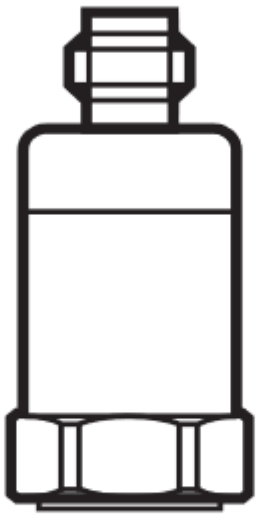
IO-Link Interface Description

VVB020 Status B

EN



IODD-PDFCreator V 2.1.0.9
ifm-000559-20201127-IODD1.1, V1.3.66.1043016
Copyright 2020, Builder: 4.5.1.5, Time: 11:30:17

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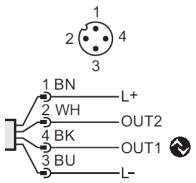
1 Device variant

VVB020 Status B IO-Link vibration sensor, -50...50 g		

2 Communication

Vendor ID	310 / Bytes 1-54 (hex: 01-36)
Device ID	1369 / Bytes 0-5-89 (hex: 00-05-59)
Bit rate	COM3
Minimum cycle time	3,6 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	10
Vendor text	17		StringT (11 Byte)	www.ifm.com	10
Product Name	18		StringT (15 Byte)	VVB020 Status B	10
Product ID	19		StringT (6 Byte)	VVB020	10
Product Text	20		StringT (16 Byte)	Vibration sensor	10
Serial Number	21		StringT (12 Byte)		10
Hardware Revision	22		StringT (2 Byte)		10
Firmware Revision	23		StringT (5 Byte)		10
Application-specific Tag	24		StringT (32 Byte)	***	10
Function Tag	25		StringT (32 Byte)	***	10
Location Tag	26		StringT (32 Byte)	***	10
Device Status	36		UIntegerT (8 Bit)	0 (Device is OK)	22
Detailed Device Status	37		OctetStringT (3 Byte) [9]	0x00,0x00,0x00	22
Process data input	40		RecordT (160 Bit)		12
Process data output	41		RecordT (8 Bit)		12
BLOB ID	49		IntegerT (16 Bit)	0 (Idle)	21
P-n	500		UIntegerT (8 Bit)	0 (PnP)	13
SEL1	520		UIntegerT (8 Bit)	1 (v-RMS)	13
SEL2	521		UIntegerT (8 Bit)	3 (a-RMS)	13
Event counter collection	529		RecordT (288 Bit)		23
Event counter 0x5000	529	1	IntegerT (32 Bit)		
Event counter 0x6320	529	2	IntegerT (32 Bit)		
Event counter 0x7710	529	3	IntegerT (32 Bit)		
Event counter 0x8C10	529	4	IntegerT (32 Bit)		
Event counter 0x8C30	529	5	IntegerT (32 Bit)		
Event counter 0x8C20	529	6	IntegerT (32 Bit)		
Event counter 0x8CDD	529	7	IntegerT (32 Bit)		
Event counter 0x8DFE	529	8	IntegerT (32 Bit)		
Event counter 0x8DFF	529	9	IntegerT (32 Bit)		
FOU1	531		UIntegerT (8 Bit)	4 (OFF)	18
FOU2	532		UIntegerT (8 Bit)	4 (OFF)	18
Event history	539		UIntegerT (16 Bit) [20]	0 (noEvent)	22
Power cycles	541		IntegerT (32 Bit)	0	23
Operating hours	542		IntegerT (32 Bit)		23
Internal temperature	543		IntegerT (16 Bit)		25
Active Events	545		RecordT (32 Bit)		24
Param configuration fault	546		UIntegerT (32 Bit) [10]	0 (OK)	25
uni - v-RMS	551		UIntegerT (8 Bit)	0 (m/s)	19
Hi - v-RMS	560		IntegerT (16 Bit)		17
Hi - a-Peak	562		IntegerT (16 Bit)		17
Hi - a-RMS	564		IntegerT (16 Bit)		17
Hi.T	566		IntegerT (16 Bit)		17
Lo.T	567		IntegerT (16 Bit)		16
Hi - Crest	568		IntegerT (16 Bit)		17
ou1	580		UIntegerT (8 Bit)	4 (Hnc / Hysteresis fct normally closed)	13

3 Parameter overview

Parameter	Index	Subindex	Type	Factory setting	page
dS1	581		UIntegerT (16 Bit)	0	13
dr1	582		UIntegerT (16 Bit)	0	13
SP1 (FH1) - v-RMS	583		IntegerT (16 Bit)	28	14
rP1 (FL1) - v-RMS	584		IntegerT (16 Bit)	26	14
SP1 (FH1) - a-Peak	585		IntegerT (16 Bit)	98	14
rP1 (FL1) - a-Peak	586		IntegerT (16 Bit)	78	14
SP1 (FH1) - a-RMS	587		IntegerT (16 Bit)	24	14
rP1 (FL1) - a-RMS	588		IntegerT (16 Bit)	4	14
ou2	590		UIntegerT (8 Bit)	4 (Hnc / Hysteresis fct normally closed)	13
dS2	591		UIntegerT (16 Bit)	0	15
dr2	592		UIntegerT (16 Bit)	0	15
SP2 (FH2) - v-RMS	593		IntegerT (16 Bit)	45	15
rP2 (FL2) - v-RMS	594		IntegerT (16 Bit)	43	15
SP2 (FH2) - a-Peak	595		IntegerT (16 Bit)	196	16
rP2 (FL2) - a-Peak	596		IntegerT (16 Bit)	176	16
SP2 (FH2) - a-RMS	597		IntegerT (16 Bit)	44	16
rP2 (FL2) - a-RMS	598		IntegerT (16 Bit)	24	16
Installation date	834		StringT (32 Byte)		10
uni - a-Peak, a-RMS	841		UIntegerT (8 Bit)	0 (m/s²)	19
uni.T	843		UIntegerT (8 Bit)	0 (°C)	19
Selftest_Result	4114		UIntegerT (8 Bit)	252 (NoData)	19
FILT-DC	8000		RecordT (64 Bit)		18
FCUTOFF	8000	1	IntegerT (32 Bit)	10 (10 Hz)	
FTYPE	8000	2	IntegerT (32 Bit)	2 (Highpass)	
FILT-A	8001		RecordT (64 Bit)		18
FCUTOFF	8001	1	IntegerT (32 Bit)	5000 (5 kHz)	
FTYPE	8001	2	IntegerT (32 Bit)	1 (Lowpass)	
FILT-V	8002		RecordT (64 Bit)		18
FCUTOFF	8002	1	IntegerT (32 Bit)	1000 (1 kHz)	
FTYPE	8002	2	IntegerT (32 Bit)	1 (Lowpass)	
Machine monitoring	8003		RecordT (64 Bit)		23
Machine operation t...	8003	1	IntegerT (32 Bit)		
Machine run-up coun...	8003	2	IntegerT (32 Bit)		
Machine run-up counter ...	8005		IntegerT (32 Bit)	4	23
SP1 (FH1) - TEMP	8583		IntegerT (16 Bit)	600	14
rP1 (FL1) - TEMP	8584		IntegerT (16 Bit)	580	14
SP1 (FH1) - Crest	8585		IntegerT (16 Bit)	50	15
rP1 (FL1) - Crest	8586		IntegerT (16 Bit)	40	15
SP2 (FH2) - TEMP	8593		IntegerT (16 Bit)	800	15
rP2 (FL2) - TEMP	8594		IntegerT (16 Bit)	780	15
SP2 (FH2) - Crest	8595		IntegerT (16 Bit)	70	16
rP2 (FL2) - Crest	8596		IntegerT (16 Bit)	60	16
MDC Descr	16512		RecordT (88 Bit)		19
Lower limit	16512	1	IntegerT (32 Bit)	0 (0)	
Upper limit	16512	2	IntegerT (32 Bit)	450 (450)	

3 Parameter overview

Parameter	Index	Subindex	Type	Factory setting	page
Unit code	16512	3	UIntegerT (16 Bit)	1061 (m/s)	
Scale	16512	4	IntegerT (8 Bit)	-4 (-4)	
MDC 2 Descr	16513		RecordT (88 Bit)		20
Lower limit	16513	1	IntegerT (32 Bit)	0 (0)	
Upper limit	16513	2	IntegerT (32 Bit)	4903 (4903)	
Unit code	16513	3	UIntegerT (16 Bit)	1076 (m/s²)	
Scale	16513	4	IntegerT (8 Bit)	-1 (-1)	
MDC 3 Descr	16514		RecordT (88 Bit)		20
Lower limit	16514	1	IntegerT (32 Bit)	0 (0)	
Upper limit	16514	2	IntegerT (32 Bit)	4903 (4903)	
Unit code	16514	3	UIntegerT (16 Bit)	1076 (m/s²)	
Scale	16514	4	IntegerT (8 Bit)	-1 (-1)	
MDC 4 Descr	16515		RecordT (88 Bit)		21
Lower limit	16515	1	IntegerT (32 Bit)	-300 (-300)	
Upper limit	16515	2	IntegerT (32 Bit)	800 (800)	
Unit code	16515	3	UIntegerT (16 Bit)	1001 (°C)	
Scale	16515	4	IntegerT (8 Bit)	-1 (-1)	

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	
173	Reset Event history	
174	Reset Event counter	
178	Start self-test	
208	Reset [Hi / v-RMS]	
209	Reset [Hi / a-Peak]	
210	Reset [Hi / a-RMS]	
211	Reset [Hi / Crest]	
212	Raw data record	
213	Reset machine operation time	

4 System Commands

214	Reset machine run-up counter
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
The vendor name that is assigned to a Vendor ID.				
Factory setting	**ifm electronic gmbh**			

Vendor text	Index 17	Subindex 0	StringT (11 Byte)	ReadOnly
Additional information about the vendor.				
Factory setting	**www.ifm.com**			

Product Name	Index 18	Subindex 0	StringT (15 Byte)	ReadOnly
Complete product name.				
Factory setting	**VVB020 Status B**			

Product Text	Index 20	Subindex 0	StringT (16 Byte)	ReadOnly
Additional product information for the device.				
Factory setting	**Vibration sensor**			

Product ID	Index 19	Subindex 0	StringT (6 Byte)	ReadOnly
Vendor-specific product or type identification (e.g., item number or model number).				
Factory setting	**VVB020**			

Serial Number	Index 21	Subindex 0	StringT (12 Byte)	ReadOnly
Unique, vendor-specific identifier of the individual device.				

Hardware Revision	Index 22	Subindex 0	StringT (2 Byte)	ReadOnly
Unique, vendor-specific identifier of the hardware revision of the individual device.				

Firmware Revision	Index 23	Subindex 0	StringT (5 Byte)	ReadOnly
Unique, vendor-specific identifier of the firmware revision of the individual device.				

Application-specific Tag	Index 24	Subindex 0	StringT (32 Byte)	ReadWrite
Possibility to mark a device with user- or application-specific information.				
Factory setting	***			

Function Tag	Index 25	Subindex 0	StringT (32 Byte)	ReadWrite
Possibility to mark a device with function-specific information.				
Factory setting	***			

Location Tag	Index 26	Subindex 0	StringT (32 Byte)	ReadWrite
Possibility to mark a device with location-specific information.				
Factory setting	***			

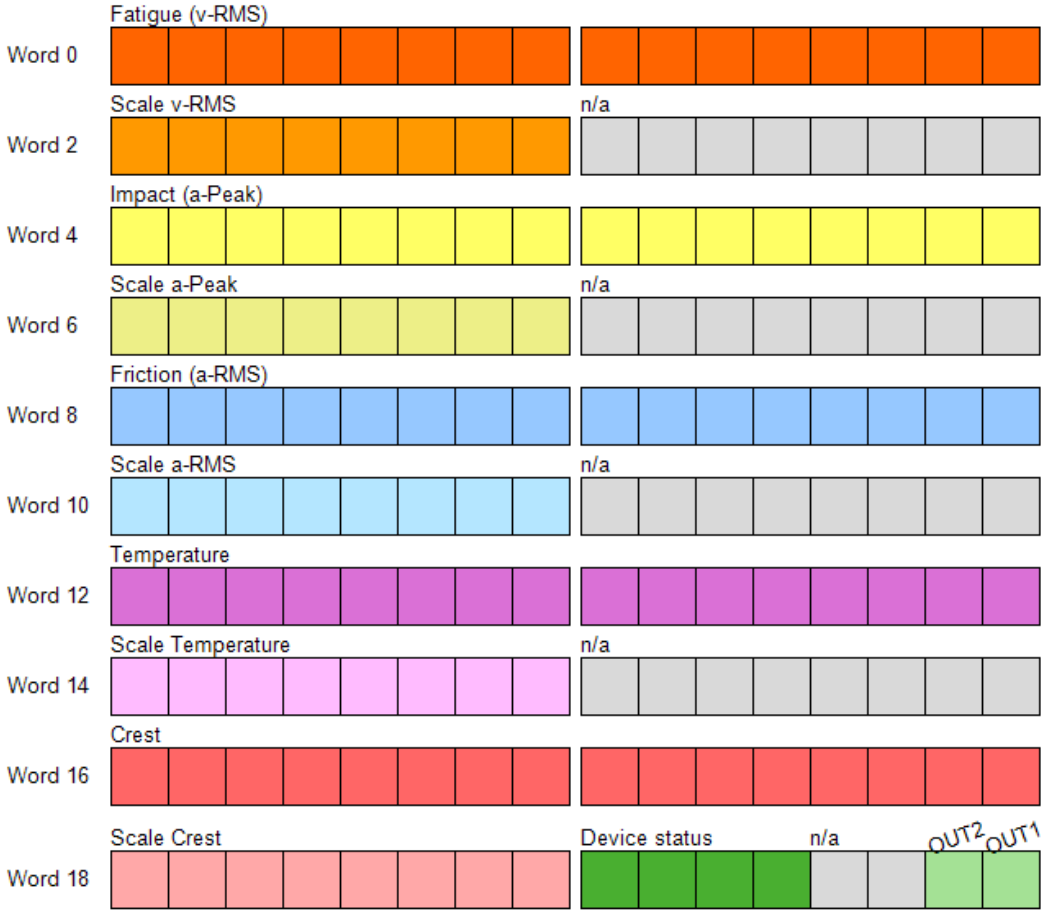
Installation date	Index 834	Subindex 0	StringT (32 Byte)	ReadWrite
Date of device installation within the plant or machine. Please note: This parameter will not be restored on device replacement. A new installation date must be written to the device after replacement.				

6 Observation

6.1 Process Data Input/Output

Process data input			RecordT (160 Bit)
Fatigue (v-RMS)			IntegerT (16 Bit)
Speed effective value			
Value range [m/s]	(0 to 495) * 0.0001		
	32760	(OL)	
	32764	(NoData)	
Impact (a-Peak)			IntegerT (16 Bit)
Acceleration peak value			
Value range [m/s²]	(0 to 4903) * 0.1		
	32760	(OL)	
	32764	(NoData)	
Friction (a-RMS)			IntegerT (16 Bit)
Acceleration effective value			
Value range [m/s²]	(0 to 4903) * 0.1		
	32760	(OL)	
	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		
	32760	(OL)	
	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)	

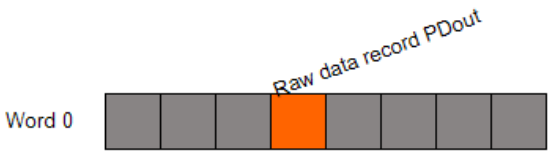
6 Observation



-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.

Process data output	RecordT (8 Bit)
Raw data record PDout	BooleanT
Sets the digital signal [TriggerRawData]	
Value range false (OFF) true (On)	



7 Parameter

7.1 Output configuration

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

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

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

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

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

7.2 Digital output 1

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

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

7 Parameter

7.2.1 Temperature

SP1 (FH1) - TEMP	Index 8583	Subindex 0	IntegerT (16 Bit)	ReadWrite
Switch point 1 / Temperature. SP1 shall be above rP1. Min distance SP1...rP1 = 2.0 °C. For details, see operating manual.				
Factory setting	**600**			
Value range [°C]	(-280 to 800) * 0.1			

rP1 (FL1) - TEMP	Index 8584	Subindex 0	IntegerT (16 Bit)	ReadWrite
Reset point 1 / Temperature. Reset point 1 / Temperature. rP1 shall be below SP1. Min distance SP1...rP1 ===> see SP1.				
Factory setting	**580**			
Value range [°C]	(-300 to 780) * 0.1			

7.2.2 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	**28**			
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	**26**			
Value range [m/s]	(0 to 448) * 0.0001			

7.2.3 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	**98**			
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	**78**			
Value range [m/s²]	(0 to 4883) * 0.1			

7.2.4 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	**24**			
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	**4**			
Value range [m/s²]	(0 to 4883) * 0.1			

7 Parameter

7.2.5 Crest

SP1 (FH1) - Crest	Index 8585	Subindex 0	IntegerT (16 Bit)	ReadWrite
Switch point 1 / Crest. SP1 shall be above rP1. Min distance SP1...rP1 = 1.0 . For details, see operating manual.				
Factory setting	**50**			
Value range	(20 to 500) * 0.1			

rP1 (FL1) - Crest	Index 8586	Subindex 0	IntegerT (16 Bit)	ReadWrite
Reset point 1 / Crest. Reset point 1 / Crest. rP1 shall be below SP1. Min distance SP1...rP1 ===> see SP1.				
Factory setting	**40**			
Value range	(10 to 490) * 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			

7.3.1 Temperature

SP2 (FH2) - TEMP	Index 8593	Subindex 0	IntegerT (16 Bit)	ReadWrite
Switch point 2 / Temperature. SP2 shall be above rP2. Min distance SP2...rP2 = 2.0 °C. For details, see operating manual.				
Factory setting	**800**			
Value range [°C]	(-280 to 800) * 0.1			

rP2 (FL2) - TEMP	Index 8594	Subindex 0	IntegerT (16 Bit)	ReadWrite
Reset point 2 / Temperature. Reset point 2 / Temperature. rP2 shall be below SP2. Min distance SP2...rP2 ===> see SP2.				
Factory setting	**780**			
Value range [°C]	(-300 to 780) * 0.1			

7.3.2 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	**45**			
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	**43**			
Value range [m/s]	(0 to 448) * 0.0001			

7 Parameter

7.3.3 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	**196**			
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	**176**			
Value range [m/s²]	(0 to 4883) * 0.1			

7.3.4 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	**44**			
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	**24**			
Value range [m/s²]	(0 to 4883) * 0.1			

7.3.5 Crest

SP2 (FH2) - Crest	Index 8595	Subindex 0	IntegerT (16 Bit)	ReadWrite
Switch point 2 / Crest. SP2 shall be above rP2. Min distance SP2...rP2 = 1.0 . For details, see operating manual.				
Factory setting	**70**			
Value range	(20 to 500) * 0.1			

rP2 (FL2) - Crest	Index 8596	Subindex 0	IntegerT (16 Bit)	ReadWrite
Reset point 2 / Crest. Reset point 2 / Crest. rP2 shall be below SP2. Min distance SP2...rP2 ===> see SP2.				
Factory setting	**60**			
Value range	(10 to 490) * 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 32760 32764	 (OL) (NoData)		

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 32760 32764	 (OL) (NoData)		

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 32760 32764	 (OL) (NoData)		

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 32760 32764	 (OL) (NoData)		

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)		

7 Parameter

FTYPE		Subindex 2	IntegerT (32 Bit)	
Type of filter				
Factory setting	**2**	**(Highpass)**		
Value range	2	(Highpass)		

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	**5000**	**(5 kHz)**		
Value range	1000	(1 kHz)		
	3000	(3 kHz)		
	5000	(5 kHz)		
FTYPE		Subindex 2	IntegerT (32 Bit)	
Type of filter				
Factory setting	**1**	**(Lowpass)**		
Value range	0	(Bypass)		
	1	(Lowpass)		
	2	(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	**1000**	**(1 kHz)**		
Value range	1000	(1 kHz)		
FTYPE		Subindex 2	IntegerT (32 Bit)	
Type of filter				
Factory setting	**1**	**(Lowpass)**		
Value range	1	(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	**4**	**(OFF)**		
Value range	1	(OU)		
	2	(On)		
	4	(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	**4**	**(OFF)**		
Value range	1	(OU)		
	2	(On)		
	4	(OFF)		

7 Parameter

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)		

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)		

MDC 2 Descr	Index 16513	Subindex 0	RecordT (88 Bit)	ReadOnly
Description of the 2nd measurement data channel				

Lower limit		Subindex 1	IntegerT (32 Bit)
Lower value measurement range			
Factory setting	**0**	**(0)**	
Value range	0	(0)	
Upper limit		Subindex 2	IntegerT (32 Bit)
Upper value measurement range			
Factory setting	**4903**	**(4903)**	
Value range	4903	(4903)	
Unit code		Subindex 3	UIntegerT (16 Bit)
Unit code of the measurement data			
Factory setting	**1076**	**(m/s²)**	
Value range	1076	(m/s²)	
Scale		Subindex 4	IntegerT (8 Bit)
Range shifting (10 scale)			
Factory setting	**-1**	**(-1)**	
Value range	-1	(-1)	

MDC 3 Descr	Index 16514	Subindex 0	RecordT (88 Bit)	ReadOnly
Description of the 3rd measurement data channel				
Lower limit		Subindex 1	IntegerT (32 Bit)	
Lower value measurement range				
Factory setting	**0**	**(0)**		
Value range	0	(0)		
Upper limit		Subindex 2	IntegerT (32 Bit)	
Upper value measurement range				
Factory setting	**4903**	**(4903)**		
Value range	4903	(4903)		
Unit code		Subindex 3	UIntegerT (16 Bit)	
Unit code of the measurement data				
Factory setting	**1076**	**(m/s²)**		
Value range	1076	(m/s²)		
Scale		Subindex 4	IntegerT (8 Bit)	
Range shifting (10 scale)				
Factory setting	**-1**	**(-1)**		
Value range	-1	(-1)		

MDC 4 Descr	Index 16515	Subindex 0	RecordT (88 Bit)	ReadOnly
Description of the 4th measurement data channel				
Lower limit		Subindex 1	IntegerT (32 Bit)	
Lower value measurement range				
Factory setting	**-300**	**(-300)**		
Value range	-300	(-300)		
Upper limit		Subindex 2	IntegerT (32 Bit)	
Upper value measurement range				
Factory setting	**800**	**(800)**		
Value range	800	(800)		
Unit code		Subindex 3	UIntegerT (16 Bit)	
Unit code of the measurement data				
Factory setting	**1001**	**(°C)**		
Value range	1001	(°C)		

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Scale		Subindex 4	IntegerT (8 Bit)
Range shifting (10 scale)			
Factory setting	**-1**	**(-1)**	
Value range	-1	(-1)	

BLOB ID	Index 49	Subindex 0	IntegerT (16 Bit)	ReadOnly
ID of the BLOB that is currently transferred				
Factory setting	**0**	**(Idle)**		
Value range	0	(Idle)		
	-4096	(Raw data record and read)		
	-4097	(Raw data read)		
	-4098	(Raw data read internal trigger (OUT1))		
	-4099	(Raw data read PDout)		

8 Diagnosis

8.1 Diagnosis

8.1.1 Diagnosis

Device Status	Index 36	Subindex 0	UIntegerT (8 Bit)	ReadOnly
Indicator for the current device condition and diagnosis state.				
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
List of all currently pending events in the device.				
Factory setting	**0x00,0x00,0x00**			

Event history	Index 539	Subindex 0	UIntegerT (16 Bit) [20]	ReadOnly
Shows a list of the last occured Events				
Factory setting	**0**	**(noEvent)**		
Value range	0	(noEvent)		
	20480	(0x5000)		
	25376	(0x6320)		
	30480	(0x7710)		
	35856	(0x8C10)		
	35888	(0x8C30)		
	35872	(0x8C20)		
	36061	(0x8CDD)		
	36350	(0x8DFE)		
	36351	(0x8DFF)		

Event counter collection	Index 529	Subindex 0	RecordT (288 Bit)	ReadOnly
When the assigned event occurs, the event counter increments				
Event counter 0x5000		Subindex 1	IntegerT (32 Bit)	
# Events: Device hardware fault				
Value range	(0 to 2147482880)			
Event counter 0x6320		Subindex 2	IntegerT (32 Bit)	
# Events: Parameter error				
Value range	(0 to 2147482880)			
Event counter 0x7710		Subindex 3	IntegerT (32 Bit)	
# Events: Short circuit				
Value range	(0 to 2147482880)			
Event counter 0x8C10		Subindex 4	IntegerT (32 Bit)	
# Events: Process variable range over-run				
Value range	(0 to 2147482880)			
Event counter 0x8C30		Subindex 5	IntegerT (32 Bit)	
# Events: Process variable range under-run				
Value range	(0 to 2147482880)			
Event counter 0x8C20		Subindex 6	IntegerT (32 Bit)	
# Events: Measurement range over-run				
Value range	(0 to 2147482880)			

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Event counter 0x8CDD		Subindex 7	IntegerT (32 Bit)
# Events: Selftest active. Device Status = 2 (Out of specification)			
Value range	(0 to 2147482880)		
Event counter 0x8DFE		Subindex 8	IntegerT (32 Bit)
# Events: Test Event 1. Device Status = 1 (Maintenance required)			
Value range	(0 to 2147482880)		
Event counter 0x8DFF		Subindex 9	IntegerT (32 Bit)
# Events: Test Event 2. Device Status = 1 (Maintenance required)			
Value range	(0 to 2147482880)		

Machine run-up counter threshold (mrcT) - v-RMS	**Index 8005**	**Subindex 0**	**IntegerT (32 Bit)**	**ReadWrite**
Operation time threshold: If the process value 'v-RMS' exceeds this set value the operation time is started				
Factory setting	**4**			
Value range [m/s]	(0 to 450) * 0.0001			

Machine monitoring	**Index 8003**	**Subindex 0**	**RecordT (64 Bit)**	**ReadOnly**
Display of the current operating status of the machine				
Machine operation time (mot)		Subindex 1	IntegerT (32 Bit)	
Shows the seconds during which the device was operated above the set threshold (mrcT)				
Value range [s]	(0 to 2147482880) * 1			
Machine run-up counter (mrc)		Subindex 2	IntegerT (32 Bit)	
Shows the number of times the set threshold value (mrcT) was exceeded				
Value range	(0 to 2147482880)			

Power cycles	**Index 541**	**Subindex 0**	**IntegerT (32 Bit)**	**ReadOnly**
Number of power cycles since delivery				
Factory setting	**0**			
Value range	(0 to 2147482880) * 1			

Operating hours	**Index 542**	**Subindex 0**	**IntegerT (32 Bit)**	**ReadOnly**
Counter of the operating hours since delivery				
Value range [h]	(0 to 2147482880) * 1			

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)		

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Bit_18		bitOffset 18	BooleanT
Selftest active. Device Status = 2 (Out of specification)			
Factory setting Value range	**0** 0 1	**(noEv)** (noEv) (0x8CDD)	
Bit_17		bitOffset 17	BooleanT
Measurement range over-run			
Factory setting Value range	**0** 0 1	**(noEv)** (noEv) (0x8C20)	
Bit_9		bitOffset 9	BooleanT
Process variable range under-run			
Factory setting Value range	**0** 0 1	**(noEv)** (noEv) (0x8C30)	
Bit_8		bitOffset 8	BooleanT
Process variable range over-run			
Factory setting Value range	**0** 0 1	**(noEv)** (noEv) (0x8C10)	
Bit_2		bitOffset 2	BooleanT
Short circuit			
Factory setting Value range	**0** 0 1	**(noEv)** (noEv) (0x7710)	
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)	

8 Diagnosis

Param configuration fault	Index 546	Subindex 0	UIntegerT (32 Bit) [10]	ReadOnly
Displays the incorrectly set parameters				

Factory setting	**0**	**(OK)**
Value range	0	(OK)
	786432	(Device Access Locks, Index = 12)
	524353536	(FILT-A, Index = 8001)
	524353537	(FILT-A, Index = 8001, Subindex = 1)
	524353538	(FILT-A, Index = 8001, Subindex = 2)
	524288000	(FILT-DC, Index = 8000)
	524288001	(FILT-DC, Index = 8000, Subindex = 1)
	524288002	(FILT-DC, Index = 8000, Subindex = 2)
	524419072	(FILT-V, Index = 8002)
	524419073	(FILT-V, Index = 8002, Subindex = 1)
	524419074	(FILT-V, Index = 8002, Subindex = 2)
	34799616	(FOU1, Index = 531)
	34865152	(FOU2, Index = 532)
	54657024	(Installation date, Index = 834)
	32768000	(P-n, Index = 500)
	34078720	(SEL1, Index = 520)
	34144256	(SEL2, Index = 521)
	562495488	(SP1 (FH1) - TEMP, Index = 8583)
	38207488	(SP1 (FH1) - v-RMS, Index = 583)
	38338560	(SP1 (FH1) - a-Peak, Index = 585)
	38469632	(SP1 (FH1) - a-RMS, Index = 587)
	562626560	(SP1 (FH1) - Crest, Index = 8585)
	563150848	(SP2 (FH2) - TEMP, Index = 8593)
	38862848	(SP2 (FH2) - v-RMS, Index = 593)
	38993920	(SP2 (FH2) - a-Peak, Index = 595)
	39124992	(SP2 (FH2) - a-RMS, Index = 597)
	563281920	(SP2 (FH2) - Crest, Index = 8595)
	38076416	(dS1, Index = 581)
	38731776	(dS2, Index = 591)
	38141952	(dr1, Index = 582)
	38797312	(dr2, Index = 592)
	524615680	(Machine run-up counter threshold (mrcT) - v-RMS, Index = 8005)
	38010880	(ou1, Index = 580)
	38666240	(ou2, Index = 590)
	562561024	(rP1 (FL1) - TEMP, Index = 8584)
	38273024	(rP1 (FL1) - v-RMS, Index = 584)
	38404096	(rP1 (FL1) - a-Peak, Index = 586)
	38535168	(rP1 (FL1) - a-RMS, Index = 588)
	562692096	(rP1 (FL1) - Crest, Index = 8586)
	563216384	(rP2 (FL2) - TEMP, Index = 8594)
	38928384	(rP2 (FL2) - v-RMS, Index = 594)
	39059456	(rP2 (FL2) - a-Peak, Index = 596)
	39190528	(rP2 (FL2) - a-RMS, Index = 598)
	563347456	(rP2 (FL2) - Crest, Index = 8596)
	55246848	(uni.T, Index = 843)
	36110336	(uni - v-RMS, Index = 551)
	55115776	(uni - a-Peak, a-RMS, Index = 841)

8.1.1.1 Temperature

Internal temperature	Index 543	Subindex 0	IntegerT (16 Bit)	ReadOnly
Current internal temperature of the device				

Value range [°C]	(-300 to 800) * 0.1	
	-32760	(UL)
	32760	(OL)
	32764	(NoData)

9 Events

Code	Device status	PQ*	Class	Name	Description
0x5000 20480d	4 (Failure)	invalid	Error	Device hardware fault	Exchange device
0x6320 25376d	3 (Functional check)	invalid	Error	Parameter error	Check datasheet and values
0x7710 30480d	3 (Functional check)	valid	Error	Short circuit	Check installation
0x8C10 35856d	2 (Out of specification)	valid	Warning	Process variable range overrun	Process data uncertain
0x8C20 35872d	3 (Functional check)	valid	Error	Measurement range exceeded	Check application
0x8C30 35888d	2 (Out of specification)	valid	Warning	Process variable range underrun	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 was denied by the technology-specific application. No detailed root-cause information is available.
0x8011 32785d	Index not available	Read or write access attempt to a non-existing index.
0x8012 32786d	Subindex not available	Read or write access attempt to a non-existing subindex of an existing index.
0x8020 32800d	Service temporarily not available	Parameter not accessible due to the current state of the technology-specific application.
0x8021 32801d	Service temporarily unavailable - local control	Parameter not accessible. The device is currently in an ongoing, locally controlled operation.
0x8022 32802d	Service temporarily unavailable - device control	Parameter not accessible. The technology-specific application is currently in a remotely triggered operation.
0x8023 32803d	Access denied	Write access to a read-only parameter or read access to write-only parameter.
0x8030 32816d	Parameter value out of range	Written parameter value is outside of the permitted value range.
0x8031 32817d	Parameter value above limit	Written parameter value is above its specified value range
0x8032 32818d	Parameter value below limit	Written parameter value is below its specified value range
0x8033 32819d	Parameter length overrun	Written parameter is longer than specified.
0x8034 32820d	Parameter length underrun	Written parameter is shorter than specified.
0x8035 32821d	Function unavailable	Written command is not supported by the technology-specific application
0x8036 32822d	Function temporarily unavailable	Written command is unavailable due to the current state of the technology-specific application.
0x8040 32832d	Invalid parameter set	Written single parameter value collides with other existing parameter settings.
0x8041 32833d	Inconsistent parameter set	Parameter set inconsistencies at the end of block parameter transfer. Device plausibility check failed.
0x8082 32898d	Application not ready	Read or write access denied. The technology-specific application is temporarily unavailable.

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.

Fatigue (v-RMS)

Value in [m/s]	=	Transmitted value	* 0.0001
Value in [in/s]	=	Transmitted value	* 0.003937
Value in [mm/s]	=	Transmitted value	* 0.1

Impact (a-Peak)

Value in [m/s²]	=	Transmitted value	* 0.1
Value in [mg]	=	Transmitted value	* 10.1971621
Value in [g]	=	Transmitted value	* 0.01019716

Temperature

Value in [°C]	=	Transmitted value	* 0.1
Value in [°F]	=	Transmitted value	* 0.18 + 32