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designated and notified by the Netherlands to perform tasks with respect to
conformity assessment procedures mentioned in article 17 of Directive
2014/32/EU, after having established that the Measuring instrument meets
the applicable requirements of Directive 2014/32/EU, to:

Manufacturer Mettler-Toledo GmbH
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Switzerland

Measuring instrument **Multidimensional measuring instrument**
Type : TLD250 series

Further properties are described in the annexes:

- Description T12488 revision 0;
- Documentation folder T12488-1.

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1 General information about the multidimensional measuring instrument

All properties of the multidimensional measuring instrument, whether mentioned or not, shall not be in conflict with the legislation.

1.1 Essential parts

The instrument consists of a head assembly attached to a base plate by a pole and a touch screen user interface mounted on the pole.

The essential parts in this construction are in the head assembly and as follows:

- Measurement software (embedded to the single board computer);
- 3D depth sensor.

See block diagram:

Number	Pages	Description	Remarks
12488/0-01	1	Block diagram	-

EMI protection measures:

- Head assembly housing is made of metal;
- Two ferrites on cable between camera module and single board computer;
- Two ferrites on USB cable between display and single board computer;
- Two ferrites on HDMI cable between display and single board computer;
- Ferrite on the DC side of the external AC/DC adapter cable.

1.2 Essential characteristics

Principle of operation	Reflection of light		
	Length	Width	Height
Maximum dimension	Max ≤ 1000 mm	Max ≤ 800 mm	Max ≤ 1000 mm
Minimum dimension	Min ≥ 60 mm	Min ≥ 60 mm	Min ≥ 60 mm
Scale interval d	d ≥ 5 mm	d ≥ 5 mm	d ≥ 5 mm
Measuring range	Single interval		
Electromagnetic environment class	E2		
Mechanical environment class	M1		
Climatic environment	temperature range	+5 °C / +30 °C	
	humidity	non-condensing	
	intended location	closed	
Power supply voltage	100 – 240 V AC 50/60 Hz, through an AC/DC plug-in power supply		
Method of operation	Semi-automatic		

Suitable for	Rectangular and singulated objects, Cylindrical objects placed on their base.
Limitations of use	Not suitable for white objects, The colour of the measuring plane must be grey (the original production colour), Not suitable for objects with reflective surfaces, Not suitable for transparent (bubble wrapped) packaging, The object must be placed perpendicular towards the camera on the measuring plane.
Minimum spacing between successive objects	Only one object must be within the field of view
Software identification	Main Firmware Version number 2.00.xxx.yyy xxx = 166...999 and represents non-legally relevant software for algorithm bug fix yyy = 123...999 and represents non-legally relevant software for application features or bug fix

The software identification is displayed after pressing the key sequence:
 Hamburger menu "≡" > Information > Device.

1.3 Essential shapes

Number	Pages	Description	Remarks
12488/0-02	1	Outline drawing	-
12488/0-03	1	Head assembly	-

Inscriptions:

- The inscriptions have to fulfil the requirements stated in Directive 2014/32/EU Annex I clause 9 and OIML R 129-1 (2020) clause 5.3;
- The abbreviations for the minimum capacity and maximum capacity may be written in lower case (min, max) or in sentence case (Min, Max);
- The inscriptions contain limitations of use as mentioned in the essential characteristics;
- The inscriptions plate is fixed to the electronics of the multidimensional instrument and is secured against removal by sealing or will be destroyed when removed.

1.4 Conditional parts

AC/DC plug-in power supply:

Brand	Type	Remarks
FSP Group Inc.	FSP060-DHAN3	-

The multidimensional measuring instrument may be equipped with one or more of the following protective interfaces that have not to be secured:

- Bluetooth;
- RS232;
- Ethernet;
- RJ45;
- USB-A;
- USB-B.

The multidimensional measuring instrument may be equipped with peripheral equipment if the peripheral equipment is certified to be connected to a multidimensional measuring instrument by a Notified Body responsible for type examination under Directive 2014/31/EU or Directive 2014/32/EU taking into account the applicable electromagnetic environment class.

The multidimensional measuring instrument may be equipped with a Point of Sale (POS), provided that the POS is certified to be connected to a multidimensional measuring instrument by a Notified Body responsible for type examination under Directive 2014/32/EU, under the condition that the time and date of both the multidimensional measuring instrument and the POS are synchronized.

1.5 Non-essential parts

The multidimensional measuring instrument may be connected to non-essential devices, for example but not limited to bar code readers; second displays, etc. provided that:

- They do not present primary data;
- They do not lead to an instrument having other essential characteristics than those fixed by this certificate.

Part(s) not subject to legal control (WELMEC 7.2 clause 2):

The software may contain files or programs that have non-essential properties, for example (but not limited to) invoice modules, database modules and operating system components, provided that they do not lead to an instrument having other characteristics than those fixed by this certificate.

2 Information about the main constituent parts of the multidimensional measuring instrument

2.1 Measurement software (embedded to the single board computer)

2.1.1 Essential parts

Legally relevant software parts named:

- dmeasureservice.cpp;
- Alibiservice.cpp;
- libvolumeMeasure.so;
- Data Storage file named: .am.db.

This file is created during configuration of the system, at which time also the size is set. The file size shall accommodate the storage of all transactions for the required number of days according to the applicable national regulations.

Stored measurement data can be displayed on the touch display after pressing the following key sequence: Hamburger menu "≡" > Information > Alibi Memory.

2.1.2 Essential characteristics

Software specification (WELMEC 7.2):

- Software type P;
- Risk Class B;
- Extension L/T/S.

Operating system:

- The software runs on the Linux operating system embedded in the single board computer.

Legally relevant functions of the software:

- Calculation of the dimensions from raw measurement data;
- Static adjustment;
- Zero adjustment, in case a weighing platform is added/removed under the measuring head;
- Acting upon significant faults;
- Automatic zero-setting device.

Security:

- Upon hardware power-up the software is automatically started;
- Adjustments of the legally relevant software configuration is protected using the Metrology Lock, which can only be deactivated after pushing the adjustment button located on the main board accessed from the back of the controller PC.

Software protection:

- The software is placed on an internal hard disk/flash disk/EEPROM/NVRAM in executable files;
- The software operates with protected software interfaces;
- The software configuration is protected by login passwords and checksums;
- Configuration settings that do not affect legally relevant data are not protected by checksums;
- The software can be updated using the verified / traced update procedure.

2.1.3 Conditional parts

Number	Pages	Description	Remarks
12488/0-04	2	Single board computer	-
12488/0-05	7	Communication board	Including parts list

Or any other single board computer which has a CE marking may be used for instruments under this certificate, taking into account the applicable electromagnetic environment class where the instrument is in service.

2.2 3D depth sensor

2.2.1 Essential parts

Number	Pages	Description	Remarks
12488/0-06	1	3D depth sensor specifications	-

3 Seals

To secure components that may not be dismantled or adjusted by the user, the multidimensional measuring instrument has to be secured in a suitable manner on the locations indicated in the drawing:

Number	Pages	Description	Remarks
12488/0-07	1	Hardware sealing location	-

The sealing of the measuring head to the controller PC is achieved in software. The identification of the measuring head is stored on the controller PC and treated as a legally relevant parameter.

Inside the controller PC is an adjustment push button, located on the main board. This adjustment push button has to be pushed once to disable the Metrology Lock within the software Menu Setting. The Metrology Lock has to be enabled.

4 Conditions for conformity assessment

The marks, facilities for the marks and the inscriptions on the multidimensional measuring instrument fulfil the requirements of Directive 2014/32/EU.

The multidimensional measuring instrument may be connected to a non-automatic weighing instrument provided that this instrument meets the applicable requirements of Directive 2014/31/EU for non-automatic weighing instruments.

In case the multidimensional measuring instrument is equipped with a Point of Sale the time and date synchronization between the multidimensional instrument and the Point of Sale must be validated.