Service manual
Pellet Boiler
Nano-PK 6-32

HARGASSNER
HEIZTECHNIK DER ZUKUNFT

Follow and store this manual

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Contents

HARGASSNER Heating technology for *Biomass* A 4952 Weng OÖ Tel.: +43/7723/5274-0 Fax: +43/7723/5274-5 office@hargassner.at

1 Parameter list - Customer

Software version V14.0m

Menu	Description	Default
1	HWT 1 day timer Mo-Su	On 17:00 00:00 Off 17:30 00:00
1a-g	HWT 1 week timer	Mo-Su On 17:00 00:00 Off 17:30 00:00
2	HWT 1 target temperature	60 °C
2a	HWT 1 circulation pump	On 06:00 11:00 Off 08:00 13:00
3	Heat circuit 1 day timer Mo-Su	On 06:00 15:00 Off 09:00 22:00
3a-g	Heat circuit 1 week timer	Mo-Su On 06:00 15:00 Off 09:00 22:00
4	Heat circuit 1 day room temperature	20 °C
5	Heat circuit 1 reduced room temperature	16 °C
6	Heat circuit 2 day timer Mo-Su	On 06:00 15:00 Off 09:00 22:00
6a-g	Heat circuit 2 week timer	Mo-Su On 06:00 15:00 Off 09:00 22:00
7	Heat circuit 2 day room temperature	20 °C
8	Heat circuit 2 reduced room temperature	16 °C
HP1	HWT A day timer Mo-Su	On 17:00 00:00 Off 17:30 00:00
HP1a-g	HWT A week timer	Mo-Su On 17:00 00:00 Off 17:30 00:00
HP2	HWT A target temperature	60 °C
HP2a	HWT A circulation pump	On 06:00 11:00 Off 08:00 13:00
HP3	Heat circuit A day timer Mo-Su	On 06:00 15:00 Off 09:00 22:00
HP3a-g	Heat circuit A week timer	Mo-Su On 06:00 15:00 Off 09:00 22:00
HP4	Heat circuit A day room temperature	20 °C
HP5	Heat circuit A reduced room temperature	16 °C
H1	HWT 2 day timer Mo-Su	On 17:00 00:00 Off 17:30 00:00
H1a-g	HWT 2 week timer	Mo-Su On 17:00 00:00 Off 17:30 00:00
H2	HWT 2 target temperature	60 °C
H2a	HWT 2 circulation pump	On 06:00 11:00 Off 08:00 13:00

Menu	Description	Default
H3	Heat circuit 3 day timer Mo-Su	On 06:00 15:00 Off 09:00 22:00
H3a-g	Heat circuit 3 week timer	Mo-Su On 06:00 15:00 Off 09:00 22:00
H4	Heat circuit 3 day room temperature	20 °C
H5	Heat circuit 3 reduced room temperature	16 °C
H6	Heat circuit 4 day timer Mo-Su	On 06:00 15:00 Off 09:00 22:00
H6a-g	Heat circuit 4 week timer	Mo-Su On 06:00 15:00 Off 09:00 22:00
H7	Heat circuit 4 day room temperature	20 °C
H8	Heat circuit 4 reduced room temperature	16 °C
H11	HWT 3 day timer Mo-Su	On 17:00 00:00 Off 17:30 00:00
H11a-g	HWT 3 week timer	Mo-Su On 17:00 00:00 Off 17:30 00:00
H12	HWT 3 target temperature	60 °C
H12a	HWT 3 circulation pump	On 06:00 11:00 Off 08:00 13:00
H13	Heat circuit 5 day timer Mo-Su	On 06:00 15:00 Off 09:00 22:00
H13a-g	Heat circuit 5 week timer	Mo-Su On 06:00 15:00 Off 09:00 22:00
H14	Heat circuit 5 day room temperature	20 °C
H15	Heat circuit 5 reduced room temperature	16 °C
H16	Heat circuit 6 day timer Mo-Su	On 06:00 15:00 Off 09:00 22:00
H16a-g	Heat circuit 6 week timer	Mo-Su On 06:00 15:00 Off 09:00 22:00
H17	Heat circuit 6 day room temperature	20 °C
H18	Heat circuit 6 reduced room temperature	16 °C
H21	HWT B day timer	On 17:00 00:00 Off 17:30 00:00
H21a-g	HWT B week timer	Mo-Su On 17:00 00:00 Off 17:30 00:00
H22	HWT B target temperature	60 °C
H22a	HWT B circulation pump	On 06:00 11:00 Off 08:00 13:00
H23	Heat circuit B day timer	On 06:00 15:00 Off 09:00 22:00
H23a-g	Heat circuit B week timer	Mo-Su On 06:00 15:00 Off 09:00 22:00

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Menu	Description	Default
H24	Heat circuit B day room temperature	20 °C
H25	Heat circuit B reduced room temperature	16 °C
11	All heat circuits Off above outside temperature	16 °C
11a-i	Heat circuit 1-B and external heat circuit Off above outside temperature	16 °C
12	All heat circuits Off during day reduction	8 °C
12a	Heat circuit 1 heating Off during day reduction	8 °C
12b	Heat circuit 2 heating Off during day reduction	8 °C
12c	Heat circuit 3 heating Off during day reduction	8 °C
12d	Heat circuit 4 heating Off during day reduction	8 °C
12e	Heat circuit 5 heating Off during day reduction	8 °C
12f	Heat circuit 6 heating Off during day reduction	8 °C
12g	Heat circuit A heating Off during day reduction	8 °C
12h	Heat circuit B heating Off during day reduction	8 °C
13	All heat circuits Off during night reduction	-5 °C
13a	Heat circuit 1 heating Off during night reduction	-5 °C
13b	Heat circuit 2 heating Off during night reduction	-5 °C
13c	Heat circuit 3 heating Off during night reduction	-5 °C
13d	Heat circuit 4 heating Off during night reduction	-5 °C
13e	Heat circuit 5 heating Off during night reduction	-5 °C
13f	Heat circuit 6 heating Off during night reduction	-5 °C
13g	Heat circuit A heating Off during night reduction	-5 °C
13h	Heat circuit B heating Off during night reduction	-5 °C
14	Automatically fill and suction times	On 08:00 00:00 Off 19:00 00:00
14a	Automatically fill and suction times	On 07:00 14:00 Off 19:00 00:00
14b	Automatically fill and suction times	On 21:00 00:00 Off 00:00 00:00
15	Holiday mode	Inactive
15a	Heat circuit 1 holiday mode	Inactive
15b	Heat circuit 2 holiday mode	Inactive
15c	Heat circuit 3 holiday mode	Inactive
15d	Heat circuit 4 holiday mode	Inactive
15e	Heat circuit 5 holiday mode	Inactive
15f	Heat circuit 6 holiday mode	Inactive
15g	Heat circuit A holiday mode	Inactive
15h	Heat circuit B holiday mode	Inactive
16	Holiday time from	Current date
16a-h	Heat circuits 1-B holiday time from	Current date
17	Holiday time until	Current date
17a-h	Heat circuit 1-B holiday time until	Current date
18a	De-ash start	No
20	Date/time	
21	Remote maintenance	not released

Menu	Description	Default
21a	Remote maintenance automatic deactivation of release (0 = no deactivation)	1 h
21b	Remote maintenance remote control	Inactive
21c	Boiler interaction duration remote maintenance	120 min
21d	Remote maintenance internet connection	with internet gateway
22	Firing off	Current date
31	Pellet storage room capacity consumption display	0 kg
41	Planned de-ash cascade	On 00:00 00:00 Off 00:00 00:00
42	Select test mode time	01.01.2022 01:00
43	Heating test mode continues with auto function	4 h
X1-X7a	Settings for fresh-water station See the freshwater station operation manual	

2 Commissioning parameter list

Software version V14.0m

Menu	Description	Default
Heat circuit 1		
A1	Heat circuit 1	Mixer radiators
A1a	Error detection of heat circuit pump 1 HCP. check	Active
A2	Steepness	1.6
A2a	FLH steepness	0.6
A3	Minimum flow temperature	30 °C
A3a	FLH minimum flow temperature	22 °C
A4	Maximum flow temperature	70 °C
A4a	FLH maximum flow temperature	45 °C
A5	Mixer runtime	140 sec
A6	Remote control	Not available
A6a	Remote control	with room sensor
A6b	Remote control display	HWT 1
A6c	FR40 view	No selection
A6e	Pump switch-off after room temperature is exceeded	Deactivated
A6f	Input for external contact FR25	Normally open contact
A7	District line pump	no district line
A8	Summer bath heating	Summer bath heating Off
A8a	Summer bath heating accumulator minimum temperature	20 °C
A8b	Summer bath heating day timer Mo-Su	On 06:00 18:00 Off 09:00 21:00
A8c	Summer bath heating flow target	30° C
A8d	Summer bath heating HWT priority	Inactive
A9	Screed	Off
A9a	Screed paused	No
A10	Loxone connection error emergency mode	30 °C
Heat circuit 2		
A11	Heat circuit 2	Not available
A11a	Error detection of heat circuit pump 2 HCP. check	Active
A12	Steepness	1.6
A12a	FLH steepness	0.6
A13	Minimum flow temperature	30 °C
A13a	FLH minimum flow temperature	22 °C
A14	Maximum flow temperature	70 °C
A14a	FLH maximum flow temperature	45 °C
A15	Mixer runtime	140 sec
A16	Remote control	Not available
A16a	Remote control	with room sensor
A16b	Remote control display	HWT 1
A16c	FR40 view	No selection
A16e	Pump switch-off after room temperature is exceeded	Deactivated
A16f	Input for external contact FR25	Normally open contact
A17	District line pump	no district line
A18	Summer bath heating	Summer bath heating Off
A18a	Summer bath heating accumulator minimum temperature	20 °C

Menu	Description	Default
A18b	Summer bath heating day timer Mo-Su	On 06:00 18:00 Off 09:00 21:00
A18c	Summer bath heating flow target	30 °C
A18d	Summer bath heating HWT priority	Inactive
A19	Screed	Off
A19a	Screed paused	No
A20	Loxone connection error emergency mode	30 °C
Heat circuit 3		
A21	Heat circuit 3	Not available
A22	Steepness	1.6
A22a	FLH steepness	0.6
A23	Minimum flow temperature	30 °C
A23a	FLH minimum flow temperature	22 °C
A24	Maximum flow temperature	70 °C
A24a	FLH maximum flow temperature	45 °C
A25	Mixer runtime	140 sec
A26	Remote control	Not available
A26a	Remote control	with room sensor
A26b	Remote control display	HWT 1
A26c	FR40 view	No selection
A26e	Pump switch-off after room temperature is exceeded	Deactivated
A26f	Input for external contact FR25	Normally open contact
A27	District line pump	no district line
A28	Summer bath heating	Summer bath heating Off
A28a	Summer bath heating accumulator minimum temperature	20 °C
A28b	Summer bath heating day timer Mo-Su	On 06:00 18:00 Off 09:00 21:00
A28c	Summer bath heating flow target	30 °C
A28d	Summer bath heating HWT priority	Inactive
A29	Screed	Off
A29a	Screed paused	No
A30	Loxone connection error emergency mode	30 °C
Heat circuit 4		
A31	Heat circuit 4	Not available
A32	Steepness	1.6
A32a	FLH steepness	0.6
A33	Minimum flow temperature	30 °C
A33a	FLH minimum flow temperature	22 °C
A34	Maximum flow temperature	70 °C
A34a	FLH maximum flow temperature	45 °C
A35	Mixer runtime	140 sec
A36	Remote control	Not available
A36a	Remote control	with room sensor
A36b	Remote control display	HWT 1
A36c	FR40 view	No selection
A36e	Pump switch-off after room temperature is exceeded	Deactivated
A36f	Input for external contact FR25	Normally open contact
A37	District line pump	no district line
A38	Summer bath heating	Summer bath heating Off

Menu	Description	Default
A38a	Summer bath heating accumulator minimum temperature	20 °C
A38b	Summer bath heating day timer Mo-Su	On 06:00 18:00 Off 09:00 21:00
A38c	Summer bath heating flow target	30 °C
A38d	HWT priority during summer bath heating	Inactive
A39	Screed	Off
A39a	Screed paused	No
A40	Loxone connection error emergency mode	30 °C
Heat circuit 5		
A41	Heat circuit 5	Not available
A42	Steepness	1.6
A42a	FLH steepness	0.6
A43	Minimum flow temperature	30 °C
A43a	FLH minimum flow temperature	22 °C
A44	Maximum flow temperature	70 °C
A44a	FLH maximum flow temperature	45 °C
A45	Mixer runtime	140 sec
A46	Remote control	Not available
A46a	Remote control	with room sensor
A46b	Remote control display	HWT 1
A46c	FR40 view	No selection
A46e	Pump switch-off after room temperature is exceeded	Deactivated
A46f	Input for external contact FR25	Normally open contact
A47	District line pump	no district line
A48	Summer bath heating	Summer bath heating Off
A48a	Summer bath heating accumulator minimum temperature	20 °C
A48b	Summer bath heating day timer Mo-Su	On 06:00 18:00 Off 09:00 21:00
A48c	Summer bath heating flow target	30 °C
A48d	Summer bath heating HWT priority	Inactive
A49	Screed	Off
A49a	Screed paused	No
A50	Loxone connection error emergency mode	30 °C
Heat circuit 6		
A51	Heat circuit 6	Not available
A52	Steepness	1.6
A52a	FLH steepness	0.6
A53	Minimum flow temperature	30 °C
A53a	FLH minimum flow temperature	22 °C
A54	Maximum flow temperature	70 °C
A54a	FLH maximum flow temperature	45 °C
A55	Mixer runtime	140 sec
A56	Remote control	Not available
A56a	Remote control	with room sensor
A56b	Remote control display	HWT 1
A56c	FR40 view	No selection
A56e	Pump switch-off after room temperature is exceeded	Deactivated
A57	District line pump	no district line
A58	Summer bath heating	Summer bath heating Off

Menu	Description	Default
A58a	Summer bath heating accumulator minimum temperature	20 °C
A58b	Summer bath heating day timer Mo-Su	On 06:00 18:00 Off 09:00 21:00
A58c	Summer bath heating flow target	30 °C
A58d	Summer bath heating HWT priority	Inactive
A59	Screed	Off
A59a	Screed paused	No
A60	Loxone connection error emergency mode	30 °C
Heat circuit A		
A61	Heat circuit A	Not available
A62	Steepness	1.6
A62a	FLH steepness	0.6
A63	Minimum flow temperature	30 °C
A63a	FLH minimum flow temperature	22 °C
A64	Maximum flow temperature	70 °C
A64a	FLH maximum flow temperature	45 °C
A65	Mixer runtime	140 sec
A66	Remote control	Not available
A66a	Remote control	with room sensor
A66b	Remote control display	HWT 1
A66c	FR40 view	No selection
A66e	Pump switch-off after room temperature is exceeded	Deactivated
A66f	Input for external contact FR25	Normally open contact
A67	District line pump	no district line
A68	Summer bath heating	Summer bath heating Off
A68a	Summer bath heating accumulator minimum temperature	20 °C
A68b	Summer bath heating day timer Mo-Su	On 06:00 18:00 Off 09:00 21:00
A68c	Summer bath heating flow target	30 °C
A68d	Summer bath heating HWT priority	Inactive
A69	Screed	Off
A69a	Screed paused	No
A70	Loxone connection error emergency mode	30 °C
Heat circuit B		
A71	Heat circuit B	Not available
A72	Steepness	1.6
A72a	FLH steepness	0.6
A73	Minimum flow temperature	30 °C
A73a	FLH minimum flow temperature	22 °C
A74	Maximum flow temperature	70 °C
A74a	FLH maximum flow temperature	45 °C
A75	Mixer runtime	140 sec
A76	Remote control	Not available
A76a	Remote control	with room sensor
A76b	Remote control display	HWT 1
A76c	FR40 view	No selection
A76e	Pump switch-off after room temperature is exceeded	Deactivated
A77	District line pump	no district line
A78	Summer bath heating	Summer bath heating Off

Menu	Description	Default
A78a	Summer bath heating accumulator minimum temperature	20 °C
A78b	Summer bath heating day timer Mo-Su	On 06:00 18:00 Off 09:00 21:00
A78c	Summer bath heating flow target	30 °C
A78d	Summer bath heating HWT priority	Inactive
A79	Screed	Off
A79a	Screed paused	No
A80	Loxone connection error emergency mode	30 °C
All heat circuits		
A99	Heat circuit accumulators	On
A100	Number of screed temperature phases (all HCs)	8
A101a	Screed temperatures, number of days (all HC)	20 - 45 °C, 1 day
A103	Screed hysteresis (all HCs)	2 K
HWT 1		
B1	HWT 1	Available
B2	HWT temperature differential gap	6 °C
B3	Minimum HWT temperature	40 °C
B4	Legionella protection	Off
B5	Legionella protection target temperature	70 °C
B6	Legionella protection week programme	Mo On 17:00 00:00 Off 00:00 00:00
B7	District line pump	no district line
B8	Circulation pump	Not available
B8a	Circulation pump runtime	180 sec
B8b	Circulation pump downtime	15 min
B9	Energy-saving mode	Activated
B9a	Energy-saving mode after a period	30 min
B9b	Max. pump runtime during HWT loading (0 = deactivated)	12 h
HWT 2		
B11	HWT 2	Not available
B12	HWT temperature differential gap	6 °C
B13	Minimum HWT temperature	40 °C
B14	Legionella protection	Off
B15	Legionella protection target temperature	70 °C
B16	Legionella protection week programme	Mo On 18:00 00:00 Off 00:00 00:00
B17	District line pump	no district line
B18	Circulation pump	Not available
B18a	Circulation pump runtime	180 sec
B18b	Circulation pump downtime	15 min
B19	Energy-saving mode	Activated
B19a	Energy-saving mode after a period	30 min
B19b	Max. pump runtime during HWT loading (0 = deactivated)	12 h
HWT 3		
B21	HWT 3	not available
B22	HWT temperature differential gap	6 °C
B23	Minimum HWT temperature	40 °C

Menu	Description	Default
B24	Legionella protection	Off
B25	Legionella protection target temperature	70 °C
B26	Legionella protection week programme	Mo On 19:00 00:00 Off 00:00 00:00
B27	District line pump	no district line
B28	Circulation pump	Not available
B28a	Circulation pump runtime	180 sec
B28b	Circulation pump downtime	15 min
B29	Energy-saving mode	Activated
B29a	Energy-saving mode after a period	30 min
B29b	Max. pump runtime during HWT loading (0 = deactivated)	12 h
HWT A		
B31	HWT A	Not available
B32	HWT temperature differential gap	6 °C
B33	Minimum HWT temperature	40 °C
B34	Legionella protection	Off
B35	Legionella protection target temperature	70 °C
B36	Legionella protection week programme	Mo On 17:00 00:00 Off 00:00 00:00
B37	District line pump	no district line
B38	Circulation pump	Not available
B38a	Circulation pump runtime	180 sec
B38b	Circulation pump downtime	15 min
B39	Energy-saving mode	Activated
B39a	Energy-saving mode after a period	30 min
B39b	Max. pump runtime during HWT loading (0 = deactivated)	12 h
HWT B		
B41	HWT B	Not available
B42	HWT temperature differential gap	6 °C
B43	Minimum HWT temperature	40 °C
B44	Legionella protection	Off
B45	Legionella protection target temperature	70 °C
B46	Legionella protection week programme	Mo On 17:00 00:00 Off 00:00 00:00
B47	District line pump	no district line
B48	Circulation pump	Not available
B48a	Circulation pump runtime	180 sec
B48b	Circulation pump downtime	15 min
B49	Energy-saving mode	Activated
B49a	Energy-saving mode after a period	30 min
B49b	Max. pump runtime during HWT loading (0 = deactivated)	12 h
B60	HWT priority automatic	On
B90	Minimum HWT temperature release	On 06:00 00:00 Off 22:00 00:00
B101- B117a	Fresh-water station See fresh-water station instructions	

Menu	Description	Default
Accumulator		
C1a	Back-end protection unit	Return mixer + return pump
C1b	Return mixer runtime	140 sec
C1c	Bypass pump	High efficiency
C2	Accumulator	Not available
C2a	Automatic accumulator loading	Yes
C2b	Accumulator volume	0 l
C2c	Displays accumulator fill level	Yes
C3	Accumulator	Accumulator/HWT external
C3a	Accumulator sensor	Boiler accumulator sensor
C3b	Internal HWT accumulator loading	HWT 1
C4	End accumulator loading at temperature	60 °C
C4_P	End accumulator loading at temperature	40 °C
C4a	Minimum boiler target temperature for accumulator loading	70 °C
C4b	End accumulator loading (due to domestic hot water production) Sensor: (temperature C4)	Bottom accumulator
C4c	Accumulator minimum temperature (top sensor)	0 °C
C4c1	Accumulator minimum temperature day timer	On 00:00 00:00 Off 24:00 00:00
C4d	Accumulator loading power reduction at fill level over	85 %
C4e	Error recognition of bottom accumulator sensor after (0 = deactivated)	30 min
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
C5c	Boiler heat output for accumulator loading	85 %
C6	External heat circuit target temperature	Desired value
C6a	External heat circuit target temperature	60 °C
C7	Function of terminal 83	Fault lamp
C8	External heat circuits to DLP	no district line
C9	External heat	Not available
General information		
D1	Operating mode	Point suction
D1a	Changeover unit	Not available
D1b	Changeover unit position change after:	10 days
D1c	Manual refilling	with fill level monitoring
D1d	Changeover unit	Step motor (AUP)
D1e	First suction cycle after storage room filling	Current position
D1f	Consumption display	Not available
D1g	Air-independent operation	Off
D1h	HKM 1 display	No selection
D1i	HKM 2 display	No selection
D1j	AUP positions block	No selection
D1k	AUP positions empty	No selection
D2	Frost protection pumps on below outside temperature	1 °C
D3	Frost protection HC flow target temperature	7 °C
D4	Lambda sensor	Available
D5	Changeover day set-back	On 06:00 00:00 Off 22:00 00:00

Menu	Description	Default
D6	Release cleaning device	On 06:00 00:00 Off 22:30 00:00
D7	All heat circuits summer shutdown lock time	120 min
D8	Summer time	autom. changeover
D9	Day/Week timer	Day timer
D10	Number of blocks for week timer	2
D11	Holiday mode	all HC together
D12	Outside temperature shutdown	all HC together
D13	Outdoor sensor	Available
D20	Sensor type	PT1000
D23	Info / Trend	Do not display
D23g	Heat quantity	Do not display
D23h	Back-end protection unit pump strength	570 - 1650 l/h
D24	Modbus activated	No
D25	KNX activated	No
D25a	Send altered KNX data after	10 sec
D25b	Send all KNX data after	5 min
D25c	Send altered KNX data if change in value is above	0.2
D32	Controlled district line 1 increase	5 °C
D33	Controlled district line 1 mixer runtime	140 sec
D34	Controlled district line 2 increase	5 °C
D35	Controlled district line 2 mixer runtime	140 sec
D40	Storage level	0
D40a	Function of terminal 41/42	Storage room switch
D40b	Storage room switch start behaviour	Automatic
D41	Text 1 ext. error	
D42	Text 2 ext. error	
D42a	Input external error	Normally open contact
D43	Text 1 ext. info	
D44	Text 2 ext. info	
D44a	Input external info	Normally open contact
D45	Operating message output	Inactive
D46	Heat circuit valve output	Inactive
D50	Customer manual de-ash	Not available
D51	Customer planned de-ash	Not available
D65	Error output	Error & info
D66	HC/HWT on standard screen	HC1, hot water tank 1
D71	Pump On for frost protection	
D72	Pump On for frost protection	
D73	Boiler frost protection if BT or RL below	10 °C
D75	Function of terminal 62/63	FGTM
D75a	Stoppage text (issued when external stoppage is active)	External stoppage
D80	Accumulator solar operation	Deactivated
D80a	Accumulator solar operation	On 08:00 00:00 Off 17:00 00:00
D80b	Reduction of heat circuit demand during solar operation	10 °C
D80c	Max. number of combustions (< 30 min) during solar operation, until accumulator discharge (0 = deactivated)	4
D80d	Activate accumulator solar operation	Activated

Menu	Description	Default
D100-D103	Sensor board 2 PT1000 S1 (S2, S3, S4)	SP-PT1K-1 (2, 3, 4)
D104-D107	Sensor board 2 NiCrNi T1 (T2, T3, T4)	SP-NiCrNi T1 (2, 3, 4)
D108-D109	Sensor board 2 PULSE 1 (2)	SP-PULSE-1 (2)
D110-D117	Sensor board 2 AIN 1 (2-8)	SP-AIN-1 (2-8)
Cascade		
F1	Cascade	Not available
F2	Cascade address	B
F3	Cascade priority	P1
F4	Cascade accumulator	Accumulator (HWT internal)
F4a	Accumulator	Not available
F6	Number of slave boilers (external heat boiler excluded)	1
F6b	Simultaneous modulation	4
F6c	System pressure monitoring for the following boilers	A, B, C, D, CHP, external heat boiler
F7	Minimum runtime superelevation	10 h
F8	Maximum runtime superelevation	30 h
F9	Cascade - maximum output	90 %
F10	Maximum runtime for full load	30 min
F11	Maximum runtime minimum output (parameter or < 51%)	60 min
F12	Reset runtime for full load	1 min
F13	Maximum deviation for boiler/separator	8 °C
F14	Minimum number of boilers	1
F14a	When fill level is below (0 = deactivated)	0 %
F14b	Maximum number of boilers	1
F14c	When fill level is above (100 = deactivated)	95 %
F15	Minimum number of boilers	1
F15a	When fill level is below (0 = deactivated)	0 %
F15b	Maximum number of boilers	1
F15c	When fill level is above (100 = deactivated)	100 %
F16	Minimum number of boilers	1
F16a	When fill level is below (0 = deactivated)	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 = deactivated)	120 min
F17c	External heat/CHP input	Normally open contact
F17d	Boiler start delay if CHP/external heat not OK (0 = inactive)	5 min
F17e	Start free boiler during de-ash if accumulator fill level < C4d	No
F18	Boiler target temperature during CAN error	75 °C
F18a	External boiler	Not available
F18a1	External heat cascade priority	P6
F18a2	Boiler start delay if external heat not OK (0 = inactive)	5 min
F18a3	Message if external heat not OK	Activated
F18a4	External heat input	Normally open contact
F18b	Cascade CHP	Not available
F18c	CHP cascade priority	P1
F18d	CHP shutdown temperature	65 °C
F18e	Boiler start delay if CHP not OK (0 = inactive)	5 min
F18f	Request CHP until accumulator fill level is greater than	60 %
F18g	Message if CHP not OK	Activated

Menu	Description	Default
F18g1	CHP input	Normally open contact
F18h	Block CHP if accumulator is mixed	Yes
F19	Reset cascade	No
F20-F20c	Boiler (A-D) deactivated	No
F20y	CHP deactivated	No
F20z	External boiler deactivated	No
F21-F21c	Boiler (A-D)	no selection
F21y	CHP	no selection
F21z	External boiler	no selection
Differential controller 1		
G1	Function	Not available
G2	Differential controller active at heat source	30 °C
G2a	Differential controller shutdown at heat source	95 °C
G2b	Differential controller active at heat source	55 °C
G2c	Differential controller release time	On 00:00 00:00 Off 24:00 00:00
G4	Circuit 1 (priority circuit) selection of reference sensor	I/O 36 terminal 209/210
G4a	Superelevation of heat source (circuit 1)	10 °C
G4b	Differential gap (circuit 1)	5 °C
G4c	Shutdown of circuit 1	65 °C
G5	Circuit 2 (non-priority circuit) selection of reference sensor	Bottom accumulator sensor
G5a	Superelevation of heat source (circuit 2)	10 °C
G5b	Differential gap (circuit 2)	5 °C
G5c	Shutdown of circuit 2	65 °C
G5d	Parallel operation of circuit 1 + 2	No (without valve)
G5e	Changeover to circuit 2 if difference 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	Observe the return temperature of the heat source according to the manufacturer	60 °C
G6c	Info when return temperature is not reached	50 °C
G6d	Time for info	60 min
G6e	External heat boiler sensor selection	Bottom accumulator sensor
G6f	Superelevation of heat source (external heat boiler)	10 °C
G6g	Differential gap (external heat boiler)	5 °C
G7	Safety control from heat source (I/O 36 terminal 207/208)	95 °C
G8	Differential controller heat meter	Inactive
G8b	Pump 1 maximum flow	25 l/min
G8d	Pump 2 maximum flow	25 l/min
G8f	Pump 3 maximum flow	25 l/min
G8g	Carrier medium heat capacity	1.163 Wh/kgK
External heat controller 2		
G11	Function	Not available
G12	Differential controller active at heat source	30 °C
G12a	Differential controller shutdown at heat source	95 °C
G12b	External heat controller 2 activated from heat source	55 °C
G12c	External heat controller release time	On 00:00 00:00 Off 24:00 00:00

Menu	Description	Default
G14	Circuit 1 (priority circuit) selection of reference sensor	I/O 36 terminal 209/210
G14a	Superelevation of heat source (circuit 1)	10 °C
G14b	Differential gap (circuit 1)	5 °C
G14c	Shutdown of circuit 1	65 °C
G15	Circuit 2 (non-priority circuit) selection of reference sensor	Bottom accumulator sensor
G15a	Superelevation of heat source (circuit 2)	10 °C
G15b	Differential gap (circuit 2)	5 °C
G15c	Shutdown of circuit 2	65 °C
G15d	Parallel operation of circuit 1+2	No (without valve)
G15e	Changeover to circuit 2 if difference for circuit 1 is smaller than	4 °C
G15f	Changeover to circuit 2 if circuit 1 is over	60 °C
G15g	Time delay for changeover to circuit 2	1 min
G16	External heat boiler 2	with return mixer
G16a	Mixer runtime	120 sec
G16b	Return temperature target value	60 °C
G16c	Info when return temperature is not reached	50 °C
G16d	Time for info	60 min
G16e	External heat boiler 2 sensor selection	Bottom accumulator sensor
G16f	Superelevation of heat source (external heat boiler 2)	10 °C
G16g	Differential gap (external heat boiler 2)	5 °C
G17	Safety control from heat source (I/O 36 terminal 207/208)	95 °C
Differential controller 3		
G21	PWM differential controller function	Not available
G21a	Pump 1	PWM
G21a1	Pump 1 minimum speed	25 %
G21a2	Pump 1 maximum speed	95 %
G21b	Pump 2	PWM
G21b1	Pump 2 minimum speed	25 %
G21b2	Pump 2 maximum speed	95 %
G21c	Pump 3	PWM
G21c1	Pump 3 minimum speed	25 %
G21c2	Pump 3 maximum speed	95 %
G22	Differential controller 3 active at heat source	30 °C
G22a	PWM differential controller shutdown at heat source	95 °C
G22b	Differential controller 3 active at heat source	55 °C
G22c	PWM differential controller release time	On 00:00 00:00 Off 24:00 00:00
G23	Parallel operation of circuit 1 + 2	No (without valve)
G23a	Starting position of the valve	Circuit 2
G24	Circuit 1 (priority circuit) selection of reference sensor	Additional board S terminal S3
G24a	Superelevation of heat source (circuit 1)	10 K
G24b	Differential gap (circuit 1)	5 K
G24c	Shutdown of circuit 1	65 °C
G25	Circuit 2 (non-priority circuit) selection of reference sensor	Accumulator sensor middle
G25a	Superelevation of heat source (circuit 2)	10 K
G25b	Differential gap (circuit 2)	5 K
G25c	Shutdown of circuit 2	65 °C
G25e	Changeover to circuit 2 if difference for circuit 1 is smaller than	4 K

Menu	Description	Default
G25f	Changeover to circuit 2 if circuit 1 is over	60 °C
G25g	Time delay for changeover to circuit 2	1 min
G25h	Pre-flush duration	8 sec
G25i	Lock time for repeated switch-ons	0 min
G25j	Controller start speed	30 %
G25k	Pump 2 differential speed (based on pump 1)	-5 %
G25l	Pump 3 differential speed (based on pump 1)	-5 %
G26	External heat boiler	with return mixer
G26a	Mixer runtime	120 sec
G26b	Return temperature target value	60 °C
G26c	Info when return temperature is not reached	50 °C
G26d	Time for info	60 min
G26e	External heat boiler sensor selection	Accumulator sensor middle
G26f	Superelevation of heat source (external heat boiler)	10 °C
G26g	Differential gap (external heat boiler)	5 °C
G27	Safety control from heat source (additional board S, terminal S4)	95 °C
G28	PWM differential controller heat meter	Inactive
G28a	Pump 1 minimum flow	1 l/min
G28b	Pump 1 maximum flow	25 l/min
G28c	Pump 2 minimum flow	1 l/min
G28d	Pump 2 maximum flow	25 l/min
G28e	Pump 3 minimum flow	1 l/min
G28f	Pump 3 maximum flow	25 l/min
G28g	Carrier medium heat capacity	1.163 Wh/kgK

3 Service parameter list

Software version V14.0n

Menu	Description	Default							
J	**GSM**	**Nano-PK**							
		6	**9**	**10**	**12**	**15**	**20**	**25**	**32**
J1	Waiting time for text message alert	5 min							
J2	GSM module alarm reset	No							
J3	Time to clear	10 min							
J4	Auto reset GSM	Auto reset Yes							
J5	Send warnings via text message	Yes							
K	**Boiler**	**Nano-PK**							
		6	**9**	**10**	**12**	**15**	**20**	**25**	**32**
K1	Combustion minimum output	30 %							
K2	Minimum temperature	48 °C							
K2_P	Minimum temperature	40 °C							
K3	Maximum temperature	75 °C							
K4	Test mode target temperature	70 °C							
K4a	Test mode runtime	120 min							
K5	Differential gap temperature	12 °C							
K6	Superelevation target temperature	6 °C							
K7	Flue gas temperature error below	65 °C							
K8	Time flue gas temperature error	15 min							
K9	Exhaust fan post-run time	15 min							
K10	Minimum exhaust fan speed	0 %							
K11	Maximum exhaust fan speed	50 %	57 %	84 %		88 %			
K11a	Exhaust fan at 100% output	50 %	62 %	78 %		88 %	60 %	70 %	90 %
K12	Exhaust fan in slumber mode	10 %							
K12a	Exhaust fan active in slumber mode after lambda heating	120 min							
K13	Max. exhaust fan in burnout	80 %							
K14	Slumber mode inlet temperature above BT max	2 K							
K14a	Power flow control for BT max	4 K							
K14b	Power storage	Hot water tank							
K15	Slumber mode outlet above highest demand	5 K							
K16a	Offset TRL for heat quantity calculation	1 °C							
K20	Boiler locked at 2x slumber mode within (0 = deactivated)	60 min							
K20a	Duration of boiler locked at 2x slumber mode	60 min							
K32	Test mode max. power - full load	100 %							
K32a	Test mode max. power - partial load	50 %							
K40	Output limit during error	60 %							
K48	Minimum exhaust fan speed during boiler heating	40 %							
K48a	Minimum exhaust fan speed during combustion	30 %							
K48b	Minimum exhaust fan speed with boiler door open	40 %							
K50	Time for exhaust fan active during boiler heating (0 = total heating)	0 sec							
K56	Maximum demand of HKR	75 °C							
K57	Number of boiler starts within 24 h below minimum runtime before info (0 = deactivated)	20x							
K60	Exhaust fan in boiler Off when FGTM activated	0 %							

Menu	Description	Default							
L	Pumps	Nano-PK							
		6	9	10	12	15	20	25	32
L1	Heat circuit pump 1 release difference	3 °C							
L2	Heat circuit pump 2 release difference	2 °C							
L2a	Heat circuit pump 3 release difference	3 °C							
L2b	Heat circuit pump 4 release difference	2 °C							
L2c	Heat circuit pump 5 release difference	3 °C							
L2d	Heat circuit pump 6 release difference	2 °C							
L2e	Heat circuit pump A release difference	2 °C							
L2f	Heat circuit pump B release difference	2 °C							
L3	All hot water tanks release temperature	50 °C							
L4	Circulation pump post-run time	5 min							
L5	External heat circuits release temperature	50 °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	62 °C							
L7c	HWT pump B release temperature	62 °C							
L8	Return pump On below	54 °C							
L9	Return pump Off below	66 °C							
L10	Return minimum	35 °C				32 °C	36 °C	33 °C	30 °C
L10_P	Return minimum	30 °C							
L10a	Return heat differential	7	10	13		16	10	13	16
L10a_P	Return heat differential	7	10	8		10	8	10	12
L10b	Heat differential auto setting range (0 = deactivated)	5							
L10c	RL adaptation interval	5 min							
L10d	Minimum heat differential	3 °C							
L10e	Return adjustment ramp period	3 min							
L10f	Info pump setting due to heat differential autoadapt after (0 = deactivated)	2 h							
L11	Back-end protection fault below return target temperature	5 °C							
L11_P	Back-end protection fault below return target temperature	5 °C							
L11a	Time for back-end protection error	20 min							
L11b	Return mixer interval	10 sec							
L11c	Return mixer reset period Tn	15 sec							
L11d	Minimum mixer runtime	0.5 sec							
L11e	Open return mixer at first startup	25 %							
L11f	RL autoadapt for HWT loading	Active							
L11g	Back-end protection error below	50 °C							
L12	District line pump 1 release temperature	58 °C							
L12a	Controlled district line 1 release temperature	59 °C							
L12b	Controlled district line 2 release temperature	59 °C							
L13	Heat circuit pump 1 release temperature	24 °C							
L13a	Heat circuit pump 1 release temperature without return mixer	30 °C							
L14	Heat circuit pump 2 release temperature	25 °C							
L14a	Heat circuit pump 2 release temperature without return mixer	31 °C							

Menu	Description	Default							
L15	Heat circuit pump 3 release temperature	26 °C							
L15a	Heat circuit pump 3 release temperature without return mixer	32 °C							
L16	Heat circuit pump 4 release temperature	27 °C							
L16a	Heat circuit pump 4 release temperature without return mixer	33 °C							
L17	Heat circuit pump 5 release temperature	26 °C							
L17a	Heat circuit pump 5 release temperature without return mixer	32 °C							
L18	Heat circuit pump 6 release temperature	27 °C							
L18a	Heat circuit pump 6 release temperature without return mixer	33 °C							
L19	Heat circuit pump A release temperature	24 °C							
L19aa	Heat circuit pump A release temperature without return mixer	30 °C							
L19a	Heat circuit pump B release temperature	24 °C							
L19ab	Heat circuit pump B release temperature without return mixer	30 °C							
L20	External heat circuits release temperature	34 °C							
L20a	External heat circuits release temperature without return mixer	64 °C							
L21	Minimum pump runtime	1 min							
L23	Return mixer for STB	Auto							
M	**Heat circuits**	**Nano-PK**							
		6	**9**	**10**	**12**	**15**	**20**	**25**	**32**
M1	All heat circuits - heat circuit pumps on above boiler temperature	84 °C							
M1a	All heat circuits - outside temperature for safety control	-10 °C							
M2	All heat circuits - residual heat until boiler below	36 °C							
M2a	All heat circuits	Residual heat several times							
M3	All heat circuits - boiler superelevation according to flow temperature	5 °C							
M4	Heat circuit 1 factor - remote control room influence	1							
M5	Heat circuit 2 factor - remote control room influence	1							
M5a	Heat circuit 3 factor - remote control room influence	1							
M5b	Heat circuit 4 factor - remote control room influence	1							
M5c	Heat circuit 5 factor - remote control room influence	1							
M5d	Heat circuit 6 factor - remote control room influence	1							
M5e	Heat circuit A factor - remote control room influence	1							
M5f	Heat circuit B factor - remote control room influence	1							
M6	All heat circuits - room temperature superelevation Room controller	1 °C							
M6a	All heat circuits - room temperature hysteresis Room controller	0 °C							
M7	All heat circuits - reduction delay	15 min							

Menu	Description	Default							
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							
M10a	External heat circuit temperature at 0 V voltage	0 °C							
M10b	External heat circuit temperature at 10 V voltage	100 °C							
M10c	Maximum permitted analogue input temperature	75 °C							
M11	All heat circuits - proportional coefficient	100 %							
M12	All heat circuits - differential temperature for mixer	0.1 °C							
M14	Controlled district line 1 differential temperature for mixer	1 °C							
M14a	Controlled district line 2 differential temperature for mixer	1 °C							
M15	Controlled district line 1 minimum mixer runtime	0.3 sec							
M15a	Controlled district line 2 minimum mixer runtime	0.3 sec							
M16	Mixer/pump error detection	Deactivated							
M21	Open all heat circuits HC mixer during first start-up	15 %							
M79	All heat circuits - heat circuit accumulators	Off							
M80	All heat circuits - time for correction of target flow in combustion and slumber mode (0 =deactivated)	30 min							
M81	All heat circuits - correction of target flow (+/-)	2 K							
M82	All heat circuits - correction of target flow when output is below	70 %							
M83	All heat circuits - differential gap below BT max for correction of target flow	5 K							
N	**Hot water tank**	**Nano-PK**							
		6	**9**	**10**	**12**	**15**	**20**	**25**	**32**
N1	HWT pump on when boiler temperature above	83 °C							
N2	Differential temperature for HWT pump	1 °C							
N3	HWT priority factor	10							
N4	HWT pump post-run residual heat	5 °C							
N5	Boiler superelevation legionella protection	5 °C							
N6	All HWTs	Residual heat several times							
N7	Boiler superelevation during HWT loading	10 °C							
N10	HWT priority controller Kp (output)	0.5							
N11	HWT priority controller Tn (output)	50 sec							
N12	HWT priority controller Kp (THWT)	10							
N13	HWT priority controller Tn (THWT)	1000 sec							
N14	HWT hysteresis for accumulator	5 °C							
N15	All HWTs - info "HWT is not reaching accumulator temperature" after (0 = deactivated)	2 h							
O	**Accumulator and external heat**	**Nano-PK**							
		6	**9**	**10**	**12**	**15**	**20**	**25**	**32**
O1	Heat circuit target temperature increase	5 °C							
O2	Heat circuit target temperature differential gap	5 °C							
O3	HWT temperature superelevation	5 °C							

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Menu	Description	Default							
O4	HWT temperature differential gap	1 °C							
O5	Boiler accumulator base temperature	38 °C							
O5a	Boiler accumulator base temperature for TM	55 °C							
O6	Differential temperature	5 °C							
O7	Accumulator pump On BT heat differential	5 °C							
O8	Reference temperature for 0% fill level	20 °C							
O9	HWT differential 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							
O15	Minimum heat differential for calculating the accumulator switch-off temperature	5°C							
O20	Controller TSBT Kp	2.5							
O21	Controller TSBT Tn	25 sec							
O22	Controller TSBT Tv	0 sec							
O25	Controller filling level Kp	0.7							
O26	Controller filling level Tn	300 sec							
O27	Controller filling level Tv	0 sec							
O29	Controller filling level output min.	30 %							
O30	Outlet temperature superelevation with pump shutdown	12 °C							
O31	Outlet temperature differential gap	6 °C							
O31a	Tapping detection from	1 l/min							
O31b	Tapping detection up to	0.2 l/min							
O31c	Maximum PWM pump activation in pre-flushing	25 %							
O32	Minimum PWM pump control	18 %							
O33	Maximum PWM pump control	80 %							
O33a	Maximum PWM pump control	80 %							
O33b	Pump cycle duration for minimum output	5 sec							
O34	Accumulator loading superelevation - FWS demand	5 °C							
O35	Accumulator loading - FWS hysteresis	5 °C							
O36a	Pump starting output scaling	1							
O36b	Pump starting output scaling	0.85							
O37	Accumulator priority factor	10							
O37a	Accumulator priority controller Kp (T accum.)	10							
O37b	Accumulator priority controller Tn (T accum.)	1000 sec							
O43	I_AntiWindUp	10							
O44	D_MaxFilterFrame temperature controller	2							
O44a	D_MaxFilterFrame flow controller	7							
O46 - O49f	Fresh-water station See fresh-water station instructions								
P	**Ignition**	**Nano-PK**							
		6	**9**	**10**	**12**	**15**	**20**	**25**	**32**
P1	Time for combustion transition	240 sec							
P2	Downtime no ignition	0 min							
P2a	Downtime FGT increase	30 min							
P3	FGT transition to combustion	120 °C							
P4	Exhaust fan for ignition	90 %					60 %	70 %	

Menu	Description	Default							
P4a	Exhaust fan start value	25 %							
P4b	Exhaust fan start-up time	30 sec							
P5	Flue gas temperature increase	8 °C					14 °C		
P7	Ignition monitoring stoker time	340 sec		220 sec			320 sec	265 sec	215 sec
P7a	Ignition monitoring stoker time	200 sec							
P7b	Ignition monitoring stoker quantity	185 g					375 g		
P8	Ignition monitoring feed quantity	90 %		75 %					
P8a	Ignition On before ignition fuel quantity is reached (0 = inactive)	0 sec							
P9	Ignition monitoring blind time - lambda sensor	90 sec							
P11	Ignition attempt time	15 min							
P11a	Ignition attempt time after boiler restart	5 min							
P12	Heat up time of NGK lambda sensor	90 sec							
P12a	Heat up time of Bosch lambda sensor	180 sec							
P13	O2 combustion transition	18 %							
P14	Number of ignition attempts	2							
Q	**De-ash**	**Nano-PK**							
		6	**9**	**10**	**12**	**15**	**20**	**25**	**32**
Q0	De-ash - ash motor	Not available							
Q0a	Max. torque of ash auger	55 Nm							
Q0b	Speed of ash auger	2.0 rpm							
Q1	De-ash at the earliest after	60 min							
Q2	De-ash at the latest after	240 min							
Q3	De-ash minimum burnout time	10 min							
Q3a	De-ash maximum burnout time	60 min							
Q3b	De-ash of O2 burnout average completed	20 %							
Q3c	Number of burnouts with maximum time until info (0 = deactivated)	3							
Q4	Exhaust fan minimum in post-run	40 %							
Q4a	Exhaust fan during de-ash	10 %							
Q4b	Exhaust fan post-run time after burnout	30 min							
Q4c	Exhaust fan after burnout	15 %							
Q5	De-ash motor strokes	2							
Q6	Sliding grate current info from	1.1 A							
Q7	Maximum motor current of sliding grate	1.7 A							
Q8	Runtime for 3/4-opening	6 sec					8 sec		
Q8a	Runtime for grate opening	12 sec							
Q9	Ash auger runtime	750 sec							
Q10	Ash auger motor current info	120 mA							
Q11	Ash auger maximum motor current	140 mA							
Q11a	Ash motor return period	5 sec							
Q11b	Ash motor number for return runs	5x							
Q12	Cleaning - cleaning device after de-ash	1x							
Q13	Cleaning - cleaning device runtime	20 sec							
Q14	Cleaning - maximum cleaning device motor current	5.0 A							
Q20	De-ash - ash motor in combustion interval	30 min							
Q21	De-ash - ash motor in combustion switch-on time	0 sec							
Q30	Cleaning - cleaning device pulse duration	1 sec							
Q31	Cleaning - cleaning device pulse pause	1 sec							
Q32	De-ash - cleaning device number of pulses	5							

Menu	Description	Default							
Q33	De-ash relating to number of ignitions	0							
Q34	Nano-PK Plus flushing after number of de-ashes	3x							
Q35	Nano-PK Plus flushing duration	25 sec							
Q35a	Nano-PK Plus flushing duration preventive measure (0 = inactive)	0 sec							
Q35b	Nano-PK Plus flushing interval for preventive measure after	30 days							
Q35c	Nano-PK Plus re-flushing after boiler start if temperature has risen by	20 K							
Q36	Nano-PK Plus min. temperature drop after flushing (0 = inactive)	3 K							
Q37	Nano-PK Plus temperature drop after flushing not reached, info after	5x							
Q38	Nano-PK Plus temperature drop after flushing not reached, error after	10x							
Q39	Nano-PK Plus min. temperature increase after flushing (0 = inactive)	5 K							
Q40	Nano-PK Plus no temperature increase after flushing, info after	30 min							
Q41	Nano-PK Plus no temperature increase after flushing, error after	60 min							
Q42	Nano-PK Plus drying (only when firing is Off)	Active							
Q42a	Nano-PK Plus exhaust fan during drying	80 %							
Q42b	NANO-PK Plus drying runtime	60 min							
Q43	Nano-PK Plus flushing interval for preventive measure after	7 days							
Q44	Nano-PK Plus temperature change at boiler start after firing Off/Manual/Off (0 = inactive)	1 K							
Q45	Nano-PK Plus flushing release	Release cleaning							
Q80	De-ash ABS function of boiler	Active							
R	**Stoker / fuel extraction**	**Nano-PK**							
		6	**9**	**10**	**12**	**15**	**20**	**25**	**32**
R0	Stoker motor	Step motor IO49					BLDC IO49		
R0b	Stoker motor SPG	15 W							
R0c	Extraction auger - fuel extraction motor	RA 230V (internal)							
R1	Stoker - stepper/BLDC max. torque	55 Nm					77 Nm		
R1a	Stoker - stepper/BLDC min. speed prior to pulsing	0.33 rpm					1 rpm		
R1b	Stoker - stepper/BLDC max. speed	2.0 rpm					2.7 rpm	3.2 rpm	4 rpm
R1c	Stoker - asynchronous/BLDC maximum motor current	120 mA					600 mA		
R1d	Stoker - asynchronous maximum motor current 25W	120 mA							
R1e	Stoker - asynchronous current filter	50 %							
R1f	Stoker - stepper/BLDC current connection recognition	30 mA					10 mA		
R1g	Stoker - stop current	200 mA							
R1h	Stoker - stop duration (0 = deactivated)	30							
R1z	ST connection monitoring	Yes							
R2	Stoker - reverse runtime	10 sec					5 sec		
R3	Stoker - asynchronous stoker cycle	5 sec							
R4	Stoker - minimum delivery rate	0 %							
R4a	Stoker - stepper/BLDC stoker current scale	55 %	65 %	100 %					

Menu	Description	Default						
R5	Stoker - maximum delivery rate without lambda sensor	55 %	60 %	50 %	75 %	65 %	80 %	65 %
R7	Stoker - stepper minimum deviation current consumption	1 %						
R7a	Stoker - stepper time minimum deviation current consumption	60 sec						
R7b	Stoker - stepper stall guard offset	0						
R7c	Stoker - blockage reset timer (0 = inactive)	5 min						
R7d	Stoker - BLDC threshold speed deviation	15 %						
R7e	Stoker - attempts to remove a blockage (0 = unlimited attempts)	0						
R8	Stoker - stepper/BLDC delivery rate	33.5 g/U				42.0 g/U		
R8a	Stoker - stepper/BLDC delivery rate consumption display	38 g/U						
R9	Stoker - asynchronous delivery rate [kg/h]	6.4						
R9a	Stoker info when storage level reached	20 kg						
R9b	Stoker - info for combustion chamber cleaning after pellet consumption	0 t						
R9c	Stoker - clean combustion chamber info after exhaust fan runtime	0 h						
R10	Extraction auger RAS nominal motor current	2.0 A						
R11	Extraction auger RAS maximum motor current	3.2 A						
R12	Extraction auger return time RAS+RAD	1 sec						
R12a	Extraction auger number of return runs	1 x						
R13	Extraction auger delivery rate RAS+RAD	100 %						
R14	Extraction auger delay during suction	5 sec						
R15	Automatic filling max. ST runtime for suction	320 min				360 min	300 min	240 min
R20	RAS filling min. ST runtime for suction	60 min						
R21	RAS filling maximum fill time	15 min				20 min		
R21a	RAS filling Schellinger maximum filling time	45 min						
R22	RAS filling vacuum turbine post-run time	15 sec						
R22a	RAS filling backward running after suction Activation only in combination with freewheel clutch RAS	0 sec						
R22b	RAS filling Schellinger Classic vacuum turbine post-run time	10 sec						
R22c	RAS filling Schellinger E3 vacuum turbine post-run time	20 sec						
R23	RAS filling exhaust fan speed during filling	70 %						
R24	RAS filling fill level indicator delay	2 sec						
R25	Changeover unit maximum suction time	10 min						
R26	Changeover unit AUP limit for blockage detection	60 %						
R27	Changeover unit minimum speed	0.3						
R27a	Changeover unit pos.1 target	2.5 mm						
R27b	Changeover unit pos.2 target	67.5 mm						
R27c	Changeover unit pos.3 target	132.5 mm						
R27d	Changeover unit pos.4 target	197.5 mm						
R27e	Changeover unit pos.5 target	262.5 mm						
R27f	Changeover unit pos.6 target	327.5 mm						
R27g	Changeover unit pos.7 target	392.5 mm						
R27h	Changeover unit pos.8 target	457.5 mm						
R28a	Changeover unit pos.1 target	6 mm						

Menu	Description	Default							
R28b	Changeover unit pos.2 target	71 mm							
R28c	Changeover unit pos.3 target	136 mm							
R28d	Changeover unit pos.4 target	198 mm							
R29a	Changeover unit length of AUP 2 positions	135 mm							
R29b	Changeover unit length of AUP 3 positions	135 mm							
R29c	Changeover unit length of AUP 4 positions	200 mm							
R29d	Changeover unit length of AUP 6 positions	330 mm							
R29e	Changeover unit length of AUP 8 positions	460 mm							
R30	Extraction auger RAD nominal motor current	0.75 A							
R31	Extraction auger RAD maximum motor current	1.6 A							
R32	RAD filling maximum fill time	10 min							
R33	RAD filling extraction auger post-run time	15 sec							
R34	RAD filling fill level indicator delay	5 sec							
R35	Mole Schellinger Mole Classic trigger time	120 sec							
R35a	Mole Schellinger Mole Classic break time	5 sec							
R35b	Mole Schellinger Mole E3 trigger time	60 sec							
R35c	Mole Schellinger Mole E3 break time	15 sec							
R38	Extraction auger connection monitoring of FE	Yes							
R38a	Extraction auger connection monitoring of FE 2	Yes							
R39	RAS extraction auger 3-phase overcurrent duration	0.4 sec							
R40	Extraction auger 3-phase nominal motor current	1.4 A							
R41	Extraction auger 3-phase maximum motor current	2.5 A							
S	**Lambda sensor**	**Nano-PK**							
		6	**9**	**10**	**12**	**15**	**20**	**25**	**32**
S1	O2 target value	7.5 %					7 %		
S1a	O2 target value of air-independent operation	7.5 %					7 %		
S1b	Test mode O2 target value	7.5 %							
S2	O2 stop difference	3 %							
S2a	Time for O2 error	13 min							
S3	O2 increase of partial load	1 %					2 %		
S4	O2 reduction above	17 %							
S5	Time for O2 reduction	5 min							
S7	Lambda sensor	NGK							
S8	Lambda sensor correction	0 mV							
S9	Exhaust fan during lambda calibration	20 %							
S10	O2 stop hysteresis	1 %							
S11	Reduction BrstReg. O2 stop	10 %							
S12	Target output for lambda heating	8 W							
S30	O2 info when target value not reached after (0 = deactivated)	60 min							
T	**Control**	**Nano-PK**							
		6	**9**	**10**	**12**	**15**	**20**	**25**	**32**
T1	Flue gas temperature minimum	75 °C							
T2	Flue gas temperature maximum	200 °C							
T3	Combustion maximum heat output	100 %							
T4	Fan output correction	0 %							
T4a	Fan output correction air-independent operation	0 %							
T4b	Ventilator correction test mode	0 %							
T5	Correction for flue gas temperature at 150 C	25 °C							
T6	Fuel correction	50							

Menu	Description	Default							
T7	Fuel correction controller ymax	100							
T8	Fuel correction controller ymin	10							
T9	Fuel correction controller Kp	0.05							
T10	Fuel correction controller Tn	1000 sec							
T11	Boiler temperature controller Kp	4							
T12	Boiler temperature controller Tn	600 sec							
T13	Boiler temperature controller Tv	90 sec							
T14	Boiler temperature controller T1	100							
T15	Boiler temperature controller z	0							
T16	Boiler temperature controller xw_exp	1.5							
T16a	Ramp speed output max for reduction	0.1%/s							
T17	Flue gas temperature limiter Kp	1							
T18	Flue gas temperature limiter Tn	250 sec							
T19	O2 fuel controller Kp	1							
T20	O2 fuel controller Tn	100 sec							
T21	O2 fuel controller Tau	600 sec							
T22	O2 delay	0.05							
T50	Maximum runtime in manual mode	2 min							
T60	RL bypass pump controller Kp	4							
T61	RL bypass pump controller Tn	100							
T70	Exhaust fan activation	BLDC IO49							
T70a	Exhaust fan diameter	150 mm					180 mm		
T72	Max. exhaust fan speed	3600							
T72a	Min. exhaust fan speed	10 %							
T73	Exhaust fan Kp	65							
T74	Exhaust fan Tn	30 sec							
T75	Exhaust fan speed tolerance	15 %							
T75a	Exhaust fan error after	90 sec							
T76	Exhaust fan pulses per round	1							
T77	Exhaust fan max. current exhaust fan BLDC IO49 150mm	6							
T77a	Exhaust fan max. current exhaust fan BLDC IO49 180mm	8							
T78	Exhaust fan start mode	Normal							
T81a	Torque of shut-off valves	25 Nm							
T81b	Holding torque of shut-off valves	10 Nm							
W	**Maintenance**	**Nano-PK**							
		6	**9**	**10**	**12**	**15**	**20**	**25**	**32**
W1	Info for maintenance	No							
W2	Maintenance reset	No							
W3	Info for full-load hours (0 = deactivated)	2000 h							
W4	Info for heating hours (0 = deactivated)	4000 h							
W5	Info from	01.01.2022 01:00:00							
W7	Maintenance from	01.02.2022 01:00:00							
W8	Maintenance until	30.11.2022 01:00:00							
W9	Info for boiler starts (0 = deactivated)	3000x							
Z	**Special functions**	**Nano-PK**							
		6	**9**	**10**	**12**	**15**	**20**	**25**	**32**
Z0	Boiler type selection	Nano.2 (.3)							
Z0a	System design	Pellet boiler							
Z1	Boiler type	6	9	10	12	15	20	25	32

Menu	Description	Default							
Z1a	Manual refilling	No							
Z1b	Timeout Loxone	30 sec							
Z1c	IO-X10-104 extension board 1	Not available							
Z1d	IO-X10-104 extension board 2 (S3:1)	Not available							
Z1da	DAQ output sensor board 2	No selection							
Z1e	Nano-PK Plus	No							
Z1f	MWZ03 DAQ channels	Not available							
Z1g	Addressing	Secondary address							
Z1h	Baud rate	2400							
Z8	Commission no.	0							
Z9a	Delete error list	No							
Z9b	Clear infos	No							
	Error memory	**Nano-PK**							
		6	**9**	**10**	**12**	**15**	**20**	**25**	**32**
AE211	ErrorCodes	No selection							

4 List of error and information messages

No.	Origin	Cause/problem	**Solution** (press the Enter button once the problem has been resolved)
- - - -	No green lamp on the main board lights up	Fuse F16 defective; error with mains supply; fill level indicator or STL defective	Replace fuse F16; check mains supply at terminals L / PE and N
- - - -	Green lamp H6 lights up	Bus cable not connected properly or control unit defective	Check bus cable (connection); replace control unit or cable
- - - -	Display lighting missing	Display contrast changed Display lighting defective	Set the display contrast, see control display; call the service department; replace control unit
- - - -	Fault lamp not working	Fuse F17 defective (short circuit); fault lamp not connected	Fix short circuit; replace fuse F17; correctly connect fault lamp
0001	Caution: STL overtemperature triggered	Overtemperature at boiler or STL connection defective	Let boiler cool down to below 85 °C; remove STL protective cap (to left of control cabinet door) and press the button, otherwise have STL connection checked by an electrician
0002	Stoker auger overcurrent	Combustion chamber overfilled, stoker auger clogged by slag or debris jamming rotary valve	In manual mode: - Open the sliding grate (No. 2) and remove the slag or material overfilling the combustion chamber - Check the stoker auger (No. 5); if the motor (chain drive) only moves forward and backward a little bit, there is most likely debris stuck in the rotary valve; unscrew the lid of the day hopper, empty (vacuum, etc) the pellets and remove the debris. Contact the service department if the motor only moves backwards
0003	Fuel extraction auger 1 overcurrent	Fuel extraction jammed; moisture in storage room; debris in the auger; fuel extraction motor (capacitor) defective or faulty; fill level indicator defective; vacuum turbine defective or dirty	Open fuel extraction maintenance lid and remove any blockages. Examine storage room for moisture and debris. Drive fuel extraction auger (No.7) forward and backward in manual mode and check the motor current; check direction of rotation; check or replace motor and capacitor. Check fill level indicator: when **empty** is displayed and the fill level indicator diode is lit (orange light) but the day hopper is full, then the fill level indicator is defective. Check the vacuum turbine in manual mode: move the extract auger (No.7) backwards, disconnect both hoses and remove any blockages, check and empty the suction hose. Start the vacuum turbine (No. 6) and check if it is moving freely; clean the vacuum turbine. Contact the service department if you find brown deposits.
0004	Fuel extraction auger 1 thermal protection	Fuel extraction auger not running smoothly, auger blocked or jammed by debris; motor (capacitor) defective	Treat like fault No. 0003; the indication for this error is the motor has been rough running for a while or fault No. 0003 has happened repeatedly
0005	Empty ash pan	The ash pan is 3/4 full or the sliding grate is not running smoothly; the system will continue to run, but will be affected by fault No. 0006 and stop if the ash pan is not emptied soon	Empty the ash pan and then press the **Enter** button; If the ash pan is not full yet, activate the de-ash system in manual mode No. 4 (20-32 only) and check if the sliding grate is running smoothly by pressing the Open or Close button in manual mode No. 2 (the ampere indicator must not exceed **0.9 A**); otherwise, contact the service department
0006	Ash pan is overfilled	Ash pan overfilled, or grate rough-running	See info No. 0005
0007	Sliding grate will not open	When opening or closing, the end position has not been reached properly	Check if sliding grate opens and closes completely by pressing the Open or Close button in manual mode (No. 2); contact the service department
0008	Sliding grate is not closing	While closing, the end position has not been reached (opening was successful)	See No. 0007
0009	Cleaning device overcurrent	Rough running of the boiler cleaning device	Check if the cleaning device is moving freely in manual mode (No. 3), (ampere indicator not over 5A); contact the service department
0010	Flue gas sensor connected incorrectly	Sensor polarity reversed (can only occur during commissioning) or main board defective	Have the sensor's connection polarity checked by an electrician; otherwise replace the sensor or the main board
0011	Flue gas sensor interruption	Sensor not connected or connection interrupted	Connect the sensor, replace the cable and/or check the terminal points; check that plugs No. 37 and 38 are securely fitted; otherwise replace sensor or main board
0012	Boiler sensor short circuit	Short circuit in the sensor or cable	Have the sensor (resistance values provided in the installation manual) and cable checked by an electrician; swap the sensor (plug on the main board) for another sensor; if another fault occurs, replace the sensor; if the same fault occurs, the main board has to be replaced

No.	Origin	Cause/problem	**Solution** (press the Enter button once the problem has been resolved)
0013	Boiler sensor interruption	Sensor not connected or connection interrupted	Connect the sensor, replace the cable and/or check the terminal points; check that plugs No. 39 and 40 are securely fitted; swap the sensor (plug on the main board) for another sensor; if another fault occurs, replace the sensor; if the same fault occurs, the main board has to be replaced
0014	Hot water tank sensor 1 short circuit	Short circuit in the sensor or cable	See No. 0012; this information can be bypassed by pressing **Enter**, but it will remain on the display to remind the customer that the problem needs to be fixed.
0015	Hot water tank sensor 1 interruption	Interruption in the sensor or in the cable	See No. 0013 (plugs 74 and 75); this information can be bypassed by pressing **Enter**, but it will remain on the information display to remind the customer that the problem needs to be fixed.
0016	Outdoor sensor short circuit	Short circuit in the sensor or cable	See No. 0012 and No. 0014
0017	Outdoor sensor interruption	Interruption in the sensor or in the cable	See No. 0013 and No. 0015 (plugs No. 76 - 77)
0018	Flow sensor HC1 short circuit	Short circuit in the sensor or cable	See No. 0012 and No. 0014
0019	Flow sensor HC1 interruption	Interruption in the sensor or in the cable	See No. 0013 and No. 0015 (plugs No. 72 - 73)
0020	Flow sensor HC2 short circuit	Short circuit in the sensor or cable	See No. 0012 and No. 0014
0021	Flow sensor HC2 interruption	Interruption in the sensor or in the cable	See No. 0013 and No. 0015 (plugs No. 70 - 71)
0022	Room sensor HC1 short circuit	Short circuit in the remote control or cable	See No. 0012 and No. 0014
0023	Room sensor HC1 interruption	Interruption in the remote control or cable	See No. 0013 and No. 0015 (plugs No. 54 - 55)
0024	Room sensor HC2 short circuit	Short circuit in the remote control or cable	See No. 0012 and No. 0014
0025	Room sensor HC2 interruption	Interruption in the remote control or cable	See No. 0013 and No. 0015 (plugs No. 56 - 57)
0026	Ignition time exceeded	The flue gas temperature did not rise by the value (No. P5 in the service level) in the trial period (No. P11 in the service level); no or not enough fuel available; ignition defective; flue gas sensor is not inserted in the flue pipe	**In manual mode:** - Check that the stoker auger (No. 5) is moving material - Check the ignition (No. 9) - Check that the sliding grate (No. 2) can open and close completely - Check the combustion chamber for slag - Check that the flue gas sensor has been installed correctly
0027	Flue gas temperature not reached	The flue gas temperature drops below the value (service parameter No. K7) for the set time (service parameter No. K8) during combustion; Air intakes for AIO laid; no or too little fuel, too much ash or slag in the combustion chamber;	Check air intakes and unblock if necessary; **In manual mode:** - Check that the stoker auger (No. 5) is moving material - Check that the sliding grate (No. 2) can open and close completely - Check the combustion chamber for slag - Check that the flue gas sensor has been installed correctly
0028	Boiler at O2-stop for too long	Lambda sensor contact error; lambda sensor or main board defective	Lambda sensor heavily soiled; clean the sensor, then start a function check in manual mode (No. 43); have the terminal points and plugs checked by an electrician; replace the lambda sensor; the system can be bypassed by commissioning engineer parameter No. D4 being set to **Not available** until the sensor has been replaced.
0029	Combustion error Start not possible	No combustion due to missing pellets; no ignition	Start not possible. See **combustion error No. 0029** at the end of the fault description.
0030	Battery empty, please change	Battery for date/time close to being empty	Change batteries during operation (to avoid loss of the date and time setting); if you change batteries while the boiler is shut down, you will have to re-enter the date/time settings; however, parameter settings will not be lost; check contact is good in the battery holder.
0031	Blockage of stoker motor or motor not connected	Combustion chamber overfilled, stoker auger clogged by slag or debris jamming rotary valve	See No. 0002
0032	Maximum filling time exceeded	No pellet transport	Check storage room, if pellet bridging occurs; check pellet transport from the storage room (see No. 0003)
0033	Cleaning device not in start position	Motor does not stop in its start position; motor is connected incorrectly or defective, or main board is defective	Connect motor correctly (plugs No. 20 - 23) or check cable; (observe connection plugs between motor and cable extensions); contact the service department; replace the motor or main board

No.	Origin	Cause/problem	**Solution** (press the Enter button once the problem has been resolved)
0034	Top accumulator sensor short circuit	Short circuit in the sensor or cable	See No. 0012 and No. 0014
0035	Top accumulator sensor interruption	Sensor not connected or connection interrupted	See No. 0013 and No. 0015 (plugs No. 68 - 69)
0036	Bottom accumulator sensor short circuit	Short circuit in the sensor or cable	See No. 0012 and No. 0014
0037	Bottom accumulator sensor interruption	Sensor not connected or connection interrupted	See No. 0013 and No. 0015 (plugs No. 64 - 65)
0038	Sliding grate overcurrent	Sliding grate rough-running when opened	See No. 0005
0039	Hot water tank sensor 2 short circuit	Short circuit in the sensor or cable	See No. 0012 and 0014 (plugs No. 9 - 10 on extension module 1)
0040	Hot water tank sensor 2 interruption	Sensor not connected or connection interrupted	See No. 0013 and 0015 (plugs No. 9 - 10 on extension module 1)
0041	Ash box almost full	Ash box almost full or sliding grate (6-15) / ash auger (20-32) not running smoothly	6-15: Empty the ash box; if the ash box is not full yet, check the sliding grate is moving freely in manual mode (no. 2) (see No. 0005) 20-32: Empty the ash box; heating mode will continue; the control unit will attempt to free the ash auger every 10 minutes; if this is not successful by the next de-ash, fault 0314 will be displayed
0042	Ash auger overcurrent	Ash box overfilled, overfilling in the ash chamber below the grate or the fly ash area or debris in the ash auger	Empty the ash box and check the ash extraction auger is moving freely in manual mode No. 4; otherwise, unscrew the de-ash system and pull it out to the front. Remove the overfill in the ash chamber below the grate or fly ash area or the debris in the ash auger; check the electronic motor protection; contact an electrician or the service department
0043	De-ash system not connected	Ash extraction motor not connected or cable interruption or ash extraction motor or main board defective;	Connect the ash extraction motor correctly (additional board 1, plugs A/A'/B/B'; check the plugs are correctly fixed) or check the wiring. Check 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 main board; if another error occurs (depending on the slot on the main board), change the motor or the supply line; contact the service department
0045	Back-end protection temperature not reached	The minimum temperature for the back-end protection (30°C) has not been reached for over 60 min. Back-end protection pump defective or too small, set at too low level. A notice appears twice; if this happens a third time, the system shuts down	Check that the return sensor position is correct (see heating diagram); replace the pump, use a more powerful pump or switch the pump to a higher setting; check that the mixer is working (if available); contact the commissioning engineer; Attention: This will shorten the length of the boiler's service life
0046	Return sensor short circuit	Short circuit in the sensor or cable	See No. 0012 and No. 0014
0047	Return sensor interruption	Sensor not connected or connection interrupted	See No. 0013 and No. 0015 (plugs No. 35 - 36)
0049	Exhaust fan error	Flue gas exhaust fan control defective; motor, mains adaptor or additional board not connected, defective or interrupted	Start the exhaust fan in manual mode No. 10. **a) If the exhaust fan is not running,** connect it correctly; check the plugs and wiring; check the power adapter and the additional control board; **b) If the exhaust fan is running and the speed indicator is below 90%,** check that the motor is running smoothly. If the error cannot be rectified, contact an electrician or the service department; replace the exhaust fan, additional board, mains adaptor or main board.
0050	Filling cycle period exceeded	Suction hose defective, blockage in suction hose; fill level indicator defective; storage room empty	Replace defective suction hose; unblock; replace fill level indicator; refill pellets
0052	External heat sensor short circuit	Short circuit in the sensor or cable	See No. 0034
0053	External heat sensor interruption	Sensor not connected or connection interrupted	See No. 0035
0054	Middle accumulator sensor short circuit	Short circuit in the sensor or cable	See No. 0013 and No. 0015
0055	Middle accumulator sensor interruption	Sensor not connected or connection interrupted	See No. 0013 and No. 0015
0056	Top middle accumulator sensor short circuit	Short circuit in the sensor or cable	See No. 0012 and No. 0014
0057	Top middle accumulator sensor interruption	Sensor not connected or connection interrupted	See No. 0013 and No. 0015

No.	Origin	Cause/problem	**Solution** (press the Enter button once the problem has been resolved)
0058	Bottom middle accumulator sensor short circuit	Short circuit in the sensor or cable	See No. 0012 and No. 0014
0059	Bottom middle accumulator sensor interruption	Sensor not connected or connection interrupted	See No. 0013 and No. 0015
0062	GSM module not connected	Interruption of the GSM connection cable or the mains supply to the GSM module	Check GSM cable connection and replace if necessary; check mains supply (230VAC) to GSM module; replace GSM module
0065	GSM module transmission error	GSM module was not able to send text message due to insufficient credit on the SIM card or no connection to the network operator	Check credit amount on SIM card and top up if necessary or have blocked SIM card activated; check GSM signal with mobile phone from the same provider and, if necessary, position the antenna better or extend the antenna outwards
0067	Parameter error. Factory settings were loaded	Internal error occured in the parameter memory	Default settings loaded; check parameter settings, if error occurs again, replace boiler control unit (BCE)
0070	Pellet storage volume low	Warning threshold not reached (Customer parameter No. 30)	Check storage level and refill pellets if necessary. After filling, enter the storage level in No. 30 consumption display.
0080	Changeover unit not connected	Changeover unit's board defective / not available; connection cable (to the BCE board or main board) interrupted / not connected	Visually check connection cable connections. Set the address selection switch on the board according to the software setting of the control
0081 - 0084	Changeover unit AUE position error Position 1-4 not reached 0081-Pos1 0082-Pos2 0083-Pos3 0084-Pos4	Displayed position not reached; minimum speed not reached during positioning; changeover unit is trying to return to starting position. If the target and actual positions of the changeover unit are identical, the error message can be cleared	Check cable clamps, clean changeover unit (sliding surface between the base plate and sliding area); after the assembly: check the position of the changeover unit
0089	Sliding grate rough-running	Ash pan full, or grate rough-running	See No. 0005
0090	Boiler IO not connected	Cable defective or not connected; main board or control unit defective	Check the plug connections; replace the cable between the control unit and main board; replace the control unit; replace the main board
0091	Max. board temperature exceeded Check door seals	Max. board temperature exceeded	Check door seals; reduce ambient temperature; ambient temperature in boiler room max. 40°C
0092	Lambda sensor not connected or defective	Contact error of the lambda sensor; lambda sensor or main board defective	See No. 0028; this fault can only occur after testing or calibrating the lambda sensor (in manual mode No. 41)
0093	Ash pan open	Ash pan or locking not completely closed	Fix the ash pan tight on the boiler; lock; have safety switches, cables, terminal points and plugs checked by an electrician
0094	Caution, system is set to Off. Frost protection not guaranteed!	The system is set to Off. Frost protection not guaranteed.	Change operating mode to **Auto**
0095	Ash box switch 32/33 input must be bridged!	Ash box switch bridge interrupted or defective	Check or replace bridge. If the error still remains, contact an electrician or the service department
0096	Check or adjust mains adaptor voltage	Mains adaptor voltage not OK	Check or adjust mains adaptor voltage
0099	Boiler overtemperature!	Return mixer, heat circuit pump, hot water tank pump or return pump defective	Check function of return mixer, heat circuit pump, hot water tank pump or return pump
0100	Extension module CAN 1 not connected	No connection to heat circuit module 1	Check address switch on heat circuit module 1; check bus wiring, mains supply and fuse F1 on HKM 1; replace heat circuit module 1
0103	Hot water tank sensor 3 short circuit	Short circuit in the sensor or cable	See No. 0012 (plugs No. 9 - 10 on heat circuit module 2)
0104	Hot water tank sensor 3 interruption	Sensor not connected or connection interrupted	See No. 0013 (plugs No. 9 - 10 on heat circuit module 2)
0107	Flow sensor HC3 short circuit	Short circuit in the sensor or cable	See No. 0012 (plugs No. 1 - 2 on heat circuit module 1)
0108	Flow sensor HC3 interruption	Sensor not connected or connection interrupted	See No. 0013 (plugs No. 1 - 2 on heat circuit module 1)
0109	Flow sensor HC4 short circuit	Short circuit in the sensor or cable	See No. 0012 (plugs No. 3 - 4 on heat circuit module 1)
0110	Flow sensor HC4 interruption	Sensor not connected or connection interrupted	See No. 0013 (plugs No. 3 - 4 on heat circuit module 1)
0111	Room sensor HC3 short circuit	Short circuit in the remote control or cable	See No. 0012 (plugs No. 5 - 6 on heat circuit module 1)
0112	Room sensor HC3 interruption	Interruption in the remote control or cable	See No. 0013 (plugs No. 5 - 6 on heat circuit module 1)

No.	Origin	Cause/problem	**Solution** (press the Enter button once the problem has been resolved)
0113	Room sensor HC4 short circuit	Short circuit in the remote control or cable	See No. 0012 (plugs No. 7 - 8 on heat circuit module 1)
0114	Room sensor HC4 interruption	Interruption in the remote control or cable	See No. 0013 (plugs No. 7 - 8 on heat circuit module 1)
0120	Extension module CAN 2 not connected	No connection to heat circuit module 2	Check address switch on heat circuit module 2; check bus wiring, mains supply and fuse F1 on HKM 2; replace heat circuit module 2
0127	Flow sensor HC5 short circuit	Short circuit in the sensor or cable	See No. 0012 (plugs No. 1 - 2 on heat circuit module 2)
0128	Flow sensor HC5 interruption	Sensor not connected or connection interrupted	See No. 0013 (plugs No. 1 - 2 on heat circuit module 2)
0129	Flow sensor HC6 short circuit	Short circuit in the sensor or cable	See No. 0012 (plugs No. 3 - 4 on heat circuit module 2)
0130	Flow sensor HC6 interruption	Sensor not connected or connection interrupted	See No. 0013 (plugs No. 3 - 4 on heat circuit module 2)
0131	Room sensor HC5 short circuit	Short circuit in the remote control or cable	See No. 0012 (plugs No. 5 - 6 on heat circuit module 2)
0132	Room sensor HC5 interruption	Interruption in the remote control or cable	See No. 0013 (plugs No. 5 - 6 on heat circuit module 2)
0133	Room sensor HC6 short circuit	Short circuit in the remote control or cable	See No. 0012 (plugs No. 7 - 8 on heat circuit module 2)
0134	Room sensor HC6 interruption	Interruption in the remote control or cable	See No. 0013 (plugs No. 7 - 8 on heat circuit module 2)
0140	Heat circuit board CAN A not connected	No connection to heat circuit board A	Check the address switch on heat circuit board A; check the bus wiring, mains power supply and fuse F1 on the HC A board; replace heat circuit board A
0141	Flow sensor HC A short circuit	Short circuit in the sensor or cable	See No. 0012 (plugs 207 and 208 on HC A board)
0142	Flow sensor HC A interruption	Sensor not connected or connection interrupted	See No. 0013 (plugs 207 and 208 on HC A board)
0143	Hot water tank sensor A short circuit	Short circuit in the sensor or cable	See No. 0012 (plugs 209 and 210 on HC A board)
0144	Hot water tank sensor A interruption	Sensor not connected or connection interrupted	See No. 0013 (plugs 209 and 210 on HC A board)
0145	Controlled district line flow sensor short circuit	Short circuit in the sensor or cable	See No. 0012 (plugs 207 and 208 on CDL board)
0146	Controlled district line flow sensor interruption	Sensor not connected or connection interrupted	See No. 0013 (plugs 207 and 208 on CDL board)
0147	Controlled district line board CAN F not connected	No connection to heat circuit board F	Check the address switch on heat circuit board A; check the bus wiring, mains power supply and fuse F1 on the CDL board; replace heat circuit board F
0148	Accumulator board CAN C not connected	No connection to accumulator board	Check address switch on accumulator board C; check bus wiring, mains supply and fuse F1 on the five-sensor board; replace accumulator board C
0149	No connection to Loxone server	Network cable not connected; Loxone server cannot establish a connection	Network connection check
0150	Screed dry-out programme has been deactivated!	Power failure over longer period	After prolonged power failure, the dry-out programme is deactivated automatically (notice on the display); if needed, restart the programme (commissioning engineer parameter No. A9)
0153	No temperature increase (Nano-PK Plus)	The temperature increase preset in Q39 is not reached after the time set in Q40 after flushing. A message is being shown; solenoid valve defective; sensor not installed correctly	Check the inflow of water; check the solenoid valve and replace it if necessary; check the sensor and replace it if necessary.
0154	No temperature increase (Nano-PK Plus)		
0155	Flushing defective (Nano-PK Plus)	The maximum temperature specified in Q36 has not been dropped below following flushing; no water; solenoid valve defective, sensor not installed correctly	Increase the temperature setting (Q36); check the flushing (manual mode No. 3a); check the solenoid valve; check the sensor installation; this message will be displayed after five times. Call the service department.
0156	Nano-PK Plus sensor short-circuit	Short circuit; sensor or cable interruption	Have the sensor and cable checked by an electrician; replace the sensor (plug 93/94 on the main board) with another sensor. If another message is displayed, replace the sensor. If the same message is displayed, replace the main board.

No.	Origin	Cause/problem	**Solution** (press the Enter button once the problem has been resolved)
0157	Nano-PK Plus sensor interruption	Sensor or cable interruption	Connect the sensor, replace the cable and/or check the terminal points; check that plug 93/94 is securely fitted; replace the sensor (plug on the main board) with another sensor. If another message is displayed, replace the sensor.
0158	No temperature increase after flushing. Check flushing.	If the temperature does not increase, the KWT has been assembled incorrectly or the PT1000 is not in the right position.	Check the KWT and PT1000
0159	Temperature for flushing not reached (Nano-PK Plus)	KWT flushing defective; KWT heavily soiled; solenoid valve will not close	Clean KWT; replace solenoid valve
0160	No communication with IO32 (AUE board)	No connection with the board of the changeover unit (AUE - IO32)	Check address switch on AUE board; check bus wiring and mains supply on AUE board; replace AUE board; pellet extraction possible from current position only
0161	No communication with motor board 0	No connection to the motor board	Check service parameter No. Z6; check bus wiring and mains supply; replace motor board
0171 - 178	Pellet filling not possible via positions 1 - 8	Displayed position not reached; changeover unit tries to return to starting position; if the target and actual positions of the changeover unit are identical, the error message can be cleared	Check wiring, clean changeover unit (sliding area between base plate and sliding plate)
0179	Demand greater than maximum temperature. Check parameter settings!	Parameter settings incorrect; a demand is greater than the boiler's maximum temperature	Check parameter settings
0180	Check position of bottom accumulator sensor	Sensor not installed correctly (too low or below return to the system); hydraulic problem	Check bottom accumulator sensor and fast loading valve; check sensor position against the hydraulic schematic and install it correctly; contact the commissioning engineer; contact the service department
0190	Check combustion, target O2 level not reached	Target O2 value was not reached after the preset time (parameter S30); not enough fuel; grate clogged by clinker; too much ash in the combustion chamber	Reduce the number of minor de-ashes until major de-ash in parameter Q23; check grates; contact service department
0195	Check boiler configuration urgently	Incorrect parameters and/or incorrect pump settings	Check boiler configuration urgently (parameters, pump settings, frequent boiler starts with short runtimes, etc.)
0196	Burnout was not completed several times, O2 value was 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
0197	Check pump setting on the boiler	Incorrect parameters; incorrect pump settings; mixer defective; pump defective	Check system configuration (parameters, pump settings, frequent boiler starts with short runtimes, etc.); check hydraulic components behind the boiler
0201 - 0206	Check of heat circuit 1 - 6 external contact wiring	Demand changes 20 times in 2 minutes	Check external wiring
0210 - 0217	FR35 remote control not connected 0210 - HC A; 0211 - HC 1; 0212 - HC 2; 0213 - HC 3; 0214 - HC 4; 0215 - HC 5; 0216 - HC 6 , 0217 - HC B	FR 35 remote control not connected; interruption of cable	Connect remote control and check corresponding parameters; check cables and terminal points; change remote control and contact service department
0220 - 0226	FR40 remote control not connected 0220 - HC A; 0221 - HC 1; 0222 - HC 2; 0223 - HC 3; 0224 - HC 4; 0225 - HC 5; 0226 - HC 6	FR 40 remote control not connected; interruption of cable	Connect remote control and check corresponding parameters; check cables and terminal points; change remote control and contact service department
0227	System switched off via storage room filling switch	Switch contact on terminal 41/42 triggered	Check storage room switch
0228	Pellet hopper almost empty	Day hopper empty; fill level indicator defective	Fill day hopper; check fill level indicator and terminal points (16 - 17); replace fill level indicator or call service department
0229	Please clean/check fill level indicator	Fill level indicator very dirty or defective	Clean fill level indicator
0230	Communication error to master boiler	No connection to master boiler (boiler A)	Check service parameter No. F1; set to **Cascade available** on all boilers; check service parameter No. F2 (no double addresses); check bus wiring; check internal cable between control unit and boiler board

No.	Origin	Cause/problem	**Solution** (press the Enter button once the problem has been resolved)
0231	Slave boiler failed	No connection to slave boiler (boiler B-D)	Check service parameter F6: set correct number of slave boilers; see No. 0230
0232	Slave boiler error	An error has occurred on the slave boiler displayed	This message will only be shown on the master boiler (Boiler A). The master boiler and all other slave boilers continue as normal. Confirm message on the master boiler and rectify error on the slave boiler.
0233	FR 40 HC B remote control not connected	FR 40 remote control not connected; interruption of cable	Connect remote control and check corresponding parameters; check cables and terminal points; change remote control and contact service department
0235	CHP has an error or is Off	CHP has failed or is Off	Rectify error with CHP
0236	External heat boiler has an error or is Off	External heat boiler has failed or is Off	Rectify error with external heat boiler
0240 - 0247	Connected remote control does not match parameter-isation 0240 - HC A; 0241 - HC 1; 0242 - HC 2; 0243 - HC 3; 0244 - HC 4; 0245 - HC 5; 0246 - HC 6; 0247 - HC B	Remote control has been allocated to the wrong heat circuit or wrong parame-terisation on the boiler	Check parameterisation on the remote control or on the boiler
0248	External demand wiring check	The external demand signal changes very frequently; external wiring (switches, thermostat) faulty	Have an electrician check that the external circuitry is working properly. Terminal 80, 81
0250	Changeover unit motor board not connected	Board of the changeover unit defective / not available, bus cable interrupted / not connected	Check cable connections; check software settings; contact service department
0251	Changeover unit motor not connected	AUP motor not connected; cable inter-ruption; motor or motor board defective	Connect the motor correctly and check the connections are secure; check wiring; replace motor or motor board; call an electrician or the service department
0252	Changeover unit does not reach position	The displayed position could not be reached. The changeover unit tries to return to the start position. If the target and actual positions of the changeover unit are identical, the error message can be cleared.	Check wiring; measure voltages on board and connection terminals of plugs; check wiring of plugs; clean changeover unit (sliding surface between base plate and sliding plate); after assembly, check changeover unit's positions.
0253	AUP motor short circuit	AUP motor short circuit	Clear short circuit; check wiring and plugs; exchange motor board; call an electrician or the service department
0254	AUP motor board overtem-perature	Max. board temperature exceeded	Reduce ambient temperature
0255	AUP motor board under-voltage 24V	Min. supply voltage not reached	Check plugs and wiring; if multiple clients are connected to the "blue CAN", another power supply must be provided to the AUP; plug No. 42
0256	Changeover unit is not in position	AUP does not reach "new position"; AUP tries to return to the "old position". If the target and actual positions of the changeover unit are identical, the error message can be cleared	Check the cable assignment; clean the changeover unit; check the position of the changeover unit after cleaning
0260	DRM AHF board fuel extraction not connected	No connection to DRM board	Set board address switch to 0; check bus wiring and mains supply; replace DRM board
0261	DRM AHF board fuel extraction power supply phase sequence wrong	The phases L1/L2/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
0262	Fuel extraction motor not connected or fuse 3-phase current module defective	Motor cable or fuse F1, F2 or F3 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 board must be replaced; contact service department
0275	Caution! To continue operation, clear the message. Reason for stop: STL!	STB was triggered	Check the STB
0280	Differential controller CAN D not connected	No connection to I/O 36 board "D"	Set the board address switch to "D"; check bus wiring and mains supply of board; replace board

No.	Origin	Cause/problem	**Solution** (press the Enter button once the problem has been resolved)
0281	Heat source sensor (S1) short circuit	Short circuit in the sensor or in the cable	See No. 0014 to No. 0021 on differential controller board
0282	Heat source sensor (S1) not connected	Interruption in the sensor or in the cable	
0283	Reference sensor (S2) short circuit	Short circuit in the sensor or in the cable	
0284	Reference sensor (S2) not connected	Interruption in the sensor or in the cable	
0285	External heat boiler return sensor short circuit	Short circuit in the sensor or in the cable	
0286	External heat boiler return sensor not connected	Interruption in the sensor or in the cable	
0287	External heat boiler return temperature not reached	Error on external heat boiler; sensor positioned incorrectly;	Check external heat boiler; check sensor position against hydraulic schematic and install it correctly
0290	Differential controller 2 CAN 9 not connected	No connection to I/O 36 board 9	Set board address switch to 9; check bus wiring and mains connection of the board; replace board
0291	Heat source sensor (S3) short circuit	Short circuit in boiler sensor	Check boiler sensor and replace
0292	Heat source sensor (S3) not connected	Interruption in the boiler sensor or in the cable	Connect boiler sensor
0293	Reference sensor (S4) short circuit	Short circuit in reference sensor	Check and replace reference sensor
0294	Reference sensor (S4) not connected	Interruption in the reference sensor or in the cable	Connect reference sensor
0295	External heat boiler 2 return sensor short circuit	Short circuit in the return sensor	Check return sensor and replace
0296	External heat boiler 2 return sensor not connected	Interruption in the return sensor or in the cable	Connect return sensor
0297	External heat boiler 2 return temperature not reached	Error on external heat boiler 2, sensor positioned incorrectly	Check external heat boiler 2; check sensor position against hydraulic schematic and install it correctly
0305	Wrong boiler ID-Card	Wrong boiler ID-Card inserted or wrong boiler parameterisation	Replace boiler ID-Card; set boiler parameters correctly
0322	Boiler ID-Card not connected	Boiler ID-Card or connection defective	Check if boiler ID-Card is available; check it is securely fitted; replace boiler ID-Card
0332	Caution! To continue operation, clear the message. Reason for stop: storage room switch activated!	Storage room switch activated!	Check storage room
0355 - 0370	No connection to HKR 0 - 15	CAN2 (red bus) communication to HKR interrupted; bus cable defective; HKR defective; supply voltage missing on HKR; boiler board or control unit defective; internal bus cable defective; terminating resistors set incorrectly	Check display on HKR (fuses); LEDs flash during bus communication; check terminating resistors; check voltage and poles on CAN plug (approx. 2 V between L and minus (-), or H and minus (-)); bus cable short circuit/interruption; check internal bus cable and boiler board; replace control unit or HKR; check HKR address (only during commissioning, see HKR manual)
0371	Check combustion chamber for dirt, clean if necessary	Combustion chamber is dirty; pellet consumption or operating hours for cleaning interval reached	Clean combustion chamber
0380	Maintenance due! Have factory maintenance carried out!	Number of full-load hours, heating hours and boiler starts reached for the maintenance required according to factory specifications	Have maintenance performed; reset maintenance counter once maintenance is complete
0381	Vacuum turbine runtime 0h. Replace the carbon brushes at 500h and reset the meter	Vacuum turbine runtime exceeded	Replace the carbon brushes and reset the meter

No.	Origin	Cause/problem	**Solution** (press the Enter button once the problem has been resolved)
0390	Heat source sensor (board S, terminal S4) short circuit	Short circuit in the sensor or in the cable	See No. 0014 to No. 0021 To additional board S
0391	Heat source sensor (board S, terminal S4) interruption	Interruption in the sensor or in the cable	
0392	Reference sensor (board S, terminal S3) short circuit	Short circuit in the sensor or in the cable	
0393	Reference sensor (board S, terminal S3) not connected	Interruption in the sensor or in the cable	
0394	External heat boiler 3 return sensor short circuit	Short circuit in the sensor or in the cable	
0395	External heat boiler 3 return sensor not connected	Interruption in the sensor or in the cable	
0396	External heat boiler 3 return temperature not reached	Error on external heat boiler; sensor positioned incorrectly	Check external heat boiler; check sensor position against hydraulic schematic and install it correctly
0397	Reference sensor (board S, terminal S2) short circuit	Short circuit in the sensor or in the cable	See No. 0014 to No. 0021 To additional board S
0398	Reference sensor (board S, terminal S2) not connected	Interruption in the sensor or in the cable	
0422	Flow sensor FWS 1 short circuit	Short circuit in the sensor or in the cable	Check FWS flow sensor, replace
0423	Flow sensor FWS 1 interruption	Interruption in the sensor or in the cable	
0424	Flow sensor FWS 2 short circuit	Short circuit in the sensor or in the cable	
0425	Flow sensor FWS 2 interruption	Interruption in the sensor or in the cable	
0426	Flow sensor FWS 3 short circuit	Short circuit in the sensor or in the cable	
0427	Flow sensor FWS 3 interruption	Interruption in the sensor or in the cable	
0428	Flow sensor FWS 4 short circuit	Short circuit in the sensor or in the cable	
0429	Flow sensor FWS 4 interruption	Interruption in the sensor or in the cable	
0440	Heat circuit board CAN B not connected	No connection to heat circuit board B	Check the address switch on heat circuit board B; check the bus wiring, mains power supply and fuse F1 on the HC B board; replace heat circuit board B
0441	Flow sensor HC B short circuit	Short circuit in the sensor or cable	See No. 0012 (plugs 207 and 208 on HC B board)
0442	Flow sensor HC B interruption	Interruption in the sensor or in the cable	See No. 0013 (plugs 207 and 208 on HC B board)
0443	Hot water tank sensor B short circuit	Cable or extension board not connected, connected incorrectly or defective; address switch set incorrectly	Check the plug connections; set the address switch correctly; disconnect the CAN bus from the voltage when changing the address
0444	Hot water tank sensor B interruption		
0450	Smart-HV not connected	No connection from CAN bus to main board of smart boiler	Check plug connections; set terminating resistors; replace cables; replace main board of the smart boiler or the pellet boiler
0452	Smart-Kombi master/slave settings wrong	Nano-PK and Smart-HV were both parameterised as master or slave	Parameterise Smart-HV as slave
0453	Smart-Kombi fault	Fault on Smart-HV	Rectify fault on Smart-HV
0480 - 0483	Accumulator temperature for hot water 1-4 below required temperature	Boiler not in operation or not ready for operation	Check boiler is working properly
0487	Circulation pump could not be taught. Freshwater station nevertheless continues to operate without circulation pump	Flow rate at start or end not equal to 0 l/min; no flow rate with active circulation pump; difference in averaging between teach-in processes too large	Teach the circulation pump manually in manual mode (with active service code); set the circulation pump to constant speed; check the circulation pump lines

No.	Origin	Cause/problem	**Solution** (press the Enter button once the problem has been resolved)
0488	Flow sensor FWS short circuit	Fresh-water station flow sensor short-circuited	Check FWS flow sensor, replace
0489	Flow sensor FWS interruption	Cable break in flow sensor line of fresh-water station; FWS sensor not connected	Check FWS flow sensor, replace
0490	FWS 1 temperature sensor interruption	Cable break in temperature sensor line of fresh-water station 1; FWS sensor not connected	Check FWS temperature sensor, replace
0492	FWS 1 temperature sensor short circuit	FWS 1 temperature sensor short-circuited	Check temperature sensor, replace
0493	FWS 2 temperature sensor interruption	Cable break in temperature sensor line of fresh-water station 2; FWS sensor not connected	Check FWS temperature sensor, replace
0494	FWS 2 temperature sensor short circuit	FWS 2 temperature sensor short-circuited	Check temperature sensor, replace
0495	FWS 3 temperature sensor interruption	Cable break in temperature sensor line of fresh-water station 1; FWS sensor not connected	Check FWS temperature sensor, replace
0496	FWS 3 temperature sensor short circuit	FWS 3 temperature sensor short-circuited	Check temperature sensor, replace
0497	FWS 4 temperature sensor interruption	Cable break in line to freshwater station 1 temperature sensor; FWS sensor not connected	Check FWS temperature sensor, replace
0498	FWS 4 temperature sensor short circuit	FWS 4 temperature sensor short-circuited	Check temperature sensor, replace
0540	IO-X10-104 extension board 0 not connected	No connection to the sensor board 0	Set the board address switch to "0"; check bus wiring and mains supply of board; replace board
0541	IO-X10-104 extension board 1 not connected	No connection to the sensor board 1	Set the board address switch to "1"; check bus wiring and mains supply of board; replace board
0542	IO-X10-104 extension board 2 not connected	No connection to the sensor board 2	Set the board address switch to "2"; check bus wiring and mains supply of board; replace board
0543	IO-X10-104 extension board 3 not connected	No connection to the sensor board 3	Set the board address switch to "3"; check bus wiring and mains supply of board; replace board
0544	IO-X10-104 extension board 4 not connected	No connection to the sensor board 4	Set the board address switch to "4"; check bus wiring and mains supply of board; replace board
0545	IO-X10-104 extension board 5 not connected	No connection to the sensor board 5	Set the board address switch to "5"; check bus wiring and mains supply of board; replace board
0546	IO-X10-104 extension board 6 not connected	No connection to the sensor board 6	Set the board address switch to "6"; check bus wiring and mains supply of board; replace board
0547	IO-X10-104 extension board 7 not connected	No connection to the sensor board 7	Set the board address switch to "7"; check bus wiring and mains supply of board; replace board
0548	IO-X10-104 extension board 8 not connected	No connection to the sensor board 8	Set the board address switch to "8"; check bus wiring and mains supply of board; replace board
0549	IO-X10-104 extension board 9 not connected	No connection to the sensor board 9	Set the board address switch to "9"; check bus wiring and mains supply of board; replace board
0570	IO-X10-104 extension board A not connected	No connection to the sensor board A	Set the board address switch to "A"; check bus wiring and mains supply of board; replace board
0571	IO-X10-104 extension board B not connected	No connection to the sensor board B	Set the board address switch to "B"; check bus wiring and mains supply of board; replace board
0902	Fault memory was initialised	For documentation purposes only	No further action required; if this message occurs frequently, contact an electrician (lots of power failures or a contact fault in the supply line)
0903	Restart (Power ON)	For documentation purposes only	No further action required; if this message occurs frequently, contact an electrician (lots of power failures or a contact fault in the supply line)
0910	Writing to the dongle failed	Data can no longer be written to the microSD card - defective	Replace the microSD card
1100	Controlled district line board CAN 0 not connected	No connection to heat circuit board F	Check the address switch on heat circuit board A; check the bus wiring, mains power supply and fuse F1 on the CDL board; replace heat circuit board F
1101	Controlled district line 2 flow sensor short circuit	Short circuit in the sensor or cable	See No. 0012 (plugs 207 and 208 on CDL board)
1102	Controlled district line 2 flow sensor interruption	Sensor not connected or connection interrupted	See No. 0013 (plugs 207 and 208 on CDL board)

No.	Origin	Cause/problem	**Solution** (press the Enter button once the problem has been resolved)
4020 4021	Extraction auger motor not connected	Fuel extraction motor not connected or cable interrupted; if a fuel extraction system is not available, commissioning engineer parameter No. D1 is incorrect; fuel extraction system motor or main board defective	Connect fuel extraction system correctly, plug No. 6 - 7 and check wiring. Terminal No. 7 must be connected! Check commissioning engineer parameter No. D1; if the error cannot be rectified, contact the service department; replace the motor or main board; emergency mode is possible temporarily, see "No hardware test" at the end of the error description
4030 4031	Fuse F15 defective	Fuel extraction motor short circuit	Fix the short circuit; replace fuse F15; check plugs No. 6-7 are securely fitted and check correct wiring; if the error cannot be rectified, contact an electrician or the service department; replace the motor or main board
4120	Vacuum turbine not connected	Vacuum turbine not connected or cable interruption; vacuum turbine or main board defective	Connect the vacuum turbine properly; plug No. 3/PE/N; check wiring and connection plugs; if the error cannot be rectified, contact the service department; replace the motor or main board
4130	Fuse F21 defective	Vacuum turbine short circuit	Fix the short circuit; replace fuse F21; check wiring or connection plugs (cable and vacuum turbine); if the error cannot be rectified, contact an electrician or the service department; replace the main board
4220	Fuse F13 defective	Short circuit with pump HC 1, HC 2, mixer HC 1, mixer HC 2, HWT pump, accumulator pump / circulation pump	Fix the short circuit; replace fuse F13; check the wiring to the individual components; if the error cannot be rectified, contact an electrician or the service department; replace the component or main board
4230	Fuse F17 defective	Fault lamp, external pump or district heat pump 1 short circuit	Fix the short circuit; replace fuse F17; check the wiring to the individual components; if the error cannot be rectified, contact an electrician or the service department; replace the component or main board
4250	Fuse F21 defective	Vacuum turbine short circuit	Fix the short circuit; replace fuse F21; check wiring or connection plugs (cable and vacuum turbine); if the error cannot be rectified, contact an electrician or the service department; replace the main board;
4320	Stoker motor not connected	Stoker motor not connected; cable interruption; motor or motor board defective	Connect the motor correctly and check the connections are secure; check wiring; replace motor or motor board; call an electrician or the service department
4330 4331	Fuse F18 defective	Fuel extraction system 2 short circuit	Fix the short circuit; replace fuse F18; check that plugs 12 and 13 are in properly and check the wiring; if the error cannot be rectified, contact an electrician or the service department; replace the component or the main board
4420	Exhaust fan motor not connected	Flue gas exhaust fan motor not connected; interruption in the supply line; motor or additional board defective	Connect the flue gas exhaust fan motor correctly (terminal W/V/M) and make sure it is fitted securely; check the wiring or plugs between the exhaust fan, mains adaptor, additional board and main board. If the error cannot be rectified, contact an electrician or the service department; replace the exhaust fan or main board
4430	Fuse F20 defective	Short circuit (fuse F20)	Fix the short circuit; replace fuse F20; check that terminal 2/N/PE are securely fitted and check the wiring; if the error cannot be rectified, contact an electrician or the service department; replace the component or the main board
4630	Fuse F19 defective	Ignition short circuit	Fix the short circuit; replace fuse F19; check that plugs No. 10 - 11 are securely fitted and check the wiring; if the error cannot be rectified, contact an electrician or the service department; replace the component or the main board
4720	Ignition not connected	Ignition connected incorrectly or short circuit	Connect the ignition correctly or fix the short circuit; check that terminal 11/N is securely fitted or check the wiring; if the error cannot be rectified, contact an electrician or the service department; replace the main board
4820	Cleaning device not connected	Cleaning device connected incorrectly or short circuit	Connect the cleaning device correctly or fix the short circuit; check that plugs No. 20 - 23 and the adaptor plugs are securely fitted and check the wiring; contact an electrician or the service department; replace the main board or motor
5020	Sliding grate not connected	Sliding grate motor not connected; cable interruption or main board defective	Connect the sliding grate motor correctly (plugs No. 18 and 19); if the error cannot be rectified, contact an electrician or the service department (check the plugs and wiring); otherwise, replace the main board
5120 5121	Fuel extraction system 2 motor not connected	Motor cable or fuse F1, F2 or F3 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 board must be replaced; contact service department

No.	Origin	Cause/problem	**Solution** (press the Enter button once the problem has been resolved)
5220	Heat circuit 1 pump not connected or safety thermostat triggered	Heat circuit 1 pump not connected or cable interruption; pump or main board defective	Connect the pump correctly; check the plugs are securely fitted; check the wiring; contact an electrician or the service department; replace the pump or main board
5270	Fuel extraction auger 1 overcurrent; check fuel extraction system and vacuum turbine	Bulky object in the auger channel; auger blockage; suction failed	Remove any debris; move the auger free in manual mode with the forward or reverse button (check motor current display); replace worn auger flights; replace the defective suction hose; release blockage; replace fill level indicator; refill pellets; contact the service department
5275	Fuel extraction auger 1 thermal protection	Overload of motor through debris or electronic motor protection set incorrectly	Remove any debris; move the auger free in manual mode with the forward or reverse button (check motor current display); replace worn auger flights; check the electronic motor protection; contact the service department and replace the board
5280	Fuel extraction auger 2 overcurrent; check fuel extraction system and vacuum turbine	Bulky object in the auger channel; auger blockage; suction failed	Remove any debris; move the auger free in manual mode with the forward or reverse button (check motor current display); replace worn auger flights; replace the defective suction hose; release blockage; replace fill level indicator; refill pellets; contact the service department
5285	Fuel extraction auger 2 thermal protection	Overload of motor through debris or electronic motor protection set incorrectly	Remove any debris; move the auger free in manual mode with the forward or reverse button (check motor current display); replace worn auger flights; check the electronic motor protection; contact the service department and replace the board
5320	Heat circuit 2 pump not connected or safety thermostat triggered	Heat circuit 1 pump not connected or cable interruption; pump or main board defective	Connect the pump correctly; check the plugs are securely fitted; check the wiring; contact an electrician or the service department; replace the pump or main board
6329	External error	External device reports error to the control unit	Check external device
6330	External info	External device reports error to the control unit	Check external device
7030 - 7037	Check correct function of HC A - B mixers and pumps, or heat circuit blocked off	The heat circuit's target 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 commissioning engineer or service department
7040 - 7047	Check correct function of HC A - B pumps, or heat circuit blocked off	HC target 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 commissioning engineer or service department
7050 - 7057	HC A - B overtemperature, check mixers and sensors	Maximum HC flow temperature exceeded	HC pump is switched off until flow temperature drops below MAX; check correct function of mixers and sensors; call commissioning engineer or 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, B19a, B29a, B39a or B49a. 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 - check sensor position!	Hot water tank temperature is not reached although there is enough energy in the accumulator tank	Check sensor position
9901	Internal main board error	A1-TRIAC error detected Restart required	Perform restart; contact service department; replace main board
9902	Internal main board error	A3-TRIAC error detected Restart required	
9903	Internal main board error	A4-TRIAC error detected Restart required	
9905	Partially equipped boiler IO not compatible with the parameterised boiler type	Board only compatible with Nano-PK 6-15	Fit fully equipped board

notes

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notes

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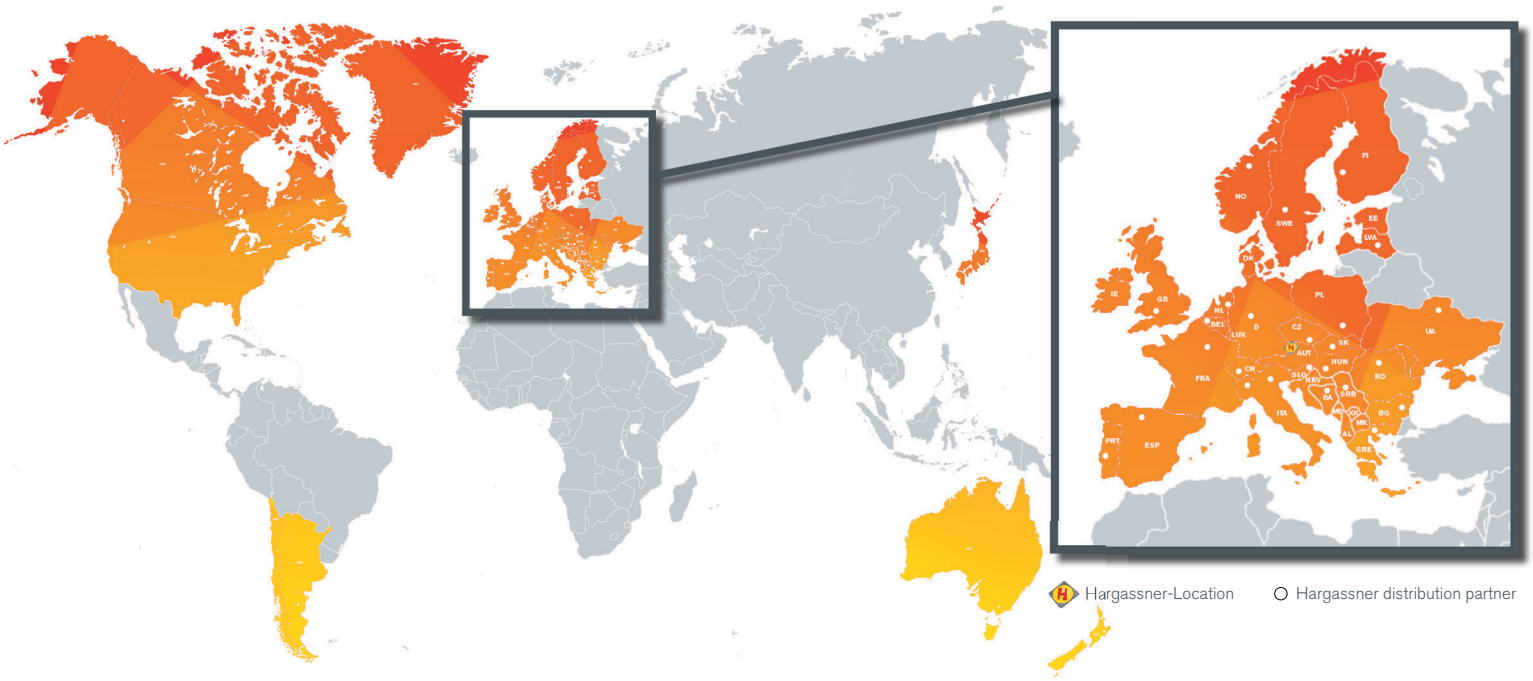
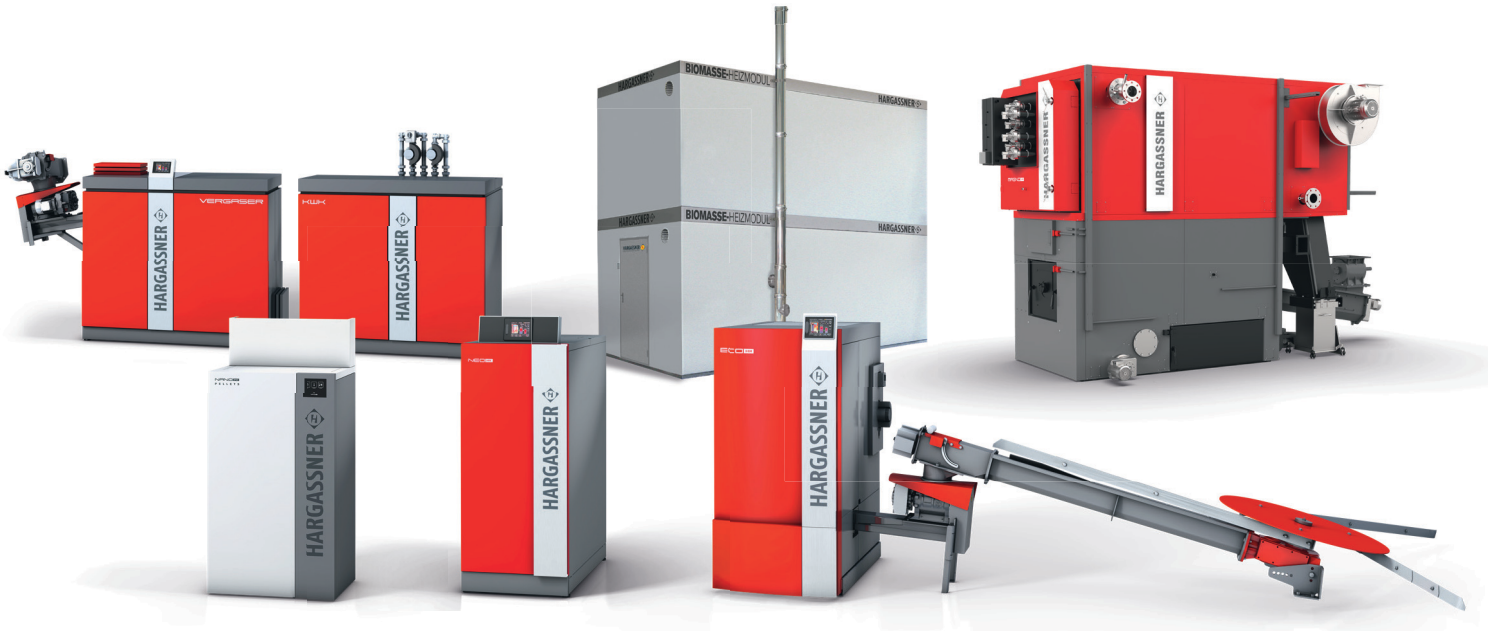
Your expert for **PELLET | WOOD LOG | WOOD CHIP** HEATING





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