Kirchgaesser
Industrieelektronik GmbH

MINING ► FLOW

MID-EX-E

DESCRIPTION

The MID-EX-E is a robust and safe magnetic flow meter for general mining applications.

The flow meter is designed for measuring the flow of electrically conductive fluids such as water, emulsions, sludges, slurries and pastes in closed pipe systems.

Corresponds to the European standards EN 13849-1 (Performance Level (PL) d) and EN 61508 (Safety Integrity Level (SIL) 2) for use in safety systems with the requirements according to the functional safety

The mounting position is arbitrary and with its compact dimensions, the device can be mounted on the most difficult installation locations and put into operation.

The device MID-EX-E is a compact device with integrated signal output without local display.

- For connection to the Kirchgaesser multi channel signal converter and display unit COMBA-EX, please take a look at our device MID-EX-C (see ph052100en for more information).
- The flow meter is also available with a CANopen output and an optional additional temperature measurement (see ph052200en for more information).

The flow meter is completely filled with casting compound except for connection area inside.

Occasional cleaning may be required in the case of media that tend to form heavy buildup depending on the level of buildup, therefore are special brushes available separately.

A complete description of all device features can be found in the associated Operating Instructions ba052000a1.

- Flow measurement range:
  - Minimum 0...10 l/min
  - Maximum 0...600 l/min
- Pressure measurement range, optional:
  - Minimum 0...40 bar (4 MPa)
  - Maximum 0...400 bar (40 MPa)
- Nominal pressure: PN100...PN500
- Measuring uncertainty:
  - Flow: max. ±2 % / typ. ±1 % of end value
  - Pressure: max. ±2 % / typ. ±1 % of end value
- Process connections:
  - Female screw thread G¾", G1" or G1¼"
  - Plug coupler DN10, DN12, DN19, DN25 or DN31
  - Socket nipple DN32 or DN50, type SSKV (heavy version)
- Protection (acc. to EN 60529): IP67
- Power supply:
  - 8.0...13.5 V DC (using external power supply for signal outputs)
  - 11.0...13.5 V DC
- Signal output (max. 2):
  - Frequency 5 - 15 Hz
  - Limit 10...90 %
  - Current 4 - 20 mA
  - Voltage 1 - 10 V
- Electrical connection:
  - Terminals with cable glands
  - Connectors types:
    - PROMOS BN4160
    - Machaczek ME2A10
    - Souriau series 845 (size 1/2)
    - Hydrostar SKK24/SKK45M
    - Circular connector M12x1 (Binder series 763)
    - Hirschmann G4
- Approved according to ATEX and IECEx
- Approved according to MA (device types MID-EX-EP019NY 160B1J65B-160 and MID-EX-ES010LY000A1G55A-050)

MID-EX-E

ORDER CODE

10	Device version
E	Compact device

20	Additional measuring
S	Without
P	With integrated pressure measuring

30	Nominal width
010	DN10
019	DN19
025	DN25
999	Special version, to be specified

40	Nominal pressure
L	PN100
M	PN160
N	PN250
O	PN320
A	PN420
P	PN500
Y	Special version, to be specified

50	Flow measuring range
Y	Special measuring range, to be specified

60	Pressure measuring range
000	Without
040	0...40 bar
060	0...60 bar
100	0...100 bar
160	0...160 bar
250	0...250 bar
400	0...400 bar
999	Special version, to be specified

70	Process connection
A	Female screw thread G¾"
B	Female screw thread G1“
C	Female screw thread G1¼“
D	Plug couplers DN10
E	Plug couplers DN12
F	Plug couplers DN19
G	Plug couplers DN25
H	Plug couplers DN31
J	Socket nipple DN32 type SSKV (heavy version)
K	Socket nipple DN50 type SSKV (heavy version)
Y	Special version, to be specified

80	Inside coating
1	Polyacetal (POM)
9	Special version, to be specified

90	Electrical connection
A	1x Cable gland
B	2x Cable gland
C	1x PROMOS connector type BN4160
D	1x PROMOS connector type BN4160 + 1x cable gland
E	1x Machaczek connector type ME2A10
F	1x Machaczek connector type ME2A10 + 1x cable gland
G	1x Souriau connector series 845 size 1
H	1x Souriau connector series 845 size 1 + 1x cable gland
J	1x Souriau connector series 845 size 2
K	1x Souriau connector series 845 size 2 + 1x cable gland
L	1x Hydrostar connector type SKK24
M	1x Hydrostar connector type SKK24 + 1x cable gland
N	1x Hirschmann connector type G4
O	1x Hirschmann connector type G4 + 1x cable gland
P	1x Circular connector M12x1 (Binder series 763)
R	2x Circular connector M12x1 (Binder series 763)
S	1x Hydrostar connector type SKK45M
T	1x Hydrostar connector type SKK45M + 1x cable gland
Y	Special version, to be specified

100	Output function
1	1x Optocoupler
2	2x Optocoupler
3	1x Current
4	2x Current
5	1x Voltage
6	2x Voltage
9	Special version, to be specified

110	Output signal
1	Frequency 5 - 15 Hz
2	Limit (switching output)
3	4 - 20 mA (not potential-separated)
4	4 - 20 mA (potential-separated)
5	1 - 10 V (not potential-separated)
6	1 - 10 V (potential-separated)
9	Special version, to be specified

120	Special equipment
A	Without
B	Functional safety SIL 2 + PL d
Y	Special version, to be specified

Completed order code	10	20	30	40	50	60	70	80	90	100	110	120		Flow measurement range
MID-EX-	**E**				**Y**			**1**					**–**	three digits, acc. to table available measuring ranges

MID-EX-E

NOTES ON THE ORDER CODE

Available measuring ranges

Nominal width	Flow measuring range *1,2						Nominal pressure	Pressure measuring ranges
	minimum		standard		maximum			
DN10	010	0...10 l/min	030	0...30 l/min	050	0...50 l/min	100 bar 160 bar 250 bar 320 bar 420 bar 500 bar	0...40 bar 0...60 bar 0...100 bar 0...160 bar 0...250 bar 0...400 bar
DN19	050	0...50 l/min	100	0...100 l/min	200	0...200 l/min		
DN25	100	0...100 l/min	200	0...200 l/min	600	0...600 l/min		

*1 The flow measuring range can be reduced by half using a switch.
*2 Higher measuring ranges are available on request

Available versions

- Nominal width + process connection:
  - The nominal width DN10 is available with plug coupler DN10 and DN12, the nominal width DN19 is available with plug coupler DN19 and the nominal width DN25 is available with plug coupler DN25 and DN31.
  - The nominal width DN25 is also available with socket nipple DN32 and DN50 (type SSKV heavy version).
- Nominal pressure + process connection:
  - Please take notice of the maximum pressure of the plug couplers (according to DIN 20043)!
    • DN10: Pmax = 530 bar • DN12: Pmax = 500 bar • DN19: Pmax = 450 bar
    • DN25: Pmax = 400 bar • DN31: Pmax = 300 bar
  - The maximum nominal pressure of the socket nipples DN32 and DN50 (type SSKV heavy version) is 420 bar.
- Flow measuring range:
  You need to select the option Y, because you can choose any flow measuring range (three digits for the order code) for the nominal width according to the table available measuring ranges.
- Output signal + output function:
  The output signal limit (option 2) is only available with output function 1x optocoupler output (device version MID-EX-ES**Y000***12*).
- Output function:
  - A potential-separated current or voltage output requires an external power supply.
  - If you select version with integrated pressure measuring, the following output functions are available: 2x optocoupler output, 2x current output or 2x voltage output.
  - The electrical connection option G (Souriau type 845, size 1) is only possible without additional measurings, the output is not potential-separated.
- Output signal + electrical connection:
  The electrical connection option C and D (PROMOS type BN4160) is only available with the output signal option 1 (5 - 15 Hz).

Ordering example

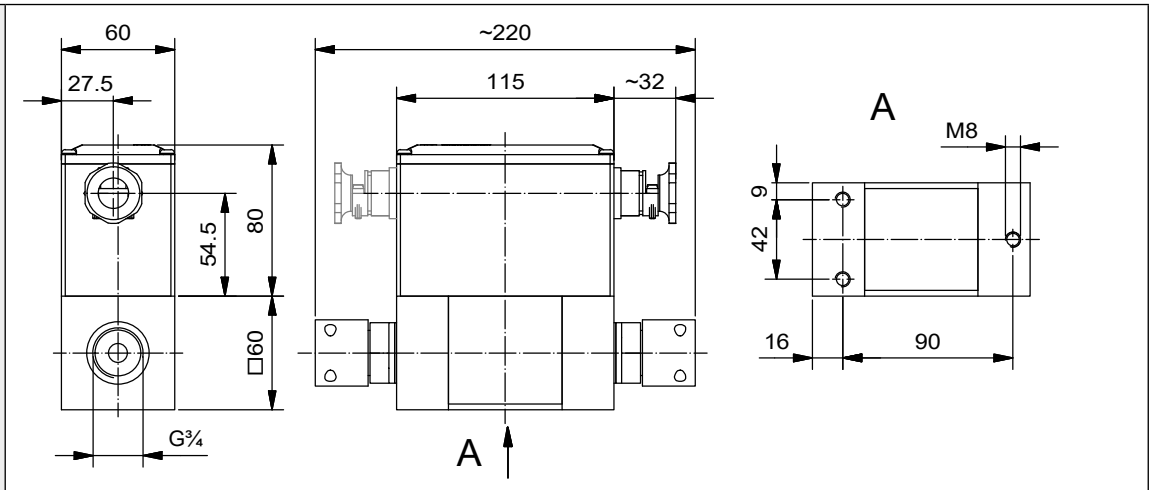
Magnetic flow transducer MID-EX-E, flow measuring range (halfed with switch): 0...30 l/min, additional measuring: with integrated pressure measuring, pressure measuring range: 0...250 bar, nominal width: DN10, nominal pressure: PN250, process connection: plug couplers DN10, inside coating: polyacetal (POM), electrical connection: 2x cable gland, output signal: 2x optocoupler output, 5 – 15 Hz, certificated acc. to ATEX (marking: I M2 Ex ia I Mb) and IECEx (marking: Ex ia I Mb), power supply: 8.0...13.5 V DC, special equipment: safety instruction level SIL 2 / safety of machinery PL d

→ **MID-EX-EP010NY040D1B21B-030**

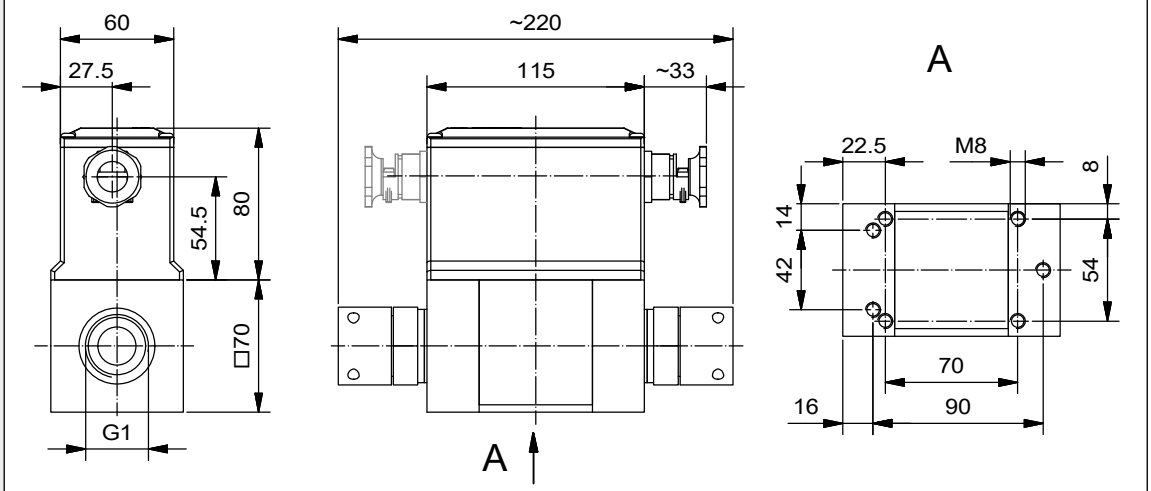
MID-EX-E

DIMENSIONS

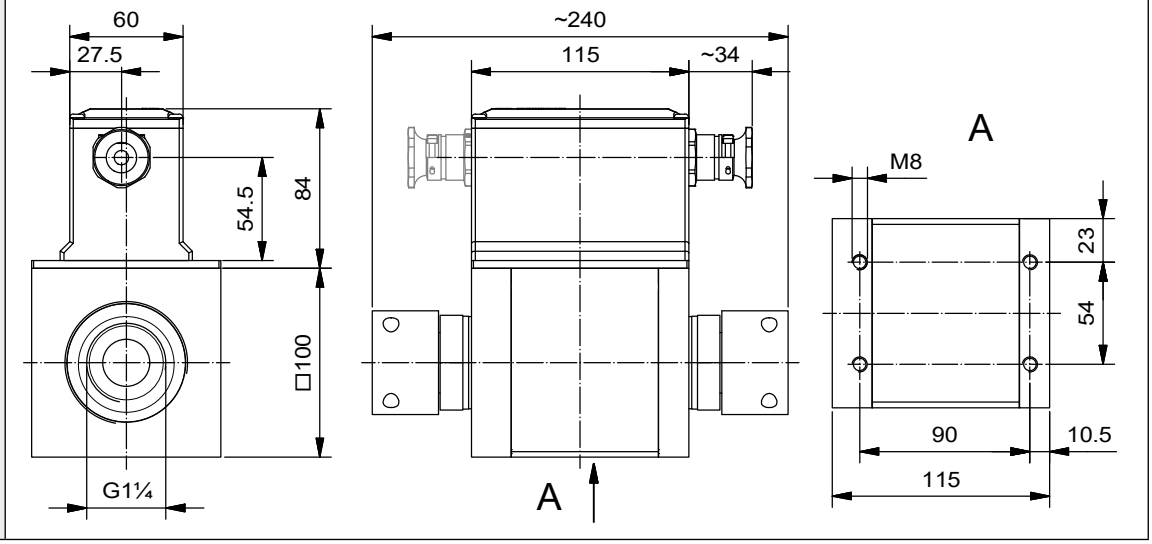
DN10



DN19



DN25



Kirchgaesser Industrieelektronik GmbH, Am Rosenbaum 6, 40882 Ratingen, Germany
Phone: +49 (0)2102-9556, Fax: +49 (0)2102-955720, www.kirchgaesser.com