

Special Documentation

Dosimass

IO-Link

System integration



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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 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 |
| F372 | Alarm | Error | 0x1868 | 36=Failure | 4 | Electronic module faulty | 1. Restart device 2. Check if failure recurs 3. Replace 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 |
| F022 | Alarm | Error | 0x1820 | 36=Failure | 4 | Temperature sensor defective | Replace device |
| F062 | Alarm | Error | 0x183d | 36=Failure | 4 | Sensor connection faulty | Replace device |
| F270 | Alarm | Error | 0x1800 | 36=Failure | 4 | Main electronics defective | 1. Restart device 2. Replace device |
| F910 | Alarm | Error | 0x1862 | 36=Failure | 4 | Tubes not oscillating | 1. Check electronic module 2. Check sensor |

| Diagnostic message | Diagnostic behavior | IO-Link Event Qualifier | IO-Link Event Code | Extended device status | Device status | Description | Remedy |
|--------------------|---------------------|-------------------------|--------------------|--------------------------|---------------|------------------------------------|--|
| F271 | Alarm | Error | 0x8d18 | 36=Failure | 4 | Main electronics faulty | 1. Restart device 2. Replace device |
| 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 |
| S862 | Warning | Warning | 0x8d28 | 120=Out of specification | 2 | Partly filled pipe | 1.Check for gas in process 2. Adjust detection limits |
| S862 | Alarm | Error | 0x8d29 | 120=Out of specification | 2 | Partly filled pipe | 1.Check for gas in process 2. Adjust detection limits |
| 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 |
| S374 | Warning | Warning | 0x1860 | 120=Out of specification | 2 | Electronic module faulty | Restart device |
| S374 | Alarm | Error | 0x186c | 120=Out of specification | 2 | Electronic module faulty | Restart device |

| Diagnostic message | Diagnostic behavior | IO-Link Event Qualifier | IO-Link Event Code | Extended device status | Device status | Description | Remedy |
|--------------------|---------------------|-------------------------|--------------------|--------------------------|---------------|------------------------------|--|
| S948 | Warning | Warning | 0x1878 | 120=Out of specification | 2 | Oscillation damping too high | Check process conditions |
| S948 | Alarm | Error | 0x1879 | 120=Out of specification | 2 | Oscillation damping too high | Check process conditions |
| S046 | Warning | Warning | 0x8d23 | 120=Out of specification | 2 | Sensor limit exceeded | 1. Check process conditions 2. Check sensor |
| S046 | Alarm | Error | 0x8d24 | 120=Out of specification | 2 | Sensor limit exceeded | 1. Check process conditions 2. Check sensor |
| S912 | Warning | Warning | 0x1871 | 120=Out of specification | 2 | Medium inhomogeneous | 1. Check process cond. 2. Increase system pressure |
| S912 | Alarm | Error | 0x1863 | 120=Out of specification | 2 | Medium inhomogeneous | 1. Check process cond. 2. Increase system pressure |
| 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 |
| S140 | Warning | Warning | 0x180f | 120=Out of specification | 2 | Sensor signal asymmetrical | Replace device |
| S140 | Alarm | Error | 0x1840 | 120=Out of specification | 2 | Sensor signal asymmetrical | Replace device |
| S913 | Warning | Warning | 0x1872 | 120=Out of specification | 2 | Medium unsuitable | 1. Check process conditions 2. Check electronic modules or sensor |
| S913 | Alarm | Error | 0x1873 | 120=Out of specification | 2 | Medium unsuitable | 1. Check process conditions 2. Check electronic modules or sensor |

| Diagnostic message | Diagnostic behavior | IO-Link Event Qualifier | IO-Link Event Code | Extended device status | Device status | Description | Remedy |
|--------------------|---------------------|-------------------------|--------------------|--------------------------|---------------|----------------------------|--|
| 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 |
| 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/- | | | Dosimass | No |
| Product text | 0x0014 | 0 | 64 | StringT | r/- | | | Coriolis flowmeter | No |
| Product ID | 0x0013 | 0 | 64 | StringT | r/- | | | Dosimass | 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 | 0x10f1 | 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=Mass flow 2=Volume flow | | 1=Mass flow | Yes |
| Process variable unit 1 | 0x0831 | 0 | 2 | UIntegerT | r/- | 2=m ³ 51=kg | | 51=kg | 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 ³ kg | 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=Mass flow 2=Volume flow | | 1=Mass flow | Yes |
| Process variable unit 2 | 0x0832 | 0 | 2 | UIntegerT | r/- | 2=m ³ 51=kg | | 51=kg | 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 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=Mass flow 2=Volume flow | | 1=Mass flow | Yes |
| Process variable unit 3 | 0x0833 | 0 | 2 | UIntegerT | r/- | 2=m ³ 51=kg | | 51=kg | 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 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 | 0x0851 | 0 | 4 | Float32T | r/w | 0 .. 99.9 | s | 0.0 | Yes |
| Flow override | 0x083d | 0 | 2 | UIntegerT | r/w | 0=Off 1=On | | 0=Off | No |
| Density damping | 0x0852 | 0 | 4 | Float32T | r/w | 0 .. 999.9 | s | 0.0 | Yes |
| Temperature damping | 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=Mass flow 2=Volume flow | | 1=Mass flow | Yes |
| On value low flow cutoff | 0x0813 | 0 | 4 | Float32T | r/w | | kg/s m ³ /s | 0 | Yes |
| Off value low flow cutoff | 0x083e | 0 | 4 | Float32T | r/w | 0 .. 100.0 | % | 50.0 | Yes |

| Description (Identifier) | Index (hex) | Sub (dec) | Size (byte) | Data type | Access | Value range | Unit | Default value | Data storage |
|--|-------------|-----------|-------------|-----------|--------|--|-------------------|----------------|--------------|
| 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 |
| Partially filled pipe detection | 0x084f | 0 | 2 | UIntegerT | r/w | 0=Off 4=Density | | 0=Off | Yes |
| Low value partial filled pipe detection | 0x08a0 | 0 | 4 | Float32T | r/w | | kg/m ³ | 200 | Yes |
| High value partial filled pipe detection | 0x089f | 0 | 4 | Float32T | r/w | | kg/m ³ | 6000 | Yes |
| Threshold | 0x0892 | 0 | 4 | Float32T | r/w | 0 .. 3.4E+38 | | 0.0 | Yes |
| Installation direction | 0x0811 | 0 | 2 | UIntegerT | r/w | 0=Forward flow 1=Reverse flow | | 0=Forward flow | Yes |
| Zero adjustment control | 0x0893 | 0 | 2 | UIntegerT | r/w | 0=Cancel 1=Start | | 0=Cancel | No |
| Progress | 0x086b | 0 | 1 | UIntegerT | r/- | 0 .. 100 | % | 0 | No |
| Status | 0x0894 | 0 | 2 | UIntegerT | r/- | 2=Failed 5=Done 8=Busy | | 5=Done | No |
| Mass flow offset | 0x089d | 0 | 4 | Float32T | r/w | -3.4E+38 .. 3.4E+38 | kg/s | 0.0 | Yes |
| Mass flow factor | 0x089e | 0 | 4 | Float32T | r/w | 0 .. 3.4E+38 | | 1.0 | Yes |
| Volume flow offset | 0x0895 | 0 | 4 | Float32T | r/w | -3.4E+38 .. 3.4E+38 | m ³ /s | 0.0 | Yes |
| Volume flow factor | 0x0896 | 0 | 4 | Float32T | r/w | 0 .. 3.4E+38 | | 1.0 | Yes |
| Density offset | 0x089c | 0 | 4 | Float32T | r/w | -3.0e+38 .. 3.0e+38 | kg/m ³ | 0.0 | Yes |
| Density factor | 0x089b | 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 12=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=Mass flow 2=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 |

| Description (Identifier) | Index (hex) | Sub (dec) | Size (byte) | Data type | Access | Value range | Unit | Default value | Data storage |
|--------------------------------------|-------------|-----------|-------------|-----------|--------|--|---|----------------|--------------|
| Value per pulse | 0x0171 | 0 | 4 | Float32T | r/w | | kg m ³ | 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=Mass flow 2=Volume flow 4=Density 7=Temperature 8=Oscillation amplitude 0 9=Signal asymmetry 32=Exciter current 0 48=Oscillation frequency 0 63=Oscillation damping 0 67=Oscillation damping fluctuation 0 68=Frequency fluctuation 0 | | 0=Off | Yes |
| 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 | | kg/s m ³ /s kg/m ³ K % % mA Hz | 0 | Yes |
| Measuring value at maximum frequency | 0x0166 | 0 | 4 | Float32T | r/w | | kg/s m ³ /s kg/m ³ K % % mA Hz | 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 |

| Description (Identifier) | Index (hex) | Sub (dec) | Size (byte) | Data type | Access | Value range | Unit | Default value | Data storage |
|---|-------------|-----------|-------------|-----------|--------|--|--|-------------------|--------------|
| 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=Mass flow 2=Volume flow 4=Density 7=Temperature 100=Oscillation damping | | 2=Volume flow | Yes |
| Switch-on value | 0x017e | 0 | 4 | Float32T | r/w | | kg/s m ³ /s kg/m ³ K A/m | 0.0025 | 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 | | kg/s m ³ /s kg/m ³ K A/m | 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 |
| Assign flow direction check | 0x0182 | 0 | 2 | UIntegerT | r/w | 0=Off 1=Mass flow 2=Volume flow | | 2=Volume flow | Yes |
| Assign status | 0x0183 | 0 | 2 | UIntegerT | r/w | 0=Low flow cutoff 1=Partially filled pipe detection | | 0=Low flow cutoff | Yes |
| SP 1 | 0x003c | 1 | 4 | Float32T | r/w | -1.4E+21 .. 1.4E+21 | kg/s | 0.0 | Yes |
| SP 2 | 0x003c | 2 | 4 | Float32T | r/w | -1.4E+21 .. 1.4E+21 | kg/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 | kg/s | 0.0 | Yes |
| Switching signal channel 1.1 - Mass 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 | kg/s | 0.0 | Yes |
| SP 2 | 0x003e | 2 | 4 | Float32T | r/w | -1.4E+21 .. 1.4E+21 | kg/s | 0.0 | Yes |

| Description (Identifier) | Index (hex) | Sub (dec) | Size (byte) | Data type | Access | Value range | Unit | Default value | Data storage |
|--|-------------|-----------|-------------|-----------|--------|--|-------------------|---------------|--------------|
| 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 | kg/s | 0.0 | Yes |
| Switching signal channel 1.2 - Mass fl. | 0x302a | 0 | 1 | BooleanT | r/- | 0=Low 255=High | | 255=High | No |
| SP 1 | 0x400c | 1 | 4 | Float32T | r/w | 0 .. 1.4E+21 | kg/m ³ | 0.0 | Yes |
| SP 2 | 0x400c | 2 | 4 | Float32T | r/w | 0 .. 1.4E+21 | kg/m ³ | 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 | 0 .. 1.4E+21 | kg/m ³ | 0.0 | Yes |
| Switching signal channel 2.1 - Density | 0x3027 | 0 | 1 | BooleanT | r/- | 0=Low 255=High | | 255=High | No |
| SP 1 | 0x400e | 1 | 4 | Float32T | r/w | 0 .. 1.4E+21 | kg/m ³ | 0.0 | Yes |
| SP 2 | 0x400e | 2 | 4 | Float32T | r/w | 0 .. 1.4E+21 | kg/m ³ | 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 .. 1.4E+21 | kg/m ³ | 0.0 | Yes |
| Switching signal channel 2.2 - Density | 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 |

| Description (Identifier) | Index (hex) | Sub (dec) | Size (byte) | Data type | Access | Value range | Unit | Default value | Data storage |
|---------------------------------------|-------------|-----------|-------------|-----------|--------|--|------|---------------|--------------|
| 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 | kg | 0.0 | Yes |
| SP 2 | 0x402c | 2 | 4 | Float32T | r/w | -3.4E+38 .. 3.4E+38 | kg | 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 | kg | 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 | kg | 0.0 | Yes |
| SP 2 | 0x402e | 2 | 4 | Float32T | r/w | -3.4E+38 .. 3.4E+38 | kg | 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 | kg | 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 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 |
| Mass flow unit | 0x0145 | 0 | 2 | UIntegerT | r/- | 0=g/s | | 0=g/s | No |
| Mass unit | 0x014a | 0 | 2 | UIntegerT | r/- | 50=g | | 50=g | 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 |

| Description (Identifier) | Index (hex) | Sub (dec) | Size (byte) | Data type | Access | Value range | Unit | Default value | Data storage |
|--------------------------|-------------|-----------|-------------|-----------|--------|--|------|----------------------|--------------|
| 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 |
| 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 |
|---|-------------|-----------|-------------|-----------|--------|--|----------------------|-----------------|--------------|
| Mass flow | 0x0843 | 0 | 4 | Float32T | r/- | -1.4E+21 .. 1.4E+21 | kg/s | 1.0 | No |
| Density | 0x0849 | 0 | 4 | Float32T | r/- | 0 .. 1.4E+21 | kg/m ³ | 1.0 | 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 ³ kg | 0.0 | No |
| Totalizer 1 overflow | 0x0828 | 0 | 4 | Float32T | r/- | -32000.0 .. 32000.0 | | 0.0 | No |
| Extended device status | 0x218f | 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 - Mass fl. | 0x3026 | 0 | 1 | BooleanT | r/- | 0=Low 255=High | | 255=High | No |
| Switching signal channel 1.2 - Mass fl. | 0x302a | 0 | 1 | BooleanT | r/- | 0=Low 255=High | | 255=High | No |
| Switching signal channel 2.1 - Density | 0x3027 | 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 2.2 - Density | 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 |
| Volume flow | 0x0814 | 0 | 4 | Float32T | r/- | -1.4E+21 .. 1.4E+21 | m ³ /s | 0.0 | No |
| Totalizer 2 value | 0x0826 | 0 | 4 | Float32T | r/- | -1.0e+7 .. 1.0e+7 | 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/- | -1.0e+7 .. 1.0e+7 | m ³ kg | 0.0 | No |
| Totalizer 3 overflow | 0x082a | 0 | 4 | Float32T | r/- | -32000.0 .. 32000.0 | | 0.0 | No |
| Oscillation frequency 0 | 0x20d9 | 1 | 16 | Float32T | r/- | -3.0e+38 .. 3.0e+38 | Hz | 0.0 | No |
| Oscillation frequency 1 | 0x20d9 | 2 | 16 | Float32T | r/- | -3.0e+38 .. 3.0e+38 | Hz | 0.0 | No |
| Frequency fluctuation 0 | 0x2117 | 1 | 16 | Float32T | r/- | -3.0e+38 .. 3.0e+38 | | 0.0 | No |
| Frequency fluctuation 1 | 0x2117 | 2 | 16 | Float32T | r/- | -3.0e+38 .. 3.0e+38 | | 0.0 | No |
| Oscillation amplitude 0 | 0x20da | 1 | 16 | Float32T | r/- | -3.0e+38 .. 3.0e+38 | % | 0.0 | No |
| Oscillation amplitude 1 | 0x20da | 2 | 16 | Float32T | r/- | -3.0e+38 .. 3.0e+38 | % | 0.0 | No |
| Oscillation damping 0 | 0x20db | 1 | 16 | Float32T | r/- | 0 .. 3.0e+38 | | 0.0 | No |
| Oscillation damping 1 | 0x20db | 2 | 16 | Float32T | r/- | 0 .. 3.0e+38 | | 0.0 | No |
| Oscillation damping fluctuation 0 | 0x2119 | 1 | 16 | Float32T | r/- | -3.0e+38 .. 3.0e+38 | | 0.0 | No |
| Oscillation damping fluctuation 1 | 0x2119 | 2 | 16 | Float32T | r/- | -3.0e+38 .. 3.0e+38 | | 0.0 | No |
| Signal asymmetry 0 | 0x20d8 | 0 | 4 | Float32T | r/- | -3.0e+38 .. 3.0e+38 | % | 0.0 | No |
| Exciter current 0 | 0x20ec | 1 | 16 | Float32T | r/- | -3.0e+38 .. 3.0e+38 | A | 0.0 | No |
| Exciter current 1 | 0x20ec | 2 | 16 | Float32T | r/- | -3.0e+38 .. 3.0e+38 | A | 0.0 | No |

| Description (Identifier) | Index (hex) | Sub (dec) | Size (byte) | Data type | Access | Value range | Unit | Default value | Data storage |
|--|-------------|-----------|-------------|-----------|--------|-----------------|------|---------------|--------------|
| 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 |
| Flow override | 0x1100 | 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 - Mass flow | 0x1101 | 0 | 1 | BooleanT | r/- | 0=Off 255=On | | 0=Off | No |
| Control signal channel 2 - Density | 0x10fe | 0 | 1 | BooleanT | r/- | 0=Off 255=On | | 0=Off | No |
| Control signal channel 3 - Temperature | 0x1103 | 0 | 1 | BooleanT | r/- | 0=Off 255=On | | 0=Off | No |
| Control signal channel 4 - Totalizer 1 | 0x1102 | 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=----- 16777296=F910 Tubes not oscillating 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=F022 Temperature sensor defective 16777430=F022 Temperature sensor defective 16777434=F372 Electronic module faulty 16777435=F062 Sensor connection faulty 16777436=F062 Sensor connection faulty 16777441=F283 Memory content inconsistent 16777445=F273 Main electronics defective 16777447=F082 Data storage inconsistent 16777491=F062 Sensor connection faulty 16777492=F062 Sensor connection faulty 16777504=F372 Electronic module 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 | 0=----- | No | |

| Description (Identifier) | Index (hex) | Sub (dec) | Size (byte) | Data type | Access | Value range | Unit | Default value | Data storage |
|--------------------------|-------------|-----------|-------------|-----------|--------|--|------|---------------|--------------|
| | | | | | | 33554573=C492 Frequency output simulation active | | | |
| | | | | | | 33554574=C493 Pulse output simulation active | | | |
| | | | | | | 33554575=C494 Switch output simulation active | | | |
| | | | | | | 33554576=C484 Failure mode simulation active | | | |
| | | | | | | 33554579=C485 Process variable simulation active | | | |
| | | | | | | 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 | | | |
| | | | | | | 134217874=S862 Partly filled pipe | | | |
| | | | | | | 134217924=S912 Medium inhomogeneous | | | |
| | | | | | | 134217925=S834 Process temperature too high | | | |
| | | | | | | 134217926=S835 Process temperature too low | | | |
| | | | | | | 134217928=S046 Sensor limit exceeded | | | |
| | | | | | | 134217930=S046 Sensor limit exceeded | | | |
| | | | | | | 134217932=S140 Sensor signal asymmetrical | | | |
| | | | | | | 134217933=S913 Medium unsuitable | | | |
| | | | | | | 134217934=S374 Electronic module faulty | | | |
| | | | | | | 134217951=S912 Medium inhomogeneous | | | |
| | | | | | | 134218005=S912 Medium inhomogeneous | | | |
| | | | | | | 134218017=S443 Pulse output saturated | | | |

| Description (Identifier) | Index (hex) | Sub (dec) | Size (byte) | Data type | Access | Value range | Unit | Default value | Data storage |
|---------------------------|-------------|-----------|-------------|-----------|--------|---|------|---------------|--------------|
| | | | | | | 134218018=S442 Frequency output saturated 134218082=S912 Medium inhomogeneous 134218088=S948 Oscillation damping too high 134219072=S880 Output overloaded | | | |
| 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=----- 16777296=F910 Tubes not oscillating 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=F022 Temperature sensor defective 16777430=F022 Temperature sensor defective 16777434=F372 Electronic module faulty 16777435=F062 Sensor connection faulty 16777436=F062 Sensor connection faulty 16777441=F283 Memory content inconsistent 16777445=F273 Main electronics defective 16777447=F082 Data storage inconsistent 16777491=F062 Sensor connection faulty 16777492=F062 Sensor connection faulty 16777504=F372 Electronic module 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 | | 0=----- | No |

| Description (Identifier) | Index (hex) | Sub (dec) | Size (byte) | Data type | Access | Value range | Unit | Default value | Data storage |
|--------------------------|-------------|-----------|-------------|-----------|--------|--|------|---------------|--------------|
| | | | | | | 33554573=C492 Frequency output simulation active 33554574=C493 Pulse output simulation active 33554575=C494 Switch output simulation active 33554576=C484 Failure mode simulation active 33554579=C485 Process variable simulation active 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 134217874=S862 Partly filled pipe 134217924=S912 Medium inhomogeneous 134217925=S834 Process temperature too high 134217926=S835 Process temperature too low 134217928=S046 Sensor limit exceeded 134217930=S046 Sensor limit exceeded 134217932=S140 Sensor signal asymmetrical 134217933=S913 Medium unsuitable 134217934=S374 Electronic module faulty 134217951=S912 Medium inhomogeneous 134218005=S912 Medium inhomogeneous 134218017=S443 Pulse output saturated | | | |

| Description (Identifier) | Index (hex) | Sub (dec) | Size (byte) | Data type | Access | Value range | Unit | Default value | Data storage |
|-----------------------------|-------------|-----------|-------------|-----------|--------|---|------|---------------|--------------|
| | | | | | | 134218018=S442 Frequency output saturated 134218082=S912 Medium inhomogeneous 134218088=S948 Oscillation damping too high 134219072=S880 Output overloaded | | | |
| 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=----- 16777296=F910 Tubes not oscillating 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=F022 Temperature sensor defective 16777430=F022 Temperature sensor defective 16777434=F372 Electronic module faulty 16777435=F062 Sensor connection faulty 16777436=F062 Sensor connection faulty 16777441=F283 Memory content inconsistent 16777445=F273 Main electronics defective 16777447=F082 Data storage inconsistent 16777491=F062 Sensor connection faulty 16777492=F062 Sensor connection faulty 16777504=F372 Electronic module 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 | | 0=----- | No |

| Description (Identifier) | Index (hex) | Sub (dec) | Size (byte) | Data type | Access | Value range | Unit | Default value | Data storage |
|--------------------------|-------------|-----------|-------------|-----------|--------|--|------|---------------|--------------|
| | | | | | | 33554573=C492 Frequency output simulation active | | | |
| | | | | | | 33554574=C493 Pulse output simulation active | | | |
| | | | | | | 33554575=C494 Switch output simulation active | | | |
| | | | | | | 33554576=C484 Failure mode simulation active | | | |
| | | | | | | 33554579=C485 Process variable simulation active | | | |
| | | | | | | 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 | | | |
| | | | | | | 134217874=S862 Partly filled pipe | | | |
| | | | | | | 134217924=S912 Medium inhomogeneous | | | |
| | | | | | | 134217925=S834 Process temperature too high | | | |
| | | | | | | 134217926=S835 Process temperature too low | | | |
| | | | | | | 134217928=S046 Sensor limit exceeded | | | |
| | | | | | | 134217930=S046 Sensor limit exceeded | | | |
| | | | | | | 134217932=S140 Sensor signal asymmetrical | | | |
| | | | | | | 134217933=S913 Medium unsuitable | | | |
| | | | | | | 134217934=S374 Electronic module faulty | | | |
| | | | | | | 134217951=S912 Medium inhomogeneous | | | |
| | | | | | | 134218005=S912 Medium inhomogeneous | | | |
| | | | | | | 134218017=S443 Pulse output saturated | | | |

| Description (Identifier) | Index (hex) | Sub (dec) | Size (byte) | Data type | Access | Value range | Unit | Default value | Data storage |
|--------------------------|-------------|-----------|-------------|-----------|--------|---|------|---------------|--------------|
| | | | | | | 134218018=S442 Frequency output saturated 134218082=S912 Medium inhomogeneous 134218088=S948 Oscillation damping too high 134219072=S880 Output overloaded | | | |
| 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=----- 16777296=F910 Tubes not oscillating 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=F022 Temperature sensor defective 16777430=F022 Temperature sensor defective 16777434=F372 Electronic module faulty 16777435=F062 Sensor connection faulty 16777436=F062 Sensor connection faulty 16777441=F283 Memory content inconsistent 16777445=F273 Main electronics defective 16777447=F082 Data storage inconsistent 16777491=F062 Sensor connection faulty 16777492=F062 Sensor connection faulty 16777504=F372 Electronic module 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 | | 0=----- | No |

| Description (Identifier) | Index (hex) | Sub (dec) | Size (byte) | Data type | Access | Value range | Unit | Default value | Data storage | |
|--------------------------|-------------|-----------|-------------|-----------|--------|--|------|---------------|--------------|--|
| | | | | | | 33554573=C492 Frequency output simulation active 33554574=C493 Pulse output simulation active 33554575=C494 Switch output simulation active 33554576=C484 Failure mode simulation active 33554579=C485 Process variable simulation active 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 134217874=S862 Partly filled pipe 134217924=S912 Medium inhomogeneous 134217925=S834 Process temperature too high 134217926=S835 Process temperature too low 134217928=S046 Sensor limit exceeded 134217930=S046 Sensor limit exceeded 134217932=S140 Sensor signal asymmetrical 134217933=S913 Medium unsuitable 134217934=S374 Electronic module faulty 134217951=S912 Medium inhomogeneous 134218005=S912 Medium inhomogeneous 134218017=S443 Pulse output saturated | | | | |

| Description (Identifier) | Index (hex) | Sub (dec) | Size (byte) | Data type | Access | Value range | Unit | Default value | Data storage |
|--------------------------|-------------|-----------|-------------|-----------|--------|---|------|---------------|--------------|
| | | | | | | 134218018=S442 Frequency output saturated 134218082=S912 Medium inhomogeneous 134218088=S948 Oscillation damping too high 134219072=S880 Output overloaded | | | |
| 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=----- 16777296=F910 Tubes not oscillating 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=F022 Temperature sensor defective 16777430=F022 Temperature sensor defective 16777434=F372 Electronic module faulty 16777435=F062 Sensor connection faulty 16777436=F062 Sensor connection faulty 16777441=F283 Memory content inconsistent 16777445=F273 Main electronics defective 16777447=F082 Data storage inconsistent 16777491=F062 Sensor connection faulty 16777492=F062 Sensor connection faulty 16777504=F372 Electronic module 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 | | 0=----- | No |

| Description (Identifier) | Index (hex) | Sub (dec) | Size (byte) | Data type | Access | Value range | Unit | Default value | Data storage |
|--------------------------|-------------|-----------|-------------|-----------|--------|--|------|---------------|--------------|
| | | | | | | 33554573=C492 Frequency output simulation active | | | |
| | | | | | | 33554574=C493 Pulse output simulation active | | | |
| | | | | | | 33554575=C494 Switch output simulation active | | | |
| | | | | | | 33554576=C484 Failure mode simulation active | | | |
| | | | | | | 33554579=C485 Process variable simulation active | | | |
| | | | | | | 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 | | | |
| | | | | | | 134217874=S862 Partly filled pipe | | | |
| | | | | | | 134217924=S912 Medium inhomogeneous | | | |
| | | | | | | 134217925=S834 Process temperature too high | | | |
| | | | | | | 134217926=S835 Process temperature too low | | | |
| | | | | | | 134217928=S046 Sensor limit exceeded | | | |
| | | | | | | 134217930=S046 Sensor limit exceeded | | | |
| | | | | | | 134217932=S140 Sensor signal asymmetrical | | | |
| | | | | | | 134217933=S913 Medium unsuitable | | | |
| | | | | | | 134217934=S374 Electronic module faulty | | | |
| | | | | | | 134217951=S912 Medium inhomogeneous | | | |
| | | | | | | 134218005=S912 Medium inhomogeneous | | | |
| | | | | | | 134218017=S443 Pulse output saturated | | | |

| Description (Identifier) | Index (hex) | Sub (dec) | Size (byte) | Data type | Access | Value range | Unit | Default value | Data storage |
|--------------------------|-------------|-----------|-------------|-----------|--------|---|------|---------------|--------------|
| | | | | | | 134218018=S442 Frequency output saturated 134218082=S912 Medium inhomogeneous 134218088=S948 Oscillation damping too high 134219072=S880 Output overloaded | | | |
| 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=----- 16777296=F910 Tubes not oscillating 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=F022 Temperature sensor defective 16777430=F022 Temperature sensor defective 16777434=F372 Electronic module faulty 16777435=F062 Sensor connection faulty 16777436=F062 Sensor connection faulty 16777441=F283 Memory content inconsistent 16777445=F273 Main electronics defective 16777447=F082 Data storage inconsistent 16777491=F062 Sensor connection faulty 16777492=F062 Sensor connection faulty 16777504=F372 Electronic module 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 | | 0=----- | No |

| Description (Identifier) | Index (hex) | Sub (dec) | Size (byte) | Data type | Access | Value range | Unit | Default value | Data storage | |
|--------------------------|-------------|-----------|-------------|-----------|--------|--|------|---------------|--------------|--|
| | | | | | | 33554573=C492 Frequency output simulation active 33554574=C493 Pulse output simulation active 33554575=C494 Switch output simulation active 33554576=C484 Failure mode simulation active 33554579=C485 Process variable simulation active 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 134217874=S862 Partly filled pipe 134217924=S912 Medium inhomogeneous 134217925=S834 Process temperature too high 134217926=S835 Process temperature too low 134217928=S046 Sensor limit exceeded 134217930=S046 Sensor limit exceeded 134217932=S140 Sensor signal asymmetrical 134217933=S913 Medium unsuitable 134217934=S374 Electronic module faulty 134217951=S912 Medium inhomogeneous 134218005=S912 Medium inhomogeneous 134218017=S443 Pulse output saturated | | | | |

| Description (Identifier) | Index (hex) | Sub (dec) | Size (byte) | Data type | Access | Value range | Unit | Default value | Data storage |
|--------------------------|-------------|-----------|-------------|-----------|--------|---|------|---------------|--------------|
| | | | | | | 134218018=S442 Frequency output saturated 134218082=S912 Medium inhomogeneous 134218088=S948 Oscillation damping too high 134219072=S880 Output overloaded | | | |
| 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=----- 16777296=F910 Tubes not oscillating 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=F022 Temperature sensor defective 16777430=F022 Temperature sensor defective 16777434=F372 Electronic module faulty 16777435=F062 Sensor connection faulty 16777436=F062 Sensor connection faulty 16777441=F283 Memory content inconsistent 16777445=F273 Main electronics defective 16777447=F082 Data storage inconsistent 16777491=F062 Sensor connection faulty 16777492=F062 Sensor connection faulty 16777504=F372 Electronic module 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 | | 0=----- | No |

| Description (Identifier) | Index (hex) | Sub (dec) | Size (byte) | Data type | Access | Value range | Unit | Default value | Data storage |
|--------------------------|-------------|-----------|-------------|-----------|--------|--|------|---------------|--------------|
| | | | | | | 33554573=C492 Frequency output simulation active | | | |
| | | | | | | 33554574=C493 Pulse output simulation active | | | |
| | | | | | | 33554575=C494 Switch output simulation active | | | |
| | | | | | | 33554576=C484 Failure mode simulation active | | | |
| | | | | | | 33554579=C485 Process variable simulation active | | | |
| | | | | | | 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 | | | |
| | | | | | | 134217874=S862 Partly filled pipe | | | |
| | | | | | | 134217924=S912 Medium inhomogeneous | | | |
| | | | | | | 134217925=S834 Process temperature too high | | | |
| | | | | | | 134217926=S835 Process temperature too low | | | |
| | | | | | | 134217928=S046 Sensor limit exceeded | | | |
| | | | | | | 134217930=S046 Sensor limit exceeded | | | |
| | | | | | | 134217932=S140 Sensor signal asymmetrical | | | |
| | | | | | | 134217933=S913 Medium unsuitable | | | |
| | | | | | | 134217934=S374 Electronic module faulty | | | |
| | | | | | | 134217951=S912 Medium inhomogeneous | | | |
| | | | | | | 134218005=S912 Medium inhomogeneous | | | |
| | | | | | | 134218017=S443 Pulse output saturated | | | |

| Description (Identifier) | Index (hex) | Sub (dec) | Size (byte) | Data type | Access | Value range | Unit | Default value | Data storage |
|------------------------------------|-------------|-----------|-------------|-----------|--------|---|---|---------------|--------------|
| | | | | | | 134218018=S442 Frequency output saturated 134218082=S912 Medium inhomogeneous 134218088=S948 Oscillation damping too high 134219072=S880 Output overloaded | | | |
| 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=Mass flow 2=Volume flow 4=Density 7=Temperature | | 0=Off | No |
| Process value | 0x084c | 0 | 4 | Float32T | r/w | | kg/s m ³ /s kg/m ³ 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 |
| 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 5242880=910 Tubes not oscillating 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 9568256=862 Partly filled pipe 9633792=485 Process variable simulation active 9699328=453 Flow override active 10485760=083 Memory content inconsistent 12845056=912 Medium inhomogeneous 12910592=834 Process temperature too high 12976128=835 Process temperature too low 13107200=046 Sensor limit exceeded 13369344=140 Sensor signal asymmetrical 13434880=913 Medium unsuitable 13500416=374 Electronic module faulty | | 33004=Off | No |

| Description (Identifier) | Index (hex) | Sub (dec) | Size (byte) | Data type | Access | Value range | Unit | Default value | Data storage |
|---------------------------------------|-------------|-----------|-------------|-----------|--------|--|------|---------------|--------------|
| | | | | | | 13959168=022 Temperature sensor defective 14286848=372 Electronic module faulty 14352384=062 Sensor connection faulty 14745600=283 Memory content inconsistent 14811136=311 Electronic module faulty 15007744=273 Main electronics defective 15138816=082 Data storage inconsistent 21692416=201 Electronics faulty 23592960=948 Oscillation damping too high 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. 046 | 0x087e | 0 | 2 | UIntegerT | r/w | 0=Off 1=Logbook entry only 2=Warning 3=Alarm | | 2=Warning | Yes |
| Assign behavior of diagnostic no. 140 | 0x087c | 0 | 2 | UIntegerT | r/w | 0=Off 1=Logbook entry only 2=Warning 3=Alarm | | 2=Warning | No |
| Assign behavior of diagnostic no. 374 | 0x087d | 0 | 2 | UIntegerT | r/w | 0=Off 1=Logbook entry only 2=Warning 3=Alarm | | 2=Warning | No |
| 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 |

| Description (Identifier) | Index (hex) | Sub (dec) | Size (byte) | Data type | Access | Value range | Unit | Default value | Data storage |
|---------------------------------------|-------------|-----------|-------------|-----------|--------|---|------|---------------|--------------|
| 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. 862 | 0x0861 | 0 | 2 | UIntegerT | r/w | 0=Off 1=Logbook entry only 2=Warning 3=Alarm | | 2=Warning | Yes |
| Assign behavior of diagnostic no. 912 | 0x087a | 0 | 2 | UIntegerT | r/w | 0=Off 1=Logbook entry only 2=Warning 3=Alarm | | 2=Warning | Yes |
| Assign behavior of diagnostic no. 913 | 0x0878 | 0 | 2 | UIntegerT | r/w | 0=Off 1=Logbook entry only 2=Warning 3=Alarm | | 2=Warning | Yes |
| Assign behavior of diagnostic no. 948 | 0x0880 | 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 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 2124=Process value 2126=Low flow cutoff 2127=Partially filled pipe detection 2128=Pressure shock suppression delay 2129=Flow damping 2130=Density damping 2144=Assign behavior of diagnostic no. 842 2145=Assign behavior of diagnostic no. 862 2147=Assign behavior of diagnostic no. 834 2148=Assign behavior of diagnostic no. 835 2153=Reset all totalizers 2168=Assign behavior of diagnostic no. 913 2170=Assign behavior of diagnostic no. 912 2172=Assign behavior of diagnostic no. 140 2173=Assign behavior of diagnostic no. 374 2174=Assign behavior of diagnostic no. 046 2176=Assign behavior of diagnostic no. 948 2194=Threshold | | | |

| Description (Identifier) | Index (hex) | Sub (dec) | Size (byte) | Data type | Access | Value range | Unit | Default value | Data storage |
|--------------------------|-------------|-----------|-------------|-----------|--------|---|----------------------|----------------------|--------------|
| | | | | | | 2195=Zero adjustment control 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 2203=Density factor 2204=Density offset 2205=Mass flow offset 2206=Mass flow factor 2207=High value partial filled pipe detection 2208=Low value partial filled pipe detection 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 | kg/s | 0.0 | No |
| Upper value | 0x4080 | 2 | 4 | Float32T | r/- | -1.4E+21 .. 1.4E+21 | kg/s | 0.0 | No |
| Unit | 0x4080 | 3 | 2 | UIntegerT | r/- | 4=kg/s | | 4=kg/s | No |
| Scale | 0x4080 | 4 | 1 | IntegerT | r/- | -128 .. 127 | | 0 | No |
| Lower value | 0x4081 | 1 | 4 | Float32T | r/- | -1.4E+21 .. 1.4E+21 | kg/m ³ | 0.0 | No |
| Upper value | 0x4081 | 2 | 4 | Float32T | r/- | -1.4E+21 .. 1.4E+21 | kg/m ³ | 0.0 | No |
| Unit | 0x4081 | 3 | 2 | UIntegerT | r/- | 44=kg/m ³ 51=kg | | 44=kg/m ³ | 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 kg | 0.0 | No |
| Upper value | 0x4083 | 2 | 4 | Float32T | r/- | -1.4E+21 .. 1.4E+21 | m ³ kg | 0.0 | No |
| Unit | 0x4083 | 3 | 2 | UIntegerT | r/- | 51=kg | | 51=kg | No |
| Scale | 0x4083 | 4 | 1 | IntegerT | r/- | -128 .. 127 | | 0 | No |

4 Process data

| Name | Description | Data type | Value range | Unit |
|--|---|-----------|--|-------------------|
| Mass flow | Shows the mass flow currently measured | Float32T | -1.4E+21 .. 1.4E+21 3.3e38=NoMeasurement Data 2.65e38=OutOfRangeHigh -2.65e38=OutOfRangeLow | kg/s |
| Density | Shows the density currently measured | Float32T | 0 .. 1.4E+21 3.3e38=NoMeasurement Data 2.65e38=OutOfRangeHigh -2.65e38=OutOfRangeLow | kg/m ³ |
| 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 | kg |
| 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 - Density | 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 - Density | Displays the state of the switching signal channel (SSC). | BooleanT | 0=Low 1=High | |
| Switching signal channel 1.2 - Mass fl. | Displays the state of the switching signal channel (SSC). | BooleanT | 0=Low 1=High | |
| Switching signal channel 1.1 - Mass 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 | |
| Control signal channel 2 - Density | 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 - Mass 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 | Mass flow | Density | 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 |
|------------------------|------------------------|----------------------------|--------------------------------|--------------------|---------------|----------|---------------------|---------------------|-----------------|-------------------|
| 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 | CSC 2 – Density | CSC 1 – Mass flow |



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