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# Scantech ID Shuttle SG-15 Price Checker







# **User's Installation and Configuration Manual**

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## **Scantech-ID Shuttle SG-15**

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Scantech-ID BV reserves the right to revise this manual, and to make changes in the contents without obligation to notify any person or entity of the revision or change. A serial number appears on the product. Make sure that this official registration number has not been removed. It should be used whenever servicing by Scantech-ID BV or an authorised Scantech dealer is necessary.

**Important**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to EN55022, and with the limits for a class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the user's manual, may cause harmful interference to radio communications. Operation of the equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. Any unauthorised changes or modifications to this equipment could void the user's authority to operate this equipment.

- The Shuttle is in conformity with the CE standards. Please note that a Scantech CE-marked power supply unit should be used to conform to these standards.

**Radio and television interference**

Operation of this equipment in a residential area can cause interference with radio or television reception. This can be determined by turning the equipment off and on. The user is encouraged to try to correct the interference by one or more of the following measures:

- Re-orientate the receiving antenna
- Relocate the devices with respect to the receiver
- Move the device away from the receiver
- Plug the device into a different outlet in order to have the device and receiver on different branch circuits

If necessary, the user should consult the manufacturer, an authorised Scantech dealer or experienced radio/television technician for additional suggestions. The booklet "How to Identify and Resolve Radio-TV Interference Problems", prepared by the Federal Communications Commission, can be of help. It can be obtained from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004000003454.

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# Preface

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The Shuttle SG-15 is an entry level, small and attractive price checker.

The Shuttle features the latest technology. Interfacing is either through Wireless RF or hard wired Ethernet. The bright display has, depending on the font set, 3 or 5 lines and can display up to 20 characters per line. There is a choice of bar code scanners between the low cost single scan line CCD scanner or the high performance 20 scan lines laser scanner.

Because of its size and the sympathetic good looks the Shuttle can be installed anywhere in a store, including on the shelves. This flexibility of installation is enhanced by the optional Power-over-Ethernet. The three available standard colours also greatly help to fit most interiors.

## General Information

The Scantech-ID Shuttle SG-15 is the latest product developed by the company that has more than 10 years of experience in the field of customer information systems. Today we offer a choice of scanner (CCD single line or laser 20 omni directional lines), a choice of colour (Silver, Black or Red) and a choice of interface (WiFi or LAN).

## Quality and Durability

The Shuttle comes with the same top quality as all other Scantech-ID products. So at a very competitive price the same quality and performance of more expensive products is available. Due to the high MTBF times of every component a long and service free operation time is secured.

## Flexibility

The size of 183mm (height), 132mm (width) and 95mm (depth), makes the Scantech-ID Shuttle small enough to be installed in larger numbers per store. Even when mounted on a shelf it will not block products on display. The bright display makes it easy to read prices and product information.

## Connectivity

The Shuttle comes standard with the a MS-Windows Configuration Tool. A customized application program, not supplied by Scantech-ID, is necessary for retailers to operate the SG-15 in their specific environment. Scantech supplies software source code examples plus Ethernet drivers for easy integration.





# **Chapter 1 Product Safety**

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## 1.1 USED CONVENTIONS

In this manual the following conventions are used:

### **ATTENTION**

Gives a tip, an instruction or a point of attention.

### **IMPORTANT**

Warns for possible damage to the scanner or other objects when not following an instruction.

### **DANGER!**

Warns for possible harm to persons when not following an instruction.

## 1.2 LASER SAFETY

### **ATTENTION**

During installing, always follow the, instructions.

### **DANGER!**

Do not stare into the laser beam. The laser safety is in conformity with IEC 825 and 21CFR140.

**German:**

Der Strichcode-Scanner SHUTTLE entspricht den Sicherheitsvorschriften nach IEC 825-1 (1993) für ein Laserprodukt der Klasse I. Er entspricht auch U.S. 21CFR1040, anwendbar auf ein Laserprodukt der Klasse IIa. Vermeiden Sie langzeitiges Hineinblicken in direktes Laserlicht.

**Dutch:**

De SHUTTLE scanner voldoet aan de veiligheidsnormen IEC 825-1 (1993) voor een Klasse I laserproduct. Tevens voldoet de scanner aan U.S. 21CFR1040, van toepassing op een Klasse IIa laserproduct. Vermijd langdurig kijken in direct laserlicht.

**French:**

Le scanner SHUTTLE est conforme aux normes de sécurité IEC 825-1 (1993) s'appliquant à un produit laser de la classe I. Il est également conforme à la U.S. 21CFR1040 telle qu'elle s'applique à un produit laser de la classe IIa. Éviter de rester exposé longtemps à la lumière directe du laser.

**Danish:**

SHUTTLE skanneren er i overensstemmelse med sikkerhedsstandarden IEC 825-1 (1993) for laserprodukter i klasse I. Den er også i overensstemmelse med U.S. 21CFR1040, der gælder for laserprodukter i klasse IIa. Undgå at se direkte på laserlys i længere perioder..

**Finnish:**

SHUTTLE-skanneri täyttää luokan I lasertuotteelle IEC 825-1:ssä (1993) asetetut turvavaatimukset. Se täyttää myös U.S. 21CFR1040:ssa asetetut vaatimukset siltä osin kuin ne koskevat luokan IIa lasertuotetta. Vältä pitkäaikaista suoraan laservaloon katsomista.

**Swedish:**

Avsökaren SHUTTLE uppfyller säkerhetsnormen IEC 825-1 (1993) för laserprodukter av klass 1. Den uppfyller dessutom U.S. 21CFR1040 som gäller för laserprodukter av klass IIa. Undvik att titta i direkt laserljus under längre perioder.

**Norwegian:**

SHUTTLE skanneren er i samsvar med sikkerhetsstandarden IEC 825-1 (1993) for laserprodukter i klasse I. Den er også i samvar med U.S. 21CFR1040 for laserprodukter i klasse IIa. Unngå å se langvarig på direkte laserlys.

**Italian:**

Lo scanner SHUTTLE è conforme alle norme di sicurezza IEC 825-1 (1993) relative ad un prodotto laser di Classe I. È inoltre conforme alla norma U.S. 21CFR1040 relativa ad un prodotto laser di Classe IIa. Evitare l'esposizione prolungata all'emissione diretta di luce laser.

**Portuguese:**

O scanner SHUTTLE está conforme as normas de segurança IEC 825-1 (1993) para a Classe 1 dos produtos laser. Também está conforme a norma U.S. 21CFR1040 aplicada nos produtos laser da Classe IIa. Evite expor os olhos directa e prolongadamente aos raios laser.

**Spanish:**

El scanner SHUTTLE reúne las normas de seguridad IEC 825-1 (1993) para un producto laser de Clase 1. Y también reúne las normas U.S. 21CFR1040 que se aplican a un producto laser de Clase Ila. Se debe evitar mirar muy fijo en luz láserica directa.

**English:**

The SHUTTLE scanner complies with safety standard IEC 825-1 (1993) for a Class I laser product. It also complies with U.S. 21CFR1040 as applicable to a Class Ila laser product. Avoid long term viewing of direct laser light.

**Optical:**

The use of optical instruments with this product will increase eye hazard. Optical instruments include binoculars, microscopes and magnifying glasses but do not include eyeglasses worn by the user.

**Radiant Energy:**

The SHUTTLE uses a low-power laser diode operating at 630...670 nm in an opto-mechanical scanner resulting in less than 0.6 mW peak output power. Laser light observed at 13 cm (5.1 in.) above the window through a 7 mm (0.28 in.) aperture and averaged over 1000 seconds is less than 3.9  $\mu$ W per CDRH Class Ila specification. Do not attempt to remove the protective housing of the scanner, as unscanned laser light with a peak output up to 0.8 mW could be accessible inside.

**Laser Light Viewer:**

The scanner window is the only aperture through which laser light may be observed on this product. A failure of the scanner motor, while the laser diode continues to emit a laser beam, may cause emission levels to exceed those for safe operation. The scanner has safeguards to prevent this occurrence. If, however, a stationary laser beam is emitted, the failing scanner should be disconnected from its power source immediately.

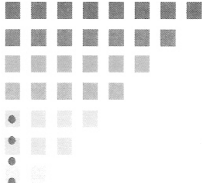
**Adjustments:**

Do not attempt any adjustments to or alteration of this product. Do not remove the scanner's protective housing. There are no user-serviceable parts inside.

**CAUTION**

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous laser light exposure.

## 1.3 DECLARATION OF CONFORMITY



### DECLARATION OF CONFORMITY

#### Scantech-ID B.V.

Amersfoortsestraat 124  
3769 AN Soesterberg  
The Netherlands  
tel. +31 (0)33 4698 400  
fax +31 (0)33 4650 615



● Hereby declares under our sole responsibility that the product:

- Product : **Shuttle SG-15** Price Checker
- Model number : **A37xx0x** (and equivalent)

#### ● Product View:



#### ● Will comply with the following product specifications:

- Laser safety: - IEC 825-1 (1993) and 21CFR1040
- Electrical safety: - EN 60950 (1992), IEC 950 (1991), UL1950 3rd. edition, c-UL (CSA-C22-2 950-M95)
- EMC:
  - EN 61000-6-3 (2001) Generic emission standard, from which:  
EN 55011 (1998) Emission - Class B
  - EN 61000-6-2 (2001) Generic immunity standard, from which:  
EN 61000-4-2 (1995) Electrostatic Discharge (ESD) immunity  
EN 61000-4-3 (1996) Radiated Electro-Magnetic field immunity  
ENV 50204 (1995) Digital radio telephones immunity  
EN 61000-4-4 (1995) Electrical Fast Transient (EFT) immunity  
EN 61000-4-5 (1995) Surge transient immunity  
EN 61000-4-6 (1996) Conducted RF disturbances immunity

#### ● Means of conformity:

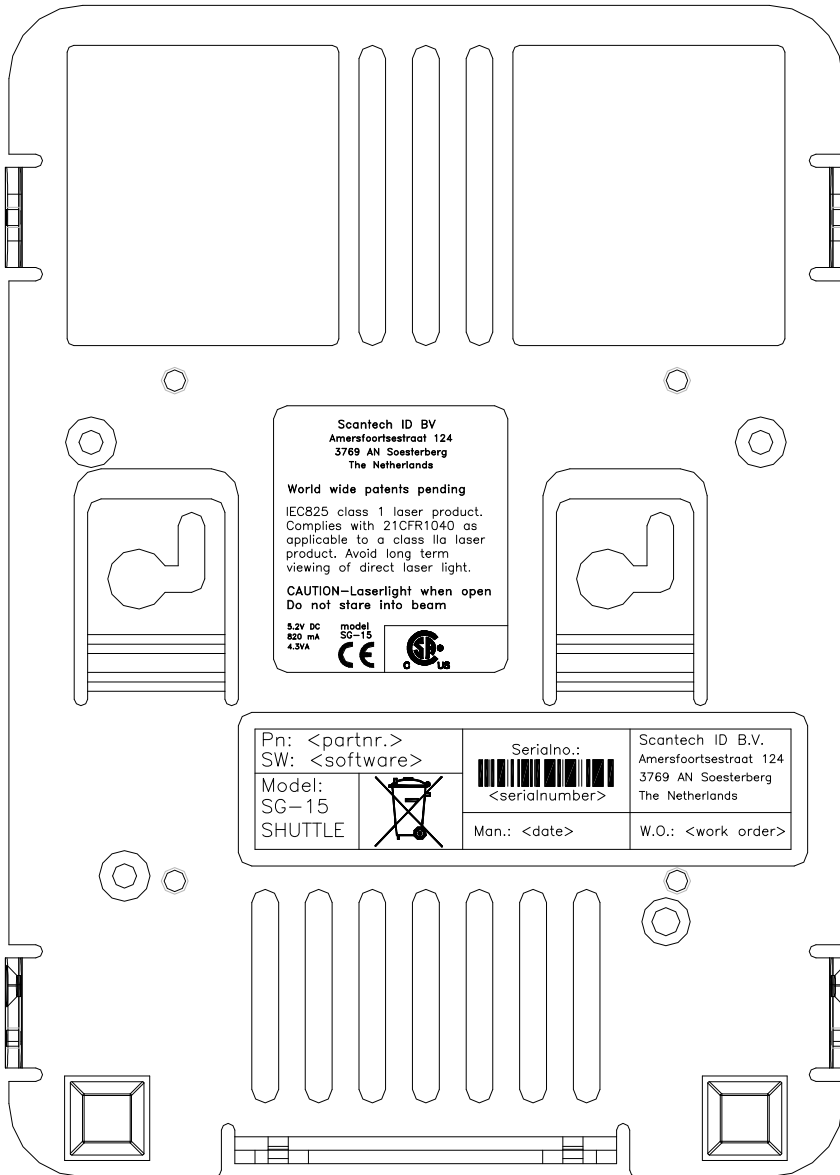
- For Electrical safety the product is in conformity with Directive 73/23/EEC amended by 93/68/EEC.
- For EMC the product is in conformity with Directive 89/336/EEC.
- Please note that a Scantech CE-marked power supply unit should be used to conform to the product specifications stated above.

A.M. Snijder  
Quality Manager Scantech-ID B.V.

P. H. Slidrecht  
CEO Scantech-ID B.V.



# 1.4 SCANNER LABELLING



## **Chapter 2 General Description**

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## **2.1 USE OF THE SHUTTLE SG-15**

The Shuttle is a Price Checker, which provides the user with the opportunity to scan their chosen product and display product information or verify the price before getting to the checkout. Apart from this, the Shuttle offers the ability to interface with loyalty cards, display special offers, display dual currency, etc. Moreover, store level profitability can be increased.

Apart from the use as an advanced pricechecker, the Shuttle can also be used in many other environments where identification and information is required. This includes use with ticketing, access control, time check, route and place guidance, etc.



## 2.2 CONSTRUCTION OF THE SHUTTLE SG-15

The various parts of the Shuttle are indicated in figure 2.1:

- A. Cover with window
- B. LCD  
The display size is 128x64 pixels  
The display features white characters on a blue backlight background
- C. Scantech scanner or CCD line scanner
- D. Mount scanner
- E. Main board, PoE add-on PCB (optional) or PCMCIA card (optional)
- F. PCB Protection
- G. Backplate

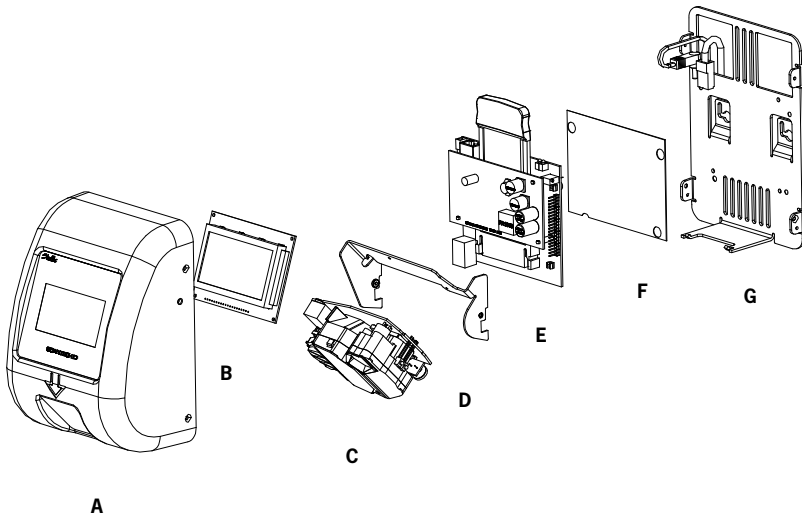


Fig 2.1

## **2.3 FUNCTIONING OF THE SHUTTLE SG-15**

### **2.3.1 Introduction**

The Shuttle is an information terminal, which receives input (barcode), from a user and answers via the display. The display contents is provided by a computer application, which runs on a (server) system elsewhere.

### **2.3.2 Input**

The main input can generated by the integrated Scantech barcode reader (which is characterised by a high performance 20 scan lines laser scanner), or with a CCD single line scanner.

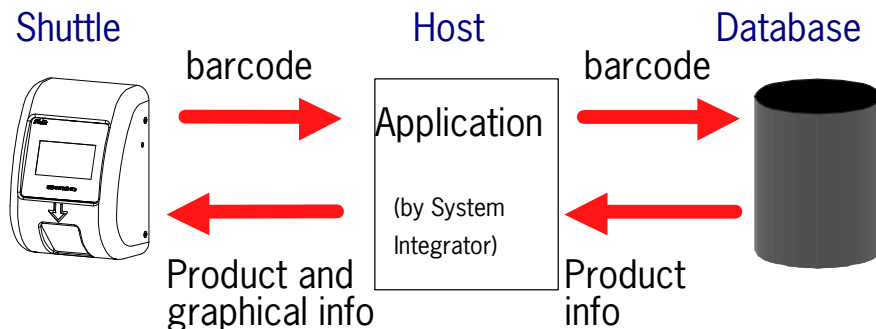
### **2.3.3 Output**

Based on the input and the application software on the host-system the Shuttle communicates with the user via text on the screen and optional a beep via the beeper.

### 2.3.4 Software & Control

The functions during daily use of the Shuttle are determined by the application program, which is controlling the Shuttle. So the task of the storage of databases, providing the information and sending it to the display of the Shuttle will be performed by a central host system.

Providing this application, running on the host system, is the responsibility of the System Integrator!



The SG-15 sends barcodes to the host, according to the following table:

CODE	MESSAGE FORMAT														
EAN 13	F	D <sub>1</sub>	D <sub>2</sub>	D <sub>3</sub>	D <sub>4</sub>	D <sub>5</sub>	D <sub>6</sub>	D <sub>7</sub>	D <sub>8</sub>	D <sub>9</sub>	D <sub>10</sub>	D <sub>11</sub>	D <sub>12</sub>	D <sub>13</sub>	[CR]
EAN 8	FF	D <sub>1</sub>	D <sub>2</sub>	D <sub>3</sub>	D <sub>4</sub>	D <sub>5</sub>	D <sub>6</sub>	D <sub>7</sub>	D <sub>8</sub>						[CR]
UPC A	A	D <sub>1</sub>	D <sub>2</sub>	D <sub>3</sub>	D <sub>4</sub>	D <sub>5</sub>	D <sub>6</sub>	D <sub>7</sub>	D <sub>8</sub>	D <sub>9</sub>	D <sub>10</sub>	D <sub>11</sub>	D <sub>12</sub>		[CR]
UPC E	E	∅	D <sub>1</sub>	D <sub>2</sub>	D <sub>3</sub>	D <sub>4</sub>	D <sub>5</sub>	D <sub>6</sub>							[CR]
ITF	i	D <sub>1</sub>	- D <sub>x</sub>												[CR]
Code 39	*	D <sub>1</sub>	- D <sub>x</sub>												[CR]
Code 32	*	D <sub>1</sub>	- D <sub>x</sub>												[CR]
Codabar	%	D <sub>1</sub>	- D <sub>x</sub>												[CR]
Code128	#	D <sub>1</sub>	- D <sub>x</sub>												[CR]
EAN 128	P	JC1	D <sub>1</sub> - D <sub>x</sub>												[CR]

Note: The message format is bar code programmable with the Scantech Configuration Guide.

The Shuttle documentation and the demo/set-up programs provide you with you all the required information on how to communicate with the Shuttle and how to control it. The SG-15 Product Support CD contains all kind of source code examples and as of version 1.3 a complete example for application software, including an Ethernet driver to enable the integrator to get the SG-15 up and running in no time.

## 2.4 POWER OVER ETHERNET (POE)

The alternative for powering the SG-15 Shuttle through an external PSU (adapter), is using the Power-Over-Ethernet (PoE) version of the SG-15.

In this way the SG-15 is powered directly through the Ethernet and you don't need to install a (230/110VAC) mains socket anymore somewhere in the middle of the store, so in this way saving you quite some installation costs!

The SG-15 Shuttle PoE complies with the official standard: IEEE 802.3af.

For your information:

PoE uses either the 4 Ethernet data lines (pin 1,2,3,6), called End-Span, or the not used Ethernet lines (pin 4,5,7,8), called Mid-Span, to transport the DC voltage to the SG-15. Which method is used, depends on the supplying powered network switch (hub). The Shuttle SG-15 supports both methods automatically. See also Appendix A.

Towards the host-side, this means that you need a special hub/router which supports the Power-Over-Ethernet (PoE) feature following the official standard for this: IEEE 802.3af.

To avoid any miscommunication in this area: **Scantech does not supply network components like a power injector, network cabling, powered hubs etc.**

When we ship the first SG-15's PoE in the current stage, this is in most cases for demo- or evaluation purposes. Therefore we DO include the standard PSU. This is done 'just to be sure' and to give our customers the possibility to at least turn-on the SG-15 independent from the hub, for instance for SG-15 configuration purposes.

Of course, for the real installation in the store (roll-out), with the SG-15 connected to a hub with Power-Over-Ethernet IEEE 802.3af, you do not need the mains PSU (adapter).

In case a project roll-out starts, we will not include the mains PSU anymore.

Physically (i.e. inside the SG-15) this means that we place a special PoE board to support the PoE feature. See Appendix J for SG-15 POE Partnumbers.

## **Chapter 3 Installation of the Shuttle SG-15**

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## 3.1 UNPACKING

Unpack the Shuttle as follows:

1. Take the Shuttle and its accessories out of the box.
2. Remove the packing material.
3. Check the packing list to make sure you have received all of the items ordered.
4. Visually inspect the Shuttle and accessories for any evidence of physical damage.
5. If anything is missing or appears to be damaged, immediately contact your dealer.

### **ATTENTION**

Store the packing material and boxes: it should be used whenever the Shuttle is transported for servicing.

## 3.2 MOUNTING

Once you have unpacked all components, you can start installing the Shuttle.

Installing the Shuttle is divided in two steps:

1. Mounting the Shuttle to the wall.
2. Installation is discussed in detail on the following page.

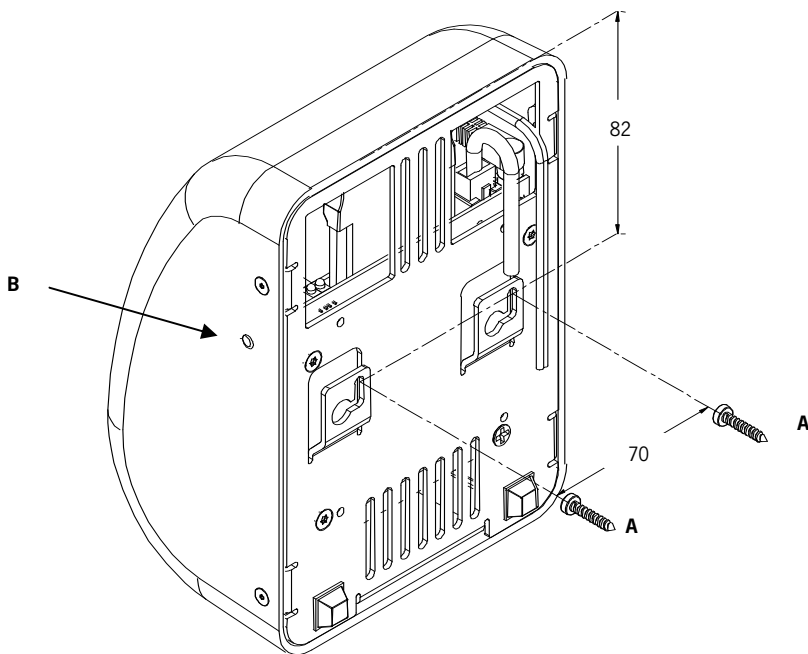


fig 3.1

**ATTENTION**

Mount the Shuttle on a convenient height.

1. Mark the locations for the mounting holes on the wall and drill two holes.
2. Put plugs in the holes.
3. Connect the power cable and the communication cable of the Shuttle (see figure 3.1 above).
4. Fasten the Shuttle to the wall by clicking it on the 2 screws (screws, indicated by A).
5. If necessary, adjust the contrast of the display by trimming the regulator through the small hole on the side, with a small screwdriver (indicated by B).





## **Chapter 4 System Integration**

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## 4.1 SOFTWARE

The Shuttle SG-15 is a thin-client, front-end Price Checker. Its behavior is very easily configurable and fully determined by the software package, driving the Shuttle from the Back-Office/server. This software package (or: added value) will be supplied by the System Integrator. This is given the fact that there are no set international standards with regard to product database structures and/or programming languages. Furthermore it is not Scantech's primary role to supply end-user application software.

### ATTENTION

As of version V1.3, the SG-15 Product Support CD contains the SG-Net Ethernet driver.

This driver, which includes an extensive demo application (with source code), makes it very easy to create a server application in no time at all.

These objects are available for both Windows and Linux

### 4.1.1 Software functionality

The global function of the Shuttle software package, running on the Back-Office/server, is:

1. Set-up and maintain communication between the application itself and the Shuttle terminal(s).
2. Provide product information (e.g. article name and price) from the store's database, combined with the right fontsize and layout.
3. Diagnostics & Terminal Statistics (optional).

## 4.1.2 Scantech Tools and Drivers

In order to support our System Integrators in the best possible way, Scantech ID supplies:

1. Extensive documentation describing all details of the product. (this manual and more).
2. Configuration utility: See chapter 5.

Scantech ID provides this Configuration Tool, which only runs under Microsoft Windows (all versions). This tool makes it possible to configure an SG-15 anywhere in the network, having any possible IP-Address.

### **ATTENTION**

As of firmware version V1.00, the SG-15 runs an embedded web server for configuration purposes. This makes it possible to configure an SG-15 with any internet browser, using any operating system, without the need of a dedicated configuration utility.

3. Examples of source code: See CD-ROM \Source Code Examples.

All these items can be found on the Shuttle Product Support CD-ROM.

### 4.1.3 Compatibility

The SG-15 is a basic Price Checker, so it does not require a very advanced and extensive set of commands to control it, comparing it to our other model(s). In other words: The SG-15 is not backwards compatible with the SG-20.

The main reasons for this are:

1. The difference in layout of the SG-15 display: 5 lines when using the small font type or 3 lines using the large font type.
2. To improve the readability of the display, a proportional font type is used, instead of a font type with a fixed character width. About 20 characters per line (max).

In case you already created an SG-20 application in the past, you only need to make a few minor changes in order to integrate the SG-15 Shuttle; The SG-15 uses the same command structure as the SG-20 (using ASCII data and ESC codes).

## 4.2 HOW TO COMMUNICATE? A SIMPLE EXAMPLE

The SG-15 is a simple IP device in the local network, which accepts and displays normal ASCII characters.

After scanning a bar code, it outputs it as a normal ASCII string.

The easiest way to communicate with an SG-15 right out of the box, without any further configuration, is using a telnet session:

- 1 First, connect the SG-15 to your network (using a normal 1:1 Ethernet cable) or directly to your PC (using a crossed Ethernet cable).
- 2 As you turn on the SG-15, the 'Offline' message will flash on the display. It will continue to do so, until you've made a software connection to it.
- 3 By default, the SG-15 is configured as TCP Server, having the IP address 192.168.3.227 and listening to port 9101.
- 4 Make sure that your PC has an IP address in the same IP range, e.g. 192.168.3.1.
- 5 You should be able to 'ping' the SG-15 now, by entering:

```
ping 192.168.3.227
```

If it's not successful, you should double check the IP address of your PC and all cable connections.

Also, make sure the SG15 is configured to it's default settings. You can force this by placing jumper #1 and reboot the SG-15 (see also appendix D).

- 6 You need a client program to connect to the SG-15. The widely used 'telnet' program is such a program. You can connect to the SG-15 by entering:

```
telnet 192.168.3.227 9101
```

As a result, the 'Offline' message on the SG-15 should disappear.

- 7 Now you can enter characters on your keyboard, which should appear on the SG-15's display. Also, when you scan a barcode with the SG-15, it should appear on your monitor.
8. See appendix B for how to do more on the SG15's display.

### **Some notes:**

1. Regarding the Network Connection Properties of your PC:  
You may have to turn OFF DHCP and make sure the IP address of your PC is in the same IP range as the Shuttle you want to communicate with.  
For instance by giving your PC IP address: 192.168.3.1
2. If you have a firewall running on your PC, make sure it's not blocking the communication in any way.

## **Chapter 5 Configuring the Shuttle**

---

## 5.1 PREFACE

There are two methods to configure a Shuttle:

1. Using a web browser (Shuttle Firmware V1.00 or higher is needed).

As of firmware V1.00, the SG-15 has an internal web server for configuration purposes. This eliminates the need for a dedicated configuration tool and makes it possible to configure a Shuttle independent of the operating system on your system. Just start any web browser and enter the IP-address of your Shuttle.

2. Using the Configuration Tool, supplied by Scantech ID.

Scantech ID provides this Configuration Tool, to be able to configure a Shuttle anywhere in the network, *having any possible IP-Address*.

The Shuttle uses a special package format, communicating through UDP, for it's configuration. This utility makes use of this format. (The record-layout can be made available to customers to write their own configuration tools, if desired).

### ATTENTION

The Configuration Tool only runs on MS-Windows. In the near future, a version for Linux will also be available.



Because the Shuttle only communicates through 10BaseT Ethernet (10Mbit) or 802.11b WiFi, you need access to your local network (and connect the SG-15 to it also).

### **IMPORTANT: FIREWALLS**

You may have to modify the firewall settings of your system (especially when running WinXP with SP2 installed) for the Configuration Tool to run flawlessly.

### **IMPORTANT: IP ADDRESSES**

In order to communicate with a Shuttle through a web browser or to update firmware through tftp (or using the firmware upload feature of the Configuration Tool), make sure the IP-address of your system is in the same subnet as the Shuttle.

## 5.2 STARTING THE CONFIGURATION

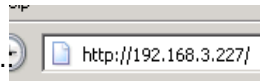
### 5.2.1 Configuration using a web browser

Make sure your computer is in the same IP subnet as the Shuttle you're going to configure. E.g.: The Shuttle has IP address 192.168.3.227 and your computer has address 192.168.3.1.



1. Start your web browser, e.g.: Mozilla Firefox

2. Enter the IP address of the Shuttle, e.g.:



3. The following screen should open:

General Info	
Name	SG15_SHUTTLE
MAC Address	00-13-B7-10-03-93
Firmware version and date	01C00 23MAR2006
Active interface	10BaseT
Jumper 1 (-Back to defaults)	Not placed
Jumper 2 (-Select 10BaseT)	Not placed
PCMCIA Card	Not placed

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Using the web browser, you can alter the same settings of the Shuttle as with the Configuration Tool. See paragraphs 5.6 - 5.9 for more explanation.

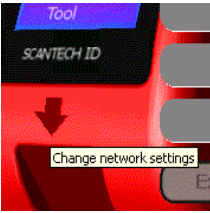
## 5.2.2 Configuration using the configuration utility

Locate the utility, SG15Config.exe, on your computer or CD and start it up. The following screen should appear:



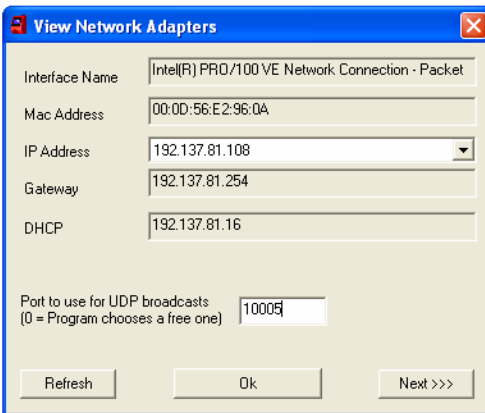
**Note that the version of this program may differ from the one you have. Please check the Scantech-ID website for the latest version.**

## 5.3 CONFIGURATION TOOL NETWORK SETTINGS



In order to select the appropriate Ethernet adapter on your system, click on the 'down arrow' in the main screen to enter the settings screen of the Configuration Tool.

This will open the following window:



If your system has more than one Ethernet adapter (or WLAN adapters) you can use the button "Next>>>" to scroll through the available adapters. This program will use the selected adapter to communicate with the Shuttle(s).

The option to select a specific UDP Port to communicate with, could be of use in combination with firewalls or other network protection software.

## 5.4 SCANNING THE NETWORK

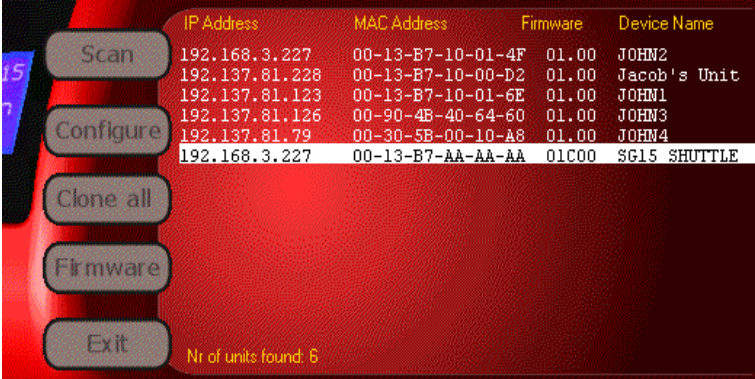
This utility is able to scan your entire local network and find any SG-15, having any IP Address. Just hit the button "SCAN" and it will start scanning for 15 seconds.

### IMPORTANT

While scanning, the "SCAN" button turns into "STOP", so you can stop the scan at anytime.

The list will be filled with every SG-15 which has been found. If you already know that all SG-15's have been found, you can hit the "STOP" button, so you don't have to wait for the entire scan to finish.

Example:

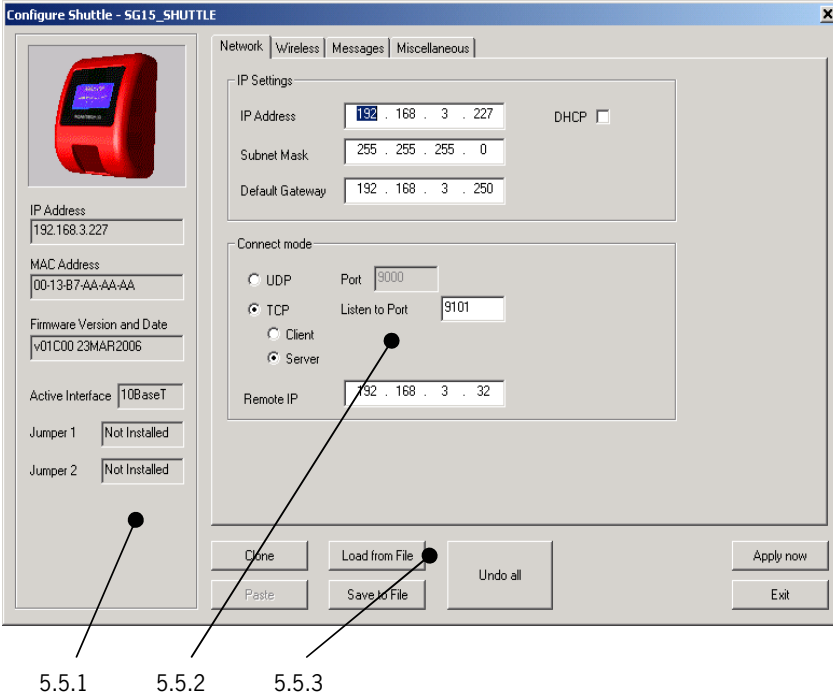


IP Address	MAC Address	Firmware	Device Name
192.168.3.227	00-13-B7-10-01-4F	01.00	JOHN2
192.137.81.228	00-13-B7-10-00-D2	01.00	Jacob's Unit
192.137.81.123	00-13-B7-10-01-6E	01.00	JOHN1
192.137.81.126	00-90-4B-40-64-60	01.00	JOHN3
192.137.81.79	00-30-5B-00-10-A8	01.00	JOHN4
192.168.3.227	00-13-B7-AA-AA-AA	01C00	SG15 SHUTTLE

Nr of units found: 6

## 5.5 CONFIGURING THE SG-15

Select one SG-15 from the list and hit the "CONFIGURE" button. The following screen appears:



The screen is divided into 3 sections:

### 5.5.1 General Information.

On the left side of the screen, you'll see some characteristics of this specific SG-15.

#### IP Address

The IP Address is the actual IP Address which the SG-15 using right now; this can differ from the IP Address field on the "Network" tab page, if DHCP is used.

**MAC Address**

The MAC Address which the SG15 uses. This can be the Scantech ID vendor address (00-13-b7-xx-xx-xx) or the address from the PCMCIA card.

**Firmware Version and Date**

The version and release date from the running firmware.

**Active Interface**

The interface which the SG15 is using: 10BaseT or Wireless 802.11b.

**Jumper 1**

Indicates the presence of jumper 1. If placed, then the SG15 loads it's default settings during startup. See appendix D.

**Jumper 2**

Indicates the presence of jumper 2. If placed, then the SG15 chooses the 10BaseT wired Ethernet interface at all times, even if an PCMCIA card is placed. See 5.7.

### 5.5.2 Configuration tab pages.

See chapters 5.6 - 5.10 for a description.

### 5.5.3 Action buttons:

<b>Clone</b>	Copies all settings (except the own IP Address) of the currently selected SG-15, for later use. If an SG-15 is "Cloned", its entry in the list on the main screen (see section 5.4) is turned green to indicate which one you're "Cloning".
<b>Paste</b>	Paste settings of a previous "Cloned" SG-15, to the currently selected SG-15.
<b>Load from File</b>	Load a file, containing previous saved settings.
<b>Save to File</b>	Save all settings (except the own IP Address) of the currently selected SG-15 to a file.
<b>Undo All</b>	Restores all settings to the moment you entered this screen.
<b>Apply</b>	Send all settings (all tab pages) to the SG-15. The SG-15 should reset after these are received properly.



## 5.6 NETWORK CONFIGURATION

The first tab page called "Network" is activated, as soon as this screen is opened. You can specify your own specific network settings here.

The screenshot shows the "Configure Shuttle - SG15\_SHUTTLE" window with the "Network" tab selected. The interface includes a sidebar with a device image and various configuration fields. The main area is split into "IP Settings" and "Connect mode".

**IP Settings:**

- IP Address: 192 . 168 . 3 . 227
- Subnet Mask: 255 . 255 . 255 . 0
- Default Gateway: 192 . 168 . 3 . 250
- DHCP:

**Connect mode:**

- UDP:  Port: 9000
- TCP:  Listen to Port: 9101
- Client:
- Server:  Remote IP: 192 . 168 . 3 . 32

**Left Sidebar:**

- IP Address: 192.168.3.227
- MAC Address: 00-13-B7-AA-AA-AA
- Firmware Version and Date: v01C00 23MAR2006
- Active Interface: 10BaseT
- Jumper 1: Not Installed
- Jumper 2: Not Installed

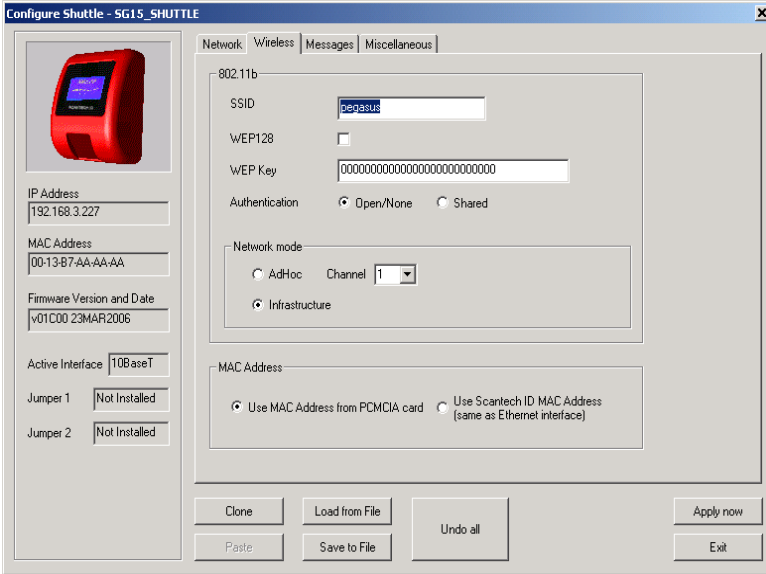
**Bottom Buttons:** Clone, Load from File, Undo all, Apply now, Paste, Save to File, Exit.

The SG-15 can operate in three different modes: TCP Client, TCP Server or UDP. Select the mode you're using in the fields under "Connect Mode".

Example: In order to use an SG-15 with the demonstration program on the CD (See CDROM\Demonstration Tool\SG15Demo.exe), or with a normal telnet program, you should set the Connect Mode to "TCP Server".

## 5.7 WIRELESS CONFIGURATION

The second tab page opens the IEEE802.11b Wireless settings.



You can set your specific 802.11b settings in this screen. At this moment, the SG-15 only supports 128bits WEP encryption.

### **Note about using an SG-15 with a PCMCIA 802.11b card :**

If an 802.11b PCMCIA card is inserted, the SG-15 automatically operates in Wireless mode. In order to use a wired connection, without having to remove the PCMCIA card, you should place jumper #2, located on the back side of the SG-15:



## 5.8 MODIFYING INTERNAL MESSAGES

The third tab page opens the Internal Messages Settings:

**Configure Shuttle - SG15\_SHUTTLE**

Network | Wireless | Messages | Miscellaneous

**Idle Message**

Line	Text	X-Pos	Y-Pos	Align (Vert)	Align (Horiz)	Font Size
Line 1	Welcome	0	0	Top	Center	<input type="radio"/> Small <input checked="" type="radio"/> Large
Line 2	Scan your product	0	30	None	Center	<input type="radio"/> Small <input checked="" type="radio"/> Large
Line 3	here...	0	45	None	Center	<input type="radio"/> Small <input checked="" type="radio"/> Large

**Error Message**

Line	Text	X-Pos	Y-Pos	Align (Vert)	Align (Horiz)	Font Size
Line 1	Please contact a	0	15	None	Center	<input type="radio"/> Small <input checked="" type="radio"/> Large
Line 2	member of staff	0	30	None	Center	<input type="radio"/> Small <input checked="" type="radio"/> Large

**Offline Message**

Line	Text	X-Pos	Y-Pos	Align (Vert)	Align (Horiz)	Font Size
Line 1	Offline	0	20	Center	Center	<input type="radio"/> Small <input checked="" type="radio"/> Large

**Timeout Values**

Time to display any text before the Idle Message is displayed: 1 secs

Time to wait for host data after scanning a barcode. After this, the Error Message is displayed: 3 secs

**Character Table**

Codepage: 0852

Buttons: Clone, Load from File, Undo all, Apply now, Paste, Save to File, Exit

### 5.8.1 Internal Messages

The SG-15 has three internal messages:

#### Idle Message

This message is displayed during idle mode: The default screen which is shown when the SG-15 has nothing to do.

#### Error Message

This message is displayed as soon as a timeout occurs after scanning a barcode: After scanning a barcode, the SG-15 waits for the remote host to return information about the scanned product. If this takes too long (see "Timeout Values"), the Error Message is displayed.

**Offline Message** This message is displayed (inverted and flashing) if no connection has been established yet (using connection mode "TCP Client" or "TCP Server", see 5.6). If the connection mode is "UDP", this message will not be displayed at all.

All messages can be located anywhere on the screen on any coordinate (horizontal 0-127, vertical 0-63). For easy placement on commonly used positions, an Alignment can be chosen also. Dependent on the alignment which is used, the coordinates are possibly ignored.

(E.g. : If the Vertical Alignment is "Center", the Y-coordinate will be ignored).

A single line of the message can be displayed in either the Large or Small font size.

### 5.8.2 Timeout Values

The SG-15 uses 2 Timeout counters, which are user definable:

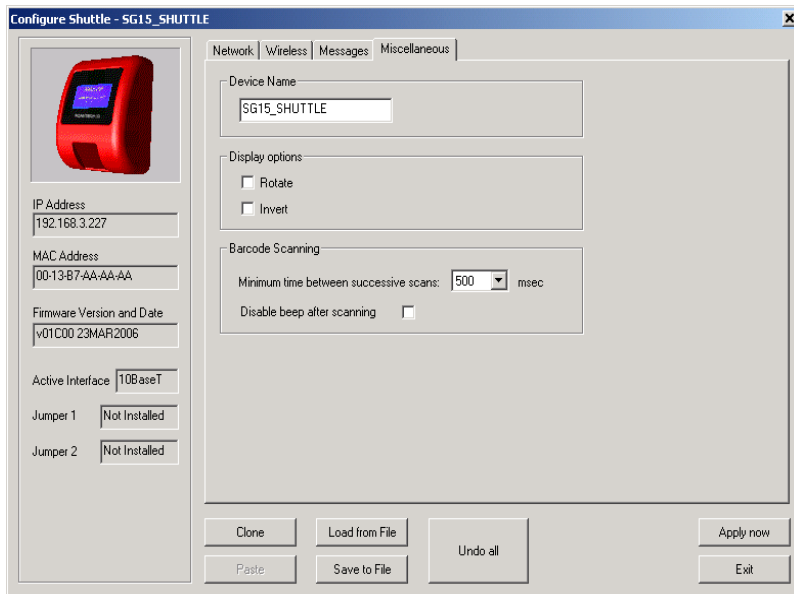
- 1 Nr of seconds which text is displayed on the screen (0-15 secs). This includes the following texts:
  - Internal Messages
  - Text from a remote host
- 2 Nr of seconds to wait for data from the remote host, after scanning a barcode (0-15 secs). After this, the error message is displayed.

### 5.8.3 Character table

The SG-15 supports multiple codepages (see appendix C). Only 1 codepage can be used at a time.

## 5.9 MISCELLANEOUS SETTINGS

The fourth tab contains miscellaneous settings:



### Barcode scanning

You can modify the minimum time to wait between successive scans. This prevents users for double-scans.

*Explanation:*

Normally, after scanning, the internal scanner is disabled until the remote host sends the product description or until a timeout occurs (and the error message is displayed). After that, the barcode scanner is enabled again.

On very fast networks, it may occur that the response from the host is received very fast. In fact too fast for the customer to withdraw the product from being scanned again. Increasing the time between successive scans prevents this from happening.

## 5.10 CLONING SETTINGS

In Chapter 5 was described how to clone the settings of a single SG-15.

It's possible to send all these settings to every single connected SG-15 at once. This makes it extremely easy to configure all SG-15's with the same settings, without the hassle of accessing every single SG-15 separately.

This can be achieved by pressing the 'CLONE ALL' button on the main screen. After this, all SG-15's in the list will be uploaded with the same settings. When a SG-15 receives its new settings, it will reboot.

### **IMPORTANT**

Cloning copies all settings, except the SG-15's own IP Address.

## **Chapter 6 Maintaining the Shuttle**

---

## 6.1 CLEANING

The Shuttle requires little maintenance. Only occasional cleaning of the scanner window is necessary to remove dirt and fingerprints. Cleaning can be performed during operation with a non-abrasive glass spray cleaner and a soft lint-free cloth.

Clean the cover and window of the Shuttle every now and then. Take care of the following:

- Use a mild glass spray cleaner;
- Spray the cleaner on a soft, lint-free cloth;
- Wipe the Shuttle clean.

### **IMPORTANT**

- Clean the display very carefully. It is scratch sensitive.

### **IMPORTANT**

The exterior of the Shuttle should NOT be cleaned with cleaners containing:

- Aromatic hydrocarbons
- Chloride
- Acids, oxydizing agents
- Abrasives
- Other aggressive cleaners



# Appendices

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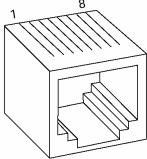
A	Connector types and pin definitions.....	47
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## A CONNECTOR TYPES AND PIN DEFINITIONS

### Physical Connection

#### Ethernet Connector



- 1 - Tx+**
- 2 - Tx-**
- 3 - Rx+**
- 6 - Rx-**

Cable between Shuttle and network connection:

Use a standard, '8 pin', 1-to-1 Ethernet network cable to connect the Shuttle to your Ethernet network.

#### **IMPORTANT**

Make sure you use proper cabling when using the SG-15 Power-over-Ethernet version (IEEE802.3af PoE).

PoE uses either the 4 data lines (1,2,3,6), called End-Span, OR the not used lines (4,5,7,8), called Mid-Span.

Which method is used, depends on the supplying network switch.

The Shuttle SG-15 supports both methods automatically.

#### Power connector



- 1 - GND**
- 2 - +5.2V**



Front view

**See fig 3.1 for the physical location of the connectors.**



## **B CONTROLLING THE DISPLAY AND SHUTTLE TERMINAL**

### **Introduction**

The Shuttle SG-15 is controllable and easily configurable by means of ESC (escape) commands to customize the following parameters;

- Cursor Control
- Clearing the Display
- Aligning Text
- Remotely turning on and off the Shuttle SG-15. This is recommended during the stores closing hours and will extend the lifetime of the Shuttle SG-15.

Furthermore, the SG-15 acts a normal terminal; Every received ASCII value (between 20 and 255), which isn't part of a command, is normally displayed on the screen.

Due to the fact that the SG-15 uses proportional fonts (every single character has it's own specific width), you never know precisely how much characters fit on one line. Therefore, when a character doesn't fit on the current line, it's not displayed at all (instead of printing it on the next line, which gives undesired "messy" results)

You can move to another line by sending a Carriage Return (0x0d), or a Linefeed (0x0a). Both have the same effect: Going to the start position of the next line).

You can move the cursor by sending:

- 'Set cursor' command (ESC 0x27), for predefined cursor positions.
- 'Set Pixel Position' command (ESC 0x2C), for placing the cursor on any pixel location.

For easy alignment of text on often desired positions (like the center of the screen, right of the screen, bottom of the screen, etc) you can use the 'Align text' (ESC 0x2e) command.

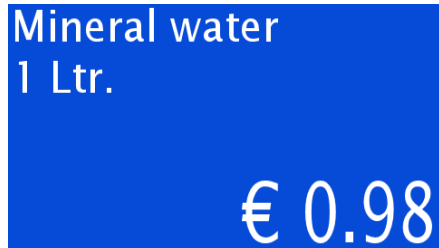
At the end of this Appendix you find the complete command set, including sub-parameters.

On the next pages, you find some examples to give an impression of the way you can use the display of the SG-15.

Note: <ESC> should be sent as the hexadecimal value 1B.

Note: The notation of e.g. 0x24 means the hexadecimal value 24.

### Example 1



**How to create this screen:**

COMMAND or data string	COMMENT
<ESC> 0x42 0x30	Font size 0
<ESC> 0x24	Clear the screen, cursor top left
"Mineral water"	Text
0x0d	Carriage Return = Next line
"1 Ltr."	Print text
<ESC> 0x42 0x31	Font size 1
<ESC> 0x2e 0x38 "€ 0.98" 0x03	Align text to right bottom

**Example 2**

How to create this screen:



COMMAND or data string	COMMENT
<ESC> 0x42 0x30	Font size 0
<ESC> 0x24	Clear the screen, cursor top left
<ESC> 0x2e 0x31 "Coca Cola 0.33Ltr" 0x03	Align text to center - top
<ESC> 0x2c 0x30 0x45	Set cursor to pixel position (0,21)
<ESC> 0x2e 0x3a "€2.69 (Crate)" 0x03	Align text to horizontal center
<ESC> 0x42 0x31	Font size 1
<ESC> 0x2e 0x37 "Special Offer !" 0x03	Align text to bottom center


**Example 3**

How to create this screen:



COMMAND or data string	COMMENT
<ESC> 0x42 0x30	Font size 0
<ESC> 0x24	Clear the screen, cursor top left
<ESC> 0x2e 0x30 "Winner" 0x03	Align text to left - top
<ESC> 0x2e 0x32 "Winner" 0x03	Align text to right - top
<ESC> 0x2e 0x36 "Winner" 0x03	Align text to left - bottom
<ESC> 0x2e 0x38 "Winner" 0x03	Align text to right - bottom
<ESC> 0x42 0x31	Font size 1
<ESC> 0x2e 0x34 "You Win!" 0x03	Align text to center



				<b>V1.5</b> This command set refers to SG15 firmware version 1.00 and higher		
COM MAND	SUBCOMMAND					
ESC (1B) <sub>16</sub>	HEX	DEC	CHAR	DESCRIPTION	PARAMETERS	
ESC	20	32	SP	<i>reserved</i>		
ESC	21	33	!	<i>reserved</i>		
ESC	22	34	*	<i>reserved</i>		
ESC	23	35	#	<i>reserved</i>		
ESC	24	36	\$	<i>reserved</i>		
ESC	25	37	%	Clear Display Clear the Display and move the cursor to the topleft position		
ESC	26	38	&	<i>reserved</i>		
ESC	27	39	'	Set Cursor Position Set the cursor position on the display. Note : The actual pixelposition depends on the currently selected font set: Every x-position is a multiple of 8 pixels. Every y-position depends on the currently selected font set (height of 12 or 21 pixels)  Pos : 0 - 15 (0x30 - 0x3F) Line : 0 - 4 (0x30 - 0x34)	<POS> 0x30-0x3F	<LINE> 0x30-0x34
ESC	28	40	(	<i>reserved</i>		
ESC	29	41	)	<i>reserved</i>		
ESC	2A	42	*	<i>reserved</i>		
ESC	2B	43	+	<i>reserved</i>		
ESC	2C	44	,	Set Pixel Position Set the current pixel position on the display. This allows a text to be printed anywhere on the display.  Pos : 0 - 127 (0x30 - 0xAF) Line : 0 - 63 (0x30 - 0x6F)  Note : A character will only be displayed on the current coordinates if it fully fits on the screen.	<POS> 0x30-0xAF	<LINE> 0x30-0x6F
ESC	2D	45	-	<i>reserved</i>		
ESC	2E	46	.	Align a string of text Print a text, using the current font set, on a calculated position on the screen.  <Align> can be one of the following values: 0x30 - Left Top 0x31 - Center Top 0x32 - Right Top 0x33 - Left Center 0x34 - Center Center 0x35 - Right Center 0x36 - Left Bottom 0x37 - Center Bottom 0x38 - Right Bottom 0x39 - Left, using current y-coordinate 0x3A - Center, using current y-coordinate 0x3B - Right, using current y-coordinate 0x3C - Top, using current x-coordinate 0x3D - Center, using current x-coordinate 0x3E - Bottom, using current x-coordinate  <Data> This field has a maximum length of 25 characters. Use 0x03 (ETX) as last char, if less characters are used.	<ALIGN> 0x30-0x3E	<DATA> "..." [0x03]
ESC	2F	47	/	<i>reserved</i>		
ESC	30	48	0	<i>reserved</i>		
ESC	31	49	1	<i>reserved</i>		
ESC	32	50	2	<i>reserved</i>		
ESC	33	51	3	<i>reserved</i>		
ESC	34	52	4	<i>reserved</i>		
ESC	35	53	5	<i>reserved</i>		
ESC	36	54	6	<i>reserved</i>		
ESC	37	55	7	<i>reserved</i>		
ESC	38	56	8	<i>reserved</i>		
ESC	39	57	9	<i>reserved</i>		
ESC	3A	58	:	<i>reserved</i>		
ESC	3B	59	;	<i>reserved</i>		
ESC	3C	60	<	<i>reserved</i>		
ESC	3D	61	=	<i>reserved</i>		
ESC	3E	62	>	<i>reserved</i>		
ESC	3F	63	?	<i>reserved</i>		

ESC	40	64	@	Sleep Clear display and Turn off Laser, Motor and Backlight. SG15 keeps functioning as normal.		
ESC	41	65	A	Wake Up Return from sleep.		
ESC	42	66	B	Select Font Set The SG15 has 2 internal font sets: 0x30 - Font set 1 (Normal sized font) 0x31 - Font set 2 (Large font)	<FONTSET> 0x30=0x31	
ESC	43	67	C	reserved		
ESC	44	68	D	reserved		
ESC	45	69	E	reserved		
ESC	46	70	F	reserved		
ESC	47	71	G	reserved		
ESC	48	72	H	reserved		
ESC	49	73	I	reserved		
ESC	4A	74	J	reserved		
ESC	4B	75	K	reserved		
ESC	4C	76	L	reserved		
ESC	4D	77	M	reserved		
ESC	4E	78	N	reserved		
ESC	4F	79	O	reserved		
ESC	50	80	P	reserved		
ESC	51	81	Q	reserved		
ESC	52	82	R	reserved		
ESC	53	83	S	reserved		
ESC	54	84	T	reserved		
ESC	55	85	U	reserved		
ESC	56	86	V	reserved		
ESC	57	87	W	reserved		
ESC	58	88	X	reserved		
ESC	59	91	Y	reserved		
ESC	5A	90	Z	Reset Soft reset		
ESC	5B	91	[	Enable/Disable scanning Enable or disable barcode scanning	<MODE> 0x30=disable 0x31=enable	
ESC	5C	92	\	Enable/Disable Backlight The backlight will be turned on or off	<MODE> 0x30=off 0x31=on	
ESC	5D	93	]	Sleep/Wakeup internal barcode scanner Put the internal barcode scanner into sleep (turn off laser and motor), or wake it up	<MODE> 0x30=sleep 0x31=wakeup	
ESC	5E	94	^	Beep The internal speaker will generate the default 'beep'.		
ESC	5F	95	~	reserved		
ESC	60	96	=	Get Firmware Version The SG15 returns the current firmware version. Format 'SG15vnn.nn'		
ESC	61	97	a	reserved		
ESC	62	98	b	reserved		
ESC	63	99	c	reserved		
ESC	64	100	d	reserved		
ESC	65	101	e	reserved		
ESC	66	102	f	reserved		
ESC	67	103	g	reserved		
ESC	68	104	h	reserved		
ESC	69	105	i	reserved		
ESC	6A	106	j	reserved		
ESC	6B	107	k	reserved		
ESC	6C	108	l	reserved		
ESC	6D	109	m	reserved		
ESC	6E	110	n	reserved		
ESC	6F	111	o	reserved		
ESC	70	112	p	Reroute Ethernet/WLAN communication Can be used to directly communicate with devices on a serial port. Normally, the data is printed on the display.  <b>The SG15 will respond by sending an 'ACK' (0x06) back to the host.</b>	<Destination> 0x30 = Display 0x31 = Ser.Port 1 0x32 = Ser.Port 2	
ESC	71	113	q	reserved		
ESC	72	114	r	reserved		
ESC	73	115	s	reserved		
ESC	74	116	t	reserved		
ESC	75	117	u	reserved		
ESC	76	118	v	reserved		
ESC	77	119	w	reserved		
ESC	78	120	x	reserved		
ESC	79	121	y	reserved		
ESC	7A	122	z	reserved		
ESC	7B	123	{	reserved		
ESC	7C	124		Generate Backlight Pulse Generates a 1msec pulse on the backlight port. The SG15 will respond by sending an 'ACK' (0x06) back to the host.  Used for special projects only.		
ESC	7D	125	}	reserved		
ESC	7E	126	~	reserved		
ESC	7F	127	DEL	reserved		

# C CHARACTER SETS

As of firmware version 0.24, the SG-15 contains six character sets:

- Codepage 852 (Latin-2)
- Codepage 866 (Cyrillic DOS codepage).
- Codepage 874 (Thai)
- Codepage 1251 (Cyrillic)
- Codepage 1252 (Latin-1)
- Codepage 1257 (Baltic).

Possibly, more codepages will be added in the future.

**Only 1 codepage can be used at a time (see chapter 5.8).**

Each character set (codepage) is available in 2 sizes (see "ESC B" command).

## Code page 852 (Latin-2)

01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	
10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
20	21	22	23	24	25	26	27	28	29	2A	2B	2C	2D	2E	2F
30	31	32	33	34	35	36	37	38	39	3A	3B	3C	3D	3E	3F
40	41	42	43	44	45	46	47	48	49	4A	4B	4C	4D	4E	4F
50	51	52	53	54	55	56	57	58	59	5A	5B	5C	5D	5E	5F
60	61	62	63	64	65	66	67	68	69	6A	6B	6C	6D	6E	6F
70	71	72	73	74	75	76	77	78	79	7A	7B	7C	7D	7E	7F
80	81	82	83	84	85	86	87	88	89	8A	8B	8C	8D	8E	8F
90	91	92	93	94	95	96	97	98	99	9A	9B	9C	9D	9E	9F
A0	A1	A2	A3	A4	A5	A6	A7	A8	A9	AA	AB	AC	AD	AE	AF
B0	B1	B2	B3	B4	B5	B6	B7	B8	B9	BA	BB	BC	BD	BE	BF
C0	C1	C2	C3	C4	C5	C6	C7	C8	C9	CA	CB	CC	CD	CE	CF
D0	D1	D2	D3	D4	D5	D6	D7	D8	D9	DA	DB	DC	DD	DE	DF
E0	E1	E2	E3	E4	E5	E6	E7	E8	E9	EA	EB	EC	ED	EE	EF
F0	F1	F2	F3	F4	F5	F6	F7	F8	F9	FA	FB	FC	FD	FE	FF

## Code page 866 (Cyrillic DOS)

01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	
10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
20	21	22	23	24	25	26	27	28	29	2A	2B	2C	2D	2E	2F
30	31	32	33	34	35	36	37	38	39	3A	3B	3C	3D	3E	3F
40	41	42	43	44	45	46	47	48	49	4A	4B	4C	4D	4E	4F
50	51	52	53	54	55	56	57	58	59	5A	5B	5C	5D	5E	5F
60	61	62	63	64	65	66	67	68	69	6A	6B	6C	6D	6E	6F
70	71	72	73	74	75	76	77	78	79	7A	7B	7C	7D	7E	7F
80	81	82	83	84	85	86	87	88	89	8A	8B	8C	8D	8E	8F
90	91	92	93	94	95	96	97	98	99	9A	9B	9C	9D	9E	9F
A0	A1	A2	A3	A4	A5	A6	A7	A8	A9	AA	AB	AC	AD	AE	AF
B0	B1	B2	B3	B4	B5	B6	B7	B8	B9	BA	BB	BC	BD	BE	BF
C0	C1	C2	C3	C4	C5	C6	C7	C8	C9	CA	CB	CC	CD	CE	CF
D0	D1	D2	D3	D4	D5	D6	D7	D8	D9	DA	DB	DC	DD	DE	DF
E0	E1	E2	E3	E4	E5	E6	E7	E8	E9	EA	EB	EC	ED	EE	EF
F0	F1	F2	F3	F4	F5	F6	F7	F8	F9	FA	FB	FC	FD	FE	FF

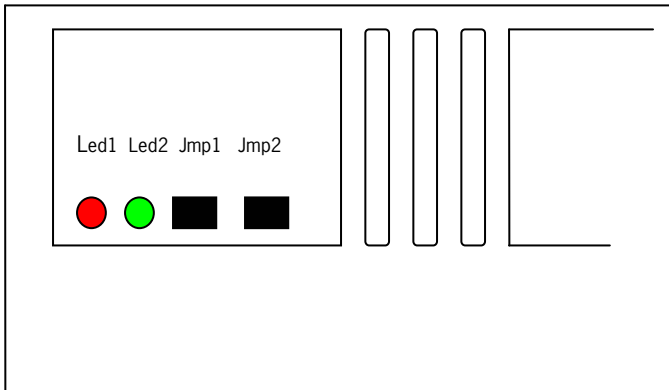


## D FACTORY DEFAULT SETTINGS

The SG-15 can be returned to its default settings, by placing jumper #1 and turn on the power.

When the SG-15 has started up, you should disconnect the power again and remove the jumper again (Otherwise the SG-15 keeps returning to defaults at every reboot...)

Drawing of the back side of the SG-15:



Currently, the default settings concern the following settings:

IP Address	192.168.3.227
Subnet mask	255.255.255.0
Default Gateway	192.168.3.250
IP Address Remote Host	192.168.3.32
DHCP	Disabled
TCP Port	9101
UDP Port	9000
Baudrate internal scanner	9600
Minimal Scanning interval	500 mSec
Connect Mode	TCP Server
Wait for host after scanning barcode	3 seconds
Display Message Timeout	5 seconds
Font codepage	Codepage 852
Device Name	SG15_SHUTTLE
WiFi mode	Infrastructure
WiFi Adhoc channel	1
WiFi WEP key	00000000000000
WiFi SSID	pegasus
WiFi Authentication	open/none

**IMPORTANT**

The user definable texts aren't affected by this action.

## E UPGRADING FIRMWARE

The SG-15 firmware can very simply be upgraded by using TFTP.

You simply need to obtain a proper firmware file from Scantech ID and upload it using the following command line:

E.g. **tftp.exe -i 192.168.3.227 PUT firmware.bin /**

*Don't forget the "/" at the end !*

Of course, the IP address and firmware file may differ...

Make sure that the own and remote IP addressing inside SG-15 are correct.

Upgrading the Shuttle usually will be finished in a few seconds. After that, it takes a few seconds for the SG-15 to re-flash its memory and to reboot.

You can also hit the 'FIRMWARE' button on the main screen of the SG-15 Configuration Utility, which starts tftp on the background.

Just make sure the TFTP.EXE program is located in your file path.

### **IMPORTANT**

It's possible that some of the SG-15 settings will return to the default value, when upgrading to new firmware.

This depends on the new firmware version, but also on the currently used version.

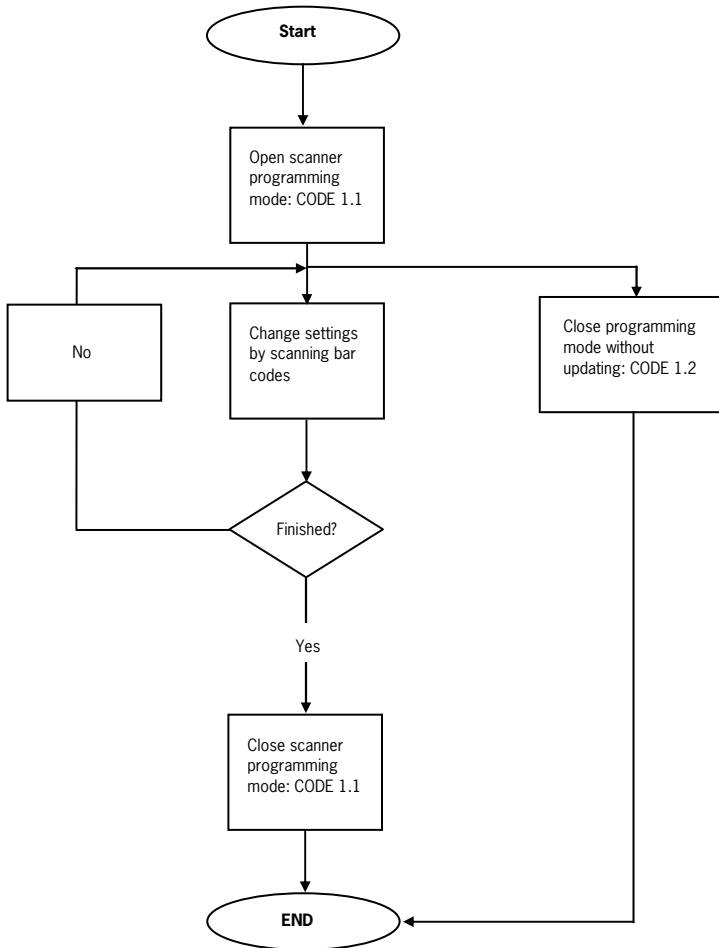
**Therefore, you should always check the SG-15's settings when the firmware update is completed.**





## F BARCODE SET UP (OMNI DIRECTIONAL SCANNER)

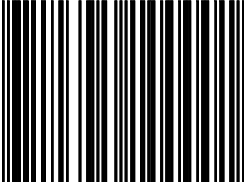
To change the parameters of the internal scanner, follow the flow-chart shown in this section. **Note: Only valid for the omni directional scanner.**



*Procedure for programming with bar codes.*

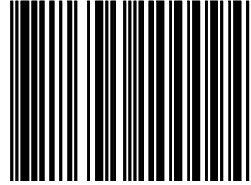
## Bar Codes To Program the Omni-directional Scanner

Open Programming Mode  
and close (with update)



1.1

Exit programming mode  
without update



1.2

SG15 omni-scanner macro settings:

This macro programming bar code will set the  
following scanner parameters in one stroke:

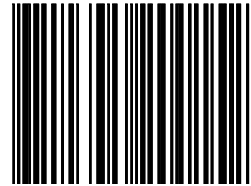
*Serial settings: 9600,8,n,1,no handshaking*

*Beeper: Off*

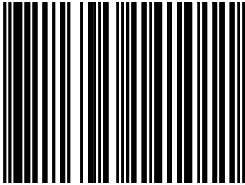
*Sleepmode: Off*

*Postamble: CR*

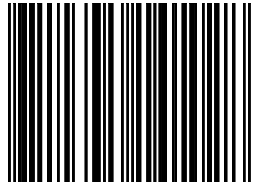
*Code ID = on*



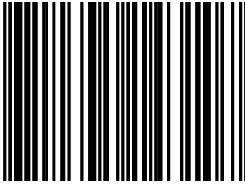
EAN/UPC On



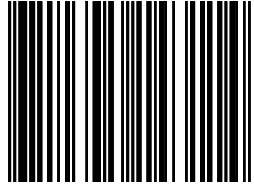
EAN/UPC + Add-On



Code 128/EAN 128 On



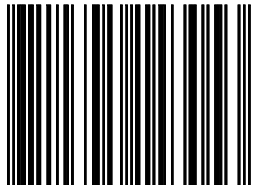
Code 128/EAN 128 Off



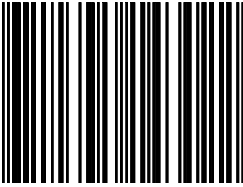
Code 39 On



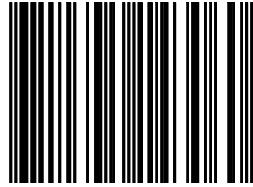
Code 39 Off



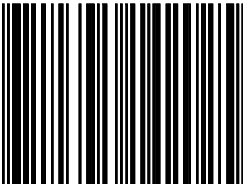
Codabar On



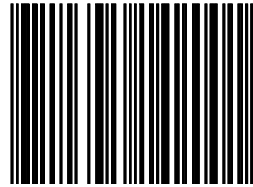
Codabar Off



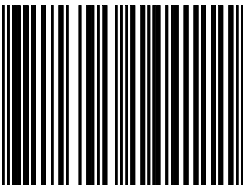
Interleaved 2/5 On



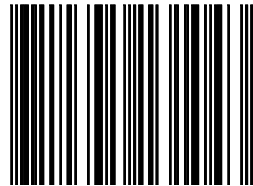
Interleaved 2/5 Off



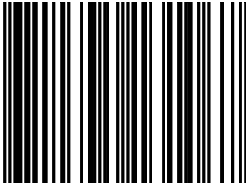
Setting min. length Interleaved 2/5



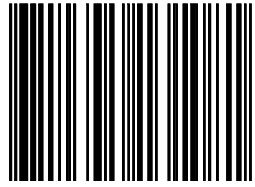
Length  $\geq 4$



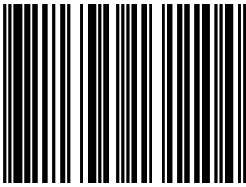
Length  $\geq 6$



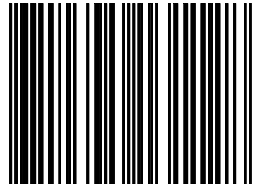
Length  $\geq 8$



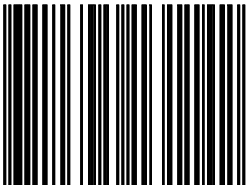
Length  $\geq 10$



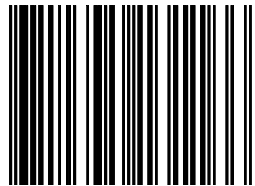
Length  $\geq 12$



Length  $\geq 14$



Length  $\geq 16$





## **G FREQUENTLY ASKED QUESTIONS**

### **INDEX**

1. General
2. SG-15 Configuration and the SG-15 Users Manual
3. Networking
4. Demo-possibilities and how to get started
5. Barcodes

### **G-1 GENERAL**

*What is the standard configuration and looks for the Shuttle?*

See appendix J.

*Can we have other colours than black, Silver or Red?*

Yes, Other colours are only available on request, only in large quantities and under specific conditions.

*Is every Shuttle delivered with a CD-ROM and User's Manual?*

Yes, however with larger orders we apply a ratio: one set per so many units.

*Do you have brochures available in other languages?*

We do have 'leaflets' in an increasing number of languages. Check our website for details.

*Why isn't there a "PC-board" inside the Shuttle?*

It was our design strategy to develop a compact, lean and cost-effective 'Price Checker', offering all the requirements at absolute maximum reliability at a low power consumption and for an attractive price. We ensured the availability of the motherboard for the future.

## **G-2 SG-15 CONFIGURATION AND THE SG-15 USER'S MANUAL**

*How do I configure the Shuttle?*

See chapter 5.

As of SG-15 firmware version V1.00, the SG-15 has an internal web server, which makes it possible to configure it using any internet browser.

Besides the web server, you can always use the Configuration Tool (Windows only). It can be found on the CD-ROM, which is particularly easy when the IP-Addresses of the Shuttle(s) is/are unknown.

*Where do I find the most recent Shuttle Command Set?*

In this manual and on the Product Support CD-ROM.

*Do I need special software for the Shuttle?*

The Shuttle itself is standard equipped with all the required embedded firmware. However on the server-side (your back-office system) you need a program or routine to take care of communication and providing the product information that the Shuttle shall display. It is the role of the system integrator to add his value here. See chapter 4 and load of the examples with source code on the Product Support CD-ROM!

## **G-3 NETWORKING**

*Which type of Power Over Ethernet (PoE) is supported?*

The Shuttle supports both Mid- and End-span connections, according to the IEEE 802.3af specifications.

*Which Wireless options are available?*

The SG-15 Shuttle WiFi version supports IEEE 802.11b.

See Appendix J for the SG-15 Partnumbers.

See also Appendix L providing info on the appropriate PCMCIA card.



## **G-4 DEMO POSSIBILITIES & HOW TO GET STARTED**

*What kind of development package does the system-integrator get from Scantech?*

The Shuttle Product Support CD-ROM (P/N A372002) contains lots of technical information and free source code examples in all popular languages.

*Does the Shuttle have an internal memory for an article database?*

No, we have chosen not to do this for the following the reason:

It is crucial that the information given to the consumer on the Shuttle display is correct. The best solution to achieve this high level of data integrity is to draw the information from ONE central source: The article database on the store's Back Office computer.

In case the Shuttle terminal would contain a local database, this needs permanent maintenance, generating lots of data traffic and logistic hassle.

Also, a local database memory will significantly increase the unit hardware costs.

*How can I give a quick demo?*

See Shuttle Product Support CD-ROM. (CDROM\Demonstration Tool\SG15Demo.exe). The SG-15 should run in TCP Server mode to work with this demo tool. See Appendix K.

*How can I give an advanced demo incl. database?*

See Shuttle Product Support CD-ROM. (CDROM\Source Code Examples\Enhanced). The SG-15 should run in TCP Client mode to work with this demo tool.

## **G-5 BARCODES**

*Which barcode symbologies does the Shuttle accept?*

Basically all popular symbologies as accepted by the integrated Scantech scanner: EAN 13, EAN 8, UPC A, UPC E, Add-ons, Code/EAN 128, Interleaved 2/5, Code 39 (full ASCII), Code 32 and Codabar. By Factory Default only EAN/UPC decoding has been activated inside the omni-scanner.



## H SHUTTLE PROJECT TASKS

The integration of a Price Checker like the Shuttle into a store IT system is slightly more complex than linking a mouse to your PC. Therefore you find below ,to prevent any miscommunication, a general guideline describing “Who Does What While Launching A Shuttle Project”.

### **Scantech supplies:**

- Shuttle Hardware Configuration (excl. network cabling).
- Overview of possibilities, features and benefits of the Shuttle.
- Advice which Configuration to choose.
- Configuration tool (MS-Windows based).
- Examples of software source code for the application software plus Ethernet driver on the Product Support CD-ROM.
- Consultancy & Technical Support.

### **The Distributor / System Integrator supplies:**

- The application software linking the Shuttle to the Customers’ Product Database. See Chapter 4.1.
- Choice of the configuration, depending on:
  - Requirements of the end-user.
  - Current Installation.
- Installation of the Shuttle terminals and the network-cabling.
- Shuttle field-service, implying:
  - Configuration of the Shuttle terminals prior to installation, with the SG-15 Configuration Tool or built-in web server.
  - One minute swap time due to smart mounting (no need to open the Shuttle).



# I TECHNICAL SPECIFICATIONS

## Shuttle SG-15

<b>Electrical</b>	
Power supply voltage	100-240 Vac 50/60 Hz or Power over Ethernet IEEE 802.3af (optional)
Power consumption	3 - 5 Watt (5.2Vdc, 580- 950 mA). Depending on interface and scanner type.
SG15 DC input	5.2 Vdc
Interfaces	Standard Ethernet or 802.11b WiFi (optional)
<b>Scanner characteristics</b>	
Light source	Visible laser diode (630 – 670 nm) or red led
Depth of field	200 mm (= maximum reading distance)
Scan pattern	Omnidirectional or single line
Bar code types	EAN/UPC/JAN + Add-on Code 128, EAN 128, Code 39 (+ full ASCII), Code 32, Code 93, MSI/Plessey, Codabar, Interleaved 2/5
<b>Physical</b>	
Dimensions	183 (h) x 132 (w) x 95 (d) mm
Display	High-bright blue-white 128x64 pixels
Housing	PC/ABS
<b>Environmental</b>	
Operating temperature	0°C ... 40°C
Humidity	20% .. 95% RH (non condensing)
<b>Safety</b>	
Laser Safety	IEC 825-1 (1993) Class I, U.S. 21CFR1040 Class IIa
Electrical Safety	EN 60950 (1992), IEC 950 (1991), UL1950 3 <sup>rd</sup> edition, c-UL(CSA-C22-2 950-M95)
EMC	EN 61000-6-3 (2001) Generic emission standard, from which: EN55011 (1998) Emission –Class B. EN 61000-6-2 (2001) Generic immunity standard, from which: EN 61000-4-2 (1995) Electrostatic Discharge (ESD) immunity, EN61000-4-3 (1996) Radiated Electro-Magnetic field immunity, ENV 50204 (1995) Digital radio telephones immunity, EN61000-4-4 (1995) Electrical Fast Transient (EFT) immunity, EN61000-4-5 (1995) Surge transient immunity, EN 61000-4-6 (1996) Conducted RF disturbances immunity.



## J OVERVIEW PARTNUMBERS

<b>SG-15 with omega module</b>	<b>SG-15 with CCD module</b>
<p data-bbox="113 347 463 375"><i>Standard version with Ethernet:</i></p> <ol data-bbox="113 416 549 512" style="list-style-type: none"> <li data-bbox="113 416 549 443">1. A370101 SG-15 Black / Standard</li> <li data-bbox="113 448 549 475">2. A370102 SG-15 Silver / Standard</li> <li data-bbox="113 480 549 507">3. A370103 SG-15 Red / Standard</li> </ol> <p data-bbox="113 552 486 579"><i>Wireless LAN with PCMCIA Card:</i></p> <ol data-bbox="113 620 516 716" style="list-style-type: none"> <li data-bbox="113 620 516 647">4. A370201 SG-15 Black / WLAN</li> <li data-bbox="113 652 516 679">5. A370202 SG-15 Silver / WLAN</li> <li data-bbox="113 684 516 711">6. A370203 SG-15 Red / WLAN</li> </ol> <p data-bbox="113 756 519 783"><i>Power over Ethernet PoE (802-3AF):</i></p> <ol data-bbox="113 825 493 920" style="list-style-type: none"> <li data-bbox="113 825 493 852">7. A370301 SG-15 Black / PoE</li> <li data-bbox="113 857 493 884">8. A370302 SG-15 Silver / PoE</li> <li data-bbox="113 888 493 916">9. A370303 SG-15 Red / PoE</li> </ol>	<p data-bbox="586 347 937 375"><i>Standard version with Ethernet:</i></p> <ol data-bbox="586 416 1023 512" style="list-style-type: none"> <li data-bbox="586 416 1023 443">1. A371101 SG-15 Black / Standard</li> <li data-bbox="586 448 1023 475">2. A371102 SG-15 Silver / Standard</li> <li data-bbox="586 480 1023 507">3. A371103 SG-15 Red / Standard</li> </ol> <p data-bbox="586 552 959 579"><i>Wireless LAN with PCMCIA Card:</i></p> <ol data-bbox="586 620 990 716" style="list-style-type: none"> <li data-bbox="586 620 990 647">4. A371201 SG-15 Black / WLAN</li> <li data-bbox="586 652 990 679">5. A371202 SG-15 Silver / WLAN</li> <li data-bbox="586 684 990 711">6. A371203 SG-15 Red / WLAN</li> </ol> <p data-bbox="586 756 993 783"><i>Power over Ethernet PoE (802-3AF):</i></p> <ol data-bbox="586 825 967 920" style="list-style-type: none"> <li data-bbox="586 825 967 852">7. A371301 SG-15 Black / PoE</li> <li data-bbox="586 857 967 884">8. A371302 SG-15 Silver / PoE</li> <li data-bbox="586 888 967 916">9. A371303 SG-15 Red / PoE</li> </ol>





## **K SHUTTLE SG-15 DEMONSTRATION PROGRAM**

The Shuttle SG-15 demonstration program can be found on the Shuttle SG-15 Product Support CD-ROM.

This program can be used for quick and easy demonstrations or for experimenting. You can see literally, what is sent to an SG-15 or what is received from it. Just connect to your SG15 and try it. It's really **that** easy!

This program is merely the same as a normal Telnet program, with the addition of some useful features for demonstration purposes.

### **Some notes:**

1. Regarding the Network Connection Properties of your PC:  
You may have to turn OFF DHCP and make sure the IP address of your PC is in the same IP range as the Shuttle you want to communicate with.  
For instance by giving your PC IP address: 192.168.3.1
2. Set the SG-15 in Server Mode as described in Chapter 5.5
3. If this appears to be necessary:
  - Turn off your Windows firewall or
  - Add SG15Config.exe in the list of Exceptions under Windows Firewall.

### **Using the Demo program**

You can manually enter text, which is displayed on the SG15 screen. Just click on the blue edit screen of this program and start typing.

***Don't forget to 'Connect' first!***

You can also give SG-15 Control (ESC) commands.  
Just hit the ESC key, which sends an actual esc-character (0x1b).

Examples:

**Clearing the SG15 screen:** Hit 'ESC' key  
Enter '%'

**Display ASCII value 231** Hold down the 'Alt' key and enter '0' '2' '3' '1'.

**Kicking the Shuttle into Sleep** Hit 'ESC' key  
Enter '@'

**Waking up the Shuttle again** Hit 'ESC' key  
Enter Capital A

Consult Appendix B for more ESC command examples.

When you scan a barcode at the SG-15, the program responds with 1 of 5 predefined texts. On the blue edit field you can actually see what exactly is received or transmitted.

## L 802.11B PCMCIA cards

The Shuttle SG-15 is available from the factory with WiFi IEEE 802.11b interface. See appendix J for all part numbers. The SG-15 uses 16 bits PCMCIA cards with the Intersil-Prism chipset version 2.5 – 3. Both 3.3V and 5V versions are supported.

Also CF (Compact Flash) cards can be applied  
(also using the Prism V2.5 –3 chipset)

In theory this means that every PCMCIA card with the above specifications should work smoothly together with the Shuttle. However, in practice exceptions might occur to this general rule, since there are many “flavors” cards carrying the same specifications.

In the PC-world, this can easily be solved using a product-specific driver to solve any anomalies. Obviously, those drivers aren't available for the Shuttle SG-15.

Scantech ID supplies a guaranteed working SG-15 with PCMCIA card for IEEE802.11b interfacing, but -in principle- our customers are free to use their own cards, meeting the specification mentioned above.

### **IMPORTANT**

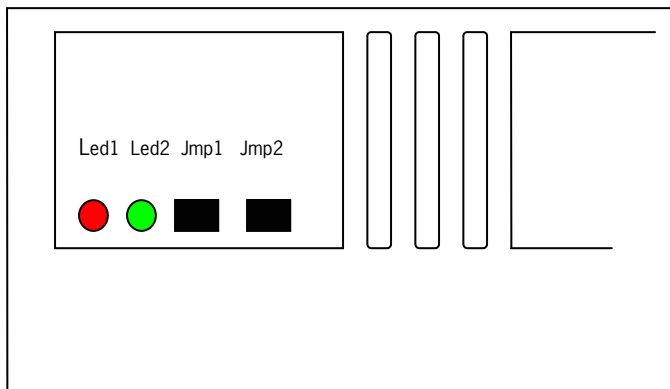
Scantech ID has a complete overview of successfully validated PCMCIA cards. SG-15 Users wanting to apply their own choice of PCMCIA card, should contact Technical Support first, to verify if this card is compatible with the Shuttle SG15.

Any brand of PCMCIA card which hasn't been used in combination with a Shuttle SG15 before, should first be validated thoroughly by Scantech-ID.



## M LEDS AND JUMPERS

The LED's and Jumpers can be found on the back side of the SG-15:



### **Jumper 1**

If placed, then the SG15 loads it's default settings during startup. See also appendix D.

### **Jumper 2**

If placed, then the SG15 chooses the 10BaseT wired Ethernet interface at all times, even if a PCMCIA card is placed. See also 5.7.

All SG15's have this jumper placed by default.

This makes it easy to configure the SG15 (using a wired connection), even if a PCMCIA card is present.

Obviously, when the wireless interface should be used, this jumper should be removed again.

### **LED 1 (Red)**

Indicates network traffic over the 10BaseT interface (Wired Ethernet).

### **LED 2 (Green)**

Indicates network traffic over the 802.11b interface (WLAN).





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