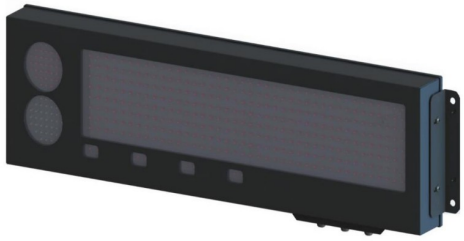
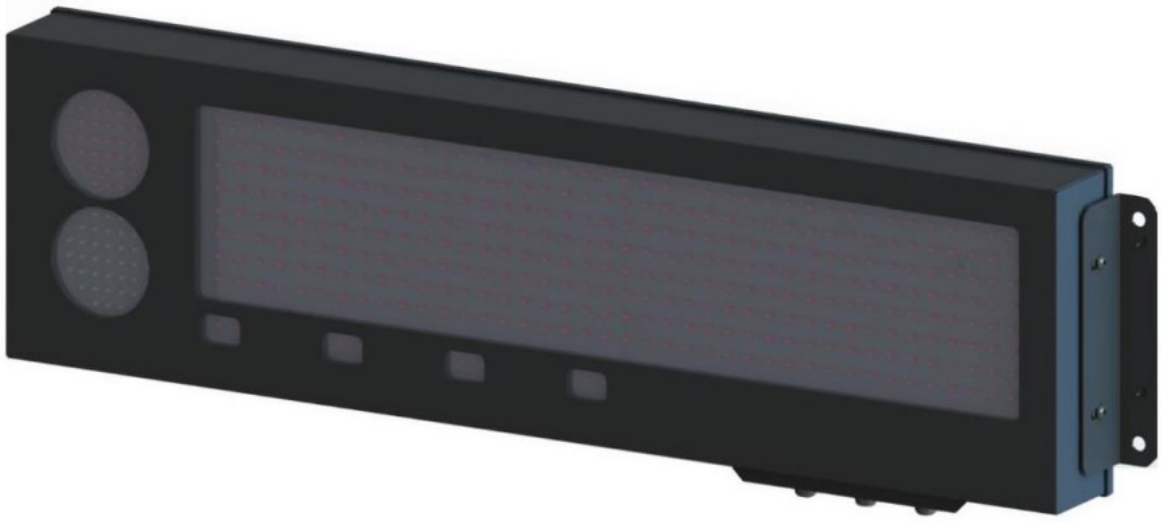


B-TEK BT-470TL Remote Display Instruction Manual

BT-470TL REMOTE DISPLAY
Item# 841-100043 / 841-100044



OPERATION & SETUP GUIDE V1.0

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Introduction

BT-470TL remote display is designed to display measurement results transmitted by weighing terminals. The display operates in the automatic mode by default (see Autolearn) and in standard installations does not require prior configuration. For advanced options, it is necessary to adjust the settings via WagSet software (from version v3.00), or through the user menu embedded in the device, or Web browser.
The WagSet 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

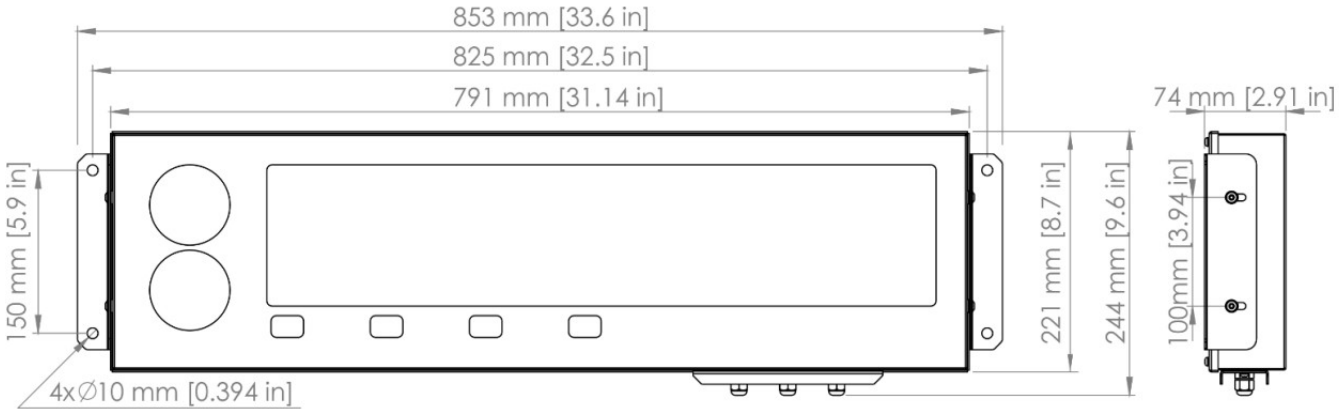
The detailed information concerning the display configuration from a PC can be found in the manual supplied with the WagSet software. Click Help > Help or press the F1 button. The way of connecting the display to a PC is described in the “Connecting the display to a computer for configuration purposes” 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.

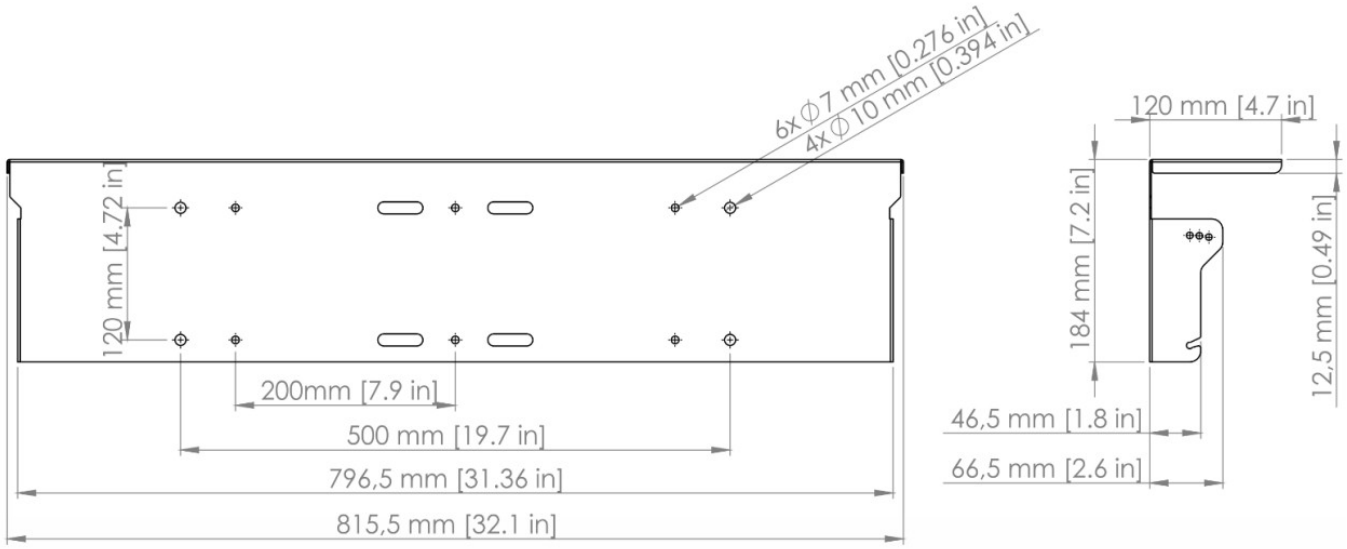
Downloads
WagSet: **WagSet Software Download**
Devicer 2.08: **Devicer 2.08 Download**
Firmware: **Firmware_v3.16**

Wall Mounting

The BT-470 Item# 841-100044 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# 841-100043 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.

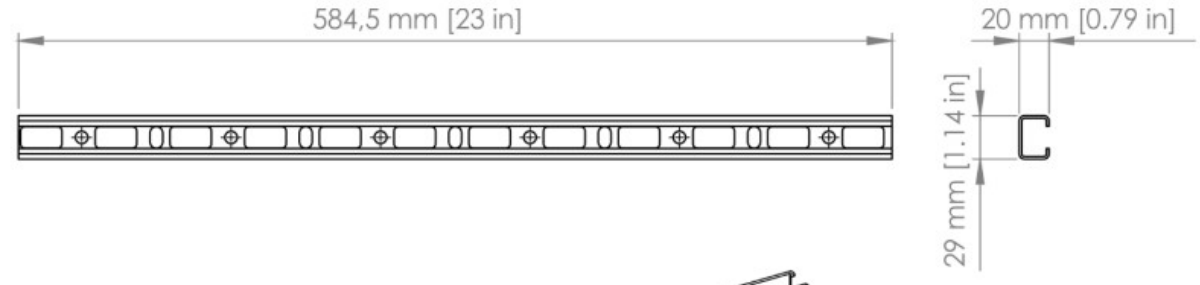


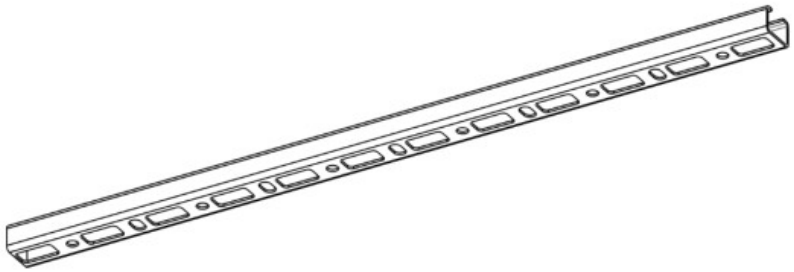
Optional Visor for pole or wall mounting

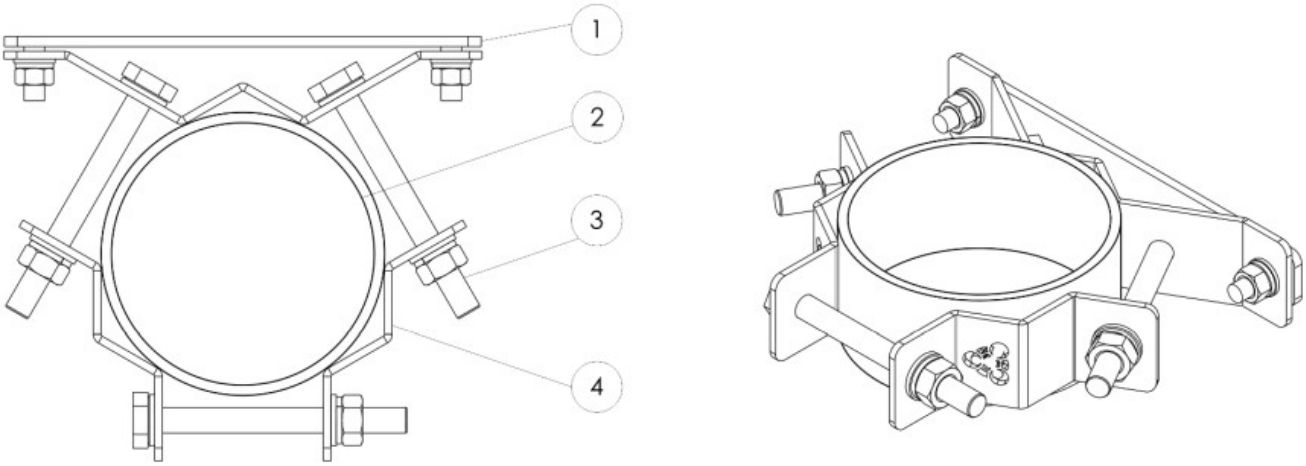


Pole Mounting

The mounting rails are fitted directly to the rear part of the device housing with the screws included in the set.
They enable the installation of mounting clamps, which are used to install the device on a pole.
Two mounting rails are provided for each remote.







Key:

1. flat bar with threaded pivots to be inserted into the mounting rail,
2. pipe / pole,
3. mounting bolts with a set of nuts and washers,
4. mounting elements of the fastening.

The mounting clamps for pipes are available in the following size:
• 107-01-25-001 – Mounting clamps for mounting the device on poles 2” – 4” (60 – 129 mm in diameter).
In order to properly install the device on the pole, two rails and two mounting clamps should be used.

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 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’ ‘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” function detects gross/net measurements if the following markers in the frame:
– for the Net measurement: “N” from the ASCII table,
– for the Gross measurement: “G” from the ASCII table.
The “Autolearn” function detects Traffic Light status if the following markers in the frame:
– Green: “B” from the ASCII table,
– Red: “R” from the ASCII table.
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.

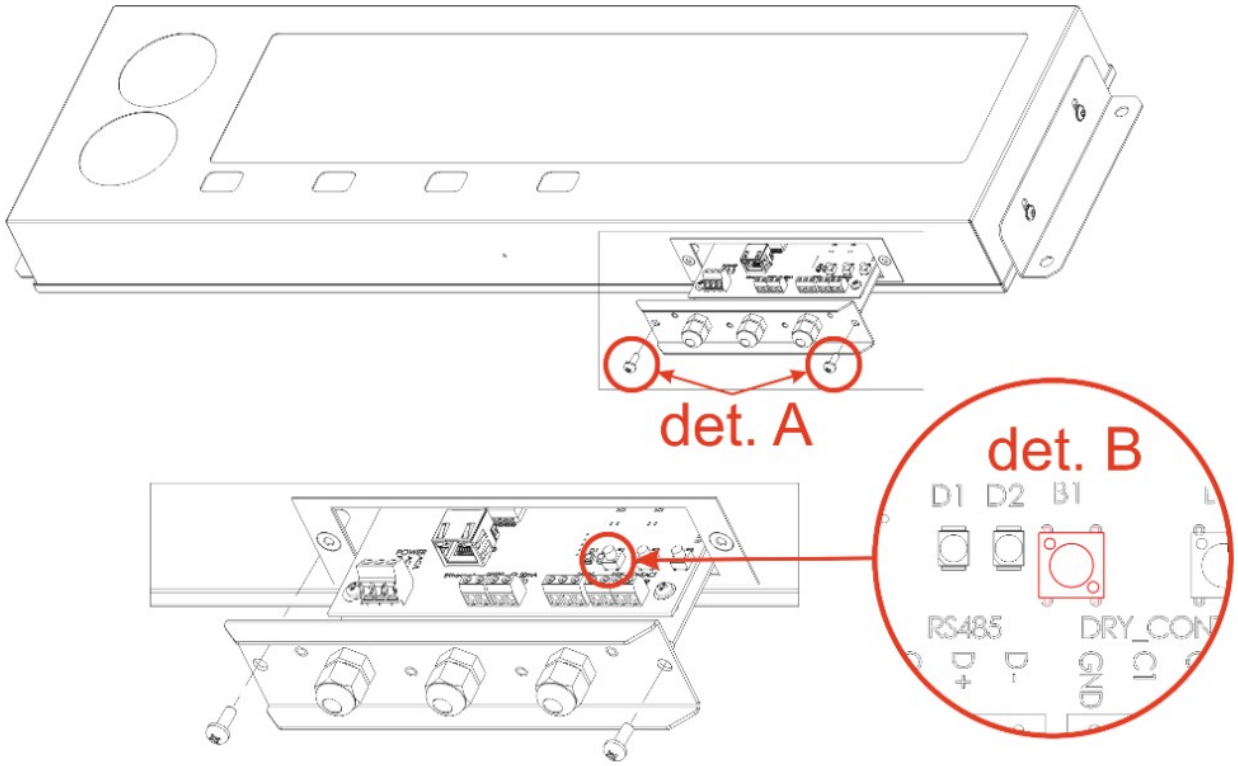


Fig. 1
Location of button B1

The user menu has the following options:

- info

- proto
- custm
- lights
- 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 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 messag
“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.
“lights” option allows you to choose the configuration of the traffic lights. Three profiles are available:

1. lights: if there is no communication for more than 0.5 second, the red light will show,
2. lights: if there is no communication for more than 3 seconds, the “X” characters will be displayed on both red and green light,
3. lights: if there is no communication, the status of the traffic light will not change.

Switching between the individual profiles is done by pressing the “B1” micro button. Saving the selected profile is accomplished by long holding down the “B1” micro button, until the message
“Saved” appears. Exiting the “lights” option comes after 30 seconds of the 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 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 software or via web panel.

List of the supported protocols

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.

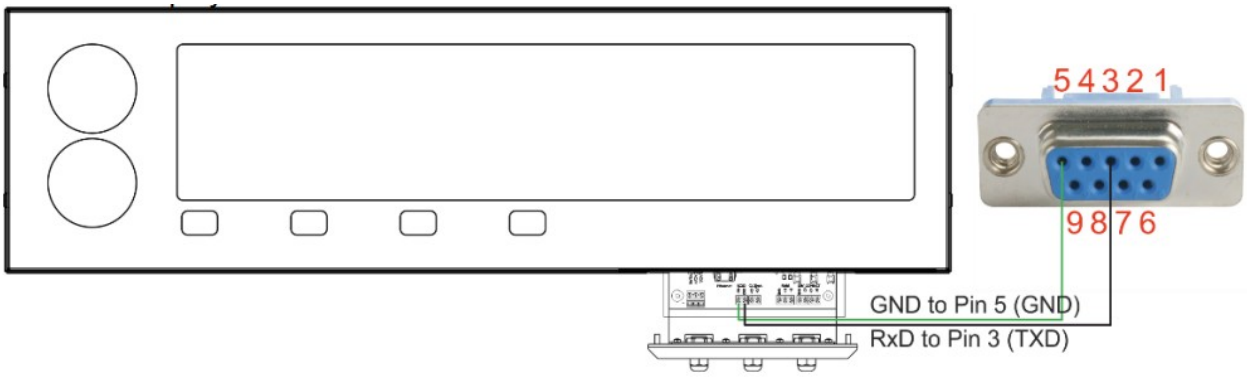
Seq.no.	Terminal name	Protocol
0	Autolearn function	
1	Rhewa 83 Plus	
2	Radwag	

3	HBM WE2108	
4	HBM WE2110	
5	Rinstrum 320 420	Auto1
6	SysTec / Pronova	
7	SysTec	
8	Precia Molen	Master D
9	Precia Molen I300 Slave A+	
10	Precia Molen I300 Master A+	
11	Dini Argeo	Standard String
12	Mettler Toledo IND560	
13	Fawag	P2
14	Leon Engineering	W-OUT
15	Soehnle 3010 3011 3015	13
16	Eurobil bilance Iscale	Continua
17	Compatible with the SMA protocol	SMA
18	Sartosius	Remote Control
19	Sensocar	
20	Flintec	
21	Schenck	Disomat B
22	Scheneck Opus Serial	
23	Gravex GX2SS	
24	Gravex GX18	
25	IHG TMI LP7510	
26	Arpege MasterK	
27	Bilanciai D410	
28	CAS NT570A	
29	Cardinal 825	
30	Cardinal 204 225 748P	
31	AMCS Group	
32	A&D AD4329 AD4401	
33	Ian Fellows SG0	
34	Ian Fellows SG0 Status	

35	Zemic	
36	Pfister DWT800	
37	Pfister DWT410	
38	Axis Long	
39	Avery L225	
40	T – Scale U8	
41	Rice Lake 480 920i	
42	Vishay VT300	
43	Belt Way	
44	Axtec	
45	GSE 460 465	
46	GSE 250	AUTO1
47	STB-22	
48	Utilcell Matrix II	Format1
49	Precia Molen i35	Master A+
50	Precia Molen i35	Master D
51	SMART SWIFT	
52	Epelsa: BC, BI, Dexal, Cyber, Orion, Orion Plus, Cyber Plus , V-36	Epelsa Cada LetraB1
53	B-tek String – Bold Font	Serial String
54	B-tek String – Normal Font	Serial String

Connecting the Display to a Computer for Configuration Purposes

WagSet (Windows Operating System only)
WagSet Software Download
Before configuring the display from WagSet, connect it to a computer via Ethernet or RS232.
When using RS232, connect to the port of the computer as shown in the fig. below. See “Remote Display Connections” for location of the RxD and GND connections.



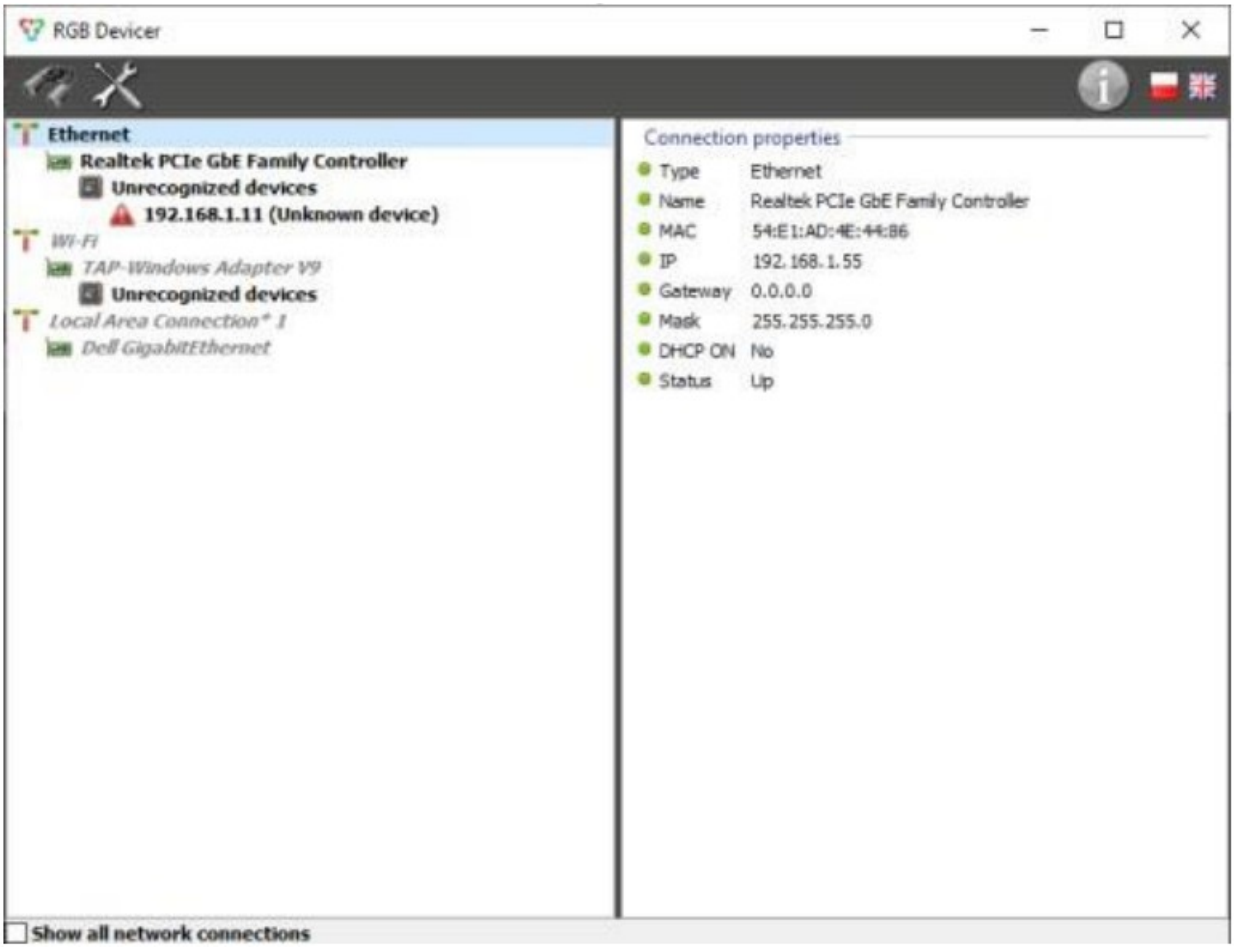
To display alpha characters, select one of the B-TEK strings in configuration. Open the file, then select the measurement result tab, then select “display” under “Display every character in the result area”. Send

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.



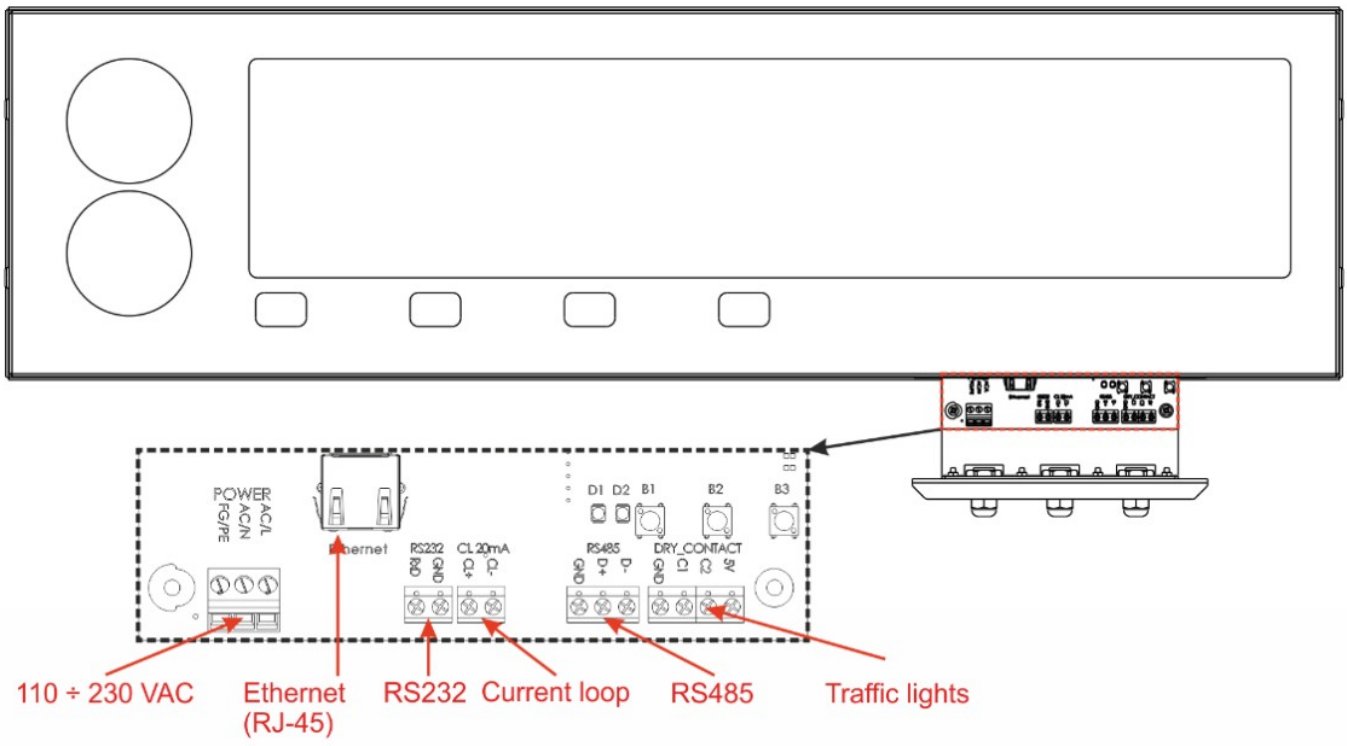
5. Double click the IP address of your scoreboard.
6. When the web browser opens enter: login: admin pass: dbps

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
RS-232	RxD	RxD line of the RS-232 interface. The line should be connected with the weighing terminal TXD output.
	GND	GND line of the RS-232 interface.
0/20mA (CL) digital current loop	CL+	CL line of the current loop. The line should be connected with the weigh ing terminal TXD output.
	CL-	GND line of the current loop interface.
RS 485 RS-422	D+	RS-485 and RS-422 interface non-inverting line.
	D-	RS-485 and RS-422 interface inverting line.
	GND	GND line of the RS-485 and RS-422 interfaces for use at risk of a signif icant difference in the potentials of the display and the weighing termina l.
Dry-contact	GND	GND line of the operator panel.
	CI	Signal line activating the red light.
	C2	Signal line activating the green light
	5V	– not used –
Ethernet	Ethernet	RJ-45 socket.
Power supply 110+ 230 VAC	L	Phase conductor.
	N	Neutral conductor.
	PE	Protective conductor.

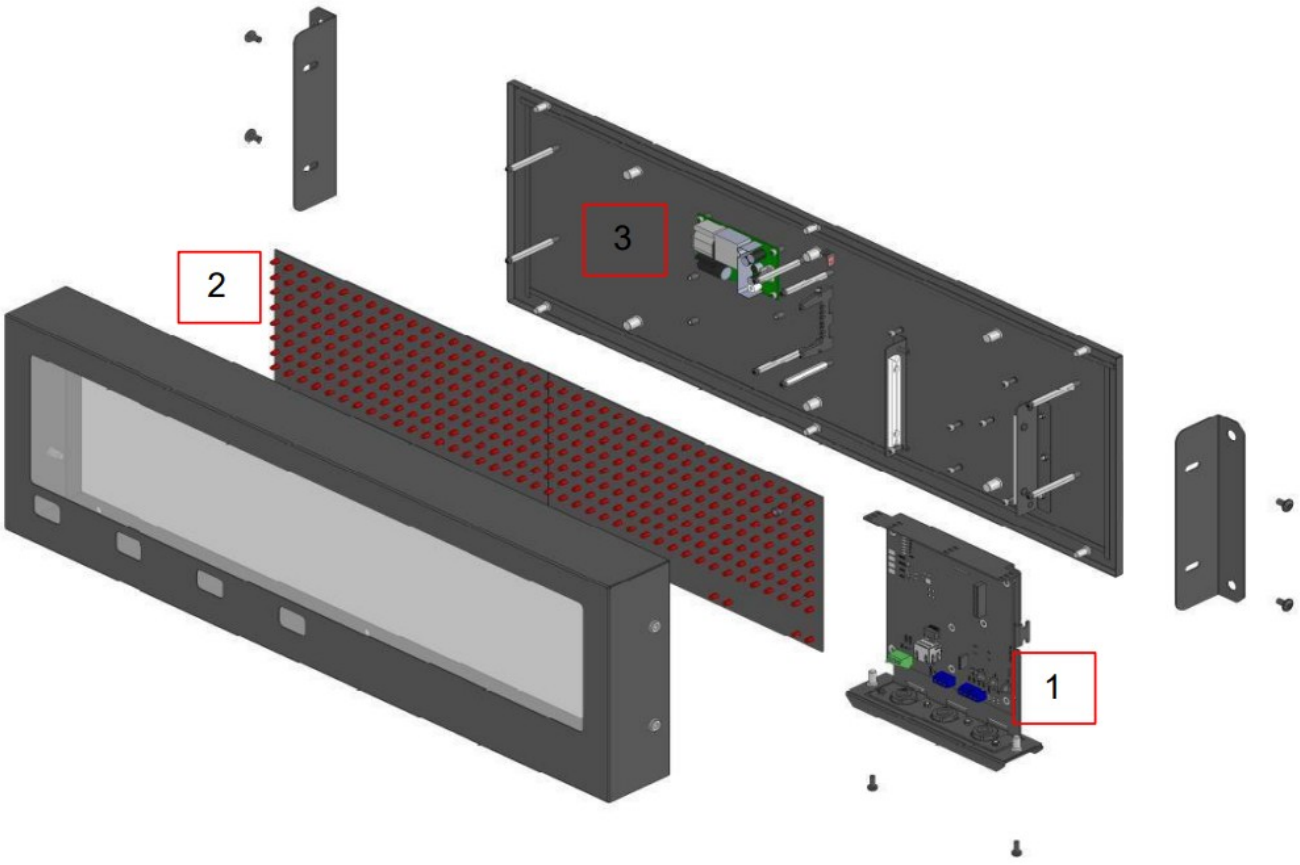


Ethernet Settings to Transmit Weight Data

- 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 for easy setup. When using these protocols, the indicator must be set as server, the remote is client.
- The transmitting indicator IP address can be changed using the Devicer or Wagset software.

Replacement Part 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	
841-100043	BT-470TL 4.7″ LED ARRAY REMOTE DISPLAY w/VISOR, 3″ POLE MNT BRACKE TS, ANNUNCIATORS, & TRAFFIC LIGHT	
841-100044	BT-470TL 4.7″ LED ARRAY REMOTE DISPLAY w/ ANNUNCIATORS, & TRAFFIC LIGHT	
841-500074	BT-470 4.7″ VISOR	
841-500083	BT-470TL 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



Documents / Resources

	B-TEK BT-470TL Remote Display [pdf] Instruction Manual BT-470TL Remote Display, BT-470TL, Remote Display, Display

References

- User Manual