PMA Prozeß- und Maschinen-Automation GmbH



rail line UNIFLEX CI 45, KS 45, TB 45



Explanation of symbols:

General information

General warning

Caution: ESD-sensitive components

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General

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We thank you for purchasing a device from the *rail line* - product range.

This document describes the address allocation of the different versions of *rail line* - devices (Cl 45, KS 45, TB 45) which will be called 'device' in the rest of this document, for enabling the transmission of process-, parameter- and configurationdata via the device's interface.

1.1 References

Additional documentation of the *rail line* devices:

7 10001		011000.
[1]	Universal transmitter UNIFLEX C	l 45
	 Datasheet CI 45 	9498 737 48313
	 Operating note CI 45 	9499 040 71441
	 Operating manual CI 45 	9499 040 71711
[2]	Universal controller KS 45	
	 Datasheet KS 45 	9498 737 48513
	 Operating note KS 45 	9499 040 71541
	 Operating manual KS 45 	9499 040 71811
[3]	Temperature limiter TB 45	
	 Datasheet TB 45 	9498 737 48433
	 Operating note TB 45 	9499 040 71641
	 Operating manual TB 45 	9499 040 71918

2 MODBUS address areas, and address formats

2.1 Area definitions

The address is coded in 2 bytes. The most significant 3 bits determine the data transmission format. The following formats are available for *rail line* devices:

- Integer
- Integer with 1 decimal
- Float acc. to IEEE

Address area		Data transfer format	Smallest transferable value	Largest transferable value	Resolution
hex	dez.				
0x0000 0x1FFF	0 8191	Integer without decimals	-30000	+32000	+/- 1
0x2000 0x3FFF	8192 16383	Integer with 1 decimal	-3000.0	+3200.0	+/- 0.1
0x4000 0x7FFF	1638432767	Float (IEEE-Format)	-1.0 E+037	+1.0 E+037	+/-1.4E-045



For integer numbers with and without decimals, the value range -30000 to +32000 is transmitted via the interface. Scaling with the factor 1 or 10 must be carried out by the transmitting device as well as by the receiving device.



Values are transmitted in the Motorola format (big endian).

2.2 Special values

The following special values are defined for transmission in the **integer format**:

- -31000 Sensor fault This value is returned for data that do not represent a meaningful value due to a sensor fault.
- -32000 Switch-off value The function is disabled.
- -32500 Undefined value The device returns this value, if a datum is not defined within the requested range ("NOT DEFINED VALUE").
- -32768 Corresponds to 0x8000 hex. The value to be transmitted lies outside the transferable integer value range.

The following special values are defined for transmission in the Float format:

• -1.5E37 This datum is not defined. The device returns this value, if a datum is not defined within the requested range.

2.3 Composition of the address tables

In the address tables shown in Section 5, the addresses for every parameter of the corresponding data format are specified in decimal values.

The tables are structured as follows:

Name	r/w	Adr.	Integer	real	Туре	Value/off	Description
		base 1dP					

– Name	Description of the datum
– R/W	permitted type of access: R = read, W = write
 Address integer 	Address for integer values
– base	Integer without decimals
— 1 dP	Integer with 1 decimal
– Real	Floating point number / Float (IEEE format)
— Туре	internal data type
 Value/off 	permissible value range, switch-off value available
 Description 	Explanations

2.4 Internal data types

The following data types are assigned to data used in the device:

- Float Floating point number Value range: -1999 ... -0.001, 0, 0.001 ... 9999
- INT Positive whole integer number Value range: 0 ... 65535 Exception: Switch-off value '-32000'
- Text Text string consisting of n characters, currently defined n = 5 Permissible characters: 20H...7FH
- Long Positive whole Long number Value range: 0 ... 99999
- Enum Selection value

3 Adresstables

In the following chapters you'll find the adresstables for the devices;

- Universal transmitterUNIFLEX CI 45 (Version 2)
- Universal controller KS 45 (Version 2)
- Temperature limiter TB 45 (Version 1).

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	2	 PAr	25
	E	Signal	25
	2	11 ohnE2	
	3	 PAr	26
	3	Signal	26
		12 ohnE3	
••	4	PAr	27
 	5 6	Signal	27
		13 othr	
		ConF	28
••	6	Signal	31
••	8	14 0+ 1	
••	9	14 Out.1	
		ConF Signal	34 25
	9	Signal	35
	9 10	15 Out.2	
	10	ConF	36
		Signal	37
	10	16 Out.3	
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	11		
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1 Cn.Fr Name r/w Adr. Integer real Description Тур Value/off I.Fnc 1120 18624 Enum Enum_IFncCnFr Function select r/w base 1dP 9312 0 Control input 1 up counter, positive edge 2 up counter, negative edge 3 down counter, positive edge 4 down counter, negative edge 5 ferquency measurement 0,1...20 Frequency gate time [s] Frq.t 1121 18626 Float r/w base 1dP 9313

PArA							
Name	r/w	Adr. Intege	er rea	I T	ур	Value/off	Description
Cnt.d	r/w		100 18 292	584 F	loat	0,1 9999	Counter divider
Cnt.P	r/w		101 18 293	586 F	loat	0 9999	Counter start value after preset
Cnt.E	r/w		102 18 294	588 F	loat	0 9999	Counter end value
Frq.L	r/w		103 18 295	590 F	loat	0 9999	lower input value [kHz]
Ou.L	r/w		104 18 296	592 F	loat	-1999 9999	lower output value [phys]
Frq.H	r/w		105 18 297	594 F	loat	0 9999	upper input value [kHz]
Ou.H	r/w		106 18 298	596 F	loat	-1999 9999	upper output value [phys]
Frq.F	r/w		107 18 299	598 F	loat	0 9999	filter time [s]

1 Cn.Fr

	Signal										
I	Name	r/w	Adr. Intege	real	Тур	Value/off	Description				
	Cn.Fr.Eff	r	base 11 1dP 93		Float	00	Counter/frequency value				
	Cn.Pres	r/w	base 11 1dP 93		Enum	Enum_CnPres	Counter preset				
-						0 No counter p					
						1 Counter preset					
	Cn.Fr	r	base 11 1dP 93		Float	-19999999	Counter/frequency value				
	Cnt.L	r	base 11 1dP 93		Float	-19999999	Lower part of counter value				
	Fail	r	base 11 1dP 93		Enum	Enum_FrFail	frequency too high at digital input				

no error Frequency to high

0 1

2 Func

•	ConF								
	Name	r/w	Adr. Integ	ger	real	Тур	Value/	off	Description
	Fnc.1	r/w		1262 9454	18908	Enum	Enum_F	nc1Rail	function 1
							0	standard (proc	ess value = Inp1)
							2	The process va	lue is calculated from the difference between the two values (Inp1 - Inp2).
							3		e of Inp1 and Inp2. It is controlled with the bigger value. At sensor failure it it the remaining actual value.
							4		e of Inp1 and Inp2. It is controlled with the smaller value. At sensor failure it it the remaining actual value.
							5	Mean value (In process value.	p1, Inp2). With sensor error, controlling is continued with the remaining
							6	Switching betw	veen Inp1 and Inp2
							 O2 function with constant sensor temperature. The engineering unit for the O2 s should be checked under: Other -> parameter unit (ppm / %). The sensor temperature must be defined under: Parameters -> Controller -> Sen temperature. 		ked under: Other -> parameter unit (ppm / %).
							8	second process	th measured sensor temperature. The sensor temperature is required as the s value Inp2. The engineering unit for the O2 settings (ppm / %) must be 'Other Parameter unit.'
							9	counter/freque	ncy

Code T	able	e					Operating Version1							
2 Func	Func													
ConF														
Name	Name r/w Adr. Integer real Typ				Тур	Value/off	Description							
Fnc.2	r/w	base 1dP	1265 9457	18914	Enum	Enum_Fnc2	function 2							
	-					0no function12nd power2square root								
Fnc.3	r/w	base 1dP	1263 9455	18910	Enum	Enum_Func1	function 3							
L	-					0no function1Tare function2sample & hold	1							

•	PArA							
	Name	r/w	Adr. In	teger	real	Тур	Value/off	Description
	tEmP	r/w	base 1dP	1236 9428	18856	Float	0 9999	Constant sensor temperature. With O2 measurement, the actual oxygen content is derived from the constant sensor temperature and the EMF (electromotive force in volts) generated by the sensor.Note: A constant sensor temperature is only ensured with heated lambda sensors.

•	Signal							
	Name	r/w	Adr. Inte	ger	real	Тур	Value/off	Description
	C.InP	r	base 1dP	1302 9494	18988	Float	-1999 9999	Process value is the calculated result of process value processing. It represents the actual value of the process (controlled variable) that is to be lined out at setpoint.
	In.Hi	r	base 1dP	1306 9498	18996	Float	-1999 9999	maximum value
	In.Lo	r	base 1dP	1305 9497	18994	Float	-1999 9999	minimum value

_

3 InP.1 ConF Name r/w Adr. Integer real Value/off Description Тур Enum StYP S.tYP 520 17424 Enum Sensor type selection r/w base 1dP 8712 0 thermocouple type L (-100...900°C), Fe-CuNi DIN 1 thermocouple type J (-100...1200°C), Fe-CuNi 2 thermocouple type K (-100...1350°C), NiCr-Ni 3 thermocouple type N (-100...1300°C), Nicrosil-Nisil 4 thermocouple type S (0...1760°C), PtRh-Pt10% 5 thermocouple type R (0...1760°C), PtRh-Pt13% 6 thermocouple type T (-200...400°C), Cu-CuNi thermocouple type C (0...2315°C), W5%Re-W26%Re 7 8 thermocouple type D (0...2315°C), W3%Re-W25%Re 9 thermocouple type E (-100...1000°C), NiCr-CuNi 10 thermocouple type B (0/100...1820°C), PtRh-Pt6% 18 Special thermocouple with a linearization characteristic selectable by the user. This enables non-linear signals to be simulated or linearized. 20 Pt100 (-200.0 ... 100.0(150.0)°C) Measuring range at reduced lead resistance up to 150°C. Measuring range in Fahrenheit: -328...212(302) °F 21 Pt100 (-200.0 ... 850,0 °C) Measuring range in Fahrenheit: -328...1562 °F 22 Pt 1000 (-200.0...850.0 °C) Measuring range in Fahrenheit: -328...1562 °F 23 Special : 0...4500 Ohms. For KTY 11-6 with preset special linearization (-50...150 °C or -58...302 °F). 24 special 0...450 Ohm 25 Special: 0...1,6 kOhms 26 Special: 0...160 Ohms 30 Current : 0...20 mA / 4...20 mA 40 0...10V / 2...10V 41 special -2.5...115 mV 42 Special : -25...1150 mV 43 Special : -25...90 mV 44 Special : -500...500 mV Special : -5...5 V 45 46 Special : -10...10 V 47 Special : -200...200 mV 50 potentiometer 0...160 Ohm 51 potentiometer 0...450 Ohm 52 potentiometer 0...1600 Ohm 53 potentiometer 0...4500 Ohm

4wir	r/w	base 1dP	523 8715	17430	Enum	Enum_4wire	Connection principle for resistive inputs.		
	0 3-wire connection						ction		
						1 4-wire connection			

3	InP.1											
	ConF											
	Name	r/w	Adr. In	iteger	real	Тур	Value/off	Description				
	S.Lin	r/w	base 1dP	521 8713		Enum	Enum_SLin	Linearization (not adjustable for all sensor types S.tYP). Special linearization. The linearization table can be created with the BlueControl® Engineering Tool. The default characteristic is for KTY 11-6 temperature sensors.				
							0 No special line	earization.				
							1 Special linearization. Definition of the linearization table is possible with the BlueControl Engineering Tool. The default setting is the characteristic of the KTY 11-6 temperature sensor.					
	Corr	r/w	base 1dP	265 8457		Enum	Enum_Corr	Measured value correction / scaling				
							0 Without scalir	l]				
							 The offset correction (in the CAL Level) can be done on-line in the process. If InL.x shows the lower input value of the scaling point, then OuL.x must be adjusted to the corresponding display value. Adjustments are made via the front panel keys of the device. 					
								tion (at CAL level)				
							3 Scaling (at PArA level)					
	In.F	r/w	base 1dP	522 8714		Float	-19999999	Substitute value in case of a fault. This value is used for calculations, if there is a fault at the input (e.g. FAIL).				

• PArA

PArA							
Name	r/w	Adr. In	teger	real	Тур	Value/off	Description
InL.1	r/w	base 1dP	500 8692		Float	-1999 9999	Input value of the lower scaling point. Depending on sensor type, the input value can be scaled to the required display value in the Parameter Level. The display of the input value of the lower scaling point (e.g. 4 mA) is done using the corresponding electrical value, e.g. mA, V, Ohm.
OuL.1	r/w	base 1dP	501 8693	17386	Float	-1999 9999	Display value of the lower scaling point. Depending on sensor type, the input value can be scaled to the required display value in the Parameter Level. The operator can change the display value of the lower scaling point, e.g. 4 mA is displayed as 2 [pH].
InH.1	r/w	base 1dP	502 8694	17388	Float	-1999 9999	Input value of the upper scaling point. Depending on sensor type, the input value can be scaled to the required display value in the Parameter Level. The display of the input value of the upper scaling point (e.g. 20 mA) is done using the corresponding electrical value, e.g. mA, V, Ohm.
OuH.1	r/w	base 1dP	503 8695	17390	Float	-1999 9999	Display value of the upper scaling point. Depending on sensor type, the input value can be scaled to the required display value in the Parameter Level. The operator can change the display value of the upper scaling point, e.g. 20 mA is displayed as 12 [pH].
t.F1	r/w	base 1dP	504 8696		Float	0 999	Filter time constant [s]. Every input is fitted with a digital (software) low-pass filter for suppressing process-related disturbances on the input leads. Higher filter settings improve the suppression, but increase the delay of the input signals.
b.F1	r/w	base 1dP	505 8697	17394	Float	0 99999	filter bandwidth

3 InP.1

•	PArA							
	Name	r/w	Adr. Ir	nteger	real	Тур	Value/off	Description
	E.tc1	r/w	base 1dP	506 8698	17396	Float	0 100 🗹	External temperature compensation (temperature at the junction of thermocouple/copper lead with external temperature compensation).

Sig	nal							
Name	r/w	Adr. Ir	iteger	real	Тур	Value/off		Description
In.1r	r	base 1dP	540 8732		Float	-1999 9999		Measurement value before the measurement value correction (unprocessed, read directly from the input).
Fail	r	base 1dP	541 8733		Enum	Enum_InpFail		Input circuit fault: faulty or incorrectly connected sensor.
						0 no error		
						1 sensor bre		
								ity at input.
						4 Short circ	uit a	t input.
In.1	r	base 1dP	542 8734		Float	-1999 9999		Measurement value after the measurement value correction (e.g. with offset or 2-point correction, and scaling).
F.Inp	r/w	base 1dP	543 8735		Float	-1999 9999		Forcing the value for an analog input INP. Forcing involves the external operation of a controller input. The controller takes over the value at this input like a measurement value (preset value for controller inputs from a superordinate system, e.g. for a function test.)

4 InP.2

•	ConF							
	Name	r/w	Adr. II	nteger	real	Тур	Value/off	Description
	I.Fnc	r/w	base 1dP	266 8458		Enum	Enum_IFunc	Function INP2
							0 no measureme	ent
							1 measurement	

4 InP.2 ConF Name r/w Adr. Integer real Value/off Description Тур Enum StYP2 S.tYP 570 17524 Enum Sensor type selection r/w base 1dP 8762 0 Thermocouple Type L (-100...900 °C), Fe-CuNi DIN 1 Thermocouple Type J (-100...1200 °C), Fe-CuNi 2 Thermocouple Type K (-100...1350 °C), NiCr-Ni 3 Thermocouple Type N (-100...1300 °C), Nicrosil-Nisil 4 Thermocouple Type S (0...1760 °C), PtRh-Pt 10% 5 Thermocouple Type R (0...1760 °C), PtRh-Pt13% Thermocouple Type T (-200...400 °C), Cu-CuNi 6 Thermocouple Type C (0...2315°C), W5%Re-W26%Re 7 8 Thermocouple Type D (0...2315°C), W3%Re-W25%Re 9 Thermocouple Type E (-100...1000 °C), NiCr-CuNi 10 Thermocouple Type B (0/100...1820 °C), PtRh-Pt6% 18 special thermocouple 20 Pt100 (-200.0 ... 100.0(150.0) °C) Measuring range at reduced lead resistance up to 150°C. Measuring range in Fahrenheit: -328...212(302) °F Pt100 (-200.0 ... 850,0 °C) 21 Measuring range in Fahrenheit: -328...1562 °F Pt 1000 (-200.0...850.0 °C) 22 Measuring range in Fahrenheit: -328...1562 °F Special: 0...4500 Ohms. 23 For KTY 11-6 with preset special linearization (-50...150 °C or -58...302 °F). 24 Special: 0...450 Ohms 25 Special: 0...1,6 kOhms 26 Special: 0...160 Ohms 30 Current : 0...20 mA / 4...20 mA 41 Special -2.5...115 mV 42 Special : -25...1150 mV 43 Special : -25...90 mV 44 Special : -500...500 mV 47 Special : -200...200 mV 50 Potentiometer 0...160 ohms 51 Potentiometer 0...450 ohms 52 Potentiometer 0...1600 ohms 53 Potentiometer 0...4500 ohms

S.Lin	r	base 1dP	571 8763	Enum	Enum_S	Linearization (not adjustable for all sensor types S.tYP). Special linearization. The linearization table can be created with the BlueControl® Engineering Tool. The default characteristic is for KTY 11-6 temperature sensors.
					0	No special linearization.
					1	Special linearization. Definition of the linearization table is possible with the BlueControl Engineering Tool. The default setting is the characteristic of the KTY 11-6 temperature sensor.

4	InP.2							
	ConF							
	Name	r/w	Adr. In	iteger	real	Тур	Value/off	Description
	Corr	r/w	base 1dP	267 8459	16918	Enum	Enum_Corr	Measured value correction / scaling
							the lower inp corresponding	rrection (in the CAL Level) can be done on-line in the process. If InL.x shows ut value of the scaling point, then OuL.x must be adjusted to the g display value. Adjustments are made via the front panel keys of the device. ction (at CAL level)
	In.F	r/w	base 1dP	572 8764	17528	Float	-19999999 🗹	Substitute value in case of a fault. This value is used for calculations, if there is a fault at the input (e.g. FAIL).

PArA							
Name	r/w	Adr. Inte	ger	real	Тур	Value/off	Description
InL.2	r/w	base 1dP	550 8742	17484	Float	-1999 9999	Input value of the lower scaling point. Depending on sensor type, the input value can be scaled to the required display value in the Parameter Level. The display of the input value of the lower scaling point (e.g. 4 mA) is done using the corresponding electrical value, e.g. mA, V, Ohm.
OuL.2	r/w	base 1dP	551 8743	17486	Float	-1999 9999	Display value of the lower scaling point. Depending on sensor type, the input value can be scaled to the required display value in the Parameter Level. The operator can change the display value of the lower scaling point, e.g. 4 mA is displayed as 2 [pH].
InH.2	r/w	base 1dP	552 8744	17488	Float	-1999 9999	Input value of the upper scaling point. Depending on sensor type, the input value can be scaled to the required display value in the Parameter Level. The display of the input value of the upper scaling point (e.g. 20 mA) is done using the corresponding electrical value, e.g. mA, V, Ohm.
OuH.2	r/w	base 1dP	553 8745	17490	Float	-1999 9999	Display value of the upper scaling point. Depending on sensor type, the input value can be scaled to the required display value in the Parameter Level. The operator can change the display value of the upper scaling point, e.g. 20 mA is displayed as 12 [pH].
t.F2	r/w	base 1dP	554 8746	17492	Float	0 999	Filter time constant [s]. Every input is fitted with a digital (software) low-pass filter for suppressing process-related disturbances on the input leads. Higher filter settings improve the suppression, but increase the delay of the input signals.
b.F2	r/w	base 1dP	555 8747	17494	Float	0 99999	filter bandwidth
E.tc2	r/w	base 1dP	556 8748	17496	Float	0 100	External temperature compensation (temperature at the junction of thermocouple/copper lead with external temperature compensation).

1	InP.2							
	Signal							
	Name	r/w	Adr. Intege	er r	eal	Тур	Value/off	Description
	In.2	r		90 782	17564	Float	-19999999 [Measurement value after the measurement value correction (e.g. with offset or 2-point correction, and scaling).
	Fail	r		91 783	17566	Enum	Enum_InpFail	Input circuit fault: faulty or incorrectly connected sensor.
							0 no error	
							1 sensor brea	
								arity at input.
							4 Short circuit	at input.
	In.2r	r		92 784	17568	Float	-19999999 [Measurement value before the measurement value correction (unprocessed, read directly from the input).
	F.Inp	r/w		93 785	17570	Float	-19999999 [Forcing the value for an analog input INP. Forcing involves the external operation of a controller input. The controller takes over the value at this input like a measurement value (preset value for controller inputs from a superordinate system, e.g. for a function test.)

5	Lim

	ConF						
	Name	r/w	Adr. Integer	real	Тур	Value/off	Description
	Fnc.1	r/w	base 670 1dP 886		Enum	Enum_Fcn	Activation and adjustment of the limit value alarm (e.g. for input circuit monitoring), e.g. with/without storage.
-						0 No limit value	monitoring.
						1 measured valu	e monitoring
							ue monitoring + alarm status latch. A stored limit value can be reset via error or a digital input (-> LOGI/Err.r)
						3 Signal monitor	ing for rate of change (per minute).
						4 Signal monitor	ing for rate of change (per minute) + storage of the alarm status.
Г							
	Src.1	r/w	base 672	17728	Enum	Enum_Src	Source for limit value. Selection of which value is to be monitored,
			1dP 886	ļ			e.g. process value or control deviation.
-						0 Process value	= absolute alarm
						3 Measured value	ue of the analog input INP1.
							ue of the analog input INP2.
						10 Measurement	value of the counter/frequency input.

5 Lim

PArA							
Name	r/w	Adr. Ir	nteger	real	Тур	Value/off	Description
L.1	r/w	base 1dP	650 8842	17684	Float	-1999 9999	Lower limit value. The alarm is triggered if the value falls below the limit, and is reset with lower limit value plus hysteresis.
H.1	r/w	base 1dP	651 8843	17686	Float	-1999 9999	Upper limit value. The alarm is triggered if the value rises above the limit, and is reset with upper lower limit value plus hysteresis.
HYS.1	r/w	base 1dP	652 8844	17688	Float	0 9999	Hysteresis of the limit value. Switching difference for upper and lower limit value. The limit value must change by this amount (rise above upper limit or fall below lower limit) before the limit value alarm is reset.
dEL.1	r/w	base 1dP	653 8845	17690	Float	0 9999	Delayed alarm of a limit value. The alarm is only triggered after the defined delay time. It is only indicated, and possibly stored, if it is still present after the delay time has elapsed.

Sigr	nal								
Name		r/w	Adr. I	nteger	real	Тур	Value/	off	Description
St.Lim		r	base	690	17764	Enum	Enum_L	imStatus	Limit value status: No alarm present or stored.
			1dP	8882					
							0	no alarm	
							1	lached alarm	
							2	A limit value h	as been exceeded

6 Lim2

Con	F							
Name	r/	W	Adr. In	iteger	real	Тур	Value/off	Description
Fnc.2	r٨	N	base 1dP	720 8912		Enum	Enum_Fcn	Activation and adjustment of the limit value alarm (e.g. for input circuit monitoring), e.g. with/without storage.
							0 No limit va	lue monitoring.
							1 measured v	/alue monitoring
								value monitoring + alarm status latch. A stored limit value can be reset via error ey or a digital input (-> LOGI/Err.r)
							3 Signal mon	itoring for rate of change (per minute).
							4 Signal mon	itoring for rate of change (per minute) + storage of the alarm status.
							1	
Src.2	r/۱	N	base	721	17826	Enum	Enum_Src	Source for limit value. Selection of which value is to be monitored,
			1dP	8913				e.g. process value or control deviation.
L							0 Process val	ue = absolute alarm
							3 Measured	value of the analog input INP1.
								value of the analog input INP2.
								ent value of the counter/frequency input.

• PArA

Name	r/w	Adr. Ir	nteger	real	Тур	Value/off	Description
L.2	r/w	base 1dP	700 8892	17784	Float	-1999 9999	Lower limit value. The alarm is triggered if the value falls below the limit, and is reset with lower limit value plus hysteresis.
Н.2	r/w	base 1dP	701 8893	17786	Float	-1999 9999	Upper limit value. The alarm is triggered if the value rises above the limit, and is reset with upper lower limit value plus hysteresis.
HYS.2	r/w	base 1dP	702 8894	17788	Float	0 9999	Hysteresis of the limit value. Switching difference for upper and lower limit value. The limit value must change by this amount (rise above upper limit or fall below lower limit) before the limit value alarm is reset.
dEL.2	r/w	base 1dP	703 8895	17790	Float	0 9999	Delayed alarm of a limit value. The alarm is only triggered after the defined delay time. It is only indicated, and possibly stored, if it is still present after the delay time has elapsed.

• Signal

Name	r/w	Adr. I	nteger	real	Тур	Value/off	Description
St.Lim	r	base 1dP	740 8932		Enum	Enum_LimStatus	Limit value status: No alarm present or stored.
					_	0 no alarm1 lached alarm2 A limit value h	nas been exceeded.

7 Lim3

	ConF							
	Name	r/w	Adr. In	teger	real	Тур	Value/off	Description
	Fnc.3	r/w	base 1dP	770 8962	17924	Enum	Enum_Fcn	Activation and adjustment of the limit value alarm (e.g. for input circuit monitoring), e.g. with/without storage.
							0 No limit value	monitoring.
							1 measured valu	e monitoring
								ue monitoring + alarm status latch. A stored limit value can be reset via erro or a digital input (-> LOGI/Err.r)
							3 Signal monitor	ing for rate of change (per minute).
							4 Signal monitor	ing for rate of change (per minute) + storage of the alarm status.
Г		1						
	Src.3	r/w	base	771	17926	Enum	Enum_Src	Source for limit value. Selection of which value is to be monitored,
			1dP	8963				e.g. process value or control deviation.
-							0 Process value	= absolute alarm
							3 Measured valu	ue of the analog input INP1.
							4 Measured valu	ue of the analog input INP2.
							10 Measurement	value of the counter/frequency input.

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Name	r/w	Adr. Ir	ntogor	real	Typ	Value/off	Description
Name	1/ VV	Aut. II	itegei	Tear	Тур	value/oli	Description
L.3	r/w	base 1dP	750 8942	17884	Float	-1999 9999	Lower limit value. The alarm is triggered if the value falls below the limit, and is reset with lower limit value plus hysteresis.
H.3	r/w	base 1dP	751 8943		Float	-1999 9999	Upper limit value. The alarm is triggered if the value rises above the limit, and is reset with upper lower limit value plus hysteresis.
HYS.3	r/w	base 1dP	752 8944	17888	Float	0 9999	Hysteresis of the limit value. Switching difference for upper and lower limit value. The limit value must change by this amount (rise above upper limit or fall below lower limit) before the limit value alarm is reset.
dEL.3	r/w	base 1dP	753 8945		Float	0 9999	Delayed alarm of a limit value. The alarm is only triggered after the defined delay time. It is only indicated, and possibly stored, if it is still present after the delay time has elapsed.

•	Signal								
	Name	r/w	Adr. In	teger	real	Тур	Value/o	off	Description
	St.Lim	r	base 1dP	790 8982	17964	Enum	Enum_Li	imStatus	Limit value status: No alarm present or stored.
							0	no alarm	
							1	lached alarm A limit value h	as been exceeded.

8 LOGI

ConF							
Name	r/w	Adr. Int	eger	real	Тур	Value/off	Description
L_r	r/w	base 1dP	421 8613	17226	Enum	Enum_dInPRail1	Local / remote switchover (Remote: Adjustment of all values via the front panel is blocked).
						0 No function (s	witchover via interface is possible).
						1 Always active.	
						2 DI1 switches.	
Err.r	r/w	base	429	17242	Enum	Enum_dInPRail2	Source of the control signal for resetting all stored entries in the
		1dP	8621				error list (the list contains all error messages and alarms). If an
		1 di	0021				alarm is still present, i.e. the source of trouble has not been
							remedied, stored alarms cannot be acknowledged (reset).
	•					0 No function (s	witchover via interface is possible).
						2 DI1 switches.	

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ConF							
Name	r/w	Adr. In	teger	real	Тур	Value/off	Description
I.ChG	r/w	base 1dP	434 8626	17252	Enum	Enum_dInPRail2	Signal source for switching the effective process value betwe and x2.
						0 No function (s 2 DI1 switches.	witchover via interface is possible).
tArA	r/w	base 1dP	435 8627	17254	Enum	Enum_dInPRail2	'Tare' function
	I				I	0 No function (s 2 DI1 switches.	u witchover via interface is possible).
						Z DIT SWITCHES.	
HOLd	r/w	base 1dP	436 8628	17256	Enum	Enum_dInPRail2	Sample & hold function
					<u> </u>	0 No function (s 2 DI1 switches.	witchover via interface is possible).
rES.L	r/w	base 1dP	425 8617	17234	Enum	Enum_dInPRail2	Reset of minimum value
						0 No function (s	witchover via interface is possible).
						2 DI1 switches.	
rES.H	r/w	base 1dP	426 8618	17236	Enum	Enum_dInPRail2	Reset of maximum value
	I				1	0 No function (s 2 DI1 switches.	witchover via interface is possible).
di.Fn	r/w	base 1dP	420 8612	17224	Enum	Enum_diFn	Function of digital inputs (valid for all inputs)
	<u> </u>				1		L Off: A permanent positive signal switches this function 'On', which is he digital input. Removal of the signal switches the function 'Off' agai
						1 Basic setting '	On': A permanent positive signal switches this function 'Off', which is he digital input. Removal of the signal switches the function 'On' agai
						2 Push-button fu	nction. Basic setting 'Off'. Only positive signals are effective. The first I switches 'On'. Removal of the signal is necessary before the next pos

							Operating version
al							
	Adr. In	iteger	real	Тур	Value/off		Description
r	base 1dP	450 8642	17284	Int			Status of the digital inputs or of push-buttons (binary coded).
					Bit 8: Status Bit 9: Status	of Ent	wn' key
r/w	base 1dP	460 8652	17304	Int	0 1		Remote operation. Remote means that all values can only be adjusted via the interface. Adjustments via the front panel are blocked.
r/w	base 1dP	472 8664	17328	Int	0 1		Reset of minimum value
r/w	base 1dP	473 8665	17330	Int	0 1		Reset of maximum value
r/w	base 1dP	470 8662	17324	Int	0 1		Signal for resetting the entire error list. The error list contains all errors that are reported, e.g. device faults and limit values. It also contains queued as well as stored errors after their correction. The reset acknowledges all errors, whereby queued errors will reappear after the next error detection (measurement).
r/w	base 1dP	480 8672	17344	Int	0 1		Forcing of digital inputs. Forcing involves the external operation of at least one device input. The device takes over this input value (preset value for device inputs from a superordinate system, e.g. for a function test.)
					Bit 0 Forcing	y of dig	ital Input 1
r/w	base 1dP	471 8663	17326	Int	0 1		Signal for switching the effective process value between x1 and x2
r/w	base 1dP	474 8666	17332	Int	0 1		Tare
r/w	base 1dP	475 8667	17334	Int	0 1		hold
	r r/w r/w r/w r/w r/w r/w r/w	r/wAdr. Irrbase 1dPr/wbase 1dPr/wbase 1dPr/wbase 1dPr/wbase 1dPr/wbase 1dPr/wbase 1dPr/wbase 1dPr/wbase 1dPr/wbase 1dPr/wbase 1dPr/wbase 1dPr/wbase 1dPr/wbase 1dPr/wbase 1dPr/wbase 1dPr/wbase 1dPr/wbase 1dPr/wbase 1dP	r/w Adr. Integer r base 450 1dP 8642 r/w base 450 R/w base 450 R/w base 460 1dP 8652 R/w base 472 1dP 8664 r/w base 473 1dP 8665 r/w base 470 8662 1 8665 r/w base 470 8662 1 8665 r/w base 470 8662 1 8665 r/w base 470 8663 1 8663 r/w base 471 8666 1 8666 r/w base 474 8666	r/w Adr. Integer real r base 450 17284 ldP 8642 17304 r/w base 460 17304 r/w base 460 17304 r/w base 470 17328 r/w base 470 17324 base 471 17326 base 471 17326 base 474 17326 base 474 17332 base 474 17334 base 475 17334 base <td< td=""><td>r/w Adr. Integer real Typ r base 450 17284 Int 1dP 8642 17284 Int r/w base 460 17304 Int r/w base 460 17304 Int r/w base 472 17328 Int r/w base 472 17320 Int r/w base 470 17324 Int 1dP 8662 17344 Int 8662 17344 Int 8662 r/w base 470 17324 Int 1dP 8662 17344 Int 8662 17344 Int 8662 r/w base 470 17324 Int 8662 17344 Int 8663 Int r/w base 471 17324 Int s6663 14P 8663 114P 8663 Int s6663 14P 86663 17332 Int</td><td>r/w Adr. Integer real Typ Value/off r base 450 17284 Int IdP 8642 17284 Int Bit 0: Input of Bit 8: Status Bit 9: Status Bit 10: Statu r/w base 460 17304 Int 01 r/w base 472 17328 Int 01 r/w base 472 17328 Int 01 r/w base 473 17304 Int 01 r/w base 470 17328 Int 01 r/w base 470 17324 Int 01 r/w base 471 17324 Int 01</td><td>r/w Adr. Integer real Typ Value/off r base 450 17284 Int ··· □ 1dP 8642 17284 Int ··· □ □ r/w base 450 17284 Int ··· □ □ r/w base 460 17304 Int □ □ □ r/w base 472 17328 Int □ □ □ r/w base 472 17328 Int □ □ □ r/w base 472 17328 Int □ □ □ r/w base 473 17320 Int □ □ □ r/w base 470 17324 Int □ □ □ r/w base 4802 17344 Int □ □ □ r/w base 471 17326 Int □ □ □ r/w base 474 17322</td></td<>	r/w Adr. Integer real Typ r base 450 17284 Int 1dP 8642 17284 Int r/w base 460 17304 Int r/w base 460 17304 Int r/w base 472 17328 Int r/w base 472 17320 Int r/w base 470 17324 Int 1dP 8662 17344 Int 8662 17344 Int 8662 r/w base 470 17324 Int 1dP 8662 17344 Int 8662 17344 Int 8662 r/w base 470 17324 Int 8662 17344 Int 8663 Int r/w base 471 17324 Int s6663 14P 8663 114P 8663 Int s6663 14P 86663 17332 Int	r/w Adr. Integer real Typ Value/off r base 450 17284 Int IdP 8642 17284 Int Bit 0: Input of Bit 8: Status Bit 9: Status Bit 10: Statu r/w base 460 17304 Int 01 r/w base 472 17328 Int 01 r/w base 472 17328 Int 01 r/w base 473 17304 Int 01 r/w base 470 17328 Int 01 r/w base 470 17324 Int 01 r/w base 471 17324 Int 01	r/w Adr. Integer real Typ Value/off r base 450 17284 Int ··· □ 1dP 8642 17284 Int ··· □ □ r/w base 450 17284 Int ··· □ □ r/w base 460 17304 Int □ □ □ r/w base 472 17328 Int □ □ □ r/w base 472 17328 Int □ □ □ r/w base 472 17328 Int □ □ □ r/w base 473 17320 Int □ □ □ r/w base 470 17324 Int □ □ □ r/w base 4802 17344 Int □ □ □ r/w base 471 17326 Int □ □ □ r/w base 474 17322

ConF							
Name	r/w	Adr. Ir	iteger	real	Тур	Value/off	Description
B.BedEbe	r/w	base 1dP	1839 10031	20062	Int	0 255	The 3 Operating Levels (Parameter, Configuration, and Calibration) can be disabled here.
B.Bedien	r/w	base 1dP	1838 10030	20060	Int	0 255	Used to disable various operating functions (e.g. access to the extended Operating Level).

ConF							
Name	r/w	Adr. Ir	nteger	real	Тур	Value/off	Description
C.Sch	r/w	base 1dP	1801 9993	19986	Float	1 9999999	Data defines the number of switching cycles for which the messag InF.2 is generated.
C.Std	r/w	base 1dP	1800 9992	19984	Float	199999999	Data defines the number of operating hours for which the message InF.1 is generated.
D.ForcIn	r/w	base 1dP	1803 9995	19990	Int	0 255	The data defines the inputs to be forced: Bit 0 analog input 1 Bit 1 analog input 2 Bit 2 not used Bit 3 not used Bit 4 digital input 1 Bit 5 not used Bit 6 not used Bit 7 not used
D.ForcOut	r/w	base 1dP	1804 9996	19992	Int	0 255	The data defines the outputs to be forced. Bit 0 output 1 Bit 1 output 2 Bit 2 output 3 Bit 3 not used Bit 4 not used Bit 5 not used Bit 6 not used Bit 7 not used
Dis2	r/w	base 1dP	1848 10040		Int	256 8190	Datum to be shown in display 2. The basic address of the datum that is to be displayed must be entered.
EOP1	r/w	base 1dP	1840 10032	20064	Int	256 8190	1st datum of the extended Operating Level. The basic address of the datum that is to be displayed must be entered.
EOP2	r/w	base 1dP	1841 10033	20066	Int	256 8190	2nd datum of the extended Operating Level. The basic address of the datum that is to be displayed must be entered.
EOP3	r/w	base 1dP	1842 10034	20068	Int	256 8190	3rd datum of the extended Operating Level. The basic address of the datum that is to be displayed must be entered.
EOP4	r/w	base 1dP	1843 10035	20070	Int	256 8190	4th datum of the extended Operating Level. The basic address of the datum that is to be displayed must be entered.
EOP5	r/w	base 1dP	1844 10036	20072	Int	256 8190	5th datum of the extended Operating Level. The basic address of the datum that is to be displayed must be entered.
EOP6	r/w	base 1dP	1845 10037	20074	Int	256 8190	6th datum of the extended Operating Level. The basic address of the datum that is to be displayed must be entered.
EOP7	r/w	base 1dP	1846 10038	20076	Int	256 8190	7th datum of the extended Operating Level. The basic address of the datum that is to be displayed must be entered.
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Con	۱F							
Name	r/w	Adr. li	nteger	real	Тур	Value/off		Description
EOP8	r/w	base 1dP	1847 10039	20078	Int	256 8190		8th datum of the extended Operating Level. The basic address of the datum that is to be displayed must be entered.
In.1	r/w	base 1dP	1861 10053	20106	Float	02		Input 1 for measurement value 1 (to Output 1 for display value 1). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
In.10	r/w	base 1dP	1879 10071	20142	Float	02	2	Input 10 for measurement value 10 (to Output 10 for display value 10). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
In.11	r/w	base 1dP	1881 10073	20146	Float	02	2	Input 11 for measurement value 11 (to Output 11 for display value 11). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
In.12	r/w	base 1dP	1883 10075	20150	Float	02		Input 12 for measurement value 12 (to Output 12 for display value 12). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
In.13	r/w	base 1dP	1885 10077	20154	Float	02		Input 13 for measurement value 13 (to Output 13 for display value 13). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
In.14	r/w	base 1dP	1887 10079	20158	Float	02		Input 14 for measurement value 14 (to Output 14 for display value 14). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
In.15	r/w	base 1dP	1889 10081	20162	Float	02	2	Input 15 for measurement value 15 (to Output 15 for display value 15). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
In.16	r/w	base 1dP	1891 10083	20166	Float	02		Input 16 for measurement value 16 (to Output 16 for display value 16). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
In.17	r/w	base 1dP	1893 10085	20170	Float	0 2		input 17
In.18	r/w	base 1dP	1895 10087	20174	Float	0 2		input 18

ConF Name r/w Adr. Integer real Typ Value/off Description												
Name	r/v	V	Adr. In	iteger	real	Тур	Value/off		Description			
In.19	r/v		base 1dP	1897 10089	20178	Float	0 2		input 19			
In.2	r/w		base 1dP	1863 10055	20110	Float	0 2		Input 2 for measurement value 2 (to Output 2 for display value 2). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.			
In.20	r/w		base 1dP	1899 10091	20182	Float	0 2	S	input 20			
In.21	r/w		base 1dP	1901 10093	20186	Float	02		input 21			
In.22	r/v		base 1dP	1903 10095	20190	Float	0 2		input 22			
In.23	r/v		base 1dP	1905 10097	20194	Float	0 2	2	input 23			
In.24	r/v		base 1dP	1907 10099	20198	Float	02	2	input 24			
In.25	r/w		base 1dP	1909 10101	20202	Float	0 2		input 25			
In.26	r/w	/	base 1dP	1911 10103	20206	Float	0 2	2	input 26			
ln.27	r/w		base 1dP	1913 10105	20210	Float	02		input 27			
In.28	r/w		base 1dP	1915 10107	20214	Float	0 2	2	input 28			
In.29	r/w		base 1dP	1917 10109	20218	Float	0 2	2	input 29			
ln.3	r/w		base 1dP	1865 10057	20114	Float	02		Input 3 for measurement value 3 (to Output 3 for display value 3). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.			
In.30	r/v		base 1dP	1919 10111	20222	Float	02		input 30			

ConF Name		Adr. Ir	nteger	real	Тур	Value/off		Description
In.31	r/w	base 1dP	•	20226		0 2		input 31
In.32	r/w	base 1dP	1923 10115	20230	Float	02		input 32
ln.4	r/w	base 1dP	1867 10059	20118	Float	02		Input 4 for measurement value 4 (to Output 4 for display value 4). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defin- by one input or one output.
In.5	r/w	base 1dP	1869 10061	20122	Float	02		Input 5 for measurement value 5 (to Output 5 for display value 5). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defin by one input or one output.
In.6	r/w	base 1dP	1871 10063	20126	Float	02		Input 6 for measurement value 6 (to Output 6 for display value 6) Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defin by one input or one output.
In.7	r/w	base 1dP	1873 10065	20130	Float	02		Input 7 for measurement value 7 (to Output 7 for display value 7) Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defin by one input or one output.
In.8	r/w	base 1dP	1875 10067	20134	Float	0 2		Input 8 for measurement value 8 (to Output 8 for display value 8) Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is define by one input or one output.
In.9	r/w	base 1dP	1877 10069	20138	Float	02		Input 9 for measurement value 9 (to Output 9 for display value 9) Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defin by one input or one output.
Ou.1	r/w	base 1dP	1862 10054	20108	Float	02		Output 1 for display value 1 (to Input 1 for measurement value 1) Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defin by one input or one output.
Ou.10	r/w	base 1dP	1880 10072	20144	Float	02	2	Output 10 for display value 10 (to Input 10 for measurement valu 10). Special linearization is possible for certain sensor types, wh is stored as a table. This linearization can be adapted with up to segments, whereby every point of the linearization curve is defin by one input or one output.
Ou.11	r/w	base 1dP	1882 10074	20148	Float	02		Output 11 for display value 11 (to Input 11 for measurement valu 11). Special linearization is possible for certain sensor types, wh is stored as a table. This linearization can be adapted with up to segments, whereby every point of the linearization curve is defin by one input or one output.

Cor									
Name	r/v	V	Adr. Inte	eger	real	Тур	Value/off		Description
Ou.12	r/w		base 1dP	1884 10076	20152	Float	02	2	Output 12 for display value 12 (to Input 12 for measurement value 12). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
Ou.13	r/w	- 11	oase 1dP	1886 10078	20156	Float	02	9	Output 13 for display value 13 (to Input 13 for measurement value 13). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
Ou.14	r/w		oase 1dP	1888 10080	20160	Float	02		Output 14 for display value 14 (to Input 14 for measurement value 14). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
Ou.15	r/w	- 11	oase 1dP	1890 10082	20164	Float	02	2	Output 15 for display value 15 (to Input 15 for measurement value 15). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
Ou.16	r/w		oase 1dP	1892 10084	20168	Float	0 2	2	Output 16 for display value 16 (to Input 16 for measurement value 16). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
Ou.17	r/w		oase 1dP	1894 10086	20172	Float	0 2		output 17
Ou.18	r/w		oase 1dP	1896 10088	20176	Float	0 2		output 18
Ou.19	r/w	- 11	base 1dP	1898 10090	20180	Float	0 2		output 19
Ou.2	r/w	- 11	oase 1dP	1864 10056	20112	Float	02		Output 2 for display value 2 (to Input 2 for measurement value 2). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
Ou.20	r/w	- 11	base 1dP	1900 10092	20184	Float	0 2		output 20
Ou.21	r/w	- 11	oase 1dP	1902 10094	20188	Float	0 2		output 21
Ou.22	r/w	- 11	base 1dP	1904 10096	20192	Float	0 2		output 22

ConF								
Name	r/w	Adr. Ir	nteger	real	Тур	Value/off		Description
Ou.23	r/w	base 1dP	1906 10098	20196	Float	0 2		output 23
Ou.24	r/w	base 1dP	1908 10100	20200	Float	02		output 24
Ou.25	r/w	base 1dP	1910 10102	20204	Float	02		output 25
Ou.26	r/w	base 1dP	1912 10104	20208	Float	0 2	2	output 26
Ou.27	r/w	base 1dP	1914 10106	20212	Float	0 2		output 27
Ou.28	r/w	base 1dP	1916 10108	20216	Float	0 2	2	output 28
Ou.29	r/w	base 1dP	1918 10110	20220	Float	0 2	2	output 29
Ou.3	r/w	base 1dP	1866 10058	20116	Float	02	S	Output 3 for display value 3 (to Input 3 for measurement value 3). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
Ou.30	r/w	base 1dP	1920 10112	20224	Float	0 2		output 30
Ou.31	r/w	base 1dP	1922 10114	20228	Float	0 2	N	output 31
Ou.32	r/w	base 1dP	1924 10116	20232	Float	02		output 32
Ou.4	r/w	base 1dP	1868 10060	20120	Float	02		Output 4 for display value 4 (to Input 4 for measurement value 4). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
Ou.5	r/w	base 1dP	1870 10062	20124	Float	02	S	Output 5 for display value 5 (to Input 5 for measurement value 5). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.

9 ohnE

	ConF								
٢	Name	r/w	Adr. In	teger	real	Тур	Value/off		Description
(Ou.6	r/w	base 1dP	1872 10064	20128	Float	02		Output 6 for display value 6 (to Input 6 for measurement value 6). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
(Ou.7	r/w	base 1dP	1874 10066	20132	Float	02	2	Output 7 for display value 7 (to Input 7 for measurement value 7). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
	Ou.8	r/w	base 1dP	1876 10068	20136	Float	02		Output 8 for display value 8 (to Input 8 for measurement value 8). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
(Ou.9	r/w	base 1dP	1878 10070	20140	Float	0 2		Output 9 for display value 9 (to Input 9 for measurement value 9). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
F	PASS	r/w	base 1dP	1850 10042	20084	Int	0 9999		Password. 4-digit number for the password-protected access to blocked operating functions such as e.g. the Parameter Level.
-	T.Dis2	r/w	base 1dP	1851 10043	20086	Text			This address contains 5 bytes for the text that is to appear in Display 2. No text: 1st byte 0x00.
I	U.LinT	r/w	base 1dP	1860 10052	20104	Enum	Enum_Unit		Engineering unit of linearization table: none, °C, °F or K.
L							0 without u	nit	
							1 °C 2 °F 3 K		
`	V.Mask	r/w	base 1dP	1810 10002	20004	Int	0 255		Definition of the visibility templates. The templates define the configurations and parameters displayed for operation (contents on request).

• PArA

FAIA							
Name	r/w	Adr. Ir	nteger	real	Тур	Value/off	Description
Conf	r/w	base 1dP	256 8448	16896	Int	02 [Start/Stop and abortion of the configuration mode 0 = End of configuration 1 = Start of configuration 2 = Abort configuration
tEmP	r/w	base 1dP	91 8283	16566	Float	09999 [Constant sensor temperature. With O2 measurement, the actual oxygen content is derived from the constant sensor temperature and the EMF (electromotive force in volts) generated by the sensor.Note: A constant sensor temperature is only ensured with heated lambda sensors.

Operating Version1

Operating Version1

Code Table

Signa Name		Adr. In	teaer	real	Тур	Value/off	Description
C.InP	r	base 1dP	39 8231		[-1999 9999	•
САН	r	base 1dP	390 8582	17164	Long	0	Total operating hours. Count starts with the first switch-on. Intern test routine. Is stored and displayed not more than once per hour.
СРН	r/w	base 1dP	394 8586	17172	Long	0	Operating hours of the current maintenance period. Internal test routine. Is stored and displayed not more than once per hour. Rese when the time limit message is acknowledged.
Diag	r	base 1dP	382 8574	17148	Int	0 255	Result of diagnosis. Any faults detected during the self-test for data, RAM, processor, and EEPROM, as well as an exceeded cour for the operating hours (maintenance period) and no. of switching cycles (maintenance period) are stored. Can be reset by acknowledgement.
EE.Ver	r	base 1dP	381 8573	17146	Int	0 0	EEPROM version
ld.NrH	r	base 1dP	370 8562	17124	Int	0 0	More significant part of the device Ident number.
ld.NrL	r	base 1dP	371 8563	17126	Int	0 0	Less significant part of the device Ident number.
ld.NrZ	r	base 1dP	372 8564	17128	Int	0 0	Sequential Ident number of the device.
In.Hi	r	base 1dP	43 8235	16470	Float	-1999 9999	maximum value
In.Lo	r	base 1dP	42 8234	16468	Float	-1999 9999	minimum value
Int.Tmp	r	base 1dP	380 8572	17144	Int	00	Max. measured operating temperature. Internal test routine.
Oem.NrH	r	base 1dP	373 8565	17130	Int	00	More significant part of the device OEM no.
Oem.NrL	r	base 1dP	374 8566	17132	Int	00	Less significant part of the device OEM no.
SA01	r	base 1dP	391 8583	17166	Long	0	Total number of switching cycles of OUT1. Internal test routine th is stored and displayed not more than once per hour.

OHITE								
Signa								
Name		Adr. In	teger	real	Тур	Value/off		Description
SA02	r	base 1dP	392 8584	17168	Long	0		Total number of switching cycles of OUT2. Internal test routine that is stored and displayed not more than once per hour.
SA03	r	base 1dP	393 8585	17170	Long	0		Total number of switching cycles of OUT3. Internal test routine tha is stored and displayed not more than once per hour.
SP01	r/w	base 1dP	395 8587	17174	Long	0		Switching cycles of OUT1 during the present maintenance period. Internal test routine that is stored and displayed not more than one per hour. Resetting is done by acknowledging the switching cycle message.
SPO2	r/w	base 1dP	396 8588	17176	Long	0		Switching cycles of OUT2 during the present maintenance period. Internal test routine that is stored and displayed not more than onc per hour. Resetting is done by acknowledging the switching cycle message.
SPO3	r/w	base 1dP	397 8589	17178	Long	0		Switching cycles of OUT3 during the present maintenance period. Internal test routine that is stored and displayed not more than onc per hour. Resetting is done by acknowledging the switching cycle message.
Sw.Nr	r	base 1dP	375 8567	17134	BCD	00		Digits 7 to 12 of the software order number.
T.CodeNr	r	base 1dP	360 8552	17104	Text	0 0		15-digit order number of the device.
UPD	r/w	base 1dP	257 8449	16898	Enum	Enum_Aenderungs	flag	Status message indicating that parameter / configuration have been changed via the front panel.
	-					0 No change	e via	the front panel keys.
						1 A change	has	been made via the front panel keys, which must be processed.
L-R	r/w	base 1dP	55 8247	16494	Int	0 1		Remote operation. Remote means that all values can only be adjusted via the interface. Adjustments via the front panel are blocked.
Hw.Opt	r	base 1dP	200 8392	16784	Int	0 65535		Device options: 0000 WXYZ 0000 DCBA Z = 1: Modbus interface Y = 1: System device X = 1: Option 1 W = 1: Option 2 A = 1: OUT1 available B = 1: OUT2 available C = 1: OUT3 available D = 1: OUT3 is an analog output
Sw.Op	r	base 1dP	201 8393	16786	Int	0 255		Software version XY Major and Minor Release (e.g. 21 = Version 2.1). The software version specifies the firmware in the unit. For th correct interaction of E-Tool and device, it must match the operatin version (OpVersion) in the E-Tool.

Signal								
Name		Adr. Integ	ger i	real	Тур	Value/off		Description
Bed.V	r	base 1dP	202 8394	16788	Int	0 255		Operating version (numeric value). For the correct interaction of E-Tool and device, the software version and operating version must match.
rES.L	r/w	base 1dP	65 8257	16514	Int	0 1		Reset of minimum value
Unit	r	base 1dP	203 8395	16790	Int	0 255		Identification of the device.
rES.H	r/w	base 1dP	66 8258	16516	Int	0 1		Reset of maximum value
S.Vers	r	base 1dP	204 8396	16792	Int	100 255		The sub-version number is given as an additional index for precise definition of software version.
St.Ala	r	base 1dP	23 8215	16430	Int			Alarm status: Bit-wise coded status of the individual alarms, e.g. exceeded limit value.
						Bit 3 Not used Bits 5 - 7 Not u Bit 8 Existing e Bit 9 Existing e Bit 10 Existing Bits 11 - 15 No	Bit 4 Ised XCee XCee exce	eded limit 1 eded limit 2 eeded limit 3
Err.r	r/w	base 1dP	63 8255	16510	Int	01		Signal for resetting the entire error list. The error list contains all errors that are reported, e.g. device faults and limit values. It also contains queued as well as stored errors after their correction. The reset acknowledges all errors, whereby queued errors will reappear after the next error detection (measurement).
St.Do	r	base 1dP	24 8216	16432	Int	0 15		Status of the digital outputs
St.Ain	r	base 1dP	22 8214	16428	Int	0 127		Bit-coded status of the analog input (fault, e.g. short circuit)
Bit 0 Break at Inpu Bit 1 Reversed pol Bit 2 Short-circuit Bit 3 Not used Bit 4 Break at Inpu Bit 5 Reversed pol Bit 6 Short-circuit Bits 7-15 Not used								arity at Input 1 at Input 1 t 2 arity at Input 2 at Input 2

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ohnE								
Sign	al							
Name	Name r/w Adr. Integer real Typ N			Value/off		Description		
St.Di	r	base 1dP	25 8217	16434	Int			Status of the digital inputs or of push-buttons (binary coded).
	Bit 0: Input di Bit 8: Status Bit 9: Status Bit 10: Status					Bit 8: Status Bit 9: Status	s of Ent s of 'Do	wn' key
F.Di	r/w	base 1dP	28 8220	16440	Int	0 1		Forcing of digital inputs. Forcing involves the external operation of at least one device input. The device takes over this input value (preset value for device inputs from a superordinate system, e.g., a function test.)
						Bit 0 Forcing	g of dig	ital Input 1
F.Do	r/w	base 1dP	29 8221	16442	Int	0 15		Forcing of digital outputs. Forcing involves the external operation at least one controller output. The controller has no influence on this output (use of free controller outputs by superordinate system
I.Chg	r/w	base 1dP	64 8256	16512	Int	0 1		Signal for switching the effective process value between x1 and a
tArA	r/w	base 1dP	67 8259	16518	Int	0 1		Tare
HOLd	r/w	base 1dP	68 8260	16520	Int	0 1		hold

10 ohnE1

PArA	PArA							
Name	r/w	Adr. In	iteger	real	Тур	Value/off		Description
L.1	r/w	base 1dP	73 8265	16530	Float	-1999 9999		Lower limit value. The alarm is triggered if the value falls below the limit, and is reset with lower limit value plus hysteresis.
H.1	r/w	base 1dP	74 8266	16532	Float	-1999 9999		Upper limit value. The alarm is triggered if the value rises above the limit, and is reset with upper lower limit value plus hysteresis.
t.F1	r/w	base 1dP	70 8262	16524	Float	0 999		Filter time constant [s]. Every input is fitted with a digital (software) low-pass filter for suppressing process-related disturbances on the input leads. Higher filter settings improve the suppression, but increase the delay of the input signals.

• Signal

	Signai								
	Name	r/w	Adr. Ir	nteger	real	Тур	Value/off		Description
	In.1	r	base 1dP	20 8212	16424	Float	-1999 9999		Measurement value after the measurement value correction (e.g. with offset or 2-point correction, and scaling).
PN	ЛА GmbH - In	iterfac	cedescri	ption CI	45			Α	Appendix Page 25 9499-040-72011

10 ohnE1

	Signal							
٦	Name	r/w	Adr. In	teger	real	Тур	Value/off	Description
F	F.Do1	r/w	base 1dP	31 8223	16446	Enum	Enum_Ausgang	Forcing of this digital output. Forcing involves the external operation of a controller output. The controller has no influence on this output (use of free controller outputs by superordinate system).
F							0 off 1 on	
Ι	ln.1r	r	base 1dP	2005 10197	20394	Float	-1999 9999	Measurement value before the measurement value correction (unprocessed, read directly from the input).
ł	F.Inp	r/w	base 1dP	26 8218	16436	Float	-1999 9999	Forcing the value for an analog input INP. Forcing involves the external operation of a controller input. The controller takes over the value at this input like a measurement value (preset value for controller inputs from a superordinate system, e.g. for a function test.)

11 ohnE2

• PArA

PArA							
Name	r/w	Adr. Ir	nteger	real	Тур	Value/off	Description
L.2	r/w	base 1dP	75 8267		Float	-1999 9999	Lower limit value. The alarm is triggered if the value falls below the limit, and is reset with lower limit value plus hysteresis.
t.F2	r/w	base 1dP	71 8263		Float	0 999	Filter time constant [s]. Every input is fitted with a digital (software) low-pass filter for suppressing process-related disturbances on the input leads. Higher filter settings improve the suppression, but increase the delay of the input signals.
H.2	r/w	base 1dP	76 8268		Float	-1999 9999	Upper limit value. The alarm is triggered if the value rises above the limit, and is reset with upper lower limit value plus hysteresis.

Signa								
Name	me r/w Adr. Integer real Typ		Value/off		Description			
In.2	r	base 1dP	21 8213	16426	Float	-1999 9999		Measurement value after the measurement value correction (e.g. with offset or 2-point correction, and scaling).
F.Do2	r/w	base 1dP	32 8224	16448	Enum	Enum_Ausgang		Forcing of this digital output. Forcing involves the external operation of a controller output. The controller has no influence on this output (use of free controller outputs by superordinate system).
						0 off		
						1 on		
In.2r	r	base	2006	20396	Float	-1999 9999		Measurement value before the measurement value correction

ln.2r	r	base	2006	20396	Float	-1999 9999	Measurement value before the measurement value correction
		1dP	10198				(unprocessed, read directly from the input).

Code Table

11	ohnE2)						
•	Signal							
	Name	r/w	Adr. II	nteger	real	Тур	Value/off	Description
	F.Inp	r/w	base 1dP	27 8219		Float	-1999 9999	Forcing the value for an analog input INP. Forcing involves the external operation of a controller input. The controller takes over the value at this input like a measurement value (preset value for controller inputs from a superordinate system, e.g. for a function
								test.)

12 ohnE3

•	PArA							
	Name	r/w	Adr. Ir	nteger	real	Тур	Value/off	Description
	L.3	r/w	base 1dP	77 8269	16538	Float	-1999 9999	Lower limit value. The alarm is triggered if the value falls below the limit, and is reset with lower limit value plus hysteresis.
	H.3	r/w	base 1dP	78 8270	16540	Float	-1999 9999	Upper limit value. The alarm is triggered if the value rises above the limit, and is reset with upper lower limit value plus hysteresis.

Signa								
Name	r/w	Adr. Ir	nteger	real	Тур	Value/off		Description
F.Do3	r/w	base 1dP	33 8225		Enum	Enum_Ausgang		Forcing of this digital output. Forcing involves the external operation of a controller output. The controller has no influence on this output (use of free controller outputs by superordinate system).
L						0 off		
						1 on		
[_	
Out.3	r	base	34	16452	Float	-1999 9999		Value of the analog output [%]
		1dP	8226					
F.Ou1	r/w	base	30	16444	Float	-1999 9999		Forcing value of the analog output. Forcing involves the external
		1dP	8222					operation of a controller output, i.e. the controller has no influence
			JEEE					on this output. (Used for the operation of free controller outputs e.g. by a supervisory PLC.)

13 othr

r/w	Adr. In	iteger	real	Тур	Value	/off	Description
r/w	base 1dP			Enum	Enum_I	Baud	Bit rate of the interface (only visible with OPTION). The bit rate determines the transmission speed.
					0 1	2400 Baud 4800 Baud	
					2 3	9600 Baud 19200 Baud	
		r/w base	r/w base 290	r/w base 290 16964	r/w base 290 16964 Enum	r/w base 290 16964 Enum Enum 1 1dP 8482 0 0 1000 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	r/w base 290 16964 Enum Enum_Baud 1dP 8482 16964 Enum 0 2400 Baud 1 4800 Baud 2 9600 Baud

Addr	r/w	base 1dP	291 8483	16966	Int	1 247		Address on the interface (only visible with OPTION)
PrtY	r/w	base 1dP	292 8484	16968	Enum	Enum_Parity		Parity of data on the interface (only visible with OPTION). Simple possibility of checking that transferred data is correct.
						0 No parity	, with	n 2 stop bits.
						1 even pari	ty	
						2 odd parity	y	
						3 no parity	(1 sto	pp bit)
dELY	r/w	base 1dP	293 8485	16970	Int	0 200		Response delay [ms] (only visible with OPTION). Additional delay time before the received message may be answered on the Modbus. (Might be necessary, if the same line is used for transmit/receive.)

13	othr								
•	ConF								
	Name	r/w	Adr. Ir	nteger	real	Тур	Value/	off	Description
	D.Unt		base 1dP	284 8476		Enum	EnumDI	Jnit	display unit
							0	without unit	
							1	Temperature u	init
							2	O2 unit	
							3	%	
							4	bar	
							5	mbar	
							6 7	Pa kPa	
							8	psi	
							9	l l	
							10	l/s	
							11	l/min	
							12	Ohm	
							13	kOhm	
							14	m	
							15	А	
							16	mA	
							17	V	
							18 19	mV	
							20	kg	
							20	g t	
							22	Text of phys. L	Jnit

02	r/w	base 1dP	283 8475	16950	Enum	O2Unit	Parameter definition for O2 measurement. With O2 measurement it is necessary to define whether the parameter is to be evaluated in ppm or %.
						0 Param	er for O2 function in ppm
						1 Param	er for O2 function in %

3	othr							
	ConF							
	Name	r/w	Adr. Ir	nteger	real	Тур	Value/off	Description
	Unit	r/w	base 1dP	280 8472	16944	Enum	Enum_Unit_rail	Physical unit, f.e.°C
L						I	1 °C	
							2 °F 3 K	
							<u> </u>	
	dP	r/w	base 1dP	281 8473	16946	Enum	Enum_dP	Decimal point (max. no of decimals). Format of the measured val display.
L						I		d the decimal point
							1 Display has or	
							 Display has tw Display has th 	
_								
	SEGm	r/w	base 1dP	300 8492	16984	Enum	EnumSegm	Meaning of the display elements '1' and '2'.
L						I	0 OUT1, OUT2	
							1 INP1, INP2	
	C.dEL	r/w	base 1dP	294 8486	16972	Int	0200	Additional delay time before received message is evaluated by Modbus. This time is needed if data is not transmitted continous by the modem.
	FrEq	r/w	base 1dP	260 8452		Enum	Enum_FrEq	Switchover of the applied mains frequency 50 / 60 Hz and adapt the input filter for hum suppression.
-							0 Mains frequer	
							1 Mains frequer	ncy is 60 Hz.

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othr								
Signa	al							
Name		Adr. In	teger	real	Тур	Value/	off	Description
D.Unt	r	base 1dP	340 8532	17064	Enum	EnumDl	Jnit	Effective display unit (can be used for extended Operating Leve display 2)
						0	without unit	
						1	Temperature u	nit
						2	O2 unit	
						3	%	
						4 5	bar mbar	
						6	Pa	
						7	kPa	
						8	psi	
						9		
						10 11	I/s I/min	
						12	Ohm	
						13	kOhm	
						14	m	
						15 16	A mA	
						10	V	
						18	mV	
						19	kg	
						20	g	
						21 22	t Text of phys. L	Init
E.1	rha	base	210	17004	Enum	Defect		Err 1 (internal error)
E. I	1700	1dP	8502	17004	CIIUIII	Derect		
						0	No fault exists	(Reset).
						2	The device is o	
E.2	r/w	base	311	17006	Fnum	Problem	1	Err 2 (internal error, resetable)
L.L		1dP	8503	17000				
	Į				ļ	0	No fault or res	et of the fault exists (Reset).
						1		surred and has been stored.
E.3	r/w	base	320	17042	Fnum	ConfErr		Resettable configuration fault.
2.0	1, 1	1dP	8521	17042				ConfErr(2): a fault has occurred.
		1 di	0021					Typical causes and suggested remedies:
								Missing or faulty configuration: check interactions in the
							N - 6	configuration and parameter settings.
						0	NO TAULT OF RES	et of the configuration error exists (Reset).
						2	There is a cont	iguration error. The configuration is missing or wrong, or it does not m

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Signa								
Name		Adr. In	teger	real	Тур	Value/	off	Description
E.4	r/w	base 1dP	328 8520	17040	Enum	Problem		Hardware fault.Cause: Code number and hardware are not identical. Remedy: Contact PMA Service or replace electronics/Options po
	-					0	No fault or res	et of the fault exists (Reset).
						1	A fault has occ	curred and has been stored.
FbF.1	r/w	base 1dP	312 8504	17008	Enum	Break		Sensor break at input INP1. Break(2): a fault has occurred. Break(1): fault remedied but not acknowledged. Typical causes and suggested remedies: Sensor fault: replace INP1 sensor. Wiring fault: check connections of INP1.
						0	No fault or res	et of the sensor break alarm exists (Reset).
						1 2	operator must	It alarm has been triggered and stored; the fault is no longer present. T acknowledge the error message in order to delete it from the error list. The sensor is defective or there is a wiring fault.
Sht.1	r/w	base 1dP	313 8505	17010	Enum	Short		Short circuit at input INP1. Short(2): a fault has occurred. Short(1): fault remedied but not acknowledged. Typical causes and suggested remedies: Sensor fault: replace INP1 sensor. Wiring fault: check connections of INP1.
	_!				<u> </u>	0	No fault or res	et of the short-circuit alarm exists (Reset).
						1 2		fault has occurred and has been stored. fault has occurred.
						2		
POL.1	r/w	base 1dP	314 8506	17012	Enum	Polarity		Incorrect polarity at input INP1. Polarity(2): a fault has occurred. Latched(1): fault remedied but not acknowledged. Suggested remedy: reverse the polarity at INP1.
						0		et of incorrect polarity alarm exists (Reset).
						1 2	•	olarity fault has occurred and has been stored. ity. The wiring of the input circuit is not correct.
FbF.2	r/w	base 1dP	315 8507	17014	Enum	Break		Sensor break at input INP2. Break(2): a fault has occurred. Break(1): fault remedied but not acknowledged. Typical causes and suggested remedies: Sensor fault: replace INP2 sensor. Wiring fault: check connections of INP2.
						0		et of the sensor break alarm exists (Reset).
						1	operator must	It alarm has been triggered and stored; the fault is no longer present. T acknowledge the error message in order to delete it from the error list. The sensor is defective or there is a wiring fault.

othr							
Signa							
Name		Adr. Int	teger	real	Тур	Value/	/off Description
Sht.2	r/w	base 1dP	316 8508	17016	Enum	Short	Short circuit at input INP2. Short(2): a fault has occurred. Short(1): fault remedied but not acknowledged. Typical causes and suggested remedies: Sensor fault: replace INP2 sensor. Wiring fault: check connections of INP2.
						0	No fault or reset of the short-circuit alarm exists (Reset).
						1	A short-circuit fault has occurred and has been stored.
						2	A short-circuit fault has occurred.
POL.2	r/w	base 1dP	317 8509	17018	Enum	Polarity	Polarity(2): a fault has occurred. Latched(1): fault remedied but not acknowledged. Suggested remedy: reverse the polarity at INP2.
						0	No fault or reset of incorrect polarity alarm exists (Reset).
						1 2	An incorrect polarity fault has occurred and has been stored. Incorrect polarity. The wiring of the input circuit is not correct.
						2	incorrect polarity. The winning of the input circuit is not correct.
Err.F	r/w	base 1dP	330 8522	17044	Enum	FFail	Frequency fault.2: Fault is present.1: Fault remedied, but not acknowledged. Typical causes and remedies: Frequency too high (reduce the frequency)
						0	No fault or reset of the frequency fault alarm exists (Reset).
						1 2	A frequency fault has occurred and has been stored; the fault is no longer present. T operator must acknowledge the error message in order to delete it from the error lis Frequency fault: The applied frequency is too high.
Lim.1	r/w	base 1dP	323 8515	17030	Enum	Limit	Limit value 1 exceeded. Active (2): a fault has occurred. Latched (1): fault remedied but not acknowledged. Hint for trouble-shooting: check the process.
						0	No fault or reset of the limit value alarm exists (Reset).
						1 2	The limit value has been exceeded, and the fault has been stored. The limit value has been exceeded; the monitored (measurement) value is outside the limits.
Lim.2	r/w	base 1dP	324 8516	17032	Enum	Limit	Limit value 2 exceeded. Active (2): a fault has occurred. Latched (1): fault remedied but not acknowledged. Hint for trouble-shooting: check the process.
						0	No fault or reset of the limit value alarm exists (Reset).
						2	The limit value has been exceeded, and the fault has been stored. The limit value has been exceeded; the monitored (measurement) value is outside the limits.
Lim.3	r/w	base 1dP	325 8517	17034	Enum	Limit	Limit value 3 exceeded. Active (2): a fault has occurred. Latched (1): fault remedied but not acknowledged. Hint for trouble-shooting: check the process.
					•	0 1	No fault or reset of the limit value alarm exists (Reset). The limit value has been exceeded, and the fault has been stored. The limit value has been exceeded; the monitored (measurement) value is outside th
						1	

othr									
Signal									
Name r/w Adr. Integer real Typ V				real	Тур	Value/off	Description		
InF.1		base 1dP	326 8518		Enum	Time	Message from the operating hours counter that the preset no. of hours for this maintenance period has been reached. The op-hours counter for the maintenance period is reset when this message is acknowledged. Counting the operating hours is used for preventive maintenance.		
						0 No signal or r	eset of the time limit signal (reset).		
						1 Operating hours - limit value (maintenance period) reached.			
InF.2	-	base 1dP	327 8519		Enum	Switch	Message from the switching cycle counter that the preset no. of switch cycles for this maintenance period has been reached. The cycle counter for the maintenance period is reset when this message is acknowledged. Counting the switching cycles is used for preventive maintenance.		
							sage or reset of the switching cycle counter exists (Reset).		
						4	e switching cycle counter (maintenance period) has been reached.		

4	Out.1							
•	ConF							
	Name	r/w	Adr. Inte	eger	real	Тур	Value/off	Description
	0.Act	r/w	base 1dP	920 9112	18224	Enum	Enum_OAct	Operating sense of the switching output OUT x. Direct: Active function (e.g. limit value) switches the output ON; Inverse: Active function (e.g. limit value) switches the output OFF.
						1	0 direct / norma	Ily open
							1 inverse / norm	ally closed
	Lim.1	r/w	base	923	18230	Enum	Enum_Lim1	Activation of output function:
			1dP	9115				Adjusted limit value 1 has been exceeded.
							0 not active	
							1 The output is a	activated by an alarm from limit value 1.
	Lim.2	r/w	base		18232	Enum	Enum_Lim2	Activation of output function:Adjusted limit value 2 has been
			1dP	9116				exceeded.
							0 not active	
							1 The output is a	activated by an alarm from limit value 2.
						_	F 11 0	
	Lim.3	r/w	base		18234	Enum	Enum_Lim3	Activation of output function:
			1dP	9117				Adjusted limit value 3 has been exceeded.
						ļ	0 not active	
							1 The output is a	activated by an alarm from limit value 3

1 The output is activated by an alarm from limit value 3.

Out.1							
ConF							
Name		Adr. In	teger	real	Тур	Value/off	Description
Cnt	r/w	base 1dP	926 9118	18236	Enum	Enum_Cnt	Message counter end
						0 not active	
						1 The output is a	activated at the end of the count.
FAi.1	r/w	base 1dP	932 9124	18248	Enum	Enum_FAi1	Activation of the message: INP1 fault. The fail signal is generated, if a fault occurs at the analog Inpu INP1.
					Į	0 not active	
						1 The output is s	switched by the error message 'INP1 fault'.
FAi.2	r/w	base 1dP	933 9125	18250	Enum	Enum_FAi2	Activation of the message: INP2 fault. The fail signal is generated, if a fault occurs at the analog Inpu INP2.
	I					0 not active	
						1 The output is s	switched by the error message 'INP2 fault'.
FAi.F	r/w	base 1dP	934 9126	18252	Enum	Enum_FAiF	Activation of the output: Frequency fault.The 'Fail' signal is generated if a fault occurs at the counter/frequency input.
						0 not active	L
						1 The output is a	activated by the 'Frequency fault' error message.
InF.1	r/w	base 1dP	935 9127	18254	Enum	Enum_Inf1	Activation of the output: Inf.1 status.The Inf.1 signal is general when the preset value of the operating hours counter has been reached.
	!					0 not active	
						1 The output is a	activated by the status message 'Inf.1'.
InF.2	r/w	base 1dP	936 9128	18256	Enum	Enum_Inf2	Activation of the output: Inf.2 status.The Inf.2 signal is genera when the preset value of the switching cycle counter has beer reached.
					I	0 Not active	activated by the status message 'Inf.2'.

•	Signal								
	Name	r/w	Adr. Ir	nteger	real	Тур	Value/off	I	Description
	Out1	r	base	940	18264	Enum	Enum_Ausg	lang	Status of the digital output
			1dP	9132					
							0 off		
							1 on		

Out.1 Signal								
Name	r/w	Adr. Ir	nteger	real	Тур	Value	e/off	Description
F.Do1	r/w	base 1dP	941 9133	18266	Enum	Enum_	Ausgang	Forcing of this digital output. Forcing involves the external operation of a controller output. The controller has no influence on this output (use of free controller outputs by superordinate system).
					•	0	off on	•

Name	r/w	Adr. Int	eger	real	Тур	Value/off	Description
0.Act	r/w	base 1dP	970 9162	18324	Enum	Enum_OAct	Operating sense of the switching output OUT x. Direct: Active function (e.g. limit value) switches the output OI Inverse: Active function (e.g. limit value) switches the output O
L						0 direct / norm	ally open
						1 inverse / nor	mally closed
Lim.1	r/w	base 1dP	973 9165	18330	Enum	Enum_Lim1	Activation of output function: Adjusted limit value 1 has been exceeded.
						0 not active	
							activated by an alarm from limit value 1.
					I		5
Lim.2	r/w	base	974	18332	Enum	Enum_Lim2	Activation of output function:Adjusted limit value 2 has been
		1dP	9166				exceeded.
						0 not active	
						1 The output is	activated by an alarm from limit value 2.
Lim.3	-	haaa	075	10224	Глит	Enum_Lim3	Activation of output function.
LIM.3	r/w	base 1dP	975 9167	18334	Enum	LIIUIII_LIIII3	Activation of output function: Adjusted limit value 3 has been exceeded.
		TUP	9107				
						0 not active	
							activated by an alarm from limit value 3.
Cnt	r/w	base	976	18336	Enum	Enum_Cnt	Message counter end
		1dP	9168				
L					I	0 not active	<u> </u>
						1 The output is	activated at the end of the count.
[Enum_FAi1	Activation of the message: INP1 fault.
FAi.1	r/w	base 1dP	982 9174	18348	Enum	LIIUIII_I AII	The fail signal is generated, if a fault occurs at the analog Inpu

5	Out.2											
	ConF											
	Name	r/w	Adr. Integ	ger	real	Тур	Value/off	Description				
	FAi.2	r/w	base 1dP	983 9175	18350	Enum	Enum_FAi2	Activation of the message: INP2 fault. The fail signal is generated, if a fault occurs at the analog Input INP2.				
							0 not active					
							1 The output is s	switched by the error message 'INP2 fault'.				
	FAi.F	r/w	base 1dP	984 9176	18352	Enum	Enum_FAiF	Activation of the output: Frequency fault. The 'Fail' signal is generated if a fault occurs at the counter/frequency input.				
							0 not active					
							1 The output is activated by the 'Frequency fault' error message.					
	InF.1	r/w	base 1dP	985 9177	18354	Enum	Enum_Inf1	Activation of the output: Inf.1 status. The Inf.1 signal is generated, when the preset value of the operating hours counter has been reached.				
		1					0 not active					
							1 The output is a	activated by the status message 'Inf.1'.				
	InF.2	r/w	base 1dP	986 9178	18356	Enum	Enum_Inf2	Activation of the output: Inf.2 status. The Inf.2 signal is generated, when the preset value of the switching cycle counter has been reached.				
							0 Not active					
							1 The output is a	activated by the status message 'Inf.2'.				

Sig	nal							
Name		r/w	Adr. Ir	nteger	real	Тур	Value/off	Description
Out2		r	base 1dP	990 9182		Enum	Enum_Ausgang	Status of the digital output
							0 off 1 on	
F.Do2		r/w	base 1dP	991 9183		Enum	Enum_Ausgang	Forcing of this digital output. Forcing involves the external operation of a controller output. The controller has no influence on this output (use of free controller outputs by superordinate system).

0	off
1	on

on

						1 5
Out.3						
ConF						
Name	r/w	Adr. Integer	real	Тур	Value/off	Description
O.tYP	r/w	base 103 1dP 922	5 18454 ?7	Enum	Enum_OtYP	Signal type selection OUT
					1 0 20 mA cor 2 4 20 mA cor 3 010 V contin 4 210 V contin	only visible with current/logic/voltage). ntinuous (only visible with current/logic/voltage). ntinuous (only visible with current/logic/voltage). nuous (only visible with current/logic/voltage) nuous (only visible with current/logic/voltage) pply (only visible with current/logic/voltage)
0.Act	r/w	base 102 1dP 92	2 18424	Enum	Enum_OAct	Operating sense of the switching output OUT x. Direct: Active function (e.g. limit value) switches the output ON; Inverse: Active function (e.g. limit value) switches the output OFF
					0 direct / norma 1 inverse / norm	· · ·
Out.0	r/w	base 103 1dP 922	6 18456 8	Float	-19999999	Lower scaling limit of the analog output (corresponds to 0%). If current and voltage signals are used as output values, the display can be scaled to the output value in the Parameter Level. The output value of the lower scaling point is indicated in the respect electrical unit (mA / V).
Out.1	r/w	base 103 1dP 922		Float	-19999999	Upper scaling limit of the analog output (corresponds to 100%). If current and voltage signals are used as output values, the display can be scaled to the output value in the Parameter Level. The output value of the upper scaling point is indicated in the respect electrical unit (mA / V).
0.Src	r/w	base 103 1dP 923		Enum	Enum_OSrc	Signal source of the analog output (only visible when 0.TYP=15)
					0 not used	
					3 process value	
					7 measured value	
					8 measured value10 The measurem	nent value of the counter/frequency input is supplied.
O.FAI	rha	base 103	9 18462	Enum	Enum_OFail	fail behaviour
	r/w	1dP 923			Linum_Or dir	
					0 upscale 1 downscale	
Lim.1	r/w	base 102 1dP 92	3 18430 5	Enum	Enum_Lim1	Activation of output function: Adjusted limit value 1 has been exceeded.
					0 not active	
					1 The output is a	activated by an alarm from limit value 1.

							Operating Version
Out.3							
ConF							
Name	r/w	Adr. Ir	nteger	real	Тур	Value/off	Description
Lim.2	r/w	base 1dP	1024 9216	18432	Enum	Enum_Lim2	Activation of output function:Adjusted limit value 2 has been exceeded.
						0 not active	
						1 The output is	activated by an alarm from limit value 2.
Lim.3	r/w	base 1dP	1025 9217	18434	Enum	Enum_Lim3	Activation of output function: Adjusted limit value 3 has been exceeded.
						0 not active 1 The output is	activated by an alarm from limit value 3.
Cnt	r/w	base 1dP	1026 9218	18436	Enum	Enum_Cnt	Message counter end
						0 not active	
						1 The output is	activated at the end of the count.
FAi.1	r/w	base 1dP	1032 9224	18448	Enum	Enum_FAi1	Activation of the message: INP1 fault. The fail signal is generated, if a fault occurs at the analog Inp INP1.
						0 not active 1 The output is	switched by the error message 'INP1 fault'.
FAi.2	r/w	base 1dP	1033 9225	18450	Enum	Enum_FAi2	Activation of the message: INP2 fault. The fail signal is generated, if a fault occurs at the analog Inp INP2.
						0 not active	1
						1 The output is	switched by the error message 'INP2 fault'.
FAi.F	r/w	base 1dP	1034 9226	18452	Enum	Enum_FAiF	Activation of the output: Frequency fault. The 'Fail' signal is generated if a fault occurs at the counter/frequency input.
						0 not active	
						1 The output is	activated by the 'Frequency fault' error message.
InF.1	r/w	base 1dP	1055 9247	18494	Enum	Enum_Inf1	Activation of the output: Inf.1 status. The Inf.1 signal is general when the preset value of the operating hours counter has bee reached.
						0 not active 1 The output is	activated by the status message 'Inf.1'.
InF.2	r/w	base 1dP	1056 9248	18496	Enum	Enum_Inf2	Activation of the output: Inf.2 status. The Inf.2 signal is general when the preset value of the switching cycle counter has bee reached.
						0 Not active	
						1 The output is	activated by the status message 'Inf.2'.

Operating Version1

Οι	ut.3								
Si	gnal								
Nam	е	r/w	Adr. Ir	nteger	real	Тур	Value	/off	Description
Out3		r	base 1dP	1040 9232		Enum	Enum_/	Ausgang	Status of the digital output
							0	off	
							1	on	
F.Do	3	r/w	base 1dP	1041 9233		Enum	Enum_/	Ausgang	Forcing of this digital output. Forcing involves the external operation of a controller output. The controller has no influence on this output (use of free controller outputs by superordinate system).
		<u> </u>				<u> </u>	0 1	off on	
Out.3	3	r	base 1dP	1043 9235		Float	-1999.	9999	Value of the analog output [%]
F.Ou	3	r/w	base 1dP	1042 9234		Float	-1999.	9999	Forcing value of the analog output. Forcing involves the external operation of a controller output, i.e. the controller has no influence on this output. (Used for the operation of free controller outputs e. by a supervisory PLC.)

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_								
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)	ConF							
	Name	r/w	Adr. In	teger	real	Тур	Value/off	Description
	SP.Fn	r/w	base 1dP	820 9012	18024	Enum	Enum_SPFN	Basic configuration for setpoint processing, e.g. 'setpoint controller switchable to external setpoint'. Configuration of special, controller-dependent setpoint functions.
							0 set-po	int controller can be switched over to external set-point (->LOGI/SP.E)
							1 Progra	m controller for setpoint profile. The program profile is definable by the user.
							the co value elapse	operating mode 1 (bandwidth monitoring, switch-off at the end). After timer start, ntroller lines out at the defined setpoint. The timer time (t.SP) runs when the process enters the adjusted band around the setpoint ($x = SP \pm b.ti$). When the timer has ed, the controller is switched to Y2 (= fixed positioning value) and the lower display ates between 'End' and the setpoint.
							contro value elapse	operating mode 2 (bandwidth monitoring, pause at the end). After timer start, the ller lines out at the defined setpoint. The timer time (t.SP) runs when the process enters the adjusted band around the setpoint ($x = SP \pm b.ti$). When the timer has ed, the controller continues with setpoint SP, and the lower display alternates en 'End' and the setpoint.
						4 Timer, operating mode 3 (switch-off at at the defined setpoint. The timer time timer has elapsed, the controller is sw lower display alternates between 'End		operating mode 3 (switch-off at the end). After timer start, the controller lines out defined setpoint. The timer time (t.SP) runs immediately after switchover. When the has elapsed, the controller is switched to Y2 (= fixed positioning value) and the display alternates between 'End' and the setpoint.
							define has ela	operating mode 4 (pause at the end). After timer start, the controller lines out at the d setpoint. The timer time (t.SP) runs immediately after switchover. When the timer apsed, the controller continues with setpoint SP, and the lower display alternates en 'End' and the setpoint.
							contin	operating mode 5 (delayed start). The timer starts immediately. The controller ues with Y2 (= fixes positioning value). When the timer (t.SP) has elapsed, the ller switches over to the adjusted setpoint.
						controller lines out at SP.2. The time (t.SP) runs we adjusted band around the setpoint ($x = SP \pm b.ti$). V controller switches back to setpoint SP, and the lo		operating mode 6 (setpoint switchover). After switching over from SP to SP.2, the ller lines out at SP.2. The time (t.SP) runs when the process value enters the ed band around the setpoint ($x = SP \pm b.ti$). When the timer has elapsed, the ller switches back to setpoint SP, and the lower display alternates between 'End' e setpoint.
							(switcl	nt controller switchable to setpoint controller with external setpoint shift hable -> LOGI/SP.E).
							(progra	m controller switchable to program controller with external setpoint shift. am controller for setpoint profile, the profile can be defined by the user, switchable SI/SP.E)
	b.ti	r/w	base 1dP	822 9014	18028	Float	0 9999	Timer tolerance band for operating mode:1 (bandwidth monitoring with switch-off at the end)2 (bandwidth monitoring with pause at the end), and6 (setpoint switchover). The timer runs as long as the process value is within the bandwidth limits (setpoint ± b.ti).

1	Cntr								
•	ConF								
	Name	r/w	Adr. Inte	eger	real	Тур	Value/	off	Description
	C.tYP	r/w	base 1dP	1262 9454	18908	Enum	Enum_C	tYP	The process value can be assigned directly to an input value, but it can also be computed from the comparison of two input values. For this, various formulas are provided for the user, e.g. the difference or the ratio of the two input values.
							0	Standard contr	oller (process value = x1)
							1	Ratio controlle	
									ded to the input value x1, and then the ratio is calculated from the result alue x2. This ratio is used as process value.
							2	The process va	lue is calculated as the difference of the two values (x1 - x2).
							3		e of x1 and x2. The higher value is used for control. In case of a sensor continued with the remaining process value.
							4		e of x1 and x2. The lower value is used for control. In case of a sensor fault, nued with the remaining process value.
							5	Mean value (x1 process value.	+ x2) / 2. In case of a sensor fault, control is continued with the remaining
							6	Switchover bet	ween the input values: process value = x1 or process value = x2.
							7	should be chec	th constant sensor temperature. The engineering unit for the O2 setting ked under: Other -> parameter unit (ppm / %). nperature must be defined under: Parameters -> Controller -> Sensor
							8	second process	th measured sensor temperature. The sensor temperature is required as the s value x2. g unit for the O2 setting should be checked under: Other -> Parameter unit

C	C.Fnc	r/w	base 1dP	1250 9442	18884	Enum	Enum_CFnc	Control behaviour (algorithm) referred to output value: e.g. 2- or 3-point controller, signaller, 3-point stepping control.						
0 on/off controller or signaller with o							ler or signaller with one output							
							an analog out	PID control, e.g. heating, with one output: Switched as a digital output (2-point) or used as an analog output (continuous). PID controllers respond quickly to changes of the control deviation, and typically do not exhibit any permanent control offset.						
							2 D / Y / Off, or	2-point controller with partial/full load switch-over						
	3		used as an an	3 2 x PID control, e.g. heating/cooling. Two outputs: Switched as a digital output (3-point) or used as an analog output (continuous). PID controllers respond quickly to changes of the control deviation, and typically do not exhibit any permanent control offset.										
								ng controller, e.g. for motor actuators. Two digital outputs. No actuating nerated when the process is lined out.						

	Cntr									
	ConF									
I	Name	r/w	Adr. Integer	real	Тур	Value/off	Description			
	mAn	r/w	base 125 1dP 944		Enum	Enum_mAn	Enables the output value to be adjusted in manual operation. If adjustment is not enabled, the output value cannot be changed in manual operation, neither with the front keys nor via the interface.Note: This setting does not affect the auto/manual switchover function.			
						0 no				
						1 yes (see also L	.OGI/mAn)			
	C.Act	r/w	base 125 1dP 944	2 18888 4	Enum	Enum_CAct	Operating sense of the controller. Inverse operation (e.g. heating) means increased heat input when the process value falls. Direct operation (e.g. cooling) means increased heat input when th process value increases.			
							osed-sense response, e.g. heating. The controller output is increased with a solue, and decreased with a rising process value.			
						1 Direct or same	e-sense response, e.g. cooling. The controller output is increased with a value, and decreased with a falling process value.			
	FAIL	r/w	base 125 1dP 944	3 18890 5	Enum	Enum_FAIL	With the sensor break response, the operator determines the controller's reaction to a sensor break, thus ensuring a safe proces condition.			
-			1			•	buts switched off			
						To prevent det	 y = Y2 y = mean output. The maximum permissible output can be adjusted with parameter Ym.H. To prevent determination of inadmissible values, mean value formation is only if the control deviation is lower than parameter L.Ym. 			
	rnG.L	r/w	base 125 1dP 945	9 18902 1	Float	-19999999	Lower limit for the controller's operating range. The control range independent of the measurement range. Reducing the control rang will increase the sensitivity of the self-tuning process.			
	rnG.H	r/w	base 126 1dP 945		Float	-19999999	Upper limit for the controller's operating range. The control range independent of the measurement range. Reducing the control range will increase the sensitivity of the self-tuning process.			
	Adt0	r/w	base 126 1dP 945		Enum	Enum_Adt0	Optimization of the switching cycles t1 and t2 for the DED conversion can be disabled here. In order to fine-tune the positioning action, the switching periods are changed by the self-tuning function, if automatic tuning is configured.			
					0 The cycle duration is determinated by auto-tuning. Thereby the best controlling results obtained.					
						1 The cycle dura bad control be	tion is not determinated by auto-tuning. An oversized cycle duration cause havior. An undersized cycle duration causes a more frequent switching, the the wearout of mechanical actuators (relay, contactor).			

•	PArA							
	Name	r/w	Adr. Ir	nteger	real	Тур	Value/off	Description
	Pb1	r/w	base 1dP	1200 9392	18784	Float	1 9999	Proportional band 1 (heating) in engineering unit, e.g. °C. Pb defines the relationship between controller output and control deviation. The smaller Pb is, the stronger is the control action for a given control deviation. If Pb is too large or too small, the control loop will oscillate (hunting).

1 Cntr

Name	r/w	Adr. In	teger	real	Тур	Value/off		Description
Pb2	r/w	base 1dP	1201 9393	18786	Float	1 9999		Proportional band 2 (cooling) in engineering units, e.g. °C. Pb defines the relationship between controller output and control deviation. The smaller Pb is, the stronger is the control action for given control deviation. If Pb is too large or too small, the control loop will oscillate (hunting).
ti1	r/w	base 1dP	1202 9394	18788	Float	1 9999		Integral action time 1 (heating) [s]. Ti is the time constant of the integral portion. The smaller Ti is, the faster is the response of th integral action. Ti too small: Control tends to oscillate. Ti too large: Control is sluggish and needs a long time to line out
ti2	r/w	base 1dP	1203 9395	18790	Float	1 9999		Integral action time 2 (cooling) [s]. Ti is the time constant of the integral portion. The smaller Ti is, the faster is the response of th integral action. Ti too small: Control tends to oscillate. Ti too large: Control is sluggish and needs a long time to line out
td1	r/w	base 1dP	1204 9396	18792	Float	1 9999		Derivative action time 1 (heating) [s], second parameter set. Td is the time constant of the derivative portion. The faster the process value changes, and the larger the value of Td is, the stronger will be the derivative action. Td too small: Very little derivative action. Td too large: Control tends to oscillate.
td2	r/w	base 1dP	1205 9397	18794	Float	1 9999	2	Derivative action time 2 (cooling) [s], second parameter set. Td is the time constant of the derivative portion. The faster the process value changes, and the larger the value of Td is, the stronger will be the derivative action. Td too small: Very little derivative action. Td too large: Control tends to oscillate.
t1	r/w	base 1dP	1206 9398	18796	Float	0,4 9999		Minimum duty cycle 1 (heating) [s]. With the standard duty cycle converter, the shortest pulse duration is 1/4 x t1. If the duty cycle is not to be optimized, this must be entered in th configuration. (Default: Optimization of the duty cycle during self-tuning, but als if the output value is less than 5%).
t2	r/w	base 1dP	1207 9399	18798	Float	0,4 9999		Minimum duty cycle 2 (cooling) [s]. With the standard duty cycle converter, the shortest pulse duration is 1/4 x t1. If the duty cycle is not to be optimized, this must be entered in th configuration. (Default: Optimization of the duty cycle during self-tuning, but als if the output value is less than 5%).
SH	r/w	base 1dP	1214 9406	18812	Float	0 9999		Neutral zone, or switching difference of the signaller [engineerin unit].Too small: unnecessarily high switching frequency.Too larg reduced controller sensitivity.With 3-point controllers this slows down the direct transition from heating to cooling. With 3-point stepping controllers, it reduces the switching operations of the actuator around setpoint.
d.SP	r/w	base 1dP	1216 9408	18816	Float	-1999 9999		Separation of the D / Y switch-over point from the setpoint [engineering unit].
tP	r/w	base 1dP	1209 9401	18802	Float	0,19999		Minimum pulse duration [s]. Used for switching with constant periods. For positioning values that require a shorter pulse than adjusted for 'tp', the output is suppressed, but 'remembered'. The controller continues adding the internal short pulses until a value equal to 'tp' can be output.

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v	perunny	10111

Cntr							
PArA							
Name	r/w	Adr. In	teger	real	Тур	Value/off	Description
tt	r/w	base 1dP	1215 9407	18814	Float	3 9999	Travel time of the actuator motor [s]. If no feedback signal is available, the controller calculates the actuator position by means of an integrator and the adjusted motor travel time. For this reason, a precise definition of the motor travel time between min and max (0% and 100%) is important.
Y.Lo	r/w	base 1dP	1218 9410	18820	Float	-105 105	Lower output limit [%] The range is depedant of the type of controller: 2 point controller: 0ymax+1 3 point controller: -105 ymax-1
Y.Hi	r/w	base 1dP	1219 9411	18822	Float	-105 105	Upper output limit [%] The range is ymin+1105
Y2	r/w	base 1dP	1217 9409	18818	Float	-100 100	Second positioning value [%]. Activated Y2 = positioner control. Caution: The parameter 'positioning output Y2' must not be confused with the controller output Y2!
Y.0	r/w	base 1dP	1220 9412	18824	Float	-100 100	Offset for die positioning value [%]. This is added to the controller output, and has the most effect with P and PD controllers. (With PIC controllers, the effect is compensated by the integral action.) With a control deviation = 0, the P controller generates a control output Y0.
Ym.H	r/w	base 1dP	1221 9413	18826	Float	-100 100	Limit for the mean control output value Ym in case of sensor break [%]. The mean control output value is configurable as the response to sensor break. The maximum mean output value = YmH.
L.Ym	r/w	base 1dP	1222 9414	18828	Float	1 9999	Max. control deviation (xw), at the start of mean value calculation [engineering unit]. When calculating the mean value, data are only taken into account if the control deviation is small enough. 'Lym' is a preset value that determines how precisely the calculated output value is matched to the setpoint.
oFFS	r/w	base 1dP	1224 9416	18832	Float	-120 120	Zero point for ratio control. For a given value of X2 (e.g. airflow quantity) the ratio controller changes the corresponding value of X1 (e.g. gas flow quantity), unti the required ratio is reached.
tEmP	r/w	base 1dP	1236 9428	18856	Float	0 9999	Constant sensor temperature. With O2 measurement, the actual oxygen content is derived from the constant sensor temperature and the EMF (electromotive force in volts) generated by the sensor.Note: A constant sensor temperature is only ensured with heated lambda sensors.

Signal

Signai							
Name	r/w	Adr. Ir	nteger	real	Тур	Value/off	Description
C.InP	r	base 1dP	1302 9494		Float	-1999 9999	Process value is the calculated result of process value processing. It represents the actual value of the process (controlled variable) that is to be lined out at setpoint.
Tu2	r	base 1dP	1345 9537		Float	0 9999	'Cooling' delay time of the loop. Tu is calculated by the self-tuning function: It is the time delay before the process reacts significantly. In effect, Tu is a dead time that is determined by the reaction of the process to a change of the control output. It is used for defining controller action.

Cntr								
Signa								
Name		Adr. In	teger	real	Тур	Value/off		Description
Vmax2	r	base 1dP	1346 9538	19076	Float	0 9999		Max. rate of change for 'cooling', i.e. the fastest process value increase during self-tuning. Vmax is calculated by the self-tuning function, and is determined by the reaction of the process to a change of the control output. It is used for defining controller action.
Kp2	r	base 1dP	1347 9539	19078	Float	0 9999		Process gain for 'cooling'. For control loops with self-regulation, process gain is the ratio determined by the change of the control output and the resulting permanent change of the process value. Kp is calculated by the self-tuning function, and is used for defining controller action.
St.Cntr	r	base 1dP	1300 9492	18984	Int	0 65535		Status informations of the controller.f.e. switching signals, controller off or informations about selftuning. The controller sratus shows the actual adjustments of the controller.
0 Y2 not activ 1 Y2 activ Bit 5: Contollsignal ext. default outputsignal 0 not activ 1 activ Bit 6: Controlsignal controller off 0 contr. on 1 contr. off Bit 7: The activ parameter set								
diFF	r	base 1dP	1304 9496	18992	Float	-1999 9999		Control deviation, is defined as process value minus setpoint. Positive Xw means that the process value is above the setpoint. A small control deviation indicates precise control.
Tu1	r	base 1dP	1341 9533	19066	Float	0 9999		'Heating' delay time of the loop. Tu is calculated by the self-tuning function: It is the time delay before the process reacts significantly. In effect, Tu is a dead time that is determined by the reaction of the process to a change of the control output. It is used for defining controller action.
Ypid	r	base 1dP	1303 9495	18990	Float	-120 120		Output value Ypid is the output signal determined by the controller, and from which the switching pulses for the digital and analog control outputs are calculated. Ypid is also available as an analog signal. e.g. for visualization.
Ada.St	r/w	base 1dP	1350 9542	19084	Enum	Enum_AdaStart		Starting / stopping the self-tuning function.After the start signal, the controller waits until the process reaches a stable condition (PIR) before it starts the self-tuning process. Self-tuning can be aborted manually at any time. After a successful self-tuning attempt, the controller automatically resumes normal operation.
						with the p	orevia ne se	rt the self-tuning process, and the controller returns to normal operation bus parameter settings. If-tuning process is possible during manual or automatic controller
Yman	r/w	base 1dP	1351 9543	19086	Float	-110 110		Absolute preset output value, which is used as output value during manual operation. Caution: With 3-point stepping controllers, Yman (evaluated the same as Dyman) is added to the actual output value as a relative shift

shift.

С	ntr								
S	Signal								
	ame	r/w	Adr. Integ	ger i	real	Тур	Value/off		Description
dY	(man	r/w		1352 9544	19088	Float	-220 220		Differential preset output value, which is added to the actual outpu value during manual operation. Negative values reduce the output.
Yir	nc	r/w		1353 9545	19090	Enum	Enum_YInc		Increasing the output value. There are two speeds: 40 s or 10 s for the change from 0 % to 100 %. Note: The 3-point stepping controller translates the increments as UP.
,	•		*				0 Not active		
							1 increment	outp	but
Yd	lec	r/w		1354 9546	19092	Enum	Enum_YDec		Decreasing the output value. There are two speeds: 40 s or 10 s for the change from 0 % to 100 %. Note: The 3-point stepping controller translates the increments as DOWN.
							0 Not active		
							1 decrement	t out	put
SF	P.EF	r		1301 9493	18986	Float	-1999 9999		Effective setpoint. The value reached at the end of setpoint processing, after taking W2, external setpoint, gradient, boost function, programmer settings, start-up function, and limit function: into account. Comparison with the effective process value leads to the control deviation, from which the necessary controller response is derived.
St	Tune	r		1340 9532	19064	Int	0 65535		Status information during self-tuning, e.g. the actual condition, and possible results, warnings, and error messages.
							Bit 1 Operating Bit 2 Result of Bit 3 - 7 Not us Bit 8 - 11 Result 0 0 0 0 No mes 0 0 0 1 Success 0 0 1 0 Success 0 0 1 1 Error: W 0 1 0 0 Error: N 0 1 1 0 Error: R 0 1 1 Error: S 1 0 0 0 Error: S	mo cont ed lt of ssag sful ,/ron o re urnin isk c tep o	out; 0 = No; 1 = Yes de 'Self-tuning controller; 0 = Off; 1 = On roller self-tuning; 0 = OK; 1 = Fault the 'heating' attempt e / Attempt still running with risk of exceeded setpoint g operating sense sponse from process ng point too low of exceeded setpoint output too small pint reserve too small f 'cooling' attempt (same as heating attempt)
Vn	nax1	r		1342 9534	19068	Float	0 9999		Max. rate of change for 'heating', i.e. the fastest process value increase during self-tuning. Vmax is calculated by the self-tuning function, and is determined by the reaction of the process to a change of the control output. It is used for defining controller action.
Κp	51	r		1343 9535	19070	Float	0 9999		Process gain for 'heating'. For control loops with self-regulation, process gain is the ratio determined by the change of the control output and the resulting permanent change of the process value. K is calculated by the self-tuning function, and is used for defining controller action.

		_	_				
Cnt	r						
Sig	nal						
Name	r/w	Adr. In	teger	real	Тур	Value/off	Description
Msg2	r	base 1dP	1348 9540	19080	Enum	Enum_Msg	The result of self-tuning for 'cooling' indicates whether self-tuning was successful, and with what result.
							Tuning attempt still running
						2 Self-tuning wa Note: Self-tun	s been completed successfully. The new parameters are valid. Is successful, but with a warning. The new parameters are valid. Ing was aborted due to the risk of an exceeded setpoint, but useful ere determined. Possibly repeat the attempt with an increased setpoint
						3 The process re Possible reme	acts in the wrong direction. dy: Reconfigure the controller (inverse <-> direct). Check the controller inverse <-> direct).
						Possible reme	rom the process. Perhaps the control loop is open. dy: Check sensor, connections, and process.
						Possible reme	alue turning point of the step response is too low. dy: Increase the permitted step output range, i.e. increase the parameter or reduce the parameter Y.Lo ('cooling').
						were determin	is aborted due to the risk of an exceeded setpoint. No useful parameters ied. dy: Repeat the attempt with an increased setpoint reserve.
						7 The step output Possible reme	y: hopear the attempt with an increased scipolin resolve. It change is not large enough (minimum change > 5 %). dy: Increase the permitted step output range, i.e. increase the parameter or reduce the parameter Y.Lo ('cooling').
							it reserve to small
Msg1	r	base 1dP	1344 9536	19072	Enum	Enum_Msg	The result of self-tuning for 'heating' indicates whether self-tunin was successful, and with what result.
							Tuning attempt still running
						2 Self-tuning wa Note: Self-tun	s been completed successfully. The new parameters are valid. Is successful, but with a warning. The new parameters are valid. Ing was aborted due to the risk of an exceeded setpoint, but useful ere determined. Possibly repeat the attempt with an increased setpoint
						Possible reme	acts in the wrong direction. dy: Reconfigure the controller (inverse <-> direct). Check the controller inverse <-> direct).
						4 No response fi	rom the process. Perhaps the control loop is open. dy: Check sensor, connections, and process.
						Possible reme	alue turning point of the step response is too low. dy: Increase the permitted step output range, i.e. increase the parameter or reduce the parameter Y.Lo ('cooling').
						6 Self-tuning wa were determin	is aborted due to the risk of an exceeded setpoint. No useful parameters
						7 The step output Possible remen Y.Hi ('heating')	It change is not large enough (minimum change > 5 %). dy: Increase the permitted step output range, i.e. increase the parameter or reduce the parameter Y.Lo ('cooling').
						8 error: set-poir	t reserve to small
YGrw	r/w	base 1dP	1355 9547	19094	Enum	Enum_YGrwLs	Gradient of Y-variation 'slow' or 'fast'. Changes the positioning output speed. There are two speeds for output variation: from 0% to 100% in 40s or in 10s.
						0 Slow change of	f V from 00/to 1000/in 40 cocordo
						U Slow change c	of Y, from 0% to 100% in 40 seconds.

2	InP.1							
•	ConF							
	Name	r/w	Adr. Ir	nteger	real	Тур	Value/off	Description
	I.Fnc	r/w	base 1dP	270 8462		Enum	Enum_IFnc	Selection of the function assigned to the value at INP1, e.g. value at INP1 is the external setpoint.
							0 no function (s	ubsequent input data are skipped)
							1 Heating curre	nt input.
								pint SP.E or (depending on version) external setpoint shift SP.E. s done via -> LOGI/SP.E).
							4 Second process	ss value X2. Ilue functions such as ratio, min, max, mean. Adjustment via Cntr/C.tYP.
							6 No controller	input (replaced e.g. by limit value signalling).
							7 Process value	X1.

2 InP.1 ConF Name r/w Adr. Integer real Value/off Description Тур Enum StYP S.tYP 520 17424 Enum Sensor type selection r/w base 1dP 8712 0 thermocouple type L (-100...900°C), Fe-CuNi DIN 1 thermocouple type J (-100...1200°C), Fe-CuNi 2 thermocouple type K (-100...1350°C), NiCr-Ni 3 thermocouple type N (-100...1300°C), Nicrosil-Nisil 4 thermocouple type S (0...1760°C), PtRh-Pt10% 5 thermocouple type R (0...1760°C), PtRh-Pt13% 6 thermocouple type T (-200...400°C), Cu-CuNi thermocouple type C (0...2315°C), W5%Re-W26%Re 7 8 thermocouple type D (0...2315°C), W3%Re-W25%Re 9 thermocouple type E (-100...1000°C), NiCr-CuNi 10 thermocouple type B (0/100...1820°C), PtRh-Pt6% 18 Special thermocouple with a linearization characteristic selectable by the user. This enables non-linear signals to be simulated or linearized. 20 Pt100 (-200.0 ... 100.0(150.0)°C) Measuring range at reduced lead resistance up to 150°C. Measuring range in Fahrenheit: -328...212(302) °F 21 Pt100 (-200.0 ... 850,0 °C) Measuring range in Fahrenheit: -328...1562 °F 22 Pt 1000 (-200.0...850.0 °C) Measuring range in Fahrenheit: -328...1562 °F 23 Special : 0...4500 Ohms. For KTY 11-6 with preset special linearization (-50...150 °C or -58...302 °F). 24 special 0...450 Ohm 25 Special: 0...1,6 kOhms 26 Special: 0...160 Ohms 30 Current : 0...20 mA / 4...20 mA 40 0...10V / 2...10V 41 special -2.5...115 mV 42 Special : -25...1150 mV 43 Special : -25...90 mV 44 Special : -500...500 mV Special : -5...5 V 45 46 Special : -10...10 V 47 Special : -200...200 mV 50 potentiometer 0...160 Ohm 51 potentiometer 0...450 Ohm 52 potentiometer 0...1600 Ohm 53 potentiometer 0...4500 Ohm

4wir	r/w	base 1dP	523 8715	17430	Enum	Enum_4wire	Connection principle for resistive inputs.
						0 3-wire connec 1 4-wire connec	

2	InP.1										
	ConF										
	Name	r/w	Adr. In	nteger	real	Тур	Value/off	Description			
	S.Lin	r/w	base 1dP	521 8713		Enum	Enum_SLin	Linearization (not adjustable for all sensor types S.tYP). Special linearization. The linearization table can be created with the BlueControl® Engineering Tool. The default characteristic is for KTY 11-6 temperature sensors.			
							0 No special line	earization.			
							1 Special linearization. Definition of the linearization table is possible with the BlueControl Engineering Tool. The default setting is the characteristic of the KTY 11-6 temperature sensor.				
	Corr	r/w	base 1dP	265 8457	16914	Enum	Enum_Corr	Measured value correction / scaling			
							0 Without scalir	q			
							the lower inpu	ection (in the CAL Level) can be done on-line in the process. If InL.x shows t value of the scaling point, then OuL.x must be adjusted to the display value. Adjustments are made via the front panel keys of the device.			
								ion (at CAL level)			
							3 Scaling (at PA				
	In.F	r/w	base 1dP	522 8714	17428	Float	-19999999	Substitute value in case of a fault. This value is used for calculations, if there is a fault at the input (e.g. FAIL).			

• PArA

PArA							
Name	r/w	Adr. In	teger	real	Тур	Value/off	Description
InL.1	r/w	base 1dP	500 8692	17384	Float	-1999 9999	Input value of the lower scaling point. Depending on sensor type, the input value can be scaled to the required display value in the Parameter Level. The display of the input value of the lower scaling point (e.g. 4 mA) is done using the corresponding electrical value, e.g. mA, V, Ohm.
OuL.1	r/w	base 1dP	501 8693	17386	Float	-1999 9999	Display value of the lower scaling point. Depending on sensor type, the input value can be scaled to the required display value in the Parameter Level. The operator can change the display value of the lower scaling point, e.g. 4 mA is displayed as 2 [pH].
InH.1	r/w	base 1dP	502 8694	17388	Float	-1999 9999	Input value of the upper scaling point. Depending on sensor type, the input value can be scaled to the required display value in the Parameter Level. The display of the input value of the upper scaling point (e.g. 20 mA) is done using the corresponding electrical value, e.g. mA, V, Ohm.
OuH.1	r/w	base 1dP	503 8695	17390	Float	-1999 9999	Display value of the upper scaling point. Depending on sensor type, the input value can be scaled to the required display value in the Parameter Level. The operator can change the display value of the upper scaling point, e.g. 20 mA is displayed as 12 [pH].
t.F1	r/w	base 1dP	504 8696	17392	Float	0 999	Filter time constant [s]. Every input is fitted with a digital (software) low-pass filter for suppressing process-related disturbances on the input leads. Higher filter settings improve the suppression, but increase the delay of the input signals.
E.tc1	r/w	base 1dP	506 8698	17396	Float	0 100	External temperature compensation (temperature at the junction of thermocouple/copper lead with external temperature compensation).

3

	Signal								
۱	Name	r/w	Adr. Int	teger	real	Тур	Value/off		Description
	ln.1r	r	base 1dP	540 8732	17464	Float	-1999 9999		Measurement value before the measurement value correction (unprocessed, read directly from the input).
	Fail	r	base 1dP	541 8733	17466	Enum	Enum_InpFail		Input circuit fault: faulty or incorrectly connected sensor.
-							0 no error		
							1 sensor bre	ak	
							2 Incorrect p	olar	ity at input.
							4 Short circu	iit at	t input.
	In.1	r	base 1dP	542 8734	17468	Float	-1999 9999		Measurement value after the measurement value correction (e.g. with offset or 2-point correction, and scaling).
	F.Inp	r/w	base 1dP	543 8735	17470	Float	-1999 9999		Forcing the value for an analog input INP. Forcing involves the external operation of a controller input. The controller takes over the value at this input like a measurement value (preset value for controller inputs from a superordinate system, e.g. for a function test.)

InP.2							
ConF							
Name	r/w	Adr. Ir	nteger	real	Тур	Value/off	Description
I.Fnc	r/w	base 1dP	266 8458		Enum	Enum_IFnc	Selection of the function assigned to the value at INP2, e.g. value at INP2 is the external setpoint.
						0 no function (su	ubsequent input data are skipped)
						1 Heating curren	nt input.
							int SP.E or (depending on version) external setpoint shift SP.E. done via -> LOGI/SP.E).
						4 Second process For process va	ss value X2. Iue functions such as ratio, min, max, mean. Adjustment via Cntr/C.tYP.
						6 No controller	input (replaced e.g. by limit value signalling).
						7 Process value	X1.

3 InP.2 Name r/w Adr. Integer real Description Тур Value/off Enum StYP2 S.tYP Sensor type selection r/w base 570 17524 Enum 1dP 8762 0 Thermocouple Type L (-100...900 °C), Fe-CuNi DIN 1 Thermocouple Type J (-100...1200 °C), Fe-CuNi 2 Thermocouple Type K (-100...1350 °C), NiCr-Ni 3 Thermocouple Type N (-100...1300 °C), Nicrosil-Nisil 4 Thermocouple Type S (0...1760 °C), PtRh-Pt 10% 5 Thermocouple Type R (0...1760 °C), PtRh-Pt13% Thermocouple Type T (-200...400 °C), Cu-CuNi 6 Thermocouple Type C (0...2315°C), W5%Re-W26%Re 7 8 Thermocouple Type D (0...2315°C), W3%Re-W25%Re 9 Thermocouple Type E (-100...1000 °C), NiCr-CuNi 10 Thermocouple Type B (0/100...1820 °C), PtRh-Pt6% special thermocouple 18 20 Pt100 (-200.0 ... 100.0(150.0) °C) Measuring range at reduced lead resistance up to 150°C. Measuring range in Fahrenheit: -328...212(302) °F Pt100 (-200.0 ... 850,0 °C) 21 Measuring range in Fahrenheit: -328...1562 °F Pt 1000 (-200.0...850.0 °C) 22 Measuring range in Fahrenheit: -328...1562 °F Special: 0...4500 Ohms. 23 For KTY 11-6 with preset special linearization (-50...150 °C or -58...302 °F). 24 Special: 0...450 Ohms 25 Special: 0...1,6 kOhms 26 Special: 0...160 Ohms 30 Current : 0...20 mA / 4...20 mA 31 0...50 mA current (AC) 41 Special -2.5...115 mV 42 Special : -25...1150 mV Special : -25...90 mV 43 44 Special : -500...500 mV 47 Special : -200...200 mV 50 Potentiometer 0...160 ohms 51 Potentiometer 0...450 ohms 52 Potentiometer 0...1600 ohms 53 Potentiometer 0...4500 ohms S.Lin 571 17526 Enum Enum_SLin Linearization (not adjustable for all sensor types S.tYP). Special r/w base linearization. The linearization table can be created with the 1dP 8763 BlueControl® Engineering Tool. The default characteristic is for KTY 11-6 temperature sensors. No special linearization Λ

0	No special integrization.
1	Special linearization. Definition of the linearization table is possible with the BlueControl
	Engineering Tool. The default setting is the characteristic of the KTY 11-6 temperature
	sensor.

3	InP.2							
•	ConF							
	Name	r/w	Adr. Ir	nteger	real	Тур	Value/off	Description
	Corr	r/w	base 1dP	267 8459	16918	Enum	Enum_Corr	Measured value correction / scaling
							the lower inpuction the corresponding	rection (in the CAL Level) can be done on-line in the process. If InL.x shows ut value of the scaling point, then OuL.x must be adjusted to the g display value. Adjustments are made via the front panel keys of the device. tion (at CAL level)
	In.F	r/w	base 1dP	572 8764	17528	Float	-19999999	Substitute value in case of a fault. This value is used for calculations, if there is a fault at the input (e.g. FAIL).

PArA							
Name	r/w	Adr. Inte	eger	real	Тур	Value/off	Description
InL.2	r/w	base 1dP	550 8742	17484	Float	-1999 9999	Input value of the lower scaling point. Depending on sensor type, the input value can be scaled to the required display value in the Parameter Level. The display of the input value of the lower scaling point (e.g. 4 mA) is done using the corresponding electrical value, e.g. mA, V, Ohm.
OuL.2	r/w	base 1dP	551 8743	17486	Float	-1999 9999	Display value of the lower scaling point. Depending on sensor type, the input value can be scaled to the required display value in the Parameter Level. The operator can change the display value of the lower scaling point, e.g. 4 mA is displayed as 2 [pH].
InH.2	r/w	base 1dP	552 8744	17488	Float	-1999 9999	Input value of the upper scaling point. Depending on sensor type, the input value can be scaled to the required display value in the Parameter Level. The display of the input value of the upper scaling point (e.g. 20 mA) is done using the corresponding electrical value, e.g. mA, V, Ohm.
OuH.2	r/w	base 1dP	553 8745	17490	Float	-1999 9999	Display value of the upper scaling point. Depending on sensor type, the input value can be scaled to the required display value in the Parameter Level. The operator can change the display value of the upper scaling point, e.g. 20 mA is displayed as 12 [pH].
t.F2	r/w	base 1dP	554 8746	17492	Float	0 999	Filter time constant [s]. Every input is fitted with a digital (software) low-pass filter for suppressing process-related disturbances on the input leads. Higher filter settings improve the suppression, but increase the delay of the input signals.
E.tc2	r/w	base 1dP	556 8748	17496	Float	0 100	External temperature compensation (temperature at the junction of thermocouple/copper lead with external temperature compensation).

•	Signal							
	Name	r/w	Adr. Ir	nteger	real	Тур	Value/off	Description
	In.2	r	base 1dP	590 8782	17564	Float	-1999 9999	Measurement value after the measurement value correction (e.g. with offset or 2-point correction, and scaling).

3	InP.2										
	Signal										
٦	Name	Jame r/w Adr. Integer real Typ					Value/off	Description			
ŀ	Fail	r	base 1dP	591 8783	17566	Enum	Enum_InpFail	Input circuit fault: faulty or incorrectly connected sensor.			
-	•						0 no error 1 sensor break				
							2 Incorrect pola	rity at input.			
							4 Short circuit at input.				
Г											
	In.2r	r	base	592	17568	Float	-19999999 🛛	Measurement value before the measurement value correction			
			1dP	8784				(unprocessed, read directly from the input).			
	F.Inp	r/w	base	593	17570	Float	-19999999 🗖	Forcing the value for an analog input INP. Forcing involves the			
			1dP	8785				external operation of a controller input. The controller takes over the value at this input like a measurement value (preset value for controller inputs from a superordinate system, e.g. for a function test.)			

ConF						
Name	r/w	Adr. Integ	er real	Тур	Value/off	Description
Fnc.1	r/w		670 1772 862	4 Enum	Enum_Fcn	Activation and adjustment of the limit value alarm (e.g. for input circuit monitoring), e.g. with/without storage.
	I			-	0 No limit value	monitoring.
					1 measured valu	ue monitoring
						ue monitoring + alarm status latch. A stored limit value can be reset via erro or a digital input (-> LOGI/Err.r)
Src.1	r/w		672 1772 864	8 Enum	Enum_Src	Source for limit value. Selection of which value is to be monitored e.g. process value or control deviation.
					0 Process value	= absolute alarm
					1 control deviat	ion xw (process value - set-point)
					2 Control deviat changes.	ion Xw (= relative alarm) with suppression during start-up and setpoint
						ue of the analog input INP1.
						ue of the analog input INP2.
					6 effective set-p	
					7 correcting var	iable y (controller output)
HC.AL	r/w		620 1762 812	4 Enum	Enum_HCAL	Alarm heat current function
					0 No heating cu	rrent alarm.
						t circuit monitoring
						rt circuit monitoring

4	Lim							
•	ConF							
	Name	r/w	Adr. Ir	nteger	real	Тур	Value/off	Description
	LP.AL	r/w	base 1dP	1258 9450	18900	Enum	Enum_LPAL	Monitoring of control loop interruption (availlable for PID controllers, C.Fnc=1,2,3,)
							0 switched off / 1 active	inactive

• PArA

FAIA							
Name	r/w	Adr. Ir	nteger	real	Тур	Value/off	Description
L.1	r/w	base 1dP	650 8842	17684	Float	-1999 9999	Lower limit value. The alarm is triggered if the value falls below the limit, and is reset with lower limit value plus hysteresis.
H.1	r/w	base 1dP	651 8843	17686	Float	-1999 9999	Upper limit value. The alarm is triggered if the value rises above the limit, and is reset with upper lower limit value plus hysteresis.
HYS.1	r/w	base 1dP	652 8844	17688	Float	0 9999	Hysteresis of the limit value. Switching difference for upper and lower limit value. The limit value must change by this amount (rise above upper limit or fall below lower limit) before the limit value alarm is reset.
HC.A	r/w	base 1dP	600 8792		Float	-1999 9999	Heating current monitoring limit [A]. Depending on configuration, and apart from short-circuit monitoring, an overload test checks whether the heating current is above the adjusted current limit, or below the limit when the heating is switched off. The heating current is measured by means of a current transformer (accessory), and the current range can be adapted.

• Signal

Name		Adr. In	iteger	real	Тур	Value/off	Description
St.HC	r	base 1dP	640 8832	17664	Int	03	Status of the heating current alarm. Displayable are heating current short-circuit and/or heating current alarm. Depending on configuration, the heating current alarm is either an interruption of heating current (I < limit value) or heating current overload (I > limit value).
HC	r	base 1dP	641 8833	17666	Float	-1999 9999	Measured heating current [A]. Apart from the short circuit test, and depending on configuration, an overcurrent test (current I > heating current limit) and an open circuit test (current I < heating current limit) is executed. The heating current is measured by means of a (separate) current transformer, whereby the input range can be scaled.
SSr	r	base 1dP	642 8834	17668	Float	-1999 9999	Measured current with SSr [A]. The heating current (SSR) is short circuited, if there is a current flow even though the controller output is switched off.Suggested remedy: check heating current circuit, replace solid-state relay if necessary.

4	Lim								
•	Signal								
	Name r/w Adr. Integer real Typ						Value/off	Γ	Description
	St.Lim	r	base	690	17764	Enum	Enum_LimSt	tatus L	imit value status: No alarm present or stored.
			1dP	8882					
							0 no a	alarm	
							1 lac	hed alarm	
							2 A li	mit value has	s been exceeded.

ConF							
Name	r/w	Adr. Ir	nteger	real	Тур	Value/off	Description
Fnc.2	r/w	base 1dP	720 8912	17824	Enum	Enum_Fcn	Activation and adjustment of the limit value alarm (e.g. for input circuit monitoring), e.g. with/without storage.
						0 No limit value	e monitoring.
						1 measured valu	ue monitoring
						2 Measured val list, A/M-key	ue monitoring + alarm status latch. A stored limit value can be reset via e or a digital input (-> LOGI/Err.r)
Src.2	r/w	base	721 8913	17826	Enum	Enum_Src	Source for limit value. Selection of which value is to be monitore e.g. process value or control deviation.
010.2		1dP	0713				
010.2		TOP	0713			0 Process value	= absolute alarm
		TOP	0713				= absolute alarm ion xw (process value - set-point)
		IdP	0713			1 control deviat	
			0713			1 control deviati 2 Control deviati changes.	ion xw (process value - set-point)
		IdP	0713			1 control deviati 2 Control deviati 2 Control deviati changes. 3 3 Measured value 4 Measured value	ion xw (process value - set-point) ion Xw (= relative alarm) with suppression during start-up and setpoint ue of the analog input INP1. ue of the analog input INP2.
		ΙαΡ				 control deviati Control deviati Control deviati changes. Measured value Measured value effective set-participation 	ion xw (process value - set-point) ion Xw (= relative alarm) with suppression during start-up and setpoint ue of the analog input INP1. ue of the analog input INP2.

•	PArA							
	Name	r/w	Adr. Int	teger	real	Тур	Value/off	Description
	L.2	r/w	base 1dP	700 8892	17784	Float	-1999 9999	Lower limit value. The alarm is triggered if the value falls below the limit, and is reset with lower limit value plus hysteresis.
	H.2	r/w	base 1dP	701 8893	17786	Float	-1999 9999	Upper limit value. The alarm is triggered if the value rises above the limit, and is reset with upper lower limit value plus hysteresis.
	HYS.2	r/w	base 1dP	702 8894	17788	Float	0 9999	Hysteresis of the limit value. Switching difference for upper and lower limit value. The limit value must change by this amount (rise above upper limit or fall below lower limit) before the limit value alarm is reset.

٠	Signal								
	Name	r/w Adr. Integer real				Тур	Value/off		Description
	St.Lim	r	base 1dP	740 8932		Enum	Enum_LimS	Status	Limit value status: No alarm present or stored.
							1 la	alarm ched alarm limit value ba	as been exceeded.

6 Lim3

ConF										
Name	r/w	Adr. Integer	real	Тур	Value/off	Description				
Fnc.3	r/w	base 770 1dP 8962		Enum	Enum_Fcn	Activation and adjustment of the limit value alarm (e.g. for input circuit monitoring), e.g. with/without storage.				
		•		•	0 No limit value	monitoring.				
					1 measured valu	e monitoring				
						Measured value monitoring + alarm status latch. A stored limit value can be reset via error list, A/M-key or a digital input (-> LOGI/Err.r)				
Src.3	r/w	base 771 1dP 8963		Enum	Enum_Src	Source for limit value. Selection of which value is to be monitored, e.g. process value or control deviation.				
					0 Process value	= absolute alarm				
					1 control deviati	on xw (process value - set-point)				
					2 Control deviati changes.	on Xw (= relative alarm) with suppression during start-up and setpoint				
					3 Measured valu	ie of the analog input INP1.				
					4 Measured value	ie of the analog input INP2.				
					6 effective set-p	oint Weff				
					7 correcting vari	able y (controller output)				

PArA							
Name	r/w	Adr. Ir	nteger	real	Тур	Value/off	Description
L.3	r/w	base 1dP	750 8942	17884	Float	-1999 9999	Lower limit value. The alarm is triggered if the value falls below the limit, and is reset with lower limit value plus hysteresis.
H.3	r/w	base 1dP	751 8943	17886	Float	-1999 9999	Upper limit value. The alarm is triggered if the value rises above the limit, and is reset with upper lower limit value plus hysteresis.
HYS.3	r/w	base 1dP	752 8944	17888	Float	0 9999	Hysteresis of the limit value. Switching difference for upper and lower limit value. The limit value must change by this amount (rise above upper limit or fall below lower limit) before the limit value alarm is reset.

6	Lim3									
•	Signal									
	Name	r/w Adr. Integer real Typ			Value/	off	Description			
	St.Lim	r	base	790	17964	Enum	Enum_L	imStatus	Limit value status: No alarm present or stored.	
			1dP	8982						
							0	no alarm		
							1	lached alarm		
							2	A limit value has been exceeded.		

Court									
ConF									
Name	r/w	Adr. Ir	nteger	real	Тур	Value/off	Description		
L_r	r/w	base 1dP	421 8613	17226	Enum	Enum_dlnPRail1	Local / remote switchover (Remote: Adjustment of all values v front panel is blocked).		
L					<u> </u>	0 No function (s	u witchover via interface is possible).		
						1 Always active	• •		
						2 DI1 switches.5 func switches			
	<u> </u>			4900-	-				
SP.2	r/w	base		17228	Enum	Enum_dInPRail2	Source of the control signal for activating the second (safety)		
		1dP	8614				setpoint (SP.2=) W2. Note: W2 is not restricted by the setpoint limits.		
						 No function (switchover via interface is possible). Dl1 switches. func switches 			
SP.E	r/w	base	423	17020	Enum	Enum_dInPRail1	Switching to external setpoint SP.E		
JF.L	17.00	1dP	8615	17230					
		IUP	0015						
1						0 No function (switchover via interface is possible).1 Always active.			
						2 DI1 switches.			
						5 func switches			
	-								
Y2	r/w	base	424	17232	Enum	Enum_dInPRail2	Source of the control signal for activating the second positioni		
		1dP	8616				output Y2. Activated Y2 = positioner control.		
		101	5010				Caution: The parameter 'positioning output Y2' must not be		
					1	1	confused with the controller output V21		
							confused with the controller output Y2!		
						0 No function (s 2 DI1 switches.	witchover via interface is possible).		

'	LOGI									
ĺ	ConF	ConF								
	Name	r/w	Adr. In	teger	real	Тур	Value/off	Description		
	mAn	r/w	base 1dP	426 8618	17236	Enum	Enum_dInPRail1	Source of the control signal for auto/manual switchover. In the automatic mode, the controller is in charge. In the manual mode, the outputs can be varied independently of the process.		
							0 No function (sv1 Always active.	witchover via interface is possible).		
							2 DI1 switches.			
							5 func switches			
	C.oFF	r/w	base 1dP	427 8619	17238	Enum	Enum_dInPRail2	Source of the control signal for disabling all the controller outputs.Note: Forcing has priority, and remains active; alarm processing also remains active.		
								witchover via interface is possible).		
					 DI1 switches. func switches 					
Γ	Frr r	rhai	bass	400	17242	Fn ····	Enum_dInPRail2	Source of the control signal for resetting all stared entries in the		
	Err.r	r/w	base 1dP	429 8621	17242	Enum	Enum_umPRanz	Source of the control signal for resetting all stored entries in the error list (the list contains all error messages and alarms). If an alarm is still present, i.e. the source of trouble has not been remedied, stored alarms cannot be acknowledged (reset).		
-								witchover via interface is possible).		
							2 DI1 switches.5 func switches			
	P.run	r/w	base 1dP	432 8624	17248	Enum	Enum_dInPRail2	Source of the control signal for switching the programmer between Run and Stop. On units with a simple programmer (only 1 program), a stop immediately causes a reset, followed by a new start. With units that have been defined as program controllers (several programs), the program is stopped, and then continued.		
							0 No function (switchover via interface is possible).2 DI1 switches.			
							5 func switches			
	I.ChG	r/w	base 1dP	434 8626	17252	Enum	Enum_dInPRail2	Signal source for switching the effective process value between x1 and x2.		
L							0 No function (switchover via interface is possible).			
							2 DI1 switches.5 func switches			
ſ	di En	.	hace	400	17004	F m	Enum_diFn	Function of digital inputs (valid for all inputs)		
	di.Fn	r/w	base 1dP	420 8612	17224	Enum	LIUIII_UIFII	Function of digital inputs (valid for all inputs)		
-							0 Basic setting 'Off': A permanent positive signal switches this function 'Or connected to the digital input. Demonal of the signal switches the function			
							 connected to the digital input. Removal of the signal switches the function 'Off' again. Basic setting 'On': A permanent positive signal switches this function 'Off', which is connected to the digital input. Removal of the signal switches the function 'On' again. Push-button function. Basic setting 'Off'. Only positive signals are effective. The first 			
								switches 'On'. Removal of the signal is necessary before the next positive		

								1 3		
LOG										
Sign	al _									
Name	r/w	Adr. In	nteger	real	Тур	Value/off		Description		
St.Di	r	base 1dP	450 8642	17284	Int			Status of the digital inputs or of push-buttons (binary coded).		
Bit 0: Input di1 Bit 8: Status of Enter key Bit 9: Status of 'Down' key Bit 10: Status of 'Up' key										
L-R	r/w	base 1dP	460 8652	17304	Int	0 1		Remote operation. Remote means that all values can only be adjusted via the interface. Adjustments via the front panel are blocked.		
W_W2	r/w	base 1dP	461 8653	17306	Int	0 1		Signal for activating the second (safety) setpoint (SP.2=) W2. Note: Setpoint W2 is not restricted by the setpoint limits!		
Wi_We	r/w	base 1dP	462 8654	17308	Int	0 1		Signal for activating the external setpoint value. SP.E is the external setpoint, or dependent on the device and configuration of the setpoint shift.		
Y_Y2	r/w	base 1dP	463 8655	17310	Int	0 1		Signal for activating the 2nd output value Y2. With selected Y2, the output is operated as a positioner.Caution: Do not confuse the parameter 'fixed output Y2' with the controller output Y2!		
A-M	r/w	base 1dP	464 8656	17312	Int	0 1		Signal for activating manual operation. In the manual mode, the controller provides output signals independent of the process.		
C.Off	r/w	base 1dP	465 8657	17314	Int	0 1		Signal for disabling all the controller outputs. Note: Forcing has priority; alarm processing remains active.		
Err.r	r/w	base 1dP	470 8662	17324	Int	0 1		Signal for resetting the entire error list. The error list contains all errors that are reported, e.g. device faults and limit values. It also contains queued as well as stored errors after their correction. The reset acknowledges all errors, whereby queued errors will reappea after the next error detection (measurement).		
SSR.Res	r/w	base 1dP	466 8658	17316	Int	0 1		Reset of the alarm triggered by a solid-state relay (SSR). SSRs are mostly used for frequent switching of heating elements, because they have no mechanical contacts that can wear out. However, an unnoticed short circuit could lead to overheating of the machine.		
ProG	r/w	base 1dP	467 8659	17318	Int	0 1		Signal for starting the programmer. On units with a simple programmer (only 1 program), a stop immediately causes a reset, followed by a new start. With units that have been defined as program controllers (several programs), the program is stopped, and then continued.		
F.Di	r/w	base 1dP	480 8672	17344	Int	01		Forcing of digital inputs. Forcing involves the external operation of at least one device input. The device takes over this input value (preset value for device inputs from a superordinate system, e.g. fo a function test.)		
						Bit 0 Forcing				
I.Chg	r/w	base 1dP	471 8663	17326	Int	0 1		Signal for switching the effective process value between x1 and x2		

7 LOGI

•	Signal							
	Name	r/w	Adr. Ir	nteger	real	Тур	Value/off	Description
	Func	r/w	base	476	17336	Int	0 1	OR-linking of several control signals.
			1dP	8668				

ConF							
Name	r/w	Adr. Ir	nteger	real	Тур	Value/off	Description
B.BedEbe	r/w	base 1dP	1839 10031	20062	Int	0 255	The 3 Operating Levels (Parameter, Configuration, and Calibration) can be disabled here.
B.Bedien	r/w	base 1dP	1838 10030	20060	Int	0 255	Used to disable various operating functions (e.g. access to the extended Operating Level).
C.Sch	r/w	base 1dP	1801 9993	19986	Float	199999999	Data defines the number of switching cycles for which the message InF.2 is generated.
C.Std	r/w	base 1dP	1800 9992	19984	Float	199999999	Data defines the number of operating hours for which the message InF.1 is generated.
D.ForcIn	r/w	base 1dP	1803 9995	19990	Int	0 255	The data defines the inputs to be forced: Bit 0 analog input 1 Bit 1 analog input 2 Bit 2 not used Bit 3 not used Bit 4 digital input 1 Bit 5 not used Bit 6 not used Bit 7 not used
D.ForcOut	r/w	base 1dP	1804 9996	19992	Int	0255	The data defines the outputs to be forced. Bit 0 output 1 Bit 1 output 2 Bit 2 output 3 Bit 3 not used Bit 4 not used Bit 5 not used Bit 6 not used Bit 7 not used
Dis2	r/w	base 1dP	1848 10040	20080	Int	256 8190	Datum to be shown in display 2. The basic address of the datum that is to be displayed must be entered.
EOP1	r/w	base 1dP	1840 10032	20064	Int	256 8190	1st datum of the extended Operating Level. The basic address of the datum that is to be displayed must be entered.
EOP2	r/w	base 1dP	1841 10033	20066	Int	256 8190	2nd datum of the extended Operating Level. The basic address of the datum that is to be displayed must be entered.

С	onF								
Nar	ne	r/w	Adr. In	teger	real	Тур	Value/off		Description
EOI	P3	r/w	base 1dP	1842 10034	20068	Int	256 8190		3rd datum of the extended Operating Level. The basic address of the datum that is to be displayed must be entered.
EOI	P4	r/w	base 1dP	1843 10035	20070	Int	256 8190		4th datum of the extended Operating Level. The basic address of the datum that is to be displayed must be entered.
EOI	P5	r/w	base 1dP	1844 10036	20072	Int	256 8190		5th datum of the extended Operating Level. The basic address of the datum that is to be displayed must be entered.
EOI	P6	r/w	base 1dP	1845 10037	20074	Int	256 8190		6th datum of the extended Operating Level. The basic address of the datum that is to be displayed must be entered.
EOI	P7	r/w	base 1dP	1846 10038	20076	Int	256 8190		7th datum of the extended Operating Level. The basic address of the datum that is to be displayed must be entered.
EOI	P8	r/w	base 1dP	1847 10039	20078	Int	256 8190		8th datum of the extended Operating Level. The basic address of the datum that is to be displayed must be entered.
In.1	l	r/w	base 1dP	1861 10053	20106	Float	02		Input 1 for measurement value 1 (to Output 1 for display value 1). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
In.1	10	r/w	base 1dP	1879 10071	20142	Float	02	S	Input 10 for measurement value 10 (to Output 10 for display value 10). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
In.1	1	r/w	base 1dP	1881 10073	20146	Float	02		Input 11 for measurement value 11 (to Output 11 for display value 11). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
In.1	12	r/w	base 1dP	1883 10075	20150	Float	02		Input 12 for measurement value 12 (to Output 12 for display value 12). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
In.1	13	r/w	base 1dP	1885 10077	20154	Float	02	2	Input 13 for measurement value 13 (to Output 13 for display value 13). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
In.1	4	r/w	base 1dP	1887 10079	20158	Float	02		Input 14 for measurement value 14 (to Output 14 for display value 14). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.

ConF	-							
Name	r/w	Adr. In	teger	real	Тур	Value/off		Description
In.15	r/w	base 1dP	1889 10081	20162	Float	02	2	Input 15 for measurement value 15 (to Output 15 for display value 15). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
In.16	r/w	base 1dP	1891 10083	20166	Float	02		Input 16 for measurement value 16 (to Output 16 for display value 16). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
In.2	r/w	base 1dP	1863 10055	20110	Float	02		Input 2 for measurement value 2 (to Output 2 for display value 2). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
In.3	r/w	base 1dP	1865 10057	20114	Float	0 2	2	Input 3 for measurement value 3 (to Output 3 for display value 3). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
In.4	r/w	base 1dP	1867 10059	20118	Float	02	2	Input 4 for measurement value 4 (to Output 4 for display value 4). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
In.5	r/w	base 1dP	1869 10061	20122	Float	02	2	Input 5 for measurement value 5 (to Output 5 for display value 5). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
In.6	r/w	base 1dP	1871 10063	20126	Float	02	2	Input 6 for measurement value 6 (to Output 6 for display value 6). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
In.7	r/w	base 1dP	1873 10065	20130	Float	02		Input 7 for measurement value 7 (to Output 7 for display value 7). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
In.8	r/w	base 1dP	1875 10067	20134	Float	02		Input 8 for measurement value 8 (to Output 8 for display value 8). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
In.9	r/w	base 1dP	1877 10069	20138	Float	02		Input 9 for measurement value 9 (to Output 9 for display value 9). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.

ConF							
Name	r/w	Adr. In	teger	real	Тур	Value/off	Description
Ou.1	r/w	base 1dP	1862 10054	20108	Float	02	Output 1 for display value 1 (to Input 1 for measurement value 1). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
Ou.10	r/w	base 1dP	1880 10072	20144	Float	02	Output 10 for display value 10 (to Input 10 for measurement value 10). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
Ou.11	r/w	base 1dP	1882 10074	20148	Float	02	Output 11 for display value 11 (to Input 11 for measurement value 11). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
Ou.12	r/w	base 1dP	1884 10076	20152	Float	0 2	Output 12 for display value 12 (to Input 12 for measurement value 12). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
Ou.13	r/w	base 1dP	1886 10078	20156	Float	0 2	Output 13 for display value 13 (to Input 13 for measurement value 13). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
Ou.14	r/w	base 1dP	1888 10080	20160	Float	0 2	Output 14 for display value 14 (to Input 14 for measurement value 14). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
Ou.15	r/w	base 1dP	1890 10082	20164	Float	02	Output 15 for display value 15 (to Input 15 for measurement value 15). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
Ou.16	r/w	base 1dP	1892 10084	20168	Float	02	Output 16 for display value 16 (to Input 16 for measurement value 16). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
Ou.2	r/w	base 1dP	1864 10056	20112	Float	02	Output 2 for display value 2 (to Input 2 for measurement value 2). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
Ou.3	r/w	base 1dP	1866 10058	20116	Float	0 2	Output 3 for display value 3 (to Input 3 for measurement value 3). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.

8 ohnE

ConF								
Name	r/w	Adr. Ir	nteger	real	Тур	Value/off		Description
Ou.4	r/w	base 1dP	1868 10060	20120	Float	02		Output 4 for display value 4 (to Input 4 for measurement value 4). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
Ou.5	r/w	base 1dP	1870 10062	20124	Float	02	•	Output 5 for display value 5 (to Input 5 for measurement value 5). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
Ou.6	r/w	base 1dP	1872 10064	20128	Float	02		Output 6 for display value 6 (to Input 6 for measurement value 6). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
Ou.7	r/w	base 1dP	1874 10066	20132	Float	02	2	Output 7 for display value 7 (to Input 7 for measurement value 7). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
Ou.8	r/w	base 1dP	1876 10068	20136	Float	02		Output 8 for display value 8 (to Input 8 for measurement value 8). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
Ou.9	r/w	base 1dP	1878 10070	20140	Float	02	2	Output 9 for display value 9 (to Input 9 for measurement value 9). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
PASS	r/w	base 1dP	1850 10042	20084	Int	0 9999	2	Password. 4-digit number for the password-protected access to blocked operating functions such as e.g. the Parameter Level.
T.Dis2	r/w	base 1dP	1851 10043	20086	Text			This address contains 5 bytes for the text that is to appear in Display 2. No text: 1st byte 0x00.
U.LinT	r/w	base 1dP	1860 10052	20104	Enum	Enum_Unit		Engineering unit of linearization table: none, °C, °F or K.
L					I	0 without u 1 °C 2 °F 3 K	ınit	
V.Mask	r/w	base 1dP	1810 10002	20004	Int	0 255		Definition of the visibility templates. The templates define the configurations and parameters displayed for operation (contents on request).

PArA						
Name	r/w	Adr. Integ	er real	Тур	Value/off	Description
Conf	r/w	base 1dP 8	256 16896 9448	Int	02	Start/Stop and abortion of the configuration mode 0 = End of configuration 1 = Start of configuration 2 = Abort configuration
Pb1	r/w	base 1dP 8	81 16546 2273	Float	1 9999	Proportional band 1 (heating) in engineering unit, e.g. °C. Pb defines the relationship between controller output and control deviation. The smaller Pb is, the stronger is the control action for a given control deviation. If Pb is too large or too small, the control loop will oscillate (hunting).
SP.01	r/w	base 1dP 8	92 16568 3284	Float	-1999 9999	End setpoint of segment 1. This is the target setpoint that is reached at the end of the first segment. The target setpoint is approached from the previous valid setpoint (when starting the 1st segment, matching to process value!). When the program is completed, the controller continues with the last target setpoint reached.
Pb2	r/w	base 1dP 8	82 16548 3274	Float	1 9999	Proportional band 2 (cooling) in engineering units, e.g. °C. Pb defines the relationship between controller output and control deviation. The smaller Pb is, the stronger is the control action for a given control deviation. If Pb is too large or too small, the control loop will oscillate (hunting).
Pt.01	r/w	base 1dP 8	93 16570 3285	Float	0 9999	Segment time 1 defines the duration of the first segment. The gradient of this segment is calculated using the segment time and the setpoint difference (SP – segment starting setpoint).Note: The 1st segment is started at process value.
SP.02	r/w	base 1dP 8	94 16572 3286	Float	-1999 9999	End setpoint of segment 2. This is the target setpoint that is reached at the end of the second segment. The target setpoint is approached from the previous valid setpoint. When the program is completed, the controller continues with the last target setpoint reached.
SP.2	r/w	base 1dP 8	79 16542 3271	Float	-1999 9999	Second (safety) setpoint. Ramp function as with other setpoints (effective, external). However, SP2 is not restricted by the setpoint limits.
ti1	r/w	base 1dP 8	83 16550 275	Float	1 9999	Integral action time 1 (heating) [s]. Ti is the time constant of the integral portion. The smaller Ti is, the faster is the response of the integral action. Ti too small: Control tends to oscillate. Ti too large: Control is sluggish and needs a long time to line out.
Pt.02	r/w	base 1dP 8	95 16574 287	Float	0 9999	Segment time 2 defines the duration of the second segment. The gradient of this segment is calculated using the segment time and the setpoint difference (SP – segment starting setpoint).Note: The 1st segment is started at process value.
ti2	r/w	base 1dP 8	84 16552 276	Float	1 9999	Integral action time 2 (cooling) [s]. Ti is the time constant of the integral portion. The smaller Ti is, the faster is the response of the integral action. Ti too small: Control tends to oscillate. Ti too large: Control is sluggish and needs a long time to line out.
SP.03	r/w	base 1dP 8	96 16576 3288	Float	-1999 9999	End setpoint of segment 3. This is the target setpoint that is reached at the end of the third segment. The target setpoint is approached from the previous valid setpoint. When the program is completed, the controller continues with the last target setpoint reached.

PArA							
Name	r/w	Adr. Inte	eger	real	Тур	Value/off	Description
t.SP	r/w	base 1dP	80 8272	16544	Float	0 9999	The timer (preset) value is entered in minutes with one decimal digit (0,1 minute = 6 seconds). With an activated timer, the preset value is displayed automatically in the extended Operating Level, where it can be changed by means of the parameter t.ti.
td1	r/w	base 1dP	85 8277	16554	Float	1 9999	Derivative action time 1 (heating) [s], second parameter set. Td is the time constant of the derivative portion. The faster the process value changes, and the larger the value of Td is, the stronger will be the derivative action. Td too small: Very little derivative action. Td too large: Control tends to oscillate.
Pt.03	r/w	base 1dP	97 8289	16578	Float	0 9999	Segment time 3 defines the duration of the third segment. The gradient of this segment is calculated using the segment time and the setpoint difference (SP – segment starting setpoint).Note: The 1st segment is started at process value.
td2	r/w	base 1dP	86 8278	16556	Float	1 9999	Derivative action time 2 (cooling) [s], second parameter set. Td is the time constant of the derivative portion. The faster the process value changes, and the larger the value of Td is, the stronger will be the derivative action. Td too small: Very little derivative action. Td too large: Control tends to oscillate.
SP.04	r/w	base 1dP	98 8290	16580	Float	-1999 9999	End setpoint of segment 4. This is the target setpoint that is reached at the end of the fourth segment. The target setpoint is approached from the previous valid setpoint. When the program is completed, the controller continues with the last target setpoint reached.
t1	r/w	base 1dP	87 8279	16558	Float	0,4 9999	Minimum duty cycle 1 (heating) [s]. With the standard duty cycle converter, the shortest pulse duration is 1/4 x t1. If the duty cycle is not to be optimized, this must be entered in the configuration. (Default: Optimization of the duty cycle during self-tuning, but also if the output value is less than 5%).
Pt.04	r/w	base 1dP	99 8291	16582	Float	0 9999	Segment time 4 defines the duration of the fourth segment. The gradient of this segment is calculated using the segment time and the setpoint difference (SP – segment starting setpoint).Note: The 1st segment is started at process value.
t2	r/w	base 1dP	88 8280	16560	Float	0,49999	Minimum duty cycle 2 (cooling) [s]. With the standard duty cycle converter, the shortest pulse duration is 1/4 x t1. If the duty cycle is not to be optimized, this must be entered in the configuration. (Default: Optimization of the duty cycle during self-tuning, but also if the output value is less than 5%).
HC.A	r/w	base 1dP	72 8264	16528	Float	-1999 9999	Heating current monitoring limit [A]. Depending on configuration, and apart from short-circuit monitoring, an overload test checks whether the heating current is above the adjusted current limit, or below the limit when the heating is switched off. The heating current is measured by means of a current transformer (accessory), and the current range can be adapted.
Y.0	r/w	base 1dP	89 8281	16562	Float	-105 105	Offset for die positioning value [%]. This is added to the controller output, and has the most effect with P and PD controllers. (With PIE controllers, the effect is compensated by the integral action.) With a control deviation = 0, the P controller generates a control output Y0.

•	PArA							
	Name	r/w	Adr. Ir	nteger	real	Тур	Value/off	Description
	offS	r/w	base 1dP	90 8282	16564	Float	-120 120	Zero point for ratio control. For a given value of X2 (e.g. airflow quantity) the ratio controller changes the corresponding value of X1 (e.g. gas flow quantity), until the required ratio is reached.
	tEmP	r/w	base 1dP	91 8283	16566	Float	0 9999	Constant sensor temperature. With O2 measurement, the actual oxygen content is derived from the constant sensor temperature and the EMF (electromotive force in volts) generated by the sensor.Note: A constant sensor temperature is only ensured with heated lambda sensors.

Signa							
Name	r/w	Adr. Int	eger	real	Тур	Value/off	Description
C.InP	r	base 1dP	39 8231	16462	Float	-1999 9999	Process value is the calculated result of process value processing. I represents the actual value of the process (controlled variable) that is to be lined out at setpoint.
САН	r	base 1dP	390 8582	17164	Long	0	Total operating hours. Count starts with the first switch-on. Internatest routine. Is stored and displayed not more than once per hour.
СРН	r/w	base 1dP	394 8586	17172	Long	0	Operating hours of the current maintenance period. Internal test routine. Is stored and displayed not more than once per hour. Reset when the time limit message is acknowledged.
Diag	r	base 1dP	382 8574	17148	Int	0 255	Result of diagnosis. Any faults detected during the self-test for data, RAM, processor, and EEPROM, as well as an exceeded count for the operating hours (maintenance period) and no. of switching cycles (maintenance period) are stored. Can be reset by acknowledgement.
EE.Ver	r	base 1dP	381 8573	17146	Int	0 0	EEPROM version
ld.NrH	r	base 1dP	370 8562	17124	Int	0 0	More significant part of the device Ident number.
ld.NrL	r	base 1dP	371 8563	17126	Int	00	Less significant part of the device Ident number.
ld.NrZ	r	base 1dP	372 8564	17128	Int	0 0	Sequential Ident number of the device.
Int.Tmp	r	base 1dP	380 8572	17144	Int	0 0	Max. measured operating temperature. Internal test routine.
Oem.NrH	r	base 1dP	373 8565	17130	Int	0 0	More significant part of the device OEM no.

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Signa							
Name	r/w	Adr. Ir	nteger	real	Тур	Value/off	Description
Oem.NrL	r	base 1dP	374 8566	17132	Int	00	Less significant part of the device OEM no.
SA01	r	base 1dP	391 8583	17166	Long	0	Total number of switching cycles of OUT1. Internal test routine that is stored and displayed not more than once per hour.
SAO2	r	base 1dP	392 8584	17168	Long	0	Total number of switching cycles of OUT2. Internal test routine that is stored and displayed not more than once per hour.
SAO3	r	base 1dP	393 8585	17170	Long	0	Total number of switching cycles of OUT3. Internal test routine that is stored and displayed not more than once per hour.
SP01	r/w	base 1dP	395 8587	17174	Long	0	Switching cycles of OUT1 during the present maintenance period. Internal test routine that is stored and displayed not more than once per hour. Resetting is done by acknowledging the switching cycle message.
SP02	r/w	base 1dP	396 8588	17176	Long	0	Switching cycles of OUT2 during the present maintenance period. Internal test routine that is stored and displayed not more than once per hour. Resetting is done by acknowledging the switching cycle message.
SP03	r/w	base 1dP	397 8589	17178	Long	0	Switching cycles of OUT3 during the present maintenance period. Internal test routine that is stored and displayed not more than once per hour. Resetting is done by acknowledging the switching cycle message.
Sw.Nr	r	base 1dP	375 8567	17134	BCD	00	Digits 7 to 12 of the software order number.
T.CodeNr	r	base 1dP	360 8552	17104	Text	00	15-digit order number of the device.
UPD	r/w	base 1dP	257 8449	16898	Enum	Enum_Aenderungsflag	Status message indicating that parameter / configuration have been changed via the front panel.
							a the front panel keys. been made via the front panel keys, which must be processed.

HC	r	base 1dP	54 8246	16492	Float	-1999 9999	Measured heating current [A]. Apart from the short circuit test, and depending on configuration, an overcurrent test (current I > heating current limit) and an open circuit test (current I < heating current limit) is executed. The heating current is measured by means of a (separate) current transformer, whereby the input range can be scaled.
L-R		base 1dP	55 8247	16494	Int	0 1	Remote operation. Remote means that all values can only be adjusted via the interface. Adjustments via the front panel are blocked.

Operating Version1

Signa											
Name	r/w	Adr. In	teger	real	Тур	Value/off		Description			
Hw.Opt	r	base 1dP	200 8392	16784	Int	0 65535		Device options: 0000 WXYZ 0000 DCBA Z = 1: Modbus interface Y = 1: System device X = 1: Option 1 W = 1: Option 2 A = 1: OUT1 available B = 1: OUT2 available C = 1: OUT3 available D = 1: OUT3 is an analog output			
SP	r/w	base 1dP	44 8236	16472	Float	-1999 9999		Setpoint for the interface (without the additional function 'Controller off'). SetpInterface acts on the internal setpoint before the setpoint processing stage. Note: The value in RAM is always updated. To protect the EEPROM, storage of the value in the EEPROM is timed (at least one value per half hour).			
W_W2	r/w	base 1dP	56 8248	16496	Int	0 1		Signal for activating the second (safety) setpoint (SP.2=) W2. Note: Setpoint W2 is not restricted by the setpoint limits!			
SP.d	r/w	base 1dP	45 8237	16474	Float	-1999 9999		The effective setpoint is shifted by this value. In this way, the setpoints of several controllers can be shifted together, regardless of the individually adjusted effective setpoints.			
Sw.Op	r	base 1dP	201 8393	16786	Int	0 255		Software version XY Major and Minor Release (e.g. 21 = Version 2.1). The software version specifies the firmware in the unit. For the correct interaction of E-Tool and device, it must match the operating version (OpVersion) in the E-Tool.			
Wi_We	r/w	base 1dP	57 8249	16498	Int	0 1		Signal for activating the external setpoint value. SP.E is the external setpoint, or dependent on the device and configuration of the setpoint shift.			
Bed.V	r	base 1dP	202 8394	16788	Int	0 255		Operating version (numeric value). For the correct interaction of E-Tool and device, the software version and operating version must match.			
St.Cntr	r	base 1dP	35 8227	16454	Int	0 65535		Status informations of the controller.f.e. switching signals, controller off or informations about selftuning. The controller sratus shows the actual adjustments of the controller.			
						Bit 0: Switching signal heating: 0 off 1 on Bit 1: Switching signal cooling: 0 off 1 on Bit 2: Sensor error 0 ok 1 error Bit 3: Contollsignal manual/atomatic 0 automatic 1 manual Bit 4: Controllsignal Y2 0 Y2 not activ 1 Y2 activ Bit 5: Contollsignal ext. default outputsignal 0 not activ 1 activ Bit 6: Controlsignal controller off 0 contr. on 1 contr. off Bit 7: The activ parameter set					
t.ti	r/w	base 1dP	46 8238	16476	Float	09999					

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Signa	al									
Name	r/w	Adr. I	nteger	real	Тур	Value/off		Description		
Y_Y2	r/w	base 1dP	58 8250	16500	Int	0 1		Signal for activating the 2nd output value Y2. With selected Y2, the output is operated as a positioner.Caution: Do not confuse the parameter 'fixed output Y2' with the controller output Y2!		
diFF	r	base 1dP	38 8230	16460	Float	-1999 9999		Control deviation, is defined as process value minus setpoint. Positive Xw means that the process value is above the setpoint. A small control deviation indicates precise control.		
Unit	r	base 1dP	203 8395	16790	Int	0 255		Identification of the device.		
A-M	r/w	base 1dP	59 8251	16502	Int	0 1		Signal for activating manual operation. In the manual mode, the controller provides output signals independent of the process.		
S.Vers	r	base 1dP	204 8396	16792	Int	100 255		The sub-version number is given as an additional index for precise definition of software version.		
C.Off	r/w	base 1dP	60 8252	16504	Int	0 1		Signal for disabling all the controller outputs. Note: Forcing has priority; alarm processing remains active.		
St.Ala	r	base 1dP	23 8215	16430	Int			Alarm status: Bit-wise coded status of the individual alarms, e.g. exceeded limit value or Loop.		
Bit 0 Existing/stored exceeded limit 1 Bit 1 Existing/stored exceeded limit 2 Bit 2 Existing/stored exceeded limit 3 Bit 3 Not used Bit 4 Existing/stored loop alarm Bit 5 Existing/stored loop alarm Bit 6 Existing/stored SSR alarm Bit 7 Not used Bit 8 Existing exceeded limit 1 Bit 9 Existing exceeded limit 2 Bit 10 Existing exceeded limit 3 Bit 11 Not used Bit 12 Existing loop alarm Bit 13 Existing heating current alarm Bit 13 Existing heating current alarm Bit 14 Existing SSR alarm										
Ypid	r	base 1dP	37 8229	16458	Float	Bit 15 Not used		Output value Ypid is the output signal determined by the controller, and from which the switching pulses for the digital and analog control outputs are calculated. Ypid is also available as an analog signal. e.g. for visualization.		

•	Signal							
	Name	r/w	Adr. In	teger	real	Тур	Value/off	Description
	Ada.St	r/w	base 1dP	41 8233	16466	Enum	Enum_AdaStart	Starting / stopping the self-tuning function.After the start signal, the controller waits until the process reaches a stable condition (PIR) before it starts the self-tuning process. Self-tuning can be aborted manually at any time. After a successful self-tuning attempt, the controller automatically resumes normal operation.
							with the previo	rt the self-tuning process, and the controller returns to normal operation bus parameter settings.
							1 Start of the se operation.	If-tuning process is possible during manual or automatic controller

Err.r	r/w	base 1dP	63 8255	16510	Int	0 1		Signal for resetting the entire error list. The error list contains all errors that are reported, e.g. device faults and limit values. It also contains queued as well as stored errors after their correction. The reset acknowledges all errors, whereby queued errors will reappear after the next error detection (measurement).
St.Do	r	base 1dP	24 8216	16432	Int	0 15		Status of the digital outputs
SSR.Res	r/w	base 1dP	61 8253	16506	Int	0 1		Reset of the alarm triggered by a solid-state relay (SSR). SSRs are mostly used for frequent switching of heating elements, because they have no mechanical contacts that can wear out. However, an unnoticed short circuit could lead to overheating of the machine.
St.Ain	r	base 1dP	22 8214	16428	Int	0 127		Bit-coded status of the analog input (fault, e.g. short circuit)
						Bit 2 Short-ci Bit 3 Not use Bit 4 Break a Bit 5 Reverse Bit 6 Short-ci Bits 7-15 Not	d t Inpu d pola rcuit a	t 2 arity at Input 2 at Input 2
Yman	r/w	base 1dP	40 8232	16464	Float	Bits /-15 Not		Absolute preset output value, which is used as output value during manual operation. Caution: With 3-point stepping controllers, Yman (evaluated the same as Dyman) is added to the actual output value as a relative
St.Di	r	base 1dP	25 8217	16434	Int			shift. Status of the digital inputs or of push-buttons (binary coded).
1	-					Bit 0: Input di Bit 8: Status Bit 9: Status Bit 10: Status	of Ent of 'Do	wn' key

Mama	al							
Name	r/w	Adr. Ir	nteger	real	Тур	Value/off		Description
F.Di	r/w	base 1dP	28 8220	16440	Int	0 1		Forcing of digital inputs. Forcing involves the external operation at least one device input. The device takes over this input value (preset value for device inputs from a superordinate system, e.g. a function test.)
		•				Bit 0 Forcing of	of dig	ital Input 1
F.Do	r/w	base 1dP	29 8221	16442	Int	0 15		Forcing of digital outputs. Forcing involves the external operation at least one controller output. The controller has no influence of this output (use of free controller outputs by superordinate syst
ProG	r/w	base 1dP	62 8254	16508	Int	0 1		Signal for starting the programmer. On units with a simple programmer (only 1 program), a stop immediately causes a rese followed by a new start. With units that have been defined as program controllers (several programs), the program is stopped then continued.
St.Prog	r	base 1dP	47 8239	16478	Int	0 255		The programmer's status contains bit-wise coded data, e.g. wh point of the program sequence the program has reached.
						Bit 3 Program Bit 4 Program Bit 5 Program Bit 6 Program	'End 'Res	•
	r	hace	24	16156	Float	Bit 4 Program Bit 5 Program Bit 6 Program Bit 7 Program	'End 'Res 'Star 'Ban	' tFlankMissing' dHold + FailHold'
SP.EF	r	base 1dP	36 8228	16456	Float	Bit 4 Program Bit 5 Program Bit 6 Program	'End 'Res 'Star 'Ban	et' tFlankMissing' dHold + FailHold' Effective setpoint. The value reached at the end of setpoint processing, after taking W2, external setpoint, gradient, boost function, programmer settings, start-up function, and limit func into account. Comparison with the effective process value lead
SP.EF SP.Pr	r r					Bit 4 Program Bit 5 Program Bit 6 Program Bit 7 Program	'End 'Res 'Star 'Ban	et' tFlankMissing' dHold + FailHold' Effective setpoint. The value reached at the end of setpoint processing, after taking W2, external setpoint, gradient, boost function, programmer settings, start-up function, and limit funct into account. Comparison with the effective process value leads the control deviation, from which the necessary controller respo
		1dP base	8228 48 8240		Float	Bit 4 Program Bit 5 Program Bit 6 Program Bit 7 Program -1999 9999	'End 'Res 'Star 'Ban	et' tFlankMissing' dHold + FailHold' Effective setpoint. The value reached at the end of setpoint processing, after taking W2, external setpoint, gradient, boost function, programmer settings, start-up function, and limit func into account. Comparison with the effective process value leads the control deviation, from which the necessary controller respo- is derived. The programmer's setpoint is displayed as the effective setpoint while the program is running. Only with a running program. The net (elapsed) time of the programmer is shown in a simplified form as time elapsed since program start.Caution: Stop times are not counted! If the first segment is defined as a gradient, the program starts at the prog- value, whereby the offset is defined as the time that the contro
SP.Pr	r r	1dP base 1dP base	8228 48 8240 49 8241	16480	Float	Bit 4 Program Bit 5 Program Bit 6 Program Bit 7 Program -1999 9999	'End 'Res 'Star 'Ban	et' tFlankMissing' dHold + FailHold' Effective setpoint. The value reached at the end of setpoint processing, after taking W2, external setpoint, gradient, boost function, programmer settings, start-up function, and limit funct into account. Comparison with the effective process value leads the control deviation, from which the necessary controller respo- is derived. The programmer's setpoint is displayed as the effective setpoin while the program is running. Only with a running program. The net (elapsed) time of the programmer is shown in a simplified form as time elapsed since program start.Caution: Stop times are not counted! If the first segment is defined as a gradient, the program starts at the proc value, whereby the offset is defined as the time that the contro would have needed with the gradient beginning at the setpoint

ode T	able	è					Operating Version1
ohnE							
Signa Name		Adr. Ir	nteger	real	Тур	Value/off	Description
T2.Pr	r	base 1dP	51 8243		Float	0 9999	Only while program is running. The net segment time corresponds to the elapsed segment time.Caution: Stop times are not counted! If the first segment has been defined as a gradient, the start commences at process value, and the offset specified for the first segment corresponds to the time that the controller would have required with a gradient beginning at the actual process value when the program was started.
T4.Pr	r	base 1dP	52 8244	16488	Float	0 9999	Only with running program. The remaining time of the running program segment (without hold times).
Func	r/w	base 1dP	69 8261	16522	Int	0 1	OR-linking of several control signals.
SG.Pr	r	base 1dP	53 8245	16490	Int	0 4	A program consists of one or more segments which are arranged and defined by means of the segment numbers. By means of the segment number(s), the program can be changed quickly and specifically at the required point.

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•	PArA								
	Name	r/w	Adr. In	nteger	real	Тур	Value/off		Description
	L.1	r/w	base 1dP	73 8265	16530	Float	-1999 9999		Lower limit value. The alarm is triggered if the value falls below the limit, and is reset with lower limit value plus hysteresis.
	H.1	r/w	base 1dP	74 8266	16532	Float	-1999 9999		Upper limit value. The alarm is triggered if the value rises above the limit, and is reset with upper lower limit value plus hysteresis.
	t.F1	r/w	base 1dP	70 8262	16524	Float	0 999		Filter time constant [s]. Every input is fitted with a digital (software) low-pass filter for suppressing process-related disturbances on the input leads. Higher filter settings improve the suppression, but increase the delay of the input signals.

Signal

Name	r/w	Adr. Ir	nteger	real	Тур	Value/off	Description
In.1	r	base 1dP	20 8212		Float	-1999 9999	Measurement value after the measurement value correction (e.g. with offset or 2-point correction, and scaling).
F.Do1	r/w	base 1dP	31 8223		Enum	Enum_Ausgang	Forcing of this digital output. Forcing involves the external operation of a controller output. The controller has no influence on this output (use of free controller outputs by superordinate system).
						0 off	
						1 on	

9 ohnE1

•	Signal							
	Name	r/w	Adr. In	nteger	real	Тур	Value/off	Description
	ln.1r	r	base 1dP	2005 10197	20394	Float	-1999 9999	Measurement value before the measurement value correction (unprocessed, read directly from the input).
	F.Inp	r/w	base 1dP	26 8218	16436	Float	-1999 9999	Forcing the value for an analog input INP. Forcing involves the external operation of a controller input. The controller takes over the value at this input like a measurement value (preset value for controller inputs from a superordinate system, e.g. for a function test.)

10 ohnE2

PArA							
Name	r/w	Adr. Ir	iteger	real	Тур	Value/off	Description
L.2	r/w	base 1dP	75 8267	16534	Float	-1999 9999	Lower limit value. The alarm is triggered if the value falls below the limit, and is reset with lower limit value plus hysteresis.
t.F2	r/w	base 1dP	71 8263	16526	Float	0 999	Filter time constant [s]. Every input is fitted with a digital (software) low-pass filter for suppressing process-related disturbances on the input leads. Higher filter settings improve the suppression, but increase the delay of the input signals.
H.2	r/w	base 1dP	76 8268	16536	Float	-1999 9999	Upper limit value. The alarm is triggered if the value rises above the limit, and is reset with upper lower limit value plus hysteresis.

Signal

Name	r/w	Adr. II	nteger	real	Тур	Value/off	Description
In.2	r	base 1dP	21 8213	16426	Float	-1999 9999	Measurement value after the measurement value correction (e.g. with offset or 2-point correction, and scaling).
F.Do2	r/w	base 1dP	32 8224		Enum	Enum_Ausgang	Forcing of this digital output. Forcing involves the external operation of a controller output. The controller has no influence on this output (use of free controller outputs by superordinate system).
						0 off	
						1 on	

on

In.2r	r	base 1dP	2006 10198	20396	Float	-1999 9999	Measurement value before the measurement value correction (unprocessed, read directly from the input).
F.Inp	r/w	base 1dP	27 8219	16438	Float	-1999 9999	Forcing the value for an analog input INP. Forcing involves the external operation of a controller input. The controller takes over the value at this input like a measurement value (preset value for controller inputs from a superordinate system, e.g. for a function test.)

11 ohnE3

•	PArA							
	Name	r/w	Adr. In	iteger	real	Тур	Value/off	Description
	L.3	r/w	base 1dP	77 8269	16538	Float	-1999 9999	Lower limit value. The alarm is triggered if the value falls below the limit, and is reset with lower limit value plus hysteresis.
	H.3	r/w	base 1dP	78 8270	16540	Float	-1999 9999	Upper limit value. The alarm is triggered if the value rises above the limit, and is reset with upper lower limit value plus hysteresis.

Signal

Name		Adr. Ir	nteger	real	Тур	Value/off	Description
F.Do3	r/w	base 1dP	33 8225		Enum	Enum_Ausgang	Forcing of this digital output. Forcing involves the external operation of a controller output. The controller has no influence on this output (use of free controller outputs by superordinate system).
						0 off	
						1 on	
F.Ou1	r/w	base 1dP	30 8222		Float	-1999 9999	Forcing value of the analog output. Forcing involves the external operation of a controller output, i.e. the controller has no influence on this output. (Used for the operation of free controller outputs e.g. by a supervisory PLC.)

12 othr

ConF							
Name	r/w	Adr. In	teger	real	Тур	Value/off	Description
bAud	r/w	base 1dP	290 8482		Enum	Enum_Baud	Bit rate of the interface (only visible with OPTION). The bit rate determines the transmission speed.
						0 2400 Baud 1 4800 Baud 2 9600 Baud 3 19200 Baud 4 38.400 bits/s	
Addr	r/w	base 1dP	291 8483	16966	Int	1247	Address on the interface (only visible with OPTION)
PrtY	r/w	base 1dP	292 8484	16968	Enum	Enum_Parity	Parity of data on the interface (only visible with OPTION). Simple possibility of checking that transferred data is correct.

No parity, with 2 stop bits. 0 1

even parity

odd parity no parity (1 stop bit) 2 3

							oporating recommendation
othr							
ConF							
Name	r/w	Adr. Ir	nteger	real	Тур	Value/off	Description
dELY		base 1dP	-	16970	51	0 200	·
D.Unt	r/w	base 1dP	284 8476	16952	Enum	EnumDUnit	display unit
						0 without unit	
						1 Temperature 2 O2 unit	unit
						2 02 unit 3 %	
						4 bar	
						5 mbar	
						6 Pa 7 kPa	
						8 psi	
						9 I	
						10 l/s 11 l/min	
						12 Ohm	
						13 kOhm	
						14 m 15 A	
						16 mA	
						17 V	
						18 mV 19 kg	
						19 kg 20 g	
						21 t	
						22 Text of phys.	Unit
02	r/w	base 1dP	283 8475	16950	Enum	O2Unit	Parameter definition for O2 measurement. With O2 measurement is necessary to define whether the parameter is to be evaluated ppm or %.
							r O2 function in ppm
						1 Parameter for	r O2 function in %
Unit	r/w	base 1dP	280 8472	16944	Enum	Enum_Unit_rail	Physical unit, f.e.°C
	-					1 °C	
						2 °F	
						3 K	
dP	r/w	base 1dP	281 8473	16946	Enum	Enum_dP	Decimal point (max. no of decimals). Format of the measured val display.
		1			<u> </u>	0 no digit behin	I dthe decimal point
						1 Display has o	ne decimal.
						2 Display has the	
						3 Display has th	hree decimals.

12 othr Description Name r/w Adr. Integer real Тур Value/off 0...200 C.dEL 294 16972 Int Additional delay time before received message is evaluated by r/w base Modbus. This time is needed if data is not transmitted continousely 1dP 8486 by the modem. FrEq 260 16904 Enum Enum_FrEq Switchover of the applied mains frequency 50 / 60 Hz and adapting r/w base the input filter for hum suppression. 1dP 8452 Mains frequency is 50 Hz. 0 Mains frequency is 60 Hz. 1

Signal

Signa		.			Ŧ			
Name	r/w	Adr. Ir	nteger	real	Тур	Value/	off	Description
D.Unt	r	base 1dP	340 8532	17064	Enum	EnumDl	Jnit	Effective display unit (can be used for extended Operating Level or display 2)
ļ						0	without unit	
						1	Temperature u	unit
						2	O2 unit	
						3	%	
						4	bar	
						5	mbar	
						6	Pa kPa	
						7 8	psi	
						o 9	hzi	
						10	l/s	
						11	l/min	
						12	Ohm	
						13	kOhm	
						14	m	
						15	А	
						16	mA	
						17	V	
						18	mV	
						19	kg	
						20 21	g t	
						22	Text of phys. l	Init
						22	Text of priys. (Jiit
E.1	r/w	base 1dP	310 8502	17004	Enum	Defect		Err 1 (internal error)
L					<u> </u>	0	No fault exists	s (Reset).
						2	The device is (
E.2	r/w	base 1dP	311 8503	17006	Enum	Problem	1	Err 2 (internal error, resetable)
L	1					0	No fault or res	set of the fault exists (Reset).
						1		curred and has been stored.

othr								
Signa	al							
Name	r/w	Adr. In	iteger	real	Тур	Value/	off	Description
E.3	r/w	base 1dP	329 8521	17042	Enum	ConfErr		Resettable configuration fault. ConfErr(2): a fault has occurred. Typical causes and suggested remedies: Missing or faulty configuration: check interactions in the configuration and parameter settings.
						0 2		et of the configuration error exists (Reset). iguration error. The configuration is missing or wrong, or it does not ma settings.
E.4	r/w	base 1dP	328 8520	17040	Enum	Problem		Hardware fault.Cause: Code number and hardware are not identical. Remedy: Contact PMA Service or replace electronics/Options pr
						0		et of the fault exists (Reset).
						1	A fault has occ	curred and has been stored.
FbF.1	r/w	base 1dP	312 8504	17008	Enum	Break		Sensor break at input INP1. Break(2): a fault has occurred. Break(1): fault remedied but not acknowledged. Typical causes and suggested remedies: Sensor fault: replace INP1 sensor. Wiring fault: check connections of INP1.
						0		et of the sensor break alarm exists (Reset).
						1 2	operator must	It alarm has been triggered and stored; the fault is no longer present. T acknowledge the error message in order to delete it from the error list. The sensor is defective or there is a wiring fault.
Sht.1	r/w	base 1dP	313 8505	17010	Enum	Short		Short circuit at input INP1. Short(2): a fault has occurred. Short(1): fault remedied but not acknowledged. Typical causes and suggested remedies: Sensor fault: replace INP1 sensor. Wiring fault: check connections of INP1.
	_!					0		et of the short-circuit alarm exists (Reset).
						1		fault has occurred and has been stored.
						2	A SNOFT-CIFCUIT	fault has occurred.
POL.1	r/w	base 1dP	314 8506	17012	Enum	Polarity		Incorrect polarity at input INP1. Polarity(2): a fault has occurred. Latched(1): fault remedied but not acknowledged. Suggested remedy: reverse the polarity at INP1.
						0		et of incorrect polarity alarm exists (Reset).
						2	•	plarity fault has occurred and has been stored. ity. The wiring of the input circuit is not correct.
FbF.2	r/w	base 1dP	315 8507	17014	Enum	Break		Sensor break at input INP2. Break(2): a fault has occurred. Break(1): fault remedied but not acknowledged. Typical causes and suggested remedies: Sensor fault: replace INP2 sensor. Wiring fault: check connections of INP2.
						0		et of the sensor break alarm exists (Reset).
							operator must	It alarm has been triggered and stored; the fault is no longer present. T acknowledge the error message in order to delete it from the error list.
						2	Concer breek.	The sensor is defective or there is a wiring fault.

othr							
Signa	al						
Name		Adr. In	iteger	real	Тур	Value/off	Description
Sht.2	r/w	base 1dP	316 8508	17016	Enum	Short	Short circuit at input INP2. Short(2): a fault has occurred. Short(1): fault remedied but not acknowledged. Typical causes and suggested remedies: Sensor fault: replace INP2 sensor. Wiring fault: check connections of INP2.
							set of the short-circuit alarm exists (Reset).
							t fault has occurred and has been stored.
						2 A short-circui	t fault has occurred.
POL.2	r/w	base 1dP	317 8509	17018	Enum	Polarity	Incorrect polarity at input INP2. Polarity(2): a fault has occurred. Latched(1): fault remedied but not acknowledged. Suggested remedy: reverse the polarity at INP2.
							set of incorrect polarity alarm exists (Reset).
							polarity fault has occurred and has been stored.
						2 Incorrect pola	arity. The wiring of the input circuit is not correct.
HCA	r/w	base 1dP	318 8510	17020	Enum	HeatCurr	Heating current alarm.Possible fault s are an open heating cur circuit with current I < heating current limit, or current I > heat current limit (depending on configuration), or defective heater band.Suggested remedy: check heating current circuit, replace heater band if necessary.
						0 No fault or re	set of the heating current alarm exists (Reset).
						1 A heating cur	rent fault has occurred and has been stored.
SSr	r/w	base 1dP	319 8511	17022	Enum	Short	Alarm message: SSr Possible causes: a current flow in the heating circuit although controller is 'off', or the SSR is defective. Suggested remedy: check heating current circuit, replace the solid-state relay, if necessary.
						0 No fault or re	set of the short-circuit alarm exists (Reset).
							t fault has occurred and has been stored.
						2 A short-circui	t fault has occurred.
LooP	r/w	base 1dP	320 8512	17024	Enum	LoopAlarm	Alarm message: LooP Possible causes: faulty or incorrectly connected input circuit, or output not connected correctly. Suggested remedy: check heating or cooling circuit, check sen function and replace if necessary, check controller and output switching actuator.
		-					set of the loop alarm exists (Reset).
							o fault has occurred and has been stored.
						2 A control loop change of the	b fault has occurred, there was no clear process response following a s e output.

	othr								
Ī	Signal								
	Name	r/w	Adr. Ir	nteger	real	Тур	Value/	off	Description
	AdA.H		base 1dP	321 8513	17026	Enum	Tune		Error message from "heating" self-tuning and reason for aborted tuning attempt. Hints for trouble-shooting: Check operating sense of actuator. – Is the loop closed? – Is there an output limit? – Adapt the setpoint. Increase step output for Yopt.
							0	no error	
							3	Possible remed	nds in the wrong direction. dy: Check the output signal sense (inverse <-> direct), and re-configure the cessary (inverse <-> direct).
							4	Possible remed	om the process. Perhaps the control loop is open. dy: Check sensor, connections, and process.
							5	Possible remed	alue turning point of the step response is too low. dy: Increase the permitted step output range, i.e. increase the parameter or reduce the parameter Y.Lo ('cooling').
							6		is aborted due to the risk of an exceeded setpoint. dy: Repeat the attempt with an increased setpoint reserve.
							7	Possible remea Y.Hi ('heating')	It change is not large enough (minimum change > 5 %). dy: Increase the permitted step output range, i.e. increase the parameter or reduce the parameter Y.Lo ('cooling').
							8 9	The pulse resp	t-point reserve onse attempt has failed. No useful parameters were determined. Perhap
								the control loo Possible remed	p is open. dy: Check sensor, connections, and process.
	AdA.C		base 1dP	322 8514	17028	Enum	Tune		Error message from "cooling" self-tuning and reason for aborted tuning attempt. Hints for trouble-shooting: Check operating sense of actuator. Is loop closed? Is there an output limit? Adapt the setpoint. Increas step output for Yopt.
							0	no error	
							3	Possible remed	nds in the wrong direction. dy: Check the output signal sense (inverse <-> direct), and re-configure th cessary (inverse <-> direct).
							4	Possible remed	om the process. Perhaps the control loop is open. dy: Check sensor, connections, and process.
							5	Possible remed	Ilue turning point of the step response is too low. dy: Increase the permitted step output range, i.e. increase the parameter or reduce the parameter Y.Lo ('cooling').
							6	Self-tuning wa	is aborted due to the risk of an exceeded setpoint. dy: Repeat the attempt with an increased setpoint reserve.
							7	Possible remea Y.Hi ('heating')	It change is not large enough (minimum change > 5 %). dy: Increase the permitted step output range, i.e. increase the parameter or reduce the parameter Y.Lo ('cooling').
							8 9		t-point reserve onse attempt has failed. No useful parameters were determined. Perhap
							/	the control loo	
	Lim.1		base 1dP	323 8515	17030	Enum	Limit		Limit value 1 exceeded. Active (2): a fault has occurred. Latched (1): fault remedied but not acknowledged. Hint for trouble-shooting: check the process.
L		I				<u> </u>	0	No fault or res	et of the limit value alarm exists (Reset).
							1 2	The limit value	has been exceeded, and the fault has been stored. has been exceeded; the monitored (measurement) value is outside the s

1dP 8518 hours for this maintenance period has been reached. The op-h counter for the maintenance period is reset when this messag acknowledged. Counting the operating hours is used for preve maintenance.									
Name r/w Adr. Integer real Typ Value/off Description Lim.2 r/w base 324 17032 Enum Limit Limit value 2 exceeded. Active (2): a fault has occurred. Latched (1): fault remedied but not acknowledged. Hint for trouble-shooting: check the process. 0 No fault or reset of the limit value alarm exists (Reset). 1 The limit value has been exceeded, and the fault has been stored. 2 The limit value has been exceeded. Hore the limit value has been exceeded. 2 The limit value has been exceeded. Active (2): a fault has occurred. Latched (1): fault remedied but not acknowledged. Hint for trouble-shooting: check the process. Lim.3 r/w base 1dP 8517 17034 Enum Limit Limit value 3 exceeded. Active (2): a fault has occurred. Latched (1): fault remedied but not acknowledged. Hint for trouble-shooting: check the process. 0 No fault or reset of the limit value alarm exists (Reset). 1 The limit value has been exceeded. Hint for trouble-shooting: check the process. 1 The limit value has been exceeded; the monitored (measurement) value is outside th limits. 1 The limit value has been exceeded; the monitored (measurement) value is outside th limits. InF.1 r/w base 8518 326 17036 Enum Time	othr								
Lim.2 r/w base 1dP 324 8516 17032 Enum 8516 Limit Limit Limit Limit value 2 exceeded. Active (2): a fault has occurred. Latched (1): fault remedied but not acknowledged. Hint for trouble-shooting: check the process. 0 No fault or reset of the limit value alarm exists (Reset). 1 The limit value has been exceeded, and the fault has been stored. 2 The limit value has been exceeded. 1 The limit value has been exceeded. 1 The limit value has been exceeded. Active (2): a fault has occurred. Latched (1): fault remedied but not acknowledged. Hint for trouble-shooting: check the process. 1 IdP 8517 17034 Enum Limit Limit value 3 exceeded. Active (2): a fault has occurred. Latched (1): fault remedied but not acknowledged. Hint for trouble-shooting: check the process. 0 No fault or reset of the limit value alarm exists (Reset). 1 The limit value has been exceeded, and the fault has been stored. 2 The limit value has been exceeded; the monitored (measurement) value is outside th limits. 1 The limit value has been exceeded; the monitored (measurement) value is outside th limits. InF.1 r/w base 1dP 326 8518 17036 Enum 8518 Time Message from the operating hours counter that the preset no. hours for this maintenance period has been reached. The op-	Signa								
IndP 8516 IndP 8516 Active (2): a fault has occurred. Latched (1): fault remedied but not acknowledged. Hint for trouble-shooting: check the process. 0 No fault or reset of the limit value alarm exists (Reset). 1 The limit value has been exceeded, and the fault has been stored. 2 The limit value has been exceeded; the monitored (measurement) value is outside th limits. Lim.3 r/w base 1dP 325 17034 Enum Limit Limit value 3 exceeded. Active (2): a fault has occurred. Latched (1): fault remedied but not acknowledged. Hint for trouble-shooting: check the process. 0 No fault or reset of the limit value alarm exists (Reset). 1 The limit value has been exceeded. Hint for trouble-shooting: check the process. 0 No fault or reset of the limit value alarm exists (Reset). 1 The limit value has been exceeded; the monitored (measurement) value is outside th limits. InF.1 r/w base 1dP 326 17036 Enum Time Message from the operating hours counter that the preset no. hours for this maintenance period has been reached. The op-hocunter for the maintenance period is reset	Name	r/w	Adr. In	teger	real	Тур	Value/	off	Description
1 The limit value has been exceeded, and the fault has been stored. 2 The limit value has been exceeded; the monitored (measurement) value is outside th limits. Lim.3 r/w base 325 17034 Enum Limit Limit value 3 exceeded. Active (2): a fault has occurred. Latched (1): fault remedied but not acknowledged. Hint for trouble-shooting: check the process. 0 No fault or reset of the limit value alarm exists (Reset). 1 The limit value has been exceeded; the monitored (measurement) value is outside th limits. InF.1 r/w base 326 17036 Enum Time Message from the operating hours counter that the preset no. hours for this maintenance period has been reached. The op-hocounter for the maintenance period is reset when this messag acknowledged. Counting the operating hours is used for prevemaintenance.	Lim.2	r/w				Enum	Limit		Active (2): a fault has occurred. Latched (1): fault remedied but not acknowledged.
1 The limit value has been exceeded, and the fault has been stored. 2 The limit value has been exceeded; the monitored (measurement) value is outside th limits. Lim.3 r/w base 325 17034 Enum Limit Limit value 3 exceeded. Active (2): a fault has occurred. Latched (1): fault remedied but not acknowledged. Hint for trouble-shooting: check the process. 0 No fault or reset of the limit value alarm exists (Reset). 1 The limit value has been exceeded; the monitored (measurement) value is outside th limits. InF.1 r/w base 326 17036 Enum Time Message from the operating hours counter that the preset no. hours for this maintenance period has been reached. The op-hocounter for the maintenance period is reset when this messag acknowledged. Counting the operating hours is used for prevemaintenance.			•				0	No fault or res	et of the limit value alarm exists (Reset).
2 The limit value has been exceeded; the monitored (measurement) value is outside th limits. Lim.3 r/w base 325 17034 Enum Limit Limit value 3 exceeded. Active (2): a fault has occurred. Latched (1): fault remedied but not acknowledged. Hint for trouble-shooting: check the process. 0 No fault or reset of the limit value alarm exists (Reset). 1 The limit value has been exceeded; the monitored (measurement) value is outside th limits. InF.1 r/w base 326 17036 Enum Time Message from the operating hours counter that the preset no. hours for this maintenance period has been reached. The op-h counter for the maintenance period is reset when this messag acknowledged. Counting the operating hours is used for preve maintenance.							1		
1dP 8517 Active (2): a fault has occurred. Latched (1): fault remedied but not acknowledged. Hint for trouble-shooting: check the process. 0 No fault or reset of the limit value alarm exists (Reset). 1 The limit value has been exceeded, and the fault has been stored. 2 The limit value has been exceeded; the monitored (measurement) value is outside th limits. InF.1 r/w base 1dP 326 8518 17036 Enum Time Message from the operating hours counter that the preset no. hours for this maintenance period has been reached. The op-h counter for the maintenance period is reset when this messag acknowledged. Counting the operating hours is used for preve maintenance.							2	The limit value	
1 The limit value has been exceeded, and the fault has been stored. 2 The limit value has been exceeded; the monitored (measurement) value is outside th limits. InF.1 r/w base 326 17036 Enum Time Message from the operating hours counter that the preset no. hours for this maintenance period has been reached. The op-h counter for the maintenance period is reset when this messag acknowledged. Counting the operating hours is used for prevermaintenance.	Lim.3	r/w			17034	Enum	Limit		Active (2): a fault has occurred. Latched (1): fault remedied but not acknowledged.
2 The limit value has been exceeded; the monitored (measurement) value is outside the limits. InF.1 r/w base 1dP 326 17036 Enum Time Message from the operating hours counter that the preset no. hours for this maintenance period has been reached. The op-h counter for the maintenance period is reset when this messag acknowledged. Counting the operating hours is used for prevermaintenance.							0	No fault or res	et of the limit value alarm exists (Reset).
Imits. Imits. InF.1 r/w base 326 17036 Enum Time Message from the operating hours counter that the preset no. hours for this maintenance period has been reached. The op-h counter for the maintenance period is reset when this messag acknowledged. Counting the operating hours is used for prevermaintenance.							1	The limit value	has been exceeded, and the fault has been stored.
1dP 8518 hours for this maintenance period has been reached. The op-h counter for the maintenance period is reset when this messag acknowledged. Counting the operating hours is used for preve maintenance.							2		has been exceeded; the monitored (measurement) value is outside the s
0 No signal or reset of the time limit signal (reset)	InF.1	r/w			17036	Enum	Time		Message from the operating hours counter that the preset no. of hours for this maintenance period has been reached. The op-hour counter for the maintenance period is reset when this message is acknowledged. Counting the operating hours is used for preventive maintenance.
	,						0	No signal or re	eset of the time limit signal (reset).
1 Operating hours - limit value (maintenance period) reached.							1	•	
1dP 8519 switch cycles for this maintenance period has been reached. To cycle counter for the maintenance period is reset when this message is acknowledged. Counting the switching cycles is used to cycle counter for the maintenance period has been reached. To cycle counter for the maintenanc	InF.2	r/w			17038	Enum	Switch		Message from the switching cycle counter that the preset no. of switch cycles for this maintenance period has been reached. The cycle counter for the maintenance period is reset when this message is acknowledged. Counting the switching cycles is used for preventive maintenance.
To preventive maintenance.							0	No error mess	age or reset of the switching cycle counter exists (Reset).
							1	Set limit of the	e switching cycle counter (maintenance period) has been reached.

13 Out.1

	Jatin							
C	ConF							
N	lame	r/w	Adr. In	nteger	real	Тур	Value/off	Description
0).Act	r/w	base 1dP	920 9112	18224	Enum	Enum_OAct	Operating sense of the switching output OUT x. Direct: Active function (e.g. limit value) switches the output ON; Inverse: Active function (e.g. limit value) switches the output OFF.
							0 direct / norma	lly open
							1 inverse / norm	
_		-	-					
Y.	.1	r/w	base	921	18226	Enum	Enum_Y1	Activation of controller output Y1
			1dP	9113				·
				7110				
							0 not active	
							1 This output pro	ovides the controller output Y1.

C) <u>+</u> _1							
	Dut.1							
C	ConF							
Ν	ame	r/w	Adr. In	iteger	real	Тур	Value/off	Description
Y.	.2	r/w	base 1dP	922 9114	18228	Enum	Enum_Y2	Activation of controller output Y2. Caution: Do not confuse the controller output Y2 with the parameter 'Fixed output Y2' !
						ł	0 not active	
							1 This output pr	ovides the controller output Y2.
Li	m.1	r/w	base 1dP	923 9115	18230	Enum	Enum_Lim1	Activation of output function: Adjusted limit value 1 has been exceeded.
L						<u> </u>	0 not active 1 The output is a	activated by an alarm from limit value 1.
Li	m.2	r/w	base 1dP	924 9116	18232	Enum	Enum_Lim2	Activation of output function:Adjusted limit value 2 has been exceeded.
						<u> </u>	0 not active	1
							1 The output is a	activated by an alarm from limit value 2.
Li	m.3	r/w	base 1dP	925 9117	18234	Enum	Enum_Lim3	Activation of output function: Adjusted limit value 3 has been exceeded.
-							0 not active	
							1 The output is a	activated by an alarm from limit value 3.
LI	P.AL	r/w	base 1dP	927 9119	18238	Enum	Enum_OUT_LPAL	Interruption alarm signal (LOOP)
							0 not active	
							1 The loop alarn	n (= open loop alarm) is assigned to this output.
H	C.AL	r/w	base 1dP	928 9120	18240	Enum	Enum_OUT_HCAL	Heat current alarm signal
ــــ						I	0 not active	
							1 The heating cu	urrent alarm is assigned to this output.
H	C.SC	r/w	base 1dP	929 9121	18242	Enum	Enum_HCSC	Activation of the output: Solid-state relay (SSR) short circuit. The short circuit alarm of the SSR is triggered, if a current is detected in the heating circuit, although the controller output is switched off.
							0 not active	ad by an SSD fault
_							1 Output activat	ed by an SSR fault.
tii	mE	r/w	base 1dP	930 9122	18244	Enum	Enum_time	Activation of output: Timer running. This message is generated by the setpoint processing, if a timer mode has been configured, are the time has elapsed.
						•	0 not active	•
							1 activated	

Out.1						
ConF						
Name	r/w	Adr. Integer	real	Тур	Value/off	Description
P.End	r/w	base 931 1dP 9123		Enum	Enum_PEnd	Generation of the message: Program end. This message is available when the program has been completed (only when configured as a program controller).
					0 not active	
					1 This output is	activated by the message 'Program end'.
FAi.1	r/w	base 932 1dP 9124		Enum	Enum_FAi1	Activation of the message: INP1 fault. The fail signal is generated, if a fault occurs at the analog Input INP1.
<u> </u>	1			1	0 not active	
					1 The output is s	switched by the error message 'INP1 fault'.
FAi.2	r/w	base 933 1dP 9125	18250	Enum	Enum_FAi2	Activation of the message: INP2 fault. The fail signal is generated, if a fault occurs at the analog Input INP2.
L	4			1	0 not active	
					1 The output is s	switched by the error message 'INP2 fault'.
InF.1	r/w	base 935 1dP 9127	18254	Enum	Enum_Inf1	Activation of the output: Inf.1 status.The Inf.1 signal is generated, when the preset value of the operating hours counter has been reached.
					0 not active	
	activated by the status message 'Inf.1'.					
InF.2	r/w	base 936 1dP 9128		Enum	Enum_Inf2	Activation of the output: Inf.2 status. The Inf.2 signal is generated, when the preset value of the switching cycle counter has been reached.
L	1				0 Not active	
					1 The output is a	activated by the status message 'Inf.2'.

Signal

Signai						
Name	r/w	Adr. Integer	real	Тур	Value/off	Description
Out1	r	base 94 1dP 913		Enum	Enum_Ausgang	Status of the digital output
					0 off 1 on	
F.Do1	r/w	base 94 1dP 913		Enum	Enum_Ausgang	Forcing of this digital output. Forcing involves the external operation of a controller output. The controller has no influence on this output (use of free controller outputs by superordinate system).
					0 off	
					1 on	

ł	Out.2									
	ConF									
	Name	r/w	Adr. Ir	nteger	real	Тур	Value/off	Description		
	0.Act	r/w	base 1dP	970 9162	18324	Enum	Enum_OAct	Operating sense of the switching output OUT x. Direct: Active function (e.g. limit value) switches the output ON; Inverse: Active function (e.g. limit value) switches the output OFF.		
							0 direct / norma 1 inverse / norm			
ſ	[
	Y.1	r/w	base 1dP	9/1 9163	18326	Enum	Enum_Y1	Activation of controller output Y1		
L		1				<u> </u>	0 not active 1 This output pro	ovides the controller output Y1.		
	Y.2	r/w	base 1dP	972 9164	18328	Enum	Enum_Y2	Activation of controller output Y2. Caution: Do not confuse the controller output Y2 with the parameter 'Fixed output Y2' !		
L	<u> </u>						0 not active	ovides the controller output Y2.		
ſ	r									
	Lim.1	r/w	base 1dP	973 9165	18330	Enum	Enum_Lim1	Activation of output function: Adjusted limit value 1 has been exceeded.		
l							0 not active			
							1 The output is a	activated by an alarm from limit value 1.		
	Lim.2	r/w	base 1dP	974 9166	18332	Enum	Enum_Lim2	Activation of output function:Adjusted limit value 2 has been exceeded.		
l		I					0 not active			
							1 The output is a	activated by an alarm from limit value 2.		
	Lim.3	r/w	base 1dP	975 9167	18334	Enum	Enum_Lim3	Activation of output function: Adjusted limit value 3 has been exceeded.		
L		I				<u> </u>	0 not active			
							1 The output is a	activated by an alarm from limit value 3.		
	LP.AL	r/w	base 1dP	977 9169	18338	Enum	Enum_OUT_LPAL	Interruption alarm signal (LOOP)		
l		I					0 not active			
						1 The loop alarm (= open loop alarm) is assigned to this output.				
	HC.AL	r/w	base 1dP	978 9170	18340	Enum	Enum_OUT_HCAL	Heat current alarm signal		
L		I				L	0 not active			
							1 The heating cu	rrent alarm is assigned to this output.		

ConF						
Name	r/w	Adr. Integer	real	Тур	Value/off	Description
HC.SC	r/w	base 97 1dP 917	9 18342 1	Enum	Enum_HCSC	Activation of the output: Solid-state relay (SSR) short circuit. The short circuit alarm of the SSR is triggered, if a current is detected in the heating circuit, although the controller output is switched off.
	•	•		•	0 not active	
					1 Output activa	ted by an SSR fault.
timE	r/w	base 98 1dP 917		Enum	Enum_time	Activation of output: Timer running.This message is generated the setpoint processing, if a timer mode has been configured, a the time has elapsed.
					0 not active 1 activated	
P.End	r/w	base 98 1dP 917		Enum	Enum_PEnd	Generation of the message: Program end. This message is avail when the program has been completed (only when configured a program controller).
					0 not active	
					1 This output i	s activated by the message 'Program end'.
FAi.1	r/w	base 98 1dP 917	2 18348 4	Enum	Enum_FAi1	Activation of the message: INP1 fault. The fail signal is generated, if a fault occurs at the analog Input INP1.
	ļ				0 not active	
					1 The output is	switched by the error message 'INP1 fault'.
FAI.2	r/w	base 98 1dP 917	3 18350 5	Enum	Enum_FAi2	Activation of the message: INP2 fault. The fail signal is generated, if a fault occurs at the analog Input INP2.
				-	0 not active	
					I The output is	switched by the error message 'INP2 fault'.
InF.1	r/w	base 98 1dP 917	5 18354 7	Enum	Enum_Inf1	Activation of the output: Inf.1 status.The Inf.1 signal is generate when the preset value of the operating hours counter has been reached.
					0 not active 1 The output is	activated by the status message 'Inf.1'.
InF.2	r/w	base 98 1dP 917	6 18356 8	Enum	Enum_Inf2	Activation of the output: Inf.2 status. The Inf.2 signal is generate when the preset value of the switching cycle counter has been reached.
		1dP 917	8		0 Not active	

Operating Version1

ŀ	Out.2								
	Signal								
I	Name	r/w	Adr. Ir	nteger	real	Тур	Value	/off	Description
	Out2	r	base 1dP	990 9182		Enum	Enum_	Ausgang	Status of the digital output
_							0 1	off on	
	F.Do2	r/w	base 1dP	991 9183	18366	Enum	Enum_	Ausgang	Forcing of this digital output. Forcing involves the external operatio of a controller output. The controller has no influence on this output (use of free controller outputs by superordinate system).
-							0	off	
							1	on	

5	Out.3						
	ConF						
	Name	r/w	Adr. Intege	r real	Тур	Value/off	Description
	O.tYP	r/w		35 18454 27	Enum	Enum_OtYP	Signal type selection OUT
						0 Relay / logic (only visible with current/logic/voltage).
						1 0 20 mA cor	ntinuous (only visible with current/logic/voltage).
							ntinuous (only visible with current/logic/voltage).
							uous (only visible with current/logic/voltage)
							uous (only visible with current/logic/voltage)
						5 transmitter su	pply (only visible with current/logic/voltage)
	0.Act	r/w		20 18424 12	Enum	Enum_OAct	Operating sense of the switching output OUT x. Direct: Active function (e.g. limit value) switches the output ON; Inverse: Active function (e.g. limit value) switches the output OFF.
						0 direct / norma	
						1 inverse / norm	ally closed
	Out.0	r/w		36 18456 28	Float	-19999999	Lower scaling limit of the analog output (corresponds to 0%). If current and voltage signals are used as output values, the display can be scaled to the output value in the Parameter Level. The output value of the lower scaling point is indicated in the respective electrical unit (mA / V).
	Out.1	r/w		37 18458 29	Float	-19999999	Upper scaling limit of the analog output (corresponds to 100%). If current and voltage signals are used as output values, the display can be scaled to the output value in the Parameter Level. The output value of the upper scaling point is indicated in the respective electrical unit (mA / V).

15	Out.3								
•	ConF	ConF							
	Name	r/w	Adr. Ir	nteger	real	Тур	Value/	off	Description
	0.Src	r/w	base 1dP	1038 9230		Enum	Enum_C)Src	Signal source of the analog output (only visible when 0.TYP=15)
	J						0	not used	
							1	Controller outp	out y1 (continuous)
							2	Controller outp	out y2 (continuous)
							3	process value	
							4		setpoint Weff, which is used for control. gradient changes the effective setpoint until it reaches the internal (target)
							5	control deviati	on xw (process value - set-point)
							7	measured valu	e INP1
							8	measured valu	e INP2

O.FAI	r/w	base 1dP	1039 9231	18462	Enum	Enum_OFail	fail behaviour
						0 upscale 1 downscale	
Y.1	r/w	base 1dP	1021 9213	18426	Enum	Enum_Y1	Activation of controller output Y1
						0 not active	
						1 This output pro	ovides the controller output Y1.
Y.2	r/w	base 1dP	1022 9214	18428	Enum	Enum_Y2	Activation of controller output Y2. Caution: Do not confuse the controller output Y2 with the parameter 'Fixed output Y2' !
						0 not active	
						1 This output pro	ovides the controller output Y2.
·							
Lim.1	r/w	base 1dP	1023 9215	18430	Enum	Enum_Lim1	Activation of output function: Adjusted limit value 1 has been exceeded.
	•					0 not active	
						1 The output is a	activated by an alarm from limit value 1.
[
Lim.2	r/w	base 1dP	1024 9216	18432	Enum	Enum_Lim2	Activation of output function:Adjusted limit value 2 has been exceeded.
						0 not active	
						1 The output is a	activated by an alarm from limit value 2.

ConF							
Name	rha	Adr. Integ	ior	roal	Typ	Value/off	Description
	1/ VV	-	_		Тур		
Lim.3	r/w		1025 9217	18434	Enum	Enum_Lim3	Activation of output function: Adjusted limit value 3 has been exceeded.
						0not active1The output is	activated by an alarm from limit value 3.
LP.AL	r/w		1027 9219	18438	Enum	Enum_OUT_LPAL	Interruption alarm signal (LOOP)
	<u> </u>					0 not active 1 The loop alarr	n (= open loop alarm) is assigned to this output.
HC.AL	r/w		1028 9220	18440	Enum	Enum_OUT_HCAL	Heat current alarm signal
						0 not active	
						1 The heating c	urrent alarm is assigned to this output.
HC.SC	r/w		1029 9221	18442	Enum	Enum_HCSC	Activation of the output: Solid-state relay (SSR) short circuit. The short circuit alarm of the SSR is triggered, if a current is detected in the heating circuit, although the controller output is switched off.
						0 not active 1 Output activat	ed by an SSR fault.
timE	r/w		1030 9222	18444	Enum	Enum_time	Activation of output: Timer running. This message is generated be the setpoint processing, if a timer mode has been configured, are the time has elapsed.
	1					0 not active	-
						1 activated	
P.End	r/w		1031 9223	18446	Enum	Enum_PEnd	Generation of the message: Program end. This message is availa when the program has been completed (only when configured as program controller).
						0 not active	activated by the message 'Program end'.
						1 This output is	activated by the message Program end .
FAi.1	r/w		1032 9224	18448	Enum	Enum_FAi1	Activation of the message: INP1 fault. The fail signal is generated, if a fault occurs at the analog Input INP1.
						0not active1The output is	switched by the error message 'INP1 fault'.
FAi.2	r/w		1033 9225	18450	Enum	Enum_FAi2	Activation of the message: INP2 fault. The fail signal is generated, if a fault occurs at the analog Input INP2.
		-				0 not active	

	Out.3											
	ConF											
I	Name	r/w	Adr. Ir	nteger	real	Тур	Value/off	Description				
	InF.1	r/w	base 1dP	1055 9247		Enum	Enum_Inf1	Activation of the output: Inf.1 status.The Inf.1 signal is generated, when the preset value of the operating hours counter has been reached.				
							0 not active 1 The output is	 not active The output is activated by the status message 'Inf.1'. 				
	InF.2	r/w	base 1dP	1056 9248		Enum	Enum_Inf2	Activation of the output: Inf.2 status.The Inf.2 signal is generated, when the preset value of the switching cycle counter has been reached.				
L						1	0 Not active	activated by the status message 'Inf.2'.				

	Signal							
	Name	r/w	Adr. Integ	ger	real	Тур	Value/off	Description
	Out3	r		1040 9232	18464	Enum	Enum_Ausgang	Status of the digital output
L			•				0 off 1 on	
	F.Do3	r/w		1041 9233	18466	Enum	Enum_Ausgang	Forcing of this digital output. Forcing involves the external operation of a controller output. The controller has no influence on this output (use of free controller outputs by superordinate system).
							0 off	
							1 on	
	F.Ou3	r/w		1042 9234	18468	Float	-19999999 [Forcing value of the analog output. Forcing involves the external operation of a controller output, i.e. the controller has no influence on this output. (Used for the operation of free controller outputs e.g. by a supervisory PLC.)

16 ProG

PArA								
Name r/w Adr. Integer real Typ Va					Тур	Value/off		Description
SP.01	r/w	base 1dP	1600 9792	19584	Float	-1999 9999	2	End setpoint of segment 1. This is the target setpoint that is reached at the end of the first segment. The target setpoint is approached from the previous valid setpoint (when starting the 1st segment, matching to process value!). When the program is completed, the controller continues with the last target setpoint reached.
Pt.01	r/w	base 1dP	1601 9793	19586	Float	0 9999		Segment time 1 defines the duration of the first segment. The gradient of this segment is calculated using the segment time and the setpoint difference (SP – segment starting setpoint).Note: The 1st segment is started at process value.

16 ProG

PArA	<u>\</u>							
Name	r/w	Adr. Int	teger	real	Тур	Value/off		Description
SP.02	r/w	base 1dP	1602 9794	19588	Float	-1999 9999	•	End setpoint of segment 2. This is the target setpoint that is reached at the end of the second segment. The target setpoint is approached from the previous valid setpoint. When the program is completed, the controller continues with the last target setpoint reached.
Pt.02	r/w	base 1dP	1603 9795	19590	Float	0 9999		Segment time 2 defines the duration of the second segment. The gradient of this segment is calculated using the segment time and the setpoint difference (SP – segment starting setpoint).Note: The 1st segment is started at process value.
SP.03	r/w	base 1dP	1604 9796	19592	Float	-1999 9999		End setpoint of segment 3. This is the target setpoint that is reached at the end of the third segment. The target setpoint is approached from the previous valid setpoint. When the program is completed, the controller continues with the last target setpoint reached.
Pt.03	r/w	base 1dP	1605 9797	19594	Float	0 9999		Segment time 3 defines the duration of the third segment. The gradient of this segment is calculated using the segment time and the setpoint difference (SP – segment starting setpoint).Note: The 1st segment is started at process value.
SP.04	r/w	base 1dP	1606 9798	19596	Float	-1999 9999		End setpoint of segment 4. This is the target setpoint that is reached at the end of the fourth segment. The target setpoint is approached from the previous valid setpoint. When the program is completed, the controller continues with the last target setpoint reached.
Pt.04	r/w	base 1dP	1607 9799	19598	Float	0 9999		Segment time 4 defines the duration of the fourth segment. The gradient of this segment is calculated using the segment time and the setpoint difference (SP – segment starting setpoint).Note: The 1st segment is started at process value.

• Signal

Name	r/w	Adr. Integ	er	real	Тур	Value/off	Description
St.Prog	r		670 9862	19724	Int	0255	The programmer's status contains bit-wise coded data, e.g. which point of the program sequence the program has reached.
						Bit 0,1,2 Type of s 0: rising 1: falling 2: hold (dwell) Bit 3 Program 'Run Bit 4 Program 'End Bit 5 Program 'Res Bit 6 Program 'Sta Bit 7 Program 'Bar	' ' et' rtFlankMissing'
SP.Pr	r		671 9863	19726	Float	-1990 9999	The programmer's setpoint is displayed as the effective setpoint while the program is running.

16 ProG

Signal							
Name	r/w	Adr. Integ	jer i	real	Тур	Value/off	Description
T1.Pr	r		1672 9864	19728	Float	0 9999	Only with a running program. The net (elapsed) time of the programmer is shown in a simplified form as time elapsed since program start.Caution: Stop times are not counted! If the first segment is defined as a gradient, the program starts at the process value, whereby the offset is defined as the time that the controller would have needed with the gradient beginning at the setpoint valid at program start.
T3.Pr	r		1673 9865	19730	Float	0 9999	Only with running program. The remaining programmer time is given by the sum of the currently running segment plus the times of the remaining program segments (without hold times).
T2.Pr	r		1674 9866	19732	Float	0 9999	Only while program is running. The net segment time corresponds to the elapsed segment time.Caution: Stop times are not counted! If the first segment has been defined as a gradient, the start commences at process value, and the offset specified for the first segment corresponds to the time that the controller would have required with a gradient beginning at the actual process value when the program was started.
T4.Pr	r		1675 9867	19734	Float	0 9999	Only with running program. The remaining time of the running program segment (without hold times).
SG.Pr	r		1676 9868	19736	Int	0 4	A program consists of one or more segments which are arranged and defined by means of the segment numbers. By means of the segment number(s), the program can be changed quickly and specifically at the required point.

17 SEtP

PArA							
Name	r/w	Adr. Inte	eger	real	Тур	Value/off	Description
SP.LO	r/w	base 1dP	800 8992	17984	Float	-1999 9999	Lower setpoint limit. The setpoint is raised to this value automatically, if a lower setpoint is adjusted. BUT: The (safety) setpoint W2 is not restricted by the setpoint limits! The setpoint reserve for the step function is 10% of SPHi - SPLo.
SP.Hi	r/w	base 1dP	801 8993	17986	Float	-1999 9999	Upper setpoint limit. The setpoint is reduced to this value automatically, if a higher setpoint is adjusted. BUT: The (safety) setpoint W2 is not restricted by the setpoint limits! The setpoint reserve for the step function is 10% of SPHi - SPLo.
SP.2	r/w	base 1dP	802 8994	17988	Float	-1999 9999	Second (safety) setpoint. Ramp function as with other setpoints (effective, external). However, SP2 is not restricted by the setpoint limits.
r.SP	r/w	base 1dP	803 8995	17990	Float	0,01 9999	Setpoint gradient [/min] or ramp. Max. rate of change in order to avoid step changes of the setpoint. The gradient acts in the positive and negative directions. Note for self-tuning: with activated gradient function, the setpoint gradient is started from the process value, so that there is no sufficient setpoint reserve.

17 SEtP

٠	PArA							
	Name	r/w	Adr. Ir	nteger	real	Тур	Value/off	Description
	t.SP	r/w	base 1dP	804 8996	17992	Float	0 9999	The timer (preset) value is entered in minutes with one decimal digit (0,1 minute = 6 seconds). With an activated timer, the preset value is displayed automatically in the extended Operating Level, where it can be changed by means of the parameter t.ti.

Signal							
Name	r/w	Adr. Int	teger	real	Тур	Value/off	Description
SP.EF	r	base 1dP	830 9022	18044	Float	-1999 9999	Effective setpoint. The value reached at the end of setpoint processing, after taking W2, external setpoint, gradient, boost function, programmer settings, start-up function, and limit functions into account. Comparison with the effective process value leads to the control deviation, from which the necessary controller response is derived.
SP	r/w	base 1dP	840 9032	18064	Float	-1999 9999	Setpoint for the interface (without the additional function 'Controller off'). Setplnterface acts on the internal setpoint before the setpoint processing stage. Note: The value in RAM is always updated. To protect the EEPROM, storage of the value in the EEPROM is timed (at least one value per half hour).
SP.d	r/w	base 1dP	841 9033	18066	Float	-1999 9999	The effective setpoint is shifted by this value. In this way, the setpoints of several controllers can be shifted together, regardless of the individually adjusted effective setpoints.
t.ti	r/w	base 1dP	842 9034	18068	Float	0 9999	Current timer count in minutes. Count-down timer. The run time is only visible, if the timer is active. Configuration in the extended Operating Level.

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Func							
ConF							
Name	r/w	Adr. Ir	nteger	real	Тур	Value/off	Description
Fnc.1	r/w	base 1dP	1262 9454		Enum	Enum_Fnc1Rail	function 1
						0 standard (pro	bcess value = Inp1)
						2 The process v	value is calculated from the difference between the two values (Inp1 - Inp2)
							ue of Inp1 and Inp2. It is controlled with the bigger value. At sensor failure with the remaining actual value.
							ue of Inp1 and Inp2. It is controlled with the smaller value. At sensor failure with the remaining actual value.
						should be che	with constant sensor temperature. The engineering unit for the O2 setting ecked under: Other -> parameter unit (ppm / %). emperature must be defined under: Parameters -> Controller -> Sensor
						second proces	vith measured sensor temperature. The sensor temperature is required as t ss value Inp2. The engineering unit for the O2 settings (ppm / %) must be er 'Other Parameter unit.'

•	PArA											
	Name	r/w	Adr. In	iteger	real	Тур	Value/off		Description			
	tEmP	r/w	base 1dP	1236 9428	18856	Float	. —8888		Constant sensor temperature. With O2 measurement, the actual oxygen content is derived from the constant sensor temperature and the EMF (electromotive force in volts) generated by the sensor.Note: A constant sensor temperature is only ensured with heated lambda sensors.			

•	Sigr	nal			

Name	r/w	Adr. Ir	nteger	real	Тур	Value/off	Description
C.InP	r	base 1dP	1302 9494	18988	Float	,08888888	Process value is the calculated result of process value processing. It represents the actual value of the process (controlled variable) that is to be lined out at setpoint.

2 InP.1 ConF Name r/w Adr. Integer real Value/off Description Тур Enum StYP S.tYP 520 17424 Enum Sensor type selection r/w base 1dP 8712 0 thermocouple type L (-100...900°C), Fe-CuNi DIN 1 thermocouple type J (-100...1200°C), Fe-CuNi 2 thermocouple type K (-100...1350°C), NiCr-Ni 3 thermocouple type N (-100...1300°C), Nicrosil-Nisil 4 thermocouple type S (0...1760°C), PtRh-Pt10% 5 thermocouple type R (0...1760°C), PtRh-Pt13% 6 thermocouple type T (-200...400°C), Cu-CuNi thermocouple type C (0...2315°C), W5%Re-W26%Re 7 8 thermocouple type D (0...2315°C), W3%Re-W25%Re 9 thermocouple type E (-100...1000°C), NiCr-CuNi 10 thermocouple type B (0/100...1820°C), PtRh-Pt6% 18 Special thermocouple with a linearization characteristic selectable by the user. This enables non-linear signals to be simulated or linearized. 20 Pt100 (-200.0 ... 100.0(150.0)°C) Measuring range at reduced lead resistance up to 150°C. Measuring range in Fahrenheit: -328...212(302) °F Pt100 (-200.0 ... 850,0 °C) 21 Measuring range in Fahrenheit: -328...1562 °F 22 Pt 1000 (-200.0...850.0 °C) Measuring range in Fahrenheit: -328...1562 °F 23 Special : 0...4500 Ohms. For KTY 11-6 with preset special linearization (-50...150 °C or -58...302 °F). 24 special 0...450 Ohm 25 Special: 0...1,6 kOhms 26 Special: 0...160 Ohms 30 Current : 0...20 mA / 4...20 mA 40 0...10V / 2...10V 41 special -2.5...115 mV 42 Special : -25...1150 mV 43 Special : -25...90 mV 44 Special : -500...500 mV Special : -5...5 V 45 46 Special : -10...10 V 47 Special : -200...200 mV 50 potentiometer 0...160 Ohm 51 potentiometer 0...450 Ohm 52 potentiometer 0...1600 Ohm 53 potentiometer 0...4500 Ohm

InP.1											
ConF											
Name	r/w	Adr. Inte	eger	real	Тур	Value/off	Description				
4wir	r/w	base 1dP	523 8715	17430	Enum	Enum_4wire	Connection principle for resistive inputs.				
						0 3-wire connec	tion				
						1 4-wire connect	tion				
S.Lin	r/w	base 1dP	521 8713	17426	Enum	Enum_SLin	Linearization (not adjustable for all sensor types S.tYP). Special linearization. The linearization table can be created with the BlueControl® Engineering Tool. The default characteristic is for KTY 11-6 temperature sensors.				
						0 No special line					
							ization. Definition of the linearization table is possible with the BlueContro ool. The default setting is the characteristic of the KTY 11-6 temperature				
Corr	r/w	base	265	16914	Enum	Enum Corr	Measured value correction / scaling				
	17 VV	1dP	8457	10714							
						0 Without scalir	ng				
					1 The offset correction (in the CAL Level) can be done on-line in the process. If InL.x shows the lower input value of the scaling point, then OuL.x must be adjusted to the corresponding display value. Adjustments are made via the front panel keys of the device.						
							tion (at CAL level)				
						3 Scaling (at PA	rA level)				

PArA							
Name	r/w	Adr. Ir	nteger	real	Тур	Value/off	Description
InL.1	r/w	base 1dP	500 8692	17384	Float	,0888—8888	Input value of the lower scaling point. Depending on sensor type, the input value can be scaled to the required display value in the Parameter Level. The display of the input value of the lower scaling point (e.g. 4 mA) is done using the corresponding electrical value, e.g. mA, V, Ohm.
OuL.1	r/w	base 1dP	501 8693	17386	Float	,0888—8888	Display value of the lower scaling point. Depending on sensor type, the input value can be scaled to the required display value in the Parameter Level. The operator can change the display value of the lower scaling point, e.g. 4 mA is displayed as 2 [pH].
InH.1	r/w	base 1dP	502 8694	17388	Float	,0888—8888	Input value of the upper scaling point. Depending on sensor type, the input value can be scaled to the required display value in the Parameter Level. The display of the input value of the upper scaling point (e.g. 20 mA) is done using the corresponding electrical value, e.g. mA, V, Ohm.
OuH.1	r/w	base 1dP	503 8695	17390	Float	,0888—8888	Display value of the upper scaling point. Depending on sensor type, the input value can be scaled to the required display value in the Parameter Level. The operator can change the display value of the upper scaling point, e.g. 20 mA is displayed as 12 [pH].
t.F1	r/w	base 1dP	504 8696	17392	Float	. —888	Filter time constant [s]. Every input is fitted with a digital (software) low-pass filter for suppressing process-related disturbances on the input leads. Higher filter settings improve the suppression, but increase the delay of the input signals.

2 InP.1

PArA							
Name	r/w	Adr. Ir	nteger	real	Тур	Value/off	Description
E.tc1	r/w	base 1dP	506 8698	17396	Float	. —0	External temperature compensation (temperature at the junction of thermocouple/copper lead with external temperature compensation).

Signal Name r/w Adr. Integer real Тур Value/off Description ,0888---8888 540 17464 Float □ | Measurement value before the measurement value correction In.1r base r (unprocessed, read directly from the input). 1dP 8732 541 17466 Enum Enum_InpFail Input circuit fault: faulty or incorrectly connected sensor. Fail base r 1dP 8733 0 no error sensor break 1 2 Incorrect polarity at input. 4 Short circuit at input. D Measurement value after the measurement value correction (e.g. ,0888---8888 In.1 542 17468 Float base r with offset or 2-point correction, and scaling). 1dP 8734

3	InP.2							
•	ConF							
	Name	r/w	Adr. Ir	nteger	real	Тур	Value/off	Description
	I.Fnc	r/w	base	266	16916	Enum	Enum_IFunc	Function INP2
			1dP	8458				
							0 no measureme	ent
							1 measurement	

<u> </u>									
5	InP.2								
	ConF								
	Name	r/w	Adr. In	nteger	real	Тур	Value/o	off	Description
1	C IV/D		h	570		1	Enum C	+VD2	Concerture colection
	S.tYP	r/w	base 1dP	570 8762	17524	Enum	Enum_S	LYP2	Sensor type selection
							0	Thermocouple	Type L (-100900 °C), Fe-CuNi DIN
								•	Type J (-1001200 °C), Fe-CuNi
									Type K (-1001350 °C), NiCr-Ni
									Type N (-1001300 °C), Nicrosil-Nisil
									Type S (01760 °C), PtRh-Pt 10%
									Type R (01760 °C), PtRh-Pt13%
									Type T (-200400 °C), Cu-CuNi
							7	Thermocouple	Type C (02315°C), W5%Re-W26%Re
							8	Thermocouple	Type D (02315°C), W3%Re-W25%Re
							9	Thermocouple	Type E (-1001000 °C), NiCr-CuNi
							10	Thermocouple	Type B (0/1001820 °C), PtRh-Pt6%
							18	special thermo	couple
								Measuring ran	100.0(150.0) °C) ge at reduced lead resistance up to 150°C. ge in Fahrenheit: -328212(302) °F
							21	Pt100 (-200.0 .	•
								•	ge in Fahrenheit: -3281562 °F
									vith preset special linearization (-50150 °C or -58302 °F).
								Special: 045	
								Special: 01,6	
								Special : 016	
									mA / 420 mA
								Special -2.51	
								Special : -25?	
								Special : -259	
								Special : -500	
								Special : -200	
								Potentiometer	
								Potentiometer	
								Potentiometer	
							53	Potentiometer	04000 011/15
	S.Lin	r/w	base	571	17526	Enum	Enum_S	Lin	Linearization (not adjustable for all sensor types S.tYP). Special

J.LIII	17 VV	1dP	8763	17520	LIIUIII	LIIUIII_0	linearization (not adjustable for all sensor types 3.trr). Special linearization. The linearization table can be created with the BlueControl® Engineering Tool. The default characteristic is for KTY 11-6 temperature sensors.
						0	No special linearization.
						1	Special linearization. Definition of the linearization table is possible with the BlueControl Engineering Tool. The default setting is the characteristic of the KTY 11-6 temperature sensor.

3	InP.2							
•	ConF							
	Name	r/w	Adr. Ir	nteger	real	Тур	Value/off	Description
	Corr	r/w	base 1dP	267 8459		Enum	Enum_Corr	Measured value correction / scaling
							0 Without scalir	ng
							the lower inpu	rection (in the CAL Level) can be done on-line in the process. If InL.x shows it value of the scaling point, then OuL.x must be adjusted to the display value. Adjustments are made via the front panel keys of the device.
							2 2-point correc	tion (at CAL level)
							3 Scaling (at PA	rA level)

PArA							
Name	r/w	Adr. Inte	eger	real	Тур	Value/off	Description
InL.2	r/w	base 1dP	550 8742	17484	Float	,0888—8888	Input value of the lower scaling point. Depending on sensor type, the input value can be scaled to the required display value in the Parameter Level. The display of the input value of the lower scaling point (e.g. 4 mA) is done using the corresponding electrical value, e.g. mA, V, Ohm.
OuL.2	r/w	base 1dP	551 8743	17486	Float	,0888—8888	Display value of the lower scaling point. Depending on sensor type, the input value can be scaled to the required display value in the Parameter Level. The operator can change the display value of the lower scaling point, e.g. 4 mA is displayed as 2 [pH].
InH.2	r/w	base 1dP	552 8744	17488	Float	,0888—8888	Input value of the upper scaling point. Depending on sensor type, the input value can be scaled to the required display value in the Parameter Level. The display of the input value of the upper scaling point (e.g. 20 mA) is done using the corresponding electrical value, e.g. mA, V, Ohm.
OuH.2	r/w	base 1dP	553 8745	17490	Float	,0888—8888	Display value of the upper scaling point. Depending on sensor type, the input value can be scaled to the required display value in the Parameter Level. The operator can change the display value of the upper scaling point, e.g. 20 mA is displayed as 12 [pH].
t.F2	r/w	base 1dP	554 8746	17492	Float	. —888	Filter time constant [s]. Every input is fitted with a digital (software) low-pass filter for suppressing process-related disturbances on the input leads. Higher filter settings improve the suppression, but increase the delay of the input signals.
E.tc2	r/w	base 1dP	556 8748	17496	Float	. —0	External temperature compensation (temperature at the junction of thermocouple/copper lead with external temperature compensation).

Signal

Name	r/w	Adr. In	teger	real	Тур	Value/off	Description
In.2	r	base 1dP	590 8782	17564	Float	,0888—8888	Measurement value after the measurement value correction (e.g. with offset or 2-point correction, and scaling).

3	InP.2								
	Signal								
	Name	r/w	Adr. In	nteger	real	Тур	Value/	′off	Description
	Fail	r	base 1dP	591 8783		Enum	Enum_I	npFail	Input circuit fault: faulty or incorrectly connected sensor.
							0	no error	
							2	sensor break Incorrect polar	rity at input
							4	Short circuit a	
							0000		

In.2r	r	base	592	17568	Float	,08888888	Measurement value before the measurement value correction
		1dP	8784				(unprocessed, read directly from the input).

ŀ	Lim								
	ConF								
ĺ	Name	r/w	Adr. Ir	nteger	real	Тур	Value/	/off	Description
	Fnc.1	r/w	base 1dP	671 8863		Enum	Enum_F	Fcn1	Function of the limit value '?' . Activation of the limit value alarm (e.g. for input circuit monitoring) with or without storage.
		,	,			0 No limit value monitoring.1 measured value monitoring	monitoring.		
					1	1	measured valu	ie monitoring	
							2		ue monitoring + alarm status latch. A stored limit value can be reset via en or a digital input (-> LOGI/Err.r)
							3		imiter for exceeded limit: Measurement value monitoring + storage of the nit status. A stored limit value can be reset via a digital input or the RESET rr.r).
							4		imiter for exceeded limit: Measurement value monitoring + storage of the it status. A stored limit value can be reset via a digital input, or the RESET rr.r).
							5		nonitoring function for exceeded max. limits. As opposed to the temperatur on, there is no storage.
							6		nonitoring function for exceeded min. limits. As opposed to the temperatur on, there is no storage.

PArA							
Name	r/w	Adr. Ir	nteger	real	Тур	Value/off	Description
L.1	r/w	base 1dP	650 8842	17684	Float	,0888—8888	Lower limit value. The alarm is triggered if the value falls below the limit, and is reset with lower limit value plus hysteresis.
LC	r/w	base 1dP	655 8847	17694	Float	,0888—8888	Limit value LC. The limit value LC is the main function of the temperature limiter/monitor. It complies with certain switching and wiring specifications, and has a fixed hysteresis of 0.5 K.
H.1	r/w	base 1dP	651 8843	17686	Float	,0888—8888	Upper limit value. The alarm is triggered if the value rises above the limit, and is reset with upper lower limit value plus hysteresis.

4 Lim

•	PArA							
	Name	r/w	Adr. Ir	nteger	real	Тур	Value/off	Description
	HYS.1	r/w	base 1dP	652 8844	17688	Float	8888	Hysteresis of the limit value. Switching difference for upper and lower limit value. The limit value must change by this amount (rise above upper limit or fall below lower limit) before the limit value alarm is reset.

• Signal

Name	r/w	Adr. II	nteger	real	Тур	Value/c	off	Description
St.Lim	r	base 1dP	690 8882		Enum	Enum_Lii	mStatus	Limit value status: No alarm present or stored.
						1	no alarm Iached alarm A limit value h	as been exceeded.

5 Lim2

ConF											
Name	r/w	Adr. Ir	nteger	real	Тур	Value/off	Description				
Fnc.2	r/w	base 1dP	720 8912		Enum	Enum_Fcn	Activation and adjustment of the limit value alarm (e.g. for input circuit monitoring), e.g. with/without storage.				
	•					0 No limit value	monitoring.				
						1 measured value monitoring					
						2 Measured value monitoring + alarm status latch. A stored limit value can be reset via error list, A/M-key or a digital input (-> LOGI/Err.r)					
Src.2	r/w	base	721	17826	Enum	Enum_SrcTB	Source for the limit value. Selection of the value that is to be				
		1dP	8913				monitored by the limit, e.g. process value.				
	-				<u> </u>	0 Process value	= absolute alarm				
						1 Process value	– Limit value LC = Relative alarm				
						3 Measured value of the analog input INP1					
						4 Measured value of the analog input INP2					

•	PArA							
	Name	r/w	Adr. Ir	nteger	real	Тур	Value/off	Description
	L.2	r/w	base 1dP	700 8892	17784	Float	,0888—8888	Lower limit value. The alarm is triggered if the value falls below the limit, and is reset with lower limit value plus hysteresis.
	H.2	r/w	base 1dP	701 8893	17786	Float	,0888—8888	Upper limit value. The alarm is triggered if the value rises above the limit, and is reset with upper lower limit value plus hysteresis.

5 Lim2

-								
•	PArA							
	Name	r/w	Adr. Ir	nteger	real	Тур	Value/off	Description
	HYS.2	r/w	base 1dP	702 8894	17788	Float	. —8888	Hysteresis of the limit value. Switching difference for upper and lower limit value. The limit value must change by this amount (rise above upper limit or fall below lower limit) before the limit value alarm is reset.

• Signal

Name	r/w	Adr. Ir	nteger	real	Тур	Value/off	Description
St.Lim	r	base 1dP	740 8932		Enum	Enum_LimStatus	Limit value status: No alarm present or stored.
						0 no alarm1 lached alarm2 A limit value h	as been exceeded.

6 Lim3

ConF											
Name	r/w	Adr. In	teger	real	Тур	Value/off	Description				
Fnc.3	nc.3 r/w base 770 17924 Enum 1dP 8962		Enum_Fcn	Activation and adjustment of the limit value alarm (e.g. for input circuit monitoring), e.g. with/without storage.							
						0 No limit value monitoring.					
						1 measured value monitoring					
						2 Measured value monitoring + alarm status latch. A stored limit value can be reset via error list, A/M-key or a digital input (-> LOGI/Err.r)					
						F 0 TD					
Src.3	r/w	base	771	17926	Enum	Enum_SrcTB	Source for the limit value. Selection of the value that is to be				
		1dP	8963				monitored by the limit, e.g. process value.				
						0 Process value	= absolute alarm				
						1 Process value – Limit value LC = Relative alarm					
						3 Measured value of the analog input INP1					
						4 Measured value of the analog input INP2					

•	PArA							
	Name	r/w	Adr. Int	teger	real	Тур	Value/off	Description
	L.3	r/w	base 1dP	750 8942	17884	Float	,08888888	Lower limit value. The alarm is triggered if the value falls below the limit, and is reset with lower limit value plus hysteresis.
	H.3	r/w	base 1dP	751 8943	17886	Float	,08888888	Upper limit value. The alarm is triggered if the value rises above the limit, and is reset with upper lower limit value plus hysteresis.

6 Lim3

•	PArA							
	Name	r/w	Adr. Ir	nteger	real	Тур	Value/off	Description
	HYS.3	r/w	base 1dP	752 8944	17888	Float	8888	Hysteresis of the limit value. Switching difference for upper and lower limit value. The limit value must change by this amount (rise above upper limit or fall below lower limit) before the limit value alarm is reset.

• Signal

Name	r/w	Adr. II	nteger	real	Тур	Value/	off	Description
St.Lim	r	base 1dP	790 8982		Enum	Enum_Li	imStatus	Limit value status: No alarm present or stored.
						1	no alarm lached alarm A limit value h	as been exceeded.

7 LOGI

	ConF							
ſ	Name	r/w	Adr. In	teger	real	Тур	Value/off	Description
	r	r/w	base 1dP	421 8613	17226	Enum	Enum_dInPRail1	Local / remote switchover (Remote: Adjustment of all values via the front panel is blocked).
-							0 No function (s	witchover via interface is possible).
							1 Always active	
							2 DI1 switches.	
Г								
	Err.r	r/w	base	429	17242	Enum	Enum_dlnPRail3	Source of the control signal for resetting all stored entries in the
			1dP	8621				error list (the list contains all error messages and alarms). If an
								alarm is still present, i.e. the source of trouble has not been remedied, stored alarms cannot be acknowledged (reset).
L							2 DI1 suddahaa	remedieu, storeu alarris cannot be acknowleugeu (reset).
							2 DI1 switches.	
							6 Switch reset k	eys.
[di.Fn	r/w	base	420	17224	Fnum	Enum_diFn	Function of digital input (not valid for Err.r)
			1dP	8612	17221	LIIGIII		
			TUP	0012				
								Off': A permanent positive signal switches this function 'On', which is the digital input. Removal of the signal switches the function 'Off' again.
								On': A permanent positive signal switches this function 'Off', which is
								the digital input. Removal of the signal switches the function 'On' again.
								unction. Basic setting 'Off'. Only positive signals are effective. The first
								I switches 'On'. Removal of the signal is necessary before the next positive

ode T	Fable	È					Operating Version1				
LOG											
Signal											
Name	r/w	Adr. Ir	nteger	real	Тур	Value/off		Description			
St.Di	r	base 1dP	450 8642	17284	Int			Status of the digital inputs or of push-buttons (binary coded).			
						Bit 0: Input di Bit 8: Status o Bit 9: Status o Bit 10: Status	of Ent of 'Do	own' key			
L-R	r/w	base 1dP	460 8652		Int	. —0		Remote operation. Remote means that all values can only be adjusted via the interface. Adjustments via the front panel are blocked.			
Err.r	r/w	base 1dP	470 8662	17324	Int	. —0		Signal for resetting the entire error list. The error list contains all errors that are reported, e.g. device faults and limit values. It also contains queued as well as stored errors after their correction. The reset acknowledges all errors, whereby queued errors will reappear after the next error detection (measurement).			

	ConF							
	Name	r/w	Adr. In	teger	real	Тур	Value/off	Description
	B.BedEbe	r/w	base 1dP	1839 10031	20062	Int	. —144	The 3 Operating Levels (Parameter, Configuration, and Calibration) can be disabled here.
	B.Bedien	r/w	base 1dP	1838 10030	20060	Int	. —144	Used to disable various operating functions (e.g. access to the extended Operating Level).
(C.Sch	r/w	base 1dP	1801 9993	19986	Float	0—8888888	Data defines the number of switching cycles for which the message InF.2 is generated.
(C.Std	r/w	base 1dP	1800 9992	19984	Float	0—8888888	Data defines the number of operating hours for which the message InF.1 is generated.
	Dis1	r/w	base 1dP	1849 10041	20082	Enum	Enum_dis1	Selection of the value to be shown in line 1 of the display.
L						1	0	

Dis2	r/w	base 1dP	1848 10040	20080	Int	145—708.	Datum to be shown in display 2. The basic address of the datum that is to be displayed must be entered.
EOP1	r/w	base 1dP	1840 10032	20064	Int	145—708.	1st datum of the extended Operating Level. The basic address of the datum that is to be displayed must be entered.

8 ohnE

ConF							
Name	r/w	Adr. Ir	nteger	real	Тур	Value/off	Description
EOP2	r/w	base 1dP	1841 10033	20066	Int	145—708.	2nd datum of the extended Operating Level. The basic address of the datum that is to be displayed must be entered.
EOP3	r/w	base 1dP	1842 10034	20068	Int	145—708.	3rd datum of the extended Operating Level. The basic address of the datum that is to be displayed must be entered.
EOP4	r/w	base 1dP	1843 10035	20070	Int	145—708.	4th datum of the extended Operating Level. The basic address of the datum that is to be displayed must be entered.
EOP5	r/w	base 1dP	1844 10036	20072	Int	145—708.	5th datum of the extended Operating Level. The basic address of the datum that is to be displayed must be entered.
EOP6	r/w	base 1dP	1845 10037	20074	Int	145—708.	6th datum of the extended Operating Level. The basic address of the datum that is to be displayed must be entered.
EOP7	r/w	base 1dP	1846 10038	20076	Int	145—708.	7th datum of the extended Operating Level. The basic address of the datum that is to be displayed must be entered.
EOP8	r/w	base 1dP	1847 10039	20078	Int	145—708.	8th datum of the extended Operating Level. The basic address of the datum that is to be displayed must be entered.
In.1	r/w	base 1dP	1861 10053	20106	Float	. —1	Input 1 for measurement value 1 (to Output 1 for display value 1). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
In.10	r/w	base 1dP	1879 10071	20142	Float	. —1	Input 10 for measurement value 10 (to Output 10 for display value 10). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
In.11	r/w	base 1dP	1881 10073	20146	Float	. —1	Input 11 for measurement value 11 (to Output 11 for display value 11). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
In.12	r/w	base 1dP	1883 10075	20150	Float	. —1	Input 12 for measurement value 12 (to Output 12 for display value 12). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
In.13	r/w	base 1dP	1885 10077	20154	Float	. —1	Input 13 for measurement value 13 (to Output 13 for display value 13). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.

ConF	-						
Name	r/w	Adr. In	iteger	real	Тур	Value/off	Description
In.14	r/w	base 1dP	1887 10079	20158	Float	. —1	Input 14 for measurement value 14 (to Output 14 for display value 14). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
In.15	r/w	base 1dP	1889 10081	20162	Float	. —1	Input 15 for measurement value 15 (to Output 15 for display value 15). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
In.16	r/w	base 1dP	1891 10083	20166	Float	. —1	Input 16 for measurement value 16 (to Output 16 for display value 16). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
In.2	r/w	base 1dP	1863 10055	20110	Float	. —1	Input 2 for measurement value 2 (to Output 2 for display value 2). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
In.3	r/w	base 1dP	1865 10057	20114	Float	. —1	Input 3 for measurement value 3 (to Output 3 for display value 3). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
In.4	r/w	base 1dP	1867 10059	20118	Float	. —1	Input 4 for measurement value 4 (to Output 4 for display value 4). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
In.5	r/w	base 1dP	1869 10061	20122	Float	. —1	Input 5 for measurement value 5 (to Output 5 for display value 5). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
In.6	r/w	base 1dP	1871 10063	20126	Float	. —1	Input 6 for measurement value 6 (to Output 6 for display value 6). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
In.7	r/w	base 1dP	1873 10065	20130	Float	. —1	Input 7 for measurement value 7 (to Output 7 for display value 7). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
In.8	r/w	base 1dP	1875 10067	20134	Float	. —1	Input 8 for measurement value 8 (to Output 8 for display value 8). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.

ConF								
Name	r/w	Adr. Ir	iteger	real	Тур	Value/off		Description
In.9	r/w	base 1dP	1877 10069	20138	Float	. —1	2	Input 9 for measurement value 9 (to Output 9 for display value 9). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
Ou.1	r/w	base 1dP	1862 10054	20108	Float	. —1		Output 1 for display value 1 (to Input 1 for measurement value 1). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
Ou.10	r/w	base 1dP	1880 10072	20144	Float	. —1		Output 10 for display value 10 (to Input 10 for measurement value 10). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
Ou.11	r/w	base 1dP	1882 10074	20148	Float	. —1		Output 11 for display value 11 (to Input 11 for measurement value 11). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
Ou.12	r/w	base 1dP	1884 10076	20152	Float	. —1		Output 12 for display value 12 (to Input 12 for measurement value 12). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
Ou.13	r/w	base 1dP	1886 10078	20156	Float	. —1		Output 13 for display value 13 (to Input 13 for measurement value 13). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
Ou.14	r/w	base 1dP	1888 10080	20160	Float	. —1		Output 14 for display value 14 (to Input 14 for measurement value 14). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
Ou.15	r/w	base 1dP	1890 10082	20164	Float	. —1		Output 15 for display value 15 (to Input 15 for measurement value 15). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
Ou.16	r/w	base 1dP	1892 10084	20168	Float	. —1		Output 16 for display value 16 (to Input 16 for measurement value 16). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
Ou.2	r/w	base 1dP	1864 10056	20112	Float	. —1		Output 2 for display value 2 (to Input 2 for measurement value 2). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.

ConF	-							
Name	r/w	Adr. In	iteger	real	Тур	Value/off		Description
Ou.3	r/w	base 1dP	1866 10058	20116	Float	. —1		Output 3 for display value 3 (to Input 3 for measurement value 3). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
Ou.4	r/w	base 1dP	1868 10060	20120	Float	. —1		Output 4 for display value 4 (to Input 4 for measurement value 4). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
Ou.5	r/w	base 1dP	1870 10062	20124	Float	. —1		Output 5 for display value 5 (to Input 5 for measurement value 5). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
Ou.6	r/w	base 1dP	1872 10064	20128	Float	. —1		Output 6 for display value 6 (to Input 6 for measurement value 6). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
Ou.7	r/w	base 1dP	1874 10066	20132	Float	. —1	9	Output 7 for display value 7 (to Input 7 for measurement value 7). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
Ou.8	r/w	base 1dP	1876 10068	20136	Float	. —1	2	Output 8 for display value 8 (to Input 8 for measurement value 8). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
Ou.9	r/w	base 1dP	1878 10070	20140	Float	. —1	2	Output 9 for display value 9 (to Input 9 for measurement value 9). Special linearization is possible for certain sensor types, which is stored as a table. This linearization can be adapted with up to 16 segments, whereby every point of the linearization curve is defined by one input or one output.
PASS	r/w	base 1dP	1850 10042	20084	Int	. —8888		Password. 4-digit number for the password-protected access to blocked operating functions such as e.g. the Parameter Level.
T.Dis2	r/w	base 1dP	1851 10043	20086	Text	_		This address contains 5 bytes for the text that is to appear in Display 2. No text: 1st byte 0x00.
U.LinT	r/w	base 1dP	1860 10052	20104	Enum	Enum_Unit		Engineering unit of linearization table: none, °C, °F or K.
L				<u> </u>	0 without 1 °C 2 °F 3 K	unit	1	

8 ohnE

٠	ConF							
	Name	r/w	Adr. Ir	nteger	real	Тур	Value/off	Description
	V.Mask	r/w	base 1dP	1810 10002	20004	Int	. —144	Definition of the visibility templates. The templates define the configurations and parameters displayed for operation (contents on request).

• PArA

Name	r/w	Adr. Ir	nteger	real	Тур	Value/off	Description
Conf	r/w	base 1dP	256 8448	16896	Int	. —1 [Start/Stop and abortion of the configuration mode 0 = End of configuration 1 = Start of configuration 2 = Abort configuration
tEmP	r/w	base 1dP	91 8283	16566	Float	. —8888 🛛 🗌	Constant sensor temperature. With O2 measurement, the actual oxygen content is derived from the constant sensor temperature and the EMF (electromotive force in volts) generated by the sensor.Note: A constant sensor temperature is only ensured with heated lambda sensors.

Sig	nal							
Name	r/י	W	Adr. In	teger	real	Тур	Value/off	Description
C.InP	r		base 1dP	39 8231	16462	Float	,0888—8888	Process value is the calculated result of process value processing. It represents the actual value of the process (controlled variable) that is to be lined out at setpoint.
САН	r		base 1dP	390 8582	17164	Long	. —	Total operating hours. Count starts with the first switch-on. Internal test routine. Is stored and displayed not more than once per hour.
СРН	r٨	Z	base 1dP	394 8586	17172	Long	. —	Operating hours of the current maintenance period. Internal test routine. Is stored and displayed not more than once per hour. Reset when the time limit message is acknowledged.
Diag	r		base 1dP	382 8574	17148	Int	. —144	Result of diagnosis. Any faults detected during the self-test for data, RAM, processor, and EEPROM, as well as an exceeded count for the operating hours (maintenance period) and no. of switching cycles (maintenance period) are stored. Can be reset by acknowledgement.
EE.Ver	r		base 1dP	381 8573	17146	Int	. —.	EEPROM version
ld.NrH	r		base 1dP	370 8562	17124	Int	. —.	More significant part of the device Ident number.
ld.NrL	r		base 1dP	371 8563	17126	Int	. —.	Less significant part of the device Ident number.
ld.NrZ	r		base 1dP	372 8564	17128	Int	. —.	Sequential Ident number of the device.

Signa	al						
Name	r/w	Adr. In	teger	real	Тур	Value/off	Description
Int.Tmp	r	base 1dP	380 8572	17144	Int	. —.	Max. measured operating temperature. Internal test routine.
Oem.NrH	r	base 1dP	373 8565	17130	Int	. —.	More significant part of the device OEM no.
Oem.NrL	r	base 1dP	374 8566	17132	Int	. —.	Less significant part of the device OEM no.
PASS	r/w	base 1dP	350 8542	17084	Int	. —8888	This enables the bus interface during 15 s for writing. For this, the pass code defined here must coincide with the configured pass code.
SA01	r	base 1dP	391 8583	17166	Long	. —	Total number of switching cycles of OUT1. Internal test routine that is stored and displayed not more than once per hour.
SAO2	r	base 1dP	392 8584	17168	Long	. —	Total number of switching cycles of OUT2. Internal test routine that is stored and displayed not more than once per hour.
SA03	r	base 1dP	393 8585	17170	Long	. —	Total number of switching cycles of OUT3. Internal test routine that is stored and displayed not more than once per hour.
SP01	r/w	base 1dP	395 8587	17174	Long	. —	Switching cycles of OUT1 during the present maintenance period. Internal test routine that is stored and displayed not more than once per hour. Resetting is done by acknowledging the switching cycle message.
SPO2	r/w	base 1dP	396 8588	17176	Long		Switching cycles of OUT2 during the present maintenance period. Internal test routine that is stored and displayed not more than once per hour. Resetting is done by acknowledging the switching cycle message.
SPO3	r/w	base 1dP	397 8589	17178	Long	. —	Switching cycles of OUT3 during the present maintenance period. Internal test routine that is stored and displayed not more than once per hour. Resetting is done by acknowledging the switching cycle message.
St.Pass	r	base 1dP	351 8543	17086	Int	. —0	This signal indicates whether writing via the interface is allowed (enabling via pass code).
Sw.Nr	r	base 1dP	375 8567	17134	BCD	. —.	Digits 7 to 12 of the software order number.
T.CodeNr	r	base 1dP	360 8552	17104	Text	. —.	15-digit order number of the device.

8 ohnE

Signal							
Name	r/w	Adr. Ir	nteger	real	Тур	Value/off	Description
UPD	r/w	base 1dP	257 8449		Enum	Enum_Aenderungsflag	Status message indicating that parameter / configuration have been changed via the front panel.
						0 No change via	the front panel keys.
						1 A change has	been made via the front panel keys, which must be processed.

L-R	r/w	base 1dP	55 8247	16494	Int	. —0		Remote operation. Remote means that all values can only be adjusted via the interface. Adjustments via the front panel are blocked.	
Hw.Opt	r	base 1dP	200 8392	16784	Int	. —54424		Device options: 0000 WXYZ 0000 DCBA Z = 1: Modbus interface Y = 1: System device X = 1: Option 1 W = 1: Option 2 A = 1: OUT1 available B = 1: OUT2 available C = 1: OUT3 available D = 1: OUT3 is an analog output	
Sw.Op	r	base 1dP	201 8393	16786	Int	. —144		Software version XY Major and Minor Release (e.g. 21 = Version 2.1). The software version specifies the firmware in the unit. For the correct interaction of E-Tool and device, it must match the operating version (OpVersion) in the E-Tool.	
Bed.V	r	base 1dP	202 8394	16788	Int	. —144		Operating version (numeric value). For the correct interaction of E-Tool and device, the software version and operating version must match.	
Unit	r	base 1dP	203 8395	16790	Int	. —144		Identification of the device.	
S.Vers	r	base 1dP	204 8396	16792	Int	0 —144		The sub-version number is given as an additional index for precise definition of software version.	
St.Ala	r	base 1dP	23 8215	16430	Int			Alarm status: Bit-wise coded status of the individual alarms, e.g. exceeded limit value.	
Bit 0 Existing/stored exceeded limit 1 Bit 1 Existing/stored exceeded limit 2 Bit 2 Existing/stored exceeded limit 3 Bit 3 Not usedBit 4 Not used Bits 5 - 7 Not used Bit 8 Existing exceeded limit 1 Bit 9 Existing exceeded limit 2 Bit 10 Existing exceeded limit 3 Bits 11 - 15 Not used									
Err.r	r/w	base 1dP	63 8255	16510	Int	. —0		Signal for resetting the entire error list. The error list contains all errors that are reported, e.g. device faults and limit values. It also contains queued as well as stored errors after their correction. The reset acknowledges all errors, whereby queued errors will reappear after the next error detection (measurement).	

Code Ta	able	È						Operating Version1				
³ ohnE												
Signa Name		∆dr Ir	nteger	real	Тур	Value/off		Description				
St.Do	r	base 1dP	-	16432		04		Status of the digital outputs				
St.Ain	r	base 1dP	22 8214	16428	Int	. —016		Bit-coded status of the analog input (fault, e.g. short circuit)				
	Bit 0 Break at Input 1 Bit 1 Reversed polarity at Input 1 Bit 2 Short-circuit at Input 1 Bit 3 Not used Bit 4 Break at Input 2 Bit 5 Reversed polarity at Input 2 Bit 6 Short-circuit at Input 2 Bits 7-15 Not used											
St.Di	r	base 1dP	25 8217	16434	Int			Status of the digital inputs or of push-buttons (binary coded).				
	- 1				1	Bit 0: Input di Bit 8: Status Bit 9: Status Bit 10: Status	of Ent of 'Do	wn' key				

9 ohnE1

PArA							
Name	r/w	Adr. Ir	nteger	real	Тур	Value/off	Description
LC	r/w	base 1dP	73 8265	16530	Float	,0888—8888	Limit value LC. The limit value LC is the main function of the temperature limiter/monitor. It complies with certain switching and wiring specifications, and has a fixed hysteresis of 0.5 K.
t.F1	r/w	base 1dP	70 8262	16524	Float	. —888	Filter time constant [s]. Every input is fitted with a digital (software) low-pass filter for suppressing process-related disturbances on the input leads. Higher filter settings improve the suppression, but increase the delay of the input signals.

• Signal

Name	r/w	Adr. Ir	nteger	real	Тур	Value/off	Description
In.1	r	base 1dP	20 8212	16424	Float	,0888—8888 [Measurement value after the measurement value correction (e.g. with offset or 2-point correction, and scaling).
ln.1r	r	base 1dP	2005 10197	20394	Float	,0888—8888 [Measurement value before the measurement value correction (unprocessed, read directly from the input).

10 ohnE2

PArA							
Name	r/w	Adr. Ir	nteger	real	Тур	Value/off	Description
L.2	r/w	base 1dP	75 8267	16534	Float	,088888888 🗹	Lower limit value. The alarm is triggered if the value falls below the limit, and is reset with lower limit value plus hysteresis.
t.F2	r/w	base 1dP	71 8263	16526	Float	. —888 C	Filter time constant [s]. Every input is fitted with a digital (software) low-pass filter for suppressing process-related disturbances on the input leads. Higher filter settings improve the suppression, but increase the delay of the input signals.
H.2	r/w	base 1dP	76 8268	16536	Float	,0888—88888 🗹	Upper limit value. The alarm is triggered if the value rises above the limit, and is reset with upper lower limit value plus hysteresis.

• Signal

Signal							
Name	r/w	Adr. Ir	nteger	real	Тур	Value/off	Description
In.2	r	base 1dP	21 8213	16426	Float	,0888—8888	Measurement value after the measurement value correction (e.g. with offset or 2-point correction, and scaling).
ln.2r	r	base 1dP	2006 10198	20396	Float	,0888—8888	Measurement value before the measurement value correction (unprocessed, read directly from the input).

11 ohnE3

•	PArA							
	Name	r/w	Adr. Ir	nteger	real	Тур	Value/off	Description
	L.3	r/w	base 1dP	77 8269	10000	Float	,0888—8888	Lower limit value. The alarm is triggered if the value falls below the limit, and is reset with lower limit value plus hysteresis.
	H.3	r/w	base 1dP	78 8270	16540	Float	,0888—8888	Upper limit value. The alarm is triggered if the value rises above the limit, and is reset with upper lower limit value plus hysteresis.

• Signal

Name	r/w	Adr. Ir	nteger	real	Тур	Value/off	Description
Out.3	r	base 1dP	34 8226	16452	Float	,0888—8888	Value of the analog output [%]

Operating Version1

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	ConF								
	Name	r/w	Adr. Int	eaer	real	Тур	Value/o	off	Description
ſ	bAud	r/w	base 1dP	-	16964	-	Enum_B		Bit rate of the interface (only visible with OPTION). The bit rate determines the transmission speed.
L						I	0	2400 Baud	L
								4800 Baud	
								9600 Baud 19200 Baud	
								38.400 bits/s	
	Addr	r/w	base 1dP	291 8483	16966	Int	0—136		Address on the interface (only visible with OPTION)
	PrtY	r/w	base 1dP	292 8484	16968	Enum	Enum_Pa	arity	Parity of data on the interface (only visible with OPTION). Simple possibility of checking that transferred data is correct.
L							0	No parity, with	h 2 stop bits.
							1	even parity	
								odd parity	
							3	no parity (1 sto	טף סול)
	dELY	r/w	base 1dP	293 8485	16970	Int	. —1		Response delay [ms] (only visible with OPTION). Additional delay time before the received message may be answered on the Modbus. (Might be necessary, if the same line is used for transmit/receive.)
	D.Unt	r/w	base 1dP	284 8476	16952	Enum	EnumDU	nit	display unit
L							0	without unit	
								Temperature u	unit
								O2 unit %	
								bar	
								mbar	
								Pa	
								kPa psi	
								l/s	
								l/min	
								Ohm kOhm	
								m	
							15	A	
								mA	
								V mV	
								kg	
							20	g	
								t Toxt of phys. I	loit
							22	Text of phys. l	

Operating Version1

ConF							
Name	r/w	Adr. In	teger	real	Тур	Value/off	Description
02	r/w	base 1dP	283 8475	16950	Enum	O2Unit	Parameter definition for O2 measurement. With O2 measurements necessary to define whether the parameter is to be evaluated ppm or %.
							O2 function in ppm
						1 Parameter for	02 function in %
Unit	r/w	base 1dP	280 8472	16944	Enum	Enum_Unit_rail	Physical unit, f.e.°C
						1 °C	
						2 °F	
						3 K	
dP	r/w	base 1dP	281 8473	16946	Enum	Enum_dP	Decimal point (max. no of decimals). Format of the measured va display.
						•	d the decimal point
						 Display has or Display has tw 	
						3 Display has th	
	1						
dISP	r/w	base 1dP	282 8474	16948	Enum	Enum_diSP	Format of the measured value display, in digits. In order to ensure steady display, the value of the last displayed digit is defined by multiple of the total selected number of display digits. Examples a resolution of 2 decimals: The measured value '1.234' is display as 1.23; with a 2-digit display it is 1.24; with a 5-digit display it 1.25, and with 10 digits it is 1.20.
							measured value.Note: In case of a fault, the process value is displayed v solution until the fault has been remedied or the alarm has been reset.
						1 Full display re	
						2 Display resolu	tion = 2 digits
							tion = 5 digits tion = 10 digits
							I
C.dEL	r/w	base		16972	Int	1	Additional delay time before received message is evaluated by
		1dP	8486				Modbus. This time is needed if data is not transmitted continou by the modem.
FrEq	r/w	base 1dP	260 8452	16904	Enum	Enum_FrEq	Switchover of the applied mains frequency 50 / 60 Hz and adap the input filter for hum suppression.
						0 Mains frequer	ncy is 50 Hz

ode T	aple	5						Operating Version1	
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Signa	al								
Name		Adr. In	teger	real	Тур	Value/	off	Description	
D.Unt	r	base 1dP	340 8532	17064	Enum	EnumDl	Jnit	Effective display unit (can be used for extended Operating Leve display 2)	
						0	without unit		
						1	Temperature u	nit	
						2	02 unit		
						3 4	% bar		
						4 5	mbar		
						6	Pa		
						7	kPa		
						8	psi		
						9 10	l/s		
						11	l/min		
						12	Ohm		
						13	kOhm		
						14 15	m A		
						16	mA		
						17	V		
						18	mV		
						19 20	kg		
						20	g t		
						22	Text of phys. L	Jnit	
E.1	r/w	base 1dP	310 8502	17004	Enum	Defect		Err 1 (internal error)	
						0	No fault exists	s (Reset).	
						2	The device is o		
E.2	r/w	base	311	17006	Enum	Problem		Err 2 (internal error, resetable)	
		1dP	8503						
						0	No fault or res	et of the fault exists (Reset).	
						1		curred and has been stored.	
E.3	r/w	base	329	17042	Fnum	ConfErr		Resettable configuration fault.	
	.,	1dP	8521					ConfErr(2): a fault has occurred.	
			50E 1					Typical causes and suggested remedies:	
								Missing or faulty configuration: check interactions in the configuration and parameter settings.	
						0	No fault or ros	et of the configuration error exists (Reset).	
						2		figuration error. The configuration is missing or wrong, or it does not m	
							the parameter		

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othr								
Signa	al							
Name	r/w	Adr. In	iteger	real	Тур	Value/	off	Description
E.4	r/w	base 1dP	328 8520	17040	Enum	Problem		Hardware fault.Cause: Code number and hardware are not identical. Remedy: Contact PMA Service or replace electronics/Options pc
						0	No fault or res	et of the fault exists (Reset).
						1	A fault has occ	curred and has been stored.
FbF.1	r/w	base 1dP	312 8504	17008	Enum	Break		Sensor break at input INP1. Break(2): a fault has occurred. Break(1): fault remedied but not acknowledged. Typical causes and suggested remedies: Sensor fault: replace INP1 sensor. Wiring fault: check connections of INP1.
					L	0	No fault or res	set of the sensor break alarm exists (Reset).
						1 2	The sensor fau operator must	It alarm has been triggered and stored; the fault is no longer present. The acknowledge the error message in order to delete it from the error list. The sensor is defective or there is a wiring fault.
Sht.1	r/w	base 1dP	313 8505	17010	Enum	Short		Short circuit at input INP1. Short(2): a fault has occurred. Short(1): fault remedied but not acknowledged. Typical causes and suggested remedies: Sensor fault: replace INP1 sensor. Wiring fault: check connections of INP1.
						0		et of the short-circuit alarm exists (Reset).
						1 2		fault has occurred and has been stored. fault has occurred.
POL.1	r/w	base 1dP	314 8506	17012	Enum	Polarity		Incorrect polarity at input INP1. Polarity(2): a fault has occurred. Latched(1): fault remedied but not acknowledged. Suggested remedy: reverse the polarity at INP1.
						0		et of incorrect polarity alarm exists (Reset).
						1 2		olarity fault has occurred and has been stored. ity. The wiring of the input circuit is not correct.
FbF.2	r/w	base 1dP	315 8507	17014	Enum	Break		Sensor break at input INP2. Break(2): a fault has occurred. Break(1): fault remedied but not acknowledged. Typical causes and suggested remedies: Sensor fault: replace INP2 sensor. Wiring fault: check connections of INP2.
			_			0		et of the sensor break alarm exists (Reset).
						1 2	operator must	It alarm has been triggered and stored; the fault is no longer present. Th acknowledge the error message in order to delete it from the error list. The sensor is defective or there is a wiring fault.

othr								
Signa								
Name		Adr. Ir	nteger	real	Тур	Value/	′off	Description
Sht.2	r/w	base 1dP	316 8508	17016	Enum	Short		Short circuit at input INP2. Short(2): a fault has occurred. Short(1): fault remedied but not acknowledged. Typical causes and suggested remedies: Sensor fault: replace INP2 sensor. Wiring fault: check connections of INP2.
2	•	•				0		et of the short-circuit alarm exists (Reset).
						1		fault has occurred and has been stored. fault has occurred.
POL.2	r/w	base 1dP	317 8509	17018	Enum	Polarity		Incorrect polarity at input INP2. Polarity(2): a fault has occurred. Latched(1): fault remedied but not acknowledged. Suggested remedy: reverse the polarity at INP2.
						0 1 2	An incorrect po	et of incorrect polarity alarm exists (Reset). plarity fault has occurred and has been stored. ity. The wiring of the input circuit is not correct.
Lim.1	r/w	base 1dP	323 8515	17030	Enum	Limit		Limit value 1 exceeded. Active (2): a fault has occurred. Latched (1): fault remedied but not acknowledged. Hint for trouble-shooting: check the process.
						0		et of the limit value alarm exists (Reset).
						2		has been exceeded, and the fault has been stored. has been exceeded; the monitored (measurement) value is outside th
Lim.2	r/w	base 1dP	324 8516	17032	Enum	Limit		Limit value 2 exceeded. Active (2): a fault has occurred. Latched (1): fault remedied but not acknowledged. Hint for trouble-shooting: check the process.
						0		et of the limit value alarm exists (Reset).
						1 2		has been exceeded, and the fault has been stored. has been exceeded; the monitored (measurement) value is outside th
Lim.3	r/w	base 1dP	325 8517	17034	Enum	Limit		Limit value 3 exceeded. Active (2): a fault has occurred. Latched (1): fault remedied but not acknowledged. Hint for trouble-shooting: check the process.
						0		et of the limit value alarm exists (Reset).
						2		has been exceeded, and the fault has been stored. has been exceeded; the monitored (measurement) value is outside th
InF.1	r/w	base 1dP	326 8518	17036	Enum	Time		Message from the operating hours counter that the preset no. hours for this maintenance period has been reached. The op-h counter for the maintenance period is reset when this messag acknowledged. Counting the operating hours is used for preve maintenance.
	•					0	No signal or ro	set of the time limit signal (reset).

12	othr							
•	Signal							
	Name	r/w	Adr. Ir	nteger	real	Тур	Value/off	Description
	InF.2	r/w	base 1dP	327 8519		Enum	Switch	Message from the switching cycle counter that the preset no. of switch cycles for this maintenance period has been reached. The cycle counter for the maintenance period is reset when this message is acknowledged. Counting the switching cycles is used for preventive maintenance.
		•	•			•		age or reset of the switching cycle counter exists (Reset). e switching cycle counter (maintenance period) has been reached.

13 Out.1

•	Signal								
	Name	r/w	Adr. Ir	nteger	real	Тур	Value/	/off	Description
	Out1	r	base			Enum	Enum_/	Ausgang	Status of the digital output
			1dP	9132					
							0	off	
							1	on	

Out.	2											
Con	F											
Name	r/w	Adr. II	nteger	real	Тур	Value/off	Description					
0.Act	r/w	base 1dP	970 9162	18324	Enum	Enum_OAct	Operating sense of the switching output OUT x. Direct: Active function (e.g. limit value) switches the output ON; Inverse: Active function (e.g. limit value) switches the output OFF.					
						0 direct / normally open						
						1 inverse / norm	1 inverse / normally closed					
Lim.1	r/w	base 1dP	973 9165	18330	Enum	Enum_Lim1	Activation of output function: Adjusted limit value 1 has been exceeded.					
						0 pot potivo						
0not active1The output is activated by an alarm from limit value 1.												
Lim.2	r/w	base 1dP	974 9166	18332	Enum	Enum_Lim2	Activation of output function:Adjusted limit value 2 has been exceeded.					
						0 not active						
							activated by an alarm from limit value 2.					
Lim.3	r/w	base 1dP	975 9167	18334	Enum	Enum_Lim3	Activation of output function: Adjusted limit value 3 has been exceeded.					
L					I	0 not active	1					

INP1. INP1. INP1. InP output is switched by the error message 'INP2 fault. The output is switched by the error message 'INP2 fault'. INF.1 r/w INF.1 r/w base 985 18354 Enum Enum_Inf1 Activation of the output: Inf.1 status. The Inf.1 signal is generated. InF.1 r/w base 1dP 9177 18354 Enum_Inf1 Activation of the output: Inf.1 status. The Inf.1 signal is generated. 0 not active 1 The output is activated by the status message 'Inf.1'. InF.2 r/w base 986 18356 Enum_Inf2 Activation of the output: Inf.2 status. The Inf.2 signal is gener when the preset value of the switching cycle co	Ou	ut.2											
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1 The output is switched by the error message 'INP2 fault'. InF.1 r/w base 985 18354 Enum Enum_Inf1 Activation of the output: Inf.1 status.The Inf.1 signal is gener when the preset value of the operating hours counter has be reached. 0 not active 1 The output is activated by the status message 'Inf.1'. InF.2 r/w base 986 18356 Enum Enum_Inf2 Activation of the output: Inf.2 status.The Inf.2 signal is gener when the preset value of the switching cycle counter has been when the preset value of the switching cycle counter has been when the preset value of the switching cycle counter has been when the preset value of the switching cycle counter has been when the preset value of the switching cycle counter has been when the preset value of the switching cycle counter has been when the preset value of the switching cycle counter has been when the preset value of the switching cycle counter has been when the preset value of the switching cycle counter has been when the preset value of the switching cycle counter has been when the preset value of the switching cycle counter has been when the preset value of the switching cycle counter has been when the preset value of the switching cycle counter has been when the preset value of the switching cycle counter has been when the preset value of the switching cycle counter has been when the preset value of the switching cycle counter has been when the preset value of the switching cycle counter has been when the preset value of the switching cycle counter has been when the preset value of the switching cycle counter has been when the preset value of the switching cycle counter has	FAi.						Enum	Enum_FAi2	The fail signal is generated, if a fault occurs at the analog Input				
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1dP 9178 when the preset value of the switching cycle counter has been	1 The output is activated by the status message 'Inf.1'.								activated by the status message 'Inf.1'.				
	InF.	2	r/w					Enum_Inf2	Activation of the output: Inf.2 status. The Inf.2 signal is generated, when the preset value of the switching cycle counter has been reached.				
0 Not active													
1 The output is activated by the status message 'Inf.2'.								1 The output is a	activated by the status message 'Inf.2'.				

•	Signal								
	Name	r/w	Adr. In	nteger	real	Тур	Value/	′off	Description
	Out2	r	base	990	18364	Enum	Enum_/	Ausgang	Status of the digital output
			1dP	9182					
							0	off	
							1	on	

15 Out.3

•	ConF										
	Name	r/w	Adr. In	iteger	real	Тур	Value/off		Description		
	O.tYP	r/w	base	1035	18454	Enum	Enum_OtYP		Signal type selection OUT		
			1dP	9227							
					nly visible with current/logic/voltage).						
							1	0 20 mA continuous (only visible with current/logic/voltage).			
							2	4 20 mA cor	tinuous (only visible with current/logic/voltage).		
				3	010 V contin	uous (only visible with current/logic/voltage)					
							4	210 V contin	uous (only visible with current/logic/voltage)		
				5	transmitter sup	oply (only visible with current/logic/voltage)					

								Operating Version'
Out.3								
ConF								
Name	r/w	Adr. Int	teger	real	Тур	Value/off		Description
0.Act	r/w	base 1dP	1020 9212	18424	Enum	Enum_OAct		Operating sense of the switching output OUT x. Direct: Active function (e.g. limit value) switches the output ON Inverse: Active function (e.g. limit value) switches the output Of
	ł					0 direct / nor		
						1 inverse / n	orma	any closed
Out.0	r/w	base 1dP	1036 9228	18456	Float	,0888—8888		Lower scaling limit of the analog output (corresponds to 0%). If current and voltage signals are used as output values, the displ can be scaled to the output value in the Parameter Level. The output value of the lower scaling point is indicated in the respe electrical unit (mA / V).
Out.1	r/w	base 1dP	1037 9229	18458	Float	,0888—8888		Upper scaling limit of the analog output (corresponds to 100%). current and voltage signals are used as output values, the displacan be scaled to the output value in the Parameter Level. The output value of the upper scaling point is indicated in the respected electrical unit (mA / V).
0.Src	r/w	base 1dP	1038 9230	18460	Enum	Enum_OSrc		Signal source of the analog output (only visible when O.TYP=1
						0 not used		
						3 process val7 measured value		o INP1
						8 measured		
O.FAI	r/w	base 1dP	1039 9231	18462	Enum	Enum_OFail		fail behaviour
						0 upscale		
						1 downscale		
Lim.1	r/w	base 1dP	1023 9215	18430	Enum	Enum_Lim1		Activation of output function: Adjusted limit value 1 has been exceeded.
	I				<u></u>	0 not active		
						1 The output	is a	ctivated by an alarm from limit value 1.
Lim.2	r/w	base 1dP	1024 9216	18432	Enum	Enum_Lim2		Activation of output function:Adjusted limit value 2 has been exceeded.
					<u> </u>	0 not active 1 The output	is a	ctivated by an alarm from limit value 2.
Lim.3	r/w	base 1dP	1025 9217	18434	Enum	Enum_Lim3		Activation of output function: Adjusted limit value 3 has been exceeded.
						0 not active		

Out.3												
Out.5												
ConF												
Name	r/w	Adr. In	teger	real	Тур	Value/off	Description					
FAi.1	r/w	base 1dP	1032 9224	18448	Enum	Enum_FAi1	Activation of the message: INP1 fault. The fail signal is generated, if a fault occurs at the analog Input INP1.					
	4				ļ	0 not active	ł					
						1 The output is s	switched by the error message 'INP1 fault'.					
						I						
FAi.2	r/w	base 1dP	1033 9225	18450	Enum	Enum_FAi2	Activation of the message: INP2 fault. The fail signal is generated, if a fault occurs at the analog Input INP2.					
	1				I	0 not active	1					
1 The output is switched by the error message 'INP2 fault'.												
InF.1	r/w	base 1dP	1055 9247	18494	Enum	Enum_Inf1	Activation of the output: Inf.1 status.The Inf.1 signal is generate when the preset value of the operating hours counter has been reached.					
	•					0 not active	•					
						1 The output is a	activated by the status message 'Inf.1'.					
·	1											
InF.2	r/w	base 1dP	1056 9248	18496	Enum	Enum_Inf2	Activation of the output: Inf.2 status. The Inf.2 signal is generate when the preset value of the switching cycle counter has been reached.					
						0 Not active						
						I The output is a	activated by the status message 'Inf.2'.					

•	Signal										
	Name	r/w	Adr. Ir	nteger	real	Тур	Value/off	Description			
	Out3	r	base 1dP	1040 9232		Enum	Enum_Ausgang	Status of the digital output			
							0 off 1 on				
	Out.3	r	base	1043	18470	Float	,08888888 🛛	Value of the analog output [%]			

Out.3	r	base 1dP	1043 9235	18470	Float	,0888—8888	Value of the analog output [%]

16 rnG

•	PArA							
	Name	r/w	Adr. Ir	nteger	real	Тур	Value/off	Description
	rnG.L	r/w	base 1dP	660 8852	17704	Float	,0888—8888	Lower limit value. The lower setting limit for den limit value LC. The limit value LC is the main function of the temperature limiter / monitor.

16	rnG							
•	PArA							
	Name	r/w	Adr. Ir	nteger	real	Тур	Value/off	Description
	rnG.H	r/w	base 1dP	661 8853	17706	Float	,0888—8888	Upper limit value. The upper setting limit for den limit value LC. The limit value LC is the main function of the temperature limiter / monitor.



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