Amphenol
RJ-Switch

IP67/68 rugged Miniature Communication Gateway RES-SMARTUSB
- User manual –

This manual applies to the following products:

- **RES-SMARTUSB**

    Rugged IP67 miniature Communication Gateway based on USB, with SCE2 reinforced connectors

Revision	Date	Modifications
1	2016, March	Initial document

CONTENT

1. Amphenol Statement of Limited Warranty

Products shall benefit from a legal guarantee of one year following the date of delivery in accordance with the terms and conditions indicated hereunder.

In all instances, Seller's guarantee shall be limited to free replacement, in identical quantities, of the Product acknowledged as defective by Seller with the exclusion of any compensation or damages and interests other than agreed in a specific contract.

The guarantee is subject that Client notifies Seller of defect immediately following discovery thereof by any written means during the legal guarantee period. Defective Products shall be returned to Seller in accordance with the same procedure as that applicable to Products which do not comply with orders as indicated under article 9 hereinabove.

The following shall be excluded from the guarantees provided by Seller:

- Product defects resulting from inadequate maintenance, or supervision and, more widely, any use which does not comply with written instructions of Seller and indicated in technical notices and/or product specifications, or default in respecting applicable standards or professional customs and uses;

- Product defects resulting from an external cause or any modification or intervention by Client or third party without the prior written consent of Seller;

- The guarantee shall not cover normal wear and tear of Products;

- Product defects resulting generally in whole or in part from damage or accidents attributable to Client or a third party;

- More specifically whether the cover of the switch enclosure have been opened.

- Whether the components have been damaged in transit or have not been stored by the Customer in conditions in accordance with the specification.

- The guarantee shall not cover any defects resulting from instructions given by Client to Seller ;

- Whether the components have been subjected to abuse (mechanical, electrical or thermal) on installation or on use and, in the case of slices/dice, have been subjected to handing or such operations as the welding of connecting wires mounting by soldering or sticking.

- Whether the unfitness or defectiveness of the components has resulted from exceeding the maximum values for usage (temperature limit, maximum voltage, etc.) as defined by the Vendor, or from incorrect choice of application.

- Damages resulting from force majeure, such as this is defined under article 11 of Amphenol Socapex Sales Conditions, or resulting from any unpredictable event or natural disaster.

- Furthermore, the guarantee shall not cover consequential liability, direct or indirect which may result from the failure of a component supplied by the Vendor.

Client shall retain sole and exclusive liability for the use of Products provided by Seller and the suitability thereof for use.

Client should ensure that its premises and storage conditions are adequate for the due and proper storage of Products and ensure all safety guarantees as stipulated by regulations in force. No guarantee shall be provided by Seller in this regard.

Note: All information in this document is subject to change without notice.
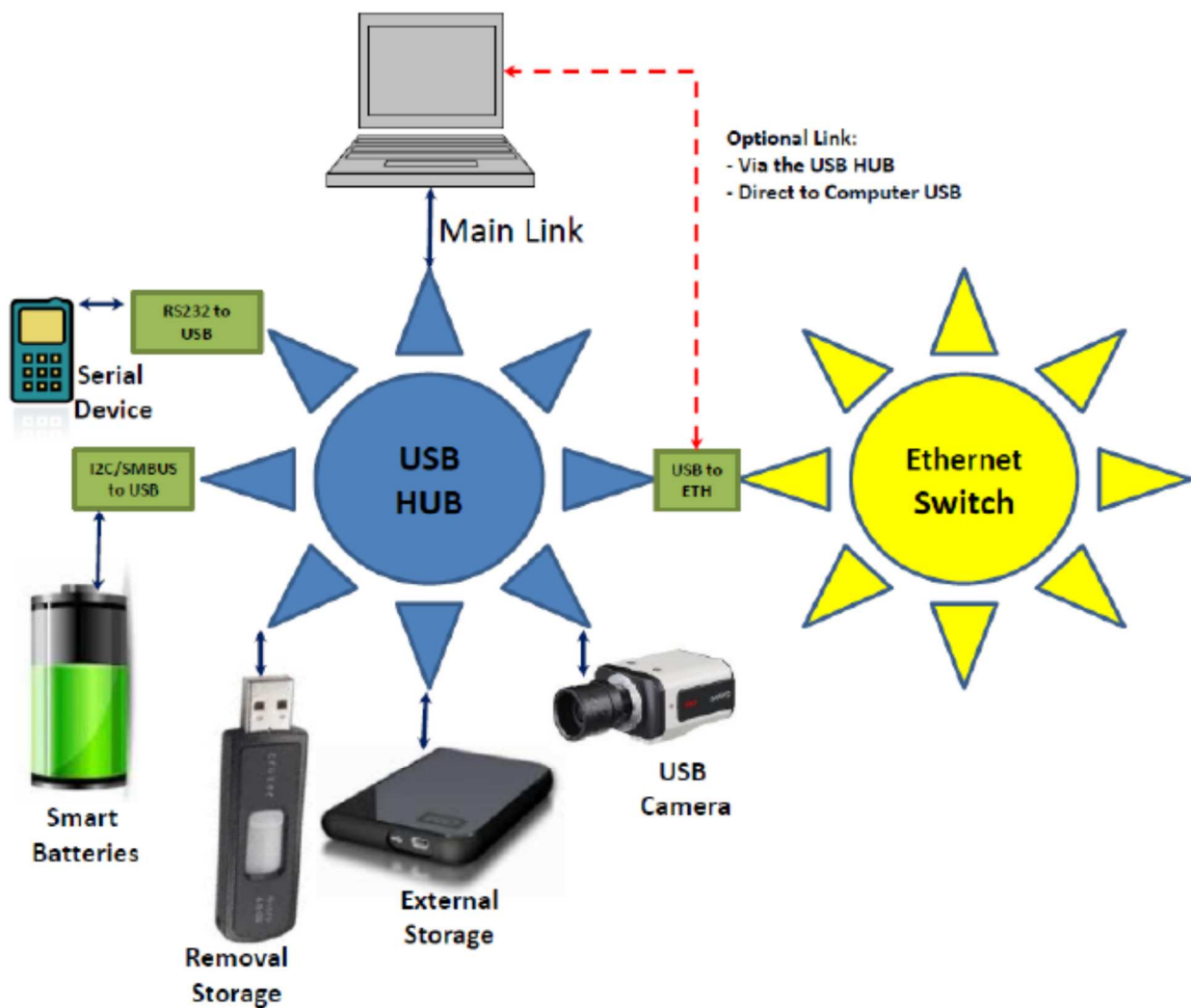
2. General information

The RES-SMARTUSB is a USB centered device that combines:

- 5 x switched 10/100 (Fast Ethernet) ports
- Up to 6 x USB 2.0 ports
- 1 x Serial, RS-232 to USB
- 1 x Smart Batteries SoC (SMBUS V.2.0), I²C to USB
- 1 x External power source input

Schematic diagram

See below schematic diagram of the connectivity options:

3. Necessary Programs for this Process

- Tera Term (terminal emulator program) or Hyper Terminal
- USB to Ethernet (SMSC Lan9500 Device) Driver.
- USB to Serial Driver (Usually does NOT require installation)

4. Driver Installation Steps for RES-SMARTUSB

- Step 1

Install 'Tera Term' program.

- Step 2

Power on RES-SMARTUSB with Power harness (located at Port #6) attached to 5V Power supply.

- Step 3

Plug USB Master Cable (Located at Port #6) to your 'PC'.
Connect any of the available Ethernet Ports with regular Cat6/5e Cable (RJ45) to your 'Target Unit'.

- Step 4

Install SMSC Lan9500 Device Driver for Ethernet over USB.

- For installing the programs use: < LAN9500_driver.exe> file.
- Please Double-click the file and follow the instructions in the installation.

- Step 5

Enter Network and Sharing Center (On your computers/ control panel).

- Select the new Ethernet Network Adapter that appears after installing SMSC Lan9500 Device Driver.
- Under its Properties; set IP Address and Subnet mask according to the desired network topology.

Installation Verification:

- Open CMD and make sure your IP settings saved properly, by using 'ipconfig' command.
- Ping to your 'Target Unit' and make sure you have reply from your Destination Address.

- Step 6

Installation instruction for Serial RS-232 and SoC for batteries via SMBUS over USB interface:

- Plug Serial RS-232 Cable (Located on Port #1) to desired target device.
- Enter Device Manager on your PC (make sure your PC is connected with USB Master Cable to the RES-SMARTUSB unit), look under 'Ports (COM & LPT)' for two new devices that recognized under the name 'Dual RS232-HS'.
- The installation should complete automatically via the internal Windows drives. Wait few minutes until the computer finish installing the new serial devices. After the installation is completed successfully you should see two new devices under the name 'USB Serial Port (com#1)' and 'USB Serial Port (com#2)'.

Note: Usually the port with the higher com number (#) is Serial RS-232.

In case your computer can't install the ports:

- Make sure that the Internet connection is on.
- Right click on the 'Dual RS232-HS' and choose 'Update driver software', select 'Search automatically for updated driver software' and wait few minutes until the computer finish to install the new serial ports.

To verify the installation

- Turn on 'Tera Term' program. In the 'serial port setup' select the desired setting for the 'Target Unit' that connected to the serial port.
- Make sure the target unit is controlled by Serial RS-232 successfully.

Once you completed all the drivers installation successfully, you should have full access to all RES-SMARTUSB ports.

5. Wiring

In order to reduce the size and the number of connections, the different ports have been merged together and share the same connectors. See details below.

Connector #1 = Ethernet Port + RS-232 + SMBUS
Connector #2 = Ethernet Port + USB Port
Connector #3 = Ethernet Port + USB Port
Connector #4 = Ethernet Port + USB Port
Connector #5 = Ethernet Port + USB Port + USB Port
Connector #6 = External Power Supply + MAIN USB Port + USB Port (optional)

Pinout

Port Number 1				Port Number 2			
TYPE	SCE2	SIGNAL	PINOUT	TYPE	SCE2	SIGNAL	PINOUT
Ethernet 1	F	TX-	RJ45 - Pin 2	Ethernet 2	F	TX-	RJ45 - Pin 2
Ethernet 1	G	TX+	RJ45 - Pin 1	Ethernet 2	G	TX+	RJ45 - Pin 1
Ethernet 1	H	RX+	RJ45 - Pin 3	Ethernet 2	J	RX-	RJ45 - Pin 6
Ethernet 1	J	RX-	RJ45 - Pin 6	Ethernet 2	K	RX+	RJ45 - Pin 3
RS-232	K	Rx	DB9 - Pin 2	USB Sec. 1	B	5 VDC Power	USB - Pin 1
RS-232	A	Tx	DB9 - Pin 3	USB Sec. 1	C	Data -	USB - Pin 2
RS-232	B	GND	DB9 - Pin 5	USB Sec. 1	D	Data +	USB - Pin 3
SMBUS	C	CLOCK	SM_CLK_Yellow	USB Sec. 1	E	GND	USB - Pin 4
SMBUS	D	DATA	SM_DATA_Red				
SMBUS	E	GND	SM_GND_Black				

Port Number 3				Port Number 4			
TYPE	SCE2	SIGNAL	PINOUT	TYPE	SCE2	SIGNAL	PINOUT
Ethernet 3	F	TX+	RJ45 - Pin 1	Ethernet 4	F	TX-	RJ45 - Pin 2
Ethernet 3	G	TX-	RJ45 - Pin 2	Ethernet 4	G	TX+	RJ45 - Pin 1
Ethernet 3	H	RX+	RJ45 - Pin 3	Ethernet 4	H	RX+	RJ45 - Pin 3
Ethernet 3	J	RX-	RJ45 - Pin 6	Ethernet 4	J	RX-	RJ45 - Pin 6
USB Sec. 2	A	Data +	USB - Pin 3	USB Sec. 3	D	Data -	USB - Pin 2
USB Sec. 2	B	Data -	USB - Pin 2	USB Sec. 3	E	Data +	USB - Pin 3
USB Sec. 2	M	GND	USB - Pin 4	USB Sec. 3	N	5 VDC Power	USB - Pin 1
USB Sec. 2	K	5 VDC Power	USB - Pin 1	USB Sec. 3	M	GND	USB - Pin 4

Port Number 5				Port Number 6			
TYPE	SCE2	SIGNAL	PINOUT	TYPE	SCE2	SIGNAL	PINOUT
Ethernet 5	F	TX-	RJ45 - Pin 2	Power - DC In +	C	External +5 VDC	
Ethernet 5	G	TX+	RJ45 - Pin 1	Power - DC In -	P	External GND	
Ethernet 5	H	RX-	RJ45 - Pin 6	USB Master	F	5 VDC Power	USB - Pin 1
Ethernet 5	J	RX+	RJ45 - Pin 3	USB Master	G	Data -	USB - Pin 2
USB Sec. 4	K	Data +	USB - Pin 3	USB Master	H	Data +	USB - Pin 3
USB Sec. 4	A	Data -	USB - Pin 2	USB Master	J	GND	USB - Pin 4
USB Sec. 4	B	5 VDC Power	USB - Pin 1	NC-USB Sec. 6	B	5 VDC Power	USB - Pin 1
USB Sec. 4	N	GND	USB - Pin 4	NC-USB Sec. 6	N	GND	USB - Pin 4
USB Sec. 5	C	Data +	USB - Pin 3	NC-USB Sec. 6	K	Data -	USB - Pin 2
USB Sec. 5	D	Data -	USB - Pin 2	NC-USB Sec. 6	A	Data +	USB - Pin 3
USB Sec. 5	E	5 VDC Power	USB - Pin 1				
USB Sec. 5	P	GND	USB - Pin 4				

Connector of the unit

- Connector P/N of the unit: SCE2-B-76A07-14SN-001

Mating connectors

The RES-SMARTUSB should be connected using mating inline receptacles from SCE Terrapin series. We suggest using the L1K Latch inline receptacle or 01K Snatch inline receptacle.

- P/N for the latch inline receptacle: SCE2-B-L1K07-14PN.

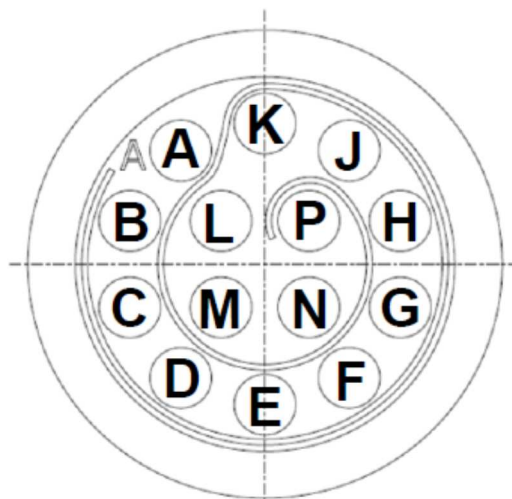Note: A grounding ring is provided with the 985 option.

- P/N for the latch inline receptacle with grounding ring: SCE2-B-L1K07-14PN-985.

Note : pay attention to use the cable's shield for the ground continuity during the wiring process.

This plug has size 7. It is coming with 14 contacts 23 AWG with solder termination.

SCE2-B-L1K07-14PN-985

Rear view of the plug

Accessories for mating connectors

Accessories such as heatshrinks boots, braid retention strap and dust caps can be offered. Consult the TERRAPIN catalog for further details.

Here are the heatshrinks suggested for using with SCE2-B-L1K07-14PN (985):

Right angled or Straight boot	Amphenol P/N	Raychem P/N	Hellerman P/N
Straight	123GB-0798-07-S	202K132-25/225	154-44-GW24
Right angled	123GB-0798-07-R	202D132-25/225	1107-4-GW24

6. Service information

We sincerely hope that you never experience a problem with any **Amphenol** product. If you do need service, call **Amphenol** at +33(0) 450 89 28 00 and ask for Applications Engineering. A trained specialist will help you to quickly determine the source of the problem. Many problems are easily resolved with a single phone call. If it is necessary to return a unit to us, an RMA (Return Material Authorization) number will be given to you.

Amphenol tracks the flow of returned material with our RMA system to ensure speedy service. You must include this RMA number on the outside of the box so that your return can be processed immediately.

The applications engineer you are speaking with will fill out an RMA request for you. If the unit has a serial number, we will not need detailed financial information. Otherwise, be sure to have your original purchase order number and date purchased available.

We suggest that you give us a repair purchase order number in case the repair is not covered under our warranty. You will not be billed if the repair is covered under warranty.

Please supply us with as many details about the problem as you can. The information you supply will be written on the RMA form and supplied to the repair department before your unit arrives. This helps us to provide you with the best service, in the fastest manner. Normally, repairs are completed in two days. Sometimes difficult problems take a little longer to solve.

We apologize for any inconvenience that the need for repair may cause you. We hope that our rapid service meets your needs. If you have any suggestions to help us improve our service, please give us a call. We appreciate your ideas and will respond to them.

For Your Convenience:
Please fill in the following and keep this manual with your **Amphenol** system for future reference:

P.O. #:_____   Date Purchased: _____

Purchased From:_____

To obtain support for Amphenol products:
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