

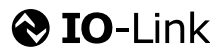
**Service pulse counters**      **IO-Link**      **Codix 144**



The Codix 144 voltage-supplied service pulse counter can be used as a simple pulse counter, service counter and/or batch counter. Thanks to the adjustable pre-warning and signaling via the traffic light function, the display is ideal for monitoring service intervals.

The user also has a large number of adjustable parameters and modes at their disposal, which can be parameterized via the IO-Link interface. This offers a wide range of options for solving control and monitoring tasks in any application.

Traffic light function



<b>DC</b> 10 ... 30 V Supply voltage	 PNP/NPN Input type	 7 LCDs LCD display	 Multicolor Display	 DIN 48x24	 Lockable reset	<b>Batch</b> Batch counter	 1 3 4 Totalizer	 1 2 1 Differential count	 1 2 1 Count direction	 1 Transistor output
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### Features and benefits

- **IO-Link interface**
  - For easy integration into Industry 4.0 / IIoT networks.
  - Simple parameterization via IO-Link.
  - Ideal for retrofit applications.
- **User-friendly**
  - 7-digit multicolor LCD display for optimum readability.
  - Flashing text message in the display (service or pre-service).
  - Signalization via traffic light function (green, yellow, red) when the set limit values are reached.
  - Reset button with multiple function can be activated via separate input.
  - Scalable display with multiplication and division factor to display corresponding units.
- **Functional**
  - Monitoring of service intervals with adjustable advance warning.
  - As a simple pulse counter, service counter and/or batch counter.
  - Various counting modes (differential, totalizing or counting direction detection).
  - Fast or damped PNP/NPN control.
  - Two separate inputs and one transistor output.
  - Manual or electrical reset.
  - Freely programmable set value.
  - Storage of values in EEPROM.

**Order code**      6.144 . 011 . 308

**a** Supply voltage  
3 = 24 V DC

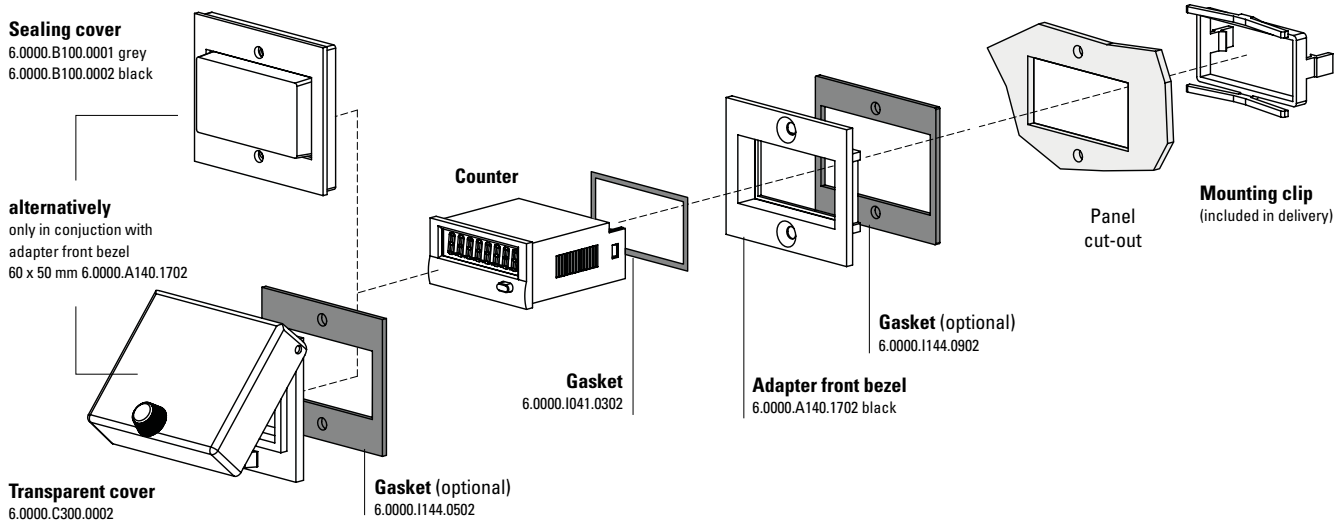
**b** Interface  
8 = IO-Link

*Delivery specification*

- Counter
- Mounting clip
- Gaskets
- Reference to the operating instructions, multilingual

<b>Service pulse counters</b>	<b>IO-Link</b>	<b>Codix 144</b>
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## Accessories / Mounting examples



		Type / size	Description		Order no.	suitable gasket
<b>Adapter front bezel</b>		<b>53 x 28 mm</b> [2.09 x 1.10"]	for cut-out 50 x 25 mm [1.97 x 0.98"] to cut-out 45 x 22.2 mm [1.77 x 0.94"]	black anthracite	<b>6.0000.A080.0502</b> <b>6.0000.A080.0503</b>	<b>6.0000.I082.0502</b>
		<b>56 x 40 mm</b> [2.20 x 1.57"]	for cut-out 50 x 25 mm [1.97 x 0.98"] to cut-out 45 x 22.2 mm [1.77 x 0.94"] screw mounting	black anthracite	<b>6.0000.A110.0502</b> <b>6.0000.A110.0503</b>	<b>6.0000.I113.0502</b>
		<b>72 x 36 mm</b> [2.83 x 1.42"]	for cut-out 68 x 33 mm [2.68 x 1.30"] to cut-out 45 x 22.2 mm [1.77 x 0.94"]	black and silver anodised as set	<b>6.0000.A210.1802</b>	–
		<b>60 x 50 mm</b> [2.36 x 1.97"]	for cut-out 54 x 29 mm [2.13 x 1.14"] to cut-out 45 x 22.2 mm [1.77 x 0.94"] screw mounting	black	<b>6.0000.A140.1702</b>	<b>6.0000.I144.0902</b>
		<b>48 x 48 mm</b> [1.89 x 1.89"]	for cut-out 45 x 45 mm [1.77 x 1.77"] to cut-out 45 x 22.2 mm [1.77 x 0.94"]	black	<b>6.0000.A040.0402</b>	–
<b>Sealing cover IP65</b>		<b>K1</b>	only in conjunction with adapter front bezel 60 x 50 mm N003001	transparent / grey transparent / black	<b>6.0000.B100.0001</b> <b>6.0000.B100.0002</b>	–
<b>Transparent cover IP65</b>		<b>1 Dv</b> (mounted on bezel)	cover lockable, for cut-out 54 x 29 mm [2.13 x 1.14"], only in conjunction with adapter front bezel 60 x 50 mm N003001	transparent / black	<b>6.0000.C300.0002</b>	<b>6.0000.I144.0502</b>
<b>Gasket counter</b>			48 x 24 mm (for installation in adapter front bezel) 49 x 25 mm		<b>6.0000.I041.0302</b> <b>6.0000.I063.0302</b>	
<b>Mounting frame</b>		<b>cut-out</b> <b>50 x 25 mm</b> [1.97 x 0.98"]	via adapter T008180 for snap-on mounting on 35 mm [1.38"] top-hat DIN rail	chromated	<b>6.0000.F300.0006</b>	–
<b>Enclosure blind</b>		<b>48 x 24 mm</b> [1.89 x 0.94"]	for cut-out 45 x 22.2 mm [1.77 x 0.94"] and cut-out 50 x 25 mm [1.97 x 0.98"]	anthracite	<b>6.0000.H100.0003</b>	–

incl. in delivery

# Pulse counters, electronic

Service pulse counters		IO-Link	Codix 144
<b>Accessories</b>			Order no.
<b>IO-Link Master USB</b> 	For parameterizing device settings via FDT/IODD communication. USB interface for easy connection to a PC and for power supply.		<b>IOL1A.1K1341.ZZ1UU1</b>
<b>IO-Link Master</b> 	The IO-Link masters from Kübler are available with the Ethernet/IP, EtherCAT and PROFINET protocols. Versions with 4 or 8 ports in Class A and Class B are available from stock. Existing field devices that send classic switching signals can also be operated per port in SIO mode.	<b>4 Ports Class A</b> Ethernet/IP EtherCAT PROFINET  <b>4 Ports Class A</b> <b>+ 4 Ports Class B</b> Ethernet/IP EtherCAT PROFINET	<b>IOL4A.124341.1222A1</b> <b>IOL4A.124341.1222B1</b> <b>IOL4A.124341.1222C1</b>  <b>IOL4A4B.1L8341.1L21A1</b> <b>IOL4A4B.1L8341.1L21B1</b> <b>IOL4A4B.1L8341.1L21C1</b>
<b>Cables and connectors</b>			Order no.
<b>Preassembled cables</b>	M12 male connector with external thread, 4-pin, A-coded, straight single ended 2 m [6.56'] PUR cable		<b>05.00.60H1.6411.002M</b>

Further Kübler accessories can be found at: [kuebler.com/accessories](http://kuebler.com/accessories)

Further Kübler cables and connectors can be found at: [kuebler.com/connection-technology](http://kuebler.com/connection-technology)

# Pulse counters, electronic

<b>Service pulse counters</b>	<b>IO-Link</b>	<b>Codix 144</b>
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<b>Technical data</b>
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Electrical characteristics	
<b>Display</b>	LCD, 7 digits, 8 mm [0.32"] high Overflow and underflow are displayed
<b>Counting range</b>	-999999 up to 9999999
<b>Reset</b>	manual and electric
<b>Supply voltage</b>	24 V DC
<b>Current consumption max. (no load)</b>	33 mA
<b>Number of presets</b>	2
<b>Backlighting</b>	RGB, predefined set of colors
<b>Start delay</b>	50 ms
<b>Data backup</b>	EEPROM

Mechanical characteristics	
<b>Weight</b>	40 g
<b>Housing</b>	material PC (polycarbonate) color dark gray Ral 7021
<b>Mounting type</b>	panel mounting
<b>Connections</b>	screw terminals, 8-pin
<b>Core cross-section max.</b>	2.5 mm <sup>2</sup>
<b>Protection</b>	front side IP65 rear side IP20
<b>Operating temperature</b>	-20 °C ... +65 °C [-4 °F ... +149 °F]
<b>Storage temperature</b>	-25 °C ... +75 °C [-13 °F ... +167 °F]
<b>Relative humidity</b>	< 85 % (non-condensing)
<b>Vibration resistance acc. to EN 60068-2-6</b>	10 ... 55 Hz / 1 mm / 30 min
<b>Shock resistance acc. to EN 60068-2-27</b>	100 G: 2 ms 10 G: 6 ms

Approvals	
<b>CE compliant</b> in accordance with	
EMC Directive	2014/30/EU
RoHS Directive	2011/65/EU

Interface characteristics IO-Link	
<b>Communication mode</b>	COM 2 (38.4 kBaud)
<b>IO-Link revision</b>	1.1
<b>Min. process cycle time</b>	54.4 ms

Inputs / Count inputs	
<b>Polarity of the inputs</b>	PNP / NPN; (parameterizable)
<b>Number of inputs</b>	2
<b>Input resistance</b>	10 kOhm
<b>Counting frequency max.</b>	25 kHz max, parameterized attenuation filter, suitable for use with mechanical contacts
<b>Activation input for reset button</b>	Static NPN input
<b>Minimum pulse duration of the reset input</b>	20 ms
<b>Switching level</b>	LOW 0 ... 2 V DC HIGH 3.5 ... 30 V DC
<b>Switching threshold</b>	ca. 2.7 V DC

Outputs	
<b>Number of outputs</b>	1
<b>Output function</b>	N/O contact / N/C contact (parameterizable)
<b>Type of exit</b>	NPN transistor output, Open Collector

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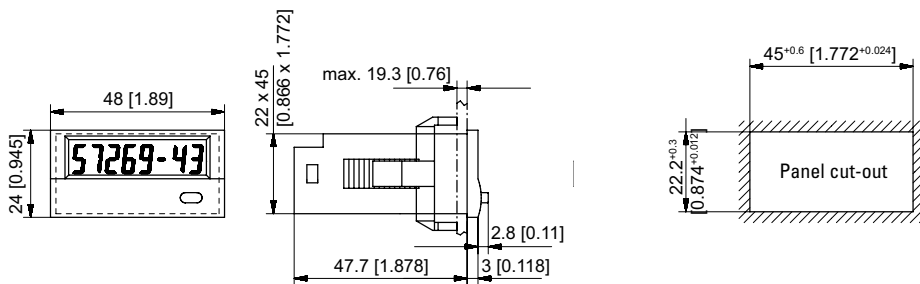
## Terminal assignment

Connection terminal, 8-pin, screw connection									
Function:	IO-Link / supply voltage			Inputs			Output		
Pin:	1	2	3	4	5	6	7	8	
Signal:	L+	L-	C/Q	0 V (GND)	Input A	Input B	Reset Manual Enable	Out (Collector)	

L+ : Supply voltage +V DC  
 L- : Supply voltage ground 0 V (GND)  
 C/Q : IO-Link communication

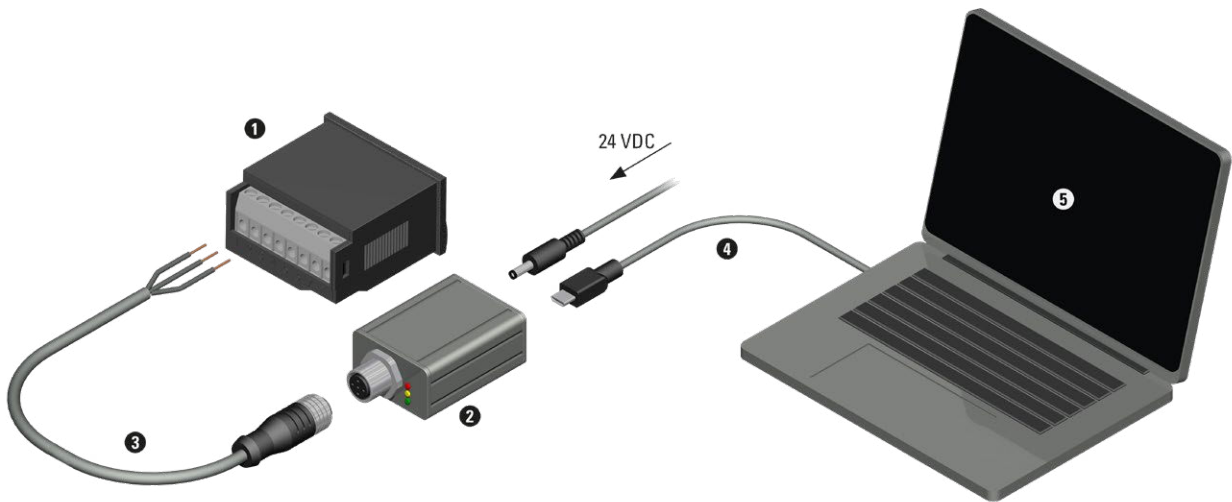
## Dimensions

Dimensions in mm [inch]



## Technology in detail

### Individual parameterization via FDT/IODD with IO-Link Master USB



#### Connection

The Codix 144 service pulse counter ① is connected to the IO-Link Master USB ② via an adapter cable ③ and connected to the PC ⑤ via the USB interface ④. The device parameters can be set using appropriate software (e.g. PACTware).

#### Setting options

Operating mode	Differential, totalizing, counting direction or ratio measurement
Source of the process input data	Main counter, batch counter, input voltage, ...
Main counter / Batch counter	Set the value for the main counter/batch counter or reset the current value
Inputs	Set polarity (PNP/NPN) and filter of the inputs
Scaling	Scaling of the main counter via decimal point, factor or divisor
Display menu	Select the source of supply for the display as well as the backlight and refresh rate of the display
Pre-selection menu	Set values for pre-warning / warning with optional color change
Output menu	Select output mode, output delay and normally closed or normally open function
Further setting options	Many other parameters can also be selected

## Application options

### In the IO-Link network

**Structure / Function**

The Codix 144 service pulse counter **1** has an IO-Link interface that enables it to be used in the IO-Link network and thus connected to an IO-Link master **2**. The device can record and evaluate PNP/NPN pulses via the two separate inputs **3** and transmit the processed data to the IO-Link master (Process-Data-Input **4**).

The integrated transistor output can control an actuator such as a horn, light, relay or an IO module **5** when a preset preset is reached.

With the "Process-Data-Output" function, data that comes from an IO-Link sensor **6** via the IO-Link master, for example, can be transmitted to the display and visualized **7**.

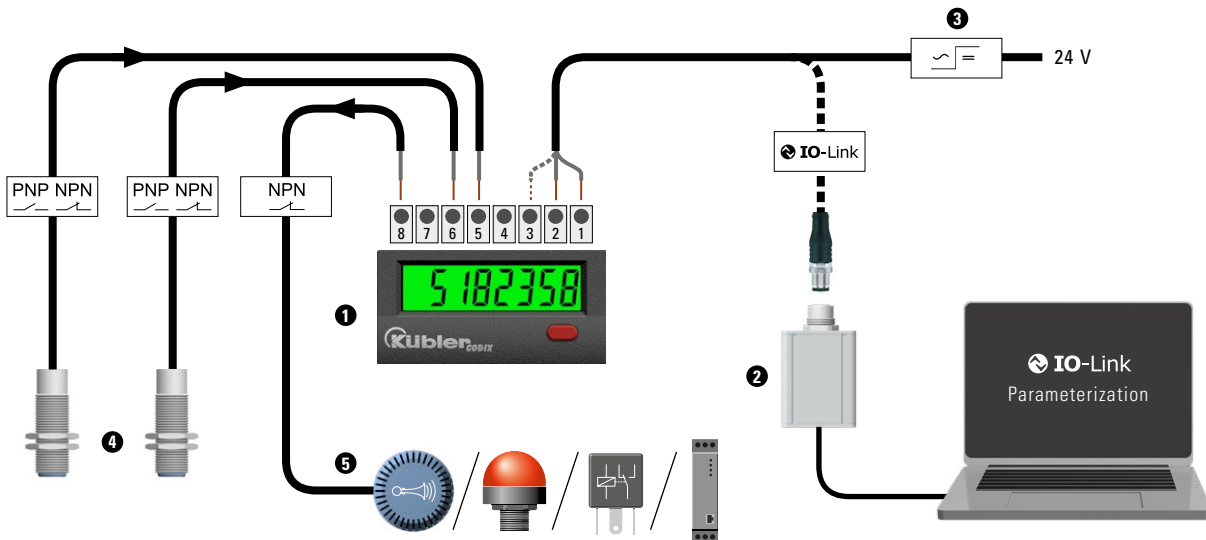
The counter is parameterized during operation via the controller **8**.

**Benefits**

- Decentralized unit with evaluation and display "on site"
- Programmed modes for individual evaluation of the input data
- Use as a service device with visual warning and/or pre-warning
- Integration of two switching inputs and one switching output in the IO-Link network
- Cost-effective network solution (3 connections for one IO-Link port on the master)

## Application options

### Stand-alone solution / parameterizable via IO-Link



#### Structure / Function

The Codix 144 service pulse counter **1** with IO-Link interface can be connected and parameterized directly to a PC via the IO-Link Master USB **2**. As a stand-alone solution, the counter is supplied with an external voltage **3** and the device can record and evaluate PNP/NPN pulses via the two separate inputs **4**.

The transistor output can control an actuator such as a horn, light, relay or an IO module **5** when a preset preset is reached.

#### Benefits

- Simple and intuitive parameterization via the IO-Link interface
- Use as a service device with visual warning and/or pre-warning
- Pre-programmed modes for individual evaluation of the input data
- Wide range of possible applications