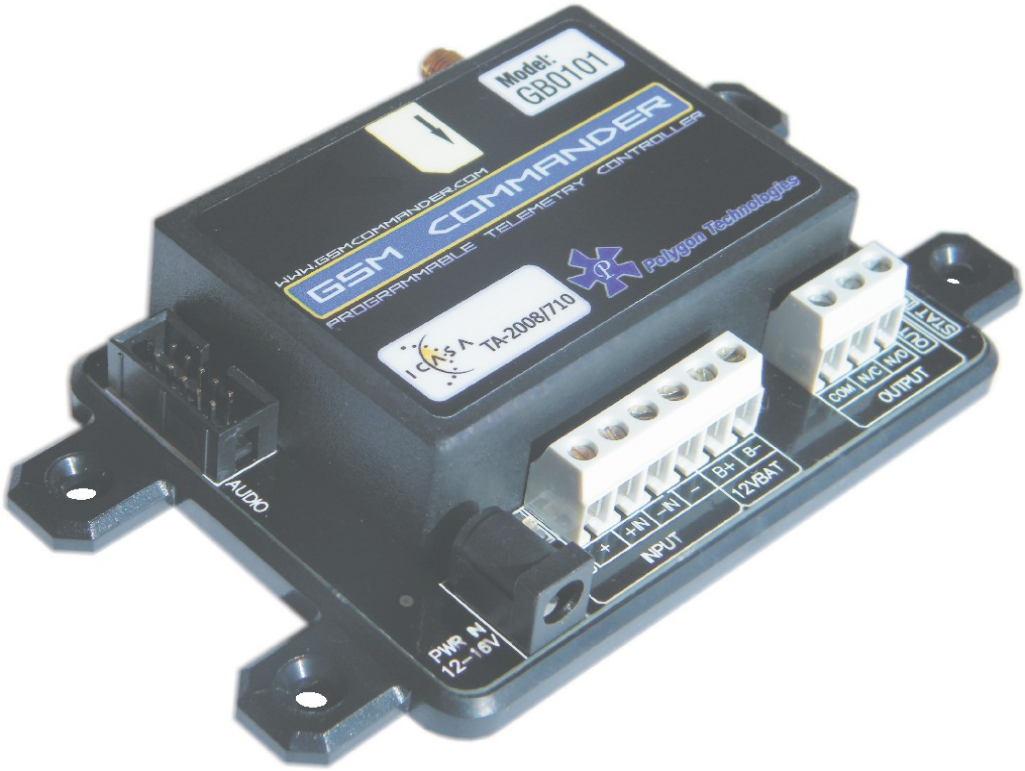
Baby GSM Commander Manual

For the GB0101

V2.00



Polygon Technologies

Before Attempting to connect or operate this product, please read these instructions in its entirety, **especially the guarantee conditions.**

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1. INTRODUCTION

The Polygon Technologies Baby GSM Commander is a state-of-the-art, programmable SMS controller. It contains a quad-band integrated GSM cellular engine that allows it to connect to any cellular network to send and receive SMS messages. The product can be used to monitor an input, and remotely control electric devices. The product is configured via simple SMS messages.

2. FEATURES

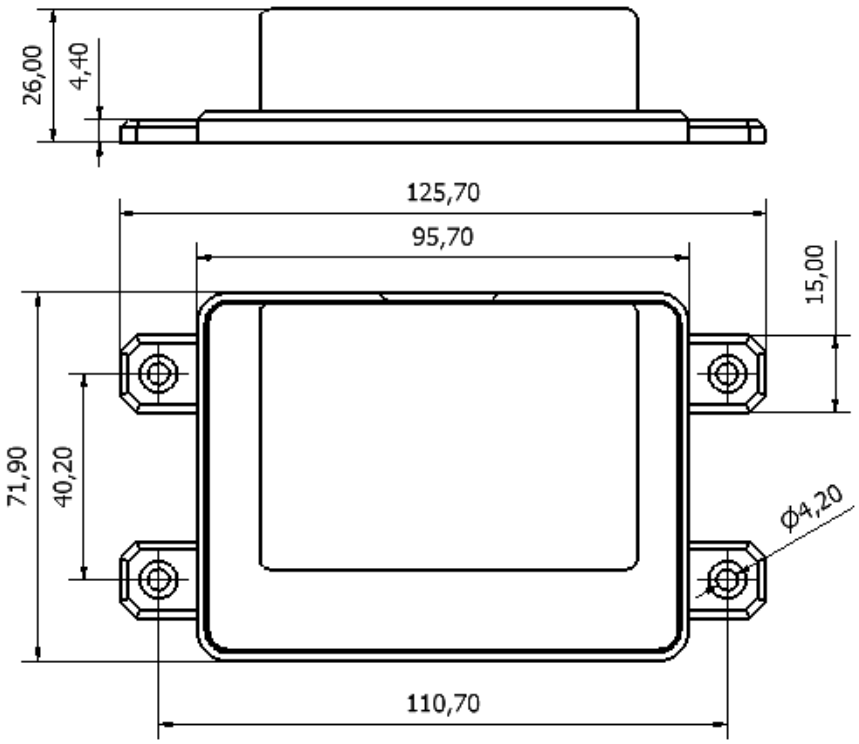
Model	Onboard Inputs	Onboard Outputs	Expandable Inputs/Outputs	Max number of Phone Numbers	Max number of Messages	Max Length of Messages	Battery / Power Monitor	Configuration Via USB
GB0101	1	1	NONE	16	1	16	YES	NO

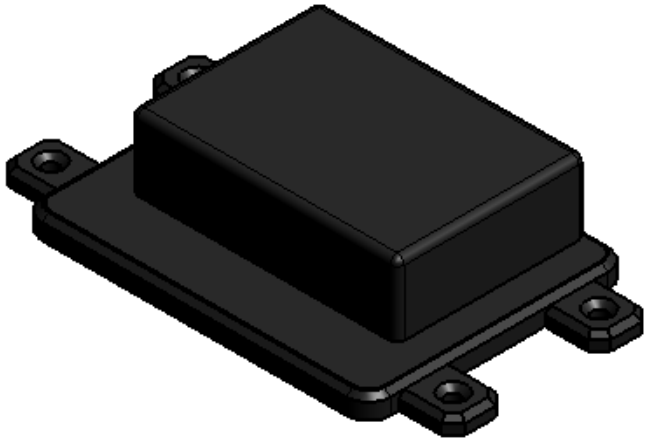
Matrix Feature Descriptions	
Model	The code used to define between the various units functionality and capabilities
Onboard Inputs	The number of inputs provided on the base unit itself
Onboard Outputs	The number of outputs provided on the base unit itself
Expandable Inputs/Outputs	The maximum total number of Inputs/Outputs that can be expanded to by fitting expansion units
Max Number of Phone Numbers	The maximum total number of phone numbers that can be programmed into the unit
Max Number of Messages	The maximum total number of messages that can be programmed into the unit
Battery / Power Monitor	The ability to detect power failures and monitor a connected battery.
Configuration Via USB	The unit is configured via software from a PC.

3. SPECIFICATIONS

Weight	100gram
Dimensions	125,7mm x 71,9mm x 26mm
Power Supply	10...16V DC (Absolute MAX=18V)
Current Consumption	~50mA (Idle: Input & Output off) ~110mA (Output on) ~100mA (Input on Dry contact) ~60mA (Input on Wet contact)
Temperature Range	-10°C to +60°C

4. DIMENSIONS





5. INSTALLATION

5.1. Power Supply

The Baby GSM Commander has a 2.1mm DC jack connector where a power supply must be connected. The power supply should have the following specifications:

- Output Voltage: 12V nominal
- Output Current: 0.5A
- Polarity: 

A suitable power supply is supplied with the retail product.

In industrial applications, it is advised that the Baby GSM Commander be installed into its own metal housing and be powered from a separate power supply. (As opposed to sharing one with other equipment).

PLEASE NOTE: While the product has fairly rugged internal power supply circuitry, no special provision for lightning protection is made. If the product is used in an area that is prone to thunderstorms, it is advisable to use a commercially available lightning suppressor (The same applies to the input or output if connected to wires longer than 2 or 3 meters). The guarantee does not cover damage resulting from lightning strikes or voltage surges! The Baby GSM Commander can operate reliably from voltages in the range of 10 to 16V DC.

5.2. SIM Card

The Baby GSM Commander accepts a standard GSM SIM card from any network. The SIM card may be prepaid or on contract. If the SIM Card is purchased as part of a prepaid plan, ensure than the card is loaded with sufficient airtime.

WARNING: DO NOT Insert or remove the SIM card while the Baby GSM Commander is powered!!

Note that airtime will decrease with every SMS that is sent from the unit. The unit can automatically detect if the airtime is running low. It is user's responsibility to make sure that the airtime is topped up. See your network's documentation on how to purchase and load airtime.

The SIM card is fitted into the back of the unit, as indicated by the legend on the enclosure. The SIM card will click into place. The SIM card is removed simply by pressing against it. The card will pop out with a “click” sound, ready to be completely removed.

Before you install your SIM Card:

- Install the SIM card into a normal cellular phone
- Verify that there is **no SIM PIN** enabled (The phone must not ask for a PIN when switched on with this SIM card inside) If the phone does request a PIN, you need to enter the correct pin so that the phone can start, and then disable the SIM Card PIN. See your cellphone documentation on how this can be done.
- Verify that you are able to **send an SMS** message.

The SIM card will now work with the Baby GSM Commander.

Please Note: If you are using a prepaid SIM card, be aware that if the SIM card has not produced a billable event on the network for a long period of time (typically 3 months), the card will be de-activated by the network, and the SIM card then becomes useless. It is strongly recommended that you send the Baby GSM Commander a “TEST” SMS every now and then (once a month) so that your SIM card remains active on the network.

The Baby GSM Commander can ONLY check the airtime of a PREPAID SIM card.

5.3. Antenna

The Baby GSM Commander is supplied with a basic antenna that is suitable for all networks in South Africa. Screw the antenna to its connector on the unit (only finger-tight). Verify using a cellphone, that there is sufficient signal at the proposed installation site. On a phone with a 4 or 5-bar signal strength indicator, you should have 1-2 bars of signal.

If the signal is too weak, the product may have trouble sending or receiving SMS messages. In these cases, try and find a better location, or use a special antenna.

5.4. Mounting

The Baby GSM Commander is housed in a very durable ABS casing which has 4 protruding tabs, which allows it to be mounted firmly to any surface by means of a screw.

Please note: The Baby GSM Commander is not water- or weatherproof. The Baby GSM Commander must be mounted indoors, or inside an appropriate IP65-rated weatherproof enclosure. The guarantee does not cover damage resulting from water ingress!

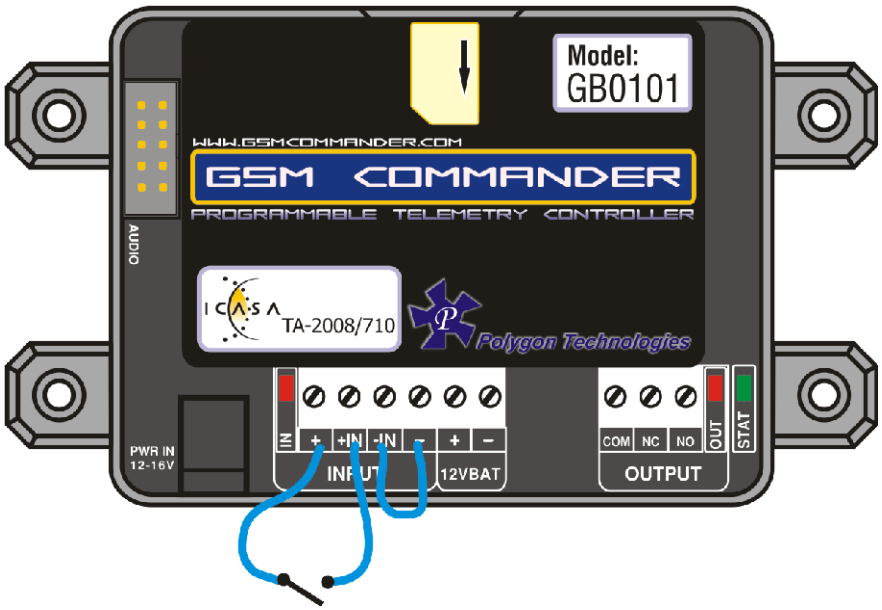
Do not mount the Baby GSM Commander inside a steel cabinet, since this will block the cellphone signal. If you have to mount it inside a steel cabinet, you will need to mount a separate antenna on the outside of the cabinet. Suitable antennas can be ordered from **Polygon Technologies.**

5.5. Optically-Isolated Digital Input

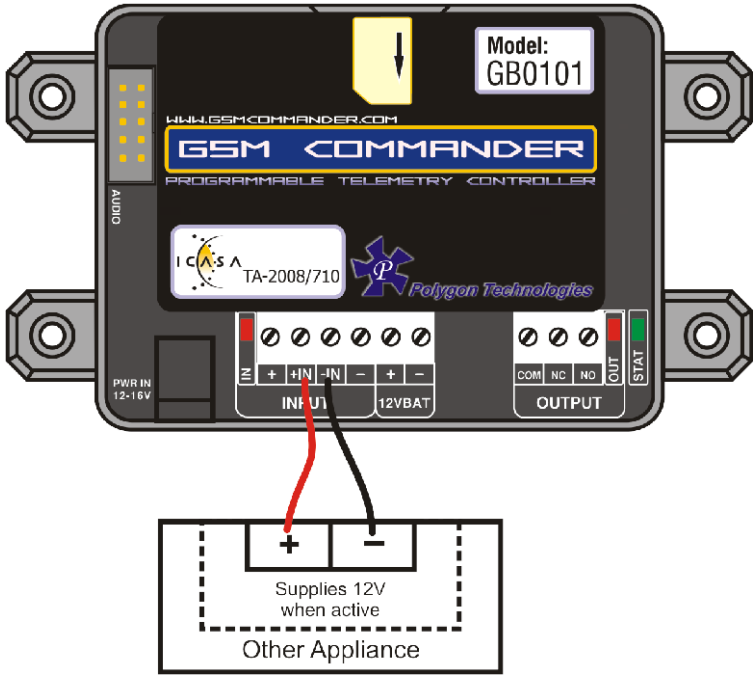
The Baby GSM Commander provides 1 signal input. The input has 4 terminals associated with it:

+ – Internal positive supply (12V)
IN + – Positive input
IN - – Negative input
- – Internal negative supply (Zero volts)

To connect a switch or contact to an input, simply connect the switch between the + and IN+ terminals, and a wire between the – and IN – terminals.



You may need an input to activate when power is supplied from some other unit. A good example will be a burglar alarm that applies power to the wires going to the siren. In such a case, it will be a simple matter of connecting the positive wire to the IN+ input, and the negative wire to the IN- input.



Please keep in mind that these inputs are designed for 5V to 12V operation.

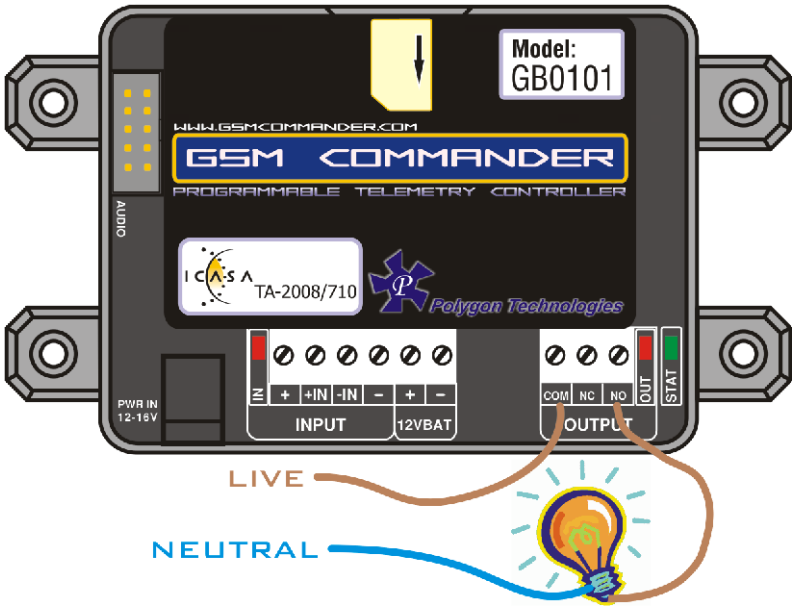
5.6. Output

8A Relay output
The Baby GSM Commander a single Relay output. The output has 3 terminals associated with them:

COM – Common Terminal
N/C – Normally Closed Terminal
N/O – Normally Open Terminal

When the output is off, the **COM** and **N/C** terminals will be internally connected to each other. When the output is on, the **COM** and **N/O** terminals will be internally connected to each other.

Note that there are small LED indicators next to the output terminals, that will show if the output is ON or OFF. (if the LED is on, then the output is also on) In the picture below, the output is connected so that the lamp will light up when the output is on.



The output can be used to control devices and appliances, and is rated for 8A DC. It may be used to control most types of electrical loads, excluding AC motors above 500W.

Here are some examples of things you CAN directly switch on and off using the outputs on the product:

- Gate motors and any other motor less than 500W
- Mains Lights (energy savers, incandescents, halogens) (maximum 750W)

Here are some examples of things that you can NOT directly switch on and off using the outputs on the product:

- Ovens, Heaters, kettles
- Pumps and motors above 500W

Keep in mind that if required, the above loads can easily be switched on and off using an externally connected relay or contactor.

5.7. Battery Input

The Baby GSM Commander provides connections for an external rechargeable 12v battery. The battery is continuously trickle-charged from the Baby GSM Commander, as long as there is power supplied to the power connector of the Baby GSM Commander .

In the case of a power failure, the Baby GSM Commander can continue operating from the external battery. The unit can be configured to perform certain tasks (like sending a warning SMS) if the battery voltage falls below a certain point, and can also perform tasks in the case of a power failure. (Like sending an SMS and switching on emergency lighting)

Suitable batteries are available from **Polygon Technologies**.

5.8. Status LED

The Baby GSM Commander has a LED to show the current status of the product. The green LED, labeled “STAT”, shows the status of the product as a whole. The following table shows how one can determine the current status of the Baby GSM Commander.

GREEN LED (STAT)

- Solid On

: Busy Booting

- on for 500ms, off for 500ms (slow flash)

: All OK

- on for 250ms, off for 250ms (fast flash)

: Busy sending SMS/Voice Call

- on for 100ms, off for 100ms (very fast flash)

: Problem with GSM engine

- on for 50ms, off for 500ms (2 short flashes per second)

: Signal is low

5.9. Testing the Baby GSM Commander

The Baby GSM Commander (even with a blank configuration) has a built-in test feature. If the product receives "TEST" as an SMS message, it will reply to the number that sent the message, with the following text:

TEST MESSAGE	(Heading)
09/05/15, 14:48:41	(Date&Time)
SIGNAL: 80%	(Cellular signal)
AIRTIME: 21.12	(only if Airtime checking enabled)
OUTPUT OFF	(Output status)
INPUT OFF	(Input Status)
POWER ON	(Power input status)
BATTERY: 12.3V	(Battery Voltage – Ignore if no battery connected)

6. CONFIGURATION

6.1. Administrative Commands

	Command	Effect	Allowed
1.	SETADM	Set the number of the sender as the administrator if no administrator set	Anyone (if no administrator is set)
2.	CLRADM	Clear the current administrator	Administrator
3.	WHOADM?	Replies with the administrator number	Anyone
4.	SETDEFAULT	Restore to factory settings (requires restart)	Administrator
5.	POWERMSGS ON*	Turn on power failure/restore notifications	Administrator
6.	POWERMSGS OFF*	Turn off power failure/restore notifications	Administrator
7.	REPLY ON	Turn on sms command confirmation notifications	Administrator
8.	REPLY OFF	Turn off sms command confirmation notifications	Administrator
9.	AIRTIME "*100#"	Turn on airtime checking (airtime checking number given in inverted commas)	Administrator

Most networks provide a way to check the remaining balance on a prepaid account via supplementary data services. It normally involves dialing a specific code on the phone, to which the network will respond by displaying the remaining balance on-screen. This code needs to be given to the product so that it knows how to check the remaining balance. The balance is contained in the status message sent in response to a TEST message sent to the unit. In the example above, the code is set at *100# - this will be different from one network to the next.

10.	AIRTIME OFF	Turn off airtime checking	Administrator

** Power Messages are only sent to the Administrator.*

6.2. Number Management

	Command	Effect	Allowed
1.	ADDN 0821234567 or ADDN +27821234567	Place given number in next open slot in listed numbers	Administrator
2.	REMN 0821234567 or REMN +27821234567	Remove given number from listed numbers	Administrator

*Note: > Maximum of 16 numbers can be listed (including administrator)
> If no administrator set, anyone can add or remove numbers

6.3. Output Management

	Command	Effect	Allowed
1.	OUTPUT ON	Activate output (and leave activated)	Any listed number
2.	OUTPUT OFF	Deactivate output (and leave deactivated)	Any listed number
3.	OUTPUT TOGGLE	Toggle status of output (on becomes off and vice versa)	Any listed number
4.	OUTPUT ON x s	Activate output for x seconds (max 99)	Any listed number
5.	OUTPUT ON x m	Activate output for x minutes (max 99)	Any listed number

THE FOLLOWING COMMANDS WILL ALL BE VALID:

Activate output (and leave activated):

OUTON
OUT ON
OUTPUTON
OuTpUt On

Toggle status of output:

OUTTOGGLE
OUT TOGGLE
OUTPUTTOGGLE
OUTPUT TOGGLE
TOGGLE OUTPUT

Activate output for 5 seconds:

OUTON5s
OUT ON 5 s
OUTPUT ON 5 seconds

If no 's','m','sec','min',etc provided, default will be for seconds:
OUTPUT ON 5
OUTON5

*Note: > If no administrator set, anyone can issue these commands

6.4. Input Management

	Command	Effect	Allowed
1.	INMSG "String"	Set input trigger notification text to text in double quotation marks (max 16 characters)	Administrator
2.	INPUT TRIGGER ON	Input will trigger on first activation	Administrator
3.	INPUT TRIGGER OFF	Input will trigger on first deactivation	Administrator
4.	INPUT TRIGGER ON x s	Input will trigger if active for longer than x seconds (max 99)	Administrator
5.	INPUT TRIGGER ON x m	Input will trigger if active for longer than x minutes (max 99)	Administrator
6.	INPUT TRIGGER OFF x s	Input will trigger if inactive for longer than x seconds	Administrator
7.	INPUT TRIGGER OFF x m	Input will trigger if inactive for longer than x minutes (max 99)	Administrator
8.	INPUT TRIGGER NONE	Input will not trigger	Administrator

THE FOLLOWING COMMANDS WILL ALL BE VALID:

Trigger input of first activation/deactivation:

INPUT TRIGGER ON	/	INPUT TRIGGER OFF
INPUT TRIG ON	/	INPUT TRIG OFF
INTRIG ON	/	INTRIG OFF
INTRIGON	/	INTRIGOFF

Trigger if input active for longer than 5 seconds:

INPUT TRIGGER ON 5 s
INPUT TRIGON5s
INTRIGON5s
INTRIGON5

Never trigger:

INPUT TRIGGER NONE
IN TRIG NONE
INTRIGNONE

Set input trigger notification text to "INTRUDER!"

INPUT MSG "INTRUDER" - double quotation marks ("") around trigger text must be present
INMSG "INTRUDER"

*Note: > If no administrator set, anyone can issue these commands

6.5. Voice Call Behaviour

	Command	Effect	Allowed
1.	INPUT CALL NONE INPUT CALL 0	No voice calls will be made if input triggered, sms's will be sent.	Administrator
2.	INPUT CALL x	Place x calls to the administrator if input triggered. The call will last 1 minute with 2 minutes between calls	Administrator

THE FOLLOWING COMMANDS WILL ALL BE VALID:

Don't make any voice calls if input triggered:

INCALLNONE
INPUT CALL NONE
INPUTCALLNONE
INCALL0
INPUT CALL 0

Make 3 voice calls to administrator if input triggered:

INCALL3
INPUTCALL3
INPUT CALL 3

*Note: > If no administrator set, anyone can issue these commands
> Default setting is that no voice calls made, sms's sent if input triggered to all listed numbers

6.6. Missed Call Behaviour

	Command	Effect	Allowed
1.	MCALL NONE	Do nothing if missed call received	Administrator
2.	MCALL ON	Activate output if missed call received from any listed number (and leave activated)	Administrator
3.	MCALL OFF	Deactivate output if missed call received from any listed number (and leave deactivated)	Administrator
4.	MCALL TOGGLE	Toggle output status if missed call received from any listed number	Administrator
5.	MCALL ON x s	Activate output for x seconds if missed call received from any listed number	Administrator
6.	MCALL ON x m	Activate output for x minutes if missed call received from any listed number	Administrator

THE FOLLOWING COMMANDS WILL ALL BE VALID:

Activate output if missed call received

MCALL ON
MISSED CALL ON
MCALLON
MISSEDCALLON

Toggle output if missed call received

MCALL TOGGLE
MCALLTOGGLE
MISSED CALL TOGGLE
MISSEDCALLTOGGLE

Activate output for 5 seconds if missed call received

MCALLON5S
MISSED CALL ON 5 SECONDS

If no 's','m','sec','min',etc provided, default will be for seconds:
MCALLON5
MISSED CALL ON 5

*Note: > If no administrator set, anyone can issue these commands
> Default setting is that the Baby GSM Commander answers a voice call for a split second and then hangs up.(Same as issuing "MCALL NONE" command)

7. TROUBLESHOOTING

7.1. Baby GSM Commander does not send any SMS messages.

Cause 1: Airtime problem
The airtime on your SIM card may be depleted, or the SIM card may have been de-activated by the network. Refer to Section 5.2 (Installation: Sim Card)

Cause 2: Reception problem
You may have bad reception in your area, preventing the unit from connecting to the network. Please check using a regular cellular phone that there shows 1-2 bars of signal right next to the product. Refer to Section 5.3 (Installation: Antenna)

Cause 3: Bad configuration
You may have not configured the unit correctly. Please send a status request message to the unit, and see if it responds. If it does respond, the unit is operating correctly. Refer to Section 5.9.

7.2. Baby GSM Commander does not respond to Voice Calls

Cause 1: Caller ID on phone is disabled
Your Caller ID feature on your phone may be deactivated. Please refer to your phone's manual on how to enable this feature.

Cause 2: Bad configuration
You may have configured the unit incorrectly. Make sure the number you are calling from is stored in the “Numbers List” on the Baby GSM Commander.

8. GUARANTEE

The Baby GSM Commander is guaranteed for a period of 24 months against defects in materials or workmanship. Should your product become defective during the guarantee period it will be repaired or replaced at the sole discretion of **Polygon Technologies** under the following conditions:

A: The unit must not have been opened or otherwise tampered with. If the enclosure of any unit has been opened at all, the guarantee will be null and void.
B: The guarantee does not cover damage resulting from excessive input voltages, lightning, power surges or water ingress.

A decision about issues A and B will be at the sole discretion of **Polygon Technologies**. This guarantee does not provide for shipping costs. This will be for the account of the user under all circumstances.

9. IMPORTANT NOTICE (DISCLAIMER / COPYRIGHT)

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10. MANUFACTURER CONTACT DETAILS

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