Made in Russia

Absolute vibration sensors

ТИК Research and production enterprise

Definition of marking of the absolute vibration sensors

Type of output signal	
1	(4-20) mA
2	By voltage (two-wire)
3	By voltage with isolated power supply
4	RS-485
5	By voltage with isolated power supply 2 analogue outputs (X, Y coordinates)
6	By voltage with isolated power supply 3 analogue outputs (X, Y, Z coordinates)

Housing	
1	Triangular housing, electronics in the housing of the vibration transducer, mounting with 3 screws
2	Cylindrical small-outline housing, electronics in the housing of the vibration transducer, mounting with a threaded rod
3	Cylindrical housing, electronics in the housing of the vibration transducer, mounting with a threaded rod
4	Triangular housing, electronics in the connector, mounting with 3 screws
5	Triangular housing, electronics in the remote unit, mounting with 3 screws
6	Triangular housing, electronics in the housing and remote unit of the vibration transducer, mounting with 3 screws
7	Rectangular housing, electronics in the housing of the vibration transducer, mounting with 1 screw

Protection class	
1	IP54
2	IP65
4	IP65/68

Frequency range	
A	5-500
B	2-1000
C	3-1000
D	5-1000
E	10-1000
F	2-2000
G	10-2000
H	2-3000
I	10-3000
J	2-5000
K	10-5000
L	2-10000
M	3-10000
N	5-10000
P	10-10000

Parameter of the indicated value	
1	Vibration velocity
2	Vibration acceleration
3	Vibration displacement
4	All parameters

Discrete output	
D	Marked if available discrete output

DVA141.104.E6H1.D

Indicated value	
1	Amplitude
2	RMS value
3	Range
4	RMS value
5	Instantaneous value
6	RMS value for two coordinates. Output for the coordinate with the maximum value
7	RMS value in the plane
8	All values

Explosion-proof mark	
1	0Ex ia IIC T6...T2 Ga X/PO Ex ia I Ma X
2	2Ex nA IIC T6...T2 Gc X

Connector	
0	Without a connector
1	TIK-KXX connector on the housing (analogue MIL-C-5015)
2	RS-4 connector on the housing
3	2RM connector on the cable
4	2RMG connector on the housing
5	Joint with a terminal head
6	TIK-KXX connector on the cable

Nominal conversion coefficient / Range of indicated values

Marking	4-20 mA output	Two-wire voltage output	Voltage output with isolated power supply	RS-485 output
	Units of measurement: mA·s/mm (for vibration velocity) mA·s²/m (for vibration acceleration) mA/μm (for vibration displacement)	Units of measurement: mV·s/mm (for vibration velocity) mV·s²/m (for vibration acceleration) mV/μm (for vibration displacement)		
1	1.6 / (0-10)	25	25	1 / (0-10)
2	1.259 / (0-12.7)	20	20	1 / (0-12.7)
3	0.8 / (0-20)	16	15.6	1 / (0-20)
4	0.64 / (0-25)	12.5	12.5	1 / (0-25)
5	0.63 / (0-25.4)	10	10	1 / (0-25.4)
6	0.533 / (0-30)	8	8.33	1 / (0-30)
7	0.4 / (0-40)	6.67	5	1 / (0-40)
8	0.32 / (0-50)	4	2.5	1 / (0-50)
9	0.315 / (0-50.8)	2	1.25	1 / (0-50.8)
A	0.267 / (0-60)	1	250	1 / (0-60)
B	0.2 / (0-80)	200	196.9	1 / (0-80)
C	0.16 / (0-100)	157.5	125	1 / (0-100)
D	0.128 / (0-125)	100	100	1 / (0-125)
E	0.1 / (0-160)	80	98.43	1 / (0-160)
F	0.08 / (0-200)	78.74	83.33	1 / (0-200)
G	0.064 / (0-250)	66.67	62.5	1 / (0-250)
H	0.0533 / (0-300)	50	50	1 / (0-300)
I	0.032 / (0-500)	40	49.21	1 / (0-500)
J	0.016 / (0-1000)	39.37	41.67	1 / (0-1000)
K	0.008 / (0-2000)	33.33	31.25	1 / (0-2000)

Operating temperature	
H	-40 °C
X	-60 °C
L	-10 °C
K	-196 °C

The definition is given for information, not for ordering! To place an order, please, use the configurator on the website tik.perm.ru

Contents

DVA111.XXX vibration velocity sensors with current output

Housing: type 1,2,7
Connector: type 0,1,3,5,6

* *Only for SPTA*

The appearance of the products may differ a little from those presented in the brochure

Features

Designed to measure the vibration velocity amplitude in emergency shutdown (ESD) systems.

Consists of a sealed housing that comprises an integral acceleration sensor and a conversion board.

Depending on the version, the sensor is installed on the unit using the standard threaded stud M8 / M10 / M12, fastening with 3 screws or 1 screw.

A threaded stud with a different thread, including inch thread, can be supplied on special order.

For the .214 version, it is possible to use cable assemblies with the MIL connector of imported transducers.

Metrological parameters

Conversion coefficient, mA*s/mm											
1.6	1.259	0.8	0.64	0.63	0.533	0.4	0.32	0.315	0.267	0.2	0.16
Measurement ranges for the RMS value of vibration velocity, mm/s:											
0-10	0-12.7	0-20	0-25	0-25.4	0-30	0-40	0-50	0-50.8	0-60	0-80	0-100

Operating frequency range, Hz 2-1000; 3-1000; 5-1000; 10-1000

Interface

Type of output signal . . . . . .4-20 mA current loop
Supply voltage of the sensor, V 10-24
Connection polarity . . . . . .random
Connection via the TIK-PLC controller** or the TIK-BIS safety barrier

*** The controller operates as ESD, sensor power source, and a safety barrier*

Explosion protection

Marking. . . . . 0Ex ia IIC T6...T2 Ga X / PO Ex ia I Ma X
2Ex nA IIC T6...T2 Gc X

Climatic version

Operating temperature range, °C

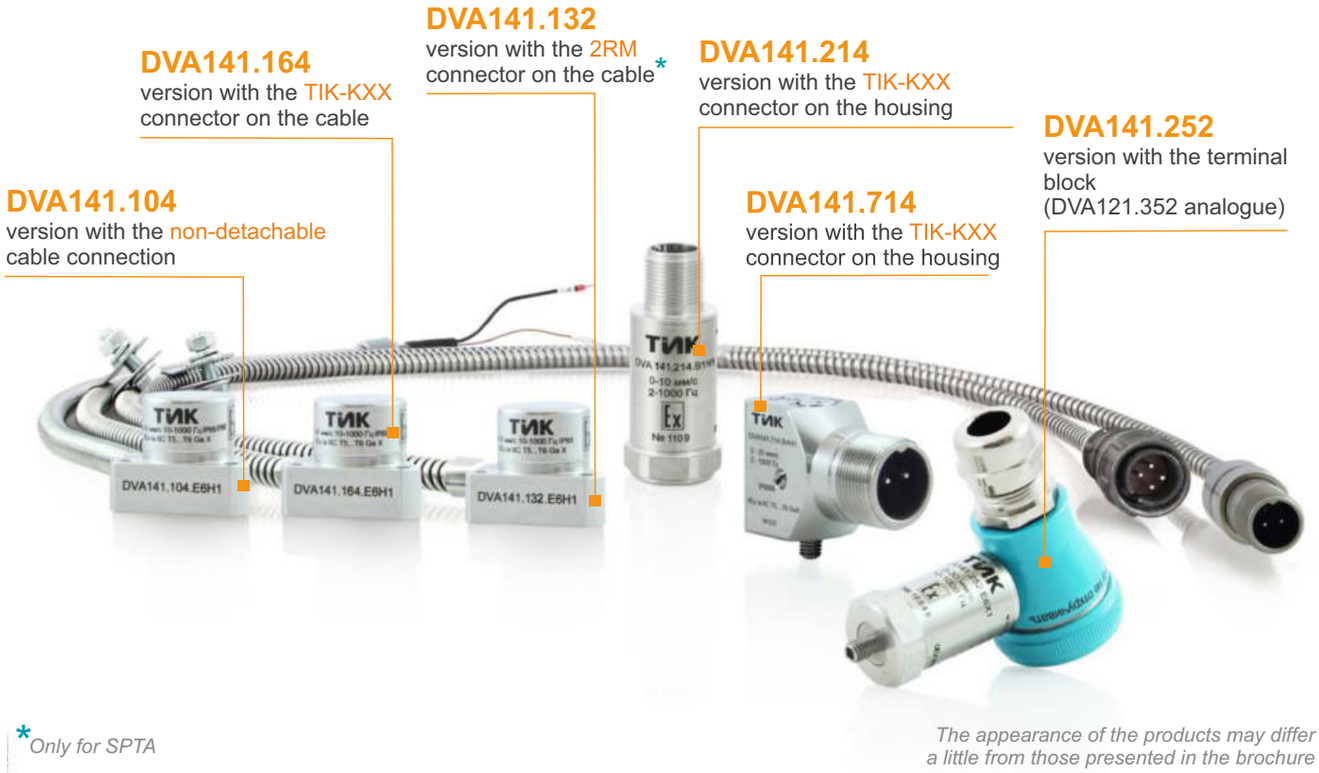
- H climatic version . . . . . -40...+80
- X climatic version . . . . . -60...+80
- K climatic version . . . . . -196...+80

Reliability parameters

MTBF, hours, not less than 40 000
Design service life, hours, not less than 80 000
Warranty service life, months 24
Service life, years 10
Verification interval, years 2

DVA141.XXX vibration velocity sensors with current output

Housing: type 1,2,7
Connector: type 0,1,3,5,6



*Only for SPTA

The appearance of the products may differ a little from those presented in the brochure

Features

Designed to measure the root-mean-square (RMS) value of vibration velocity in emergency shutdown (ESD) systems.

Consists of a sealed housing that comprises an integral acceleration sensor and a conversion board.

Depending on the version, the sensor is installed on the unit using the standard threaded stud M8 / M10 / M12, fastening with 3 screws or 1 screw.

A threaded stud with a different thread, including inch thread, can be supplied on special order.

For the .214 version, it is possible to use cable assemblies with the MIL connector of imported transducers.

Metrological parameters

Conversion coefficient, mA*s/mm											
1.6	1.259	0.8	0.64	0.63	0.533	0.4	0.32	0.315	0.267	0.2	0.16
Measurement ranges for the RMS value of vibration velocity, mm/s:											
0-10	0-12.7	0-20	0-25	0-25.4	0-30	0-40	0-50	0-50.8	0-60	0-80	0-100

Operating frequency range, Hz 2-1000; 3-1000; 5-1000; 10-1000

Interface

Type of output signal . . . . . .4-20 mA current loop
Supply voltage of the sensor, V 10-24
Connection polarity . . . . . .random
Connection via the TIK-PLC controller** or the TIK-BIS safety barrier

*** The controller operates as ESD, sensor power source, and a safety barrier*

Explosion protection

Marking. . . . . 0Ex ia IIC T6...T2 Ga X / PO Ex ia I Ma X
2Ex nA IIC T6...T2 Gc X

Climatic version

Operating temperature range, °C

- H climatic version . . . . . -40...+80
- X climatic version . . . . . -60...+80
- K climatic version . . . . . -196...+80

Reliability parameters

MTBF, hours, not less than 40 000
Design service life, hours, not less than 80 000
Warranty service life, months 24
Service life, years 10
Verification interval, years 2

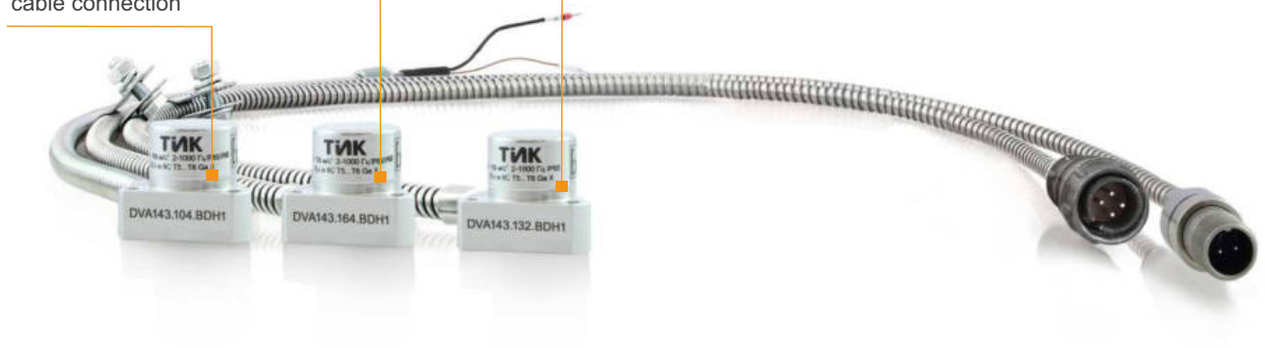
DVA143.XXX vibration velocity sensors with voltage output

Housing: type 1
Connector: type 0,3,6

DVA143.164
version with the TIK-KXX connector on the cable

DVA143.132
version with the 2RM connector on the cable*

DVA143.104
version with the non-detachable cable connection



* *Only for SPTA*

The appearance of the products may differ a little from those presented in the brochure

Features

Designed to measure the root-mean-square (RMS) value of vibration velocity in emergency shutdown (ESD) systems.

Consists of a sealed housing that comprises an integral acceleration sensor and a conversion board.

A three (3) screw mounting is used for installation on the unit.

Metrological parameters

Conversion coefficient, mV*s/mm
100
Measurement ranges for vibration velocity, mm/s:
0-125

Operating frequency range, Hz 2-1000

Explosion protection

Marking. . . . . 0Ex ia IIC T6...T2 Ga X / PO Ex ia I Ma X
2Ex nA IIC T6...T2 Gc X

Interface

Type of output signal . . . . . by voltage with separate power supply
Supply voltage of the sensor, V 10-12
Power current, mA 4-10
Maximum measured amplitude value of AC voltage, V. . . . . ≈ 5.0
Connection via the TIK-PLC controller** or the TIK-BIS safety barrier

*** The controller operates as ESD, sensor power source, and a safety barrier*

Climatic version

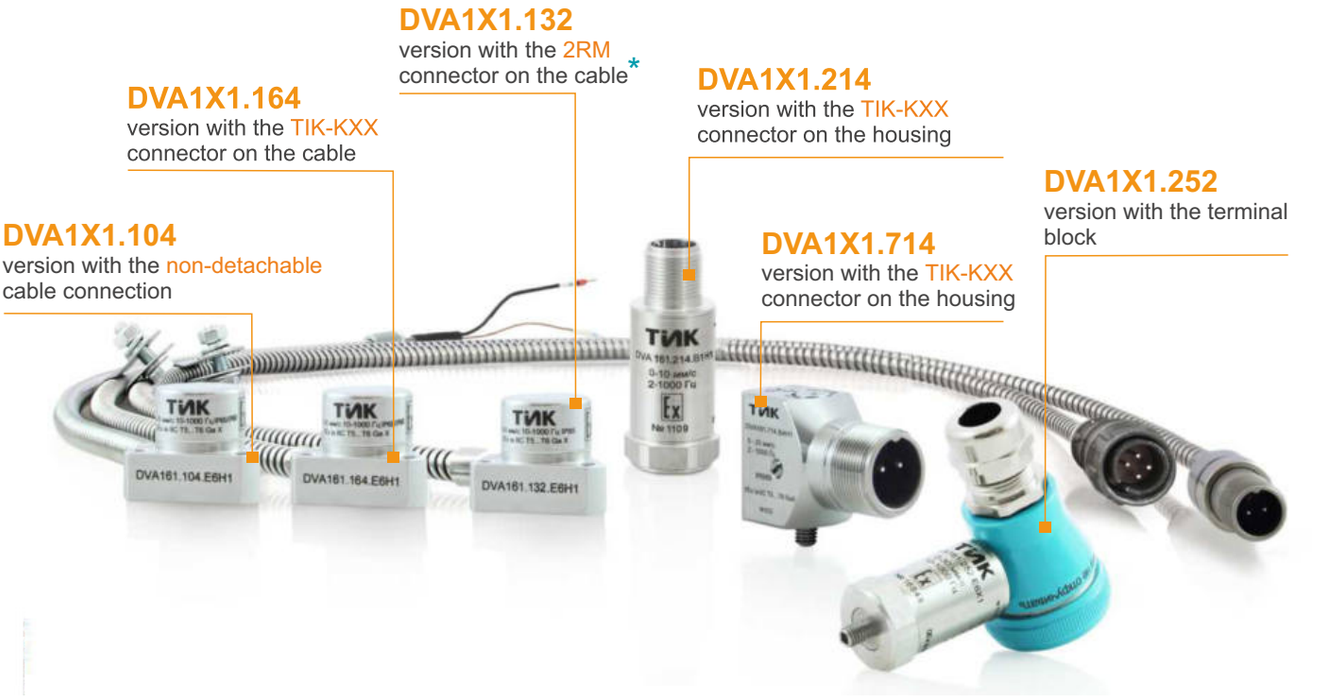
Operating temperature range, °C
- H climatic version . . . . . -40...+80
- X climatic version . . . . . -60...+80
- K climatic version . . . . . -196...+80

Reliability parameters

MTBF, hours, not less than 40 000
Design service life, hours, not less than 80 000
Warranty service life, months 24
Service life, years 10
Verification interval, years 2

DVA16(7)1.XXX vibration velocity sensors with current output

Housing: type 1,2,7
Connector: type 0,1,3,5,6



*Only for SPTA

The appearance of the products may differ a little from those presented in the brochure

Features

Designed to measure the root-mean-square (RMS) value of vibration velocity along two axles simultaneously.

DVA161.XXX - compares the measured values and returns a greater one;

DVA171.XXX - performs vector addition of the measured values and returns the resulting sum.

Depending on the version, the sensor is installed on the unit using the standard threaded stud M8 / M10 / M12, fastening with 3 screws or 1 screw.

A threaded stud with a different thread, including inch thread, can be supplied on special order.

For the .214 version, it is possible to use cable assemblies with the MIL connector of imported transducers.

Metrological parameters

Conversion coefficient, mA*s/mm											
1.6	1.259	0.8	0.64	0.63	0.533	0.4	0.32	0.315	0.267	0.2	0.16
Measurement ranges for the RMS value of vibration velocity, mm/s:											
0-10	0-12.7	0-20	0-25	0-25.4	0-30	0-40	0-50	0-50.8	0-60	0-80	0-100

Operating frequency range, Hz. 2-1000;
3-1000;
5-1000;
10-1000

Interface

Type of output signal . . . . . 4-20 mA current loop
Supply voltage of the sensor, V 10-24
Connection polarity . . . . . random
Connection via the TIK-PLC controller** or the TIK-BIS safety barrier

*** The controller operates as ESD, sensor power source, and a safety barrier*

Explosion protection

Marking. . . . . 0Ex ia IIC T6...T2 Ga X / PO Ex ia I Ma X
2Ex nA IIC T6...T2 Gc X

Climatic version

Operating temperature range, °C

- H climatic version . . . . . -40...+80
- X climatic version . . . . . -60...+80
- K climatic version . . . . . -196...+80

Reliability parameters

MTBF, hours, not less than 40 000
Design service life, hours, not less than 80 000
Warranty service life, months 24
Service life, years 10
Verification interval, years 2

DVA1X4.XXX vibration velocity sensors with digital output

Housing: type 1,2,7
Connector: type 0,1,6

The appearance of the products may differ a little from those presented in the brochure

Features

Designed to measure vibration velocity (along 1 or 2 coordinate(s)).

A vibration acceleration signal, passing through the mathematical processing unit, is converted into a vibration velocity signal (amplitude, root-mean-square (RMS) value, range, instantaneous value).

All calculations are performed in a real-time mode with the register data refresh interval of 10 ms.

The measurement error for vibration parameters is not more than 5% in the basic frequency range.

Depending on the version, the sensor is installed on the unit using the standard threaded stud M8 / M10 / M12, fastening with 3 screws or 1 screw.

A threaded stud with a different thread, including inch thread, can be supplied on special order.

Metrological parameters

Conversion coefficient								1			
Measurement ranges for vibration velocity, mm/s:											
0-10	0-12.7	0-20	0-25	0-25.4	0-30	0-40	0-50	0-50.8	0-60	0-80	0-100

Operating frequency range, Hz. 2-1000; 3-1000; 5-1000; 10-1000

Interface

Type of output signal . . . . . .RS-485 or RS-485 + discrete output
Supply voltage of the sensor, V. 10-24
Protocol . . . . . Modbus RTU
Connection via the TIK-PLC controller* or the TIK-BIS safety barrier

**The controller operates as ESD, sensor power source, and a safety barrier*

Explosion protection

Marking. . . . . 0Ex ia IIC T6...T2 Ga X / PO Ex ia I Ma X
2Ex nA IIC T6...T2 Gc X

Climatic version

Operating temperature range, °C

- H climatic version . . . . . -40...+80
- X climatic version . . . . . -60...+80
- K climatic version . . . . . -196...+80

Reliability parameters

MTBF, hours, not less than 40 000
Design service life, hours, not less than 80 000
Warranty service life, months 24
Service life, years 10
Verification interval, years 2

IKV-1-2-1 ver. A vibration measuring channel with current output

DV-1 ver. 02 / AV 121
version with the connector
on the cable and electronics
in the remote unit

The picture shows one of the possible designs
IKV-1-2-1 ver. A consists of the DV-1 ver. 00 (DV-1 ver. 02) sensor and the AV 121 remote unit

The appearance of the products may differ a little from those presented in the brochure

Features

Designed to measure the root-mean-square (RMS) value of vibration velocity in emergency shutdown (ESD) systems.

Consists of a sensitive element and a remote unit.

Connection boxes are optionally supplied for the installation of vibration transducers and remote units.

A connection box can comprise up to 6 remote units.

Sensors of this series are supplied with a vibration-resistant cable of up to 15 metres (limited by production capacity, shall be specified at order).

Metrological parameters

Conversion coefficient, mA*s/mm						
16	5.333	1.6	0.8	0.533	0.32	0.16
Measurement ranges for the RMS value of vibration velocity, mm/s:						
0-1	0-3	0-10	0-20	0-30	0-50	0-100

Operating frequency range, Hz. 2-1000; 10-1000

Interface

Type of output signal . . . . . .4-20 mA current loop
Supply voltage of the sensor, V 10-24
(The minimum voltage of a power source is 10V. +1V for every 50 ohms of load)
Connection via the TIK-PLC controller* or the TIK-BIS safety barrier

* *The controller operates as ESD, sensor power source, and a safety barrier*

Explosion protection

Marking . . . . . .0Ex ia IIC T6...T1 Ga X

Climatic version

Operating temperature range, °C

- DV-1 ver. 00/02 . . . . . -40...+150
- DV-1 ver. 00/02 (cold) . . . . . -60...+150
- AV121 remote unit . . . . . -60...+70

Reliability parameters

MTBF, hours, not less than 40 000
Design service life, hours, not less than 80 000
Warranty service life, months 24
Service life, years 10
Verification interval, years 1

IKV-1-2-1 ver. B vibration measuring channel with current output

DV-1 ver. 05 / AV 121
version with the connector
on the cable and electronics
in the remote unit

The picture shows one of the possible designs
IKV-1-2-1 ver. B consists of the DV-1 ver. 04 (DV-1 ver. 05) sensor and the AV 121 remote unit

The appearance of the products may differ a little from those presented in the brochure

Features

Designed to measure the root-mean-square (RMS) value of vibration velocity in emergency shutdown (ESD) systems.

Consists of a sensitive element and a remote unit.

Connection boxes are optionally supplied for the installation of vibration transducers and remote units.

A connection box can comprise up to 6 remote units.

Metrological parameters

Conversion coefficient, mA*s/mm						
16	5.333	1.6	0.8	0.533	0.32	0.16
Measurement ranges for the RMS value of vibration velocity, mm/s:						
0-1	0-3	0-10	0-20	0-30	0-50	0-100

Operating frequency range, Hz. 2-1000; 10-1000

Explosion protection

Marking . . . . . 0Ex ia IIC T6...T1 Ga X

Interface

Type of output signal . . . . . 4-20 mA current loop
Supply voltage of the sensor, V 10-24
(The minimum voltage of a power source is 10V. +1V for every 50 Ohms of load)
Connection via the TIK-PLC controller* or the TIK-BIS safety barrier

* *The controller operates as ESD, sensor power source, and a safety barrier*

Climatic version

Operating temperature range, °C

- DV-1 ver. 04 . . . . . -40...+70
- DV-1 ver. 04 (cold) . . . . . -60...+70
- DV-1 ver. 05 . . . . . -40...+90
- DV-1 ver. 05 (cold) . . . . . -60...+90
- AV121 remote unit . . . . . -60...+70

Reliability parameters

MTBF, hours, not less than 40 000
Design service life, hours, not less than 80 000
Warranty service life, months 24
Service life, years 10
Verification interval, years 1

DVA241.XXX vibration acceleration sensors with current output

Housing: type 1,2,7
Connector: type 0,1,3,5,6

*Only for SPTA

The appearance of the products may differ a little from those presented in the brochure

Features

Designed to measure the root-mean-square (RMS) value of vibration acceleration.

Consists of a sealed housing that comprises an integral acceleration sensor and a conversion board.

Depending on the version, the sensor is installed on the unit using the standard threaded stud M8 / M10 / M12, fastening with 3 screws or 1 screw.

For the .214 version, it is possible to use cable assemblies with the MIL connector of imported transducers.

Metrological parameters

Conversion coefficient, mV*s²/m		
0.64	0.4	0.16
Measurement ranges for the RMS value of vibration acceleration, m/s²:		
0-25	0-40	0-100

Operating frequency range, Hz 2-1000;
3-1000;
5-1000;
10-1000

Interface

Type of output signal . . . . . 4-20 mA current loop
Supply voltage of the sensor, V 10-24
Connection polarity . . . . . random
Connection via the TIK-PLC controller** or the TIK-BIS safety barrier

*** The controller operates as ESD, sensor power source, and a safety barrier*

Explosion protection

Marking. . . . . 0Ex ia IIC T6...T2 Ga X / PO Ex ia I Ma X
2Ex nA IIC T6...T2 Gc X

Climatic version

Operating temperature range, °C

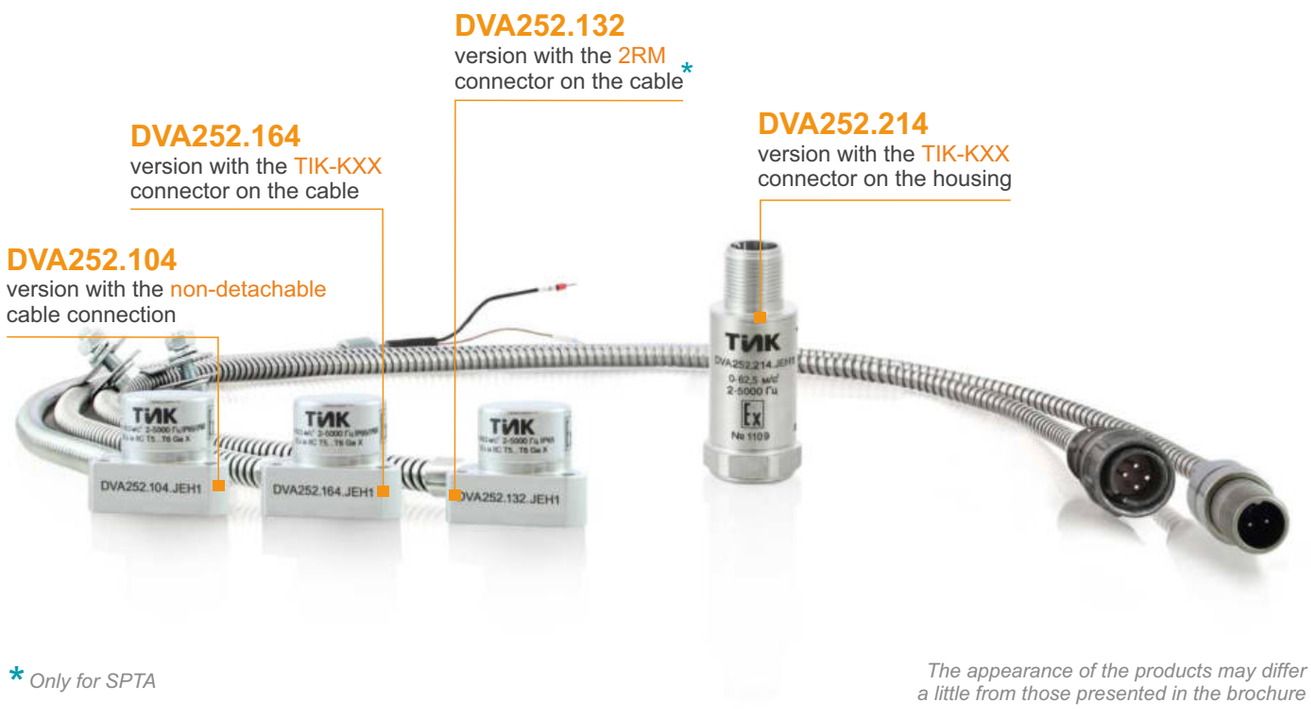
- H climatic version . . . . . -40...+80
- X climatic version . . . . . -60...+80
- K climatic version . . . . . -196...+80

Reliability parameters

MTBF, hours, not less than 40 000
Design service life, hours, not less than 80 000
Warranty service life, months 24
Service life, years 10
Verification interval, years 2

DVA252.XXX vibration acceleration sensors with voltage output

Housing: type 1,2
Connector: type 0,1,3,6



* *Only for SPTA*

The appearance of the products may differ a little from those presented in the brochure

Features

Designed to measure the instantaneous value of vibration acceleration in diagnostic systems.

Depending on the version, the sensor is installed on the unit using the standard threaded stud M8 / M10 / M12 or with 3 screws.

A threaded stud with a different thread, including inch thread, can be supplied on special order.

For the .214 version, it is possible to use cable assemblies with the MIL connector of imported transducers.

Metrological parameters

Conversion coefficient, mV*s^2/m							
80	50	20	12.5	10	6.67	4	2
Measurement ranges for vibration acceleration, m/s^2:							
0-62.5	0-100	0-250	0-400	0-500	0-750	0-1250	0-2500

Operating frequency range, Hz 2-3000;
10-3000;
2-5000;
2-10 000;
3-10 000;
5-10 000;
10-10 000

Interface

Type of output signal . . . . . by voltage (two-wire), IEPE (ICP compatible)
Supply voltage of the sensor, V 10-12
Power current, mA. 4-10
The maximum amplitude value of alternating voltage measured by the channel, V. . . . . ≈ 5.0
Connection via the TIK-PLC controller** or the TIK-BIS safety barrier

*** The controller operates as ESD, sensor power source, and a safety barrier*

Explosion protection

Marking. . . . . 0Ex ia IIC T6...T2 Ga X / PO Ex ia I Ma X
2Ex nA IIC T6...T2 Gc X

Climatic version

Operating temperature range, °C

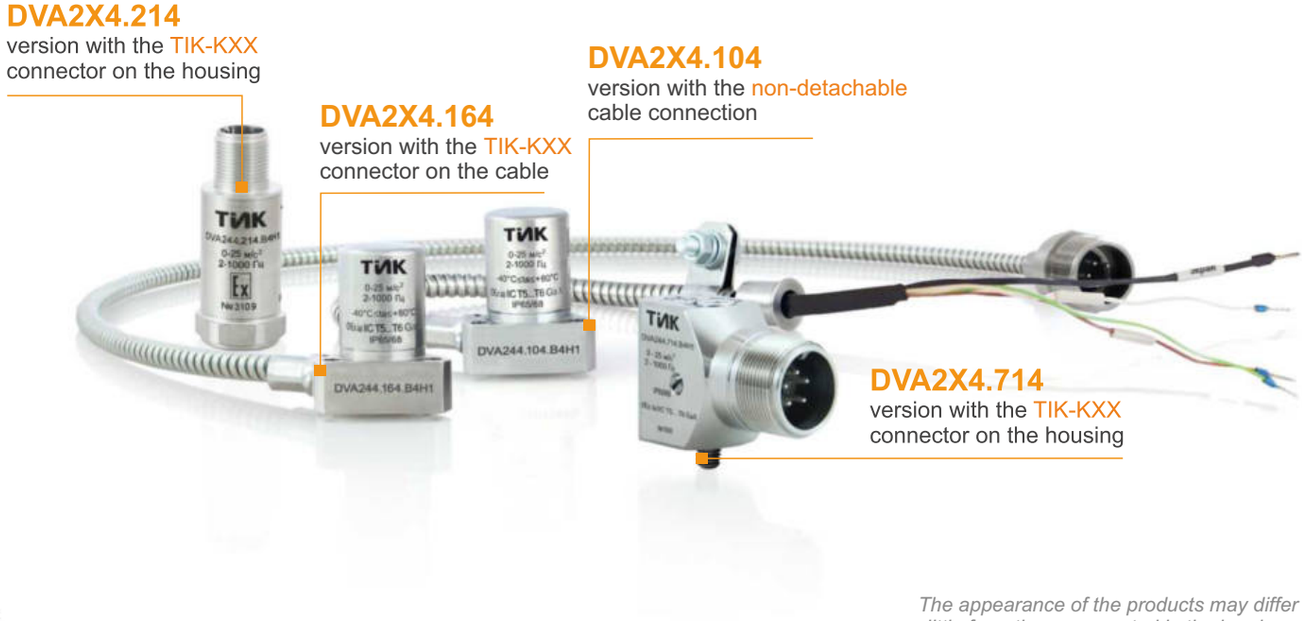
- H climatic version . . . . . -40...+80
- X climatic version . . . . . -60...+80
- K climatic version . . . . . -196...+80

Reliability parameters

MTBF, hours, not less than 40 000
Design service life, hours, not less than 80 000
Warranty service life, months 24
Service life, years 10
Verification interval, years 2

DVA2X4.XXX vibration acceleration sensors with digital output

Housing: type 1,2,7
Connector: type 0,1,6



The appearance of the products may differ a little from those presented in the brochure

Features

Designed to measure vibration acceleration (amplitude, RMS value, range, instantaneous value, along 1 or 2 coordinate(s)).

All calculations are performed in a real-time mode with the register data refresh interval of 10 ms.

The measurement error for vibration parameters is not more than 5% in the basic frequency range.

Depending on the version, the sensor is installed on the unit using the standard threaded stud M8 / M10 / M12, fastening with 3 screws or 1 screw.

A threaded stud with a different thread, including inch thread, can be supplied on special order.

Metrological parameters

Conversion coefficient		1
Measurement ranges for vibration acceleration, m/s^2:		
0-25	0-40	0-100

Operating frequency range, Hz. 2-1000; 3-1000; 5-1000; 10-1000

Interface

Type of output signal . . . . . .RS-485 or RS-485 + discrete output
Supply voltage of the sensor, V. 10-24
Protocol . . . . . Modbus RTU
Connection via the TIK-PLC controller* or the TIK-BIS safety barrier

**The controller operates as ESD, sensor power source, and a safety barrier*

Explosion protection

Marking. . . . . 0Ex ia IIC T6...T2 Ga X / PO Ex ia I Ma X
2Ex nA IIC T6...T2 Gc X

Climatic version

Operating temperature range, °C

- H climatic version . . . . . -40...+80
- X climatic version . . . . . -60...+80
- K climatic version . . . . . -196...+80

Reliability parameters

MTBF, hours, not less than 40 000
Design service life, hours, not less than 80 000
Warranty service life, months 24
Service life, years 10
Verification interval, years 2

IKV-1-1-2 ver. A vibration measuring channel with voltage output

DV-1 ver. 02 / AV 112
version with the connector
on the cable and electronics
in the remote unit

The picture shows one of the possible designs
The IKV-1-1-2 ver. A vibration measuring channel consists of the DV-1 ver. 00 (DV-1 ver. 02) sensor and the AV 112 remote unit

The appearance of the products may differ a little from those presented in the brochure

Features

Designed to measure vibration acceleration amplitude in diagnostic systems.

Consist of a sensitive element and a remote unit. Connection boxes are optionally supplied for the installation of vibration transducers and remote units.

A connection box can comprise up to 6 remote units.

Sensors of this series are supplied with a vibration-resistant cable of up to 15 metres (limited by production capacity, shall be specified at order).

Metrological parameters

Conversion coefficient, mV*s^2/m							
1000	200	66.66667	20	10	6.666667	4	2
Measurement ranges for vibration acceleration amplitude, m/s^2:							
0-2	0-10	0-30	0-100	0-200	0-300	0-500	0-1000

Operating frequency range, Hz 3-1000

Explosion protection

Marking . . . . . 0Ex ia IIC T6...T1 Ga X

Interface

Type of output signal . . . . . by voltage (two-wire), IEPE (ICP compatible)
Supply voltage of the sensor, V . . . . . 12±0.2
Power current, mA 4-10
The maximum amplitude value of alternating voltage measured by the channel, V . . . . . ~2.0

Climatic version

Operating temperature range, °C
- DV-1 ver. 00/02 . . . . . -40...+150
- DV-1 ver. 00/02 (cold) . . . . . -60...+150
- AV112 remote unit . . . . . -60...+70

Reliability parameters

MTBF, hours, not less than 40 000
Design service life, hours, not less than 80 000
Warranty service life, months 24
Service life, years 10
Verification interval, years 1

IKV-1-1-2 ver. B vibration measuring channel with voltage output

DV-1 ver. 05 / AV 112
version with the connector
on the cable and electronics
in the remote unit

The picture shows one of the possible designs
IKV-1-1-2 ver. B consists of the DV-1 ver. 04 (DV-1 ver. 05) sensor and the AV 112 remote unit

The appearance of the products may differ a little from those presented in the brochure

Features

Designed to measure vibration acceleration amplitude in diagnostic systems.

Consist of a sensitive element and a remote unit. Connection boxes are optionally supplied for the installation of vibration transducers and remote units.

A connection box can comprise up to 6 remote units.

Interface

Type of output signal . . . . . by voltage, IEPE (ICP compatible)
Supply voltage of the sensor, V . . . . . 12±0.2
Power current, mA 4-10
The maximum amplitude value of alternating voltage measured by the channel, V . . . . . ~2.0

Metrological parameters

Conversion coefficient, $mV*s^2/m$							
1000	200	66.66667	20	10	6.666667	4	2
Measurement ranges for vibration acceleration amplitude, m/s^2:							
0-2	0-10	0-30	0-100	0-200	0-300	0-500	0-1000

Operating frequency range, Hz 3-1000

Climatic version

Operating temperature range, °C
- DV-1 ver. 04 . . . . . -40...+70
- DV-1 ver. 04 (cold) . . . . . -60...+70
- DV-1 ver. 05 . . . . . -40...+90
- DV-1 ver. 05 (cold) . . . . . -60...+90
- AV121 remote unit . . . . . -60...+70

Explosion protection

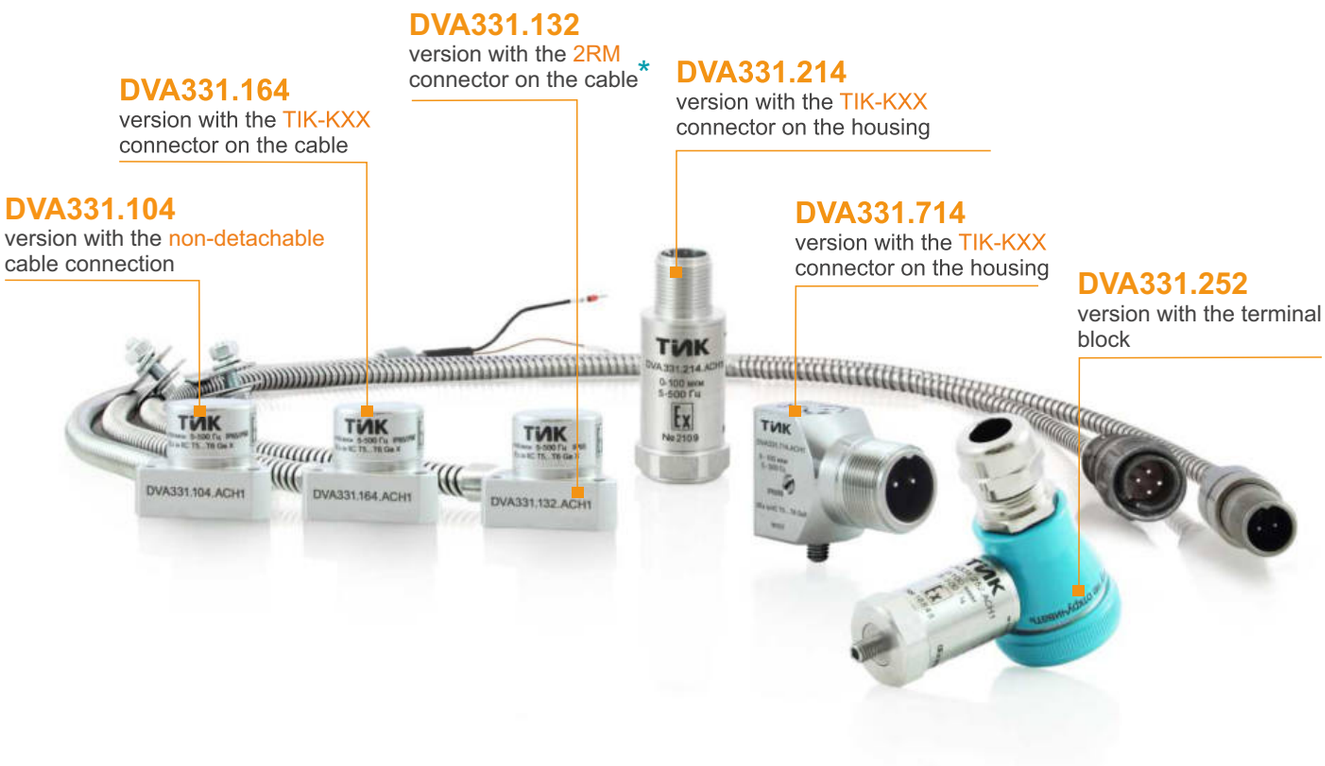
Marking . . . . . 0Ex ia IIC T6...T1 Ga X

Reliability parameters

MTBF, hours, not less than 40 000
Design service life, hours, not less than 80 000
Warranty service life, months 24
Service life, years 10
Verification interval, years 1

DVA331.XXX vibration displacement sensors with current output

Housing: type 1,2,7
Connector: type 0,1,3,5,6



* *Only for SPTA*

The appearance of the products may differ a little from those presented in the brochure

Features

Designed to measure the vibration displacement range.

Consists of a sealed housing that comprises an integral acceleration sensor and a conversion board.

Depending on the version, the sensor is installed on the unit using the standard threaded stud M8 / M10 / M12, fastening with 3 screws or 1 screw.

A threaded stud with a different thread, including inch thread, can be supplied on special order.

For the .214 version, it is possible to use cable assemblies with the MIL connector of imported transducers.

Metrological parameters

Conversion coefficient, mA/μm:				
0.16	0.128	0.064	0.032	0.016
Measurement ranges for vibration displacement range, μm:				
0-100	0-125	0-250	0-500	0-1000

Operating frequency range, Hz 5-500; 10-1000

Interface

Type of output signal . . . . . .4-20 mA current loop
Supply voltage of the sensor, V 10-24
Connection polarity . . . . . random
Connection via the TIK-PLC controller** or the TIK-BIS safety barrier

*** The controller operates as ESD, sensor power source, and a safety barrier*

Explosion protection

Marking. . . . . 0Ex ia IIC T6...T2 Ga X / PO Ex ia I Ma X
2Ex nA IIC T6...T2 Gc X

Climatic version

Operating temperature range, °C

- H climatic version . . . . . -40...+80
- X climatic version . . . . . -60...+80
- K climatic version . . . . . -196...+80

Reliability parameters

MTBF, hours, not less than 40 000
Design service life, hours, not less than 80 000
Warranty service life, months 24
Service life, years 10
Verification interval, years 2

RS-485

DVA3X4.XXX vibration displacement sensors with digital output

Housing: type 1,2,7
Connector: type 0,1,6

DVA3X4.214
version with the TIK-KXX connector on the housing

DVA3X4.164
version with the TIK-KXX connector on the cable

DVA3X4.104
version with the non-detachable cable connection

DVA3X4.714
version with the TIK-KXX connector on the housing

The appearance of the products may differ a little from those presented in the brochure

Features

Designed to measure vibration displacement (amplitude, RMS value, range, instantaneous value, along 1 or 2 coordinate(s)).

All calculations are performed in a real-time mode with the register data refresh interval of 10 ms.

The measurement error for vibration parameters is not more than 5% in the basic frequency range.

Depending on the version, the sensor is installed on the unit using the standard threaded stud M8 / M10 / M12, fastening with 3 screws or 1 screw.

A threaded stud with a different thread, including inch thread, can be supplied on special order.

Metrological parameters

Conversion coefficient					1			
Ranges of indicated values of vibration displacement, μm:								
0-100	0-125	0-160	0-200	0-250	0-300	0-500	0-1000	0-2000

Operating frequency range, Hz. 5-500; 2-1000; 3-1000; 5-1000; 10-1000

Interface

Type of output signal RS-485
Supply voltage of the sensor, V. 10-24
Protocol . . . . . Modbus RTU
Connection via the TIK-PLC controller* or the TIK-BIS safety barrier

**The controller operates as ESD, sensor power source, and a safety barrier*

Explosion protection

Marking. . . . . 0Ex ia IIC T6...T2 Ga X / PO Ex ia I Ma X
2Ex nA IIC T6...T2 Gc X

Climatic version

Operating temperature range, °C

- H climatic version . . . . . -40...+80
- X climatic version . . . . . -60...+80
- K climatic version . . . . . -196...+80

Reliability parameters

MTBF, hours, not less than 40 000
Design service life, hours, not less than 80 000
Warranty service life, months 24
Service life, years 10
Verification interval, years 2

DVA484.XXX multifunctional sensors with digital output

Housing: type 1,2,7
Connector: type 0,1,6

DVA484.214
version with the TIK-KXX connector on the housing

DVA484.164
version with the TIK-KXX connector on the cable

DVA484.104
version with the non-detachable cable connection

DVA484.714
version with the TIK-KXX connector on the housing

The appearance of the products may differ a little from those presented in the brochure

Features

Designed to measure vibration acceleration, vibration velocity, vibration displacement along 3 coordinates, as well as angles of inclination and temperature (at the installation place).

All calculations are performed in a real-time mode with the register data refresh interval of 10 ms. The measurement error for vibration parameters is not more than 5% in the basic frequency range. Additional error is not more than 2.5%.

The built-in temperature sensor allows controlling the temperature with an accuracy of ±2 ºC.

Determination of the angles of inclination of each axis with an accuracy of 1º.

Metrological parameters

Conversion coefficient		1
Ranges of indicated values of vibration velocity amplitude, mm/s:		
0-25	0-40	0-100
Ranges of indicated values of vibration acceleration amplitude, m/s^2:		
0-25	0-40	0-100
Ranges of indicated values of vibration displacement amplitude, μm:		
0-25	0-40	0-100

Operating frequency range, Hz 2-1000; 3-1000; 5-1000; 10-1000

Interface

Type of output signal RS-485
Supply voltage of the sensor, V. 10-24
Protocol . . . . . Modbus RTU
Connection via the TIK-PLC controller* or the TIK-BIS safety barrier

**The controller operates as ESD, sensor power source, and a safety barrier*

Explosion protection

Marking. . . . . 0Ex ia IIC T6...T2 Ga X / PO Ex ia I Ma X
2Ex nA IIC T6...T2 Gc X

Climatic version

Operating temperature range, °C

- H climatic version . . . . . -40...+80
- X climatic version . . . . . -60...+80
- K climatic version . . . . . -196...+80

Reliability parameters

MTBF, hours, not less than 40 000
Design service life, hours, not less than 80 000
Warranty service life, months 24
Service life, years 10
Verification interval, years 2

Housing: type 1

Triangular housing, electronics in the housing of the vibration transducer, mounting with 3 screws

Connector: type 0

Without connector

Specifications

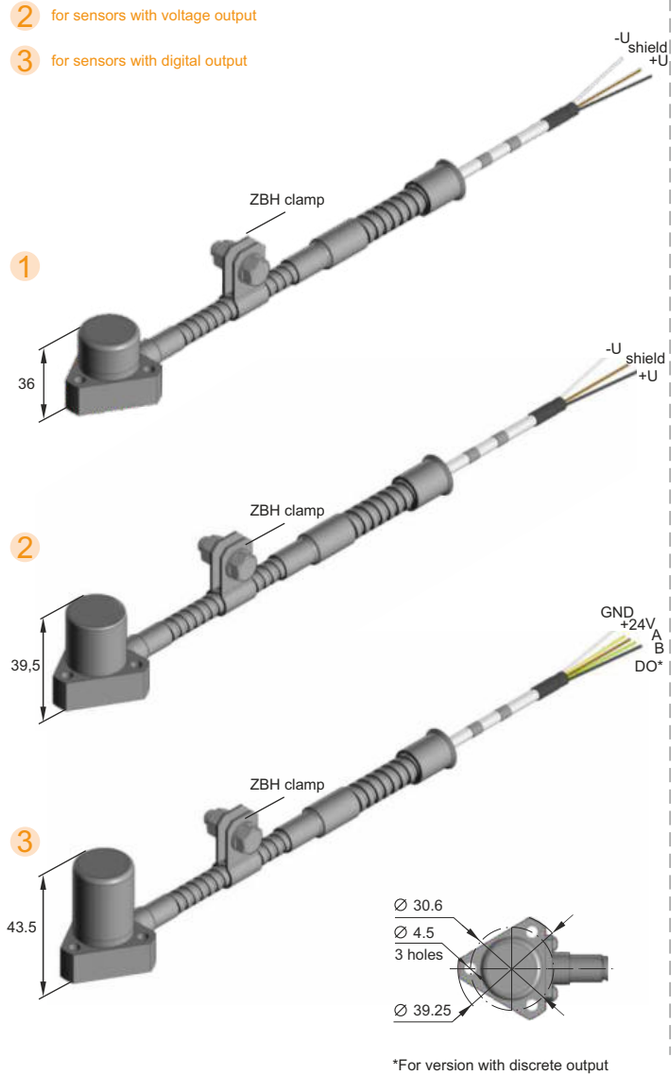
Overall dimensions ⌀ 39.25x36 mm
⌀ 39.25x43.5 mm
⌀ 39.25x39.5 mm

Weight 100 g
Protection class IP65/IP68
Explosion protection 0Ex ia IIC T6...T2 Ga X / PO Ex ia I Ma X
2Ex nA IIC T6...T2 Gc X
Mount M4x21 (M4x28) screw 3 pcs.

1 for sensors with current output

2 for sensors with voltage output

3 for sensors with digital output



*For version with discrete output

Housing: type 1

Triangular housing, electronics in the housing of the vibration transducer, mounting with 3 screws

Connector: type 3

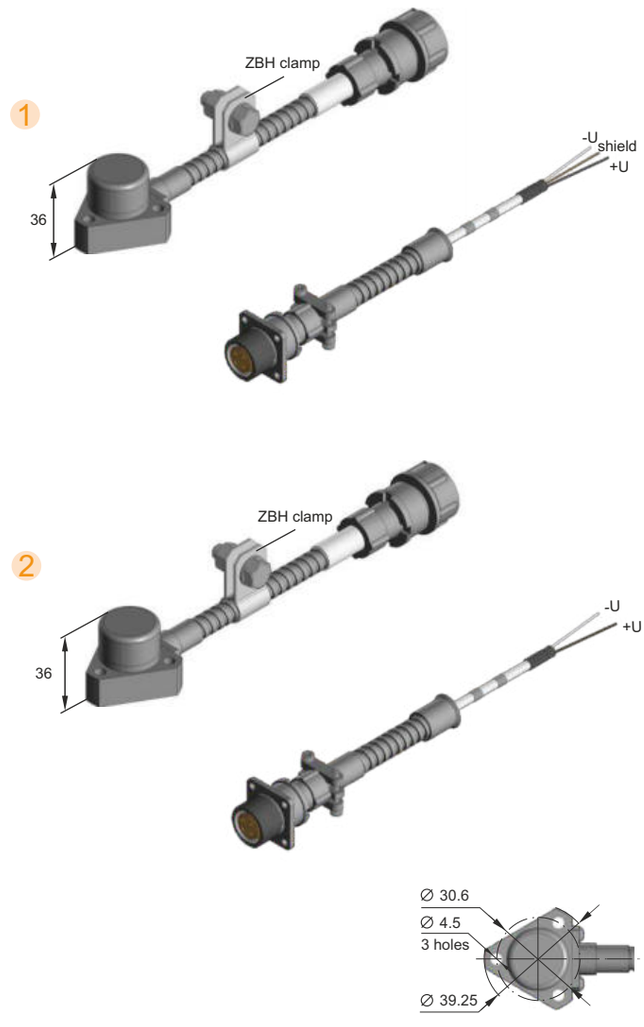
Cable with 2RM connector

Specifications

Overall dimensions ⌀39.25x36 mm
Weight 100 g
Protection class IP65
Explosion proof-mark 0Ex ia IIC T6...T2 Ga X / PO Ex ia I Ma X
2Ex nA IIC T6...T2 Gc X
Mount M4x21 (M4x28) screw 3 pcs.

1 for sensors with current output

2 for sensors with voltage output



Housing: type 1

Triangular housing, electronics in the housing of the vibration transducer, mounting with 3 screws

Connector: type 6

TIK-KXX connector on the cable

Specifications

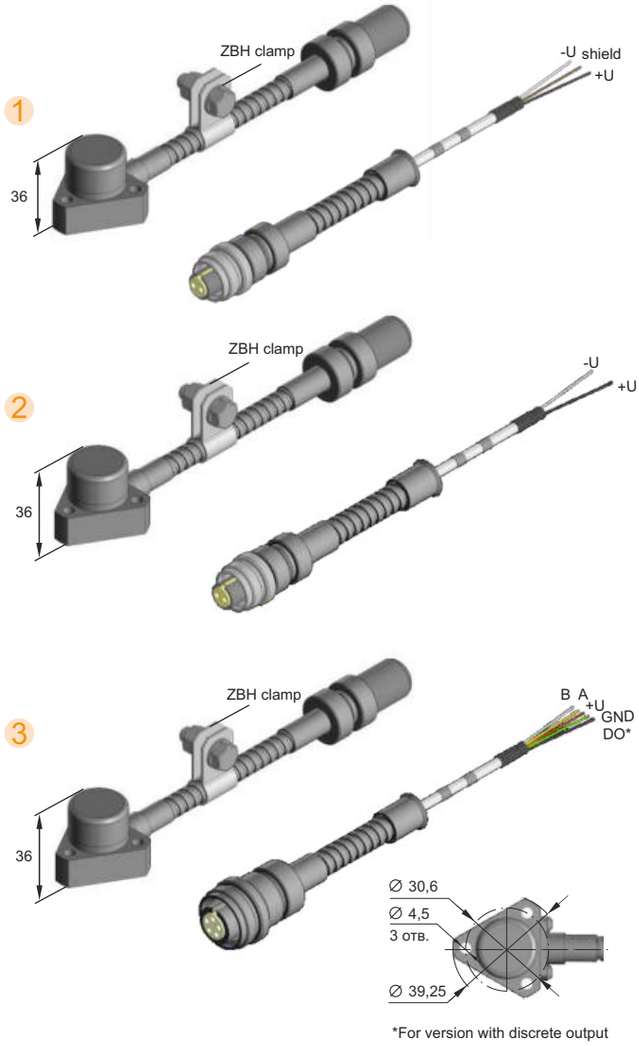
Overall dimensions ⌀39.25x36 mm

Weight 100 g
Protection class IP65/IP68
Explosion proof-mark 0Ex ia IIC T6...T2 Ga X / PO Ex ia I Ma X
2Ex nA IIC T6...T2 Gc X
Mount M4x21 (M4x28) screw 3 pcs.

1 for sensors with current output

2 for sensors with voltage output

3 for sensors with digital output



*For version with discrete output

Housing: type 2

Cylindrical small-outline housing, electronics in the housing of the vibration transducer, mounting with a threaded stud

Connector: type 1

TIK-KXX connector on the housing (analogue MIL-C-5015)

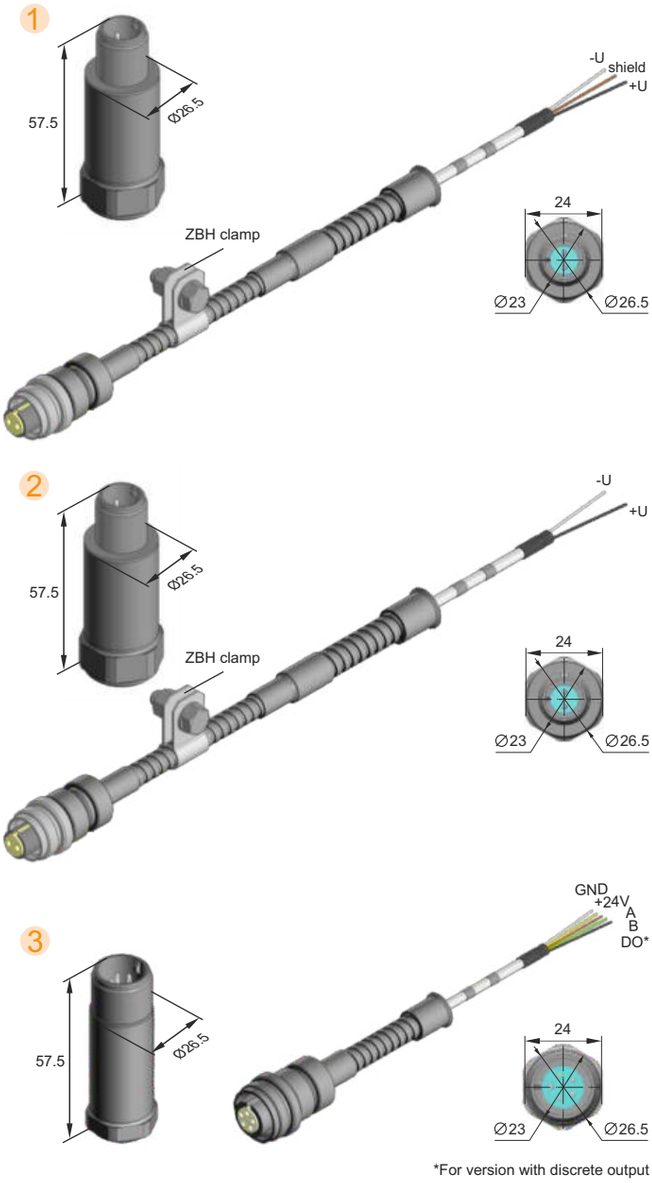
Specifications

Overall dimensions ⌀26.5x57.5 mm
Weight 130 g
Protection class IP65/IP68
Explosion proof-mark 0Ex ia IIC T6...T2 Ga X / PO Ex ia I Ma X
2Ex nA IIC T6...T2 Gc X
Mount M8/M10/M12 stud 1 pc.

1 for sensors with current output

2 for sensors with voltage output

3 for sensors with digital output



*For version with discrete output

Housing: type 2

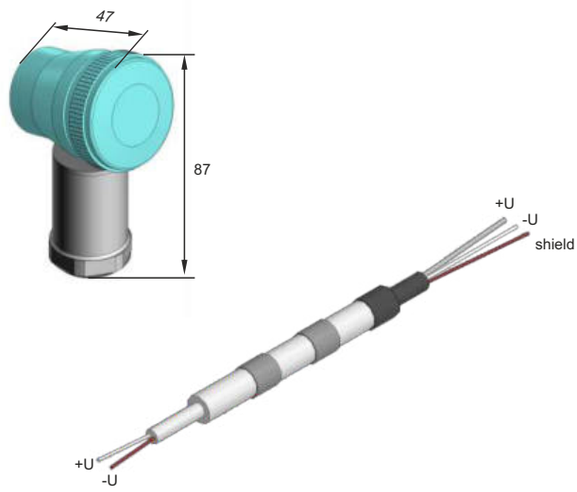
Cylindrical small-outline housing, electronics in the housing of the vibration transducer, mounting with a threaded stud

Connector: type 5

Connection to the terminal block

Specifications

Overall dimensions 47x87 mm
Weight 130 g
Protection class IP65
Explosion proof-mark 0Ex ia IIC T6...T2 Ga X / PO Ex ia I Ma X
2Ex nA IIC T6...T2 Gc X
Mount M8/M10/M12 stud 1 pc.



Housing: type 7

Rectangular housing, electronics in the housing of the vibration transducer, mounting with 1 screw

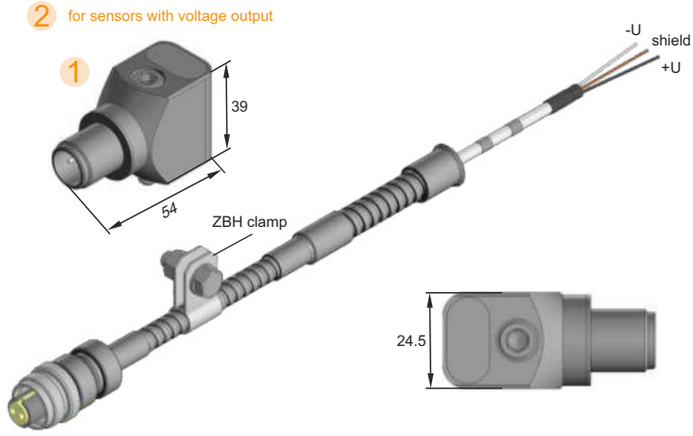
Connector: type 1

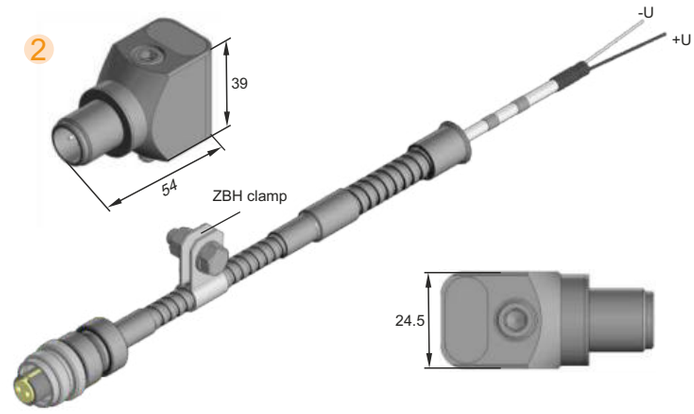
TIK-KXX connector on the housing (analogue MIL-C-5015)

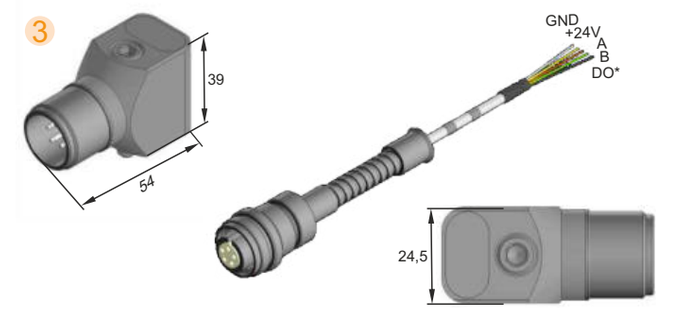
Specifications

Overall dimensions 39x54x24.5 mm
Weight 250 g
Protecion class IP65/IP68
Explosion proof-mark 0Ex ia IIC T6...T2 Ga X / PO Ex ia I Ma X
2Ex nA IIC T6...T2 Gc X
Mount M6 screw 1 pc.

1 for sensors with current output
2 for sensors with voltage output
3 for sensors with digital output







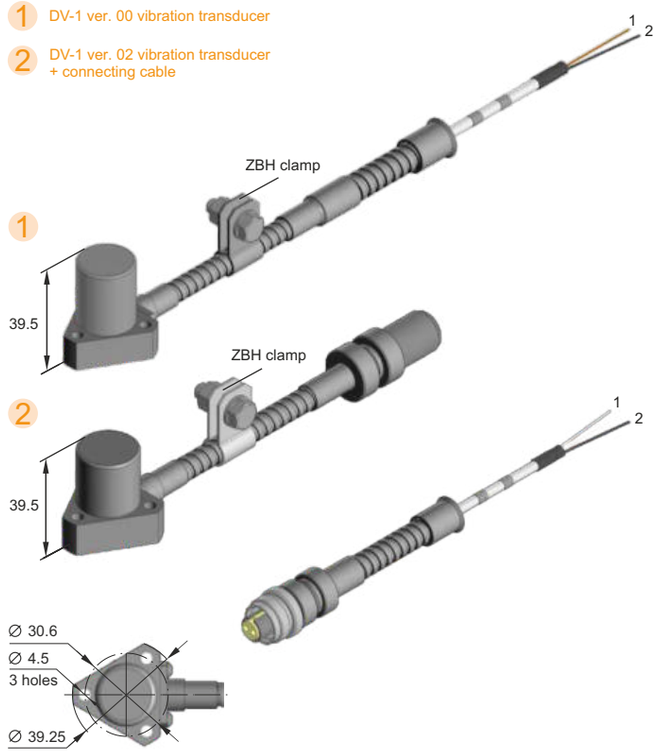
*For version with discrete output

DV-1 ver. 00/02 vibration transducers

Specifications

Overall dimensions ⌀39.25x39.5 mm
Weight 200 g
Protection class IP65/IP68 (DV-1 ver. 00)
IP65 (DV-1 ver. 02)
Explosion proof-mark 0Ex ia IIC T6...T1 Ga X
Mount M4x21 (M4x28) screw 3 pcs.

1 DV-1 ver. 00 vibration transducer
2 DV-1 ver. 02 vibration transducer + connecting cable

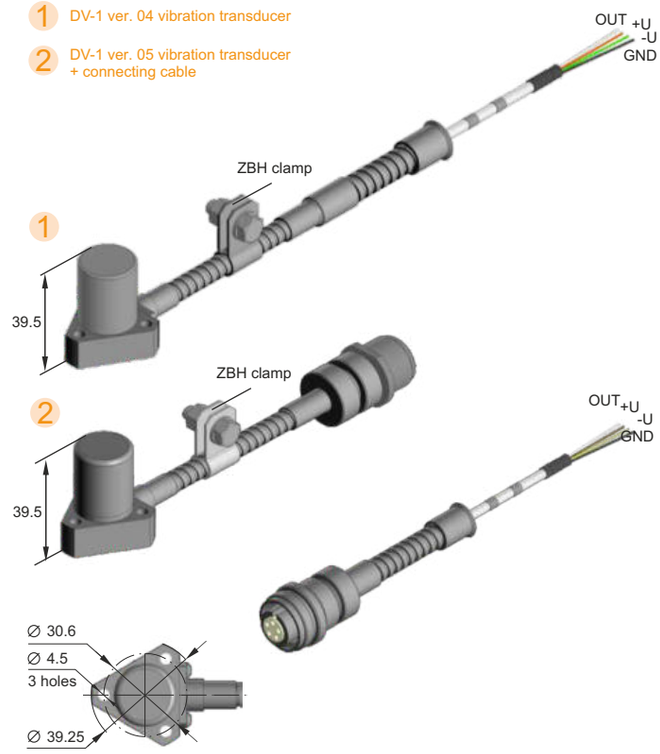


DV-1 ver. 04/05 vibration transducers

Specifications

Overall dimensions ⌀39.25x39.5 mm
Weight 250 g
Protection class IP65/IP68 (DV-1 ver. 04)
IP65 (DV-1 ver. 05)
Explosion proof-mark 0Ex ia IIC T6...T1 Ga X
Mount M4x21 (M4x28) screw 3 pcs.

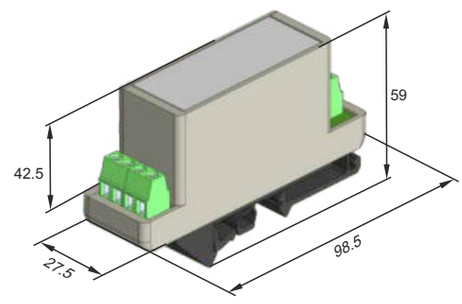
1 DV-1 ver. 04 vibration transducer
2 DV-1 ver. 05 vibration transducer + connecting cable



Charge amplifier AV 112 (for IKV-1-1-2) / AV 121 (for IKV-1-2-1)

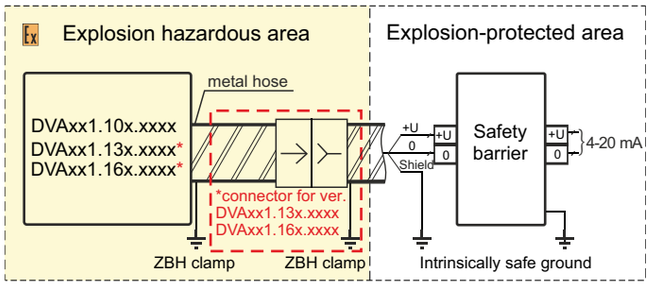
Specifications

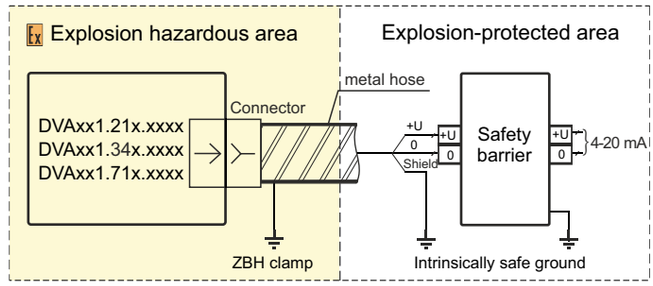
Overall dimensions 98.5x27.5x59 mm
Weight 100 g
Protection class IP20
Explosion proof-mark not available
Mount on a DIN rail

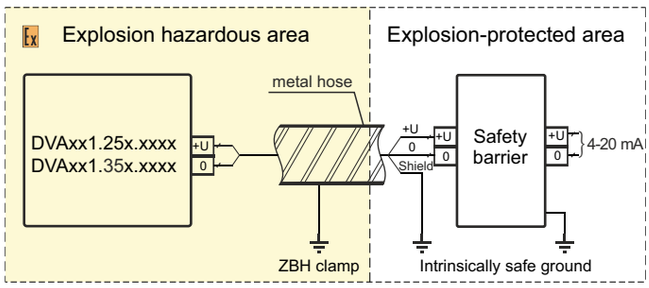


Wiring diagrams

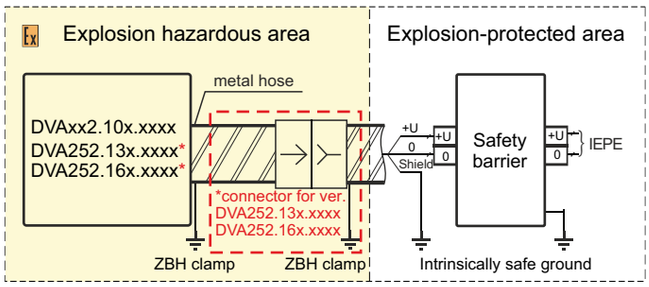
DVA sensors with current output

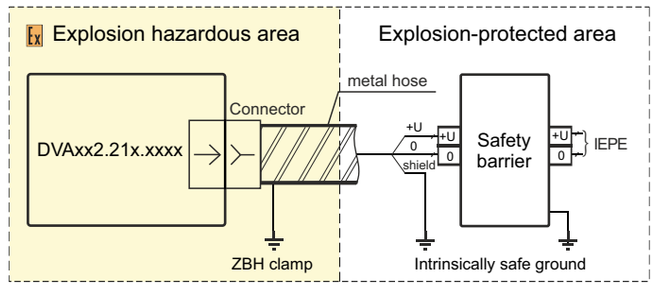




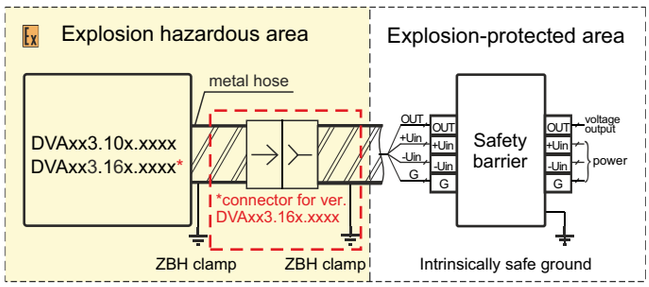


DVA sensors with voltage output



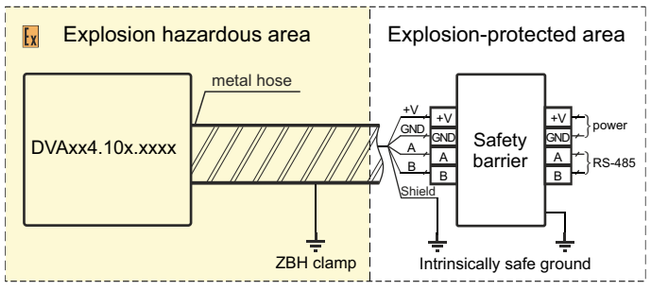


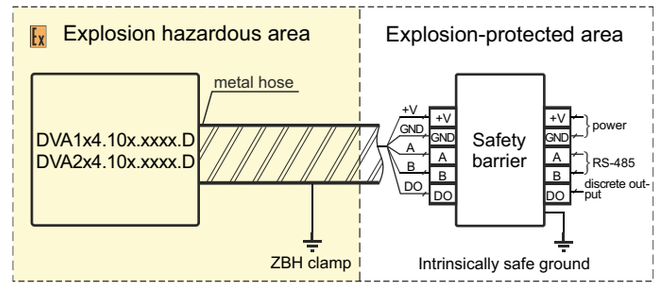
DVA sensors with voltage output with separate power supply

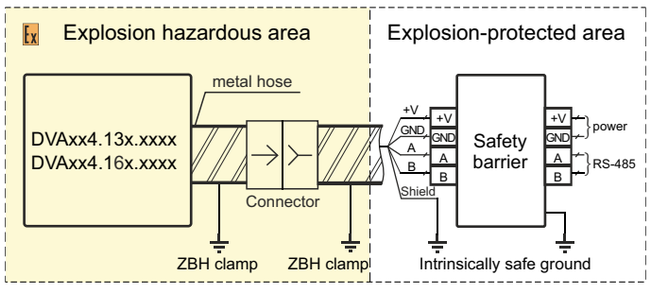


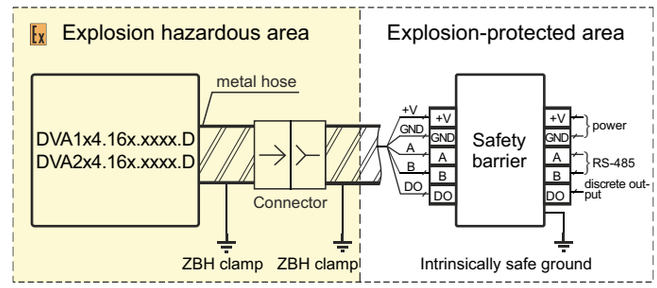
Wiring diagrams

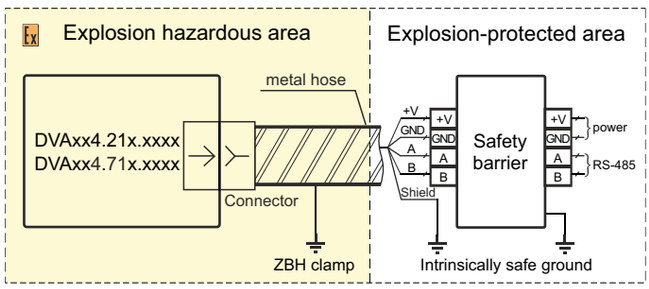
DVA sensors with digital output

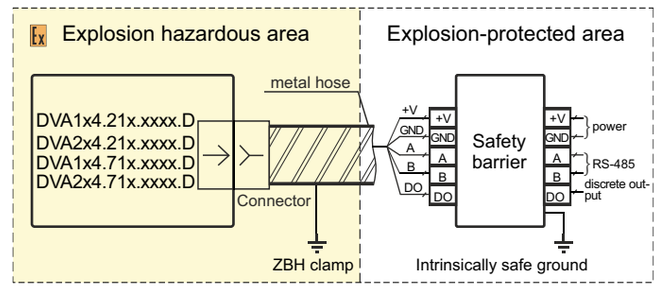




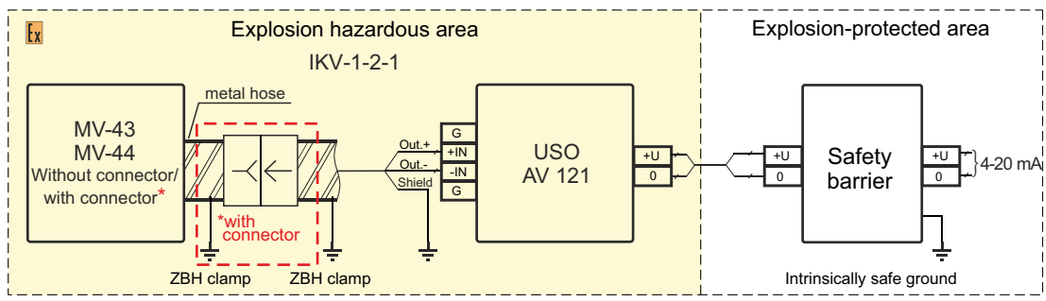




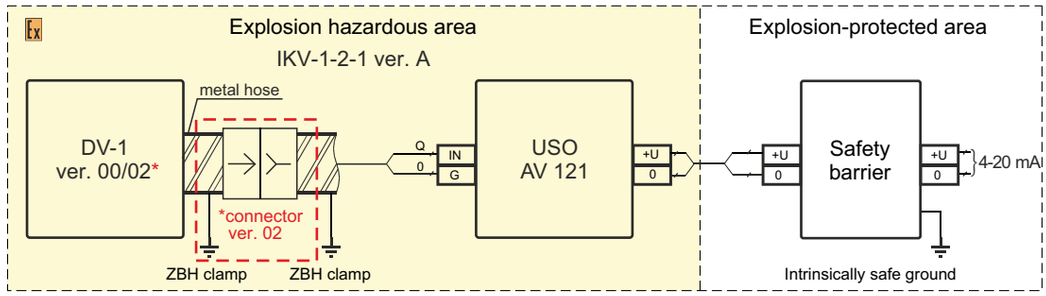


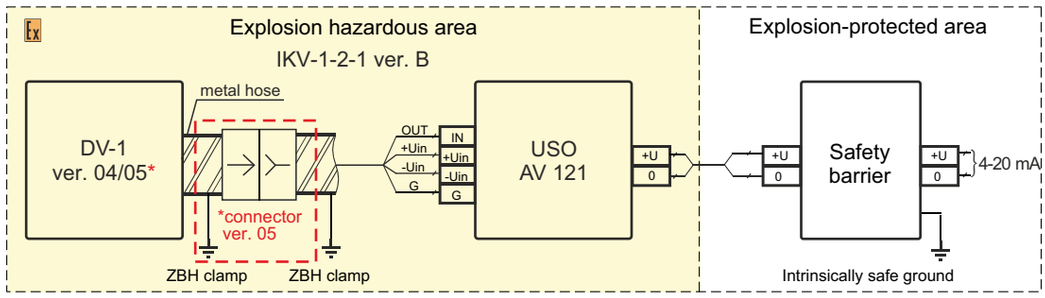


IKV channels with current output

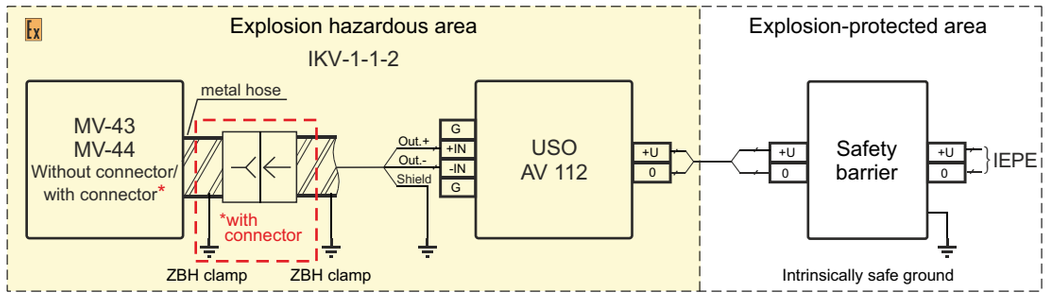


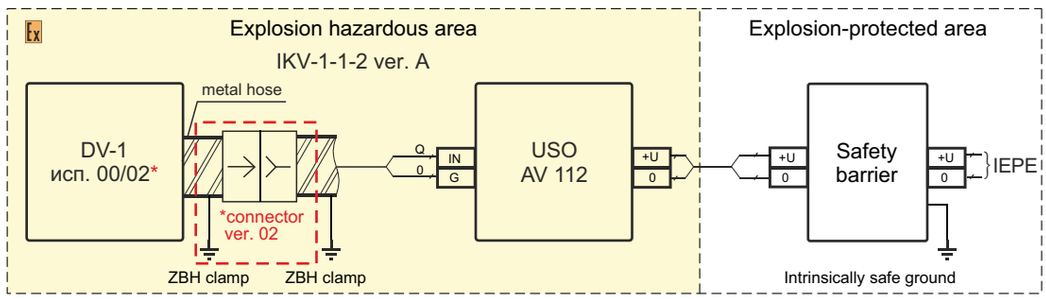
Wiring diagrams

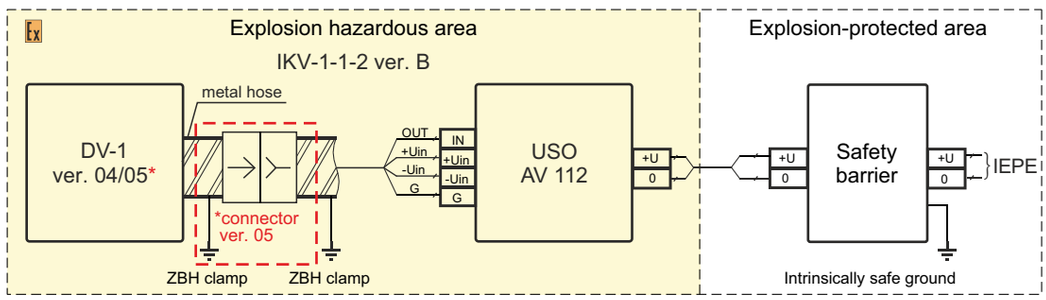




IKV channels with voltage output



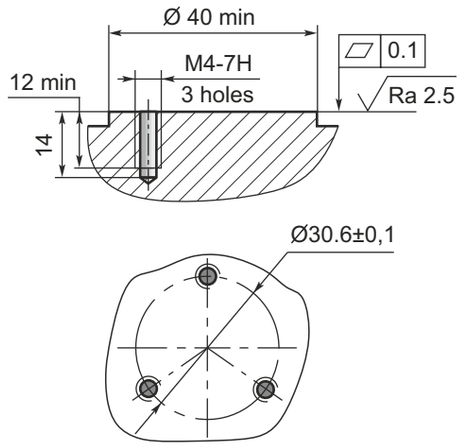




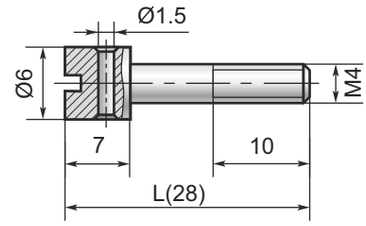
Installation methods

Screws mounting (for DVAXXX.1, IKV-1-X-X)

The vibration transducer shall be mounted with 3 special screws, screw locking is provided.

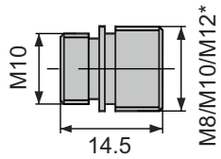


Screw for mounting the vibration transducer

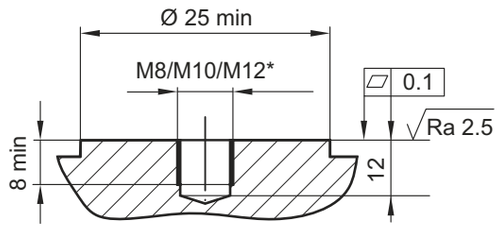


Stud mounting (for DVAXXX.2)

Threaded stud for mounting the vibration transducer



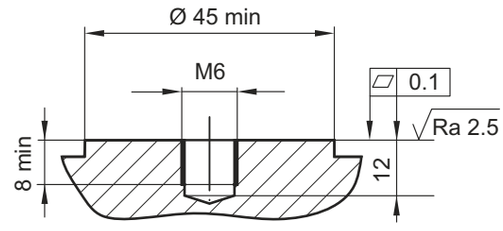
Place prepared for sensor installation



**A threaded stud with a different thread, including inch thread, can be supplied on special order*

Screw mounting (for DVAXXX.7)

Place prepared for sensor installation



Mounting kit (optional)

Rotating mounting kit designed for mounting multi-axis sensors with stud mounting and for sensors with terminal head.

Approval documents

Certificate of Type Approval of Measuring Instruments No.69044-17
for the DVA vibration transducers

Valid till 10/25/2027

Certificate of Type Approval of Measuring Instruments No.61639-15
for the IKV-1 vibration measuring devices

Valid till 09/15/2025

Certificate of Conformity RU C-RU.МГ07.В.00078/19 Series RU No. 0127619
for the IKV vibration measuring devices

Valid till 09/04/2024

Certificate of Conformity RU C-RU.АЖ58.В.03955/23 Series RU No. 0459029
for the DVA vibration transducers

Valid till 07/26/2028

Certificate of Conformity No. РОСС.RU.НХ37.Н09404
for the DVA vibration transducers

Valid till 03/24/2024

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