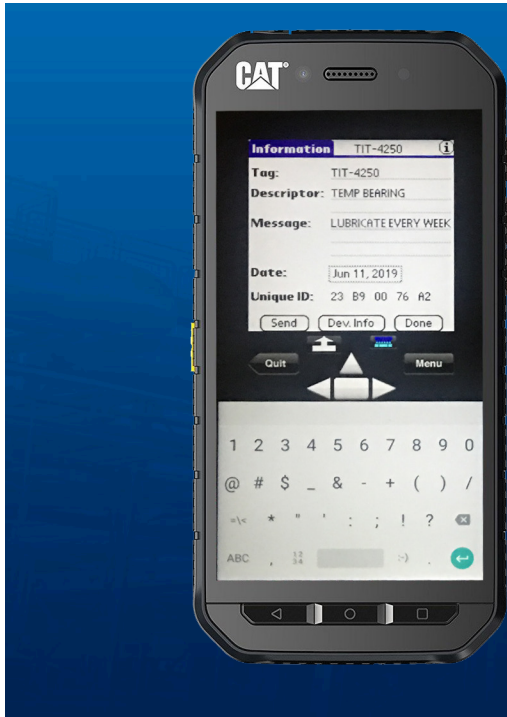


## HPC+Droid

## HART Pocket Communicator



**Hand Held Rugged Palm.**  
**Small size, rubberized enclosure.**  
**Water proof IP68.**  
**Chock proof MIL-SPEC-810G.**  
**25+ years of HART experience.**  
**Coverage for 370+ DDL devices.**

### Description

*The HPC+Droid is a reliable HART hand held configurator for field devices. It simplifies configuration and data analysis in the field. The HPC+Droid has communication compatibility with all HART field instruments used at process control plants for commissioning, diagnosis, data monitoring and configuration changes of HART instruments*

*The new HPC+Droid is not just a hand held, it is a tool out of the fragile norm of computers. Built for strength and endurance and yet utilizing the latest communication technologies and electronics. It is chock proof in conformance to MIL-SPEC 810G and water proof in conformance to IP68, meaning submersion of 1 meter of water for 1 hour, and drop resistance of 1.8 meters directly into concrete floor.*

*On the bottom of all it is a cell phone, ideal tool for use on construction sites, oil refineries, industrial plants, offices, and at home.*

### Features

- HART communicator for any environment, outdoors or indoors.
- Communication with HART 4/20mA via interface wireless Bluetooth.
- Software driver for over 370 existing HART instruments.
- New driver can be developed upon customer specification or DDL source file.
- Ability to install and run most Android applications.
- Unblocked phone 3G/4G/LTE, WiFi, Bluetooth, Camera, 32GB storage, and more.
- Small size 150x75x13mm, 220gram, high grip rubberized enclosure.
- 5" color display 1920x1080 pixels protected by Corning Gorilla Glass 5.
- Long battery life, water and chock resistant to IP68, rugged to MIL-SPEC-810G.

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## General Overview

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### General Principles

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The HPC+Droid is composed of 3 main components plus accessories. These parts consist of the Rugged Palm handheld (IP68 and MIL-SPE-810G), plus the HART wireless Bluetooth interface (IP67) plus the preloaded software package with the applications HPC+Droid, HPCGen, HPCGraph and the HPCLogger.

The HPC+Droid is delivered ready to run with no need for user installation and configuration. The Rugged Palm will be preinstalled with the HPC+Droid software package to run the HART communication and paired with the HART interface, therefore ready to communicate with any HART device. Power up the HPC+Droid, the HART interface, select the icon HPC+Droid and start working.

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### Hardware Overview

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The HPC+Droid is fully optimized for communication with the HART interface wireless, the MAC address of the Bluetooth interface is factory listed into the search tables of the Rugged Palm yielding easy operation.

It has also connection ports for mini-USB, micro-SD, SIM and CHIP-ID to enable cell phone services, we strongly suggest to keep all these ports sealed while operating in the field.

The HPC+Droid is housed in a rugged Rugged Palm that is widely used in construction sites, industrial plants and other demanding environments. It will work from the freezing ranges of Alaska all the way to the boiling swamps of Florida.

Compliance with standard IP68 will assure HPC+Droid

has the best water and chock resistance of its class, its rubberized enclosure will give strong grip to avoid slipping though the hands.

The color display offers bright and sharp images, the Lion battery of 5000mAh is for long operational time, cell phone compatibility for 3G, 4G or LTE networks, ..., ..., too much to list.

Most likely the HPC+Droid is the best hand held industrial computer available.

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### Software Overview

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The HPC+Droid run on Android operating system. The experience is very much like a Google launcher. There are a few apps preinstalled, such as an app toolbox (store front), camera, file browser, and power sharing utility. And it is open to installing whatever Android application available.

For the HART communication it will preinstalled with 4 software applications, HPC+Droid, HPCGen, HPCLogger and HPCGraph.

The main application HPC+Droid allows communication, monitoring and configuration of HART devices. The HPC+Droid software is based on device description source files (DDL) allowing access to all menus and parameters as designed by the instrument manufacturer.

The HPCGraph application allows device variables to be trended over time in an easy to view graphical format. Device parameters can be simultaneously plotted in various colors for easy identification.

The HPCLogger application allows device variables to be logged over time. A wide range of variables can be user selected or automatically selected over the time. These log files can be saved (proprietary format) and transferred to another Rugged Palm for further analysis.

The HPCGen software is the predecessor of the HPC+Droid software. It allows the configuration and monitoring of HART devices for a number of legacy

instruments such as the Smar line of HART instruments.

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## 1. Setup & Installation

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### Hardware Overview

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Fig. 1. - HPC+Droid Box Contents

The HPC+Droid is delivered with the following components:

- 1. Rugged Palm** - The included Palm is pre loaded with the HPC+Droid software package. The battery of the Rugged Palm may require charging. Please verify the battery level before each use.
- 2. HPC+Droid HART Interface** - This HART interface with wireless Bluetooth connects Rugged Palm to the HART 4/20mA network. It will also serve as software key for the HART application HPC+Droid. This interface is battery operated and will require periodic charges.
- 3. HPC+Droid Software package and Product Documentation**- Contains the documentation and HPC+Droid software. The HPC+Droid package is usually preloaded onto the Rugged Palm.
- 4. Power Supply Adaptor** . used to charge the Rugged Palm battery and the HART interface battery. A/C Voltages from 100 to 240 Vac.

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### Hardware Setup & Usage

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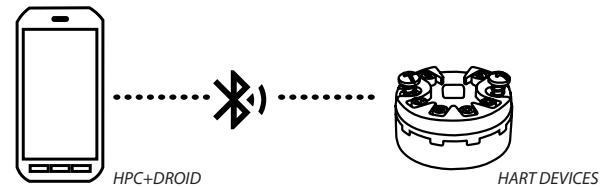


Fig. 2. - Connection to the HART network

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### Software Setup & Installation

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The HPC+Droid is delivered with the HPC+Droid software package installed and ready to run. I will also list the HART interface into the Bluetooth MAC available address. There is no need to do any further action for start-ups and installation. For further details and troubleshooting please contact [sales@springres.com](mailto:sales@springres.com)

The software package is already loaded with support for devices from a range of manufacturers. In addition, new device drivers can be obtained at Springfield Research website and added into HPC+Droid. For more information see the device drivers section.

The HPC+Droid software requires factory registration, unregistered software will not work. If for any reason the registration code is lost the product can be re-registered, in such cases please contact [sales@springres.com](mailto:sales@springres.com).

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## 2. Using the HPC+Droid Software Package

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All HPC+Droid applications are found under the HPC+Droid icon viewed on the Rugged Palm application screen.

Once you click this icon it will be visible new icons for HPC+Droid, HPCGraph, HPCLogger and HPCGen. See figure 3.

The following sections will address feature of each one of these programs.

## Opening the HPC+Droid

The HPC+Droid Allows the user to poll for devices on the HART network and communicate with them to configure or monitor their various parameters. Based upon Device Description files (DDL) the menus, variables and methods are supported as defined by the manufacturer source files.

The user interface of the HPC+Droid is self explanatory, find below a sequence of commands found in a daily basis

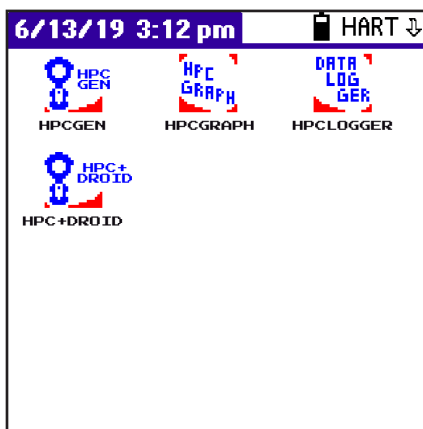


Fig. 3. - HPC+Droid

### • Polling for Devices

The polling screen is automatically opened at the start of HPC+Droid. As seen in Figure 4, the polling screen allows the user to choose a polling by device address, address range (0-15) or by tag. After HPC+Droid polls the network, all found devices will be listed. To open a particular device, simply select it from the list.

### • Polling for a Single Device

To poll for a single online device by address:

1. Select the checkbox next to the "Device Address" option.
2. Choose the address of the device by selecting it from the drop down menu located next to "Device Address".
3. Select the "Poll" button.

### • Polling for Multiple Devices

To poll for multiple online devices within an address range:

1. Select the checkbox next to the "From/To" option. 2. Choose the start and end search addresses from the corresponding drop down menus located next to the "From" and "To" options respectively.
3. Select the "Poll" button.

### • Polling by Tag

To poll for an online device by tag:

1. Select the checkbox next to the "Tag" option.
2. Enter the tag of the device you are looking for in the field located next to "Tag".
3. Select the "Poll" button.

## Navigating Device Parameters

Once a device is selected, the main menu of the device will be opened.

The main menu of most devices can lead to various submenus, parameters and methods. Menus and Methods are represented by buttons. Selecting a menu button will open the corresponding submenu. Selecting a method button will execute the corresponding action.

Editable fields are available for changing various parameters of the device. Editable variables will include either a text field denoted by a dotted underline or a drop down list denoted by an arrow. Examples of this can be seen in the figure below. These variables can be

edited by the user and sent to the device by selecting the "Send" button at the bottom of the screen.

At the bottom of every submenu there is three buttons: "Send", "Back", and "Done". The Send button will send any changes you have made to the editable fields of the current menu to the device. Once the send is complete, the values have been successfully sent to the device. The Back button will return you to the previous menu. The Done button will return you to the main menu of the device.

The HPC+Droid software is based on the Device Description Language (DDL). This language define a standardized method of detailing HART variables, commands and parameters of a specific device as well as to describe the menu structure and layout that the end user should see when communicating with such device. The HPC+Droid software use the DDL definitions to offer compatibility with a range of HART devices.

HPC+Droid is preloaded with all supported devices at the time of purchase. The various device parameters, menus and methods can then be accessed as suggested by the manufacturer.

#### Uninstalled or Unsupported Devices

When an uninstalled or unsupported device is found by HPC+Droid, the software will display a device driver number. New drivers can be requested to be added by sending its DDL source codes to sales@springres.com.

Even if the device is not supported it can be accessed in generic mode via the HPCGen software, this communication mode is still a power tool that can resolve most of the configuration needs.

All available HPC+Droid Device Driver Library can be found at [www.springres.com](http://www.springres.com).

#### • To add a new device driver to HPC+Droid:

1. Download the device driver file "mmdrr.prc" from the [www.springres.com](http://www.springres.com) HPC+Droid device driver library or received via e-mail, save it to a location at the

Rugged Palm.

- 2- Stop the application HPC+Droid

3. Copy the file "mmdrr.prc" into Android/data/com.springres.HPC+Droid/import

4. Start HPC+Droid, the new device driver is now available for use.

## Starting HPCLogger

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To start HPCLogger, follow the steps below:

1. Select the HPCLogger icon from the Palm application menu.
2. Select the device via HART address, address range or tag of the device(s).
3. The live list will show on screen, then select the target device.

#### • Selecting Logged Variables

By default, the device variables are PV (primary device variable), PV%, Out (mA), and

SV (secondary device variable). If the device supports HART command 33 then you can log many other variables.

(After you have started HPCLogger and polled for devices (see section 3.3.1) follow these steps to select non-default variables: )

#### • To start logging:

4. From the Live List screen, enter the desired sample time in minutes (Figure 9) .
5. Select the "Start Logging" button to go to the logging screen (Figure 10).
6. From the logging screen you can select to automatic log or manual log. Automatic logging will log the variables at the interval previously defined, while manual logging requires the user to select each time the variables should be logged.

- **For automatic log:**

7. Select the “Auto Log” button.

- **For manual log:**

8. Select the “Manual Log” button.

9. Select “Log Now” every time necessary (Figure 11).

10. Select the “Done” button when finished.

## HPCGraph

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The HPCGraph application allows plotting on screen up to 4 variables from the field device. These graphics can be customized and saved for offline viewing.

- **Starting HPCGraph**

To start HPCGraph, follow the steps below:

1. Select the HPCGraph icon from the HPC+Droid application menu.
2. Select the device via HART address, address range or tag of the device(s).
3. The live list will show on screen, then select the target device.

- **Selecting Variables to Graph**

By default, the device variables are PV (primary device variable), PV%, Out (mA), and

SV (secondary device variable). If the device supports HART command 33 then you can log many other variables.

4. Check the boxes next to each the variables to plot. The colors underneath correspond to each line of the graph (Figure 5). If the device supports HART command 33 then you can log many other variables.

5. Select the “Graph” button after selection, then the plotter will start working as per figure 14 as detailed below.

- **Variable List** - at left side column, the variable name,

current value and color.

- **Graphing Window** - This is the area where the 4 variables will be plotted.

- **Ymax, Ymin, Xmax, Xmin** - The X & Y scale configurable by the “Settings” button.

- **Settings Button** - The scale of the graph can be changed (Figure 15) for new values of the vertical (Ymax,min) and horizontal (Xmax,min). Select “Done” to return to the graph screen.

- **Start Button** - This will start the graphing of the selected variables.

- **Stop Button** - This will stop the graphing of the selected variables.

- **Done Button** - To stop the graphing and exit. The data will be automatically saved.

- **Offline Graphing** - Any graphing data is always stored to the Palm for later review. The “Offline” graphs can be accessed from the polling screen. To open and view an offline graph:

1. From the main polling screen of HPCGraph, select the “Offline Graphics” button.

2. All currently available offline graphs will be displayed (Figure 16). Select a file to be loaded (Figure 17). The offline graph files will follow the name convention dMMDDXXXXXgf where:

MM is the devices manufacturer code in hexadecimal format (for example, 3e for Smar)

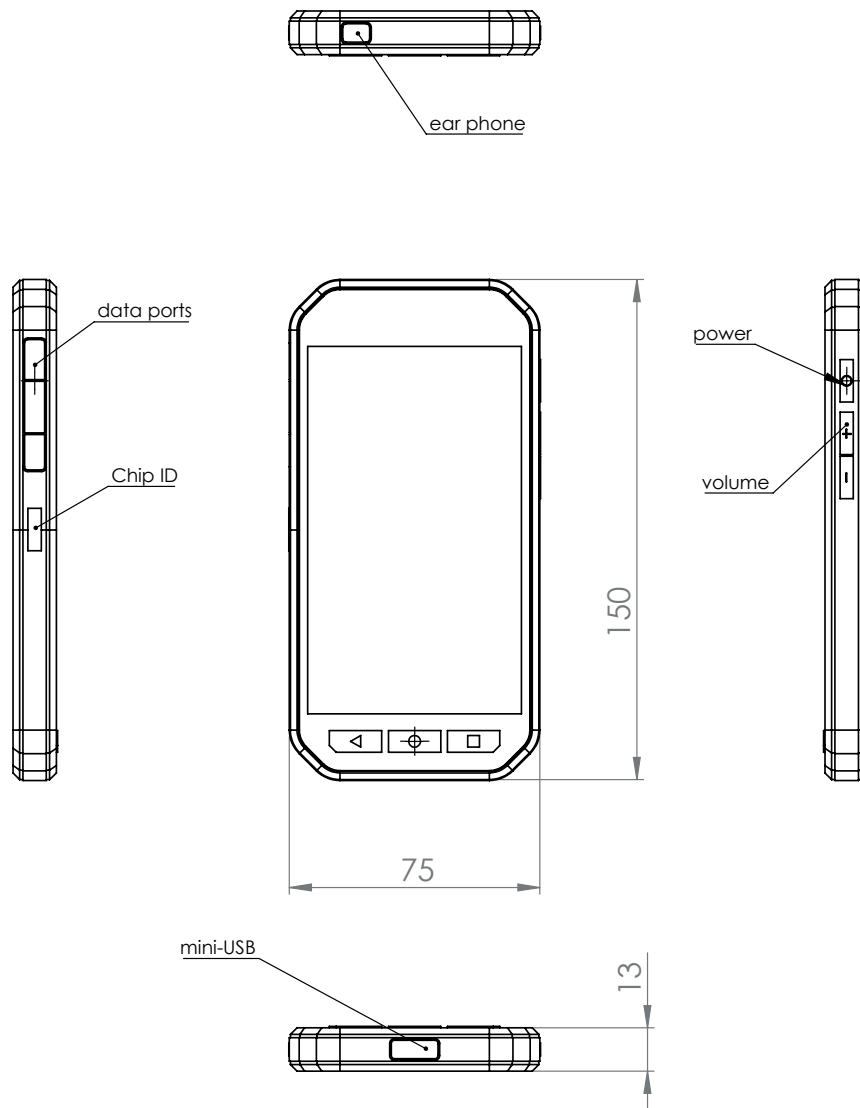
DD is the devices type code in hexadecimal format (for example, 01 for the LD301)

XXXXXX is the devices serial number in hexadecimal format.

- **HPCGen**

The HPCGen software can be used to access devices in generic mode which do not currently have a Device Driver in HPC+Droid. The usage of HPCGen is similar to

HPC+Droid, poll for devices from the polling screen and navigate the device parameters. HPCGen can access any HART device in generic mode as well as fully support for a collection of specific HART devices including the full line of Smar HART devices. For more information on the operation of the HPCGen, contact Springfield Research Corp.



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Springfield Research Corporation  
3350 NW 22nd Terrace Suite 500 • Pompano Beach, FL USA 33069  
Tel: +1 (954) 657.8849 • Fax: +1 (954) 657.8895 • sales@springres.com •  
www.springres.com

