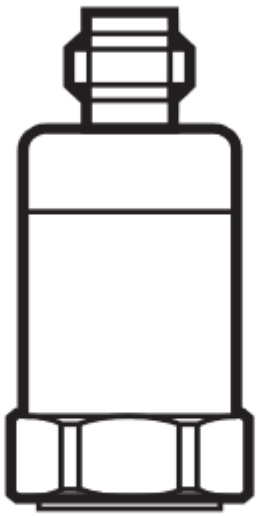
IO-Link Interface Description

VVB001

EN



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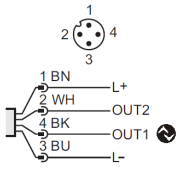
1 Device variant

VVB001 IO-Link vibration sensor, -50...50 g		

2 Communication

Vendor ID	0x0136 310 d / Bytes 1d 54d
Device ID	0x000404 1028 d / Bytes 0d 4d 4d
Bit rate	COM2
Minimum cycle time	11,6 ms
SIO mode supported	Yes
Block parameterization	Yes
Data storage	Yes
Supported profiles	BLOB, Binary Large Objects Identification and Diagnosis Measurement Data Channel (standard resolution)

NOTE:
If the Vendor ID and Device ID is referenced in your PLC system, then it is ensured that
- the connected Device type is correct
- the IO-Link datastorage is enabled
- your application is still able to work, even your Device has been exchanged with a successor model.

For process value update rate, as well as further information concerning sensor performance, see datasheet

3 Parameter overview

Parameter	Index	Subindex	Type	Factory setting	page
Vendor name	16		StringT (19 Byte)	ifm electronic gmbh	6
Vendor text	17		StringT (11 Byte)	www.ifm.com	8
Product Name	18		StringT (6 Byte)	VVB001	8
Product ID	19		StringT (6 Byte)	VVB001	8
Product Text	20		StringT (16 Byte)	Vibration sensor	8
Serial Number	21		StringT (12 Byte)		8
Hardware Version	22		StringT (2 Byte)		8
Firmware Version	23		StringT (5 Byte)		8
Application Specific Tag	24		StringT (32 Byte)	***	8
Function Tag	25		StringT (32 Byte)	***	8
Location Tag	26		StringT (32 Byte)	***	8
Device Status	36		UIntegerT (8 Bit)	0 (Device is OK)	17
Detailed Device Status	37		OctetStringT (3 byte) [9]	0x00,0x00,0x00	17
Process data input	40		RecordT (160 Bit)		10
BLOB ID	49		IntegerT (16 Bit)	0 (Idle)	16
P-n	500		UIntegerT (8 Bit)	0 (PnP)	11
SEL1	520		UIntegerT (8 Bit)	1 (v-Rms)	11
SEL2	521		UIntegerT (8 Bit)	1 (v-Rms)	11
FOU1	531		UIntegerT (8 Bit)	4 (OFF)	15
FOU2	532		UIntegerT (8 Bit)	4 (OFF)	15
Active Events	545		RecordT (32 Bit)		18
Param configuration fault	546		UIntegerT (32 Bit) [10]	0 (OK)	18
uni - v-Rms	551		UIntegerT (8 Bit)	0 (m/s)	15
Hi - v-Rms	560		IntegerT (16 Bit)		14
Hi - a-Peak	562		IntegerT (16 Bit)		14
Hi - a-Rms	564		IntegerT (16 Bit)		14
Hi.T	566		IntegerT (16 Bit)		14
Lo.T	567		IntegerT (16 Bit)		13
Hi - Crest	568		IntegerT (16 Bit)		14
ou1	580		UIntegerT (8 Bit)	4 (Hnc / Hysteresis fct normally closed)	11
dS1	581		UIntegerT (16 Bit)	0	11
dr1	582		UIntegerT (16 Bit)	0	11
SP1 (FH1) - v-Rms	583		IntegerT (16 Bit)	45	12
rP1 (FL1) - v-Rms	584		IntegerT (16 Bit)	43	12
SP1 (FH1) - a-Peak	585		IntegerT (16 Bit)	196	12
rP1 (FL1) - a-Peak	586		IntegerT (16 Bit)	176	12
SP1 (FH1) - a-Rms	587		IntegerT (16 Bit)	98	12
rP1 (FL1) - a-Rms	588		IntegerT (16 Bit)	78	12
ou2	590		UIntegerT (8 Bit)	4 (Hnc / Hysteresis fct normally closed)	11
dS2	591		UIntegerT (16 Bit)	0	12
dr2	592		UIntegerT (16 Bit)	0	12
SP2 (FH2) - v-Rms	593		IntegerT (16 Bit)	71	13
rP2 (FL2) - v-Rms	594		IntegerT (16 Bit)	69	13
SP2 (FH2) - a-Peak	595		IntegerT (16 Bit)	294	13
rP2 (FL2) - a-Peak	596		IntegerT (16 Bit)	274	13

3 Parameter overview

Parameter	Index	Subindex	Type	Factory setting	page
SP2 (FH2) - a-Rms	597		IntegerT (16 Bit)	196	13
rP2 (FL2) - a-Rms	598		IntegerT (16 Bit)	176	13
uni - a-Peak, a-Rms	841		UIntegerT (8 Bit)	0 (m/s²)	16
uni.T	843		UIntegerT (8 Bit)	0 (°C)	16
Selftest_Result	4114		UIntegerT (8 Bit)	252 (NoData)	16
FILT-DC	8000		RecordT (64 Bit)		14
FCUTOFF	8000	1	IntegerT (32 Bit)	10 (10 Hz)	
FTYPE	8000	2	IntegerT (32 Bit)	2 (Highpass)	
FILT-A	8001		RecordT (64 Bit)		15
FCUTOFF	8001	1	IntegerT (32 Bit)	5000 (5 kHz)	
FTYPE	8001	2	IntegerT (32 Bit)	0 (Bypass)	
FILT-V	8002		RecordT (64 Bit)		15
FCUTOFF	8002	1	IntegerT (32 Bit)	1000 (1 kHz)	
FTYPE	8002	2	IntegerT (32 Bit)	1 (Lowpass)	
MDC Descr	16512		RecordT (88 Bit)		16
Lower limit	16512	1	IntegerT (32 Bit)	0 (0)	
Upper limit	16512	2	IntegerT (32 Bit)	450 (450)	
Unit code	16512	3	UIntegerT (16 Bit)	1061 (m/s)	
Scale	16512	4	IntegerT (8 Bit)	-4 (-4)	

4 System Commands

System Command information
- Address: Index 2, Subindex 0
- Datatype: UInteger (8 Bit)
- AccessRight: Write Only

System Commands	Text	Description
1	Upload Start	Start block parameter upload
2	Upload End	End block parameter upload
3	Download Start	Start block parameter download
4	Download End	Stop block parameter download
5	Store	Finalize block parameterization and start Data Storage
6	Break	Cancel block parameterization
130	Restore Factory Settings	
165	Reset [Hi.T] and [Lo.T] memory	
166	Reset [Lo.T] memory	
167	Reset [Hi.T] memory	
178	Start self-test	
208	Reset [Hi / v-Rms]	
209	Reset [Hi / a-Peak]	
210	Reset [Hi / a-Rms]	
211	Reset [Hi / Crest]	
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	

5 Identification

Vendor name	Index 16	Subindex 0	StringT (19 Byte)	ReadOnly
Factory setting	**ifm electronic gmbh**			

Vendor text	Index 17	Subindex 0	StringT (11 Byte)	ReadOnly
Factory setting	**www.ifm.com**			

Product Name	Index 18	Subindex 0	StringT (6 Byte)	ReadOnly
Factory setting	**VVB001**			

Product Text	Index 20	Subindex 0	StringT (16 Byte)	ReadOnly
Factory setting	**Vibration sensor**			

Product ID	Index 19	Subindex 0	StringT (6 Byte)	ReadOnly
Factory setting	**VVB001**			

Serial Number	Index 21	Subindex 0	StringT (12 Byte)	ReadOnly

Hardware Version	Index 22	Subindex 0	StringT (2 Byte)	ReadOnly

Firmware Version	Index 23	Subindex 0	StringT (5 Byte)	ReadOnly

Application Specific Tag	Index 24	Subindex 0	StringT (32 Byte)	ReadWrite
Factory setting	*******			

Function Tag	Index 25	Subindex 0	StringT (32 Byte)	ReadWrite
Plant designation, describes the device functionality				
Factory setting	*******			

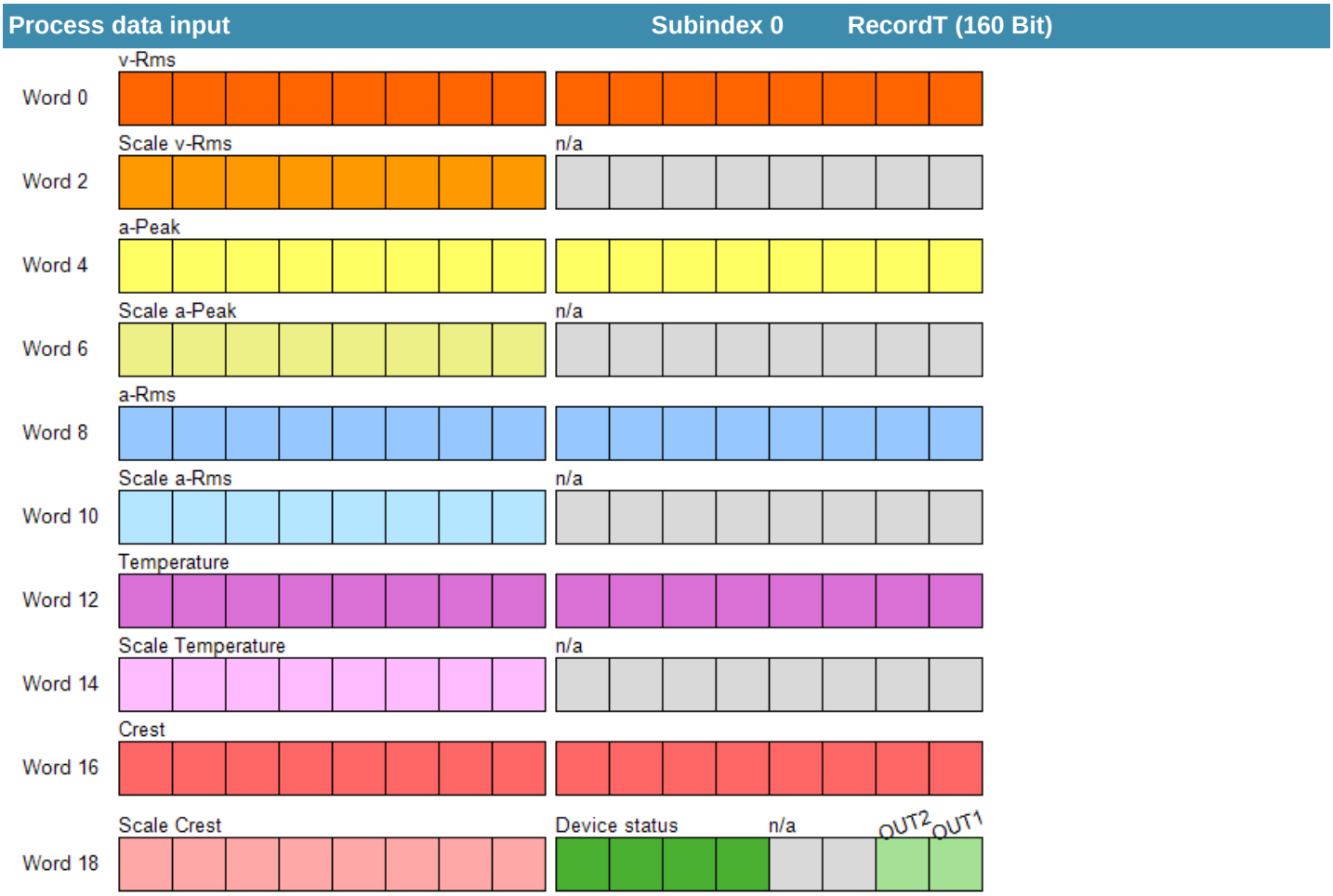
Location Tag	Index 26	Subindex 0	StringT (32 Byte)	ReadWrite
Location designation, identifies the device location				
Factory setting	*******			

6 Observation

6.1 Process Data Input/Output

Process data input		Subindex 0	RecordT (160 Bit)
v-Rms			IntegerT (16 Bit)
Speed effective value			
Value range [m/s]	(0 To 495) * 0.0001		
	32764	(NoData)	
a-Peak			IntegerT (16 Bit)
Acceleration peak value			
Value range [m/s²]	(0 To 4903) * 0.1		
	32764	(NoData)	
a-Rms			IntegerT (16 Bit)
Acceleration effective value			
Value range [m/s²]	(0 To 4903) * 0.1		
	32764	(NoData)	
Temperature			IntegerT (16 Bit)
Current temperature			
Value range [°C]	(-300 To 800) * 0.1		
	-32760	(UL)	
	32760	(OL)	
	-32762	(cr.UL)	
	32762	(cr.OL)	
	32764	(NoData)	
Crest			IntegerT (16 Bit)
Acceleration crest factor			
Value range	(10 To 500) * 0.1		
	32764	(NoData)	
Device status			UIntegerT (4 Bit)
Current device status, a copy of the parameter [Device Status, Index 36] in the process data channel			
Value range	0	(Device is OK)	
	1	(Maintenance required)	
	2	(Out of specification)	
	3	(Functional check)	
	4	(Failure)	
OUT2			BooleanT
Current status of the digital signal [OUT2]			
Value range	false	(OFF)	
	true	(On)	
OUT1			BooleanT
Current status of the digital signal [OUT1]			
Value range	false	(OFF)	
	true	(On)	

6 Observation



-Scale v-Rms: A PLC function block calculates the v-Rms part of the process data (from WORD 0) into the unit [m/s]
-Scale a-Peak: A PLC function block calculates the a-Peak part of the process data (from WORD 4) into the unit [m/s²]
-Scale a-Rms: A PLC function block calculates the a-Rms part of the process data (from WORD 8) into the unit [m/s²]
-Scale Temperature: A PLC function block calculates the temperature part of the process data (from WORD 12) into the unit [°C]
-Scale Crest: A PLC function block calculates the Crest part of the process data (from WORD 16)

Process data displayed according device sort order.
Please note: Siemens PLCs swap the high and low byte when using byte addressing.

7 Parameter

7.1 Output configuration

ou1	Index 580	Subindex 0	UIntegerT (8 Bit)	ReadWrite
Output configuration [OUT 1]				
Factory setting Value range	**4** 3 4 5 6	**(Hnc / Hysteresis fct normally closed)** (Hno / Hysteresis fct normally open) (Hnc / Hysteresis fct normally closed) (Fno / Window fct normally open) (Fnc / Window fct normally closed)		

ou2	Index 590	Subindex 0	UIntegerT (8 Bit)	ReadWrite
Output configuration [OUT 2]				
Factory setting Value range	**4** 3 4 5 6	**(Hnc / Hysteresis fct normally closed)** (Hno / Hysteresis fct normally open) (Hnc / Hysteresis fct normally closed) (Fno / Window fct normally open) (Fnc / Window fct normally closed)		

SEL1	Index 520	Subindex 0	UIntegerT (8 Bit)	ReadWrite
Selection of the measurand for the evaluation via [OUT 1]				
Factory setting Value range	**1** 1 2 3	**(v-Rms)** (v-Rms) (a-Peak) (a-Rms)		

SEL2	Index 521	Subindex 0	UIntegerT (8 Bit)	ReadWrite
Selection of the measurand for the evaluation via [OUT 2]				
Factory setting Value range	**1** 1 2 3	**(v-Rms)** (v-Rms) (a-Peak) (a-Rms)		

P-n	Index 500	Subindex 0	UIntegerT (8 Bit)	ReadWrite
Output polarity for the switching outputs				
Factory setting Value range	**0** 0 1	**(PnP)** (PnP) (nPn)		

7.2 Digital output 1

dS1	Index 581	Subindex 0	UIntegerT (16 Bit)	ReadWrite
Switching delay for [OUT 1]				
Factory setting Value range [s]	**0** (0 To 500) * 0.1			

dr1	Index 582	Subindex 0	UIntegerT (16 Bit)	ReadWrite
Reset delay for [OUT 1]				
Factory setting Value range [s]	**0** (0 To 500) * 0.1			

7 Parameter

7.2.1 Fatigue (v-Rms)

SP1 (FH1) - v-Rms	Index 583	Subindex 0	IntegerT (16 Bit)	ReadWrite
Switch point 1 / v-Rms. SP1 shall be above rP1. Min distance SP1...rP1 = 0.0002 m/s. For details, see operating manual.				
Factory setting	**45**			
Value range [m/s]	(2 To 450) * 0.0001			

rP1 (FL1) - v-Rms	Index 584	Subindex 0	IntegerT (16 Bit)	ReadWrite
Reset point 1 / v-Rms. Reset point 1 / v-Rms. rP1 shall be below SP1. Min distance SP1...rP1 ===> see SP1.				
Factory setting	**43**			
Value range [m/s]	(0 To 448) * 0.0001			

7.2.2 Impact (a-Peak)

SP1 (FH1) - a-Peak	Index 585	Subindex 0	IntegerT (16 Bit)	ReadWrite
Switch point 1 / a-Peak. SP1 shall be above rP1. Min distance SP1...rP1 = 2.0 m/s². For details, see operating manual.				
Factory setting	**196**			
Value range [m/s²]	(20 To 4903) * 0.1			

rP1 (FL1) - a-Peak	Index 586	Subindex 0	IntegerT (16 Bit)	ReadWrite
Reset point 1 / a-Peak. Reset point 1 / a-Peak. rP1 shall be below SP1. Min distance SP1...rP1 ===> see SP1.				
Factory setting	**176**			
Value range [m/s²]	(0 To 4883) * 0.1			

7.2.3 Friction (a-Rms)

SP1 (FH1) - a-Rms	Index 587	Subindex 0	IntegerT (16 Bit)	ReadWrite
Switch point 1 / a-Rms. SP1 shall be above rP1. Min distance SP1...rP1 = 2.0 m/s². For details, see operating manual.				
Factory setting	**98**			
Value range [m/s²]	(20 To 4903) * 0.1			

rP1 (FL1) - a-Rms	Index 588	Subindex 0	IntegerT (16 Bit)	ReadWrite
Reset point 1 / a-Rms. Reset point 1 / a-Rms. rP1 shall be below SP1. Min distance SP1...rP1 ===> see SP1.				
Factory setting	**78**			
Value range [m/s²]	(0 To 4883) * 0.1			

7.3 Digital output 2

dS2	Index 591	Subindex 0	UIntegerT (16 Bit)	ReadWrite
Switching delay for [OUT 2]				
Factory setting	**0**			
Value range [s]	(0 To 500) * 0.1			

dr2	Index 592	Subindex 0	UIntegerT (16 Bit)	ReadWrite
Reset delay for [OUT 2]				
Factory setting	**0**			
Value range [s]	(0 To 500) * 0.1			

7 Parameter

7.3.1 Fatigue (v-Rms)

SP2 (FH2) - v-Rms	Index 593	Subindex 0	IntegerT (16 Bit)	ReadWrite
Switch point 2 / v-Rms. SP2 shall be above rP2. Min distance SP2...rP2 = 0.0002 m/s. For details, see operating manual.				
Factory setting	**71**			
Value range [m/s]	(2 To 450) * 0.0001			

rP2 (FL2) - v-Rms	Index 594	Subindex 0	IntegerT (16 Bit)	ReadWrite
Reset point 2 / v-Rms. Reset point 2 / v-Rms. rP2 shall be below SP2. Min distance SP2...rP2 ===> see SP2.				
Factory setting	**69**			
Value range [m/s]	(0 To 448) * 0.0001			

7.3.2 Impact (a-Peak)

SP2 (FH2) - a-Peak	Index 595	Subindex 0	IntegerT (16 Bit)	ReadWrite
Switch point 2 / a-Peak. SP2 shall be above rP2. Min distance SP2...rP2 = 2.0 m/s². For details, see operating manual.				
Factory setting	**294**			
Value range [m/s²]	(20 To 4903) * 0.1			

rP2 (FL2) - a-Peak	Index 596	Subindex 0	IntegerT (16 Bit)	ReadWrite
Reset point 2 / a-Peak. Reset point 2 / a-Peak. rP2 shall be below SP2. Min distance SP2...rP2 ===> see SP2.				
Factory setting	**274**			
Value range [m/s²]	(0 To 4883) * 0.1			

7.3.3 Friction (a-Rms)

SP2 (FH2) - a-Rms	Index 597	Subindex 0	IntegerT (16 Bit)	ReadWrite
Switch point 2 / a-Rms. SP2 shall be above rP2. Min distance SP2...rP2 = 2.0 m/s². For details, see operating manual.				
Factory setting	**196**			
Value range [m/s²]	(20 To 4903) * 0.1			

rP2 (FL2) - a-Rms	Index 598	Subindex 0	IntegerT (16 Bit)	ReadWrite
Reset point 2 / a-Rms. Reset point 2 / a-Rms. rP2 shall be below SP2. Min distance SP2...rP2 ===> see SP2.				
Factory setting	**176**			
Value range [m/s²]	(0 To 4883) * 0.1			

7.4 Memory

7.4.1 Temperature

Lo.T	Index 567	Subindex 0	IntegerT (16 Bit)	ReadOnly
Minimum memory value for temperature				
Value range [°C]	(-300 To 800) * 0.1			
	-32760	(UL)		
	32760	(OL)		
	-32762	(cr.UL)		
	32762	(cr.OL)		
	32764	(NoData)		

7 Parameter

Hi.T	Index 566	Subindex 0	IntegerT (16 Bit)	ReadOnly
Maximum memory value for temperature				
Value range [°C]	(-300 To 800) * 0.1 -32760 32760 -32762 32762 32764	 (UL) (OL) (cr.UL) (cr.OL) (NoData)		

7.4.2 Fatigue (v-Rms)

Hi - v-Rms	Index 560	Subindex 0	IntegerT (16 Bit)	ReadOnly
Maximum memory value / v-Rms				
Value range [m/s]	(0 To 495) * 0.0001			

7.4.3 Impact (a-Peak)

Hi - a-Peak	Index 562	Subindex 0	IntegerT (16 Bit)	ReadOnly
Maximum memory value / a-Peak				
Value range [m/s²]	(0 To 4903) * 0.1			

7.4.4 Friction (a-Rms)

Hi - a-Rms	Index 564	Subindex 0	IntegerT (16 Bit)	ReadOnly
Maximum memory value / a-Rms				
Value range [m/s²]	(0 To 4903) * 0.1			

7.4.5 Crest

Hi - Crest	Index 568	Subindex 0	IntegerT (16 Bit)	ReadOnly
Maximum memory value / Crest				
Value range	(10 To 500) * 0.1			

7.5 Signal

FILT-DC	Index 8000	Subindex 0	RecordT (64 Bit)	ReadWrite
Configuration of the DC blocker filter				
FCUTOFF		Subindex 1	IntegerT (32 Bit)	
Cutoff frequency				
Factory setting Value range	**10** 2 10	**(10 Hz)** (2 Hz) (10 Hz)		
FTYPE		Subindex 2	IntegerT (32 Bit)	
Type of filter				
Factory setting Value range	**2** 2	**(Highpass)** (Highpass)		

7 Parameter

FILT-A	Index 8001	Subindex 0	RecordT (64 Bit)	ReadWrite
Configuration of the filter for acceleration measurement				
FCUTOFF		Subindex 1	IntegerT (32 Bit)	
Cutoff frequency				
Factory setting Value range	**5000** 1000 3000 5000	**(5 kHz)** (1 kHz) (3 kHz) (5 kHz)		
FTYPE		Subindex 2	IntegerT (32 Bit)	
Type of filter				
Factory setting Value range	**0** 0 1 2	**(Bypass)** (Bypass) (Lowpass) (Highpass)		

FILT-V	Index 8002	Subindex 0	RecordT (64 Bit)	ReadWrite
Configuration of the filter for speed measurement				
FCUTOFF		Subindex 1	IntegerT (32 Bit)	
Cutoff frequency				
Factory setting Value range	**1000** 1000	**(1 kHz)** (1 kHz)		
FTYPE		Subindex 2	IntegerT (32 Bit)	
Type of filter				
Factory setting Value range	**1** 1	**(Lowpass)** (Lowpass)		

7.6 Fault Configuration Output 1

FOU1	Index 531	Subindex 0	UIntegerT (8 Bit)	ReadWrite
[OUT 1] behaviour in case of fault				
Factory setting Value range	**4** 1 2 4	**(OFF)** (OU) (On) (OFF)		

7.7 Fault Configuration Output 2

FOU2	Index 532	Subindex 0	UIntegerT (8 Bit)	ReadWrite
[OUT 2] behaviour in case of fault				
Factory setting Value range	**4** 1 2 4	**(OFF)** (OU) (On) (OFF)		

7.8 Setting of the sensor display

uni - v-Rms	Index 551	Subindex 0	UIntegerT (8 Bit)	ReadWrite
Selection of the physical unit / v-Rms				
Factory setting Value range	**0** 0 1 2	**(m/s)** (m/s) (mm/s) (in/s)		

7 Parameter

uni - a-Peak, a-Rms	Index 841	Subindex 0	UIntegerT (8 Bit)	ReadWrite
Selection of the physical unit / a-Peak, a-Rms				
Factory setting Value range	**0** 0 1 2	**(m/s²)** (m/s²) (g0) (mg0)		

uni.T	Index 843	Subindex 0	UIntegerT (8 Bit)	ReadWrite
Selection of temperature unit				
Factory setting Value range	**0** 0 1	**(°C)** (°C) (°F)		

7.9 Setup

Selftest_Result	Index 4114	Subindex 0	UIntegerT (8 Bit)	ReadOnly
Result of the last self-test				
Factory setting Value range	**252** 0 7 252	**(NoData)** (All_Fail / All Axis failed) (All_OK / all Axis OK) (NoData)		

MDC Descr	Index 16512	Subindex 0	RecordT (88 Bit)	ReadOnly
Description of the measurement data channel				
Lower limit		Subindex 1	IntegerT (32 Bit)	
Lower value measurement range				
Factory setting Value range	**0** 0	**(0)** (0)		
Upper limit		Subindex 2	IntegerT (32 Bit)	
Upper value measurement range				
Factory setting Value range	**450** 450	**(450)** (450)		
Unit code		Subindex 3	UIntegerT (16 Bit)	
Unit code of the measurement data				
Factory setting Value range	**1061** 1061	**(m/s)** (m/s)		
Scale		Subindex 4	IntegerT (8 Bit)	
Range shifting (10 scale)				
Factory setting Value range	**-4** -4	**(-4)** (-4)		

BLOB ID	Index 49	Subindex 0	IntegerT (16 Bit)	ReadOnly
ID of the BLOB that is currently transferred				
Factory setting Value range	**0** 0 -4096	**(Idle)** (Idle) (Read raw data)		

8 Diagnosis

8.1 Diagnosis

Device Status	Index 36	Subindex 0	UIntegerT (8 Bit)	ReadOnly
Factory setting	**0**	**(Device is OK)**		
Value range	0	(Device is OK)		
	1	(Maintenance required)		
	2	(Out of specification)		
	3	(Functional check)		
	4	(Failure)		
	(5 To 255) (Reserved)			

Detailed Device Status	Index 37	Subindex 0	OctetStringT (3 byte) [9]	ReadOnly
Factory setting	**0x00,0x00,0x00**			

Active Events	Index 545	Subindex 0	RecordT (32 Bit)	ReadOnly
Bit mask for current pending events				
Bit_31		bitOffset 31	BooleanT	
Test Event 2. Device Status = 1 (Maintenance required)				
Factory setting	**0**	**(noEv)**		
Value range	0	(noEv)		
	1	(0x8DFF)		
Bit_30		bitOffset 30	BooleanT	
Test Event 1. Device Status = 1 (Maintenance required)				
Factory setting	**0**	**(noEv)**		
Value range	0	(noEv)		
	1	(0x8DFE)		
Bit_18		bitOffset 18	BooleanT	
Selftest active. Device Status = 2 (Out of specification)				
Factory setting	**0**	**(noEv)**		
Value range	0	(noEv)		
	1	(0x8CDD)		
Bit_17		bitOffset 17	BooleanT	
Measurement range over-run				
Factory setting	**0**	**(noEv)**		
Value range	0	(noEv)		
	1	(0x8C20)		
Bit_9		bitOffset 9	BooleanT	
Process variable range under-run				
Factory setting	**0**	**(noEv)**		
Value range	0	(noEv)		
	1	(0x8C30)		
Bit_8		bitOffset 8	BooleanT	
Process variable range over-run				
Factory setting	**0**	**(noEv)**		
Value range	0	(noEv)		
	1	(0x8C10)		
Bit_2		bitOffset 2	BooleanT	
Short circuit				
Factory setting	**0**	**(noEv)**		
Value range	0	(noEv)		
	1	(0x7710)		

8 Diagnosis

Active Events	Index 545	Subindex 0	RecordT (32 Bit)	ReadOnly
Bit_1		bitOffset 1	BooleanT	
Parameter error				
Factory setting Value range	**0** 0 1	**(noEv)** (noEv) (0x6320)		
Bit_0		bitOffset 0	BooleanT	
Device hardware fault				
Factory setting Value range	**0** 0 1	**(noEv)** (noEv) (0x5000)		

Param configuration fault	Index 546	Subindex 0	UIntegerT (32 Bit) [10]	ReadOnly
Displays the incorrectly set parameters				
Factory setting Value range	**0** 0 786432 524353536 524353537 524353538 524288000 524288001 524288002 524419072 524419073 524419074 34799616 34865152 32768000 34078720 34144256 38207488 38338560 38469632 38862848 38993920 39124992 38076416 38731776 38141952 38797312 38010880 38666240 38273024 38404096 38535168 38928384 39059456 39190528 55246848 36110336 55115776	**(OK)** (OK) (Device Access Locks, Index = 12) (FILT-A, Index = 8001) (FILT-A, Index = 8001, Subindex = 1) (FILT-A, Index = 8001, Subindex = 2) (FILT-DC, Index = 8000) (FILT-DC, Index = 8000, Subindex = 1) (FILT-DC, Index = 8000, Subindex = 2) (FILT-V, Index = 8002) (FILT-V, Index = 8002, Subindex = 1) (FILT-V, Index = 8002, Subindex = 2) (FOU1, Index = 531) (FOU2, Index = 532) (P-n, Index = 500) (SEL1, Index = 520) (SEL2, Index = 521) (SP1 (FH1) - v-Rms, Index = 583) (SP1 (FH1) - a-Peak, Index = 585) (SP1 (FH1) - a-Rms, Index = 587) (SP2 (FH2) - v-Rms, Index = 593) (SP2 (FH2) - a-Peak, Index = 595) (SP2 (FH2) - a-Rms, Index = 597) (dS1, Index = 581) (dS2, Index = 591) (dr1, Index = 582) (dr2, Index = 592) (ou1, Index = 580) (ou2, Index = 590) (rP1 (FL1) - v-Rms, Index = 584) (rP1 (FL1) - a-Peak, Index = 586) (rP1 (FL1) - a-Rms, Index = 588) (rP2 (FL2) - v-Rms, Index = 594) (rP2 (FL2) - a-Peak, Index = 596) (rP2 (FL2) - a-Rms, Index = 598) (uni.T, Index = 843) (uni - v-Rms, Index = 551) (uni - a-Peak, a-Rms, Index = 841)		

9 Events

Code	Device status	PQ*	Class	Name	Description
0x5000 20480d	4 (Failure)	invalid	Error	Device hardware fault	Device Exchange
0x6320 25376d	3 (Functional check)	invalid	Error	Parameter error	Check data sheet and values
0x7710 30480d	3 (Functional check)	valid	Error	Short circuit	Check installation
0x8C10 35856d	2 (Out of specification)	valid	Warning	Process variable range over-run	Process data uncertain
0x8C20 35872d	3 (Functional check)	valid	Error	Measurement range over-run	Check application
0x8C30 35888d	2 (Out of specification)	valid	Warning	Process variable range under-run	Process data uncertain
0x8CDD 36061d	2 (Out of specification)	valid	Warning	Selftest active. Device Status = 2 (Out of specification)	Device in Selftestmode. Please wait until selftest finished
0x8DFE 36350d	1 (Maintenance required)	valid	Warning	Test Event 1. Device Status = 1 (Maintenance required)	Event appears by setting index 2 to value 240, Event disappears by setting index 2 to value 241
0x8DFF 36351d	1 (Maintenance required)	valid	Warning	Test Event 2. Device Status = 1 (Maintenance required)	Event appears by setting index 2 to value 242, Event disappears by setting index 2 to value 243

Events are raised by the device itself to notify irregular device states
PQ* = Process data quality

10 Error types

Code	Name	Description
0x8000 32768d	Device application error - no details	Service has been refused by the device application and no detailed information of the incident is available
0x8011 32785d	Index not available	Access occurs to a not existing index
0x8012 32786d	Subindex not available	Access occurs to a not existing subindex
0x8020 32800d	Service temporarily not available	Parameter is not accessible due to the current state of the device application
0x8021 32801d	Service temporarily not available - local control	Parameter is not accessible due to an ongoing local operation at the device
0x8022 32802d	Service temporarily not available - device control	Parameter is not accessible due to a remote triggered state of the device application
0x8023 32803d	Access denied	Write access on a read-only parameter
0x8030 32816d	Parameter value out of range	Written parameter value is outside its permitted value range
0x8033 32819d	Parameter length overrun	Written parameter length is above its predefined length
0x8034 32820d	Parameter length underrun	Written parameter length is below its predefined length
0x8035 32821d	Function not available	Written command is not supported by the device application
0x8036 32822d	Function temporarily unavailable	Written command is not available due to the current state of the device application
0x8040 32832d	Invalid parameter set	Written single parameter collides with other actual parameter settings
0x8041 32833d	Inconsistent parameter set	Parameter inconsistencies were found at the end of block parameter transfer, device plausibility check failed
0x8082 32898d	Application not ready	Read or write service is refused due to a temporarily unavailable application

Error types are used for the ISDU response. Values unequal '0' indicate the cause of a failed ISDU read or write service.

11 Unit conversion

This list provides conversion formulas to convert the transmitted IO-Link raw data into physical units.

Value in [m/s²]	= Transmitted value	*	0.1
Value in [mg]	= Transmitted value	*	10.1971621297793
Value in [g]	= Transmitted value	*	0.0101971621297793
Value in [m/s]	= Transmitted value	*	0.0001
Value in [in/s]	= Transmitted value	*	0.0039370079
Value in [mm/s]	= Transmitted value	*	0.1
Value in [°C]	= Transmitted value	*	0.1
Value in [°F]	= Transmitted value	*	0.18 + 32