

SB

Vendor ID 310 / 0x0136 - Bytes: 01 54 / 0x01 0x36
 Device ID 1045 / 0x000415 - Bytes: 00 04 21 / 0x00 0x04 0x15
 Vendor name ifm electronic gmbh
 Vendor text www.ifm.com
 Vendor URL <http://www.ifm.com/gb/en/downloadarea/IOContent>

**Communication**

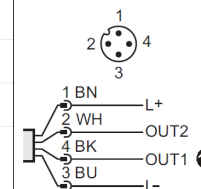
IO-Link revision V1.1
 Bit rate COM2
 Minimum cycle time 3.200 ms
 SIO mode supported Yes

Features

Block parametrization Yes
 Data storage Yes

Device variant

SB1234	Flow sensor, 1.00...50.00 l/min, G 3/4, 10 mm ² /s (40°C)
SB2234	Flow sensor, 1.00...50.00 l/min, G 3/4, 46 mm ² /s (40°C)
SB3244	Flow sensor, 1.00...50.00 l/min, G 1, 68 mm ² /s (40°C)

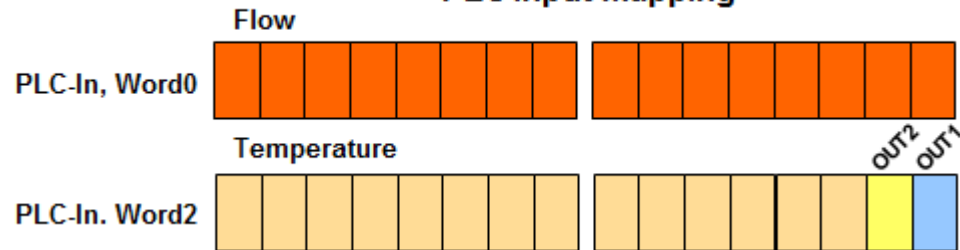


Process data
(Process data input)

Total bit length = 32

Name	Description	Data type	Bit length	Value range	Gradient	Offset	Unit
Flow	Current flow	IntegerT	16	0 to 6000 (32760) OL (32764) NoData	0.01	0	l/min
Temperature	Current temperature	IntegerT	14	-320 to 1220 (-8184) UL (8184) OL (-8186) cr.UL (8186) cr.OL (8188) NoData	0.1	0	°C
OUT2	Current status of the digital signal [OUT2]	BooleanT		(false) OFF (true) On			
OUT1	Current status of the digital signal [OUT1]	BooleanT		(false) OFF (true) On			

PLC input mapping



Variables

Name	Index	Subindex	Data type	Length	Access rights	Default	Value range	Gradient	Offset	Unit
Standard Command										
	2	Sub 0	UIntegerT	8 Bit	wo		(130) Restore Factory Settings (165) Reset [Hi.T] and [Lo.T] memory (166) Reset [Lo.T] memory (167) Reset [Hi.T] memory (240) IO-Link 1.1 system test command 240, Event 8DFE appears (241) IO-Link 1.1 system test command 241, Event 8DFE disappears (242) IO-Link 1.1 system test command 242, Event 8DFF appears (243) IO-Link 1.1 system test command 243, Event 8DFF disappears (255) Command without effect, for internal use only			
Device Access Locks										
	12	Sub 0	RecordT	16 Bit	rw					
<i>Data Storage</i>		bitOffs 1	BooleanT	1 Bit		(false)	(false) Unlocked (true) Locked			
<i>Local User Interface</i>		bitOffs 3	BooleanT	1 Bit		(false)	(false) Unlocked (true) Locked			
Vendor Name										
	16	Sub 0	StringT	max 19 Byte	ro	ifm electronic gmbh				
Vendor Text										
	17	Sub 0	StringT	max 11 Byte	ro	www.ifm.com				

Variables

Name	Index	Subindex	Data type	Length	Access rights	Default	Value range	Gradient	Offset	Unit
Product Name										
	18	Sub 0	StringT	max 6 Byte	ro					
Product ID										
	19	Sub 0	StringT	max 6 Byte	ro					
Product Text										
	20	Sub 0	StringT	max 23 Byte	ro	Mechatronic flow sensor				
Serial Number										
	21	Sub 0	StringT	max 12 Byte	ro					
Hardware Version										
	22	Sub 0	StringT	max 2 Byte	ro					
Firmware Version										
	23	Sub 0	StringT	max 5 Byte	ro					
Application Specific Tag										
	24	Sub 0	StringT	max 32 Byte	rw	***				

Variables

Name	Index	Subindex	Data type	Length	Access rights	Default	Value range	Gradient	Offset	Unit
Device Status	Device Status									
	36	Sub 0	UIntegerT	8 Bit	ro	(0) Device is OK	(0) Device is OK (1) Maintenance required (2) Out of specification (3) Functional check (4) Failure 5 to 255 (Reserved)			
Detailed Device Status	Detailed Device Status									
	37	Sub 0	ArrayT	24 Byte	ro	00 00 00 h				
P-n	Output polarity for the switching outputs									
	500	Sub 0	UIntegerT	8 Bit	rw	(0) PnP	(0) PnP (1) nPn			
dAP	Damping of the measured signal									
	510	Sub 0	UIntegerT	16 Bit	rw	1	0 to 50	0.1	0	s
dAA	Response time between process value change and change of the analog output									
	512	Sub 0	UIntegerT	16 Bit	rw	0	0 to 50	0.1	0	s
SEL1	Selection of the measurand for the evaluation via [OUT 1]									
	520	Sub 0	UIntegerT	8 Bit	rw	(2) TEMP	(1) FLOW (2) TEMP			
SEL2	Selection of the measurand for the evaluation via [OUT 2]									
	521	Sub 0	UIntegerT	8 Bit	rw	(1) FLOW	(1) FLOW (2) TEMP			

Variables

Name	Index	Subindex	Data type	Length	Access rights	Default	Value range	Gradient	Offset	Unit
FOU1	[OUT 1] behaviour in case of fault									
	531	Sub 0	UIntegerT	8 Bit	rw	(1) OU	(1) OU (2) On (4) OFF			
FOU2	[OUT 2] behaviour in case of fault									
	532	Sub 0	UIntegerT	8 Bit	rw	(1) OU	(1) OU (2) On (4) OFF			

Variables

Name	Index	Subindex	Data type	Length	Access rights	Default	Value range	Gradient	Offset	Unit
Active Events	Bit mask for current pending events									
	545	Sub 0	RecordT	32 Bit	ro					
<i>Bit_31, Bit 31 indicates the assigned pending event</i>		bitOffs 31	BooleanT	1 Bit		(0) noEv	(0) noEv (1) 0x8DFF			
<i>Bit_30, Bit 30 indicates the assigned pending event</i>		bitOffs 30	BooleanT	1 Bit		(0) noEv	(0) noEv (1) 0x8DFE			
<i>Bit_9, Bit 9 indicates the assigned pending event</i>		bitOffs 9	BooleanT	1 Bit		(0) noEv	(0) noEv (1) 0x8C30			
<i>Bit_8, Bit 8 indicates the assigned pending event</i>		bitOffs 8	BooleanT	1 Bit		(0) noEv	(0) noEv (1) 0x8C10			
<i>Bit_2, Bit 2 indicates the assigned pending event</i>		bitOffs 2	BooleanT	1 Bit		(0) noEv	(0) noEv (1) 0x7710			
<i>Bit_1, Bit 1 indicates the assigned pending event</i>		bitOffs 1	BooleanT	1 Bit		(0) noEv	(0) noEv (1) 0x6320			
<i>Bit_0, Bit 0 indicates the assigned pending event</i>		bitOffs 0	BooleanT	1 Bit		(0) noEv	(0) noEv (1) 0x5000			

Variables

Name	Index	Subindex	Data type	Length	Access rights	Default	Value range	Gradient	Offset	Unit
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Variables

Name	Index	Subindex	Data type	Length	Access rights	Default	Value range	Gradient	Offset	Unit
Param configuration fault	Displays the wrongly set parameters									
	546	Sub 0	ArrayT	10 * 32 Bit	ro	0	(0) OK (786432) DeviceAccessLocks (38207488) SP1 / FH1 - FLOW, Index = 583 (38338560) SP1 / FH1 - TEMP, Index = 585 (38273024) rP1 / FL1 - FLOW, Index = 584 (38404096) rP1 / FL1 - TEMP, Index = 586 (38862848) SP2 / FH2 - FLOW, Index = 593 (38993920) SP2 / FH2 - TEMP, Index = 595 (38928384) rP2 / FL2 - FLOW, Index = 594 (39059456) rP2 / FL2 - TEMP, Index = 596 (47316992) FSP1 - TEMP, Index = 722 (47251456) FEP1 - FLOW, Index = 721 (47382528) FEP1 - TEMP, Index = 723 (49807360) FrP1, Index = 760 (38010880) ou1, Index = 580 (38666240) ou2, Index = 590 (36110336) uni.F, Index = 551 (55115776) uni.T, Index = 841 (32768000) P-n, Index = 500			

Variables

Name	Index	Subindex	Data type	Length	Access rights	Default	Value range	Gradient	Offset	Unit
							(33423360) dAP, Index = 510 (33554432) dAA, Index = 512 (34799616) FOU1, Index = 531 (34865152) FOU2, Index = 532 (34078720) SEL1, Index = 520 (34144256) SEL2, Index = 521 (197132288) CGA, Index = 3008 (36306944) coLr, Index = 554 (36175872) diS, Index = 552 (36241408) SELd, Index = 553 (36044800) Loc, Index = 550			
Loc	[Loc] locks the local user interface to prevent unintentional changes, [Loc] is resettable at the device									
	550	Sub 0	UIntegerT	8 Bit	rw	(1) uLoc	(0) Loc (1) uLoc			
uni.F	Selection of flow unit									
	551	Sub 0	UIntegerT	8 Bit	rw	(0) l/min	(0) l/min (1) m³/h (2) gpm (3) gph			

Variables

Name	Index	Subindex	Data type	Length	Access rights	Default	Value range	Gradient	Offset	Unit
diS	Display settings									
	552	Sub 0	RecordT	16 Bit	rw					
<i>Display On / OFF</i>		bitOffs 7	BooleanT	1 Bit		(false) On	(false) On (true) OFF			
<i>Display orientation</i>		bitOffs 6	BooleanT	1 Bit		(false) Not rotated	(false) Not rotated (true) Rotated 180°			
<i>Update rate</i>		bitOffs 0	UIntegerT	6 Bit		(2) d2 / medium	(1) d1 / fast (2) d2 / medium (4) d3 / slow			
SELd	Selection of measurement on the sensor display									
	553	Sub 0	RecordT	16 Bit	rw					
<i>Displayed measurement</i>		bitOffs 0	UIntegerT	15 Bit		(1) FLOW	(1) FLOW (2) TEMP			
coLr	Colour configuration of the display									
	554	Sub 0	UIntegerT	8 Bit	rw	(2) rEd / Displayed value red	(2) rEd / Displayed value red (3) GrEn / Displayed value green (4) r1ou / Displayed value red when OUT1 switches (5) G1ou / Displayed value green when OUT1 switches (6) r2ou / Displayed value red when OUT2 switches (7) G2ou / Displayed value green when OUT2 switches			

Variables

Name	Index	Subindex	Data type	Length	Access rights	Default	Value range	Gradient	Offset	Unit
Hi.T	Maximum memory value for temperature									
	562	Sub 0	IntegerT	16 Bit	ro	()	-320 to 1220 (-8184) UL (8184) OL (-8186) cr.UL (8186) cr.OL (8188) NoData	0.1	0	°C
Lo.T	Minimum memory value for temperature									
	563	Sub 0	IntegerT	16 Bit	ro	()	-320 to 1220 (-8184) UL (8184) OL (-8186) cr.UL (8186) cr.OL (8188) NoData	0.1	0	°C
ou1	Output configuration [OUT 1]									
	580	Sub 0	UIntegerT	8 Bit	rw	(5) Fno / Window fct normally open	(3) Hno / Hysteresis fct normally open (4) Hnc / Hysteresis fct normally closed (5) Fno / Window fct normally open (6) Fnc / Window fct normally closed (17) FRQ			

Variables

Name	Index	Subindex	Data type	Length	Access rights	Default	Value range	Gradient	Offset	Unit
SP1 / FH1 - FLOW	Switch point 1 / Flow, [SP1] must be greater than [rP1]. Please take into account the current [rP1] value. [SP1] will be refused if below [rP1]. [SP] = [FH] and [rP] = [FL] if [OU1] = Fno, Fnc.									
	! Rounded on stepwidth !									
	583	Sub 0	IntegerT	16 Bit	rw	1000	35 to 5000	0.01	0	l/min
rP1 / FL1 - FLOW	Reset point 1 / Flow, [rP1] must be smaller than [SP1]. Please take into account the current [SP1] value.[rP1] will be refused if above [SP1]. [rP] = [FL] and [SP] = [FH] if [OU1] = Fno, Fnc.									
	! Rounded on stepwidth !									
	584	Sub 0	IntegerT	16 Bit	rw	950	0 to 4965	0.01	0	l/min
SP1 / FH1 - TEMP	Switch point 1 / Temperature, [SP1] must be greater than [rP1]. Please take into account the current [rP1] value. [SP1] will be refused if below [rP1]. [SP] = [FH] and [rP] = [FL] if [OU1] = Fno, Fnc.									
	! Rounded on stepwidth !									
	585	Sub 0	IntegerT	16 Bit	rw	700	-93 to 1000	0.1	0	°C
rP1 / FL1 - TEMP	Reset point 1 / Temperature, [rP1] must be smaller than [SP1]. Please take into account the current [SP1] value.[rP1] will be refused if above [SP1]. [rP] = [FL] and [SP] = [FH] if [OU1] = Fno, Fnc.									
	! Rounded on stepwidth !									
	586	Sub 0	IntegerT	16 Bit	rw	200	-100 to 993	0.1	0	°C
ou2	Output configuration [OUT 2]									
	590	Sub 0	UIntegerT	8 Bit	rw	(1) I / Analog signal 4...20 mA	(3) Hno / Hysteresis fct normally open (4) Hnc / Hysteresis fct normally closed (5) Fno / Window fct normally open (6) Fnc / Window fct normally closed (1) I / Analog signal 4...20 mA			

Variables

Name	Index	Subindex	Data type	Length	Access rights	Default	Value range	Gradient	Offset	Unit
SP2 / FH2 - FLOW	Switch point 2 / Flow, [SP2] must be greater than [rP2]. Please take into account the current [rP2] value. [SP2] will be refused if below [rP2]. [SP] = [FH] and [rP] = [FL] if [OU2] = Fno, Fnc.									
	! Rounded on stepwidth !									
	593	Sub 0	IntegerT	16 Bit	rw	2000	35 to 5000	0.01	0	l/min
rP2 / FL2 - FLOW	Reset point 2 / Flow, [rP2] must be smaller than [SP2]. Please take into account the current [SP2] value.[rP2] will be refused if above [SP2]. [rP] = [FL] and [SP] = [FH] if [OU2] = Fno, Fnc.									
	! Rounded on stepwidth !									
	594	Sub 0	IntegerT	16 Bit	rw	1950	0 to 4965	0.01	0	l/min
SP2 / FH2 - TEMP	Switch point 2 / Temperature, [SP2] must be greater than [rP2]. Please take into account the current [rP2] value. [SP2] will be refused if below [rP2]. [SP] = [FH] and [rP] = [FL] if [OU2] = Fno, Fnc.									
	! Rounded on stepwidth !									
	595	Sub 0	IntegerT	16 Bit	rw	340	-93 to 1000	0.1	0	°C
rP2 / FL2 - TEMP	Reset point 2 / Temperature, [rP2] must be smaller than [SP2]. Please take into account the current [SP2] value.[rP2] will be refused if above [SP2]. [rP] = [FL] and [SP] = [FH] if [OU2] = Fno, Fnc.									
	! Rounded on stepwidth !									
	596	Sub 0	IntegerT	16 Bit	rw	329	-100 to 993	0.1	0	°C
FEP1 - FLOW	Flow on [OUT1] at [FrP1]									
	721	Sub 0	IntegerT	16 Bit	rw	5000	335 to 5000	0.01	0	l/min
FSP1 - TEMP	Temperature on [OUT1] at 0 Hz									
	722	Sub 0	IntegerT	16 Bit	rw	-100	-100 to 780	0.1	0	°C
FEP1 - TEMP	Temperature on [OUT1] at [FrP1]									
	723	Sub 0	IntegerT	16 Bit	rw	1000	120 to 1000	0.1	0	°C

Variables

Name	Index	Subindex	Data type	Length	Access rights	Default	Value range	Gradient	Offset	Unit
FrP1	Absolute frequency maximum for [OUT 1].									
	! Rounded on stepwidth !									
	760	Sub 0	IntegerT	16 Bit	rw	100	1 to 1000	0.01	0	kHz
uni.T	Selection of temperature unit									
	841	Sub 0	UIntegerT	8 Bit	rw	(0) °C	(0) °C (1) °F			
CGA	Calibration gain									
	3008	Sub 0	IntegerT	16 Bit	rw	100	80 to 200	1	0	%

Events

Code	Name	Type	Description
35904 d / 8C 40 h	Maintenance required - Cleaning, Device Status = 1 (Maintenance required)	Notification	Clean device
35888 d / 8C 30 h	Process variable range under-run, Device Status = 2 (Out of specification)	Warning	Process data uncertain. Note: This Event will not be transmitted via IO-Link Event mechanism. It is only available by reading Index 37 (DetailedDeviceStatus) oder 545 (BitCoded_ActiveEvents)
35856 d / 8C 10 h	Process variable range over-run, Device Status = 2 (Out of specification)	Warning	Process data uncertain. Note: This Event will not be transmitted via IO-Link Event mechanism. It is only available by reading Index 37 (DetailedDeviceStatus) oder 545 (BitCoded_ActiveEvents)
30480 d / 77 10 h	Short circuit, Device Status = 3 (Functional check)	Error	Check installation
25376 d / 63 20 h	Parameter error, Device Status = 3 (Functional check)	Error	Check data sheet and values
20480 d / 50 00 h	Device hardware fault, Device Status = 4 (Failure)	Error	Device Exchange
36351 d / 8D FF h	Test Event 2. Device Status = 1 (Maintenance required)	Warning	Event appears by setting index 2 to value 242, Event disappears by setting index 2 to value 243

Events

Code	Name	Type	Description
36350 d / 8D FE h	Test Event 1. Device Status = 1 (Maintenance required)	Warning	Event appears by setting index 2 to value 240, Event disappears by setting index 2 to value 241

Error types

Error code	Name	Description
32768 d / 80 00 h	Device application error - no details	Service has been refused by the device application and no detailed information of the incident is available
32785 d / 80 11 h	Index not available	Access occurs to a not existing index
32786 d / 80 12 h	Subindex not available	Access occurs to a not existing subindex
32800 d / 80 20 h	Service temporarily not available	Parameter is not accessible due to the current state of the device application
32801 d / 80 21 h	Service temporarily not available - local control	Parameter is not accessible due to an ongoing local operation at the device
32802 d / 80 22 h	Service temporarily not available - device control	Parameter is not accessible due to a remote triggered state of the device application
32803 d / 80 23 h	Access denied	Write access on a read-only parameter
32816 d / 80 30 h	Parameter value out of range	Written parameter value is outside its permitted value range
32819 d / 80 33 h	Parameter length overrun	Written parameter length is above its predefined length
32820 d / 80 34 h	Parameter length underrun	Written parameter length is below its predefined length
32821 d / 80 35 h	Function not available	Written command is not supported by the device application
32822 d / 80 36 h	Function temporarily unavailable	Written command is not available due to the current state of the device application
32832 d / 80 40 h	Invalid parameter set	Written single parameter collides with other actual parameter settings
32833 d / 80 41 h	Inconsistent parameter set	Parameter inconsistencies were found at the end of block parameter transfer, device plausibility check failed
32898 d / 80 82 h	Application not ready	Read or write service is refused due to a temporarily unavailable application