IO-Link Data Reference Guide

This document refers to the following IODD file: Banner_Engineering-IC70-16N-K-20241101-IODD1.. The IODD file and support files can be found on www.bannerengineering.com under the download section of the product family page.

Communication Parameters

Parameter	Value	Parameter	Value
IO-Link revision	V1.1	Port class	A
Process data in length	16-bits	SIO mode	Yes
Process data out length	16-bits	Smart sensor profile	No
Bit rate	38400 bps	Block parameterization	Yes
Minimum cycle time	3.3 ms	Data storage	Yes
Device ID	659478		

Process Data In (Device to Master)

Subindex	Name	Number of Bits	Data Values
1	Channel 1 Input State	1	false=inactive, true=active
2	Channel 2 Input State	1	false=inactive, true=active
3	Channel 3 Input State	1	false=inactive, true=active
4	Channel 4 Input State	1	false=inactive, true=active
5	Channel 5 Input State	1	false=inactive, true=active
6	Channel 6 Input State	1	false=inactive, true=active
7	Channel 7 Input State	1	false=inactive, true=active
8	Channel 8 Input State	1	false=inactive, true=active
9	Channel 9 Input State	1	false=inactive, true=active
10	Channel 10 Input State	1	false=inactive, true=active
11	Channel 11 Input State	1	false=inactive, true=active
12	Channel 12 Input State	1	false=inactive, true=active
13	Channel 13 Input State	1	false=inactive, true=active
14	Channel 14 Input State	1	false=inactive, true=active
15	Channel 15 Input State	1	false=inactive, true=active
16	Channel 16 Input State	1	false=inactive, true=active

Octet 0

Subindex	8	7	6	5	4	3	2	1
Bit offset	15	14	13	12	11	10	9	8
Value	1	1	1	1	1	1	0	1

Octet 1

Subindex	16	15	14	13	12	11	10	9
Bit offset	7	6	5	4	3	2	1	0
Value	1	1	1	0	1	1	1	0

Example based on the listed values

1	Channel 1 input state	active	9	Channel 9 input state	inactive
2	Channel 2 input state	inactive	10	Channel 10 input state	active

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Original Instructions
02-Apr-25

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248441
p/n: 248441 Rev. A

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3	Channel 3 input state	active	11	Channel 11 input state	active
4	Channel 4 input state	active	12	Channel 12 input state	active
5	Channel 5 input state	active	13	Channel 13 input state	inactive
6	Channel 6 input state	active	14	Channel 14 input state	active
7	Channel 7 input state	active	15	Channel 15 input state	active
8	Channel 8 input state	active	16	Channel 16 input state	active

Process Data Out (Master to Device)

Subindex	Name	Number of Bits	Data Values
1	Channel 1 Output State	1	false=Off/InActive, true=On/Active
2	Channel 2 Output State	1	false=Off/InActive, true=On/Active
3	Channel 3 Output State	1	false=Off/InActive, true=On/Active
4	Channel 4 Output State	1	false=Off/InActive, true=On/Active
5	Channel 5 Output State	1	false=Off/InActive, true=On/Active
6	Channel 6 Output State	1	false=Off/InActive, true=On/Active
7	Channel 7 Output State	1	false=Off/InActive, true=On/Active
8	Channel 8 Output State	1	false=Off/InActive, true=On/Active
1	Channel 9 Output State	1	false=Off/InActive, true=On/Active
2	Channel 10 Output State	1	false=Off/InActive, true=On/Active
3	Channel 11 Output State	1	false=Off/InActive, true=On/Active
4	Channel 12 Output State	1	false=Off/InActive, true=On/Active
5	Channel 13 Output State	1	false=Off/InActive, true=On/Active
6	Channel 14 Output State	1	false=Off/InActive, true=On/Active
7	Channel 15 Output State	1	false=Off/InActive, true=On/Active
8	Channel 16 Output State	1	false=Off/InActive, true=On/Active

Octet 0

Subindex	8	7	6	5	4	3	2	1
Bit offset	15	14	13	12	11	10	9	8

Octet 1

Subindex	16	15	14	13	12	11	10	9
Bit offset	7	6	5	4	3	2	1	0

Parameters Set Using IO-Link

These parameters can be read from and/or written to an IC70-16N-K IO-Link Hub. Also included is information about whether the variable in question is saved during data storage and whether the variable came from the IO-Link Smart Sensor Profile. Unlike process data in, which is transmitted from the IO-Link device to the IO-Link master cyclically, these parameters are read or written acyclically as needed.

Index	Subindex	Name	Length	Value Range	Default	Access Rights	Data Storage?
0	1-16	Direct Parameter Page 1 (incl. Vendor ID & Device ID)				ro	
1	1-16	Direct Parameters Page 2				rw	
2		System Command		130 = Restore Factory Settings 162 = Start discovery 163 = Stop discovery 164 = Reset All Metrics		wo	
3		Data Storage Index (device-specific list of parameters to be stored)				rw	
4-11		reserved by IO-Link Specification					

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Index	Subindex	Name	Length	Value Range	Default	Access Rights	Data Storage?
12		**Device Access Locks**					
12	1	Parameter Write Access Lock		0 = off 1 = on	0	rw	y
12	2	Data Storage Lock		0 = off, 1 = on	0	rw	y
12	3	Local Parameterization Lock		0 = off, 1 = on	0	rw	y
12	4	Local User Interface Lock		0 = off, 1 = on	0	rw	y
16		Vendor Name string		Banner Engineering Corporation		ro	
17		Vendor Text string		More Sensors. More Solutions.		ro	
18		Product Name string		IC70-16N-K		ro	
19		Product ID string		IC70-16N-K		ro	
20		Product Text string				ro	
21		Serial Number				ro	
23		Firmware Version				ro	
24		App Specific Tag (user-defined)				rw	y
36		Device Status	8-bit integer	0=Device is OK, 1=Maintainance required, 2=Out of specification, 3=Functional check, 4=Failure, 5..255 Reserved		ro	
37		Detailed Device Status	Array[6] of 3-octet			ro	
38-39		reserved					
40		Process Data Input		see Process Data In		ro	
41		Process Data Output		see Process Data Out		ro	
42-57		unused/reserved					
69		**All-Time Run Time**					
69	1	Run counter	32-bit Uinteger	0..2147483647		ro	y
70		**Resettable Run Time**					
70	1	Run counter	32-bit Uinteger	0..2147483647	0	rw	
78		**All-Time Run Time Event Time**					
78	1	Event Time	32-bit Uinteger	0..2147483647	0	rw	y
79		**Resettable Run Time Event Time**					
79	1	Event Time	32-bit Uinteger	0..2147483647	0	rw	y
80		**IO Metrics Channels 1 to 8**					
80	1	Channel 1 Count	32-bit Uinteger	0..2147483647		ro	
80	2	Channel 1 Count Duration -	32-bit Uinteger	0..2147483647, 50µS resolution		ro	
80	3	Channel 1 Count Events per Minute	32-bit Uinteger	1..300000		ro	
80	4	Channel 1 CountTotalizer Counter	32-bit Uinteger	0..2147483647		ro	
80	5	Channel 2 Count	32-bit Uinteger	0..2147483647		ro	
80	6	Channel 2 Duration	32-bit Uinteger	0..2147483647, 50µS resolution		ro	
80	7	Channel 2 Events per Minute	32-bit Uinteger	1..300000		ro	
80	8	Channel 2 Totalizer Counter	32-bit Uinteger	0..2147483647		ro	
80	9	Channel 3 Count	32-bit Uinteger	0..2147483647		ro	
80	10	Channel 3 Duration	32-bit Uinteger	0..2147483647, 50µS resolution		ro	
80	11	Channel 3 Events per Minute	32-bit Uinteger	1..300000		ro	
80	12	Channel 3 Totalizer Counter	32-bit Uinteger	0..2147483647		ro	
80	13	Channel 4 Count	32-bit Uinteger	0..2147483647		ro	
80	14	Channel 4 Duration	32-bit Uinteger	0..2147483647, 50µS resolution		ro	
80	15	Channel 4 Events per Minute	32-bit Uinteger	1..300000		ro	
80	16	Channel 4 Totalizer Counter	32-bit Uinteger	0..2147483647		ro	
80	17	Channel 5 Count	32-bit Uinteger	0..2147483647		ro	
80	18	Channel 5 Duration	32-bit Uinteger	0..2147483647, 50µS resolution		ro	

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Index	Subindex	Name	Length	Value Range	Default	Access Rights	Data Storage?
80	19	Channel 5 Events per Minute	32-bit Uinteger	1..300000		ro	
80	20	Channel 5 Totalizer Counter	32-bit Uinteger	0..2147483647		ro	
80	21	Channel 6 Count	32-bit Uinteger	0..2147483647		ro	
80	22	Channel 6 Duration	32-bit Uinteger	0..2147483647, 50µS resolution		ro	
80	23	Channel 6 Events per Minute	32-bit Uinteger	1..300000		ro	
80	24	Channel 6 Totalizer Counter	32-bit Uinteger	0..2147483647		ro	
80	25	Channel 7 Count	32-bit Uinteger	0..2147483647		ro	
80	26	Channel 7 Duration	32-bit Uinteger	0..2147483647, 50µS resolution		ro	
80	27	Channel 7 Events per Minute	32-bit Uinteger	1..300000		ro	
80	28	Channel 7 Totalizer Counter	32-bit Uinteger	0..2147483647		ro	
80	29	Channel 8 Count	32-bit Uinteger	0..2147483647		ro	
80	30	Channel 8 Duration	32-bit Uinteger	0..2147483647, 50µS resolution		ro	
80	31	Channel 8 Events per Minute	32-bit Uinteger	1..300000		ro	
80	32	Channel 8 Totalizer Counter	32-bit Uinteger	0..2147483647		ro	
81		**IO Metrics Channels 9 to 16**					
81	1	Channel 9 Count	32-bit Uinteger	0..2147483647		ro	
81	2	Channel 9 Duration -	32-bit Uinteger	0..2147483647, 50µS resolution		ro	
81	3	Channel 9 Events per Minute	32-bit Uinteger	1..300000		ro	
81	4	Channel 9 Totalizer Counter	32-bit Uinteger	0..2147483647		ro	
81	5	Channel 10 Count	32-bit Uinteger	0..2147483647		ro	
81	6	Channel 10 Duration	32-bit Uinteger	0..2147483647, 50µS resolution		ro	
81	7	Channel 10 Events per Minute	32-bit Uinteger	1..300000		ro	
81	8	Channel 10 Totalizer Counter	32-bit Uinteger	0..2147483647		ro	
81	9	Channel 11 Count	32-bit Uinteger	0..2147483647		ro	
81	10	Channel 11 Duration	32-bit Uinteger	0..2147483647, 50µS resolution		ro	
81	11	Channel 11 Events per Minute	32-bit Uinteger	1..300000		ro	
81	12	Channel 11 Totalizer Counter	32-bit Uinteger	0..2147483647		ro	
81	13	Channel 12 Count	32-bit Uinteger	0..2147483647		ro	
81	14	Channel 12 Duration	32-bit Uinteger	0..2147483647, 50µS resolution		ro	
81	15	Channel 12 Events per Minute	32-bit Uinteger	1..300000		ro	
81	16	Channel 12 Totalizer Counter	32-bit Uinteger	0..2147483647		ro	
81	17	Channel 13 Count	32-bit Uinteger	0..2147483647		ro	
81	18	Channel 13 Duration	32-bit Uinteger	0..2147483647, 50µS resolution		ro	
81	19	Channel 13 Events per Minute	32-bit Uinteger	1..300000		ro	
81	20	Channel 13 Totalizer Counter	32-bit Uinteger	0..2147483647		ro	
81	21	Channel 14 Count	32-bit Uinteger	0..2147483647		ro	
81	22	Channel 14 Duration	32-bit Uinteger	0..2147483647, 50µS resolution		ro	
81	23	Channel 14 Events per Minute	32-bit Uinteger	1..300000		ro	
81	24	Channel 14 Totalizer Counter	32-bit Uinteger	0..2147483647		ro	
81	25	Channel 15 Count	32-bit Uinteger	0..2147483647		ro	
81	26	Channel 15 Duration	32-bit Uinteger	0..2147483647, 50µS resolution		ro	
81	27	Channel 15 Events per Minute	32-bit Uinteger	1..300000		ro	
81	28	Channel 15 Totalizer Counter	32-bit Uinteger	0..2147483647		ro	
81	29	Channel 16 Count	32-bit Uinteger	0..2147483647		ro	
81	30	Channel 16 Duration	32-bit Uinteger	0..2147483647, 50µS resolution		ro	
81	31	Channel 16 Events per Minute	32-bit Uinteger	1..300000		ro	
81	32	Channel 16 Totalizer Counter	32-bit Uinteger	0..2147483647		ro	
82		**Selectable Metric Reset**					
82	1	Channel 1	Boolean	false=Do Not Reset, true=Reset	false	rw	

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Index	Subindex	Name	Length	Value Range	Default	Access Rights	Data Storage?
82	2	Channel 2	Boolean	false=Do Not Reset, true=Reset	false	rw	
82	3	Channel 3	Boolean	false=Do Not Reset, true=Reset	false	rw	
82	4	Channel 4	Boolean	false=Do Not Reset, true=Reset	false	rw	
82	5	Channel 5	Boolean	false=Do Not Reset, true=Reset	false	rw	
82	6	Channel 6	Boolean	false=Do Not Reset, true=Reset	false	rw	
82	7	Channel 7	Boolean	false=Do Not Reset, true=Reset	false	rw	
82	8	Channel 8	Boolean	false=Do Not Reset, true=Reset	false	rw	
82	9	Channel 9	Boolean	false=Do Not Reset, true=Reset	false	rw	
82	10	Channel 10	Boolean	false=Do Not Reset, true=Reset	false	rw	
82	11	Channel 11	Boolean	false=Do Not Reset, true=Reset	false	rw	
82	12	Channel 12	Boolean	false=Do Not Reset, true=Reset	false	rw	
82	13	Channel 13	Boolean	false=Do Not Reset, true=Reset	false	rw	
82	14	Channel 14	Boolean	false=Do Not Reset, true=Reset	false	rw	
82	15	Channel 15	Boolean	false=Do Not Reset, true=Reset	false	rw	
82	16	Channel 16	Boolean	false=Do Not Reset, true=Reset	false	rw	
82	17	Channel 1 Reset Count	32-bit Uinteger	0..2147483647	0	rw	
82	18	Channel 1 Reset Count	32-bit Uinteger	0..2147483647	0	rw	
82	19	Channel 3 Reset Count	32-bit Uinteger	0..2147483647	0	rw	
82	20	Channel 4 Reset Count	32-bit Uinteger	0..2147483647	0	rw	
82	21	Channel 5 Reset Count	32-bit Uinteger	0..2147483647	0	rw	
82	22	Channel 6 Reset Count	32-bit Uinteger	0..2147483647	0	rw	
82	23	Channel 7 Reset Count	32-bit Uinteger	0..2147483647	0	rw	
82	24	Channel 8 Reset Count	32-bit Uinteger	0..2147483647	0	rw	
82	25	Channel 9 Reset Count	32-bit Uinteger	0..2147483647	0	rw	
82	26	Channel 10 Reset Count	32-bit Uinteger	0..2147483647	0	rw	
82	27	Channel 11 Reset Count	32-bit Uinteger	0..2147483647	0	rw	
82	28	Channel 12 Reset Count	32-bit Uinteger	0..2147483647	0	rw	
82	29	Channel 13 Reset Count	32-bit Uinteger	0..2147483647	0	rw	
82	30	Channel 14 Reset Count	32-bit Uinteger	0..2147483647	0	rw	
82	31	Channel 15 Reset Count	32-bit Uinteger	0..2147483647	0	rw	
82	32	Channel 16 Reset Count	32-bit Uinteger	0..2147483647	0	rw	
87		**Channel 1 Configuration**					
87	1	IO Selection	8-bit Uinteger	0=NPN Input, 2=NPN Output with Pull Up	2	rw	y
87	2	Delay Mode	8-bit Uinteger	0 = Disabled, 1 = On Off Delay, 2 = On One-shot, 3 = Off One-shot, 4 = On Pulse-stretcher, 5 = Off Pulse-stretcher, 6 = Totalizer, 7 = Retriggerable On One-shot, 8 = Retriggerable Off One-Shot	0	rw	y
87	3	Delay Timer 1	32-bit Uinteger	0..2147483647 [Channel On Delay, One-shot, Pulse-stretcher time(ms) or Totalizer Count]	0	rw	y
87	4	Delay Timer 2	32-bit Uinteger	0..2147483647 (Channel Off Delay or Totalizer time)ms	0	rw	y
87	5	Mirroring Enable	8-bit Uinteger	0=Disabled, 1=Enabled	0	rw	y
87	6	Mirroring Channel Selection	8-bit Uinteger	0=Channel 1, 1=Channel 2, 2=Channel 3, 3=Channel 4, 4=Channel 5, 5=Channel 6, 6=Channel 7, 7=Channel 8, 8=Channel 9, 9=Channel 10, 10=Channel 11, 11=Channel 12, 12=Channel 13, 13=Channel 14, 14=Channel 15, 15=Channel 16	0	rw	y
87	7	Mirroring Inversion	8-bit Uinteger	0=Not Inverted, 1=Inverted	0	rw	y
88		**Channel 2 Configuration**					
88	1	IO Selection	8-bit Uinteger	0=NPN Input, 2=NPN Output with Pull Up	2	rw	y
88	2	Delay Mode	8-bit Uinteger	0 = Disabled, 1 = On Off Delay, 2 = On One-shot, 3 = Off One-shot, 4 = On Pulse-stretcher, 5 = Off Pulse-stretcher, 6 = Totalizer, 7 = Retriggerable On One-shot, 8 = Retriggerable Off One-Shot	0	rw	y

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Index	Subindex	Name	Length	Value Range	Default	Access Rights	Data Storage?
88	3	Delay Timer 1	32-bit Uinteger	0..2147483647 [Channel On Delay, One-shot, Pulse-stretcher time(ms) or Totalizer Count]	0	rw	y
88	4	Delay Timer 2	32-bit Uinteger	0..2147483647 (Channel Off Delay or Totalizer time)ms	0	rw	y
88	5	Mirroring Enable	8-bit Uinteger	0=Disabled, 1=Enabled	0	rw	y
88	6	Mirroring Channel Selection	8-bit Uinteger	0=Channel 1, 1=Channel 2, 2=Channel 3, 3=Channel 4, 4=Channel 5, 5=Channel 6, 6=Channel 7, 7=Channel 8, 8=Channel 9, 9=Channel 10, 10=Channel 11, 11=Channel 12, 12=Channel 13, 13=Channel 14, 14=Channel 15, 15=Channel 16	0	rw	y
88	7	Mirroring Inversion	8-bit Uinteger	0=Not Inverted, 1=Inverted	0	rw	y
89		**Channel 3 Configuration**					
89	1	IO Selection	8-bit Uinteger	0=NPN Input, 2=NPN Output with Pull Up	2	rw	y
89	2	Delay Mode	8-bit Uinteger	0 = Disabled, 1 = On Off Delay, 2 = On One-shot, 3 = Off One-shot, 4 = On Pulse-stretcher, 5 = Off Pulse-stretcher, 6 = Totalizer, 7 = Retriggerable On One-shot, 8 = Retriggerable Off One-Shot	0	rw	y
89	3	Delay Timer 1	32-bit Uinteger	0..2147483647 [Channel On Delay, One-shot, Pulse-stretcher time(ms) or Totalizer Count]	0	rw	y
89	4	Delay Timer 2	32-bit Uinteger	0..2147483647 (Channel Off Delay or Totalizer time)ms	0	rw	y
89	5	Mirroring Enable	8-bit Uinteger	0=Disabled, 1=Enabled	0	rw	y
89	6	Mirroring Channel Selection	8-bit Uinteger	0=Channel 1, 1=Channel 2, 2=Channel 3, 3=Channel 4, 4=Channel 5, 5=Channel 6, 6=Channel 7, 7=Channel 8, 8=Channel 9, 9=Channel 10, 10=Channel 11, 11=Channel 12, 12=Channel 13, 13=Channel 14, 14=Channel 15, 15=Channel 16	0	rw	y
89	7	Mirroring Inversion	8-bit Uinteger	0=Not Inverted, 1=Inverted	0	rw	y
90		**Channel 4 Configuration**					
90	1	IO Selection	8-bit Uinteger	0=NPN Input, 2=NPN Output with Pull Up	2	rw	y
90	2	Delay Mode	8-bit Uinteger	0 = Disabled, 1 = On Off Delay, 2 = On One-shot, 3 = Off One-shot, 4 = On Pulse-stretcher, 5 = Off Pulse-stretcher, 6 = Totalizer, 7 = Retriggerable On One-shot, 8 = Retriggerable Off One-Shot	0	rw	y
90	3	Delay Timer 1	32-bit Uinteger	0..2147483647 [Channel On Delay, One-shot, Pulse-stretcher time(ms) or Totalizer Count]	0	rw	y
90	4	Delay Timer 2	32-bit Uinteger	0..2147483647 (Channel Off Delay or Totalizer time)ms	0	rw	y
90	5	Mirroring Enable	8-bit Uinteger	0=Disabled, 1=Enabled	0	rw	y
90	6	Mirroring Channel Selection	8-bit Uinteger	0=Channel 1, 1=Channel 2, 2=Channel 3, 3=Channel 4, 4=Channel 5, 5=Channel 6, 6=Channel 7, 7=Channel 8, 8=Channel 9, 9=Channel 10, 10=Channel 11, 11=Channel 12, 12=Channel 13, 13=Channel 14, 14=Channel 15, 15=Channel 16	0	rw	y
90	7	Mirroring Inversion	8-bit Uinteger	0=Not Inverted, 1=Inverted	0	rw	y
91		**Channel 5 Configuration**					
91	1	IO Selection	8-bit Uinteger	0=NPN Input, 2=NPN Output with Pull Up	2	rw	y
91	2	Delay Mode	8-bit Uinteger	0 = Disabled, 1 = On Off Delay, 2 = On One-shot, 3 = Off One-shot, 4 = On Pulse-stretcher, 5 = Off Pulse-stretcher, 6 = Totalizer, 7 = Retriggerable On One-shot, 8 = Retriggerable Off One-Shot	0	rw	y
91	3	Delay Timer 1	32-bit Uinteger	0..2147483647 [Channel On Delay, One-shot, Pulse-stretcher time(ms) or Totalizer Count]	0	rw	y
91	4	Delay Timer 2	32-bit Uinteger	0..2147483647 (Channel Off Delay or Totalizer time)ms	0	rw	y
91	5	Mirroring Enable	8-bit Uinteger	0=Disabled, 1=Enabled	0	rw	y
91	6	Mirroring Channel Selection	8-bit Uinteger	0=Channel 1, 1=Channel 2, 2=Channel 3, 3=Channel 4, 4=Channel 5, 5=Channel 6, 6=Channel 7, 7=Channel 8, 8=Channel 9, 9=Channel 10, 10=Channel 11, 11=Channel 12, 12=Channel 13, 13=Channel 14, 14=Channel 15, 15=Channel 16	0	rw	y
91	7	Mirroring Inversion	8-bit Uinteger	0=Not Inverted, 1=Inverted	0	rw	y
92		**Channel 6 Configuration**					
92	1	IO Selection	8-bit Uinteger	0=NPN Input, 2=NPN Output with Pull Up	2	rw	y

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Index	Subindex	Name	Length	Value Range	Default	Access Rights	Data Storage?
92	2	Delay Mode	8-bit Uinteger	0 = Disabled, 1 = On Off Delay, 2 = On One-shot, 3 = Off One-shot, 4 = On Pulse-stretcher, 5 = Off Pulse-stretcher, 6 = Totalizer, 7 = Retriggerable On One-shot, 8 = Retriggerable Off One-Shot	0	rw	y
92	3	Delay Timer 1	32-bit Uinteger	0..2147483647 [Channel On Delay, One-shot, Pulse-stretcher time(ms) or Totalizer Count]	0	rw	y
92	4	Delay Timer 2	32-bit Uinteger	0..2147483647 (Channel Off Delay or Totalizer time)ms	0	rw	y
92	5	Mirroring Enable	8-bit Uinteger	0=Disabled, 1=Enabled	0	rw	y
92	6	Mirroring Channel Selection	8-bit Uinteger	0=Channel 1, 1=Channel 2, 2=Channel 3, 3=Channel 4, 4=Channel 5, 5=Channel 6, 6=Channel 7, 7=Channel 8, 8=Channel 9, 9=Channel 10, 10=Channel 11, 11=Channel 12, 12=Channel 13, 13=Channel 14, 14=Channel 15, 15=Channel 16	0	rw	y
92	7	Mirroring Inversion	8-bit Uinteger	0=Not Inverted, 1=Inverted	0	rw	y
93		**Channel 7 Configuration**					
93	1	IO Selection	8-bit Uinteger	0=NPN Input, 2=NPN Output with Pull Up	2	rw	y
93	2	Delay Mode	8-bit Uinteger	0 = Disabled, 1 = On Off Delay, 2 = On One-shot, 3 = Off One-shot, 4 = On Pulse-stretcher, 5 = Off Pulse-stretcher, 6 = Totalizer, 7 = Retriggerable On One-shot, 8 = Retriggerable Off One-Shot	0	rw	y
93	3	Delay Timer 1	32-bit Uinteger	0..2147483647 [Channel On Delay, One-shot, Pulse-stretcher time(ms) or Totalizer Count]	0	rw	y
93	4	Delay Timer 2	32-bit Uinteger	0..2147483647 (Channel Off Delay or Totalizer time)ms	0	rw	y
93	5	Mirroring Enable	8-bit Uinteger	0=Disabled, 1=Enabled	0	rw	y
93	6	Mirroring Channel Selection	8-bit Uinteger	0=Channel 1, 1=Channel 2, 2=Channel 3, 3=Channel 4, 4=Channel 5, 5=Channel 6, 6=Channel 7, 7=Channel 8, 8=Channel 9, 9=Channel 10, 10=Channel 11, 11=Channel 12, 12=Channel 13, 13=Channel 14, 14=Channel 15, 15=Channel 16	0	rw	y
93	7	Mirroring Inversion	8-bit Uinteger	0=Not Inverted, 1=Inverted	0	rw	y
94		**Channel 8 Configuration**					
94	1	IO Selection	8-bit Uinteger	0=NPN Input, 2=NPN Output with Pull Up	2	rw	y
94	2	Delay Mode	8-bit Uinteger	0 = Disabled, 1 = On Off Delay, 2 = On One-shot, 3 = Off One-shot, 4 = On Pulse-stretcher, 5 = Off Pulse-stretcher, 6 = Totalizer, 7 = Retriggerable On One-shot, 8 = Retriggerable Off One-Shot	0	rw	y
94	3	Delay Timer 1	32-bit Uinteger	0..2147483647 [Channel On Delay, One-shot, Pulse-stretcher time(ms) or Totalizer Count]	0	rw	y
94	4	Delay Timer 2	32-bit Uinteger	0..2147483647 (Channel Off Delay or Totalizer time)ms	0	rw	y
94	5	Mirroring Enable	8-bit Uinteger	0=Disabled, 1=Enabled	0	rw	y
94	6	Mirroring Channel Selection	8-bit Uinteger	0=Channel 1, 1=Channel 2, 2=Channel 3, 3=Channel 4, 4=Channel 5, 5=Channel 6, 6=Channel 7, 7=Channel 8, 8=Channel 9, 9=Channel 10, 10=Channel 11, 11=Channel 12, 12=Channel 13, 13=Channel 14, 14=Channel 15, 15=Channel 16	0	rw	y
94	7	Mirroring Inversion	8-bit Uinteger	0=Not Inverted, 1=Inverted	0	rw	y
95		**Channel 9 Configuration**					
95	1	IO Selection	8-bit Uinteger	0=NPN Input, 2=NPN Output with Pull Up	2	rw	y
95	2	Delay Mode	8-bit Uinteger	0 = Disabled, 1 = On Off Delay, 2 = On One-shot, 3 = Off One-shot, 4 = On Pulse-stretcher, 5 = Off Pulse-stretcher, 6 = Totalizer, 7 = Retriggerable On One-shot, 8 = Retriggerable Off One-Shot	0	rw	y
95	3	Delay Timer 1	32-bit Uinteger	0..2147483647 [Channel On Delay, One-shot, Pulse-stretcher time(ms) or Totalizer Count]	0	rw	y
95	4	Delay Timer 2	32-bit Uinteger	0..2147483647 (Channel Off Delay or Totalizer time)ms	0	rw	y
95	5	Mirroring Enable	8-bit Uinteger	0=Disabled, 1=Enabled	0	rw	y
95	6	Mirroring Channel Selection	8-bit Uinteger	0=Channel 1, 1=Channel 2, 2=Channel 3, 3=Channel 4, 4=Channel 5, 5=Channel 6, 6=Channel 7, 7=Channel 8, 8=Channel 9, 9=Channel 10, 10=Channel 11, 11=Channel 12, 12=Channel 13, 13=Channel 14, 14=Channel 15, 15=Channel 16	0	rw	y

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Index	Subindex	Name	Length	Value Range	Default	Access Rights	Data Storage?
95	7	Mirroring Inversion	8-bit Uinteger	0=Not Inverted, 1=Inverted	0	rw	y
96		**Channel 10 Configuration**					
96	1	IO Selection	8-bit Uinteger	0=NPN Input, 2=NPN Output with Pull Up	2	rw	y
96	2	Delay Mode	8-bit Uinteger	0 = Disabled, 1 = On Off Delay, 2 = On One-shot, 3 = Off One-shot, 4 = On Pulse-stretcher, 5 = Off Pulse-stretcher, 6 = Totalizer, 7 = Retriggerable On One-shot, 8 = Retriggerable Off One-Shot	0	rw	y
96	3	Delay Timer 1	32-bit Uinteger	0..2147483647 [Channel On Delay, One-shot, Pulse-stretcher time(ms) or Totalizer Count]	0	rw	y
96	4	Delay Timer 2	32-bit Uinteger	0..2147483647 (Channel Off Delay or Totalizer time)ms	0	rw	y
96	5	Mirroring Enable	8-bit Uinteger	0=Disabled, 1=Enabled	0	rw	y
96	6	Mirroring Channel Selection	8-bit Uinteger	0=Channel 1, 1=Channel 2, 2=Channel 3, 3=Channel 4, 4=Channel 5, 5=Channel 6, 6=Channel 7, 7=Channel 8, 8=Channel 9, 9=Channel 10, 10=Channel 11, 11=Channel 12, 12=Channel 13, 13=Channel 14, 14=Channel 15, 15=Channel 16	0	rw	y
96	7	Mirroring Inversion	8-bit Uinteger	0=Not Inverted, 1=Inverted	0	rw	y
97		**Channel 11 Configuration**					
97	1	IO Selection	8-bit Uinteger	0=NPN Input, 2=NPN Output with Pull Up	2	rw	y
97	2	Delay Mode	8-bit Uinteger	0 = Disabled, 1 = On Off Delay, 2 = On One-shot, 3 = Off One-shot, 4 = On Pulse-stretcher, 5 = Off Pulse-stretcher, 6 = Totalizer, 7 = Retriggerable On One-shot, 8 = Retriggerable Off One-Shot	0	rw	y
97	3	Delay Timer 1	32-bit Uinteger	0..2147483647 [Channel On Delay, One-shot, Pulse-stretcher time(ms) or Totalizer Count]	0	rw	y
97	4	Delay Timer 2	32-bit Uinteger	0..2147483647 (Channel Off Delay or Totalizer time)ms	0	rw	y
97	5	Mirroring Enable	8-bit Uinteger	0=Disabled, 1=Enabled	0	rw	y
97	6	Mirroring Channel Selection	8-bit Uinteger	0=Channel 1, 1=Channel 2, 2=Channel 3, 3=Channel 4, 4=Channel 5, 5=Channel 6, 6=Channel 7, 7=Channel 8, 8=Channel 9, 9=Channel 10, 10=Channel 11, 11=Channel 12, 12=Channel 13, 13=Channel 14, 14=Channel 15, 15=Channel 16	0	rw	y
97	7	Mirroring Inversion	8-bit Uinteger	0=Not Inverted, 1=Inverted	0	rw	y
98		**Channel 12 Configuration**					
98	1	IO Selection	8-bit Uinteger	0=NPN Input, 2=NPN Output with Pull Up	2	rw	y
98	2	Delay Mode	8-bit Uinteger	0 = Disabled, 1 = On Off Delay, 2 = On One-shot, 3 = Off One-shot, 4 = On Pulse-stretcher, 5 = Off Pulse-stretcher, 6 = Totalizer, 7 = Retriggerable On One-shot, 8 = Retriggerable Off One-Shot	0	rw	y
98	3	Delay Timer 1	32-bit Uinteger	0..2147483647 [Channel On Delay, One-shot, Pulse-stretcher time(ms) or Totalizer Count]	0	rw	y
98	4	Delay Timer 2	32-bit Uinteger	0..2147483647 (Channel Off Delay or Totalizer time)ms	0	rw	y
98	5	Mirroring Enable	8-bit Uinteger	0=Disabled, 1=Enabled	0	rw	y
98	6	Mirroring Channel Selection	8-bit Uinteger	0=Channel 1, 1=Channel 2, 2=Channel 3, 3=Channel 4, 4=Channel 5, 5=Channel 6, 6=Channel 7, 7=Channel 8, 8=Channel 9, 9=Channel 10, 10=Channel 11, 11=Channel 12, 12=Channel 13, 13=Channel 14, 14=Channel 15, 15=Channel 16	0	rw	y
98	7	Mirroring Inversion	8-bit Uinteger	0=Not Inverted, 1=Inverted	0	rw	y
99		**Channel 13 Configuration**					
99	1	IO Selection	8-bit Uinteger	0=NPN Input, 2=NPN Output with Pull Up	2	rw	y
99	2	Delay Mode	8-bit Uinteger	0 = Disabled, 1 = On Off Delay, 2 = On One-shot, 3 = Off One-shot, 4 = On Pulse-stretcher, 5 = Off Pulse-stretcher, 6 = Totalizer, 7 = Retriggerable On One-shot, 8 = Retriggerable Off One-Shot	0	rw	y
99	3	Delay Timer 1	32-bit Uinteger	0..2147483647 [Channel On Delay, One-shot, Pulse-stretcher time(ms) or Totalizer Count]	0	rw	y
99	4	Delay Timer 2	32-bit Uinteger	0..2147483647 (Channel Off Delay or Totalizer time)ms	0	rw	y
99	5	Mirroring Enable	8-bit Uinteger	0=Disabled, 1=Enabled	0	rw	y

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Index	Subindex	Name	Length	Value Range	Default	Access Rights	Data Storage?
99	6	Mirroring Channel Selection	8-bit Uinteger	0=Channel 1, 1=Channel 2, 2=Channel 3, 3=Channel 4, 4=Channel 5, 5=Channel 6, 6=Channel 7, 7=Channel 8, 8=Channel 9, 9=Channel 10, 10=Channel 11, 11=Channel 12, 12=Channel 13, 13=Channel 14, 14=Channel 15, 15=Channel 16	0	rw	y
99	7	Mirroring Inversion	8-bit Uinteger	0=Not Inverted, 1=Inverted	0	rw	y
100		**Channel 14 Configuration**					
100	1	IO Selection	8-bit Uinteger	0=NPN Input, 2=NPN Output with Pull Up	2	rw	y
100	2	Delay Mode	8-bit Uinteger	0 = Disabled, 1 = On Off Delay, 2 = On One-shot, 3 = Off One-shot, 4 = On Pulse-stretcher, 5 = Off Pulse-stretcher, 6 = Totalizer, 7 = Retriggerable On One-shot, 8 = Retriggerable Off One-Shot	0	rw	y
100	3	Delay Timer 1	32-bit Uinteger	0..2147483647 [Channel On Delay, One-shot, Pulse-stretcher time(ms) or Totalizer Count]	0	rw	y
100	4	Delay Timer 2	32-bit Uinteger	0..2147483647 (Channel Off Delay or Totalizer time)ms	0	rw	y
100	5	Mirroring Enable	8-bit Uinteger	0=Disabled, 1=Enabled	0	rw	y
100	6	Mirroring Channel Selection	8-bit Uinteger	0=Channel 1, 1=Channel 2, 2=Channel 3, 3=Channel 4, 4=Channel 5, 5=Channel 6, 6=Channel 7, 7=Channel 8, 8=Channel 9, 9=Channel 10, 10=Channel 11, 11=Channel 12, 12=Channel 13, 13=Channel 14, 14=Channel 15, 15=Channel 16	0	rw	y
100	7	Mirroring Inversion	8-bit Uinteger	0=Not Inverted, 1=Inverted	0	rw	y
101		**Channel 15 Configuration**					
101	1	IO Selection	8-bit Uinteger	0=NPN Input, 2=NPN Output with Pull Up	2	rw	y
101	2	Delay Mode	8-bit Uinteger	0 = Disabled, 1 = On Off Delay, 2 = On One-shot, 3 = Off One-shot, 4 = On Pulse-stretcher, 5 = Off Pulse-stretcher, 6 = Totalizer, 7 = Retriggerable On One-shot, 8 = Retriggerable Off One-Shot	0	rw	y
101	3	Delay Timer 1	32-bit Uinteger	0..2147483647 [Channel On Delay, One-shot, Pulse-stretcher time(ms) or Totalizer Count]	0	rw	y
101	4	Delay Timer 2	32-bit Uinteger	0..2147483647 (Channel Off Delay or Totalizer time)ms	0	rw	y
101	5	Mirroring Enable	8-bit Uinteger	0=Disabled, 1=Enabled	0	rw	y
101	6	Mirroring Channel Selection	8-bit Uinteger	0=Channel 1, 1=Channel 2, 2=Channel 3, 3=Channel 4, 4=Channel 5, 5=Channel 6, 6=Channel 7, 7=Channel 8, 8=Channel 9, 9=Channel 10, 10=Channel 11, 11=Channel 12, 12=Channel 13, 13=Channel 14, 14=Channel 15, 15=Channel 16	0	rw	y
101	7	Mirroring Inversion	8-bit Uinteger	0=Not Inverted, 1=Inverted	0	rw	y
102		**Channel 16 Configuration**					
102	1	IO Selection	8-bit Uinteger	0=NPN Input, 2=NPN Output with Pull Up	2	rw	y
102	2	Delay Mode	8-bit Uinteger	0 = Disabled, 1 = On Off Delay, 2 = On One-shot, 3 = Off One-shot, 4 = On Pulse-stretcher, 5 = Off Pulse-stretcher, 6 = Totalizer, 7 = Retriggerable On One-shot, 8 = Retriggerable Off One-Shot	0	rw	y
102	3	Delay Timer 1	32-bit Uinteger	0..2147483647 [Channel On Delay, One-shot, Pulse-stretcher time(ms) or Totalizer Count]	0	rw	y
102	4	Delay Timer 2	32-bit Uinteger	0..2147483647 (Channel Off Delay or Totalizer time)ms	0	rw	y
102	5	Mirroring Enable	8-bit Uinteger	0=Disabled, 1=Enabled	0	rw	y
102	6	Mirroring Channel Selection	8-bit Uinteger	0=Channel 1, 1=Channel 2, 2=Channel 3, 3=Channel 4, 4=Channel 5, 5=Channel 6, 6=Channel 7, 7=Channel 8, 8=Channel 9, 9=Channel 10, 10=Channel 11, 11=Channel 12, 12=Channel 13, 13=Channel 14, 14=Channel 15, 15=Channel 16	0	rw	y
102	7	Mirroring Inversion	8-bit Uinteger	0=Not Inverted, 1=Inverted	0	rw	y

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IO-Link Events

Events are acyclic transmissions from the IO-Link device to the IO-Link master. Events can be error messages and/or warning or maintenance data.

Code	Type	Name	Description
25376 (0x6320)	Error	Parameter error	Check datasheet and values
36000 (0x8CA0)	Warning	All-time Run Time Event	Event indicating the corresponding configured running time has elapsed.
36001 (0x8CA1)	Warning	Resettable Run Time Event	Event indicating the corresponding configured running time has elapsed.

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