

Maintenance

Water pressure and quality

Check if the water pressure and quality meet the requirements. Consult the chapter “commissioning: water and hydraulic system” for more detailed information.

Water flow rate

Check if the water flow rate through the boiler is within the limits. Consult the chapter “commissioning: check water flow” for more detailed information.

Combustion analysis

Check the combustion at full load and minimum load, correct the settings if necessary. An additional reference check at 50% load is recommended. Consult the chapter “commissioning: combustion analysis” for more detailed information.

Gas pressure

Check the dynamic pressure of the gas supply to the boiler, when the boiler is running at full load. In case of a boiler cascade, all boilers should be running at full load. See technical data for required values.

Gas tightness check

Check the tightness of all sealed connections with an approved soap or electronic analyzer, for example:

- Test points;
- Bolt connections;
- Gaskets of mixing system, etc.

Safety devices

Check the functionality and the settings of all safety devices connected. Consult the chapter “commissioning: Check functionality of safety devices” for more detailed information.

Maintenance

Maintenance Protocol

Maintenance Protocol R40			
Project			
Boiler type		Project	
Serial number		Address	
Year		City	
Nominal load (Hi)	[kW]	Date	
Nominal output (Hi)	[kW]	Engineer	
System			
Water pressure	[bar]		
Water pH	[-]		
Water hardness	[°dH]		
Water chloride	[mg/l]		
Water ΔT full load	[°C]		
Water Δp_{boiler} [kPa]			
Water flow	[m ³ /h]		
Pump setting	[-]		
Safety devices			
High limit setting	[°C]	Water flow sensor checked	<input type="checkbox"/>
Temp. limiter setting	[°C]	Fluegas sensor checked	<input type="checkbox"/>
Min. gas pressure switch setting	[mbar]	Water flow switch checked	<input type="checkbox"/>
Ignition time burner	[sec]		
Combustion analysis			
	100% load	50% load	Min. load
Gas consumption	[m ³ /h]	[m ³ /h]	[m ³ /h]
Gas pressure	[mbar]	[mbar]	[mbar]
CO ₂ [%]		[%]	[%]
O ₂ [%]		[%]	[%]
CO [ppm]		[ppm]	[ppm]
NOx [ppm]		[ppm]	[ppm]
T _{atmospheric} [°C]		[°C]	[°C]
T _{fluegas} [°C]		[°C]	[°C]
T _{water, flow} [°C]		[°C]	[°C]
T _{water, return} [°C]		[°C]	[°C]
Ionisation current	[µA]	[µA]	[µA]
p _{fan} [mbar]		[mbar]	[mbar]
p _{top panel} [mbar]		[mbar]	[mbar]
p _{combustion chamber} [mbar]		[mbar]	[mbar]
Remarks			

Lockouts

In case of a lockout, a warning symbol (⚠) and a flashing error code appears on the display. The cause of a fault should first be determined and eliminated before the boiler is being reset. The table below shows all possible lockouts with indication of possible cause.

Error code	Description of error
0	No error
10	Outside temperature sensor error
20	Boiler temperature 1 sensor error
26	Common flow temperature sensor error
28	Flue gas temperature sensor error
30	Flow temperature 1 sensor error
32	Flow temperature 2 sensor error
38	Flow temperature primary controller sensor error
40	Return temperature 1 sensor error
46	Return temperature cascade sensor error
47	Common return temperature sensor error
50	DHW temperature 1 sensor error
52	DHW temperature 2 sensor error
54	DHW primary controller sensor error
57	DHW circulation temperature sensor error
60	Room temperature 1 sensor error
65	Room temperature 2 sensor error
70	Buffer storage tank temperature 1 sensor error
71	Buffer storage tank temperature 2 sensor error
72	Buffer storage tank temperature 3 sensor error
73	Collector temperature 1 sensor error
74	Collector temperature 2 sensor error
82	LPB address collision
83	BSB wire short-circuit
84	BSB address collision
85	BSB RF communication error
91	EEPROM error lockout information
98	Extension module 1 error (collective error)
99	Extension module 2 error (collective error)
100	2 clocktime masters (LPB)
102	Clocktime master without reserve (LPB)
103	Communication error
105	Maintenance message
109	Boiler temperature supervision
110	STB lockout
111	TW cutout
121	Flow temperature 1 (HC1) supervision
122	Flow temperature 2 (HC2) supervision
125	Pump supervision error
126	DHW charging supervision
127	Legionella temperature not reached
128	Loss of flame during operation
129	Fan error or LP error
130	Flue gas temperature limit exceeded
131	Burner fault
132	Gas Pressure or Air Pressure error
133	No flame during safety time
146	Configuration error collective message

Lockouts

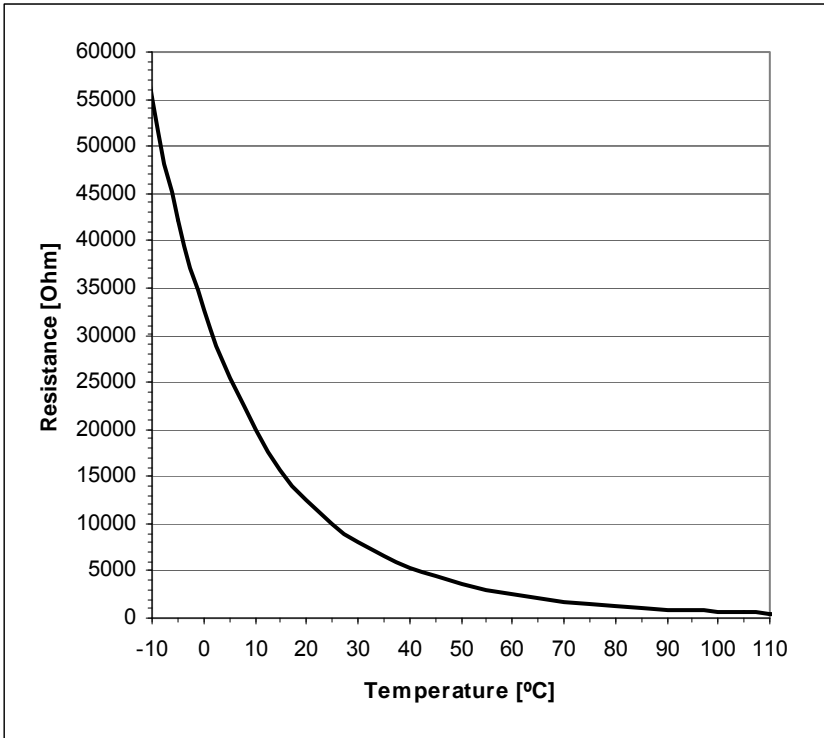
Error code	Description of error
151	Internal error
152	Parameterization error
153	Unit manually locked
160	Fan error
162	LP error, does not close
164	Error heating circuit flow switch
166	LP error, does not open
171	Alarm contact H1 or H4 active
172	Alarm contact H2 (EM1, EM2 or EM3) or H5 active
173	Alarm contact H6 active
174	Alarm contact H3 or H7 active
178	Limit thermostat heating circuit 1
179	Limit thermostat heating circuit 2
183	Unit in parameterization mode
193	Pump supervision error after flame on
216	Fault boiler
217	Fault sensor
241	Flow sensor / solar sensor error
242	Return sensor / solar sensor error
243	Swimming pool temperature sensor error
270	Limit function
317	Mains frequency outside permissible range
320	DHW charging temperature sensor error
324	BX same sensors
325	BX / extension module same sensors
326	BX / mixing group same sensors
327	Extension module same function
328	Mixing group same function
329	Extension module / mixing group same function
330	Sensor BX1 no function
331	Sensor BX2 no function
332	Sensor BX3 no function
333	Sensor BX4 no function
334	Sensor BX5 no function
335	Sensor BX21 no function (EM1, EM2 or EM3)
336	Sensor BX22 no function (EM1, EM2 or EM3)
337	Sensor BX1 no function
338	Sensor BX12 no function
339	Collector pump Q5 not available
340	Collector pump Q16 not available
341	Solar Collector sensor B6 not available
342	DHW sensor B31 not available
343	Solar integration not available
344	Solar controlling element buffer K8 not available
345	Solar controlling element swimming pool K18 not available
346	Solid fuel boiler pump Q10 not available
347	Solid fuel boiler comparison sensor not available
348	Solid fuel boiler address error

Lockouts

Error code	Description of error
349	Buffer return valve Y15 not available
350	Puffer address sensor
351	Primary controller / system pump address error
352	Pressureless header address error
353	Common flow sensor B10 not available
371	Flow temperature 3 (heating circuit 3) supervision
372	Limit thermostat heating circuit 3
373	Extension module 3 error (collective error)
349	Buffer return valve Y15 not available
350	Puffer address sensor
351	Primary controller / system pump address error
352	Pressureless header address error
353	Common flow sensor B10 not available
371	Flow temperature 3 (heating circuit 3) supervision
372	Limit thermostat heating circuit 3
373	Extension module 3 error (collective error)
386	Fan speed has lost valid range
388	DHW error no function
426	Feedback flue gas damper
427	Configuration flue gas damper
431	Sensor primary heat exchanger
432	Functional earth not connected
433	Temperature primary heat exchanger to high

Sensor values

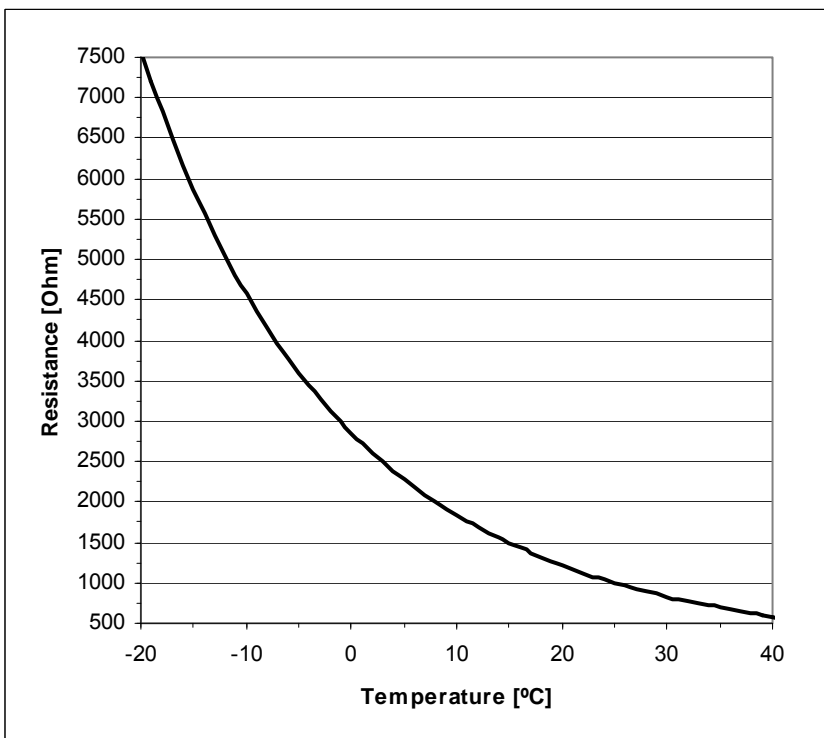
**NTC 10kΩ temperature sensor
(flow, return, flue gas, DHW and header sensor)**



The diagrams show the sensor values for all boiler sensors and optional sensors available in accessory kits. The diagrams contain average values, as all sensors are liable to tolerances.

When measuring the resistance values, the boiler should always be switched off. Measure close to the sensor, in order to avoid value deviations.

**NTC 1kΩ temperature sensor
(outdoor sensor)**



Declaration of Conformity

Declaration of Conformity

Rendamax BV, Hamstraat 76, 6465 AG Kerkrade (NL),
Declares that the product

R40

Is in conformity with the following standards:

EN 298
EN 483
EN 15420
EN 55014-1 / -2
EN 61000-3-2 /-3
EN 60 335-1/ -2

And in accordance with the guidelines of directives:

92 / 42 / EEC (boiler efficiency directive)
2009 / 142 / EEC (gas appliance directive)
2006 / 95 / EEC (low voltage directive)
2004 / 108 / EEC (EMC directive)

This product is designated with CE number:

CE – 0063CM3576

Kerkrade, 16-11-2010



ing. G.A.A. Jacobs
Managing Director