

7. Commands overview

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Allocation of functions

- All devices
 - ° Only V5 devices
 - ^G Only devices with graphics display 2590-x, 2690, 2890, 5690-2, 5990-2
 - * Only V6 devices
 - ^{*G} Only V6 devices with graphics display 2690, 2890, 5690-2
 - ^{*3} Only V6 devices 2390-5/8
 - ^{**} Only higher V6 devices 2690, 2890, 5690, 8590
 - ^{*K} Only V6 devices with KL option

7. Commands overview

7.1 Measured value processing

Function	Command, ►: Response	Printout
Select measuring point xx (including input channel)	Mxx	
Select input channel xx only	Exx	
Output measured value for measuring channel (without rescanning)	p ►01: +0023.5 °C	
Output measured value for input channel (without rescanning)	P01 ►12:34:00 01: +0023.5 °C	
⁶ Output measured value for input channel (without time, with designation)	P35 ►01: +0023.5 °C Temperature	
Set measured value to zero (base value)	C01	
Sensor adjustment (zero-point and gain)	f1 C01	
** Zero-set timer 3 (1 s)	f3 C01	
** Zero-set timer 4 (0.1 s)	f4 C01	
** Calibration switch ON / (OFF)	o(-)01	
** Enter setpoint	f2 gxxxxx	
** Adjust setpoint	f2 C01	
** Output setpoint	P45 ►SETPOINT: 01: 1100.0°C	
* Enter temperature compensation in 0.1 °C	f1 gxxxxx	
** Define temperature sensor for TC	f2 \$*T .. CR	
* Output temperature compensation	P44 ►COMPENSATION 01: 25.0°C	
Enter atmospheric pressure in mbar for pressure compensation	g0xxxxx	
Define atmospheric pressure sensor as reference	f2 \$*P .. CR	
⁶ Output atmospheric pressure	P43 ►ATM. PRESSURE: +01013.mb	
Define temperature sensor as reference for cold junction compensation	f2 \$*J .. CR	
Peak values		
Delete maximum value	C02	
Output maximum value	P02 ►MAX. VALUE: 01: +0020.0 °C	
** Output maximum time	P28 ►MAX. TIME: 01: 12:32 01.02	
Delete minimum value	C03	
Output minimum value	P03 ►MIN. VALUE: 01: -0010.0 °C	
** Output minimum time	P29 ►MIN. TIME: 01: 12:32 01.02	
Averaging		s. P15 MITTEL
Cancel the averaging mode	m0	- - -
Averaging mode, continuous	m1	CONT
Averaging mode, cyclic	m2	CYCL

^G Output averaging mode

P21

►AVERAGE MODE: 01: CONT

^G Output number of values averaged

P22

►AVERAGE NO.:01: 00178.

Delete the average value

C14

Output the average value

P14

►AVERAGE VAL.: 01: +0017.8 °C

* Smoothing (number of values averaged xx)

f1

zxx s. f3 P15: DG

* Output smoothing

P32

►SMOOTHING: 01: 10

Volume flow measuring

* Enter cross-section in cm² for volume in question

Qxxxxx

s. f3 P15: CROSS-SEC

* Output cross-section

P26

►CROSS-SECTION: 01: 00078 cm2

* Output diameter

P25

►DIAMETER: 01: 00100 mm

^G Output volume flow

P27

►VOLUME FLOW: 01: 00000 m3/h

7.2 Measuring point scans, record and output measured data

7.2.1 Process control

Enter the **time-of-day**

Uhhmss

Delete the time-of-day

C10

Output the time-of-day

P10

►TIME: 12:34:00

Enter the **date**

dddmmyy

Delete the date

C13

Output the date

P13

►DATE: 12:03:06

Enter the **start time** for the measuring operation

f1 Uhhmss

Delete the start time

f1 C10

Output the start time

f1 P10

►START TIME: 12:00:00

Enter the **end time** for the measuring operation

f2 Uhhmss

Delete the end time

f2 C10

Output the end time

f2 P10

►END TIME: 18:00:00

Enter the **start date** for the measuring operation

f1 dddmmyy

Delete the start date

f1 C13

Output the start date

f1 P13

►START DATE:12.03.06

Enter the **end date** for the measuring operation

f2 dddmmyy

Delete the end date

f2 C13

Output the end date

f2 P13

►END DATE: 12.03.06

* Enter the **measuring duration**

f2 Ihmmss

** Output the measuring duration

P47

►DURATION: 06:30:00

** Output the **measuring time** P46
 ►MEAS. TIME: 03:12:45.67
 Zhhmmss

* Enter the **cycle** / °print cycle

** Saving per cycle ON / (OFF) f1 A(-)4
 Delete the cycle C11
 Output the cycle P11
 Memory, format, scan mode (see below) ►PRINT CYCLE: 00:01:30 Sn s
 Cycle timer f1 P11
 ►PRINTIMER: 00:01:23
 Ihmmss
 I+hhmmss
 I-hhmmss

* Enter the **cycle** / °measuring cycle
 With saving to memory
 Without saving to memory
 ° Output the measuring cycle P12
 ►MEAS. CYCLE: 00:00:30
 ° Output the measuring timer f1 P12
 ►MEAS. TIMER: 00:00:23

Measuring rate and mode

Measuring rate, 2.5 mops, semi-continuous f5 k0 s. P15 W003
 Measuring rate, 10 mops, semi-continuous f5 k1 W010
 ** Measuring rate, 50 mops, semi-continuous f5 k7 W050
 ** Measuring rate, 100 mops, semi-continuous f5 k8 W100
 Continuous scanning ON / (OFF) f5 k(-)2 C
 Continuous saving ON / (OFF) f5 k(-)4 S
 Continuous output ON / (OFF) f5 k(-)5 U
 Output more frequently than measuring rate ON / (OFF) f6 k(-)5

Scanning mode

** Sleep mode ON / (OFF) o(-)11 s. P13 S
 ** Monitor mode ON / (OFF) f1 A(-)1 M
 ** Fail-safe mode ON / (OFF) f2 A(-)1 F

Output format ON / (OFF)

Measured values in list format (one below the other) N0 s. P15 -
 Measured values in column format (one beside the other) N1 n
 Measured values in table format N2 t
 Enter and activate number (e.g. 123001) n123002
 Same - but enter letter characters (-, ,A,F,N,P) f3 \$A1-N02
 Output number P05
 ►NUMBER: A1-N02
 P23
 ►NUMBER: 01-012

° Output number

** Enter the file name (maximum 8 characters) \$Name CR

Stop cyclic scan X
Output measured values P18
 (without rescanning)

► CH MEAS-VAL MAX-VAL MIN-VAL AVERAG-VAL COUNT
 01:+0023.0 +0025.0 +0019.0 +0022.0 99999

****Extended measured values** f1 P18

► CH MEAS-VAL MAX-VAL MIN-VAL AVERAG-VAL COUNT MAX-TIME MIN-TIME
 01:+0023.0 +0025.0 +0019.0 +0022.0 99999. 12:32 01.02 12:32 01.02

7.3 Outputs from measured value memory

Output memory capacity	f1 P04
(S = total ; F = free)	► MEMORY: S0500.3 F0312.4
^G Output the function - free memory	P33
	► MEMORY: S0512.1 F0324.4
** Output the version of MMC connector	f4 t0
	► MMC1.04
Output the table header	f2 P04 (s. output memory in table format)
Clear the memory, format the MMC	C04
Clear the memory and delete all measured data	f1 C04
Define the start and end of memory output	
Enter the start time	f3 Uhhmmss
Delete the start time	f3 C10
Output the start time	f3 P10
	► START TIME: 14:00:00
Enter the end time	f4 Uhhmmss
Delete the end time	f4 C10
Output the end time	f4 P10
	► END TIME: 16:00:00
Enter the start date	f3 dddmmyy
Delete the start date	f3 C13
Output the start date	f3 P13
	► START DATE: 12.03.06
Enter the end date	f4 dddmmyy
Delete the end date	f4 C13
Output the end date	f4 P13
	► END DATE: 12.03.06
Output excerpt start to end	f3 P04
Output the total memory	P04
Selectively output memory area identified by number coding	
Enter and activate number (e.g. 123001)	n123002
Same - but enter letter characters (-, ,A,F,N,P)	f3 \$A1-N02
Check whether the number exists in the memory	t4
	► OK or ERROR
After activation output the memory accordingly	P04

Output the numbers list

f1 P05
 ► NUMBER:
 11-001
 11-002
 A1-N02

Answer in list format / column format

► MEMORY:
 NUMBER: 12-001 if programmed
 DATE: 12:03:06
 12:00:00 01: +0012.0 °C 02: +0009.9 °C
 12:01:30 01: +0012.5 °C 02: +0010.7 °C

Answer in table format

► MEMORY:
 "NUMBER:";"12-001" if programmed
 "ALMEMO";"RANGE:";"NiCr";"NiCr";;;;;;;;;
 "8590-9";"COMMENT:";"Designation";"Water";;;;;;;;;
 "MMC1.04";"LIM-MAX:";123.4;;;;;;;;
 "ALMEMO.001";"LIM-MIN:";12;;;;;;;;
 "DATE";"TIME";"M01: °C";"M02: °C";;
 "12.03.06";"12:00:00";12,;9,9
 "12.03.06";"12:01:30";12,5;10,7

° Cancel the memory output X

** Output all data in the memory

Memory capacity, internal (R = ring memory)	f4 P19
Memory capacity, external	► SI:0512.4k R
Memory available	SE:256.00M
Remaining memory time dddd.hh:mm	SF:0324.5k
Start time for memory output	SZ:0001.18:20
Start date for memory output	U3:07:00:00
End time for memory output	D3:01.02.06
End date for memory output	U4:17:00:00
File name of new file	D4:02.02.06
File name of current file in the memory	DT:FILE NEW.001
	FI: ALMEMO.001

7.4 Sensor programming

Select the input channel Exx

Reference channel 1 b1, absolute

Reference channel 1 b1, relative

Reference channel 2 b2, absolute

Reference channel 2 b2, relative

Command

Printout

Exx

f1 Eb1

f1 E-b1

f2 Eb2

f2 E-b2

B1: b1

-b1

MX: b2

-b2

7.4.1 Measuring ranges

Abbreviation

Pt100-1, 4 liters	-200..850.0 °C	B01	P104
Pt100-2, 4 liters	-200..400.00 °C	B03	P204
** Pt100-3, 4 liters	0..65.000 °C	B00	P304
Ni100, 4 liters	-60.. 240.0 °C	B63	N104
NTC type N	-50..125.00 °C	B09	Ntc
NiCr-Ni (K) with CJC	-200..1370.0 °C	B04	NiCr
NiCrSiI-NiSiI (N) with CJC	-200..1300.0 °C	B34	NiSi
Fe-CuNi (L) with CJC	-200.. 900.0 °C	B05	FeCo
Fe-CuNi (J) with CJC	-200..1000.0 °C	B35	IrCo
Cu-CuNi (U) with CJC	-200.. 600.0 °C	B06	CuCo
Cu-CuNi (T) with CJC	-200.. 400.0 °C	B36	CoCo
PtRh10-Pt (S) with CJC	0..1760.0 °C	B07	Pt10
PtRh13-Pt (R) with CJC	0..1760.0 °C	B37	Pt13
PtRh30-PtRh6 (B) with CJC	+400..1800.0 °C	B08	E118
AuFe-Cr with CJC	-270... 60.0 °C	B38	AuFe
Millivolt	-10..55.000 mV	B10	mV
Millivolt 1	-26..26.000 mV	B27	mV 1
Millivolt 2	-260..260.00 mV	B28	mV 2
Volts	-2.6..2.6000 V	B11	VolT
Difference - millivolt	-10..55.000 mV	B50	D 55
Difference - millivolt 1	-26..26.000 mV	B51	D 26
Difference - millivolt 2	-260..260.00 mV	B52	D260
Difference - volt	-2.6..2.6000 V	B53	D2.6
Milliampere	-32..32.000 mA	B12	mA
Percent	4-20.000 mA	B13	%
Battery	0..25.000 V	B14	Batt
Ohms	0..500.00 Ω	B15	Ohm
Frequency	0..25000	B29	Freq
Pulses per cycle	0..65000	B54	PuTs
Digital	-65000..+65000	B55	DIGI
Rotating vane, normal	0.3..20.00 m/s	B30	S120
Rotating vane, normal	0.4..40.00 m/s	B31	S140
Rotating vane, micro	0.5..20.00 m/s	B32	S220
Rotating vane, micro	0.6..40.00 m/s	B33	S240
Rotating vane, macro	0.1..20.00 m/s	B24	L420
Water turbine, micro	0...5.00 m/s	B25	L605
Dynamic pressure with TC	0.5..40.00 m/s	B40	L840
Dynamic pressure with TC	0..90.00 m/s	B41	L890

Measuring range

		Command	Abbreviation
Relative humidity, capacitive	0..100.0 %	B16	% rH
Relative humidity, capacitive, with TC	0..100.0 %	B42	HcrH
Relative humidity, capacitive, with TC	0..100.0 %	B56	H rH
Absolute humidity, capacitive, with PC	0..500.0 g/kg	B43	H AH
Dew point, capacitive	-25..100.0 °C	B44	H DT
Vapor pressure, capacitive	0..1050 mbar	B59	H VP
Enthalpy, capacitive, with PC	0..400.0 kJ/kg	B58	H En
Humid temperature	-50..100.00 °C	B45	P HT
Relative humidity, psychrometric, with PC	0..100.0 %	B46	P RH
Absolute humidity, psychrometric, with PC	0..500.0 g/kg	B47	P AH
Dew point, psychrometric, with PC	-25..100.0 °C	B48	P DT
Vapor pressure, psychrometric, with PC	0..1050 mbar	B49	P VP
Enthalpy, psychrometric, with PC	0..400.0 kJ/kg	B57	P En
pH probe with TC (Units = pH/PH)	0..14.00 pH	B53	D2.6
Conductivity, with TC	0..20.00 mS	B60	LF
CO ₂ concentration	0..25.00 %	B64	CO2
O ₂ saturation, with TC and PC	0..260 %	B65	O2-S
O ₂ concentration, with TC	0..40.0 mg/l	B66	O2-C
Digital input	0..100.00 %	B70	Inp

Function channels

Difference (b1 - b2)		B71	Diff
Maximum value (b1)		B72	Max
Minimum value (b1)		B73	Min
Average value over time \bar{M} (b1)		B74	M(t)
Average value over meas. points \bar{M} (b2 to b1)		B75	M(n)
Total from measuring points (b2 to b1)		B76	S(n)
Total number of pulses (b1)	0..65000	B77	S(t)
Number of pulses / print cycle (b1)	0..65000	B78	S(P)
Thermal coefficient = \bar{M} (b1) / \bar{M} (b2)	650.00 W/m ² K	B79	q/dt
WBGT = 0.1M (b2) + 0.7M (b2+10) + 0.2M (b1)	-200..400.00 °C	B02	WBGT
Alarm value (b1)	0..100.00 %	B80	Alrm
Measured value (b1)		B81	Mess
Cold junction temperature	-30..100.0 °C	B82	CJ
Number of values averaged (b1)	0..65000	B83	n(t)
Volume flow m ³ /h = M(b1)*CS	m ³ /h	B84	Flow
Timer	0..65000 s	B85	Time
Timer with exponential -1	0..6500.0 s	B85	Time

CJC = Cold junction compensation; TC = Temperature compensation; PC = Atmospheric pressure compensation

Function

	Command
Deactivate programmed measuring point	C00
** Reactivate programmed measuring point	o00

Function	Command	Printout
°Output the range	P24	
	►RANGE: 01: NiCr	
Change units 'xy'	f1 \$xy CR	s. P15: D
Measuring point designation 'Name' (10 char.)	f2 \$NameCR	s. P15: COMMENT
7.4.2 Measured value scaling and correction		
Enter the base value	0(-)xxxxx	s. P15: BASE VAL
Delete the base value	C06	
Output the base value	P06	
	►BASE VALUE: 01: -0273.0 °C	
Enter the factor	Fxxxxx	s. P15: FACTOR
Delete the factor	C07	
Enter the exponential	Vx	
Delete the exponential	V0	
Output the factor and exponential	P07	
	►FACTOR: 01: +1.0350E-1	
Enter the zero-point correction	f1 Fxxxxx	s. f1 P15: ZEROPKT
Delete the zero-point correction	f1 C06	
Output the zero-point correction	f1 P06	
	►ZEROPPOINT: 01: -0000.7 °C	
Enter the gain correction	f1 Fxxxxx	s. f1 P15: GAIN
Delete the gain correction	f1 C07	
Output the gain correction	f1 P07	
	►GAIN: 01: +1.0013	

7.4.3 Limit values

Enter the maximum limit value	H(-)xxxxx	
Delete the maximum limit value	C08	
Output the maximum limit value	P08	
	►Limit MAX: 01: 0100.0 °C	
Action on reaching max. limit value - alarm only	h0	AH: --
Action - start measuring point scan	h1	S-
Action - stop measuring point scan	h2	E-
** Action - measuring point scan, manual	h3	M-
** Action - zero-set the timer	h4	T-
** Action - execute macro 5 to 9	h5..h9	5-
Action - drive alarm relay x, A2	f1 hx	-x
** Action - alarm relay port pp ON / (OFF)	f2 R(-)pp	s. f3 P15: RH: pp
Enter the minimum limit value	L(-)xxxxx	
Delete the minimum limit value	C09	
Output the minimum limit value	P09	
	►Limit MIN: 01: -0020.0 °C	
Action on reaching min. limit value - alarm only	10	s. f1 P15: AL: --
Action - start measuring point scan	11	S-
Action - stop measuring point scan	12	E-
** Action - measuring point scan, manual	13	M-
** Action - zero-set the timer	14	T-

Function	Command	Printout
** Action - execute macro 5 to 9	15..19	5-
Action - drive alarm relay x, A2	f1 lxx	-x
** Action - alarm relay port pp ON / (OFF)	f3 R(-)pp s. f3 P15:	RL: pp

7.4.4 Special functions

Sensor locking - none	f1 k0 s. f1 P15:	VM: 0
Measuring range, element flags	f1 k1	1
Measuring range, zero-point, gain	f1 k2	2
Measuring range, units	f1 k3	3
plus zero-point, gain	f1 k4	4
plus base value, factor, exponential	f1 k5	5
plus analog output, start / end	f1 k6	6
plus limit values	f1 k7	7
Apply definitive sensor lock	f8 kx	x.
* Cancel definitive sensor lock	f-8 kx	
Output lock (see f1 P15)	f1 P00	
	► LOCK:5	
	P42	
	► LOCK:5	
Enter the start of analog output	a(-)xxxxx s. f1 P15:	ANA-ANF
Delete the start of analog output	C16	
Output the start of analog output	P16	
	► ANALOG START:01: -0010.0 °C	
Enter the end of analog output	e(-)xxxxx s. f1 P15:	ANA-END
Enter the end of analog output (4 to 20 mA)	f1 e(-)xxxxx	
Delete the end of analog output	C17	
Output the end of analog output	P17	
	► ANALOG END: 01: +0040.0 °C	
Print cycle factor	zxx s. f1 P15:	ZF
Minimum sensor supply voltage	uxxx s. f1 P15:	UMIN
** Output serial number of sensor	f3 t0	
	► jjmm1234	
** Enter calibration cycle for sensor ?? (Mon.)	f9 zmm (only option KL)	
** Enter next calibration date	f9 dddmmyy	
** Output next calibration date	f9 P13	
	► KF:02.02.06 12	

Function	Command	Printout
Change multiplexer, connections for range Bxx	f1 Bxx	MX: M1
	f2 Bxx	s.f1 P15 M2
	f3 Bxx	M3
Difference	f4 Bxx	M4
	f5 Bxx	M5
Output function	Measured value f1 m0	FUNC:Meas
	Difference f1 m1	Diff
	Maximum value f1 m2	Max
	Minimum value f1 m3	Min
	Average value f1 m4	M(t)
	Alarm value f1 m5	Alrm

Special functions

Set element flags	Meas. current 1/10	f2	k(-)1	EF:	01
Emission and background temperature	Infra-red	f2	k(-)2		02
Activate jumper switch	Jumper	f2	k(-)3		04
** DIGI - cyclic scan only	DIGI cyclic	f2	k(-)4		08
** To deactivate electrical isolation	Iso OFF	f2	k(-)5		10
Without sensor breakage detection	Sensor breakage	f2	k(-)7		40
Analog output, 0/4 to 20 mA	4 to 20 mA	f2	k(-)8		80
Re-import sensor programming			t5		

Output standard programming

All active channels with cycles, memory, measuring rate P15

```

► AMR ALMEMO 8590-9
  CH RANGE LIM-MAX LIM-MIN BASE VAL D FACTOR EXP AVERAG. COMMENT
  01:NiCr +0123.4 -0012.0 +0000.0°C 1.0000 E+0 - - - Temperature
  MEAS CYCLE: 00:00:00 - S0500.3 F0312.4 ARS W010 C-SU
  PRINT CYCLE: 00:01:30 Sn 9600 bd
  TIME START: 07:00:00 (if programmed)
  TIME END: 19:00:00

```

Input channel only P00

```

► 01:NiCr +0123.4 -0012.0 +0000.0°C 1.0000 E+0 - - - Temperature

```

Extended sensor programming f1 P15

```

► AMR ALMEMO 8590-9
  CH ZERO PT GAIN CJ K FUNC EOFSET EFAKT ANA-START ANA-END B1 MX EF AH AL ZF UMIN
  01:+0000.0 +1.0000 5. 1 MESS +00000 32000 +0000.0 +1000.0-01 M1 -- S- E2 05 12.0

```

Full standard programming

All active channels, cycles, memory, meas. rate f2 P15

```

► AMR ALMEMO 8590-9
  H RANGE LIM-MAX... VM K FUNC EOFSET EFAKT ANA-ST ANA-END B1 MX EF AH AL ZF UMIN
  01:NiCr +0123.4... 5. 1 MESS +00000 32000 +0000.0 +1000.0-01 M1 -- S- E2 05 12.0
  MEAS CYCLE: 00:00:30 S S0500.3 F0312.4 A W010C-SU
  PRINT CYCLE: 00:10:00 U 9600 bd

```

Input channel only f2 P00

```

► 01:NiCr +0123.4... 5. 1 MEAS +00000 32000 +0000.0 +1000.0-01 M1 -- S- E2 05 12.0

```

**New sensor reprogramming f3 P15

```

► CH RANGE LIM-MAX LIM-MIN BASE VAL D FACTOR EXP AVERAG COMMENT DG CROSS-SEC RH RL
  01:NiCr +0123.4 -0012.0 +0000.0°C 1.0000 E+0 - - - Temperature 05 01234. 21 22

```

Input channel only f3 P00

```

► 01:NiCr +0123.4 -0012.0 +0000.0°C 1.0000 E+0 - - - Temperature 05 01234. 21 22

```

**Connector programming f4 P15

```

► ST SENSOR SERIAL-NO KAL-DAT. ZY
  01:FHA6461..... 12345678 01.10.06 12 (option KL only)

```

Input channel only f4 P00

```

► 01:FHA6461..... 12345678 01.10.06 12 (option KL only)

```

7.5 Device programming

Select device / module, output measured values
 Select device / module, output measured values
 Software reset, re-initialize RAM and ports
 Enter additional designation (maximum 40 characters)
 Output device designation

Output device type and version

** Scan available functions

Memory, connector / MMC, start and end, ring memory

Sleep, CRC, KL, P15, P18, P19 (command number) | version

** For systems with all modules

Output type (MF,MU,KS,TH), version, address

** Output serial number of device

**K Enter next calibration date

**K Output next calibration date

A = Registration activated

Enter hysteresis for alarm processing

** Enter language (DE=0, EN=1, FR=2, X=3)

Modify baud rate (6=9.6, 7=57.6, 8=115.2 kilobaud)

Operating parameters

60 Hz hum suppression

At start delete max. value, min. value, average value

Ring memory

° Date (year number, 4-digit)

* Allow oversampling of data output

Switch the signal transmitter OFF

*3 Switch automatic function activation OFF

** Enter macros 5 to 9 (maximum 30 characters)

** Output macros 5 to 9

Output module, variant x

Relay driving x ON / (OFF)

Program analog value output ?? of A2

Analog value output from measuring channel

Reference channel, absolute, for analog output 1

* Reference channel, absolute, for analog output 2

** Set V6 peripheral port pp (A1=1p, A2=2p)

** Relay port pp ON / (OFF)

** Set variant x of port address pp

** Trigger function of port p8, macro 5 to 9

** Select analog type of pp, 1 = 10 V, 2 = 20 mA

** Program analog value output of pp

** Reference channel of port pp (analog output)

Command	Printout
	Gxx after scan
f1	Gxx without scan
	C19
f4	\$ Device Designation CR
f1	t0 oder °P36
	► Device Designation
	t0
	►A8590-9 6.xx
	t6
	►S-ARLCK524 2
f5	t0
	►A5690-SL MF 1.10 Adr: 02
	A5690-SL MU 1.06 Adr: 04
f2	t0
	►Hjimm1234
f8	ddmmyy (Option KL only)
f8	P13
	►KG:02.02.06 -/A
	Yxx
	kx
f1	bx
	CONFIG:
f6	k(-)1 F
f6	k(-)2 C
f6	k(-)3 R
f6	k(-)4 D
f6	k(-)5 A
f6	k(-)6 S
f8	k(-)8 8
f-5...	\$bxx bxcr
f-5...	P20
-9	►bxx bx
f9	kx
	R(-)0x
f9	a(-)xxxxx
f9	E-00
f9	Exx
f8	Exx
	ipp
f1	R(-)pp
f9	kx
f9	k-5. .k-9
f9	Ax
f9	a(-)xxxxx
f9	Exx

Program the simulator

Program port 01, range V	i01 B11
Program port 01, range mV	i01 B10
Program port 01, range TC, type K	i01 B04
Program port 01, range TC, type N	i01 B34
Program port 01, range TC, type J	i01 B35
Program port 01, range TC, type T	i01 B36
Program port 01, range TC, type S	i01 B07
Program port 01, range TC, type R	i01 B37
Program port 01, range TC, type B	i01 B08
Program port 03, range 4000 Hz	i03 B29
Program port 03, range 10 kHz	i03 f1 B29
Program port 03, range 40 kHz	i03 f2 B29
Program port 03, range 100 kHz	i03 f3 B29
Program port 03, range 99 ms	i03 B54
Program port 03, range 99 s	i03 f1 B54
Program value of simulator port pp in digits	ipp f9 ayyyyy f3 P19

Output programming and status

Pxx	Interface element	Variant	Value	P0.KA7531
00	Pt100 output	controlled	300.0°C	00:T00 COM +0300.0°C
01	Analog output 10V	controlled	10.00 V	01:DA1 COM +10.000 V
01	Analog output 60mV	controlled	60.00mV	01:DA7 COM +60.000mV
01	Analog output TC TypK	controlled	1370.0°C	01:TC0 COM +1370.0°C
01	Analog output TC TypN	controlled	1300.0°C	01:TC1 COM +1300.0°C
01	Analog output TC TypJ	controlled	1000.0°C	01:TC2 COM +1000.0°C
01	Analog output TC TypT	controlled	400.0°C	01:TC3 COM +0400.0°C
01	Analog output TC TypS	controlled	1760.0°C	01:TC4 COM +1760.0°C
01	Analog output TC TypR	controlled	1760.0°C	01:TC5 COM +1760.0°C
01	Analog output TC TypB	controlled	1800.0°C	01:TC6 COM +1800.0°C
02	Analog output 20mA	controlled	20.000mA	02:DA2 COM +20.000mA
03	Frequency output 0.4kHz	controlled	4000.Hz	03:F00 COM +04000.Hz
03	Frequency output 10kHz	controlled	10.00kHz	03:F01 COM +010.00kH
03	Frequency output 40kHz	controlled	40.0kHz	03:F02 COM +0040.0kH
03	Frequency output 100kHz	controlled	100.kHz	03:F02 COM +00100.kH
03	Pulse output 99ms	controlled	99.999ms	03:P00 COM +99.999ms
03	Pulse output 99 s	controlled	99.999 s	03:P01 COM +99.999 s
04	Continuity voltage		1000.mV	04:INO +01000.mV

**Output all fixed device parameters

Device designation	f1 P19
Version, options	►GB:ALMEMO 2690-8
Serial number	VO.2690-8 RKL
Baud rate	SN.H12345678
Device Address, total measuring points, active	BR:57.6k
System Modules (/=MF !=MU-old .=MU-new ;=KS ,=TH)	GE.G00 M040 A008
Hysteresis	G00 M100 A068 40/10!20.30:10,
Configuration 60 Hz, CrMv, Ring mem., sampling, signal OFF	HY:10
Setpoint	KF:FCR-AS-- -----
Conversion rate Cont, -, memory, V24	SW:+1100.0°C
	WR:010C-SU

Number	NR:123456
Print cycle Sleep / Monitor / Fail-safe	Z1:00:10:00 Sn -/s/M/F
Measuring cycle	Z2:00:00:00
Start time	U1:07:00:00
Start date	D1:01.02.06
End time	U2:17:00:00
End date	D2:02.02.06
Measuring duration	MD:00:10:00
Device locking	GV:M0F0
Next calibration	KG:01.10.06 -/!
Date, alarm	
Language	SP:E
Display Contrast, illumination level, illumination duration	DI:G2 050 2 1

**Output all device variables

Temperature used for compensation	►TK:+ 25.0°C
Atmospheric pressure used for compensation	LD:+01013.mb
Temperature used for cold junction compensation	CJ.+0023.5 °C
Time-of-day	UZ:12:34:00
Date	DA:01.02.06
Print timer	T1.00:01:23
Measuring timer	T2.00:00:00
Measuring time	MZ.00:00:00.00
Timer 3	T3. 65000. s
Timer 4	T4. 6500.0 s
U battery	UB. 3.9 V
U setpoint	US: 12.0 V
U sensor	UF.! 12.5 V
Number of rechargeable batteries	AZ.3
Rechargeable battery capacity	AK:1600mAh
Charging mode	LM.L1
Charging current	LS.0500mA
Charging time	LZ.2.50 h

f2 P19

**Output of output modules

DC socket Mains adapter
Voltage 12 V, maximum admissible current

Socket P0 Internal relays (option)
Normally open, 0.5 A Variant 0 Inverted active Open
Normally open, 0.5 A Variant 8 Active Closed

Socket A1 RS232 data cable

Socket A2 Relay trigger adapter, analog, V5
Trigger start / stop Relay, variant 2

Socket A3 Memory card

Socket A4 Relay trigger adapter, analog, V6
Normally open, 0.5 A Variant 0 Passive Open
Normally closed, 0.5 A Variant 8 Inverted active Open
Changeover, 2 A Variant 2 Active Closed

f3 P19

►DC.ZA1012NA4
12V 0500mA

P0.0A2490Rxx
00:N00-0 1 0
01:N00 8 1 C
A1.ZA1909DK5
DK0

A2.ZA8000RTA
EA2

A3.ZA1904MMC
A4.ZA8006RTA3
20:N00 0 0 0
21:NC0-8 1 0
22:C02 2 0 C

Analog output, ext., 10 V Variant 2 Ref. chan.M01
 Analog output, ext., 20 mA Variant 8 Controlled
 Trigger Variant 0
Socket A5 Relay trigger cable, V6
 Normally open, 0.5 A Variant 2 Active
 Normally closed, 0.5 A Variant 2 Inverted active Open
 Analog output, ext., 10 V Variant 2 Ref. channel M01
 Trigger Variant 1 Manual
 Bus B6 to B9

A05 2 B01 +08.234 V
 A06 8 COM +12.345mA
 28:TR0 0
 A5.ZA1006EAK
 50:N00 2 1 C
 51:NC0-2 1 0
 A05 2 B01 +08.234 V
 58:TR0 1
 B6.ES8006RTA5
 60:..69:
 xx: function is programmable,
 xx: function is fixed or meas. value

7.6 Menu configuration

- Ⓔ Enter designation text 1 (maximum 21 characters)
- Ⓔ Enter designation text 2 (maximum 21 characters)
- Ⓔ Enter menu title U1 (maximum 16 characters)
- Ⓔ Enter menu title U2 (maximum 16 characters)
- Ⓔ Enter menu title U3 (maximum 16 characters)
- Ⓔ Output designation text 1
- Ⓔ Output designation text 2
- Ⓔ Output menu title U1
- Ⓔ Output menu title U2
- Ⓔ Output menu title U3
- Ⓔ Output empty line
- Ⓔ Output line
- Ⓔ **Select menu line xx**

f5 \$Designation1 CR
 f6 \$Designation2 CR
 f7 \$Menu title U1 CR
 f8 \$Menu title U2 CR
 f9 \$Menu title U3 CR
 P37
 ► Designation text 1
 P38
 ► Designation text 2
 P39
 ► Menu title U1
 P40
 ► Menu title U2
 P41
 ► Menu title U3
 P30
 ►
 P31
 ►-----

ixx

Select menu and function

- Ⓔ Limit value, maximum
- Ⓔ Limit value, minimum
- Ⓔ Base value
- Ⓔ Factor
- *Ⓔ Exponential
- Ⓔ Zero-point correction
- Ⓔ Gain correction
- Ⓔ Analog start
- Ⓔ Analog end
- Ⓔ Range
- Ⓔ Maximum value
- Ⓔ Minimum value
- Ⓔ Average value

Menu U1	Menu U2	Menu U3
f1 o00	f2 o00	f3 o00
f1 o01	f2 o01	f3 o01
f1 o02	f2 o02	f3 o02
f1 o03	f2 o03	f3 o03
f1 o48	f2 o48	f3 o48
f1 o04	f2 o04	f3 o04
f1 o05	f2 o05	f3 o05
f1 o06	f2 o06	f3 o06
f1 o07	f2 o07	f3 o07
f1 o08	f2 o08	f3 o08
f1 o09	f2 o09	f3 o09
f1 o10	f2 o10	f3 o10
f1 o11	f2 o11	f3 o11

^G Print cycle	f1 o12	f2 o12	f3 o12
^{oG} Measuring cycle	f1 o13	f2 o13	f3 o13
^G Date, time-of-day	f1 o14	f2 o14	f3 o14
^G Measured value - small	f1 o15	f2 o15	f3 o15
^G Measured value - medium	f1 o16	f2 o16	f3 o16
^G Measured value - large	f1 o17	f2 o17	f3 o17
^G Measured value, bar chart	f1 o34	f2 o34	f3 o34
^G Measured value, line graphic	f1 o35	f2 o35	f3 o35
^G Averaging mode	f1 o18	f2 o18	f3 o18
^G Measuring rate	f1 o19	f2 o19	f3 o19
^G Print timer	f1 o20	f2 o20	f3 o20
^{oG} Measuring timer	f1 o21	f2 o21	f3 o21
^G Number of items	f1 o22	f2 o22	f3 o22
^G Number	f1 o23	f2 o23	f3 o23
^G Range, designation	f1 o24	f2 o24	f3 o24
^G Diameter (mm)	f1 o25	f2 o25	f3 o25
^G Cross-section (cm ²)	f1 o26	f2 o26	f3 o26
^G Volume flow (m ³ /h)	f1 o27	f2 o27	f3 o27
^G Maximum value, date and time-of-day	f1 o28	f2 o28	f3 o28
^G Minimum value, date and time-of-day	f1 o29	f2 o29	f3 o29
^G Empty line	f1 o30	f2 o30	f3 o30
^G Line	f1 o31	f2 o31	f3 o31
^G Smoothing	f1 o32	f2 o32	f3 o32
^G Memory available	f1 o33	f2 o33	f3 o33
^G Device designation	f1 o36	f2 o36	f3 o36
^G Designation text 1	f1 o37	f2 o37	f3 o37
^G Designation text 2	f1 o38	f2 o38	f3 o38
^G Menu title U1	f1 o39	f2 o39	f3 o39
^G Menu title U2	f1 o40	f2 o40	f3 o40
^G Menu title U3	f1 o41	f2 o41	f3 o41
^G Locking	f1 o42	f2 o42	f3 o42
^G Atmospheric pressure (mbar)	f1 o43	f2 o43	f3 o43
^G Temperature compensation	f1 o44	f2 o44	f3 o44
^G Setpoint	f1 o45	f2 o45	f3 o45
^G Measuring time	f1 o46	f2 o46	f3 o46
^{*G} Measuring duration	f1 o47	f2 o47	f3 o47

^G Output of menu configuration Ux

Menu title of menu Ux

In line 00 Function yy

In line 01 Function yy

....

fx P20

U1:Menu title U1

00:30

01:39

02:16

03:24

04:30

....

^G Output the selected menu

(all functions, e.g. measurement correction, see above)

P20



Menu configuration

Menu title	Meas. correction
Measured value - medium	00: +025.67 °C
Range and designation	RANGE: 00: Ntc
Empty line	
Locking	LOCKING:0.
Setpoint	SETPOINT: 00: +0000.0 °C
Temperature compensation	COMPENSATION: +0025.0 °C
Atmospheric pressure	ATM. PRESSURE: +01013. mb
.....	