



## 4 Troubleshooting

Fault code Display	Fault description	Comments • Remedial action
000	No faults	— —
004	<b>Warning:</b> Short circuit in control box, fresh air output	<ul style="list-style-type: none"> <li>• Disconnect connector S1 / B1 at the heater and at the connector B1, PIN 16 check the cable up to the fresh air fan relay for short circuit to negative, if ok → replace control box.</li> </ul>
005	<b>Warning:</b> Short circuit in control box, car alarm output	<ul style="list-style-type: none"> <li>• Disconnect connector S1 / B1 at the heater and at the connector B1, PIN 15 check the cable up to the relay isolating switch or burglar alarm system input for short circuit to negative, if ok → replace control box.</li> </ul>
006	<b>Warning:</b> Inexplicable atmospheric altitude information (Display only if heaters labelled "H-Kit" on the nameplate.)	<p>Control box has not received any explicable altitude information.</p> <ul style="list-style-type: none"> <li>• Read out fault memory in the air pressure sensor using the EDiTH diagnostics tool and correct fault.</li> </ul>
009	Cut-off ADR	ADR shutdown due to signal change from (+) to (-) at connector S1, PIN 13 (D+) or plus signal at connector S1, PIN 14 (HA+).
010	Overvoltage – cut-off	<p>Overvoltage applied to control box for at least 20 seconds without interruption – heater not working.</p> <ul style="list-style-type: none"> <li>• Disconnect connector S1 / B1 at the heater, start the vehicle's engine, measure the voltage at connector B1 between PIN 1 (cable 2.5<sup>2</sup> rt) and PIN 10 (cable 2.5<sup>2</sup> br).</li> </ul> <p>Airtronic 12 volt – voltage &gt;16 volt → check generator regulator Airtronic 24 volt – voltage &gt;32 volt → check generator regulator</p>
011	Undervoltage – cut-off	<p>Undervoltage applied to control box for at least 20 seconds without interruption – heater not working.</p> <ul style="list-style-type: none"> <li>• Disconnect connector S1 / B1 at the heater, the vehicle's engine is switched off, measure the voltage at connector B1 between PIN 1 (cable 2.5<sup>2</sup> rt) and PIN 10 (cable 2.5<sup>2</sup> br).</li> </ul> <p>The measured value and the voltage at the battery should be the same. In case of a voltage drop, check the fuses, the supply cables, the negative connections and the positive support point on the battery for corrosion and correct contact.</p>
012	Overheating at the overheating sensor	<p>Temperature of the overheating sensor too high.</p> <ul style="list-style-type: none"> <li>• Check hot air pipes for blockage → remove blockage.</li> <li>• Sum of the component ratings of air-conducting parts is too large → Check air system, if necessary re-lay – for component ratings, please refer to additional parts catalogue.</li> <li>• Check overheating sensor, for diagram and table of values please refer to Page 32, if ok → measure fuel quantity, see Page 36.</li> </ul>
013	Overheating at the flame sensor	<p>Flame sensor signals temperature at heat exchanger is too high.</p> <ul style="list-style-type: none"> <li>• Check hot air pipes for blockage → remove blockage.</li> <li>• Sum of the component ratings of air-conducting parts is too large → Check air system, if necessary re-lay – for component ratings, please refer to additional parts catalogue.</li> <li>• Check flame sensor, if ok → check overheating sensor, if overheating sensor defective → replace combination sensor, if overheating sensor ok → measure fuel quantity, see Page 36, for diagram and table of values for flame sensor and overheating sensor please refer to Page 32.</li> </ul>
014	Temperature difference between flame sensor and overheating sensor too large	<p>Temperature difference between flame sensor and overheating sensor too large</p> <ul style="list-style-type: none"> <li>• Check hot air pipes for blockage → remove blockage.</li> <li>• Sum of the component ratings of air-conducting parts is too large → Check air system, if necessary re-lay – for component ratings, please refer to additional parts catalogue.</li> <li>• Check flame sensor, if ok → check overheating sensor, if overheating sensor defective → replace combination sensor, if overheating sensor ok → measure fuel quantity, see Page 36, if fuel quantity ok → replace control box. For diagram and table of values for flame sensor and overheating sensor, see Page 32.</li> </ul>

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015	Operating lock-out	The fault code 015 is displayed, if the heater was switched back on after the fault code display 017. The hardware threshold value for the overheating sensor has been exceeded → the control box is locked. • Replace control box.
017	Overheating	The hardware threshold value for the overheating sensor has been exceeded, because the control box failed to recognise the fault code 012 or 013 → the control box is locked. If the heater is switched on again, the fault code 015 is displayed. • Replace control box.
018	Starting energy of the glow plug is too low (Display only if heaters labelled "H-Kit" on the nameplate.)	• Check glow plug (see fault code 020 and 021), if ok • Check glow plug cable harness for correct laying and damage, if ok → check cable harness for continuity, if ok → replace control box.
019	Ignition energy too low	• Check glow plug (see fault code 020 and 021), if ok • Check glow plug cable harness for correct laying and damage, if ok → check cable harness for continuity, if ok → replace control box.
020	Glow plug – interruption	• Check glow plug for function and continuity at ambient temperature 20 °C. 12 volt heater – 0.42 Ω up to ± 0.7 Ω 24 volt heater – 1.2 Ω up to ± 2.0 Ω
021	Glow plug – short circuit, overload or short circuit after negative	• If the values are ok → check glow plug lead harness for damage and continuity, if ok → replace control box.
022*	Glow plug, output (+) – short circuit after U <sub>B</sub> (battery voltage)	• Check glow plug lead harness for correct laying and damage, if ok → check lead harness for continuity, if ok → replace control box.
025*	Diagnostics cable bl/ws – short circuit – after U <sub>B</sub> (battery voltage)	Fault code display is not possible. This fault code cannot be read out from the fault memory until the fault has been corrected. • Check diagnostics cable for correct laying and possible damage.
031	Blower – interruption	• Check that the lead harness of the blower motor has been correctly laid and check for damage, if ok → remove lead harness at control box and check for continuity, if ok → replace control box.
032	Blower motor – short circuit after negative <b>Please note!</b> Ensure compliance with the test voltage (see page 12). The component is destroyed if the voltage value is exceeded. <b>Ensure the power pack has adequate short-circuit resistance – min 20 A.</b>	• Carry out functional test on the blower motor, to do this remove the connector from the control box. Apply a test voltage (see page 12) to the blower motor and measure the current intensity after 40 sec. Current intensity < 6.5 A – blower motor ok → replace control box. Current intensity > 6.5 A → replace blower. • Check wiring for short circuit.
033	Blower motor won't rotate or short circuit after negative <b>Please note!</b> Ensure compliance with the test voltage (see page 12). The component is destroyed if the voltage value is exceeded. <b>Ensure the power pack has adequate short-circuit resistance – min 20 A.</b>	Speed deviation > 10 % from setpoint value for longer than 30 seconds. Use a non-contact r.p.m. counter to measure the speed of the combustion air fan (see page 12 for test speed and test voltage). • Speed too low: Blower blocks – check blower for free running, if necessary remove foreign body, if ok → check blower (see fault code 032). • Speed too high: – Magnet missing from blower impeller → replace blower. – Speed sensor in control box is defective → replace control box. • Check wiring for short circuit.

\* This fault code or ohmic value is valid for a new generation control box only. This differs from the control box to date by its cable loom wrapped in cable tape and by a temperature sensor mounted on the side, which becomes visible when the cover is removed.



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034*	Blower motor, outlet (+) short circuit after $U_B$ (battery voltage)	<ul style="list-style-type: none"> <li>• Check that the lead harness of the blower motor has been correctly laid and check for damage, if ok → remove lead harness at control box and check for continuity, if ok → replace control box.</li> </ul>
047	Metering pump – short circuit or overload	<ul style="list-style-type: none"> <li>• Remove connector from the metering pump, if the fault code 048 (interruption) is displayed the metering pump is defective → replace metering pump.</li> <li>• If the fault code 047 continues to be displayed, disconnect connector S1 / B1 at the heater, and at the connector B1, PIN 5 check the cable 1<sup>2</sup> gn/rt up to the metering pump for short circuit to negative (PIN 10), if ok → replace control box.</li> </ul>
048	Metering pump – interruption	<ul style="list-style-type: none"> <li>• Disconnect connector from metering pump and measure the resistance value of the metering pump (see Page 12 for values), if resistance value ok, re-connect the cable loom to the metering pump.</li> <li>• Disconnect connector S1 / B1 at the heater and measure the resistance value (see Page 12) between PIN 5 and PIN 10, if ok → replace control box.</li> </ul>
049*	Metering pump outlet (+) Short circuit – after $U_B$ (battery voltage)	<ul style="list-style-type: none"> <li>• Check that the lead harness of the metering pump has been correctly laid and check for damage, if ok → remove lead harness and check for continuity, if ok → replace control box.</li> </ul>
050	Too many failed start attempts (operating lock-out)	<p>The control box locks after too many failed start attempts (max. 255 start attempts).</p> <ul style="list-style-type: none"> <li>• Unlock the control box by deleting the fault memory with the timer, the diagnostic unit, EDiTH diagnostic tool, the TP5 radio remote control / EasyStart R+ and the EasyStart T timer.</li> </ul>
051	Flame detected when switching on	<p>If, after being switched on, the resistance value of the flame sensor is 1274 <math>\Omega</math> (&gt; 70 °C) the heater's fan runs for approx 15 min to cool down, if the resistance does not fall below the aforementioned value within 15 min the heater is switched off.</p> <ul style="list-style-type: none"> <li>• Check flame sensor, see Page 32 for diagram and table of values, if ok → replace control box.</li> </ul>
052	Safety time exceeded	<p>No flame detected within the start phase.</p> <ul style="list-style-type: none"> <li>• Check exhaust and combustion air system.</li> <li>• Check fuel supply / measure fuel quantity, see Page 36.</li> <li>• Check spark plug (see fault code 020 and 021)</li> <li>• Check flame sensor, diagram and table of values, see Page 32, if ok → replace control box.</li> </ul>
053 054 055 056	Flame cutout in the “POWER” control stage “HIGH” control stage “MEDIUM” control stage “LOW” control stage	<p>The heater has ignited (flame detected) and signals flame cutout during a power stage.</p> <ul style="list-style-type: none"> <li>• Check exhaust and combustion air system.</li> <li>• Check fuel supply / measure fuel quantity, see Page 36.</li> <li>• Check flame sensor, diagram and table of values, see Page 32, if ok → replace control box.</li> </ul>
057	Flame cutout from start phase (Display only if heaters labelled “H-Kit” on the nameplate.)	<p>A flame cutout was detected during the start phase..</p> <ul style="list-style-type: none"> <li>• Check exhaust and combustion air system.</li> <li>• Check fuel supply / measure fuel quantity, see Page 36.</li> <li>• Check glow plug (see fault code 020 and 021).</li> <li>• Check flame sensor, diagram and values table, see page 32, if ok → replace control box.</li> </ul>
060	External temperature sensor – interruption	<ul style="list-style-type: none"> <li>• Disconnect the connector S4 / B4 of the external temperature sensor and measure the resistance value at connector B2, for diagram and table of values see Page 12, if temperature sensor ok, reassemble connector S4 / B4.</li> <li>• Disconnect connector S1 / B1 at the heater and measure the resistance value in connector housing B1 between PIN 6 and PIN 12. If interrupted the ohmic value is &gt; 7175 <math>\Omega</math> / 3 k<math>\Omega</math>*.</li> </ul> <p>If resistance value ok → replace control box.</p>

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061	External temperature sensor – short circuit	<ul style="list-style-type: none"> <li>• Disconnect connector S4 / B4 of the external temperature sensor, if fault code 060 is displayed → check external temperature sensor, diagram and table of values, see Page 32. If temperature sensor ok → check connection cables 0.5 gr and 0.5 br/ws for short circuit, if ok, reassemble the connector S2 / B2.</li> <li>• Disconnect connector S1 / B1 at the heater and measure the resistance value in connector housing B1 between PIN 6 and PIN 12. In case of short circuit the ohmic value is <math>&lt; 486 \Omega / &lt; 800 \Omega^*</math>. If error 061 continues to be displayed → replace control box.</li> </ul>
062	Control unit – interruption <b>Please note!</b> Refer to notes on diagnosis with mini-controller on page 14.	<p>Heater runs in „High“ control stage only</p> <ul style="list-style-type: none"> <li>• Remove connector at the control unit and measure the resistance value of the setpoint potentiometer, for connector pins see Page 42 onwards. If the resistance value is ok, reconnect connector at the control unit.</li> <li>• Disconnect connector S1 / B1 at the heater, measure the resistance value between PIN 6 and PIN 7 in connector housing B1, if resistance value ok → replace control box. Resistance value in case of interruption <math>&gt; 7175 \Omega / &gt; 3 \text{ k}\Omega^*</math>. Normal values: see page 12.</li> </ul>
063	Control unit – short circuit Fault recognition only works in heating mode. If, on the other hand, the short circuit has already occurred and then the heater is switched on, „Ventilation“ is active (not a fault code).	<ul style="list-style-type: none"> <li>• If the „Ventilate“ switch is installed, disconnect it and check it works. If not ok → replace switch.</li> <li>• Disconnect connector at control unit, if error code 062 is displayed, replace the control unit. If control unit ok, check connection cables 0.5 gr/rt and 0.5 br/ws for short circuit, if ok → reconnect connector at control unit.</li> <li>• Disconnect connector S1 / B1 at the heater, if the error 063 continues to be displayed → replace control box. Resistance value in case of short-circuit <math>&lt; 486 \Omega / &lt; 800 \Omega^*</math>. Normal values: see page 12.</li> </ul>
064	Flame sensor – interruption	<ul style="list-style-type: none"> <li>• Dismantle control box and disconnect green connector from control box. Check flame sensor, diagram and table of values, see Page 32, if flame sensor ok → replace control box. Resistance value in case of interruption <math>&gt; 7175 \Omega / &gt; 3 \text{ k}\Omega^*</math>.</li> </ul>
065	Flame sensor – short circuit	<p>Dismantle control box, remove green connector from control box, if error 064 is displayed → replace combination sensor. If error 065 continues to be displayed → replace control box. Resistance value in case of short circuit <math>&lt; 486 \Omega / &lt; 500 \Omega^*</math>, see also diagram on Page 32.</p>
071	Overheating sensor – interruption	<ul style="list-style-type: none"> <li>• Dismantle control box, disconnect blue and green connectors from control box. Measure resistance value at blue connector PIN 1 (cable 0.5<sup>2</sup> bl) and at green connector PIN 2 (cable 0.5<sup>2</sup> br/ws), if ok, → replace control box. Resistance value in case of interruption <math>&gt; 223 \text{ k}\Omega / &gt; 1600 \text{ k}\Omega^*</math>, see also diagram on Page 32.</li> </ul>
072	Overheating sensor – short circuit	<ul style="list-style-type: none"> <li>• Dismantle control box, remove blue connector from control box, if error 071 is displayed → replace combination sensor. If error 072 continues to be displayed → replace control box. Resistance value in case of short circuit <math>&lt; 183 \Omega / &lt; 95 \Omega^*</math>, see also diagram on Page 32.</li> </ul>
074*	Control box defective	<ul style="list-style-type: none"> <li>• Overheating threshold value is not detected by control box → replace control box.</li> </ul>
090	Control box defective (internal fault)	<ul style="list-style-type: none"> <li>• Replace control box.</li> </ul>
091	External interference voltage	<ul style="list-style-type: none"> <li>• Control box fault due to interference voltages from the vehicle's electrical system. Possible causes: Poor battery, charger → remove interference voltage.</li> </ul>
092	Control box is defective (ROM error)	<ul style="list-style-type: none"> <li>• Replace control box.</li> </ul>
093*	Control box defective	<ul style="list-style-type: none"> <li>• Replace control box.</li> </ul>

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094	Control box defective (EEPROM-Fehler)	• Replace control box.
095*	Control box defective	• Replace control box.
096	Internal temperature sensor defective	• Replace control box or use an external room temperature sensor..
097	Control box defective	• SReplace control box.
098*	Control box defective	• Replace control box.
099*	Too many resets in sequence  Transistor error in control box	• Voltage short-term < 5 – 6 volt (for 12 volt) or < 7 – 8 volt (for 24 volt). In case of a voltage drop, check the fuses, the supply cables, the negative connections and the positive support point on the battery for corrosion and correct contact.  Test control box with testing device, if ok → check lead harness of the external components has been correctly laid and check for damage, if ok → check lead harness for continuity, if ok → replace control box.

### Air pressure sensor fault code display

<b>Fault code display</b>	<b>Fault description</b>	<b>Comments</b> • <b>Remedial action</b>
0	No faults	—
11	Communication loss	Interruption of the diagnostics cable between the control box (heater) and the air pressure sensor • Check wiring and plug-in connections
12	No altitude adjustment	Control box (heater) does not support altitude operation with the air pressure sensor • Use a control box (heater) which supports altitude adjustment
13	Air pressure sensor fault	The air pressure sensor is defective • Replace the air pressure sensor

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