

# JRComNET

## for Microsoft .NET

Version 1.0, June 2015

Application Programming Interface and WPF / Windows Forms User  
Controls for Janome® Universal Industrial Desktop, Gantry and  
SCARA Robots

## Quick Start Manual

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We would like to thank Janome Sewing Machine Co., Ltd., Industrial Automation Systems Division, Tokyo, for their support and help developing this software.

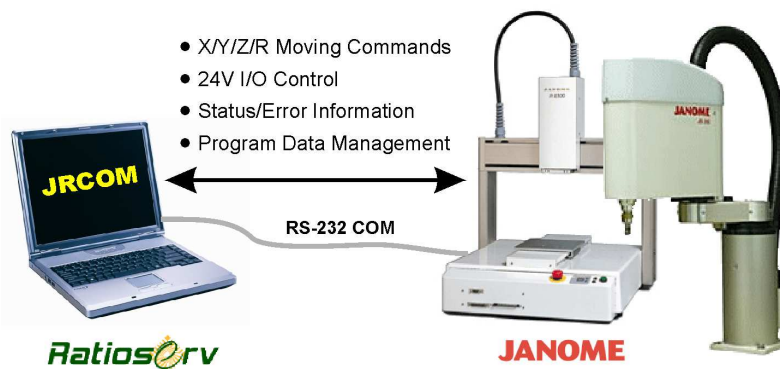
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## About JRComNET

This document describes the JRComNET Assembly and User Controls for direct controlling Janome Universal Industrial Robots via RS-232 interface connection. The Microsoft .NET Managed Code Control can be used with all .NET languages and third-party software like NI Labview or Microsoft Office and enables self-programmed or most existing applications to monitor and control one or more robots connected to the COM interface(s) of a Microsoft Windows PC. With JRComNET you are able to control the 24V I/O interface(s) of the robot, send moving commands, retrieve status information and error messages, start and stop programs or down- and upload programs by simple function calls like *JRCom1.M2\_CPLinearDrive(25.65, 60.0, 15.0, 0.0, False, 10, out reply)*. This will make the robot to move from current position to the position *X/Y/Z/R (25.65/60.0/15.0/0.0)* with speed of 10 mm/s. The out parameter *reply* contains an error message if some problems occurred while processing the function call and/or the reply text sent by the robot.



## Installing JRComNET

JRCom comes with an automatic installer application which simply copies 3 .NET assembly dll's to directory *C:\Program Files (x86)\Ratioserv\JRComNET* of your Windows computer. To install JRComNET please run the provided installer *JRComNET\_Setup\_V10.exe*.

- *JRComNET.dll*: The API assembly providing control functions for your robot
- *JRComNETWindowsFormsCtrl.dll*: A User Control providing a GUI with buttons to allow instant Jog movements for Windows Forms applications
- *JRComNETWPFCtrl.dll*: A User Control providing a GUI with buttons to allow instant Jog movements for Windows Presentation Foundation (WPF) applications

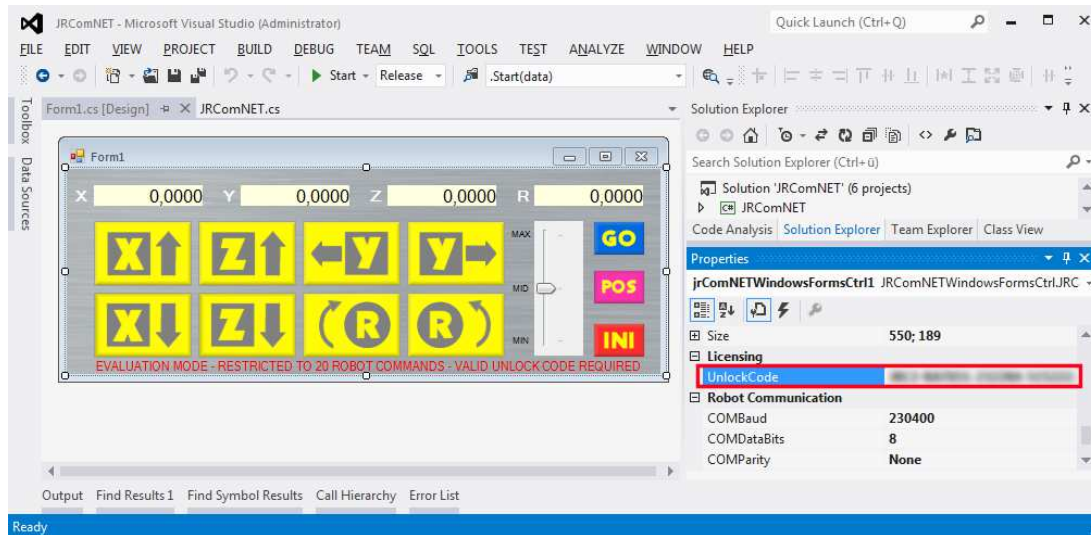
## Licensing

JRComNET needs a unique unlock code before distributing applications built with JRComNET. Without unlock code the software runs in evaluation mode and will not send more than 20 commands to the robot before it stops. After restarting the application another 20 commands can be sent.

## JRComNET Quick Start

For purchasing a license and retrieving the unlock code please contact Ratioserv or your local Janome partner.

To unlock JRComNET you have to use the property “UnlockCode” of User Control or method “Unlock” of JRComNET assembly and provide a valid code.



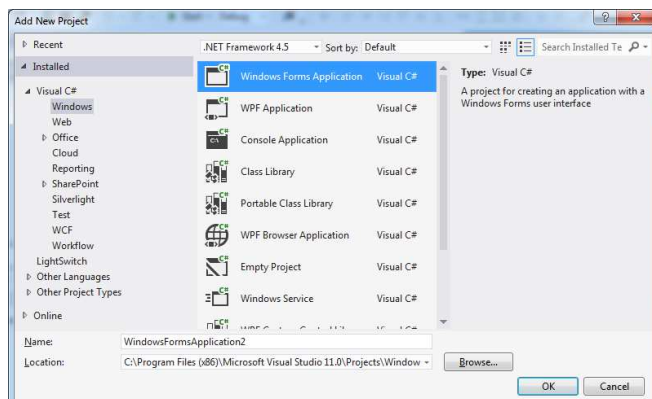
## Using the control

There is a wide range of software applications supporting .NET assemblies and User Controls. Please take a look into the manuals of the container you are using how to insert .NET assemblies and controls.

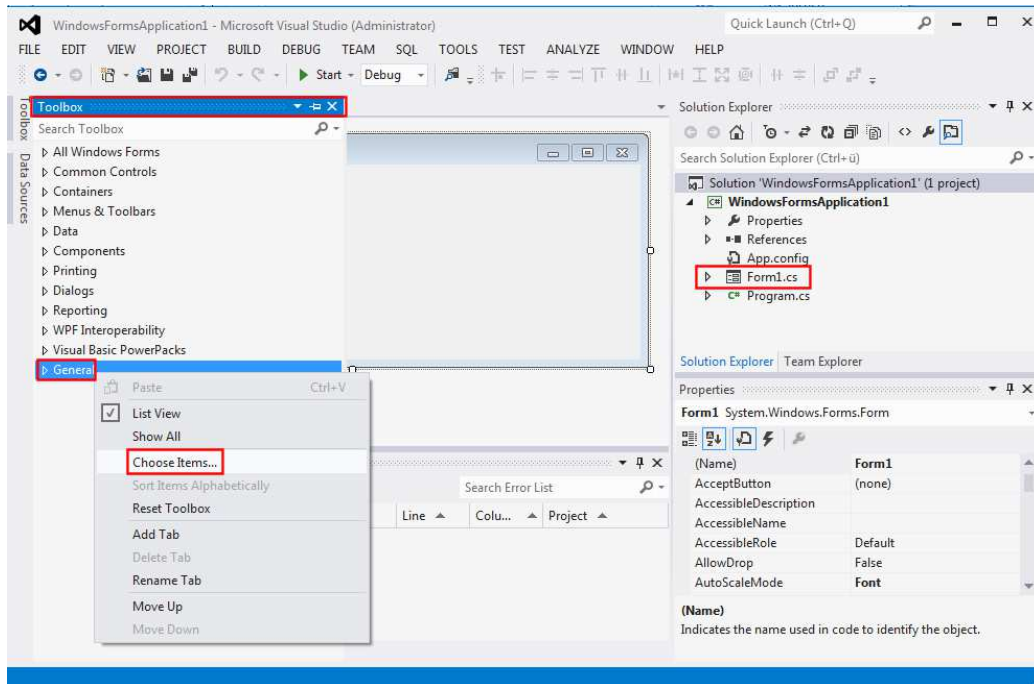
## Use JRComNET with Visual Studio 2012

Here we show the procedure to add the JRComNET User Control to the toolbox of Microsoft Visual Studio.

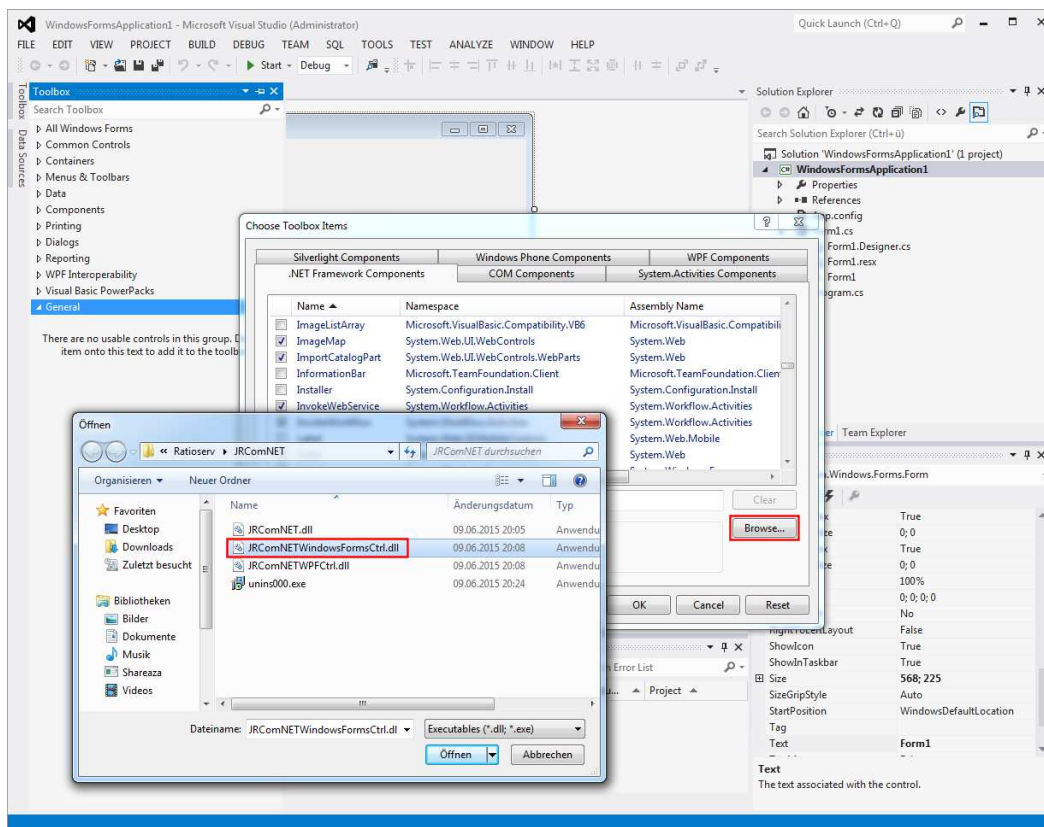
In Visual Studio create a new project with template “Windows Forms Application”



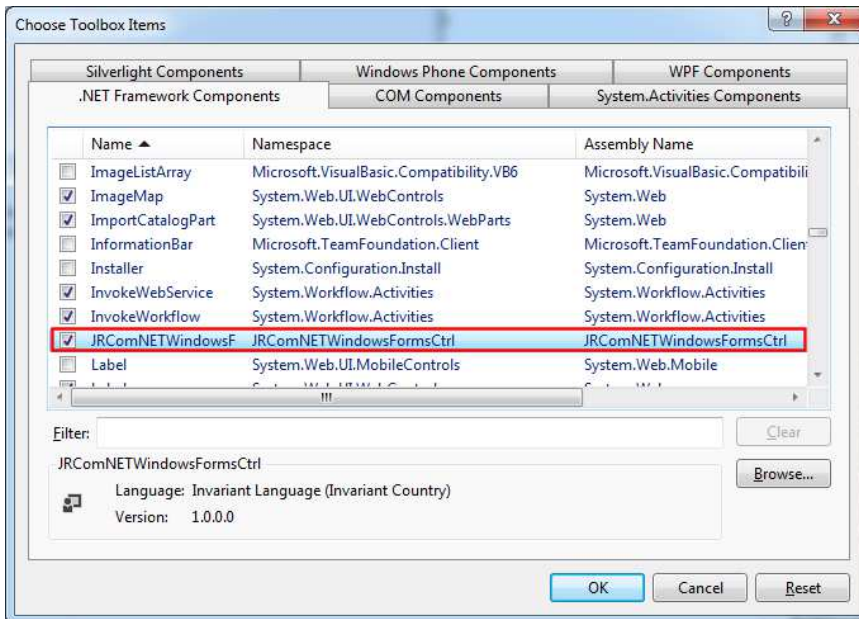
Open the application form with GUI builder and afterwards open the Toolbox



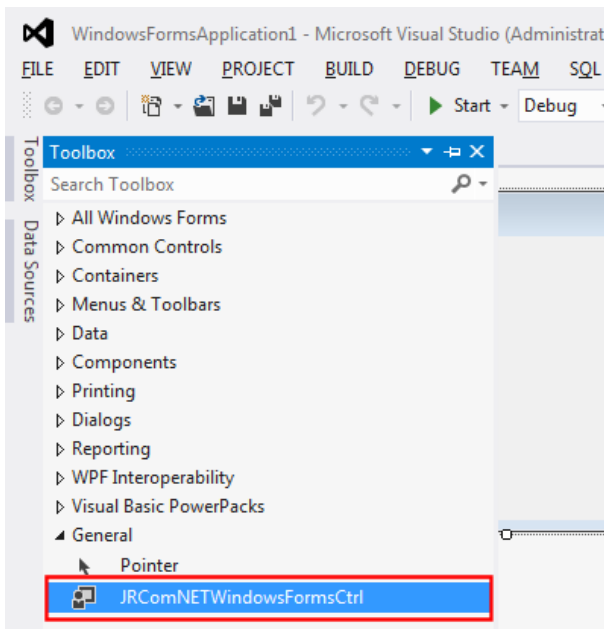
To add the JRComNET User Control for Windows Forms to the Visual Studio Toolbox do a right-click on “General” and select “Choose Items...” menu item. Click “Browse” button and go to install directory of JRComNET. Select “JRComNETWindowsFormsCtrl.dll” and press “Open” button.



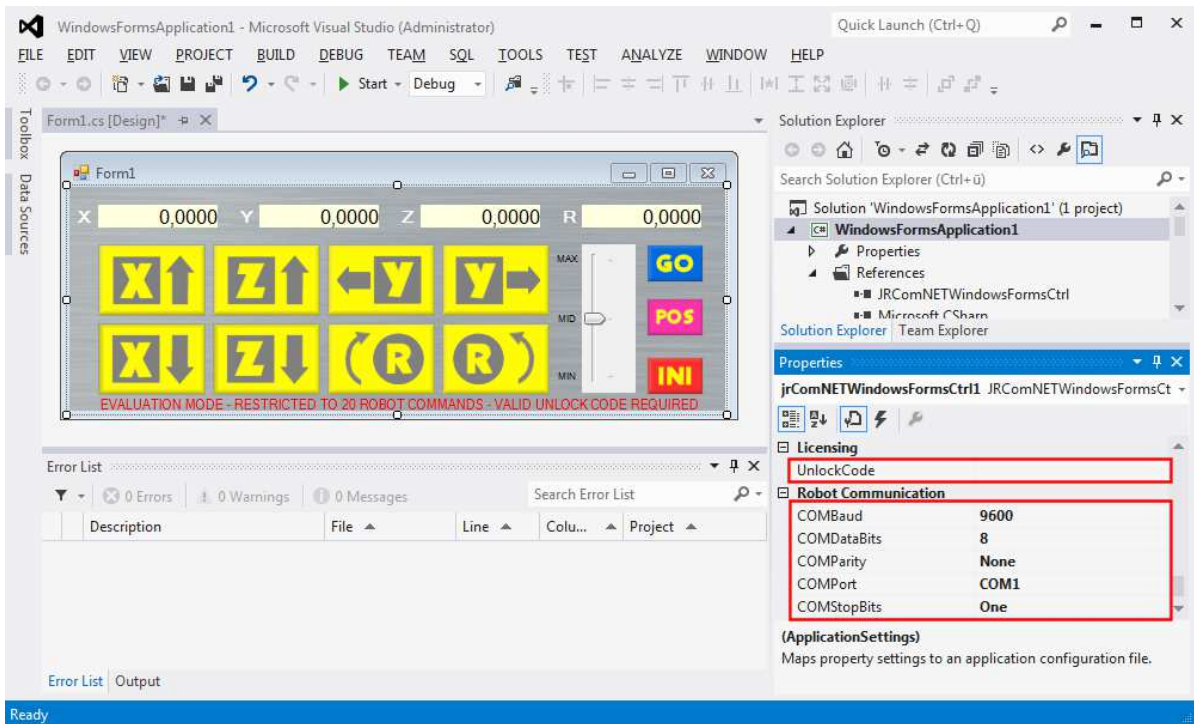
A new component entry “JRComNETWindowsFormsCtrl” is showing up. Make sure this entry is checked and press “OK” button to finally add the control to the toolbox.



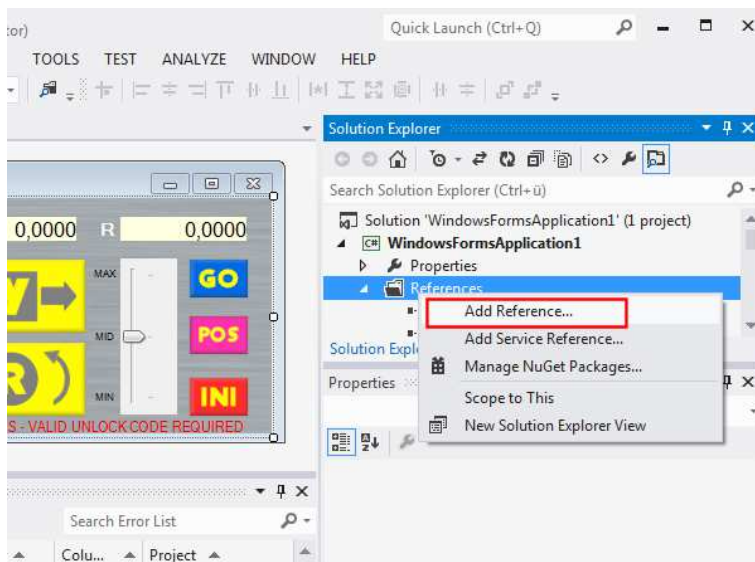
Now the robot control can be placed on your application window by simply dragging it from the toolbox to the empty window.



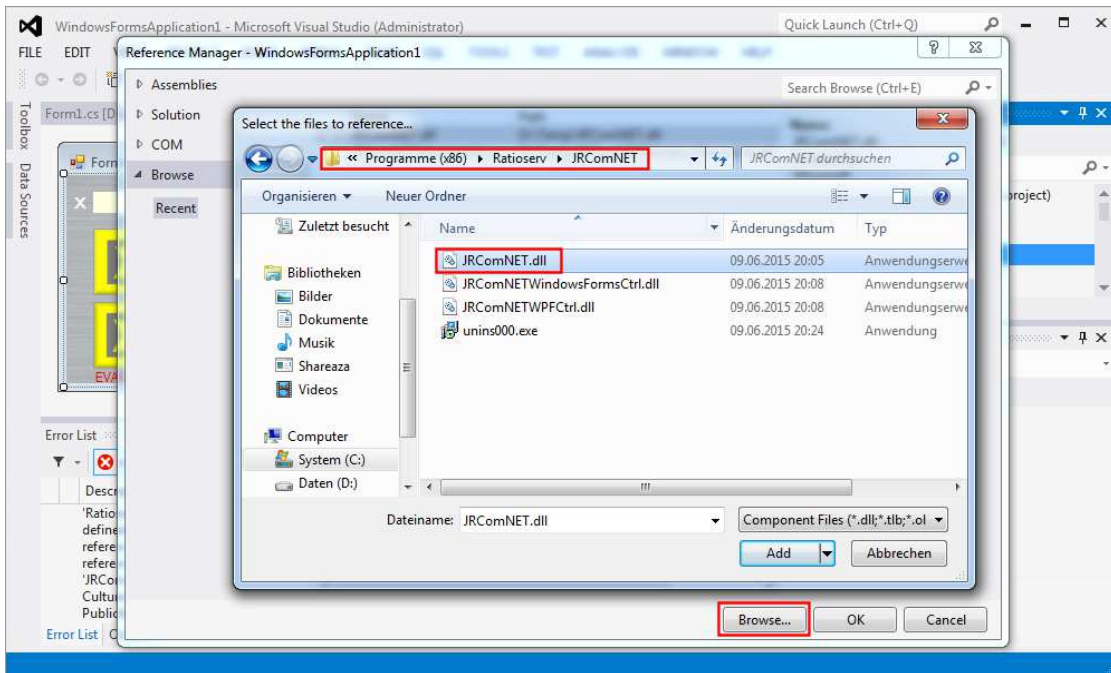
Customize the control properties: If you have already purchased a full license please enter the license code into property “UnlockCode”. Enter COM properties exactly the same as specified at your robot to enable proper communication.



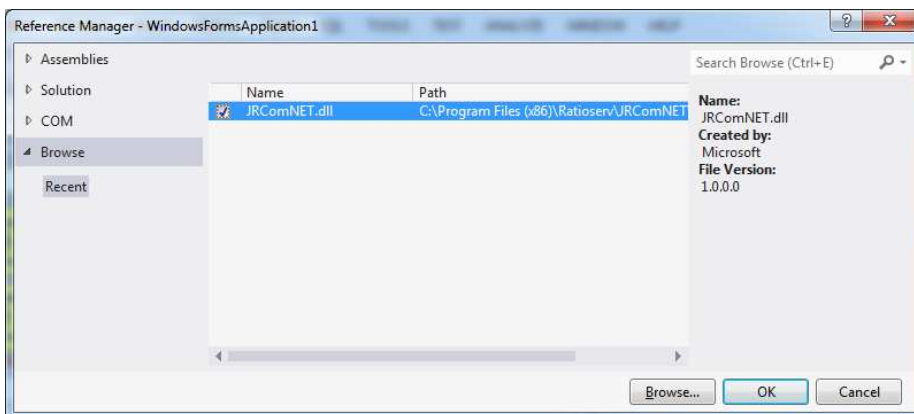
Now you have to add a reference to the API assembly JRComNET.dll. Do right-click on “References” entry in Solution Explorer of Visual Studio and select “Add Reference...”



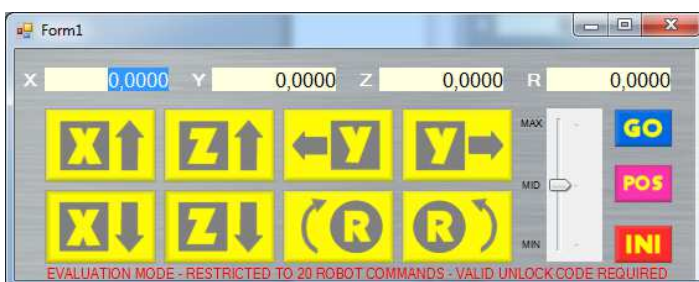
Navigate to install directory of JRComNET and select JRComNET.dll.



Make sure that “JRComNET.dll” is activated before pressing the “OK” button and finally adding the reference to your project.



Connect the robot to the COM interface of your computer and run your application. Make sure that your robot runs in “External Run Mode” otherwise it will not accept remote commands. To test the connection press the red “INI” button of robot user control which should start the mechanical initialization of your robot.





## RS-232C Cable Specification

You need a stright RS-232C cable with the following wiring:

### ROBOT 9-PIN D-SUB

Pin	Terminal	Function
3	RXD	Receive Data
2	TXD	Send Data
8	RTS	Request to send
7	CTS	Clear to send
5	GND	Ground

### PC 9-PIN D-SUB

Pin	Terminal	Function
3	TXD	Send Data
2	RXD	Receive Data
8	CTS	Clear to send
7	RTS	Request to send
5	GND	Ground

### ROBOT 25-PIN D-SUB

Pin	Terminal	Function
4	RTS	Request to send
2	TXD	Send Data
3	RXD	Receive Data
5	CTS	Clear to send
6	DSR	Dataset ready
7	GND	Ground
20	DTR	Data Terminal ready
8	DCD	Data Carrier Detect
22	RI	Ring Indicator (not used)

### PC 9-PIN D-SUB

Pin	Terminal	Function
1	-	-
2	RXD	Receive Data
3	TXD	Send Data
4	DTR	Data Terminal ready
5	GND	Ground
6	DSR	Dataset ready
7	RTS	Request to send
8	CTS	Clear to send
9	RI	Ring Indicator