

DOSSIER DE SOUS TRAITANCE OUTSOURCING REPORT N° FR162911177

Date d'intervention (Calibration Date) : 21/07/2016

Désignation (Designation) : Accelerometre

Marque (Manufacturer) : PCB

N° de série (Serial number) : 3448

Modèle (Model) : 3501A01260KG

Identification client (Customer ID) : **MET14/685**

Détail de l'intervention (Detail of intervention)

Observations (remarks) : /

Sous-traitant : TRESCAL GMBH (ESSLINGEN)
(Subcontractor)

Type d'intervention : Vérification
(Type of calibration)

Numéro de document : 6608038664
(Document number)

Conforme (Pass)(*)

Ce document comprend (this document includes) : 6 page(s) dont 5 annexes

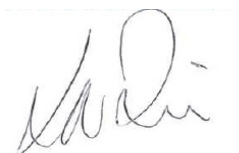
Date d'émission (Issue date) : 02/08/2016

Technicien

Laizier Paul

(*) Les résultats pris en compte sont ceux établis par le sous-traitant

(*) The results taken account are those established by the subcontractor



LA, METROLOGIE, AU, SERVICE, DE, VOTRE, PERFORMANCE

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Trescal GmbH

Kalibrierlaboratorium für elektrische, mechanische und dimensionelle Größen
Calibration laboratory for electrical, mechanical and dimensional measurand

Kalibrierschein

Calibration Certificate

Kalibrierscheinnummer

Number of Calibration Certificate

6608038664

Auftraggeber
Customer

Trescal -THALES TAS- Toulouse
26 rue Champollion
F-31100 Toulouse Cedex

Die Kalibrierung erfolgt durch den Vergleich mit Normalen oder Messung auf Normalmesseinrichtungen, die auf die Nationalen Normale zurückgeführt sind, mit denen die physikalischen Einheiten in Übereinstimmung mit dem Internationalen Einheitensystem (SI) dargestellt werden. Für die Einhaltung einer angemessenen Frist zur Wiederholung der Kalibrierung ist der Benutzer verantwortlich.

Auftragsnummer
Order No.

ES 83619

Gegenstand
Object

Accelerationsensor

Hersteller
Manufacturer

PCB

Typ
Type

3501A1260KG

Dieser Kalibrierschein darf nur vollständig und unverändert weiterverbreitet werden. Auszüge oder Änderungen bedürfen der Genehmigung des ausstellenden Kalibrierlaboratoriums. Dieser Kalibrierschein wurde elektronisch erstellt und ist ohne Unterschrift und Stempel gültig.

Fabrikat/Seriennummer
Serial number

3448

Nutzer-ID
User-ID

3448

The calibration is performed by comparison with standards or measurement on instruments that are traceable to National Standards which realize the units of measurement according to the International System of Units (SI). The user is obliged to have the object recalibrated at appropriate intervals.

Inventarnummer
Stock number

Schlüsselnummer
Key number

008040415800

Standort
Location

This calibration certificate may not be reproduced other than in full except with the permission of the issuing laboratory. This calibration certificates is produced with and electronic system. This calibration certifacte without signature and seal are valid.

Prüfauftragsnummer
Test Order No.

6608038664

Datum der Kalibrierung
Date of calibration

21.07.2016

Seitenanzahl des Kalibrierscheins
Number of pages of the certificate

5

State of reception: The measured values were within the range of the specification

Statement: Equipment may be used without exception

Ausstellungsdatum
Print Date

Sachbearbeiter
Person in charge

Leiter des Kalibrierlabor
Head of the calibration laboratory

21.07.2016

Dietz

Markovic

Trescal GmbH
Tel (0711) 553651-0

Limburgstraße 6
Fax (0711) 553651-51

D-73734 Esslingen

Barcode



008040415800

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Sensor:	Manufacturer	PCB	Typ	3501A1260KG
	Serial-Nr.	3448		

1. Object

The calibration device is an **Accelerationsensor**.

2. Measurement procedure

The calibration is based on a compare between calibration device and the standard.

3. Equipment

The following equipment was used for the calibration:

Verwendete Normale <i>Standards used</i>	Hersteller <i>Manufacturer</i>	Typ <i>Type</i>	Serien/Inv.-Nr. <i>Serial/ Inv. No.</i>	Kalibriert am <i>Calibration at</i>	Kalibrierschein-Nr. <i>Calibration Cert. No.</i>
Shock calibrator	Endevco	2925	AB92	28.01.2015	0113 D-K-15183-01-00 2015-01
Acceleration standard	Endevco	2270	10355	19.01.2015	0111 D-K-15183-01-00 2015-01
Amplifier	Spektra GmbH	SRS 35	200427	26.01.2015	WK Spektra GmbH 15-0150
Scope	National Instruments	NI 5114	-	28.01.2015	0113 D-K-15183-01-00 2015-01

Used software	CS18 Schockkal	Version	1.2
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4. Conditions

During the calibration the following conditions was actual:

Umgebungsbedingungen <i>Environmental conditions</i>	Temperatur <i>Temperature</i>	20,4 °C	Rel. Feuchte <i>Rel. Humidity</i>	65 %	Luftdruck <i>Air Pressure</i>	976 hPa
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1. Position of the calibration device in the earth field: **Vertikal**

2. Mounting of calibration device:

Screw adapter: torque **2 Nm**

Additive glue: glue:

Other:

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Sensor:	Manufacturer	PCB	Typ	3501A1260KG
	Serial-Nr.	3448		

3. Technical details of the connecting cable:

Manufacturer:

Typ:

Length: **m**

Capacity: **pF**

Connector: **Microdot**

4. Sensitivity was calculated at following values

(Gravitational acceleration $g_n = 9,80665 \text{ m/s}^2$)

Acceleration peak in g: **823,8**

Pulse duration $t_{l, 10\%}$: **0,514 ms**

5. Measured voltage: **- V**

6. Amplifier

6.1. Charge amplifier of the standard

Channel of standard: **1**

Amplified factor: **16**

6.2. Amplifier calibration device

Channel of calibration device: **2**

Amplified factor: **16**

Current: **- mA**

Bridge voltage: **10,002 V**

Eingangswiderstand: **4425,14 Ω**

Ausgangswiderstand: **4674,45 Ω**

8. Scope

Channel from standard: **1**

Channel from calibration device: **2**

Measuring range channel 1: **10 V**

Measuring range channel 2: **10 V**

Frequency of measure: **2,9 MHz**

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Sensor:	Manufacturer	PCB	Typ
	Serial-Nr.	3448	3501A1260KG

5. Results of measurement

The calibrated value is sensitivity.

Following results were measured:

Sensitivity

Average value (from 5 values): **0,002543 mV/g**

Standard deviation in %: **0,00164**

Calibration Nr.	Shock amplitude in g	Sensitivity S in mV/g	Pulse duration in ms
1	815,0	0,002546	0,514
2	817,9	0,002544	0,517
3	821,6	0,002530	0,517
4	822,7	0,002527	0,511
5	823,8	0,002570	0,515

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Sensor:	Manufacturer	PCB	Typ 3501A1260KG
	Serial-Nr.	3448	

6. Uncertainty of measurement

The uncertainty of measurement is: 5,0 %.

The uncertainty of the used normals, is the standard deviation with (k=2) and P=95%.

7. Statement of conformity

The statement of conformity is in following to the DIN EN ISO 14253-1 according to Trescal-KUNO variant D.

8. Remarks