

---

Version 8.0

# VisSim/UDP User's Guide

By Visual Solutions, Inc.

---

**Visual Solutions, Inc.**

**VisSim/UDP User's Guide Version 8.0**

Copyright	© 2010 Visual Solutions, Inc. All rights reserved.	Visual Solutions, Inc. 487 Groton Road Westford, MA 01886
Trademarks	VisSim, VisSim/Analyze, VisSim/CAN, VisSim/C-Code, VisSim/C-Code Support Library source, VisSim/Comm, VisSim/Comm C-Code, VisSim/Comm Red Rapids, VisSim/Comm Turbo Codes, VisSim/Comm Wireless LAN, VisSim/Fixed-Point, VisSim/Knobs & Gauges, VisSim/Model-Wizard, VisSim/Motion, VisSim/Neural-Net, VisSim/OPC, VisSim/OptimizePRO, VisSim/Real-TimePRO, VisSim/State Charts, VisSim/Serial, VisSim/UDP, VisSim Viewer, and flexWires are trademarks of Visual Solutions. All other products mentioned in this manual are trademarks or registered trademarks of their respective manufacturers.	
Copyright and use restrictions	The information in this manual is subject to change without notice and does not represent a commitment by Visual Solutions. Visual Solutions does not assume any responsibility for errors that may appear in this document.  No part of this manual may be reprinted or reproduced or utilized in any form or by any electronic, mechanical, or other means without permission in writing from Visual Solutions. The Software may not be copied or reproduced in any form, except as stated in the terms of the Software License Agreement.	
Acknowledgements	The following engineers contributed significantly to preparation of this manual: Mike Borrello, Allan Corbeil, and Richard Kolk.	

---

# Contents

- Introduction** **1**
  - The VisSim product family ..... 1
  - Resources for learning VisSim/Serial ..... 3
    - Interactive webinars ..... 3
    - Sample diagrams ..... 3
    - Training ..... 3
  
- Installing VisSim/UDP** **5**
  - Installation procedure ..... 5
  - UDP device driver ..... 5
  
- Using VisSim/UDP** **7**
  - UDP Read block ..... 7
  - UDP Write block ..... 8
  
- Index** **11**



# Introduction

VisSim/UDP add-on module interfaces with a standard Ethernet port on a PC that can be connected to any other ethernet device. Using VisSim/UDP, you can exchange data between VisSim and any UDP device.

---

## The VisSim product family

The VisSim product family includes several base products and product suites, as well as a comprehensive set of targeted add-on modules that address specific problems in areas such as data communications, data acquisition, linearization and analysis, and digital signal processing.

### Base products and product suites

Product	Function
Professional VisSim	<p>Model-based design, simulation, testing, and validation of dynamic systems.</p> <p>A personal version, VisSim PE, is also available. VisSim PE limits diagram size to 100 blocks.</p>
VisSim/Comm Suite	<p>Simulates end-to-end communication systems at the signal level using 200+ communications, signal processing, and RF blocks.</p> <p>Includes Professional VisSim and VisSim/Comm blockset.</p> <p>A personal version, VisSim/Comm Suite PE, is also available. VisSim/Comm PE limits diagram size to 100 blocks and limits the Communication blockset. See the VisSim/Comm datasheet for details.</p> <p>VisSim/Comm Suite add-on modules are available for real-time data acquisition (Red Rapids digital tuner card); modeling PCCC turbo codes, including UMTS specification; and for support of Bluetooth, 802.11 a/b/g (Wi-Fi), and ultrawideband wireless designs.</p>
VisSim/Embedded Controls Developer Suite	<p>Rapidly prototypes and creates embedded controls for DSPs, DSCs, and MSP430 microcontrollers. You can simulate and generate scaled, fixed-point ANSI C code, as well as code for on-chip peripherals.</p>

	<p>Includes Professional VisSim, VisSim/C-Code, VisSim/Fixed-Point, and one user-specified target support.</p> <p>A personal version, VisSim/Embedded Controls Developer PE, is also available. VisSim/Embedded Controls Developer PE limits diagram size to 100.</p>
VisSim Viewer (free)	Lets you share VisSim models with colleagues and clients not licensed to use VisSim.

### Add-on modules

Add-On Module	Function
VisSim/Analyze	Performs frequency domain analysis of a linearized nonlinear subsystem.
VisSim/CAN	Interfaces with a USB CAN device to read and write CAN messages on the CAN bus.
VisSim/C-Code	Generates highly-optimized, ANSI C code that can be compiled and run on any platform that supports an ANSI C compiler.
VisSim/C-Code Support Library Source	Provides source code for the Support Library.
VisSim/Comm blockset	<p>Simulates end-to-end communication systems at the signal level using 200+ communications, signal processing, and RF blocks.</p> <p>A personal version, VisSim/Comm PE, is also available. VisSim/Comm PE is a subset of the Communication blockset. See the VisSim/Comm datasheet for details</p> <p>You can purchase VisSim/Comm add-on modules for real-time data acquisition (Red Rapids digital tuner cards); for modeling PCCC turbo codes, including UMTS specification; for support of Bluetooth, 802.11 a/b/g (Wi-Fi), and ultrawideband wireless designs.</p>
VisSim/Fixed-Point	Simulates the behavior of fixed-point algorithms prior to code generation and implementation of the algorithm on the fixed-point target.
VisSim/Knobs and Gauges	Provides dynamic gauges, meters, and knobs for process control, and measurement and validation systems.
VisSim/Model-Wizard	Generates transfer function model from historic or real-time data.
VisSim/Motion	Simulates motor control systems with customizable amplifiers, controllers, filters, motors, sensors, sources, tools, and transforms.
VisSim/Neural-Networks	Performs nonlinear system identification, problem diagnosis, decision-making prediction, and other problems where pattern recognition is important.
VisSim/OPC	Connects to any OPC server and log data or run a virtual plant in VisSim for offline tuning.
VisSim/OptimizePRO	Performs generalized reduced gradient method of parameter optimization.
VisSim/Real-TimePRO	Performs real-time data acquisition and signal generation

	using I/O cards, PLCs, and DCSs.
VisSim/Serial	Performs serial I/O with other computers.
VisSim/State Charts	Creates, edits, and executes event-based systems.
VisSim/UDP	Performs data exchange over the internet using UDP.
VisSim Viewer (free)	Lets you share VisSim models with colleagues and clients not licensed to use VisSim.

---

## Resources for learning VisSim/Serial

For those of you that are new to VisSim, we have provided several free services to make your transition to VisSim fast, smooth, and easy:

### Interactive webinars

Interactive webinars offer you the opportunity to meet with Visual Solutions product specialists who will introduce and demonstrate our software products live on your computer and answer any questions you have. Each webinar is approximately 45 minutes long. To learn more about our interactive webinars, go to <http://www.vissim.com/webinars/webinars.html>.

### Sample diagrams

VisSim 8.0 includes a directory of fully documented sample diagrams. These diagrams illustrate both simple and complex models spanning a broad range of engineering disciplines, including aerospace, biophysics, chemical engineering, control design, dynamic systems, electromechanical systems, environmental systems, HVAC, motion control, process control, and signal processing.

#### To access sample diagrams

Click on the **Diagrams** menu in VisSim.

Click on **Examples > Applications**.

### Training

Visual Solutions offers training sessions for learning and gaining expertise in VisSim and the VisSim family of add-on products. Training sessions are conducted at Visual Solutions training facility in Westford, MA, as well as at customer sites and as online webinars.

For information on setting up a training session, contact [sales@vissol.com](mailto:sales@vissol.com).



# Installing VisSim/UDP

This section contains...

---

## Installation procedure

### To install VisSim/UDP

- Run **setupVisSimUDP80.exe**.

At the completion of the installation the VisSim/UDP add-on will appear in the Addons window for the Edit > Preferences > Addons command, and the VisSim/UDP blocks will appear in the Blocks > Real-Time menu.

---

## UDP device driver

VisSim/UDP works with the standard ethernet device. It uses the native WinSock drivers. No additional driver installation is required.

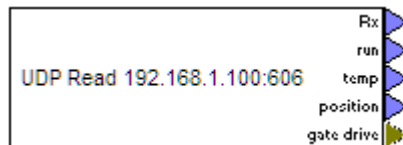


# Using VisSim/UDP

This section contains...

---

## UDP Read block



The UDP Read block reads data from the UDP bus.

**VisSim UDP Read Block Properties**

Host Name or IP address:

UDP port:

Data Pins:  Packet Byte Size:

Data Element Type

Pin:  Type:

Radix Point:  Word Size:

Byte offset into packet:

**IP address:** Specifies IP address or Host name of target.

**UDP Port:** Specifies the port to exchange data. It recommended to use ports > 49151.

**Data Pins** Specifies the number of input pins (128 max).

**Packet Byte Size:** Specifies the size of packet to be read. (512 bytes max).

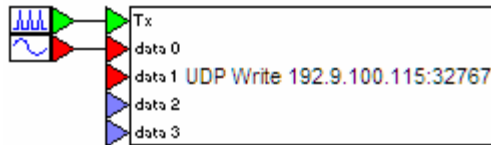
**Data Element Type:** Controls data type of each output pin, and offset into packet..

**Pack Offsets:** Iterates over all pins and assigns consecutive ascending offsets to each pin.

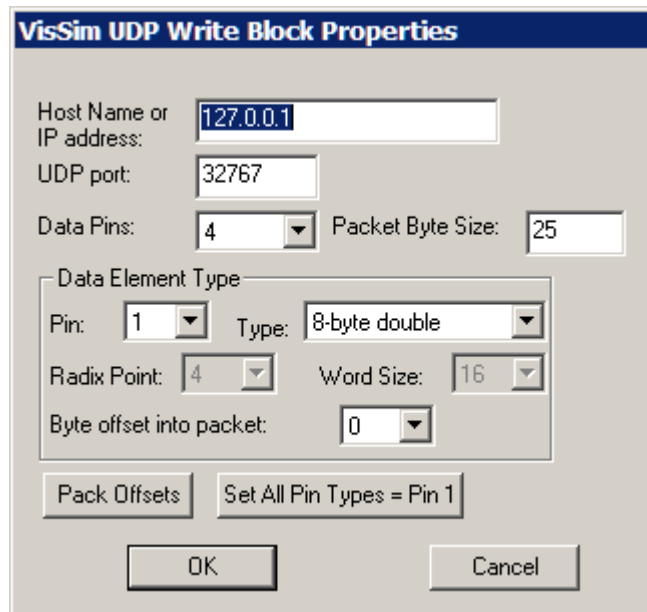
**Set All Pin Types = 1:** Sets data type of all pins to be same as pin 1, and then does a Pack Offset.

---

## UDP Write block



The UDP Write block writes data to the UDP port on the ethernet. The top “Tx” pin must have the value 1 in order for the block to send data. The subsequent pins are data pins. The values presented on the data pins sent to the UDP port.



**Host Name or IP address:** Specifies IP address or Host name of target.

**UDP Port:** Specifies the port to exchange data. It recommended to use ports > 49151.

**Data Pins:** Specifies the number of input pins (128 max).

**Packet Byte Size:** Specifies the size of packet to be written (512 bytes max).

**Data Element Type:** Controls data type of each output pin, and offset into packet.

**Pack Offsets:** Iterates over all pins and assigns consecutive ascending offsets to each pin.

**Set All Pin Types = 1:** Sets data type of all pins to be same as pin 1, and then does a Pack Offset.





# Index

## I

Installation procedure 5  
Installing VisSim/UDP 5  
Interactive webinars 3  
Introduction 1

## R

Resources for learning VisSim/Serial 3

## S

Sample diagrams 3

## T

The VisSim product family 1  
Training 3

## U

UDP device driver 5  
UDP Read block 7  
UDP Write block 8  
Using VisSim/UDP 7