EN

Parameter and Process Data

AFIx-####.####.1###

IO-Link

Subject to change without notice
Available as PDF version only
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www.baumer.com

IO-Link
AFIx-####.####.1###

Device ID

Product	Hex	Decimal
AFIx	0x03EF	1007

IO-Link Version: V 1.1
Data Storage: Yes
Block Parameter: Yes
Min. Cycle Time: 8.4 ms
SIO-Mode: Yes
COM-Mode: Yes

Process Data (Length: 128 Bit)

Subindex	Bit offset	Name	Length	Type	Range
1	126-127	Temperature unit	2 bit	Uint	0 = Fahrenheit 1 = Celsius
2	121	Active Alarms	1 bit	Boolean	0 = false/off 1 = true/on
3	120	Switch Output 1	1 bit	Boolean	0 = false/off 1 = true/on
4	104	Current out channel 2, Temperature	16 bit	Uint	0 - 23000µA
5	88	Current out channel 1, Concentration/Conductivity	16 bit	Uint	0 - 23000µA
6	72	Media Temperature	16 bit	Int	-327.00 - 327.00 °C
7	40	Conductivity value	32 bit	Float	>0 mS
8	8	Concentration value	32 bit	Float	>0 %
9	0	Active range	8 bit	Uint	1-4

Octet 0

Bit Offset	127	126	-	-	-	-	121	120
	Temp unit		-	-	-	-	Alarms	SW1

Octet 1

Bit Offset	119	118	117	116	115	114	113	112
	Current out channel 2							

Octet 2

Bit Offset	111	110	109	108	107	106	105	104
	Current out channel 2							

Octet 3

Bit Offset	103	102	101	100	99	98	97	96
	Current out channel 1							

Octet 4

Bit Offset	95	94	93	92	91	90	89	88
	Current out channel 1							

Octet 5

Bit Offset	87	86	85	84	83	82	81	80
	Media Temperature							

Octet 6

Bit Offset	79	78	77	76	75	74	73	72
	Media Temperature							

Octet 7

Bit Offset	71	70	69	68	67	66	65	64
	Conductivity value							

Octet 8

Bit Offset	63	62	61	60	59	58	57	56
	Conductivity value							

Octet 9

Bit Offset	55	54	53	52	51	50	49	48
	Conductivity value							

Octet 10

Bit Offset	47	46	45	44	43	42	41	40
	Conductivity value							

Octet 11

Bit Offset	39	38	37	36	35	34	33	32
	Concentration value							

Octet 12

Bit Offset	31	30	29	28	27	26	25	24
	Concentration value							

Octet 13

Bit Offset	23	22	21	20	19	18	17	16
	Concentration value							

Octet 14

Bit Offset	15	14	13	12	11	10	9	8
	Concentration value							

Octet 15

Bit Offset	7	6	5	4	3	2	1	0
	Active range							

Index	Subindex	Access	SPDU name	Number of Bytes	Format	Range of values	Definition
System commands							
2	0	W	System Command	1	U08		Command Code Definition Public: 0x00 – 0x9F Vendor specific 0xA0 – 0xFF
							- 130 (0x82): Factory Reset.
							- 160 (0xA0): Calibrated Temperature Sensor
							- 161 (0xA1): Calibrate Conductivity Sensor
							- 162 (0xA2): Reset User Calibration
							- 163 (0xA3): Measure Media point 1
							- 164 (0xA3): Measure Media point 2
							- 165 (0xA3): Measure Media point 3
							- 167 (0xA3): Calibrate Media in 3 points
12	0	R/W	Device locks	2	Uint16		0x0004 = Local param 0x0008 = Local user
General information of sensors							
13	1	R	Profile Characteristics, DeviceProfileID	2	Uint16		0x0001, Smart Sensor Profile
13	2	R	Profile Characteristics, FunctionClasses	2	Uint16		0x8000, Identification FunctionClass
13	3	R	Profile Characteristics, FunctionClasses	2	Uint16		0x8001, SSC FunctionClass
13	4	R	Profile Characteristics, FunctionClasses	2	Uint16		0x8002, PDV FunctionClass
13	5	R	Profile Characteristics, FunctionClasses	2	Uint16		0x8003, Diagnosis FunctionClass
14	1	R	PDInputDescriptor	3	Uint24		02 08 00
14	2	R	PDInputDescriptor	3	Uint24		04 20 08
14	3	R	PDInputDescriptor	3	Uint24		04 20 28
14	4	R	PDInputDescriptor	3	Uint24		02 10 48
14	5	R	PDInputDescriptor	3	Uint24		02 10 58

14	6	R	PDInputDescriptor	3	Uint24		02 10 68
14	7	R	PDInputDescriptor	3	Uint24		02 02 78
14	8	R	PDInputDescriptor	3	Uint24		01 06 7A
16	0	R	Vendor Name	18	String	ASCII	Baumer A/S
17	0	R	Vendor Text	14	String	ASCII	www.baumer.com
18	0	R	Product Name	32	String	ASCII	<Product Key Internal> (<Product Key External>) AFIx /XXXXXX
19	0	R	Product Id	16	String	ASCII	Baumer Article AFIx
20	0	R	Device Text	32	String Max 32 Chars	ASCII	Sensor specific.
21	0	R	Serial number	16	String	ASCII	AFIx Serial Number Eg: 18017
24	0	R/W	Application Specific Tag	16	String	ASCII	The application specific tag can be used by the end user to store data that is specific to the end users application. The value does not influence the sensor operation. Length: Max 16.
25	0	R/W	Function Specific Tag	32	String	ASCII	The function specific tag can be used by the end user to store data that is specific to the end users application. The value does not influence the sensor operation. Length: Max 32.
26	0	R/W	Location Tag	32	String	ASCII	The location tag can be used by the end user to store data that is specific to the end users application. The value does not influence the sensor operation. Length: Max 32.
36	1	R	Status / Diagnosis	1	Uint8	0-0xFF	0x00 = OK. 0x01 = Maintenance-Required 0x02 = Out-of-Specification 0x03 = Functional-Check 0x04 = Failure 0x05-0xFF = Reserved
37	1	R	Detailed Device Status[0]	3	Uint8		0x01 = Alarms for IOL uC
					Uint8		0x00
					Uint8		0x30 = Short circuit 0x50 = IOL maintanance
			Detailed Device Status[1]	3	Uint8		0x02 = Alarms for Measuring uC
					Uint8		0x00
					Uint8		Bit1 = Wire break (0x02) Bit3 = Temperature exceeded (0x08)

Sensor functions							
60	1	R/W	Switch 1 trigger value min, Conductivity / Concentration range 1	4	Float32	mS / %	Read / Write min trigger value for switch 1, range select 1.
60	2	R/W	Switch 1 trigger value max, Conductivity / Concentration range 1	4	Float32	mS / %	Read / Write max trigger value for switch 1, range select 1.
61	1	R/W	Switch 1 output polarity	1	Uint8	0-1	Read / Write switch output polarity 0 = Normally open / Active high. 1 = Normally closed / Active low.
61	3	R/W	Switch 1 trigger frequency hysteresis, Conductivity / Concentration range 1	1	Uint8	mS*1000 / %*1000	Read / Write hysteresis for switch 1 trigger, range select 1.
62	1	R/W	Switch 1 trigger value min, Conductivity / Concentration range 2	4	Float32	mS / %	Read / Write min trigger value for switch 1, range select 2.
62	2	R/W	Switch 1 trigger value max, Conductivity / Concentration range 2	4	Float32	mS / %	Read / Write max trigger value for switch 1, range select 2.
63	3	R/W	Switch 1 trigger frequency hysteresis, Conductivity / Concentration range 2	1	Uint8	mS*1000 / %*1000	Read / Write hysteresis for switch 1 trigger, range select 2.
16384	1	R/W	Switch 1 trigger value min, Conductivity / Concentration range 3	4	Float32	mS / %	Read / Write min trigger value for switch 1, range select 3.
16384	2	R/W	Switch 1 trigger value max, Conductivity / Concentration range 3	4	Float32	mS / %	Read / Write max trigger value for switch 1, range select 3.
16385	3	R/W	Switch 1 trigger frequency hysteresis, Conductivity / Concentration range 3	1	Uint8	mS*1000 / %*1000	Read / Write hysteresis for switch 1 trigger, range select 3.
16386	1	R/W	Switch 1 trigger value min, Conductivity / Concentration range 4	4	Float32	mS / %	Read / Write min trigger value for switch 1, range select 4.
16386	2	R/W	Switch 1 trigger value max, Conductivity / Concentration range 4	4	Float32	mS / %	Read / Write max trigger value for switch 1, range select 4.
16387	3	R/W	Switch 1 trigger frequency hysteresis, Conductivity / Concentration range 4	1	Uint8	mS*1000 / %*1000	Read / Write hysteresis for switch 1 trigger, range select 4.
16388	1	R/W	Switch 1 trigger value min, Temperature	4	Float32	°C	Read / Write min trigger value for switch 1, temperature input.
16388	2	R/W	Switch 1 trigger value max, Temperature	4	Float32	°C	Read / Write max trigger value for switch 1, temperature input.
16389	3	R/W	Switch 1 trigger frequency hysteresis, Temperature	1	Uint8	°C	Read / Write hysteresis for switch 1 trigger, temperature input.
78	1	R/W	Switch 1output mode	1	Uint8	0-3	Read / Write switch output mode 0 = OFF. 1 = Push-Pull. 2 = PNP 4 = NPN.
85	1	R/W	SSC1 Selection	1	Uint8	1, 5	Read / Write switch source selection 1 = Conductivity / Concentration 5 = Temperature
86	1	R/W	Part Number	16	String	ASCII	Part article number
88	1	R	PV1 Value	4	Float32		Read native primary value (conductivity or concentration)
88	6	R	PV1 Unit	2	Uint16		Read native primary unit (mS or %)
88	11	R	PV2 Value	4	Float32		Read channel 2 current value
88	16	R	PV2 Unit	2	Uint16		Read channel 2 current unit
88	21	R	PV3 Value	4	Float32		Read channel 1 current value
88	26	R	PV3 Unit	2	Uint16		Read channel 1 current unit

88	31	R	PV4 Value	4	Float32		Read media temperature in local unit
88	36	R	PV4 Unit	2	Uint16		Read media temperature local unit
88	41	R	PV5 Value	4	Float32		Read primary conductivity value
88	46	R	PV5 Unit	2	Uint16		Read primary conductivity unit
88	51	R	PV6 Value	4	Float32		Read primary concentration value
88	56	R	PV6 Unit	2	Uint16		Read primary concentration unit
121	2	R/W	Switch Response Delay Time	4	Uint32	ms	Read / Write the release delay time in milliseconds for the respective switching signal channel (SSC).
11008	1	R/W	ConductivityConcentrationTable range 1 Length	1	Uint8	2-30	Read / Write length of conductivity to concentration table
11008	2	R/W	ConductivityConcentrationTable range 1 Label	16	String	ASCII	Read / Write label of conductivity to concentration table
11008	9+ N*2	R/W	ConductivityConcentrationTable range 1 Conductivity N*	4	Float32	mS	Read / Write conductivity for entry N
11008	10+ N*2	R/W	ConductivityConcentrationTable range 1 oncentration N*	2	Uint16	%*100	Read / Write concentration for entry N
11009	1	R/W	ConductivityConcentrationTable range 2 Length	1	Uint8	2-30	Read / Write length of conductivity to concentration table
11009	2	R/W	ConductivityConcentrationTable range 2 Label	16	String	ASCII	Read / Write label of conductivity to concentration table
11009	9+ N*2	R/W	ConductivityConcentrationTable range 2 Conductivity N*	4	Float32	mS	Read / Write conductivity for entry N
11009	10+ N*2	R/W	ConductivityConcentrationTable range 2 oncentration N*	2	Uint16	%*100	Read / Write concentration for entry N
11010	1	R/W	ConductivityConcentrationTable range 3 Length	1	Uint8	2-30	Read / Write length of conductivity to concentration table
11010	2	R/W	ConductivityConcentrationTable range 3 Label	16	String	ASCII	Read / Write label of conductivity to concentration table
11010	9+ N*2	R/W	ConductivityConcentrationTable range 3 Conductivity N*	4	Float32	mS	Read / Write conductivity for entry N
11010	10+ N*2	R/W	ConductivityConcentrationTable range 3 oncentration N*	2	Uint16	%*100	Read / Write concentration for entry N
11011	1	R/W	ConductivityConcentrationTable range 4 Length	1	Uint8	2-30	Read / Write length of conductivity to concentration table
11011	2	R/W	ConductivityConcentrationTable range 4 Label	16	String	ASCII	Read / Write label of conductivity to concentration table
11011	9+ N*2	R/W	ConductivityConcentrationTable range 4 Conductivity N*	4	Float32	mS	Read / Write conductivity for entry N
11011	10+ N*2	R/W	ConductivityConcentrationTable range 4 oncentration N*	2	Uint16	%*100	Read / Write concentration for entry N
11012	1	R/W	Temperature Source	1	Int8		Read / Write temperature source 0 = Sensor tip 1 = External HART 2 = Fixed
11012	2	R/W	Fixed Temperature	2	Int16	°C*100	Read / Write fixed temperature
11012	3	R/W	Range Selection	1	Int8	0-4	Read / Write forced range selection 0 = Use I/O selection 1 = Select range 1 2 = Select range 2

							3 = Select range 3 4 = Select range 4
11012	4	R/W	Advanced Mode	1	Int8		Read / Write advanced mode activated 0 = off, 1 = on
11013	1	R/W	Temperature Coefficient 1, range 1	4	Float32	% / K	Read / Write temperature coefficient for conductivity temperature correction
11013	2	R/W	Temperature Coefficient 2, range 1	4	Float32	% / K²	Read / Write temperature coefficient for conductivity temperature correction
11013	3	R/W	ReferenceTemperature, range 1	2	Int16	°C	Read / Write target temperature for conductivity temperature correction
11013	4	R/W	Input Range, range 1	2	Uint16	mS	Read / Write input measuring range
11014	1	R/W	Temperature Coefficient 1, range 2	4	Float32	% / K	Read / Write temperature coefficient for conductivity temperature correction
11014	2	R/W	Temperature Coefficient 2, range 2	4	Float32	% / K²	Read / Write temperature coefficient for conductivity temperature correction
11014	3	R/W	ReferenceTemperature, range 2	2	Int16	°C	Read / Write target temperature for conductivity temperature correction
11014	4	R/W	Input Range, range 2	2	Uint16	mS	Read / Write input measuring range
11015	1	R/W	Temperature Coefficient 1, range 3	4	Float32	% / K	Read / Write temperature coefficient for conductivity temperature correction
11015	2	R/W	Temperature Coefficient 2, range 3	4	Float32	% / K²	Read / Write temperature coefficient for conductivity temperature correction
11015	3	R/W	ReferenceTemperature, range 3	2	Int16	°C	Read / Write target temperature for conductivity temperature correction
11015	4	R/W	Input Range, range 3	2	Uint16	mS	Read / Write input measuring range
11016	1	R/W	Temperature Coefficient 1, range 4	4	Float32	% / K	Read / Write temperature coefficient for conductivity temperature correction
11016	2	R/W	Temperature Coefficient 2, range 4	4	Float32	% / K²	Read / Write temperature coefficient for conductivity temperature correction
11016	3	R/W	ReferenceTemperature, range 4	2	Int16	°C*100	Read / Write target temperature for conductivity temperature correction
11016	4	R/W	Input Range, range 4	2	Uint16	mS	Read / Write input measuring range
11017	1	R/W	Conductivity Output Settings Range 1, Min value	4	Float32	mS	Read / Write Conductivity @ 4mA LRV
11017	2	R/W	Conductivity Output Settings Range 1, Max value	4	Float32	mS	Read / Write Conductivity @ 20mA URV
11018	1	R/W	Conductivity Output Settings Range 2, Min value	4	Float32	mS	Read / Write Conductivity @ 4mA LRV
11018	2	R/W	Conductivity Output Settings Range 2, Max value	4	Float32	mS	Read / Write Conductivity @ 20mA URV
11019	1	R/W	Conductivity Output Settings Range 3, Min value	4	Float32	mS	Read / Write Conductivity @ 4mA LRV
11019	2	R/W	Conductivity Output Settings Range 3, Max value	4	Float32	mS	Read / Write Conductivity @ 20mA URV
11020	1	R/W	Conductivity Output Settings Range 4, Min value	4	Float32	mS	Read / Write Conductivity @ 4mA LRV
11020	2	R/W	Conductivity Output Settings Range 4, Max value	4	Float32	mS	Read / Write Conductivity @ 20mA URV
11021	1	R/W	Concentration Output Settings Range 1, Min value	4	Float32	%*100	Read / Write Concentration @ 4mA LRV
11021	2	R/W	Concentration Output Settings Range 1, Max value	4	Float32	%*100	Read / Write Concentration @ 20mA URV

11022	1	R/W	Concentration Output Settings Range 2, Min value	4	Float32	%*100	Read / Write Concentration @ 4mA LRV
11022	2	R/W	Concentration Output Settings Range 2, Max value	4	Float32	%*100	Read / Write Concentration @ 20mA URV
11023	1	R/W	Concentration Output Settings Range 3, Min value	4	Float32	%*100	Read / Write Concentration @ 4mA LRV
11023	2	R/W	Concentration Output Settings Range 3, Max value	4	Float32	%*100	Read / Write Concentration @ 20mA URV
11024	1	R/W	Concentration Output Settings Range 4, Min value	4	Float32	%*100	Read / Write Concentration @ 4mA LRV
11024	2	R/W	Concentration Output Settings Range 4, Max value	4	Float32	%*100	Read / Write Concentration @ 20mA URV
11025	1	R/W	Temperature Output Settings Range 4, Min value	4	Float32	°C*100	Read / Write Temperature @ 4mA LRV
11025	2	R/W	Temperature Output Settings Range 4, Max value	4	Float32	°C*100	Read / Write Temperature @ 20mA URV
11026	1	R/W	Lower current limit, channel 2, temperature	2	Uint16	µA	Read / Write Lower current limit, Temperature
11026	2	R/W	Upper current limit, channel 2, temperature	2	Uint16	µA	Read / Write Upper current limit, Temperature
11027	1	R/W	Lower current limit, channel 1, conductivity/concentration	2	Uint16	µA	Read / Write Lower current limit, Conductivity/Concentration
11027	2	R/W	Upper current limit, channel 1, conductivity/concentration	2	Uint16	µA	Read / Write Upper current limit, Conductivity/Concentration
11027	3	R/W	Output current damping, channel 2	4	Float32	s	Read / Write the delay time in seconds for the analogue signal channel 2.
11028	1	R/W	Current Output Error Indication Channel	1	Uint8	0-255	Read / Write analogue channel for error indication 0 = Conductivity / Concentration 1 = Temperature 2 = Both 4 = None
11028	2	R/W	Current Output Error Indication Value	2	Uint16	µA	Read / Write analogue value for error indication
11029	2	R/W	Label for undefined media	16	String	ASCII	Read / Write media label
11030	1	R/W	Label for media 1	16	String	ASCII	Read / Write media label
11030	2	R/W	Range start, media 1	4	Float32	mS	Read / Write range start
11030	3	R/W	Range stop, media 1	4	Float32	mS	Read / Write range stop
11031	1	R/W	Label for media 2	16	String	ASCII	Read / Write media label
11031	2	R/W	Range start, media 2	4	Float32	mS	Read / Write range start
11031	3	R/W	Range stop, media 2	4	Float32	mS	Read / Write range stop
11032	1	R/W	Label for media 3	16	String	ASCII	Read / Write media label
11032	2	R/W	Range start, media 3	4	Float32	mS	Read / Write range start
11032	3	R/W	Range stop, media 3	4	Float32	mS	Read / Write range stop
11033	1	R/W	Label for media 4	16	String	ASCII	Read / Write media label
11033	2	R/W	Range start, media 4	4	Float32	mS	Read / Write range start
11033	3	R/W	Range stop, media 4	4	Float32	mS	Read / Write range stop
11034	1	R	Active range	1	Uint8		Read active measuring range
11035	1	R/W	Temperature Offset Adjustment	4	Float32	°C	Read / Write Temperature offset adjustment

11035	2	R/W	Conductivity Offset Adjustment	4	Float32	mS	Read / Write Conductivity offset adjustment
11035	3	R/W	Media calibration, point 1, conductivity	4	Float32	mS	Read / Write conductivity point 1, for media calibration
11035	4	R/W	Media calibration, point 2, conductivity	4	Float32	mS	Read / Write conductivity point 2, for media calibration
11035	5	R/W	Media calibration, point 3, conductivity	4	Float32	mS	Read / Write conductivity point 3, for media calibration
11035	6	R/W	Media calibration, point 1, temperature	4	Float32	°C	Read / Write temperature point 1, for media calibration
11035	7	R/W	Media calibration, point 2, temperature	4	Float32	°C	Read / Write temperature point 2, for media calibration
11035	8	R/W	Media calibration, point 3, temperature	4	Float32	°C	Read / Write temperature point 3, for media calibration

* N can be 1-30, and defines the index number in the conversion table.