

Service manual Wood chip boiler Eco-HK 70-120

HARGASSNER
HEIZTECHNIK DER ZUKUNFT



Follow and store this manual

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Contents

1	Parameter list - Customer	4
2	Parameter list - Installer	6
3	Parameter list - Service	20
4	Analogue inputs and outputs	33
5	List of information and error messages	34

Dear customer!

Thank you for choosing an innovative wood biomass boiler from our company. The boiler from Hargassner Ges mbH is a state of the art product and manufactured to the latest production standards. We are very pleased about your decision and guarantee that you've chosen a reliable quality product.

Keep this service manual at hand.

This service manual is for trained and qualified personnel only.

Only Hargassner trained and authorised personnel are allowed to access the boiler control.

1 Parameter list - Customer

Menu	Description	ModBus address
No. 1	HWT 1 day timer	2001
No. 1a-g	HWT 1 week timer	2005 - 2035 (intervals of 5)
No. 2	HWT 1 set temperature	2040
No. 2_HT	HWT 1 set temperature	
No. 2a	HWT 1 circulation pump	2045
No. 3	Heat circuit 1 day timer	2049
No. 3a-g	Heat circuit 1 week timer	2053 - 2083 (intervals of 5)
No. 4	Heat circuit 1 Day room temperature	2088
No. 5	Heat circuit 1 Reduced room temperature	2090
No. 6	Heat circuit 2 day timer	2092
No. 6a-g	Heat circuit 2 week timer	2096 - 2126 (intervals of 5)
No. 7	Heat circuit 2 Day room temperature	2131
No. 8	Heat circuit 2 Reduced room temperature	2133
No. 9	Automatically fill and suction times	
HP 1	HWT A day timer	2140
HP 1a-g	HWT A week timer	2145 - 2175 (intervals of 5)
HP 2	HWT A set temperature	2180
HP 2_HT	HWT A set temperature	
HP 2a	HWT A circulation pump	2181
HP 3	Heat circuit A day timer	2190
HP 3a-g	Heat circuit A week timer	2195 - 2225 (intervals of 5)
HP 4	Heat circuit A Day room temperature	2230
HP 5	Heat circuit A Reduced room temperature	2232
H 1	HWT 2 day timer	2234
H 1a-g	HWT 2 week timer	2240 - 2270 (intervals of 5)
H 2	HWT 2 set temperature	2275
H 2_HT	HWT 2 set temperature	
H 2a	HWT 2 circulation pump	2276
H 3	Heat circuit 3 day timer	2280
H 3a-g	Heat circuit 3 week timer	2285 - 2315 (intervals of 5)
H 4	Heat circuit 3 Day room temperature	2320
H 5	Heat circuit 3 Reduced room temperature	2322
H 6	Heat circuit 4 day timer	2325
H 6a-g	Heat circuit 4 week timer	2330 - 2360
H 7	Heat circuit 4 Day room temperature	2365
H 8	Heat circuit 4 Reduced room temperature	2367
H 11	HWT 3 day timer	2369
H 11a-g	HWT 3 week timer	2375 - 2405
H 12	HWT 3 set temperature	2410
H 12_HT	HWT 3 set temperature	
H 12a	HWT 3 circulation pump	2411
H 13	Heat circuit 5 day timer	2416
H 13a-g	Heat circuit 5 week timer	2421 - 2451

Menu	Description	ModBus address
H 14	Heat circuit 5 Day room temperature	2456
H 15	Heat circuit 5 Reduced room temperature	2458
H 16	Heat circuit 6 day timer	2460
H 16a-g	Heat circuit 6 week timer	2465 - 2495
H 17	Heat circuit 6 Day room temperature	2500
H 18	Heat circuit 6 Reduced room temperature	2502
H 21	HWT B day timer	
H 21a-g	HWT B week timer	
H 22	Set temperature HWT B	
H 22_HT	Set temperature HWT B	
H 22a	HWT B circulation pump	
H 23	Heat circuit B day timer	
H 23a-g	Heat circuit B week timer	
H 24	Heat circuit B Day room temperature	
H 25	Heat circuit B Reduced room temperature	
No. 11	All heat circuits Off above average outside temperature	2504
No. 11a-i	Heat circuit 1 - B and external heat circuit off above outside temperature	2505 - 2512 (intervals of 1)
No. 12	All heat circuits off during day setback	2513
No. 12a-h	Heat circuit 1 - B off during day setback	2514 - 2520 (intervals of 1)
No. 13	All heat circuits off during night setback	2521
No. 13a-h	Heat circuit 1 - B off during night setback	2522 - 2528 (intervals of 1)
No. 15	Holiday mode	2530
No. 15a-h	Holiday mode heat circuit 1 - B	2540 - 2600 (intervals of 10)
No. 16	Holiday time from	---
No. 16a-h	Heat circuit 1 - B holiday time from	---
No. 17	Holiday time until	---
No. 17a-h	Holiday time heat circuit 1 - B holiday time until	---
No. 18	Ash suction	2610
No. 18a	De-ash Start	
No. 19	Fuel	2611
No. 19a	Fuel extraction method	2612
No. 20	Date / Time	---
No. 21	Release - Remote maintenance	2613
No. 21a	Remote service Automatic deactivation of release	2614
No. 22	Firing Off	
No. 23 - 24i	Power box; see Power box manual	
No. 40	Planned de-ash	
No. 41	Planned de-ash cascade	
No. X1 - X7a	Fresh-water station settings See the fresh-water station operating manual	

2 Parameter list - Installer

Menu	Description	Default	ModBus (Offset 40000)
Heat circuit 1			
A1	Heat circuit 1	Not available	2615
A2	Heat circuit 1 steepness	1.6	2616
A2a	Heat circuit 1 steepness FLH	0.6	
A3	Heat circuit 1 Flow temperature - minimum	30 °C	2618
A3a	Heat circuit 1 Flow temperature Minimum FLH	22 °C	
A4	Heat circuit 1 Flow temperature - maximum	70 °C	2619
A4a	Heat circuit 1 Flow temperature Maximum FLH	45 °C	
A5	Heat circuit 1 mixer runtime	90 Sec	2620
A6	Heat circuit 1 remote control	Not available	2621
A6a	Heat circuit 1 remote control	with room sensor	2622
A6b	Heat circuit 1 display - room device	HWT 1	2623
A6c	Heat circuit 1 display - room device FR40 display	No selection	
A6d	Heat circuit 1 room correction remote control	0 °C	
A6e	Heat circuit 1 Pumps shutdown after room temperature exceeded Room controller	not activated	3038
A6f	Heat circuit 1 input external contact FR25		
A7	Heat circuit 1 district line pump	no district line	2626
A8	Heat circuit 1 summer-bath heating	Off	2627
A8a	Heat circuit 1 summer bath heating Accumulator - minimum temperature	20 °C	2628
A8b	Heat circuit 1 summer bath heating - day timer Mo-Su	ON 06:00 18:00 OFF 09:00 21:00	2629
A8c	Heat circuit 1 summer bath heating Flow-set	30 °C	2634
A8d	Heat circuit 1 HWT priority for summer bath heating	inactive	
A9	Heat circuit 1 screed	Off	2635
A9a	Heat circuit 1 screed paused	Off	
A10	Heat circuit 1 Loxone connection error - emergency operation set temperature	30 °C	
Heat circuit 2			
A11	Heat circuit 2	Not available	2642
A12	Heat circuit 2 steepness	1.6	2643
A12a	Heat circuit 2 FLH steepness	0.6	
A13	Heat circuit 2 Flow temperature - minimum	30 °C	2645
A13a	Heat circuit 2 Floor heating flow temp. minimum	22 °C	
A14	Heat circuit 2 Flow temperature - maximum	70 °C	2646
A14a	Heat circuit 2 FLH flow temp. maximum	45 °C	
A15	Heat circuit 2 mixer runtime	90 Sec	2647
A16	Heat circuit 2 remote control	Not available	2648
A16a	Heat circuit 2 remote control	with room sensor	2649
A16b	Heat circuit 2 display - room device	HWT 1	2650
A16c	Heat circuit 2 display - room device FR40 display	No selection	
A16d	Heat circuit 2 room correction remote control	0 °C	

Menu	Description	Default	ModBus (Offset 40000)
A16e	Heat circuit 2 Pumps shutdown after room temperature exceeded Room controller	not activated	3039
A16f	Heat circuit 2 input external contact FR25	Normally open contact	
A17	Heat circuit 2 district line pump	no district line	2653
A18	Heat circuit 2 summer bath heating	Off	2654
A18a	Heat circuit 2 summer bath heating Accumulator - minimum temperature	60 °C	2655
A18b	Heat circuit 2 summer bath heating - day timer Mo-Su	ON 06:00 18:00 OFF 09:00 21:00	2656
A18c	Heat circuit 2 summer bath heating Flow-set	30 °C	2661
A18d	Heat circuit 2 HWT priority for summer bath heating	inactive	
A19	Heat circuit 2 screed	Off	2662
A19a	Heat circuit 2 screed paused	Off	
A20	Heat circuit 2 Loxone connection error - emergency operation set temperature	30 °C	
Heat circuit 3			
A21	Heat circuit 3	Not available	2669
A22	Heat circuit 3 steepness	1.6	2670
A22a	Heat circuit 3 Floor heating steepness	0.6	
A23	Heat circuit 3 Flow temperature - minimum	30 °C	2672
A23a	Heat circuit 3 Floor heating flow temp. minimum	22 °C	
A24	Heat circuit 3 Flow temperature - maximum	70 °C	2673
A24a	Heat circuit 3 FBH flow temp. maximum	45 °C	
A25	Heat circuit 3 mixer runtime	90 Sec	2674
A26	Heat circuit 3 remote control	Not available	2675
A26a	Heat circuit 3 remote control	with room sensor	2676
A26b	Heat circuit 3 display - room device	HWT 1	2677
A26c	Heat circuit 3 display - room device FR40 display	No selection	
A26d	Heat circuit 3 room correction remote control	0 °C	
A26e	Heat circuit 3 Pumps shutdown after room temperature exceeded Room controller	not activated	3040
A26f	Heat circuit 3 input external contact FR25	Normally open contact	
A27	Heat circuit 3 district line pump	no district line	2680
A28	Heat circuit 3 summer bath heating	Off	2681
A28a	Heat circuit 3 summer bath heating Accumulator - minimum temperature	60 °C	2682
A28b	Heat circuit 3 summer bath heating - day timer Mo-Su	ON 06:00 18:00 OFF 09:00 21:00	2685
A28c	Heat circuit 3 summer bath heating Flow-set	30 °C	2690
A28d	Heat circuit 3 HWT priority for summer bath heating	inactive	
A29	Heat circuit 3 screed	Off	2691
A29a	Heat circuit 3 screed paused	Off	
A30	Heat circuit 3 Loxone connection error - emergency operation set temperature	30 °C	
Heat circuit 4			
A31	Heat circuit 4	Not available	2698
A32	Heat circuit 4 steepness	1.6	2699

Menu	Description	Default	ModBus (Offset 40000)
A32a	Heat circuit 4 Floor heating steepness	0.6	
A33	Heat circuit 4 Flow temperature - minimum	30 °C	2701
A33a	Heat circuit 4 Floor heating flow temp. minimum	22 °C	
A34	Heat circuit 4 Flow temperature - maximum	70 °C	2702
A34a	Heat circuit 4 Floor heating flow temp. maximum	45 °C	
A35	Heat circuit 4 mixer runtime	90 Sec	2703
A36	Heat circuit 4 remote control	Not available	2704
A36a	Heat circuit 4 remote control	with room sensor	2705
A36b	Heat circuit 4 display - room device	HWT 1	2706
A36c	Heat circuit 4 display - room device FR40 display	No selection	
A36d	Heat circuit 4 room correction remote control	0 °C	
A36e	Heat circuit 4 Pumps shutdown after room temperature exceeded Room controller	not activated	3041
A36f	Heat circuit 4 input external contact FR25	Normally open contact	
A37	Heat circuit 4 district line pump	no district line	2709
A38	Heat circuit 4 summer bath heating	Off	2710
A38a	Heat circuit 4 summer bath heating Accumulator - minimum temperature	60 °C	2711
A38b	Heat circuit 4 summer bath heating - day timer Mo-Su	ON 06:00 18:00 OFF 09:00 21:00	2712
A38c	Heat circuit 4 summer bath heating Flow-set	30 °C	2720
A38d	Heat circuit 4 HWT priority for summer bath heating	inactive	
A39	Heat circuit 4 screed	Off	2721
A39a	Heat circuit 4 screed paused	Off	
A40	Heat circuit 4 Loxone connection error - emergency operation set temperature	30 °C	
Heat circuit 5			
A41	Heat circuit 5	Not available	2730
A42	Heat circuit 5 steepness	1.6	2731
A42a	Heat circuit 5 Floor heating steepness	0.6	
A43	Heat circuit 5 Flow temperature - minimum	30 °C	2733
A43a	Heat circuit 5 Floor heating flow temp. minimum	22 °C	
A44	Heat circuit 5 Flow temperature - maximum	70 °C	2734
A44a	Heat circuit 5 Floor heating flow temp. maximum	45 °C	
A45	Heat circuit 5 mixer runtime	90 Sec	2735
A46	Heat circuit 5 remote control	Not available	2736
A46a	Heat circuit 5 remote control	with room sensor	2737
A46b	Heat circuit 5 display - room device	HWT 1	2738
A46c	Heat circuit 5 display - room device FR40 display	No selection	
A46d	Heat circuit 5 room correction remote control	0 °C	
A46e	Heat circuit 5 Pumps shutdown after room temperature exceeded Room controller	not activated	3042
A46f	Heat circuit 5 input external contact FR25	Normally open contact	
A47	Heat circuit 5 district line pump	no district line	2742
A48	Heat circuit 5 summer bath heating	Off	2743

Menu	Description	Default	ModBus (Offset 40000)
A48a	Heat circuit 5 summer bath heating Accumulator - minimum temperature	60 °C	2744
A48b	Heat circuit 5 summer bath heating - day timer Mo-Su	ON 06:00 18:00 OFF 09:00 21:00	2745
A48c	Heat circuit 5 summer bath heating Flow-set	30 °C	2750
A48d	Heat circuit 5 HWT priority for summer bath heating	inactive	
A49	Heat circuit 5 screed	Off	2751
A49a	Heat circuit 5 screed paused	Off	
A50	Heat circuit 5 Loxone connection error - emergency operation set temperature	30 °C	
Heat circuit 6			
A51	Heat circuit 6	Not available	2758
A52	Heat circuit 6 steepness	1.6	2759
A52a	Heat circuit 6 Floor heating steepness	0.6	
A53	Heat circuit 6 Flow temperature - minimum	30 °C	2761
A53a	Heat circuit 6 Floor heating flow temp. minimum	22 °C	
A54	Heat circuit 6 Flow temperature - maximum	70 °C	2762
A54a	Heat circuit 6 Floor heating flow temp. maximum	45 °C	
A55	Heat circuit 6 mixer runtime	90 Sec	2763
A56	Heat circuit 6 remote control	Not available	2764
A56a	Heat circuit 6 remote control	with room sensor	2765
A56b	Heat circuit 6 display - room device	HWT 1	2766
A56c	Heat circuit 6 display - room device FR40 display	No selection	
A56d	Heat circuit 6 room correction remote control	0 °C	
A56e	Heat circuit 6 Pumps shutdown after room temperature exceeded Room controller	not activated	3043
A56f	Heat circuit 6 input external contact FR25	Normally open contact	
A57	Heat circuit 6 district line pump	no district line	2770
A58	Heat circuit 6 summer bath heating	Off	2771
A58a	Heat circuit 6 summer bath heating Accumulator - minimum temperature	60 °C	2772
A58b	Heat circuit 6 summer bath heating - day timer Mo-Su	ON 06:00 18:00 OFF 09:00 21:00	2773
A58c	Heat circuit 6 summer bath heating Flow-set	30 °C	2778
A58d	Heat circuit 6 HWT priority for summer bath heating	inactive	
A59	Heat circuit 6 screed	Off	2779
A59a	Heat circuit 6 screed paused	Off	
A60	Heat circuit 6 Loxone connection error - emergency operation set temperature	30 °C	
Heat circuit A			
A61	Heat circuit A	Not available	2786
A62	Heat circuit A steepness	1.6	2787
A62a	Heat circuit A steepness FLH	0.6	
A63	Heat circuit A Flow temperature - minimum	30 °C	2789
A63a	Heat circuit 1 FBH flow temp. minimum	22 °C	
A64	Heat circuit A Flow temperature - maximum	70 °C	2790

Menu	Description	Default	ModBus (Offset 40000)
A64a	Heat circuit A Flow temperature Maximum FLH	45 °C	
A65	Heat circuit A mixer runtime	90 Sec	2791
A66	Heat circuit A remote control	Not available	2792
A66a	Heat circuit A remote control	with room sensor	2793
A66b	Heat circuit A display - room device	HWT 1	2794
A66c	Heat circuit A display - room device FR40 display	No selection	
A66d	Heat circuit A room correction remote control	0 °C	
A66e	Heat circuit A Pumps shutdown after room temperature exceeded Room controller	not activated	3044
A66f	Heat circuit A input external contact FR25	Normally open contact	
A67	Heat circuit A district line pump	no district line	2798
A68	Heat circuit A summer bath heating	Off	2799
A68a	Heat circuit A summer bath heating Accumulator - minimum temperature	60 °C	2800
A68b	Heat circuit A summer bath heating - day timer Mo-Su	ON 06:00 18:00 OFF 09:00 21:00	2801
A68c	Heat circuit A summer bath heating Flow-set	30 °C	2806
A68d	Heat circuit A HWT priority for summer bath heating	inactive	
A69	Heat circuit A screed	Off	2807
A69a	Heat circuit A screed paused	Off	
A70	Heat circuit A Loxone connection error - emergency operation set temperature	30 °C	
Heat circuit B			
A71	Heat circuit B	Not available	
A72	Heat circuit B steepness	1.6	
A72a	Heat circuit B steepness FLH	0.6	
A73	Heat circuit B Flow temperature - minimum	30 °C	
A73a	Heat circuit B Flow temperature Minimum FLH	22 °C	
A74	Heat circuit B Flow temperature - maximum	70 °C	
A74a	Heat circuit B Flow temperature Maximum FLH	45 °C	
A75	Heat circuit B mixer runtime	90 Sec	
A76	Heat circuit B remote control	Not available	
A76a	Heat circuit B remote control	with room sensor	
A76b	Heat circuit B display - room device	HWT 1	
A76c	Heat circuit B display - room device FR40 display	No selection	
A76d	Heat circuit B room correction remote control	0 °C	
A76e	Heat circuit B Pumps shutdown after room temperature exceeded Room controller	not activated	
A76f	Heat circuit B input external contact FR25	Normally open contact	
A77	Heat circuit B district line pump	no district line	
A78	Heat circuit B summer bath heating	Off	
A78a	Heat circuit B summer bath heating Accumulator - minimum temperature	60 °C	
A78b	Heat circuit B summer bath heating - day timer Mo-Su	ON 06:00 18:00 OFF 09:00 21:00	
A78c	Heat circuit B summer bath heating Flow-set	30 °C	

Menu	Description	Default	ModBus (Offset 40000)
A78d	Heat circuit B HWT priority for summer bath heating	inactive	
A79	Heat circuit B screed	Off	
A79a	Heat circuit B screed paused	Off	
A80	Heat circuit B Loxone connection error - emergency operation set temperature	30 °C	
Heat circuit WLM			
A91 - A98	Power box; see Power box manual		
All heat circuits			
A100	All heat circuits Screed - number of temperature phases	8	
A101a	All heat circuits Screed - temperature flow set	20 °C	
A101b	All heat circuits Screed - temperature flow set	25 °C	
A101c	All heat circuits Screed - temperature flow set	30 °C	
A101d	All heat circuits Screed - temperature flow set	35 °C	
A101e	All heat circuits Screed - temperature flow set	40 °C	
A101f	All heat circuits Screed - temperature flow set	45 °C	
A101g	All heat circuits Screed - temperature flow set	35 °C	
A101h	All heat circuits Screed - temperature flow set	25 °C	
A101i-r	All heat circuits Screed - temperature flow set	20 °C	
A102a	All heat circuits Screed - number of days	1 day	
A102b	All heat circuits Screed - number of days	1 day	
A102c	All heat circuits Screed - number of days	1 day	
A102d	All heat circuits Screed - number of days	1 day	
A102e	All heat circuits Screed - number of days	1 day	
A102f	All heat circuits Screed - number of days	4 days	
A102g	All heat circuits Screed - number of days	1 day	
A102h	All heat circuits Screed - number of days	1 day	
A102i-r	All heat circuits Screed - number of days	0 days	
A103	All heat circuits Screed - hysteresis	2 K	
HWT 1			
B1	HWT 1	not available	2814
B2	HWT 1 HWT temperature - hysteresis	6 °C	2815
B3	HWT 1 HWT temperature - minimum	40 °C	2816
B4	HWT 1 Legionella protection	Off	2817
B5	HWT 1 Legionella protection set temperature	70 °C	2818
B6	HWT 1 Legionella protection - weekly programme	ON 17:00 00:00 OFF 00:00 00:00	2819
B7	HWT 1 district line pump	no district line	2825
B8	HWT 1 circulation pump	Not available	2826
B8a	HWT 1 circulation pump - runtime	180 sec	2827
B8b	HWT 1 circulation pump - downtime	15 Min	2828
B9	Energy saving mode	Enabled	
B9a	Energy saving mode after a period of	30 min	
B9b	HWT 1 Maximum pump runtime for HWT loading	0h	

Menu	Description	Default	ModBus (Offset 40000)
HWT 2			
B11	HWT 2	not available	2829
B12	HWT 2 HWT temperature - hysteresis	6 °C	2830
B13	HWT 2 HWT temperature - minimum	40 °C	2831
B14	HWT 2 Legionella protection	Off	2832
B15	HWT 2 Legionella protection - set temperature	70 °C	2833
B16	HWT 2 Legionella protection - weekly programme	ON 18:00 00:00 OFF 00:00 00:00	2834
B17	HWT 2 district line pump	no district line	2839
B18	HWT 2 circulation pump	Not available	2840
B18a	HWT 2 circulation pump - runtime	180 sec	2841
B18b	HWT 2 circulation pump - downtime	15 Min	2842
B19	Energy saving mode	Enabled	
B19a	Energy saving mode after a period of	30 min	
B19b	HWT 2 Maximum pump runtime for HWT loading	0h	
HWT 3			
B21	HWT 3	not available	2843
B22	HWT 3 HWT temperature - hysteresis	6 °C	2844
B23	HWT 3 HWT temperature - minimum	40 °C	2845
B24	HWT 3 Legionella protection	Off	2846
B25	HWT 3 Legionella protection - set temperature	70 °C	2847
B26	HWT 3 Legionella protection - weekly programme	ON 19:00 00:00 OFF 00:00 00:00	2848
B27	HWT 3 district line pump	no district line	2853
B28	HWT 3 circulation pump	Not available	2854
B28a	HWT 3 circulation pump - runtime	180 sec	2855
B28b	HWT 3 circulation pump - downtime	15 Min	2856
B29	Energy saving mode	Enabled	
B29a	Energy saving mode after a period of	30 min	
B29b	HWT 3 Maximum pump runtime for HWT loading	0h	
HWT A			
B31	HWT A	Available	2857
B32	HWT A HWT temperature - hysteresis	6 °C	2858
B33	HWT A HWT temperature - minimum	40 °C	2859
B34	HWT A Legionella protection	Off	2860
B35	HWT A Legionella protection - set temperature	70 °C	2861
B36	HWT A Legionella protection - weekly programme	ON 17:00 00:00 OFF 00:00 00:00	2862
B37	HWT A district line pump	no district line	2867
B38	HWT A circulation pump	Not available	2868
B38a	HWT A circulation pump - runtime	180 sec	2869
B38b	HWT A circulation pump - downtime	15 Min	2870
B39	Energy saving mode	Enabled	
B39a	Energy saving mode after a period of	30 min	

Menu	Description	Default	ModBus (Offset 40000)
B39b	HWT A maximum pump runtime when HWT is loading	0h	
HWT B			
B41	HWT B	Available	
B42	HWT B HWT temperature - hysteresis	6 °C	
B43	HWT B HWT temperature - minimum	40 °C	
B44	HWT B Legionella protection	Off	
B45	HWT B Legionella protection - set temperature	70 °C	
B46	HWT B Legionella protection - weekly programme	ON 17:00 00:00 OFF 00:00 00:00	
B47	HWT B district line pump	no district line	
B48	HWT B circulation pump	Not available	
B48a	HWT B circulation pump - runtime	180 sec	
B48b	HWT B circulation pump - downtime	15 Min	
B49	Energy saving mode	Enabled	
B49a	Energy saving mode after a period of	30 min	
B49b	Hot water tank B maximum pump runtime when hot water tank is loading	0 h	
B60	HWT priority automatic	On	
B90	Release - HWT temperature - minimum	ON 06:00 00:00 OFF 22:00 00:00	
B100- B117	Settings for fresh-water station See the fresh-water station operation manual		
Accumulator			
C1a	Back end protection	RL-mixer+acc.-pump	2880
C1b	Return mixer runtime	140 sec	2881
C1c-d	Power box; see Power box manual		
C2	Accumulator	not available	2882
C2a	Automatic accumulator loading	Yes	
C2b	Accumulator volume	0l	
C2c	Display of accumulator fill level	Yes	
C3	Accumulator loading Accumulator	Accumulator/HWT external	2883
C3a	Accumulator loading	Accumulator sensor - boiler	2884
C3b	Accumulator loading HWT internal	HWT sensor A	2885
C4	End accumulator loading at temperature	60 °C	2886
C4a	Minimum boiler set temperature during accumulator loading	78 °C	2887
C4a_HT	Minimum boiler set temperature during accumulator loading	78 °C	3035
C4b	Stop sensor for accumulator loading (due to domestic hot water production)	Accumulator bottom	2888
C4c	Accumulator minimum temperature (top sensor)	0 °C	3029
C4c1	Day timer Accumulator - minimum temperature	ON 00:00 00:00 OFF 24:00 00:00	
C4d	Accumulator loading power reduction at fill level over	85 %	3037
C4e	Error detection accumulator sensor bottom after	30 min	3047

Menu	Description	Default	ModBus (Offset 40000)
C5	Forced accumulator loading - week timer	ON 00:00 00:00 OFF 00:00 00:00	
C5a	No forced accumulator loading at outside temperature over	0 °C	
C6	External heat circuit with analogue control	Deactivated	2895
C6a	External heat circuit - set temperature	69 °C	2896
C6a_HT	External heat circuit - set temperature	69 °C	3036
C7	Function pump output	District line pump 2	2897
C8	External heat circuits on DLP	no district line	2898
C9	External heat	Not available	2899
General information			
D1a	HKM 0 display HKM display	No selection	
D1b	HKM 1 display HKM display	No selection	
D1c	HKM 2 display HKM display	No selection	
D1f	Consumption display	not available	2909
D2	Frost protection pumps on below outside temperature	1 °C	2910
D3	Frost protection HC flow set temperature	7 °C	2911
D4	Changeover - day setback	ON 06:00 00:00 OFF 22:00 00:00	2912
D5	eCleaner settings See the eCleaner operating manual		
D5a	De-ash - Ash suction	not available	2917
D5b	Release ash suction	ON 06:00 00:00 OFF 22:30 00:00	2918
D5r	Release - de-ash - wood chips	ON 00:00 00:00 OFF 24:00 00:00	2925
D5s	Release - de-ash - pellets	ON 00:00 00:00 OFF 24:00 00:00	2930
D5t	Release - de-ash - loose miscanthus	ON 00:00 00:00 OFF 24:00 00:00	2935
D5u	Release - de-ash - wood shavings	ON 00:00 00:00 OFF 24:00 00:00	
D6r	Release - de-ash - wood chips	ON 06:00 00:00 OFF 22:30 00:00	
D6s	Release - de-ash - pellets	ON 06:00 00:00 OFF 22:30 00:00	
D6t	Release - de-ash - loose miscanthus	ON 00:00 00:00 OFF 22:30 00:00	
D6u	Release - de-ash - wood shavings	ON 06:00 00:00 OFF 22:30 00:00	
D7	All heat circuits summer shutdown - lock time	120 Min	2975
D8	Summer time	autom. changeover	2976
D9	Day/Week timer	Day timer	2977
D10	Number of blocks for week timer	2	2978
D11	Release holiday mode	No	2979
D11a	Holiday mode	all HC together	2980
D12	Outside temperature - shutdown	all HC together	2981

Menu	Description	Default	ModBus (Offset 40000)
D13	Outside sensor	Available	2982
D20	TMS	Available	2984
D21	TMF	Available	2985
D21a	TMF2	Available	2986
D22	Double fuel extraction changeover time	300 Min	2987
D22a	Double fuel extraction break time when switching	20 sec	
D23	Info / Trend	Do not display	2988
D24	Modbus activated	No	2989
D25	KNX activated	No	
D32	Controlled district line superelevation	5 °C	2993
D33	Controlled district line mixer runtime	140 sec	2994
D40	Storage level	0	
D40a	Top up storage level	0	
D41	Text1 ext. error		
D42	Text2 ext. error		
D42a	Input - external error	Normally open contact	
D43	Text1 ext. info		
D44	Text2 ext. info		
D44a	Input - external info	Normally open contact	
D45	Boiler System pressure monitoring	not activated	
D45a	Notice when water pressure is below	0.8 bar	
D45b	Error when water pressure is below	0.5 bar	
D45c	Notice when water pressure is above	0.0 bar	
D45d	Error when water pressure is above	0.0 bar	
D50	Manual de-ash - customer	Not available	
D51	Planned de-ash - customer	Not available	
D65	Error output	Error & Info	
D66	HC/HWT on standard screen	no selection	
D70	Fuel extraction	FE-fuel extraction with agitator	
D71	Pump on for frost protection (heat circuits and HWT)	no selection	
D72	Pump on for frost protection (accumulator, differential controller, ...)	no selection	
D73	Boiler frost protection if boiler temperature or return below	20 °C	
D75	Function of terminal 52/53	FGTM	
D75a	Stoppage text (issued when external stoppage is active)	External stoppage	
D100- D103	Sensor board 2 PT1000 S1 (S2, S3, S4)	SB-PT1K-1 (2, 3, 4)	
D104- D107	Sensor board 2 NiCrNi T1 (T2, T3, T4)	SB-NiCrNi T1 (T2, T3, T4)	
D108- D109	Sensor board 2 IMPULS 1 (2)	SB-IMPULS-1 (2)	
D110- D117	Sensor board 2 AIN 1 (2 - 8)	SB-AIN-1 (2-8)	

Menu	Description	Default	ModBus (Offset 40000)
Cascade			
F1	Cascade	not available	
F2	Cascade address	A	
F3	Cascade priority	P1	
F4	Accumulator	Accumulator (HWT internal)	
F4a	Accumulator	Accumulator with 2 sensors	
F6	Number of slave boilers	1	
F6b	Simultaneous modulation	6	
F7	Minimum runtime superelevation	10 h	
F8	Maximum runtime superelevation	30 h	
F9	Maximum output	90 %	
F10	Maximum runtime - full load	30 min	
F11	Maximum runtime - minimum heat output	60 Min	
F12	Reset runtime - full load	1 Min	
F13	Maximum deviation - boiler/header	8 °C	
F14	Switch on boiler	1	
F14a	When fill level is below	0 %	
F15	Switch on boiler	1	
F15a	When fill level is below	0 %	
F16	Switch on boiler	1	
F16a	When fill level is below	0 %	
F17	Number of boilers on when there is an external demand	0	
F17a	Start next boiler after info	No	
F17b	Forced activation from	0 Min	
F17e	Start free boiler during de-ash if accumulator fill level < C4d	No	
F18	Boiler - set temperature during CAN error	75 °C	
F18a	External boiler	Not available	
F18a1	EH cascade priority	P 8	
F18a2	Boiler start delay in case of external error	5 Min	
F18a3	Message if EH not OK	Enabled	
F18b	Cascade CHP	Not available	
F18c	CHP cascade priority	P 1	
F18d	CHP shutdown temperature	65 °C	
F18e	Boiler start delay in case of external warning	5 Min	
F18f	Request CHP until accumulator fill level is greater	60 %	
F18g	Message if CHP not OK	Enabled	
F18h	Block CHP if accumulator is mixed	Yes	
F19	Reset - cascade	No	
F20 - F20e	Boilers (A - F) disabled	No	
F20y	CHP disabled	No	
F20z	External boiler deactivated	No	

Menu	Description	Default	ModBus (Offset 40000)
F21 - F21e	Boilers (A - F)	No selection	
F21y	CHP	No selection	
F21z	External boiler	No selection	
Differential controller			
G1	Function	not available	
G2	Activated at heat source	30 °C	
G2a	Shutdown at heat source	95 °C	
G2b	Activated at heat source	55 °C	
G4	Circuit 1 (priority circuit) selection differential sensor	Differential sensor S2	
G4a	Superelevation of heat source (Circuit 1)	10 °C	
G4b	Hysteresis (Circuit 1)	5 °C	
G4c	Shutdown differential controller (circuit 1)	65 °C	
G5	Circuit 2 (non-priority circuit) sensor selection	Accumulator sensor - bottom	
G5a	Superelevation of heat source (Circuit 2)	10 °C	
G5b	Hysteresis (Circuit 2)	5 °C	
G5c	Shutdown differential controller (circuit 2)	65 °C	
G5d	Parallel operation circuits 1 + 2	No (without valve)	
G5e	Changeover to circuit 2 if diff. for circuit 1 is smaller than	4 °C	
G5f	Changeover to circuit 2 if circuit 1 is over	60 °C	
G5g	Time delay for changeover to circuit 2	1 Min	
G6	External heat boiler	with return mixer	
G6a	Mixer runtime	120 sec	
G6b	Return temperature - set value	60 °C	
G6c	Info when return temperature is not reached	50 °C	
G6d	Time for info	60 Min	
G6e	External heat boiler - sensor selection	Accumulator sensor - bottom	
G6f	Superelevation of heat source (external heat boiler)	10 °C	
G6g	Hysteresis (external heat boiler)	5 °C	
G7	Safety circuit at heat source (IO36 terminal 207/208)	95 °C	
G11	External heat controller 2	External heat boiler	
G12	External heat controller 2 Differential controller activated at heat source	30 °C	
G12a	External heat controller 2 Differential controller shutdown at heat source	95 °C	
G12b	External heat controller 2 activated at heat source	55 °C	
G14	External heat controller 2 Circuit 1 (priority circuit) selection differential sensor	Differential sensor S2	
G14a	External heat controller 2 Superelevation of heat source (circuit 1)	10 °C	
G14b	External heat controller 2 Hysteresis (circuit 1)	5 °C	
G14c	External heat controller 2 Shutdown circuit 1	65 °C	
G15	External heat controller 2 Circuit 2 (non-priority circuit) sensor selection	Accumulator sensor - bottom	
G15a	External heat controller 2 Superelevation of heat source (circuit 2)	10 °C	

Menu	Description	Default	ModBus (Offset 40000)
G15b	External heat controller 2 Hysteresis (circuit 2)	5 °C	
G15c	External heat controller 2 Shutdown circuit 2	65 °C	
G15d	External heat controller 2 Parallel operation circuits 1 + 2	No (without valve)	
G15e	External heat controller 2 Changeover to circuit 2 if difference for circuit 1 is smaller than	4 °C	
G15f	External heat controller 2 Changeover to circuit 2 if circuit 1 is over	60 °C	
G15g	External heat controller 2 Time delay for changeover to circuit 2	1 Min	
G16	Differential controller External heat boiler	with return mixer	
G16a	Mixer runtime	120 sec	
G16b	Return temperature - set value	60 °C	
G16c	Info when return temperature is not reached	50 °C	
G16d	Time for info	60 Min	
G16e	External heat boiler - sensor selection	Accumulator sensor - bottom	
G16f	Superelevation of heat source (external heat boiler 2)	10 °C	
G16g	Hysteresis (external heat boiler 2)	5 °C	
G17	Safety circuit at heat source	95 °C	
G21	PWM differential controller 3 function	Not available	
G21a	PWM differential controller 3 - pump 1	PWM	
G21a1	PWM differential controller 3 minimum pump 1	25 %	
G21a2	PWM differential controller 3 maximum pump 1	95 %	
G21b	PWM differential controller 3 - pump 2	PWM	
G21b1	PWM differential controller 3 minimum pump 2	25 %	
G21b2	PWM differential controller 3 maximum pump 2	95 %	
G21c	PWM differential controller 3 - pump 3	PWM	
G21c1	PWM differential controller 3 minimum pump 3	25 %	
G21c2	PWM differential controller 3 maximum pump 2	95 %	
G22	PWM differential controller 3 activated at heat source	30 °C	
G22a	PWM differential controller 3 shutdown at heat source	95 °C	
G22b	PWM differential controller 3 activated at heat source	55 °C	
G23	PWM differential controller 3 Parallel operation circuits 1 + 2	No (without valve)	
G23a	PWM differential controller 3 Starting position valve	Circuit 2	
G24	PWM differential controller 3 Circuit 1 (priority circuit) selection differential sensor	X10-104 terminal S3	
G24a	PWM differential controller 3 Superelevation of heat source (circuit 1)	10 K	
G24b	PWM differential controller 3 Hysteresis (circuit 1)	5 K	
G24c	PWM differential controller 3 shutdown circuit 1	65 °C	
G25	PWM differential controller 3 Circuit 2 (non-priority circuit) selection differential sensor	Accumulator sensor Middle	
G25a	PWM differential controller 3 Superelevation of heat source (circuit 2)	10 K	
G25b	PWM differential controller 3 Hysteresis (circuit 2)	5 K	
G25c	PWM differential controller 3 shutdown circuit 2	65 °C	
G25e	PWM differential controller 3 Changeover to circuit 2 if differential for circuit 1 is smaller than	4K	

Menu	Description	Default	ModBus (Offset 40000)
G25f	PWM differential controller 3 Changeover to circuit 2 if circuit 1 is over	60 °C	
G25g	PWM differential controller 3 Time delay for changeover to circuit 2	1 Min	
G25h	PWM differential controller 3 Pre-flush duration	8 Sec	
G25i	PWM differential controller 3 Block time for repeated switch-ons	0 Min	
G25j	PWM differential controller 3 Start speed controller	30 %	
G25k	PWM differential controller 3 Differential speed pump 2 (based on pump 1)	-5 %	
G25l	PWM differential controller 3 Differential speed pump 3 (based on pump 1)	-5 %	
G26	PWM differential controller 3 External heat boiler	with return mixer	
G26a	PWM differential controller 3 Mixer runtime	102 sec	
G26b	PWM differential controller 3 Return temperature - set value	60 °C	
G26c	PWM differential controller 3 Info when return temperature is not reached	50 °C	
G26d	PWM differential controller 3 Time for info	60 Min	
G26e	PWM differential controller 3 External heat boiler - sensor selection	Accumulator sensor Middle	
G26f	PWM differential controller 3 Superelevation of heat source (external heat boiler)	10 °C	
G26g	PWM differential controller 3 Hysteresis (external heat boiler)	5 °C	
G27	PWM differential controller 3 Safety circuit at heat source	95 °C	
G28	PWM differential controller 3 PWM differential controller heat meter	inactive	
G28a	PWM differential controller 3 pump 1 minimum flow	1 l/min	
G28b	PWM differential controller 3 pump 1 maximum flow	25 l/min	
G28c	PWM differential controller 3 pump 2 minimum flow	1 l/min	
G28d	PWM differential controller 3 pump 2 maximum flow	25 l/min	
G28e	PWM differential controller 3 pump 3 minimum flow	1 l/min	
G28f	PWM differential controller 3 pump 3 maximum flow	25 l/min	
G28g	PWM differential controller 3 medium's heat capacity	1.163 Wh/kgK	
T90	PWM differential controller 3 Controller PWM KP	5 °C	
T90a	PWM differential controller 3 Controller PWM TN	30 sec	

3 Parameter list - Service

Menu	Description	Default
GSM		
J1	Waiting time - SMS alert	5 Min
J2	GSM module - alarm - reset	No
J3	Time to clear	10 Min
J4	Auto Reset GSM	Auto Reset YES
J5	Send notices via SMS	Yes
K - Boiler		
K1	Boiler Combustion - minimum output	30 %
K2	Boiler Combustion - maximum heat output	100 %
K3r/s/t/u	Controller Exhaust fan speed - 100% output wood chips / pellets / miscanthus / wood shavings	See end of chart
K10	Boiler Minimum temperature with bypass	78 °C
K10a	Boiler Minimum temperature	78 °C
K10a_HT	Boiler Minimum temperature	78 °C
K11	Boiler Maximum temperature	85 °C
K11_HT	Boiler Maximum temperature	95 °C
K12	Boiler Temperature - hysteresis	15 °C
K12_HT	Boiler Temperature - hysteresis	5 °C
K13	Boiler Set temperature - superelevation	4 °C
K13_HT	Boiler Set temperature - superelevation	1 °C
K14	Boiler Flue gas temperature - error below	70 °C
K15	Boiler Time - flue gas temperature - error	15 Min
K20	Boiler TMF maximum temperature in fuel storage room	60 °C
K21	Boiler TMS maximum temperature stoker channel	50 °C
K21a	Boiler TMS temperature - error stoker channel	70 °C
K21b	Boiler TMS temperature OK after notice/error	55 °C
K29	Boiler Maximum board temperature exceeded	60 °C
K30	Boiler Test mode set temperature	78 °C
K31	Boiler Test mode runtime	120 Min
K32	Boiler Test mode maximum power - full load	100 %
K32a	Boiler Test mode maximum power - partial load	50 %
K40	Boiler Output limit during error	60 %
K51	Boiler PAF set in slumber mode	10 %
K51a	Boiler Exhaust fan set in slumber mode	10 %
K51b	Boiler PAF set off while lambda	10 %
K51c	Boiler Exhaust fan set off while lambda heating is active	10 %
K52	Boiler locked at 2x slumber mode within	30 min
K52a	Boiler Duration - boiler locked at 2x slumber mode	60 Min
K54	Boiler Signal - water pressure at 0 bar	0.0 V
K55	Boiler Signal - water pressure at 10 bar	10.0 V
K56	Boiler Maximum demand HKR	75 °C
K57	Boiler Number of boiler starts within 24 hours below minimum runtime (0 = deactivated)	10x
K60	Boiler burnout exhaust fan ramp when O2 at least	10 %
K60a	Boiler burnout exhaust fan ramp duration	5 Min
K60b	Boiler burnout exhaust after ramp	50 %

L - Pumps		
L1	District line pump 1 Release temperature	58 °C
L2	District line pump 2 Release temperature	59 °C
L2a	Controlled district line pump Release temperature	59 °C
L3	Heat circuit pump 1 Release temperature	60 °C
L4	Heat circuit pump 2 Release temperature	61 °C
L4a	Heat circuit pump 3 Release temperature	62 °C
L4b	Heat circuit pump 4 Release temperature	63 °C
L4c	Heat circuit pump 5 Release temperature	62 °C
L4d	Heat circuit pump 6 Release temperature	63 °C
L4e	Heat circuit pump A Release temperature	62 °C
L4f	Heat circuit pump B Release temperature	62 °C
L4i	Heat circuit pump 1 Release temperature	30 °C
L4j	Heat circuit pump 2 Release temperature	31 °C
L4k	Heat circuit pump 3 Release temperature	32 °C
L4l	Heat circuit pump 4 Release temperature	33 °C
L4m	Heat circuit pump 5 Release temperature	32 °C
L4n	Heat circuit pump 6 Release temperature	33 °C
L4o	Heat circuit pump A Release temperature	32 °C
L4p	Heat circuit pump B Release temperature	32 °C
L5	External heat circuits - release temperature	64 °C
L6	HWT pump 1 release temperature	62 °C
L7	HWT pump 2 release temperature	63 °C
L7a	HWT pump 3 release temperature	62 °C
L7b	HWT pump A release temperature	63 °C
L7c	HWT pump B release temperature	63 °C
L9	Minimum pump runtime	1 Min
L10	Return Return minimum	58 °C
L10a	Return Return - heat differential	See end of chart
L10b	Return Heat differential - auto setting range	5
L10c	Return Return pump - release temperature	52 °C
L10d	Return Minimum heat differential	3.0 °C
L10e	Return Info pump setting due to heat differential (0 = deactivated)	0h
L11	Return Back-end protection error below	50 °C
L11e	Return Open return mixer at first start up	40 %
L12	Return Time for error back-end protection	60 Min
L12a	Return Return mixer interval	10 sec
L12b	Return Return mixer Kp	1.0 sec
L12b_PB	Return Return mixer Kp	1.5 sec
L12c	Return Return mixer Tn	20 sec
L12d	Return minimum mixer runtime	0.5 sec
L12e	Return maximum mixer runtime per interval	50 %
L13	Return Return pump - type	HE-pump
L23	Return return mixer for STB	Auto
L30	Return Return mixer for BTM Kp	3.0 Sec
L30_PB	Return Return mixer for BTM Kp	0 sec
L31	Return Return mixer for BTM Tn	45 sec
L40	Return Output limit at return increase over	0.07 °C/s
L41	Return Output limit - controller Kp	2.5
L42	Return Output limit - controller Tn	10 sec

L43	Return Controller off at BT diff. higher than	10 °C
L51	Return Controller - accumulator 3F/5F Kp	0.7
L52	Return Controller - accumulator 3F/5F Tn	300 sec
L53	Return -controller - accumulator 3F/5F Tv	125 sec
L54	Return Controller accumulator 3F/5F T1	125
L55	Return Controller - output minimum	30 %
L60	Return PHE differential temperature for mixer	1 °C
L61	Return PHE minimum mixer runtime	0.3 sec
L62	Return Open PHE mixer at first start-up	40 %
M - Heat circuits		
M1	All heat circuits Heat circuit pumps on above boiler temperature	92 °C
M1_HT	All heat circuits Heat circuit pumps on above boiler temperature	98 °C
M1A	All heat circuits Outside temperature for safety circuit	-10 °C
M2	All heat circuits Residual heat until boiler below	40 °C
M2a	All heat circuits	Residual heat several times
M3	All heat circuits Boiler superelevation according to flow temperature	10 °C
M4	Heat circuit 1 Factor - room influence Remote control	1
M5	Heat circuit 2 Factor - room influence Remote control	1
M5a	Heat circuit 3 Factor - room influence Remote control	1
M5b	Heat circuit 4 Factor - room influence Remote control	1
M5c	Heat circuit 5 Factor - room influence Remote control	1
M5d	Heat circuit 6 Factor - room influence Remote control	1
M5e	Heat circuit A Factor - room influence Remote control	1
M5f	Heat circuit B Factor - room influence Remote control	1
M6	All heat circuits Superelevation room temperature Room controller	1.0 °C
M6a	All heat circuits Hysteresis room temperature Room controller	0.0 °C
M7	All heat circuits Reduction delay	15 Min
M8	Heat circuit 1 Minimum mixer runtime	0.3 sec
M9	Heat circuit 2 Minimum mixer runtime	0.3 sec
M9a	Heat circuit 3 Minimum mixer runtime	0.3 sec
M9b	Heat circuit 4 Minimum mixer runtime	0.3 sec
M9c	Heat circuit 5 Minimum mixer runtime	0.3 sec
M9d	Heat circuit 6 Minimum mixer runtime	0.3 sec
M9e	Heat circuit A Minimum mixer runtime	0.3 sec
M9f	Heat circuit B Minimum mixer runtime	0.3 sec
M10	External HC	without outside temperature
M11	All heat circuits Proportional coefficient	100 %
M12	All heat circuits Differential temperature for mixer	1.0 °C
M14	Controlled district line Differential temperature for mixer	1.0 °C
M15	Controlled district line Minimum mixer runtime	0.3 sec
M16	Error detection - mixer/pump	not activated
N - HWT		
N1	All HWTs HWT pump on when boiler temperature above	90 °C
N1_HT	All HWTs HWT pump on when boiler temperature above	98 °C
N2	All HWTs Differential temperature for HWT pump	1 °C
N3	All hot water tanks Boiler priority factor	1
N4	All HWTs HWT pump - post-run - residual heat	5 °C
N5	All HWTs - boiler superelevation legionella protection	5 °C

N6	All HWTs	Residual heat several times
N7	All HWTs - boiler superelevation during HWT loading	10 °C
N15	All HWTs - info "HWT is not reaching accumulator temperature" after (0 = inactive)	2 h
O - Accumulator / External heat		
O1	Accumulator Superelevation - heat circuit set temperature	5 °C
O2	Accumulator Hysteresis - heat circuit set temperature	5 °C
O3	Accumulator Superelevation - HWT temperature	5 °C
O4	Accumulator Hysteresis - HWT temperature	1 °C
O5	Accumulator Base temperature boiler - accumulator	58 °C
O6	Accumulator differential temperature	5 °C
O6_HT	Accumulator differential temperature	1 °C
O7	Accumulator accumulator pump KT differential	5 °C
O8	Accumulator reference temperature for fill level of 0%	20 °C
O9	HWT difference control	ON
O10	External heat Switch-on temperature	60 °C
O11	External heat Heat differential	2 °C
O12	External heat Lock time	15 Min
O13	Accumulator Residual heat until boiler temperature below	65 °C
O14_HT	Accumulator Accumulator loading until TAT	90 °C
O30	Outlet temperature - superelevation - shutdown - pump	12 °C
O31	Outlet temperature - hysteresis	6 °C
O32	Control - PWM pump - minimum	18 %
O33	Control - PWM pump - maximum	95 %
O33a	Control - PWM pump - maximum	90 %
O33b	Pump-cycle duration at minimum output	5 sec
O34	Accumulator loading - superelevation - demand FWS	5 °C
O35	Accumulator loading - hysteresis FWS	5 °C
O36	Interpolation factor	3
O36a	Pump starting output scaling	1
O36b	Pump starting output scaling	0.85
O43-Set	I_AntiWindUp	2.5
O44	D_MaxFilterFrame	8
O46-Set	FWS primary circulation	No
O46a	Primary circulation - runtime	10 sec
O46b	Primary circulation - downtime	30 min
O46c	FWS primary circulation	
O47	FWS primary circulation	No
O47a	Primary circulation - runtime	10 sec
O47b	Primary circulation - downtime	30 min
O47c	FWS primary circulation	
O48	FWS primary circulation	No
O48a	Primary circulation - runtime	10 sec
O48b	Primary circulation - downtime	30 min
O48c	FWS primary circulation	
O49	FWS primary circulation	No
O49a	Primary circulation - runtime	10 sec
O49b	Primary circulation - downtime	30 min
O49c	FWS primary circulation	

P - Ignition		
P1	Ignition timeout	25 Min
P2r/s/t/u	Firebed-set at ignition wood chips / pellets / miscanthus / wood shavings	65°/35°/65°/50°
P3	Exhaust fan maximum upon ignition ON	75 %
P4	Negative pressure set for ignition	105 Pa
P5	Hysteresis firebed level	1°
P6	Exhaust fan when kindling	90 %
P6a	Exhaust fan until combustion chamber filling completed	30 %
P7	Ignition - heat up time	0 sec
P10	Second ignition attempt after	7 Min
P11	FBS superelevation	5°
P12	Negative pressure superelevation	10Pa
P14	Number - ignition attempts	4
P15	Stoker - backwards before reinsertion	2 sec
P16	Minimum delivery rate from second ignition attempt	40 %
P20	connection monitoring for ignition	Yes
P30	Ignition on at O2 >	20.00 %
P31	Delta O2 ignition off	1.00 %
P40	FGT - transition - combustion	100°C
P41	Flue gas temperature increase	20°C
P42	O2 Max for transition combustion	16.00 %
P43	Time O2 Max for transition to combustion	10 sec
P44	Primary air at transition to combustion	100 %
P45	Ramp - transition - combustion	120 sec
P46	TCC transition combustion	250°C
P50	Delivery rate ignition at defective firebed sensor	40 %
P51	Stoker runtime ignition with defective FBS	180 sec
P60	Maximum O2 decrease for PAF closed	-0.22 %
P61	PAF CLOSED for	10 sec
P62	Interval for maximum O2-decrease	10 sec
P63	Stoker delay during ignition by	7 sec
P64	Exhaust fan and PAF delay during ignition by	0 sec
Q - Ash extraction		
Q1	De-ash Minimum runtime - combustion	60 Min
Q2r/s/t/u	De-ash Maximum runtime combustion wood chips / pellets / miscanthus / wood shavings	180/300/120/180 Min
Q3r/s/t/u	De-ash Minimum burnout time wood chips / pellets / miscanthus / wood shavings	10/20/10/5 Min
Q3ar/s/t/u	De-ash Maximum burnout time wood chips / pellets / miscanthus / wood shavings	30/60/30/24 min
Q3b	De-ash Average O2 value - burnout	20 %
Q3c	De-ash Number of burnouts with maximum time until info	0
Q4r/s/t/u	De-ash Exhaust fan - maximum in burnout wood chips / pellets / miscanthus / wood shavings	See end of chart
Q5	De-ash Firebed reduction prior to burnout	10°
Q6	De-ash Grate - motor type	Step motor
Q7	De-ash Initiator ash impulses forwards	6
Q7a	De-ash Initiator ash impulses	2
Q8	De-ash Initiator ash impulses return run	3

Q8a	De-ash Break time of ash auger during suction	2.5 sec
Q10r/s/t/u	De-ash Initiator ash impulses wood chips / pellets / miscanthus / wood shavings	20/14/40/20
Q11	De-ash Maximum motor current - de-ash	2.5 A
Q11a	De-ash Maximum motor current - de-ash - single-phase	3.2 A
Q12	De-ash Nominal motor current - de-ash	1.2 A
Q12a	De-ash Nominal motor current - de-ash - single-phase	2.0 A
Q12z	De-ash AE connection monitoring	Yes
Q13a	De-ash Max. motor current ash auger system 0.18 kW	0.9 A
Q13aa	De-ash Max. motor current ash auger system 0.25 kW	2.5 A
Q13b	De-ash Nominal motor current ash auger system 0.18 kW	0.75 A
Q13ba	De-ash Nominal motor current ash auger system 0.25 kW	1.2 A
Q13c	De-ash number of revolutions for ash auger system pre-run	5 R
Q13d	De-ash number of revolutions for ash auger system post-run	5 R
Q13e	De-ash Ash auger system - number of return runs	3x
Q13f	De-ash Number of revolutions for return runs	9 R
Q13g	De-ash Duration overcurrent at motor	1 Sec
Q15	De-ash Ash motor number - return runs	3x
Q19	De-ash Tolerance FBSset - major de-ash	10°
Q20r/s/t/u	De-ash Delay - grate turn wood chips / pellets / miscanthus / wood shavings	0/20/0/0 sec.
Q21r/s/t/u	De-ash Grate rotations wood chips / pellets / miscanthus / wood shavings	1/1/2/1
Q22	De-ash Downtime for major de-ash	60 Min
Q23r/s/t/u	De-ash Number until forced major de-ash cycle wood chips / pellets / miscanthus / wood shavings	2/2/1/2
Q24c	De-ash Grate motor - runtime 1 revolution	23 sec
Q25	De-ash Maximum motor current - rotary grate	160.0 mA
Q26	De-ash Grate motor - return time	10 sec
Q28	De-ash Poke at burnout every	0 sec
Q30	De-ash Grate opening	0°
Q31	De-ashing Primary air de-ash	0 %
Q32	De-ash Controller - tertiary air - burnout	0 %
Q33	De-ashing controller tertiary air de-ashing	0 %
Q35	De-ash Repeated grate blockage removal attempts	1x
Q35a	De-ash Interval between repeated grate blockage removal attempts	5 Min
Q37	De-ash Max. number of grate blockages during a de-ash	8x
Q50	De-ash Ash suction - number of de-ash cycles	1x
Q51r/s/t/u	De-ash Time - ash suction wood chips / pellets / miscanthus / wood shavings	90/90/100/90 sec
Q52	De-ash Exhaust fan at ash suction	0 %
Q52a	De-ash - pre-/post-run time - ash suction turbine	5 Sec
Q52r/s/t/u	De-ash Exhaust fan at de-ash wood chips / pellets / miscanthus / wood shavings	0 %
Q53	De-ash Number of ash suction cycles per de-ash	2
Q54	De-ash Version - Ash suction	Version 2
Q55	Ash auger active after error	No
Q56	Rotate grates sequentially	No
Q56a	De-ash stoker grate opening during minor de-ash	10°

Q56b	De-ashing Stoker grate opening during major de-ash	120°
Q57	Angle of grates open for blockage removal without blockage detection	10°
Q58	Attempts to open grates during blockage removal without blockage detection	6
Q68	Holding torque of grates for a blockage	36 Nm
Q69	De-ash Torque - rotary grates	55 Nm
Q70	De-ash Torque - rotary grates - blockage removal	56 Nm
Q70a	De-ash Holding torque rotary grates	20 Nm
Q70b	De-ash Tolerance - position - rotary grates	2°
Q76	De-ash Minimum speed - grates - regular run	6.0°/s
Q76a	De-ash Minimum speed - grates - blockage removal	0.5°/s
Q76b	De-ash Minimum speed - grates @ 60Nm	0.2°/s
Q77	De-ash blockage check tolerance	10°
Q80	De-ash ABS function - boiler	active
Q82 - Q98a	Parameters for boilers with an eCleaner	See the eCleaner operating manual
R - Stoker unit / Fuel extraction		
R0	Stoker - motor	ABM
R1r/s/t/u	Stoker Firebed set value wood chips / pellets / miscanthus / wood shavings	70°/65°/75°/70°
R2	Stoker Time - info delivery rate	45 Min
R3	Stoker Break for blockage removal (0 = disabled)	3 pulses
R4	Stoker Ramp firebed set level during combustion transition (0 = disabled)	15 Min
R9	Stoker - delivery rate [kg/h]	0
R9a	Stoker Info when storage level reached	1000 kg
R9b	Info when storage level reached	15 m³
R9c	Fuel consumption per hour - runtime FE	0.3 m³
R10	Stoker Maximum motor current - stoker	1.7 A
R10a	Stoker Maximum motor current - stoker	1.7 A
R11	Stoker Nominal motor current - stoker	1.2 A
R11a	Stoker Nominal motor current - stoker	1.2 A
R13	Stoker Maximum return time - stoker	45 sec
R15	Stoker rotary valve motor	0.37 kW
R16	Stoker Max. motor current rotary valve (0.18 kW)	1.1 A
R16a	Stoker Max. motor current rotary valve (0.25 kW)	1.6 A
R16b	Stoker Max. motor current rotary valve (0.37 kW)	1.7 A
R16c	Stoker Max. motor current rotary valve (0.55 kW)	2.5 A
R16d	Stoker Max. motor current rotary valve (0.75 kW)	3.0 A
R16e	Stoker Max. motor current rotary valve (special motor)	1.1 A
R17	Stoker Nominal motor current rotary valve (0.18 kW)	0.7 A
R17a	Stoker Nominal motor current rotary valve (0.25 kW)	1.2 A
R17b	Stoker Nominal motor current rotary valve (0.37 kW)	1.4 A
R17c	Stoker Nominal motor current rotary valve (0.55 kW)	1.7 A
R17d	Stoker Nominal motor current rotary valve (0.75 kW)	2.0 A
R17e	Stoker Nominal motor current rotary valve (special motor)	0.7 A
R20	Stoker Maximum interval duration when trigger time is not reached	30 Sec
R20r/s/t/u	Stoker cycle wood chips / pellets / miscanthus / wood shavings	10/30/10/10 Sec
R30r/s/t/u	Fuel extraction Factor FE delivery rate wood chips / pellets / miscanthus / wood shavings	See end of chart
R31	Auto adapt FE delivery rate Auto adapt FE delivery rate	Available

R32	Fuel extraction Factor FE-delivery rate - Auto setting range	30%
R33	Fuel extraction Current factor - FE delivery rate	See end of chart
R35	Fuel extraction Connection monitoring FE	Yes
R35a	Fuel extraction system Connection monitoring FE2	Yes
R40	Fuel extraction system Maximum motor current FE (0.18 kW)	1.2 A
R40a	Fuel extraction system Maximum motor current FE (0.25 kW)	1.6 A
R40b	Fuel extraction system Maximum motor current FE (0.37 kW)	1.7 A
R40c	Fuel extraction system Maximum motor current FE (0.55 kW)	2.5 A
R40c1	Fuel extraction system Maximum motor current FE (0.75 kW)	3.0 A
R40c2	Fuel extraction Maximum motor current FE (special motor)	1.2 A
R40d	Fuel extraction system Maximum motor current FE-2 (0.18 kW)	1.2 A
R40e	Fuel extraction system Maximum motor current FE-2 (0.25 kW)	1.6 A
R40f	Fuel extraction system Maximum motor current FE-2 (0.37 kW)	1.7 A
R40g	Fuel extraction system Maximum motor current FE-2 (0.55 kW)	2.5 A
R40g1	Fuel extraction system Maximum motor current FE-2 (0.75 kW)	3.0 A
R40g2	Fuel extraction Maximum motor current FE-2 (special motor)	1.2 A
R41	Fuel extraction system Nominal motor current FE (0.18 kW)	0.7 A
R41a	Fuel extraction system Nominal motor current FE (0.25 kW)	1.2 A
R41b	Fuel extraction system Nominal motor current FE (0.37 kW)	1.4 A
R41c	Fuel extraction system Nominal motor current FE (0.55 kW)	1.7 A
R41c1	Fuel extraction system Nominal motor current FE (0.75 kW)	2.0 A
R41c2	Fuel extraction Nominal motor current FE (special motor)	1.2 A
R41d	Fuel extraction system Nominal motor current FE-2 (0.18 kW)	0.7 A
R41e	Fuel extraction system Nominal motor current FE-2 (0.25 kW)	1.2 A
R41f	Fuel extraction system Nominal motor current FE-2 (0.37 kW)	1.2 A
R41g	Fuel extraction system Nominal motor current FE-2 (0.55 kW)	1.7 A
R41g1	Fuel extraction system Nominal motor current FE-2 (0.75 kW)	2.0 A
R41g2	Fuel extraction Nominal motor current FE-2 (special motor)	1.2 A
R41h	Extraction auger RAS Nominal motor current FE (RAS)	2.0 A
R41i	Extraction auger RAD Nominal motor current FE (RAD)	0.75 A
R41j	Extraction auger RAS Nominal motor current FE (RAS 3)	1.2 A
R42	Fuel extraction Return time fuel extraction system FE	5 sec
R49	Connection auger Tno.10/11/12 option 1 Motor	0.55 kW
R49a	Connection auger Tno.10/11/12 Connection monitoring VBS	Yes
R50	Connection auger Max. motor current (0.18 kW)	1.1 A
R50a	Connection auger Max. motor current (0.25 kW)	1.6 A
R50b	Connection auger Max. motor current (0.37 kW)	1.7 A
R50c	Connection auger Max. motor current (0.55 kW)	2.5 A
R50d	Connection auger Max. motor current (0.75 kW)	3.0 A
R50e	Connection auger Maximum motor current (special motor)	1.1 A
R51	Connection auger Nominal motor current connection auger	0.7 A
R51a	Connection auger Nominal motor current (0.25 kW)	1.2 A
R51b	Connection auger Nominal motor current (0.37 kW)	1.4 A
R51c	Connection auger Nominal motor current (0.55 kW)	1.7 A
R51d	Connection auger Nominal motor current (0.75 kW)	2.0 A
R51e	Connection auger Nominal motor current (special motor)	0.7 A
R52	Connection auger Return time connection auger	10 Sec
R52a	Connection auger Tno.10/11/12 Minimum runtime motor option 1	1 Sec
R53r/s/t/u	Connection auger Factor connection auger delivery rate wood chips / pellets / miscanthus / wood shavings	100 %

R54	Vertical connection auger CAN address 6 2 motor	0.55 kW
R54a	Vertical connection auger CAN addr. 6 Max. motor current (0.18 kW)	1.1 A
R54aa	Vertical connection auger CAN address 6 connection monitoring vertical connection auger	Yes
R54b	Vertical connection auger CAN addr. 6 Max. motor current (0.25 kW)	1.6 A
R54c	Vertical connection auger CAN addr. 6 Max. motor current (0.37 kW)	1.7 A
R54d	Vertical connection auger CAN addr. 6 Max. motor current (0.55 kW)	2.5 A
R54e	Vertical connection auger CAN addr. 6 Max. motor current (0.75 kW)	3.0 A
R54f	Vertical connection auger CAN address 6 Maximum motor current (special motor)	1.1 A
R55	Vertical connection auger CAN address 6 nominal Motor current (0.18 kW)	0.7 A
R55a	Vertical connection auger CAN addr. 6 Nominal motor current (0.25 kW)	1.2 A
R55b	Vertical connection auger CAN addr. 6 Nominal motor current (0.37 kW)	1.4 A
R55c	Vertical connection auger CAN addr. 6 Nominal motor current (0.55 kW)	1.7 A
R55d	Vertical connection auger CAN addr. 6 Nominal motor current (0.75 kW)	2.0 A
R55e	Vertical connection auger CAN address 6 Nominal motor current (special motor)	0.7 A
R56	Vertical connection auger CAN address 6 Return time	10 sec
R57r/s/t/u	Vertical connection auger CAN address 6 Factor delivery rate	100 %
R58	Vertical connection auger CAN address 6 Maximum duration - overcurrent	1 sec
R58a	Vertical connection auger CAN address 6 Return at overcurrent	3 sec
R58b	Vertical connection auger CAN address 6 Motor maximum number of attempts at overcurrent	3
R60	Stoker Reduction when FBS over set	15°
R60a	Stoker empty run during burnout	10°
R60b	Delivery rate during slumber mode	10°
R61	Time - overfill	30 sec
R62	Delivery rate when overfilled	70 %
R63	Overfill-stop off if below FBS set	0°
R64	Delivery rate reduction after overfilling	90 %
R65	Delivery rate at TMS	10 %
R70	Distribution box / common agitator Agitator motor	0.18 kW
R70a	Distribution box / common agitator Max. motor current agitator (0.18 kW)	1.1 A
R70b	Distribution box / common agitator Max. motor current agitator (0.25 kW)	1.6 A
R70c	Distribution box / common agitator Max. motor current agitator (0.37 kW)	1.7 A
R70d	Distribution box / common agitator Max. motor current agitator (0.55 kW)	2.5 A
R70e	Distribution box / common agitator Max. motor current agitator (0.75 kW)	3.0 A
R70e1	Distribution box / common agitator Maximum motor current agitator (special motor)	1.1 A
R70f	Direction - distribution box. box/agitatorDistribution box / common agitator nominal Motor current agitator (0.18 kW)	0.7 A
R70g	Direction - distribution box. box/agitatorDistribution box / common agitator nominal Motor current agitator (0.25 kW)	1.2 A
R70h	Direction - distribution box. box/agitatorDistribution box / common agitator nominal Motor current agitator (0.37 kW)	1.4 A
R70i	Direction - distribution box. box/agitatorDistribution box / common agitator nominal Motor current agitator (0.55 kW)	1.7 A
R70j	Direction - distribution box. box/agitatorDistribution box / common agitator nominal Motor current agitator (0.75 kW)	2.0 A
R70j1	Distribution box / common agitator Nominal motor current agitator (special motor)	0.7 A
R71b	Distribution box / common agitator Motor - duration overcurrent	1.0 sec
R71c	Distribution box / common agitator Motor - duration - return run at overcurrent	3.0 sec
R71d	Distribution box / common agitator Motor maximum number of attempts at overcurrent	3

R71e	Distribution box / common agitator Motor runtime	100 %
R71f	Distribution box / common agitator Motor pulsing	10 sec
R71g	Distribution box Motor - runtime - filling	50 %
R71h	Distribution box Post-run time - agitator - emptying	40 sec
R71i	Distribution box - initiator top - detection time	15 sec
R71j	Distribution box - initiator bottom - detection time	30 sec
R71k	Distribution box - filling time exceeded - info after (0 = deactivated)	2 h
R71l	Distribution box Rotation after one hour at a standstill for (0 = deactivated)	15 sec
R71m	Distribution box Start filling at	400 mm
R71n	Distribution box Stop filling at	200 mm
R71o	Distribution box - initiator - emergency programme after (0 = deactivated)	2 h
R71p	Distribution box Container depth	55cm
R71q	Distribution box Info - change in value - ultrasonic sensor	5 sec
R72a	Distribution box Number of filling cycles before an empty run is performed	10
R72b	Distribution box duration empty run before filling cycle	5 Min
R72r/s/t/u	Distribution box Motor - runtime - agitation	50/15/50/50 %
R73	Distribution box connection monitoring VTB	Yes
R73a	Distribution box Measuring range minimum	0 V
R73b	Distribution box Measuring range minimum	12cm
R73c	Distribution box Measuring range maximum	10 V
R73d	Distribution box Measuring range maximum	100cm
S - Lambda sensor		
S1r/s/t/u	Lambda O2-set wood chips / pellets / miscanthus / wood shavings	7.5/8/8/8 %
S2	Lambda Test mode - O2-set Full load	7.00 %
S3	Lambda O2-stop difference	3.00 %
S4	Lambda O2-increase partial load	1.40 %
S5	Lambda TCC max.	650 °C
S6	Lambda TCC - exceedance - O2 increase Kp	1
S7	Lambda TCC - exceedance - O2 increase Tn	250 sec
S9	Lambda Exhaust fan during lambda calibration	60 %
S10	Lambda Exhaust fan post-run until O2 over	18.00 %
S12	Lambda Default voltage lambda heating	8 W
S20	Lambda sensor	0.0 mV
S30	Lambda O2 info when set value not reached after (0 = deactivated)	60 Min
T - Control		
T1	Controller Flue gas temperature - minimum	100°C
T2	Controller Flue gas temperature - maximum	200°C
T3	Controller flue gas temperature limiter Kp	1
T4	Controller flue gas temperature limiter Tn	250.0 sec
T5	Controller Flue gas temperature correction at 150 °C	-10°C
T10	Controller Boiler temperature - controller Kp	2
T10_HT	Controller Boiler temperature - controller Kp	7
T11	Controller Boiler temperature - controller Tn	600.0 sec
T12	Controller Boiler temperature - controller Tv	100.0 sec
T13	Controller Boiler temperature - controller T1	100
T14	Controller Boiler temperature - controller xw_exp	1.5
T20	Controller Delivery rate - firebed Kp	1
T21	Controller Delivery rate - firebed Tn	250.0 sec
T22	Controller Delivery rate - firebed z	0

T23	Controller Delivery rate - firebed min	0
T24	Controller Delivery rate - firebed max	120
T25	Controller Delivery rate at defective FBS Kp	4
T26	Controller Delivery rate at defective FBS Tn	120.0 sec
T27	Controller Delivery rate at defective FBS min.	0
T28	Controller Delivery rate at defective FBS max.	105
T30	Controller Primary air (O2) Kp	4.5
T31	Controller Primary air (O2) Tn	20
T32	Controller Primary air (O2) Tv	5
T33	Controller Primary air - factor - D-filter	2
T34	Controller Primary air - negative boost	1
T35r/s/t/u	Controller Primary air maximum wood chips / pellets / miscanthus / wood shavings	100/100/100/20 %
T36	Controller Primary air - defective lambda sensor	25 %
T36a	Controller PAF maximum Kp (0 = deactivated)	1.5
T36b	Controller PAF maximum Tn	80 sec
T36c	Controller PAF maximum firebed set reduction	5°
T36d	Controller PAF maximum controller activated after	20 Min
T40	Controller Negative pressure controller Kp	0.1
T41	Controller Negative pressure controller Tn	4.0 sec
T42	Controller Negative pressure controller Tv	0.0 sec
T50	Exhaust fan Kp	30
T51	Exhaust fan Tn	30 sec
T59a	Service sensor Minimum value - sensor SG	100
T59b	Service sensor Maximum value - sensor SG	920
T59c	Service sensor Minimum value - sensor AG	100
T59d	Service sensor Maximum value - sensor SG	920
T60	Service sensor stoker grate Offset (L)	-45
T60a	Service sensor Stoker grate Offset (R)	45
T60d	Service sensor Step motor stoker grate offset (L)	45°
T60e	Service sensor Step motor stoker grate offset (R)	-45°
T61	Service sensor Ash grate Offset (L)	45
T61a	Service sensor Ash grate Offset (R)	-45
T61d	Service sensor Step motor ash grate offset (L)	135°
T61e	Service sensor Step motor ash grate offset (R)	-135°
T62	Service sensor FBS Offset (L)	190
T62a	Service sensor FBS Offset (R)	190
T63	Service sensor 0% TAFset at PAF	100 %
T64	Service sensor 100% TAFset at PAF	20 %
T65	Service sensor 0% TAFmax at output	30 %
T66	Service sensor 100% TAFmax at output	100 %
T67	Service sensor TAF max. - closing speed	10 %
T67a	Service sensor TAF - max. closing speed in burnout	1.5 %
T70	Service sensor Error - air flap	Enabled
T80	Power box Controller ventilator - minimum speed	25 %
T80a	PowerBox Controller - ventilator - maximum speed	100 %
T80b	Power box Controller ventilator Kp	1.5
T80c	Power box Controller ventilator Tn	250 Sec
T80d	Power box Controller ventilator Tv	0 sec
T81	PowerBox Duration Ramp warm-air module start	200 Sec

U - Negative pressure / exhaust fan		
U1	Negative pressure NP set at 30% exhaust fan	30 Pa
U2	Negative pressure NP set at 80% exhaust fan	150 Pa
U3	Negative pressure Kp	0.5
U4	Negative pressure Tn	20
U9	Negative pressure Filter factor NP sensor	95 %
U10	Negative pressure NP limit info/error	50 %
U11	Negative pressure Time until error	30 sec
U20	Exhaust fan - motor type	EC motor
U21	Exhaust fan max. RPM	3400
U22	Exhaust fan - speed - tolerance	30 %
W - Service		
W1	Info for service	No
W3	Info for full-load hours (0 = inactive)	2000 h
W4	Info for heating hours (0 = inactive)	4000 h
W5	Info from	01.01.2017 01:00
W7	Service from	01.02.2017 01:00
W8	Service until	30.11.2017 01:00
W9	Info for boiler start (0 = inactive)	3000x
X - Service sensors		
X01	Service sensor stoker grate X0	0.5 V
X02	Service sensor stoker grate X1	4.5 V
X04	Service sensor ash grate X0	0.5 V
X05	Service sensor ash grate X1	4.5 V
X07	Service sensor firebed sensor X0	0.5 V
X08	Service sensor firebed sensor X1	4.5 V
X10	Service sensor negative pressure X0	0.5 V
X11	Service sensor negative pressure X1	4.5 V
X12	Service sensor primary flap X0	0.5 V
X13	Service sensor primary flap X1	4.5 V
X14	Service sensor tertiary flap X0	0.5 V
X15	Service sensor tertiary flap X1	4.5 V
Z - Special functions		
Z1a	Boiler - model	Type Left
Z1b	Additional function	Not available
Z1d	FE motor	0.37 kW
Z1e	FE-2 motor	0.37 kW
Z1f	Ash auger - motor	3-phase
Z1g	Extraction auger - motor	3-phase
Z1h	Emergency mode with wood logs possible	No
Z1j	Ash auger system	Not available
Z1k	Power converter	Not available
Z1l	Timeout Loxone	30 sec
Z1m	IO-X10-104 extension control board 1	Not available
Z1n	IO-X10-104 extension control board 2	Not available
Z1na	DAQ output - sensor board 2	
Z1o	Distribution box / common agitator	Not available
Z1p	M-Bus addressing	Secondary address
Z1q	M-Bus baud rate	2400
Z1s	Bypass pump	Not available

Z1t	eCleaner	Not available
Z1u	MWZ03 DAQ channels	Not available
Z8	Commission no.	1
Z9a	Delete error list	No
Z9b	Clear infos	No
Z10	Error display - grate - sensor	No

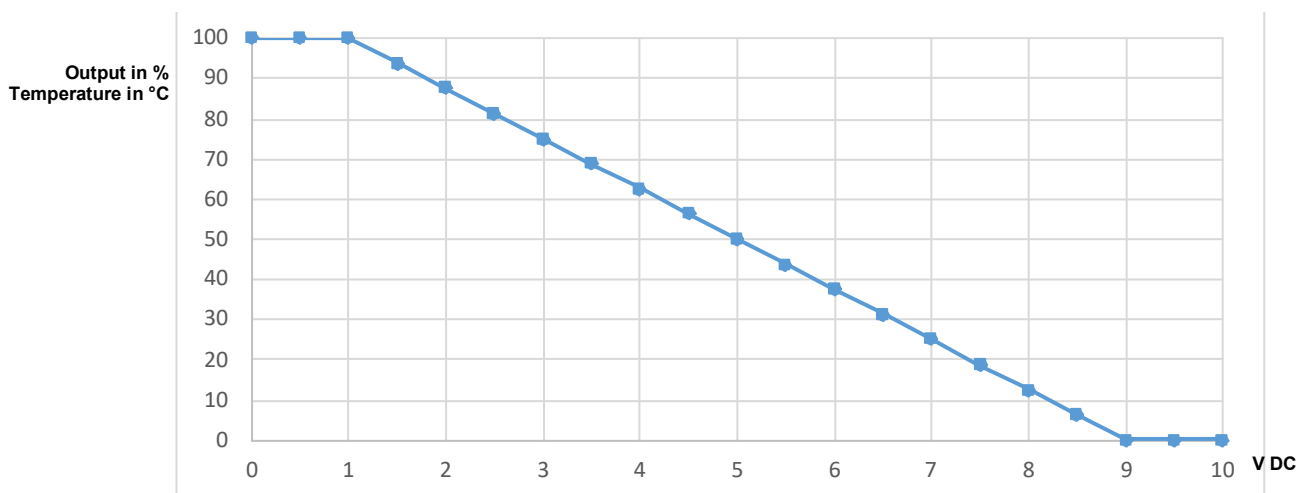
Parameters for each boiler type		Eco-HK 70	Eco-HK 90	Eco-HK 100	Eco-HK 110	Eco-HK 120
K3r	Controller Exhaust fan speed - 100% output Wood chips	75%	85%	90%	95%	100%
K3s	Controller Exhaust fan speed - 100% output Pellets	75%	85%	90%	95%	100%
K3t	Controller Exhaust fan speed - 100% output Loose miscanthus	70%	70%	80%	80%	80%
K3u	Controller Exhaust fan speed - 100% output Wood shavings	75%	85%	90%	90%	90%
L10a	Return - heat differential	16	20	17	18	20
Q4r	De-ash Exhaust fan - maximum in burnout wood chips	90%	90%	100%	100%	100%
Q4s	De-ash Exhaust fan - maximum in burnout pellets	90%	90%	100%	100%	100%
Q4t	De-ash Exhaust fan - maximum in burnout loose miscanthus	70%	70%	80%	80%	80%
Q4u	De-ash Exhaust fan - maximum in burnout wood shavings	90%	90%	100%	100%	100%
R30r	Fuel extraction Factor FE delivery rate wood chips	50%	55%	60%	70%	75%
R30s	Fuel extraction Factor FE delivery rate pellets	14%	15%	15%	18%	20%
R30t	Fuel extraction Factor FE delivery rate loose miscanthus	90%	90%	100%	100%	100%
R30u	Fuel extraction Factor FE delivery rate wood shavings	100%	100%	100%	100%	100%
R33	Fuel extraction Factor FE delivery rate	50%	55%	60%	70%	75%

4 Analogue inputs and outputs

4.1 Specified output or temperature

Installer parameter C6 can be used to activate the analogue 0-10V DC input (terminal 80/81) for the specified analogue output or temperature of the external heat circuit (connected to the system).

Generally, the specified output or temperature only takes effect when the external heat circuit is connected and there is an external demand.



<1V DC = a specified heat output of 100% or a specified temperature of 100 °C
>9V DC = a specified heat output of 0% or a specified temperature of 0 °C (system Off)

4.2 Operating modes

The system's operating modes are displayed at the analogue 0-10V DC output (terminal 78/79) as follows

☞ The tolerance range of the output voltage is +/- 0.5% of the final value

Status number	Boiler status	Output (in V DC) Terminal 78/79
1	BOILER_OFF	1
2	-----	-----
3	BOILER_IGNITIONTEST	2
4	BOILER_IGNITION	2.5
5	BOILER_COMBUSTION	3
6	BOILER_SLUMBER MODE	3.5
7	BOILER_BURNOUT	4
8	-----	-----
9	BOILER_DEASH	5
10	BOILER_STB	5.5
11	BOILER_MANUAL	6
12	BOILER_WOODLOG_OPERATION	6.5

☞ From 0 to 0.5 V DC => cable break / not connected

☞ From 9.5 to 10 V DC => error

5 List of information and error messages

No.	Information message	Cause / Problem	Solution (press ENTER once the notice has been cleared)
No display	Green lights H7 board do not light	Fuse F13 defective, or L1 missing, or connection from control board to the operating unit defective or missing	Replace fuse F13 (see control board sticker); check power supply L1, or cable from control board to operating unit;
1	Attention: Overtemperature STB triggered	Over temperature on the boiler or STB-supply defective or overheated at manual heating, air in the heating system or pump(s) defective	Allow the boiler to cool down, remove the protective cap from the STB (on the front of the boiler) and press the button; have an electrician check the STB power supply; check the pumps; contact the service department and replace the control board
2	Overcurrent stoker auger	Gagger in auger channel or rotary valve, knife of rotary valve defective or blockage in the auger	Remove debris, use parameter No. 4 in "Manual" mode and drive auger forward or backward, (Check motor current on display); replace eventually worn out auger parts; check electronic motor protection; call service department
3	Overcurrent extraction auger	Gagger in the extraction channel or auger blockage	Remove debris, use parameter No.3, No. 3a for FE2 in "Manual" mode and drive auger forward or backward, (Check motor current on display); replace eventually worn out auger parts; check electronic motor protection; call service department
5	Overcurrent connection auger	Gagger in the extraction channel or auger blockage	Remove debris, use parameter No. 5 in "Manual" mode and drive auger forward or backward, (Check motor current on display); replace eventually worn out auger parts; check electronic motor protection; call service department
6	Thermal protection stoker auger	Overload of motor through debris or electronic motor protection set incorrectly	Remove debris, use "Manual" mode and drive auger forward or backward, (Check motor current on display); replace eventually worn out auger parts; check electronic motor protection; check rotary valve for stiffness; call electrician or service department and change control board;
7	Thermo-protec. extraction auger	Overload of motor through debris or electronic motor protection set incorrectly	Remove debris, use parameter No. 3 in "Manual" mode and drive auger forward or backward, (Check motor current on display); replace eventually worn out auger parts; check electronic motor protection; call electrician or service department and change control board;
8	Thermo-protec. ash auger	Overload of motor through debris or electronic motor protection set incorrectly	Remove debris, use parameter No. 2 in "Manual" mode and retract the auger with the forward or reverse button; or replace worn auger parts; check electronic motor protection; this error may also be a result of a sluggish heat exchanger cleaning system or automatic ash extraction; contact an electrician or service department and replace control board;
9	Thermo-protec. connection auger	Overload of motor through debris or electronic motor protection set incorrectly	Remove debris, use parameter No. 5 in "Manual" mode and drive auger forward or backward, (Check motor current on display); replace eventually worn out auger parts; check electronic motor protection; call electrician or service department and change control board;
10	Flue gas temp. sensor connected incorrectly	Sensor connected incorrectly (only at commissioning) or control board defective	Have the sensor's connection polarity checked by an electrician; replace the flue gas sensor or the board;
11	Interruption flue gas sensor	Sensor not connected or connection interrupted	Connect sensor; check cable and terminal points; replace sensor or main board;
12	Boiler sensor short circuit	Short circuit in the sensor or in supply line	Have the cables and/or sensors checked by an electrician;
13	Interruption boiler sensor	Sensor not connected or connection interrupted	Connect sensor; check cable and contacts; replace the defective sensor with another sensor, if there's a different error, replace the sensor. If the same error is shown, replace the control board.
14	Short circuit HWT 1 sensor	Short circuit in the sensor or in supply line	Connect the sensor; check the supply line and terminal points and/or check the parameter settings in the installer level; have the sensor or supply line checked by an electrician; Tip: Replace the sensor shown as defective with another sensor; if another error occurs, the sensor is defective and needs to be replaced; if the same error occurs, extension module HKMO has to be changed; contact the service department;

No.	Information message	Cause / Problem	Solution (press ENTER once the notice has been cleared)
15	Interruption HWT 1 sensor	Sensor not connected or connection interrupted	Connect the sensor; check the supply line and terminal points and/or check the parameter settings in the installer level; have the sensor or supply line checked by an electrician; Tip: Replace the sensor shown as defective with another sensor; if another error occurs, the sensor is defective and needs to be replaced; if the same error occurs, extension module HKM0 has to be changed; contact the service department;
16	Outside sensor short circuit	Short circuit in the sensor or in supply line	
17	Interruption outside temperature sensor	Sensor not connected or connection interrupted	
18	Short circuit flow temp. sensor HC1	Short circuit in the sensor or in supply line	
19	Sensor flow temperature HC1 interruption	Sensor not connected or connection interrupted	
20	Short circuit flow sensor HC2	Short circuit in the sensor or in supply line	
21	Sensor flow temperature HC2 interruption	Sensor not connected or connection interrupted	
22	Short circuit remote control sensor HC1	Short circuit in the sensor or in supply line of FR25	In the event of a short circuit: check the terminal points; the resistance value of the remote control must be in the "Auto" position between 3340 Ohm and 3626 Ohm (room temperature between 5 °C and 25 °C); in the event of an interruption: connect the remote control; check the supply line and terminal points and/or the settings for parameter No. A6 (or A16, A26, A36, A46, A56 or A66) in the installer settings; otherwise, replace the remote control or the HKM0 extension module; contact service department;
23	Interruption remote control sensor HC1	FR25 sensor not connected or connection interrupted	
24	Short circuit remote control sensor HC2	Short circuit in the sensor or in supply line of FR25	
25	Interruption remote control sensor HC2	FR25 sensor not connected or connection interrupted	Check the installation of the flue gas sensor and the terminal points; check the fuel; if the desired negative pressure value has not been reached, check that all service openings are sealed properly and that the exhaust fan is working; test the ignition in manual mode (No. 11); clean the ignition tube; check the ash extraction system in manual mode (No. 2); check firebed sensor is working (when the boiler is cold, lift the firebed sensor manually by approx. 90° and compare it to the "Boiler info" indicator); have the cables, terminal points and plugs checked by an electrician;
26	Ignition time exceeded	The flue gas temp. did not rise by the set value (P41) within the ignition attempt time (P1), or the O2 did not drop below the value (P42) for the period set (P43) within the time (P1); no fuel or fuel too wet; too much ash/clinker in the combustion chamber; flue gas sensor not in the flue pipe; ignition defective	
27	Flue gas temperature under-run	During combustion the flue gas temperature drops under the set value (K14) for the set duration of (K15)	Check installation of flue gas sensor; too wet fuel; too much ash or clinker in the combustion chamber; check proper function of the agitator, stoker auger and de-ash in manual mode (No.3, No.4, No.5), clean combustion chamber;
28	Allowed O2-stop time over-run	Contact error of the lambda sensor or lambda sensor defective	The lambda sensor is very dirty (clean it) and then perform a function check in manual mode No. 13; have the terminal points and plugs checked by an electrician; replace the lambda sensor; the boiler can be temporarily run at a reduced level without the lambda sensor until the sensor is replaced; to enable this, unplug the sensor and clear the error;
30	Low battery. Please replace!	Batteries powering date/time memory are close to being empty	Exchange battery of the control unit;
34	Accumulator sensor top - short circuit	Short circuit in the sensor or in supply line	See nos. 0014 to 0021; Position and parametrisation of the sensors on the boiler or on HKM 0 - 2 possible;
35	Interruption accumulator sensor top position	Interruption in the sensor or in supply line	
36	Accumulator sensor bottom - short circuit	Short circuit in the sensor or in supply line	
37	Interruption accumulator sensor bottom position	Interruption in the sensor or in supply line	
38	Accumulator middle sensor short circuit	Short circuit in the sensor or in supply line	
39	Interruption to accumulator middle sensor	Interruption in the sensor or in supply line	
40	Accumulator top middle sensor short circuit	Short circuit in the sensor or in supply line	
41	Interruption to accumulator top middle sensor	Interruption in the sensor or in supply line	See nos. 0014 to 0021; Position and parametrisation of the sensors on the AS additional board (5 accumulator sensors);
42	Accumulator bottom middle sensor short circuit	Short circuit in the sensor or in supply line	
43	Interruption to accumulator bottom middle sensor	Interruption in the sensor or in supply line	
44	Maximum filling time exceeded	No pellet transport	Check if pellet bridging has occurred in the fuel storage room; check the transport of pellets from the storage room; remove any foreign bodies; free the auger by moving it forwards or backwards in manual mode (No. 3, No. 3a for FE2) (check the motor current indicator); replace any worn auger flighting;

No.	Information message	Cause / Problem	Solution (press ENTER once the notice has been cleared)
45	Back end protection temperature not reached	Back end protection pump set incorrectly or mixer defective. The first two times a warning occurs, the third time the boiler switches off. Error must be rectified	Check that the return sensor position is correct; set the pump correctly; replace the pump or use a bigger pump; check that the return mixer is working (if available); contact the installer; Attention: This will shorten the length of the boiler's service life!
46	Return sensor - short circuit	Short circuit in the sensor or in supply line	See No. 0014 to No. 0021
47	Return temperature sensor interruption	Interruption sensor or in cable or sensor not available	
49	Overcurrent at power converter	Power converter overloaded; power consumption of drive motors too high	Check all motors are running smoothly; ensure stoker unit, ash extraction system, fuel extraction system, etc. are running smoothly
52	Short circuit external sensor	Short circuit in the sensor or in supply line	See No. 0014 to No. 0021
53	Interruption external sensor	Interruption in the sensor or in supply line	
62	GSM module not connected	No connection between GSM module and control unit	Check data cable; check LED on GSM module; check on/off switch on GSM module (must not be set to OFF); replace GSM module;
65	GSM module sending error	GSM module was not able to send SMS due to insufficient credit on the SIM card or no connection to the net provider.	Check credit amount on SIM card and charge if necessary or activate SIM-card; Check GSM signal with mobile phone from the same provider and eventually re-position or extend antenna; (Cable available)
67	Parameter error. Load factory settings	Internal error in the parameter memory	Check parameters and make adjustments where necessary; change the boiler control unit if the error persists despite the changes;
70	Pellet storage volume low	Warning threshold dropped below (customer setting no. 30)	Check storage volume and refill. After the refill, enter the new storage volume on the No. 30 consumption display;
71	Fuel level low	Warning threshold dropped below (customer setting no. 31)	Check the fuel storage level and, if necessary, top up the fuel. After topping up the fuel, enter the new storage level in No. 31 Consumption display
90	Boiler IO not connected	Bus-cable-connection or board defective	Replace bus cable connections, control unit, main board; contact service department;
91	Max. control board temp. exceeded	Control board temperature is too high; board is dirty or is no longer cooling down Ambient temperature in the boiler room is too high (must not exceed 40 °C)	Temporarily open the control cabinet cover to cool down the board; remove dust from the board, cool the boiler room down accordingly; contact service department;
94	Attention, boiler is set to "OFF". No frost control	Operation mode "OFF" is being activated and the outside temperature is dropping below the temperature set.	Change the operation mode to "AUTO".
99	Boiler over temperature	Over temperature on the boiler or STB-supply defective or overheated at manual heating, air in the heating system or pump(s) defective	Allow the boiler to cool down, remove the protective cap from the STB (on the front of the boiler) and press the button; have an electrician check the STB power supply; check the pumps; contact the service department and replace the control board;
100	Extension module CAN 1 not connected	No connection (CAN1 - blue bus) to extension module 1	Set the extension module's address switch to "1"; check HKM's connection and bus wiring; replace extension module 1;
103	Short circuit HWT 2 sensor	Short circuit in the sensor or in supply line	See nos. 0014 to 0021 on extension module HKM 1
104	Interruption HWT 2 sensor	Interruption in the sensor or in supply line	
107	Short circuit flow sensor HC3	Short circuit in the sensor or in supply line	
108	Sensor flow temperature HC3 interruption	Interruption in the sensor or in supply line	
109	Short circuit flow sensor HC4	Short circuit in the sensor or in supply line	
110	Sensor flow temperature HC4 interruption	Interruption in the sensor or in supply line	See nos. 0022 to 0025 on extension module HKM 1
111	Short circuit remote control sensor HC3	Short circuit in the remote control FR25 or in supply line	
112	Interruption remote control sensor HC3	Interruption in the remote control FR25 or in supply line	
113	Short circuit remote control sensor HC4	Short circuit in the remote control FR25 or in supply line	
114	Interruption remote control sensor HC4	Interruption in the remote control FR25 or in supply line	Set the extension module's address switch to "2"; check HKM 2 connection and bus wiring; replace extension module 2;
120	Extension module CAN 2 not connected	No connection (CAN1 - blue bus) to extension module 2	

No.	Information message	Cause / Problem	Solution (press ENTER once the notice has been cleared)
125	Short circuit HWT 3 sensor	Short circuit in the sensor or in supply line	See nos. 0014 to 0021 on extension module HKM 2
126	Interruption HWT 3 sensor	Interruption in the sensor or in supply line	
127	Short circuit flow sensor HC5	Short circuit in the sensor or in supply line	
128	Sensor flow temperature HC5 interruption	Interruption in the sensor or in supply line	
129	Short circuit flow sensor HC6	Short circuit in the sensor or in supply line	
130	Sensor flow temperature HC6 interruption	Interruption in the sensor or in supply line	
131	Short circuit remote control sensor HC5	Short circuit in the remote control FR25 or in supply line	See nos. 0022 to 0025 on extension module HKM 2
132	Interruption remote control sensor HC5	Interruption in the remote control FR25 or in supply line	
133	Short circuit remote control sensor HC6	Short circuit in the remote control FR25 or in supply line	
134	Interruption remote control sensor HC6	Interruption in the remote control FR25 or in supply line	
135	Distr. line board CAN "A" not connected	no connection (CAN1 - blue bus) to I/O 36 board "A" (installed on boiler or HKM 0-2)	Set the control board address switch to "A"; check connection and bus wiring; replace control board;
136	Short circuit flow temp. sensor HCA	Short circuit in the sensor or in supply line	See nos. 0014 to 0021 on heat circuit board A
137	Sensor flow temperature HCA interruption	Interruption in the sensor or in supply line	
138	Short circuit HWT A sensor	Short circuit in the sensor or in supply line	
139	Interruption HWT A sensor	Interruption in the sensor or in supply line	
140	Extension module CAN 0 not connected	no connection (CAN1 - blue bus) to extension module 0	Set the extension module's address switch to "0"; check HKM's connection and bus wiring; replace extension module 0;
141	Sensor flow temperature controlled distr. line short circuit	Short circuit in the sensor or in supply line	See nos. 0014 to 0021 on heat circuit board F
142	Sensor flow temperature controlled distr. line interruption	Interruption in the sensor or in supply line	
143	Distr. line board CAN "F" not connected	no connection to I/O 36 board "F" (installed on boiler or HKM 0-2)	Set the control board address switch to "F"; check connection and bus wiring; replace control board;
144	Comb. cha. sensor defective or not connected	Short circuit in the sensor or in supply line	See No. 0014 to No. 0021
145	Acc. control board CAN C not connected	no connection to I/O 36 board "C" (installed on boiler or HKM 0-2)	Set the control board address switch to "C"; check connection and bus wiring; replace control board;
146	Combustion chamber sensor check - implausible signal	Combustion chamber sensor is not connected or defective. Sensor displays room temperature after short circuit and flue gas temperature drops when switched incorrectly. Missing fuel.	Have the cables, the terminal points and plugs checked by an electrician; replace combustion chamber sensor; check the fuel in the stoker
149	No connection to Loxone server	Parameter (Z11) for set time-out time exceeded; no network connection to the Loxone control;	Check network; check configuration of network settings; check Loxone configuration;
150 - 165	No connection to heat circuit controller HKR 0 - 15	CAN2 (red BUS) BUS communication to HKR interrupted; defective BUS cable; HKR defective; supply voltage missing on HKR; boiler main control board or control panel defective; internal BUS cable defective; terminating resistors set incorrectly	Check the display on the HKR (fuses); LEDs flash during BUS communication; check the terminating resistors; check the voltage and poles on the CAN-BUS plug (approx. 2 V between L and minus (-), or H and minus (-) -> the BUS cable short-circuited/was interrupted; check the internal BUS cable and boiler main board (voltage 2 V); replace the control panel or HKR; check the HKR address (only during commissioning); see the HKR operating manual;
169	Screed dry-out programme has been deactivated!	Power failure over longer period	After prolonged power failure, the dry-out programme is deactivated automatically (warning on the display); if needed, restart the programme (installer parameter No. A9);
170	Sensor temperature plate heat exchanger interruption	Interruption in the sensor or in supply line	See No. 0014 to No. 0021
171	Sensor temperature plate heat exchanger short circuit	Short circuit in the sensor or in supply line	
179	Demand greater than the maximum temperature. Check the parameter settings.	Parameter settings incorrect; a demand is greater than the boiler's maximum temperature.	Check the parameter settings.
180	Check the position of the acc. bottom sensor	Sensor not installed correctly (too low or below the return to the boiler); hydraulic problem;	Check the lower accumulator sensor and fast loading valve; check sensor's position against hydraulic schematic and install it correctly; call installer; call service department;

No.	Information message	Cause / Problem	Solution (press ENTER once the notice has been cleared)
190	Check combustion - set O2 level not reached	Set O2 level was not reached after the preset time (parameter S30); not enough fuel; grate clogged by clinker; too much ash in the combustion chamber	Calibrate firebed sensor; reduce number of minor de-ashes until major de-ash in parameter Q23; check grates; contact service department
195	Check system configuration urgently	Incorrect parameters and/or incorrect pump settings	Check system configuration urgently (parameters, pump settings, frequent boiler starts with short runtimes, etc.).
196	Burnout was not completed several times, O2 level not reached!	Number of burnouts (parameter Q3c) required by the set burnout time (Q3a) (O2 content is lower than the level set in parameter Q3b) was reached. Fuel is still burning in the combustion chamber; grate clogged by clinker, etc.	Check grate
197	Check pump setting on the boiler	Incorrect parameters; incorrect pump settings; mixer defective; pump defective	Check the boiler configuration urgently (parameters, pump settings, frequent boiler starts with short runtimes, etc.); check the hydraulic components behind the boiler;
200	Ignition Time Exceeded! Check Fuel Storage	The firebed was not reached after 15 minutes + the number of minutes set in parameter P1	Check stoker and the amount of fuel available
201 - 206	Control - wiring- external contact heat circuits 1 - 6	Demand is changing 20 times in 2 minutes	Check the external circuitry
210 - 217	Room device FR35 not connected (HC A - HC B)	No connection to digital remote control FR35	Check parameter A6 (or A16, A26, A36, A46, A56, A66 or A76); check BUS wiring; replace digital remote control; see FR35 operating manual;
220 - 227	Room device FR40 not connected (HC A - HC B)	No connection to digital remote control FR40	Check parameter A6 (or A16, A26, A36, A46, A56, A66 or A76); check BUS wiring; replace digital remote control; see FR40 operating manual;
230	Communication error to master boiler (during cascade only)	No connection to master boiler (boiler A)	Check parameter F1: must be set to "Cascade available" at each other boiler; Check parameter F2: each boiler has to have a unique IP-address (no duplicated addresses); Check BUS-wiring; check internal BUS cable between control unit and control board;
231	Slave boiler failed (during cascade only)	No connection to one of the slave boilers (boilers B-F)	Check parameter F6: correct number of slave boilers set; see No. 0230
232	Slave boiler error (during cascade only)	An error has occurred on the following slave boiler	This message will only be shown on the leading boiler (Boiler A). The master boiler and the other slave boilers continue as normal. Confirm message on the leading boiler and rectify the error on the slave boiler.
240 - 247	Connected remote control does not match set parameters (HC A - HC B)	Remote control parametrisation does not match with parametrisation heat circuit remote control	Check the parameter settings for the remote control and heat circuits; see the operating manual for the respective remote control;
248	Control Wiring External Demand	The external demand signal is changing very frequently; external circuitry (switches, thermostat) faulty	Have an electrician check that the external circuitry is working properly. Terminals 80 and 81
256	Switch over unit not in position	AUP does not reach new position; unit returns to starting position. If the Set - Is position of the changeover unit is identically, the error message can be cleared.	Check wiring; clean changeover unit; check the position of the changeover unit after cleaning.
275	ATTENTION! To continue operation, clear the notice. Reason for stop: STB!	STB was triggered	Check the STB.
276	ATTENTION! To continue operation, clear the notice. Reason for stop: Emergency stop!	Emergency stop was triggered	Check the emergency stop.
280	Diff. Contr. CAN D not connected	No connection to I/O 36 board "D"	Set the control board address switch to "D"; check board's connection and bus wiring; replace board;
281	Sensor Heat source (S1) short circuit	Short circuit in the sensor or in supply line	See nos. 0014 to 0021 on differential controller board
282	Sensor Heat source (S1) not connected	Interruption in the sensor or in supply line	
283	Difference sensor (S2) short circuit	Short circuit in the sensor or in supply line	
284	Difference sensor (S2) not connected	Interruption in the sensor or in supply line	
285	Return sensor external heat short circuit	Short circuit in the sensor or in supply line	
286	Return sensor external heat not connected	Interruption in the sensor or in supply line	
287	Return temperature external heat not reached	Error on external heat boiler; sensor positioned incorrectly	Check external heat boiler; check sensor's position against hydraulic diagram and install it correctly;

No.	Information message	Cause / Problem	Solution (press ENTER once the notice has been cleared)
290	Difference Control 2 CAN 9 not connected	No connection to I/O 36 board 9	Set the control board's selector switch to 9; check the board's bus wiring and mains connection; replace control board;
291	Sensor Heatsource (S3) Short Circuit	Boiler sensor short-circuited	Check boiler sensor and replace it if necessary
292	Sensor Heatsource (S3) not connected	Interruption in the boiler sensor or in the supply line	Connect boiler sensor
293	Differential Sensor (S4) Short Circuit	Differential sensor short-circuited	Check differential sensor and replace it if necessary
294	Differential Sensor (S4) not connected	Interruption in the differential sensor or in the supply line	Connect differential sensor
295	Return Flow Sensor Ext. Boiler 2 Short Circuit	Return sensor short-circuited	Check return sensor and replace it if necessary
296	Return Flow Sensor Ext. Boiler 2 not connected	Interruption in the return sensor or in the supply line	Connect return sensor
297	Return Flow Temperature Ext. Boiler 2 not reached	Error on external heat boiler 2; sensor positioned incorrectly	Check external heat boiler 2; check sensor's position against hydraulic diagram and install it correctly;
300	Boiler conducts separate grate test	Grate does not reach end position; debris in grate area	Clean grate; remove debris.
301	Grate check	Debris in grate area	Clean grate; remove debris.
305	Boiler ID-Card wrong	Wrong boiler ID-Card	Replace boiler ID-Card; system will run for 30 days with incorrect boiler ID-Card;
306	Boiler ID-Card missing	Boiler ID-Card or connection defective	Check boiler ID-Card and connection and replace one or both if necessary; system will run for 30 days with incorrect boiler ID card;
307	Boiler ID-Card does not match to Software	Incorrect software installed on the system; incorrect microSD card inserted	Check software and microSD card and replace one or both if necessary
309	Ash box full!	Ash box full or stiffness of the ash auger	Empty ash box; heating is continued; control unit tries to drive the ash auger every 10 minutes; if this does not work until next de-ash, an error will follow;
310	Initiator Cleaning and deash Endposition not reached	Cleaning rod and ash extraction do not return to original position after cleaning	Check thermal safety circuit; check smooth running of cleaning device and fly ash damper (initiator function is displayed in manual mode No. 2b), check rubber pads and rod; check function of the initiator (behind the cover next to the control board); (heating can be continued temporarily);
311	Initiator cleaning device and deash stroke not reached	Cleaning rod and ash extraction do not reach the necessary stroke length during cleaning.	Check thermal safety circuit; check smooth running of cleaning device and fly ash damper (initiator function is displayed in manual mode No. 2b), check rubber pads and rod; check function of the initiator (behind the cover next to the control board); (heating can be continued temporarily);
312	IDF Error	The required exhaust fan speed was not reached	Test exhaust fan in manual mode (No.1); check if green and black plug are connected correctly on the fan; Clean the casing and impeller; the motor must be running smoothly; have the terminal points and plugs checked by an electrician; replace the motor;
313	Ash box not positioned	The ash box or the cover is not placed correctly and close enough to the safety switch.	Secure the ash box firmly to the boiler; ash box lid must be closed; have an electrician check the safety switch, cables, terminals and plugs; (heating mode will continue, but the de-ash and ash suction processes will be blocked);
314	Ash box full!	Ash box full or stiffness of the ash auger	Empty ash box, check ash auger for smooth operation (Manual mode No.2); disassemble ash ejector flange, pull blockage rod (behind the cover, below the stoker) and pull out ash auger in front; overfill in the ash room below the grates or fly ash overfill or debris in the ash auger; remove blockages; call service department;
315	Position switch FE-cover open	Lid of the extraction auger not completely closed, cable defective or material jam in the FE	Heating is continued; control tries to empty auger 4 times; if not possible, an error is displayed;
316	Safety switch FE-Cover open	Lid of the extraction auger open or switch not connected	The stop screw has been removed and the cover opened; the safety switch is connected (the switch position is displayed in the info window); have the safety switch, cables, terminal points and plugs checked by an electrician;
317	Position switch Connection-auger-cover open	Lid of the connection extraction auger not completely closed, cable defective or material jam in the auger;	Heating operation to be continued; Control tries 4 times to empty the auger; if not possible Error 368;

No.	Information message	Cause / Problem	Solution (press ENTER once the notice has been cleared)
318	Safety switch connection auger cover open	Connection extraction auger cover open or switch not connected	The stop screw has been removed and the cover opened; the safety switch is connected (the switch position is displayed in the info window); have the safety switch, cables, terminal points and plugs checked by an electrician;
319	Safety switch FE1 lid open	Lid of the extraction auger 1 open or switch not connected	
320	Safety switch FE2 lid open	Lid of the extraction auger 2 open or switch not connected	
321	Stoker grate - position not reached	The stoker grate cannot reach the set position (0° position).	Release stoker grate in manual mode (No.6/6a); remove debris from the grate ash space; check grate motor and drive; check position sensor and magnetic transmitter; (heating operation can be continued temporarily with a defective grate; to do this unplug grate motor, set grate manually into horizontal position and confirm error);
322	Ash grate - Position not reached	The ash grate cannot reach the set position (0° position)	Empty ash grate in manual position (No.7); remove debris from the grate ash room; check grate motor; check position sensor and magnetic transmitter; (Heating operation to be temporary continued at defective grate, unplug grate motor, set grate manually into horizontal position and confirm error)
323	Stoker grate sensor - invalid signal	Signal outside the preset voltage range (0.8-4.5V)	Have the cables, terminal points and plugs checked by an electrician; replace the sensor;
324	Ash grate sensor - invalid signal	Signal outside the preset voltage range (0.8-4.5V)	Have the cables, terminal points and plugs checked by an electrician; replace the sensor;
325	Position switch RA-cover open	The primary air flap cannot reach the set position or will not move	Test primary air flap in manual mode (No.12); Through pressing the release, the primary air flap can be moved manually and may be checked to smooth operation. (behind the cover and below the stoker); (heating mode can be continued temporarily at a reduced level with a defective primary air flap; to enable this, manually set to approx. 30%); have the cables, terminal points and plugs checked by an electrician; replace the flap motor;
326	Primary air flap defective or not connected	Primary air flap is not connected or defective	(Heating mode can be continued temporarily at a reduced level with a defective primary air flap; to enable this, manually set to approx. 30%); have the cables, terminal points and plugs checked by an electrician; replace the flap motor;
327	Firebed sensor wrong signal	Position sensor ash grate is not connected or defective	(Heating mode can be continued temporarily at a reduced level; to enable this, unplug the sensor and clear the error); have the cables, terminal points and plugs checked by an electrician; replace the sensor;
328	Emergency-Stop triggered	Emergency stop operated or plug with bridge removed	Unlock emergency stop or re-insert plug with bridge - terminal (76/77)
329	Negative pressure sensor not connected or defective	The negative pressure sensor is not connected or defective	(Heating mode can be continued temporarily at a reduced level; to enable this, unplug the sensor and clear the error); have the cables, terminal points and plugs checked by an electrician; replace the sensor;
330	Safety bridge relay defective	Main board defective	Replace main board; contact service department;
331	Safety switch storage room open	Emergency stop operated or plug with bridge removed	Unlock emergency lock or re-insert plug with bridge;
332	ATTENTION! To continue operation, clear the notice. Reason for stop: fuel storage room switch activated	Fuel storage room switch activated	Check the fuel storage room.
333	De-ash carried out in ash box. Empty ash box	Automatic de-ash has been carried out. Ash box full	Empty ash box
335	Fuel storage room 2 - Temperature too high	Fuel storage room 2 - Temperature too high	If the warning device is triggered, the fuel storage room must be checked for various temperature increases and, if necessary, further measures must be taken (call the fire brigade); if the error is due to a defective main board, heating mode can be continued temporarily without TMF; (set parameter D21/D21a to "Not available" => ATTENTION: no warning if the temperature in the fuel storage room exceeds its limit!);
336	Temp. in fuel storage exceeded	Temperature in fuel storage room exceeded	
337	Temp. in stoker auger exceeded	The temperature on the stoker auger is high, because the flue connection is minimised or a burn back occurred	Check boiler, flue pipe and exhaust fan for dust or ash and clean; if burn back, check the tightness of the rotary valve; remove the tube from the negative pressure box and blow in direction of the boiler.

No.	Information message	Cause / Problem	Solution (press ENTER once the notice has been cleared)
338	Interruption TMFR 2 sensor	Interruption or short circuit in the sensor or in supply line	See nos. 0014 to 0021 Heating can be continued temporarily without TMF; (Set parameter D21/D21a to "Not available" => ATTENTION: no warning if overtemperature occurs in the fuel storage room!);
339	Short circuit TMFR 2 sensor		
340	Sensor TMFR interruption		
341	Sensor TMFR short circuit		
342	Sensor TMS interruption		
343	Sensor TMS short circuit		
344	Neg. press. to low	The speed-controlled exhaust fan does not reach the desired negative pressure in the boiler	All boiler openings must be closed (maintenance openings, combustion door); check negative pressure box, exhaust fan and flue pipe; blow through negative pressure tube and boiler tube; Check terminal points, cables and plugs;
349	Lambda sensor not connected or defective	Contact error of the lambda sensor or lambda sensor defective	The lambda sensor is very dirty (clean it) and then perform a function check in manual mode No. 13; have the terminal points and plugs checked by an electrician; replace the lambda sensor; the boiler can be temporarily run at a reduced level without the lambda sensor until the sensor is replaced; to enable this, unplug the sensor and clear the error;
350	Ash bin full	The sensor in the ash bin reports "Full" or not connected	Empty the ash bin; clean the sensor; if no sensor is available, set parameter D5a to "Without ash bin"; have an electrician check the cables, terminal points and plugs;
351	Switch off ash suction	Manual switch-off during ash suction	Message disappears after ash suction process has finished;
352	Delivery rate too low! Check Fuel Storage	The fuel delivery rate is too low	Fuel storage low, refill; Check spring blades on agitator; bridging of fuel; wrong fuel set (parameter 19)
353	Refill fuel!	Fuel storage room is empty or firebed sensor is no longer moving	Fuel storage is empty, refill; check fuel extraction and stoker auger in manual mode (No.3 and No.4); check ease of movement of firebed sensor tongue; remove debris; check correct installation of sensor, magnetic transmitter and connection shaft to tongue;
354	Calibrate combustion sensor	Wrong boiler type (L/R) set or sensor defective;	Check parameter Z1a; recalibrate firebed sensor with parameter MANUAL No. 9; replace sensor;
355	Tertiary air flap doesn't work	The tertiary air flap cannot reach the set position or will not move	Test the tertiary air flap in manual mode (No. 12a); by pressing the release, the tertiary air flap can be moved manually and checked to see if it is operating smoothly; (heating mode can be continued temporarily at a reduced level with a defective tertiary air flap; to do this, manually set to approx. 100%); have the cables, terminal points and plugs checked by an electrician; replace the flap motor;
356	Tertiary air flap not connected or defective	Tertiary air flap is not connected or defective	(Heating mode can be continued temporarily at a reduced level with a defective tertiary air flap; to enable this, manually set to approx. 100%); have the cables, terminal points and plugs checked by an electrician; replace the flap motor;
357	Ash bin full	The sensor in the ash bin reports "Full" or not connected	Empty the ash bin; clean the sensor; have an electrician check the cables, terminal points and plugs;
358	Ash box open too long	Ash box open for longer than 2 minutes	Check the ash box
360	Over current agitator auger 1	Parameter No. 19a Fuel extraction type is set to "Equal emptying"; bulky object in the auger channel	See No. 003; heating can be continued; set parameter No. 19a to the functioning fuel extraction system (only FE1 or only FE2);
361	Over current agitator auger 2		
362	Thermal protection agitator auger 1	Parameter No. 19a Fuel extraction type is set to "Equal emptying"; motor possibly overloaded due to debris or electric motor protection set incorrectly	See No. 007; heating can be continued; set parameter No. 19a to the functioning fuel extraction system (only FE1 or only FE2);
363	Thermal protection agitator auger 2		
364	Position switch RA1-lid partly opened	Lid of the extraction auger 1 not completely closed, cable defective or material jam in the FE1	Heating operation to be continued; Control tries 4 times to empty the auger; if not possible Error 367
365	Position switch RA2-lid partly opened	Lid of the extraction auger 2 not completely closed, cable defective or material jam in the FE2	Heating operation to be continued; control system will try four times to drive the auger; if this is not possible, error 368 will follow;

No.	Information message	Cause / Problem	Solution (press ENTER once the notice has been cleared)
366	Fuel jam FE-lid	Lid of the extraction auger not completely closed, cable defective or material jam in the FE	Clear the fuel jam and remove any foreign bodies; ensure the lid is completely closed; have an electrician check the safety switch, cables, terminal points and plugs;
367	Material jam RA-lid 1	Lid of the extraction auger 1 not completely closed, cable defective or material jam in the FE1	
368	Material jam RA-lid 2	Lid of the extraction auger 2 not completely closed, cable defective or material jam in the FE2	
369	Material jam RA-lid 1	Lid of the extraction auger 1 not completely closed, cable defective or material jam in the FE1	
370	Material jam RA-lid 2	Lid of the extraction auger 2 not completely closed, cable defective or material jam in the FE2	
371	Over current agitator auger 1	Parameter No. 19a Fuel extraction type is set to "Only FE 1/2"; bulky object in the auger channel	See No. 003; heating can be continued; set parameter No. 19a to the functioning fuel extraction system (only FE1 or only FE2);
372	Over current agitator auger 2		
373	Thermal protection agitator auger 1	Parameter No. 19a Fuel extraction type is set to "Only FE 1/2"; motor possibly overloaded due to debris or electric motor protection set incorrectly	See No. 007; heating can be continued; set parameter No. 19a to the functioning fuel extraction system (only FE1 or only FE2);
374	Thermal protection agitator auger 2		
375	Both room extraction systems defective (see warnings for details)	Both fuel extraction systems overloaded or on thermal protection;	See No. 003 or No. 007; if the problem cannot be rectified, switch parameter No. 19 to wood log emergency operation; call service department;
380	Maintenance due! According factory specifications!	Number of full-load hours, heating hours and boiler starts reached for the maintenance required according to factory specifications	Perform maintenance; reset maintenance counter once maintenance is complete;
381	Suction turbine runtime 0h. Replace the carbon brushes at 500h and reset the meter.	Suction turbine runtime exceeded	Replace the carbon brushes and reset the meter.
390	Sensor Heatsource (S4) Short Circuit	Boiler sensor short-circuited	Check boiler sensor and replace it if necessary
391	Sensor Heatsource (S4) not connected	Interruption in the boiler sensor or in the supply line	Connect boiler sensor
392	Differential Sensor (S3) Short Circuit	Differential sensor short-circuited	Check differential sensor and replace it if necessary
393	Differential Sensor (S3) not connected	Interruption in the differential sensor or in the supply line	Connect differential sensor
394	Return Flow Sensor Ext. Boiler 3 Short Circuit	Return sensor short-circuited	Check return sensor and replace it if necessary
395	Return Flow Sensor Ext. Boiler 3 not connected	Interruption in the return sensor or in the supply line	Connect return sensor
396	Return Flow Temperature Ext. Boiler 3 not reached	Error on external heat boiler 3; sensor positioned incorrectly	Check external heat boiler 3; check sensor's position against hydraulic schematic and install it correctly
401	Ensure that the safety bridge has been removed	Manual bypass of safety devices for maintenance purposes has not been removed	Please remove bridge (Clamp 64/65) after service. ATTENTION: If not, safety functions are NOT ACTIVATED
410	No fuel in FE1 Extraction currently from FE2	Fuel empty at FE1;	Refill fuel on FE1; control switches to fuel supply via FE2;
411	No fuel in FE2 Extraction currently from FE1	Fuel empty at FE2;	Refill fuel on FE2; control switches to fuel supply via FE1;
412	No fuel	Fuel empty for FE1 and FE2;	Refill fuel;
413	No fuel in FE1 Extraction switched to FE2	Fuel empty at FE1;	Refill fuel on FE1; control switches to fuel supply via FE2;
414	No fuel in FE2 Extraction switched to FE1	Fuel empty at FE2;	Refill fuel on FE2; control switches to fuel supply via FE1;
415	No fuel in FE1	Fuel empty at FE1;	Refill fuel at FE1;
416	No fuel in FE2	Fuel empty at FE2;	Refill fuel at FE2;
420	Therm. prot. rotary valve	Overload of motor through debris or motor protection set incorrectly	See No. 007
421	Overcurrent rotary valve	Debris in the rotary valve	See No. 003
440	Heat circuit board CAN B not connected	No connection to heat circuit board B	Set the address switch on the board to position "B"; check the board's bus wiring and power supply; replace the board;
441	HCB flow temperature sensor short-circuited	HCB flow sensor short-circuited	Check temperature sensor and replace it if necessary

No.	Information message	Cause / Problem	Solution (press ENTER once the notice has been cleared)
442	HCB flow temperature sensor interruption	Cable break in line to HCB sensor; HCB sensor not connected	Check HCB sensor and replace it if necessary
443	Hot-water tank B sensor short-circuited	HWT B temperature sensor short-circuited	Check temperature sensor and replace it if necessary
444	Hot-water tank B interruption	Cable break in line to HWT B sensor; HWT sensor B not connected	Check hot-water tank B sensor and replace it if necessary
480 - 483	Accumulator temperature for domestic hot water 1 - 4 below required temperature	Boiler not in operation or not ready for operation	Check boiler is working properly
488	Sensor Flow FWS Short Circuit	Fresh-water station flow sensor short-circuited	Check FWS flow sensor and replace it if necessary
489	Sensor Flow FWS Interruption	Cable break in line to fresh-water station flow sensor; fresh-water station sensor not connected	Check FWS flow sensor and replace it if necessary
490	FWS 1 Temperature Sensor Interruption	Cable break in line to fresh-water station 1 temperature sensor; fresh-water station sensor not connected	Check FWS temperature sensor and replace it if necessary
492	FWS 1 Temperature Sensor Short Circuit	FWS 1 temperature sensor short-circuited	Check temperature sensor and replace it if necessary
493	FWS 2 Temperature Sensor Interruption	Cable break in line to fresh-water station 2 temperature sensor; fresh-water station sensor not connected	Check FWS temperature sensor and replace it if necessary
494	FWS 2 Temperature Sensor Short Circuit	FWS 2 temperature sensor short-circuited	Check temperature sensor and replace it if necessary
495	FWS 3 Temperature Sensor Interruption	Cable break in line to fresh-water station 1 temperature sensor; fresh-water station sensor not connected	Check FWS temperature sensor and replace it if necessary
496	FWS 3 Temperature Sensor Short Circuit	FWS 3 temperature sensor short-circuited	Check temperature sensor and replace it if necessary
497	FWS 4 Temperature Sensor Interruption	Cable break in line to fresh-water station 1 temperature sensor; fresh-water station sensor not connected	Check FWS temperature sensor and replace it if necessary
498	FWS 4 Temperature Sensor Short Circuit	FWS 4 temperature sensor short-circuited	Check temperature sensor and replace it if necessary
500	Stoker auger locked, empty rotary valve / stoker channel	Gagger in the auger channel or auger blockage (Error No. 2 - Occurred 3-times within a time limit)	Control blocks the boiler for 15 min.; remove debris, free auger in manual mode (No.4); If the error (No. 2) occurs again - within 2 minutes - the boiler is blocked permanently (Error No. 501)
501	Stoker auger locked, empty rotary valve / stoker channel; call service department	Gagger in the auger channel or auger blockage (Error No. 500 occurred, rectified and again error No. 2 - within 2 minutes)	The control unit has blocked the boiler permanently; remove any foreign bodies and contact the service department;
502	Overcurrent ash auger system (AFS)	Gagger in the extraction channel or auger blockage	Remove debris, use parameter No. 2a in "Manual" mode and drive auger forward or backward, (Check motor current on display); call electrician or service department and change control board;
503	Ash auger system (AFS) thermal protection	Overload of motor through debris or electronic motor protection set incorrectly	
504	Ash auger system motor not connected or fuse three-phase AC module defective	Motor cable supply or fuse F1, F2 or F3 on three-phase module defective	Check the fuses and replace them if necessary; check the motor cable; connect the motor displayed as defective to another slot on the main board; if the same error occurs, replace the DRM board; if another error occurs (depending on the slot on the main board), change the motor or the supply line; contact the service department;
505	Ash suction in customer level deactivated	Ash suction has been deactivated during suctioning	After error rectification, which has led to the manual switch-off, reset parameter No. 18 Ash suction to activated.
535	Sensor - water pressure - interrupted	Sensor not connected or connection interrupted	Connect sensor; check cable and contacts; replace sensor or board;
536	Short circuit water pressure sensor	Short circuit in the sensor or in supply line	Have the cable and/or sensor checked by an electrician;
537	Water-Pressure under level	Water pressure is below the set minimum; heating system is leaking; heating system not bled correctly	Check heating system for leaks; bleed heating system correctly and top it up; call installer;
538	Water-Pressure above level	Water pressure has exceeded max. water pressure level; pressure too high during filling; water filling level exceeded; expansion vessel defective	Check filling device; drain water; check expansion vessel;
540	IO-X10-104 Control Board 0 not connected	No connection to IO-X10-104 extension control board 0	Set the control board address switch to "0"; check connection and bus wiring; replace control board;

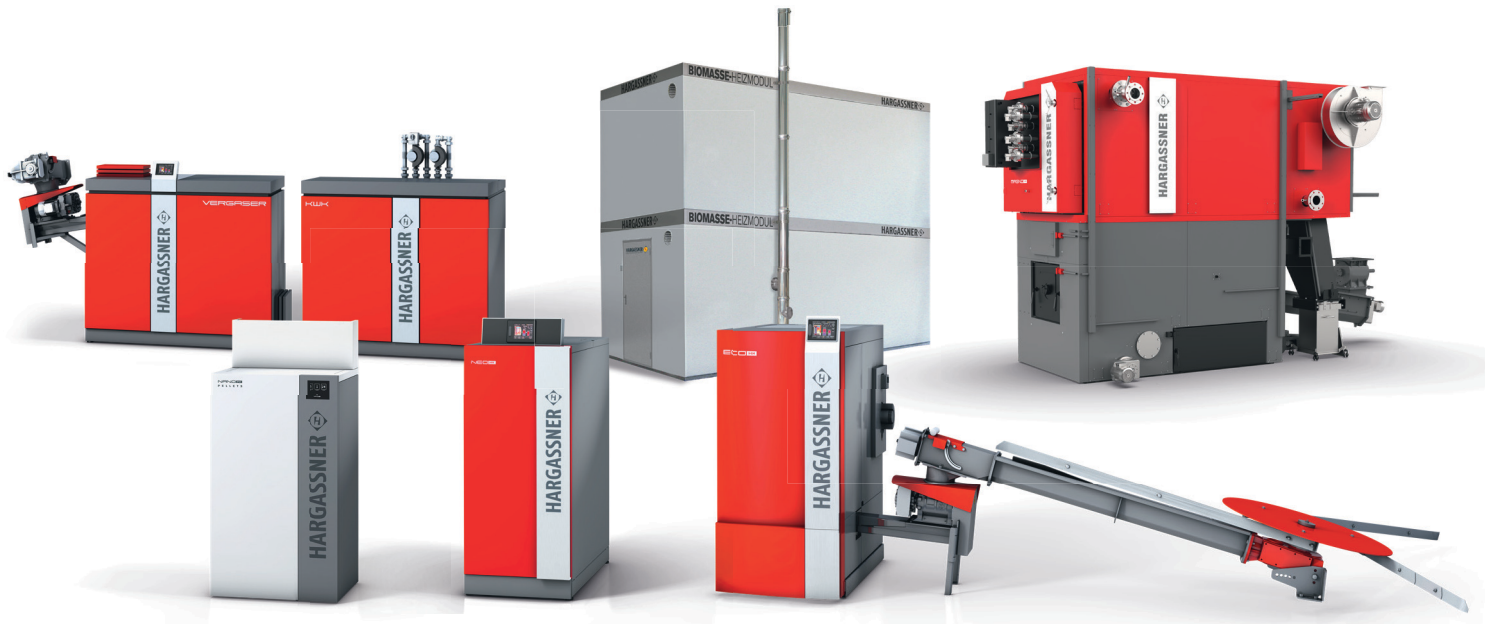
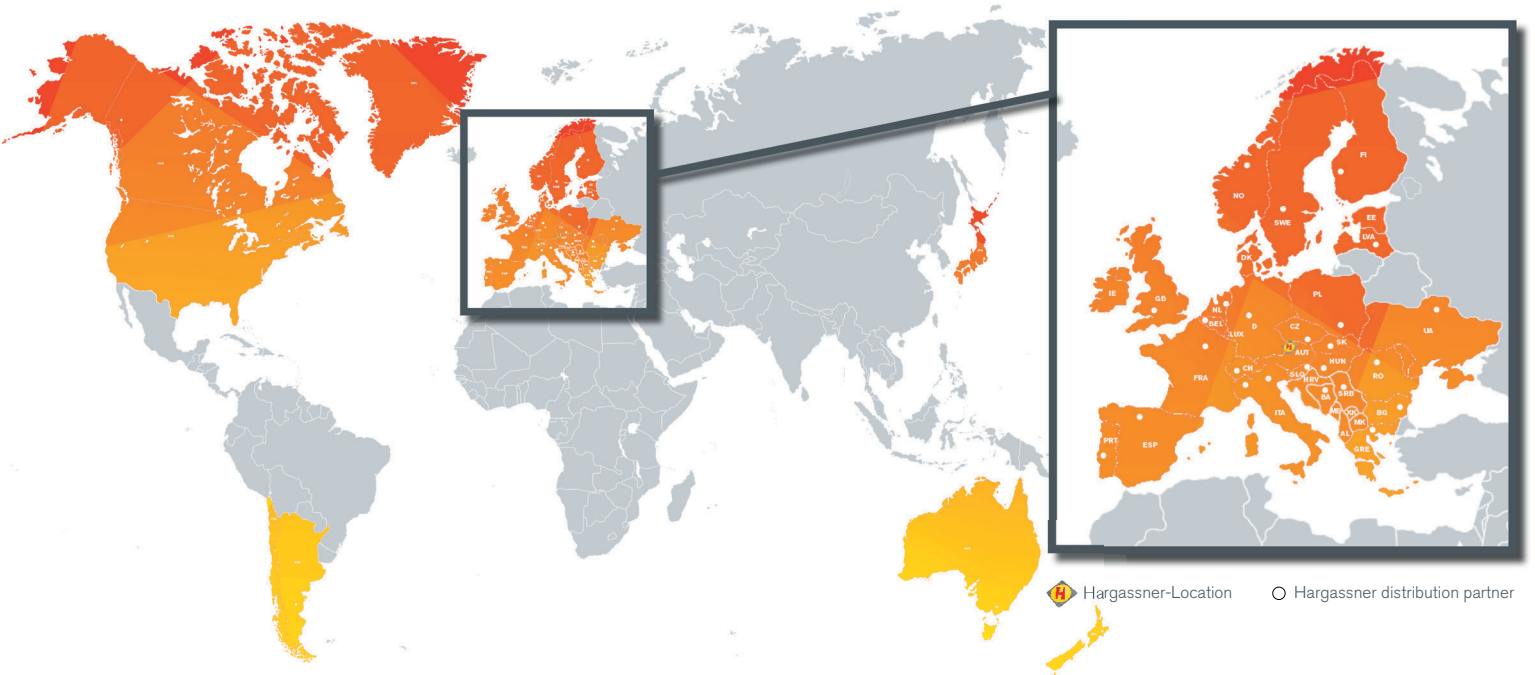
No.	Information message	Cause / Problem	Solution (press ENTER once the notice has been cleared)
541	Sensor board 1 not connected	No connection to IO-X10-104 extension control board 1	Set the control board address switch to "1"; check connection and bus wiring; replace control board;
542	IO-X10-104 Control Board 2 not connected	No connection to IO-X10-104 extension control board 2	Set the control board address switch to "2"; check connection and bus wiring; replace control board;
543	IO-X10-104 Control Board 3 not connected	No connection to IO-X10-104 extension control board 3	Set the control board address switch to "3"; check connection and bus wiring; replace control board;
544	IO-X10-104 Control Board 4 not connected	No connection to IO-X10-104 extension control board 4	Set the control board address switch to "4"; check connection and bus wiring; replace control board;
545	IO-X10-104 Control Board 5 not connected	No connection to IO-X10-104 extension control board 5	Set the control board address switch to "5"; check connection and bus wiring; replace control board;
546	IO-X10-104 Control Board 6 not connected	No connection to IO-X10-104 extension control board 6	Set the control board address switch to "6"; check connection and bus wiring; replace control board;
547	IO-X10-104 Control Board 7 not connected	No connection to IO-X10-104 extension control board 7	Set the control board address switch to "7"; check connection and bus wiring; replace control board;
550	Sensor Air Temp Short Circuit	Short circuit in the sensor or in supply line	Have the cable and/or sensor checked by an electrician;
551	Sensor - air temperature - interruption	Sensor not connected or connection interrupted	Connect sensor; check cable and terminal points, check sensor and replace it if necessary
552	Sensor Exhaust Short Circuit	Short circuit in the sensor or in supply line	Have the cable and/or sensor checked by an electrician;
553	Sensor - exhaust air temperature - interruption	Sensor not connected or connection interrupted	Connect sensor; check cable and terminal points, check sensor and replace it if necessary
560	Fan failure	External error (fan failure)	Restart the boiler; if the same error occurs, contact the service department
600	I/O eCleaner 0 not connected	No connection to driver board; driver board defective	Check the BUS cable connection; set the address selection switch to 0; replace the defective driver board
610	eCleaner emergency stop activated	Safety switch contact opened	Check the top casing is fitted securely; check the safety switch for defects
611	Check the eCleaner. High voltage not reached	During combustion: the high-voltage increase is too small During the manual-mode test : the residual temperature of the flue gas is too high	During combustion: contact the customer service team. During the manual-mode test : allow the boiler to cool down
612	Check the high-voltage cable and the electrode	Connection between the voltage multiplier and the electrode interrupted	Check the high-voltage cable is connected to the voltage multiplier and the electrode
613	eCleaner board overtemperature	Maximum board temperature exceeded; board is dirty or is no longer cooling down	Temporarily remove the control cabinet cover to cool down the board (ambient temperature up to 40 °C); remove any dust from the board; contact the service team
615	eCleaner - overcurrent - mains adaptor	High-voltage cable defective; electrode bent - earth fault	Check the cable and replace it if necessary; check the electrode
616	eCleaner mains adaptor not connected / defective	Mains adaptor or driver board defective	Replace the mains adaptor or driver board
617	Clean the eCleaner	Too many flashovers in a short space of time	Clean the particle filter
618	Early flashover: Clean the eCleaner and/or check the electrode	Particle filter dirty; electrode bent	Clean the particle filter; check the electrode
619	Check the eCleaner drive	Specified number of initialisations is not being reached	Check the drive unit
902	Fault memory initialised	No problem; this is for documentation purposes only	No action required; if this message appears frequently, contact the electrician (lots of power failures, poor terminal points in the mains power supply; check the connections between the control unit and the board, as well as all the cable connections);
903	Restart (Power ON)		
910	Writing to the dongle failed	Data can no longer be written to the microSD card - defective	Replace the microSD card.
5210	Stoker auger - Hardware-check failed	Stoker auger neutral line not connected	Connect neutral line to motor star point or at the control board (implicitly use 5-pole cable!); change the plug of the as defective shown motor (on the control board) with another motor plug, if another error occurs, replace the motor or the supply, if the same error occurs - call service department (temporary emergency operation possible, see "no hardware test" at the end of troubleshooting)
5220	Extraction system - Hardware-check failed	Fuel extraction system FE1 neutral line not connected	
5230	Ash auger - Hardware-check failed	Ash auger neutral line not connected	
5240	Hardware test connection auger failed	Connection auger Neutral line not connected	
5250	Hardware test agitator FE2 failed	Fuel extraction FE2 Neutral line not connected	
5260	Double rotary valve - hardware test failed	Double rotary valve Neutral line not connected	

No.	Information message	Cause / Problem	Solution (press ENTER once the notice has been cleared)
5310	Stoker auger motor not connected or fuse F4, F5 or F6 defective	Motor cable supply or fuse F4,F5 or F6 defective	Check fuses and, if necessary, replace them (see labels) or check motor cable; replace the plug of the motor shown as defective with another plug; if another error occurs, the motor or the supply line must be replaced; if the same error occurs, the control board must be replaced; contact service department;
5320	Motor fuel extraction not connected or fuse F1, F2, F3 defective	Parameter No. 19a Fuel extraction type is set to "Equal emptying"; motor cable or fuse F1, F2 or F3 defective	
5321	Motor fuel extraction not connected or fuse F1, F2, F3 defective	Parameter No. 19a Fuel extraction type is set to "Only FE 1/2"; motor cable or fuse F1, F2 or F3 defective	
5330	Motor connection auger not connected or fuse F7, F8, F9 defective	Motor cable supply or fuse F7,F8 or F9 defective	Check fuses and, if necessary, replace them (see labels) or check motor cable; replace the plug of the motor shown as defective with another plug; if another error occurs, the motor or the supply line must be replaced; if the same error occurs, the control board must be replaced; contact service department;
5335	Motor connection auger 2 not connected or fuse F7, F8, F9 defective	Motor cable supply or fuse F7,F8 or F9 defective	
5340	Motor ash auger not connected or fuse F10, F11 or F12 defective.	Motor cable supply or fuse F10,F11 or F12 defective	
5350	Motor agitator FE2 not connected or fuse F7,F8,F9 defective	If parameter No. 19a Room extraction type is set to "equal emptying"; motor cable or fuse F7, F8 or F9 defective	
5351	Motor agitator FE2 not connected or fuse F7,F8,F9 defective	"Only FE 1/2" when setting parameter No. 19a Room extraction type ; motor cable or fuse F7, F8 or F9 defective	
5360	Motor double rotary valve not connected, or fuse F7,F8,F9 defective	Motor cable supply or fuse F7,F8 or F9 defective	Check fuses and, if necessary, replace them (see labels) or check motor cable; replace the plug of the motor shown as defective with another plug; if another error occurs, the motor or the supply line must be replaced; if the same error occurs, the control board must be replaced; contact service department;
5370	Overcurrent - connection auger 1	Parameter No. 19a Fuel extraction type is set to "Equal emptying"; bulky object in the auger channel	See No. 003; heating can be continued; set parameter No. 19a to the functioning fuel extraction system (only FE1 or only FE2);
5371	Overcurrent - connection auger 2		
5372	Overcurrent - connection auger 1	Parameter No. 19a Fuel extraction type is set to "Only FE 1/2"; bulky object in the auger channel	See No. 003; heating can be continued; set parameter No. 19a to the functioning fuel extraction system (only FE1 or only FE2);
5373	Overcurrent - connection auger 2		
5374	Thermal protection - connection auger 1	Parameter No. 19a Fuel extraction type is set to "Equal emptying"; motor possibly overloaded due to debris or electric motor protection set incorrectly	See No. 007; heating can be continued; set parameter No. 19a to the functioning fuel extraction system (only FE1 or only FE2);
5375	Thermal protection - connection auger 2		
5376	Thermal protection - connection auger 1	Parameter No. 19a Fuel extraction type is set to "Only FE 1/2"; motor possibly overloaded due to debris or electric motor protection set incorrectly	See No. 007; heating can be continued; set parameter No. 19a to the functioning fuel extraction system (only FE1 or only FE2);
5377	Thermal protection - connection auger 2		
5378	Position switch - connection auger 1 lid open	Lid open in the parameter settings for two FEs and "Emptying for FE 2 only" or "Emptying for FE 1 only"	Check the lid; close the lid
5379	Position switch - connection auger 2 lid open		
5380	Both connection augers defective - see messages for details	Errors on both connection augers	Check both connection augers
5410	Exhaust fan not connected (on pulse package control only)	Cables, plugs or exhaust fan defective	Connect exhaust fan correctly (113/PE/N); Check plug for proper fit; call service department (temporary emergency operation possible, see "no hardware test" at the end of troubleshooting);
5420	Ignition heaters not connected	Cables, plugs or ignition defective	Connect ignitions correctly (Main board 118/PE/N/119); Check plug for proper fit; call service department;
5430	Inlet grate not connected	Cables, plugs or grate motor defective	Connect grate motor correctly; check plugs for proper fit; check cables and terminal points; call service department;
5440	Ash grate not connected	Cables, plugs or grate motor defective	
5630 - 5634	Fuses F15 - F 18 defective	Fuse defective	check fuses and replace if needed (see stickers)
6100	Supply phase sequence incorrectly RESTART REQUIRED	The phases L1, L2 and L3 are in the wrong order	Call electrician and connect phase sequence correctly; then check correct rotation of stoker, extraction and ash auger(s) in manual mode!
6200	Supply phase sequence incorrectly RESTART REQUIRED	Low voltage or failure L2/L3 Fuse in meter box defective.	Have the supply line and fuse checked by an electrician; contact the service department; replace the board;

No.	Information message	Cause / Problem	Solution (press ENTER once the notice has been cleared)
6301	STB triggered or not connected	After restart of the control, hardware test was not performed; sensor or switch not connected;	Restart required; see No.001
6313	Ash box not positioned		Restart required; see No.313
6316	FE-cover open		Restart required; see No.316
6318	Connection auger - lid open		Restart required; see No.318
6320	FE2-lid open		Restart required; see No.320
6328	Emergency-Stop triggered		Restart required; see No.328
6329	External error	External device is reporting an error to the control unit (terminal no. 72/73);	Check external device
6330	External notice	External device is sending a notice to the control unit (terminal no. 66/67);	Check external device;
6331	Safety switch storage room open	Hardware test not successful	Restart required; release the safety switch;
7003	ECO extension board defective or not connected	No connection to extension control board or board defective	Check BUS-wiring and power supply; replace board; call service department
7005	Rotary grate shaft sensor - stoker grate 1 not available	Line interruption, sensor not connected or defective	Connect the sensor; have the plugs and wiring checked by an electrician; replace the sensor or board; contact the service department;
7006	Turnable Crate Sensor Ash-Crate not available	Line interruption, sensor not connected or defective	Connect the sensor; have the plugs and wiring checked by an electrician; replace the sensor or board; contact the service department;
7008	Rotary grate shaft sensor stoker grate 1 short circuit	Short circuit in rotary grate shaft sensor - stoker grate 1	Check sensor and replace it if necessary
7009	Rotary grate shaft sensor ash grate short circuit	Short circuit in rotary grate shaft sensor - ash grate 1	Check sensor and replace it if necessary
7010	Board agitator over current	Motor blocked or debris;	Remove debris, check electronic motor protection; call electrician or service department;
7011	Agitator motor not connected or fuse 3-phase module defective	Motor cable supply or fuse F1, F2 or F3 on three-phase module defective	Check the fuses and replace them if necessary; check the motor cable; connect the motor displayed as defective to another slot on the main board; if the same error occurs, replace the DRM board; if another error occurs (depending on the slot on the main board), change the motor or the supply line; contact the service department;
7012	DRM agitator board CAN 0 not connected	No connection to DRM board	Set the board address switch to "0"; check mains connection and bus wiring; replace DRM board;
7013	DRM agitator board CAN 0 supply phase sequence wrong or neutral line defective	Phases L1, L2 and L3 are in the wrong order;	Call an electrician; put phase sequence in the right order, then make sure you check the motor's direction of rotation in manual mode;
7014	Failure Control External Demand	External device is reporting an error to the control unit (terminal no. 72/73);	Check external device;
7015	Thermal protection agitator	Motor overloaded due to a foreign body or the electronic motor protection being set incorrectly;	Remove debris; check electronic motor protection; call electrician or service department;
7020	DRM AHF board CAN 2 not connected	No connection to DRM board	Set the board selector switch to 2 ; check the bus wiring and mains connection; replace the DRM board;
7021	DRM AHF board CAN 2 power supply phase sequence wrong or neutral line defective	Phases L1, L2 and L3 are in the wrong order;	Call an electrician; put the phase sequence in the right order; make sure you check the motor's direction of rotation in manual mode.
7022	Firmware update DRM CAN 2 required! V1.0.0 or higher required	An application that is controlled via the DRM board requires an update.	Perform firmware update
7030 - 7037	Check correct function of HC A - B mixers and pumps, or heat circuit blocked off	The heat circuit's preset temperature has not been reached for more than 60 min	Check mixers and pumps are working correctly in manual mode; "open" manually blocked off heat circuits; call installer or service department;
7040 - 7047	Check HC A and B mixers are working correctly, or heat circuit blocked off	HC set temperature is constantly exceeded over a period of 60 min;	Check mixers are working correctly in manual mode; "open" manually blocked off heat circuits; call installer or service department;
7050 - 7057	HC A - B over temperature - check mixers and sensors	Maximum HC flow temperature exceeded;	Switch off the HC pump until the flow temperature drops below the maximum; check the mixers and sensors are working correctly; contact the installer or service department;
7060	Board distribution box overcurrent	Bulky object in distribution box or distribution box blockage	Remove debris, empty distribution box in manual mode and check electronic motor protection; call an electrician or the department.

No.	Information message	Cause / Problem	Solution (press ENTER once the notice has been cleared)
7061	Motor distribution box not connected or fuse DRM CAN 1 defective	Motor cable supply or fuses on three-phase current board defective	Check the fuses and replace them if necessary; check the motor cable; connect the motor displayed as defective to another slot on the main board; if the same error occurs, replace the DRM board; if another error occurs (depending on the slot on the main board), change the motor or the supply line; contact the service department;
7062	DRM board for distribution box CAN 1 not connected	no connection to DRM-board	Check the board's bus wiring and mains connection; replace control board.
7063	DRM board for distribution box CAN 1, power supply phase sequence wrong or neutral line defective	phases L1/L2/L3 are interchanged	Call an electrician; put phase sequence in the right order and then make sure you check the distribution box's direction of rotation in manual mode!
7065	Thermal protection distribution box	Motor overloaded due to a foreign body or the electronic motor protection being set incorrectly	Remove the foreign body and free the distribution box by moving it forwards or backwards in manual mode; check the electronic motor protection; contact an electrician or the service department and replace the board;
7066	No material in distribution box; check transport	Not enough extraction output to the distribution box	Check extraction to the distribution box; remove any blockages and rectify any malfunctions or drive faults
7067	Failure Control External Demand	Motor circuit breaker or safety functions were connected to the terminals and have tripped	Reactivate motor circuit breaker; establish emergency operation cable jumper at terminal 304/305
7068	Check sensor distribution box	Sensor dirty or malfunctioning	Clean or replace sensor; call service department.
7100 - 7104	Max. HWT loading time exceeded, HWT loading slow! Check sensor position; check flow; contact a plumber.	HWT pump exceeds the maximum runtime set in parameter B9a, 19a, 29a, 39a or 49a. The sensor is not measuring the temperature or the pump flow is insufficient.	Call a plumber; check sensor position; check flow
7109	HWT is not reaching accumulator temperature	HWT temperature is not reaching the temperature at the top of the accumulator	Check the sensor position
7150	DRM-module CAN 6 not connected	No connection to DRM board	Check the bus wiring and mains connection; replace the board;
7151	Vertical connection auger not connected or fuse DRM CAN 6 defective	Motor cable or fuse defective	Check the relevant fuse and, if necessary, replace it (see labels) or check the motor cable; replace the plug of the motor shown as defective with another motor plug. If another error occurs, replace the motor or the supply line; if the same error occurs, replace the board; contact the service department;
7152	Vertical motor connection auger 2 not connected or fuse DRM CAN 6 defective	Motor cable or fuse defective	Check the relevant fuse and, if necessary, replace it (see labels) or check the motor cable; replace the plug of the motor shown as defective with another motor plug. If another error occurs, replace the motor or the supply line; if the same error occurs, replace the board; contact the service department;
7153	Vertical connection auger overcurrent DRM CAN 6	Bulky object in the connection auger or auger blockage	Remove the foreign body and free the auger by moving it forwards or backwards in manual mode; check the electronic motor protection; contact an electrician or the service department;
7154	Firmware update DRM CAN 6 required	An application that is controlled via the DRM board requires an update.	Perform firmware update
7155	Three-phase current module CAN 6 supply phase sequence wrong or neutral line defective	The phases L1, L2 and L3 are in the wrong order	Call an electrician; put the phase sequence in the right order, then make sure you check the motors' and augers' direction of rotation in manual mode!
7156	Thermal protection vertical connection auger	Motor overloaded due to a foreign body or the electronic motor protection set incorrectly	Remove the foreign body and free the auger by moving it forwards or backwards in manual mode; replace any worn auger flighting; check the electronic motor protection; contact an electrician or the service department; replace the board;
7157	Position switch vertical connection auger cover open (warning)	Lid of the connection auger not completely closed, cable defective or material jam in the auger;	Heating mode will continue; the control unit will try four times to empty the auger; if this is not possible, error 7158 will be displayed
7158	Safety switch vertical connection auger cover open	Connection extraction auger cover open or switch not connected	The stop screw has been removed and the cover opened; the safety switch is connected (the switch position is displayed in the info window); have the safety switch, cables, terminal points and plugs checked by an electrician;
9000 / 9001	Firmware I/O board	The control unit has detected old firmware for the main board following a software update	Update of firmware through service department;
9005	Wrong sensor signal at rotary grate	Sensor dirty or malfunctioning	Clean or replace sensor; call service department.
9998	Please check all the set motor currents	Issued after a software update	Check the motor currents to the motors for which parameters have been set (FE, ST, ...).
9999	Check boiler type	Preset boiler type does not correspond with ID card;	Check boiler type setting; call service department

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