



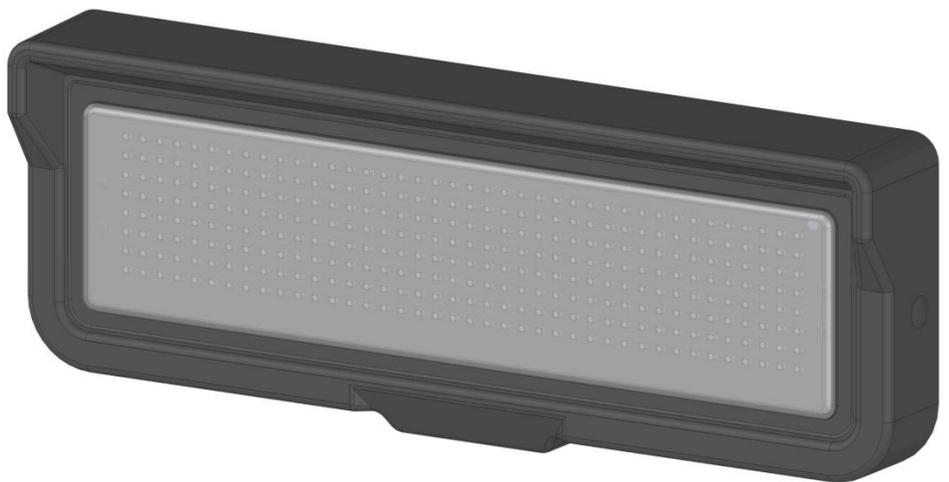
KAZEL[®]
by RGB Technology

OPERATION AND MAINTENANCE MANUAL

WA-1 MINI

Product code:

314-01-01



*Explanatory figure

Table of Contents

1.	Specifications	3
2.	Transport and storage	3
3.	Device construction	3
3.1	WA-1 MINI construction	3
3.1.1	List of display cables.....	3
3.2	WA-1 MINI dimensions	4
3.3	Mounting the display for weighing scales	4
3.3.1	Mounting bracket.....	4
4.	Mounting the device	4
4.1	WA-1 MINI application	4
4.2	Autolearn function.....	5
4.3	WA-1 MINI manual configuration	5
4.3.1	Defining communication protocols.....	5
4.3.1.1	Embedded user menu (micro switch).....	5
4.3.1.2	Interface transmission parameters and communication speed	6
4.3.1.3	RGB WagSet 2 software	6
5.	MINI extender.....	7
5.1	Extender Connectors	7
5.2	List of extender connectors in the WA-1 MINI display for weighing scales.....	7
5.2.1	RS-232 connector:	7
5.2.2	RS-485 / RS-422 connector:	7
5.2.3	0/20mA digital current loop:.....	7
6.	Automatic brightness control of the display for weighing scales	8
6.1	Lighting sensor	8
7.	Initial start-up	8
8.	Disposal and recycling	8
8.1	Recycling of packing materials.....	8
8.2	Disposal of the device.....	8
9.	Most common errors during the installation	8

1. Specifications

The display for weighing scales WA-1 MINI

Dimensions: ¹ :	404mm x 151mm x 40mm / 15.9in x 5.9in x 1.6in
Digit height:	60mm / 2.4in
Permissible input voltage range (long-term):	100 ÷ 240 VAC
Permissible input voltage range (short-term):	85 ÷ 264 VAC
Acceptable input voltage frequency range:	47 ÷ 63 Hz
Device operation temperature (ambient):	-25°C ÷ 45°C \ -13°F ÷ 113°F
Device operation temperature (device surface):	-25°C ÷ 60°C \ -13°F ÷ 140°F
Average power consumption:	5W
Casing tightness rating ² IP:	66
Device weight:	1.5kg \ 3.3lbs

2. Transport and storage

The device is sensitive to mechanical damages. Care should be taken to properly protect the device during transport so as to eliminate any damage. It is forbidden to transport the device components separately in a collective package – each component must be packed separately and cannot 'bump' during transportation.

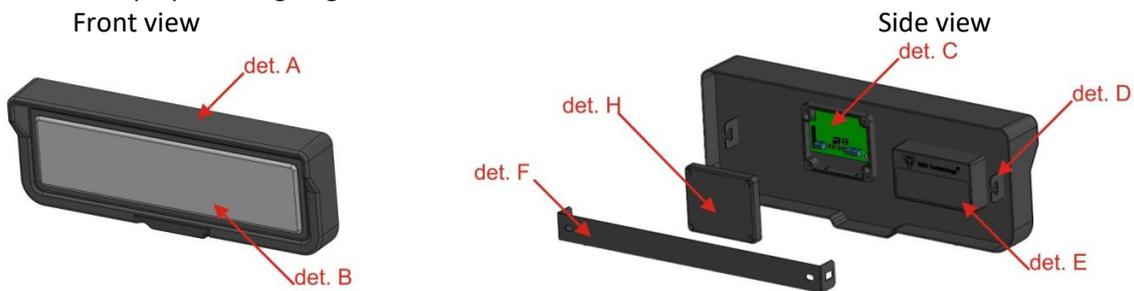
Due to protective packaging, the device should be stored in the temperature -25°C ÷ +60°C [-13°F ÷ 140°F] at the humidity below 99%RH.

3. Device construction

WA-1 MINI has a housing made of polycarbonate, which is resistant to UV radiation and has a high mechanical strength. By using the thermo-moulded housing and a rear sealing layer, the device, when properly assembled, meets the IP66 tightness requirements. The display can also operate at the temperatures from -20°C to + 60°C.

3.1 WA-1 MINI construction

The figure shows display for weighing scales WA-1 MINI³.



det. A – Prestige line housing; det. B – display; det. C – mini extender plate; det. D – mounting the bracket holder; det. E – power supply unit; det. F – mounting bracket

Fig. 1

3.1.1 List of display cables

1. Five-metre power cord (2 x 0.5mm² [2x18AWG], core markings: blue, brown), terminated with WAGO 222-412 connectors on each core,
2. Five-metre signal cable (2 x 0.5mm² [2x18AWG], RS232 interface; core markings: white -> RA, green -> RK),

¹ Integrated roof 55mm.

² Specified on the basis of EN 60529.

³ Explanatory figure.

3.2 WA-1 MINI dimensions

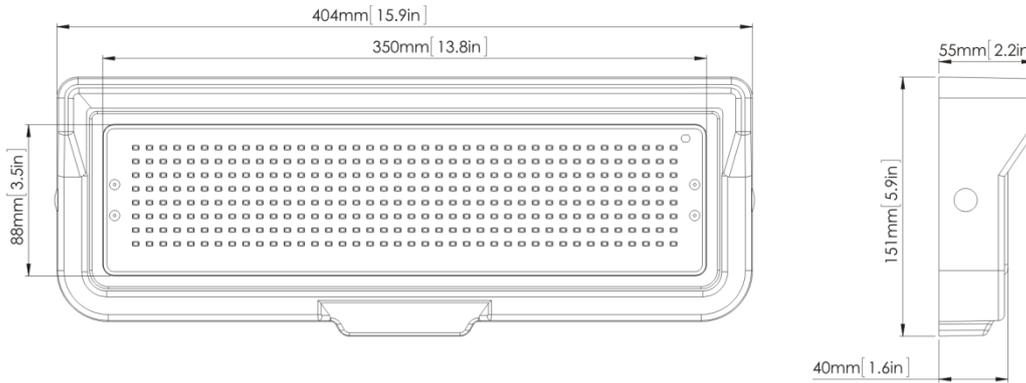


Fig. 2

3.3 Mounting the display for weighing scales

3.3.1 Mounting bracket

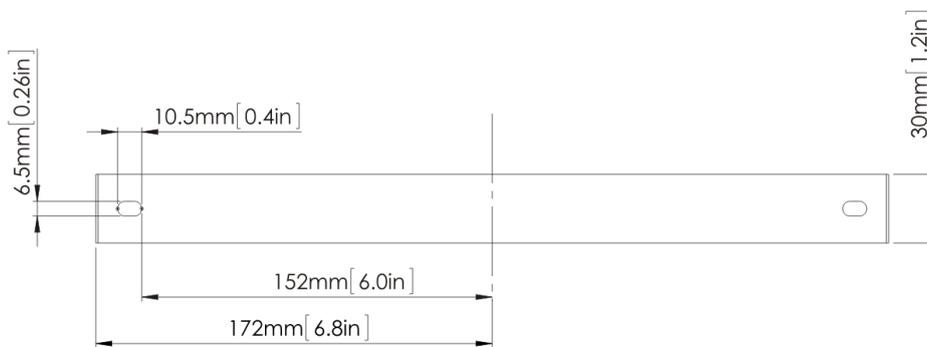


Fig. 3

4. Mounting the device

Correct mounting consists in installing the device on a flat surface with wires facing down. Only the proper mounting of the device ensures its proper operation and the maintenance of the device parameters, like, among others, the housing tightness rating to satisfy the IP code.

NOTICE!

Before any installation or maintenance operations refer to the manual supplied by the manufacturer. Improper connection to the mains power supply, incautious device installation, or improper use may cause the property damage, loss of health or death from electrical shock! In addition, any failure to follow the manufacturer's instructions may void your warranty.

NOTICE!

Keep in mind that the device should be mounted with the wires facing down.

NOTICE!

It is forbidden to make any additional mounting points or any holes in the device assembly components and in the device itself.

4.1 WA-1 MINI application

The devices of the WA series are designed to display measurement results transmitted by weighing terminals. The displays operate in the automatic mode by default (see Autolearn) and in typical cases do not require prior configuration. In special situations, it may be necessary to adjust the settings by means of the RGB WagSet 2 software or through the user menu embedded in the device.

4.2 Autolearn function

The Autolearn mode is enabled by default (position no. 0 is set in the 'proto' submenu). In order to disable it, the communication protocol must be set manually using the embedded user menu or the RGB WagSet 2 software.

When this mode is active, each time the device is started, it detects the parameters of the communication with the weighing terminal and analyses the structure of the data frames it sends. Then it adjusts the remote display's settings to enable correct communication with the terminal. The whole operation lasts several seconds, depending on the baud rate and the time intervals between consecutive frames. All remote display's communication interfaces are supported, i.e. RS232/RS485/CL and the Ethernet (optional interface)⁴.

The Autolearn procedure is as follows:

1. Baud rate detection - dot 1 flashing on the display
2. Baud rate verification - dot 1 solid, dot 2 flashing
3. Analysis of the protocol and its frame structure - dots 1 and 2 solid, dot 3 flashing

During the analysis of the protocol and its frame structure, the measurement unit sent is also recognised. The following tags are recognised - "kg" "K" "t" "T" "g" "gr" "G" "g" "lb" "L" "l" "oz" "o" "O". In case the terminal does not send a unit or sends a unit that is not recognised by the Autolearn function, the default unit will be set. Depending on the purchased regional version, it is "kg" or "lb".

The Autolearn mode supports the following transmission parameters:

Baud rate:	2400, 4800, 9600, 19200
Transmission parameters (data bits, parity, stop bits):	8N1, 7E1, 7O1

4.3 WA-1 MINI manual configuration

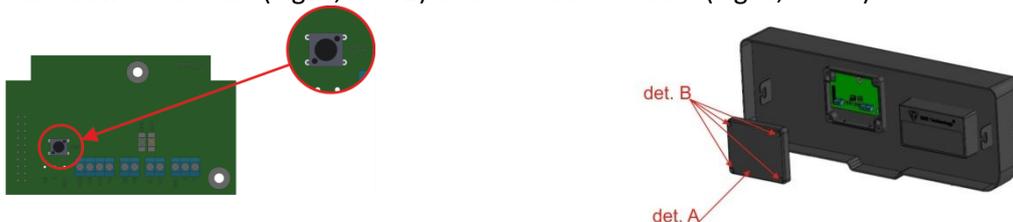
The configuration of the device using RGB WagSet 2 enables, among others:

- 1) Precise defining the communication protocol with any weighing terminal,
- 2) Defining the reaction to the events reported by the weighing terminal (eg. overloading, underloading, instability, etc.),
- 3) Entering advertising text.

4.3.1 Defining communication protocols

4.3.1.1 Embedded user menu (micro switch)

The user menu embedded in the device allows you to select the communication protocol, display the information about the software version, reset the device to the default settings. The micro switch, used to operate the menu, is located inside the display housing. It is described as "DEF" (Fig. 4). Before you start the configuration process, it is necessary to unscrew the screws (Fig. 4, det. B) and remove the cover (Fig. 4, det. A).



det. A – extender cover; det. B – screws fixing the cover

Fig. 4

⁴ If first the data is sent via the Ethernet to the display and then one of the other interfaces, i.e. RS232 / RS485 / CL is connected - the Autolearn procedure will be carried out again in order to determine the UART parameters and the protocol (the protocol for serial interfaces may differ from the Ethernet protocol).

NOTICE!

The disassembly of the housing must be made with the disconnected power supply. When doing this, take special caution because of the possibility of electric shock.

The user menu is called up by pressing and holding the "DEF" micro switch and releasing it when the desired option is displayed. Regardless of the option, you can exit the user menu by pressing the microbutton and releasing it when switching between the options (when switching between the options, the display does not display any information).

The user menu has the following options:

- 1) info - This option allows you to display the device software version. For the displays with the Ethernet interface, the network layer settings are additionally provided (an IP address, a network mask, a communication port for the RGB WagSet 2 software and a communication port for the weighing terminal). Exiting the info option happens automatically after displaying the information.
- 2) proto - This option allows you to select the display communication protocol to work with the selected weighing terminals (Tab. 1). You can change the protocol by short pressing the microbutton. Saving the selected protocol is accomplished by long holding down the microbutton (until the message "Saved" appears). Exiting the "proto" option happens automatically after 30 seconds of user inactivity.
- 3) custm - The "custm" option allows you to select the display communication protocol to work with the weighing terminals of the selected clients. These protocols have special, custom settings needed for the given client. Setting the protocol is done in the same way as in the case of the "proto" option - saving the selected protocol is accomplished by long holding down the microbutton (until the message "Saved" appears), while exiting the "custm" option happens automatically after 30 seconds of user inactivity.
- 4) reset - This option allows you to restore the default settings of the remote display and to activate the Autolearn mode. In addition, in the devices with the Ethernet interface, you can restore the default network layer settings (IP address: 192.168.0.11, network mask: 255.255.255.0, configuration port for the RGB WagSet 2 software: 2101, communication port for the weighing terminal: 2102). To restore the default settings you should, during the normal operation of the device, press the microbutton and hold it down until the message "reset" appears. Hold the button down until the message "reset" starts flashing and do not release it until the message "default" is displayed. Releasing the button before the message "default" appears will result in interrupting the process of restoring the default settings and the display will continue working according to the previously set parameters. Uploading new network settings is only possible using the RGB WagSet 2 software available at www.kazel-displays.com

4.3.1.2 Interface transmission parameters and communication speed

Interface	Transmission parameters	Communication speed
RS232, RS485, RS422, CL	Data bits: 7, Parity: Odd, Even Data bits: 8, Parity: None, Odd, Even Stop bits: 1	300, 600, 1200, 2400, 4800, 9600, 14400, 19200, 28800, 38400, 57600, 76800, 115200, 230400

Table 1

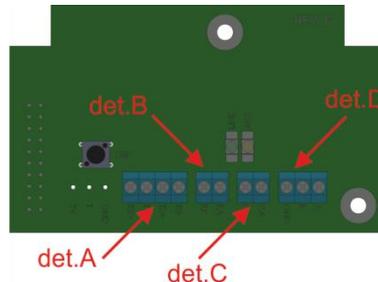
4.3.1.3 RGB WagSet 2 software

Using the WagSet 2 software, you can perform the advanced configuration of the device. The program allows you to change, among others: the parameters of displaying a weighing result, entering and editing advertising text, the display response to special situations such as: exceeded measurement range, etc. The detailed information on the configuration from your computer can be found in the manual supplied with the RGB WagSet 2 program.

5. MINI extender

The extender module is a component of the display for weighing scales, which enables the communication with peripheral devices.

5.1 Extender Connectors

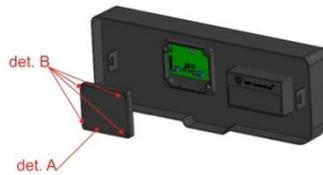


det. A – LAN (optional); det. B – RS-232; det. C – 0/20mA digital current loop; det. D – RS-485/RS-422

Fig. 5

5.2 List of extender connectors in the WA-1 MINI display for weighing scales

Table 2 presents an overview of the extender connectors in the WA-1 MINI display for weighing scales. These connectors are available after removing the cover (Fig. 6)



det. A – extender cover, det. B – cover fixing screws

Fig. 6

NOTICE!

The disassembly of the housing must be made with the disconnected power supply. When doing this, take special caution because of the possibility of electric shock

	Interface / Function	Connector symbols	Notes
STANDRAD ⁵	RS-232	RA	RDX line of the RS-232 interface. The line should be connected with the weighing terminal output.
		RK	GND line of the RS-232 interface
	0/20 mA (CL) digital current loop	CA	CL line of the current loop. The line should be connected with the weighing terminal TDX output
		CK	GND line of the current loop interface
	RS-485 RS-422	A	RS-485 and RS-422 interface non-inverting line
		B	RS-485 and RS-422 interface inverting line
		GND	GND line of the RS-485 and RS-232 interface for use at risk of a significant difference in the potentials of the display mass and the weighing terminal mass

Table 2

5.2.1 RS-232 connector:

For configuration purposes, the user connects with the display for weighing scales via the RS-232 connector (Fig. 5), using the computer with the RGB WagSet 2 software installed.

5.2.2 RS-485 / RS-422 connector:

For configuration purposes, the user connects with the display for weighing scales via the RS-485 or RS-422 connector (Fig. 5), using the computer with the RGB WagSet 2 software installed.

5.2.3 0/20mA digital current loop:

For communication purposes, the user connects with the display for weighing scales via the digital current loop connector (Fig. 5), using the computer with the RGB WagSet 2 software installed.

⁵ on the Extender PCB there are located all connectors available as standard (RS-232, RS-485, RS-422), 0/ 20mA (CL) digital current loop, however, only the RS-232 interface cable (without a tip) is led out.

6. Automatic brightness control of the display for weighing scales

6.1 Lighting sensor

In the standard version, the display for weighing scales has a lighting sensor included, which is placed on the LED panel. The device, in response to the intensity of daylight, adjusts the brightness of the display for weighing scales.

7. Initial start-up

Step 1: Make sure that all cables are properly connected,

Step 2: Make sure that all components have been installed in the correct orientation (**wires down**),

Step 3: Connect the device to the mains power source,

Step 4: If properly connected, the system will display moving arrows (<<<<), followed by the symbol of a hard space () shown in the bottom right corner, which means that the user has 7 seconds to send the configuration to the display for weighing scales. If the user does not enter the configuration, the display will start the Autolearn procedure. If the process is successful the "Ready" text is shown and then the unit is ready to show weighting results.

8. Disposal and recycling

8.1 Recycling of packing materials

The packaging materials must be segregated, then recycled in accordance with local regulations for waste disposal regulations.

8.2 Disposal of the device

The device can not be disposed with regular household waste!

According to Directive 2002 / 96 / EC (WEEE), when repair is not economically reasonable, user is obligated to hand over damaged or destroyed device to an appropriate disposal facility .



9. Most common errors during the installation

- 1 Incorrect configuration uploaded to the display for weighing scales.
- 2 Drilling additional mounting holes.

Because the product is constantly developed, presented data is subject to change without notice.