

INSTALLATION, CONFIGURATION AND OPERATION MANUAL

March/2016

VMT-HART

HART® CONFIGURATOR FOR ANDROID™ DEVICES



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Android™ is a trademark of Google Inc.

IMPORTANT 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 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 should strictly follow 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 and 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.*

SYMBOLOLOGY



Caution - indicates risk or error source



Important Information



General or Specific Risk



Electrical Shock Danger

GENERAL INFORMATION



Vivace Process Instruments ensures the operation of the equipment, according to the descriptions contained in its manual, as well as technical characteristics, not guaranteeing their 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 INTRODUCTION

VMT-HART (*Vivace Mobile Tool HART*) is a versatile HART® configurator for Android™ platform, a member of the family of *Vivace Process Instruments* applications.

In conjunction with VCI10-AH or VCI10-BH interfaces provides a complete solution to access and management of field devices compatible with HART® protocol. It allows user configuration, calibration, maintenance and monitoring of HART® devices.

VMT-HART uses information described in HART® device DDL file (Device Description Language) to determine the content which will be displayed on each screen, which variables can be edited, which procedures must be executed for calibration, setup and maintenance.

It was designed with the latest technologies (Android™), ensuring reliability, high performance and robustness.

The Android™ platform is widely used worldwide. Smartphone/tablet features a friendly and excellent GUI screen, so user can easily configure even the most complex equipment. The main advantage of Android™ platform is its extensive use as personal and/or work tool in many areas.

This manual provides detailed instructions on the VMT-HART application and on the hardware (VCI10-AH and VCI10-BH) interfaced to the VMT-HART with HART® network.

For questions about this product not contained in this manual, please contact *Vivace Process Instruments* through the website www.vivaceinstruments.com.br.

1.1. VMT-HART APPLICATION OVERVIEW

VMT-HART application has an intuitive graphical interface, thus, allowing user to configure, calibrate, monitor process variables and diagnose status of HART® devices in a quick and easy way. VMT-HART is based on DDL (Device Description Language) and accesses device parameters in a standard mode, as defined by its manufacturer. It supports devices with versions 5, 6 and 7 of HART® protocol.

VMT-HART performs communication with HART® devices using a "HART Modem" interface that enables real-time access between VMT-HART and the HART® device.

There is a wide variety of "HART® Modem" on the market but only VCI10-AH and VCI10-BH interfaces from *Vivace Process Instruments* are compatible with the VMT-HART. Details about these interfaces can be found at "VCI10-AH Interface" and "VCI10-BH Interface" topics.

1.2. HART® DDL

Device Description Language (DDL) is a language for modeling field device behavior. DDL allows applications (host) to configure, calibrate and troubleshoot field device problems without any prior knowledge of the device, providing full access to all properties and capabilities of any device compatible with HART® protocol.

Through text files called DD (Device Description), hosts can access the standardized specific device information, including variables, menus, commands and methods, also allowing to describe the structure and layout of menus user will see when communicating with the equipment.

DD files are developed by the manufacturer of the device and allow menus, methods and parameters to be presented as manufacturer desires.

Check "*Installation*" topic to learn how DDL is installed on VMT-HART and its directory structure. Visit www.vivaceinstruments.com.br to check which devices are integrated into the VMT-HART.

DDL structure uses a group of elements. Each element has an essential role in the organization, data exchange and presentation of data to user, as described below:

Variable: Describes information about device parameters. For example: measured value, operating parameters and information on the device. Typically, the device has a set of configuration variables relating to process and status variables used in methods.

Menu: Describes a structure of how the variables, methods and sub-menus should be displayed. Typically, DDL presents a main menu and splits variables and methods in several submenus.

Commands: It is a data packet used to transfer information between host and HART® device.

Method: It is a series of steps performed sequentially while performing any task on the device. For example, calibration and configuration of lower and upper limits on device. The sequence of screens presented during the executing method will depend on user interaction and device internal information.

If the method is aborted by the user, it should allow device conditions will be the same as before method execution.

To perform the method, proceed with the following steps:

- Choose the menu where method is present and select it;
- Click OK to move to the next sequence dialogue;
- Some methods ask user to enter values;
- When available and necessary, click *abort* button to cancel the method execution.

Response Codes: The data exchange between VMT-HART and HART® device may result in invalid values generating errors or warnings during command transmission. For example, writing out of range values.

DDL treats each possible Response Codes errors and warnings for each command.

VMT-HART treats all Response Codes defined in the DDL device and shows as a message to user at the time device signals the occurrence of a Response Code.

2 PACKAGE CONTENTS

Make sure all the following items are included in the package:

- VCI10-AH or VCI10-BH Interface;
- USB to micro USB cable converter;
- 2 batteries.

VMT-HART application and INSTALL-DDL-HART must be downloaded in www.vivaceinstruments.com.br. *Vivace Process Instruments* ensures the latest version of the application will be updated on the website.

3 ANDROID™ DEVICE REQUIREMENTS

Minimum system requirements for Android™ device:

- Ram Memory: 1 GB (minimum);
- ROM Memory: 2 GB (minimum);
- Optional SD Card;
- Android™ 4.3 (minimum).

4 VCI10-AH INTERFACE

VCI10-AH is a "HART® Modem" with the function to interface smartphones/tablets with HART® network, allowing data exchange between the parties according to the HART® protocol.

Its compact size and low-power consumption make VCI10-AH an ideal solution for HART® protocol. Its robustness makes it a suitable tool for any plant or factory, ensuring easy user handling.

4.1. CONNECTING AND DISCONNECTING

VCI10-AH interface is connected to smartphones/tablets via micro-USB port and HART® network through two clips, as shown in figure 4.2.

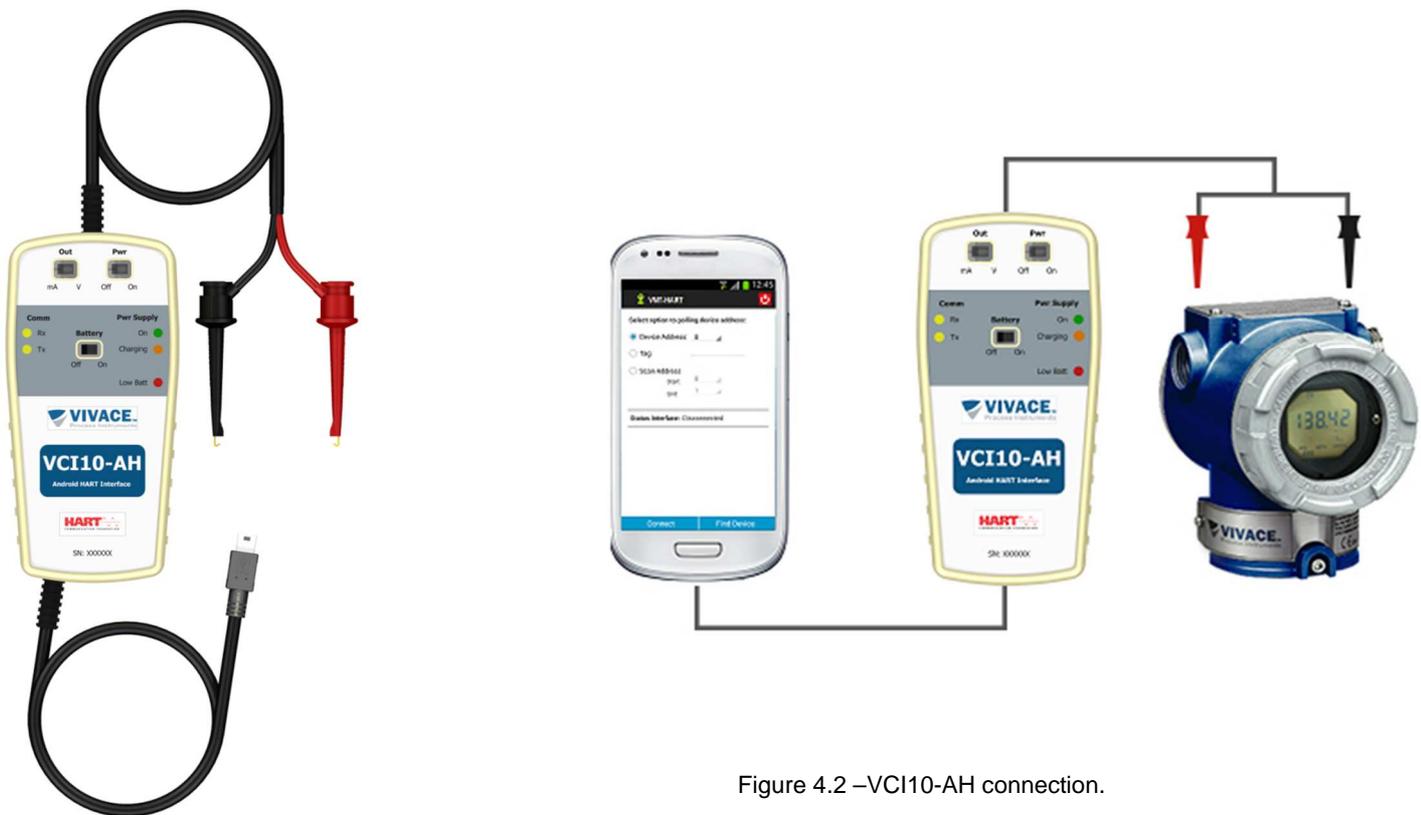


Figure 4.2 –VCI10-AH connection.

Figure 4.1 –VCI10-AH Interface.

The interface connection is resumed in only two steps, as shown in the figure above and described below:

- Insert the VCI10-AH interface on the micro-USB port and plug the clips on the HART® bus;
- For communication, a minimum load of 250 ohms in series with the power source is required.

If the VMT-HART application and DDL files are installed, user can immediately to start communicating with HART® device. To disconnect VCI10-AH interface, remove micro-USB port interface.

4.2. BATTERY

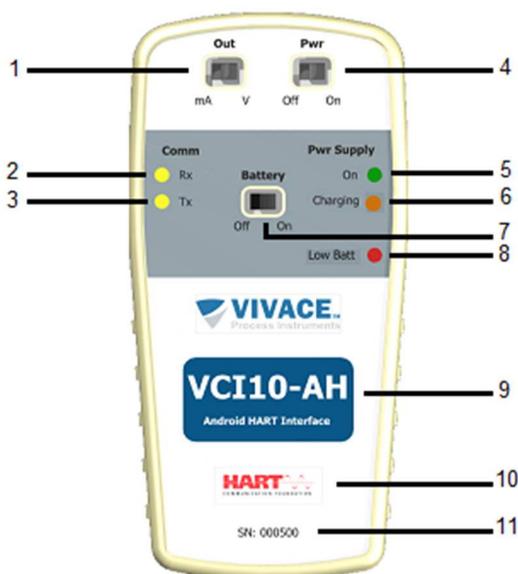
VCI10-AH requires batteries, which are provided by Vivace with the interface. Before using the interface for the first time, execute a full charge to battery.

To charge the battery, use the accessory "USB cable converter to micro-USB." Plug the cable into VCI10-AH interface (micro-USB) and into the PC's USB port. Note that the "Charging" LED at VCI10-AH interface flashes during charging, indicating charge process.

If the battery is discharged, VMT-HART will display the message "Communication Error" when communicating with HART® device. If application is on home screen of VMT-HART, user will not be able to connect to VCI10-AH interface or even find HART® devices.

4.3. TAG

VCI10-AH has an identification tag attached to its front. See table 4.1, with the specification of each label item.



DESCRIPTION TAG	
1	Selects equipment power mode: current (mA) or voltage (V)
2	HART® message reception
3	HART® message transmission
4	Voltage/Current supply. Enabled (ON) or Disabled (OFF)
5	The interface circuit is powered by the battery
6	Battery is being charged (LED FLASHING)
7	Battery ON or OFF
8	Low battery
9	Interface model
10	Communication protocol
11	Interface serial number

Table 4.1 – Description of the VCI10-AH tag.

Figure 4.3 –VCI10-AH tag.

4.4. TECHNICAL SPECIFICATIONS

The main technical and physical characteristics of the interface are listed in Table 4.2. They are important references that should be analyzed before use.

TECHNICAL SPECIFICATIONS	
Supply voltage	Li-Ion Power Rechargeable 3.7V 1600mAh
Output voltage	0.5 + 0.1 Vpp*
Storage humidity	0% to 95% RH (non-condensing)
Operation temperature	0°C to 50°C
Storage temperature	-40°C to 85°C
Insulation	1500 Vac**
Connections to the bus HART®	Clips for the HART® side (1.0m)
Dimensions	135 x 66 x 25 (mm)

Table 4.2 - Technical Specifications of VCI 10-AH.

* 0.5 + 0.1 Vpp, trapezoidal wave, 1200/2200 Hz to a load of 250 Ohms

** 1500 Vac between the field device and Android™ device when the field device is not being powered interface

4.5. MECHANICAL DIMENSIONS

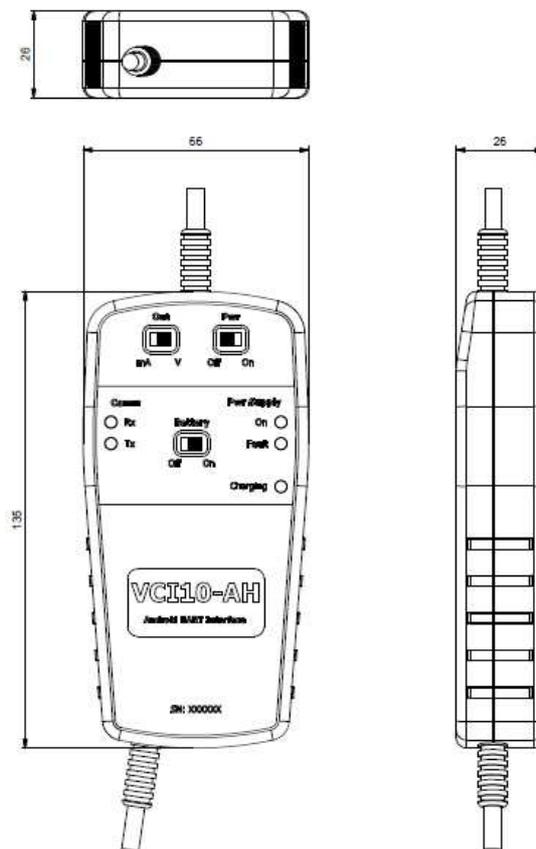


Figure 4.4 - Mechanical dimensions of VCI 10-AH.

5 VCI10-BH INTERFACE

VCI10-BH is a "HART® Modem" with the function to interface smartphones/tablets as well as Windows® tools with HART® network via Bluetooth®, allowing data exchange between the parties according to the HART® protocol.

Its compact size and low-power consumption make VCI10-BH an ideal solution for HART® protocol. Its robustness makes it a suitable tool for any plant or factory, ensuring easy user handling.

5.1. CONNECTING

VCI-10-BH interface is connected to the smartphone/tablet and Windows® devices via the Bluetooth® connection and HART® network through two clips, as shown in Figure 5.2.



Figura 5.2 –VCI10-BH connection.

Figure 5.1 –VCI10-BH Interface.

The interface connection is resumed in only one action:

- Plug the clips on the HART® bus.

For communication, a minimum load of 250 Ohms in series with the power source is required.

If the VMT-HART application and DDL files are installed, user can immediately to start communicating with HART® device.

5.2. BATTERY

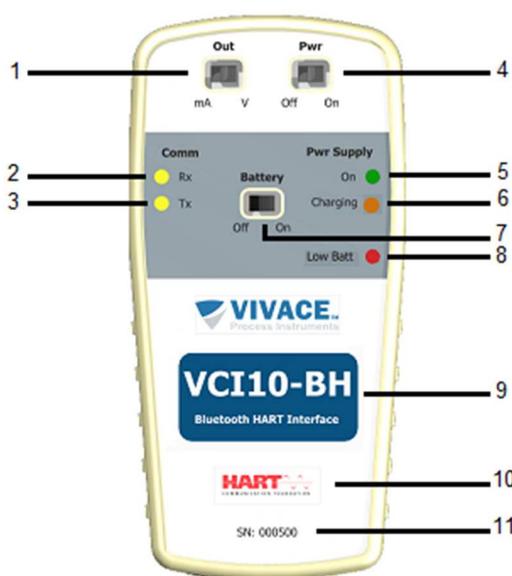
VCI10-BH requires batteries, which are provided by Vivace with the interface. Before using the interface for the first time, execute a full charge to battery. After the full charge of batteries, interface will operate for about 18 hours.

To charge the battery, use the accessory "USB cable converter to micro-USB." Plug the cable into VCI10-BH interface (micro-USB) and into the PC's USB port. Note that the "Charging" LED at VCI10-BH interface flashes during charging, indicating charge process.

If the battery is discharged, VMT-HART will display the message "Communication Error" when communicating with HART® device. If application is on home screen of VMT-HART, user will not be able to connect to VCI10-AH interface or even find HART® devices.

5.3. TAG

VCI10-BH has an identification tag attached to its front. See table 5.1, for the specification of each tag item.



DESCRIPTION TAG	
1	Selects equipment power mode: current (mA) or voltage (V)
2	HART® message reception
3	HART® message transmission
4	Voltage/Current supply. Enabled (ON) or Disabled (OFF)
5	The interface circuit is powered by the battery
6	Battery is being charged (LED FLASHING)
7	Battery ON or OFF
8	Low battery
9	Interface model
10	Communication protocol
11	Interface serial number

Table 5.1 Description of the tag of VCI10-BH.

Figure 5.3 – Tag VCI10-BH.

5.4. TECHNICAL SPECIFICATIONS

The main technical and physical characteristics of the interface are listed in Table 5.2. They are important references that should be analyzed before use.

TECHNICAL SPECIFICATIONS	
Supply voltage	Li-Ion Power Rechargeable 3.7V 1600mAh
Output voltage	0.5 + 0.1 Vpp*
Storage humidity	0% to 95% RH (non-condensing)
Operation temperature	0°C to 50°C
Storage temperature	-40°C to 85°C
Insulation	1500 Vac**
Connections to the bus HART®	Clips for the HART® side (1.0m)
Dimensions	135 x 66 x 25 (mm)

Table 5.2 - Technical Data of VCI 10-AH.

* 0.5 + 0.1 Vpp, trapezoidal wave, 1200/2200 Hz to a load of 250 Ohms

** 1500 Vac between the field device and Android™ device when the field device is not being powered interface

5.5. MECHANICAL DIMENSIONS

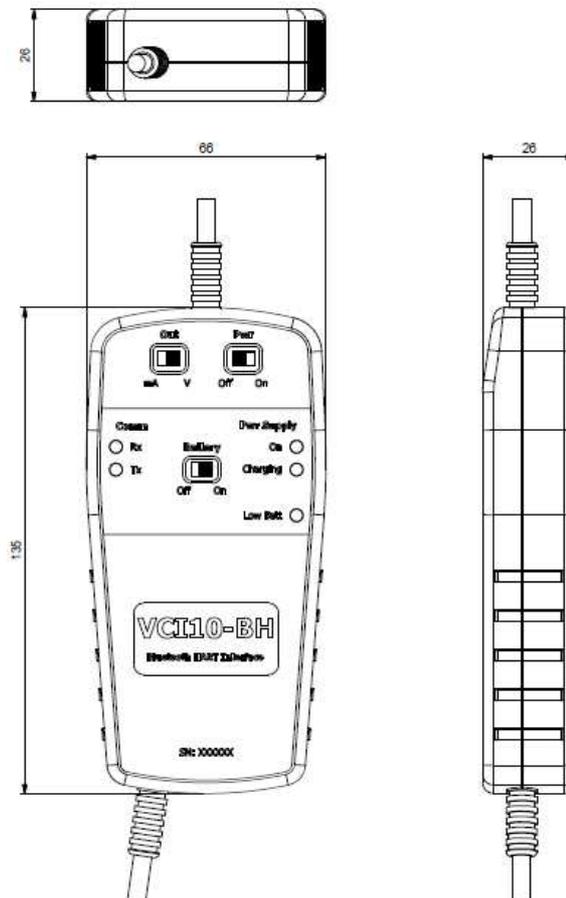


Figure 5.4 - Mechanical dimensions of VCI 10-BH

6 INSTALLATION

To use VMT-HART application, please install:

- VMT-HART
- INSTALL-DDL-HART



Both are not available in Play Store and need to be installed manually.

6.1. VMT-HART

The following steps show how to install VMT-HART manually.

- Copy file "VMT.apk" to your Android™ device. It is recommended the directory "/ storage / emulated / 0 / Download;
- In Android™ device, open a file browser. For example: "MyFiles";
- Navigate to the directory where you saved the file in the first step;
- Click the "VMT.apk" file;
- A message appears asking if you wish to install application. Select "Install" option;
- After installation, press "Open" to run the application.

6.2. INSTALL-DDL-HART

The INSTALL-DDL-HART application is used to install the DDL files of HART® device.

To install the application, follow the same steps described in the previous section, using the file "INSTALL_DDL_HART.apk" instead of "VMT.apk".

After installation, press "Open" to run the application and the following screen appears:

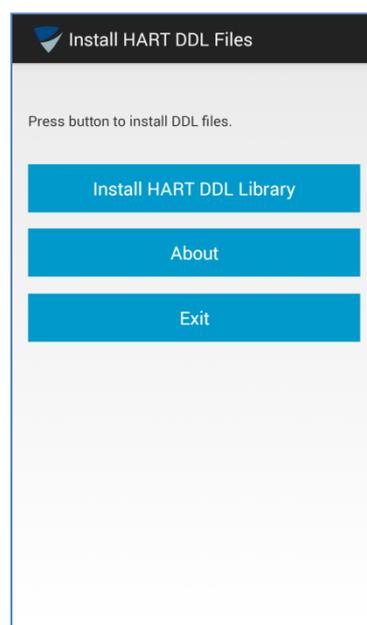


Figure 6.1 – HART DDL Installation.

By clicking at "Install HART DDL Library", the files relating to the device DDLs will be integrated into the VMT-HART at "Vivace / Library / HART" directory. Note that the file will be installed in the directory with the corresponding identification number of the manufacturer.

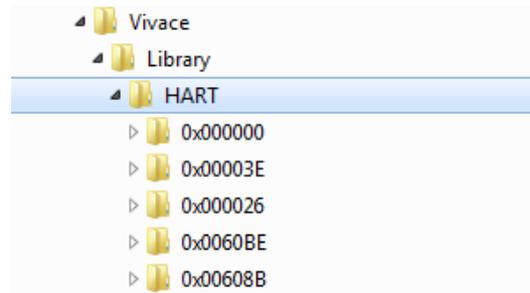


Figure 6.2 –DDL topology directory.

If installation is successfully completed, the following message will appear: "Installation was completed successfully!" (Figure 5.3). Otherwise, user will receive a message "Error in DDL Install Files!" (Figure 5.3). If an error occurs, check for free space on your Android™ device.

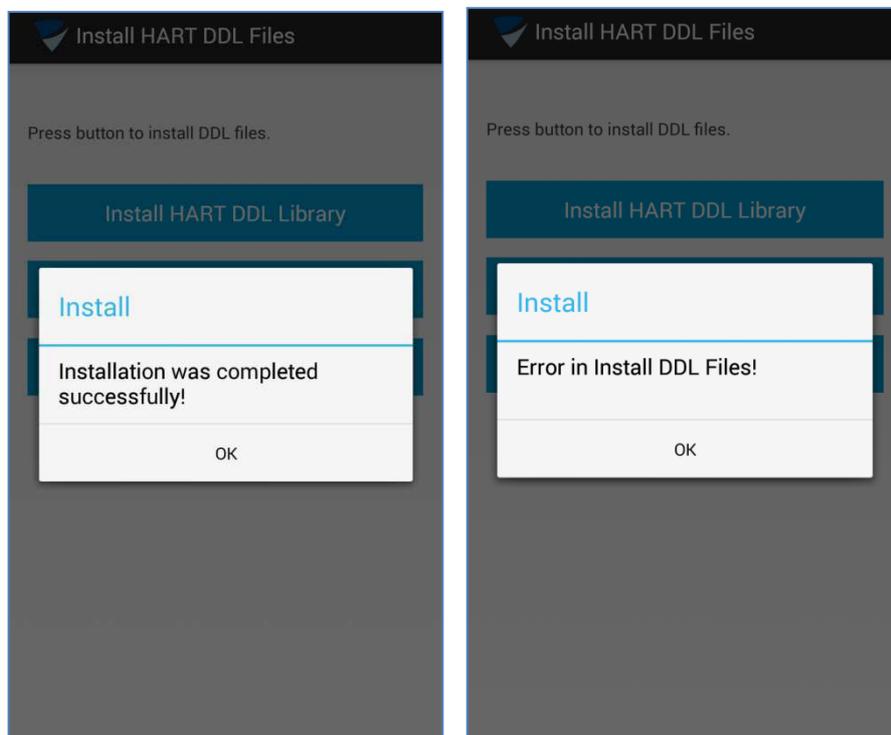


Figure 6.3 – DDL Installation message

This procedure must be performed whenever you need to update the DDL HART® library. However, note that a new update library version requires uninstalling the current version. For information about the version of this application, click the "About" (Figure 5.4) button. It is possible to obtain the DDL list installed for each version of this application on our website www.vivaceinstruments.com.br.

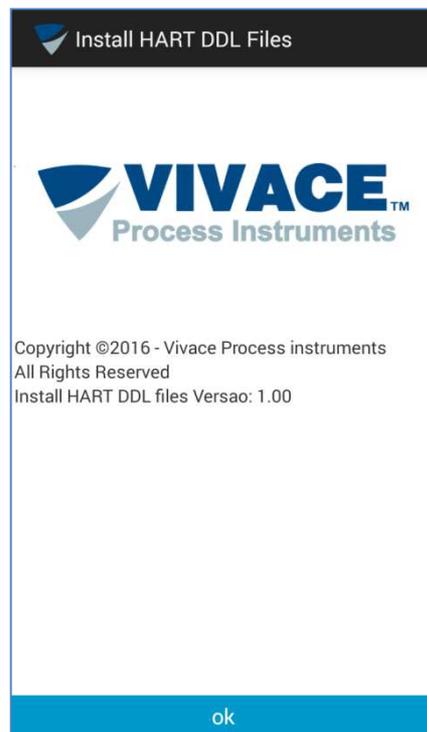


Figure 6.4 – About of DDL HART installation.

If the device you want to communicate is not in the installed products list, please contact *Vivace Process Instruments* for information about how to add the desired device.

The "Exit" button closes the application.

6.3. UNINSTALLING THE APPLICATION

To uninstall VMT-HART application and INSTALL-DDL-HART library, perform the following steps:

- Enter the Android™ Application Manager screen;
- Select the "VMT-HART" application;
- Select the "Uninstall" option;
- Select the INSTALL-DDL-HART application;
- Select "Uninstall".

7 LICENSE

The application license release is required during the first use of VMT-HART. Enter option "License" from the pop-up menu on VMT-HART home screen (Figure 6.1) and send to *Vivace Process Instruments* via email (contato@vivaceinstruments.com.br) "Code 1" and "Code 2" for the register key.

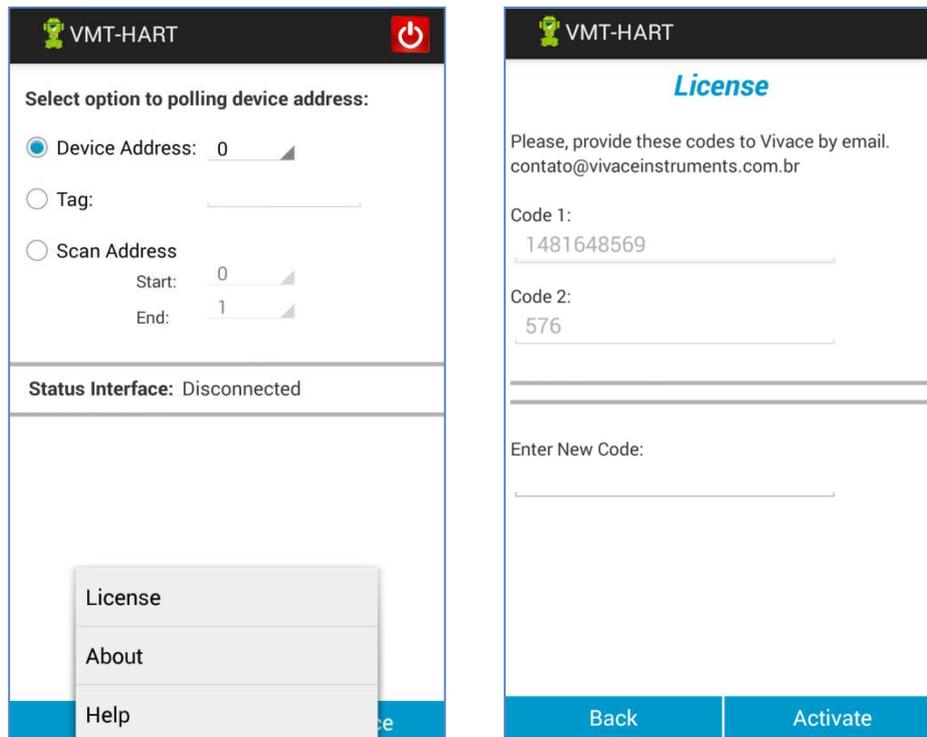


Figure 7.1 –VMT- HART license screen.

Use as email subject "License VMT-HART" and on email body the company name, contact and the codes.

The information will be processed and *Vivace Process Instruments* will send the license to the customer via email, after generating the registration key.

After receiving the register key, re-enter license screen, type the registration key in "Enter New Code" field and click "Activate" button. After registration, message "License Has Been activated" (Figure 7.2) will appear. Otherwise, user will receive the message "Code is wrong!" (Figure 7.2) and the activation process should be performed again.

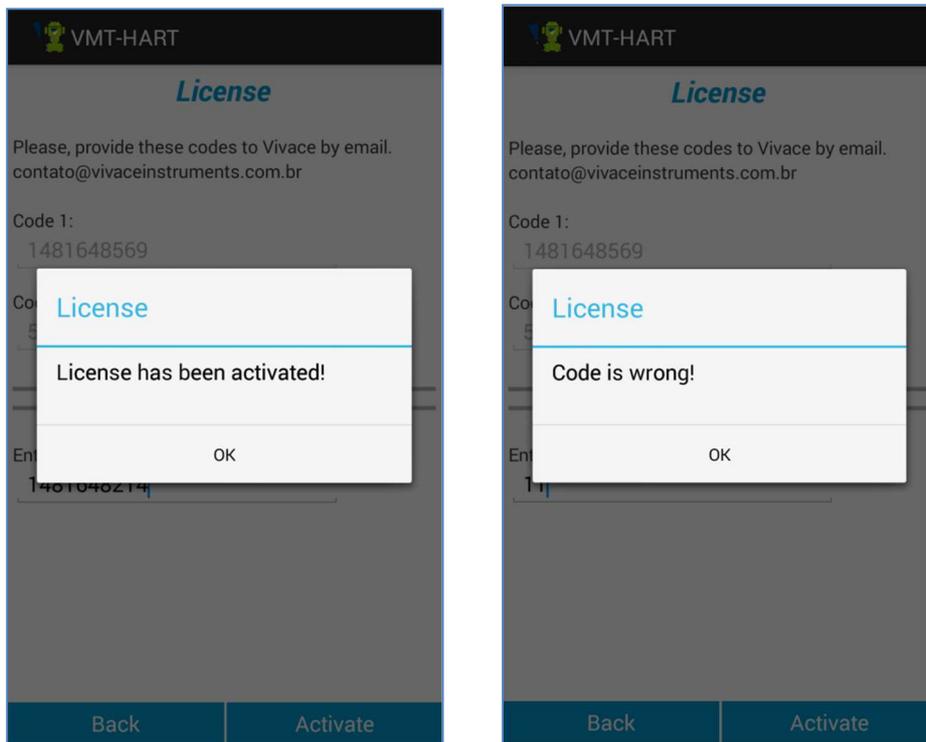


Figure 7.2 Success and error messages during license registration.

In order to register VMT-HART application license, it is necessary to install DDL files (see the topic Installation). If the files are not installed, the following message will be displayed on register attempt: "It is necessary to install the DDL files" (Figure 7.3).

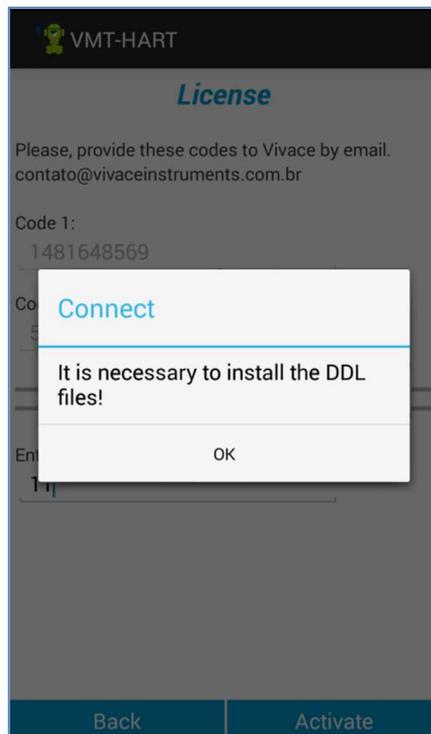


Figure 7.3 – Message for not installed DLL

If the license registration has not been executed correctly, the message "License is not valid" (Figure 7.4) will appear in the application and user will not be able to proceed.

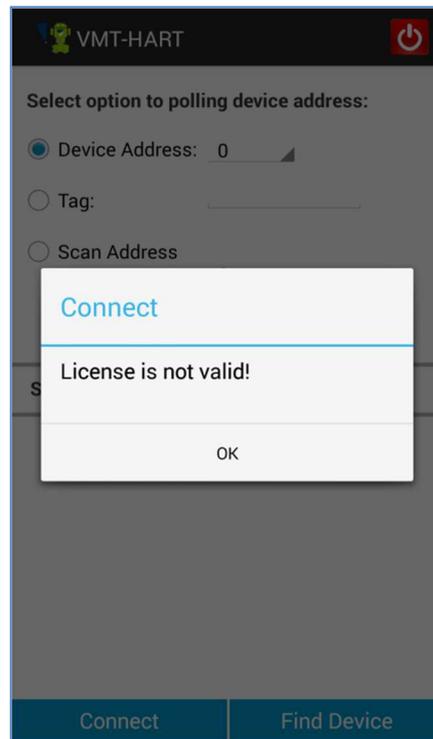


Figure 7.4 – Message of license not activated.

In case of difficulties in the license activation process, please contact *Vivace Process Instruments*.

8 SEARCHING FOR HART® DEVICE

Before using VMT-HART, make sure the configured interface in the application is appropriate for this use. Enter the option "Interface" from the pop-up menu of VMT-HART home screen to check this.

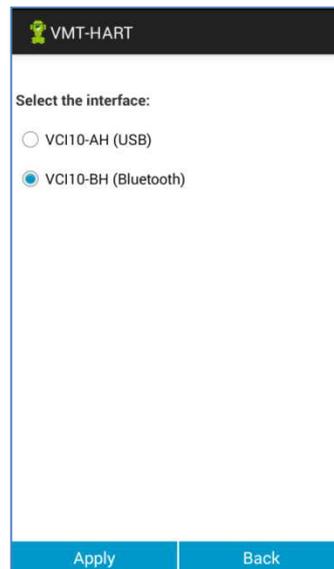


Figure 8.1 – Selecting the interface.

Before searching a HART® device, make sure the interface is connected to the HART network and the battery is *On*. If you have VCI10-HA interface, make sure you are also connected to the micro-USB port of Android™ device.

The VMT-HART application is automatically opened when the VCI10-HA interface is plugged in the micro-USB port of the Android™ device. If not, check if VMT-HART is running in the background and close it.

If the VMT-HART application does not open automatically, start it using the icon on the Android™ home screen.



Figure 8.2 – VMT Application icon.

Before performing communication with the HART® device it is necessary to connect the VMT-HART application with the interface by clicking the "Connect" button. Note that the state of the interface ("Status Interface") should change from "Disconnected" to "Connected". If the message "Interface is disconnected!" (Figure 8.3) appears when using VCI10-AH interface, make sure it is securely connected to the micro-USB port of Android™ device. If using VCI10-BH interface, make sure Bluetooth Android™ device is active and the interface is paired (the interface appears with the VCI10-BH name). If the problem persists, check battery interface.

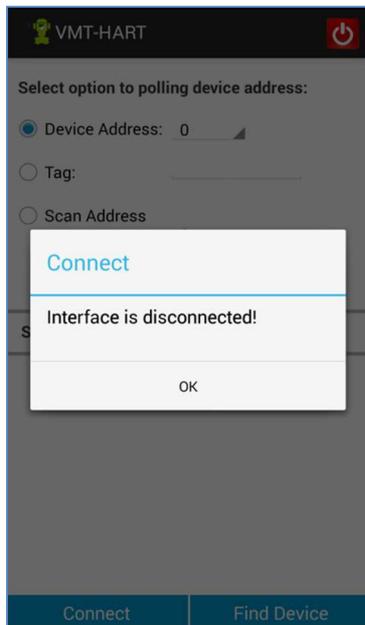


Figure 8.3 – Disconnected Interface Message.

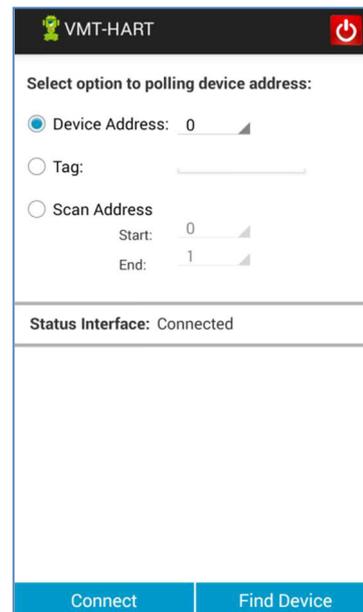


Figure 8.4 – Screen showing connected Interface Status.

After status "Connected" on interface (Figure 8.4), it is possible to start searching for HART® device.

VMT-HART provides three ways to search HART® device (Figure 8.4):

- Device Address: Search only one HART® device, according to the address.
- Tag: Search HART device via TAG and not address. It is necessary to indicate the TAG.
- Scan address: Search HART® device through a range of address configured by the user: 0-63 are the possible addresses. This option is used normally when user does not know the exact address of HART® device, or in a multidrop network where he wants to search for more than one HART® device.

Note: Although you can find more than one device, VMT-HART communicates with only one device at a time.

Clicking on "Find Device" button, a progress bar should appear (Figure 8.5), indicating the search process for device. If the device is not found, "Device not found" message (Figure 8.5) appears. Make sure the HART® device is correctly installed and the address information or tags are correct in VMT-HART.

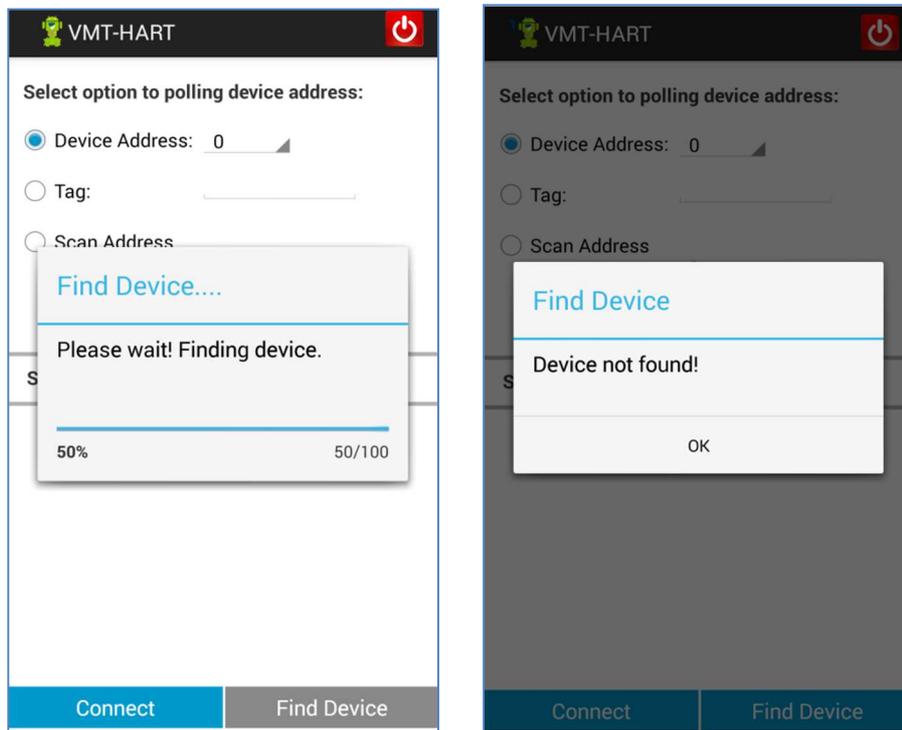


Figure 8.5 – Searching HART® device.

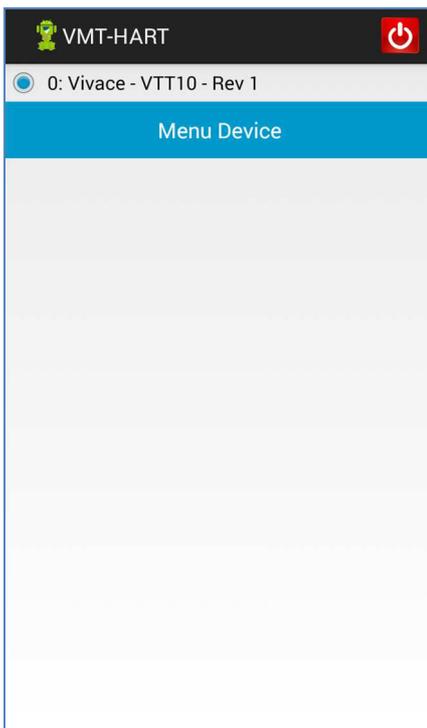


Figure 8.6 –Live List Screen.

Otherwise, all HART® devices found will be listed in the Live List (Figure 8.6), containing the address, manufacturer identification, device model and revision. To browse a device, simply select it in the list.

After the identification of the equipment, VMT-HART finds the corresponding DDL and loads the file. If the DDL is not in the VMT-HART library, a generic DDL will be used for accessing the device. This DDL provides access to some process variables, working range, damping and identification data.

9 FUNCTIONS OF APPLICATION VMT-HART

The structure of VMT-HART application was designed to be user friendly and easy to use, providing excellent performance. Following you can find the descriptions of the main functions of VMT-HART.

9.1. MENU

When selecting the device in the Live List, the DDL file is loaded, as the manufacturer, model and device review. The VMT-HART display the main menu with the content defined in the "root-menu" HART DDL of the device.

Menus are displayed using a tree architecture, making navigation easier, intuitively. The general layout and navigation screens are common for all devices, only changing the content, as defined in the DDL. The main menu typically consist of a series of buttons that lead to various sub-menus, methods and parameters.

The menus and buttons are represented by methods describing the label, with methods having a * at the end of the label. The parameters are displayed using label, along with the value and unit (if any).

Selecting the menu button, the corresponding sub-menu will open. Selecting the method button, the corresponding action is taken.

Figure 9.1 shows an example of a main menu, which is the temperature transmitter HART® VTT10-H.

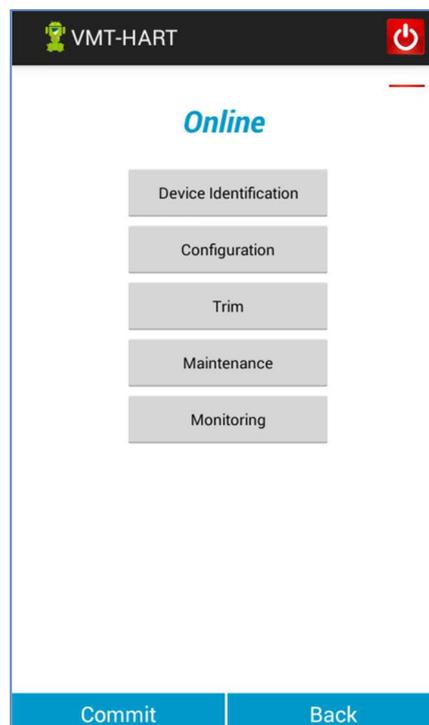


Figure 9.1 – Main screen - VTT10-H.

To navigate to a different menu, simply select the desired menu. To return to the previous menu, press "Back" button. Use menus to access all the data exactly as defined by device DDL, as described by the manufacturer.

9.2. READING PARAMETERS

After selecting the device in the Live List, the VMT-HART sends to device all HART® commands where the DDL "OPERATION" function is "READ". VMT-HART has an intelligent reading method, which initially takes a few seconds updating user database and then allowing navigation among menus quickly.

During the reading of the parameters, a screen with a progress bar will appear (Figure 9.2).

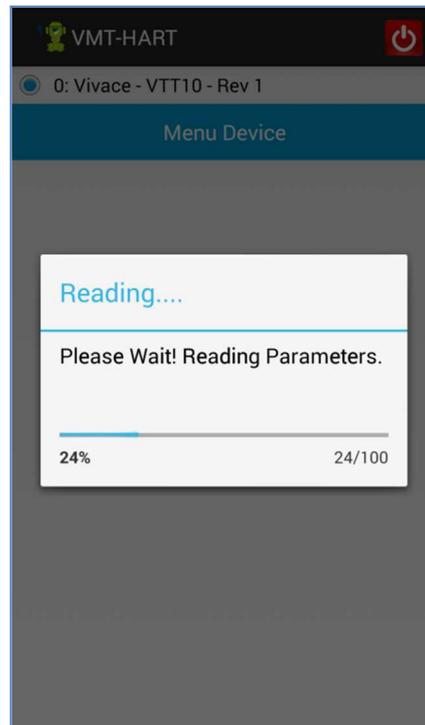


Figure 9.2 – Reading progress bar.

Parameter readings occurs in three different situations:

- On VMT-HART initialization: updating the database, as explained above;
- On screen opening: reading occurs only if during database update an error in HART command has occurred, where the parameter is part of it;
- Whenever a parameter writing is performed, if there is a corresponding read command.

9.3. PARAMETER WRITING

The parameters that can be written are presented with the value in black, while the read-only parameters are displayed in gray (Figure 9.3). To change the value of the parameter in the HART device or locally on VMT-HART (as type parameter class) click the parameter, change its value and then click on the "Commit" button (at the bottom of the screen).

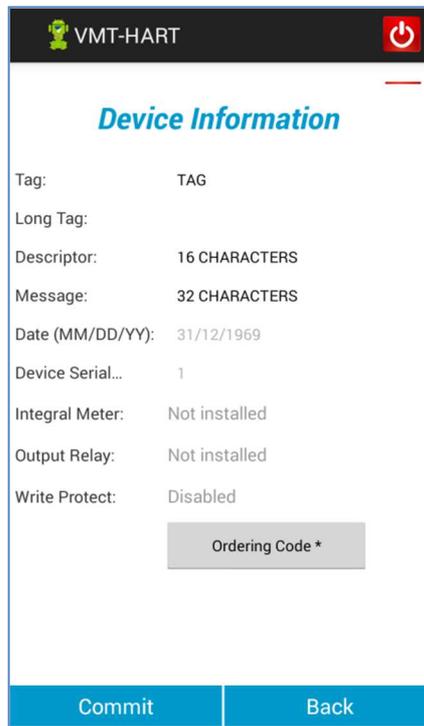


Figure 9.3 – Screen with parameter read-only.

Note that the parameter color will turn yellow (Figure 9.4) and after the completion of the writing process, will be back to black. During the writing process, the message "Please wait! Writing and reading data of the device" (Figure 9.4) appears.

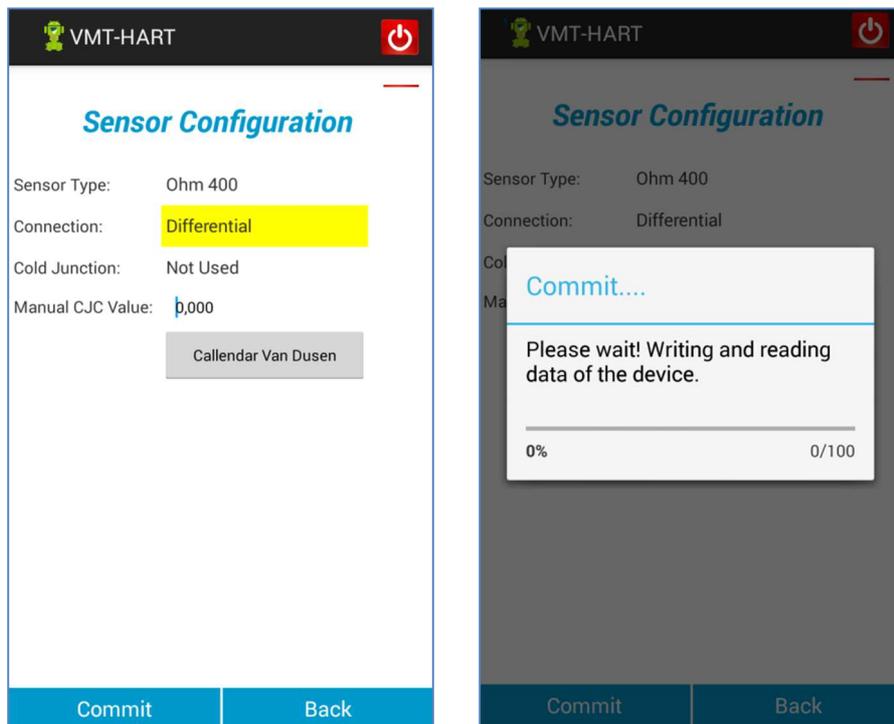


Figure 9.4 – Writing a parameter.

If write was not successful, the parameter value will return to the same as it was before the write operation and the Response Code message will be displayed, if being handled by the HART® device DDL (See topic DDL HART®).

If write occurs successfully, the parameter value will remain the same entered by user. Only the parameters changed by user are written to device.

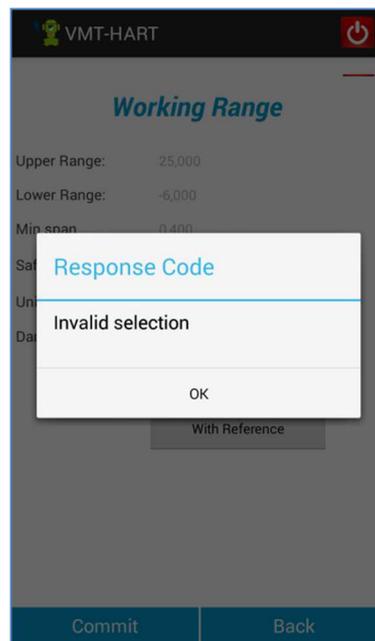


Figure 9.5 –Response Code Screen.

If there is a corresponding reading HART® command, after writing a parameter, the reading of the changed parameter will be performed. To check if it was successful, click "Back" button to return to previous menu and then by re-entering the screen, all values will be updated.

9.4. METHODS

Methods run through a sequence of screens and messages in order to perform some task. All methods in VMT-HART appear on the menus with the * symbol in front of the label method. Select the method you want to show the related operation screen (See topic DDL HART®).

Figures 9.6, 9.7 and 9.8 show some screens methods.

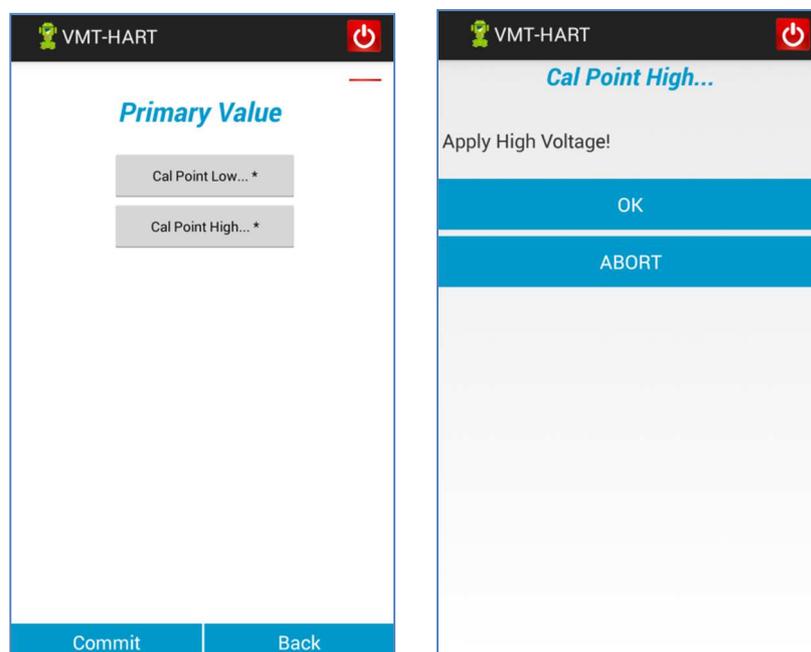


Figure 9.6 – Screen of method.

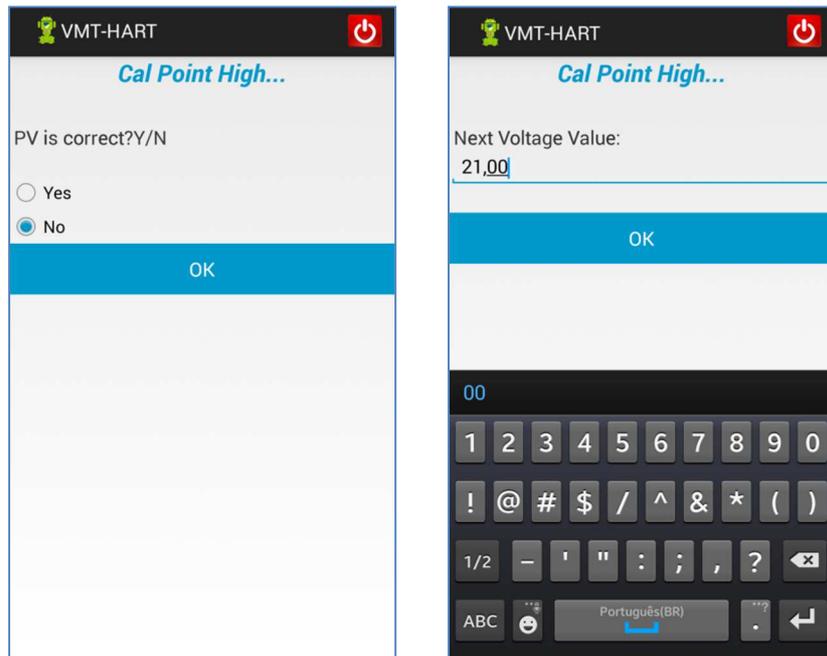


Figure 9.7 – Screen of method

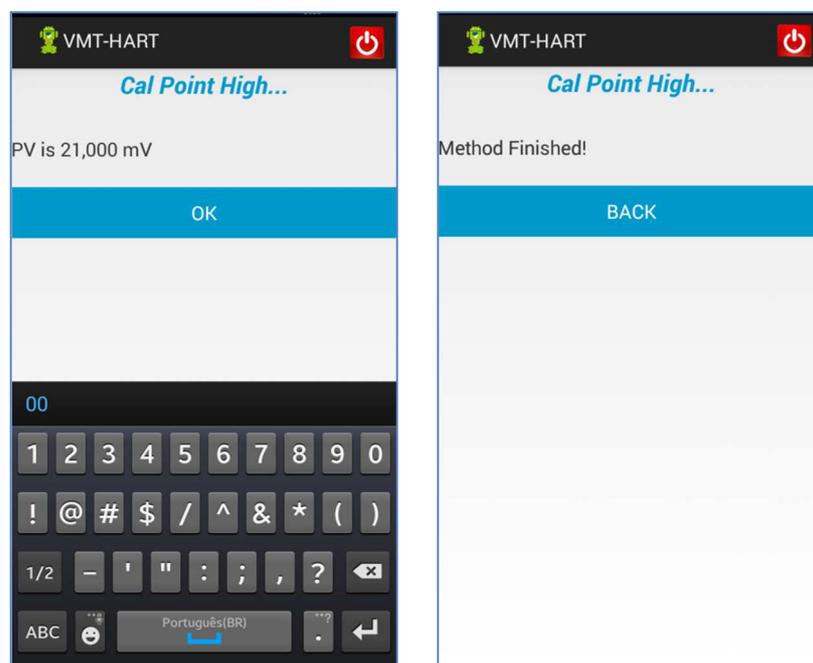


Figure 9.8 – Screen of method.

9.5. COMMUNICATION ERROR

To ensure better performance in the communication, VMT-HART sends up to three times the same HART® command to the device (if there is no reply or if the response is not valid).

If there is no success after these attempts, VMT-HART displays an error message (Figure 9.9).

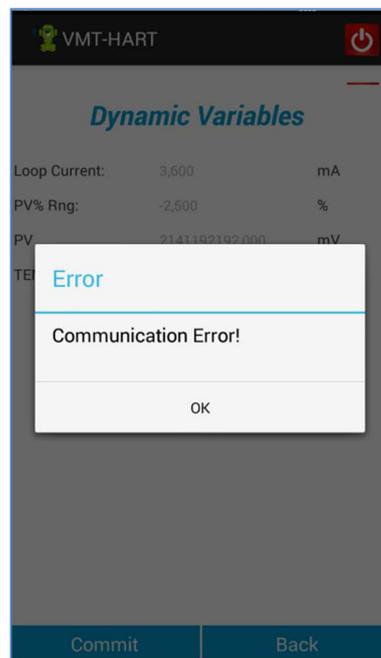


Figure 9.9 – Message of communication error

Messages will continue to appear until the communication is re-established.

9.6. TYPE OF VARIABLES

There are three types of variables presented by VMT-HART that are defined in the DDL, as follows:

- Numeric (integer or floating point)
- Text (ASCII, ASCII Packed)
- Enumerated (A list of corresponding string options with a list of values). Figure 9.10.

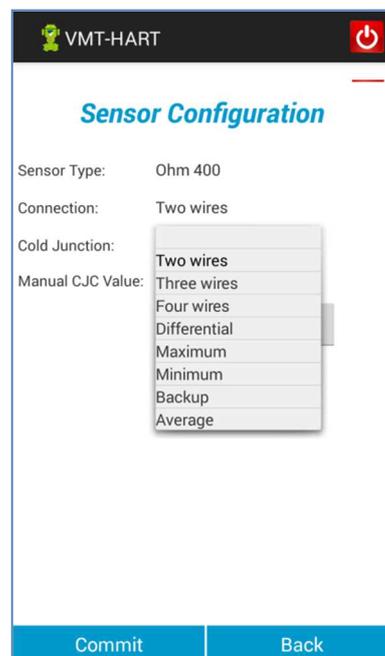


Figure 9.10 – Enumerated list.

If the parameter type is numeric or text, the keyboard of Android™ device will allow parameter change.

9.7. MONITORING

It is common for manufacturers to have on the DLL of the device a monitoring menu, where there are parameters with DYNAMIC class. The VMT-HART identifies this type of class and periodically sends HART commands to update those parameters on the screen.

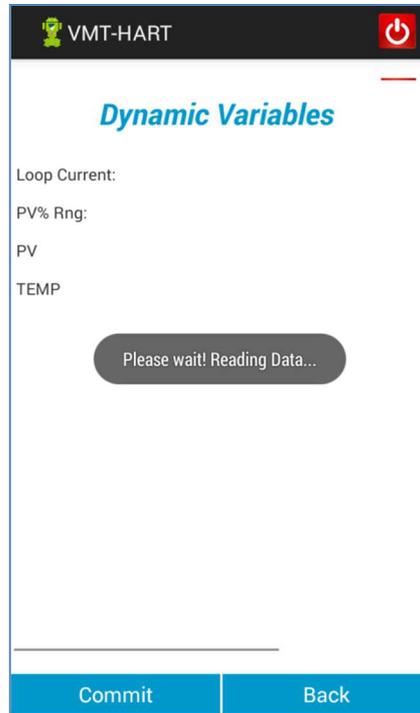


Figure 9.11 – Monitoring screen.

At the time of transmission of the HART message by VMT-HART, the icon that appears at the top of the screen is changed to the waveform (Figure 9:12).

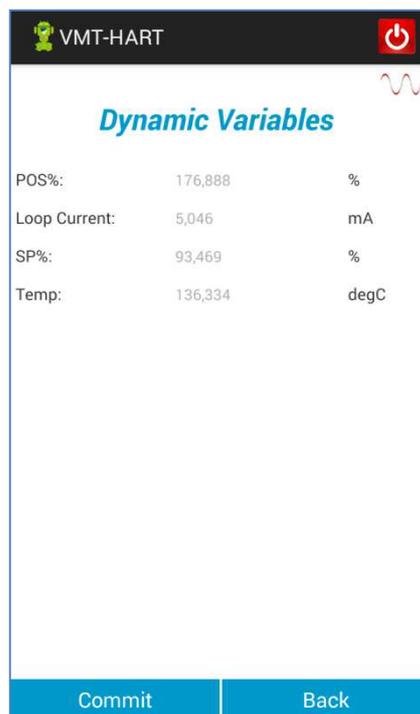


Figure 9.12 – Transmission icon.

9.8. EXIT

To exit VMT-HART application just click button , on top of the application screen.

This will only **close** the application, but does not **end** the application, which is still running in the background.

9.9. ABOUT

In the pop-up menu from the home screen of VMT-HART is the About option.

About informs the version of VMT-HART application and also important information about copyright. To return to the home screen VMT-HART, click the "OK" button.

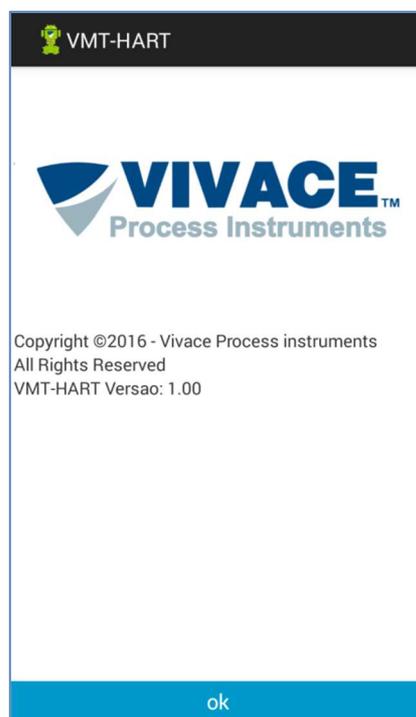


Figure 9.13 –VMT-HART About screen.

10 ORDERING CODE

VCI10 *Communication Interface*

Communication Type	U	USB
	A	ANDROID
	B	BLUETOOTH

Communication Protocol	H	HART
	P	PROFIBUS

Configuration Accessory	0	NOACCESSORY
	1	TABLET
	2	NOTEBOOK
	3	SMARTPHONE

Ordering Code Example:

VCI10 - A H - 0

11 WARRANTY

11.1. 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.

11.2. 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:			

