

Алматы (7273)495-231
Ангарск (3955)60-70-56
Архангельск (8182)63-90-72
Астрахань (8512)99-46-04
Барнаул (3852)73-04-60
Белгород (4722)40-23-64
Благовещенск (4162)22-76-07
Брянск (4832)59-03-52
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Владимир (4922)49-43-18
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Вологда (8172)26-41-59
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Ижевск (3412)26-03-58
Иркутск (395)279-98-46
Казань (843)206-01-48
Калининград (4012)72-03-81
Калуга (4842)92-23-67
Кемерово (3842)65-04-62
Киров (8332)68-02-04
Коломна (4966)23-41-49
Кострома (4942)77-07-48
Краснодар (861)203-40-90
Красноярск (391)204-63-61
Курск (4712)77-13-04
Курган (3522)50-90-47
Липецк (4742)52-20-81

Магнитогорск (3519)55-03-13
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Набережные Челны (8552)20-53-41
Нижний Новгород (831)429-08-12
Новокузнецк (3843)20-46-81
Ноябрьск (3496)41-32-12
Новосибирск (383)227-86-73
Омск (3812)21-46-40
Орел (4862)44-53-42
Оренбург (3532)37-68-04
Пенза (8412)22-31-16
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Пермь (342)205-81-47

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Саратов (845)249-38-78
Севастополь (8692)22-31-93
Саранск (8342)22-96-24
Симферополь (3652)67-13-56
Смоленск (4812)29-41-54
Сочи (862)225-72-31
Ставрополь (8652)20-65-13
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Сыктывкар (8212)25-95-17
Тамбов (4752)50-40-97
Тверь (4822)63-31-35

Тольятти (8482)63-91-07
Томск (3822)98-41-53
Тула (4872)33-79-87
Тюмень (3452)66-21-18
Ульяновск (8422)24-23-59
Улан-Удэ (3012)59-97-51
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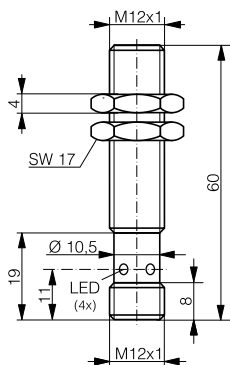
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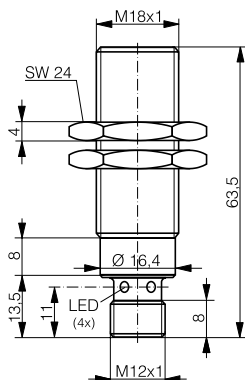


INDUCTIVE SENSOR SMART IDWx-MxxMM-NMS-A0

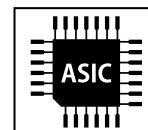
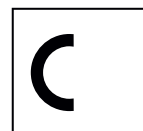
HOUSING	OPERATING DISTANCE	MOUNTING	
M12 ... M18	Up to 10 mm	Embeddable	✓ IO-Link Smart Sensor Profile (SSP) 3.3 ✓ Linear measurement value ✓ Long operating distance on Fe and Al ✓ One-Piece housing in stainless steel V2A



IDWE-M12MM-NMS-A0



IDWE-M18MM-NMS-A0



DETECTION DATA		INTERFACE	
Operating distance (S_d)	See table "Available types" (p. 2)	Output on pin 4	SIO Selectable / IO-Link
Sensing range	0 ... 110% S_d	Output/Input on pin 2	SIO Selectable
Temperature drift (0 ... 0.9 S_d)	$\leq 10\% S_d$	Output Polarity	PNP
Standard target	3 $S_d \times 3 S_d \times 1 \text{ mm}^3$ FE 360	IO-Link	Digital Measuring Sensor (SSP 3.3)
		MTTF (@40 °C)	380 y

ELECTRICAL DATA		MECHANICAL DATA	
Supply voltage range (U_B)	18...30 VDC (IO-Link) / 10...30 VDC (SIO)	Mounting	See "Installation conditions" (p. 2)
Residual ripple	$\leq 20\% U_B$	Housing material	Stainless Steel V2A
Output current	$\leq 200 \text{ mA}$	Sensing face material	Stainless Steel V2A
Output voltage drop	$\leq 2.0 \text{ VDC}$	Max. tightening torque	See "Installation conditions" (p. 2)
Power consumption (no-load)	$\leq 20 \text{ mA}$	Ambient operating temperature	-25 ... +70 °C ¹
Residual current	$\leq 0.1 \text{ mA}$	Enclosure rating	IP68/IP69K
SIO Switching Frequency	$\leq 140 \text{ Hz}$ (see table "Available types", p. 2)	Shock and vibration	IEC 60947-5-2 / 7.4
Short-circuit protection	✓	Weight	IDWE-M12MM-NMS-A0: 27 g IDWE-M18MM-NMS-A0: 56 g
Voltage reversal protection	✓		
Cable length max.	$\leq 20 \text{ m}$ (IO-Link) / $\leq 300 \text{ m}$ (SIO)		

Note: all data measured according to IEC 60947-5-2 standard with $U_B = 20 \dots 30 \text{ VDC}$, $T_A = 23^\circ\text{C} \pm 5^\circ\text{C}$.

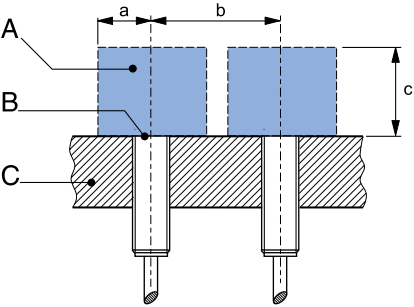
¹ Maximum temperature according to UL: 70 °C.

CORRECTION FACTORS

	Steel FE 360	Copper	Aluminum	Brass	Stainless steel V2A 1/2 mm
IDWE-M12MM-NMS-A0	1	0.8	0.95	1.25	0.45/0.8
IDWE-M18MM-NMS-A0	1	0.8	0.95	1.25	0.45/0.8

Note: the operating distance of the sensor must be multiplied by the correction factor of the material. For example, the operating distance on Aluminum is $S_{n, Al} = S_n \times CF_{Al}$. In case of embeddable mounting, the distance is multiplied by the additional correction factor of the support, thus $S_{n, Al} = S_n \times CF_{Al} \times CF_{emb, Al}$.

INSTALLATION CONDITIONS / MAXIMUM TIGHTENING TORQUE



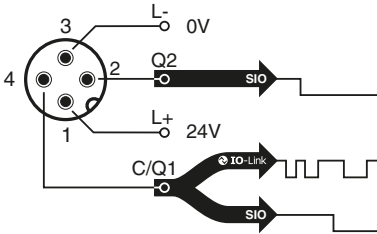
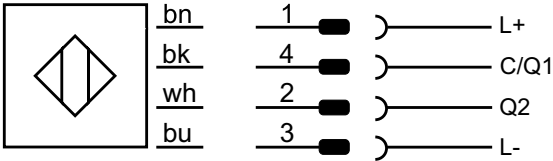
A : metal free zone
B : sensing face
C : support (steel)

	a	b	c	Mounting	Maximum Tightening Torque
IDWE-M12MM-NMS-A0	12	50	18	Embeddable	20 Nm
IDWE-M18MM-NMS-A0	25	60	30	Embeddable	50 Nm

Note: additional installation information can be found in the glossary of the Contrinex General Catalog.

WIRING DIAGRAM

PIN ASSIGNMENT



IO-LINK CHARACTERISTICS	VALUE FOR IDWx-MxxMM-NMS-A0
Vendor ID	0156 _h
Device ID	96011F _h
IO-Link Protocol	1.1
SIO-Mode	Supported
Process data	4 bytes input / 1 bytes output
Baudrate	COM2 (38.4 kBaud)
Minimum cycle time	8 ms

IODD files may be downloaded from

AVAILABLE TYPES All the below specifications were obtained with a 3-S_d×3-S_d×1 mm³, FE 360 standard target

Part number	Part reference	Operating distance S _d	Operating range	Switching Frequency SIO	Repeat accuracy	Resolution Static	Resolution Dynamic (@0.67·S _d)	Linearity
330-320-184	IDWE-M12MM-NMS-A0	6 mm	0.4...6 mm	< 140 Hz	< 20 μm ⁽¹⁾ / 100 μm ⁽²⁾	< 10 μm ⁽³⁾	< 20 μm ⁽³⁾	± 60 μm ⁽⁴⁾
330-320-185	IDWE-M18MM-NMS-A0	10 mm	0.6...10 mm	< 140 Hz	< 30 μm ⁽¹⁾ / 150 μm ⁽²⁾	< 15 μm ⁽³⁾	< 30 μm ⁽³⁾	± 60 μm ⁽⁴⁾

⁽¹⁾ measured under 3σ confidence level (99.7%) at 0.33 S_d, constant temperature and constant voltage supply

⁽²⁾ measured under 3σ confidence level (99.7%) at 0.67 S_d, constant temperature and constant voltage supply

⁽³⁾ measured under σ confidence level (RMS value) at 0.67 S_d, constant temperature and constant voltage supply

⁽⁴⁾ measured under a range condition from 5% to 95% S_d, constant temperature and constant voltage supply

Note: part reference may include additional suffix to indicate a revision version or special version. Further information is available on request.

CONFIGURATION PARAMETER (IO-LINK / SIO MODE)						
Index	Sub Hex	Name	Access	Data Type	Value	Default
SYSTEM						
02 _h	00 _h	Standard Command ⁽¹⁾	W	uint8	05 _h = ParamDownloadStore, 40 _h = Teach Apply, 41 _h = Single Value Teach SP1, 42 _h = Single Value Teach SP2, 43 _h = Two Value Teach for SP1 → TP1, 44 _h = Two Value Teach for SP1 → TP2, 45 _h = Two Value Teach for SP2 → TP1, 46 _h = Two Value Teach for SP2 → TP2, 47 _h = Dynamic Start SP1, 48 _h = Dynamic Stop SP1, 49 _h = Dynamic Start SP2, 4A _h = Dynamic Stop SP2, 4F _h = Teach Cancel, 80 _h = Device Reset, 82 _h = Restore Factory Settings, A0 _h = Locate Device, A1 _h = Clear MHM BIN	N/A
DATA STORAGE						
03 _h	01 _h	DS_Command ⁽¹⁾	R/W	uint8	00 _h : Reserved 01 _h : DS_UploadStart 02 _h : DS_UploadEnd 03 _h : DS_DownloadStart 04 _h : DS_DownloadEnd 05 _h : DS_Break 06 _h – FF _h : Reserved	N/A
	02 _h	State_Property ⁽¹⁾	R	uint8	Bit 0: Reserved Bit 1 and 2: State of Data Storage (00 _h : Inactive, 01 _h : Upload, 02 _h : Download, 03 _h : Data Storage Locked) Bit 3 to 6: Reserved Bit 7: DS_UPLOAD_FLAG (00 _h : no DS_UPLOAD_ FLAG, 01 _h : DS_UPLOAD_REQ pending)	N/A
	03 _h	Data_Storage_Size	R	uint32	FF _h	N/A
	04 _h	Parameter_Checksum	R	uint32	–	N/A
	05 _h	Index_List	R	array of byte	–	N/A
DEVICE ACCESS LOCKS						
0C _h	–	Device Access Lock	R/W	uint16	Parameter Access, Data Storage, Local Parametrization and Local User Interface Locks	0000 _h
PROFILE PARAMETER						
0D _h	–	Profile Characteristic	R	uint16	<ProfileID>, [000C] _h , (Type 3.3 DMS), Measurement Sensor, disable function	–
PD DESCRIPTOR						
0E _h	–	PD Input Descriptor	R	array	<DataType><TypeLength><BitOffset> – [1] _h [8] _h [0] _h [2] _h [8] _h [8] _h [2] _h [10] _h [10] _h	–
0F _h	–	PD Output Descriptor	R	array	<DataType><TypeLength><BitOffset> – [1] _h [1] _h [0] _h	–
FUNCTION CLASS – IDENTIFICATION (8000 _h)						
10 _h	–	Vendor Name	R	char [16]	“Contrinex”	–
11 _h	–	Vendor Text	R	char [32]		–
12 _h	–	Product Name	R	char [32]	“IDWx-MxxMM-NMS-A0”	–
13 _h	–	Product ID	R	char [16]	330-320-18x	–
14 _h	–	Product Text	R	char [32]	DMSS series inductive sensor	–
15 _h	–	Serial Number	R	char [16]	<PlantNr>_<BatchNr>_<IDNr>	–
16 _h	–	Hardware Revision	R	char [16]	1.0.0	–
17 _h	–	Firmware Revision	R	char [16]	1.0.0	–
18 _h	–	Application Specific Tag	R/W	char [32]	<user string, 32 bytes (variable length)>	<vendor specific>
FUNCTION CLASS – DIAGNOSIS (8003 _h)						
24 _h	00 _h	Device Status ⁽¹⁾	R	uint8	0 = Device is OK, 1 = Maintenance required, 2 = Out of specification, 3 = Functional check, 4 = Failure, 5...255 Reserved	–
25 _h	00 _h – 03 _h	Detailed Device Status ⁽¹⁾	R	uint8 [3]	–	–

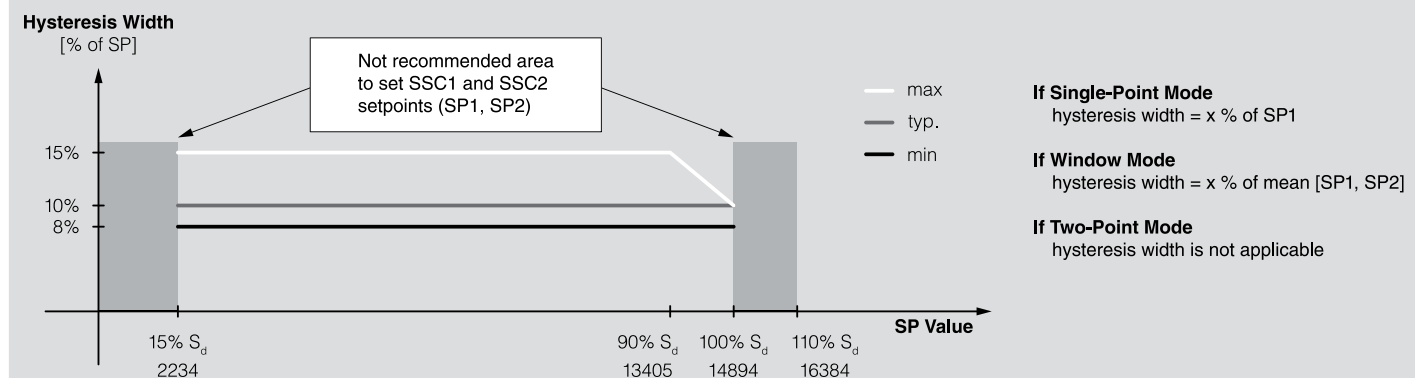
⁽¹⁾This parameter is stored in a volatile memory

FUNCTION CLASS – TEACH-IN CHANNEL SELECT (8004 _h)						
3A _h	–	Teach Select ⁽¹⁾	R/W	uint8	00 _h : Default (SSC1) 01 _h : SSC1 02 _h : SSC2 FF _h : ALL	00 _h
FUNCTION CLASS – TEACH STATUS (8007 _h TO 8009 _h)						
3B _h	01 _h	Teach State ⁽¹⁾	R	bool[4]	00 _h : Idle 01 _h : SP1 Success 02 _h : SP2 Success 03 _h : SP12 Success 04 _h : Wait for command 05 _h : Busy 06 _h : Reserved 07 _h : Error 08 _h ... 12 _h : Reserved	00 _h
	02 _h	Flag SP1 → TP1 ⁽¹⁾	R	bool	00 _h : Teach point not taught or not successful 01 _h : Teach point successfully taught	00 _h
	03 _h	Flag SP1 → TP2 ⁽¹⁾	R	bool	00 _h : Teach point not taught or not successful 01 _h : Teach point successfully taught	00 _h
	04 _h	Flag SP2 → TP1 ⁽¹⁾	R	bool	00 _h : Teach point not taught or not successful 01 _h : Teach point successfully taught	00 _h
	05 _h	Flag SP2 → TP2 ⁽¹⁾	R	bool	00 _h : Teach point not taught or not successful 01 _h : Teach point successfully taught	00 _h
SCU – SENSOR CONFIGURATION UNIT						
40 _h	01 _h	Sensor Startup Time	R/W	uint16	0 ... 65535 ms	0000 _h
	02 _h	Sensor Value Source	R/W	uint8	00 _h : Distance (VTARGET) 01 _h : Counter 02 _h : Temperature	00 _h
	03 _h	Sensor Mode	R/W	uint8	00 _h : Fast 04 _h : Medium 18 _h : Fine	00 _h
SSC1 PARAMETER						
3C _h	01 _h	Setpoint 1	R/W	uint32	Recommended value: (2234 ... 14894 = 15% S _d to 100% S _d)	95% S _d
	02 _h	Setpoint 2	R/W	uint32	Recommended value: (2234 ... 14894 = 15% S _d to 100% S _d), but must be lower than Setpoint 1. N/A if Single-Point mode is selected.	0% S _d
SSC1 CONFIGURATION						
3D _h	01 _h	Logic	R/W	uint8	00 _h : High active 01 _h : Low active	00 _h
	02 _h	Mode	R/W	uint8	00 _h : Deactivated 01 _h : Single Point 02 _h : Window Mode 03 _h : Two Points	01 _h
	03 _h	Hysteresis Width	R/W	uint32	0 ... 16383 (e.g. If SSC1 Configuration Mode = Single Point, SP1 = 50% S _d = 7447, Hysteresis Width = 10% of SP = 745)	10% of SP
SSC2 PARAMETER						
400C _h	01 _h	Setpoint 1	R/W	uint32	Recommended value: (2234 ... 14894 = 15% S _d to 100% S _d)	80% S _d
	02 _h	Setpoint 2	R/W	uint32	Recommended value: (2234 ... 14894 = 15% S _d to 100% S _d), but must be lower than Setpoint 1. N/A if Single-Point mode is selected.	0% S _d

⁽¹⁾ This parameter is stored in a volatile memory

SSC2 CONFIGURATION						
400D _h	01 _h	Logic	R/W	uint8	00 _h : High active 01 _h : Low active	00 _h
	07 _h	Mode	R/W	uint8	00 _h : Deactivated 01 _h : Single Point 02 _h : Window Mode 03 _h : Two Points	01 _h
	08 _h	Hysteresis Width	R/W	uint32	0 ... 16383 (e.g. If SSC1 Configuration Mode = Single Point, SP1 = 50% S _d = 7447, Hysteresis Width = 10% of SP = 745)	10% of SP

HYSTERESIS WIDTH RECOMMENDED BY CONTRINEX



OSS CONFIGURATION

42 _h	01 _h	OSS1 Logic – Sensor Physical Output 1 Logic (PIN4) when used in SIO mode	R/W	uint8	0 = OUTPUT: High active (NO) 1 = OUTPUT: Low active (NC) 2 = OUTPUT: ON 3 = OUTPUT: OFF	00 _h
	02 _h	OSS2 Logic – Sensor Physical Output 2 Logic (PIN2) when used in SIO mode	R/W	uint8	0 = OUTPUT: High active (NO) 1 = OUTPUT: Low active (NC) 2 = OUTPUT: ON 3 = OUTPUT: OFF 4 = INPUT 5 = INPUT-TRIGGER Single Value Teach	00 _h
	03 _h	OSS1 Condition – Sensor Physical Output 1 Condition (PIN4) when used in SIO mode	R/W	uint8	0 = OSS1_A1 1 = OSS1_A1 AND OSS1_A2 2 = OSS1_A1 OR OSS1_A2 3 = OSS1_A1 XOR OSS1_A2	00 _h
	04 _h	OSS2 Condition – Sensor Physical Output 2 Condition (PIN2) when used in SIO mode	R/W	uint8	0 = OSS2_A1 1 = OSS2_A1 AND OSS2_A2 2 = OSS2_A1 OR OSS2_A2 3 = OSS2_A1 XOR OSS2_A2	00 _h
	05 _h	OSS1 Source A1 – Sensor Physical Output 1 Source A1 (PIN4) when used in SIO mode	R/W	uint8	0 = SSC1 1 = SSC2 2 = TSSP 3 = ALR1 4 = ALR2 5 = ALR3 6 = INPUT ⁽¹⁾ 7 = Not INPUT ⁽¹⁾	00 _h
	06 _h	OSS1 Source A2 – Sensor Physical Output 1 Source A2 (PIN4) when used in SIO mode	R/W	uint8	0 = SSC1 1 = SSC2 2 = TSSP 3 = ALR1 4 = ALR2 5 = ALR3 6 = INPUT ⁽¹⁾ 7 = Not INPUT ⁽¹⁾	00 _h
	07 _h	OSS2 Source A1 – Sensor Physical Output 2 Source A2 (PIN2) when used in SIO mode	R/W	uint8	0 = SSC1 1 = SSC2 2 = TSSP 3 = ALR1 4 = ALR2 5 = ALR3	01 _h

⁽¹⁾ Only available if OSS2 Logic = 4 = INPUT

	08 _h	OSS2 Source A2 – Sensor Physical Output 2 Source A2 (PIN2) when used in SIO mode	R/W	uint8	0 = SSC1 1 = SSC2 2 = TSSP 3 = ALR1 4 = ALR2 5 = ALR3	00 _h
TMU – SENSOR TIMER UNIT						
43 _h	01 _h	Timer Mode	R/W	uint8	0 = No Timer 1 = Stretch ON 2 = Delay ON 3 = Delay and Stretch ON 4 = One Shot	00 _h
	02 _h	Timer Value	R/W	uint16	0 ... 65535 ms	0000 _h
	03 _h	Timer Source	R/W	uint8	0 = SSC1 1 = SSC2 2 = ALR1 3 = ALR2 4 = ALR3	00 _h
CTU – SENSOR COUNTER UNIT						
44 _h	01 _h	Counter Mode	R/W	uint8	0 = Falling Edge 1 = Rising Edge 2 = Both	00 _h
	02 _h	Counter Value ⁽¹⁾	R/W	uint16	0 ... 65535	0000 _h
	03 _h	Counter Source	R/W	uint8	0 = SSC1 1 = SSC2 2 = TSSP 3 = ALR1 4 = ALR2 5 = ALR3	00 _h
	04 _h	Counter Reset Source	R/W	uint8	0 = ALR1 1 = ALR2 2 = ALR3	01 _h
SMU – SENSOR MONITOR UNIT						
46 _h	01 _h	Current Temperature ⁽¹⁾	R	uint16	–	0000 _h
	02 _h	Max. Lifetime Temperature	R	uint16	–	0000 _h
	03 _h	Min. Lifetime Temperature	R	uint16	–	0000 _h
	04 _h	Lifetime Temperature Cycle Count	R	uint8	–	00 _h
	05 _h	Lifetime Operating Hours	R	uint32	–	00000000 _h
	06 _h	Lifetime Power-On Cycles	R	uint32	–	00000000 _h
	07 _h	Lifetime EMC Disturbances	R	uint32	–	00000000 _h
	08 _h	EVENT FLAG ⁽¹⁾⁽²⁾	R	uint8	0 = B0 (Coil failure) 1 = B1 (Short circuit on output) 2 = B2 (EMC disturbances) 3 = B3 (Collision on output) 4 = B4 (Over temperature) 5 = B5 (Under voltage)	00 _h
SMAU – SENSOR MEASUREMENT ALARM UNIT						
47 _h	01 _h	Sensor Alarm 1 Threshold	R/W	uint16	0 ... 110% S _d	10% S _d
	02 _h	Sensor Alarm 1 Hysteresis	R/W	uint16	–	5%
	03 _h	Sensor Alarm 1 Configuration	R/W	uint8	0 = Always OFF 1 = Active 2 = Active / IO-Link Event Generation	01 _h
	04 _h	Sensor Alarm 1 Source	R/W	uint8	0 = Distance (VTARGET) 1 = Counter 2 = Temperature 3 = MHM Median 4 = MHM Deviation 50% 5 = MHM Deviation To Target Value	00 _h
	05 _h	Sensor Alarm 2 Threshold	R/W	uint16	0 ... 65535	0000 _h
	06 _h	Sensor Alarm 2 Hysteresis	R/W	uint16	–	0000 _h
	07 _h	Sensor Alarm 2 Configuration	R/W	uint8	0 = Always OFF 1 = Active 2 = Active / IO-Link Event Generation	01 _h

	08 _h	Sensor Alarm 2 Source	R/W	uint8	0 = Distance (VTARGET) 1 = Counter 2 = Temperature 3 = MHM Median 4 = MHM Deviation 50% 5 = MHM Deviation To Target Value	01 _h
	09 _h	Sensor Alarm 3 Threshold	R/W	uint16	-25 ... 70°C	70°C
	10 _h	Sensor Alarm 3 Hysteresis	R/W	uint16	–	0000 _h
	11 _h	Sensor Alarm 3 Configuration	R/W	uint8	0 = Always OFF 1 = Active 2 = Active / IO-Link Event Generation	01 _h
	12 _h	Sensor Alarm 3 Source	R/W	uint8	0 = Distance (VTARGET) 1 = Counter 2 = Temperature 3 = MHM Median 4 = MHM Deviation 50% 5 = MHM Deviation To Target Value	02 _h

FUNCTION AND LOCATION TAG

48 _h	01 _h	Function Tag	R/W	char []	<user string, 32 bytes (variable length)>	“***”
	02 _h	Location Tag	R/W	char []	<user string, 32 bytes (variable length)>	“***”

DEVICE CHARACTERISTIC

49 _h	01 _h	Profile Compatibility	R	char []	“SSP 3.3 DMS”	–
	02 _h	Detection Range Max.	R	char []	Depends on sensor type	–
	03 _h	Supply Voltage Range (U _b)	R	char []	“18 ... 30 VDC”	–
	04 _h	Max. Output Current	R	char []	“≤ 200 mA”	–
	05 _h	Ambient Temperature Range (T _A)	R	char []	“–25 ... +70°C”	–
	06 _h	Storage Temperature Range (T _S)	R	char []	“–25 ... +70°C”	–
	07 _h	Enclosure Rating	R	char []	“IP68/69K”	–

MHM – MEASUREMENT HISTOGRAM MODULE

4A _h	01 _h	MHM Source	R/W	uint8	0 = Distance 1 = Temperature	00 _h
	02 _h	MHM Trigger	R/W	uint8	0 ⁽²⁾ = When Input = 1 1 = When TSSP = 1	00 _h
	03 _h	Range Start	R/W	uint16	0 ... 110% S _d	0% S _d
	04 _h	Range End	R/W	uint16	0 ... 110% S _d	100% S _d
	05 _h	BIN 1 ⁽¹⁾	R	uint32	First bin of value defined by “(Range End” – “Range Start”)/16	4 × 00 _h
	06 _h	BIN 2 ⁽¹⁾	R	uint32	...	4 × 00 _h
	07 _h	BIN 3 ⁽¹⁾	R	uint32	...	4 × 00 _h
	08 _h	BIN 4 ⁽¹⁾	R	uint32	...	4 × 00 _h
	09 _h	BIN 5 ⁽¹⁾	R	uint32	...	4 × 00 _h
	10 _h	BIN 6 ⁽¹⁾	R	uint32	...	4 × 00 _h
	11 _h	BIN 7 ⁽¹⁾	R	uint32	...	4 × 00 _h
	12 _h	BIN 8 ⁽¹⁾	R	uint32	...	4 × 00 _h
	13 _h	BIN 9 ⁽¹⁾	R	uint32	...	4 × 00 _h
	14 _h	BIN 10 ⁽¹⁾	R	uint32	...	4 × 00 _h
	15 _h	BIN 11 ⁽¹⁾	R	uint32	...	4 × 00 _h
	16 _h	BIN 12 ⁽¹⁾	R	uint32	...	4 × 00 _h
	17 _h	BIN 13 ⁽¹⁾	R	uint32	...	4 × 00 _h
	18 _h	BIN 14 ⁽¹⁾	R	uint32	...	4 × 00 _h
	19 _h	BIN 15 ⁽¹⁾	R	uint32	...	4 × 00 _h
	20 _h	BIN 16 ⁽¹⁾	R	uint32	Last bin of value defined by “(Range End” – “Range Start”)/16	4 × 00 _h
	21 _h	Median ⁽¹⁾	R	uint16	–	2 × 00 _h
	22 _h	Deviation 50% ⁽¹⁾	R	uint16	–	2 × 00 _h
	23 _h	Target Value	R/W	uint16	–	2 × 00 _h
	24 _h	Deviation ⁽¹⁾	R	uint16	Deviation = Median – Target Value	2 × 00 _h

FUNCTION CLASS – MDC DESCRIPTION PARAMETER (8005 _h)						
4080 _h	01 _h	Lower Limit	R	int32	Lower value measurement range, see range definition in table A.5. According to SSP ⁽¹⁾ , table C.8 page 39.	0
	02 _h	Upper Limit	R	int32	Upper value measurement range, see range definition in table A.5. According to SSP ⁽¹⁾ , table C.8 page 39.	0
	03 _h	Unit Code	R	uint16	See Unit table defined in table A.7. According to SSP ⁽¹⁾ , table C.8 page 39.	0
	04 _h	Scale	R	int8	See Table B.2. According to SSP ⁽¹⁾ , table C.8 page 39.	0

PROCESS DATA REPRESENTATION

PROCESS DATA STRUCTURE – DISTANCE, COUNTER, TEMPERATURE SENSING MODE

PROCESS DATA INPUT

Bitoffset

Byte	7	6	5	4	3	2	1	0
0	ALR3	ALR2	ALR1	SSC2	SSC1	TSS	OSS2	OSS1
1	Scale Value							
2	Measurement value (LSB)							
3	Measurement value (MSB)							

Name	Value	Description
ALR3	0	Alarm 3 is OFF
	1	Alarm 3 is ON
ALR2	0	Alarm 2 is OFF
	1	Alarm 2 is ON
ALR1	0	Alarm 1 is OFF
	1	Alarm 1 is ON
SSC2	0	Switching signal 2 is OFF
	1	Switching signal 2 is ON
SSC1	0	Switching signal 1 is OFF
	1	Switching signal 1 is ON
TSS	0	Timered selected signal is OFF
	1	Timered selected signal is ON
OSS2	0	Output switching signal 2 is OFF
	1	Output switching signal 2 is ON
OSS1	0	Output switching signal 1 is OFF
	1	Output switching signal 1 is ON

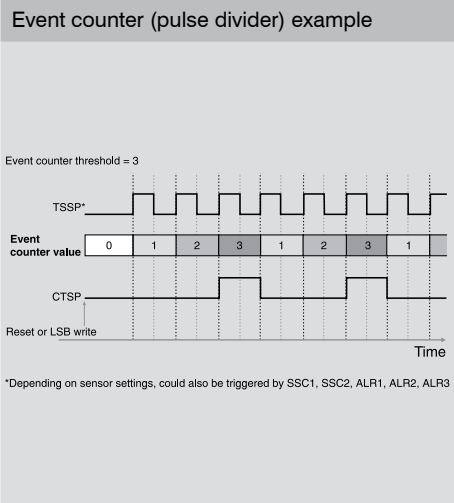
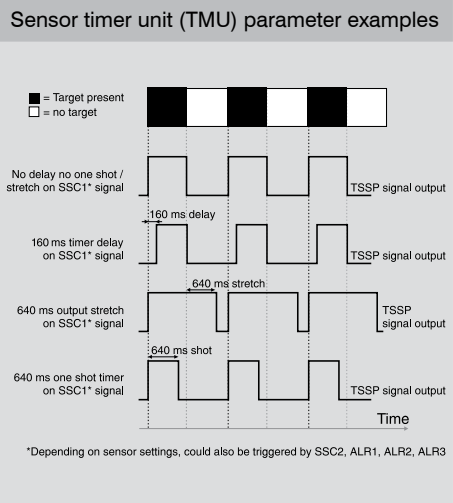
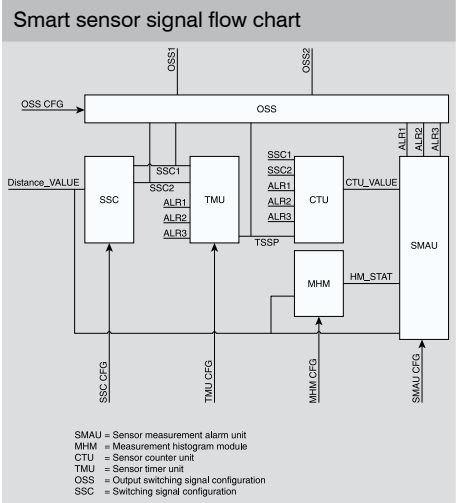
PROCESS DATA OUTPUT

Bitoffset

Byte	7	6	5	4	3	2	1	0
0	RFU							DIS

Name	Value	Description
DIS	0	Sensor is enabled
	1	Sensor is disabled

SMART SENSOR SIGNAL FLOWS



ERROR TYPES			
Code	Additional code	Name	Description
80 _h	11 _h	Index Not Available	Access occurs to a not existing index
80 _h	12 _h	Subindex Not Available	Access occurs to a not existing subindex
80 _h	20 _h	Service Temporarily Not Available	Parameter is not accessible due to the current state of the device application
80 _h	21 _h	Service Temporarily Not Available – Local Control	Parameter is not accessible due to an ongoing local operation at the device
80 _h	22 _h	Service Temporarily Not Available – Device Control	Parameter is not accessible due to a remote triggered state of the device application
80 _h	23 _h	Access Denied	Write access on a read-only parameter
80 _h	30 _h	Parameter Value Out Of Range	Written parameter value is outside its permitted value range
80 _h	31 _h	Parameter Value Above Limit	Written parameter value is above its specified value range
80 _h	32 _h	Parameter Value Below Limit	Written parameter value is below its specified value range
80 _h	33 _h	Parameter Length Overrun	Written parameter length is above its predefined length
80 _h	34 _h	Parameter Length Underrun	Written parameter length is below its predefined length
80 _h	35 _h	Function Not Available	Written command is not supported by the device application
80 _h	36 _h	Function temporarily Not Available	Written command is not available due to the current state of the device
80 _h	40 _h	Invalid Parameter Set	Written single parameter collides with other actual parameter settings
80 _h	41 _h	Inconsistent Parameter Set	Parameter inconsistencies were found at the end of the block parameter transfer, device plausibility check failed
81 _h	01 _h	MHM Trigger not available	First select OSS2 Logic = INPUT

EVENTS			
Code	Type	Name	Description
1800 _h	Warning	EMC Disturbances	EMC Disturbances detected by sensor
1801 _h	Warning	Under IOL Voltage	Under IOL Voltage detected by sensor
1802 _h	Error	Emitter Failure	Emitter Failure detected by sensor
1803 _h	Warning	Short Circuit	Short Circuit detected by sensor
1804 _h	Error	Under Voltage	Under Voltage detected by sensor
1805 _h	Warning	Disturbances on Receiver	Disturbances on Receiver detected by sensor
1806 _h	Warning	LED Regulation Limit	LED Regulation Limit detected by sensor
1807 _h	Error	Ferrite, Coil, PCB Failure	Ferrite, Coil, PCB Failure detected by sensor
1808 _h	Notification	Alarm 1	Alarm 1 Threshold reached
1809 _h	Notification	Alarm 2	Alarm 2 Threshold reached
180A _h	Notification	Alarm 3	Alarm 3 Threshold reached
180B _h	Notification	Trigger Teach	New SSC value is taught
5010 _h	Error	Component malfunction	Repair or exchange
7710 _h	Error	Short circuit	Check installation

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