



MMIMYK Programming module

Software version 1.00

Index

1 	Introduction	4
1.1	Purpose of the document	4
1.2	References	4
1.3	Definitions and abbreviations	4
2 	Mechanics data	5
3 	Functions	6
3.1	CAN gateway	6
3.2	RS485 gateway	6
3.3	Programming module	6
3.4	CAN log	6
3.5	Data logger	6
4 	Connections structure	7
4.1	Connectors	7
5 	Components	8
5.1	User interface	8
5.2	Communications	8
5.3	Memories	8
5.4	Miscellaneous	8
5.5	Expansion	8
6 	Board pinout	9
7 	Environmental conditions	9
8 	MMIMYK functions description	10
8.1	General info	10
8.1.1	Memory card	10
8.1.2	Format	10
8.1.3	Power to target device	10
8.2	Connections diagrams	10
8.3	Info layout on display	11
8.4	Gateway	11
8.4.1	Activating the gateway	11
8.5	Logger	11
8.5.1	Virtual machine logging	11
8.5.2	CAN logging	12
8.6	Programmer	13
8.6.1	Before starting	13
8.6.2	Programming	13
8.6.3	Additional functions	15
8.7	Menus and utilities	15
8.7.1	CAN settings	15
8.7.2	General settings	16
8.7.3	Utilities	17
9 	MMIMYK programming configuration file	18
9.1	File structure	18
9.2	The configuration file	18
9.3	Configuration file specification	18
9.3.1	Name	18
9.3.2	Format	18
9.3.3	Example files	20
10 	General info	22
10.1	Limitations	22
10.1.1	Filesystem	22
10.1.2	CAN bus	22
10.1.3	RS485	22

1| Introduction

1.1| Purpose of the document

This document describes the general specification of MMIMYK device having three possible functionalities:

- » gateway;
- » data logger;
- » programming key.

1.2| References

REFERENCES	
Number	Description
[1]	USB 2.0 specification
[2]	DS301 CAN open specification
[3]	DSFT232B
[4]	CAN protocol specification

Tab 1_[Introduction - References]

1.3| Definitions and abbreviations

- » RT: Real Time.
- » RTC: Real Time Clock.
- » DIN: Deutsche Industrie Norm.
- » MMC: Multi Media Card.
- » SD: Secure Digital Card.
- » CAN open: CIA High level CAN bus specific protocol.
- » OD: Object Dictionary (CAN open).
- » ODE: Object Dictionary Entry (CAN open).
- » MYKMANAGER: PC utility program for MMIMYK developed by Danfoss Electronics.
- » **Myklib.dll**: a Windows dynamic link library for interfacing a custom PC program.
- » With MMIMYK. For more information contact the customers service.
- » LEAF DIRECTORY: una directory nel filesystem that contains a set of files for programming and a configuration file with all the download rules.

2| Mechanics data

- » handheld device;
- » panel mounting 4 DIN module.

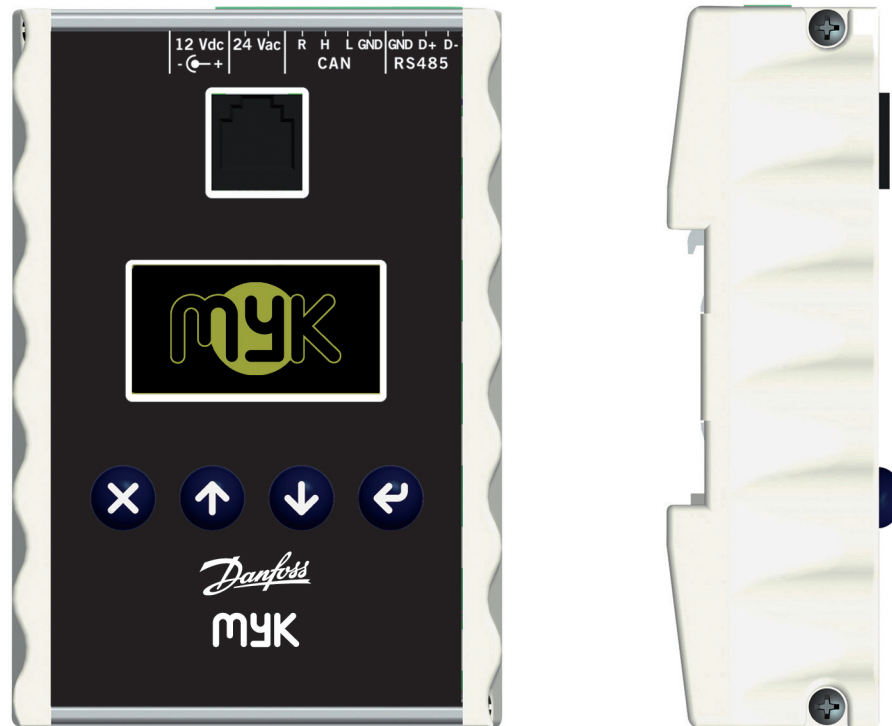


Fig 1_[Mechanics data - Graphic design]

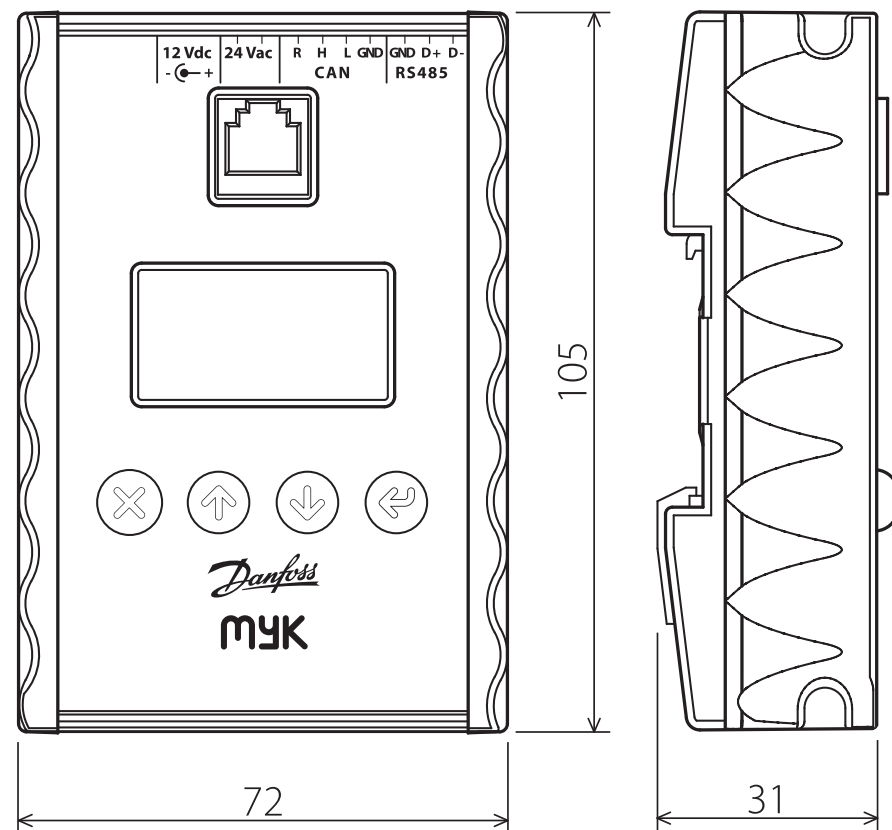


Fig 2_[Mechanics data - Dimensions]

3| Functions

There are two versions of MMIMYK available:

the standard version has the following functionalities:

- » CAN gateway;
- » RS485 gateway;
- » programming module;

the "logger" version features also:

- » data logging;
- » CAN analyzer.

FUNCTIONS			
Function	Typical user	Typical use case	Reference
CAN gateway	OEM engineer OEM white colour worker Service engineer	Connection to DE supervisor Download of MCX application in test lab Update of MCX application in field	Section 8.4
RS485 gateway	OEM engineer Service engineer	Download of MCX application in test lab Update of MCX application in field	Section 8.4
Programming module	Service engineer OEM white colour worker OEM engineer	Update of MCX application in field Download of MCX application in factory Download software in lab	Section 8.6
CAN logger	Commissioning engineer OEM blue colour worker	Trouble shoot communication problem in field Trouble shoot communication problem in lab	Section 8.5.2
Data logger	OEM blue colour worker Service engineer	Unit optimisation in test lab Unit trouble shooting in field	Section 8.5.1

Tab 2_[Functions]

3.1| CAN gateway

- » data transfer to and from PC up to 1Mbit;
- » PC can show, log and process data in RT;
- » PC can write data in RT and program any device on the net.

3.2| RS485 gateway

- » data transfer to and from PC up to 38400bit.

3.3| Programming module

- » connection on CAN or RS485 network;
- » direct connection (peer to peer) or on the whole network;
- » programming of bios, application and user interface files.

3.4| CAN log

- » connection on CAN network and log of raw CAN communication on memory card.

3.5| Data logger

- » an MCX application program created on the MCX development system can be run on MMIMYK and has in addition to normal functions also the capability to sample data from the networks(CAN/RS485) and store them in files on the FLASH memory filesystems in a user defined format.

4| Connections structure

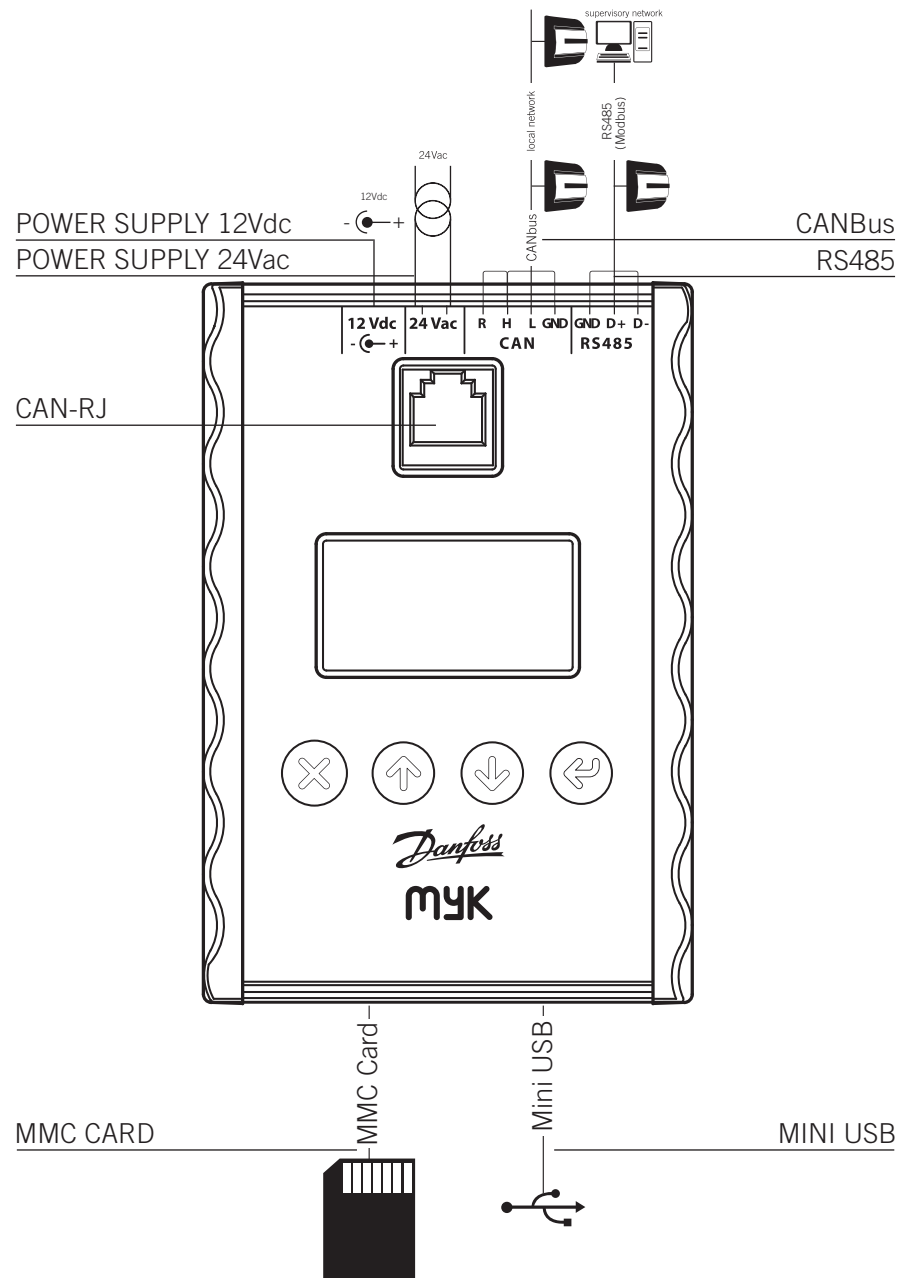


Fig 3_[Connections structure]

4.1| Connectors

- » CAN-RJ connectors 6/6 way telephone RJ11 plug type;
- » power supply connectors DC JACK Ø 3.5 x 1.3mm type;
- » power supply 24Vac connectors 2 way screw plug-in connector type pitch 3.5mm; section cable 0.08-1,5mm²;
- » CAN connectors 4 way screw plug-in connector type pitch 3.5mm; section cable 0.08-1,5mm²;
- » RS485 connectors 3 way screw plug-in connector type pitch 3.5mm; section cable 0.08-1,5mm²;
- » USB connectors: mini USB type B;
- » MMC connectors for memory card up to 2GB.

5| **Components**

5.1| *User interface*

- » membrane switch having four keys;
- » graphic OLED display 128x64;
- » buzzer - 4KHz.

5.2| *Communications*

- » CAN bus (SN65HVD251 transceiver with slope control);
- » RS485 / TTL;
- » USB 2.0.

5.3| *Memories*

- » EEPROM: 1KByte;
- » internal FLASH: 2MByte . It is handled as a filesystem where only short names are allowed (8+3 characters);
- » 64kB available for custom application made with MCX development systems.

5.4| *Miscellaneous*

- » RTC with backup battery.

5.5| *Expansion*

- » MMC/ Card reader (compatible with FAT12/16/32 filesystems
Only short names are allowed (8+3 characters).

6| **Board pinout**

INPUT OUTPUT PINS AVAILABLE			
Pin	Signal	Description	Note
USB TYPE B			
1	+5V		Max 450mA
2	USB+		
3	USB-		
4	GND		
RJ11			
1	+12V		
2	MCXLink		
3	CANH		
4	CANL		
5	GND		
MMC Card			
RS 485			
1	GND		
2	A		
3	B		
12VDC Input			
0	GND		
1	12V	Internal pin	
24VAC Input			
1	G0		Dedicated transformer is recommended
2	G1		

Tab 3_[Board pinout - Input output pins available]

7| **Environmental conditions**

- » operational temperature range: -10 to +70°C;
- » storage temperature range: -20 to +80°C;
- » rel. humidity: max. 90%, non condensing.

8| **MMIMYK functions description**

8.1| **General info**

8.1.1| *Memory card*

The MMC card does not have keying and can be inserted the wrong way. No damage occurs but it has to be turned the correct way. The contact pins of the card should be on the top side.

When extracting the memory card do not pull directly the card out but use the push-push mechanism.

8.1.2| *Format*

The memory cards must be formatted either by using the corresponding command on MMIMYK or directly on the PC selecting FAT32.

8.1.3| *Power to target device*

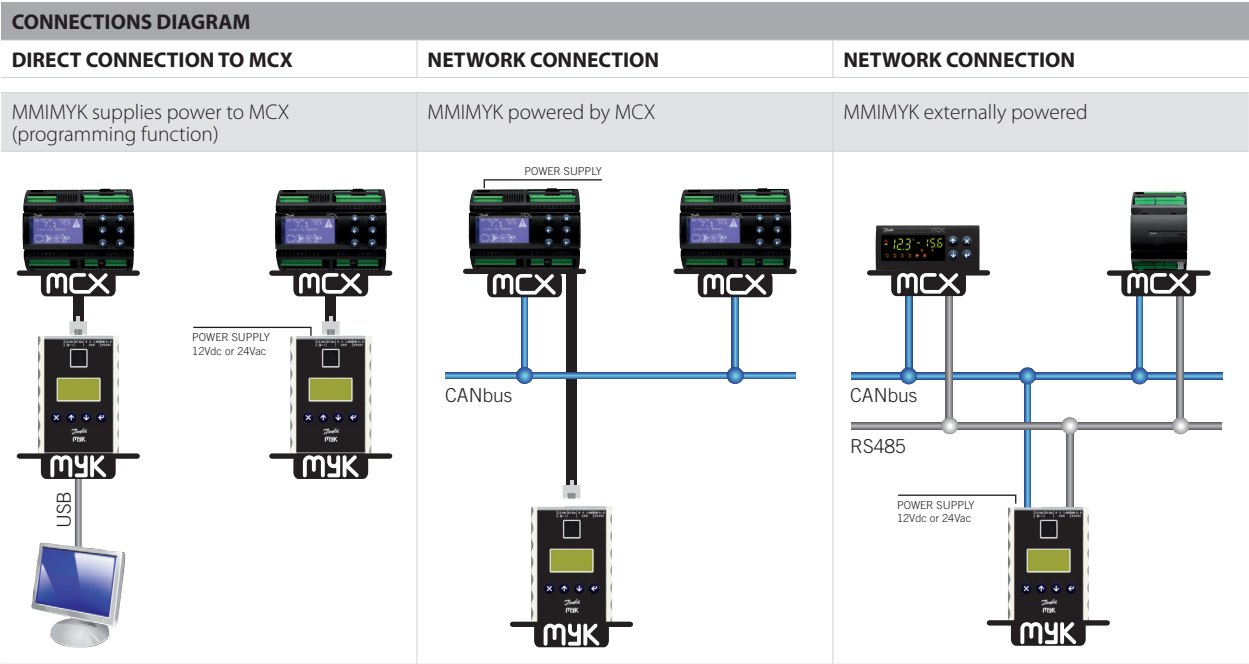
MMIMYK is capable of powering the target device when it downloads software or parameters. To have this functionality it is necessary to connect MMIMYK directly to the device using RJ11 cable.*



*This programming mode is compatible with the following devices:

- » MCX08/15/20 with bios version 3v38 or later.
- » MMIGRS.
- » MCX06 (only on the 256K version).

8.2| **Connections diagrams**



Tab 4_[MMIMYK functions description - Connections diagram]

MMIMYK has the following options for being powered:

- » power form USB port (galvanic isolation with respect to other connections);
- » 12VDC form RJ11;
- » 24VAC on the screw connector;
- » 12VDC form DC connector.

8.3| Info layout on display

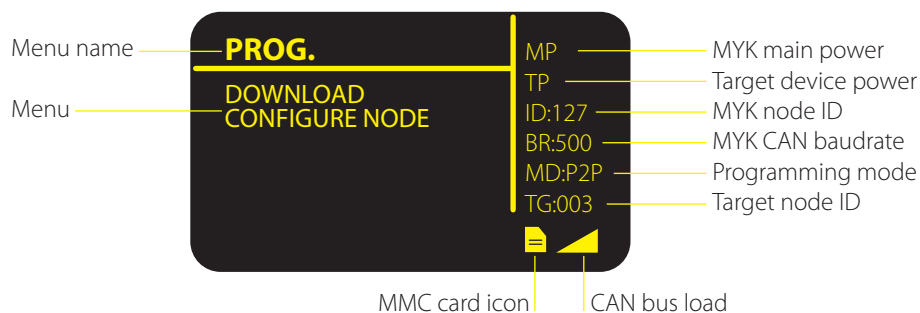


Fig 4_ [MMIMYK functions description - Info layout display]

8.4| Gateway

8.4.1| Activating the gateway

The gateway function makes it possible to read the whole bus communication and to transmit messages on the selected net (CAN or RS485).

The user can take advantage of the gateway functionality by using either MYKMANAGER PC tool or by using a custom developed PC program that reads/writes the communication data through "myklib.dll".

8.5| Logger

8.5.1| Virtual machine logging

The data logging can be freely programmable using the virtual machine. A VM program can read at user defined sample rates (using the multithread feature) data from devices on the CAN/RS485 networks and write the data on files on MMC card or internal Flash memory in any desired format.

To start logging follow the steps:

- » load application file into MMIMYK execution memory. Select "LOAD APPL." in the application menu, browse the memories;
- » start application by selecting the menu:

Main Menu

```
|...
|--APPLICATION
|---START
|---LOAD APPL.*
```



* To exit from application press "ESC" and "ENTER" for at least three seconds.

8.5.2| CAN logging

The basic logger functionality is available for the CAN traffic. The logging function can be activate by selecting the corresponding menu item.

Main Menu

```
|-----|
|----- UTILITIES
|-----DISKS
|-----CANBUS LOG < -----
|-----|
```

The function is only active if a formatted memory card is inserted. The user can select the file number and after that a log file is created: **1:/log/canlogxx.txt**.

It is important to close correctly the log file by pressing the ESC key before extracting the memory card.

When the memory is full MMIMYK closes the file and returns automatically to the main menu.

The Bus Log files are text files that can be read with any editor. The first line contains the date and time of the log activation. Then each line contains the timestamp (milliseconds) , the CAN bus ID (hexadecimal) , message length and message content (bytes in hexadecimal). Also communication and other errors are reported on single lines.

Example log file:



```
> CANbus LOG START: 08/09/30 15:36:40
000000510 004083 8 40 16 10 01 00 00 00 00
000000511 008181 8 43 16 10 01 FF 08 00 00
000000511 008181 8 43 16 10 01 FF 08 00 00
000000511 004083 8 40 16 10 01 00 00 00 00
000000511 004083 8 40 16 10 01 00 00 00 00
000000511 008181 8 43 16 10 01 FF 08 00 00
000000511 008181 8 43 16 10 01 FF 08 00 00
000000511 004083 8 40 16 10 01 00 00 00 00
000000512 004083 8 40 16 10 01 00 00 00 00
000000512 008181 8 43 16 10 01 FF 08 00 00
000000512 004083 8 40 16 10 01 00 00 00 00
000000515 004083 8 40 16 10 01 00 00 00 00
000000515 004083 8 40 16 10 01 00 00 00 00
000000515 004083 8 40 16 10 01 00 00 00 00
000000515 004083 8 40 16 10 01 00 00 00 00
000000516 004083 8 40 16 10 01 00 00 00 00
|         | |-----|
|         | |         |
Timestamp COBID DLR Message.....
[milliseconds]
```

8.6| Programmer

8.6.1| Before starting

- » set MMIMYK baudrate to the same baudrate as the target device;
- » make sure that MMIMYK has a valid node ID;
- » download the directories with the programming files to the internal flash of MMIMYK or on a memory card. (see "9] MMIMYK programming configuration file").

8.6.2| Programming

The programming menu has the following options:

Program:

```
|----Download
|----Configure Node
|----Target Sel.
|----Advanced
```

Download:

navigate on the disks and enter in the directory containing the files to be downloaded. MMIMYK recognizes that it is a leaf directory and shows a list for selecting which types of files should be downloaded:

```
|----ALL
|----APPLICATION
|----BIOS
|----ODE (user interface files)
```

Once selected the option MMIMYK starts with the download.

Configure Node:

it is possible to setup node ID and baudrate of the target node.

LSS

```
|----NODE ID
|----BAUDRATE*
```



** Both commands have effect on all active nodes on the network. Therefore the NODE ID command should be used if there is only one active node on the network!*

Select target:

with this submenu it is possible to configure the target to which the software should be downloaded:

```
|----PEER2PEER
|----NODE ID
|----ALL
|----RS485
|----LOCAL
```

PEER2PEER: MMIMYK recognizes automatically the device to which it is connected (either direct RJ11 connection or on the network with only one device active).

NODE ID: Specify directly the target node ID.

ALL: MMIMYK monitors the whole CAN network with the CAN open Heartbeat function and downloads the software to all devices in sequence according to the rules defined in the configuration file *mmimyk.cfg*.

RS485: Single node on RS485 is selected.

LOCAL: the local MMIMYK is selected as target.*



*The first three modes select the CAN bus.

Advanced:

from the advanced menu further actions are possible:

```
|----FACTORY MODE
|----NODE INFO
|----PRG.OPTIONS
|----ERASE LOG
```

Factory mode:

it is possible to enter the Factory Mode with the following steps:

- » enter the factory menu from the main menu;
- » enter password;
- » select drive (0:/ or 1:/).

Once the mode is activated the user can only explore the directories of the previously selected drive and activate the download of its content according to the corresponding *mmimyk.cfg* configuration file. Also the baudrate, node ID and programming mode settings can be setup automatically from the configuration file.

To exit the Factory Mode follow the steps:

- » from the explore menu press the ESC key for at least three seconds;
- » enter the password.**



**La password può essere resettata da MYKMANAGER.

Node info:

this command retrieves and displays some relevant information about the actual target device. In particular are shown:

- » node ID;
- » device Name;
- » product Code;
- » serial Number,
- » bios Version.

PRG. Options:

PRG Options Menu

- |---- BR Linked with target:
- |---- BR reset after prg
- |---- BR stored in EE
- |---- Log only prg. Error
- |---- PRG: STOP ON ERROR

BR Linked with target: when configuring the target node baudrate also MMIMYK baudrate is changed accordingly.

BR reset after prg: after successful programming MMIMYK baudrate is changed back to the initial baudrate.

BR Stored in EE: when configuring the target node baudrate the MMIMYK baudrate is also stored in non volatile memory, so it remains unchanged after powerup.

Log only prg. error: while programming MMIMYK logs only the download actions that fail.

PRG: Stop on error: if this option is checked the programming process is stopped as soon as any error occurs. Otherwise the process continues with the successive download tasks.

Erase Log:

erases the file that logs the programming operations.

8.6.3 | *Additional functions*

MMIMYK logs automatically all the programming actions when an external memory card is inserted. Each time the user requests programming of a device MMIMYK appends the new data.

The log file is always "1:/log/prglog.txt".

8.7 | *Menus and utilities*8.7.1 | *CAN settings*

From the CAN menu all settings that are relevant for the CAN bus can be done. The CAN menu is entered from the main menu:

Main menu:

- |---- Program
- |----
- |---- CAN SETTINGS <-----

From the submenu it is possible to select among the following options:

CAN menu:

- |---- NODE ID
- |---- BAUDRATE
- |---- ACTIVE NODES
- |---- ADVANCED
 - |---- SET HEARTBEAT
 - |---- ERASE ALL FDs
 - |---- DIAGNOSTICS

Node ID:

set up MMIMYK CAN node ID [1...127]. The setting of 127 is recommended.

Baudrate:

setup the CAN baudrate at which MMIMYK should communicate.

Active nodes:

a network map of all active nodes is shown. Active devices are identified by "1" whilst MYK itself is identified by "L". The network map is updated continuously based on CAN open user and consumer heart beat.

Set heartbeat:

this selection programs via CAN the heartbeats of all active nodes to the default values:

- » consumer heartbeat = 2.3sec;
- » producer heartbeat = 2.0sec.

Diagnostics:

the CAN diagnostics page shows the following information:

- » actual baudrate;
- » TX: transmitted frames;
- » RX: received frames;
- » TX ERROR LEVEL: 0..255;
- » RX ERROR LEVEL: 0..255.

The error level is a number between 0 and 255. The number reveals the following:

- » level=0 No communication errors;
- » 0<Level<64 communication errors occur;
- » 64<Level<128 severe communication problems;
- » 128<Level<255 communication failure;
- » number is increasing communication is deteriorating;
- » number is decreasing communication is improving.

8.7.2 | General settings

Main menu:

```
|---- PROGRAM
|---- .....
|---- GEN SETTINGS <-----
```

From the submenu it is possible to select among the following options:

Settings menu:

```
|---- RS485
|---- DISPLAY
|---- BUZZER
|---- DATE/TIME
|---- LANGUAGE
```

RS485 menu:

```
|---- Baudrate
|---- Protocol
```

From the RS485 submenu it is possible to select the baudrate and protocol settings for RS485 communication. The settings are saved in non volatile memory and remain unchanged after a powerup.

Display:

display settings.

Buzzer:

buzzer volume setting.

Date/Time:

setup date and time of the Real Time Clock. Once the settings are done the clock will keep time and goes on working also when MMIMYK is not powered.

Language:

select desired language for MMIMYK user interface.

8.7.3| Utilities

enter the menu from main menu:

Main menu:

```
|---- PROGRAM
|---- .....
|---- UTILITIES <----
```

From the submenu it is possible to select among the following options:

Settings menu:

```
|---- DISKS
|---- EXPLORE
|---- INFO
|---- FORMAT
|---- CANBUS LOG
|---- POWER
```





Explore:

the user can explore the filesystem on the two disks:

- » 0/ internal flash drive;
- » 1/external memory card.

The directories are identified by a leading slash "/ ". The others are files.

By pressing  with a highlighted directory, it is entered and its contents is shown on the display.

By pressing  with a highlighted file, the file is displayed as a text file. By pressing the  and  it is possible to scroll up or down the file content. While the file is displayed if  is pressed for 3s it will be erased from the disk.

Info:

the remaining free memory is displayed for the two drives.

Format:

the internal or external drive is formatted.*



* This operation erases all data present on the selected drive.

CAN bus log:

(see "8.5.2] CAN logging").

Power:

displays MMIMYK power supply information.

9| MMIMYK programming configuration file

9.1| File structure

MMIMYK has a filesystem on the internal FLASH and supports FAT filesystem on memory cards. The user can store as many programming files as there is memory on the device following some rules:

- » only short names are allowed (DOS format 8 characters + 3 characters for the extension);
- » the files must be ordered in sets using different directories, called leaf directories;
- » each leaf directory must contain a configuration file and may not contain further directories.

9.2| The configuration file

The file should be included in the leaf directories on MMIMYK that contain files to be transferred on other devices (bios, applications, user interface files, other). The configuration file should contain a line (a description) for each file of the directory with its download rules.

9.3| Configuration file specification

9.3.1| Name

The name of the configuration file must always be *"mmimyk.cfg"*!

9.3.2| Format

The descriptors consists of textlines having the following entries.

XCMD FIELD1 FIELD2 OPT1 OPT2.....

- » X: command prefix (see "9.3.2] Tab_5 Configuration file - X");
- » CMD: command type (see "9.3.2] Tab_6 Configuration file - CMD");
- » FIELD1 and FIELD2 sono obbligatori ove richiesto (see "9.3.2] Tab_6 Configuration file - CMD");
- » OPT: optional entries (see "9.3.2] Tab_8 Configuration file - options").

X: defines when the command is executed:

CONFIGURATION FILE - X		
X	Allowed commands	Note
>	ERFD; DELSx ;SMOD; SLBR; SRBR; SRID	Command executed once at the beginning
!	DOWN; ERFD;DELSx	Commands are executed for each target node
<	ERFD; DELSx ; SLBR; SRBR	Command executed once at the end

Tab 5_[MMIMYK programming configuration file - X]

CMD: name of command to be executed:

CONFIGURATION FILE - CMD				
CMD	FIELD1	FIELD2	FIELD3	Note
DOWN	FILENAME	TYPE	-	Download
ERFD	-	-	-	Erase flashdisk
DELS	seconds	-	-	Indicates delay after operation in seconds. The command is executed only if the preceding operation has been executed and the options are fulfilled
SMOD	[P2P; ALL; IDX; 485]	Only if first field=IDX: [1..127]	-	Set connection mode
SLBR	[0..9]	-	-	Set local baudrate
SRBR	[0..9]	-	-	Set remote baudrate
SRID	[1..127]	-	-	Set remote node ID

CONFIGURATION FILE - CMD				
CMD	FIELD1	FIELD2	FIELD3	Note
RW01	CAN open index (ex. 0x2001)	CAN open subindex (ex.0x01)	Value	Write 8bit value (Field3) to the specified OD entry
RW02	RW02 CAN open index (ex. 0x2001)	CAN open subindex (ex.0x01)	Value	Write 16bit value (Field3) to the specified OD entry
RW04	CAN open index (ex. 0x2001)	CAN open subindex (ex.0x01)	Value	Write 32 bit value (Field3) to the specified OD entry

Tab 6_[MMIMYK programming configuration file - CMD]

Baudrate values:

CONFIGURATION FILE - BAUDRATE VALUES	
Value	Baudrate
0	1M
1	Reserved
2	500K
3	250K
4	125K
5	Reserved
6	50K
7	20K
8	Reserved
9	Autobaud (if available)

Tab 7_[MMIMYK programming configuration file - Baudrate values]

Options:

CONFIGURATION FILE - OPTIONS				
Option	First field	Note	CAN	RS485
CHKN	Name of device (ex. MCX08M)	The file is transferred only if the devicename matches	Supported	Ignored
CHKS	Software code	The file is transferred only if the software code matches	Supported	Ignored
CHKI	Node ID	The file is transferred only to the specified target node ID	Supported	Ignored
CHKC	Bios code	The file is transferred only if the bios code corresponds	Supported	Supported

Tab 8_[MMIMYK programming configuration file - Option]

The options can be used in order to execute the command only if the actual target device matched the specified requirements. For each command one or more options can be specified, but they must be of different type!*



* That the options have different behaviour depending whether CAN or RS485 has been selected.

Filename:

name of file in 8+3 DOS format (case sensitive!).

Type: defines the type of file and the target location:

CONFIGURATION FILE - FILE NAME			
Type	First parameter	Second parameter	Note
BIOS	-	-	Bios
APPL	-	-	Application
ID0x	CAN open index (ex. 0x2001)	CAN open subindex (ex.0x01)	Target is generic entry
PACK	-	-	Package with application and eventually user interface

Tab 9_ [MMIMYK programming configuration file - File name]

9.3.3| Example files

Example file 1 (specific targets are selected)

```
!DOWN algo.o APPL CHKN MCX08M
!ERFD CHKN MCX08M
!DOWN desc.bin ID0x5FFF 0xFE CHKN MCX08M
!DOWN graph.bin ID0x5FFF 0x06 CHKN MCX08M
!DOWN useri.o ID0x5FFF 0x07 CHKN MCX08M

!DOWN mrmain.o APPL CHKN MCX20B
!ERFD CHKN MCX08M
!DOWN mrdesc.bin ID0x5FFF 0xFE CHKN MCX20B
!DOWN mrgraph.bin ID0x5FFF 0x06 CHKN MCX20B
!DOWN mrchui.o ID0x5FFF 0x07 CHKN MCX20B
!DOWN algo.o APPL CHKI 24
```

Example file 2 (no specific target)

```
!DOWN desc.bin ID0x5FFF 0xFE
!DOWN graph.bin ID0x5FFF 0x06
!DOWN useri.o ID0x5FFF 0x07
!DOWN algo.o APPL
```

Example file 3 (bios update)

```
!DOWN 06c_id01.bin BIOS CHKN MCX06C
!DOWN 06d_id03.bin BIOS CHKN MCX06D
!DOWN 08m_id05.bin BIOS CHKN MCX08M CHKC 7
!DOWN 20b_id07.bin BIOS CHKN MCX20B
```

Example file 4 (peer to peer, configure target node, download files...)

```
>SLBR 6
>SRID 126
>SMOD IDX 126
>DELS 1
>SRBR 0
>SLBR 0
>DELS 1
!ERFD
!DOWN desc.bin ID0x5FFF 0xFE
!DOWN graph.bin ID0x5FFF 0x06
!DOWN useri.o ID0x5FFF 0x07
!DOWN algo.o APPL CHKN MCX08M
!DELS 1
```

Example file 5 (OEM with in-lone programming)

```
>SMOD ALL
!DOWN algo1.0 CHKN MCX06D
!DOWN algo2.0 CHKN MCX20B
!DOWN desc.bin ID0xFE CHKN MCX20B
!DOWN mi.o ID0x06 CHKN MCX20B
```

Example file 6 (OEM back-office programming)

```
>SMOD IDX 5
>SRID 5
!DOWN algo.0
!DOWN mrdesc.bin ID0x5FFF 0xFE
!DOWN mrdesc.bin ID0x5FFF 0x06
!DOWN mrdesc.bin ID0x5FFF 0x07
```

10| **General info**

10.1| *Limitations*

10.1.1| *Filesystem*

- » maximum path length is 256 characters;
- » only short names are accepted (8 characters for name + 3 for extension);
- » internal Flash Memory size: 2Mbytes.

10.1.2| *CAN bus*

- » in CAN gateway mode MMIMYK is capable of transferring 100% of the communication to PC at CAN baudrates going from 20k up to 500k. At 1Mbit it is able to transfer approx. 70% of full load communication.

10.1.3| *RS485*

- » the maximum RS485 baudrate working correctly is 38400.

Table index

Tab 1_	[Introduction - References]	4
Tab 2_	[Functions]	6
Tab 3_	[Board pinout - Input output pins available]	9
Tab 4_	[MMIMYK functions description - Connections diagram]	10
Tab 5_	[MMIMYK programming configuration file - X]	18
Tab 6_	[MMIMYK programming configuration file - CMD]	19
Tab 7_	[MMIMYK programming configuration file - Baudrate values]	19
Tab 8_	[MMIMYK programming configuration file - Option]	19
Tab 9_	[MMIMYK programming configuration file - File name]	20

Figure index

Fig 1_	[Mechanics data - Graphic design]	5
Fig 2_	[Mechanics data - Dimensions]	5
Fig 3_	[Connections structure]	7
Fig 4_	[MMIMYK functions description - Info layout display]	11



Danfoss Electronics spa

Viale Venezia, 59
31020 San Vendemiano
(TV) Italy

Tel: +39 0438 336611
Fax: +39 0438 336699

info@danfosselectronics.com
www.danfosselectronics.com