

DEVICE USER MANUAL

WA-1 MINI, WA-1 OPTIMA and WA-2 PROFESSIONAL REMOTE DISPLAYS

1. Introduction

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 standard installations do not require any prior configuration.

For advanced options, it is necessary to adjust the settings via the RGB WagSet 2 software or through the user menu embedded in the device.

The RGB WagSet 2 software enables advanced configuration of the device:

- precise defining of the communication protocol with any weighing terminal,
- restoring the default settings, displaying the software version, displaying the saved communication protocol, and changing the network settings,
- setting the response to events reported by the weighing terminal (e.g. overloading, underloading, instability, scale error),
- setting advertising text in the following languages: PL, EN, RU, DE, CZ, SK, HU, UA, LT, LV, NO, SE, FR, NL, BR, RO, ES, TR, FI.

The detailed information concerning the display configuration from a PC can be found in the manual supplied with the RGB WagSet 2 software. The way of connecting the display to a PC is described in item 3 of this manual.

The user menu embedded in the device allows the basic display configuration without using a PC:

- manual selection of the communication protocol from the list, enabling the operation with selected weighing terminals,
- restoring the default settings, displaying the software version, displaying the saved communication protocol and the communication ports, displaying the IP address and the subnet mask.

2. Autolearn mode

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)¹.

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' '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

¹ 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).

3. Embedded user menu

The microbutton used to operate the menu is located inside the display housing.

In case of WA-2 PROFESSIONAL and WA-1 OPTIMA displays, the access to the microbutton is possible through the technological hole located in the back of the housing (Fig. 1) Before you start the configuration, undo the screw with the gasket which seals the hole. When you finish using the embedded menu, it is necessary to re-insert the screw with the gasket in order to ensure the tightness of the device. To press the button, use a long, thin object such as a paper clip or a toothpick.

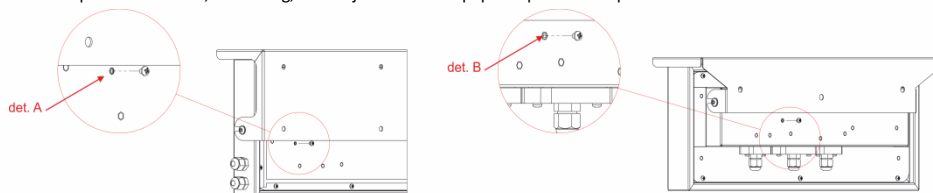


Fig. 1

det. A - technological hole in WA-2 PROFESSIONAL, **det. B** - technological hole in WA-1 OPTIMA

In case of WA-1 MINI display, to access the microbutton, the cover of junction box located at the back of the device must be removed.

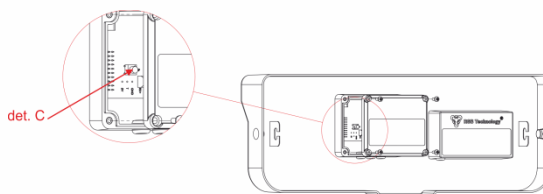


Fig. 2

det. C - DEF button in WA-1 MINI

The user menu has the following options:

- info,
- proto,
- custm,
- reset.

To activate a specific option, keep the microbutton pressed until this option appears on the screen ("info", "proto", "custm" or "reset"). The option is entered after releasing the microbutton when its name is being displayed. If the button is released when the screen is blank between two consecutive options, the display will return to its normal operation.

The "info" 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).

The „proto" 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.

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.

The „reset“ 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.

Tab. 1. List of supported protocols.

Item no.	Terminal name	Protocol	Item no.	Terminal name	Protocol
0	Autolearn mode		28	CAS NT570A	
1	Rhewa 83 Plus		29	Cardinal 825	
2	Radwag		30	Cardinal 204 225 748P	
3	HBM WE2108		31	AMCS Group	
4	HBM WE2110		32	A&D AD4329 AD4401	
5	Rinstrum 320 420	Auto1	33	Ian Fellows SG0	
6	SysTec / Pronova		34	Ian Fellows SG0 Status	
7	SysTec		35	Zemic	
8	Precia Molen	Master D	36	Pfister DWT800	
9	Precia Molen I300 Slave A+		37	Pfister DWT410	
10	Precia Molen I300 Master A+		38	Axis Long	
11	Dini Argeo	Standard String	39	Avery L225	
12	Mettler Toledo IND560		40	T – Scale U8	
13	Fawag	P2	41	Rice Lake 480 920i	
14	Leon Engineering	W-OUT	42	Vishay VT300	
15	Soehnle 3010 3011 3015	13	43	Belt Way	
16	Eurobil balance Iscale	Continua	44	Axtec	
17	Compatible with SMA protocol	SMA	45	GSE 460 465	
18	Sartorius	Remote Control	46	GSE 250	AUTO1
19	Sensocar		47	STB-22	
20	Flintec		48	Utilicell Matrix II	Format1
21	Schenck	Disomat B	49	Precia Molen i35	Master A+
22	Schenck Opus Serial		50	Precia Molen i35	Master D
23	Gravex GX25S		51	SMART SWIFT	
24	Gravex GX18		52	Epelsa: BC, BI, Dexal, Cyber, Orion, Orion Plus, Cyber Plus, V-36	Epelsa Cada LetraB1
25	IHG TMI LP7510				
26	Arpege MasterK				
27	Bilanciai D410				

4. Connecting the display to a computer for configuration purposes

Before configuring the display from RGB WagSet 2, connect it to a computer. The displays in the basic version should be connected to the RS232 port of the computer as shown in Fig. 3. The location of the RA and RK connectors of the remote display is shown in item 5 of this manual. The displays equipped with the Ethernet interface (option) should be connected to the RJ45 connector of the computer network card.

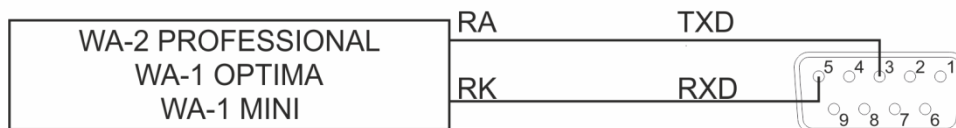


Fig. 3

The way of connecting the display without the Ethernet interface to a computer for configuration purposes.

5. List of the weighing scale display connectors

Table 2 contains the descriptions of the remote display connectors. The connectors are available:

- in WA-2 PROFESSIONAL after the disassembly of the housing
- in WA-1 MINI after removing the cover of the junction box
- in WA-1 OPTIMA after dismantling the connector housings

NOTICE! The housing should be disassembled when the power supply is disconnected. Take special care when doing this because of the danger of an electric shock.

Tab. 2. List of the WA-1 MINI, WA-1 MINI and WA-2 PROFFESIONAL display connectors.

Interface / Function	Cable marking	Connector marking	Notes
RS232	Black cable marked as <i>CABLE TYPE 07; 2x0,5</i>	RA	RXD line of the RS232 interface. The line should be connected with the weighing terminal TXD output (white core)
		RK	GND line of the RS232 interface (green core)
0/20mA digital current loop	Black cable marked as <i>CABLE TYPE 07; 2x0,5</i>	CA	CL line of the current loop. The line should be connected with the weighing terminal TXD output (white core)
		CK	GND line of the current loop interface (green core)
RS485 RS422	Black cable marked as <i>CABLE TYPE 11; 3x0,25</i>	A	RS485 and RS422 interface inverting line (red core)
		B	RS485 and RS422 interface non-inverting line (orange core)
		GND	GND line of the RS485 and RS422 interfaces for use at risk of a significant difference in the potentials of the display mass and the weighing terminal mass (black core)
Ethernet (option)	Grey cable	TX+	Pin no. 1 of the RJ-45 plug
		TX-	Pin no. 2 of the RJ-45 plug
		RX+	Pin no. 3 of the RJ-45 plug
		RX-	Pin no. 6 of the RJ-45 plug
230 VAC power supply for WA-1 MINI	Black cable marked as <i>POWER CABLE; 2x0,5</i> , terminated with wago connectors	L	Phase conductor (brown core)
		N	Neutral conductor (blue core)
230 VAC power supply for WA-2 PROFESSIONAL and WA-1 OPTIMA	Black cable marked as <i>CABLE TYPE 01; 3x1</i> terminated with wago connectors	L	Phase conductor (brown core)
		N	Neutral conductor (blue core)
		PE	Protective conductor (yellow-and-green core)
24 VDC power supply	Black cable marked as <i>CABLE TYPE 06; 2x0,5</i> terminated with wago connectors	+ VDC	+ VDC (red core)
		- GND	- GND (black core)

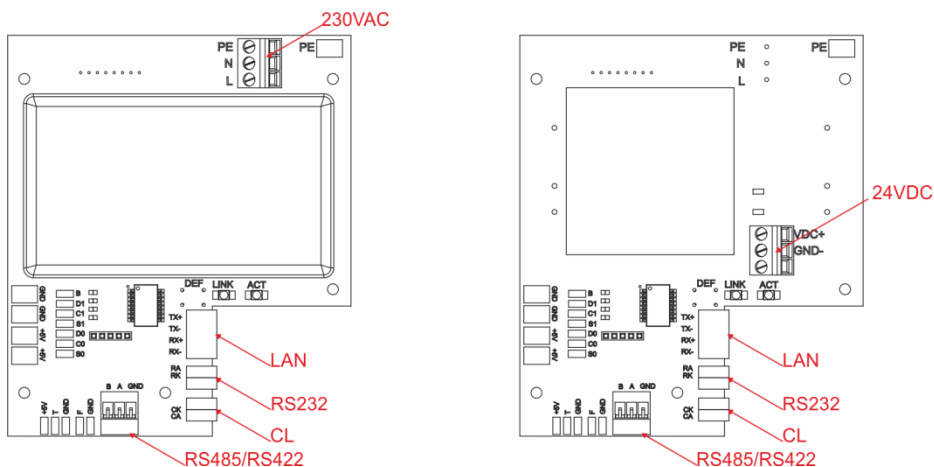


Fig. 4

WA-2 PROFESSIONAL display connectors

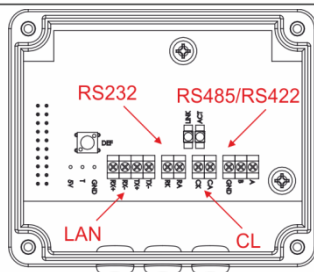


Fig. 5

WA-1 MINI display connectors

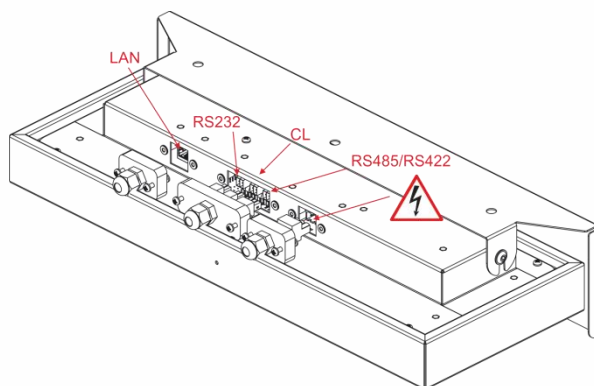


Fig. 6

WA-1 OPTIMA display connectors

Place for notes:

