

4 Troubleshooting

Fault code Display	Fault description	Comments • Remedial action
000	No faults	— —
004	Warning: Short circuit in control box, fresh air output	<ul style="list-style-type: none"> • 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, see page 28.
005	Warning: Short circuit in control box, car alarm output	<ul style="list-style-type: none"> • Disconnect connector S1 / B1 at the heater and at the connector B1, PIN 15 check the cable up to the relay isolating switch or the car alarm input for short circuit to negative, if ok → replace control box, see page 28.
006	Warning: Inexplicable atmospheric altitude information (display only in heaters with "H-Kit" marking on the nameplate.)	<p>Control box has not received any explicable altitude information.</p> <ul style="list-style-type: none"> • Read out fault memory in the air pressure sensor using the EDiTH diagnostics tool and correct fault.
009	ADR shutdown	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 cutout	<p>Overvoltage applied to control box for at least 20 seconds without interruption – heater not working.</p> <ul style="list-style-type: none"> • Disconnect connector S1 / B1 at the heater, start the vehicle's engine, measure the voltage at connector B1 between PIN 1 (cable 2.5² rt) and PIN 10 (cable 2.5² br). Airtronic L 12 volt – voltage >16 volt → check generator regulator. Airtronic L 24 volt – voltage >32 volt → check generator regulator.
011	Undervoltage cutout (Combination sensor)	<p>Undervoltage applied to control box for at least 20 seconds without interruption – heater not working.</p> <ul style="list-style-type: none"> • Disconnect connector S1 / B1 at the heater, the vehicle's engine is switched off, measure the voltage at connector B1 between PIN 1 (cable 2.5² rt) and PIN 10 (cable 2.5² br). 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.
012	Overheating at the overheating sensor (combination sensor)	<p>temperature of the overheating sensor too high.</p> <ul style="list-style-type: none"> • Check hot air pipes for blockage → remove blockage. • 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. • Check overheating sensor, for diagram and table of values please refer to page 30, if ok → measure fuel quantity, see page 33.
013	Overheating at the flame sensor (combination sensor)	<p>Flame sensor signals temperature at heat exchanger is too high.</p> <ul style="list-style-type: none"> • Check hot air pipes for blockage → remove blockage. • 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. • Check flame sensor, if ok → check overheating sensor, if overheating sensor defective → replace combination sensor, if overheating sensor ok → measure fuel quantity, see page 33, for diagram and table of values for flame sensor and overheating sensor please refer to page 30.

Please note!

If the fan motor or controller is defective, it is necessary to check the number of hours run and, if possible, the number of ignitions (see Page 32).



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Fault code Display	Fault description	Comments • Remedial action
014	Temperature difference between flame sensor and overheating sensor too large	Temperature difference between flame sensor and overheating sensor too large <ul style="list-style-type: none">• Check hot air pipes for blockage → remove blockage.• 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.• Check flame sensor, if ok → check overheating sensor, if overheating sensor defective → replace combination sensor, if overheating sensor ok → measure fuel quantity, see page 33, if fuel quantity ok → replace control box, see page 28. For diagram and table of values for flame sensor and overheating sensor see page 30.
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. <ul style="list-style-type: none">• Switch off control box, see page 28.
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. <ul style="list-style-type: none">• Switch off control box, see page 28.
018	Glow plug starting energy too low (display only in heaters with "H-Kit" marking on the nameplate.)	<ul style="list-style-type: none">• Check glow plug (see fault code 020 and 021), if ok.• Check glow plug lead harness for correct laying and damage, if ok → check lead harness for continuity, if ok → replace control box, see Page 28.
020	Glow plug – interruption	<ul style="list-style-type: none">• Check glow plug is working and for continuity.• Heater 12 volt – approx. $0.6 \Omega \pm 0.04 \Omega$ (heat resistance) Heater 24 volt – approx. $2 \Omega \pm 0.2 \Omega$ (heat resistance)• If the values of the continuity test and/or functional test are ok → check the glow plug's lead harness for damage and continuity, if ok → replace control box, see Page 28.
021	Glow plug output (-), short circuit, overload or earth short circuit	<ul style="list-style-type: none">• Check glow plug is working and for continuity.• Heater 12 volt – approx. $0.6 \Omega \pm 0.04 \Omega$ (heat resistance) Heater 24 volt – approx. $2 \Omega \pm 0.2 \Omega$ (heat resistance)• If the values of the continuity test and/or functional test are ok → check the glow plug's lead harness for damage and continuity, if ok → replace control box, see Page 28.
022	Glow plug output (+), Short circuit after U_B (battery voltage)	<ul style="list-style-type: none">• Check glow plug lead harness for correct laying and damage, if ok → check lead harness for continuity, if ok → replace control box, see Page 28.
025	Diagnostics cable bl/ws – short circuit – after U_B (battery voltage)	This fault code cannot be displayed as the diagnostics cable is probably defective. <ul style="list-style-type: none">• Check diagnostics cable for correct laying and possible damage.

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Fault code Display	Fault description	Comments • Remedial action
030	EMK blower motor outside the permissible range	<p>Impeller or combustion air blower motor blocked (frozen, soiled, sluggish, lead harness grinds against shaft end ...)</p> <ul style="list-style-type: none"> • Remove blockage. • Check wiring for short circuit. • Speed measurement of the combustion air blower motor: <ul style="list-style-type: none"> – Dismantle combustion air fan, see page 31. – Heater 12 V: carry out test with 11,3 volt ± 0.1 volt. – Heater 24 V: carry out test with 23,6 volt ± 0.1 volt. <p>Remove the connector from the control box and apply voltage. Apply marking (white paint) to the impeller and measure the speed using a non-contact r.p.m. counter: If the measured speed in the "high" heating level is outside the range <ul style="list-style-type: none"> – Heater 12 V: n = 4650–7000 rpm, – Heater 24 V: n = 4650–6500 rpm, then replace the combustion air fan, see page 31. If the measured speed is within the range, then replace the control box, see page 28.</p>
031	Blower motor interruption	<ul style="list-style-type: none"> • Check that the lead harness of the blower motor has been correctly laid and for damage, if ok \rightarrow remove lead harness at control box and check for continuity, if ok \rightarrow replace control box, see page 28.
032	Blower motor – earth short circuit <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 5px 0;">Please note!</div> In the 12 volt heater, carry out the functional check with max. 11.3 volt. In the 24 volt heater, carry out the functional check with max. 23.6 volt. The component is destroyed if the voltage values are exceeded. Ensure the power pack has adequate short-circuit resistance – min. 20 A.	<ul style="list-style-type: none"> • Carry out functional test on the blower motor, to do this remove the connector from the control box. Apply a voltage of 11.3 v or 23.6 V ± 0.1 v to the blower motor and after 40 sec measure the current intensity. Heater 12 volt: current intensity < 9 A or heater 24 volt: current intensity < 4 A – blower motor ok \rightarrow replace control box, see page 28. Heater 12 volt: current intensity > 9 A or heater 24 volt: current intensity > 4 A \rightarrow replace combustion air fan, see page 31. • Check wiring for short circuit.
034	Blower motor outlet (+) - short circuit after U_B (battery voltage)	<ul style="list-style-type: none"> • Check that the lead harness of the blower motor has been correctly laid and check for damage, if ok \rightarrow remove lead harness at control box and check for continuity, if ok \rightarrow replace control box, see page 28.
047	Metering pump short circuit or overload	<ul style="list-style-type: none"> • Remove connector from the metering pump, if the fault code 048 (interruption) is displayed the metering pump is defective \rightarrow replace metering pump. • 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 1² gn / rt up to the metering pump for short circuit to negative (PIN 10), if ok \rightarrow replace control box, see page 28.
048	Metering pump interruption	<ul style="list-style-type: none"> • Remove connector from the metering pump and measure the resistance value of the metering pump (see Page 9 for values), if resistance value ok \rightarrow reconnect cable loom to the metering pump. • Disconnect connector S1 / B1 at the heater and measure the resistance value between PIN 5 and PIN 10, if ok \rightarrow replace control box, see page 28.
049	Metering pump outlet (+), short circuit after U_B (battery voltage)	<ul style="list-style-type: none"> • Check that the lead harness of the metering pump has been correctly laid and check for damage, if ok \rightarrow remove lead harness and check for continuity, if ok \rightarrow replace control box, see Page 28.

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Fault code Display	Fault description	Comments • Remedial action
050	Too many failed start attempts (operating lock-out)	The control box locks after too many failed start attempts (max. 255 start attempts). <ul style="list-style-type: none">• Unlock the control box by deleting the fault memory with the timer, the diagnostic unit, the EDiTH customer service program, the TP5 / EasyStart R+ radio remote control and the EasyStart T timer.
051	Flame detected when switching on	If, after being switched on, the resistance value of the flame sensor is 1274 Ω (> 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. <ul style="list-style-type: none">• Check the flame sensor, for diagram and table of values please refer to page 30, if ok → replace control box, see page 28.
052	Safety time exceeded	No flame detected during the start phase. <ul style="list-style-type: none">• Check exhaust and combustion air system.• Check fuel supply / measure fuel quantity, see page 33.• Check spark plug (see fault code 020 and 021).• Check flame sensor, for diagram and table of values please refer to page 30, if ok → replace control box, see page 28.
053 054 055 056	Flame cut-out in the „POWER“ control stage „HIGH“ control stage „MEDIUM“ control stage „LOW“ control stage	The heater has ignited (flame detected) and signals flame cutout during a power stage. <ul style="list-style-type: none">• Check exhaust and combustion air system.• Check fuel supply / measure fuel quantity, see page 33.• Check flame sensor, for diagram and table of values please refer to page 30, if ok → replace control box, see page 28.
057	Flame cut-out from start phase (display only in heaters with "H-Kit" marking on the nameplate.)	A flame cut-out was detected during the start phase.. <ul style="list-style-type: none">• Check exhaust and combustion air system.• Check fuel supply / measure fuel quantity, see Page 33.• Check glow plug (see fault code 020 and 021).• Check flame sensor, for diagram and table of values please refer to page 30, if ok → replace control box, see page 28.
060	External temperature sensor – interruption	<ul style="list-style-type: none">• Disconnect the connector S4 / B4 of the external temperature sensor and measure the resistance value at connector B4, for diagram and table of values see Page 30, if temperature sensor ok, reassemble connector S4 / B2.• 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 > 3 kΩ. If resistance value ok → replace control box, see page 28.
061	External temperature sensor – short circuit	<ul style="list-style-type: none">• 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 30. If temperature sensor ok → check connection cables 0.5 gr and 0.5 br/ws for short circuit, if ok, reassemble the connector S4 / B4.• 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 < 800 Ω. If the error 061 continues to be displayed, then replace control box, see Page 28.

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062	Control unit – interruption <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 5px 0;">Please note!</div> Read and follow notes on diagnosis using mini controller on Page 11.	Heater runs in „High“ control stage only <ul style="list-style-type: none"> • Remove connector at the control unit and measure the resistance value of the setpoint potentiometer, for connector pins see Page 36 ff. If the resistance value is ok, reconnect connector at the control unit. • 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, see page 28. Resistance value in case of interruption > 3 kΩ. Normal values: see page 9.
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"> • If „Ventilate“ switch is installed, disconnect it and check it is working. If ok → disconnect the connector at the control unit, if error code 062 is displayed, replace control unit. • If control unit ok → check connection cables 0.5² gr / rt and 0.5² br / ws for short circuit, if ok → reconnect connector at control unit. • Disconnect connector S1 / B1 at the heater, if the error 063 continues to be displayed → replace control box, see Page 28. Resistance value in case of short circuit between PIN 6 and PIN 7 < 800 Ω. Normal values: see page 9.
064	Flame sensor (combination sensor) – interruption	<ul style="list-style-type: none"> • Dismantle control box and disconnect green connector from control box. Check flame sensor, for diagram and table of values please refer to page 30, if flame sensor ok → replace control box, see page 28. Resistance value in case of interruption > 3 kΩ.
065	Flame sensor (combination sensor) – short circuit	<ul style="list-style-type: none"> • Dismantle control box, remove green connector from control box, if error 064 is displayed → replace combination sensor, see page 29. If error 065 continues to be displayed → replace control box, see page 28. Resistance value in case of short circuit < 500 Ω, see also diagram on page 30.
071	Overheating sensor – interruption	<ul style="list-style-type: none"> • Dismantle control box, disconnect blue and green connectors from control box. Measure resistance value at the blue connector PIN 1 (cable 0.5² bl) and at the green connector PIN 2 (cable 0.5² br / ws), if ok → replace control box, see page 28. Resistance value in case of interruption > 1600 kΩ, see also diagram on page 30.
072	Overheating sensor – short circuit	<ul style="list-style-type: none"> • Dismantle control box, remove blue connector from control box, if error 071 is displayed → replace combination sensor, see Page 29. If error 072 continues to be displayed → replace control box, see page 28. Resistance value in case of short circuit < 95 Ω, see also diagram on page 30.
074	Control box defective	<ul style="list-style-type: none"> • Overheating threshold value is not detected by control box → replace control box, see page 28.
090	Control box defective (internal fault)	<ul style="list-style-type: none"> • Replace control box, see page 28.
092	Control box defective (ROM error)	<ul style="list-style-type: none"> • Replace control box, see page 28.
093	Control box defective	<ul style="list-style-type: none"> • Replace control box, see page 28.
094	Control box defective (EEPROM error)	<ul style="list-style-type: none"> • Replace control box, see page 28.
095	Steuergerät defekt	<ul style="list-style-type: none"> • Replace control box, see page 28.
096	Internal temperature sensor defective	<ul style="list-style-type: none"> • Replace control box, see Page 28, or use an external temperature sensor.

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097	Control box defective	• Replace control box, see page 28.
098	Control box defective	• Replace control box, see page 28.
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, see page 28.

Air pressure sensor fault code display

Fault code Display	Fault description	Comments • Remedial action
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 adjustmen	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 faul	The air pressure sensor is defective. • Replace the air pressure sensor.

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