

APS mini.2

**Standalone / Offline / Online
Access Control System**

User's Guide

Valid for current version 2.1



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1

Product description

Operation modes

The APS mini access control system is designed for small offices, blocks of flats or detached houses (up to 16 access points and 500 cardholders). The system can be used in three operating modes:

- *Standalone* ... reader module do not demand the PC, cardholders programming is provided by means of two master cards.
- *Offline* ... one reader module or a reader module network is connected to a PC via communication line, the cardholders’ programming and reader module operation parameters setting are performed using the PC.
- *Online* ...the wiring of reader modules and PC is the same as in the case above but the communication between PC and reader modules is running permanently and enables online status monitoring and control, system events storing and other functions.

Reader module description

The reader module implies the proximity reader itself, 2 digital inputs, 1 relay output, beeper, 2 or 3 indicating LED’s, tamper contact, and communication interface RS 485.

Standard wiring of reader module

- *Input 1* ... door contact, closed when the door is shut.
- *Input. 2* ... request to exit button or handle contact, closed when button or handle is pressed.
- *Relay* ... door lock control, a change over contact activated when door lock released.

Status LED’s purpose

- Red ... RS 485 communication in progress (fast blinking) / offline mode (slow blinking).
- Green ... read indicator.
- Yellow ... programming mode.

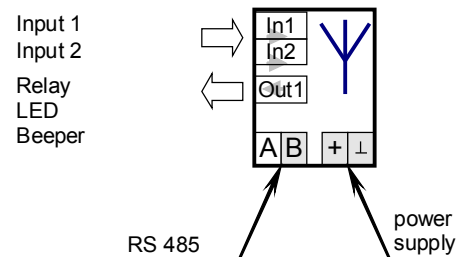


Fig. 1.1: Reader module schematic symbol

Reader module function

The reader module ensures following functions:

- Standard function “Door open”.
- Door status monitoring.
- Cabinet tamper supervision.

The “Door open” function can be activated in 3 different ways:

- Reading in the valid ID (cards, key fobs...),
- Pressing the exit button (according to the configuration).
- Using the appropriate command from PC (via communication line).

If the door is opened in any other way, the reader module activates the *Forced Door* signal. This status generates an intermittent (1s period) acoustic signal for a preset period.

In case of tampering the module (opening the cover), the *Tamper* status is activated. This status generates a steady acoustic signal for a preset time.

Reader modules give an acoustic signal in case of any alarm status is activated (during the preset time period configured before), the alarm window appears on the PC screen if online mode is used.

Standard “Door Open” function

After the “Door open” function is actuated, the door lock is released until the door is opened or preset *Strike time* is elapsed.

If the door stays open until the pre-defined *Door ajar delay* expires, the *Door ajar alarm* is activated.

Reader modules configurable parameters

Parameter name	Default value	Range	Description and setting
HW address	1	1 - 16	Parameter identifies the reader module on the communication line. If the reader modules are connected via communication line, each module HW address has to be unique. It can be set by address jumpers (detailed HW address setting is described in the manual of particular reader module, see http://www.2N.cz).
Strike time	7 s	0 - 255	Maximum time period of releasing the door lock (without opening the door until this time is elapsed). Can be set from administrating PC.
Door ajar delay	20 s	0 - 255	Allowed time period of the door open after access granted. Can be set from administrating PC.
Tamper signal	30 s	0 - 255	Acoustic signal of cabinet tamper duration. Can be set from administrating PC.
Forced door signal	30 s	0 - 255	Acoustic signal of Forced door signal duration. Can be set from administrating PC.
Door ajar signal	0 s	0 - 255	Acoustic signal Door ajar signal duration. Can be set from administrating PC.
The 2 nd digital input function	Request to exit button	Handle, REX button	The 2 nd reader module input definition. In case of setting “Handle”, input activation doesn’t start the door lock releasing, opening the door starts Door ajar delay. Setting “REX button” causes Door open function when activated.

Fig. 1.2: Reader modules parameter table

Connection to a PC

An appropriate communication converter RS 232 / RS 485 with automatic communication direction control or USB / RS 485 has to be used for online operation mode. The block diagrams of the communication line are shown below, see *fig.1.3*.

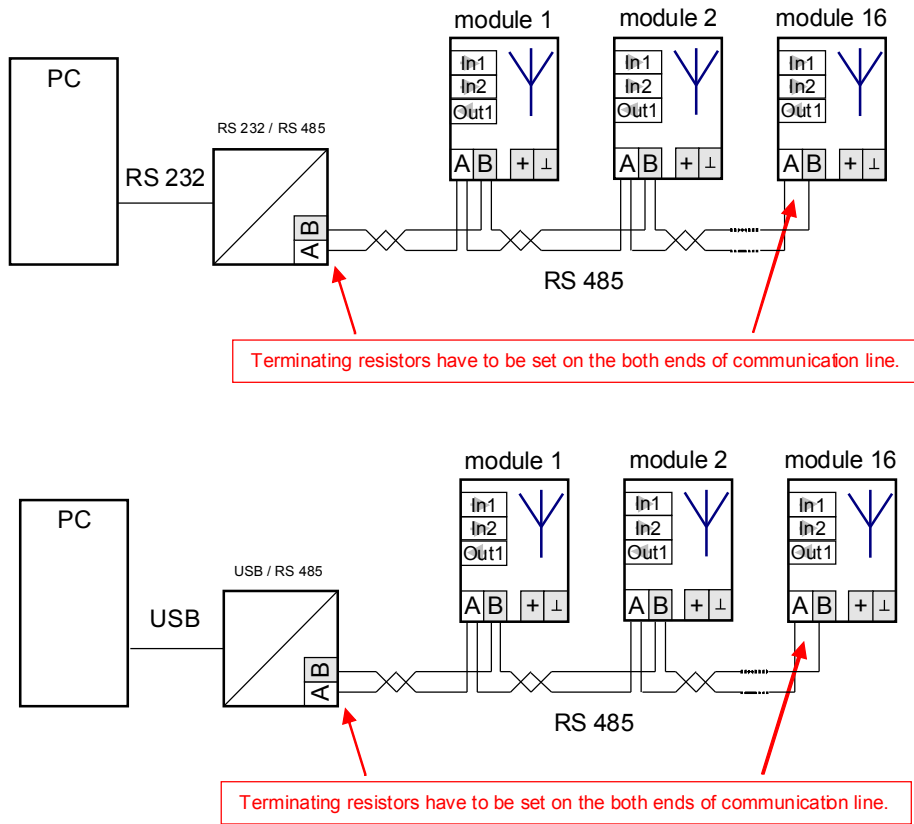


Fig. 1.3: Block diagrams of RS485 communication line.

Cards ID programming

The card ID programming can be performed in two ways:

- By means of two Master (Add and Void) cards.
- Using the Administrator software from PC.

Use of Master cards is described in the manual of particular reader module. This section describes managing and configuration reader modules APS mini using APS mini Administrator software.

2

APS mini Administrator software

System requirements and installation

The APS mini Administrator software can be downloaded free of charge from the web server <http://www.2N.cz>

After running `setup.exe` the standard installation procedure is starting where you can choose the destination directory on the hard drive and the destination of APS mini Administrator shortcut in the Start menu of Windows. Two new items are added to the Start menu after the installation is finished:

- APS mini Administrator ... runs the administrating software.
- APS mini Events ... runs the viewing and access control system events analyses software.

APS mini Administrator supports the following operating systems: Windows NT (4.0, 2000, XP). The Administrator can run in Windows 95 (98, Me) but some troubles may occur during the communication with the reader module network.

Recommended hardware requirements are: Pentium II processor / 266 MHz, minimal 64 MB RAM.

Data files destination, running the program, passwords

All configuration data of the APS mini system are saved in the configuration file "default.ads", located in the same folder as the executable file "APSmulti.exe". All reader modules status changes are stored into the archive file during online communication. The archive is formed by separated data files, one for each month. The files are created automatically (in the same folder) at each month change. The name of the data file has following format:

events.MMYYYY.dat, where:

MM ... the month marked with a double-figure number.

YYYY ... the year marked with a four-figure number.

When starting the APS mini Administrator software for the first time, empty configuration file is created. This configuration file is protected by a password in two levels. The first level password enables the user to open the configuration file, set all access definition data and transfer them to the system, and control all online system functions. The second level password is required for system configuration changes.

The configuration file can't be saved without entering the first level password (entering the password is requested before saving the file) similarly the password setting is requested before changing the configuration parameters.

Passwords change

Select the **Change password** command from the **File** menu for the first level password change; the configuration password can be changed using the **Change configuration password** command from the **Configuration** menu. The first level password change is conditioned by the 2nd level password entering.

Application characteristics and control

The main application window (fig. 2.1) consists of standard parts as the main menu, tool bar, work space and status bar.

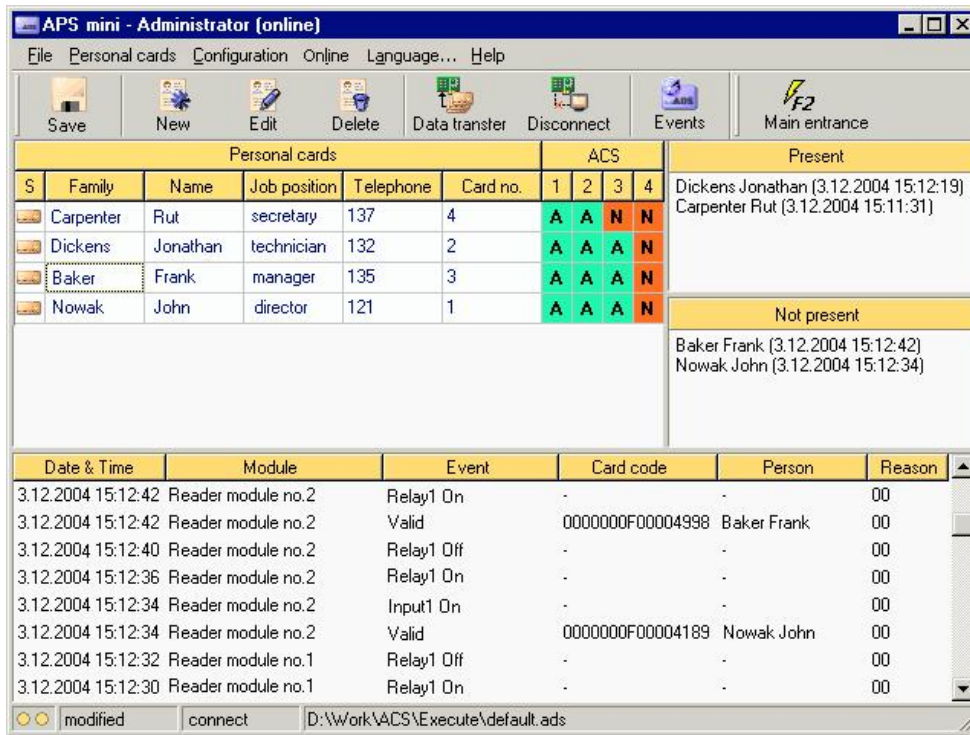


Fig. 2.1: Main application window

Main menu and tool bar

The interpretation of individual main menu commands and tool bar buttons is described closely in the chapters concerning particular program functions. The command map of the main menu is presented in Appendix no.1: List of main menu commands of APS mini Administrator.

Work space

It is divided into 4 areas:

- Table of cardholders’ sheets with access permissions.
- List of present users.
- List of not present users.
- Table of reader modules events.

Status bar

The status bar is divided into 4 fields. The reader modules communication status indicators are located in the first field (from the left). The second field displays information about the configuration file status (it contains text “changed” when data stored in the configuration file differ from data entered by the user). The third field informs about actual reader modules connection status, the fourth one shows the path to the configuration file.

Language change

The software can be modified to display the descriptions in other languages. Using the **Language** command from main menu the language offer appears. The change takes effect after next application running.

System parameters configuration

It is necessary to make a correct configuration of the APS mini Administrator software before uploading the cardholders' access permissions to the reader modules. The configuration consists of following steps:

- General system parameters configuration.
- Reader modules network configuration.
- Hot keys configuration.
- Exit reasons configuration.

The configuration dialogue (*fig. 2.2, 2.3, 2.8 and 2.9*) is opened after using the **Change configuration** command from **Configuration** menu (the password prompt appears in case of trying to change the configuration). The dialogue consists of four tabs – one for each step described.

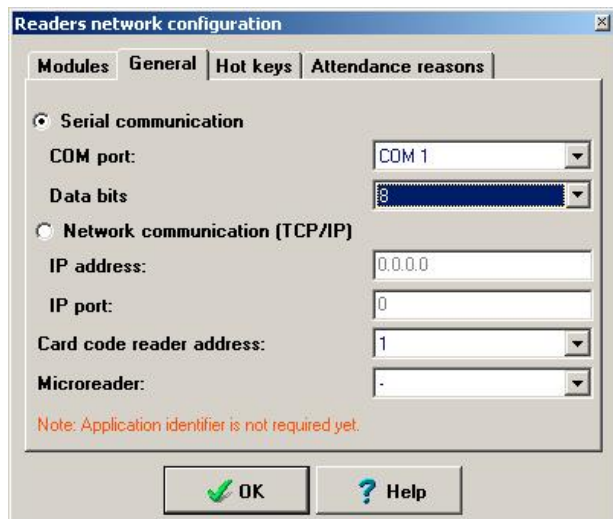


Fig. 2.2: "General" tab

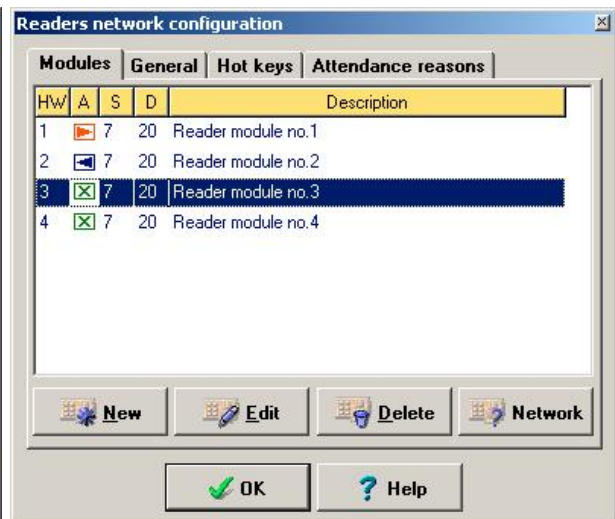


Fig. 2.3: "Modules" tab

General system parameters

It is necessary to define the communication parameters with the reader modules in **General** tab (*fig. 2.2*) and HW address of the module used for reading in the cards ID (directly PC connected microreader can be used optionally).

Reader modules configuration

The **Modules** tab (*fig. 2.3*) contains the list of all system reader modules connected to a PC. The particular columns of the list represent following:

- HW ... Hardware address of the module on the communication line RS 485.
- SD ... Passing-through direction of the reader module (for present / not present cardholders' status assignment).
- Z ... Strike time.
- D ... Door ajar time.
- Description ... Module description.

Any reader module parameters are defined in a separate configuration dialogue. The “Modules” tab contents buttons **New**, **Edit** and **Delete** for manual insertion, editing and deletion of the reader modules, and button **Network** for automatic reader modules insertion depended on actual network status.

It is necessary to set all communication parameters correctly before the automatic reader modules insertion. After the button is pressed the dialogue showing the network status appears (fig. 2.4) and the network test is starting (app. 15 s). Depending on the results of HW addresses test the particular network status dialogue fields are colored as follows:

- Background color ... The module wasn’t found.
- Red ... The communication was fault (e.g. 2 modules have the same HW address set).
- Green ... Module found on the line.



Fig. 2.4: Network modules status

The mouse cursor is changed to “hour glass” when the test is in progress. End of the test is indicated by a short beep and return to standard shape of the cursor. The found configuration can be accepted by pressing the **OK** button, or refused using the **Cancel** button.

Reader modules parameters and events

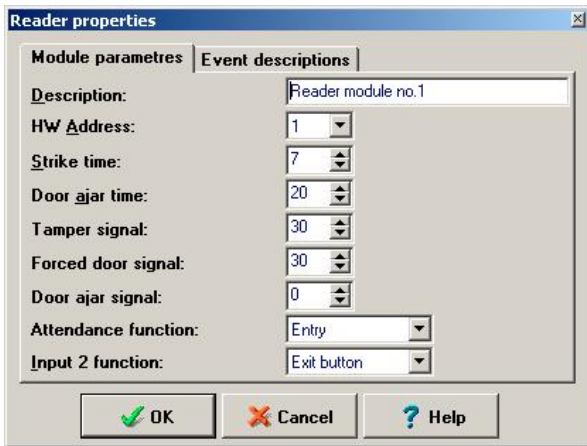


Fig. 2.5: “Module parameters” tab

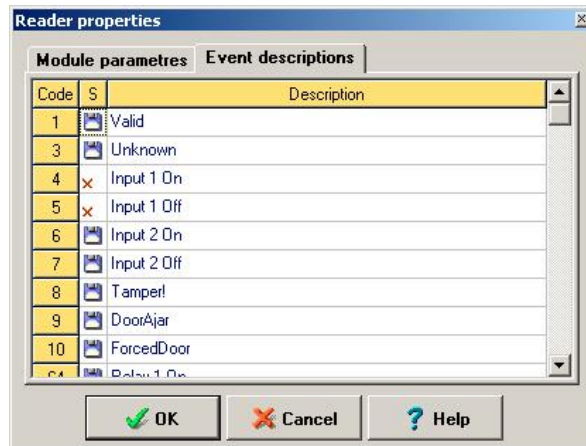


Fig. 2.6: “Events descriptions” tab

The reader module parameters can be defined within the manual insertion **New** or after pressing the **Edit** button. The definition dialogue contents two tabs (fig. 2.5 and 2.6).

The **Module Parameters** tab contains above mentioned parameters, see fig. 1.2, the “Attendance function” parameter which specifies the passing – through direction of the reader module and determines the cardholders’ presence status (in online mode only). This parameter can get the value of Entry, Exit and None.

The descriptions and archive events storing for online mode can be modified in **Event description** tab. The list of generated events and their default descriptions is shown in the table bellow, fig. 2.7.

Code	Description	Code	Description	Code	Description
1	Valid	7	Input2 Open	65	Relay1 Open
3	Invalid	8	Tamper!	66	Communication Lost
4	Input1 Closed	9	Door Ajar	67	Comm. Restore
5	Input1 Open	10	Forced Door	248	Tamper OK
6	Input2 Closed	64	Relay1 Closed	249	Door OK

Fig. 2.7: System events log table

The events descriptions can be edited directly in an appropriate cell of the events table. If the event has to be stored into the archive, symbol is shown in the second column of the table, if not then symbol appears. Changes of setting can be done by clicking the left mouse button on an appropriate icon.

Hot keys configuration

The *Door Open* function can be started up by pressing the tool bar button or pressing the hot key on PC keyboard, in online mode. The **Network Configuration** dialogue contains the **Hot Keys** tab for hot keys assignments (fig. 2.8).

The hot keys symbols (F2-F9) are shown in the left part of the tab following the field of reader module choice and the description editing field. (Only assigned keys are displayed on the application tool bar).

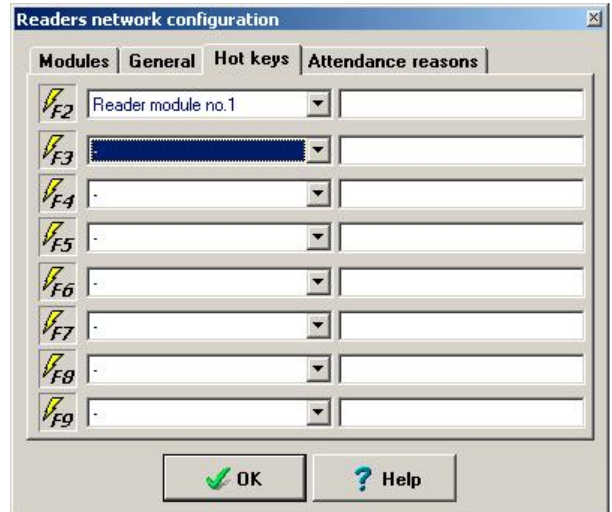


Fig. 2.8: "Hot keys" tab

Exit interruption reasons configuration

The configuration of the meaning of particular reader module reason pad keys has the sense for automatic processing of cardholders' time attendance using the archive log of access control system events.

The setting table and buttons **New**, **Edit** and **Delete** for exit reasons management are placed in the **Exit Reasons** tab of the configuration dialogue (fig. 2.9).

Each reason is uniquely identified by a numeric code (the relevant button code of the reader). The description and color can be assigned to each exit interruption reason which will be presented in output reports of optional time attendance application.

The time attendance application (APS mini.ED) is not a standard part of the basic APS mini software package, it must be ordered separately.

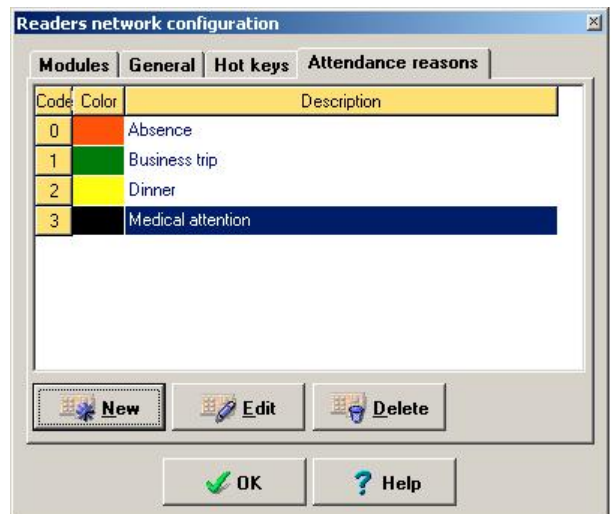


Fig. 2.9 "Exit reasons" tab

Connection to reader modules, configuration download

The APS mini Administrator software parameters have to be downloaded to the reader modules after their configuration is finished. The connection to reader module network is activated after selecting the **Connect** command from application **Online** menu (or by pressing the button **Connect** placed on the application tool bar). The parameters download starts after selecting the **Data transfer** command from the same menu.

Locking the configuration dialogue

The configuration dialogue can be locked after the configuration is finished (the second level password is required in case of try to open it). Select **Lock configuration** from main application menu **Configuration** to lock the dialogue.



Fig. 2.10: Exit reason editing

Communication with reader modules

After the communication between reader module or a reader module network is established the application starts monitoring all statuses of the devices entered during the configuration. The application polls each reader module status subsequently, the communication continues with further module in case of communication fails (e.g. if one or more modules are not connected),

Characteristics of the application during data transfer and communication failure

The communication in progress is indicated by two indicator lights in the application status line (*fig. 2.11*).

During standard communication, that means the status monitoring of reader modules is in progress, the lights are colored yellow, during data transfer to reader modules they turn green and the indicators are colored red when the communication failures.

It is not necessary to stop the program in case of communication trouble, but removing the fault source is recommended.

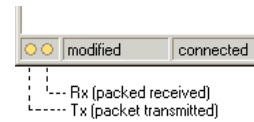





Fig. 2.11: Communication status

Personal data and access rights management

The cardholders and their access rights are managed in the table placed on the workspace of the main application window (fig. 2.12).

Personal data of system users and *Access right* definitions for every reader module are displayed in each table row. The icon displaying user's card status is placed in the first column of the table. The meaning of every icon is following:

-  ... No limits
-  ... Not assigned card
-  ... Access denied

The cardholder's data are arranged alphabetically in the table (primary by the name, secondary by the family name of the user).

One column of the table is assigned to each reader module defined within the system parameters configuration. The module hardware address is displayed in the header of a column; its description is shown near the mouse cursor in the yellow field (when the mouse cursor is located upon the column of the table representing the reader module).

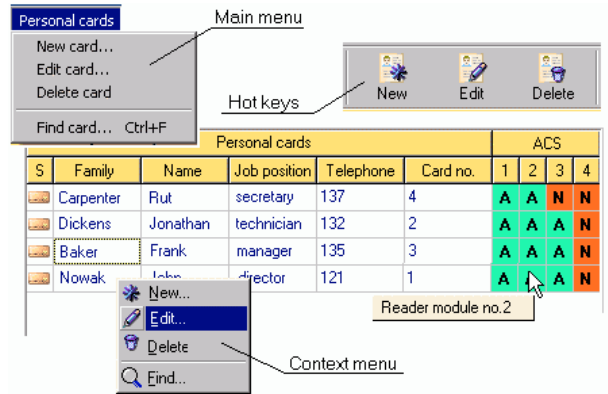




Fig. 2.12: Personal data and access rights table

Inserting, editing and deleting the user

There are the **New**, **Edit** and **Delete** commands placed in the **Personal cards** menu of the main application menu determined for this purpose. The same commands can be run from particular buttons on the program tool bar and buttons accessible from the context menu after clicking the right mouse button on the user's table surface (fig. 2.12).

Cardholder's data, access card

Cardholder's data are entered into the *Personal card* of the user (fig. 2.14). The Personal card contains the fields for entering the family name, name, title, MHS-number, personal number, job position and telephone number. Two buttons for editing () and deleting () of an access card are located in the lower part of the Personal card.

The access card editing dialogue (fig. 2.13) contains the field to enter the card number (printed on the card) and an internal identification number. If there is marked **Read card code from the system**, the card IDs can be read in from the defined reader module in online mode (see chapter "System parameters configuration").

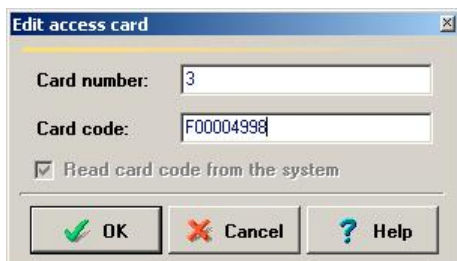


Fig. 2.13: Access card editing



Fig. 2.14: Personal card

Finding the user

The Find card command from the context menu Personal cards enables finding the demanded user. The dialogue for setting the searching criterion appears after this selection (fig. 2.15). Searching can be provided under following selection criterions:

- Family name
- MHS - number
- Personal number
- Access card number
- Card code

If searching by the card code, the demanded card code can be entered from the defined reader module (in similar way as in case of reading in the card codes).

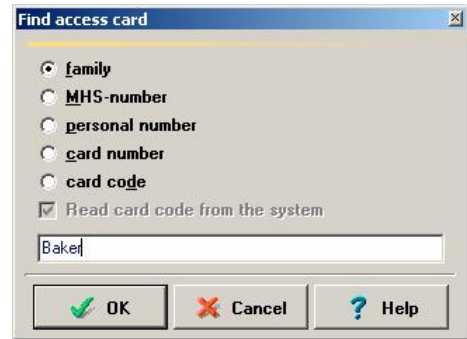


Fig. 2.15: Finding the user

Access rights definition

The right part of the user’s table is used for access rights definition (fig. 2.12). The user’s access right can get two values for each reader module:

- Access granted ... indicated by the “A” character in a green field.
- Access denied ... indicated by the “N” character in a red field.

Choose the appropriate cell of the table and press space key or click the left mouse button to change the access right status.

General access inhibition

Access of any user in the system can be denied for every reader module in case of needs. General access inhibition for chosen user can be reached by clicking the left mouse button on the access card icon (the icon gets crossing out red). Click the icon again for return the previous setting.

Downloading access rights to reader modules

All data changes made in the application take effect after their transfer to the reader modules is done. Access data transfer procedure is identical with downloading the configuration data to the reader modules. At first it is necessary to start the communication with reader modules (if it hasn’t been started before) and select the Connect command from Online application menu and start the download selecting the Data transfer command from the same menu.

Note: The color of communication indicators turns green during the transfer is in progress. As soon as the indicator color turns back to yellow, the data transfer is finished (see chapter “Communication with reader modules”).

Access rights printing

Select the command Print from the main Data application menu for the access rights table printing. Print report contains the table of reader modules descriptions and the cardholders’ table with access rights set (fig. 2.16). The card status icons are substitute by following characters:

- No limits: No character.
- No card assigned: The “-“ character.
- Access denied: The “x” character.

APS mini. Administrator: Access rights report						
25.7.2001 17:41:03						
HW	Description					
1	Reader module no.1					
2	Reader module no.2					
3	Reader module no.3					
4	Reader module no.4					
S	Family	Name	Title	Personal number	1	2 3 4
x	Carpenter	Ruf			A	A N N
-	Dickens	Jonathan			A	A A N
	Baker	Frank	Ing.		A	A A N
	Nowak	John			A	A A N

Fig. 2.16: Print report

Online application functions

The application offers a number of other functions in online mode:

- Online system events monitoring.
- Simple reader modules status visualization.
- Cardholder's presence monitoring.
- System alarms warning.

System events monitoring

The system events table is displayed in the lower part of application work space (*fig. 2.1*). Particular columns of the table have following meaning:

- Date and time ... date and time of events origination.
- Module ... description of the module generating the event.
- Event ... description of the event.
- Card code ... access card code read out from the module (if it has a feel for the event).
- Person ... family name and name of the cardholder (if it has a feel for the event).
- Reason ... reason key code, or other additional information (in case of special applications).

Note: Reading out the system events (and storing into the archive file) starts immediately after the communication with reader modules is established.

Status reader modules visualization

Select **Show system status** command from **Online** application menu to open the floating reader module status window (*fig. 2.17*). The window contains one row showing each module status: tamper contact (Tamper), inputs, output and door alarm statuses (forced door and door ajar). The inputs and outputs icons are colored green in disconnected status and red in connected one. Tamper status and door ajar are colored yellow, forced door is colored red.

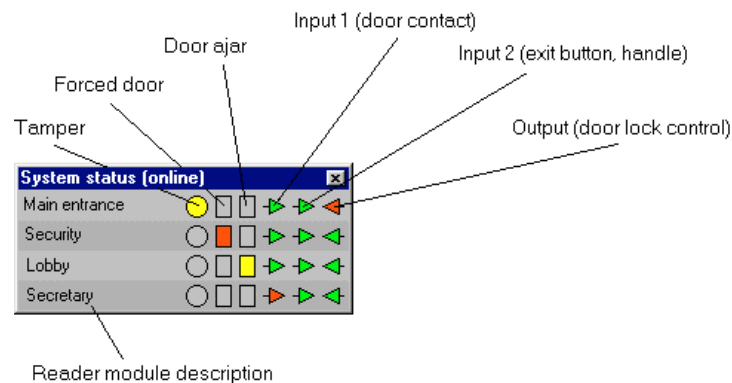


Fig. 2.17: Reader module status visualization

Cardholders’ presence monitoring

The lists of present and not present cardholders are located in the right area of the application work space, see (fig. 2.1).

Note: This function has a sense in online mode and double sided door control, only.

System alarms warnings

If system alarm is triggered (i.e. Tamper, Door ajar and Forced door), warning window with time, location and alarm type information appears on the PC screen in online mode (fig. 2.18).

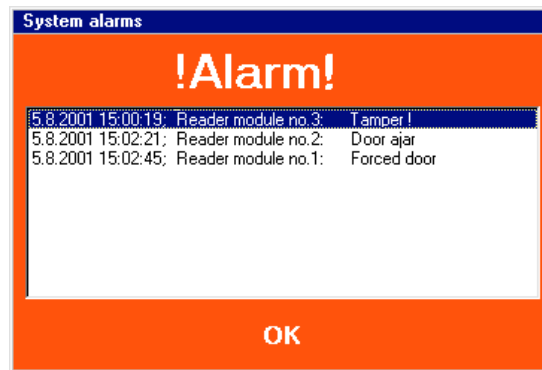


Fig. 2.18: System alarm window

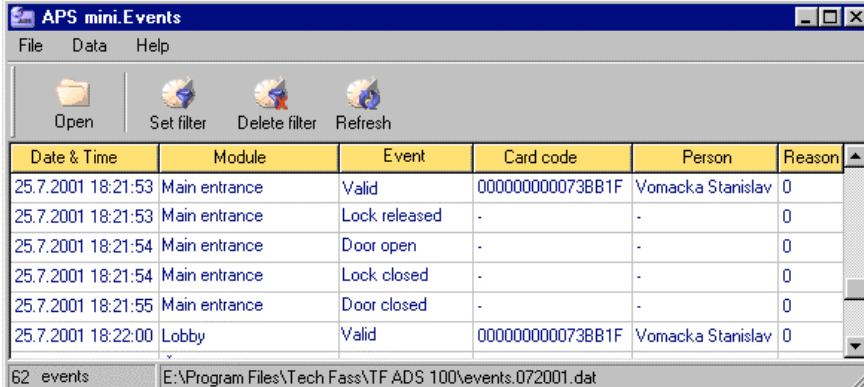
3

Software APS mini – Events module

The APS mini Events module is designated for the system events display and analyses; its use is worth for the system operating in online mode only.

As described in chapter “Data files destination, running the program, passwords“, the reader modules statuses are continuously monitored and stored into the events archive files in online mode.

Running the software is conditioned by the first level password knowledge. The main application window contains menu, tool bar and status line similarly the APS mini Administrator software. The events stored in the archive are displayed in the table located in the application desktop (*fig. 3.1*). The status line is divided into two fields. The number of events displayed in the table is shown in the first field, the path to the open archive file in the second one. The main menu command map is presented in Appendix no.2 List of the main menu commands of APS mini Events.



The screenshot shows the 'APS mini.Events' application window. It has a menu bar with 'File', 'Data', and 'Help'. Below the menu bar is a toolbar with four icons: 'Open', 'Set filter', 'Delete filter', and 'Refresh'. The main area contains a table with the following data:

Date & Time	Module	Event	Card code	Person	Reason
25.7.2001 18:21:53	Main entrance	Valid	00000000073BB1F	Vomacka Stanislav	0
25.7.2001 18:21:53	Main entrance	Lock released	-	-	0
25.7.2001 18:21:54	Main entrance	Door open	-	-	0
25.7.2001 18:21:54	Main entrance	Lock closed	-	-	0
25.7.2001 18:21:55	Main entrance	Door closed	-	-	0
25.7.2001 18:22:00	Lobby	Valid	00000000073BB1F	Vomacka Stanislav	0

At the bottom of the window, the status bar shows '62 events' and the file path 'E:\Program Files\Tech Fass\TF ADS 100\events.072001.dat'.

Fig. 3.1: Main APS mini Events application window

Archive file opening

Select **Open** command from main **File** application menu to open the archive file. Standard file open dialogue appears. After selecting the file and pressing button **Open**, the file is read out to the events table. Following events information is shown in each table column:

- Date and time of event origination.
- Module generating the event.
- Textual event description.
- Card code (if it has a feel for the event).
- Family name and name of the cardholder (if it has a feel for the event).
- Reason key code (in case of reader modules with reason keypad, default 0).

Events filter

All system events stored are displayed after reading out the file. The *Event filter* can be selected for general view. Select **Set Filter** command from the main **Data** application menu for this purpose. The setting dialogue (*fig. 3.2*) contains three fields for entering following conditions:

- Card code ... it is possible to enter the code manually in hexadecimal form or select one of the cardholder stored from the Personal cards table.
- Event
- Time interval

The final filter setting consists of particular conditions conjunction (AND operation). The filter setting is canceled using **Delete filter** command from the main **Data** application menu.

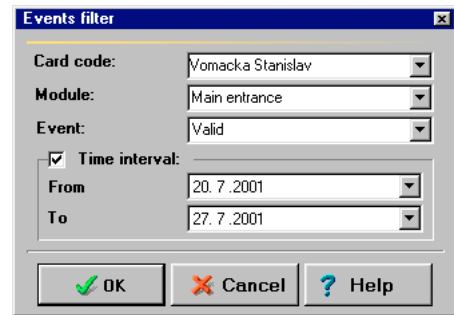


Fig. 3.2: Events filter

Events report printing

Select the **Print** command from the main **Data** application menu for events report printing. Print report contains the same data displayed in the events table (*fig. 3.3*).

APS mini.Events: Access control & time attendance system APS mini						
27.7.2001 13:29:14						
Date & Time	Module	Event	Card code	Person	Reason	
19.7.2001 17:34:43	Reader module no.4	Relay1 On	-	-	-	0
19.7.2001 17:34:49	Reader module no.4	Relay1 Off	-	-	-	0
25.7.2001 18:19:10	Reader module no.1	Valid	00000000073BB1F	Vomacka Stanislav	-	0
25.7.2001 18:19:10	Reader module no.1	Door closed	-	-	-	0

Fig. 3.3: Print report

4

Appendix

Appendix no.1: List of main menu commands of APS mini Administrator

Name of menu / command name		Short	Description
File		Alt+S	
	Print	-	Access rights print report
	Change password	-	Change the first level password
	Exit	Alt+F4	Exit application
Personal cards		Alt+O	
	New	-	Creation the new personal card
	Edit	-	Personal card editing
	Delete	-	Deleting the personal card
	Find	Ctrl+F	Finding the personal card
Configuration		Alt+K	
	Change configuration	-	System configuration change
	Change configuration password	-	Change the second level password
	Lock configuration	-	Password required in case of configuration change attempt
Online		Alt+L	
	Connect / disconnect	-	Start / end of communication with reader modules
	Data transfer	-	Download the reader modules
	Show system status	-	Opens the "System status" window
Language		Alt+A	Choice of language version of descriptions in application
Help		Alt+N	
	Content	-	Content of application help
	Access definition	-	Access right definition help
	System configuration	-	System configuration help
	About ...	-	Opens "About ..." window

Fig. 4.1: Summary of application main menu commands

Appendix no.2: List of main menu commands of APS mini Events

Name of menu / command name		Short	Description
File		Alt+S	
	Print	-	Access rights print report
	Change password	-	Change the first level password
	Exit	Alt+F4	Exit application
Data		Alt+D	
	Set filter	-	Opens the “Events filter” dialogue
	Delete filter	-	Cancel the filter set
	Refresh	-	Refreshes the event table
Help		Alt+N	
	Content	-	Content of application help
	About ...	-	Opens “About ...” window

Fig. 4.2: Summary of application main menu commands

Appendix no.3: Setting up the serial data channel of the Lantronix UDS-10 converter

Setting up the serial data channel has to be following: RS-485 2 Wire, 19200b/s, 8 bit, even parity, 1 stop bit. In case of setting up the converter UDS-10 using TELNET the setting is as follows (highlighted rows are different from the default configuration):

```

Change Setup:
 0 Server configuration
 1 Channel 1 configuration
 5 Expert settings
 6 Security
 7 Factory defaults
 8 Exit without save
 9 Save and exit           Your choice ? 1

Baudrate (19200) ? 19200
I/F Mode (7F) ? 7F
Flow (00) ?
Port No (10001) ?
ConnectMode (C0) ?
Remote IP Address : (000) .(000) .(000) .(000)
Remote Port (0) ?
DisConnMode (00) ?
FlushMode (00) ?
DisConnTime (00:00) ? :
SendChar 1 (00) ?
SendChar 2 (00) ?
    
```

Detailed device setting description can be found in the technical manual enclosed.