

# ELSTER® RABO® COMPACT

Rotary gas meter in sizes from DN25 to DN50 (1" to 2")

Honeywell Elster RABO COMPACT Rotary gas meters are robust meters used to accurately and reliably measure gas flows in gas distribution, industrial plants and for commercial users.



## 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.

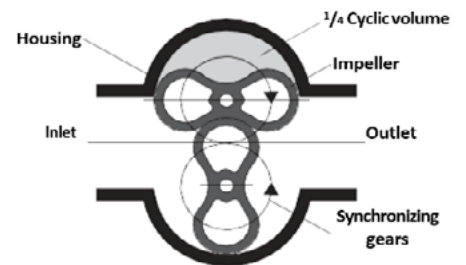
### Operating Principle

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 Housing 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.



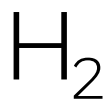
Working principle of rotary gas meters

- 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 Throat 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
- EN 12480
- EC directive 2014/32/EU (MID)
- EC directive 2014/32/EU (ATEX/IECEx)
- EC directive 2014/68/EU (PED)

## FEATURES AND BENEFITS



Maintenance free option eliminate any oil filling



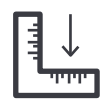
Suitable for 100% H<sub>2</sub> for custody transfer and non-custody transfer applications



Used as reference meter in major calibration facilities



Conformity to EN12480, OIML R137 1&2, PED, ATEX and IECEx



Lowest measurement uncertainty, typically +/- 2 % for Q<sub>min</sub> to Q<sub>i</sub> x +/- 1 % for Q<sub>t</sub> to Q<sub>max</sub>

**Honeywell**

# RABO-COMPACT (CT/CF) Meter Index and Pulse Options

## S1V INDEX HEAD (STANDARD)

The rugged design of the meter index (including the plastic cover) has proven itself in the harshest environments and is IP67 certified. The S1 index head is equipped with an 8-digit mechanical index for continuous meter reading. For better usability the index head can be rotated by 350° without breaking any seals.

The low frequency outputs (reed contacts) can be connected to any Flow Computer or Electronic Volume Corrector. An additional switch is included to detect manipulation attempts from the outside.



S1V Meter Index

## S2 INDEX HEAD

The S2 index head provide same features and benefits as the S1 Index head. The S2 index head is designed for installations where a top reading of the measured flow rate is required.



S2 Meter Index

## ABSOLUTE ENCODER (OPTION)

Absolute ENCODER for digital data transfer between the meter and Flow Computer/EVC.

## LOW FREQUENCY PULSERS IN-S1X 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.

- Max. 2x LF outputs (type E1) with maximum frequency of 0.5 Hz
- 1x manipulation contact
- The standard IN-S10 pulse output is delivered with 2.5m open-ended 6-wire cable to be connected directly to an EVC or junction box. Optionally the IN-S11 and IN-S12 offer a 6-pin flange plug and one/two connector sockets.



Index with Ek205 (Optional)

## LOW FREQUENCY PULSERS IN-W1X AND PCM (OPTIONAL)

The Rabo compact 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.

## HIGH FREQUENCY PULSERS (OPTIONAL)

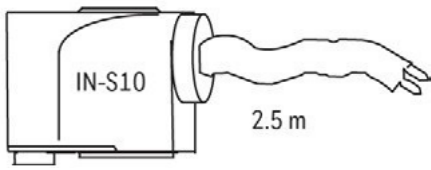
The Rabo compact gas meters can be optionally fitted with one HF sensor A1K at the factory. The A1K is an inductive high-frequency pulse generator with a signal output according to IEC 60947-5-6 (NAMUR)

**RABO Compact meters can be equipped with low and high frequency pulsers depending on customer requirements.**

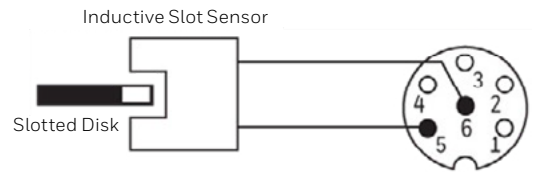
### CHARACTERISTIC DATA FOR THE SWITCH VERSION IN ACCORDANCE WITH IEC 60947-5-6 (NAMUR)

Rated Voltage:	Un = 8 V DC
Internal Resistance:	Ri = 1 kΩ
Current Consumption:	Active area free I > 3 mA Active area covered I ≤ 1 mA

# RABO-COMPACT (CT/CF) Meter Index and Pulse Options

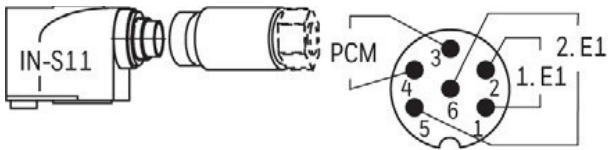


**IN-S10 (STANDARD)**

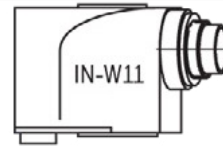


**A1K HF-PULSE GENERATOR**

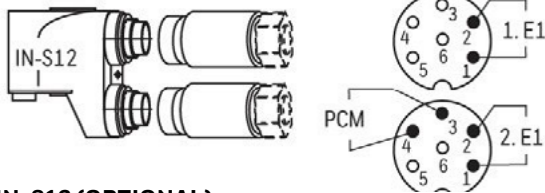
PIN Assignment of A1K  
6-PIN Plug to DIN 45322



**IN-S11 (OPTIONAL)**



**IN-W11 (OPTIONAL)**



**IN-S12 (OPTIONAL)**

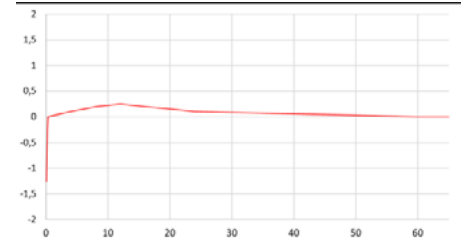


**ADAPTER FOR RABO-CT**

# RABO-COMPACT (CT/CF) Technical Specifications

TECHNICAL DATA	
Gas Temperature	-25°C to +70°C
Ambient Temperature	-25°C to +70°C
Storage Temperature	-45°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 / IECEx Approval	Ex-Zone 1 in accordance EC directive 2014/34/EU (ATEX) and IECEx type-examination certificate: IECEx TUR 16.0042 X / II 2G Ex h IIC T4 Gb
Medium	Natural gas and various filtered, non-corrosive gases and 100% H2
Metrological Accuracy Class	AC 1,0
Reproducibility	< 0.1%
Indexes	S1V (standard), S2 (optional, no extra cost)
Pulse Outputs	<ul style="list-style-type: none"> <li>• LF pulser IN-Sx (reed contact, standard) in accordance with EC type-examination certificate TÜV 16 ATEX 7729 X and IECEx TUR 16.0032 X / II 2G Ex ia IIC T4 Gb</li> <li>• LF pulser IN-W11 (Wiegand sensor, optional) in accordance with EC type-examination certificate FTZÜ 04 ATEX 0277 / II 2G Ex ia IIC T6/T4 Gb</li> <li>• HF pulser A1K (Namur sensor, optional) in accordance with EC type-examination certificate PTB 99 ATEX 2219X and IECEx PTB 11.0091 X / II 2G Ex ia IIC T4 Gb</li> </ul>

ERROR LIMITS
Maximum permissible error limits in accordance with EN12480
±1.0% for Qt* to Qmax
±2.0% for Qmin to Qt



## RABO-COMPACT(CT/CF) - OIL LUBRICATED VERSION

PERFORMANCE DATA RABO OIL LUBRICATED (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> )	Δp (air)** (mbar) at Q <sub>max</sub>	Δp (natural gas)** (mbar) at Q <sub>max</sub>
			1:200	1:160	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	1,5	1
25	G16	25	-	-	-	0.25	0.3	0.4	0.5	0.8	1.3	0.26	10	38770	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	10	6,6
32	G10	16	-	-	-	-	-	0.25	0.3	0.5	0.8	0.26	10	38770	0.7	0.4
32	G16	25	-	-	-	0.25	0.3	0.4	0.5	0.8	1.3	0.26	10	38770	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	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	10	6,6
40	G10	16	-	-	-	-	-	0.25	0.3	0.5	0.8	0.26	10	38770	0.6	0.4
40	G16	25	-	-	-	0.25	0.3	0.4	0.5	0.8	1.3	0.26	10	38770	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	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	8.4	5,5
50	G10	16	-	-	-	-	-	0.25	0.3	0.5	0.8	0.26	10	38770	0.6	0.4
50	G16	25	-	-	-	0.25	0.3	0.4	0.5	0.8	1.3	0.26	10	38770	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	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	8.4	5,5

\* Q<sub>min</sub> < 0.3m<sup>3</sup>/h valid for temperature range from -10°C to +70°C

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

# RABO-COMPACT (CT/CF) Technical Specifications

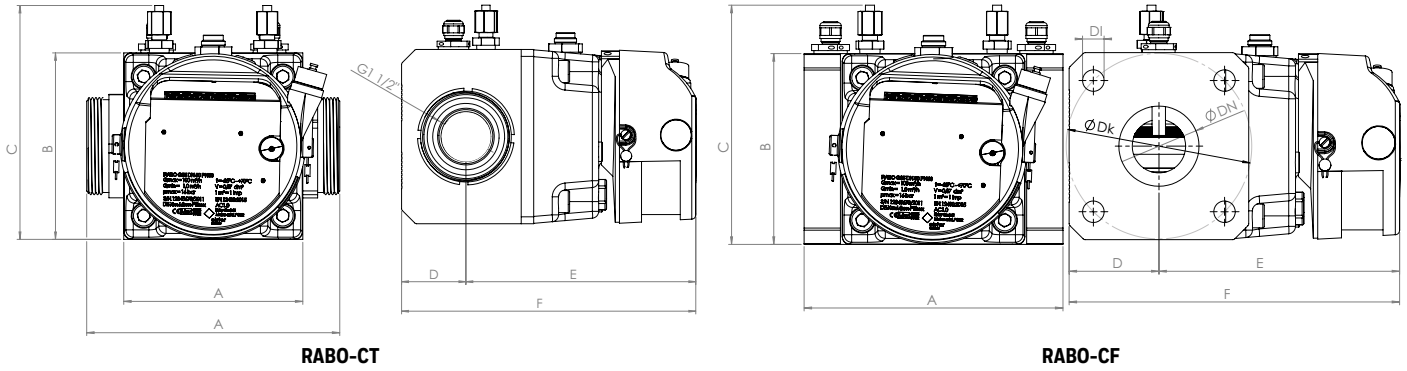
## RABO-COMPACT(CT/CF) - MAINTENANCE FREE VERSION

PERFORMANCE DATA RABO OIL LUBRICATED (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> )	Δ p(air)** (mbar) at Q <sub>max</sub>	Δp (natural gas)** (mbar) at Q <sub>max</sub>	
			1:200	1:160	130	1:100	1:80	1:65	1:50	1:30	1:20						
25	G10	16	-	-	-	-	-	-	-	-	0.5	0.8	0.26	10	38770	1.5	1
25	G16	25	-	-	-	-	-	0.4	0.5	0.8	1.3	0.26	10	38770	3.8	2.5	
25	G25	40	-	-	-	0.4	0.5	0.6	0.8	1.3	2	0.26	10	38770	10	6.6	
32	G10	16	-	-	-	-	-	-	-	0.5	0.8	0.26	10	38770	0.7	0.4	
32	G16	25	-	-	-	-	-	0.4	0.5	0.8	1.3	0.26	10	38770	1.8	1.2	
32	G25	40	-	-	-	0.4	0.5	0.6	0.8	1.3	2	0.26	10	38770	4.6	3.2	
32	G40	65	-	0.4	0.5	0.6	0.8	1	1.3	2	3	0.26	10	38770	10	6.6	
40	G10	16	-	-	-	-	-	-	-	0.5	0.8	0.26	10	38770	0.6	0.4	
40	G16	25	-	-	-	-	-	0.4	0.5	0.8	1.3	0.26	10	38770	1.8	1.2	
40	G25	40	-	-	-	0.4	0.5	0.6	0.8	1.3	2	0.26	10	38770	4	2.6	
40	G40	65	-	0.4	0.5	0.6	0.8	1	1.3	2	3	0.26	10	38770	8.4	5.5	
50	G10	16	-	-	-	-	-	-	-	0.5	0.8	0.26	10	38770	0.6	0.4	
50	G16	25	-	-	-	-	-	0.4	0.5	0.8	1.3	0.26	10	38770	1.8	1.2	
50	G25	40	-	-	-	0.4	0.5	0.6	0.8	1.3	2	0.26	10	38770	4	2.6	
50	G40	65	-	0.4	0.5	0.6	0.8	1	1.3	2	3	0.26	10	38770	8.4	5.5	

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

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

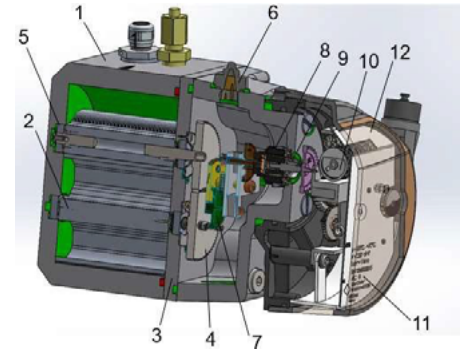
# DIMENSIONS, WEIGHTS AND CONNECTIONS



CONNECTIONS							
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	216	46	167	213	6,5

CONNECTIONS			
DN	Pressure Rating	Dk	Dl
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

\* 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)



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

## For more information

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

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