

# GTLab

Sensors, instruments and software for parameter analysis vibration,  
pressure,  
force,  
acoustic  
emission.

From development to production.

Catalog 2022



# GTLab

- sensors for measuring vibration, pressure, force, acoustic emission parameters, measuring instruments and software from a team of professionals with years of experience.

Over **30 years**  
of experience in the  
development and production of  
piezoelectric sensors and  
electronic devices.

Over **400 types**  
of products

Verification interval  
for charge and IEPE sensors:

**3 years**

Lead time for the development  
of sensors, devices and software  
modules:

**from 2 weeks**

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ISO 9001 : 2015  
GOST RV 0015-002-2012



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**Product naming convention****Sensors****1**

**Measured parameter or operating principle:**  
 1 – vibration acceleration  
 2 – vibration speed  
 3 – vibration displacement  
 4 – force  
 5 – dynamic pressure  
 6 – static-dynamic pressure  
 7 – acoustic emission  
 8 – eddy current

**2**

**Output signal:**  
 V – voltage  
 C – charge  
 A – current  
 D – digital

**3**

**Sensor type:**  
 0 – reference  
 1 – general purpose  
 2 – industrial  
 3 – shock  
 4 – high-sensitive

**4**

**Sensor model and number of measuring axes:**  
 01 - 49 single-component  
 50 - 89 three-component  
 90 - 99 two-component

**5**

**Cable output direction:**  
 T – vertical  
 H – horizontal

**6**

**Split/all-in-one plug:**  
 A - all-in-one  
 M - all-in-one in metal hose  
 X - split  
 (where x is - cable connector code, see Table 2)

**7**

**Coefficient (numeric value):**  
 For vibration sensors - coefficient of conversion to mV/g.  
 For pressure sensors, upper range limit in bar-s  
 (for IEPE), or the conversion coefficient in pC/bar.

Example: 1V204NM-100 – vibration acceleration sensor (accelerometer) with voltage output, type: industrial, single-component, with horizontal cable output, all-in-one plug, cable in a metal sleeve, conversion coefficient – 100 mV/g.

**Signal generators****A****1**

**Features:**  
 0 - Matching  
 1 - Conversion  
 2 - Commutation  
 3 - Eddy current  
 4 - Acoustic emission  
 5 - Equivalents  
 6 - Vibration controllers

**2**

**Input type, model:**  
 01 - 19 Voltage  
 20 - 29 Charge  
 30 - 39 Universal  
 40 - 59 Charge and voltage  
 60 - 79 Current  
 80 - 99 Digital

Example: A002 – matching signal generator, voltage.

**Measuring devices****D****1**

**Features:**  
 0 - ADC  
 1 - Vibrometers  
 2 - Eddy current  
 3 - Control modules  
 4 - Measuring complexes

**2**

**Input type, model:**  
 01 - 19 Voltage  
 20 - 29 Charge  
 30 - 39 Charge differential  
 40 - 59 Charge and voltage  
 60 - 79 Current  
 80 - 99 Digital

Example: D141 – Vibrometer, for sensors with charge output and IEPE standard voltage output.

**Calibrators****S**

Example: S01 – portable calibrator.

# COMPLEMENTARY PRODUCTS TABLE

Complementary goods are several goods or services that complement each other and are used simultaneously.

SENSORS	ACCESSORIES (page 246)	SIGNAL GENERATORS	VIBRATION CONTROLLERS VIBROMETERS	MEASURING DEVICES
1C101xx (page 14-16) 1C102xx (page 17-18) 1C103xx (page 19-22)	M0105(i), M0305(i), M0505, W01, K01 B0101, B0102	A120-XX, A121-XX, A122-XX, A126, A127, A128(-3), A129(-3), A141, A142 (page 181-194)	A621, A634, A635 (page 204) D141 (page 244)	D001, D003, D004, D005, D006, D007 (via charge signal conditioner or vibration controller) (page 230-236)
1C151xx (page 23) 1C152HA (page 24)	M0205(i), M0405, W01, K12, B0102 P0005, M0305(i), M0105(i), W01, B0101, B0102, R21, R22		A621, A634, A635 (page 204) D104 (via charge signal conditioner) (page 243)	
1C155xx (page 25-26)	M0405			
1C201xx (page 27) 1C202xx (page 28) 1C203xx (page 29) 1C204xx (page 30) 1C205xx (page 31) 1C206xx (page 32) 1C210TAXX (page 33)	B02, 3 screws M4 × 12 4 screws M3 × 14 B02, 3 screws M4 × 12 4 screws M3 × 14 B02, 3 screws M4 × 12 4 screws M3 × 14	A123-XX; A124-XX; A125-XX; A126; A127 (page 183-188)	A621, A634, A635 (page 204)	D001, D003, D004, D005, D006, D007 (via charge signal conditioner or vibration controller) (page 230-236)
1C221HA (page 34) 1C290HAXX (page 35)	W01	A120-XX, A121-XX, A122-XX, A126, A127, A128(-3), A129(-3), A141, A142 (page 181-194)	A621, A634, A635 (page 204) D141 (page 244)	
1C301HA (page 36) 1C302HA (page 37) 1C303HAXX (page 38) 1C304HAXX (page 39) 1C305HA (page 40) 1C306HAXX (page 41) 1C351HA (page 42)	M0105(i), M0305(i), B0101 W01 M0105(i), M0305(i), B0101 M0105(i), M0305(i), B0101, B0102 M0305(i), screw M3 × 8	A120-XX, A121-XX, A122-XX, A126, A127, A128(-3), A129(-3), A141, A142 (page 181-194)	A621, A634, A635 (page 204) D104 (page 243)	D001, D003, D004, D005, D006, D007 (via charge signal conditioner or vibration controller) (page 230-236)
1C401HBXX (page 43) 1C402HBXX (page 44)	M0205(i), M0405, M0505, W01	A120-XX, A121-XX, A122-XX, A126, A127, A128(-3), A129(-3), A141, A142 (page 181-194)	A621, A634, A635 (page 204) D104 (page 243)	D001, D003, D004, D005, D006, D007 (via charge signal conditioner or vibration controller) (page 230-236)
1C702TA (page 45)	M0105(i), M0205(i), M0505, W01, B0101, B0102	A120-XX, A121-XX, A122-XX, A126, A127, A128(-3), A129(-3), A141, A142 (page 181-194)	A621, A634, A635 (page 204) D141 (page 244)	D001, D003, D004, D005, D006, D007 (via charge signal conditioner or vibration controller) (page 230-236)
1V001HB (page 46) 1V101xx (page 47-49) 1V102xx (page 50-52) 1V103xx (page 53-54) 1V104xx (page 55) 1V105xx (page 56)	M0105(i), M0205, M0505, W01 M0105(i), M0205(i), M0505, W01, B0101, B0102, K01 M0105(i), M0305(i), M0505, W01, B0101, B0102, K01 P0005, W01, R22 M0105(i), M0205(i), M0505, B0101, B0102	A002-XX, A003-XX, A004-XX (page 172-179) A141, A142 (page 193-194)	A631, A632, A633, A634, A635 (page 206-213) D101, D104, D141 (page 242)	D001, D003, D004, D005, D006, D007 (page 230-236)
1V151xx (page 57-58) 1V152xx (page 59-61)	M0205(i), M0405, W01, K12 M0105(i), M0205(i), M0505, W01, K12, B0102, R23	A002-XX, A003-XX, A004-XX (page 172-179) A141, A142 (page 193-194)	A631, A632, A633, A634, A635 (page 206-213) D104 (page 243)	D001, D003, D004, D005, D006, D007 (page 230-236)

1V153HC (page 62)	M0105(i), M0205(i), M0405, M0505, W01, K12	A002-XX, A003-XX, A004-XX (page 172-179) A141, A142 (page 193-194)	A631, A632, A633, A634, A635 (page 206-213) D104 (page 243)	D001, D003, D004, D005, D006, D007 (page 230-236)
1V154HC (page 63)	M0405, W01, K12, R23			
1V155HC (page 64)	M0205(i), M0405, W01, K12, R22			
1V201xx (page 65-68)	M0406, W01	A002-XX, A003-XX, A004-XX (page 172-179) A141, A142 (page 193-194)	A631, A632, A633, A634, A635 (page 206-213) D101, D104, D141 (page 242)	D001, D003, D004, D005, D006, D007 (page 230-236)
1V202xx (page 69-72)	M0206(i), M0506, W01			
1V203xx (page 73-76)	M0406, W01, B0102			
1V206HM-10 (page 77)	B02, 3 screws M4 × 14			
1V208xx (page 78-79)	M0408, W01, screw M8 × 40	—	A633	—
1V209xx (page 80-81)	B02, 3 screws M4 × 14	A002-XX, A003-XX, A004-XX (page 172-179) A141, A142 (page 193-194)	A631, A632, A633, A634, A635 (page 206-213) D101, D104, D141 (page 242)	D001, D003, D004, D005, D006, D007 (page 230-236)
1V221HP-10 (page 82)	B02, 3 screws M4 × 12	—	—	—
1V222HP-10 (page 83)	4 screws M3 × 16			
1V223HP-10 (page 82)	B02, 3 screws M4 × 12			
1V224HP-10 (page 83)	4 screws M3 × 16			
1V251HM-100 (page 84)	4 screws M3 × 16	A002-XX, A003-XX, A004-XX (page 172-179) A141, A142 (page 193-194)	A631, A632, A633, A634, A635 (page 206-213) D104 (page 243)	D001, D003, D004, D005, D006, D007 (page 230-236)
1V301HA (page 85)	W01	A002-XX, A003-XX, A004-XX (page 172-179)	A631, A632, A633, A634, A635 (page 206-213) D101, D104, D141 (page 242)	D001, D003, D004, D005, D006, D007 (page 230-236)
1V302HA (page 86)	M0105(i), M0305(i), M0105, M0305, B0101			
1V303TB (page 87)	M0406, M0506			
1V304HA-0.5 (page 88)	W01			
1V401HS (page 89)	M0405, P0505, P0505i, P0506, P0508	A004-XX (page 86)	A631, A632, A633, A634, A635 (page 206-213) D101, D104, D141 (page 242)	D001, D003, D004, D005, D006, D007 (page 230-236)
1V601xx-01 (page 90-92)	B0306	—	A631, A632, A633, A634, A635 (page 206-213) D101, D104, D141 (page 242)	D001, D003, D004, D005, D006, D007 (page 230-236)
1V601xx-02 (page 90-92)	B0308			
1V601xx-03 (page 90-92)	B03516			
1V701TA (page 93)	P0505, P0505i, P0506, P0508	A002-XX, A003-XX, A004-XX (page 172-179)	A631, A632, A633, A634, A635 (page 206-213) D101, D104, D141 (page 242)	D001, D003, D004, D005, D006, D007 (page 230-236)
1V702TA (page 94)				
1V703TA (page 95)	—			
1V751HA (page 96)	P0505, P0505i, P0506, P0508			
1D201Hx (page 97-99)	—	—	D181 (page 245)	—
1D202Tx (page 100-102)				
1D401Hx (page 103-104)	P0505, P0505i, P0506, P0508	—	—	—
1D402Hx (page 105)				
1A202Tx (page 109)	M0206(i), M0406, M0506, B0506, P0506, P0608, P0606	—	A631, A632 (page 206-207)	—
1A204Hx (ctp.109)	B02, 3 screws M4 × 12			
1A206Hx (page 109)	M0408, W01, screw M8 × 40			
2A201Tx (page 113)	M0206(i), M0406, M0506, B0506, P0506, P0608, P0606	—	A631, A632 (page 206-207)	—
2A202Tx (page 113)				
2A203Hx (page 113)	3 screws M4 × 12			
2A204Hx (page 113)				
2A205Hx (page 113)	M0408, W01, screw M8 × 40			
2A206Hx (page 113)				
2A251Tx (page 115)	M0206(i), M0406, M0506, B0506, P0506, P0608, P0606	—	A631, A632 (page 206-207)	—
2A252Tx (page 115)				

2A253Hx (page 115)	3 screws M4 × 12	—	A631, A632 (page 206-207)	—
2A254Hx (page 115)				
2A255Hx (page 115)	M0408, W01, screw M8 × 40			
2A256Hx (page 115)				
2V201xx (page 116-117)	3 screws M4 × 12, B02	A003-XX (page 174-175)	A634, A635 (via charge signal conditioner) (page 211-213)	
2V202xx (page 118-220)				
3A201Tx (page 124)	M0206(i), M0406, M0506, B0506, P0506, P0608, P0606	—	A631, A632 (page 206-207)	—
3A203Hx (page 124)	B02, 3 screws M4 × 12			
3A205Hx (page 124)	M0408, W01, screw M8 × 40			
4C101HB (page 165)	mounting nut M18×1,5	A120-XX, A121-XX, A122-XX, A126, A127, A128(-3), A129(-3), A141, A142 (page 181-194)	A621, A634, A635 (page 204) D141 (page 244)	D001, D003, D004, D005, D006, D007 (via charge signal conditioner or vibration controller) (page 230-236)
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5C101TX-250-XX (page 127-128)	R01	A120-XX, A121-XX, A122-XX, A126, A127, A128(-3), A129(-3), A141, A142 (page 181-194)	—	D001, D003, D004, D005, D006, D007 (via charge signal conditioner or vibration controller) (page 230-236)
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5C102TX-250-XX (page 130-132)				
5C103TX-6000 -2 (page 133-134)	R03			
5V101TX-XX (page 137-138)	R01	A120-XX, A121-XX, A122-XX, A126, A127, A128(-3), A129(-3), A141, A142 (page 181-194)	—	D001, D003, D004, D005, D006, D007 (page 230-236)
5V110TX-XX (page 139-140)	R02			
5V120TX-XX (page 141-142)	mounting nut M14×1,25	A120-XX, A121-XX, A122-XX, A126, A127, A128(-3), A129(-3), A141, A142 (page 181-194)		D001, D003, D004, D005, D006, D007 (page 230-236)
5V121TX-XX (page 143-144)				
5V122TX-XX (page 145-146)				
5V123TX-XX (page 147-148)				
6V201TP-XX (page 150)	M0406, W01	A002-XX, A003-XX, A004-XX (page 172-179)	A631, A632, A633, A634, A635 (page 206-213) D101, D104, D141 (page 242)	D001, D003, D004, D005, D006, D007 (page 230-236)
6V201TP-XX-5 (page 150)				
6V202TP-XX (page 151)				
6V202TP-XX-5 (page 151)				
7C101HX (page 154-155)	V7401, V7501	A005 (page 180) A422 (page 201)	—	D002 (through charge signal conditioner) (page 231MM)
7C102HA (page 156)	V7400, V7500			
7C102HB (page 157)	V7401, V7501			
7C103HX (page 158-159)				
7V201TA (page 153)	B7520	A401 (page 200)	—	D002 (page 231)
8V91D (page 160)	K20	—	D141 (page 244)	D001, D003, D004, D005, D006, D007 (page 230-236)

# ACCELEROMETERS



# ACCELEROMETERS

GTLab

Electromechanical transducers for vibration and shock acceleration measurement.

## With charge output

Accelerometers for extreme applications: high temperature, high intensity shock acceleration in a wide frequency range.

### General purpose

Measurement of parameters of medium-and high-intensity vibration processes.

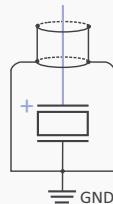
#### Single-component



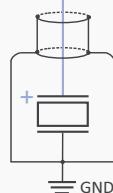
Series 1C101



Series 1C102



Series 1C103



Pages: 14-22

#### Three-component



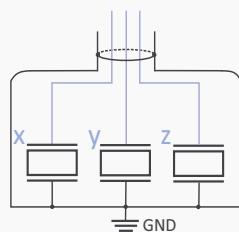
Series 1C151



Series 1C152



Series 1C155



Pages: 23-26

#### Industrial

Industrial equipment condition monitoring in strong industrial interference environments.



Series 1C201



Series 1C202



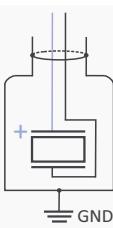
Series 1C203



Series 1C204



Series 1C206



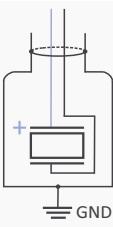
Series 1C205



Series 1C210

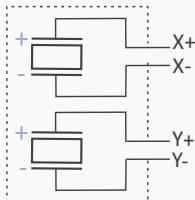


Series 1C221



Series 1C290

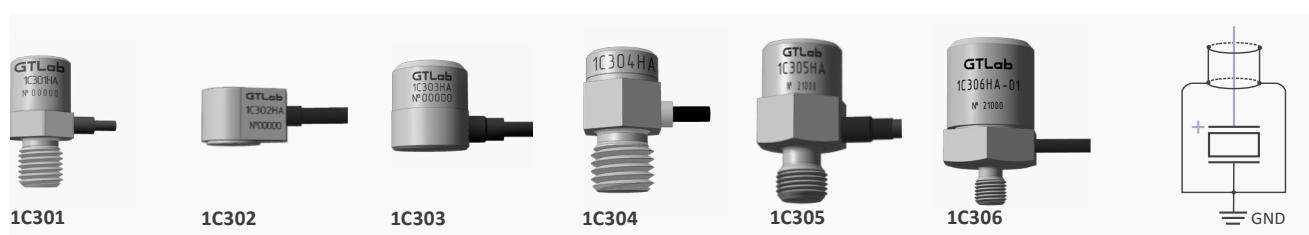
Pages: 27-35



## Shock

Measurement of parameters of high-intensity shock processes.

### Single-component



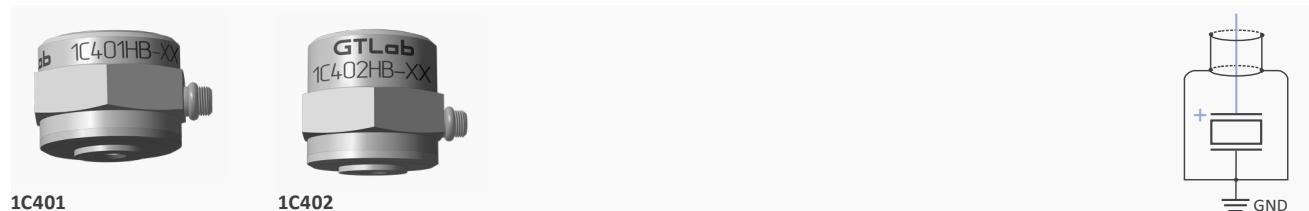
Pages: 36-41

### Three-component



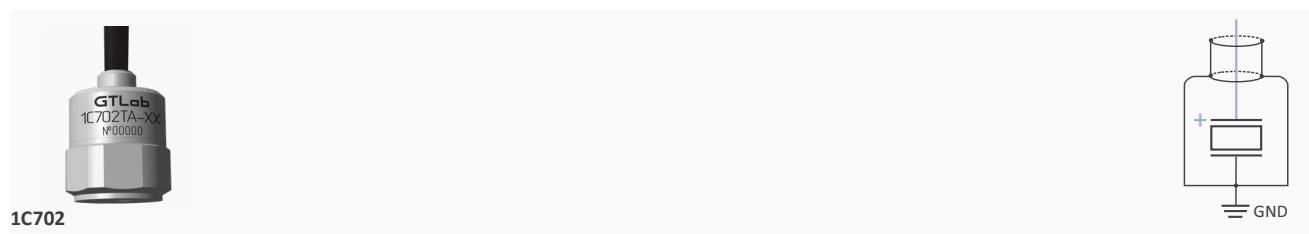
## High-sensitive

Measurement of low-frequency parameters in low-intensity vibration processes.



Pages: 43-44

## Underwater



Pages: 45

## With voltage output

Accelerometers with increased noise immunity.

### General purpose

Measurement of parameters of vibration processes (in multi - channel systems, modal analysis, industrial sanitation analysis).

### Single-component



Pages: 46-56

**Three-component**

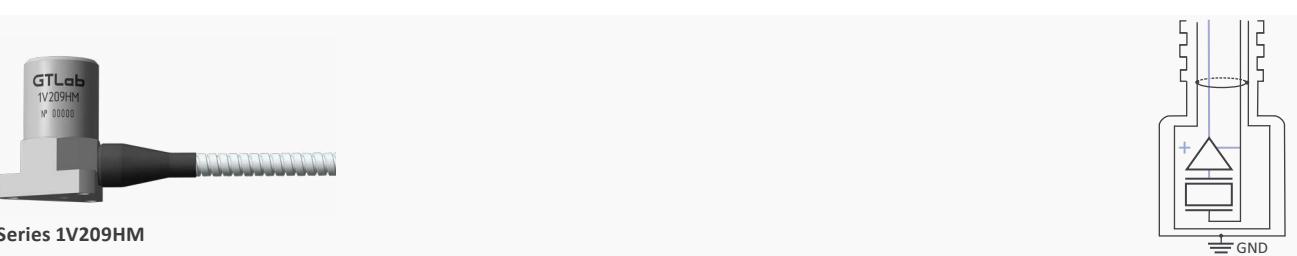
Pages: 57-64

**Industrial**

Industrial equipment condition monitoring in strong industrial interference context.

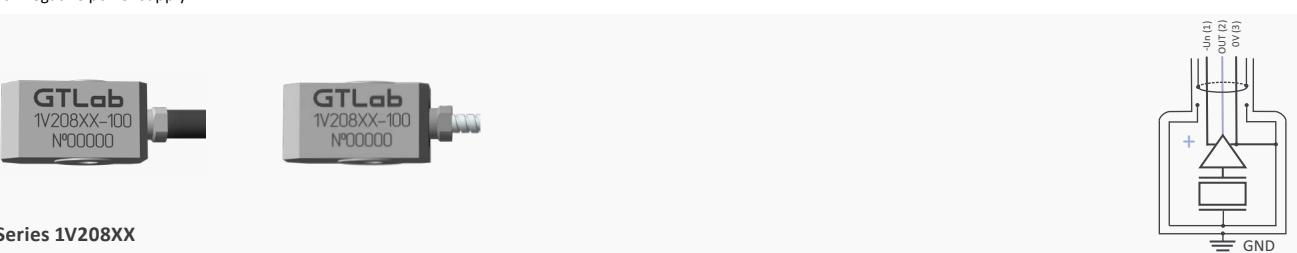
**Series 1V209HA**

Pages: 65-80



Pages: 81

With negative power supply



Pages: 78-79

**Shock**

Measurement of parameters of high-intensity shock processes



Pages: 85-88

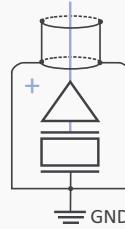
## High-sensitive

Measurement of low-frequency parameters in low-intensity vibration processes.



Series 1V401HS-XX

Pages: 89



## Shock pulse



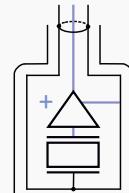
Series 1V601TA-XX



Series 1V601TH-XX



Series 1V601TH-XX



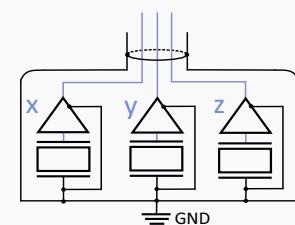
Pages: 90-92

## Underwater



Series 1V751HA

Pages: 96



## With digital output

Accelerometers with built-in ADC.

## Industrial



1D201HA

Pages: 97

**Modbus  
RS485**

## High-sensitive



1D401HC



1D401HA

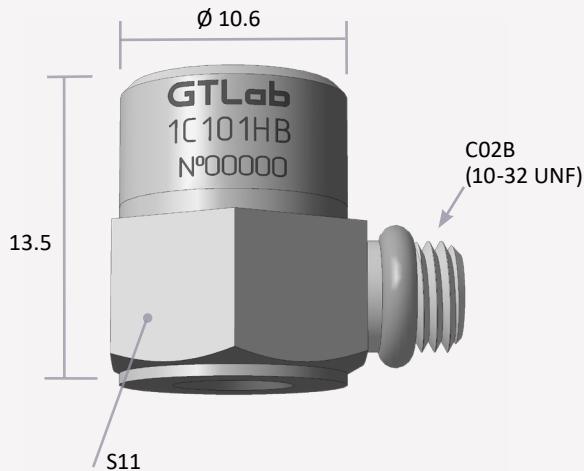


1D402HA



USB

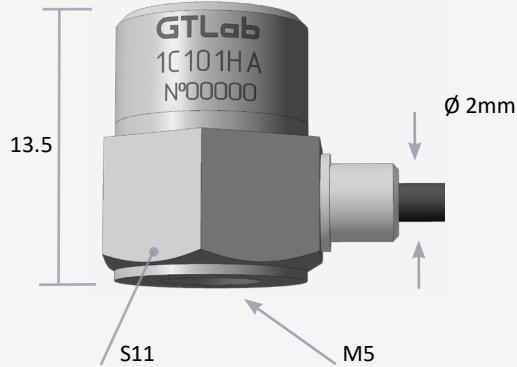
Pages: 103-105



Parameter	1C101HB	1C101HB-01
Sensitivity ( $\pm 20\%$ )	1 pC/(m·s $^{-2}$ )	
Transverse sensitivity	< 5 %	
Measurement range	$\pm 100\,000\text{ m/s}^2$	
Maximum shock limit (peak value)	$\pm 150\,000\text{ m/s}^2$	
Temperature range	-60 ... +150 °C	
Frequency range (uneven frequency response $\pm 1\text{ dB}$ )	0.5 ... 16 000Hz	
Resonant frequency	> 50 kHz	
Electric capacity	800 ... 1100 pF	
Insulation resistance under normal conditions	> 10 000 MΩ	
Housing material	stainless steel	titanium alloy
Weight (without cable)	10 g	7.6 g
Supplied accessories	cable 03B1B1 (as per customer's request) pin P0505	

**Parameter**

Sensitivity ( $\pm 20\%$ )	<b>1C101TB</b>	<b>1C101TB-01</b>
Transverse sensitivity	1 pC/(m·s <sup>-2</sup> )	
Measurement range	< 5 %	
Maximum shock limit (peak value)	$\pm 100\,000\text{ m/s}^2$	
Temperature range	$\pm 150\,000\text{ m/s}^2$	
Frequency range (uneven frequency response) $\pm 1\text{ dB}$ )	-60 ... +150 °C	
Resonant frequency	0.5 ... 16 000Hz	
Electric capacity	> 50 kHz	
Insulation resistance under normal conditions	800 ... 1100 pF	
Housing material	> 10 000 MΩ	titanium alloy
Weight (without cable)	stainless steel	
Supplied accessories	10 g	7.6 g
	cable 03B1B1 (as per customer's request) pin P0505	

**Parameter**

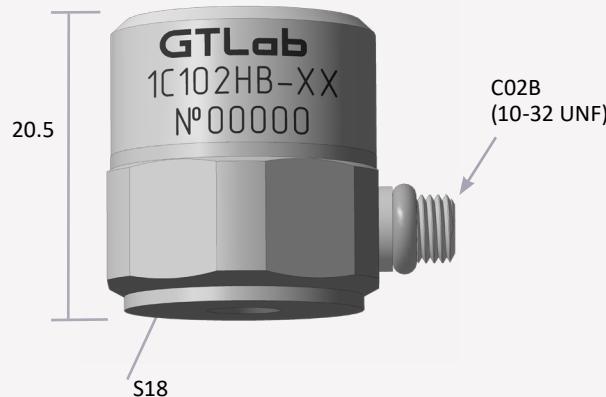
	<b>1C101HA</b>	<b>1C101HA-01</b>
Sensitivity ( $\pm 20\%$ )	$1 \text{ pC}/(\text{m}\cdot\text{s}^2)$	
Transverse sensitivity	< 5 %	
Measurement range	$\pm 100\,000 \text{ m/s}^2$	
Maximum shock limit (peak value)	$\pm 150\,000 \text{ m/s}^2$	
Temperature range	-60 ... +150 °C	
Frequency range (uneven frequency response $\pm 1 \text{ dB}$ )	0.5 ... 16 000Hz	
Resonant frequency	> 50 kHz	
Electric capacity	800 ... 1100 pF	
Insulation resistance under normal conditions	> 10 000 MOhm	
Housing material	stainless steel	titanium alloy
Weight (without cable)	10 g	7.6 g
Supplied accessories	pin P0505	

General purpose

With charge output

Accelerometers



**Parameter**

Sensitivity ( $\pm 20\%$ )
Transverse sensitivity
Measurement range
Maximum shock limit (peak value)
Temperature range
Frequency range (uneven frequency response $\pm 1$ dB)
Resonant frequency
Electric capacity
Insulation resistance under normal conditions
Housing material
Weight (without cable)
Supplied accessories

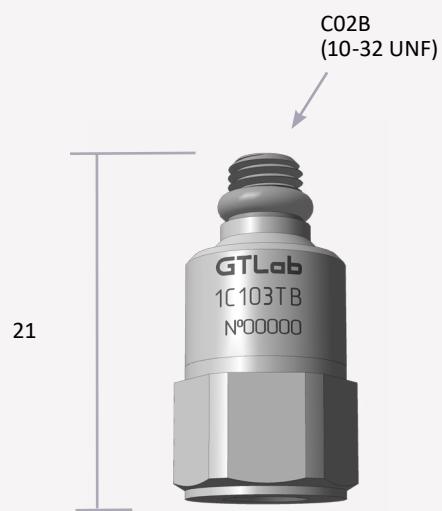
**1C102HB**

10 pC/(m·s <sup>-2</sup> )
< 5 %
$\pm 15\,000$ m/s <sup>2</sup>
$\pm 50\,000$ m/s <sup>2</sup>
-60 ... +150 °C
0.5 ... 8 000Hz
> 20 kHz
1000 ... 1500 pF
> 10 000 MΩ
stainless steel
40 g
cable 03B1B1 (as per customer's request) pin P0505

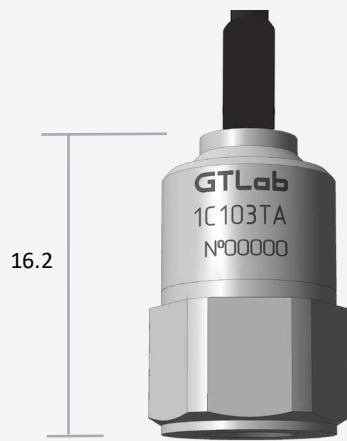
**Parameter**

	<b>1C102TB</b>
Sensitivity ( $\pm 20\%$ )	10 pC/(m·s $^{-2}$ )
Transverse sensitivity	< 5 %
Measurement range	$\pm 15\,000$ m/s $^2$
Maximum shock limit (peak value)	$\pm 50\,000$ m/s $^2$
Temperature range	-60 ... +150 °C
Frequency range (uneven frequency response $\pm 1$ dB)	0.5 ... 8 000Hz
Resonant frequency	> 20 kHz
Electric capacity	1000 ... 1500 pF
Insulation resistance under normal conditions	> 10 000 MΩ
Housing material	stainless steel
Weight (without cable)	40 g
Supplied accessories	cable 03B1B1 (as per customer's request) pin P0505

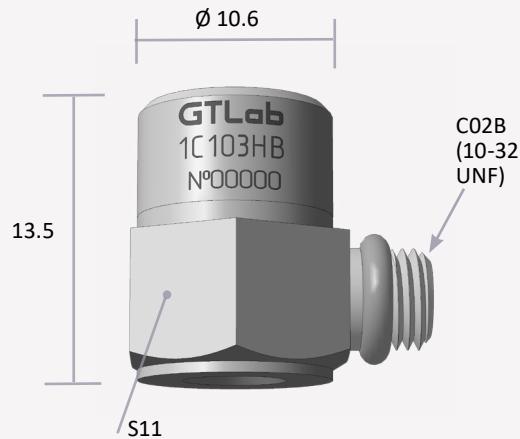


**Parameter**

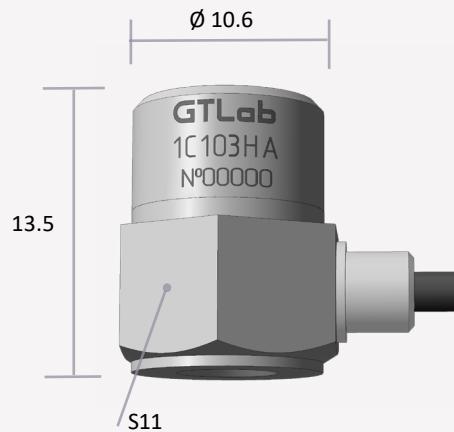
Sensitivity ( $\pm 20\%$ )	<b>1C103TB</b>	<b>1C103TB-01</b>
Transverse sensitivity	1 pC/(m·s <sup>-2</sup> )	
Measurement range	< 5 %	
Maximum shock limit (peak value)	$\pm 100\,000\text{ m/s}^2$	
Temperature range	$\pm 150\,000\text{ m/s}^2$	
Frequency range (uneven frequency response $\pm 1\text{ dB}$ )	-60 ... +250 °C	
Resonant frequency	0.5 ... 16 000Hz	
Electric capacity	> 50 kHz	
Insulation resistance under normal conditions	700 ... 1 000 pF	
Housing material	> 10 000 MΩ	titanium alloy
Weight (without cable)	stainless steel	
Supplied accessories	10 g	7.6 g
	cable 03B1B1 (as per customer's request) pin P0505	

**Parameter**

	<b>1C103TA</b>	<b>1C103TA-01</b>
Sensitivity ( $\pm 20\%$ )	1 pC/(m·s $^{-2}$ )	
Transverse sensitivity	< 5 %	
Measurement range	$\pm 100\,000 \text{ m/s}^2$	
Maximum shock limit (peak value)	$\pm 150\,000 \text{ m/s}^2$	
Temperature range	-60 ... +250 °C	
Frequency range (uneven frequency response $\pm 1 \text{ dB}$ )	0.5 ... 16 000 Hz	
Resonant frequency	> 50 kHz	
Electric capacity	700 ... 1 000 pF	
Insulation resistance under normal conditions	> 10 000 MΩ	
Housing material	stainless steel	titanium alloy
Weight (without cable)	10 g	7.6 g
Supplied accessories	pin P0505	

**Parameter**

Sensitivity ( $\pm 20\%$ )	1C103HB	1C103HB-01
Transverse sensitivity	$1 \text{ pC}/(\text{m}\cdot\text{s}^{-2})$	
Measurement range	< 5 %	
Maximum shock limit (peak value)	$\pm 100\,000 \text{ m/s}^2$	
Temperature range	$\pm 150\,000 \text{ m/s}^2$	
Frequency range (uneven frequency response $\pm 1 \text{ dB}$ )	-60 ... +250 °C	
Resonant frequency	0.5 ... 16 000Hz	
Electric capacity	> 50 kHz	
Insulation resistance under normal conditions	700 ... 1 000 pF	
Housing material	> 10 000 MΩ	titanium alloy
Weight (without cable)	stainless steel	
Supplied accessories	10 g	7.6 g
	cable 03B1B1 (as per customer's request) pin P0505	

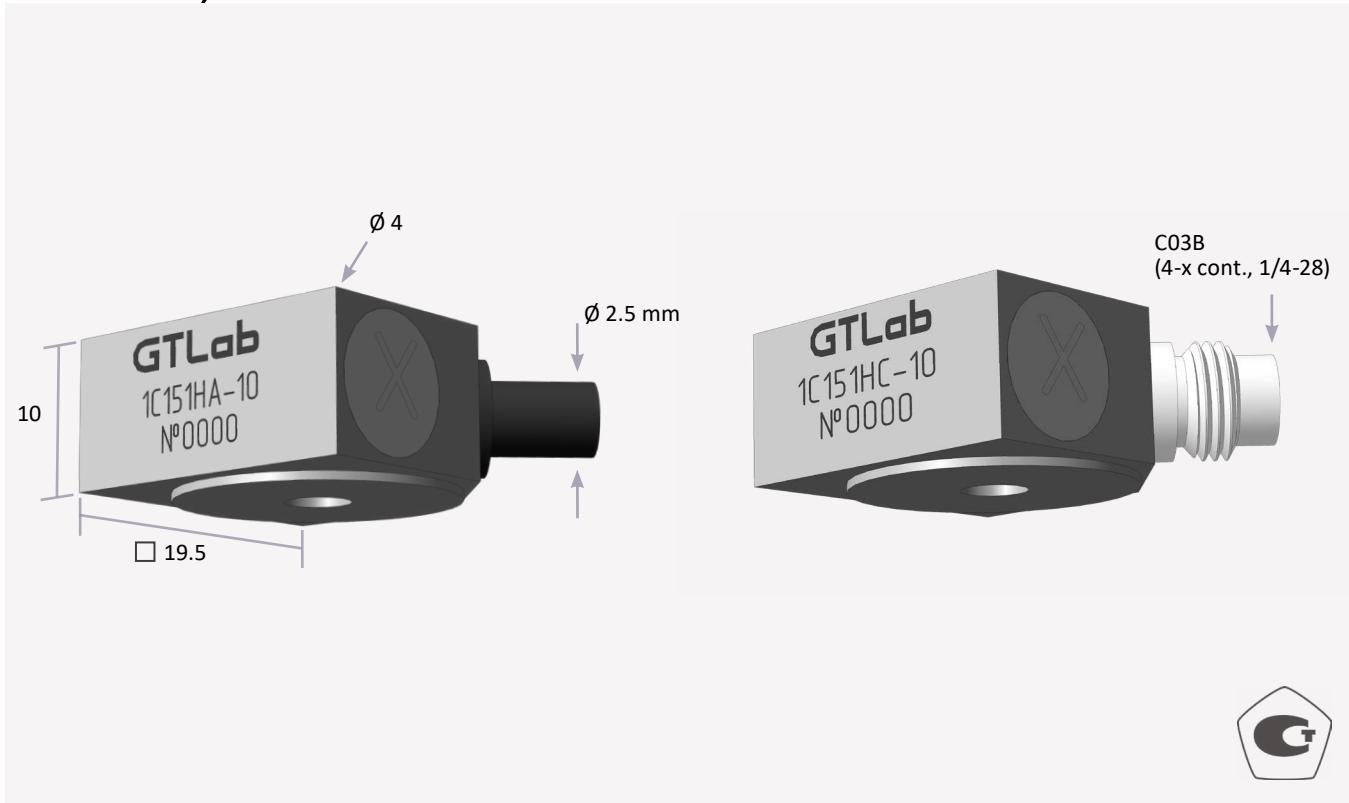
**Parameter**

Sensitivity ( $\pm 20\%$ )	1 pC/(m·s $^{-2}$ )
Transverse sensitivity	< 5 %
Measurement range	$\pm 100\,000 \text{ m/s}^2$
Maximum shock limit (peak value)	$\pm 150\,000 \text{ m/s}^2$
Temperature range	-60 ... +250 °C
Frequency range (uneven frequency response $\pm 1 \text{ dB}$ )	0.5 ... 16 000 Hz
Resonant frequency	> 50 kHz
Electric capacity	700 ... 1 000 pF
Insulation resistance under normal conditions	> 10 000 MΩ
Housing material	stainless steel
Weight (without cable)	10 g
Supplied accessories	pin P0505

**1C103HA****1C103HA-01**

< 5 %	
$\pm 100\,000 \text{ m/s}^2$	
$\pm 150\,000 \text{ m/s}^2$	
-60 ... +250 °C	
0.5 ... 16 000 Hz	
> 50 kHz	
700 ... 1 000 pF	
> 10 000 MΩ	
titanium alloy	
7.6 g	



**Parameter**Sensitivity ( $\pm 20\%$ )

Transverse sensitivity

Measurement range

Maximum shock limit (peak value)

Temperature range

Frequency range  
(uneven frequency response  $\pm 1$  dB)

Resonant frequency

Electric capacity

Insulation resistance under normal conditions

Housing material

Weight (without cable)

Supplied accessories

**1C151HA**1 pC/(m·s<sup>-2</sup>)

&lt; 5 %

 $\pm 25\,000$  m/s<sup>2</sup> $\pm 100\,000$  m/s<sup>2</sup>

−60 ... +150 °C

0.5 ... 10 000Hz

&gt; 30 kHz

800 ... 1 100 pF

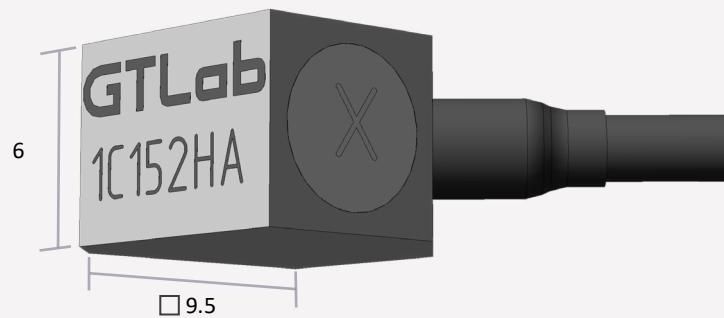
&gt; 10 000 MΩ

titanium alloy

17 g

screw M5 × 15

**1C151HC**cable 41C1B3 (as per customer's request) screw  
M5 × 15



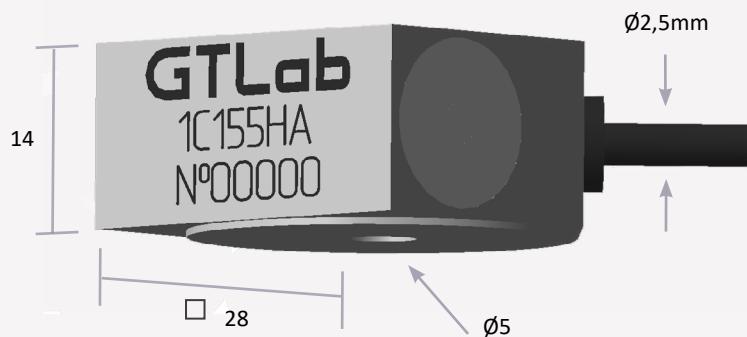
Parameter	1C152HA
Sensitivity ( $\pm 20\%$ )	0.2 pC/(m·s $^{-2}$ )
Transverse sensitivity	< 5 %
Measurement range	$\pm 30\,000$ m/s $^2$
Maximum shock limit (peak value)	$\pm 100\,000$ m/s $^2$
Temperature range	-60 ... +150 °C
Frequency range (uneven frequency response $\pm 1$ dB)	5 ... 20 000Hz
Resonant frequency	> 60 kHz
Electric capacity	600 ... 900 pF
Insulation resistance under normal conditions	> 10 000 MOhm
Housing material	titanium alloy
Weight (without cable)	3 g



› General purpose, three-component

› With charge output

Accelerometers

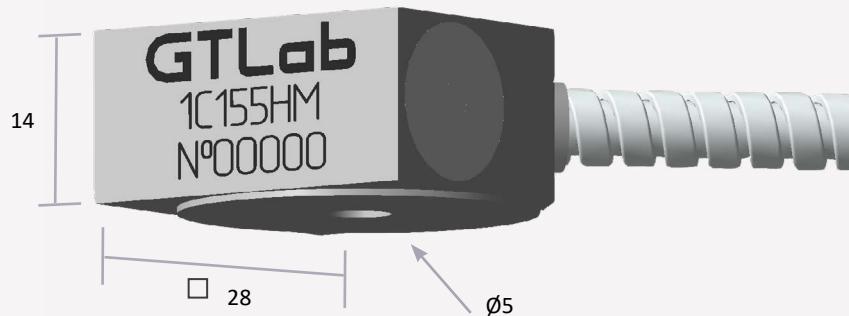
**Parameter**

Sensitivity ( $\pm 20\%$ )	<b>1C155HA</b>
Transverse sensitivity	0.1 pC/(m·s <sup>-2</sup> )
Measurement range	< 5 %
Maximum shock limit (peak value)	$\pm 10\,000\text{ m/s}^2$
Temperature range	$\pm 50\,000\text{ m/s}^2$
Frequency range (uneven frequency response $\pm 1\text{ dB}$ )	-60 ... +250 °C
Resonant frequency	0.5 ... 10 000Hz
Electric capacity	> 30 kHz
Insulation resistance under normal conditions	200 ... 300 pF
Housing material	> 10 000 MΩ
Weight (without cable)	titanium alloy
Supplied accessories	86 g

**1C155HA**

0.1 pC/(m·s <sup>-2</sup> )
< 5 %
$\pm 10\,000\text{ m/s}^2$
$\pm 50\,000\text{ m/s}^2$
-60 ... +250 °C
0.5 ... 10 000Hz
> 30 kHz
200 ... 300 pF
> 10 000 MΩ
titanium alloy
86 g
screw M5 × 20



**Parameter**

Sensitivity ( $\pm 20\%$ )	<b>1C155HM</b>
Transverse sensitivity	0.1 pC/(m·s <sup>-2</sup> )
Measurement range	< 5 %
Maximum shock limit (peak value)	$\pm 10\,000\text{ m/s}^2$
Temperature range	$\pm 50\,000\text{ m/s}^2$
Temperature range	-60 ... +250 °C
Frequency range (uneven frequency response $\pm 1\text{ dB}$ )	0.5 ... 10 000Hz
Resonant frequency	> 30 kHz
Electric capacity	200 ... 300 pF
Insulation resistance under normal conditions	> 10 000 MΩ
Housing material	stainless steel
Weight (without cable)	86 g
Supplied accessories	screw M5 × 20

General purpose, three-component

With charge output

Accelerometers





Parameter	1C201HA-2	1C201HA-5	1C201HA-10
Sensitivity ( $\pm 20\%$ )	0.2 pC/(m·s <sup>-2</sup> )	0.5 pC/m·s <sup>-2</sup>	1 pC/m·s <sup>-2</sup>
Transverse sensitivity	< 5 %		
Measurement range	$\pm 50\,000\text{ m/s}^2$	$\pm 30\,000\text{ m/s}^2$	$\pm 10\,000\text{ m/s}^2$
Maximum shock limit (peak value)	$\pm 50\,000\text{ m/s}^2$		
Temperature range	$-60 \dots +400\text{ }^\circ\text{C}$		
Frequency range (uneven frequency response $\pm 1\text{ dB}$ )	2 ... 12 000Hz	2 ... 10 000Hz	2 ... 8 000Hz
Resonant frequency	> 36 kHz	> 30 kHz	> 24 kHz
Electric capacity	500 ... 700 pF		
Insulation resistance under normal conditions	> 100 MΩ		
Housing material	stainless steel		
Explosion-proof	1Ex ib IIB T6...T1 Gb		
Weight (without cable)	100 g		
Supplied accessories	3 screws DIN 404 M4*12 A2		



**Parameter**Sensitivity ( $\pm 20\%$ )**1C202HA-2****1C202HA-5****1C202HA-10**

Transverse sensitivity

0.2 pC/(m·s<sup>-2</sup>)0.5 pC/(m·s<sup>-2</sup>)1 pC/(m·s<sup>-2</sup>)

Measurement range

&lt; 5 %

 $\pm 50\,000\text{ m/s}^2$  $\pm 30\,000\text{ m/s}^2$  $\pm 10\,000\text{ m/s}^2$ 

Maximum shock limit (peak value)

 $\pm 50\,000\text{ m/s}^2$ 

– 60 ... + 400 °C

Temperature range

Frequency range  
(uneven frequency response  $\pm 1\text{ dB}$ )

2 ... 12 000Hz

2 ... 10 000Hz

2 ... 8 000Hz

Resonant frequency

&gt; 36 kHz

&gt; 30 kHz

24 kHz

Electric capacity

500 ... 700 pF

Insulation resistance under normal conditions

&gt; 100 MΩ

Housing material

stainless steel

Weight (without cable)

120 g

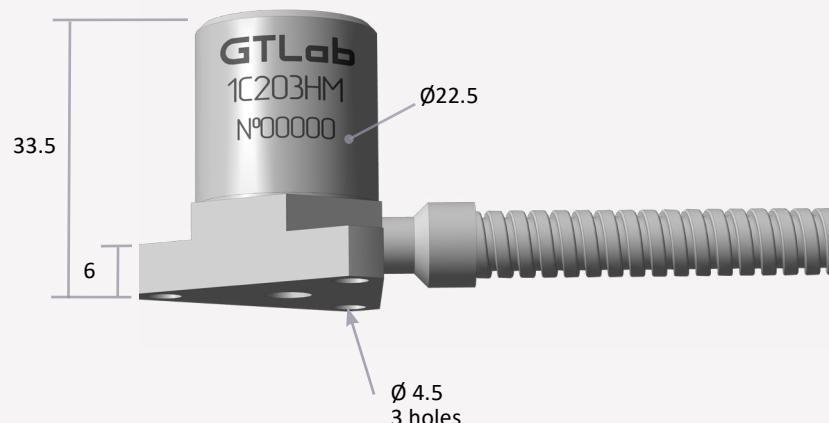
Explosion-proof

1Ex ib IIB T6...T1 Gb

Supplied accessories

4 screws DIN 404 M3\*16 A2





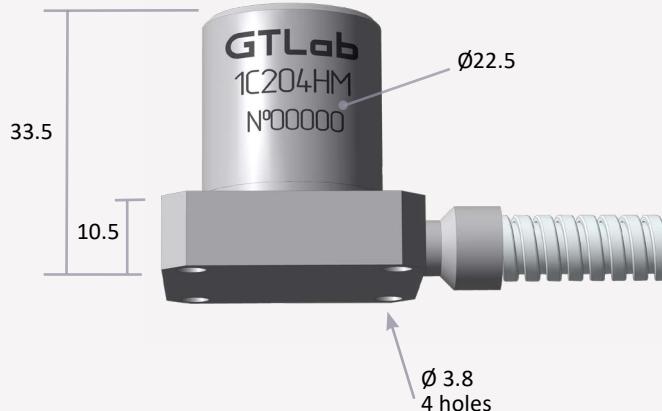
Parameter	1C203HM- 10	1C203HM- 20	1C203HM- 50	1C203HM- 100	1C203HM-250	1C203HM- 500
Sensitivity ( $\pm 20\%$ )	1 pC/(m·s $^{-2}$ )	2 pC/(m·s $^{-2}$ )	5 pC/(m·s $^{-2}$ )	10 pC/(m·s $^{-2}$ )	25 pC/(m·s $^{-2}$ )	50 pC/(m·s $^{-2}$ )
Transverse sensitivity	< 5 %					
Measurement range	$\pm 20\,000\text{ m/s}^2$	$\pm 15\,000\text{ m/s}^2$	$\pm 12\,000\text{ m/s}^2$	$\pm 10\,000\text{ m/s}^2$	$\pm 8\,000\text{ m/s}^2$	$\pm 5\,000\text{ m/s}^2$
Maximum shock limit (peak value)	$\pm 50\,000\text{ m/s}^2$				$\pm 20\,000\text{ m/s}^2$	$\pm 20\,000\text{ m/s}^2$
Temperature range	-60 ... +250 °C					
Frequency range (uneven frequency response $\pm 1\text{ dB}$ )	2 ... 12 000Hz		2 ... 10 000Hz	2 ... 8 000Hz	2 ... 6 000Hz	2 ... 5 000Hz
Resonant frequency	> 36 kHz		> 30 kHz	> 24 kHz	> 18 kHz	> 15 kHz
Electric capacity	900 ... 1500 pF					
Insulation resistance under normal conditions	> 1 000 MΩ					
Explosion-proof	1Ex ib IIB T6...T1 Gb					
Housing material	stainless steel					
Weight (without cable)	80 g	80 g	90 g	90 g	110 g	130 g
Supplied accessories	3 screws DIN 404 M4*12 A2					



Industrial

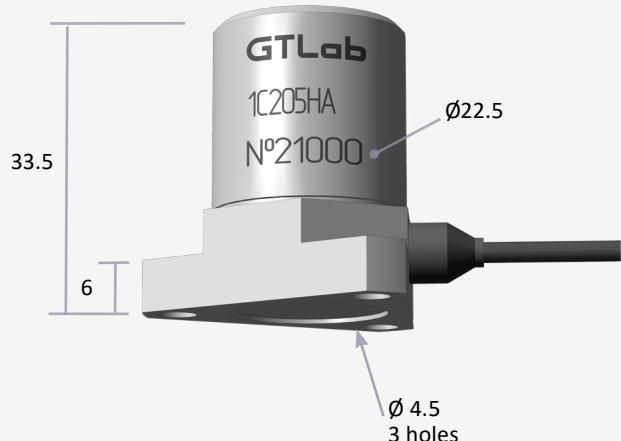
With charge output

Accelerometers



Parameter	1C204HM-10	1C204HM-20	1C204HM-50	1C204HM-100	1C204HM-250	1C204HM-500
Sensitivity ( $\pm 20\%$ )	1 pC/(m·s <sup>-2</sup> )	2 pC/(m·s <sup>-2</sup> )	5 pC/(m·s <sup>-2</sup> )	10 pC/(m·s <sup>-2</sup> )	25 pC/(m·s <sup>-2</sup> )	50 pC/(m·s <sup>-2</sup> )
Transverse sensitivity	< 5 %					
Measurement range	$\pm 20\,000\text{ m/s}^2$	$\pm 15\,000\text{ m/s}^2$	$\pm 12\,000\text{ m/s}^2$	$\pm 10\,000\text{ m/s}^2$	$\pm 8\,000\text{ m/s}^2$	$\pm 5\,000\text{ m/s}^2$
Maximum shock limit (peak value)	$\pm 50\,000\text{ m/s}^2$					
Temperature range	-60 ... +250 °C					
Frequency range (uneven frequency response $\pm 1\text{ dB}$ )	2 ... 12 000Hz		2 ... 10 000Hz	2 ... 8 000Hz	2 ... 6 000Hz	2 ... 5 000Hz
Resonant frequency	> 36 kHz		> 30 kHz	> 24 kHz	> 18 kHz	> 15 kHz
Electric capacity	5 000 ... 6 000 pF					
Insulation resistance under normal conditions	> 1000 MΩ					
Housing material	stainless steel					
Explosion-proof	1Ex ib IIB T6... T1 Gb					
Weight (without cable)	110 g	120 g	130 g	140 g	150 g	160 g
Supplied accessories	4 screws DIN 404 M3*16 A2					



**Parameter**Sensitivity ( $\pm 20\%$ )

Transverse sensitivity

Measurement range

Maximum shock limit (peak value)

Temperature range

Frequency range  
(uneven frequency response  $\pm 1 \text{ dB}$ )

Resonant frequency

Electric capacity

Insulation resistance under normal conditions

Housing material

Weight (without cable)

Supplied accessories

**1C205HA-2**0.2 pC/(m·s<sup>-2</sup>)**1C205HA-5**0.5 pC/(m·s<sup>-2</sup>)

&lt; 5 %

 $\pm 10\,000 \text{ m/s}^2$  $\pm 50\,000 \text{ m/s}^2$ 

– 60 ... + 600 °C

3 ... 3 000Hz

2 ... 1 500Hz

&gt; 8 kHz

&gt; 5 kHz

400 ... 800 pF

&gt; 100 MΩ

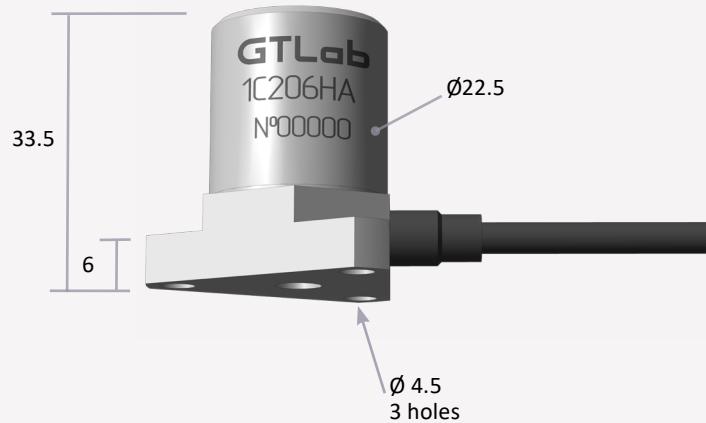
stainless steel

95 g

110 g

3 screws DIN 404 M4 \*12 A2



**Parameter**Sensitivity ( $\pm 20\%$ )**1C206HA**10 pC/(m·s<sup>-2</sup>)

Transverse sensitivity

&lt; 5 %

Measurement range

 $\pm 10\,000 \text{ m/s}^2$ 

Maximum shock limit (peak value)

 $\pm 50\,000 \text{ m/s}^2$ 

Temperature range

−60 ... +250 °C

Frequency range

2 ... 8 000Hz

(uneven frequency response  $\pm 1 \text{ dB}$ )

&gt; 24 kHz

Resonant frequency

5 000 ... 6 000 pF

Electric capacity

&gt; 1000 MΩ

Insulation resistance under normal conditions

stainless steel

Housing material

90 g

Weight (without cable)

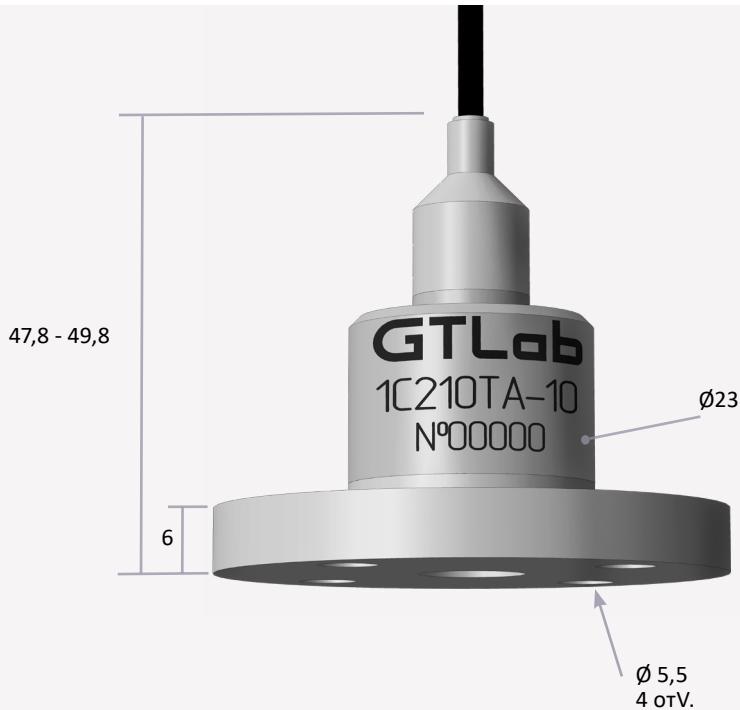
3 screws DIN 404 M4 \*12 A2

Industrial

With charge output

Accelerometers

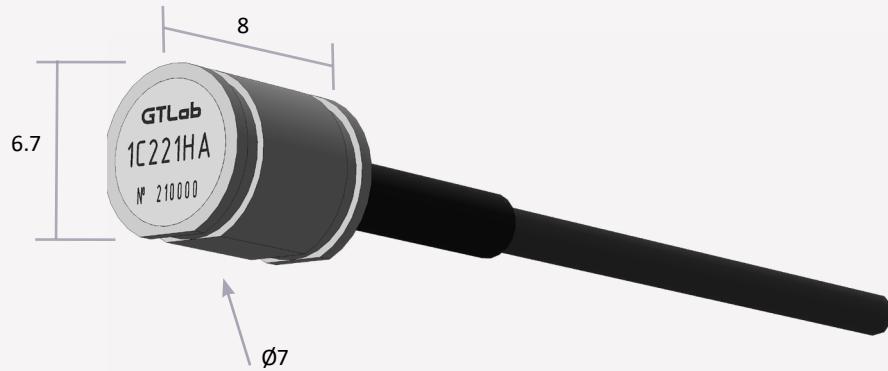




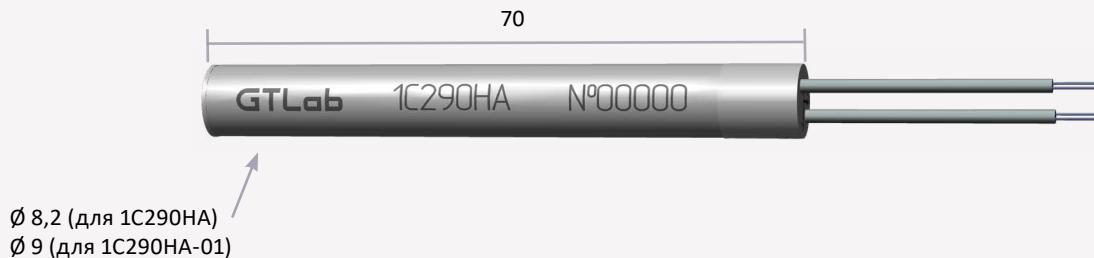
PARAMETER	1C210TA-2	1C210TA-5	1C210TA-10
Sensitivity ( $\pm 20\%$ )	0,2 pC/m·s <sup>2</sup>	0,5 pC/m·s <sup>2</sup>	1 pC/m·s <sup>2</sup>
Transverse sensitivity	< 5 %		
Measurement range	$\pm 50\,000 \text{ m/s}^2$	$\pm 30\,000 \text{ m/s}^2$	$\pm 10\,000 \text{ m/s}^2$
Measurement range	$\pm 50\,000 \text{ m/s}^2$		
Temperature range	-60 ... +400 °C		
Frequency range (uneven frequency response $\pm 1 \text{ dB}$ )	2 ... 12 000 Hz	2 ... 10 000 Hz	2 ... 8 000 Hz
Resonant frequency	> 36 kHz	> 30 kHz	> 24 kHz
Electric capacity (without cable)	500 ... 700 pF		
Insulation resistance under normal conditions	> 100 MΩ		
Housing material	stainless steel		
Explosion-proofness	1Ex ib IIB T6...T1 Gb		
Weight (without cable)	100 g	110 g	120 g
Supplied accessories	4 screws DIN 404 M5 × 12 A2		

	1C210TA-2	1C210TA-5	1C210TA-10
Sensitivity ( $\pm 20\%$ )	0,2 pC/m·s <sup>2</sup>	0,5 pC/m·s <sup>2</sup>	1 pC/m·s <sup>2</sup>
Transverse sensitivity	< 5 %		
Measurement range	$\pm 50\,000 \text{ m/s}^2$	$\pm 30\,000 \text{ m/s}^2$	$\pm 10\,000 \text{ m/s}^2$
Measurement range	$\pm 50\,000 \text{ m/s}^2$		
Temperature range	-60 ... +400 °C		
Frequency range (uneven frequency response $\pm 1 \text{ dB}$ )	2 ... 12 000 Hz	2 ... 10 000 Hz	2 ... 8 000 Hz
Resonant frequency	> 36 kHz	> 30 kHz	> 24 kHz
Electric capacity (without cable)	500 ... 700 pF		
Insulation resistance under normal conditions	> 100 MΩ		
Housing material	stainless steel		
Explosion-proofness	1Ex ib IIB T6...T1 Gb		
Weight (without cable)	100 g	110 g	120 g
Supplied accessories	4 screws DIN 404 M5 × 12 A2		



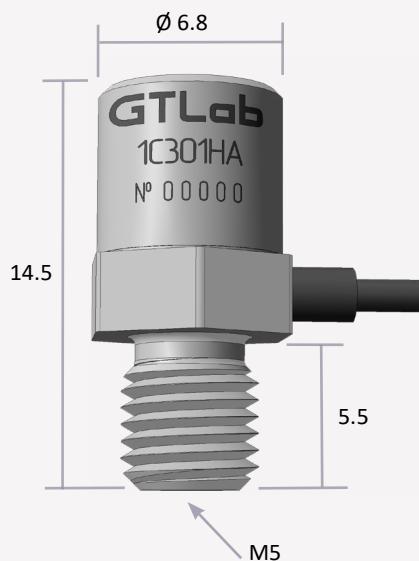


Parameter	1C221HA
Sensitivity ( $\pm 20\%$ )	0.2 pC/(m·s $^{-2}$ )
Transverse sensitivity	< 5 %
Measurement range	$\pm 10\,000 \text{ m/s}^2$
Maximum shock limit (peak value)	$\pm 50\,000 \text{ m/s}^2$
Temperature range	-60 ... +300 °C
Frequency range (uneven frequency response $\pm 1 \text{ dB}$ )	5 ... 10 000 Hz
Resonant frequency	> 30 kHz
Electric capacity	500 ... 900 pF
Insulation resistance under normal conditions	> 100 MΩ
Housing material	stainless steel
Weight (without cable)	2.5 g

**PARAMETER**

	1C290HA 1C290HA-01
Sensitivity ( $\pm 30\%$ )	0,5 pC/(m·s $^{-2}$ )
Transverse sensitivity	< 15 %
Measurement range	$\pm 50 \text{ m/s}^2$
Measurement range	$\pm 200 \text{ m/s}^2$
Temperature range	-60 ... +600 °C
Frequency range (uneven frequency response $\pm 3 \text{ dB}$ )	5 ... 500 Hz
Resonant frequency	> 1,5 kHz
Electric capacity	1,5 ... 2,0 pF
Insulation resistance under normal conditions	> 1 000 MΩ
Housing material	stainless steel
Weight (without cable)	16 g



**Parameter**

Sensitivity ( $\pm 30\%$ )	<b>1C301HA</b>
Transverse sensitivity	0.0025 pC/(m·s $^{-2}$ )
Measurement range	< 5 %
Maximum shock limit (peak value)	$\pm 1\,000\,000\text{ m/s}^2$
Temperature range	$\pm 1\,500\,000\text{ m/s}^2$
Frequency range (uneven frequency response) $\pm 1\text{ dB}$	-60 ... +200 °C
Resonant frequency	20 ... 50 000Hz
Electric capacity	> 150 kHz
Insulation resistance under normal conditions	200 ... 300 pF
Ambient temperature effect coefficient	> 10 000 MΩ
Housing material	< 0,02 %/ °C
Weight (without cable)	stainless steel
	2.6 g

**1C301HA**

Sensitivity ( $\pm 30\%$ )	0.0025 pC/(m·s $^{-2}$ )
Transverse sensitivity	< 5 %
Measurement range	$\pm 1\,000\,000\text{ m/s}^2$
Maximum shock limit (peak value)	$\pm 1\,500\,000\text{ m/s}^2$
Temperature range	-60 ... +200 °C
Frequency range (uneven frequency response) $\pm 1\text{ dB}$	20 ... 50 000Hz
Resonant frequency	> 150 kHz
Electric capacity	200 ... 300 pF
Insulation resistance under normal conditions	> 10 000 MΩ
Ambient temperature effect coefficient	< 0,02 %/ °C
Housing material	stainless steel
Weight (without cable)	2.6 g

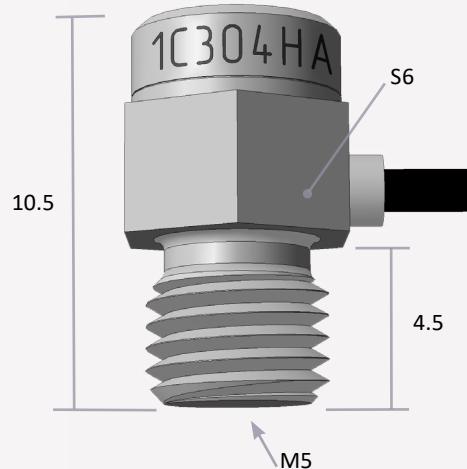


**Parameter**

Sensitivity ( $\pm 30\%$ )	<b>1C302HA</b>
Transverse sensitivity	0.02 pC/(m·s $^{-2}$ )
Measurement range	< 5 %
Maximum shock limit (peak value)	$\pm 200\,000\text{ m/s}^2$
Temperature range	$\pm 500\,000\text{ m/s}^2$
Frequency range (uneven frequency response) $\pm 1\text{ dB}$	-60 ... +150 °C
Resonant frequency	20 ... 30 000Hz
Electric capacity	> 90 kHz
Insulation resistance under normal conditions	400 ... 500 pF
Housing material	> 1 000 MΩ
Weight (without cable)	stainless steel
	0.15 g

**Parameter**

	<b>1C303HA</b>	<b>1C303HA-01</b>
Sensitivity ( $\pm 30\%$ )	0.2 pC/(m·s $^{-2}$ )	
Transverse sensitivity	< 3 %	
Measurement range	$\pm 100\,000\text{ m/s}^2$	
Maximum shock limit (peak value)	$\pm 200\,000\text{ m/s}^2$	
Temperature range	-60 ... +150 °C	
Frequency range (uneven frequency response) $\pm 1\text{ dB}$	5 ... 20 000Hz	
Resonant frequency	> 60 kHz	
Electric capacity	600 ... 800 pF	
Insulation resistance under normal conditions	> 10 000 MOhm	
Housing material	stainless steel	titanium alloy
Weight (without cable)	1.2 g	0.9 g

**Parameter**Sensitivity ( $\pm 30\%$ )

Transverse sensitivity

Measurement range

Maximum shock limit (peak value)

Temperature range

Frequency range  
(uneven frequency response)  $\pm 1 \text{ dB}$ 

Resonant frequency

Electric capacity

Insulation resistance under normal conditions

Housing material

Weight (without cable)

**1C304HA**0.1 pC/(m·s<sup>-2</sup>)

&lt; 3 %

 $\pm 150\,000 \text{ m/s}^2$  $\pm 500\,000 \text{ m/s}^2$ 

−60 ... +150 °C

5 ... 23 000 Hz

&gt; 70 kHz

600 ... 800 pF

&gt; 10 000 MΩ

stainless steel

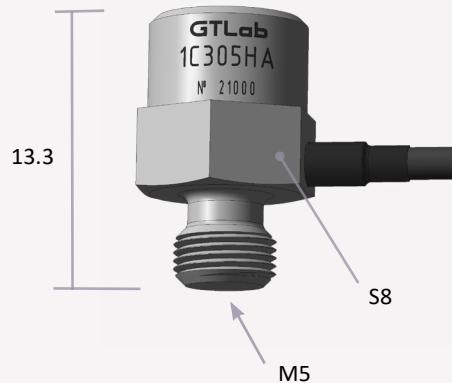
titanium alloy alloy

1.4 g

**1C304HA-01**

1.1 g



**Parameter**Sensitivity ( $\pm 30\%$ )**1C305HA**0.2 pC/(m·s<sup>-2</sup>)

Transverse sensitivity

&lt; 5 %

Measurement range

 $\pm 100\,000 \text{ m/s}^2$ 

Maximum shock limit (peak value)

 $\pm 200\,000 \text{ m/s}^2$ 

Temperature range

−60 ... +150 °C

Frequency range  
(uneven frequency response)  $\pm 1 \text{ dB}$ 

3 ... 20 000 Hz

Resonant frequency

&gt; 60 kHz

Electric capacity

650 ... 850 pF

Insulation resistance under normal conditions

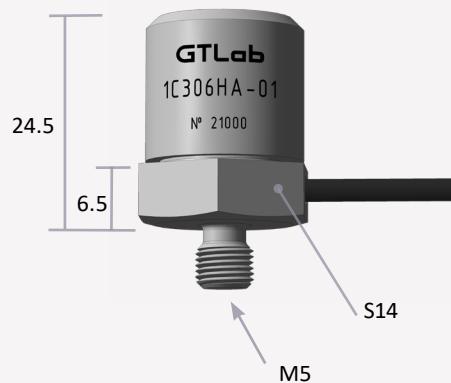
&gt; 10 000 MΩ

Housing material

stainless steel

Weight (without cable)

3.5 g

**Parameter**Sensitivity ( $\pm 30\%$ )

Transverse sensitivity

Measurement range

Maximum shock limit (peak value)

Temperature range

Frequency range  
(uneven frequency response)  $\pm 1 \text{ dB}$ 

Resonant frequency

Electric capacity

Insulation resistance under normal conditions

Housing material

Weight (without cable)

**1C306HA**0.03 pC/(m·s<sup>-2</sup>)

&lt; 5 %

 $\pm 1\,000\,000 \text{ m/s}^2$  $\pm 1\,500\,000 \text{ m/s}^2$ 

– 60 ... + 200 °C

2 ... 20 000 Hz

&gt; 60 kHz

200 ... 300 pF

&gt; 10 000 MΩ

stainless steel

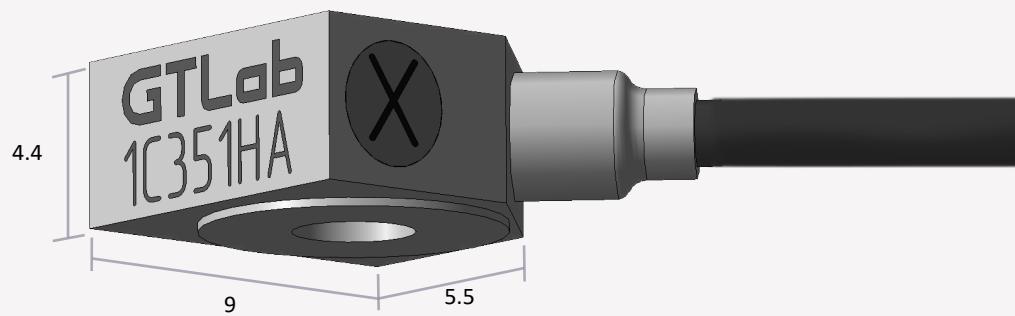
22 g

**1C306HA-01**

titanium alloy alloy

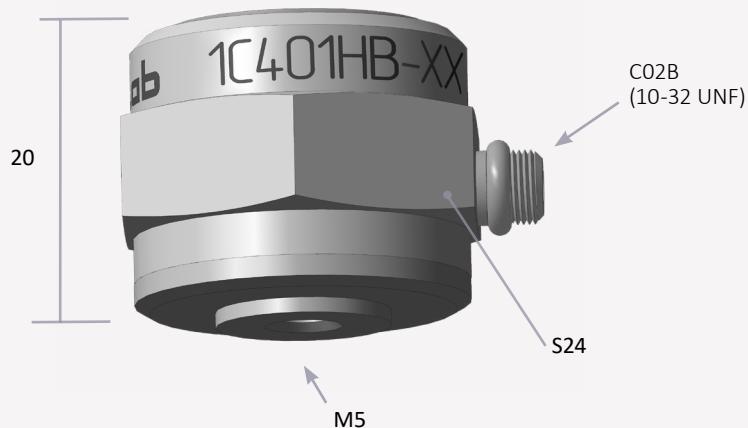
13 g



**Parameter**

	<b>1C351HA</b>
Sensitivity ( $\pm 30\%$ )	0.02 pC/(m·s $^{-2}$ )
Transverse sensitivity	< 5 %
Measurement range	$\pm 200\,000 \text{ m/s}^2$
Maximum shock limit (peak value)	$\pm 400\,000 \text{ m/s}^2$
Temperature range	-60 ... +150 °C
Frequency range (uneven frequency response) $\pm 1 \text{ dB}$	20 ... 30 000Hz
Resonant frequency	> 90 kHz
Electric capacity	400 ... 500 pF
Insulation resistance under normal conditions	> 1 000 MΩ
Housing material	stainless steel
Weight (without cable)	2.3 g
Supplied accessories	screw ISO 7380 M3 × 8



**Parameter**

Sensitivity ( $\pm 30\%$ )	1C401HB-200	1C401HB-300
20 pC/(m·s <sup>-2</sup> )	20 pC/(m·s <sup>-2</sup> )	30 pC/(m·s <sup>-2</sup> )
Transverse sensitivity	< 10 %	
Measurement range	$\pm 4\,000\text{ m/s}^2$	
Maximum shock limit (peak value)	$\pm 60\,000\text{ m/s}^2$	
Temperature range	$-60 \dots +150\text{ }^\circ\text{C}$	$-60 \dots +100\text{ }^\circ\text{C}$
Frequency range (uneven frequency response) $\pm 1\text{ dB}$ )	0.1 ... 3 000 Hz	
Resonant frequency	> 10 kHz	
Deformation sensitivity	< 0.001 m/s <sup>2</sup> / 10 <sup>-6</sup>	
Electric capacity	1 500 ... 2 000 pF	3 000 ... 4 000 pF
Insulation resistance under normal conditions	> 10 000 MΩ	
Ambient temperature effect coefficient	$\pm 0,2\text{ }%/^\circ\text{C}$	
Housing material	stainless steel	
Weight (without cable)	40 g	
Supplied accessories	cable 03B1B1 (as per customer's request) pin P0505	

**1C401HB-300**30 pC/(m·s<sup>-2</sup>)

**Parameter****Sensitivity ( $\pm 30\%$ )****1C402HB-500****1C402HB-1000**

Transverse sensitivity

50 pC/(m·s<sup>-2</sup>)100 pC/(m·s<sup>-2</sup>)

Measurement range

&lt; 10 %

Maximum shock limit (peak value)

 $\pm 3\ 000\ m/s^2$  $\pm 40\ 000\ m/s^2$ 

Temperature range

 $-60 \dots +150\ ^\circ C$  $-60 \dots +100\ ^\circ C$ Frequency range  
(uneven frequency response)  $\pm 1\ dB$ 

0.1 ... 3 000 Hz

&gt; 10 kHz

Resonant frequency

< 0.001 m/s<sup>2</sup> /10<sup>-6</sup>

Deformation sensitivity

3 000 ... 4 000 pF

6 000 ... 8 000 pF

Electric capacity

&gt; 10 000 MOhm

Insulation resistance under normal conditions

 $\pm 0.2\ %/\ ^\circ C$ 

Ambient temperature effect coefficient

stainless steel

Housing material

60 g

Weight (without cable)

cable 03B1B1 (as per customer's request) pin P0505

**Parameter**Sensitivity ( $\pm 20\%$ )

Transverse sensitivity

Measurement range

Maximum shock limit (peak value)

Temperature range

Frequency range  
(uneven frequency response)  $\pm 1 \text{ dB}$ 

Resonant frequency

Electric capacity

Insulation resistance under normal conditions

Underwater measurements to depth

Housing material

Weight (without cable)

Supplied accessories

**1C702TA**10 pC/(m·s<sup>-2</sup>)

&lt; 5%

 $\pm 15\,000 \text{ m/s}^2$  $\pm 50\,000 \text{ m/s}^2$ 

−60 ... +150 °C

1 ... 6 000 Hz

&gt; 15 kHz

1 000 ... 1 500 pF

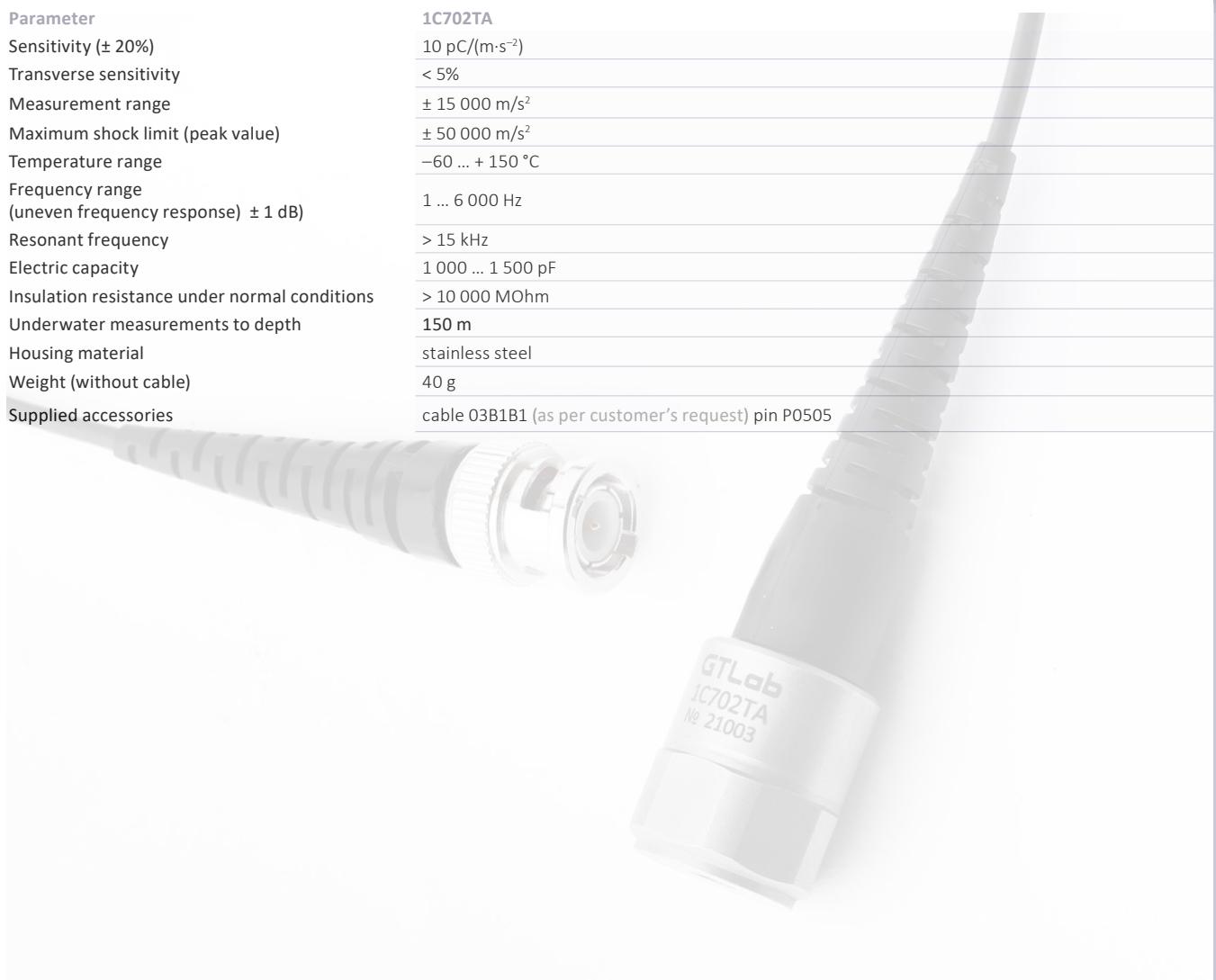
&gt; 10 000 MΩ

150 m

stainless steel

40 g

cable 03B1B1 (as per customer's request) pin P0505



**Parameter****Sensitivity****Transverse sensitivity****Measurement range****Maximum shock limit (peak value)****Temperature range****Frequency range:**

- uneven frequency response  $\pm 3$  dB
- uneven frequency response  $\pm 1$  dB
- uneven frequency response  $\pm 5\%$

**1V001HB-100**10 mV/(m·s<sup>-2</sup>)

&lt; 3 %

 $\pm 500$  m/s<sup>2</sup> $\pm 50\,000$  m/s<sup>2</sup>

– 55 ... + 125 °C

0.3 ... 18 000Hz

0.5 ... 12 000Hz

1 ... 7 000Hz

&gt; 36 kHz

< 0.002 m/s<sup>2</sup>

&lt; 100 Ohm

**Power:**

- voltage
- current

+ (18 ... 30) V

2 ... 20 mA

8 ... 13 V

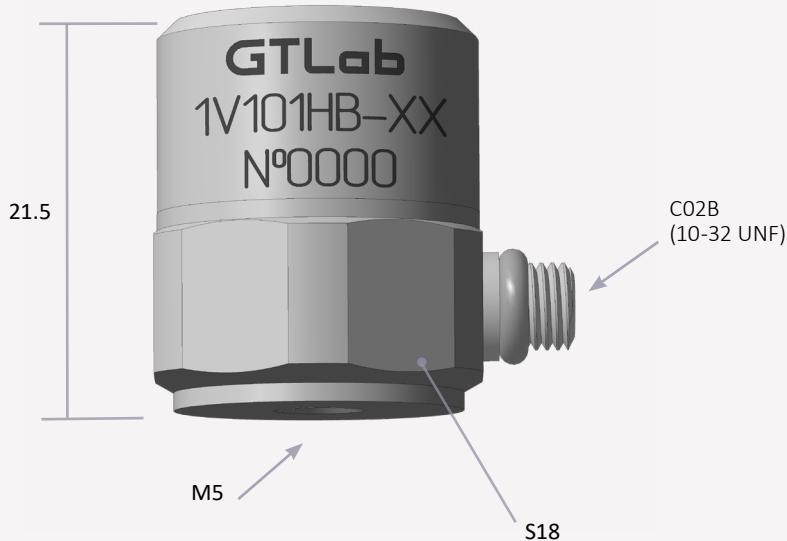
 $\pm 0,03$  %/°C

4 s

stainless steel

85 g

cable 03B1D1 (as per customer's request)  
pin P0505**General purpose****> With voltage output****With voltage output****Accelerometers**



Parameter	1V101HB-100	1V101HB-500	1V101HB-1000
Sensitivity	10 mV/(m·s <sup>-2</sup> )	50 mV/(m·s <sup>-2</sup> )	100 mV/(m·s <sup>-2</sup> )
Transverse sensitivity	< 5 %		
Measurement range	± 500 m/s <sup>2</sup>	± 100 m/s <sup>2</sup>	± 50 m/s <sup>2</sup>
Maximum shock limit (peak value)	± 25 000 m/s <sup>2</sup>		
Temperature range	– 55 ... + 125 °C		
Frequency range:			
▪ uneven frequency response ± 3 dB	0.2 ... 12 000Hz		
▪ uneven frequency response ± 1 dB	0.5 ... 6 300Hz		
▪ uneven frequency response ± 5 %	1 ... 4 800Hz		
Resonant frequency	> 20 kHz		
Noise level, root mean square value (1 Hz ÷ 10 kHz)	< 0.0005 m/s <sup>2</sup>	0.0004 m/s <sup>2</sup>	0.0003 m/s <sup>2</sup>
Output impedance	< 100 Ohm		
Power:			
▪ voltage	+ (18 ... 30) V		
▪ current	2 ... 20 mA		
Constant output voltage level	8 ... 13 V		
Ambient temperature effect coefficient	± 0,2 %/°C		
Run mode setting time	4 s		
Housing material	stainless steel		
Weight (without cable)	42 g		
Supplied accessories	cable O3B1D1 (as per customer's request) pin P0505		



**Parameter****Sensitivity****Transverse sensitivity****Measurement range****Maximum shock limit (peak value)****Temperature range****Frequency range:**

- uneven frequency response  $\pm 3$  dB
- uneven frequency response  $\pm 1$  dB
- uneven frequency response  $\pm 5\%$

**Resonant frequency****Noise level, root mean square value  
(1 Hz ÷ 10 kHz)****Output impedance****Power:**

- voltage
- current

**Constant output voltage level****Ambient temperature effect coefficient****Run mode setting time****Housing material****Weight (without cable)****Supplied accessories****1V101TA-100**10 mV/(m·s<sup>-2</sup>)**1V101TA-500**50 mV/(m·s<sup>-2</sup>)**1V101TA-1000**100 mV/(m·s<sup>-2</sup>)

&lt; 5 %

 $\pm 500$  m/s<sup>2</sup> $\pm 25\ 000$  m/s<sup>2</sup>

– 55 ... + 125 °C

0.5 ... 8 000Hz

1 ... 5 000Hz

2 ... 3 000Hz

&gt; 15 kHz

< 0.0005 m/s<sup>2</sup>0.0004 m/s<sup>2</sup>0.0003 m/s<sup>2</sup>

&lt; 100 Ohm

+ (18 ... 30) V

2 ... 20 mA

8 ... 13 V

 $\pm 0.2\ %/^\circ\text{C}$ 

4 s

stainless steel

42 g

pin P0505



**Parameter**

Sensitivity

Transverse sensitivity

Measurement range

Maximum shock limit (peak value)

Temperature range

Frequency range:

- uneven frequency response  $\pm 3$  dB
- uneven frequency response  $\pm 1$  dB
- uneven frequency response  $\pm 5\%$

Resonant frequency

Noise level, root mean square value  
(1 Hz ÷ 10 kHz)

Output impedance

Power:

- voltage
- current

Constant output voltage level

Ambient temperature effect coefficient

Run mode setting time

Housing material

Weight (without cable)

Supplied accessories

**1V101TB-100**10 mV/(m·s<sup>-2</sup>)

&lt; 5 %

 $\pm 500$  m/s<sup>2</sup> $\pm 25\,000$  m/s<sup>2</sup>

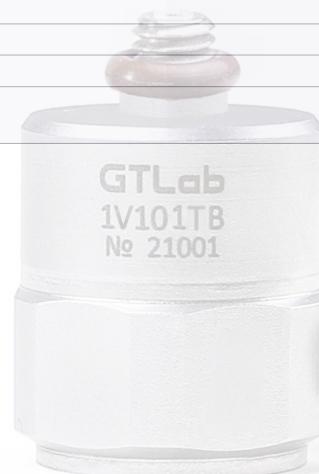
– 55 ... + 125 °C

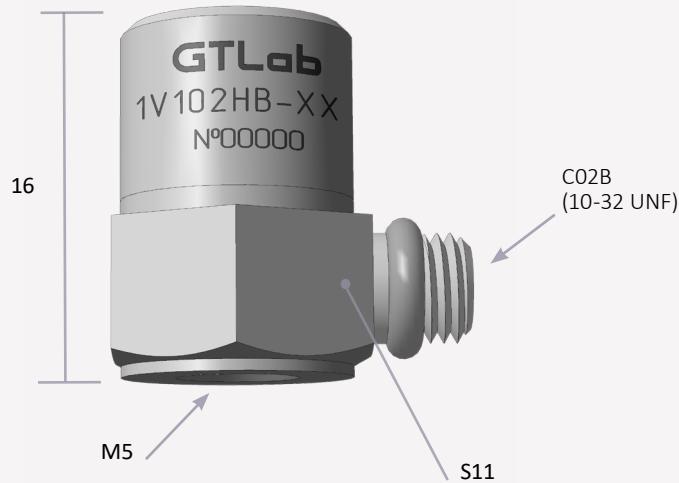
0.2 ... 12 000Hz

0.5 ... 6 300Hz

1 ... 4 800Hz

&gt; 20 kHz

< 0.0005 m/s<sup>2</sup>**1V101TB-500**50 mV/(m·s<sup>-2</sup>) $\pm 100$  m/s<sup>2</sup> $\pm 50$  m/s<sup>2</sup>0.0004 m/s<sup>2</sup>**1V101TB-1000**100 mV/(m·s<sup>-2</sup>)0.0003 m/s<sup>2</sup>



Parameter	1V102HB-1	1V102HB-2	1V102HB-5	1V102HB-10	1V102HB-100	1V102HB-500
Sensitivity	0.1 mV/(m·s <sup>-2</sup> )	0.2 mV/(m·s <sup>-2</sup> )	0.5 mV/(m·s <sup>-2</sup> )	1 mV/(m·s <sup>-2</sup> )	10 mV/(m·s <sup>-2</sup> )	50 mV/(m·s <sup>-2</sup> )
Transverse sensitivity	< 5 %					
Measurement range	± 50 000 m/s <sup>2</sup>	± 25 000 m/s <sup>2</sup>	± 10 000 m/s <sup>2</sup>	± 5 000 m/s <sup>2</sup>	± 500 m/s <sup>2</sup>	± 100 m/s <sup>2</sup>
Maximum shock limit (peak value)	± 100 000 m/s <sup>2</sup>					
Temperature range	– 55 ... + 125 °C					
Frequency range:						
▪ uneven frequency response ± 3 dB	3 ... 30 000Hz		0.2 ... 24 000Hz			
▪ uneven frequency response ± 1 dB	5 ... 23 000Hz		0.5 ... 16 000Hz			
▪ uneven frequency response ± 5 %	10 ... 14 000Hz		1 ... 10 000Hz			
Resonant frequency	> 70 kHz		> 50 kHz			
Noise level, root mean square value (1 Hz ÷ 10 kHz)	< 0.05 m/s <sup>2</sup>	< 0.03 m/s <sup>2</sup>	< 0.01 m/s <sup>2</sup>	< 0.005 m/s <sup>2</sup>	0.0035 m/s <sup>2</sup>	< 0.002 m/s <sup>2</sup>
Output impedance	< 100 Ohm					
Power:						
▪ voltage	+ (18 ... 30) V					
▪ current	2 ... 20 mA					
Constant output voltage level	8 ... 13 V					
Ambient temperature effect coefficient	± 0.2 %/°C					
Run mode setting time	4 s					
Housing material	stainless steel					
Weight (without cable)	13 g					
Supplied accessories	cable 03B1D1 (as per customer's request) pin P0505					

&gt; General purpose

&gt; With voltage output

Accelerometers

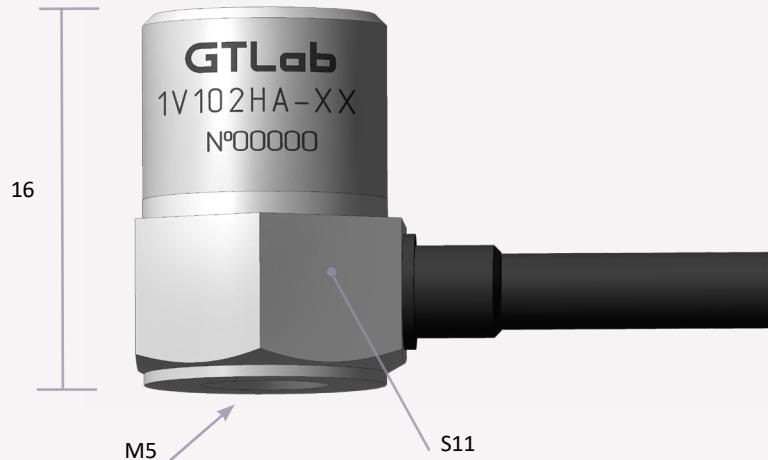




Parameter	1V102TB-1	1V102TB-2	1V102TB-5	1V102TB-10	1V102TB-100	1V102TB-500
Sensitivity	0.1 mV/(m·s <sup>-2</sup> )	0.2 mV/(m·s <sup>-2</sup> )	0.5 mV/(m·s <sup>-2</sup> )	1 mV/(m·s <sup>-2</sup> )	10 mV/(m·s <sup>-2</sup> )	50 mV/(m·s <sup>-2</sup> )
Transverse sensitivity	< 5 %					
Measurement range	± 50 000 m/s <sup>2</sup>	± 25 000 m/s <sup>2</sup>	± 10 000 m/s <sup>2</sup>	± 5 000 m/s <sup>2</sup>	± 500 m/s <sup>2</sup>	± 100 m/s <sup>2</sup>
Maximum shock limit (peak value)	± 100 000 m/s <sup>2</sup>					
Temperature range	– 55 ... + 125 °C					
Frequency range:						
▪ uneven frequency response ± 3 dB	3 ... 30 000Hz		0.2 ... 24 000Hz			
▪ uneven frequency response ± 1 dB	5 ... 23 000Hz		0.5 ... 16 000Hz			
▪ uneven frequency response ± 5 %	10 ... 14 000Hz		1 ... 10 000Hz			
Resonant frequency	> 70 kHz		> 50 kHz			
Noise level, root mean square value (1 Hz ÷ 10 kHz)	< 0.05 m/s <sup>2</sup>	< 0.03 m/s <sup>2</sup>	< 0.01 m/s <sup>2</sup>	< 0.005 m/s <sup>2</sup>	0.0035 m/s <sup>2</sup>	< 0.002 m/s <sup>2</sup>
Output impedance	< 100 Ohm					
Power:						
▪ voltage	+ (18 ... 30) V					
▪ current	2 ... 20 mA					
Constant output voltage level	8 ... 13 V					
Ambient temperature effect coefficient	± 0.2 %/°C					
Run mode setting time	4 s					
Housing material	stainless steel					
Weight (without cable)	13 g					
Supplied accessories	cable 03B1D1 (as per customer's request) pin P0505					

General purpose  
With voltage output

Accelerometers  
With voltage output



Parameter	1V102HA-1	1V102HA-2	1V102HA-5	1V102HA-10	1V102HA-100	1V102HA-500
Sensitivity	0,1 mV/(m·s <sup>-2</sup> )	0,2 mV/(m·s <sup>-2</sup> )	0,5 mV/(m·s <sup>-2</sup> )	1 mV/(m·s <sup>-2</sup> )	10 mV/(m·s <sup>-2</sup> )	50 mV/(m·s <sup>-2</sup> )
Transverse sensitivity	< 5 %					
Measurement range	± 50 000 m/s <sup>2</sup>	± 25 000 m/s <sup>2</sup>	± 10 000 m/s <sup>2</sup>	± 5 000 m/s <sup>2</sup>	± 500 m/s <sup>2</sup>	± 100 m/s <sup>2</sup>
Maximum shock limit (peak value)	± 100 000 m/s <sup>2</sup>					
Temperature range	– 55 ... + 125 °C					
Frequency range:			0.2 ... 24 000Hz			
▪ uneven frequency response ± 3 dB	3 ... 30 000Hz		0.5 ... 16 000Hz			
▪ uneven frequency response ± 1 dB	5 ... 23 000Hz		1 ... 10 000Hz			
▪ uneven frequency response ± 5%	10 ... 14 000Hz					
Resonant frequency	> 70 kHz		> 50 kHz			
Noise level, root mean square value (1 Hz ÷ 10 kHz)	< 0.05 m/s <sup>2</sup>	< 0.03 m/s <sup>2</sup>	< 0.01 m/s <sup>2</sup>	< 0.005 m/s <sup>2</sup>	< 0.0035 m/s <sup>2</sup>	< 0.002 m/s <sup>2</sup>
Output impedance	< 100 Ohm					
Power:						
▪ voltage	+ (18 ... 30) V					
▪ current	2 ... 20 mA					
Constant output voltage level	8 ... 13 V					
Ambient temperature effect coefficient	± 0.2 %/°C					
Run mode setting time	4 s					
Housing material	stainless steel (titanium alloy alloy) as per customer's request					
Weight (without cable)	13 g					
Supplied accessories	pin P0505					





Parameter	1V103TB-1	1V103TB-10	1V103TB-100
Sensitivity	0.1 mV/(m·s <sup>-2</sup> )	1 mV/(m·s <sup>-2</sup> )	10 mV/(m·s <sup>-2</sup> )
Transverse sensitivity	< 5 %		
Measurement range	± 50 000 m/s <sup>2</sup>	± 5 000 m/s <sup>2</sup>	± 500 m/s <sup>2</sup>
Maximum shock limit (peak value)	± 100 000 m/s <sup>2</sup>		
Temperature range	– 55 ... + 125 °C		
Frequency range:			
▪ uneven frequency response ± 3 dB	3 ... 27 000Hz	2 ... 22 000Hz	
▪ uneven frequency response ± 1 dB	5 ... 18 000Hz	5 ... 15 000Hz	
▪ uneven frequency response ± 5 %	10 ... 11 000Hz	10 ... 9 000Hz	
Resonant frequency	> 55 kHz	> 45 kHz	
Noise level, root mean square value (1 Hz ÷ 10 kHz)	< 0.03 m/s <sup>2</sup>	< 0.01m/s <sup>2</sup>	< 0.005 m/s <sup>2</sup>
Output impedance	< 100 Ohm		
Power:			
▪ voltage	+ (18 ... 30) V		
▪ current	2 ... 20 mA		
Constant output voltage level	8 ... 13 V		
Ambient temperature effect coefficient	± 0.2 %/°C		
Run mode setting time	4 s		
Housing material	titanium alloy		
Weight (without cable)	2 g	2,5 g	
Supplied accessories	cable 02B1D1 (As per customer's request)		

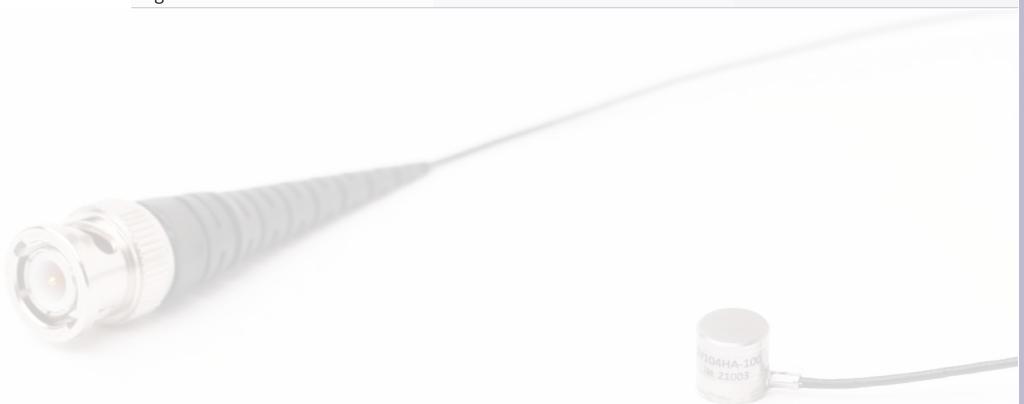
Accelerometers   > With voltage output   > General purpose

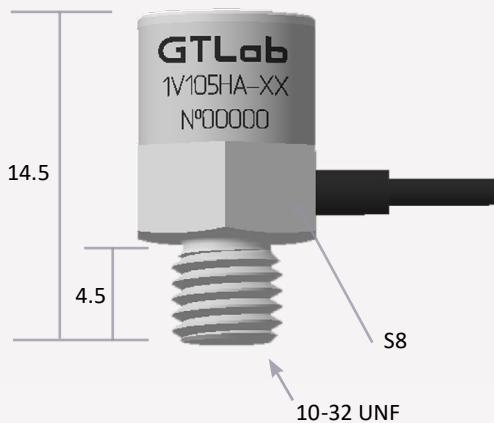


Parameter	1V103TA-1	1V103TA-10	1V103TA-100
Sensitivity	0.1 mV/(m·s <sup>-2</sup> )	1 mV/(m·s <sup>-2</sup> )	10 mV/(m·s <sup>-2</sup> )
Transverse sensitivity	< 5 %		
Measurement range	± 50 000 m/s <sup>2</sup>	± 5 000 m/s <sup>2</sup>	± 500 m/s <sup>2</sup>
Maximum shock limit (peak value)	± 100 000 m/s <sup>2</sup>		
Temperature range	– 55 ... + 125 °C		
Frequency range:			
▪ uneven frequency response ± 3 dB	3 ... 27 000Hz	2 ... 22 000Hz	
▪ uneven frequency response ± 1 dB	5 ... 18 000Hz	5 ... 15 000Hz	
▪ uneven frequency response ± 5 %	10 ... 11 000Hz	10 ... 9 000Hz	
Resonant frequency	> 55 kHz	> 45 kHz	
Noise level, root mean square value (1 Hz ÷ 10 kHz)	< 0.03 m/s <sup>2</sup>	< 0.01 m/s <sup>2</sup>	< 0.005 m/s <sup>2</sup>
Output impedance	< 100 Ohm		
Power:			
▪ voltage	+ (18 ... 30) V		
▪ current	2 ... 20 mA		
Constant output voltage level	8 ... 13 V		
Ambient temperature effect coefficient	± 0.2 %/°C		
Run mode setting time	4 s		
Housing material	titanium alloy alloy		
Weight (without cable)	2 g	2,5 g	



Parameter	1V104HA-1	1V104HA-10	1V104HA-100
Sensitivity	0.1 mV/(m·s <sup>-2</sup> )	1 mV/(m·s <sup>-2</sup> )	10 mV/(m·s <sup>-2</sup> )
Transverse sensitivity	< 5 %		
Measurement range	± 50 000 m/s <sup>2</sup>	± 5 000 m/s <sup>2</sup>	± 500 m/s <sup>2</sup>
Maximum shock limit (peak value)	± 100 000 m/s <sup>2</sup>		
Temperature range	– 55 ... + 125 °C		
Frequency range:			
▪ uneven frequency response ± 3 dB	3 ... 27 000Hz	2 ... 22 000Hz	
▪ uneven frequency response ± 1 dB	5 ... 18 000Hz	5 ... 15 000Hz	
▪ uneven frequency response ± 5 %	10 ... 11 000Hz	10 ... 9 000Hz	
Resonant frequency	> 55 kHz	> 45 kHz	
Noise level, root mean square value (1 Hz ÷ 10 kHz)	< 0.03 m/s <sup>2</sup>	< 0.02 m/s <sup>2</sup>	< 0.01 m/s <sup>2</sup>
Output impedance	< 100 Ohm		
Power:			
▪ voltage	+ (18 ... 30) V		
▪ current	2 ... 20 mA		
Constant output voltage level	8 ... 13 V		
Ambient temperature effect coefficient	± 0.2 %/°C		
Run mode setting time	4 s		
Housing material	titanium alloy		
Weight (without cable)	2 g		





Parameter	1V105HA-1	1V105HA-10	1V105HA-100
Sensitivity	0.1 mV/(m·s <sup>-2</sup> )	1 mV/(m·s <sup>-2</sup> )	10 mV/(m·s <sup>-2</sup> )
Transverse sensitivity	< 5 %		
Measurement range	± 50 000 m/s <sup>2</sup>	± 5 000 m/s <sup>2</sup>	± 500 m/s <sup>2</sup>
Maximum shock limit (peak value)	± 100 000 m/s <sup>2</sup>		
Temperature range	– 55 ... + 125 °C		
Frequency range:			
▪ uneven frequency response ± 3 dB	1 ... 30 000Hz	1 ... 24 000Hz	
▪ uneven frequency response ± 1 dB	4 ... 18 000Hz	4 ... 15 000Hz	
▪ uneven frequency response ± 5%	10 ... 12 000Hz	10 ... 10 000Hz	
Resonant frequency	> 60 kHz	> 50 kHz	
Noise level, root mean square value (1 Hz ÷ 10 kHz)	< 0.03 m/s <sup>2</sup>	< 0.02 m/s <sup>2</sup>	< 0.01 m/s <sup>2</sup>
Output impedance	< 100 Ohm		
Power:			
▪ voltage	+ (18 ... 30) V		
▪ current	2 ... 20 mA		
Constant output voltage level	8 ... 13 V		
Ambient temperature effect coefficient	± 0.2 %/°C		
Run mode setting time	4 s		
Housing material	titanium alloy alloy		
Weight (without cable)	2,4 g	2,6 g	

**PARAMETER**

Sensitivity

**1V106HB-10****1V106HB-100****1V106HB-500**

Transverse sensitivity

1 mV/(m·s<sup>-2</sup>)10 mV/(m·s<sup>-2</sup>)50 mV/(m·s<sup>-2</sup>)

Measurement range

&lt; 5 %

± 5 000 m/s<sup>2</sup>± 100 m/s<sup>2</sup>

Maximum shock limit (peak value)

± 5 000 m/s<sup>2</sup>± 500 m/s<sup>2</sup>± 100 m/s<sup>2</sup>

Temperature range

-55 ... +125 °C

Frequency range:

- uneven frequency response ± 3 dB
- uneven frequency response ± 1 dB
- uneven frequency response ± 5 %

0,3 ... 20 000 Hz  
0,5 ... 12 000 Hz  
1 ... 10 000 Hz0,3 ... 15 000 Hz  
0,5 ... 10 000 Hz  
1 ... 8 000 Hz

Resonant frequency

&gt; 40 kHz

&gt; 30 kHz

Noise level, root mean square value  
(1 Hz ÷ 10 kHz)< 0,005 m/s<sup>2</sup>< 0,004 m/s<sup>2</sup>< 0,002 m/s<sup>2</sup>

Output impedance

&lt; 100 Ohm

Power:

- voltage
- current

+ (18 ... 30) V

2 ... 20 mA

Constant output voltage level

8 ... 13 V

Ambient temperature effect coefficient

± 0,2 %/°C

Run mode setting time

4 c

Housing material

titanium alloy alloy

Weight (without cable)

7,4 g

8,5 g

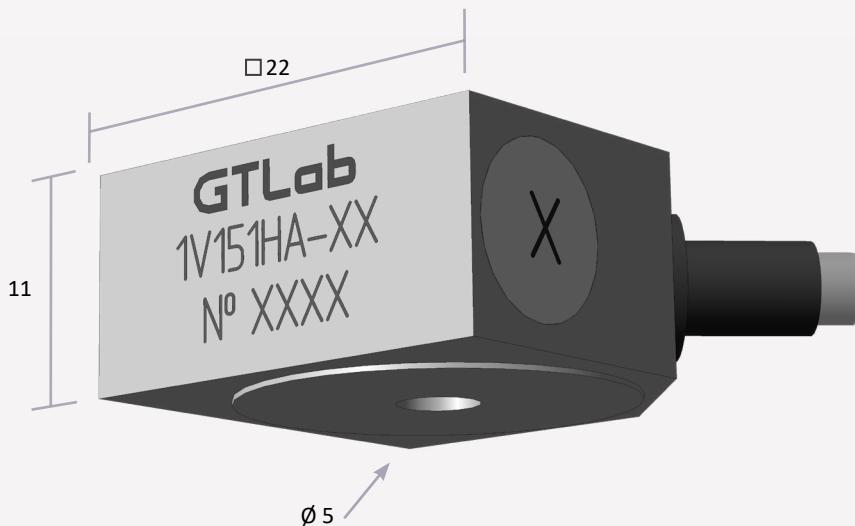
Supplied accessories

cable O3B1D1 (customer requirement decision)

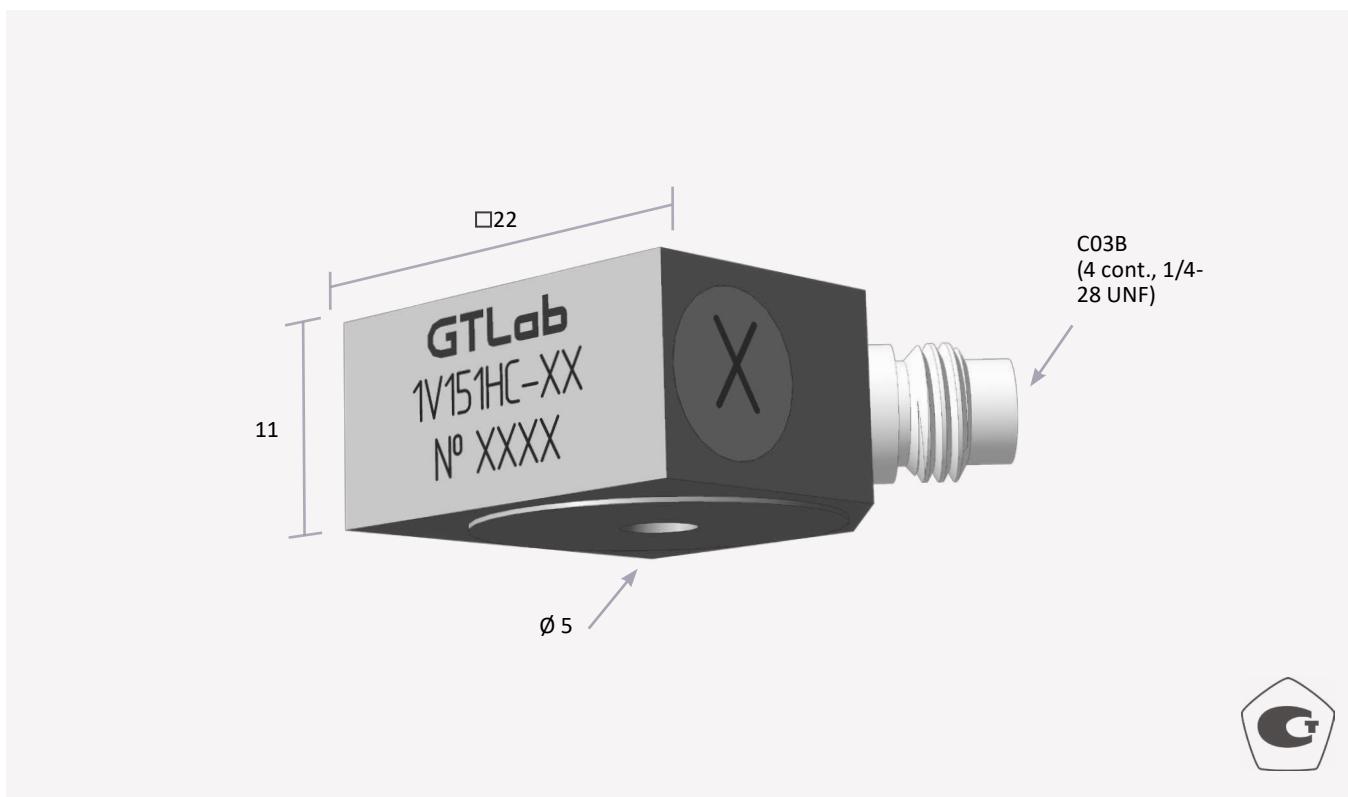
Screw A2 M3-6g × 14

With voltage output &gt; General purpose

Accelerometers &gt;

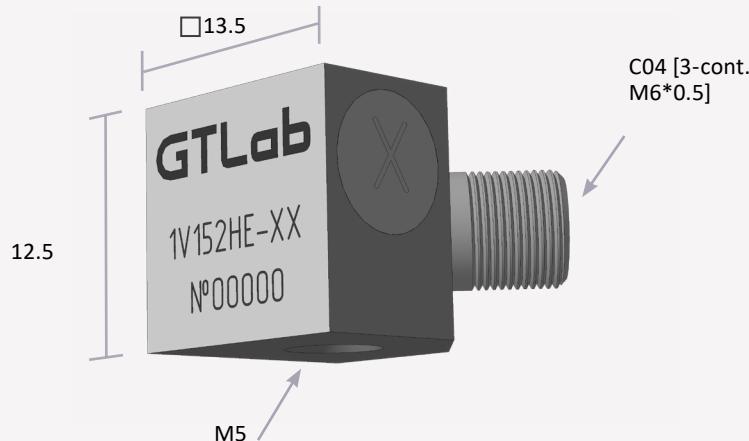


Parameter	1V151HA- 10	1V151HA-100	1V151HA-500
Sensitivity	1 mV/(m·s <sup>-2</sup> )	10 mV/(m·s <sup>-2</sup> )	50 mV/(m·s <sup>-2</sup> )
Transverse sensitivity	< 5 %		
Measurement range	± 5 000 m/s <sup>2</sup>	± 500 m/s <sup>2</sup>	± 100 m/s <sup>2</sup>
Maximum shock limit (peak value)	± 10 000 m/s <sup>2</sup>		
Temperature range	– 55 ... + 125 °C		
Frequency range:			
▪ uneven frequency response ± 3 dB	0.3 ... 22 500Hz		
▪ uneven frequency response ± 1 dB	0.5 ... 15 000Hz		
▪ uneven frequency response ± 5%	1 ... 9 000Hz		
Resonant frequency	> 45 kHz		
Noise level, root mean square value (1 Hz ÷ 10 kHz)	< 0.005 m/s <sup>2</sup>	< 0.003 m/s <sup>2</sup>	< 0.002 m/s <sup>2</sup>
Output impedance	< 100 Ohm		
Power:			
▪ voltage	+ (18 ... 30) V		
▪ current	2 ... 20 mA		
Constant output voltage level	8 ... 13 V		
Ambient temperature effect coefficient	± 0.2 %/°C		
Run mode setting time	4 s		
Housing material	titanium alloy alloy		
Weight (without cable)	26 g		
Supplied accessories	screw ISO 7380 M5 × 16		

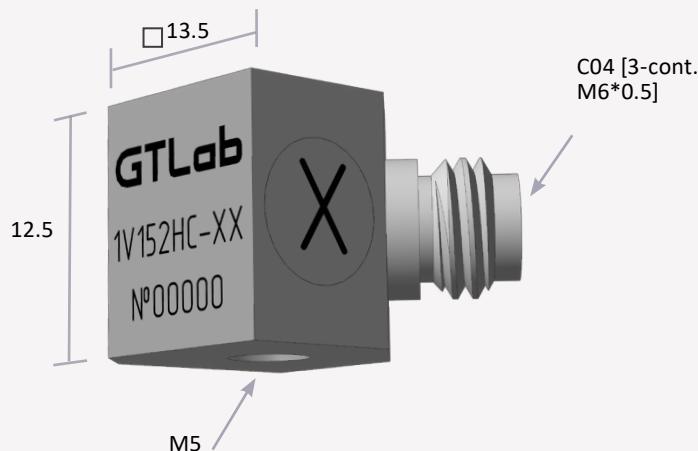


Parameter	1V151HC-10	1V151HC-100	1V151HC-500
Sensitivity	1 mV/(m·s <sup>-2</sup> )	10 mV/(m·s <sup>-2</sup> )	50 mV/(m·s <sup>-2</sup> )
Transverse sensitivity	< 5 %		
Measurement range	± 5 000 m/s <sup>2</sup>	± 500 m/s <sup>2</sup>	± 100 m/s <sup>2</sup>
Maximum shock limit (peak value)	± 10 000 m/s <sup>2</sup>		
Temperature range	–55 ... +125 °C		
Frequency range:			
▪ uneven frequency response ± 3 dB	0.3 ... 22 500Hz		
▪ uneven frequency response ± 1 dB	0.5 ... 15 000Hz		
▪ uneven frequency response ± 5 %	1 ... 9 000Hz		
Resonant frequency	> 45 kHz		
Noise level, root mean square value (1 Hz ÷ 10 kHz)	< 0.005 m/s <sup>2</sup>	< 0.003 m/s <sup>2</sup>	< 0.002 m/s <sup>2</sup>
Output impedance	< 100 Ohm		
Power:			
▪ voltage	+ (18 ... 30) V		
▪ current	2 ... 20 mA		
Constant output voltage level	8 ... 13 V		
Ambient temperature effect coefficient	± 0.2 %/°C		
Run mode setting time	4 s		
Housing material	titanium alloy alloy		
Weight (without cable)	26 g		
Supplied accessories	cable 41C1D3 (as per customer's request) screw ISO 7380 M5 × 16		

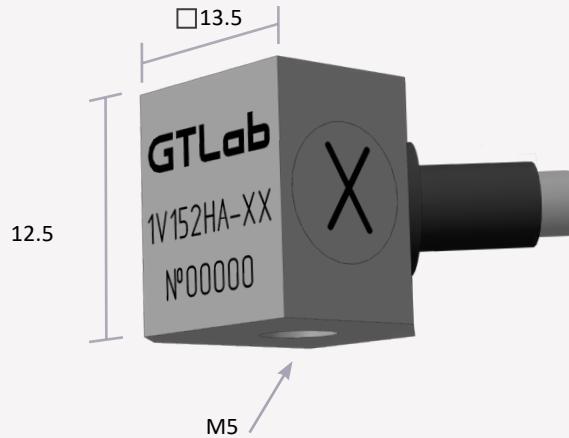




Parameter	1V152HE- 1	1V152HE- 10	1V152HE-30	1V152HE-100
Sensitivity	0.1 mV/(m·s <sup>-2</sup> )	1 mV/(m·s <sup>-2</sup> )	3 mV/(m·s <sup>-2</sup> )	10 mV/(m·s <sup>-2</sup> )
Transverse sensitivity	< 5 %			
Measurement range	± 10 000 m/s <sup>2</sup>	± 5 000 m/s <sup>2</sup>	± 1 600 m/s <sup>2</sup>	± 500 m/s <sup>2</sup>
Maximum shock limit (peak value)	± 10 000 m/s <sup>2</sup>			
Temperature range	– 55 ... + 125 °C			
Frequency range:	0.3 ... 22 500Hz 0.5 ... 15 000Hz 1 ... 9 000Hz			
Resonant frequency	> 45 kHz			
Noise level, root mean square value (1 Hz ÷ 10 kHz)	< 0.05 m/s <sup>2</sup>	< 0.02 m/s <sup>2</sup>	< 0.015 m/s <sup>2</sup>	< 0.01 m/s <sup>2</sup>
Output impedance	< 100 Ohm			
Power:	+ (18 ... 30) V 2 ... 20 mA			
Constant output voltage level	8 ... 13 V			
Ambient temperature effect coefficient	± 0.2 %/°C			
Run mode setting time	4 s			
Housing material	titanium alloy alloy			
Weight (without cable)	9 g			
Supplied accessories	cable 41E1D3 (as per customer's request) pin P0505			

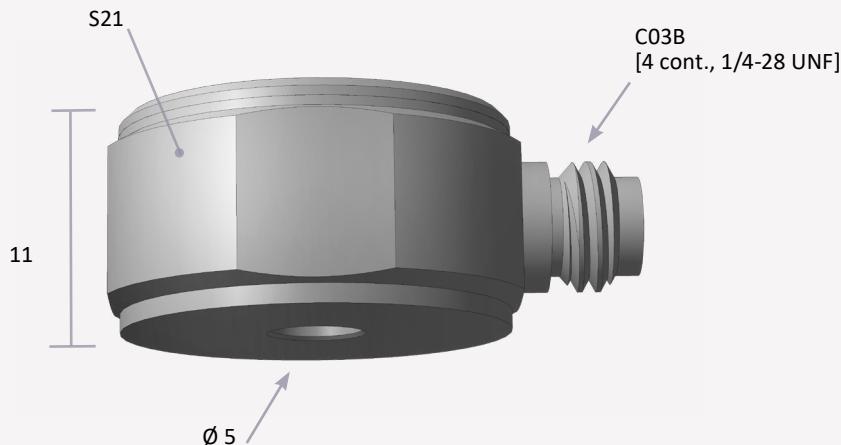


Parameter	1V152HC- 1	1V152HC- 10	1V152HC-30	1V152HC-100
Sensitivity	0.1 mV/(m·s <sup>-2</sup> )	1 mV/(m·s <sup>-2</sup> )	3 mV/(m·s <sup>-2</sup> )	10 mV/(m·s <sup>-2</sup> )
Transverse sensitivity	< 5 %			
Measurement range	± 10 000 m/s <sup>2</sup>	± 5 000 m/s <sup>2</sup>	± 1 600 m/s <sup>2</sup>	± 500 m/s <sup>2</sup>
Maximum shock limit (peak value)	± 10 000 m/s <sup>2</sup>			
Temperature range	– 55 ... + 125 °C			
Frequency range:				
▪ uneven frequency response ± 3 dB	0.3 ... 22 500Hz			
▪ uneven frequency response ± 1 dB	0.5 ... 15 000Hz			
▪ uneven frequency response ± 5%	1 ... 9 000Hz			
Resonant frequency	> 45 kHz			
Noise level, root mean square value (1 Hz ÷ 10 kHz)	< 0.05 m/s <sup>2</sup>	< 0.02 m/s <sup>2</sup>	< 0.015 m/s <sup>2</sup>	< 0,01 m/s <sup>2</sup>
Output impedance	< 100 Ohm			
Power:				
▪ voltage	+ (18 ... 30) V			
▪ current	2 ... 20 mA			
Constant output voltage level	8 ... 13 V			
Ambient temperature effect coefficient	± 0.2 %/°C			
Run mode setting time	4 s			
Housing material	titanium alloy alloy			
Weight (without cable)	9 g			
Supplied accessories	cable 41E1D3 (as per customer's request) pin P0505			

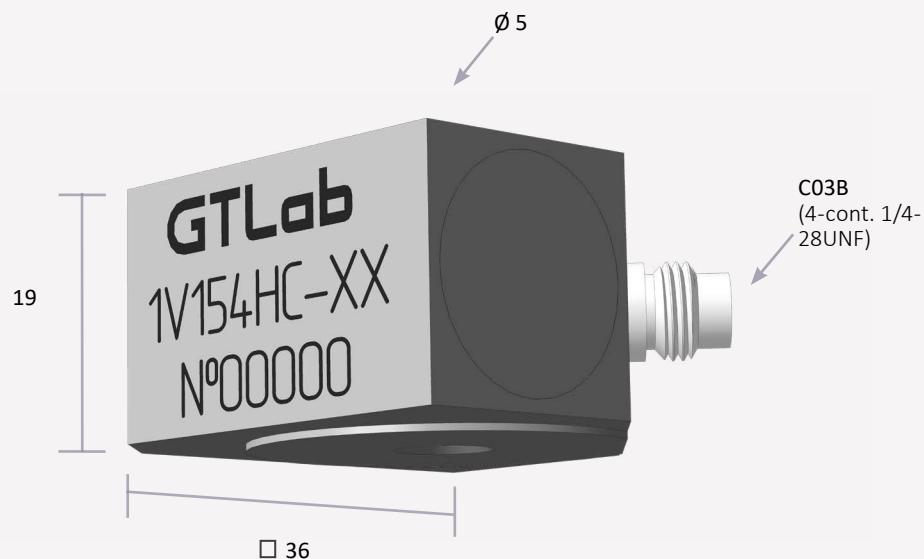


Parameter	1V152HA- 1	1V152HA- 10	1V152HA-30	1V152HA-100
Sensitivity	0.1 mV/(m·s <sup>-2</sup> )	1 mV/(m·s <sup>-2</sup> )	3 mV/(m·s <sup>-2</sup> )	10 mV/(m·s <sup>-2</sup> )
Transverse sensitivity	< 5 %			
Measurement range	± 50 000 m/s <sup>2</sup>	± 5 000 m/s <sup>2</sup>	± 1600 m/s <sup>2</sup>	± 500 m/s <sup>2</sup>
Maximum shock limit (peak value)	± 10 000 m/s <sup>2</sup>			
Temperature range	– 55 ... + 125 °C			
Frequency range:				
▪ uneven frequency response ± 3 dB	0.3 ... 22 500Hz			
▪ uneven frequency response ± 1 dB	0.5 ... 15 000Hz			
▪ uneven frequency response ± 5 %	1 ... 9 000Hz			
Resonant frequency	> 45 kHz			
Noise level, root mean square value (1 Hz ÷ 10 kHz)	< 0.05 m/s <sup>2</sup>	< 0.02 m/s <sup>2</sup>	< 0.015 m/s <sup>2</sup>	< 0.01 m/s <sup>2</sup>
Output impedance	< 100 Ohm			
Power:				
▪ voltage	+ (18 ... 30) V			
▪ current	2 ... 20 mA			
Constant output voltage level	8 ... 13 V			
Ambient temperature effect coefficient	± 0.2 %/°C			
Run mode setting time	4 s			
Housing material	titanium alloy alloy			
Weight (without cable)	12 g			
Supplied accessories	pin P0505			

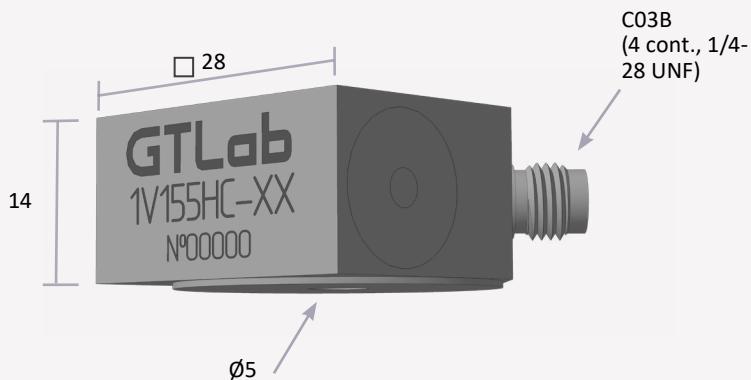




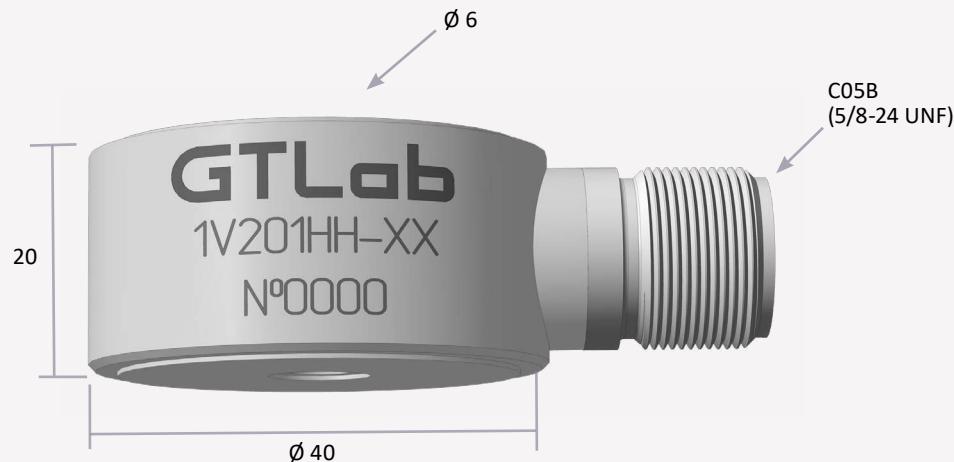
Parameter	1V153HC- 10 1V153HC- 10-01	1V153HC-30 1V153HC-30 - 01	1V153HC-50 1V153HC-50 - 01	1V153HC-100 1V153HC-100-01
Sensitivity	1 mV/(m·s <sup>-2</sup> )	3 mV/(m·s <sup>-2</sup> )	5 mV/(m·s <sup>-2</sup> )	10 mV/(m·s <sup>-2</sup> )
Transverse sensitivity	< 5 %			
Measurement range	± 5 000 m/s <sup>2</sup>	± 1 600 m/s <sup>2</sup>	± 1 000 m/s <sup>2</sup>	± 500 m/s <sup>2</sup>
Maximum shock limit (peak value)	± 30 000 m/s <sup>2</sup>			
Temperature range	-55 ... +125 °C			
Frequency range:				
▪ uneven frequency response ± 3 dB	0.3 ... 10 000 Hz			
▪ uneven frequency response ± 1 dB	0.5 ... 6 000 Hz			
▪ uneven frequency response ± 5 %	1 ... 4 000 Hz			
Resonant frequency	> 18 kHz			
Noise level, root mean square value (1 Hz ÷ 10 kHz)	< 0.02 m/s <sup>2</sup>	< 0.015 m/s <sup>2</sup>	< 0.012 m/s <sup>2</sup>	< 0.01 m/s <sup>2</sup>
Output impedance	< 100 Ohm			
Power:				
▪ voltage	+ (18 ... 30) V			
▪ current	2 ... 20 mA			
Constant output voltage level	8 ... 13 V			
Electrical insulation from the case	> 10 000 Ohm			
Ambient temperature effect coefficient	± 0.2 %/°C			
Run mode setting time	4 s			
Housing material	titanium alloy alloy / stainless steel (for option -01)			
Weight (without cable)	14 g / 22 g (for option -01)			
Supplied accessories	cable 41C1D3 (as per customer's request) screw M5 ×16			



Parameter	1V154HC-100	1V154HC-500	1V154HC-1000
Sensitivity	10 mV/(m·s <sup>-2</sup> )	50 mV/(m·s <sup>-2</sup> )	100 mV/(m·s <sup>-2</sup> )
Transverse sensitivity	< 5 %		
Measurement range	± 500 m/s <sup>2</sup>	± 100 m/s <sup>2</sup>	± 50 m/s <sup>2</sup>
Maximum shock limit (peak value)	± 20 000 m/s <sup>2</sup>		
Temperature range	– 55 ... + 125 °C		
Frequency range:			
▪ uneven frequency response ± 3 dB	0.3 ... 10 000Hz		
▪ uneven frequency response ± 1 dB	0.5 ... 6 000Hz		
▪ uneven frequency response ± 5 %	1 ... 4 000Hz		
Resonant frequency	> 18 kHz		
Noise level, root mean square value (1 Hz ÷ 10 kHz)	< 0.0005 m/s <sup>2</sup>	0.0004 m/s <sup>2</sup>	0,0003 m/s <sup>2</sup>
Output impedance	< 100 Ohm		
Power:			
▪ voltage	+ (18 ... 30) V		
▪ current	2 ... 20 mA		
Constant output voltage level	8 ... 13 V		
Ambient temperature effect coefficient	± 0.2 %/°C		
Run mode setting time	4 s		
Housing material	stainless steel		
Weight (without cable)	115 g		
Supplied accessories	cable 41C1D3 (as per customer's request) screw M5 × 25 A2		



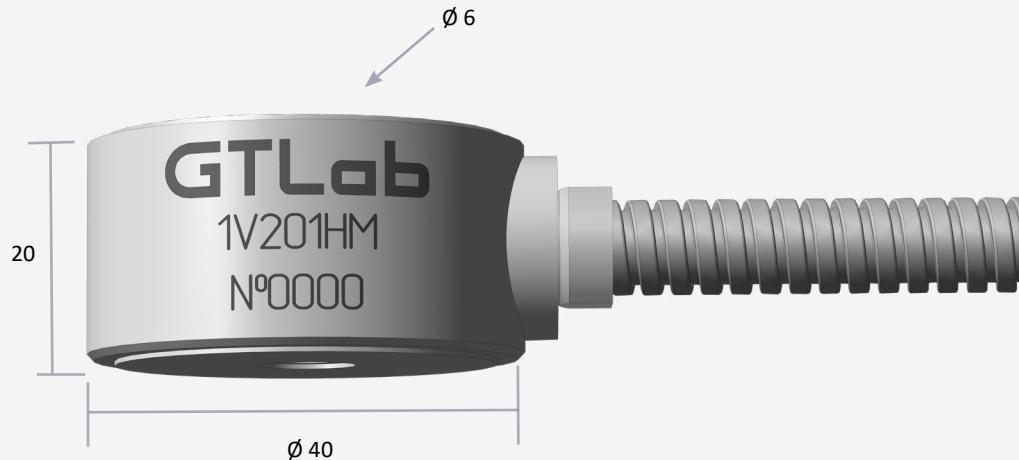
Parameter	1V155HC-10	1V155HC-30
Sensitivity	1 mV/(m·s <sup>-2</sup> )	3 mV/(m·s <sup>-2</sup> )
Transverse sensitivity	< 5 %	
Measurement range	± 5 000 m/s <sup>2</sup>	± 1 600 m/s <sup>2</sup>
Maximum shock limit (peak value)	± 10 000 m/s <sup>2</sup>	
Temperature range	-55 ... +125 °C	
Frequency range:		
▪ uneven frequency response ± 3 dB	0.3 ... 22 500 Hz	
▪ uneven frequency response ± 1 dB	0.5 ... 15 000 Hz	
▪ uneven frequency response ± 5%	1 ... 9 000 Hz	
Resonant frequency	> 45 kHz	
Noise level, root mean square value (1 Hz ÷ 10 kHz)	< 0.01 m/s <sup>2</sup>	< 0.007 m/s <sup>2</sup>
Output impedance	< 100 Ohm	
▪ Power: ▪ voltage ▪ current	+ (18 ... 30) V 2 ... 20 mA	
Constant output voltage level	8 ... 13 V	
Ambient temperature effect coefficient	± 0.02 %/°C	
Run mode setting time	4 s	
Housing material	titanium alloy alloy	
Weight (without cable)	50 g	
Supplied accessories	cable 41C1D3 (as per customer's request) screw M5 × 20	



Parameter	1V201HH-10	1V201HH-30	1V201HH-100
Sensitivity	1 mV/(m·s <sup>-2</sup> )	3 mV/(m·s <sup>-2</sup> )	10 mV/(m·s <sup>-2</sup> )
Transverse sensitivity	< 5 %		
Measurement range	± 5 000 m/s <sup>2</sup>	± 1 600 m/s <sup>2</sup>	± 500 m/s <sup>2</sup>
Maximum shock limit (peak value)	± 10 000 m/s <sup>2</sup>		
Temperature range	– 55 ... + 125 °C		
Frequency range:			
▪ uneven frequency response ± 3 dB	0.3 ... 15 000 Hz		
▪ uneven frequency response ± 1 dB	0.5 ... 9 000 Hz		
▪ uneven frequency response ± 5 %	1 ... 6 000 Hz		
Resonant frequency	> 30 kHz		
Noise level, root mean square value (1 Hz ÷ 10 kHz)	< 0.002 m/s <sup>2</sup>		
Output impedance	< 100 Ohm		
Power:			
▪ voltage	+ (18 ... 30) V		
▪ current	2 ... 20 mA		
Constant output voltage level	8 ... 13 V		
Ambient temperature effect coefficient	± 0.2 %/ °C		
Run mode setting time	4 s		
Housing material	stainless steel		
Weight (without cable)	90 g		
Supplied accessories	cable 03H1D1 (as per customer's request) screw M6-8g × 30		



Parameter	1V201HA-10 / (T)	1V201HA-30 / (T)	1V201HA-100 / (T)
Sensitivity	1 mV/(m·s <sup>-2</sup> )	3 mV/(m·s <sup>-2</sup> )	10 mV/(m·s <sup>-2</sup> )
Transverse sensitivity	< 5 %		
Measurement range	± 5 000 m/s <sup>2</sup>	± 1 600 m/s <sup>2</sup>	± 500 m/s <sup>2</sup>
Maximum shock limit (peak value)	± 10 000 m/s <sup>2</sup>		
Temperature range	– 55 ... + 125 °C – 40 ... + 125 °C (T)		
Frequency range:			
▪ uneven frequency response ± 3 dB	0.3 ... 15 000Hz		
▪ uneven frequency response ± 1 dB	0.5 ... 9 000Hz		
▪ uneven frequency response ± 5 %	1 ... 6 000Hz		
Resonant frequency	> 30 kHz		
Noise level, root mean square value (1 Hz ÷ 10 kHz)	< 0.002 m/s <sup>2</sup>		
Output impedance	< 100 Ohm		
Power:			
▪ voltage	+ (18 ... 30) V		
▪ current	2 ... 20 mA		
Constant output voltage level	8 ... 13 V		
Ambient temperature effect coefficient	± 0.2 %/ °C		
Run mode setting time	4 s		
Conversion coefficient on temperature (±2 %)	10 mV/ °C (T)		
Constant output voltage level on temperature (temperature 0°C)	500 mV (T)		
Housing material	stainless steel		
Weight (without cable)	90 g		
Supplied accessories	screw M6-8g × 30		



Parameter	1V201HM-10 / (T)	1V201HM-30 / (T)	1V201HM-100 / (T)
Sensitivity	1 mV/(m·s <sup>-2</sup> )	3 mV/(m·s <sup>-2</sup> )	10 mV/(m·s <sup>-2</sup> )
Transverse sensitivity	< 5 %		
Measurement range	± 5 000 m/s <sup>2</sup>	± 1 600 m/s <sup>2</sup>	± 500 m/s <sup>2</sup>
Maximum shock limit (peak value)	± 10 000 m/s <sup>2</sup>		
Temperature range	– 55 ... + 125 °C – 40 ... + 125 °C (T)		
Frequency range:	0.3 ... 15 000Hz 0.5 ... 9 000Hz 1 ... 6 000Hz		
▪ uneven frequency response ± 3 dB			
▪ uneven frequency response ± 1 dB			
▪ uneven frequency response ± 5 %			
Resonant frequency	> 30 kHz		
Noise level, root mean square value (1 Hz ÷ 10 kHz)	< 0.002 m/s <sup>2</sup>		
Output impedance	< 100 Ohm		
Power:	+ (18 ... 30) V 2 ... 20 mA		
▪ voltage			
▪ current			
Constant output voltage level	8 ... 13 V		
Ambient temperature effect coefficient	± 0.2 %/ °C		
Run mode setting time	4 s		
Conversion coefficient on temperature (±2 %)	10 mV/ °C (T)		
Constant output voltage level on temperature (temperature 0°C)	500 mV (T)		
Housing material	stainless steel		
Weight (without cable)	90 g		
Supplied accessories	screw M6-8g × 30		



Parameter	1V201HT-10 (T)	1V201HT-30 (T)	1V201HT-100 (T)
Sensitivity	1 mV/(m·s <sup>-2</sup> )	3 mV/(m·s <sup>-2</sup> )	10 mV/(m·s <sup>-2</sup> )
Transverse sensitivity	< 5 %		
Measurement range	± 5 000 m/s <sup>2</sup>	± 1 600 m/s <sup>2</sup>	± 500 m/s <sup>2</sup>
Maximum shock limit (peak value)	± 10 000 m/s <sup>2</sup>		
Temperature range	– 40 ... + 125 °C		
Frequency range:			
▪ uneven frequency response ± 3 dB	0.3 ... 15 000Hz		
▪ uneven frequency response ± 1 dB	0.5 ... 9 000Hz		
▪ uneven frequency response ± 5 %	1 ... 6 000Hz		
Resonant frequency	> 30 kHz		
Noise level, root mean square value (1 Hz ÷ 10 kHz)	< 0.002 m/s <sup>2</sup>		
Output impedance	< 100 Ohm		
Power:			
▪ voltage	+ (18 ... 30) V		
▪ current	2 ... 20 mA		
Constant output voltage level	8 ... 13 V		
Ambient temperature effect coefficient	± 0.2 % / °C		
Run mode setting time	4 s		
Conversion coefficient on temperature (±2 %)	10 mV/ °C		
Constant output voltage level on temperature (temperature 0°C)	500 mV		
Housing material	stainless steel		
Weight (without cable)	90 g		
Supplied accessories	cable 41T1A3 (as per customer's request) screw M6-8g × 30		

**Parameter****Sensitivity****Transverse sensitivity****Measurement range****Maximum shock limit (peak value)****Temperature range****Frequency range:**

- uneven frequency response  $\pm 3$  dB
- uneven frequency response  $\pm 1$  dB
- uneven frequency response  $\pm 5\%$

**Resonant frequency****Noise level, root mean square value  
(1 Hz ÷ 10 kHz)****Output impedance****Power:**

- voltage
- current

**Constant output voltage level****Ambient temperature effect coefficient****Run mode setting time****Housing material****Weight (without cable)****Supplied accessories****1V202TH-10**1 mV/(m·s<sup>-2</sup>)**1V202TH-30**3 mV/(m·s<sup>-2</sup>)**1V202TH-100**10 mV/(m·s<sup>-2</sup>)

&lt; 5 %

 $\pm 1600$  m/s<sup>2</sup> $\pm 500$  m/s<sup>2</sup> $\pm 5000$  m/s<sup>2</sup> $\pm 10000$  m/s<sup>2</sup>

- 55 ... + 125 °C

0.3 ... 12 000Hz

0.5 ... 9 000Hz

0 ... 30 kHz

0.5 ... 9 000Hz

1 ... 7 000Hz

1 ... 7 000Hz

&gt; 30 kHz

< 0.002 m/s<sup>2</sup>

&lt;100 Ohm

+ (18 ... 30) V

2 ... 20 mA

8 ... 13 V

 $\pm 0.2\% / ^\circ C$ 

4 s

stainless steel

42 g

cable 03H1D1 (as per customer's request)  
pin P0606

**Parameter****Sensitivity****Transverse sensitivity****Measurement range****Maximum shock limit (peak value)****Temperature range****Frequency range:**

- uneven frequency response  $\pm 3$  dB
- uneven frequency response  $\pm 1$  dB
- uneven frequency response  $\pm 5\%$

**Resonant frequency****Noise level, root mean square value  
(1 Hz ÷ 10 kHz)****Output impedance****Power:**

- voltage
- current

**Constant output voltage level****Ambient temperature effect coefficient****Run mode setting time****Conversion coefficient on temperature  
( $\pm 2\%$ )****Constant output voltage level on temperature  
(temperature 0°C)****Housing material****Weight (without cable)****Supplied accessories****1V202TA-10 / (T)**1 mV/(m·s<sup>-2</sup>)

&lt; 5 %

 $\pm 5000$  m/s<sup>2</sup> $\pm 10000$  m/s<sup>2</sup>

– 55 ... + 125 °C

– 40 ... + 125 °C (T)

0.3 ... 15 000Hz

0.5 ... 9 000Hz

1 ... 6 000Hz

&gt; 30 kHz

< 0.002 m/s<sup>2</sup>

&lt; 100 Ohm

+ (18 ... 30) V

2 ... 20 mA

8 ... 13 V

 $\pm 0.2\% / ^\circ C$ 

4 s

10 mV/ °C (T)

500 mV (T)

stainless steel

42 g

pin P0606

**1V202TA-30 / (T)**3 mV/(m·s<sup>-2</sup>) $\pm 1600$  m/s<sup>2</sup>

0.3 ... 15 000Hz

0.5 ... 9 000Hz

1 ... 6 000Hz

&gt; 30 kHz

< 0.002 m/s<sup>2</sup>

&lt; 100 Ohm

+ (18 ... 30) V

2 ... 20 mA

8 ... 13 V

 $\pm 0.2\% / ^\circ C$ 

4 s

10 mV/ °C (T)

500 mV (T)

stainless steel

42 g

pin P0606

**1V202TA-100 / (T)**10 mV/(m·s<sup>-2</sup>) $\pm 500$  m/s<sup>2</sup>



Parameter	1V202TT-10(T)	1V202TT-30(T)	1V202TT-100(T)
Sensitivity	1 mV/(m·s <sup>-2</sup> )	3 mV/(m·s <sup>-2</sup> )	10 mV/(m·s <sup>-2</sup> )
Transverse sensitivity	< 5 %		
Measurement range	± 5 000 m/s <sup>2</sup>	± 1 600 m/s <sup>2</sup>	± 500 m/s <sup>2</sup>
Maximum shock limit (peak value)	± 10 000 m/s <sup>2</sup>		
Temperature range	– 40 ... + 125 °C		
Frequency range:			
▪ uneven frequency response ± 3 dB	0.3 ... 15 000Hz		
▪ uneven frequency response ± 1 dB	0.5 ... 9 000Hz		
▪ uneven frequency response ± 5%	1 ... 7 000Hz		
Resonant frequency	> 30 kHz		
Noise level, root mean square value (1 Hz ÷ 10 kHz)	< 0.002 m/s <sup>2</sup>		
Output impedance	< 100 Ohm		
Power:			
▪ voltage	+ (18 ... 30) V		
▪ current	2 ... 20 mA		
Constant output voltage level	8 ... 13 V		
Ambient temperature effect coefficient	± 0.2 %/°C		
Run mode setting time	4 s		
Conversion coefficient on temperature (±2 %)	10 mV/ °C		
Constant output voltage level on temperature (temperature 0°C)	500 mV		
Housing material	stainless steel		
Weight (without cable)	42 g		
Supplied accessories	cable 41T1A3 (as per customer's request) screw M6-8g × 30		



**Parameter****Sensitivity**

Transverse sensitivity

Measurement range

Maximum shock limit (peak value)

Temperature range

**Frequency range:**

- uneven frequency response  $\pm 3$  dB
- uneven frequency response  $\pm 1$  dB
- uneven frequency response  $\pm 5\%$

Resonant frequency

Noise level, root mean square value  
( $1 \text{ Hz} \div 10 \text{ kHz}$ )

Output impedance

**Power:**

- voltage
- current

Constant output voltage level

Ambient temperature effect coefficient

Run mode setting time

Conversion coefficient on temperature  
( $\pm 2\%$ )Constant output voltage level on temperature  
(temperature  $0^\circ\text{C}$ )

Housing material

Weight (without cable)

Supplied accessories

**1V202TM-10 / (T)**1 mV/(m·s<sup>-2</sup>)

&lt; 5 %

 $\pm 5000 \text{ m/s}^2$  $\pm 10000 \text{ m/s}^2$  $-55 \dots +125^\circ\text{C}$   
 $-40 \dots +125^\circ\text{C}$  (T)

0.3 ... 15 000 Hz

0.5 ... 9 000 Hz

1 ... 7 000 Hz

&gt; 30 kHz

< 0.002 m/s<sup>2</sup>

&lt; 100 Ohm

+ (18 ... 30) V

2 ... 20 mA

8 ... 13 V

 $\pm 0.2\% / ^\circ\text{C}$ 

4 s

10 mV/  $^\circ\text{C}$  (T)

500 mV (T)

stainless steel

42 g

pin P0606

**1V202TM-30 / (T)**3 mV/(m·s<sup>-2</sup>) $\pm 1600 \text{ m/s}^2$ < 0.002 m/s<sup>2</sup>

&lt; 100 Ohm

+ (18 ... 30) V

2 ... 20 mA

8 ... 13 V

 $\pm 0.2\% / ^\circ\text{C}$ 

4 s

10 mV/  $^\circ\text{C}$  (T)

500 mV (T)

stainless steel

42 g

pin P0606

**1V202TM-100 / (T)**10 mV/(m·s<sup>-2</sup>) $\pm 500 \text{ m/s}^2$ < 0.002 m/s<sup>2</sup>

&lt; 100 Ohm

+ (18 ... 30) V

2 ... 20 mA

8 ... 13 V

 $\pm 0.2\% / ^\circ\text{C}$ 

4 s

10 mV/  $^\circ\text{C}$  (T)

500 mV (T)

stainless steel

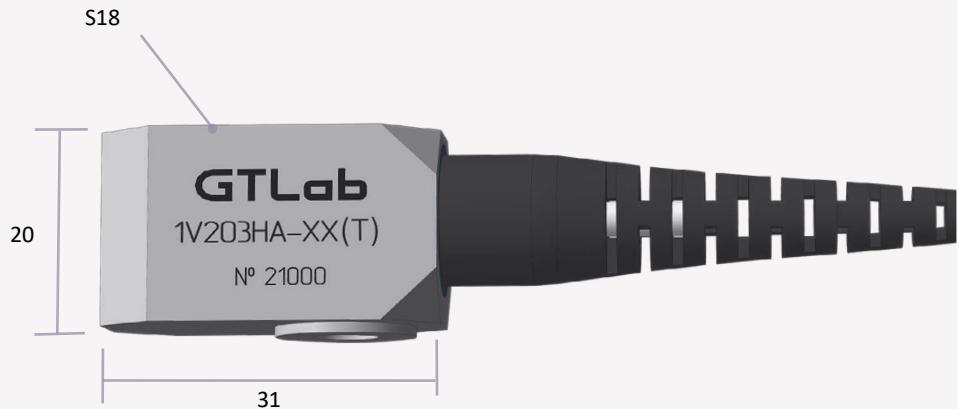
42 g

pin P0606

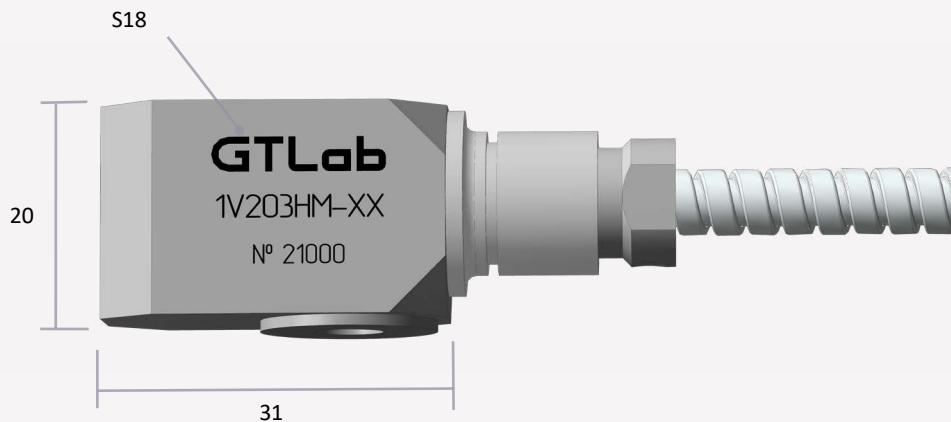




Parameter	1V203HH-10	1V203HH-30	1V203HH-100
Sensitivity	1 mV/(m·s <sup>-2</sup> )	3 mV/(m·s <sup>-2</sup> )	10 mV/(m·s <sup>-2</sup> )
Transverse sensitivity	< 5 %		
Measurement range	± 5 000 m/s <sup>2</sup>	± 1 600 m/s <sup>2</sup>	± 500 m/s <sup>2</sup>
Maximum shock limit (peak value)	± 10 000 m/s <sup>2</sup>		
Temperature range	– 55 ... + 125 °C		
Frequency range:			
▪ uneven frequency response ± 3 dB	0.3 ... 15 000 Hz		
▪ uneven frequency response ± 1 dB	0.5 ... 9 000 Hz		
▪ uneven frequency response ± 5 %	1 ... 4 000 Hz		
Resonant frequency	> 30 kHz		
Noise level, root mean square value (1 Hz ÷ 10 kHz)	< 0.002 m/s <sup>2</sup>		
Output impedance	< 100 Ohm		
Power:			
▪ voltage	+ (18 ... 30) V		
▪ current	2 ... 20 mA		
Constant output voltage level	8 ... 13 V		
Ambient temperature effect coefficient	± 0.2 %/ °C		
Run mode setting time	4 s		
Housing material	stainless steel		
Weight (without cable)	70 g		
Supplied accessories	cable 03H1D1 (as per customer's request) pin P0606		



Parameter	1V203HA-10 / (T)	1V203HA-30 / (T)	1V203HA-100 / (T)
Sensitivity	1 mV/(m·s <sup>-2</sup> )	3 mV/(m·s <sup>-2</sup> )	10 mV/(m·s <sup>-2</sup> )
Transverse sensitivity	< 5 %		
Measurement range	± 5 000 m/s <sup>2</sup>	± 1 600 m/s <sup>2</sup>	± 500 m/s <sup>2</sup>
Maximum shock limit (peak value)	± 10 000 m/s <sup>2</sup>		
Temperature range	– 55 ... + 125 °C – 40 ... + 125 °C (T)		
Frequency range:			
▪ uneven frequency response ± 3 dB	0.3 ... 15 000 Hz		
▪ uneven frequency response ± 1 dB	0.5 ... 9 000 Hz		
▪ uneven frequency response ± 5 %	1 ... 4 000 Hz		
Resonant frequency	> 30 kHz		
Noise level, root mean square value (1 Hz ÷ 10 kHz)	< 0.002 m/s <sup>2</sup>		
Output impedance	< 100 Ohm		
Power:			
▪ voltage	+ (18 ... 30) V		
▪ current	2 ... 20 mA		
Constant output voltage level	8 ... 13 V		
Ambient temperature effect coefficient	± 0.2 % / °C		
Run mode setting time	4 s		
Conversion coefficient on temperature (±2 %)	10 mV/ °C (T)		
Constant output voltage level on temperature (temperature 0°C)	500 mV (T)		
Housing material	stainless steel		
Weight (without cable)	70 g		
Supplied accessories	screw M6-8g × 30		

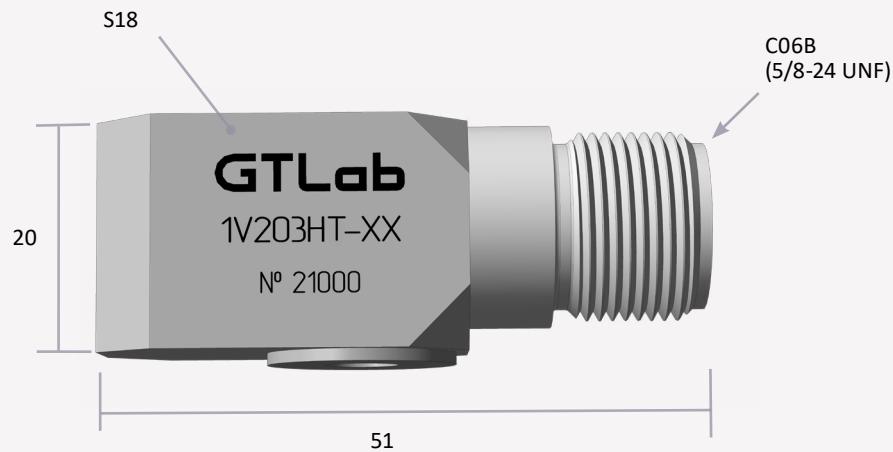


Parameter	1V203HM-10 / (T)	1V203HM-30 / (T)	1V203HM-100 / (T)
Sensitivity	1 mV/(m·s <sup>-2</sup> )	3 mV/(m·s <sup>-2</sup> )	10 mV/(m·s <sup>-2</sup> )
Transverse sensitivity	< 5 %		
Measurement range	± 5 000 m/s <sup>2</sup>	± 1 600 m/s <sup>2</sup>	± 500 m/s <sup>2</sup>
Maximum shock limit (peak value)	± 10 000 m/s <sup>2</sup>		
Temperature range	– 55 ... + 125 °C – 40 ... + 125 °C (T)		
Frequency range:			
▪ uneven frequency response ± 3 dB	0.3 ... 15 000 Hz		
▪ uneven frequency response ± 1 dB	0.5 ... 9 000 Hz		
▪ uneven frequency response ± 5 %	1 ... 4 000 Hz		
Resonant frequency	> 30 kHz		
Noise level, root mean square value (1 Hz ÷ 10 kHz)	< 0.002 m/s <sup>2</sup>		
Output impedance	< 100 Ohm		
Power:			
▪ voltage	+ (18 ... 30) V		
▪ current	2 ... 20 mA		
Constant output voltage level	8 ... 13 V		
Ambient temperature effect coefficient	± 0.2 %/°C		
Run mode setting time	4 s		
Conversion coefficient on temperature (±2 %)	10 mV/ °C (T)		
Constant output voltage level on temperature (temperature 0°C)	500 mV (T)		
Housing material	stainless steel		
Weight (without cable)	70 g		
Supplied accessories	screw M6-8g × 30		

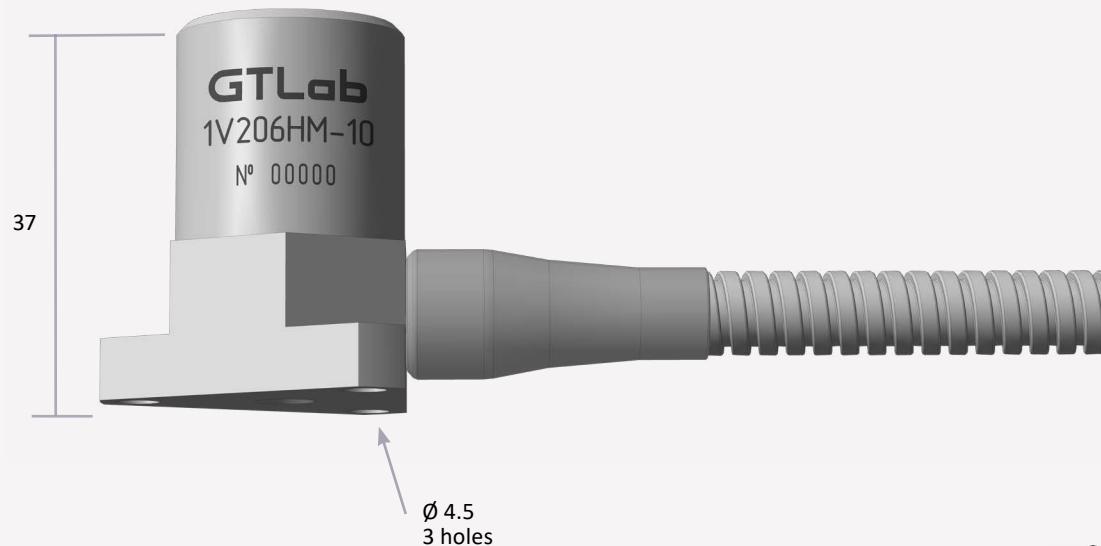
&gt; Industrial

&gt; With voltage output

Accelerometers

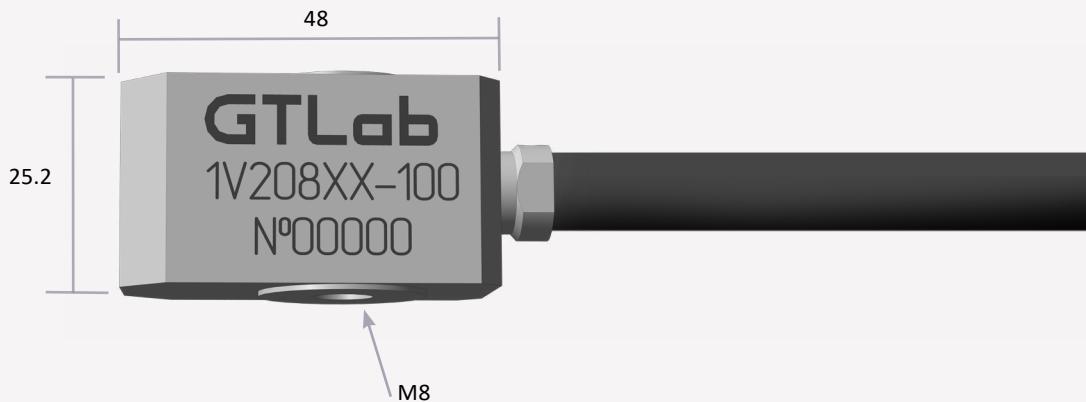


Parameter	1V203HT-10 (T)	1V203HT-30 (T)	1V203HT-100 (T)
Sensitivity	1 mV/(m·s <sup>-2</sup> )	3 mV/(m·s <sup>-2</sup> )	10 mV/(m·s <sup>-2</sup> )
Transverse sensitivity	< 5 %		
Measurement range	± 5 000 m/s <sup>2</sup>	± 1 600 m/s <sup>2</sup>	± 500 m/s <sup>2</sup>
Maximum shock limit (peak value)	± 10 000 m/s <sup>2</sup>		
Temperature range	– 40 ... + 125 °C		
Frequency range:			
▪ uneven frequency response ± 3 dB	0.3 ... 15 000Hz		
▪ uneven frequency response ± 1 dB	0.5 ... 9 000Hz		
▪ uneven frequency response ± 5 %	1 ... 4 000Hz		
Resonant frequency	> 30 kHz		
Noise level, root mean square value (1 Hz ÷ 10 kHz)	< 0.002 m/s <sup>2</sup>		
Output impedance	< 100 Ohm		
Power:			
▪ voltage	+ (18 ... 30) V		
▪ current	2 ... 20 mA		
Constant output voltage level	8 ... 13 V		
Ambient temperature effect coefficient	± 0.2 %/ °C		
Run mode setting time	4 s		
Conversion coefficient on temperature (±2 %)	10 mV/ °C		
Constant output voltage level on temperature (temperature 0°C)	500 mV		
Housing material	stainless steel		
Weight (without cable)	70 g		
Supplied accessories	cable 41T1A3 (as per customer's request) screw M6-8g × 30		

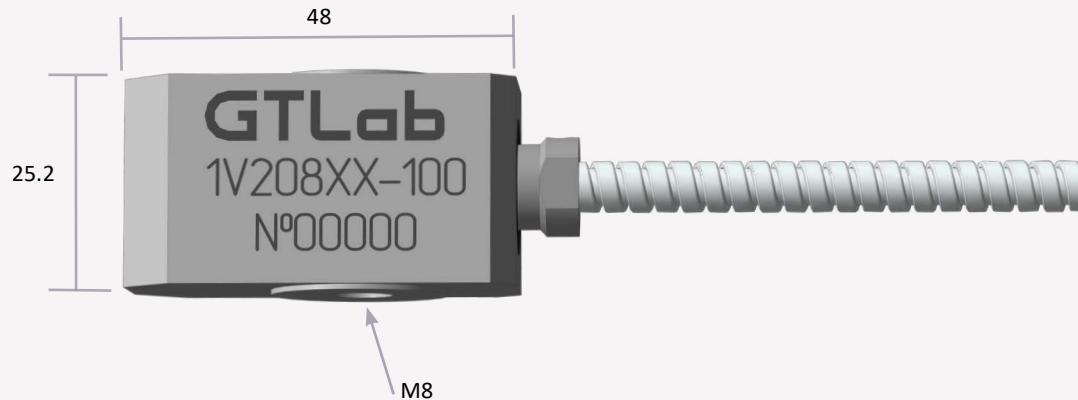


Parameter	1V206HM-10
Sensitivity	1 mV/(m·s <sup>-2</sup> )
Transverse sensitivity	< 5 %
Measurement range	± 4 000 m/s <sup>2</sup>
Maximum shock limit (peak value)	± 5 000 m/s <sup>2</sup>
Temperature range	- 60 ... + 150 °C
Frequency range:	<ul style="list-style-type: none"> <li>▪ uneven frequency response ± 3 dB</li> <li>▪ uneven frequency response ± 1 dB</li> <li>▪ uneven frequency response ± 5 %</li> </ul>
Resonant frequency	> 25 kHz
Noise level, root mean square value (1 Hz ÷ 10 kHz)	< 0.005 m/s <sup>2</sup>
Output impedance	< 500 Ohm
Power:	<ul style="list-style-type: none"> <li>▪ voltage</li> <li>▪ current</li> </ul>
Constant output voltage level	+ (9 ... 30) V
Ambient temperature effect coefficient	2 ... 5 mA
Run mode setting time	5 ... 6 V
Housing material	± 0.2 %/ °C
Weight (without cable)	4 s
Supplied accessories	stainless steel
	95 g
	3 screws M4*14

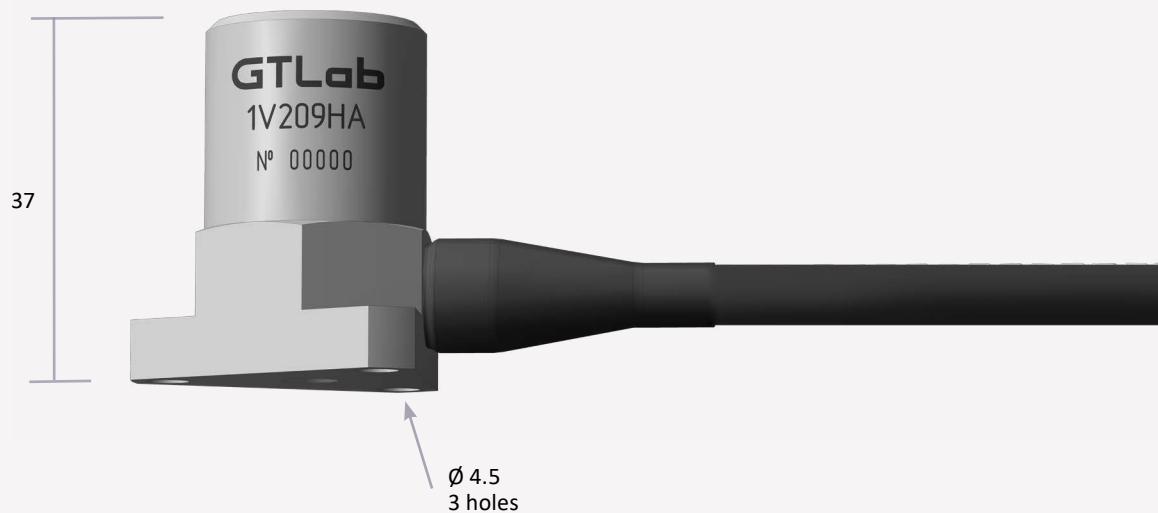




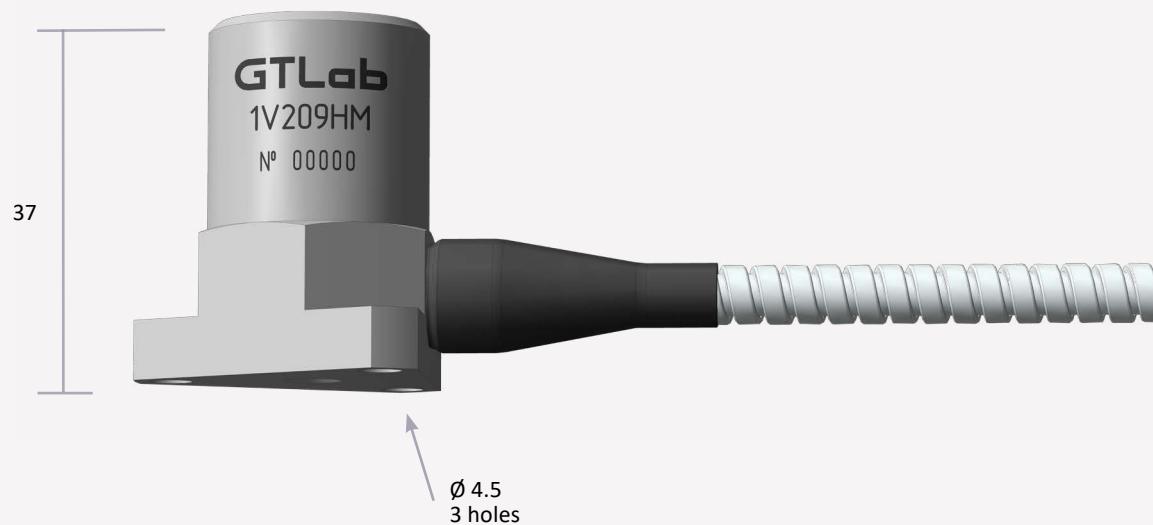
Parameter	1V208HA-100
Conversion factor ± 5%	10 mV/(m·s <sup>-2</sup> )
Transverse sensitivity	< 5 %
Maximum value of measured vibration acceleration amplitude	± 500 m/s <sup>2</sup>
Maximum shock limit (peak value)	± 5 000 m/s <sup>2</sup>
Temperature range	-50 ... +125 °C
Pyrosensitivity: from 4 Hz	0,01 g / °C
Frequency range: ▪ uneven frequency response ± 3 dB ▪ uneven frequency response ± 1 dB ▪ uneven frequency response ± 5 %	1.5 ... 12 000 Hz 2 ... 10 000 Hz 4 ... 7 000 Hz
Self-resonant frequency	30 kHz
Noise level, root mean square value(1 Hz ÷ 10 kHz)	<0,002 m/s <sup>2</sup>
Output impedance	<50 Ohm
Power: ▪ voltage ▪ current	- (18 ... 30) V < 5 mA
Constant output voltage level	-10 ... -14 V
Run mode setting time	4 s
Ambient temperature effect coefficient	± 0,2 %/ °C
Electric strength of insulation between the case and cable cores	500 V
Housing material	stainless steel
Weight (without cable)	160 g
Supplied accessories	screw M8 × 40

**PARAMETER**

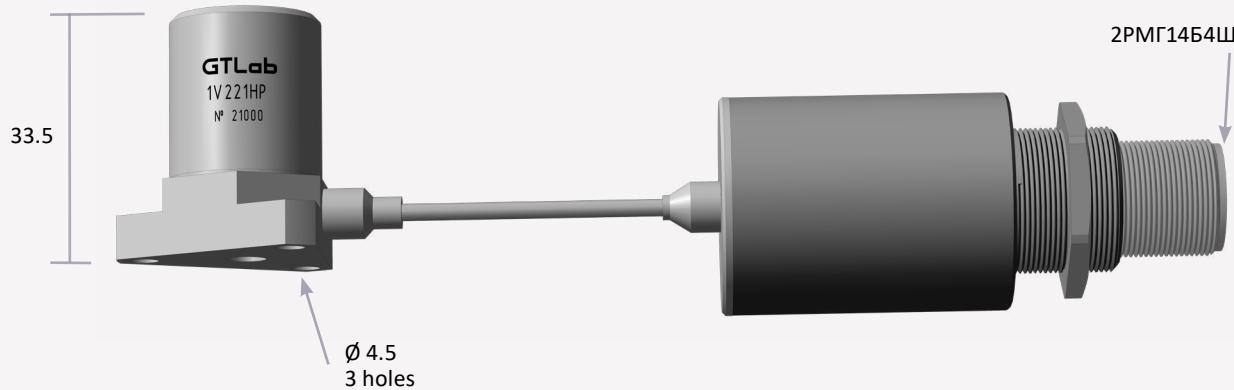
Conversion factor ± 5%	10 mV/(m·s <sup>-2</sup> )
Transverse sensitivity	< 5 %
Maximum value of measured vibration acceleration amplitude	± 500 m/s <sup>2</sup>
Maximum shock limit (peak value)	± 5 000 m/s <sup>2</sup>
Temperature range	-50 ... +125 °C
Pyrosensitivity: from 4 Hz	0.01 g / °C
Frequency range:	
▪ uneven frequency response ± 3 dB	1.5 ... 12 000 Hz
▪ uneven frequency response ± 1 dB	2 ... 10 000 Hz
▪ uneven frequency response ± 5 %	4 ... 7 000 Hz
Self-resonant frequency	30 kHz
Noise level, root mean square value(1 Hz ÷ 10 kHz)	< 0.002 m/s <sup>2</sup>
Output impedance	< 50 Ohm
Power:	
▪ voltage	- (18 ... 30) V
▪ current	< 5 mA
Constant output voltage level	-10 ... -14 V
Run mode setting time	4 s
Ambient temperature effect coefficient	± 0.2 % / °C
Electric strength of insulation between the case and cable cores	500 V
Housing material	stainless steel
Weight (without cable)	160 g
Supplied accessories	screw M8 × 40



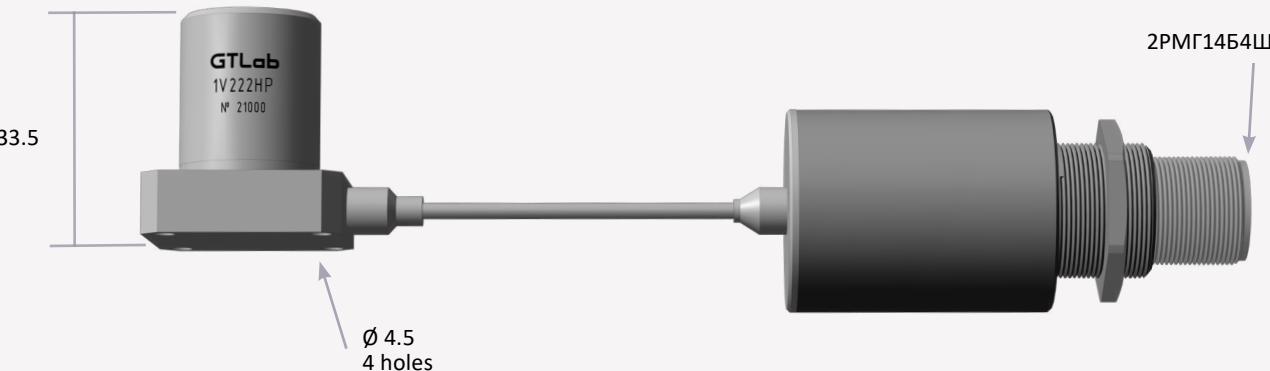
PARAMETER	1V209HA-10	1V209HA-30	1V209HA-100
Conversion factor	1 mV/(m·s <sup>-2</sup> )	3 mV/(m·s <sup>-2</sup> )	10 mV/(m·s <sup>-2</sup> )
Transverse sensitivity	< 5 %		
Maximum value of measured vibration acceleration amplitude	$\pm 5\,000\text{ m/s}^2$	$\pm 1\,600\text{ m/s}^2$	$\pm 500\text{ m/s}^2$
Maximum shock limit (peak value)	$\pm 5\,000\text{ m/s}^2$		
Temperature range	-55 ... +125 °C		
Pyrosensitivity:			
▪ from 0,2 Hz	0.002 g/ °C		
▪ from 3 Hz	0.0005 g/ °C		
Frequency range:			
▪ uneven frequency response $\pm 3\text{ dB}$	0.2 ... 12 000 Hz		
▪ uneven frequency response $\pm 1\text{ dB}$	0.5 ... 8 000 Hz		
▪ uneven frequency response $\pm 5\%$	1 ... 5 000 Hz		
Self-resonant frequency	> 25 kHz		
Noise level, root mean square value(1 Hz ÷ 10 kHz)	0.005 m/s <sup>2</sup>	0.002 m/s <sup>2</sup>	
Output impedance	< 500 Ohm		
Power:			
▪ voltage	+ (18 ... 30) V		
▪ current	2 ... 20 mA		
Constant output voltage level	8 ... 13 V		
Run mode setting time	4 s		
Ambient temperature effect coefficient	$\pm 0.2\text{ \% / }^\circ\text{C}$		
Electric strength of insulation between the case and cable cores	500 V		
Housing material	stainless steel		
Weight (without cable)	90 g		
Supplied accessories	3 screws M4 × 14		



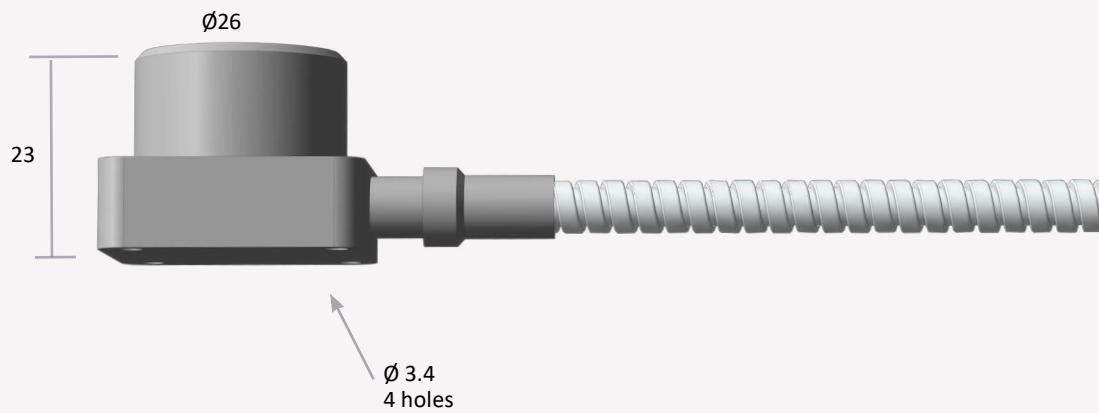
PARAMETER	1V209HM-10	1V209HM-30	1V209HM-100
Conversion factor	1 mV/(m·s <sup>-2</sup> )	3 mV/(m·s <sup>-2</sup> )	10 mV/(m·s <sup>-2</sup> )
Transverse sensitivity	< 5 %		
Maximum value of measured vibration acceleration amplitude	± 5 000 m/s <sup>2</sup>	± 1 600 m/s <sup>2</sup>	± 500 m/s <sup>2</sup>
Maximum shock limit (peak value)	± 5 000 m/s <sup>2</sup>		
Temperature range	-55 ... +125 °C		
Pyrosensitivity:			
▪ at 0,2 Hz	0.002 g/ °C		
▪ at 3 Hz	0.0005 g/ °C		
Frequency range:			
▪ uneven frequency response ± 3 dB	0.2 ... 12 000 Hz		
▪ uneven frequency response ± 1 dB	0.5 ... 8 000 Hz		
▪ uneven frequency response ± 5%	1 ... 5 000 Hz		
Self-resonant frequency	> 25 kHz		
Noise level, root mean square value(1 Hz ÷ 10 kHz)	0.005 m/s <sup>2</sup>	0.002 m/s <sup>2</sup>	
Output impedance	< 500 Ohm		
Power:			
▪ voltage	+ (18 ... 30) V		
▪ current	2 ... 20 mA		
Constant output voltage level	8 ... 13 V		
Run mode setting time	4 s		
Ambient temperature effect coefficient	± 0.2 %/ °C		
Electric strength of insulation between the case and cable cores	500 V		
Housing material	stainless steel		
Weight (without cable)	90 g		
Supplied accessories	3 screws M4 × 14		



PARAMETER	1V221HP-10	1V223HP-10
<b>Output acceleration</b>		
Conversion factor $\pm 5\%$	1 mV/(m·s <sup>-2</sup> )	
Maximum value of measured vibration acceleration amplitude	$\pm 5\,000 \text{ m/s}^2$	
Maximum shock limit (peak value)	$\pm 10\,000 \text{ m/s}^2$	
Frequency range:		
▪ uneven frequency response $\pm 3 \text{ dB}$	10 ... 8 000 Hz	
▪ uneven frequency response $\pm 1 \text{ dB}$	20 ... 5 000 Hz	
▪ uneven frequency response $\pm 5\%$	40 ... 3 000 Hz	
Noise level, root mean square value(1 Hz ÷ 10 kHz)	0.15 m/s <sup>2</sup>	
<b>Output speed</b>		
Conversion factor $\pm 5\%$	4 mV/(m·s <sup>-2</sup> )	
Range of measured speeds	0.1 ... 1 270 mm/c	
Frequency range:		
▪ uneven frequency response $\pm 3 \text{ dB}$	25 ... 2 000 Hz	
▪ uneven frequency response $\pm 5\%$	40 ... 1 000 Hz	
Noise level, root mean square value(1 Hz ÷ 10 kHz)	0.05 m/s <sup>2</sup>	
<b>General requirements</b>		
Self-resonant frequency	> 15 kHz	
Transverse sensitivity	< 5 %	
Temperature range	-60 ... +400 °C	
Temperature range electronic unit	-40 ... +125 °C	
Output impedance	< 100 Ohm	
Power:		
▪ voltage	+ (18 ... 30) V	- (18 ... 30) V
▪ current	< 10 mA	
Constant output voltage level	+ (10 ± 2) V	- (10 ± 2) V
Run mode setting time	4 s	
Ambient temperature effect coefficient	± 0.05 % / °C	
Housing material	stainless steel	
Weight (without cable)	95 g	
Supplied accessories	3 screws DIN M4 × 12 A2	



PARAMETER	1V222HP-10	1V224HP-10
<b>Output acceleration</b>		
Conversion factor ± 5%	1 mV/(m·s <sup>-2</sup> )	
Maximum value of measured vibration acceleration amplitude	± 5 000 m/s <sup>2</sup>	
Maximum shock limit (peak value)	± 10 000 m/s <sup>2</sup>	
Frequency range:		
▪ uneven frequency response ± 3 dB	10 ... 8 000 Hz	
▪ uneven frequency response ± 1 dB	20 ... 5 000 Hz	
▪ uneven frequency response ± 5%	40 ... 3 000 Hz	
Noise level, root mean square value(1 Hz ÷ 10 kHz)	0.15 m/s <sup>2</sup>	
<b>Output speed</b>		
Conversion factor ± 5%	4 mV/(m·s <sup>-2</sup> )	
Range of measured speeds	0.1 ... 1 270 mm/c	
Frequency range:		
▪ uneven frequency response ± 3 dB	25 ... 2 000 Hz	
▪ uneven frequency response ± 5%	40 ... 1 000 Hz	
Noise level, root mean square value(1 Hz ÷ 10 kHz)	0.05 m/s <sup>2</sup>	
<b>General requirements</b>		
Self-resonant frequency	> 15 kHz	
Transverse sensitivity	< 5 %	
Temperature range	-60 ... +400 °C	
Temperature range electronic unit	-40 ... +125 °C	
Output impedance	< 100 Ohm	
Power:		
▪ voltage	+ (18 ... 30) V	- (18 ... 30) V
▪ current	< 10 mA	
Constant output voltage level	+ (10 ± 2) V	- (10 ± 2) V
Run mode setting time	4 s	
Ambient temperature effect coefficient	± 0.05 %/ °C	
Housing material	stainless steel	
Weight (without cable)	125g	
Supplied accessories	4 screws DIN404 M3 × 16	



Parameter	1V251HM- 100
Sensitivity	10 mV/(m·s <sup>-2</sup> )
Transverse sensitivity	< 5 %
Measurement range	± 500 m/s <sup>2</sup>
Maximum shock limit (peak value)	± 10 000 m/s <sup>2</sup>
Temperature range	-40 ... +125 °C
Frequency range:	0.5 ... 2 400 Hz
▪ uneven frequency response ± 3 dB	1 ... 800 Hz
▪ uneven frequency response ± 1 dB	2 ... 500 Hz
▪ uneven frequency response ± 5%	
Resonant frequency	> 5 kHz
Noise level, root mean square value (1 Hz ÷ 10 kHz)	< 0.01 m/s <sup>2</sup>
Output impedance	< 500 Ohm
Power:	+ (18 ... 30) V
▪ voltage	2 ... 20 mA
▪ current	
Constant output voltage level	8 ... 13 V
Ambient temperature effect coefficient	± 0.1 %/°C
Run mode setting time	4 s
Housing material	stainless steel
Weight (without cable)	90 g
Supplied accessories	4 screws DIN 404 M3 × 16

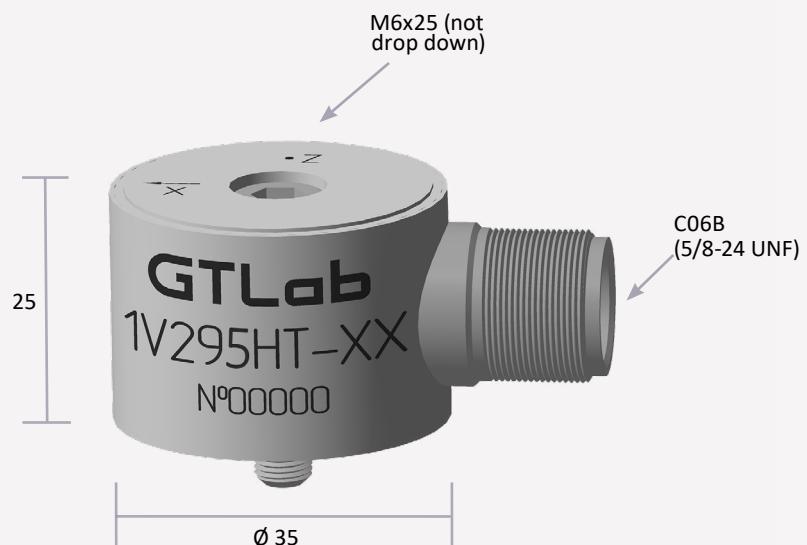




General purpose three - component  
With voltage output

Accelerometers

PARAMETER	1V290HA- 10 1V290HA- 10-01 1V290HA- 10-02	1V290HA-100 1V290HA-100 -01 1V290HA-100 -02
Sensitivity ( $\pm 10\%$ )	1 mV/(m·s $^2$ )	10 mV/(m·s $^2$ )
Transverse sensitivity	< 5 %	
Measurement range	$\pm 1\,000 \text{ m/s}^2$	$\pm 500 \text{ m/s}^2$
Nonlinearity of amplitude characteristics	$\pm 5 \%$	
Measurement range	$\pm 5\,000 \text{ m/s}^2$	
Temperature range	-55 ... +125 °C	
Frequency range: ▪ uneven frequency response $\pm 3 \text{ dB}$	1 ... 1\,000 Hz	
Resonant frequency	> 2 kHz	
Noise level, RMS (1 Hz ÷ 10 kHz)	< 0,02 m/s $^2$	< 0,01 m/s $^2$
Output impedance	< 100 Ohm	
▪ Power: ▪ voltage ▪ current	+ (18 ... 30) V 2 ... 20 mA	
Constant output voltage level	8 ... 13 V	
Ambient temperature effect coefficient	$\pm 0,2 \text{ \%}/^\circ\text{C}$	
Run mode setting time	4 c	
Housing material	stainless steel	
Weight (without cable)	8,8 g	

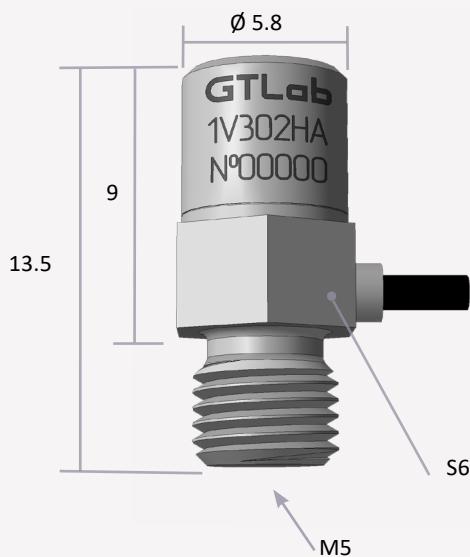


PARAMETER	1V295HT-10	1V295HT-100	1V295HT-500
Sensitivity	1 mV/(m·s <sup>-2</sup> )	10 mV/(m·s <sup>-2</sup> )	50 mV/(m·s <sup>-2</sup> )
Transverse sensitivity	< 5 %		
Measurement range	± 5 000 m/s <sup>2</sup>	± 500 m/s <sup>2</sup>	± 100 m/s <sup>2</sup>
Maximum shock limit (peak value)	± 10 000 m/s <sup>2</sup>		
Temperature range	-55 ... +125 °C		
▪ Frequency range:			
▪ uneven frequency response ± 3 dB	0,5 ... 7 000 Hz		
▪ uneven frequency response ± 1 dB	1 ... 5 000 Hz		
▪ uneven frequency response ± 5 %	2 ... 3 000 Hz		
Resonant frequency	> 15 kHz		
Noise level, root mean square value (1 Hz ÷ 10 kHz)	< 0,005 m/s <sup>2</sup>	< 0,003 m/s <sup>2</sup>	< 0,002 m/s <sup>2</sup>
Output impedance	< 100 Ohm		
▪ Power:			
▪ voltage	+ (18 ... 30) V		
▪ current	2 ... 20 mA		
Constant output voltage level	8 ... 13 V		
Ambient temperature effect coefficient	± 0,2 %/ °C		
Run mode setting time	4 c		
Housing material	stainless steel (12X18H10T ГОСТ 5632-2014)		
Weight (without cable)	100 g		
Supplied accessories	cable 03T1A2 (customer requirement decision)		
Built-in over-voltage protection	Screw M6-8g × 25 (not drop down) until 50 V		



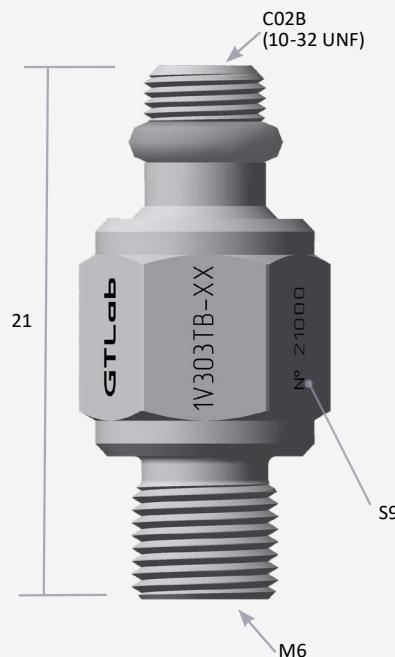
Parameter	1V301HA-1	1V301HA-3
Sensitivity	0.1 mV/(m·s <sup>-2</sup> )	0.3 mV/(m·s <sup>-2</sup> )
Transverse sensitivity	< 5 %	
Measurement range	± 50 000 m/s <sup>2</sup>	± 16 000 m/s <sup>2</sup>
Maximum shock limit (peak value)	± 100 000 m/s <sup>2</sup>	± 30 000 m/s <sup>2</sup>
Temperature range	– 55 ... + 125 °C	
Frequency range:		
▪ uneven frequency response ± 3 dB	5 ... 38 000Hz	5 ... 27 000Hz
▪ uneven frequency response ± 1 dB	10... 25 000Hz	10... 18 000Hz
▪ uneven frequency response ± 5 %	20 ... 10 000Hz	20 ... 12 000Hz
Resonant frequency	> 75 kHz	> 55 kHz
Noise level, root mean square value (1 Hz ÷ 10 kHz)	< 0.02 m/s <sup>2</sup>	
Output impedance	< 100 Ohm	
Power:		
▪ voltage	+ (18 ... 30) V	
▪ current	2 ... 20 mA	
Constant output voltage level	8 ... 13 V	
Ambient temperature effect coefficient	± 0.2 %/ °C	
Run mode setting time	4 s	
Housing material	stainless steel	
Weight (without cable)	2 g	





Parameter	1V302HA-1	1V302HA-2
Sensitivity	0.1 mV/(m·s <sup>-2</sup> )	0.2 mV/(m·s <sup>-2</sup> )
Transverse sensitivity	< 5 %	
Measurement range	± 50 000 m/s <sup>2</sup>	± 25 000 m/s <sup>2</sup>
Maximum shock limit (peak value)	± 150 000 m/s <sup>2</sup>	
Temperature range	– 55 ... + 125 °C	
Frequency range:		
▪ uneven frequency response ± 3 dB	5 ... 38 000Hz	5 ... 35 000Hz
▪ uneven frequency response ± 1 dB	10... 25 000Hz	10... 23 000Hz
▪ uneven frequency response ± 5 %	20 ... 15 000Hz	20 ... 14 000Hz
Resonant frequency	> 75 kHz	> 70 kHz
Noise level, root mean square value (1 Hz ÷ 10 kHz)	< 0.02 m/s <sup>2</sup>	
Output impedance	< 100 Ohm	
Power:		
▪ voltage	+ (18 ... 30) V	
▪ current	2 ... 20 mA	
Constant output voltage level	8 ... 13 V	
Ambient temperature effect coefficient	± 0.2 % / °C	
Run mode setting time	4 s	
Housing material	stainless steel	
Weight (without cable)	2 g	



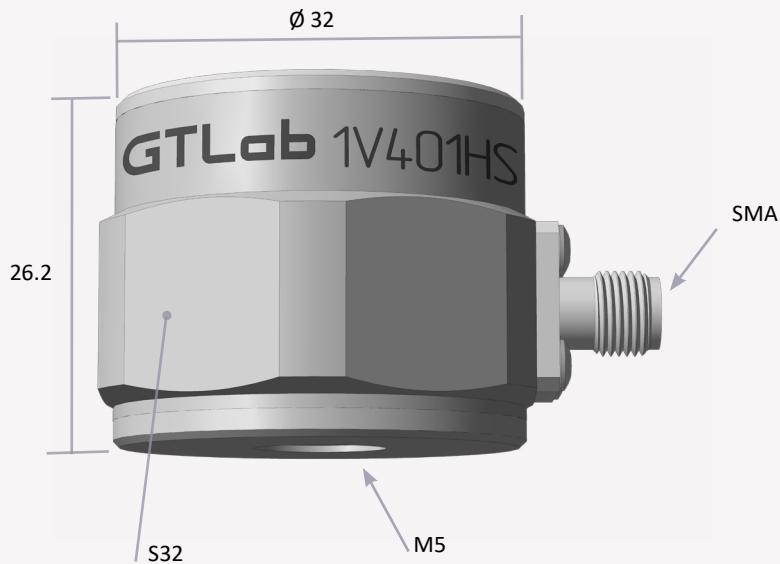


Parameter	1V303TB-0.5	1V303TB-1	1V303TB-2
Sensitivity	0.05 mV/(m·s <sup>-2</sup> )	0.1 mV/(m·s <sup>-2</sup> )	0.2 mV/(m·s <sup>-2</sup> )
Transverse sensitivity	< 5 %		
Measurement range	± 100 000 m/s <sup>2</sup>	± 50 000 m/s <sup>2</sup>	± 25 000 m/s <sup>2</sup>
Maximum shock limit (peak value)	± 150 000 m/s <sup>2</sup>		
Temperature range	- 55 ... + 125 °C		
Frequency range:			
▪ uneven frequency response ± 3 dB	10 ... 38 000 Hz	5 ... 27 000 Hz	
▪ uneven frequency response ± 1 dB	20 ... 25 000 Hz	10 ... 18 000 Hz	
▪ uneven frequency response ± 5%	40 ... 10 000 Hz	20 ... 12 000 Hz	
Resonant frequency	> 75 kHz	> 55 kHz	
Noise level, root mean square value (1 Hz ÷ 10 kHz)	< 0.02 m/s <sup>2</sup>		
Output impedance	< 100 Ohm		
Power:			
▪ voltage	+ (18 ... 30) V		
▪ current	2 ... 20 mA		
Constant output voltage level	8 ... 13 V		
Ambient temperature effect coefficient	± 0.2 % / °C		
Run mode setting time	4 s		
Housing material	stainless steel		
Weight (without cable)	6 g		
Supplied accessories	cable 02B1D1 (as per the customer's request)		



Parameter	1V304HA-0,5
Sensitivity	0.05 mV/(m·s <sup>-2</sup> )
Transverse sensitivity	< 5 %
Measurement range	± 200 000 m/s <sup>2</sup>
Maximum shock limit (peak value)	± 500 000 m/s <sup>2</sup>
Temperature range	– 55 ... + 125 °C
Frequency range:	
▪ uneven frequency response ± 3 dB	10 ... 45 000Hz
▪ uneven frequency response ± 1 dB	20... 30 000Hz
▪ uneven frequency response ± 5 %	30 ... 20 000Hz
Resonant frequency	> 90 kHz
Noise level, root mean square value (1 Hz ± 10 kHz)	< 0.1 m/s <sup>2</sup>
Output impedance	< 100 Ohm
Power:	
▪ voltage	+ (18 ... 30) V
▪ current	2 ... 20 mA
Constant output voltage level	8 ... 13 V
Ambient temperature effect coefficient	± 0.2 %/ °C
Run mode setting time	4 s
Housing material	titanium alloy alloy
Weight (without cable)	0,13 g



**Parameter**

Sensitivity

Transverse sensitivity

Measurement range

Maximum shock limit (peak value)

Temperature range

Sensitivity to variable temperature

cutoff frequency of HPF	0,2Hz
	3Hz

Frequency range:

- uneven frequency response ± 3 dB
- uneven frequency response ± 1 dB
- uneven frequency response ± 5%

Resonant frequency

Noise level, root mean square value  
(0,1 ... 2 000Hz)

Output impedance

Power:

- voltage
- current

Constant output voltage level

Ambient temperature effect coefficient

Run mode setting time

Housing material

Weight (without cable)

Supplied accessories

**1V401HS-500**50 mV/(m·s<sup>-2</sup>)

&lt; 5 %

± 100 m/s<sup>2</sup>± 1 000 m/s<sup>2</sup>

– 55 ... + 125 °C

0.002 g/°C

0.0005 g/°C

0.04 ... 4 500 Hz

0.1 ... 3 000 Hz

0.2 ... 1 800 Hz

&gt; 9 kHz

< 0.0001 m/s<sup>2</sup>

&lt; 100 Ohm

+ (18 ... 30) V

2 ... 20 mA

8 ... 13 V

± 0.2 %/°C

10 s

stainless steel

160 g

cable 03S1D1 (as per the customer's request)  
pin P0505**1V401HS-1000**100 mV/(m·s<sup>-2</sup>)

&lt; 5 %

± 50 m/s<sup>2</sup>

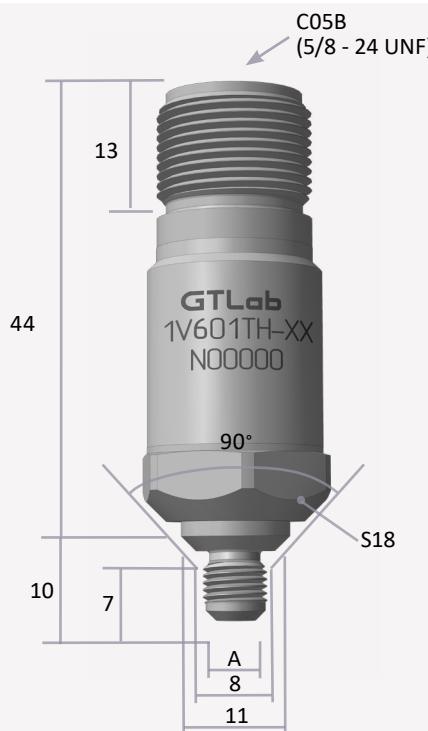
0.04 ... 3 000 Hz

0.1 ... 2 000 Hz

0.2 ... 1 200 Hz

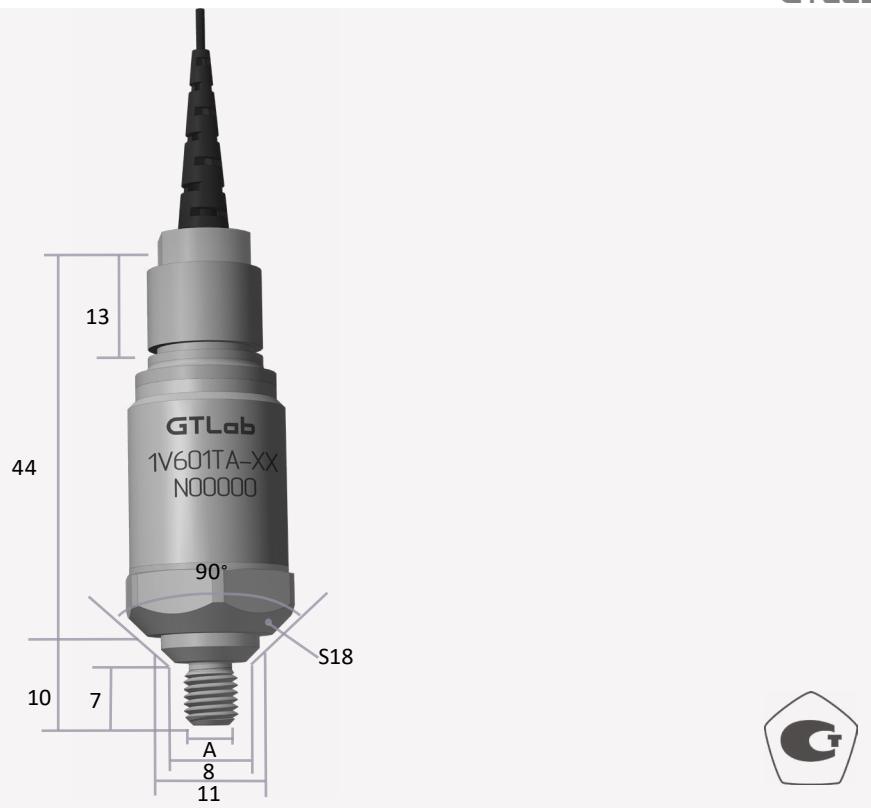
&gt; 6 kHz

GTLab  
1V401HS-500  
№ 20003

**Parameter**

Conversion factor ( $\pm 10\%$ )	1V601TH-100-01	1V601TH-100-02	1V601TH-100-03
Transverse sensitivity	10 mV/(m·s <sup>-2</sup> )		
Measurement range	< 5 %		
Measuring range of shock pulses	$\pm 600 \text{ m/s}^2$		
Temperature range	-20 ... +75 dB		
Frequency range:	-55 ... +125 °C		
▪ uneven frequency response $\pm 3 \text{ dB}$	1 ... 10 000 Hz		
▪ uneven frequency response $\pm 1 \text{ dB}$	2 ... 6 000 Hz		
▪ uneven frequency response $\pm 5\%$	4 ... 5 000 Hz		
Self-resonant frequency	28 kHz		
Noise level, root mean square value (1 Hz $\div$ 10 kHz)	< 0.002 m/s <sup>2</sup>		
Output impedance	< 100 Ohm		
Power:			
▪ voltage	+ (18 ... 30) V		
▪ current	2 ... 20 mA		
Constant output voltage level	8 ... 13 V		
Ambient temperature effect coefficient	$\pm 0.2\%/\text{°C}$		
Run mode setting time	2 s		
Housing material	stainless steel		
Explosion-proofness	OExialIICt4		
Protection against external influences	IP67		
Weight (without cable)	50 g		
Supplied accessories	cable 03S1D1 (as per the customer's request)		
Thread size A	M6	M8	UNF 5/16
Mounting torque	4 H*m	10 H*m	

Accelerometers > With voltage output > High-sensitive



Parameter	1V601TA-100-01	1V601TA-100-02	1V601TA-100-03
Conversion factor ( $\pm 10\%$ )	10 mV/(m·s $^{-2}$ )		
Transverse sensitivity	< 5 %		
Measurement range	$\pm 600 \text{ m/s}^2$		
Measuring range of shock pulses	-20 ... +75 dB		
Temperature range	-55 ... +125 °C		
Frequency range:			
▪ uneven frequency response $\pm 3$ dB	1 ... 10 000 Hz		
▪ uneven frequency response $\pm 1$ dB	2 ... 6 000 Hz		
▪ uneven frequency response $\pm 5\%$	4 ... 5 000 Hz		
Self-resonant frequency	28 kHz		
Noise level, root mean square value (1 Hz ÷ 10 kHz)	< 0.002 m/s $^2$		
Output impedance	< 100 Ohm		
Power:			
▪ voltage	+ (18 ... 30) V		
▪ current	2 ... 20 mA		
Constant output voltage level	8 ... 13 V		
Ambient temperature effect coefficient	$\pm 0.2\%/\text{°C}$		
Run mode setting time	2 s		
Housing material	stainless steel		
Explosion-proofness	OExialICT4		
Protection against external influences	IP67		
Weight (without cable)	50 g		
Supplied accessories	cable 03S1D1 (as per the customer's request)		
Thread size A	M6	M8	UNF 5/16
Mounting torque	4 H*m	10 H*m	

**Parameter**

Conversion factor ( $\pm 10\%$ )  
 Transverse sensitivity  
 Measurement range  
 Measuring range of shock pulses  
 Temperature range  
 Frequency range:  
     ▪ uneven frequency response  $\pm 3$  dB  
     ▪ uneven frequency response  $\pm 1$  dB  
     ▪ uneven frequency response  $\pm 5\%$   
 Self-resonant frequency  
 Noise level, root mean square value  
 $(1 \text{ Hz} \div 10 \text{ kHz})$   
 Output impedance  
 Power:  
     ▪ voltage  
     ▪ current  
 Constant output voltage level  
 Ambient temperature effect coefficient  
 Run mode setting time  
 Housing material  
 Explosion-proofness  
 Protection against external influences  
 Weight (without cable)  
 Supplied accessories  
 Thread size A  
 Mounting torque

**1V601TM-100-01**10 mV/(m·s<sup>-2</sup>)

&lt; 5 %

 $\pm 600 \text{ m/s}^2$ 

-20 ... +75 dB

-55 ... +125 °C

1 ... 10 000 Hz  
2 ... 6 000 Hz  
4 ... 5 000 Hz

28 kHz

< 0.002 m/s<sup>2</sup>

&lt; 100 Ohm

+ (18 ... 30) V  
2 ... 20 mA

8 ... 13 V

 $\pm 0.2\%/\text{°C}$ 

2 s

stainless steel

OExialIICt4

IP67

50 g

cable 03S1D1 (as per the  
customer's request)

M6

4 H\*m

**1V601TM-100-02**

M8

10 H\*m

**1V601TM-100-03**

UNF 5/16



Parameter	1V701TA-100	1V701TA-500	1V701TA-1000
Sensitivity	10 mV/(m·s <sup>-2</sup> )	50 mV/(m·s <sup>-2</sup> )	100 mV/(m·s <sup>-2</sup> )
Transverse sensitivity	< 5 %		
Measurement range	± 500 m/s <sup>2</sup>	± 100 m/s <sup>2</sup>	± 50 m/s <sup>2</sup>
Maximum shock limit (peak value)	± 25 000 m/s <sup>2</sup>		
Temperature range	– 55 ... + 125 °C		
Frequency range:			
▪ uneven frequency response ± 3 dB	0.5 ... 8 000 Hz		
▪ uneven frequency response ± 1 dB	1 ... 5 000 Hz		
▪ uneven frequency response ± 5 %	2 ... 4 000 Hz		
Resonant frequency	> 36 kHz		
Noise level, root mean square value (1 Hz ÷ 10 kHz)	< 0.0005 m/s <sup>2</sup>	< 0.0004 m/s <sup>2</sup>	< 0.0003 m/s <sup>2</sup>
Output impedance	< 100 Ohm		
Power:			
▪ voltage	+ (18 ... 30) V		
▪ current	2 ... 20 mA		
Constant output voltage level	8 ... 13 V		
Ambient temperature effect coefficient	± 0.2 % / °C		
Run mode setting time	4 s		
Underwater measurements to depth	150 m		
Housing material	stainless steel		
Weight (without cable)	50 g		
Supplied accessories	cable 03B1D1 (as per the customer's request) pin P0505		

**Parameter****Sensitivity****Transverse sensitivity****Measurement range****Maximum shock limit (peak value)****Temperature range****Frequency range:**

- uneven frequency response  $\pm 3$  dB
- uneven frequency response  $\pm 1$  dB
- uneven frequency response  $\pm 5\%$

**Resonant frequency****Noise level, root mean square value  
(1 Hz ÷ 10 kHz)****Output impedance****Power:**

- voltage
- current

**Constant output voltage level****Ambient temperature effect coefficient****Run mode setting time****Underwater measurements to depth****Housing material****Weight (without cable)****Supplied accessories****1V702TA-10**1 mV/(m·s<sup>-2</sup>)

&lt; 5 %

 $\pm 5\,000 \text{ m/s}^2$  $\pm 100\,000 \text{ m/s}^2$ 

−55 ... +125 °C

0.5 ... 18 000 Hz

1 ... 12 000 Hz

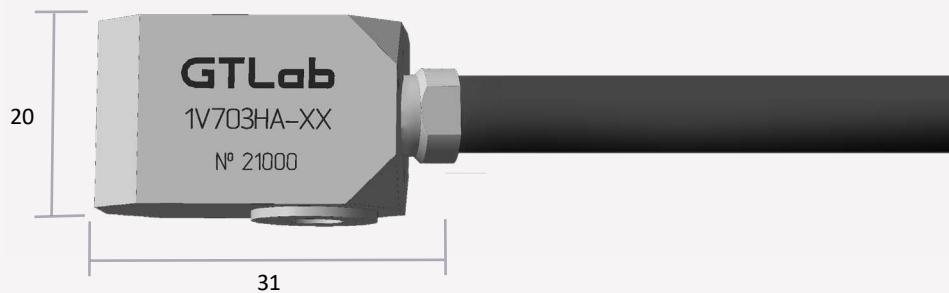
2 ... 7 000 Hz

&gt; 36 kHz

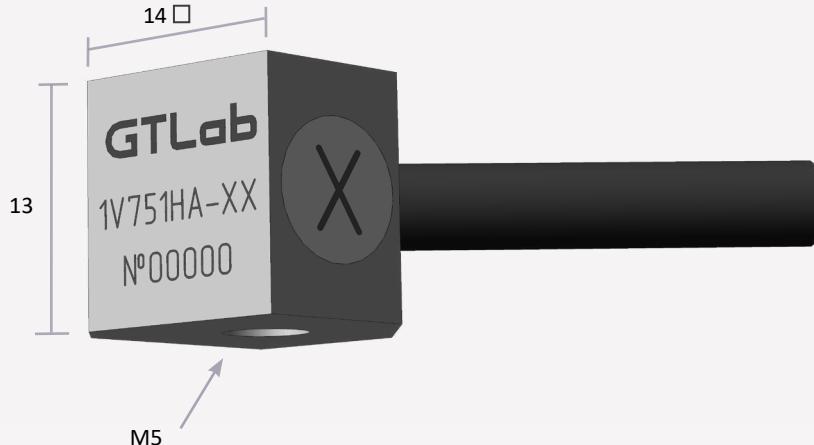
< 0.005 m/s<sup>2</sup>**1V702TA-100**10 mV/(m·s<sup>-2</sup>) $\pm 500 \text{ m/s}^2$ < 0.0035 m/s<sup>2</sup>**1V702TA-500**50 mV/(m·s<sup>-2</sup>) $\pm 100 \text{ m/s}^2$ < 0.002 m/s<sup>2</sup>

Accelerometers &gt; Underwater

With voltage output &gt; Accelerometers



Parameter	1V703HA-30	1V703HA-100
Sensitivity	3 mV/(m·s <sup>-2</sup> )	10 mV/(m·s <sup>-2</sup> )
Transverse sensitivity	< 5 %	
Measurement range	± 1 600 m/s <sup>2</sup>	± 500 m/s <sup>2</sup>
Maximum shock limit (peak value)	± 10 000 m/s <sup>2</sup>	
Temperature range	– 55 ... + 125 °C	
Frequency range:		
▪ uneven frequency response ± 3 dB	0.5 ... 15 000 Hz	
▪ uneven frequency response ± 1 dB	1 ... 9 000 Hz	
▪ uneven frequency response ± 5%	2 ... 6 000 Hz	
Resonant frequency	> 30 kHz	
Noise level, root mean square value (1 Hz ÷ 10 kHz)	< 0.002 m/s <sup>2</sup>	
Output impedance	< 100 Ohm	
Power:		
▪ voltage	+ (18 ... 30) V	
▪ current	2 ... 20 mA	
Constant output voltage level	8 ... 13 V	
Ambient temperature effect coefficient	± 0.2 %/ °C	
Run mode setting time	4 s	
Underwater measurements to depth	150 m	
Housing material	stainless steel	
Weight (without cable)	90 g	
Supplied accessories	screw M6-8g × 30	



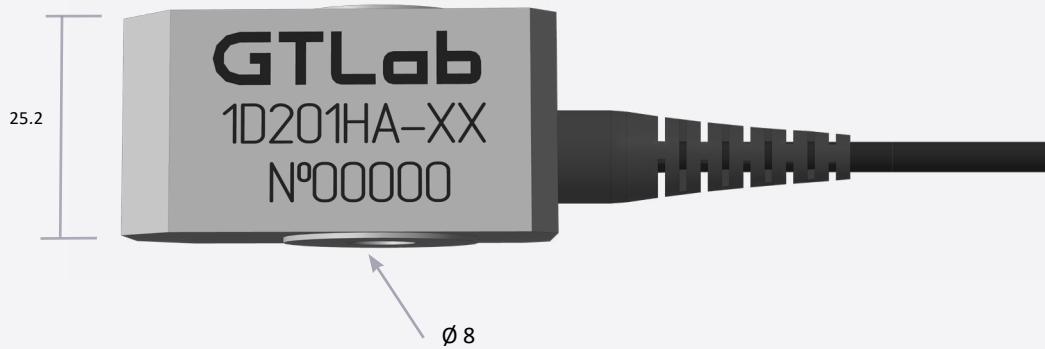
Parameter	1V751HA-1	1V751HA-10	1V751HA-30	1V751HA-100
Sensitivity	0.1 mV/(m·s <sup>-2</sup> )	1 mV/(m·s <sup>-2</sup> )	3 mV/(m·s <sup>-2</sup> )	10 mV/(m·s <sup>-2</sup> )
Transverse sensitivity	< 5 %			
Measurement range	± 50 000 m/s <sup>2</sup>	± 5 000 m/s <sup>2</sup>	± 1 600 m/s <sup>2</sup>	± 500 m/s <sup>2</sup>
Maximum shock limit (peak value)	± 10 000 m/s <sup>2</sup>			
Temperature range	– 55 ... + 125 °C			
Frequency range:				
▪ uneven frequency response ± 3 dB	0.2 ... 22 500 Hz			
▪ uneven frequency response ± 1 dB	0.5 ... 15 000 Hz			
▪ uneven frequency response ± 5 %	1 ... 9 000 Hz			
Resonant frequency	> 45 kHz			
Noise level, root mean square value (1 Hz ÷ 10 kHz)	< 0.05 m/s <sup>2</sup>	< 0.01 m/s <sup>2</sup>	< 0.009 m/s <sup>2</sup>	< 0.008 m/s <sup>2</sup>
Output impedance	< 100 Ohm			
Power:				
▪ voltage	+ (18 ... 30) V			
▪ current	2 ... 20 mA			
Constant output voltage level	8 ... 13 V			
Ambient temperature effect coefficient	± 0.2 % / °C			
Run mode setting time	4 s			
Underwater measurements to depth	150 m			
Housing material	stainless steel			
Weight (without cable)	16 g			
Resistance to	oil, fuels and lubricants, solvents			
Supplied accessories	screw P0505			

› Underwater three-component

› With voltage output

Accelerometers

**Modbus**  
**RS485**

**Parameter**

**Range of measured amplitudes vibration accelerations**

**1D201HA**

0 ... 100 m/s<sup>2</sup>  
0 ... 200 m/s<sup>2</sup>  
0 ... 400 m/s<sup>2</sup>  
(user configurable)

**Measurement Mode**

vibration acceleration,  
vibration velocity,  
vibration displacement

**Detector**

magnitude ,Peak, RMS

Measured temperature range by integrated sensor ( $\pm 2^{\circ}\text{C}$ )

- 40 ... +125°C

high-pass filter

2, 3, 5, 10 Hz

(user configurable)

200,500,1000 Hz

(user configurable)

low-pass filter

2 ... 1 000 Hz

3 ... 1 000 Hz

5 ... 1 000 Hz

10 ... 1 000 Hz

(user configurable)

Frequency range uneven frequency response  $\pm 3 \text{ dB}$

$\pm 1 000 \text{ m/s}^2$

Maximum impact (peak)

< 5%

Transverse sensitivity

- 40 ... + 125°C

Temperature range

RS-485, protocol Modbus RTU

Output

10 ... 24 V

Supply voltage

3 (x, y, z)

Number of measuring axes

stainless steel

Housing material

160g

Weight

screw M8 x 35



**Modbus  
RS485**

**Parameter**

**Range of measured amplitudes vibration accelerations**

**1D201HM**

0 ... 100 m/s<sup>2</sup>  
0 ... 200 m/s<sup>2</sup>  
0 ... 400 m/s<sup>2</sup>  
(user configurable)

**Measurement Mode**

vibration acceleration,  
vibration velocity,  
vibration displacement

**Detector**

magnitude ,Peak, RMS

**Measured temperature range by integrated sensor ( $\pm 2^{\circ}\text{C}$ )**

- 40 ... +125°C

**high-pass filter**

2, 3, 5, 10 Hz

(user configurable)

**low-pass filter**

200,500,1000 Hz

(user configurable)

**Frequency range uneven frequency response  $\pm 3 \text{ dB}$**

2 ... 1 000 Hz

3 ... 1 000 Hz

5 ... 1 000 Hz

10 ... 1 000 Hz

(user configurable)

**Maximum impact (peak)**

$\pm 1 000 \text{ m/s}^2$

**Transverse sensitivity**

< 5%

**Temperature range**

- 40 ... +125°C

**Output**

RS-485, protocol Modbus RTU

**Supply voltage**

10 ... 24 V

**Number of measuring axes**

3 (x, y, z)

**Housing material**

stainless steel

**Weight**

160g

**Supplied accessories**

screw M8 x 35

**Modbus**  
**RS485**

**Parameter**

**Range of measured amplitudes vibration accelerations**

**1D201HN**

0 ... 100 m/s<sup>2</sup>  
0 ... 200 m/s<sup>2</sup>  
0 ... 400 m/s<sup>2</sup>

(user configurable)

**Measurement Mode**

vibration acceleration,  
vibration velocity,  
vibration displacement

**Detector**

**magnitude, Peak, RMS**

**Measured temperature range by integrated sensor ( $\pm 2^\circ\text{C}$ )**

- 40 ... +85°C

**High-pass filter**

2, 3, 5, 10 Hz  
(user configurable)

**Low-pass filter**

200,500,1000 Hz  
(user configurable)

**Frequency range uneven frequency response  $\pm 3 \text{ dB}$**

2 ... 1 000 Hz  
3 ... 1 000 Hz  
5 ... 1 000 Hz  
10 ... 1 000 Hz

(user configurable)

**Maximum impact (peak)**

$\pm 1 000 \text{ m/s}^2$

**Transverse sensitivity**

< 5%

**Temperature range**

- 40 ... +85°C

**Output**

RS-485, protocol Modbus RTU

**Supply voltage  $\pm 10 \%$**

+ (5 ... 12) V

**Consumption current**

$\leq 20 \text{ mA}$

**Number of measuring axes**

3 (x, y, z)

**Housing material**

stainless steel

**Weight**

160 g

**Supplied accessories**

cable 55N1A4 (as per customer's request)  
screw M8 x 35

Industrial

>

Digital output

>

With digital output

>

Accelerometers

**Modbus  
RS485**

**PARAMETER**

Range of measured amplitudes  
vibration accelerations

**1D202TA**

0 ... 100 m/s<sup>2</sup>  
0 ... 200 m/s<sup>2</sup>  
0 ... 400 m/s<sup>2</sup>  
(user configurable)

Measurement Mode

vibration acceleration,  
vibration velocity,  
vibration displacement  
magnitude, Peak, RMS

Detector  
Measured temperature range by integrated  
sensor ( $\pm 2^\circ\text{C}$ )

- 40 ... +85°C

High-pass filter

2, 3, 5, 10 Hz  
(user configurable)

Low-pass filter

200, 500, 1000 Hz  
(user configurable)

Frequency range uneven frequency response  $\pm$   
3 dB

2 ... 1 000 Hz

Maximum impact (peak)

3 ... 1 000 Hz

Transverse sensitivity

5 ... 1 000 Hz

Temperature range

10 ... 1 000 Hz

Output

(user configurable)

Supply voltage  $\pm 10\%$

$\pm 1 000 \text{ m/s}^2$

Consumption current

< 5%

Number of measuring axes

- 40 ... +85°C

Housing material

RS-485, protocol Modbus RTU

Weight

+ (5 ... 12) V

Supplied accessories

$\leq 20 \text{ mA}$

3 (x, y, z)

stainless steel

160 g

screw P0606

**Modbus**  
**RS485**

**PARAMETER**

Range of measured amplitudes  
vibration accelerations

**1D202TM**

0 ... 100 m/s<sup>2</sup>  
0 ... 200 m/s<sup>2</sup>  
0 ... 400 m/s<sup>2</sup>  
(user configurable)

Measurement Mode

vibration acceleration,  
vibration velocity,  
vibration displacement

Detector

**magnitude, Peak, RMS**

Measured temperature range by integrated  
sensor ( $\pm 2^\circ\text{C}$ )

- 40 ... +85°C

High-pass filter

2, 3, 5, 10 Hz  
(user configurable)

Low-pass filter

200, 500, 1000 Hz  
(user configurable)

Frequency range uneven frequency response  $\pm$   
3 dB

2 ... 1 000 Hz  
3 ... 1 000 Hz  
5 ... 1 000 Hz  
10 ... 1 000 Hz  
(user configurable)

Maximum impact (peak)

$\pm 1 000 \text{ m/s}^2$

Transverse sensitivity

< 5%

Temperature range

- 40 ... +85°C

Output

RS-485, protocol Modbus RTU

Supply voltage  $\pm 10\%$

+ (5 ... 12) V

Consumption current

$\leq 20 \text{ mA}$

Number of measuring axes

3 (x, y, z)

Housing material

stainless steel

Weight

160 g

Supplied accessories

screw P0606

**Modbus  
RS485**

**PARAMETER**

Range of measured amplitudes  
vibration accelerations

**1D202TN**

0 ... 100 m/s<sup>2</sup>  
0 ... 200 m/s<sup>2</sup>  
0 ... 400 m/s<sup>2</sup>  
(user configurable)

Measurement Mode

vibration acceleration,  
vibration velocity,  
vibration displacement

Detector

magnitude, Peak, RMS

Measured temperature range by integrated  
sensor ( $\pm 2^{\circ}\text{C}$ )

- 40 ... +85°C

High-pass filter

2, 3, 5, 10 Hz  
(user configurable)

Low-pass filter

200, 500, 1000 Hz  
(user configurable)

Frequency range uneven frequency response  $\pm$   
3 dB

2 ... 1 000 Hz  
3 ... 1 000 Hz  
5 ... 1 000 Hz  
10 ... 1 000 Hz  
(user configurable)

Maximum impact (peak)

$\pm 1 000 \text{ m/s}^2$

Transverse sensitivity

< 5%

Temperature range

- 40 ... +85°C

Output

RS-485, protocol Modbus RTU

Supply voltage  $\pm 10\%$

+ (5 ... 12) V

Consumption current

$\leq 20 \text{ mA}$

Number of measuring axes

3 (x, y, z)

Housing material

stainless steel

Weight

160 g

Supplied accessories

cable 55N1A4 (determined by the customer's request)  
screw P0606

**Parameter**

	<b>1V401HC</b>
Conversion factor	10 / 20 / 50 / 100 mV/(m·s <sup>-2</sup> )
Measurement range	10 / 20 / 50 / 100 m/s <sup>2</sup>
Maximum shock limit (peak value)	± 1 000 m/s <sup>2</sup>
Temperature range	- 20 ... + 70 °C
Frequency range (uneven frequency response ± 3 dB)	0.5 ... 5 000 Hz
Output interface	USB 2.0 full speed
Number of ADC bits	24 bits
Input sampling rate	48 000 Hz
Noise level, root mean square value (1 ... 5 000 Hz)	< 0.02 m/s <sup>2</sup>
Operating mode setting time	10 s
Power voltage	+ 5 V
Consumed current	80 mA
Housing material	stainless steel
Connector type	C03B
Weight (without cable)	250 g
Supplied accessories	cable 73C1U1 pin P0505 GTL software

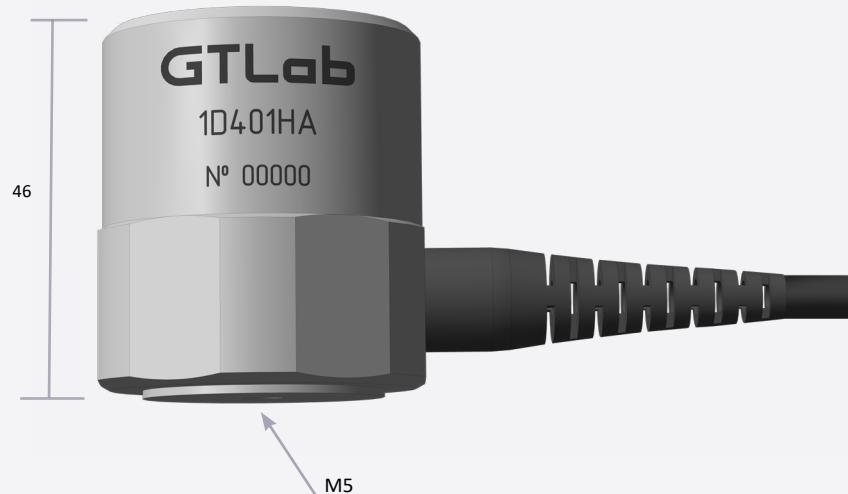
General purpose

Accelerometers

## GTL Software Features

- oscilloscope;
- spectrum analyzer;
- amplitude-phase frequency response;
- modal analysis;
- AC voltmeter;
- DC voltmeter;
- recording and sound;
- cardiac screening;
- flexible digital filters LPF, HPF, bandpass, band-reject;
- data recording to a personal computer running Windows XP/-7/8/10.



**Parameter**

Conversion factor	10 / 20 / 50 / 100 mV/(m·s <sup>-2</sup> )
Measurement range	10 / 20 / 50 / 100 m/s <sup>2</sup>
Maximum shock limit (peak value)	± 1 000 m/s <sup>2</sup>
Temperature range	- 20 ... + 70 °C
Frequency range (uneven frequency response ± 3 dB)	0.5 ... 5 000 Hz
Output interface	USB 2.0 full speed
Number of ADC bits	24 bits
Input sampling rate	48 000 Hz
Noise level, root mean square value (1 ... 5 000Hz)	< 0.02 m/s <sup>2</sup>
Operating mode setting time	10 s
Power voltage	+ 5 V
Consumed current	80 mA
Housing material	stainless steel
Connector type	USB A (m)
Weight (without cable)	250 g
Supplied accessories	cable 73C1U1 pin P0505 GTL software

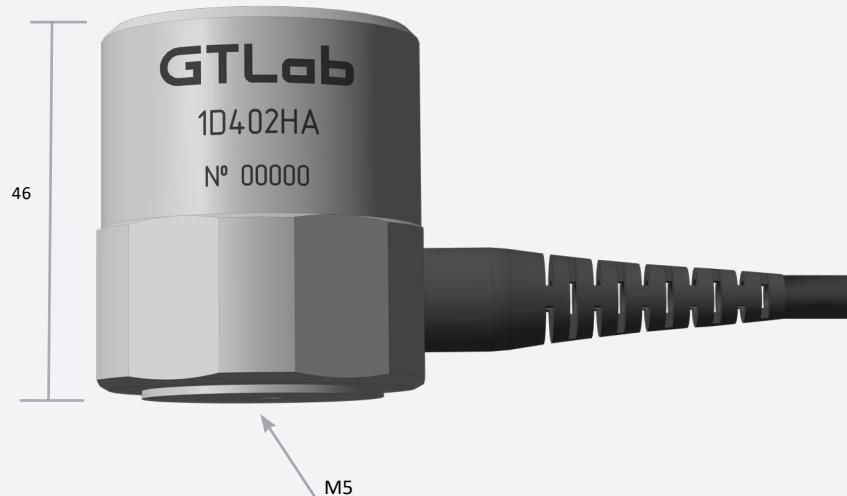
**1V401HA**

Conversion factor	10 / 20 / 50 / 100 mV/(m·s <sup>-2</sup> )
Measurement range	10 / 20 / 50 / 100 m/s <sup>2</sup>
Maximum shock limit (peak value)	± 1 000 m/s <sup>2</sup>
Temperature range	- 20 ... + 70 °C
Frequency range (uneven frequency response ± 3 dB)	0.5 ... 5 000 Hz
Output interface	USB 2.0 full speed
Number of ADC bits	24 bits
Input sampling rate	48 000 Hz
Noise level, root mean square value (1 ... 5 000Hz)	< 0.02 m/s <sup>2</sup>
Operating mode setting time	10 s
Power voltage	+ 5 V
Consumed current	80 mA
Housing material	stainless steel
Connector type	USB A (m)
Weight (without cable)	250 g
Supplied accessories	cable 73C1U1 pin P0505 GTL software

**GTL Software Features**

- oscilloscope;
- spectrum analyzer;
- amplitude-phase frequency response;
- modal analysis;
- AC voltmeter;
- DC voltmeter;
- recording and sound;
- cardiac screening;
- flexible digital filters LPF, HPF, bandpass, band-reject;
- data recording to a personal computer running Windows XP / 7/8/10.



**Parameter**

**Frequency range**  
(uneven frequency response  $\pm 3$  dB)

**Temperature range**

**Power voltage**

**Consumed current**

**Housing material**

**Connector type**

**Weight (without cable)**

**Supplied accessories**

**1V402HA**

3 ... 300 Hz

– 20 ... + 70 °C

+ 5 V

80 mA

stainless steel

USB A (m)

250 g

pin P0505

GTL software



1D402HA accelerometer is designed for non-invasive vibroacoustic cardiovascular screening



# ACCELEROMETERS WITH CURRENT OUTPUT



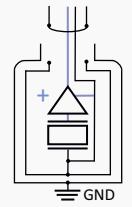
# ACCELEROMETERS WITH CURRENT OUTPUT

Vibration acceleration sensors with standard current

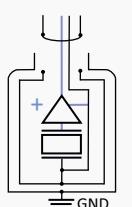
output 4 ... 20 mA. Designed to measure the RMS vibration acceleration of industrial equipment in conditions of strong industrial interference. Increased noise immunity (including protection against the pyroelectric effect), low deformation sensitivity are achieved by the design features of the shear sensitive element, base, electronic board, internal screen and its electrical isolation from the object of study.

## With current output

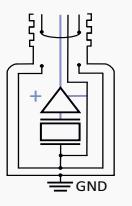
### Split-design



### One-piece



### One-piece in metal hose



# ACCELEROMETERS WITH CURRENT OUTPUT

1A202TA-XX / (T)



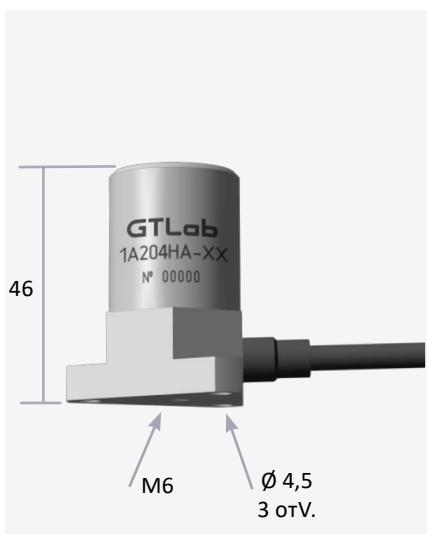
1A202TM-XX / (T)



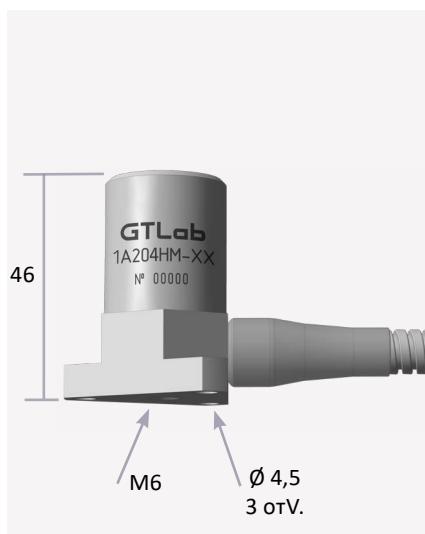
1A202TH-XX / (T)



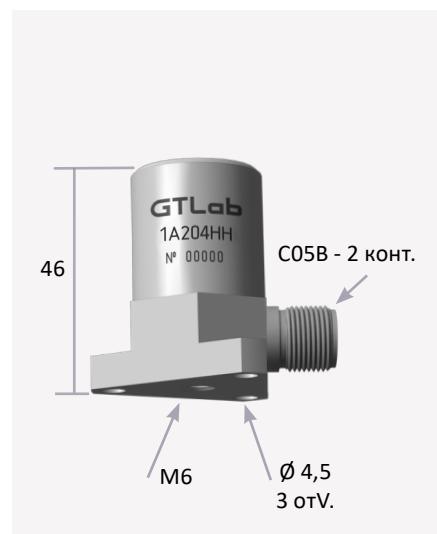
1A204HA-XX / (T)



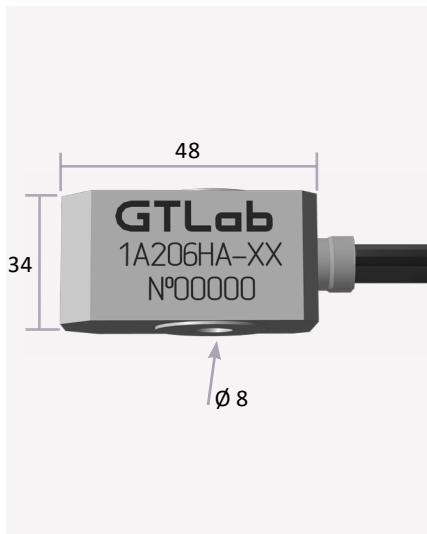
1A204HM-XX / (T)



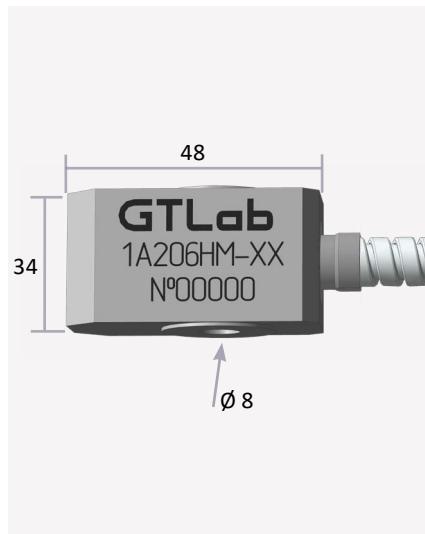
1A204HH-XX / (T)



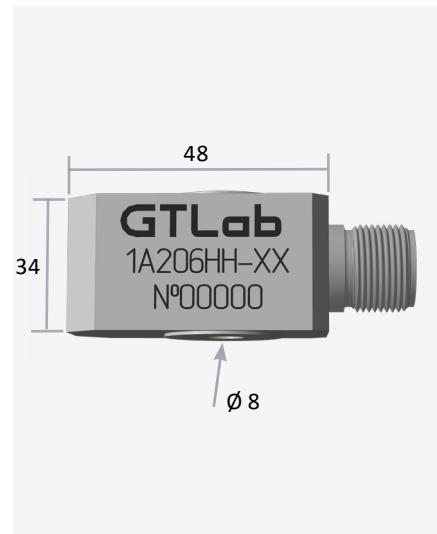
1A206HA-XX / (T)



1A206HM-XX / (T)



1A206HH-XX / (T)



# ACCELEROMETERS WITH CURRENT OUTPUT (CONTINUED)

**Table 1**

PARAMETER	1A20XXX-10 1A20XXX-10(T)	1A20XXX-20 1A20XXX-20(T)	1A20XXX-50 1A20XXX-50(T)	1A20XXX-100 1A20XXX-100(T)	1A20XXX-200 1A20XXX-200(T)
Sensitivity by vibration acceleration into a current signal 4 ... 20 mA, ( $\pm 10\%$ )	1,6 mA· $c^2/m$	0,8 mA· $c^2/m$	0,32 mA· $c^2/m$	0,16 mA· $c^2/m$	0,08 mA· $c^2/m$
Range of measured vibration acceleration, RMS	10 m/ $s^2$	20 m/ $s^2$	50 m/ $s^2$	100 m/ $s^2$	200 m/ $s^2$
Frequency range measured vibration acceleration	acc. table.2 - A				
Variation in frequency response relative to the base frequency of 159,15 Hz, within	± 3 until minus 12,5 %				
Transverse sensitivity	< 5 %				
Temperature range:					
▪ standard	-40 ... +85 °C				
▪ (T)	-40 ... +125 °C				
Coefficient of the effect of the ambient temperature, within limits	± 0,2 %/°C				
Input voltage sensor	+ (10 ... 24) V				
Run mode setting time	< 4 c				
Housing material	stainless steel				
Explosion-proofness	1Ex d IIC T6...T4 Gb, 0Ex ia IIC T6...T4 Ga				
Degree of protection from external influences	IP67				
Weight (without cable)	acc. table.2 - B				
Supplied accessories	acc. table.2 - S				

**Table 2**

PARAMETER	1A202TA-XX	A	B	S
1A202TM-XX			60 g	pin P0606 anti-vibration cable 41H1A3 (for sample -TH, -HH)
1A202TH-XX			145 g	3 screws M4 × 12 anti-vibration cable 41H1A3 (for sample -TH, -HH)
1A204HA-XX			330 g	Screw M8 × 40 anti-vibration cable 41H1A3 (for sample -TH, -HH)
1A204HM-XX	2 ... 1 000 Hz			
1A204HH-XX				
1A206HA-XX				
1A206HM-XX				
1A206HH-XX				

# VIBRATION SPEED TRANSDUCERS



# VIBRATION SPEED TRANSDUCERS

Vibration speed transducers with a standard current output 4... 20 mA. Designed to measure the RMS vibration velocity of industrial equipment in strong industrial interference conditions. The increased noise immunity (including protection against pyroelectric effect) is ensured by the design features of the shear sensitive element, the board, the shielding and electrical insulation from the test object.

## With current output

### Split-design



### One-piece

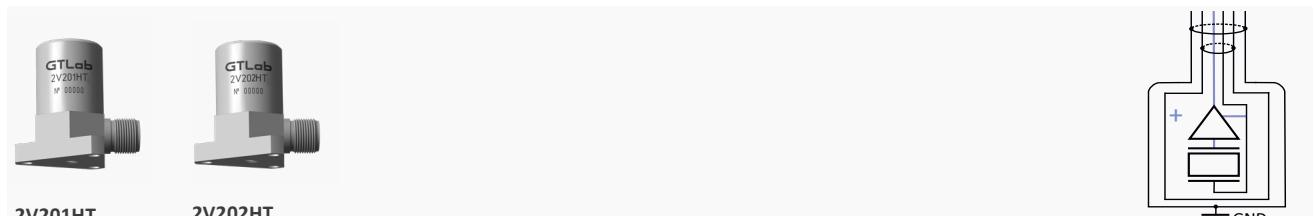


### One-piece in metal hose

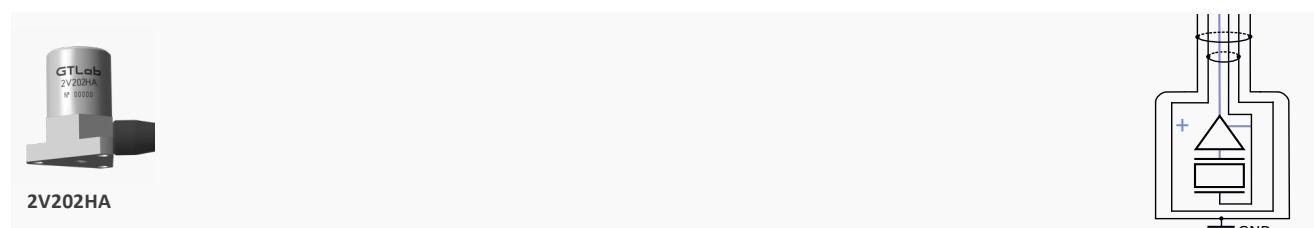


## With voltage output

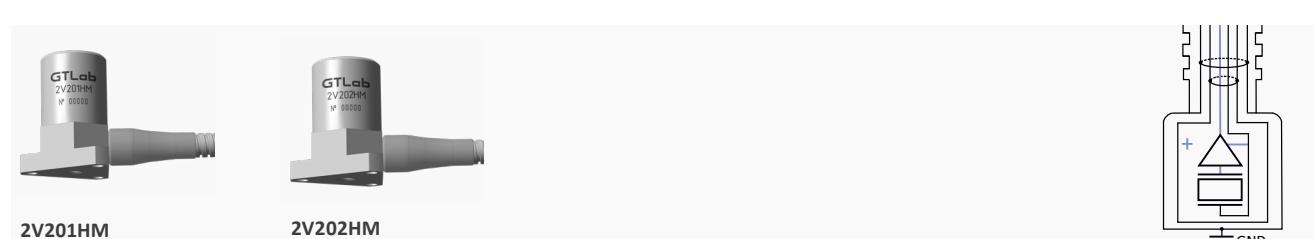
### Split-design



### One-piece



### One-piece in metal hose



# VIBRATION SPEED TRANSDUCERS WITH CURRENT OUTPUT

2A201TA-XX / (T), 2A202TA-XX / (T)



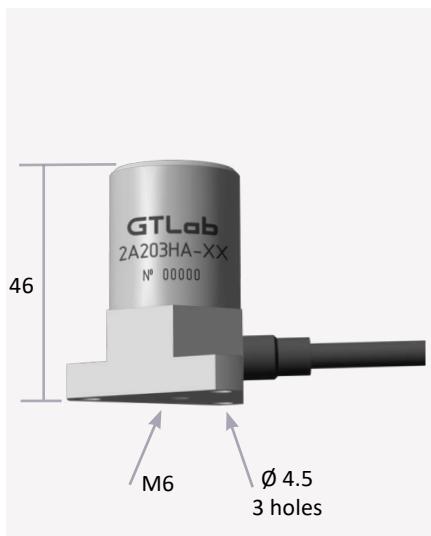
2A201TM-XX / (T), 2A202TM-XX / (T)



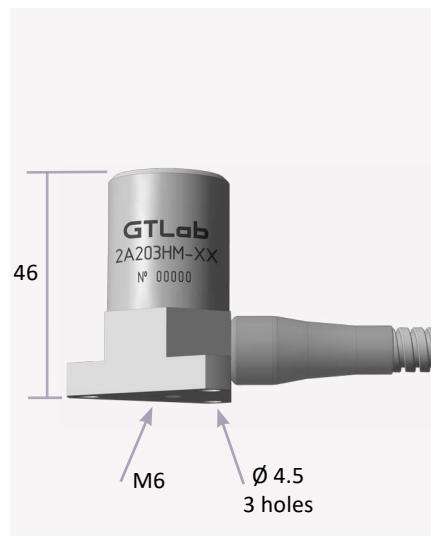
2A201TH-XX / (T), 2A202TH-XX / (T)



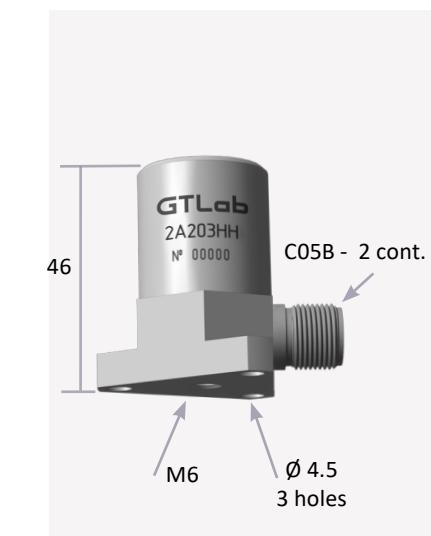
2A203HA-XX / (T), 2A204HA-XX / (T)



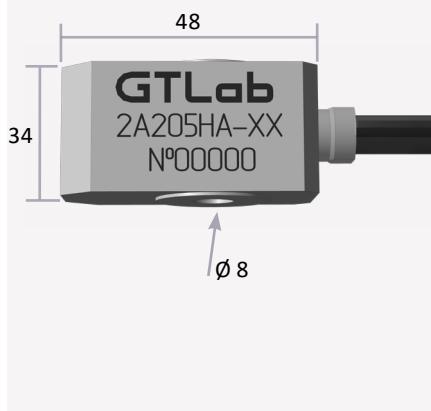
2A203HM-XX / (T), 2A204HM-XX / (T)



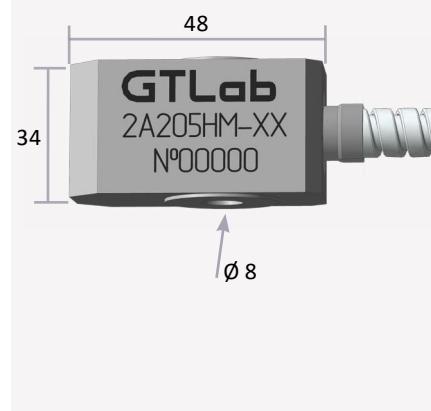
2A203HH-XX / (T), 2A204HH-XX / (T)



2A205HA-XX / (T), 2A206HA-XX / (T)



2A205HM-XX / (T), 2A206HM-XX / (T)



2A205HH-XX / (T), 2A206HH-XX / (T)



# VIBRATION SPEED TRANSDUCERS WITH CURRENT OUTPUT (CONTINUED)

**Table 1**

PARAMETER	2A20XXX-10 2A20XXX-10(T)	2A20XXX-20 2A20XXX-20(T)	2A20XXX-40 2A20XXX-40(T)	2A20XXX-80 2A20XXX-80(T)	2A20XXX-160 2A20XXX-160(T)	2A20XXX-200 2A20XXX-200(T)
Sensitivity by vibration speed to current signal 4 ... 20 mA, ( $\pm 10\%$ )	1,6 mA·s/mm	0,8 mA·s/mm	0,4 mA·s/mm	0,2 mA·s/mm	0,1 mA·s/mm	0,08 mA·s/mm
Range of measured vibration speed, RMS	10 mm/s	20 mm/s	40 mm/s	80 mm/s	160 mm/s	200 mm/s
Frequency range of measured vibration speed	according to table 2 - A					
Variation in frequency response relative to the base frequency of 159,15 Hz, within	from 3 to minus 12,5 %					
Transverse sensitivity	< 5 %					
Temperature range	-40 ... +85 °C					
▪ standard	-40 ... +125 °C					
▪ (T)						
Ambient temperature effect coefficient	$\pm 0,2\%/\text{°C}$					
Power from an external DC power source	+ (10 ... 24) V					
Run mode setting time	< 4 s					
Housing material	stainless steel					
Explosion-proofness	1Ex d IIC T6...T4 Gb, 0Ex ia IIC T6...T4 Ga					
Protection against external influences	IP67					
Weight (without cable)	according to table 2 - B					
Supplied accessories	according to table 2 - S					

**Table 2**

PARAMETER	A	B	S
2A201TA-XX			
2A201TM-XX	10 ... 1 000 Hz		
2A201TH-XX		60 g	
2A202TA-XX			
2A202TM-XX	2 ... 1 000 Hz		
2A202TH-XX			
2A203HA-XX			
2A203HM-XX	10 ... 1 000 Hz		
2A203HH-XX			
2A204HA-XX			
2A204HM-XX	2 ... 1 000 Hz	145 g	
2A204HH-XX			
2A205HA-XX			
2A205HM-XX	10 ... 1 000 Hz		
2A205HH-XX			
2A206HA-XX			
2A206HM-XX	2 ... 1 000 Hz	330 g	
2A206HH-XX			

# VIBRATION SPEED TRANSDUCERS WITH CURRENT OUTPUT THREE-COMPONENT

2A251TA-XX, 2A252TA-XX



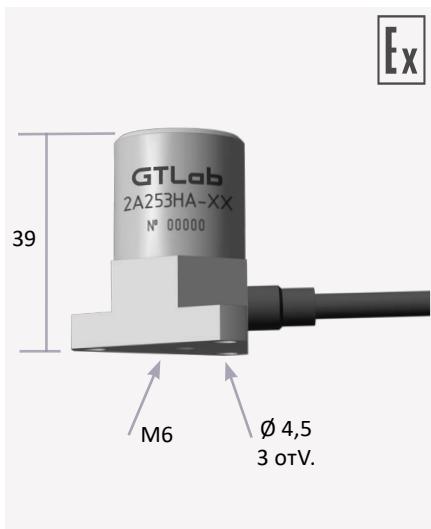
2A251TM-XX, 2A252TM-XX



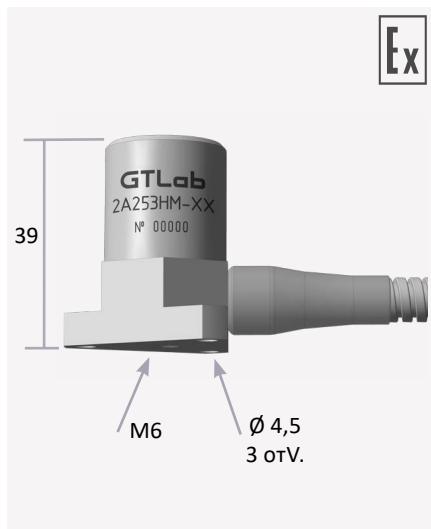
2A251TH-XX, 2A252TH-XX



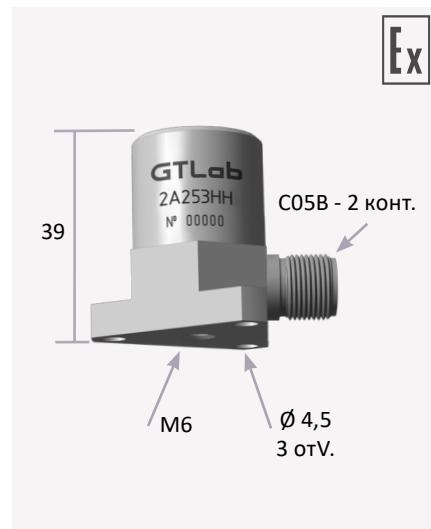
2A253HA-XX, 2A254HA-XX



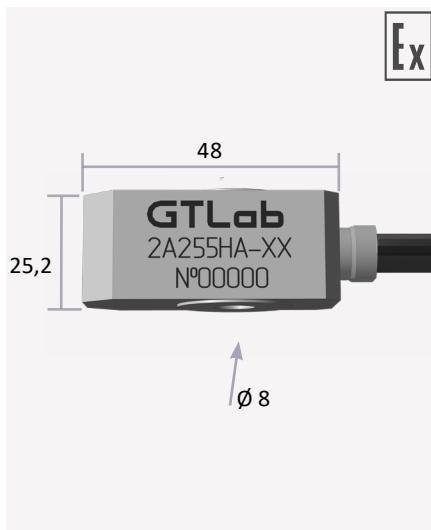
2A253HM-XX, 2A254HM-XX



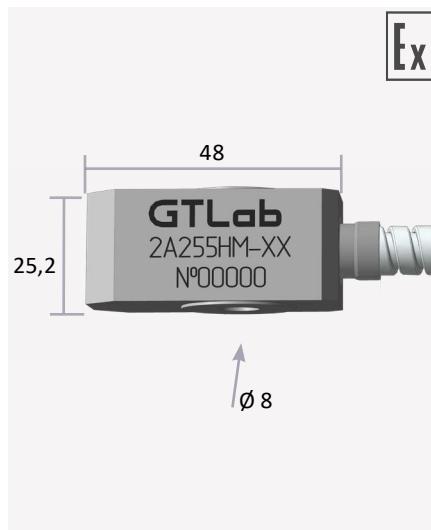
2A253HH-XX, 2A254HH-XX



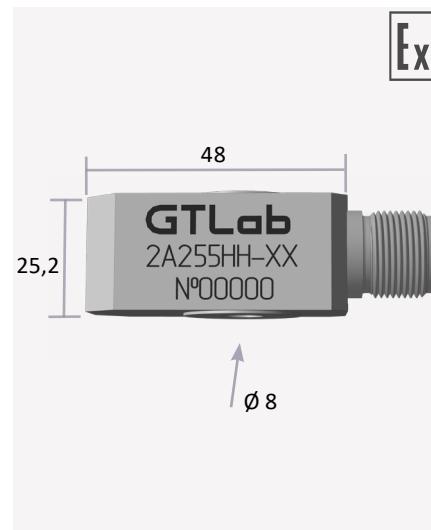
2A255HA-XX , 2A256HA-XX



2A255HM-XX, 2A256HM-XX



2A255HH-XX, 2A256HH-XX



# VIBRATION SPEED TRANSDUCERS WITH CURRENT OUTPUT THREE-COMPONENT (CONTINUED)

**Table 1**

PARAMETER	2A25XXX-10	2A25XXX-20	2A25XXX-40	2A25XXX-80	2A25XXX-100	2A25XXX-200
Sensitivity by vibration speed to current signal 4 ... 20 mA, ( $\pm 10\%$ )	1,6 mA·c/mm	0,8 mA·c/mm	0,4 mA·c/mm	0,2 mA·c/mm	0,16 mA·c/mm	0,08 mA·c/mm
Range of measured vibration speed, RMS	10 mm/s	20 mm/s	40 mm/s	80 mm/s	100 mm/s	200 mm/s
Frequency range of measured vibration speed	Maximum value in one of the three coordinates					
Frequency range of measured vibration speed	acc. table.2 - A					
Variation in frequency response relative to the base frequency of 159,15 Hz, within	from 3 to minus 12,5 %					
Transverse sensitivity	< 5 %					
Temperature range:	-40 ... +85 °C					
Coefficient of the effect of the ambient temperature, within limits	$\pm 0,2\%/{^\circ}\text{C}$					
Input voltage sensor	+ (10 ... 24) V					
Run mode setting time	< 4 c					
Housing material	stainless steel					
Explosion-proofness	1Ex d IIC T6...T4 Gb, 0Ex ia IIC T6...T4 Ga					
Degree of protection from external influences	IP67					
Weight (without cable)	acc. table.2 - B					
Supplied accessories	acc. table.2 - S					

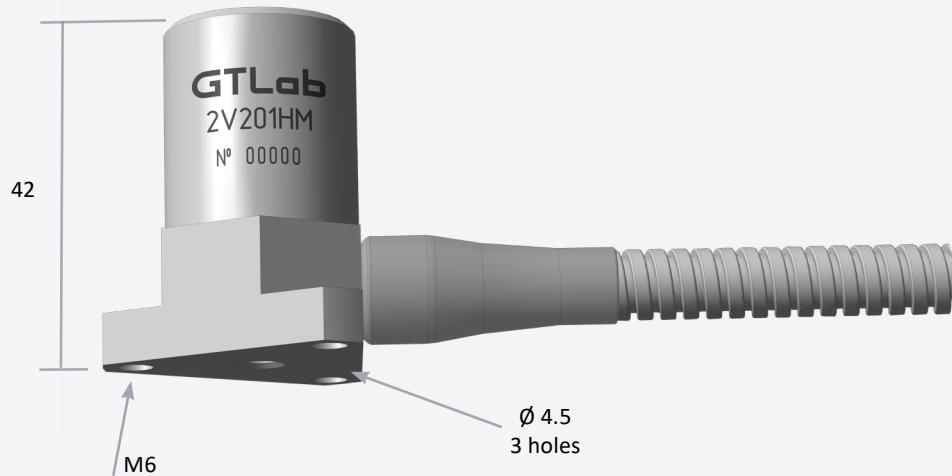
**Table 2**

PARAMETER	A	B	S
2A251TA-XX			
2A251TM-XX	10 ... 1 000 Hz		
2A251TH-XX		45 g	
2A252TA-XX			
2A252TM-XX	2 ... 1 000 Hz		
2A252TH-XX			
2A253HA-XX			
2A253HM-XX	10 ... 1 000 Hz		
2A253HH-XX			
2A254HA-XX			
2A254HM-XX	2 ... 1 000 Hz	120 g	
2A254HH-XX			
2A255HA-XX			
2A255HM-XX	10 ... 1 000 Hz		
2A255HH-XX			
2A256HA-XX			
2A256HM-XX	2 ... 1 000 Hz		
2A256HH-XX			

pin P0606  
anti-vibration cable 41H1A3  
(for sample -TH, -HH)

GT Lab  
2A201TH-20(T)  
18/2000  
3 screws M4 x 12  
anti-vibration cable 41H1A3  
(for sample -TH, -HH)

Screw M8 x 40  
anti-vibration cable 41H1A3  
(for sample -TH, -HH)

**Parameter**

Sensitivity at the base frequency 80 Hz

**2V201HM** $2.5 \pm 0.25 \text{ mV/mm/s}$ 

Range of measured speeds

0.1 ... 500 mm/s

Frequency range of measured vibration speed

2 ... 3 000 Hz

Unevenness of the frequency response relative to the value at the base frequency 80 Hz:

- in frequency range 2 ... 3 000Hz
- in frequency range 5 ... 2 000Hz

Transverse sensitivity

 $\pm 1 \text{ dB}$ 

5 %

Temperature range

&lt; 5 %

Coefficient of the effect of the ambient temperature, within limits

−50 ... + 150°C

RMS level of own noise, reduced to input

 $\pm 0.1 \text{ %}/^\circ\text{C}$ 

Maximum output voltage with a non-linear distortion coefficient of no more than 5 %

&lt; 0.04 mm/s

Output impedance

 $\pm 5 \text{ V}$ 

Power mode:

&lt; 100 Ohm

- external DC voltage source
- current

+ (20 ... 30) V

&lt; (7 ... 9) mA

Constant output voltage level

+ (7 ... 15) V

Housing material

stainless steel

Explosion-proofness

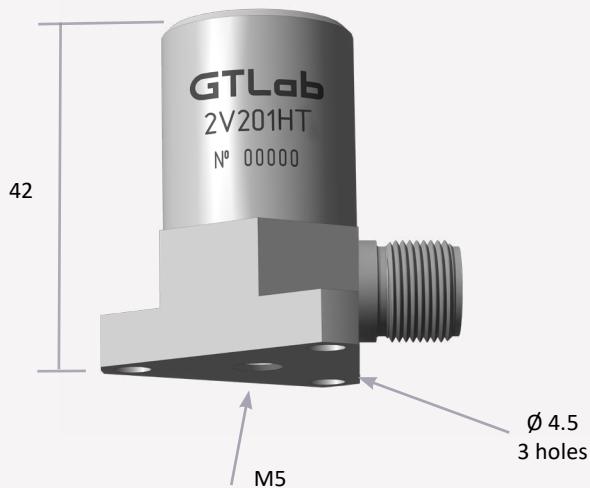
1Ex d IIC T6...T4 Gb,  
0Ex ia IIC T6...T4 Ga

Weight (without cable)

120 g

Supplied accessories

3 screws DIN 404 M4\*12 A2



Ex

**PARAMETER**

Conversion factor at basic frequency 80 Hz

**2V201HT** $2.5 \pm 0.25 \text{ mV/mm/s}$ 

Vibration speed measuring range

0.1 ... 1 500 mm/s

Frequency range of measured vibration speed

2 ... 3 000 Hz

Unevenness of the frequency response relative to the value at the base frequency 80 Hz:

± 1 dB

- in frequency range 2 ... 3 000 Hz
- in frequency range 5 ... 2 000 Hz

5 %

Transverse sensitivity

&lt; 5 %

Temperature range

−50 ... +150°C

Ambient temperature effect coefficient

± 0.1 %/°C

RMS level of intrinsic noise, reduced to the input

&lt; 0.04 mm/s

Maximum output voltage with a nonlinear distortion factor of no more than 5%

± 5 V

Output impedance

&lt; 100 Ohm

Power:

- external source of voltage dc
- current

+ (20 ... 30) V

&lt; (7 ... 9) mA

Constant output voltage level

+ (7 ... 15) V

Explosion-proofness

1Ex d IIC T6...T4 Gb,

Housing material

0Ex ia IIC T6...T4 Ga

Weight (without cable)

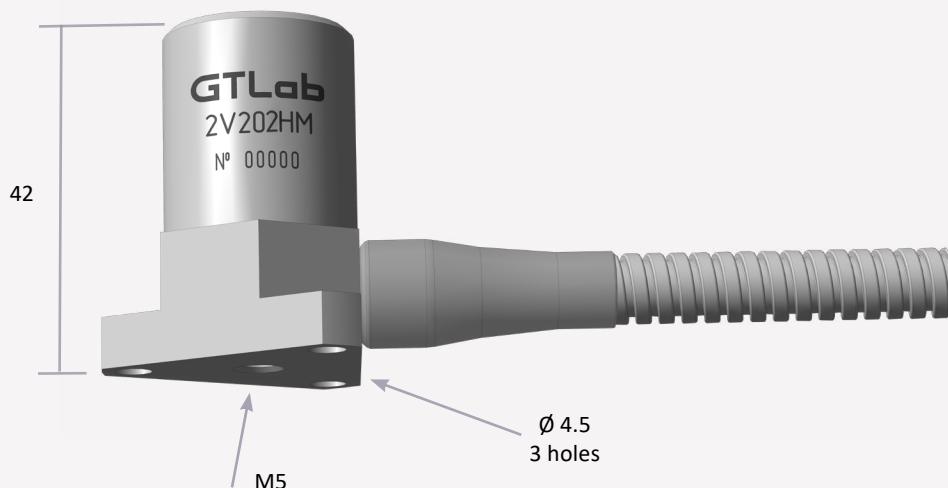
stainless steel

Supplied accessories

120 g

cable 32T1AA4 (as per customer's request)

3 screws DIN 404 M4 × 12 A2

**PARAMETER**

Conversion factor at basic frequency 80 Hz

Vibration speed measuring range

Frequency range of measured vibration speed

Variation in frequency response relative to the value at the base frequency of 80 Hz in the frequency range 5 ... 1000 Hz

Transverse sensitivity

Temperature range

Ambient temperature effect coefficient

RMS level of intrinsic noise, reduced to the input

Maximum output voltage with a nonlinear distortion factor of no more than 5%

Output impedance

Power:

- external source of voltage dc
- current

Constant output voltage level

Explosion-proofness

Housing material

Weight (without cable)

Supplied accessories

**2V202HM**

5 ± 0.5 mV/mm/s

0.1 ... 800 mm/s

5 ... 1 000 Hz

± 1 dB

&lt; 5 %

−50 ... +150°C

± 0.1 %/°C

&lt; 0.02mm/s

± 5 V

&lt; 500 Ohm

+ (20 ... 30) V

&lt; (7 ... 9) mA

+ (7 ... 15) V

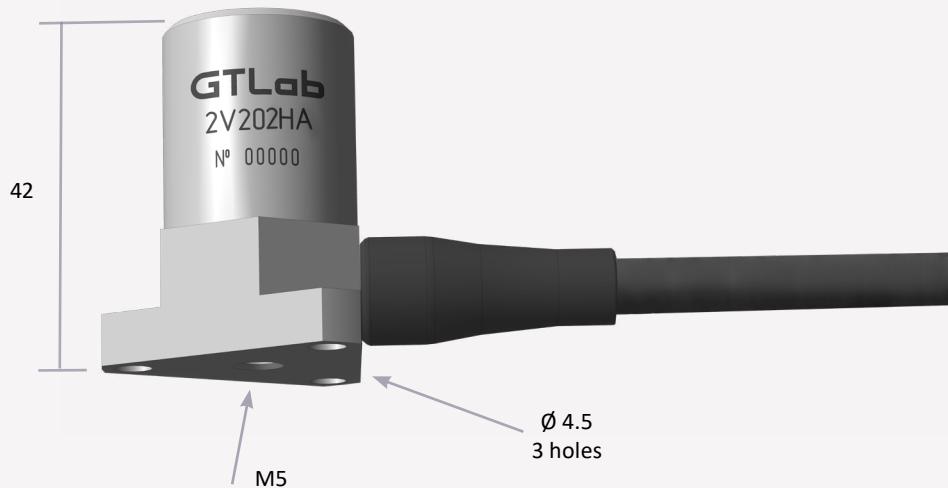
1Ex d IIC T6...T4 Gb,

0Ex ia IIC T6...T4 Ga

stainless steel

120 g

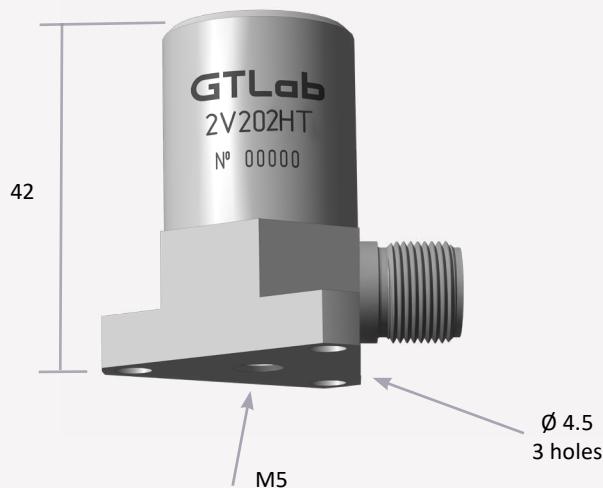
3 screws DIN 404 M4 × 12 A2



Ex

**PARAMETER**

Conversion factor at basic frequency 80 Hz	<b>2V202HA</b>
Vibration speed measuring range	$5 \pm 0.5 \text{ mV/mm/s}$
Frequency range of measured vibration speed	$0.1 \dots 800 \text{ mm/s}$
Variation in frequency response relative to the value at the base frequency of 80 Hz in the frequency range 5 ... 1000 Hz	$5 \dots 1000 \text{ Hz}$
Transverse sensitivity	$\pm 1 \text{ dB}$
Temperature range	$< 5 \%$
Ambient temperature effect coefficient	$-50 \dots +150^\circ\text{C}$
RMS level of intrinsic noise, reduced to the input	$\pm 0.1 \text{ %}^\circ\text{C}$
Maximum output voltage with a nonlinear distortion factor of no more than 5%	$< 0.02 \text{ mm/s}$
Output impedance	$\pm 5 \text{ V}$
Power:	$< 500 \text{ Ohm}$
▪ external source of voltage dc	$+ (20 \dots 30) \text{ V}$
▪ current	$< (7 \dots 9) \text{ mA}$
Constant output voltage level	$+ (7 \dots 15) \text{ V}$
Explosion-proofness	1Ex d IIC T6...T4 Gb, 0Ex ia IIC T6...T4 Ga
Housing material	stainless steel
Weight (without cable)	120 g
Supplied accessories	3 screws DIN 404 M4 × 12 A2

**PARAMETER**

Conversion factor at basic frequency 80 Hz

Vibration speed measuring range

Frequency range of measured vibration speed

Variation in frequency response relative to the value at the base frequency of 80 Hz in the frequency range 5 ... 1000 Hz

Transverse sensitivity

Temperature range

Ambient temperature effect coefficient

RMS level of intrinsic noise, reduced to the input

Maximum output voltage with a nonlinear distortion factor of no more than 5%

Output impedance

- Power:
- external source of voltage dc
- current

Constant output voltage level

Housing material

Explosion-proofness

Weight (without cable)

Supplied accessories

**2V202HT**

5 ± 0.5 mV/mm/s

0.1 ... 800 mm/s

5 ... 1 000 Hz

± 1 dB

&lt; 5 %

−50 ... +150 °C

± 0.1 %/°C

&lt; 0.02 mm/s

± 5 V

&lt; 500 Ohm

+ (20 ... 30) V

&lt; (7 ... 9) mA

+ (7 ... 15) V

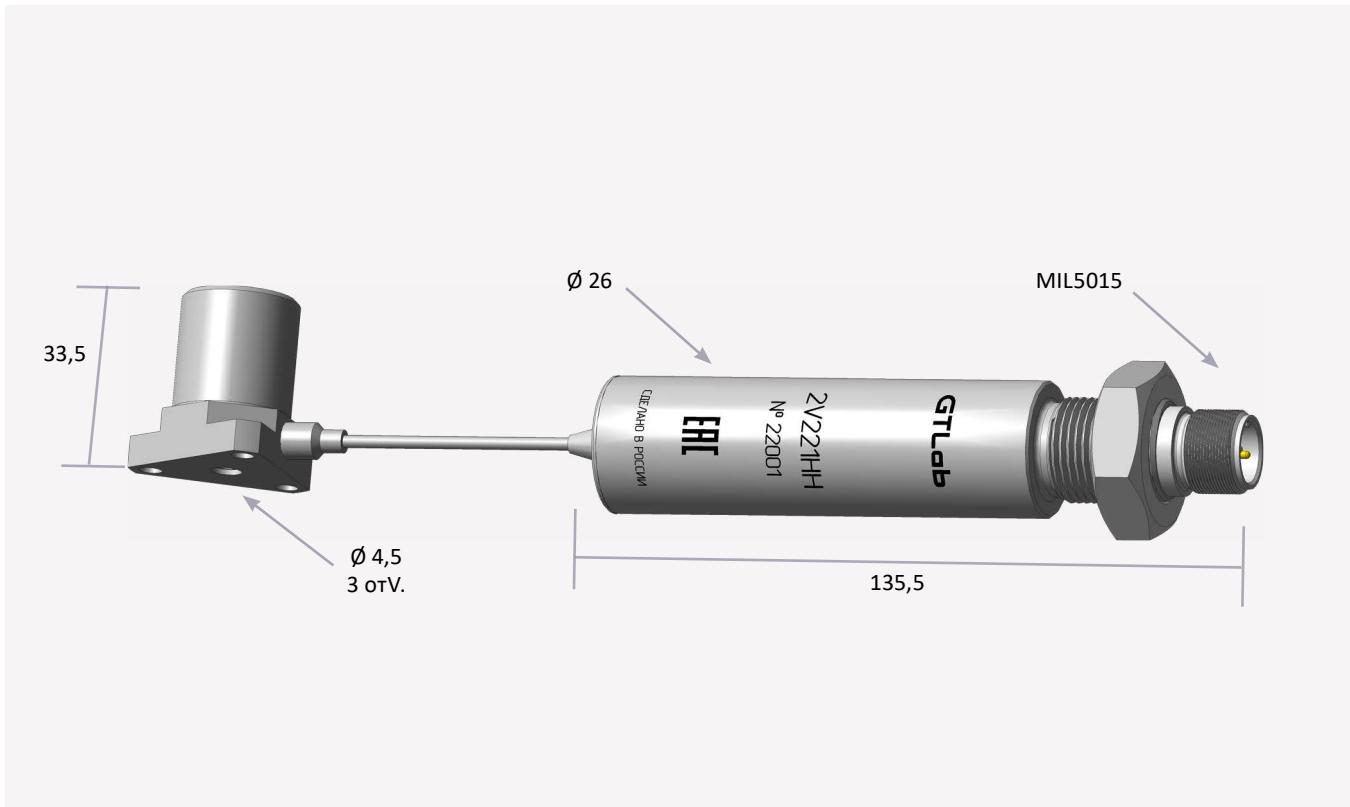
stainless steel

1Ex d IIC T6...T4 Gb,  
0Ex ia IIC T6...T4 Ga

120 g

cable 32T1AA4 (as per customer's request)

3 screws DIN 404 M4 × 12 A2



## PARAMETER

**Output by speed:**Sensitivity ( $\pm 5\%$ )

Maximum amplitude of the measured vibration velocity

Frequency range (uneven frequency response  $\pm 3 \text{ dB}$ )

Noise level, (kHz)

**General requirements:**

Resonant frequency

Transverse sensitivity

Temperature range sensor

Temperature range электронного блока

Constant output voltage level

Ambient temperature effect coefficient

Explosion-proof

Housing material

Weight (without cable)

Supplied accessories

## 2V221HH

5,7 mV/mm/s

635 mm/s

15 ... 2 000 Hz

0,15 mm/s

&gt; 10 kHz

&lt; 5 %

−55 ... +400 °C

−40 ... +125 °C

− (12 ± 2) V

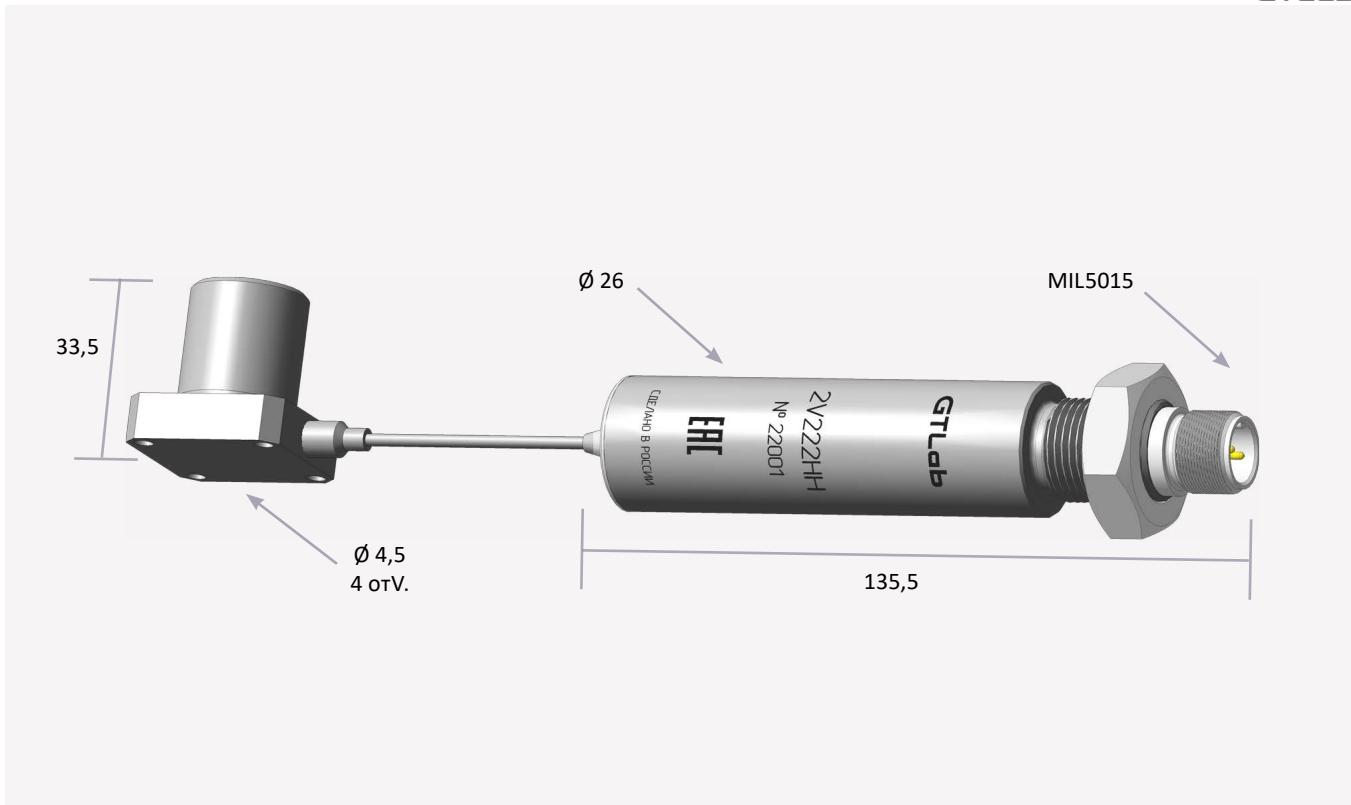
± 0,05 %/ °C

0Ex ia IIC T6...T4 Ga

stainless steel

95 g

3 Screws DIN404 M3 × 16

**PARAMETER****Output by speed:**Sensitivity ( $\pm 5\%$ )

Maximum amplitude of the measured vibration velocity

Frequency range:  
uneven frequency response  $\pm 3$  dB

Noise level, (kHz)

**General requirements:**

Resonant frequency

Transverse sensitivity

Temperature range sensor

Temperature range электронного блока

Constant output voltage level

Ambient temperature effect coefficient

Explosion-proof

Housing material

Weight (without cable)

Supplied accessories

Singularity

**2V222HH**

5,7 mV/mm/s

635 mm/s

15 ... 2 000 Hz

0,15 mm/s

&gt; 10 kHz

&lt; 5 %

−55 ... +400 °C

−40 ... +125 °C

− (12 ± 2) V

± 0,05 % / °C

0Ex ia IIC T6...T4 Ga

stainless steel

125 g

4 Screws DIN404 M3 × 16

аналог sensor Виброскорости BN330750

# VIBRATION DISPLACEMENT SENSORS



# VIBRATION DISPLACEMENT SENSORS

Vibration displacement sensors with a standard current output 4... 20 mA. Designed to measure vibration displacement amplitude of industrial equipment in conditions of strong industrial interference. The increased noise immunity (including protection against the pyroelectric effect) is ensured by the design features of the shear sensitive element, the board, internal screen and its electrical isolation from the studied object

## With current output

### Split-design



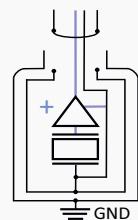
3A201TH



3A203HH



3A205HH



### One-piece



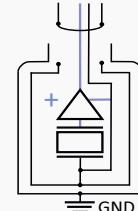
3A201TA



3A203HA



3A205HA



### One-piece in metal hose



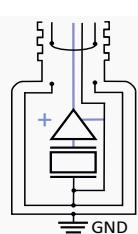
3A201TM



3A203HM



3A205HM



# VIBRATION DISPLACEMENT SENSORS WITH CURRENT OUTPUT

3A201TA-XX



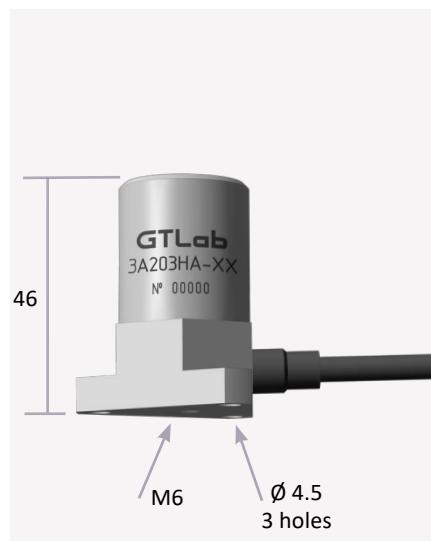
3A201TM-XX



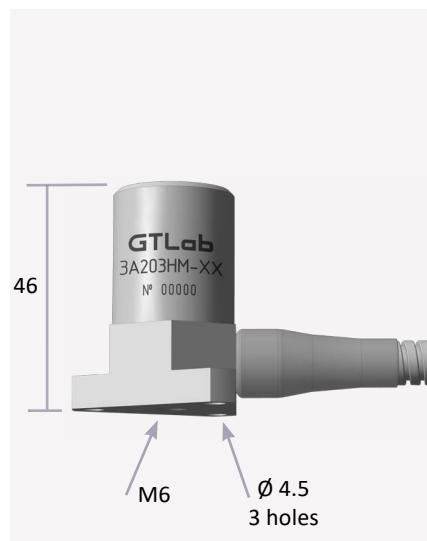
3A201TH-XX



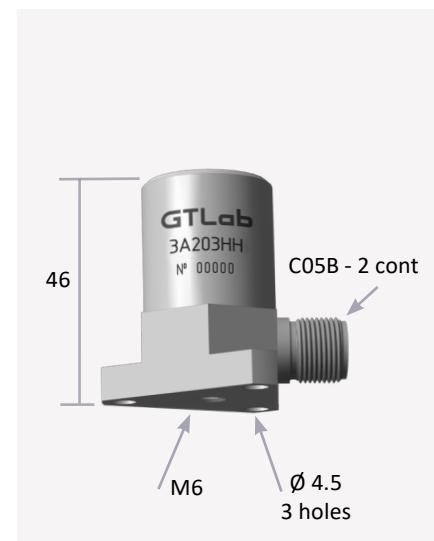
3A203HA-XX



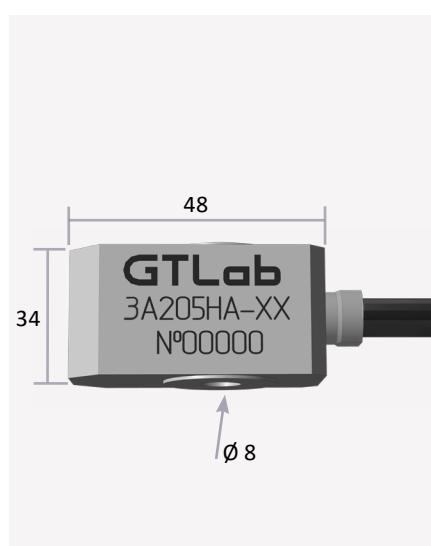
3A203HM-XX



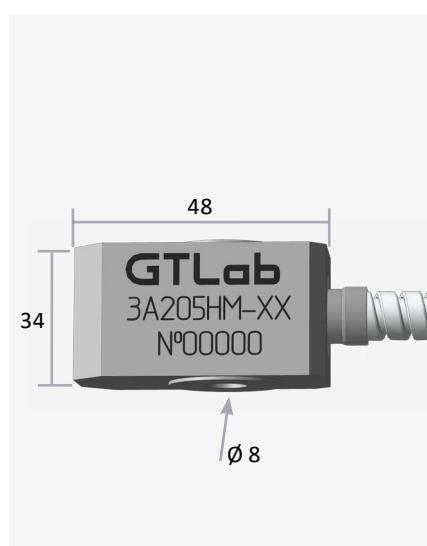
3A203HH-XX



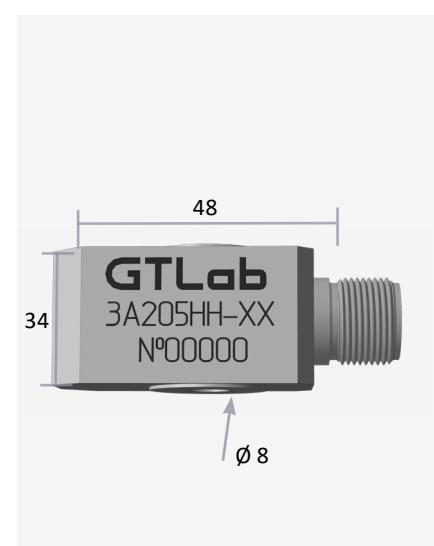
3A205HA-XX



3A205HM-XX



3A205HH-XX



# VIBRATION DISPLACEMENT SENSORS WITH CURRENT OUTPUT (CONTINUED)

**Table 1**

PARAMETER	3A20XXX-160	2A20XXX-320	2A20XXX-640
Sensitivity of conversion by vibration current signal 4 ... 20 mA, ( $\pm 10\%$ )	0,1 mA·s/mkm	0,05 mA·s/mm	0,025 mA·s/mm
Range of measured vibration displacement, magnitude	160 mkm/s	320 mm/s	640 mm/s
Frequency range of the measured vibration displacement	10 ... 1 000 Hz		
Variation in frequency response relative to the base frequency of 159,15 Hz, within	from 3 to minus 12,5 %		
Transverse sensitivity	< 5 %		
Temperature range	-40 ... +85 °C		
Ambient temperature effect coefficient	$\pm 0,2\%/{^\circ}\text{C}$		
Power from an external DC power source	+ (10 ... 24) V		
Run mode setting time	< 4 s		
Housing material	stainless steel		
Explosion-proofness	1Ex d IIC T6...T4 Gb, 0Ex ia IIC T6...T4 Ga		
Protection against external influences	IP67		
Weight (without cable)	according to table 2 - A		
Supplied accessories	according to table 2 - B		

**Table 2**

PARAMETER	B	S
3A201TA-XX		pin P0606
3A201TM-XX	60 g	anti-vibration cable 41H1A3 (-TH)
3A201TH-XX		
2A203HA-XX		3 screw M4 × 12
2A203HM-XX	145 g	anti-vibration cable 41H1A3 (-HH)
2A203HH-XX		
2A205HA-XX		
2A205HM-XX	330 g	screw M8 × 40
2A205HH-XX		anti-vibration cable 41H1A3 (-HH)

**PARAMETER**Measurement range  
vibration displacement**3V201HP**

± 500 mkm

Operating frequency range with attenuation at the boundaries of no more than 1 dB

0,8 ... 200 Hz

Sensitivity at base frequency 45 Hz

10 ± 0,5 mV/mkm

Nonlinearity of the amplitude characteristic in the operating range of vibration displacements

&lt; 1,5 %

Transverse sensitivity

&lt; 5 %

Temperature range

−20 ... +85°C

Coefficient of the effect of the ambient temperature, within limits

0,15 %/°C

Maximum impact

± 500 g

Industrial

&gt;

Run mode setting time after connecting the power

&lt; 60 s

With voltage output

&gt;

Noise level

± 50 mV

- Power:
- voltage
- current

+ (9 ... 15) V

&lt; 15 mA

Housing material

aluminum alloy

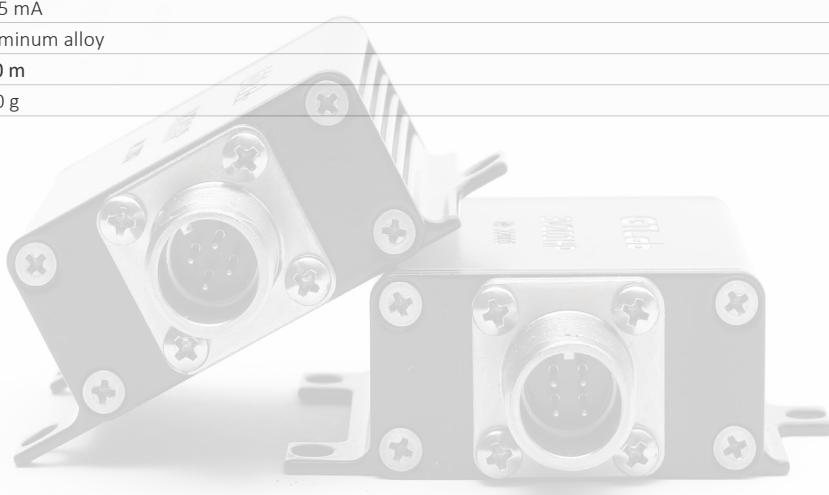
Permissible cable length to the recorder

100 m

Weight (without cable)

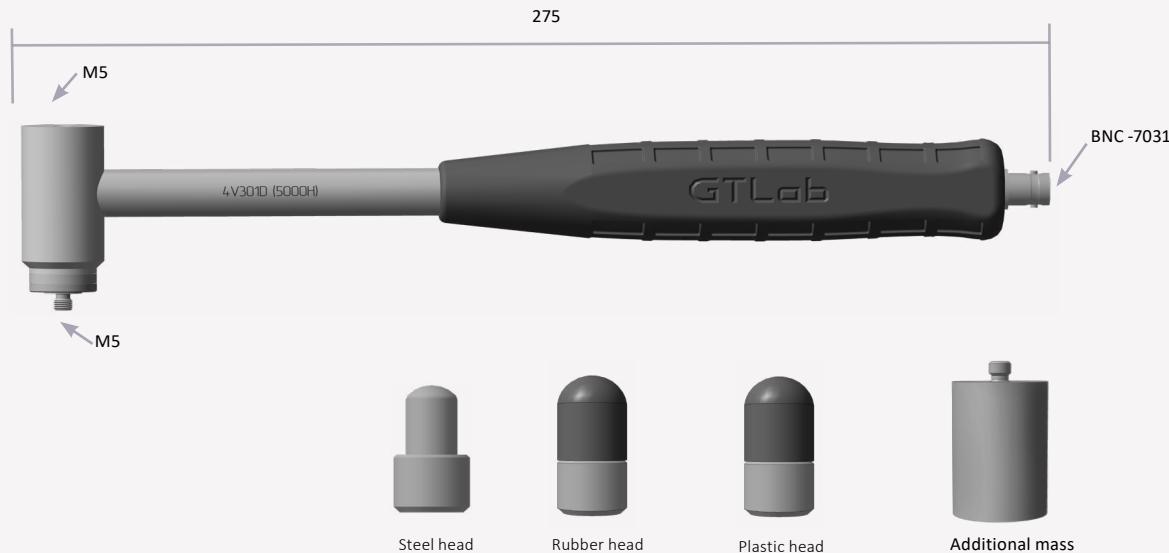
150 g

Vibration speed sensors



# IMPULSE HAMMERS



**Parameter****Sensitivity**

Peak dynamic force value:

- with a steel head
- with a plastic head
- with a rubber head

Shock pulse duration:

- with a steel head
- with a steel head and additional mass
- with a plastic head
- with a plastic head and additional mass
- with a rubber head
- with a rubber head and additional mass

Hammer weight without additional weight and head

**Additional mass****Head weight**

- steel
- plastic
- rubber

**Temperature range****Power:**

- voltage
- current

Noise level, root mean square value (1 Hz ÷ 10 kHz)

Constsnt output votage level

Output impedance

**Connector type****Supplied accessories****4V301D**

1 mV/H

5 000 H  
1 000 H  
700 H0.1 ... 0.2 ms  
0.15 ... 0.3 ms  
0.4 ... 0.6 ms  
0.5 ... 0.8 ms  
1.2 ... 2.6 ms  
1.7 ... 3.9 ms

300 g

100 g

13 g  
14 g  
14 g

- 40 ... + 125 °C

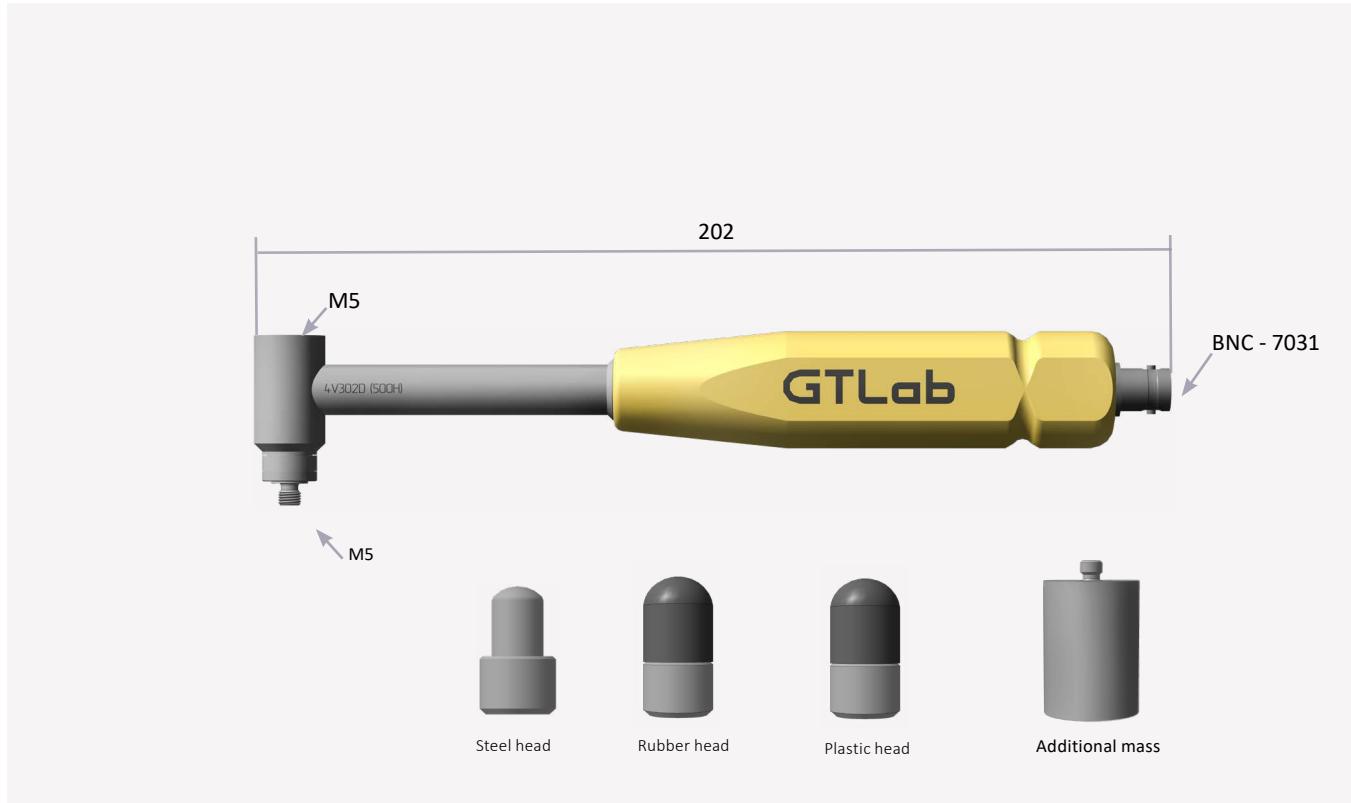
+ (15 ... 30) V  
2 ... 20 mA5 · 10<sup>-3</sup> H

8 ... 10 V

&lt; 500 Ohm

BNC

hammer,  
additional mass,  
steel head,  
plastic head,  
rubber head,  
cable 03D1D1 (as per customer's request)

**Parameter****Sensitivity**

Peak dynamic force value:

- with a steel head
- with a plastic head
- with a rubber head

Shock pulse duration:

- with a steel head
- with a steel head and additional mass
- with a plastic head
- with a plastic head and additional mass
- with a rubber head
- with a rubber head and additional mass

Hammer weight without additional weight and head

Additional mass

Head weight

- steel
- plastic
- rubber

Temperature range

Power:

- voltage
- current

Noise level, root mean square value (1 Hz ÷ 10 kHz)

Constant output voltage level

Output impedance

Connector type

Supplied accessories

**4V302D**

10 mV/H

500 H  
100 H  
70 H0.1 ... 0.2 ms  
0.15 ... 0.3 ms  
0.4 ... 0.6 ms  
0.5 ... 0.8 ms  
1.2 ... 2.6 ms  
1.7 ... 3.9 ms

200 g

30 g

13 g  
14 g  
14 g

-40 ... +125 °C

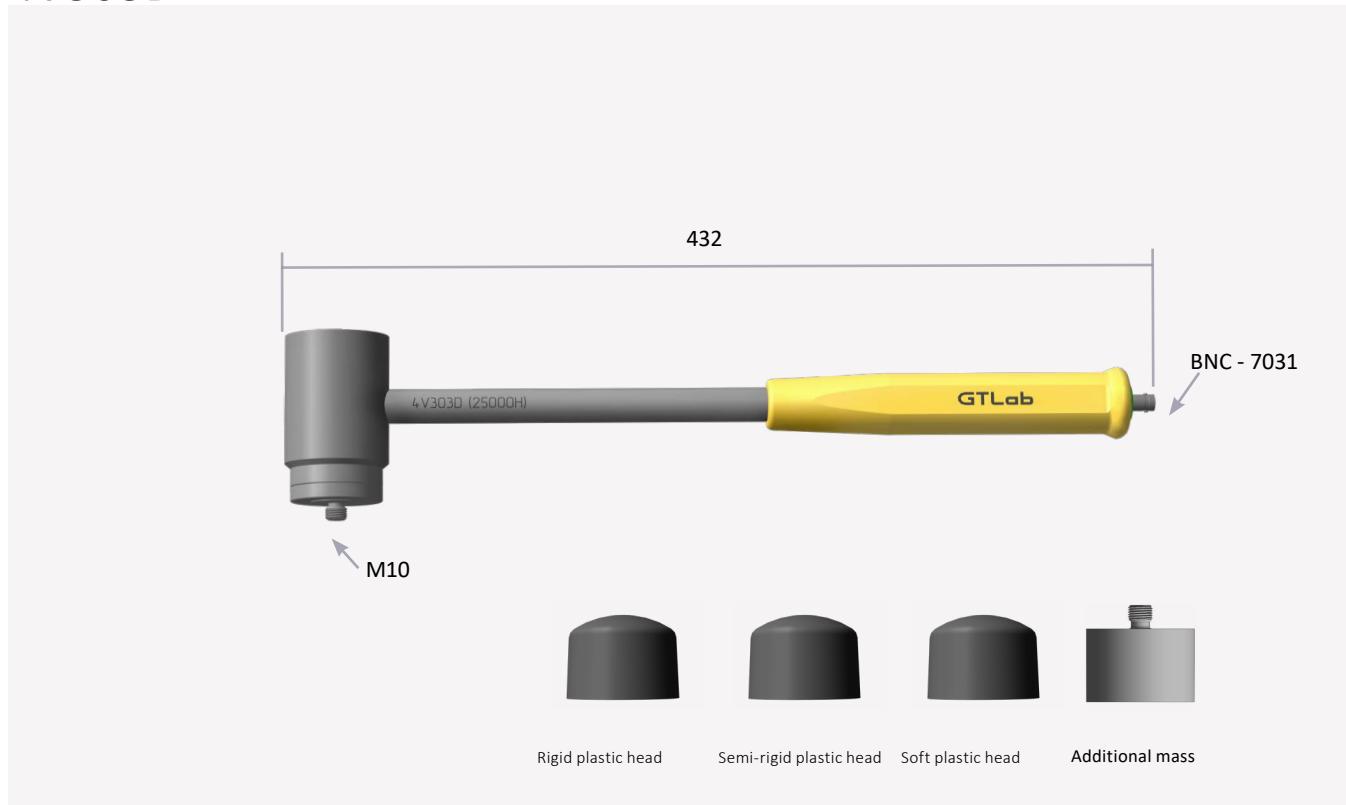
+ (15 ... 30) V  
2 ... 20 mA1 · 10<sup>-3</sup> H

8 ... 10 V

&lt; 500 Ohm

BNC

hammer,  
additional mass,  
steel head,  
plastic head,  
rubber head  
cable 03D1D1 (as per customer's request)

**Parameter****Sensitivity****Peak dynamic force value:**

- with a rigid plastic head
- with a semi-rigid plastic head
- with a soft plastic head

**Shock pulse duration:**

- with a rigid plastic head
- with a semi-rigid plastic head
- with a soft plastic head

**Hammer weight without additional weight and head****Additional mass****Head weight**

- rigid plastic
- semi-rigid plastic
- soft plastic

**Temperature range****Power:**

- voltage
- current

**Noise level, root mean square value (1 Hz ÷ 10 kHz)****Constsn output votage level****Output impedance****Connector type****Supplied accessories****4V303D**

0.2 mV/H

25 000 H  
10 000 H  
5 000 H0.5 ... 1 ms  
1.0 ... 2 ms  
2 ... 5 ms

2 000 g

30 g

260 g  
260 g  
260 g

-40 ... +125 °C

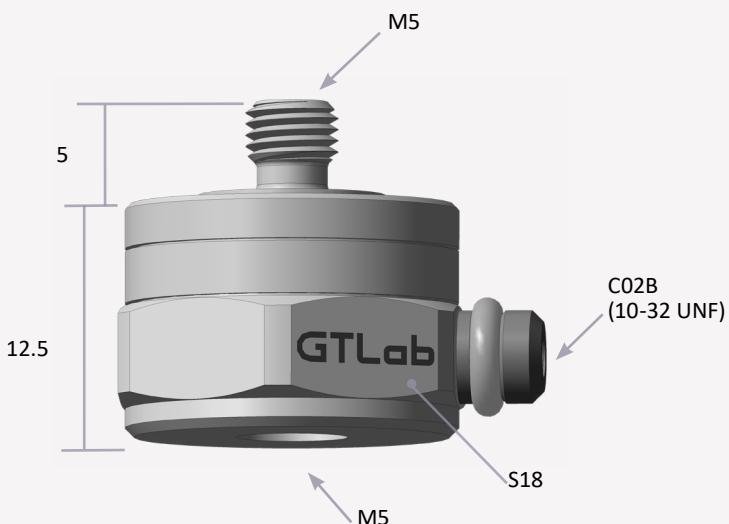
+ (15 ... 30) V  
2 ... 20 mA3 · 10<sup>-3</sup> H

8 ... 10 V

&lt; 500 Ohm

BNC

rigid plastic head  
semi-rigid plastic head  
soft plastic head  
cable 03D1D1 (as per customer's request)

**Parameter**

Force measurement range

Sensitivity ( $\pm 20\%$ )  
(nominal value)

Transverse sensitivity

Ambient temperature effect coefficient

Temperature range

Deformation sensitivity

Electric capacity

Insulation resistance under normal conditions

Resonant frequency

Effective inertial mass

- top of the piezoelectric element
- bottom of the piezoelectric element

Housing material

Supplied accessories

Weight (without cable)

**4C101HB**

– 1 000...+ 5 000 H

4 pC/H

&lt; 5%

&lt; 0.05 %/°C

– 60...+ 200 °C

&lt; 0.03 H·m/μm

10 ... 14 pF

&gt; 1 000 MΩ

&gt; 30 kHz

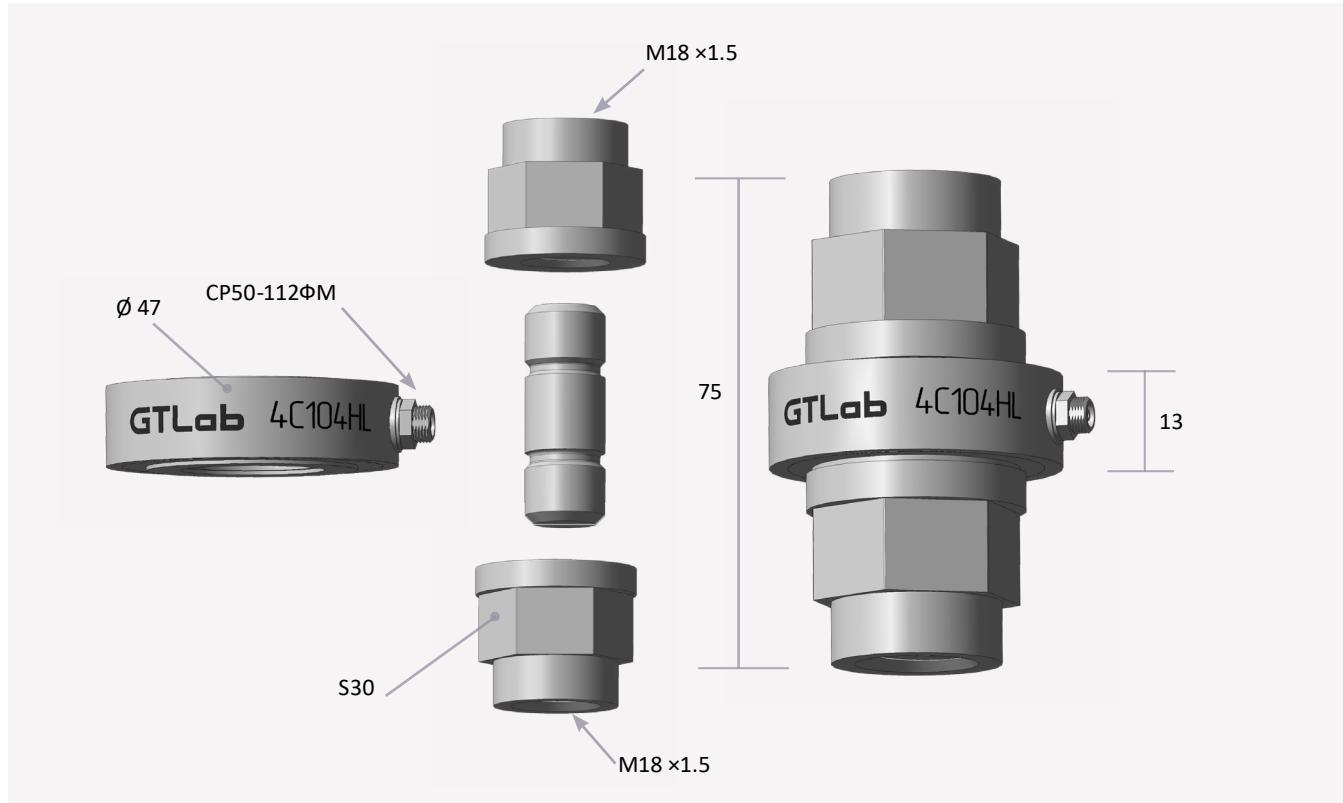
4 g

15 g

stainless steel

cable 03B1B1 (as per customer's request), pin P0505

20 g

**PARAMETER**

Force measurement range

**4C104HL**

-50 000 ... +100 000 H

Sensitivity ( $\pm 20\%$ )  
(nominal value)

2 pC/H

Transverse sensitivity

&lt; 5%

Ambient temperature effect coefficient

&lt; 0,05 %/°C

Temperature range

-60 ... +200°C

Deformation sensitivity

&lt; 0.05 H·m/µm

Electric capacity

18 ... 23 pF

Insulation resistance under normal conditions

&gt; 1 000 MOhm

Resonant frequency

&gt; 12 kHz

Effective inertial mass

230g

- top of the piezoelectric element
- bottom of the piezoelectric element

230g

Housing material

stainless steel

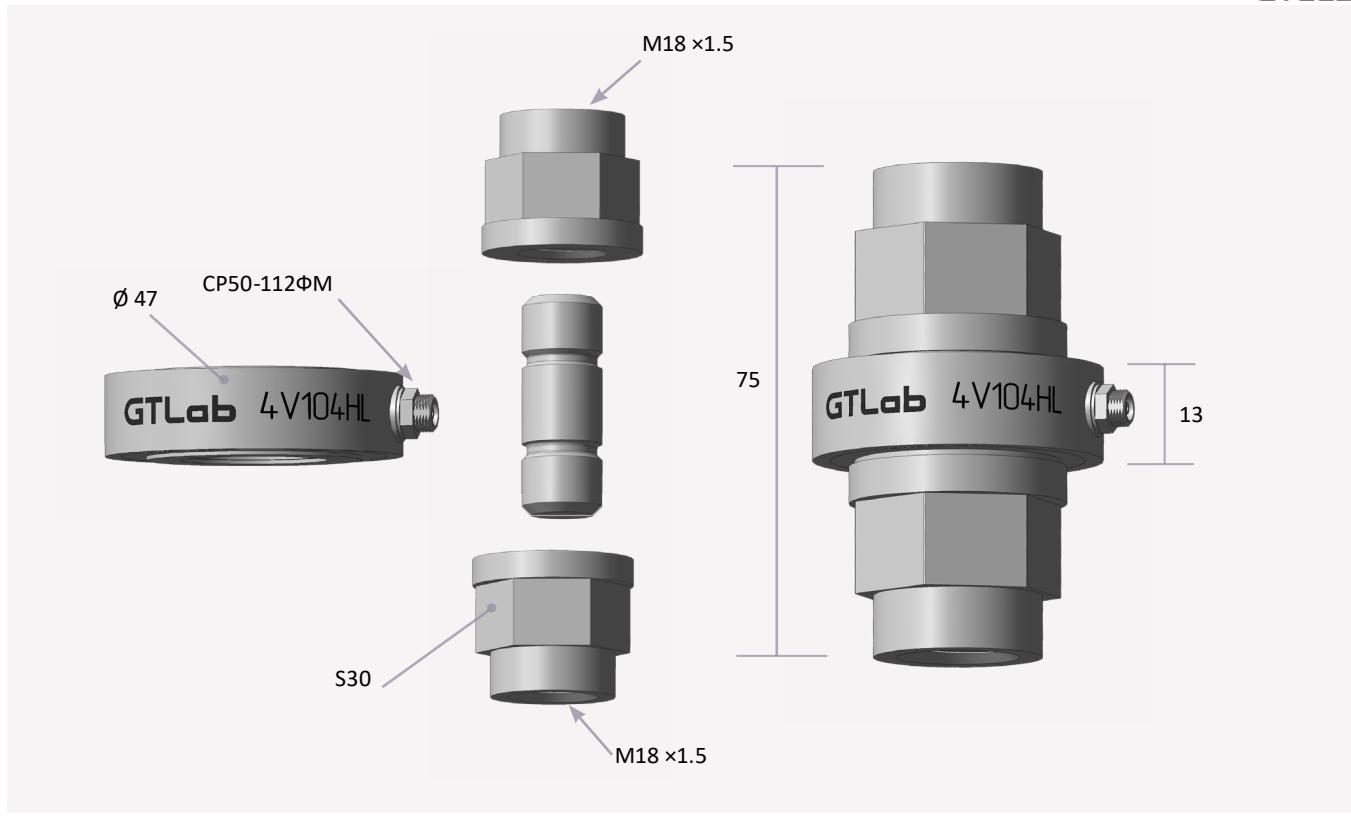
Supplied accessories

Two load nuts M18 × 1.6

pin M18 × 1.5

Weight

500g

**PARAMETER**

Force measurement range

**4V104HL**

-50 000 ... +100 000 H

Sensitivity ( $\pm 20\%$ )  
(nominal value)

0,05 mV/H

Transverse sensitivity

&lt; 5%

Ambient temperature effect coefficient

&lt; 0,05 %/°C

Temperature range

-40 ... +125 °C

Deformation sensitivity

&lt; 0,05 H·m/μm

Resonant frequency

&gt; 12 kHz

Noise level, root mean square value  
(1 Hz ÷ 10 kHz)

0,01 H

Power:

+ (18 ... 30) V

- voltage
- current

2 ... 20 mA

Constant output voltage level

8 ... 13 V

Output impedance

&lt; 100 Ohm

Effective inertial mass

230g

- top of the piezoelectric element
- bottom of the piezoelectric element

230g

Housing material

stainless steel

Supplied accessories

Two load nuts M18 x 1,6

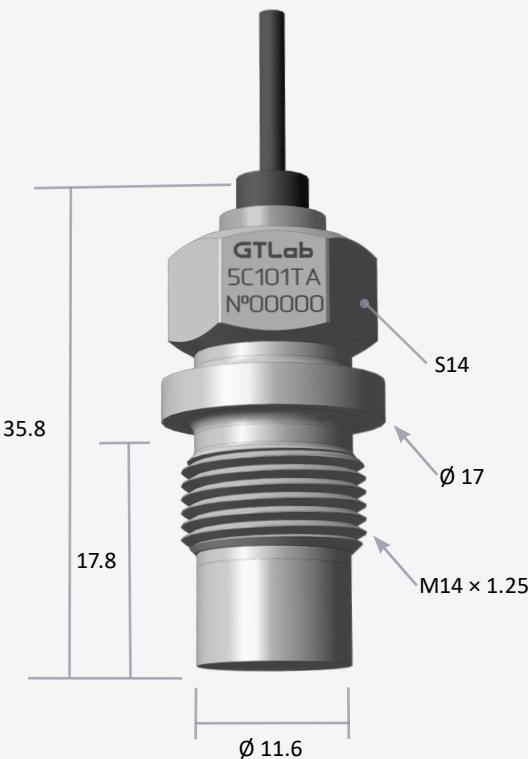
Weight

pin M18 x 1,5

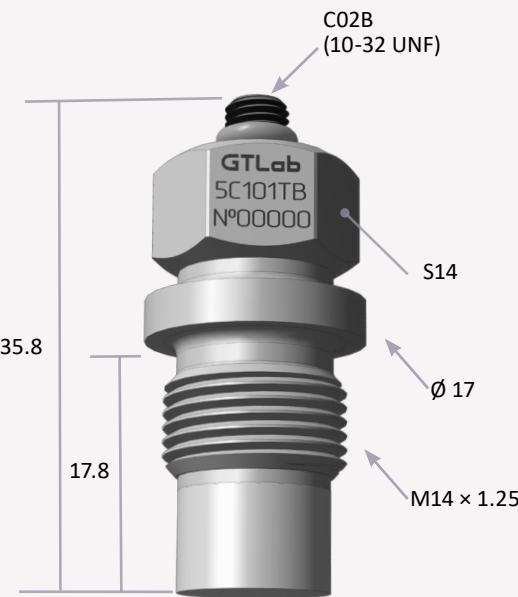
500g

# DYNAMIC PRESSURE SENSORS



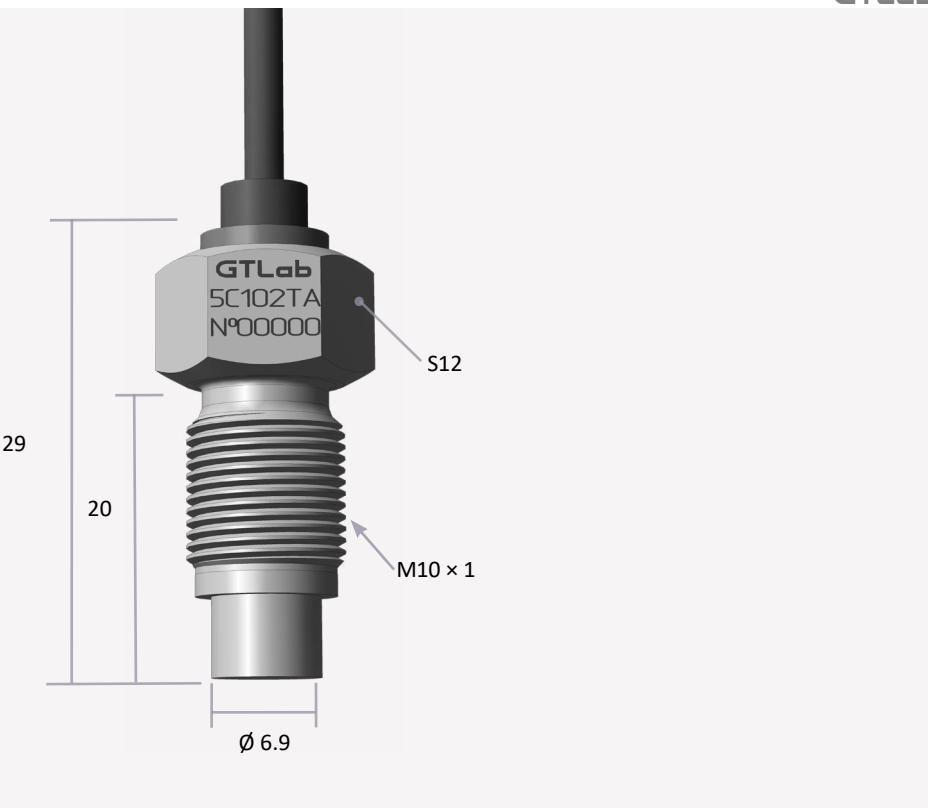


Parameter	5C101TA-250-20	5C101TA-250-400	5C101TA-250-60
Upper limit of measurement	25 MPa		
Sensitivity	200 pC/MPa	4 000 pC/MPa	600 pC/MPa
Limits of the permissible basic error reduced to the upper limit of measurement	± 2.5 %		
Resonant frequency	> 30 kHz		
Sensitivity to acceleration	< 0.00005 MPa/g 1g = 9.807 m·s⁻² or 10 m·s⁻² = 1.02 g		
Temperature range	- 60 ... + 200 °C		- 60 ... + 400 °C
Electric capacity	180 ... 220 pF	230 ... 270 pF	200 ... 250 pF
Insulation resistance under normal conditions	> 10 000 MΩ		
Sensing element material	quartz	lithium niobate	GTL
Housing material	stainless steel		
Membrane material	stainless steel		
Degree of protection from external influences	IP68 Hermetic design (can be used at a depth of up to 50m)		
Weight (without cable and connector)	40 g		
Supplied accessories	sealing ring R01 (1 pieces.)		



Parameter	5C101TB-250 -20	5C101TB-250 -400	5C101TB-250-60
Upper limit of measurement	25 MPa		
Sensitivity	200 pC/MPa	4 000 pC/MPa	600 pC/MPa
Limits of the permissible basic error reduced to the upper limit of measurement	± 2.5 %		
Resonant frequency	> 30 kHz		
Sensitivity to acceleration	< 0.00005 MPa/g 1g = 9,807 m·s⁻² or 10 m·s⁻² = 1,02 g		
Temperature range	- 60 ... + 200 °C		- 60 ... + 400 °C
Electric capacity	7 ... 12 pF	50 ... 70 pF	20 ... 30 pF
Insulation resistance under normal conditions	> 10 000 MOhm		
Sensing element material	quartz	lithium niobate	GTL
Housing material	stainless steel		
Membrane material	stainless steel		
Degree of protection from external influences	IP65		
Weight (without cable and connector)	40 g		
Supplied accessories	cable 03B1B1 (as per customer's request), sealing ring R01 (1 pieces.)		



**PARAMETER**

Upper limit of measurement

5C102TA-2500-7

5C102TA-2500-140

5C102TA-2500-20

Sensitivity

250 MPa

1400 pC/MPa

200 pC/MPa

Limits of the permissible basic error reduced to the upper limit of measurement

± 2.5 %

Resonant frequency

&gt; 100 kHz

Sensitivity to acceleration

&lt; 0.00005 MPa/g

1g = 9.807 m·s<sup>-2</sup> or 10 m·s<sup>-2</sup> = 1.02 g

Temperature range

– 60 ... + 200 °C

– 60 ... + 400 °C

Electric capacity

170 ... 230 pF

250 ... 270 pF

200 ... 250 pF

Insulation resistance under normal conditions

&gt; 10 000 MΩ

Sensing element material

quartz

lithium niobate

GTL

Housing material

stainless steel

Membrane material

stainless steel

Degree of protection from external influences

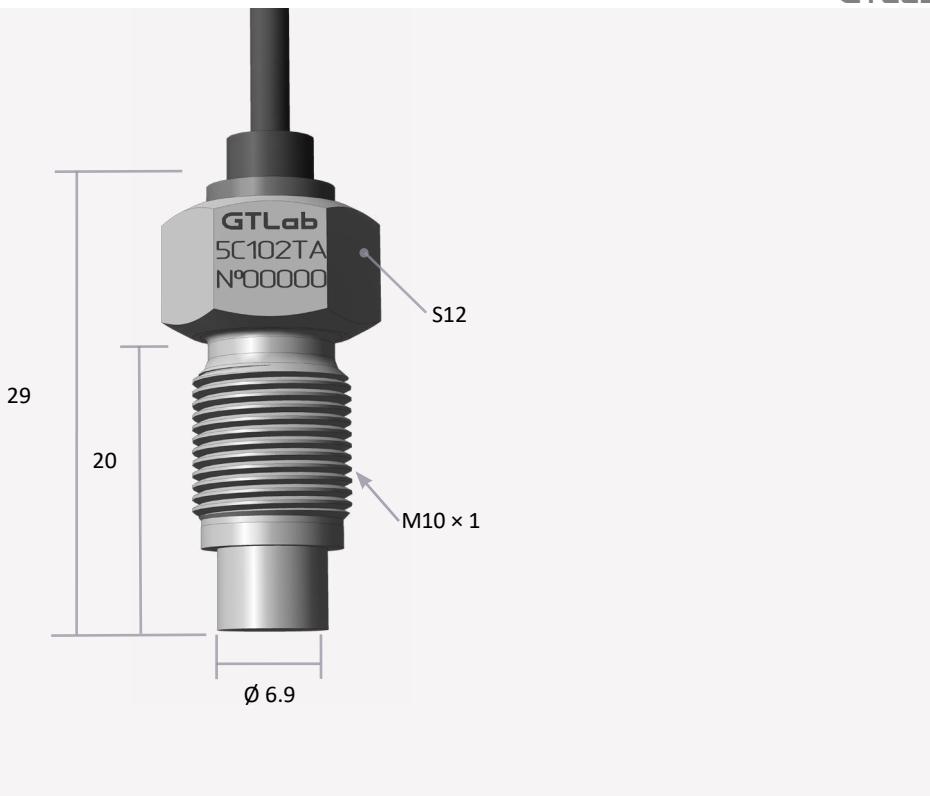
IP68 Hermetic design (can be used at a depth of up to 50 m)

Weight (without cable and connector)

15 g

Supplied accessories

sealing ring R02 (1 pieces.)

**PARAMETER**

Upper limit of measurement

**5C102TA-250-7**

25 MPa

**5C102TA-250 -140**

1400 pC/MPa

**5C102TA-250 -20**

200 pC/MPa

Sensitivity

70 pC/MPa

Limits of the permissible basic error reduced to the upper limit of measurement

± 2,5 %

Resonant frequency

&gt; 100 kHz

Sensitivity to acceleration

&lt; 0,00005 MPa/g

 $1g = 9,807 \text{ m}\cdot\text{s}^{-2}$  or  $10 \text{ m}\cdot\text{s}^{-2} = 1,02 \text{ g}$ 

Temperature range

– 60 ... + 200 °C

– 60 ... + 400 °C

Electric capacity

170 ... 230 pF

250 ... 270 pF

200 ... 250 pF

Insulation resistance under normal conditions

&gt; 10 000 MOhm

Sensing element material

quartz

lithium niobate

GTL

Housing material

stainless steel

Membrane material

stainless steel

Degree of protection from external influences

IP68 Hermetic design (can be used at a depth of up to 50 m)

Weight (without cable and connector)

15g

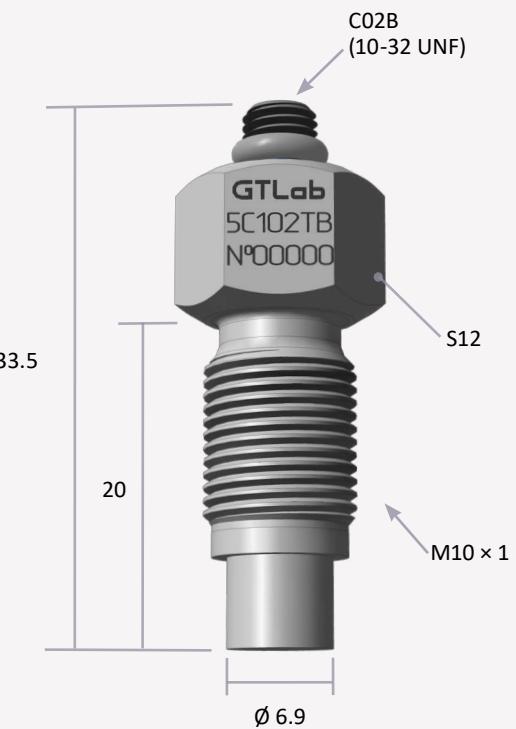
Supplied accessories

sealing ring R02 (1 pieces)

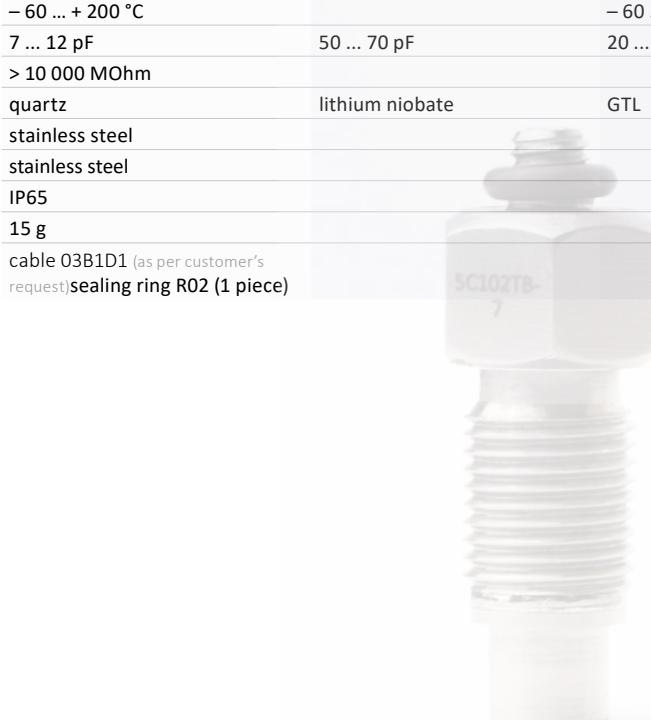
General purpose

With charge output

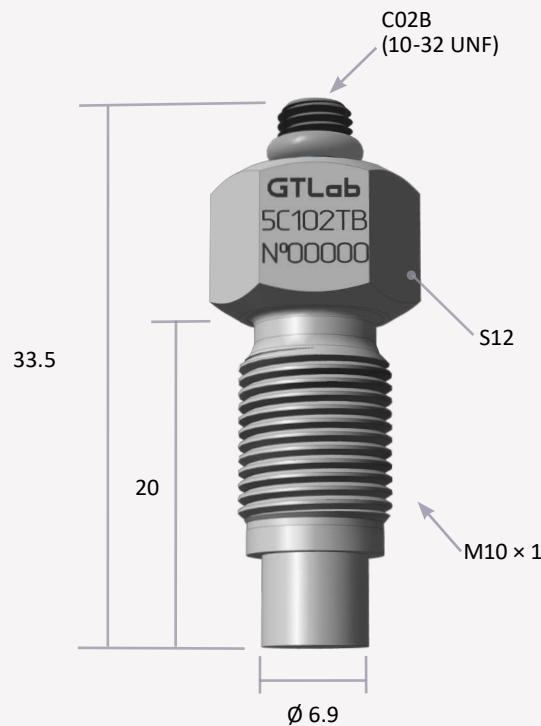
Dynamic pressure sensors



Parameter	5C102TB-2500-7	5C102TB-2500 -140	5C102TB-2500 -20
Upper limit of measurement	250 MPa		
Sensitivity	70 pC/MPa	1400 pC/MPa	200 pC/MPa
Limits of the permissible basic error reduced to the upper limit of measurement	± 2.5 %		
Resonant frequency	> 100 kHz		
Sensitivity to acceleration	< 0.00005 MPa/g 1g = 9.807 m·s⁻² or 10 m·s⁻² = 1.02 g		
Temperature range	- 60 ... + 200 °C		- 60 ... + 400 °C
Electric capacity	7 ... 12 pF	50 ... 70 pF	20 ... 30 pF
Insulation resistance under normal conditions	> 10 000 MΩ		
Sensing element material	quartz	lithium niobate	GTL
Housing material	stainless steel		
Membrane material	stainless steel		
Degree of protection from external influences	IP65		
Weight (without cable and connector)	15 g		
Supplied accessories	cable 03B1D1 (as per customer's request) sealing ring R02 (1 piece)		



Dynamic pressure sensors    > With charge output    > General purpose

**PARAMETER**

Upper limit of measurement

**5C102TB-250-7**

25 MPa

**5C102TB-250 -140**

1400 pC/MPa

**5C102TB-250 -20**

200 pC/MPa

Sensitivity

70 pC/MPa

Limits of the permissible basic error reduced to the upper limit of measurement

± 2,5 %

Resonant frequency

&gt; 100 kHz

Sensitivity to acceleration

&lt; 0,00005 MPa/g

 $1g = 9,807 \text{ m}\cdot\text{s}^{-2}$  or  $10 \text{ m}\cdot\text{s}^{-2} = 1,02 \text{ g}$ 

Temperature range

-60 ... +200 °C

-60 ... +400 °C

Electric capacity

7 ... 12 pF

50 ... 70 pF

20 ... 30 pF

Insulation resistance under normal conditions

&gt; 10 000 MOhm

Sensing element material

quartz

lithium niobate

GTL

Housing material

stainless steel

Membrane material

stainless steel

Degree of protection from external influences

IP65

Weight (without cable and connector)

15g

Supplied accessories

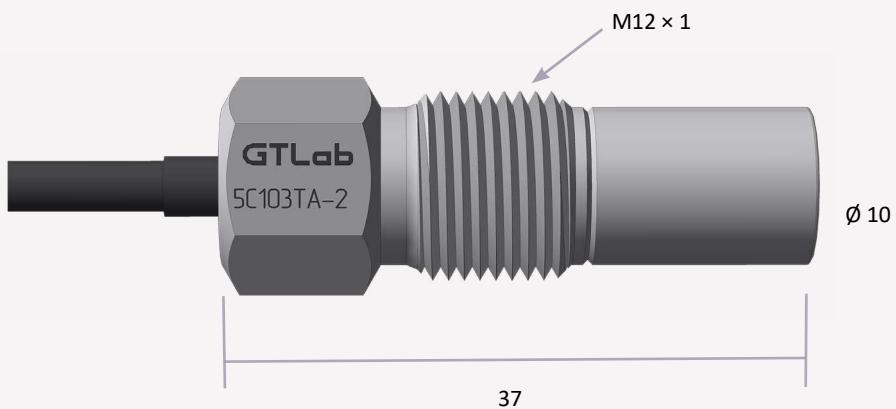
cable 03B1D1 (as per customer's request)

sealing ring R02 (1 piece)

General purpose  
With charge output

Dynamic pressure sensors

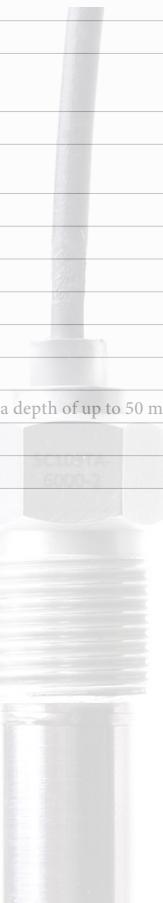


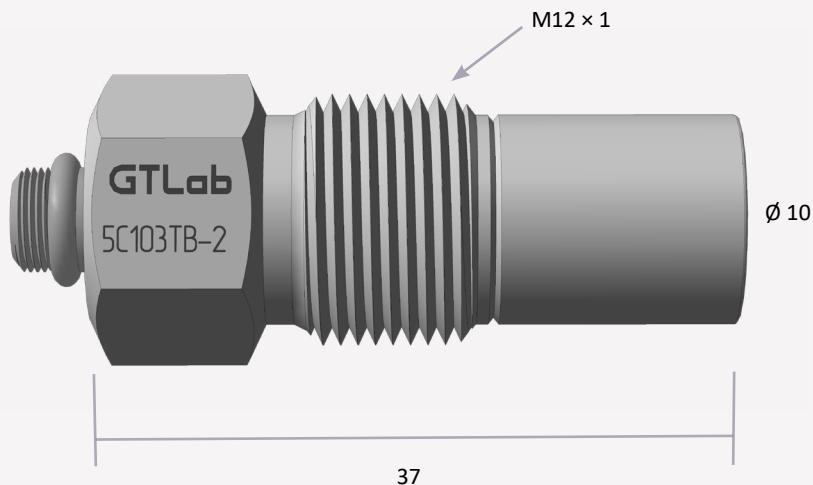
**PARAMETER**

Upper limit of measured pressures	5C103TA-6000-2
Conversion factor	600 MPa
Limits of acceptable basic error reduced to the upper-range value	20 pC/MPa
Self-resonant frequency	± 3 %
Acceleration sensitivity	> 150 kHz
Temperature range	< 0.0001 MPa/g
Electric capacity with a cable length of 2m	$1g = 9.807 \text{ m} \cdot \text{s}^{-2}$ or $10 \text{ m} \cdot \text{s}^{-2} = 1$
Insulation resistance under normal conditions	-60 ... +200 °C
Sensing element material	180 ... 220 pF
Housing material	> 10 000 MΩ
Membrane material	quartz
Protection against external influences	stainless steel
Weight (without cable and connector)	stainless steel
Supplied accessories	IP68 Waterproof version (can be used at a depth of up to 50 m)

**5C103TA-6000-2**

600 MPa
20 pC/MPa
± 3 %
> 150 kHz
< 0.0001 MPa/g
$1g = 9.807 \text{ m} \cdot \text{s}^{-2}$ or $10 \text{ m} \cdot \text{s}^{-2} = 1$
-60 ... +200 °C
180 ... 220 pF
> 10 000 MΩ
quartz
stainless steel
stainless steel
IP68 Waterproof version (can be used at a depth of up to 50 m)
25 g
o-ring R03 (1 pcs)



**PARAMETER**

Upper limit of measured pressures

**5C103TB-6000-2**

600 MPa

Conversion factor

20 pC/MPa

Limits of acceptable basic error reduced to the upper-range value

± 3 %

Self-resonant frequency

&gt; 150 kHz

Acceleration sensitivity

&lt; 0.0001 MPa/g

 $1g = 9.807 \text{ m}\cdot\text{s}^{-2}$  or  $10 \text{ m}\cdot\text{s}^2 = 1$ 

Temperature range

− 60 ... + 200 °C

Electric capacity with a cable length of 2m

180 ... 220 pF

Insulation resistance under normal conditions

&gt; 10 000 MOhm

Sensing element material

quartz

Housing material

stainless steel

Membrane material

stainless steel

Protection against external influences

IP65 Waterproof version (can be used at a depth of up to 50 m)

Weight (without cable and connector)

25 g

Supplied accessories

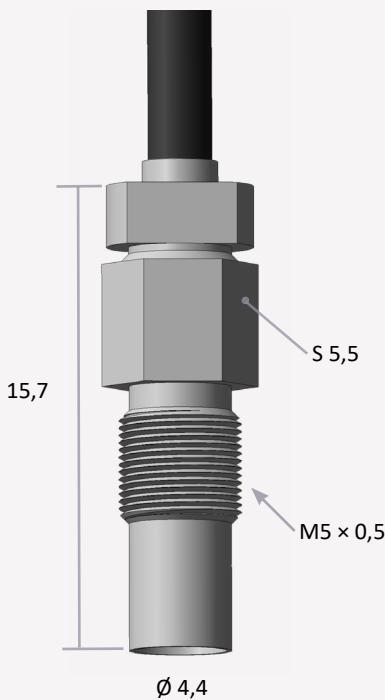
cable 03B1B1 (as per customer's request) o-ring R03 (1 pcs)





PARAMETER	5C201TA-250-200	5C201TA-100-60
Upper measurement limit	25 MPa	10 MPa
Sensitivity	2000 ±40 pC/MPa	600 ±60 pC/MPa
Limits of permissible basic error reduced to the upper limit of measurements	± 3 %	
Resonant frequency	> 80 kHz	
Acceleration sensitivity	< 0,00015 MPa/m·s <sup>-2</sup> 1g = 9,807 m·s <sup>-2</sup> или 10 m·s <sup>-2</sup> = 1,02 g	
Temperature range:		
▪ long-term	-30 ... +470 °C	-30 ... +550 °C
▪ short term (less than 100 hours)	-50 ... +520 °C	-50 ... +600 °C
Electric capacity	180 ... 220 pF	
Insulation resistance under normal conditions	> 1 000 MOhm	> 10 000 MOhm
Insulation resistance at 400 °C	> 50 kOhm	> 10 kOhm
Sensor material	quartz	High temperature crystal
Housing material	stainless steel	
Membrane material	stainless steel	
Weight (without cable and connector)	15 g	
Supplied accessories	sealing ring R05 (1 шт.)	
Singularity	two-core, insulated from the housing output	



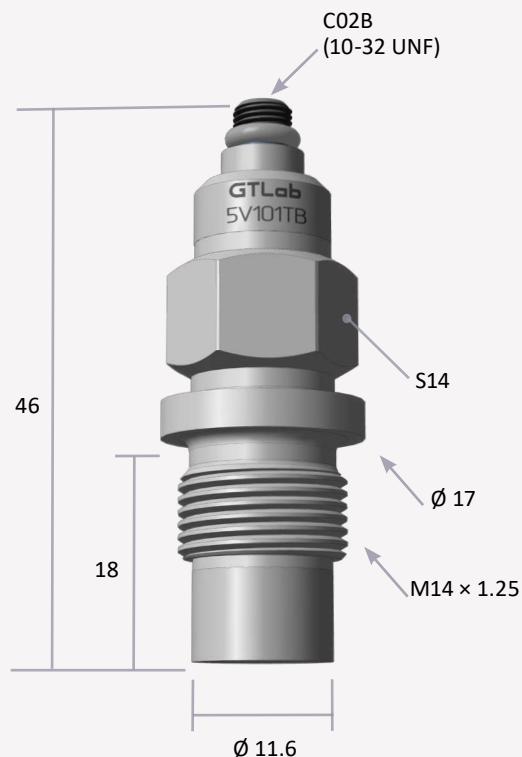
**PARAMETER**

Upper measurement limit	5C202TA-250-20
Sensitivity ( $\pm 20\%$ )	25 MPa
Limits of permissible basic error reduced to the upper limit of measurements	$200 \text{ pC/MPa}$
Resonant frequency	$\pm 3\%$
Acceleration sensitivity	> 150 kHz
Temperature range	$< 0,000003 \text{ MPa/m}\cdot\text{c}^{-2}$ $1g = 9,807 \text{ m}\cdot\text{s}^{-2} \text{ или } 10 \text{ m}\cdot\text{s}^{-2} = 1,02 \text{ g}$
Electric capacity	-40 ... +400 °C
Insulation resistance under normal conditions	7 pF (without cable)
Sensor material	> 1 000 MOhm
Housing material	crystal piezoelectric
Membrane material	stainless steel
Supplied accessories	stainless steel sealing ring R05 (1 шт.)

&gt; Industrial

&gt; With charging output

Dynamic pressure sensors

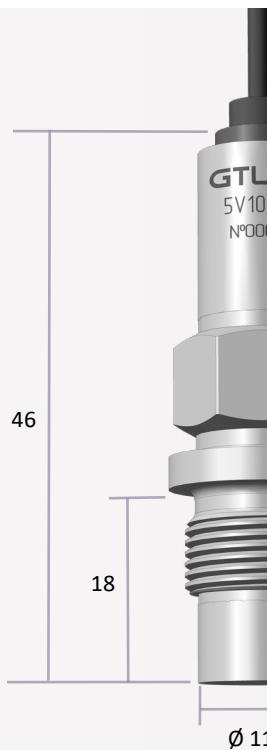


Parameter	5V101TB-0.6	5V101TB-6	5V101TB-60	5V101TB-250
Upper limit of measurement	0.06 MPa	0.6 MPa	6 MPa	25 MPa
Sensitivity	80 000 mV/MPa	8 000 mV/MPa	800 mV/MPa	200 mV/MPa
Limits of the permissible basic error reduced to the upper limit of measurement	± 2.5%			
Resonant frequency	> 30 kHz			
Sensitivity to acceleration	< 0.00005 MPa/g 1g = 9.807 m·s⁻² or 10 m·s⁻² = 1.02 g			
Temperature range	-60 ... +125 °C			
Output impedance	< 100 Ohm			
Power:	+ (15 ... 30) V 2 ... 20 mA			
▪ external DC voltage source				
▪ current				
Constant output voltage level	8 ... 11 V			
Sensing element material	lithium niobate	quartz		
Housing material	stainless steel			
Membrane material	stainless steel			
Degree of protection from external influences	IP65			
Weight (without cable and connector)	38 g			
Supplied accessories	cable 03B1D1 (as per customer's request) sealing ring R01			

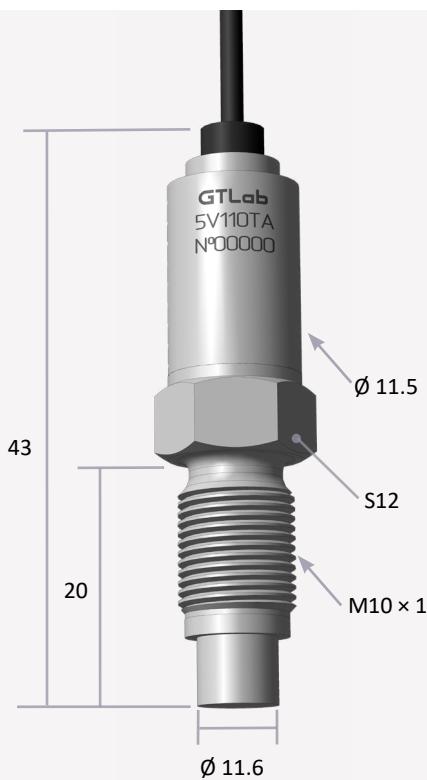
Industrial

With charging output

Dynamic pressure sensors



Parameter	5V101TA-0.6	5V101TA-6	5V101TA-60	5V101TA-250
Upper limit of measurement	0.06 MPa	0.6 MPa	6 MPa	25 MPa
Sensitivity	80 000 mV/MPa	8 000 mV/MPa	800 mV/MPa	200 mV/MPa
Limits of the permissible basic error reduced to the upper limit of measurement	± 2.5 %			
Resonant frequency	> 30 kHz			
Sensitivity to acceleration	< 0.00005 MPa/g 1g = 9,807 m·s <sup>-2</sup> or 10 m·s <sup>-2</sup> = 1,02 g			
Temperature range	- 60 ... + 125 °C			
Output impedance	< 100 Ohm			
Power:	+ (15 ... 30) V 2 ... 20 mA			
▪ external DC voltage source				
▪ current				
Constant output voltage level	8 ... 11 V			
Sensing element material	lithium niobate	quartz		
Housing material	stainless steel			
Membrane material	stainless steel			
Degree of protection from external influences	IP68 Hermetic design (can be used at a depth of up to 50 m)			
Weight (without cable and connector)	40 g			
Supplied accessories	sealing ring R01 (2 pieces.)			

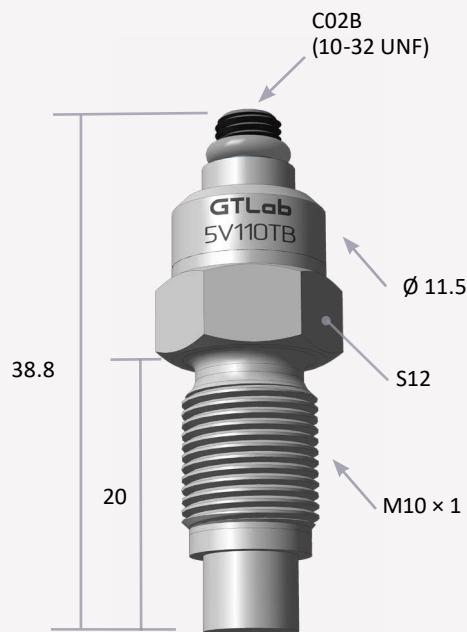


Parameter	5V110TA-6	5V110TA-600	5V110TA-1000	5V110TA-1600	5V110TA-2500
Upper limit of measurement	0.6 MPa	60 MPa	100 MPa	160 MPa	250 MPa
Sensitivity	8 000 mV/MPa	80 mV/MPa	50 mV/MPa	30 mV/MPa	20 mV/MPa
Limits of the permissible basic error reduced to the upper limit of measurement	$\pm 2.5\%$				
Resonant frequency	> 100 kHz				
Sensitivity to acceleration	< 0.00005 MPa/g 1g = 9.807 m·s <sup>-2</sup> or 10 m·s <sup>-2</sup> = 1.02 g				
Temperature range	– 60 ... + 125 °C				
Output impedance	< 100 Ohm				
Power:	<ul style="list-style-type: none"> <li>▪ external DC voltage source</li> <li>▪ current</li> </ul>	+ (15 ... 30) V 2 ... 20 mA			
Constant output voltage level	8 ... 11 V				
Sensing element material	lithium niobate	quartz			
Housing material	stainless steel				
Membrane material	stainless steel				
Degree of protection from external influences	IP68				
Weight (without cable and connector)	25 g				
Supplied accessories	sealing ring R02 (2 pieces.)				

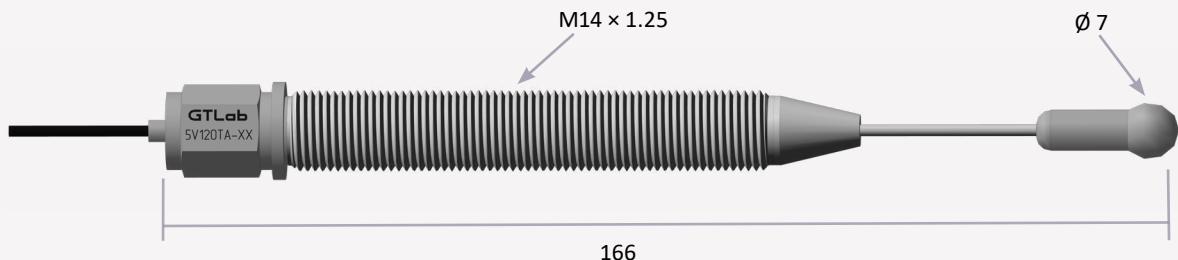
General purpose

With voltage output

Dynamic pressure sensors



Parameter	5V110TB-6	5V110TB-600	5V110TB-1000	5V110TB-1600	5V110TB-2500
Upper limit of measurement	0.6 MPa	60 MPa	100 MPa	160 MPa	250 MPa
Sensitivity	8 000 mV/MPa	80 mV/MPa	50 mV/MPa	30 mV/MPa	20 mV/MPa
Limits of the permissible basic error reduced to the upper limit of measurement	± 2.5%				
Resonant frequency	> 100 kHz				
Sensitivity to acceleration	< 0.00005 MPa/g 1g = 9.807 m·s⁻² or 10 m·s⁻² = 1.02 g				
Temperature range	– 60 ... + 125 °C				
Output impedance	< 500 Ohm				
Power:	+ (15 ... 30) V 2 ... 20 mA				
Constant output voltage level	8 ... 11 V				
Sensing element material	lithium niobate	quartz			
Housing material	stainless steel				
Membrane material	stainless steel				
Degree of protection from external influences	IP65				
Weight (without cable and connector)	25 g				
Supplied accessories	cable O3B1D1 (as per customer's request) sealing ring R02 (2 pieces.)				

**PARAMETER**

Upper limit of measured pressures

**5V120TA-10****5V120TA-25****5V120TA-60****5V120TA-100**

1 000 kPa

2 500 kPa

6 000 kPa

10 000 kPa

Conversion factor

5 mV/kPa

2 mV/kPa

0.8 mV/kPa

0.5 mV/kPa

Limits of acceptable basic error reduced to the upper-range value

± 2%

Upper limit of the operating frequency range

&gt; 25 kHz

Temperature range

– 30 ... + 50 °C

Output impedance

&lt; 100 Ohm

Power:

- voltage
- current

+ (15 ... 30) V

2 ... 20 mA

Constant output voltage level

8 ... 11 V

Sensing element material

Lead zirconate titanate  
(ЛТС-19)

Housing material

stainless steel

Housing design

carving M14x1.25

Protection against external influences

IP68

Weight (without cable and connector)

110 g

Supplied accessories

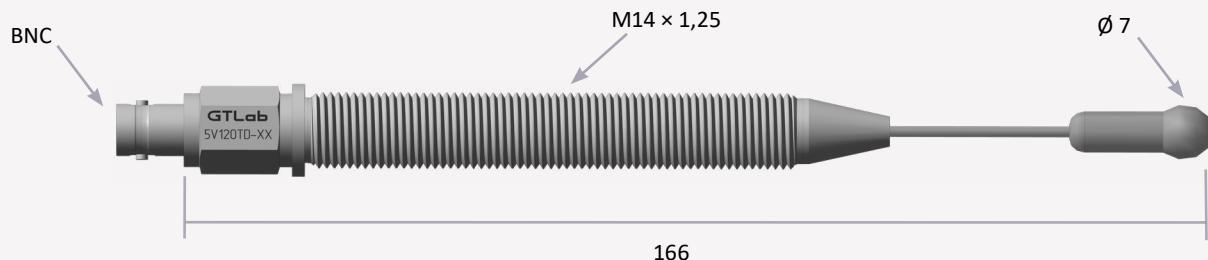
mounting nut  
M14x1.25 - 2 pc

General purpose

With voltage output

Dynamic pressure sensors



**PARAMETER**

Upper limit of measured pressures

**5V120TD-10**

1 000 kPa

**5V120TD-25**

2 500 kPa

**5V120TD-60**

6 000 kPa

**5V120TD-100**

10 000 kPa

Conversion factor

5 mV/kPa

2 mV/kPa

0.8 mV/kPa

0.5 mV/kPa

Limits of acceptable basic error reduced to the upper-range value

± 2%

Upper limit of the operating frequency range

&gt; 25 kHz

Temperature range

– 30 ... + 50 °C

Output impedance

&lt; 500 Ohm

Power:

- voltage
- current

+ (15 ... 30) V

2 ... 20 mA

8 ... 11 V

Constant output voltage level

Sensing element material

Housing material

Lead zirconate titanate (ЛТС-19)

Housing design

stainless steel

Protection against external influences

carving M14x1,25

Weight (without cable and connector)

IP65

Supplied accessories

110 g

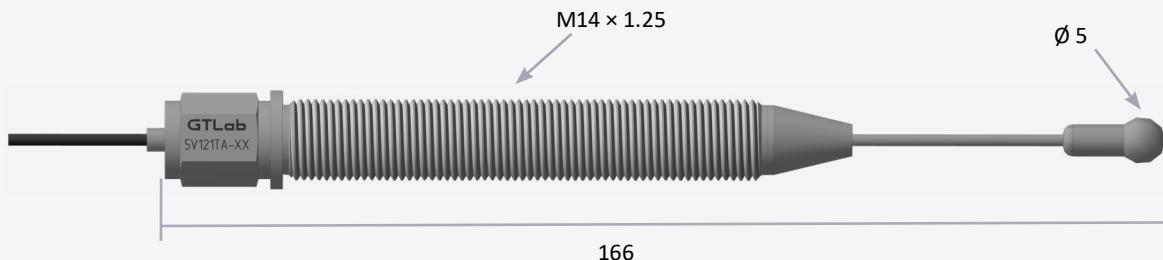
mounting nut M14x1.25 - 2 pc

cable 03D1D1 (as per customer's request)

With voltage output

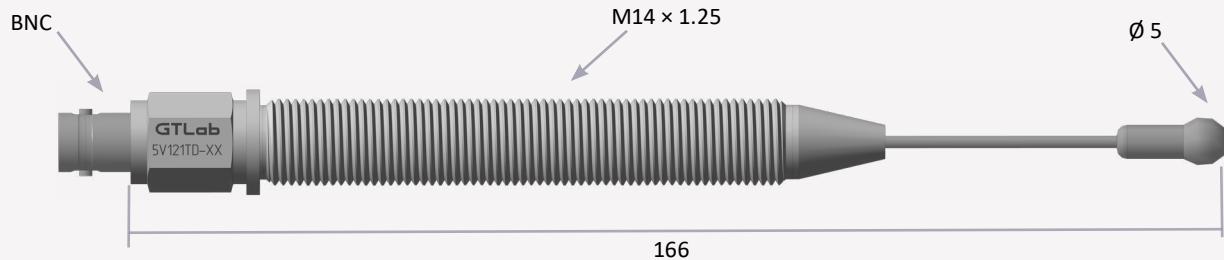
Dynamic pressure sensors

&gt; General purpose



PARAMETER	5V121TA-10	5V121TA-25	5V121TA-60	5V121TA-100
Upper limit of measured pressures	1 000 kPa	2 500 kPa	6 000 kPa	10 000 kPa
Conversion factor	5 mV/kPa	2 mV/kPa	0.8 mV/kPa	0.5 mV/kPa
Limits of acceptable basic error reduced to the upper-range value	± 2%			
Upper limit of the operating frequency range	> 25 kHz			
Temperature range	- 30 ... + 50 °C			
Output impedance	< 100 Ohm			
Power:				
▪ voltage	+ (15 ... 30) V			
▪ current	2 ... 20 mA			
Constant output voltage level	8 ... 11 V			
Sensing element material	Lead zirconate titanate (PZT)			
Housing material	stainless steel			
Housing design	carving M14x1.25			
Protection against external influences	IP68			
Weight (without cable and connector)	110 g			
Supplied accessories	mounting nut M14x1.25 - 2 pc			



**PARAMETER**

Upper limit of measured pressures

**5V121TD-10**

1 000 kPa

**5V121TD-25**

2 500 kPa

**5V121TD-60**

6 000 kPa

**5V121TD-100**

10 000 kPa

Conversion factor

5 mV/kPa

2 mV/kPa

0.8 mV/kPa

0.5 mV/kPa

Limits of acceptable basic error reduced to the upper-range value

± 2%

Upper limit of the operating frequency range

&gt; 25 kHz

Temperature range

– 30 ... + 50 °C

Output impedance

&lt; 100 Ohm

Power:

- voltage
- current

+ (15 ... 30) V

2 ... 20 mA

Constant output voltage level

8 ... 11 V

Sensing element material

Lead zirconate titanate (PZT-19)

Housing material

stainless steel

Housing design

carving M14x1.25

Protection against external influences

IP65

Weight (without cable and connector)

110 g

Supplied accessories

mounting nut M14x1.25 - 2 pc  
cable O3D1D1 (as per customer's request)

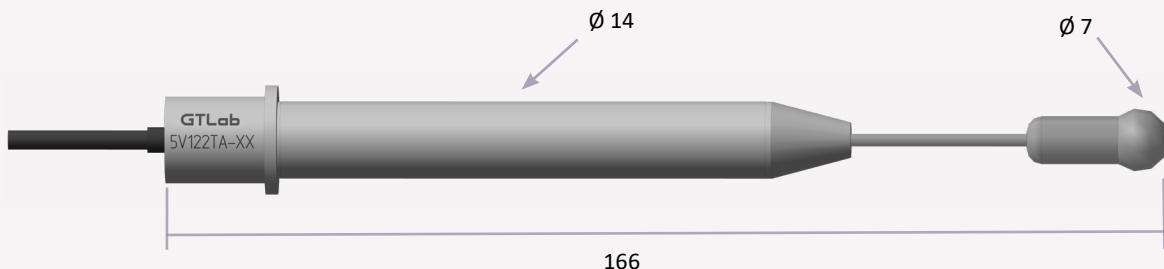
General purpose

&gt;

With voltage output

&gt;

Dynamic pressure sensors



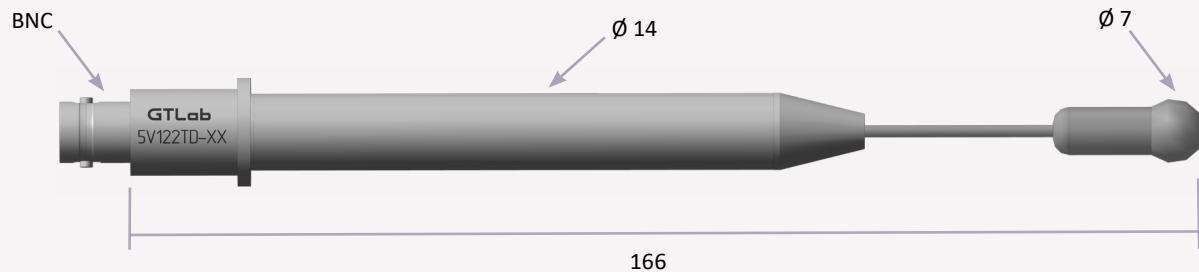
Parameter	5V122TA-10	5V122TA-25	5V122TA-60	5V122TA-100
Upper limit of measured pressures	1 000 kPa	2 500 kPa	6 000 kPa	10 000 kPa
Conversion factor	5 mV/kPa	2 mV/kPa	0.8 mV/kPa	0.5 mV/kPa
Limits of acceptable basic error reduced to the upper-range value	± 2%			
Upper limit of the operating frequency range	> 25 kHz			
Temperature range	– 30 ... + 50 °C			
Output impedance	< 100 Ohm			
Power:				
▪ voltage	+ (15 ... 30) V			
▪ current	2 ... 20 mA			
Constant output voltage level	8 ... 11 V			
Sensing element material	Lead zirconate titanate (PZT-19)			
Housing material	stainless steel			
Housing design	smooth			
Protection against external influences	IP68			
Weight (without cable and connector)	110 g			
Supplied accessories	mounting nut M14×1.25 - 2 pc			



General purpose

With voltage output

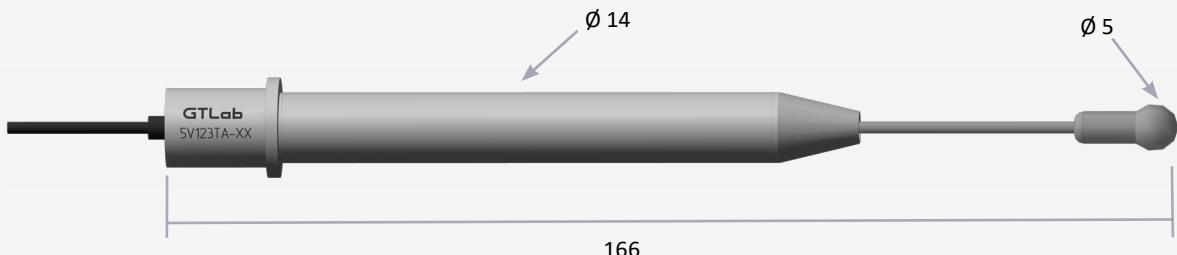
Dynamic pressure sensors



PARAMETER	5V122TD-10	5V122TD-25	5V122TA-60	5V122TD-100
Upper limit of measured pressures	1 000 kPa	2 500 kPa	6 000 kPa	10 000 kPa
Conversion factor	5 mV/kPa	2 mV/kPa	0.8 mV/kPa	0.5 mV/kPa
Limits of acceptable basic error reduced to the upper-range value	± 2%			
Upper limit of the operating frequency range	> 25 kHz			
Temperature range	- 30 ... + 50 °C			
Output impedance	< 100 Ohm			
Power:				
▪ voltage	+ (15 ... 30) V			
▪ current	2 ... 20 mA			
Constant output voltage level	8 ... 11 V			
Sensing element material	Lead zirconate titanate (ЛТС-19)			
Housing material	stainless steel			
Housing design	smooth			
Protection against external influences	IP65			
Weight (without cable and connector)	110 g			
Supplied accessories	mounting nut M14×1.25 - 2 pc cable 03D1D1 (as per customer's request)			

Dynamic pressure sensors  
› With voltage output

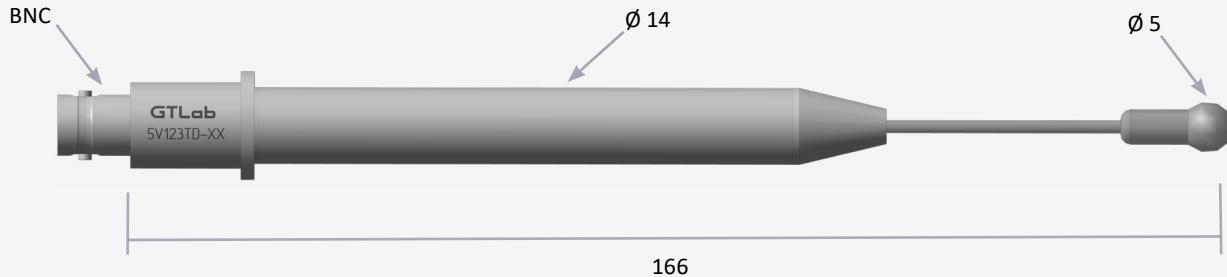




PARAMETER	5V123TA-10	5V123TA-25	5V123TA-60	5V123TA-100
Upper limit of measured pressures	1 000 kPa	2 500 kPa	6 000 kPa	10 000 kPa
Conversion factor	5 mV/kPa	2 mV/kPa	0.8 mV/kPa	0.5 mV/kPa
Limits of acceptable basic error reduced to the upper-range value	± 2%			
Upper limit of the operating frequency range	> 25 kHz			
Temperature range	- 30 ... + 50 °C			
Output impedance	< 100 Ohm			
Power:				
▪ voltage	+ (15 ... 30) V			
▪ current	2 ... 20 mA			
Constant output voltage level	8 ... 11 V			
Sensing element material	Lead zirconate titanate (PZT-19)			
Housing material	stainless steel			
Housing design	smooth			
Protection against external influences	IP68			
Weight (without cable and connector)	110 g			
Supplied accessories	mounting nut M14×1.25 - 2 pc			



Dynamic pressure sensors > With voltage output > General purpose

**PARAMETER**

Upper limit of measured pressures

**5V123TD-10****5V123TD-25****5V123TD-60****5V123TD-100**

Conversion factor

1 000 kPa

2 500 kPa

6 000 kPa

10 000 kPa

Limits of acceptable basic error reduced to the upper-range value

± 2%

Upper limit of the operating frequency range

&gt; 25 kHz

Temperature range

– 30 ... + 50 °C

Output impedance

&lt; 100 Ohm

Power:

- voltage
- current

+ (15 ... 30) V

2 ... 20 mA

Constant output voltage level

8 ... 11 V

Sensing element material

Lead zirconate titanate (PZT-19)

Housing material

stainless steel

Housing design

smooth

Protection against external influences

IP65

Weight (without cable and connector)

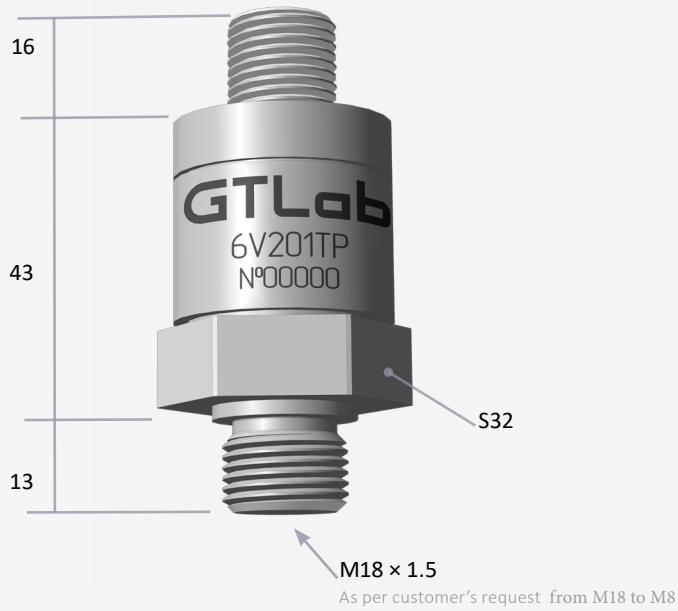
110 g

Supplied accessories

mounting nut M14x1.25 - 2 pc  
cable 03D1D1 (as per customer's  
request)

# STATIC-DYNAMIC PRESSURE SENSORS



**Parameter**

<b>Measurement range</b>	according to table 1
<b>Output voltage</b>	10 V
<b>Resonant frequency</b>	according to table 2
<b>Constant output voltage level</b>	400 ... 600 mV
<b>Sensitivity to acceleration</b>	< 0.001 bar/g
<b>Ambient temperature</b>	- 50...+ 85 °C
<b>Temperature of the measured medium</b>	- 50...+ 300 °C
<b>Supply voltage</b>	+(9 ... 15) V
<b>Consumed current</b>	25 mA
<b>Housing material</b>	stainless steel
<b>Weight (without cable)</b>	190 g

**6V201TP-XX**

according to table 1

**6V201TP-XX-5**

5 V



&gt; Industrial

**Parameter**

6V201TP-16, 6V201TP-16-5
6V201TP-25, 6V201TP-25-5
6V201TP-40, 6V201TP-40-5
6V201TP-60, 6V201TP-60-5
6V201TP-100, 6V201TP-100-5
6V201TP-160, 6V201TP-160-5
6V201TP-250, 6V201TP-250-5
6V201TP-400, 6V201TP-400-5
6V201TP-600, 6V201TP-600-5
6V201TP-1000, 6V201TP-1000-5
6V201TP-1600, 6V201TP-1600-5

**Table 1**

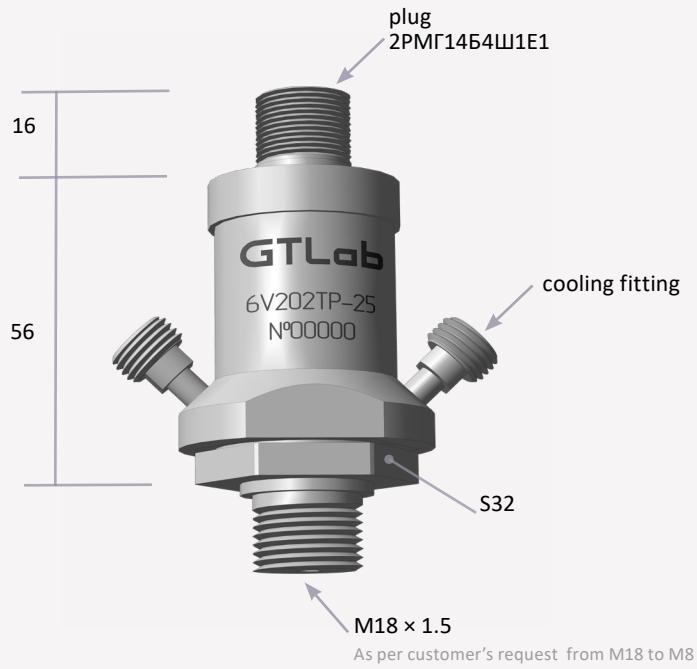
from -0,1 to 1,6 MPa
from -0,1 to 2,5 MPa
from -0,1 to 4 MPa
from -0,1 to 6 MPa
from -0,1 to 10 MPa
from -0,1 to 16 MPa
from -0,1 to 25 MPa
from -0,1 to 40 MPa
from -0,1 to 60 MPa
from -0,1 to 100 MPa
from -0,1 to 160 MPa

**Table 2**

18 kHz
22 kHz
28 kHz
32 kHz
45 kHz
55 kHz
70 kHz
90 kHz
100 kHz
140 kHz
170 kHz

&gt; With voltage output

Static-dynamic pressure sensors

**PARAMETER**

Measurement range

Output voltage

Self-resonant frequency

Acceleration sensitivity

Ambient temperature

Medium temperature

- without cooling
- with cooling

Supply voltage

Consumption current

Housing material

Weight (without cable)

**6V202TP-XX**

according to table 1

10 V

according to table 2

4,5·10<sup>-4</sup> MPa/g

−50 ... +85 °C

−50 ... +300 °C

+1 000 °C

+(9 ... 15) V

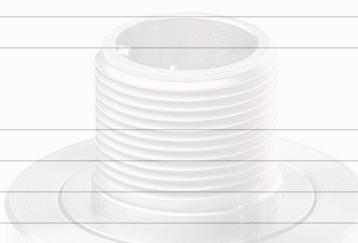
&lt; 30 mA

stainless steel

200 g

**6V202TP-XX-5**

5 V

**PARAMETER**

6V202TP-16, 6V202TP-16-5

6V202TP-25, 6V202TP-25-5

6V202TP-60, 6V202TP-60-5

6V202TP-160, 6V202TP-160-5

6V202TP-250, 6V202TP-250-5

6V202TP-400, 6V202TP-400-5

**Table 1**

from −0.1 to 1.6 MPa

from −0.1 to 2.5 MPa

from −0.1 to 6 MPa

from −0.1 to 16 MPa

from −0.1 to 25 MPa

from −0.1 to 40 MPa

**Table 2**

18 kHz

22 kHz

32 kHz

55 kHz

68 kHz

86 kHz

# ACOUSTIC EMISSION SENSORS



**PARAMETER**

Sensitivity  
Resonant frequency  
Bandwidth  
Amplification  
Supply voltage  
Consumed current  
Temperature range  
Explosion-proof  
Housing material  
Weight (without cable)

**7V201TA**

$> 4\,000 \cdot 10^6 \text{ V/m}$   
158 kHz  
50 ... 500 kHz  
10  
+ (9 ... 12) V  
< 20 mA  
−105 ... +125 °C  
1ExibIICt4  
stainless steel  
40g



**PARAMETER**

Sensitivity

**7C101HA**>  $450 \cdot 10^6$  V/m

Resonant frequency

158 kHz

Bandwidth

50 ... 500 kHz

Electric capacity with a cable length of 0.5 m

200 ... 400 pF

Insulation resistance under normal conditions

&gt; 1 000 MOhm

Temperature range

-105 ... +150 °C

Housing material

stainless steel

Weight (without cable)

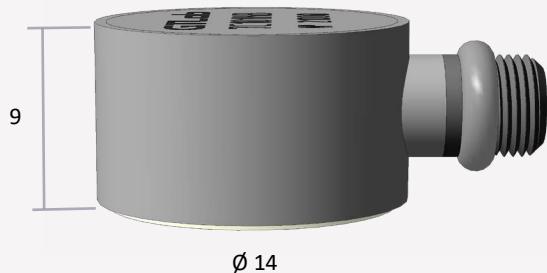
6g

General purpose

With charge output

Acoustic emission sensors

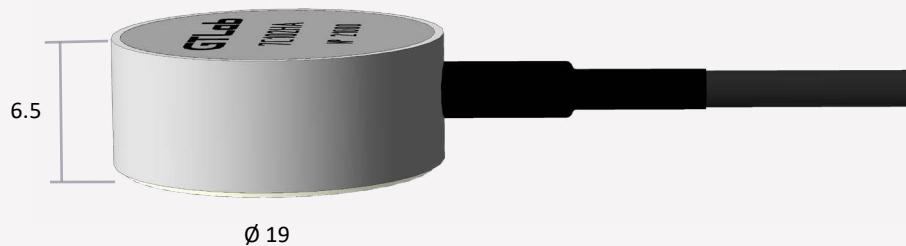


**PARAMETER**

Sensitivity	$> 450 \cdot 10^6 \text{ V/m}$
Resonant frequency	158 kHz
Bandwidth	50 ... 500 kHz
Electric capacity with a cable length of 0.5 m	200 ... 400 pF
Insulation resistance under normal conditions	$> 1\,000\text{ MOhm}$
Temperature range	-60 ... +120 °C
Housing material	stainless steel
Weight (without cable)	7g

**7C101HB**

$> 450 \cdot 10^6 \text{ V/m}$
158 kHz
50 ... 500 kHz
200 ... 400 pF
$> 1\,000\text{ MOhm}$
-60 ... +120 °C
stainless steel
7g

**PARAMETER**

Sensitivity  
Resonant frequency  
Bandwidth  
Electric capacity with a cable length of 0.5 m  
Insulation resistance under normal conditions  
Temperature range  
Housing material  
Weight (without cable)

**7C102HA**

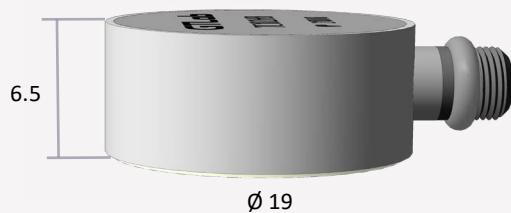
> 350 · 10 <sup>6</sup> V/m
283 kHz
100 ... 800 kHz
400 ... 650 pF
> 1 000 MOhm
-105 ... +150 °C
stainless steel
10g

› General purpose

› With charge output

Acoustic emission sensors



**PARAMETER**

Sensitivity	> $350 \cdot 10^6$ V/m
Resonant frequency	283 kHz
Bandwidth	100 ... 800 kHz
Electric capacity with a cable length of 0.5 m	400 ... 650 pF
Insulation resistance under normal conditions	> 1 000 MΩ
Temperature range	-60 ... +120 °C
Housing material	stainless steel
Weight	13g

**7C102HV**

> $350 \cdot 10^6$ V/m
283 kHz
100 ... 800 kHz
400 ... 650 pF
> 1 000 MΩ
-60 ... +120 °C
stainless steel
13g

General purpose

With charge output

Acoustic emission sensors



**PARAMETER**

Sensitivity  
Resonant frequency  
Bandwidth  
Electric capacity with a cable length of 0.5 m  
Insulation resistance under normal conditions  
Temperature range  
Housing material  
Weight (without cable)

**7C103HA**

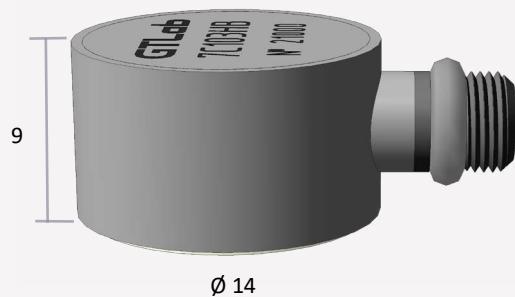
> 300 · 10 <sup>6</sup> V/m
194 kHz
50 ... 750 kHz
150 ... 300 pF
> 1 000 MOhm
-105 ... +150 °C
stainless steel
5g

› General purpose

› With charge output

Acoustic emission sensors



**PARAMETER**

Sensitivity	$> 300 \cdot 10^6 \text{ V/m}$
Resonant frequency	194 kHz
Bandwidth	50 ... 750 kHz
Electric capacity with a cable length of 0.5 m	150 ... 300 pF
Insulation resistance under normal conditions	$> 1000 \text{ M}\Omega$
Temperature range	-60 ... +120 °C
Housing material	stainless steel
Weight	6g

**7C103HB**

$> 300 \cdot 10^6 \text{ V/m}$
194 kHz
50 ... 750 kHz
150 ... 300 pF
$> 1000 \text{ M}\Omega$
-60 ... +120 °C
stainless steel
6g

Acoustic emission sensors    > With charge output    > General purpose



**PARAMETER**

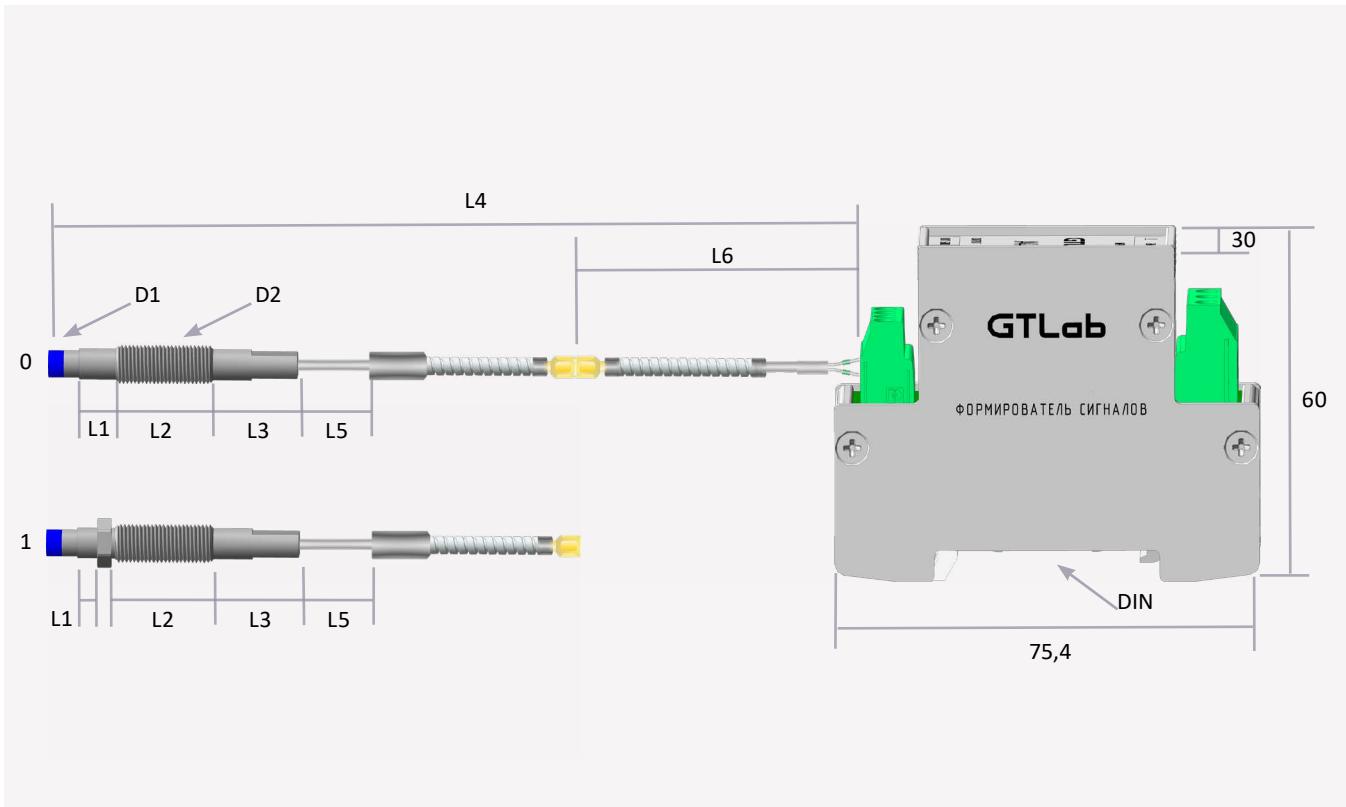
Speed measuring range  
Minimum label size  
Distance to a rotating object  
Temperature range  
Input voltage  
Consumption current  
Constant output voltage level  
Weight (without cable)  
Supplied accessories  
Purpose

**8V91D**

0,002...20 000 rpm
5 mm
< 20 mm
-25 ... +85 °C
18 ... 30 V
< 4 mA
0 ... 1 V
30 g
cable 03B1D1 (Customer requirement decision)
used in order analysis (synchronous accumulation method), in rotor balancing systems, in bearing diagnostics and other studies and measurements



# EDDY CURRENT SENSORS

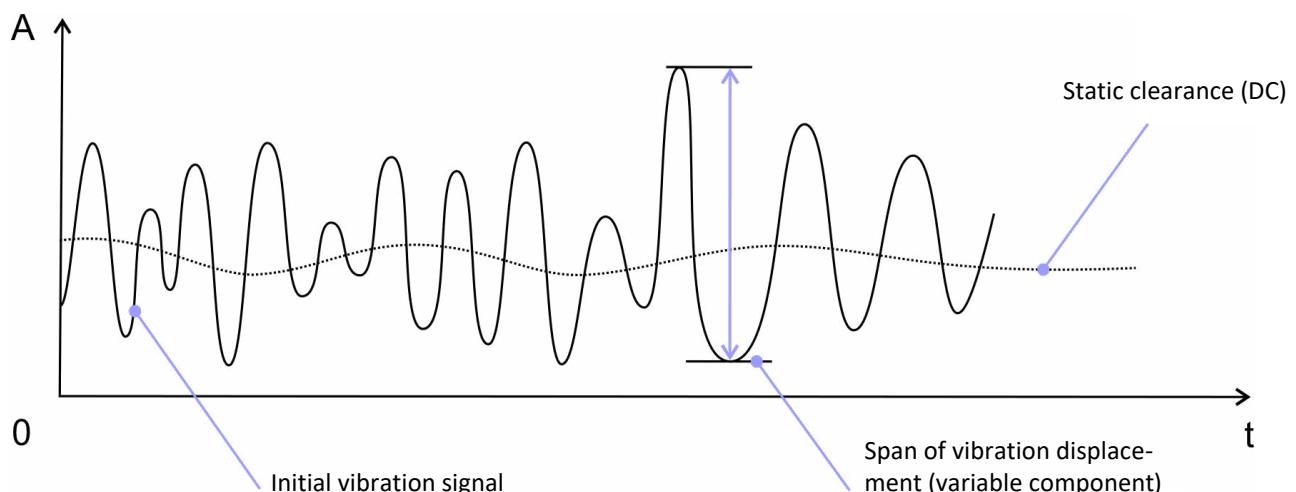


Measurement ranges of the eddy current sensor depending on the diameter of the coil of the primary transducer:

MEASURING DIAMETER TIP	DISPLACEMENT MEASURING RANGE	MEASURING RANGE OF REVOLUTIONS V (AT 1 RESPONSE PER REVOLUTION)
8 mm	0,2 – 2,2 mm	0 – 60 000 rpm
10 mm	0,3 – 3,3 mm	
20 mm	1 – 7 mm	

Variable value classifier:

MEASURED VALUE	VARIABLE VALUES												
D201.	transmission of the initial vibration signal												
D202.	static gap measurement (DC)	X.	D1.	0/1.	Y.	Z.	L1.	L2.	L3.	L4.	L5.	L6.	
D203.	measuring the range of vibration displacement (variable component)												
D204.	speed measurement												
D212.	simultaneous measurement of variable and constant components												
										D2.	XXX.	AB.	CD
										-	-	-	
										-	-	-	

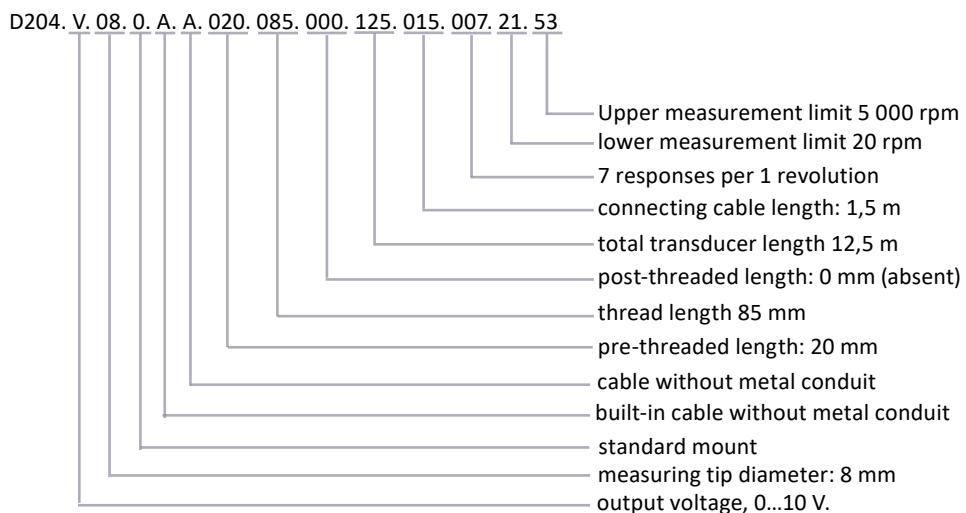


Eddy current sensor designation structure (primary converter + signal conditioner):

VARIABLE VALUES	VALUE DESCRIPTION	CODE	CODE DECRIPTION
X.	Signal on shaper output	V A	0...10 V 4...20 mA
D1.	Sensor tip diameter	08 10 20 0 1	8 mm (measuring coil – 6 mm) 10 mm (measuring coil – 8 mm) 20 mm (measuring coil – 18 mm) Стандартное крепление Обратное крепление
0/1	Способ установки первичного преобразователя		
Y.	Sensor termination type	A M S P N H A	built-in cable without metal conduit built-in cable without metal conduit built-in braided cable Connector 2РМДКПН4Ш Connector Lemo Connector MIL5015 Кабель без металлического рукава
Z.	Защита кабеля	M B C	Кабель в металлическом рукаве Металлический рукав в изоляции Кабель в плетенке
L1.	Length of pre-threaded part (min-max)	000 200	absent 200 mm
L2.	Thread length (min-max)	050 200	50 mm 200 mm
L3.	Post-thread length (min-max)	000 200	absent 200 mm
L4.	Overall length (coil to shaper, min-max)	005 180	0,5 m 18 m
L5.	Cable length to gland entry (for cable termination in a metal hose)	000 003	No gland entry 0,3 m
L6.	Connecting cable length (min-max)	000 175	absent 17,5 m
XXX.	Number of responses per shaft revolution	001 255	1 response to shaft rotation 255 responses to shaft rotation
AB.	Lower measurement limit	10	A*10V rpm., 1 rpm = 1*100
CD.	Upper measurement limit	64	B*10C rpm., 60 000 rpm = 6*104

Example:

eddy current speed sensor with voltage output: D204.V.08.0.A.A.020.085.000.125.015.007.21.53



The composition of the eddy current sensor.

## 1. Primary converter. Designation structure.

SYMBOL FOR A GROUP OF CONTACTLESS PRIMARY CONVERTERS	VARIABLE VALUES
8V	D1. 0/1. Y. Z. L1. L2. L3. L4. L5. L6. D2

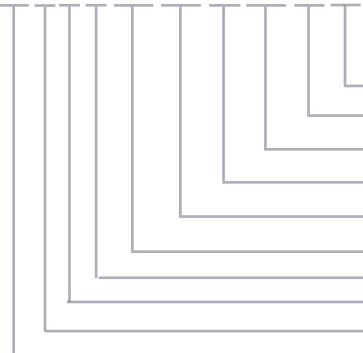
Classifier of types of threaded executions - variable value D2 (other values according to the classifier in tab.3).

VARIABLE VALUE	CODE	THREAD TYPE	NOTE
D2	00	M10*1	Only for coil 8 mm
	01	3/8-24 UNF	Only for coil 8 mm
	02	M12*1	-
	03	M22*0,75	-

Example:

Primary converter 8V.0.08.0.A.A.120.085.00.120.00.01

8V. 08. 0. A. A. 120. 085. 00. 120. 00. 01.



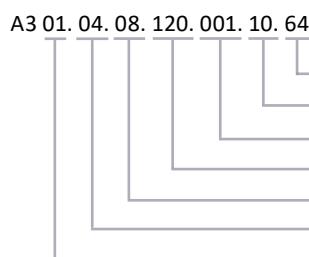
- Body carving M12
- Extension cable length 0
- Overall transducer length 12 m
- Post-threaded length 0 mm
- Thread length 85 mm
- Pre-threaded length 120 mm
- cable without metal conduit
- Built-in cable without metal conduit
- standard mount
- Measuring tip diameter 8 mm

2. Signal shaper. marking (applied by the manufacturer to the selected shaper based on the configuration of the eddy current sensor)

MODEL (SEE SECTION V-FREQUENCY SIGNAL CONDITIONERS)		MEASURED VALUE	VARIABLE VALUES		
A301; A302	Output signal: 0...10 V	01 – original signal;		XXX.	AB. CD
A361	Measurement of the static and dynamic component of displacement. output signal: 4..20 mA	02 – static clearance; 03 – range of movement; 04 – number of revolutions	D1. L4.	-	-
A362	Output signal: 4..20 mA	12 – variable and dynamic components (only for A361)		XXX.	AB. CD

Example:

Signal conditioner A301.04.08.120.001.10.64



- Upper measurement limit 60 000 rpm
- Lower measurement limit 1 rpm
- 1 response per shaft revolution
- total length of the primary converter: 12 m
- measuring tip diameter: 8 mm
- conversion of signal to number of revolution
- displacement measurement, output signal 0...10 V

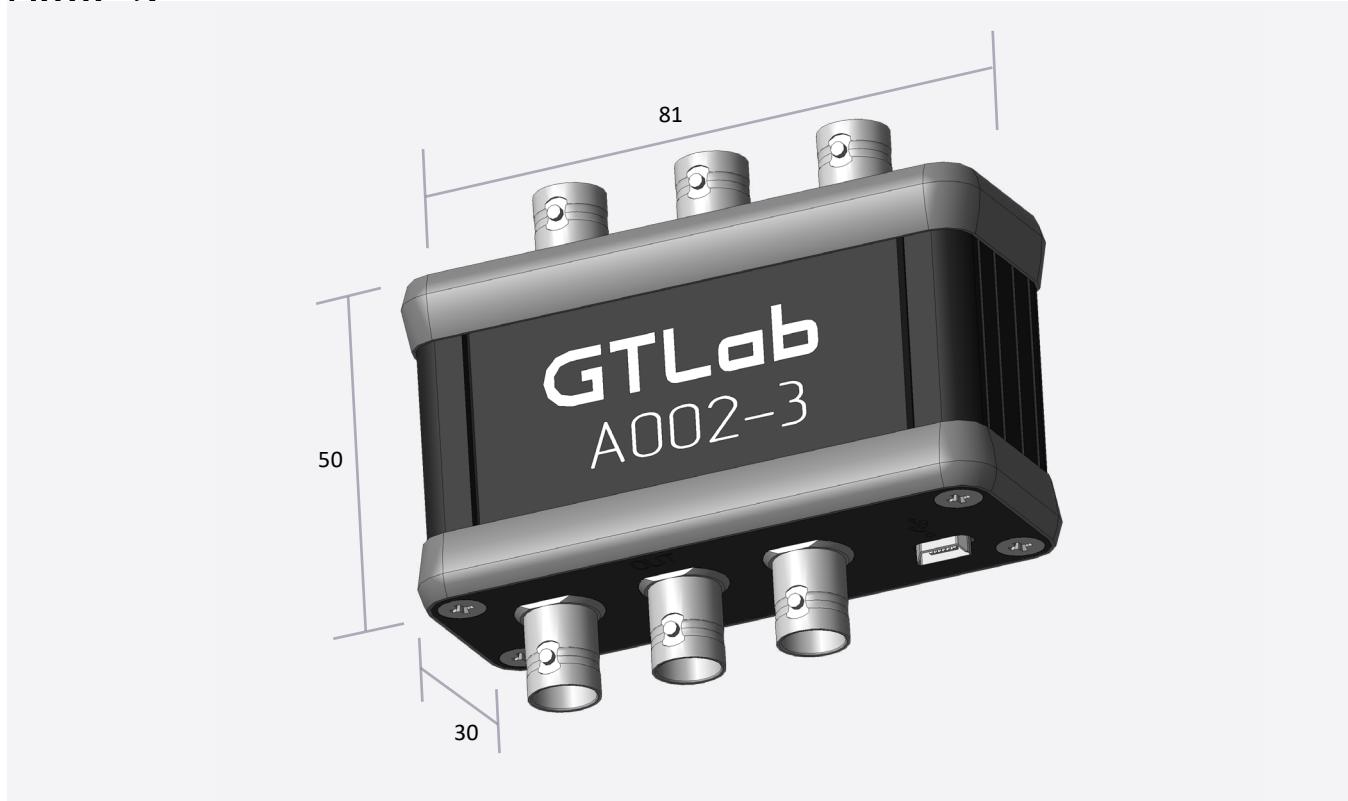
# SIGNAL GENERATORS



**Parameter**

	<b>A002</b>
Sensor supply voltage	24 V ± 10 %
Sensor supply current	5.7 ± 10 % mA
Frequency range (uneven frequency response ± 1 dB)	0.5 ...100 000 Hz
External source voltage	5± 10 % V
Consumed current	< 50 mA
Temperature range	-40...+85°C
Input impedance of recorder	≥ 1 MOhm
Input connector	BNC
Output connector	BNC
Connectors for power supply	Micro USB
Housing material	aluminum
Weight	65 g
Purpose	for IEPE sensors
Feature	absence of active elements excludes the influence of the signal generator on the noise characteristic of the measuring channel



**Parameter**

Sensor supply voltage	$24 \text{ V} \pm 10 \%$
Sensor supply current	$5,7 \pm 10 \% \text{ mA}$
Frequency range (uneven frequency response $\pm 1 \text{ dB}$ )	$0,5 \dots 100\,000 \text{ Hz}$
External source voltage	$5 \pm 10 \% \text{ V}$
Consumed current	$< 50 \text{ mA}$
Temperature range	$-40 \dots +85^\circ\text{C}$
Input impedance of recorder	$\geq 1 \text{ MOhm}$
Input connector	BNC
Output connector	BNC
Connectors for power supply	Micro USB
Housing material	aluminum
Weight	135 g
Purpose	for IEPE sensors
Feature	absence of active elements excludes the influence of the signal generator on the noise characteristic of the measuring channel

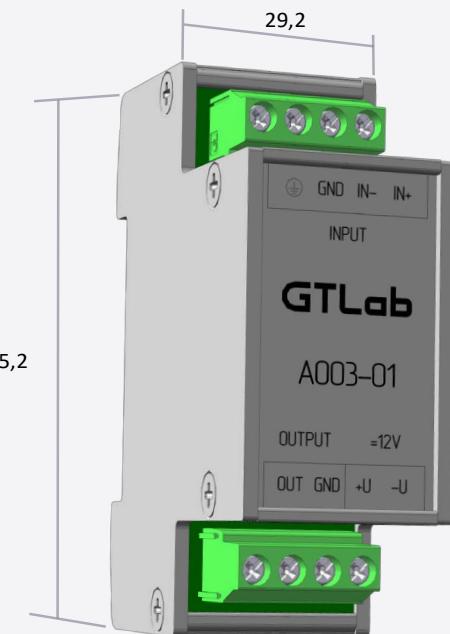
**A002-3**

Sensor supply voltage	$24 \text{ V} \pm 10 \%$
Sensor supply current	$5,7 \pm 10 \% \text{ mA}$
Frequency range (uneven frequency response $\pm 1 \text{ dB}$ )	$0,5 \dots 100\,000 \text{ Hz}$
External source voltage	$5 \pm 10 \% \text{ V}$
Consumed current	$< 50 \text{ mA}$
Temperature range	$-40 \dots +85^\circ\text{C}$
Input impedance of recorder	$\geq 1 \text{ MOhm}$
Input connector	BNC
Output connector	BNC
Connectors for power supply	Micro USB
Housing material	aluminum
Weight	135 g
Purpose	for IEPE sensors
Feature	absence of active elements excludes the influence of the signal generator on the noise characteristic of the measuring channel





PARAMETER	A003	A003-02
Sensor supply voltage	$\pm 12V \pm 10\%$	$+5V \pm 10\%$
Frequency range (uneven frequency response $\pm 1$ dB)	0.5 ... 30 000 Hz	
External source voltage	$+5V \pm 10\%$	$+5V \pm 10\%$
Consumed current	< 50 mA	
Temperature range	-40 ... +85 °C	
Output impedance	< 100 MΩ	
Input connector	terminals	
Output connector	BNC	
Connectors for power supply	Micro USB	
Housing material	aluminum	
Weight	100g	
Purpose	for sensors with voltage output	
Feature	-	-

**PARAMETER**

Sensor supply voltage	$\pm 12V \pm 10\%$
Frequency range (uneven frequency response $\pm 1$ dB)	0,5 ... 30 000 Hz
External source voltage	$+12V \pm 10\%$
Consumed current	< 50 mA
Temperature range	-40 ... +85 °C
Output impedance	< 100 MΩ
Input/output connector	terminals
Connectors for power supply	terminals
Housing material	aluminum
Weight	125g
Purpose	for sensors with voltage output
Feature	DIN-rail mount

**A003-01**

Sensor supply voltage	$\pm 12V \pm 10\%$
Frequency range	0,5 ... 30 000 Hz
External source voltage	$+12V \pm 10\%$
Consumed current	< 50 mA
Temperature range	-40 ... +85 °C
Output impedance	< 100 MΩ
Input/output connector	terminals
Connectors for power supply	terminals
Housing material	aluminum
Weight	125g
Purpose	for sensors with voltage output
Feature	DIN-rail mount

**PARAMETER**

Sensor supply voltage  
Sensor supply current  
Frequency range  
(uneven frequency response  $\pm 1$  dB)  
External source voltage  
Consumed current  
Temperature range  
Input impedance of recorder  
Input/output connector  
Connectors for power supply  
Housing material  
Weight  
Purpose  
Feature

**A004**

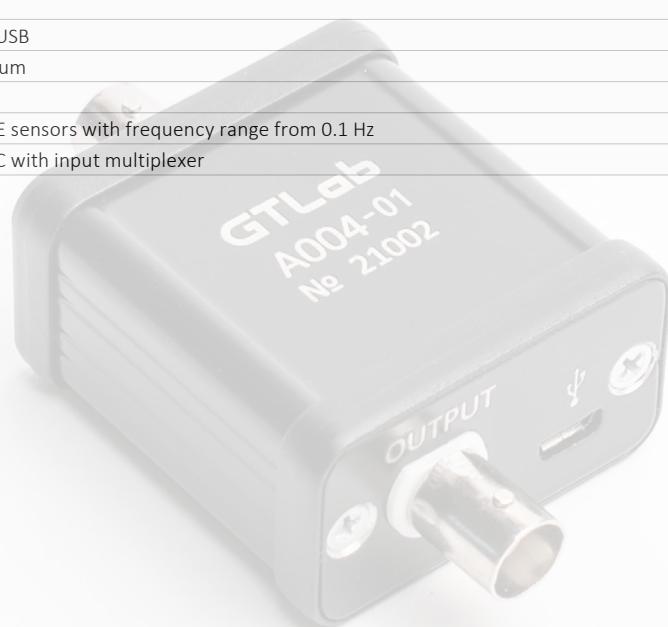
	<b>A004</b>
Sensor supply voltage	24V $\pm 10\%$
Sensor supply current	5.7 $\pm 10\%$ mA
Frequency range	0.5 ... 100 000 Hz
(uneven frequency response $\pm 1$ dB)	
External source voltage	5 $\pm 10\%$ V
Consumed current	< 50 mA
Temperature range	-40 ... +85 °C
Input impedance of recorder	< 100 kOhm
Input/output connector	BNC
Connectors for power supply	Micro USB
Housing material	aluminum
Weight	65g
Purpose	for IEPE sensors
Feature	for ADC with input multiplexer

**PARAMETER**

Input voltage sensor	24V ± 10%
Output impedance	50 ± 0,5 Ohm
Frequency range (uneven frequency response ± 1 dB)	0,1 ...100 000 Hz
Input voltage	5 ± 10 % V
Consumption current	< 50 mA
Temperature range	-40...+85°C
Input impedance of the recorder	< 100 kOhm
Input/Output connectors	BNC
Power connectors	Micro USB
Housing material	aluminum
Weight	65 g
Purpose	for IEPE sensors with frequency range from 0.1 Hz
Singularity	for ADC with input multiplexer

**A004-01**

24V ± 10%
50 ± 0,5 Ohm
0,1 ...100 000 Hz
5 ± 10 % V
< 50 mA
-40...+85°C
< 100 kOhm
BNC
Micro USB
aluminum
65 g
for IEPE sensors with frequency range from 0.1 Hz
for ADC with input multiplexer

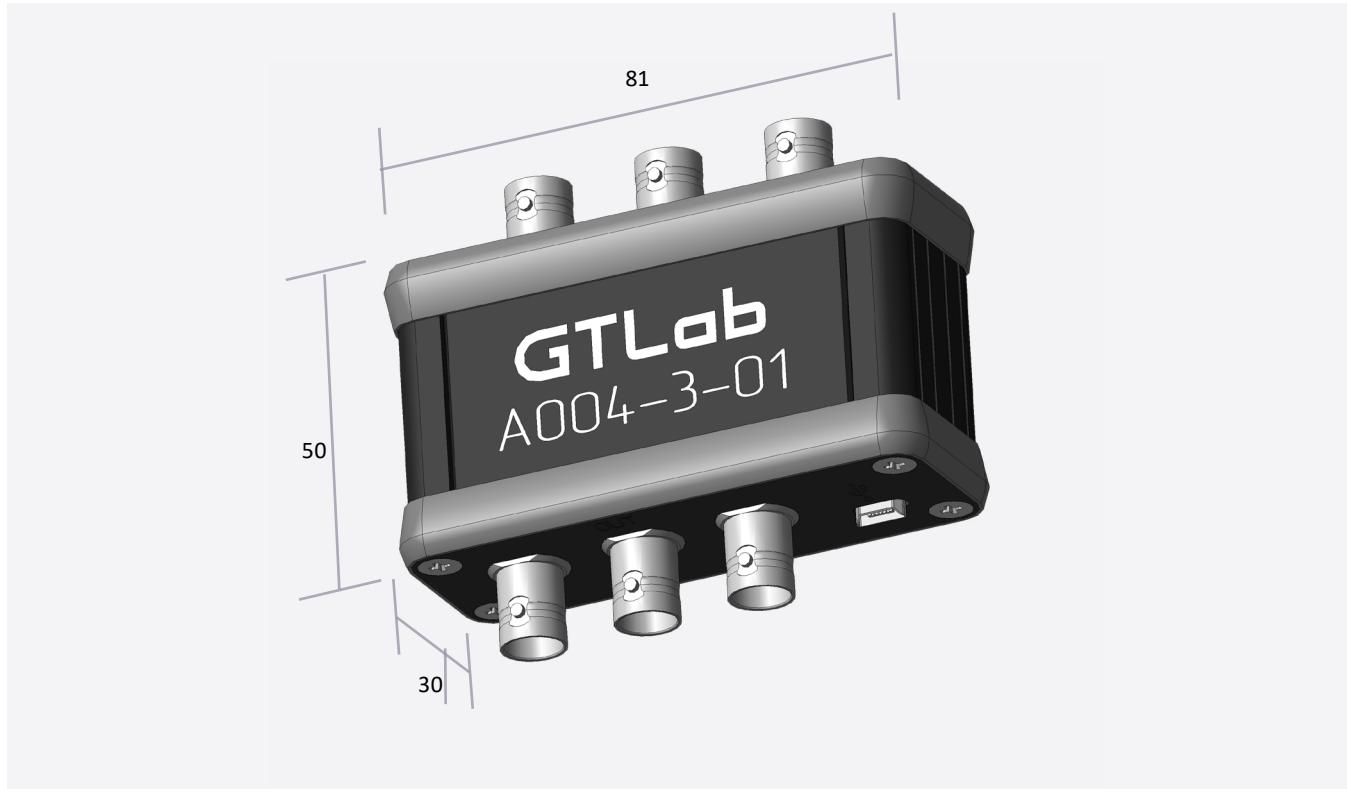


**PARAMETER**

Sensor supply voltage  
Sensor supply current  
Frequency range  
(uneven frequency response  $\pm 1$  dB)  
External source voltage  
Consumed current  
Temperature range  
Input impedance регистратора  
Input/output connector  
Connectors for power supply  
Housing material  
Weight  
Purpose  
Feature

**A004-3**

$24V \pm 10\%$   
 $5.7 \pm 10\% \text{ mA}$   
 $0.5 \dots 100\,000 \text{ Hz}$   
 $5 \pm 10\% \text{ V}$   
 $< 50 \text{ mA}$   
 $-40 \dots +85^\circ\text{C}$   
 $< 100 \text{ kOhm}$   
BNC  
Micro USB  
aluminum  
135g  
for IEPE sensors  
for ADC with input multiplexer

**PARAMETER**

Output voltage	24V ± 10%
Output impedance	50 ± 0.5 Ohm
Frequency range (uneven frequency response ± 1 dB)	0.1 ...100 000 Hz
External source voltage	5 ± 10 % V
Consumed current	< 50 mA
Temperature range	-40...+85°C
Input impedance of recorder	< 100 kOhm
Input/output connector	BNC
Connectors for power supply	Micro USB
Housing material	aluminum
Weight	65g
Purpose	for IEPE sensors
Feature	for ADC with input multiplexer

**A004-01**

24V ± 10%
50 ± 0.5 Ohm
0.1 ...100 000 Hz
5 ± 10 % V
< 50 mA
-40...+85°C
< 100 kOhm
BNC
Micro USB
aluminum
65g
for IEPE sensors
for ADC with input multiplexer

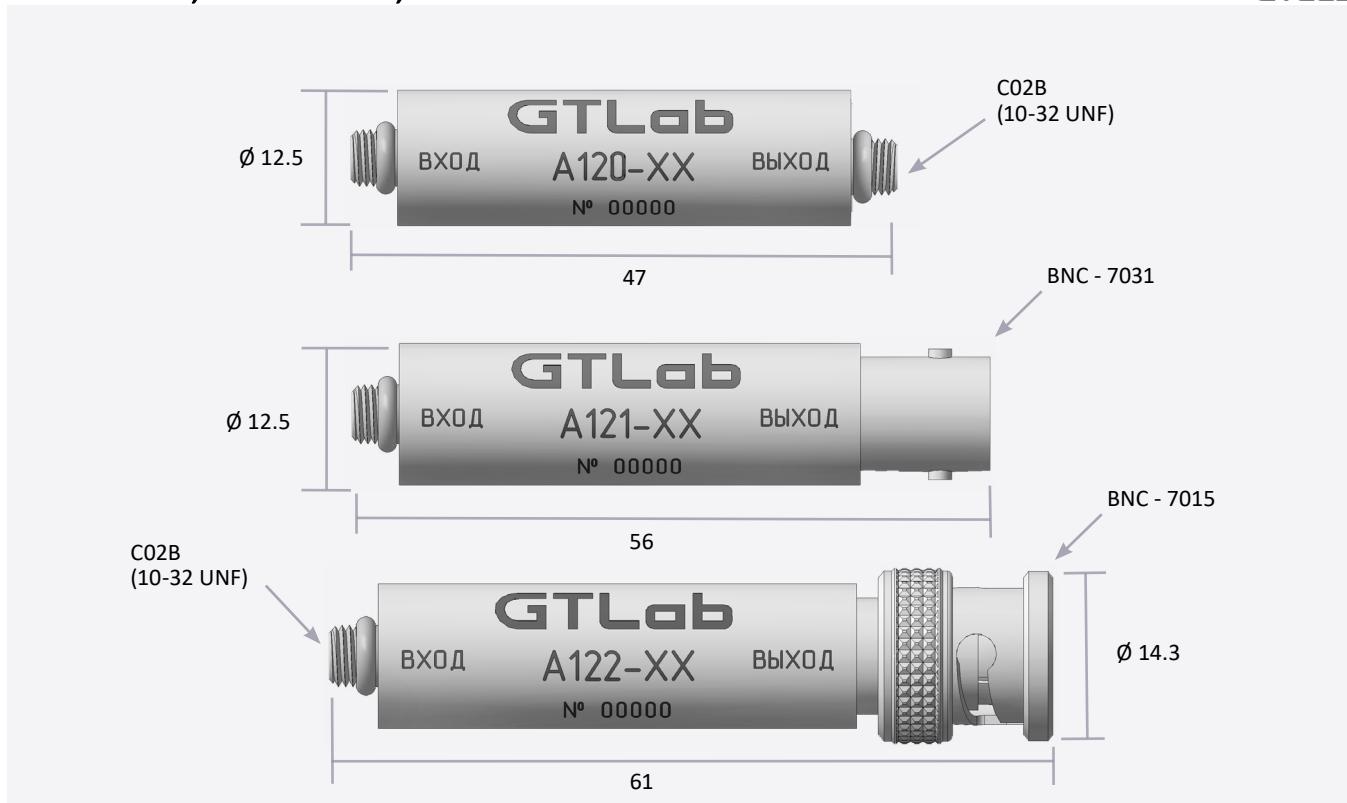
**PARAMETER**

<b>Input voltage sensor</b>	24V ± 2%
<b>Maximum output voltage amplitude</b>	± 2 V
<b>Input impedance</b>	50 Ohm
<b>Диапазон рабочих частот (нерафноИмперность АЧХ - 1 дБ)</b>	10 ... 1 000 Hz
<b>Input voltage</b>	5 ± 0,5 % V
<b>Consumption current</b>	< 50 mA
<b>Temperature range</b>	-40 ... +85 °C
<b>Input/Output connectors</b>	BNC
<b>Connectors for power connection</b>	Micro USB
<b>Housing material</b>	aluminum
<b>Weight</b>	65 g
<b>Purpose</b>	connection of signal conditioner A422 to power supply and recording equipment
<b>Singularity</b>	provides separation of the constant component of the power supply and the variable component of the measured signal from the A422; Provide connection to the recording equipment with an input impedance of more than 10 kOhm; Power via USB port or +5V adapter.

**A005**

24V ± 2%
± 2 V
50 Ohm
10 ... 1 000 Hz
5 ± 0,5 % V
< 50 mA
-40 ... +85 °C
BNC
Micro USB
aluminum
65 g
connection of signal conditioner A422 to power supply and recording equipment
provides separation of the constant component of the power supply and the variable component of the measured signal from the A422;
Provide connection to the recording equipment with an input impedance of more than 10 kOhm;
Power via USB port or +5V adapter.





PARAMETER	A120-XX	A121-XX	A122-XX
Limits of the permissible basic relative error of the charge conversion coefficient at a frequency of 1 kHz	± 2 %		
Output impedance	< 500 Ohm		
Maximum output voltage amplitude	± 5 V		
Non-linear distortion coefficient	< 5 %		
Limits of permissible additional relative error of the charge conversion coefficient in the temperature range	± 2 %		
Power mode:			
▪ external DC voltage source	+ (18 ... 30) V		
▪ current	2 ... 20 mA		
Constant output voltage level	8 ... 13 V		
Weight	16 g	19 g	21 g
Temperature range	-40 ... +85 °C		
Sensitivity by charge-XX			
Maximum input charge (peak)			
Frequency range (uneven frequency response ± 1 dB)			
Own noise RMS in the range			
0,1 mV/pC	± 50 000 pC		
0,2 mV/pC	± 25 000 pC		30 · 10 <sup>-6</sup> pC/pF
0,5 mV/pC	± 10 000 pC		
1 mV/pC	± 5 000 pC	0,5 ... 100 000 Hz	
2 mV/pC	± 2 500 pC		5 · 10 <sup>-6</sup> pC/pF
5 mV/pC	± 1 000 pC		
10 mV/pC	± 500 pC		
20 mV/pC	± 250 pC	0,5 ... 50 000 Hz	2 · 10 <sup>-6</sup> pC/pF
50 mV/pC	± 100 pC	0,5 ... 30 000 Hz	

**PARAMETER**

Maximum input charge (peak)

**A123-25**

200 pC

Frequency range  
(uneven frequency response - 3 dB)

2 ... 20 000 Hz

Coefficient of conversion to current signal

25 µA/pC

Maximum output current amplitude

± 5 mA

DC output current level

12 ± 0.5 mA

Measurement error in the operating temperature range

2 %

Temperature range

−40 ... +85 °C

External source voltage

15 ... 25 V

Consumed current

&lt; 25 mA

Run mode setting time

&lt; 4 s

Input/output connector

terminals

Housing material

aluminum alloy

Weight

250g



**PARAMETER**

Maximum input charge (peak)	A123-25-01
Frequency range (uneven frequency response - 3 dB)	200 pC
Coefficient of conversion to current signal	2 ... 20 000Hz
Maximum output current amplitude	25 µA/pC
DC output current level	± 5 mA
Measurement error in the operating temperature range	$12 \pm 0.5$ mA
Temperature range	2 %
External source voltage	-40 ... +85 °C
Consumed current	15 ... 25 V
Run mode setting time	< 25 mA
Input/output connector	< 4 s
Housing material	terminals
Weight	aluminum alloy
DIN-rail mounting	270 g

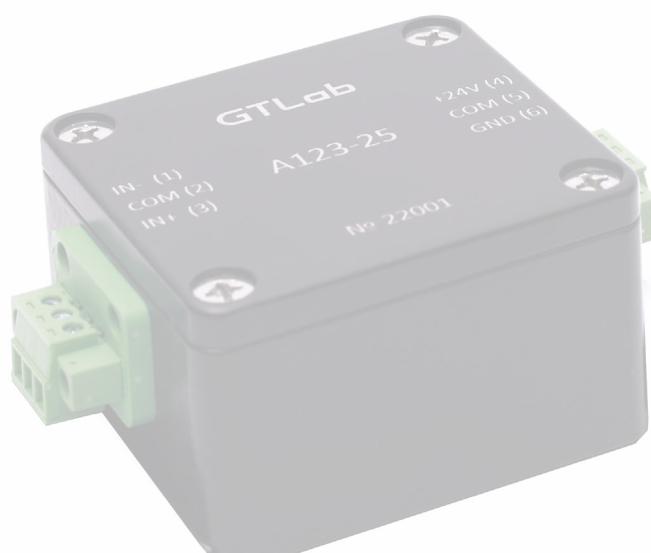
**A123-25-01**

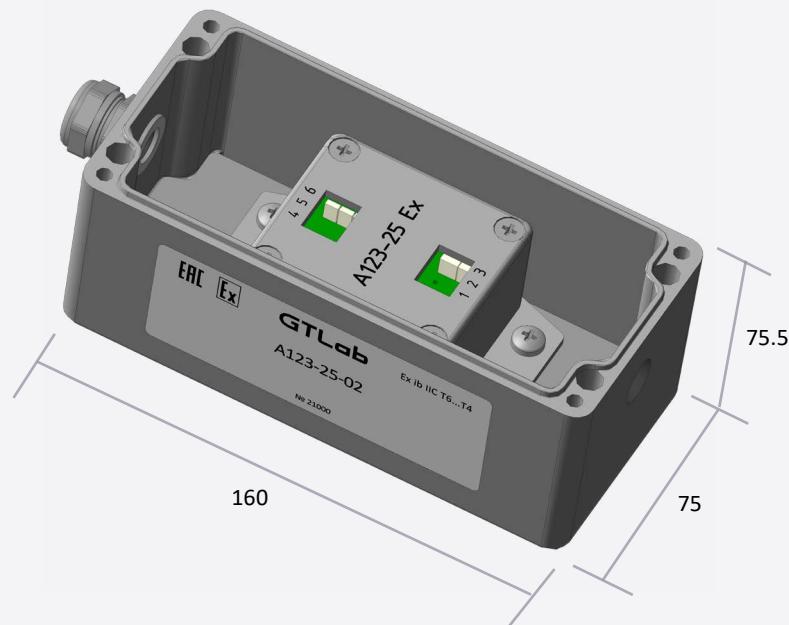
Maximum input charge (peak)	A123-25-01
Frequency range (uneven frequency response - 3 dB)	200 pC
Coefficient of conversion to current signal	2 ... 20 000Hz
Maximum output current amplitude	25 µA/pC
DC output current level	± 5 mA
Measurement error in the operating temperature range	$12 \pm 0.5$ mA
Temperature range	2 %
External source voltage	-40 ... +85 °C
Consumed current	15 ... 25 V
Run mode setting time	< 25 mA
Input/output connector	< 4 s
Housing material	terminals
Weight	aluminum alloy
DIN-rail mounting	270 g

Charge

Conversion

Signal generators



**PARAMETER**

Maximum input charge (peak)

**A123-25-02**

200 pC

Frequency range  
(uneven frequency response - 3 dB)

2 ... 20 000 Hz

Coefficient of conversion to current signal

25 µA/pC

Maximum output current amplitude

± 5 mA

DC output current level

12 ± 0.5 mA

Measurement error in the operating temperature range

2 %

Temperature range

−40 ... +85 °C

External source voltage

15 ... 25 V

Consumed current

&lt; 25 mA

Run mode setting time

&lt; 4 c

Input/output connector

terminals

Housing material

aluminum alloy

Weight

800 g

Feature

explosion-proof housing

&gt; Charge

&gt; Conversion

Signal generators





## PARAMETER

## A124-1

Limits of the permissible basic relative error of the charge conversion coefficient at a frequency of 1 kHz

± 2 %

Output impedance

< 100 Ohm

Maximum output voltage amplitude

± 4 V

Non-linear distortion coefficient

< 5 %

Input load capacitance

10 ... 10 000 pF

Limits of permissible additional relative error of the charge conversion coefficient in the temperature range

< 1 %

Power mode:

- voltage + (18 ... 30) V
- current 4.7 ... 20 mA

Constant output voltage level

8 ... 13 V

Weight

100 g

Temperature range

-40 ... +85 °C

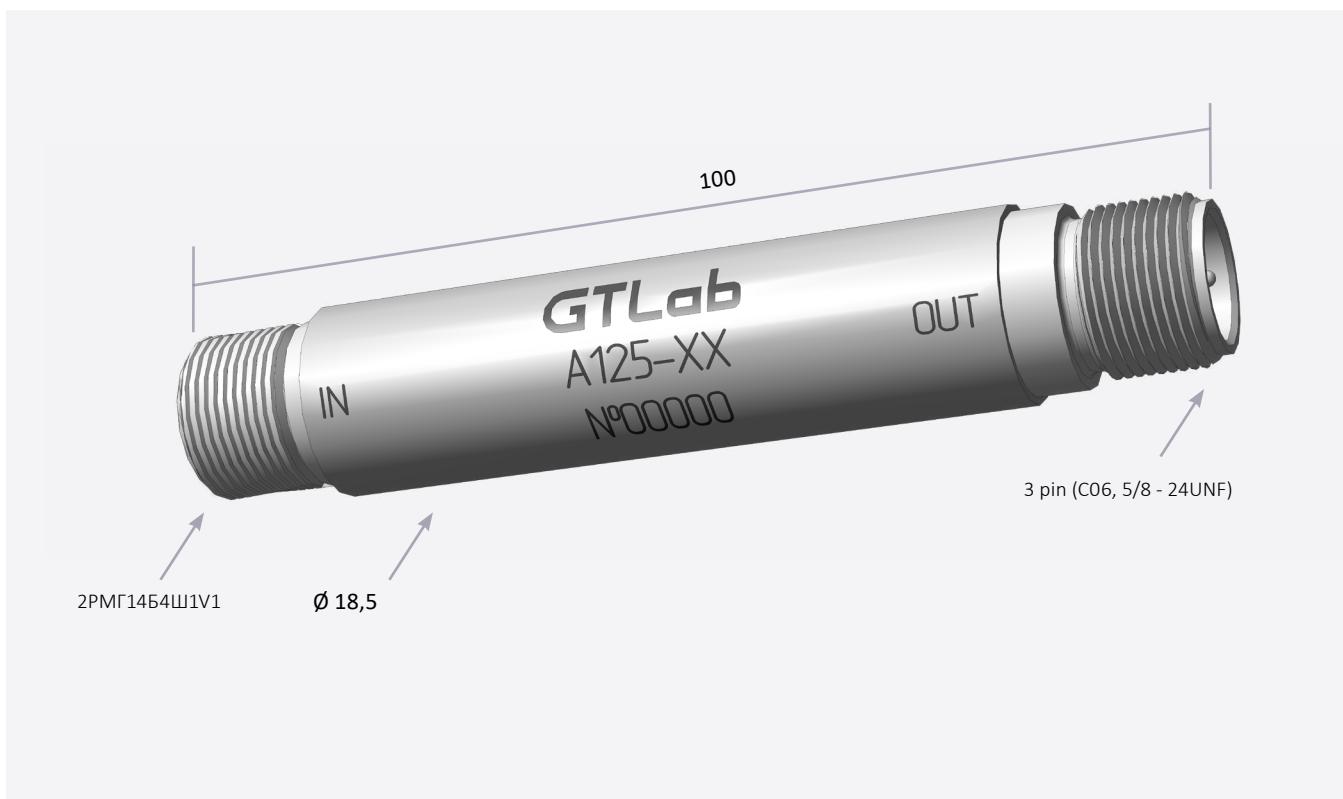
Input connector

2PMГ14Б4Ш1V1

Output connector

BNC

	Sensitivity by charge - XX	Maximum input charge (peak)	Frequency range (uneven frequency response - 3 dB)	SCR level of own noise, input
A124-XX	0.1 mV/pC	± 40 000 pC	1... 10 000Hz	$10 \cdot 10^{-6}$ pC/pF
	1 mV/pC	± 4 000 pC		
	10 mV/pC	± 400 pC		



## PARAMETER

## A125-XX

Limits of permissible basic relative error of the conversion coefficient by charge at frequency 1 kHz

$\pm 2\%$

Output impedance

< 100 Ohm

Maximum output voltage amplitude

$\pm 4$  V

Harmonic distortion coefficient

< 5 %

Input load capacity

10 ... 10 000 pF

Limits of permissible additional relative error of the charge conversion coefficient in the operating temperature range

< 1 %

Power mode:

- Input voltage
- ток потребления

+ (18 ... 30) V

< 10 mA

Constant output voltage level

8 ... 13 V

Weight

120 g

Temperature range

-40 ... +85 °C

Input connector

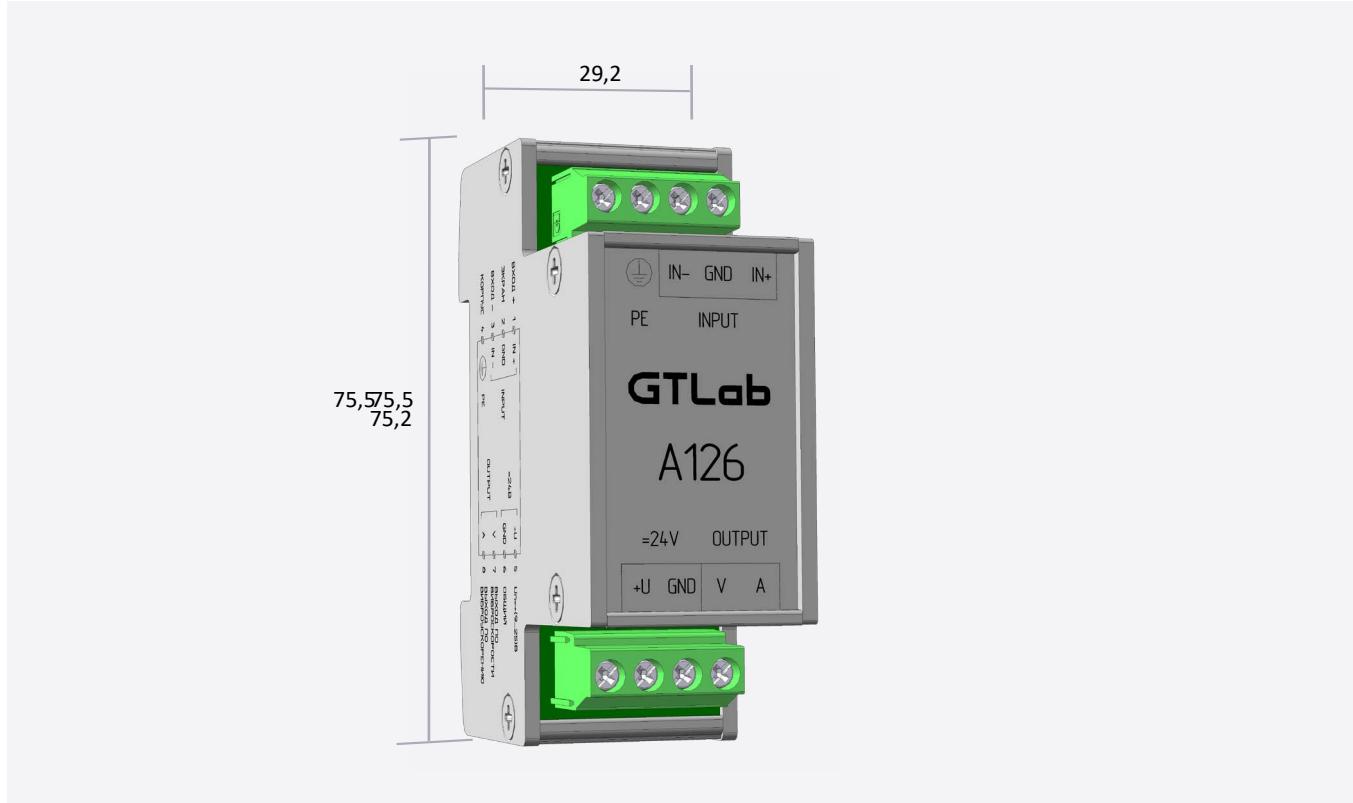
2PMГ14Б4Ш1V1

Output connector

3 pin (C06, 5/8 - 24UNF)

Signal conditioners  
› Charge  
› Transformative

	Charge sensitivity- XX	Maximum input charge (peak)	Operating frequency range at minus 3 dB	Input RMS noise level
A125-0,1	0,1 mV/pC	$\pm 40 000$ pC		
A125-1	1 mV/pC	$\pm 4 000$ pC	1 ... 10 000 Hz	$10 \cdot 10^{-6}$ pC/pF
A125-10	10 mV/pC	$\pm 400$ pC		

**PARAMETER**

Sensitivity by charge ± 2%	1 mV/pC
Sensitivity by charge with integration ± 3%	1 000 mV/pC*c
Frequency range (uneven frequency response - 3 dB)	40 ... 2 000Hz
Maximum input charge (peak)	5 000 pC
Maximum output voltage amplitude	± 5 V
Noise level, root mean square value by charge	< 5·10 <sup>-6</sup> pC/pF
Noise level, root mean square value by charge with integration	< 15·10 <sup>-6</sup> pC/pF
Output impedance	< 100 Ohm
External source voltage	+ (9 ... 25) V
Consumed current	< 20 mA
Limits of the permissible basic relative error of the charge conversion coefficient	± 1%
Input/output connector	terminals
Housing material	aluminum alloy
Weight	150g
Purpose	Converting the charge into a voltage output signal . Example, proportional to vibration acceleration / vibration speeds, dynamic pressure / velocities of changes in dynamic pressure
Feature	DIN-rail mounting

**A126**

1 mV/pC
1 000 mV/pC*c
40 ... 2 000Hz
5 000 pC
± 5 V
< 5·10 <sup>-6</sup> pC/pF
< 15·10 <sup>-6</sup> pC/pF
< 100 Ohm
+ (9 ... 25) V
< 20 mA
± 1%
terminals
aluminum alloy
150g
Converting the charge into a voltage output signal . Example, proportional to vibration acceleration / vibration speeds, dynamic pressure / velocities of changes in dynamic pressure
DIN-rail mounting



PARAMETER	A127
Sensitivity by charge ( $\pm 2\%$ )	1; 2; 5; 10; 20; 50; 100; 200; 500 mV/pC
Frequency range (uneven frequency response - 3 dB)	2 ... 20 000 Hz
Maximum input charge (peak)	$\pm 10 000$ pC
Maximum output voltage amplitude	$\pm 10$ V
Noise level, root mean square value	< $20 \cdot 10^{-6}$ pC/pF
Output impedance	< 100 Ohm
Amplitude of the test signal ( $\pm 2,5\%$ )	100 mV
Frequency signal of the test generator	$16 \pm 0.5$ Hz
Data exchange in the information system	RS485
Measurement error in the operating temperature range	$\pm 2\%$
Temperature range	-40 ... +85 °C
External source voltage	+ (18 ... 30) V
Consumed current	$\leq 50$ mA
Input connector	terminals
Output connector	terminals
Housing material	aluminum alloy
Weight	150 g
DIN-rail mount	yes
Purpose	Conversion of the high-impedance signal of a piezoelectric transducer (vibration transducer, force sensor, etc.) into a low-impedance voltage signal
Feature	Charge conversion to vibration acceleration output signal; symmetrical (balanced) input and output; control of test oscillator switching and conversion coefficient switching via RS-485; galvanic isolated from, common, power and RS485; performance stability and reliability during operation; low noise level

**PARAMETER**

Maximum input charge (peak)

Frequency range  
(uneven frequency response - 1 dB)

Range of measured vibration speed, RMS

Sensitivity by vibration speed to current signal  
4 ... 20 mA, ( $\pm 10\%$ )

Error of measurement

Measurement error in the operating temperature range

Temperature range

Data exchange in the information system

External source voltage

Consumed current

Input connector

Output connector

Housing material

Weight

Purpose

Feature

**A128-3** $\pm 500 \text{ pC}$ 

10 ... 1 000 Hz

0,1 ... 10; 0,2 ... 20; 0,5 ... 50; 1 ... 100 mm/c

1,6; 0,8; 0,32; 0,16 mA/mm/c

 $\pm 2\%$  $\pm 2\%$ 

-40 ... +70 °C

RS485

+(18 ... 30) V

 $\leq 100 \text{ mA}$ 

screw terminals

screw terminals (RS485, output 4-20 mA, power)

aluminum alloy

150g

Measurement of RMS value of object vibration velocity and signal output via 4-20 mA current loop interface

Operation with charge three-component vibration transducers; 4-20 mA current loop interface output; RS-485 digital interface for entering conversion coefficients of used vibration transducer and measuring ranges of vibration velocity

**PARAMETER**

Maximum input charge	10 000 pC
Operating frequency range (frequency response flatness $\pm 1$ dB)	0,2 ...100 000 Hz
Charge sensitivity( $\pm 2$ %)	1 mV/pC
Ambient temperature effect coefficient	$\leq 0,025\% / ^\circ\text{C}$
Output impedance	< 100 Ohm
Maximum output voltage	$\pm 10$ V
Harmonic distortion coefficient	< 5 %
RMS self-noise level by charge	$< 5 \cdot 10^{-6}$ pC/pF
Input voltage	$5 \pm 0,5$ V
Consumption current	< 30 mA
Input/Output connectors	BNC
Power connectors	Micro USB
Weight	65 g
Supplied accessories	network adapter + 5V
Purpose	Converting a high-impedance charge signal from a piezoelectric transducer into a low-impedance voltage signal.

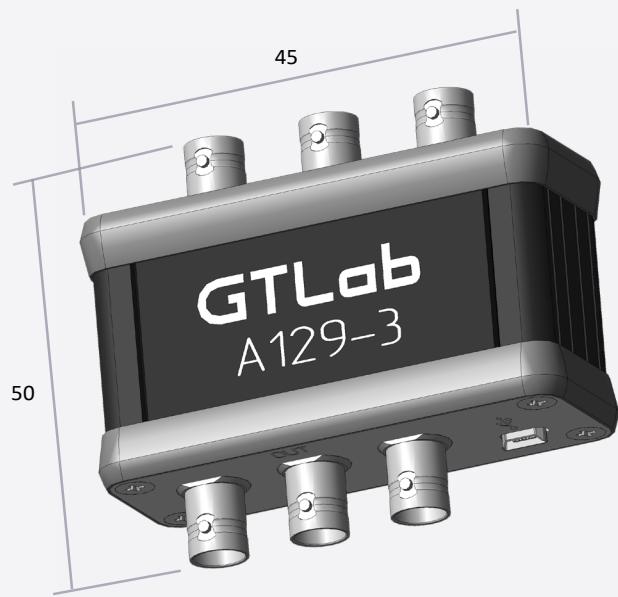
Signal conditioners

Transformative

> Charge

**A129**



**PARAMETER**

	<b>A129-3</b>
Maximum input charge	10 000 pC
Operating frequency range (frequency response flatness $\pm 1$ dB)	0,2 ...100 000 Hz
Charge sensitivity( $\pm 2$ %)	1 mV/pC
Ambient temperature effect coefficient	$\leq 0,025\% / ^\circ\text{C}$
Output impedance	< 100 Ohm
Maximum output voltage	$\pm 10$ V
Harmonic distortion coefficient	< 5 %
RMS self-noise level by charge	$< 5 \cdot 10^{-6}$ pC/pF
Input voltage	$5 \pm 0,5$ V
Consumption current	< 50 mA
Input/Output connectors	BNC
Power connectors	Micro USB
Weight	135 g
Supplied accessories	network adapter + 5V
Purpose	Converting a high-impedance charge signal from a piezoelectric transducer into a low-impedance voltage signal.

Charge

Transformative

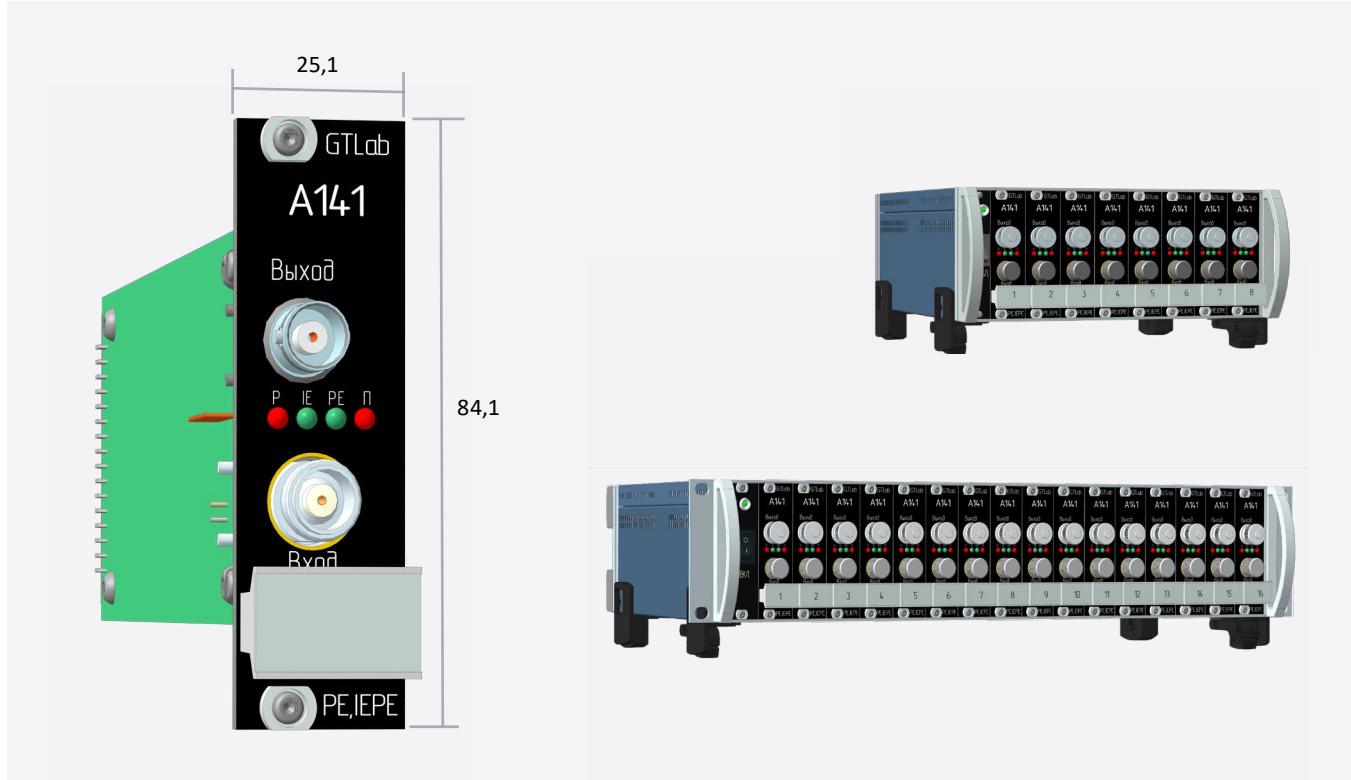
Signal conditioners

**PARAMETER**

Maximum input charge (peak)	A1210
Frequency range (frequency response flatness -1 dB)	10 000 pC
Charge sensitivity ( $\pm 0,5\%$ )	0,2 ...100 000 Hz
Maximum amplitude of the output voltage	$\pm 10$ V
RMS noise level in the range 2 ... 22 00 Hz	$< 20 \cdot 10^{-6}$ pC/pF
HPF with frequency response decay $\geq 40$ dB/ decade, at -1 dB	0,2; 1; 2; 10 Hz
LPF with attenuation frequency response $\geq 40$ dB/ decade, at -1 dB	0,1; 0,3; 1; 3; 10; 30; 100 kHz
Output impedance	$\leq 100$ Ohm
Data exchange in the information system	RS485
Temperature range	0 ... + 50 °C
Measurement error in the operating temperature range	$\pm 0,5\%$
Input voltage	+ (9 ... 30) V
Consumption current	$\leq 300$ mA
Input connector	10-32 UNF
Output connector	BNC
Weight	400 g
Purpose	Converting a high-impedance piezoelectric transducer signal into a low-impedance voltage signal.
Singularity	Converting the charge into an Output signal of vibration acceleration; normalization mode according to the transducer conversion factor; low noise level; galvanically isolated input (floating earth mode); galvanically isolated from common, Power and RS485; performance stability and reliability during operation.

› Charge  
› Transformative

Signal conditioners

**PARAMETER**

Types of connectable transducers

**A141**

IEPE; PE

Maximum input voltage(IEPE)

± 10 В

Maximum input charge (peak) (PE)

 $10^5$  pC

- Range sensitivity
- by voltage (IEPE)
- by charge (PE)

Frequency range

 $10^{-12} \dots 10^3$  В/Ед  
 $10^{-12} \dots 10^3$  пС/Ед

0,3 ... 100 000 Hz

Input impedance of the recorder

>  $10^9$  Ohm

Output impedance

&lt; 100 Ohm

Maximum amplitude of the output voltage

± 10 V

Noise level, root mean square value by voltage

 $\leq 20$  мкВ

RMS self-noise level by charge

 $\leq 20 \cdot 10^{-6}$  пС/пF

Input voltage IEPE sensors

+24 ± 2 V

Supply current IEPE sensors

 $+5,7 \pm 1,2$  mA

Voltage gain, (+0,5%)

1; 2; 5; 10; 20; 50; 100

Sensitivity by charge, (+0,5%) (PE)

0,1; 0,2; 0,5; 10; 20; 50; 100 мВ/пС

Ambient temperature effect coefficient

 $\leq 0,025$  %°C

HPF with frequency response rolloff ≥ 80 dB/decade, at -1 dB

0,3; 1; 2; 10

Low-pass filter with frequency response rolloff ≥ 80 dB/decade, at -1 dB

0,2; 0,5; 10; 20; 50; 100 kHz

Input voltage

12 ± 2 V

Consumption current

 $\leq 0,1$  A

Input connector

TNC

Output connector

BNC

Weight

100 g

Enclosure with control board

F201

Purpose

Measurement of parameters of dynamic processes in charge amplifier/voltage amplifier mode.

Singularity

F202 (customer requirement decision)  
Normalization mode according to the transducer conversion factor; overload indication mode; low noise level; galvanically isolated inputs.

**PARAMETER**

Types of connectable transducers

**A142**

IEPE; PE

Maximum input voltage (IEPE)

 $\pm 10$  V

Maximum input charge (peak) (PE)

 $10^5$  pC

Range sensitivity

 $10^{-12} \dots 10^3$  V/Unit

- by voltage (IEPE)
- by charge (PE)

 $10^{-12} \dots 10^3$  pC/Unit

Frequency range

0.3 ... 100 000Hz

Input impedance of the recorder

>  $10^9$  Ohm

Output impedance

&lt; 100 Ohm

Maximum output voltage amplitude

 $\pm 10$  V

Noise level, root mean square value by voltage

 $\leq 20$   $\mu$ V

Noise level, root mean square value by charge

 $\leq 20 \cdot 10^{-6}$  pC/pF

External source voltage IEPE sensors

 $+24 \pm 2$  V

IEPE sensor supply current

 $+5.7 \pm 1.2$  mAAmplification factor by voltage ,  
(+0,5%)

1; 2; 5; 10; 20; 50; 100

Sensitivity by charge, (+0,5%) (PE)

0,1; 0,2; 0,5; 10; 20; 50; 100 mV/pC

Ambient temperature effect coefficient

 $\leq 0,025$  %°CHigh-pass filter with frequency response decay  
≥ 80 dB/decade, at -1 dB

0,3; 1; 2; 10

Low-pass filter with frequency response decay ≥  
80 dB/decade, at -1 dB

0,2; 0,5; 10; 20; 50; 100 kHz

Charge and voltage

&gt; External source voltage

 $12 \pm 2$  V

Consumed current

 $\leq 1$  A

Input connector

TNC

Output connector

BNC

Connectors for power supply

Power adapter

Weight

3300 g

Purpose

Measurement of dynamic process parameters in charge amplifier/voltage amplifier mode voltage

Feature

Sensor conversion factor normalization mode; overload indication mode; low noise level;  
galvanically isolated inputs; built-in display; operation mode control via Ethernet

Signal generators

**Parameter**

USB protocol

RS485 specification

RS485 transmission rate

Electrical strength of galvanic isolation

Temperature range

Power

Consumed current with load

Built-in power converter:

▪ voltage

▪ current

Housing material

Weight

**A181**

version 2.0 (full speed)

EIA/TIA-485

300 ... 921 600 bits/s

1000 V

- 40 ... + 85 °C

+ 5 V (USB)

&lt; 500 mA

+ 5 ± 0.5 V

&lt; 400 mA

aluminum

80 g



## Designation:

A301	.XX	.XX
Sensor coil diameter, mm		Sensor cable length, m

Example: A301.05.05 is a signal conditioner for measuring relative displacement with a 5 mm probe. coil, cable length - 5 m.

PARAMETER	A301.XX.XX
▪ Range of displacement measurement: ▪ for a 5 mm coil ▪ for a 8 mm coil	0,2 ... 2,2 mm 0,3 ... 3,3 mm
▪ Relative displacement measurement conversion coefficients with current output: ▪ for a 5 mm coil ▪ for a 8 mm coil	4 mV/mkm 2,7 mV/mkm
Error in setting the conversion coefficients	± 5%
Measurement error in the operating temperature range	< ± 10%
Nonlinearity of the amplitude response	< ± 5%
Frequency range (frequency response ± 1 dB)	0 ... 10 000 Hz
Temperature range	-30 ... + 65 °C
Temperature range sensor	-40 ... + 180 °C
Input voltage	+ (18 ... 30) V
Consumption current	< 15 mA
RMS noise level: ▪ for 5mm coil ▪ for 8mm coil	≤ 3 mkm ≤ 4 mkm
Input/Output connectors	terminal blocks/SMA
Sensor cable length	0,5 ... 18 m
Weight	140 g
DIN rail mounting	yes
Purpose	In combination with the sensor, it forms a means of measuring vibration and movement of machine parts and mechanisms
Singularity	Voltage output 0-10 V; high temperature and time stability of characteristics; the possibility of replacing the same type of primary converters; transmission of the output current signal over a distance of up to 100 m.

**Designation:**

A302	.XX	.XX
	Sensor coil diameter, mm	Sensor cable length, m

Пример: A302.05.05 - формирователь сигналов для измерения относительного перемещения датчиком с 5 мм. катушкой, длина кабеля - 5 м.

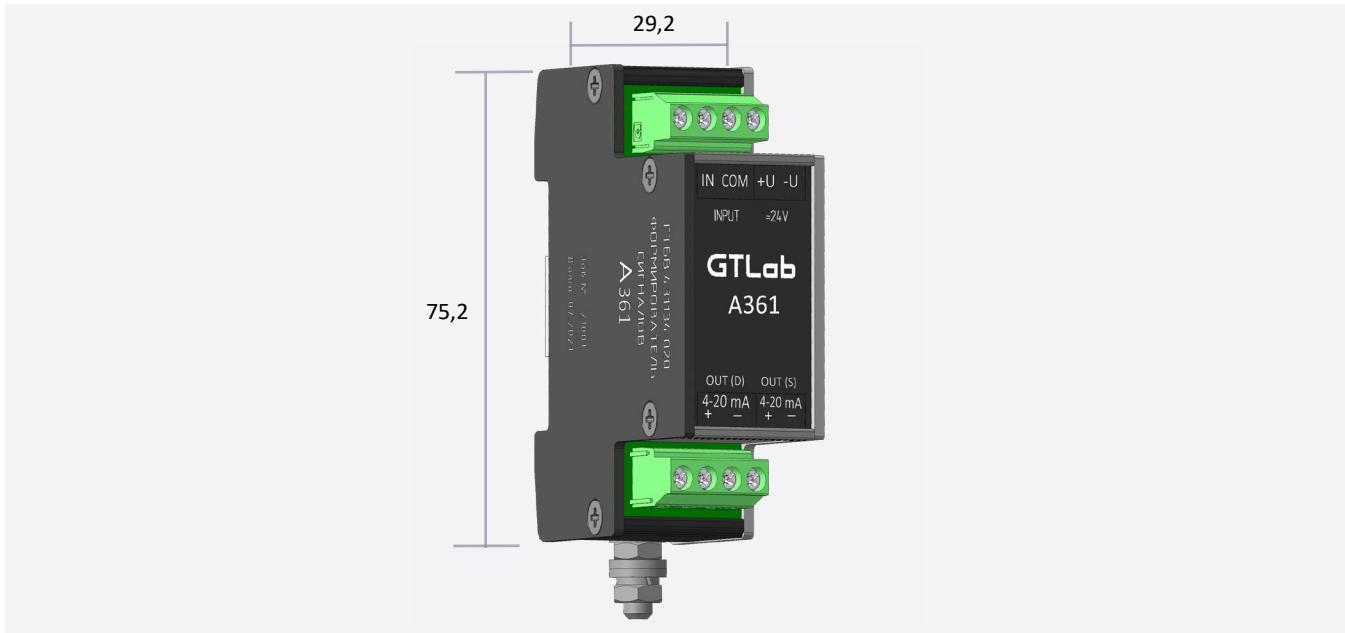
PARAMETER	A302.XX.XX
Range of displacement measurement:	
▪ for a 5 mm coil	0,2 ... 2,2 mm
▪ for a 8 mm coil	0,3 ... 3,3 mm
Relative displacement measurement conversion coefficients with current output:	
▪ for a 5 mm coil	4 mV/mkm
▪ for a 8 mm coil	2,7 mV/mkm
Error in setting the conversion coefficients	± 5%
Measurement error in the operating temperature range	< ± 10%
Nonlinearity of the amplitude response	< ± 5%
Frequency range (frequency response ± 1 dB)	0 ... 10 000 Hz
Temperature range	-30 ... + 65 °C
Temperature range sensor	-40 ... + 180 °C
Input voltage	+ (18 ... 30) V
Consumption current	< 15 mA
RMS noise level:	
▪ for 5mm coil	≤ 3 mkm
▪ for 8mm coil	≤ 4 mkm
Input/Output connectors	terminal blocks
Sensor cable length	0,5 ... 18 m
Weight	140 g
DIN rail mounting	yes
Purpose	In combination with the sensor, it forms a means of measuring vibration and movement of machine parts and mechanisms
Singularity	Voltage output 0-10 V; high temperature and time stability of characteristics; the possibility of replacing the same type of primary converters; transmission of the output current signal over a distance of up to 100 m.

**Designation:**

A331	.XX	.XX
	Sensor coil diameter, mm	Sensor cable length, m

Example: A331.05.05 - Signal generators for measuring relative motion with a 5 mm. coil sensor, cable length - 5 m.

PARAMETER	A331.XX.XX
Range of displacement measurement:	
▪ for a 5 mm coil	0.2 ... 2.2 mm
▪ for a 8 mm coil	0.3 ... 3.3 mm
Relative displacement measurement conversion coefficients with current output:	
▪ for a 5 mm coil	8 $\mu\text{A}/\mu\text{m}$
▪ for a 8 mm coil	5.3 $\mu\text{A}/\mu\text{m}$
Relative displacement measurement conversion coefficients with voltage output:	
▪ for a 5 mm coil	4 mV/ $\mu\text{m}$
▪ for a 8 mm coil	2.7 mV/ $\mu\text{m}$
Error in setting the conversion coefficients	$\pm 5\%$
Nonlinearity of the amplitude response	$\pm 5\%$
Frequency range (uneven frequency response $\pm 1 \text{ dB}$ )	0 ... 10 000Hz
Temperature range	-30 ... 65 °C
Measurement error in the operating temperature range	$\pm 2\%$
Temperature range sensor	-40 ... 150 °C
Measurement error in the operating temperature range with sensor	$\pm 10\%$
External source voltage	+ (18 ... 30) V
Consumed current	< 35 mA
Noise level, root mean square value:	
▪ for a 5 mm coil	$\leq 3 \mu\text{m}$
▪ for a 8 mm coil	$\leq 4 \mu\text{m}$
Input/output connector	terminals
Sensor cable length	0.5 ... 18 m
Weight	150 g
DIN-rail mount	yes
Purpose	In combination with a sensor, forms a device for measuring vibration and movement of machine parts and mechanisms.
Feature	4-20 mA analog current and 2-10 V voltage outputs; high temperature and time stability of characteristics; possibility of replacing the same type of primary converters; transmission of current output signal to a distance of 1000 m.

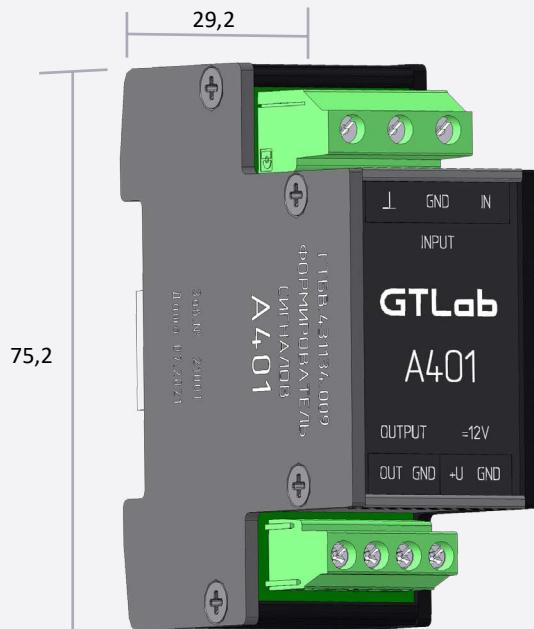
**Designation:**

A361	.XX	.XX	.XXX
	Sensor coil diameter, mm	Sensor cable length, m	Range of measured relative vibration displacement

Example: A361.05.05.250 - Signal generators for static clearance measurements 0,2 ... 2,2 mm and relative vibration displacement 250 µm sensor with 5 mm. coil, cable length: 5 m.

**PARAMETER**

	A361.XX.XX.XXX
Measurement range static clearance :	
▪ for a 5 mm coil	0,2 ... 2,2 mm
▪ for a 8 mm coil	0,3 ... 3,3 mm
Range of the measured relative vibration displacement:	
▪ for a 5 mm coil	0,125; 0,25; 0,5 mm
▪ for a 8 mm coil	0,25; 0,5; 1 mm
Conversion factors for relative displacement peak-to-peak measurements with 4-20 mA DC output:	
▪ for a 5 mm coil	128; 64; 32 µA/µm
▪ for a 8 mm coil	64; 32; 16 µA/µm
Conversion factors for static gap measurement with 4-20 mA DC output	
▪ for a 5 mm coil	8 µA/µm
▪ for a 8 mm coil	5,3 mA/µm
Error in setting the conversion coefficients	± 5%
Nonlinearity of the amplitude response	± 5%
Frequency range (uneven frequency response ± 1 dB)	2 ... 10 000Hz
Temperature range	-30 ... 65 °C
Measurement error in the operating temperature range	± 2%
Temperature range of the sensor	-40 ... 150 °C
Measurement error in the operating temperature range with sensor	± 10%
External source voltage	+ (18 ... 30) V
Consumed current	< 35 mA
Noise level, root mean square value:	
▪ for a 5 mm coil	≤ 3 µm
▪ for a 8 mm coil	≤ 4 µm
Input/output connector	terminals
Sensor cable length	0,5 ... 18 m
Weight	150g
DIN-rail mount	yes
Purpose	In combination with a sensor, it forms a means for measuring vibration and movement of machine parts and mechanisms
Feature	Current output is 4-20 mA at OUT (D) relative vibration displacement; 4-20 mA current output at OUT (S) static gap; high temperature and time stability of characteristics; possibility of replacing same-type primary converters; transmission of the output current signal 1 000+ m distance.

**PARAMETER**

Amplification factor	$20 \pm 0.25$ dB
Frequency range (uneven frequency response $\pm 3$ dB)	10 000 ... 800 000Hz
Maximum output voltage amplitude	$\pm 1$ V
Non-linear distortion coefficient	< 5 %
Noise level, root mean square value, given to input	< 5 $\mu$ V
Output impedance	$75 \pm 0,5$ Ohm
Measurement error in the operating temperature range	$\pm 2$ %
Temperature range	-40 ... +85 °C
Sensor supply voltage	9 $\pm 0,5$ V
External source voltage	$12 \pm 1$ V
Consumed current	< 25 mA
Input/output connector	screw terminals
Housing material	aluminum alloy
Weight	150 g
DIN-rail mount	yes
Explosion proof	[Exib]IIC
Purpose	Reception and amplification to normalized values of signals from acoustic emission transducers with built-in electronics
Feature	Allows to use long communication lines from the sensor to the amplifier (up to 10m); operation at up to 100 m long coaxial 75 Ohm line; low intrinsic noise

**PARAMETER**

Amplification factor	40 ± 0,25 dB
Frequency range	10 000 ... 800 000Hz
Maximum output voltage amplitude	± 2 V
High-pass filter with frequency response roll-off ≥ 20 dB / octave, attenuation ≤ 3 dB at the cutoff frequency	10 000Hz
Low-pass filter with frequency response roll-off ≥ 20 dB / octave, attenuation ≤ 3 dB at the cutoff frequency	800 000Hz
Non-linear distortion coefficient	< 5 %
Noise level, root mean square value, given to input	< 5 µmV
Output impedance	50 Ohm
Input impedance	100 000 Ohm
Measurement error in the operating temperature range	± 2 %
Temperature range	-40 ... +85 °C
External source voltage	24 ± 2 V
Consumed current	< 35 mA
Input/output connector	BNC
Housing material	aluminum alloy
Weight	200g
Purpose	Reception and amplification to normalized values of signals from acoustic emission transducers
Feature	Operation at up to 100 m long coaxial 75 Ohm line; low intrinsic noise; hermetically sealed housing

**A422**

Amplification factor	40 ± 0,25 dB
Frequency range	10 000 ... 800 000Hz
Maximum output voltage amplitude	± 2 V
High-pass filter with frequency response roll-off ≥ 20 dB / octave, attenuation ≤ 3 dB at the cutoff frequency	10 000Hz
Low-pass filter with frequency response roll-off ≥ 20 dB / octave, attenuation ≤ 3 dB at the cutoff frequency	800 000Hz
Non-linear distortion coefficient	< 5 %
Noise level, root mean square value, given to input	< 5 µmV
Output impedance	50 Ohm
Input impedance	100 000 Ohm
Measurement error in the operating temperature range	± 2 %
Temperature range	-40 ... +85 °C
External source voltage	24 ± 2 V
Consumed current	< 35 mA
Input/output connector	BNC
Housing material	aluminum alloy
Weight	200g
Purpose	Reception and amplification to normalized values of signals from acoustic emission transducers
Feature	Operation at up to 100 m long coaxial 75 Ohm line; low intrinsic noise; hermetically sealed housing

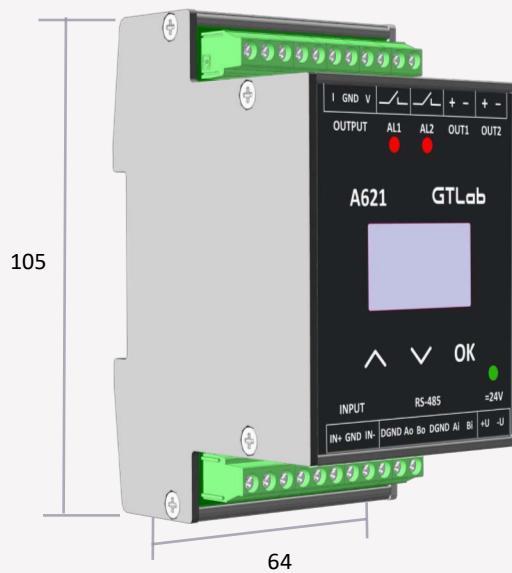
# VIBRATION CONTROLLERS



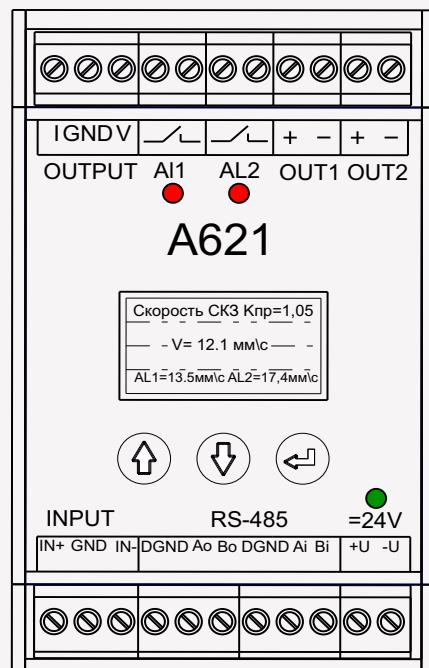
# VIBRATION CONTROLLERS

Vibration controllers are designed to measure vibration processes and transfer the obtained values to automatic control systems for technological equipment.

	A621	A631	A632	A633	A634	A635	A636
Type connected sensors	Charging symmetrical	✓			✓	✓	
	IEPE		✓	✓	✓	✓	✓
	4 - 20 mA		✓	✓			
	Negative powered (-24 V) and voltage output				✓		
	With positive supply (+24 V) and voltage output				✓	✓	✓
	With voltage output (PU)					✓	
	RS-485		✓				
	Eddy current formers				✓	✓	✓
	Diagn (signal)		✓	✓	✓	✓	✓
	0 ... 10 V		✓	✓	✓	✓	
Output	0 ... 5 V	✓					
	4 ... 20 mA	✓	✓	✓			
	0/4 ... 20 mA				✓	✓	✓
	RS-485	✓	✓	✓	✓	✓	✓
	AL1 (Dry contacts)	✓	✓	✓	✓		
	AL2 (Dry contacts)	✓	✓	✓	✓		
Control	AL3 (Dry contacts)	✓			✓		
	OK (Dry contacts)				✓		
	Reset (Dry contacts)				✓		✓
	Keyboard	✓	✓		✓	✓	✓
	Display	✓	✓	✓	✓	✓	✓
RS-485	RS-485						



	A621
Measuring range:	
▪ vibration acceleration amplitudes	1.41 ...141 m/s <sup>2</sup>
▪ vibration velocity amplitude	1.41 ...56.4 mm/c
Maximum input charge (peak)	± 5 000 pC
Frequency range measured vibration velocity and vibration acceleration (uneven frequency response - 1 dB)	30 ... 400 Hz 10 ... 1 000 Hz 10 ... 2 500 Hz
External source voltage	0 ...5 V
Consumed current	4 ... 20 mA
Temperature range	-40 ... +70 °C
Parameters of built-in comparators:	
▪ triggering thresholds setting values mean square value of vibration acceleration	2 ...100 m/s <sup>2</sup>
▪ values of the set thresholds of vibration acceleration amplitudes	3 ...141 m/s <sup>2</sup>
▪ step setting of vibration acceleration thresholds	1 m/s <sup>2</sup>
▪ triggering thresholds setting values mean square value of vibration velocity	2 ...40 mm/c
▪ triggering thresholds setting values vibration velocity amplitude	2.8 ...56,4 mm/c
▪ step setting of vibration velocity thresholds	0.1 mm/c
Input/output connector	screw terminals
Measurement error in the operating temperature range	±2 %
Types of connectable vibration transducers	charge
Data exchange in the information system	RS485
Dry relay contacts:	
▪ to control the vibration velocity and vibration acceleration	AL1, AL2
Signal conditions (closed or open) of relay contacts «AL1», «AL2»	Continuous excess of the set threshold value by the informative signal within 0-9 s
Time step setting of exceeding vibration velocity thresholds	1 s
Relay contact operation mode	lock/self-repair
Self-restore condition	vibration reduction from the trigger threshold by 6%



## PARAMETER

Vibration control delay after establishing operating mode/self-restore

"Dry" contact parameters:

- direct current commutations
- commutation voltage

Open collector contact parameters

- DC current  $I_c$
- collector - emitter voltage
- emitter-collector voltage

Digital code output parameters:

- number of digits of the measurement result code
- interface
- transfer rate

Information displayed on the built-in display

External source voltage ( $\pm 10 \%$ )

Consumed current

DIN-rail mounting

Weight

## A621

0 or 20

< 0.15 A

< 250 V

<20 mA

<80 V

<7 V

12

RS-485

1 200; 2 400; 4 800; 9 600; 19 200; 38 400; 57 600; 115 200 bits/c

Mean square value of vibration velocity and vibration acceleration, amplitude of vibration velocity and vibration acceleration, Sensitivity of sensor, values of set thresholds, setting of time of exceeding threshold values, states of relay contacts (dry contacts and open collector)

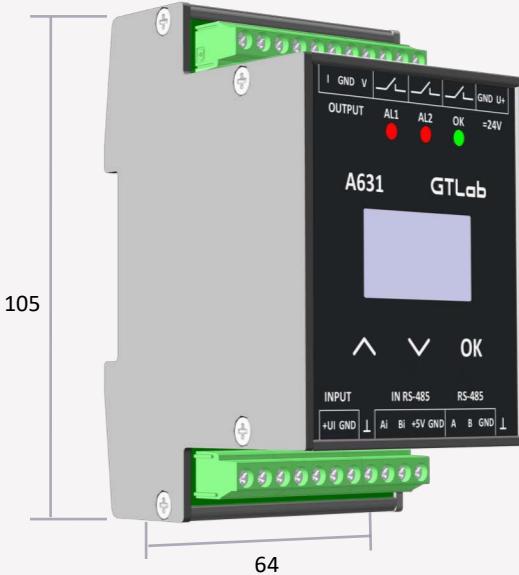
18 ...30 V

< 200 mA

yes

200g





## PARAMETER

Range of measured vibration velocity, root mean square value	A631
Frequency range of the measured vibration velocity (uneven frequency response $\pm 3$ dB)	200 mm/s
Temperature range	2 ... 1 000 Hz
Input/output connector	-40 ... +70 °C
Measurement error in the operating temperature range	screw terminals
Types of connectable vibration transducers	$\pm 2\%$
Data exchange in the information system	IEPE, 4-20 mA, RS-485 (to 8 pieces)
External source voltage:	RS485
▪ IEPE, 4-20 mA	24 + 2 V
▪ RS-485	5± 0,5 V
IEPE sensor power supply current ( $\pm 10\%$ )	5.7 mA
Dry relay contacts:	
▪ to control the vibration velocity	AL1, AL2
▪ to monitor the connected sensor	OK
Setting thresholds step	0.1 (1) mm/c
Signal conditions (closed or open) of relay contacts «AL1», «AL2»	Continuous exceeding of the set threshold value by the informative signal within 0-9 s
Time step setting of exceeding vibration velocity thresholds	1 s
Relay contact operation mode	lock/self-repair
Self-restore condition	vibration reduction from the trigger threshold by 6%
Vibration control delay after establishing operating mode/self-recovery	0 or 20
▪ Parameters of the "dry" coaptation	<1A
▪ commutation voltage	<30 V
Information displayed on the built-in display	Mean square value of vibration velocity, values of set thresholds, error codes in case of cable breakage and sensor failure, thresholds excess time setting, relay contacts status
External source voltage ( $\pm 10\%$ )	18 ... 30 V
Consumed current	< 200 mA
DIN-rail mounting	yes
Weight	200g

# A632 VIBRATION CONTROLLER

GTLab

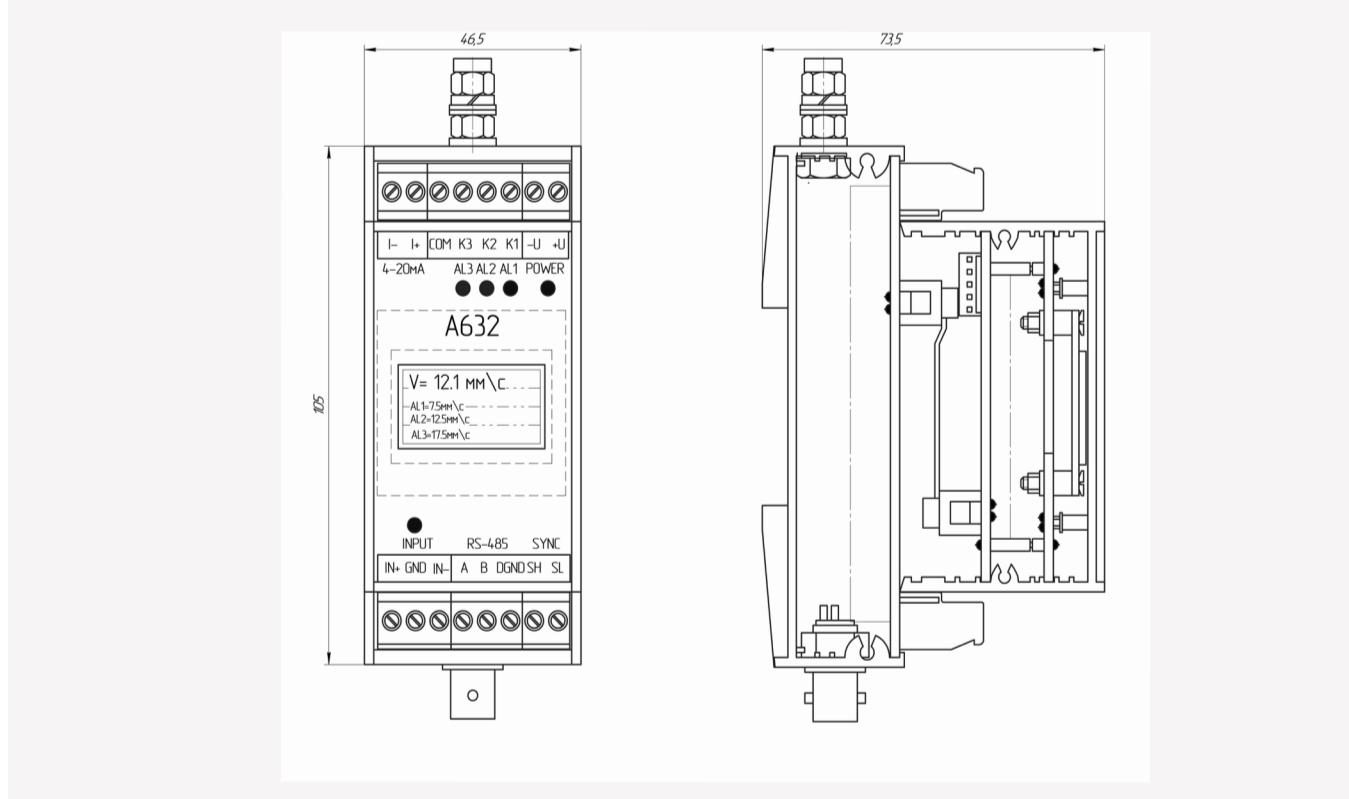


## PARAMETER

Maximum value of measured vibration acceleration, root mean square value	A632
Frequency range of the measured vibration acceleration (uneven frequency response $\pm 10\%$ ):	200 m/s <sup>2</sup>
▪ High-pass filter	2,3,5,10,30 Hz (user configurable)
▪ Low-pass filter	200,500,1 000,2 000 Hz (user configurable)
Maximum value of measured vibration velocity, root mean square value	200 mm/c
Maximum value of the measured range of vibration displacement, root mean square value	1 000 $\mu$ m
Temperature range	-40 ... +70 °C
Input/output connector	screw terminals, BNC
Measurement error in the operating temperature range	$\pm 2\%$
Types of connectable vibration transducers	IEPE; 4-20 mA
Data exchange in the information system	RS485
External source voltage sensors:	
▪ IEPE; 4-20 mA	24 + 2 V
IEPE sensor power supply current ( $\pm 10\%$ )	5.7 mA
Consumed current (terminals)	4 ... 20 mA
External source voltage (BNC)	$\pm 5$ V (signal)
Dry relay contacts:	AL1, AL2, AL3
▪ to control the measured parameter	0.1 (1) mm/c
Setting thresholds step	Continuous exceeding of the set threshold value by the informative signal within 0-9 s
Signal conditions (closed or open) of relay contacts «AL1», «AL2», «AL3»	
Time step setting of exceeding vibration velocity thresholds	1 c
Relay contact operation mode	lock/self-repair
Self-restore condition	vibration reduction from the trigger threshold by 6%
Vibration control delay after establishing operating mode/self-recovery	0 or 20
▪ Parameters of the "dry" coaptation	<1 A
▪ commutation voltage	<30 V

# A632 VIBRATION CONTROLLER (continued)

GTLab



Differential synchronization line

yes

Information displayed on the built-in display

measured parameter, sensor sensitivity, preset thresholds values, error codes in case of cable breakage and sensor failure, thresholds excess time setting, relay contacts status

External source voltage ( $\pm 10\%$ )

18 ... 30 V

Consumed current

< 200 mA

DIN-rail mounting

yes

Weight

200 g

# A633 VIBRATION CONTROLLER

GTLab



## PARAMETER

Range of measured vibration velocity, root mean square value

## A633

0 ... 10 mm/s  
0 ... 20 mm/s  
0 ... 50 mm/s  
0 ... 100 mm/s

Frequency range measured vibration velocity (uneven frequency response - 1 dB)

1 ... 1 000 Hz  
2 ... 1 000 Hz  
3 ... 1 000 Hz  
5 ... 1 000 Hz  
10 ... 1 000 Hz

### Output

- voltage
- current

0 ... 10 V  
0 ... 20 mA  
4 ... 20 mA

Temperature range

-40 ... +70 °C

Input/output connector

screw terminals

Measurement error in the operating temperature range

±2 %

Types of connectable vibration transducers

IEPE, with voltage output and negative power supply

External source voltage sensors:

(20mA/c)

- IEPE
- with voltage output and negative power suppl

+ 24 ± 2 V

- 24 ± 2 V

IEPE sensor power supply current (±10 %)

5,7 mA

Dry relay contacts:

LIM1, LIM2

- to control the vibration velocity
- to monitor the connected sensor

OK

Parameters of built-in comparators:

0,1 ... 100 mm/c

- root mean square value of vibration velocity thresholds
- setting thresholds step vibration velocity

0,1 (1) mm/c

Signal conditions (closed or open) of relay contacts «LIM1», «LIM2»

continuous exceeding of the set threshold value by the informative signal within 0-100

Time step setting of exceeding vibration velocity thresholds

1 s

Relay contact operation mode

lock/self-repair

Self-restore condition

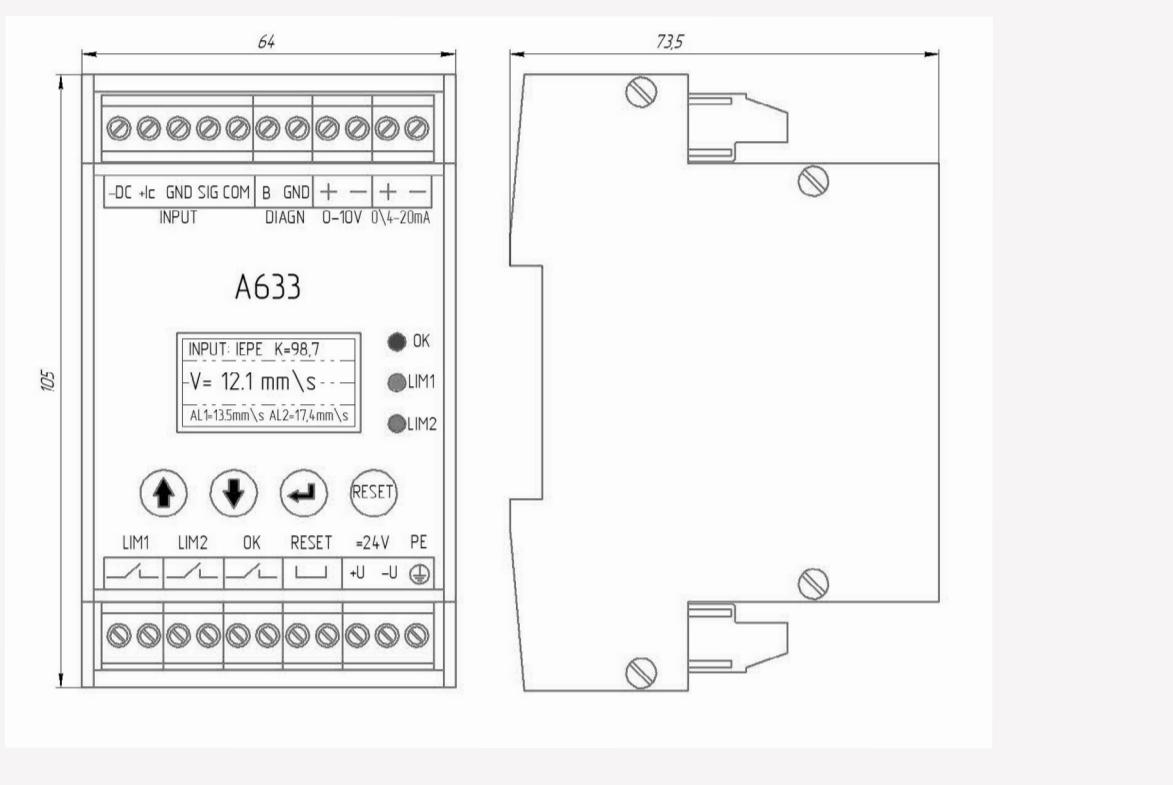
vibration reduction from the trigger threshold by 6%

Vibration control delay after establishing operating mode/self-restore

0 or 20

# A633 VIBRATION CONTROLLER (continued)

GTLab



- Parameters of the "dry" coaptation
- commutation voltage

Information displayed on the built-in display

External source voltage ( $\pm 10\%$ )

< 2 A  
0 ...  $\pm 60$  V

Consumed current

Root mean square value of vibration velocity, sensor sensitivity, values of the set thresholds, error codes in case of cable breakage and sensor failure, setting of time when thresholds are exceeded, relay contact status

DIN-rail mounting

18 ... 36 V

Weight

< 200 mA

Feature

yes

200 g

parameters are measured using spectral analysis (BPF)

# A634 VIBRATION CONTROLLER

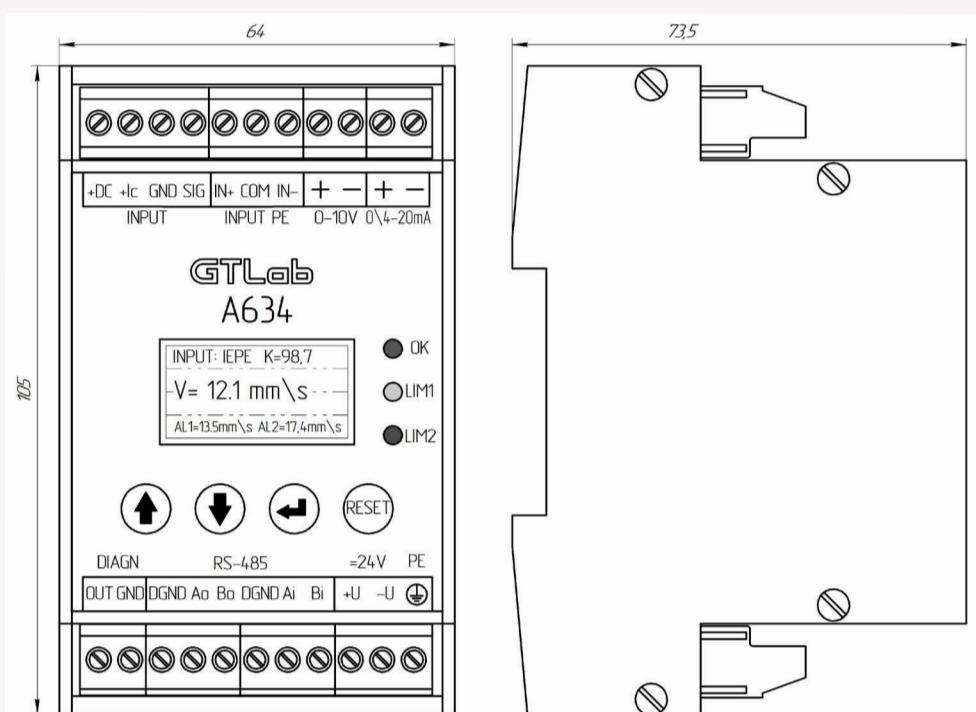
GTLab



PARAMETER	A634
Range of measured vibration velocity, root mean square value	0 ... 10 mm/s 0 ... 20 mm/s 0 ... 50 mm/s 0 ... 100 mm/s
Measuring ranges of relative vibration displacement	0 ... 125 µm 0 ... 250 µm 0 ... 500 µm 0 ... 1 000 µm
Static gap measurement ranges	0.2 ... 2.2 mm 0.3 ... 3.3 mm
Frequency range measured vibration velocity (uneven frequency response - 1 dB)	1 ... 1 000 Hz 2 ... 1 000 Hz 3 ... 1 000 Hz 5 ... 1 000 Hz 10 ... 1 000 Hz
Frequency range of the measured vibration displacement (uneven frequency response - 1 dB)	1 ... 10 000 Hz 2 ... 10 000 Hz 3 ... 10 000 Hz 5 ... 10 000 Hz 10 ... 10 000 Hz
Maximum input charge (peak)	± 5 000 pC
Maximum AC input voltage	± 5 V
Maximum DC input voltage	24 ± 2 V
Output:	
• voltage	0 ... 10 V
• current	0 ... 20 mA 4 ... 20 mA
Temperature range	-40 ... +70 °C
Data exchange in the information system	RS485
Input/output connector	screw terminals
Measurement error in the operating temperature range	± 2 %
Measurement error	± 2 %

# A634 VIBRATION CONTROLLER (continued)

GTLab



## PARAMETER

## A634

Universal  
Vibration controllers >

Signal generators

External source voltage sensors:

- IEPE
- with voltage output

$24 \pm 2$  V  
 $24 \pm 2$  V

Sensors power current ( $\pm 10\%$ ):

- IEPE
- with voltage output

5.7 mA  
 $< 50$  mA

Parameters of built-in comparators:

- triggering thresholds setting values
- Setting thresholds step

0.1 -100 mm/s  
0.1 (1) mm/s

Excess signals conditions

continuous exceeding of the set threshold value by the informative signal within 0-100 s

Step of setting the time of exceeding the thresholds

1 s

Mode of operation

with interlock or with self-restore

Self-restore condition

Level reduction from the triggering threshold by 6%

Vibration control delay after the self-restoring operating mode is established

0 or 20 s

Root mean square value of vibration velocity, relative vibration displacement or static clearance;  
The conversion coefficient of the sensor used;

Values of the specified thresholds of operation;

Error codes for cable breakage and sensor failure;

The preset time when the information signal exceeds the thresholds.

Information displayed on the built-in display

18 ...30 V

External source voltage

$< 200$  mA

Consumed current

yes

DIN-rail mounting

200 g

Weight

Operation with PE charge vibration transducers, with built-in electronics of IEPE type, with built-in electronics with positive supply and voltage output, with vortex signal generators;

Diagnostic analog output;

Parameter measurement by spectral analysis (BPF)

# A635 VIBRATION CONTROLLER

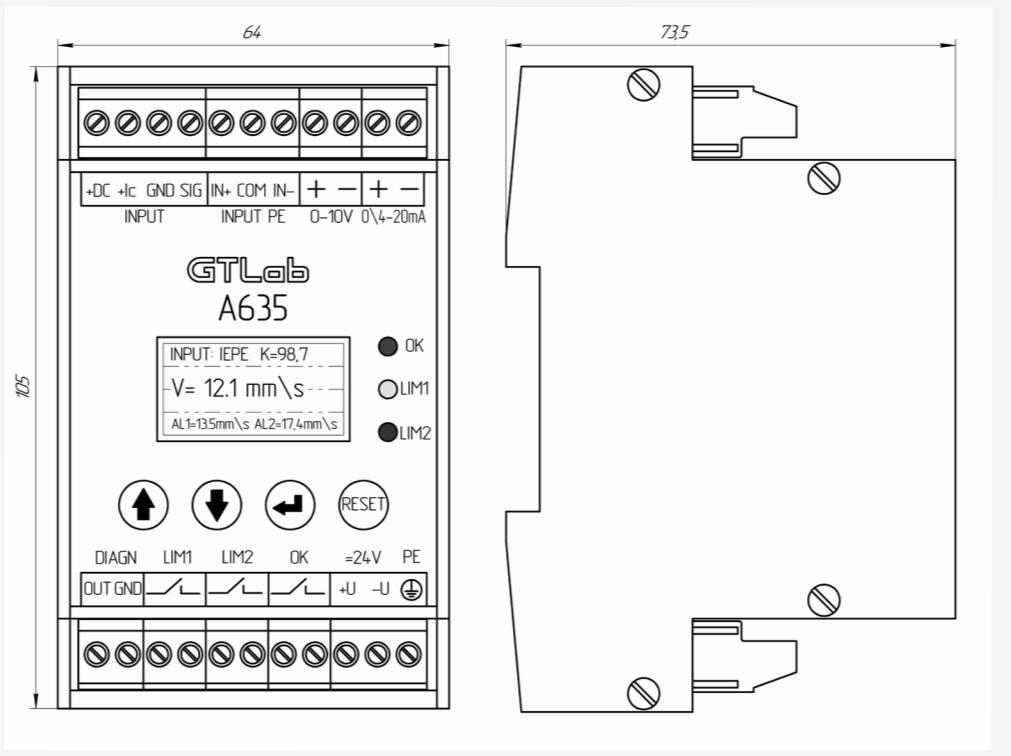
GTLab



PARAMETER	A635
Range of measured vibration speed, RMS	0 ... 10 mm/s 0 ... 20 mm/s 0 ... 50 mm/s 0 ... 100 mm/s
Relative vibration range measurement ranges	0 ... 125 mkm 0 ... 250 mkm 0 ... 500 mkm 0 ... 1 000 mkm
Static gap measurement ranges	0,2 ... 2,2 mm 0,3 ... 3,3 mm
Frequency range of the measured vibration velocity (frequency response unevenness - 1 dB)	1 ... 1 000 Hz 2 ... 1 000 Hz 3 ... 1 000 Hz 5 ... 1 000 Hz 10 ... 1 000 Hz 1 ... 10 000 Hz 2 ... 10 000 Hz 3 ... 10 000 Hz 5 ... 10 000 Hz 10 ... 10 000 Hz
Frequency range of the measured vibration displacement (frequency response unevenness - 1 dB)	± 5 000 pC
Maximum input charge (peak)	± 5 V
Maximum AC input voltage	24 ± 2 V
Maximum DC input voltage	0 ... 20 mA 4 ... 20 mA
Temperature range	-40 ... +70 °C
Data exchange in the information system	RS485
Input/Output connectors	screw terminal blocks
Measurement error in the operating temperature range	± 2 %
Measurement error	± 2 %

# A635 VIBRATION CONTROLLER (continued)

GTLab



## PARAMETER

## A635

### Input voltage датчиков:

- IEPE
  - PU
  - With voltage output
- |                     |
|---------------------|
| $24 \pm 2$ V        |
| $\pm 5$ V, 5 mA     |
| $24 \pm 2$ V, 50 mA |

### Supply current IEPE sensors ( $\pm 10\%$ )

5,7 mA

### Parameters of built-in comparators:

- triggering thresholds setting values
  - setting thresholds step
- |               |
|---------------|
| 0,1 -100 mm/s |
| 0,1 (1) mm/s  |

### Conditions for issuing alarms

continuous excess of an informative signal of a given threshold value within 0-100 s

### Threshold exceeding time step

1 s

### Operation mode

lockable or self-restore

### Self-healing condition

decrease in level from the threshold by 6%

### Vibration control delay after establishing self-restore working mode

0 or 20 s

Measured RMS vibration velocity, relative vibration displacement or static clearance;

The conversion factor of the sensor used;

The values of the set thresholds;

Error codes in case of cable break and sensor failure;

The specified time when the information signal exceeds the threshold values.

### Information displayed on the built-in indicator

18 ...30 B

### Input voltage

< 200 mA

### Consumption current

yes

### DIN rail mounting

200 g

### Weight

Work with charge vibration transducers PE, with built-in IEPE type electronics, with built-in electronics with positive power supply and voltage output, with eddy current signal conditioners;

Diagnostic analog output;

Measurement of parameters is carried out using spectral analysis (BPF).

# A636 VIBRATION CONTROLLER

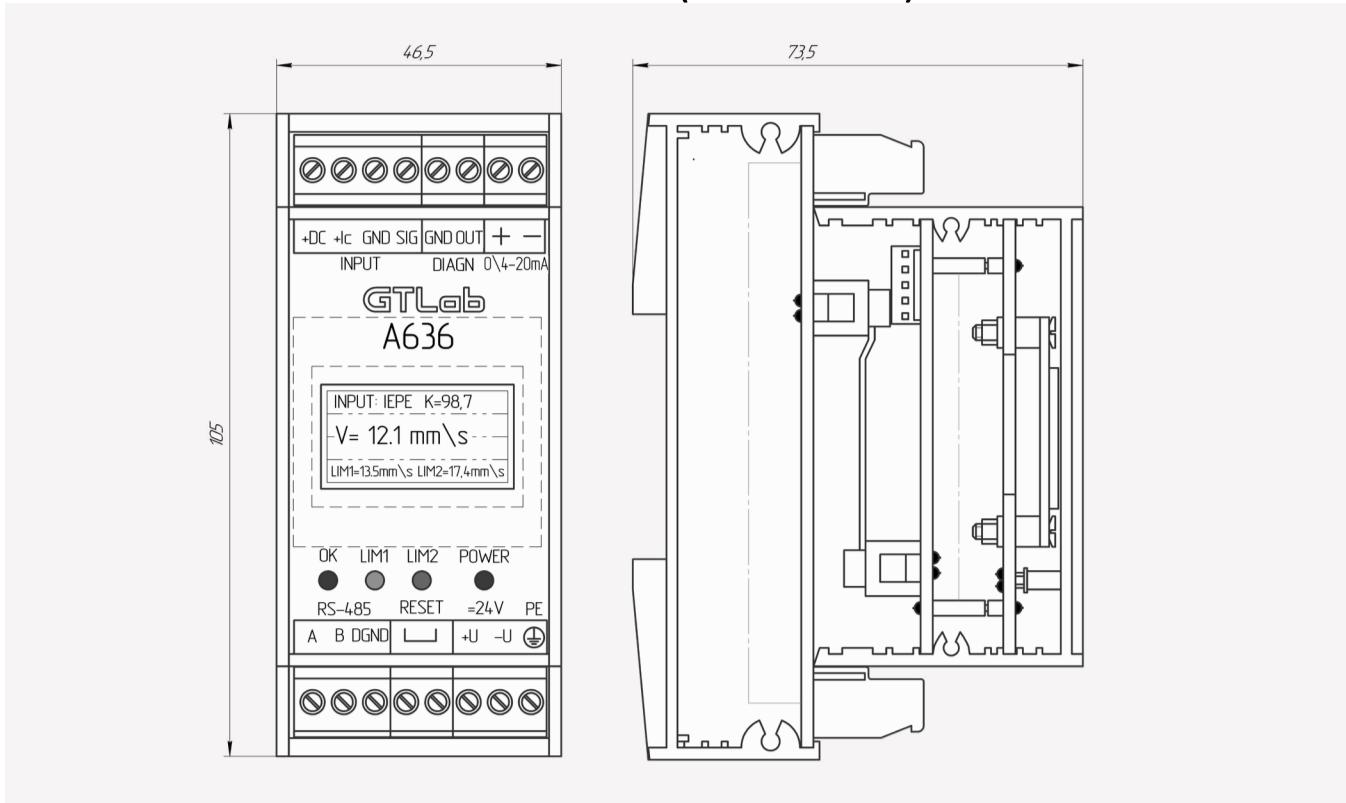
GTLab



PARAMETER	A636
Range of measured vibration speed, RMS	0 ... 10 mm/s 0 ... 20 mm/s 0 ... 50 mm/s 0 ... 100 mm/s
Relative vibration range measurement ranges	0 ... 125 mkm 0 ... 250 mkm 0 ... 500 mkm 0 ... 1 000 mkm
Static gap measurement ranges	0,2 ... 2,2 mm 0,3 ... 3,3 mm
Frequency range of the measured vibration velocity (frequency response unevenness - 1 dB)	1 ... 1 000 Hz 2 ... 1 000 Hz 3 ... 1 000 Hz 5 ... 1 000 Hz 10 ... 1 000 Hz 1 ... 10 000 Hz 2 ... 10 000 Hz 3 ... 10 000 Hz 5 ... 10 000 Hz 10 ... 10 000 Hz
Frequency range of the measured vibration displacement (frequency response unevenness - 1 dB)	± 5 000 pC
Maximum input charge (peak)	± 5 V
Maximum AC input voltage	24 ± 2 V
Maximum DC input voltage	24 ± 2 V
Output:	
• current	0 ... 20 mA 4 ... 20 mA
Temperature range	-40 ... +70 °C
Data exchange in the information system	RS485
Input/output connectors	screw terminal blocks
Measurement error in the operating temperature range	±2 %
Measurement error	±2 %

# A636 VIBRATION CONTROLLER (continued)

GTLab



PARAMETER	A636
Supply voltage of sensors:	
▪ IEPE	$24 \pm 2$ V
▪ with voltage output	$24 \pm 2$ V
Supply current of sensors ( $\pm 10\%$ ):	
▪ IEPE	5,7 mA
▪ with voltage output	< 50 mA
Parameters of built-in comparators:	
▪ values of set thresholds	0,1 -100 mm/s
▪ threshold setting step	0,1 (1) mm/s
Conditions for issuing alarms	continuous excess of an informative signal of a given threshold value within 0-100 s
Threshold exceeding time step	1 s
Operation mode	lockable or self-restore
Self-healing condition	decrease in level from the threshold by 6%
Vibration control delay after establishing self-restore working mode	0 or 20 s
Information displayed on the built-in indicator	The values of the measured RMS vibration velocity, relative vibration displacement or static clearance; The conversion factor of the sensor used; The values of the set thresholds; Error codes in case of cable break and sensor failure; The specified time when the information signal exceeds the threshold values.
Supply voltage	18 ...30 V
Consumption current	< 200 mA
DIN rail mounting	yes
Weight	200 g
Singularity	Work with vibration transducers with built-in IEPE type electronics, with built-in electronics with positive power supply and voltage output, with eddy current signal conditioners; Diagnostic analog output; Measurement of parameters is carried out using spectral analysis (BPF).

# CALIBRATORS



**Parameter**

	<b>S01</b>
Vibration frequency ( $\pm 1\%$ )	159.2 Hz
Acceleration (RMS $\pm 2\%$ )	10 m/s <sup>2</sup>
Velocity (RMS $\pm 2\%$ )	10 mm/s
Displacement (RMS $\pm 2\%$ )	10 $\mu$ m
Transverse vibration amplitude	< 5 %
Nonlinear distortions	< 3 %
Operating mode setting time	< 5 s
Maximum weight of calibration sensor	200 g
Temperature range	-10 ... +50 °C
Maximum mounting torque of calibrated sensor	0.1 N·m (in the absence of a torque tool, it is allowed to attach the calibrated sensors by hand)
Weight	900 g
Power	stand-alone or from USB
Connector for external power supply and battery charging	Micro USB
Supplied accessories	adapter P0005, studs P0505, P0508, P0506, battery charger AA: 4 pcs, USB cable, adapter 220 V

**PARAMETER****Vibration frequency ( $\pm 1\%$ )****S02**

39,79 Hz

79,58 Hz

159,2 Hz

636,6 Hz

**Acceleration (RMS  $\pm 2\%$ , war 1 m/s $^2$ )**1 ... 10 m/s $^2$  (for frequencies 39,79 Hz; 79,58 Hz; 159,2 Hz)**Transverse vibration amplitude**1 m/s $^2$  (for frequencies 636,6 Hz)**Nonlinear distortions**

&lt; 5 %

**Operating mode setting time**

&lt; 3 %

**Maximum weight of calibration sensor**

&lt; 5 s

**Temperature range**

300 g (for frequencies 39,79 Hz; 79,58 Hz)

**Maximum mounting torque of calibrated sensor**

200 g (for frequencies 159,2 Hz; 636,6 Hz)

**Weight**

-10 ... +50 °C

**Power**

0,1 H·m (in the absence of a torque tool, it is allowed to attach the calibrated sensors by hand)

**Connector for external power supply and battery charging**

5 kg

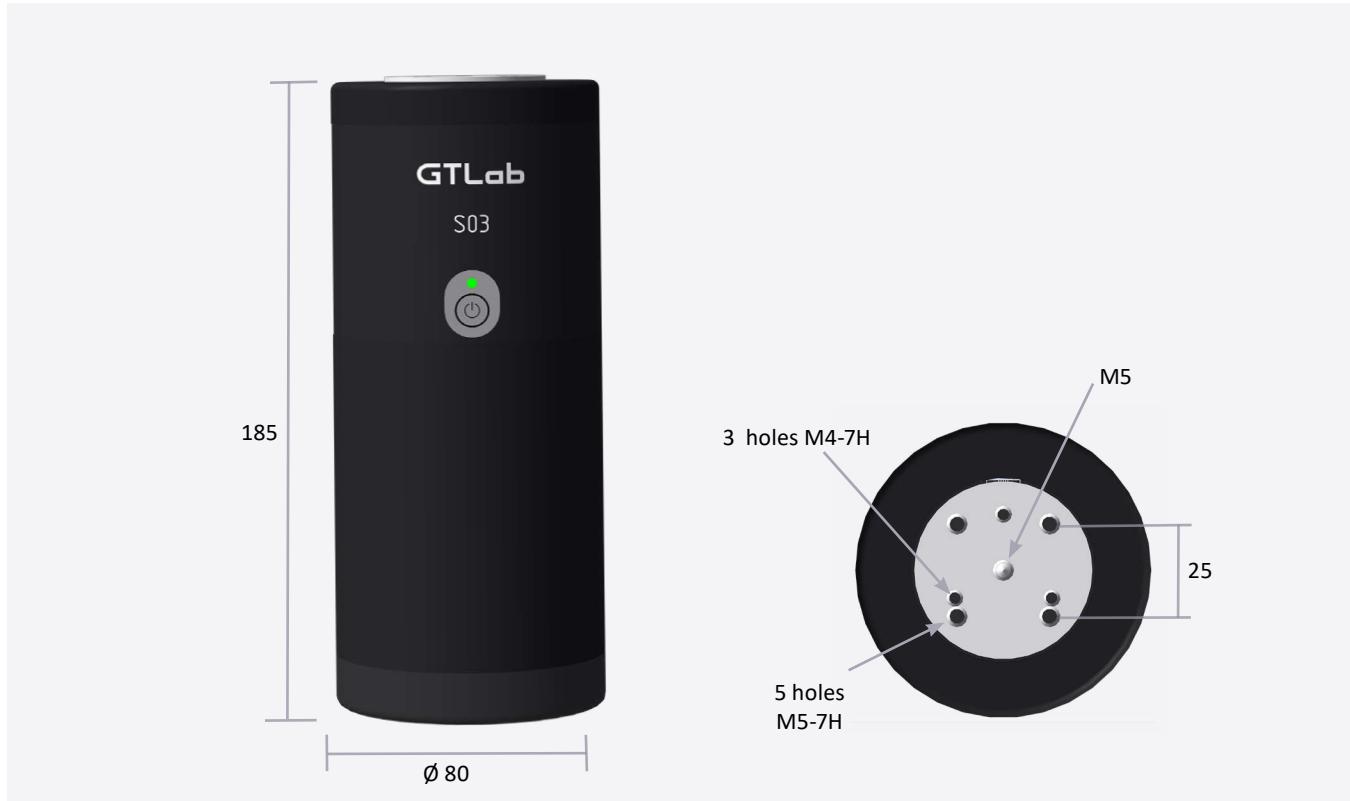
**Supplied accessories**

Stand-alone or from a 220/+5V AC adapter

USB Type B

adapter P0005,  
studs P0505, P0508, P0506,

battery charger HR20: 4 pcs, cable, adapter 220 V

**PARAMETER**

	S03
Vibration frequency ( $\pm 1\%$ )	40Hz
Acceleration (RMS $\pm 2\%$ )	2,51 m/s <sup>2</sup>
Velocity (RMS $\pm 2\%$ )	10 mm/s
Displacement (RMS $\pm 2\%$ )	40 $\mu$ m
Transverse vibration amplitude	< 7 %
Nonlinear distortions	< 5 %
Operating mode setting time	< 5 s
Maximum weight of calibration sensor	250g
Temperature range	-10 ... +50 °C
Weight	1 500g
Power	stand-alone or from USB
Connector for external power supply and battery charging	Micro USB
Supplied accessories	adapter P0005, studs P0505, P0508, P0506, battery charger AA: 4 pcs, USB cable, adapter 220 V

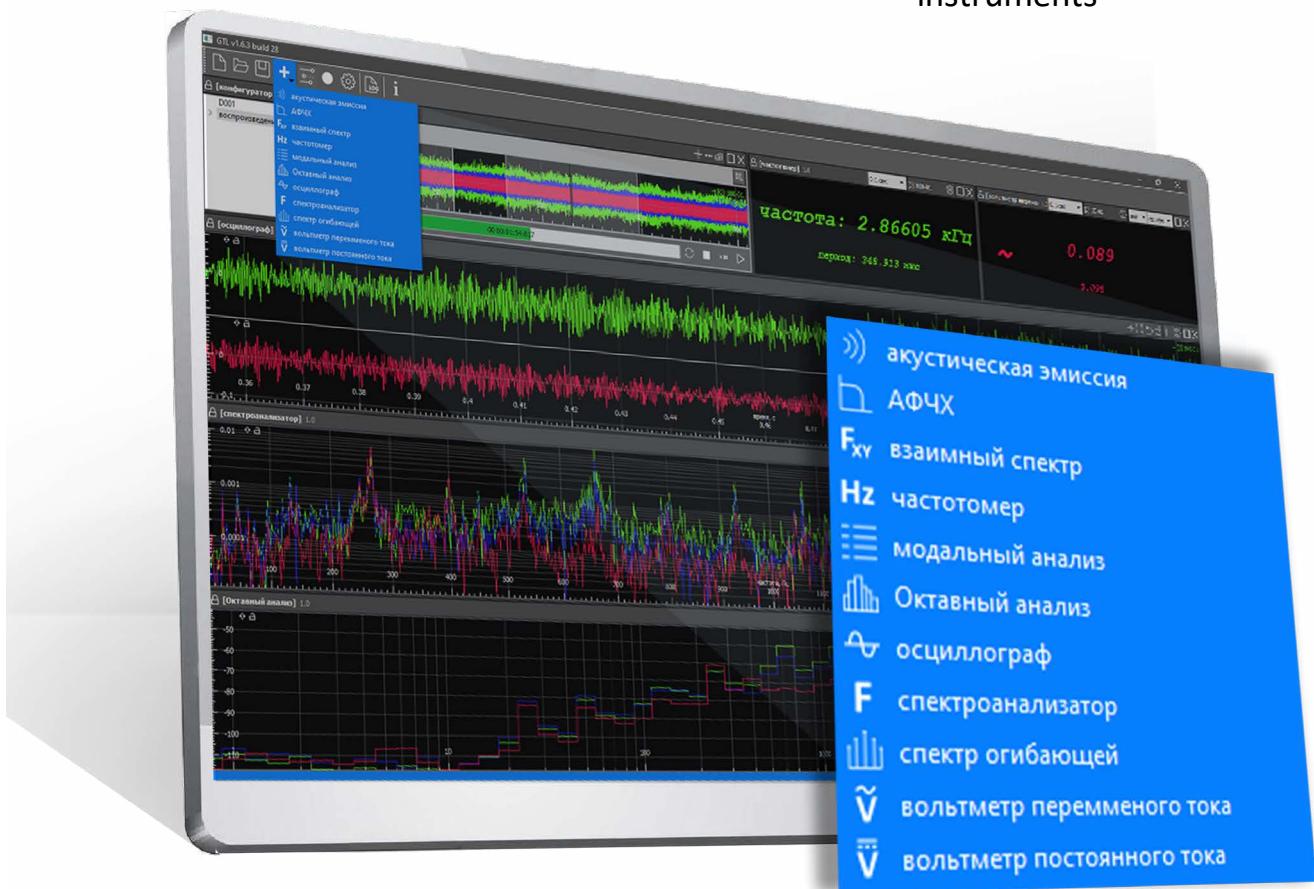
# MEASURING DEVICES



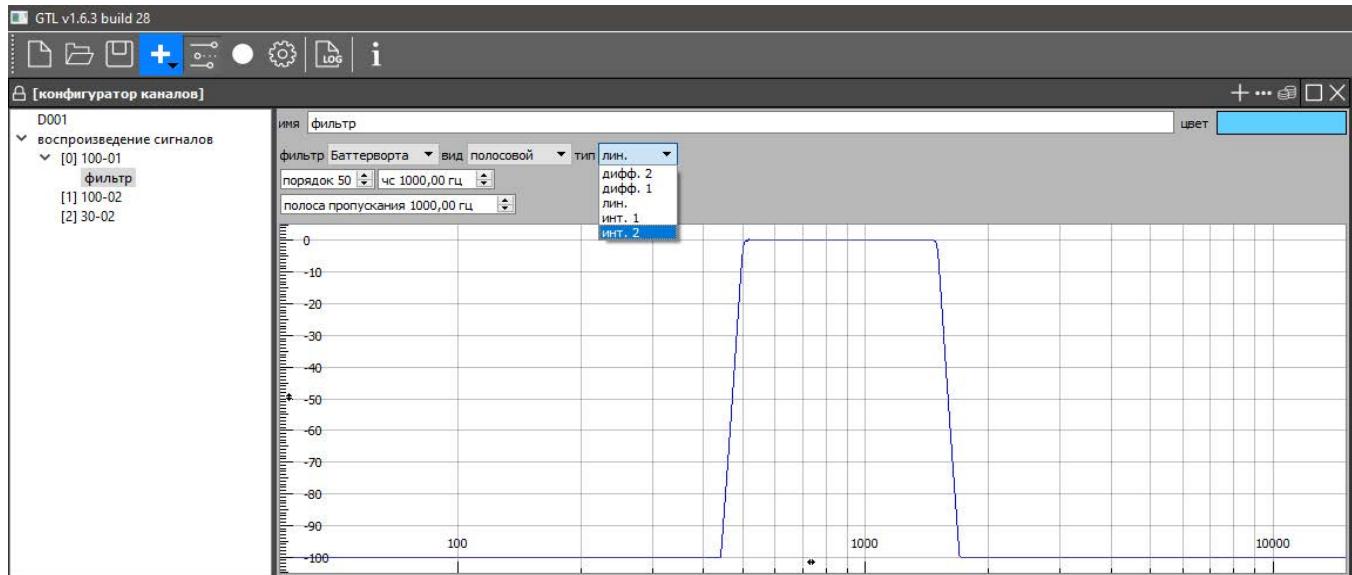


# GTL. Software for registration, processing, recording and visualization of signals.

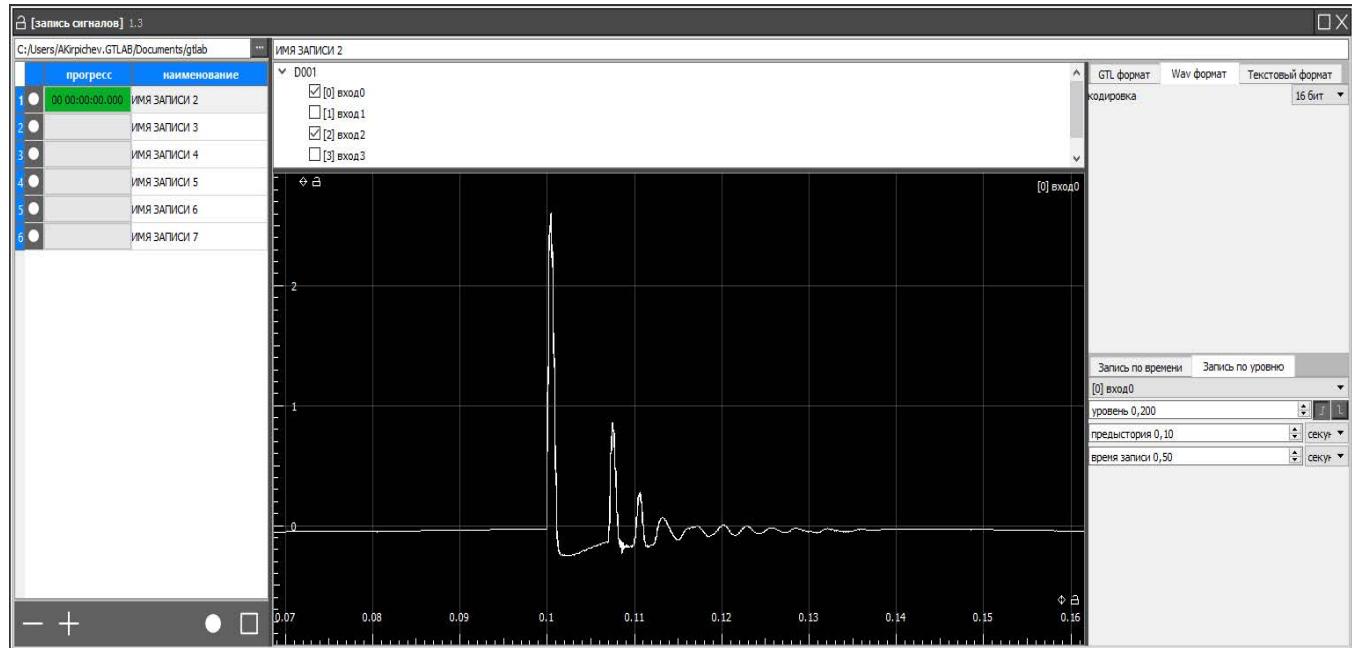
Wide range of virtual instruments



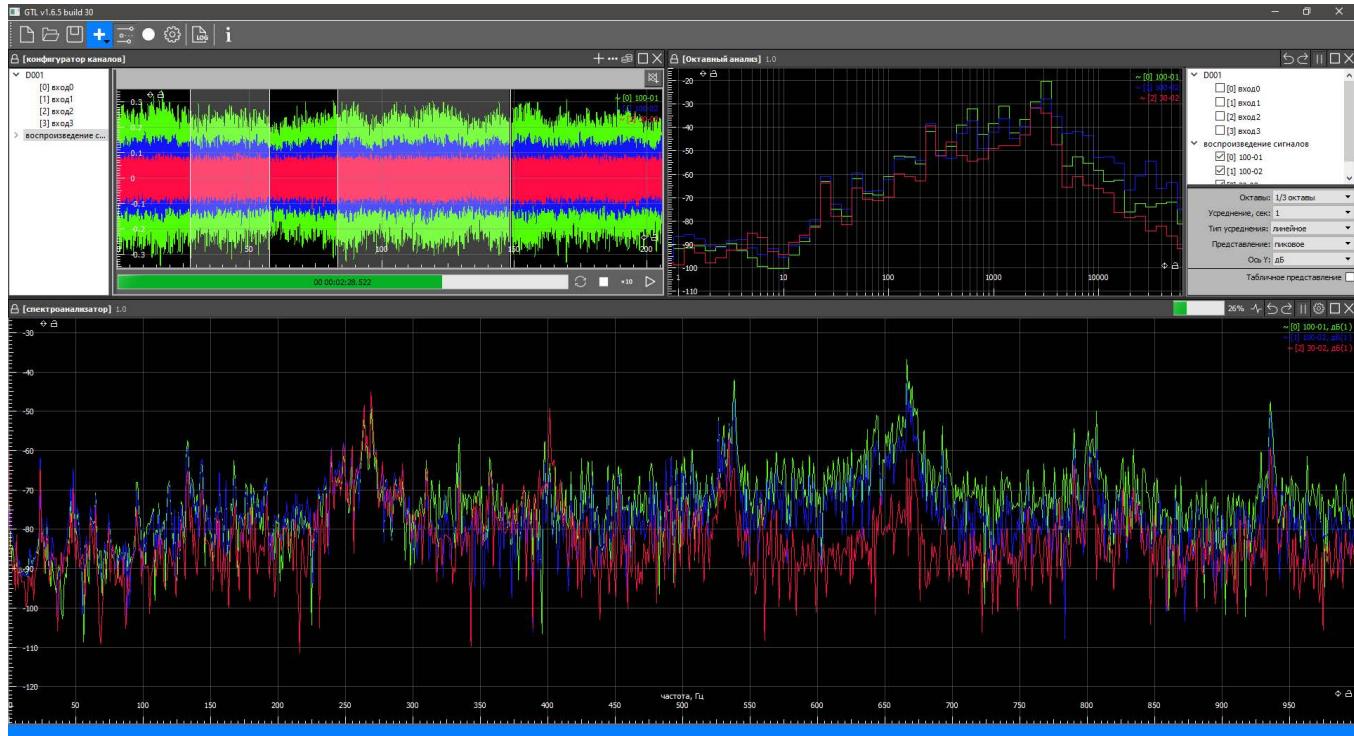
# Filtering (up to order 50), integration, differentiation of signals



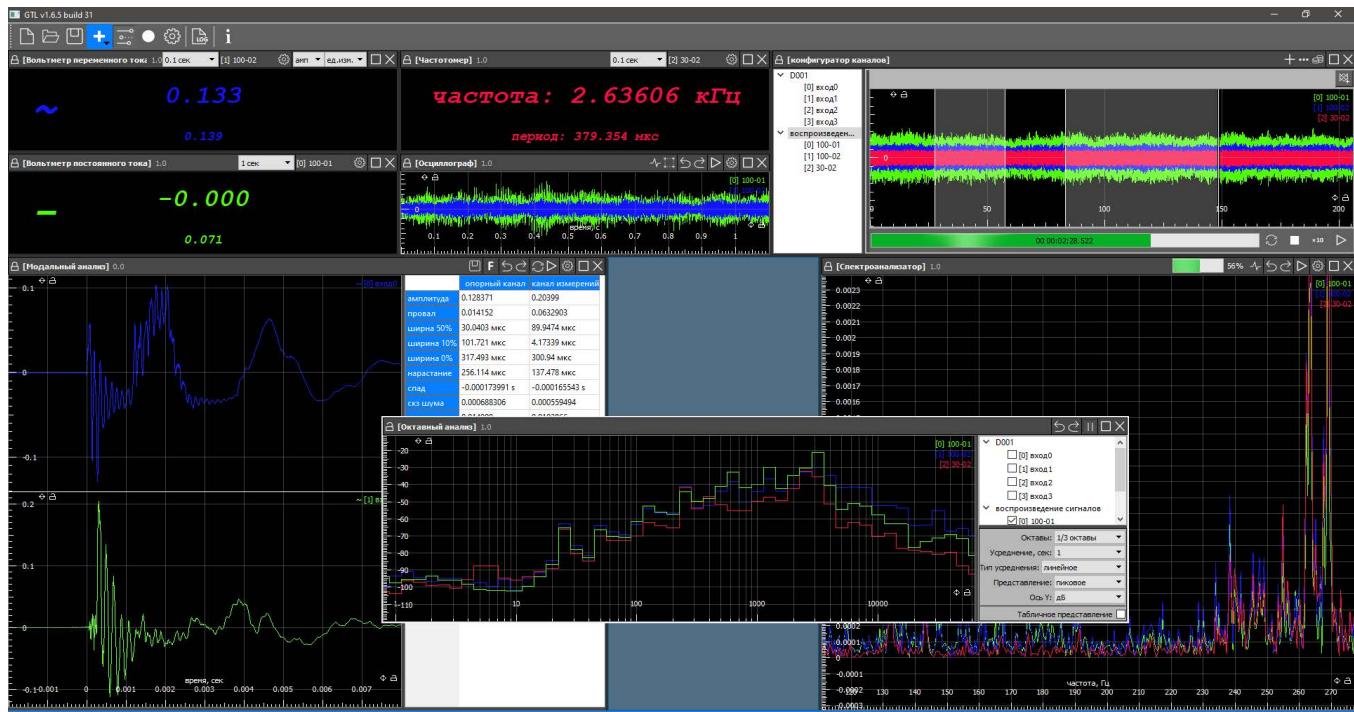
Multi-channel recording of signals by time or level with subsequent display of the recorded oscillogram



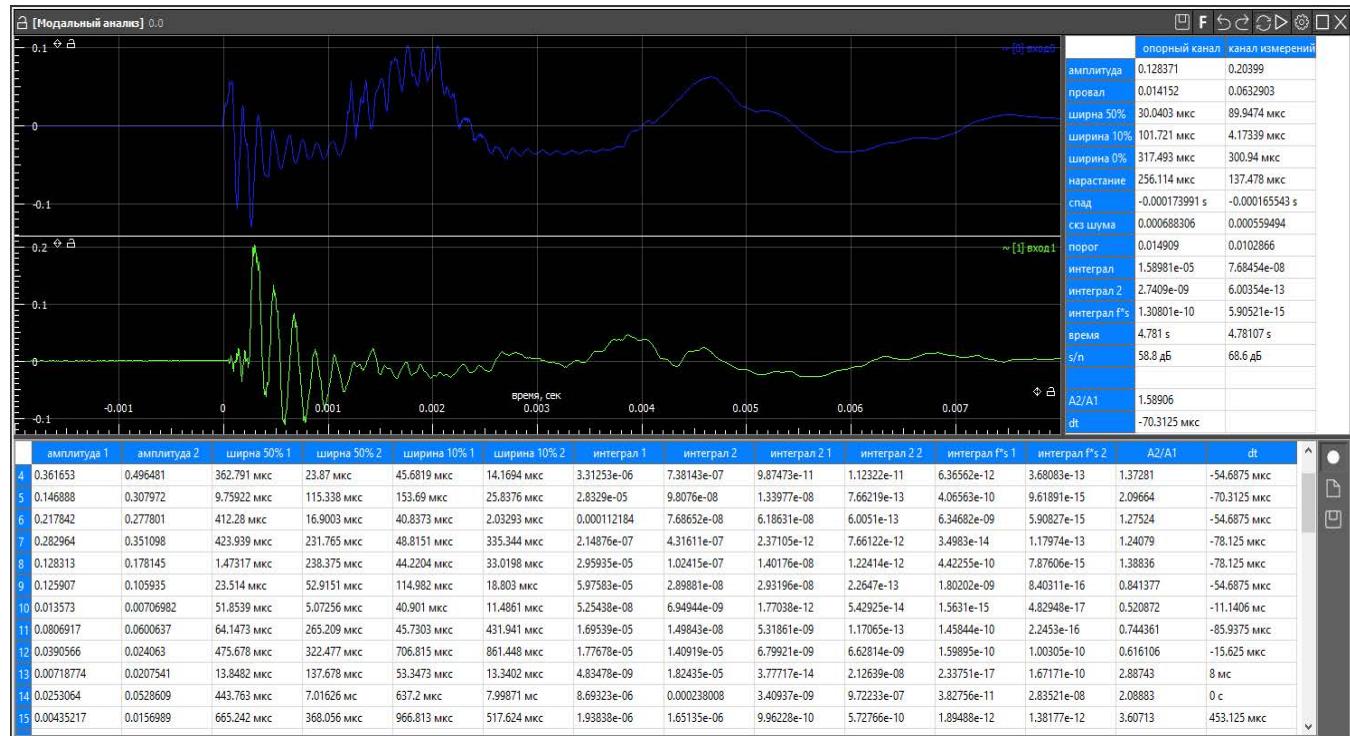
# Reproduction of signals with the possibility of selecting individual fragments for their subsequent spectral analysis.



Flexible layout of virtual instrument windows.

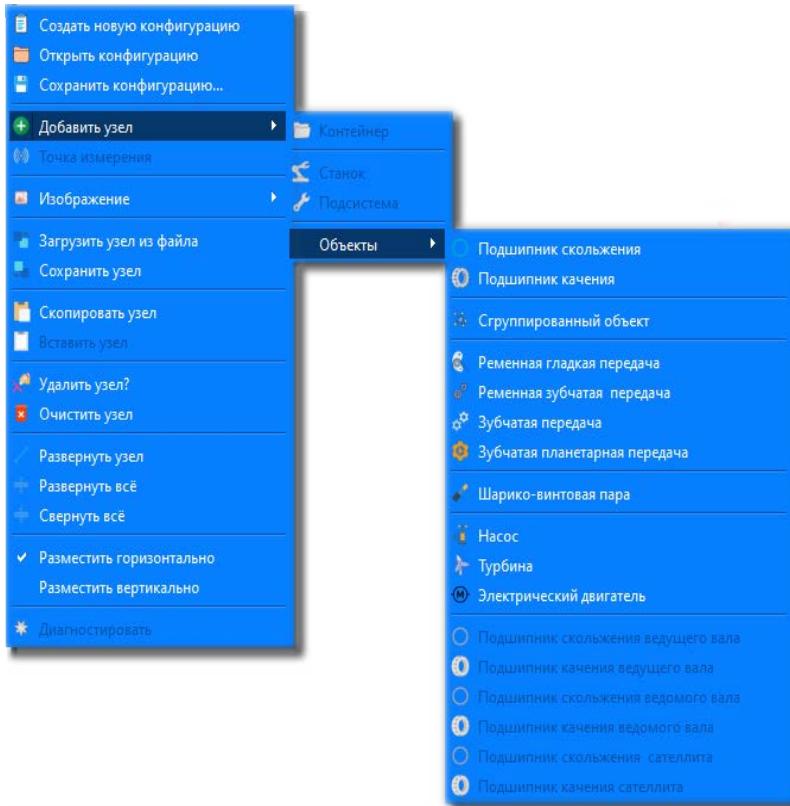


Development/customization of modules according to individual requirements.



GTLd. Software for monitoring and automated vibration diagnostics of industrial machinery

# Monitoring and vibrodiagnostics



Detection of defects in the following mechanisms:

- Rolling bearings
- Plain bearings
- Ball screws (ball screw pairs of CNC machines)
- Gears
- Planetary gearboxes
- Belt transmission
- Chain transmission
- Pumps
- Compressors
- Electric motors



- TOTAL: identification of more than 70 possible defects of industrial equipment

# Applying multithread spectral analysis to digitize proven experts' approaches



## Databases:

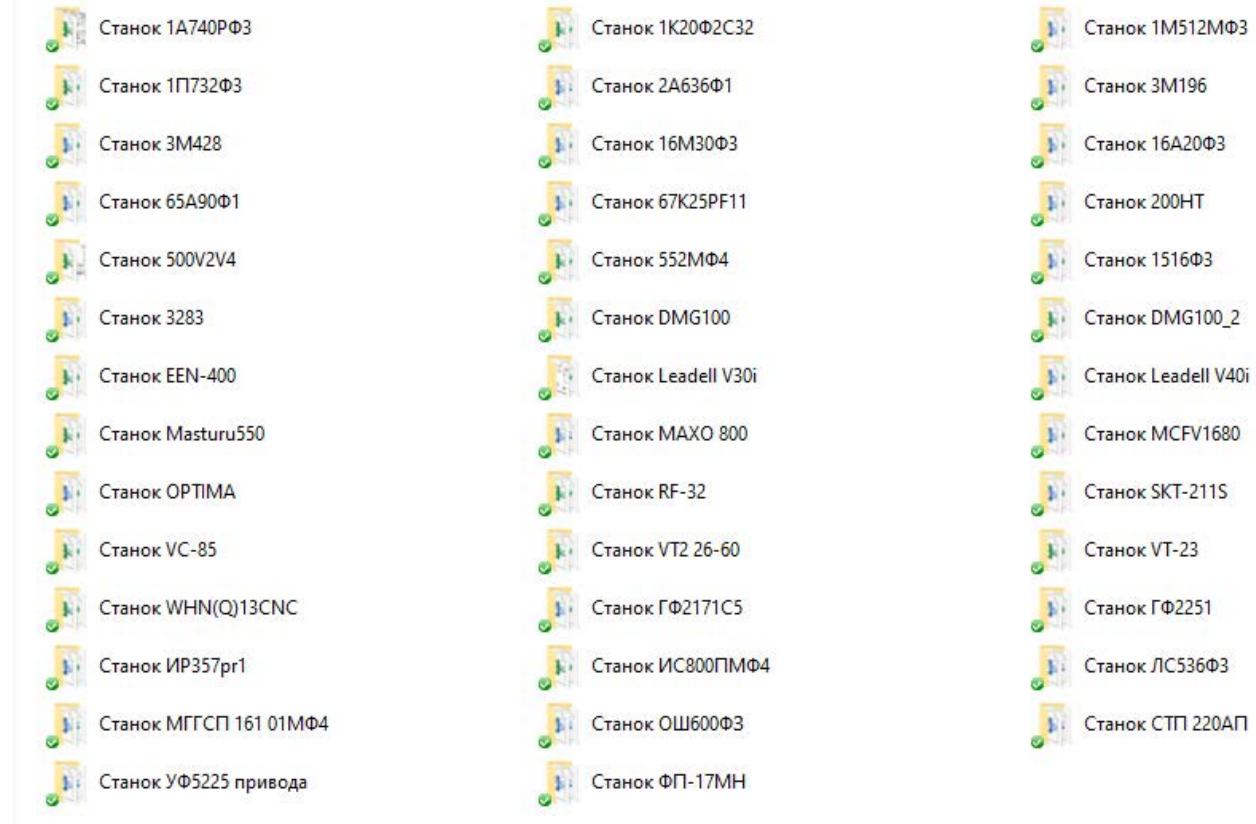
rolling bearings  
(more than 2500 items);

Ини	производитель	внешн. д. (мм)	внутр. д. (мм)	диаметр т.к. (мм)	кол-во т.к. (шт)	угол (градус)	
2465	NNU160M/34...	SKF	500,00	300,00	54,00	18	0,00
2466	NNU164M/34...	SKF	540,00	320,00	64,00	18	0,00
2467	NNU176M	SKF	620,00	380,00	64,00	20	0,00
2468	NNU184/316275	SKF	700,00	420,00	70,00	21	0,00
2469	NNU4856	SKF	350,00	280,00	16,00	62	0,00
2470	NNU4860	SKF	380,00	300,00	18,00	59	0,00
2471	NNU49/500B	SKF	670,00	500,00	36,00	38	0,00
2472	NNU49/530B	SKF	710,00	530,00	38,00	43	0,00
2473	NNU49/560B	SKF	750,00	560,00	40,00	43	0,00
2474	NNU49/600B	SKF	800,00	600,00	42,00	44	0,00
2475	NNU49/630B	SKF	850,00	630,00	45,00	43	0,00
2476	NNU49/670B	SKF	900,00	670,00	52,00	39	0,00
2477	NNU49/710B	SKF	950,00	710,00	54,00	40	0,00
2478	NNU49/750B	SKF	1 000,00	750,00	54,00	42	0,00
2479	NNU49/800B	SKF	1 060,00	800,00	56,00	43	0,00
2480	NNU4920B	SKF	140,00	100,00	8,00	35	0,00
2481	NNU4921B	SKF	145,00	105,00	8,00	36	0,00
2482	NNU4922B	SKF	150,00	110,00	8,00	37	0,00
2483	NNU4924B	SKF	165,00	120,00	10,00	32	0,00

ball screws of machine tool equipment (Certificate of Database State Registration No. 2021620395).

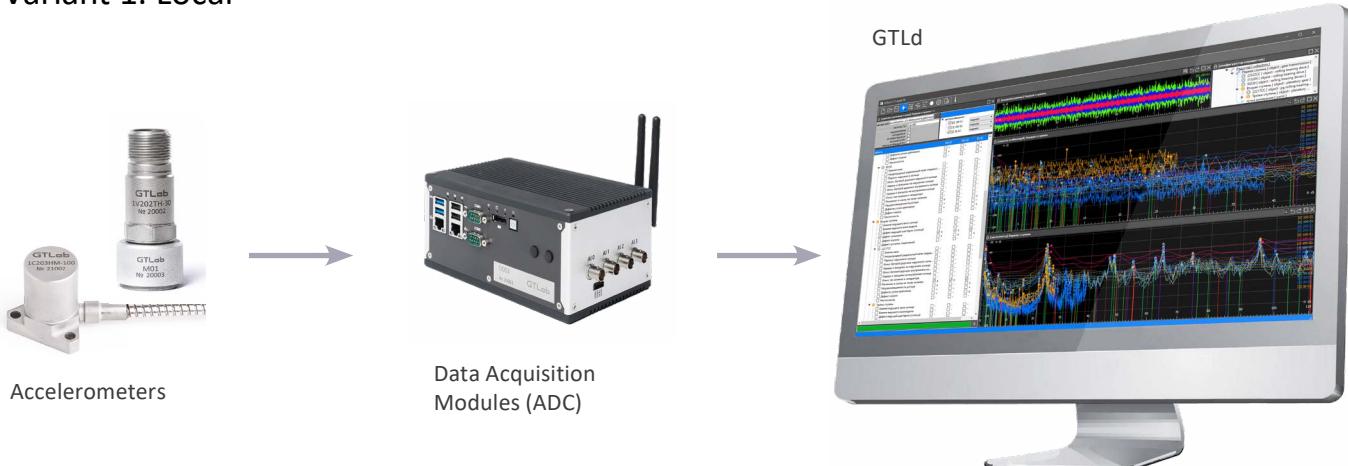
Ини	внешн. д. (мм)	внутр. д. (мм)	диаметр т.к. (мм)	длина т.к. (мм)	угол (град)
59	ШВП71325Ф30				
60	ШВП72М13				
61	ШВП725М13.1				
62	ШВП72ДМС100				
63	ШВП72ДМС100.1				
64	ШВП72ЕН400				
65	ШВП72ЕН400.1				
66	ШВП72Р3212				
67	ШВП7МС032				
68	ШВП7МС032.1				
69	ШВП7МС032.2				
70	ШВП7оПлШ				
71	ШВП7оПлШ7				
72	ШВП7оПлШ8				
73	ШВП7с722МФ4				
74	ШВП7с722МФ40	102,000	102,000	9,000	35
					45,000

## Machine tool fleet databases.

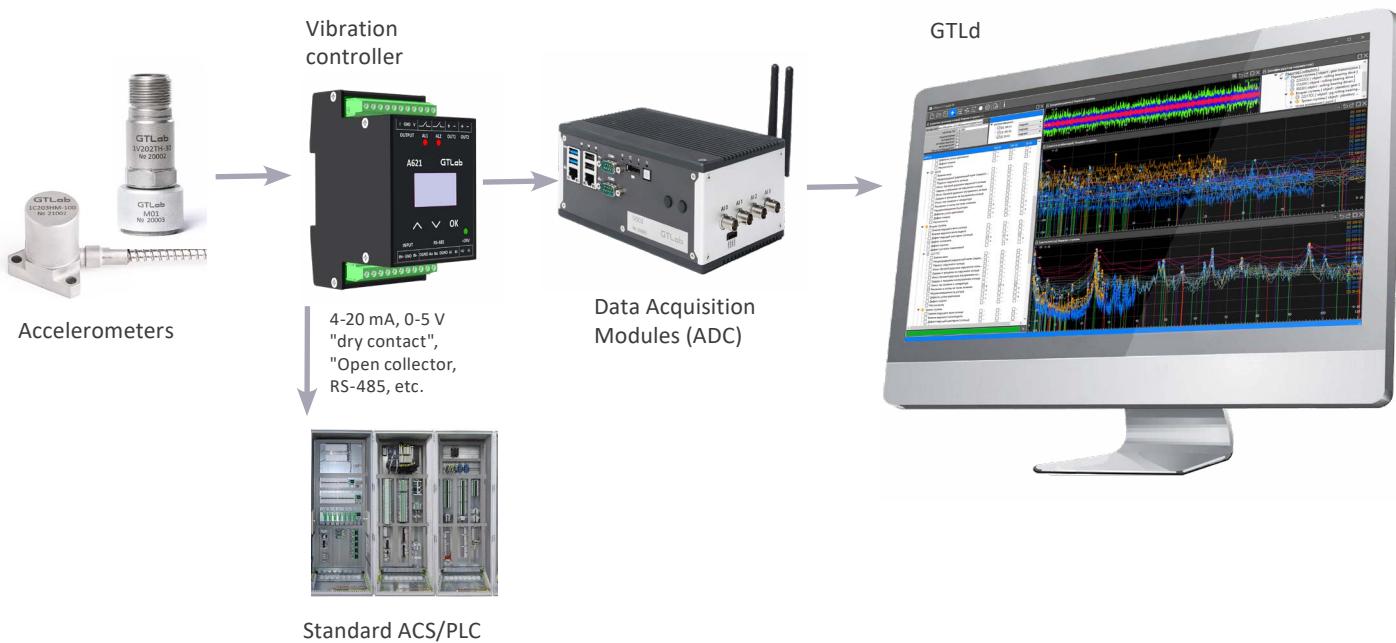


Functional diagrams of vibration control system organization (vibration diagnostics and vibration monitoring).

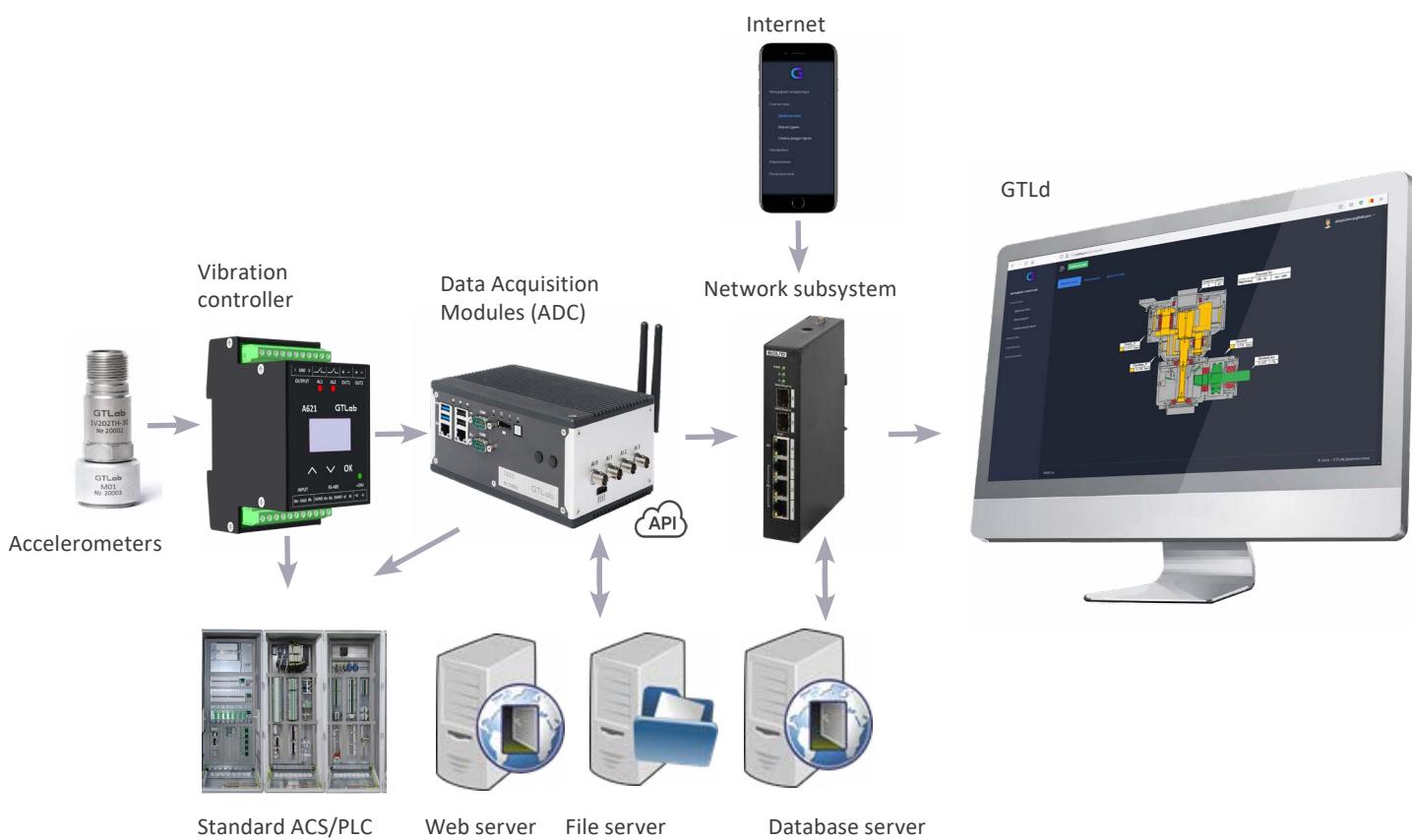
### Variant 1: Local



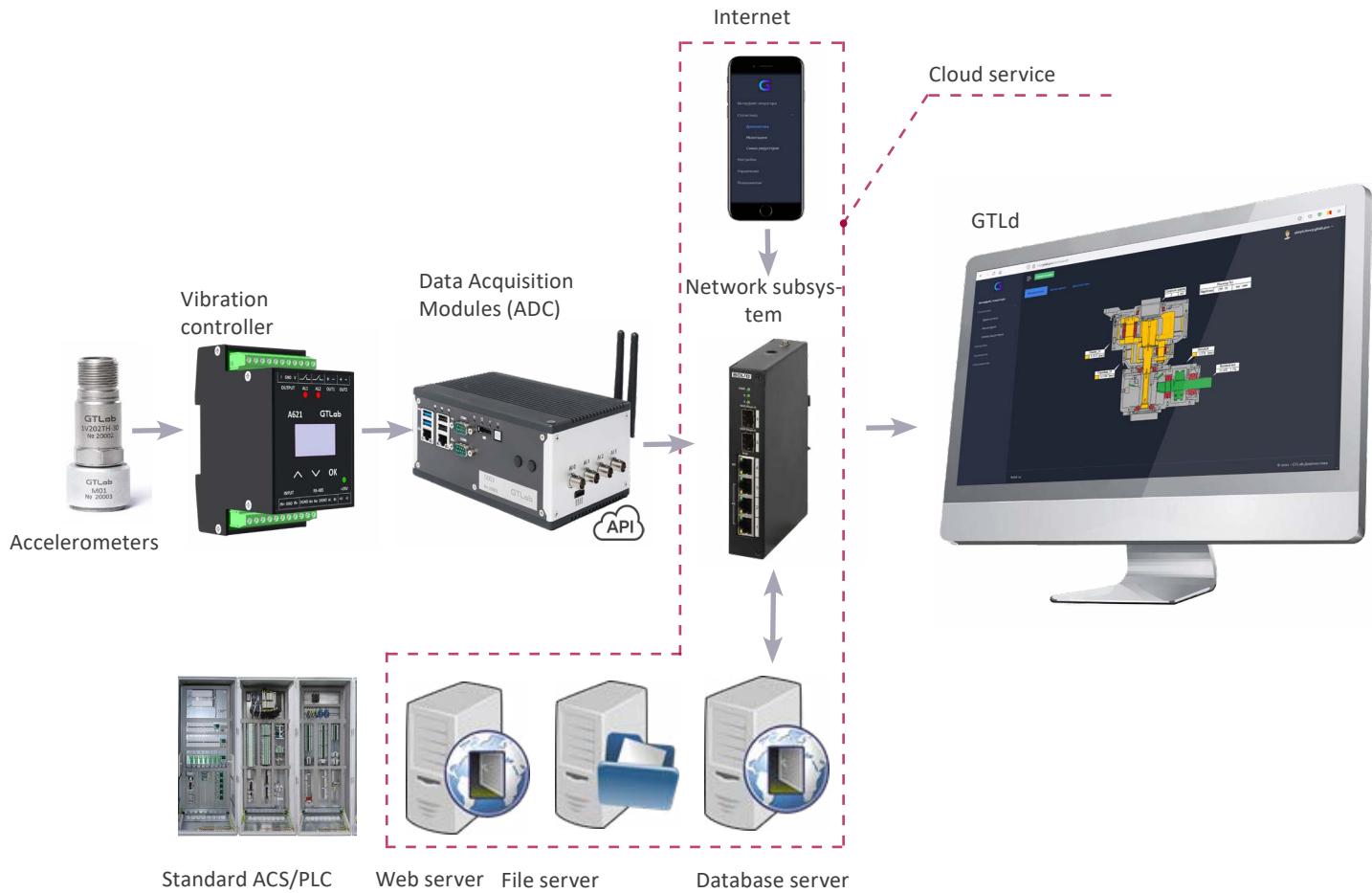
## Variant 2. Local with integration into existing SCADA / PLC / ACS



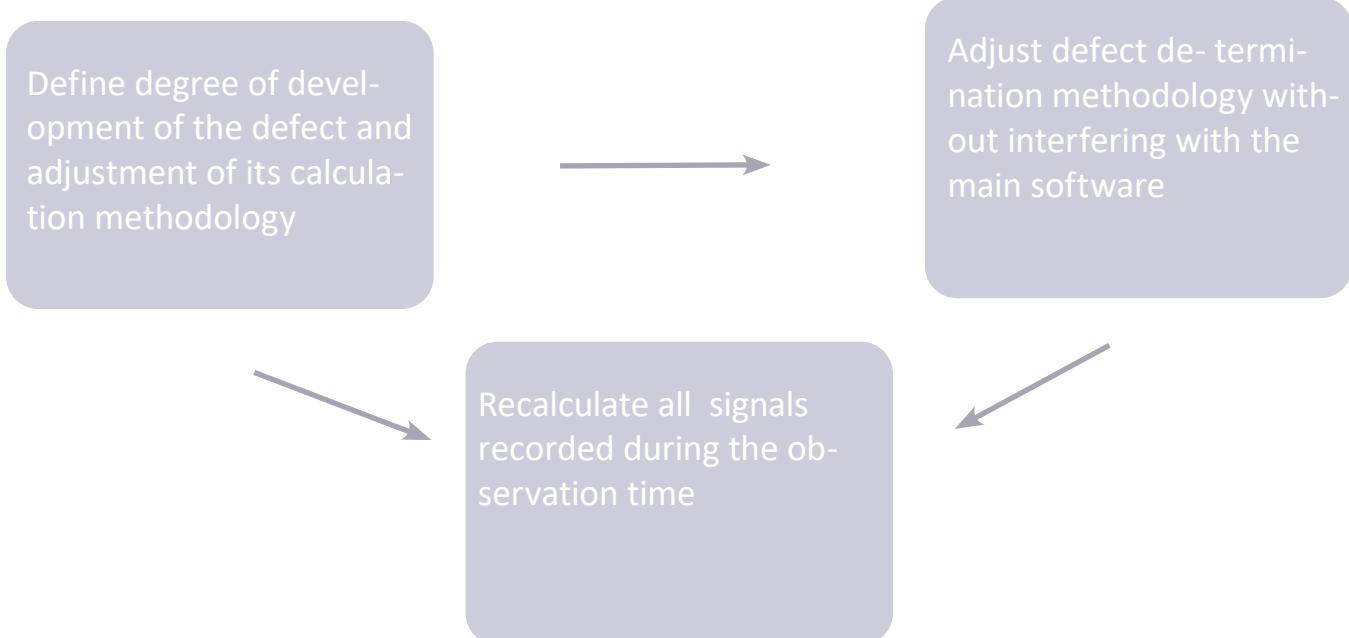
## Variant 3. Scalable, stand-alone with remote access in multi-user mode (SCADA for vibration control)



## Variant 4. Cloud-based. Infrastructure and software provision.



Scheme of continuous improvement of defect determination techniques for specific operating conditions of the test object



# WEB – SCADA. Mnemonic diagram of the test object

1. Indication of sensor installation locations with display of instant values (root mean square value, amplitude, etc.), tested assemblies and color highlighting according to the diagnostics results.



### 3. Vibration diagnostics statistics display

**Parameter**

ADC sampling frequency

**D001**

128 kHz

Type of input connectors

BNC

Interface

USB 2.0 (HighSpeed)

Operating temperature

0 ... + 55 °C

Power

USB

Number of analog inputs

4 differential

Frequency range

50 000 Hz

Ranges of measured DC and AC voltage

± 10 000 mV

Number of ADC bitss

24 bits

Input impedance

200 kOhm

Synchronization of devices (number)

8 pieces

Possibility to connect sensors according to the IEPE standard (2 mA, 24V)

yes

**Software features:**

- oscilloscope;
- spectrum analyzer;
- the amplitude-phase frequency characteristic;
- modal analysis;
- AC voltmeter;
- DC voltmeter;
- recording and reproduction of the signal.
- Flexible digital filters for low-pass, high-pass, band-pass, and band-reject filters..

**Parameter**

ADC sampling frequency

**D002**

2000 kHz

Interface

USB 2.0 (HighSpeed)

Operating temperature

0 ... + 55 °C

Power

USB

Number of analog inputs

4 differential

Frequency range

600 kHz

Ranges of measured DC and AC voltage

± 10 000 mV

Number of ADC bits

16 bits

Input impedance

900 MΩ

**Software features:**

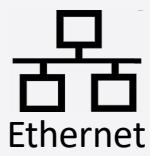
- oscilloscope;
- spectrum analyzer;
- the amplitude-phase frequency characteristic;
- modal analysis;
- AC voltmeter;
- DC voltmeter;
- recording and playback of the signal.
- Flexible digital filters for low-pass, high-pass, band-pass, and band-reject filters..

**PARAMETER**Measuring device  
› Data collection module  
    With voltage output

ADC sampling frequency	D003
Type of input connectors	128 kHz
Interface	BNC
Operating temperature	2x USB 2.0 + 2x USB 3.0
Power	0 ... +55 °C
Number of analog inputs	6 - 36 V (DC)
Frequency range	4
Voltage ranges of measured DC and AC voltage	50 000Hz
Number of ADC digits	± 10 000 mV
Input impedance	24 bits
Synchronization of devices (number)	200 kOhm
IEPE connectivity (2 mA, 24 V)	8 pcs
Processor	exist
Video output	Intel Atom® x7-E3950 processor
RAM	1x DisplayPort
Data storage subsystem	DDR3L 1600 SODIMM 4 GB
Network interface	Factory installed 128 GB mSATA SSD
Serial ports	2x GbE LAN (Intel® I210-IT)
Expansion slots	2x COM (2 x RS-232/422/485)
Wireless communication	2x Mini PCIe card slots
Energy consumption, full load by subsystems (platform)	Wi-Fi Kit
Power consumption, full load by subsystems (Processor)	25 W
Power consumption, full load by subsystems (USB peripherals)	35.2 W
Operating system	38 W

**D003**

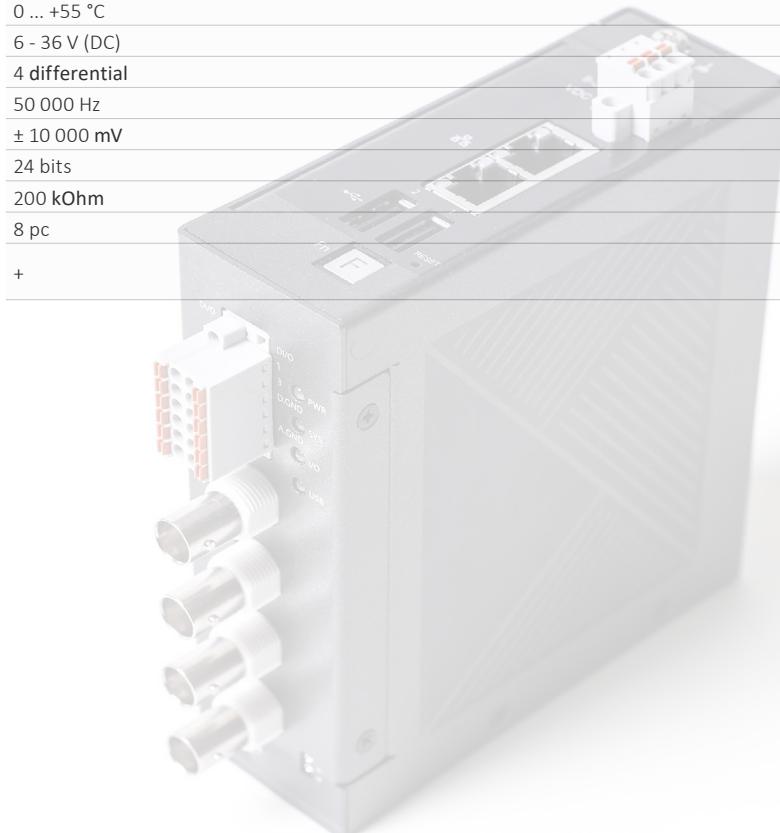
ADC sampling frequency	D003
Type of input connectors	128 kHz
Interface	BNC
Operating temperature	2x USB 2.0 + 2x USB 3.0
Power	0 ... +55 °C
Number of analog inputs	6 - 36 V (DC)
Frequency range	4
Voltage ranges of measured DC and AC voltage	50 000Hz
Number of ADC digits	± 10 000 mV
Input impedance	24 bits
Synchronization of devices (number)	200 kOhm
IEPE connectivity (2 mA, 24 V)	8 pcs
Processor	exist
Video output	Intel Atom® x7-E3950 processor
RAM	1x DisplayPort
Data storage subsystem	DDR3L 1600 SODIMM 4 GB
Network interface	Factory installed 128 GB mSATA SSD
Serial ports	2x GbE LAN (Intel® I210-IT)
Expansion slots	2x COM (2 x RS-232/422/485)
Wireless communication	2x Mini PCIe card slots
Energy consumption, full load by subsystems (platform)	Wi-Fi Kit
Power consumption, full load by subsystems (Processor)	25 W
Power consumption, full load by subsystems (USB peripherals)	35.2 W
Operating system	38 W

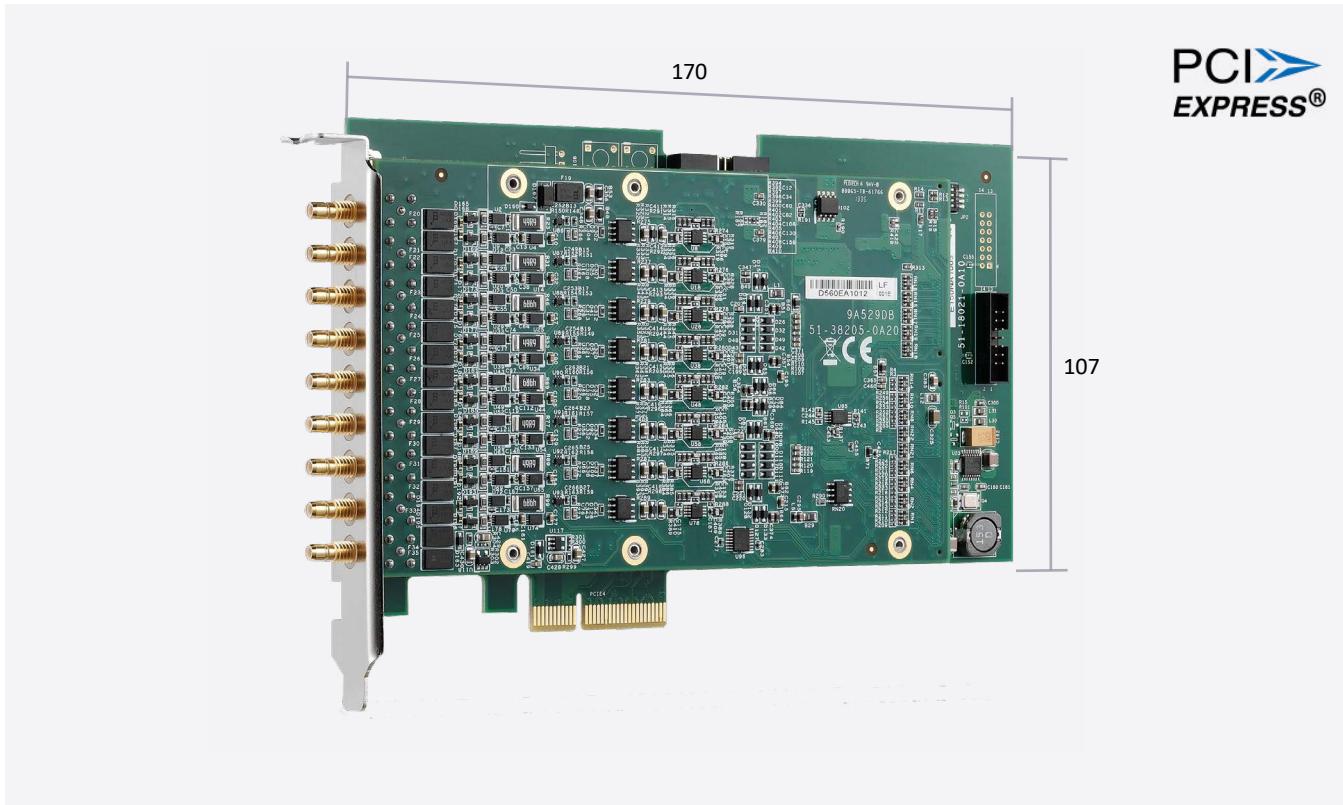
**Parameter**

Sampling frequency of the ADC	D004
Type of input connectors	128 kHz
Interface	BNC
Operating temperature	Ethernet
Power	0 ... +55 °C
Number of analog inputs	6 - 36 V (DC)
Frequency range	4 differential
Ranges of measured DC and AC voltage	50 000 Hz
Number of ADC bits	± 10 000 mV
Input impedance	24 bits
Synchronization of devices (number)	200 kOhm
Possibility of connecting sensors according to the IEPE standard (2 mA, 24 V)	8 pc
	+

**D004**

Sampling frequency of the ADC	128 kHz
Type of input connectors	BNC
Interface	Ethernet
Operating temperature	0 ... +55 °C
Power	6 - 36 V (DC)
Number of analog inputs	4 differential
Frequency range	50 000 Hz
Ranges of measured DC and AC voltage	± 10 000 mV
Number of ADC bits	24 bits
Input impedance	200 kOhm
Synchronization of devices (number)	8 pc
Possibility of connecting sensors according to the IEPE standard (2 mA, 24 V)	+



**PARAMETER**

ADC sampling frequency	128 kHz
Type of input connectors	SMB
Interface	PCI Express
Operating temperature	0 ... +55 °C
Number of analog inputs	8
Frequency range	50 000 Hz
Voltage ranges of measured DC and AC voltage	± 10 000 mV
Number of ADC digits	24 bits
Input impedance	200 kOhm
IEPE connectivity (2 mA, 24 V)	yes

**D005**

ADC sampling frequency	128 kHz
Type of input connectors	SMB
Interface	PCI Express
Operating temperature	0 ... +55 °C
Number of analog inputs	8
Frequency range	50 000 Hz
Voltage ranges of measured DC and AC voltage	± 10 000 mV
Number of ADC digits	24 bits
Input impedance	200 kOhm
IEPE connectivity (2 mA, 24 V)	yes

**PARAMETER**

ADC sampling frequency

**D006**

128 kHz

Type of input connectors

SMB

Interface

PXI Express

Operating temperature

0 ... +55 °C

Number of analog inputs

8

Frequency range

50 000 Hz

Voltage ranges of measured DC and AC voltage

± 10 000 mV

Number of ADC digits

24 bits

Input impedance

200 kOhm

IEPE connectivity (2 mA, 24 V)

yes

**Software features:**

- oscilloscope;
- spectrum analyzer;
- the amplitude-phase frequency characteristic;
- modal analysis;
- AC voltmeter;
- DC voltmeter;
- signal recording and reproduction.
- flexible digital filters for low-pass, high-pass, band-pass, and band-reject filters..

**PARAMETER**

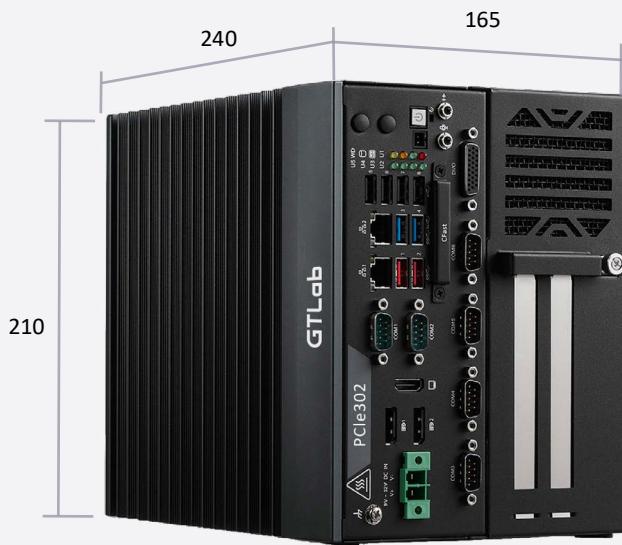
ADC sampling frequency  
Number of channels  
Number of ADC digits  
Frequency range  
Output Interface  
Operating temperature  
Input mode  
Type of input connectors

**D007**

48 kHz
2
24 bitss
1 ... 20 000 Hz
USB Class 1 Audio
-10 ... +80 °C
IEPE (4,5 mA ± 10 %, 24 V)
BNC

**PARAMETER**

	<b>PCIe301</b>
Number of slots	4
Number of analog inputs	Up to 32
Processor	Intel® Core™ i7-9850HE 45W
RAM	DDR4 dual SODIMMs 4GB (Up to 32 GB) 2400MHz
Interface	2x USB 3.1 Gen 2 + 2x USB 3.1 Gen 1 + 4x USB 2.0, 1x internal USB 2.0 dongle
Video output	2x DisplayPort, 1x HDMI
Audio output	Line-out, Mic-in (Optional: speaker-out)
Data storage subsystem	2.5 SATA (2x internal supports RAID 0, 1, 5, 10), Optional: additional 2x internal
Network interface	2x GbE (Intel® 1x i211AT + 1x i219), iAMT support
Serial ports	6x COM port (COM1/2: RS-232/422/485, COM3/4/5/6: RS-232)
Wireless communication	Wi-Fi Kit
Operating system	Microsoft Windows 10 64 bits
Power	9 - 32 V (DC)
Operating temperature	0 ... +50 °C (extended temperature range-20°C ... 70°C for 1xSODIMMs)
Storage temperature	-40 ... 85 °C
Weight	4.9 kg

**PARAMETER**

Number of slots	PCIe302
Number of analog inputs	2
Processor	Up to 16
RAM	Intel® Core™ i7-9850HE 45W
Interface	DDR4 dual SODIMMs 4GB (Up to 32 GB) 2400MHz
Video output	2x USB 3.1 Gen 2 + 2x USB 3.1 Gen 1 + 4x USB 2.0, 1x internal USB 2.0 dongle
Audio output	2x DisplayPort, 1x HDMI
Data storage subsystem	Line-out, Mic-in (Optional: speaker-out)
Network interface	2.5» SATA (2x internal supports RAID 0, 1, 5, 10), Optional: additional 2x internal
Serial ports	2x GbE (Intel® 1x i211AT + 1x i219), iAMT support
Wireless communication	6x COM port (COM1/2: RS-232/422/485, COM3/4/5/6: RS-232)
Operating system	Wi-Fi Kit
Power	Microsoft Windows 10 64 bits
Operating temperature	9 - 32 V (DC)
Storage temperature	0 ... +50 °C (extended temperature range-20°C ... 70°C for 1xSODIMMs)
Weight	-40 ... 85 °C

PCIe

Measuring systems

Measuring device

**PCIe302**

Number of slots	PCIe302
Number of analog inputs	2
Processor	Up to 16
RAM	Intel® Core™ i7-9850HE 45W
Interface	DDR4 dual SODIMMs 4GB (Up to 32 GB) 2400MHz
Video output	2x USB 3.1 Gen 2 + 2x USB 3.1 Gen 1 + 4x USB 2.0, 1x internal USB 2.0 dongle
Audio output	2x DisplayPort, 1x HDMI
Data storage subsystem	Line-out, Mic-in (Optional: speaker-out)
Network interface	2.5» SATA (2x internal supports RAID 0, 1, 5, 10), Optional: additional 2x internal
Serial ports	2x GbE (Intel® 1x i211AT + 1x i219), iAMT support
Wireless communication	6x COM port (COM1/2: RS-232/422/485, COM3/4/5/6: RS-232)
Operating system	Wi-Fi Kit
Power	Microsoft Windows 10 64 bits
Operating temperature	9 - 32 V (DC)
Storage temperature	0 ... +50 °C (extended temperature range-20°C ... 70°C for 1xSODIMMs)
Weight	-40 ... 85 °C



PARAMETER	PXLe301
Number of slots	17
Number of analog inputs	Up to 136
Processor	Intel® Core™ i7-7820EQ 3.0 GHz 14nm processor, 3.7 GHz
RAM	DDR4 dual SODIMMs 4GB (Up to 32 GB) 2400MHz
Interface	4x USB 2.0 + 2x USB 3.0
Video output	2x DisplayPort
Data storage subsystem	Pre-integrated SATA solid state drive at 240GB
Network interface	2x GbE LAN (Intel® Ethernet controller I219-LM, I210) 2x
Serial ports	COM port (D-sub9 serial RS-232/422/485)
Module synchronization interface PXI	PXI trigger connector (SMB jack)
General purpose interface bus	IEEE488 GPIB controller, Micro-D 25-pin connector)
Operating system	Microsoft Windows 10 64 bits
Operating temperature	0 ... +55 °C
Storage temperature	-40 ... +71 °C
Weight	12.9 kg

**PARAMETER**

Number of slots	PXIe302
Number of analog inputs	5
Processor	Up to 40
RAM	Intel® Core™ i7-7820EQ 3.0 GHz 14nm processor, 3.7 GHz
Interface	DDR4 dual SODIMMs 4GB (Up to 32 GB) 2400MHz
Video output	4x USB 2.0 + 2x USB 3.0
Data storage subsystem	2x DisplayPort
Network interface	Pre-integrated SATA solid state drive at 240GB
Serial ports	2x GbE LAN (Intel® Ethernet controller I219-LM, I210) 2x
Module synchronization interface PXI	COM port (D-sub9 serial RS-232/422/485)
General purpose interface bus	PXI trigger connector (SMB jack)
Operating system	IEEE488 GPIB controller, Micro-D 25-pin connector)
Operating temperature	Microsoft Windows 10 64 bits
Storage temperature	0 ... +55 °C
Weight	-40 ... +71 °C

&gt; PXIe

&gt; Measuring systems

Measuring device

# VIBROMETER



**PARAMETER**

ADC sampling frequency

**D101**

64 kHz

Number of ADC digits

24 bitss

Measurement mode

Vibration Acceleration, Vibration Speed, Vibration Displacement

Virtual instrument

oscilloscope, vibrometer, signal recording, spectrum (FFT 1/1, 1/3, envelope), rolling bearing diagnostics

Detector

magnitude, peak, RMS value, peak factor

Input voltage

± 4,8 V

Types of connected vibration transducers

IEPE

Data exchange

mini USB

Data storage

SD card

Temperature range

−20 ... +55 °C

Weight

260 g

Size

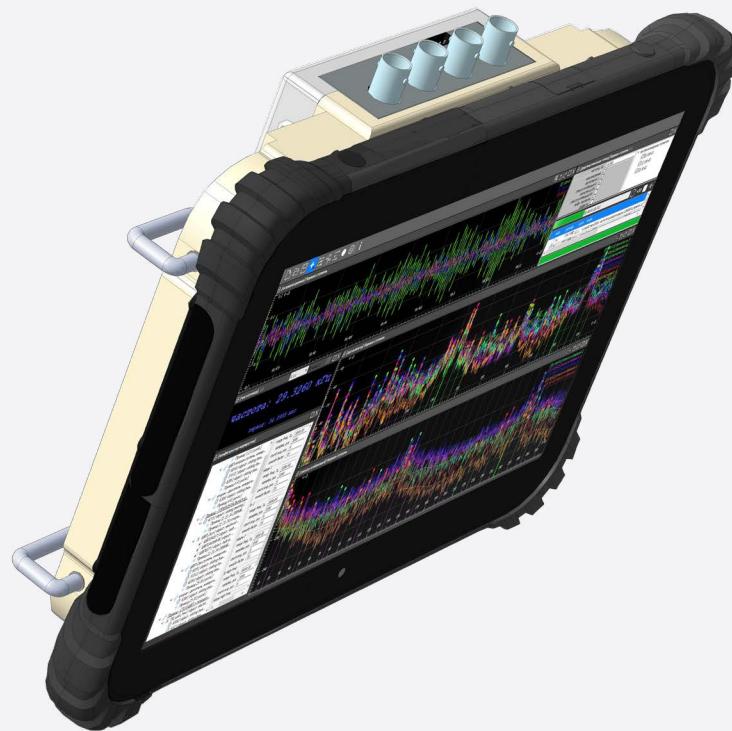
140 × 80 × 25 m

Battery time

not less than 8 часоV

Housing material

aluminum, 2 mm

**PARAMETER**

ADC sampling frequency

**D104**

128 kHz

Type of input connectors

## BNC

Interface

USB-S, 2x USB Type A, NFC 13,56 MHz

Operating temperature

0 ... +55 °C

Number of analog inputs

4

Frequency range

50 000 Hz

Voltage ranges of measured DC and AC voltage

± 10 000 mV

Number of ADC digits

24 bitss

Input impedance

200 kOhm

IEPE connectivity (2 mA, 24 V)

yes

Degree of protection from external influences

IP67

Processor

Intel Apollo Lake N4200, 4 ядра, until 2,5 GHz

RAM

RAM 6Гб/ROM 64Гб, optional memory expansion up to 8 GB RAM and 256/512 GB ROM

Data storage subsystem

MicroSD up to 256 GB

Wireless communication

3G/4G/LTE, 1 sim card (optional without mobile connection), WiFi 802.11 a/b/g/n/ac, BT 4.2 (BLE). Optional: B31 (LTE 450), LTE 360-400

Operating system

Windows 10 Enterprise

Navigation

GPS, ГЛОНАСС, Beidou, Galileo. Support for competitive reception of not less than 2 navigation systems

Battery

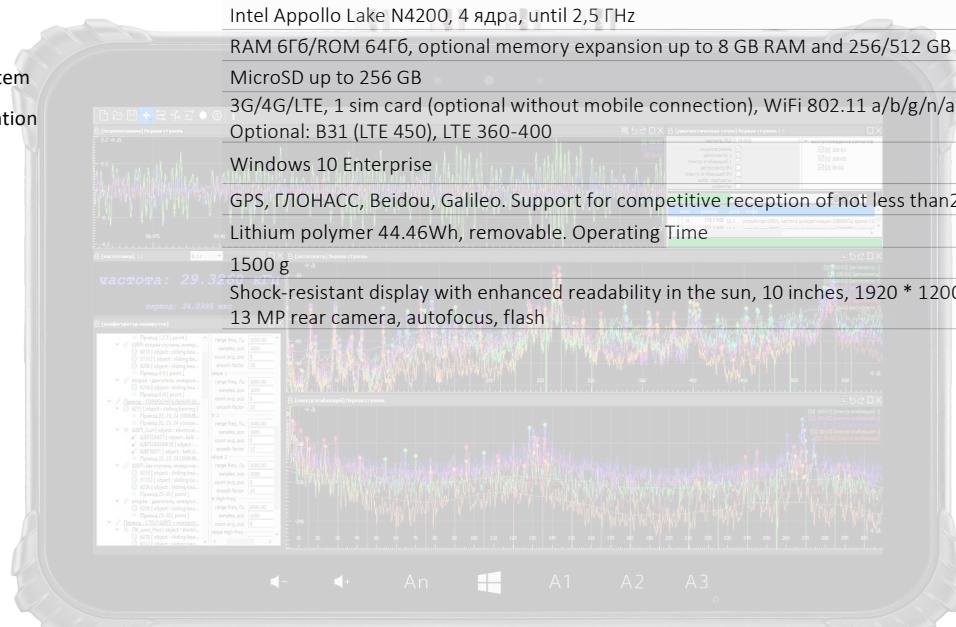
Lithium polymer 44.46Wh, removable. Operating Time

Weight

1500 g

Purpose

Shock-resistant display with enhanced readability in the sun, 10 inches, 1920 \* 1200; 5 MP front camera; 13 MP rear camera, autofocus, flash



**Parameter**

ADC sampling frequency

**D141**

51.2 kHz

Measurement mode

Vibration Acceleration, Vibration Speed, Vibration Displacement

Virtual instrument

spectrum, oscilloscope, vibrometer, signal recording

Frequency range

1Hz ... 20 kHz

Detector

magnitude, peak, RMS value

Input charge (max)

48·10<sup>3</sup> pC

Input voltage (max)

± 4.8 V

Data exchange

mini USB

Data storage

SD card

Temperature range

– 20 ... +55 °C

Weight

260 g

Size

140x80x25 mm

Battery time

not less than 8 hours

Housing material

aluminum, 2mm



**PARAMETER**

Input interface	RS-485, protocol Modbus RTU
Measurement mode	Vibration Acceleration, Vibration Speed, Vibration Displacement
Virtual instrument	vibrometer
Detector	magnitude, peak, RMS value
Input voltage	± 4,8 V
Types of connected vibration transducers	digital (RS485)
Data exchange	mini USB
Data storage	SD card
Temperature range	-20 ... +55 °C
Weight	260 g
Size	140 × 80 × 25 mm
Battery time	not less than 8 hours
Housing material	aluminum, 2 mm

**D181**

RS-485, protocol Modbus RTU

Vibration Acceleration, Vibration Speed, Vibration Displacement

vibrometer

magnitude, peak, RMS value

± 4,8 V

digital (RS485)

mini USB

SD card

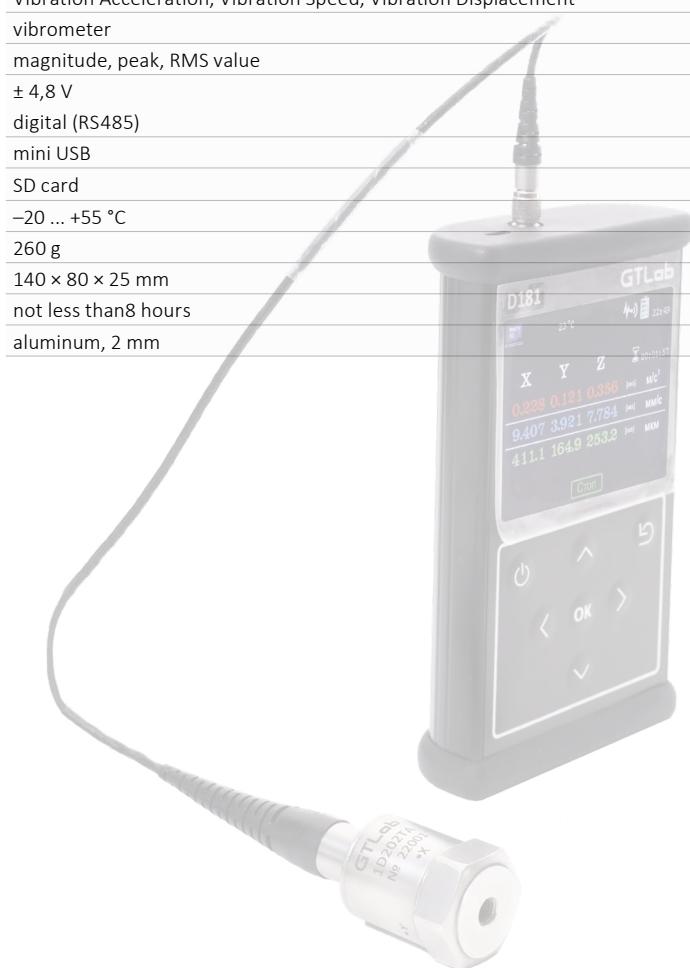
-20 ... +55 °C

260 g

140 × 80 × 25 mm

not less than 8 hours

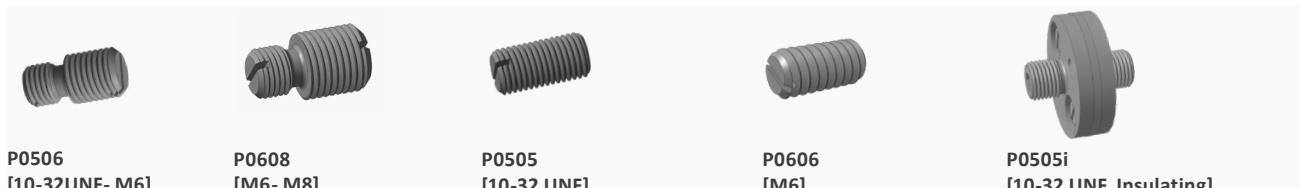
aluminum, 2 mm



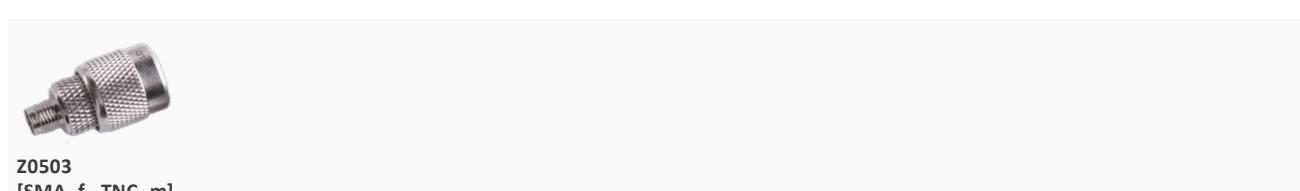
# ACCESSORIES

GTLab

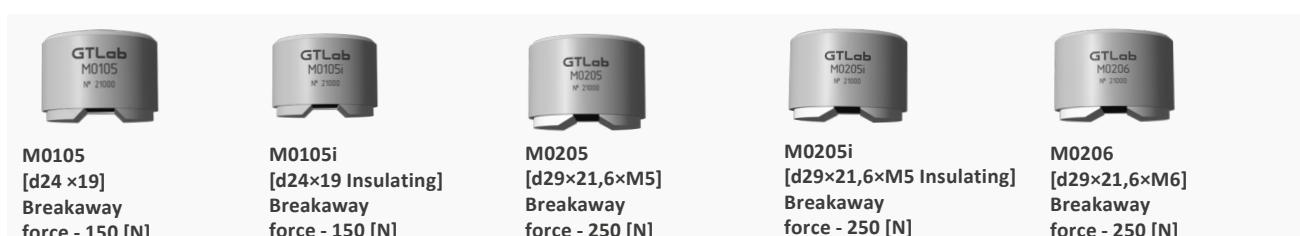
## Pins



## Cable switches



## Magnets





**M0408**  
[d43 ×20×M8]  
Breakaway  
force - 100 [N]



**M0505**  
[25 ×24×M5]



**M0506**  
[25 ×24×M8]



**M0508**  
[25 ×24×M8]

#### Thread



**P0005**  
[10-32UNF]

#### Adapters



**B0101** [15×15×15]



**B0102** [20×20×20]



**B02**



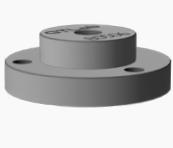
**B0308**



**B0306**



**B03516**



**B0506**



**B7400** [неМагнитный]



**B7401** [неМагнитный]



**B7501** [мАгнитный]



**B7500** [мАгнитный]

#### Ceramic insulators



**R21** (d6)



**R22** (d10)



**R23** (d14)

#### Mounting set



**K11** (pin M4-M5,  
nut - wingnut M4)



**K12** (pin M5,  
nut - wingnut M5)

**Wax mastic**

W01 (5г)

**O-rings**

R01 (D-17, d-14)



R02 (D-8,9, d-7)



R03 (D-10,5, d-7)



R04 (D-12, d-5)

**Probe**

K01

# CABLE PRODUCTS

1

**Cable code**  
(according to table 1).

2

**Input connector code**  
(according to table 2).

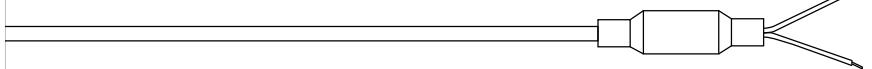
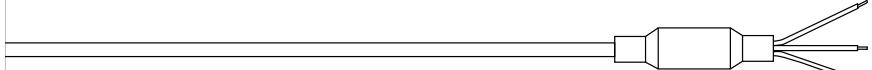
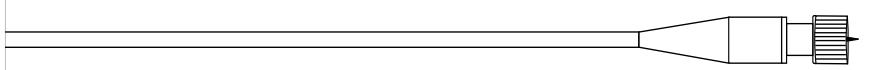
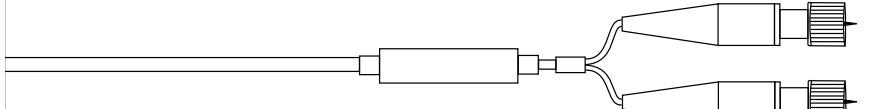
3

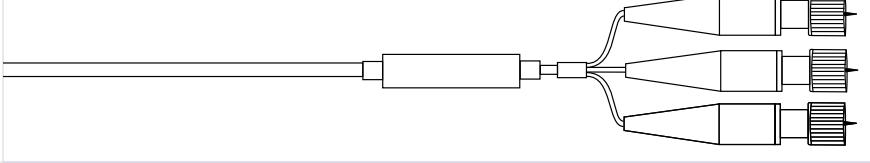
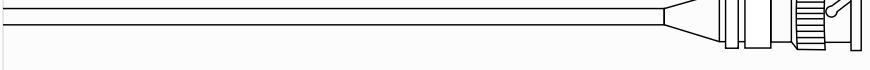
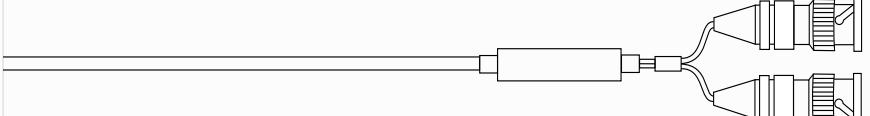
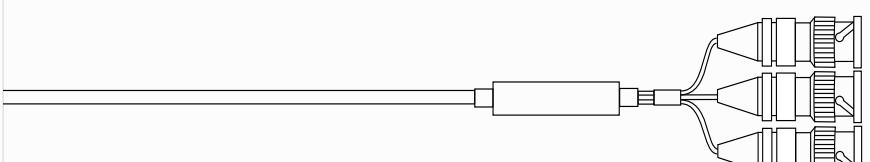
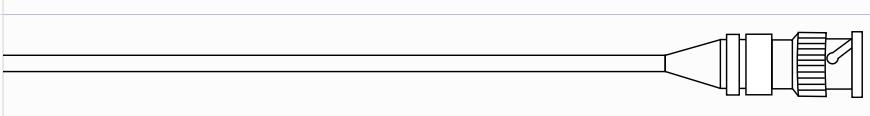
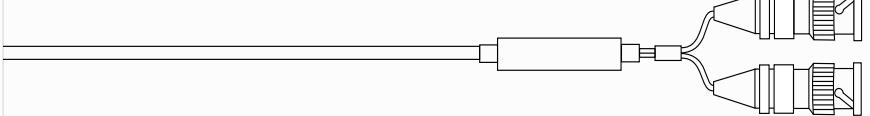
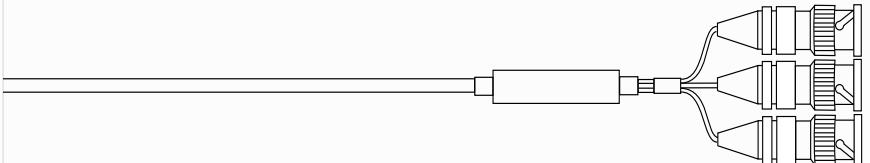
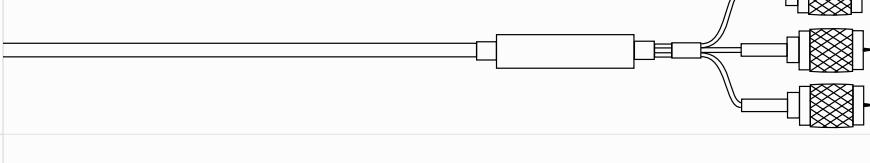
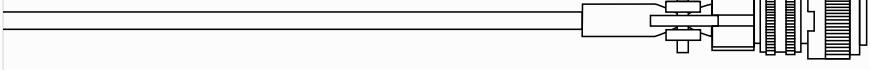
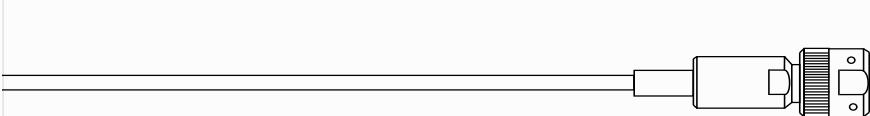
**Output connector code**  
(according to table 2).

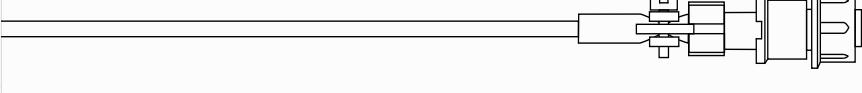
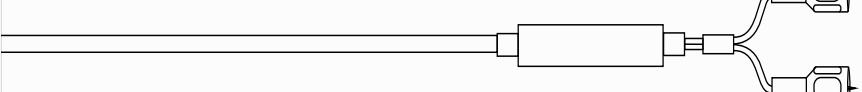
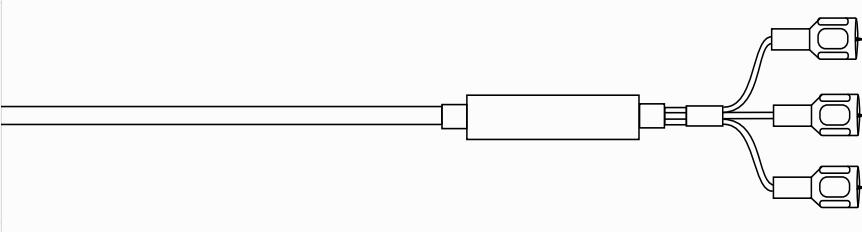
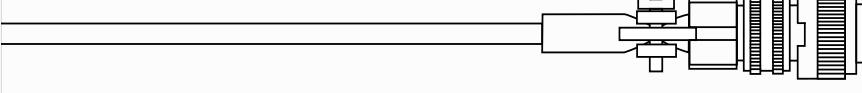
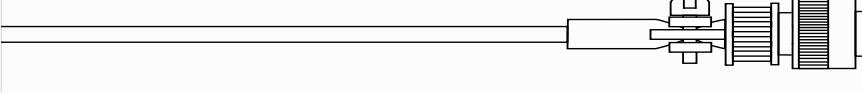
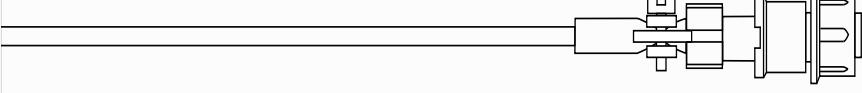
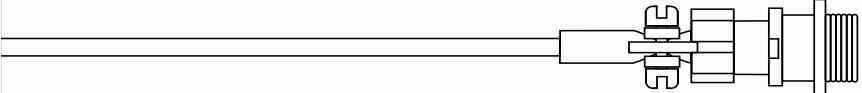
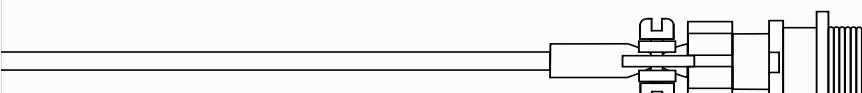
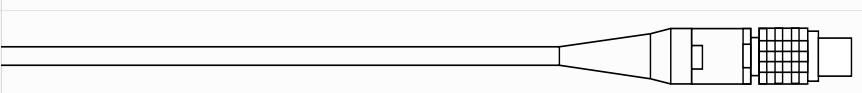
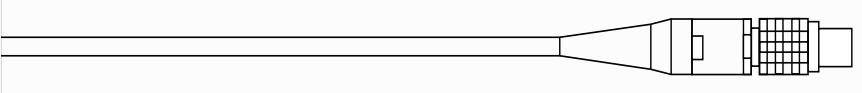
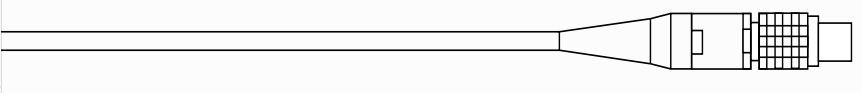
**Table 1.**

Cable		Code	Characteristic	View
Single-core	anti-vibration	01	d 0.7 mm.	
		02	d 1.1 ( $\pm 0,1$ ) mm.	
		03	d 2 mm.	
		04	d 2.5 mm., underwater version	
Three-core	anti-vibration	41	d 2.5 mm.	
Three-core	connective	51	d 2,5 mm..	
Three-core	connective	55	d 2,5 mm..	

**Table 2.**

Code	Connector	View
A2	2*Mechanical clamp terminal	
A3	3*Mechanical clamp terminal	
A4	4*Mechanical clamp terminal	
AA2	2*Soldering leads	
AA3	3*Soldering leads	
B1	C02 [10-32UNF]	
B2	2*C02 [10-32UNF]	

B3	3*C02 [10-32UNF]	
C1	C03 [4-cont. 1/4-28UNF]	
D1	BNC	
D2	2 × BNC	
D3	3 × BNC	
DC1	CP50-77ΦV	
DC2	2 × CP50-77ΦV	
DC3	3 × CP50-77ΦV	
E1	C04 [3-cont. M6 × 0.5]	
F1	TNC	
F2	2 × TNC	
F3	3 × TNC	
H1	C05 [2-cont 5/8-24UNF]	
K1	CP50-276ΦV	

L1	CP50-112ФМ	
P1	2PM14КПН4Г	
R1	PC4TV	
S1	SMA	
S2	2 × SMA	
S3	3 × SMA	
T1	C06 [3-pin. 5/8 - 24 UNF]	
PA1	СНЦ23- 4/14Р - 11	
PB1	2PMD18КПН4Г	
PC1	2 PMД18БПН4Ш	
PD1	2 PM14БПН4Ш	
NB1	lemo FFA.05.302	
NC1	lemo PCA.05.302	
ND1	lemo FGG.1B.303	
NE1	lemo FGG.1B.305	

Example: 41C1B3 – three-core anti-vibration cable (C03 [4-pin. 1/4-28UNF] - 3\*C02 [10-32UNF]).

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