



# TECHNICAL NOTE

## 32-Bit DDE Driver for Transpector Gas Analysis Systems

Residual Gas Analyzers (RGAs) have been used in vacuum research applications for 25 years. Their role has changed in the last 10 years, as they have evolved from purely a research instrument to a production tool. As a production tool, the RGA can increase productivity, improve product yield, increase throughput and reduce costs, all of which ultimately increases profits.

However, it is up to the user to determine how the tool can best meet the needs of a specific application. This Tech Note is concerned with the 32-Bit DDE Driver for added communications flexibility with the Transpector® family of gas analysis instruments.

### WHAT IS DDE?

Dynamic Data Exchange (DDE) is a communications protocol designed by Microsoft® to allow other Windows®-based applications to send and receive data and instructions to and from each other. The Transpector 32-Bit DDE Driver allows programs such as Wonderware® InTouch™ and Microsoft Excel® to access data from the INFICON Transpector family of products. This gives the RGA user more flexibility for data manipulation and process control.

DDE implements a client-server relationship between two running programs. The client application makes requests and the server application accepts requests and provides the data. Some programs, like InTouch and Excel, can be both a client and a server simultaneously.

The DDE Server communicates with a single Transpector via the serial RS232 connection or with multiple Transpector instruments via the TCA-485 connection (for more information refer to the Tech Note entitled, "TCA-485: A New Approach to a Platform Independent RS-485 Master Node Controller").

### FEATURES OF THE 32-BIT DDE DRIVER

- ◆ Works for Selected Peaks (Random scan) types of data.
- ◆ Works for Spectrum Scanning (Sequential scanning) types of data.
- ◆ RS232 (single sensor) communication is standard.
- ◆ RS485 (multiple sensor) communication is available with the optional TCA-485 adapter.
- ◆ Electron energy and emissions controls are available for use with the Transpector XPR2 Gas Analysis System.
- ◆ Operates with WIN 95, WIN 98 or WIN NT.

### USING THE TRANSPLECTOR DDE DRIVER

To obtain data from another source, the client application will open a channel of communication to the server application by specifying a three-part DDE address. This address identifies an element of data by naming:

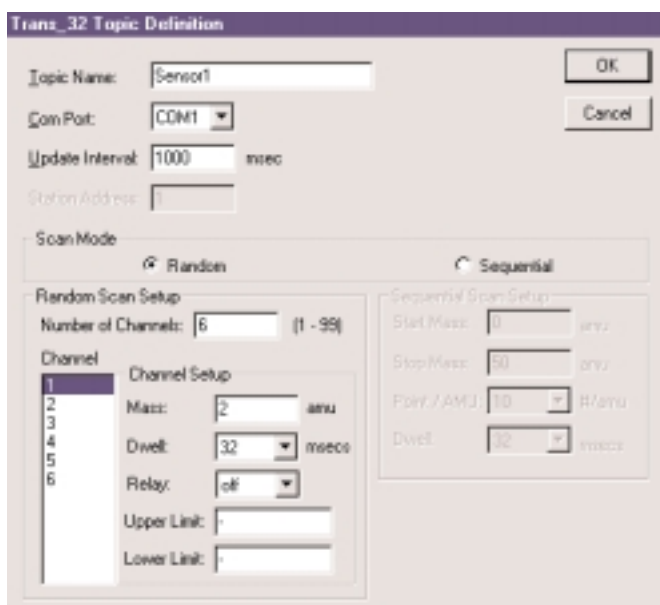
- ◆ the server's application name, which is the name of the Windows program that will be accessing the data.
- ◆ the topic name of interest, which identifies a specific device for DDE conversations.
- ◆ the item name, which is a specific data element within the specified topic.

Opening this channel allows items within the topic to be read or written. For example, when using Excel (the application name), the topic name will be the title of the spreadsheet containing the data and the item name will be the specific cell in the spreadsheet containing the data of interest.

## EXAMPLE USING THE 32-BIT DDE DRIVER WITH EXCEL

### DDE SETUP

Using the DDE driver with Excel can easily be demonstrated by opening a blank spreadsheet, invoking the DDE driver program, and writing a simple command to a cell. The DDE driver, configured as shown below, will set up six channels each representing a different mass (for instance 2, 4, 18, 28, 32, and 40) and dwell times (for example 32 ms). The DDE driver will then poll only these points in what is referred to as “random scanning.”



Transpector is a registered trademark of INFICON, Inc. All other trademarks are the property of their respective owners.

### EXCEL FORMULAS

The following commands are typed into a blank Excel spreadsheet that displays the mass in column A, and ion current value for that mass in column B. The formula in cell A1 turns on the Transpector emission.

	A	B
1	=Trans_32 Sensor1!Emission	
2	=Trans_32 Sensor1!Mass1	=Trans_32 Sensor1!Value1
3	=Trans_32 Sensor1!Mass2	=Trans_32 Sensor1!Value2
4	=Trans_32 Sensor1!Mass3	=Trans_32 Sensor1!Value3
5	=Trans_32 Sensor1!Mass4	=Trans_32 Sensor1!Value4
6	=Trans_32 Sensor1!Mass5	=Trans_32 Sensor1!Value5
7	=Trans_32 Sensor1!Mass6	=Trans_32 Sensor1!Value6

### EXCEL RESULT

Invoking these commands along with the DDE driver yields an Excel spreadsheet as shown in here:

	A	B
1	1	
2	2	4.11E-14
3	18	1.85E-13
4	28	1.37E-13
5	32	-6.2E-15
6	40	2.73E-10
7	44	3.64E-13

The value of “1” in cell A1 indicates that emission is “on.” Writing to that cell again would turn emission “off.”

Data collection is continuous for unattended operation and the data can then be further manipulated by the user to generate reports.

### WHY USE DDE?

Using the 32-bit DDE Driver with Transpector gas analysis instruments gives the user the added flexibility of continuous data collection or the option of incorporating the device into a common factory automation program. This feature enhances the usefulness of the RGA, making it a valuable system resource.



#### GLOBAL HEADQUARTERS:

Two Technology Place, East Syracuse, NY 13057 USA  
Tel: +315.434.1100 Fax: +315.437.3803 E-mail: reachus@inficon.com

UNITED STATES FRANCE GERMANY LIECHTENSTEIN SWITZERLAND UNITED KINGDOM CHINA JAPAN KOREA SINGAPORE TAIWAN  
Visit our website for contact information and other sales offices worldwide. [www.inficon.com](http://www.inficon.com)

aicb07a1 ©2001 INFICON Inc.