



8024928 0919
9312530 0919
RAY26 A00
8389210
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9312531 0919 (1.1.0)

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SICK AG, Erwin-Sick-Strasse 1, D 79183 Waldkirch

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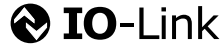
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Please note the validity of the additional operating instructions for automation functions

1. Physical layer

Note: The IO-Link Device's max. current consumption (inclusive load current) shall not exceed the master port's max. output power current.

| | |
|---------------------------|----------|
| SIO Modus | yes |
| Min Cycle Time | 2.3 ms |
| Baudrate ² | COM2 |
| Process Data Length (IN) | 2 Byte |
| IODD version | V1.22180 |
| Valid for IO-Link version | 1.1.0 |

2. Process data

Record³: 2 Byte

| | | | | | | | | | | | | | | | | | | |
|---------------|----|----|----|----|----|----|---|---|-----|---|-----|---------|---|---------|---|--|--|--|
| Bitoffset | | | | | | | | | | | | | | | | | | |
| Byte 0 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | | | | | | | | | | |
| Type/Subindex | | | | | | | | | | | | | | | | | | |
| Bitoffset | | | | | | | | | | | | | | | | | | |
| Byte 1 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | QL2 | 1 | QL1 | 0 | | | | | | |
| Type/Subindex | | | | | | | | | | | | Boolean | 2 | Boolean | 1 | | | |

3. Service data

The following ISDUs will not be saved via Data-Storage: Profile characteristic, Teach-in channel, Teach-in state, Device / function name, Sender configuration, Quality of teach, Quality of run, Current receiver level (live), Upper threshold (switch-on) dynamic, Lower threshold (switch-off) dynamic, Find me and SLTI Version

| Index dec (hex) | Name | Format (Offset) | Length | Access ¹ | Default Value | Value / Range | Remark [Unit] |
|------------------|-------------------------------|---------------------|---------|---------------------|---------------|---|---------------|
| IO-Link specific | | | | | | | |
| 12 (0x0C) | Device Access Locks | Record ³ | 2 Byte | rw | | | |
| 1 (0x01) | Parameter (write) Access Lock | Bit (0) | 1 Bit | rw | | | |
| 2 (0x02) | Data Storage Lock | Bit (1) | 1 Bit | rw | | | |
| 3 (0x03) | Local Parameterization Lock | Bit (2) | 1 Bit | rw | | | |
| 4 (0x04) | Local User Interface Lock | Bit (3) | 1 Bit | rw | | | |
| 16 (0x10) | Vendor Name | String | 7 Byte | ro | SICK AG | | |
| 18 (0x12) | Product Name | String | 18 Byte | ro | | | |
| 19 (0x13) | Product ID | String | 13 Byte | ro | | | |
| 20 (0x14) | Product Text | String | 45 Byte | ro | | | |
| 21 (0x15) | Serial Number | String | 8 Byte | ro | | | |
| 22 (0x16) | Hardware Version | String | 4 Byte | ro | | | |
| 23 (0x17) | Firmware Version | String | 19 Byte | ro | | | |
| 24 (0x18) | Application Specific Tag | String | 32 Byte | rw | ***** | | |
| 36 (0x24) | Device Status | UInt | 8 Bit | ro | | 0 = Device is OK 1 = Maintenance required 2 = Out of specification 3 = Functional check 4 = Failure 5...255 = Reserved | |
| 40 (0x28) | Process Data Input | PD In | 2 Byte | ro | | | |

| Index dec (hex) | Name | Format (Offset) | Length | Access ¹ | Default Value | Value / Range | Remark [Unit] |
|----------------------|--|---------------------|---------|---------------------|---------------|--|---------------|
| SICK device specific | | | | | | | |
| 13 (0x0D) | Profile characteristic | Array ³ | 10 Byte | ro | | Unsigned Integer16 [5] | |
| 14 (0x0E) | PDInput descriptor | Array ³ | 6 Byte | ro | | Octet String [2] | |
| 15 (0x0F) | PDOOutput descriptor | Array ³ | 3 Byte | ro | | Octet String [1] | |
| 58 (0x3A) | Teach-in channel | UInt | 8 Bit | rw | 0 | 0...2 = Default BDC | |
| 59 (0x3B) | Teach-in state | Record ³ | 1 Byte | ro | | | |
| 1 (0x01) | Teach flags | Bit (4) | 1 Bit | ro | | false = Teachpoint 1 not taught true = Teachpoint 1 successfully taught | |
| 2 (0x02) | Teach state | Bit (0) | 4 Bit | ro | | 0 = IDLE 1 = SP1 SUCCESS 5 = BUSY 7 = ERROR | |
| 60 (0x3C) | Qint.1 SP1 / SP2 | Record ³ | 2 Byte | ro | | | |
| 1 (0x01) | Qint.1 SP1 upper threshold (switch-on) | Bit (8) | 8 Bit | ro | | 0...100 | [%] |

¹ ro = read only, wo = write only, rw = read/write

² COM values specify the bitrate (see IO-Link specification): COM1 (4,8 kbit/s), COM2 (38,4 kbit/s), COM3 (230,4 kbit/s)

³ Subindex access not supported

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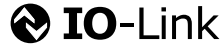
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ENGLISH

| SICK device specific | | | | | | | |
|----------------------|---|---------------------|---------|---------------------|---------------|---|---------------|
| Index dec (hex) | Name | Format (Offset) | Length | Access ¹ | Default Value | Value / Range | Remark [Unit] |
| 2 (0x02) | Qint.1 SP2 lower threshold (switch-off) | Bit (0) | 8 Bit | ro | | 0...100 | [%] |
| 61 (0x3D) | Qint.1 configuration | Record ³ | 4 Byte | ro | | | |
| 1 (0x01) | Qint.1 Switchpoint logic | Bit (24) | 8 Bit | ro | 128 | 128 = Vendor specific | |
| 2 (0x02) | Qint.1 Switchpoint mode | Bit (16) | 8 Bit | ro | 128 | 128 = Vendor specific | |
| 3 (0x03) | Qint.1 Switchpoint hysteresis | Bit (0) | 16 Bit | ro | 0 | 0 = Autodefined hysteresis | |
| 62 (0x3E) | Qint.2 SP1 / SP2 | Record ³ | 2 Byte | ro | | | |
| 1 (0x01) | Qint.2 SP1 upper threshold (switch-on) | Bit (8) | 8 Bit | ro | | 0...100 | |
| 2 (0x02) | Qint.2 SP2 lower threshold (switch-off) | Bit (0) | 8 Bit | ro | | 0...100 | |
| 63 (0x3F) | Qint.2 configuration | Record ³ | 4 Byte | ro | | | |
| 1 (0x01) | Qint.2 Switchpoint logic | Bit (24) | 8 Bit | ro | 128 | 128 = Vendor specific | |
| 2 (0x02) | Qint.2 Switchpoint mode | Bit (16) | 8 Bit | ro | 128 | 128 = Vendor specific | |
| 3 (0x03) | Qint.2 Switchpoint hysteresis | Bit (0) | 16 Bit | ro | 0 | 0 = Auto-defined hysteresis | |
| 64 (0x40) | Device / function name | String | 32 Byte | rw | ***** | | |
| 97 (0x61) | Sender configuration | UInt | 8 Bit | rw | 0 | 0 = Sender active 1 = Sender not active | |
| 114 (0x72) | Quality of teach | UInt | 8 Bit | ro | | 0...100 | [%] |
| 121 (0x79) | Pin 2 configuration | UInt | 8 Bit | rw | | 0 = Deactivated / no function 1 = External input 16 = Sender off 17 = Teach-in 32 = Detection output Q/ 33 = Quality of run alarm output 34 = Switching signal QL2 35 = Detection output Qint.1 39 = Switching signal QL1 | |
| 175 (0xAF) | Quality of run | UInt | 8 Bit | ro | | 0...255 | [%] |
| 176 (0xB0) | Quality of run alarm threshold | UInt | 8 Bit | rw | 50 | 0...90 | [%] |
| 180 (0xB4) | Current receiver level (live) | UInt | 8 Bit | ro | | 0...255 | [%] |
| 181 (0xB5) | Upper threshold (switch-on) dynamic | UInt | 8 Bit | ro | | 0...255 | [%] |
| 182 (0xB6) | Lower threshold (switch-off) dynamic | UInt | 8 Bit | ro | | 0...255 | [%] |
| 204 (0xCC) | Find me | UInt | 8 Bit | rw | 0 | 0 = Find me deactivated 1 = Find me activated | |
| 205 (0xCD) | SICK profile version | String | 4 Byte | ro | | | |
| 219 (0xDB) | Article No. | Record | 7 Byte | ro | | | |
| 1 (0x01) | Article No. IO-Link Device | Bit (0) | 7 Byte | ro | | | |
| 226 (0xE2) | System state | Record ³ | 1 Byte | ro | | | |
| 1 (0x01) | Quality of run alarm output | Bit (1) | 1 Bit | ro | | false = Alarm not active true = Alarm active | |
| 2 (0x02) | Detection output Q.int | Bit (0) | 1 Bit | ro | | false = No object detected true = Object detected | |
| 227 (0xE3) | Notification handling | UInt | 8 Bit | rw | 0 | 0 = All enabled 1 = All disabled 2 = Events enabled, PD invalid flag disabled 3 = Events disabled, PD invalid flag enabled | |
| 237 (0xED) | Minimum detectable object | UInt | 8 Bit | rw | 1 | 1 = 1 mm | |
| 1080 (0x438) | SLTI Version | String | 8 Byte | ro | | | |
| 1083 (0x43B) | Logic 1 | UInt | 8 Bit | rw | | 0 = DIRECT 1 = AND 2 = OR 3 = Window Mode 4 = Hysteresis | |
| 1084 (0x43C) | Logic 2 | UInt | 8 Bit | rw | | 0 = DIRECT 1 = AND 2 = OR 3 = Window Mode 4 = Hysteresis | |
| 1085 (0x43D) | Timer 1 Mode | UInt | 8 Bit | rw | 0 | 0 = deactivated 1 = T-on delay 2 = T-off delay 3 = T-on/T-off delay 4 = Impulse (one shot) | |

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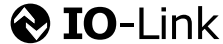
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| Index dec (hex) | Name | Format (Offset) | Length | Access ¹ | Default Value | Value / Range | Remark [Unit] |
| 1086 (0x43E) | Timer 2 Mode | UInt | 8 Bit | rw | 0 | 0 = deactivated 1 = T-on delay 2 = T-off delay 3 = T-on/T-off delay 4 = Impulse (one shot) | |
| 1087 (0x43F) | Time 1 Setup | UInt | 16 Bit | rw | 1 | 1...30000 | [ms] |
| 1088 (0x440) | Time 2 Setup | UInt | 16 Bit | rw | 1 | 1...30000 | [ms] |
| 1089 (0x441) | Inverter 1 | UInt | 8 Bit | rw | 1 | 0 = not inverted 1 = inverted | |
| 1090 (0x442) | Inverter 2 | UInt | 8 Bit | rw | 1 | 0 = not inverted 1 = inverted | |

| Standard command | | | | | | | |
|------------------|------------------|---------------------|-------|--------------------------|---------------|--|--|
| Index dec (hex) | Name | Access ¹ | Value | Name | Remark [Unit] | | |
| 2 (0x02) | Standard Command | wo | 65 | Single value teach | | | |
| | | | 130 | Restore Factory Settings | | | |

| Events | | | |
|----------------|--------------------------------------|--------------|--------------------------------------|
| Code dec (hex) | Name | Type | Remark [Unit] |
| 36000 (0x8CA0) | Short Circuit on Qx | Notification | Short circuit on outputs |
| 36001 (0x8CA1) | New parameters | Notification | Parameters have been changed |
| 36004 (0x8CA4) | Function reserve alarm | Notification | Low device performance, clean sensor |
| 36005 (0x8CA5) | Teach / value out of specified range | Notification | Teach value out of specified range |

| Error | | | |
|----------------|-----------------|-----------------------------------|---|
| Code dec (hex) | Additional Code | Name | Remark [Unit] |
| 128 (0x80) | 17 (0x11) | Index not available | Access occurs to a not existing index |
| 128 (0x80) | 18 (0x12) | Subindex not available | Access occurs to a not existing subindex |
| 128 (0x80) | 32 (0x20) | Service temporarily not available | Parameter is not accessible due to the current state of the device application |
| 128 (0x80) | 35 (0x23) | Access denied | Write access on a read-only parameter |
| 128 (0x80) | 48 (0x30) | Parameter value out of range | Written parameter value is outside its permitted value range |
| 128 (0x80) | 51 (0x33) | Parameter length overrun | Written parameter length is above its predefined length |
| 128 (0x80) | 52 (0x34) | Parameter length underrun | Written parameter length is below its predefined length |
| 128 (0x80) | 64 (0x40) | Invalid parameter set | Written single parameter collides with other actual parameter settings |
| 128 (0x80) | 65 (0x41) | Inconsistent parameter set | Parameter inconsistencies were found at the end of block parameter transfer, device plausibility check failed |

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