

Hot-wire anemometer head replacement - Quick guide

cod. ESV108, ESV108.1, ESV126, ESV308, ESV309, EXP126



1 Introduction

Hot-wire anemometers are highly accurate sensors. They use a tungsten wire inserted into the sensor head. Each head has specific calibration factors: B0, B1, B2 and B3. It is essential for proper measurement that the anemometer is configured with the calibration factors of the head in use; this condition is met when the product leaves the factory.

This guide describes how to independently replace the head of hot-wire anemometers models ESV108, ESV108.1, ESV126, ESV308, ESV309 and EXP126. The operation consists of replacing the sensor head and reconfiguring the sensor with the calibration factors of the new head via the *HWFC – Hot Wire Factorial Config* program.

To proceed, the SPMCA1004 or SPMCA1005 kit, the *HWFC – Hot Wire Factorial Config* program and a PC are required. In addition, the EXP301 radio receiver with cable and power supply is required for the EXP126 sensor, while the SVSKA2002 cable is required for the other sensors. The SPMCA1005 kit requires CCCFA4900 cable.



On this topic see the tutorial [#1-Hot wire anemometer - YouTube](#)



2 Installation of the HWFC software

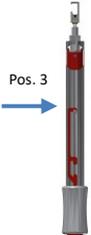
HWFC is installed by means of the LSI Web Installer program, which can be downloaded from the LSI Lastem website.

1. Go to www.lsi-lastem.com and choose *Installation and updates software* from the *DOWNLOAD* menu.
2. Click on [LSI Web Installer] button for download the ZIP file with the program to your PC.
3. Extract the contents of the ZIP file to a folder on your PC, then run the Setup file.
4. When the installation is complete, start *LSI Web Installer*, place a tick in *Hot Wire Factorials Config*, then press [Install] to install the software on your PC.

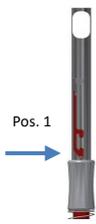
3 Replacing the head

If the head to be replaced is not damaged and you want to reuse it later, you should save its calibration factors (§7) before replacing it. This operation can be omitted if you already have the *Calibration sheet for hot wire measurement head* or its file.

To replace the head, first **ensure that the sensor is switched off and disconnected from the data logger**, then proceed as follows:

1. Lower the retractable shell to position 3 so that the head is fully exposed. 
2. Unscrew (anticlockwise) the ring nut of the head to be replaced by disconnecting it from the sensor stem. 
3. Take the replacement head from the kit container SPMCA1004 (or SPMCA1005 in the cable version CCCFA4900), remove the cork and, carefully, slip off the contents. 
4. Remove the upper part of the protective shell and grasp the head by the threaded part. Handle the sensor only through this part. 

For SPMCA1004:

5. Place the head connector and screw (clockwise) the head ring nut onto the sensor stem connector, taking care not to touch the part with the wire. 
6. Reposition the retractable shell to the safety position 1. 

For SPMCA1005:

5. Place the CCCFA4900 cable connector and screw (clockwise) its ring nut onto the sensor stem connector. 
6. Place the head connector and screw (clockwise) its ring nut onto the cable connector CCCFA4900, taking care not to touch the part with the wire. 

4 Connecting the anemometer to the PC

The connection between PC and sensor is made by radio via the EXP301 receiver for the EXP126 model and via the SVSKA2002 cable for the remaining models.

4.1 ESV108, ESV108.1, ESV126, ESV308, ESV309 sensor models

1. Connect the SVSKA2002 cable to a USB port on the PC.



2. On the PC, identify the serial port associated to the cable.
 - I. Open *System* from the *Control Panel*.
 - II. Select *Hardware setup* and expand *Ports (COM & LPT)*.
 - III. Identify the port labelled "USB Serial Port". If there is more than one, disconnect and reconnect the SVSKA2002 cable from the PC. The port that disappears and reappears is the one associated with the cable.



3. Connect the other end of the SVSKA2002 cable to the sensor depending on the model:

For sensor mod. ESV308 and ESV309:

- I. Connect the DB9 serial connector.



For sensor mod. ESV108, ESV108.1 and ESV126:

- I. Remove the SERVICE PORT label on the back of the sensor.
- II. Connect the cable connector to the board inside the sensor. With the sensor in vertical position, insert the connector with the cable downwards so that the red part is to the right.



4.2 EXP126 sensor model

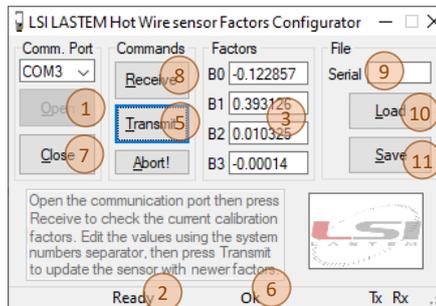
1. Connect the EXP301 receiver to the serial port of the PC via the DWA601 cable and the 12 V DC power supply.
2. Switch on the receiver by means of the switch located inside it.

5 Updating the sensor configuration

In order for the sensor to perform measurements with the expected accuracy, it is necessary to update its configuration with the calibration factors supplied with the head. This is done via a PC on which the HWFC program is installed.

Start HWFC and, referring to the figures below, proceed as follows:

1. In *Comm. Port* set the serial port where the SVSKA2002 cable or EXP301 receiver is connected.
2. Press the **[Open]**(1) button and check that the program responds with *Ready*(2).
3. Enter the factors B0, B1, B2 e B3(3) reported on the *Calibration sheet for hot wire measurement head*(4) supplied with the kit. Be sure to enter the factors for the S/N of head used. If provided the file, in *Serial*(9) enter the S/N of the head used, then press **[Load]** (10) to open the file.
4. Press **[Transmit]**(5) and check that the result is *Ok*(6).
5. If you want to save the factors to file, in *Serial*(9) enter the S/N of the head used, then press **[Save]**(11).
6. Press **[Close]**(7) and close the program.
7. Disconnect the SVSKA2002 cable or EXP301 receiver.



6 Checking the configuration in the sensor

To check whether the sensor configuration has been successfully updated, connect the anemometer to the PC as described in Chapter 4 and repeat steps 1 and 2 in Chapter 5 in sequence, then press **[Receive]**(8) and check that the factors displayed by the program match those given in the *Calibration sheet for hot wire measurement head*(4), or if provided, in the file.

7 Saving the sensor configuration

To save the sensor configuration, connect the anemometer to the PC as described in chapter 4 and repeat the steps in steps 1 and 2 of chapter 5, then press **[Receive]**(8) and then **[Save]**(11) after entering the S/N corresponding to the head in use.

8 Final operations

Once the update and configuration check operations are completed, disconnect the cables from the sensor and PC and close the HWFC program.

For models ESV108, ESV108.1 and ESV126, apply to the rear of the sensor the SERVICE PORT label supplied with the SPMCA1004 kit, to cover the access slot for the board.

The replaced head can be repaired. Therefore, it is recommended to store it in the empty container and identify it as faulty. For repair, contact LSI LASTEM's after-sales service by sending an e-mail to riparazioni@lsi-lastem.com.