

QUICK START GUIDE

2/3.26

3-447-310-03



METRACAL CM SERIE

METRACAL CM PRO (M275P) /
METRACAL CM TECH (M275T)/
METRACAL CM XTRA (M275X)

MULTIMETER AND PROCESS CALIBRATOR FOR
MEASURING AND SIMULATING ELECTRICAL
QUANTITIES

Read the complete operating instructions (available at www.gossenmetrawatt.com).

The condensed operating instructions do not replace the complete operating instructions!

CONTENT

1	Safety Regulations	3
2	Applications	5
2.1	Intended Use / Use for Intended Purpose	5
2.2	Use for Other Than Intended Purpose.....	5
2.3	Repairs and Modifications.....	5
2.4	Liability and Guarantee.....	5
3	Documentation.....	6
3.1	Information Concerning These Instructions	6
3.2	Identification of Warnings	6
3.3	Identifiers	7
3.4	Symbols in the Documentation	7
4	Getting Started.....	7
5	The Device	7
5.1	Scope of Delivery	7
5.2	Device overview	8
5.3	Included features	11
5.4	Relevant Standards.....	13
5.5	Technical Data	14
5.6	Characteristic Values	16
5.7	Switching and Charging Rechargeable Batteries.....	22
6	Setup.....	23
6.1	General Setup – Example: Setting the Time	23
6.2	Setup for present function – Example: Setting the range	25
7	Operation	26
7.1	Calling up the Help Text and Connection Diagram	26
7.2	Measuring Electrical Quantities.....	27
7.3	Simulating Electrical Quantities.....	28
7.4	Dual.....	29
7.5	C1 ... C4	30
8	Contact, Support and Service	32
9	Certifications.....	33
9.1	CE Declaration.....	33
10	Disposal and Environmental Protection	34
10.1	Disposal of Old Devices, Batteries, and Rechargeable Batteries.....	34
10.2	Disposal of Packaging Materials.....	34
10.3	Regulations for the Federal Republic of Germany	34

1 SAFETY REGULATIONS



Read and follow these instructions carefully and completely in order to ensure safe and proper use.

The instructions must be made available to all persons who use the device.

Keep for future reference.

General Information

- The device may only be used by qualified electricians in commercial applications. It is not a consumer product.
- Observe and comply with all safety regulations that are applicable for your work environment.
- Wear suitable and appropriate personal protective equipment (PPE) whenever working with the device.
- The functioning of active medical devices (e.g. pacemakers, defibrillators) and passive medical devices may be affected by voltages, currents and electromagnetic fields generated by the device and the health of their users may be impaired. Implement corresponding protective measures in consultation with the manufacturer of the medical device and your physician. If any potential risk cannot be ruled out, do not use the device.

Accessories

- Use only the specified accessories (included in the scope of delivery or listed as options) with the device.
- Carefully and completely read and follow the product documentation for optional accessories. Retain these documents for future reference.

Handling

- Use the device in undamaged condition only.
Inspect the device before use. Pay particular attention to damage, interrupted insulation, or kinked cables. Damaged components must be replaced immediately.
- Use the accessories and all cables in undamaged condition only.
Inspect accessories and all cables before use. Pay particular attention to damage, interrupted insulation, or kinked cables.
- If the device or its accessories do not function flawlessly, permanently remove the device/accessories from operation and secure them against being restarted inadvertently.
- If the device or accessories are damaged during use, e.g. if they are dropped, permanently remove the device/accessories from operation and secure them against being restarted inadvertently.
- If there are any signs of interior damage to the device or accessories (e.g. loose parts in the housing), permanently remove the device/accessories from operation and secure them being restarted inadvertently.
- The device and accessories may only be used for the tests/measurements described in the documentation for the device.
- Equipment and accessories from Gossen Metrawatt GmbH are designed to function ideally with products from Gossen Metrawatt GmbH that are specifically intended for this purpose. Unless expressly confirmed otherwise in writing by Gossen Metrawatt GmbH, they are not intended or suitable for use with other products.
- Route cables in an orderly fashion, e.g. the mains power cable and accessory cables. Loose, disorderly cables result in unnecessary danger of tripping and falling.

Measurements/Tests

- Be prepared for the occurrence of unexpected voltages at objects being measured (e.g. defective devices). For example, capacitors may be dangerously charged.
- Be aware that dangerous pulsating voltages may occur in HF circuits.
- Do not perform any measurements in electrical circuits with corona discharge (high-voltage).

Operating Conditions

- Do not use the device and accessories after long periods of storage under unfavorable conditions (e.g. humidity, dust or extreme temperature).
- Do not use the device and accessories after extraordinary stressing due to transport.
- Do not expose the device to direct sunlight for long periods of time. Overheating may cause damage to the device.
- Only use the device and accessories within the limits of the specified technical data and conditions (ambient conditions, IP protection code, measurement category, etc.).
- Do not use the device in potentially explosive atmospheres. Danger of explosion!
- Do not use the device in areas subject to the risk of fire. Danger of fire!
- Implement adequate measures for protection against electrostatic discharge (ESD).

(Rechargeable) Batteries

- Use (rechargeable) batteries in undamaged condition only. Risk of explosion and fire in the case of damaged (rechargeable) batteries!
Inspect the (rechargeable) batteries before use. Pay particular attention to leaky and damaged (rechargeable) batteries.
- When using (rechargeable) batteries, the respective test/measuring device may only be used with inserted and secured battery compartment lid. Otherwise, dangerous voltages may occur at the (rechargeable) battery terminals under certain circumstances.
- Do not use the device while the internal batteries are being charged.
- Only charge undamaged rechargeable batteries. Risk of explosion and fire in the case of damaged rechargeable batteries!
Inspect the rechargeable batteries before charging. Pay particular attention to leaky and damaged rechargeable batteries.

Fuses

- The device may only be used as long as the fuses are in flawless condition. Defective fuses must be replaced. This may only be performed by our repair service department.
- Never bridge the fuses. Never disable the fuses.

Measurement Cables and Establishing Contact

- Plugging in the measurement cables must not necessitate any undue force.
- Never touch conductive ends (e.g. of test probes).
- Fully unroll all measurement cables before starting a test/measurement. Never perform a test/measurement with the measurement cable rolled up.
- Avoid short circuits due to incorrectly connected measurement cables.
- Ensure appropriate contacting (e.g. on the test probes, alligator clips, Kelvin probes, etc.).
- Do not move or remove contacts (e.g. the test probes, alligator clips, the Kelvin probes etc.) until testing/measurement has been completed.
Unwanted sparking may otherwise occur due to test current.
- Only use measurement cables and external cabling with a maximum length of 1 m.

Adjustment/Calibration

- Comply with national adjustment regulations and laws.
- Comply with national calibration regulations and laws.
- Calibration may only be carried out by authorized service centers.

Emissions

- The device is equipped with a Bluetooth® module. Determine whether or not use of the implemented frequency band of **2400 MHz to 2483.5 MHz** is permissible in your country.

Data Security

- Always create a backup copy of your measurement/test data.
- Protect the device against unauthorized tampering. Use the functions provided by the device (e.g. key lock / sealing / lock) as well as other appropriate measures (e.g. restricting physical access to the device).

Documentation

- Test reports must be checked for correctness and signed by the testing person.

2 APPLICATIONS

Please read this important information!

2.1 INTENDED USE / USE FOR INTENDED PURPOSE

The METRACAL CM series features a range of portable, multifunctional process calibrators that can simultaneously generate, measure, store, and transmit calibration signals.

Dual Mode can be used to combine numerous functions in order to calibrate various sensors.

The devices are suitable for high-precision, 4-wire resistance and RTD measurements (Pt100, PT200, Pt500, Pt1000, Ni100, Ni120, Ni1000).

Up to four frequently used routines can be predefined and saved with user-specific settings, modes and parameters.

Calibration signals can be generated as a constant signal or as various curves in the interval, step, and table modes.

The safety of the user and the device is only guaranteed during proper use.

2.2 USE FOR OTHER THAN INTENDED PURPOSE

Using the device for any purposes other than those described in the device's operating instructions or this quick start guide is contrary to use for intended purpose. Use for other than the intended purpose may lead to unpredictable damage!

2.3 REPAIRS AND MODIFICATIONS

Unauthorized modification of the product is prohibited. Only authorized, trained personnel is permitted to perform repairs. Refer to the device's operating instructions for information concerning repairs.

2.4 LIABILITY AND GUARANTEE

The warranty provided by Gossen Metrawatt GmbH, as well as its liability, are governed by the applicable contractual and mandatory statutory provisions.

3 DOCUMENTATION

3.1 INFORMATION CONCERNING THESE INSTRUCTIONS

Read these instructions carefully and attentively. They contain all the information for safe use of this device. Follow them to protect yourself and others from injury and to avoid damage to the device.

The latest version of these instructions is available on our website:

<https://www.gmc-instruments.de/en/services/download-center/>



Descriptions of Device Variants

This documentation describes several device variants. As a result, features and functions may be described which do not apply to your device. In addition, the illustrations may differ from your device.

Trademark Law

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3.2 IDENTIFICATION OF WARNINGS

Instructions for your safety and for the protection of the device and its environment are provided as warnings and notes at certain points within these instructions.

They are laid out as shown below and are graded in terms of the severity of the respective hazard. They also describe the nature and cause of the hazard, the consequences of non-observance and what must be done to avoid it.



DANGER

Death or serious injury is almost certain.



WARNING

Death or serious injury is possible.



CAUTION

Minor or moderate injury is possible.

ATTENTION

Damage to the product or the environment is possible.



Note

Important information



Tip

Useful additional information or application tip

3.3 IDENTIFIERS

The following identifiers are used in this documentation:

Identifier	Meaning
Control element	Keys, buttons, menus and other controls
✓ Prerequisite	A condition etc. which must be fulfilled before a given action can be taken
▶ Procedure	Beginning of a procedural instruction
1. Procedural step	Steps of a procedure which must be completed in the specified order
↳ Result	Result of a procedural step
■ Enumeration ■ Enumeration	Bullet lists
Figure 1: Caption	Description of the content of a figure
Table 1: Table 1	Description of the content of a table
Footnote	Comment

Table 1: Identifiers in this Document

3.4 SYMBOLS IN THE DOCUMENTATION

The following symbols are used in this documentation:



Symbol	Meaning
	Read and adhere to the product documentation.
	General warning symbol.

Table 2: Symbols Used in this Document

4 GETTING STARTED

This section provides an overview of the initial steps for working with the device.

1. Read and follow the product documentation. In particular, observe all safety information in the documentation, on the device and on the packaging.
 - Safety regulations ↗ 3
 - Applications ↗ 5
 - Documentation ↗ 6
2. Familiarize yourself with the device ↗ 7.
3. Start up the device ↗ 23.
4. Learn how to use the device ↗ 26.

5 THE DEVICE

5.1 SCOPE OF DELIVERY

Please check the scope of delivery for completeness and intactness.

1	Multimeter and process calibrator with rubber holster	
1	KS25-4 cable set	Z275K
1	Battery pack	Z270G
1	USB PD power pack	Z270U
1	Micro USB cable	Z270V
1	HC 40 hard case, black	Z270K
1	DAkKS calibration certificate	
1	Quick Start Guide (this document)	

5.2 DEVICE OVERVIEW

5.2.1 Front



Figure 1: Front panel

- | | |
|--|---|
| <p>1 TFT color graphic display</p> <p>2 Softkeys (menu-dependent keys for switching functions, parameter selection, and to start/end functions)</p> <p>3 STORE: Save key</p> <p>4 OK: Key for acknowledgment and for restarting the device from the standby mode by pressing and holding</p> <p>5 Rotary switch for selecting a function</p> <p>6 Thermocouple connections for calibration unit and measuring unit.
The ground potential is always connected to the ground of the calibration unit.</p> <p>Attention
Damage to the product caused by inserting the plug with incorrect orientation.</p> <ul style="list-style-type: none"> ■ Make sure that the orientation of the plug is correct when you connect the plug. One pin is wider than the other. | <p>7 Connections for calibration unit</p> <p>8 Connections for measuring unit</p> <p>9 Scroll keys ▲▼◀▶
Navigate in menus
Edit values/settings</p> <p>10 ESC:
Operating mode menu:
Press key briefly: Exit the menu level – jump back to a higher level, exit parameters entry without saving
Press and hold: The device is switched to standby mode. Restart the device by pressing and holding the OK key.</p> <p>11 MENU: Key for accessing the five main menus</p> |
|--|---|

5.2.2 Display

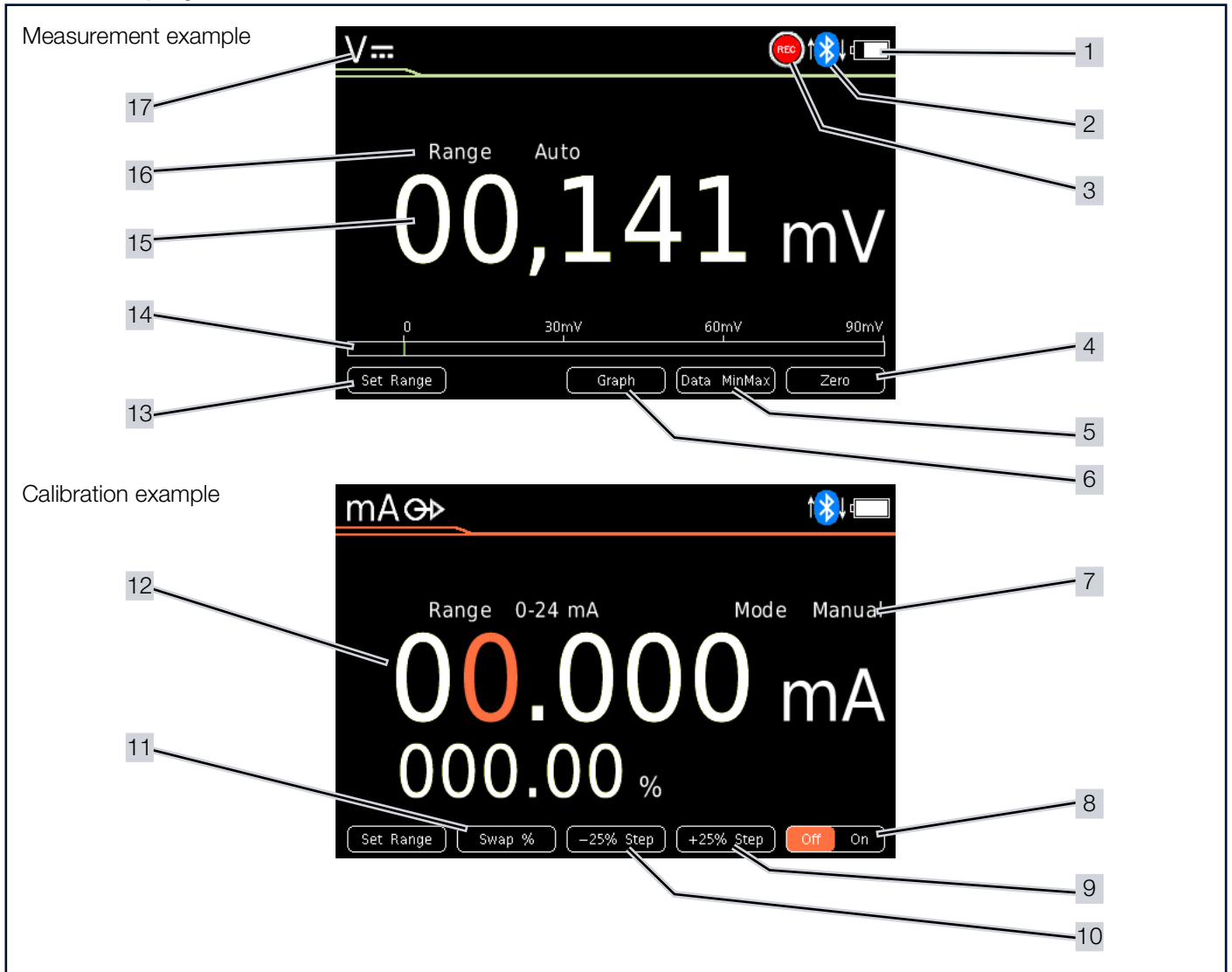


Figure 2: Display

- | | | | |
|---|---|----|--|
| 1 | Battery pack charge level | 10 | -25% Step: Calibration value is reduced by 25% of the range |
| 2 | Bluetooth® activity display | 11 | Swap %: Swap the absolute value and percentage value in the display |
| 3 | Memory symbol | 12 | Adjustable calibration value (⇒ "Simulating Electrical Quantities" ¶28)
Change the highlighted digit with ▲▼
Switch the highlighted digit with ◀▶ |
| 4 | Zero: Activate/deactivate zero point setting | 13 | Set Range: Activate/deactivate setting the range.
Switch the range with ◀▶ |
| 5 | Data MinMax: Switch between "Data" (freeze measured value), "Min-Max storage", and deactivate both functions | 14 | Scale for analog display |
| 6 | Graph/Num: Switch between graphical and numerical display | 15 | Current measured value
Measuring range exceeded: OL is displayed |
| 7 | Set calibration mode (⇒ "Calibration Modes" ¶28) | 16 | Set range (⇒ "Characteristic Values" ¶16)
Switch the range with the Set Range softkey |
| 8 | Off/On: Switch on/off the calibration signal | 17 | Current function |
| 9 | +25% Step: Calibration value is increased by 25% of the range | | |

**Tip**

Grayed-out settings and softkey functions cannot be selected.

5.2.3 Symbols on the Device and the Included Accessories




Symbol	Meaning
	Warning concerning a point of danger (attention, observe documentation!)
	European conformity marking
	The device may not be disposed of with household trash ⇒ "Disposal and Environmental Protection" 34.

Table 3: Symbols on the device and the included accessories

5.3 INCLUDED FEATURES

Function / Accessory	Article Number	METRACAL CM PRO (M275P)	METRACAL CM TECH (M275T)	METRACAL CM XTRA (M275X)
Multimeter and process calibrator with rubber holster		✓	✓	✓
Measuring Functions				
V $\overline{=}$		✓	✓	✓
mA $\overline{=}$		✓	✓	✓
mA Loop (24 V loop supply)		✓	✓	✓
Ω (4-, 3-, and 2-wire)		✓	✓	✓
TempTC (°C/°F)		✓	✓	✓
TempRTD (°C/°F)		✓	✓	✓
Hz (frequency)		✓	✓	✓
CPM (pulse counter)		✓	✓	✓
Calibration functions				
V $\overline{=}$		✓	✓	✓
mA $\overrightarrow{\text{D}}$ (Source)		✓	✓	✓
mA $\overleftarrow{\text{D}}$ (Sink)		✓	✓	✓
Ω		✓	✓	✓
TempTC (°C/°F)		✓	✓	✓
TempRTD (°C/°F)		✓	✓	✓
Hz (frequency generator)		✓	✓	✓
CPM (pulse generator)		✓	✓	✓
C1...C4 Four customizable memory locations for frequently used settings		✓	✓	✓
KS25-4 cable set Cable set for process calibrators 4 100 cm measuring cables (black, red, blue, yellow) with stackable 4 mm plugs and 4 mini alligator clips (black, red, blue, yellow)	Z275K	✓	✓	✓
Battery pack	Z270G	✓	✓	✓
USB PD power pack	Z270U	✓	✓	✓
Micro USB cable	Z270V	✓	✓	✓
HC 40 hard case, black	Z270K	✓	✓	✓
DAkKS calibration certificate		✓	✓	✓
3-year guarantee		✓	✓	✓
Feature Activation				
HART communication (highway addressable remote transducer) for direct communication with sensors	Z275T	●	✓	✓
Graph Graphical visualization of current and stored measured values	Z275X	●	●	✓
Expert sequence function Feature activation to 16 test sequences with up to 63 test steps each	Z270P	●	●	●

Function / Accessory	Article Number	METRACAL CM PRO (M275P)	METRACAL CM TECH (M275T)	METRACAL CM XTRA (M275X)
Quick Start Guide* * Set of complete operating instructions available on the Internet for download from www.gossenmetrawatt.com		✓	✓	✓

✓ Scope of delivery ● Can be enabled

Calibration Unit

Rotary Switch Position	Function	METRACAL CM
V \equiv	V_{DC}	- 90 mV ... +20 V
mA \rightarrow	Current source	0 mA ... 24 mA
mA \leftarrow	Current sink	0 mA ... 24 mA
Ω	Resistance simulation	0 Ω ... 4 k Ω
TempTC	TC (thermocouple)	K, L, N, R, S, T, U, XK, A, B, BP, C, E, J
TempRTD	RTD (resistance thermometer)	Pt100, Pt200, Pt500, Pt1000, Ni100, Ni120, Ni1000
Hz	Frequency generator	0.1 Hz ... 50 kHz
CPM	Pulse generator	6 CPM ... 3000 CPM

Measuring Unit

Rotary Switch Position	Function	METRACAL CM
V \equiv	V_{DC} ($R_i = 1 \text{ M}\Omega$)	- 100 mV ... +31 V
mA \equiv	Current measurement	-26 mA ... +26 mA
mA Loop	Loop current measurement ($24 V_{DC}$)	-26 mA ... +26 mA
Ω	Resistance measurement (2-, 3-, 4-wire)	0 Ω ... 4.1000 k Ω
TempTC	TC (thermocouple)	K, L, N, R, S, T, U, XK, A, B, BP, C, E, J
TempRTD	RTD (resistance thermometer)	Pt100, Pt200, Pt500, Pt1000, Ni100, Ni120, Ni1000
Hz	Frequency measurement	1 Hz ... 51 kHz
CPM	Pulse/RPM counter	60 CPM ... 3100 CPM

Dual Mode

The dual mode enables simultaneous operation of the calibration and measurement unit. For example, a signal can be applied to the input of a transmitter and the resulting output signal of the transmitter can be displayed.

5.4 RELEVANT STANDARDS

EN 61010-1 IEC 61010-1	Safety requirements for electrical equipment for measurement, control and laboratory use – Part 1: General Requirements
EN 61010-1 IEC 61010-1	Safety requirements for electrical equipment for measurement, control and laboratory use – Part 2-033: Particular requirements for hand-held multimeters and other hand-held meters for domestic and professional use, capable of measuring mains voltage
EN 61326-1 IEC 61326-1	Electrical equipment for measurement, control and laboratory use – EMC requirements – Part 1: General Requirements
EN 61326-2-1 IEC 61326-2-1	Electrical equipment for measurement, control and laboratory use – EMC requirements – Part 2-1: Particular requirements – Test configurations, operational conditions and performance criteria for sensitive test and measurement equipment for applications without EMC protection measures
EN 60529 IEC 60529	Test devices and test procedures Degrees of protection provided by enclosures (IP code)
EN IEC 60751 IEC 60584-1	Industrial platinum resistance thermometers and platinum temperature sensors Thermocouples - Part 1: EMF specifications and tolerances
DIN 43710	Measurement and control; electrical temperature sensors; reference tables of thermocouples typ U and typ L
GOST R 8.585	State system for ensuring the uniformity of measurements. Thermocouples. Nominal static characteristics of conversion
DIN 43760	Measuring and control; electrical temperature sensors; reference tables for nickel resistors

Table 4: Relevant standards

5.5 TECHNICAL DATA

Power Supply	Battery pack^a	3.7 V, 4000 mAh, LiPo (approx. 25% self-discharging per year)
	Operating time	Approximately 10 to 20 hours (depending on measurement and calibration functions, see operating time table)
	Battery charge indicator	Charge level indicated by battery symbol – display of momentary charge level as percentage via menu function
	AutoPowerOff function	The device is switched off automatically: <ul style="list-style-type: none"> ■ If battery voltage drops to below approx. 3.6 V ■ If none of the keys or the rotary switch are activated for an adjustable duration (10 ... 59 minutes) and the AutoPowerOff function is not disabled
	Mains module	For continuous operation with USB-PB power pack with at least 1.5 A output current
Ambient Conditions	Accuracy range:	0 °C ... +40 °C
	Operating/storage temperatures with battery pack:	-10 °C ... +50 °C -20 °C ... +50 °C (with rubber holster)
	Storage temperatures without battery pack:	-25 °C ... +60 °C
	Relative atmospheric humidity:	40 ... 75%, no condensation allowed
	Elevation:	Max. 2000 m
	Place of use:	Indoors; outdoors: except within specified ambient conditions
Electrical Safety	Measurement category:	None
	Pollution degree:	2
	Protection class:	III
	Maximum voltage:	30 V
	Maximum current:	30 mA
Electromagnetic Compatibility (EMC)	Interference emission:	EN 61326-1, class B
	Interference immunity:	EN 61326-1 / IEC 61326-1 Short-term measured value deviation of up to 10% may occur during electromagnetic interference and reduce the specified operating quality.
Mechanical Design	Housing:	Impact resistant plastic (ABS)
	Dimensions (W × H × D):	Approx. 235 × 105 × 56 mm (without rubber holster)
	Weight:	Approx. 0.7 kg (with battery pack)
	Protection:	Housing: IP52 (pressure equalization via the housing) per EN 60529 / IEC 60529 (protection against ingress of solid foreign objects: protection against dust deposits on the inside; protection against water ingress: protection against water droplets falling at any angle up to 15° from the vertical)
Display	TFT color graphic display (74 mm × 49 mm) with analog and digital display including unit of measure, type of current and various special functions.	
	Background illumination:	Activated background illumination can be regulated by means of a light.
	Analog bar graph	Scaling: Linear Polarity display: With automatic switching Sampling rate: 40 measurements per second and display refresh

Digital Measured Value Display	Resolution / character height:	320 × 480 dots, 12 mm
	Number of places:	Depends on parameter setting
	Overload display:	“OL” is displayed when the measuring range is exceeded.
	Polarity display:	The “-” sign is displayed if the plus pole is connected to “⊥”
	Sampling rate	10 measurements/s and 40 measurements/s with the Min-Max function, except for the frequency and CPM measuring functions
	Refresh rate:	2 times per second, every 500 ms
Data Interfaces	Wireless Bluetooth® 4.2 interface:	Frequency range: 2402 ... 2480 GHz Transmission intensity: max. 91 mW Functions: – Query measuring functions and parameters – Query momentary measurement data
Internal Memory	Memory capacity:	64 MBit for approx. 300,000 measured values with indication of date and time
Internal Clock	Time format:	DD.MM.YYYY hh:mm:ss
	Resolution:	0.1 s (measured values timestamp)
	Accuracy:	±1 min./month
	Temperature influence	50 ppm/K
Overcurrent protection	Electronic current limiter with automatic reset after overcurrent	

a. Rechargeable battery packs can only be recharged externally.

Table 5: Technical data

Operating Time¹

Measuring Function	Approx. Operating Time ca. [h]	
	Bluetooth® EIN	Bluetooth® AUS
V _{DC} ===	14.5	15.5
mA===	15.5	16.5
mA Loop	14.5	15.5
Ω	15.5	15.5
Temp TC	14.5	15.5
Temp RTD	14.5	16.5
Hz	15.5	15.5
CPM	15.5	17.5
DUAL	10.5	11.5

Calibration Function	Approx. Operating Time [h]	
	Bluetooth® EIN	Bluetooth® AUS
V _{DC} ===	16.5	18.5
mA $\text{G}\blacktriangleright$ (Quelle)	12.5	13.5
mA $\text{G}\blacktriangleleft$ (Senke)	12.5	13.5
Ω	16.5	18.5
Temp TC	17.5	18.5
Temp RTD	17.5	18.5
Hz	15.5	16.5
CPM	15.5	17.5

Table 6: Operating Time

1. Calculated values at brightness level 4, actual values may differ

5.6 CHARACTERISTIC VALUES

Abbreviations

rdg.	of the measured value read
sv	of the set value
d	Digits

Reference Conditions

Temperature range:	+23 °C ± 5 °C
	Thermal stability: 0.005% of the full scale value /°C
Relative humidity:	40% ... 75%
Supply voltage:	3.9 V _{DC} ... 4.6 V _{DC}

5.6.1 Calibration Unit

Direct Voltage Source – V \Rightarrow

Range	Source Range	Resolution	Max. Load Current	Accuracy under Reference Conditions ±(...% sv + ... d)
90 mV	-90.000 mV ... +90.000 mV	0.001 mV	0.1 mA	0.015 + 10
5 V	0.0000 V ... +5.0000 V	0.0001 V	10 mA	0.015 + 5
10 V	0.0000 V ... +10.000 V	0.001 V	10 mA	0.015 + 5
20 V	0.0000 V ... +20.000 V	0.001 V	2 mA	0.05 + 5

Output impedance < 20 mΩ

Direct Current Source – mA \Rightarrow

Range	Source Range ^a	Resolution	Max. Resistance	Max. Voltage	Accuracy under Reference Conditions ±(...% sv + ... d)
0-24 mA	0.000 mA ... 24.000 mA	0.001 mA	1 kΩ	25 V	0.015 + 3
4-20 mA	4.000 mA ... 20.000 mA				
4-24 mA	4.000 mA ... 24.000 mA				

a. The different ranges are used to adjust the “percentage keys” to the measuring range of the test object.

Direct Current Sink – mA \Leftarrow

Range	Source Range ^a	Resolution	External Voltage	Accuracy under Reference Conditions ±(...% sv + ... d)
0-24 mA	0.000 mA ... 24.000 mA	0.001 mA	5 V ... 28 V	0.015 + 3
4-20 mA	4.000 mA ... 20.000 mA			
4-24 mA	4.000 mA ... 24.000 mA			

a. The different ranges are used to adjust the “percentage keys” to the measuring range of the test object.

Resistance Source – Ω

Range	Source Range	Resolution	Measuring Current	Accuracy under Reference Conditions ±(...% sv +... d)
400 Ω	0.00 Ω ... 400.00 Ω	0.01 Ω	500 μA ... 4 mA	0.015 + 3
4kΩ	0.0000 kΩ ... 4.0000 kΩ	0.1 Ω	50 μA ... 400 μA	

Temperature Simulation, Thermocouple – Temp TC

Thermocouple Type	Temperature Range	Resolution	Accuracy	
			Cold Junction Compensation ON	Cold Junction Compensation OFF
K	-270.0 °C ... -200.0 °C	0.1 °C	Not defined	Not defined
	-200.0 °C ... 0.0 °C		0.8 °C	0.6 °C
	0.0 °C ... 1000.0 °C		0.5 °C	0.3 °C
	1000.0 °C ... 1372.0 °C		0.7 °C	0.5 °C
E	-270.0 °C ... -240.0 °C	0.1 °C	Not defined	Not defined
	-240.0 °C ... -100.0 °C		0.8 °C	0.6 °C
	-100.0 °C ... 0.0 °C ... 1000.0 °C		0.4 °C	0.4 °C
J	-210.0 °C ... 0.0 °C	0.1 °C	0.6 °C	0.4 °C
	0.0 °C ... 800.0 °C		0.4 °C	0.2 °C
	800.0 °C ... 1200.0 °C		0.5 °C	0.3 °C
C	0.0 °C ... 1000.0 °C	0.1 °C	0.8 °C	0.6 °C
	1000.0 °C ... 2315.0 °C		2.5 °C	2.3 °C
T	-270.0 °C ... -240.0 °C	0.1 °C	Not defined	Not defined
	-240.0 °C ... 0.0 °C		0.8 °C	0.6 °C
	0.0 °C ... 400.0 °C		0.4 °C	0.2 °C
L	-200.0 °C ... 0.0 °C	0.1 °C	0.5 °C	0.3 °C
	0.0 °C ... 900.0 °C		0.4 °C	0.2 °C
U	-200.0 °C ... 0.0 °C	0.1 °C	0.7 °C	0.5 °C
	0.0 °C ... 600.0 °C		0.5 °C	0.3 °C
A	0.0 °C ... 1000.0 °C	0.1 °C	0.8 °C	0.6 °C
	1000.0 °C ... 2500.0 °C		2.5 °C	2.3 °C
R	-50.0 °C ... -20.0 °C	0.1 °C	Not defined	Not defined
	-20.0 °C ... 0.0 °C		2 °C	1.8 °C
	0.0 °C ... 1768.0 °C		1.4 °C	1.2 °C
S	-50.0 °C ... -20.0 °C	0.1 °C	Not defined	Not defined
	-20.0 °C ... 0.0 °C		2 °C	1.8 °C
	0.0 °C ... 1768.0 °C		1.4 °C	1.2 °C
B	0.0 °C ... 600.0 °C	0.1 °C	Not defined	Not defined
	600.0 °C ... 800.0 °C		1.4 °C	1.2 °C
	800.0 °C ... 1000.0 °C		1.5 °C	1.3 °C
	1000.0 °C ... 1820.0 °C		1.7 °C	1.5 °C
N	-270.0 °C ... -200.0 °C	0.1 °C	Not defined	Not defined
	-200.0 °C ... 0.0 °C		1 °C	0.8 °C
	0.0 °C ... 1300.0 °C		0.6 °C	0.4 °C
BP	0.0 °C ... 800.0 °C	0.1 °C	1.1 °C	0.9 °C
	800.0 °C ... 1800.0 °C		2.3 °C	2.1 °C
XK	-200.0 °C ... 800.0 °C	0.1 °C	0.4 °C	0.2 °C

Temperature Simulation, Resistance Thermometer – Temp RTD

RTD type	Temperature Range	Resolution	Measuring Current	Accuracy
Pt100 - 3851	-200.00 °C ... 0.00 °C ... 100.00 °C	0.01 °C	500 µA ... 4 mA	0.15 °C
	100.00 °C ... 300.00 °C			0.25 °C
	300.00 °C ... 600.00 °C			0.35 °C
	600.00 °C ... 850.00 °C			0.45 °C
Pt200 - 3851	-200.00 °C ... 0.00 °C ... 100.00 °C	0.01 °C	50 µA ... 400 µA	0.75 °C
	100.00 °C ... 300.00 °C			0.85 °C
	300.00 °C ... 600.00 °C			0.95 °C
	600.00 °C ... 850.00 °C			1.1 °C
Pt500 - 3851	-200.00 °C ... 0.00 °C ... 100.00 °C	0.01 °C	50 µA ... 400 µA	0.35 °C
	100.00 °C ... 300.00 °C			0.45 °C
	300.00 °C ... 600.00 °C			0.55 °C
	600.00 °C ... 850.00 °C			0.65 °C
Pt1000 - 3851	-200.00 °C ... 0.00 °C ... 100.00 °C	0.01 °C	50 µA ... 400 µA	0.15 °C
	100.00 °C ... 300.00 °C			0.25 °C
	300.00 °C ... 600.00 °C			0.35 °C
	600.00 °C ... 850.00 °C			0.45 °C
Ni100 - 618	-60.00 °C ... 0.00 °C ... 180.00 °C	0.01 °C	500 µA ... 4 mA	0.15 °C
Ni120 - 672	-60.00 °C ... 0.00 °C ... 180.00 °C	0.01 °C	500 µA ... 4 mA	0.15 °C
Ni1000 - 618	-60.00 °C ... 0.00 °C ... 180.00 °C	0.01 °C	50 µA ... 400 µA	0.15 °C

Frequency Generator – Hz

Range	Source Range	Resolution	Voltage Range	Duty Cycle	Max. Load Current	Accuracy under Reference Conditions ±D
30 Hz	0.100 Hz ... 30.000 Hz	0.001 Hz	1 V ... 10 V	50%	10 mA	3
300 Hz	0.10 Hz ... 300.00 Hz	0.01 Hz				
3 kHz	0.0001 kHz ... 3.000 kHz	0.1 Hz				
50 kHz	0.001 kHz ... 50.000 kHz	1 Hz				

Pulse Generator– CPM

Range	Source Range	Resolution	Output Voltage	Accuracy under Reference Conditions ±(...% sv +... d)
3000 CPM	6.0 CPM ... 3000.0 CPM	0.1 CPM	5 V Square wave voltage	0.05 + 3

5.6.2 Measuring Unit

Direct Voltage Measurement – V ===

Range	Measuring Range	Resolution	Input Impedance	Accuracy under Reference Conditions ±(... % rdg. +... d)
90 mV	-100.000 mV ... +100.000 mV	0.001 mV	>1 GΩ	0.015 + 10
5 V	-5.1000 V ... +5.1000 V	0.0001 V	1 MΩ	0.015 + 5
10 V	-11.000 V ... +11.000 V	0.001 V	1 MΩ	0.015 + 5
30 V	-31.000 V ... +31.000 V	0.001 V	1 MΩ	0.015 + 5

Direct Current Measurement – mA ===

Range	Measuring Range	Resolution	Input Impedance	Accuracy under Reference Conditions ±(... % rdg. +... d)
25 mA	-26.000 mA ... 26.000 mA	0.001 mA	~20 Ω	0.01 + 3

Direct Current Measurement – mA Loop

Range	Measuring Range	Resolution	Max. Load Current	Accuracy under Reference Conditions ±(... % rdg. +... d)
25 mA	-26.000 mA ... 26.000 mA	0.001 mA	26 mA	0.01 + 3

During this measurement, a DC voltage of 24 V (open-circuit voltage 22 V ... 24 V) is output between the **┘ Loop** socket and the **+24 V LOOP** socket.

Resistance Measurement – Ω

Range	Measuring Range	Resolution	Measuring Current	Accuracy under Reference Conditions, 2- and 3-Wire Connection ^a ±(... % rdg. +... d)	Accuracy under Reference Conditions, 4-Wire Connection ±(... % rdg. +... d)
400 Ω	0.00 Ω ... 410.00 Ω	0.01 Ω	0.1 mA ... 1.2 mA	0.1 + 5	0.015 + 5
4 kΩ	0.0000 kΩ ... 4.1000 kΩ	0.1 Ω	0.05 mA ... 0.4 mA		

a. Zero offsetting executed in advance.

Temperature Display, Thermocouple – Temp TC

Thermocouple Type	Temperature Range	Resolution	Accuracy	
			cold junction compensation ON	cold junction compensation OFF
K	-270.0 °C ... -200.0 °C	0.1 °C	Not defined	Not defined
	-200.0 °C ... 0.0 °C		1.0 °C	0.6 °C
	0.0 °C ... 1000.0 °C		0.5 °C	0.3 °C
	1000.0 °C ... 1372.0 °C		0.7 °C	0.5 °C
E	-240.0 °C ... -100.0 °C	0.1 °C	0.8 °C	0.6 °C
	-100.0 °C ... 0.0 °C ... 1000.0 °C		0.4 °C	0.4 °C
J	-210.0 °C ... 0.0 °C	0.1 °C	0.6 °C	0.4 °C
	0.0 °C ... 800.0 °C		0.4 °C	0.2 °C
	800.0 °C ... 1200.0 °C		0.5 °C	0.3 °C
C	0.0 °C ... 1000.0 °C	0.1 °C	0.8 °C	0.6 °C
	1000.0 °C ... 2315.0 °C		2.5 °C	2.3 °C
T	-270.0 °C ... -240.0 °C	0.1 °C	Not defined	Not defined
	-240.0 °C ... 0.0 °C		0.8 °C	0.6 °C
	0.0 °C ... 400.0 °C		0.4 °C	0.2 °C
L	-200.0 °C ... 0.0 °C	0.1 °C	0.5 °C	0.3 °C
	0.0 °C ... 900.0 °C		0.4 °C	0.2 °C
U	-200.0 °C ... 0.0 °C	0.1 °C	0.7 °C	0.5 °C
	0.0 °C ... 600.0 °C		0.5 °C	0.3 °C
A	0.0 °C ... 1000.0 °C	0.1 °C	0.8 °C	0.6 °C
	1000.0 °C ... 2500.0 °C		2.5 °C	2.3 °C

Thermocouple Type	Temperature Range	Resolution	Accuracy	
			cold junction compensation ON	cold junction compensation OFF
R	-50.0 °C ... -20.0 °C	0.1 °C	Not defined	Not defined
	-20.0 °C ... 0.0 °C		2 °C	1.8 °C
	0.0 °C ... 1768.0 °C		1.4 °C	1.2 °C
S	-50.0 °C ... -20.0 °C	0.1 °C	Not defined	Not defined
	-20.0 °C ... 0.0 °C		2 °C	1.8 °C
	0.0 °C ... 1768.0 °C		1.4 °C	1.2 °C
B	0.0 °C ... 600.0 °C	0.1 °C	Not defined	Not defined
	600.0 °C ... 800.0 °C		1.4 °C	1.2 °C
	800.0 °C ... 1000.0 °C		1.5 °C	1.3 °C
	1000.0 °C ... 1820.0 °C		1.7 °C	1.5 °C
N	-270.0 °C ... -200.0 °C	0.1 °C	Not defined	Not defined
	-200.0 °C ... 0.0 °C		1 °C	0.8 °C
	0.0 °C ... 1300.0 °C		0.6 °C	0.4 °C
BP	0.0 °C ... 800.0 °C	0.1 °C	1.1 °C	0.9 °C
	800.0 °C ... 1800.0 °C		2.3 °C	2.1 °C
XK	-200.0 °C ... 800.0 °C	0.1 °C	0.4 °C	0.2 °C

Temperature Display, Resistance Thermometer – Temp RTD

RTD type	Temperature Range	Measuring Current	Resolution	Accuracy	
				2 and 3-Wire Connection ^a [°C]	4-Wire Connection [°C]
Pt100 - 3851	-200.00 °C ... 0.00 °C ... 100.00 °C	0.1 mA ... 1.2 mA	0.01 °C	0.2 °C	0.15 °C
	100.00 °C ... 300.00 °C			0.3 °C	0.25 °C
	300.00 °C ... 600.00 °C			0.4 °C	0.35 °C
	600.00 °C ... 850.00 °C			0.5 °C	0.45 °C
Pt200 - 3851	-200.00 °C ... 0.00 °C ... 100.00 °C	0.05 mA ... 0.4 mA	0.01 °C	0.8 °C	0.75 °C
	100.00 °C ... 300.00 °C			0.9 °C	0.85 °C
	300.00 °C ... 600.00 °C			1 °C	0.95 °C
	600.00 °C ... 850.00 °C			1.15 °C	1.1 °C
Pt500 - 3851	-200.00 °C ... 0.00 °C ... 100.00 °C	0.05 mA ... 0.4 mA	0.01 °C	0.4 °C	0.35 °C
	100.00 °C ... 300.00 °C			0.5 °C	0.45 °C
	300.00 °C ... 600.00 °C			0.6 °C	0.55 °C
	600.00 °C ... 850.00 °C			0.7 °C	0.65 °C
Pt1000 - 3851	-200.00 °C ... 0.00 °C ... 100.00 °C	0.05 mA ... 0.4 mA	0.01 °C	0.2 °C	0.15 °C
	100.00 °C ... 300.00 °C			0.3 °C	0.25 °C
	300.00 °C ... 600.00 °C			0.4 °C	0.35 °C
	600.00 °C ... 850.00 °C			0.5 °C	0.45 °C
Ni100 - 618	-60.00 °C ... 0.00 °C ... 180.00 °C	0.1 mA ... 1.2 mA	0.01 °C	0.2 °C	0.15 °C
Ni120 - 672	-60.00 °C ... 0.00 °C ... 180.00 °C	0.1 mA ... 1.2 mA	0.01 °C	0.2 °C	0.15 °C
Ni1000 - 618	-60.00 °C ... 0.00 °C ... 180.00 °C	0.05 mA ... 0.4 mA	0.01 °C	0.2 °C	0.15 °C

a. For a 2-wire connection, the lead resistance (Rleads) must be entered or measured beforehand.

Internal Temperature Measurement at the TC Connection (Internal Reference Point)

Temperature Range	Accuracy
-10 °C ... 42 °C	0.1 °C
42 °C ... 50 °C	0.2 °C

Frequency Measurement – Hz

Range	Measuring Range	Resolution	Peak-to-Peak Voltage (square-wave signal)	Peak-to-Peak Voltage (sinusoidal signal)	Accuracy under Reference Conditions ±(... % rdg. +... d)
30 Hz	1.000 Hz ... 30.000 Hz	0.001 Hz	0.5 V ... 30 V	1 V ... 30 V	0.005 + 3
300 Hz	30.00 Hz ... 300.00 Hz	0.01 Hz	0.5 V ... 30 V	1 V ... 30 V	0.005 + 3
3 kHz	300.0 Hz ... 3000.0 Hz	0.1 Hz	0.5 V ... 30 V	1 V ... 30 V	0.005 + 3
50 kHz	3.0000 kHz ... 50.000 kHz	0.001 kHz	0.5 V ... 30 V	1 V ... 30 V	0.005 + 3

Pulse Counter – CPM

Range	Measuring Range	Resolution	Measuring Voltage	Accuracy under Reference Conditions ±(... % rdg. +... d)
3000 CPM	60.0 CPM ... 3100.0 CPM	0.1 CPM	up to 5 V	0.05 + 3

Internal impedance 100 kΩ

5.6.3 Dual Mode

Simultaneous Measuring/Calibration Functions

Measuring function	Calibration Signal							
	V \equiv	mA \rightarrow (Source)	mA \leftarrow (Sink)	Hz	CPM Pulse counter	Ω	RTD	TC
V _{DC}	■	■	■	■	■	■	■	■
mA	■	■	■	■	■	■	■	■
mA Loop	■	■	■	■	■	■	■	■
Frequency	■	■	■	■	■	■	■	■
CPM (pulse counter)	■	■	■	■	■	■	■	■
TC	□	□	□	□	□	□	□	
Ω	■	■	■	■	■	■	■	■
Ω , 3-wire	■	■	■	■	■	■	■	■
Ω , 4-wire	■	■	■	■	■	■	■	■
RTD	■	■	■	■	■	■	■	■
RTD, 3-wire	■	■	■	■	■	■	■	■
RTD, 4-wire	■	■	■	■	■	■	■	■

■ The calibration unit and measuring unit are electrically isolated.

□ The TC sockets are not electrically isolated from the calibration unit.

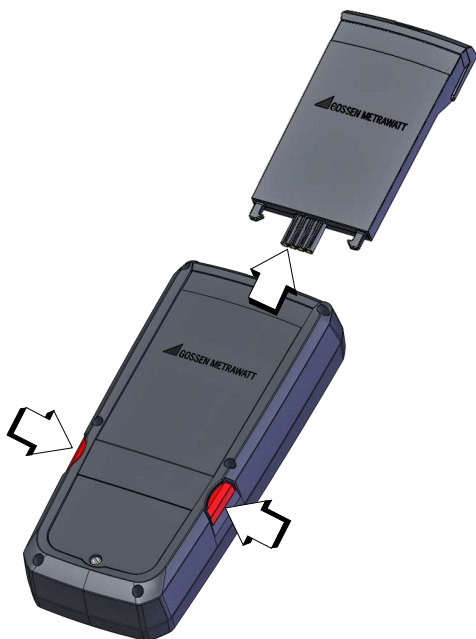
Voltage between the ground terminals of the measuring and calibration units must not exceed 50 V.

5.7 SWITCHING AND CHARGING RECHARGEABLE BATTERIES

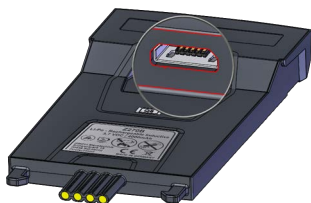


Note

Observe the currently applicable safety instructions for lithium-ion batteries!



1. Press both keys at the same time to unlock the battery pack.
2. Pull the battery pack out of the device.



3. Charge the battery pack using the micro USB cable and the USB PD power pack.



- ↳ The LED lights up green when the battery pack is fully charged.
4. Slide the battery pack into the device again until it audibly clicks into place.

6 SETUP

6.1 GENERAL SETUP – EXAMPLE: SETTING THE TIME

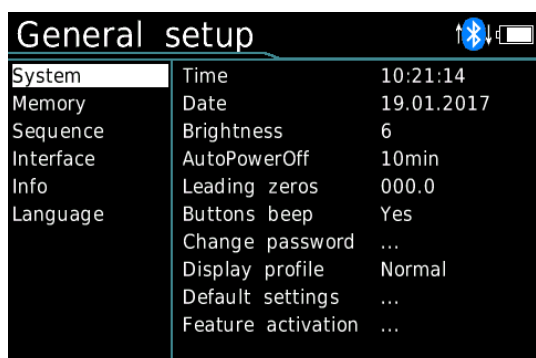
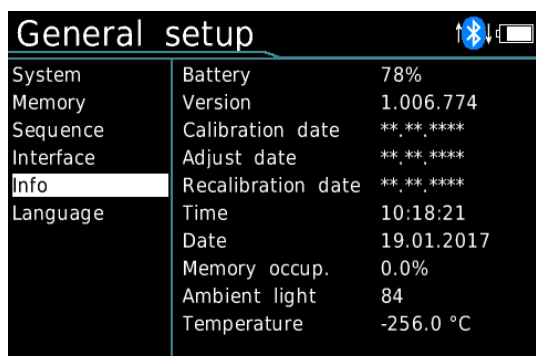
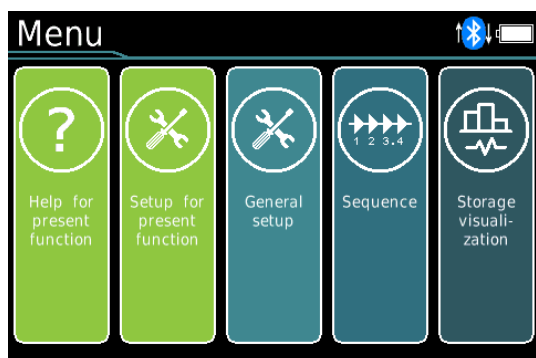


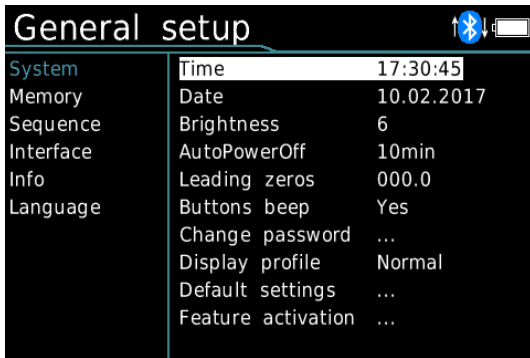
1. Turn the **rotary switch** out of the **OFF** position.
2. Press the **Menu** key.

3. Press the **General setup** softkey.

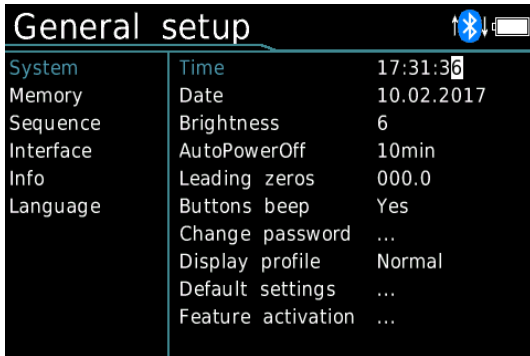
4. Use the **scroll keys** ▲▼ to switch between the setup parameters.

5. Use the **scroll key** ► to navigate to the settings options.

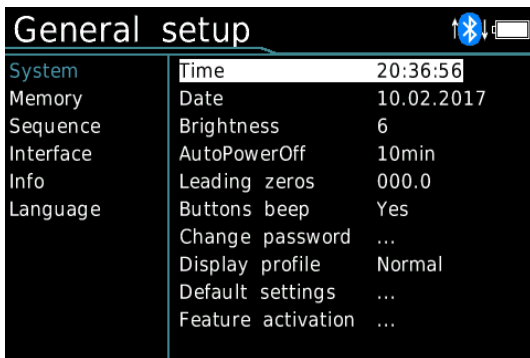




6. Use the **scroll keys** ▲▼ to navigate to the desired setting.
7. Press the **OK** key.



8. Use the **scroll keys** ▲▼◀▶ to make the desired setting.

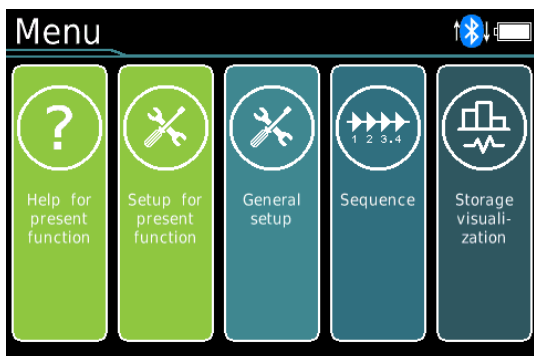


9. Press the **OK** key.
- ↳ The setting is made.
10. Press the **ESC** key or **scroll key** ◀ to return to the setup parameters.
11. Press the **ESC** key to return to the menu.
12. Press the **ESC** key to return to the selected function.

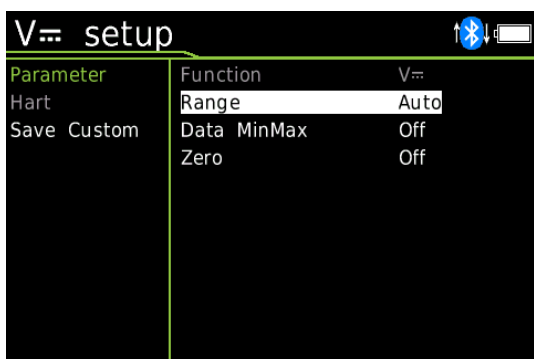
6.2 SETUP FOR PRESENT FUNCTION – EXAMPLE: SETTING THE RANGE



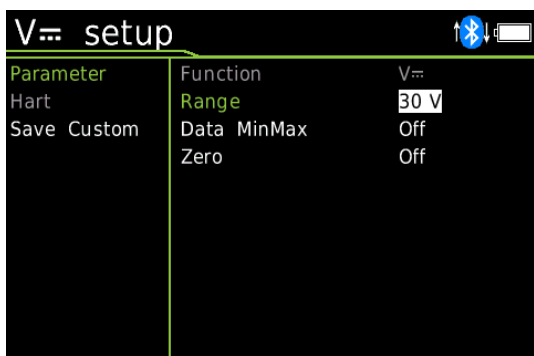
1. Turn the **rotary switch** to the desired function.
2. Press the **Menu** key.



3. Press the **Setup for present function** softkey.



4. Use the **scroll keys** ▲ ▼ ◀ ▶ to navigate to the desired setting.
5. Press the **OK** key.



6. Use the **scroll keys** ▲ ▼ to make the desired setting.
7. Press the **OK** key.
8. Press the **ESC** key to return to the menu.
9. Press the **ESC** key to return to the selected function.



Tip

The settings made in **Setup for present function** are lost when the device is switched off. If you want to retain settings, save them in one of the memory locations **C1 ... C4**. (⇒ "C1 ... C4" 30)

7 OPERATION



Note

The connections of the device must not be loaded with more than 30 V_{DC} 30 mA.

If these values are exceeded, a fuse will trip. The fuse will reset after a delay as soon as the overload has been removed.

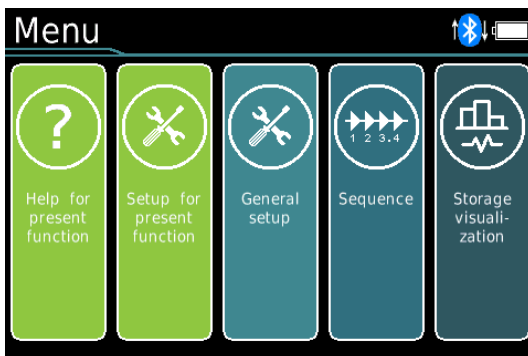
7.1 CALLING UP THE HELP TEXT AND CONNECTION DIAGRAM

For all functions, the device provides a help text, connection diagram, and a QR code to access the corresponding section of the operating instructions.

► You can access the help text, connection diagram, and QR code as follows:

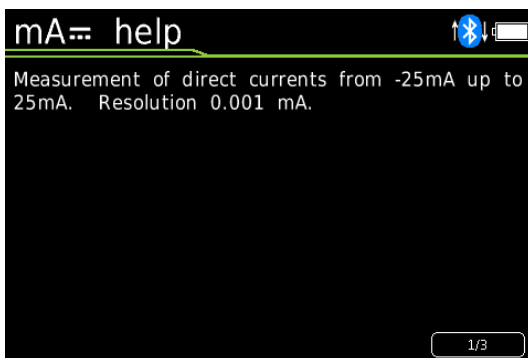


1. Turn the **rotary switch** to the desired function.



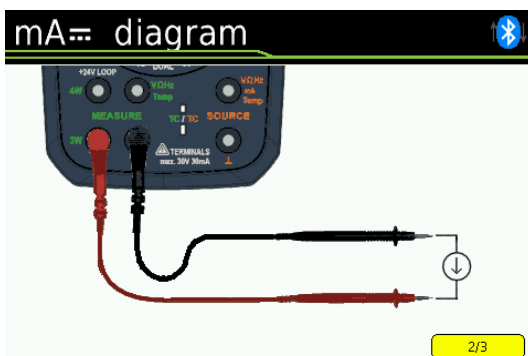
2. Press the **Menu** key.

3. Press the **Help for present function** softkey.



↳ The help text for the present function is displayed.

4. Press the corresponding softkey to switch to the next page.



↳ The connection diagram for the present function is displayed.

5. Press the corresponding softkey to switch to the next page.



↳ The QR code is displayed.

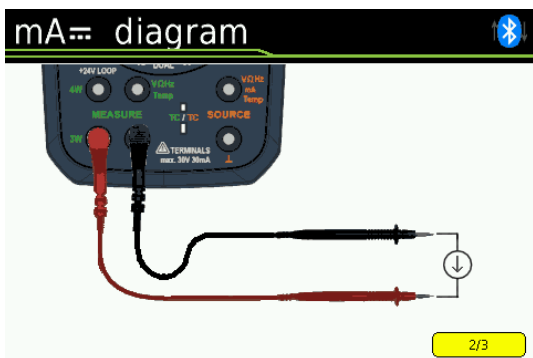
7.2 MEASURING ELECTRICAL QUANTITIES

Measuring functions are marked in **green** on the rotary switch.

► Here is how to perform a measurement with the device (example mA):



1. Turn the **rotary switch** to the desired function.



2. Make the desired settings in **Setup for present function** (⇒ "Setup for present function – Example: Setting the range" ¶25).

3. Connect the device to the object being measured as shown in the connection diagram (⇒ "Calling up the Help Text and Connection Diagram" ¶26).



4. Press the **STORE** to save the measured value.

↳ The current measured value is saved.



Tip

Stored measured values can be found under **Menu > Storage visualization**.

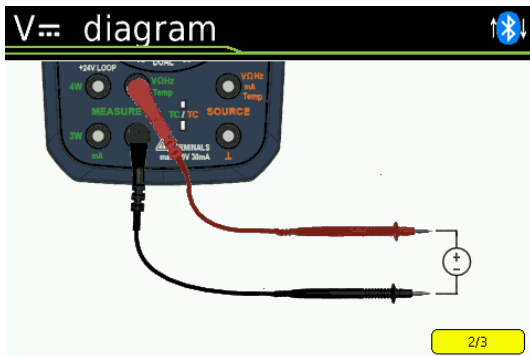
7.3 SIMULATING ELECTRICAL QUANTITIES

Calibration functions are marked in **orange** on the rotary switch.

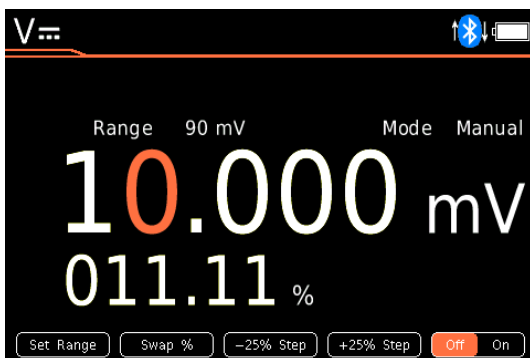
► Here is how to start a calibration signal with the device (example V):



1. Turn the **rotary switch** to the desired function.



2. Make the desired settings in **Setup for present function** (⇒ "Setup for present function – Example: Setting the range" 25).
3. Connect the device to the object being calibrated as shown in the connection diagram.(⇒ "Calling up the Help Text and Connection Diagram" 26).



4. Press the **Off/On** softkey to switch the calibration signal on/off.

Calibration Modes

The calibration functions have four modes:

- Manual – generates a single, fixed value
- Table – the value varies in accordance with the steps defined in the table
- Ramp – the value varies continuously, once or repeatedly, from the start value to the end value (rise, fall, dwell)
- Interval – the value varies from the start value to the end value (and back) in defined steps (time and amount)

The modes are set under **Menu > Setup for present function > Mode**.

7.4 DUAL

Measurements and the generation of values at the same or a different potential can be performed simultaneously. The calibration unit and measuring unit are electrically isolated.



Note

Voltage between the ground terminals of the measuring and calibration units must not exceed 50 V.

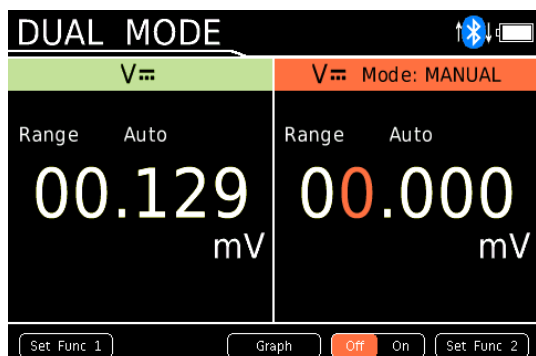
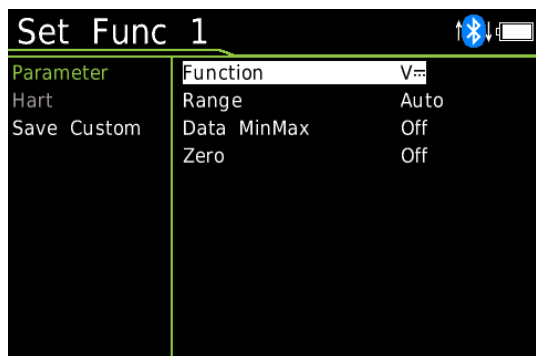
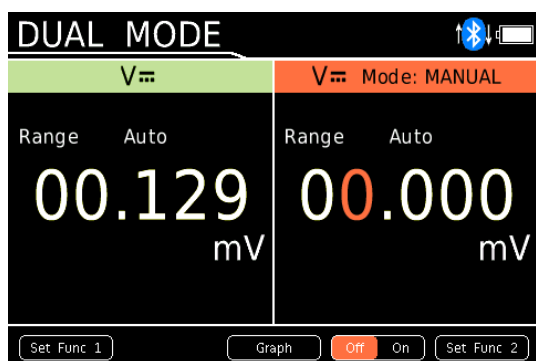


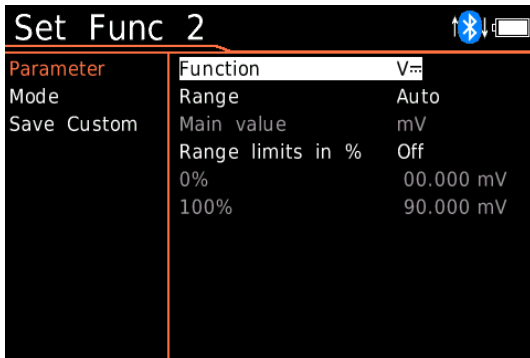
1. Turn the **rotary switch** to **DUAL**.

2. Press the **Set Func 1** key.

3. Select the desired measuring function under **Parameter > Function**.
4. Press the **ESC** until the Dual Mode window is displayed again.

5. Press the **Set Func 2** key.





6. Select the desired calibration function under **Parameter > Function**.
7. Press the **ESC** until the Dual Mode window is displayed again.
- ↳ Dual Mode is set up for the selected functions.



Tip

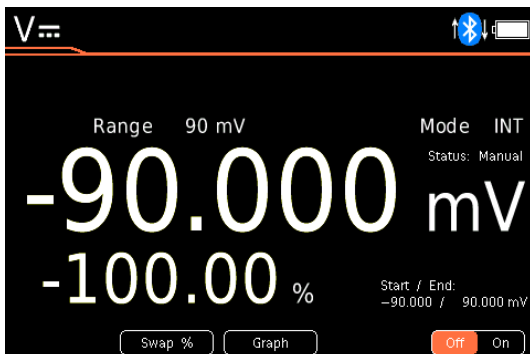
The settings for Dual Mode can be assigned to one of the rotary switch positions **C1 ... C4** via **Set Func 1** or **Set Func 2 > Save Custom**.

7.5 C1 ... C4

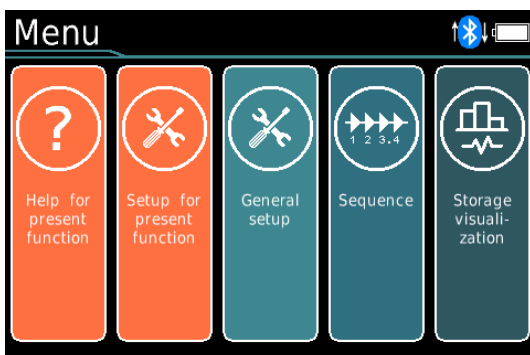
User-specific settings, modes, and parameters for functions can be predefined and stored in rotary switch positions **C1 ... C4**.



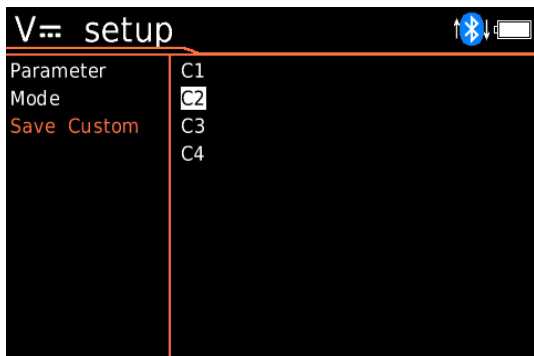
1. Turn the **rotary switch** to the desired function.



2. Make the desired settings for the modes and parameters.
3. Press the **Menu** key.



4. Press the **Setup for present function** softkey.



5. Press the **scroll keys** ▲▼ to select **Save Custom**.
6. Press the **scroll key** ► to switch to the memory locations.
7. Press the **scroll keys** ▲▼ to select the desired memory location.
8. Press the **OK** key.
↳ The function is assigned to the desired memory location.
9. Press the **ESC** key to return to the menu.

8 CONTACT, SUPPORT AND SERVICE

Gossen Metrawatt GmbH can be reached directly and simply – we have a single number for everything! Whether you require support or training, or have an individual inquiry, we can answer all of your questions here:

+49 911 8602-0 Monday to Thursday: 08:00 am – 4:00 pm
Friday: 08:00 am – 2:00 PM

Or contact us by e-mail at: info@gossenmetrawatt.com

Do you prefer support by e-mail?

Measuring and Test Technology: support@gossenmetrawatt.com

Industrial Measuring Technology: support.industrie@gossenmetrawatt.com

You can also request training courses and seminars by e-mail and online:

training@gossenmetrawatt.com

<https://www.gossenmetrawatt.de/en/knowledge/webinars>



Please contact GMC-I Service GmbH for repairs, replacement parts and calibration¹:

+49 911 817718-0 Beuthener Str. 41
service@gossenmetrawatt.com 90471 Nürnberg
<https://www.gmci-service.com/en/> Germany



1. DAKkS calibration laboratory per DIN EN ISO/IEC 17025
accredited by the Deutsche Akkreditierungsstelle GmbH under reference number D-K-15080-01-01

9 CERTIFICATIONS

9.1 CE DECLARATION

The device fulfills all requirements of applicable EU directives and national regulations. We confirm this with the CE mark.

Gossen Metrawatt GmbH	Begleitende Formulare zum PEP EU-Konformitätserklärung / EU Declaration of Conformity	Form E0F34
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Hersteller / Manufacturer:	Gossen Metrawatt GmbH
Anschrift / Address:	Südwestpark 15, 90449 Nürnberg
Produktbezeichnung/ Product Name:	Prozesskalibrator und Multimeter Process calibrator and multimeter
Typ / Type:	METRACAL CM PRO / TECH / XTRA
Bestell-Nr / Order No:	M275A / B / C / P / T / X
Zubehör / Accessories:	Z275K, Z270E, G , U , V

Der oben beschriebene Gegenstand der Erklärung* erfüllt die einschlägigen Harmonisierungsvorschriften der Union: / The object of the declaration** described above is in conformity with the relevant Union harmonisation legislation:

2014/53/EU	Funkanlagenrichtlinie	Radio Equipment Directive (RED)
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EN/Norm/Standard:
EN 301 489-1 V2.2.3 : 2019 , EN 301 489-17 V3.2.4 : 2020 , EN 300 328 V2.2.2 : 2019

Anforderungen an die elektromagnetische Verträglichkeit gemäß 2014/30/EU (EMV Richtlinie) /
Requirements for electromagnetic compatibility according to 2014/30/EU (EMC Directive)

EN/Norm/Standard:
EN IEC 61326-1 : 2021

2011/65/EU	RoHS - Richtlinie	RoHS Directive
(EU) 2015/863	Delegierte Richtlinie	Deligate Directive

EN/Norm/Standard:
EN IEC 63000 : 2018

Nürnberg, 10.02.2026
Ort, Datum / Place, Date:


Dr. Markus Diehl, Geschäftsführer / Managing Director

*) Die alleinige Verantwortung für die Ausstellung dieser Konformitätserklärung trägt der Hersteller. Sie beinhaltet jedoch keine Zusicherung von Eigenschaften. Die Sicherheitshinweise der mitgelieferten Produktdokumentationen sind zu beachten.

**) This Declaration of Conformity is issued under the sole responsibility of the manufacturer but does not include a property assurance. The safety notes given in the product documentation which are part of the supply, must be observed.

Datei: 26-1-M275X-CE-Entwurf	Ausgabe: 15.01.2021	Erstellt: Eckl	Freigabe: Weiß
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Figure 3: CE Declaration

10 DISPOSAL AND ENVIRONMENTAL PROTECTION

Proper disposal makes an important contribution to the protection of our environment and the conservation of natural resources.

ATTENTION

Environmental Damage

Improper disposal results in environmental damage.

- Follow the instructions concerning return and disposal included in this section.
-

10.1 DISPOSAL OF OLD DEVICES, BATTERIES, AND RECHARGEABLE BATTERIES

Old devices and (rechargeable) batteries contain valuable raw materials that can be recycled, as well as hazardous substances which can cause serious harm to human health and the environment, and they must be recycled and disposed of correctly.



The symbol depicting a crossed-out garbage can on wheels refers to the legal obligation of the owner or end-user not to dispose of old devices and (rechargeable) batteries with unsorted municipal waste ("household trash"). The batteries and rechargeable batteries must be removed from the old device (where possible) without destroying them and the old device and the (rechargeable) batteries must be disposed of separately. The type and chemical composition of the (rechargeable) battery are indicated on the battery's labeling. If the abbreviations "Pb" for lead, "Cd" for cadmium or "Hg" for mercury are included, the battery or rechargeable battery exceeds the trigger limit for the respective metal.

You are obligated to comply with respective local requirements and implement them correctly on site. Further information can be obtained from the responsible authorities or your local distributor, for example.

Please also observe the owner's or end user's responsibility with regard to deleting personal data, as well as any other sensitive data, from old devices before disposal.

10.2 DISPOSAL OF PACKAGING MATERIALS

Packaging and its components must be disposed of correctly, separate from unsorted municipal waste ("household trash"). You are obligated to comply with respective local requirements and implement them correctly on site. Further information can be obtained from the responsible authorities or your local distributor, for example.

We recommend retaining the packaging materials in case you might require servicing or calibration in the future.



WARNING

Danger of asphyxiation from foils and other packaging materials

Children and other vulnerable persons may suffocate if they wrap themselves in packaging materials, their components, or foils or if they pull these over their heads or swallow them.

- Keep packaging materials, their components, and foils out of the reach of babies, children, and other vulnerable persons.
-

10.3 REGULATIONS FOR THE FEDERAL REPUBLIC OF GERMANY

The following comments refer specifically to the legal situation in the Federal Republic of Germany.

Old Devices, Electrical or Electronic Accessories, and Batteries or Rechargeable Batteries

Old devices, electrical or electronic accessories, and (rechargeable) batteries used in Germany can be returned free of charge to Gossen Metrawatt GmbH or the service provider responsible for their disposal in compliance with applicable regulations, in particular laws concerning packaging and hazardous goods. Batteries and rechargeable batteries must be returned in the discharged state or with appropriate precautions against short circuiting. More information regarding returns can be found on our website.

Packaging Materials

Packaging that is not subject to system participation is returned to the appointed service provider. More information regarding returns can be found on our website.



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company names are the property of their respective owners.

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