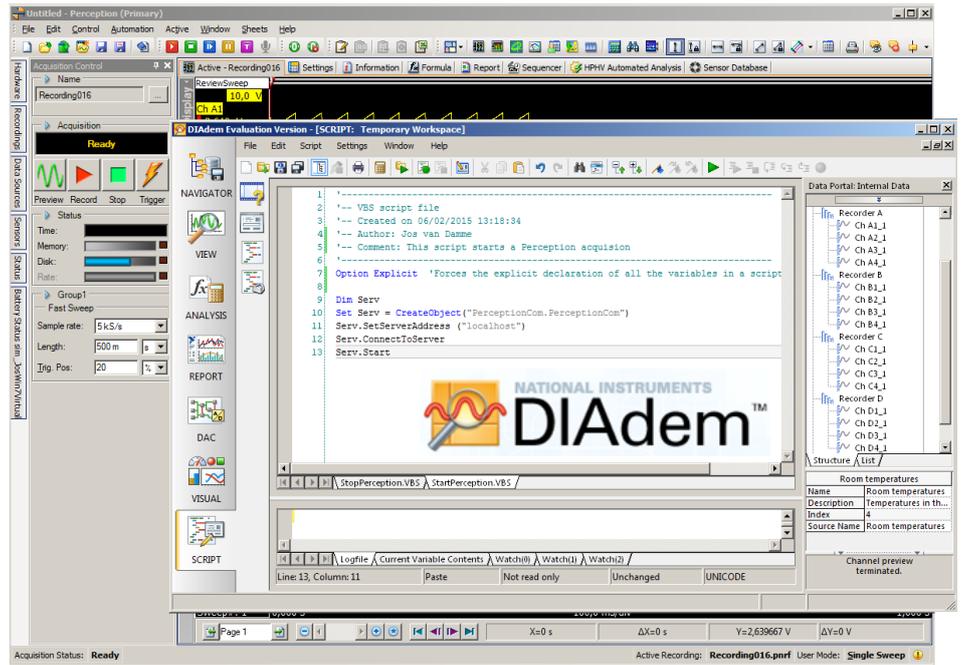


# User Manual

English



## Perception remote control using DIAdem

Document version 1.0 – June 2015

*For Perception 6.60 or higher*

For HBM's Terms and Conditions visit [www.hbm.com/terms](http://www.hbm.com/terms)

HBM GmbH  
Im Tiefen See 45  
64293 Darmstadt  
Germany  
Tel: +49 6151 80 30  
Fax: +49 6151 8039100  
Email: [info@hbm.com](mailto:info@hbm.com)  
[www.hbm.com/highspeed](http://www.hbm.com/highspeed)

Copyright © 2015

All rights reserved. No part of the contents of this book may be reproduced or transmitted in any form or by any means without the written permission of the publisher.

## **LICENSE AGREEMENT AND WARRANTY**

For more information about LICENSE AGREEMENT AND WARRANTY refer to:

[www.hbm.com/terms](http://www.hbm.com/terms)

# Table of Contents

|   |           |
|---|-----------|
| <b>TABLE OF CONTENTS .....</b>  | <b>4</b>  |
| <b>1 GETTING STARTED .....</b>  | <b>5</b>  |
| 1.1 INTRODUCTION .....  | 5         |
| 1.2 INTENDED AUDIENCE .....   | 5         |
| 1.3 REQUIREMENTS AND INSTALLATION .....                                     | 5         |
| 1.3.1 <i>System requirements</i> .....                                      | 5         |
| 1.3.2 <i>Supported hardware</i> .....                                       | 5         |
| 1.3.3 <i>Installation</i> .....   | 6         |
| <b>2 CREATING YOUR FIRST DIADEM SCRIPT FOR CONTROLLING PERCEPTION .....</b> | <b>6</b>  |
| <b>3 SIMPLE ACQUISITION CONTROL .....</b>                                   | <b>8</b>  |
| <b>4 OPEN A PERCEPTION CONFIGURATION (VWB) FILE.....</b>                    | <b>11</b> |
| <b>5 HBM – PNRF DATA PLUGIN.....</b>  | <b>12</b> |
| <b>6 RECOMMENDATIONS.....</b>   | <b>13</b> |

## 1 Getting Started

Welcome to the Perception remote control manual using DIAdem. This manual describes how you can use the COM/RPC interface of Perception from within DIAdem. For more information on the COM/RPC interface we refer to the user manual called “**Programmers Reference Perception RPC interface**” (I2699\_1.0en)

### 1.1 Introduction

The DIAdem program of National Instruments can be used to control Perception. Perception has implemented an RPC interface, to simplify the usage of this interface HBM has designed a COM wrapper around the RPC client. This COM wrapper can be used as an ActiveX from within DIAdem. For more information we refer to the appendix called **Using RPC-COM wrapper and C#** in the Perception RPC interface manual.

This document will describe how you can use this COM wrapper, it demonstrates how you can start from scratch and build your first simple DIAdem application communicating with Perception.

### 1.2 Intended audience

This documentation assumes you have sufficient knowledge of DIAdem, this manual is NOT a tutorial on how to use DIAdem.

This documentation also assumes you understand your HBM equipment, software, and basic acquisition terminology.

Understanding acquisition terminology is vital to understanding digital recordings: trigger, sample rate, pre-/post trigger, etc.

### 1.3 Requirements and installation

The HBM RPC Interface is an option that is enabled through the use of the HASP® 4 USB Token. When this option is installed, a colored icon is shown on the splash screen at start-up.

When this icon is grayed you should contact your local dealer for more information on how to obtain this option.

The HBM Remote API is an option that is enabled through the use of the HASP® 4 USB Token.

This option is also listed as **Remote API: control Perception using the SOAP interface or using RPC calls** in the Perception menu:

**Help > About Perception > More... > Options page**

We assume you have installed DIAdem.

In addition you must install the required software modules as described below.

#### 1.3.1 System requirements

- HBM Perception software with Remote API option enabled

#### 1.3.2 Supported hardware

- HBM GEN Series Modular Data Acquisition System
- HBM Liberty Ruggedized In-vehicle Data Acquisition System

### 1.3.3 Installation

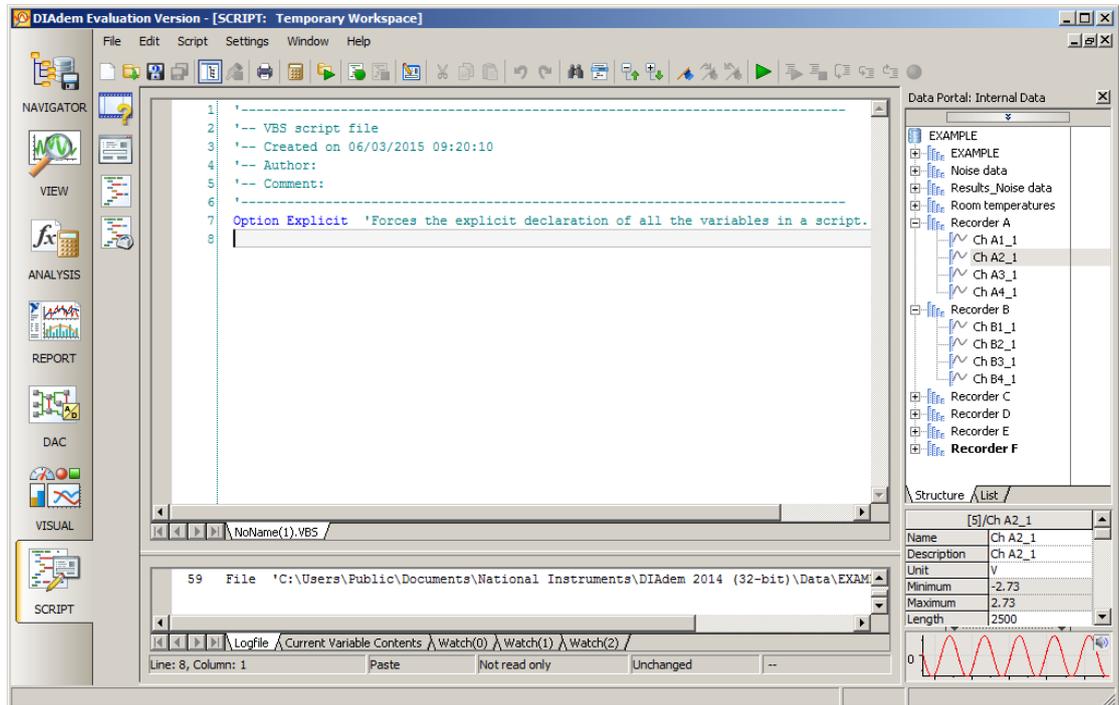
For installation information we refer to the appendix called **Using RPC-COM wrapper and C#** in the Perception RPC interface manual.

## 2 Creating your first DIAdem script for controlling Perception

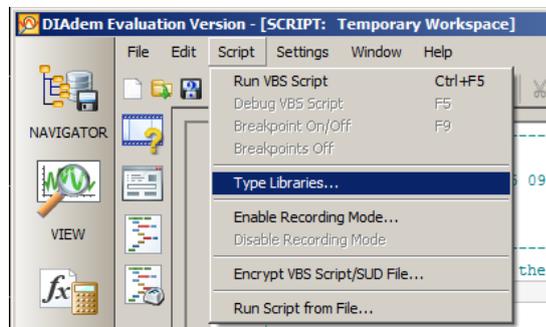
In this section we show you how you can use the Perception COM wrapper from within DIAdem. Two simple scripts are created which can be used to start and stop an acquisition at Perception.

Do the following steps to achieve this:

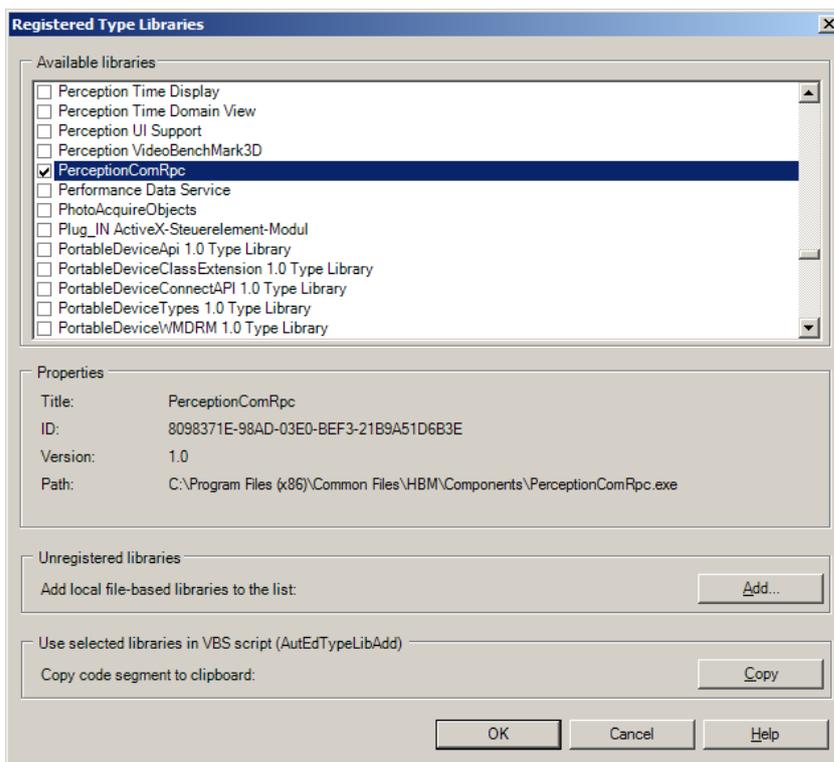
- Start DIAdem and select the **SCRIPT** page



- Open the Script-> Type Libraries... menu



- Select the library called PerceptionComRpc



- Enter the following code:

```

'-----
'-- VBS script file
'-- Created on 06/02/2015 13:18:34
'-- Author: Jos van Damme
'-- Comment: This script starts a Perception acquisition
'-----
Option Explicit 'Forces the explicit declaration of all the variables
in a script.

Dim Serv
Set Serv = CreateObject("PerceptionCom.PerceptionCom")
Serv.SetServerAddress ("localhost")
Serv.ConnectToServer

Serv.Start
    
```

- Save this file as StartPerception.VBS
- Make sure Perception has been started at the same PC and is ready for doing an acquisition. If Perception is at another PC then you have to replace the server address in the above code from "localhost" to the PC name or the IP-address of this PC where Perception is running.
- Run the script (CTRL+F5)
- Now you should see that Perception has started a new acquisition.
- If needed stop the acquisition manually at Perception.

Modify the above script by replacing the `Serv.Start` with `Serv.Stop` and save the script as StopPerception.VBS. The script now looks like:

```

'-----
'-- VBS script file
    
```

```

'-- Created on 06/02/2015 13:18:34
'-- Author: Jos van Damme
'-- Comment: This script stops a Perception acquisition
'-----
Option Explicit 'Forces the explicit declaration of all the variables
in a script.

Dim Serv
Set Serv = CreateObject("PerceptionCom.PerceptionCom")
Serv.SetServerAddress ("localhost")
Serv.ConnectToServer

Serv.Stop

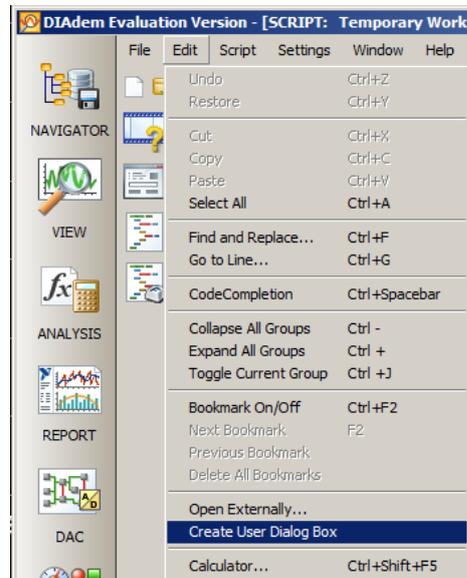
```

- Run the StartPerception script (CTRL+F5) again and stop the acquisition now by using the StopPerception script.

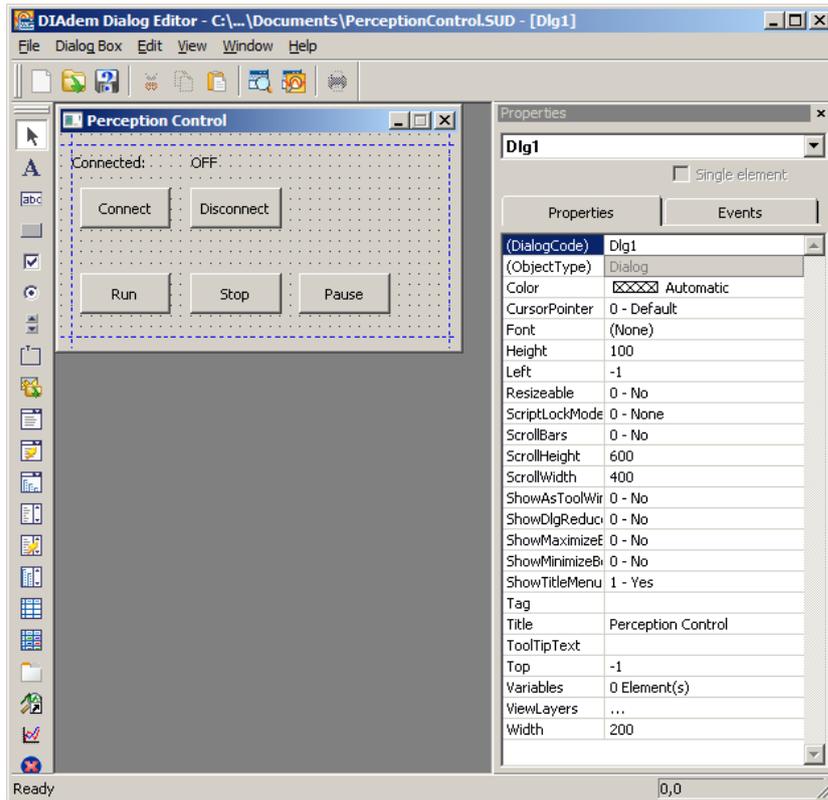
### 3 Simple Acquisition Control

This demo will demonstrate how to create a DIAdem dialog box where we can start and stop a recording in Perception.

- Go to the menu Edit->Create User Dialog Box



- Give the dialog a new title: "Perception Control"
- Save the dialog as PerceptionControl.SUD
- Add two labels and five buttons to the dialog



- Add the following code:

```

-----
'-- SUD script file
'-- Created on 06/03/2015 10:25:02
'-- Author: Jos van Damme
'-- Comment: Simple Perception Acquisition control
-----

Option Explicit 'Forces the explicit declaration of all the variables
in a script.

Dim PerceptionServer
Dim IsConnected

Sub Dialog_EventInitialize(ByRef This)
    Set PerceptionServer = CreateObject("PerceptionCom.PerceptionCom")
    IsConnected = false
End Sub

Sub Dialog_EventTerminate(ByRef This)
    PerceptionServer.DisconnectFromServer
End Sub

Sub BtnConnect_EventClick(ByRef This)
    PerceptionServer.SetServerAddress ("localhost")
    PerceptionServer.ConnectToServer
    IsConnected = true
    ShowConnectionState
End Sub

Sub BtnDisconnect_EventClick(ByRef This)
    PerceptionServer.DisconnectFromServer
    IsConnected = false
    ShowConnectionState
End Sub
    
```

```
Sub ShowConnectionState
  If (IsConnected) Then
    LblConnectionStatus.Text = "Yes"
  Else
    LblConnectionStatus.Text = "No"
  End If
End Sub

Sub BtnRun_EventClick(ByRef This)
  if (Not IsConnected) Then
    MsgBox("Can not start because Perception is not connected")
  Else
    PerceptionServer.Start
  End if
End Sub

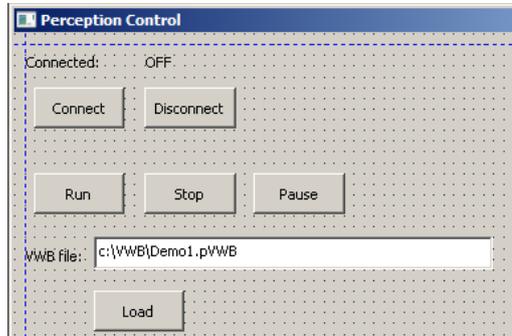
Sub btnStop_EventClick(ByRef This)
  if (Not IsConnected) Then
    MsgBox("Can not stop because Perception is not connected")
  Else
    PerceptionServer.Stop
  End if
End Sub

Sub btnPause_EventClick(ByRef This)
  if (Not IsConnected) Then
    MsgBox("Can not pause because Perception is not connected")
  Else
    PerceptionServer.Pause
  End if
End Sub
```

## 4 Open a Perception configuration (VWB) file

The demo will now be extended with the possibility to load a Perception configuration (VWB) file. The LoadVWB function will be used for this.

- Add a **Text**, **EditBox** and a **Button** control to the dialog



- Add the following code:

```
Sub btnLoadVWB_EventClick(ByRef This) 'Created Event Handler
    if (Not IsConnected) Then
        MsgBox("Can not load a configuration file because Perception is not
        connected")
    Else
        Dim VWBFileName
        VWBFileName = EdtVWBFileName.Text
        call PerceptionServer.LoadVWB( VWBFileName )
    End if
End Sub
```

- Before testing make sure that the VWB file is available.
- Now test this new dialog in DIAdem by pressing Ctrl+F5

**Remark:** The LoadVWB supports virtual directory names that get replaced automatically by real locations.

These virtual directories are:

**SharedDocs** - Represents the Shared Documents folder on the computer (C:\Documents and Settings\All Users\Documents)

**MyDocs** - Represents the My Documents folder of the currently logged in user (C:\Documents and Settings\Username\My Documents)

Virtual directories names are surrounded by the two characters < and >, called angle brackets.

You can use the following VWB file entry in the above example:

**<MyDocs>My Workbench\Demo1.pVWB**

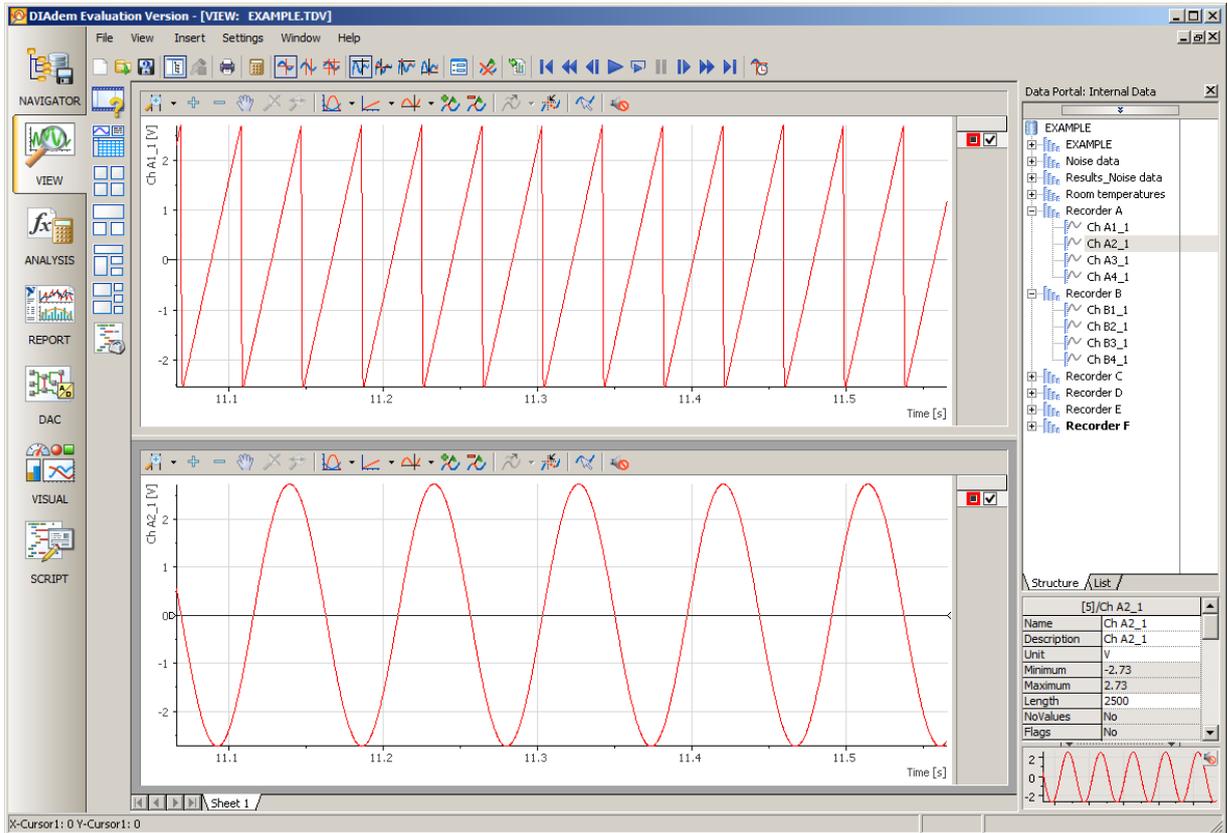
Depending on your OS and your username this can be replaced by:

**C:\Users\Damme\Documents\My Workbench\Demo1.pVWB**

## 5 HBM – PNRF Data Plugin

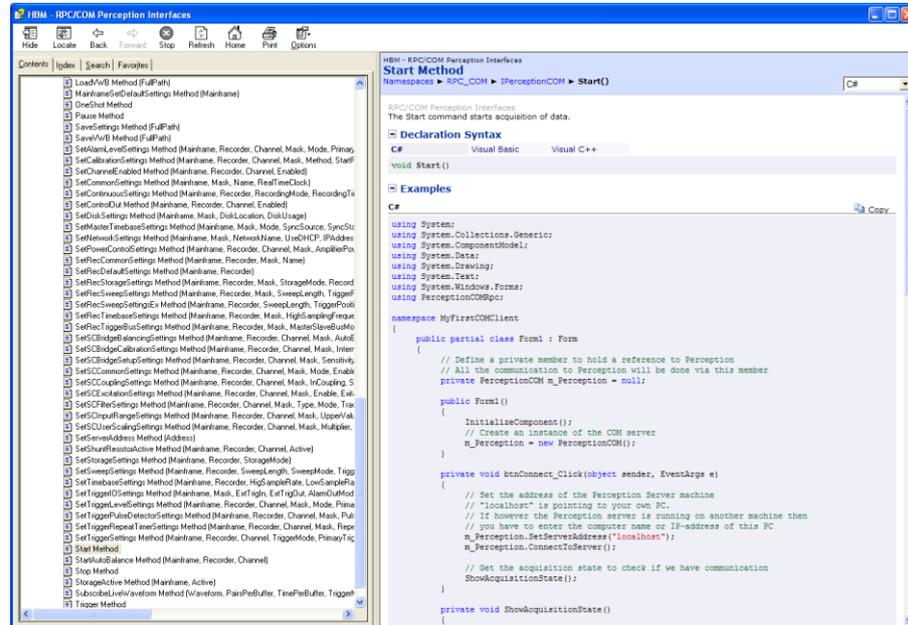
At the web page of National Instruments you can find software which can be used to directly read the Perception data (PNRF) files into DIAdem. This plugin can be downloaded for free from <http://www.ni.com/example/31522/en/>.

When importing files with the HBM\_PNRF DataPlugin, each measurement is saved in a separate waveform channel. See picture below.



## 6 Recommendations

So far we just showed some simple examples to get started, but the RPC/COM interface is much richer than the examples above have shown. To get more insights in this interface we recommend to have a look into the **“Programmers Reference Perception RPC interface”** (I2699\_1.0en) and the **Perception COM Help** help file.



We also recommend to have a look in the C# example programs. It is also possible to join a COM/RPC training to understand the interface, this training does not use DIAdem but C# and Microsoft Visual studio. HBM also provides programming support, this support can be bought in blocks of 8 hours.

Head Office

**HBM**

Im Tiefen See 45  
64293 Darmstadt  
Germany  
Tel: +49 6151 8030  
Email: info@hbm.com

France

**HBM France SAS**

46 rue du Champoreux  
BP76  
91542 Mennecy Cedex  
Tél: +33 (0)1 69 90 63 70  
Fax: +33 (0) 1 69 90 63 80  
Email: info@fr.hbm.com

Germany

**HBM Sales Office**

Carl-Zeiss-Ring 11-13  
85737 Ismaning  
Tel: +49 89 92 33 33 0  
Email: info@hbm.com

UK

**HBM United Kingdom**

1 Churchill Court, 58 Station Road  
North Harrow, Middlesex, HA2 7SA  
Tel: +44 (0) 208 515 6100  
Email: info@uk.hbm.com

USA

**HBM, Inc.**

19 Bartlett Street  
Marlborough, MA 01752, USA  
Tel : +1 (800) 578-4260  
Email: info@usa.hbm.com

PR China

**HBM Sales Office**

Room 2912, Jing Guang Centre  
Beijing, China 100020  
Tel: +86 10 6597 4006  
Email: hbmchina@hbm.com.cn

© Hottinger Baldwin Messtechnik GmbH. All rights reserved.  
All details describe our products in general form only.  
They are not to be understood as express warranty and do  
not constitute any liability whatsoever.

**measure and predict with confidence**

