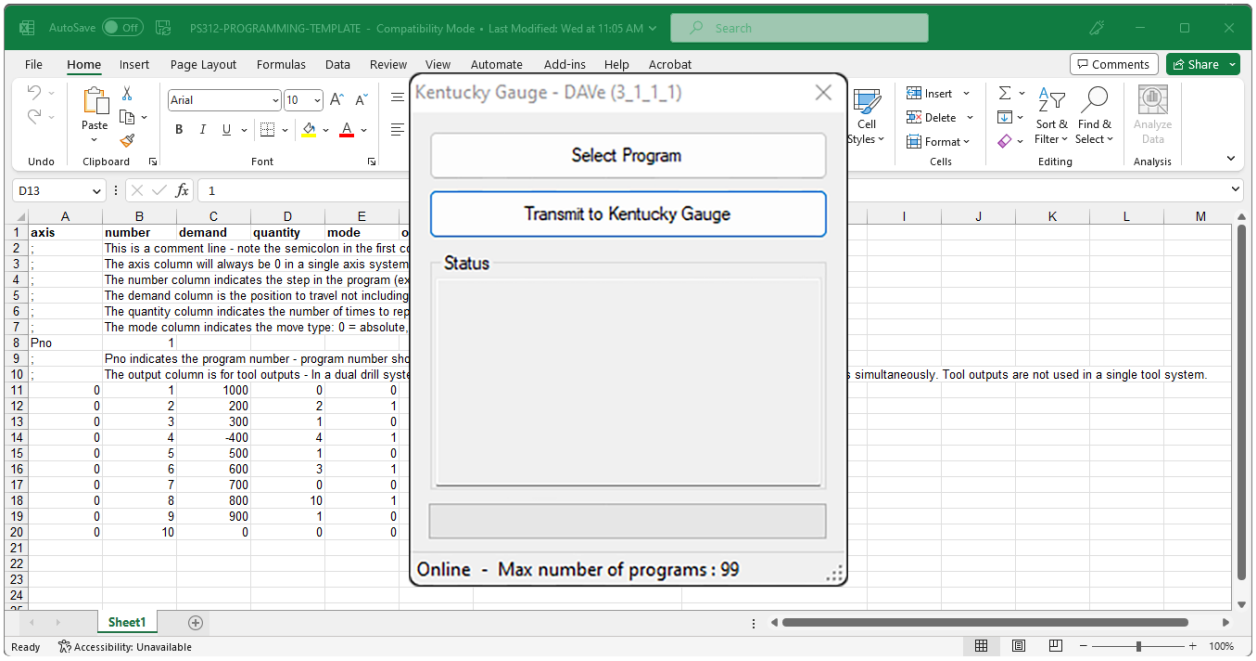

DAVE - DEVICE **A**PPLICATION AND **VE**RIFICATION PROGRAM AND CUT LIST DOWNLOADING USER MANUAL

Version 2023-3

kentuckygauge.com

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1. Introduction

DAVe stands for **D**evice **A**pplication and **Ve**rification and is used to transmit programs and cut lists to Kentucky Gauge PS312 controllers from a connected or networked PC. The programs can be written in Microsoft Excel and similar programs using the PS312 Programming Template included with the DAVe software package.

DAVe is an Active X DLL that transmits demand values and quantities to the PS312 controllers.

1.1. Requirements

Minimum PC Requirements

Operating System: Windows XP or newer
CPU: 100 MHz or faster
Storage: 1.0 MB of available storage space
.NET Framework: 2.0 or newer

Component Requirements

1. Kentucky Gauge PS312 Controller

2. Kentucky Gauge PS312-to-PC cable (also referred to as DAVe cable). This cable was provided with your original Kentucky Gauge controller shipment.

   New cables can be purchased by contacting your Kentucky Gauge sales representative.

3. Windows-based PC with one available serial port or USB 2.0 or higher port.
   If no serial port is available, a USB-to-RS232 adapter can be used in conjunction with the DAVe cable supplied by Kentucky Gauge. A USB-to-RS232 adapter using the FTDI chipset is recommended.

4. Software capable of working with .xls worksheet files, such as Microsoft Excel, Google Sheets, or OpenOffice Calc.

2. Setup

2.1. Download and Installation

The DAVe software package can be downloaded from the Kentucky Gauge website at https://www.kentuckygauge.com/product-manuals/.

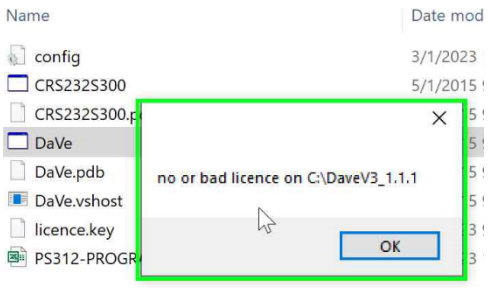
The DAVe software package consists of a zip file that includes the installation files and a programming template.

1. Download the DAVe setup zip file and extract the contents to your preferred location. The DAVe file can function from any location, including networked locations as long as it can establish a connection with your Kentucky Gauge controller.

2. Open the DAVe.exe application file. You will be immediately notified that your license file is invalid and needs to be activated.

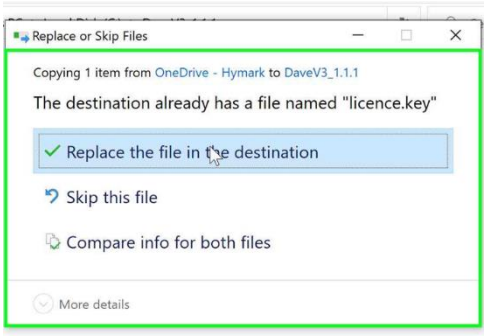
   A 'licence.key' file will be created in your DAVe folder.

   Send a copy of your 'licence.key' file to info@hymark.net for activation.



3. Once you receive your activated license file, paste it into your DAVe folder, overwriting the existing license file.

   After replacing the license file, your installation of the DAVe software will be complete.



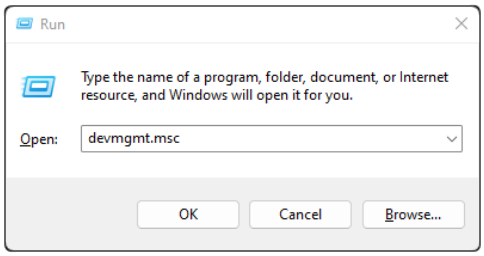
2.2. Communication Setup

Before opening DAVe again, you will need to modify the configuration file to setup the correct communication settings. You will need to determine which COM port your PC has assigned to the DAVe cable. The COM port can be viewed using Device Manager.

1. Connect your Kentucky Gauge controller to your PC via your DAVe cable (and USB-to-RS232 if applicable), and power on the controller.

2. Press the [Windows-Logo]+[R] key combination on your keyboard to open the Run command interface.

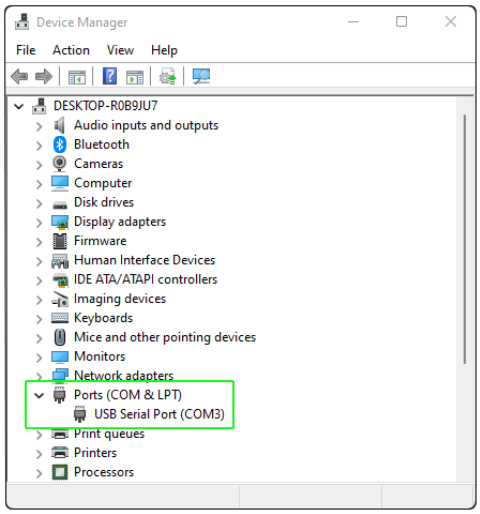
   Type devmgmt.msc and press OK or hit the enter key. Device Manager will open.



3. Locate 'Ports (COM & LPT)' in the list of devices and expand the Ports drop down list.

   Find your serial connection or USB connection and note the port number. In this example, we are using an RS232-to-USB adapter at COM3.

   Depending on your Windows settings, you may need to select View from the menu bar and choose "Show hidden devices" to view Ports (COM & LPT).



4. Once you've identified the COM port being used, open the DAVe configuration file (config.ini) in a text editor, such as Notepad, and locate the 'COMMPORT' setting. The default setting is 1 and you'll need to update the number to your COM port number.

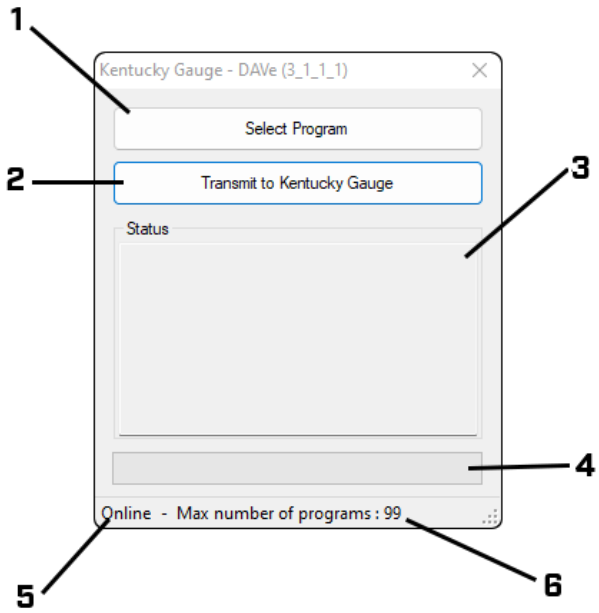
   Once updated, save and close the configuration file. Open the DAVe software to confirm communication can be established with the controller.

```
[PROGRAM]
DEVICE_TYPE=Kentucky Gauge controller
APPLICATION=2           ;0 = form invi
LANGUAGE=ENGLISH
FORMAT=EXCEL
DECIMAL=0           ;Automatically adds
COMMPORT=3
COMMUNICATION=9600,N,8,1            ;K
LOGFILEPATH=
EXCHANGEPATH=
EXCHANGEFILENAME=CommTest.xls
EXTENDED=0
TRANSFER=50
WAIT=100            ;100 ms = default
CONFIGMODE=0
```

3. User Interface

Before opening the DAVe software, you will need to have the Kentucky Gauge controller connected to your PC with the controller powered on.

The DAVe interface was created with the user and machine operator in mind. It's simplified to make learning and operating the software very easy.



1 Select Program button: selects the spreadsheet you wish to transmit to the controller.

2 Transmit button: transmits the selected program to the controller.

3 Status box: provides status information to let you know what the software is doing in the background. The status box also provides error information.

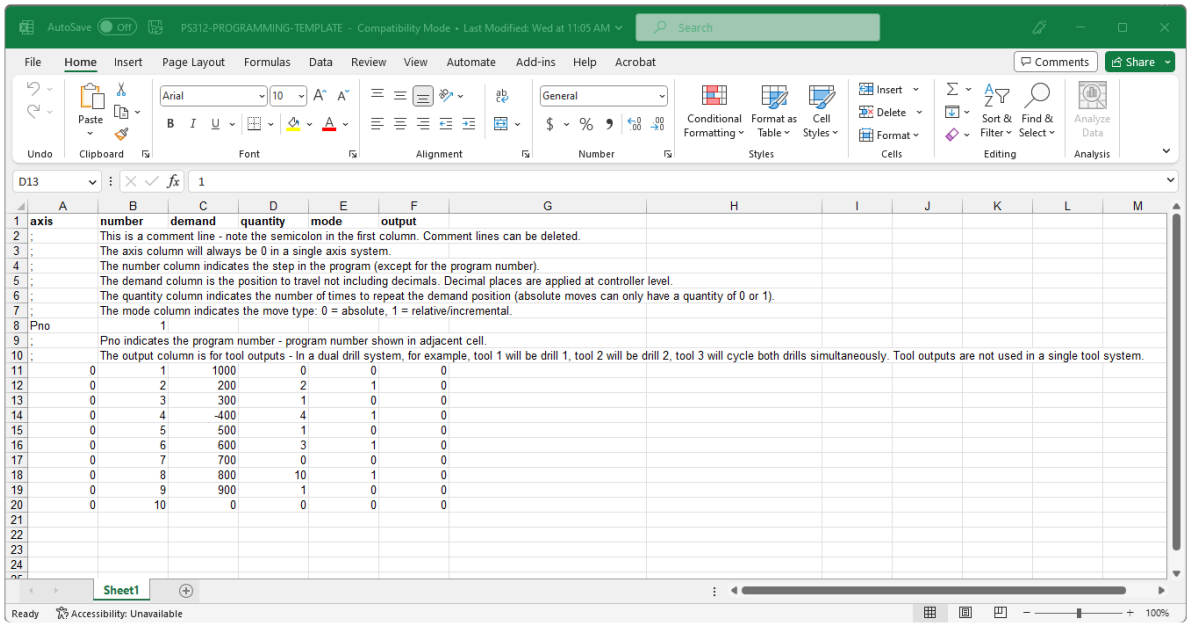
4 Progress bar: displays the progress of the current program transmission.

5 Connection indicator: lets the user know if the software established a connection with the controller.

6 Max program indicator: displays the maximum number of programs that the controller is setup to store. This number can be changed within the controller parameter settings. Refer to your PS312 controller manual for more information.

4. Writing a Program

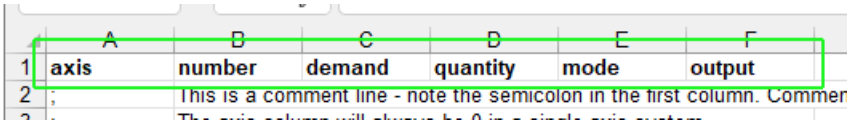
4.1. Programming template



	A	B	C	D	E	F
1	axis	number	demand	quantity	mode	output
2	;	This is a comment line - note the semicolon in the first column. Comment lines can be deleted.				
3	;	The axis column will always be 0 in a single axis system.				
4	;	The number column indicates the step in the program (except for the program number).				
5	;	The demand column is the position to travel not including decimals. Decimal places are applied at controller level.				
6	;	The quantity column indicates the number of times to repeat the demand position (absolute moves can only have a quantity of 0 or 1).				
7	;	The mode column indicates the move type: 0 = absolute, 1 = relative/incremental.				
8	Pno	1				
9	;	Pno indicates the program number - program number shown in adjacent cell.				
10	;	The output column is for tool outputs - In a dual drill system, for example, tool 1 will be drill 1, tool 2 will be drill 2, tool 3 will cycle both drills simultaneously. Tool outputs are not used in a single tool system.				
11	0	1	1000	0	0	0
12	0	2	200	2	1	0
13	0	3	300	1	0	0
14	0	4	-400	4	1	0
15	0	5	500	1	0	0
16	0	6	600	3	1	0
17	0	7	700	0	0	0
18	0	8	800	10	1	0
19	0	9	900	1	0	0
20	0	10	0	0	0	0

The included programming template is laid out to provide quick and simple writing of new programs. It is recommended to modify the programming template for each new program you create. However, new spreadsheets can be started from scratch as needed if some basic rules are followed:

- The first row of the spreadsheet must remain the same. This is used as a header row to identify the columns.



	A	B	C	D	E	F
1	axis	number	demand	quantity	mode	output
2	;	This is a comment line - note the semicolon in the first column. Commer				

axis The axis column identifies which axis the program step will apply. Most Kentucky Gauge systems are single axis systems, so the axis column will almost exclusively remain 0 for all program steps.

number The number column indicates the step in the program you are creating. The first step always begins with 1.

1 = step 1
2 = step 2
…

demand The demand column sets the “drive to” dimension. This will tell the Kentucky Gauge system the distance/measurement to drive.

The demand column must always be a whole number and will either be positive or negative to dictate which direction to drive.

The decimal is automatically added at the controller level and the number of decimal places is determined by the display resolution setting in your controller parameters. For example, if your controller is set to display in inches with 3 decimal places, '1000' in the demand column will set the demand position to 1.000".

1000 = 1.000
200 = 0.200
300 = 0.300
-400 = -0.400
…

quantity The quantity column sets the number of times to repeat the step in the program and send the position reached output (remote cycle start).

Absolute move types can only have a quantity of 0 or 1.
Relative/incremental move types can have a quantity up to 99.

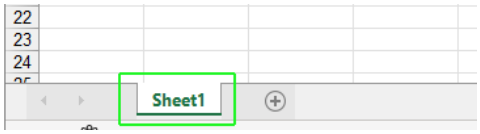
mode The mode column sets the move type.
0 = absolute move type
1 = relative/incremental move type

output The output column selects which tool output to cycle after the demand position is reached.

Most Kentucky Gauge length stops and pusher systems will not use tool outputs, therefore, the output column will be zero.

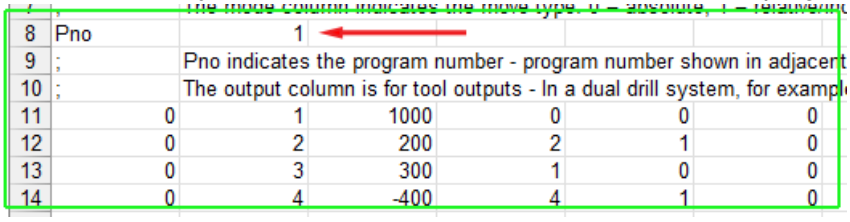
If your Kentucky Gauge system is used to cycle multiple tools/processes separately, please refer to your controller manual for tool output wiring and functions.

- The sheet name must match the setting in the configuration file. The default name in the configuration file is 'Sheet1'.



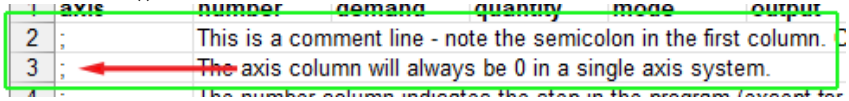
**The sheet name can be changed in the DAVe configuration file if another sheet name is preferred.*

- The program number is indicated with 'Pno' in the first column and the target program number in the adjacent column. These must be listed before the program steps.



8	Pno	1				
9	;	Pno indicates the program number - program number shown in adjacent				
10	;	The output column is for tool outputs - In a dual drill system, for exampl				
11	0	1	1000	0	0	0
12	0	2	200	2	1	0
13	0	3	300	1	0	0
14	0	4	-400	4	1	0

- Comment lines can be added and deleted as needed. All comments must begin with a semicolon (;).



4.2. Tips and tricks

1. Cut list optimization

Cut list optimization is a process which significantly reduces wasted material when cutting parts from stock. Optimizing your cut list prior to writing a program will set the most efficient cut order to maximize stock usage and minimize the remnant lengths.

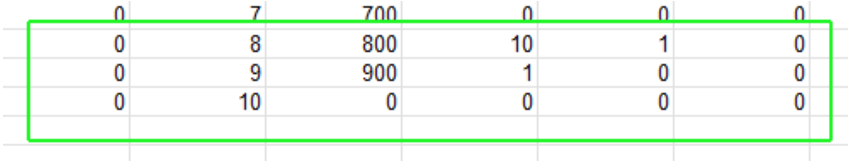
In addition to minimizing raw material waste, optimization saves time, minimizes production costs, improves manufacturing productivity, and can help reduce the environmental impact of manufacturing products.

There are many Excel add-ins that can be utilized to automatically optimize your cut lists based on user inputted information, such as stock lengths, stock quantities, cut lengths, cut quantities, and more. 1DCutX from Optimalon Software is a robust cut list optimizer add-in for Excel that many Kentucky Gauge users prefer.

2. Overwriting existing programs

It is possible to overwrite existing controller programs regardless of how many program steps are in the new program or in the existing program.

When creating a new program, always make the final program step in your spreadsheet an absolute move of 0 with a quantity of 0. This indicates the end of the program. When the controller gets to this step, it will end the program and ignore any additional program steps that were written in the previous program.



0	7	700	0	0	0
0	8	800	10	1	0
0	9	900	1	0	0
0	10	0	0	0	0

3. Connect your controller to your network

Connecting your controller to your network will allow project engineers or production managers to create the cut lists and transmit the programs over the network to the shop floor. In addition, it also keeps operators involved in their normal daily tasks – setting up machines, making parts, etc.– without slowing down productivity.

The controller can be connected using a Serial-to-IP converter, such as the 1-Port Serial-to-IP Ethernet Device Server from StarTech.

4. **Save programs under customer folders or project names**

   Using a connected PC will allow unlimited programs to be stored and organized into customer-specific or project-specific storage locations.

   Programs can then be easily found and re-transmitted for returning customers or repeat orders.

5. **Transmit daily or weekly programs**

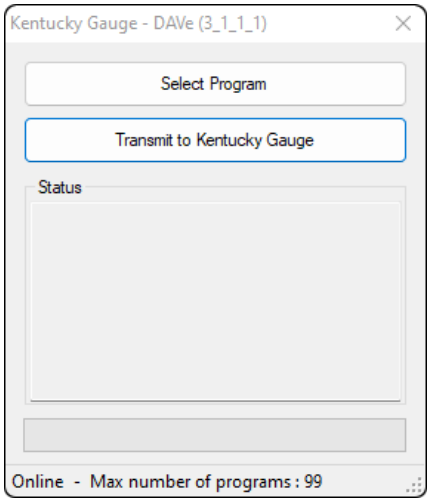
   Begin each shift or week by transmitting all programs required for the current/upcoming objectives. This can help increase productivity, allow team members to stay on task, and provides a method for measuring progress and performance.

6. **Transmit programs while operators are running programs**

   The DAVe software can transmit new programs while operators are currently using the controllers as long as two conditions are met:

   1. The program being transmitted does not use the same program as the program currently being utilized on the shop floor.
   2. The controller's software version is 64 or higher.

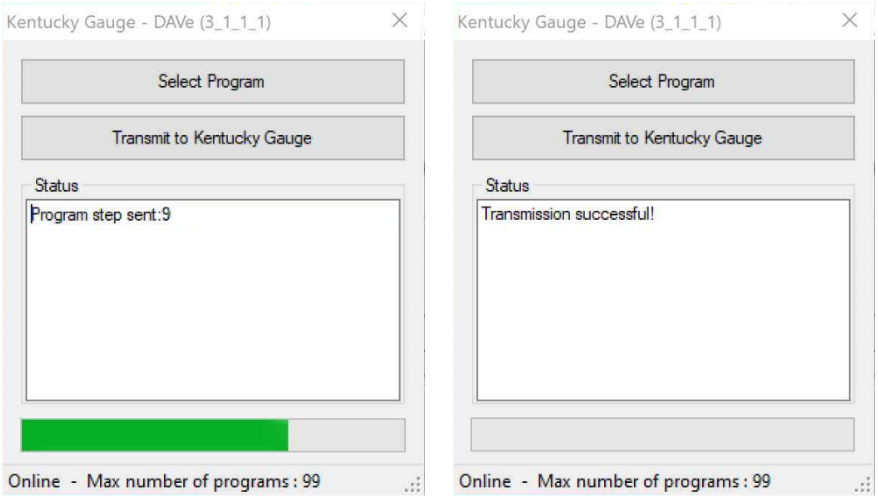
5. Transmitting a Program



1. Click the 'Select Program' button to search for a program to transmit to the controller. This will open your PC's file explorer. Navigate to your program and select open.

   Once the selected program is chosen, the DAVe software will scan the file and perform an automatic file verification. Once completed, you will see a message in the status box stating file verification is complete.

2. Click the 'Transmit to Kentucky Gauge' button to transmit the program to the controller. The status box will display the program steps being transmitted in order and the progress bar will display a graphical progress indicator.



3. Once the transmission is complete, you can immediately repeat the process as many times as needed to transmit programs.

6. Troubleshooting

An error report is automatically created in your DAVe folder when the DAVe software reports an error. It is recommended to review the error log when attempting to resolve any issues.

Problem	Solution
Error message: Could not find Kentucky Gauge controller! Verify COM port is set correctly in the DAVe config file.	The COM port set in the DAVe configuration file does not match the COM port assigned to your DAVe cable. Open your PC's Device Manager to confirm the COM port number and update the DAVe configuration file.
Error message: ERROR: PS312 not found. Controller must be powered on to establish connection.	The connected controller is not powered on.
Error message: Incorrect format detected. Error reading data in row #.	An invalid character was found in the specified row. Remove invalid character.
Error message: Max program number exceeded.	The program number being sent to the controller is higher than the number of programs allowed for your controller. The max number of programs for your controller is adjustable within the controller parameter settings. Change the program number in your spreadsheet or increase the number or programs in your parameter settings.

7. User Agreement

IMPORTANT- PLEASE READ CAREFULLY: by installing the DAVe software, you (either on behalf of yourself as an individual or on behalf of an entity as its authorized representative) agree to all of the terms of this end user license agreement ('agreement') regarding your use of the software. If you do not agree with all of the terms of this agreement, do not proceed with installation.

1. GRANT OF LICENSE: Subject to the terms below, Hymark Ltd hereby grants you a non-exclusive, non-transferable license to install and to use DAVe ('Software').

Under this license, you may: (I) install and use the Software on a single computer for your personal, internal use (II) copy the Software for back-up or archival purposes. (III) You may not distribute the software to others without first obtaining the required licenses, where applicable.

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5. LIMITATION OF LIABILITY: You use this program solely at your own risk. In no event shall Hymark Ltd be liable to you for any damages, including but not limited to any loss, or other incidental, indirect or consequential damages of any kind arising out of the use of the software, even if Hymark Ltd has been advised of the possibility of such damages. In no event will Hymark Ltd be liable for any claim, whether in contract, tort, or any other theory of liability, exceed the cost of the software. This limitation shall apply to claims of personal injury to the extent permitted by law.

6. TERMINATION: This Agreement shall terminate automatically if you fail to comply with the limitations described in this Agreement. No notice shall be required to effectuate such termination. Upon termination, you must remove and destroy all copies of the Software.

7. MISCELLANEOUS:

Severability.
In the event of invalidity of any provision of this Agreement, the parties agree that such invalidity shall not affect the validity of the remaining portions of this Agreement.

Export.
You agree that you will not export or re-export the Software outside of the jurisdiction in which you obtained it without the appropriate United States or foreign government licenses.

Governing Law.
This Agreement will be governed by the laws of the State of Kentucky as they are applied to agreements between Kentucky residents entered into and to be performed entirely within Kentucky. The United Nations Convention on Contracts for the International Sale of Goods is specifically disclaimed.

Entire Agreement.
You agree that this is the entire agreement between you and Hymark Ltd, which supersedes any prior agreement, whether written, or oral, and all other communications between Hymark Ltd and you relating to the subject matter of this Agreement.

Reservation of rights.
All rights not expressly granted in this Agreement are reserved by Hymark Ltd.

8. Support

Technical Support

Let us know how we can help! Our support technicians look forward to helping you with your Kentucky Gauge equipment.

Please have your error report available.

By phone
270-228-2817

By email
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