Personal Computer Data Loading System



PCD-3000 Data Loaders

February 29, 2016 Frank Gutierrez





Building trust every day

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PCD-3000 Overview



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Building trust every day





PCD-3000 Set up & Trouble Shooting

- There are two versions of the PCD-3000 software that are targeted for particular operating systems. See SIL 2-01 Revision 4 (CPN 523-0802960) for details.
- PCD-3000 software version 3.0 (CPN 832-6621-006) is to be used with Windows 98 or Windows Xp. Use Quatech driver version 2.21 only.
- PCD-3000 software version 3.1 (CPN CPN 831-8530-004) is to be used with Windows Vista or Windows 7. This version can use Quatech driver version 2.30 or newer but version 2.21 it is still preferred for ease of set up. Both options are explained in this presentation.
- Customers that require the PCD-3000 kit call 319-295-5000 ask for the order administrator.
- Customers that require the PCD-3000 software version upgrade only need to call the Customer Response Center 888-265-5467.



Aircraft with the DBU 4000 / 4100

Cable/Kit Assembly (CPN 822-1631-003), which includes the following items:





- Quatech PCMCIA PC Card/cable (CPN 270-2659-020) and driver.
- Quatech driver software.
- Install CD (CPN 832-6621-006 or later) contains the Rockwell Collins PCD-3000 Data Loader software V.
 3.0 and Quatech driver software.
- PCD-3000 Data Loader User's Guide 5th Edition (CPN 523-0780041)

Rockwell

Collins



PCD-3000 Assembly

PCD-3000 uses the Y-cable to bypass the DBU for dataload. The Y-cable is permanently mounted in the aircraft.









PCD-3000 Kit

CPN	Price (FY2010)
822-1631-004	\$2,312

New Y-Cable Orders

Computer with PCMCIA card slot

Price (FY2010)

\$1,750 to \$3800

New (SAP) CPN	Length	Price (FY2010)
827-7419-052	1 Foot	\$2,328
827-7419-053	2 Feet	\$2,792
827-7419-054	3 Feet	\$3,256
827-7419-055	8 Feet	\$3,876
827-7419-056	20 Feet	\$4,648

Total estimated cost of complete PCD-3000 hardware only.

\$7,415.00



Databases

- The PCD-3000 is used to upload databases to LRUs such as:
 - FMC (FMS Database)
 - MDC (checklists and tables)



Personal Computer Data Loading System (PCD) CPN 810-0032-003





PC Card PCMCIA Type II; 16-bit Assembly





Collins part number on the PC Card.

Quatech part number and revision.

Quatech P/N 930-1200-01C G Assembly Rev. C was a bad card and we will replace any card that made it to the field with the Quatech P/N 930-1200-01C 2G Assembly Rev. C2 or Quatech P/N 930-1200-01C 3G Assembly Rev. C3



Problems

- Incompatibility issues due to changes in computer I/O expansion slots.
 - Express slot vs PCMCIA cardbuss slot, Type I, II, and III compatibility.
- Incompatibility issues due to changes in Microsoft operating systems.
 - PCD-3000 Version 3.0 Windows 98/Xp
 - PCD-3000 Version 3.1 Windows Xp/Vista
 - PCD-3000 Version 3.1 Microsoft 7 compatible but not verified.
- Inability to retrieve engine trend and engine exceedence data required by the airlines and engine manufactures. (Works with old Quatech "Rev. B" cards no longer sold due to parts obsolescence)
- Problems with new computers with PCMCIA slot working with the Quatech card due to computer bus speed compatability issues.



Non-compatible PCI Express computers

- The ExpressCard Standard is the next generation of PC Card technology used in more than 95% of all notebook computers for adding new hardware capabilities.
- Over time, ExpressCard technology is expected to replace CardBus as the preferred solution for hot-pluggable internal I/O expansion for notebook and desktop computers.
- Computers that are purchased with the PCI Express slot are not compatible with the PCMCIA CardBus / PC Card for the (PCD-3000).



PCD-3000 Version 3.0 Setup – Windows Xp



PCD-3000 Version 3.0

۵) Rockwell Collins PCD-3000 Data Loader user's guide (5th Edition) \mathbf{C} NOTICE INFORMATION SUBJECT TO EXPORT CONTROL LAWS This document may contain technical data that may be restricted for export under the International Traffic in Arms Regulations (TAR) or the Export Administration Regulations (EAR). Violations of these export laws may be subject to fines and penalties under the Arms Export Control Act (22 U.S. C. 2778). Copyright 2003 Rockwell Collins, Inc. All rights reserved. Rockwell Collins, Inc. 523-0780041

Cable/Kit Assembly (CPN 822-1631-004), which includes the following items:

- Quatech PCMCIA card/cable (CPN 270-2659-020) and driver software for the card. The driver software is also available on the PCD-3000 CD.
 Note: It is recommended to only use the driver on the PCD-3000 CD.
- Install CD (CPN 832-6621-007 or later) contains the Rockwell Collins PCD-3000 Data Loader software.
- PCD-3000 Data Loader User's Guide v3.0 (CPN 523-0780041)

CPN 523-0780041

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PCD-3000 Properties

Note:

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If you are getting errors trying to run the PCD-3000 program, select properties by right clicking the PCD-3000 program shortcut icon then check that the compatibility mode for windows 95 is not checked.

80
Open
Run as
📓 Edit with Notepad++
💟 Scan for threats
Pin to Start menu
Send To
Cut
Сору
Create Shortcut
Delete
Rename
Properties

PCD-3000 Properties ? 🔀
General Shortcut Compatibility Security
If you have problems with this program and it worked correctly on an earlier version of Windows, select the compatibility mode that matches that earlier version.
Compatibility mode
Run this program in compatibility mode for:
Windows 95
Display settings
Run in 256 colors
Run in 640 x 480 screen resolution
Disable visual themes
Input settings
Turn off advanced text services for this program
Learn more about <u>program compatibility</u> .
OK Cancel Apply





Setting up PCD-3000 Version 3.0 Port Settings (Windows 98 or Xp)

🚚 Device Manager

Action View

≣ ◀

∃… 🖳 CRM08028 ⊕ - 🤤 Batteries ⊕ -- 🔽 Computer

View Help

File

- Right click on "My Computer" desktop icon and select "Properties" or
 - Start / control panel / system.
- Left click the "Hardware" tab.
- Left click the "Device Manager" button

My Computer	System Properties Image: Computer Name Remote System Restore Automatic Updates Remote General Computer Name Hardware Advanced Device Manager Image: Computer Name The Device Manager lists all the hardware devices installed on your computer. Use the Device Manager to change the properties of any device. Device Manager	Credential Vault Device Disk drives Disk drives Display adapters DVD/CD-ROM drives <p< th=""></p<>
	Drivers Compatible with Windows. Windows Update lets you set up how Windows connects to Windows Update for drivers. Driver Signing Windows Update Hardware Profiles Work Hardware profiles provide a way for you to set up and store different hardware configurations. Hardware Profiles Work Hardware Profiles Driver Signing Windows Update Hardware Profiles Image: Driver Signing Mardware Profiles Hardware Profiles Driver Signing Update Hardware Profiles Driver Signing Driver Signing Driver Signing Windows Update Driver Signing Driver Signing Windows Update Driver Signing Driver Signing <	 Quatech QSPXP-200/300 ExpressCard Four-Port RS-422/485 Serial Adapter Ports (COM & LPT) Processors SCSI and RAID controllers Secure Digital host controllers Smart card readers Sound, video and game controllers System devices Universal Serial Bus controllers

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Multi-port serial adapters QSPXP-200/300

• With the Quatech PCMCIA card in the computer, click on Multi-port serial adapters and verify the PCMCIA card shows up in the sub directory. If not then the driver is not installed and must be installed prior to moving to the next step.





Driver Information Window

File Action View Help Image: CRM08028 Image: CRM08028 Image: CRM08028 Image: CRM08028 Image: CRM08028 Image: Credential Vault Device Image: Credential Vault Device Image: Credential Vault Device Image: Credential Vault Device Image: Credential Vault Device Image: Credential Vault Device Image: Credential Vault Device Image: Credential Vault Device Image: Credential Vault Device Image: Credential Vault Device Image: Credential Vault Device Image: Credential Vault Device Image: Credential Vault Device Image: Credential Vault Device Image: Credential Vault Device Image: Credential Vault Device Image: Credential Vault Device Image: Credential Vault Device Image: Credential Vault Device Image: DvD/CD-ROM drives Image: Credential Vault Device Image: Credential Vault Device Image: Credential Vault Device Image: DvD/CD-ROM drives Image: Credential Vault Device Image: Credential Vault Device Image: Credential Vault Device Image: DvD/CD-ROM drives Image: Credential Vault Device Image: Credential Vault Device Image: Credential Vault Device Image: DvD/CD-ROM drives Image: Credential Vault Device Image: Credential Vault Device Image: Credential Vault Device	8. 8.		General
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🗄 🍓 SCSI and RAID controllers		-	Bol
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🕀 🍇 Smart card readers 🛛 🛛 🛛 🗛	erties 🗧		
🗄 🖳 👮 System devices			
표 🕰 Universal Serial Bus controllers			
-			







Driver list and location (information only)

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	C:\WINDO\	VS\system32\cocpyinf.dll	
	C:\WINDO\	VS\system32\DRIVERS\qserbus.sys	
	C:\WINDO\	VS\system32\DRIVERS\qtserial.sys	
		VS \system32\DRIVERS \qtwdmlib.sys VS \system32\DriPPages dll	
	Provider:	Windows (R) 2000 DDK provider	
	File version:	5.00.2195.1	
	Copyright:	Copyright (C) Microsoft Corp. 1981-1999	
	Digital Signer:	Not digitally signed	
		0	ĸ





Recommended Quatech QSP-200/300 Driver

• The Recommended PCD-3000 Version 2.21 Quatech Driver

Windows 32/64-bit 2000/XP/Vista/Win7

Version **2.21** Date: **6/08** File Size: **657 KB**

http://www.bb-elec.com/getattachment/4d9b7ec8-95d2-48d7b270-fc591c72f2d4/win2kxpcom221.zip.aspx





http://www.quatech.com/support/drivers_pcmciaser.php#qsp23

System Restore Automatic Updates General Computer Name Hardware Advanced Device Manager The Device Manager lists all the hardware devices installed on your computer. Use the Device Manager to change the properties of any device. Device Manager Drivers Driver Signing lets you make sure that installed drivers are compatible with Windows. Windows Update lets you set up how Windows connects to Windows Update lets you set up how Windows connects to Windows Update lets you as to get or drivers. Driver Signing Windows Update lets you to set up and store different hardware profiles Hardware Profiles Windows Configurations. Hardware Profiles Update each com port with Quatech PCI Serial Quatech PCI		61 (165				\mathbf{X}				
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Perice Manager The Device Manager lists all the hardware devices installed properties of any device. Device Manager Device Manager Devic	General	Compu	uter Name	Hardware	Advanced					
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							÷ 🧃	System de	evices	

http://www.quatech.com/support/drivers _pcmciaser.php#qsp23

🚇 Device Manager	\rightarrow	
File Action View Help		
CRM08028 Batteries Computer Disk drives Display adapters DVD/CD-ROM drives DVD/CD-ROM drives DE ATA/ATAPI controllers DIDE ATA/ATAPI controllers Display adapters DVD/CD-ROM drives DVD/CD-ROM drives DE ATA/ATAPI controllers Display adapters Display adapters DVD/CD-ROM drives Display adapters DVD/CD-ROM drives Display adapters Display adapters Display adapters Multi-port serial adapters Multi-port serial adapters Quatech PCI Serial ScSI and RAID control Secure Digital host con Sound, video and game controllers		

Launches the Hardware Update Wizard for the selected c



Port Settings

• Click on "Ports" to see the COM port numbers. Write them down.







Manual Port Set Up

- In some cases you may need to manually assign com port settings in the device manager
- port / properties / port settings / Advanced (See next slide for details.)
- Set ports to.... (recommended settings)
 - Port 1 as 5,
 - Port 2 as 6,
 - Port 3 as 7,
 - Port 4 as 8.
- Then check and set the ports in the Microsoft operating system registry to match.





Advanced COM Port Settings

• Select the Port Settings tab and click on the Advanced button to assign the COM ports if needed.

Quatech PCI Serial Port (COM4) Properties	
General RS-422/485 Port Settings Driver Details	
	Advanced Settings for Quatech PCI Serial Port (COM4)
Bits per second 9600 Data bits 8 Parity None Stop bits 1 Flow Control None	Port Configuration FIFO Compatibility Modes OK COM Port Assignment: C Do not use FIFO buffers OK COM4 C 16550 Compatible UART Cancel © 16750 Compatible UART Defaults
<u>Advanced</u> Bestore Defaults	Throughput Configuration Select lower settings to correct connection problems. Select higher settings for faster performance. Receive Buffer: Low (1) Image:

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Microsoft Operating System Registry

• Click on "START" "RUN" and type in regedit. This will bring up the Windows registry.

	Run		? 🗙
	-	Type the name of a program, folder, document, or Internet resource, and Windows will open it for you	۱.
	Open:	regedit	~
		OK Cancel Brows	e



Registry Editor

 Go to: HKEY_LOCAL_MACHINE/ SOFTWARE/Rockwell Collins/PCDBU/ Communications/ Connection1, ~2, ~3, ~4







Registry COM Port Settings

- In the Connection# folder if the Ports are not the same as the device manager then:
 - Right click on the Port name, select "Modify" and change to the correct COM port number.

PCDBU	Name (Default) Port Modify Modify Binary Da Delete Rename	Type REG_SZ REG_SZ tta	Data (value not set) COM4	
		Edit String Value name: Port Value data: COM4		©K Cancel



Notes:

- In cases where the PCD-3000 may have all green lights but will not dataload the last two ports may need to be shut down.
- Other issues may be in the cabling the card or the computer itself.
- Make sure all virus protection and firewalls are turned off prior to installing the PCD-3000 software.







- Note 1: In some cases you may need to update the driver for the Quatech card.
- Note 2: In some cases you may need to manually assign com port settings in the device manager (port – properties – port settings – Advanced)
- **Note 3:** In nearly every case you will need to set the com port settings in the Microsoft Operating System Registry.
- The PCD-3000 should work after this setup is complete.

PCD-3000 Version 3.1 Setup



PCD-3000 Version 3.1



Cable/Kit Assembly (CPN 822-1631-004), which includes the following items:

- Quatech PCMCIA card/cable (CPN 270-2659-020) and driver software for the card. The driver software is also available on the PCD-3000 CD.
 Note: It is recommended to only use the driver on the PCD-3000 CD.
- Install CD (CPN 832-6621-007 or later) contains the Rockwell Collins PCD-3000 Data Loader software.
- PCD-3000 Data Loader Operator's Guide v3.1 (CPN 523-0810680)

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Setting up PCD-3000 Version 3.1 Port Settings (Windows Vista or Microsoft 7)

- Rules
 - Must have administrator rights on the computer.
 - All spyware/virus protection and firewalls should be turned off prior to installation.
 - Turn off the User Access Control in Microsoft
 Vista and Windows 7 prior to installation.

Vista

1. Start Button



- 2. Control Panel
- 3. User Accounts and Family Safety
- 4. User Accounts
- 5. Turn User Account Control on or off

Windows needs your permission to continue Click the continue button.



Windows 7

- 1. Start Button
- 2. Control Panel
- 3. User Accounts and Family Safety
- 4. User Accounts
- 5. Change User Account Control settings
- 6. { Set slider to "Never notify"}... click OK

😌 User Account Control Settings		
Choose when to be User Account Control hr Tell me more about Use Always notify	e notified about changes to your computer <u>Ips prevent potentially harmful programs from making changes</u> <u>Account Control settings</u>	to your computer.
- [-	Default - Notify me only when programs try to make changes to my computer	
	 Don't notify me when I make changes to Windows settings 	
_ _	Recommended if you use familiar programs and visit familiar websites.	
Never notify		
	- ® 0	Cancel





Setting up PCD-3000 Version 3.1 Port Settings

• The Quatech PCMCIA Ver. 2.30 driver comes with PCD-3000 version 3.1 (Full administrative rights are required).

Windows 32-bit and 64-bit XP/Vista/7

Version 2.30 Date: 1/10 File Size: 1.4 MB

http://www.bb-elec.com/getattachment/8dda5a56-5252-4c64-b272-28c91a3dbab3/win2kxp7com230.zip.aspx

> **NOTE:** If you use the latest Quatech drivers that are available, Version 2.30 or later, you may encounter some difficulty setting up the ports. It is highly recommended you use the Quatech ver. 2.21 driver. http://www.bb-elec.com/getattachment/4d9b7ec8-95d2-48d7-b270-fc591c72f2d4/win2kxpcom221.zip.aspx





Setting up PCD-3000 Version 3.1 Port Settings (Windows Vista or 7)

- Right click on "My Computer" desktop icon and select "Properties"
- Left click the "Hardware" tab.
- Left click the "Device Manager" button

Check on getting to the device manager





Multi-port serial adapters QSPXP-200/300

• With the Quatech PCMCIA card in the computer, click on Multi-port serial adapters and verify the PCMCIA card shows up in the sub directory. If not then the driver is not installed and must be installed prior to moving to the next step.





Port Settings

• Click on "Ports" to see the COM port numbers. Write them down.







Manual Port Set Up

- In some cases you may need to manually assign come port settings in the device manager
- (port properties port settings Advanced)
- Set ports to.... (recommended)
 - Port 1 as 5,
 - Port 2 as 6,
 - Port 3 as 7,
 - Port 4 as 8.
- Then check and set the ports in the Microsoft operating system registry to match.





Advanced COM Port Settings

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Quatech PCI Serial Port (COM4) Properties	
General RS-422/485 Port Settings Driver Details	
	Advanced Settings for Quatech PCI Serial Port (COM4)
Bits per second 9600 Data bits 8 Parity None Stop bits 1 Flow Control None	Port Configuration FIFO Compatibility Modes OK COM Port Assignment: © Do not use FIFO buffers OK COM4 Image: Compatibility Compatibility Modes Cancel Image: Compatibility
<u>A</u> dvanced <u>R</u> estore Defaults	Throughput Configuration Select lower settings to correct connection problems. Select higher settings for faster performance. Receive Buffer: Low (1)
OK Cancel	

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Microsoft Operating System Registry

• Click on "START" "RUN" and type in regedit. This will bring up the Windows registry.

	Run		? 🗙
	-	Type the name of a program, folder, document, o Internet resource, and Windows will open it for yo	r Ju.
	Open:	regedit	~
		OK Cancel <u>B</u> row	se



Registry Editor

- On startup, the PCD searches the registry to determine what COM ports the Quatech card is using.
- It finds the QUATECH subkey under HKEY_LOCAL_MACHINE\ SYSTEM\ControlSet001\ Enum\QuatechMultiportSerial\ QSPXP-200_1
- The subdirectory's \PORT_X where X goes from 1 to 4 and \FreindlyName, and reads the "(COM X)" value under each of those sub keys where the COM port value matches the settings in the Device Manager.
- The Value name is the Quatech PCI Serial Port setting that needs to match the port settings in the device manager.





Registry Editor

- Note: PORT_X may be named Child_X. If this is the case then right click on the folder name and rename Child to Port and it should work.
- The reason for this is the Quatech driver changes the port name to one not recognized by the PCD-3000 software.





Registry COM Port Settings

<u>File Edit V</u> iew F <u>a</u> vorites <u>H</u> elp			
	Name (Default) AUTOCTS HWOR MultiportDevice PollingPeriod PortIndex PortName QportCfg RxFFO SerialkelinquishPowerP Share Lystem Interrupt TxFIFO	Type REG_SZ REG_DWORD REG_DWORD REG_DWORD REG_DWORD REG_DWORD REG_DWORD REG_DWORD REG_DWORD REG_DWORD REG_DWORD	Data (value not set) 0x00000000 (0) 0x00178f00 (1543936) 0x00000001 (1) 0x00000000 (0) 0x00000001 (1) 0x00000001 (1) 0x00000001 (1) 0x0000001 (1) 0x0000001 (1) 0x0000001 (16) 0x0000001 (16) 0x00000038 (56) 0x0000000 (0) 0x0000000 (1) 0x0000000 (1) 0x0000000 (0)

 If you need to modify the port settings right click on Value name, select Modify, change the COM port number to match the device manager and click OK. Repeat for each port setting.

	I
Edit String	? 🔀
Value <u>n</u> ame:	
PortName	
⊻alue data:	
COM4	
	OK Cancel

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PCD Map

- PCD maps the ports to the LRUs as follows:
 - a. The value from PORT_1 is used for FMC 1
 - b. The value from PORT_2 is used for FMC 2
 - c. The value from PORT_3 is used for MDC
 - d. The value from PORT_4 is used for FMC 3







- The PCD-3000 should work after this setup is complete.
- Note 1: In some cases you may need to update the driver for the Quatech card.
- Note 2: In some cases you may need to manually assign come port settings in the device manager (port – properties – port settings – Advanced)
- Note 3: In nearly every case you need to change the registry name from CHILD_X to PORT_X
- (Must Have Full Administrative Rights on your Computer)



For more information, visit rockwellcollins.com or call 319-295-5000



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