

BT-470 REMOTE DISPLAY

Item# 841-100040 / 841-100041



OPERATION & SETUP GUIDE V1.6

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Introduction

BT-470 remote displays 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 WagSet RM software or through the user menu embedded in the device.

The WagSet RM software enables advanced configuration of the device:

- 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)
- Enabling Alpha characters to be displayed within the data string.
- Setting advertising text in the following languages: EN, PL, RU, DE, CZ, SK, HU, UA, LT, LV, NO, SE, FR, NL, BR, RO, ES, TR, FI.
- Changing the IP address and port of the weight indicator sending the data.
Default Indicator IP: 192.168.1.12 sending data on port 2102

The detailed information concerning the display configuration from a PC can be found in the manual supplied with the WagSet RM software. Click Help > Help or press the F1 button. The way of connecting the display to a PC is described in the “Connecting the display to a computer for configuration purposes” section 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, communication ports, displaying the IP address, and subnet mask.

Downloads

WagSet RM: [WagSet RM Software Download](#)

WagSet RM Configuration Files: [B-TEK String Normal Font](#) / [B-TEK String Bold Font](#)

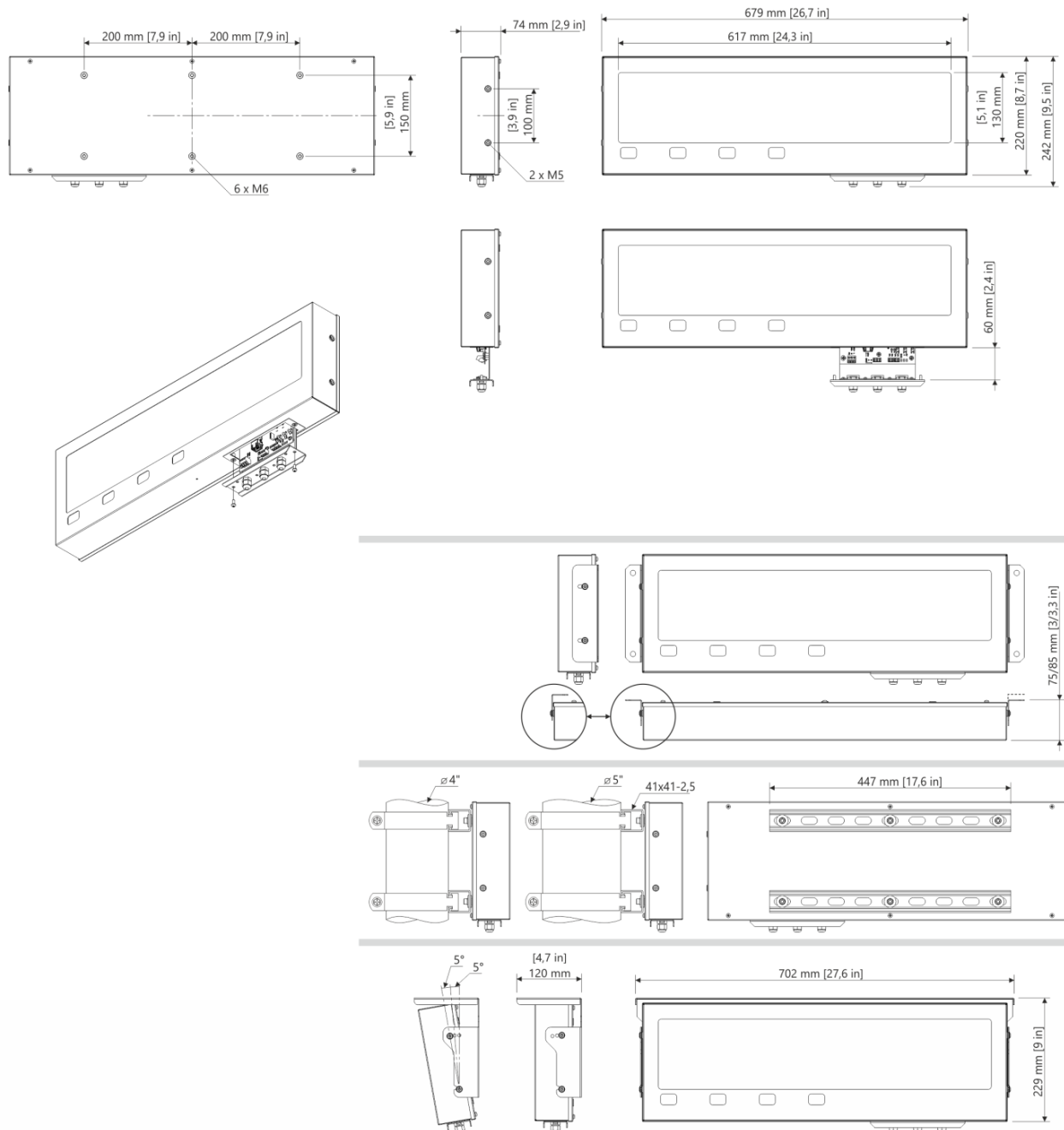
Devicer 2.08: [Devicer 2.08 Download](#)

Firmware: [Firmware v3.15](#)

Wall and Pole Mounting

The BT-470 Item# 841-100041 can be wall mounted by fastening the two angle brackets to the side of the display, then attaching to a sturdy wall. When installing without the visor, it is recommended to install in an area protected from direct sunlight and rain.

Item# 841-100040 includes a visor, and pole mounting hardware. The kit included brackets for a 3" pole, but other sizes can be purchased as needed. Attach the Unistrut to the back of the visor, then slide clamps into unistrut, tighten the bolt to secure to the pole. Then attach scoreboard to the visor, selecting one of the three holes to adjust display angle.



Autolearn Mode

The autolearn mode is enabled by default (position no. 0 is set in the 'proto' submenu). To disable it, the communication protocol must be set manually using the embedded user menu or the WagSet RM software.

When autolearn 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 Ethernet.

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 recognized. The following tags are recognized - "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 recognized by the autolearn function, the default unit will be set to 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

Note: If 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).

Embedded User Menu

The button used to operate the menu is located on the controller board inside the display housing and marked **B1**. To access, unscrew the two philips head screws and slide out the controller board drawer. Once you have finished the configuration, push the drawer back, making sure that the seal is not compromised.

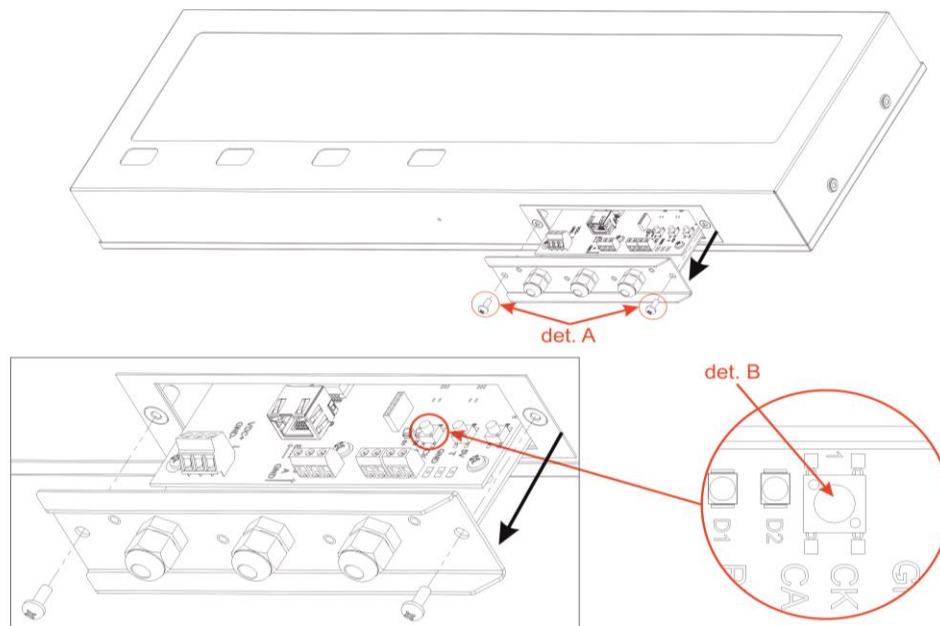


Fig. 1
Location of button B1

The user menu has the following options:

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

To activate a specific option, keep the button pressed until this option appears on the screen ("info", "proto", "custm" or "reset"). The option is entered after releasing the button 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.

"**info**" option allows you to display the device software version and the network layer settings (IP address, network mask, communication port for the WagSet RM software and communication port for the weighing terminal).

"**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 button. Saving the selected protocol is accomplished by long holding down the button (until the message

"Saved" appears). Exiting the "proto" option happens automatically after 30 seconds of user inactivity.

"**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 button (until the message "Saved" appears), while exiting the "custm" option happens automatically after 30 seconds of user inactivity.

Factory Default

"**reset**" option allows you to restore the default settings of the remote display and to activate the autolearn mode. The default network layer settings will also be restored (IP address: 192.168.1.11, network mask: 255.255.255.0, configuration port for the WagSet RM software: 2101, communication port for the weighing terminal: 2102). To restore the default settings you should press the B1 button and hold it down until the message "reset" appears during the normal operation of the device. 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 possible using the WagSet RM software or via web panel.

Seq. no.	Terminal name	Protocol	Seq. no.	Terminal name	Protocol
0	Autolearn function		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 the 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	Scheneck 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		53	B-tek String - Bold Font	Serial String
26	Arpege MasterK		54	B-tek String – Normal Font	Serial String
27	Bilanciai D410				

Note: "Proto" 53 is the B-TEK string bold font, "Proto" 54 is B-TEK string normal font, "Custm" 28 is the Bilanciai Extended String.

Note 2: B-TEK strings allow alpha characters to be displayed in place of weight data.

Connecting the Display to a Computer for Configuration Purposes

WagSet RM (Windows Operating System only)

WagSet RM: WagSet RM Software Download

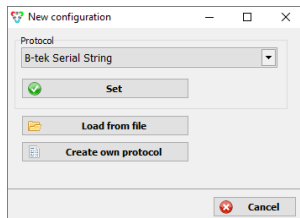
Before configuring the display from WagSet RM, connect it to a computer via Ethernet or RS232. When using RS232, connect to the port of the computer as shown in fig. 3. See “Remote Display Connections” for location of the RA and RK connections.



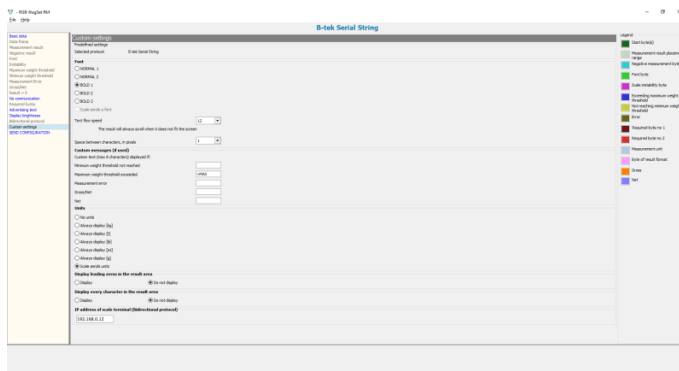
Fig. 2

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

Select “B-TEK Serial String” then Set



Port settings can be changed under Basic. If using ethernet to transmit your serial string, go to Custom settings to set your indicator’s IP address.

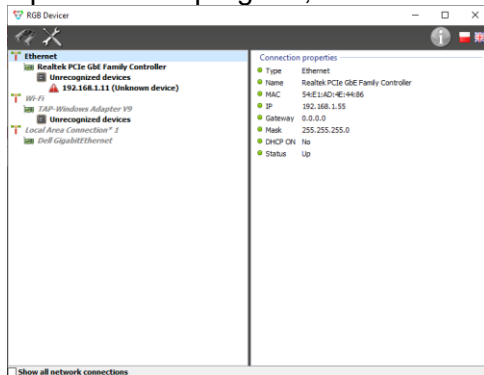


To display alpha characters, download one of the configuration files on page 3 of this manual, or select one of the B-TEK strings in configuration. Open the file, then select the measurement result tab, then select “display” under “Display every character in the result area”. Send configuration to the display. In your weight data stream, characters 3 thru 9 (same as weight digits) can be used to display messages on the display.

Web Panel Configuration Method

To access the web panel, follow the instructions below:

1. In the network card properties select "Internet Protocol Version 4 (TCP/IPv4), and click "Properties".
2. In the "Internet Protocol Version 4 Properties", select "Use the following IP address" option, and then complete the following fields: IP address: 192.168.1.55, Subnet mask: 255.255.255.0 and confirm changes.
3. Download **Devicer 2.08** [Devicer 2.08 Download](#).
4. Open Devicer program, then click the binocular icon to search.



5. Double click the IP address of your scoreboard.
6. When the web browser opens enter: login: **admin** pass: **dbps**

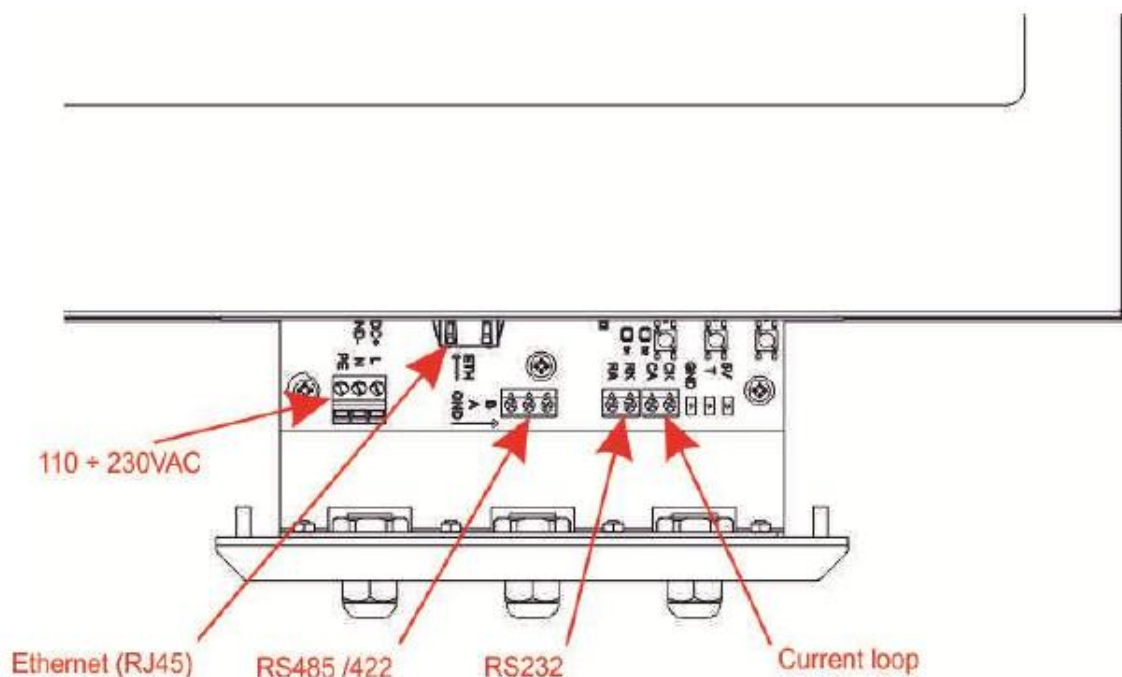
In the web browser, network settings can be modified, password can be changed (not recommended), Protocols can be selected, Status information, Update firmware, and factory default the display.

Note: The BT-470 works best with a Google Chrome browser. Other types might not connect correctly.

Remote Display Connections

NOTICE! The controller board should only be accessed when the power supply is disconnected. Take special care when doing this because of the danger of electric shock.

Interface / Function	Connector marking	Notes
RS232	RXD	RXD line of the RS232 interface. The line should be connected to the weighing terminal TXD output
	GND	GND line of the RS232 interface
0/20mA digital current loop	CL+	CL line of the current loop. The line should be connected to the weighing terminal TXD output
	CL-	GND line of the current loop interface
RS485 RS422	A+	RS485 and RS422 interface non-inverting line, Weighing Terminals (+) output
	B-	RS485 and RS422 interface inverting line, Weighing Terminals (-) output
	GND	GND line of the RS485 and RS422 interfaces. Not recommended for use at risk of a significant difference in ground potential of the display ground and weighing terminal ground
Ethernet	RJ45	RJ45 connector
110 ÷ 230 VAC power supply	L	Phase conductor
	N	Neutral conductor
	PE	Protective conductor



Ethernet Settings to Transmit Weight Data

- Default display IP is 192.168.1.11, default gateway to 192.168.1.1
- Default weighing terminal IP set to 192.168.1.12. Data port 2102. Select "Proto 53", or "Proto 54" protocol, then send the B-TEK String continuously. The indicator must be set as server transmitting on port 2102, the remote is client.
- The transmitting indicator IP address can be changed using the Devicer or Wagset software.

Replacement Part Item Numbers

Part Numbers	Description	
841-100040	BT-470 4.7" LED ARRAY REMOTE DISPLAY w/VISOR, 3" POLE MNT BRACKETS, & ANNUNCIATORS	
841-100041	BT-470 4.7" LED ARRAY REMOTE DISPLAY w/ ANNUNCIATORS	
841-500074	BT-470 4.7" VISOR	
841-500075	BT-470 4.7" POLE MOUNT KIT	
841-500076	2" POLE MOUNT BRACKETS (ORDER TWO PER SCOREBOARD)	
841-500077	3" POLE MOUNT BRACKETS (ORDER TWO PER SCOREBOARD)	
841-500078	4" POLE MOUNTBRACKETS (ORDER TWO PER SCOREBOARD)	
841-500079	5" POLE MOUNTBRACKETS (ORDER TWO PER SCOREBOARD)	
841-500080	BT-470 MAIN BOARD	1
841-500081	BT-470 DISPLAY BOARD	2
841-500082	BT-470 POWER SUPPLY BOARD	3

