



IO-Link Interface Description

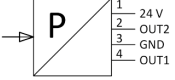

34D Allfluid 0/400 analogue

EN

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1 Device variant

| | | |
|--|---|---|
| <p>34D Allfluid 0/400 analogue</p> <p>Electronic pressure sensor, 34D allfluid pressure switch; 0...400bar; output: 1 x digital + 1 x analogue 4...20mA / 0...10V</p> |  |  |
|--|---|---|

2 Communication

| | |
|------------------------|--|
| Vendor ID | 0x03AE 942 d / Bytes 3d 174d |
| Device ID | 0x0008012 32786 d / Bytes 128d 18d |
| Bit rate | COM2 |
| Minimum cycle time | 3 ms |
| SIO mode supported | Yes |
| Block parameterization | Yes |
| Data storage | Yes |
| Supported profiles | Measuring Sensor Identification and Diagnosis |
| Support of IO-Link 1.0 | Yes |



NOTE:

If the Vendor ID and Device ID is referenced in your PLC system, then it is ensured that

- the connected Device type is correct
- the IO-Link datastorage is enabled
- your application is still able to work, even your Device has been exchanged with a successor model.



For process value update rate, as well as further information concerning sensor performance, see datasheet

3 Parameter overview

| Parameter | Index | Subindex | Type | Factory setting |
|---------------------------|-------|----------|---------------------------|--|
| Device Access Locks | 12 | | RecordT (16 Bit) | false |
| Vendor name | 16 | | StringT (11 Byte) | IMI Norgren |
| Vendor text | 17 | | StringT (21 Byte) | www.imi-precision.com |
| Product Name | 18 | | StringT (27 Byte) | 34D Allfluid 0/400 analogue |
| Product ID | 19 | | StringT (16 Byte) | 34D-P400G-DA1-AA |
| Product Text | 20 | | StringT (28 Byte) | allfluid 34D pressure switch |
| Serial Number | 21 | | StringT (12 Byte) | |
| Hardware Version | 22 | | StringT (2 Byte) | |
| Firmware Version | 23 | | StringT (5 Byte) | |
| Application Specific Tag | 24 | | StringT (32 Byte) | *** |
| Function Tag | 25 | | StringT (32 Byte) | *** |
| Location Tag | 26 | | StringT (32 Byte) | *** |
| Device Status | 36 | | UIntegerT (8 Bit) | 0 (Device is OK) |
| Detailed Device Status | 37 | | OctetStringT (3 byte) [8] | 0x00,0x00,0x00 |
| Process data input | 40 | | RecordT (32 Bit) | |
| dAP | 510 | | UIntegerT (16 Bit) | 60 |
| dAA | 512 | | UIntegerT (16 Bit) | 0 |
| Active Events | 545 | | RecordT (32 Bit) | |
| Param configuration fault | 546 | | UIntegerT (32 Bit) [10] | 0 (OK) |
| Loc | 550 | | UIntegerT (8 Bit) | 1 (uLoc) |
| uni | 551 | | UIntegerT (8 Bit) | 1 (bar) |
| diS | 552 | | RecordT (16 Bit) | |
| coLr | 554 | | UIntegerT (8 Bit) | 2 (rEd / Displayed value red) |
| cFL | 555 | | IntegerT (16 Bit) | 0 |
| cFH | 556 | | IntegerT (16 Bit) | 4000 |
| Hi | 560 | | IntegerT (16 Bit) | |
| Lo | 561 | | IntegerT (16 Bit) | |
| ou1 | 580 | | UIntegerT (8 Bit) | 3 (Hno / Hysteresis fct normally open) |
| dS1 | 581 | | UIntegerT (16 Bit) | 0 |
| dr1 | 582 | | UIntegerT (16 Bit) | 0 |
| SP1 / FH1 - PRES | 583 | | IntegerT (16 Bit) | 1000 |
| rP1 / FL1 - PRES | 584 | | IntegerT (16 Bit) | 920 |
| ou2 | 590 | | UIntegerT (8 Bit) | 1 (I / Analog signal 4...20 mA) |
| HIPS | 5003 | | IntegerT (16 Bit) | 4000 |
| HIPC | 5004 | | UIntegerT (32 Bit) | |
| MDC Descr | 16512 | | RecordT (88 Bit) | |
| Lower limit | 16512 | 1 | IntegerT (32 Bit) | 0 (0) |
| Upper limit | 16512 | 2 | IntegerT (32 Bit) | 4000 (4000) |
| Unit code | 16512 | 3 | UIntegerT (16 Bit) | 1130 (Pa) |
| Scale | 16512 | 4 | IntegerT (8 Bit) | 4 (4) |

4 System Commands



System Command information
 - Address: Index 2, Subindex 0
 - Datatype: UInteger (8 Bit)
 - AccessRight: Write Only

| System Commands | Text | Description |
|-----------------|---|--|
| 1 | Upload Start | Start block parameter upload |
| 2 | Upload End | End block parameter upload |
| 3 | Download Start | Start block parameter download |
| 4 | Download End | Stop block parameter download |
| 5 | Store | Finalize block parameterization and start Data Storage |
| 6 | Break | Cancel block parameterization |
| 130 | Restore Factory Settings | |
| 161 | Reset [Hi] and [Lo] memory | |
| 162 | Reset [Lo] memory | |
| 163 | Reset [Hi] memory | |
| 222 | Flash On | |
| 223 | Flash Off | |
| 240 | IO-Link 1.1 system test command 240, Event 8DFE appears | |
| 241 | IO-Link 1.1 system test command 241, Event 8DFE disappears | |
| 242 | IO-Link 1.1 system test command 242, Event 8DFF appears | |
| 243 | IO-Link 1.1 system test command 243, Event 8DFF disappears | |

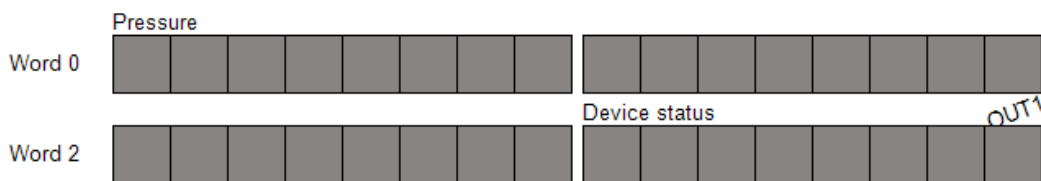
5 Identification

| | | | | |
|---|---|-------------------|--------------------------|------------------|
| Vendor name Factory setting | Index 16 IMI Norgren | Subindex 0 | StringT (11 Byte) | ReadOnly |
| Vendor text Factory setting | Index 17 www.imi-precision.com | Subindex 0 | StringT (21 Byte) | ReadOnly |
| Product Name Factory setting | Index 18 34D Allfluid 0/400 analogue | Subindex 0 | StringT (27 Byte) | ReadOnly |
| Product Text Factory setting | Index 20 allfluid 34D pressure switch | Subindex 0 | StringT (28 Byte) | ReadOnly |
| Product ID Factory setting | Index 19 34D-P400G-DA1-AA | Subindex 0 | StringT (16 Byte) | ReadOnly |
| Serial Number | Index 21 | Subindex 0 | StringT (12 Byte) | ReadOnly |
| Hardware Version | Index 22 | Subindex 0 | StringT (2 Byte) | ReadOnly |
| Firmware Version | Index 23 | Subindex 0 | StringT (5 Byte) | ReadOnly |
| Application Specific Tag Factory setting | Index 24 *** | Subindex 0 | StringT (32 Byte) | ReadWrite |
| Function Tag Plant designation, describes the device functionality Factory setting | Index 25 *** | Subindex 0 | StringT (32 Byte) | ReadWrite |
| Location Tag Location designation, identifies the device location Factory setting | Index 26 *** | Subindex 0 | StringT (32 Byte) | ReadWrite |

6 Observation

6.1 Process Data Input/Output

| Process data input | Index 40 | Subindex 0 | RecordT (32 Bit) |
|--|-------------------------------------|---|-------------------|
| Pressure | | | IntegerT (16 Bit) |
| Current pressure | | | |
| Value range [bar] | (0 To 4200) * 0.1 32760 32764 | (OL) (NoData) | |
| Device status | | | UIntegerT (4 Bit) |
| Current device status, a copy of the parameter [Device Status, Index 36] in the process data channel | | | |
| Value range | 0 1 2 3 4 | (Device is OK) (Maintenance required) (Out of specification) (Functional check) (Failure) | |
| OUT1 | | | BooleanT |
| Current status of the digital signal [OUT1] | | | |
| Value range | false true | (OFF) (On) | |



Process data displayed according device sort order.
Please note: Siemens PLCs swap the high and low byte when using byte addressing.

7 Parameter

7.1 Output configuration

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

| ou2 | Index 590 | Subindex 0 | UIntegerT (8 Bit) | ReadWrite |
|------------------------------|-----------|--------------------------------------|-------------------|-----------|
| Output configuration [OUT 2] | | | | |
| Factory setting | 1 | (I / Analog signal 4...20 mA) | | |
| Value range | 1 | (I / Analog signal 4...20 mA) | | |
| | 2 | (U / Analog signal 0...10 V) | | |
| | 16 | (OFF / Output Off) | | |

7.2 Digital output 1

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

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

7.2.1 Pressure

| SP1 / FH1 - PRES | Index 583 | Subindex 0 | IntegerT (16 Bit) | ReadWrite |
|---|--------------------|------------|-------------------|-----------|
| Switch point 1 / Pressure, [SP1] must be greater than [rP1]. Please take into account the current [rP1] value. [SP1] will be refused if below [rP1]. [SP] = [FH] and [rP] = [FL] if [OU1] = Fno, Fnc. ! Rounded on stepwidth ! | | | | |
| Factory setting | 1000 | | | |
| Value range [bar] | (34 To 4000) * 0.1 | | | |

| rP1 / FL1 - PRES | Index 584 | Subindex 0 | IntegerT (16 Bit) | ReadWrite |
|--|--------------------|------------|-------------------|-----------|
| Reset point 1 / Pressure, [rP1] must be smaller than [SP1]. Please take into account the current [SP1] value. [rP1] will be refused if above [SP1]. [rP] = [FL] and [SP] = [FH] if [OU1] = Fno, Fnc. ! Rounded on stepwidth ! | | | | |
| Factory setting | 920 | | | |
| Value range [bar] | (14 To 3980) * 0.1 | | | |

7 Parameter

7.3 Memory

7.3.1 Pressure

| Lo | Index 561 | Subindex 0 | IntegerT (16 Bit) | ReadOnly |
|----------------------|-------------------------------------|------------------|-------------------|----------|
| Minimum memory value | | | | |
| Value range [bar] | (0 To 4200) * 0.1 32760 32764 | (OL) (NoData) | | |

| Hi | Index 560 | Subindex 0 | IntegerT (16 Bit) | ReadOnly |
|----------------------|-------------------------------------|------------------|-------------------|----------|
| Maximum memory value | | | | |
| Value range [bar] | (0 To 4200) * 0.1 32760 32764 | (OL) (NoData) | | |

7.4 Damping

| dAP | Index 510 | Subindex 0 | UIntegerT (16 Bit) | ReadWrite |
|---|----------------------------------|------------|--------------------|-----------|
| Damping of the measured signal | | | | |
| Factory setting Value range [s] | 60 (0 To 4000) * 0.001 | | | |

| dAA | Index 512 | Subindex 0 | UIntegerT (16 Bit) | ReadWrite |
|--|---------------------------------|------------|--------------------|-----------|
| Response time between process value change and change of the analog output | | | | |
| Factory setting Value range [s] | 0 (0 To 4000) * 0.001 | | | |

7.5 Setting of the sensor display

| diS | Index 552 | Subindex 0 | RecordT (16 Bit) | ReadWrite |
|---------------------------------------|-------------------------------|--|-------------------|-----------|
| Display settings | | | | |
| Display On / OFF | | bitOffset 7 | BooleanT | |
| Factory setting Value range | false false true | (On) (On) (OFF) | | |
| Display orientation | | bitOffset 6 | BooleanT | |
| Factory setting Value range | false false true | (Not rotated) (Not rotated) (Rotated 180°) | | |
| Update rate | | bitOffset 0 | UIntegerT (6 Bit) | |
| Factory setting Value range | 2 1 2 4 | (d2 / medium) (d1 / fast) (d2 / medium) (d3 / slow) | | |

7 Parameter

| coLr | Index 554 | Subindex 0 | UIntegerT (8 Bit) | ReadWrite |
|-------------------------------------|-----------|--|-------------------|-----------|
| Colour configuration of the display | | | | |
| Factory setting | 2 | (rEd / Displayed value red) | | |
| Value range | 2 | (rEd / Displayed value red) | | |
| | 3 | (GrEn / Displayed value green) | | |
| | 4 | (r1ou / Displayed value red when OUT1 switches) | | |
| | 5 | (G1ou / Displayed value green when OUT1 switches) | | |
| | 10 | (r-cF / Displayed value red when the measured value is inside the limits of [cFL] and [cFH]) | | |
| | 11 | (G-cF / Displayed value green when the measured value is inside the limits of [cFL] and [cFH]) | | |

| uni | Index 551 | Subindex 0 | UIntegerT (8 Bit) | ReadWrite |
|--------------------------------|-----------|--------------|-------------------|-----------|
| Selection of the physical unit | | | | |
| Factory setting | 1 | (bar) | | |
| Value range | 0 | (MPa) | | |
| | 1 | (bar) | | |
| | 2 | (psi) | | |

| Loc | Index 550 | Subindex 0 | UIntegerT (8 Bit) | ReadWrite |
|--|-----------|---------------|-------------------|-----------|
| [Loc] locks the local user interface to prevent unintentional changes, [Loc] is resettable at the device | | | | |
| Factory setting | 1 | (uLoc) | | |
| Value range | 0 | (Loc) | | |
| | 1 | (uLoc) | | |

7.6 Colour frame

7.6.1 Colour frame

| cFH | Index 556 | Subindex 0 | IntegerT (16 Bit) | ReadWrite |
|--|--------------------|------------|-------------------|-----------|
| Upper value for colour change. Parameter only active if coLr = [r-cF] or [G-cF]. The setting range is limited to its minimum by [cFL]. ! Rounded on stepwidth ! | | | | |
| Factory setting | 4000 | | | |
| Value range [bar] | (20 To 4000) * 0.1 | | | |

| cFL | Index 555 | Subindex 0 | IntegerT (16 Bit) | ReadWrite |
|--|-------------------|------------|-------------------|-----------|
| Lower value for colour change. Parameter only active if coLr = [r-cF] or [G-cF]. The setting range is limited to its maximum by [cFH]. ! Rounded on stepwidth ! | | | | |
| Factory setting | 0 | | | |
| Value range [bar] | (0 To 3980) * 0.1 | | | |

7.7 Setup

| Device Access Locks | Index 12 | Subindex 0 | RecordT (16 Bit) | ReadWrite |
|---|--------------|-------------|------------------|-----------|
| Local User Interface Lock | | bitOffset 3 | BooleanT | |
| Factory setting | false | | | |
| MDC Descr | Index 16512 | Subindex 0 | RecordT (88 Bit) | ReadOnly |
| Description of the measurement data channel | | | | |

7 Parameter

| MDC Descr | Index 16512 | Subindex 0 | RecordT (88 Bit) | ReadOnly |
|-----------------------------------|-------------|---------------|--------------------|----------|
| Lower limit | | Subindex 1 | IntegerT (32 Bit) | |
| Lower value measurement range | | | | |
| Factory setting | 0 | (0) | | |
| Value range | 0 | (0) | | |
| Upper limit | | Subindex 2 | IntegerT (32 Bit) | |
| Upper value measurement range | | | | |
| Factory setting | 4000 | (4000) | | |
| Value range | 4000 | (4000) | | |
| Unit code | | Subindex 3 | UIntegerT (16 Bit) | |
| Unit code of the measurement data | | | | |
| Factory setting | 1130 | (Pa) | | |
| Value range | 1130 | (Pa) | | |
| Scale | | Subindex 4 | IntegerT (8 Bit) | |
| Range shifting (10 scale) | | | | |
| Factory setting | 4 | (4) | | |
| Value range | 4 | (4) | | |

8 Diagnosis

8.1 Diagnosis

| Device Status | Index 36 | Subindex 0 | UIntegerT (8 Bit) | ReadOnly |
|------------------------|-----------------------|------------------------|-------------------|----------|
| Factory setting | 0 | (Device is OK) | | |
| Value range | 0 | (Device is OK) | | |
| | 1 | (Maintenance required) | | |
| | 2 | (Out of specification) | | |
| | 3 | (Functional check) | | |
| | 4 | (Failure) | | |
| | (5 To 255) (Reserved) | | | |

| Detailed Device Status | Index 37 | Subindex 0 | OctetStringT (3 byte) [8] | ReadOnly |
|------------------------|-----------------------|------------|---------------------------|----------|
| Factory setting | 0x00,0x00,0x00 | | | |

| Active Events | Index 545 | Subindex 0 | RecordT (32 Bit) | ReadOnly |
|---|-----------|---------------|------------------|----------|
| Bit mask for current pending events | | | | |
| Bit_31 | | bitOffset 31 | BooleanT | |
| Test Event 2. Device Status = 1 (Maintenance required) | | | | |
| Factory setting | 0 | (noEv) | | |
| Value range | 0 | (noEv) | | |
| | 1 | (0x8DFF) | | |
| Bit_30 | | bitOffset 30 | BooleanT | |
| Test Event 1. Device Status = 1 (Maintenance required) | | | | |
| Factory setting | 0 | (noEv) | | |
| Value range | 0 | (noEv) | | |
| | 1 | (0x8DFE) | | |
| Bit_29 | | bitOffset 29 | BooleanT | |
| Flash sequence active. Device Status = 1 (Maintenance required) | | | | |
| Factory setting | 0 | (noEv) | | |
| Value range | 0 | (noEv) | | |
| | 1 | (0x8CDB) | | |
| Bit_9 | | bitOffset 9 | BooleanT | |
| Process variable range under-run | | | | |
| Factory setting | 0 | (noEv) | | |
| Value range | 0 | (noEv) | | |
| | 1 | (0x8C30) | | |
| Bit_8 | | bitOffset 8 | BooleanT | |
| Process variable range over-run | | | | |
| Factory setting | 0 | (noEv) | | |
| Value range | 0 | (noEv) | | |
| | 1 | (0x8C10) | | |
| Bit_2 | | bitOffset 2 | BooleanT | |
| Short circuit | | | | |
| Factory setting | 0 | (noEv) | | |
| Value range | 0 | (noEv) | | |
| | 1 | (0x7710) | | |
| Bit_1 | | bitOffset 1 | BooleanT | |
| Parameter error | | | | |
| Factory setting | 0 | (noEv) | | |
| Value range | 0 | (noEv) | | |
| | 1 | (0x6320) | | |

8 Diagnosis

| Active Events | Index 545 | Subindex 0 | RecordT (32 Bit) | ReadOnly |
|------------------------|-----------|---------------|------------------|----------|
| Bit_0 | | bitOffset 0 | BooleanT | |
| Device hardware fault | | | | |
| Factory setting | 0 | (noEv) | | |
| Value range | 0 | (noEv) | | |
| | 1 | (0x5000) | | |

| Param configuration fault | Index 546 | Subindex 0 | UIntegerT (32 Bit) [10] | ReadOnly |
|---|-----------|-----------------------------------|-------------------------|----------|
| Displays the incorrectly set parameters | | | | |
| Factory setting | 0 | (OK) | | |
| Value range | 0 | (OK) | | |
| | 786432 | (Device Access Locks, Index = 12) | | |
| | 38207488 | (SP1 / FH1 - PRES, Index = 583) | | |
| | 38273024 | (rP1 / FL1 - PRES, Index = 584) | | |
| | 38010880 | (ou1, Index = 580) | | |
| | 38666240 | (ou2, Index = 590) | | |
| | 38076416 | (dS1, Index = 581) | | |
| | 38141952 | (dr1, Index = 582) | | |
| | 36110336 | (uni, Index = 551) | | |
| | 33423360 | (dAP, Index = 510) | | |
| | 33554432 | (dAA, Index = 512) | | |
| | 36306944 | (coLr, Index = 554) | | |
| | 36438016 | (cFH, Index = 556) | | |
| | 36372480 | (cFL, Index = 555) | | |
| | 36175872 | (diS, Index = 552) | | |
| | 36044800 | (Loc, Index = 550) | | |
| | 327876608 | (HIPS, Index = 5003) | | |

8.1.1 Pressure

| HIPC | Index 5004 | Subindex 0 | UIntegerT (32 Bit) | ReadOnly |
|---------------------------|-------------------|------------|--------------------|----------|
| Pressure overload counter | | | | |
| Value range | (0 To 4294967295) | | | |

| HIPS | Index 5003 | Subindex 0 | IntegerT (16 Bit) | ReadWrite |
|---|-------------------|------------|-------------------|-----------|
| Configuration of pressure overload counter switch point | | | | |
| Factory setting | 4000 | | | |
| Value range [bar] | (0 To 4000) * 0.1 | | | |

9 Events

| Code | Device status | PQ* | Class | Name | Description |
|------------------|--------------------------|---------|---------|---|---|
| 0x5000 20480d | 4 (Failure) | invalid | Error | Device hardware fault | Device Exchange |
| 0x6320 25376d | 3 (Functional check) | invalid | Error | Parameter error | Check data sheet and values |
| 0x7710 30480d | 3 (Functional check) | valid | Error | Short circuit | Check installation |
| 0x8C10 35856d | 2 (Out of specification) | valid | Warning | Process variable range over-run | Process data uncertain |
| 0x8C30 35888d | 2 (Out of specification) | valid | Warning | Process variable range under-run | Process data uncertain |
| 0x8CDB 36059d | 1 (Maintenance required) | valid | Warning | Flash sequence active. Device Status = 1 (Maintenance required) | Deactivate flash sequence |
| 0x8DFE 36350d | 1 (Maintenance required) | valid | Warning | Test Event 1. Device Status = 1 (Maintenance required) | Event appears by setting index 2 to value 240, Event disappears by setting index 2 to value 241 |
| 0x8DFF 36351d | 1 (Maintenance required) | valid | Warning | Test Event 2. Device Status = 1 (Maintenance required) | Event appears by setting index 2 to value 242, Event disappears by setting index 2 to value 243 |



Events are raised by the device itself to notify irregular device states
PQ* = Process data quality

10 Error types

| Code | Name | Description |
|------------------|--|---|
| 0x8000 32768d | Device application error - no details | Service has been refused by the device application and no detailed information of the incident is available |
| 0x8011 32785d | Index not available | Access occurs to a not existing index |
| 0x8012 32786d | Subindex not available | Access occurs to a not existing subindex |
| 0x8020 32800d | Service temporarily not available | Parameter is not accessible due to the current state of the device application |
| 0x8021 32801d | Service temporarily not available - local control | Parameter is not accessible due to an ongoing local operation at the device |
| 0x8022 32802d | Service temporarily not available - device control | Parameter is not accessible due to a remote triggered state of the device application |
| 0x8023 32803d | Access denied | Write access on a read-only parameter |
| 0x8030 32816d | Parameter value out of range | Written parameter value is outside its permitted value range |
| 0x8033 32819d | Parameter length overrun | Written parameter length is above its predefined length |
| 0x8034 32820d | Parameter length underrun | Written parameter length is below its predefined length |
| 0x8035 32821d | Function not available | Written command is not supported by the device application |
| 0x8036 32822d | Function temporarily unavailable | Written command is not available due to the current state of the device application |
| 0x8040 32832d | Invalid parameter set | Written single parameter collides with other actual parameter settings |
| 0x8041 32833d | Inconsistent parameter set | Parameter inconsistencies were found at the end of block parameter transfer, device plausibility check failed |
| 0x8082 32898d | Application not ready | Read or write service is refused due to a temporarily unavailable application |



Error types are used for the ISDU response. Values unequal '0' indicate the cause of a failed ISDU read or write service.

11 Unit conversion



This list provides conversion formulas to convert the transmitted IO-Link raw data into physical units.

| | | |
|----------------|---------------------|------------|
| Value in [bar] | = Transmitted value | * 0.1 |
| Value in [psi] | = Transmitted value | * 1.450377 |
| Value in [MPa] | = Transmitted value | * 0.01 |