

Gemi 841 wireless system

Rev. v1_5



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I. General Information

Designed for hospitality and leisure industry, *Gemi 841* waiter call system is the best choice to improve customer services and staff efficiency. The wireless systems consists of Table Call Buttons, Pagers, Kitchen Stations and Repeaters. Through GemiLink device the system can be connected to PC.

Gemi 841 give a new perspective on staff to staff and customers relationship: keeping in touch is just a button press away. The time is a precious resource for all of us, which the system does not allow to waste needless.

Benefits		
Increase	Decrease	Improve
<ul style="list-style-type: none"> ◆ sales ◆ customers loyalty and satisfaction ◆ speed of serving ◆ guest frequency ◆ waiters efficiency ◆ tips 	<ul style="list-style-type: none"> ◆ service time ◆ customer waiting ◆ costs of personnel ◆ turnover table time ◆ amount of displeased customers 	<ul style="list-style-type: none"> ◆ quality of serving ◆ productivity ◆ staff to staff and customers communication ◆ job management of serving

II. System description and devices

System – comprise Table Call Buttons, Pagers, Kitchen Stations and Repeaters that are communicate each other through radio signals in 433 MHz frequency band.

Devices were designed according to ETSI EN 300 220 Electromagnetic compatibility and Radio spectrum Matters (ERM) for short range devices (SRD).

All devices are working on the same frequency. This is set to each device through a simple procedure described in the instructions manual. There are 4 channels available in 433 MHz band:

- channel 1: 433,1 MHz
- channel 2: 433,5 MHz
- channel 3: 433,9 MHz
- channel 4: 434,3 MHz

This feature of the *Gemi 841* provides a high immunity to interference. If there are some other devices working on these frequency in the same area, changing the channel is a useful choice. The Repeater has the ability to indicate channel interference with other devices.

Group – is a Table Call Buttons cluster subordinate to an appropriate Pager. „Group No.” is a parameter proper to all Table Call Buttons belongs to the same group. This parameter is set for each Table Call Button using a simple procedure explained in the instruction manual. The same parameter is set for Pager. In a restaurant for example, a Table Call Buttons „group” represent the tables for witch a waiter is in charge of. The calls initiated from those tables alert the appropriate Pager.

Maximum number of groups in a *Gemi 841* system is 29.

II.1 Table Call Buttons – is the device that allows initiating calls to Pager. Locate on each table this device is on customer disposal to call the service staff with a simple button push. They are working in systems with or without Repeaters.

Maximum number of Table Call Button in group is 29.

II.2 Pager – It is the mobile device for waiters, bartenders and housekeepers: vibrating, sounds, displays and stores incoming calls from customers or kitchen / bar / office.

Operation modes:

- *single group* – signaling incoming calls from Table Call Buttons belonging its group
- *multi group* – signaling all calls coming from any Table Call Buttons regardless their group. This is a useful feature for less crowded period in restaurants, when a single waiter serves all tables.

They are working in systems with or without Repeaters.
Maximum number of Pagers in a *Gemi 841* system is 29.

II.3 Repeater – this component intermediate the communication between *Gemi 841* devices. It directly manages one or more groups and one or more Kitchen Stations. It store and send calls received to appropriate Pagers. Owing to its antenna is a radio signal booster that increases the system coverage. Useful when large areas have to be serviced, or the presence of several walls lessens the force of the radio waves. The Repeater is an optional *Gemi 841* device.

Repeaters are communicating each other. This feature proffers to *Gemi 841* a great advantage: repeaters can be as many are necessary to cover entire interest area. Thanks to this feature, the system can be installed in hotels, restaurants or other resorts with multiple servicing areas. Pagers will receive calls regardless witch Repeater cover that area.

II.4 Kitchen Station – be installed in the kitchen, bar, reception or office. Provided with membrane switch keyboard the device allow calling any Pager. It is useful in restaurants when the dinner or beverage is ready to be served.

They are working in systems with or without Repeaters.
Maximum number of Kitchen Stations in a *Gemi 841* system is 29.

II.5 GemiLink – with two interfaces embedded (radio and USB), the device is a link between *Gemi 841* devices and appropriate software applications. This feature add some benefits for *Gemi 841* functionality:

1. receive and display on the screen all interest calls (initiate by Table Call Buttons, Kitchen Stations)
2. send calls to Pagers from PC
3. enhance *Gemi 841* coverage area by sending calls through Ethernet network

It is an optional *Gemi 841* device and is working in systems with or without Repeaters.

For software developers and integrators (restaurant management POS, retail POS, etc) we can provide GemiLink interface specifications (library functions, *.dll) so that *Gemi 841* system functionality can be included in appropriate applications.

III. Features

III.1 Table Call Button

Technical data

Dimensions	110x30 mm (Diameter x H)
Weight	105g
Power supply	Alkaline battery - 2x1,5V, AAA
Battery life	~ 2 years
Signaling	YES, the LED is blinking for: - call sent (when push the button) - parameter setting procedure
Automatic battery status control	YES – send „low battery” call to its group Pager
Setting	YES – functional parameters – using its provided button. They are stored in a non volatile memory.
Accessories	Holder - for table mounting
Maximum number / group	29
Maximum number / Gemi 841 system	841 (29x29)
Part number (P/N)	B1-103

Specifications

According to	EN 300 220-3
Architecture	Microcontroller, 433 MHz transceiver, non volatile memory
Frequency band	433 MHz
Frequency channels	4
Channel spacing	400KHz
Output power	<10mW
Data rate	50Kbps
Antenna	Internal
Power consumption	max. 0,05 mAh
Coverage	max. 70m – open area

III.2 Pager

Technical data

Models	Standard, Extended
Dimensions	Standard - 96x47x24 mm (L x W x H) Extended – 151x47x24mm (L x W x H)
Weight	Standard – 63g Extended – 70g
Power supply	Acumulatori - 2x1,2V, AAA, Ni-Mh,1000mAh
Charging	15 days – for systems with Repeaters 3 days – for systems without Repeaters
Acoustic signaling	YES – 2 modes available
Optic signaling	YES – 14 LEDs bright interface – display Table nr, Kitchen Station nr, battery status
Vibration	YES
Standby feature	YES - for power saving purpose when is not in use (i.e. during night)
Signaling received calls	YES – vibrating, optic, acoustic
Stored calls	YES
Number of stored calls	max. 10. The waiter acknowledge each call by pressing the Pager button. Next calls will erase older calls if the user don't acknowledge them.
Call storage time	5 min each call
Call acknowledge	YES – pressing the button the calls are displayed in order of reception
Setting	YES – functional parameters, operation modes, signaling modes. Functional parameters are saved in nonvolatile memory.
Automatic battery status control	YES – two signaling levels
Other signaling	YES – low battery for its group of Table Call Buttons
Accessories	Pager holder - wall mounting
Part number (P/N)	Standard- P1-103 Extended – P2-103

Specifications

According to	EN 300 220-3
Architecture	Microcontroller, 433 MHz transceiver, non volatile memory
Frequency band	433 MHz
Frequency channels	4
Channel spacing	400KHz
Output power	<10mW
Transmisie date	50Kbps
Data rate	GFSK
Antenna	Standard- internal Extended - external
Power consumption	14mAh – for systems without Repeaters 2,7mAh – for systems without Repeaters
Coverage	Standard - max 70 m – open area Extended - max. 100m – opaen area

III.3 Repeater

Technical data

Dimensions	151x47x24mm (L x W x H)
Weight	100g (with adapter)
Power supply	Adapter 5,5V, supply ~220V
Signaling	YES – the LED is blinking for: <ul style="list-style-type: none"> - parameter setting procedure - sending/receive data - interference with other devices
Setting	YES – functional parameters – using its provided button. They are stored in a non volatile memory.
Stored calls	YES
Number of stored calls	max. 290 – 10 for each Pager (group). Next calls will erase older calls.
Call storage time	5 min each call
Number of managed groups	max. 29
Accessories	Repeater holder - wall mounting
Part number (P/N)	R1-103

Specifications

According to	EN 300 220-3
Architecture	Microcontroller, 433 MHz transceiver, non volatile memory
Frequency band	433 MHz
Frequency channels	4
Channel spacing	400KHz
Output power	<10mW
Transmisie date	50Kbps
Data rate	GFSK
Antenna	Externa
Power consumption	max. 0,5W
Coverage	max. 100m – open area

III.4 Kitchen Station

Technical data

Dimensions	195x63x31mm (L x W x H)
Weight	160g
Power supply	Alkaline battery - 2x1,5V, AA
Battery life	~ 2 years
Keyboard	YES - membrane switch with 10 keys
Signaling	YES – the LED is blinking for - call sent (when push the button) - parameter setting procedure
Setting	YES – functional parameters, operation modes, signaling modes. Functional parameters are saved in nonvolatile memory.
Accessories	Kitchen Station holder - wall mounting
Part number (P/N)	SB-103

Specifications

According to	EN 300 220-3
Architecture	Microcontroller, 433 MHz transceiver, non volatile memory
Frequency band	433 MHz
Frequency channels	4
Channel spacing	400KHz
Output power	<10mW
Transmisie date	50Kbps
Data rate	GFSK
Antenna	External
Power consumption	max. 0,05 mAh
Coverage	max. 100m – open area

III.5 GemiLink

Technical data

Dimensions	58x20x10mm (L x W x H)
Weight	20 g
Power supply	USB port
Setting	YES – functional parameters, using appropriate software
Part number (P/N)	GL1-103

Specifications

According to	EN 300 220-3
Architecture	Microcontroller, 433 MHz transceiver, non volatile memory
Frequency band	433 MHz
Frequency channels	4
Channel spacing	400KHz
Output power	<10mW
Transmisie date	50Kbps
Data rate	GFSK
Antenna	Internal
Power consumption	max. 0,1 W
Coverage	max. 50m – open area

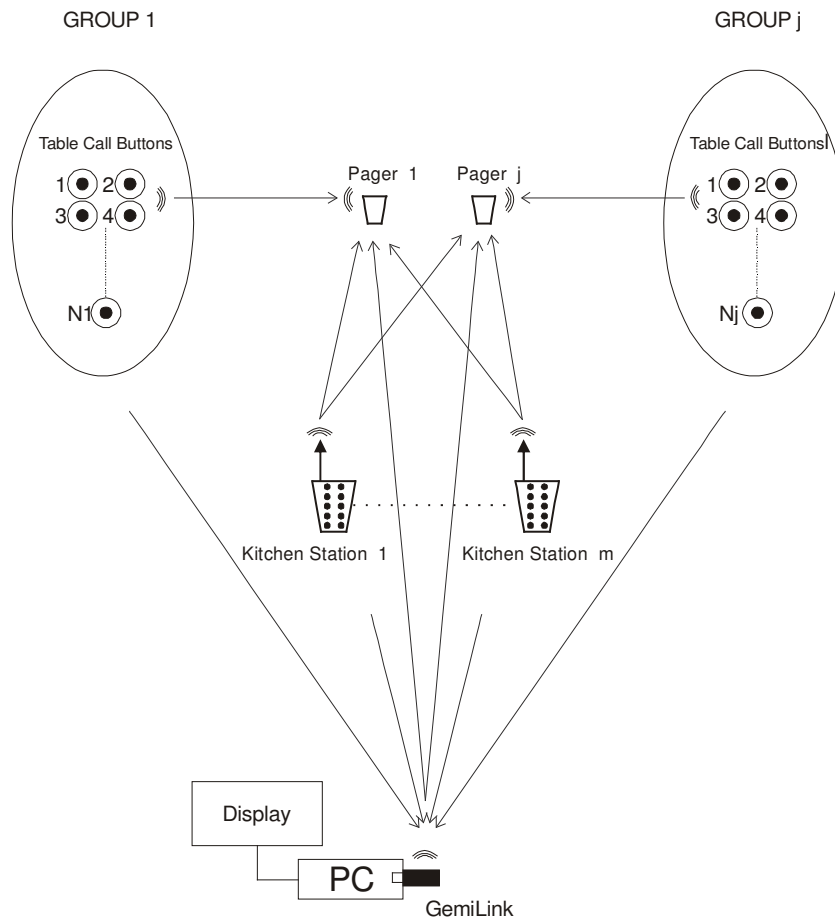
IV. Systems with and without Repeaters

IV. 1 System without Repeater

The Repeater is an optional device of *Gemi 841* system. For systems without Repeaters the calls initiated by Table Call Buttons, Kitchen Stations or GemiLink are sent directly to appropriate Pagers. The system type is set on Pagers (see Pager Instruction manual).

This type of system is recommended for small servicing units (cafes, bars, single room restaurants, etc.), where the distance between Pager (waiter) and table call buttons does not exceed 50m.

Below is shown schematically a **Gemi 841** system without Repeater:



IV. 2 System with Repeater

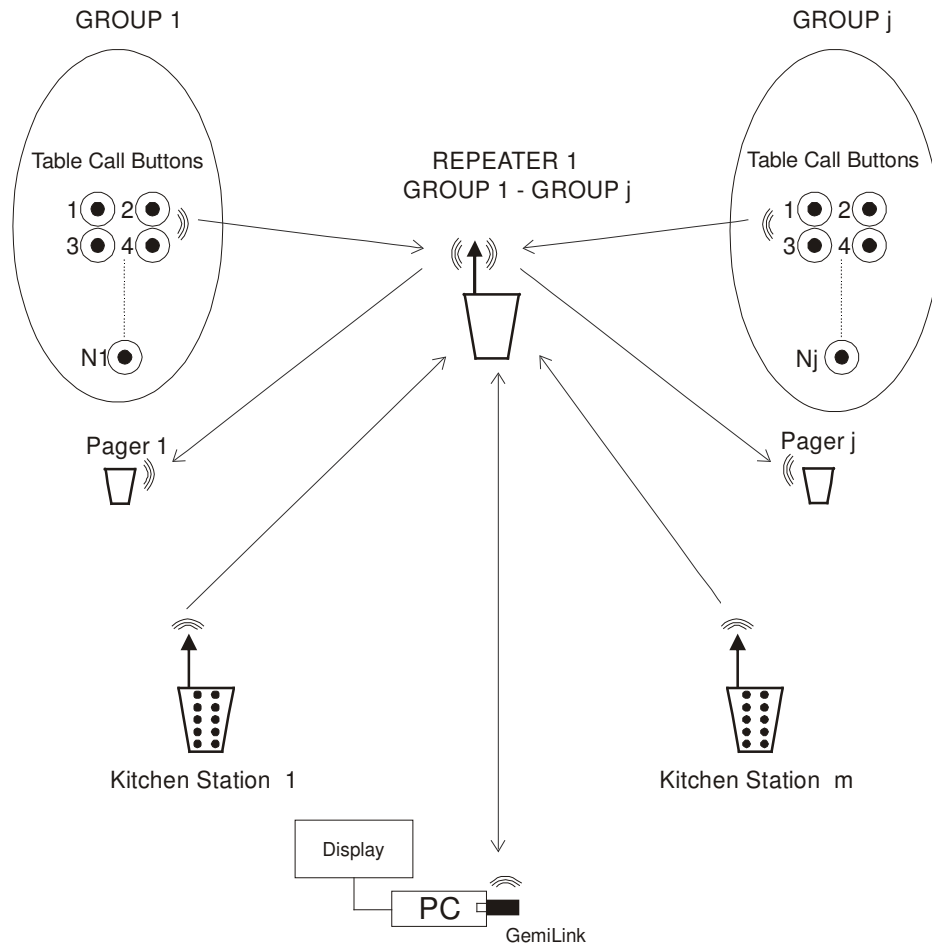
For systems with Repeaters the calls initiated by Table Call Buttons, Kitchen Stations or GemiLink go between Repeaters to appropriate Pagers.

Some benefits of systems with Repeater are shown below:

- ◆ increase coverage area
 - thanks to Repeater external antenna
 - Repeaters can be as many as necessary to cover entire interest area. They are communicating each other.
- ◆ Repeater saves and stores calls in its internal memory. If the waiter isn't in the covered Repeater area, the call is stored, so that when it will be back the Pager will receive the call.
- ◆ Repeaters relay received calls from Table Call Buttons and Kitchen Stations to the others Repeaters. In this way, the Pagers will receive their calls regardless where they are in that moment.
- ◆ Using Repeaters in a **Gemi 841** system the Pagers consumption is significantly reduced. Recharge battery cycle increase to ~ 15 days.
- ◆ The Repeater has the ability to signaling channel interference with other devices. There are four channels available.

This type of system is recommended for larger serving units (restaurants with more areas of service, hotels, etc.) or where the presence of several walls lessens the force of the radio waves.

IV. 2.1 Schematic - system with one Repeater



IV. 2.2 Schematic - system with several Repeaters

