•	COM5 ~ COM8 output port		PCI INT signal select
8	JP11	A	CN1
•	PCI Clock and IDSEL signal select	9	PCI 104 slot signal from M/B
	JP3		
9	COM3 transfer type select		



#### 2.2 Connectors and Jumpers Setting

2.2.1 Locations (Top side)



4	JP6		JP4
	COM6 transfer type select		COM4 transfer type select
0	JP5	1	JP2
2	COM5 transfer type select		COM2 transfer type select
2	JP7	Ð	JP9
Þ	COM7 transfer type select	9	COM1 ~ COM4 termination enable
4	JP10	B	JP1
	COM5 ~ COM8 termination enable	9	COM1 transfer type select
5	JP8	14	COM 1~4
•	COM8 transfer type select	•	COM1 ~ COM4 output port
6	UART Controller 1	Æ	UART Controller 2
	COM8 transfer type select	9	OXuPCI954 for COM1 ~ COM4
7	COM 5~8	16	JP12
•	COM5 ~ COM8 output port		PCI INT signal select
8	JP11	6	CN1
	PCI Clock and IDSEL signal select	9	PCI 104 slot signal from M/B
	JP3		
	COM3 transfer type select		



#### 2.3 Connectors and Jumpers Pin Define





2.7 CO	M 5~	.8			2.8 JP1	1		2.9 JP3	3
COM5	~ CC	M8 out	tout por	ť	PCI INT	and IDSEL sig	nal select	COM3 t	ransfer type select
	Pin	PS-232	PS-422	PS-485					
	1		N/C	N/C					
	2	DSR 8	Rx- 8	N/C					
	3	RXD 8	Rx+ 8	N/C					
	4	RTS 8	N/C	N/C					
	5	TXD 8	N/C	N/C					
	6	CTS_8	Tx8	Data8					
	7	DTR_8	N/C	N/C					
	8	RI_8	Tx+_8	Data+_8					
	9	GND	GND	GND					
	10	+5V	+5V	+5V					
	11	DCD_7	N/C	N/C					
	12	DSR_7	Rx7	N/C					
	13	RXD_7	Rx+_7	N/C					
1 2	14	RTS_7	N/C	N/C					
	15	TXD_7	N/C	N/C					
<b>.</b>	16	CTS_7	Tx7	Data7					
ж.	17	DTR_7	N/C	N/C			1		
- <b>D</b>	18	RI_3	Tx+_7	Data+_7		PCI INT and			
<b>X</b>	19	GND	GND	GND		IDSEL signal	Select		
	20	+5V	+5V	+5V	1 2	select			Transfer type Select
	21	DCD_6	N/C	N/C			1-2 3-4	1 2	3-4 PS-232
*	22	DSR_6	Rx6	N/C	3 4	CLK0, IDSEL 0	12,04	ð	(default)
Ð	23	RXD_6	Rx+_6	N/C			(default)	56	<b>RS-422</b> 1 – 2, 5 - 6
*	24	RIS_6	N/C	N/C		CLK1, IDSEL 1	1 - 2		
ð	25			N/C		CLK2, IDSEL 2	3 - 4		R5-485 1 - 2
8	20		N/C	Data0		CLK2, IDSEL 3	N/A		
<b></b>	21	RI6		Data+ 6			14/1		
<b>D</b>	29	GND	GND	GND					
*	30	+5V	+5V	+5V					
43 44	31	N/C	N/C	N/C					
	32	N/C	N/C	N/C					
	33	DCD_5	N/C	N/C					
	34	DSR_5	Rx5	N/C					
	35	RXD_5	Rx+_5	N/C					
	36	RTS_5	N/C	N/C					
	37	TXD_5	N/C	N/C					
	38	CTS_5	Tx5	Data5					
	39	DTR_5	N/C	N/C					
	40	RI_5	Tx+_5	Data+_5					
	41	GND	GND	GND					
	42	+5V	+5V	+5V					
	43	N/C	N/C	N/C					
	44	N/C	N/C	N/C					
		(AR-B104	C/8P Optio	onal)					



2.10 J	P4	2.11 JF	2	2.12 JP	9	
COM4	transfer type	COM2	transfer type select	COM1 ~ COM4 termination		
select				enable		
	Transfer type         Select           RS-232         3 - 4 (default)           RS-422         1 - 2, 5 - 6           RS-485         1 - 2		Transfer         Select           type         3 - 4           RS-232         3 - 4           (default)         RS-422           RS-485         1 - 2		120RTermination enableCOM1 120Rtermination enableCOM2 120Rtermination enableCOM3 120Rtermination enableCOM4 120Rtermination enable	Select $1-2$ (default) $3-4$ (default) $5-6$ (default) $7-8$ (default)



COM1~ COM4 output portController 2 UART Controller for COM1~COM4 $I$ <t< th=""><th>2.13 JP</th><th>1</th><th></th><th>2.14 CO</th><th>VI 1~4</th><th></th><th></th><th></th><th>2.15 UART</th></t<>	2.13 JP	1		2.14 CO	VI 1~4				2.15 UART	
Pin       RS-232       RS-422       RS-485         1       DCD_4       N/C       N/C         2       DSR_4       Rx-4       N/C         3       RXD_4       Rx+4       N/C         4       RTS_4       N/C       N/C         5       TXD_4       N/C       N/C         6       CTS_4       Tx-4       Data-4         7       DTR_4       N/C       N/C         8       RI_4       Tx+4       Data+4         9       GND       GND       GND         10       +5V       +5V       +5V         11       DCD_3       N/C       N/C         12       DSR_3       Rx-3       N/C	COM1 transfer type select		COM1~ (	COM4	output	port		Controller 2		
Pin       RS-232       RS-422       RS-485         1       DCD_4       N/C       N/C         2       DSR_4       Rx-4       N/C         3       RXD_4       Rx+4       N/C         4       RTS_4       N/C       N/C         5       TXD_4       N/C       N/C         6       CTS_4       Tx-4       Data-4         7       DTR_4       N/C       N/C         8       RI_4       Tx+4       Data+4         9       GND       GND       GND         10       +5V       +5V       +5V         11       DCD_3       N/C       N/C         12       DSR_3       Rx-3       N/C         13       RXD_3       Rx+3       N/C						·			UART Controller for	
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$									COM1~COM4	
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$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$					Pin	RS-232	RS-422	RS-485		
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$					1	DCD_4	N/C	N/C		
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$					2	DSR_4	Rx4	N/C		
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$					3	RXD_4	Rx+_4	N/C		
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$					4	RIS_4	N/C	N/C		
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$					5			N/C		
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$					7	DTR 4	N/C	N/C		
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$					8	RI 4	$T_{X+} 4$	Data+ 4		
10         +5V         +5V           11         DCD_3         N/C           12         DSR_3         Rx3         N/C           13         RXD_3         Rx+_3         N/C					9		GND			
11         DCD_3         N/C         N/C           12         DSR_3         Rx3         N/C           13         RXD_3         Rx+_3         N/C					10	+5V	+5V	+5V		
12         DSR_3         Rx3         N/C           1         2         13         RXD_3         Rx+_3         N/C					11	DCD_3	N/C	N/C		
1 2 13 RXD_3 Rx+_3 N/C					12	DSR_3	Rx3	N/C		
				1 2	13	RXD_3	Rx+_3	N/C		
14 RTS_3 N/C N/C				۲ <b>۳</b>	14	RTS_3	N/C	N/C		
15 TXD_3 N/C N/C					15	TXD_3	N/C	N/C		
16 CTS_3 Tx3 Data3					16	CTS_3	Tx3	Data3		
17 DTR_3 N/C N/C					17	DTR_3	N/C	N/C		
Transfer		Transfor	Transfer		18	RI_3	Tx+_3	Data+_3	กร้องการให้เราะที่ไม่ได้	
Select 19 GND GND GND		Tansier	Select		19	GND	GND	GND		
1 2 <b>20</b> +5V +5V +5V	1 2	type			ð	20	+5V	+5V	+5V	
$\mathbf{RS-232}  \mathbf{3-4}  \mathbf{\overline{Q}}  21  \mathbf{DCD}  22  \mathbf{N/C}  \mathbf{N/C} $	<b>*®</b>	RS-232	3 – 4			21	DCD_2	N/C	N/C	
(default) 22 DSR_2 RX-2 N/C C C C C C C C C C C C C C C C C C C	ð		(default)		22	DSR_2	RX2	N/C	OXLORD SEMICONDUCTOR OXUPCI954-LQAG	
5 6 $23 \text{ RAD}_2 \text{ RAH}_2 \text{ N/C}$	56	RS-422	1 – 2, 5 - 6	<b>D</b>	23	RAD_2	KX+_2	N/C		
RS-485 1-2 25 TXD 2 N/C N/C		RS-485	1 - 2		25	TXD 2	N/C	N/C		
26 CTS_2 Tx2 Data2				Ð	26	CTS_2	Tx2	Data2	a fan fan fan fan fan fan fan fan fan fa	
27 DTR_2 N/C N/C				X	27	DTR_2	N/C	N/C		
<b>28</b> RI_2 Tx+_2 Data+_2				÷.	28	RI_2	Tx+_2	Data+_2		
29 GND GND GND				8	29	GND	GND	GND		
43 44 <b>30</b> +5V +5V +5V				43 44	30	+5V	+5V	+5V		
31 N/C N/C N/C					31	N/C	N/C	N/C		
32 N/C N/C N/C					32	N/C	N/C	N/C		
33 DCD_1 N/C N/C					33	DCD_1	N/C	N/C		
34 DSR_1 Rx1 N/C					34	DSR_1	Rx1	N/C		
35 RXD_1 Rx+_1 N/C					35	RXD_1	Rx+_1	N/C		
<u>36 RTS_1 N/C N/C</u>					36	RTS_1	N/C	N/C		
37 TXD_1 N/C N/C					37	IXD_1	N/C	N/C		
38 CIS_1 IX-1 Data-1					38		1X1	Data1		
<b>39</b> DIK_1 N/C N/C <b>40</b> PL 4 Ty: 1 Date: 4					39	ם אוט פו ז		N/C		
					40 <u>A</u> 1					
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43 N/C N/C N/C					43	N/C	N/C	N/C		
44 N/C N/C N/C					44	N/C	N/C	N/C		



<b>2.16 JP12</b> PCI INT signal select			<b>2.17 CN1</b> PCI 104 slot signal from M/B		
	PCI INT signal	Select	0000		
	select	Concor	00000		
	INTA	1 – 2	00000		
8		(default)	00000		
7 <b>***</b> 8	INTB	3 - 4	00000		
	INTC	5 - 6	00000		
	INTD	7 - 8	00000		



## **3 OXuPCI954 Drive Installation Guide**

When you install the OXuPCI954 drivers in AR-B104C, you only need to install driver follow step1 to step9. If you want to adjust the COM port properties, you can follow step10 to step13 to adjust the COM port properties.

#### Installation Step :

1. Click the right button of mouse on "My Computer" icon, the screen will show the function list then select the "Properties" function.





2. When "System Properties" appear on screen, select "Hardware" item.



3. In "Hardware" Setting, select "Driver Signing" item, "Driver Signing Options" screen will appear.

em Properties		? 🛛	
System Restore Auto	matic Updates	Remote	
General Computer Name	Hardware	Advanced	
on your computer. Use the properties of any device. Drivers	Device Manager to cha	ange the larger	
Driver Signing lets you mail compatible with Windows, how Windows connects to Driver Signing	ke sure that installed driv Windows Update lets yo Windows Update for dr Windows Up	rers are pu set up ivers.	
Hardware Profiles Hardware profiles provide different hardware configu	a way for you to set up a rations. Hardware P	ind store	



4. Select "Ignore" item, select "OK".



5. In "Hardware" Setting, select "Device Manager"

stem Prope	ties		? 🛛		-
System Re	store Automa	atic Updates	Remote		
General	Computer Name	Hardware	Advanced		
Deules Mas					
Sevice Man	ager Device Manager lists all	the hardware devic	es installed	- Alexandre	E.
or 🏹	your computer. Use the D	evice Manager to c	hange the	and the second	-
pr	operties of any device.	-			1-13
		Device M	anager	Land Street	
Drivere					
	iver Signing lets you make	sure that installed o	rivers are	and a second	
	mpatible with Windows. W	indows Update lets	you set up		-
ric	w windows connects to v	vindows opuate for	divers.	and the second second	Carlor of
	Driver Signing	] [ Windows	Update		
Hardware Pr	onies vrdujara profilas provide o v	way for you to get up	and store		
le dif	ferent hardware configurat	ions.			
		Hardware	Profiles	and the second second second	
				the state of the second state of the	



6. You must confirm "? PCI Serial Port" and "? Other PCI Bridge Device" device exist in system devices list (When you use AR-B104C/4P, only "? PCI Serial Port" exists).



7. Now, execute the installation program of driver, then slect "OK", the OXuPCI954 driver will be auto installation.

() 我的这件	and the				2	See.
	🔁 &R-B104C AutoRun Driver					
我的電腦	檔案(E) 編輯(E) 檢視(Y) 我的)	最愛( <u>A)</u> 工具( <u>T</u> ) 説明(	D			
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	網址(D) C:\DRV\AR-B104C_AutoF	Run_Driver		Contractor of Contractor		移至
Contraction of the	<b>檔案及資料夾工作</b>		₽	OxMf 安裝資訊 12 KB		1000
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	◎ 以電子郵件傳送這個檔案		rogram will start install i	Acrosser Driver		and the second
	★ 問明研2直個階級	for A	rosser			
	其他位置		ОК	Cancel		Part and a
	C DRV					
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	詳細資料	*				
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						section of the local division of the local d
	A REAL PROPERTY AND A REAL	AND THE REAL PROPERTY OF	CALC: SHOT	A DESCRIPTION OF THE PARTY OF	General Manuscriptist	And the second second
💾 開始		AR-B104C_AutoRun	Installer			■ 10.54



8. When the auto installation driver install finish, select "OK".

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File Edit View Favorites Tools	Help	<b></b>
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File and Folder Tasks	OxMf     Security Catalog       11 KB     Setup Information       OxMf     Setup Information       0xMf     OxMf	
Web Share this folder	System file Setup Information 12 kB	
Other Places	OxSer Setup XSer Security 11 KB Driver Install successful	
Details	OXSer 64 × 64 PNG Ima OK Ser 3 KB	
	OXSer. 0xbu OXBU File 2 KB OXBU File 2 KB OXUI.dll 7.0.0,14 Configuration Utility for Serial	
	Setup Acrosser Driver Acrosser Technology Co.,Ltd	
🐉 start 👘 🖆 TOTAL_Oxford	Setup	🤌 🧐 🚱 💽 10:47 PM

9. You can see 8 "Enhanced Communication Port" be added (When you use AR-B104C/4P, only 4 "Enhanced Communication Port" exist).

		al an
My Document?	🖳 Device Manager	1
	File Action View Help	A second
My Compute		
	□ >00 Multi-port serial adapters         >00 Serial Bus Adapter	-
<b>3</b>		1000
My Network Blaces	E 🥋 Other devices	
Ĩ	Multimedia Audio Controller Video Controller (VGA Compatible)	
Internet	Ports (COM & LPT)     Communications Port (COM1)	1 and
expicited	Communications Port (COM2)	Contraction of
	Communications Port (COM3)	
OX_DRV	Finhanced Communication Port (COM10)	
The second second	S Enhanced Communication Port (COM11)	ton all and
	Enhanced Communication Port (COM5)	
Oxide SDK	Prhanced Communication Port (COM6)     Enhanced Communication Port (COM7)	
	Enhanced Communication Port (COM8)	
	Princed Communication Port (COM9)	1
test2com		Recycle Bin
- Interne		
	OK Cancel Apply	
and the set of the		
CONTRACTOR OF STREET		



10. If you want adjust the COM port setting, click the right button of mouse on the COM port icon.



11. Select the "Properties" function.





12. When the COM Port icon Properties appear on screen, select "Settings" item.

	D	6.0 E			1	the second	-
My Documents	B Device Manage	Enhanced Comm	inication Port (C				
	File Action View	Driver	Details	Power	Management		Section in the
My Compute	← → 🔃 😭	General	Settings	FIFOs	Data Rate		
5	⊡ ३00 Multi-port s ३00 Serial B ३00 Serial B ⊕ ﷺ Network ac	Device to	d Communication Por	t (COM5) 4 & LPT)		^	1
My Network Places	Enterta	Manufac	turer: Oxford Ser	miconductor			
Explorer CX_DRV	Ports (COM Ports (COM Commu Co	Location Device status This device is w If you are havin start the trouble	Location 0 orking properly. g problems with this d shooter.	) (OxMf bus, port	0) Ibleshoot to	=	
Oxide SDK	Enhanc Enhanc Enhanc	Device usage:		Trou	bleshoot		
Lest 2 com		Use this device (e	nable)		~	~	Resycle Bin
CORLECTION	<u></u>			OK	Cancel		
		ОК	Cancel	Apply			Later in

13. When the properties of the COM Port icon appear on screen, select the item which you want to change, such as the sequence of the COM Port, if you setup the COM Port finish, select "OK", the setting will be changed.

	D	in the second	COM5	Constant and the
My Documents	B Device Manage	Enhanced Communication Port (COM5) F	COM7 (in use) COM8 (in use) = ?	
	File Action View	Driver Details	COM10 (in use) COM11 (in use)	
My Compute	Multi-port s	Enhanced Port	COM12 (in use) COM13 COM14 COM15	
My Network	→ 10 Serial B	16C950 High Performance UART	COM16 COM17 COM18 COM19	10000
	Multime Video C	RS232     RS422/485     RS422/485     RS422/485	COM20 COM21 COM22 COM23	
Unternat Explorer	Commu	Default Communications Parameters Bits per second: 9600 V Data bi	COM24 COM25 COM26 COM27	
OX_DRV	Commu Commu Enhanc	Flow control: None Pari	COM28 COM29 COM30 COM31 COM32	
Oxide SDK	Sentand Sentand Sentand Sentand Sentand Sentand	COM Port Number Port number to use:	СОМ33 СОМ34 СОМ5	
	Enhand		Restore Defaults	
test2com	L		OK Cancel	Recycle Bin
		OK Cancel App	oly	
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