# Magnescale

# μMATE<sup>+</sup> Measurement App μMATE<sup>+</sup> Measurement App

Read all the instructions in the manual carefully before use and strictly follow them. Be sure to keep this manual for future reference.

This instruction manual corresponds to Ver. 1.5 of the application software. For operating requirements, such as supported OS versions, and recommended specifications, refer to the listing on Google Play or the App Store.

Instruction Manual

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# 1. Outline

μMATE Mobile is a dedicated software app that enables operation of an LU20 digital indicator (hereafter, "measuring device") via Bluetooth from a tablet PC or smartphone (hereafter, "mobile terminal").

Target mobile terminal OS: Android, iOS

It allows to change measuring device setting values, perform operations during measurement, and acquire measurement data by remote operations from a mobile terminal.

# 1-1. System configuration



# 2. Installation and startup

# 2-1. µMATE Mobile installation

### For Android

Install "µMATE Mobile" from Google Play.

### For iOS

Install "µMATE Mobile" from the App Store.

# 2-2. Starting up µMATE Mobile

**1** Tap the "µMATE Mobile" icon created when the app was installed.

OS	lcon	
Android	Mobile	
iOS	Mobile	

µMATE Mobile opens.

# 3. Screen transitions



# 4. Connecting µMATE Mobile and a measuring device

For the measuring device settings, refer to the operating manual of the measuring device.

**1** Set the Bluetooth mode of the measuring device to "App mode".



- **2** Turn on the Bluetooth setting of the mobile terminal.
- **3** Select "Devices" on μMATE Mobile. The "Device" screen appears.



**4** Tap the magnifying glass tool " **Q** ".

The names<sup>(\*)</sup> of measuring devices available for connection are displayed in "Other Devices". \*: The names set in "Sensor ID" of the measuring devices.



If a confirmation about the location information service of the mobile terminal appears, turn on the location information service.

**5** Tap the Bluetooth mark of the target measuring unit for connection so that the mark changes to light blue.

A Bluetooth connection is established and the connected measuring unit automatically moves to "My Devices".



If the mark does not change to light blue, check the Bluetooth connection of the measuring device.

? When tapped, connected measuring devices sound a buzzer to inform which devices are connected.
: Indicates the signal strength. Strong Weak Weak 

The connection between  $\mu$ MATE Mobile and the measuring device is now complete.

### Reference

Once a measuring unit connected, it will be displayed in "My Devices" from the next startup onwards. Tap "Connect all My Devices" to automatically connect the measuring units displayed in "My Devices".

# 5. µMATE Mobile setup

# Make the $\mu$ MATE Mobile settings. Select "Settings" from the menu.



(Bold text: Defaults)

Item	Setting contents		Details
System Settings	Language	Japanese/English/ German	The default is the same as the language setting of the measuring device.
	Decimal Point	Dot/Comma	Sets the decimal point in screen display and CSV file output.
	Calibration		
	Notification	ON/ <b>OFF</b>	ON: When the number of days until the calibration date set for each measuring device falls below the set number of days, a message is displayed when that measuring device is connected.
	Alarm X days before calibration due date: X		The calibration date can be set only when using a DM10 measuring unit.
	Connect all devices at the start of app	ON/ <b>OFF</b>	
	Vibration	ON/ <b>OFF</b>	ON: When an operation button used for measurement is tapped, the mobile terminal vibrates.
	Reset maximum and minimum values at the start of drawing	ON/ <b>OFF</b>	ON: Resets the maximum and minimum values when graph drawing starts on the "Trend Chart" or "Simple circle measurement" screen.
Save Settings	Sampling Interval	0.1s / <b>0.5s</b> /1s /5s / 10s /30s /60s / 300s /600s	Sets the save interval for timer save for all measuring devices. This setting is used as the save interval for collective timer save. (Refer to "6-1-3. Collective operation of measuring devices".)
Export Settings	Delimiter	<b>Comma</b> /Semicolon/ Tab/Space	Sets the delimiter character in data output.
	Terminator	<b>CR</b> /LF/CR+LF	Sets the terminal character in data output.
	File Type	CSV/ZIP	Sets the output format.
Shortcut Key Input	Use	ON/ <b>OFF</b>	ON: Shows the shortcut key inputs.
Device Time Setting	Adjust time at connecting	ON/ <b>OFF</b>	ON: Adjusts the time on the device to the time on the smartphone when connecting the device.
Information	Version		Displays the $\mu$ MATE Mobile version.
	Privacy Policy (Link)		Launches the web browser and opens the Privacy Policy page of the Magnescale website corresponding to the selected language.
	Open Source License (Link)		Launches the browser and opens the license page of the open source software used.

# 6. Measurement

This section mainly describes the screens used for measurement. Each measuring device can be controlled from this app.

### Reference

Details of each function  $\Rightarrow$  Refer to the operating manual of the measuring device. Transition to each screen  $\Rightarrow$  Refer to "3. Screen transitions".

# 6-1. Before measurement

Multiple measuring devices can be connected to this app. Check the following settings and operations before starting measurement.

### 6-1-1. Setting the project name

The project name is saved with the measurement data. The measurement project name can be set on the "Numeric Display" or "Dial display" screen. It can also be set by scanning the barcode on the measurement subject with the camera.

The product name of the barcode is automatically input.

Scannable formats: UPAC-A, EAN-13, CODE 39, QR code, Data matrix

#### Numeric Display Project Name 6 Camera ফ্র MGS-DS805-R\_904518 COMP Project Name -0.0015 Real Item Setting details Project Name Tap the input field to enable input. Maximum number of input characters: 100 characters Tap the camera icon and then scan the barcode of the measurement item. Camera

#### <Settings screen> "Numeric Display" or "Dial display"

# 6-1-2. Checking the measuring device settings and information

Each connected measuring device can be set remotely from this app.

The set contents will be interlinked with the settings in the measuring device main unit. For details of setting items, refer to the operating manual of the measuring device.

$\equiv$ Numeric Display			← Personal	Settings
Project Name	$\bigcirc$	➡	<u>Measure</u>	
<u>MGS-DS805-R_904518</u>		~~~	Resolution	
	mm 🔍	২০১	Resolution	0.5µm
		Тар	Direction	• +
				0-
			Comparator	
			Edit Comparator	COMP1
			C1	0
		1		

#### <Settings screen> "Numeric Display" or "Dial display" Go to Personal Settings screen

# 6-1-3. Collective operation of measuring devices

Use of this app enables collective operation of connected measuring devices.

#### <Available collective operations>

Change device order, data save, timer save, hold, start, reset/preset

### <Settings screen> "Numeric Display" or "Dial display"



	ltem	Setting contents
1	Change device order	Tap to display on the screen of each measuring device. Long-press and slide it up and down to change the order of each measuring device. The measurement data display is not updated while changing the device order.
2	Shortcut Key Input	Pairing a Bluetooth keyboard or Bluetooth footswitch with the mobile terminal enables to perform each collective operation ((3) to (7)) and switch between "Numeric Display" and "Dial display" using shortcut keys (1 to 6). (To show/hide the shortcut key inputs, refer to "5. $\mu$ MATE Mobile setup".)
3	Collective data save	The measurement values (current, maximum, minimum, and P-P values) of all the connected measuring devices are saved each time this button is tapped. The saved data can be checked with "SMARTPHONE DATA" of "Data". (Refer to "7. Data save".)
4	Collective timer save	Starts timer save of the measurement values (current, maximum, minimum, and P-P values) of all connected measuring devices. The data is saved according to the data save settings in "Personal Settings" of each device. The saved data can be checked with "SMARTPHONE DATA" of "Data". (Refer to "6-1-2. Checking the measuring device settings and information" and "7. Data save".)
5	Collective hold	Starts/stops measurement value updating for all connected measuring devices. Updating: Hold Stopped: Hold
6	Collective start	Sets the maximum and minimum values to the current value and the P-P value to 0 for all connected measuring devices.
1	Collective reset/preset	<ul> <li>Sets the current, maximum, and minimum values to the preset values and the P-P value to 0 for all connected measuring devices.</li> <li>Reset indication: The preset values are 0.</li> <li>Preset indication: The preset values are other than 0.</li> <li>(For the preset value settings, refer to "6-1-2. Checking the measuring device settings and information".)</li> </ul>

# 6-2. Measurement display screens and main screen operations

This app enables to check the measurement values on four types of screens.

### 6-2-1. Numeric display

This screen displays the measurement values numerically for each connected measuring device.



The contents for the connected measuring device are displayed. For details of each item, refer to the operation manual of the measuring device.

### 6-2-2. Dial display

This screen displays the measurement values with a dial for each connected measuring device.



The contents for the connected measuring device are displayed. For details of each item, refer to the operation manual of the measuring device.

### 6-2-3. Trend chart



This screen draws the measurement values of all connected measuring devices in a single graph.

from the start to stop of drawing

1	Legend	Displays the legend of all connected measuring devices. Tap the device name in the legend to show/hide the chart for that device.
2	Start/stop drawing	Starts/stops drawing.
3	CLEAR	Clears the currently displayed chart. The chart cannot be cleared while drawing is in progress.
4	Data output	Outputs the measurement data in CSV file format. Tap to specify the output destination. Designate the output destination and output the data. However, output is not possible while drawing is in progress.
5	Upper/lower limit value settings	Tap to display the names of the connected measuring devices. Select the measuring device to set the upper and lower limit values. The upper and lower limit values of the selected measuring device are displayed with green bands in the graph.
6	X-axis display range	Sets the X-axis display range. Setting range: 5s / 10s / 30s / 60s
1	Y-axis display range	When auto is on, the display range is set automatically. Turn auto off to set the display range by numeric input.
8	Measurement results	Tap to display a screen showing the measurement results in the trend chart.

# 6-2-4. Simple circle measurement

This screen plots the measurement values of the connected measuring devices in a circle chart. Set the rotation speed and tap  $\triangleright$  to draw at an angle corresponding to the rotation speed. The drawing is overwritten every lap.



1	Legend	Displays legend of the upper and lower limit values and the connected measuring device. Tap the device name in the legend to show/hide the chart for that device.
2	Drawing progress bar	Displays the drawing progress through one lap of the circle chart.
3	Rotation speed	Sets the drawing speed. Setting range: 1 rpm to 600 rpm (Default: 10 rpm)
4	Upper/lower limit value setting	Select "AUTO" or the measuring device name.AUTO: Every lap, the current maximum and minimum values are automatically updated as the upper and lower limit values.Select a measuring device : The upper and lower limit values of the selected measuring device are displayed on the screen.
5	Upper/lower limit value display	Displays the upper and lower limit values of the selected measuring device.
6	Start/stop drawing	Starts/stops drawing.
1	Clear	Clears the currently displayed chart. The chart cannot be cleared while drawing is in progress.
8	Data output	Outputs the measurement data in CSV file format. Tap to specify the output destination. Designate the output destination and output the data. However, output is not possible while drawing is in progress.
9	Measurement results	Tap to display a screen showing the measurement results in the simple circle measurement.

# 7. Data save

Measured data can be saved as follows.



Collective save: When multiple measuring devices are connected, the measurement values of all the measuring devices can be saved simultaneously. The data is saved in "SMARTPHONE DATA" of "Data" in the app. The data is not saved on the microSD card of each measuring device.

To save the acquired data and the trend chart and simple circle measurement data, tap this button to designate the output destination and output a CSV format file.



#### Updating the display



Swipe down near the center of the screen to update the display.

# 8. Troubleshooting µMATE Mobile

If there are problems using  $\mu$ MATE Mobile, try checking the following and taking the suggested actions. If the problem is not resolved contact us.



 Operation is unstable.
 Try reconnecting.

 If this does not resolve the problem, try restarting the mobile terminal.

### **Calibration notification messages**

Message	Action
Until calibration due date, X days	<ul> <li>There are X days left until the calibration due date. Calibrate the measuring unit and set the next calibration date in the measuring unit.</li> <li>This notification can be turned on/off with the µMATE Mobile setting.</li> </ul>
The calibration due date for this device has passed. Please calibrate.	<ul> <li>The calibration due date has passed. Calibrate the measuring unit and set the next calibration date in the measuring unit.</li> <li>This notification can be turned on/off with the µMATE Mobile setting.</li> </ul>

#### Connection/communication error messages

Message	Action
Bluetooth is off	Turn on the Bluetooth function of the mobile terminal.
This app need access to the device's location information to communicate with Bluetooth devices.	Turn on the location information function of the mobile terminal.
Bluetooth and location permission are required. We do not store or use your location at all.	Permit use of this app's location information with the mobile terminal.
Can not delete connected device.	A connected measuring device cannot be deleted. Disconnect the device and then delete it.
Can not connect.	<ul> <li>Check the Bluetooth settings of the measuring device and the mobile terminal.</li> <li>Check whether there are obstacles between the measuring device and the mobile terminal.</li> <li>Check whether the measuring device is too far away from the mobile terminal.</li> </ul>
Up to 8 devices can be registered in My Device. If you connect to a new device, remove it from My Devices.	Check the number of measuring devices in "My Devices", and delete/add devices so that there are up to 8 devices.
No Connected Device	Connect with a measuring device before starting to draw the trend chart or simple circle measurement.

#### Other alert/error messages

Message	Action
Deletes all saved data. Is it OK?	This message appears when the button for deleting all data is tapped. Select whether or not to delete all the data.
The number of data exceeded the maximum number of data that can be stored.	Delete some saved measurement data.
Stops the timer for all connected devices.	This message appears when an attempt is made to switch from the measurement screen to a different screen while collective timer save is in progress. Do not switch the screen while collective timer save is in progress.

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