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**MIREL MAP System**

Title:

**KAM User manual**

Further source- and enclosed files:

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## Contents

1	Purpose of the Document.....	3
2	Specification of Document Changes.....	4
3	Applied Designation and Terminology .....	6
4	General Characteristics .....	7
4.1	Hardware requirements .....	7
4.2	Software requirements.....	7
5	User Functions of KAM Configuration Module.....	8
5.1	Configuration Procedure .....	8
6	Safety Warnings .....	9
7	Connection of Devices.....	10
7.1	ATM Connection to PC .....	10
7.2	Start of KAM Config Module.....	10
7.3	Turning on of System or Systems to be Configured .....	10
7.4	ATM Connection to Device to be Configured .....	10
7.4.1	ATM Connection to RM1ZJ.0 .....	11
7.4.2	ATM Connection to RM1ZJ.1 .....	11
7.4.3	ATM Connection to RM1ZJ.2 .....	11
7.4.4	ATM Connection Directly to VZ1ZJ.0, RS812ZJ or RS813ZJ .....	11
7.4.5	ATM Connection Directly to VZ1ZJ.1.....	11
8	Detection and selection of device to be configured .....	12
9	Loading and Displaying of Actual Configuration .....	13
10	Modification and entry of config parameters .....	15
10.1	Set of Configuration Parameters .....	15
10.2	DRV Registration Number.....	16
10.3	Diameter of Sensed Axle .....	16
10.4	Lubrication Interval of Wheel Flanges for RM1 .....	16
10.5	Functionality for VZ1 .....	17
11	Entry of Configuration Parameters into Device.....	18
12	Deletion of Configuration Parameters from Device.....	20
13	Device De-Configuration .....	21
14	Final Inspection .....	22
15	ATM Disconnection from Configured Device.....	23
16	Putting Device into Service.....	24

# 1 Purpose of the Document

**The document specifies** extent, method and conditions of configuration and of putting the MIREL systems into operation.

**The document follows** and refers to documentation below:

No.	Version	Title
[1] 154VZ1	230215	MIREL VZ1 Train Protection – Maintenance and Diagnostics Manual
[2] 278RM1	190405	MIREL RM1 Registration Speedometer – Maintenance and Diagnostics Manual
[3] 447RS812	171018	MIREL RS812 Control System – Maintenance and Diagnostics Manual
[4] 892RS813	171018	MIREL RS813 Control System – Maintenance and Diagnostics Manual
[5] 974MAP	210830	MIREL MAP User Manual
[6] 2684MAP	221007	ATM Catalogue sheet

**Document is intended** for:

- Producer's employees as underlying documentation for configuration of MIREL systems
- Operator's employees as underlying documentation for configuration of MIREL systems

This document doesn't replace operating directive for configuration of MIREL systems.

## 2 Specification of Document Changes

### **Version 000000**

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Document Introduction

### **Version 130320**

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Document format update.

### **Version 130613**

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Document update.

### **Version 171110**

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Description update of configuration data modification.

Description supplementation for device de-configuring– Chapter 12

Document format update to VTDO: 170406.

### **Version 181119**

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Amendment of time setting for VZ1, Version 4.

### **Version 190312**

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Editing of chapter no. 12

### **Version 191217**

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Screenshot update in chapter 7.5 due to the consolidation of the nomenclature for VZ1 functionality.

### **Version 200923**

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Update of valid values for entering the registration number of driving rail vehicle.

### **Version 211018**

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Added items number of IRC pulses and configuration state into configuration view in chapter 8.

### **Version 220407**

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Added item SHP CA into functionality setting.

### **Version 221123**

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Incorporation of chapters and sub-chapters User Functions, Configuration Procedure, De-coupling of ATM from Configured Device and Putting Device into Operation and sub-chapters User Functions, Configuration Procedure, ATM Disconnection from Configured Device and Putting Device into Service (comprehensive document update).

Update of Chapter Final Inspection.

Update of requirements on hardware and software.

Update of Chapter Connection of Devices. Supplement of connection alternatives to VZ1ZJ.1 and to RM1ZJ.2.

### 3 Applied Designation and Terminology

MIREL 812	Control system of motor vehicle, series 812
MIREL 813	Control system of motor vehicle, series 813
MIREL VZ1	Train protection of MIREL System, type VZ1
MIREL RM1	Registration speedometer of MIREL system, type RM1
DRV	Driving rail vehicle
MV	Motor vehicle
MU	Main unit of MIREL system
HW	Technical equipment
SW	Program equipment
HDD	Computer hard disk
IRC	Incremental sensor of axle speed
SPI	Data transfer in numeric form via communication bus
PC	Personal computer, or portable computer (notebook), respectively
ATM	Transfer module for interlinking of PC with MIREL main units
ATM2SPI	Adapter piece for ATM
MAP	MIREL applications manager
device	Main unit (MU) of configured MIREL system
UTC	Coordinated Universal Time

## 4 General Characteristics

MIREL KAM program equipment is a software intended for configuration of MIREL MU systems. Specifically this applies for devices stated below:

1. MU (Main Unit) of MIREL VZ1 Train Protection
2. MU of MIREL RM1 Registration Speedometer
3. MU of MIREL 812 Control System
4. MU of MIREL 813 Control System

The MIREL KAM software enables to configure above-stated devices for needs of a specific application on a given type of DRV. Configuration refers to defined parameter set, DRV-ID, diameter of sensed axle on DRV, wheel flange lubrication interval (MIREL RM1 only) as well as functionality (MIREL VZ1 only). Configuration of systems is carried out solely on their main units. MIREL system peripherals don't need to be configured, as they don't carry internally any specific information related to a specific application for the given DRV type.

The use of MIREL KAM is possible only on a PC, which meets below-mentioned specifications. PC (or notebook, respectively) is interlinked with device to be configured by means of an ATM connection module (eventually with ATM2SPI adapter piece). Communication between them is provided by means of a clocked SPI serial communication bus. Power supply of galvanic separations in individual devices is provided from USB port.

### 4.1 Hardware requirements

In order to start KAM module and system configuration, it is necessary to meet principal requirements as specified in document 974MAP MIREL MAP User Manual and specific hardware requirements listed below:

1. Principal requirements specified in 974MAP MIREL MAP User Manual.
2. PC with USB type A connecting piece or adapter piece for USB type A connecting piece.
3. ATM universal transfer module with adapter piece. Transfer module modification and employed adapter piece depends on configuration interface of equipment set to be configured. A closer specification of available transfer modules and adapter pieces is provided in document 2684MAP ATM Catalogue Sheet.

### 4.2 Software requirements

In order to start KAM module and system configuration, it is necessary to meet principal requirements as specified in document 974MAP MIREL MAP User Manual and specific hardware requirements listed below:

1. Principal requirements as specified in 974MAP MIREL MAP User Manual.
2. Driver FTDI CDM Driver package 2.12.24 and higher.

## 5 User Functions of KAM Configuration Module

KAM module allows to user effectuation of user functions listed below:

No.	Description of function
F1.	Reading-out and displaying configuration in device
F2.	Change of config parameters in device
F3.	Deleting of config parameters in device
F4.	Device de-configuration

### 5.1 Configuration Procedure

When using MIREL KAM program, it is necessary to work in compliance with safety rules as outlined in Chapter 6 Safety notifications and to proceed in accordance with procedure described below, in dependence on assumed user function.

Step	Step description	User function pursuant Chapter 5.				Reference
		F1.	F2.	F3.	F4.	
1.	Becoming acquainted with safety notifications	X	X	X	X	6
2.	ATM (transfer module) wiring to PC	X	X	X	X	7.1
3.	Start of KAM config module	X	X	X	X	7.2
4.	Switching on system or systems to be configured <sup>1)</sup>	X	X	X	X	7.3
5.	ATM wiring to device to be configured <sup>1)</sup>	X	X	X	X	7.4
6.	Detection and selection of device to be configured	X	X	X	X	8
7.	Loading and displaying actual configuration	X	X	X	X	9
8.	Modification and entry of config parameters	-	X	-	-	10
9.	Entry of config parameters into device	-	X	-	-	11
10.	Deleting of config parameters from device	-	-	X	-	12
11.	Device de-configuring	-	-	-	X	13
12.	Final inspection	X	X	X	X	14
13.	ATM disconnection from configured device	X	X	X	X	15
14.	Putting device into service	X	X	- <sup>2)</sup>	- <sup>2)</sup>	16

<sup>1)</sup> In case of ATM wiring to RM1ZJ.2 it is recommended to first connect ATM to device and to turn on MIREL RM1 subsequently.

<sup>2)</sup> It is forbidden to return into operation a system with deleted configuration, de-configured system or a system on which correct configuring has failed.



## 6 Safety Warnings

When using the MIREL KAM program, it is necessary to follow below stated safety rules:

1. Only a person, which has been traceably trained for this activity, is entitled to work with the MIREL KAM program.
2. Only such person is entitled to carry out configurations of MIREL systems, which is appointed by Operator of mentioned systems for this activity, and only in compliance with operation rules.
3. When configuring MIREL systems, it is needed to take into account the fact, that an incorrect configuration setting in devices can directly influence the operation safety of mentioned devices.
4. If there have been more MIREL systems installed on a DRV, it is necessary to carry out the configuration adjustment in all systems with the aim, that correlated configuration parameters in various systems shall be in conformity to each other. It is necessary to re-configure all MIREL systems (one after another ) on the respective vehicle.
5. Also in case, when a given MIREL KAM workplace isn't authorized to modify some configuration parameters, the configuration recording is always carried out in full extent. Parameters, which haven't been modified, are recorded as they have been read out from the device. The person performing configuration bears responsibility for a correct recording of all configuration data, even those, which haven't been modified.
6. Authorization of configuration (who has performed it and when) has to be recorded into device.
7. The configuration process is saved on HDD PC.

## 7 Connection of Devices

### 7.1 ATM Connection to PC

PC with MIREL KAM program equipment is connected to a configured device with an ATM connection module. On the PC side, the ATM is connected to USB port. Green indication light must be on at ATM module.

### 7.2 Start of KAM Config Module

Prior to connecting ATM module to device, it is necessary to start the MIREL KAM application. Application is started like the MAP module, i.e. after starting MAP (in a standard way in WINDOWS: menu START, reference on surface ...) the KAM module is selected. After starting the MIREL KAM application, the bottom blue strip in motion in centre of the application window signalizes the searching through SPI bus as well as detection of MIREL systems.

### 7.3 Turning on of System or Systems to be Configured

Turning on of system to be configured is done, as a rule, and depending on installation on vehicle, by means of contactor element, battery switch or drive control switch. In course of putting into service system and configured device, you must proceed in accordance with documentation of vehicle proper as well as with application documentation of system.

In case of wiring in accordance with 7.4.1 or 7.4.2 or 7.4.3, MIREL RM1 registration speedometer must be turned on as well.

### 7.4 ATM Connection to Device to be Configured

On the side of configured device, the ATM is connected depending on specific set of MIREL systems on the given driving rail vehicle as follows below:

No.	Device / devices to be configured	ATM cable	Device and connector for ATM connection	Reference
1.	RM1ZJ.0 or RM1ZJ.0 + VZ1ZJ or RM1ZJ.0 + VZ1ZJ + RS812ZJ or RM1ZJ.0 + VZ1ZJ + RS813ZJ	ATM.3 or ATM.4	RM1ZJ.0 - SAI connector (15-pin DB- type)	7.4.1
2.	RM1ZJ.1 or RM1ZJ.1 + VZ1ZJ or RM1ZJ.1 + VZ1ZJ + RS812ZJ or RM1ZJ.1 + VZ1ZJ + RS813ZJ	ATM.5	RM1ZJ.1 - SAI connector (15-pin DB- type)	7.4.2
3.	RM1ZJ.2 or RM1ZJ.2 + VZ1ZJ or RM1ZJ.2 + VZ1ZJ + RS812ZJ or RM1ZJ.2 + VZ1ZJ + RS813ZJ	USB-A cable / miniUSB	RM1ZJ.2 - connector 3 (miniUSB)	7.4.3
4.	VZ1ZJ.0 or RS812ZJ or RS813ZJ	ATM.3 or ATM.4	SPI on rear side (25-pin DB-type)	7.4.4

5.	VZ1ZJ.1	ATM.3 or ATM.4	C2 (15-pin DB-type)	7.4.5
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#### 7.4.1 ATM Connection to RM1ZJ.0

If DRV has been equipped with central unit of MIREL RM1 registration speedometer in version RM1ZJ.0, ATM module has to be connected to SAI connector (15-pin industrial-type connector of DB-type for archive reading) at front panel of speedometer ZJ. Via said connector it is possible to configure the speedometer proper, as well as other linked MIREL systems.

The ATM module has to be connected to registration speedometer within 15 seconds after it is been switched on. In case of a later connection of ATM module to SAI connector, configuration can't be continued.

**It is forbidden to connect ATM module by means of adapter piece ATM2SPI to SPI connector** (25-pin industrial connector of DB type) on rear panel of speedometer MU. If connected, the device can suffer a damage, for which the warranty condition don't apply.

#### 7.4.2 ATM Connection to RM1ZJ.1

If DRV has been equipped with central unit of MIREL RM1 registration speedometer in version RM1ZJ.1, ATM module has to be connected to SAI connector (15-pin industrial connector of DB-type for archive reading) at front panel of speedometer ZJ. Via said connector it is possible to configure the speedometer proper, as well as other linked MIREL systems. ATM module must be connected to registration speedometer within 15 seconds after its powering. Configuration can't be continued in case of a later ATM module connection to SAI connector.

**It is prohibited to connect ATM module by means of adapter ATM2SPI to SPI connector** (25-pin industrial connector of DB-type) at rear panel of speedometer ZJ. Equipment can be damaged due to such improper connection and damage doesn't fall under scope of warranty conditions.

#### 7.4.3 ATM Connection to RM1ZJ.2

If DRV has been equipped with central unit of MIREL RM1 registration speedometer in version RM1ZJ.2, PC has to be connected to device to be configured directly by USB cable (pls use e.g. USB cable supplied together with ATM.4) to USB connector on device (mini USB-type connector for archive reading) at front panel of speedometer ZJ. For reasons of simplicity, the USB cable shall be thereafter designated as ATM cable. Via said connector it is possible to configure the speedometer proper, as well as other linked MIREL systems. ATM module must be connected to registration speedometer within 15 seconds after its powering. Configuration can't be continued in case of a later ATM module connection to USB connector.

**It is prohibited to connect ATM module to SPI connector** (15-pin industrial connector of DB-type) at front panel of speedometer ZJ. Equipment can be damaged due to such improper connection and damage doesn't fall under scope of warranty conditions.

#### 7.4.4 ATM Connection Directly to VZ1ZJ.0, RS812ZJ or RS813ZJ

Without MIREL RM1 system, MIREL RS812, MIREL RS813 and MIREL VZ1 systems in central unit version VZ1ZJ.0 have to be configured via SPI connector (25-pin industrial connector of DB-type) at ZJ rear panel of the given system. ATM module has to be connected to connector via adapter piece ATM2SPI. Time for ATM module connection after powering isn't limited.

#### 7.4.5 ATM Connection Directly to VZ1ZJ.1

Without MIREL RM1 system, MIREL VZ1 system in central unit version VZ1ZJ.1 has to be configured via C2 connector (15-pin industrial connector of DB-type) at system ZJ front panel. ATM has to be connected directly without use of an adapter piece. Time for ATM module connection after powering isn't limited.

## 8 Detection and selection of device to be configured

If MIREL KAM detects on SPI bus more than a single MIREL system (Figure 1), it offers to operating staff option to select required system, which has to be configured. Only one MIREL system can undergo configuring at once.

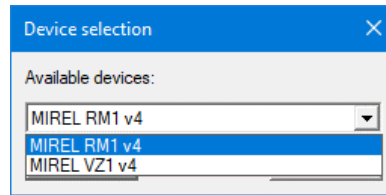


Figure 1

If MIREL KAM detects on SPI bus only a single MIREL system, then it doesn't offer option to select available devices and continues automatically by displaying existing configuration of detected system. If MIREL KAM doesn't find any MIREL system, it continues in search on SPI bus.

Upon selection of device to be configured, a repeated configuration and device selection can be started by pressing of pushbutton combination "**alt+O**".

## 9 Loading and Displaying of Actual Configuration

Following information regarding ZJ of a given system (thereinafter only “device”) are displayed in application window (Fig. 2 shows on the left ZJ with a single processor card, on the right ZJ with two processor cards) upon detection of MIREL system on SPI bus-bar, or after selection from multiple detected systems:

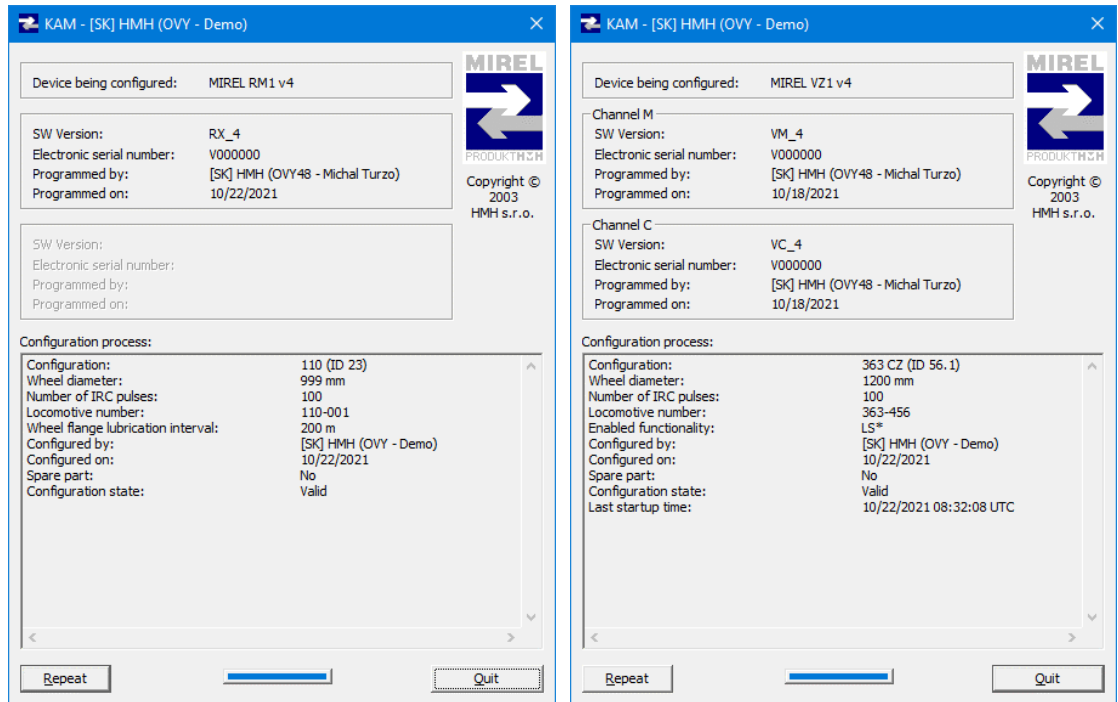


Figure 2

1. **Device being configured:** type of configured system.
2. **SW Version:** alphanumeric indicator of program equipment, which is present on processor board of configured device.
3. **Electronic serial no.:** alphanumeric indicator of processor, which is present on processor board of configured device.
4. **Programmed by:** specification of workplace, where the processor in configured device has been programmed.
5. **Programmed on:** Date, when the processor in the configured device has been programmed.
6. **Configuration Process:** Complete information are displayed in window about valid configuration, which has been set in device, as well as the run of configuration procedure .

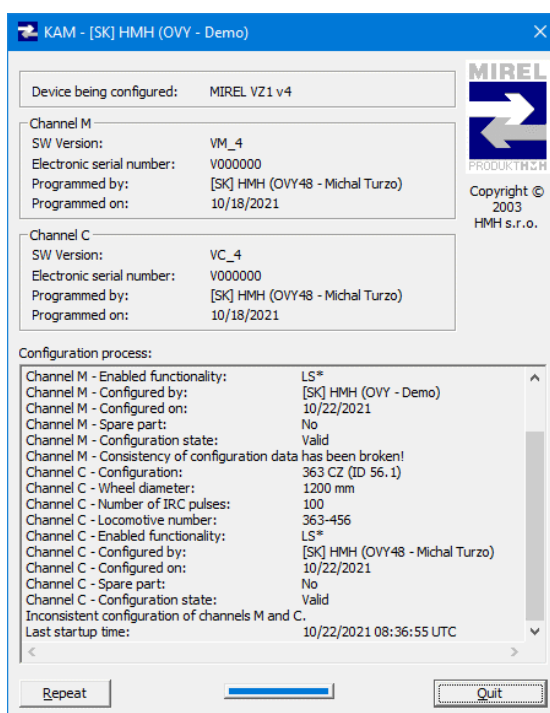
The configuration of a MIREL device comprises data as follows below:

1. **Configuration:** description and identifier (in brackets after ID) of valid configuration parameter set (e.g. 110 (ID 23) – title „110“, identifier 23).
2. **Wheel Diameter:** valid diameter of measured axle in mm (e.g. 1011 mm).
3. **Number of IRC pulses:** valid number of IRC pulses (it is set based on the configuration set)
4. **DRV ID:** identification No. of driving rail vehicle (e.g.. 110-123).
5. **Wheel Flange Lubrication Interval:** only for MIREL RM1. Interval, when the wheel flanges are to be lubricated.
6. **Functionality:** only for MIREL VZ1. Device functionality (all permitted modes are stated - LS, EVM, SHP, STM) and the primary mode (marked with \* in the list).
7. **Configured by:** specification of workplace, where the last device configuration has been carried out.

8. **Configured on:** date of last device configuration.
9. **Spare Part:** specifies, if it is a spare part or not.
10. **Configuration state:** possible values
  - **Valid:** configuration is valid. Configuration modification is allowed for all workplaces, based on authorizations.
  - **Enabled:** configuration is not valid (device is de-configured). Configuration modification is allowed only for workplaces with authorization to configure de-configured devices.
  - **Disabled:** configuration is not valid. Configuration modification is allowed only for employees of HMMH.
11. **Time of last start-up:** UTC time of last device start-up. Displayed only for devices with supported real time.

When configuring MU of MIREL VZ1 train protection, which comprises two independent processor cards, their configuration takes place simultaneously. Information about channel M and channel C are displayed in parallel on top section of application window, as has been stated. In the same way, in section "Configuration process", the valid configuration is displayed.

If configuration data in both processor cards are identical, only one set of configuration data is displayed (Figure 2). Otherwise, configuration data shall be displayed for each processor card separately, together with notice about data non-consistency (Figure 3).



**Figure 3**

After loading and displaying of actual configuration it is possible to start a repeated detection, selection of configured device and config parameters displaying by pressing pushbutton combination "**alt+O**".

## 10 Modification and entry of config parameters

**Reading out and displaying of so far valid configuration from device** has been described in previous section. Entering of new configuration can't be continued without successful accomplishment.

**Modification of valid configuration** is started by pressing a combination of pushbuttons "alt+M". It comprises dialogues for change of individual parameters – set identifier of configuration parameters, DRV ID, diameter of sensed axle, wheel flange lubrication interval and functionality.

Dependent on authorizations of the specific workplace with MIREL KAM, some of mentioned dialogues needn't be accessible. If any of dialogues is accessible, the workplace has authorization to read out the configuration from device but hasn't any authorization to modify the configuration. In general, we can say, that MIREL KAM of service technicians of MIREL devices has authorization to modify all the data and MIREL KAM in locomotive yards has authorization only to modify the axle diameter (remaining dialogues aren't displayed).

Workplace authorizations with MIREL KAM can differ from each other dependent on the fact, whether the device to be configured is a spare part. Spare part is a device, of which production numbers of all processor cards are listed in the list of spare parts.

If all device processor cards are de-configured and, simultaneously, the user is authorized to configure such devices, then workplace authorizations are temporarily appended. Appended authorizations for modification of data described in sub-chapters 10.1, 10.2, 10.3 and 10.4 (i.e. all data except functionality for VZ1).

The specific procedure when modifying individual data, is described in subsequent sub-chapters. Configuration data „Configured by“ and „Configured on“ are set automatically and MIREL KAM operating staff can't influence them.

Configuration modification can be interrupted by operating the pushbutton „Cancel“, or window-closing icon in any of dialogues. In such case, the process of configuration change is terminated and no changes are entered into device. When operating the OK pushbutton, the respective configuration value is changed based on selected value and the procedure continues with next dialogue. After pressing OK in last enabled dialogue, the process of configuration registration in device is started automatically.

Special cases of configuration modification are as follows:

- Deletion of config parameters from device, as described in Chapter 12
- Device de-configuration, as described in Chapter 13

### 10.1 Set of Configuration Parameters

Individual sets of configuration parameters have been firmly programmed in MIREL systems proper, or in configuration of MIREL KAM program and can't be modified by the user. By means of MIREL KAM program it is possible to set, which of sets shall the device utilize. Remaining sets of configuration parameters are then ignored by the device.

Example of selection for MIREL VZ1. Configuration parameter sets can be arranged based on name (Figure 4), or based on identifier (Figure 5). By clicking on the text "list of possible configurations" It can be switched between individual arrangement types

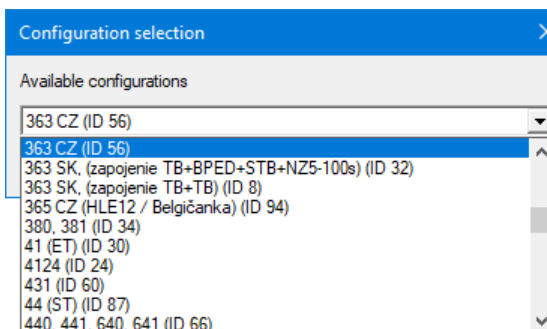


Figure 4

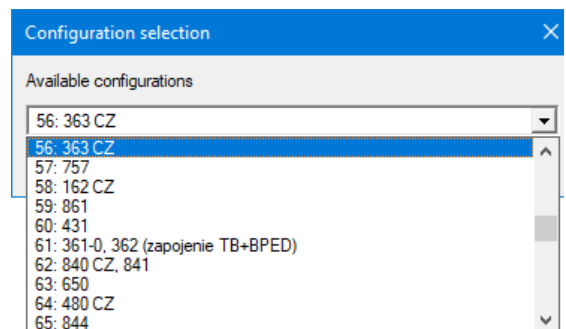


Figure 5

Configuration parameter set of MIREL VZ1 train protection comprises e.g. such data, like design speed of the specific DRV type, initialization value of maximum speed, data about connection method of directional levers on board, etc. A detailed description is provided in respective technical documentation.

Name and identifier of configuration parameter set is subject of respective installation documentation.

The authorization to choose set of configuration parameters allows at the same time to set time also in case when the time of last device start-up and the clock time of PC with started KAM differ from each other by more than 1 day.

## 10.2 DRV Registration Number

Registration number of driving rail vehicle is entered as a 4-, to 7-digit number (1+3, to 4+3). MIREL KAM doesn't by any means check, if the entered registration number is correct, or if a DRV with such entered number exists.

First part of the number, which identifies the vehicle series, is determined by configuration parameter set. Each set of configuration parameters has assigned at least one series number. If only one series number has been assigned, this shall be displayed and only the second part of the registration number has to be entered (Figure 6). Should more series numbers have been assigned, then it is necessary to choose the right one from the drop-down list and then to enter the second part of the registration number (Figure 7).

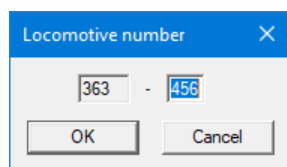


Figure 6

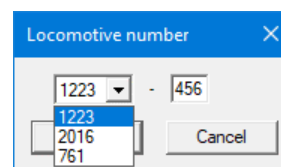


Figure 7

## 10.3 Diameter of Sensed Axle

Diameter of sensed axle is entered in mm as a 3- or 4-digit number (Figure 8). Entered is the diameter of axle, on which the specific speed sensor is fitted, which is connected with configured system. Should the diameter of left and right wheel not be identical, their mean value shall be entered.

Apart from direct entering by means of digits, the value can be adjusted by 1 mm with help of up- and down-arrows in the keyboard.

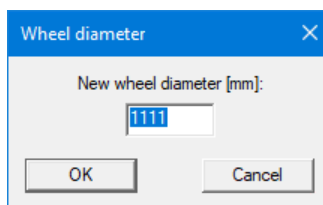


Figure 8

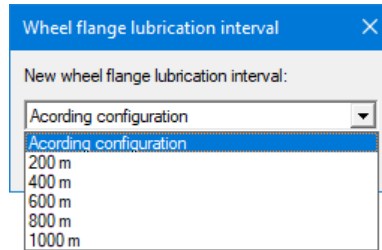
For control system MIREL 812, with connected speed sensors from two axles, the diameter of the trailing one is entered.

MIREL KAM carries out check of smallest and biggest permitted axle diameter on individual DRVs. The range of axle diameter is covered by respective installation documentation.

## 10.4 Lubrication Interval of Wheel Flanges for RM1

Lubrication interval of wheel flanges can be entered only for system MIREL RM1 in version 2 and higher. It is entered by selecting from options (Figure 9), not by means of a direct value.





**Figure 9**

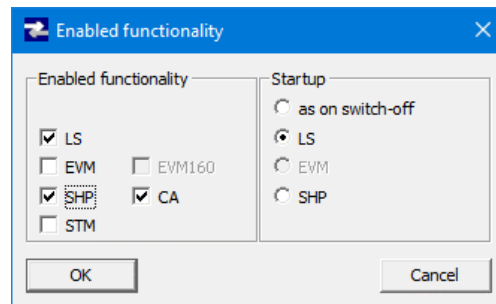
Set of configuration parameters for MIREL RM1 comprises also setting of wheel flange lubrication interval. Should the setting as determined by set of parameters be unsuitable, then it can be adjusted in this dialogue.

When selecting the option „ According configuration“, the wheel flange lubrication interval is determined by set of configuration parameters.

When selecting any of other options, the wheel flange lubrication interval is set to selected value, independent from the value as provided by set of configuration parameters.

### 10.5 Functionality for VZ1

Functionality can be entered only for system MIREL VZ1 in version 3 and higher. Functionality determines modes, in which the MIREL VZ1 system shall operate and in which it shall be switched after switch-on.



**Figure 10**

In the group „Enabled Functionality“ it is possible to select modes, in which the MIREL VZ1 system shall be able to operate.

In the group „Startup “ you can select the mode, in which the system MIREL VZ1 starts to operate after switching-on. When selecting „as on switch-off“, the system MIREL VZ1 starts to operate after switching-on in the mode, in which it has been switched off.

When enabling individual modes, the correctness of settings is continuously checked. Individual choices can be forbidden or set differently. For example (Figure 10) without enabling EVM mode, selection of option EVM160 isn't enabled, as well as the start-up in the EVM mode.

## 11 Entry of Configuration Parameters into Device

**Entry of a new configuration into device** occurs automatically after going through all accessible dialogue windows. If any of dialogue windows isn't accessible, nothing shall be entered into device.

Prior entry of a new configuration, time setting is started for devices with real time clock. Its result is independent from result of new configuration entry. If the time of last device start-up and time data in PC on which KAM has been started by more than 1 day, time setting doesn't occur (with exception of case as described in Chapter 10.1).

Result is displayed in application window, in section "Configuration process".

After entering and confirmation of data in all available dialogues, the time setting starts automatically (only for devices with real time clock) as well as the recording of new configuration into device. Its progress can be checked in application window in section "Configuration Progress". Displayed are

- Time setting result ("OK" in the example)
- Result of configuration recording into individual processor cards of device ("OK" in the example)
- Verification result concerning entered configuration ("OK" in the example)
- Overall result of configuration recording ("Configuration successfully accomplished" in the example).

Successful completion of the configuration is also indicated by the green icon in the upper right part of the application window.

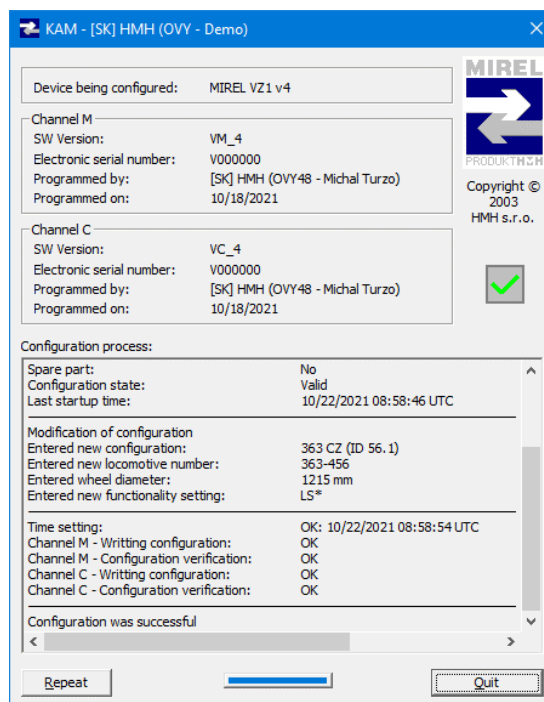


Figure 11

Any other configuration result as the one described above means a failed configuration procedure. Following options are at hand in such case:

1. Recording into device still hasn't started – original configuration in device is valid and device can continue its operation.
2. Time setting has failed, but configuration but configuration recording has been accomplished successfully. Device operation can be continued with the new configuration, but we recommend to repeat the configuration, in order to ensure correct time setting.
3. Recording into device has already started, but hasn't been successfully accomplished – configuration in device isn't valid **and operation of the device in such condition isn't permitted.**

Failed configuration can be due to user cancellation, de-coupling from device during configuration, or by other technical problems.

## 12 Deletion of Configuration Parameters from Device

Config deletion is started by pressing pushbutton combination "**alt+C**". No dialogs are displayed during config deletion, only window for confirmation of config deletion. Until new configuration, the device shall not be operated after deletion. Device with a deleted configuration is considered to be an inactivated device and system producer must carry out its C2 installation configuration.

After deletion of configured device, it is possible to start repeated detection and selection of configured device by pressing pushbutton combination "**alt+O**".

## 13 Device De-Configuration

De-configuration of the device is started by pressing the combination of pushbuttons „**alt+A**“. Only such device can be de-configured, which has all processor cards not designated as inactivated (see chapter 10). When a device of MIREL VZ1 in version 3 and higher is to be de-configured, all processor cards must have set identical functionality.

After starting de-configuration, KAM generates request to de-configure the device. Should the requirement generation not be possible, the device needs a service intervention.

Request for device de-configuration (Figure 12, selected text) must be sent to HMH Company, e-mail address [servis@hmh.sk](mailto:servis@hmh.sk). HMH Company can then generate a key for device de-configuration, which is sent back per e-mail. Generating of a de-configuring key is not entitlement and takes a few business days. Therefore it is possible to cancel- de-configuration after sending the request for device de-configuration and to continue with other activities with the KAM module, or with other MAP modules.

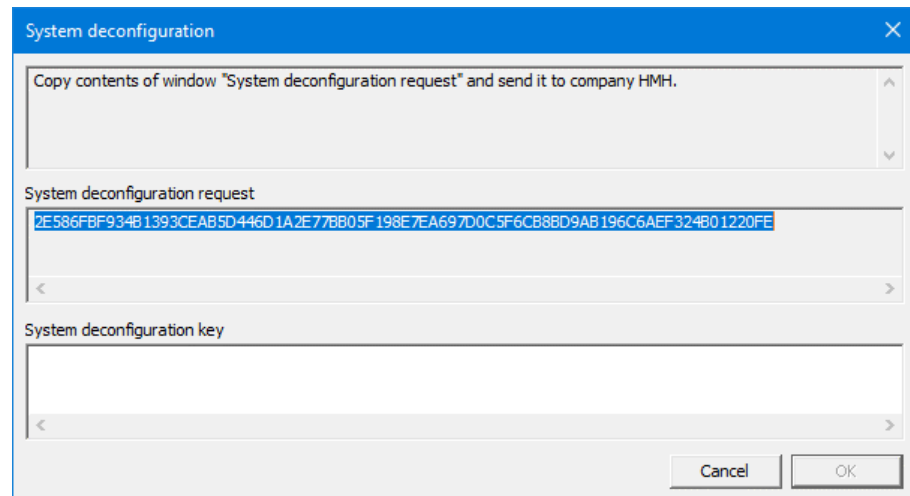


Figure 12

After receiving the key for device de-configuration, the device de-configuration starts again. KAM generates a new request for device de-configuration, which is ignored (key for device de-configuration is valid for more different requests). The received key for device de-configuration has to be entered into respective text field. If the key for device de-configuration has been accepted, KAM enables the OK pushbutton. After operating this pushbutton, KAM continues with device de-configuration.

Key for device de-configuration is valid

- Only for workplace, which has generated the respective requirement.
- Only for device, for which the respective requirement has been generated. Therefore it is inevitable to avoid any configuration changes on such device between requirement generation and use of device de-configuration key.
- 7 days from generation.

Po odkonfigurovaní zariadenia je možné spustiť opakovanú detekciu a výber konfigurovaného zariadenia stlačením kombinácie tlačidiel "**alt+O**".

## 14 Final Inspection

After change of config parameter settings, such config parameter change must be verified in following extent:

- KAM software indicates, that entry of new config parameters has been successfully accomplished,
- configured MIREL system indicated its operation after entry of config parameters by relevant light indicators and is in a trouble-free status, i.e. it doesn't indicate an error by means of corresponding indicators
- after loading of updated config parameters from device (after pressing **alt+O**):
  - identifier of config parameters set is loaded:
    - in accordance with entered configuration set and vehicle application documentation, or
    - in accordance with set of config parameters before change of config parameters<sup>1)</sup>
  - loaded DRV registration No. is in accordance with set value and vehicle application documentation
  - loaded value of set diameter on scanned axle:
    - is in accordance with protocol from axle diameter measurement or
    - represents maximum diameter of new vehicle axle or
    - represents the original axle diameter as read before configuration change, if it wasn't necessary to change axle diameter setting
  - loaded value of wheel flange lubrication interval (applies only for MIREL RM1 system):
    - is in accordance with entered wheel flange lubrication interval and vehicle application documentation or
    - is in accordance with loaded lubrication interval before change of configuration parameters<sup>1)</sup>
  - loaded system functionality (applies only for MIREL VZ1 system):
    - is in accordance with entered system functionality and vehicle application documentation or
    - is in accordance with loaded system functionality before change of configuration parameters<sup>1)</sup>

After accomplishment of configuration on all systems, it is necessary:

- to switch off all devices for a time of at least 5 seconds) and turn them all again. **New configuration as well as the new clock time in devices become valid only after their new turning on.**
- To check after turning on, if devices don't indicate any error.
- To carry out D3 function test in accordance with methodological procedure and protocol to configured systems. If configuration parameter setting has been accomplished in course of S2 service repair, then function test is carried out by maintenance staff which fits repaired device on DRV.

### Notes:

<sup>1)</sup> condition is applied only if:

- user hadn't authorisation for changes for respective parameter and
- device for configuration hasn't been out of service before configuration (i.e. a spare part has been applied on vehicle) and
- device for configuration hasn't been operated on other vehicle (i.e. a spare part has been applied on vehicle) and
- the unchanged config parameter value is in accordance with integrator and operator requirements on the parameter on respective vehicle

## **15 ATM Disconnection from Configured Device**

Prior to putting device into service, it is necessary to disconnect ATM from configured system (disconnection isn't done by ATM disconnection from PC).

## **16 Putting Device into Service**

Procedures concerning putting device and configured devices into service isn't subject of present User Manual. Prior to putting device into service some binding procedures and verifications must be accomplished in accordance with maintenance manual of respective system, operator's operating procedures or other mandatory legal requirements.