HCP Hammer
customer display

User manual

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Contents

1. Introduction

This document describes the hardware of HCP Hammer customer display, with interface specifications, electrical and mechanical characteristics. Also, it describes HCP Hammer PC application for basic configuration of Hammer customer display.

HCP Hammer is a compact, stand alone customer display designed for ECR or POS application and provides more user friendly environment by clearly displaying information. Price/change information are shown on LCD display in 2 lines with 20 character per line.

2. Package content

The package content of the HCP Hammer customer display, consists of:

- HCP Hammer
- AC/DC power adapter 9V/2A
- RS232 cable
- USB cable
- CD with PC software
- package box

Figure 1. Package contents

Packaging box is a carton box with following dimensions:

- width: 290 mm
- height: 110 mm
- length: 395 mm

3. RS232 version

If you want to display text information on Hammer over RS232 interface you must use RS232 cable and power adapter that came with HCP Hammer package.

On figure 2. you can see how to connect HCP Hammer customer display.

***Figure 2**. Hammer – RS232 connection*

4. USB version

If you want to display text information on Hammer over USB interface you must use USB cable that came with HCP Hammer package.

On figure 3. you can see how to connect HCP Hammer customer display for USB interface.

Figure 3*. Hammer – USB connection*

Plug USB cable to RJ45 female connector that came from Hammer, connect USB to POS system (PC) and turn the switch on Hammer device.

If you are using Windows operating system, drivers for USB basically you don't need, all Windows versions from XP to Windows 8 have basic drivers for proper operation of Hammer. If windows can't recognize Hammer USB port, look for the drivers on CD dics that came with Hammer box.

5. Communication protocol

EPSON Protocol

Command	Code Description (HEX)	Functional Description
HT	09	Move cursor RIGHT
BS	08	Move cursor LEFT
US LF	1F 0A	Move cursor UP
LF	0A	Move Cursor DOWN
US CR	1F 0D	Move cursor to RIGHT-MOST position
CR	0D	Move cursor to LEFT-MOST position
HOM	0B	Move cursor to HOME position
US B	1F 42	Move cursor to BOTTOM position
US $ x y	1F 24 x y X=1-14 Y =01,02	Move cursor to specified position
C1	13	Cursor ON
C2	14	Cursor OFF
C3	15	Cursor Blink ON
C4	16	Cursor Blink OFF
CLR	0C	Clear display screen
CAN	18	Clear cursor line
US E n	1F 45 n N=00-FF (blink period)	Blink display screen
ESC @	1B 40	Initialize display
ESC 0 bbbb	1B 30 b0 b1 b2 b3 BaudRate(MSB) Ex: 1B 30 00 01 C2 00 (115200bps) Default:9600 Available options: 4800,9600,19200,38400,57600,115200	Select BaudRate
US V P H M S	1F 56 P H M S P – Position to display time on H – hours M – minutes S – seconds	Display Time on position
US T h m	1F 54 H M H – hours M – minutes	Display Time
US U	1F 55	Display time continuously
TST1	FC	Test Connection: FD
PRG	FB 2B –Time between Last serial activity and displaying of commercial message 1 (s) 2B-Duration of commercial 1(s/10) 40b – Commercial 1 (ASCII) 2B-Duration of commercial 2(s/10) 40b – Commercial 2 (ASCII) 2B-Duration of commercial 3(s/10) 40b – Commercial 3 (ASCII)	Programming of commercial messages and timings All short data (2B) are MSB

Table 1. Communication protocol – EPSON protocol

6. Electrical and Environmental Characteristics

6.1. Apsolute Maximum Ratings

Parameter	Parameter	Min.	Max.	Unit
Supply voltage	RS232 ver	8	12	V
	USB ver	4.8	5.5	
Supply current	Ic	70	150	mA
USB signals	USB D+, USB D-	1.5	3.8	V
RS232 input voltage range	TxD	-20	+20	V
	RxD	-0.3	+5.3	V
Immunity against ESD	RS232 LINES	-15	+15	kV
Storage temperature		-30	+70	°C

Table 2. Apsolute maximum ratings

6.2. Recommended Operating conditions

Parameter	Pin / Parameter	Min.	Typ.	Max.	Unit
Supply voltage	*RS232 ver		9		V
	*USB ver		5		
Supply current	Ic *		100		mA
Operating temperature	Hammer RS232 and USB ver	0	+25	+50	°C

Table 3. Recommended operating conditions

*RS232 ver – HCP recommends power supply that came with the Hammer device. AC/DC v adapter 9V/2A.

*USB ver – Hammer USB ver get its power supply from USB port of ECR/POS/PC device.

6.3. Display characteristics

Display Type	LCD character display ,STN, blue, black
Backlight	LED
Characters x Lines	20 x 2
Character Size	6.0 x 9.66 mm
Character pitch	7.2 x 10.98 mm
Active area	142.8 x 20.64 mm
Viewing direction	6 o'clock

Table 4. Display characteristics

6.4 RS232 interface

Param.	Description	Conditions	Min.	Typ.	Max.	Unit
V_{OUT}	Transmitter output voltage for RxD,	@3K to GND	±5	±5.4		V
R_{OUT}	Transmitter output resistance RXD		300	10M		
R_{IN}	Resistance TxD,		3	5	7	k
V_{IN}	Receiver input voltage range TxD		-25		+25	V
V_{LOW}	Input threshold low				0.8	V
V_{HIGH}	Input threshold high		2			
Baudrate			9600	9600	115200	bps
RS232,USB cable				1.8	2	m

Table 5. *RS232 interface*

6.5 USB interface

Param.	Description	Min.	Typ.	Max.	Unit
UVoh	I/O Pins Static Output (High)	2.8		3.6	V
UVol	I/O Pins Static Output (Low)	0		0.3	V
UVse	Single Ended Rx Threshold	0.8		2.0	V
UCom	Differential Common Mode	0.8		2.5	V
UVDif	Differential Input Sensitivity	0.2			V
UDrvZ	Driver Output Impedance	26	29	44	

Table 6. *USB interface*

7. Mechanical characteristics

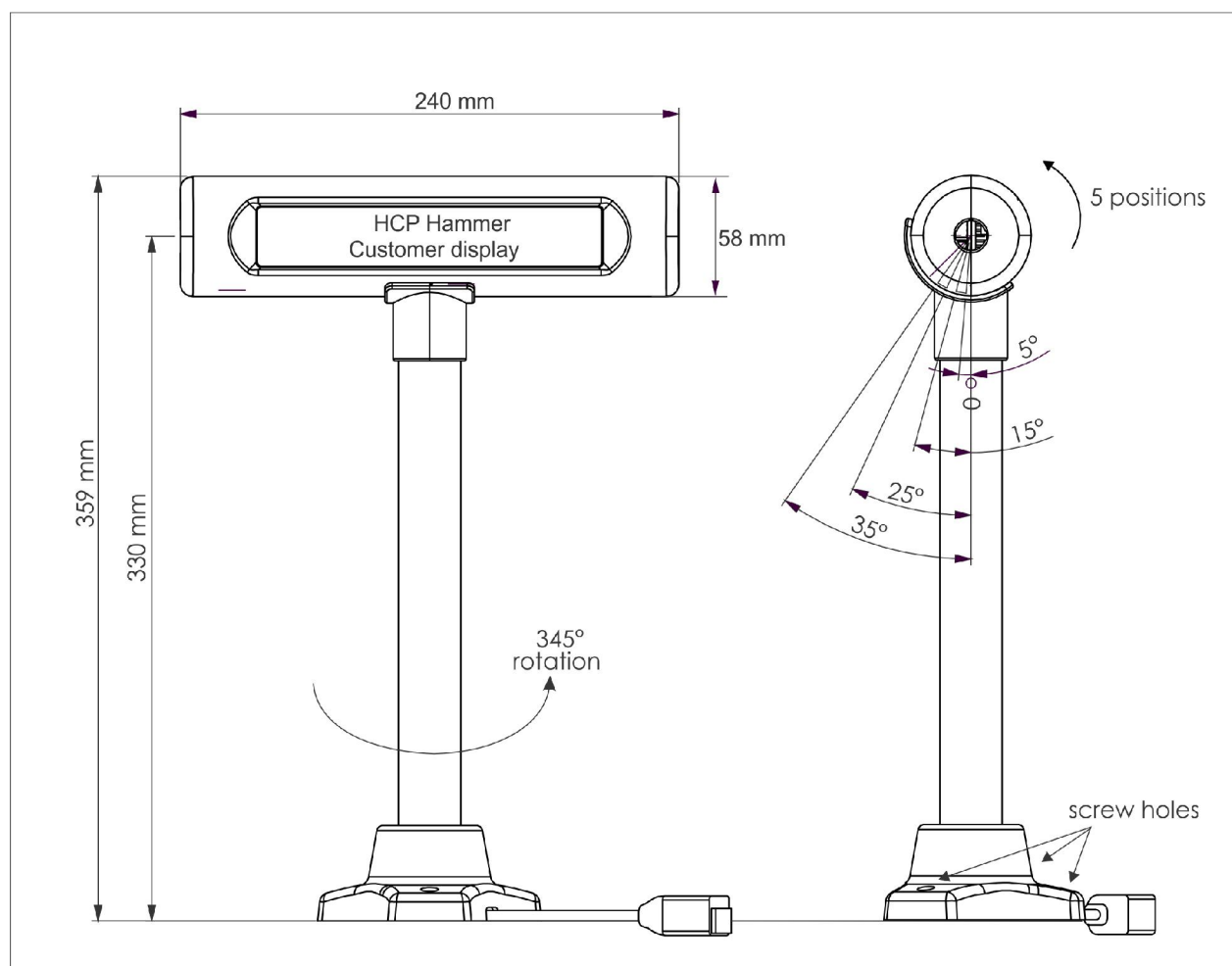| Dimensions	
Display unit	Ø 58 x 240mm
Totam height	359mm
Base	Ø110
Tilt angle	0° - 35° (five positions)
Horizontal rotation	0° - 345°

Table 7. *Mechanical dimensions*

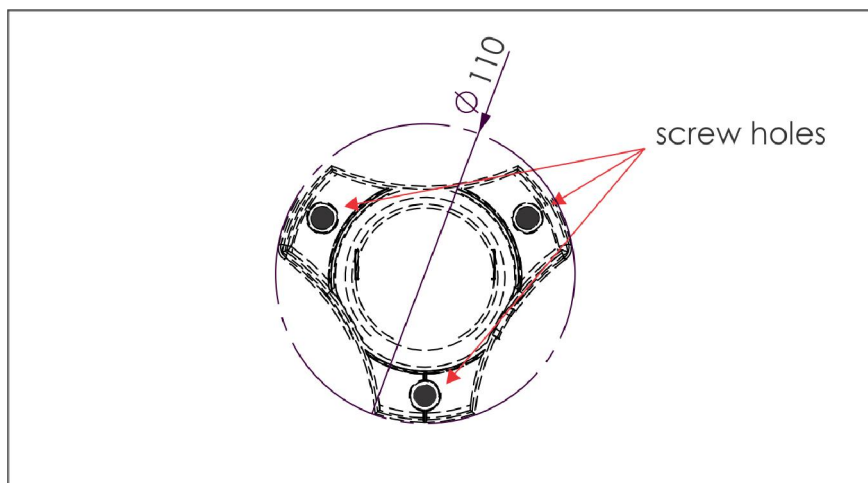***Figure 4.*** *Mechanical dimensions of Hammer*

Figure 5. *Screw holes location – top view*

8. HCP Hammer PC application for Windows operating system

8.1. Installation instruction on Windows 7

Take CD disc from HCP Hammer box and insert on your PC or laptop CD/DVD ROM drive. Locate file "setup HCP Hammer.exe" and double click on it and installation will start.

Figure 6. *First window after starting installation*

When first window appears after starting installation, click "Next".
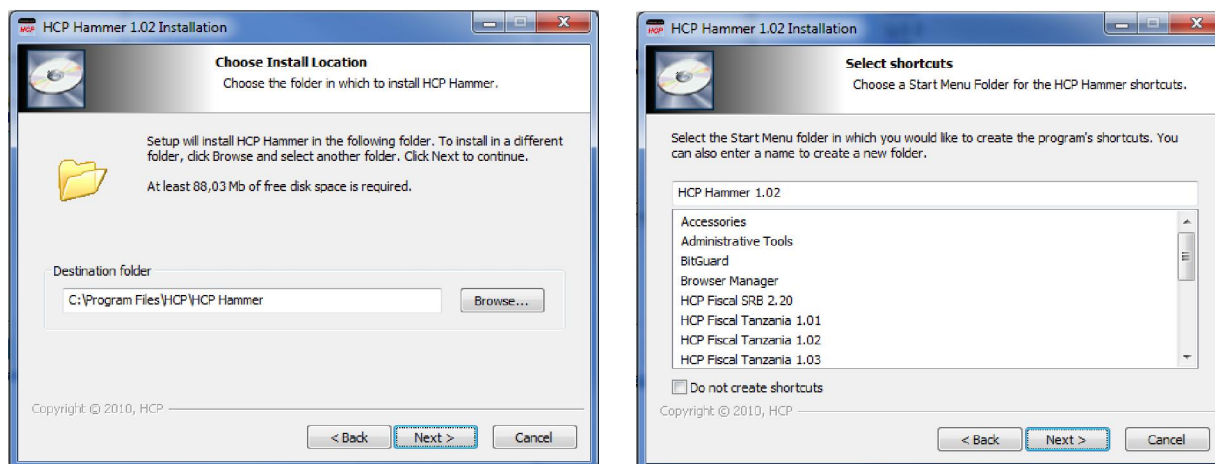

Figure 7. *Choose install location (left) and select shortcuts folder (right)*

Next step is to select folder for installation, by default location is in "Program files/HCP" folder, if you want to choose other folder, clik on the "Browse" button and select other folder where you want to install HCP Hammer application, and then clik on "Next".

Next window is select shortcuts (figure 7. right) you can choose not to create shortcuts (select box "Do not create shortcuts"), by default shortcuts in start menu folder is created, click "Next" button to continue installation.
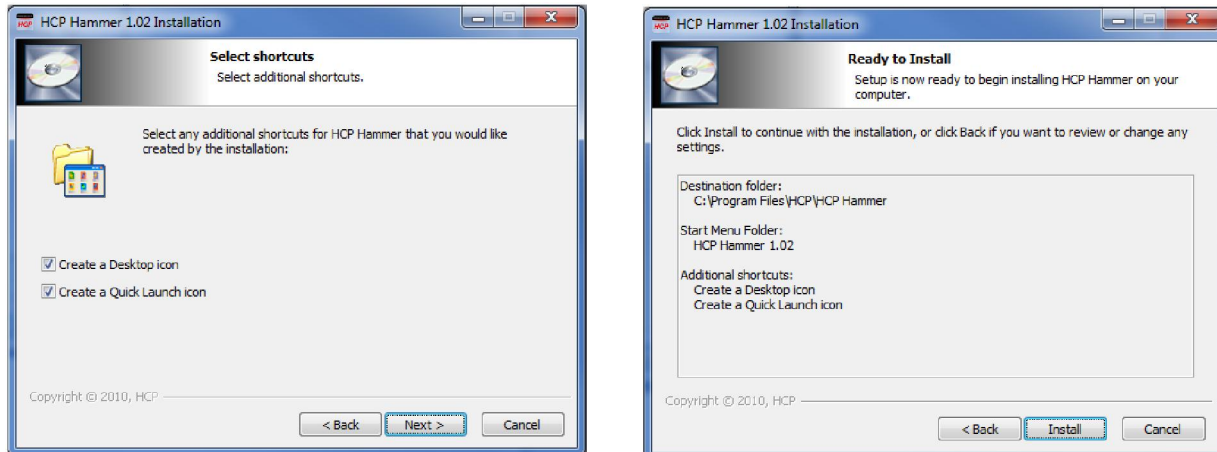
Figure 8. *Select shortcuts (left) and info about location of application (right)*

Next window is select shortcuts (figure 8. left), you can choose to create both desktop and quick launch icon (default) or not. Click "Next " button to continue.
Window Ready to install will appear (figure 8. right) with information about installation, start menu folder and shortcuts that you selected till this step. If everything is ok, click on "Install" button to continue.
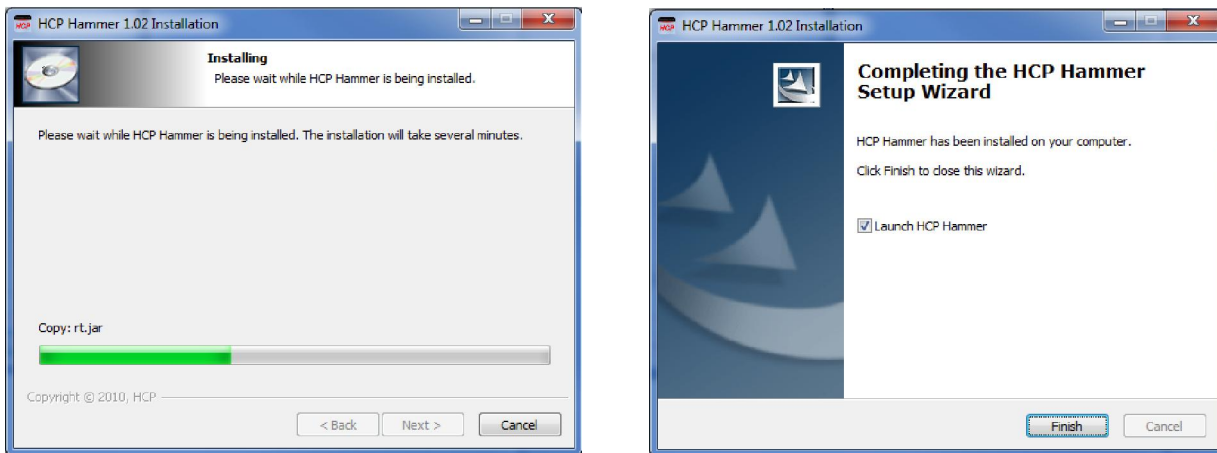

Figure 9. *Installing bar (left) and finishing the installation window (right)*

Installation will begin, you will see progress bar (figure 9. left) after installation is finished, click on the "Finish" button (figure 9. right)
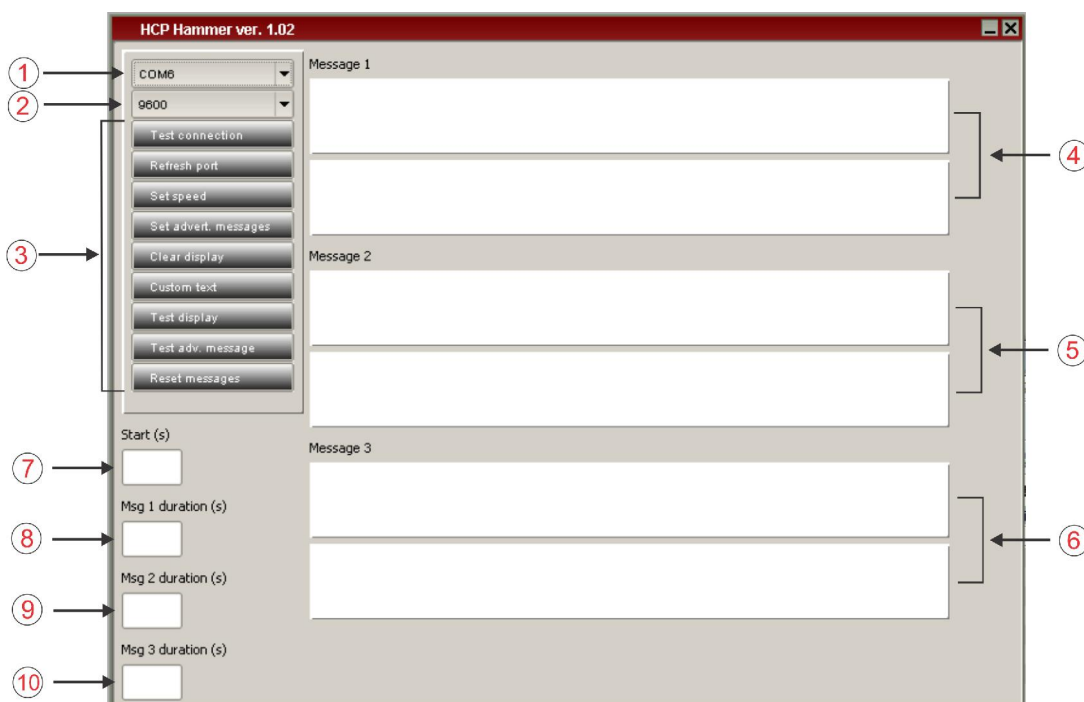
Figure 10*. HCP Hammer application*

On figure 10. You can view main window of the HCP Hammer application.

n	Button name/meaning	Function
1	**Select COM port**	where HCP Hammer customer display is connected
2	**Select communication speed**	by default it's set to 9600bps (recommended speed for communication is 9600bps)
3	**Test connection**	test communicaton between PC and Hammer display
	Refresh port	if application is active, and the Hammer was unplugged from the PC, click on this button to refresh active COM ports on your PC
	Set speed	for changing communication speed of HCP Hammer
	Set advert.messages	for memorizing advertising messages
	Clear display	clears display
	Custom text	for sending custom text to display, for testing purposes
	Test display	for testing display functionality (application will send some text for testing all characters on both lines of display)
	Test adv.message	for testing advertising messages (application will send three predefined messages to the display)
	Reset messages	clears advertising messages that are currently stored in display
4	**Advertising message 1**	Text field for writing advertising message 1
5	**Advertising message 2**	Text field for writing advertising message 2
6	**Advertising message 3**	Text field for writing advertising message 3
7	**Start (s)**	Text field for input seconds when advertising messages will start to appear
8	**Msg 1 duration (s)**	duration of showing advertising message 1 in seconds
9	**Msg 2 duration (s)**	duration of showing advertising message 2 in seconds
10	**Msg 3 duration (s)**	duration of showing advertising message 3 in seconds

Table 9. *HCP Hammer application button functions*

8.2 Example of using HCP Hammer application with Hammer customer display

Connect USB cable from Hammer display to the available USB port on your PC, turn on the power switch on Hammer display (look on pager 7. Figure 3.)
Before starting HCP Hammer application, go to the Device manager to see on which COM port Hammer display is.
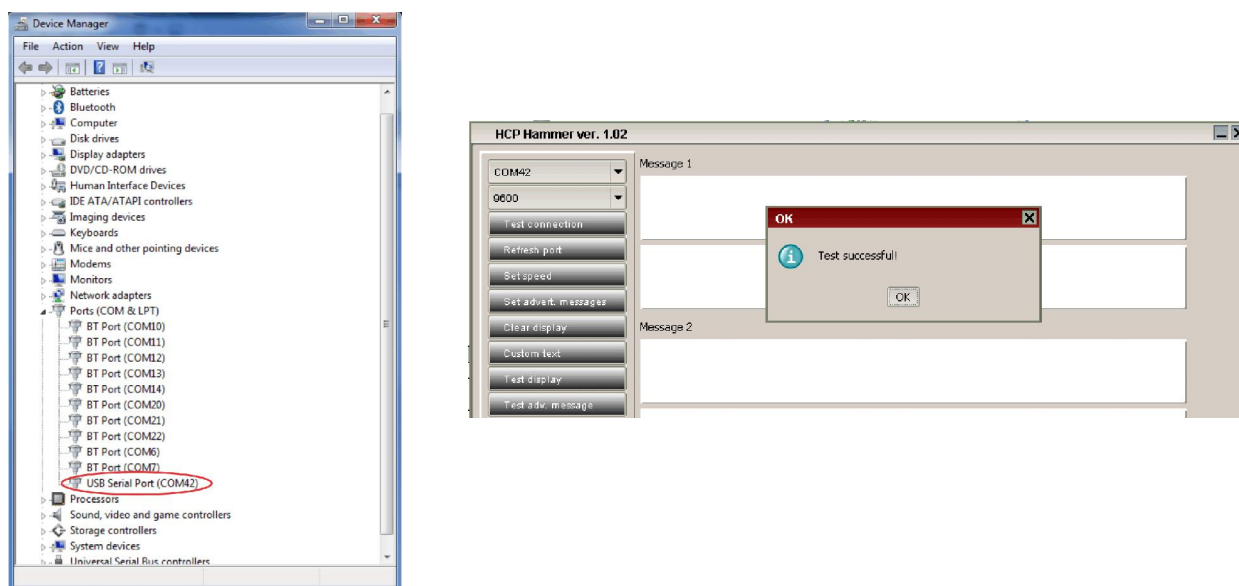Go to Start/Control panel/System/Device Manager.

Figure 11*. Device manager(left) and HCP Hammer application (right)*

In this example, Hammer is installed on COM42 port. So on HCP Hammer application we will first select COM port **COM42**, if this COM port is not on the list, click on the ***Refresh port*** button and look for it.
And first thing that we should do is test communication between PC and Hammer display, so click on the ***Test connection*** button and if everything is ok, window with info "*Test successful"* will appear.
After this, you can test the display, input some custom text, test advertisement messages, input custom advertisement messages and reset messages.

The same procedure is for the Hammer with RS232 interface, connect it with the proper cable and power supply (page 6. Figure 2.) And select proper COM port, and test connection.

8.3 Advertisement **messages**

When Hammer is turned on, by default, there is advertising messages from the HCP company, and they will be on the display only until the first message is send to the Hammer display. Also, communication speed is shown on display only one time when display is turned on.

If you want to put some custom advertisement messages that will appear on the Hammer display when is not on the "working mode" you can put up to three 3 advertisement messages.

8.3.1 Advertisement messages example 1

We will put three commercial messages in to the Hammer display

1	**HCP**
	fiscal solutions
2	**HCP**
	ECR/POS systems
3	**HCP**
	GPRS/GPS solutions

Table 10. *Example of advertisement messages*

We want to advertisement messages start 10 seconds after last text was written on the display, and we want all the messages to be on the display for 2 seconds.

Fill the text field like on the picture bellow, and click on the ***Set advert.messages*** button to save the messages in the display. After 10 seconds, this messages should appear.

To be sure that display did remember advertisement messages, turn of and turn on display and wait for messages to appear.
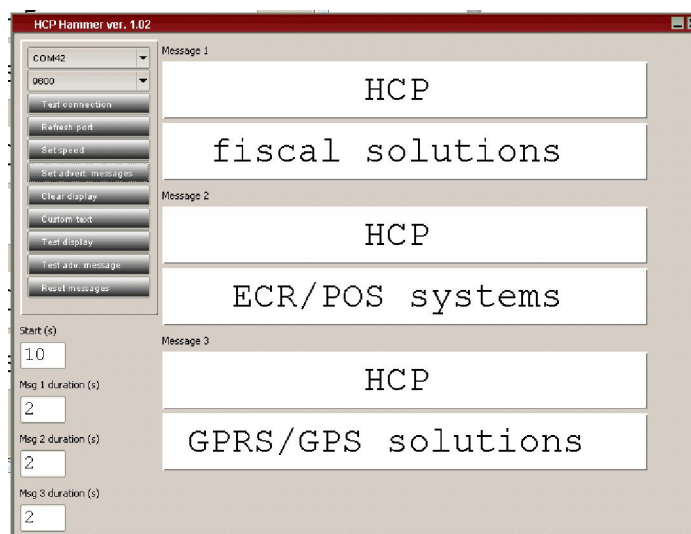

Figure 12. *Example how to fill advertisement messages*

On figure 12. you can see example of input of three messages with specified timing.

8.3.2 Advertisement messages example 2

We will put one advertisement message.

1	**Welcome**
2	
3	

Table 10. *Example of advertisement messages*

We want to advertisement messages start 15 seconds after last text was written on the display, and we want that this message blink with 1 second period
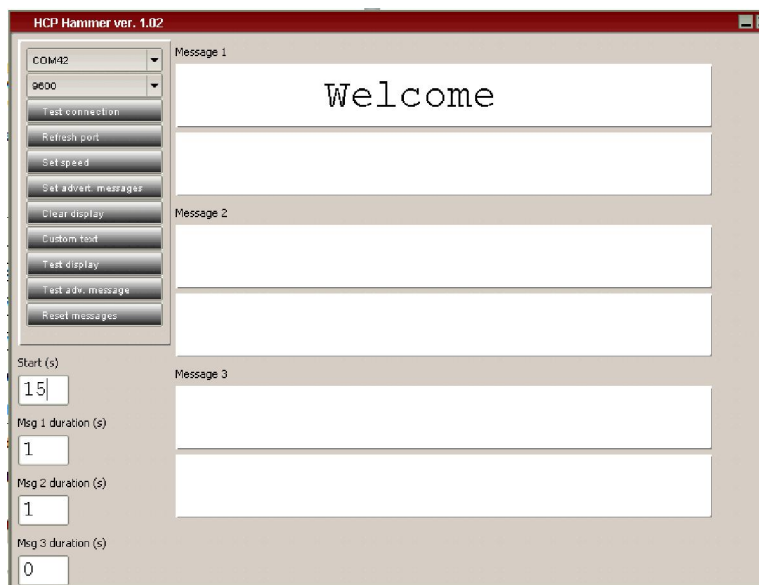

Figure 13. *Example how to fill advertisement messages*

Fill the text field like on the figure 13, and click on the ***Set advert.messages*** button to save the messages in the display. After 15 seconds, this messages should appear.
To be shore that display did remember advertisement messages, turn of and turn on display and wait for messages to appear.

After 15 seconds, message " Welcome " will appear on first line of Hammer display, and it will cleared after 1 second, and then appear again.

To check, how it will look on the field, you can write some text on the display using button **Custom text** , where window will appear with two text fields with 20 characters.
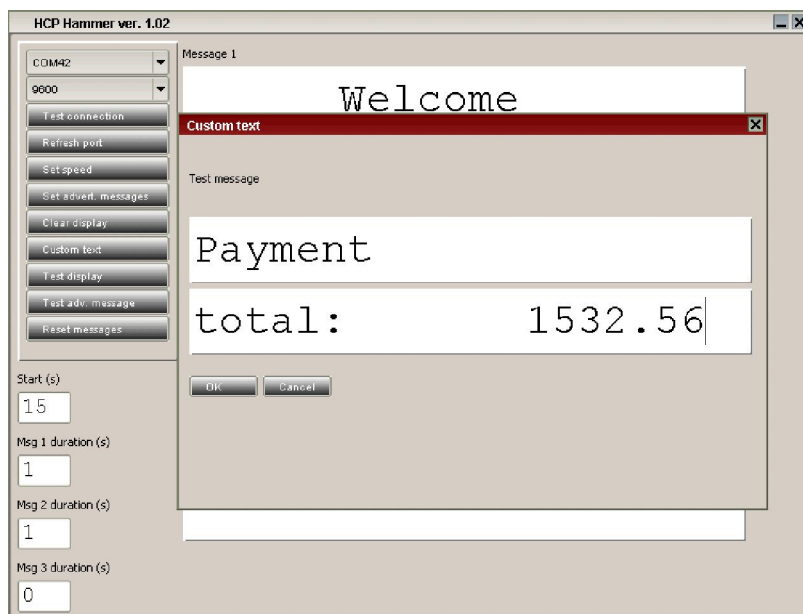

Figure 13. *Example how to send custom text*

Press button "**OK**" and text like on this example on figure 13. will appear on the display.
After 15 seconds advertisement message will appear on the display.
Make sure that value of time that you set in "**Start (s)"** text box is not too small, because it can happen that customer don't see total sum that has to pay (if you set this time, for example 5s, after the last text is send to Hammer display, after 5s this information will disappear if the advertisement messages are programmed in to the display).

8.3.3 Reset messages

To reset advertisement messages that are stored in the display, click on the button "**Reset messages",** and the advertisement messages won't appear on the display. Basically advertisement messages stays in the display, but they are not shown, like that you entered 0s in the text field **Msg 1 duration (s), Msg 2 duration (s) and Msg 3 duration (s).**

When you enter new advertisement message, old messages are overwritten.

Again, to be shore that display did remember resetting advertisement messages, turn of and turn on display and check will advertisement messages appear.

9.List of parts and accesories

Description	Supplier	Picture
HCP Hammer - black	**HCP d.o.o**	
HCP Hammer - white	**HCP d.o.o**	
RS232 cable (RJ45 male - DB9 female)	**HCP d.o.o**	
USB cable (RJ45 male – USB A)	**HCP d.o.o**	
AC/DC power adapter 9V/2A	**HCP d.o.o**	
Adapter cable for HCP P2-DS/Secunda fiscal printer (RJ45 – SUBDB9 male)	**HCP d.o.o**	

***Table 11.** List of parts and accecories*

HCP d.o.o.
Svetog Save 59/2
37240 Trstenik
SERBIA

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