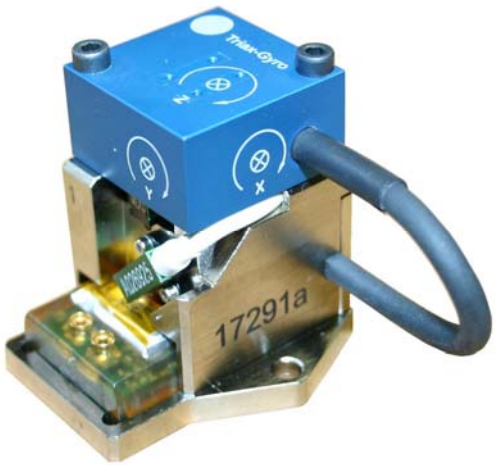
M=BUS® Interface 6C
for Acceleration & Angular Velocity
Code 4GB-C61



- **Integrated M=BUS® Data Logger**
- **Integrated DAS for 6 transducer channels**
- **Universal sensor mount for uniaxial accelerometers (design: SA572-S4) and for gyroscope type IES 3103**
- **Acceleration range: up to ±2000 G**
- **Angular velocity range: up to ±9000°/s**
- **Ruggedized aluminum housing**
- **Integrated M=BUS® backup system**

Figure 1: M=BUS® Interface 6C for Acceleration and Angular Velocity

M=BUS® Interface 6C for Acceleration and Angular Velocity

This M=BUS® Sensor Interface combines the M=BUS® data acquisition electronics as well as three uniaxial accelerometers and a triax gyroscope in one aluminum housing. The whole signal conditioning, A/D-conversion and data storage for 6 channels is accommodated in the compact data acquisition unit (Logger 6C in molded housing) which can be replaced within a second.
An enhanced design enables adaption of an IES 3103 gyroscope and type SA572-S4 accelerometers in different evolution steps. The accelerometers and its cables are protected by the interface structure. Cable strain reliefs and the analog contact PCB as interface between sensors and data acquisition system to the M=BUS® Logger are integrated in the housing.

The M=BUS® Interface 6C is connected to other M=BUS® modules with one single coaxial cable in a daisy chain manner. Three different types of Gateways as bus interfaces supply power, communication and the trigger signal for all connected loggers on the M=BUS® line Due to the revolutionary DAS decentralization and wiring concept the complexity and mass has been reduced enormously.

For the highest level of data security the M=BUS® Interface 6C is equipped with a backup system that is activated automatically in case of cable break. This feature provides also the option to perform tests in stand-alone configuration.

The M=BUS® Interface 6C is designed as vehicle on-board instrumentation. The shock-proof design guarantees a long life even under rough impact test conditions.

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Technical Specifications

General:		
Power consumption incl. sensors		< 1 W
Sensor Excitation Voltage		3,3 V
Trigger		System trigger
Conformity		SAE-J211
Accelerometer:		
Sensor axis		3 (X /Y /Z programmable)
Range		Up to ±2000G
Applicable sensors		Uniaxial, type SA572-S4
Gyroscope:		
Sensor Axis		3 (X /Y /Z programmable)
Range		Up to ±9000°/s
Applicable sensors		IES 3103 (M=BUS®)
Signal Conditioning:		
Sampling rate		20 kHz
Resolution		16 bit
Recording time		up to 17 s/channel
Anti-aliasing filter		2.4 kHz, Bessel 8-pole
Shunt resistor		Internal, customizable
Backup System:		
Activation		Disconnecting cable
Trigger		Synchronized with Gateway trigger
Recording sequence stop		After 10 s
Rechargeable battery		Lithium-Polymer, 50 mAh / 3.7 V
Storage of data		2 weeks
Physical Dimensions:		
Overall dimensions L x W x H		(46 x 44 x 32) mm^3
Weight		Ca. 110 g
Environmental Characteristics:		
Temperature range		0…50 °C
Components:		
M=BUS Sensor Interface 6C	1	MESSRING-Code 4GB-C61
Logger 6C	1	MESSRING-Code 4AD-A21-2
Accelerometers	3	Series Endevco 7264X and MeasSpec M64X or equivalent
IES 3103 (M=BUS®)	1	5JA-A2 (IES 3103-3,3V)

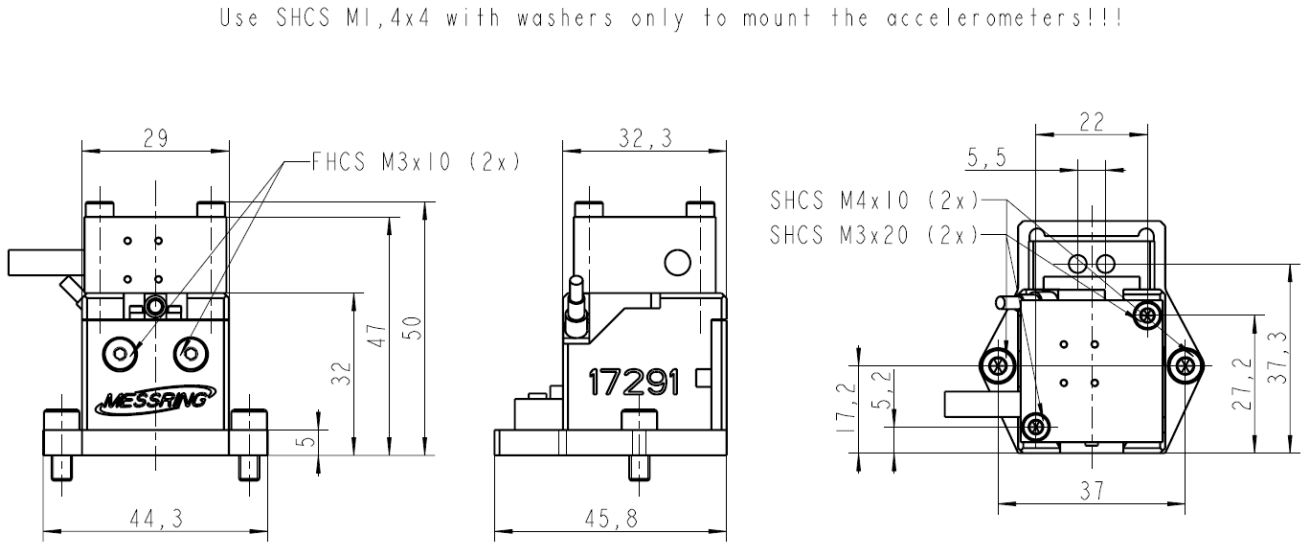

Figure 2: Outer dimensions of M=BUS® Interface 6C

Sensor Orientations

The M=BUS® Interface 6C is optimized for impact test applications. The sensor orientations are freely programmable. In the field of crash testing the sensor outputs are adapted in accordance with the sign convention recorded in SAE J1733. This means that the deceleration during an impact will affect a negative sensor output in X direction. Y is the lateral direction and Z is directed to the ground (Right Hand Rule).
The interface housing is marked with number 1, 2 and 3 at each sensor plane. Its normal vectors are configured with the MESSRING standard settings as follows (according to the gyro's captions):

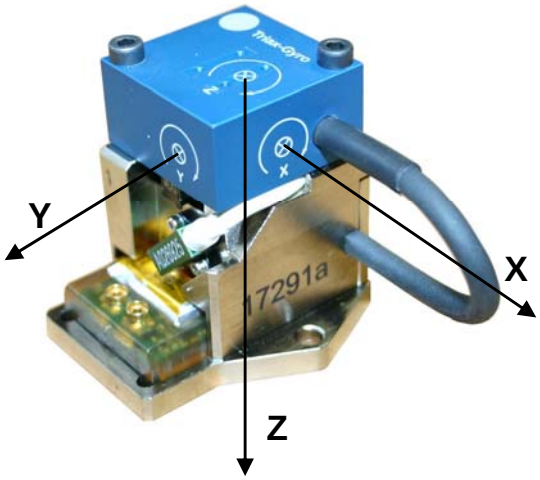

Figure 3: Preset orientations of acceleration axes

Note: The applicable accelerometers are based on a micro electro-mechanical system (MEMS). If you want to check the sensor orientation we refer to SAE J1733 for detailed information about the sign convention for vehicle crash testing.

Center of Seismic Masses

The measuring axes through the seismic masses of the applied uniaxial accelerometers do not intersect in the geometric center of the M=BUS® Interface 6C.
Figure 4 shows the Center of Seismic Masses for the standard accelerometers. If other types of accelerometers are used the real measuring location may vary.

Endevco 7264C/D or equivalent **MeasSpec 64C** **Endecvo 7264B or equivalent**

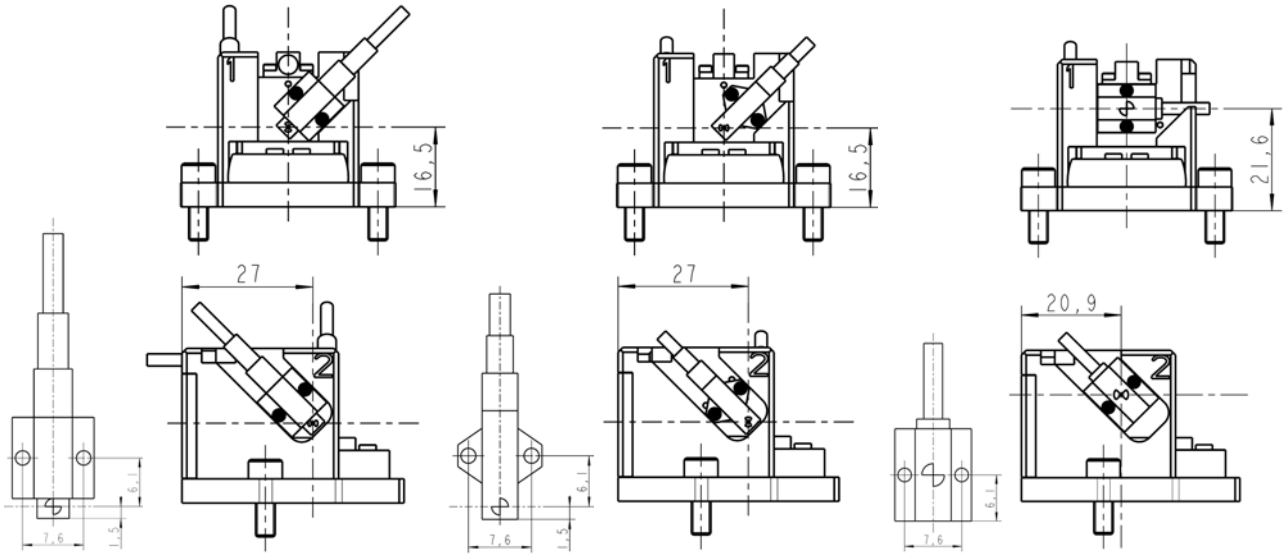

Figure 4: Transducer mounting and seismic mass locations

Related Products

M=BUS® Interface 3C for Acceleration 4GB-A31

Just Accels! Use the Sensor Interface 3C if you want to add accelerometers to your advanced M=BUS® on-board setup.

- **3-axis accelerometer**
- **Ranges up to ±2000 G**
- **Integrated M=BUS® data acquisition**
- **Rapid DAS substitution**
- **Ruggedized aluminum housing**
- **M=BUS® backup system**
- **Universal sensor mount for SA572-S4 design**

M=BUS® Dual Axis Inclinometer 4AD-A51-1

For an easy positioning of your ATDs in the test object – The M=BUS® Inclinometer.

- **±90° inclinometer measurement range**
- **0.1° resolution**
- **Shockproof and lightweight (plastic housing)**
- **Perfect for dummy positioning**
- **Integrated memory to store user defined data**