

RED DIGITAL REDM DIGITAL RED LASER DIGITAL

SOLA 
PASSION FOR PRECISION

- DE** Gebrauchsanweisung
- EN** Operating instructions
- FR** Manuel d'instructions
- IT** Istruzioni d'uso
- ES** Instrucciones de uso
- NL** Gebruiksaanwijzing
- RU** Руководство по применению
- PL** Instrukcja obsługi
- LT** Eksploatacijos instrukcija
- LV** Lietošanas instrukcija
- SR** Uputstvo za upotrebu
- CS** Návod k použití
- RO** Manual de utilizare
- BG** Ръководство за употреба
- HU** Használati útmutató



EN

SOLA 
PASSION FOR PRECISION

Scope of delivery for RED DIGITAL/REDM DIGITAL:

1. RED DIGITAL/REDM DIGITAL
2. AAA batteries
3. Quick Starter



Scope of delivery for HORIZON GREEN BASIC:

1. RED LASER DIGITAL
2. AAA batteries
3. Quick Starter





Operating instructions

RED DIGITAL, REDM DIGITAL, RED LASER DIGITAL (original version)

About this manual

Congratulations on the purchase of your new RED DIGITAL, REDM DIGITAL, RED LASER DIGITAL! You have acquired a SOLA measurement instrument, which can make your work easier, faster and more precise.

To utilize the complete functionality range of this measurement instrument, and to ensure a safe operation, please observe the following instructions:

- Please read this operating manual before commissioning the device.
- Always keep the operating manual near the device.
- Only hand over the device to other persons together with the operating manual.
- Never render the attached warning signs unreadable.

Content

1. General information
2. Description
3. Technical data
4. Safety instructions
5. Laser safety/classification
6. Getting started
7. Operation
8. Calibration and adjustment
9. Maintenance, storage and transportation
10. Delivery contents and accessories
11. Troubleshooting
12. Disposal
13. Manufacturers's guarantee
14. EC conformity declaration

1. General information

1.1 Signal words and their meaning

DANGER

For an imminent danger that could lead to serious injury or death.

WARNING:

For a possibly dangerous situation that could lead to serious injury or death.

CAUTION

For a possibly dangerous situation that could lead to slight injury or property damage.

NOTE:

For application notes and other useful information.

1.2 Pictograms and other information

1.2.1 Warning signs



Warning of dangers in general

1.2.2 Symbols



Read the operating manual before use



Dispose batteries and device separate from household waste



Do not throw batteries into the fire



Do not heat the battery above 60 °C



2

Class 2 laser device



Do not look into the laser beam

2. Description

2.1 Device components, display and operating elements

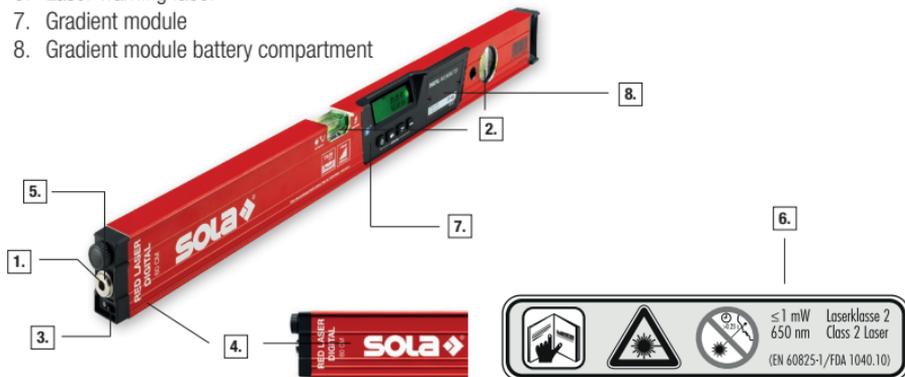
2.1.1 RED DIGITAL/REDM DIGITAL

1. Acrylic glass block vials
2. Gradient module
3. Gradient module battery compartment



2.1.2 RED LASER DIGITAL

1. Laser output aperture
2. Acrylic glass block vials
3. On/off switch
4. Laser battery compartment
5. Magnetic adapter for installing an angle prism or beam splitter
6. Laser warning label
7. Gradient module
8. Gradient module battery compartment



2.2 Gradient module

1. On/Off switch / Display light
2. On/Off switch acoustics (signal at 0° and 90°)
3. Hold function (measurement is retained by pressing once) / Toggling between ABS (absolute) and INC (incremental)
4. Display switch ° / mm/m / % / in/ft
5. Arrows show in which direction the spirit level is to be moved
6. Display ° / mm/m / % / in/ft
7. Display in the case of low battery voltage
8. Display of ABS or INC





3. Technische data

3.1 Gradient module

Max. measurement tolerance

-0° – 90° ± 0.05°

-1° - 89° ± 0.10°

Protection class IP 65

Power supply Power supply 3 x 1.5 V AAA batteries

Battery life (at 20°C) 30 h (if display light switched off, approx. 80 h)

Permissible temperatures

Operating temperature -10°C to +50°C

Storage temperature -20 °C to +70 °C

3.2 Laser

Working range

-Laser point $r = 30 \text{ m}^*$

Max. measurement tolerance

-Laser beam to the measuring surface ± 0.5 mm/m

-Laser beam to the lateral surface ± 1.0 mm/m

Point size

-At 10 m approx. 6 mm

-At 20 m approx. 10 mm

Power supply Power supply 2 x 1.5 V AAA batteries

Battery life (at 20°C)

-Micro (AAA) batteries 500 h

Permissible temperatures

Operating temperature -15 °C to +50°C

Storage temperature -20 °C to +50°C

Laser diode lines/points 635–650 nm < 1 mW

Laser class Laser class 2, DIN EN 60825-1 and FDA 1040.10

*... depending on the ambient conditions in the workplace. Subject to modifications (drafts, descriptions and technical data)



4. Safety Instructions

4.1 AREA OF RESPONSIBILITY

4.1.1 Manufacturer

SOLA is responsible for delivering a safe and immaculate product, including the operating manual and original accessory equipment.

SOLA-Messwerkzeuge GmbH
Unteres Tobel 25
A-6840 Götztis

KESON LLC
810 N. Commerce St. Aurora
Illinois 60504



4.1.2 Operator

The operator is responsible for the correct use of the product, the deployment of its employees, training for its employees and the operational safety of the product.

- The operator understands the safety information which is stated on the product and the instructions in the operating manual.
- The operator shall comply with the standard local regulations relating to safety and accident prevention regulations as well as worker protection laws and regulations.
- The operator shall immediately notify SOLA if safety-related issues should arise relating to the product or during its utilization.
- The operator shall ensure that the product is not utilized any further if defects become evident, and they will have the product repaired professionally.

4.2 Improper Use

- Use of the device and the accessories without instruction.
- Use of third-party accessories or additional equipment.
- Use outside of the intended limits (see Chapter 3/Technical data).
- Use under extreme temperature fluctuations without an adequate acclimatization.
- Disabling of safety devices and removal of hazard notices and labels.
- Unauthorized opening of the device.
- Performance of modifications or alterations to the device or the accessories.
- Deliberate blinding of third parties.
- Inadequate safeguarding at the installation site.

4.3 Utilization limitations

The RED DIGITAL, REDM DIGITAL, RED LASER DIGITAL is suitable for use in an atmosphere which can be permanently inhabited by humans.



- Do not operate the product in explosion-prone or corrosive environments.
- Inform the local safety authorities and safety experts before working in hazardous environments, in close proximity to electrical installations or similar surroundings.

4.4 Usage Hazards

4.4.1 General



WARNING

Missing or incomplete instructions may result in improper or incorrect use. This can cause accidents with serious damages to persons, property, assets and the environment.

- Follow the manufacturer's and operator's safety instructions.
- Protect equipment and accessories from being accessed by children.



WARNING

Blinding by laser radiation can indirectly lead to serious accidents, especially for people who are driving a vehicle or operating machinery. Do not look into the laser beam.

- Do not set up the laser beam and the laser plane at eye level or aim at people.



CAUTION

A fall, longer storage, transportation or other mechanical effects can lead to erroneous measurement results. Check the unit for damage before use.
Do not use damaged equipment.

- Repairs must only be performed by SOLA.
- Before use, check the accuracy of the device (see Chapter 8/Checking the accuracy).

4.4.2 Charger/batteries/rechargeable batteries



DANGER

Mechanical damage can cause batteries to leak, explode or catch fire or trigger the release of toxic substances.

- Batteries and rechargeable batteries may not be opened or exposed to mechanical loads.
- Damaged batteries, chargers and charging stations may not be used.
- Repairs must only be performed by SOLA.



WARNING

High ambient temperatures and immersion into liquids can cause batteries to leak, explode or catch fire or trigger the release of toxic substances.

- Protect batteries and rechargeable batteries from mechanical damage during transport.
- Do not overheat batteries and rechargeable batteries or expose them to fire.
- Avoid the ingress of moisture into batteries and rechargeable batteries.
- Do not use damaged batteries or rechargeable batteries. Ensure proper disposal (see Chapter 12/Disposal).



WARNING

A short-circuit or unintended use can cause batteries to overheat and create an injury or fire hazard.

- Do not transport or store batteries in the pockets of garments.
- Do not bring the battery contacts in contact with jewellery, keys, or other electrically conductive objects.
- Do not charge the batteries.
- Do not discharge the batteries through short-circuiting.
- Do not solder the batteries in the device.
- Do not mix old and new batteries, and do not mix batteries from different manufacturers or with a differing type designation.



WARNING

If disposed of improperly, third parties may be seriously injured and the environment polluted. Burning plastic components generates toxic fumes which may impair health. Batteries/rechargeable batteries may explode if they are damaged or heated excessively, and thereby cause poisoning, burning, corrosion or environmental contamination. If disposed of negligently unauthorized persons are able to use the product improperly.

- The product may not be disposed of together with household waste. Dispose of the device and accessories properly (see Chapter 12/Disposal).
- Protect the product against access by unauthorized persons at all times, and especially children.



4.5 ELECTROMAGNETIC COMPATIBILITY (EMC)

The electromagnetic compatibility is the ability of the product to function in an environment where electromagnetic radiation and electrostatic discharge are present, without causing electromagnetic interference to other devices.

4.5.1 Interference with other devices by RED LASER DIGITAL

Although the product meets the strict requirements of the relevant directives and standards, SOLA can not completely exclude the possibility of interference with other devices (for example, when using the product in combination with third-party devices, such as field computers, personal computers, wireless devices, mobile phones, certain cables or external batteries).

- When using computers and radio equipment, be sure to observe to the vendor-specific information about electromagnetic compatibility.
- Only use original SOLA equipment and accessories.

4.5.2 Interference with RED LASER DIGITAL by other devices

Although the product meets the strict requirements of the relevant directives and standards, SOLA cannot entirely exclude the possibility that intense electromagnetic radiation in the immediate vicinity of radio transmitters, two-way radios, diesel generators, etc. may distort the measurement results.

- When performing measurements under these conditions, check the plausibility of the results.

4.6 FCC statement



Warning:

The user is cautioned that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. The following two conditions apply for operation: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.



NOTE:

This device has passed the compliance test for limits for a digital class B device as per Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.



This device produces and uses radio-frequency energy and can also emit it. If it is not installed and used according to the instructions, it may cause harmful interference to radio communication. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Realign the receiving antenna or set up in a different location
- Set up the device further away from the receiver
- Connect the device to another socket than that to which the receiver is connected
- Seek advice from the dealership or a technical expert

4.7 Use of the product with Bluetooth



WARNING:

Electromagnetic radiation can cause disturbances in other equipment, in installations (e.g. medical ones such as pacemakers or hearing aids) and in aircraft. It can also affect humans and animals. Precautions:

Although this product conforms to the most stringent standards and regulations, the possibility of harm to people and animals cannot totally be excluded.

- Do not use the product near petrol stations, chemical plants, in areas with an increased risk of explosion and where blasting takes place.
- Do not use the product near medical equipment.
- Do not use the product in aeroplanes.
- Do not use the product near your body for extended periods of time.



5. LASER SAFETY/CLASSIFICATION

The RED LASER DIGITAL emits a visible laser point.

The product complies with laser class 2, DIN EN 60825-1 and FDA 1040.10.

Laser Class 2:

When using Class 2 laser devices, the eye is protected by the blink reflex or aversion reaction in the case of random and short-term exposure.



WARNING

Looking directly into the laser beam with optical aids (such as binoculars, telescopes) can be dangerous.



CAUTION

Looking directly into the laser beam can damage the eyes.

- Do not look into the laser beam.
- Do not aim the laser beam at other people.

Labeling on the device:



- Do not remove labelling!



6. Getting Started

Prior to initial set-up, check whether the batteries have been installed correctly in the device. Do not point the laser at people when you switch the device on.

Inserting batteries

1. Open the battery compartment cover with an appropriate screwdriver.
2. Insert batteries making sure that the poles of the batteries are in the right position.
3. Close the battery compartment cover with an appropriate screwdriver.

Only use type 1.5 V AAA batteries!

Remove the batteries if the instrument is not used for an extended period.



NOTE

The intensity of the laser lines can vary depending on the battery quality.



7. Operation

7.1. Switching on/off

➤ **On:**

Press the “On/Off switch / Display light” to switch on the gradient module.

➤ **Off:**

Press the “On/Off switch / Display light” for at least 2 seconds to switch off the gradient module.

7.2 Display

If the gradient spirit level is used in the inverted position (upside down – above your head), the display screen turns too so that the measurement can be read easily.

The display switches off automatically after 5 minutes, as soon as the device is no longer being moved.

7.3 Display light

1. Switch on the gradient module (display light is active)
2. Press the “On/off switch / Display light” to switch the light on and off.

7.4 Acoustic signal

The acoustic signalling is switched on by pressing the “On/off switch for acoustics”. The closer the gradient spirit level gets to the standard position, the more rapid the frequency of the acoustic signal. This function assists you with levelling work, where it is not possible for you to read the measurement from the display.

7.5 Hold function

The current measurement is frozen by pressing the “Hold function” once.

A previously measured value can be “frozen” on the display using this function. The measurement remains unchanged until the “Hold function” button is pressed again.

7.6 Toggling between ABS and INC

You can toggle between ABS (absolute) and INC (incremental) by pressing the “Hold function” for more than 2 seconds.

In “ABS” (absolute) mode, the measurement result is displayed based on the device calibration.

In contrast, in “INC” (incremental) mode, the measurement result is displayed based on a relative reference level.



For example, you can take a measurement on a 5° inclined plane in “ABS” mode and then toggle to “INC” function. In doing so, the measurement display is set to 0°. You can now take additional measurements based on this new zero value. To leave “INC” mode, press the button again for 2 seconds.

7.7 Changing measurement display

➤ Press the “Display switch” to change between ° / mm/m / % / in/ft.

7.8 Changing the display resolution

By pressing the “Hold function” and the “On/off switch / Display light” button at the same time, you can choose between two resolutions: 0.00° or 0.0°.

7.9 Bluetooth

Fast and efficient data transfer of measured values can be made directly to a smartphone via Bluetooth.



NOTE

To pair with a smartphone, launch the SOLA Measures App and connect using one of the function options.



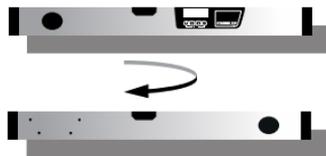
SOLA Measures App

8. Calibration and adjustment

8.1 Calibration of gradient module

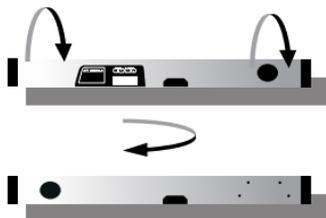
Calibration stage ① based on position 0°

- Place RED DIGITAL, REDM DIGITAL, RED LASER DIGITAL with the measuring surface on a horizontal plane
- Briefly press buttons  and 
- Display -1- appears on the screen
- Press the  button briefly, display -1- flashes for approx. 5 seconds
- Display -2- appears on the screen
- Rotate RED DIGITAL, REDM DIGITAL, RED LASER DIGITAL 180°
- Press the  button briefly, display -2- flashes for approx. 5 seconds
- Measurement display appears on the screen, calibration stage 1 is complete.



Calibration stage ② based on position 180°

- Place RED DIGITAL, REDM DIGITAL, RED LASER DIGITAL 'on its head' and on a horizontal plane
- Briefly press buttons  and 
- Display -1- appears on the screen
- Press the  button briefly, display -1- flashes for approx. 5 seconds
- Display -2- appears on the screen
- Rotate RED DIGITAL, REDM DIGITAL, RED LASER DIGITAL 180° again
- Press the  button briefly, display -2- flashes for approx. 5 seconds
- Measurement display appears on the screen, calibration stage 2 is complete.

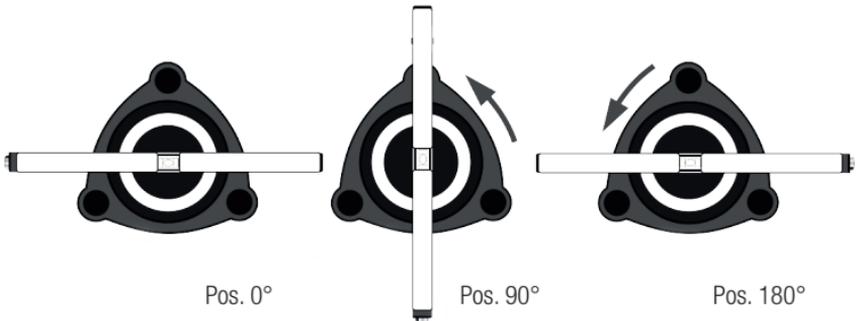


Calibration stage ③ based on position 90°

- Place RED DIGITAL, REDM DIGITAL, RED LASER DIGITAL with the measuring surface on a vertical plane
- Briefly press buttons  and 
- Display -1- appears on the screen
- Press the  button briefly, display -1- flashes for approx. 5 seconds
- Display -2- appears on the screen
- Turn RED DIGITAL, REDM DIGITAL, RED LASER DIGITAL by 180°
- Press the  button briefly, display -2- flashes for approx. 5 seconds
- Measurement display appears on the screen.
- The RED DIGITAL, REDM DIGITAL, RED LASER DIGITAL is thus fully calibrated.



8.2 Adjusting the laser spirit level on the levelling base



Place the device on the levelling base so that the product logo is in front of you (Pos. 0°).

- 1) Adjust vial to a 0° position.
- 2) Adjust vial to a 90° position.
- 3) Adjust vial to a 180° position.

**WARNING:**

Always work with both screws when adjusting!

Making slight corrections after every turn mean no errors occur. These are sometimes necessary and therefore state of the art.

9. Maintenance, storage and transportation

9.1 Cleaning

- Wipe off the dirt with a soft damp cloth.
- Check the outlet openings of the laser regularly, and thoroughly clean them if necessary. Do not touch the glass with your fingers.
- Do not use aggressive cleaning agents or solvents.
- Do not immerse the device in water!
- Clean and dry wet equipment, accessories and transport containers prior to packaging them. Only pack equipment again when it is completely dry.
- Keep plug connections clean and protected from moisture.

9.2 Storage

9.2.1 General

- The equipment may only be stored within the specified temperature limits (see Chapter 3/Technical data).
- After prolonged storage, check the accuracy of the measuring device before using it.

9.2.2 Batteries/rechargeable batteries

- To store the rechargeable battery remove it from the device or the charging station.
- They should preferably be stored in a dry environment at room temperature (see Chapter 3/Technical data).
- Protect from moisture and humidity. Dry wet or damp batteries before storage before usage.
- Before storing for extended periods, charge the battery to 80% capacity (see Chapter 7/Operation). Repeat the process every six months during storage.
- After storage, fully charge the battery.
- Check battery for any damage before use. Do not use damaged equipment.

9.3 Transport

9.3.1 General

The device may be damaged if it falls or is subjected to strong vibrations.

- Never transport the product loose. Always use the original packaging or an equivalent transport container.
- Switch off the measuring device before transporting it.
- Check the unit for damage before use.



9.3.2 Batteries/rechargeable batteries

The operator is responsible for adhering to the regulations and requirements valid on a national and international level when transporting or sending batteries and rechargeable batteries.

- Before shipping, remove the batteries from the device.

In principle, li-ion batteries are subject to the requirements for dangerous goods; nonetheless, they can be transported by the user by road without any further requirements. For dispatch via third parties (e.g. shipping companies or air freight), certain requirements for packaging and labelling must be observed.

- Remove battery from the device and send in storage condition (80% capacity).
- Mask open contacts.
- Pack the battery so that it cannot move in the packaging and it cannot be damaged by external impacts.
- Observe other national and international regulations and, if necessary, additional requirements of the respective transport company.





10. Delivery contents and accessories

10.1 Delivery contents RED DIGITAL, REDM DIGITAL, RED LASER DIGITAL:

RED DIGITAL, REDM DIGITAL, RED LASER DIGITAL

AAA batteries

Quick Starter

10.2 ACCESSORIES (optional)

Angle prism **WP**

Beam splitter **ST**

Target **ZS RED**

Laser goggles **LB RED**

Levelling base **NB**

Telescopic tripod **TST**

Elevator tripod **KST**

Construction tripod **BST**

Transport protection bag

Further information on accessories can be found at www.sola.at



11. Troubleshooting

Error	Possible Cause	Remedy
Device is switched on, no display, screen not illuminated	<ul style="list-style-type: none">➤ Battery flat➤ Battery inserted incorrectly➤ Device or switch faulty	<ul style="list-style-type: none">➤ Replace battery➤ Insert battery correctly➤ Contact dealer and have device repaired
No laser beam function.	<ul style="list-style-type: none">➤ Battery flat	<ul style="list-style-type: none">➤ Replace battery
Display jumps or screen "frozen"	<ul style="list-style-type: none">➤ Program error	<ul style="list-style-type: none">➤ Remove batteries, wait one minute, reinsert batteries
Irregular display screen	<ul style="list-style-type: none">➤ Battery power low	<ul style="list-style-type: none">➤ Replace battery
Laser lines blink in one second intervals	<ul style="list-style-type: none">➤ Battery flat	<ul style="list-style-type: none">➤ Replace battery
The device is switched on, the display is lit up but a laser beam is not visible	<ul style="list-style-type: none">➤ Ambient temperature too high/low➤ Laser diodes or laser control faulty	<ul style="list-style-type: none">➤ Allow device to acclimatise➤ Contact your dealer and arrange for the device to be repaired



12. Disposal

If disposed of improperly third parties can possibly be seriously injured and the environment polluted. Burning plastic components generates toxic fumes which may impair health. Batteries/rechargeable batteries may explode if they are damaged or heated excessively, and thereby cause poisoning, burning, corrosion or environmental contamination. If disposed of negligently unauthorized persons are able to use the product improperly.

Measuring tools, accessories and packaging must be recycled in an environmentally-friendly manner.



The product as well as the accessories – especially the batteries and rechargeable batteries – may not be disposed of with household waste.

- Dispose of the device and the accessories properly.
- Only dispose of batteries when discharged.
- Observe the country-specific disposal requirements.

Your SOLA dealership will take back batteries as well as old equipment, and will ensure proper disposal.

Only for EU countries



Electric tools must not be disposed of with household waste!

According to European Directive 2002/96/EC on Waste Electrical and Electronic Equipment and its transposition into national law, electrical and electronic equipment that is no longer usable must be collected separately and recycled in an environmentally friendly manner.



13. Manufacturers's guarantee

"The manufacturer warrants to the original purchaser stated on the guarantee card, freedom from defects of the device for a period of two years, with the exception of batteries, from such time as the device is handed over. The guarantee is limited to repairs and/or replacements at the manufacturer's discretion. Defects which are caused through improper handling by the purchaser or third parties, natural wear and optical flaws that do not affect the usability of the equipment, are not covered by this guarantee. Claims under this guarantee can only be invoked if the device is submitted along with the guarantee card, completely filled out by the dealer, dated and provided with the company stamp.

If the guarantee claim is justified, the manufacturer shall bear the transport costs. The duration of the guarantee will not be extended through repair or spare parts work which is carried out within the scope of the guarantee.

Further claims are excluded, unless these are stipulated by the respective national legislation. In particular the manufacturer shall not be liable for any direct, indirect, incidental or consequential damages, losses or expenses in connection with the use or because of the inability to use the tool for any purpose whatsoever. Implied warranties for the usage or suitability for a particular purpose are expressly excluded."



14. EC conformity declaration



**Konformitätserklärung
Declaration of conformity
Déclaration de conformité**



Wir/We/Nous **SOLA-Messwerkzeuge GmbH, A-6840 Götzis, Austria**
erklären in alleiniger Verantwortung, dass das Produkt(e)
declare under our sole responsibility that the Product(s)
déclarons sous notre seule responsabilité que le(s) produit(s)

RED DIGITAL, REDM DIGITAL, RED LASER DIGITAL

auf das sich diese Erklärung bezieht, mit den folgenden Normen übereinstimmt.
to which this declarations relates is in conformity with the following standards.
auquel(s) se réfère cette déclaration est conforme aux normes.

EMC	EN61326-1:2013 EN61326-2-2:2013 EN 55011:2009+A1:2010
Lasers	EN 61000-6-3:2007 EN 61000-6-3:2007
Radio transfer	EN 301489-1 V2.1.1 EN 301489-17 V3.1.1 EN 300328 V2.1.1 EN 62479:2010

Gemäss den Bestimmungen der Richtlinie(n)
Following the provisions of Directive(s)
Conformément aux dispositions de(s) Directive(s)

Electromagnetic compatibility 2014/53/EU

SOLA-Messwerkzeuge GmbH

Mag. Wolfgang Scheyer CEO