

Operating Manual



IO-Link Device - HL350/IO

This document is an additional description of the device HL350 with the option IO. A device with this additional option is required to use this device description. It contains important notes and information regarding IO-link communication data. In addition to general information about the IO link connection, it includes the parameter data of the device, the exchanged process data, as well as the implemented system commands and error codes.

Version:	Description
IO-Link Device_04A_oi/März 2018	First Version /edition (refers to software HL35004A)
IO-Link Device_05A_oi/June 2018	Extended Version/edition (refers to software <u>HL35005A</u>)

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1. General

1.1 Communications data

Parameters	Value
Communication speed	COM 3
Transmission rate	230,4 kbit/s
IO-Link Revision	V1.1
Cycle time	min. 3 ms
Portklasse	Class A  Important: The display device (IO-link device) must always be connected to a separate power supply (AC or DC)!

1.2 Features

Feature	Supported
Block parametrisation	Yes
Data Storage	Yes
SIO Mode	No

1.3 IO – Link interface

Usuable IO-Link-Master

All IO-Link-masters, which support IO-link Standard v 1.1.

Connection of the IO-link interface

At terminal 34 (L-) and terminal 35 (L +) the supply voltage of the IO-link interface and at terminal 36 (c/q) the IO-link data line is connected to the port of the IO-link-master. Figure 1 shows the pin assignment of a standard M12 connection plug.

The display device (IO-link device) must also always be connected to a separate power supply (AC or DC).


Belegung		
	Pin 1	L+ (+24V)
	Pin 2	Not connected
	Pin 3	GND, L-
	Pin 4	IO-Link data line, C/Q

Fig. 1: Pin assignement M12 connection plug

Pin	Wire color
1 (L+)	brown
2 (n.c.)	white
3 (L-)	blue
4 (C/Q)	black

2. Operation

2.1 Parameter data

ISDU Index	DPP1 Index	Name of the Parameter	Access	Length in bytes	Default Value	Range
IDENTIFICATION MENU						
	7	VendorID	R	2	980 / 0x 03D4	-
	8					
	9	Device ID	R	3	1265669 / 0x 135005	-
	10					
	11					
16		Vendor Name	R	12	heinlanz GmbH	-
17		Vendor Text	R	21	www.heinlanz.com	-
18		Product Name	R	11	touchMATRIX	-
19		Product ID	R	5	HL350	-
20		Product Text	R	35	display unit with IO-Link interface	-
21		Serial Number	R	1	-	-
22		Hardware Revision	R	7	350DX13	-
23		Firmware Revision	R	7	HL35004	-
24		Application Specific Tag	R/W	Max. 32	***	-
GENERAL MENU						
256		OPERATIONAL MODE	R/W	4	0	0..5
257		PIN PRESELECTION	R/W	4	0	0..9999
258		PIN PARAMETER	R/W	4	0	0..9999
259		BACK UP MEMORY	R/W	4	0	0..1
260		FACTORY SETTINGS	R/W	4	0	0..1
261		___	R/W	4	0	0..0
262		___	R/W	4	0	0..0
263		___	R/W	4	0	0..0
264		___	R/W	4	0	0..0
IN 1 PROPERTIES						
265		IN1 CONFIGURATION	R/W	4	0	0..2
266		IN1 START VALUE	R/W	4	0	-99999..99999
267		IN1 END VALUE	R/W	4	10000	-99999..99999
268		IN1 DECIMAL POINT	R/W	4	3	0..7
269		IN1 SCALE UNITS	R/W	4	0	0..29
270		IN1 SAMPLING TIME (S)	R/W	4	10	1..60000
271		IN1 AVERAGE FILTER	R/W	4	0	0..4
272		IN1 OFFSET	R/W	4	0	-99999..99999
273		IN1 LINEARIZATION	R/W	4	0	0..2
274		IN1 TOTALIZATION	R/W	4	0	0..1
275		___	R/W	4	0	0..0
276		___	R/W	4	0	0..0
277		___	R/W	4	0	0..0

ISDU Index	DPP1 Index	Name of the Parameter	Access	Length in bytes	Default Value	Range
IN 1 LINEARIZATION						
278		IN1 LIN P1(X)	R/W	4	0	-99999999..99999999
279		IN1 LIN P1(Y)	R/W	4	0	-99999999..99999999
280		IN1 LIN P2(X)	R/W	4	0	-99999999..99999999
281		IN1 LIN P2(Y)	R/W	4	0	-99999999..99999999
282		IN1 LIN P3(X)	R/W	4	0	-99999999..99999999
283		IN1 LIN P3(Y)	R/W	4	0	-99999999..99999999
284		IN1 LIN P4(X)	R/W	4	0	-99999999..99999999
285		IN1 LIN P4(Y)	R/W	4	0	-99999999..99999999
286		IN1 LIN P5(X)	R/W	4	0	-99999999..99999999
287		IN1 LIN P5(Y)	R/W	4	0	-99999999..99999999
288		IN1 LIN P6(X)	R/W	4	0	-99999999..99999999
289		IN1 LIN P6(Y)	R/W	4	0	-99999999..99999999
290		IN1 LIN P7(X)	R/W	4	0	-99999999..99999999
291		IN1 LIN P7(Y)	R/W	4	0	-99999999..99999999
292		IN1 LIN P8(X)	R/W	4	0	-99999999..99999999
293		IN1 LIN P8(Y)	R/W	4	0	-99999999..99999999
294		IN1 LIN P9(X)	R/W	4	0	-99999999..99999999
295		IN1 LIN P9(Y)	R/W	4	0	-99999999..99999999
296		IN1 LIN P10(X)	R/W	4	0	-99999999..99999999
297		IN1 LIN P10(Y)	R/W	4	0	-99999999..99999999
298		IN1 LIN P11(X)	R/W	4	0	-99999999..99999999
299		IN1 LIN P11(Y)	R/W	4	0	-99999999..99999999
300		IN1 LIN P12(X)	R/W	4	0	-99999999..99999999
301		IN1 LIN P12(Y)	R/W	4	0	-99999999..99999999
302		IN1 LIN P13(X)	R/W	4	0	-99999999..99999999
303		IN1 LIN P13(Y)	R/W	4	0	-99999999..99999999

ISDU Index	DPP1 Index	Name of the Parameter	Access	Length in bytes	Default Value	Range
304		IN1 LIN P14(X)	R/W	4	0	-99999999..99999999
305		IN1 LIN P14(Y)	R/W	4	0	-99999999..99999999
306		IN1 LIN P15(X)	R/W	4	0	-99999999..99999999
307		IN1 LIN P15(Y)	R/W	4	0	-99999999..99999999
308		IN1 LIN P16(X)	R/W	4	0	-99999999..99999999
309		IN1 LIN P16(Y)	R/W	4	0	-99999999..99999999
310		IN1 LIN P17(X)	R/W	4	0	-99999999..99999999
311		IN1 LIN P17(Y)	R/W	4	0	-99999999..99999999
312		IN1 LIN P18(X)	R/W	4	0	-99999999..99999999
313		IN1 LIN P18(Y)	R/W	4	0	-99999999..99999999
314		IN1 LIN P19(X)	R/W	4	0	-99999999..99999999
315		IN1 LIN P19(Y)	R/W	4	0	-99999999..99999999
316		IN1 LIN P20(X)	R/W	4	0	-99999999..99999999
317		IN1 LIN P20(Y)	R/W	4	0	-99999999..99999999
318		IN1 LIN P21(X)	R/W	4	0	-99999999..99999999
319		IN1 LIN P21(Y)	R/W	4	0	-99999999..99999999
320		IN1 LIN P22(X)	R/W	4	0	-99999999..99999999
321		IN1 LIN P22(Y)	R/W	4	0	-99999999..99999999
322		IN1 LIN P23(X)	R/W	4	0	-99999999..99999999
323		IN1 LIN P23(Y)	R/W	4	0	-99999999..99999999
324		IN1 LIN P24(X)	R/W	4	0	-99999999..99999999
325		IN1 LIN P24(Y)	R/W	4	0	-99999999..99999999
IN 1 TOTALIZATION						
326		IN 1 TOT BASE	R/W	4	0	0..3
327		IN 1 TOT DIVIDER	R/W	4	0	0..3
328		IN 1 TOT DECIMAL POINT	R/W	4	0	0..7
329		IN 1 TOT SCALE UNITS	R/W	4	0	0..29
330		___	R/W	4	0	0..0
331		___	R/W	4	0	0..0
332		___	R/W	4	0	0..0

ISDU Index	DPP1 Index	Name of the Parameter	Access	Length in bytes	Default Value	Range
IN 2 PROPERTIES						
333		IN2 CONFIGURATION	R/W	4	0	0..2
334		IN2 START VALUE	R/W	4	0	-99999..99999
335		IN2 END VALUE	R/W	4	10000	-99999..99999
336		IN2 DECIMAL POINT	R/W	4	3	0..7
337		IN2 SCALE UNITS	R/W	4	0	0..29
338		IN2 SAMPLING TIME (S)	R/W	4	10	1..60000
339		IN2 AVERAGE FILTER	R/W	4	0	0..4
340		IN2 OFFSET	R/W	4	0	-99999..99999
341		IN2 LINEARIZATION	R/W	4	0	0..2
342		IN2 TOTALIZATION	R/W	4	0	0..1
343		---	R/W	4	0	0..0
344		---	R/W	4	0	0..0
345		---	R/W	4	0	0..0
IN 2 LINEARIZATION						
346		IN2 LIN P1(X)	R/W	4	0	-99999999..99999999
347		IN2 LIN P1(Y)	R/W	4	0	-99999999..99999999
348		IN2 LIN P2(X)	R/W	4	0	-99999999..99999999
349		IN2 LIN P2(Y)	R/W	4	0	-99999999..99999999
350		IN2 LIN P3(X)	R/W	4	0	-99999999..99999999
351		IN2 LIN P3(Y)	R/W	4	0	-99999999..99999999
352		IN2 LIN P4(X)	R/W	4	0	-99999999..99999999
353		IN2 LIN P4(Y)	R/W	4	0	-99999999..99999999
354		IN2 LIN P5(X)	R/W	4	0	-99999999..99999999
355		IN2 LIN P5(Y)	R/W	4	0	-99999999..99999999
356		IN2 LIN P6(X)	R/W	4	0	-99999999..99999999
357		IN2 LIN P6(Y)	R/W	4	0	-99999999..99999999
358		IN2 LIN P7(X)	R/W	4	0	-99999999..99999999
359		IN2 LIN P7(Y)	R/W	4	0	-99999999..99999999
360		IN2 LIN P8(X)	R/W	4	0	-99999999..99999999
361		IN2 LIN P8(Y)	R/W	4	0	-99999999..99999999
362		IN2 LIN P9(X)	R/W	4	0	-99999999..99999999
363		IN2 LIN P9(Y)	R/W	4	0	-99999999..99999999

ISDU Index	DPP1 Index	Name of the Parameter	Access	Length in bytes	Default Value	Range
364		IN2 LIN P10(X)	R/W	4	0	-99999999..99999999
365		IN2 LIN P10(Y)	R/W	4	0	-99999999..99999999
366		IN2 LIN P11(X)	R/W	4	0	-99999999..99999999
367		IN2 LIN P11(Y)	R/W	4	0	-99999999..99999999
368		IN2 LIN P12(X)	R/W	4	0	-99999999..99999999
369		IN2 LIN P12(Y)	R/W	4	0	-99999999..99999999
370		IN2 LIN P13(X)	R/W	4	0	-99999999..99999999
371		IN2 LIN P13(Y)	R/W	4	0	-99999999..99999999
372		IN2 LIN P14(X)	R/W	4	0	-99999999..99999999
373		IN2 LIN P14(Y)	R/W	4	0	-99999999..99999999
374		IN2 LIN P15(X)	R/W	4	0	-99999999..99999999
375		IN2 LIN P15(Y)	R/W	4	0	-99999999..99999999
376		IN2 LIN P16(X)	R/W	4	0	-99999999..99999999
377		IN2 LIN P16(Y)	R/W	4	0	-99999999..99999999
378		IN2 LIN P17(X)	R/W	4	0	-99999999..99999999
379		IN2 LIN P17(Y)	R/W	4	0	-99999999..99999999
380		IN2 LIN P18(X)	R/W	4	0	-99999999..99999999
381		IN2 LIN P18(Y)	R/W	4	0	-99999999..99999999
382		IN2 LIN P19(X)	R/W	4	0	-99999999..99999999
383		IN2 LIN P19(Y)	R/W	4	0	-99999999..99999999
384		IN2 LIN P20(X)	R/W	4	0	-99999999..99999999
385		IN2 LIN P20(Y)	R/W	4	0	-99999999..99999999
386		IN2 LIN P21(X)	R/W	4	0	-99999999..99999999
387		IN2 LIN P21(Y)	R/W	4	0	-99999999..99999999
388		IN2 LIN P22(X)	R/W	4	0	-99999999..99999999
389		IN2 LIN P22(Y)	R/W	4	0	-99999999..99999999

ISDU Index	DPP1 Index	Name of the Parameter	Access	Length in bytes	Default Value	Range
390		IN2 LIN P23(X)	R/W	4	0	-99999999..99999999
391		IN2 LIN P23(Y)	R/W	4	0	-99999999..99999999
392		IN2 LIN P24(X)	R/W	4	0	-99999999..99999999
393		IN2 LIN P24(Y)	R/W	4	0	-99999999..99999999
IN 2 TOTALIZATION						
394		IN2 TOT BASE	R/W	4	0	0..3
395		IN2 TOT DIVIDER	R/W	4	0	0..3
396		IN2 TOT DECIMAL POINT	R/W	4	0	0..7
397		IN2 TOT SCALE UNITS	R/W	4	0	0..29
398		___	R/W	4	0	0..0
399		___	R/W	4	0	0..0
400		___	R/W	4	0	0..0
LINKAGE PROPERTIES						
401		LINKAGE FACTOR	R/W	4	1	-99999999..99999999
402		LINKAGE DIVIDER	R/W	4	1	-99999999..99999999
403		LINKAGE ADDITIVE VALUE	R/W	4	0	-99999999..99999999
404		LINKAGE DECIMAL POINT	R/W	4	0	0..7
405		LINKAGE SCALE UNITS	R/W	4	0	0..29
406		___	R/W	4	0	0..0
407		___	R/W	4	0	0..0
408		___	R/W	4	0	0..0
IO LINK PROPERTIES						
409		IOL IN1 FACTOR	R/W	4	1	-99999999..99999999
410		IOL IN1 DIVIDER	R/W	4	1	-99999999..99999999
411		IOL IN1 ADDITIVE VALUE	R/W	4	0	-99999999..99999999
412		IOL IN1 DECIMAL POINT	R/W	4	0	0..7
413		IOL IN1 SCALE UNITS	R/W	4	0	0..29
414		IOL IN2 FACTOR	R/W	4	1	-99999999..99999999
415		IOL IN2 DIVIDER	R/W	4	1	-99999999..99999999
416		IOL IN2 ADDITIVE VALUE	R/W	4	0	-99999999..99999999
417		IOL IN2 DECIMAL POINT	R/W	4	0	0..7
418		IOL IN2 SCALE UNITS	R/W	4	0	0..29
419		___	R/W	4	0	0..0
420		___	R/W	4	0	0..0
421		___	R/W	4	0	0..0
422		___	R/W	4	0	0..0

ISDU Index	DPP1 Index	Name of the Parameter	Access	Length in bytes	Default Value	Range
PRESELECTION VALUES						
423		PRESELECTION 1	R/W	4	1000	-99999999..99999999
424		PRESELECTION 2	R/W	4	2000	-99999999..99999999
425		PRESELECTION 3	R/W	4	3000	-99999999..99999999
426		PRESELECTION 4	R/W	4	4000	-99999999..99999999
427		---	R/W	4	0	0..0
428		---	R/W	4	0	0..0
PRESELECTION 1 MENU						
429		PRES1 SOURCE 1	R/W	4	0	0..11
430		PRES1 MODE 1	R/W	4	0	0..6
431		PRES1 HYSTERESIS 1	R/W	4	0	0..99999
432		PRES1 PULSE TIME 1	R/W	4	0	0..60000
433		PRES1 OUTPUT TARGET 1	R/W	4	1	0..6
434		PRES1 OUTPUT POLARITY 1	R/W	4	0	0..1
435		PRES1 OUTPUT LOCK 1	R/W	4	0	0..1
436		PRES1 START UP DELAY 1	R/W	4	0	0..60000
437		PRES1 EVENT COLOR 1	R/W	4	0	0..3
438		---	R/W	4	0	0..0
439		---	R/W	4	0	0..0
PRESELECTION 2 MENU						
440		PRES2 SOURCE 2	R/W	4	0	0..11
441		PRES2 MODE 2	R/W	4	0	0..6
442		PRES2 HYSTERESIS 2	R/W	4	0	0..99999
443		PRES2 PULSE TIME 2	R/W	4	0	0..60000
444		PRES2 OUTPUT TARGET 2	R/W	4	2	0..6
445		PRES2 OUTPUT POLARITY 2	R/W	4	0	0..1
446		PRES2 OUTPUT LOCK 2	R/W	4	0	0..1
447		PRES2 START UP DELAY 2	R/W	4	0	0..60000
448		PRES2 EVENT COLOR 2	R/W	4	0	0..3
449		---	R/W	4	0	0..0
450		---	R/W	4	0	0..0
PRESELECTION 3 MENU						
451		PRES3 SOURCE 3	R/W	4	0	0..11
452		PRES3 MODE 3	R/W	4	0	0..6
453		PRES3 HYSTERESIS 3	R/W	4	0	0..99999
454		PRES3 PULSE TIME 3	R/W	4	0	0..60000
455		PRES3 OUTPUT TARGET 3	R/W	4	3	0..6
456		PRES3 OUTPUT POLARITY 3	R/W	4	0	0..1
457		PRES3 OUTPUT LOCK 3	R/W	4	0	0..1
458		PRES3 START UP DELAY 3	R/W	4	0	0..1
459		PRES3 EVENT COLOR 3	R/W	4	0	0..3
460		---	R/W	4	0	0..0
461		---	R/W	4	0	0..0

ISDU Index	DPP1 Index	Parametername	Zugriff	Länge in Bytes	Default Wert	Wertebereich
PRESELECTION 4 MENU						
462		PRES4 SOURCE 4	R/W	4	0	0..11
463		PRES4 MODE 4	R/W	4	0	0..6
464		PRES4 HYSTERESIS 4	R/W	4	0	0..99999
465		PRES4 PULSE TIME 4	R/W	4	0	0..60000
466		PRES4 OUTPUT TARGET 4	R/W	4	4	0..6
467		PRES4 OUTPUT POLARITY 4	R/W	4	0	0..1
468		PRES4 OUTPUT LOCK 4	R/W	4	0	0..1
469		PRES4 START UP DELAY 4	R/W	4	0	0..1
470		PRES4 EVENT COLOR 4	R/W	4	0	0..3
471		---	R/W	4	0	0..0
472		---	R/W	4	0	0..0
SERIAL MENU						
473		UNIT NUMBER	R/W	4	11	11..99
474		SERIAL BAUD RATE	R/W	4	0	0..2
475		SERIAL FORMAT	R/W	4	0	0..9
476		SERIAL INIT	R/W	4	0	0..1
477		SERIAL PROTOCOL	R/W	4	0	0..1
478		SERIAL TIMER	R/W	4	0	0..60000
479		SERIAL VALUE	R/W	4	0	0..9
480		MODBUS	R/W	4	0	0..247
481		---	R/W	4	0	0..0
ANALOG OUT MENU						
482		ANALOG SOURCE	R/W	4	0	0..11
483		ANALOG FORMAT	R/W	4	0	0..2
484		ANALOG START	R/W	4	0	-99999999..99999999
485		ANALOG END	R/W	4	10000	-99999999..99999999
486		ANALOG GAIN %	R/W	4	10000	0..11000
487		ANALOG OFFSET %	R/W	4	0	-9999..9999
488		---	R/W	4	0	0..0
489		---	R/W	4	0	0..0
COMMAND MENU						
490		INPUT 1 ACTION	R/W	4	0	0..26
491		INPUT 1 CONFIG.	R/W	4	2	0..3
492		INPUT 2 ACTION	R/W	4	0	0..26
493		INPUT 2 CONFIG.	R/W	4	2	0..3
494		INPUT 3 ACTION	R/W	4	0	0..26
495		INPUT 3 CONFIG.	R/W	4	2	0..3
496		---	R/W	4	0	0..0
497		---	R/W	4	0	0..0
498		---	R/W	4	0	0..0
499		---	R/W	4	0	0..0

ISDU Index	DPP1 Index	Name of the Parameter	Access	Length in bytes	Default Value	Range
DISPLAY MENU						
500		START DISPLAY	R/W	4	0	0..1
501		SOURCE SINGLE	R/W	4	0	0..11
502		SOURCE DUAL TOP	R/W	4	0	0..11
503		SOURCE DUAL DOWN	R/W	4	1	0..11
504		COLOR	R/W	4	0	0..2
505		BRIGHTNESS	R/W	4	80	10..100
506		CONTRAST	R/W	4	1	0..2
507		SCREEN SAVER	R/W	4	0	0..9999
508		UP-DATE-TIME	R/W	4	100	5..9999
509		FONT	R/W	4	0	0..1
510		—	R/W	4	0	0..0
511		—	R/W	4	0	0..0
512		—	R/W	4	0	0..0

2.2 System Commands

A system command is a write-only parameter that causes an action in the device. To invoke the desired action, the corresponding value must be written to index 2, subindex 0. If the desired command is a static command (s), this command remains active until the corresponding value is written again to index 2, subindex 0. By resending the command, the action is terminated.

2.2.1 Predefined commands

Name	Index	Subindex	Value	Description of the action	Dynamic (d)/static (s)
RESTORE FACTORY SETTINGS	2	0	130	Reset all parameters to factory setting.	(d)

2.2.2 Application-specific commands

Name	Index	Subindex	Value	Description of the action	Dynamic (d)/static (s)
TARA INPUT 1	2	0	160	Value of input 1 is stored as an offset from input 1.	(d)
TARA INPUT 2	2	0	161	Value of input 2 is stored as an offset from input 2.	(d)
TARA INPUT 1 + 2	2	0	162	Value of input 1 is stored as an offset from input 1, value of input 2 is stored as an offset from input 2	(d)
ADD TO TOTAL 1	2	0	163	Adds the current value from input 1 to INPUT 1 TOTAL.	(d)
ADD TO TOTAL 2	2	0	164	Adds the current value from input 2 to INPUT 2 TOTAL.	(d)
RESET TOTAL 1	2	0	165	Value of totalizator 1 is reset to 0.	(s)
RESET TOTAL 2	2	0	166	Value of totalizator 2 is reset to 0.	(s)
RESET TOTAL LINKAGE	2	0	167	Value of totalizator 1 and 2 are reset to 0.	(s)
TEACH PRESELECTION 1	2	0	168	Value (SOURCE 1) is saved as PRESELECTION 1.	(d)
TEACH PRESELECTION 2	2	0	169	Value (SOURCE 2) is saved as PRESELECTION 2.	(d)
TEACH PRESELECTION 3	2	0	170	Value (SOURCE 3) is saved as PRESELECTION 3.	(d)
TEACH PRESELECTION 4	2	0	171	Value (SOURCE 4) is saved as PRESELECTION 4.	(d)
SCROLL DISPLAY	2	0	172	Display switching.	(d)
SERIAL PRINT	2	0	173	Send serial data, see SERIAL VALUE.	(d)
SET TO RED	2	0	174	Display lights up red. The color can be changed by the event-dependent color switching in the PRESELECTION 1 ... 4 MENU	(d)
SET TO GREEN	2	0	175	Display lights up green. The color can be changed by the event-dependent color switching in the PRESELECTION 1 ... 4 MENU	(d)
SET TO YELLOW	2	0	176	Display lights up yellow. The color can be changed by the event-dependent color switching in the PRESELECTION 1 ... 4 MENU	(d)
CLEAR MIN/MAX VALUES	2	0	177	Reset of min/MAX values	(s)
CLEAR LOOP TIME	2	0	178	Loop time Reset	(d)
ACTIVATE DATA	2	0	179	N.A.	(d)
STORE EEPROM	2	0	180	N.A.	(d)
TESTPROGRAMM	2	0	181	Starts or stops the test program	(s)
FREEZE	2	0	182	Freeze the display value.	(s)
KEY LOCK	2	0	183	Keypad Lock: Touchscreen.	(s)
LOCK RELEASE	2	0	184	Self-locking of all outputs/relays.	(d)

2.3 IO –Link process data

2.3.1 Process input (32 bytes)

View from the IO-link master!

Byte	Bit	Function	Logic
0	0	Output Status: Ctrl. Out 1	0 = OFF ; 1 = ON
	1	Output Status: Ctrl. Out 2	0 = OFF ; 1 = ON
	2	Output Status: Ctrl. Out 3	0 = OFF ; 1 = ON
	3	Output Status: Ctrl. Out 4	0 = OFF ; 1 = ON
	4	Output Status: Rel. 1	0 = OFF ; 1 = ON
	5	Output Status: Rel. 2	0 = OFF ; 1 = ON
	6	Output Status: Reserve	-
	7	Output Status: Reserve	-
1	8...15	Device status	0 = Device is operating properly; 2 = Out-of-Specification
2	16...23	Scale unit Linkage Totalisation	See chapter 2.9-Scale units!
3...6	24...55	Process value: Linkage Totalisation (incl. Dezimalpunkt u. Vorzeichen)	-
7	56...63	Scale unit: Totalisation Input 2	See chapter 2.9-Scale units!!
8...11	64...95	Process value: Totalisation Input 2 (incl. Dezimalpunkt u. Vorzeichen)	-
12	96...103	Scale unit: Totalisation Input 1	See chapter 2.9-Scale units!!
13...16	104...135	Process value: Totalisation Input 1 (incl. decimal point and sign)	-
17	136...143	Scale unit: Linkage Input 1+2	See chapter 2.9-Scale units!
18...21	144...175	Process value: Linkage Input 1+2 (incl. decimal point and sign)	-
22	176...183	Scale unit: Input 2	See chapter 2.9-Scale units!
23...26	184...215	Process value: Input 2 (incl. decimal point and sign)	-
27	216...223	Scale unit: Input 1	See chapter 2.9-Scale units!
28...31	224...255	Process value: Input 1 (incl. decimal point and sign)	-

2.3.2 Process output data (8 Byte)

View from the IO-link master!

Byte	Bit	Function	Logic
0...3	0...31	IO-Link display value 1 (Data type: long - incl. sign)	-
4...7	32...63	IO-Link display value 2 (Data type: long - incl. sign)	-

2.3.3 Assignment table of the transferred unit

Transferred value (decimal)	Appropriate scale unit	Related code „IODD StandardUnitDefinitions1.1“
0	V	1240
1	mV	1243
2	A	1209
3	mA	1211
4	km/h	1064
5	mph	1065
6	feet/min	1070
7	inch/min	1069
8	g	1089
9	kg	1088
10	oz	1569
11	W	1186
12	kW	1190
13	VA	-
14	mm	1013
15	cm	1012
16	m	1010
17	inch	1019
18	feet	1018
19	C	1001
20	F	1002
21	K	1000
22	1/sec	1351
23	1/min	1352
24	1/h	1353
25	gal/min	1363
26	Pa	1130
27	kPa	1133
28	%	1342
29	Edit Unit (user defined unit)	-

2.4 Error type

Error code	Name	Description
32768 / 0x 8000	Application errors in the device-no details	Access was denied by the device. No detailed information is available.
32785 / 0x 8011	Index does not exist	Access to a non-existent index.
32786 / 0x 8012	Subindex does not exist	Access to a non-existent subindex..
32800 / 0x 8020	Service not available at this time	The parameter cannot be accessed at this moment. The device does not allow this in the current state.
32803 / 0x 8023	Access denied	Write access to a read-only parameter.
32816 / 0x 8030	Parameter value out of range	Parameter value is outside the allowed range of values.
32819 / 0x 8033	Parameter length too large	Parameter length is greater than allowed.
32820 / 0x 8034	Parameter length too small	Parameter length is less than allowed.
32821 / 0x 8035	Function not available	The device does not support the command.
32822 / 0x 8036	Function not available at this time	The command is not supported by the device in its current state.
32832 / 0x 8040	Invalid parameter set	Written single parameter value collides with the other parameter settings.
32833 / 0x 8041	Inconsistent parameter set	Inconsistencies were detected at the end of the block parameter transfer. The device plausibility check failed.
32898 / 0x 8082	Application not ready	Access was denied because the device is not ready.