R95C 8-Port Discrete Bimodal to IO-Link Hub - IO-Link Data Reference Guide

IO-Link Data Map

This document refers to the following IODD file: Banner_Engineering-R95C-8B21-KQ-20220508-IODD1.1.xml. The IODD file and support files can be found on www.bannerengineering.com under the download section of the product family page.

Communication Parameters

The following communication parameters are used.

Parameter	Value
IO-Link revision	V1.1
Process Data In length	144-bits
Process Data Out length	8-bits
Bit Rate	38400 bps
Minimum cycle time	8.8 ms
Device ID	659469

Parameter	Value
Port class	A
SIO mode	Yes
Smart Sensor Profile	No
Block parameterization	Yes
Data Storage	Yes

IO-Link Process Data In (Device to Master)

Process Data Input

Subindex	Name	Number of Bits	Data Values
1	Port 1 Discrete1 Input State	1	False = Inactive, True = Active
2	Port 1 Discrete2 Input State	1	False = Inactive, True = Active [1]
3	Port 2 Discrete1 Input State	1	False = Inactive, True = Active
4	Port 2 Discrete2 Input State	1	False = Inactive, True = Active [1]
5	Port 3 Discrete1 Input State	1	False = Inactive, True = Active
6	Port 3 Discrete2 Input State	1	False = Inactive, True = Active [1]
7	Port 4 Discrete1 Input State	1	False = Inactive, True = Active
8	Port 4 Discrete2 Input State	1	False = Inactive, True = Active [1]
9	Port 5 Discrete1 Input State	1	False = Inactive, True = Active
10	Port 5 Discrete2 Input State	1	False = Inactive, True = Active [1]
11	Port 6 Discrete1 Input State	1	False = Inactive, True = Active
12	Port 6 Discrete2 Input State	1	False = Inactive, True = Active [1]
13	Port 7 Discrete1 Input State	1	False = Inactive, True = Active
14	Port 7 Discrete2 Input State	1	False = Inactive, True = Active [1]
15	Port 8 Discrete1 Input State	1	False = Inactive, True = Active
16	Port 8 Discrete2 Input State	1	False = Inactive, True = Active [1]
17	Measurement 1	32	0..4294967295
18	Measurement 2	32	0..4294967295
19	Measurement 3	32	0..4294967295
20	Measurement 4	32	0..4294967295

Octet 0								
Subindex	20	20	20	20	20	20	20	20
Bit offset	143	142	141	140	139	138	137	136
Value	0	0	0	0	0	0	0	0

[1] Even if Discrete2 is configured as an output, the active state is still reflected at the input.

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ПРОМЭЛЕКТРОНИКА/ sales@prom-elec.com

Octet 1								
Subindex	20	20	20	20	20	20	20	20
Bit offset	135	134	133	132	131	130	129	128
Value	0	0	0	0	0	0	0	0
Octet 2								
Subindex	20	20	20	20	20	20	20	20
Bit offset	127	126	125	124	123	122	121	120
Value	0	0	0	0	0	0	0	0
Octet 3								
Subindex	20	20	20	20	20	20	20	20
Bit offset	119	118	117	116	115	114	113	112
Value	0	0	1	0	0	0	0	0
Octet 4								
Subindex	19	19	19	19	19	19	19	19
Bit offset	111	110	109	108	107	106	105	104
Value	0	0	0	0	0	0	0	0
Octet 5								
Subindex	19	19	19	19	19	19	19	19
Bit offset	103	102	101	100	99	98	97	96
Value	1	0	0	0	0	0	1	1
Octet 6								
Subindex	19	19	19	19	19	19	19	19
Bit offset	95	94	93	92	91	90	89	88
Value	0	0	0	0	0	0	0	0
Octet 7								
Subindex	19	19	19	19	19	19	19	19
Bit offset	87	86	85	84	83	82	81	80
Value	0	0	0	0	0	1	0	1
Octet 8								
Subindex	18	18	18	18	18	18	18	18
Bit offset	79	78	77	76	75	74	73	72
Value	0	0	0	0	0	0	0	0
Octet 9								
Subindex	18	18	18	18	18	18	18	18
Bit offset	71	70	69	68	67	66	65	64
Value	0	0	0	0	0	0	0	0
Octet 10								
Subindex	18	18	18	18	18	18	18	18
Bit offset	63	62	61	60	59	58	57	56
Value	1	0	0	0	0	0	1	0
Octet 11								
Subindex	18	18	18	18	18	18	18	18
Bit offset	55	54	53	52	51	50	49	48
Value	0	0	1	1	0	1	0	1
Octet 12								
Subindex	17	17	17	17	17	17	17	17

Octet 12								
Bit offset	47	46	45	44	43	42	41	40
Value	0	0	0	0	0	0	0	0
Octet 13								
Subindex	17	17	17	17	17	17	17	17
Bit offset	39	38	37	36	35	34	33	32
Value	0	0	0	0	1	0	1	0
Octet 14								
Subindex	17	17	17	17	17	17	17	17
Bit offset	31	30	29	28	27	26	25	24
Value	1	0	1	0	1	1	1	0
Octet 15								
Subindex	17	17	17	17	17	17	17	17
Bit offset	23	22	21	20	19	18	17	16
Value	0	1	1	0	0	0	0	0
Octet 16								
Subindex	16	15	14	13	12	11	10	9
Bit offset	15	14	13	12	11	10	9	8
Value	1	1	1	1	1	1	0	1
Octet 17								
Subindex	8	7	6	5	4	3	2	1
Bit offset	7	6	5	4	3	2	1	0
Value	1	1	1	0	1	1	1	0

Example Based Upon the Value Above

Subindex	Name	Data Value
1	Port 1 Discrete1 Input State	Inactive
2	Port 1 Discrete2 Input State	Active
3	Port 2 Discrete1 Input State	Active
4	Port 2 Discrete2 Input State	Active
5	Port 3 Discrete1 Input State	Inactive
6	Port 3 Discrete2 Input State	Active
7	Port 4 Discrete1 Input State	Active
8	Port 4 Discrete2 Input State	Active
9	Port 5 Discrete1 Input State	Active
10	Port 5 Discrete2 Input State	Inactive
11	Port 6 Discrete1 Input State	Active
12	Port 6 Discrete2 Input State	Active
13	Port 7 Discrete1 Input State	Active
14	Port 7 Discrete2 Input State	Active
15	Port 8 Discrete1 Input State	Active
16	Port 8 Discrete2 Input State	Active
17	Measurement 1	700000
18	Measurement 2	33333
19	Measurement 3	8585221
20	Measurement 4	32

IO-Link Process Data Out (Master to Device)

Process Data Output

Subindex	Name	Number of Bits	Data Values
1	Port 1 Discrete2 Output State	1	False = Off/Inactive, True = On/Active
2	Port 2 Discrete2 Output State	1	False = Off/Inactive, True = On/Active
3	Port 3 Discrete2 Output State	1	False = Off/Inactive, True = On/Active
4	Port 4 Discrete2 Output State	1	False = Off/Inactive, True = On/Active
5	Port 5 Discrete2 Output State	1	False = Off/Inactive, True = On/Active
6	Port 6 Discrete2 Output State	1	False = Off/Inactive, True = On/Active
7	Port 7 Discrete2 Output State	1	False = Off/Inactive, True = On/Active
8	Port 8 Discrete2 Output State	1	False = Off/Inactive, True = On/Active

Octet 0								
Subindex	8	7	6	5	4	3	2	1
Bit offset	7	6	5	4	3	2	1	0
Value	1	1	0	0	1	0	0	0

Example Based Upon the Value Above

Subindex	Name	Data Values
1	Port 1 Discrete2 Output State	Inactive
2	Port 2 Discrete2 Output State	Inactive
3	Port 3 Discrete2 Output State	Inactive
4	Port 4 Discrete2 Output State	Active
5	Port 5 Discrete2 Output State	Inactive
6	Port 6 Discrete2 Output State	Inactive
7	Port 7 Discrete2 Output State	Active
8	Port 8 Discrete2 Output State	Active

Parameters Set Using IO-Link

These parameters can be read from and/or written to an R95C-8B21-KQ 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	Sub-index	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		Standard Command		130 = Restore Factory Settings 162 = Start discovery 163 = Stop discovery		wo	
3		Data Storage Index (device-specific list of parameters to be stored)				rw	
4-11		*reserved by IO-Link Specification*					
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

Index	Sub-index	Name	Length	Value Range	Default	Access Rights	Data Storage?
16		Vendor Name string		Banner Engineering Corporation		ro	
17		Vendor Text string		More Sensors. More Solutions.		ro	
18		Product Name string		R95C		ro	
19		Product ID string				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 = Maintenance 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 (0.25 hr)	32-bit Integer	0..2147483647		ro	y
70		**Resettable Run Time**					
70	1	Run counter (0.25 hr)	32-bit Integer	0..2147483647	0	rw	
76		**Vendor Specific Configuration**					
76	1	Measurement 1 Metric Selection	8-bit Uinteger	0 = Disabled 1 = Count 2 = Duration 3 = Events per minute	1	rw	y
76	2	Measurement 1 Port Selection	8-bit Uinteger	0 = Port 1 1 = Port 2 2 = Port 3 3 = Port 4 4 = Port 5 5 = Port 6 6 = Port 7 7 = Port 8	0	rw	y
76	3	Measurement 1 Channel Selection	8-bit Uinteger	0 = Discrete1, 1 = Discrete2	0	rw	y
76	4	Measurement 2 Metric Selection	8-bit Uinteger	0 = Disabled 1 = Count 2 = Duration 3 = Events per minute	3	rw	y
76	5	Measurement 2 Port Selection	8-bit Uinteger	0 = Port 1 1 = Port 2 2 = Port 3 3 = Port 4 4 = Port 5 5 = Port 6 6 = Port 7 7 = Port 8	0	rw	y
76	6	Measurement 2 Channel Selection	8-bit Uinteger	0 = Discrete1, 1 = Discrete2	0	rw	y
76	7	Measurement 3 Metric Selection	8-bit Uinteger	0 = Disabled 1 = Count 2 = Duration 3 = Events per minute	1	rw	y

Index	Sub-index	Name	Length	Value Range	Default	Access Rights	Data Storage?
76	8	Measurement 3 Port Selection	8-bit Uinteger	0 = Port 1 1 = Port 2 2 = Port 3 3 = Port 4 4 = Port 5 5 = Port 6 6 = Port 7 7 = Port 8	0	rw	y
76	9	Measurement 3 Channel Selection	8-bit Uinteger	0 = Discrete1, 1 = Discrete2	1	rw	y
76	10	Measurement 4 Metric Selection	8-bit Uinteger	0 = Disabled 1 = Count 2 = Duration 3 = Events per minute	3	rw	y
76	11	Measurement 4 Port Selection	8-bit Uinteger	0 = Port 1 1 = Port 2 2 = Port 3 3 = Port 4 4 = Port 5 5 = Port 6 6 = Port 7 7 = Port 8	0	rw	y
76	12	Measurement 4 Channel Selection	8-bit Uinteger	0 = Discrete1, 1 = Discrete2	1	rw	y
78		**All-Time Run Time Event Time**					
78	1	Event Time (0.25 hr)	32-bit Integer	0..2147483647	0	rw	y
79		**Resettable Run Time Event Time**					
79	1	Event Time (0.25 hr)	32-bit Integer	0..2147483647	0	rw	y
80		**IO Metrics Port 1 to Port 4**					
80	1	Port 1 Discrete1 Count	32-bit Integer	0..2147483647		ro	
80	2	Port 1 Discrete1 Duration	32-bit Integer	0..2147483647, 50 µS resolution		ro	
80	3	Port 1 Discrete1 Events per Minute	32-bit Integer	1..30000		ro	
80	4	Port 1 Discrete1 Totalizer Counter	32-bit Integer	0..2147483647		ro	
80	5	Port 1 Discrete2 Count	32-bit Integer	0..2147483647		ro	
80	6	Port 1 Discrete2 Duration	32-bit Integer	0..2147483647, 50 µS resolution		ro	
80	7	Port 1 Discrete2 Events per Minute	32-bit Integer	1..30000		ro	
80	8	Port 1 Discrete2 Totalizer Counter	32-bit Integer	0..2147483647		ro	
80	9	Port 2 Discrete1 Count	32-bit Integer	0..2147483647		ro	
80	10	Port 2 Discrete1 Duration	32-bit Integer	0..2147483647, 50 µS resolution		ro	
80	11	Port 2 Discrete1 Events per Minute	32-bit Integer	1..30000		ro	
80	12	Port 2 Discrete1 Totalizer Counter	32-bit Integer	0..2147483647		ro	
80	13	Port 2 Discrete2 Count	32-bit Integer	0..2147483647		ro	
80	14	Port 2 Discrete2 Duration	32-bit Integer	0..2147483647, 50 µS resolution		ro	
80	15	Port 2 Discrete2 Events per Minute	32-bit Integer	1..30000		ro	
80	16	Port 2 Discrete2 Totalizer Counter	32-bit Integer	0..2147483647		ro	
80	17	Port 3 Discrete1 Count	32-bit Integer	0..2147483647		ro	
80	18	Port 3 Discrete1 Duration	32-bit Integer	0..2147483647, 50 µS resolution		ro	
80	19	Port 3 Discrete1 Events per Minute	32-bit Integer	1..30000		ro	
80	20	Port 3 Discrete1 Totalizer Counter	32-bit Integer	0..2147483647		ro	
80	21	Port 3 Discrete2 Count	32-bit Integer	0..2147483647		ro	
80	22	Port 3 Discrete2 Duration	32-bit Integer	0..2147483647, 50 µS resolution		ro	
80	23	Port 3 Discrete2 Events per Minute	32-bit Integer	1..30000		ro	
80	24	Port 3 Discrete2 Totalizer Counter	32-bit Integer	0..2147483647		ro	
80	25	Port 4 Discrete1 Count	32-bit Integer	0..2147483647		ro	
80	26	Port 4 Discrete1 Duration	32-bit Integer	0..2147483647, 50 µS resolution		ro	
80	27	Port 4 Discrete1 Events per Minute	32-bit Integer	1..30000		ro	

Index	Sub-index	Name	Length	Value Range	Default	Access Rights	Data Storage?
80	28	Port 4 Discrete1 Totalizer Counter	32-bit Integer	0..2147483647		ro	
80	29	Port 4 Discrete2 Count	32-bit Integer	0..2147483647		ro	
80	30	Port 4 Discrete2 Duration	32-bit Integer	0..2147483647, 50 µS resolution		ro	
80	31	Port 4 Discrete2 Events per Minute	32-bit Integer	1..30000		ro	
80	32	Port 4 Discrete2 Totalizer Counter	32-bit Integer	0..2147483647		ro	
81		**IO Metrics Port 5 to Port 8**					
81	1	Port 5 Discrete1 Count	32-bit Integer	0..2147483647		ro	
81	2	Port 5 Discrete1 Duration	32-bit Integer	0..2147483647, 50 µS resolution		ro	
81	3	Port 5 Discrete1 Events per Minute	32-bit Integer	1..30000		ro	
81	4	Port 5 Discrete1 Totalizer Counter	32-bit Integer	0..2147483647		ro	
81	5	Port 5 Discrete2 Count	32-bit Integer	0..2147483647		ro	
81	6	Port 5 Discrete2 Duration	32-bit Integer	0..2147483647, 50 µS resolution		ro	
81	7	Port 5 Discrete2 Events per Minute	32-bit Integer	1..30000		ro	
81	8	Port 5 Discrete2 Totalizer Counter	32-bit Integer	0..2147483647		ro	
81	9	Port 6 Discrete1 Count	32-bit Integer	0..2147483647		ro	
81	10	Port 6 Discrete1 Duration	32-bit Integer	0..2147483647, 50 µS resolution		ro	
81	11	Port 6 Discrete1 Events per Minute	32-bit Integer	1..30000		ro	
81	12	Port 6 Discrete1 Totalizer Counter	32-bit Integer	0..2147483647		ro	
81	13	Port 6 Discrete2 Count	32-bit Integer	0..2147483647		ro	
81	14	Port 6 Discrete2 Duration	32-bit Integer	0..2147483647, 50 µS resolution		ro	
81	15	Port 6 Discrete2 Events per Minute	32-bit Integer	1..30000		ro	
81	16	Port 6 Discrete2 Totalizer Counter	32-bit Integer	0..2147483647		ro	
81	17	Port 7 Discrete1 Count	32-bit Integer	0..2147483647		ro	
81	18	Port 7 Discrete1 Duration	32-bit Integer	0..2147483647, 50 µS resolution		ro	
81	19	Port 7 Discrete1 Events per Minute	32-bit Integer	1..30000		ro	
81	20	Port 7 Discrete1 Totalizer Counter	32-bit Integer	0..2147483647		ro	
81	21	Port 7 Discrete2 Count	32-bit Integer	0..2147483647		ro	
81	22	Port 7 Discrete2 Duration	32-bit Integer	0..2147483647, 50 µS resolution		ro	
81	23	Port 7 Discrete2 Events per Minute	32-bit Integer	1..30000		ro	
81	24	Port 7 Discrete2 Totalizer Counter	32-bit Integer	0..2147483647		ro	
81	25	Port 8 Discrete1 Count	32-bit Integer	0..2147483647		ro	
81	26	Port 8 Discrete1 Duration	32-bit Integer	0..2147483647, 50 µS resolution		ro	
81	27	Port 8 Discrete1 Events per Minute	32-bit Integer	1..30000		ro	
81	28	Port 8 Discrete1 Totalizer Counter	32-bit Integer	0..2147483647		ro	
81	29	Port 8 Discrete2 Count	32-bit Integer	0..2147483647		ro	
81	30	Port 8 Discrete2 Duration	32-bit Integer	0..2147483647, 50 µS resolution		ro	
81	31	Port 8 Discrete2 Events per Minute	32-bit Integer	1..30000		ro	
81	32	Port 8 Discrete2 Totalizer Counter	32-bit Integer	0..2147483647		ro	
82		**Selectable Metric Reset**					
82	1	Port 1 Discrete1	Boolean	False = Do not reset, True = Reset	False	rw	
82	2	Port 1 Discrete2	Boolean	False = Do not reset, True = Reset	False	rw	
82	3	Port 2 Discrete1	Boolean	False = Do not reset, True = Reset	False	rw	
82	4	Port 2 Discrete2	Boolean	False = Do not reset, True = Reset	False	rw	
82	5	Port 3 Discrete1	Boolean	False = Do not reset, True = Reset	False	rw	
82	6	Port 3 Discrete2	Boolean	False = Do not reset, True = Reset	False	rw	
82	7	Port 4 Discrete1	Boolean	False = Do not reset, True = Reset	False	rw	
82	8	Port 4 Discrete2	Boolean	False = Do not reset, True = Reset	False	rw	
82	9	Port 5 Discrete1	Boolean	False = Do not reset, True = Reset	False	rw	
82	10	Port 5 Discrete2	Boolean	False = Do not reset, True = Reset	False	rw	
82	11	Port 6 Discrete1	Boolean	False = Do not reset, True = Reset	False	rw	

Index	Sub-index	Name	Length	Value Range	Default	Access Rights	Data Storage?
82	12	Port 6 Discrete2	Boolean	False = Do not reset, True = Reset	False	rw	
82	13	Port 7 Discrete1	Boolean	False = Do not reset, True = Reset	False	rw	
82	14	Port 7 Discrete2	Boolean	False = Do not reset, True = Reset	False	rw	
82	15	Port 8 Discrete1	Boolean	False = Do not reset, True = Reset	False	rw	
82	16	Port 8 Discrete2	Boolean	False = Do not reset, True = Reset	False	rw	
82	17	Port 1 Discrete1 Reset Count	32-bit Integer	0..2147483647	0	rw	
82	18	Port 1 Discrete2 Reset Count	32-bit Integer	0..2147483647	0	rw	
82	19	Port 2 Discrete1 Reset Count	32-bit Integer	0..2147483647	0	rw	
82	20	Port 2 Discrete2 Reset Count	32-bit Integer	0..2147483647	0	rw	
82	21	Port 3 Discrete1 Reset Count	32-bit Integer	0..2147483647	0	rw	
82	22	Port 3 Discrete2 Reset Count	32-bit Integer	0..2147483647	0	rw	
82	23	Port 4 Discrete1 Reset Count	32-bit Integer	0..2147483647	0	rw	
82	24	Port 4 Discrete2 Reset Count	32-bit Integer	0..2147483647	0	rw	
82	25	Port 5 Discrete1 Reset Count	32-bit Integer	0..2147483647	0	rw	
82	26	Port 5 Discrete2 Reset Count	32-bit Integer	0..2147483647	0	rw	
82	27	Port 6 Discrete1 Reset Count	32-bit Integer	0..2147483647	0	rw	
82	28	Port 6 Discrete2 Reset Count	32-bit Integer	0..2147483647	0	rw	
82	29	Port 7 Discrete1 Reset Count	32-bit Integer	0..2147483647	0	rw	
82	30	Port 7 Discrete2 Reset Count	32-bit Integer	0..2147483647	0	rw	
82	31	Port 8 Discrete1 Reset Count	32-bit Integer	0..2147483647	0	rw	
82	32	Port 8 Discrete2 Reset Count	32-bit Integer	0..2147483647	0	rw	
87		**Port 1 Configuration**					
87	1	Discrete1 IO Selection	8-bit Uinteger	0 = NPN input, 1 = PNP Input	1	rw	y
87	2	Discrete1 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	0	rw	y
87	3	Discrete1 Delay Timer 1	32-bit Integer	0..2147483647 [Discrete1 On Delay, One-shot, Pulse-stretcher time (ms), or Totalizer Count]	0	rw	y
87	4	Discrete1 Delay Timer 2	32-bit Integer	0..2147483647 (Discrete1 Off Delay or Totalizer time) ms	0	rw	y
87	5	Discrete2 IO Selection	8-bit Uinteger	0 = NPN Input 1 = PNP Input 2 = NPN Output 3 = PNP Output 4 = NPN Output with Push Pull 5 = PNP Output with Push Pull	1	rw	y
87	6	Discrete2 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	0	rw	y
87	7	Discrete2 Delay Timer 1	32-bit Integer	0..2147483647 [Discrete2 On Delay, One-shot, Pulse-stretcher time (ms), or Totalizer Count)	0	rw	y
87	8	Discrete2 Delay Timer 2	32-bit Integer	0..2147483647 (Discrete2 Off Delay or Totalizer time) ms	0	rw	y
87	9	Mirroring Enable	8-bit Uinteger	0 = Disabled, 1 = Enabled	0	rw	y

Index	Sub-index	Name	Length	Value Range	Default	Access Rights	Data Storage?
87	10	Mirroring Port Selection	8-bit Uinteger	0 = Port 1 1 = Port 2 2 = Port 3 3 = Port 4 4 = Port 5 5 = Port 6 6 = Port 7 7 = Port 8	0	rw	y
87	11	Mirroring Channel Selection	8-bit Uinteger	0 = Discrete1, 1 = Discrete2	0	rw	y
87	12	Mirroring Inversion	8-bit Uinteger	0 = Not inverted, 1 = Inverted	0	rw	y
88		**Port 2 Configuration**					
88	1	Discrete1 IO Selection	8-bit Uinteger	0 = NPN input, 1 = PNP Input	1	rw	y
88	2	Discrete1 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	0	rw	y
88	3	Discrete1 Delay Timer 1	32-bit Integer	0..2147483647 [Discrete1 On Delay, One-shot, Pulse-stretcher time (ms), or Totalizer Count]	0	rw	y
88	4	Discrete1 Delay Timer 2	32-bit Integer	0..2147483647 (Discrete1 Off Delay or Totalizer time) ms	0	rw	y
88	5	Discrete2 IO Selection	8-bit Uinteger	0 = NPN Input 1 = PNP Input 2 = NPN Output 3 = PNP Output 4 = NPN Output with Push Pull 5 = PNP Output with Push Pull	1	rw	y
88	6	Discrete2 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	0	rw	y
88	7	Discrete2 Delay Timer 1	32-bit Integer	0..2147483647 [Discrete2 On Delay, One-shot, Pulse-stretcher time (ms), or Totalizer Count)	0	rw	y
88	8	Discrete2 Delay Timer 2	32-bit Integer	0..2147483647 (Discrete2 Off Delay or Totalizer time) ms	0	rw	y
88	9	Mirroring Enable	8-bit Uinteger	0 = Disabled, 1 = Enabled	0	rw	y
88	10	Mirroring Port Selection	8-bit Uinteger	0 = Port 1 1 = Port 2 2 = Port 3 3 = Port 4 4 = Port 5 5 = Port 6 6 = Port 7 7 = Port 8	0	rw	y
88	11	Mirroring Channel Selection	8-bit Uinteger	0 = Discrete1, 1 = Discrete2	0	rw	y
88	12	Mirroring Inversion	8-bit Uinteger	0 = Not inverted, 1 = Inverted	0	rw	y
89		**Port 3 Configuration**					
89	1	Discrete1 IO Selection	8-bit Uinteger	0 = NPN input, 1 = PNP Input	1	rw	y

Index	Sub-index	Name	Length	Value Range	Default	Access Rights	Data Storage?
89	2	Discrete1 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	0	rw	y
89	3	Discrete1 Delay Timer 1	32-bit Integer	0..2147483647 [Discrete1 On Delay, One-shot, Pulse-stretcher time (ms), or Totalizer Count]	0	rw	y
89	4	Discrete1 Delay Timer 2	32-bit Integer	0..2147483647 (Discrete1 Off Delay or Totalizer time) ms	0	rw	y
89	5	Discrete2 IO Selection	8-bit Uinteger	0 = NPN Input 1 = PNP Input 2 = NPN Output 3 = PNP Output 4 = NPN Output with Push Pull 5 = PNP Output with Push Pull	1	rw	y
89	6	Discrete2 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	0	rw	y
89	7	Discrete2 Delay Timer 1	32-bit Integer	0..2147483647 [Discrete2 On Delay, One-shot, Pulse-stretcher time (ms), or Totalizer Count)	0	rw	y
89	8	Discrete2 Delay Timer 2	32-bit Integer	0..2147483647 (Discrete2 Off Delay or Totalizer time) ms	0	rw	y
89	9	Mirroring Enable	8-bit Uinteger	0 = Disabled, 1 = Enabled	0	rw	y
89	10	Mirroring Port Selection	8-bit Uinteger	0 = Port 1 1 = Port 2 2 = Port 3 3 = Port 4 4 = Port 5 5 = Port 6 6 = Port 7 7 = Port 8	0	rw	y
89	11	Mirroring Channel Selection	8-bit Uinteger	0 = Discrete1, 1 = Discrete2	0	rw	y
89	12	Mirroring Inversion	8-bit Uinteger	0 = Not inverted, 1 = Inverted	0	rw	y
90		**Port 4 Configuration**					
90	1	Discrete1 IO Selection	8-bit Uinteger	0 = NPN input, 1 = PNP Input	1	rw	y
90	2	Discrete1 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	0	rw	y
90	3	Discrete1 Delay Timer 1	32-bit Integer	0..2147483647 [Discrete1 On Delay, One-shot, Pulse-stretcher time (ms), or Totalizer Count]	0	rw	y
90	4	Discrete1 Delay Timer 2	32-bit Integer	0..2147483647 (Discrete1 Off Delay or Totalizer time) ms	0	rw	y

Index	Sub-index	Name	Length	Value Range	Default	Access Rights	Data Storage?
90	5	Discrete2 IO Selection	8-bit Uinteger	0 = NPN Input 1 = PNP Input 2 = NPN Output 3 = PNP Output 4 = NPN Output with Push Pull 5 = PNP Output with Push Pull	1	rw	y
90	6	Discrete2 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	0	rw	y
90	7	Discrete2 Delay Timer 1	32-bit Integer	0..2147483647 [Discrete2 On Delay, One-shot, Pulse-stretcher time (ms), or Totalizer Count)	0	rw	y
90	8	Discrete2 Delay Timer 2	32-bit Integer	0..2147483647 (Discrete2 Off Delay or Totalizer time) ms	0	rw	y
90	9	Mirroring Enable	8-bit Uinteger	0 = Disabled, 1 = Enabled	0	rw	y
90	10	Mirroring Port Selection	8-bit Uinteger	0 = Port 1 1 = Port 2 2 = Port 3 3 = Port 4 4 = Port 5 5 = Port 6 6 = Port 7 7 = Port 8	0	rw	y
90	11	Mirroring Channel Selection	8-bit Uinteger	0 = Discrete1, 1 = Discrete2	0	rw	y
90	12	Mirroring Inversion	8-bit Uinteger	0 = Not inverted, 1 = Inverted	0	rw	y
91		**Port 5 Configuration**					
91	1	Discrete1 IO Selection	8-bit Uinteger	0 = NPN input, 1 = PNP Input	1	rw	y
91	2	Discrete1 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	0	rw	y
91	3	Discrete1 Delay Timer 1	32-bit Integer	0..2147483647 [Discrete1 On Delay, One-shot, Pulse-stretcher time (ms), or Totalizer Count]	0	rw	y
91	4	Discrete1 Delay Timer 2	32-bit Integer	0..2147483647 (Discrete1 Off Delay or Totalizer time) ms	0	rw	y
91	5	Discrete2 IO Selection	8-bit Uinteger	0 = NPN Input 1 = PNP Input 2 = NPN Output 3 = PNP Output 4 = NPN Output with Push Pull 5 = PNP Output with Push Pull	1	rw	y
91	6	Discrete2 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	0	rw	y
91	7	Discrete2 Delay Timer 1	32-bit Integer	0..2147483647 [Discrete2 On Delay, One-shot, Pulse-stretcher time (ms), or Totalizer Count)	0	rw	y

Index	Sub-index	Name	Length	Value Range	Default	Access Rights	Data Storage?
91	8	Discrete2 Delay Timer 2	32-bit Integer	0..2147483647 (Discrete2 Off Delay or Totalizer time) ms	0	rw	y
91	9	Mirroring Enable	8-bit Uinteger	0 = Disabled, 1 = Enabled	0	rw	y
91	10	Mirroring Port Selection	8-bit Uinteger	0 = Port 1 1 = Port 2 2 = Port 3 3 = Port 4 4 = Port 5 5 = Port 6 6 = Port 7 7 = Port 8	0	rw	y
91	11	Mirroring Channel Selection	8-bit Uinteger	0 = Discrete1, 1 = Discrete2	0	rw	y
91	12	Mirroring Inversion	8-bit Uinteger	0 = Not inverted, 1 = Inverted	0	rw	y
92		**Port 6 Configuration**					
92	1	Discrete1 IO Selection	8-bit Uinteger	0 = NPN input, 1 = PNP Input	1	rw	y
92	2	Discrete1 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	0	rw	y
92	3	Discrete1 Delay Timer 1	32-bit Integer	0..2147483647 [Discrete1 On Delay, One-shot, Pulse-stretcher time (ms), or Totalizer Count]	0	rw	y
92	4	Discrete1 Delay Timer 2	32-bit Integer	0..2147483647 (Discrete1 Off Delay or Totalizer time) ms	0	rw	y
92	5	Discrete2 IO Selection	8-bit Uinteger	0 = NPN Input 1 = PNP Input 2 = NPN Output 3 = PNP Output 4 = NPN Output with Push Pull 5 = PNP Output with Push Pull	1	rw	y
92	6	Discrete2 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	0	rw	y
92	7	Discrete2 Delay Timer 1	32-bit Integer	0..2147483647 [Discrete2 On Delay, One-shot, Pulse-stretcher time (ms), or Totalizer Count)	0	rw	y
92	8	Discrete2 Delay Timer 2	32-bit Integer	0..2147483647 (Discrete2 Off Delay or Totalizer time) ms	0	rw	y
92	9	Mirroring Enable	8-bit Uinteger	0 = Disabled, 1 = Enabled	0	rw	y
92	10	Mirroring Port Selection	8-bit Uinteger	0 = Port 1 1 = Port 2 2 = Port 3 3 = Port 4 4 = Port 5 5 = Port 6 6 = Port 7 7 = Port 8	0	rw	y
92	11	Mirroring Channel Selection	8-bit Uinteger	0 = Discrete1, 1 = Discrete2	0	rw	y
92	12	Mirroring Inversion	8-bit Uinteger	0 = Not inverted, 1 = Inverted	0	rw	y
93		**Port 7 Configuration**					
93	1	Discrete1 IO Selection	8-bit Uinteger	0 = NPN input, 1 = PNP Input	1	rw	y

Index	Sub-index	Name	Length	Value Range	Default	Access Rights	Data Storage?
93	2	Discrete1 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	0	rw	y
93	3	Discrete1 Delay Timer 1	32-bit Integer	0..2147483647 [Discrete1 On Delay, One-shot, Pulse-stretcher time (ms), or Totalizer Count]	0	rw	y
93	4	Discrete1 Delay Timer 2	32-bit Integer	0..2147483647 (Discrete1 Off Delay or Totalizer time) ms	0	rw	y
93	5	Discrete2 IO Selection	8-bit Uinteger	0 = NPN Input 1 = PNP Input 2 = NPN Output 3 = PNP Output 4 = NPN Output with Push Pull 5 = PNP Output with Push Pull	1	rw	y
93	6	Discrete2 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	0	rw	y
93	7	Discrete2 Delay Timer 1	32-bit Integer	0..2147483647 [Discrete2 On Delay, One-shot, Pulse-stretcher time (ms), or Totalizer Count)	0	rw	y
93	8	Discrete2 Delay Timer 2	32-bit Integer	0..2147483647 (Discrete2 Off Delay or Totalizer time) ms	0	rw	y
93	9	Mirroring Enable	8-bit Uinteger	0 = Disabled, 1 = Enabled	0	rw	y
93	10	Mirroring Port Selection	8-bit Uinteger	0 = Port 1 1 = Port 2 2 = Port 3 3 = Port 4 4 = Port 5 5 = Port 6 6 = Port 7 7 = Port 8	0	rw	y
93	11	Mirroring Channel Selection	8-bit Uinteger	0 = Discrete1, 1 = Discrete2	0	rw	y
93	12	Mirroring Inversion	8-bit Uinteger	0 = Not inverted, 1 = Inverted	0	rw	y
94		**Port 8 Configuration**					
94	1	Discrete1 IO Selection	8-bit Uinteger	0 = NPN input, 1 = PNP Input	1	rw	y
94	2	Discrete1 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	0	rw	y
94	3	Discrete1 Delay Timer 1	32-bit Integer	0..2147483647 [Discrete1 On Delay, One-shot, Pulse-stretcher time (ms), or Totalizer Count]	0	rw	y
94	4	Discrete1 Delay Timer 2	32-bit Integer	0..2147483647 (Discrete1 Off Delay or Totalizer time) ms	0	rw	y

Index	Sub-index	Name	Length	Value Range	Default	Access Rights	Data Storage?
94	5	Discrete2 IO Selection	8-bit Uinteger	0 = NPN Input 1 = PNP Input 2 = NPN Output 3 = PNP Output 4 = NPN Output with Push Pull 5 = PNP Output with Push Pull	1	rw	y
94	6	Discrete2 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	0	rw	y
94	7	Discrete2 Delay Timer 1	32-bit Integer	0..2147483647 [Discrete2 On Delay, One-shot, Pulse-stretcher time (ms), or Totalizer Count)	0	rw	y
94	8	Discrete2 Delay Timer 2	32-bit Integer	0..2147483647 (Discrete2 Off Delay or Totalizer time) ms	0	rw	y
94	9	Mirroring Enable	8-bit Uinteger	0 = Disabled, 1 = Enabled	0	rw	y
94	10	Mirroring Port Selection	8-bit Uinteger	0 = Port 1 1 = Port 2 2 = Port 3 3 = Port 4 4 = Port 5 5 = Port 6 6 = Port 7 7 = Port 8	0	rw	y
94	11	Mirroring Channel Selection	8-bit Uinteger	0 = Discrete1, 1 = Discrete2	0	rw	y
94	12	Mirroring Inversion	8-bit Uinteger	0 = Not inverted, 1 = Inverted	0	rw	y
95		**Discrete Host Out Mirroring Configuration**					
95	1	Mirroring Enable	8-bit Uinteger	0 = Disabled, 1 = Enabled	0	rw	y
95	2	Mirroring Port Selection	8-bit Uinteger	0 = Port 1 1 = Port 2 2 = Port 3 3 = Port 4 4 = Port 5 5 = Port 6 6 = Port 7 7 = Port 8	0	rw	y
95	3	Mirroring Channel Selection	8-bit Uinteger	0 = Discrete1, 1 = Discrete2	0	rw	y
95	4	Mirroring Inversion	8-bit Uinteger	0 = Not inverted, 1 = Inverted	0	rw	y
95	5	Mirroring Polarity	8-bit Uinteger	0 = NPN Output, 1 = PNP Output	1	rw	y
95	6	Mirroring Output Type	8-bit Uinteger	0 = Output with Internal Pull Up/Down 1 = Output Open Collector 1 = Output Push/Pull	0	rw	y

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 data sheet 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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