

This is a review of diagnostic tools available from ESPAR to diagnose ESPAR heaters. The review includes EDiTH diagnostic with ISO adapter, Digi-Diagnostic and Diagnostic Unit (also known as Error Retrieval Device).

The comparison table below lists most important features of the tools:

	EDiTH+ISO adapter	Diagnostic Unit	Digi-diagnostic
Allows to read fault codes and unlock ECUs	+	+	+
Works with all current heaters	+	+	Tested with Airtronic and Hydronic 4/5
Does not require computer		+	+
Will support all 2011/12 models of heaters	+	-	-
Reads advanced information from heaters memory including run-time hours	+		
Real-time diagnostic on running heater with displaying status of internal components	+		
Records and replays internal work processes of running heater	+		
High Altitude kit diagnostic	+		
Required for warranty claims	+		

1. Computerized diagnostic with EDiTH and ISO adapter

In order to use advanced technology for heater diagnostic, ESPAR recommends to use computerized diagnostics everywhere where possible, which allows you to have more detailed information needed for troubleshooting. With computerized diagnostics you also have an option to easily share the recorded file with ESPAR specialist using E-mail. EDiTH diagnostic is required for submitting warranty claims.

This chapter lists necessary adapters to perform EDiTH diagnostic and offers some extra information, but it is not a complete manual for the diagnostic or troubleshooting itself.

Following items are needed for computerized diagnostics of heaters:

Tools	
ISO adapter w/software, p/n 22 1524 89 00 00 This kit is discontinued but the included hardware still up to date and can be used with no limitations with updated software (see below)	Do not install software coming with adapter, download and install the most recent version (current version is EDiTH S3V11-F)
ISO adapter with USB to Serial adapter and VISTA/7 compatible EDiTH software p/n 22 1541 89 00 00	Prior to installing software, check if a newer version or software update is available for download (please see below)
Approved USB-to-Serial adapter with driver and VISTA/7 compatible EDiTH software, p/n 22 1543 89 00 00	Needed if no serial port is available on computer. Does not include ISO adapter.
EDiTH software for Windows 98 and up, including Windows VISTA and Windows 7*: http://www.espar.com/tech_manuals/Diagnostic%20Software/ *See note for VISTA and Windows 7 users below	English and French versions are available for download free of charge for use with ISO adapter and with EDiTH Expert Adapter (ECU testing unit, special tool for heater repair centers). Current version of software is EDiTH S3V11-F

Adapter cables (only one appropriate adapter is needed for each kind of installation)		
Part #	Used with	Comment
22 1000 30 6900	B/D1/LCCompact B/D3/LCCompact	Y-cable. Works with all “Compact” heaters.
20 2900 70 5046	Airtronic 2-4-5 Hydronic M-II series heaters 8-10-12 kW	Cable with two connectors. Use for installations with black 8-pin diagnostic connector (optional, otherwise remove spiral cable from ISO adapter and plug adapter directly to diag. connector on harness)
22 1000 31 8600	Airtronic 2-4-5	Use if no diagnostic connectors installed.
20 2900 70 5028	Hydronic 4/5	Y-cable.
25 2786 70 0001	Hydronic 5 with round 4 pin connector - Freightliner Cascadia	Y-cable. Can be used only with Hydronic 5 factory installed on Freightliner Cascadia trucks 2009/mid 2010. Not compatible with other cables.
22 1000 31 6300	Hydronic 4/5 Z	Y-cable with switchbox. May also be used for other Hydronic 4/5 heaters.
22 1000 33 3100	Airtronic 2-4-5 and Hydronic 4/5	Use only when High Altitude Sensor p/n 22 1000 33 22 00 is used (H-Kit). Do not use other adapters with H-Kit 22 1000 33 22 00 or remove sensor while use other adaptors (sensor will not be tested in this case)
20 2900 70 5031	D8LC	Y-cable with round connectors, not compatible with Hydronic 10
20 2900 70 5030	Hydronic 10	Y-cable with round connectors, not compatible with D8LC
20 2900 70 5044	Hydronic 10/M	Y-cable with square connectors, not compatible with Hydronic M-II series heaters
25 2800 70 1004	Hydronic M-II series heaters 8-10-12 kW	Y-cable. Use for installations without diagnostic connector. Not compatible with earlier versions of Hydronic M.
22 1000 31 66 00	Hydronic 16/24/30/35	H-cable

ISO adapter requires a computer with serial port (RS232). On computers with no serial port available, Serial-to-USB adapter can be used. Use only USB 2.0 adapters as ISO adapter is not compatible with USB 1.1 serial-to USB adapters. Recommended adapter is listed in the table above.

Diagnosis software EDiTH S3V11-F:

Please remove an existing old version of EDiTH with the Windows system control before installing the new version. You may need administrator rights for this procedure. If necessary consult your PC administrator.

Please read the .pdf file in the Info folder of the installation package. The file contains important information about installation and initial operation of EDiTH. Start the installation by double click at the setup file and follow the instructions.

Compared to version S3V7-F which has been offered until now, the new version offers the following improvements and changes:

Minimum OS Requirements *

Software is Compatible with Win 95/98/SE/ME/ and the newer versions Windows Vista* and 7*.

*For the installation and operating of EDiTH S3V11-F on Windows Vista or 7, please consider the following additional requirements:

- 1-GHz CPU or higher with 32 bit (x86) or 64 bit (x64)
- 1 GB RAM (32-bit) or 2 GB RAM (64-bit)
- 16 GB verfügbarer Festplattenspeicher (32-Bit) oder 20 GB (64-Bit)
- DirectX 9 graphics adapter with WDDM 1.0 - or higher driver
- Monitor: resolution min 800 x 600 (recommended up from 1024 x 768), up from 65536 colours, small font
- Serial interface: COM1, COM2, COM3 or higher; or USB interface with USB serial adapter
- If using the USB interface all energy settings for the USB interface must be deactivated

*Other Requirements

- Users must have Administrator rights for there User Name in order for proper functionality of the USB to Serial adapter

Adapter Changes

- Communication between diagnosis hardware (ISO-Adapter) and heater is less sensitive to communication failures.

Additional heaters now recognised in database:

- Hydronic B/D 3/5 WZ: several S3LII control units 22 5201 04... - OEM/universal have been added
- Hydronic B/D 4/5W SC/S: several S3LII control units 22 5201 04... - OEM/universal have been added
- Hydronic II-H/F: several heaters have been added

Several OEM/universal heater versions have been added into the data base:

- Hydronic I
- Hydronic II
- Airtronic
- Hydronic 10
- Hydronic M-II
- Hydronic L-II with new control unit 25 1818 54

Hydronic II

- Display of safety time have been updated
- Voltage of the burner motor at component *switch on* have been adjusted to the trouble shooting

S3LII OEM variants parking heater and pre-heater

- Message window „start engine“ have been added without check if the engine really have been started (KL61 available) because it differs at OEM wirings

Entries for the IPCU programming for all climate kits have been updated

- Settings for blower speed have been adjusted at Renault Laguna III, Honda CRV, Accord and Jazz as well as Kia Sportage, Mitsubishi. Outlander; Citroen C-Crosser; Peugeot 4007

Installation notes

Download Zipped folder from www.espar.com/help/ (subfolder for Diagnostic Software) or from www.espar.com/tech_manuals/Diagnostic_Software and run EDiTH setup.exe file. If you do not previously unpack the content of the zipped folder, the program will ask if you wish to Extract all or Run. Choose Extract all, then Run EDiTH setup.

Running Setup on some computers, you may have RS232 option disabled even if the computer has available serial port. In this case choose USB, install EDiTH, run it and change communication setting to an available COM port.

You may check existence and assigned port # of the serial (RS232) port using Windows Device Manager. Make sure that existing port does not belong to modem or not used by other applications.

Problem extracting files from Zipped Folder

You may experience a problem extracting files from Zipped Folder if you have expired trial version of WinZip. In this case right click the zipped folder and choose “Open with compressed (zipped) folders”

Note for users of Windows VISTA on laptop computers (May apply to Desktop units with power save enabled):

By default Windows VISTA and 7 turns off power to USB ports after 5 minutes of inactivity when computer is running on batteries.

Disable USB power saving option in “Control Panel” – “Power Saving Options”. You may need to disable power saving for all modes for work from batteries and from external power.


If you have any questions regarding using EDiTH, please contact Espar Technical Services, for further assistance.




2. Digi-diagnostic

Digi-diagnostic is a customized Digi-controller supplied with diagnostic connectors and adjusted for use as a simple diagnostic tool. Features for operating Airtronic heaters (temperature setting and ventilation) are not used.



Diagnostic readout.

With the heater switched on, press and hold  key until the display shows 'dA'. The blue LED will briefly illuminate. Release the key. After a short time the LED flickers momentarily during diagnostic data transfer then goes off. The display shows FO followed by its fault code then automatically scrolls through any previously stored fault codes, up to a maximum of 5.

Press  and  keys together to erase stored fault codes and display shows 'EE'. To exit diagnostic mode, press and release the  key.

For fault codes refer to ESPAR manual (available at www.espar.com/help) or consult your local Espar dealer. If stored fault codes cannot be erased consult your local Espar dealer.

2. Diagnostic Unit p/n 20 2900 70 5020

The Diagnostic Unit is used for reading, displaying and deleting fault codes saved in the electronic control unit of the heater. The electronic control unit can save up to 5 fault codes, labeled F1 to F5. The most recent fault code is in memory location F1.

The current or actual fault code is shown as “AF” and is always written into the F1 memory location. Previous fault codes are transferred to memory locations F2 to F5.



1. Button **L** : delete fault memory
2. Button **L** : delete fault memory
3. Button **D** : switch heater on/off, request diagnostic fault codes
4. Button **←** : backwards, fault F5 – F1, AF
5. Button **→** : forward AF, F1 – F5
6. Display

Connection

1. When available, connect the unit to the diagnostic pigtail (8-pin black connector) on the heater’s main wiring harness, located at the heater main connection.
2. If the diagnostic pigtail is not present, connect the unit as outlined in the appropriate heater technical manual. A tester wiring adaptor may be required.

Heater	Tester Adapter Part Number
AIRTRONIC D2/D4/D5	22 1000 31 86 00
D8 LC	20 2900 70 50 31
HYDRONIC D4/D5	20 2900 70 50 28
HYDRONIC 10/HYDRONIC M	20 2900 70 50 30 (Has round connector) 20 2900 70 50 44 (has square connector)
HYDRONIC M II (8/10/12 kW)	25 2800 70 10 04
HYDRONIC 16/24/30/35	20 2900 70 50 36

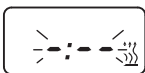
Some other adaptors for specific heaters listed in EDiTH chapter can be used as well.

3. Once correctly connected, the Diagnostic Unit display shows:



Fault Code Retrieval

4. Press the button **D** on the diagnostic unit to switch on the heater. The display shows:



5. After 8 seconds, the display shows one of the following:



No error



Current fault (i.e. fault code 64)





Fault diagnosis not possible

Possible causes:

- Adapter cable not connected properly.
- Control unit defect or incapable of diagnosis (i.e. control unit not equipped with self-diagnostics)

Display of the Fault Memory F1 – F5 or F5 – F1


6. Press the buttons  or  once or several times to show the individual fault code memories in decreasing or increasing order. The display shows:

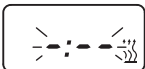


i.e. fault memory 2 / fault code 10

Only those fault memory position with an error assigned to them are displayed.

Delete Fault Memory

7. Eliminate the cause of the fault. Be sure to correct the root cause, not just the symptom.
8. Press both buttons  at the same time until the display shows:




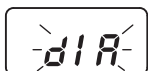
9. Once the fault memories are deleted, the last current fault is shown. The current fault is not reset to 00 until the next restart of the heater, providing no other current fault has occurred. The display shows:



Heater has no malfunction

End Diagnosis

10. Press button  on the diagnosis unit to switch the heater off. The display shows:



11. Wait for the end of the heater cool down period.
12. Remove the adapter cable from the cable harness and restore the connection.