D000085279.0002 - 01

Operating instructions

CMSVT38
Vibration and temperature sensor

IO-Link

pulses for automation

Table of contents

1 Document

This is the original Operating instructions, source language German.

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Legal information

2 Change information

Index	Chapter	Changes	Date	Name
A		Initial document	2/27/2025	avb

3 General information

Read this document carefully before working with the product.

It guides you or the technical personnel of the machine and plant manufacturer or operator in the safe assembly, installation, commissioning, and operation of the product.

3.1 Target Group

The product may only be planned, installed, commissioned, and maintained by persons who meet the following skill set and conditions:

- Technical education
- Instruction in valid safety guidelines
- Permanent access to this documentation

3.2 Symbols used/classification of warnings and safety instructions

⚠ DANGER	**Classification:** This symbol, in connection with the signal word DANGER, warns of an imminent danger to the life and health of persons. Failure to observe this safety instruction will result in death or serious damage to health.
⚠ WARNING	**Classification:** This symbol, in connection with the signal word **WARNING** warns of a possible danger to the life and health of persons. Failure to observe this safety instruction may result in death or serious damage to health.
⚠ CAUTION	**Classification:** This symbol, in connection with the signal word **CAUTION** warns of a possible danger to the health of persons. Failure to observe this safety instruction may result in minor or slight damage to health.
ATTENTION	**Classification:** Failure to observe the **CAUTION** note may result in material damage.
NOTICE	**Classification:** Supplementary information on the operation of the product as well as tips and recommendations for efficient and trouble-free operation.

3.3 Preliminary Remark

The following basic safety instructions are intended to prevent personal injury and material damage and relate primarily to the use of the products described here. If you also use other components, also observe their warnings and safety instructions.

3.4 Feedback

Our aim is to make this guide as informative and clear as possible. If you have any suggestions or find that information is missing in the instructions, please send your feedback to: support@kuebler.com.

3.5 Transportation/Storage

Check the delivery immediately after receipt for possible transport damage. If you do not immediately assemble the product, it is best to leave it in the transport packaging.

The storage must:

- be free of any compressive stress to prevent damage or deformation.
- be dry, dust-free, and in accordance with the technical data, see chapter "**Technical Data** [▸ 12]" or "**Applicable documents** [▸ 8]".

3.6 Applicable documents

Technical Data

All technical data, as well as mechanical and electrical characteristics, can be found in the data sheets of the corresponding product versions, or in the corresponding bid / customer drawing of the product for specially-designed models.

Dimensional drawings

The drawings with complete dimensions can be found in the data sheets of the corresponding product versions, or in the corresponding customer drawing of the product for specially-designed models. All non-dimensioned values correspond to the mm unit of measure [inch].

Declarations of conformity and certificates

All documents, for example, the original declarations of conformity and corresponding certificates, can be downloaded from our home page:

www.kuebler.com/docu-finder

NOTICE	**Keeping and storing applicable documents**
	For the technical data and dimensional drawings we refer to the data sheet of the corresponding product, and ask you to save and store all applicable documents at the time of commissioning.

4 Product description

4.1 Functional Principle

The condition-monitoring sensors use an acceleration measuring cell with a capacitive measuring method to determine the machine condition. By monitoring vibrations and oscillations, deviations can be detected at an early stage and countermeasures can be initiated. For monitoring, the process value is transferred to the controller via IO-Link. In addition, specific limit value exceedances can be reported via switching outputs.

Temperature detection

The temperature is recorded 10 s after the supply voltage is switched on via an integrated temperature measuring cell. Due to different electrical operating conditions in the sensor, the measured temperature may differ from the ambient temperature.

4.2 Intended Use

The CMSVT38 series condition-monitoring sensors monitor temperature and vibration of machines.

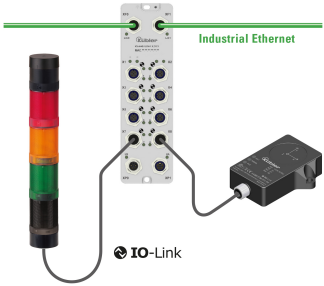
The process values are output by the device via IO-Link.

Additionally, the devices indicate the exceeding of oscillation speeds via switching outputs. The devices are suitable for machine condition monitoring or for use in predictive maintenance.

The device may only be used as described in this manual. Any other use will be regarded as contrary to the intended purpose. The manufacturer assumes no liability for damages resulting from this.

4.3 Examples of Applications

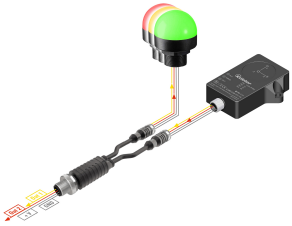
Combination CMSVT38 with signal column and IO-Link master



In IO-Link mode, the vibration sensor CMSVT38 can be connected to an Ethernet network via an IO-Link master.

By communicating with the controller, the IO-Link signal column ST40, for example, can signal the detected statuses on site again.

Combination CMSVT38 with signal light and IO-Link Y-distributor



The vibration sensor CMSVT38 detects vibrations from machines and transmits 2 switching signals for predefined limit values in SiO mode.

Via the IO-Link Y distributor, which also supplies the system with voltage, the switching outputs can be connected directly to the SL35 or SL55 signal lights.

At the same time, the switching signals are also transmitted for further processing. In addition to visualisation, switches, motors or valves can be activated, for example.

The Kübler SL35 and SL55 signal lights are equipped with a predefined switching pattern for this application.

4.4 Device Overview

The condition-monitoring sensors are equipped with a 4-pin M12 connector or with a 30 cm cable and a 4-pin M12 connector for connecting the sensor cable. The housing is made of plastic and is completely encapsulated and designed as a sealed unit in protection class IP68/IP69K.

The device functions can be set via IO-Link.

4.4.1 Display Elements

The devices have one green and two yellow LEDs. The green LED indicates the operating voltage and the device status. The yellow LEDs indicate the status of the switching outputs. A yellow LED is assigned to each switching output.

4.5 Foreseeable Misuse

The product is not suited for the following applications:

- Under water
- In publicly accessible areas
- Outside of the product specification.

4.6 Functions and Operating Modes

The devices have an IO-Link interface and can be set either via an IO-Link master or an FDT frame (e.g. PACTware).

4.7 IO-Link Mode

To operate in IO-Link mode, the IO-Link device must be connected to an IO-Link master. If the port is configured in IO-Link mode, bidirectional IO-Link communication takes place between the IO-Link master and the device. To this end, the device is integrated into the control level via an IO-Link master. First, the communication parameters are exchanged, then the cyclical data exchange of the process data (process data objects) begins.

4.8 SIO Mode (Standard I/O Mode)

In standard I/O mode, there is no IO-Link communication between the device and the master. The device only transmits the switching state of its binary outputs and can also be operated via a fieldbus device or a controller with digital PNP or NPN inputs. An IO-Link master is not required for operation.

The device can be parameterized via IO-Link and then operated with the appropriate settings in SIO mode at digital inputs. Not all functions and properties of the device can be used in SIO mode.

4.9 Measuring axis

The devices have three measuring axes. Per measurement axis, 16-bit telegrams are output via IO-Link, which output the oscillation acceleration or the oscillation speed depending on the parameterization. The vibration acceleration or vibration speed can be output as an RMS value or a peak-to-peak value. Additionally, the vector sum is output as a 16-bit telegram.

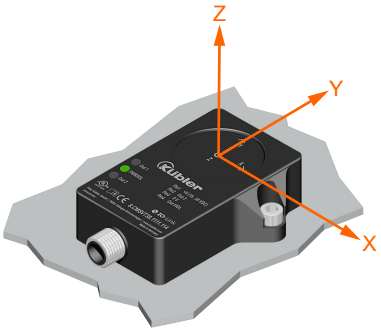


Fig. 1: CMSVT38 Measuring axes

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4.10 Technical Data

NOTICE	Technical Data
	All technical data, as well as mechanical and electrical characteristics, can be found in the data sheets of the corresponding product versions, or in the corresponding bid / customer drawing of the product for specially-designed models.

4.10.1 Product conformity

The product meets the following criteria:

- UL approved for the North American Economic Area.
- Conformity with European directives:
  - EMV: Directive 2014/30/EU
  - RoHS: Directive 2011/65/EU

The declaration of conformity and all certificates for the product can be found on the homepage.

www.kuebler.com/docu-finder

4.10.2 Dimensions

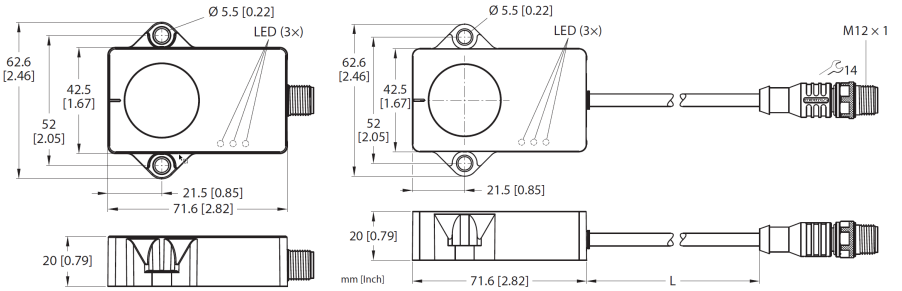

Fig. 2: Dimensions

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4.10.3 Temperature detection

The condition monitoring sensors can output the temperature via acyclical data as well as cyclical data (16-bit telegrams). The detection range is -40 … +85°C at a resolution of 0.1°C. Accuracy is ±3°C.

5 Scope of Delivery

5.1 Condition-monitoring sensor CMSVT38

The scope of delivery includes:

- Condition-monitoring sensor
- Supplement with QR code and link to https://www.kuebler.com/

6 Preparations for installation and commissioning

Please observe the following instructions before beginning to install the condition-monitoring sensor.

ATTENTION	**Damage to the product due to transport or storage**
	Product failure, malfunction, reduction of the product service life. • Check the packaging and the product for possible damage. • Do not use or operate the product in the event of visible damage. • Do not install the product after a fall or crash. • Return damaged products to the manufacturer with a completed returns form (RMA).

NOTICE	**Tools**
	Use only tools that are subject to a quality system, as well as tested and calibrated tools for assembly.

For problem-free installation you will need the following accessories that are not part of the scope of delivery:

- 2 x M5 cylinder head screws (recommendation) for attaching the condition-monitoring sensor as well as matching tools.
  The length of the screws depends on the customer application.
- EMC shielding clamp for EMC-suitable installation of the cable (e.g., order no. 8.0000.4G06.0312).

Unless otherwise stated, a coefficient of friction of 0.14 is assumed for all screw connections. For screws, unless otherwise stated, a strength class of 8.8 (metric) or Grade 5 (imperial) is required.

To parameterize device settings via FDT/IODD communication:

- IO-Link master USB USB interface for easy connection to a PC and for power supply.

Pre-assembled cables

- Adapter cable suitable for CMSVT M12 socket with union nut, 4-pin, A-coded, straight end open 2 m PUR cable (order no. 05.00.6061.6211.002M)
- M12 socket with union nut, 4-pin, A-coded, straight male M12 pin, 4-pin, A-coded, straight 2 m PUR cable (order no. 05.00.6061.6462.002M)

Plug connector

- M12 socket with union nut, 4-pin, A-coded, straight (plastic)
  (order no. 05.B8141-0)

7 Installation

7.1 Mechanical Installation

ATTENTION	**Damage to the product due to transport or storage**
	Product failure, malfunction, reduction of the product service life. • Check the packaging and the product for possible damage. • Do not use or operate the product in the event of visible damage. • Do not install the product after a fall or crash. • Return damaged products to the manufacturer with a completed returns form (RMA).

7.1.1 General Information for the Installation of Condition-Monitoring Sensors

NOTICE	**Do not disassemble or open the condition-monitoring sensor**
	The function of the condition-monitoring sensor may be partially or completely lost. • Never disassemble the Condition Monitoring Sensor fully or partially. • Do not modify the condition-monitoring sensor.

NOTICE	**Do not expose the condition-monitoring sensor to impact loads**
	The accuracy and reliability of the condition-monitoring sensor are damaged. • Do not align the condition-monitoring sensor with a hammer. • Avoid impact loads.

7.1.2 Cable Routing

NOTICE	**Cable routing**
	Lay all cables free of tension so that no additional force is applied to the The temperature and vibration sensor. Observe the minimum bending radii of the connecting cable. Observe the instructions in the chapter **Notes on EMC-compliant Installation** [▷ 17].

Wiring

Ensure that the system wiring is properly routed:

- Separate the wiring in line groups such as motor and power supply lines as well as signal and data lines.
- Route the signal and data cables as closely as possible to ground surfaces (support beams, metal rails, cabinet panels) and not parallel to motor and power supply lines or other lines with a high level of interference.
- Do not connect any other consumers with a high level of interference (e.g. frequency converters, solenoid valves, contactors) to the power supply of the device.

7.1.3 Installation Instructions for Condition-Monitoring Sensors

NOTICE	
	Mount the device rigidly, to avoid measurement inaccuracies due to vibrations. Protective hoods can also reduce accuracy.

The maximum tightening torque of the screws is 3 Nm.

a) Align one of the three detection axes of the device with the vibration direction.

b) Position the device as close as possible to the vibration source.

c) Clean the mounting surface and the mounting environment.

d) Place the device with the cast side on a flat surface so that the cast compound is covered.

e) Fasten the device with two screws.

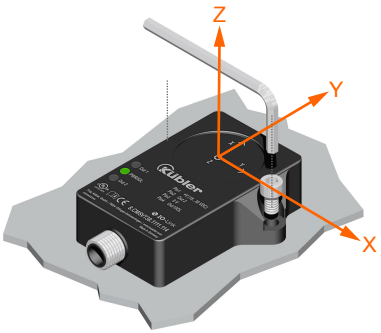

Fig. 3: Assembling the condition-monitoring sensor

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7.2 Electrical Installation

7.2.1 General Instructions for the Connection

ATTENTION	**Destruction of the device** Before plugging or disconnecting the signal line, always disconnect the supply voltage and secure it against being switched on again.
NOTICE	**General safety instructions** Make sure that the entire system is de-energized during electrical installation.
ATTENTION	**No open cable cores** Prior to start-up, connect all required cable cores / connectors. Individually insulate all unneeded ends of the output signals to prevent short circuits. • The device could be damaged or destroyed by electrostatic discharges at the connector contacts or cable ends. Comply with the corresponding safety measures.
ATTENTION	**Strain relief** Always install strain relief with the cables.

7.2.2 Notes on EMC-Compliant Installation

Requirements for cables

a) Use only shielded, twisted-pair cables as connection cables for the device.

b) Observe the maximum permissible cable length of the connection cables.

Shielding and equipotential bonding

a) Place the cable shield over a large area – ideally 360°. Use a shield clamp, for example.

b) Ensure that the cable shields are properly attached.

c) Preferably place the shield on protective earth (PE) with low impedance on both sides, e.g. on the device and/or on the evaluation unit. In the case of existing potential differences, the shield may only be placed on one side.

d) Take appropriate filtering measures if shielding is not possible.

e) Make sure that no short-term overvoltages can occur on signal and voltage supply lines if the protective earth is only connected to the shield on one side.

f) For a large-area connection of the cable shield, use the shield clamp provided for this purpose. This can easily be mounted on the top-hat rail:

IMG-ID: 9007199375147403

Order code	8.0000.4G06.0312	8.0000.4G06.0718
Material	Spring steel, galvanized	
Shield diameter	3.0 … 12.0 mm	7.0 … 18.0 mm

Kübler offers a wide range of connection cables in various designs and lengths, see www.kuebler.com/anschlusstechnik.

Kübler provides various solutions for EMC-compliant installation, e.g. shielding clamps for the control cabinet, see www.kuebler.com/zubehoer.

7.2.3 Connecting the Connection Wires

ATTENTION	Destruction of electronics
	When assembling the sensor cable, ensure adequate ESD protection.

- Before connecting the connection wires, check which assignment the individual wires have.
- After connection, check the proper application of the supply voltage as well as its proper functioning.

If the supply voltage is reversed, The temperature and vibration sensor does not work.

7.2.4 Sensor Terminal Assignment

- Connect the coupling of the connecting cable to the plug of the sensor.
- Connect the open end of the connecting cable to the power source and/or the evaluation devices.

Interface	**M12 connector, male pin, 4-pin, A-coded**					
4	Signal:	+V	Out2	0 V	Out 1/IOL	
	Pin:	1	2	3	4	

+V	Supply voltage +V DC
0 V	ground GND (0V)
Out 1/Out 2	Switching outputs
IOL	IO-Link

8 Commissioning

After connecting and switching on the supply voltage, the device is automatically operational.

8.1 Status LEDs

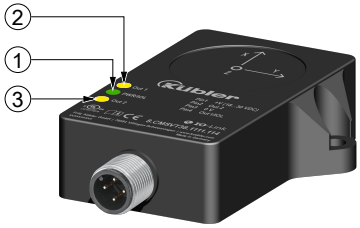

Fig. 4: Status LED

IMG-ID: 404421899

LED		Display	Meaning
1	PWR/ IOL	Green	Device ready for operation
		Green, flashing	IO-Link communication active
2	Out 1	Yellow	Switching status switching output 1 (parameterizable)
3	Out 2	Yellow	Switching status switching output 2 (parameterizable)

9 Settings

9.1 Functions and properties that can be set

Parameter	Meaning
Reset device	The device is restarted. The communication is temporarily interrupted. The measured maximum values of the vibration are reset.
Reset application	The application-specific parameters are reset. Communication is not interrupted. The sensor is placed in a defined operating state. Identification parameters are not affected. The measured maximum values of the vibration are reset.
Restore condition on delivery	The condition on delivery is restored. After restoring, the device is restarted.
Configure process data	The following process data can be set: • RMS in mm/s • Peak-to-Peak in mm/s • RMS in g • Peak-to-Peak in g The values are determined in configurable time windows and output cyclically. Additionally, the maximum values measured since the supply voltage was switched on can be output. If the power supply is interrupted, the maximum values are reset.
Output 1	The switching outputs can be set as normally open (NO) or normally closed (NC) contacts.
Output 1 Configuration	The switching outputs can be configured as PNP or NPN. PNP is active by default.
Output 1 Function	The output can be set as a pre-alarm or warning and as an alarm.
Output 2	The switching outputs can be set as normally open (NO) or normally closed (NC) contacts.
Output 2 Configuration	The switching outputs can be configured as PNP or NPN. PNP is active by default.
Output 2 Function	The output can be set as a pre-alarm or warning and as an alarm.

Parameter	Meaning
ISO 10816-3	The ISO 10816-3 standard specifies the exact vibration limits for industrial machines. The vibration limit values are used to assess industrial machines with a power of ≥15 kW and a rated speed of 120 rpm. A distinction is made between rigid and flexible assembly. Parameterizable switching outputs with PNP/NPN logic can be used to indicate that the limit values defined in ISO 10816-3 have been exceeded. A distinction is made between the following limit value categories: • Newly set up machine • Suitable for continuous operation • Short-term operation permitted • Not permitted The classification in ISO 10816-3 is made into four groups of machines or pumps: • Group 1: Large machines with an output between 300 kW and 50 MW or an electric motor with an axle height ≤ 315 mm • Group 2: Medium-sized machines with an output between 15 kW and 300 kW or an electric motor with an axle height of 160 mm ≤ 315mm • Group 3: Pumps with a power > 15 kW and an external drive • Group 4: Pumps with a power > 15 kW and an integrated drive The classification of the machine substructures into rigid and flexible results from the ratio of the natural frequency of the overall system of the machine and the substructure as well as the excitation frequency. If the lowest natural frequency of the entire system is at least 25% above the excitation frequency, the machine substructure is designated as rigid. Flexibly mounted machines are damped and more tolerant of vibration than rigidly mounted machines that are not damped. The following parameters can be set according to ISO-10816-3 grouping: • Group 1 rigid • Group 1 flexible • Group 2 rigid • Group 2 flexible • Group 3 rigid • Group 3 flexible • Group 4 rigid • Group 4 flexible • Temperature • Manual Manual limits can be defined for the oscillation speed in mm/s or for the temperature at which the switching outputs are active.

Parameter	Meaning
Time slots	The effective values of the vibration speed, acceleration or peak-to-peak values are determined and output over the set period of time. The following time windows for vibration detection can be defined: • 20 ms • 100 ms • 250 ms • 500 ms • 1000 ms
Hysteresis	The window of the hysteresis behavior of the switching outputs can be set as a percentage of the parameterized threshold value.
Threshold values	When manually parameterizing the limit values for vibration speed and temperature, values for the pre-alarm or warning or alarm can be set per detection axis.

9.2 Setting via FDT/IODD

The devices can be set via a PC with an FDT frame (e.g. PACTware).

All required Kübler software components can be downloaded from the Kübler website:

- PACTware
- IODD
- DTM for IO-Link Master USB IOL1A. 1K1341.ZZ1UU1
- IODD DTM Configurator

The files are available for free download at https://www.kuebler.com/.

The IO-Link Master USB IOL1A.1K1341.ZZ1UU1 is required for connection to the PC.

A 4-pin standard sensor cable (e.g. 05.00.6061.6462.002M) is required to connect the sensor to the IO-Link Master USB IOL1A.1K1341.ZZ1UU1.

For more information on setting up the devices via IODD with a configuration tool, see chapter "**Software-Supported IO-Link Parameterization** [▷ 26]"

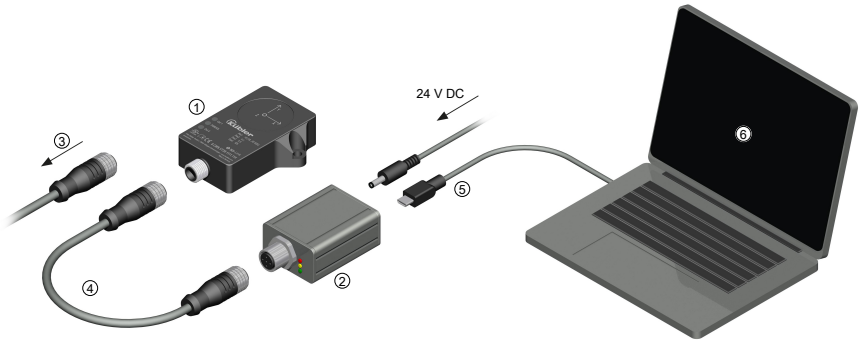

Fig. 5: Setting of switching outputs using IO-Link master

IMG-ID: 407225867

1	Vibration sensor	2	IO-Link Master USB
3	Application	4	Adapter cable
5	USB interface	6	Laptop with software

Connection

The vibration sensor ① is or will be disconnected from the application ③.
The IO-Link Master USB ② is connected to the vibration sensor with the adapter cable ④ and connected to the PC via the USB interface ⑤.

The following parameters can be set using appropriate software ⑥ (e.g. PACTware):

Setting options

Reset device	The measured maximum values of the vibration are reset.
Reset application	The application-specific parameters are reset. The measured maximum values of the vibration are reset.
Configure process data	The following process data can be set: • RMS in mm/s • Peak-to-Peak in mm/s • RMS in g • Peak-to-Peak in g
Configure switching outputs	Can be set for each switching output: • Switching values • Action when the switching values are reached as a normally open (NO) or as normally closed (NC) • PNP or NPN signal • Pre-alarm or warning or alarm

10 Maintenance

Troubleshooting

If the device does not function as expected, check whether there is ambient interference. If there is no ambient interference, check the device connectors for errors.

If none are present, there is a device fault. In this case, take the device out of service and replace it with a new device of the same type.

See chapter **Contact** [▷ 37].

If there are questions or when ordering spare parts, have ready the data printed on the device type plate, including the serial number.

Before starting work

- Switch off the power supply and secure it against being switched on again.
- Then physically disconnect the power supply lines.
- Remove operating and auxiliary materials and residual processing materials Of the temperature and vibration sensor.

10.1 Reassembly

Reinstallation of the product is only permitted under the following conditions:

- The product is undamaged.
- The screws can be tightened again to prevent loosening.
- All safety information in the **Installation** [▷ 15] chapter can be observed.
- All assembly steps presented in the **Installation** [▷ 15] chapter can be implemented.

11 Software-Supported IO-Link Parameterization

The ports of the IO-Link master can be configured in IO-Link mode (IOL) or in Standard IO mode (SIO).

When a port is configured in SiO mode, the IO-Link master on that port behaves like a normal digital input. The connected IO-Link device transmits its classic switching output to the IO-Link master – there is no communication between the device and the master.

If the port is configured in IOL mode, the IO-Link master tries to wake up the connected IO-Link device via the "Wake-up Request". When the master receives a response from the IO-Link device, both devices begin to communicate with each other. First, the communication parameters are exchanged, then the cyclical data exchange of the process data (Process Data Objects) begins.

In active IO-Link communication (IOL mode), an acyclical communication service is also available in addition to the cyclical one.

There are two options for setting the parameters via IO-Link:

- via on-request data objects (e.g. close to the controller via IO-Link function module)
- via tool-based engineering via FDT/DTM (e.g. PACTware using the DTM or the IODD).

Device parameters (On-request Data Objects)

Device parameters are exchanged acyclically and at the request of the IO-Link master. The IO-Link master always sends a request to the device first, then the device responds. This applies to writing the data into the device as well as to reading the data from the device.

With the help of the on-request data objects (ORDO), parameter values can be written to the device (write) or device statuses can be read from the device (read).

12 IO-Link-Parameter

12.1 IO-Link-Parameter

12.1.1 General Parameters

Parameter	Contents
Vendor ID	480
Vendor Name	Fritz Kuebler GmbH
Device ID	0x700011
IO-Link version	1.1
Bitrate	COM3
Minimum cycle time	1.3 ms
Supports SIO	True
M-Sequence Capability	PREOPERATE = TYPE_1_2 with 2 octet data on request OPERATE = TYPE_2_V with 2 octet data on request ISDU supported
Block parameters	True
Data Storage	True
ProfileCharacteristic	0x8000: Device Identification 0x8003: Device Diagnosis

12.1.2 Process Input Data

Eight configurations are available for displaying the process input data. The configurations can be set via the **Process data configuration parameter (index 263 or 0x107).** The default setting is Configuration 2. The following configurations are available:

- Configuration 0: RMS in g
- Configuration 1: Peak-peak in g
- Configuration 2: RMS in mm/s
- Configuration 3: Peak-peak in mm/s
- Configuration 4: max. RMS in g since switching on
- Configuration 5: max. peak-to-peak in g since switching on
- Configuration 6: max. RMS in mm/s since switching on
- Configuration 7: max. peak-to-peak in mm/s since switching on

All configurations have the same process data representation.

Name	Byte.Bit offset	Bit length	Subindex access supported	Data Type	Value	Description
X-axis	8.0	16	True	UInteger	0…65535	Resolution in 0.01 g or mm/s
Y-axis	6.0	16	True	UInteger	0…65535	Resolution in 0.01 g or mm/s
Z-axis	4.0	16	True	UInteger	0…65535	Resolution in 0.01 g or mm/s
Magnitude (vector sum)	2.0	16	True	UInteger	0…65535	
Current temperature	0.0	16	True	Integer	-32768… +32767	Resolution in 0.1 °C

12.1.3 Standard Parameters

Name	Index (dec)	Index (hex)	Sub-index (dec.)	Sub-index (hex.)	Subindex access supported	Access	Byte.Bit offset	Bit length	Data Type	Value	De-fault	Description
Minimum cycle time	0	0x0	3	0x3	True	read	2.0	8	UInteger			
IO-Link Version ID	0	0x0	5	0x5	True	read	4.0	8	UInteger		17	
Manufacturer ID 1	0	0x0	8	0x8	True	read	7.0	8	UInteger			
Manufacturer ID 2	0	0x0	9	X09	True	read	8.0	8	UInteger			
Device ID 1	0	0x0	10	X0A	True	read	9.0	8	UInteger			
Device ID 2	0	0x0	11	0xB	True	read	10.0	8	UInteger			
Device ID 3	0	0x0	12	0xC	True	read	11.0	8	UInteger			
Standard command	2	0x2	0	0x0	True	write	0.0	8	UInteger	0...159		System command
										128		Reset device
										129		Reset application
										130		Restore condition on delivery
Parameter (write) access lock	12	0xC	1	0x1	False	Read/ write	0.0	1	Boolean	false/ true		Block device access
Data storage block	12	0xC	2	0x2	False	Read/ write	0.1	1	Boolean	false/ true		Block device access
Local parameterization block	12	0xC	3	0x3	False	Read/ write	0.2	1	Boolean	false/ true		Block device access

Name	Index (dec)	Index (hex)	Sub-index (dec.)	Sub-index (hex.)	Subindex access supported	Access	Byte.Bit offset	Bit length	Data Type	Value	De-fault	Description
Local user interface block	12	0xC	4	0x4	False	Read/ write	0.3	1	Boolean	false/ true		Block device access
Manufacturer name	16	0x10	0	0x0	True	Read	0.0	40	String		Kuebler	
												Manufacturer name
Manufacturer text	17	0x11	0	0x0	True	Read	0.0	104	String		www.kuebler.de	
												Additional manufacturer information
Product name	18	X012	0	0x0	True	Read	0.0	192	String			Type designation
Product ID	19	0x13	0	0x0	True	Read	0.0	72	String			ID
Product text	20	0x14	0	0x0		Read	0.0	512	String			Device category
Serial number	21	X015	0	0x0	True	Read	0.0	128	String			Device serial number
Hardware version	22	0x16	0	0x0	True	Read	0.0	40	String			Hardware status
Firmware version	23	0x17	0	0x0	True	read	0.0	64	String			Firmware version
Application-specific marking	24	0x18	0	0x0	True	Read/ write	0.0	256	String		***	Can be written by any user
Process data input	40	0x28	0	0x0	True	Read	0.0	80	Process-DataInUnion			

12.1.4 Parameter

Name	Index (dec)	Index (hex)	Subindex (dec.)	Subindex (hex.)	Subindex access supported	Access	Byte. Bit offset	Bit length	Data Type	Value	Default	Description
Function tag	25	0x19	0	0x0	True	read/ write	0.0	256	String	NaN... NaN	***	The parameter contains the description of the function of a profile device in an application.
Location tag	26	0x1A	0	0x0	True	read/ write	0.0	256	String	NaN... NaN	***	The parameter contains the description of the location of a profile device in an application.
Minimum temperature	256	0x 100	1	0x1	True	read	2.0	16	Integer	-32768 … +32767	0	The minimum and maximum measured temperature in °C. The temperature can be measured from -40…+105°C.
Maximum temperature	256	0x100	2	0x2	True	read	0.0	16	Integer	-32768 … +32767	0	The minimum and maximum measured temperature in °C. The temperature can be measured from -40…+105°C.
Hysteresis	258	0x102	0	0x0	True	read/ write	0.0	8	UInteger	0… 100	5	Hysteresis in % based on the threshold value
ISO 10816-3 Group	259	0x 103	0	0x0	True	read/ write	0.0	8	UInteger	0…9	0	Machine group according to ISO 10816-3
										0		Group 1 rigid
										1		Group 1 flexible
										2		Group 2 rigid
										3		Group 2 flexible
										4		Group 3 rigid

Name	Index (dec)	Index (hex)	Subindex (dec.)	Subindex (hex.)	Subindex access supported	Access	Byte. Bit offset	Bit length	Data Type	Value	Default	Description
										5		Group 3 flexible
										6		Group 4 rigid
										7		Group 4 flexible
										8		Temperature
										9		manual
X-axis pre-alarm threshold	260	0x 104	1	0x1	True	read/ write	14.0	16	UInteger	10… 65535	450	Threshold values
X-axis alarm threshold	260	0x 104	2	0x2	True	read/ write	12.0	16	UInteger	10… 65535	710	Threshold values
Y-axis pre-alarm threshold	260	0x 104	3	0x3	True	read/ write	10.0	16	UInteger	10… 65535	450	Threshold values
Y-axis alarm threshold	260	0x 104	4	0x4	True	read/ write	8.0	16	UInteger	10… 65535	710	Threshold values
Z-axis pre-alarm threshold	260	0x 104	5	0x5	True	read/ write	6.0	16	UInteger	10… 65535	450	Threshold values
Z-axis alarm threshold	260	0x 104	6	0x6	True	read/ write	4.0	16	UInteger	10… 65535	710	Threshold values
Temperature pre-alarm threshold	260	0x 104	7	0x7	True	read/ write	2.0	16	UInteger	10… 65535	500	Threshold values
Temperature alarm threshold	260	0x 104	8	0x8	True	read/ write	0.0	16	UInteger	10 … 65535	600	Threshold values

Name	Index (dec)	Index (hex)	Subindex (dec.)	Subindex (hex.)	Subindex access supported	Access	Byte. Bit offset	Bit length	Data Type	Value	Default	Description
Operating hours counter	262	0x 106	0	0x0	True	read	0.0	32	UInteger	NaN... NaN	0	Time in hours during which the device is in operation
Process data configuration	263	0x 107	0	0x0	True	read/ write	0.0	8	UInteger	0…7	2	configure which process data is received
										0		RMS in g
										1		Peak-peak in g
										2		RMS in mm/s
										3		Peak-peak in mm/s
										4		max. RMS in g since switching on
										5		max. peak-peak in g since switching on
										6		max. RMS in mm/s since switching on
										7		max. peak-peak in mm/s since switching on
Time window	264	0x	0	0x0	True	read/	0.0	8	UInteger	0…4	4	Time window
										0		20 ms
										1		100 ms
										2		250 ms
										3		500 ms
										4		1000 ms
Carry out self-test	265	0x109	0	0x0	True	write	0.0	8	UInteger			Self-test

Name	Index (dec)	Index (hex)	Subindex (dec.)	Subindex (hex.)	Subindex access supported	Access	Byte. Bit offset	Bit length	Data Type	Value	Default	Description
										1		Self-test
Self-test, result	267	0x 10B	0	0x0	True	read	0.0	8	UInteger	0…2		Result of the self-test
										0		Device not tested
										1		Device is not in order
										2		Device is in order
Output 1	268	0x 10C	0	0x0	True	read/ write	0.0	8	UInteger	0…1	0	Behavior of the first switching output
										0		NO
										1		NC
Output 1 Configuration	269	0x 10D	0	0x0	True	read/ write	0.0	8	UInteger	0…1	1	Configuration of the first output
										0		NPN
										1		PNP
Alarm function	270	0x 10E	0	0x0	True	read/ write	0.0	8	UInteger	0…1	0	Alarm function
										0		Pre-alarm
										1		Alarm
Output 2	271	0x 10F	0	0x0	True	read/ write	0.0	8	UInteger	0…1	0	Behavior of the second switching output
										0		NO
										1		NC

Name	Index (dec)	Index (hex)	Subindex (dec.)	Subindex (hex.)	Subindex access supported	Access	Byte. Bit offset	Bit length	Data Type	Value	Default	Description
Output 2 Configuration	272	0x 110	0	0x0	True	read/ write	0.0	8	UInteger	0…1	1	Configuration of the second output
										0		NPN
										1		PNP
Alarm function	273	0x 111	0	0x0	True	read/ write	0.0	8	UInteger	0…1	1	Alarm function
										0		Pre-alarm
										1		Alarm
Output 1	274	0x 112	0	0x0	True	read	0.0	8	UInteger	0…1		Status of the first output
										0		Off
										1		one
Output 2	275	0x 113	0	0x0	True	read	0.0	8	UInteger	0…1		Status of the second output
										0		Off
										1		one

13 Disposal

Always dispose of unusable or irreparable products in an environmentally friendly manner in accordance with country-specific requirements and valid waste disposal regulations. We are happy to help you with the disposal of the products.

See chapter **Contact** [▶ 37].

NOTICE	**Environmental damage due to incorrect disposal**
	Electrical waste, electronic components, lubricants, and other auxiliary materials are subject to hazardous waste disposal regulations. Hazardous materials may only be disposed of by authorized specialists.

Dispose of disassembled product parts as follows:

- Metal components to metal scrap
- Electronic components to electrical scrap
- Plastic parts to a recycling center.
- Sort and dispose of other components based on material consistency.

14 Contact

If you want to get in touch with us:

Technical advice

For technical advice, analysis or support during installation, Kübler is available directly on site with its global application team.

Support International (English-speaking)

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Kübler Austria +43 3322 43723 12
Kübler Poland +48 6 18 49 99 02
Kübler Turkey +90 216 999 9791
Kübler USA +1 855 583 2537

Repair Service/RMA Form

For returns, please pack the product adequately and enclose the completed "Returns Form".

www.kuebler.com/rma

Send your return to the following address, stating the RMA reference.

Kübler Group
Fritz Kübler GmbH

Schubertstraße 47
D-78054 Villingen-Schwenningen
Deutschland

Phone +49 7720 3903 0
Fax +49 7720 21564

info@kuebler.com
www.kuebler.com

15 Appendix

15.1 Conversion Table Decimal/Hexadecimal

Dec	Hex	Dec	Hex	Dec	Hex	Dec	Hex	Dec	Hex
0	*0x0*	51	*0x33*	102	*0x66*	153	*0x99*	204	*0xCC*
1	*0x1*	52	*0x34*	103	*0x67*	154	*0x9A*	205	*0xCD*
2	*0x2*	53	*0x35*	104	*0x68*	155	*0x9B*	206	*0xCE*
3	*0x3*	54	*0x36*	105	*0x69*	156	*0x9C*	207	*0xCF*
4	*0x4*	55	*0x37*	106	*0x6A*	157	*0x9D*	208	*0xD0*
5	*0x5*	56	*0x38*	107	*0x6B*	158	*0x9E*	209	*0xD1*
6	*0x6*	57	*0x39*	108	*0x6C*	159	*0x9F*	210	*0xD2*
7	*0x7*	58	*0x3A*	109	*0x6D*	160	*0xA0*	211	*0xD3*
8	*0x8*	59	*0x3B*	110	*0x6E*	161	*0xA1*	212	*0xD4*
9	*0x9*	60	*0x3C*	111	*0x6F*	162	*0xA2*	213	*0xD5*
10	*0xA*	61	*0x3D*	112	*0x70*	163	*0xA3*	214	*0xD6*
11	*0xB*	62	*0x3E*	113	*0x71*	164	*0xA4*	215	*0xD7*
12	*0xC*	63	*0x3F*	114	*0x72*	165	*0xA5*	216	*0xD8*
13	*0xD*	64	*0x40*	115	*0x73*	166	*0xA6*	217	*0xD9*
14	*0xE*	65	*0x41*	116	*0x74*	167	*0xA7*	218	*0xDA*
15	*0xF*	66	*0x42*	117	*0x75*	168	*0xA8*	219	*0xDB*
16	*0x10*	67	*0x43*	118	*0x76*	169	*0xA9*	220	*0xDC*
17	*0x11*	68	*0x44*	119	*0x77*	170	*0xAA*	221	*0xDD*
18	*0x12*	69	*0x45*	120	*0x78*	171	*0xAB*	222	*0xDE*
19	*0x13*	70	*0x46*	121	*0x79*	172	*0xAC*	223	*0xDF*
20	*0x14*	71	*0x47*	122	*0x7A*	173	*0xAD*	224	*0xE0*
21	*0x15*	72	*0x48*	123	*0x7B*	174	*0xAE*	225	*0xE1*
22	*0x16*	73	*0x49*	124	*0x7C*	175	*0xAF*	226	*0xE2*
23	*0x17*	74	*0x4A*	125	*0x7D*	176	*0xB0*	227	*0xE3*
24	*0x18*	75	*0x4B*	126	*0x7E*	177	*0xB1*	228	*0xE4*
25	*0x19*	76	*0x4C*	127	*0x7F*	178	*0xB2*	229	*0xE5*
26	*0x1A*	77	*0x4D*	128	*0x80*	179	*0xB3*	230	*0xE6*
27	*0x1B*	78	*0x4E*	129	*0x81*	180	*0xB4*	231	*0xE7*
28	*0x1C*	79	*0x4F*	130	*0x82*	181	*0xB5*	232	*0xE8*
29	*0x1D*	80	*0x50*	131	*0x83*	182	*0xB6*	233	*0xE9*
30	*0x1E*	81	*0x51*	132	*0x84*	183	*0xB7*	234	*0xEA*

Dec	Hex	Dec	Hex	Dec	Hex	Dec	Hex	Dec	Hex
31	*0x1F*	82	*0x52*	133	*0x85*	184	*0xB8*	235	*0xEB*
32	*0x20*	83	*0x53*	134	*0x86*	185	*0xB9*	236	*0xEC*
33	*0x21*	84	*0x54*	135	*0x87*	186	*0xBA*	237	*0xED*
34	*0x22*	85	*0x55*	136	*0x88*	187	*0xBB*	238	*0xEE*
35	*0x23*	86	*0x56*	137	*0x89*	188	*0xBC*	239	*0xEF*
36	*0x24*	87	*0x57*	138	*0x8A*	189	*0xBD*	240	*0xF0*
37	*0x25*	88	*0x58*	139	*0x8B*	190	*0xBE*	241	*0xF1*
38	*0x26*	89	*0x59*	140	*0x8C*	191	*0xBF*	242	*0xF2*
39	*0x27*	90	*0x5A*	141	*0x8D*	192	*0xC0*	243	*0xF3*
40	*0x28*	91	*0x5B*	142	*0x8E*	193	*0xC1*	244	*0xF4*
41	*0x29*	92	*0x5C*	143	*0x8F*	194	*0xC2*	245	*0xF5*
42	*0x2A*	93	*0x5D*	144	*0x90*	195	*0xC3*	246	*0xF6*
43	*0x2B*	94	*0x5E*	145	*0x91*	196	*0xC4*	247	*0xF7*
44	*0x2C*	95	*0x5F*	146	*0x92*	197	*0xC5*	248	*0xF8*
45	*0x2D*	96	*0x60*	147	*0x93*	198	*0xC6*	249	*0xF9*
46	*0x2E*	97	*0x61*	148	*0x94*	199	*0xC7*	250	*0xFA*
47	*0x2F*	98	*0x62*	149	*0x95*	200	*0xC8*	251	*0xFB*
48	*0x30*	99	*0x63*	150	*0x96*	201	*0xC9*	252	*0xFC*
49	*0x31*	100	*0x64*	151	*0x97*	202	*0xCA*	253	*0xFD*
50	*0x32*	101	*0x65*	152	*0x98*	203	*0xCB*	254	*0xFE*
								255	*0xFF*

15.2 Conversion Table Data Types

Data type	Number type	Length in bit	Length in bytes
BOOL	Binary	1	-
BYTE	Binary	8	1
WORD	Binary	16	2
DWORD	Binary	32	4
LWORD	Binary	64	8
SINT	Integer	8	1
INT	Integer	16	2
DINT	Integer	32	4
UINT	Integer	32	4
LINT	Integer	64	8
REAL	Sliding score	32	4
LREAL	Sliding score	64	8

Glossary

BOOL

Data type, a BOOLEAN, stands for a truth value that can be either true or false.

DINT

Data type, an operand of the data type DINT (Double Integer) has a length of 32 bits and consists of two components: a sign and a numerical value in the two's complement.

DWORD

Data type, a DWORD consists of two WORDS, which in turn consists of 2 bytes each and the bytes in turn consist of 8 bits each.

ESD

Electro-static discharge, electrostatic discharges are voltage breakdowns caused by large potential differences, a spark. These breakdowns cause a short, high electric current.

INT

Data type, integer, an integer usually consists of 16 bits.

LWORD

Data type, Long WORD, consists of two DWORD.

PE

Abbreviation: Protective Earth, conductor for the protection of safety against electric shock (earth conductor).

RMA

Engl: Return Material Authorization, authorization to return materials, e.g. in the event of complaints

SINT

Data type, short integer, an operand of the data type SINT (Short INT) has a length of 8 bits and consists of two components: a sign and a numerical value.

UINT

Data type, an operand of the data type UINT (Unsigned INT) has a length of 16 bits and contains unsigned numerical values.

WORD

Data type A WORD contains 2 bytes, which in turn contain 8 bits each.

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