

## Elster® RABO®-Compact

Rotary Gas Meter

### Applications

Honeywell Elster's new RABO-Compact series, RABO-CT (Compact Thread) and RABO-CF (Compact Flange) are suitable for measuring of natural gas and various filtered, non-corrosive gases.

### Brief information

#### General

Honeywell Elster rotary gas meters are characterized by high measuring ranges and compact dimensions. They ensure high accuracy, even if the gas flow is low or irregular. RABO combines tried-and-tested product features of previous rotary gas meters from Elster-Instromet and is a convincing product because it offers a large range of future-oriented features.

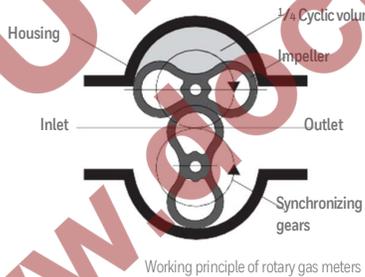
#### Operating Principle

Rotary gas meters are volume-measuring devices for gaseous media which operate according to the positive displacement principle. Due to their volumetric measuring principle, their functioning is not influenced by the installation and they are therefore ideal for compact measuring systems without an inlet section. They record the gas volume under operating conditions and are approved for custody transfer applications.

Electronic volume conversion devices can be used in order to convert the volume.

#### Measurement Procedure

Two rotating impellers which look like a figure of eight (8) when viewed in cross-section are mounted in a single housing with one inlet and one outlet. The two impellers are coupled together using synchronizing gears. When gas flows, the impellers rotate without touching one another and propel a gas volume to the outlet which is defined by the cyclic volume. One rotation of the system thus corresponds to a defined gas volume. The revolutions of the impellers are transferred to the mechanical index via a reducing gear and a magnetic coupler. The rotary gas meter is adjusted using a pair of gears in the index.



### FEATURES & BENEFITS

- Meter sizes G10 to G40
- Flow rates from 0.25 to 65 m<sup>3</sup>/h
- Nominal sizes DN 25 to DN 50
- Pressure ratings PN 10/16 and Class 150 in accordance with ASME B 16.5
- Temperature range -25°C to +70°C
- Measuring ranges up to 1:200
- Aluminum housing as Flange or Thread version
- Compact dimensions
- Maintenance free option
- Index can be rotated for horizontal and vertical installation
- Optional index solutions (e.g. Absolute ENCODER S1D)
- Approvals pursuant to MID/PED/ATEX Directives

# RABO-Compact (CT/CF) Technical Specifications

Technical Data	
Gas Temperature*	-25°C to +70°C
Ambient Temperature	-25°C to +70°C
Storage Temperature	-40°C to +70°C
Operating Pressure	Max. 20 bar
Protection Class	IP 67 (suitable for outdoor installation)
Housing CF	Aluminum DN25-DN50
Housing CT	Aluminum G1 ½"
Mid Approval	DE-12-MI002-PTB001 (PTB)
Ped Approval	CE-0085CN0022 (DVGW Cert GmbH)
Atex Approval	Ex-zone 1
Medium	Natural gas and various filtered, non-corrosive gases, Hydrogen (in preparation)
Metrological Accuracy Class	AC 1,0
Reproducibility	< 0.1%
Indexes	S1V (standard), S2 (optional, no extra cost). Optional at extra cost: Absolute ENCODERS1D, double index S1D, double index MI-2D
Pulse Outputs	<ul style="list-style-type: none"> <li>LF pulser IN-Sx (reed contact, standard) in accordance with EC type-examination certificate TUV 03 ATEX 2123</li> <li>LF pulser IN-W11 (Wiegand sensor, optional) in accordance with EC type-examination certificate TUV 01 ATEX 1776</li> <li>HF pulser A1K (Namur sensor, optional) in accordance with EC type-examination certificate PTB 99 ATEX 2219X</li> </ul>

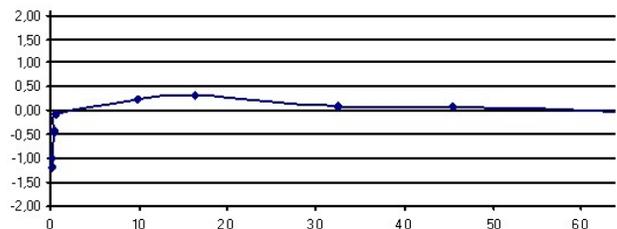
Performance Data (Measuring Ranges, Pressure Loss, Pulse Value)																		
DN (mm)	Type	Q <sub>max</sub> (m <sup>3</sup> /h)	Q <sub>min</sub> *										V (dm <sup>3</sup> )	NF (Imp/m <sup>3</sup> )	HF (Imp/m <sup>3</sup> )	HF (hz) at Q <sub>max</sub>	Δp (air)** (mbar) at Q <sub>max</sub>	Δp (natural gas)** (mbar) at Q <sub>max</sub>
			1:200	1:160	1:130	1:100	1:80	1:65	1:50	1:30	1:20							
25	G10	16	-	-	-	-	-	0.25	0.3	0.5	0.8	0.26	10	38770	171	1,5	1	
25	G16	25	-	-	-	0.25	0.3	0.4	0.5	0.8	1.3	0.26	10	38770	267	3,8	2,5	
25	G25	40	-	0.25	0.3	0.4	0.5	0.6	0.8	1.3	2	0.26	10	38770	427	10	6,6	
32	G10	16	-	-	-	-	-	0.25	0.3	0.5	0.8	0.26	10	38770	171	0.7	0.4	
32	G16	25	-	-	-	0.25	0.3	0.4	0.5	0.8	1.3	0.26	10	38770	267	1.8	1,2	
32	G25	40	-	0.25	0.3	0.4	0.5	0.6	0.8	1.3	2	0.26	10	38770	427	4,6	3,2	
32	G40	65	0.3	0.4	0.5	0.6	0.8	1	1.3	2	3	0.26	10	38770	694	10	6,6	
40	G10	16	-	-	-	-	-	0.25	0.3	0.5	0.8	0.26	10	38770	171	0.6	0.4	
40	G16	25	-	-	-	0.25	0.3	0.4	0.5	0.8	1.3	0.26	10	38770	267	1.8	1,2	
40	G25	40	-	0.25	0.3	0.4	0.5	0.6	0.8	1.3	2	0.26	10	38770	427	4	2,6	
40	G40	65	0.3	0.4	0.5	0.6	0.8	1	1.3	2	3	0.26	10	38770	694	8.4	5,5	
50	G10	16	-	-	-	-	-	0.25	0.3	0.5	0.8	0.26	10	38770	171	0.6	0.4	
50	G16	25	-	-	-	0.25	0.3	0.4	0.5	0.8	1.3	0.26	10	38770	267	1.8	1,2	
50	G25	40	-	0.25	0.3	0.4	0.5	0.6	0.8	1.3	2	0.26	10	38770	427	4	2,6	
50	G40	65	0.3	0.4	0.5	0.6	0.8	1	1.3	2	3	0.26	10	38770	694	8.4	5,5	

\*Q<sub>min</sub> ≤ 0,3 m<sup>3</sup>/h valid for temperature range from -10°C to +70°C

\*\*Typical values, depending on test rig conditions

Error Limits
Maximum permissible error limits in accordance with EN 12480
±1.0% for Q <sub>t</sub> * to Q <sub>max</sub>
±2.0% for Q <sub>min</sub> to Q <sub>t</sub>

\*Q<sub>t</sub> dependent on measuring range (example: 0.05 Q<sub>max</sub> at >1:50)



## Indexes



### S1V Index (standard)

- 8-digit mechanical index
- Index can be rotated 350°
- Protection class IP 67
- Can be used as main index



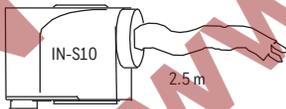
### S2 Index (standard)

- top reading
- 8-digit mechanical index
- Index can be rotated 350°
- Protection class IP 67
- Can be used as main index

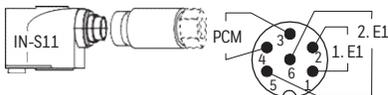


Index with EK205 (optional)

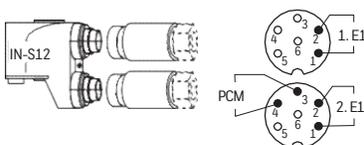
### IN-S10 (standard)



### IN-S11 (optional)



### IN-S12 (optional)



## Pulse Generators (cont.)



### Installation of the Pulser Module IN-S1x

- Slide the guides of the IN-S1x into the guide groove on the index cover
- Slide the IN-S1x over the safety catch on the index cover by applying slight pressure until the IN-S1x can be heard to engage



### Removal of the Pulser Module IN-S1x

- Lift the lower catch of the IN-S1x using a screwdriver and pull gently out of the guide on the index cover

## Pulse Generators

### LF Pulsers E1 and PCM

Elster-Instromet rotary gas meters are fitted with 2 low-frequency (LF) pulsers E1 and a monitoring contact (PCM) for detection of interferences caused by external magnetic fields as standard. Pulser modules IN-S1x can be plugged on without opening the index and can be retrofitted or replaced at any time.

### LF Pulser IN-W11

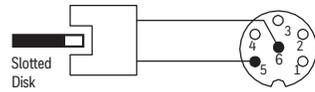
Elster-Instromet rotary gas meters can be optionally fitted with the LF Wiegand sensor module IN-W11 at the factory, instead of with the LF pulser module IN-S1x.

The IN-W11 is a low-frequency pulse generator with a defined pulse width for maximum reliability with no mechanical wear.

Characteristic data for the switch version in accordance with DIN EN 60947-5 (Namur):

Rated Voltage	$U_n = 8 \text{ VDC}$	
Internal Resistance	$R_i = 1 \text{ k}\Omega$	
Current Consumption	active area free	$I > 3 \text{ mA}$
	active area covered	$I \leq 1 \text{ mA}$

### Inductive Slot Sensor

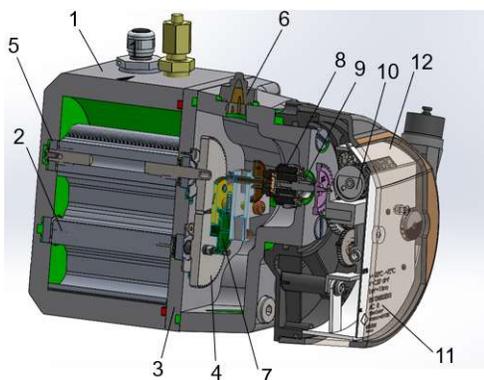


Pin Assignment of A1K 6-pin Plugs to DIN 45322 (Binder Series 423)



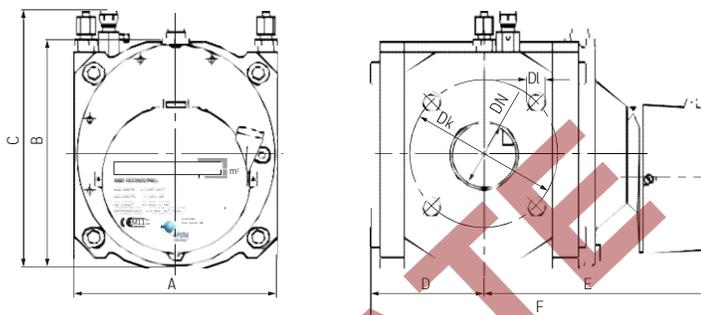
Adapter for RABO-CT

## Meter Configuration



- |  |                    |
|--|--------------------|
| 1 Housing                              | 7 Gear             |
| 2 Impeller                             | 8 Magnetic Coupler |
| 3 Bearing Cover                        | 9 Partition        |
| 4 Synchronizing Gears                  | 10 Index           |
| 5 Permanently Lubricated Ball Bearings | 11 Main Plate      |
| 6 HF Pulser A1K (option)               | 12 Index Cover     |

## Dimensions, Weights and Connections



### RABO-CT/CF Dimensions and Weights

Size	Dimensions (mm)						Weight (kg)
	A	B	C*	D	E	F	
RABO-CT G10-G40	121	126	160	46	167	213	5
RABO-CF G10-G40	171	126	160	46	167	213	6.5

### Connections

DN	Pressure Rating	D <sub>i</sub>	D <sub>l</sub>
25	PN 16/Class 150	85/79.20	4 x M12
32	PN 16/Class 150	100/88.90	4 x M16/4 x M12
40	PN 16/Class 150	110/98.60	4 x M16/4 x M12
50	PN 16/Class 150	125/120.70	4 x M16/4 x M16
G1 1/2"	PN 16/Class 150	-	-

\* When connecting thermowells, pressure taps or the high frequency pulser and when mounting a volume conversion device, height C changes accordingly (e.g. RABO with fitted EK280 = B + 270 mm)

### For more information

To learn more about Honeywell Elster Gas Solutions, visit [www.honeywellprocess.com](http://www.honeywellprocess.com) or contact your Honeywell account manager.

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