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Special Documentation
Proline Promag 10
IO-Link

System integration

IO-Link

Endress+Hauser
People for Process Automation

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1 About this document

1.1 Document function

This manual is a Special Documentation; it does not replace the Operating Instructions pertaining to the device. It serves as a reference manual and a complementary source of information for the integration of field devices with a digital IO Link interface into process control systems and controllers.

1.2 Target audience

The document is aimed at specialists who integrate measuring devices into various control systems with specific configurations.

1.3 Content and scope

This Special Documentation contains the following information:
- Product features and availability
- Integration of the measuring device into a plant network

1.4 IODD

The device-specific parameters are configured via IO-Link. There are specific configuration or operating programs from different manufacturers available to the user for this purpose. The device description file (IODD) is provided for the device.

IO-Link operating concept
Operator-oriented menu structure for user-specific tasks. Efficient diagnostic behavior increases measurement availability:
- Diagnostic messages
- Remedial measures
- Simulation options

IODD download
Two options to download the IODD :
- www.endress.com/download
- https://ioddfinder.io-link.com/

www.endress.com/download

1. Select "Device drivers".
2. Select the "IO Device Description (IODD)" entry under "Type".
3. Select "Product root".
4. Click "Search".
   ↳ A list of search results is displayed.

Select the appropriate version and download.

https://ioddfinder.io-link.com/

1. Enter "Endress" as the manufacturer and select.
2. Select product name.
   ↳ A list of search results is displayed.

Select the appropriate version and download.

2 Process data

2.1 Process data input

Transmission direction	Byte 0	Byte 1	Byte 2	Byte 3
←	float32			
	Volume flow			

Transmission direction	Byte 4	Byte 5	Byte 6	Byte 7
←	float32			
	Conductivity			

Transmission direction	Byte 8	Byte 9	Byte 10	Byte 11
←	float32			
	Temperature			

Transmission direction	Byte 12	Byte 13	Byte 14	Byte 15
←	float32			
	Totalizer 1 value			

Transmission direction	Byte 16	Byte 17							
	uint8	bool	bool	bool	bool	bool	bool	bool	bool
←	Extended device status	SSC 4.2	SSC 4.1	SSC 3.2	SSC 3.1	SSC 2.2	SSC 2.1	SSC 1.2	SSC 1.1

Name	Description	Data type	Value range	Unit
Volume flow	Shows the volume flow currently measured	Float32T	-5.04e+24 5.04e+24 3.3e38=NoMeasurementData 2.65e38=OutOfRangeHigh -2.65e38=OutOfRangeLow	m^3/h
Conductivity	Shows the conductivity currently measured	Float32T	0 1.4E+21 3.3e38=NoMeasurementData 2.65e38=OutOfRangeHigh -2.65e38=OutOfRangeLow	S/m
Temperature	Shows the medium temperature currently measured	Float32T	-273.15 1.4e+21 3.3e38=NoMeasurementData 2.65e38=OutOfRangeHigh -2.65e38=OutOfRangeLow	°C
Totalizer 1 value	Displays the current totalizer counter value.	Float32T	-1.0e+7 1.0e+7 3.3e38=NoMeasurementData 2.65e38=OutOfRangeHigh -2.65e38=OutOfRangeLow	m^3

Name	Description	Data type	Value range	Unit
Extended device status	Displays the extended device status.	UIntegerT	0=Not specified 36=Failure 37=Failure - simulation 60=Function check 61=Function check - simulation 120=Out of specification 121=Out of specification - simulation 128=Good 129=Good - simulation 164=Maintenance required 165=Maintenance required - simulation	–
Switching signal channel 4.2 - Tot. 1	Displays the state of the switching signal channel (SSC).	BooleanT	0=Low 1=High	–
Switching signal channel 4.1 - Tot. 1	Displays the state of the switching signal channel (SSC).	BooleanT	0=Low 1=High	–
Switching signal channel 3.2 - Temp.	Displays the state of the switching signal channel (SSC).	BooleanT	0=Low 1=High	–
Switching signal channel 3.1 - Temp.	Displays the state of the switching signal channel (SSC).	BooleanT	0=Low 1=High	–
Switching signal channel 2.2 - Conduct.	Displays the state of the switching signal channel (SSC).	BooleanT	0=Low 1=High	–
Switching signal channel 2.1 - Conduct.	Displays the state of the switching signal channel (SSC).	BooleanT	0=Low 1=High	–
Switching signal channel 1.2 - Vol. fl.	Displays the state of the switching signal channel (SSC).	BooleanT	0=Low 1=High	–
Switching signal channel 1.1 - Vol. fl.	Displays the state of the switching signal channel (SSC).	BooleanT	0=Low 1=High	–

2.2 Process data output

Transmission direction	Byte 0								Byte 1							
←	bool	bool	bool	bool	bool	bool	bool	bool	bool	bool	bool	bool	bool	bool	bool	bool
	n/a [1]	n/a	n/a	n/a	n/a	n/a	Totalizer 1 – Totalize	Totalizer 1 – Reset + hold	Totalizer 1 – Reset + totalize	Totalizer 1 – Hold	Flow override	Device search	CSC 4 – Totalizer 1	CSC 3 – Temperature	CSC 2 – Density	CSC 1 – Mass flow

1) not available

Name	Description	Data type	Value range
Totalizer 1 - Totalize	Select "On" to start Totalizer 1. All other Totalizer 1 control parameters must be set to "Off".	BooleanT	0=Off 1=On
Totalizer 1 - Reset + hold	Select "On" to reset and stop Totalizer 1. All other Totalizer 1 control parameters must be set to "Off".	BooleanT	0=Off 1=On
Totalizer 1 - Reset + totalize	Select "On" to reset and restart Totalizer 1. All other Totalizer 1 control parameters must be set to "Off".	BooleanT	0=Off 1=On
Totalizer 1 - Hold	Select "On" to stop Totalizer 1. All other Totalizer 1 control parameters must be set to "Off".	BooleanT	0=Off 1=On
Flow override	Select "On" to activate flow override. Flow override is active until the parameter is set to "Off".	BooleanT	0=Off 1=On
Device search	Select "On" to activate device search (if supported). The device will emit visual signals for 30 minutes or until the parameter is set to "Off".	BooleanT	0=Off 1=On

Name	Description	Data type	Value range
Control signal channel 4 - Totalizer 1	Select "On" to set Measurement Data Channel 4 to the value "No measurement data". If set to "Off", the channel reports the process value.	BooleanT	0=Off 1=On
Control signal channel 3 - Temperature	Select "On" to set Measurement Data Channel 3 to the value "No measurement data". If set to "Off", the channel reports the process value.	BooleanT	0=Off 1=On
Control signal channel 2 - Conductivity	Select "On" to set Measurement Data Channel 2 to the value "No measurement data". If set to "Off", the channel reports the process value.	BooleanT	0=Off 1=On
Control signal channel 1 - Volume flow	Select "On" to set Measurement Data Channel 1 to the value "No measurement data". If set to "Off", the channel reports the process value.	BooleanT	0=Off 1=On

3 Parameter table

3.1 Identification

Description (Identifier)	Index (hex)	Sub (dec)	Size (byte)	Data type	Access	Value range	Unit	Default value	Data storage
Vendor name	0x0010	0	32	StringT	r/-			Endress+Hauser	No
Vendor text	0x0011	0	32	StringT	r/-			People for Process Automation	No
Product name	0x0012	0	32	StringT	r/-			Promag 10	No
Product text	0x0014	0	64	StringT	r/-			Electro magnetic flowmeter	No
Product ID	0x0013	0	64	StringT	r/-			Promag 10	No
Serial number	0x0015	0	11	StringT	r/-			79AFFF16000	No
Hardware version	0x0016	0	16	StringT	r/-			01.00.00	No
Firmware version	0x0017	0	8	StringT	r/-			01.00	No
Application specific tag	0x0018	0	32	StringT	r/w			***	Yes
Function tag	0x0019	0	32	StringT	r/w			***	Yes
Location tag	0x001a	0	32	StringT	r/w			***	Yes
Order code	0x3057	0	20	StringT	r/-			- none -	No
Extended order code	0x0103	0	60	StringT	r/-			----------	No
Device search	0x306f	0	2	UIntegerT	r/w	0=Off 1=On		0=Off	No
Device ID	0x1001	0	4	UIntegerT	r/-	0 .. 4294967295		0	No

3.2 Parameter

Description (Identifier)	Index (hex)	Sub (dec)	Size (byte)	Data type	Access	Value range	Unit	Default value	Data storage
Reset all totalizers	0x0869	0	2	UIntegerT	r/w	0=Cancel 1=Reset + totalize		0=Cancel	No
Assign process variable 1	0x082e	0	2	UIntegerT	r/w	0=Off 1=Volume flow 11=Mass flow		1=Volume flow	Yes
Totalizer 1 operation mode	0x0822	0	2	UIntegerT	r/w	0=Net 1=Forward 2=Reverse		0=Net	Yes
Totalizer 1 control	0x0834	0	2	UIntegerT	r/w	0=Totalize 1=Reset + totalize 2=Preset + hold 3=Reset + hold 5=Hold		0=Totalize	Yes
Preset value 1	0x0837	0	4	Float32T	r/w	-3.4E+38 3.4E+38	m^3	0.0	Yes

Description (Identifier)	Index (hex)	Sub (dec)	Size (byte)	Data type	Access	Value range	Unit	Default value	Data storage
Totalizer 1 failure behavior	0x082b	0	2	UIntegerT	r/w	0=Hold 1=Continue 2=Last valid value + continue		0=Hold	Yes
Assign process variable 2	0x082f	0	2	UIntegerT	r/w	0=Off 1=Volume flow 11=Mass flow		1=Volume flow	Yes
Totalizer 2 operation mode	0x0823	0	2	UIntegerT	r/w	0=Net 1=Forward 2=Reverse		0=Net	Yes
Totalizer 2 control	0x0835	0	2	UIntegerT	r/w	0=Totalize 1=Reset + totalize 2=Preset + hold 3=Reset + hold 5=Hold		0=Totalize	Yes
Preset value 2	0x0838	0	4	Float32T	r/w		m^3 m^3 kg	0.0	Yes
Totalizer 2 failure behavior	0x082c	0	2	UIntegerT	r/w	0=Hold 1=Continue 2=Last valid value + continue		0=Hold	Yes
Assign process variable 3	0x0830	0	2	UIntegerT	r/w	0=Off 1=Volume flow 11=Mass flow		1=Volume flow	Yes
Totalizer 3 operation mode	0x0824	0	2	UIntegerT	r/w	0=Net 1=Forward 2=Reverse		0=Net	Yes
Totalizer 3 control	0x0836	0	2	UIntegerT	r/w	0=Totalize 1=Reset + totalize 2=Preset + hold 3=Reset + hold 5=Hold		0=Totalize	Yes
Preset value 3	0x0839	0	4	Float32T	r/w		m^3 m^3 kg	0.0	Yes
Totalizer 3 failure behavior	0x082d	0	2	UIntegerT	r/w	0=Hold 1=Continue 2=Last valid value + continue		0=Hold	Yes
Flow damping	0x0874	0	1	UIntegerT	r/w	0 15		7	Yes
Flow override	0x083d	0	2	UIntegerT	r/w	0=Off 1=On		0=Off	No
Conductivity measurement	0x0872	0	2	UIntegerT	r/w	0=Off 1=On		0=Off	Yes
Conductivity temperature coefficient	0x0859	0	4	Float32T	r/w	-1.4E+21 1.4E+21	%/K	2.1	Yes
Fixed density	0x0870	0	4	Float32T	r/w	0 3.0e+38	kg/m^3	1000.0	Yes
Low flow cutoff	0x084e	0	2	UIntegerT	r/w	0=Off 1=Volume flow 11=Mass flow		1=Volume flow	Yes
On value low flow cutoff	0x0813	0	4	Float32T	r/w		m^3/s kg/s	0	Yes

Description (Identifier)	Index (hex)	Sub (dec)	Size (byte)	Data type	Access	Value range	Unit	Default value	Data storage
Off value low flow cutoff	0x083e	0	4	Float32T	r/w	0 100.0	%	50.0	Yes
Pressure shock suppression	0x083c	0	4	Float32T	r/w	0 100	s	0.0	No
Empty pipe detection	0x084f	0	2	UIntegerT	r/w	0=Off 1=On		0=Off	Yes
New adjustment	0x086f	0	2	UIntegerT	r/w	0=Cancel 1=Empty pipe adjust 2=Full pipe adjust		0=Cancel	No
Empty pipe adjust value	0x0857	0	4	Float32T	r/-	0 3.4E+38	Ohm	1000000.0	No
Full pipe adjust value	0x0858	0	4	Float32T	r/-	0 3.4E+38	Ohm	1000.0	No
Measured value EPD	0x0871	0	4	Float32T	r/-	0 3.4E+38	Ohm	0.0	No
Installation direction	0x0811	0	2	UIntegerT	r/w	0=Forward flow 1=Reverse flow		0=Forward flow	Yes
SP 1	0x003c	1	4	Float32T	r/w	-1.4E+21 1.4E+21	m^3/s	0.0	Yes
SP 2	0x003c	2	4	Float32T	r/w	-1.4E+21 1.4E+21	m^3/s	0.0	Yes
Logic	0x003d	1	1	UIntegerT	r/w	0=High active 1=Low active		0=High active	Yes
Mode	0x003d	2	1	UIntegerT	r/w	0=Deactivated 1=Single point 2=Window 3=Two point		0=Deactivated	Yes
Hysteresis	0x003d	3	4	Float32T	r/w	-1.4E+21 1.4E+21	m^3/s	0.0	Yes
Switching signal channel 1.1 - Vol. fl.	0x3026	0	1	BooleanT	r/-	0=Low 255=High		255=High	No
SP 1	0x003e	1	4	Float32T	r/w	-1.4E+21 1.4E+21	m^3/s	0.0	Yes
SP 2	0x003e	2	4	Float32T	r/w	-1.4E+21 1.4E+21	m^3/s	0.0	Yes
Logic	0x003f	1	1	UIntegerT	r/w	0=High active 1=Low active		0=High active	Yes
Mode	0x003f	2	1	UIntegerT	r/w	0=Deactivated 1=Single point 2=Window 3=Two point		0=Deactivated	Yes
Hysteresis	0x003f	3	4	Float32T	r/w	-1.4E+21 1.4E+21	m^3/s	0.0	Yes
Switching signal channel 1.2 - Vol. fl.	0x302a	0	1	BooleanT	r/-	0=Low 255=High		255=High	No
SP 1	0x400c	1	4	Float32T	r/w	0 10000	S/m	0.0	Yes
SP 2	0x400c	2	4	Float32T	r/w	0 10000	S/m	0.0	Yes
Logic	0x400d	1	1	UIntegerT	r/w	0=High active 1=Low active		0=High active	Yes

Description (Identifier)	Index (hex)	Sub (dec)	Size (byte)	Data type	Access	Value range	Unit	Default value	Data storage
Mode	0x400d	2	1	UIntegerT	r/w	0=Deactivated 1=Single point 2=Window 3=Two point		0=Deactivated	Yes
Hysteresis	0x400d	3	4	Float32T	r/w	0 10000	S/m	0.0	Yes
Switching signal channel 2.1 - Conduct.	0x3027	0	1	BooleanT	r/-	0=Low 255=High		255=High	No
SP 1	0x400e	1	4	Float32T	r/w	0 10000	S/m	0.0	Yes
SP 2	0x400e	2	4	Float32T	r/w	0 10000	S/m	0.0	Yes
Logic	0x400f	1	1	UIntegerT	r/w	0=High active 1=Low active		0=High active	Yes
Mode	0x400f	2	1	UIntegerT	r/w	0=Deactivated 1=Single point 2=Window 3=Two point		0=Deactivated	Yes
Hysteresis	0x400f	3	4	Float32T	r/w	0 10000	S/m	0.0	Yes
Switching signal channel 2.2 - Conduct.	0x302b	0	1	BooleanT	r/-	0=Low 255=High		255=High	No
SP 1	0x401c	1	4	Float32T	r/w	0 99999.9999	K	0.0	Yes
SP 2	0x401c	2	4	Float32T	r/w	0 99999.9999	K	0.0	Yes
Logic	0x401d	1	1	UIntegerT	r/w	0=High active 1=Low active		0=High active	Yes
Mode	0x401d	2	1	UIntegerT	r/w	0=Deactivated 1=Single point 2=Window 3=Two point		0=Deactivated	Yes
Hysteresis	0x401d	3	4	Float32T	r/w	0 99999.9999		0.0	Yes
Switching signal channel 3.1 - Temp.	0x3028	0	1	BooleanT	r/-	0=Low 255=High		255=High	No
SP 1	0x401e	1	4	Float32T	r/w	0 99999.9999	K	0.0	Yes
SP 2	0x401e	2	4	Float32T	r/w	0 99999.9999	K	0.0	Yes
Logic	0x401f	1	1	UIntegerT	r/w	0=High active 1=Low active		0=High active	Yes
Mode	0x401f	2	1	UIntegerT	r/w	0=Deactivated 1=Single point 2=Window 3=Two point		0=Deactivated	Yes
Hysteresis	0x401f	3	4	Float32T	r/w	0 99999.9999		0.0	Yes
Switching signal channel 3.2 - Temp.	0x302c	0	1	BooleanT	r/-	0=Low 255=High		255=High	No

Description (Identifier)	Index (hex)	Sub (dec)	Size (byte)	Data type	Access	Value range	Unit	Default value	Data storage
SP 1	0x402c	1	4	Float32T	r/w	-3.4E+38 3.4E+38	m^3	0.0	Yes
SP 2	0x402c	2	4	Float32T	r/w	-3.4E+38 3.4E+38	m^3	0.0	Yes
Logic	0x402d	1	1	UIntegerT	r/w	0=High active 1=Low active		0=High active	Yes
Mode	0x402d	2	1	UIntegerT	r/w	0=Deactivated 1=Single point 2=Window 3=Two point		0=Deactivated	Yes
Hysteresis	0x402d	3	4	Float32T	r/w	-3.4E+38 3.4E+38	m^3	0.0	Yes
Switching signal channel 4.1 - Tot. 1	0x3029	0	1	BooleanT	r/-	0=Low 255=High		255=High	No
SP 1	0x402e	1	4	Float32T	r/w	-3.4E+38 3.4E+38	m^3	0.0	Yes
SP 2	0x402e	2	4	Float32T	r/w	-3.4E+38 3.4E+38	m^3	0.0	Yes
Logic	0x402f	1	1	UIntegerT	r/w	0=High active 1=Low active		0=High active	Yes
Mode	0x402f	2	1	UIntegerT	r/w	0=Deactivated 1=Single point 2=Window 3=Two point		0=Deactivated	Yes
Hysteresis	0x402f	3	4	Float32T	r/w	-3.4E+38 3.4E+38	m^3	0.0	Yes
Switching signal channel 4.2 - Tot. 1	0x302d	0	1	BooleanT	r/-	0=Low 255=High		255=High	No
Teach select	0x003a	0	1	UIntegerT	r/w	1=SSC 1.1 2=SSC 1.2 11=SSC 2.1 12=SSC 2.2 21=SSC 3.1 22=SSC 3.2 31=SSC 4.1 32=SSC 4.2		1=SSC 1.1	No
System command	0x0002	0	1	UIntegerT	-/w	65=Teach SP 1			No
System command	0x0002	0	1	UIntegerT	-/w	66=Teach SP 2			No
Teach result	0x003b	0	1	UIntegerT	r/-	0=Idle 1=SP 1 success 2=SP 2 success 3=SP 1, SP2 success 4=Wait for command 5=Busy 7=Error		0=Idle	No
Volume flow unit	0x0143	0	2	UIntegerT	r/-	10=m^3/h		10=m^3/h	No
Mass flow unit	0x0145	0	2	UIntegerT	r/-	4=kg/s		4=kg/s	No
Density unit	0x0144	0	2	UIntegerT	r/-	44=kg/m^3		44=kg/m^3	No
Temperature unit	0x013b	0	2	UIntegerT	r/-	0=°C		0=°C	No

Description (Identifier)	Index (hex)	Sub (dec)	Size (byte)	Data type	Access	Value range	Unit	Default value	Data storage
Conductivity unit	0x0148	0	2	UIntegerT	r/-	3=S/m		3=S/m	No
Temporarily locked	0x3035	0	1	UIntegerT	r/-	0=Off 1=On		0=Off	No
Hardware locked	0x3034	0	1	UIntegerT	r/-	0=Off 1=On		0=Off	No
Configuration counter	0x086a	0	2	UIntegerT	r/-	0 65535		0	No
System command	0x0002	0	1	UIntegerT	-/w	128=Device reset			No
System command	0x0002	0	1	UIntegerT	-/w	131=Back-to-box			No
System command	0x0002	0	1	UIntegerT	-/w	160=Restore S-DAT backup			No
System command	0x0002	0	1	UIntegerT	-/w	161=Create T-DAT backup			No
System command	0x0002	0	1	UIntegerT	-/w	162=Restore T-DAT backup			No
Bluetooth	0x0882	0	2	UIntegerT	r/w	0=Disable 1=Enable 4=Not available		1=Enable	Yes
Communication established	0x0883	0	2	UIntegerT	r/-	0=Yes 1=No		1=No	No
Time format	0x0158	0	2	UIntegerT	r/w	12=12 h AM/PM 24=24 h		24=24 h	Yes

Description (Identifier)	Index (hex)	Sub (dec)	Size (byte)	Data type	Access	Value range	Unit	Default value	Data storage
Time zone	0x0159	0	2	UIntegerT	r/w	0=UTC 00:00 1=UTC+01:00 2=UTC+02:00 3=UTC+03:00 4=UTC+04:00 5=UTC+05:00 6=UTC+06:00 7=UTC+07:00 8=UTC+08:00 9=UTC+09:00 10=UTC+10:00 11=UTC+11:00 12=UTC+12:00 13=UTC+13:00 14=UTC+14:00 35=UTC+03:30 45=UTC+04:30 55=UTC+05:30 57=UTC+05:45 65=UTC+06:30 87=UTC+08:45 95=UTC+09:30 105=UTC+10:30 127=UTC+12:45 135=UTC-03:30 195=UTC-09:30 201=UTC-01:00 202=UTC-02:00 203=UTC-03:00 204=UTC-04:00 205=UTC-05:00 206=UTC-06:00 207=UTC-07:00 208=UTC-08:00 209=UTC-09:00 210=UTC-10:00 211=UTC-11:00 212=UTC-12:00		0=UTC 00:00	Yes
Date/time	0x086e	0	22	StringT	r/-			01.01.1970 00:00:00	No
Language	0x0888	0	2	UIntegerT	r/w	0=English 1=Deutsch 2=Français 3=Español 4=Italiano 5=Nederlands 8=Svenska 10=Bahasa Indonesia 11=日本語 (Japanese) 12=Portuguesa 13=Polski 14=русский язык (Russian) 15=čeština (Czech) 16=中文 (Chinese) 17=ภาษาไทย (Thai) 18=Türkçe 19=tiếng Việt (Vietnamese) 20=한국어 (Korean) 21=العَرَبِيّة (Arabic)		0=English	Yes

Description (Identifier)	Index (hex)	Sub (dec)	Size (byte)	Data type	Access	Value range	Unit	Default value	Data storage
Value 1 display	0x0884	0	2	UIntegerT	r/w	1=Volume flow 4=Conductivity 7=Temperature 11=Mass flow 13=Corrected conductivity 16=Totalizer 1 17=Totalizer 2 18=Totalizer 3 40=Noise 41=Coil current shot time		1=Volume flow	Yes
Value 2 display	0x0885	0	2	UIntegerT	r/w	1=Volume flow 4=Conductivity 7=Temperature 11=Mass flow 13=Corrected conductivity 16=Totalizer 1 17=Totalizer 2 18=Totalizer 3 40=Noise 41=Coil current shot time 251=None		251=None	Yes
Value 3 display	0x0886	0	2	UIntegerT	r/w	1=Volume flow 4=Conductivity 7=Temperature 11=Mass flow 13=Corrected conductivity 16=Totalizer 1 17=Totalizer 2 18=Totalizer 3 40=Noise 41=Coil current shot time 251=None		251=None	Yes
Value 4 display	0x0887	0	2	UIntegerT	r/w	1=Volume flow 4=Conductivity 7=Temperature 11=Mass flow 13=Corrected conductivity 16=Totalizer 1 17=Totalizer 2 18=Totalizer 3 40=Noise 41=Coil current shot time 251=None		251=None	Yes
Display damping	0x088c	0	4	Float32T	r/w	0.0 999.9	s	0.0	Yes
Rotation display	0x088b	0	2	UIntegerT	r/w	0=0 degree 8=Auto 9=90 degree 18=180 degree 27=270 degree		0=0 degree	Yes
Brightness	0x0889	0	4	Float32T	r/w	0 100	%	100.0	Yes
Color scheme	0x088d	0	2	UIntegerT	r/w	11=Light 12=Dark		11=Light	Yes

Description (Identifier)	Index (hex)	Sub (dec)	Size (byte)	Data type	Access	Value range	Unit	Default value	Data storage
Heartbeat Verification	0x3036	0	1	UIntegerT	r/-	0=Off 1=On		0=Off	No
Heartbeat Monitoring	0x3037	0	1	UIntegerT	r/-	0=Off 1=On		0=Off	No

3.3 Observation

Description (Identifier)	Index (hex)	Sub (dec)	Size (byte)	Data type	Access	Value range	Unit	Default value	Data storage
Volume flow	0x0814	0	4	Float32T	r/-	-1.4E+21 .. 1.4E+21	m^3/s	0.0	No
Conductivity	0x0817	0	4	Float32T	r/-	0 .. 1.4E+21	S/m	0.05	No
Temperature	0x0815	0	4	Float32T	r/-	0 .. 1.4E+21	K	293.15	No
Totalizer 1 value	0x0825	0	4	Float32T	r/-	-1.0e+7 .. 1.0e+7	m^3	0.0	No
Totalizer 1 overflow	0x0828	0	4	Float32T	r/-	-32000.0 .. 32000.0		0.0	No
Extended device status	0x23e4	0	1	UIntegerT	r/-	0=Not specified 36=Failure 37=Failure - simulation 60=Function check 61=Function check - simulation 120=Out of specification 121=Out of specification - simulation 128=Good 129=Good - simulation 164=Maintenance required 165=Maintenance required - simulation		0=Not specified	No
Switching signal channel 1.1 - Vol. fl.	0x3026	0	1	BooleanT	r/-	0=Low 255=High		255=High	No
Switching signal channel 1.2 - Vol. fl.	0x302a	0	1	BooleanT	r/-	0=Low 255=High		255=High	No
Switching signal channel 2.1 - Conduct.	0x3027	0	1	BooleanT	r/-	0=Low 255=High		255=High	No
Switching signal channel 2.2 - Conduct.	0x302b	0	1	BooleanT	r/-	0=Low 255=High		255=High	No
Switching signal channel 3.1 - Temp.	0x3028	0	1	BooleanT	r/-	0=Low 255=High		255=High	No
Switching signal channel 3.2 - Temp.	0x302c	0	1	BooleanT	r/-	0=Low 255=High		255=High	No
Switching signal channel 4.1 - Tot. 1	0x3029	0	1	BooleanT	r/-	0=Low 255=High		255=High	No

Description (Identifier)	Index (hex)	Sub (dec)	Size (byte)	Data type	Access	Value range	Unit	Default value	Data storage
Switching signal channel 4.2 - Tot. 1	0x302d	0	1	BooleanT	r/-	0=Low 255=High		255=High	No
Mass flow	0x0843	0	4	Float32T	r/-	-1.4E+21 1.4E+21	kg/s	1.0	No
Corrected conductivity	0x0818	0	4	Float32T	r/-	0 1.4E+21	S/m	1.0	No
Totalizer 2 value	0x0826	0	4	Float32T	r/-		m^3 m^3 kg	0.0	No
Totalizer 2 overflow	0x0829	0	4	Float32T	r/-	-32000.0 32000.0		0.0	No
Totalizer 3 value	0x0827	0	4	Float32T	r/-		m^3 m^3 kg	0.0	No
Totalizer 3 overflow	0x082a	0	4	Float32T	r/-	-32000.0 32000.0		0.0	No
Totalizer 1 - Totalize	0x018d	0	1	BooleanT	r/-	0=Off 255=On		0	No
Totalizer 1 - Reset + hold	0x018c	0	1	BooleanT	r/-	0=Off 255=On		0	No
Totalizer 1 - Reset + totalize	0x018b	0	1	BooleanT	r/-	0=Off 255=On		0	No
Totalizer 1 - Hold	0x018a	0	1	BooleanT	r/-	0=Off 255=On		0	No
Flow override	0x1003	0	1	BooleanT	r/-	0=Off 255=On		0	No
Device search	0x0189	0	1	BooleanT	r/-	0=Off 255=On		0	No
Control signal channel 1 - Volume flow	0x1004	0	1	BooleanT	r/-	0=Off 255=On		0	No
Control signal channel 2 - Conductivity	0x1002	0	1	BooleanT	r/-	0=Off 255=On		0	No
Control signal channel 3 - Temperature	0x1006	0	1	BooleanT	r/-	0=Off 255=On		0	No
Control signal channel 4 - Totalizer 1	0x1005	0	1	BooleanT	r/-	0=Off 255=On		0	No

3.4 Diagnosis

Description (Identifier)	Index (hex)	Sub (dec)	Size (byte)	Data type	Access	Value range	Unit	Default value	Data storage
Device Status	0x0024	0	1	UIntegerT	r/-	0=Device OK 1=Maintenance required 2=Out of specification 3=Functional check 4=Failure		0=Device OK	No
Detailed device status	0x0025	0	15	StringT	r/-			0x00, 0x0, 0x0	No
Detailed device status	0x0025	1	15	StringT	r/-			0x00, 0x0, 0x0	No
Detailed device status	0x0025	2	15	StringT	r/-			0x00, 0x0, 0x0	No
Detailed device status	0x0025	3	15	StringT	r/-			0x00, 0x0, 0x0	No
Detailed device status	0x0025	4	15	StringT	r/-			0x00, 0x0, 0x0	No

Description (Identifier)	Index (hex)	Sub (dec)	Size (byte)	Data type	Access	Value range	Unit	Default value	Data storage
Actual diagnostics	0x0129	0	4	UIntegerT	r/-	0=-------- 16777312=F437 Configuration incompatible 16777319=F242 Firmware incompatible 16777323=F252 Module incompatible 16777355=F410 Data transfer failed 16777376=F083 Memory content inconsistent 16777429=F180 Temperature sensor defective 16777430=F180 Temperature sensor defective 16777447=F082 Data storage inconsistent 16777499=F938 Coil current not stable 16777500=F181 Sensor connection faulty 16777504=F372 Sensor electronics (ISEM) faulty 16777547=F201 Electronics faulty 16777582=F383 Memory content 16777583=F283 Memory content inconsistent 16777864=F387 HistoROM data faulty 16777920=F252 Module incompatible 16777930=F331 Firmware update failed in module 1 16777931=F372 Sensor electronics (ISEM) faulty 16777932=F372 Sensor electronics (ISEM) faulty 16777933=F372 Sensor electronics (ISEM) faulty 16777935=F372 Sensor electronics (ISEM) faulty 16777936=F372 Sensor electronics (ISEM) faulty 16777937=F373 Sensor electronics (ISEM) faulty 16777944=F170 Coil resistance faulty 16777945=F170 Coil resistance faulty 16777952=F181 Sensor connection faulty		0=--------	No

Description (Identifier)	Index (hex)	Sub (dec)	Size (byte)	Data type	Access	Value range	Unit	Default value	Data storage
						16778224=F378 Elec.supp.volt. 16778408=F278 Display module defective 16778409=F278 Display module defective 16778490=F419 Power cycle required 16843466=F331 Firmware update failed in module 2 16909002=F331 Firmware update failed in module 3 33554576=C484 Failure mode simulation active 33554579=C485 Process variable simulation active 33554580=C453 Flow override active 33554782=C495 Diagnostic event simulation active 33554926=C302 Device verification active 33554948=C412 Processing download 33555228=C511 Electronic module settings faulty 67108970=M438 Dataset different 67109090=M311 Sensor electronics (ISEM) faulty 67109770=M169 Conductivity measurement failed 67109840=M168 Buildup limit exceeded 67109921=M230 Date/time incorrect 67110029=M231 Date/time not available 67110030=M230 Date/time incorrect 134217873=S842 Process value below limit 134217874=S962 Pipe empty 134217921=S833 Sensor elec.temp 134217923=S832 Sensor elec.temp 134217925=S834 Process temperature too high 134217926=S835 Process temperature too low			

Description (Identifier)	Index (hex)	Sub (dec)	Size (byte)	Data type	Access	Value range	Unit	Default value	Data storage
						134218009=S376 Sensor electronics (ISEM) faulty 134218067=S043 Sensor short circuit detected 134218068=S937 Sensor symmetry 134218069=S961 Electrod.potent. 134218090=S376 Sensor electronics (ISEM) faulty 134218182=S944 Monitoring failed 134218276=S937 Sensor symmetry 134218458=S376 Sensor electronics (ISEM) faulty 134218459=S376 Sensor electronics (ISEM) faulty 134218460=S376 Sensor electronics (ISEM) faulty 134218461=S376 Sensor electronics (ISEM) faulty 134218462=S377 Electrode signal faulty			
Active diagnostic IO-Link	0x3039	0	2	UIntegerT	r/-	0 65535		0	No
Timestamp	0x0152	0	22	StringT	r/-				No

Description (Identifier)	Index (hex)	Sub (dec)	Size (byte)	Data type	Access	Value range	Unit	Default value	Data storage
Previous diagnostics	0x012a	0	4	UIntegerT	r/-	0=-------- 16777312=F437 Configuration incompatible 16777319=F242 Firmware incompatible 16777323=F252 Module incompatible 16777355=F410 Data transfer failed 16777376=F083 Memory content inconsistent 16777429=F180 Temperature sensor defective 16777430=F180 Temperature sensor defective 16777447=F082 Data storage inconsistent 16777499=F938 Coil current not stable 16777500=F181 Sensor connection faulty 16777504=F372 Sensor electronics (ISEM) faulty 16777547=F201 Electronics faulty 16777582=F383 Memory content 16777583=F283 Memory content inconsistent 16777864=F387 HistoROM data faulty 16777920=F252 Module incompatible 16777930=F331 Firmware update failed in module 1 16777931=F372 Sensor electronics (ISEM) faulty 16777932=F372 Sensor electronics (ISEM) faulty 16777933=F372 Sensor electronics (ISEM) faulty 16777935=F372 Sensor electronics (ISEM) faulty 16777936=F372 Sensor electronics (ISEM) faulty 16777937=F373 Sensor electronics (ISEM) faulty 16777944=F170 Coil resistance faulty 16777945=F170 Coil resistance faulty 16777952=F181 Sensor connection faulty		0=--------	No

Description (Identifier)	Index (hex)	Sub (dec)	Size (byte)	Data type	Access	Value range	Unit	Default value	Data storage
						16778224=F378 Elec.supp.volt. 16778408=F278 Display module defective 16778409=F278 Display module defective 16778490=F419 Power cycle required 16843466=F331 Firmware update failed in module 2 16909002=F331 Firmware update failed in module 3 33554576=C484 Failure mode simulation active 33554579=C485 Process variable simulation active 33554580=C453 Flow override active 33554782=C495 Diagnostic event simulation active 33554926=C302 Device verification active 33554948=C412 Processing download 33555228=C511 Electronic module settings faulty 67108970=M438 Dataset different 67109090=M311 Sensor electronics (ISEM) faulty 67109770=M169 Conductivity measurement failed 67109840=M168 Buildup limit exceeded 67109921=M230 Date/time incorrect 67110029=M231 Date/time not available 67110030=M230 Date/time incorrect 134217873=S842 Process value below limit 134217874=S962 Pipe empty 134217921=S833 Sensor elec.temp 134217923=S832 Sensor elec.temp 134217925=S834 Process temperature too high 134217926=S835 Process temperature too low			

Description (Identifier)	Index (hex)	Sub (dec)	Size (byte)	Data type	Access	Value range	Unit	Default value	Data storage
						134218009=S376 Sensor electronics (ISEM) faulty 134218067=S043 Sensor short circuit detected 134218068=S937 Sensor symmetry 134218069=S961 Electrod.potent. 134218090=S376 Sensor electronics (ISEM) faulty 134218182=S944 Monitoring failed 134218276=S937 Sensor symmetry 134218458=S376 Sensor electronics (ISEM) faulty 134218459=S376 Sensor electronics (ISEM) faulty 134218460=S376 Sensor electronics (ISEM) faulty 134218461=S376 Sensor electronics (ISEM) faulty 134218462=S377 Electrode signal faulty			
Last diagnostic IO-Link	0x303a	0	2	UIntegerT	r/-	0 65535		0	No
Timestamp	0x0151	0	22	StringT	r/-				No
Operating time from restart	0x011d	0	14	StringT	r/-				No
Operating time	0x014b	0	14	StringT	r/-				No

Description (Identifier)	Index (hex)	Sub (dec)	Size (byte)	Data type	Access	Value range	Unit	Default value	Data storage
Diagnostics 1	0x0153	0	4	UIntegerT	r/-	0=-------- 16777312=F437 Configuration incompatible 16777319=F242 Firmware incompatible 16777323=F252 Module incompatible 16777355=F410 Data transfer failed 16777376=F083 Memory content inconsistent 16777429=F180 Temperature sensor defective 16777430=F180 Temperature sensor defective 16777447=F082 Data storage inconsistent 16777499=F938 Coil current not stable 16777500=F181 Sensor connection faulty 16777504=F372 Sensor electronics (ISEM) faulty 16777547=F201 Electronics faulty 16777582=F383 Memory content 16777583=F283 Memory content inconsistent 16777864=F387 HistoROM data faulty 16777920=F252 Module incompatible 16777930=F331 Firmware update failed in module 1 16777931=F372 Sensor electronics (ISEM) faulty 16777932=F372 Sensor electronics (ISEM) faulty 16777933=F372 Sensor electronics (ISEM) faulty 16777935=F372 Sensor electronics (ISEM) faulty 16777936=F372 Sensor electronics (ISEM) faulty 16777937=F373 Sensor electronics (ISEM) faulty 16777944=F170 Coil resistance faulty 16777945=F170 Coil resistance faulty 16777952=F181 Sensor connection faulty		0=--------	No

Description (Identifier)	Index (hex)	Sub (dec)	Size (byte)	Data type	Access	Value range	Unit	Default value	Data storage
						16778224=F378 Elec.supp.volt. 16778408=F278 Display module defective 16778409=F278 Display module defective 16778490=F419 Power cycle required 16843466=F331 Firmware update failed in module 2 16909002=F331 Firmware update failed in module 3 33554576=C484 Failure mode simulation active 33554579=C485 Process variable simulation active 33554580=C453 Flow override active 33554782=C495 Diagnostic event simulation active 33554926=C302 Device verification active 33554948=C412 Processing download 33555228=C511 Electronic module settings faulty 67108970=M438 Dataset different 67109090=M311 Sensor electronics (ISEM) faulty 67109770=M169 Conductivity measurement failed 67109840=M168 Buildup limit exceeded 67109921=M230 Date/time incorrect 67110029=M231 Date/time not available 67110030=M230 Date/time incorrect 134217873=S842 Process value below limit 134217874=S962 Pipe empty 134217921=S833 Sensor elec.temp 134217923=S832 Sensor elec.temp 134217925=S834 Process temperature too high 134217926=S835 Process temperature too low			

Description (Identifier)	Index (hex)	Sub (dec)	Size (byte)	Data type	Access	Value range	Unit	Default value	Data storage
						134218009=S376 Sensor electronics (ISEM) faulty 134218067=S043 Sensor short circuit detected 134218068=S937 Sensor symmetry 134218069=S961 Electrod.potent. 134218090=S376 Sensor electronics (ISEM) faulty 134218182=S944 Monitoring failed 134218276=S937 Sensor symmetry 134218458=S376 Sensor electronics (ISEM) faulty 134218459=S376 Sensor electronics (ISEM) faulty 134218460=S376 Sensor electronics (ISEM) faulty 134218461=S376 Sensor electronics (ISEM) faulty 134218462=S377 Electrode signal faulty			
Diagnostic 1 IO-Link	0x303b	0	2	UIntegerT	r/-	0 65535		0	No
Timestamp	0x0150	0	22	StringT	r/-				No

Description (Identifier)	Index (hex)	Sub (dec)	Size (byte)	Data type	Access	Value range	Unit	Default value	Data storage
Diagnostics 2	0x0154	0	4	UIntegerT	r/-	0=-------- 16777312=F437 Configuration incompatible 16777319=F242 Firmware incompatible 16777323=F252 Module incompatible 16777355=F410 Data transfer failed 16777376=F083 Memory content inconsistent 16777429=F180 Temperature sensor defective 16777430=F180 Temperature sensor defective 16777447=F082 Data storage inconsistent 16777499=F938 Coil current not stable 16777500=F181 Sensor connection faulty 16777504=F372 Sensor electronics (ISEM) faulty 16777547=F201 Electronics faulty 16777582=F383 Memory content 16777583=F283 Memory content inconsistent 16777864=F387 HistoROM data faulty 16777920=F252 Module incompatible 16777930=F331 Firmware update failed in module 1 16777931=F372 Sensor electronics (ISEM) faulty 16777932=F372 Sensor electronics (ISEM) faulty 16777933=F372 Sensor electronics (ISEM) faulty 16777935=F372 Sensor electronics (ISEM) faulty 16777936=F372 Sensor electronics (ISEM) faulty 16777937=F373 Sensor electronics (ISEM) faulty 16777944=F170 Coil resistance faulty 16777945=F170 Coil resistance faulty 16777952=F181 Sensor connection faulty		0=--------	No

Description (Identifier)	Index (hex)	Sub (dec)	Size (byte)	Data type	Access	Value range	Unit	Default value	Data storage
						16778224=F378 Elec.supp.volt. 16778408=F278 Display module defective 16778409=F278 Display module defective 16778490=F419 Power cycle required 16843466=F331 Firmware update failed in module 2 16909002=F331 Firmware update failed in module 3 33554576=C484 Failure mode simulation active 33554579=C485 Process variable simulation active 33554580=C453 Flow override active 33554782=C495 Diagnostic event simulation active 33554926=C302 Device verification active 33554948=C412 Processing download 33555228=C511 Electronic module settings faulty 67108970=M438 Dataset different 67109090=M311 Sensor electronics (ISEM) faulty 67109770=M169 Conductivity measurement failed 67109840=M168 Buildup limit exceeded 67109921=M230 Date/time incorrect 67110029=M231 Date/time not available 67110030=M230 Date/time incorrect 134217873=S842 Process value below limit 134217874=S962 Pipe empty 134217921=S833 Sensor elec.temp 134217923=S832 Sensor elec.temp 134217925=S834 Process temperature too high 134217926=S835 Process temperature too low			

Description (Identifier)	Index (hex)	Sub (dec)	Size (byte)	Data type	Access	Value range	Unit	Default value	Data storage
						134218009=S376 Sensor electronics (ISEM) faulty 134218067=S043 Sensor short circuit detected 134218068=S937 Sensor symmetry 134218069=S961 Electrod.potent. 134218090=S376 Sensor electronics (ISEM) faulty 134218182=S944 Monitoring failed 134218276=S937 Sensor symmetry 134218458=S376 Sensor electronics (ISEM) faulty 134218459=S376 Sensor electronics (ISEM) faulty 134218460=S376 Sensor electronics (ISEM) faulty 134218461=S376 Sensor electronics (ISEM) faulty 134218462=S377 Electrode signal faulty			
Diagnostic 2 IO-Link	0x303c	0	2	UIntegerT	r/-	0 65535		0	No
Timestamp	0x014f	0	22	StringT	r/-				No

Description (Identifier)	Index (hex)	Sub (dec)	Size (byte)	Data type	Access	Value range	Unit	Default value	Data storage
Diagnostics 3	0x0155	0	4	UIntegerT	r/-	0=-------- 16777312=F437 Configuration incompatible 16777319=F242 Firmware incompatible 16777323=F252 Module incompatible 16777355=F410 Data transfer failed 16777376=F083 Memory content inconsistent 16777429=F180 Temperature sensor defective 16777430=F180 Temperature sensor defective 16777447=F082 Data storage inconsistent 16777499=F938 Coil current not stable 16777500=F181 Sensor connection faulty 16777504=F372 Sensor electronics (ISEM) faulty 16777547=F201 Electronics faulty 16777582=F383 Memory content 16777583=F283 Memory content inconsistent 16777864=F387 HistoROM data faulty 16777920=F252 Module incompatible 16777930=F331 Firmware update failed in module 1 16777931=F372 Sensor electronics (ISEM) faulty 16777932=F372 Sensor electronics (ISEM) faulty 16777933=F372 Sensor electronics (ISEM) faulty 16777935=F372 Sensor electronics (ISEM) faulty 16777936=F372 Sensor electronics (ISEM) faulty 16777937=F373 Sensor electronics (ISEM) faulty 16777944=F170 Coil resistance faulty 16777945=F170 Coil resistance faulty 16777952=F181 Sensor connection faulty		0=--------	No

Description (Identifier)	Index (hex)	Sub (dec)	Size (byte)	Data type	Access	Value range	Unit	Default value	Data storage
						16778224=F378 Elec.supp.volt. 16778408=F278 Display module defective 16778409=F278 Display module defective 16778490=F419 Power cycle required 16843466=F331 Firmware update failed in module 2 16909002=F331 Firmware update failed in module 3 33554576=C484 Failure mode simulation active 33554579=C485 Process variable simulation active 33554580=C453 Flow override active 33554782=C495 Diagnostic event simulation active 33554926=C302 Device verification active 33554948=C412 Processing download 33555228=C511 Electronic module settings faulty 67108970=M438 Dataset different 67109090=M311 Sensor electronics (ISEM) faulty 67109770=M169 Conductivity measurement failed 67109840=M168 Buildup limit exceeded 67109921=M230 Date/time incorrect 67110029=M231 Date/time not available 67110030=M230 Date/time incorrect 134217873=S842 Process value below limit 134217874=S962 Pipe empty 134217921=S833 Sensor elec.temp 134217923=S832 Sensor elec.temp 134217925=S834 Process temperature too high 134217926=S835 Process temperature too low			

Description (Identifier)	Index (hex)	Sub (dec)	Size (byte)	Data type	Access	Value range	Unit	Default value	Data storage
						134218009=S376 Sensor electronics (ISEM) faulty 134218067=S043 Sensor short circuit detected 134218068=S937 Sensor symmetry 134218069=S961 Electrod.potent. 134218090=S376 Sensor electronics (ISEM) faulty 134218182=S944 Monitoring failed 134218276=S937 Sensor symmetry 134218458=S376 Sensor electronics (ISEM) faulty 134218459=S376 Sensor electronics (ISEM) faulty 134218460=S376 Sensor electronics (ISEM) faulty 134218461=S376 Sensor electronics (ISEM) faulty 134218462=S377 Electrode signal faulty			
Diagnostic 3 IO-Link	0x303d	0	2	UIntegerT	r/-	0 65535		0	No
Timestamp	0x014e	0	22	StringT	r/-				No

Description (Identifier)	Index (hex)	Sub (dec)	Size (byte)	Data type	Access	Value range	Unit	Default value	Data storage
Diagnostics 4	0x0156	0	4	UIntegerT	r/-	0=-------- 16777312=F437 Configuration incompatible 16777319=F242 Firmware incompatible 16777323=F252 Module incompatible 16777355=F410 Data transfer failed 16777376=F083 Memory content inconsistent 16777429=F180 Temperature sensor defective 16777430=F180 Temperature sensor defective 16777447=F082 Data storage inconsistent 16777499=F938 Coil current not stable 16777500=F181 Sensor connection faulty 16777504=F372 Sensor electronics (ISEM) faulty 16777547=F201 Electronics faulty 16777582=F383 Memory content 16777583=F283 Memory content inconsistent 16777864=F387 HistoROM data faulty 16777920=F252 Module incompatible 16777930=F331 Firmware update failed in module 1 16777931=F372 Sensor electronics (ISEM) faulty 16777932=F372 Sensor electronics (ISEM) faulty 16777933=F372 Sensor electronics (ISEM) faulty 16777935=F372 Sensor electronics (ISEM) faulty 16777936=F372 Sensor electronics (ISEM) faulty 16777937=F373 Sensor electronics (ISEM) faulty 16777944=F170 Coil resistance faulty 16777945=F170 Coil resistance faulty 16777952=F181 Sensor connection faulty		0=--------	No

Description (Identifier)	Index (hex)	Sub (dec)	Size (byte)	Data type	Access	Value range	Unit	Default value	Data storage
						16778224=F378 Elec.supp.volt. 16778408=F278 Display module defective 16778409=F278 Display module defective 16778490=F419 Power cycle required 16843466=F331 Firmware update failed in module 2 16909002=F331 Firmware update failed in module 3 33554576=C484 Failure mode simulation active 33554579=C485 Process variable simulation active 33554580=C453 Flow override active 33554782=C495 Diagnostic event simulation active 33554926=C302 Device verification active 33554948=C412 Processing download 33555228=C511 Electronic module settings faulty 67108970=M438 Dataset different 67109090=M311 Sensor electronics (ISEM) faulty 67109770=M169 Conductivity measurement failed 67109840=M168 Buildup limit exceeded 67109921=M230 Date/time incorrect 67110029=M231 Date/time not available 67110030=M230 Date/time incorrect 134217873=S842 Process value below limit 134217874=S962 Pipe empty 134217921=S833 Sensor elec.temp 134217923=S832 Sensor elec.temp 134217925=S834 Process temperature too high 134217926=S835 Process temperature too low			

Description (Identifier)	Index (hex)	Sub (dec)	Size (byte)	Data type	Access	Value range	Unit	Default value	Data storage
						134218009=S376 Sensor electronics (ISEM) faulty 134218067=S043 Sensor short circuit detected 134218068=S937 Sensor symmetry 134218069=S961 Electrod.potent. 134218090=S376 Sensor electronics (ISEM) faulty 134218182=S944 Monitoring failed 134218276=S937 Sensor symmetry 134218458=S376 Sensor electronics (ISEM) faulty 134218459=S376 Sensor electronics (ISEM) faulty 134218460=S376 Sensor electronics (ISEM) faulty 134218461=S376 Sensor electronics (ISEM) faulty 134218462=S377 Electrode signal faulty			
Diagnostic 4 IO-Link	0x303e	0	2	UIntegerT	r/-	0 65535		0	No
Timestamp	0x014d	0	22	StringT	r/-				No

Description (Identifier)	Index (hex)	Sub (dec)	Size (byte)	Data type	Access	Value range	Unit	Default value	Data storage
Diagnostics 5	0x0157	0	4	UIntegerT	r/-	0=-------- 16777312=F437 Configuration incompatible 16777319=F242 Firmware incompatible 16777323=F252 Module incompatible 16777355=F410 Data transfer failed 16777376=F083 Memory content inconsistent 16777429=F180 Temperature sensor defective 16777430=F180 Temperature sensor defective 16777447=F082 Data storage inconsistent 16777499=F938 Coil current not stable 16777500=F181 Sensor connection faulty 16777504=F372 Sensor electronics (ISEM) faulty 16777547=F201 Electronics faulty 16777582=F383 Memory content 16777583=F283 Memory content inconsistent 16777864=F387 HistoROM data faulty 16777920=F252 Module incompatible 16777930=F331 Firmware update failed in module 1 16777931=F372 Sensor electronics (ISEM) faulty 16777932=F372 Sensor electronics (ISEM) faulty 16777933=F372 Sensor electronics (ISEM) faulty 16777935=F372 Sensor electronics (ISEM) faulty 16777936=F372 Sensor electronics (ISEM) faulty 16777937=F373 Sensor electronics (ISEM) faulty 16777944=F170 Coil resistance faulty 16777945=F170 Coil resistance faulty 16777952=F181 Sensor connection faulty		0=--------	No

Description (Identifier)	Index (hex)	Sub (dec)	Size (byte)	Data type	Access	Value range	Unit	Default value	Data storage
						16778224=F378 Elec.supp.volt. 16778408=F278 Display module defective 16778409=F278 Display module defective 16778490=F419 Power cycle required 16843466=F331 Firmware update failed in module 2 16909002=F331 Firmware update failed in module 3 33554576=C484 Failure mode simulation active 33554579=C485 Process variable simulation active 33554580=C453 Flow override active 33554782=C495 Diagnostic event simulation active 33554926=C302 Device verification active 33554948=C412 Processing download 33555228=C511 Electronic module settings faulty 67108970=M438 Dataset different 67109090=M311 Sensor electronics (ISEM) faulty 67109770=M169 Conductivity measurement failed 67109840=M168 Buildup limit exceeded 67109921=M230 Date/time incorrect 67110029=M231 Date/time not available 67110030=M230 Date/time incorrect 134217873=S842 Process value below limit 134217874=S962 Pipe empty 134217921=S833 Sensor elec.temp 134217923=S832 Sensor elec.temp 134217925=S834 Process temperature too high 134217926=S835 Process temperature too low			

Description (Identifier)	Index (hex)	Sub (dec)	Size (byte)	Data type	Access	Value range	Unit	Default value	Data storage
						134218009=S376 Sensor electronics (ISEM) faulty 134218067=S043 Sensor short circuit detected 134218068=S937 Sensor symmetry 134218069=S961 Electrod.potent. 134218090=S376 Sensor electronics (ISEM) faulty 134218182=S944 Monitoring failed 134218276=S937 Sensor symmetry 134218458=S376 Sensor electronics (ISEM) faulty 134218459=S376 Sensor electronics (ISEM) faulty 134218460=S376 Sensor electronics (ISEM) faulty 134218461=S376 Sensor electronics (ISEM) faulty 134218462=S377 Electrode signal faulty			
Diagnostic 5 IO-Link	0x303f	0	2	UIntegerT	r/-	0 65535		0	No
Timestamp	0x014c	0	22	StringT	r/-				No
Assign simulation process variable	0x0812	0	2	UIntegerT	r/w	0=Off 1=Volume flow 4=Conductivity 7=Temperature 11=Mass flow 13=Corrected conductivity		0=Off	No
Process value	0x084c	0	4	Float32T	r/w		m^3/s S/m K kg/s S/m	0	No
Device alarm simulation	0x011c	0	2	UIntegerT	r/w	0=Off 1=On		0=Off	No

Description (Identifier)	Index (hex)	Sub (dec)	Size (byte)	Data type	Access	Value range	Unit	Default value	Data storage
Diagnostic event simulation	0x0130	0	4	UIntegerT	r/w	33004=Off 6291456=437 Configuration incompatible 6750208=242 Firmware incompatible 6946816=438 Dataset different 7012352=252 Module incompatible 9109504=410 Data transfer failed 9437184=484 Failure mode simulation active 9502720=842 Process value below limit 9568256=962 Pipe empty 9633792=485 Process variable simulation active 9699328=453 Flow override active 10485760=083 Memory content inconsistent 12648448=833 Sensor elec.temp 12779520=832 Sensor elec.temp 12910592=834 Process temperature too high 12976128=835 Process temperature too low 13959168=180 Temperature sensor defective 14811136=311 Sensor electronics (ISEM) faulty 15138816=082 Data storage inconsistent 18415616=376 Sensor electronics (ISEM) faulty 18546688=938 Coil current not stable 18612224=181 Sensor connection faulty 18874368=372 Sensor electronics (ISEM) faulty 21692416=201 Electronics faulty 22216704=043 Sensor short circuit detected 22282240=937 Sensor symmetry 22347776=961 Electrod.potent. 23986176=383 Memory content 24051712=283 Memory content inconsistent		33004=Off	No

Description (Identifier)	Index (hex)	Sub (dec)	Size (byte)	Data type	Access	Value range	Unit	Default value	Data storage
						29753344=944 Monitoring failed 32374784=302 Device verification active 33816576=412 Processing download 42467328=387 HistoROM data faulty 46792704=331 Firmware update failed in module 1 46792705=331 Firmware update failed in module 2 46792706=331 Firmware update failed in module 3 47251456=373 Sensor electronics (ISEM) faulty 47710208=170 Coil resistance faulty 48103424=377 Electrode signal faulty 52166656=511 Electronic module settings faulty 59375616=169 Conductivity measurement failed 63963136=168 Buildup limit exceeded 66060288=378 Elec.supp.volt. 69271552=230 Date/time incorrect 76349440=231 Date/time not available 78118912=278 Display module defective 83492864=419 Power cycle required			
Plant operator	0x086c	0	32	StringT	r/w				Yes
Location	0x086d	0	32	StringT	r/w				Yes
Partially filled pipe	0x0873	0	2	UIntegerT	r/w	0=Yes 1=No		1=No	No
Start verification	0x3025	0	2	UIntegerT	r/w	0=Cancel 1=Start		0=Cancel	No
Status	0x3023	0	2	UIntegerT	r/-	0=Failed 1=Done 3=Not done 8=Busy		1=Done	No
Date/time	0x086e	0	22	StringT	r/-			01.01.1970 00:00:00	No
Progress	0x086b	0	1	UIntegerT	r/-	0 100	%	0	No
Verification result	0x3022	0	2	UIntegerT	r/-	0=Failed 2=Passed 3=Not done 250=Not supported		3=Not done	No
Date/time	0x015d	0	22	StringT	r/-			0	No

Description (Identifier)	Index (hex)	Sub (dec)	Size (byte)	Data type	Access	Value range	Unit	Default value	Data storage
Verification ID	0x3021	0	2	UIntegerT	r/-	0 65535		0	No
Operating time	0x0877	0	14	StringT	r/-				No
Verification result	0x3022	0	2	UIntegerT	r/-	0=Failed 2=Passed 3=Not done 250=Not supported		3=Not done	No
Sensor	0x015a	0	2	UIntegerT	r/-	0=Failed 2=Passed 3=Not done 250=Not supported		3=Not done	No
Sensor electronic module (ISEM)	0x015b	0	2	UIntegerT	r/-	0=Failed 2=Passed 3=Not done 250=Not supported		3=Not done	No
I/O module	0x015c	0	2	UIntegerT	r/-	0=Failed 2=Passed 3=Not done 250=Not supported		3=Not done	No
System status	0x0879	0	2	UIntegerT	r/-	0=Failed 2=Passed 3=Not done 250=Not supported		3=Not done	No
Noise	0x0875	0	4	Float32T	r/-	-3.0e+38 3.0e+38	V	0.0	No
Coil current shot time	0x0876	0	4	Float32T	r/-	-3.0e+38 3.0e+38	s	0.0	No
Alarm delay	0x0128	0	4	Float32T	r/w	0 60	s	0.0	No
Assign behavior of diagnostic no. 043	0x085f	0	2	UIntegerT	r/w	0=Off 1=Logbook entry only 2=Warning 3=Alarm		2=Warning	Yes
Assign behavior of diagnostic no. 230	0x0865	0	2	UIntegerT	r/w	1=Logbook entry only 2=Warning 3=Alarm		1=Logbook entry only	Yes
Assign behavior of diagnostic no. 231	0x0866	0	2	UIntegerT	r/w	1=Logbook entry only 2=Warning 3=Alarm		1=Logbook entry only	Yes
Assign behavior of diagnostic no. 302	0x085c	0	2	UIntegerT	r/w	0=Off 1=Logbook entry only 2=Warning		2=Warning	Yes
Assign behavior of diagnostic no. 376	0x085d	0	2	UIntegerT	r/w	0=Off 1=Logbook entry only 2=Warning 3=Alarm		2=Warning	Yes
Assign behavior of diagnostic no. 377	0x0862	0	2	UIntegerT	r/w	0=Off 1=Logbook entry only 2=Warning 3=Alarm		2=Warning	Yes
Assign behavior of diagnostic no. 832	0x0867	0	2	UIntegerT	r/w	0=Off 1=Logbook entry only 2=Warning 3=Alarm		2=Warning	Yes

Description (Identifier)	Index (hex)	Sub (dec)	Size (byte)	Data type	Access	Value range	Unit	Default value	Data storage
Assign behavior of diagnostic no. 833	0x0868	0	2	UIntegerT	r/w	0=Off 1=Logbook entry only 2=Warning 3=Alarm		2=Warning	Yes
Assign behavior of diagnostic no. 834	0x0863	0	2	UIntegerT	r/w	0=Off 1=Logbook entry only 2=Warning 3=Alarm		2=Warning	Yes
Assign behavior of diagnostic no. 835	0x0864	0	2	UIntegerT	r/w	0=Off 1=Logbook entry only 2=Warning 3=Alarm		2=Warning	Yes
Assign behavior of diagnostic no. 842	0x0860	0	2	UIntegerT	r/w	0=Off 1=Logbook entry only 2=Warning 3=Alarm		0=Off	Yes
Assign behavior of diagnostic no. 937	0x085a	0	2	UIntegerT	r/w	0=Off 1=Logbook entry only 2=Warning 3=Alarm		2=Warning	Yes
Assign behavior of diagnostic no. 938	0x085e	0	2	UIntegerT	r/w	0=Off 1=Logbook entry only 2=Warning 3=Alarm		3=Alarm	Yes
Assign behavior of diagnostic no. 961	0x085b	0	2	UIntegerT	r/w	0=Off 1=Logbook entry only 2=Warning 3=Alarm		3=Alarm	Yes
Assign behavior of diagnostic no. 962	0x0861	0	2	UIntegerT	r/w	0=Off 1=Logbook entry only 2=Warning 3=Alarm		2=Warning	Yes
Block parameterization error message	0x3033	0	1	UIntegerT	r/-	0=Unknown error 17=Index not available 18=Subindex not available 32=Service temporarily not available 33=Service blocked by local operation 34=Service blocked by remote operation 35=Access denied 48=Parameter out of range 49=Value above limit 50=Value below limit 51=Data length above maximum 52=Data length below minimum 53=Command not supported 54=Dev. function temporarily not available 64=Parameter invalid 65=Parameter block inconsistent 130=Application not ready 255=--------		255=--------	No

Description (Identifier)	Index (hex)	Sub (dec)	Size (byte)	Data type	Access	Value range	Unit	Default value	Data storage
Invalid parameter	0x3032	0	2	UIntegerT	r/-	24=Application specific tag 25=Function tag 26=Location tag 58=Teach select 60=SSC 1.1 param 61=SSC 1.1 config 62=SSC 1.2 param 63=SSC 1.2 config 255=-------- 284=Device alarm simulation 296=Alarm delay 304=Diagnostic event simulation 344=Time format 345=Time zone 2065=Installation direction 2066=Assign simulation process variable 2067=On value low flow cutoff 2082=Totalizer 1 operation mode 2083=Totalizer 2 operation mode 2084=Totalizer 3 operation mode 2091=Totalizer 1 failure behavior 2092=Totalizer 2 failure behavior 2093=Totalizer 3 failure behavior 2094=Assign process variable 1 2095=Assign process variable 2 2096=Assign process variable 3 2100=Totalizer 1 control 2101=Totalizer 2 control 2102=Totalizer 3 control 2103=Preset value 1 2104=Preset value 2 2105=Preset value 3 2108=Pressure shock suppression 2109=Flow override 2110=Off value low flow cutoff 2124=Process value 2126=Low flow cutoff 2127=Empty pipe detection 2137=Conductivity temperature coefficient 2138=Assign behavior of diagnostic no. 937 2139=Assign behavior of diagnostic no. 961 2140=Assign behavior of diagnostic no. 302		255=--------	No

Description (Identifier)	Index (hex)	Sub (dec)	Size (byte)	Data type	Access	Value range	Unit	Default value	Data storage
						2141=Assign behavior of diagnostic no. 376 2142=Assign behavior of diagnostic no. 938 2143=Assign behavior of diagnostic no. 043 2144=Assign behavior of diagnostic no. 842 2145=Assign behavior of diagnostic no. 962 2146=Assign behavior of diagnostic no. 377 2147=Assign behavior of diagnostic no. 834 2148=Assign behavior of diagnostic no. 835 2149=Assign behavior of diagnostic no. 230 2150=Assign behavior of diagnostic no. 231 2151=Assign behavior of diagnostic no. 832 2152=Assign behavior of diagnostic no. 833 2153=Reset all totalizers 2156=Plant operator 2157=Location 2159=New adjustment 2160=Fixed density 2162=Conductivity measurement 2163=Partially filled pipe 2164=Flow damping 2178=Bluetooth 2180=Value 1 display 2181=Value 2 display 2182=Value 3 display 2183=Value 4 display 2184=Language 2185=Brightness 2187=Rotation display 2188=Display damping 2189=Color scheme 12325=Start verification 12399=Device search 16396=SSC 2.1 param 16397=SSC 2.1 config 16398=SSC 2.2 param 16399=SSC 2.2 config 16412=SSC 3.1 param 16413=SSC 3.1 config 16414=SSC 3.2 param 16415=SSC 3.2 config 16428=SSC 4.1 param 16429=SSC 4.1 config 16430=SSC 4.2 param 16431=SSC 4.2 config			
Lower value	0x4080	1	4	Float32T	r/-	-1.4E+21 1.4E+21	m^3/s	0.0	No
Upper value	0x4080	2	4	Float32T	r/-	-1.4E+21 1.4E+21	m^3/s	0.0	No
Unit	0x4080	3	2	UIntegerT	r/-	10=m^3/h		10=m^3/h	No

Description (Identifier)	Index (hex)	Sub (dec)	Size (byte)	Data type	Access	Value range	Unit	Default value	Data storage
Scale	0x4080	4	1	IntegerT	r/-	-128 127		0	No
Lower value	0x4081	1	4	Float32T	r/-	-1.4E+21 1.4E+21	S/m	0.0	No
Upper value	0x4081	2	4	Float32T	r/-	-1.4E+21 1.4E+21	S/m	0.0	No
Unit	0x4081	3	2	UIntegerT	r/-	3=S/m		3=S/m	No
Scale	0x4081	4	1	IntegerT	r/-	-128 127		0	No
Lower value	0x4082	1	4	Float32T	r/-	-1.4E+21 1.4E+21	K	0.0	No
Upper value	0x4082	2	4	Float32T	r/-	-1.4E+21 1.4E+21	K	0.0	No
Unit	0x4082	3	2	UIntegerT	r/-	0=°C		0=°C	No
Scale	0x4082	4	1	IntegerT	r/-	-128 127		0	No
Lower value	0x4083	1	4	Float32T	r/-	-1.4E+21 1.4E+21	m^3	0.0	No
Upper value	0x4083	2	4	Float32T	r/-	-1.4E+21 1.4E+21	m^3	0.0	No
Unit	0x4083	3	2	UIntegerT	r/-	2=m^3		2=m^3	No
Scale	0x4083	4	1	IntegerT	r/-	-128 127		0	No

4 Events

Diagnostic message	Diagnostic behavior	IO-Link Event Qualifier	IO-Link Event Code	Extended device status	Device status	Description	Remedy
				128=Good	0	Device OK	-----
F082	Alarm	Error	0x8d56	36=Failure	4	Data storage inconsistent	Check module connections
F201	Alarm	Error	0x8d02	36=Failure	4	Electronics faulty	1. Restart device 2. Replace electronics
F372	Alarm	Error	0x1868	36=Failure	4	Sensor electronics (ISEM) faulty	1. Restart device 2. Check if failure recurs 3. Replace sensor electronic module (ISEM)
F083	Alarm	Error	0x183f	36=Failure	4	Memory content inconsistent	1. Restart device 2. Restore S-DAT data 3. Replace S-DAT
F383	Alarm	Error	0x186f	36=Failure	4	Memory content	Reset device
F419	Alarm	Error	0x1856	36=Failure	4	Power cycle required	Power cycle device
F331	Warning	Warning	0x1867	36=Failure	4	Firmware update failed in module 1	1. Update firmware of device 2. Restart device
F378	Alarm	Error	0x186e	36=Failure	4	Electronic module supply voltage faulty	1. Restart device 2. Check if failure recurs 3. Replace electronic module
F283	Alarm	Error	0x1843	36=Failure	4	Memory content inconsistent	Restart device
F278	Alarm	Error	0x8d09	36=Failure	4	Display module defective	Replace display module
F252	Alarm	Error	0x8d08	36=Failure	4	Module incompatible	1. Check electronic modules 2. Check if correct modules are available (e.g. NEx, Ex) 3. Replace electronic modules
F242	Alarm	Error	0x8d07	36=Failure	4	Firmware incompatible	1. Check firmware version 2. Flash or replace electronic module
F437	Alarm	Error	0x1810	36=Failure	4	Configuration incompatible	1. Update firmware 2. Execute factory reset
F181	Alarm	Error	0x187d	36=Failure	4	Sensor connection faulty	1. Check sensor cable and sensor 2. Execute Heartbeat Verification 3. Replace sensor cable or sensor
F938	Alarm	Error	0x1881	36=Failure	4	Coil current not stable	1. Check if external magnetic interference is present 2. Perform Heartbeat Verification 2. Check flow value
F938	Warning	Warning	0x1882	36=Failure	4	Coil current not stable	1. Check if external magnetic interference is present 2. Perform Heartbeat Verification 2. Check flow value
F170	Alarm	Error	0x187b	36=Failure	4	Coil resistance faulty	Check ambient and process temperature

Diagnostic message	Diagnostic behavior	IO-Link Event Qualifier	IO-Link Event Code	Extended device status	Device status	Description	Remedy
F180	Warning	Warning	0x187c	36=Failure	4	Temperature sensor defective	1. Check sensor connections 2. Replace sensor cable or sensor 3. Turn off temperature measurement
F373	Alarm	Error	0x1869	36=Failure	4	Sensor electronics (ISEM) faulty	Contact service
F410	Alarm	Error	0x8d0a	36=Failure	4	Data transfer failed	1. Retry data transfer 2. Check connection
F387	Alarm	Error	0x1870	36=Failure	4	HistoROM data faulty	Contact service organization
C453	Warning	Warning	0x8d0c	60=Function check	3	Flow override active	Deactivate flow override
C495	Warning	Warning	0x8d0d	60=Function check	3	Diagnostic event simulation active	Deactivate simulation
C511	Alarm	Error	0x187e	60=Function check	3	Electronic module settings faulty	1. Check measuring period and integration time 2. Check sensor properties
C412	Warning	Warning	0x8d0b	60=Function check	3	Processing download	Download active, please wait
C302	Warning	Warning	0x1864	60=Function check	3	Device verification active	Device verification in progress, please wait.
C302	Alarm	Error	0x1865	60=Function check	3	Device verification active	Device verification in progress, please wait.
C485	Warning	Warning	0x181a	60=Function check	3	Process variable simulation active	Deactivate simulation
C484	Alarm	Error	0x8d3f	60=Function check	3	Failure mode simulation active	Deactivate simulation
S962	Warning	Warning	0x180e	120=Out of specification	2	Pipe empty	1. Perform full pipe adjustment 2. Perform empty pipe adjustment 3. Turn off empty pipe detection
S962	Alarm	Error	0x1885	120=Out of specification	2	Pipe empty	1. Perform full pipe adjustment 2. Perform empty pipe adjustment 3. Turn off empty pipe detection
S842	Warning	Warning	0x8d16	120=Out of specification	2	Process value below limit	Low flow cut off active! Check low flow cut off configuration
S842	Alarm	Error	0x8d17	120=Out of specification	2	Process value below limit	Low flow cut off active! Check low flow cut off configuration
S961	Warning	Warning	0x1883	120=Out of specification	2	Electrode potential out of specification	1. Check process conditions 2. Check ambient conditions
S961	Alarm	Error	0x1884	120=Out of specification	2	Electrode potential out of specification	1. Check process conditions 2. Check ambient conditions
S832	Warning	Warning	0x8d0e	120=Out of specification	2	Sensor electronics temperature too high	Reduce ambient temperature
S832	Alarm	Error	0x8d0f	120=Out of specification	2	Sensor electronics temperature too high	Reduce ambient temperature

Diagnostic message	Diagnostic behavior	IO-Link Event Qualifier	IO-Link Event Code	Extended device status	Device status	Description	Remedy
S833	Warning	Warning	0x8d10	120=Out of specification	2	Sensor electronics temperature too low	Increase ambient temperature
S833	Alarm	Error	0x8d11	120=Out of specification	2	Sensor electronics temperature too low	Increase ambient temperature
S043	Warning	Warning	0x8d00	120=Out of specification	2	Sensor short circuit detected	1. Check sensor cable and sensor 2. Execute Heartbeat Verification 3. Replace sensor cable or sensor
S043	Alarm	Error	0x8d1f	120=Out of specification	2	Sensor short circuit detected	1. Check sensor cable and sensor 2. Execute Heartbeat Verification 3. Replace sensor cable or sensor
S834	Warning	Warning	0x8d12	120=Out of specification	2	Process temperature too high	Reduce process temperature
S834	Alarm	Error	0x8d13	120=Out of specification	2	Process temperature too high	Reduce process temperature
S835	Warning	Warning	0x8d14	120=Out of specification	2	Process temperature too low	Increase process temperature
S835	Alarm	Error	0x8d15	120=Out of specification	2	Process temperature too low	Increase process temperature
S937	Warning	Warning	0x187f	120=Out of specification	2	Sensor symmetry	1. Eliminate external magnetic field near sensor 2. Turn off diagnostic message
S937	Alarm	Error	0x1880	120=Out of specification	2	Sensor symmetry	1. Eliminate external magnetic field near sensor 2. Turn off diagnostic message
S377	Warning	Warning	0x186b	120=Out of specification	2	Electrode signal faulty	1. Activate empty pipe detection 2. Check partial filled pipe and installation direction 3. Check sensor cabling 4. Deactivate diagnostics 377
S377	Alarm	Error	0x186d	120=Out of specification	2	Electrode signal faulty	1. Activate empty pipe detection 2. Check partial filled pipe and installation direction 3. Check sensor cabling 4. Deactivate diagnostics 377
S944	Warning	Warning	0x1876	120=Out of specification	2	Monitoring failed	Check process conditions for Heartbeat Monitoring
S376	Warning	Warning	0x186a	120=Out of specification	2	Sensor electronics (ISEM) faulty	1. Replace sensor electronic module (ISEM) 2. Turn off diagnostic message
S376	Alarm	Error	0x1861	120=Out of specification	2	Sensor electronics (ISEM) faulty	1. Replace sensor electronic module (ISEM) 2. Turn off diagnostic message

Diagnostic message	Diagnostic behavior	IO-Link Event Qualifier	IO-Link Event Code	Extended device status	Device status	Description	Remedy
M169	Warning	Warning	0x187a	164=Maintenance required	1	Conductivity measurement failed	1. Check grounding conditions 2. Deactivate conductivity measurement
M231	Warning	Warning	0x8d05	164=Maintenance required	1	Date/time not available	1. Replace display module or its cable 2. Set date and time
M231	Alarm	Error	0x8d06	164=Maintenance required	1	Date/time not available	1. Replace display module or its cable 2. Set date and time
M230	Warning	Warning	0x8d03	164=Maintenance required	1	Date/time incorrect	1. Replace RTC buffer battery 2. Set date and time
M230	Alarm	Error	0x8d04	164=Maintenance required	1	Date/time incorrect	1. Replace RTC buffer battery 2. Set date and time
M311	Warning	Warning	0x1866	164=Maintenance required	1	Sensor electronics (ISEM) faulty	Maintenance required! Do not reset device
M168	Warning	Warning	0x1886	164=Maintenance required	1	Buildup limit exceeded	Clean measuring tube
M438	Warning	Warning	0x184e	164=Maintenance required	1	Dataset different	1. Check dataset file 2. Check device parameterization 3. Download new device parameterization

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