HazSim Pro 1.0 User Manual

3.20.2019 V1.2

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1. Overview

The original HazSim Pro (v1) system is made up of three main parts. The server, the LAN, and the Hazsim handheld. The system is contained with all accessory cords and a confined space probe in a Pelican case.

Figure 01: Components of the HazSim Pro 1.0 system.

The Dual Pro 1.0 system will include two handhelds.

1.1 HazSim Server

Convertible laptop or tablet with touch screen is used by the instructor to control the HazSim handheld meter. If your system is the convertible laptop it can be used with the keyboard in laptop mode or flipped closed and used as a tablet for more portability. When turned on, the server should automatically boot up to the HazSim program. In instances where the server may have not been shut down properly after it's previous use, the program can always be reopened from the desktop icon. The server connects to the HazSim via the LAN.
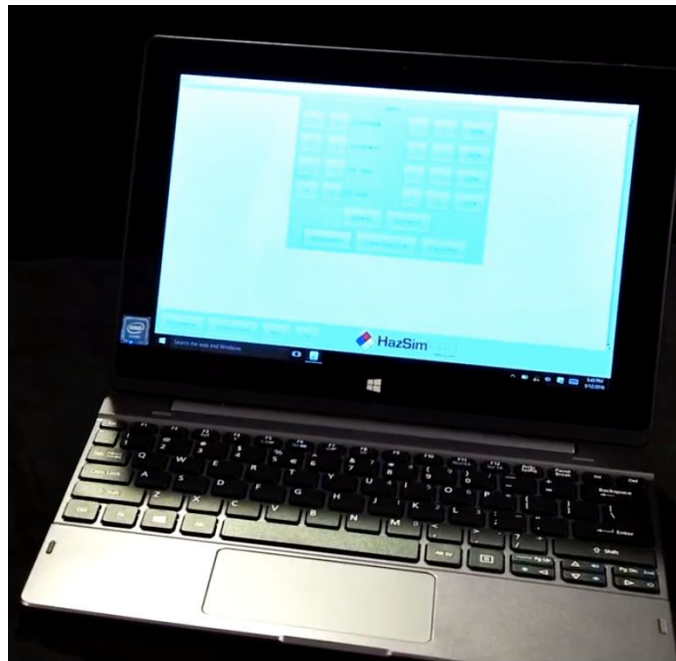
Figure 02: HazSim Server (convertible laptop version, yours may vary)

1.2 HazSim LAN

The LAN creates the closed wireless network which connects the server with one or many HazSim handhelds. The LAN will work up to a one thousand foot range, which is about the length of three football fields, depending on obstructions (see Section 5: Maximizing Range). The LAN network will be found as 'HazSim Extended' which will NOT allow access to the internet, this network is for the HazSim training system only.

Figure 03: HazSim LAN with screw in antenna. LAN should be placed in a high position for best range results.

1.3 HazSim Handheld

The HazSim handheld, once connected to the server via the LAN, will become any meter chosen by the instructor on the server. The HazSim has a power on/off button and touch screen for 'answering' questions and 'confirm' power off of the unit. The HazSim handheld also includes a confined space probe attachment point.

Please note that the battery in the HazSim Pro v1 is NOT user serviceable.

Figure 04: HazSim Pro Handheld with Four Gas Meter shown.

2. Powering Up the System

Included with each system is a laminated Getting Started Guide which is an abbreviated version of these instructions. Also refer to the training video on setting up the system.

2.1 Startup Sequence

2.1.1 STEP ONE - Set up the LAN. Connect included CAT5 Cable to POE (Power Over Ethernet) port on the POE Adapter (black box). DO NOT connect to LAN port. Connect the power cord to POE adapter. Plug the power cord to a grounded outlet.

Ensure antenna is snugly threaded in place and set up in a position where it can 'see' both drill area and instructor.

*A longer CAT5 cable can be used to extend the LAN from power source (rather than an extension power cord). For other ways to maximize range, see Section 5: Maximizing Range.

Figure 05: CAT5 Cable Plugged into POE Port

2.1.2 STEP TWO - Turn on the server. The system will automatically login and open the HazSim server software. If you were already using the system and had closed the program, simply re-open by clicking the desktop icon. The Hazsim server will automatically connect to the 'HazSim Extended' network.

2.1.3 STEP THREE - Turn on the HazSim handheld by pressing and holding the power button (Figure 06) located on the top of the HazSim for at least 2 seconds. Wait for the startup to complete, approximately 30 seconds. When the device has completed startup, it will automatically connect to the HazSim server. This connection will trigger a popup window on your HazSim server and you are ready to start training.

To attach the confined space probe (if equipped) simply plug the hose end in to the attachment port at the end of the HazSim. To detach, pull sleeve back on hose end and gently pull.

Figure 06: Power button for HazSim handheld

2.2 Turning Off the System

To turn the LAN off, carefully unplug the device.

To turn the HazSim server off, press the windows logo on the lower left of the screen. Select the 'Power' icon then select 'Shut Down'. Wait until the server turns off before storing.

To turn the HazSim handheld off, press and hold the power button for at least 2 seconds; a 'Power Off' option will appear on the screen of the HazSim, select 'Power Off' and the unit will power down. Detach the confined space probe before storing.

3. Operating the System

Once you have set up and powered on the LAN, server, and handheld, it's time to start training.

3.1 Selecting a Meter

Once connected, the HazSim Server will initially show the **Meter Selection Window** (Figure 07). This is where you select which meter you will use for training. If the Meter Selection Window does not appear after start up, refer to Section 6: Troubleshooting.

Using the drop down menu (Figure 08), select the desired meter.

Figure 07: Meter Selection Window
with meter options.

Figure 08: Drop down of meter options. Use scroll bar to see complete list.

Once a meter is selected from the drop down list, click 'Select Meter Type' (shown in Figure 07) which will launch the selected **Meter's Control Window** (Figure 09).

Figure 09: Meter Control Window for standard Four Gas meter.

Using the touch screen or cursor, the instructor can manipulate the values shown on the HazSim handheld up or down accordingly to create a simulated training environment.
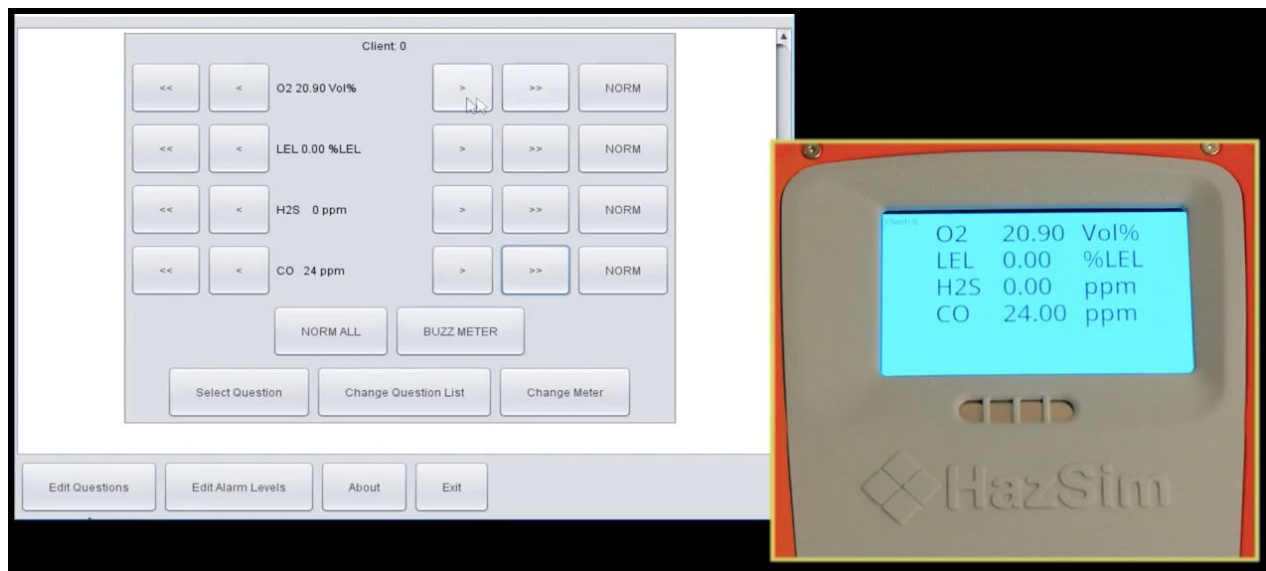

Figure 10: Instructor Meter Control Window vs readings shown on HazSim.

Note when CO is changed to 24, the HazSim reflects 24 ppm.

3.2 Meter Control Buttons

Single Arrow - Small increment change

Double Arrow - Jump (large) increment change

Norm - Returns value to normal setting (individually)

Norm All - Puts all sensors back to normal

Change Meter - Opens meter select popup window

Buzz Meter - Press with cursor or touch and hold to activate the alarm on the HazSim handheld in order to get the student's attention back to the meter during training. This alarm is separate from alarms set for gas reading levels

Select Question - Used to verify student understanding during training. The first time this is selected you will be prompted to select the Question File which is a database with sets of questions on specific topics

Change Questions List - Used to select (via drop down) which questions list/group. Choices include Basic, Advanced, Radiation, Confined Space, and more. Each list has approximately ten questions related to the selection.

Edit Questions - Opens Question Editor, see Section 4: Advanced Features

Edit Alarm Levels - Opens Alarm Edit

Exit - Close program. Can also X out to close the window
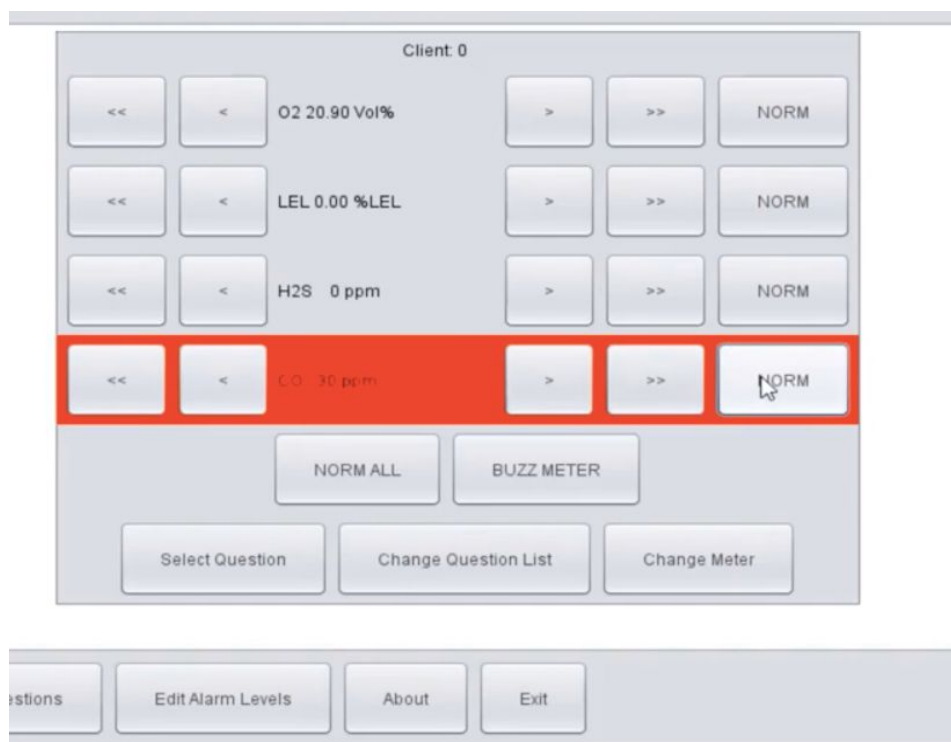

Figure 11: Meter control window shown with alarm activated for CO.

3.3 Controlling the Meter

Use the arrows to change the readings on the HazSim meter. Single arrow for small increment, double arrow for large increment. 'Norm' returns the individual gas to it's normal reading. Norm-All returns ALL 'gases' to normal.

To change meters entirely, simply select the change meter icon on the meter control screen and the previous list of meters will show. Select a new meter from the list and the HazSim will change to the selected meter.

3.4 Asking Questions

With the HazSim Pro 1.0, instructors are able to send questions to the student via the HazSim handheld in real time. Once received, the student can answer the question via touch screen on the HazSim handheld unit. The instructor can utilize standard questions pre-loaded on the HazSim Server or create custom question and answers**.**

Because scenarios are dynamic, instructors should know the desired answer before giving the question. The system does not have the ability to know all of the variables in the scenario that would complete a correct answer. For example, a student may be asked, "Are you wearing the appropriate PPE?" while entering a toxic atmosphere. The correct answer would rely on what level of dress the student is wearing, thus the system will not automatically know. The same question, "Is your PPE correct?" may be used for a desired YES answer when they are donning the correct PPE, OR as an incorrect, or NO answer, if they are in the wrong PPE. The instructor must select the question that corresponds with the desired answer or intended plan for the drill.

Send a Question

To send a question touch 'Select Question' and the question pop up window will open labeled Select Question File. The select question file is opened . Select the desired question and either double click or choose question. Once sent the question will appear on the HazSim meter and the meter display will show there is a question awaiting an answer. Once the student answers their selection will show on the meter control screen. If a question is sent and you decide to change to another question you can cancel the question by selecting cancel question and the question will disappear from the HazSim handheld unless already answered by the user.

To send a question:

- Press 'Select Question'. The first time this button is selected it will open the 'select question file' list which is the databases of each type of question. Once the database is selected a group of questions related to that subject will appear in a new box.

- Select the question from the list and send
- Await an answer from the student or choose to 'cancel question' if you decide to send a different question
- Each additional question asked will default to the database (question list) you are currently using
- If you want to change to a different database (questions list) select 'change question list' from the meter control display and the question list options will appear. Select a new list and the new questions will appear in a new window. Select the desired question.

Question Status Window - During a training evolution the questions which were asked and answers given are shown so the instructor knows which answer the student gave.

Edit/Add Questions

Your HazSim Pro 1.0 is delivered with a complement of standard questions sorted in different question databases. Switch question databases with the Change Questions list button on the meter control screen. To add a new question select Edit Question and a new window will open to add or remove questions. Fill in the desired question and desired answer options.

- Select Edit Questions
- Select Database from list and Edit Questions window will open (or select 'Add' to create a new database- see below)
- Select a question to edit or 'Add New Question'
- In the editor pane (right side of window) add the question and fill in the answer windows. Depending on the length of the question you may need to add spaces to format
- When complete, select 'Save'
- 'Remove Question' will remove selected question, then save
- Test the question by sending to HazSim and ensure format and question appears correctly before using in a drill scenario.

Alarms

Your HazSim Pro 1.0 system has several factory preset alarms based on industry standards but may not be the same as your local protocol. Select the Edit Alarm button and the Alarm edit window will open as shown in Figure 09.

Alarms - Several alarms are preset at the factory based on general industry data

Figure 09 - Alarm Edit Window

Add Alarm - to add a new alarm select 'Add Alarm' on the Alarm edit window and a new alarm field will be added to the list starting from the bottom.   The default new alarm will be for O2.   Change the data fields for each, with the first window the gas, the next the low alarm (zero for all but O2) and the high alarm reading, then close the window. To remove an alarm select Remove Alarm and the alarms will be deleted one by one starting from the bottom. Any alarm already in the list can be changed by clicking in the box and changing the value. For example: If CO is currently set to 30 and you would like it to be 29 simply change the value to 29 and close the alarm edit box.

- Select Edit Alarm Levels
- Either edit current alarm or select 'add alarm'
- Enter the 'gas' in the left box (i.e. HCN)
- For anything other than Oxygen leave the 0.0 (zero) in the middle box
- Edit the right box to the desired alarm level
- Closing the window will save what was entered
- 'Remove alarm' will remove each alarm from the bottom of the list up
- Check with HazSim if alarm is correct before using in training.

Select Question File

AdvMeterReadings.qdb
BasicMeterReadings.qdb
BonusQuestions.qdb
ChemProperties.qdb
ConfinedSpace.qdb
DOTERG.qdb
radiation.qdb

Select   Add   Remove   Rename

Input

File Name

File Name

OK   Cancel

Select   Add   Remove   Rename
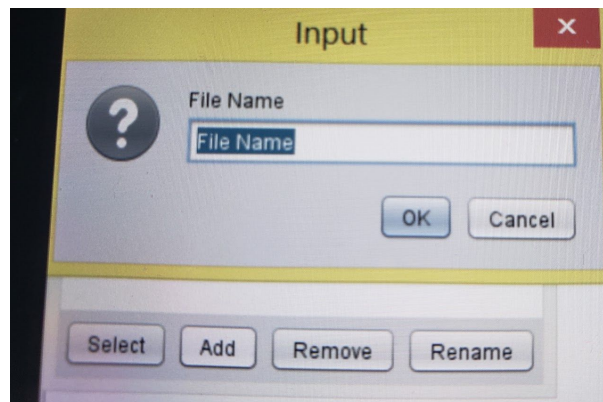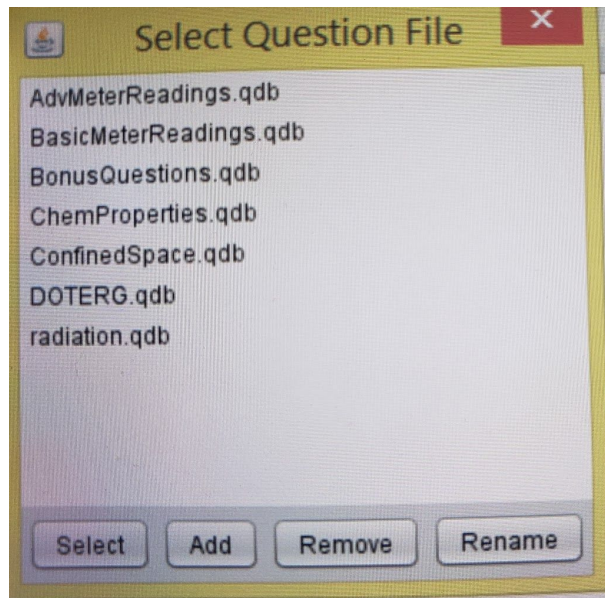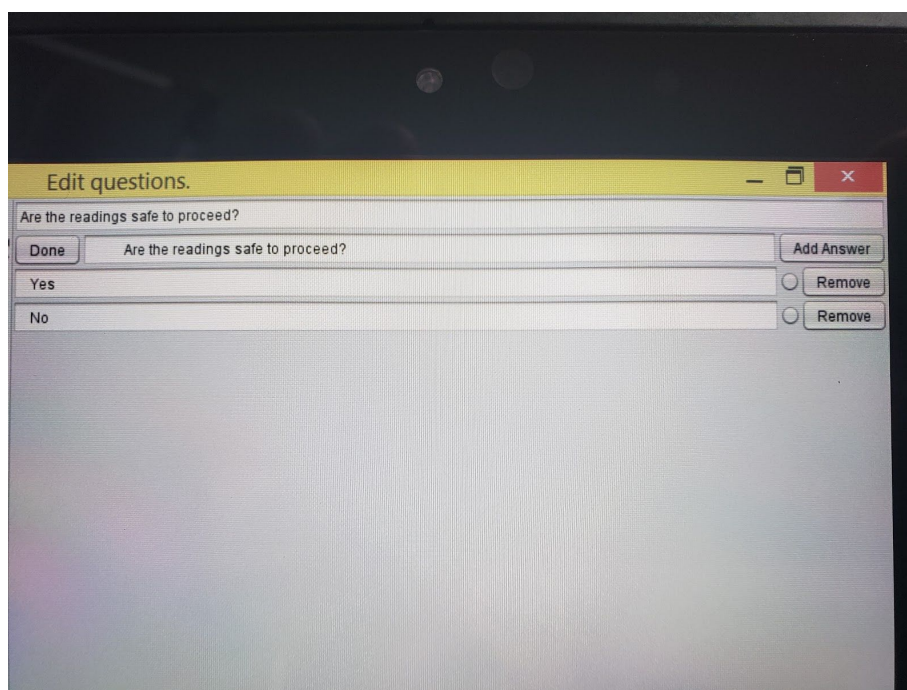
Troubleshooting Guide

Power button sticks causing inability to charge. On rare occasions the rubber boot interferes with power button causing it to depress, if the unit is fully drained, it will not charge in this physical condition. Pulling away the boot from near the button fixes issue in most cases.

Unit will not charge - see above, ensure plugged in correctly.

Batteries - Handheld batteries are designed to be quick-charged 8 to 12 hours prior to training but do not hold a charge during storage so require charge before use. The batteries are NOT user serviceable. Contact HazSim for repair or replacement.

Attempting to change the battery in HazSim Handheld VOIDS all Warranty

Connection Issues - If the system does not connect review the quick set up section. If no connection, reset the LAN by unplugging and repowering in the sequence recommended in the quick set up guide.
1. Power the LAN
2. Power up the Computer
3. Power up the HazSim

Ensure LAN CAT5 cable is connected to the POE on the Power adapter and all other connections are complete.

Ensure HazSim and Computer are charged

Turn off Server and HazSim, unplug and replug LAN being sure Cat5 cable is plugged in to POE, turn on Server, then turn on HazSim.

Interference with Connection   - on rare occasions with Pro 1 the system would not connect where there was a large radio transmission tower. Physical barriers may cause signal degradation, causing signal loss, Poor LAN antenna placement, RF Interference Power loss to LAN antenna, CAT5 Cable plugged into LAN and not POE. If this is suspected, move to an area where there was no trouble with connection and retest. Contact HazSim support.

System server settings changed - If you have an early edition or using your own computer as a server and the settings were changed, contact HazSim support.

Maximizing Range

PRO Tip: It is important to check your range obstacles prior to beginning your training session. In general if the instructor can see the LAN, and the LAN can 'see' the students with the HazSim, the range should be good. If you are training in an area with thick concrete or steal, several feet below grade, reinforced vaults, or reinforced ships.

I.   LAN in raised position

Raising the LAN to a height which has an overview of the training ground can greatly extend the range of the HazSim system. If you can 'see' the LAN from both the HazSim position and the Server position this will maximize range. A longer CAT5 cable can be used to extend the height of the LAN being sure to plug in to the POE port on the LAN power adapter.

II.   Overcome obstacles

The signal is similar to any other radio device where lightweight constructed walls will not pose too much interference. Thick wall reinforced construction or thick metal walls as found in some training props will restrict the signal. To overcome these obstacles set up the LAN near an entrance if possible, with the best view of both the HazSim and the Instructor. Consider the elevated approach as some construction will have thick walls but lightweight roofing enabling the signal to reach from above.

Issue	Resolution
HazSim handheld will not connect	Check LAN power and if Cat5 plugged to POE, ensure server is started and program running, restart system. (also see connection issues)
HazSim Handheld will not charge	Ensure charging cord connected properly to good power supply, Contact HazSim support.
HazSim loses connection	Out of range, behind obstacle which blocks signal, check LAN, server off (also see connection issues)
Nothing on HazSim screen	HazSim is off, HazSim is booting up (blank for a few seconds)
HazSim screen shows Logo	HazSim is 'on' but not connected to server
Alarm sounds upon connection	Alarm value was set within normal range after 'alarm edit', 'Buzz Meter' button pressed, If recent change to Alarm Edit - check the settings.
Meter Select window showing on server	System connected, waiting for user to select a meter type.
Meter Select window not showing on server	Server not connected - check lan settings, No HazSim turned on - ensure HazSim is on and booted up, HazSim out of range.
Server Program will not open	You may have opened two windows of the program, another server is in use on the same LAN signal - make sure only one program is open and one server operating, reset the server and follow start up process.