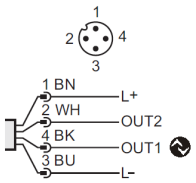
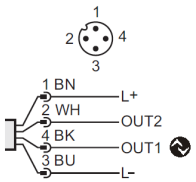
IO-Link Interface Description

DP2200
DP4200

EN

IODD-PDFCreator V 2.3.0.56
ifm-000262-20250701-IODD1.1, V1.3.18.317025
Copyright 2023, IODDModifier: 4.1.8530.20241, Time: 16:27:55

Device variant

DP2200 **Analog Threshold Displ./4-20mA**		
DP4200 **Analog Threshold Displ./4-20mA IP69K**		

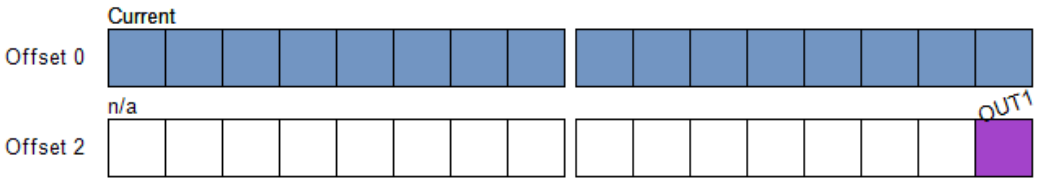
Vendor ID	310 / Bytes 1-54 (hex: 01-36)
Device ID	610 / Bytes 0-2-98 (hex: 00-02-62)
Bit rate	COM2
Minimum cycle time	3,2 ms
Process Data	4 Bytes (Input 4 Bytes / Output 0 Bytes)
SIO mode supported	Yes
Block parameterization	Yes
Data storage	Yes
Supported profiles	1 / hex: 0x1 Smart Sensor Profil 32768 / hex: 0x8000 Device Identification 32770 / hex: 0x8002 Process Data Variable 32771 / hex: 0x8003 Device Diagnosis

NOTE:
If the Vendor ID and Device ID are specified in your PLC system, it is ensured that
- the correct device is connected,
- the IO-Link data storage is enabled,
- your application is still able to function, even if your device is replaced by a successor model at a later date

For the process value update rate, as well as further information regarding sensor performance, see data sheet.

Process data

Process data input		RecordT (32 Bit)
Current		IntegerT (16 Bit)
Actual current value		
Value range [mA]	(3600 to 21000) * 0.001 32764 -32760 32760	 (NoData) 0x7FFC (UL - underload) 0x8008 (OL - overload) 0x7FF8
OUT1		BooleanT
Status depends on [OU1]		
Value range	false true	(inactive) (active)



Data is transmitted in BigEndian format.
The position of the process data bytes is shown according to the device transmission sequence.
The content ofyour PLCs input buffer may vary according to your PLCs data format.
Please do not apply any byte swap feature.
Example function blocks incl. documentation are available on www.ifm.com --> Startup Packages

Parameter overview

Parameter	Index	Subindex	Type	Factory setting	Page
Device Access Locks	12		RecordT (16 Bit)	false (Unlocked)	7
Data Storage	12		BooleanT		
Local User Interface	12		BooleanT		
Vendor name	16		StringT (19 Byte)	ifm electronic gmbh	6
Product Name	18		StringT (6 Byte)		6
Product Text	20		StringT (30 Byte)	Analog Threshold Displ./4-20mA	6
Serial Number	21		StringT (12 Byte)		6
Hardware Revision	22		StringT (2 Byte)		6
Firmware Revision	23		StringT (5 Byte)		6
Application-specific Tag	24		StringT (32 Byte)	***	6
Device Status	36		UIntegerT (8 Bit)	0 (Device is OK)	10
Detailed Device Status	37		OctetStringT (3 Byte) [7]	0x00,0x00,0x00	10
Process data input	40		RecordT (32 Bit)		3
Current	40		IntegerT (16 Bit)		3
OUT1	40		BooleanT		3
dAP	510		UIntegerT (16 Bit)	60	7
BitCoded_ActiveEvents	545		RecordT (32 Bit)		10
Bit_31	545		BooleanT		10
Bit_30	545		BooleanT		10
Bit_10	545		BooleanT		10
Bit_9	545		BooleanT		10
Bit_8	545		BooleanT		10
Bit_1	545		BooleanT		10
Bit_0	545		BooleanT		10
ParaConfigFaultCollection	546		UIntegerT (32 Bit) [10]	0 (OK)	10
Loc	550		UIntegerT (8 Bit)	1 (uLoc)	7
diS	552		RecordT (16 Bit)		7
Display On / OFF	552		BooleanT	false (On)	7
Update rate	552		UIntegerT (6 Bit)	2 (d2 / medium)	7
coLr	554		UIntegerT (8 Bit)	2 (rEd / Display colour red (independent...	7
cFL	555		IntegerT (16 Bit)	4000	8
cFH	556		IntegerT (16 Bit)	20000	8
Hi	560		IntegerT (16 Bit)		8
Lo	561		IntegerT (16 Bit)		8
ou1	580		UIntegerT (8 Bit)	3 (Hno / Hysteresis fct normally open)	8
dS1	581		UIntegerT (16 Bit)	0	8
dr1	582		UIntegerT (16 Bit)	0	8
SP_FH1	583		IntegerT (16 Bit)	6000	8
rP_FL1	584		IntegerT (16 Bit)	5000	9
ScAL	900		UIntegerT (8 Bit)	0 (OFF)	9
A.Trm	901		UIntegerT (8 Bit)	1 (On)	9
C.ASP	910		IntegerT (16 Bit)	400	9
C.AEP	911		IntegerT (16 Bit)	2000	9
C.uni	922		StringT (4 Byte)	mA	9

System Command



Command interface for applications. A positive acknowledge indicates the complete and correct finalization of the requested function.

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

#	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	
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	

Identification

Vendor name	Index 16	Subindex 0	StringT (19 Byte)	ReadOnly
The vendor name that is assigned to a Vendor ID.				
Factory setting	**ifm electronic gmbh**			

Product Name	Index 18	Subindex 0	StringT (6 Byte)	ReadOnly
Complete product name.				

Product Text	Index 20	Subindex 0	StringT (30 Byte)	ReadOnly
Additional product information for the device.				
Factory setting	**Analog Threshold Displ./4-20mA**			

Serial Number	Index 21	Subindex 0	StringT (12 Byte)	ReadOnly
Unique, vendor-specific identifier of the individual device.				

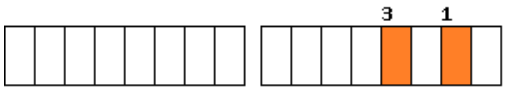
Hardware Revision	Index 22	Subindex 0	StringT (2 Byte)	ReadOnly
Unique, vendor-specific identifier of the hardware revision of the individual device.				

Firmware Revision	Index 23	Subindex 0	StringT (5 Byte)	ReadOnly
Unique, vendor-specific identifier of the firmware revision of the individual device.				

Application-specific Tag	Index 24	Subindex 0	StringT (32 Byte)	ReadWrite
Possibility to mark a device with user- or application-specific information.				
Factory setting	***			

Parameters

Device Access Locks	Index 12	Subindex 0	RecordT (16 Bit)	ReadWrite
The access to the device parameters can be restricted by setting appropriate flags within this parameter.				
Factory setting	**false**			
Bit offset 1	Data Storage	This lock prevents the write access to the device parameters via the data storage mechanism.		
Bit offset 3	Local User Interface	This lock prevents the access to the device settings and display via a local user interface. The user interface is disabled.		
Value range	true	(Locked)		
	false	(Unlocked)		



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

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 1	(Loc) (uLoc)		

diS	Index 552	Subindex 0	RecordT (16 Bit)	ReadWrite
Display settings				
Display On / OFF		Bit offset 7	BooleanT	
Factory setting	**false**	**(On)**		
Value range	false true	(On) (OFF)		
Update rate		Bit offset 0	UIntegerT (6 Bit)	
Factory setting	**2**	**(d2 / medium)**		
Value range	1 2 4	(d1 / fast) (d2 / medium) (d3 / slow)		

coLr	Index 554	Subindex 0	UIntegerT (8 Bit)	ReadWrite
Assignment of the display colours 'red' and 'green' within the measuring range				
Factory setting	**2**	**(rEd / Display colour red (independent of the measured value))**		
Value range	2 3 4 5 10 11	(rEd / Display colour red (independent of the measured value)) (GrEn / Display colour green (independent of the measured value)) (r1ou / Display colour red when OUT1 switches) (G1ou / Display colour green when OUT1 switches) (r-cF / Display colour red when the measured value is between the freely definable limit values [cFL] and [cFH]) (G-cF / Display colour green when the measured value is between the freely definable limit values [cFL] and [cFH])		

Parameters

cFL	Index 555	Subindex 0	IntegerT (16 Bit)	ReadWrite
Lower value for colour change. Parameter only active after selection of a freely definable colour window in the coLr parameter: [r-cF] or [G-cF]. The setting range corresponds to the measuring range and its maximum limit is [cFH]				
Factory setting	**4000**			
Value range [mA]	(4000 to 19900) * 0.001			

cFH	Index 556	Subindex 0	IntegerT (16 Bit)	ReadWrite
Upper value for colour change. Parameter only active after selection of a freely definable colour window in the coLr parameter: [r-cF] or [G-cF]. The setting range corresponds to the measuring range and its minimum limit is [cFL]				
Factory setting	**20000**			
Value range [mA]	(4100 to 20000) * 0.001			

Hi	Index 560	Subindex 0	IntegerT (16 Bit)	ReadOnly
Maximum memory value				
Value range [mA]	(3600 to 21000) * 0.001 32764 -32760 32760	 (NoData) 0x7FFC (UL - underload) 0x8008 (OL - overload) 0x7FF8		

Lo	Index 561	Subindex 0	IntegerT (16 Bit)	ReadOnly
Minimum memory value				
Value range [mA]	(3600 to 21000) * 0.001 32764 -32760 32760	 (NoData) 0x7FFC (UL - underload) 0x8008 (OL - overload) 0x7FF8		

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

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			

SP_FH1	Index 583	Subindex 0	IntegerT (16 Bit)	ReadWrite
Switch point 1, [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				
Factory setting	**6000**			
Value range [mA]	(4100 to 20000) * 0.001			

Parameters

rP_FL1	Index 584	Subindex 0	IntegerT (16 Bit)	ReadWrite
Reset point 1, [rP1] must be smaller than [SP1]. Please take into account the current [SP1] value.I[rP1] will be refused if above [SP1]. [rP] = [FL] and [SP] = [FH] if [OU1] = Fno, Fnc				
Factory setting	**5000**			
Value range [mA]	(4000 to 19900) * 0.001			

ScAL	Index 900	Subindex 0	UIntegerT (8 Bit)	ReadWrite
Setting of the decimal point				
Factory setting	**0**	**(OFF)**		
Value range	0 1 2 3 4	(OFF) (cccc) (ccc.c) (cc.cc) (c.ccc)		

A.Trm	Index 901	Subindex 0	UIntegerT (8 Bit)	ReadWrite
Activation of the internal termination of the measurement current circuit. If OUT2 is not connected, this internal terminating resistor should be activated				
Factory setting	**1**	**(On)**		
Value range	0 1	(OFF) (On)		

C.ASP	Index 910	Subindex 0	IntegerT (16 Bit)	ReadWrite
Customer-specific start point. This value is assigned to the lower value of the analogue input. The parameter is only active if ScAL is not set to [OFF]				
Factory setting	**400**			
Value range	(-746 to 9745) * 1			

C.AEP	Index 911	Subindex 0	IntegerT (16 Bit)	ReadWrite
Customer-specific end point. This value is assigned to the upper value of the analogue input. The parameter is only active if ScAL is not set to [OFF]				
Factory setting	**2000**			
Value range	(-366 to 9366) * 1			

C.uni	Index 922	Subindex 0	StringT (4 Byte)	ReadWrite
Customer-specific unit with max. 4 characters. Function available only via IO-Link.				
Factory setting	**mA**			

Diagnosis

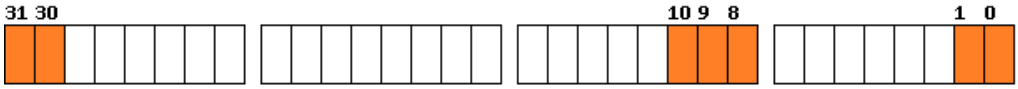
Device Status	Index 36	Subindex 0	UIntegerT (8 Bit)	ReadOnly
Indicator for the current device condition and diagnosis state.				
Factory setting	**0**	**(Device is OK)**		
Value range	0	(Device is OK)		
	1	(Maintenance required)		
	2	(Out of specification)		
	3	(Functional check)		
	4	(Failure)		

Detailed Device Status	Index 37	Subindex 0	OctetStringT (3 Byte) [7]	ReadOnly
List of all currently pending events in the device.				
Factory setting	**0x00,0x00,0x00**			

BitCoded_ActiveEvents	Index 545	Subindex 0	RecordT (32 Bit)	ReadOnly
Bit mask for current pending events				

Bit offset 31	(0x8DFF)	Bit 31 indicates the assigned pending event
Bit offset 30	(0x8DFE)	Bit 30 indicates the assigned pending event
Bit offset 10	(0x8CBA)	Bit 10 indicates the assigned pending event
Bit offset 9	(0x8C30)	Bit 9 indicates the assigned pending event
Bit offset 8	(0x8C10)	Bit 8 indicates the assigned pending event
Bit offset 1	(0x6320)	Bit 1 indicates the assigned pending event
Bit offset 0	(0x5000)	Bit 0 indicates the assigned pending event

Value range	true	Event active
	false	Event inactive



ParaConfigFaultCollection	Index 546	Subindex 0	UIntegerT (32 Bit) [10]	ReadOnly
Displays the wrongly set parameters				
Factory setting	**0**	**(OK)**		

Value range	0	(OK)
	38207488	(SP_FH1)
	38273024	(rP_FL1)
	59047936	(A.Trm)
	38010880	(ou1)
	38076416	(VDMA-dS1)
	38141952	(VDMA-dr1)
	58982400	(ScAL)
	59637760	(C.ASP)
	59703296	(C.AEP)
	60424192	(C.uni)
	36306944	(coLr)
	36438016	(cFH)
	36372480	(cFL)
	36175872	(diS)
	36765696	(Lo)
	36700160	(Hi)
	33423360	(dAP)
	36044800	(Loc)
	35717120	(BitCoded_ActiveEvents)
	35717121	(BitCoded_ActiveEvents.Bit_0)
	35717122	(BitCoded_ActiveEvents.Bit_1)
	35717123	(BitCoded_ActiveEvents.Bit_8)
	35717124	(BitCoded_ActiveEvents.Bit_9)
	35717125	(BitCoded_ActiveEvents.Bit_10)
	35717126	(BitCoded_ActiveEvents.Bit_30)
	35717127	(BitCoded_ActiveEvents.Bit_31)
	35782656	(ParaConfigFaultCollection)

Events

Code	Device status	PQ *	Class	Name	Description
0x5000 20480d	4 (Failure)	invalid	Error	Device hardware fault	Exchange device
0x6320 25376d	3 (Functional check)	invalid	Error	Parameter error	Check datasheet and values
0x8C10 35856d	2 (Out of specification)	valid	Warning	Process variable range overrun	Process data uncertain
0x8C30 35888d	2 (Out of specification)	valid	Warning	Process variable range underrun	Process data uncertain
0x8CBA 36026d	3 (Functional check)	valid	Error	Probe dropped	Solve problem
0x8DFE 36350d	1 (Maintenance required)	valid	Warning	Test Event 1	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	Event appears by setting index 2 to value 242, Event disappears by setting index 2 to value 243

Events are reported by the device itself to signal irregular device states.
PQ* = Process data quality.

Error types

Code	Name	Description
0x8000 32768d	Device application error - no details	Service was denied by the technology-specific application. No detailed root-cause information is available.
0x8011 32785d	Index not available	Read or write access attempt to a non-existing index.
0x8012 32786d	Subindex not available	Read or write access attempt to a non-existing subindex of an existing index.
0x8020 32800d	Service temporarily not available	Parameter not accessible due to the current state of the technology-specific application.
0x8023 32803d	Access denied	Write access to a read-only parameter or read access to write-only parameter.
0x8030 32816d	Parameter value out of range	Written parameter value is outside of the permitted value range.
0x8033 32819d	Parameter length overrun	Written parameter is longer than specified.
0x8034 32820d	Parameter length underrun	Written parameter is shorter than specified.
0x8035 32821d	Function unavailable	Written command is not supported by the technology-specific application.
0x8036 32822d	Function temporarily unavailable	Written command is unavailable due to the current state of the technology-specific application.
0x8040 32832d	Invalid parameter set	Written single parameter value collides with other existing parameter settings.
0x8041 32833d	Inconsistent parameter set	Parameter set inconsistencies at the end of block parameter transfer. Device plausibility check failed.
0x8082 32898d	Application not ready	Read or write access denied. The technology-specific application is temporarily unavailable.

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

The table shows all IO-Link ISDU error codes.
The device does not need to support all listed error types.