The GD-02K-DIN Universal GSM communicator and controller

The GD-02K-DIN Universal GSM communicator and controller allows you to remotely control and monitor the status of various appliances. Controlling can be performed using standard SMS or by dialling in. The device includes 2 controlled outputs (1 power and 1 signal), which can be set to status mode or impulse mode. For status reporting the GD-02K-DIN has 2 analogue inputs which react to grounding (GND) or to a voltage supply. Input activation and deactivation can be reported by an SMS with an option to be called. Both inputs can have an impulse counter function (can be connected to an electricity meter, water meter, gas meter etc.). The current status of the impulse counter can be tracked by SMS. The device also has an input for connection of the JB-TS-PT1000 thermometer to measure temperature and also to work as a thermostat with the possibility of remote switching and performing the setup of the required and antifreeze temperature. The device has a memory for up to 100 authorised phone numbers. The GD-02K-DIN is equipped with a backup battery that ensures the power when the mains fails. The product is designed to be mounted onto a DIN rail. Module programming can be realized by GD-Link software version 2.3.0 (or higher) when connected either locally to a PC using the MicroUSB cable (not included) or remotely using a GSM data connection (GPRS).

1. Using the GD-02K-DIN

The GD-02K-DIN offers the following operating modes:

- **CONTROL**, activates/deactivates the output with an option to set an impulse (1 s – 24 h). See chapter 5.1.
- **MONITORING**, using an input it follows the status of another device (mains dropout, fault, etc.). See chapter 5.2.
- **TEMPERATURE MEASURING**, using the JB-TS-PT1000 temperature sensor the GD-02K-DIN module measures the current temperature and reports exceeding pre-set limits. This mode allows setting up the reaction of the IN2 input when the temperature limits are reached. See chapter 5.4.
- **THERMOSTAT**, using the JB-TS-PT1000 temperature sensor the GD-02K-DIN module measures the current temperature and according to the pre-set temperature (required or antifreeze) switches the REL1 power relay output (e.g. electrical boiler, heater). The required and antifreeze temperature can be set remotely by an SMS command and you can also switch between them. The thermostat mode can be also blocked by the IN1 input. See chapter 5.5.
- **IMPULSE COUNTER**, allows you to connect up to two external consumption meters with an impulse output (e.g. electricity meters, gas meters, water meters) or one consumption meter with the distinction between low and high tariffs. The impulse counter mode provides information via SMS about their current status or about exceeding the pre-set limits. See chapter 5.6.

2. Device description
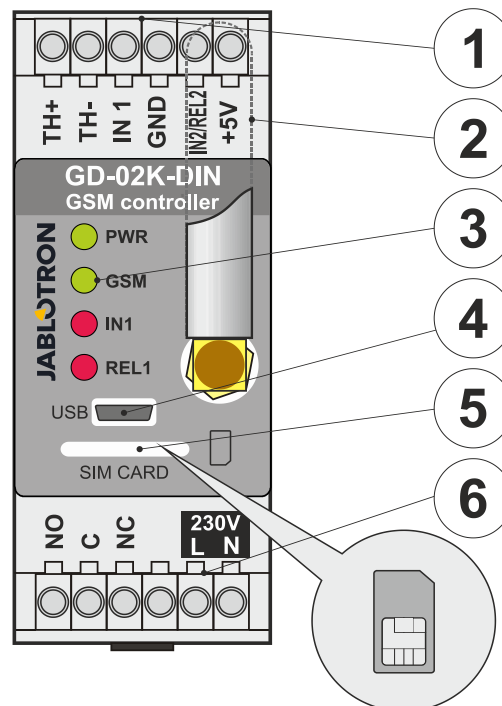
LED indicator description:

Figure 1: 1 – Low voltage terminals; 2 – GSM antenna; 3 – LED indicators; 4 – MicroUSB connector for connection to PC; 5 – SIM card slot; 6 – Power output relay terminals and 230 V mains terminals.

Terminal descriptions:

Low voltage terminals:

TH+/TH-: Input meant for connection of the JB-TS-PT1000 temperature sensor. Other temperature sensors are not supported. Mind the correct sensor polarity (red = TH+, white = TH-). The measuring temperature range is from -50 °C to +150 °C.

GND: Common terminal for IN1, IN2/REL2 and +5 V terminals.

IN1: The input can be controlled by an external voltage of 0…24V DC or by any contact such as a button, switch, relay contact, etc. It responds to the contact switching on or off; or to going over or under the set voltage values. In the Advanced settings view you can change the activation or deactivation delay time. It also allows the connection of the impulse output of e.g. an electricity meter.

IN2/REL2: Optional input/output terminal. The IN2 input terminal has similar behaviour to input IN1. It also allows connection of an impulse output meter, e.g. an electrical meter. REL2 is a semiconductor signal output with an open collector (switches to GND) and is protected by a fuse of 100 mA with a maximum connected voltage of 24 V DC.

+5V: Power output +5 V / 100 mA with protection against shorting or overloading. This output has no backup when the mains power fails. It serves for switching of the external relay type RB-524-DIN 250 V 16 A.

Power terminals:

NO, C, NC (REL1): Switching contact for power relay REL1 with the parameters 230 V/16 A. The relay has galvanically separated contacts from the rest of the device and complies with safety requirements for isolation of up to 4 kV. When the mains power fails the contact always switches off. After the mains has recovered the previous status can be restored (depending on the parameter on the *Setting* tab in the GD-Link software)

L, N: Terminals for connecting the mains (230 V AC/50 Hz)

Notes:

- *If there is a requirement to install the GD-02K-DIN controller in an outdoor environment, an installation housing with an appropriate IP cover index is needed.*
- *The REL1 and REL2 outputs can be switched on independently for a pre-defined time interval from 1 s to 24 hours (impulse).*

PWR (green/yellow) *Power*	Green ON	Mains power 230 V OK, backup battery OK
	Yellow ON	Mains power 230 V fault, backup battery OK
	Yellow flashes	Mains power 230 V fault, backup battery discharged
	Yellow flashes 1/second	Backup battery fault (Low voltage status reported = emergency status)
	OFF	Module switched OFF or discharged backup battery
GSM (green) *GSM network*	Green ON	GSM signal strength OK (GSM signal level > 20 %)
	Green flashes	GSM signal strength is low (GSM signal level < 20 %)
	OFF	GSM fault (no GSM signal)
IN1 (red) *Input 1*	OFF	Input in standby mode (inactive)
	Red ON	Input switched ON (active)
REL1 (red) *Output relay 1*	OFF	REL1 relay in standby mode (switched OFF)
	Red ON	REL1 relay active (switched ON)

Table 1: Status indication by the LED indicators.

Both outputs can have their own text instructions for activation and deactivation.

– *For inputs IN1 and IN2 the time filter can be set from 0.1 s to 24 hours in pre-set steps.*

3. Installation and initial setup

⚠️ **The device can only be connected to mains electricity by a person who has an adequate electrotechnical qualification. Do not connect the protective earth conductor. It is necessary to protect the module externally according to the specification mentioned in the Technical specifications chapter. Do not forget to connect the GSM antenna before you insert the SIM card (turn the device on)!**

1. Attach the GD-02K-DIN onto the required place on the DIN rail.
2. Connect the low voltage part (temperature sensor, inputs and possibly the REL2 output) of the controller first.
3. Then connect the 230 V mains and the REL1 output.
4. Screw on the supplied GSM antenna. If the GSM signal strength at the installation place is low (less than 40%), we recommend using an external GSM antenna, e.g. type **AN-05**.
5. By inserting the SIM card, the module is turned on. When no SIM card is inserted, the device has the mains and internal backup battery disconnected – nothing is indicated. When inserting the SIM card (if the backup battery is not fully discharged) all LED indicators flash briefly on the GD-02K-DIN front panel and then the module starts to indicate optically all the current statuses mentioned and described in *Table 1*.
6. Connect the GD-02K-DIN using the MicroUSB cable to a PC (the max. USB cable length with an extension can be 5 m).
7. Start the **GD-Link** software, see chapter 4.
8. Continue with chapter 5 according to the required operating modes.

Recommendations:
– For long-term reliable operation it is recommended to use tariffed SIM cards. Avoid using pre-paid cards which may not work well when credit balance is low, but which also have uncertain SIM card credit validity periods. If despite this warning you use a pre-paid card, use the function to automatically check the credit balance. This will ensure the periodical checking of credit balance and if credit is low the module sends an SMS with a warning to a pre-defined service number.
– Use any cell phone to check whether the SIM card is active by a phone call and by sending an SMS.
– To speed up logging into the GSM network it is recommended to disable the PIN code requirement. It can be realized by disabling the PIN code requirement using a cell phone, in the settings menu "*SIM card lock*". If it is necessary to keep the SIM card protected by a PIN code (preventing theft), enter a valid PIN code via the GD-Link software (*Setting* tab, "*SIM card PIN*" option).
– With no SIM card inserted, the device is out of order and it cannot be used or configured by PC.

4. Configuration via GD-Link software

To configure the GD-02K-DIN module by computer use **GD-Link** software. It serves for reading and changing the device settings connected either locally by USB cable or remotely (when using a SIM card with a data plan).
– The software is free to download from our website www.jablotron.com, *Downloads – Software* section.
– Follow the instructions of the installation wizard to install the software successfully. The software requires OS Windows XP or newer.
– We recommend using a work station with a letter size of up to 120 dpi (the standard setting is 96 dpi).
– The software is also used for FW (firmware) update performance. During online Internet access GD-Link checks if the FW is up-to-date and if it detects that a new FW version has been released, the user is informed and it offers downloading to a PC. This file can be used to perform an FW update by clicking the option "*Device – Upgrade firmware*".
– *Note*: There is an option for checking the availability of the up-to-date software version; it is possible to enable/disable this in the GD-Link menu – "*GD-Link – Automatic update*".

The GD-Link software can display up to twelve tabs:

Function – Allows you to select the behaviour of the device and to assign functions to inputs and outputs. Multiple functions can be selected simultaneously.

Users – Serves for setting the users' phone numbers, their authorisation to control outputs and report assignment.

Reports – Serves for setting reports of statuses of the device to selected users.

Inputs – Serves for setting parameters of the inputs and for setting activation/deactivation report texts.

Outputs – Serves for setting the parameters of the outputs, texts for control and for reporting switching ON/OFF. The outputs function can be tested with the "*TEST*" button. If the output is pre-set to a *Special function* (e.g. Thermostat), its setting is inaccessible (all settings can be performed on the selected function tab).

Thermometer – Serves for setting the Temperature monitoring function. Sets up temperature limits, texts sent as an SMS report, etc.

Thermostat – Serves for setting the Thermostat function. Sets up temperature values, SMS commands to control heating mode (REL1) etc.

Consumption meter – Serves for setting the Consumption meter 1 and 2 function. Sets up parameters of the measurement, units, number of impulses per unit and default counter value status. It also shows the history of measured values.

Setting – Serves for general settings such as the password for access to device programming, SIM card PIN code, the max. daily SMS limit, SIM card credit balance checking, automatic reports etc.

Texts – Allows you to change the informative or fault texts sent in the SMS messages.

Information – Serves to check the device's current information (Registration code and production code), GSM signal status, status of inputs and outputs, temperatures, impulse counter status, number of sent SMSes, credit on a pre-paid SIM card etc.

Events – Allows you to read the history of the device statuses. Each event includes time and date, description, event source, direction and other details. The events can be filtered according to the set criteria. The events can be exported to *.PDF, *.CSV or *.HTML files.

Note: *The tooltips give you a more detailed description of programming parameters. Move the mouse cursor over the parameter which you want to have described, and the software displays a description.*

5. Operating modes

The GD-02K-DIN offers pre-set modes, which can be selected in the GD-Link software, Functions tab. The visibility of the function tabs changes dynamically according to the selection of functions offered in the Function tab. Selected modes can also be combined.

Device mode selection:
1. **GSM control (REL1)**
2. **GSM control (REL2)**
3. **The IN1 input controls the REL1 output**
4. **Status of the inputs (IN1, IN2)**
5. **Thermostat (REL1)**
   - With the additional function: **Blocking the thermostat by the IN1 input**
6. **Temperature monitoring**
   - With additional function: **REL2 when the temperature is exceeded**
7. **The IN1 input consumption measurement**
8. **The IN2 input consumption measurement**

5.1 GSM control mode

This operational mode allows you to control the REL1 power output independently to the REL2 signal output by a pre-defined SMS text or by dialling in. One more option is using a bridge between IN1 triggering and REL1. Up to 100 telephone numbers can be stored in the device to control both outputs independently. **When a password is used outputs can be controlled by any telephone number, not just by the numbers stored in the device.**

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Set-up description:

− This mode is enabled when the function *"GSM control (REL1/REL2)"* on the *Function* tab is selected.
− To apply this mode, start the **GD-Link** software and in the *Users* tab enter the required telephone numbers in the *"Output control by dialling in / SMS"* column and give them authorisation to control outputs by SMS or by dialling in. The telephone numbers are required to be in international format.
− In the *Outputs* tab you can set the *"Activation/deactivation command"* of both the REL outputs. Should the outputs be time limited, for each output you can set a timer to automatically switch off the output using the *"Impulse length"* parameter. Output control can be reported to the user in control with the *"Report switching on/off"* text. The current status of the outputs is always indicated in this tab.
− On the *Setting* tab by the *"Output status after power recovery"* parameter (outputs switched OFF or last known status) output properties can be set for output behaviour after a mains dropout occurs and subsequent recovery.

Example: *Gate control by dialling in from up to 100 users*

− This application requires a contact to be connected to the REL2 output / GND and to the low voltage input of a controlled gate, see Figure 2.
− Using the **GD-Link** software it is necessary to set the telephone numbers in the *Users* tab that will be authorised to control the output and also for these numbers to check (tick) the option *"Output control by dialling in"* for *"REL2"* on the *Users* tab.
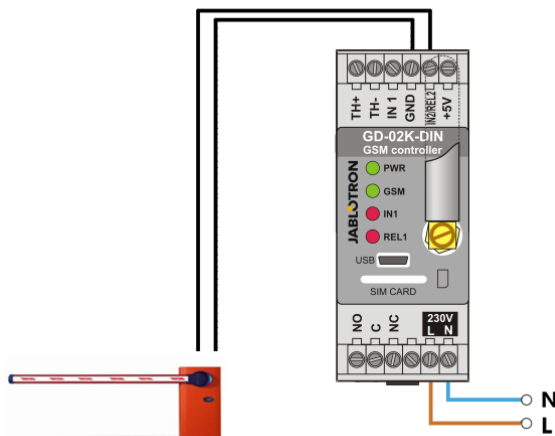

Figure. 2: GD-02K-DIN as a gate controller.

5.2   Status of the input monitoring mode

This mode serves for monitoring the status of up to two devices using the IN1/IN2 inputs. The inputs react to connection (activation) / disconnection (deactivation) with the GND terminal; or to going over or under the set voltage value. If the monitored device is equipped with, for example a Fault output, it can be connected with the GD-02K-DIN and reported by SMS and also dialling in. The information can be reported by an SMS and also by dialling up to 100 telephone numbers stored in the device.

Set-up description:

− This mode in enabled when the function *"Status of the inputs"* on the *Function* tab is selected.
− Go to the **GD-Link** software and on the *Users* tab store the required telephone numbers. At the *Reports* tab select the type of reported information (SMS or SMS and dialling in) using the *"Activation/deactivation report"* option for the columns IN1 and IN2 and *"Dialling-in when SMS report is received"*.
− On the *Inputs* tab, *"Report activation/deactivation"*, set the texts assigned to inputs IN1/IN2 which are sent by an SMS when the inputs are activated/deactivated.
− Both inputs can have an activation/deactivation delay set (0.1 s – 24 hrs). The delay can be used for an installation where short pulses have to be eliminated (for example an SMS activation report is sent if the activation of an input takes more than 60 s).
− Both the IN1 and IN2 inputs can be inverted, check (tick) the option *"Inverted"*. By default, the input is activated when connected to GND – this is standard behaviour. When an input

is inverted, the input reacts oppositely (disconnection from GND is activation).
− Sent SMSes are counted by a daily counter and if it reaches the set daily limit it can be blocked by the parameter *"Activate daily SMS limit"* on the *Setting* tab, *GSM settings* window.
− When the limit is reached and blocked it can be unblocked by the SMS command "SMS RESET". Unblocking and simultaneous counter resetting is performed automatically each day at midnight (at 00:00 hrs).
− The current status of the inputs is visible on the *Inputs* tab and in the bottom bar of the GD-Link software.

5.3   The input controls the output mode

Using this mode, the IN1 input can directly control the REL1 power output.

Set-up description:

− This mode in enabled when the function *"The IN1 input controls the REL1 output"* on the *Function* tab is selected.

Example: *Monitoring of the maximum water level in a tank, including automatic water draining using a water pump.*

− This diagram shows the connection of a level sensor to the IN1 and GND inputs. The REL1 power output switches the 230 V to power the water pump, see Figure 3.
− For REL1 to be switched ON automatically based on IN1 input triggering, it is necessary to enable the parameter *"Activation of the input will switch REL1 ON"*. This ensures the water level triggers the level sensor and the water pump reduces the water level until the level sensor detects a water level reduction.
− To eliminate switching ON the water pump very often we recommend the setup of an appropriate time delay for the IN1 input reaction.
− The IN2 input can be used for the connection of a second water level sensor which can serve for example for reporting an emergency status (tank overload or empty tank).
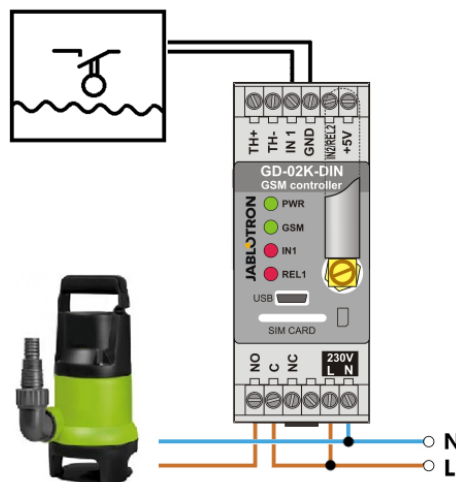

Figure 3: Monitoring of the maximum water level in a tank, including automatic water draining using a water pump.

5.4   Temperature monitoring mode

Using the JB-TS-PT1000 sensor the temperature can be measured in the required place and going over or under the limit values can be reported by SMS.

Set-up description:

− This mode is enabled when the function *"Temperature monitoring"* on the *Function* tab is selected.
− Mind the correct polarity when connecting the temperature sensor (red wire =TH+, white wire =TH-), see Figure 4.
− Using **GD-Link** software on the *Function* tab enable the function *"Temperature monitoring"*.
− On the *Thermometer* tab, *Temperature monitoring setup* window, set the required *"Upper limit"* and *"Lower limit"* values. They can be set within a range of -50 °C to +150 °C.

- For monitoring the limit values, a hysteresis of 0.1 °C to 9 °C can be set (tolerance zone because of thermal fluctuations).
- To enable informative reports about the temperature outside the pre-set limits, you have to select the parameter Activation report REL2 for required users *(Reports – Activation report – REL2)*.

__Caution__: The lower temperature limit always has to be set lower than the upper temperature limit by at least 1 °C because of hysteresis.

An SMS report about a temperature out of the selected range can be sent to phone numbers with Service authorization. For reporting it is necessary to enable by checking the *"Exceeding the upper/lower limit"* option on the *Thermometer* tab, *SMS reports to service phone numbers* window.
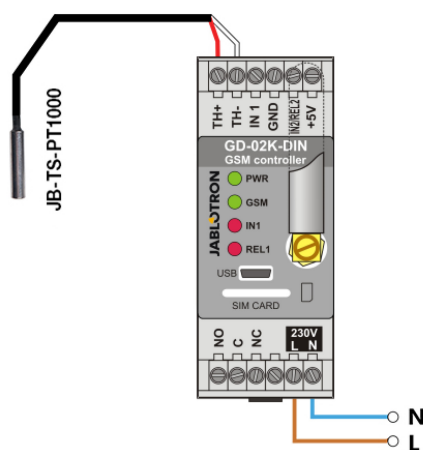

Figure 4: Temperature monitoring.
R – red wire; W – white wire

5.5 Thermostat mode

Connect the JB-TS-PT1000 temperature sensor for this function. The thermostat mode allows controlled switching of the heater by the REL1 output to regulate the temperature in the premises. Pre-set the values of the required and antifreeze temperatures. Both temperatures can be changed by a connected PC (locally or remotely); the user can also change these temperatures remotely using the programming SMS commands TSET and TFRZ (see Table of SMS commands in Chapter 7).

Set-up description:

- This mode in enabled when the function *"Thermostat (REL1)"* on the *Function* tab is selected.
- Mind the correct polarity when connecting the temperature sensor (red wire =TH+, white wire =TH-).
- A controlled device has to be connected via the REL1 power output contacts in this mode. (see Figure 5).
  Warning: pay attention to the maximum switching load of the REL1 power output (230 V / 16 A resistive load).
- On the *Thermostat* tab set the values *"Required temperature"* and *"Antifreeze temperature"*. For monitoring of the limit values, a hysteresis of 0.1 °C to 9 °C can be set (tolerance zone because of thermal fluctuations).
- You can switch the heating modes with the *"Turn on/off"* button in the *Current status* window.
- You can switch between the temperatures remotely with user-set SMS commands. These can be set in the *SMS control commands* window *(Activation/deactivation command)* or with the programming SMS commands ARX and DRX (see Table of SMS commands in Chapter 7).
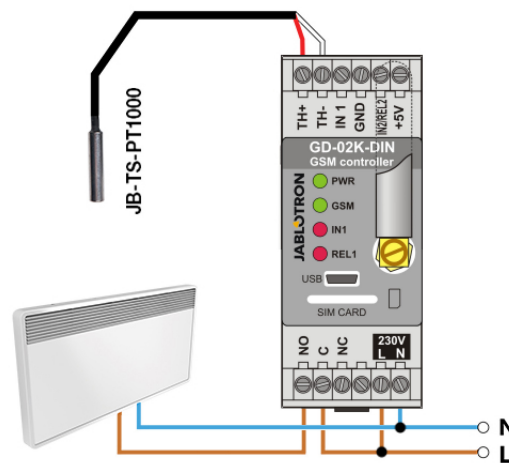

Figure 5: Temperature monitoring and heater control.
R – red wire; W – white wire

5.6 Consumption measurement mode

With this mode, it is possible to evaluate the consumption of various utilities (electrical energy, water, gas etc.) based on the impulse output from the electricity meter, water meter, gas meter or from other meters with an impulse output. For a two-tariff consumption measurement, both tariffs can be distinguished using a relay with switching contact (e.g. UR-01).

__Caution:__ If you want to use a meter owned by the third-party provider (for example an electricity meter on the main switchboard box) you have to contact the provider and make an arrangement related to the way of connection to the pulse output of the meter. This output is usually protected by a seal and requires removal to be accessed. A utility company usually requires the connection of some additional protection according to their guidelines (galvanic isolation etc.). If possible, a much better and cheaper solution might be to install a secondary meter with an impulse contact connected to the GD-02K-DIN.

Set-up description:

- In the **GD-Link** software on the *Function* tab select *"The IN1 input consumption measurement"* function for one-tariff measurement, for two-tariff measurement also select *"The IN2 input consumption measurement"* function.
- Set the *Number of impulses per unit* and the *Measured unit* (e.g. kWh or m^3) on the *Consumption meter* tab.
- If monitoring reaching the daily limit is required, set the relevant parameters (IN1, IN2) in the *Reports* tab.
- You can check the current counter status with the SMS request *STATUS* (see Table of SMS commands in Chapter 7).
- You can also use the automatic SMS function; the current impulse counter status is included. Go to the *Reports* tab and check the option *"Automatic report";* and to the *Setting* tab, *Automatic report* window, where you can set the type of report, reporting period and time.

__Example:__ Monitoring the electric energy consumption

- This mode requires connection between the impulse output 'of the electricity meter and the IN1 or IN2 terminals and the GDN terminal on the GD-02K-DIN (see Figure 6). If the electricity meter is a two-tariff type or if there are two independent electricity meters, both inputs can be used simultaneously. The electricity meter can be single-phase or three-phase.
- In the **GD-Link** software on the *Consumption meter* tab pre-set the values for the counting (current value and daily value) of each meter (IN1 and IN2 tabs). In the *History* tab you can view the status records of both meters.

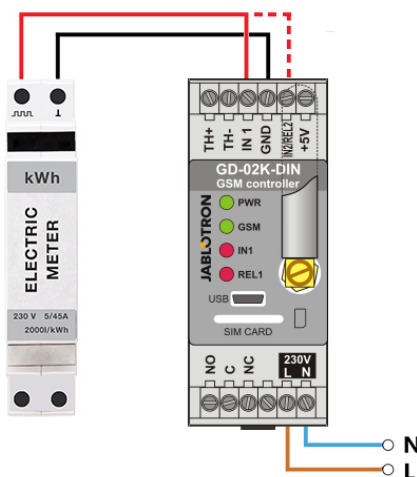# The GD-02K-DIN Universal GSM communicator and controller

Figure 6: Electricity consumption measurement mode.

6. GSM control

The GD-02K-DIN communicator can be controlled by SMS commands or by dialling in.

- To control the device by SMS commands and to set up the SMS reporting, pre-set the authorisation for the specific telephone numbers. Then fill in the control and reported texts for every input and output.
- To control the device by dialling in (ON / OFF / timer) pre-set "Output control by dialling in" for the required REL1 or REL2 outputs at the specific telephone number positions on the "Users" tab.
- When the *"Password"* is set on the *"Setting"* tab it allows you to control the GD-02K-DIN outputs from non-stored telephone numbers (only SMS commands). If control will be performed from stored numbers only, the password can be disabled completely (protection against abuse is identification of the user by its own stored telephone number).
- The current status of the inputs and the outputs is visible in the bottom bar of the GD-Link software.

7. Control, setup and configuration by SMS

The device checks every incoming SMS. If the SMS includes a valid command in a valid format it reacts to it. A correct control command format has to be:

Password, command
(password *comma* command)

Password: a valid access password (factory default PC), can be changed on the "Settings" tab or by a programming SMS with the "NPC" parameter, see Table of SMS commands.

Command: a fixed command or pre-set control text, see Table of SMS commands.

The general rules of SMS command use are as follows:

- The programming SMS always has to contain *"Password"* and *"Command"* separated by a *comma* (except *PC DINFO*).
- The control SMS does not contain the password, only the Command is sent.
- There is no distinction between capital and small letters in the commands.
- Use texts without diacritics (accents) for SMS communication with the GD-02K-DIN.
- Confirmation of a performed SMS command is sent to the telephone number from which the command has been sent.
- If the device receives an SMS with a command syntax error or an SMS is not recognized, the optional parameter *"Forward invalid SMS commands to the service numbers"* on the *"Settings"* tab ensures forwarding of the invalid SMS together with the sender's phone number to the service phone numbers. If an unrecognizable command has been sent, the device answers that the command cannot be executed.

Table of SMS commands:

System SMS commands	
STATUS	Device status request
	Example: STATUS
[PC] DINFO	Device information request
	Example: PC DINFO
[PC], GSM	GSM module restart
	Example: PC,GSM

Programming SMS commands	
[PC], RST	Reset to factory default values
	Example: PC,RST
[PC], NPC, xxx	Factory password change
	Example: PC,NPC,NEWPC changes password from PC to NEWPC
[PC], GPRS, apn, user, pass	Data connection settings
	Example: PC,GPRS,internet,,
[PC], STS, xxx	STATUS command change
	Example: PC,STS,QUERY changes command from STATUS to QUERY
[PC], STN, xxx	Service phone number settings
	Example: PC,STN,+420xxxxxxxxx
[PC], CRD, x, y, z	Automatic credit balance checking settings
	*Example: PC,CRD,*22#,7,300,01*

GSM control mode, chapter 5.1	
[PC], AR[X/Y], xxx	REL1 / REL2 output activation command
	Example: PC,ARX,TURN HEAT ON
[PC], DR[X/Y], xxx	REL1 / REL2 output deactivation command
	Example: PC,DRX,TURN HEAT OFF
[PC], RA[X/Y], xxx	REL1 / REL2 output report switching ON
	Example: PC,RAX,HEAT ON
[PC], RD[X/Y], xxx	REL1 / REL2 output report switching OFF
	Example: PC,RDX,HEAT OFF
[PC], TM[X/Y], xxx	REL1 / REL2 output activation impulse length
	Example: REL1 activation for 5 min: PC,TMX,5M
[PC], AD[X/Y], xxx	REL1 / REL2 output activation by dialling in
	Example: REL1 activation for 5 min: PC,ADX,+420xxxxxx
[PC], LD[X/Y], xxx, [1-99]	REL1 / REL2 output activation by dialling in with limit
	Example: REL1 activation for 5 min: PC,LDX,+420xxxxx,99

Status of the inputs monitoring mode, chapter 5.2	
[PC], AT[A/B], xxx	IN1 / IN2 input report activation
	Example: PC,ATA,DOOR OPEN
[PC], DT[A/B], xxx	IN1 / IN2 input report deactivation
	Example: PC,DTA,DOOR CLOSED
[PC], TN[A/B], xxx	Phone numbers for sending IN1 / IN2 input reports
	Example: PC,TNA,+420xxxxxxxxx

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The input controls the output mode, chapter 5.3	
[PC], AT[A/B], xxx	IN1 / IN2 input report activation
	Example: PC,ATA,DOOR OPEN
[PC], DT[A/B], xxx	IN1 / IN2 input report deactivation
	Example: PC,DTA,DOOR CLOSED
[PC], TN[A/B], xxx	Phone numbers for sending IN1 / IN2 input reports
	Example: PC,TNA,+420xxxxxxxx

Thermostat mode, chapter 5.5	
[PC], TSET, xx.x	Required temperature settings
	Example: PC, TSET, 23.5
[PC], TFRZ, x.x	Antifreeze temperature settings
	Example: PC,TFRZ,5.1
[PC], ARX, xxx	Activation command settings
	Example: PC,ARX,TURN HEAT ON
[PC], DRX, xxx	Deactivation command settings
	Example: PC,ARX,TURN HEAT OFF

Note: [PC] = Access code (password).

Example of a STATUS SMS request:

```
STAV:
GSM:        75%          (GSM signal strength)
SMS:        2            (status of sent SMS counter)
AC:         ON           (status of AC power ON=connected)
BAT:        OK           (status of backup battery)
IN1:        Deactivated  (status of input 1, active/inactive)
            9kWh/7kWh    (status of consumption meter 1, total/day)
IN2:        Activated    (status of input 2, active/inactive)
            3kWh/2kWh    (status of consumption meter 2, total/day)
REL1:       ZAP          (status of output 1, ON/OFF)
REL2:       VYP          (status of output 2, ON/OFF)
T(name):    20.5°C       (current thermometer temperature)
TS(name):   28°C         (current thermostat temperature)
Alarm-H:    30°C         (pre-set upper limit temperature)
Alarm-L:    5°C          (pre-set lower limit temperature)
Date:       2018-12-31   (date when SMS has been sent)
Time:       12:34:56     (time when SMS has been sent)
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8. Technical specifications

Power	230 V AC/50 Hz, protection class II.
Wattage	Average standby 1.2 W (3.5 W relay switched on)
Power loss for switchboard warming	4.8 W
Recommended protection (0.5 A fuse integrated)	1 A
Internal backup battery	Polymer Lithium-ion 300 mAh
Backup time	3 hours
GSM module bands	GSM/GPRS Quad Band 850 / 900 / 1800 / 1900 MHz

Relay 1 contact load:

Maximum switching voltage	250 V AC; 24 V DC
Resistive load (cos φ = 1)	max. 16 A
Inductive, capacitive load (cos φ = 0.4)	max. 3 A
Fluorescent lamps	max. 3 A/690 VA
Light bulbs (halogen lamps)	max. 1000W
Minimum switching DC power	10 mA; 5 V DC

The relay has galvanically separated contacts from the rest of the device and complies with safety requirements for isolation of up to 4 kV.

Input IN1	Input is active when connected to GND, max. 24 V
Universal input/output IN2/REL2	Input is active when connected to GND, max. 24 V
	Output switches to GND, output protection 100 mA, max. voltage 24 V

Inputs IN1 and IN2 are compatible with impulse output of Class B electricity meters according to the EN 62053-31.

TH inputs for digital thermometer (JB-TS-PT1000)	range -30 °C to +125 °C (max. cable length 10 m)
Auxiliary power output	+5 V DC / max.100 mA, no backup
Operational temperature range	0 °C to +40 °C
IP covering	Front panel IP20
Dimensions (no antenna)	90 x 36 x 58 mm
Weight	140 g
Electrical safety	EN 62368-1
EMC	ETSI EN 301 489-7, EN 55024, EN 55032, EN 60730-1
Radio transmissions	ETSI EN 301 511
Can be operated according to	ECC/DEC/(04)06, ERC/DEC/(97)02, ECC/DEC/(06)01

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JABLOTRON ALARMS a.s. hereby declares that the GD-02K-DIN is in compliance with the relevant European Union harmonisation legislation: Directives No: 2014/53/EU, 2014/35/EU, 2014/30/EU, 2011/65/E, when used as intended. The original of the conformity assessment can be found at www.jablotron.com – Downloads section.

UKCA

Disposing of this product correctly will help save valuable resources and prevent any potential negative effects on human health and the environment, which could otherwise arise from inappropriate waste handling. Please return the product to the dealer or contact your local authority for further details of your nearest designated collection point.