# SPG 1022
Multi functional TCIP/GPRS Security transmission module

The module can take any conventional Ademco Contact ID security control panel and trasfer it into SIA IP DC9 protocol either in 128 bit encrypted or not encrypted format. The SPG 1022 comes with 2 onboard input and 2 open collector output. SPG 1022 controls ethernet and GPRS channels and capable of sending e-mail and SMS messages.
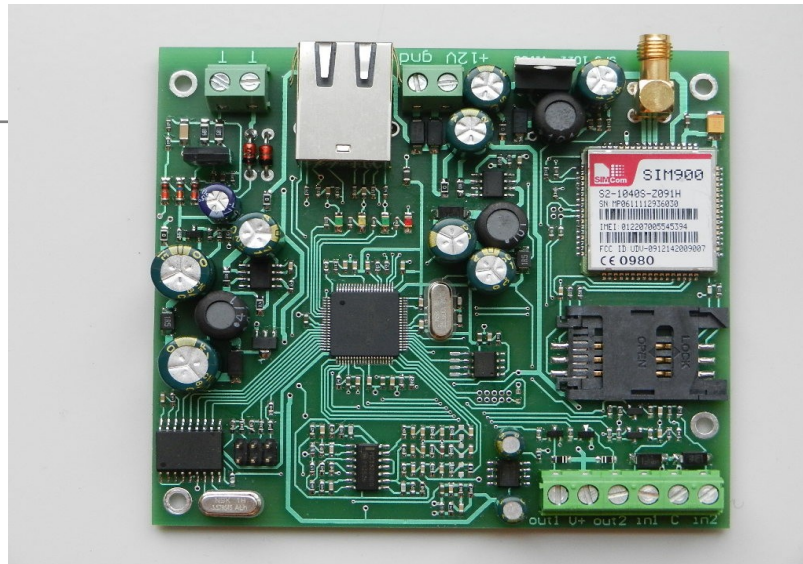
Features:

- SIA IP DC9 protocol (SIA TCP/UDP/Encrypted, Closed socket)
- 24 hour connection with the server (min.test signal interval is10 sec)
- DHCP / Fix IP
- Two server reporting as backup, DYN DNS server
- Web user and installer interface for programming or control
- Remote access through Ethernet network.
- Firmware upgrade
- 2/2 input/ output
- E-mail and SMS sending
- SMS commanding

1.0. Hardware description

1.1. Main parts:

1 Fixing holes
2 Wire terminals
3 Jumpers
4 L1,L2, L3, L4 Control LEDs
5 Expansion board socket
6 GPRS control LEDs
7 SIM-holder
8 Ethernet socket

Fixing Holes:
There are 4 pcs of fixing holes.

Wire terminals:

GND   Ground
+IN   12 VDC   power
Telephone   Input of the control panel

Jumpers:

Factory reset jumpers will re set the following parameters:

- Administrator password: admin
- IP address : 192.168.254.253
- Netmask: 255.255.255.0
- Gateway: 0.0.0.0
- HTTPd port: 8080

Reset:
1   Remove power
2   Connect pins with the providided shortcut jumper
3   Apply power
4   Remove jumper

J1   Not used
J2   Automatic firmware download thorugh Internet
J3   Factory reset

If J2 and J3 both closed than the latest firmware will be
    reloaded.

Control LEDs:

L1 GSM STATUS
     double flash – GSM is powered
      SIM/ or other fault- 0.5s On /0.5s Off
      If LED does not light – GSM is not ready (for example
no GSM signal)
      Module is on the GSM network but it can send only
SMS – blink in every   4second
      Normal status- Blink in 1s
      SMS sending- blinks in 0,1 s
      SMS receiving – long light
       GPRS connected- double flash

L2 General fault
L3 Communication fault
L4 Communication fault with the security control panel

SIM Card Holder:

Inserting or changing SIM cards is only allowed if the module
is disconnected from the power.

Ethernet connector:
A standard RJ45 connector is to be used to connect to the
local network. Connect it only when the module is not
powered, this way the module will get IP address by the
DHCP server. If there is no IP address service available, the
module will use the factory default address.
(192.168.254.253**)**

1.2. Other connectors:

Inputs:
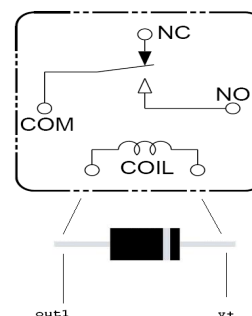The inputs of SPG 1022 on board can be activated either by
contact or by voltage.

Outputs:
Both output is open collector output. Output is limited to 150
mA. If you need to draw more current plese use relay and a
diode as circuit protection as shown here:

2.0. Specification:

Power supply:	12-16 VDC
Stand by current consumption:	80 mA
Max. current consumption:	150 mA
Size LxWxH:	85 x100x20mm
Screw terminal sizes:	Ø2,5 mm
Ethernet connector	Standard RJ45
Communication:	128 bit encrypted
Factory setting:	
Network mode:	Static IP
Factory IP-address:	192.168.254.253
Port :	8080
User name :	Admin
Password :	Admin

3.0. Status web browser

The web page of the panel could be found on the IP address as previously set.
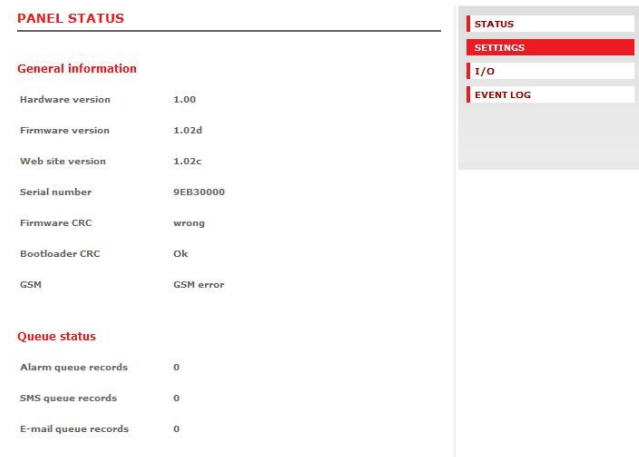
Administrator password:
The entry name and password could be changed here.
Max 15 character could be used.
Factory default: Admin, Password: Admin

Warning:
In case of forgetting the password only reset jumper will reset the factory setting.

3.1. „Status" page:

Panel Status Information:

- **MAC address:**
  Ethernet identification address, can not be changed. See the sticker on the pcb.

- **Hardware Version**
  Hardware revision nr.

- **Firmware Version**
  The current firmware serial nr running in the module.

- **Web site version**
  Version of the web page you see now

- **Serial Number**
  Manufacturing serial number of the module

- **Firmware CRC**
  After every re-start SPG 1000 controls the consystency of the program memory. It should display "OK"

- **Bootloader CRC**
  After every re-start SPG 1000 controls the consystency of the bootloader memory. It should display "OK"

- **GSM Status:**
  Displays the status of the panel connected to the GSM network.

Panel Status:
- **Alarm queue:**
  Unsent events on the IP network
- **SMS queue:**
  Unsent text messages on the GSM network
- **Email queue:**
  Unsent e-mails.

- **Active process**
  This is a factory de-bug information. This shows the actual communication or process the SPG 1000 currently maintains.

- **Ethernet link test remain**
  Remaining time to the next ethernet test time. Refreshez by F5 or page reload.
- **GPRS test remain**
  Remaining time to the next GPRS test time. Refreshez by F5 or page reload
- **ETH errors**
  Factory debug information.
- **GPRS errors**
  Factory debug information.
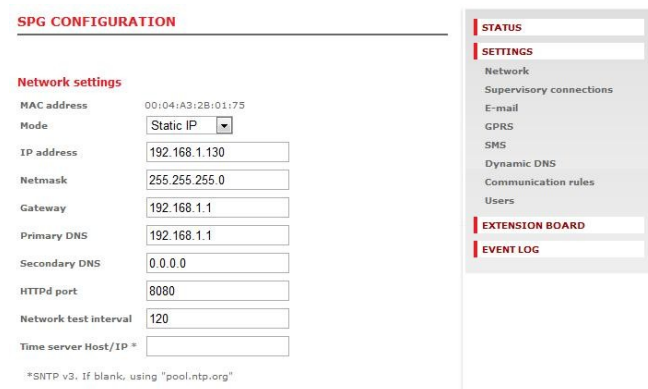- **SMS sending enabled**
  Factory debug information.
- **SMS ban**
  Factory debug information.

Programming:

3.2.
After enter the panel by its pre-set User and Password, you may change factory default settings.

- **MAC address**
  MAC address can not ba changed.Its always fix.
- **Mode:**
  Network connection mode could be changed here
  - − Static IP address
  - − Dinamic Address.

Factory Default Static

Remark:
If you use dynamic IP, its still advised to use one fix IP in case if DHCP service would be not available. In this case the module will change to Fix IP address.

- **IP address:**
  This is the several IP. This aress is used for remote programming or remote controlling.

Factory Default 192.168.254.253

- **Netmask:**
  It is for to be able to distinguish between IP address and identification parts for IP packet receivers.

Factory Default: Empty

- **Gateway:**
  This is a device which is in connection with more TCP/IP network. It is for routing and forwarding different IP packets between these networks. For example a router address within the network is designated to gateway.

Factory Default : Empty

- **Nameserver (primary):**
  This is a name server the server of the service provider. Write the provider server address into this field. (A router could be also a name server)

Factory Default: Empty

- **Nameserver (secondary):**
  This is a name server the server of the service provider.

Write the provider server address into this field. (A router could be also a name server)

Factory Default: Empty

Warning:
Secondary name server should be accessible server since if the panel is connected by GPRS, it can not use the router on the same network as name server

- **HTTPd port:**
  The config website port nr

Factory Default 8080

- **Network Test signal interval:**
  The panel sends test signals to the servers in this given time periods.

Factory Default 120

- **Time server/Host**
  The panel synchronize its internal clock to an available public time server on the internet.
  Factory default is „pool.ntp.org"

Supervisory connection:

You may set the communication routes of the panel. SPG is able to send alarm signal in a multiply sequential paths, IP communication could be to two different server.

Supervisory connections

Server Host Name/IP	91.82.255.200
Server port	22000
Server #2 Host Name/IP	
Server #2 port	0
Protocol	TCP
Encrypt	AES-128 encrypt
AES key	0102030405060708090A0B0C0D0E0F00
Account ID	11
DC-09 Prefix	

E-mail settings

E-mail sending enabled	Enabled
From address	
SMTP server	
SMTP port	0
Perform authentication	Disabled
Username	
Password	

- **Server Host Name/IP:**
  The server location of the central monitoring station. You may fill IP address or HOST name.
  Factory Default 0:0:0:0

- **Server Port number:**
  The port number of the central monitoring server.
  Factory Default 0

- **#2 Server Host Name/IP:**
  Secondary server location of the central monitoring station. You may fill IP address or HOST name.
  Factory Default 0:0:0:0

- **#2 Server Port number:**
  Secondary port number of the central monitoring server.T
  Factory Default 0

- **Protocol:**
  The required protocols could be selected here with the central monitoring server.

  - SIA IP TC2700 (TCP, not enrypted, Close-socket)
  - SIA IP UD2700 (UDP, not enrypted, Close-socket)
  - SIA IP encrypted TC2700 (TCP, enrypted, Close- soc.)
  - SIA IP encrypted UD2700 (UDP, enrypted, Close-soc.)

- **AES key:**
  The encryption key should be added here which is given by the central monitoring station..
  Factory Default: Empty

Accunt ID:
SIA account id
Factory Default: Empty

- **Prefix:**
  This is provided by the central monitoring station.
  Factory Default: Empty

Time Zone:
  The module has a built in clock syncronization. Select the time zone where the panel is installed. A modul connects the „Timeserver" periodically to adjust timing. Important ! Syncronization could only be done if ethernet connection is available, and DNS server is set properly.
Factory Default GMT+00:00

Email:
The module can send e-mail messages to pre-set addresses. Here you can adjust globally the e-mail reporting. Specific settings should be done at the expansion board programming section.

- **Email:**
  Enabling or disabling any e-mail communication.
  Factory Default: Disabled

- **From:**
  The address of the module e.mail address.
  Factory Default Empty

- **SMTP Server:**
  The mail server smpt name (provided by Internet service providers.
  Factory Default Empty

- **SMTP Port:**
  Provided by Internet service provider.
  Factory Default Empty

- **Authentication:**

  If your Internet provider requires authentication you should set this accordingly.

  Factory Default: Disabled

- **Username:**
  Username is necessary to access mail server
  .Factory Default Empty

- **Password:**
  Password is necessary to access the mail server.
  Factory Default Empty

GPRS settings:

Wireless GSM communication settings could be made here.

GPRS settings

APN	net
APN Username	/keep blank if not in use/
APN Password	/keep blank if not in use/
*Primary DNS	
*Secondary DNS	
*Network test interval	120
	20..240 [sec]
Balance optimization	None

- **Access point name (APN):**
  Provided by the GSM provider
  Factory Default: Empty

- **Username:**
  Provided by the GSM provider
  Factory Default: Empty

- **Password:**
  Provided by the GSM provider
  Factory Default: Empty

- **Nameserver (primary):**
  Provided by the GSM provider. Many provider does not require any setting.
  Factory Default: Empty

- **Nameserver (secondary):**
  Provided by the GSM provider. Many provider does not require any setting.
  Factory Default: Empty

- **Network test signal interval:**
  Test signal interval only for GPRS transmission. From 60 sec.
  Factory Default 0

- **Balance optimization:**
  The panel could optimize the data traffic for time or for data volume, depending on your GSM subscription plan. Time based optimization will result that panel will spend the least amount of time on the GPRS network and will disconnect as soon as reporting is done. Data based optimization means that panel will remain connected to the GPRS network, assuming that more reporting will be done . Data optimisation will mean 10-30 minute disconnection from the GPRS network if there is no reporting needs.

  Factory Default : Data optimization

SMS:

SMS global settings could be adjusted in this section.

SMS settings

SMS sending	Enabled
Povider source address	/keep blank to use default/
Forward To	None
Forward Unknown SMS	Disabled
Sending limit	50
	/max. count per hour per user/
SMS text prefix	Pepe1

- **SMS sending:**
  nEnabling SMS sending globally.

-
  Factory Default Disabled

- **Provider source addres:**
  The GSM provider source address should be entered here , from where information is expected and should be forwarded to an other number (For example the balance information for pre-paid GSM services)
  Factory Default: Empty

- **Forward to:**
  The incoming SMS is forwarded to a pre-set number . Use international form for numbers.
  Factory Default: Empty

- **Forward unknown SMS:**
  Enables or disables forwarding SMS from an unknown number.
  Factory Default : Empty

- **Sending limit:**
  Maximum nr of SMS. The counter will reset in every hour. Zero value will result unlimited nr of SMS.
  Factory Default 0

- **SMS text prefix:**
  This will identify the panel if you expect more panels to send sms to the same number.

Dynamic DNS:

SPG is enabled for Dynamic DNS communication even if it is installed on a non-fix IP address. Generate a DNS on a service provider . In this case both Internet and GPRS connection the module could be remotely accessed.

Dynamic DNS

Use dynamic DNS	Disabled
dynDNS Server	dyndns.org
dynDNS hostname	
Username	
Password	
Last known IP	57.69.144.88

Communication rules

Com path	Ethernet or GPRS
*Web config via GPRS	Disabled

*Not available in this version

Remote users

USER#1

SMS address	+
E-mail address	
Access level	Administrator
Login name	
Password	

Enable:
Enables the dinamic IP refresh.
Factory Default: Disable

- **DynDns hostname:**
  Name you created on DNS server provider.
Factory Default: Empty

- **Username:**
  Accessing the DNS service
Factory Default: Empty

- **Password:**
  Accessung the DNS service
Factory Default : Empty

- **Last known IP:**
  Displays the last known IP address of the SPG

Communication Rules:
Communication rules of the panel are to be set here. SPG1000 can handle independent communication paths.
Sequence of IP reporting:
2 times Ethernet Nr 1 Server address
2 times Ethernet Nr 2 server address
GPRS 1 server , GPRS 2 server , in case of successfull communication SPG 1022 will forward all messages at GPRS channel for 3

minutes. New event will trigger the repeat of this whole sequence.
After unsuccessful communication will result 3 minutes of brake.
If there is only GPRS set as primary and only communication than in case of unsuccessfull event communication will be suspended for 15 minutes.
The panel will send SMS containing the Ademco Contact ID information received from the external security panel or from the internal inputs if neither Ethernet or GPRS communication path is unavailable.

- **GPRS:**
  Setting the primary reporting route of the SPG is GPRS. We suggest to use this only if Ethernet is not available. More reporting routes you have the secure the operation. SPGs web programming page is available through Ethernet connecton only. If you use GPRS only communication only local programming is available for you.

Factory Default :Ethernet or Gprs

Users

Default programming mode (Aministrator) entry to the panel is Admin, Admin (user, password) . This rule applies only if none of the user login name and password is filled out.
If you want to change on the default Administrator password you must use the User nr 1 section for the new password. You may not change Adminstrator access level on User nr 1. If you need User level access to be programmed you can do that in User Nr 2,3 section.

- **SMS address:**
  The telephone nr of the user where SMS could be sent- Always use internation format ! e.g +36201111111
  Factory Default: Empty
- **Email address:**
  The e-mail address of the user where e-mail could be sent-
  Factory Default : Empty
- **Access level:**
  Access level of the user
Factory Default: None
- **Login Name:**
  Login name for the SPG 1022 web page.
Factory Default Empty
- **Password:**
  Login password of the SPG 1022 web page.
Factory Default Empty

Input and outputs:

For wire connection please see the first pages of this manual.

- **Remote control:**
  You may choose this option whether you allow remote control (SMS) of your outputs.
- **Reply on SMS command:**
  The module will send you a reply by SMS to the commands you sent to the module by SMS.

Input name:
Type the input name here you wish to be sent by SMS-and e-mail. Please use only standard English alphabet.

Reporting Disable:
You disable reporting to the central monitoring station. Factory setting is enable all reports

E-Mail report:
You ENABLE the module to send e-mail reports to the e-mail address you have entered in USER sections. For this you also have to fill out the sender e-mail address details at the Settings page / E-mail Settings

SMS Report
You ENABLE the module to send SMS reports to the phone numbers you have entered in USER sections. For this you also have to fill out the SMS details at the Settings page / SMS Settings

Sensitivity
This is designed to determine the sensitivity of this input. You may select 0,1 sec, 1 sec, or 1 min as base setting and you may enter a number to multiply that. This means that you might delay reporting if the input.
Example if this is connected to any sort of security sensor you may reduce false alarm by setting this to 0,5 sec or so.

If you have an event reported if its happening longer than your set value. For example you want to report AC loss , you may use a relay and enter 30 min or so. That will result that shorter AC failures than 30 mins will not be reported.

Inverted:
You may select if the input status is normal on open or closed circuit.

CID Code:
***more information about Contact ID is at the end of this manual.**

Enter the Ademco Contact ID code you wish the panel to report in case of this input opening/restoring. For event codes please refer Ademco Contact ID standard.
You may select the partition and zone number identifier to the code.

Restore:
Use this checkbox if you want the panel to report not only the alarm but the restore status of this zone. Restore code is according to Ademco contact ID (Identifier for alarm starts with 1 , restore is 3. Example 1130 is alarm, 3130 is restore.)

Outputs

Output:
Write here the name of the output you want to see in SMS or e-mail reports what the module will send.
Output types:

SMS Only:
The output will only be activated for incoming SMS

Input following:
The status of the output will follow the selected input

DTMF Contact ID following

The output will follow the contact ID Event code you type in, received from any security panel which sends Ademco Contact ID code to the panel telephone input.

Enter the 3 digit event code here you want to trigger the output. The Contact ID event qualifier will determine the operation of output in „bistable" mode. Event qualifier 1 will activate the output and 3 will de-activate.
Eg.: If you enter 130 to be followed than
  1 130 buglary code will turn on the output
  3 130 restore code will turn off the output

In monostable mode :
   „1" event qualifier will activate the output for the timing you set, if new event comes it will re-trigger the input for the time you set.
   „3" event qualifier will not reset the output.

Low battery
The module will detect low batt by measuring its power supply drops under 11 Volts DC. Low batt not only be reported to the central station but also the output could be activated for local signalling.

Ethernet Fail
 The modul will detect Ethernet communication failure, and this not only will be reported to the central station but also the output could be activated for local signalling.

GPRS Fail
 The modul will detect GPRS communication failure, and this not only will be reported to the central station but also the output could be activated for local signalling.

SMS Fail
If the module can not send out SMS the outputs will be activated.

General com fail
General communication Failure is : Ethernet + GPRS + SMS trouble - so absolute disability for communication to the outside World.

General trouble
General trouble is General Communication Failure + LOW batt

Events:
The panel has 250 event memory. This event list is written into the non volatile memore, so if power is removed, event is still stored. Real time clock of the module could only be synchronized if module can access Internet either through Ethernet or GPRS.

Some limited information about Ademco DTMF Contact ID codes:

The form of the message is:
ACCT MT QXYZ GG CCC

where:
ACCT = 4 Digit Account number (0-9, B-F)

MT = Message Type. This 2-digit sequence is used to identify the Contact ID message to the receiver. It may be transmitted as either 18 (preferred) or 98 (optional). New receiver implementations shall accept either a18 or a 98. Note that some older receivers may not accept 98 .

Q = Event qualifier, which gives specific event information:
1 = New Event or Opening
3 = New Restore or Closing
6 = Previously reported condition still present (Status report)

XYZ = Event code (3 Hex digits 0-9,B-F)

GG = Group or Partition number (2 Hex digits 0-9, B-F). Use 00 to indicate that no specific group or partition information applies.

CCC = Zone number (Event reports) or User # (Open / Close reports) (3 Hex digits 0-9,B-F). Use 000 to indicate that no specific zone or user information applies

S = 1 Digit Hex checksum calculated such that:
(Sum of all message digits + S) MOD 15 = 0