Vejledning til KUBE KM5 regulator

Denne vejledning forsøger at gennemgå programmering/indstilling af AsconTechnologic KUBE KM5 regulatoren. For info omkring fysiske dimensioner, tilslutning og specifikationer henvises til den komplette vejledning fra producenten. Denne vejledning fokuserer udelukkende på programmeringen.

Der tages forbehold for fejl.

Generelt

Programmering af KM5 regulatoren er delt op i forskelige grupper. Hver gruppe indeholder alle parametre der har med en bestemt funktion at gøre (f.eks. input, regulering, alarm osv).

Sådan får du adgang til programmering af parametrene

1. Tryk og hold ↵ knappen inde i mere end 5 sekunder. Det øverste display viser "PASS" mens det nederste display viser 0.
2. Brug piletasterne til at indtaste password.
    a. Note: Standard password er fra fabrikkens side sat til: **30**.
    b. Note: Regulatoren fortsætter med regulering i baggrunden, imens man er i færd med programmering. Hvis man ønsker at regulatoren skal stoppe imens man programmerer den, skal man bruge password 2000+indstillede password – dvs. standard 2030. Regulering genoptages, når man går ud af programmeringsmenuen.
3. Tryk på ↵ knappen.
   Hvis password er korrekt, viser displayet forkortelsen for den første parametergruppe: inP.

Sådan kommer du ud af programmering

Tryk og hold ⟲ knappen inde i mere end 5 sekunder.

Knappernes funktion under programmering

- ⟲ Et kort tryk fører dig ud af nuværende parametergruppe og du kan vælge en ny parametergruppe. Et langt tryk fører dig helt ud af programmeringsmenuen.
- ↵ Hvis det øverste display viser en parametergruppe og det nederste display er blankt, giver et tryk adgang til den pågældende gruppe.
  Når øverste display viser en parameter og nederste display viser en værdi, vil et tryk på knappen bekræfte den indstillede værdi.
- ▲ Øger værdien.
- ▼ Reducerer værdien.
- ⟲ + ↵ Samtidigt tryk på begge knapper går tilbage til tidligere parametergruppe.

Nulstilling til fabriksindstillede værdier

Hvis der er gået rod i programmering af regulatoren, og nogle parameter er indstillet uhensigtsmæssigt, er det muligt at nulstille alle parametre.

1. Tryk og hold ↵ knappen inde i mere end 5 sekunder. Det øverste display viser ”PASS” mens det nederste display viser 0.
2. Brug piletasterne til at indtaste password: -481.
3. Tryk på ↵ knappen.
4. Regulatoren slukker kortvarigt og tænder igen. Nu er alle parametre nulstillet.

Programmering

Det anbefales at have Appendix A ved hånden, og gennemgå parametrene én efter én. Det er den sikreste måde at komme igennem programmeringen uden at overse noget. Man kan selvfølgelig udelade de grupper man ikke anvender, f.eks. alarmer, kommunikation eller kalibrering.

For en uddybende forklaring til parametrene henvises til den officielle vejledning fra producenten.

Temperaturprogrammer

KM5 regulatorerne indeholder op til 8 temperaturprogrammer. Hvert program består af 6 grupper af 2 trin (12 trin total). Det første trin er en *rampe* og det andet trin er en *dvale.* En rampe er en ændring af setpunkt og en dvale er den periode ,dette setpunkt skal fastholdes.

Hvis der er behov for et program med mere end 12 trin, er det muligt at sammenkæde 2 programmer. Den sidste parameter i et temperaturprogram bestemmer, om programmet skal slutte her, eller om det skal fortsætte i næste program.

Temperaturprogrammerne er fordelt på 2 sider. Side1: Program 1-4. side 2: Program 5-8.

Programmering af temperaturprogram

Med udgangspunkt i temperaturprogram 1 gennemgås her de forskellige parametre:

Gå til indstilling af Pr1 Group (se appendix A).

[129]: Vælg temperaturprogrammets tilstand når regulatoren tændes, f.eks. ”start med det samme”, ”Afvent startkommando” osv.

[130]: Tidsenhed for dvale. Timer og minutter eller minutter og sekunder.

[131]: Regulatorens tilstand når program er slut, f.eks. ”fortsæt med sidste setpunkt”, ”Stand-by” osv.

[132]: Antal gange temperaturprogrammet skal gennemløbes.

[133]: Tidsangivelse for hvor længe regulatoren skal vise, at temperaturprogrammet er slut.

[134]: Første setpunkt.

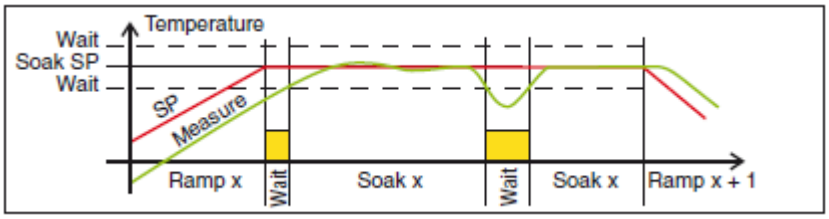
[135]: Gradient for første rampe, altså hvor hurtigt må temperaturen ændre sig.

[136]: Hvor længe skal regulatoren blive på første setpunkt.

[137]: Hvor tæt på setpunktet skal procestemperaturen være, førend tiden i punkt [136] starter.

[138]: Aktivering af events i forhold til afvikling af program.

Trin [134] til [138] gentages nu for de næste 5 grupper i dette temperaturprogram.



Afvikling af temperaturprogram

Når et temperaturprogram skal afvikles, går man ind i programmeringsmenuen og hen til PRG Group. Med parameter [126] og [127] vælges programmet, og med parameter [128] vælges *run*.

Appendix A

inP Group – Parametre der har med input at gøre

no.	Param.	Description	Dec. Point	Values	Default
1	SEnS	Sensor selection (according to the HW)			
		Model C	0	J = TC J (0... 1000°C/32... 1832°F); crAL = TC K (0... 1370°C/32... 2498°F); S = TC S (0... 1760°C/32... 3200°F); r = TC R (0... 1760°C/32... 3200°F); t = TC T (0... 400°C/32... 752°F); n = TC N (0... 1000°C/32... 1832°F); ir.J = Exergen IRS J (0... 1000°C/32... 1832°F); ir.cA = Exergen IRS K (0... 1370°C/32... 2498°F); Pt1 = RTD Pt 100 (-200... 850°C/-328... 1562°F); Pt10 = RTD Pt 1000 (-200... 500°C/-328... 932°F); 0.60 = 0... 60 mV; 12.60 = 12... 60 mV; 0.20 = 0... 20 mA; 4.20 = 4... 20 mA; 0.5 = 0... 5 V; 1.5 = 1... 5 V; 0.10 = 0... 10 V; 2.10 = 2... 10 V.	J
		Model E		J = TC J (0... 1000°C/32... 1832°F); crAL = TC K (0... 1370°C/32... 2498°F); S = TC S (0... 1760°C/32... 3200°F); r = TC R (0... 1760°C/32... 3200°F); t = TC T (0... 400°C/32... 752°F); n = TC N (0... 1000°C/32... 1832°F); ir.J = Exergen IRS J (0... 1000°C/32... 1832°F); ir.cA = Exergen IRS K (0... 1370°C/32... 2498°F); Ptc = PTC (-55... 150°C/-67... 302°F); ntc = NTC (-50... 110°C/-58... 230°F); 0.60 = 0... 60 mV; 12.60 = 12... 60 mV; 0.20 = 0... 20 mA; 4.20 = 4... 20 mA; 0.5 = 0... 5 V; 1.5 = 1... 5 V; 0.10 = 0... 10 V; 2.10 = 2... 10 V.	
2	dp	Decimal Point Position (linear inputs)	0	0... 3	0
		Decimal Point Position (different than linear inputs)		0/1	
3	SSc	Initial scale read-out for linear inputs	dp	-1999... 9999	0
4	FSc	Full Scale Readout for linear inputs	dp	-1999... 9999	1000
5	unit	Engineering unit		°C/°F	°C
6	Fil	Digital filter on the measured value	1	0 (= OFF)/0.1... 20.0 s	1.0

7	inE	Sensor error used to enable the safety output value		or = Over range;
				ou = Under range;
				our = Over and under range.
					our

8	oPE	Safety output value (% of the output)		-100... 100	0

9	IO4.F	I/O 4 function		on = Output used as PWS for TX;
				out4 = Output 4 (digital output 4);
				dG2c = Digital input 2 driven by contact;
				dG2U = Digital input 2 driven by voltage.
					out4

10	diF1	Digital Input 1 function		oFF = Not used; 1 = Alarm reset; 2 = Alarm acknowledge (ACK); 3 = Hold of the measured value; 4 = Stand by mode; 5 = Manual mode; 6 = Program RUN;	oFF
11	diF2	Digital Input 2 function		7 = Program Reset; 8 = Program Hold; 9 = Program Run/Hold; 10 = Program Run/Reset; 11 = Sequential SP selection; 12 = SP1 - SP2 selection; 13 = SP1... SP4 binary selection; 14 = Digital inputs in parallel to ▲ and ▼ keys.	oFF
12	di.A	Digital Inputs Action (DI2 only if configured)		0 = DI1 direct action, DI2 direct action; 1 = DI1 reverse action, DI2 direct action; 2 = DI1 direct action, DI2 reverse action; 3 = DI1 reverse action, DI2 reverse action.	0

Out Group – Parametre der har at gøre med output

no.	Param.	Description	Dec. Point	Values	Default
13	o1t	Output 1 type (when Out 1 is an analogue output)		0-20 = 0... 20 mA; 4-20 = 4... 20 mA; 0-10 = 0... 10 V; 2-10 = 2... 10 V.	0-20

14	o1F	Out 1 function (when Out 1 is a linear output)	0	NonE = Output not used;
				H.rEG = Heating output;
				c.rEG = Cooling output;
				r.inP = Measure retransmission;
				r.Err = Error (sp - PV) retransmission;
				r.SP = Set point retransmission ;
				r.SEr = Serial value retransmission.
					H.reG

		Out 1 function (when Out1 is a digital output)	0	NonE = Output not used;
				H.rEG = Heating output;
				c.rEG = Cooling output;
				AL = Alarm output;
				P.End = Program end indicator;
				P.HLd = Program hold indicator;
				P.uit = Program wait indicator;
				P.run = Program run indicator;
				P.Et1 = Program Event 1;
				P.Et2 = Program Event 2;
				or.bo = Out-of-range or Burnout indicator;
				P.FAL = Power failure indicator;
				bo.PF = Out-of-range, Burnout and Power failure indicator;
				St.bY = Stand by status indicator;
				diF.1 = Out1 repeats the digital input 1 status;
				diF.2 = Out1 repeats the digital input 2 status;
				on = Out1 always ON;
				riSP = Inspection request.	

15	Ao1L	Initial scale value of the analog retransmission	dP	-1999 ... Ao1H	-1999
16	Ao1H	Full scale value of the analog retransmission	dP	Ao1L ... 9999	9999
17	o1AL	Alarms linked up with the out 1	0	0... 63: +1 Alarm 1; +2 Alarm 2; +4 Alarm 3; +8 Loop break alarm; +16 Sensor Break; +32 Overload on output 4.	AL1

18	o1Ac	Out 1 action	0	dir = Direct action;
				rEU = Reverse action;
				dir.r = Direct with reversed LED;
				ReU.r = Reverse with reversed LED.
					dir

19	o2F	Out 2 function	0	NonE = Output not used;
				H.rEG = Heating output;
				c.rEG = Cooling output;
				AL = Alarm output;
				P.End = Program end indicator;
				P.HLd = Program hold indicator;
				P.uit = Program wait indicator;
				P.run = Program run indicator;
				P.Et1 = Program Event 1;
				P.Et2 = Program Event 2;
				or.bo = Out-of-range or Burnout indicator;
				P.FAL = Power failure indicator;
				bo.PF = Out-of-range, Burnout and Power failure indicator;
				St.bY = Stand by status indicator;
				diF.1 = Out2 repeats the digital input 1 status;
				diF.2 = Out2 repeats the digital input 2 status;
				on = Out2 always ON;
				riSP = Inspection request.
					AL

20	o2AL	Alarms linked up with the out 2	0	0... 63: +1 Alarm 1; +2 Alarm 2; +4 Alarm 3; +8 Loop break alarm; +16 Sensor Break; +32 Overload on output 4.	AL1

21	o2Ac	Out 2 action	0	dir = Direct action;
				rEU = Reverse action;
				dir.r = Direct with reversed LED;
				ReU.r = Reverse with reversed LED.
					dir

no.	Param.	Description	Dec. Point	Values	Default

22	o3F	Out 3 function	0	NonE = Output not used;
				H.rEG = Heating output;
				c.rEG = Cooling output;
				AL = Alarm output;
				P.End = Program end indicator;
				P.HLd = Program hold indicator;
				P.uit = Program wait indicator;
				P.run = Program run indicator;
				P.Et1 = Program Event 1;
				P.Et2 = Program Event 2;
				or.bo = Out-of-range or Burnout indicator;
				P.FAL = Power failure indicator;
				bo.PF = Out-of-range, Burnout and Power failure indicator;
				St.bY = Stand by status indicator;
				diF.1 = Out3 repeats the digital input 1 status;
				diF.2 = Out3 repeats the digital input 2 status;
				on = Out3 always ON;
				riSP = Inspection request.
					AL

23	o3AL	Alarms linked up with the out 3	0	0... 63: +1 Alarm 1; +2 Alarm 2; +4 Alarm 3; +8 Loop break alarm; +16 Sensor Break; +32 Overload on output 4.	AL2

24	o3Ac	Out 3 action	0	dir = Direct action;
				rEU = Reverse action;
				dir.r = Direct with reversed LED;
				ReU.r = Reverse with reversed LED.
					dir

25	o4F	Out 4 function	0	NonE = Output not used;
				H.rEG = Heating output;
				c.rEG = Cooling output;
				AL = Alarm output;
				P.End = Program end indicator;
				P.HLd = Program hold indicator;
				P.uit = Program wait indicator;
				P.run = Program run indicator;
				P.Et1 = Program Event 1;
				P.Et2 = Program Event 2;
				or.bo = Out-of-range or Burnout indicator;
				P.FAL = Power failure indicator;
				bo.PF = Out-of-range, Burnout and Power failure indicator;
				St.bY = Stand by status indicator.
					AL

26	o4AL	Alarms linked up with the out 4	0	0... 63: +1 Alarm 1; +2 Alarm 2; +4 Alarm 3; +8 Loop break alarm; +16 Sensor Break; +32 Overload on output 4.	AL1 + AL2

27	o4Ac	Out 4 action	0	dir = Direct action;
				rEU = Reverse action;
				dir.r = Direct with reversed LED;
				ReU.r = Reverse with reversed LED.
					dir

AL1 Group – Parametre der har at gøre med alarm 1

no.	Param.	Description	Dec. Point	Values	Default
28	AL1t	Alarm 1 type	0	nonE = Alarm not used; LoAb = Absolute low alarm; HiAb = Absolute high alarm; LHAo = Absolute band alarm, alarm ON outside the band; LHAi = Absolute band alarm, alarm ON inside the band; SE.br = Sensor Break; LodE = Deviation low alarm (relative); HidE = Deviation high alarm (relative); LHdo = Relative band alarm, alarm ON outside the band; LHdi = Relative band alarm, alarm ON inside the band.	HiAb
29	Ab1	Alarm 1 function	0	0... 15: +1 = Not active at power up; +2 = Latched alarm (manual reset); +4 = Acknowledgeable alarm; +8 = Relative alarm not active at set point change.	0

no.	Param.	Description	Dec. Point	Values	Default
30	AL1L	- For High and low alarms, it is the low limit of the AL1 threshold; - For band alarm, it is low alarm threshold	dp	From -1999 to AL1H (E.U.)	-1999
31	AL1H	- For High and low alarms, it is the high limit of the AL1 threshold; - For band alarm, it is high alarm threshold	dp	From AL1L to 9999 (E.U.)	9999
32	AL1	AL1 threshold	dp	From AL1L to AL1H (E.U.)	0
33	HAL1	AL1 hysteresis	dp	1... 9999 (E.U.)	1
34	AL1d	AL1 delay	0	From 0 (oFF) to 9999 (s)	oFF
35	AL1o	Alarm 1 enabling during Stand-by mode and out of range conditions	0	0 = Alarm 1 disabled during Stand by and out of range; 1 = Alarm 1 enabled in stand by mode; 2 = Alarm 1 enabled in out of range condition; 3 = Alarm 1 enabled in stand by mode and in overrange condition.	0

AL2 Group – Parametre der har at gøre med alarm 2

no.	Param.	Description	Dec. Point	Values	Default
36	AL2t	Alarm 2 type	0	nonE = Alarm not used; LoAb = Absolute low alarm; HiAb = Absolute high alarm; LHAo = Absolute band alarm, alarm ON outside the band; LHAi = Absolute band alarm, alarm ON inside the band; SE.br = Sensor Break; LodE = Deviation low alarm (relative); HidE = Deviation high alarm (relative); LHdo = Relative band alarm, alarm ON outside the band; LHdi = Relative band alarm, alarm ON inside the band.	Loab
37	Ab2	Alarm 2 function	0	0... 15: +1 = Not active at power up; +2 = Latched alarm (manual reset); +4 = Acknowledgeable alarm; +8 = Relative alarm not active at set point change.	0
38	AL2L	- For High and low alarms, it is the low limit of the AL2 threshold; - For band alarm, it is low alarm threshold	dp	From -1999 to AL2H (E.U.)	-1999
39	AL2H	- For High and low alarms, it is the high limit of the AL2 threshold; - For band alarm, it is high alarm threshold	dp	From AL2L to 9999 (E.U.)	9999
40	AL2	AL2 threshold	dp	From AL2L to AL2H (E.U.)	0
41	HAL2	AL2 hysteresis	dp	1... 9999 (E.U.)	1
42	AL2d	AL2 delay	0	From 0 (oFF) to 9999 (s)	oFF
43	AL2o	Alarm 2 enabling during Stand-by mode and out of range conditions	0	0 = Alarm 2 disabled during Stand by and out of range; 1 = Alarm 2 enabled in stand by mode; 2 = Alarm 3 enabled in out of range condition; 3 = Alarm 3 enabled in stand by mode and in overrange condition.	0

AL3 Group – Parametre der har at gøre med alarm 3

no.	Param.	Description	Dec. Point	Values	Default
44	AL3t	Alarm 3 type	0	nonE = Alarm not used; LoAb = Absolute low alarm; HiAb = Absolute high alarm; LHAo = Absolute band alarm, alarm ON outside the band; LHAi = Absolute band alarm, alarm ON inside the band; SE.br = Sensor Break; LodE = Deviation low alarm (relative); HidE = Deviation high alarm (relative); LHdo = Relative band alarm, alarm ON outside the band; LHdi = Relative band alarm, alarm ON inside the band.	nonE
45	Ab3	Alarm 3 function	0	0... 15: +1 = Not active at power up; +2 = Latched alarm (manual reset); +4 = Acknowledgeable alarm; +8 = Relative alarm not active at set point change.	0

no.	Param.	Description	Dec. Point	Values	Default
46	AL3L	- For High and low alarms, it is the low limit of the AL3 threshold; - For band alarm, it is low alarm threshold	dp	From -1999 to AL3H (E.U.)	-1999
47	AL3H	- For High and low alarms, it is the high limit of the AL3 threshold; - For band alarm, it is high alarm threshold	dp	From AL3L to 9999 (E.U.)	9999
48	AL3	AL3 threshold	dp	From AL3L to AL3H (E.U.)	0
49	HAL3	AL3 hysteresis	dp	1... 9999 (E.U.)	1
50	AL3d	AL3 delay	0	From 0 (oFF) to 9999 (s)	oFF
51	AL3o	Alarm 3 enabling during Stand-by mode and out of range conditions	0	0 = Alarm 3 disabled during Stand by and out of range; 1 = Alarm 3 enabled in stand by mode; 2 = Alarm 3 enabled in out of range condition; 3 = Alarm 3 enabled in stand by mode and in overrange condition.	0

LBA Group – Parametre der har at gøre med "Loop Break Alarm"

no.	Param.	Description	Dec. Point	Values	Default
52	LbAt	LBA time	0	From 0 (oFF) to 9999 (s)	oFF
53	LbSt	Delta measure used by LBA during Soft start	dP	From 0 (oFF) to 9999 (E.U.)	10
54	LbAS	Delta measure used by LBA	dP	1...9999 (E.U.)	20
55	LbcA	Condition for LBA enabling	0	uP = Active when Pout = 100%; dn = Active when Pout = -100%; both = Active in both cases.	both

rEG Group – Parametre der har at gøre med regulering

no.	Param.	Description	Dec. Point	Values	Default
56	cont	Control type	0	Pid = PID (heat and/or); On.FA = ON/OFF asymmetric hysteresis; On.FS = ON/OFF symmetric hysteresis; nr = Heat/Cool ON/OFF control with neutral zone; 3Pt = Servomotor control (available only when **Output 2** and **Output 3** have been ordered as "**M**").	Pid
57	Auto	Autotuning selection	0	-4 = Oscillating auto-tune with automatic restart at power up and after set point change; -3 = Oscillating auto-tune with manual start; -2 = Oscillating -tune with automatic start at the first power up only; -1 = Oscillating auto-tune with automatic restart at every power up; 0 = Not used; 1 = Fast auto tuning with automatic restart at every power up; 2 = Fast auto-tune with automatic start the first power up only; 3 = FAST auto-tune with manual start; 4 = FAST auto-tune with automatic restart at power up and after set point change; 5 = Evo-tune with automatic restart at every power up; 6 = Evo-tune with automatic start the first power up only; 7 = Evo-tune with manual start; 8 = Evo-tune with automatic restart at power up and after a set point change.	7
58	tunE	Manual start of the Autotuning	0	oFF = Not active; on = Active.	oFF
59	HSEt	Hysteresis of the ON/OFF control	dP	0... 9999 (E.U.)	1
60	Pb	Proportional band	dP	1... 9999 (E.U.)	50
61	ti	Integral time	0	0 (oFF)/1... 9999 (s)/inF (integral time excluded)	200
62	td	Derivative time	0	0 (oFF)/1... 9999 (s)	50
63	Fuoc	Fuzzy overshoot control	2	0.00... 2.00	0.50
64	tcH	Heating output cycle time	1	0.1... 130.0 (s)	20.0
65	rcG	Power ratio between heating and cooling action	2	0.01... 99.99	1.00
66	tcc	Cooling output cycle time	1	0.1... 130.0 (s)	20.0
67	rS	Manual reset (Integral pre-load)	1	-100.0... +100.0 (%)	0.0
68	Str.t	Servomotor stroke time	0	5...1000 (s)	60
69	db.S	Servomotor dead band	0	0...100%	50
70	od	Delay at power up	2	From 0.00 (oFF) to 99.59 (hh.mm)	oFF

no.	Param.	Description	Dec. Point	Values	Default
71	St.P	Maximum power output used during soft start	0	-100... 100 (%)	0
72	SSt	Soft start time	2	- 0.00 (oFF); - 0.01... 7.59 (hh.mm); - inF (always ON).	oFF
73	SS.tH	Threshold for soft start disabling	dP	-1999... +9999 (E.U.)	9999

SP Group – Parametre der har at gøre med setpunkt

no.	Param.	Description	Dec. Point	Values	Default
74	nSP	Number of used set points	0	1... 4	1
75	SPLL	Minimum set point value	dP	From -1999 to SPHL	-1999
76	SPHL	Maximum set point value	dP	From SPLL to 9999	9999
77	SP	Set point 1	dP	From SPLL to SPLH	0
78	SP 2	Set point 2	dP	From SPLL to SPLH	0
79	SP 3	Set point 3	dP	From SPLL to SPLH	0
80	SP 4	Set point 4	dP	From SPLL to SPLH	0
81	A.SP	Selection of the active set point	0	From 1 (SP 1) to nSP	1
82	SP.rt	Remote set point type	0	RSP = The value coming from serial link is used as remote set point; trin = The value will be added to the local set point selected by A.SP and the sum becomes the operative set point; PErc = The value will be scaled on the input range and this value will be used as remote SP.	trin
83	SPLr	Local/remote set point selection	0	Loc = Local; rEn = Remote.	Loc
84	SP.u	Rate of rise for **POSITIVE** set point change (ramp UP)	2	0.01... 99.99 Eng. units per minute/inF (ramp disabeld)	inF
85	SP.d	Rate of rise for **NEGATIVE** set point change (ramp DOWN)	2	0.01... 99.99 Eng. units per minute/inF (ramp disabeld)	inF

PAn Group – Parametre der har at gøre med operator HMI

no.	Param.	Description	Dec. Point	Values	Default
86	PAS2	Level 2 password (limited access level)	0	- oFF (Level 2 not protected by password) - 1... 200	20
87	PAS3	Level 3 password (complete configuration level)	0	3... 200	30

88	uSrb	button function during RUN TIME		nonE = No function;
				tunE = Auto-tune/self-tune enabling. A single press (longer than 1 second) starts the auto-tune;
				oPLo = Manual mode. The first pressure puts the instrument in manual mode (OPLO) while a second one puts the instrument in Auto mode;
				AAc = Alarm reset;
				ASi = Alarm acknowledge;
				chSP = Sequential set point selection;
				St.by = Stand by mode. The first press puts the instrument in stand by mode while a second one puts the instrument in Auto mode.;
				P.run = Program run;
				P.rES = Program reset;
				P.r.H.r = Program run/hold/reset.
					tunE

no.	Param.	Description	Dec. Point	Values	Default
89	diSP	Display management		nonE = Standard display; Pou = Output Power; PoS = Valve position (servomotor control); SpF = Final set point; Spo = Operative set point; AL1 = Alarm 1 threshold; AL2 = Alarm 2 threshold; AL3 = Alarm 3 threshold; Pr.tu = - During a soak, the instrument shows the soak elapsed time;; - During a ramp the display shows the operative set point. At the end of the program execution, the instrument will show "P.End" messages alternately with the measured value; - When no program is running, the instrument shows the standard display; Pr.td = - During a soak, the instrument shows the soak remaining time (count down); - During a ramp the display shows the operative set point. At the end of the program execution, the instrument shows "PEnd" messages alternately with the measured value; - When no program is running, the instrument shows the standard display; P.t.tu = When the programmer is running, the display shows the total elapsed time. At the end of the program execution, the instrument shows "PEnd" messages alternately with the measured value; P.t.td = When the programmer is running, the display shows the total remaining time (count down). At the end of the program execution, the instrument shows "PEnd" messages alternately with the measured value; PErc = Percent of the power output used during soft start (when the soft start time is equal to infinite, the limit is ever active and it can be used also when ON/OFF control is selected).	0
90	di.cL	Display colour		0 = The display colour is used to show the actual deviation (PV - SP); 1 = Display red (fix); 2 = Display green (fix); 3 = Display orange (fix).	0
91	AdE	Deviation for display colour management		1... 9999 (E.U.)	5
92	di.St	Display Timeout	2	- oFF (display always ON) - 0.1... 99.59 (mm.ss)	oFF
93	fiLd	Filter on the displayed value	1	- oFF (filter disabled) - From 0.0 (oFF) to 20.0 (E.U.)	oFF
95	dSPu	Instrument status at power ON		AS.Pr = Starts in the same way it was prior to the power down; Auto = Starts in Auto mode; oP.0 = Starts in manual mode with a power output equal to zero; St.bY = Starts in stand-by mode.	AS.Pr
96	oPr.E	Operative modes enabling		ALL = All modes will be selectable by the next parameter; Au.oP = Auto and manual (oPLo) mode only will be selectable by the next parameter; Au.Sb = Auto and Stand-by modes only will be selectable by the next parameter.	ALL
97	oPEr	Operative mode selection		If oPr.E = ALL: - Auto = Auto mode; - oPLo = Manual mode; - St.bY = Stand by mode. If oPr.E = Au.oP: - Auto = Auto mode; - oPLo = Manual mode. If oPr.E = Au.Sb: - Auto = Auto mode; - St.bY = Stand by mode.	Auto

Ser Group – Parametre der har at gøre med seriel kommunikation

no.	Param.	Description	Dec. Point	Values	Default
98	Add	Instrument address		- oFF; - 1... 254.	1
99	bAud	baud rate		1200 = 1200 baud; 2400 = 2400 baud; 9600 = 9600 baud; 19.2 = 19200 baud; 38.4 = 38400 baud.	9600
100	trSP	Selection of the value to be retransmitted (Master)		nonE = Retransmission not used (the instrument is a slave); rSP = The instrument becomes a Master and retransmits the operative set point; PErc = The instrument become a Master and it retransmits the power output.	nonE

CAl Group – Parametre der har at gøre med kalibrering

no.	Param.	Description	Dec. Point	Values	Default
101	AL.P	Adjust Low Point		From -1999 to (AH.P - 10) in engineering units	0
102	AL.o	Adjust Low Offset		-300... +300 (E.U.)	0
103	AH.P	Adjust High Point		From (AL.P + 10) to 9999 (E.U.)	9999
104	AH.o	Adjust High Offset		-300... +300	0

PRG Group – Parametre der har at gøre med temperaturprogrammer

no.	Param.	Description	Dec. Point	Values	Default
126	PAGE	Active program page election		1... 2	
127	Pr.n	Active program		1... 4	

128	Pr.St	Active program Status		rES = Program reset;
				run = Program Start;
				HoLd = Program Hold;
				cnt = Continue (read only).	

Pr1 Group – Parametre der har at gøre med temperaturprogram 1

no.	Param.	Description	Dec. Point	Values	Default
129	P1.F	Program 1 - Action at power up	0	nonE = Programmer not used; S.uP.d = Start at power up with a first step in stand-by; S.uP.S = Start at power up; u.diG = Start at Run command detection only; u.dG.d = Start at Run command with a first step in stand-by.	nonE
130	P1.u	Program 1 - Engineering unit of the soaks	2	hh.nn = Hours and minutes; nn.SS = Minutes and seconds.	hh.nn
131	P1.E	Program 1 - Instrument behaviour at the end of the program execution	0	cnt = Continue; SPAt = Go to the set point selected by A.SP; St.by = Go to stand-by mode.	A.SP
132	P1.nE	Program 1 - Number of executions	0	1... 99 times/inF indefinitely	
133	P1.Et	Program 1 - Time of the end program indication	2	0.00 (oFF)/0.01... 99.59 nn.ss/inF (steady ON)	oFF
134	P1.S1	Program 1 - Set point of the first soak	dP	From SPLL to SPHL	0
135	P1.G1	Program 1 - Gradient of the first ramp	1	0.1... 999.9 (E.U./minute)/inF= Step transfer	inF
136	P1.t1	Program 1 - Time of the 1st soak	2	0.00... 99.59 time units	0.10
137	P1.b1	Program 1 - Wait band of the 1st soak	dP	From 0 (oFF) to 9999 (E.U.)	oFF
138	P1.E1	Program 1 - Events of the 1st group	2	00.00... 11.11 (0 = event OFF; 1 = event ON)	00.00
139	P1.S2	Program 1 - Set point of the 2nd soak	dP	OFF or from SPLL to SPHL	0
140	P1.G2	Program 1 - Gradient of the 2nd ramp	1	0.1... 999.9 (E.U./minute)/inF= Step transfer	inF
141	P1.t2	Program 1 - Time of the 2nd soak	2	0.00... 99.59 time units	0.10
142	P1.b2	Program 1 - Wait band of the 2nd soak	dP	From 0 (oFF) to 9999 (E.U.)	oFF
143	P1.E2	Program 1 - Events of the 2nd group	2	00.00... 11.11 (0 = event OFF; 1 = event ON)	00.00
144	P1.S3	Program 1 - Set point of the 3rd soak	dP	OFF or from SPLL to SPHL	0
145	P1.G3	Program 1 - Gradient of the 3rd ramp	1	0.1... 999.9 (E.U./minute)/inF= Step transfer	inF
146	P1.t3	Program 1 - Time of the 3rd soak	2	0.00... 99.59 time units	0.10
147	P1.b3	Program 1 - Wait band of the 3rd soak	dP	From 0 (oFF) to 9999 (E.U.)	oFF
148	P1.E3	Program 1 - Events of the 3rd group	0	00.00... 11.11 (0 = event OFF; 1 = event ON)	00.00
149	P1.S4	Program 1 - Set point of the 4th soak	dP	OFF or from SPLL to SPHL	0
150	P1.G4	Program 1 - Gradient of the 4th ramp	1	0.1... 999.9 (E.U./minute)/inF= Step transfer	inF
151	P1.t4	Program 1 - Time of the 4th soak	2	0.00... 99.59 time units	0.10
152	P1.b4	Program 1 - Wait band of the 4th soak	dP	From 0 (oFF) to 9999 (E.U.)	oFF
153	P1.E4	Program 1 - Events of the 4th group	0	00.00... 11.11 (0 = event OFF; 1 = event ON)	00.00
154	P1.S5	Program 1 - Set point of the 5th soak	dP	OFF or from SPLL to SPHL	0
155	P1.G5	Program 1 - Gradient of the 5th ramp	1	0.1... 999.9 (E.U./minute)/inF= Step transfer	inF
156	P1.t5	Program 1 - Time of the 5th soak	2	0.00... 99.59 time units	0.10
157	P1.b5	Program 1 - Wait band of the 5th soak	dP	From 0 (oFF) to 9999 (E.U.)	oFF
158	P1.E5	Program 1 - Events of the 5th group	0	00.00... 11.11 (0 = event OFF; 1 = event ON)	00.00
159	P1.S6	Program 1 - Set point of the 6th soak	dP	OFF or from SPLL to SPHL	0
160	P1.G6	Program 1 - Gradient of the 6th ramp	1	0.1... 999.9 (E.U./minute)/inF= Step transfer	inF

no.	Param.	Description	Dec. Point	Values	Default
161	P1.t6	Program 1 - Time of the 6th soak	2	0.00... 99.59 time units	0.10
162	P1.b6	Program 1 - Wait band of the 6th soak	dP	From 0 (oFF) to 9999 (E.U.)	oFF
163	P1.E6	Program 1 - Events of the 6th group	0	00.00... 11.11 (0 = event OFF; 1 = event ON)	00.00
164	P1.c2	Program 1 - Continues on program 2	0	no = Program 1 is ended; YES = program 1 will continue on program 2.	

Pr2 Group – Parametre der har at gøre med temperaturprogram 2

no.	Param.	Description	Dec. Point	Values	Default
165	P2.F	Program 2 - Action at power up	0	nonE = Programmer not used; S.uP.d = Start at power up with a first step in stand-by; S.uP.S = Start at power up; u.diG = Start at Run command detection only; u.dG.d = Start at Run command with a first step in stand-by.	nonE
166	P2.u	Program 2 - Engineering unit of the soaks	2	hh.nn = Hours and minutes; nn.SS = Minutes and seconds.	hh.nn
167	P2.E	Program 2 - Instrument behaviour at the end of the program execution	0	cnt = Continue; SPAt = Go to the set point selected by A.SP; St.by = Go to stand-by mode.	A.SP
168	P2.nE	Program 2 - Number of executions	0	1... 99 times/inF indefinitely	
169	P2.Et	Program 2 - Time of the end program indication	2	0.00 (oFF)/0.01... 99.59 nn.ss/inF (steady ON)	oFF
170	P2.S1	Program 2 - Set point of the first soak	dP	From SPLL to SPHL	0
171	P2.G1	Program 2 - Gradient of the first ramp	1	0.1... 999.9 (E.U./minute)/inF= Step transfer	inF
172	P2.t1	Program 2 - Time of the 1st soak	2	0.00... 99.59 time units	0.10
173	P2.b1	Program 2 - Wait band of the 1st soak	dP	From 0 (oFF) to 9999 (E.U.)	oFF
174	P2.E1	Program 2 - Events of the 1st group	2	00.00... 11.11 (0 = event OFF; 1 = event ON)	00.00
175	P2.S2	Program 2 - Set point of the 2nd soak	dP	OFF or from SPLL to SPHL	0
176	P2.G2	Program 2 - Gradient of the 2nd ramp	1	0.1... 999.9 (E.U./minute)/inF= Step transfer	inF
177	P2.t2	Program 2 - Time of the 2nd soak	2	0.00... 99.59 time units	0.10
178	P2.b2	Program 2 - Wait band of the 2nd soak	dP	From 0 (oFF) to 9999 (E.U.)	oFF
179	P2.E2	Program 2 - Events of the 2nd group	2	00.00... 11.11 (0 = event OFF; 1 = event ON)	00.00
180	P2.S3	Program 2 - Set point of the 3rd soak	dP	OFF or from SPLL to SPHL	0
181	P2.G3	Program 2 - Gradient of the 3rd ramp	1	0.1... 999.9 (E.U./minute)/inF= Step transfer	inF
182	P2.t3	Program 2 - Time of the 3rd soak	2	0.00... 99.59 time units	0.10
183	P2.b3	Program 2 - Wait band of the 3rd soak	dP	From 0 (oFF) to 9999 (E.U.)	oFF
184	P2.E3	Program 2 - Events of the 3rd group	0	00.00... 11.11 (0 = event OFF; 1 = event ON)	00.00
185	P2.S4	Program 2 - Set point of the 4th soak	dP	OFF or from SPLL to SPHL	0
186	P2.G4	Program 2 - Gradient of the 4th ramp	1	0.1... 999.9 (E.U./minute)/inF= Step transfer	inF
187	P2.t4	Program 2 - Time of the 4th soak	2	0.00... 99.59 time units	0.10
188	P2.b4	Program 2 - Wait band of the 4th soak	dP	From 0 (oFF) to 9999 (E.U.)	oFF
189	P2.E4	Program 2 - Events of the 4th group	0	00.00... 11.11 (0 = event OFF; 1 = event ON)	00.00
190	P2.S5	Program 2 - Set point of the 5th soak	dP	OFF or from SPLL to SPHL	0
191	P2.G5	Program 2 - Gradient of the 5th ramp	1	0.1... 999.9 (E.U./minute)/inF= Step transfer	inF
192	P2.t5	Program 2 - Time of the 5th soak	2	0.00... 99.59 time units	0.10
193	P2.b5	Program 2 - Wait band of the 5th soak	dP	From 0 (oFF) to 9999 (E.U.)	oFF
194	P2.E5	Program 2 - Events of the 5th group	0	00.00... 11.11 (0 = event OFF; 1 = event ON)	00.00
195	P2.S6	Program 2 - Set point of the 6th soak	dP	OFF or from SPLL to SPHL	0
196	P2.G6	Program 2 - Gradient of the 6th ramp	1	0.1... 999.9 (E.U./minute)/inF= Step transfer	inF
197	P2.t6	Program 2 - Time of the 6th soak	2	0.00... 99.59 time units	0.10
198	P2.b6	Program 2 - Wait band of the 6th soak	dP	From 0 (oFF) to 9999 (E.U.)	oFF
199	P2.E6	Program 2 - Events of the 6th group	0	00.00... 11.11 (0 = event OFF; 1 = event ON)	00.00
200	P2.c3	Program 2 - Continues on program 3	0	no = Program 2 is ended; YES = Program 2 will continue on program 3.	

Pr3 Group – Parametre der har at gøre med temperaturprogram 3

no.	Param.	Description	Dec. Point	Values	Default
201	P3.F	Program 3 - Action at power up	0	nonE = Programmer not used; S.uP.d = Start at power up with a first step in stand-by; S.uP.S = Start at power up; u.diG = Start at Run command detection only; u.dG.d = Start at Run command with a first step in stand-by.	nonE
202	P3.u	Program 3 - Engineering unit of the soaks	2	hh.nn = Hours and minutes; nn.SS = Minutes and seconds.	hh.nn
203	P3.E	Program 3 - Instrument behaviour at the end of the program execution	0	cnt = Continue; SPAt = Go to the set point selected by A.SP; St.by = Go to stand-by mode.	A.SP
204	P3.nE	Program 3 - Number of executions	0	1... 99 times/inF indefinitely	
205	P3.Et	Program 3 - Time of the end program indication	2	0.00 (oFF)/0.01... 99.59 nn.ss/inF (steady ON)	oFF
206	P3.S1	Program 3 - Set point of the first soak	dP	From SPLL to SPHL	0
207	P3.G1	Program 3 - Gradient of the first ramp	1	0.1... 999.9 (E.U./minute)/inF= Step transfer	inF
208	P3.t1	Program 3 - Time of the 1st soak	2	0.00... 99.59 time units	0.10
209	P3.b1	Program 3 - Wait band of the 1st soak	dP	From 0 (oFF) to 9999 (E.U.)	oFF
210	P3.E1	Program 3 - Events of the 1st group	2	00.00... 11.11 (0 = event OFF; 1 = event ON)	00.00
211	P3.S2	Program 3 - Set point of the 2nd soak	dP	OFF or from SPLL to SPHL	0
212	P3.G2	Program 3 - Gradient of the 2nd ramp	1	0.1... 999.9 (E.U./minute)/inF= Step transfer	inF
213	P3.t2	Program 3 - Time of the 2nd soak	2	0.00... 99.59 time units	0.10
214	P3.b2	Program 3 - Wait band of the 2nd soak	dP	From 0 (oFF) to 9999 (E.U.)	oFF
215	P3.E2	Program 3 - Events of the 2nd group	2	00.00... 11.11 (0 = event OFF; 1 = event ON)	00.00
216	P3.S3	Program 3 - Set point of the 3rd soak	dP	OFF or from SPLL to SPHL	0
217	P3.G3	Program 3 - Gradient of the 3rd ramp	1	0.1... 999.9 (E.U./minute)/inF= Step transfer	inF
218	P3.t3	Program 3 - Time of the 3rd soak	2	0.00... 99.59 time units	0.10
219	P3.b3	Program 3 - Wait band of the 3rd soak	dP	From 0 (oFF) to 9999 (E.U.)	oFF
220	P3.E3	Program 3 - Events of the 3rd group	0	00.00... 11.11 (0 = event OFF; 1 = event ON)	00.00
221	P3.S4	Program 3 - Set point of the 4th soak	dP	OFF or from SPLL to SPHL	0
222	P3.G4	Program 3 - Gradient of the 4th ramp	1	0.1... 999.9 (E.U./minute)/inF= Step transfer	inF
223	P3.t4	Program 3 - Time of the 4th soak	2	0.00... 99.59 time units	0.10
224	P3.b4	Program 3 - Wait band of the 4th soak	dP	From 0 (oFF) to 9999 (E.U.)	oFF
225	P3.E4	Program 3 - Events of the 4th group	0	00.00... 11.11 (0 = event OFF; 1 = event ON)	00.00
226	P3.S5	Program 3 - Set point of the 5th soak	dP	OFF or from SPLL to SPHL	0
227	P3.G5	Program 3 - Gradient of the 5th ramp	1	0.1... 999.9 (E.U./minute)/inF= Step transfer	inF
228	P3.t5	Program 3 - Time of the 5th soak	2	0.00... 99.59 time units	0.10
229	P3.b5	Program 3 - Wait band of the 5th soak	dP	From 0 (oFF) to 9999 (E.U.)	oFF
230	P3.E5	Program 3 - Events of the 5th group	0	00.00... 11.11 (0 = event OFF; 1 = event ON)	00.00
231	P3.S5	Program 3 - Set point of the 6th soak	dP	OFF or from SPLL to SPHL	0
232	P3.G5	Program 3 - Gradient of the 6th ramp	1	0.1... 999.9 (E.U./minute)/inF= Step transfer	inF
233	P3.t5	Program 3 - Time of the 6th soak	2	0.00... 99.59 time units	0.10
234	P3.b5	Program 3 - Wait band of the 6th soak	dP	From 0 (oFF) to 9999 (E.U.)	oFF
235	P3.E5	Program 3 - Events of the 6th group	0	00.00... 11.11 (0 = event OFF; 1 = event ON)	00.00
236	P3.c4	Program 3 - Continues on program 4	0	no = Program 3 is ended; YES = Program 3 will continue on program 4.	

Pr4 Group – Parametre der har at gøre med temperaturprogram 4

no.	Param.	Description	Dec. Point	Values	Default
237	P4.F	Program 4 - Action at power up	0	nonE = Programmer not used; S.uP.d = Start at power up with a first step in stand-by; S.uP.S = Start at power up; u.diG = Start at Run command detection only; u.dG.d = Start at Run command with a first step in stand-by.	nonE
238	P4.u	Program 4 - Engineering unit of the soaks	2	hh.nn = Hours and minutes; nn.SS = Minutes and seconds.	hh.nn
239	P4.E	Program 4 - Instrument behaviour at the end of the program execution	0	cnt = Continue; SPAt = Go to the set point selected by A.SP; St.by = Go to stand-by mode.	A.SP
240	P4.nE	Program 4 - Number of executions	0	1... 99 times/inF indefinitely	

no.	Param.	Description	Dec. Point	Values	Default
241	P4.Et	Program 4 - Time of the end program indication	2	0.00 (oFF)/0.01... 99.59 nn.ss/inF (steady ON)	oFF
242	P4.S1	Program 4 - Set point of the first soak	dP	From SPLL to SPHL	0
243	P4.G1	Program 4 - Gradient of the first ramp	1	0.1... 999.9 (E.U./minute)/inF= Step transfer	inF
244	P4.t1	Program 4 - Time of the 1st soak	2	0.00... 99.59 time units	0.10
245	P4.b1	Program 4 - Wait band of the 1st soak	dP	From 0 (oFF) to 9999 (E.U.)	oFF
246	P4.E1	Program 4 - Events of the 1st group	2	00.00... 11.11 (0 = event OFF; 1 = event ON)	00.00
247	P4.S2	Program 4 - Set point of the 2nd soak	dP	OFF or from SPLL to SPHL	0
248	P4.G2	Program 4 - Gradient of the 2nd ramp	1	0.1... 999.9 (E.U./minute)/inF= Step transfer	inF
249	P4.t2	Program 4 - Time of the 2nd soak	2	0.00... 99.59 time units	0.10
250	P4.b2	Program 4 - Wait band of the 2nd soak	dP	From 0 (oFF) to 9999 (E.U.)	oFF
251	P4.E2	Program 4 - Events of the 2nd group	2	00.00... 11.11 (0 = event OFF; 1 = event ON)	00.00
252	P4.S3	Program 4 - Set point of the 3rd soak	dP	OFF or from SPLL to SPHL	0
253	P4.G3	Program 4 - Gradient of the 3rd ramp	1	0.1... 999.9 (E.U./minute)/inF= Step transfer	inF
254	P4.t3	Program 4 - Time of the 3rd soak	2	0.00... 99.59 time units	0.10
255	P4.b3	Program 4 - Wait band of the 3rd soak	dP	From 0 (oFF) to 9999 (E.U.)	oFF
256	P4.E3	Program 4 - Events of the 3rd group	0	00.00... 11.11 (0 = event OFF; 1 = event ON)	00.00
257	P4.S4	Program 4 - Set point of the 4th soak	dP	OFF or from SPLL to SPHL	0
258	P4.G4	Program 4 - Gradient of the 4th ramp	1	0.1... 999.9 (E.U./minute)/inF= Step transfer	inF
259	P4.t4	Program 4 - Time of the 4th soak	2	0.00... 99.59 time units	0.10
260	P4.b4	Program 4 - Wait band of the 4th soak	dP	From 0 (oFF) to 9999 (E.U.)	oFF
261	P4.E4	Program 4 - Events of the 4th group	0	00.00... 11.11 (0 = event OFF; 1 = event ON)	00.00
262	P4.S5	Program 4 - Set point of the 5th soak	dP	OFF or from SPLL to SPHL	0
263	P4.G4	Program 4 - Gradient of the 5th ramp	1	0.1... 999.9 (E.U./minute)/inF= Step transfer	inF
264	P4.t5	Program 4 - Time of the 5th soak	2	0.00... 99.59 time units	0.10
265	P4.b5	Program 4 - Wait band of the 5th soak	dP	From 0 (oFF) to 9999 (E.U.)	oFF
266	P4.E5	Program 4 - Events of the 5th group	0	00.00... 11.11 (0 = event OFF; 1 = event ON)	00.00
267	P4.S6	Program 4 - Set point of the 6th soak	dP	OFF or from SPLL to SPHL	0
268	P4.G6	Program 4 - Gradient of the 6th ramp	1	0.1... 999.9 (E.U./minute)/inF= Step transfer	inF
269	P4.t6	Program 4 - Time of the 6th soak	2	0.00... 99.59 time units	0.10
270	P4.b6	Program 4 - Wait band of the 6th soak	dP	From 0 (oFF) to 9999 (E.U.)	oFF
271	P4.E6	Program 4 - Events of the 6th group	0	00.00... 11.11 (0 = event OFF; 1 = event ON)	00.00

Pr5 Group – Parametre der har at gøre med temperaturprogram 5

no.	Param.	Description	Dec. Point	Values	Default
272	P5.F	Program 5 - Action at power up	0	nonE = Programmer not used; S.uP.d = Start at power up with a first step in stand-by; S.uP.S = Start at power up; u.diG = Start at Run command detection only; u.dG.d = Start at Run command with a first step in stand-by.	nonE
273	P5.u	Program 5 - Engineering unit of the soaks	2	hh.nn = Hours and minutes; nn.SS = Minutes and seconds.	hh.nn
274	P5.E	Program 5 - Instrument behaviour at the end of the program execution	0	cnt = Continue; SPAt = Go to the set point selected by A.SP; St.by = Go to stand-by mode.	A.SP
275	P5.nE	Program 5 - Number of executions	0	1... 99 times/inF indefinitely	
276	P5.Et	Program 5 - Time of the end program indication	2	0.00 (oFF)/0.01... 99.59 nn.ss/inF (steady ON)	oFF
277	P5.S1	Program 5 - Set point of the first soak	dP	From SPLL to SPHL	0
278	P5.G1	Program 5 - Gradient of the first ramp	1	0.1... 999.9 (E.U./minute)/inF= Step transfer	inF
279	P5.t1	Program 5 - Time of the 1st soak	2	0.00... 99.59 time units	0.10
280	P5.b1	Program 5 - Wait band of the 1st soak	dP	From 0 (oFF) to 9999 (E.U.)	oFF
281	P5.E1	Program 5 - Events of the 1st group	2	00.00... 11.11 (0 = event OFF; 1 = event ON)	00.00
282	P5.S2	Program 5 - Set point of the 2nd soak	dP	OFF or from SPLL to SPHL	0
283	P5.G2	Program 5 - Gradient of the 2nd ramp	1	0.1... 999.9 (E.U./minute)/inF= Step transfer	inF
284	P5.t2	Program 5 - Time of the 2nd soak	2	0.00... 99.59 time units	0.10
285	P5.b2	Program 5 - Wait band of the 2nd soak	dP	From 0 (oFF) to 9999 (E.U.)	oFF
286	P5.E2	Program 5 - Events of the 2nd group	2	00.00... 11.11 (0 = event OFF; 1 = event ON)	00.00
287	P5.S3	Program 5 - Set point of the 3rd soak	dP	OFF or from SPLL to SPHL	0

no.	Param.	Description	Dec. Point	Values	Default
288	P5.G3	Program 5 - Gradient of the 3rd ramp	1	0.1... 999.9 (E.U./minute)/inF= Step transfer	inF
289	P5.t3	Program 5 - Time of the 3rd soak	2	0.00... 99.59 time units	0.10
290	P5.b3	Program 5 - Wait band of the 3rd soak	dP	From 0 (oFF) to 9999 (E.U.)	oFF
291	P5.E3	Program 5 - Events of the 3rd group	0	00.00... 11.11 (0 = event OFF; 1 = event ON)	00.00
292	P5.S4	Program 5 - Set point of the 4th soak	dP	OFF or from SPLL to SPHL	0
293	P5.G4	Program 5 - Gradient of the 4th ramp	1	0.1... 999.9 (E.U./minute)/inF= Step transfer	inF
294	P5.t4	Program 5 - Time of the 4th soak	2	0.00... 99.59 time units	0.10
295	P5.b4	Program 5 - Wait band of the 4th soak	dP	From 0 (oFF) to 9999 (E.U.)	oFF
296	P5.E4	Program 5 - Events of the 4th group	0	00.00... 11.11 (0 = event OFF; 1 = event ON)	00.00
297	P5.S5	Program 5 - Set point of the 5th soak	dP	OFF or from SPLL to SPHL	0
298	P5.G5	Program 5 - Gradient of the 5th ramp	1	0.1... 999.9 (E.U./minute)/inF= Step transfer	inF
299	P5.t5	Program 5 - Time of the 5th soak	2	0.00... 99.59 time units	0.10
300	P5.b5	Program 5 - Wait band of the 5th soak	dP	From 0 (oFF) to 9999 (E.U.)	oFF
301	P5.E5	Program 5 - Events of the 5th group	0	00.00... 11.11 (0 = event OFF; 1 = event ON)	00.00
302	P5.S6	Program 5 - Set point of the 6th soak	dP	OFF or from SPLL to SPHL	0
303	P5.G6	Program 5 - Gradient of the 6th ramp	1	0.1... 999.9 (E.U./minute)/inF= Step transfer	inF
304	P5.t6	Program 5 - Time of the 6th soak	2	0.00... 99.59 time units	0.10
305	P5.b6	Program 5 - Wait band of the 6th soak	dP	From 0 (oFF) to 9999 (E.U.)	oFF
306	P5.E6	Program 5 - Events of the 6th group	0	00.00... 11.11 (0 = event OFF; 1 = event ON)	00.00
307	P5.c6	Program 5 - Continues on program 6	0	no = Program 5 is ended; YES = Program 5 will continue on program 6.	

Pr6 Group – Parametre der har at gøre med temperaturprogram 6

no.	Param.	Description	Dec. Point	Values	Default
308	P6.F	Program 6 - Action at power up	0	nonE = Programmer not used; S.uP.d = Start at power up with a first step in stand-by; S.uP.S = Start at power up; u.diG = Start at Run command detection only; u.dG.d = Start at Run command with a first step in stand-by.	nonE
309	P6.u	Program 6 - Engineering unit of the soaks	2	hh.nn = Hours and minutes; nn.SS = Minutes and seconds.	hh.nn
310	P6.E	Program 6 - Instrument behaviour at the end of the program execution	0	cnt = Continue; SPAt = Go to the set point selected by A.SP; St.by = Go to stand-by mode.	A.SP
311	P6.nE	Program 6 - Number of executions	0	1... 99 times/inF indefinitely	
312	P6.Et	Program 6 - Time of the end program indication	2	0.00 (oFF)/0.01... 99.59 nn.ss/inF (steady ON)	oFF
313	P6.S1	Program 6 - Set point of the first soak	dP	From SPLL to SPHL	0
314	P6.G1	Program 6 - Gradient of the first ramp	1	0.1... 999.9 (E.U./minute)/inF= Step transfer	inF
315	P6.t1	Program 6 - Time of the 1st soak	2	0.00... 99.59 time units	0.10
316	P6.b1	Program 6 - Wait band of the 1st soak	dP	From 0 (oFF) to 9999 (E.U.)	oFF
317	P6.E1	Program 6 - Events of the 1st group	2	00.00... 11.11 (0 = event OFF; 1 = event ON)	00.00
318	P6.S2	Program 6 - Set point of the 2nd soak	dP	OFF or from SPLL to SPHL	0
319	P6.G2	Program 6 - Gradient of the 2nd ramp	1	0.1... 999.9 (E.U./minute)/inF= Step transfer	inF
320	P6.t2	Program 6 - Time of the 2nd soak	2	0.00... 99.59 time units	0.10
321	P6.b2	Program 6 - Wait band of the 2nd soak	dP	From 0 (oFF) to 9999 (E.U.)	oFF
322	P6.E2	Program 6 - Events of the 2nd group	2	00.00... 11.11 (0 = event OFF; 1 = event ON)	00.00
323	P6.S	Program 6 - Set point of the 3rd soak	dP	OFF or from SPLL to SPHL	0
324	P6.G3	Program 6 - Gradient of the 3rd ramp	1	0.1... 999.9 (E.U./minute)/inF= Step transfer	inF
325	P6.t3	Program 6 - Time of the 3rd soak	2	0.00... 99.59 time units	0.10
326	P6.b3	Program 6 - Wait band of the 3rd soak	dP	From 0 (oFF) to 9999 (E.U.)	oFF
327	P6.E3	Program 6 - Events of the 3rd group	0	00.00... 11.11 (0 = event OFF; 1 = event ON)	00.00
328	P6.S4	Program 6 - Set point of the 4th soak	dP	OFF or from SPLL to SPHL	0
329	P6.G4	Program 6 - Gradient of the 4th ramp	1	0.1... 999.9 (E.U./minute)/inF= Step transfer	inF
330	P6.t4	Program 6 - Time of the 4th soak	2	0.00... 99.59 time units	0.10
331	P6.b4	Program 6 - Wait band of the 4th soak	dP	From 0 (oFF) to 9999 (E.U.)	oFF
332	P6.E4	Program 6 - Events of the 4th group	0	00.00... 11.11 (0 = event OFF; 1 = event ON)	00.00
333	P6.S5	Program 6 - Set point of the 5th soak	dP	OFF or from SPLL to SPHL	0
334	P6.G5	Program 6 - Gradient of the 5th ramp	1	0.1... 999.9 (E.U./minute)/inF= Step transfer	inF

no.	Param.	Description	Dec. Point	Values	Default
335	P6.t5	Program 6 - Time of the 5th soak	2	0.00... 99.59 time units	0.10
336	P6.b5	Program 6 - Wait band of the 5th soak	dP	From 0 (oFF) to 9999 (E.U.)	oFF
337	P6.E5	Program 6 - Events of the 5th group	0	00.00... 11.11 (0 = event OFF; 1 = event ON)	00.00
338	P6.S6	Program 6 - Set point of the 6th soak	dP	OFF or from SPLL to SPHL	0
339	P6.G6	Program 6 - Gradient of the 6th ramp	1	0.1... 999.9 (E.U./minute)/inF= Step transfer	inF
340	P6.t6	Program 6 - Time of the 6th soak	2	0.00... 99.59 time units	0.10
341	P6.b6	Program 6 - Wait band of the 6th soak	dP	From 0 (oFF) to 9999 (E.U.)	oFF
342	P6.E6	Program 6 - Events of the 6th group	0	00.00... 11.11 (0 = event OFF; 1 = event ON)	00.00
343	P6.c3	Program 6 - Continues on program 7	0	no = Program 6 is ended; YES = Program 6 will continue on program 7.	

Pr7 Group – Parametre der har at gøre med temperaturprogram 7

no.	Param.	Description	Dec. Point	Values	Default
344	P7.F	Program 7 - Action at power up	0	nonE = Programmer not used; S.uP.d = Start at power up with a first step in stand-by; S.uP.S = Start at power up; u.diG = Start at Run command detection only; u.dG.d = Start at Run command with a first step in stand-by.	nonE
345	P7.u	Program 7 - Engineering unit of the soaks	2	hh.nn = Hours and minutes; nn.SS = Minutes and seconds.	hh.nn
346	P7.E	Program 7 - Instrument behaviour at the end of the program execution	0	cnt = Continue; SPAt = Go to the set point selected by A.SP; St.by = Go to stand-by mode.	A.SP
347	P7.nE	Program 7 - Number of executions	0	1... 99 times/inF indefinitely	
348	P7.Et	Program 7 - Time of the end program indication	2	0.00 (oFF)/0.01... 99.59 nn.ss/inF (steady ON)	oFF
349	P7.S1	Program 7 - Set point of the first soak	dP	From SPLL to SPHL	0
350	P7.G1	Program 7 - Gradient of the first ramp	1	0.1... 999.9 (E.U./minute)/inF= Step transfer	inF
351	P7.t1	Program 7 - Time of the 1st soak	2	0.00... 99.59 time units	0.10
352	P7.b1	Program 7 - Wait band of the 1st soak	dP	From 0 (oFF) to 9999 (E.U.)	oFF
353	P7.E1	Program 7 - Events of the 1st group	2	00.00... 11.11 (0 = event OFF; 1 = event ON)	00.00
354	P7.S2	Program 7 - Set point of the 2nd soak	dP	OFF or from SPLL to SPHL	0
355	P7.G2	Program 7 - Gradient of the 2nd ramp	1	0.1... 999.9 (E.U./minute)/inF= Step transfer	inF
356	P7.t2	Program 7 - Time of the 2nd soak	2	0.00... 99.59 time units	0.10
357	P7.b2	Program 7 - Wait band of the 2nd soak	dP	From 0 (oFF) to 9999 (E.U.)	oFF
358	P7.E2	Program 7 - Events of the 2nd group	2	00.00... 11.11 (0 = event OFF; 1 = event ON)	00.00
359	P7.S3	Program 7 - Set point of the 3rd soak	dP	OFF or from SPLL to SPHL	0
360	P7.G3	Program 7 - Gradient of the 3rd ramp	1	0.1... 999.9 (E.U./minute)/inF= Step transfer	inF
361	P7.t3	Program 7 - Time of the 3rd soak	2	0.00... 99.59 time units	0.10
362	P7.b3	Program 7 - Wait band of the 3rd soak	dP	From 0 (oFF) to 9999 (E.U.)	oFF
363	P7.E3	Program 7 - Events of the 3rd group	0	00.00... 11.11 (0 = event OFF; 1 = event ON)	00.00
364	P7.S4	Program 7 - Set point of the 4th soak	dP	OFF or from SPLL to SPHL	0
365	P7.G4	Program 7 - Gradient of the 4th ramp	1	0.1... 999.9 (E.U./minute)/inF= Step transfer	inF
366	P7.t4	Program 7 - Time of the 4th soak	2	0.00... 99.59 time units	0.10
367	P7.b4	Program 7 - Wait band of the 4th soak	dP	From 0 (oFF) to 9999 (E.U.)	oFF
368	P7.E4	Program 7 - Events of the 4th group	0	00.00... 11.11 (0 = event OFF; 1 = event ON)	00.00
369	P7.S5	Program 7 - Set point of the 5th soak	dP	OFF or from SPLL to SPHL	0
370	P7.G5	Program 7 - Gradient of the 5th ramp	1	0.1... 999.9 (E.U./minute)/inF= Step transfer	inF
371	P7.t5	Program 7 - Time of the 5th soak	2	0.00... 99.59 time units	0.10
372	P7.b5	Program 7 - Wait band of the 5th soak	dP	From 0 (oFF) to 9999 (E.U.)	oFF
373	P7.E5	Program 7 - Events of the 5th group	0	00.00... 11.11 (0 = event OFF; 1 = event ON)	00.00
374	P7.S6	Program 7 - Set point of the 6th soak	dP	OFF or from SPLL to SPHL	0
345	P7.G6	Program 7 - Gradient of the 6th ramp	1	0.1... 999.9 (E.U./minute)/inF= Step transfer	inF
376	P7.t6	Program 7 - Time of the 6th soak	2	0.00... 99.59 time units	0.10
377	P7.b6	Program 7 - Wait band of the 6th soak	dP	From 0 (oFF) to 9999 (E.U.)	oFF
378	P7.E6	Program 7 - Events of the 6th group	0	00.00... 11.11 (0 = event OFF; 1 = event ON)	00.00
379	P7.c3	Program 7 - Continues on program 8	0	no = Program 7 is ended; YES = Program 7 will continue on program 8.	

Pr8 Group – Parametre der har at gøre med temperaturprogram 8

no.	Param.	Description	Dec. Point	Values	Default
380	P8.F	Program 8 - Action at power up	0	nonE = Programmer not used; S.uP.d = Start at power up with a first step in stand-by; S.uP.S = Start at power up; u.diG = Start at Run command detection only; u.dG.d = Start at Run command with a first step in stand-by.	nonE
381	P8.u	Program 8 - Engineering unit of the soaks	2	hh.nn = Hours and minutes; nn.SS = Minutes and seconds.	hh.nn
382	P8.E	Program 8 - Instrument behaviour at the end of the program execution	0	cnt = Continue; SPAt = Go to the set point selected by A.SP; St.by = Go to stand-by mode.	A.SP
383	P8.nE	Program 8 - Number of executions	0	1... 99 times/inF indefinitely	
384	P8.Et	Program 8 - Time of the end program indication	2	0.00 (oFF)/0.01... 99.59 nn.ss/inF (steady ON)	oFF
385	P8.S1	Program 8 - Set point of the first soak	dP	From SPLL to SPHL	0
386	P8.G1	Program 8 - Gradient of the first ramp	1	0.1... 999.9 (E.U./minute)/inF= Step transfer	inF
387	P8.t1	Program 8 - Time of the 1st soak	2	0.00... 99.59 time units	0.10
388	P8.b1	Program 8 - Wait band of the 1st soak	dP	From 0 (oFF) to 9999 (E.U.)	oFF
389	P8.E1	Program 8 - Events of the 1st group	2	00.00... 11.11 (0 = event OFF; 1 = event ON)	00.00
390	P8.S2	Program 8 - Set point of the 2nd soak	dP	OFF or from SPLL to SPHL	0
391	P8.G2	Program 8 - Gradient of the 2nd ramp	1	0.1... 999.9 (E.U./minute)/inF= Step transfer	inF
392	P8.t2	Program 8 - Time of the 2nd soak	2	0.00... 99.59 time units	0.10
393	P8.b2	Program 8 - Wait band of the 2nd soak	dP	From 0 (oFF) to 9999 (E.U.)	oFF
394	P8.E2	Program 8 - Events of the 2nd group	2	00.00... 11.11 (0 = event OFF; 1 = event ON)	00.00
395	P8.S3	Program 8 - Set point of the 3rd soak	dP	OFF or from SPLL to SPHL	0
396	P8.G3	Program 8 - Gradient of the 3rd ramp	1	0.1... 999.9 (E.U./minute)/inF= Step transfer	inF
397	P8.t3	Program 8 - Time of the 3rd soak	2	0.00... 99.59 time units	0.10
398	P8.b3	Program 8 - Wait band of the 3rd soak	dP	From 0 (oFF) to 9999 (E.U.)	oFF
399	P8.E3	Program 8 - Events of the 3rd group	0	00.00... 11.11 (0 = event OFF; 1 = event ON)	00.00
400	P8.S4	Program 8 - Set point of the 4th soak	dP	OFF or from SPLL to SPHL	0
401	P8.G4	Program 8 - Gradient of the 4th ramp	1	0.1... 999.9 (E.U./minute)/inF= Step transfer	inF
402	P8.t4	Program 8 - Time of the 4th soak	2	0.00... 99.59 time units	0.10
403	P8.b4	Program 8 - Wait band of the 4th soak	dP	From 0 (oFF) to 9999 (E.U.)	oFF
404	P8.E4	Program 8 - Events of the 4th group	0	00.00... 11.11 (0 = event OFF; 1 = event ON)	00.00
405	P8.S5	Program 8 - Set point of the 5th soak	dP	OFF or from SPLL to SPHL	0
406	P8.G5	Program 8 - Gradient of the 5th ramp	1	0.1... 999.9 (E.U./minute)/inF= Step transfer	inF
407	P8.t5	Program 8 - Time of the 5th soak	2	0.00... 99.59 time units	0.10
408	P8.b5	Program 8 - Wait band of the 5th soak	dP	From 0 (oFF) to 9999 (E.U.)	oFF
409	P8.E5	Program 8 - Events of the 5th group	0	00.00... 11.11 (0 = event OFF; 1 = event ON)	00.00
410	P8.S6	Program 8 - Set point of the 6th soak	dP	OFF or from SPLL to SPHL	0
411	P8.G6	Program 8 - Gradient of the 6th ramp	1	0.1... 999.9 (E.U./minute)/inF= Step transfer	inF
412	P8.t6	Program 8 - Time of the 6th soak	2	0.00... 99.59 time units	0.10
413	P8.b6	Program 8 - Wait band of the 6th soak	dP	From 0 (oFF) to 9999 (E.U.)	oFF
414	P8.E6	Program 8 - Events of the 6th group	0	00.00... 11.11 (0 = event OFF; 1 = event ON)	00.00