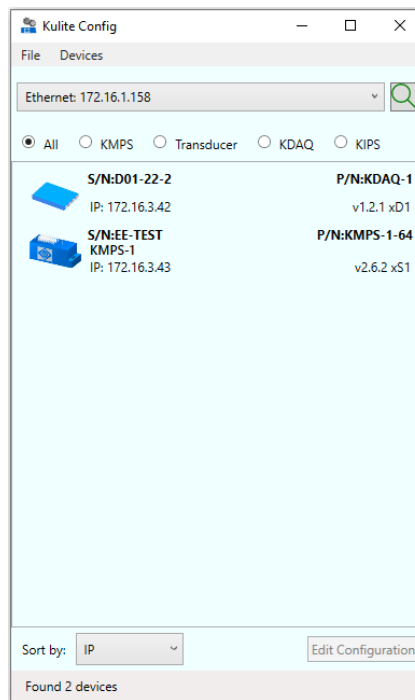




# Kulite Config



## Device Configuration Software User Manual Version 3.4

## Table of Contents

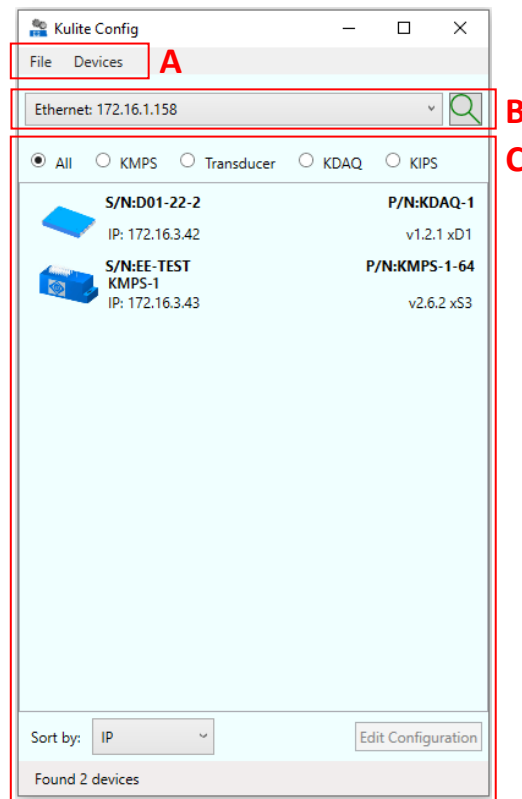
Kulite Config Overview .....	1
Main Window.....	1
Menu Bar .....	1
Interface Selection .....	2
Found Devices .....	2
Device Configuration Window .....	3
File Menu: .....	4
General Info: .....	4
Data Settings: .....	4
Data Streaming: .....	4
Communications Settings: .....	5
Ethernet Device:.....	5
Serial Device:.....	6
Update Firmware .....	6
Device-Specific Settings .....	7
KMPS: .....	7
Module Settings: .....	7
User Strings: .....	7
Thermostat:.....	7
Motor Purge:.....	8
MODBUS: .....	8
KDAQ/KIPS .....	8
Sensors: .....	8
OK and Cancel Buttons.....	9
Sensor Compensation .....	9

## Kulite Config Overview

*Kulite Config* is a program designed to be used to configure settings for Kulite pressure scanners, data acquisition systems, and other devices. This manual is intended to give an overview of where the settings are located. For a detailed description of all of the functionality of a device, please consult the user manual pertaining to the specific device.

## Main Window

The *Kulite Config* main window is divided into several parts as labeled in the figure below.

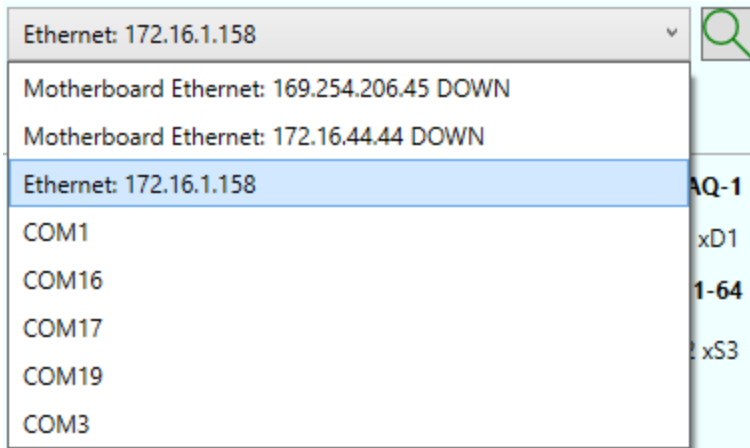


### A. Menu Bar

The *File* menu can be used to show the *About* dialogue of the program or exit the program.

The *Devices* menu can be used for opening the configuration settings for the currently selected device, for loading *.kfg* configuration files to one or multiple devices, and for updating the firmware of one or multiple devices.

## B. Interface Selection



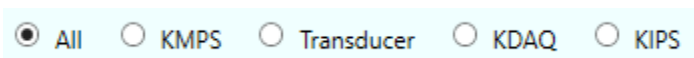
*Kulite Config* supports communicating with Kulite Ethernet and RS485 devices. The pull-down will list all IP and serial interfaces found on the host PC. To find devices, select an interface from the pull-down. While the program is searching the selected interface for devices, the search button (to the right of the pull-down) will change to show that the search is in progress. The search button may also be pressed at any time to look for additional devices.

Note that many devices may be on the same IP interface, but only a single device per serial interface is supported.

## C. Found Devices

The program displays basic information on each device that it has found: serial number, part number, and communication parameters (IP address for an Ethernet device or baud rate for an RS485 device).

An option can be selected to show only a certain type of Kulite device, if desired.



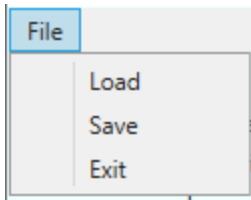
The user should then select the device(s) which they want to edit the configuration of by either double-clicking the device, selecting the device and then clicking on *Edit Configuration* button below the list, or by selecting the device and selecting the *Edit Configuration (single device)* option from the *Devices* menu.

## Device Configuration Window

The screenshot shows the EE-TEST configuration window with the following sections and labels:

- A:** File menu.
- B:** Information section containing:
  - Part Number: KMPS-3-64
  - Serial Number: EE-TEST
  - Firmware Version: 2.6.2 xS3
  - User Strings button
  - Module A: S11D-16-88K (10 psia)
  - Module B: M12D-16-4F (200 psia)
  - Module C: M12D-16-4B (50 psia)
  - Module D: M02A-13-53D (50 psia)
- C:** Data Settings section containing:
  - Default Mode: Normal
  - Pressure Unit: psi (selected), bar
  - Temperature Unit: °F (selected), °C
  - Pressure Sampling Rate: 25 samples/sec/channel
  - Temperature Sampling Delay: 2 minutes
- D:** Data Streaming section containing:
  - Format: Binary
  - Stamps: Sync Stamp, Address Stamp, Time Stamp (PTP)
  - IENA: Key (8888), End (1212), Status (1111)
- E:** Communications Settings section containing:
  - Address: 22
  - MAC Address: 9C-31-B6-13-00-0E
  - Obtain IP address automatically (selected) / Set IP address statically
  - IP Address: 172.16.3.43
  - Subnet Mask: 255.255.0.0
  - Default Gateway: 172.16.0.1
  - Local Port: 18008
  - Command Responses:
    - Respond to the IP address which sent the command (selected)
    - Always respond to: Broadcast, Remote IP (0.0.0.0)
    - Respond to the port which sent the command
    - Always respond to: Remote Port (0)
  - Data Streaming:
    - Stream data to the IP address and port which sent the command
    - Always stream via UDP to: Broadcast, Remote IP (172.16.4.224)
    - Use static MAC (00-00-00-00-00-00)
    - Remote Port: 18009
  - PTP:
    - PTP Version: 2
    - V2 Delay Mechanism: E2E
    - V1 Sync Interval: 2
- F:** Update Firmware... button.
- G:** Module Settings section containing:
  - User Strings
  - Thermostat
  - Motor Purge
  - MODBUS
- H:** OK and Cancel buttons.

## A. File Menu:



Clicking *Load* will prompt the user to select a *.kfg* file. When the file is selected, the current device settings window will be updated with the settings from that *.kfg* file. Clicking *Save* will allow the user to save the current configuration of the device settings window as a *.kfg* file. Clicking *Exit* will close the device settings window.

## B. General Info:

The part number, serial number, and firmware version of the device are listed here, and the *User Strings* button can be pressed in order to view and edit the 4 strings that can be stored on the device.

## C. Data Settings:

The default mode can be changed to determine the behavior of the device when powered on. The pressure and temperature units can be changed, as well as sample rate settings for pressure and temperature if supported.

## D. Data Streaming:

This section is used for changing settings about packets sent while the device is streaming. The options may vary depending on the type of device.

## E. Communications Settings:

### Ethernet Device:

Communications Settings

Address:

MAC Address: 9C-31-B6-13-00-0D

☒ Obtain IP address automatically  
☐ Set IP address statically

IP Address:  .  .  .

Subnet Mask:  .  .  .

Default Gateway:  .  .  .

Local Port:

Command Responses:

☒ Respond to the IP address which sent the command  
☐ Always respond to:

Broadcast: ☐

Remote IP:  .  .  .

☒ Respond to the port which sent the command  
☐ Always respond to:

Remote Port:

Data Streaming:

☐ Stream data to the IP address and port which sent the command  
☒ Always stream via UDP to:

Broadcast: ☐

Remote IP:  .  .  .

☐ Use static MAC  -  -  -  -  -

Remote Port:

PTP:

PTP Version:

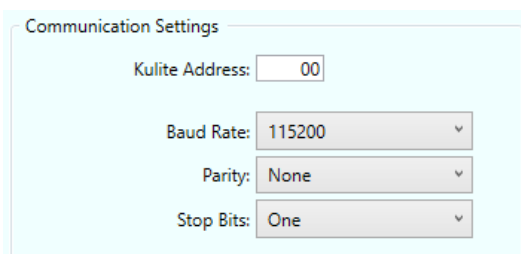
V2 Delay Mechanism:

V1 Sync Interval:

Each group of settings can be used for the following:

- View or change the 2-digit hexadecimal address, and view the MAC address
- The device can be configured to either automatically obtain its IP address or have it manually set to a static one. The local port can be set in either case.
- The device can be configured to either respond to commands back to the IP address and port of the sender, respond to a statically set IP and port, or broadcast responses.
- The device can be configured to stream data back to the IP address and port of the command sender, or respond to a statically set IP and port, or a specific MAC address, or broadcast the stream.
- The settings relating to Precision Time Protocol (PTP) can be adjusted.

### Serial Device:



Communication Settings

Kulite Address:

Baud Rate:

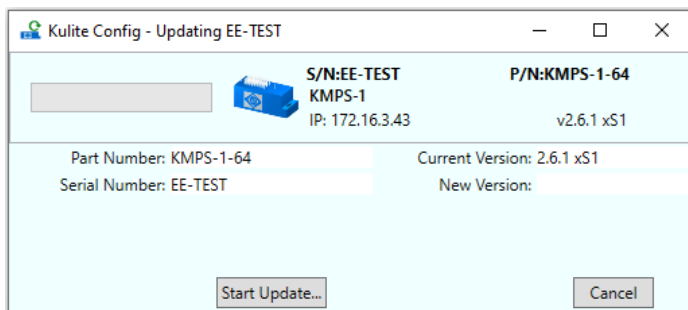
Parity:

Stop Bits:


The 2-digit hexadecimal address can be viewed and changed, along with the baud rate, parity bit type, and number of stop bits.

## F. Update Firmware

This button can be pressed to upload a different version of firmware onto a device. A window will open up where the part number, serial number, and current firmware version of the device is shown.

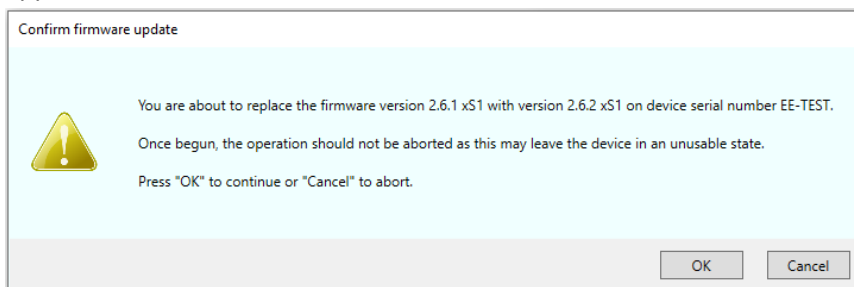


Kulite Config - Updating EE-TEST


 S/N:EE-TEST P/N:KMPS-1-64  
KMPS-1 IP: 172.16.3.43 v2.6.1 xS1

Part Number: KMPS-1-64 Current Version: 2.6.1 xS1  
Serial Number: EE-TEST New Version:

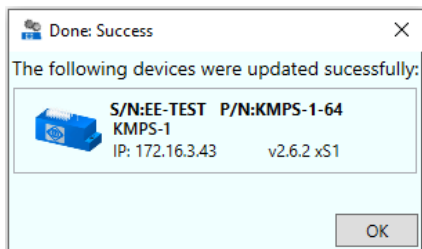
Pressing the *Start Update...* button will open up a file select dialogue, where the *.kufi* file of the new firmware should be chosen. After selecting the *.kufi* file, a confirmation window will appear.



Confirm firmware update


 You are about to replace the firmware version 2.6.1 xS1 with version 2.6.2 xS1 on device serial number EE-TEST.  
Once begun, the operation should not be aborted as this may leave the device in an unusable state.  
Press "OK" to continue or "Cancel" to abort.

Select the *OK* button on the confirmation window to begin uploading the new firmware. A new window will open after the uploading is complete showing if the update was successful or not.



Done: Success

The following devices were updated successfully:

 S/N:EE-TEST P/N:KMPS-1-64  
KMPS-1 IP: 172.16.3.43 v2.6.2 xS1

At times, the **device** may need to be manually restarted after a firmware upgrade.

## G. Device-Specific Settings

The interfaces shown here vary depending on the device being configured.

### KMPS:

#### Module Settings:

The screenshot shows a window titled "Module Settings" with four tabs for different modules. Each tab contains the following information:

- Module A (S11D-16-88K):** Manufacture: 3/12/2020, Calibration: 3/12/2020, Cal Due: 3/12/2021, String 0: , String 1: , String 2: , String 3: .
- Module B (M12D-16-4F):** Manufacture: 12/17/2015, Calibration: 11/13/2018, Cal Due: 12/13/2015, String 0: , String 1: , String 2: , String 3: .
- Module C (M12D-16-4B):** Manufacture: 3/12/2020, Calibration: 12/16/2016, Cal Due: 12/16/2017, String 0: , String 1: , String 2: , String 3: .
- Module D (M02A-13-53D):** Manufacture: 1/1/0001, Calibration: 1/1/0001, Cal Due: 1/1/0001, String 0: , String 1: , String 2: , String 3: .

At the bottom right of the window are "OK" and "Cancel" buttons.

Pressing the *Module Settings* button will open up a window displaying information about each module connected to the KMPS. The manufacture date for each module can be viewed, and the calibration and calibration due dates for each module can be viewed and edited. The 4 user strings which can be stored on each module are displayed and are editable. The *OK* button should be pressed to update the modules with any changes.

### User Strings:

The screenshot shows a window titled "User Strings" with four input fields:

- 0: KMPS-1
- 1: SYSTEM
- 2: WELCOME
- 3: THANKS

This is an the place to set the 4 user strings pertaining to the entire device.

### Thermostat:

The screenshot shows a window titled "Thermostat" with the following settings:

- Channel: 26
- Temperature: 100 F
- Bake temperature: 170 F
- Bake Time: 3600 s

If the KMPS model is one that includes a thermostat, this section will appear. The *Channel* pull-down can be used to select which sensor the thermostat uses to measure the actual temperature. The target temperature, bake temperature, and bake time can be set here.

### Motor Purge:

Motor Purge

Enable Purge Pin: ☐

If the KMPS model is one that includes a motor purge, this section will appear. Check the box to turn the purge pin on, or uncheck to turn it off.

### MODBUS:

MODBUS

Lock-out MODBUS: ☐

If the KMPS is an Ethernet version, this section will appear. Check the box to have MODBUS be locked on startup. This can then be unlocked by....

## KDAQ/KIPS

### Sensors:

Sensors

Channel 0: TESTSN - Absolute - Scaled

TESTSN

TESTPN

0 - 100 psia

Manufacture: 1/1/0001

Calibration: 12/17/2019 15

Cal Due: 12/17/2020 15

String 0: HELLO

String 1: WORLD

String 2:

String 3:

Slope: 1 Offset: 0 psi

Create .koef File Set channel

The pull-down at the top of this section allows the user to change which sensor is being viewed. The serial number, part number, and pressure ranges, and manufacture date for that sensor are shown. The editable fields underneath include the calibration and calibration due dates, the 4 strings that can be stored per sensor, and the slope and offset values.

The *Create .koef File* button can be pressed in order to save all of the compensation information about the sensor into a file which can be used to *KT-Comp* a sensor later on.

The *Set channel* pull-down button allows the type of sensor to be set. The options are *Pressure*, *RTD*, and *Voltage*. Sensors can be set to the type *pressure* either with a *.koef* file for full thermal compensation or by manually setting the parameters for a simple linear compensation.

For more information about the types on compensation for sensors, see section [Sensor Compensation](#).

## H. OK and Cancel Buttons

To commit any changes made to the settings of the device in this window, the *OK* button should be pressed. If no changes are to be made, the *Cancel* button should be pressed.

## Sensor Compensation

Sensors connected to a KDAQ can be compensated in multiple ways depending on the sensor hardware and the needs of the user.

- Kulite smart sensors with on-board memories are already fully compensated.
- Kulite sensors which have been fully compensated, but do not have on-board memories can be compensated by using *KT-Comp*, where the coefficients are loaded into the KDAQ by using *Kulite Config* to upload a *.koef* file.
- Sensors which have no on-board memory and no compensation coefficients can be adjusted using *Standard Comp* where an offset and sensitivity value can be set.

All sensors will then have a slope and offset value than can be adjusted later to account for any drift over time.