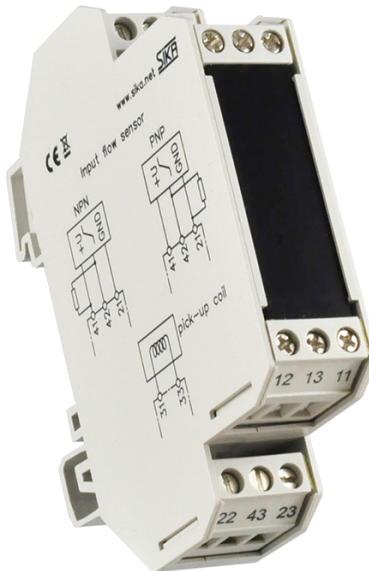


TU 7055 – Measuring transducer for flow and volumetric sensors



Contents

	page
0 About this operating manual.....	2
1 Device description.....	3
1.1 Intended use.....	3
2 Safety instructions.....	4
3 Connections and function.....	4
4 Installation and electrical connection.....	5
4.1 Rail mounting.....	5
4.2 Electrical connection.....	5
4.2.1 Flow or volumetric sensor connection.....	5
4.2.2 Output connections.....	6
4.2.3 Supply voltage connection.....	6
5 Commissioning.....	7
6 Maintenance, decommissioning and disposal.....	7
7 Technical data.....	7
7.1 Dimensions.....	8

Please keep this operating manual for future reference.
If the device is resold, please provide the operating manual along with it.

0 About this operating manual

- The operating manual is aimed at specialists and semi-skilled personnel.
- Before each step, read through the relevant advice carefully and keep to the specified order.
- Thoroughly read and understand the information in the section “Safety instructions”.

If you have any problems or questions, please contact your supplier or contact us directly at:



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Hazard signs and other symbols used:



DANGER! Risk of death due to electric current!

This sign indicates dangers which could lead to serious health defects or to death.



CAUTION! Risk of injury!

This sign indicates dangers that cause personal injuries that can lead to health defects or cause considerable damage to property.



ATTENTION! Material damage!

This sign indicates actions which could lead to possible damage to material or environmental damage.



ADHERE TO OPERATING MANUAL!



NOTICE!

This symbol indicates important notices, tips or information.



NO DOMESTIC WASTE!

The device must not be disposed of together with domestic waste!



Pay attention to and comply with information that is marked with this symbol.



Follow the specified instructions and steps. Adhere to the given order.

☐ Check the specified points or notices.

→ Reference to another section, document or source.

• Item

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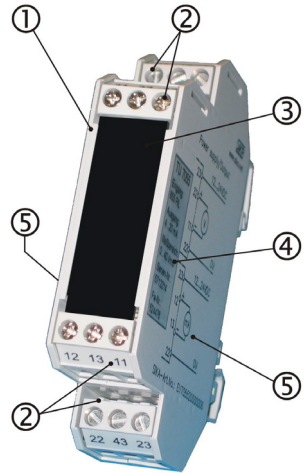
1 Device description

The measuring transducer TU 7055 converts input signals of SIKA flow or volumetric sensors into current and voltage output signals.

All SIKA flow or volumetric sensors can be connected to the TU 7055.

Design / Components:

- ① Casing:
The TU 7055 is fitted with a plastic casing for rail mounting in accordance with DIN EN 60715.
- ② Terminals:
For the electrical wiring of the TU 7055.
- ③ Front panel:
Protects the electronics against static discharges and mechanical damage.
- ④ Type plate:
The type plate is located on the right-hand side of the casing and specifies the factory settings.
- ⑤ Electrical wiring:
Wiring diagrams for the supply voltage, the inputs and the outputs are printed on both sides of the casing.



The TU 7055 is usually supplied together with a SIKA flow or volumetric sensor. Furthermore, TU 7055 is aligned to the pulse rate range of the desired sensor and tested by the manufacturer.



INFO: Use with an existing sensor.

Please specify the technical data of your flow or volumetric sensor with your order. The TU 7055 will then be aligned to this specified technical data.

Scope of delivery:

- 1x TU 7055.
- 1x Pull-up / Pull-down resistor 5k Ω : Fastened to the side of the plastic casing of the TU 7055.
- 1x Operating manual.
- Optional: SIKA flow or volumetric sensor (type corresponds to the order).

1.1 Intended use

The measuring transducer TU 7055 should only be used to convert the frequency signals of SIKA flow or volumetric sensors into standard current and voltage signals.

The suitability of other sensors must be tested prior to the delivery of the TU 7055. Please contact your supplier or SIKA for more details.

The operational safety of the supplied equipment is only guaranteed if it is operated according to its intended use. The specified limit values (see 7 "Technical data") should never be exceeded.

Always make sure that the measuring transducer TU 7055 is suitable for your requirements prior to installation and commissioning.

2 Safety instructions



Before you install the TU 7055, read through this operating manual carefully. If the instructions contained within it are not followed, in particular the safety guidelines, this could result in danger for people, the environment, and the device and the system it is connected to.

The TU 7055 correspond to the state-of-the-art technology. This concerns the accuracy, the operating mode and the safe operation of the device.

In order to guarantee that the device operates safely, the operator must act competently and be conscious of safety issues.

SIKA provides support for the use of its products either personally or via relevant literature. The customer verifies that our product is fit for purpose based on our technical information. With this verification all hazards and risks are transferred to our customers; our warranty is not valid.

Qualified personnel:

⚠ The personnel who are charged for the installation, operation and maintenance of the TU 7055 must hold a relevant qualification.

This can be based on training or relevant tuition. The personnel must be aware of this operating manual and have access to it at all times.

⚠ The electrical connection should only be carried out by a fully qualified electrician.

General safety instructions:

⚠ In all work, the existing national regulations for accident prevention and safety in the workplace must be complied with. Any internal regulations of the operator must also be complied with, even if these are not mentioned in this manual.

⚠ Degree of protection IP20:

The device is not intended for outdoor use or for use in damp conditions.

Special safety instructions:

Warnings that are specifically relevant to individual operating procedures or activities can be found at the beginning of the relevant sections of this operating manual.

3 Connections and function

Connections:

- ①: Sensors NPN / PNP connection.
- ②: Voltage output connection (0...10 V).
- ③: Power supply connection.
- ④: Current output connection (0/4...20 mA).
- ⑤: Inductive sensors connection.

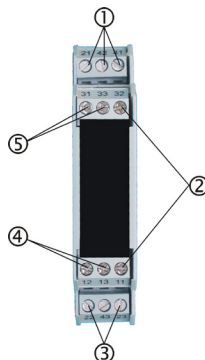
Function:

The frequency signal of the sensor at the input of the TU 7055 is converted into analogue current and voltage signals at the outputs.

The two outputs can be used simultaneously.

The current output provides a frequency-dependent output signal of 0/4...20 mA.

The voltage output provides a frequency-dependent output signal of 0...10 V.



4 Installation and electrical connection

Prior to installation and electrical connection:

- Switch off the system.
- Make sure that the system is isolated from all possible sources of supply and is completely de-energised.

4.1 Rail mounting

The TU 7055 is fitted with a plastic casing for rail mounting in accordance with DIN EN 60715. It can be mounted before or after electrical connection.

- ↪ Place the TU 7055 on the rail from above and ensure that the plastic casing locks into position.

4.2 Electrical connection



CAUTION! Danger of death due to electrical hazard!

The electrical connection of the TU 7055 should only be carried out by a fully qualified electrician.



ATTENTION! Material damage!

The TU 7055 may be damaged if the connection cables are swapped.

- ↪ Only connect the TU 7055 to the specified connections.

4.2.1 Flow or volumetric sensor connection

All SIKA flow or volumetric sensors can be connected to the TU 7055.



ATTENTION! Material damage!

Malfunctioning and damage may occur if several sensors are connected.

- ↪ Only connect one flow or volumetric sensor.

4.2.1.1 NPN / PNP sensors

For a sensor current consumption of ≤ 50 mA (> 50 mA), the power supply (+U) is connected to terminal 41 (23). The sensor signal (\square) is connected to terminal 42 and the ground (GND) to connection cable 21.

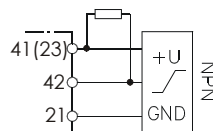


Integrated pull-up (pull-down) resistor:

The following circuit with an external resistor is not required if a sensor with integrated resistor is connected.

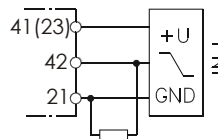
NPN sensor:

The supplied resistor should be connected between terminal 42 and terminal 41 (23) for NPN sensors.



PNP sensor:

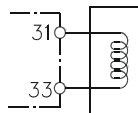
The supplied resistor should be connected between terminal 42 and terminal 21 for PNP sensors.

**4.2.1.2 Inductive sensor****ATTENTION! Material damage!**

A pull-up (pull-down) resistor should not be used if inductive sensors are connected.

↳ Remove any existing pull-up (pull-down) resistors.

- The inductive sensor is connected to the TU 7055 at terminals 31 and 33.

**4.2.2 Output connections**

The current output and the voltage output can be used simultaneously.

4.2.2.1 Current output

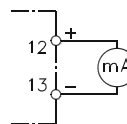
The current output supplies an output signal from 0/4 ... 20 mA.

**ATTENTION! Material damage!**

The load of the current output should not exceed 150 Ω.

Do not connect loads which contain their own power supply.

- The current output is connected via terminals 12 and 13 of the TU 7055.

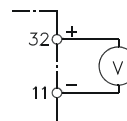
**4.2.2.2 Voltage output**

The voltage output supplies an output signal from 0 ... 10 V.

**ATTENTION! Material damage!**

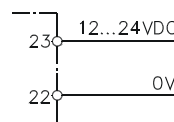
The voltage output load should not exceed max. 2 mA.

- The voltage output is connected via terminals 32 and 11 of the TU 7055.

**4.2.3 Supply voltage connection**

The TU 7055 can be powered with a supply voltage from 12...24 V_{DC}.

↳ Connect the supply voltage to terminals 23 (+U) and 22 (0 V) of the TU 7055.

**VTI-SENSOR:**

When using a VTI flow sensor, the supply voltage should not fall below 12 V.

**INDUCTIVE SENSOR!**

The use of a wall power supply (switching power supply) can lead to output signal faults.

5 Commissioning

Commissioning occurs after the electrical connections have been carried out and tested:

☞ Switch on the supply voltage.

The TU 7055 is ready for operation.

As soon as a medium passes through the connected flow or volumetric sensor, the TU 7055 converts the input signal into frequency-dependent output signals.

6 Maintenance, decommissioning and disposal

Maintenance:

The TU 7055 is maintenance-free and cannot be repaired by the user. In the unlikely event of a defect, the device has to be returned to the manufacturer for repair work.



TIP:

Check all connection cables and the supply voltage to eliminate other error sources in advance.

Decommissioning:

☞ Switch off the system.

☞ Make sure that the system is isolated from all possible sources of supply and is completely de-energised.

☞ Disconnect the electrical connections and remove the TU 7055 from the mounting rail

Disposal:

Compliant with the Directives 2011/65/EU (RoHS) and 2012/19/EU (WEEE)*, the device must be disposed of separately as electrical and electronic waste.



☞ Take the TU 7055 to your local recycling plant

or

☞ send it back to your supplier or to SIKA for correct disposal.

* WEEE reg. no.: DE 25976360

7 Technical data

The technical data of customised versions may differ from the data in the instructions. Please observe the information specified on the type plate.

TU 7055	
Measuring transducer characteristics	
Accuracy	1% of the upper range value
Linearity	0.15% of the upper range value
Temperature drift	0.02% of the upper range value / K
Response time	0.5 s

TU 7055

Input signal characteristics (sensor)

Input frequency	0 ... max. 1.700 Hz
Pulse rate / K-factor	see type plate
Signal level NPN / PNP	"Low": < 3,3 V "High" > 6 V
Signal level sinus signal	10...200 mV
Sensor supply	$U_{\text{Sensor}} = U_{\text{Supply}} - < 2V_{\text{DC}}$

Analogue output characteristics**Current output:**

- Signal current	0/4...20 mA
- max. load	150 Ω

Voltage output:

- Signal voltage	0...10 V
- max. signal current	2 mA

Electrical characteristics

Supply voltage (U_{Supply})	12...24 V _{DC} $\pm 10\%$
Supply voltage drift	0,1% of the upper range value / V
Current consumption	25 mA to 24 VDC (without sensor) • max. 1 W
Electrical safety measures	Reverse polarity protection (supply voltage)
Degree of protection	IP 20

further technical data

Ambient temperature	0...60 °C
Storage temperature	-10...+80 °C
Casing	Plastic casing for rail mounting

7.1 Dimensions