

INSTALLATION, OPERATION AND MAINTENANCE MANUAL

May/2022

VCI10-BP

BLUETOOTH® PROFIBUS COMMUNICATION INTERFACE



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NOTE

We have reviewed this manual with great care to maintain compliance with the hardware and software versions described herein. However, due to the dynamic development and version upgrades, the possibility of technical deviations cannot be ruled out. We cannot accept any responsibility for the full compliance of this material.

Vivace reserves the right to, without notice, make modifications and improvements of any kind in its products without incurring in any circumstances, the obligation to make those same modifications to products sold previously.

The information in this manual is frequently updated. Therefore, when using a new product, please check the latest version of the manual on the Internet through our website www.vivaceinstruments.com, where it can be downloaded.

You customer is very important for us. We will always be grateful for any suggestions for improvements as well as new ideas, which can be sent to the e-mail: contato@vivaceinstruments.com preferably with the title "Suggestions".

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WARNING

It is extremely important that all the safety instructions, installation and operation in this manual are followed faithfully. The manufacturer is not liable for damage or malfunction caused by improper use of this equipment.

It is recommended to strictly following the rules and good practice relating to installation, ensuring correct grounding, noise insulation and good quality cables and connections in order to provide the best performance and durability to the equipment.

Special attention must be considered in relation to installations in hazardous areas, where applicable.

SAFETY PROCEDURES

- *Appoint only skilled people, trained with process and equipment;*
- *Install equipment only in operation compatible areas, with the proper connections and protections;*
- *Use proper safety equipment for any handling device in field;*
- *Turn area power off before equipment installation.*

SIMBOLOGY



Caution - indicates risk or error source



Important Information



General or Specific Risk



Electric Shock Danger

GENERAL INFORMATION



Vivace Process Instruments ensures the operation of this equipment, according to the descriptions contained in its manual, as well as technical characteristics, not guaranteeing its full performance in particular applications.



The operator of this equipment is responsible for observing all aspects of safety and prevention of accidents applicable during the execution of the tasks in this manual.



Failures that might occur in the system, causing damage to property or injury to persons, shall additionally be prevented by external means to a safe outlet for the system.



This equipment must be used only for the purposes and methods proposed in this manual.

1 EQUIPMENT DESCRIPTION

Vivace **VCI10-BP** communication interface provides connection of any Profibus device with smartphones, tablets or personal computers based on Windows®, via Bluetooth® communication.

VCI10-BP, in addition to allowing easy parameterization and calibration of PROFIBUS-PA equipment with FDT/DTM tools (eg PACTware, FieldCare, FieldMate etc.) also works as a message (frames) analyzer, using the PA-SNIFFER® tool. This manual provides detailed instructions about interface hardware and how it works with FDT/DTM tools.

For any doubts not contained on this manual, please contact *Vivace Process Instruments* website www.vivaceinstruments.com.br.

2 PRODUCT CONTENT

Check if all the following items are contained on product package:

- VCI10-BP Interface;
- USB to micro-USB Cable;
- USB Charger;
- 2 batteries.

3 CONNECTION

VCI10-BH is a “Profibus modem” and its main function is to interface *smartphones/tablets/computers* based on *Windows®* with the Profibus-PA network through Bluetooth® communication, allowing data exchange between those parts according to Profibus protocol.

Interface compact size and low energy consumption make VCI10-BP an ideal solution for Profibus protocol. Its robustness makes the interface adapted to any plant or process, with easy handle for user.

VCI10-BP is connected to *smartphones/tablets/personal computers* devices through a Bluetooth® connection and to Profibus network via two clip probes, as shown on Figure 3.1.



Figure 3.1 –VCI10-BP connection.

The interface physical connection is resumed to only one step:

- Connect the clip probes to the Profibus-PA network (as show on the figure above).

VCI10-BP allows user to power the Profibus device. It works with batteries provided by Vivace. In order to power the interface, select “Battery” switch to “On” position.



Attention! This equipment is not certified for classified areas!

3.1. PA SNIFFER®

PA-SNIFFER® is a powerful tool from VIVACE, provided free of charge to the user and which allows a complete analysis of PROFIBUS-PA frames, identifying the different types of messages, services, diagnostics, communication errors, checksum errors, messages without replies, retransmissions, Live List, communication state machine status of each device of the live list, statistics by address, quick lookup services, etc.

When clicking on a captured frame, a decoded frame format will be displayed for analysis at different layers of the protocol. In addition, you can associate with GSD files and tags according to your PROFIBUS network, monitor the cyclic values and export them to an Excel spreadsheet.

The screenshot displays the PA-SNIFFER software interface. At the top, a table lists captured frames with columns for Number, Time, Type, Req/Res, Service, Addr, and Telegram. Frame 1 is selected, showing a 'Get Diagnostics' message from address 12 to address 1. Below the table, there are several panels: 'Diagnostics' with filters for message counts and errors; 'Search Message' with dropdowns for service and address; a central logo for PA-SNIFFER; and a 'PROFIBUS Frame' tree showing the hierarchical structure of the selected frame, including details like Source Address, Destination Address, and Function Code. On the right, a 'Live List' shows a network topology with nodes like Master (#1), VDL10 (#8), and various VPT10 and VAP10 nodes. A 'Legend' at the bottom right explains the node symbols and colors.

Number	Time	Type	Req/Res	Service	Addr	Telegram
0	13:56:59:928	SD2	Res	Data Exchange	1 <- 10	68 00 00 68 01 0A 08 00 00 00 00 1F 00 00 00 00 4C 67 75
1	13:56:59:935	SD2	Res	Get Diagnostics	12 <- 1	68 05 05 68 8C 81 5D 3C 3E E8 8A
2	13:56:59:946	SD2	Res	Get Diagnostics	1 <- 12	68 13 13 68 81 8C 08 3E 3C 00 0C 00 01 08 97 08 FE 01 01 00 00 00 87 04
3	13:56:59:951	SD1	Res	Data Exchange	30 <- 1	10 1E 01 5D 43 C3
4	13:56:59:960	SD2	Res	Data Exchange	1 <- 30	68 00 0D 68 01 1E 0A 00 00 00 00 4C 00 00 00 00 04 25 17
5	13:56:59:967	SD2	Res	Get Diagnostics	46 <- 1	68 05 05 68 AE 81 7D 3C 3E 28 FB
6	13:56:59:979	SD2	Res	Get Diagnostics	1 <- 46	68 13 13 68 81 AE 08 3E 3C 00 0C 00 01 0F B5 08 FE 01 02 00 00 00 54 A5
7	13:56:59:985	SD1	Res	Data Exchange	100 <- 1	10 64 01 7D E1 70
8	13:56:59:996	SD2	Res	Data Exchange	1 <- 100	68 12 12 68 01 64 08 3A 5A 80 00 8D 3A 95 00 00 8D 3A 89 30 00 8D 24 49
9	13:57:00:002	SD1	Res	Data Exchange	122 <- 1	10 7A 01 7D 72 89
10	13:57:00:013	SD2	Res	Data Exchange	1 <- 122	68 12 12 68 01 7A 08 00 00 00 00 4C 00 00 00 00 4C 00 00 00 4C E6 DE
11	13:57:00:020	SD2	Res	Get Diagnostics	24 <- 1	68 05 05 68 98 81 5D 3C 3E 09 1D
12	13:57:00:030	SD2	Res	Get Diagnostics	1 <- 24	68 13 13 68 81 98 08 3E 3C 02 05 00 FF 08 98 08 FE 01 02 00 00 00 68 D0
13	13:57:00:036	SD1	Res	Scan Address	31 <- 1	10 1F 01 49 D1 7C
14	13:57:00:049	SD4	Req	Pass Token	1 -> 1	DC 01 01 80 04

4 BATTERY

Interface VCI10-BP needs batteries (provided by Vivace) to be powered and to power the device it will be connected to. In order to power the interface, change “Battery” switch to “On”.

Before using the interface for the first time, execute a full charge. After charge is complete, the interface will work for about 4 hours.

In order to charge batteries, user must connect “*USB to micro-USB cable*”. Connect the cable to the VCI10-BH (micro-USB) and to the USB port of PC or charger supplied with the interface. Check if LED “*Charging*” on VCI10-BH blinks during charging process.

Battery Specification: Rechargeable Li-ion 3.7 V / 700 mAh a 3800 mAh.



Battery warranty period: 60 days from the date of the invoice issue.

5 LABEL

VC110-BP has an identification label fixed on its frontal side. See on table 5.1 the specification of each label item.

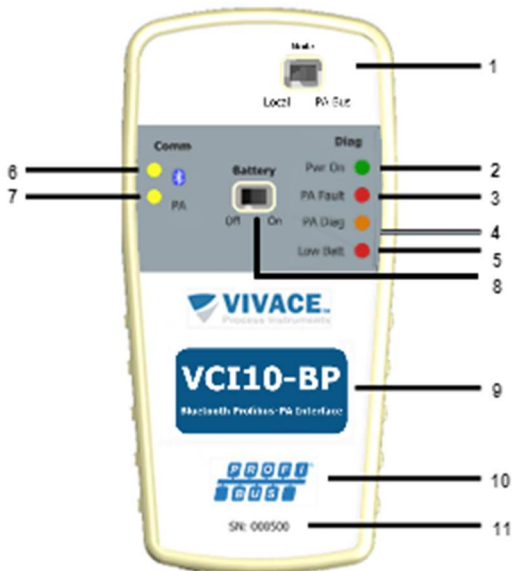


Figure 5.1 –VC110-BP label.

LABEL DESCRIPTION	
1	Selects local or remote mode
2	Interface circuit powered by batteries
3	Overcurrent on PA side
4	Cyclic diagnostic event on PA network
5	Low battery voltage (LED on)
6	Bluetooth communication
7	Profibus-PA communication
8	Battery on or off
9	Interface model
10	Communication protocol
11	Interface serial number

Table 5.1 –VC110-BP label description.

6 TECHNICAL SPECIFICATION

The main technical and physical characteristics of VCI10-BP are listed on Table 6.1. Those are important references which must be analysed before the interface use.

Power Supply	Batteries (7.2 V)
Output Voltage	19.5 Vdc (@ 20 mA load); 21 Vdc (open circuit)
Communication Protocol	IEC 61158-2 Standard; 31.25 kbits/s
Classified Area	Not Intrinsically Safe
Environment Temperature Limits	0 to 50°C @10-90 RH (no condensation)
FDT/DTM Compatibility	Yes
Operational Systems	Win XP, Win 7, Win 8, Win 8.1, Win 10 (32 and 64 bits)
Profibus-PA Bus Connection	Bluetooth connection for HOST and clip probes for PA side (1.0 m)
Dimensions / Approximated Weight	135 x 65 x 25 mm (A x L x P) / 70 g

Table 6.1 – Technical data of VCI10-BP.

** 1500 Vac between field device and Android™ device, when not powered by interface



Attention! This equipment is not certified for classified areas!

7 HOUSING DIMENSIONS

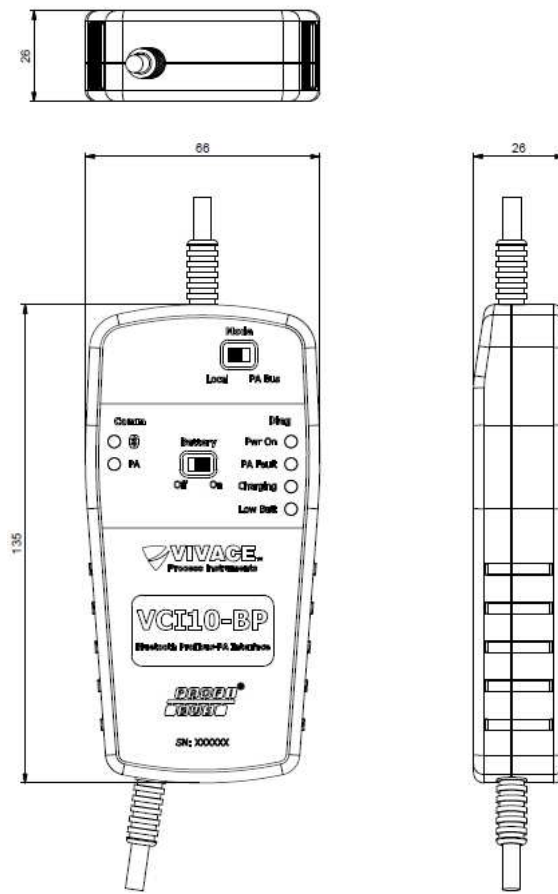


Figure 7.1 –VC110-BP dimensions.

8 FDT/DTM TOOLS



Attention! DTM files are distributed by device manufacturers. Vivace only provides DTM files

VCI10-BP works with any Profibus tool on Windows® platform that uses serial communication port, being used with several FDT/DTM tools.

The main steps to configure and communicate to VCI10-BP on Windows® are described below. Before initializing the procedure, check if the computer is enabled with Bluetooth device. If not, user must install a Bluetooth adapter.

The first step is to find the Bluetooth connection for VCI10-BP and execute pairing. Enter **Control Panel** on Windows® and open the option **Devices and Printers**. Right-button the screen and select **Add devices and printers**.

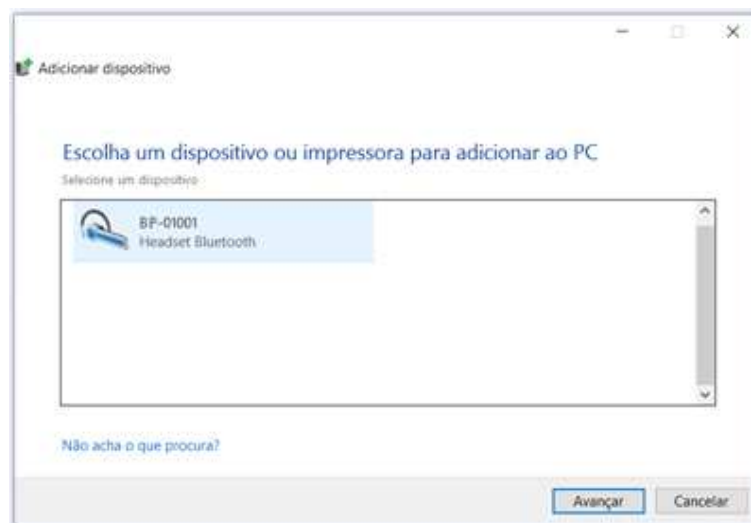


Figure 8.1 – Adding a new Bluetooth device.

The Bluetooth identification for VCI10-BP is composed by “BP-” + Interface Code. This code is located on the back side of the batteries cover.

After interface is found on device list, select it and click to proceed. A random key will be shown on screen.



Figure 8.2 – VCI10-BH pairing key.

Click **Yes**. After this step, the interface will be paired and will appear on device list.

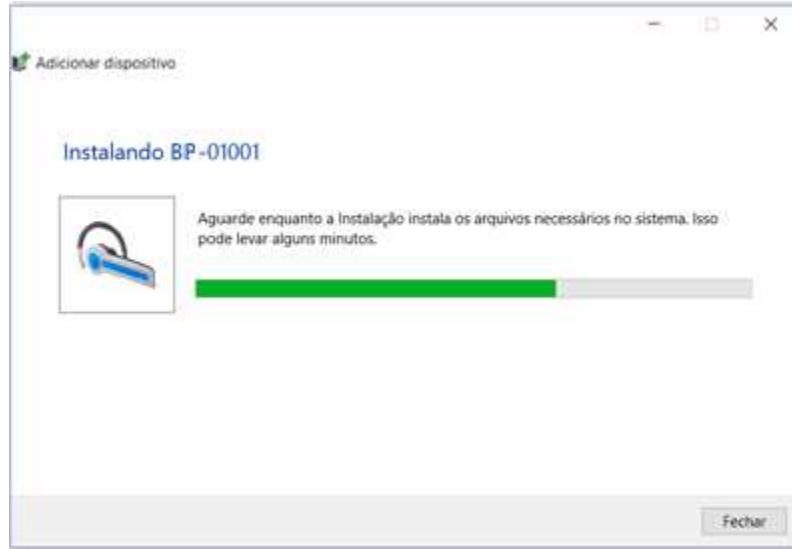


Figure 8.3 – Pairing VC110-BP.



Figure 8.4 – Installed devices.

A serial port was created during the pairing process. In order to check the serial port number, right-click the paired device and select **Properties**. Click on "Hardware" tab. The serial port number appears on **Standard serial over Bluetooth link**. This number must be used on FDT/DTM tool or any other tool that uses serial communication.

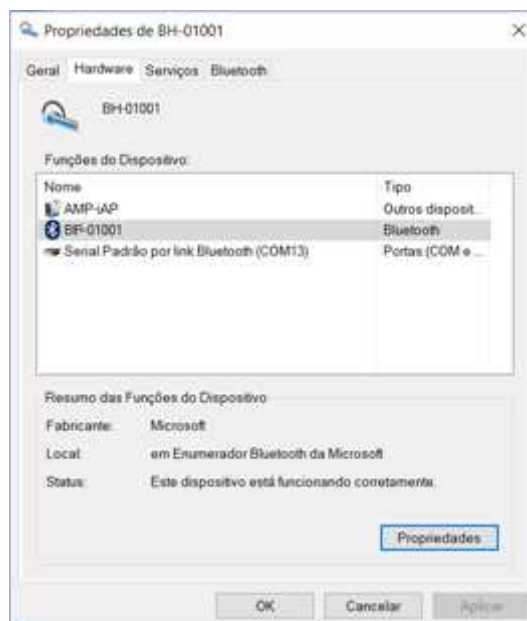


Figure 8.5 –Serial port for Bluetooth.

Once the interface is paired, this procedure will not be necessary again.

The figure below demonstrates serial port configuration for communication DTM on a FDT/DTM tool. After that, DTM will be ready to communicate with VCI10-BP. Check if the interface is powered and configured correctly.

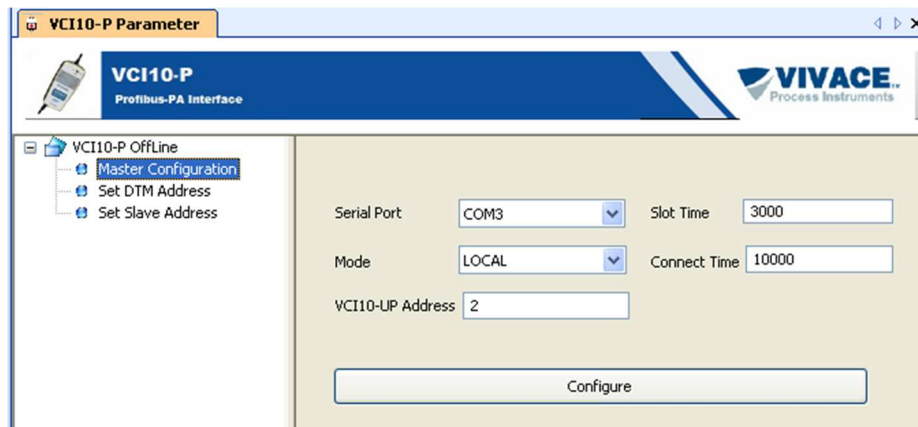


Figure 8.6 – Serial port configuration on FDT/DTM tool.

9 ORDERING CODE

VCI10 *Communication Interface*

Communication Type	U	USB
	A	ANDROID
	B	BLUETOOTH

Communication Protocol	H	HART
	P	PROFIBUS

Configuration Accessory	0	NO ACCESSORY
	1	REGULAR TABLET
	2	INDUSTRIAL TABLET

Ordering Code Example:

VCI10 - B P - 0

10 WARRANTY

10.1. GENERAL CONDITIONS

Vivace ensures its equipments from any defect on manufacturing or component quality. Problems caused by misuse, improper installation or exposure to extreme conditions are not covered by this warranty.

The user can repair some equipments by replacing spare parts, but it is strongly recommended to forward it to *Vivace* for diagnosis and maintenance in cases of doubt or impossibility of correction by the user.


For details about the product warranty, see the general term warranty on Vivace website: www.vivaceinstruments.com.br.

10.2. WARRANTY PERIOD

Vivace ensures the ideal operating conditions of their equipment by a period of two years, with full customer support regarding to installation, operation and maintenance for the best use of the equipment.

It is important to note that even after warranty period expires, *Vivace* assistance team is ready to assist customer with the best support service, offering the best solutions for the installed system.

APPENDIX

		FSAT	
		Technical Analysis Solicitation Form	
Company:		Unit/Department:	Shipping Invoice n°:
Standard Warranty: ()Yes ()No		Extended Warranty: ()Yes ()No	Buying Invoice n°:
COMMERCIAL CONTACT			
Complete Name:		Position:	
Phone and Extension:		Fax:	
e-mail:			
TECHNICAL CONTACT			
Complete Name:		Position:	
Phone and Extension:		Fax:	
e-mail:			
EQUIPMENT DATA			
Model:		Serial Num.:	
PROCESS INFORMATION			
Environment Temperature (°C)		Work Temperature (°C)	
Min:	Max:	Min:	Max:
Operation Time:		Fail Date:	
FAIL DESCRIPTION: Here user should describe in detail the observed behaviour of product, frequency of fail occurrence and repeatability. Also, should inform operational system version and a quick description of control system architecture where the equipment was installed.			
ADDITIONAL OBSERVATION:			

