

# Apollo micro-1 GSM pager / remote control V6.03

## Technical specifications:

- Miniature sizes: 50 x 37 x 20 mm, stable micro SIM socket
- The SIM can belong to any service provider
- 2 inputs for dialing and SMS sending, 1 output for remote control
- Programmable input levels
- Programmable bistable/monostable output
- Power supply: 8-30VDC
- Programming on SIM card with cellular phone or with 3KO USB cable with internal English menu
- SIM remote writing and remot reading possibility by SMS
- Receive strength signal level, inputs, output and supply diagnostics
- Output controlling any phone numbers, in several modes
- Redial and new SMS management settings
- Incoming SMS forward option
- Stand by/active current: < 10 mA / < 100 mA
- Output: open collector, internal clamp diode, max. 500mA



### Connections:

- Red: Power supply
- Black: GND
- Green: positive input
- Yellow: negative input
- White: output

## SIM-card preparation and programming:

The operating parameters have to be inserted into SIM-card's phone book. The different parameters belong to predefined phone book names (keywords). There are several methods to program the SIM-card :

- Insert the SIM into a mobile phone and write the data into phone book using the keypad,
- Insert the SIM into the module and use the special 3KO USB cable with internal menu

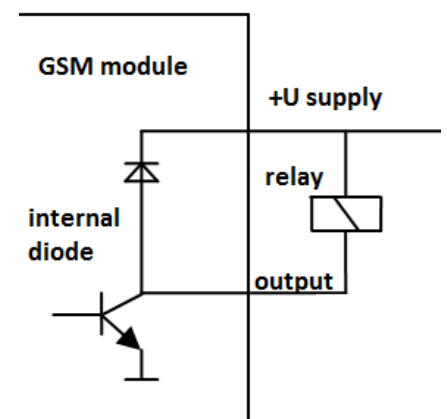
### Programming rules:

- Any keyword can appear only one time in the phone-book (exceptions: Cl parameters)
- First letter of all keywords must be a capital.
- It is not necessary to define all possible keywords.
- It is not allowed to insert a keyword without related data.
- Phone numbers have to use international format (starting with + country code).
- Phone number length is max. 15 characters.
- Switch-OFF PIN-code protection. Switch-ON number display for incoming calls.
- Setup the SMS message-center parameters.
- Save the predefined SMS messages to the SIM if necessary.
- SMS functions are to be used carefully and at own risk
- Allowed or discard the roaming function at the provider.
- Discard from the SIM the GPRS support and other unnecessary services.



## Mounting, installation and connecting :

- Mounting only by trained electrician.
- Installation only in voltage-off status.
- Follow the wiring and other instructions of this manual.
- Without antenna connecting is prohibited.
- Supervise the GSM coverage and signal strength.
- In case of weak signal strength apply special antennas.
- Disclose the possibility of RF interference with other devices.
- Test all functions after connecting.



### Functions of LED indications:

When powering-on the green LED must light for a while, otherwise the pager is out of order. Then pager starts the self-examination taking up some minutes. After this procedure flash by seconds of green LED will indicate the ready-to-operating status.

The summary of possible LED indications :

- Green LED:        Flashing by seconds – normal operation  
                      Continuous light – incoming or outgoing call or SMS  
                      Quick flashing - PC connected , ready to download
- Yellow LED:        Indicator of active output
- Red LED:            Separated short flashes in case of Errors, as follows:
- 1 flash            phone call was unsuccessful (e.g. the number is busy or out of order)
  - 2 flashes         SMS messaging was unsuccessful
  - 3 flashes         signal strength problem
  - 4 flashes         internal GSM communication errors, automatic restart will follow
  - 5 flashes         SIM-card phone-book records are unreadable or faulty

### Recording SMS messages to SIM-card, using mobile phones

There are three kind of predefinable SMS text messages, which will be ready to send in case of different events.

Delete all incoming, outgoing and predefined SMS messages from SIM, before recording the new messages.

- Record the SMS #1 message, it will be sent in case of triggering the positive input
- Record the SMS #2 message, it will be sent in case of triggering the negative input
- Record the SMS #3 message, it will be sent in case of restoring the positive input

The necessary condition to send any SMS is to register the appropriate keywords (Possms, Smstel...).

Recording of predefined SMS messages could be done by inserting the SIM into a mobile phone, writing-in the messages using the keypad, then putting back the SIM into pager. Other method is to write-in the messages into a mobile, then sending the three SMS in proper order to the pager. Prior to this operation the pager's SMS memory must be empty - for this reason use a remote control SMS to delete SMS fields in the pager (see keyword Psw)

### Programming keywords and parameters

#### **Altel1, Altel2, Altel3, Altel4**

The data related to these keywords are the phone numbers which will be dialed by pager when negative input was triggered.

It is not obligatory to insert these keywords, their number is optional. If only SMS message is required, do not insert any of them. The module will interpret a dialing as a successful call, if the target number will pick up the line. If the call is unsuccessful, the module later will repeat the paging to the same number (see Recall keyword).

**Bitset** (6 binary digits, if the record is missing then default value is : 100000)

The data related to this keyword is a numeric string of 6 digits, interpreted as follows:

1. digit:            **0** – positive input will trigger when released from supply  
                      **1** – positive input will trigger when switched to supply
2. digit:            **0** – negative input will trigger when switched to GND  
                      **1** – negative input will trigger when released from GND
3. digit             **0** – output operation is bistable, for each call its status will be changed to opposite  
                      **1** – output operation is monostable, for each call the output will active for defined seconds

4. digit            **0** – in case of SMS command to output control, the module will pick up the line, and will answer with an audio signal (three beeps = Switch-ON / one beep = Switch-OFF)  
**1** – in case of SMS command to output control, the module will not pick up the line
5. digit            **0** – restore of positive input will not generate message  
**1** – restore of positive input will generate an SMS message (third SMS)
6. digit            **0** – the module dials all Altel phone numbers  
**1** – the module dials up to the first number picking up the line.

### **Cl... (Example: CIRoland, CIGloria)**

The data related to these keywords are the phone numbers, from which the remote control of output is permitted. The special setup parameters of control functions will be defined at keyword Bitset. If voice acknowledge was set, then three beep will be the answer for a Switch-On, and one beep for a Switch-OFF. Also one beep will be the ACK for any change if the output was set to monostable operation. After receiving the acknowledge the connection could be broken.

### **Dtmfseq**

The data related to this optional keyword is a numeric string of 15 digits, which will be sent by pager in form of DTMF tones when a paging is successful (the target picks up the line). After finishing the message the pager will break the connection. If this keyword is not recorded, then in case of successful paging the pager will break the line immediately after the target was picking up the line.

### **Fwdsms**

The data related to this keyword is the phone number where the incoming SMS messages will be forwarded to. This function is not recommended, because forwarding of SPAM SMS or other special SMS can generate bigger cost for the users.

**Newcall**            (5-240 min, if the record is missing then default is 10 min)

The data related to this keyword is the new call delay time in minutes (the time between two consecutive new calls), the pager waiting after a triggering before accepting a new event from the negative input line and starting a new call to the target number. This parameter could disclose the undesirable input repetitions (prelling) and successive calls.

**Newsms**            (5-240 min, if the record is missing then default is 30 min)

The data related to this keyword is the new sms delay time in minutes (the time between two consecutive SMS), the pager waiting after a triggering before accepting a new event from the negative or positive input lines and sending a new sms to the target number. This parameter could disclose the undesirable input repetitions (prelling) and successive SMS messages. If we set the restore option for positive input (i.e. the pager have to send SMS upon restoring as well) then this delay is valid also for those messages.

### **Possms**

The data related to this keyword is the phone number where the predefined text SMS messages will be sent to, when the positive input was triggered. The first predefined SMS will be sent.

### **Psw**

The data related to this keyword is a numeric string of 4 digit password, used for identification when sending remote control SMS commands to the pager. The 5-digit SMS message, beginning with this password will be accepted by module as a valid command, and the last digit will be interpreted as follows:

- 0:** Output switch-OFF
- 1:** Output switch-ON
- 2:** Restart GSM-module (security function in case of breakdown)
- 3:** Delete all predefined SMS from SIM (utility function)
- 4:** Retrieve signal strength and diagnostics informations (in SMS answer)
- 5:** Output monostable switch-ON X seconds (Defined by Relay keyword)

**6:** Command for SIM card remote writing, only for professional users.

- SMS max. 160 characters
- entries separated by comma
- Use comma for ending

Example SMS:

xxxx6,2Atel1:+36301234567,3Relay:4,4,5Cl:+36301234567,

Answer SMS incoming: Processed: X

Where X: the number of successfully processed commands

Followed by automatic restart.

**7:** Command for SIM card remote reading

Example SMS:

xxxx7,y

where Y: SIM phonebook read starting index (1-250)

Answer SMS incoming in the above writing format, with closing letter, where letter is:

C: reading is not completed, because 160 character answer limit exceeded

E: reading is completed

X: any reading error occurred

**Recall** (10-240 sec, if the record is missing then default is 70 sec)

The data related to this keyword is the recall delay time in seconds (the time between two consecutive recalls), the pager waiting after an unsuccessful paging before starting a repeated call to the same target (max. 2 additional trials).

**Relay** (1-250 sec, if the record is missing then default is 2 sec)

Time in seconds being the output in active status in monostable mode.

**Ringin**g (10-240 sec, if the record is missing then default is 40 sec)

The data related to this keyword is the time duration in seconds permitted for ringing the target number. Passing this time the pager will finish the ringing, by interpreting it an unsuccessful call.

**Smstel1, Smstel2, Smstel3**

The data related to these keywords are the phone numbers which where the predefined text SMS messages will be forwarded to, when the negative input was triggered. The second predefined SMS will be sent.

It is not obligatory to insert these keywords, their number is optional. If no SMS message is required, do not insert any of them.

#### **Setup with 3KO USBPRG cable:**

Connect the download cable to one of USB ports on the PC. An interfacing circuit is built into the house of USB connector. This circuit functioning like a serial port and also protects the pager and the PC from each other.

Install the driver of the cable during the first use! (From www.3ko.hu)

Using:

Start the putty.exe program with 19200 baud and the serial port COMX of cable setting.

When the module is stand by (green LED is blinking in every seconds), connect the cable to the module: the white mark directed to the antenna.

Follow the menu on the screen!

Thank You!

The 3KO Team