Connection and installation manual

GSM-receiver GSM 420-RS 868

tousek®
GATE AUTOMATION

Warning notes

- **Installation, adjustment and maintenance may only be carried out by trained personnel!**
- Carrying out works at the receiver is only admissible after the power supply has been turned off!
- Only turn on the power supply again after another check!
- A proper operation is only given, when these installation instructions are strictly followed.

Safety

- The device GSM 420-RS 868 contains a state-of-the-art Quadband GSM module. For correct installation and use of this product, please follow the instructions given in this manual. The use of the device GSM 420-RS 868 near radio, television, telephone or other electronic devices can lead to reception influences and thus to functional disturbances.
- **Never install the device in the vicinity of pacemakers, acoustic prostheses or general electronic medical equipment as it could adversely effect the correct running of these appliances.**
- GSM 420-RS 868 is a radio-operated device. Since no mobile service provider can guarantee a constant connection anywhere and at any time, this device can not be used as a personal emergency system.
- Don't use this device in explosion hazardous areas and also in areas, where the usage of radio systems (e.g. mobile phones,…) is forbidden.
- The Tousek radio system may only be used for devices and facilities, where no danger for persons or things arises from a malfunction of transmitter or receiver, or where this risk is covered by other safety devices.

  The remote controlling of devices and plants with an increased accident risk (e.g. crane facilities) is forbidden!
- For safe operation the local valid safety regulations for the plant have to be kept!
- The owner/user has to be informed that facilities with an increased accident risk may only be operated at direct intervisibility.

Environmental conditions

The GSM420-RS 868 and the connection cable must not be installed in places with the following conditions:

- Dust, humidity, high temperatures • Direct sunlight • Heat-emitting objects • Objects that generate strong electromagnetic fields • Fluids or aggressive chemical substances

Avoid places with strong temperature or humidity fluctuations!

EC-Declaration of Conformity

The company Tousek Ges.m.b.H. Automatische Torantriebe, Zetschegasse 1, A-1230 Wien
hereby declares that:

The GSM radio receiver **GSM 400, GSM 420-RS 868** (GSM + 868 MHz)
conforms to the following EC directives:

2014/53/EU	Radio Equipment Directive (RED)
2011/65/EU	Restriction of the use of certain hazardous substances in electrical and electronic equipment Directive (RoHS Directive)

The following European standards were applied:

ETSI EN 301 489-1 V1.8.1:2008
ETSI EN 301 489-7 V1.3.1:2005
ETSI EN 301 511 V9.0.2:2003
EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011 + AC:2011 + A2:2013
EN 61000-6-2:2005 + AC:2005
EN 61000-6-3:2007 + A1:2011

Vienna, 04. 04. 2018

Features

- 2-channel GSM-receiver with 2 potential-free N.O. bzw.N.C. Outputs, which can also be controlled via transmitter and integrated 2-channel RS 868 radio receiver.
- The two relay outputs with the operating modes ON / OFF, pulse or time controlled (from 0 to 9999 sec.) arset via SMS.
- 1st channel (OUT 1) can be controlled via call, SMS and radio 2. Channel (OUT 2) can be controlled via SMS and radio
- Two inputs (IN1, IN2) to which an SMS can be assigned.
- In case of an event (eg Power ON Reset), the SMS and / or telephone calls can be sent to max. 8 telephone numbers.
- adjustment and programming through PC with serial interface connection possible. Memorising of installation data and personalisation of numbers and assignment of personal data.
- function indications via LED.
- the possibility of inserting and cancelling up to 300 telephone numbers with gate opening functions, if the number in arrival corresponds to one of the memorised numbers the corresponding output relay is activated.
- suitable for DIN rail mounting.
- CE

Attention

- **Check with your mobile provider whether the SIM card can send and receive SMS.**
- Note: A phone number can only be saved once.

General information

The GSM 420-RS 868 is a reception device that commands two outputs and two independent signal inputs via the GSM (SMS) cell phone network and radio transmission. It is fitted with two independent outputs and two independent inputs. It is possible to configure the device either by sending commands via SMS or through a serial interface of a PC. Adjustments of telephone numbers, time, stoppages, entrance and exit activations, alarm messages as well as a reset or status report can be done. In general the activation of all commands sent by a cell phone will force the memorised and associated numbers to be called and an SMS message to be sent to them. The product is also fitted with a radio receiver interface for RS868 radio controls. It is supplied with an internal 868MHz antenna and has the possibility to be fitted with an external antenna if reception is poor.

Technical data

GSM-receiver GSM 420 RS 868, 2-channels			
power supply	230Va.c.	SIM type	Standard
max. relay load	10A	receiver frequency	868,3MHz
operating temperature	-20°C to 50°C	programmable transmitter	100
protection class	IP20	dimensions	70 x 90 x 60mm
telephone module	SIM900 QBand	article no.	13280280

To ensure a safe and reliable operation of your GSM 420-RS 868 device, it must only be installed by qualified personnel.

(V)	230Va.c. power supply
(IN)	inputs IN1 and IN2
(OUT 1)	relay output 1
(OUT 2)	relay output 2
(P1–3)	programming button P1–3
(L-GSM)	GSM-LED
(L1–3)	programming-LED 1–3
(L-S)	status-LED
(SIM)	SIM-card
(A1)	connection GSM-antenna
(A2)	connection RS 868 antenna **(A)**
(PC)	serial interface RS232

RS 868 antenna

- Connect the supplied antenna (A), a wire with a length of 8.5cm, to the antenna pole of the clamp **(A2).**
- **Do not change the length of this wire (it reduces the range)!**
- The antenna FK 868 is optionally available to have a better range.

antenna FK 868 (optional)

serial interface RS 232 (PC)

The GSM 420-RS 868 device is equipped with a serial interface RS232 which can be used for:

- checking the correct function of the device.
- checking the correct installation of the device.
- making tests.
- for adjusting the parameters of the device.

In order to connect the device PC with a PC please use the enclosed cable or one with same characteristics. If you have a RS232/USB converter you can connect the device to a USB port of the PC.

- Connect the desired impulse input of control board to the output terminals **(OUT 1, 2)** of th GSM-receiver according to the technical specifications.
- Connect the desired alarm to the terminal **(IN)**: input 1 to terminal **C/IN 1,** input 2 to terminal **C/IN 2**
- Connect the GSM-antenna with the GSM-antenna connector **(A1)**.
- If it is necessary to improve the reception, connect the antenna FK 868 (item No. 13250090) to the terminals **(A2).**
- Insert a valid SIM card **(SIM)**.

- **The SIM card must have credit in order to be able to use all functions.**
- **It must not require a PIN.**
- **The answering machine function must be disabled.**
- **ATTENTION: Using a cell phone/mobile phone check that the SIM card is functioning correctly before inserting it.**

- Connect the 230 Va.c. supply line with the supply terminals **(V).** Then switch on the power supply.
- Wait approx. 30s until the connection LED **(L-S)** flashes slowly and the device has found its network.

- **Deactivate the redialing of your mobile phone.**
- **It is necessary to send your mobile phone number.**

- The GSM-LED **(L-GSM)** provides information about the signal quality and shows possible errors.

GSM-LED display	
display mode	**meaning**
blinks rapidly	module connects to the network (approx. 30s)
illuminates	no GSM signal available
4x slow blinking + *pause*	optimal GSM signal available
3x slow blinking + *pause*	good GSM signal available
2x slow blinking + *pause*	sufficient GSM signal available
1x slow blinking + *pause*	insufficient GSM signal (signal is being tested once per minute)
4x fast blinking + *lights in pause*	no SIM-card available
slow blinking	the SIM-card is PIN-Code protected

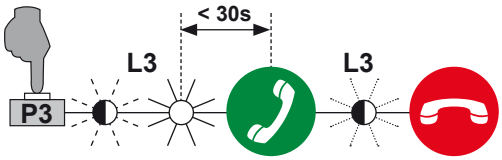
3a. Save/ delete telephone numbers via telephone call

Programming

The output of the GSM module can be switched by means of a telephone call. This does not incur any costs for the SIM card of the module. **For this function, the telephone number must be saved into the GSM receiver.**

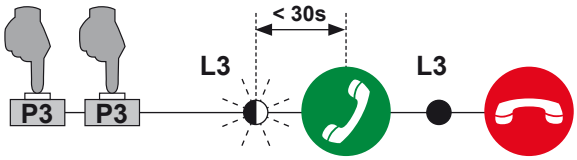
Save a telephone number

- • Press the programming button **(P3)** once - the programming LED **(L3)** starts flashing.
- If the programming LED **(L3)** lights up permanently, make a call within 30s.
- As soon as the programming LED **(L3)** flashes rapidly (the GSM module receives this call), hang up.



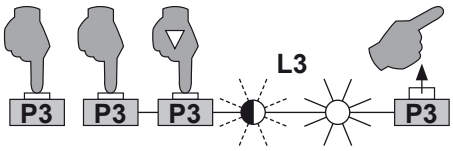
Delete a telephone number

- Press the programming button **(P3)** twice - the programming LED **(L3)** starts to flash slowly.
- Make a call within 30 seconds from the number you want to delete.
- As soon as the programming LED **(L3)** goes off (the GSM module receives this call), hang up.



Delete all telephone number

- Press the programming button **(P3)** three times and then hold it pressed for at least 10s. The programming LED **(L3)** flashes quickly.
- As soon as the programming LED **(L3)** goes off, you can release the programming button **(P3).**



3b. Command and setting via SMS

Programming

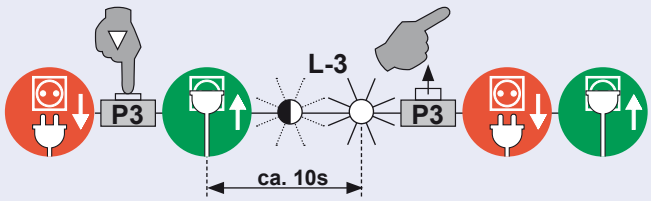
SMS texts are used for both setting the device functions as well as for requesting information from the device. The SMS commands with their descriptions and stored default values for each determined parameter are laid out in the table “SMS commands”.

Important

- The default password is **„12345“. It is advised to define an own password (per SMS).**
- SMS commands can be written in upper or lower case letters.
- At the receipt of a SMS which is not one of those included in table, the GSM module sends the message to the **first telephone number** in the memory (even if the password is not valid).
- Insert the international dialling code (depending on automatic exchange of country) before the telephone number you want to memorize (e.g. +43 for Austria, +49 for Germany).
- The device answers to the setting controls with a confirmation SMS („OK“). To the controls referred to the outputs (“OUT…”) the device answers with a telephone call.

Password RESET

- Unplug the power plug, press the programming button **(P3)** and hold it pressed.
- Now plug the mains plug in and wait until the programming LED **(L-3)** lights permanently after approx. 10s after initial flashing.
- Now release the button **(P3)** and plug the mains plug **OFF and ON again!**



SMS commands / basic settings		
	command	**entry**
1	**password change:** **[= 12345]** changes the (standard-)password into a new one. ***pass:*** password (max. 5 digits) ***passn:*** new password (max. 5 digits)	*pass,*PWD,*passn,passn* e.g. password change: 12345,PWD,23854,23854 → new password: 23854
2	**Reset:** all parameters are being set to default value and the complete tel. number list deleted. ***pass:*** password (max. 5 digits)	*pass,*RESET e.g. 12345,RESET
3	**memorise telephone number (für Rückmeldungen):** a max. of 8 telephone numbers (to which a response by SMS or telephone call should take place) can be memorised. ***pass:*** password (max. 5 digits) **x**: memory position in the tel. number list (1–8) **telnr**: tel. number **(max. 19 digits)** a number already existing at this position will be overwritten.	*pass,*TEL,x,telnr e.g. 12345,TEL,3,+43699123456789
4	**delete telephone number:** deletes a tel.number from the list. ***pass:*** password (max. 5 digits) **x**: memory position in the tel. number list (1–8)	*pass,*DEL,x e.g. 12345,DEL,3
5	**request telephone number list:** the list of actual memorised tel. numbers for response are being sent by SMS. ***pass:*** password (max. 5 digits)	*pass,*NUM? e.g. 12345,NUM?
6	**activation of SMS-message when switching on:** When switching- on the device a SMS + call is sent to the tel.number memorised under point 1. ***pass:*** password (max. 5 digits)	*pass,*PW,ON
	deactivation SMS-message when switching on [=]: no message when switching on the device. ***pass:*** password (max. 5 digits)	*pass,*PW,OFF
7	**check functionality of device:** operating state is being checked. ***pass:*** password (max. 5 digits) ➡ answer-SMS: „System OK“ + call	*pass,*CKE
8	**activate SMS-notification [=]:** activates the response by SMS to tel.numbers, which are registered for response. ***pass:*** password (max. 5 digits) **xxxxxxxx**: memory positions in the tel. number list (max. 8 digits)	pass,SMS,xxxxxxxx e.g. 12345,SMS,158 → SMS-activation for tel.numbers at position 1, 5, 8)
	deactivation of SMS-notification: deactivates the response by SMS to tel.numbers, which are registered for response. ***pass:*** password (max. 5 digits) **xxxxxxxx**: memory positions in the tel. number list (max. 8 digits)	pass,DSMS,xxxxxxxx e.g. 12345,DSMS,158 → SMS-deactivation for tel.numbers at position 1, 5, 8)
9	**Unlock telephone no. for calls [=]:** ***pass:*** password (max. 5 digits) **xxxxxxxx**: memory positions in the tel. number list (max. 8 digits)	pass,VOC,xxxxxxxx e.g. 12345,VOC,158 → unlock tel. no for position 1,5,8
	Lock telephone no. for calls: ***pass:*** password (max. 5 digits) **xxxxxxxx**: memory positions in the tel. number list (max. 8 digits)	pass,DVOC,xxxxxxxx e.g. 12345,DVOC,158 → Lock telephone no. for pos. 1,5,8

SMS Befehle / Befehlsgebung		
	Befehl	**Eingabe**
10	**Save telephone numbers for GATE OPEN-command:** to save telephone numbers that should enable an opening command on output through a call **(max. 300)**. ***pass***: password (max. 5 digits) **telnr**: telephone number (max. 10 per command separated by comma) **IMPORTANT: the country code (e.g. +43) is, depending on automatic exchange in country, maybe necessary!** **It is necessary to send your mobile phone number!**	*pass,*MAC,telnr,telnr,... e.g. 12345,MAC,+436641234567, +436767654321
	if behind a tel. number an **„U“, followed by a digit yyy** is being entered kann, then this number executes a defined amount of operations (in this exapmle: 5), and the number is then deleted.	*pass,*MAC,telnrUyyy e.g. 12345,MAC,+436767654321U5
11	**delete telephone numbers for GATE OPEN-command:** to delete telephone numbers that were enabled to generate an opening command through a call. ***pass***: password (max. 5 digits) **telnr**: telephone number (max. 10 per command separated by comma)	*pass,*DAC,telnr,telnr,... e.g. 12345,MAC,+436641234567, +436767654321
	To delete a phone number using „DAC“, it is necessary to dial it with the same dial code/ prefix that was used to store it with the command „MAC“!	
12	**delete all telephone numbers for GATE OPEN-command:** ***pass***: password (max. 5 digits)	*pass,*DAC,*pass,pass* e.g. 12345,DAC,12345,12345
13	**saving a transmitter:** ***pass***: password (max. 5 digits) **code rk**: serial number of transmitter → *see note* *) **ch**: channel (1–4) - for ch = 9 all channels are being activated **out**: output assigned to channel (1 or 2)	*pass,*MEMRKA,code rk, ch,out,ch,out,ch,out,... e.g. 12345,MEMRKA,955669,1,1
14	**delete a transmitter:** ***pass***: password (max. 5 digits) **code rk**: serial number of transmitter → *see note* *) **ch**: channel (1–4) - for ch = 9 all channels are being deleted	*pass,*DELRKA,code rk, ch,ch,ch,...
15	**delete all transmitters:** ***pass***: password (max. 5 digits)	*pass,*DELRK,AA
	Saving / deleting telephone numbers is also possible by means of a call *(see point 3a)*	

Note

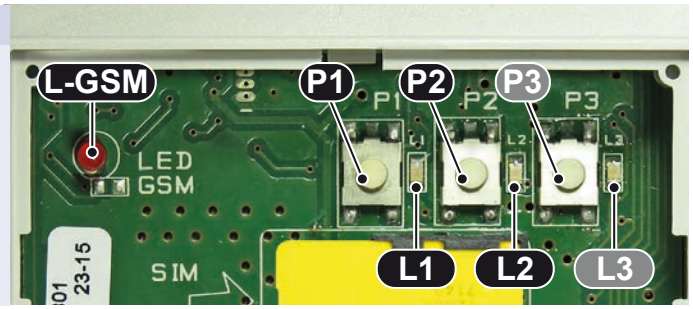
- **The serial number of the transmitters is located on the label close to the battery.**

e.g.

SMS Commands / In-, outputs		
	command	**entry**
16	**activation of outputs OUT 1, 2:** ***pass:*** password (max. 5 digits) **z**: number of concerning output ➡ telephone call	*pass,*OUT,ON,z,z e.g. 12345,OUT,ON,1,2 (OUT 1 and 2 are activated)
17	**deactivation of outputs OUT 1, 2 [= 🏭] :** ***pass:*** password (max. 5 digits) **z**: number of concerning output ➡ telephone call Note: in the „monostable“ operating mode, this command has no effect since the shutdown is performed automatically (after 0.5s).	*pass,*OUT,OFF,z,z e.g. 12345,OUT,OFF,1,2 (OUT 1 and 2 are deactivated)
18	**request status of output OUT 1, 2:** ***pass:*** password (max. 5 digits) ➡ answer SMS: „out 1 on (off); out 2 on (off) “ + call	*pass,*OUT?
19	**output relay OUT 1, 2 set to MONOSTABIL [= 🏭]:** sets the switching behaviour of an output relay to monostable (active for 0,5s). ***pass:*** password (max. 5 digits). **z**: number of concerning output	*pass,*OUTRE,z,M e.g. 12345,OUTRE,1,M
20	**output relay OUT 1, 2 set to BI-STABLE:** sets the switching behaviour of an output relay to bistable (ON, OFF). ***pass:*** password (max. 5 digits) **z**: number of concerning output	*pass,*OUTRE,z,B e.g. 12345,OUTRE,1,B
21	**output relay OUT 1, 2 with TIMER:** sets a timer function for an output relay. ***pass:*** password (max. 5 digits) **z**: number of concerning output **yyyy**: time in seconds (1–9999s)	*pass,*OUTRE,z,Tyyyy e.g. 12345,OUTRE,1,T60
22	**activation of inputs IN 1, 2:** for activation of one or both inputs. ***pass:*** password (max. 5 digits) **y**: number of concerning input	*pass,*INP,ON,y,y e.g. 12345,INP,ON,1 (input 1 is activated) e.g. 12345,INP,ON,1,2 (inputs 1,2 are activated)
23	**deactivation of inputs IN 1, 2 [= 🏭] :** for deactivation of one or both inputs. ***pass:*** password (max. 5 digits) **y**: number of concerning input	*pass,*INP,OFF,y,y e.g. 12345,INP,OFF,1 (input 1 is deactivated) e.g. 12345,INP,OFF,1,2 (inputs 1,2 are deactivated)
24	**set time for suppression of alarm-SMS:** ***pass:*** password (max. 5 digits) **y**: number of concerning input **mm**: time in seconds 00–59 an Alarm-SMS is being sent when the duration of consecutive input commands are longer than the time which has been set.	*pass,*INIB,y,mm
25	**request input status IN 1, 2:** ***pass:*** password (max. 5 digits) each input is sent together with its number and status (ON / OFF / Disabled) by SMS. ➡ answer-SMS: „out 1 on (off, disabled); out 2 on (off, disabled) “ + call	*pass,*STO,IN
26	**set an input contact IN 1, 2 N.O. [= 🏭] or N.C.:** ***pass:*** password (max. 5 digits) **y**: number of concerning input **m**: 1 = N.O. (make contact), 0 = N.C. (break contact)	*pass,*STO,y,m
27	**enter SMS text for input IN 1, 2:** ***pass:*** password (max. 5 digits) ***txt:*** text that is assigned to input **y** (max. 127 digits)	*pass,*TEXTy,*txt* e.g. 12345,TEXT1,text for input 1

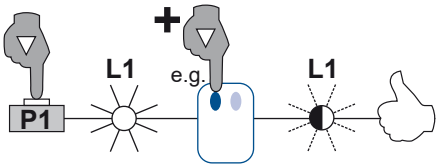
Important

- **for teaching-in / deleting of tranmitter channels there are 2 buttons (P1, P2) and two LED´s (L1, L2) on the board of GSM 420-RS 868. Please follow the following instructions for execution of the desired functions.**

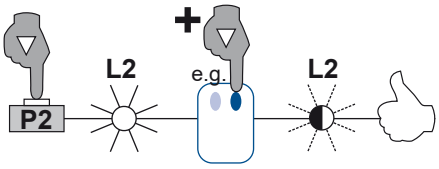


Teach-in of transmitter channels

P1 **Teach-in of a transmitter channel which should be assigned to output 1 (OUT1):** Press and hold down the button P1, L1 lights up and remains lit. Send the remote signal to be memorized, correct memorization is indicated by L1 flashing.

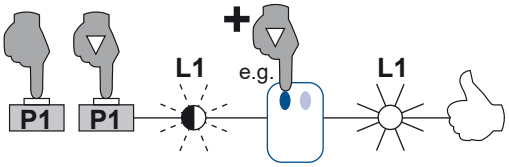


P2 **Teach-in of a transmitter channel which should be assigned to output 2 (OUT2):** Press and hold down the button P2, L2 lights up and remains lit. Send the remote signal to be memorized, correct memorization is indicated by L2 flashing.

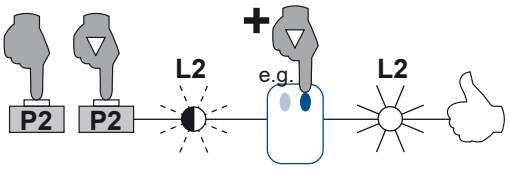


Deleting of transmitter channels

P1 **deleting of a channel which is assigned to output 1 (OUT1):** Press the button P1 twice and hold it down, L1 flashes slowly. Send the remote signal to be cancelled, correct cancellation is indicated by L1 remaining lit.



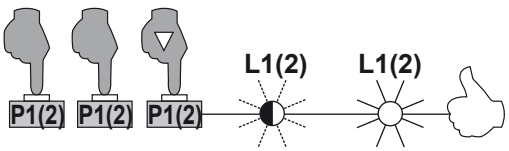
P2 **deleting of a channel which is assigned to output 2 (OUT2):** Press the button P2 twice and hold it down, L2 flashes slowly. Send the remote signal to be cancelled, correct cancellation is indicated by L2 remaining lit.



Delete complete memory

P1 or P2

Press the button P1 or P2 three times and hold it down. L1 or L2 lights up and flashes rapidly. Hold the button (P1 or P2) down for 10 seconds, correct cancellation is indicated by L1 or L2 lighting up and remaining lit.



www.tousek.com

tousek PRODUCTS

- sliding gate operators
- cantilever systems
- swing gate operators
- garage door operators
- folding door operators
- traffic barriers
- electronic controls
- radio remote controls
- key operated switches
- access control
- safety devices
- accessories

tousek®
GATE AUTOMATION

Tousek Ges.m.b.H. Austria
A-1230 Vienna
Zetschegasse 1
Tel. +43/ 1/ 667 36 01
Fax +43/ 1/ 667 89 23
info@tousek.at

Tousek GmbH Germany
D-83395 Freilassing
Traunsteiner Straße 12
Tel. +49/ 8654/ 77 66-0
Fax +49/ 8654/ 57 196
info@tousek.de

Tousek Benelux NV
BE-3930 Hamont - Achel
Buitenheide 2A/ 1
Tel. +32/ 11/ 91 61 60
Fax +32/ 11/ 96 87 05
info@tousek.be

Tousek Sp. z o.o. Poland
PL 43-190 Mikołów (k/Katowic)
Gliwicka 67
Tel. +48/ 32/ 738 53 65
Fax +48/ 32/ 738 53 66
info@tousek.pl

Tousek s.r.o. Czech Republic
CZ-252 61 Jeneč u Prahy
Průmyslová 499
Tel. +420 / 777 751 730
info@tousek.cz

your service partner:

tousek
EN_GSM-420-RS868_00
07. 05. 2018

STAATLICH AUSGEZEICHNETES UNTERNEHMEN