

Parameter and process data OPT2042/OPT2043



IO-Link OPT2042

Device ID

Product	hex	dec
OPT2042	0x170100	1507584

IO-Link Version: V 1.0
Min Cycle Time: 2.3 ms
SIO-Mode Yes
COM-Mode COM2

Process data (Length: 16 Bit)

Subindex	Name	Bit Offset	Länge	Bereich
1	Output 1	8	1 Bit	0 = False 1 = True
2	Output 2	9	1 Bit	0 = False 1 = True
3	Output 3	10	1 Bit	0 = False 1 = True
4	Output 4	11	1 Bit	0 = False 1 = True
5	Output 5	12	1 Bit	0 = False 1 = True
6	Output 6	13	1 Bit	0 = False 1 = True
7	Output 7	14	1 Bit	0 = False 1 = True
8	Output 8	15	1 Bit	0 = False 1 = True
9	Output 9	0	1 Bit	0 = False 1 = True
10	Output 10	1	1 Bit	0 = False 1 = True
11	Output 11	2	1 Bit	0 = False 1 = True
12	Output 12	3	1 Bit	0 = False 1 = True
13	Output 13	4	1 Bit	0 = False 1 = True
16	Contamination Output	7	1 Bit	0 = False 1 = True

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

Parameter

Name	Index (hex)	Index (dec)	Sub-index	R/W	Length	Default value	Range
Main Page							
Subindex 1							
Reset to delivery status	0x0001	1	1 (Bit 0)	R/W	Bool	0	0 = – 1 = Reset
Display Language	0x0001	1	1 (Bit 1...2)	R/W	Uint2	1	0 = German 1 = English 2 = French 3 = Spttrueish
Teach Mode	0x0001	1	1 (Bit 3...5)	R/W	Uint3	0	0 = Normal 1 = Minimal 2 = Dynamic 3 = 2-Point 4 = Window 5 = Background
Lock Sensor	0x0001	1	1 (Bit 6)	R/W	Bool	0	0 = – 1 = Sensor is locked
Selection of Configuration Page*	0x0001	1	1 (Bit 7)	R/W	Bool	0	0 = Main Page 1 = Configuration Page
Subindex 2							
Outputs NO/NC global	0x0001	1	2 (Bit 0)	R/W	Bool	0	0 = Normally closed 1 = Normally open
Sensors NO/NC global	0x0001	1	2 (Bit 1)	R/W	Bool	0	0 = Normally closed 1 = Normally open
PNP/NPN/Push-pull global	0x0001	1	2 (Bit 2...3)	R/W	Uint2	0	0 = PNP 1 = Push-Pull 2 = NPN 3 = Tristate
Link global	0x0001	1	2 (Bit 4)	R/W	Bool	0	0 = – 1 = TrueD
Operating Mode global	0x0001	1	2 (Bit 5)	R/W	Bool	0	0 = Normal Sensitivity 1 = High Sensitivity
Reset Link	0x0001	1	2 (Bit 7)	R/W	Bool	0	0 = – 1 = Reset of Sensor Links
Subindex 3-9							
High Byte On-Delay global in ms	0x0001	1	3	R/W	Uint8		0...10000 ms
Low Byte On-Delay global in ms	0x0001	1	4	R/W	Uint8		0...10000 ms
High Byte Off-Delay global in ms	0x0001	1	5	R/W	Uint8		0...10000 ms
Low Byte Off-Delay global in ms	0x0001	1	6	R/W	Uint8		0...10000 ms
High Byte Impulse Duration global in ms	0x0001	1	7	R/W	Uint8		0...10000 ms
Low Byte Impulse Duration global in ms	0x0001	1	8	R/W	Uint8		0...10000 ms
Filter Settings global	0x0001	1	9	R/W	Uint8		0 = not allowed 1 = Filter off 3 = x 2 7 = x 3 15 = x 4 31 = x 5 63 = x 6 127 = x 7 255 = x 8
Subindex 10-11							
Start Teach-In Sensor 01	0x0001	1	10 (Bit 0)	R/W	Bool		0 = – 1 = Start teaching
Start Teach-In Sensor 02	0x0001	1	10 (Bit 1)	R/W	Bool		0 = – 1 = Start teaching
Start Teach-In Sensor 03	0x0001	1	10 (Bit 2)	R/W	Bool		0 = – 1 = Start teaching
Start Teach-In Sensor 04	0x0001	1	10 (Bit 3)	R/W	Bool		0 = – 1 = Start teaching
Start Teach-In Sensor 05	0x0001	1	10 (Bit 4)	R/W	Bool		0 = – 1 = Start teaching
Start Teach-In Sensor 06	0x0001	1	10 (Bit 5)	R/W	Bool		0 = – 1 = Start teaching
Start Teach-In Sensor 07	0x0001	1	10 (Bit 6)	R/W	Bool		0 = – 1 = Start teaching
Start Teach-In Sensor 08	0x0001	1	10 (Bit 7)	R/W	Bool		0 = – 1 = Start teaching

Start Teach-In Sensor 09	0x0001	1	11 (Bit 0)	R/W	Bool		0 = – 1 = Start teaching
Start Teach-In Sensor 10	0x0001	1	11 (Bit 1)	R/W	Bool		0 = – 1 = Start teaching
Start Teach-In Sensor 11	0x0001	1	11 (Bit 2)	R/W	Bool		0 = – 1 = Start teaching
Start Teach-In Sensor 12	0x0001	1	11 (Bit 3)	R/W	Bool		0 = – 1 = Start teaching
Start Teach-In Sensor 13	0x0001	1	11 (Bit 4)	R/W	Bool		0 = – 1 = Start teaching
Start Teach-In Sensor 14	0x0001	1	11 (Bit 5)	R/W	Bool		0 = – 1 = Start teaching
Start Teach-In Sensor 15	0x0001	1	11 (Bit 6)	R/W	Bool		0 = – 1 = Start teaching
Teach step	0x0001	1	11 (Bit 7)	R/W	Bool		0 = – 1 = 2 nd Teach Point/End of Dynamic Teach

Configuration Pages

Configuration Page (0x80)

Serial number Byte 1	0x0001	1	2	R	UInt8		
Serial number Byte 2	0x0001	1	3	R	UInt8		
Serial number Byte 3	0x0001	1	4	R	UInt8		
Serial number Byte 4	0x0001	1	5	R	UInt8		
DeviceID Byte 1	0x0001	1	6	R	UInt8		
DeviceID Byte 2	0x0001	1	7	R	UInt8		
DeviceID Byte 3	0x0001	1	8	R	UInt8		
Revision	0x0001	1	9	R	UInt8		

Configuration Page (0x81)

High Byte Signal Strength Sensor 01	0x0001	1	2	R	UInt8		
Low Byte Signal Strength Sensor 01	0x0001	1	3	R	UInt8		
High Byte Signal Strength Sensor 02	0x0001	1	4	R	UInt8		
Low Byte Signal Strength Sensor 02	0x0001	1	5	R	UInt8		
High Byte Signal Strength Sensor 03	0x0001	1	6	R	UInt8		
Low Byte Signal Strength Sensor 03	0x0001	1	7	R	UInt8		
High Byte Signal Strength Sensor 04	0x0001	1	8	R	UInt8		
Low Byte Signal Strength Sensor 04	0x0001	1	9	R	UInt8		
High Byte Signal Strength Sensor 05	0x0001	1	10	R	UInt8		
Low Byte Signal Strength Sensor 05	0x0001	1	11	R	UInt8		

Configuration Page (0x82)

High Byte Signal Strength Sensor 06	0x0001	1	2	R	UInt8		
Low Byte Signal Strength Sensor 06	0x0001	1	3	R	UInt8		
High Byte Signal Strength Sensor 07	0x0001	1	4	R	UInt8		
Low Byte Signal Strength Sensor 07	0x0001	1	5	R	UInt8		
High Byte Signal Strength Sensor 08	0x0001	1	6	R	UInt8		
Low Byte Signal Strength Sensor 08	0x0001	1	7	R	UInt8		
High Byte Signal Strength Sensor 09	0x0001	1	8	R	UInt8		
Low Byte Signal Strength Sensor 09	0x0001	1	9	R	UInt8		
High Byte Signal Strength Sensor 10	0x0001	1	10	R	UInt8		
Low Byte Signal Strength Sensor 10	0x0001	1	11	R	UInt8		

Configuration Page (0x83)

High Byte Signal Strength Sensor 11	0x0001	1	2	R	UInt8		
Low Byte Signal Strength Sensor 11	0x0001	1	3	R	UInt8		
High Byte Signal Strength Sensor 12	0x0001	1	4	R	UInt8		
Low Byte Signal Strength Sensor 12	0x0001	1	5	R	UInt8		
High Byte Signal Strength Sensor 13	0x0001	1	6	R	UInt8		
Low Byte Signal Strength Sensor 13	0x0001	1	7	R	UInt8		
High Byte Signal Strength Sensor 14	0x0001	1	8	R	UInt8		
Low Byte Signal Strength Sensor 14	0x0001	1	9	R	UInt8		
High Byte Signal Strength Sensor 15	0x0001	1	10	R	UInt8		
Low Byte Signal Strength Sensor 15	0x0001	1	11	R	UInt8		

Configuration Page Sensor 1 (0x90)

NO/NC	0x0001	1	2 (Bit 0)	R/W	Bool	0	0 = Normally closed 1 = Normally open
Teach step	0x0001	1	2 (Bit 1)	R/W	Bool	0	0 = – 1 = 2 nd Teach Point/End of Dynamic Teach
Contamination	0x0001	1	2 (Bit 2)	R	Bool		0 = – 1 = contaminated

Not connected	0x0001	1	2 (Bit 3)	R	Bool		0 = – 1 = Sensor not connected
Start Teach-In	0x0001	1	2 (Bit 4)	R/W	Bool	0	0 = – 1 = Start teaching
Teach mode	0x0001	1	2 (Bit 5...7)	R/W	Uint3	0	0 = Normal 1 = Minimal 2 = Dynamic 3 = 2-Point 4 = Window 5 = Background
Filter Settings	0x0001	1	3	R/W	Uint8	1	0 = not allowed 1 = Filter off 3 = x 2 7 = x 3 15 = x 4 31 = x 5 63 = x 6 127 = x 7 255 = x 8
Operating Mode	0x0001	1	4 (Bit 0)	R/W	Bool	0	0 = Normal Sensitivity 1 = High Sensitivity
High Byte of Lower Threshold	0x0001	1	5	R/W	Uint8		
Low Byte of Lower Threshold	0x0001	1	6	R/W	Uint8		
High Byte of Upper Threshold	0x0001	1	7	R/W	Uint8		
Low Byte of Upper Threshold	0x0001	1	8	R/W	Uint8		
High Byte of Lower Threshold 2	0x0001	1	9	R/W	Uint8		
Low Byte of Lower Threshold 2	0x0001	1	10	R/W	Uint8		
High Byte of Upper Threshold 2	0x0001	1	11	R/W	Uint8		
Low Byte of Upper Threshold 2	0x0001	1	12	R/W	Uint8		
Configuration Page Sensor 2-15 (0x91 – 0x9E)							
Configuration Pages 0x91 – 0x9E are identical for Sensors 2-15							
Configuration Page Output 1 (0xA0)							
NO/NC	0x0001	1	2 (Bit 0)	R/W	Bool	0	0 = Normally closed 1 = Normally open
PNP/NPN/Push-pull	0x0001	1	2 (Bit 1...2)	R/W	Uint2	0	0 = PNP 1 = Push-Pull 2 = NPN 3 = Tristate
TrueD/OR Link	0x0001	1	2 (Bit 3)	R/W	Bool	0	0 = – 1 = TrueD
Output not available	0x0001	1	2 (Bit 7)	R	Bool		0 = – 1 = not available
High Byte On-Delay in ms	0x0001	1	3	R/W	Uint8		
Low Byte On-Delay in ms	0x0001	1	4	R/W	Uint8		
High Byte Off-Delay in ms	0x0001	1	5	R/W	Uint8		
Low Byte Off-Delay in ms	0x0001	1	6	R/W	Uint8		
High Byte Impulse Duration in ms	0x0001	1	7	R/W	Uint8		
Low Byte Impulse Duration in ms	0x0001	1	8	R/W	Uint8		
High Byte Link	0x0001	1	9	R/W	Uint8		
High Byte Link	0x0001	1	10	R/W	Uint8		
Configuration Pages Output 2-13 (0xA1 – 0xAC)							
Configuration Pages 0xA1 – 0xAC are identical for outputs 2-13							
Configuration Page Speed Measurement (0xB0)							
Chtrueuel 1	0x0001	1	2 (Bit 0...3)	R/W	Uint4		0...14
Chtrueuel 2	0x0001	1	2 (Bit 4...7)	R/W	Uint4		0...14
High Byte Disttruece in mm	0x0001	1	3	R	Uint8		
Low Byte Disttruece in mm	0x0001	1	4	R	Uint8		
Byte 1 Speed in mm/s	0x0001	1	5	R	Uint8		
Byte 2 Speed in mm/s	0x0001	1	6	R	Uint8		
Byte 3 Speed in mm/s	0x0001	1	7	R	Uint8		
Byte 4 Speed in mm/s	0x0001	1	8	R	Uint8		
High Byte Speed in objects/min	0x0001	1	9	R	Uint8		
Low Byte Speed in objects/min	0x0001	1	10	R	Uint8		
Edge	0x0001	1	11 (Bit 0)	R/W	Bool		0 = falling 1 = rising

Configuration Page Display (0xB0)							
Display Mode	0x0001	1	2 (Bit 0...1)	R/W	Uint2		0 = Sensors 1 = Outputs 2 = Measure
Display Element: Threshold	0x0001	1	2 (Bit 2)	R/W	Bool		0 = – 1 = display
Display Element: Bar graph	0x0001	1	2 (Bit 3)	R/W	Bool		0 = – 1 = display
Display Element: Signal Strength	0x0001	1	2 (Bit 4)	R/W	Bool		0 = – 1 = display
Display Element: Switching Status Indicator	0x0001	1	2 (Bit 5)	R/W	Bool		0 = – 1 = display
Display Element: Operating Mode	0x0001	1	2 (Bit 6)	R/W	Bool		0 = – 1 = display
Zoom Bar graph	0x0001	1	3 (Bit 0...3)	R/W	Uint3		
Rotate Display 180°	0x0001	1	4 (Bit 0)	R/W	Bool		0 = – 1 = rotate
Display Brightness	0x0001	1	4 (Bit 1...2)	R/W	Uint2		0 = min 1 = normal 2 = max

Addressing via IO-Link

The index must always be set to “1”. In this way, the main page is accessed within which the individual values can be addressed via the sub-indices. All of values in the main page can be read out via sub-index “0”.

The individual values can be read out or written via sub-indices “1” through “15”.

Sample parameters (read):

Index (hex)	sub-index	values (hex)
1	0	02 30 00 00 00 00 00 00 03 00 00 00 00 00 00
1	1	2
1	2	30
1	3	0

* Switch to the configuration pages

Additional configuration pages can be accessed by setting bit 7 to “1” in sub-index 1 on the main page. The respective address of the configuration page is entered to bits 0 through 6 in sub-index 1 to this end.

Example:

Proceed as follows in order to switch to configuration page 0x80:

The current configuration page is entered under sub-index 1.

	Index (hex)	sub-index	values (hex)
Write	0x0001	1	enter configuration page (e.g. 80)
Read	0x0001	0	read out the entire configuration page (e.g. 80 00 00 00 01 17 01 01 04 00 00 00 00 00 00 00)

In order to return to the main page, set bit 7 to “0” in sub-index 1.

Example:

	Index (hex)	sub-index	values (hex)
Write	0x0001	1	Enter main page (e.g. 00)