R95C 8-Port 2-Channel Discrete and Analog In-Out IO-Link Hub: IO-Link Data Reference Guide

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Communication Parameters 3

Chapter 1 IO-Link Data Map

This document refers to the following IODD file: Banner_Engineering-R95C-4B4UI-KQ-20231201-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	232-bits
Process Data Out length	72-bits
Bit Rate	38400 bps
Minimum cycle time	13 ms
Device ID	0x0A1011
Port class	A
SIO mode	No
Smart Sensor Profile	No
Block parameterization	Yes
Data Storage	Yes

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Chapter 2 IO-Link Process Data In (Device to Master)

Two discrete inputs and two analog modes are supported.

Discrete Inputs: Even if Discrete 1 and/or Discrete 2 are configured as outputs, the active state is still reflected at the input.

NOTE: Discrete Measurements are based upon Measurement 1..4 choices.

Analog Modes: The voltage mode is presented in mV and the current mode is presented in µA.

- If the mode of Analog In = Voltage, then the Process Data Input = Value × 0.001 V.
- If the mode of Analog In = Current, then the Process Data Input = Value × 0.000001 A.

Process Data Input Configuration = Analog Data

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
3	Port 2 Discrete1 Input State	1	False = Inactive, True = Active
4	Port 2 Discrete2 Input State	1	False = Inactive, True = Active
5	Port 3 Discrete1 Input State	1	False = Inactive, True = Active
6	Port 3 Discrete2 Input State	1	False = Inactive, True = Active
7	Port 4 Discrete1 Input State	1	False = Inactive, True = Active
8	Port 4 Discrete2 Input State	1	False = Inactive, True = Active

Subindex	Name	Number of Bits	Data Values
9	Discrete Measurement 1	32	0..4294967295
10	Discrete Measurement 2	32	0..4294967295
11	Discrete Measurement 3	32	0..4294967295
12	Discrete Measurement 4	32	0..4294967295

Subindex	Name	Number of Bits	Data Values
13	Measurement Value - Analog In 1	24	The measurement device value on Port 5
14	Measurement Value - Analog In 2	24	The measurement device value on Port 6
15	Measurement Value - Analog In 3	24	The measurement device value on Port 7
16	Measurement Value - Analog In 4	24	The measurement device value on Port 8

Octet 1								
Subindex	16	16	16	16	16	16	16	16

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Octet 1								
Bit offset	231	230	229	228	227	226	225	224
Value	0	0	0	0	0	0	0	0

Octet 2								
Subindex	16	16	16	16	16	16	16	16
Bit offset	223	222	221	220	219	218	217	216
Value	0	0	1	0	1	1	1	0

Octet 3								
Subindex	16	16	16	16	16	16	16	16
Bit offset	215	214	213	212	211	210	209	208
Value	1	1	1	0	0	0	0	0

Octet 4								
Subindex	15	15	15	15	15	15	15	15
Bit offset	207	206	205	204	203	202	201	200
Value	0	0	0	0	0	0	0	0

Octet 5								
Subindex	15	15	15	15	15	15	15	15
Bit offset	199	198	197	196	195	194	193	192
Value	0	0	1	0	1	0	1	0

Octet 6								
Subindex	15	15	15	15	15	15	15	15
Bit offset	191	190	189	188	187	186	185	184
Value	1	1	1	1	1	0	0	0

Octet 7								
Subindex	14	14	14	14	14	14	14	14
Bit offset	183	182	181	180	179	178	177	176
Value	0	0	0	0	0	0	0	0

Octet 8								
Subindex	14	14	14	14	14	14	14	14
Bit offset	175	174	173	172	171	170	169	168
Value	0	0	1	0	0	1	1	1

Octet 9								
Subindex	14	14	14	14	14	14	14	14
Bit offset	167	166	165	164	163	162	161	160
Value	0	0	0	1	0	0	0	0

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Octet 10								
Subindex	13	13	13	13	13	13	13	13
Bit offset	159	158	157	156	155	154	153	152
Value	0	0	0	0	0	0	0	0

Octet 11								
Subindex	13	13	13	13	13	13	13	13
Bit offset	151	150	149	148	147	146	145	144
Value	0	0	0	1	0	0	1	1

Octet 12								
Subindex	13	13	13	13	13	13	13	13
Bit offset	143	142	141	140	139	138	137	136
Value	1	0	0	0	1	0	0	0

Octet 13								
Subindex	12	12	12	12	12	12	12	12
Bit offset	135	134	133	132	131	130	129	128
Value	0	0	0	0	0	0	0	0

Octet 14								
Subindex	12	12	12	12	12	12	12	12
Bit offset	127	126	125	124	123	122	121	120
Value	0	0	0	0	0	0	0	1

Octet 15								
Subindex	12	12	12	12	12	12	12	12
Bit offset	119	118	117	116	115	114	113	112
Value	0	1	0	1	0	1	1	1

Octet 16								
Subindex	12	12	12	12	12	12	12	12
Bit offset	111	110	109	108	107	106	105	104
Value	1	1	0	0	0	0	0	1

Octet 17								
Subindex	11	11	11	11	11	11	11	11
Bit offset	103	102	101	100	99	98	97	96
Value	0	0	0	0	0	0	0	0

Octet 18								
Subindex	11	11	11	11	11	11	11	11
Bit offset	95	94	93	92	91	90	89	88
Value	0	0	0	0	0	0	0	1

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Octet 19								
Subindex	11	11	11	11	11	11	11	11
Bit offset	87	86	85	84	83	82	81	80
Value	0	0	0	1	1	1	1	1

Octet 20								
Subindex	11	11	11	11	11	11	11	11
Bit offset	79	78	77	76	75	74	73	72
Value	0	1	0	0	0	0	0	0

Octet 21								
Subindex	10	10	10	10	10	10	10	10
Bit offset	71	70	69	68	67	66	65	64
Value	0	0	0	0	0	0	0	0

Octet 22								
Subindex	10	10	10	10	10	10	10	10
Bit offset	63	62	61	60	59	58	57	56
Value	0	0	0	0	0	0	0	1

Octet 23								
Subindex	10	10	10	10	10	10	10	10
Bit offset	55	54	53	52	51	50	49	48
Value	0	0	0	1	0	1	1	1

Octet 24								
Subindex	10	10	10	10	10	10	10	10
Bit offset	47	46	45	44	43	42	41	40
Value	0	1	1	1	0	0	0	0

Octet 25								
Subindex	9	9	9	9	9	9	9	9
Bit offset	39	38	37	36	35	34	33	32
Value	0	0	0	0	0	0	0	0

Octet 26								
Subindex	9	9	9	9	9	9	9	9
Bit offset	31	30	29	28	27	26	25	24
Value	0	0	0	0	0	0	0	0

Octet 27								
Subindex	9	9	9	9	9	9	9	9
Bit offset	23	22	21	20	19	18	17	16
Value	0	0	0	0	1	1	1	1

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Octet 28								
Subindex	9	9	9	9	9	9	9	9
Bit offset	15	14	13	12	11	10	9	8
Value	1	0	1	0	0	0	0	0

Octet 29								
Subindex	8	7	6	5	4	3	2	1
Bit offset	7	6	5	4	3	2	1	0
Value	1	1	1	1	1	1	1	0

Example Based Upon the Value Above

Subindex	Description	Value
16	Analog In 4 - Port 8	12000
15	Analog In 3 - Port 7	11000
14	Analog In 2 - Port 6	10000
13	Analog In 1 - Port 5	5000
12	Measurement 4 - Port 4	88000
11	Measurement 3 - Port 3	8000
10	Measurement 2 - Port 2	6000
9	Measurement 1 - Port 1	4000
8	Port 4 Discrete2 Input State	Active
7	Port 4 Discrete1 Input State	Active
6	Port 3 Discrete2 Input State	Active
5	Port 3 Discrete1 Input State	Active
4	Port 2 Discrete2 Input State	Active
3	Port 2 Discrete1 Input State	Active
2	Port 1 Discrete2 Input State	Active
1	Port 1 Discrete1 Input State	Inactive

Process Data Input Configuration = Digital Measuring Sensor

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
3	Port 2 Discrete1 Input State	1	False = Inactive, True = Active
4	Port 2 Discrete2 Input State	1	False = Inactive, True = Active
5	Port 3 Discrete1 Input State	1	False = Inactive, True = Active
6	Port 3 Discrete2 Input State	1	False = Inactive, True = Active
7	Port 4 Discrete1 Input State	1	False = Inactive, True = Active
8	Port 4 Discrete2 Input State	1	False = Inactive, True = Active

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Subindex	Name	Number of Bits	Data Values
9	Discrete Measurement 1	32	0..4294967295
10	Discrete Measurement 2	32	0..4294967295
11	Discrete Measurement 3	32	0..4294967295
12	Discrete Measurement 4	32	0..4294967295

Subindex	Name	Number of Bits	Data Values
13	Measurement Value - Analog In 1	16	The measurement device value
14	Measurement Scale - Analog In 1	7	The measurement device scale: -3 for voltage and -6 for current
15	SSC1.1 - Switching Signal	1	Indicates the detection status of an object/measurement value within a window
16	Measurement Value - Analog In 2	16	The measurement device value
17	Measurement Scale - Analog In 2	7	The measurement device scale: -3 for voltage and -6 for current
18	SSC2.1 - Switching Signal	1	Indicates the detection status of an object/measurement value within a window
19	Measurement Value - Analog In 3	16	The measurement device value
20	Measurement Scale - Analog In 3	7	The measurement device scale: -3 for voltage and -6 for current
21	SSC3.1 - Switching Signal	1	Indicates the detection status of an object/measurement value within a window
22	Measurement Value - Analog In 4	16	The measurement device value
23	Measurement Scale - Analog In 4	7	The measurement device scale: -3 for voltage and -6 for current
24	SSC4.1 - Switching Signal	1	Indicates the detection status of an object/measurement value within a window

Octet 1								
Subindex	24	23	23	23	23	23	23	23
Bit offset	231	230	229	228	227	226	225	224
Value	1	1	1	1	1	1	0	1

Octet 2								
Subindex	22	22	22	22	22	22	22	22
Bit offset	223	222	221	220	219	218	217	216
Value	1	1	1	1	1	1	0	1

Octet 3								
Subindex	22	22	22	22	22	22	22	22
Bit offset	215	214	213	212	211	210	209	208
Value	0	0	0	0	0	0	0	1

Octet 4								
Subindex	21	20	20	20	20	20	20	20
Bit offset	207	206	205	204	203	202	201	200

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Octet 4								
Value	1	1	1	1	1	1	0	1

Octet 5								
Subindex	19	19	19	19	19	19	19	19
Bit offset	199	198	197	196	195	194	193	192
Value	1	1	1	1	1	1	0	1

Octet 6								
Subindex	19	19	19	19	19	19	19	19
Bit offset	191	190	189	188	187	186	185	184
Value	0	0	0	0	0	0	0	1

Octet 7								
Subindex	18	17	17	17	17	17	17	17
Bit offset	183	182	181	180	179	178	177	176
Value	1	1	1	1	1	1	0	1

Octet 8								
Subindex	16	16	16	16	16	16	16	16
Bit offset	175	174	173	172	171	170	169	168
Value	1	1	1	1	1	1	0	1

Octet 9								
Subindex	16	16	16	16	16	16	16	16
Bit offset	167	166	165	164	163	162	161	160
Value	0	0	0	0	0	0	0	1

Octet 10								
Subindex	15	14	14	14	14	14	14	14
Bit offset	159	158	157	156	155	154	153	152
Value	1	1	1	1	1	1	0	1

Octet 11								
Subindex	13	13	13	13	13	13	13	13
Bit offset	151	150	149	148	147	146	145	144
Value	1	1	1	1	1	1	0	1

Octet 12								
Subindex	13	13	13	13	13	13	13	13
Bit offset	143	142	141	140	139	138	137	136
Value	0	0	0	0	0	0	0	1

Octet 13								
Subindex	12	12	12	12	12	12	12	12

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Octet 13								
Bit offset	135	134	133	132	131	130	129	128
Value	0	0	0	0	0	0	0	0

Octet 14								
Subindex	12	12	12	12	12	12	12	12
Bit offset	127	126	125	124	123	122	121	120
Value	0	0	0	0	0	0	0	1

Octet 15								
Subindex	12	12	12	12	12	12	12	12
Bit offset	119	118	117	116	115	114	113	112
Value	0	1	0	1	0	1	1	1

Octet 16								
Subindex	12	12	12	12	12	12	12	12
Bit offset	111	110	109	108	107	106	105	104
Value	1	1	0	0	0	0	0	0

Octet 17								
Subindex	11	11	11	11	11	11	11	11
Bit offset	103	102	101	100	99	98	97	96
Value	0	0	0	0	0	0	0	0

Octet 18								
Subindex	11	11	11	11	11	11	11	11
Bit offset	95	94	93	92	91	90	89	88
Value	0	0	0	0	0	0	0	1

Octet 19								
Subindex	11	11	11	11	11	11	11	11
Bit offset	87	86	85	84	83	82	81	80
Value	0	0	0	1	1	1	1	1

Octet 20								
Subindex	11	11	11	11	11	11	11	11
Bit offset	79	78	77	76	75	74	73	72
Value	0	1	0	0	0	0	0	0

Octet 21								
Subindex	10	10	10	10	10	10	10	10
Bit offset	71	70	69	68	67	66	65	64
Value	0	0	0	0	0	0	0	0

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Octet 22								
Subindex	10	10	10	10	10	10	10	10
Bit offset	63	62	61	60	59	58	57	56
Value	0	0	0	0	0	0	0	1

Octet 23								
Subindex	10	10	10	10	10	10	10	10
Bit offset	55	54	53	52	51	50	49	48
Value	0	0	0	1	0	1	1	1

Octet 24								
Subindex	10	10	10	10	10	10	10	10
Bit offset	47	46	45	44	43	42	41	40
Value	0	1	1	1	0	0	0	0

Octet 25								
Subindex	9	9	9	9	9	9	9	9
Bit offset	39	38	37	36	35	34	33	32
Value	0	0	0	0	0	0	0	0

Octet 26								
Subindex	9	9	9	9	9	9	9	9
Bit offset	31	30	29	28	27	26	25	24
Value	0	0	0	0	0	0	0	0

Octet 27								
Subindex	9	9	9	9	9	9	9	9
Bit offset	23	22	21	20	19	18	17	16
Value	0	0	0	0	1	1	1	1

Octet 28								
Subindex	9	9	9	9	9	9	9	9
Bit offset	15	14	13	12	11	10	9	8
Value	1	0	1	0	0	0	0	0

Octet 29								
Subindex	8	7	6	5	4	3	2	1
Bit offset	7	6	5	4	3	2	1	0
Value	1	1	1	1	1	1	1	0

Example Based Upon the Value Above

Subindex	Description	Value
28	SSC4.1 - Switching Signal	TRUE
26	Measurement Scale - Analog In 4	-3

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Subindex	Description	Value
25	Measurement Value - Analog In 4	509
24	SSC3.1 - Switching Signal	TRUE
22	Measurement Scale - Analog In 3	-3
21	Measurement Value - Analog In 3	509
20	SSC2.1 - Switching Signal	TRUE
18	Measurement Scale - Analog In 2	-3
17	Measurement Value - Analog In 2	509
16	SSC1.1 - Switching Signal	TRUE
14	Measurement Scale - Analog In 1	-3
13	Measurement Value - Analog In 1	509
12	Measurement 4 - Port 4	88000
11	Measurement 3 - Port 3	8000
10	Measurement 2 - Port 2	6000
9	Measurement 1 - Port 1	4000
8	Port 4 Discrete2 Input State	Active
7	Port 4 Discrete1 Input State	Active
6	Port 3 Discrete2 Input State	Active
5	Port 3 Discrete1 Input State	Active
4	Port 2 Discrete2 Input State	Active
3	Port 2 Discrete1 Input State	Active
2	Port 1 Discrete2 Input State	Active
1	Port 1 Discrete1 Input State	Inactive

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Process Data Output 14

Chapter 3 IO-Link Process Data Out (Master to Device)

Discrete Outputs: Discrete 1 and Discrete 2 output settings are reflected in PDI.

Analog Modes:

- If the mode is Voltage, then enter the mV value.
- If the mode is Current, then enter the µA value.

Process Data Output

Subindex	Name	Number of Bits	Data Values
1	Port 1 Discrete1 Output State	1	False = Off/Inactive, True = On/Active
2	Port 1 Discrete2 Output State	1	False = Off/Inactive, True = On/Active
3	Port 2 Discrete1 Output State	1	False = Off/Inactive, True = On/Active
4	Port 2 Discrete2 Output State	1	False = Off/Inactive, True = On/Active
5	Port 3 Discrete1 Output State	1	False = Off/Inactive, True = On/Active
6	Port 3 Discrete2 Output State	1	False = Off/Inactive, True = On/Active
7	Port 4 Discrete1 Output State	1	False = Off/Inactive, True = On/Active
8	Port 4 Discrete2 Output State	1	False = Off/Inactive, True = On/Active

Subindex	Name	Number of Bits	Data Values
9	Analog Out Value 1	16	The value to output to the analog output on Port 5
10	Analog Out Value 2	16	The value to output to the analog output on Port 6
11	Analog Out Value 3	16	The value to output to the analog output on Port 7
12	Analog Out Value 4	16	The value to output to the analog output on Port 8

Octet 0								
Subindex	1	2	3	4	5	6	7	8
Bit offset	71	70	69	68	67	66	65	64

Octet 1								
Subindex	9	9	9	9	9	9	9	9
Bit offset	63	62	61	60	59	58	57	56

Octet 2								
Subindex	9	9	9	9	9	9	9	9
Bit offset	55	54	53	52	51	50	49	48

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Octet 3								
Subindex	10	10	10	10	10	10	10	10
Bit offset	47	46	45	44	43	42	41	40

Octet 4								
Subindex	10	10	10	10	10	10	10	10
Bit offset	39	38	37	36	35	34	32	31

Octet 5								
Subindex	11	11	11	11	11	11	11	11
Bit offset	31	30	29	28	27	26	25	24

Octet 6								
Subindex	11	11	11	11	11	11	11	11
Bit offset	23	22	21	20	19	18	17	16

Octet 7								
Subindex	12	12	12	12	12	12	12	12
Bit offset	15	14	13	12	11	10	9	8

Octet 8								
Subindex	12	12	12	12	12	12	12	12
Bit offset	7	6	5	4	3	2	1	0

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Chapter 4 Parameters Set Using IO-Link

These parameters can be read from and/or written to an R95C 8-Port 2-Channel Discrete and Analog In/Out 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?	Comments
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	
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		R95C-4B4UI-KQ		RO		
20		Product Text String				RO		

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Index	Subindex	Name	Length	Value Range	Default	Access Rights	Data Storage?	Comments
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		
64		**Port 5 - Analog Out Mirroring Configuration**						
64	1	Mirroring Output Enable	8-bit Uinteger	0 = Disable, 1 = Enabled	0	RW	Y	If mirroring is enabled, PDO value is ignored.
64	2	Mirroring Input Port Selection	8-bit Uinteger	0 = Port 5 1 = Port 6 2 = Port 7 3 = Port 8	0	RW	Y	
65		**Port 6 - Analog Out Mirroring Configuration**						
65	1	Mirroring Output Enable	8-bit Uinteger	0 = Disable, 1 = Enabled	0	RW	Y	If mirroring is enabled, PDO value is ignored.
65	2	Mirroring Input Port Selection	8-bit Uinteger	0 = Port 5 1 = Port 6 2 = Port 7 3 = Port 8	0	RW	Y	
66		**Port 7 - Analog Out Mirroring Configuration**						
66	1	Mirroring Output Enable	8-bit Uinteger	0 = Disable, 1 = Enabled	0	RW	Y	If mirroring is enabled, PDO value is ignored.

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Index	Subindex	Name	Length	Value Range	Default	Access Rights	Data Storage?	Comments
66	2	Mirroring Input Port Selection	8-bit Uinteger	0 = Port 5 1 = Port 6 2 = Port 7 3 = Port 8	0	RW	Y	
67		**Port 8 - Analog Out Mirroring Configuration**						
67	1	Mirroring Output Enable	8-bit Uinteger	0 = Disable, 1 = Enabled	0	RW	Y	If mirroring is enabled, PDO value is ignored.
67	2	Mirroring Input Port Selection	8-bit Uinteger	0 = Port 5 1 = Port 6 2 = Port 7 3 = Port 8	0	RW	Y	
69		**All-Time Run**						
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	RO		
76		**Vendor Specific Configuration**						
76	1	Process Data Input Configuration	8-bit Uinteger	0 = Analog Value, 1 = Digital Measuring Sensor	0	RW	Y	
76	2	Measurement 1 Metric Selection	8-bit Uinteger	0 = Disabled 1 = Count 2 = Duration 3 = Events per Minute	1	RW	Y	
76	3	Measurement 1 Port Selection	8-bit Uinteger	0 = Port 1 1 = Port 2 2 = Port 3 3 = Port 4	0	RW	Y	
76	4	Measurement 1 Channel Selection	8-bit Uinteger	0 = Discrete1, 1 = Discrete2	0	RW	Y	
76	5	Measurement 2 Metric Selection	8-bit Uinteger	0 = Disabled 1 = Count 2 = Duration 3 = Events per Minute	3	RW	Y	
76	6	Measurement 2 Port Selection	8-bit Uinteger	0 = Port 1 1 = Port 2 2 = Port 3 3 = Port 4	0	RW	Y	

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76	7	Measurement 2 Channel Selection	8-bit Uinteger	0 = Discrete1, 1 = Discrete2	0	RW	Y	
76	8	Measurement 3 Metric Selection	8-bit Uinteger	0 = Disabled 1 = Count 2 = Duration 3 = Events per Minute	1	RW	Y	
76	9	Measurement 3 Port Selection	8-bit Uinteger	0 = Port 1 1 = Port 2 2 = Port 3 3 = Port 4	0	RW	Y	
76	10	Measurement 3 Channel Selection	8-bit Uinteger	0 = Discrete1, 1 = Discrete2	1	RW	Y	
76	11	Measurement 4 Metric Selection	8-bit Uinteger	0 = Disabled 1 = Count 2 = Duration 3 = Events per Minute	3	RW	Y	
76	12	Measurement 4 Port Selection	8-bit Uinteger	0 = Port 1 1 = Port 2 2 = Port 3 3 = Port 4	0	RW	Y	
76	13	Measurement 4 Channel Selection	8-bit Uinteger	0 = Discrete1, 1 = Discrete2	1	RW	Y	
76	14	POVR1 - Process Data Out 5 Outside Valid Range	8-bit Uinteger	0 = Hold, 1 = Low, 2 = High	1	RW	Y	
76	15	POVR2 - Process Data Out 6 Outside Valid Range	8-bit Uinteger	0 = Hold, 1 = Low, 2 = High	1	RW	Y	
76	16	POVR3 - Process Data Out 7 Outside Valid Range	8-bit Uinteger	0 = Hold, 1 = Low, 2 = High	1	RW	Y	
76	17	POVR4 - Process Data Out 8 Outside Valid Range	8-bit Uinteger	0 = Hold, 1 = Low, 2 = High	1	RW	Y	
76	18	IOL Filter Time (ms)	16-bit Uinteger		200	RW	Y	
76	19	Port 5 - The Mode of Analog In	8-bit Uinteger	0 = Voltage, 1 = Current	1	RW	Y	
76	20	Port 6 - The Mode of Analog In	8-bit Uinteger	0 = Voltage, 1 = Current	1	RW	Y	
76	21	Port 7 - The Mode of Analog In	8-bit Uinteger	0 = Voltage, 1 = Current	1	RW	Y	

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76	22	Port 8 - The Mode of Analog In	8-bit Uinteger	0 = Voltage, 1 = Current	1	RW	Y	
76	23	Port 5 - Analog Output Mode	8-bit Uinteger	0 = Voltage, 1 = Current	1	RW	Y	
76	24	Port 6 - Analog Output Mode	8-bit Uinteger	0 = Voltage, 1 = Current	1	RW	Y	
76	25	Port 7 - Analog Output Mode	8-bit Uinteger	0 = Voltage, 1 = Current	1	RW	Y	
76	26	Port 8 - Analog Output Mode	8-bit Uinteger	0 = Voltage, 1 = Current	1	RW	Y	
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 Ports 1 to 4**						
80	1	Port 1 Discrete1 Count	32-bit Uinteger	0..2147483647		RO		
80	2	Port 1 Discrete1 Duration	32-bit Uinteger	0..2147483647, 500 µS resolution		RO		
80	3	Port 1 Discrete1 Events Per Minute	32-bit Uinteger	1..12000		RO		
80	4	Port 1 Discrete1 Totalizer Counter	32-bit Uinteger	0..2147483647		RO		
80	5	Port 1 Discrete2 Count	32-bit Uinteger	0..2147483647		RO		
80	6	Port 1 Discrete2 Duration	32-bit Uinteger	0..2147483647, 500 µS resolution		RO		
80	7	Port 1 Discrete2 Events Per Minute	32-bit Uinteger	1..12000		RO		
80	8	Port 1 Discrete2 Totalizer Counter	32-bit Uinteger	0..2147483647		RO		
80	9	Port 2 Discrete1 Count	32-bit Uinteger	0..2147483647		RO		
80	10	Port 2 Discrete1 Duration	32-bit Uinteger	0..2147483647, 500 µS resolution		RO		
80	11	Port 2 Discrete1 Events Per Minute	32-bit Uinteger	1..12000		RO		

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80	12	Port 2 Discrete1 Totalizer Counter	32-bit Uinteger	0..2147483647		RO		
80	13	Port 2 Discrete2 Count	32-bit Uinteger	0..2147483647		RO		
80	14	Port 2 Discrete2 Duration	32-bit Uinteger	0..2147483647, 500 µS resolution		RO		
80	15	Port 2 Discrete2 Events Per Minute	32-bit Uinteger	1..12000		RO		
80	16	Port 2 Discrete2 Totalizer Counter	32-bit Uinteger	0..2147483647		RO		
80	17	Port 3 Discrete1 Count	32-bit Uinteger	0..2147483647		RO		
80	18	Port 3 Discrete1 Duration	32-bit Uinteger	0..2147483647, 500 µS resolution		RO		
80	19	Port 3 Discrete1 Events Per Minute	32-bit Uinteger	1..12000		RO		
80	20	Port 3 Discrete1 Totalizer Counter	32-bit Uinteger	0..2147483647		RO		
80	21	Port 3 Discrete2 Count	32-bit Uinteger	0..2147483647		RO		
80	22	Port 3 Discrete2 Duration	32-bit Uinteger	0..2147483647, 500 µS resolution		RO		
80	23	Port 3 Discrete2 Events Per Minute	32-bit Uinteger	1..12000		RO		
80	24	Port 3 Discrete2 Totalizer Counter	32-bit Uinteger	0..2147483647		RO		
80	25	Port 4 Discrete1 Count	32-bit Uinteger	0..2147483647		RO		
80	26	Port 4 Discrete1 Duration	32-bit Uinteger	0..2147483647, 500 µS resolution		RO		
80	27	Port 4 Discrete1 Events Per Minute	32-bit Uinteger	1..12000		RO		
80	28	Port 4 Discrete1 Totalizer Counter	32-bit Uinteger	0..2147483647		RO		
80	29	Port 4 Discrete2 Count	32-bit Uinteger	0..2147483647		RO		

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80	30	Port 4 Discrete2 Duration	32-bit Uinteger	0..2147483647, 500 µS resolution		RO		
80	31	Port 4 Discrete2 Events Per Minute	32-bit Uinteger	1..12000		RO		
80	32	Port 4 Discrete2 Totalizer Counter	32-bit Uinteger	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 1 Discrete1 Reset Count	32-bit Uinteger	0..2147483647	0	RW		
82	10	Port 1 Discrete2 Reset Count	32-bit Uinteger	0..2147483647	0	RW		
82	11	Port 2 Discrete1 Reset Count	32-bit Uinteger	0..2147483647	0	RW		
82	12	Port 2 Discrete2 Reset Count	32-bit Uinteger	0..2147483647	0	RW		
82	13	Port 3 Discrete1 Reset Count	32-bit Uinteger	0..2147483647	0	RW		
82	14	Port 3 Discrete2 Reset Count	32-bit Uinteger	0..2147483647	0	RW		
82	15	Port 4 Discrete1 Reset Count	32-bit Uinteger	0..2147483647	0	RW		
82	16	Port 4 Discrete2 Reset Count	32-bit Uinteger	0..2147483647	0	RW		

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Index	Subindex	Name	Length	Value Range	Default	Access Rights	Data Storage?	Comments
87		**Port 1 Configuration**						
87	1	Discrete1 IO Selection	8-bit Uinteger	0 = NPN Input 1 = PNP Input 2 = NPN Output 3 = PNP Output 4 = NPN Output Push Pull 5 = PNP Output Push Pull	3	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 7 = Retriggerable On One-shot 8 = Retriggerable Off One-shot 9 = PFM	0	RW	Y	
87	3	Discrete1 Delay Timer 1	32-bit Uinteger	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 Uinteger	0..2147483647 (Discrete1 Off Delay or Totalizer time) ms	0	RW	Y	
87	5	Discrete1 Mirroring Enable	8-bit Uinteger	0 = Disabled, 1 = Enabled	0	RW	Y	If mirroring is enabled, PDO value is ignored.

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Index	Subindex	Name	Length	Value Range	Default	Access Rights	Data Storage?	Comments
87	6	Discrete1 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	If Port 1-4, Discrete Mirroring If Port 5-8, PFM of Analog In
87	7	Discrete1 Mirroring Channel Selection	8-bit Uinteger	0 = Discrete1, 1 = Discrete2	0	RW	Y	If Port 1-4, Discrete Mirroring
87	8	Discrete1 Mirroring Inversion	8-bit Uinteger	0 = Not Inverted, 1 = Inverted	0	RW	Y	If Port 1-4, Discrete Mirroring
87	9	Discrete1 PFM Near Frequency (Hz)	32-bit Uinteger	100..600	100	RW	Y	If Port 5-8, PFM of Analog In
87	10	Discrete1 PFM Far Frequency (Hz)	32-bit Uinteger	100..600	600	RW	Y	If Port 5-8, PFM of Analog In
87	11	Discrete 1 PFM Output Frequency (Hz)	32-bit Uinteger	0..600	100	RW	Y	The frequency corresponding to the PFM Output
87	12	Discrete2 IO Selection	8-bit Uinteger	0 = NPN Input 1 = PNP Input 2 = NPN Output 3 = PNP Output 4 = NPN Output Push Pull 5 = PNP Output Push Pull	3	RW	Y	

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Index	Subindex	Name	Length	Value Range	Default	Access Rights	Data Storage?	Comments
87	13	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 7 = Retriggerable On One-shot 8 = Retriggerable Off One-shot 9 = PFM	0	RW	Y	
87	14	Discrete2 Delay Timer 1	32-bit Uinteger	0..2147483647 [Discrete1 On Delay, One-shot, Pulse-stretcher time (ms) or Totalizer Count]	0	RW	Y	
87	15	Discrete2 Delay Timer 2	32-bit Uinteger	0..2147483647 (Discrete1 Off Delay or Totalizer time) ms	0	RW	Y	
87	16	Discrete2 Mirroring Enable	8-bit Uinteger	0 = Disabled, 1 = Enabled	0	RW	Y	If mirroring is enabled, PDO value is ignored.
87	17	Discrete2 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	If Port 1-4, Discrete Mirroring If Port 5-8, PFM of Analog In
87	18	Discrete2 Mirroring Channel Selection	8-bit Uinteger	0 = Discrete1, 1 = Discrete2	0	RW	Y	If Port 1-4, Discrete Mirroring
87	19	Discrete2 Mirroring Inversion	8-bit Uinteger	0 = Not Inverted, 1 = Inverted	0	RW	Y	If Port 1-4, Discrete Mirroring
87	20	Discrete2 PFM Near Frequency (Hz)	32-bit Uinteger	100..600	100	RW	Y	If Port 5-8, PFM of Analog In

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Index	Subindex	Name	Length	Value Range	Default	Access Rights	Data Storage?	Comments
87	21	Discrete2 PFM Far Frequency (Hz)	32-bit Uinteger	100..600	600	RW	Y	If Port 5-8, PFM of Analog In
87	22	Discrete 2 PFM Output Frequency (Hz)	32-bit Uinteger	0..600	100	RW	Y	The frequency corresponding to the PFM Output
88		**Port 2 Configuration**						
88	1	Discrete1 IO Selection	8-bit Uinteger	0 = NPN Input 1 = PNP Input 2 = NPN Output 3 = PNP Output 4 = NPN Output Push Pull 5 = PNP Output Push Pull	3	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 7 = Retriggerable On One-shot 8 = Retriggerable Off One-shot 9 = PFM	0	RW	Y	
88	3	Discrete1 Delay Timer 1	32-bit Uinteger	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 Uinteger	0..2147483647 (Discrete1 Off Delay or Totalizer time) ms	0	RW	Y	
88	5	Discrete1 Mirroring Enable	8-bit Uinteger	0 = Disabled, 1 = Enabled	0	RW	Y	If mirroring is enabled, PDO value is ignored.

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Index	Subindex	Name	Length	Value Range	Default	Access Rights	Data Storage?	Comments
88	6	Discrete1 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	If Port 1-4, Discrete Mirroring If Port 5-8, PFM of Analog In
88	7	Discrete1 Mirroring Channel Selection	8-bit Uinteger	0 = Discrete1, 1 = Discrete2	0	RW	Y	If Port 1-4, Discrete Mirroring
88	8	Discrete1 Mirroring Inversion	8-bit Uinteger	0 = Not Inverted, 1 = Inverted	0	RW	Y	If Port 1-4, Discrete Mirroring
88	9	Discrete1 PFM Near Frequency (Hz)	32-bit Uinteger	100..600	100	RW	Y	If Port 5-8, PFM of Analog In
88	10	Discrete1 PFM Far Frequency (Hz)	32-bit Uinteger	100..600	600	RW	Y	If Port 5-8, PFM of Analog In
88	11	Discrete 1 PFM Output Frequency (Hz)	32-bit Uinteger	0..600	100	RW	Y	The frequency corresponding to the PFM Output
88	12	Discrete2 IO Selection	8-bit Uinteger	0 = NPN Input 1 = PNP Input 2 = NPN Output 3 = PNP Output 4 = NPN Output Push Pull 5 = PNP Output Push Pull	3	RW	Y	

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88	13	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 7 = Retriggerable On One-shot 8 = Retriggerable Off One-shot 9 = PFM	0	RW	Y	
88	14	Discrete2 Delay Timer 1	32-bit Uinteger	0..2147483647 [Discrete1 On Delay, One-shot, Pulse-stretcher time (ms) or Totalizer Count]	0	RW	Y	
88	15	Discrete2 Delay Timer 2	32-bit Uinteger	0..2147483647 (Discrete1 Off Delay or Totalizer time) ms	0	RW	Y	
88	16	Discrete2 Mirroring Enable	8-bit Uinteger	0 = Disabled, 1 = Enabled	0	RW	Y	If mirroring is enabled, PDO value is ignored.
88	17	Discrete2 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	If Port 1-4, Discrete Mirroring If Port 5-8, PFM of Analog In
88	18	Discrete2 Mirroring Channel Selection	8-bit Uinteger	0 = Discrete1, 1 = Discrete2	0	RW	Y	If Port 1-4, Discrete Mirroring
88	19	Discrete2 Mirroring Inversion	8-bit Uinteger	0 = Not Inverted, 1 = Inverted	0	RW	Y	If Port 1-4, Discrete Mirroring
88	20	Discrete2 PFM Near Frequency (Hz)	32-bit Uinteger	100..600	100	RW	Y	If Port 5-8, PFM of Analog In

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Index	Subindex	Name	Length	Value Range	Default	Access Rights	Data Storage?	Comments
88	21	Discrete2 PFM Far Frequency (Hz)	32-bit Uinteger	100..600	600	RW	Y	If Port 5-8, PFM of Analog In
88	22	Discrete 2 PFM Output Frequency (Hz)	32-bit Uinteger	0..600	100	RW	Y	The frequency corresponding to the PFM Output
89		**Port 3 Configuration**						
89	1	Discrete1 IO Selection	8-bit Uinteger	0 = NPN Input 1 = PNP Input 2 = NPN Output 3 = PNP Output 4 = NPN Output Push Pull 5 = PNP Output Push Pull	3	RW	Y	
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 7 = Retriggerable On One-shot 8 = Retriggerable Off One-shot 9 = PFM	0	RW	Y	
89	3	Discrete1 Delay Timer 1	32-bit Uinteger	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 Uinteger	0..2147483647 (Discrete1 Off Delay or Totalizer time) ms	0	RW	Y	
89	5	Discrete1 Mirroring Enable	8-bit Uinteger	0 = Disabled, 1 = Enabled	0	RW	Y	If mirroring is enabled, PDO value is ignored.

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Index	Subindex	Name	Length	Value Range	Default	Access Rights	Data Storage?	Comments
89	6	Discrete1 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	If Port 1-4, Discrete Mirroring If Port 5-8, PFM of Analog In
89	7	Discrete1 Mirroring Channel Selection	8-bit Uinteger	0 = Discrete1, 1 = Discrete2	0	RW	Y	If Port 1-4, Discrete Mirroring
89	8	Discrete1 Mirroring Inversion	8-bit Uinteger	0 = Not Inverted, 1 = Inverted	0	RW	Y	If Port 1-4, Discrete Mirroring
89	9	Discrete1 PFM Near Frequency (Hz)	32-bit Uinteger	100..600	100	RW	Y	If Port 5-8, PFM of Analog In
89	10	Discrete1 PFM Far Frequency (Hz)	32-bit Uinteger	100..600	600	RW	Y	If Port 5-8, PFM of Analog In
89	11	Discrete 1 PFM Output Frequency (Hz)	32-bit Uinteger	0..600	100	RW	Y	The frequency corresponding to the PFM Output
89	12	Discrete2 IO Selection	8-bit Uinteger	0 = NPN Input 1 = PNP Input 2 = NPN Output 3 = PNP Output 4 = NPN Output Push Pull 5 = PNP Output Push Pull	3	RW	Y	

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Index	Subindex	Name	Length	Value Range	Default	Access Rights	Data Storage?	Comments
89	13	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 7 = Retriggerable On One-shot 8 = Retriggerable Off One-shot 9 = PFM	0	RW	Y	
89	14	Discrete2 Delay Timer 1	32-bit Uinteger	0..2147483647 [Discrete1 On Delay, One-shot, Pulse-stretcher time (ms) or Totalizer Count]	0	RW	Y	
89	15	Discrete2 Delay Timer 2	32-bit Uinteger	0..2147483647 (Discrete1 Off Delay or Totalizer time) ms	0	RW	Y	
89	16	Discrete2 Mirroring Enable	8-bit Uinteger	0 = Disabled, 1 = Enabled	0	RW	Y	If mirroring is enabled, PDO value is ignored.
89	17	Discrete2 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	If Port 1-4, Discrete Mirroring If Port 5-8, PFM of Analog In
89	18	Discrete2 Mirroring Channel Selection	8-bit Uinteger	0 = Discrete1, 1 = Discrete2	0	RW	Y	If Port 1-4, Discrete Mirroring
89	19	Discrete2 Mirroring Inversion	8-bit Uinteger	0 = Not Inverted, 1 = Inverted	0	RW	Y	If Port 1-4, Discrete Mirroring
89	20	Discrete2 PFM Near Frequency (Hz)	32-bit Uinteger	100..600	100	RW	Y	If Port 5-8, PFM of Analog In

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89	21	Discrete2 PFM Far Frequency (Hz)	32-bit Uinteger	100..600	600	RW	Y	If Port 5-8, PFM of Analog In
89	22	Discrete 2 PFM Output Frequency (Hz)	32-bit Uinteger	0..600	100	RW	Y	The frequency corresponding to the PFM Output
90		**Port 4 Configuration**						
90	1	Discrete1 IO Selection	8-bit Uinteger	0 = NPN Input 1 = PNP Input 2 = NPN Output 3 = PNP Output 4 = NPN Output Push Pull 5 = PNP Output Push Pull	3	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 7 = Retriggerable On One-shot 8 = Retriggerable Off One-shot 9 = PFM	0	RW	Y	
90	3	Discrete1 Delay Timer 1	32-bit Uinteger	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 Uinteger	0..2147483647 (Discrete1 Off Delay or Totalizer time) ms	0	RW	Y	
90	5	Discrete1 Mirroring Enable	8-bit Uinteger	0 = Disabled, 1 = Enabled	0	RW	Y	If mirroring is enabled, PDO value is ignored.

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Index	Subindex	Name	Length	Value Range	Default	Access Rights	Data Storage?	Comments
90	6	Discrete1 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	If Port 1-4, Discrete Mirroring If Port 5-8, PFM of Analog In
90	7	Discrete1 Mirroring Channel Selection	8-bit Uinteger	0 = Discrete1, 1 = Discrete2	0	RW	Y	If Port 1-4, Discrete Mirroring
90	8	Discrete1 Mirroring Inversion	8-bit Uinteger	0 = Not Inverted, 1 = Inverted	0	RW	Y	If Port 1-4, Discrete Mirroring
90	9	Discrete1 PFM Near Frequency (Hz)	32-bit Uinteger	100..600	100	RW	Y	If Port 5-8, PFM of Analog In
90	10	Discrete1 PFM Far Frequency (Hz)	32-bit Uinteger	100..600	600	RW	Y	If Port 5-8, PFM of Analog In
90	11	Discrete 1 PFM Output Frequency (Hz)	32-bit Uinteger	0..600	100	RW	Y	The frequency corresponding to the PFM Output
90	12	Discrete2 IO Selection	8-bit Uinteger	0 = NPN Input 1 = PNP Input 2 = NPN Output 3 = PNP Output 4 = NPN Output Push Pull 5 = PNP Output Push Pull	3	RW	Y	

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Index	Subindex	Name	Length	Value Range	Default	Access Rights	Data Storage?	Comments
90	13	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 7 = Retriggerable On One-shot 8 = Retriggerable Off One-shot 9 = PFM	0	RW	Y	
90	14	Discrete2 Delay Timer 1	32-bit Uinteger	0..2147483647 [Discrete1 On Delay, One-shot, Pulse-stretcher time (ms) or Totalizer Count]	0	RW	Y	
90	15	Discrete2 Delay Timer 2	32-bit Uinteger	0..2147483647 (Discrete1 Off Delay or Totalizer time) ms	0	RW	Y	
90	16	Discrete2 Mirroring Enable	8-bit Uinteger	0 = Disabled, 1 = Enabled	0	RW	Y	If mirroring is enabled, PDO value is ignored.
90	17	Discrete2 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	If Port 1-4, Discrete Mirroring If Port 5-8, PFM of Analog In
90	18	Discrete2 Mirroring Channel Selection	8-bit Uinteger	0 = Discrete1, 1 = Discrete2	0	RW	Y	If Port 1-4, Discrete Mirroring
90	19	Discrete2 Mirroring Inversion	8-bit Uinteger	0 = Not Inverted, 1 = Inverted	0	RW	Y	If Port 1-4, Discrete Mirroring
90	20	Discrete2 PFM Near Frequency (Hz)	32-bit Uinteger	100..600	100	RW	Y	If Port 5-8, PFM of Analog In

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Index	Subindex	Name	Length	Value Range	Default	Access Rights	Data Storage?	Comments
90	21	Discrete2 PFM Far Frequency (Hz)	32-bit Uinteger	100..600	600	RW	Y	If Port 5-8, PFM of Analog In
90	22	Discrete 2 PFM Output Frequency (Hz)	32-bit Uinteger	0..600	100	RW	Y	The frequency corresponding to the PFM Output
12288		**MDC Descriptor - Port 5**						
12288	1	Lower Limit	32-bit Integer			RO		
12288	2	Upper Limit	32-bit Integer			RO		
12288	3	Unit	16-bit Uinteger	1209 = A, 1240 = V		RO		
12288	4	Scale	8-bit Integer	-6 (µA), -3 (mV)		RO		
12289		**MDC Descriptor - Port 6**						
12289	1	Lower Limit	32-bit Integer			RO		
12289	2	Upper Limit	32-bit Integer			RO		
12289	3	Unit	16-bit Uinteger	1209 = A, 1240 = V		RO		
12289	4	Scale	8-bit Integer	-6 (µA), -3 (mV)		RO		
12290		**MDC Descriptor - Port 7**						
12290	1	Lower Limit	32-bit Integer			RO		
12290	2	Upper Limit	32-bit Integer			RO		
12290	3	Unit	16-bit Uinteger	1209 = A, 1240 = V		RO		
12290	4	Scale	8-bit Integer	-6 (µA), -3 (mV)		RO		
12291		**MDC Descriptor - Port 8**						
12291	1	Lower Limit	32-bit Integer			RO		
12291	2	Upper Limit	32-bit Integer			RO		
12291	3	Unit	16-bit Uinteger	1209 = A, 1240 = V		RO		
12291	4	Scale	8-bit Integer	-6 (µA), -3 (mV)		RO		
16400		**Channel 5 Setpoints**						
16400	1	Port 5 - Voltage - Setpoint SP1	32-bit Integer	Port 5 - SP1 Switchpoint = Voltage In LED lower switchpoint	0 V	RW	Y	
16400	2	Port 5 - Voltage - Setpoint SP2	32-bit Integer	Port 5 - SP2 Switchpoint = Voltage In LED upper switchpoint	10 V	RW	Y	

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Index	Subindex	Name	Length	Value Range	Default	Access Rights	Data Storage?	Comments
16400	3	Voltage - Hysteresis	32-bit Integer	Hysteresis value for the Voltage In Port 5 switchpoint	0.05 V	RW	Y	
16400	4	Port 5 - Current - Setpoint SP1	32-bit Integer	Port 5 - SP1 Switchpoint = Current In LED lower switchpoint	0.004 A	RW	Y	
16400	5	Port 5 - Current - Setpoint SP2	32-bit Integer	Port 5 - SP2 Switchpoint = Current In LED upper switchpoint	0.02 A	RW	Y	
16400	6	Current - Hysteresis	32-bit Integer	Hysteresis value for the Current In Port 5 switchpoint	0.0001 A	RW	Y	
16401		**Channel 6 Setpoints**						
16401	1	Port 6 - Voltage - Setpoint SP1	32-bit Integer	Port 6 - SP1 Switchpoint = Voltage In LED lower switchpoint	0 V	RW	Y	
16401	2	Port 6 - Voltage - Setpoint SP2	32-bit Integer	Port 6 - SP2 Switchpoint = Voltage In LED upper switchpoint	10 V	RW	Y	
16401	3	Voltage - Hysteresis	32-bit Integer	Hysteresis value for the Voltage In Port 6 switchpoint	0.05 V	RW	Y	
16401	4	Port 6 - Current - Setpoint SP1	32-bit Integer	Port 6 - SP1 Switchpoint = Current In LED lower switchpoint	0.004 A	RW	Y	
16401	5	Port 6 - Current - Setpoint SP2	32-bit Integer	Port 6 - SP2 Switchpoint = Current In LED upper switchpoint	0.02 A	RW	Y	
16401	6	Current - Hysteresis	32-bit Integer	Hysteresis value for the Current In Port 6 switchpoint	0.0001 A	RW	Y	
16402		**Channel 7 Setpoints**						
16402	1	Port 7 - Voltage - Setpoint SP1	32-bit Integer	Port 7 - SP1 Switchpoint = Voltage In LED lower switchpoint	0 V	RW	Y	
16402	2	Port 7 - Voltage - Setpoint SP2	32-bit Integer	Port 7 - SP2 Switchpoint = Voltage In LED upper switchpoint	10 V	RW	Y	
16402	3	Voltage - Hysteresis	32-bit Integer	Hysteresis value for the Voltage In Port 7 switchpoint	0.05 V	RW	Y	

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Index	Subindex	Name	Length	Value Range	Default	Access Rights	Data Storage?	Comments
16402	4	Port 7 - Current - Setpoint SP1	32-bit Integer	Port 7 - SP1 Switchpoint = Current In LED lower switchpoint	0.004 A	RW	Y	
16402	5	Port 7 - Current - Setpoint SP2	32-bit Integer	Port 7 - SP2 Switchpoint = Current In LED upper switchpoint	0.02 A	RW	Y	
16402	6	Current - Hysteresis	32-bit Integer	Hysteresis value for the Current In Port 7 switchpoint	0.0001 A	RW	Y	
16403		**Channel 8 Setpoints**						
16403	1	Port 8 - Voltage - Setpoint SP1	32-bit Integer	Port 8 - SP1 Switchpoint = Voltage In LED lower switchpoint	0 V	RW	Y	
16403	2	Port 8 - Voltage - Setpoint SP2	32-bit Integer	Port 8 - SP2 Switchpoint = Voltage In LED upper switchpoint	10 V	RW	Y	
16403	3	Voltage - Hysteresis	32-bit Integer	Hysteresis value for the Voltage In Port 8 switchpoint	0.05 V	RW	Y	
16403	4	Port 8 - Current - Setpoint SP1	32-bit Integer	Port 8 - SP1 Switchpoint = Current In LED lower switchpoint	0.004 A	RW	Y	
16403	5	Port 8 - Current - Setpoint SP2	32-bit Integer	Port 8 - SP2 Switchpoint = Current In LED upper switchpoint	0.02 A	RW	Y	
16403	6	Current - Hysteresis	32-bit Integer	Hysteresis value for the Current In Port 8 switchpoint	0.0001 A	RW	Y	

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Chapter Contents

Chapter 5 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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