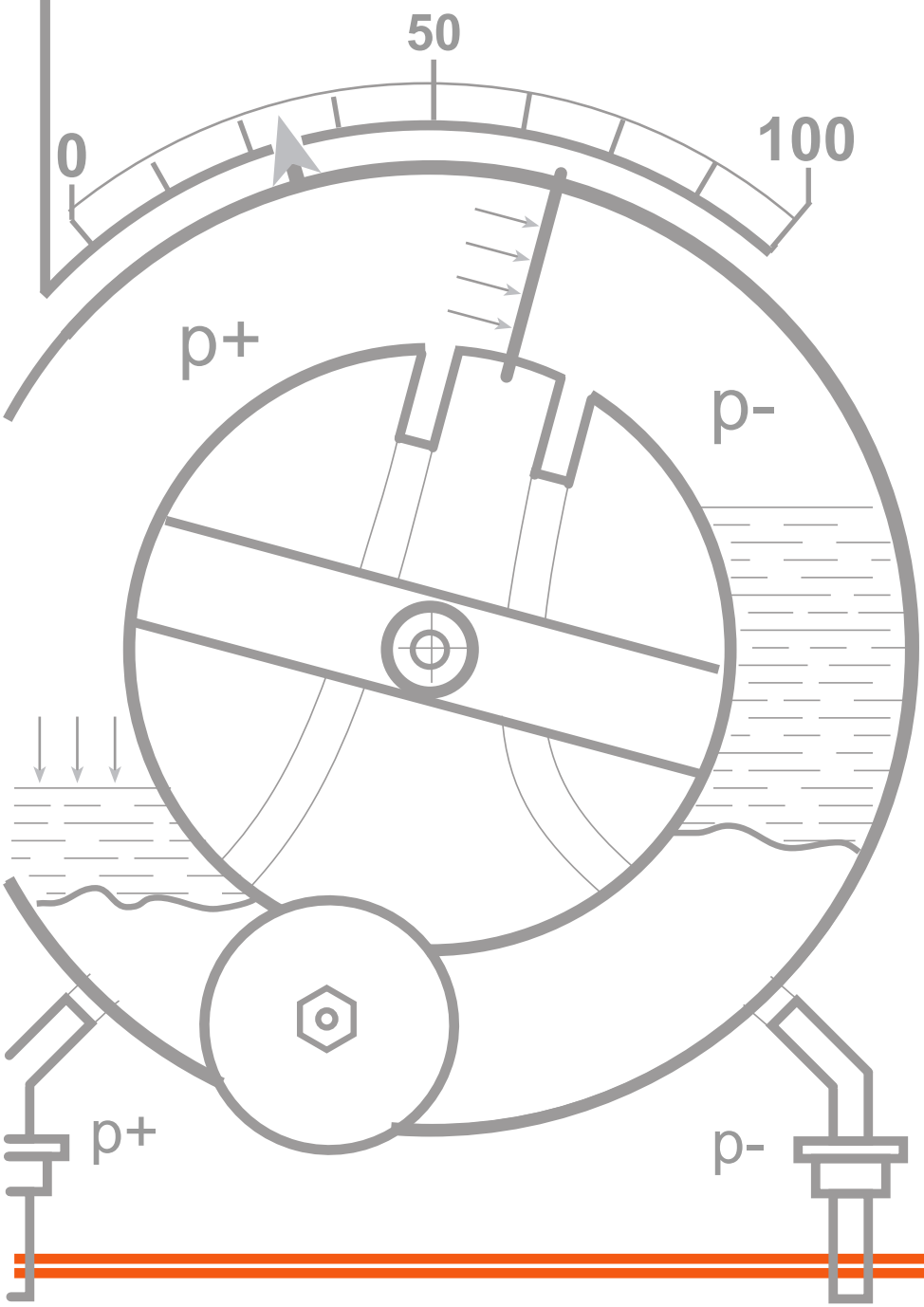
New!

Rixen - Ringbalances

2018

RW65_EX_II
indicator + transmitter for ex zone



Measuring ranges from 0-40 Pa to 0-1.8 kPa (0.15"W.C. to 7"W.C.)

For over **60** years, Rixen has manufactured low-range measuring instruments for draft, pressure and differential pressure of gaseous mediums.
From the very beginning we made use of the Ringbalance measuring principle with its special advantages, and meanwhile we are the only manufacturer of Ringbalances, worldwide.

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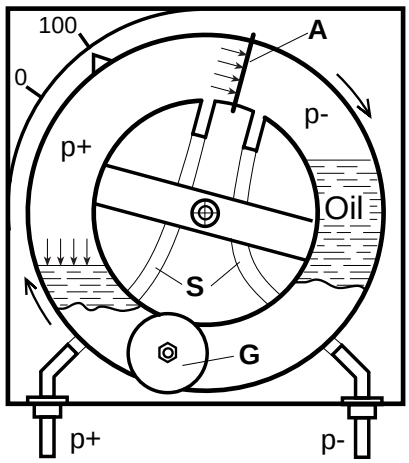
RIXEN

The Ringbalance Principle

Measuring Principle

A hollow ring, free to rotate on bearings and half filled with fluid,is divided by partition wall "A" into two chambers. Positive, and negative or differential pressure are applied to the ringbody chambers via flexible tubes "S".
The pressure differential across the dividing wall "A" causes the ring-body to rotate until an equilibrium is reached with the counterweight "G".

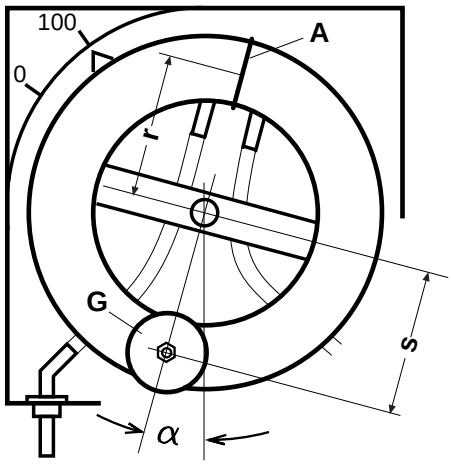


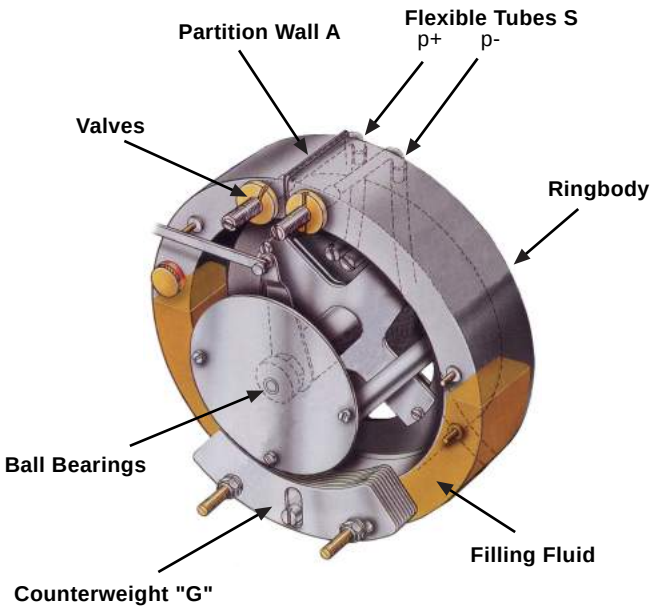
Excellent Long-Term-Accuracy

The calibration of a Ringbalance is entirely determined by the mass of the counterweight "G".
A weight cannot "age" or become "overloaded".

The Filling Fluid

Since the differential pressure is ultimately balanced by the counter-weight "G", it follows that neither the quantity nor the density of the filling fluid play a role in the actual measurement or in the Ringbalance-Equation.





The Ringbalance Equation

$$\triangle p = \frac{G \times s}{A \times r} \sin \alpha$$

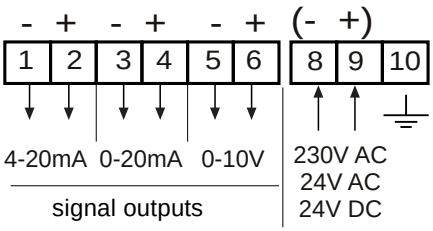
delta p .....differential pressure ....[Pa]
s.....counterweight moment arm.....[m]
r .....average ringbody radius.....[m]
A.....area of partition wall.....[m²]
G .....counterweight .....[N]

MU Digital

Ringbalance Differential Pressure Transmitter
converts draft, pressure and differential pressure
into standard signals of 0-20mA, 4-20mA and 0-10V

Display	LCD, 3 1/2 digit, 12.5 mm high
Measuring System	Ringbalance principle
Measuring Pickup	Magnetic "Hall" sensor
Measuring Ranges	from 0...40 Pa (+/-20 Pa) to 0...1.8 kPa - see page 8 -
Units	Pa, kPa, daPa, mbar, mmWS, mmCE, in.W.C.
Ambient Temp.	0 . . . +50 °C (32 - 122 °F)
Accuracy	max. error +/-1.5% of span, or +/-1.5 Pa
Housing	for wall mounting IP42; Polycarbonate lightgrey; - see page 9 -
Process Connect.	2 fittings for flexible tubes, 8mm outside diameter
Electr. Connections	screw terminals in the terminal box 2 cable fittings PG9/M16 with strain relief
Electrical Outputs	0-20 mA, 4-20 mA and 0-10 V;
Max. Loads	680 Ohm (mA); respectively: min. 2kOhm (V)
Power Supply	230 VAC; or 24/110/120/240/24 VAC; 24 V DC (additional charge)
CE	Electromagnetic Compatibility according to EN50081-2 (Emmission) and EN50082-2 (Immunity)
Type	MU Digital

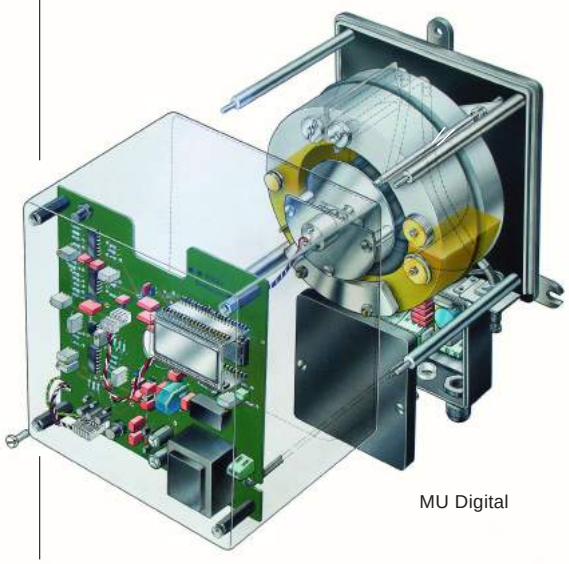
Terminal Diagram



Order specifications

1. Type: MU Digital
2. Measuring range
3. Power supply

Factory Calibration Certificate included



MU Digital

MU-Analog-65

Ringbalance Differential Pressure Transmitter
converts draft, pressure and differential pressure
into standard output signals of 0-20mA, 4-20mA and 0-10V

MU-Analog-65-2L

Ringbalance Differential Pressure Transmitter
"Loop-Powered" (2-wire) version

Display	large analogous display, 150x150mm (6"x6")
Measuring Pickup	Magnetic field sensor, non-contact, and with infinite resolution
Measuring Ranges	from 0...40 Pa (+/-20 Pa) to 0...1.8 kPa - see page 8 -
Scale Units	Pa, kPa, daPa, mbar, mmWS, mmCE, in.W.C.
Ambient Temp.	0 . . . +50 °C (32 - 122 °F)
Accuracy	max. error +/-1.5% of span, or +/-1.5 Pa
Housing	wall mounting, IP65 (see page 9)
Electrical Outputs	2-wire version: 4-20 mA; max. load at U=24V: 600 Ohm 4-wire version: 0-20 mA; 4-20 mA; 0-10 V max. load: 680 Ohm (mA-outputs) respectively min. 2kOhm (V-output)
Power Supply	2-wire version: 24VDC (12-28V DC) 4-wire version: 230 VAC; also available: 24/110/120/240/24 V AC 24VDC (additional charge)
CE	Electromagnetic Compatibility according to EN50081-2 (Emmission) and EN50082-2 (Immunity)

Types

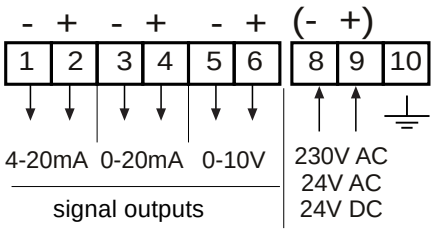
MU-Analog-65	4-wire version
MU-Analog-65-2L	2-wire version

Order specifications

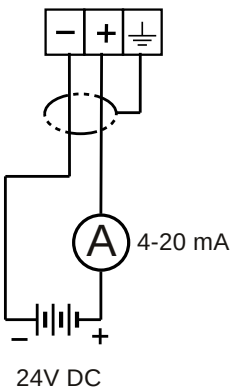
1. Type
2. Measuring range
3. Power supply

Factory Calibration Certificate included

Terminal Diagram: MU-Analog-65



Terminal Diagram: MU-Analog-65-2L

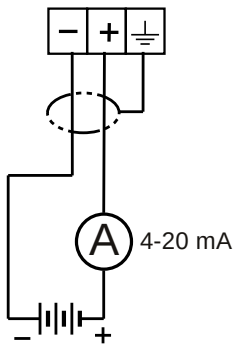


RW-65-Ex-II

Ring balance with integrated, intrinsically safe twin-wire loop current transmitter (4 - 20 mA) for be mounted in Ex zones (0,1, 2, 20, 21, 22)

- dimensions (HxWxD): 235x195x165mm
- large dial, 150Êx 150mm
- free selection of scaling (Pa, mbar, daPa, mmWs, etc.)
- ambient temperature: -20...+50°ÊC
- free selection of measuring range (MIN: 0...40Pa (+/-20Pa) – MAX: 0...1.8ÊkPa) and any values in between
- max. error of measurement +/-1% of the final value
- function as limit sensor (min / max)
- transmitter output designed as intrinsically safe current output of 4-20mA featuring loop supply
- IP66 wall-mounted housing
- RAL 5015 varnished or pure stainless steel 1.4571

Approved acc. to
II 1 G Ex ia IIC T4 Ga
II 1 D Ex ia IIIC 135°C Da
for all ex zones (0, 1, 2, 20, 21, 22)



Connectivity:

- direct connection to e.g. Wago PLC analogue input terminal 4 - 20 mA, twin-wire
- direct connection, Siemens S7-300 analogue ex module
- connection via Zener barrier to standard separators
- connection via ex separators, e.g. PR5114B

Ringbalance RW65

measuring draft, pressure, differential pressure, and flow
optional with contacts

Display	large LCD display,
Measuring Ranges	from 0...40 Pa (+/-20 Pa) to 0...1.8 kPa - see page 8 -
Scale Units	Pa, kPa, daPa, mbar, mmWS, mmCE, in.W.C.
Accuracy	max. error +/-1.5% of span, or +/-1.5 Pa
Ambient temp.	-20....0 . . . +50 °C (-4...+122 °F)
Housing	wall mounting IP65 (see page 9)

Option: Inductive Contacts
Inductive sensors according to NAMUR / ATEX [EEx ia IIC T6],

1xMin	Type IK1/0
1xMax	Type IK0/1
2xMin	Type IK2/0
1xMin / 1xMax	Type IK1/1

"Min"- function:	vane dips into slot at decreasing pressure
"Max"-function:	vane dips into slot at increasing pressure

Isolation Switch Amplifier (Turck)
housing for snap-in on DIN-rail, 18mm wide, universal power supply

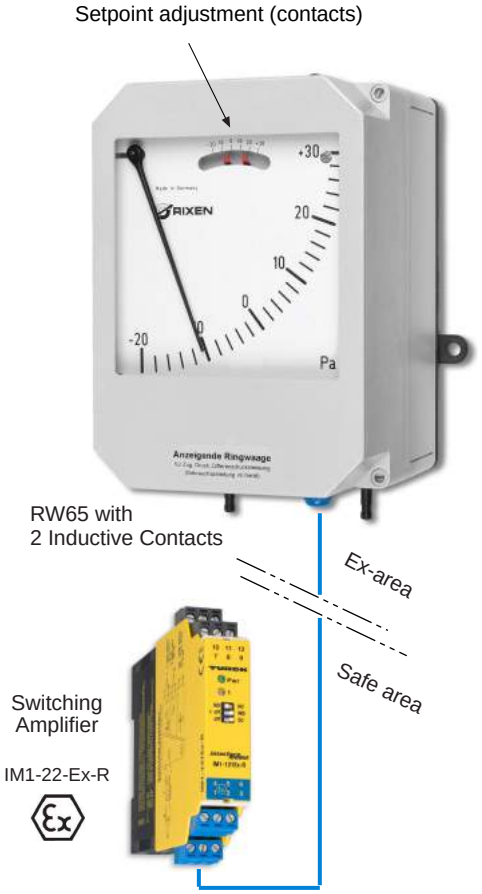
IM1-121Ex-R	single-channel, for 1 Inductive sensor
IM1-22Ex-R	dual channel, for 2 Inductive sensors

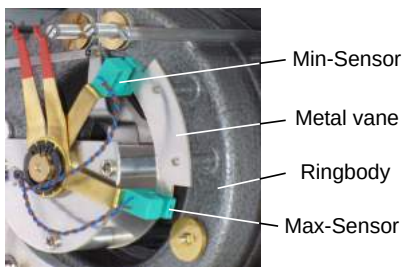
Option: Mechanical Contacts
Applicable for ranges above 200 Pa, only
Contacts rated at 30W / 50VA; max. 250V. Hysteresis 1-2%

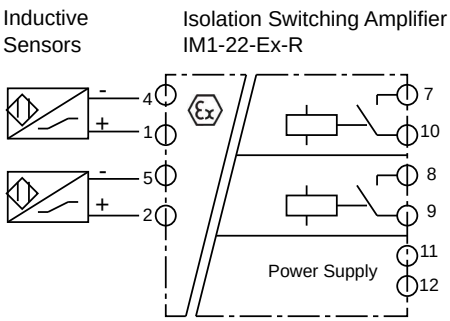
1x Min	MK1/0	contact closing at decreasing pressure
1x Max	MK0/1	contact closing at increasing pressure
Min / Min	MK2/0	both closing at decreasing pressure
Max / Max	MK0/2	both closing at increasing pressure
Min / Max	MK1/1	1x opens 1x closes

Type	RW65	Ringbalance in IP65-housing

Order Specifications	1. Type: RW65 2. Measuring range 3. Options (IK... MK...)
Example	RW65 - (-25/0/+25 Pa) - IK1/1







RIXOTACT_4

Ringbalance
measuring draft, pressure and differential pressure
+ integrated Threepoint-Step-Controller
+ integrated Transmitter

Measuring System

Actual Value "X"	LCD, 3 1/2 digit, 12.5 mm high
Measuring Ranges	from 0...40 Pa (+/-20 Pa) to 0...1.8 kPa - see page 8 -
Units	Pa, kPa, daPa, mbar, mmWS, mmCE, in.W.C.
Accuracy	max. error +/-1.5% of span, or +/-1.5 Pa
Ambient temper.	0 . . . +50 °C (32 - 122 °F)
Housing	wall mounting IP65 - see page 9 -

Controller

Control Mode	Threepoint-Step-Controller PID
Measuring Pickup	"Hall"- sensor
Control Output	potential-free contacts, rated at 250V/2A X > W = terminals 7-5 switched X < W = terminals 7-6 switched
Setpoints "W"	two setpoints (W1/W2), adjustable from 20% to 80% of full scale reading; switched-over by an external contact; terminals 3-4.
Control Settings	P-(proportional band), D-(differential action), NZ-(Neutral Zone), F-(pulse frequency)

Transmitter

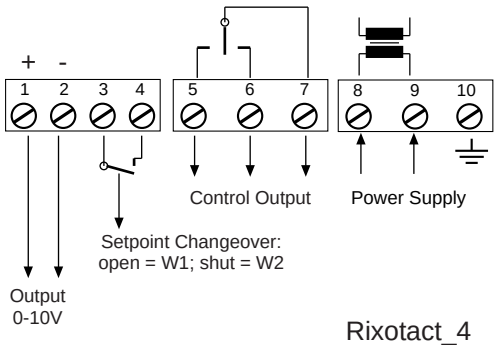
Output signal	0-10V, proportional to the measured (actual) value "X"; min. load: 2k ohms; terminals 1-2.
Power Supply	230V AC (110/120/240 V AC); terminals 8-9.
CE	Electromagnetic Compatibility according to EN50081-2 (Emmission) + EN50082-2 (Immunity)

Order Specifications

1. Type: Rixotact
2. Measuring range: _____
3. Power supply voltage: _____

Rixotact_4

Terminal Diagram



Measuring Ranges,

Filling Fluids, Overload Protection Device

Measuring Ranges

0.....40 Pa	Oil	-20 .....0 .....+20 Pa	Oil
0.....50 Pa		-25 .....0 .....+25 Pa	
0.....60 Pa		-50 .....0 .....+50 Pa	
0.....80 Pa		-100.....0 ...+100 Pa	
0.....100 Pa		-250.....0 ...+250 Pa	
0.....150 Pa		-500.....0 ...+500 Pa	
0.....200 Pa			
0.....250 Pa		-20 .....0 .....+40 Pa	
0.....300 Pa		-40 .....0 .....+20 Pa	
0.....500 Pa		-30 .....0 .....+10 Pa	
0.....600 Pa		-10 .....0 .....+30 Pa	
0.....700 Pa		-20 .....0 .....+80 Pa	
		-25 .....0 .....+75 Pa	
0.....800 Pa	Galden	-250.....0 .....+50 Pa	
0.....1.000 Pa		-100.....0 ...+300 Pa	
0.....1.500 Pa		-100.....0 ...+500 Pa	
0.....1.800 Pa			

Conversions			
	Pa	mbar	mmW.C.
1 Pa =	1	0.01	0.102
1 mbar =	100	1	10.2
1 mmW.C.=	9.81	0.098	1
1 in.W.C. =	249	2.49	25.4

Measuring Range	Filling Fluid	max. Overload
below 700 Pa	Oil (0.8 kg/l)	+/-900 Pa
above 700 Pa	Galden (1.9 kg/l)	+/-2.1 kPa

Further scale units:
mbar / mmWS / mmW.C. / in.W.C. / . . . .

Note:
All Ringbalances are factory-filled. The type of oil need not be mentioned in the order.

Filling Fluids

"**Oil**" Mineral oil, density 0.8 kg/l;
for ranges from 0-40 Pa (0.15" W.C.) to 0-700 Pa (3"W.C.)
Overflow point at +/-900 Pa (3.5"W.C.)

"**Galden**" Synthetic oil, density 1.9 kg/l;
for measuring ranges over +/-700 Pa
Overflow point at +/-2.1 kPa (8.5"W.C.)

Overload Protection
Every Ringbalance is inherently protected to at least +/-900 Pa (3.5"W.C.), even it has, for example, a measuring range of only 0-40 Pa (0.15"W.C.).
With the synthetic oil filling fluid GALDEN, the Ringbalance is inherently protected to +/-2.1 kPa (8"W.C.).

If those limits (900 Pa / 2.1 kPa) are expected to be exceeded in the specific application, the Overload Protection Device "DZ" is available as an option on all Ringbalances.

Overload Protection DZ1

Bypass

How it works
A tube is installed in the ringbody , with one end submerged in the filling fluid on the high-pressure side, and the other end leading into the right (low-pressure) chamber (Fig.1).
The tube has no effect as long as it remains submerged in the fluid. However, when the maximum permissible differential pressure is exceeded, the inlet end of the tube rises out of the oil and the overpressure in the left chamber vents into the right chamber (Fig.2).

By means of this pressure relief effect, the maximum rise of the oil is limited to a level below "overflow".

In applications where frequent and/or prolonged overload conditions occur, an external filter should be installed in the high side sampling line in order to keep the ringbody and filling fluid clean.

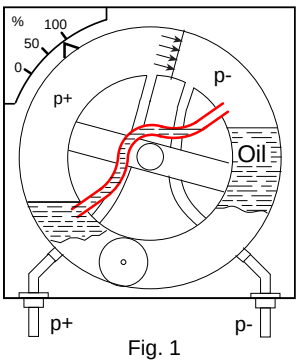


Fig. 1
Tube submerged

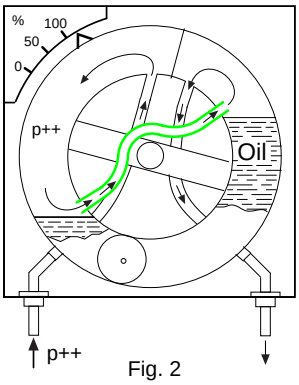


Fig. 2
Bypass open

Housings

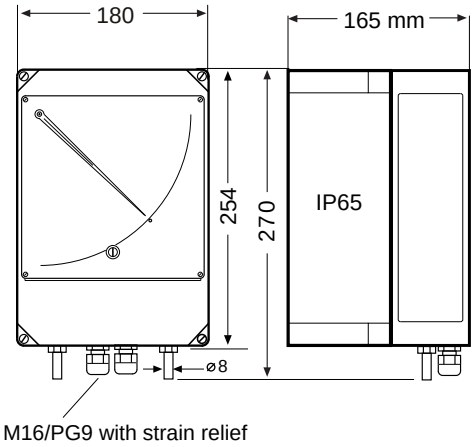
IP65

Housing for wall mount - mounting either through inner "screw channels", or with the aid of the attached mounting frame.

Glass reinforced polycarbonate, light grey.

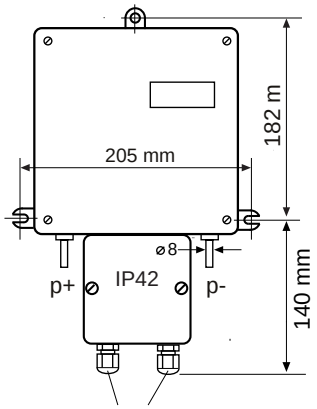
Hardened front glass pane.

Process connections p+ / p-:
Fittings for flexible tubes, 8mm outer diameter



IP42

Special version designed for the Ringbalance type MU Digital.
Polycarbonate, light grey.



depth: 170mm

Protective Case "M"

All types of Ringbalances can be delivered in the rugged design housing "M" at additional price.