Orion ISS

KEYPAD

S2000-K

User's Manual

This User’s Manual is intended to help for studying operability principles and maintenance of the **S2000-K Keypad** of versions 1.04 and above.

Please read the instructions completely before connecting, operating, adjusting, or maintaining this product.

The following terms are used throughout the Manual:

Alarm Loop (or Loop, or LP): The electrical circuit with non-addressable fire or intrusion detectors (or other non-addressable devices) included. Actuation of a single detector brought in an alarm loop causes breaking of the loop as a whole, so the actuated detector can be located only with the accuracy of the alarm loop

Zone: A minimal part of a security and safety installation that can be monitored and controlled independently. Depending on the context, the term ‘zone’ can imply an alarm loop, an addressable detector, a hardwire component, etc.

Partition: A set of zones that can be user controlled as a whole. As a rule, zones fall into partitions depending on their location (e.g., one partition can involve all zones at one individual area)

Arm/Disarm means starting/cancellation monitoring of a loop (zone, partition, system) conditions and signaling alarms in controlled zones

Network Address (Address): The unique number of a device (ranged from 1 to 127) within the Orion local RS-485 network

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FEATURES AND DESIGN

The S2000-K keypad is designed to operate as the part of an Orion Integrated Security System (ISS) which **enables users to be authenticated** via their PIN codes / access devices and to **input authorized commands** to control various functions of the security system, including:

- Observing current statuses of specified system partitions
- Arming specified system partitions
- Disarming specified system partitions
- Limited access into protected premises

The S2000-К keypad is connected to a system interface RS-485 and works under control of an Orion ISS network controller which can be an S2000 / S2000M / S2000L fire and alarm console of version 1.10+ or a personal computer under Orion software.

User pre-registered four-digit PIN codes (or passwords) and control commands are typed on the S2000-К keypad. The S2000-K keypad then transfers entered passwords and commands via the RS-485 interface to the network controller which analyzes the received data, makes decisions to grant or deny access to the requested operations, send relevant commands to for control and indicating equipment and executive devices. The results of processing user requests are returned to the keypad. The dialog between the network controller and a user as well as a result of performing operations are displayed on the S2000-K LCD. Users can also be authenticated by means of access devices such as Touch Memory devices (DS iButtons) or Proximity cards pre-registered by the network controller and presented to one of the Orion ISS readers. After a user has been authenticated all activities permitted to him are carried out by operating with the S2000-К keypad.

The S2000-К keypad can be used also as an **output device for indicating events** occurring in the Orion system. In this mode the messages received by the keypad from the network controller via RS-485 interface are displayed in textual form on the S2000-K LCD. Also these messages are written into the S2000-K non-volatile memory (up to 255 messages) and are available to be reviewed. Receiving alarm messages can be accompanied by the S2000-K light indication and sounding.

The S2000-К is equipped with a tamper switch, so it transmits the network controller the Tamper Alarm and Tamper Restored messages as well as messages about resetting the keypad. In the case when communications with the network controller via RS-485 interface is temporary lost such messages are stored in the keypad non-volatile memory (up to 16 messages). When communication is restored, these messages are sent to the network controller with actual event time in accordance with the internal S2000-K clock.

The S2000-К keypad is to be used in the locations protected against atmospheric precipitation and mechanical damage, and is intended for continuous round-the-clock performance. The S2000-К design does not provide usage in presence of aggressive media, dust, and also in fire-hazardous spaces.

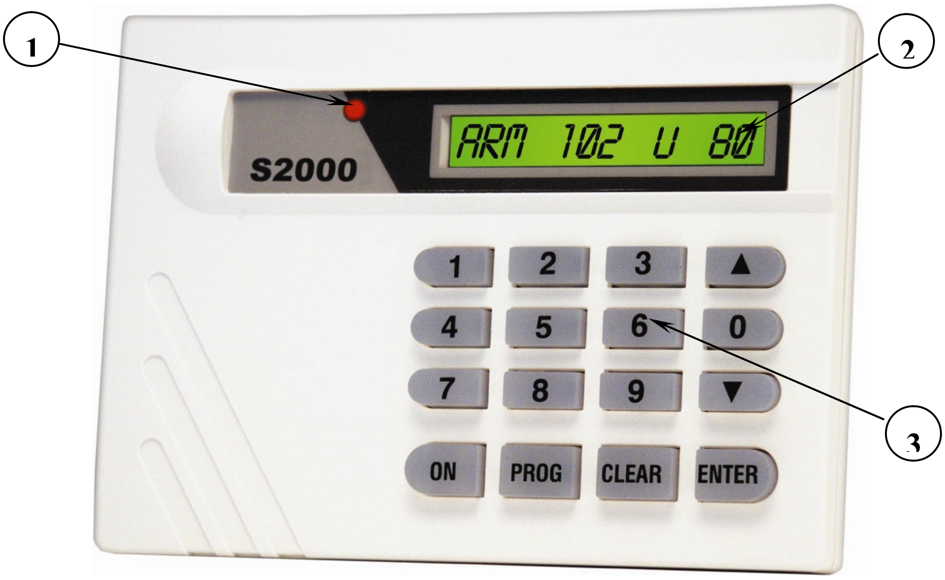
The S2000-K keypad is equipped with the green backlit liquid crystal display (LCD), 1 x 16 characters (**2**). In the quiescent mode the display indicates current time. In the User Command Input mode the LCD displays the dialog between the user and the network controller as well as a result of the requested operations while when the keypad is used as output device the LCD displays the messages received from the network controller.

The S2000-K keypad being in the Event Display mode, its LED indicator (**1**) indicates the fact of receiving a message from the network controller by steady lighting. If, in addition, the mode of indicating alarms is set on the LED indicates raw alarms by blinking.

The buttons (**3**) are used to input user commands, to switch the keypad LCD into display modes (see above), to browse event log records, and to clear alarm messages.

The S2000-K has a built-in beeper for indicating pressing the buttons and the results of performed operations. In the alarm indication mode the beeper produces differentiated beeps depending on the message content.

The non-volatile memory is intended to store the network address of the keypad, the keypad configuration parameters, the keypad event buffer, and the system message log.



SPECIFICATIONS

- ***16 backlit buttons***
- ***16-character backlit LCD***
- ***Non-volatile event log for storing last 255 received events***
- ***Light and Sound Alarm Indication***
- ***Non-volatile event log for storing last 16 keypad events***

Input Voltage	10.2 ÷ 28.4 VDC
Consumed Current	50 mA @ 12 VDC or 25 mA @ 24 VDC
Operating Temperatures	+1 °C to +40 °C
Overall Dimensions	146 × 105 × 35 mm
Enclosure Material	Plastic

OPERATING

INDICATION

S2000-K indication is realized by means of the LCD, the LED indicator, and the audible sounder (beeper).

The S2000-K **LCD** can work either in the quiescent mode (also called the Time Display mode), or in the Command Input mode when the dialog between a user and the system is carried out, or in the Event Display mode when the S2000-K displays system messages received from the network controller (if the last option is set).

In the quiescent mode the LCD of the S2000-K displays the current time, and the LED indicator and beeper are turned off.

When the S2000-K is configured to output system messages, the keypad displays these messages on the LCD screen upon receipting them from the network controller and turns on the LED indicator. To switch from the Event Display mode into the Time Display mode, press the CLEAR button.

Moreover, if communications between the keypad and the network controller is lost, the S2000-K LCD displays the message "COMMUNICATIONS LOST" and the keypad LED flashes once per second. In such a case all user operations with the keypad S2000-K (i.e. typing a password, observing messages, and requesting access) become unavailable.

In the quiescent mode the S2000-K **beeper** is turned off. Pressing the buttons on the keypad is accompanied by short single beeps. To indicate the results of operations such as an access request or arming system partitions the beeper has two special beeps:

Success	Two short beeps
Error	Long single beep

While the S2000-K is operating in the Indicate Alarms mode the beeper is used for indication of alarm messages (see below). To reset the alarm beep it is necessary to press any button.

The S2000-K **LED indicator** accompanies messages received from the network controller (if this mode is set), or indicates loosing connections with it.

No communication via RS-485	Flashes once per second
No messages	Off
A message is received	Lit steady
An alarm message is received	Blinks

ACCESS REQUESTS

When the S2000-К keypad is used in an access control system, to request access into protected premises it is necessary to enter four-digit password (PIN code) which must be registered by the network controller with appropriate privileges. User identification can be made also by means of a Touch Memory device (iButton) or Proximity card registered by the network controller with appropriate privileges and presented to one of the Orion ISS reader which is assigned to this S2000-K keypad (see the *Network Controller Setting* section of this Manual).

For authenticators (that is, electronic access devices and contactless cards) that give the rights of passage through several access points it is necessary to specify the number of the door which is to be opened.

If the presented authenticator is recognized by the network controller and gives access rights for passage through the specified door, the S2000-К displays the ACCESS GRANTED message, and the network controller sends a command for the relevant executive device to unlock the door.

Otherwise the S2000-К gives an Error signal and displays an access reject message with specifying one of the reasons as follows:

ILLEGAL CODE	The authenticator presented is not registered by the network controller
ACCESS DENIED	The authenticator presented has no authorities to gain access via the specified door or access is blocked for this one
WRONG PARTITION	The authenticator presented has no authorities to gain access to the specified partition
FAILED	Command run error

Requesting access is carried out from the S2000-K quiescent mode, which can be reached if necessary by pressing the CLEAR button. Examples of access request using the S2000-K keypad are given below.

Request with the Rights to Access through a Single Door

ENTER CODE:

Switch the S2000-К if necessary into the Time Display mode (see above) and type your four-digit password on the S2000-K keypad (or present your electronic access device to a reader which is assigned to this S2000-К).

ACCESS GRANTED

In success case the positive access message will be displayed on the S2000-K LCD, and the beeper will produce the *Success* signal. Otherwise, the beeper will produce the *Error* audible signal, and an access reject message will be indicated by the display.

After thrice-repeated entering of invalid passwords the keypad blocks input for 30 seconds.

Request with the Rights to Access through Several Doors

ENTER CODE:

Switch the S2000-K, if necessary, into the Time Display mode (see above) and type your four-digit password on the S2000-K keypad (or present your electronic access device to a reader which is assigned to this S2000-K).

⬍DOOR:XXXX

If the entered password (presented access device) is registered in the system and has the relevant access rights, the number of one of the doors accessible to the user will be represented on the LCD. Using buttons ▲ and ▼, select the necessary door number or type it (from 1 to 9999) by number buttons, and then press ENTER.

ACCESS GRANTED

In case of success the positive access message will be displayed on the S2000-K LCD, and the beeper will produce the *Success* signal. Otherwise, the beeper will produce the *Error* audible signal, and an access reject message will be indicated by the display.

After thrice-repeated entering of invalid passwords the keypad blocks input for 30 seconds.

ARMING AND DISARMING

If the S2000-К keypad is used in a fire and intruder alarm Orion system for authorized arming and/or disarming specific system partitions, to execute a required operation it is necessary to enter four-digit user password (PIN code) from the keypad or present the appropriate electronic access device to a reader which is assigned to this S2000-K keypad. The password or access device should be registered by the network controller along with a list of partitions authorized for controlling by the given user and a range of permitted operations such as arming, disarming, both arming and disarming, or only observing statuses (see the Section *Network Controller Setting* of this Manual).

If the presented password (or access device) has dual function in the system and is used also for access into fixed premises, for switching the keypad into partition control mode before input of the password (presenting electronic access device) it is necessary to press the ON button (inputting the password without pressing the ON button in this case will initiate an access request).

After the correct password (electronic access device) is presented, status of one of the user accessible partitions is represented on the S2000-K display. The partitions can be in following statuses:

DISARMED	The partition is disarmed
DISARMING…	The partition is being disarmed at the time
ARMED	The partition has been armed and being in Norm
ARMING...	The partition is being armed at the time
ARMING FAILED	The partition failed to be armed
FAULT	A fault has been occurred in the partition such as open or short failure in a some zone
DISCONNECTED	Communications with some zones of the partition is lost (e.g., no communications via RS-485 with the device whose zones are included into the partition)
INTRUSION ALARM	An Intrusion Alarm in the partition
PANIC ALARM	A Panic Alarm in the partition
FIRE PREALARM	Fire is supposed to be in the partition
FIRE ALARM	There is fire in the partition

Arming and disarming are executed when the S2000-K is in the current time display mode, which can be reached, if necessary, by pressing the CLEAR button. Examples of arming/disarming procedures using the S2000-K keypad are given below.

Partition Arming Procedure

ENTER CODE:

Switch the S2000-K, if necessary, into the current time display mode (see above). If the presented authenticator is intended not only to arm/disarm but also to gain access, press the ON button to switch the display to the Command Input mode. Type four-digit user password on the S2000-K keypad or present your electronic access device to a reader which is assigned to this S2000-K keypad.

If the entered password is not identified by the network controller, the S2000-K produces the *Error* beep and displays the ILLEGAL CODE message followed by switching into the Time Display mode. After thrice-repeated entering of invalid passwords the keypad blocks inputting password for 30 seconds.

⬍ 1200: DISARMED

If the password (access device) is correct, the keypad displays a status of the first partition accessible to the user (see above). The example shows partition 1200 being in DISARMED status.

To review the statuses of all accessible partitions scroll the list using the ▲ and ▼ or type numbers of the required partitions using the relevant S2000-K buttons.

To arm a partition select it number from the list using the ▲ and ▼ buttons or enter the number by the keypad numeric buttons, and then press ENTER.

⬍ ARM

Menu **⬍ARM** will appear on the display.

Using the ▲ and ▼ buttons select **⬍ARM** or **⬍DISARM** (if the user has no rights for arming or disarming, the appropriate menu will be unavailable). Select **⬍ARM** and press ENTER.

If arming was successful, the S2000-K produces the *Success* beep and displays the new partition status: ⬍1200: ARMED.

Otherwise, the S2000-K will produce the *Error* beep and display an error message such as WRONG PARTITION, FAILED or ARMING FAILED.

ARM FAIL 003/010

In the showed case the zone 003/010 is not armed. Here the 003 is for the device address into the RS-485 interface and the 010 is the number of the device's alarm loop which arming has appeared to be unsuccessful.

Using the ▲ and ▼ buttons, it is possible to review if there are other non-armed zones in the partition.

To return the display back to indicate the partition status and to proceed to the other partitions press CLEAR or ENTER.

Partition Disarming Procedure

ENTER CODE:

Switch the S2000-K if necessary into the Time Display mode. If the presented authenticator is intended not only to arm/disarm but also to gain access, press the ON button to switch the display to the Command Input mode. Type four-digit user password on the S2000-K keypad or present your electronic access device to a reader which is assigned to this S2000-K keypad.

If entered password (presented access device) is not identified by the network controller, the S2000-K produces the *Error* beep and displays the ILLEGAL CODE message followed by switching to the Time Display mode. After thrice-repeated entering of invalid passwords the keypad blocks password inputting for 30 seconds.

⬍ 1200: ARMED

If the password (electronic access device) is correct, the keypad displays the status of the first partition accessible to the user. The example shows the 1200 partition being in the ARMED status. Select the proper partition using ▲ and ▼ buttons or enter the number by the keypad buttons, and then press ENTER.

⬍ DISARM

To disarm the partition select ⬍**DISARMING** from the command menu and press ENTER.

If partition disarming was successful, the keypad produces the *Success* beep and displays the new partition status: ⬍1200: DISARMED. In case of negative result the keypad will produce the *Error* beep and display an error message such as WRONG PARTITION or FAILED.

REVIEWING SYSTEM EVENTS AND PROCESSING ALARMS

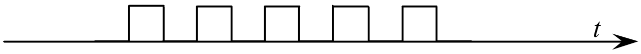
The Event Display mode and the Indicate Alarms mode (for the messages received from the network controller) are optional and should be set specially while configuring the system (see the Section *Programming the S2000-K to Display Events and Indicate Alarms* of this Manual). For such the modes the LCD of the keypad displays defined for this keypad messages about the events of certain type occurred in specified partitions of the Orion system such as arming and disarming zones and partitions, alarms, faults, etc. (the full list of supported messages is given in the Appendix to this Manual).

A message from the network controller is displayed on the keypad LCD for 15 seconds, being accompanied by turning on the LED indicator, and then the display switches into the Time Display mode. If two or more messages are received simultaneously, the keypad displays them consistently during a second each, the last message being displayed for 15 seconds. For forced exit into the Time Display mode it is necessary to press CLEAR.

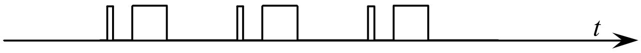
The last 255 received messages are stored in the S2000-K non-volatile memory. The buttons ▲ and ▼ are intended to browse the message log, with scrolling messages in direct chronological order being executed by the ▲ button, and scrolling in reverse order being executed by the ▼ button. To review the time of message delivery press and hold the **0** button.

If the Display Events mode and the Indicate Alarms mode are set on (see the *Programming the S2000-K to Display Events and Indicate Alarms* section of this manual), then receiving an alarm message from the network controller causes the S2000-K keypad to turn its LED indicator on in blinking mode, output the message on the display and turn on the beeper (except the PANIC ALARM message). The type of a sound signal (the supported sound patterns are showed below) allows the operator to identify the alarm message type. The sound signal can be stopped by pressing any S2000-K button.

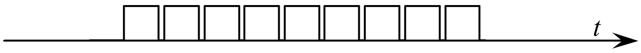
INTRUSION ALARM



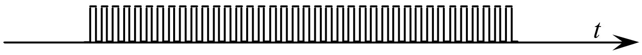
FIRE PREALARM



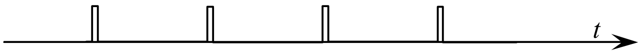
FIRE ALARM



TAMPER ALARM
LOOP DISCONNECTED
DEVICE RESET
COMMUNICATIONS LOST



LOOP SHORT FAILURE
LOOP OPEN FAILURE
POWER FAILED



To confirm receiving of an alarm message, press the ENTER button. After that the alarm is considered to be accepted, the LED indicator turns off, and the display switches into the Time Display mode. The alarm message also can be dropped from the display using the CLEAR button. In the last case display also switches into the Time Display mode, but message reception is considered to be not confirmed, and the LED indicator continues to work in blinking mode. To process the alarm messages (to confirm receiving) from the Time Display mode press ENTER, and then by means of ▲ and ▼ buttons select the required message and confirm its reception by repeated pressing of the ENTER button.

NOTE! Processing alarms by means of the S2000-K keypad means only confirmation of their receiving by the operator and does not change a status of the alarm system: when an alarm is “unset” by the S2000-K operator, the actual system zone keeps being in the alarm status as well as resetting alarms in the alarm system does not lead to resetting this alarm for the S2000-K.

The alarms, unlike other messages (provided that the alarm indication mode is set for the S2000-K) are displayed by the S2000-K up to an operator response (CLEAR or ENTER) or until the S2000-K keypad receives a next alarm message with the same or higher alarm level. If several alarm messages are received by the S2000-K keypad at the same time, a message with the highest alarm level is displayed. The main groups of messages in ascending alarm level order are shown below:

ARMING FAILED (the minimum priority)

LOOP SHORT FAILURE, LOOP OPEN FAILURE, POWER FAILED
(a local fault)

DEVICE RESET, TAMPER ALARM, DEVICE-TO-CONTROLLER COMMUNICATIONS LOST
(a fault or sabotage)

INTRUSION ALARM

PANIC ALARM (DURESS ALARM)

FIRE PREALARM

FIRE ALARM (the maximum priority)

KEYPAD OPERATIONS SUMMARY

Requesting Access

?

Switch the S2000-K display to the Time Display mode (if necessary)	CLEAR
Type your password (or present your access device)	
Select the proper door from the list of available ones	▲ or ▼, or a door #
Request access via the selected door	ENTER

Arming/Disarming

?

Switch the S2000-K to the Time Display mode (if necessary)	CLEAR
Turn arming / disarming on (if necessary)	ON
Type your password (or present your access device)	
Review statuses of available partitions	▲ or ▼
Select the relevant partition from the list of available ones	▲ or ▼, or a door #
Enter the arming / disarming menu	ENTER
Select the command (if available)	▲ or ▼
Confirm the selected command	ENTER

Reviewing System Messages

?

Review the event log	ENTER
Browse the event log forward (from the Time Display mode)	▲
Browse the event log backward (from the Time Display mode)	▼
View message time	**0**
Switch the LCD to the Time Display mode	CLEAR

Processing Alarms

?

Confirm receiving an alarm	ENTER
Drop the alarm without confirmation	CLEAR
Process alarm (if there are raw alarms)	ENTER
Observe the list of alarms	▲ or ▼
Stop sounding	Press a key

TRANSMITTING S2000-K EVENTS TO THE NETWORK CONTROLLER

The S2000-K keypad automatically transmits the network controller which this one is connected to the messages about its current status such as:

DEVICE RESET	
TAMPER ALARM	The device enclosure has been open
TAMPER RESTORED	The device enclosure has been closed

The keypad provides buffering of events that should be transmitted to the network controller via RS-485 interface in case of communication loss. After a minute since an event has occurred but not transmitted the event is assigned to a time in accordance with the internal keypad clock. The event buffer capacity is 16 events.

INSTALLATION

There are no potential hazard electrical circuits within the S2000-K.

Do SHUT OFF the keypad power before wiring and maintaining the S2000-K

MOUNTING

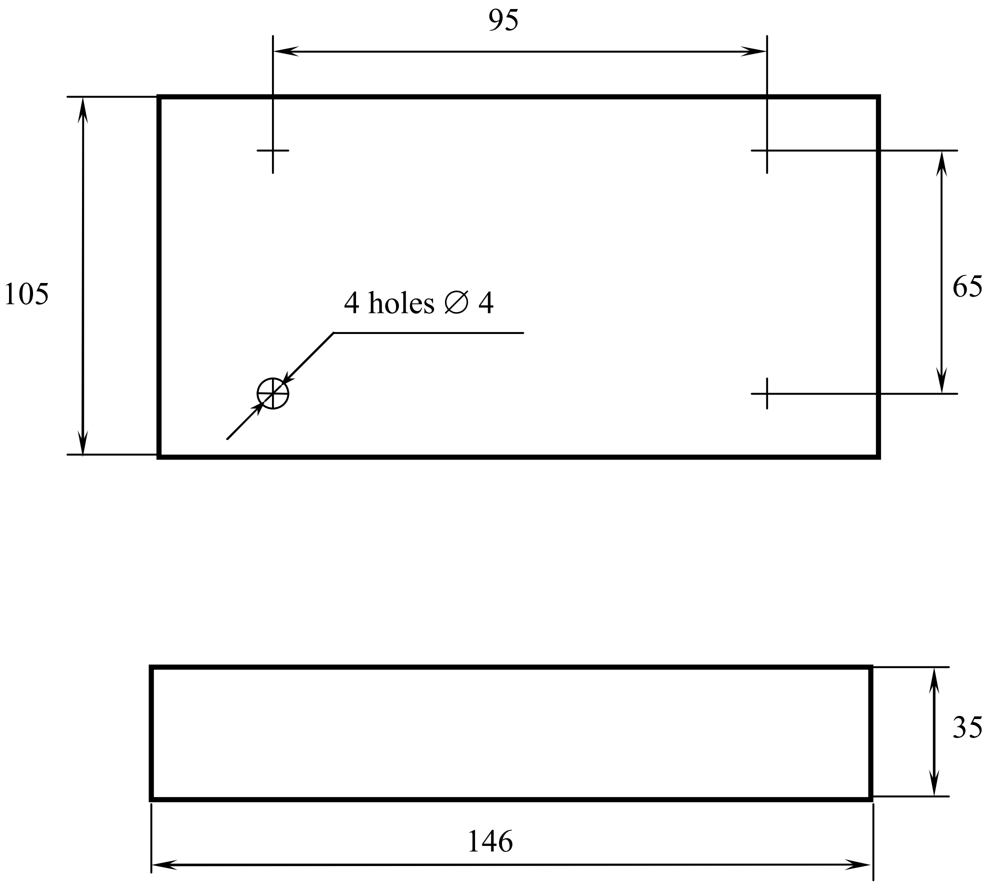


Figure 1. S2000-K Overall and Mounting Dimensions

The S2000-K is to be mounted on walls or other constructions within the premises which are protected against atmospheric fallouts, mechanical damage, and unauthorized access.

Select the mounting location that is to be approximately 1.5 m above the floor.

The S2000-K overall and mounting dimensions are shown in Figure 1.

WIRING

Mount and wire the S2000-K as shown in Figure 2. Wires are connected to the S2000-K by means of the screw terminal blocks.

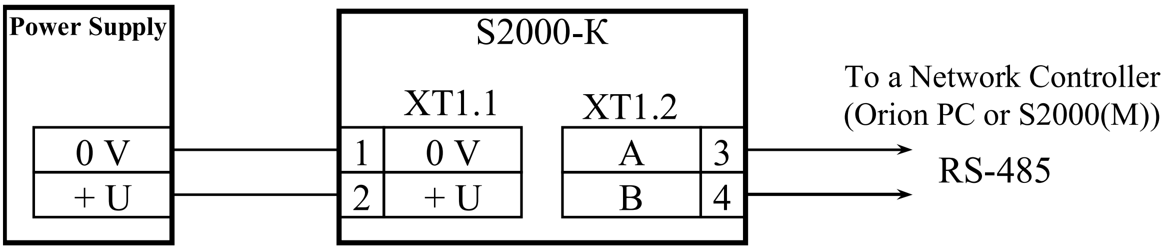


Figure 2. S2000-K Wiring Diagram

Connecting the Orion RS-485 Interface Bus

To connect the S2000-K to the network controller via the RS-485 interface bus connect **A** and **B** terminals of the XT1.2 terminal block to the **A** and **B** wires of the RS-485 bus correspondently. If the S2000-K is the first or the last device within the RS-485 bus, add the supplied termination resistor 620 Ω across the **A** and **B** terminals of the XT1.2.

WARNING! If the RS-485 interface bus is quite long (more than 1000 meters), use twisted-pair cabling to connect the devices. The resistance value of each RS-485 interface line (A or B) measured between the network controller and the most distant device MUST NOT exceed 200 Ω.

Connecting the Power Supply

Connect a direct power supply 10÷28 V @ 100 mA to the XT1.1 terminals of the S2000-K as shown in Figure 2 coupling the 0 V circuit of the S2000-K with the 0 V circuit of the network controller. If both the devices are powered by the same power supply, coupling can be omitted.

GETTING STARTED

After mounting and wiring the S2000-K, turn its power on. The keypad LCD shall backlight, the keypad sounder shall respond with a beep. The S2000-K being communicated with the network controller over the RS-485 interface, the keypad LCD shall display the current time. Otherwise, the keypad LCD shall display NO RS485 LINE, the keypad LED flashing once per a second.

In order the S2000-K to operate as a part of an Orion system it must be assigned to a unique network address (see Section *Programming the Network Address of the S2000-K* of this Manual).

PROGRAMMING

After installing the S2000-K, set keypad configuration parameters and modify the network controller database in order to use the S2000-K as a part of the Orion system.

To program the S2000-K connect it to a personal computer via one of the Bolid manufactured interface converters such as S2000-PI, PI-GR, S2000(M) in the Converter Mode, S2000-USB, USB-RS485, etc.. Install the *Orion Device Configuration Tool*, the *UProg*, on the computer. A fresh version of the UProg can be downloaded from the site of the Bolid Company at the address of www.bolid.com.

The network address of the S2000-K can also be programmed with the help of the tools of the network controller being in use.

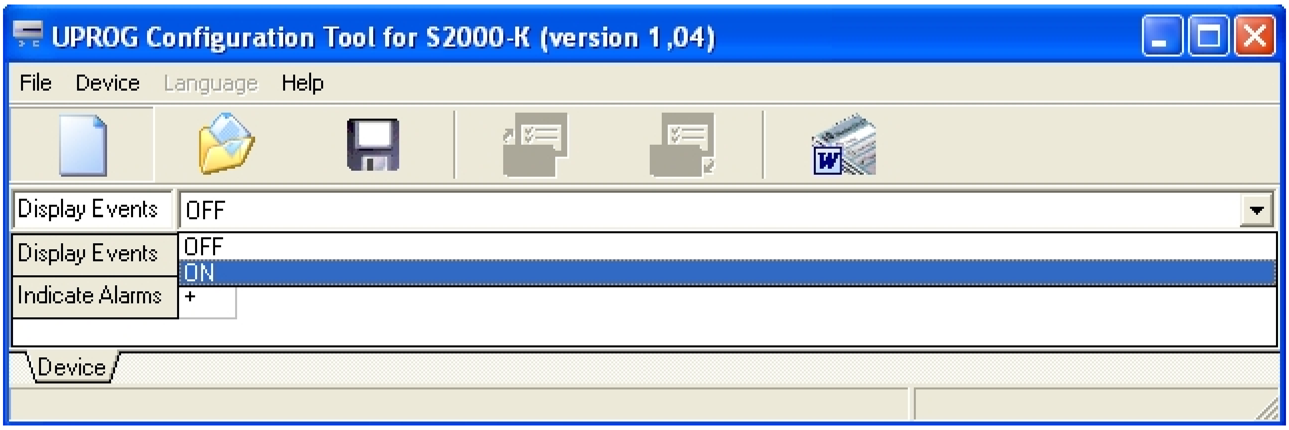
To program the network controller use either the *PProg Console Programming Tool* (if an S2000/S2000M/S2000L controls the system) or *Database Administrator Software* tools (if the system operates under the Orion Software).

PROGRAMMING THE KEYPAD

The S2000-K keypad can be programmed by means of the UProg Configuration Tool.

To install the UProg, download its archive to the PC and unpack it to the relevant directory (for example, the C:/Program Files/UProg). Run the UProg.exe file or create its shortcut on the desktop.

1. Find the devices connected to the computer by using the *Device* → *Read Device Configuration* command, or pressing <*Ctrl+F3*>, or selecting on the Toolbar. Select the proper number of the COM port the keypad is connected to in the Search Devices window.
2. Upon finding all the connected devices UProg outputs the list of the devices along with their network addresses and version numbers on the display. Select the relevant S2000-K keypad and press the *Select* command.



Display Events OFF

Display Events	OFF ON
Indicate Alarms	+

Figure 3

3. The UProg will display the current settings of the S2000-K which can be revised (see Figure 3).

To reach the S2000-K settings you can also read the keypad configuration from a data storage device using the *File → Load Configuration File* command (or the <*F3*> button on the PC keyboard, or the tool).

Moreover, you can create a new configuration file for the S2000-K by means of the

File → New Configuration command (or <*Ctrl+N*> buttons on the PC keyboard, or the tool from the Toolbar).

The amended or newly created configuration can be:

Loaded into the keypad memory	, *Device → Write Configuration to This Device*
Loaded into the memory of another S2000-K connected to the PC, while specifying the new network address	*Device → Write Configuration to Another Device*
Written into a file having an internal UProg format with the *.cnu* extension	, <*F2*>, *File → Save Configuration to File*
Written as a text into an MS Word file	, «*File*» → «*Экспорт конфигурации в Microsoft Word*»

The S2000-K stores its settings in its non-volatile memory.

To identify the S2000-K keypad within a group of devices of an Orion system, *the keypad must be assigned to a unique number within the RS-485 interface line* — the network address ranged from 1 to 127 (see below). The factory setting for the network address of each Orion system device is 127.

If the keypad is supposed to be used for displaying system events and indicating system alarms remotely, this one must be programmed so as it can receive data from the network controller (see below).

Programming the Network Address of the S2000-K

The network address of the S2000-K can also be programmed by means of S2000(M) console tools as described in the Manual of the console being in use.

To define the network address of the S2000-K by means of the UProg Configuration Tool, select the *Device → Change Device Address* command and enter the proper address into the appeared dialog box).

The specified address of the S2000-K can be unset to its factory value (127). To do this, remove the keypad top cover and press the tamper switch by long-long-long-short pressing. Here the "long" means "for more than 1 s" while the "short" means "for no more than half of a second". The pauses between pressings shall not exceed half a second each.

Programming the S2000-K to Display Events and Indicate Alarms

In order the S2000-K keypad can display system events received from the network controller, the special keypad option, *Display Events*, must be enabled. If, moreover, the keypad is supposed to indicate system alarms by flashing its LED and issuing various sound signals, the *Indicate Alarms* keypad option must be activated.

WARNING! In order to use the keypad for displaying messages and indicating alarms you MUST ALSO REVISE settings of the network controller (see page 31).

By default, displaying system event messages and indicating alarms are disabled for an S2000-K.

To activate these options, double click the left mouse button on the proper field or select the relevant option and set the proper value from the dropdown list at the top right corner of the program window (see Figure 3). Note, that alarms can be indicated only if events are being received from the network controller, so *always enable the Displaying Events option when you have activated the Indicate Alarms option*.

NETWORK CONTROLLER SETTINGS

The network controller can be programmed either by means of the PProg Console Configuration Tool (if an S2000/S2000M/S2000/L is used as the network controller) or with the help of the Orion Database Administrator Software (if the system operates under an Orion Software). Full description of the network controller programming process can be found in the Manual for the network controller being in use.

To program a network controller for operating an S2000-K keypad, the keypad descriptor along with its network address is to be enrolled to the controller database (see below).

If the S2000-K keypad is to be used for entering user commands, do the following:

- Program in the controller database a list of users along with their authenticators (digital PIN codes or codes of access devices such as iButtons or Proximity cards) which are enabled to manage the system from the keypad, and
- Program the specific rights of these users to control specific partitions of the Orion system (Access Groups), and
- Enable managing the partitions by means the S2000-K keypad in question (see below)

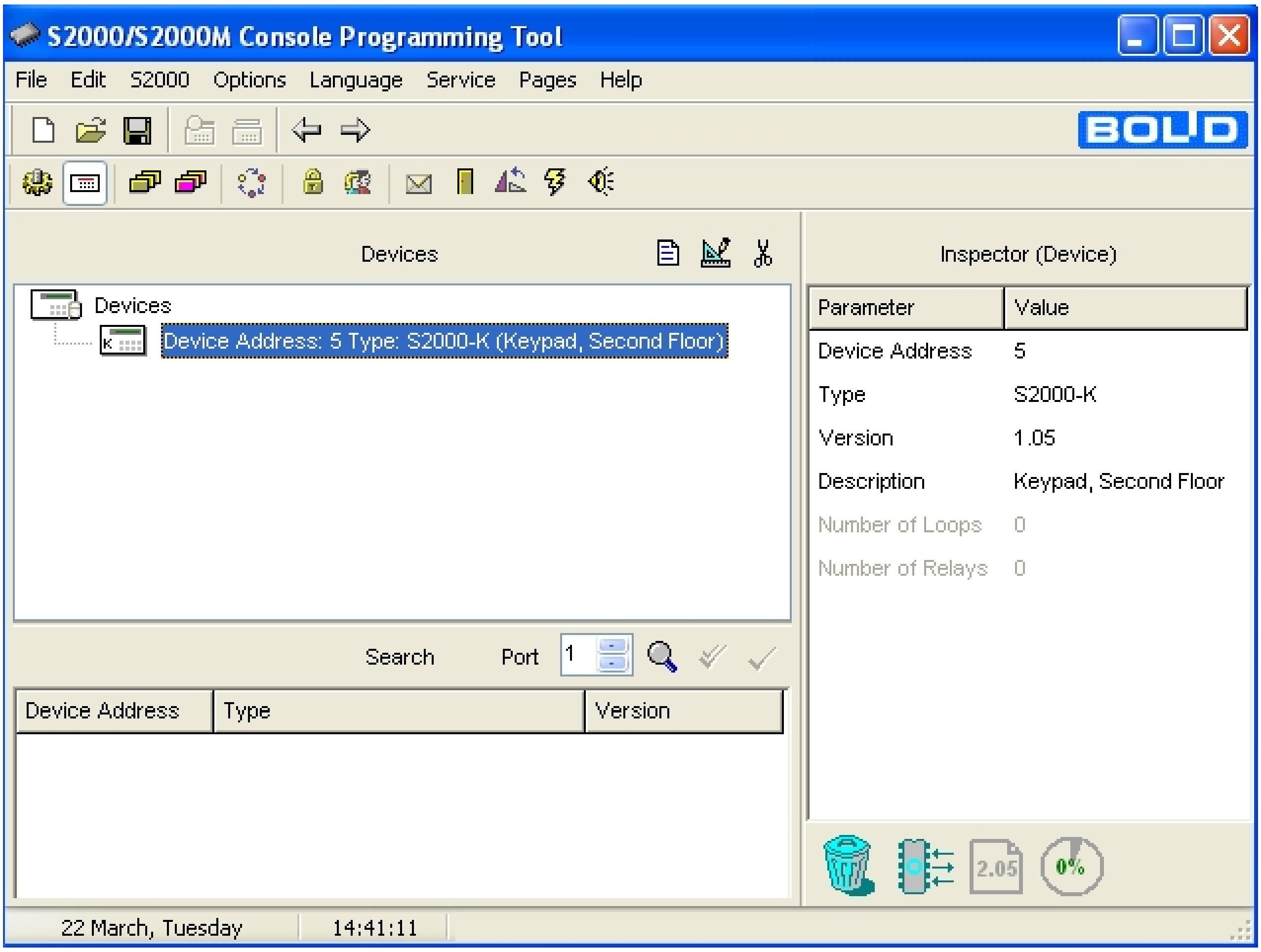
If the S2000-K keypad is to be used for visualizing system events and indicating alarms, adjust the mechanism of translating system events from the network controller to the S2000-K (see below).

Further in this Manual we describe some procedures of programming an S2000/S2000M/S2000L console with the help of PProg Console Programming Tool. These and other common procedures are described more closely in the Manual of the console being in use (or in the Database Administrator Manual if the system operates under the Orion Software).

A fresh version of the PProg can be downloaded from the Bolid site at the address of www.bolid.com.

How to enroll the S2000-K to the Console Database Using PProg

1. Run PProg.exe and find the devices connected to the computer by means of the *S2000 → Read Configuration* command. As a result, the program outputs the list of found devices along with their addresses, types, and version numbers.
2. Add the S2000-K descriptor to the device tree by dragging them from the *Search* window and dropping on the *Devices* window (see Figure 4). If necessary, assign the keypad to a textual description or revise its other parameters in the *Inspector (Device)* window.



S2000/S2000M Console Programming Tool
File Edit S2000 Options Language Service Pages Help
BOLID
Devices
Inspector (Device)
Search
Port
2.05
0%

Devices
- Device Address: 5 Type: S2000-K (Keypad, Second Floor)

Parameter	Value
Device Address	5
Type	S2000-K
Version	1.05
Description	Keypad, Second Floor
Number of Loops	0
Number of Relays	0

Port: 1

Device Address	Type	Version

22 March, Tuesday | 14:41:11

Figure 4

Also, you can add the S2000-K descriptor to the console database by means of the 🗎 tool from the Devices window toolbar, defining all the keypad parameters manually.

Programming the Console for Receiving Commands from the Keypad

In order to use the S2000-K as a device for input user control commands, define in the console database:

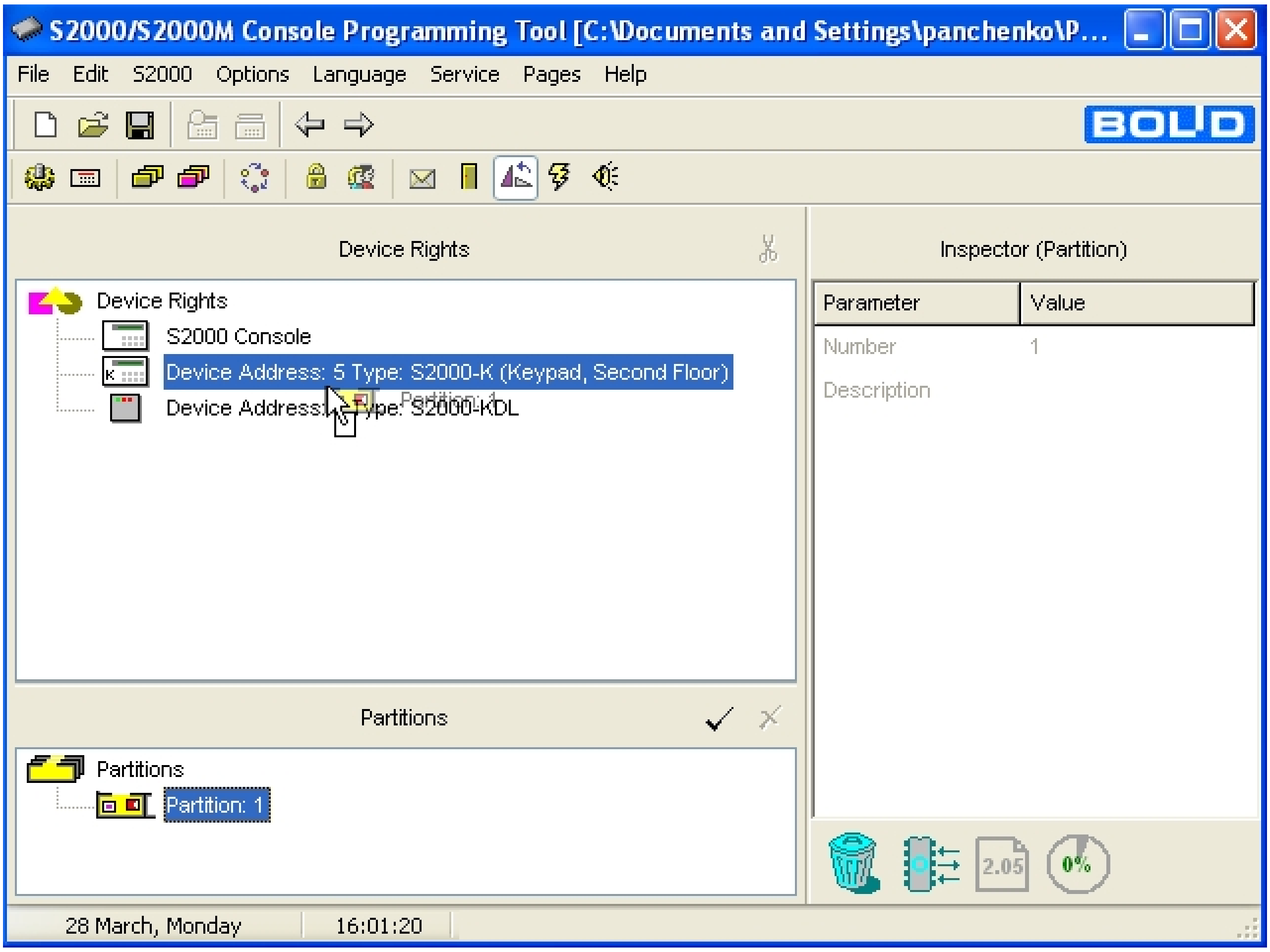
- Rights of specific users to control specific system partitions, and
- Rights of the keypad to be used as a device controlling these partitions

User rights are defined by means of including users to Access Groups programmed for the console and assigned to these partitions as well as available operations for these partitions, namely arming and disarming, arming only, disarming only, or status observing only. Users are authenticated in an Orion system via programmed digital PIN codes or registered electronic access devices such as iButtons or Proximity cards. Presenting a user authenticator to one of the system reader is treated as a control command. The procedures of programming user rights are common and out of the scope of this Manual.

If the S2000-K is used for authorized access requests, each user should be assigned to an access code for passages through the specific doors. An access code can be used both for access control and arming/disarming the S2000-K.

Keypad rights are defined by specifying in the controller database the list of partitions which can be managed using the S2000-K. There are two ways for users to be authorized by the system to enter partition control commands using the S2000-K. The first way is to enter a digital PIN code directly from the S2000-K keypad. The second way is to present an electronic access device (iButton or Proximity card) to a reader connected to another device in the same RS-485 bus (such as S2000-4, S2000-2, S2000-KDL, etc.) and then operate the S2000-K to control available partitions. The last combined mechanism provides both enhanced security due to using electronic access devices and flexible and versatile control enabling users to select partitions and actions individually via a menu and to track system responses on the keypad LCD.

For the PProg, the keypad rights are programmed using the *Device Rights* tab (see Figure 5). The upper window will contain the list of devices enrolled in the console database, the bottom window displaying the list of system partitions.


S2000/S2000M Console Programming Tool [C:\Documents and Settings\panchenko\P...

Device Rights

- Device Rights
  - S2000 Console
  - Device Address: 5 Type: S2000-K (Keypad, Second Floor)
  - Device Address: 6 Type: S2000-KDL

Partitions

- Partitions
  - Partition: 1

Inspector (Partition)

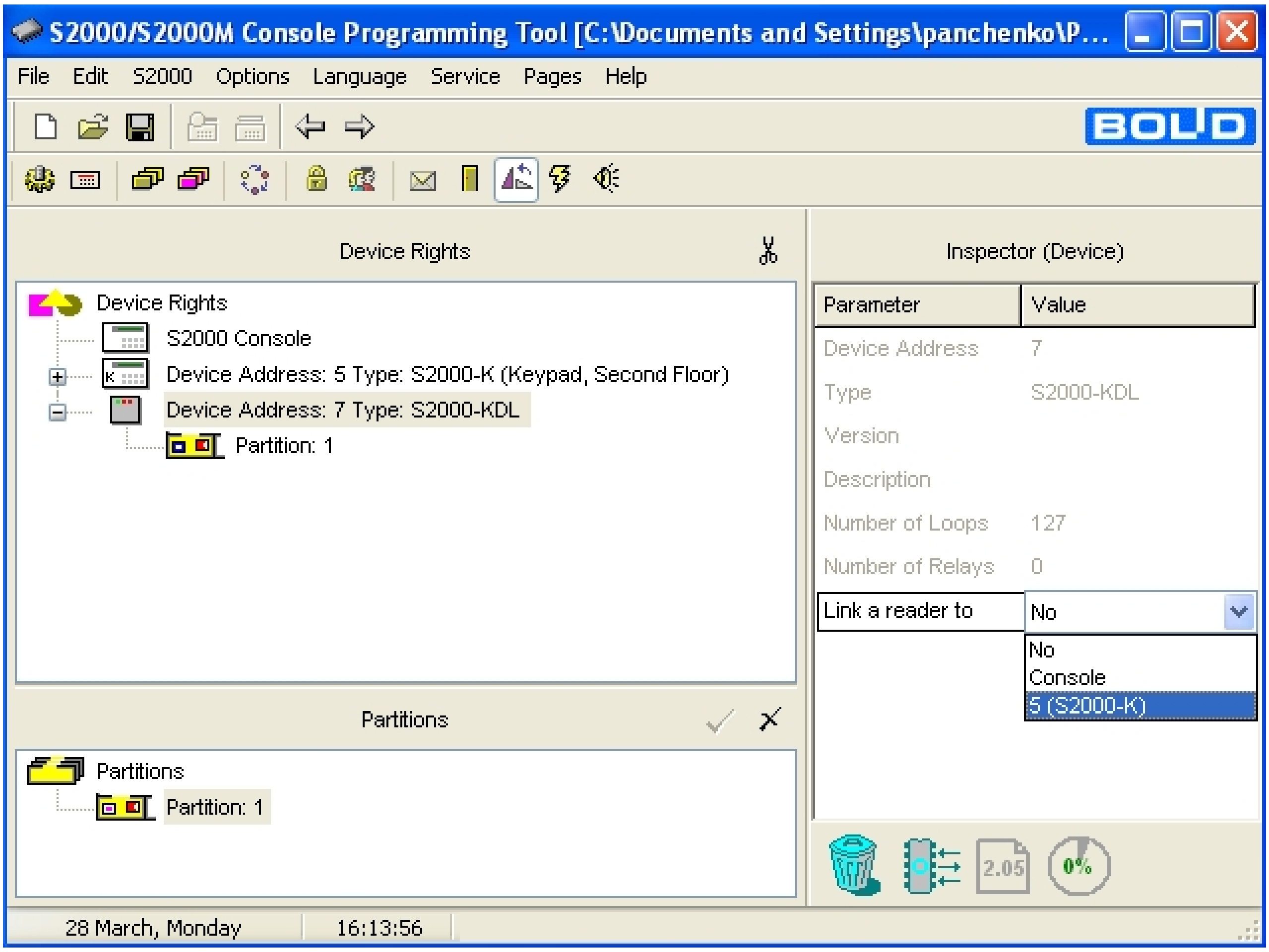
Parameter	Value
Number	1
Description	

28 March, Monday 16:01:20

Figure 5

To assign the S2000-K keypad to the list of partitions provided that users will be authorized via entering their PIN codes directly from the keypad, drag and drop the relevant partition descriptors from the bottom window on the keypad descriptor in the Device Rights window as shown in Figure 5.

To control partitions by the combined way of authorization/control, firstly assign the controlled partition (partitions) to a device whose reader will be used for user authentication. (In our example it will be the S2000-KDL – see Figure 7.) Then select the device in the Device Rights window and define its "*Link a Reader to*" parameter in the Inspector window specifying the S2000-K in question as the device which is supposed to control partitions after user authentication by means of presenting access device to the reader of the specified S2000-KDL.



Device Rights
- S2000 Console
- Device Address: 5 Type: S2000-K (Keypad, Second Floor)
- Device Address: 7 Type: S2000-KDL
  - Partition: 1

Partitions
- Partition: 1

Parameter	Value
Device Address	7
Type	S2000-KDL
Version	
Description	
Number of Loops	127
Number of Relays	0
Link a reader to	No

No
Console
5 (S2000-K)

Figure 6

Programming the Mechanism of Translating Events

To program the network controller to translate events to the specified S2000-K do the following:

- Define in the controller database the list of partitions which events will be translated to the S2000-K, then
- Specify the S2000-K as the device which the events will be translated to, and
- Define the types of events that are enabled to be translated to the S2000-K for displaying

For the PProg, use the following procedure.

1. Select the *Partitions* tab by pressing 🗗 on the Page Icon Toolbar, or browsing pages by arrow buttons on the Quick Access Toolbar, or activating the Pages→Partitions→Partitions menu command. Add a new partition descriptor by clicking 🗎 (see Figure 7).

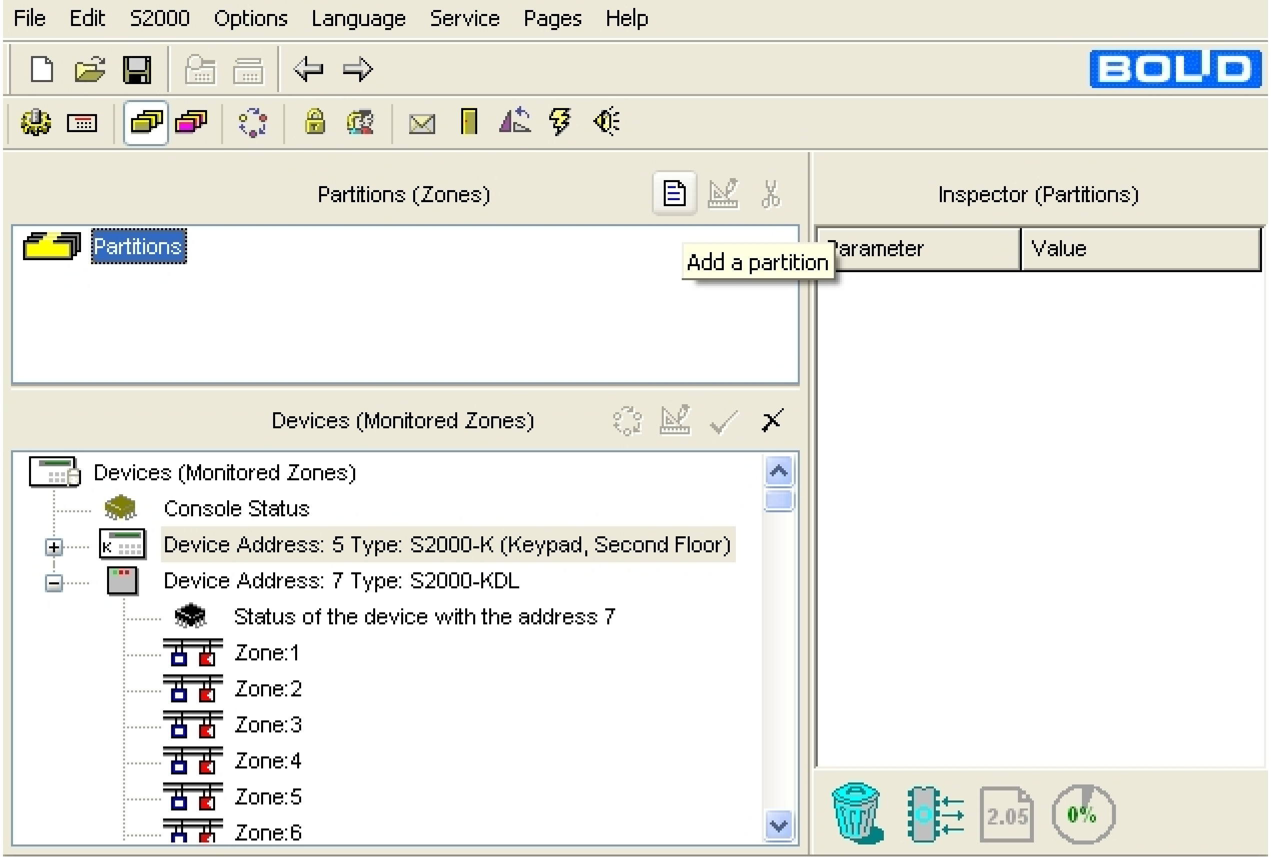
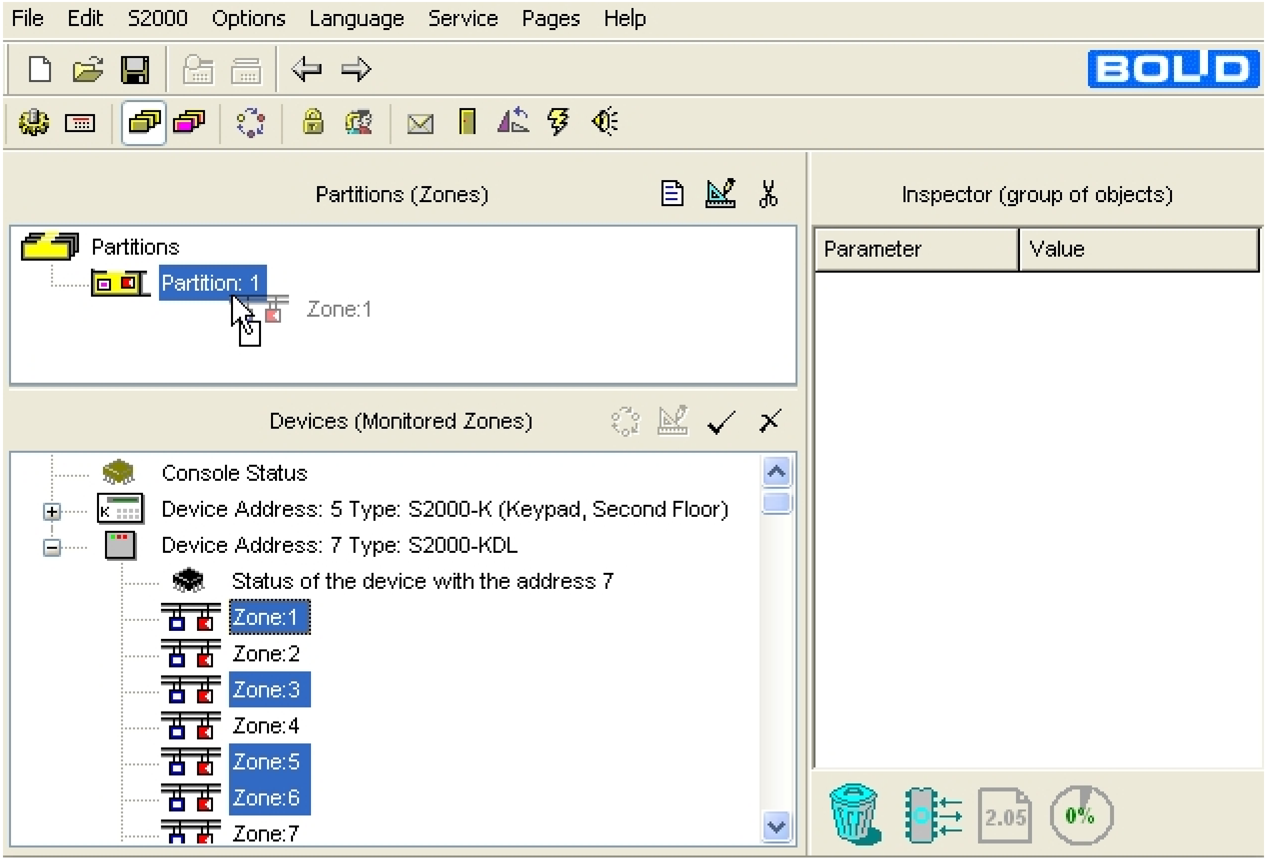


Figure 7

Then, in the bottom window select a group of the zones which will be included to the new partition and drag and drop them on the partition descriptor (see Figure 8 and Figure 9).

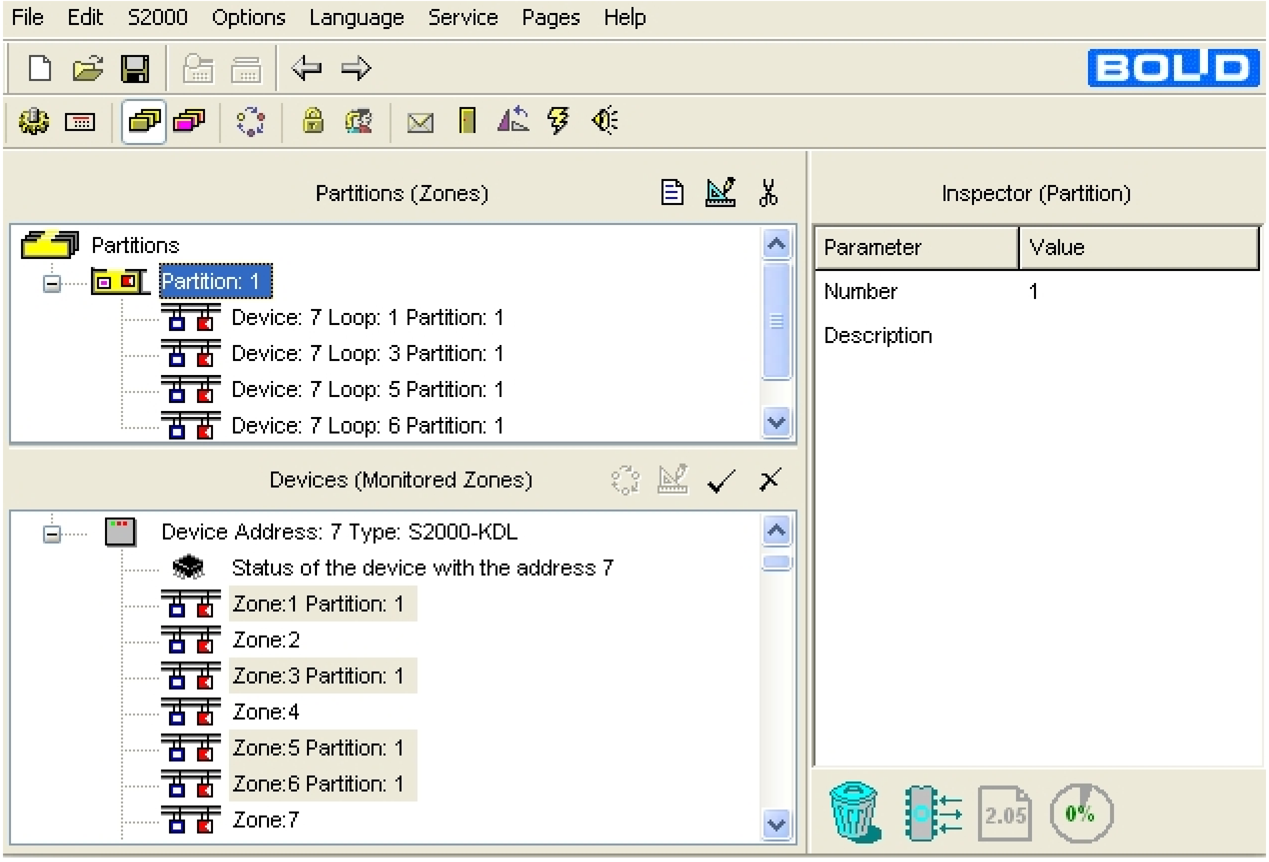


Partitions
Partition: 1
Zone:1

Parameter	Value

Console Status
Device Address: 5 Type: S2000-K (Keypad, Second Floor)
Device Address: 7 Type: S2000-KDL
Status of the device with the address 7
Zone:1
Zone:2
Zone:3
Zone:4
Zone:5
Zone:6
Zone:7

Figure 8



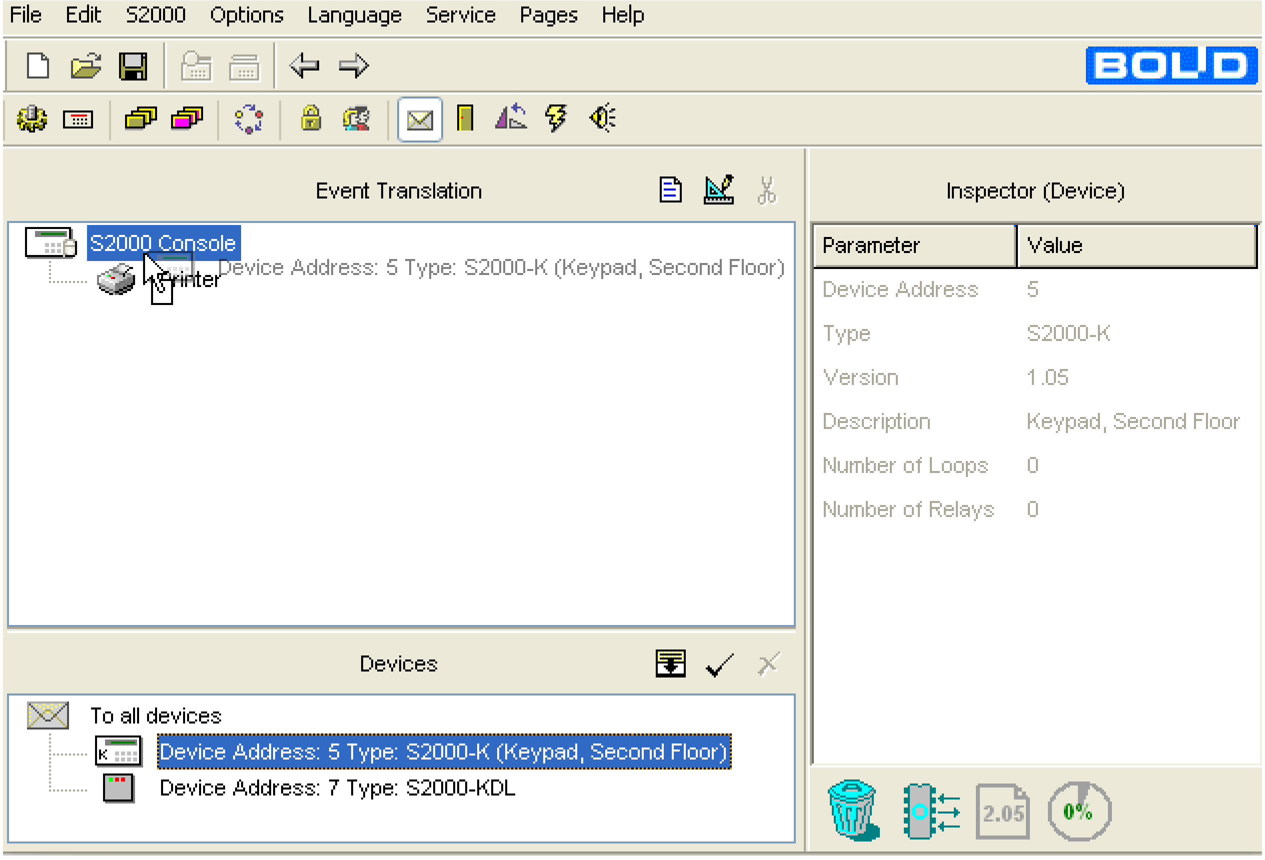
Partitions
Partition: 1
Device: 7 Loop: 1 Partition: 1
Device: 7 Loop: 3 Partition: 1
Device: 7 Loop: 5 Partition: 1
Device: 7 Loop: 6 Partition: 1

Parameter	Value
Number	1
Description	

Device Address: 7 Type: S2000-KDL
Status of the device with the address 7
Zone:1 Partition: 1
Zone:2
Zone:3 Partition: 1
Zone:4
Zone:5 Partition: 1
Zone:6 Partition: 1
Zone:7

Figure 9

2. Specify the keypad as the device the events in the selected partitions will be translated to. For doing so, go to the *Event Translation* tab by pressing ✉, or browsing arrow buttons on the Quick Access Toolbar, or selecting the Pages→Others→Event Translation menu command. Drag the keypad descriptor in the Devices window and drop them on the device tree in the Event Translation window (see Figure 10).



S2000 Console

Printer

Device Address: 5 Type: S2000-K (Keypad, Second Floor)

To all devices

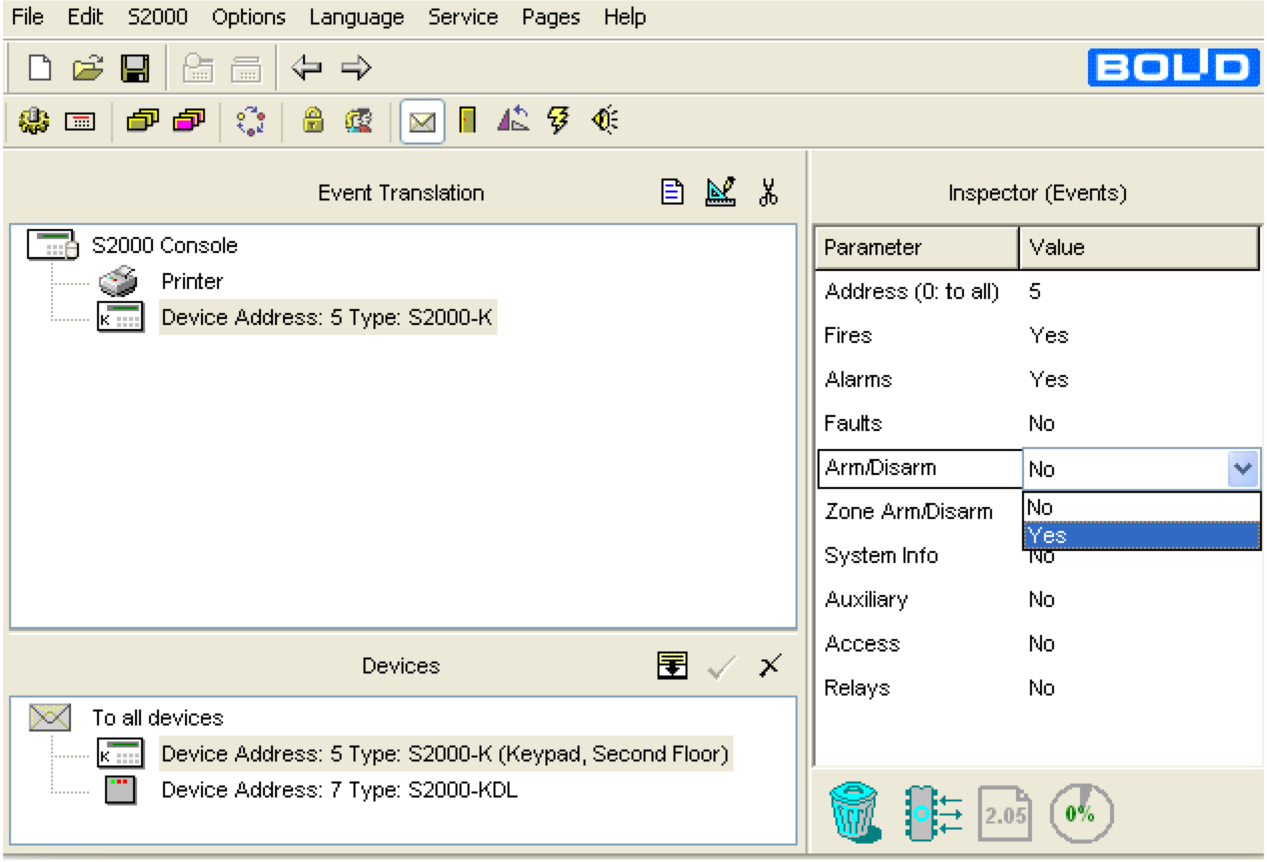
Device Address: 5 Type: S2000-K (Keypad, Second Floor)

Device Address: 7 Type: S2000-KDL

Parameter	Value
Device Address	5
Type	S2000-K
Version	1.05
Description	Keypad, Second Floor
Number of Loops	0
Number of Relays	0

Figure 10

3. The keypad descriptor being selected in the Event Translation window, define in the *Inspector* window the kinds of events which are supposed to be displayed by the keypad (see Figure 11).



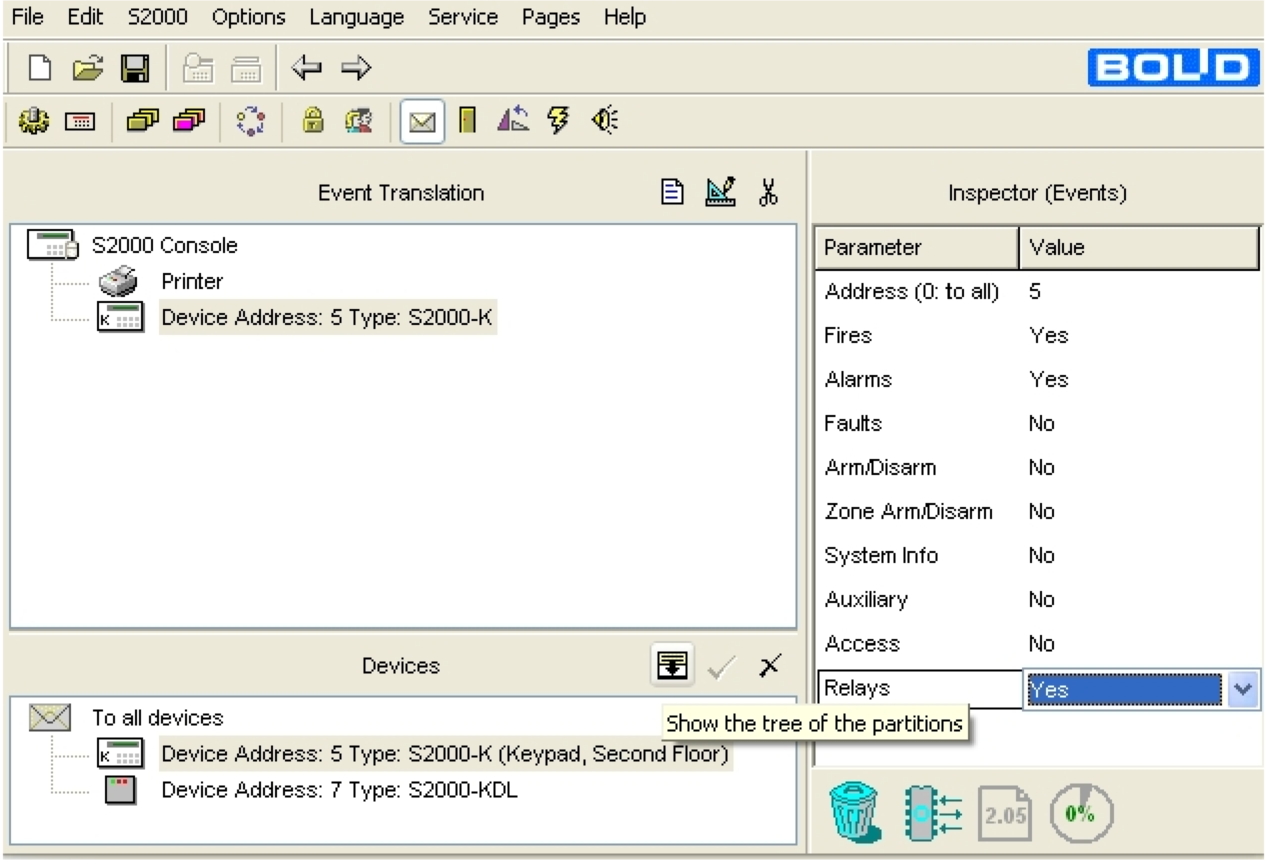
S2000 Console
Printer
Device Address: 5 Type: S2000-K

To all devices
Device Address: 5 Type: S2000-K (Keypad, Second Floor)
Device Address: 7 Type: S2000-KDL

Parameter	Value
Address (0: to all)	5
Fires	Yes
Alarms	Yes
Faults	No
Arm/Disarm	No
Zone Arm/Disarm	No Yes
System Info	No
Auxiliary	No
Access	No
Relays	No

Figure 11

4. Switch the bottom window of the page to the partition display mode by clicking (see Figure 12) or selecting the relevant menu command. The list of system partitions will appear in the bottom window.



S2000 Console
- Printer
- Device Address: 5 Type: S2000-K

Parameter	Value
Address (0: to all)	5
Fires	Yes
Alarms	Yes
Faults	No
Arm/Disarm	No
Zone Arm/Disarm	No
System Info	No
Auxiliary	No
Access	No
Relays	Yes

To all devices
- Device Address: 5 Type: S2000-K (Keypad, Second Floor)
- Device Address: 7 Type: S2000-KDL

Figure 12

5. Drag and drop the partitions which events will be displayed by the keypad from the Partitions window on the keypad descriptor in the Event Translation window (see Figure 13).

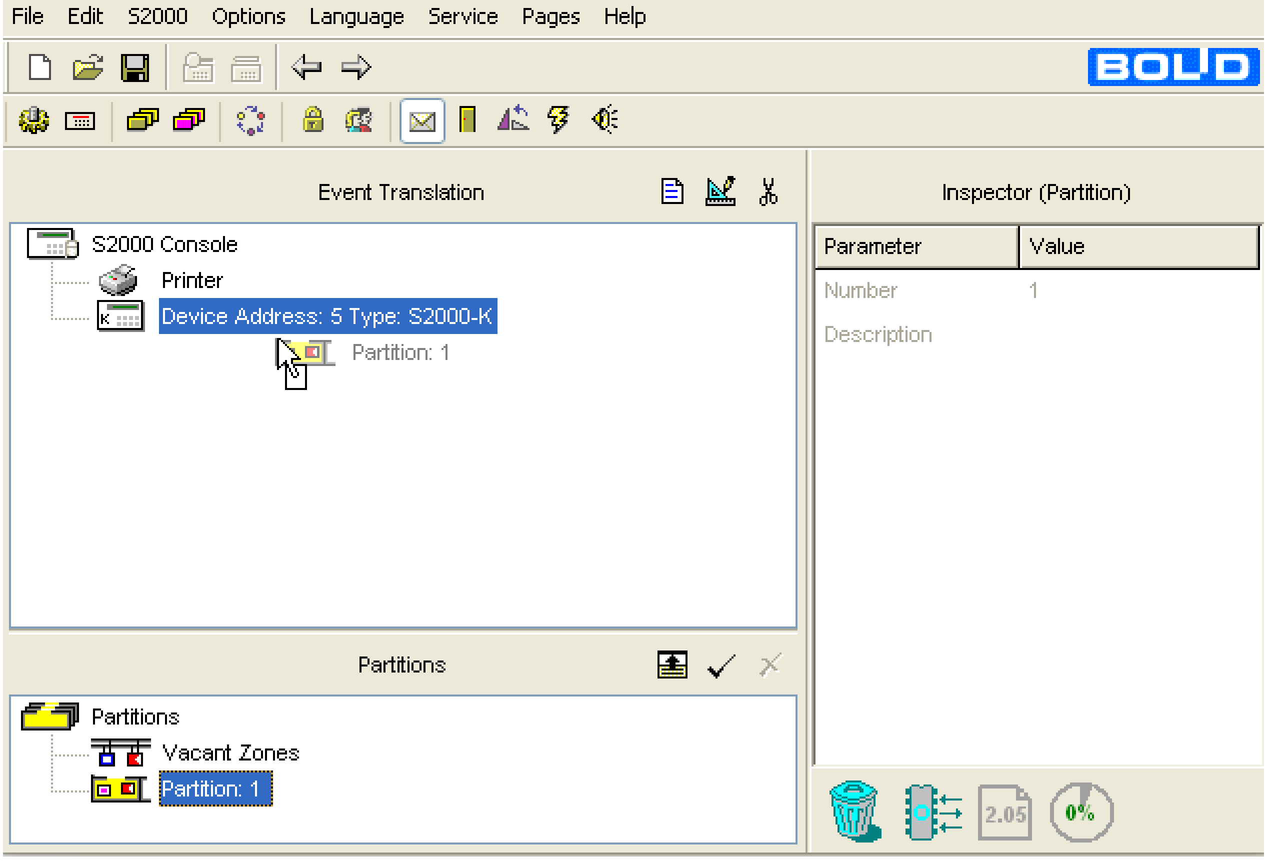


Figure 13

6. Now configuring is completed.

MAINTENANCE

TROUBLESHOOTING

? After the S2000-K is turned on, its display shows nothing

Make sure that power is applied to the power terminals of the S2000-К

? S2000-K
displays ‘NO RS485 LINE’,
with LED flashing once per second

Check whether the keypad is properly connected to the network controller via the RS-485 interface

Make sure the **A** and **B** wires of the RS-485 bus are properly connected to the **A** and **B** keypad terminal block. Reverse their positions if necessary

? No messages are displayed by the keypad LCD

and/or

? Keypad sounder is silent when the keypad receives alarm messages, although pressing keypad keys cause the S2000-K to sound

The options of keypad’s displaying system events and indicating alarms are disabled by default. To program these options, examine the settings of the S2000-K and the network controller being in use. For more about this, see Section Programming of this Manual.

1. Connecting the S2000-K to a computer with the run UProg Configuration Tool, make sure the Display Events option and Indicate Alarms Options are activated for the keypad. Note, that indicating alarms can be enabled only if displaying events is enabled.
2. Running the PProg Programming Tool or Orion Software tools, make sure that:
   – the S2000-K is enrolled in the list of devices connected to the network controller, and
   – the S2000-К is specified as the device the controller translates events to, and
   – the network controller is programmed to translate the specified kinds of events occurred in the specified partitions to the S2000-K..

? The time displayed by the S2000-K differs from that displayed by the S2000/S2000M console

Such a situation can happen in case of the console power’s being off for some time.

To fix the problem, set the correct time of the S2000/S2000M manually. After that, the console will automatically synchronize all the devices connected via the RS-485 interface.

INSPECTION

Once per a year personnel of the Service Company shall perform *a scheduled inspection of the S2000-K* in order to check its operation condition and find out potential defects. If during the warranty period the keypad does not meet any requirements set forth in this section, this will be the grounds to raise a climb to the manufacturer.

An inspection shall be carried out under the normal ambient conditions, namely:

- The temperature of 25 °C

- The relative humidity of 45 % to 80 %

- The atmospheric pressure of 630 to 800 mm

To inspect the S2000-K keypad, do the following:

- Examine the keypad for fouling or mechanical damage, than
- Examine the keypad terminal blocks and tighten loosen screws if necessary, and
- Test S2000-К operability having wired the keypad as shown in Figure 14. The testing procedure has been described below in this Section.

WARNING!
While inspecting the keypad, disconnect the S2000-K power supply before connecting and disconnecting wires

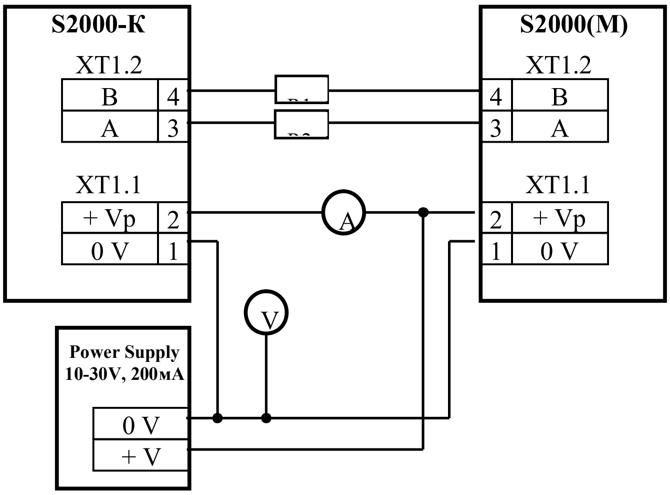


Figure 14. Wiring the S2000-K While Testing the Keypad Operability

S2000-K Testing Procedure

For testing operability of the S2000-K, wire the keypad as shown in Figure 14. Two resistors of 220 Ω and 0.125 W, R1 and R2, shall be brought between the S2000/S2000M console and the S2000-K keypad as shown in the diagram in order to introduce damping into the communication line between the devices.

The keypad pre-operation time doesn’t exceed three seconds.

1. Establish the test set-up as shown in Figure 14, not connecting wires of the RS-485 bus to terminal blocks of the S2000(M) console. Set the keypad power supply voltage equal to (10.2 ± 0.3) V.
2. Turn the S2000-K power supply on. The keypad sounder shall make a beep. The keypad LCD and keys shall backlight. The keypad LED shall flash once per a second, the keypad LCD displaying NO RS485 LINE.
3. Press any key on the keypad. A beep shall follow pressing the key.
4. Connect wires of the RS-485 interface bus to the terminal blocks of the S2000/S2000M console. The console shall indicate having found the device with the current address of the S2000-K followed by resetting this device within a minute.
5. Press the keypad tamper switch and keep it pressed for at least 15 s; then release this one. The S2000(M) console shall receive a tamper alarm from the keypad. Then press the keypad tamper switch once more and hold it until the console receives a tamper restored notification from the keypad.
6. Measure the current consumed by the S2000-K. The value shall not exceed 80 мA.
7. Set the keypad input voltage to 28 V. Repeat the test from the Step 2. The measured current consumed by the S2000-K shall not exceed 30 мA.
8. Write the results of the inspection of the S2000-K into a keypad maintenance log book.

Appendix

System Events Displayed by the Keypad LCD

Partition Armed	ARM 7 U 80	*The partition #7 has just been armed in response to presenting user authenticator #80*
Partition Disarmed	DARM 7 U 11	*The partition #7 has just been disarmed in response to presenting user authenticator #11*
Loop Armed	ARM 7 018/003	*The alarm loop #3 connected to the device #18 and included into the partition #7 has just been armed*
Loop Disarmed	DARM 7 018/003	*The alarm loop #3 connected to the device #18 and included into the partition #7 has just been disarmed*
Arming Failed	FARM 7 018/003	*Arming the loop #3 connected to the device #18 and included to the partition #7 has failed*
Zone Disconnected	ZTD 2 007/001	*An addressable device which belongs to the partition #2 has been disconnected from the polling loop of the S2000-KDL with the network address 7; the number of the device in the polling loop is 1*
Loop Open Failure	LTO 14 001/003	*An open circuit failure has been detected within the alarm loop #3 which belongs to the device #1 and is included into the partition #14*
Loop Short Failure	LTS 14 001/003	*A short circuit failure has been detected within the alarm loop #3 which belongs to the device #1 and is included into the partition #14*
Fire Signal	FS 14 001/003	*A fire detector response has been received via the alarm loop #3 connected to the device #1 and included into the partition #14*
Intrusion Alarm	IA 7 018/003	*The alarm loop #3 connected to the device #18 and included into the partition #7 has just been broken*
Silent Alarm	SA 1 018/002	*The alarm loop #2 connected to the device #18 and included into the partition #1 has just been broken*
Fire Pre-Alarm	FPA 14 001/003	*The alarm loop #3 of the device #1 included into the partition #14 has responded with the Fire Prealarm status which means that fire can happen within the protected area*
Fire Alarm	FA 14 001/003	*The alarm loop #3 of the device #1 included into the partition #14 has responded with the Fire Alarm status*
Loop Tamper Alarm	TA 7 001/004	*Opening (tampering) the enclosure of the detector included into the intrusion alarm loop #4 of the device #1 included into the partition #7*
Loop Tamper Restored	TR 7 001/004	*Closing the enclosure of the detector included into the intrusion alarm loop #4 of the device #1 included into the partition #7*

User's Code Entered	**ECOD 80 D007**	*A user has presented to a reader of the device with the network address 7 the authenticator #80 registered by the network controller*
Local User's Code Entered	**ECOD 405(I) D001**	*A user has presented to a reader of the device with the network address #1 the authenticator #405 registered by the device itself*
Device Tamper Alarm	**TA D001**	*The enclosure of the device with the network address 1 has been open*
Device Tamper Restored	**TR D001**	*The enclosure of the device with the network address 1 has been closed*
Device Connected	**CONNECT D018**	*The network controller has found the device with the address 18 within the connected RS-485 interface bus*
Device Disconnected	**DISCONNECT D018**	*Communication between the network controller and the device with the network number 18 has been lost: or the device has been replaced*
Device Restarted	**RESTART D018**	*The device with the network address 18 has been restarted*
Power Failure	**PWRF D018**	*The input voltage of the device with the network address 18 is out of the normal range*
Access Granted	**AG 41 D001**	*The device with the network address 41 has made a decision to grant access via its protected door to a user having presented the authenticator #41*
Access Denied	**AD 41 D001**	*The authenticator #41 has been read by a reader of the device with the network address 1, the authenticator being not authorized to gain access to the operation requested*
Illegal Code	**ICOD D001**	*An unknown authenticator has been presented to a reader of the device with the network address 1*
Door Forced Open	**DRF D001**	*The door monitored by the device with the network address 1 has just been open without granting access*
Door Held Open	**DRO D001**	*The door monitored by the device with the network address 1 has been open for more than a specified time*
Door Closed	**DRC D001**	*The door monitored by the device with the network address 1 has just been closed after being held open or forced open*
Local Programming	**PROGR D001**	*The device with the network address 1 has entered the Key Programming Mode*

BOLID ONE YEAR LIMITED WARRANTY

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