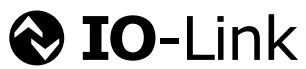


# Special Documentation

## Dosimag

## IO-Link

System integration





## Table of contents

<b>1</b>	<b>About this document</b> .....	<b>4</b>
1.1	Document function .....	4
1.2	Target audience .....	4
1.3	Content and scope .....	4
1.4	IODD .....	4
<b>2</b>	<b>Events</b> .....	<b>5</b>
<b>3</b>	<b>Parameter table</b> .....	<b>9</b>
3.1	Identification .....	9
3.2	Parameter .....	9
3.3	Observation .....	15
3.4	Diagnosis .....	17
<b>4</b>	<b>Process data</b> .....	<b>39</b>
4.1	Process data input .....	41
4.2	Process data output .....	41

# 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](http://www.endress.com/download)
- <https://ioddfinder.io-link.com/>

### [www.endress.com/download](http://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 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	-----
F273	Alarm	Error	0x8d1a	36=Failure	4	Main electronics defective	1. Restart device 2. Replace device
F082	Alarm	Error	0x8d56	36=Failure	4	Data storage inconsistent	1. Restart device 2. Replace device
F201	Alarm	Error	0x8d02	36=Failure	4	Electronics faulty	1. Restart device 2. Replace device
F272	Alarm	Error	0x8d19	36=Failure	4	Electronic module faulty	Restart device
F083	Alarm	Error	0x183f	36=Failure	4	Memory content inconsistent	1. Restart device 2. Restore S-DAT
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
F283	Alarm	Error	0x1843	36=Failure	4	Memory content inconsistent	Restart device
F252	Alarm	Error	0x8d08	36=Failure	4	Module incompatible	Replace device
F242	Alarm	Error	0x8d07	36=Failure	4	Firmware incompatible	1. Check firmware version 2. Flash device
F437	Alarm	Error	0x1810	36=Failure	4	Configuration incompatible	1. Update firmware 2. Execute factory reset
F270	Alarm	Error	0x1800	36=Failure	4	Main electronics defective	1. Restart device 2. Replace device
F181	Alarm	Error	0x187d	36=Failure	4	Sensor connection faulty	Replace device
F938	Alarm	Error	0x1881	36=Failure	4	Coil current not stable	1. Check if external magnetic interference is present 2. Check flow value

Diagnostic message	Diagnostic behavior	IO-Link Event Qualifier	IO-Link Event Code	Extended device status	Device status	Description	Remedy
F938	Warning	Warning	0x1882	36=Failure	4	Coil current not stable	1. Check if external magnetic interference is present 2. Check flow value
F271	Alarm	Error	0x8d18	36=Failure	4	Main electronics faulty	1. Restart device 2. Replace device
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
F410	Alarm	Error	0x8d0a	36=Failure	4	Data transfer failed	1. Retry data transfer 2. Check connection
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
C412	Warning	Warning	0x8d0b	60=Function check	3	Processing download	Download active, please wait
C485	Warning	Warning	0x181a	60=Function check	3	Process variable simulation active	Deactivate simulation
C492	Warning	Warning	0x8d20	60=Function check	3	Frequency output simulation active	Deactivate simulation frequency output
C493	Warning	Warning	0x8d21	60=Function check	3	Pulse output simulation active	Deactivate simulation pulse output
C494	Warning	Warning	0x181c	60=Function check	3	Switch output simulation active	Deactivate simulation switch output
C484	Alarm	Error	0x8d3f	60=Function check	3	Failure mode simulation active	Deactivate simulation
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
S880	Warning	Warning	0x8d22	120=Out of specification	2	Output overloaded	Reduce load at the outputs

Diagnostic message	Diagnostic behavior	IO-Link Event Qualifier	IO-Link Event Code	Extended device status	Device status	Description	Remedy
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
S004	Warning	Warning	0x1818	120=Out of specification	2	Sensor defective	Change 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
S442	Warning	Warning	0x8d1c	120=Out of specification	2	Frequency output saturated	1. Check frequency output settings 2. Check process
S442	Alarm	Error	0x8d1d	120=Out of specification	2	Frequency output saturated	1. Check frequency output settings 2. Check process
S443	Warning	Warning	0x8d1e	120=Out of specification	2	Pulse output saturated	1. Check pulse output settings 2. Check process

Diagnostic message	Diagnostic behavior	IO-Link Event Qualifier	IO-Link Event Code	Extended device status	Device status	Description	Remedy
S443	Alarm	Error	0x8d1f	120=Out of specification	2	Pulse output saturated	1. Check pulse output settings 2. Check process
M311	Warning	Warning	0x1866	164=Maintenance required	1	Electronic module faulty	Maintenance required! Do not reset device
M438	Warning	Warning	0x184e	164=Maintenance required	1	Dataset different	1. Check dataset file 2. Check device parameterization 3. Download new device parameterization



### 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/-			Dosimag	No
Product text	0x0014	0	64	StringT	r/-			Electro magnetic flowmeter	No
Product ID	0x0013	0	64	StringT	r/-			Dosimag	No
Serial number	0x0015	0	11	StringT	r/-			79AFF16000	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 ID	0x10e2	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/-	0=Off 1=Volume flow		1=Volume flow	Yes
Process variable unit 1	0x0831	0	2	UIntegerT	r/-	2=m <sup>3</sup>		2=m <sup>3</sup>	No
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 <sup>3</sup>	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		1=Volume flow	Yes
Process variable unit 2	0x0832	0	2	UIntegerT	r/-	2=m <sup>3</sup>		2=m <sup>3</sup>	No
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	-3.4E+38 .. 3.4E+38	m <sup>3</sup>	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		1=Volume flow	Yes
Process variable unit 3	0x0833	0	2	UIntegerT	r/-	2=m <sup>3</sup>		2=m <sup>3</sup>	No
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	-3.4E+38 .. 3.4E+38	m <sup>3</sup>	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
Binomial filter depth	0x21a3	0	1	UIntegerT	r/w	0 .. 32		4	Yes
Median filter depth	0x21a4	0	1	UIntegerT	r/w	0 .. 32		1	Yes
Flow damping	0x2166	0	4	Float32T	r/w	0.0 .. 100.0	s	0.0	Yes
Flow override	0x083d	0	2	UIntegerT	r/w	0=Off 1=On		0=Off	No
Coil current mode	0x20b1	0	2	UIntegerT	r/w	0=Standard 1=Low 8=Automatic		8=Automatic	Yes
Temperature damping time	0x0847	0	4	Float32T	r/w	0 .. 999.9	s	0.0	Yes
Low flow cutoff	0x084e	0	2	UIntegerT	r/w	0=Off 1=Volume flow		1=Volume flow	Yes
On value low flow cutoff	0x0813	0	4	Float32T	r/w		m <sup>3</sup> /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	Yes
Pressure shock suppression delay	0x0850	0	4	Float32T	r/w	0 .. 100000	s	0.0	Yes
Installation direction	0x0811	0	2	UIntegerT	r/w	0=Forward flow 1=Reverse flow		0=Forward flow	Yes
Measuring period	0x2197	0	4	Float32T	r/w	0 .. 1.0	s	0.0125	Yes
Integration time	0x2198	0	4	Float32T	r/w	0.001 .. 0.065	s	0.005	Yes
Zero point adjustment control	0x21e9	0	2	UIntegerT	r/w	0=Cancel 1=Start		0=Cancel	No
Status	0x21ea	0	2	UIntegerT	r/-	2=Failed 5=Done 8=Busy		5=Done	No
Progress	0x086b	0	1	UIntegerT	r/-	0 .. 100	%	0	No
Volume flow offset	0x0895	0	4	Float32T	r/w	-3.4E+38 .. 3.4E+38	m <sup>3</sup> /s	0.0	Yes
Volume flow factor	0x0896	0	4	Float32T	r/w	0 .. 3.4E+38		1.0	Yes
Temperature offset	0x0897	0	4	Float32T	r/w	-3.4E+38 .. 3.4E+38	K	0.0	Yes
Temperature factor	0x0898	0	4	Float32T	r/w	0 .. 3.4E+38		1.0	Yes
Operating mode	0x0160	0	2	UIntegerT	r/w	0=Off 1=Switch 2=Pulse 3=Automatic pulse 53=Frequency		2=Pulse	Yes
Invert output signal	0x0162	0	2	UIntegerT	r/w	0=Yes 1=No		0=Yes	Yes
Assign pulse output	0x016f	0	2	UIntegerT	r/w	0=Off 1=Volume flow		0=Off	Yes
Measuring mode	0x0170	0	2	UIntegerT	r/w	0=Forward flow 1=Reverse flow 2=Reverse flow compensation 13=Forward/Reverse flow		0=Forward flow	Yes
Value per pulse	0x0171	0	4	Float32T	r/w		m <sup>3</sup>	0	Yes
Pulse width	0x0172	0	4	Float32T	r/w	0.00005 .. 2	s	5e-05	Yes
Failure mode	0x0173	0	2	UIntegerT	r/w	0=Actual value 1=No pulses		0=Actual value	Yes
Pulse output	0x0176	0	4	Float32T	r/-	0 .. 3.4E+38	Hz	0.0	No
Assign frequency output	0x0163	0	2	UIntegerT	r/w	0=Off 1=Volume flow 7=Temperature		0=Off	Yes

Description (Identifier)	Index (hex)	Sub (dec)	Size (byte)	Data type	Access	Value range	Unit	Default value	Data storage
Measuring mode	0x0164	0	2	UIntegerT	r/w	0=Forward flow 2=Reverse flow compensation 13=Forward/Reverse flow		0=Forward flow	Yes
Minimum frequency value	0x0167	0	4	Float32T	r/w	0.0 .. 10000.0	Hz	0.0	Yes
Maximum frequency value	0x0168	0	4	Float32T	r/w	0.0 .. 10000.0	Hz	10000.0	Yes
Measuring value at minimum frequency	0x0165	0	4	Float32T	r/w		m <sup>3</sup> /s K	0	Yes
Measuring value at maximum frequency	0x0166	0	4	Float32T	r/w		m <sup>3</sup> /s K	0	Yes
Output damping	0x0169	0	4	Float32T	r/w	0 .. 999.9	s	0.0	Yes
Failure mode	0x016a	0	2	UIntegerT	r/w	0=Actual value 1=0 Hz 2=Fixed value		1=0 Hz	Yes
Failure frequency	0x016b	0	4	Float32T	r/w	0.0 .. 10000.0	Hz	0.0	Yes
Output frequency	0x016e	0	4	Float32T	r/-	0.0 .. 10000.0	Hz	0.0	No
Switch output function	0x017b	0	2	UIntegerT	r/w	0=Off 1=On 2=Diagnostic behavior 3=Flow direction check 4=Limit 5=Status		0=Off	Yes
Failure mode	0x0184	0	2	UIntegerT	r/w	0=Actual status 1=Open 6=Closed		1=Open	Yes
Switch state	0x0188	0	2	UIntegerT	r/-	1=Open 6=Closed		1=Open	No
Assign limit	0x017d	0	2	UIntegerT	r/w	0=Off 1=Volume flow 7=Temperature 37=Flow velocity		1=Volume flow	Yes
Switch-on value	0x017e	0	4	Float32T	r/w		m <sup>3</sup> /s K m/s	0.025	Yes
Switch-on delay	0x017f	0	4	Float32T	r/w	0.0 .. 100.0	s	0.0	Yes
Switch-off value	0x0180	0	4	Float32T	r/w		m <sup>3</sup> /s K m/s	0	Yes
Switch-off delay	0x0181	0	4	Float32T	r/w	0.0 .. 100.0	s	0.0	Yes
Assign diagnostic behavior	0x017c	0	2	UIntegerT	r/w	0=Alarm 1=Warning 2=Alarm or warning		0=Alarm	Yes

Description (Identifier)	Index (hex)	Sub (dec)	Size (byte)	Data type	Access	Value range	Unit	Default value	Data storage
Assign flow direction check	0x0182	0	2	UIntegerT	r/w	0=Off 1=Volume flow		1=Volume flow	Yes
Assign status	0x0183	0	2	UIntegerT	r/w	0=Low flow cutoff		0=Low flow cutoff	Yes
SP 1	0x003c	1	4	Float32T	r/w	-1.4E+21 .. 1.4E+21	m <sup>3</sup> /s	0.0	Yes
SP 2	0x003c	2	4	Float32T	r/w	-1.4E+21 .. 1.4E+21	m <sup>3</sup> /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 <sup>3</sup> /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 <sup>3</sup> /s	0.0	Yes
SP 2	0x003e	2	4	Float32T	r/w	-1.4E+21 .. 1.4E+21	m <sup>3</sup> /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 <sup>3</sup> /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	-3.0e+38 .. 3.0e+38		0.0	Yes
SP 2	0x400c	2	4	Float32T	r/w	-3.0e+38 .. 3.0e+38		0.0	Yes
Logic	0x400d	1	1	UIntegerT	r/w	0=High active 1=Low active		0=High active	Yes
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	-3.0e+38 .. 3.0e+38		0.0	Yes
Switching signal channel 2.1 - No data	0x3027	0	1	BooleanT	r/-	0=Low 255=High		255=High	No
SP 1	0x400e	1	4	Float32T	r/w	-3.0e+38 .. 3.0e+38		0.0	Yes
SP 2	0x400e	2	4	Float32T	r/w	-3.0e+38 .. 3.0e+38		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	-3.0e+38 .. 3.0e+38		0.0	Yes

Description (Identifier)	Index (hex)	Sub (dec)	Size (byte)	Data type	Access	Value range	Unit	Default value	Data storage
Switching signal channel 2.2 - No data	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
SP 1	0x402c	1	4	Float32T	r/w	-3.4E+38 .. 3.4E+38	m <sup>3</sup>	0.0	Yes
SP 2	0x402c	2	4	Float32T	r/w	-3.4E+38 .. 3.4E+38	m <sup>3</sup>	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 <sup>3</sup>	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 <sup>3</sup>	0.0	Yes
SP 2	0x402e	2	4	Float32T	r/w	-3.4E+38 .. 3.4E+38	m <sup>3</sup>	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 <sup>3</sup>	0.0	Yes
Switching signal channel 4.2 - Tot. 1	0x302d	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
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 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/-	12=ml/s		12=ml/s	No
Volume unit	0x0149	0	2	UIntegerT	r/-	3=ml		3=ml	No
Temperature unit	0x013b	0	2	UIntegerT	r/-	0=°C		0=°C	No
Temporarily locked	0x3035	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 131=Back-to-box 160=Restore S-DAT backup 161=Create T-DAT backup 162=Restore T-DAT backup			No
Time format	0x0158	0	2	UIntegerT	r/w	12=12 h AM/PM 24=24 h		24=24 h	Yes

### 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 <sup>3</sup> /s	0.0	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 <sup>3</sup>	0.0	No
Totalizer 1 overflow	0x0828	0	4	Float32T	r/-	-32000.0 .. 32000.0		0.0	No

Description (Identifier)	Index (hex)	Sub (dec)	Size (byte)	Data type	Access	Value range	Unit	Default value	Data storage
Extended device status	0x20d6	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 - No data	0x3027	0	1	BooleanT	r/-	0=Low 255=High		255=High	No
Switching signal channel 2.2 - No data	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
Switching signal channel 4.2 - Tot. 1	0x302d	0	1	BooleanT	r/-	0=Low 255=High		255=High	No
Totalizer 2 value	0x0826	0	4	Float32T	r/-	-1.0e+7 .. 1.0e+7	m <sup>3</sup>	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/-	-1.0e+7 .. 1.0e+7	m <sup>3</sup>	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=Off	No
Totalizer 1 - Reset + hold	0x018c	0	1	BooleanT	r/-	0=Off 255=On		0=Off	No
Totalizer 1 - Reset + totalize	0x018b	0	1	BooleanT	r/-	0=Off 255=On		0=Off	No
Totalizer 1 - Hold	0x018a	0	1	BooleanT	r/-	0=Off 255=On		0=Off	No



Description (Identifier)	Index (hex)	Sub (dec)	Size (byte)	Data type	Access	Value range	Unit	Default value	Data storage
Flow override	0x10ed	0	1	BooleanT	r/-	0=Off 255=On		0=Off	No
Reserved	0x0189	0	1	BooleanT	r/-	0=Off 255=On		0=Off	No
Control signal channel 1 - Volume flow	0x10f2	0	1	BooleanT	r/-	0=Off 255=On		0=Off	No
No measurement data	0x10f1	0	1	BooleanT	r/-	0=Off 255=On		0=Off	No
Control signal channel 3 - Temperature	0x10f0	0	1	BooleanT	r/-	0=Off 255=On		0=Off	No
Control signal channel 4 - Totalizer 1	0x10ef	0	1	BooleanT	r/-	0=Off 255=On		0=Off	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 16777337=F272 Electronic module faulty 16777340=F270 Main electronics defective 16777341=F271 Main electronics faulty 16777355=F410 Data transfer failed 16777375=F270 Main electronics defective 16777376=F083 Memory content inconsistent 16777429=F180 Temperature sensor defective 16777430=F180 Temperature sensor defective 16777441=F283 Memory content inconsistent 16777445=F273 Main electronics defective 16777447=F082 Data storage inconsistent 16777499=F938 Coil current not stable 16777500=F181 Sensor connection faulty 16777547=F201 Electronics faulty 16777583=F283 Memory content inconsistent 16777930=F331 Firmware update failed in module 1 16778490=F419 Power cycle required 16843466=F331 Firmware update failed in module 2 3354573=C492 Frequency output simulation active 3354574=C493 Pulse output simulation active 3354575=C494 Switch output simulation active 3354576=C484 Failure mode simulation active 3354579=C485 Process variable simulation active		0=-----	No

Description (Identifier)	Index (hex)	Sub (dec)	Size (byte)	Data type	Access	Value range	Unit	Default value	Data storage
						33554580=C453 Flow override active 33554782=C495 Diagnostic event simulation active 33554948=C412 Processing download 67108970=M438 Dataset different 67109090=M311 Electronic module faulty 134217866=S442 Frequency output saturated 134217868=S443 Pulse output saturated 134217873=S842 Process value below limit 134217925=S834 Process temperature too high 134217926=S835 Process temperature too low 134218013=S004 Sensor defective 134218017=S443 Pulse output saturated 134218018=S442 Frequency output saturated 134218068=S937 Sensor symmetry 134218069=S961 Electrode potent. 134219072=S880 Output overloaded 134219092=S004 Sensor defective			
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 16777337=F272 Electronic module faulty 16777340=F270 Main electronics defective 16777341=F271 Main electronics faulty 16777355=F410 Data transfer failed 16777375=F270 Main electronics defective 16777376=F083 Memory content inconsistent 16777429=F180 Temperature sensor defective 16777430=F180 Temperature sensor defective 16777441=F283 Memory content inconsistent 16777445=F273 Main electronics defective 16777447=F082 Data storage inconsistent 16777499=F938 Coil current not stable 16777500=F181 Sensor connection faulty 16777547=F201 Electronics faulty 16777583=F283 Memory content inconsistent 16777930=F331 Firmware update failed in module 1 16778490=F419 Power cycle required 16843466=F331 Firmware update failed in module 2 3354573=C492 Frequency output simulation active 3354574=C493 Pulse output simulation active 3354575=C494 Switch output simulation active 3354576=C484 Failure mode simulation active 3354579=C485 Process variable simulation active		0=-----	No

Description (Identifier)	Index (hex)	Sub (dec)	Size (byte)	Data type	Access	Value range	Unit	Default value	Data storage
						33554580=C453 Flow override active 33554782=C495 Diagnostic event simulation active 33554948=C412 Processing download 67108970=M438 Dataset different 67109090=M311 Electronic module faulty 134217866=S442 Frequency output saturated 134217868=S443 Pulse output saturated 134217873=S842 Process value below limit 134217925=S834 Process temperature too high 134217926=S835 Process temperature too low 134218013=S004 Sensor defective 134218017=S443 Pulse output saturated 134218018=S442 Frequency output saturated 134218068=S937 Sensor symmetry 134218069=S961 Electrode potent. 134219072=S880 Output overloaded 134219092=S004 Sensor defective			
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
Diagnosics 1	0x0153	0	4	UIntegerT	r/-	0=----- 16777312=F437 Configuration incompatible 16777319=F242 Firmware incompatible 16777323=F252 Module incompatible 16777337=F272 Electronic module faulty 16777340=F270 Main electronics defective 16777341=F271 Main electronics faulty 16777355=F410 Data transfer failed 16777375=F270 Main electronics defective 16777376=F083 Memory content inconsistent 16777429=F180 Temperature sensor defective 16777430=F180 Temperature sensor defective 16777441=F283 Memory content inconsistent 16777445=F273 Main electronics defective 16777447=F082 Data storage inconsistent 16777499=F938 Coil current not stable 16777500=F181 Sensor connection faulty 16777547=F201 Electronics faulty 16777583=F283 Memory content inconsistent 16777930=F331 Firmware update failed in module 1 16778490=F419 Power cycle required 16843466=F331 Firmware update failed in module 2 3354573=C492 Frequency output simulation active 3354574=C493 Pulse output simulation active 3354575=C494 Switch output simulation active 3354576=C484 Failure mode simulation active 3354579=C485 Process variable simulation active		0=-----	No

Description (Identifier)	Index (hex)	Sub (dec)	Size (byte)	Data type	Access	Value range	Unit	Default value	Data storage
						33554580=C453 Flow override active 33554782=C495 Diagnostic event simulation active 33554948=C412 Processing download 67108970=M438 Dataset different 67109090=M311 Electronic module faulty 134217866=S442 Frequency output saturated 134217868=S443 Pulse output saturated 134217873=S842 Process value below limit 134217925=S834 Process temperature too high 134217926=S835 Process temperature too low 134218013=S004 Sensor defective 134218017=S443 Pulse output saturated 134218018=S442 Frequency output saturated 134218068=S937 Sensor symmetry 134218069=S961 Electrode potent. 134219072=S880 Output overloaded 134219092=S004 Sensor defective			
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 16777337=F272 Electronic module faulty 16777340=F270 Main electronics defective 16777341=F271 Main electronics faulty 16777355=F410 Data transfer failed 16777375=F270 Main electronics defective 16777376=F083 Memory content inconsistent 16777429=F180 Temperature sensor defective 16777430=F180 Temperature sensor defective 16777441=F283 Memory content inconsistent 16777445=F273 Main electronics defective 16777447=F082 Data storage inconsistent 16777499=F938 Coil current not stable 16777500=F181 Sensor connection faulty 16777547=F201 Electronics faulty 16777583=F283 Memory content inconsistent 16777930=F331 Firmware update failed in module 1 16778490=F419 Power cycle required 16843466=F331 Firmware update failed in module 2 3354573=C492 Frequency output simulation active 3354574=C493 Pulse output simulation active 3354575=C494 Switch output simulation active 3354576=C484 Failure mode simulation active 3354579=C485 Process variable simulation active		0=-----	No



Description (Identifier)	Index (hex)	Sub (dec)	Size (byte)	Data type	Access	Value range	Unit	Default value	Data storage
						33554580=C453 Flow override active 33554782=C495 Diagnostic event simulation active 33554948=C412 Processing download 67108970=M438 Dataset different 67109090=M311 Electronic module faulty 134217866=S442 Frequency output saturated 134217868=S443 Pulse output saturated 134217873=S842 Process value below limit 134217925=S834 Process temperature too high 134217926=S835 Process temperature too low 134218013=S004 Sensor defective 134218017=S443 Pulse output saturated 134218018=S442 Frequency output saturated 134218068=S937 Sensor symmetry 134218069=S961 Electrode potent. 134219072=S880 Output overloaded 134219092=S004 Sensor defective			
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
Diagnosics 3	0x0155	0	4	UIntegerT	r/-	0=----- 16777312=F437 Configuration incompatible 16777319=F242 Firmware incompatible 16777323=F252 Module incompatible 16777337=F272 Electronic module faulty 16777340=F270 Main electronics defective 16777341=F271 Main electronics faulty 16777355=F410 Data transfer failed 16777375=F270 Main electronics defective 16777376=F083 Memory content inconsistent 16777429=F180 Temperature sensor defective 16777430=F180 Temperature sensor defective 16777441=F283 Memory content inconsistent 16777445=F273 Main electronics defective 16777447=F082 Data storage inconsistent 16777499=F938 Coil current not stable 16777500=F181 Sensor connection faulty 16777547=F201 Electronics faulty 16777583=F283 Memory content inconsistent 16777930=F331 Firmware update failed in module 1 16778490=F419 Power cycle required 16843466=F331 Firmware update failed in module 2 3354573=C492 Frequency output simulation active 3354574=C493 Pulse output simulation active 3354575=C494 Switch output simulation active 3354576=C484 Failure mode simulation active 3354579=C485 Process variable simulation active		0=-----	No

Description (Identifier)	Index (hex)	Sub (dec)	Size (byte)	Data type	Access	Value range	Unit	Default value	Data storage
						33554580=C453 Flow override active 33554782=C495 Diagnostic event simulation active 33554948=C412 Processing download 67108970=M438 Dataset different 67109090=M311 Electronic module faulty 134217866=S442 Frequency output saturated 134217868=S443 Pulse output saturated 134217873=S842 Process value below limit 134217925=S834 Process temperature too high 134217926=S835 Process temperature too low 134218013=S004 Sensor defective 134218017=S443 Pulse output saturated 134218018=S442 Frequency output saturated 134218068=S937 Sensor symmetry 134218069=S961 Electrode potent. 134219072=S880 Output overloaded 134219092=S004 Sensor defective			
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 16777337=F272 Electronic module faulty 16777340=F270 Main electronics defective 16777341=F271 Main electronics faulty 16777355=F410 Data transfer failed 16777375=F270 Main electronics defective 16777376=F083 Memory content inconsistent 16777429=F180 Temperature sensor defective 16777430=F180 Temperature sensor defective 16777441=F283 Memory content inconsistent 16777445=F273 Main electronics defective 16777447=F082 Data storage inconsistent 16777499=F938 Coil current not stable 16777500=F181 Sensor connection faulty 16777547=F201 Electronics faulty 16777583=F283 Memory content inconsistent 16777930=F331 Firmware update failed in module 1 16778490=F419 Power cycle required 16843466=F331 Firmware update failed in module 2 3354573=C492 Frequency output simulation active 3354574=C493 Pulse output simulation active 3354575=C494 Switch output simulation active 3354576=C484 Failure mode simulation active 3354579=C485 Process variable simulation active		0=-----	No

Description (Identifier)	Index (hex)	Sub (dec)	Size (byte)	Data type	Access	Value range	Unit	Default value	Data storage
						33554580=C453 Flow override active 33554782=C495 Diagnostic event simulation active 33554948=C412 Processing download 67108970=M438 Dataset different 67109090=M311 Electronic module faulty 134217866=S442 Frequency output saturated 134217868=S443 Pulse output saturated 134217873=S842 Process value below limit 134217925=S834 Process temperature too high 134217926=S835 Process temperature too low 134218013=S004 Sensor defective 134218017=S443 Pulse output saturated 134218018=S442 Frequency output saturated 134218068=S937 Sensor symmetry 134218069=S961 Electrode potent. 134219072=S880 Output overloaded 134219092=S004 Sensor defective			
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 16777337=F272 Electronic module faulty 16777340=F270 Main electronics defective 16777341=F271 Main electronics faulty 16777355=F410 Data transfer failed 16777375=F270 Main electronics defective 16777376=F083 Memory content inconsistent 16777429=F180 Temperature sensor defective 16777430=F180 Temperature sensor defective 16777441=F283 Memory content inconsistent 16777445=F273 Main electronics defective 16777447=F082 Data storage inconsistent 16777499=F938 Coil current not stable 16777500=F181 Sensor connection faulty 16777547=F201 Electronics faulty 16777583=F283 Memory content inconsistent 16777930=F331 Firmware update failed in module 1 16778490=F419 Power cycle required 16843466=F331 Firmware update failed in module 2 3354573=C492 Frequency output simulation active 3354574=C493 Pulse output simulation active 3354575=C494 Switch output simulation active 3354576=C484 Failure mode simulation active 3354579=C485 Process variable simulation active		0=-----	No

Description (Identifier)	Index (hex)	Sub (dec)	Size (byte)	Data type	Access	Value range	Unit	Default value	Data storage
						33554580=C453 Flow override active 33554782=C495 Diagnostic event simulation active 33554948=C412 Processing download 67108970=M438 Dataset different 67109090=M311 Electronic module faulty 134217866=S442 Frequency output saturated 134217868=S443 Pulse output saturated 134217873=S842 Process value below limit 134217925=S834 Process temperature too high 134217926=S835 Process temperature too low 134218013=S004 Sensor defective 134218017=S443 Pulse output saturated 134218018=S442 Frequency output saturated 134218068=S937 Sensor symmetry 134218069=S961 Electrode potent. 134219072=S880 Output overloaded 134219092=S004 Sensor defective			
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 7=Temperature		0=Off	No
Process value	0x084c	0	4	Float32T	r/w		m <sup>3</sup> /s K	0	No
Frequency output simulation	0x016c	0	2	UIntegerT	r/w	0=Off 1=On		0=Off	No
Frequency output value	0x016d	0	4	Float32T	r/w	0.0 .. 10000.0	Hz	0.0	No
Pulse output simulation	0x0174	0	2	UIntegerT	r/w	0=Off 1=Down-counting value 2=Fixed value		0=Off	No
Pulse value	0x0175	0	2	UIntegerT	r/w	0 .. 65535		0	No
Switch output simulation	0x0185	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
Switch state	0x0186	0	2	UIntegerT	r/w	1=Open 6=Closed		1=Open	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 7929856=272 Electronic module faulty 8126464=270 Main electronics defective 8192000=271 Main electronics faulty 9043968=442 Frequency output saturated 9109504=410 Data transfer failed 9175040=443 Pulse output saturated 9240576=492 Frequency output simulation active 9306112=493 Pulse output simulation active 9371648=494 Switch output simulation active 9437184=484 Failure mode simulation active 9502720=842 Process value below limit 9633792=485 Process variable simulation active 9699328=453 Flow override active 10485760=083 Memory content inconsistent 12910592=834 Process temperature too high 12976128=835 Process temperature too low 13959168=180 Temperature sensor defective 14745600=283 Memory content inconsistent 14811136=311 Electronic module faulty 15007744=273 Main electronics defective 15138816=082 Data storage inconsistent 18546688=938 Coil current not stable 18612224=181 Sensor connection faulty		33004=Off	No

Description (Identifier)	Index (hex)	Sub (dec)	Size (byte)	Data type	Access	Value range	Unit	Default value	Data storage
						18677760=004 Sensor defective 21692416=201 Electronics faulty 22282240=937 Sensor symmetry 22347776=961 Electrod.potent. 33816576=412 Processing download 46792704=331 Firmware update failed in module 1 46792705=331 Firmware update failed in module 2 83492864=419 Power cycle required 88080384=880 Output overloaded			
Alarm delay	0x0128	0	4	Float32T	r/w	0 .. 60	s	0.0	Yes
Assign behavior of diagnostic no. 442	0x0899	0	2	UIntegerT	r/w	0=Off 1=Logbook entry only 2=Warning 3=Alarm		2=Warning	Yes
Assign behavior of diagnostic no. 443	0x089a	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	No
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

Description (Identifier)	Index (hex)	Sub (dec)	Size (byte)	Data type	Access	Value range	Unit	Default value	Data storage
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 352=Operating mode 354=Invert output signal 355=Assign frequency output 356=Measuring mode 357=Measuring value at minimum frequency 358=Measuring value at maximum frequency 359=Minimum frequency value 360=Maximum frequency value 361=Output damping 362=Failure mode 363=Failure frequency 364=Frequency output simulation 365=Frequency output value 367=Assign pulse output 368=Measuring mode 369=Value per pulse 370=Pulse width 371=Failure mode 372=Pulse output simulation 373=Pulse value 379=Switch output function 380=Assign diagnostic behavior 381=Assign limit 382=Switch-on value 383=Switch-on delay 384=Switch-off value 385=Switch-off delay 386=Assign flow direction check 387=Assign status 388=Failure mode 389=Switch output simulation 390=Switch state 2065=Installation direction 2066=Assign simulation process variable		255=-----	No

Description (Identifier)	Index (hex)	Sub (dec)	Size (byte)	Data type	Access	Value range	Unit	Default value	Data storage
						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 2119=Temperature damping time 2124=Process value 2126=Low flow cutoff 2128=Pressure shock suppression delay 2138=Assign behavior of diagnostic no. 937 2139=Assign behavior of diagnostic no. 961 2142=Assign behavior of diagnostic no. 938 2144=Assign behavior of diagnostic no. 842 2147=Assign behavior of diagnostic no. 834 2148=Assign behavior of diagnostic no. 835 2153=Reset all totalizers 2197=Volume flow offset 2198=Volume flow factor 2199=Temperature offset 2200=Temperature factor 2201=Assign behavior of diagnostic no. 442 2202=Assign behavior of diagnostic no. 443 8369=Coil current mode			

Description (Identifier)	Index (hex)	Sub (dec)	Size (byte)	Data type	Access	Value range	Unit	Default value	Data storage
						8550=Flow damping 8599=Measuring period 8600=Integration time 8611=Binomial filter depth 8612=Median filter depth 8681=Zero point adjustment control 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 <sup>3</sup> /s	0.0	No
Upper value	0x4080	2	4	Float32T	r/-	-1.4E+21 .. 1.4E+21	m <sup>3</sup> /s	0.0	No
Unit	0x4080	3	2	UIntegerT	r/-	10=m <sup>3</sup> /h		10=m <sup>3</sup> /h	No
Scale	0x4080	4	1	IntegerT	r/-	-128 .. 127		0	No
Lower value	0x4081	1	4	Float32T	r/-	-1.4E+21 .. 1.4E+21		0.0	No
Upper value	0x4081	2	4	Float32T	r/-	-1.4E+21 .. 1.4E+21		0.0	No
Unit	0x4081	3	2	UIntegerT	r/-	251=None		251=None	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 <sup>3</sup>	0.0	No
Upper value	0x4083	2	4	Float32T	r/-	-1.4E+21 .. 1.4E+21	m <sup>3</sup>	0.0	No
Unit	0x4083	3	2	UIntegerT	r/-	2=m <sup>3</sup>		2=m <sup>3</sup>	No
Scale	0x4083	4	1	IntegerT	r/-	-128 .. 127		0	No

## 4 Process data

Name	Description	Data type	Value range	Unit
Volume flow	Shows the volume flow currently measured	Float32T	-5.04e+24 .. 5.04e+24 3.3e38=NoMeasurement Data 2.65e38=OutOfRangeHigh -2.65e38=OutOfRangeLow	m <sup>3</sup> /h
No measurement data		Float32T	-1.4E+21 .. 1.4E+21 3.3e38=NoMeasurement Data 2.65e38=OutOfRangeHigh -2.65e38=OutOfRangeLow	
Temperature	Shows the medium temperature currently measured	Float32T	-273.15 .. 1.4e+21 3.3e38=NoMeasurement Data 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=NoMeasurement Data 2.65e38=OutOfRangeHigh -2.65e38=OutOfRangeLow	m <sup>3</sup>
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 - No data	Displays the state of the switching signal channel (SSC).	BooleanT	0=Low 1=High	

Name	Description	Data type	Value range	Unit
Switching signal channel 2.1 - No data	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	
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	
Reserved		BooleanT	0=Off 1=On	
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	
No measurement data		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	



### 4.1 Process data input

Transmission direction	float32	float32	float32	float32	uint8	bool	bool	bool	bool	bool	bool	bool	bool
Master → Slave	Volume flow	No measurement data	Temperature	Totalizer 1 value	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

### 4.2 Process data output

Transmission direction	bool	bool	bool	bool	bool	bool	bool	bool	bool	bool	bool
Slave → Master	Totalizer 1 – Totalize	Totalizer 1 – Reset + hold	Totalizer 1 – Reset + totalize	Totalizer 1 – Hold	Flow override	Reserved	CSC 4 – Totalizer 1	CSC 3 – Temperature	No measurement data	CSC 1 – Volume Flow	







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