xacom®
Comunicaciones

USER MANUAL

SINGLE BAND PICO REPEATER

EGSM900

SPR10-E SPR15-E SPR20-E

CONTENT

1. PRODUCT INTRODUCTION

The EGSM900 Full Band Selective Pico Repeater provides an affordable solution to solve the indoor signal coverage problems in EGSM system due to signal fading and attenuation caused by architecture obstacles. And its easy installation and maintenance can help carrier get fast return.

The Pico-repeater is working as a relay between the BTS and mobiles. Pico Repeater is applied specially in small area indoor DAS system. The base station signal is coupled and amplified by Pico Repeater into in-building system. The amplified signals are transmitted by indoor antenna. Meanwhile the indoor antenna receives the cell phone signal, and sends the signal to the base station as uplink. This method can eliminate the signal dead spot, reject the interference, and provide the stable signal communication for cell phone users. This Pico Repeater mainly solves the problem spot problem in building.

Pico Repeater is a bi-directional amplifier that allows for the reception of signals, amplifies the signal and re-transmits into areas where there is no or very low signal level coverage enabling mobile user to establish a call connection.

Pico Repeater can be deployed in indoor coverage. It is especially advantageous to use in 100-1000 sq.m, which is a very economical solution.

2. USAGE SCOPE

To expand signal coverage or fill signal blind area where signal is weak or unavailable.

residential house	villas
basements	Hotels
parking lots	exhibition centers
border	village
offices	vessels
shopping malls	tunnels
countryside	mines
Clubs	underground facilities

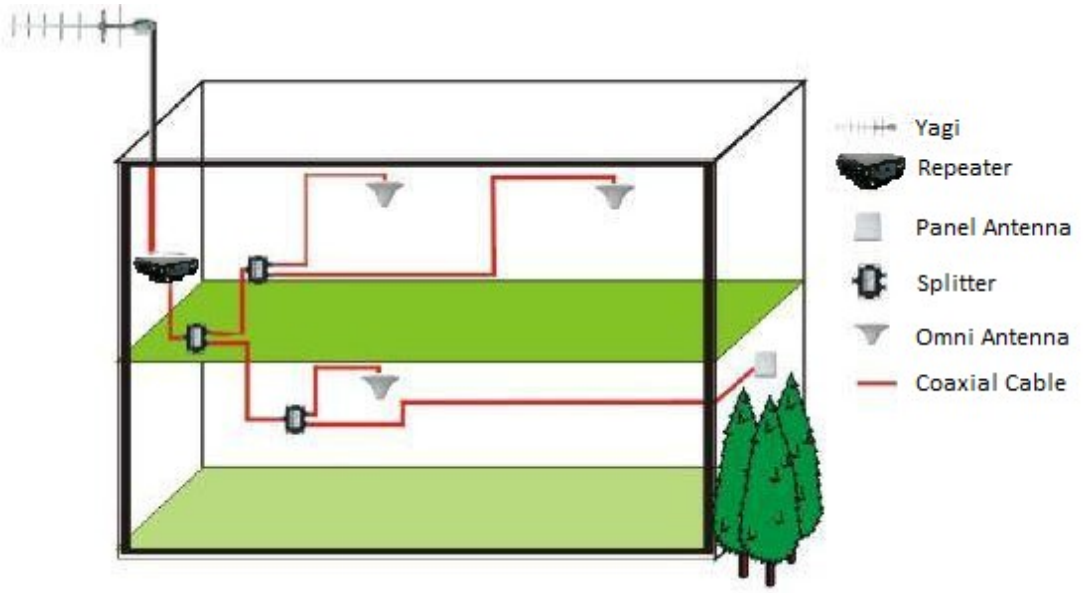


FIGURE 1 APPLICATION DIAGRAM

3. CHARACTERISTICS

AUTOMATIC LEVEL CONTROL FUNCTION

With the function of digital ALC, the dynamic gain adjustment range is more than 20dB. It ensures the Pico Repeater works in linear status and provides the high reliability and stability.

SELF-OSCILLATION AUTOMATIC DETECTION FUNCTION

It has the function of self-oscillation automatic detection (It detects the isolation when boot time), which detects the self-oscillation occurred by inadequate isolation between the donor antenna and service antenna. The Pico Repeater can activate AGC to set the Pico Repeater gain when self-oscillation occurred.

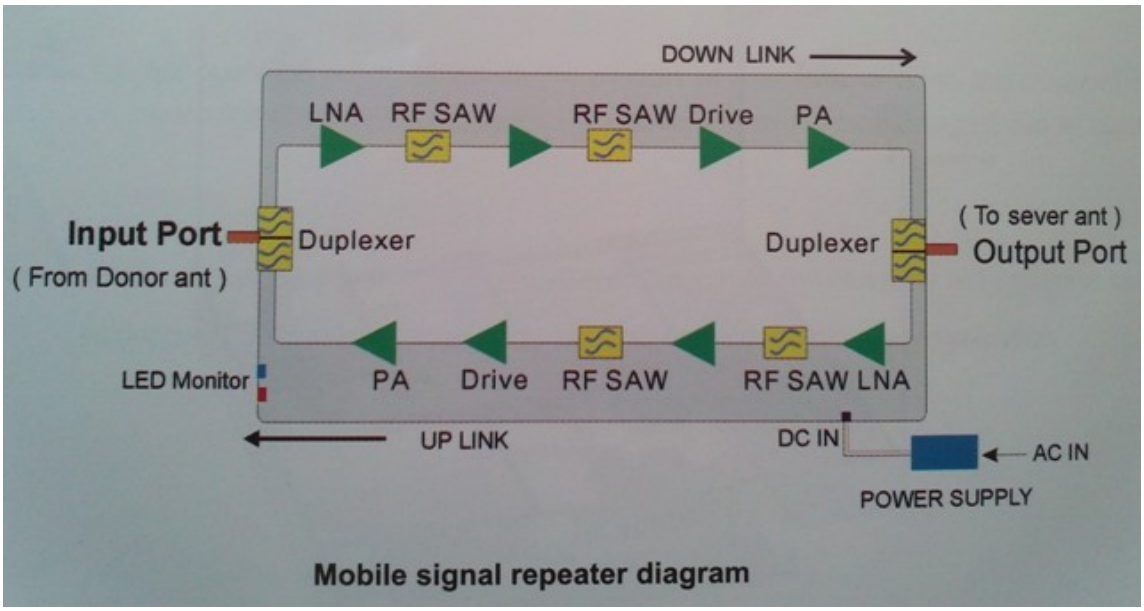
UPLINK/DOWNLINK GAIN ADJUSTMENT SYNCHRONIZATION UPLINK AND DOWNLINK GAIN SETUP AUTOMATICALLY

After the system is powered up, the input power is detected automatically and then the output power is adjusted. After the downlink gain is calculated by the system, the uplink gain can be adjusted equivalently. This method can balance the system amplification. The both path gain is adjusted relevantly. The system gain is less than the system path loss. So the Pico Repeater will not bring any interference and noise into the system link. One base station can hook up more than one Pico Repeater.

4. SPECIFICATIONS

Items		EGSM900
Frequency Range	**Uplink**	880~ 915 MHz
	Downlink	925~ 960 MHz
Working bandwidth (Uplink/Downlink)		35MHz
Gain (Uplink/Downlink)		≥65dB
Output Power		10dBm / 20dBm
Manual Gain Control		≥31dB
AGC control range		≥20dB
Max. Input Power Without Damage		≤0dBm
In-Band Ripple		≤5dB(P-P)
VSWR		≤2
Group delay time		≤ 5μs
I/O Impedance		50 Ω
Noise Figure		≤8dB
Out-of-Band Gain(DL&UL)		±400KHz ≤ 50dB
		±600KHz ≤ 40dB
		±1MHz ≤35dB
		±5MHz ≤25dB
Spurious Emission	**Within working band**	≤ -15dBm/30kHz
	Out of working band	9kHz~1GHz: ≤ -36dBm/30kHz
	(Δf > 2.5MHz)	1GHz~12.75GHz:≤-30dBm/30kHz

Third-order Inter-Modulation	Max -36dBm/-30dBm
RF Connector	N-Type (Female)
Power Consumption	≤ 20W
Power Supply	AC100~ 240V
Dimensions	295*205*76mm
Weight	≤ 4 kg
Alarm Monitoring System	Alarm for uplink self-oscillation
Indication LED	Power supply, Alarm, state
Operating Temperature	-10 ~ +50 °C
IP Rating	IP30
Humidity	≤95%



Mobile signal repeater diagram

5. PRODUCT DESCRIPTION

APPEARANCE

FIGURE 2 VIEW OF REPEATER

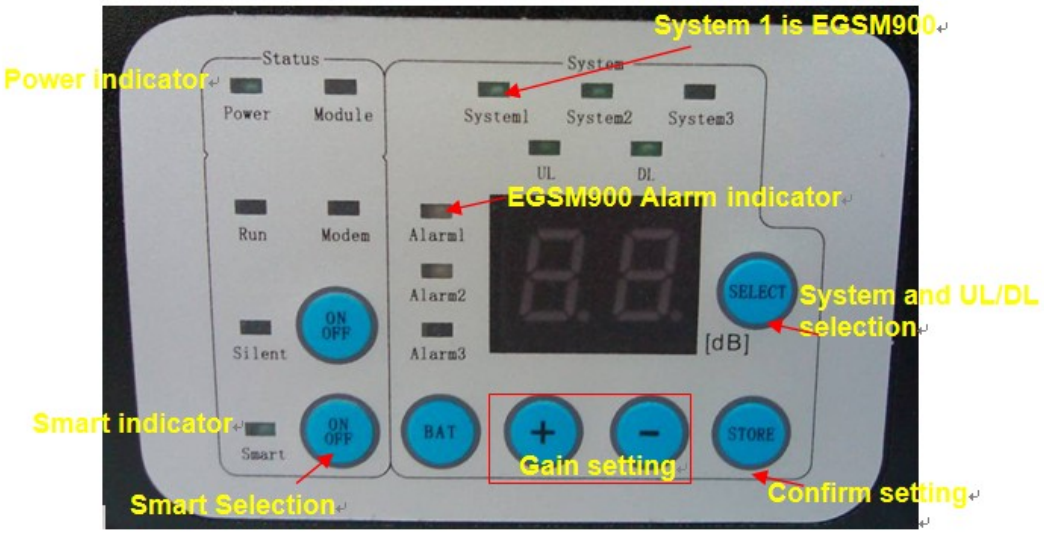


FIGURE 3 BOTTOM VIEW OF REPEATER

6. INSTALLATION INSTRUCTIONS

It supports wall mounting installation, follow the instructions below.

FIGURE 5 MOUNTING HOLE

1. First of all, choose a mounting position for the Pico Repeater in indoor environment. And then align Pico Mounting hole on the wall and be marked
2. According to formerly marking on the wall to drill the holes, and inserted the rubber plug in the holes.
3. Use screws fix the Pico's mounting hole on the wall where Pico is going to be installed.
4. The BTS port on Pico Repeater is connected to the donor antenna, MS port is connected to the service antenna.
5. System is supplied by AC220V power via connection of the external extension power cable.
6. The system works properly under the condition of having enough system isolation.
7. With obstruction or no, it must ensure the distance of 5-30 m between the donor antenna and service antenna.
8. Repeater must not be powered on before the donor antenna and service antenna are connected.

7. INDICATOR INSTRUCTION TABLE

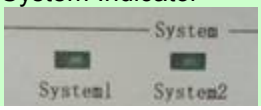
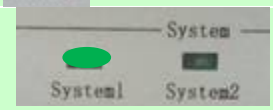
Buttons Functions

The functions of the buttons on the front panel are listed in the table below.

Button	Function	Explanations
	Select UL or DL	Press the button to select between either uplink (UL) or downlink (DL) for the band, the indicator represents either UL or DL you are at and intending to operate.
	Store the Changes	Press the button to confirm the selection, press again and the LED keeps blinking, means now in the mode of setting. After setting the attenuation, press the store button again and the value would be stored into the repeater, and the LED would stop blinking and display the value, the process is then complete.
	Increase or decrease the Gain	Press the button increase or decrease the attenuation by 1dB/step, and the LED monitor would display the current gain value; press the store button to complete the settings.
	Activate or Deactivate the Smart function	Smart mode is defaulted; the smart indicator should be lightened. Press the button of SELECT, STORE, SMART and STORE consecutively to deactivate the smart function， the smart indicator would be off, it represents the Repeater is in Manual mode. Do the same steps to activate the Smart mode.

The LED Indicators

The indicators on the front panel could be lightened are listed in the table below

Indicator	Status
Power Indicator 	 Green light indicates that mian power supply is normal.LED off indicates the main power is off
System Indicator 	 Green light indicates that the system is selected and can be read and set
UL/DL Indicator 	 Green light indicates that the UL(DL) band is selected and can be read and set
Smart Function Indicator 	 When the LED indicator is off, the Smart Function is OFF; It is in Manual mode  When the LED indicator is green,the Smart Function is ON
Alarm Indicator 	 When the indicator is green , it is in normal status. When the indicator is red, it means the AGC function is active or Pico Repeater Self-Oscillation is occurring.

8. SERVICE AFTER SALE

Your satisfaction is our priority. Offering a quick and effective technical support, we always put the customer first. Please don't hesitate to contact us by the following ways if you have any questions.

9. IMPORTANT INFORMATION

***Repeater must not be powered on before the donor antenna and service antenna are connected*.**

Be noted that users can't adjust parameters by manual setting when smart function is activated (Pico can save data for GSM when you adjust it manually).

10. NATIONAL RESTRICTIONS

ENGLISH - NATIONAL REGULATIONS

Installation and usage of this product inside the European Union is subject to regulation as set in the 1999/05/CE (R&TTE) directive.

The exclamation mark ⓘ (Alert) included in the approval symbol warns you that national regulations are in force relating to the permissible frequencies and registration formalities. Please be sure to observe the national regulations which apply in your country. An individual license may be required to install and operate this device in your country.

DEUTSCH – NATIONALE VORSCHRIFTEN

Für den Marktzugang von Sendefunkanlagen in der europäischen Gemeinschaft gelten die Vorschriften der R&TTE Richtlinie 1999/05/CE (R&TTE).

Die Kennzeichnung der Produkte erfolgt mit dem CE-Zeichen. Das auf der Kennzeichnung abgebildete “Achtung” (Alert) ⓘ Symbol weist Sie auf nationale Vorschriften bezüglich der verwendbaren Frequenzen und eventuelle Anmeldeformalitäten hin. Bitte beachten Sie die nationalen Vorschriften Ihres Landes. Zur Installation und Betrieb der Funkanlage ist vom jeweiligen Netzbetreiber (Lizenzinhaber) eine Genehmigung zu beantragen.

FRANÇAIS - LÉGISLATIONS NATIONALES

Les nouvelles directives R&TTE (Directive R&TTE 1999/05/CE) relatives à la commerciaisation d’émetteurs radios dans la communauté européenne sont applicables.

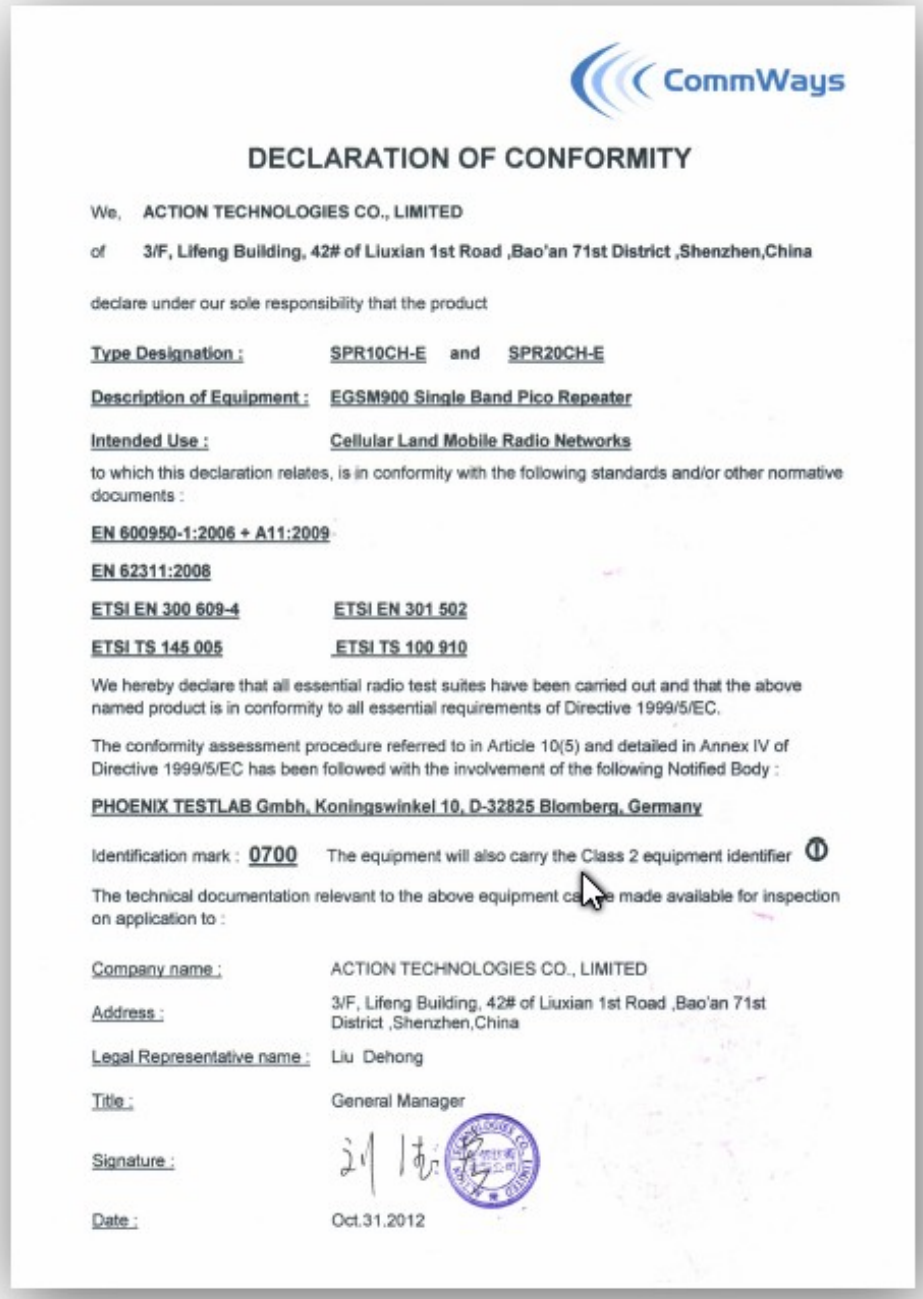
Les produits portent le marquage CE. Le symbole “Attention” (alerte) ⓘ , se rapport aux législations nationales en vigueur relatives à l’utilisation des fréquences autorisées et les formalités éventuelles de déclaration. Pour l’utilisation, respectez la législation en vigueur dans votre pays.

ITALIANO - REGOLAZIONI NAZIONALI

L’installazione ed uso di questo prodotto dentro l’Unione Europea sta soggetto a regolazione secondo quello specificato nel direttivo 1999/05/CE (R&TTE).

Il simbolo di esclamazione “All’erta” ⓘ compreso nel simbolo di approvazione CE lo nota che le regolazioni nazionali stanno in compimento relazionato con le frequenze permissibili e formalità di registro. Per favore assicuri Lei di osservare le regolazioni nazionali che sono applicabili nel suo paese. Una licenza individuale potrebbe essere richiesta per operare questo dispositivo nel suo territorio.

11. DECLARATION OF CONFORMITY



CommWays

DECLARATION OF CONFORMITY

We, **ACTION TECHNOLOGIES CO., LIMITED**

of **3/F, Lifeng Building, 42# of Liuxian 1st Road ,Bao'an 71st District ,Shenzhen,China**

declare under our sole responsibility that the product

Type Designation : **SPR10CH-E** and **SPR20CH-E**

Description of Equipment : **EGSM900 Single Band Pico Repeater**

Intended Use : **Cellular Land Mobile Radio Networks**

to which this declaration relates, is in conformity with the following standards and/or other normative documents :

EN 600950-1:2006 + A11:2009

EN 62311:2008

ETSI EN 300 609-4 **ETSI EN 301 502**

ETSI TS 145 005 **ETSI TS 100 910**

We hereby declare that all essential radio test suites have been carried out and that the above named product is in conformity to all essential requirements of Directive 1999/5/EC.

The conformity assessment procedure referred to in Article 10(5) and detailed in Annex IV of Directive 1999/5/EC has been followed with the involvement of the following Notified Body :

PHOENIX TESTLAB Gmbh, Koningswinkel 10, D-32825 Blomberg, Germany

Identification mark : **0700** The equipment will also carry the Class 2 equipment identifier ⓘ

The technical documentation relevant to the above equipment can be made available for inspection on application to :

Company name :	ACTION TECHNOLOGIES CO., LIMITED
Address :	3/F, Lifeng Building, 42# of Liuxian 1st Road ,Bao'an 71st District ,Shenzhen,China
Legal Representative name :	Liu Dehong
Title :	General Manager
Signature :	
Date :	Oct.31.2012

12. CONTACT DETAILS

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