



Albatros² Boiler Management Unit LMS14... / LMS15...

User Documentation

LMS and this User Documentation are intended for use by OEMs and their service departments which integrate LMS in their products!



Warning!

This document is only valid in connection with User Manual U7471 / U7472 covering the LMS!
The full scope of safety, warning and technical notes contained in User Manual LMS U7471 / U7472 applies unaltered!

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1 Overview

1.1 Target group of users

- OEM development engineers

1.2 Supplementary documentation

User Manual LMS14.....	U7471
User Manual LMS15.....	U7472
Environmental Product Declaration LMS.....	E7471
Data Sheet LMS	N7471
Product range overview LMS	Q7471
Product range overview Albatros ²	Q2359
Albatros ² Hydraulic subschema and extra functions.....	P2359

1.3 Type summary t

This User Documentation applies only for the following types:

- LMS14.xxxx1
- LMS15.xxxx1

2 Use

2.1 Specified features

The LMS provide all supervisory and control functions required for burner operation, space heating and DHW heating. They also offer modular system extensions in the form of integrated communication interfaces.

They are especially suited for:

- Modulation air via PWM fan
- Intermittent operation with direct ignition of the main flame
- Power range <70 kW
- Heating boilers or combi boilers with DHW storage tanks or instantaneous DHW heaters
- Flame supervision via ionization probe

Only LMS14...

Also for:

- Condensing oil units
- Modulation oil via pump (flanged on fan)

3 Standards and certificates



Conformity to EEC directives
- Electromagnetic compatibility EMC (immunity)
- Low-voltage directive

2004/108/EC
2006/95/EC



ISO 9001: 2008
Cert. 00739



ISO 14001: 2004
Cert. 38233



4 Software changes

Note!

To prevent the need to create a new version of the parameters, the new setting options use parameters from the Sitherm Pro menus that were already available but no longer in use.

These parameters can only be changed using the ACS420, ACS434 or ACS435.



The following applies to these parameters only:

If a value outside the range is transferred to the LMS, the LMS resets it to the default value.

This behavior will be deactivated in the next software version.

For the new setting options, new parameters with the correct designations will be created in a subsequent software version.

4.1 Drift test sequence (LMS15 only)

Control curve Kni A

<i>Line no.</i>	<i>Operating line</i>
[3769.1]	Control curve Kni A

Parameter *Control curve Kni A* [3769.1] in Sitherm Pro natural gas menu.

Range: 3 to 15 (total number of ADA attempts, value 3 means that 2 repetitions are permitted)

Default value: 10

Step size: 1

Read access: OEM

Write access: OEM

Situation to date:

If an ADA test is unsuccessful, a new attempt is made the next time the LMS15 is started. This is repeated 10 times. Following this, the next test is set to take place in 6 hours' time. If tests need to be performed at both the upper drift test point and the lower drift test point, 5 attempts are made at the upper point first, followed by 5 attempts at the lower point.

New behavior:

The number of attempts can be set using a parameter. This parameter is limited in that it allows no fewer than 2 repetitions to be performed. If tests are required at both ADA points, the drift tests are performed at the upper point first. If at least half of the attempts have been carried out or there is only one test remaining, the system switches from the upper to the lower drift test point. If none of the tests are successful despite repetitions taking place, ADA is set to take place in 6 hours' time.

4.2 ADA mask after the double interval (LMS15 only)

Situation to date:

Once the *Drift test interval h* [3857.1] has elapsed, an ADA test is performed each time the burner starts up. If the test is unsuccessful, it is performed again the next time the burner starts up. After 10 attempts (see drift test sequence), the test is set to take place in 6 hours' time. After the double interval elapses, drift tests are no longer set to take place in this way. From this point on, an ADA test is performed each time the burner starts up.

New behavior:

If the burner operating time *Drift test interval h* [3857.1] is exceeded, an ADA test is performed each time the burner starts up. If the test is not completed successfully, it is repeated the next time the burner starts up. After a parameterizable number of repetitions (see drift test sequence), the test is set to take place in 6 hours' time. Once *DriftTest warn stag1* [3855.1] has been reached, the test is no longer set in this way. From this point on, an ADA test is performed each time the burner starts up.

Additional parameters

Line no.	Operating line
[3857.1]	Drift test interval h
[3769.1]	Control curve Kni A
[3855.1]	DriftTest warn stag1

4.3 Deactivating the forced drift test (LMS15 only)

DriftTest warn stag1

Line no.	Operating line
[3855.1]	DriftTest warn stag1

From this threshold point, drift tests are also performed in controller stop or chimney sweep mode.

Situation to date:

If the burner operating time *DriftTest warn stag1* [3855.1] is exceeded, an ADA test is performed each time the burner starts up. If the test is not completed successfully, a forced drift test is performed every tenth time the burner starts up. As a result of this forced drift test, the burner restarts immediately. This means the burner is unable to cool down.

New behavior:

The forced drift test is no longer performed every tenth time the burner starts up after *DriftTest warn stag1* [3855.1] has elapsed. The burner is only started by the user in the event of an automatic heat request or a manual heat request.

4.4 ADA adjustment above the upper drift test point (LMS15 only)

Control curve Kni B

Line no.	Operating line
[3770.1]	Control curve Kni B 0 = Extrapolation as before 1 = New calculation with natural gas only 2 = New calculation with liquid gas only 3 = New calculation for natural and liquid gas

Parameter *Control curve Kni B* [3770.1] in Sitherm Pro natural gas menu.

Range: 0 to 3

- 0 = Extrapolation as before
- 1 = New calculation with natural gas only
- 2 = New calculation with liquid gas only
- 3 = New calculation for natural gas and liquid gas

Default value: 0
Read access: OEM
Write access: OEM

Situation to date:

The ADA is performed at the upper and lower drift test point. Following a successful ADA test, the ionization current adjustment is recalculated at the test point. The adjustment is interpolated and extrapolated using these 2 points over the entire fan speed range. If the adjustment is significantly different at the 2 points, the adjustment may be too high due to extrapolation at a high speed.

New behavior:

The process of calculating the adjustment for the ionization current has changed so that the ionization current setpoint is no longer extrapolated for high speeds. The result at the upper ADA point is used to calculate the adjustment. The behavior can be set for the different gas types (natural gas and liquid gas) using *Control curve Kni B* [3770.1].

4.5 Controlling the VGE stepper motor in the preignition phase (LMS15 only)

The stepper motor positioning in the preignition phase (full-step mode) has been changed so that a ramp is used for acceleration.

4.6 SLT delta-T differential

Control curve Kni x

<i>Line no.</i>	<i>Operating line</i>
[3775.1]	Control curve Kni B
[3776.1]	Control curve Kni C

Parameter *Control curve Kni B* [3775.1] in Sitherm Pro liquid gas menu.

Range: 3 to 8 °C
Step size: 1 °C
Default value: 8 °C
Reading level: OEM
Writing level: OEM

Parameter *Control curve Kni C* [3776.1] in Sitherm Pro liquid gas menu.

Range: 3 to 16 °C
Step size: 1 °C
Default value: 16 °C
Reading level: OEM
Writing level: OEM

Situation to date:

If the difference between the flow and return is greater than *Max delta flow-return* [3916.1], the boiler output is reduced by 20%. If the temperature difference continues to rise, the output is set to low-fire output at *Max delta flow-return* [3916.1] + 8 K. At *Max delta flow-return* [3916.1] + 16 K, the burner is switched off and start prevention is triggered until the temperature difference between the flow and return is less than half of *Max delta flow-return* [3916.1].

New behavior:

If the difference between the flow and return is greater than *Max delta flow-return* [3916.1], the boiler output is reduced by 20%. If the temperature difference continues to rise, the output is set to low-fire output at *Max delta flow-return* [3916.1] + *Control curve Kni B* [3775.1]. At *Max delta flow-return* [3916.1] + *Control curve Kni C* [3776.1], the burner is switched off and start prevention is triggered until the temperature difference between the flow and return is less than half of *Max delta flow-return* [3916.1].

4.7 Checking the flame threshold

Situation to date:

The software contains 2 parameters for flame detection purposes: *lon curr level flame exting* (9619) and *lon curr level extran light* (9618). The extraneous light threshold is set to a value that is determined by Siemens and dependent on the hardware. It cannot be adjusted by the OEM. The flame threshold value must exceed the extraneous light threshold. This setting limit is implemented by means of relative limits in the various tools. It is possible to circumvent these limits by making adjustments in the tool loop.

New behavior:

The LMS compares the two parameters *lon curr level flame exting* (9619) and *lon curr level extran light* (9618). If the flame threshold is lower than the extraneous light threshold, start prevention is triggered with the following error message:

Error code 152: Parameter setting error

Diagnostic code 840: Parameter error, flame threshold too low



Note!

If the parameter *lon curr level flame exting* (9619) is set to a lower value than *lon curr level extran light* (9618), a parameter setting error is displayed and the LMS responds with start prevention.



Danger!

If parameters are being set using CAPSY (OCI430), the system cannot rule out the possibility of importing a hex file containing incorrect flame values. The hex file contains both *lon curr level flame exting* (9619) and *lon curr level extran light* (9618).

The OEM must take care to ensure that the right hex file for the hardware is imported during their production work. If this is not observed, it is not possible to guarantee that flame supervision will be performed correctly.

4.8 Checking the device family for the parameter stick

Device family

<i>Line no.</i>	<i>Operating line</i>
6225	Device family

The device family uniquely identifies a device (LMS14 or LMS15).

If a data set from a different device family is imported into an LMS, *Incompatible data set* is displayed.



Note!

It is no longer possible to import a data set into a different device family. This means that a separate data set now has to be created for each device family in some cases, even if the data sets are not device-specific.