

# **GEMINI DDE Server**

for Microsoft Windows  
and InTouch Applications

**User Manual  
Ver 1.x Rev 1.4  
DR 100 05**

**KLINKMANN AUTOMATION  
P.O. Box 38  
FIN-00371 Helsinki Finland  
tel. int. + 358 9 5404940  
fax int. + 358 9 5413541  
[www.klinkmann.com](http://www.klinkmann.com)**

# Table of Contents

Main Principles .....	1
Installing the GEMINI DDE Server .....	2
Configuring the GEMINI Server .....	2
Configure Server Parameters Command .....	4
Configure Comm Port Command .....	6
Saving GEMINI Configuration File .....	8
Configuration File Location .....	8
Configure Topic Command .....	9
InTouch DDE Item/point Naming .....	11

# GEMINI DDE Server

## Main Principles

The **GEMINI DDE Server** is a 16-bit Microsoft Windows application program that acts as a DDE (Dynamic Data Exchange) *Server* and allows other Windows application programs to access the data from the GEMINI 2000 units with 20mA Current Loop Communication Option. (Up to sixteen GEMINI PLC units with 20mA serial communication capability can be connected together in the “loop”, if a 24V external current source is utilized. A maximum of seven units can be installed in the loop, if the Gemini’s 20mA current source is used). A GCM232 Serial Converter Module is available to convert the 20mA Current Loop signals to RS232 for connection to the *Host*. The *Server* is primarily intended for use with **Wonderware InTouch**, but it may be used by any Microsoft Windows program that is capable of acting as a DDE *Client*.

To obtain data from *Server* the *client* program (e.g. InTouch, Excel) must open a channel to the *Server* by specifying three things: the *Server application name* (**GEMINI**), the *topic name* (unique name for GEMINI PLC unit, e.g. **Unit1**) and the specific item name (e.g. **CNT**).

After the **GEMINI DDE Server** is configured it is waiting for the connection. If the connection is established (some DDE *Client* (e.g., InTouch) requests information from the *Server*), then the *Server* advises the GEMINI unit whenever a specific item's value changes. The following DDE Real items can be read from the GEMINI unit: PS1 (Preset 1), PS2 (Preset 2), CNT (Count) and SCF (Scale Factor). When DDE *Client* changes PS1, PS2 or SCF value, then the *Server* sends the corresponding value to the GEMINI unit. If DDE *Client* changes DDE Discrete item PRINT to 1 then the *Server* sends “Transmit per Print Options” command to the GEMINI 2000. It provides print-out of Preset, Scale Factor and/or Count value’s (the Print Options are selected by setting S4 and S5 on the Serial DIP Switch). If DDE *Client* changes DDE Discrete item RESET to 1 then the *Server* sends “Reset” command to the GEMINI 2000. It provides resetting of the Count Value and Outputs.

If the capacity of the display (6-digits) or the internal count capacity (9-digits) of the GEMINI unit is exceeded, the server resets the DDE Discrete item OVERFLOW value from 0 to 1. The *Server* ensures a configured timeout to any command, addressed to the GEMINI 2000 unit, after “Reset” or “Transmit per Print Options” command performance. After “Change Value” (write) command - the *Server* sends one “Transmit Value” (read) command to the GEMINI 2000 unit and waits a response during a configured timeout. If the *Server* has not received any data request, no one command is send to the GEMINI 2000 unit after “Change Value” (write) command, until configured timeout is over.

These data links will remain active until either the *client* or *server* program terminates the link or the conversation. If some error (invalid data format, no reply to read message after *reply timeout* is over) occurs then DDE Discrete item STATUS value is changed to 0.

So, with the GEMINI DDE Server, the following functions can be performed:

1. interrogation of the Count Value, Presets and Scale Factor;
2. changing of the Presets and Scale Factor;
3. resetting of the Count Value and Outputs;
4. print-out, when using a printer and the “Print Request” Terminal.

## Installing the GEMINI DDE Server

The GEMINI DDE Server installation package can be supplied:

1. As a self-extracting archive 10005xxx.EXE if downloaded from Klinkmann's web site (the xxx is the current (latest) version of the Server).
2. From installation on CD.
3. On two distribution disks (floppies).

To **install** the GEMINI DDE Server from the self-extracting archive, run the 10005xxx.EXE and proceed as directed by the GEMINI DDE Server Setup program.

To **install** the GEMINI DDE Server from CD or distribution disks (floppies), on MS Windows (NT, 2000, XP or 95 (98)):

1. Insert the CD with Klinkmann Software into CD drive or insert the GEMINI DDE Server disk into a floppy drive A: or B:.
2. Select the **Run** command under the **File** menu.
3. Run STARTUP.EXE if installing from CD or SETUP.EXE if installing from distribution disks (floppies).
4. If installing from CD: select "Protocol Servers (DDE, SuiteLink, OPC)", find "GEMINI DDE Server" and click on "Setup...".
5. Proceed as directed by the GEMINI DDE Server Setup program.

When installation is finished, the subdirectory specified as a folder where to install the GEMINI DDE Server will contain the following files:

<b>GEMINI.EXE</b>	The GEMINI DDE Server Program. This is a Microsoft Windows 16-bit application program.
<b>GEMINI.HLP</b>	The GEMINI DDE Server Help file.
<b>GEMINI.CFG</b>	An example configuration file.
<b>LICENSE.TXT</b>	Klinkmann Automation software license file.
<b>WWCOMDLG.DLL</b>	Dynamic Link Library necessary for GEMINI DDE Server.

To **uninstall** the GEMINI DDE Server, start Control Panel, select "Add/Remove Programs" and select the "GEMINI DDE Server" from the list of available software products. Click on "Add/Remove..." and proceed as directed by the UnInstallShield program.

### **Note:**

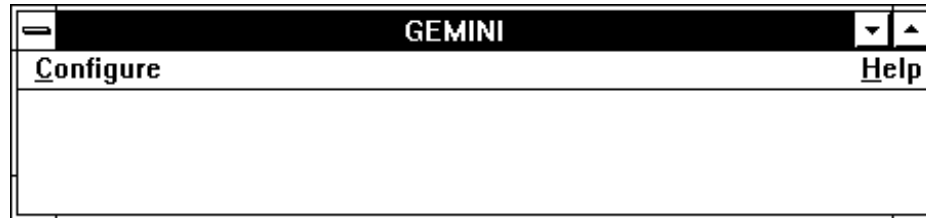
*The HASP key is needed for full time running of GEMINI DDE Server. The HASP Driver setup is performed during the Server setup. Without HASP Driver installed, the GEMINI DDE Server will run only 1 hour (with all features enabled).*

## Configuring the GEMINI Server

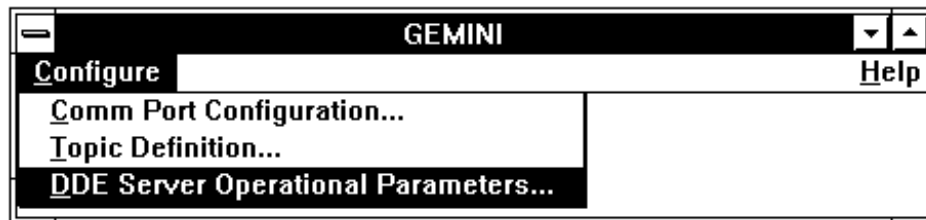
After the GEMINI Server is initially installed, a little of configuration is required. Configuring the Server automatically creates a **GEMINI.CFG** file which holds all configuration parameters. This file will be placed automatically in the same directory in which **GEMINI** is

located unless the path where the configuration file will be placed is specified via the */Configure/Server Parameters* command.

To perform the required configurations, start up the GEMINI program. If the Server starts up as an icon, double-click on the icon to open the server's window. The following will appear:



To access to the commands used for the various configurations, open the */Configure* menu:



## Configure Server Parameters Command

A number of parameters that control the internal operation of the Server can be set. In most cases, the default settings for these parameters provide a good performance and do not require changing. However, they can be changed to fine-tune the Server for a specific environment.

To change the Server's internal parameters, invoke the **DDE Server Operational Parameters** command. The "DDE Server Operational Parameters" dialog box will appear:

**DDE Server Operational Parameters**

---

**Configuration File Path**

C:\INTOUCH\

---

**Internal Server Parameters: Changing these parameters can adversely affect the server's performance. Use caution.**

80 Protocol Timer Tick (mSec)

60000 Time limit for data to be read from device (mSec)

1000 Internal DDE Timer Tick (mSec)

4096 DDE Block Size

---

OK Defaults Cancel

The following describes each field in this dialog box:

### Configuration File Path

The first field is used to specify the path (disk drive and directory) in which GEMINI will save its current configuration file. GEMINI will use this path to load the configuration file the next time it is started.

**Note:** Only the "path" may be modified with this field. The configuration file is always named **GEMINI.CFG**.

**Note:** There is no limit to the number of configuration files created, although each must be in a separate directory. When using the GEMINI Server with **InTouch**, it is a good practice to place the configuration file in the application directory.

### Protocol Timer Tick

This field is used to change the frequency at which the Server checks for work to do. For **GEMINI** hardware this should be 80 milliseconds or greater.

**Time Limit for Data to be Read From Device**

This field is used to specify the maximum time that the Server will wait while trying to read values from the **GEMINI** hardware before it reports a failure to the *Client* program. This parameter does not affect the performance of the Server in normal operation.

**Internal DDE Timer Tick**

The data entered in this field controls how often the Server performs various internal timing functions. It affects only error reporting, not normal performance.

**DDE Block Size**

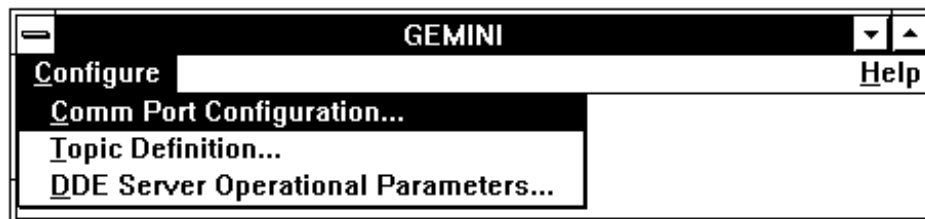
When the GEMINI DDE Server is working with Wonderware **InTouch**, it packs DDE Advice and Data Messages into blocks to improve throughput. This field is used to adjust the block size. The entry in this field has no effect on the operation of the Server with normal DDE aware applications.

If all entries have been made, click on **OK**. To reset the default values, click on **Defaults**.

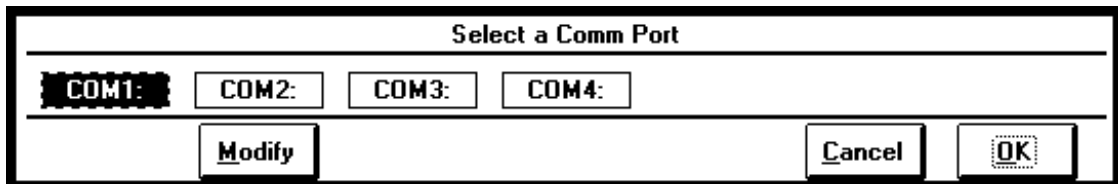
## Configure Comm Port Command

The communication parameters of RS-232C serial connection are: speed 300-2400 baud, 1 start bit, 7 ASCII data bits, 1 odd parity bit and 1 stop bit. Communication ports COM1...COM4 may be used.

To configure the **GEMINI** communication port, invoke the **Configure Communication Port** command.

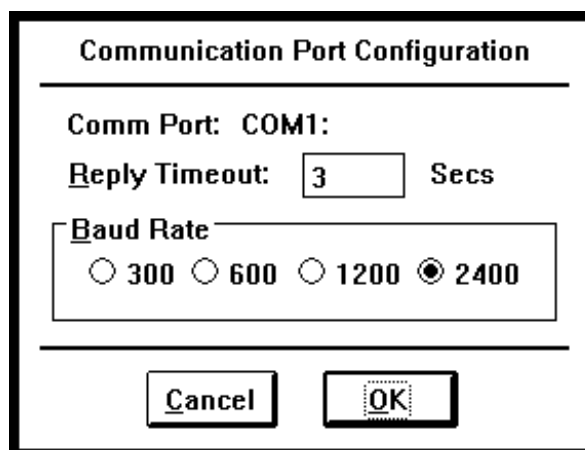


The "Select a Comm Port" dialog box will appear:



Select a communication port and click on **Modify** to examine the characteristics of the selected port.

The "Communication Port Configuration" dialog box will appear:



The following describes each dialog field in this dialog box:

**Reply Timeout**

This field is used to enter the amount of time (in seconds) the GEMINI unit using the selected communication port will be given to reply to commands from the Server.

**Note:** *The default value of 3 seconds should be sufficient for most configurations.*

**Baud Rate**

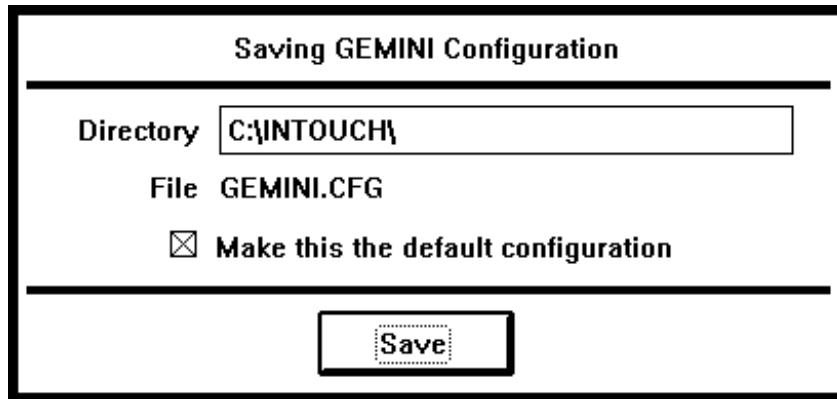
Select the Baud Rate setting that matches the setting chosen for the **GEMINI 2000** equipment.

*The default value is 2400.*

If all entries have been made, click on **OK**.

## Saving GEMINI Configuration File

If the configuration file does not currently exist, or a new configuration path has been specified, the Server will display the "Saving GEMINI Configuration" dialog box:



This dialog box displays the path where the Server is going to save the current configuration file. The path may be changed if necessary. Also, the path can be optionally recorded in the **WIN.INI** file by selecting the "**Make this the default configuration**" option. Doing so it will allow the GEMINI Server to find the configuration file automatically each time it is started.

## Configuration File Location

When the GEMINI Server starts up, it first attempts to locate its configuration file by, first checking the **WIN.INI** file for a path which was previously specified. If the path is not present in the **WIN.INI** file, the Server will assume that the current working directory is to be used.

To start the Server from an application directory configuration file other than the default configuration file, a special switch (**/d:**) is used. For example, invoke the **File/Run** command and enter the following:

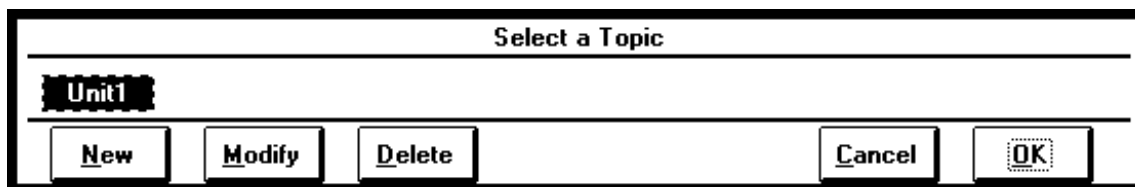
**GEMINI /d:c:\directoryname**

**Note:** *There is no limit to the number of configuration files that may be created, although each must be in a separate directory.*

## Configure Topic Command

The following steps are taken to define the Topic which is used as the DDE Topic:

1. Invoke the **Topic definition** command. The "Select a Topic" dialog box will appear:



2. To modify an existing topic, select the topic name and click on **Modify**. To define a new topic, click on **New**. The "GEMINI Topic Description" dialog box will appear:

3. Enter the **Topic Name** that corresponds to the DDE Topic Name. (The DDE Topic Name is entered in the "DDE Access Name Definition" dialog box in InTouch.)
4. Enter the value in the **Gemini Unit Address** field (each GEMINI Unit in a Loop must have its own unique node address). The Gemini Unit Address must be consistent with the address set on the hardware.
5. Set the **Update Interval** field to indicate the frequency the items/points on this topic will be read (polled).  
*The default value is 1000.*

6. Set the **Change Value Timeout** field to enter the amount of time (in milliseconds) the GEMINI unit will be given to perform the “Change Value” (write) command. During this timeout the *Server* will not send any command, addressed to the GEMINI unit. If the *Server* has received any data request, one “Transmit Value” (read) command will be sent to the GEMINI unit 80 milliseconds after “Change Value” command sending. In this case - the *Server* will wait a response to a “Transmit Value” command during a **Change Value Timeout**.  
*The default value is 400.*
7. Set the **RESET Timeout** field to enter the amount of time (in milliseconds) the GEMINI unit will be given to perform the “Reset” command. During this timeout the *Server* will not send any command, addressed to the GEMINI unit.  
*The default value is 125.*
8. Set the **PRINT Timeout** field to enter the amount of time (in milliseconds) the GEMINI unit will be given to perform the “Transmit per Print Options” command. During this timeout the *Server* will not send any command, addressed to the GEMINI unit. Enter the appropriate **PRINT Timeout** value, according to your hardware configuration.  
*The default value is 1000.*
9. Enter a value in the **Scale Multiplier** field. If the Client needs to operate with the *internal (in the GEMINI unit) rate values*, enter Scale Multiplier value consistent with the setting in the PLC unit internal program (see “GEMINI 2000 Instruction Manual”, Programming instruction code 45). In this case, if any value is read, the *Server* gets from the GEMINI unit displayed rate value, but sends to the Client internal rate value (received value divided by the Scale Multiplier). If value is poked to GEMINI unit, the *Server* receives from the Client internal value, but displayed rate value is used in communication with PLC unit.  
If the Client application needs to operate with *displayed rate values*, enter value “1” into the Scale Multiplier field in any case. To select a Scale Multiplier value, click on the combo box button and make your choice from list box. The following are possible choices: 1, 0.1, 0.01 and 0.001.  
*The default value is 1.*
10. Set the **Decimal Point Placement** field; click on the combo box button and make choice from list box. The combo box illustrates 6 modes of decimal point placement with leading zero blanking, as well as 6 modes with inhibited leading zero blanking. Your choice must be consistent with the PLC internal programming code 46 value setting in the GEMINI unit internal program (see “GEMINI 2000 Instruction Manual”, Programming instruction code 46).  
*The default value is: Programming Code 46 value 1 - leading zero blanking, decimal point absent.*
11. Click on the **Comm Port** button to associate a communication port with the topic. (Additional topics may be associated with the same communication port at a later time.) **Note:** *If this is the first time a comm port has been configured, the user will be prompted to save it to an existing directory.*

If all entries have been made, click on **OK**.

## InTouch DDE Item/point Naming

**PRINT** - DDE Discrete (Write Only), used for "Transmit per Print Options" (P) command sending; if it switches from 0 to 1, then P command will be sent to GEMINI 2000; the various Print Options are:

1. Print Count Value Only;
2. Print Count Value & Presets;
3. Print Count Value & Scale Factor;
4. Print Count Value, Presets & Scale Factor.

The Print Options are selected by setting S4 and S5 on the Serial DIP Switch (see "GEMINI 2000 Instruction Manual");

**RESET** - DDE Discrete (Write Only), used for "Reset" (R) command sending; if it switches from 0 to 1, then R command will be sent to the GEMINI 2000, resetting of the Count Value and Outputs will be performed;

**OVERFLOW** - DDE Discrete (Read Only), used to indicate, that the capacity of the display (6-digits) or the internal count capacity (9-digits) of the GEMINI unit is exceeded; if the response string from the GEMINI unit contains an asterisk (Count value overflow indicator), the server resets the DDE Discrete item OVERFLOW value from 0 to 1;

**PS1** - DDE Real (Read/Write), used for Preset 1 value reading or sending to the GEMINI 2000;

**PS2** - DDE Real (Read/Write), used for Preset 2 value reading or sending to the GEMINI 2000;

**CNT** - DDE Real (Read Only), used for Count Value reading from the GEMINI 2000;

**SCF** - DDE Real (Read/Write), used for Scale Factor value reading or sending to the GEMINI 2000.

---

KLINKMANN AUTOMATION  
GEMINI DDE Server  
Revision History

Nov. 94	Rev 1.0	First Release.
Feb. 95	Rev 1.1	Time-out settings for write commands added.
Sept 96	Rev 1.2	Modification of manual contents Chapters: Files on the GEMINI Distribution Diskette Installing the GEMINI DDE Server
Aug 97	Rev 1.3	Minor changes. Manual file name changed.
Mar 2002	Rev 1.4	Installation from CD information added.