



IO-Link Interface Description

ThinkTop V20 IO-Link

EN

Device variant

<p>ThinkTop V20 IO-Link</p> <p>Valve Control Unit</p>		
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Vendor ID	1292 / Bytes 5-12 (hex: 05-0C)
Device ID	11 / Bytes 0-11 (hex: 00-0B)
Bit rate	COM2
Minimum cycle time	5 ms
SIO mode supported	No
Block parameterization	Yes
Data storage	Yes
Supported profiles	Identification and Diagnosis



NOTE:

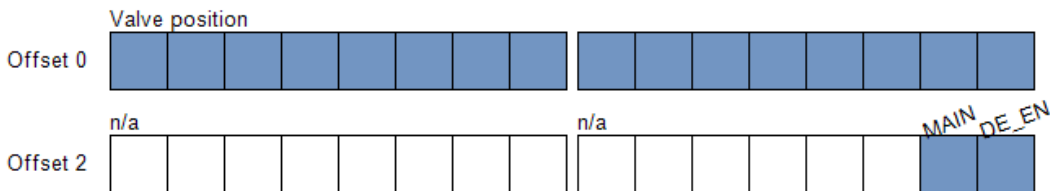
- If the Vendor ID and Device ID is referenced in your PLC system, then it is ensured that
- the connected Device type is correct
 - the IO-Link datastorage is enabled
 - your application is still able to work, even your Device has been exchanged with a successor model




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

Process data

Process data input		RecordT (32 Bit)
Valve position		IntegerT (16 Bit)
Current valve position. Represents the actual distance between the top of the valve actuator and the top of the valve stem.		
Value range [mm]	(0 to 720) * 0.1 32764	(NoData) 0x7FFC
MAIN		BooleanT
Main energised Position		
Value range	false true	(inactive) (active)
DE_EN		BooleanT
De-Energized		
Value range	false true	(inactive) (active)



 Data is transmitted in BigEndian format. The position of the process data bytes is shown according device transmit sequence. The content in your PLCs input buffer may vary according 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.

Process data output		RecordT (8 Bit)
Wink		BooleanT
Visual indication for locating the unit (Purple flashing as default)		
Value range	false true	(Disable) (Enable)



- The device reacts on received valid process data output.
- The action of the device ends, if process data output becomes invalid.
- In case of communication loss, the current state remains unchanged.



Parameter overview

Parameter	Index	Subindex	Type	Factory setting	page
Vendor name	16		StringT (10 Byte)	Alfa Laval	6
Vendor text	17		StringT (17 Byte)	www.alfalaval.com	6
Product Name	18		StringT (20 Byte)	ThinkTop V20 IO-Link	6
Product ID	19		StringT (20 Byte)	ThinkTop V20 IO-Link	6
Product Text	20		StringT (32 Byte)	Control board SP no. n/a	6
Serial Number	21		StringT (16 Byte)		6
Hardware Revision	22		StringT (2 Byte)		6
Firmware Revision	23		StringT (16 Byte)		6
Application-specific Tag	24		StringT (32 Byte)	***	6
Function Tag	25		StringT (32 Byte)	***	6
Location Tag	26		StringT (32 Byte)	***	6
Process data input	40		RecordT (32 Bit)		
Process data output	41		RecordT (8 Bit)		
Production date	65		StringT (4 Byte)		6
RGB-Colour	74		RecordT (64 Bit)		7
Error	74	2	UIntegerT (8 Bit)	4 (Red)	
Out	74	3	UIntegerT (8 Bit)	0 (RGB off)	
De-En	74	4	UIntegerT (8 Bit)	2 (Green)	
Main	74	5	UIntegerT (8 Bit)	7 (White)	
Wink	74	8	UIntegerT (8 Bit)	5 (Purple)	
Log	80		RecordT (64 Bit)		8
PowerUps	80	1	IntegerT (32 Bit)		
RunTime	80	2	IntegerT (32 Bit)		
Temperature	81		RecordT (48 Bit)		8
Current	81	1	IntegerT (16 Bit)		
Min	81	2	IntegerT (16 Bit)		
Max	81	3	IntegerT (16 Bit)		
Setup Position Data (De...)	110		RecordT (32 Bit)		8
Pos De-En	110	1	UIntegerT (16 Bit)	32764 (NoData)	
Setup Position Data (Ma...)	111		RecordT (32 Bit)		8
Pos Main	111	1	UIntegerT (16 Bit)	32764 (NoData)	

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
129	Application Reset	The parameter of the technology-specific application are set to default values. Identification parameter remain unchanged. An upload to the data storage of the master will be executed, if activated in the port configuration of the master.
131	Back-to-box	The parameter of the device are set to factory default values and communication will be inhibited until the next power cycle. Note: Directly detach the device from the master port!
209	Setup Reset	
210	Parameter Reset	
211	Diagnostic Reset	
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 (10 Byte)	ReadOnly
The vendor name that is assigned to a Vendor ID.				
Factory setting	Alfa Laval			
Vendor text	Index 17	Subindex 0	StringT (17 Byte)	ReadOnly
Additional information about the vendor.				
Factory setting	www.alfalaval.com			
Product Name	Index 18	Subindex 0	StringT (20 Byte)	ReadOnly
Complete product name.				
Factory setting	ThinkTop V20 IO-Link			
Product ID	Index 19	Subindex 0	StringT (20 Byte)	ReadOnly
Vendor-specific product or type identification (e.g., item number or model number).				
Factory setting	ThinkTop V20 IO-Link			
Product Text	Index 20	Subindex 0	StringT (32 Byte)	ReadOnly
Additional product information for the device.				
Factory setting	Control board SP no. n/a			
Serial Number	Index 21	Subindex 0	StringT (16 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 (16 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	***			
Function Tag	Index 25	Subindex 0	StringT (32 Byte)	ReadWrite
Description of the device function				
Factory setting	***			
Location Tag	Index 26	Subindex 0	StringT (32 Byte)	ReadWrite
Description of the physical device location				
Factory setting	***			
Production date	Index 65	Subindex 0	StringT (4 Byte)	ReadOnly
Device production date (YYWW)				



Parameters

RGB-Colour	Index 74	Subindex 0	RecordT (64 Bit)	ReadWrite
Option for customisation of the colours for the visual feedback				
Error		Subindex 2	UIntegerT (8 Bit)	
RGB colour for error feedback				
Factory setting	4	(Red)		
Value range	0	(RGB off)		
	1	(Blue)		
	2	(Green)		
	3	(Cyan)		
	4	(Red)		
	5	(Purple)		
	6	(Yellow)		
	7	(White)		
Out		Subindex 3	UIntegerT (8 Bit)	
RGB colour for Moving (out of any position)				
Factory setting	0	(RGB off)		
Value range	0	(RGB off)		
	1	(Blue)		
	2	(Green)		
	3	(Cyan)		
	4	(Red)		
	5	(Purple)		
	6	(Yellow)		
	7	(White)		
De-En		Subindex 4	UIntegerT (8 Bit)	
RGB colour for De-Energized position				
Factory setting	2	(Green)		
Value range	0	(RGB off)		
	1	(Blue)		
	2	(Green)		
	3	(Cyan)		
	4	(Red)		
	5	(Purple)		
	6	(Yellow)		
	7	(White)		
Main		Subindex 5	UIntegerT (8 Bit)	
RGB colour for Main position				
Factory setting	7	(White)		
Value range	0	(RGB off)		
	1	(Blue)		
	2	(Green)		
	3	(Cyan)		
	4	(Red)		
	5	(Purple)		
	6	(Yellow)		
	7	(White)		
Wink		Subindex 8	UIntegerT (8 Bit)	
RGB colour for Wink signal				
Factory setting	5	(Purple)		
Value range	0	(RGB off)		
	1	(Blue)		
	2	(Green)		
	3	(Cyan)		
	4	(Red)		
	5	(Purple)		
	6	(Yellow)		
	7	(White)		



Diagnosis

Log	Index 80	Subindex 0	RecordT (64 Bit)	ReadOnly
Logging information				
PowerUps		Subindex 1	IntegerT (32 Bit)	
Number of power-cycles				
Value range	(0 to 2000000) * 1			
RunTime		Subindex 2	IntegerT (32 Bit)	
Number of operating hours				
Value range [h]	(0 to 2000000) * 1			
Temperature	Index 81	Subindex 0	RecordT (48 Bit)	ReadOnly
Temperature monitoring				
Current		Subindex 1	IntegerT (16 Bit)	
Current core temperature				
Value range [°C]	(-20 to 100) * 1			
Min		Subindex 2	IntegerT (16 Bit)	
Minimum core temperature to date				
Value range [°C]	(-20 to 100) * 1			
Max		Subindex 3	IntegerT (16 Bit)	
Maximum core temperature to date				
Value range [°C]	(-20 to 100) * 1			
Setup Position Data (DeEn)	Index 110	Subindex 0	RecordT (32 Bit)	ReadOnly
Data for position in current setup				
Pos De-En		Subindex 1	UIntegerT (16 Bit)	
Target switchpoint (De-Energize)				
Factory setting	32764	(NoData)		
Value range [mm]	(0 to 720) * 0.1 32764	(NoData) 0x7FFC		
Setup Position Data (Main)	Index 111	Subindex 0	RecordT (32 Bit)	ReadOnly
Data for position in current setup				
Pos Main		Subindex 1	UIntegerT (16 Bit)	
Target switchpoint (Main)				
Factory setting	32764	(NoData)		
Value range [mm]	(0 to 720) * 0.1 32764	(NoData) 0x7FFC		

Events

Code	Device status	PQ*	Class	Name	Description
0x4210 16912d	2 (Out of specification)	valid	Warning	Device temperature overrun	Clear source of heat
0x4220 16928d	2 (Out of specification)	valid	Warning	Device temperature underrun	Insulate device
0x5010 20496d	3 (Functional check)	valid	Error	Component malfunction	Repair or exchange
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 raised by the device itself to notify 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 '0' indicate the cause of a failed ISDU read or write service.