



- **Connecting a bar code scanner to a STEPPII,**
- **STEPPIII, BOLERO-LT**
- **or FOX device**
- **Application Notes**

VERSION HISTORY:

This table provides a summary of the document revisions.

Version	Author	Changes	Last modified
1.0.1	F. Beqiri	Added configuration commands for the STEPIII, BOLERO-LT and FOX.	29/10/2014
1.0.0	F. Beqiri	Initial version	04/09/2008

TABLE OF CONTENTS

1 INTRODUCTION	5
1.1 <i>FIRMWARE CONFIGURATION</i>	5
1.2 <i>BAR CODE SCANNER SETTINGS</i>	5
1.3 <i>CONFIGURING A STEPPII DEVICE FOR DATA MODE</i>	5
1.4 <i>CONFIGURING A STEPPIII, BOLERO-LT, FOX DEVICE</i>	6
1.5 <i>SENDING RECEIVED SERIAL DATA TO A SERVER</i>	6
1.6 <i>WRITING SERIAL DATA TO HISTORY</i>	7

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1 INTRODUCTION

This document describes how to connect a bar code scanner to a *STEPPII*, *STEPPIII*, *BOLERO-LT* and *FOX* device and how to store or transmit the scanned data. This example should give an idea on how to connect serial devices on a *STEPPII*, *STEPPIII*, *BOLERO-LT* and *FOX* and process the incoming data in general.

1.1 Firmware configuration

Default operation of the RS232 port on the *STEPPII* AMP connector is the command mode. In this mode the protocols and debug information are sent to the serial port and it listens for commands which the user can send to the device.

In order to get data from a bar code scanner via the RS232 port of the *STEPPII*, it has to be set into data mode. In data mode the *STEPPII* can not receive PFAL commands anymore.

In this example one input will be programmed to be able to switch between command and data mode.

1.2 Bar code scanner settings

The bar code scanner used for this application note is a *Firescan D131*. It uses a 38400 baud RS232 connection and sends a carriage return/line feed after sending its scanned data.

By default, the serial port of the *STEPPII*, *STEPPII*, *BOLERO-LT* and *FOX* runs at **57600** baud. In order to make both devices talk to each other you will need to change the baud rate for the used serial port to **34800** baud using the following command:

For *STEPPII*

```
$PFAL,CNF.Set,DEVICE.SERIAL.BAUDRATE=38400
```

For *STEPPIII*, *BOLERO-LT*, *FOX*

```
$PFAL,CNF.Set,DEVICE.SERIAL0.BAUDRATE=38400
```

1.3 Configuring a *STEPPII* device for data mode

As mentioned above, one of the inputs of the *STEPPII* will be used to switch between **Command** and **Data** mode:

- ❖ When, for example, the **input 1** is **switched on**, the *STEPPII* is set into the **Data** mode:

```
$PFAL,CNF.Set,AL5=IO.IN.e0=redge:CNF.Set,DEVICE.COMM.SERIAL=data=0,1,F
```

Parameters for data= **0**, **1**, **F**

- 0:** Received data is not transferred immediately but can be used to execute alarms.
- 1:** Enables events when the system detects a carriage return/linefeed.
- F:** All system status have to be transmitted.

- ❖ When input 1 is **switched off**, the *STEPPII* is reset into the **Command** mode:

```
$PFAL,CNF.Set,AL6=IO.IN.e0=fedge:CNF.Set,DEVICE.COMM.SERIAL=cmd,F
```

1.4 Configuring a STEPPHIII, BOLERO-LT, FOX device

The STEPPHIII, BOLERO-LT and FOX do not need to be set into the Data mode, because the command mode allows also event generation for incoming text messages terminated by the line feed <LF> character that do not start with PFAL. It is assumed that, the text sent from the scanner is terminated by the line feed <LF> character, otherwise no event would be occurred.

To use one of the above-mentioned device for scanner application, make sure that *Serial0* is in the Command mode. To change the Serial0 into the Command mode execute the following command:

```
$PFAL,MSG.Mode.SERIAL0=7F,C
```

Parameters for command mode=**7F**, **C**

7F: All system status and protocols have to be transmitted.

C: Sets the *Serial0* into the command mode.

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1.5 Sending received serial data to a server

The STEPPHII, STEPPHIII, BOLERO-LT or FOX device gets configured to send the received serial data together with the actual date, time and position to an internet server:

For STEPPHII

```
$PFAL,CNF.Set,AL7=Sys.eSerialData:TCP.Client.Send,8,"TrackingNumber: &(SerialData)"
```

For STEPPHIII, BOLERO-LT, FOX

```
$PFAL,CNF.Set,AL1=SYS.Device.eStart:MSG.Send.RawSerial0,0,"start"
```

```
$PFAL,CNF.Set,AL7=Sys.eSerialData0:TCP.Client.Send,8,"TrackingNumber: &(SerialData0)"
```

To send the received Serial0 data to the Trace4You - server use the following alarm with the event <sfal.event.text='&(SerialData0)'> in the user text.

```
$PFAL,CNF.Set,AL7=Sys.eSerialData0:TCP.Client.Send,8,"<sfal.event.text='&(SerialData0)'>"
```

- The event **Sys.eSerialData** for STEPPHII or **Sys.eSerialData0** for STEPPHIII, BOLERO-LT or FOX device occurs every time when the STEPPHII detects a carriage return/line feed for STEPPHII or the STEPPHIII, BOLERO-LT, FOX detects a line feed on the serial port (as configured before).
- **TCP.Client.Send,8,"TrackingNumber: &(SerialData0)"** command sends the GPRMC protocol and the user defined text to a remote server.
- The dynamic entry **&(SerialData)** for STEPPHII and **&(SerialData0)** for STEPPHIII, BOLERO-LT and FOX device contain the received serial data from the RS232 port.

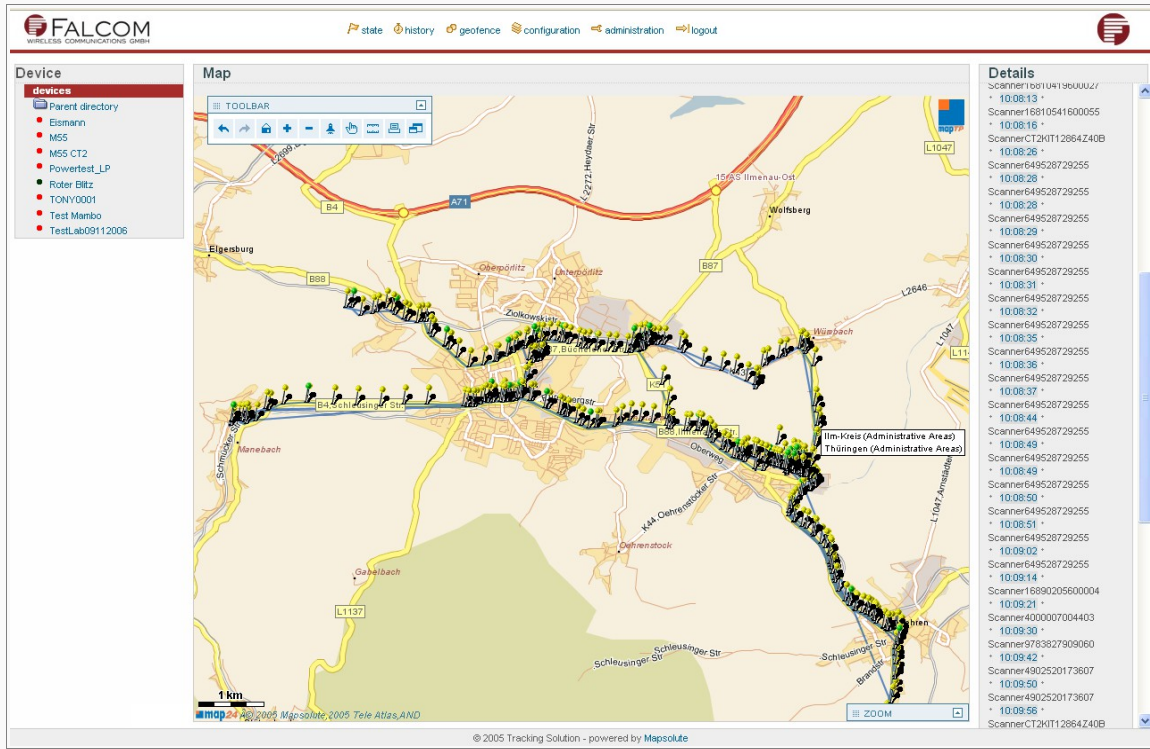


Figure 1: Screenshot from the FALCOM Online Tracking Solution including a STEPII history with scanned barcode data.

1.6 Writing serial data to history

Besides sending the received serial data to a server, it is also possible to store the data in the device history and read it out later.

If the data should only be stored in history change, the alarm can be defined as follow:

For STEPII

```
$PFAL,CNF.Set,AL7=Sys.eSerialData:GPS.History.Write,8,"Tracking Number: &(SerialData)"
```

For STEPIII, BOLERO-LT, FOX

```
$PFAL,CNF.Set,AL7=Sys.eSerialData0:GPS.History.Write,8,"Tracking Number: &(SerialData0)"
```