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## FLOW TRANSMITTER 8025

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# 1 INTRODUCTION

# FLOW TRANSMITTER 8025

Dear Customer,

Congratulations on your purchase of our 8025 digital flow transmitter.

**BEFORE INSTALLING OR USING THIS PRODUCT, PLEASE TAKE OUR ADVICE AND READ THE ENTIRE MANUAL THOROUGHLY.**

This will enable you to fully profit from all of the advantages offered by this product.

## 1.1 Unpacking and Control

Please verify that the product is complete and free from any damage. The standard delivery must include:

- 1 8025 digital Flow Transmitter, either in compact version, or in panel version with mounting accessories (1 gasket, 4 spacer bolts, 1 protective plate, 4 screws, 4 lockwashers, 2 cable clips and 1 cut-away film), or in IP65 wall-mount version.
- 1 Operating Instruction type 8025
- 1 Operating instruction fitting type S020/1500/1501

Compare the Type specifications on the label to the adjacent list to ensure that you have received the proper unit. If there is any loss or damage, please contact your local Bürkert subsidiary.

## 1.2 About this Manual

This manual does not contain any warranty statement. Please refer to our general terms of sale and delivery.

Only properly-trained staff should install and/or repair this product. If difficulties should occur at the time of installation, please contact your nearest Bürkert sales office for assistance.

## 1.3 User's Responsibility for Safety

Bürkert manufactures a broad range of flow transmitters. While each of these products is designed to operate in a wide variety of applications, it is the user's responsibility to select a transmitter model that is appropriate for the application, install it properly, and maintain all components. Special attention must be paid to the chemical resistance of the transmitter against the fluids which are directly contacting the product.



This symbol appears in the manual to call special attention to instructions that affect the safe installation, function and use of the product.

## 1.4 Electromagnetic compatibility

This device conforms to the EMC-Directive of the Council of European Communities 89/336/EEC.

In order to comply with this directive, the wiring instructions must be followed.

## 2 SPECIFICATION

## FLOW TRANSMITTER 8025

### 2.1 Type Specification 8025 STANDARD

Flow transmitter	Supply	Gasket	Sensor	Cable entry	Ident Nr.
<b>FLOW TRANSMITTER 8025 COMPACT VERSION</b>					
<b>STANDARD TYPES</b>					
8025 with 4...20 mA, 2 relays, pulse output, 2 totalizers	12-30 VDC	FPM	Hall short	2xPG 13,5	418778Q
8025 with 4...20 mA, pulse output, 2 totalizers	12-30 VDC	FPM	Hall short	DIN 43650 PG9	418762G
8025 with 4...20 mA, 2 relays, pulse output, 2 totalizers	230 VAC	FPM	Hall short	2xPG 13,5	418431M
8025 with 4...20 mA, pulse output, 2 totalizers	230 VAC	FPM	Hall short	2xPG 13,5	418423M
<b>STANDARD TYPES (FULL FUNCTION, WITHOUT RELAY)</b>					
8025 with 4...20 mA, pulse output, 2 totalizers	12-30 VDC	FPM	Hall long	DIN 43650 PG9	418763H
8025 with 4...20 mA, pulse output, 2 totalizers	12-30 VDC	FPM	Coil short	DIN 43650 PG9	418764A
8025 with 4...20 mA, pulse output, 2 totalizers	12-30 VDC	FPM	Coil long	DIN 43650 PG9	418765B
8025 with 4...20 mA, pulse output, 2 totalizers	12-30 VDC	EPDM	Hall short	DIN 43650 PG9	418766C
8025 with 4...20 mA, pulse output, 2 totalizers	12-30 VDC	EPDM	Hall long	DIN 43650 PG9	418767D
8025 with 4...20 mA, pulse output, 2 totalizers	12-30 VDC	EPDM	Coil short	DIN 43650 PG9	418768N
8025 with 4...20 mA, pulse output, 2 totalizers	12-30 VDC	EPDM	Coil long	DIN 43650 PG9	418769P
8025 with 4...20 mA, pulse output, 2 totalizers	12-30 VDC	FPM	Hall short	PG 13,5	418802S
8025 with 4...20 mA, pulse output, 2 totalizers	12-30 VDC	FPM	Hall long	PG 13,5	418803T
8025 with 4...20 mA, pulse output, 2 totalizers	12-30 VDC	FPM	Coil short	PG 13,5	418804U
8025 with 4...20 mA, pulse output, 2 totalizers	12-30 VDC	FPM	Coil long	PG 13,5	418805V
8025 with 4...20 mA, pulse output, 2 totalizers	12-30 VDC	EPDM	Hall short	PG 13,5	418806W
8025 with 4...20 mA, pulse output, 2 totalizers	12-30 VDC	EPDM	Hall long	PG 13,5	418807X
8025 with 4...20 mA, pulse output, 2 totalizers	12-30 VDC	EPDM	Coil short	PG 13,5	418808G
8025 with 4...20 mA, pulse output, 2 totalizers	12-30 VDC	EPDM	Coil long	PG 13,5	418809H
8025 with 4...20 mA, pulse output, 2 totalizers	230 VAC	FPM	Hall long	2xPG 13,5	418424N
8025 with 4...20 mA, pulse output, 2 totalizers	230 VAC	FPM	Coil short	2xPG 13,5	418425P
8025 with 4...20 mA, pulse output, 2 totalizers	230 VAC	FPM	Coil long	2xPG 13,5	418426Q
8025 with 4...20 mA, pulse output, 2 totalizers	230 VAC	EPDM	Hall short	2xPG 13,5	418427R
8025 with 4...20 mA, pulse output, 2 totalizers	230 VAC	EPDM	Hall long	2xPG 13,5	418428S
8025 with 4...20 mA, pulse output, 2 totalizers	230 VAC	EPDM	Coil short	2xPG 13,5	418429T
8025 with 4...20 mA, pulse output, 2 totalizers	230 VAC	EPDM	Coil long	2xPG 13,5	418430Y
<b>STANDARD TYPES (FULL FUNCTION, WITH RELAYS)</b>					
8025 with 4...20 mA, pulse output, 2 totalizers	12-30 VDC	FPM	Hall long	2xPG 13,5	418779R
8025 with 4...20 mA, pulse output, 2 totalizers	12-30 VDC	FPM	Coil short	2xPG 13,5	418780F
8025 with 4...20 mA, pulse output, 2 totalizers	12-30 VDC	FPM	Coil long	2xPG 13,5	418781U
8025 with 4...20 mA, pulse output, 2 totalizers	12-30 VDC	EPDM	Hall short	2xPG 13,5	418782V
8025 with 4...20 mA, pulse output, 2 totalizers	12-30 VDC	EPDM	Hall long	2xPG 13,5	418783W
8025 with 4...20 mA, pulse output, 2 totalizers	12-30 VDC	EPDM	Coil short	2xPG 13,5	418784X
8025 with 4...20 mA, pulse output, 2 totalizers	12-30 VDC	EPDM	Coil long	2xPG 13,5	418785Y
8025 with 4...20 mA, pulse output, 2 totalizers	230 VAC	FPM	Hall long	2xPG 13,5	418432N
8025 with 4...20 mA, pulse output, 2 totalizers	230 VAC	FPM	Coil short	2xPG 13,5	418433P
8025 with 4...20 mA, pulse output, 2 totalizers	230 VAC	FPM	Coil long	2xPG 13,5	418434Q
8025 with 4...20 mA, pulse output, 2 totalizers	230 VAC	EPDM	Hall short	2xPG 13,5	418435R
8025 with 4...20 mA, pulse output, 2 totalizers	230 VAC	EPDM	Hall long	2xPG 13,5	418436J
8025 with 4...20 mA, pulse output, 2 totalizers	230 VAC	EPDM	Coil short	2xPG 13,5	418437K
8025 with 4...20 mA, pulse output, 2 totalizers	230 VAC	EPDM	Coil long	2xPG 13,5	418438U
<b>FLOW TRANSMITTER 8025 COMPACT VERSION NORTH AMERICA</b>					
<b>STANDARD TYPES NORTH AMERICA</b>					
8025 with 4...20 mA, 2 relays, pulse output, 2 totalizers	12-30 VDC	FPM	Hall short	2xG 1/2"	418786Z
8025 with 4...20 mA, pulse output, 2 totalizers	12-30 VDC	FPM	Hall short	DIN 43650 G 1/2"	418770L
8025 with 4...20 mA, 2 relays, pulse output, 2 totalizers	115VAC	FPM	Hall short	2xG 1/2"	418455V
8025 with 4...20 mA, pulse output, 2 totalizers	115VAC	FPM	Hall short	2xG 1/2"	418447V

## 2 SPECIFICATION

## FLOW TRANSMITTER 8025

Flow transmitter	Supply	Gasket	Sensor	Cable entry	Ident Nr.
<b>STANDARD TYPES NORTH AMERICA (FULL FUNCTION WITHOUT RELAY)</b>					
8025 with 4...20 mA, pulse output, 2 totalizers	12-30 VDC	FPM	Hall long	DIN 43650 G 1/2"	418771H
8025 with 4...20 mA, pulse output, 2 totalizers	12-30 VDC	FPM	Coil short	DIN 43650 G 1/2"	418772A
8025 with 4...20 mA, pulse output, 2 totalizers	12-30 VDC	FPM	Coil long	DIN 43650 G 1/2"	418773B
8025 with 4...20 mA, pulse output, 2 totalizers	12-30 VDC	EPDM	Hall short	DIN 43650 G 1/2"	418774C
8025 with 4...20 mA, pulse output, 2 totalizers	12-30 VDC	EPDM	Hall long	DIN 43650 G 1/2"	418775D
8025 with 4...20 mA, pulse output, 2 totalizers	12-30 VDC	EPDM	Coil short	DIN 43650 G 1/2"	418776E
8025 with 4...20 mA, pulse output, 2 totalizers	12-30 VDC	EPDM	Coil long	DIN 43650 G 1/2"	418777F
8025 with 4...20 mA, pulse output, 2 totalizers	115VAC	FPM	Hall long	2xG 1/2"	418448E
8025 with 4...20 mA, pulse output, 2 totalizers	115VAC	FPM	Coil short	2xG 1/2"	418449F
8025 with 4...20 mA, pulse output, 2 totalizers	115VAC	FPM	Coil long	2xG 1/2"	418450C
8025 with 4...20 mA, pulse output, 2 totalizers	115VAC	EPDM	Hall short	2xG 1/2"	418451Z
8025 with 4...20 mA, pulse output, 2 totalizers	115VAC	EPDM	Hall long	2xG 1/2"	418452S
8025 with 4...20 mA, pulse output, 2 totalizers	115VAC	EPDM	Coil short	2xG 1/2"	418453T
8025 with 4...20 mA, pulse output, 2 totalizers	115VAC	EPDM	Coil long	2xG 1/2"	418454U
<b>STANDARD TYPES NORTH AMERICA (FULL FUNCTION WITH RELAYS)</b>					
8025 with 4...20 mA, pulse output, 2 totalizers	12-30 VDC	FPM	Hall long	2xG 1/2"	418787S
8025 with 4...20 mA, pulse output, 2 totalizers	12-30 VDC	FPM	Coil short	2xG 1/2"	418788B
8025 with 4...20 mA, pulse output, 2 totalizers	12-30 VDC	FPM	Coil long	2xG 1/2"	418789C
8025 with 4...20 mA, pulse output, 2 totalizers	12-30 VDC	EPDM	Hall short	2xG 1/2"	418790H
8025 with 4...20 mA, pulse output, 2 totalizers	12-30 VDC	EPDM	Hall long	2xG 1/2"	418791W
8025 with 4...20 mA, pulse output, 2 totalizers	12-30 VDC	EPDM	Coil short	2xG 1/2"	418792X
8025 with 4...20 mA, pulse output, 2 totalizers	12-30 VDC	EPDM	Coil long	2xG 1/2"	418793Y
8025 with 4...20 mA, pulse output, 2 totalizers	115VAC	FPM	Hall long	2xG 1/2"	418456W
8025 with 4...20 mA, pulse output, 2 totalizers	115VAC	FPM	Coil short	2xG 1/2"	418457Y
8025 with 4...20 mA, pulse output, 2 totalizers	115VAC	FPM	Coil long	2xG 1/2"	418458G
8025 with 4...20 mA, pulse output, 2 totalizers	115VAC	EPDM	Hall short	2xG 1/2"	418459H
8025 with 4...20 mA, pulse output, 2 totalizers	115VAC	EPDM	Hall long	2xG 1/2"	418460E
8025 with 4...20 mA, pulse output, 2 totalizers	115VAC	EPDM	Coil short	2xG 1/2"	418461T
8025 with 4...20 mA, pulse output, 2 totalizers	115VAC	EPDM	Coil long	2xG 1/2"	418462U
<b>STANDARD TYPES NORTH AMERICA (WITHOUT RELAY, WITHOUT TOTALIZER)</b>					
8025 with 4...20 mA, pulse output	12-30 VDC	FPM	Hall short	DIN 43650 G 1/2"	418810V
8025 with 4...20 mA, pulse output	12-30 VDC	FPM	Hall long	DIN 43650 G 1/2"	418811J
8025 with 4...20 mA, pulse output	12-30 VDC	FPM	Coil short	DIN 43650 G 1/2"	418812K
8025 with 4...20 mA, pulse output	12-30 VDC	FPM	Coil long	DIN 43650 G 1/2"	418813L
8025 with 4...20 mA, pulse output	12-30 VDC	EPDM	Hall short	DIN 43650 G 1/2"	418814M
8025 with 4...20 mA, pulse output	12-30 VDC	EPDM	Hall long	DIN 43650 G 1/2"	418815N
8025 with 4...20 mA, pulse output	12-30 VDC	EPDM	Coil short	DIN 43650 G 1/2"	418816P
8025 with 4...20 mA, pulse output	12-30 VDC	EPDM	Coil long	DIN 43650 G 1/2"	418817Q
<b>STANDARD TYPES NORTH AMERICA (WITH RELAYS, WITHOUT TOTALIZER)</b>					
8025 with 4...20 mA, pulse output	12-30 VDC	FPM	Hall short	2xG 1/2"	418818Z
8025 with 4...20 mA, pulse output	12-30 VDC	FPM	Hall long	2xG 1/2"	418819S
8025 with 4...20 mA, pulse output	12-30 VDC	FPM	Coil short	2xG 1/2"	418820X
8025 with 4...20 mA, pulse output	12-30 VDC	FPM	Coil long	2xG 1/2"	418821L
8025 with 4...20 mA, pulse output	12-30 VDC	EPDM	Hall short	2xG 1/2"	418822M
8025 with 4...20 mA, pulse output	12-30 VDC	EPDM	Hall long	2xG 1/2"	418823N
8025 with 4...20 mA, pulse output	12-30 VDC	EPDM	Coil short	2xG 1/2"	418824P
8025 with 4...20 mA, pulse output	12-30 VDC	EPDM	Coil long	2xG 1/2"	418825Q
<b>FLOW TRANSMITTER 8025 PANEL VERSION</b>					
<b>STANDARD TYPES</b>					
8025 with 4...20 mA, 2 relays, pulse output, 2 totalizers	12-30 VDC			Terminals	418994J
8025 with 4...20 mA, pulse output, 2 totalizers	12-30 VDC			Terminals	418992Q
<b>FLOW TRANSMITTER 8025 WALL-MOUNT VERSION</b>					
<b>STANDARD TYPES</b>					
8025 with 4...20 mA, 2 relays, pulse output, 2 totalizers	12-30 VDC			3xPG 9	418396S
8025 with 4...20 mA, pulse output, 2 totalizers	12-30 VDC			3xPG 9	418397T
8025 with 4...20 mA, 2 relays, pulse output, 2 totalizers	230 VAC			3xPG 9	418399D
8025 with 4...20 mA, pulse output, 2 totalizers	230 VAC			3xPG 9	418400B

## 2 SPECIFICATION REED

## FLOW TRANSMITTER 8025

### 2.1.1 Type Specification 8025 with Relay Reed

Designation	Supply	Gasket	Sensor	Cable Entry	Ident-No.
<b>FLOW TRANSMITTER 8025 RELAY Reed WORLDWIDE</b>					
8025 with 4...20 mA, pulse output relay Reed, 2 totalizers	12-30 VDC	FPM	Hall short	2xPG 13,5	418407W
8025 with 4...20 mA, pulse output relay Reed, 2 totalizers	230 VAC	FPM	Hall short	2xPG 13,5	418439V
8025 with 4...20 mA, pulse output relay Reed, 2 totalizers	12-30 VDC	FPM	Hall long	2xPG 13,5	418408F
8025 with 4...20 mA, pulse output relay Reed, 2 totalizers	12-30 VDC	FPM	Coil short	2xPG 13,5	418409G
8025 with 4...20 mA, pulse output relay Reed, 2 totalizers	12-30 VDC	FPM	Coil long	2xPG 13,5	418410U
8025 with 4...20 mA, pulse output relay Reed, 2 totalizers	12-30 VDC	EPDM	Hall short	2xPG 13,5	418411R
8025 with 4...20 mA, pulse output relay Reed, 2 totalizers	12-30 VDC	EPDM	Hall long	2xPG 13,5	418412J
8025 with 4...20 mA, pulse output relay Reed, 2 totalizers	12-30 VDC	EPDM	Coil short	2xPG 13,5	418413K
8025 with 4...20 mA, pulse output relay Reed, 2 totalizers	12-30 VDC	EPDM	Coil long	2xPG 13,5	418414L
8025 with 4...20 mA, pulse output relay Reed, 2 totalizers	230 VAC	FPM	Hall long	2xPG 13,5	418440A
8025 with 4...20 mA, pulse output relay Reed, 2 totalizers	230 VAC	FPM	Coil short	2xPG 13,5	418441X
8025 with 4...20 mA, pulse output relay Reed, 2 totalizers	230 VAC	FPM	Coil long	2xPG 13,5	418442Y
8025 with 4...20 mA, pulse output relay Reed, 2 totalizers	230 VAC	EPDM	Hall short	2xPG 13,5	418443Z
8025 with 4...20 mA, pulse output relay Reed, 2 totalizers	230 VAC	EPDM	Hall long	2xPG 13,5	418444S
8025 with 4...20 mA, pulse output relay Reed, 2 totalizers	230 VAC	EPDM	Coil short	2xPG 13,5	418445T
8025 with 4...20 mA, pulse output relay Reed, 2 totalizers	230 VAC	EPDM	Coil long	2xPG 13,5	418446U
<b>FLOW TRANSMITTER 8025 RELAY Reed NORTH AMERICA</b>					
8025 with 4...20 mA, pulse output relay Reed, 2 totalizers	12-30 VDC	FPM	Hall short	2xG1/2"	418415M
8025 with 4...20 mA, pulse output relay Reed, 2 totalizers	115VAC	FPM	Hall short	2xG1/2"	418463V
8025 with 4...20 mA, pulse output relay Reed, 2 totalizers	12-30 VDC	FPM	Hall long	2xG1/2"	418416N
8025 with 4...20 mA, pulse output relay Reed, 2 totalizers	12-30 VDC	FPM	Coil short	2xG1/2"	418417P
8025 with 4...20 mA, pulse output relay Reed, 2 totalizers	12-30 VDC	FPM	Coil long	2xG1/2"	418418Y
8025 with 4...20 mA, pulse output relay Reed, 2 totalizers	12-30 VDC	EPDM	Hall short	2xG1/2"	418419Z
8025 with 4...20 mA, pulse output relay Reed, 2 totalizers	12-30 VDC	EPDM	Hall long	2xG1/2"	418420W
8025 with 4...20 mA, pulse output relay Reed, 2 totalizers	12-30 VDC	EPDM	Coil short	2xG1/2"	418421K
8025 with 4...20 mA, pulse output relay Reed, 2 totalizers	12-30 VDC	EPDM	Coil long	2xG1/2"	418422L
8025 with 4...20 mA, pulse output relay Reed, 2 totalizers	115VAC	FPM	Hall long	2xG1/2"	418464W
8025 with 4...20 mA, pulse output relay Reed, 2 totalizers	115VAC	FPM	Coil short	2xG1/2"	418465X
8025 with 4...20 mA, pulse output relay Reed, 2 totalizers	115VAC	FPM	Coil long	2xG1/2"	418466Y
8025 with 4...20 mA, pulse output relay Reed, 2 totalizers	115VAC	EPDM	Hall short	2xG1/2"	418467Z
8025 with 4...20 mA, pulse output relay Reed, 2 totalizers	115VAC	EPDM	Hall long	2xG1/2"	418468A
8025 with 4...20 mA, pulse output relay Reed, 2 totalizers	115VAC	EPDM	Coil short	2xG1/2"	418469B
8025 with 4...20 mA, pulse output relay Reed, 2 totalizers	115VAC	EPDM	Coil long	2xG1/2"	418470G
<b>FLOW TRANSMITTER 8025 RELAY Reed PANEL VERSION</b>					
8025 with 4...20 mA, pulse output relay Reed, 2 totalizers	12-30 VDC		8020	Terminals	418395Z
<b>FLOW TRANSMITTER 8025 RELAY Reed WALL-MOUNT VERSION</b>					
8025 with 4...20 mA, pulse output relay Reed, 2 totalizers	12-30 VDC		8020	3xPG 9	418398C
8025 with 4...20 mA, pulse output relay Reed, 2 totalizers	230 VAC		8020	3xPG 9	418401Y

## 2 SPECIFICATION

## FLOW TRANSMITTER 8025

### 2.2 Design and Measuring Principle

#### Design

The compact flow transmitter combines a flow sensor and a transducer with display in a splash-proof plastic IP65 enclosure. The sensor part consists of a transducer and an open-cell paddle-wheel.

The transducer component converts the measured signal and displays the actual value.

The output signals are provided via a 4-pole plug or via one PG 13.5 (version without relay) or via two PG 13.5 (version with relays).

The panel version consists of an electronic board integrated in a front-cover. The associated flow sensor is a 8020/8030 with "low power" Hall sensor or coil.

The transducer component converts the measured signal and displays the actual value.

The output signals are available on terminal strips on the electronic board.

The wall-mount version consists of a transducer with display in a splash-proof plastic IP65 enclosure.

The associated flow sensor is a 8020/8030 with "low power" Hall sensor or coil.

The transducer component converts the measured signal and displays the actual value.

The output signals are available on a terminal strip inside the enclosure via 3 PG 9.

#### Measuring Principle

When liquid flows through the pipe, 4 magnets inserted in the paddle-wheel set in rotation produce a measuring signal in the transducer (coil or Hall Sensor). The frequency modulated induced voltage is proportional to the flow velocity of the fluid. A correlation coefficient (K-Factor) is necessary to compute the flow rate value. The correlation coefficient (in pulse/liter) is available in the instruction manual of the insertion fitting (Type S020;1500;1501).

The transducer without relay functions in a 2-wire circuit and requires a power supply of 12...30 VDC. A 4...20 mA standard signal is available as output signal, proportional to the flow rate. A pulse output with transistor open collector NPN/PNP or relay Reed (option) is available.

The transducer with two additional relays functions in a 3-wire circuit. Limit values are freely adjustable (not available with relay Reed option).

The flow transmitter in compact and wall-mount version can receive a power supply 230/115 VAC as an option.

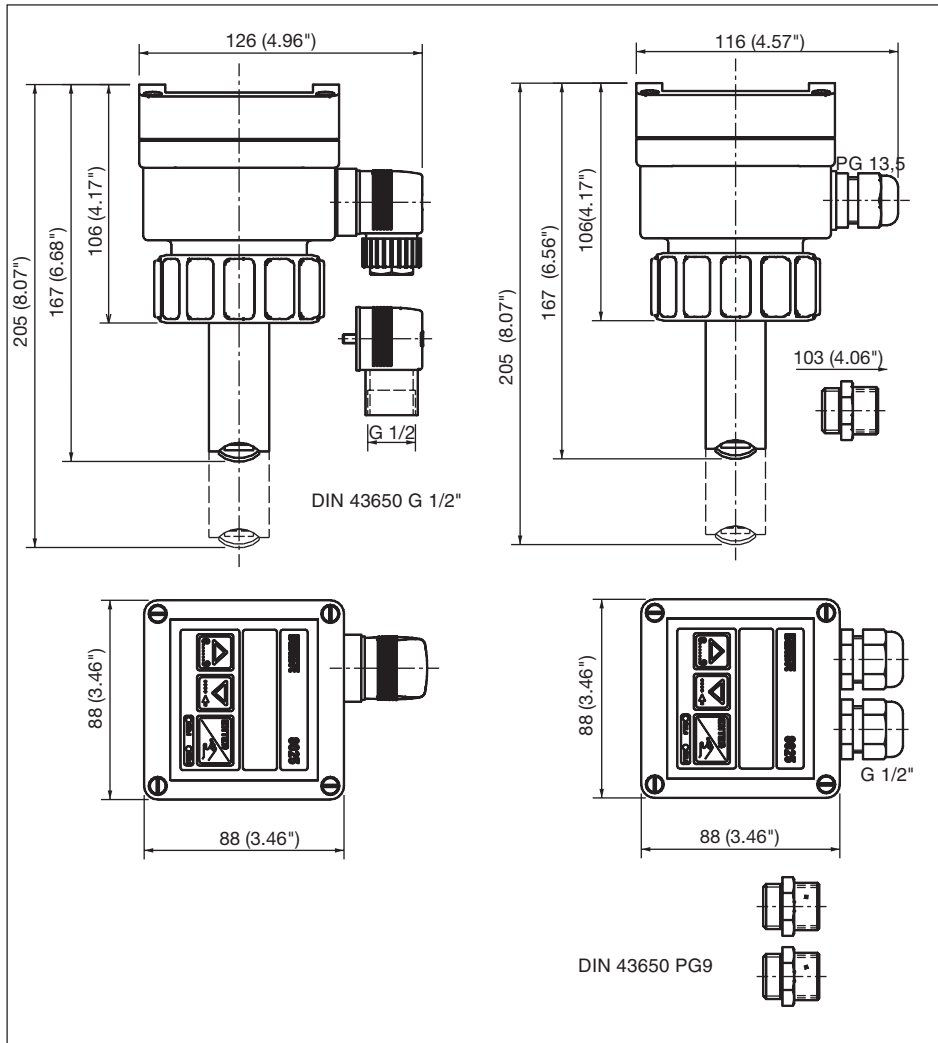
The flow transmitter 8025 with Hall sensor measures a flow rate from 0.3 m/s (1.0 ft/s).

The flow transmitter 8025 with coil can measure a flow rate from 0.5 m/s (1.6 ft/s).

## 2 SPECIFICATION

## FLOW TRANSMITTER 8025

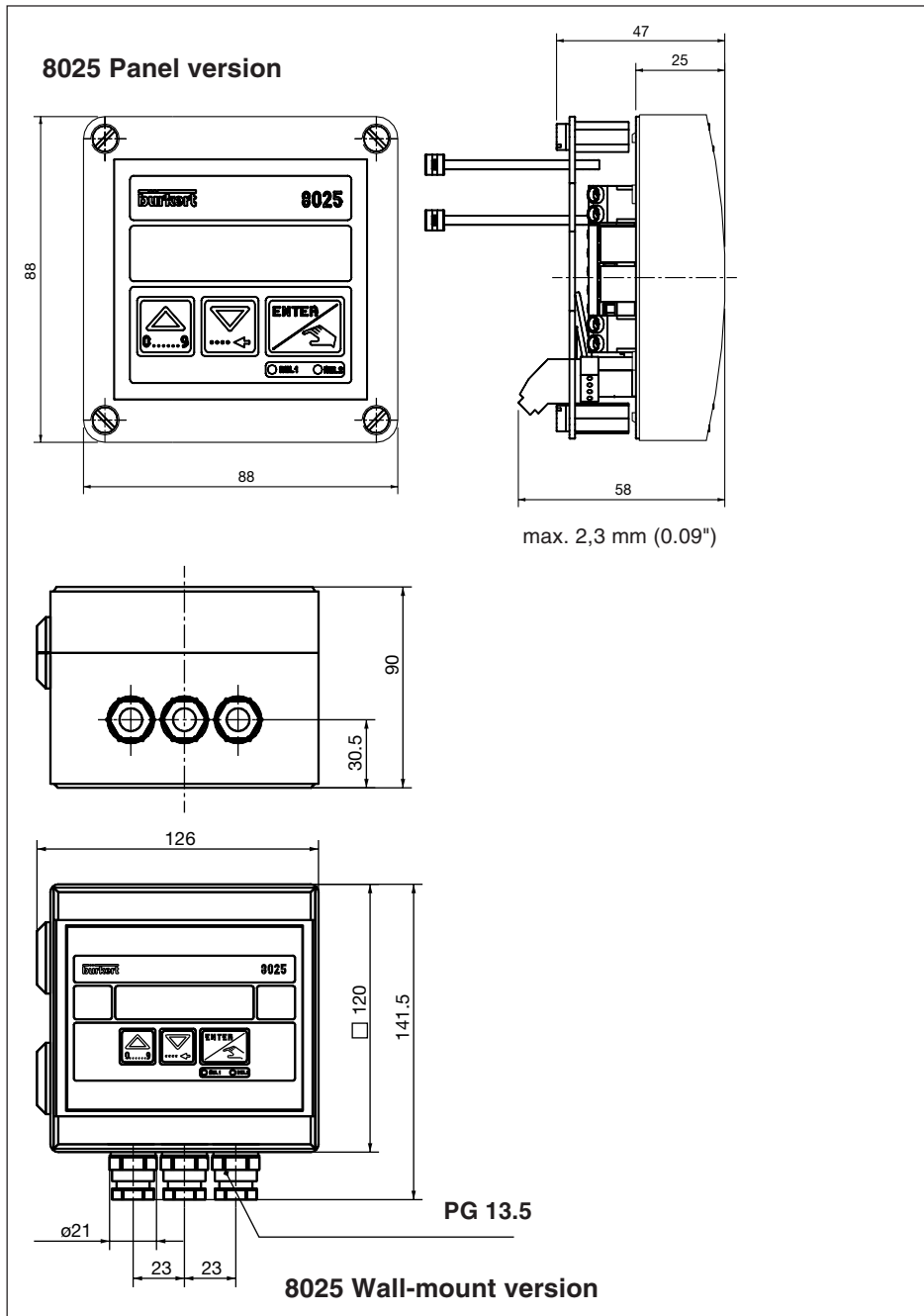
### 2.3 Dimensions



8025 Compact

## 2 SPECIFICATION

## FLOW TRANSMITTER 8025





## 2 SPECIFICATION

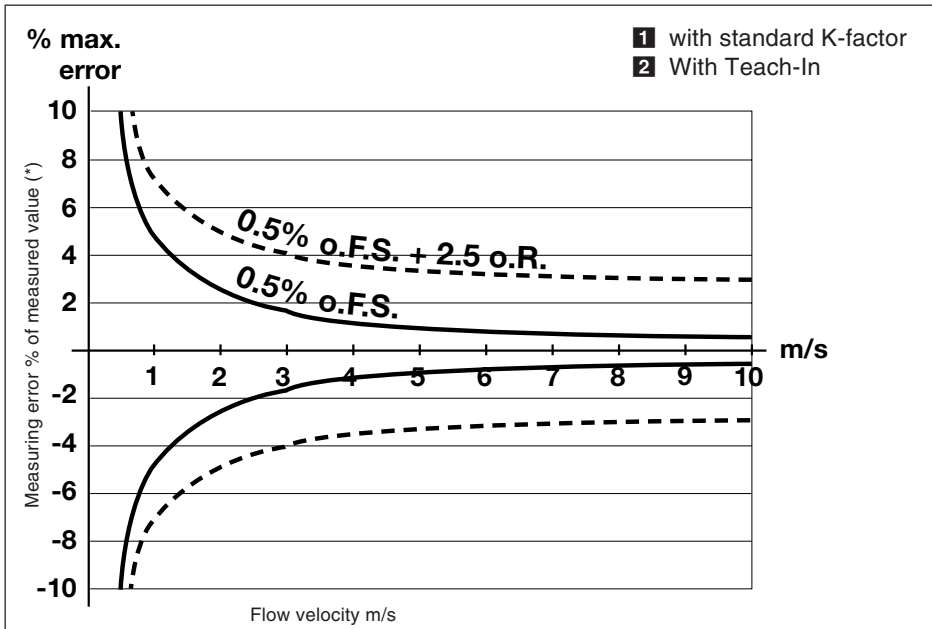
## FLOW TRANSMITTER 8025

### 2.4 Technical Data

Measuring range	with Hall sensor: 0.3 to 10 m/s (1.0 fps to 32.8 fps) from 3 l/min (0.8 gpm) in DN15 (1/2") pipe with Coil sensor: 0.5 to 10 m/s (1.6 to 32.8 fps) from 5 l/min (1.3 gpm) in DN15 (1/2") pipe
Measuring error	1. With In-line calibration (Teach-In): $\leq \pm 0.5$ % o.F.S. (at 10 m/s) * 2. With standard mean K-Factor: $\leq \pm (0.5$ % o.F.S. + 2.5 % o.R.) *
Linearity	$\leq \pm 0.5$ % o.F.S. (at 10 m/s) *
Repeatability	0.4 % o.R. *
Fluid T°C max. (Coil version)	PVC: 50°C (122°F); PP: 80°C (176°F); PVDF: 100°C (212°F); Stainless steel and brass: 100°C (212°F)
Fluid T°C max. (Hall version)	PVC: 50°C (122°F); PP: 80°C (176°F); PVDF: 80°C (176°F); Stainless steel and brass: 80°C (176°F)
Ambient temperature	0 to 60°C (32 to 140°F)
Storage temperature	0 to 60°C (32 to 140°F)
Relative humidity	max: 80 %
Pressure class	PN 6
Protection class	IP 65 compact, panel and wall-mount version (panel version IP20 in the cabinet inside)
Sensor holder	PVDF
Paddle-wheel	PVDF
Axis and bearing	Ceramic
O-rings	FPM/EPDM
Housing	PC (compact and panel version), ABS (wall-mount version)
Front plate foil	Polyester
Voltage supply	12...30 VDC Option: 115/230 VAC power supply
Output signal	4...20 mA
Load	max. 900 $\Omega$ at 30 V max. 500 $\Omega$ at 24V max. 100 $\Omega$ at 15V max. 800 $\Omega$ with power supply 115/230 VAC
Pulse output: -Option:	Open collector NPN and PNP, 0...30 V, 100 mA, protected Relay Reed closing 0,1 sec., opening depending on flow rate 0,1 sec. min. max. 34 V, 0,2 A
Relay output (option)	2 relays, freely programmable, 3 A, 230 V

(\*) o.F.S = of Full Scale; o.R = of Reading

Under reference conditions i.e. measuring fluid water, ambient and water temperature 20 °C, applying the minimum inlet and outlet pipe straights, matched pipe dimensions.



Measuring error with/without Teach-In (cf § 2.4)

3.1 Installation Guidelines

**!** The flow transmitter 8025 can only be used to measure pure, liquid and water resembling fluids (solids content  $\leq 1\%$ , viscosity max. 300 cSt with on-line calibration).

**Installation Guidelines**

The pipe must be completely filled with the fluid, i.e. air bubbles must not be present. The device must be protected against constant heat radiation and other environmental influences, such as direct exposure to sunlight or magnetic fields. Do not mount behind turbulence generating fittings (elbows, valves, T-pieces, etc.). Observe the minimum upstream  $10 \times D$  and downstream  $3 \times D$  distances. (For further informations, please refer to EN ISO 5167-1).

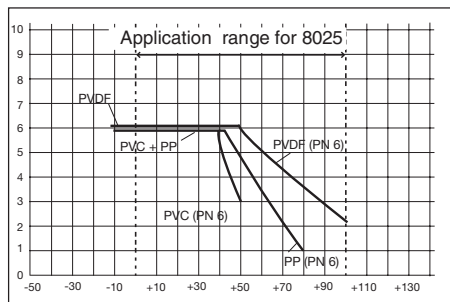


Fig. 3.1 Pressure-Temperature-Diagram

Mind pressure-temperature dependence according to the respective fitting material.

## 3 INSTALLATION

## FLOW TRANSMITTER 8025

### 3.2 Installation

#### Compact version (see fig. 3.2)

The compact flow transmitter 8025 can be easily installed into pipes using our specially designed fitting system (types S020, 1500,1501).

1. The fitting **4** must be installed into the pipe according to the installation specifications in section 3.1.
2. Insert plastic nut **3** into fitting and let plastic ring **2** snap into guide bush **5**.
3. Carefully insert transmitter 8025 **1** into fitting. If installed properly, the transmitter cannot be rotated.
4. Tighten transmitter housing to fitting with plastic nut **3**.



**Caution!** Plastic nut must only be tightened by hand!

#### Installation of the 8025 panel version (see fig. 3.3)

For the cut-away of the front panel, follow the instructions on the delivery enclosed film. For sensor installation, please consult 8020/8030 instruction manual. Install device as follows:

1. Put gasket **2** on the cover **1** and place the complete unit in the panel cut-away.
2. Screw the spacer bolts **3** on the panel crossing screws **4**.
3. Insert the cable clips **10**, to hold the different cables (power supply, outputs, sensor) of the transmitter, into plate **7**.
4. Plug connector **5** on socket **6** and fasten plate **7** with screws **9** on bolts **3**. Do not forget the lockwashers **8**.

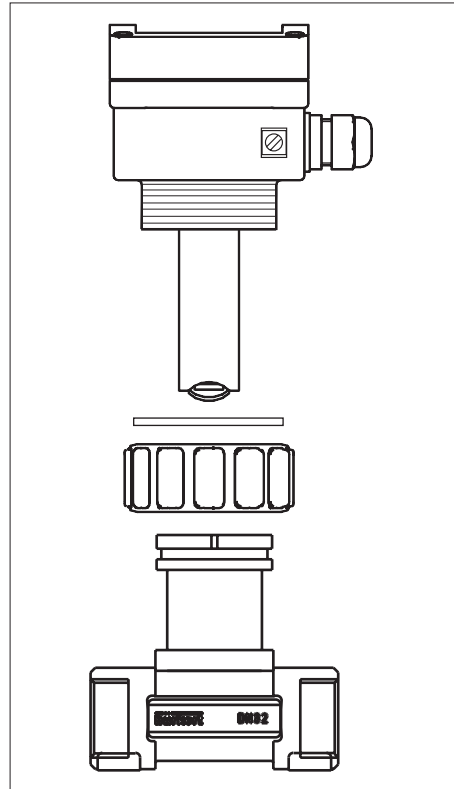


Fig. 3.2 Installation of 8025 compact

### 3 INSTALLATION

### FLOW TRANSMITTER 8025

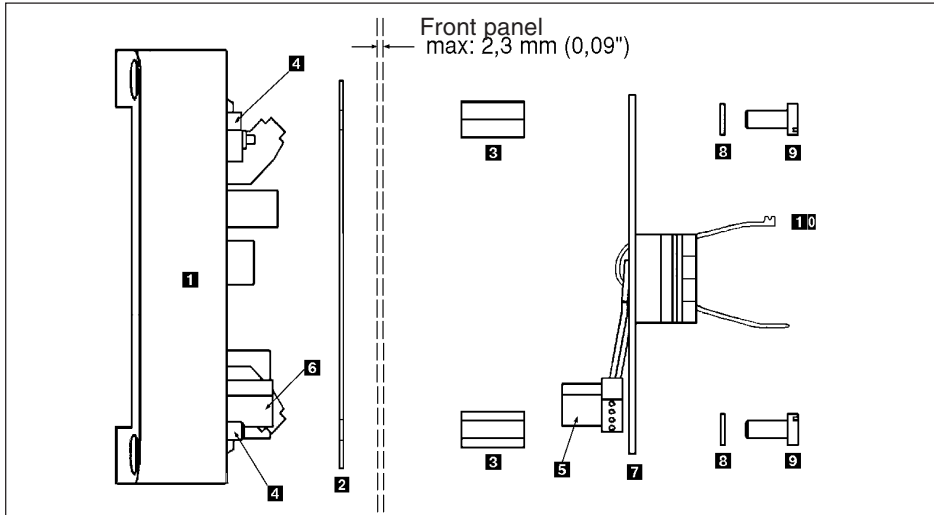


Fig. 3.3 Installation panel version

Wall-mount version (see fig. 3.4)

The flow transmitter in wall-mount version is equipped with 4 fixing holes in the bottom enclosure. Remove the white blanking stripes and the cover to access to fixing holes **1**. For sensor installation, please consult 8020/8030 instruction manual.

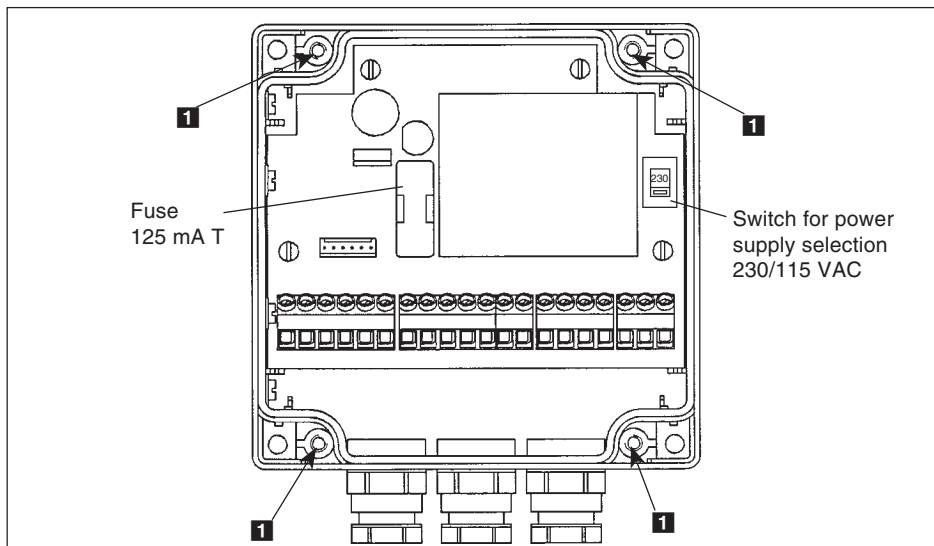


Fig. 3.4 Installation wall-mount version

## 3 INSTALLATION

## FLOW TRANSMITTER 8025

### 3.3 General Electrical Connection

The connecting line conducts the measuring signal and must not be installed in combination with high voltage or high frequency carrying lines. If a combined installation cannot be avoided, either keep a min. space of 30 cm (approx. 1 ft) or use coax cables. When using coax cables observe faultless grounding of the shield. For normal operating conditions, the measuring signal can be transmitted by a simple cable of 0.75 mm<sup>2</sup> cross section. Always use a coax cable in case of doubt. The power supply must be of good quality (filtrated and regulated).



**For EMC purposes, the earth must be connected via the earth lug on the side of the enclosure (see fig. 3.2). This point must be connected locally to a good earth.**

### 3.4 Electrical Wiring Compact Version

#### 3.4.1 8025 without relay

##### Wiring via cable plug

Standard DIN 43 650 plug connector with PG9-cable glands, pipe cross section max. 1.5 mm<sup>2</sup>, IP65 rating (see fig. 3.5). Open plug and wire according following instructions:

- 1: L+ (12...30 VDC)
- 2: Pulse output ⊕
- ⊖: Pulse output ⊖
- 3: L-

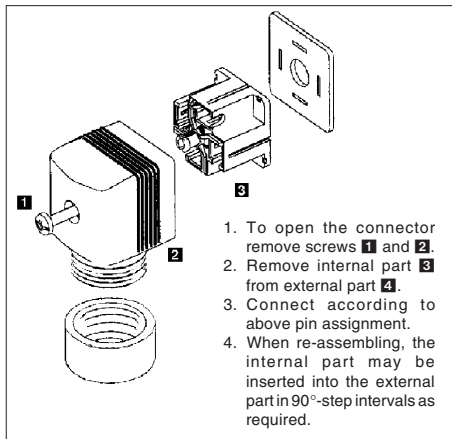
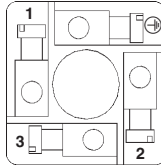


Fig. 3.5 Cable plug assembly

##### Connection to PG 13.5 cable gland

Remove cover, pull cable through PG 13.5 and wire according to following pin assignment and fig. 3.6.

- 1: Not assigned
- 2: L+ (12...30 VDC)
- 3: L-
- 4: Earth (earth lug)
- 5: ⊖ pulse output
- 6: ⊕ pulse output

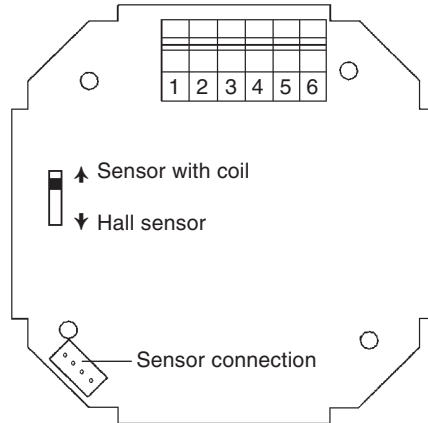


Fig. 3.6 Pin assignment transmitter 8025 without relay

### 3 INSTALLATION

### FLOW TRANSMITTER 8025

The transmitter type 8025 can easily be connected to a PLC, independently of the respective version (see fig. 3.7).

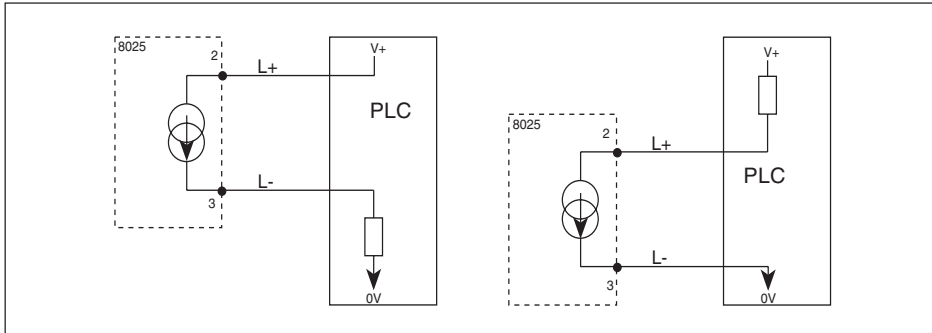


Fig. 3.7 PLC-connection

#### 3.4.2 Type 8025 with relays

The electrical wiring ensues via 2 cable glands. Remove cover, pull cable through PG 13.5 and wire according to following pin assignment (Fig. 3.8):

- 1: Current output 4...20 mA
- 2: L+ (12...30 VDC)
- 3: L-
- 4: Earth (earth lug)
- 5: ⊖ pulse output
- 6: ⊕ pulse output
- 7: Relay 2
- 8: Relay 2
- 9: Relay 1
- 10: Relay 1

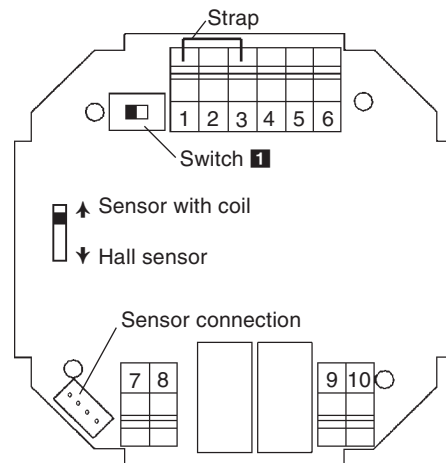


Fig. 3.8 Pin assignment of transmitter 8025 with relays

**Note:** PLC-connection. Depending on the PLC-version, the switch **1** on the circuit board must be put to position A or B (see fig. 3.8 and fig. 3.9). **In this case remove the strap (see fig. 3.8).**



If the current output 4...20 mA is not used, it must be connected to L- with switch **1** in position A. For that purpose use the strap (see fig. 3.8).

### 3 INSTALLATION

### FLOW TRANSMITTER 8025

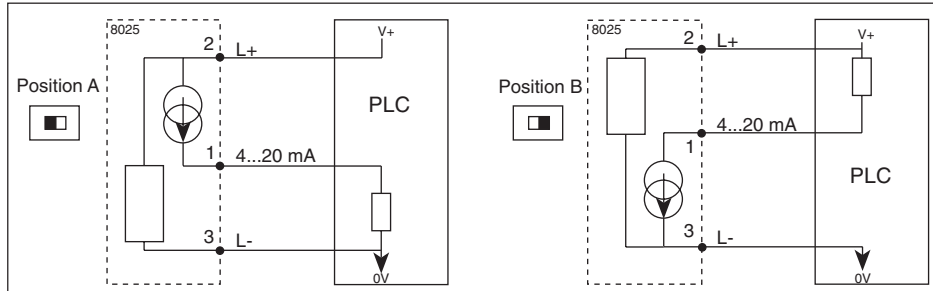


Fig. 3.9 PLC-connection

#### 3.4.3 Connection of Pulse Output to a PLC

The pulse output (8025 with or without relay) can easily be connected to a PLC, independently of the respective version (see fig. 3.10).

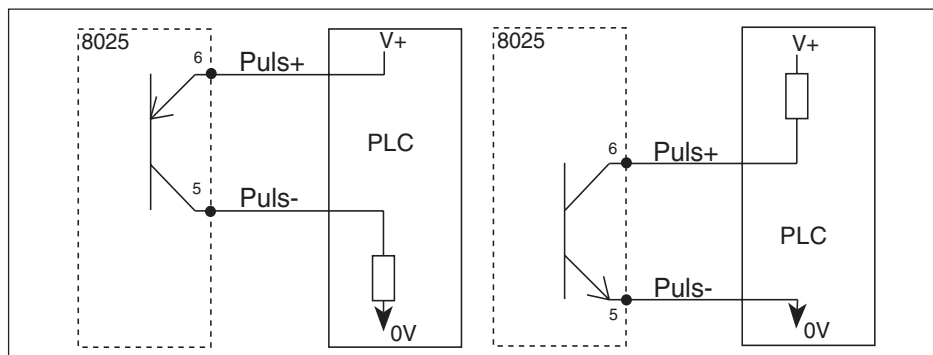


Fig. 3.10 Connection of pulse output to a PLC

#### 3.4.4 Electrical Wiring with Power Supply 230/115 VAC (option)

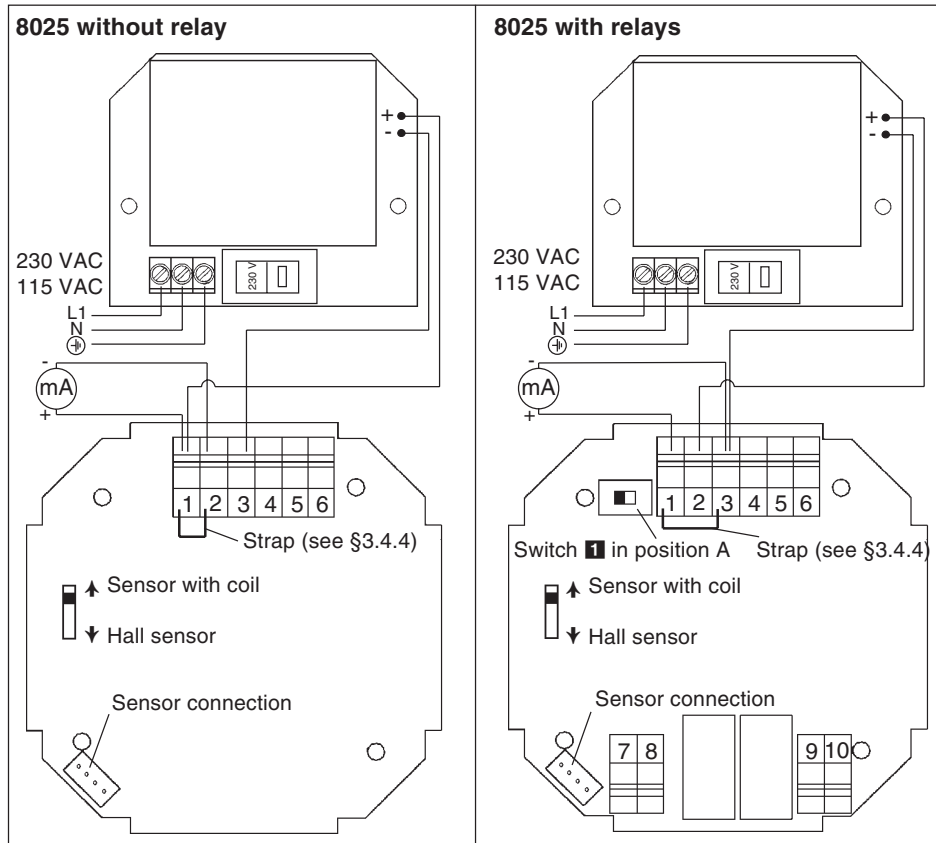
Remove the cover of the device, the powersupply board is in the bottom of the housing. Pull cable through PG 13,5 and wire according to fig. 3.11.

The connection of the output signals (current, pulse and relays) are not affected.

If the current output 4...20 mA is used, remove the straps.

### 3 INSTALLATION

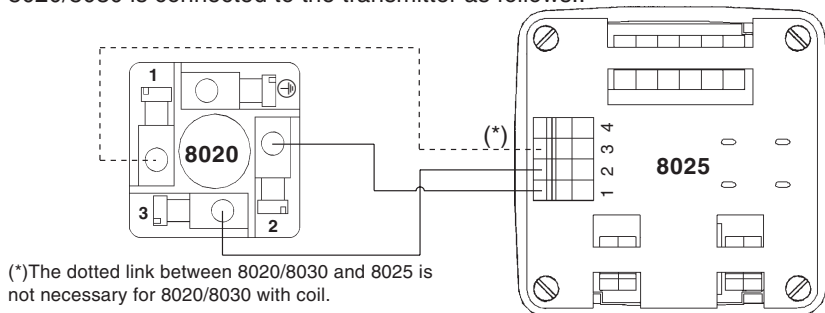
### FLOW TRANSMITTER 8025



**Fig. 3.11 Electrical wiring with power supply 230 VAC**

#### 3.5 Electrical Wiring Panel Version

For the wiring of power supply and outputs of transmitter 8025, see § 3.4 . The flow sensor 8020/8030 is connected to the transmitter as follows:.



(\*)The dotted link between 8020/8030 and 8025 is not necessary for 8020/8030 with coil.

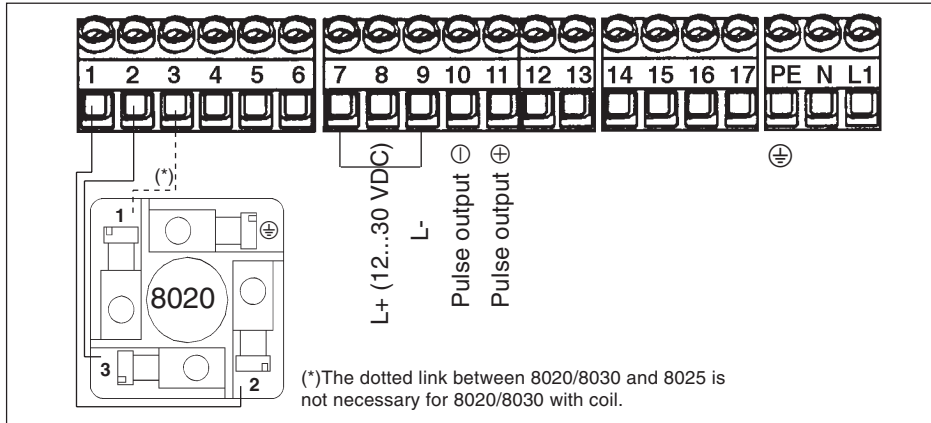


### 3 INSTALLATION

### FLOW TRANSMITTER 8025

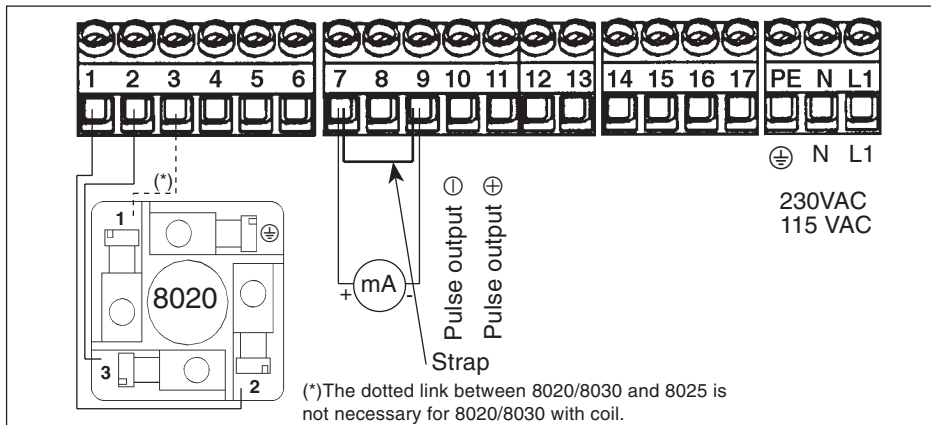
#### 3.6 Electrical Wiring of Wall-mount Version

Open the cover to access to the terminals. Wire according to transmitter version and to following figures.



**Fig. 3.12 8025 without relays and with power supply 12...30 VDC**

**Note:** For wiring see also § 3.4.1



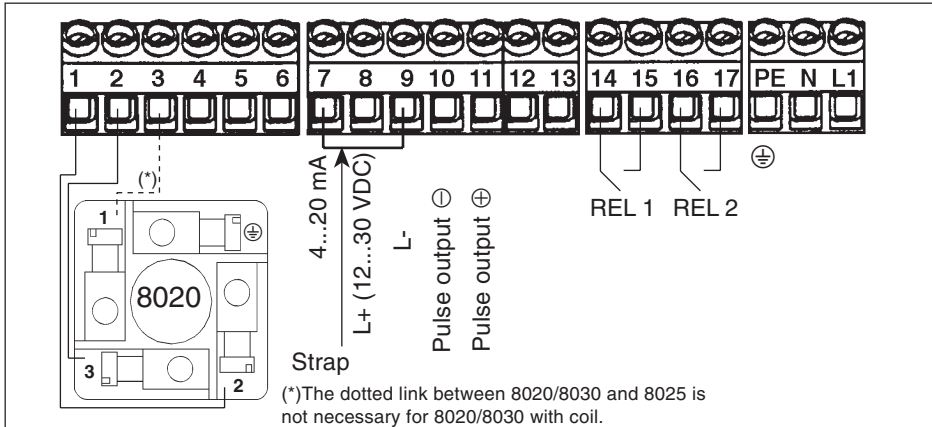
**Fig. 3.13 8025 without relays and with power supply 230/115 VAC**

**Warning:** Check position of power supply selection switch (see fig. 3.4) before starting the device.

**Note:** When current output is used, remove the strap. A switch enables to select the power supply between 230 and 115 VAC (see fig. 3.4).

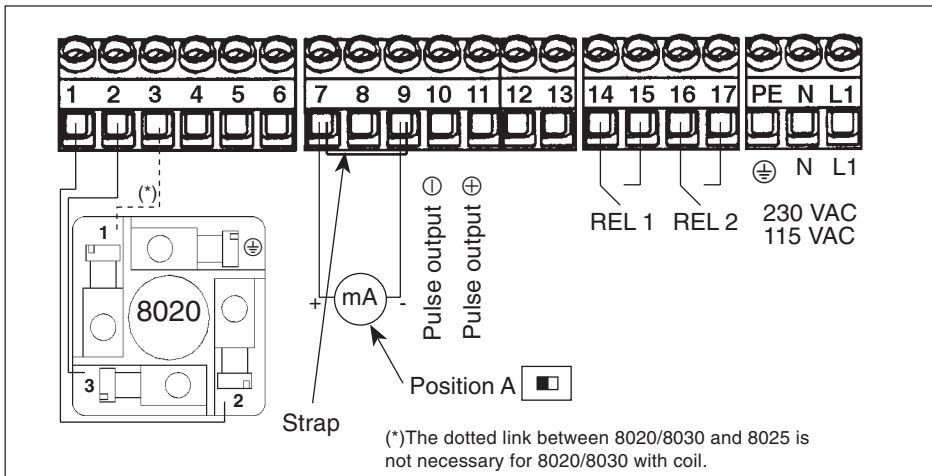
### 3 INSTALLATION

### FLOW TRANSMITTER 8025



**Fig. 3.14 8025 with relays and with power supply 12...30 VDC**

**Note:** For wiring see also § 3.4.2



**Fig. 3.15 8025 standard with relays and power supply 230/115 VAC**



**Warning:** Check position of power supply selection switch (see fig. 3.4) before starting the device.

**Note:** For wiring see also § 3.4.2 When current output is used, remove the strap. A switch enables to select the power supply between 230 and 115 VAC (see fig. 3.4).



## 3 INSTALLATION REED



## FLOW TRANSMITTER 8025

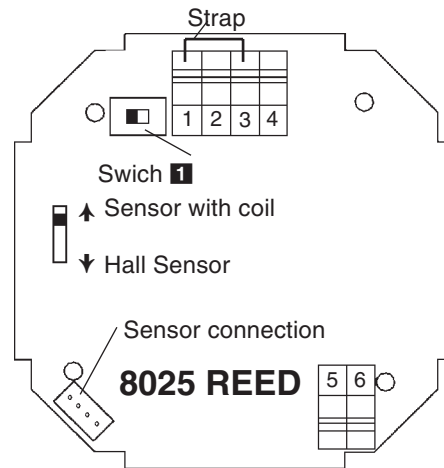
### 3.7 Electrical Wiring 8025 with relay Reed Compact Version

The electrical wiring ensues via 2 cable glands.

Remove cover, pull cable through PG 13.5 and wire according to pin assignment (see fig. 3.5).

- 1: Current output 4...20 mA
- 2: L+ (12...30 VDC)
- 3: L-
- 4: Earth (earth lug)
- 5: Relay 
- 6: Relay 

 If the current output 4...20 mA is not used, it must be connected to L- with switch  in position A. For that purpose use the strap (see fig. 3.16).



**Fig. 3.16 Pin assignment transmitter 8025 with relay Reed**

#### 3.7.1 Electrical wiring 8025 with relay Reed to an SPS

The connection of the sensor is identical to the standard version. Refer to § 3.5 (terminal 4-5)

#### 3.7.2 Electrical wiring with power supply of 230/115 VAC (option)

Remove the cover of the device, the powersupply board is in the bottom of the housing. Pull supply cable through PG 13,5 and wire according to fig. 3.17.

The outputs (current and relay) remain at same position. If the current output is used, remove the strap (fig. 3.16).

### 3 INSTALLATION REED

### FLOW TRANSMITTER 8025

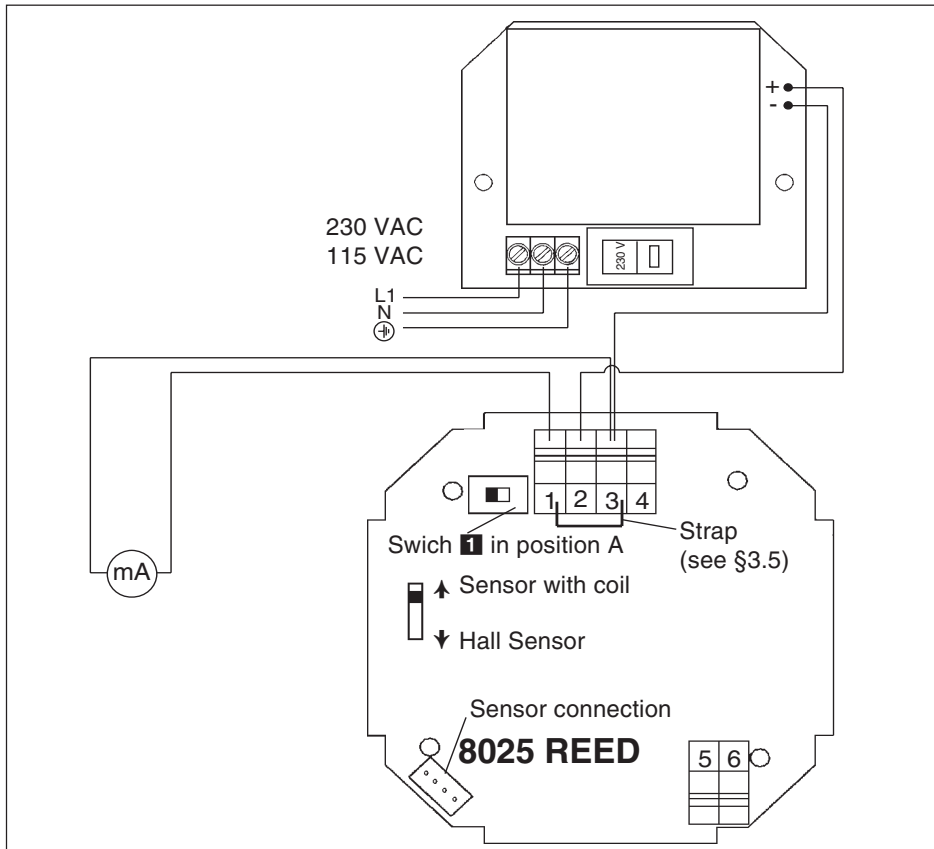


Fig. 3.17 Electrical wiring with power supply 230/115 VAC

#### 3.8 Electrical Wiring 8025 with Relay Reed Panel Version

See § 3.5. The connection of the flow sensor 8020/8030 is identical to the standard version.

## 3 INSTALLATION REED FLOW TRANSMITTER 8025

### 3.9 Electrical Wiring of Wall-mount Version

Open the cover to access to the terminals. Wire according to transmitter version and to following figures.

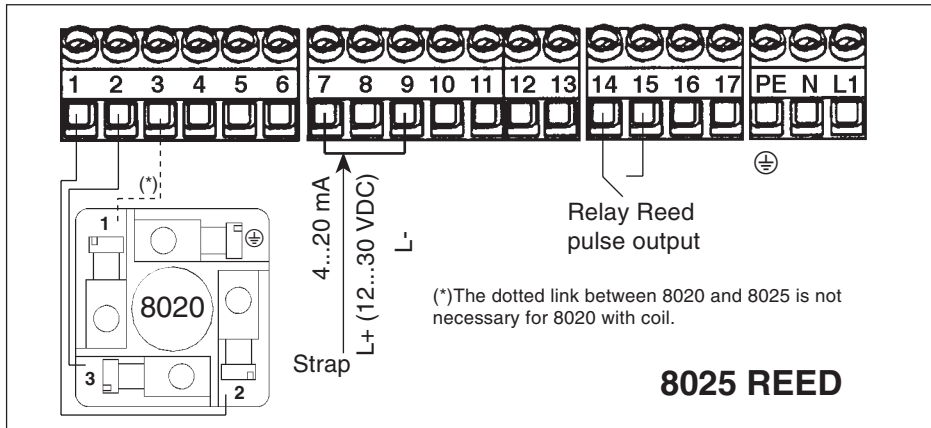


Fig. 3.18 8025 with power supply 12...30 VDC

For wiring see also § 3.4.

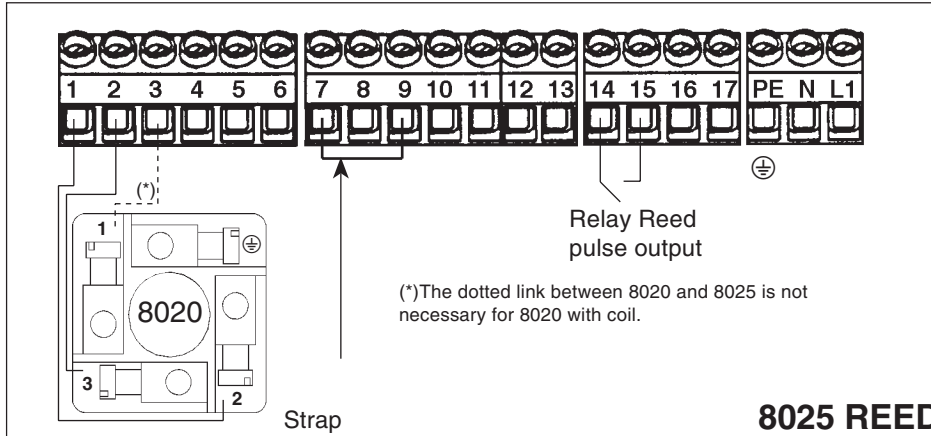


Fig. 3.19 8025 with power supply 230/115 VAC

**Warning:** Check position of power supply selection switch (see fig. 3.4) before starting the device.

**Note:** For wiring see also § 3.4. When current output is used, remove the strap. A switch enables to select the power supply between 230 and 115 VAC (see fig. 3.4).

## 4 OPERATION

## FLOW TRANSMITTER 8025

The operation of the 8025 is classified according to three levels.

### Display

This menu displays flow, output current, main totalizer and daily totalizer. The daily totalizer can also be reset in this menu.

### Parameter Definition

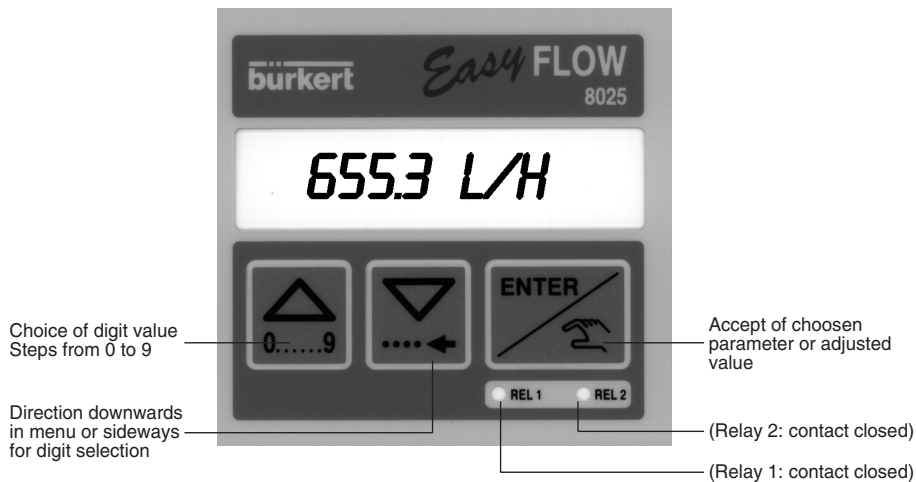
All the necessary settings, such as the language, engineering units, K-Factor, 4...20 mA measuring range, pulse output, relay and filter are carried through in this menu. Here, the main, as well as the daily totalizer are simultaneously reset.

### Testing

A flow can be simulated in this menu, which allows to test a process in the "dry-run condition".

This menu also displays the sensor frequency and allows to change the basic settings (Offset, Span) of the device.

### 4.1 Transmitter Operating and Control Elements

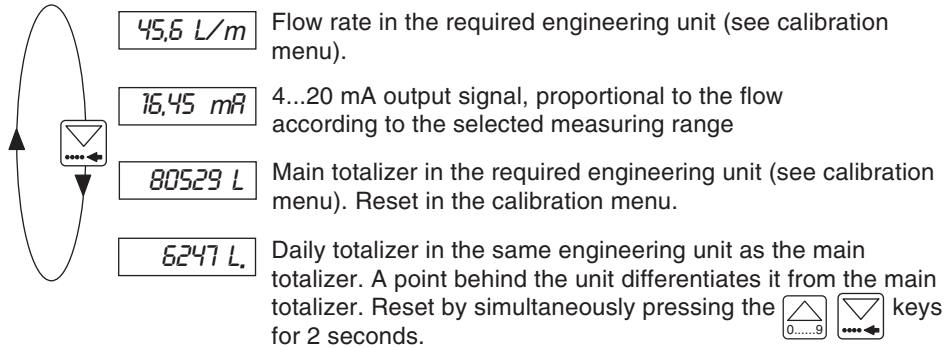


## 4 OPERATION

## FLOW TRANSMITTER 8025

### 4.2 Operation Mode Display

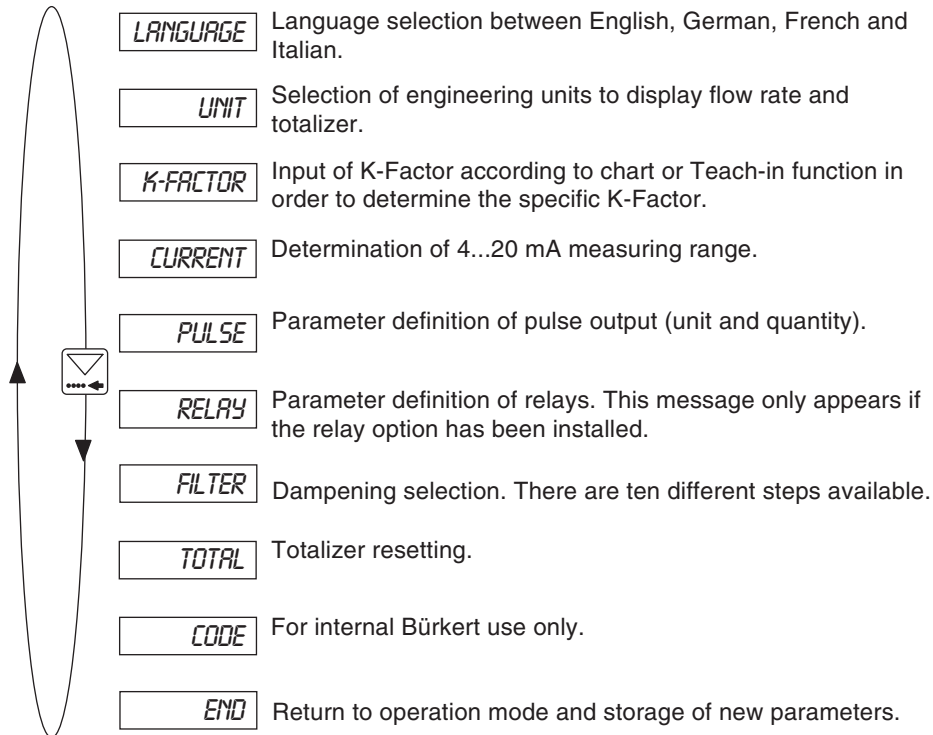
The following variables are displayed in the operation mode:



### 4.3 Calibration Mode

Press   simultaneously for 5 seconds

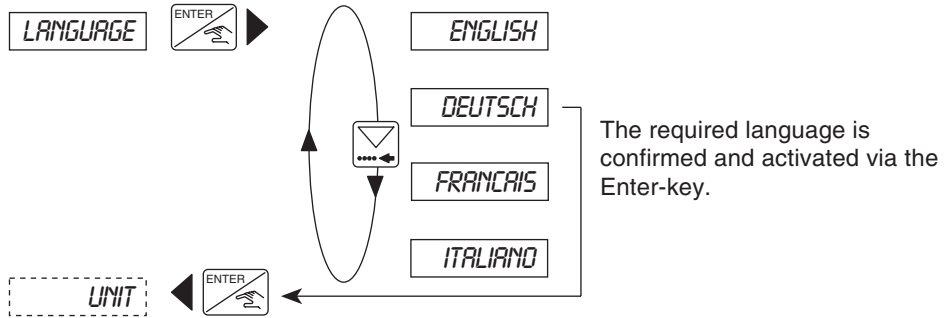
The following variables can be set in the parameter definition menu:



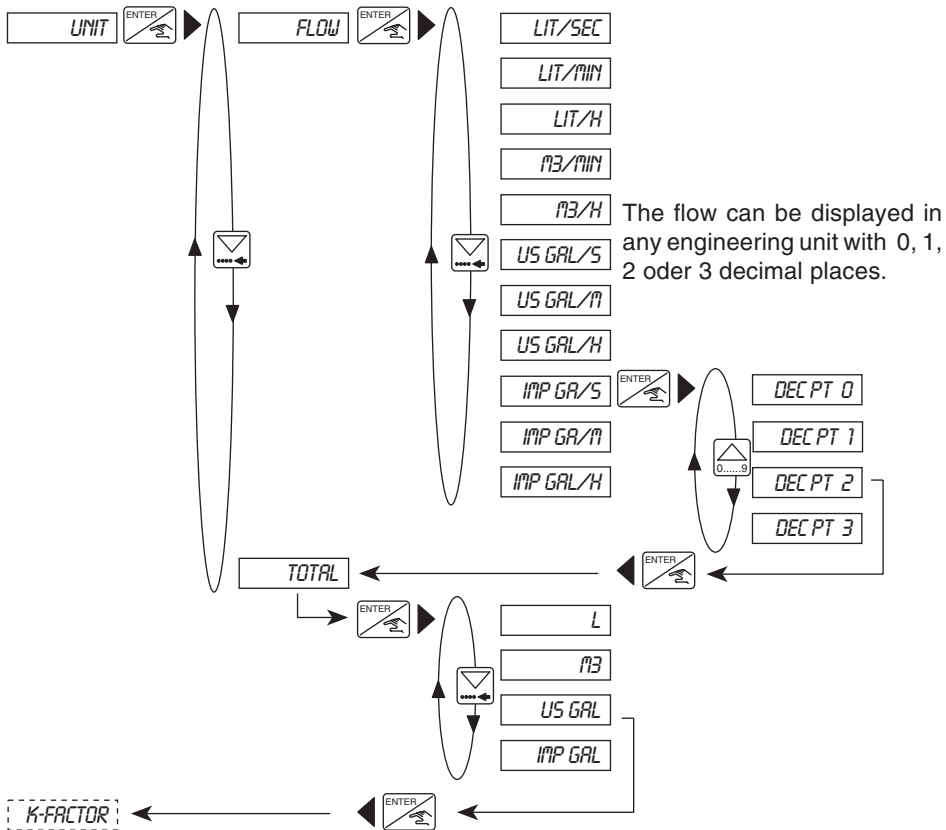
## 4 OPERATION

## FLOW TRANSMITTER 8025

### 4.3.1 Language



### 4.3.2 Engineering Units



**Note:** You can only return to the main menu via the sub-menu "TOTAL".



## 4 OPERATION

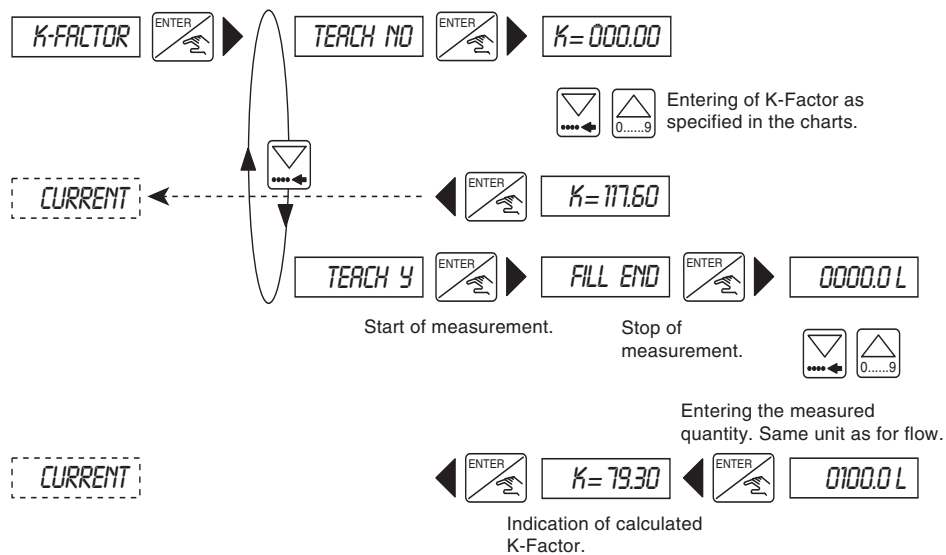
## FLOW TRANSMITTER 8025

### 4.3.3 K-Factor

The K-Factor of the fitting is entered in this menu (see manual of fitting S020/1500/1501). The "Teach in" function allows to practically determine the application specific K-Factor. The user only needs to run a known quantity through his system.

**Example:** In order to determine a quantity the most accurately possible, the user shall fill a tank of 100 liters. When the message "TEACH YES" appears, he presses the Enter key to start the measuring procedure. The message "FILL END" (end of filling) will appear. He then switches on a pump or opens a valve. As soon as his tank is full, he switches off the pump or closes the valve. Pressing Enter stops the measurement. The user will then be asked to enter the quantity (100 liters). The calculated K-Factor is displayed after confirmation.

**Note:** The device uses the K-Factor entered or determined at last.



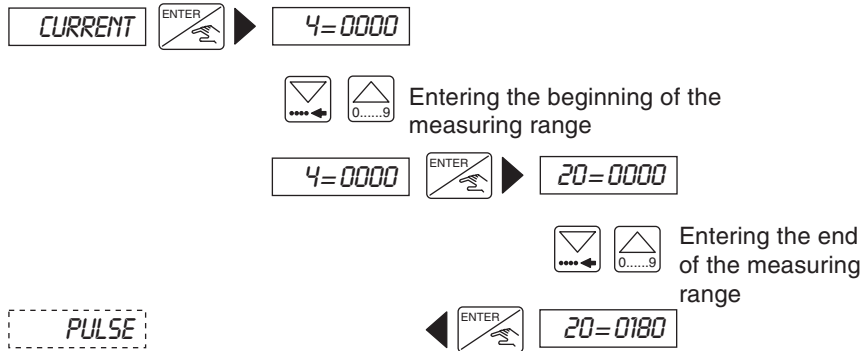
### 4.3.4 Output current

The measuring range of the flow, corresponding to the 4...20 mA output current is entered here. E.g. 0 to 180 l/min corresponds to 4...20 mA. The beginning of the measuring range can be larger than the end of it, i.e. 0 to 180 l/min corresponds to 20...4 mA (inverted output signal).

The settings (unit and decimal place), as selected for the flow indication will apply.

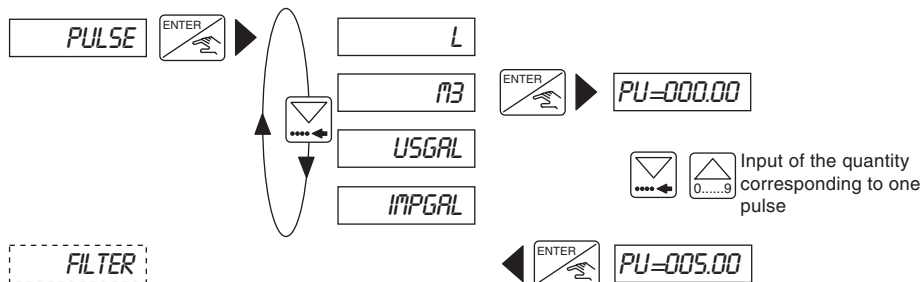
## 4 OPERATION

## FLOW TRANSMITTER 8025



### 4.3.5 Pulse output

The pulse output is available either on the on open collector transistor or on relay reed. In this menu, the parameters of the pulse output are defined and the flow rate, that shall correspond to one pulse is determined. First enter the unit, then the value. Example: 1 pulse corresponds to 5 m<sup>3</sup>.



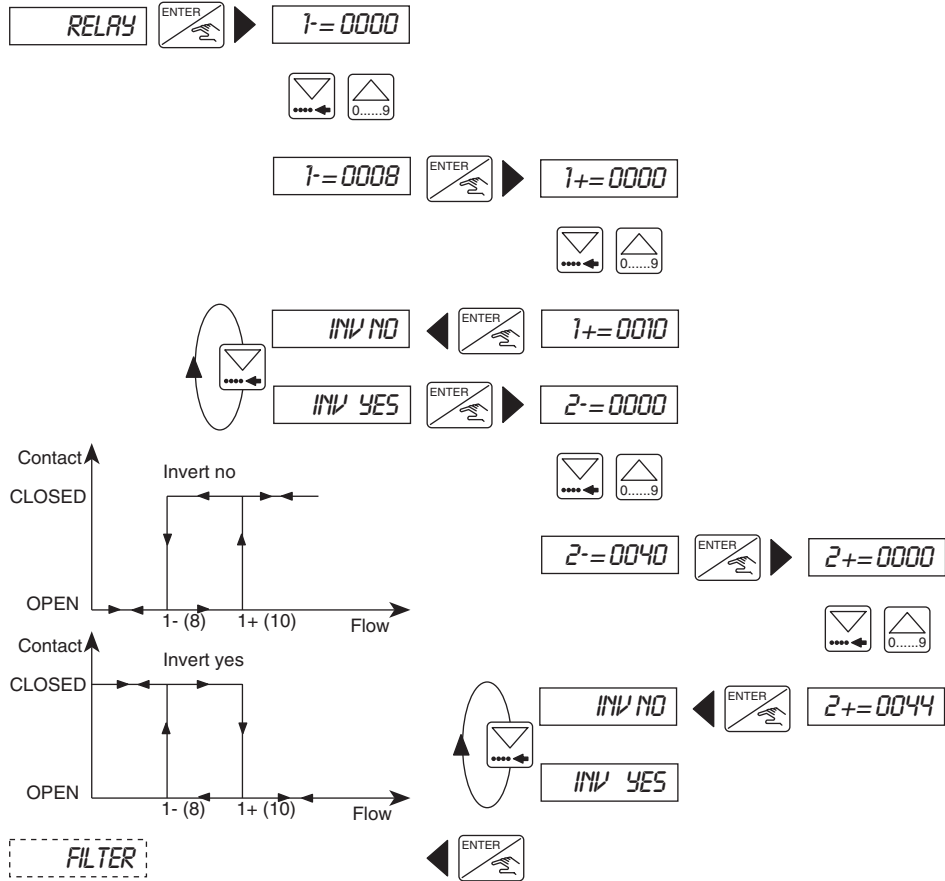
### 4.3.6 Relay

The parameter definition of the limit contacts is done in this menu. Two limit values are entered for each relay ; 1- and 1+ or 2- and 2+. The user also has the possibility to invert the relays. The unit and decimal place, as selected in the sub-menu "UNIT" are activated.

**Caution!** The following condition must be observed:  $1- \leq 1+$ ,  $2- \leq 2+$ .  
Not available on transmitter with relay Reed option.

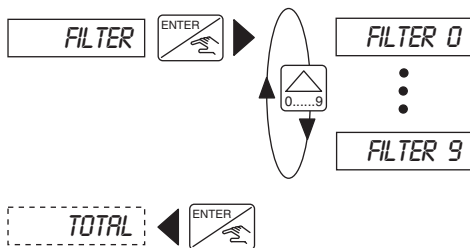
## 4 OPERATION

## FLOW TRANSMITTER 8025



### 4.3.7 Filter function

The dampening is specified in this sub-menu. It prevents fluctuations of the display and output current. There are ten levels available. The first level ("FILTER 0") has no dampening effect.

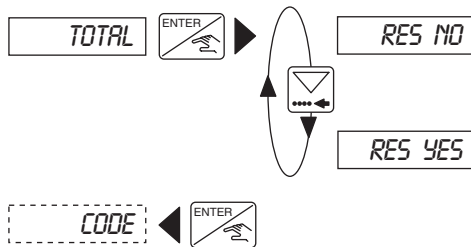


## 4 OPERATION

## FLOW TRANSMITTER 8025

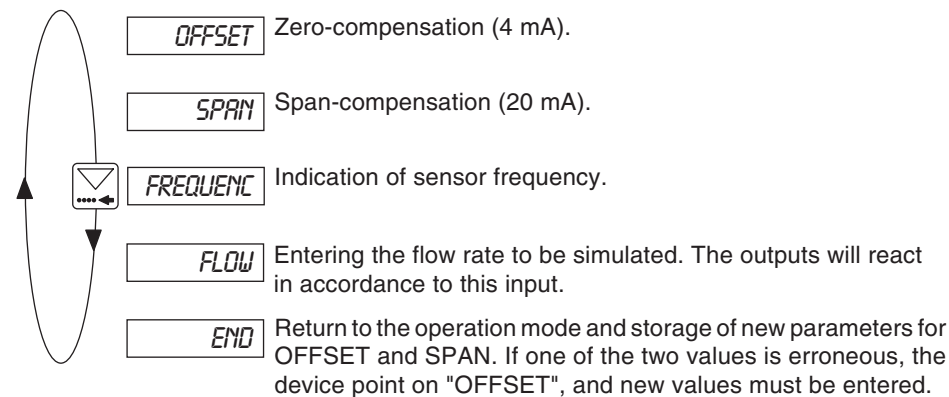
### 4.3.8 Totalizer

The main and daily totalizers are reset in this menu. The reset procedure only starts when Enter is pressed, at the "END" position in the parameter definition menu.



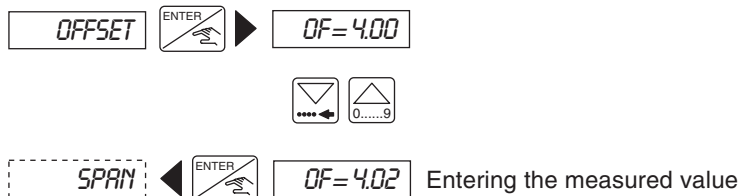
### 4.4 Test Menu: Press simultaneously for 5 seconds

The following compensations and tests are carried through in the test menu:



#### 4.4.1 Offset-compensation

Here, the customer has the option to correct the basic setting of 4 mA. He only needs one current meter. When Enter is pressed while "OFFSET" is displayed, the transmitter produces 4 mA. If this value is incorrect, it can be corrected by entering the measured value.

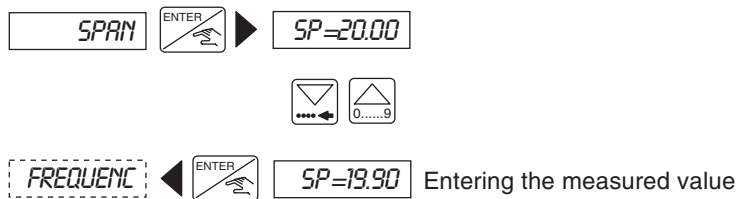


## 4 OPERATION

## FLOW TRANSMITTER 8025

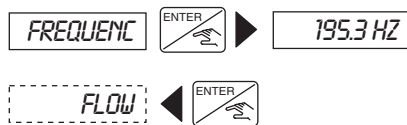
### 4.4.2 Span-compensation

Here, the customer has the option to correct the basic adjustment of 20 mA. The procedure is identical to the Off-set procedure. When Enter is pressed while "SPAN" is indicated, the transmitter produces 20 mA. If this value is incorrect, it can be corrected by entering the measured value.



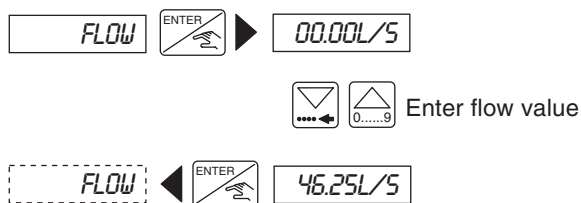
### 4.4.3 Frequency display

Here, the sensor frequency is displayed until the Enter key is pressed.



### 4.4.4 Flow simulation

A flow can be simulated in this menu. This allows the user to test his system without any liquid. Eventhough the simulated value influences the output current and the relays, it has no impact on the pulse output. Unit and decimal place, as selected in the sub-menu "UNIT" are active.



The simulation is active until the user enters into another sub-menu.

## 5 MAINTENANCE

## FLOW TRANSMITTER 8025

### 5.1 Trouble-shooting

In correct installation the transmitters are maintenance-free. If contamination or clogging should occur during operation, the transmitter (paddle-wheel, bearing) can be cleaned with water or another appropriate cleaning agent.

The message "ERROR" on the display indicates that calibration data has been lost. By pressing ENTER, the user access to operation menu but the device works with the factory settings (see §5.2). The transmitter must be re-calibrated. If this message appears more often, please return the product to the factory.

### 5.2 Factory-settings of Type 8025 at Delivery

Language:	English	Relay:	1-:	00.10
Unit of flow:	L/s		1+:	00.50
Unit of totalizers:	L		Invert:	YES
Decimal points:	2		2-:	00.10
K-factor:	46.60		2+:	02.00
Current:	4 mA: 00.00		Invert:	YES
	20 mA: 03.00	Filter:		Filter 2
Pulse output unit:	L			
PU:	000.10			

### User-settings of Type 8025 N°:

Language:		Relay:	1-:	
Unit of flow:			1+:	
Unit of totalizers:			Invert:	
Decimal points:			2-:	
K-factor:			2+:	
Current:	4 mA:		Invert:	
	20 mA:			
Pulse output unit:	L	Filter:		
PU:				

## 5 MAINTENANCE

## FLOW TRANSMITTER 8025

### 5.3 Spare Parts List

#### Spare parts 8025 Compact Version

Position	Specification	Order-No.
1	Sensor housing with plug connector, ring and union nut	419856Y
2	Sensor housing with ring, union nut and 1 flat packing	419858A
3	Sensor housing with ring, union nut and 2 flat packings	419857Z
4	Cable plug	424205Z
5	Cable plug USA-version	424206S
6	PG 13.5	418339Q
7	PG 13.5 USA-version (G 1/2 ")	418340M
8	Cover with screws, sheeting and printed circuit board Transmitter without relay and Software version F4	425249D
9	Cover with screws, sheeting and printed circuit board Transmitter with relays and Software version F4	425250A
	Cover with screws, sheeting and printed circuit board Transmitter with relay Reed and Software version F4	425251X
10	Power supply board 115/230 VAC	418483J
11	Ring	619205
12	Union nut	619204
13	Sensor for DN 15 to 100 (1/4" - 4") with coil	633366A
	Sensor for DN 15 to 100 (1/4" - 4") with Hall sensor	418316Z
14	Sensor for DN as from 100 (as from 5") with coil	634757B
	Sensor for DN as from 100 (as from 5") with Hall sen.	418324Z
15	FPM seal kit	425554P
	EPDM seal kit	425555Q
16	Operating instructions manual type 8025	418349J
	Operating instructions manual type S020/1500/1501	429633S

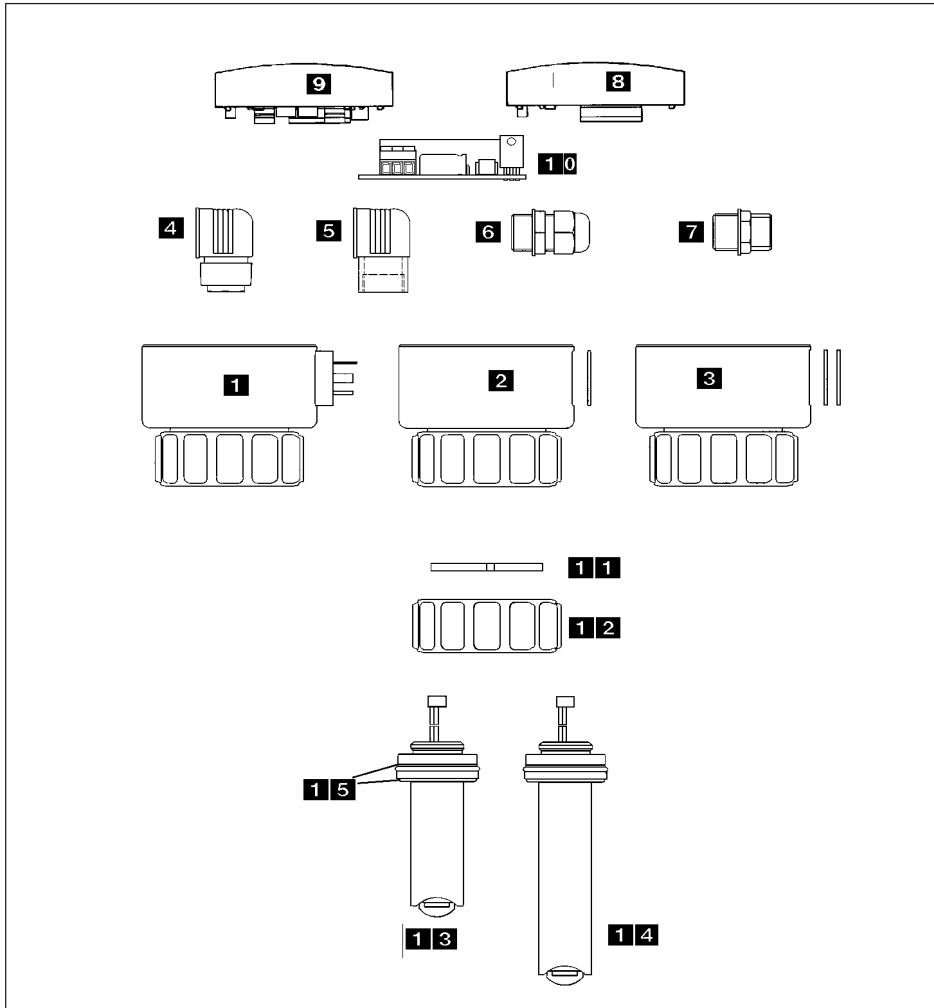


Fig. 5.1 Spare Parts Explosion Drawing Compact Version



## 5 MAINTENANCE

## FLOW TRANSMITTER 8025

### Spare parts 8025 Panel Version

Position	Specification	Order Nr.
8	Identical to 8025 compact version	
9	Identical to 8025 compact version	
16	Identical to 8025 compact version	
17	Gasket	419350Q
18	Protective plate	419779J
19	Mounting accessories (screws, lockwashers, spacer bolts, cable clips)	418388A

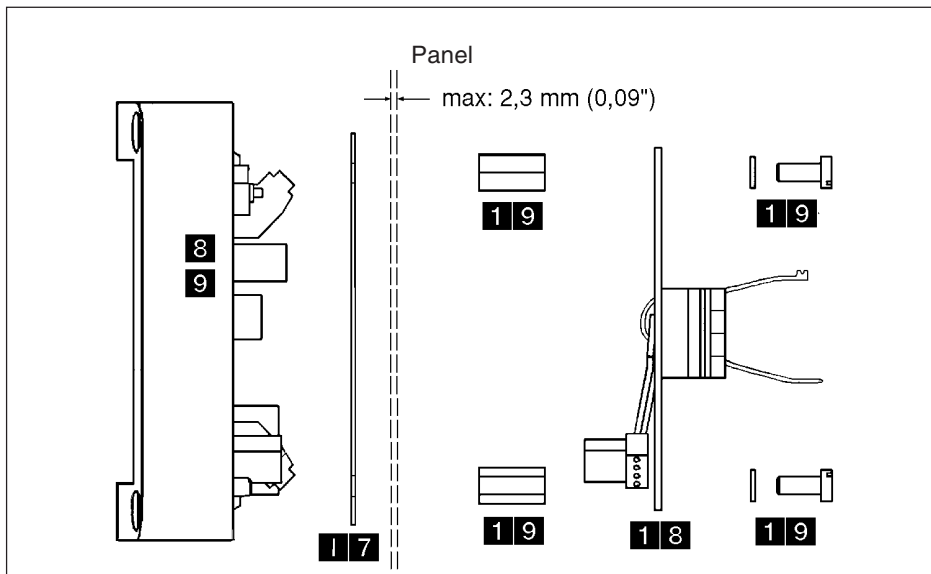


Fig. 5.2 Spare Parts Explosion Drawing 8025 Panel Version

## 5 MAINTENANCE

## FLOW TRANSMITTER 8025

### Spare parts 8025 Wall-mount Version

Position	Specification	Order N°
20	Electronic board 8025 without relays with software F4	418049H
21	Electronic board 8025 with relays with software F4 Electronic board 8025 with relay Reed software F4	418051T 418084M
22	Power supply board 12...30 VDC	418026J
	Power supply board 230/115 VAC	418073Z
23	Sensor connection cable between transmitter and power supply	420403Y
24	Complete enclosure	418389B

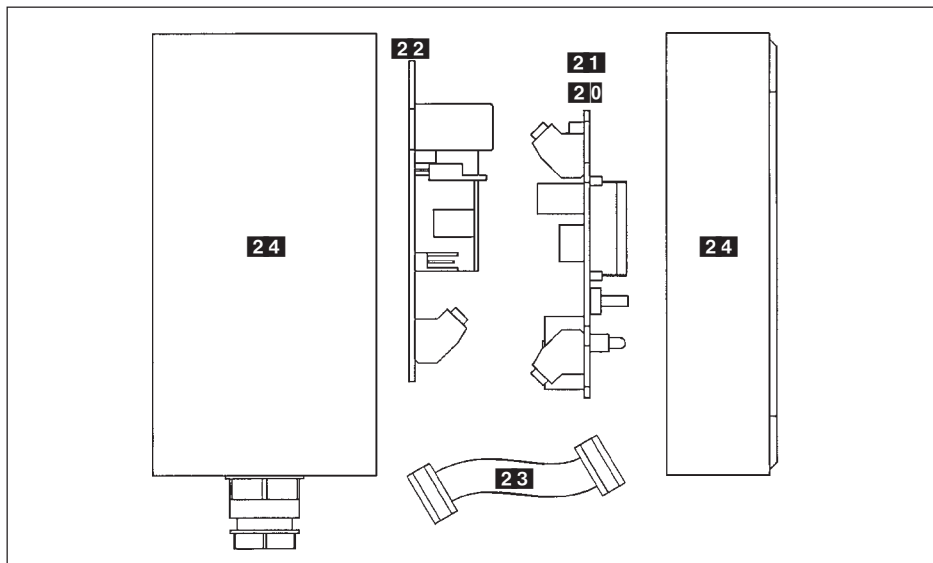


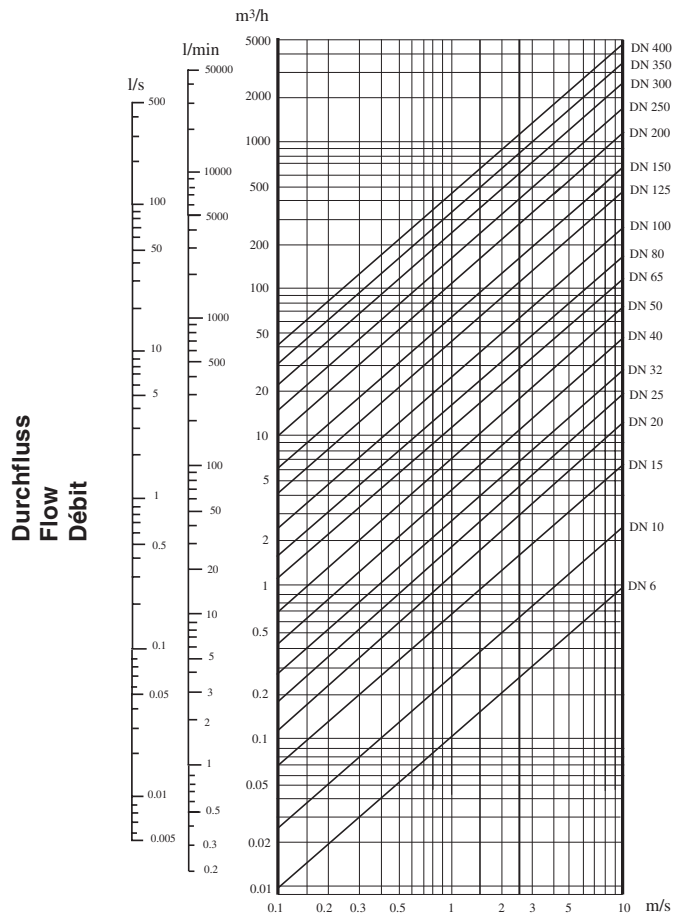
Fig. 5.3 Spare Parts Explosion Drawing 8025 Wall-mount Version

## ANHANG ANNEX ANNEXE

Durchfluss-Diagramm (gpm, DN in inch und fps)

Flow chart (gpm, DN in inch and fps)

Abaque débit/vitesse/diamètre (US-gallon/min, DN en inch et ft/s)



**Durchflussgeschwindigkeit - Flow velocity - Vitesse du fluide**

### Vorgabe/Specifications/Données

Nominaler Durchfluss/Flow/Débit 10  $m^3/h$

Ermittlung mit idealer Durchflussgeschwindigkeit: 2...3  $m/s$

Determination with ideal flow velocity: 2...3  $m/s$

Vitesse optimale du fluide 2...3  $m/s$

Aus dem Diagramm resultiert die erforderliche Nennweite von DN 40

With these specifications, the required orifice as defined by flow chart is DN 40

Selon l'abaque un raccord de DN 40 est le mieux approprié.

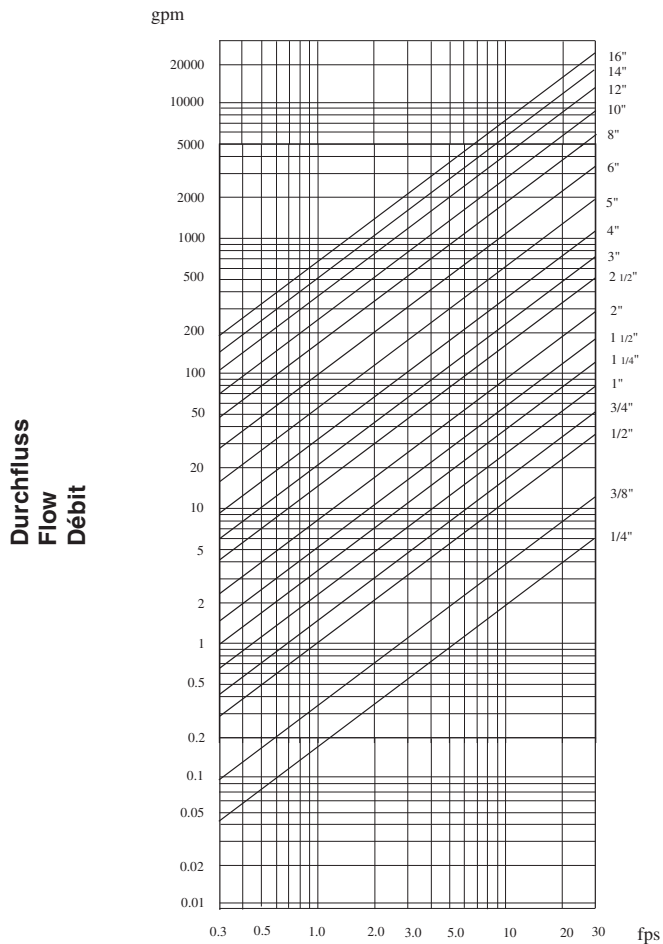
### Examples/Auswahlbeispiel:/Exemples

## ANHANG ANNEX ANNEXE

Durchfluss-Diagramm (gpm, DN in inch und fps)

Flow chart (gpm, DN in inch and fps)

Abaque débit/vitesse/diamètre (US-gallon/min, DN en inch et ft/s)



### Durchflussgeschwindigkeit - Flow velocity - Vitesse du fluide

#### Vorgabe/Specifications/Données

Nominaler Durchfluss/Flow/Débit 50 gpm

Ermittlung mit idealer Durchflussgeschwindigkeit: 8 fps

Determination with ideal flow velocity: 8 fps

Vitesse optimale du fluide 8 fps

Aus dem Diagramm resultiert die erforderliche Nennweite von DN 40

With these specifications, the required orifice as defined by flow chart is DN 40

Selon l'abaque un raccord de DN 40 est le mieux approprié.

#### Examples/Auswahlbeispiel:/Exemples

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